OEM / Factory recovery partition creator - 4.0.1

By AnarethoS

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1 Introduction

1.1 Description

The purpose of this software is to help create a factory reset option on a computer running Windows 7, 8, 8.1 or 10. A factory reset solution allows the end user to completely reinstall Windows on their personal computer from a hidden recovery partition. During the recovery process the user can decide to keep, or not, their personal files.

This solution is similar to what can be found on brand name computer on the market. Inspired by Microsoft documentation this software adds some functionalities like offline file browsing, registry edition, etc.

Since this software depends on some proprietary files from Microsoft, you will have to download Windows AIK (**Windows 7**), Windows ADK (**Windows 8/8.1**) or Windows ADK (**Windows 10**).

This software requires particular partition layout and cannot be used on an already installed version of Windows. This software will be incorporated into your installation process (partition creation, audit mode, OOBE, etc.).

1.2 What this software can do

- Reinstall Windows without losing any personal file
- Do a clean installation of Windows, removing all personal files
- Create recovery media (USB or DVD, depending of the OS) that can be used to completely reinstall Windows on a new hard disk on the same computer
- Allows you to access personal files even if Windows is not working by using an offline file browser

1.3 What this software cannot do

- Backup you current Windows installation
- Create recovery partition on an existing Windows installation
- Create a generic recovery media to use on different computer
- Update the factory image (except under Windows 8)

1.4 Target audience and required skills

- This software is intended for computer technician who build computer for their clients or themselves and that want to have an option to revert to a factory image
- This software is not intended for those who don't have strong computer knowledge
- This software suppose you have basic to medium skill with
    - Windows installation
    - DISKPART
    - CMD scripts
    - DISM
    - SYSPREP
- Also, although not required, knowledge of AUTOIT scripting may be required if you want to edit or change the GUI behavior

1.5 Don't use this software if…

- You are an end-user without computer skill
- If you still think this software is a backup software
- If you are not able to "read between the lines" and must ask question for everything which is not documented
- If you are not willing to do a lot of test in a virtual environment or on physical system to find the best configuration scenario for your needs

2 Features comparison

This section enumerates the different options available per operating system. Available feature in GREEN are not part of the default functionalities of the operating system for the recovery process and are added by this software.

2.1 Windows 7

Feature	Available
Factory reinstall – Delete all files	Yes
Factory reinstall – Keep personal files	Yes
Offline file browser	Yes
Offline registry editor	Yes
USB media creation	Yes
DVD media creation	Yes
Recovery menu with links to different tools	Yes
Image update	No
UEFI support	Yes
BIOS support	Yes

2.2 Windows 8/8.1

Feature	Available
Factory reinstall – Delete all files	Yes
Factory reinstall – Keep personal files	Yes
Offline file browser	Yes
Offline registry editor	No
USB media creation	Yes
DVD media creation	Yes
Recovery menu with links to different tools	Yes
Image update	Yes
UEFI support	Yes
BIOS support	Yes

2.3 Windows 8.1 Update 1 – WIM Boot

Feature	Available
Factory reinstall – Delete all files	Yes
Factory reinstall – Keep personal files	Yes
Offline file browser	Yes
Offline registry editor	No
USB media creation	Yes
DVD media creation	No
Recovery menu with links to different tools	No
Image update	No
UEFI support	Yes
BIOS support	No

2.4 Windows 10

Feature	Available
Factory reinstall – Delete all files	Yes
Factory reinstall – Keep personal files	Yes
Offline file browser	Yes
Offline registry editor	Yes
USB media creation	Yes
DVD media creation	No
Recovery menu with links to different tools	Yes
Image update	No
UEFI support	Yes
BIOS support	Yes

3 Requirements

3.1 Windows 7

From the Windows 7 AIK, you will need the following files:

- IMAGEX.EXE (32 and 64 bits version)
- OSCDIMG.EXE (32 bits version)

Copy IMAGEX.EXE (32 bits version) to:

- \Windows 7\Windows 7 Recovery Tools\ImageX\32bits

Copy IMAGEX.EXE (64 bits version) to:

- \Windows 7\Windows 7 Recovery Tools\ImageX\64bits

Copy OSCDIMG.EXE (32 bits version) to:

- \Windows 7\Windows 7 Recovery Tools\OscdImg

3.2 Windows 8/8.1

From Windows 8/8.1 ADK, you will need to provide the following files:

- OSCDIMG.EXE (32 bits version)

From the installation media (DVD/USB) you will need to provide the following files:

- BOOT folder
- EFI folder
- BOOTMGR file
- BOOTMGR.EFI file

Copy the OSCDIMG.EXE file to:

- \Windows 8\Windows 8 Recovery Tools\OscdImg

Copy the installation media files (BOOT, EFI, BOOTMGR, and BOOTMGR.EFI) to:

- \Windows 8\Windows 8 Recovery Tools\Boot

3.3 Windows 8.1 Update 1 – WIM Boot

No files are required for this installation.

3.4 Windows 10

From Windows 10 ADK, you will need the following files:

- SCANSTATE files (32 and 64 bits versions)

Sources files for 64 bits version are in the following two (2) folders:

- C:\Program Files (x86)\Windows Kits\10\Assessment and Deployment Kit\User State Migration Tool\amd64
- C:\Program Files (x86)\Windows Kits\10\Assessment and Deployment Kit\Windows Setup\amd64\Sources

Sources files for 32 bits version are in the following two (2) folders:

- C:\Program Files (x86)\Windows Kits\10\Assessment and Deployment Kit\User State Migration Tool\x86
- C:\Program Files (x86)\Windows Kits\10\Assessment and Deployment Kit\Windows Setup\amd64\x86

Copy the 32 bits files to:

- \Windows 10\Windows 10 Recovery Tools\Recovery\OEM\ScanState\x86

Copy the 64 bits files to:

- \Windows 10\Windows 10 Recovery Tools\Recovery\OEM\ScanState\amd64

4 Installation

4.1 Windows 7

4.1.1 Supported configuration

Resizable: If "YES", you can edit the script to change the partition size to fit your needs. If "No", please don't try to change the specified size without testing first.

Name	GPT					
Installation script path	\Windows 7\AutoUnattend\GPT					
Settings files path	\Windows 7\Windows 7 Recovery Tools\Settings - Examples\GPT					
Target system	UEFI / GPT					
Partition #	**Size**	**File system**	**Volume name**	**Partition type**	**Role**	**Resizable?**
0	12 000 Mb	NTFS	Recovery	Primary	Recovery image and tools	Yes
1	150 Mb	FAT32	System	EFI	Boot	No
2	128 Mb	MSR	N/A	MSR	System reserved	No
3	All	NTFS	Windows	Primary	OS	N/A

Name	MBR					
Installation script path	\Windows 7\AutoUnattend\MBR					
Settings files path	\Windows 7\Windows 7 Recovery Tools\Settings - Examples\MBR					
Target system	BIOS / MBR					
Partition #	**Size**	**File system**	**Volume name**	**Partition type**	**Role**	**Resizable?**
0	12 000 Mb	NTFS	Recovery	Primary	Recovery image and tools	Yes
1	150 Mb	NTFS	System	Active	Boot	No
2	All	NTFS	Windows	Primary	OS	N/A

4.1.2 USB drive preparation

- Format an USB drive using FAT32
- Make the device bootable using DISKPART, Disk Manager or other way
- Copy the whole installation disc on the USB drive
- From the “Installation script path” identified in the previous step, copy the AutoUnattend.xml file to the ROOT of the drive
- From the “\Add-On\Ei.Cfg” folder, copy the “Ei.cfg” file to the SOURCES folder of the USB drive
- Copy the whole recovery software (the whole package) on the USB drive in a new folder of your choice
- The device is now ready to be used on the target computer

4.1.3 Windows installation

- Connect the USB drive on the target computer and boot the computer from the drive
- Start the Windows installation and wait until it reboot into AUDIT mode
- Now Windows is installed, in AUDIT mode and ready to be adapted to your needs.

4.1.4 Windows customization

- You can now install all Windows software, drivers and updates you want in the final factory image
- When your installation is complete, disconnect the computer from the network and reboot a last time to be sure no Windows update are pending, etc.

4.1.5 Installing recovery software

- From "\Windows 7\Windows 7 Recovery Tools\Settings – Examples\<Desired configuration>", copy all files to "\Windows 7\Windows 7 Recovery Tools\Settings"
    - <Desired configuration> must match the one used to install Windows on the computer, if the partition number mismatch you will have to restart from the beginning!
- Execute the Update_Settings.cmd script from "\Windows 7\Windows 7 Recovery Tools"
- Copy the "Installer" folder on the desktop
- Remove all USB drive
- From the copied "Installer" folder, execute the "Install - Windows 7.cmd" script
- Sysprep will be executed, the computer will reboot to capture the recovery image and then shutdown

4.1.6 Accessing recovery tools

- Using the "Recovery Tools" icon in the start menu
- Pressing F7 during the boot process
    - The key can be changed in SETTINGSRE.TXT. See the "Settings file explanation" section

4.1.7 Customization

Partition layout can be modified to suit your needs. To do so, edit the "AutoUnatted.xml", "ReCreatePartitions.txt", "ResetConfig.xml" and "SettingsRE.txt" files to make your change.

When using "AutoUnattend.xml" file, only the LAST partition can be of dynamic size. If this is not the case, you will have to create a DISKPART script to use during the Windows installation step to configure your partitions layout.

4.2 Windows 8/8.1

4.2.1 Supported configuration

Resizable: If "YES", you can edit the script to change the partition size to fit your needs. If "No", please don't try to change the specified size without testing first.

Name	Image on the last partition - GPT					
Installation script path	\Windows 8\AutoUnattend\Image on the last partition\GPT					
Settings files path	\Windows 8\Windows 8 Recovery Tools\Settings - Examples\Image on the last partition\GPT					
Target system	UEFI / GPT					
Partition #	**Size**	**File system**	**Volume name**	**Partition type**	**Role**	**Resizable?**
0	1000 Mb	NTFS	Recovery	Primary	Recovery tools	Yes
1	150 Mb	FAT32	System	EFI	Boot	No
2	128 Mb	MSR	N/A	MSR	System reserved	No
3	All	NTFS	Windows	Primary	OS	N/A
4	12 000 Mb	NTFS	RecImage	Primary	Recovery image	Yes

Name	Image on the last partition - MBR					
Installation script path	\Windows 8\AutoUnattend\Image on the last partition\MBR					
Settings files path	\Windows 8\Windows 8 Recovery Tools\Settings - Examples\Image on the last partition\MBR					
Target system	BIOS / MBR					
Partition #	**Size**	**File system**	**Volume name**	**Partition type**	**Role**	**Resizable?**
0	1000 Mb	NTFS	Recovery	Primary	Recovery tools	Yes
1	150 Mb	NTFS	System	Active	Boot	No
2	All	NTFS	Windows	Primary	OS	N/A
3	12 000 Mb	NTFS	RecImage	Primary	Recovery image	Yes

Name	Image on the second partition - GPT					
Installation script path	\Windows 8\AutoUnattend\Image on the second partition\GPT					
Settings files path	\Windows 8\Windows 8 Recovery Tools\Settings - Examples\Image on the second partition\GPT					
Target system	UEFI / GPT					
Partition #	**Size**	**File system**	**Volume name**	**Partition type**	**Role**	**Resizable?**
0	1000 Mb	NTFS	Recovery	Primary	Recovery tools	Yes
1	12 000 Mb	NTFS	RecImage	Primary	Recovery image	Yes
2	150 Mb	FAT32	System	EFI	Boot	No
3	128 Mb	MSR	N/A	MSR	System reserved	No
4	All	NTFS	Windows	Primary	OS	N/A

Name	Image on the second partition - MBR					
Installation script path	\Windows 8\AutoUnattend\Image on the second partition\MBR					
Settings files path	\Windows 8\Windows 8 Recovery Tools\Settings - Examples\Image on the second partition\MBR					
Target system	BIOS / MBR					
Partition #	**Size**	**File system**	**Volume name**	**Partition type**	**Role**	**Resizable?**
0	1000 Mb	NTFS	Recovery	Primary	Recovery tools	Yes
1	12 000 Mb	NTFS	RecImage	Primary	Recovery image	Yes
2	150 Mb	NTFS	System	Active	Boot	No
3	All	NTFS	Windows	Primary	OS	N/A

4.2.2 USB drive preparation

- Format an USB drive using FAT32
- Make the device bootable using DISKPART, Disk Manager or other way
- Copy the whole installation disc on the USB drive
- From the "Installation script path" identified in the previous step, copy the AutoUnattend.xml file or the DISKPART script (TXT file) to the ROOT of the drive
- From the "\Add-On\Ei.Cfg" folder, copy the "Ei.cfg" file to the SOURCES folder of the USB drive
- Copy the whole recovery software (the whole package) on the USB drive in a new folder of your choice
- The device is now ready to be used on the target computer

4.2.3 Windows installation

- Connect the USB drive on the target computer and boot the computer from the drive
- If you are using an AutoUnattend.xml file, simply start the Windows installation but if you are using a DISKPART script, do the following
    - Press SHIFT+F10 to open a command prompt
    - Type "DISKPART /S D:\ScriptName.txt"
        - Where D is the letter of the USB drive
        - Where ScriptName.txt is the name of the DISKPART script copied from the "Installation script path"
    - Install Windows on the WINDOWS partition
- If using an AutoUnattend.xml file, the computer will boot in AUDIT mode but if you are using a DISKPART script, do the following
    - On the final boot, where you are asked to configure the computer (OOBE), press CTRL+SHIFT+F3 to reboot in AUDIT mode
- Now Windows is installed, in AUDIT mode and ready to be adapted to your needs.

4.2.4 Windows customization

- You can now install all Windows software, drivers and updates you want in the final factory image
- When your installation is complete, disconnect the computer from the network and reboot a last time to be sure no Windows update are pending, etc.

4.2.5 Installing recovery software

- From "\Windows 8\Windows 8 Recovery Tools\Settings – Examples\<Desired configuration>", copy all files to "\Windows 8\Windows 8 Recovery Tools\Settings"
    - <Desired configuration> must match the one used to install Windows on the computer, if the partition number mismatch you will have to restart from the beginning!
- Execute the Update_Settings.cmd script from "\Windows 8\Windows 8 Recovery Tools"
- Copy the "Installer" folder on the desktop
- Remove all USB drive
- From the copied "Installer" folder, execute the "Install - Windows 8 and 8.1.cmd" script
- Sysprep will be executed, the computer will reboot to capture the recovery image and then shutdown

4.2.6 Accessing recovery tools

- Boot the computer in the Windows Recovery Environment by holding the SHIFT key when clicking in "Reboot" in Windows
- By rebooting three time in a row Windows during the boot process
- Using the "Recovery Tools" icon in the start screen

4.2.7 Customization

Partition layout can be modified to suit your needs. To do so, edit the "AutoUnatted.xml", "ReCreatePartitions.txt", "ResetConfig.xml" and "SettingsRE.txt" files to make your change.

When using "AutoUnattend.xml" file, only the LAST partition can be of dynamic size. If this is not the case, you will have to create a DISKPART script to use during the Windows installation step to configure your partitions layout.

4.3 Windows 8.1 Update 1 – WIM Boot

4.3.1 Supported configuration

Resizable: If "YES", you can edit the script to change the partition size to fit your needs. If "No", please don't try to change the specified size without testing first.

Name	GPT
Installation script path	\Windows 8.1 - WIM Boot\AutoUnattend\GPT
Settings files path	\Windows 8.1 Recovery Tools - WIM Boot\Settings - Examples\GPT
Target system	UEFI / GPT

Partition #	Size	File system	Volume name	Partition type	Role	Resizable?
0	10 000 Mb	NTFS	Recovery	Primary	Recovery tools and image	Yes
1	100 Mb	FAT32	System	EFI	Boot	No
2	128 Mb	MSR	N/A	MSR	System reserved	No
3	All	NTFS	Windows	Primary	OS	N/A

4.3.2 USB drive preparation

- Format an USB drive using FAT32
- Make the device bootable using DISKPART, Disk Manager or other way
- Copy the whole installation disc on the USB drive
- From the "Installation script path" identified in the previous step, copy the AutoUnattend.xml file to the ROOT of the drive
- From the "\Add-On\Ei.Cfg" folder, copy the "Ei.cfg" file to the SOURCES folder of the USB drive
- Copy the whole recovery software (the whole package) on the USB drive in a new folder of your choice
- The device is now ready to be used on the target computer

4.3.3 Windows installation

- Connect the USB drive on the target computer and boot the computer from the drive
- Start the Windows installation and wait until it reboot into AUDIT mode
- Now Windows is installed, in AUDIT mode and ready to be adapted to your needs.

4.3.4 Windows customization

- You can now install all Windows software, drivers and updates you want in the final factory image
- When your installation is complete, disconnect the computer from the network and reboot a last time to be sure no Windows update are pending, etc.

4.3.5 Installing recovery software

- From "\Windows 8.1 - WIM Boot\Windows 8.1 Recovery Tools - WIM Boot\Settings - Examples\GPT", copy all files to "\Windows 8.1 - WIM Boot\Windows 8.1 Recovery Tools - WIM Boot\Settings"
- Execute the Update_Settings.cmd script from "\Windows 8.1 - WIM Boot\Windows 8.1 Recovery Tools - WIM Boot"
- Copy the "Installer" folder on the desktop
- Remove all USB drive
- From the copied "Installer" folder, execute the "Install - Windows 8 and 8.1.cmd" script
- Sysprep will be executed, the computer will reboot to capture the recovery image, reapply it using WimBoot technology and then shutdown

4.3.6 Accessing recovery tools

- Boot the computer in the Windows Recovery Environment by holding the SHIFT key when clicking in "Reboot" in Windows
- By rebooting three time in a row Windows during the boot process

4.3.7 Customization

No customizations should be done for this scenario except for the size of the partitions. To do so, edit the "AutoUnattend.xml", "ResetConfig.xml", "ResetPartitions.txt" and "SettingsRE.txt". Be sure the partition order and size match between the files.

4.4 Windows 10

Compared to Windows 7 and 8, Windows 10 does not have a recovery image on a hidden partition. When reinstalling Windows, a new installation is constructed from the files of the previous one, keeping drivers and some updates. Normally, all applications are deleted. The use of this software allows keeping default application, since they will be saved in a PPKG file which will be reapplied once Windows is reinstalled.

4.4.1 Supported configuration

Resizable: If "YES", you can edit the script to change the partition size to fit your needs. If "No", please don't try to change the specified size without testing first.

Default: Default partition layout when installing Windows 10 without any scrip. In this scenario, the recovery tools are on the first partition.

Recommended: Based on Microsoft documentation, the recovery partition will be the last of the disk.

Data partition: Secondary partition to store your personal files. Easier to backup, but you must be sure of the size of the Windows partition to prevent problems with low disk space.

Personally, I will recommend you to use the "Default" or "Default with data partition" configuration since you can change the partition after the Windows one without breaking the recovery process since the partition number of the Windows, system and recovery partition won't change.

Name	BIOS - Default					
Installation script path	\Windows 10\AutoUnattend\BIOS - Default					
Settings files path	\Windows 10\Windows 10 Recovery Tools\Recovery\OEM\Settings\BIOS - Default					
Target system	BIOS / MBR					
Partition #	**Size**	**File system**	**Volume name**	**Partition type**	**Role**	**Resizable?**
0	450 Mb	NTFS	Windows RE tools	Primary	Recovery tools	No
1	100 Mb	NTFS	System	Active	Boot	No
2	All	NTFS	Windows	Primary	OS	N/A

Name	BIOS - Default with data partition					
Installation script path	\Windows 10\AutoUnattend\BIOS - Default with data partition					
Settings files path	\Windows 10\Windows 10 Recovery Tools\Recovery\OEM\Settings\BIOS - Default with data partition					
Target system	BIOS / MBR					
Partition #	**Size**	**File system**	**Volume name**	**Partition type**	**Role**	**Resizable?**
0	450 Mb	NTFS	Windows RE tools	Primary	Recovery tools	No
1	100 Mb	NTFS	System	Active	Boot	No
2	60 000 Mb	NTFS	Windows	Primary	OS	Yes
3	All	NTFS	Data	Primary	Data	N/A

Name	BIOS - Recommended					
Installation script path	\Windows 10\AutoUnattend\BIOS - Recommended					
Settings files path	\Windows 10\Windows 10 Recovery Tools\Recovery\OEM\Settings\BIOS - Recommended					
Target system	BIOS / MBR					
Partition #	**Size**	**File system**	**Volume name**	**Partition type**	**Role**	**Resizable?**
0	100 Mb	NTFS	System	Active	Boot	No
1	All	NTFS	Windows	Primary	OS	N/A
2	450 Mb	NTFS	Windows RE tools	Primary	Recovery tools	No

Name	BIOS - Recommended with data partition					
Installation script path	\Windows 10\AutoUnattend\BIOS - Recommended with data partition					
Settings files path	\Windows 10\Windows 10 Recovery Tools\Recovery\OEM\Settings\BIOS - Recommended with data partition					
Target system	BIOS / MBR					
Partition #	**Size**	**File system**	**Volume name**	**Partition type**	**Role**	**Resizable?**
0	100 Mb	NTFS	System	Active	Boot	No
1	60 000 Mb	NTFS	Windows	Primary	OS	Yes
2	All	NTFS	Data	Primary	Data	N/A
3	450 Mb	NTFS	Windows RE tools	Primary	Recovery tools	No

Name	UEFI - Default					
Installation script path	\Windows 10\AutoUnattend\UEFI - Default					
Settings files path	\Windows 10\Windows 10 Recovery Tools\Recovery\OEM\Settings\UEFI - Default					
Target system	UEFI / GPT					
Partition #	**Size**	**File system**	**Volume name**	**Partition type**	**Role**	**Resizable?**
0	450 Mb	NTFS	Windows RE tools	Primary	Recovery tools	No
1	100 Mb	FAT32	System	EFI	Boot	No
2	16 Mb	MSR	N/A	MSR	System reserved	No
3	All	NTFS	Windows	Primary	OS	N/A

Name	UEFI - Default with data partition					
Installation script path	\Windows 10\AutoUnattend\UEFI - Default with data partition					
Settings files path	\Windows 10\Windows 10 Recovery Tools\Recovery\OEM\Settings\UEFI - Default with data partition					
Target system	UEFI / GPT					
Partition #	**Size**	**File system**	**Volume name**	**Partition type**	**Role**	**Resizable?**
0	450 Mb	NTFS	Windows RE tools	Primary	Recovery tools	No
1	100 Mb	FAT32	System	EFI	Boot	No
2	16 Mb	MSR	N/A	MSR	System reserved	No
3	60 000 Mb	NTFS	Windows	Primary	OS	Yes
4	All	NTFS	Data	Primary	Data	N/A

Name	UEFI - Recommended					
Installation script path	\Windows 10\AutoUnattend\UEFI - Recommended					
Settings files path	\Windows 10\Windows 10 Recovery Tools\Recovery\OEM\Settings\UEFI - Recommended					
Target system	UEFI / GPT					
Partition #	**Size**	**File system**	**Volume name**	**Partition type**	**Role**	**Resizable?**
0	100 Mb	FAT32	System	EFI	Boot	No
1	16 Mb	MSR	N/A	MSR	System reserved	No
2	All	NTFS	Windows	Primary	OS	N/A
3	450 Mb	NTFS	Windows RE tools	Primary	Recovery tools	No

Name	UEFI - Recommended with data partition					
Installation script path	\Windows 10\AutoUnattend\UEFI - Recommended with data partition					
Settings files path	\Windows 10\Windows 10 Recovery Tools\Recovery\OEM\Settings\UEFI - Recommended with data partition					
Target system	UEFI / GPT					
Partition #	**Size**	**File system**	**Volume name**	**Partition type**	**Role**	**Resizable?**
0	100 Mb	FAT32	System	EFI	Boot	No
1	16 Mb	MSR	N/A	MSR	System reserved	No
2	60 000 Mb	NTFS	Windows	Primary	OS	Yes
3	All	NTFS	Data	Primary	Data	N/A
4	450 Mb	NTFS	Windows RE tools	Primary	Recovery tools	No

4.4.2 USB drive preparation

- Format an USB drive using FAT32
- Make the device bootable using DISKPART, Disk Manager or other way
- Copy the whole installation disc on the USB drive
- From the "Installation script path" identified in the previous step, copy the AutoUnattend.xml file or the DISKPART script (TXT file) to the ROOT of the drive
- From the "\Add-On\Ei.Cfg" folder, copy the "Ei.cfg" file to the SOURCES folder of the USB drive
- Copy the whole recovery software (the whole package) on the USB drive in a new folder of your choice
- The device is now ready to be used on the target computer

4.4.3 Windows installation

- Connect the USB drive on the target computer and boot the computer from the drive
- If you are using an AutoUnattend.xml file, simply start the Windows installation but if you are using a DISKPART script, do the following
    - Press SHIFT+F10 to open a command prompt
    - Type "DISKPART /S D:\ScriptName.txt"
        - Where D is the letter of the USB drive
        - Where ScriptName.txt is the name of the DISKPART script copied from the "Installation script path"
    - Install Windows on the WINDOWS partition
- If using an AutoUnattend.xml file, the computer will boot in AUDIT mode but if you are using a DISKPART script, do the following
    - On the final boot, where you are asked to configure the computer (OOBE), press CTRL+SHIFT+F3 to reboot in AUDIT mode
- Now Windows is installed, in AUDIT mode and ready to be adapted to your needs.

4.4.4 Windows customization

- You can now install all Windows software, drivers and updates you want in the final factory image
- When your installation is complete, disconnect the computer from the network and reboot a last time to be sure no Windows update are pending, etc.

4.4.5 Installing recovery software

- Run the "Install – Windows 10.cmd" script from "\Windows 10\Windows 10 Recovery Tools"
- If you want to execute some scripts or command AFTER the OOBE process, edit the "C:\Recovery\OEM\Scripts\OOBE-Custom.cmd" file
- From "C:\Recovery\OEM\Settings\<Desired configuration>", copy the "ResetConfig.xml" and "ReCreatePartitions.txt" files to "C:\Recovery\OEM"
    - <Desired configuration> must match the one used to install Windows on the computer, if the partition number mismatch you will have to restart from the beginning!
- From "C:\Recovery\OEM" run the "Sysprep.cmd" script
    - The computer will mask the updates as permanent
    - All software will be saved in a PPKG file under "C:\Recovery\Customizations"
    - Sysprep will be run and the computer will shut down automatically

4.4.6 Accessing recovery tools

- Boot the computer in the Windows Recovery Environment by holding the SHIFT key when clicking in "Reboot" in Windows
- By rebooting three time in a row Windows during the boot process
- Using the "Recovery Tools" icon in the start menu

4.4.7 Customization

Partition layout can be modified to suit your needs. To do so, edit the "AutoUnatted.xml", "ReCreatePartitions.txt" and "ResetConfig.xml" file to make your change.

When using "AutoUnattend.xml" file, only the LAST partition can be of dynamic size. If this is not the case, you will have to create a DISKPART script to use during the Windows installation step to configure your partitions layout.

After the execution of the OOBE step, the "C:\Recovery\OEM\Scripts\OOBE-Custom.cmd" file will be executed. You can use this file to install application, drivers or to make change to the computer. If you need to keep installation files between recovery processes, put them in any folder under "C:\Recovery\OEM". These files are kept and are copied on the recovery USB media.

5 Settings file explanation

This software requires lots of settings files to work correctly. You must be very careful if you do any modification to them.

Don't touches any files except the one identified here, otherwise the whole capture/restore process may not work.

5.1 Windows 7

- ResetPartitions.txt
  - This is the script used by the recovery media (USB) to repartition the hard disk
  - It must match the settings of the "SettingsRE.txt" and "AutoUnattend.Xml" file
- Settings.ini
  - This is the file that include all language strings for the recovery tools
- SettingsRE.txt
  - This is the file used by CMD script to load the partitions, format them, etc.
  - It must match the settings of the "ResetPartitions.txt" and "AutoUnattend.Xml" file
  - WINLOAD parameter
    - Must be equal to "Winload.efi" on UEFI computer
    - Must be equal to "Winload.exe" on BIOS computer
  - BOOTFS parameter
    - Must be equal to "FAT32" on UEFI computer
    - Must be equal to "NTFS" on BIOS computer
  - HOTKEY parameter
    - The hotkey to bot into the recovery environment during the boot process
    - Default if F7
    - Here is the list of available code
- Sysprep.xml
  - File used to prepare Windows for capture
  - Used to keep drivers and not delete them

5.2 Windows 8 / Windows 8.1 with WIM Boot

- ResetPartitions.txt
  - This is the script used by the recovery media (USB) to repartition the hard disk
  - It must match the settings of the "SettingsRE.txt", "ResetConfig.xml" and "AutoUnattend.Xml" file
  - Must NOT include "Select Disk" or "Clean" commands
- ResetConfig.xml
  - Used to tell recovery image location (partition number, etc.) in the recovery environment
  - Used to tell the name of the "ResetPartitions.txt" file
  - It must match the settings of the "SettingsRE.txt", "ResetPartitions.txt" and "AutoUnattend.Xml" file
- Settings.ini
  - This is the file that include all language strings for the recovery tools
  - Not required for Windows 8.1 with WIM Boot option
- SettingsRE.txt
  - This is the file used by CMD script to load the partitions, format them, etc.
  - It must match the settings of the "ResetConfig.xml", "ResetPartitions.txt" and "AutoUnattend.Xml" file
  - WINLOAD parameter
    - Must be equal to "Winload.efi" on UEFI computer
    - Must be equal to "Winload.exe" on BIOS computer
  - BOOTFS parameter
    - Must be equal to "FAT32" on UEFI computer
    - Must be equal to "NTFS" on BIOS computer
- Sysprep.xml
  - File used to prepare Windows for capture
  - Used to keep drivers and not delete them
- WinRE.xml
  - Used to rename the DoubleCommander file browser to "Off-Line file browser"

5.3 Windows 10

- Settings.ini
  - This is the file that include all language strings for the recovery tools
- RecreatePartitions.txt
  - This is the script used by the recovery media (USB) to repartition the hard disk
  - It must match the settings of the "ResetConfig.xml" and "AutoUnattend.Xml" file
  - Must NOT include "Select Disk" or "Clean" commands
- ResetConfig.xml
  - Used to tell recovery image location (partition number, etc.) in the recovery environment
  - Used to tell the name of the "RecreatePartitions.txt" file
  - Used to tell the name of the recovery script "Restore.cmd" file
  - It must match the settings of the "ResetPartitions.txt" and "AutoUnattend.Xml" file
- Unattend.xml
  - File used to prepare Windows for capture
  - Used to keep drivers and not delete them
- WinRE.xml
  - Used to rename the DoubleCommander file browser to "Off-Line file browser"
- OOBE-Custom.cmd
  - Used to execute custom script after the OOBE state
  - Please put the files you need to execute under "C:\Recovery\OEM"

6 Splash image support

Starting in version 1.3.10, there is now a splash image for the recovery tools inside Windows. This splash image does not apply to the recovery tools when booting on the recovery media or the recovery partition.

- The image must be placed in the following folder for Windows 7
  - "Windows 7 Recovery Tools\Installer\Files\Windows\System32\RecoveryTools"
- The image must be placed in the following folder for Windows 8
  - "Windows 8 Recovery Tools\Installer\Files\Windows\System32\RecoveryTools"
- The image must be placed in the following folder for Windows 10
  - "Windows 10 Recovery Tools\Recovery\OEM\Menu"

Once the file copied, you must edit "Settings.ini" file to enable it and change the following parameters:

Parameter	Description	Default Value
LogoFile	Filename of the logo. Must be JPG or BMP.	Logo.jpg
LogoWidth	Width of the logo	400
LogoHeight	Height of the logo	200
LogoTime	Time, in seconds, to display the logo.	0

This is not available when using Windows 8.1 with WIM Boot option.

7 Upgrading

Once installed, there is no way to upgrade the recovery tools on the computer without rebuilding completely the system. This is due to the different partition layout that can be used and the fact that a lots of WIM file would need to be upgraded.

Past version had an upgrade script. It has been removed since 3.0.0 due to compatibility problems. There is currently no plan to bring back this option.

8 Translation

Edit the SETTINGS.INI file in one of the following path to adapt the software to your language.

- Windows 7
  - "\Windows 7\Windows 7 Recovery Tools\Settings"
- Windows 8/8.1
  - "\Windows 8\Windows 8 Recovery Tools\Settings"
- Windows 10
  - "\Windows 10\Windows 10 Recovery Tools\Recovery\OEM\Menu"

Simply copy/paste the [0409] section in a new one and change the language code of the new section to match the real code of the new language. Add the new language code in the "LanguageList" item under the [General] section.

The "LanguageList" option is not required for Windows 10.

Semi-colons (;) can be used as a carriage return to skip a line.

No translation support for Windows 8.1 – WIM boot

9 Step-by-step demonstration – Windows 10

9.1 Configuration used for the demonstration

For this demonstration, a virtual computer will be used using the following configuration:

- VmWare Workstation for the hyper-visor
- 120gb virtual disk
- 2gb of ram
- UEFI / GPT mode (required for booting on USB media)

Also, the following partitions layout will be used:

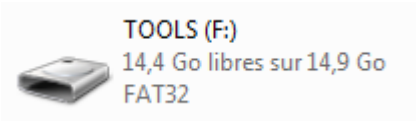
- UEFI - Default with data partition

This layout includes an "AutoUnattend.xml" file, so no manual execution of DISKPART will be required.

9.2 Installation media preparation

Although some software exist on the Internet do make a USB installation media, I prefer to use DISKPART to prepare the USB drive.

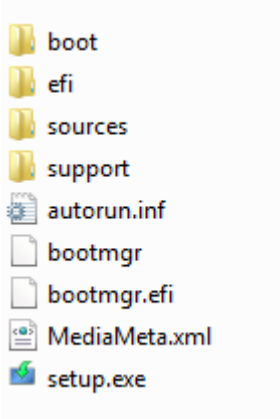
Fist, find the actual letter of the drive.



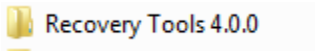
Then, open DISKPART and type the following command to format the drive and make it bootable. Replace "F" by the letter actually assigned to you USB media.

```
SELECT VOLUME F
CLEAN
CREATE PARTITION PRIMARY
FORMAT FS=FAT32 QUICK LABEL=WININST
ACTIVE
ASSIGN LETTER F
```

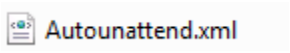
Now, simply copy the Windows 10 installation media on the USB media.



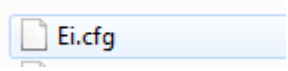
Copy the recovery tools installation folder on the USB media.



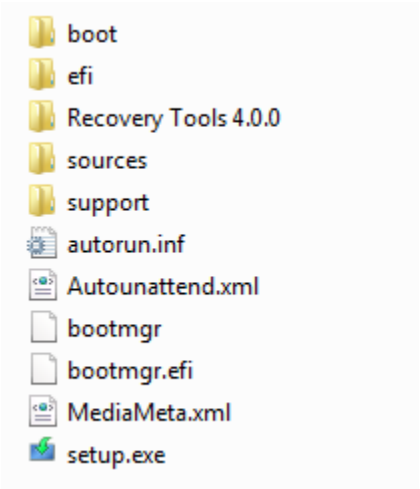
Copy the "AutoUnattend.xml" file in the root of the USB media.



Copy the "EI.CFG" file to the" Sources" folder on the USB media.



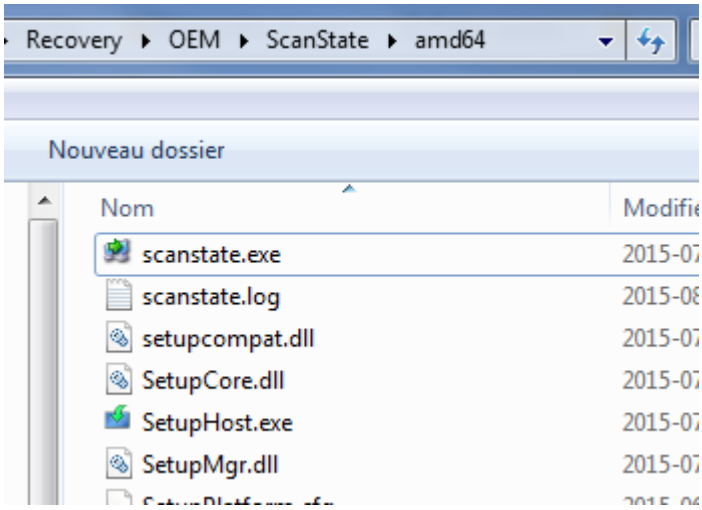
At the end, the root of the USB media should look like that.



Now, we must add the "ScanState" file in the following folders:

F:\Recovery Tools 4.0.0\Windows 10\Windows 10 Recovery Tools\Recovery\OEM\ScanState\amd64
F:\Recovery Tools 4.0.0\Windows 10\Windows 10 Recovery Tools\Recovery\OEM\ScanState\x86

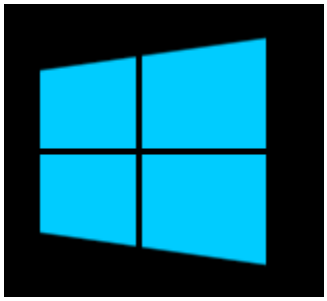
Both folders should look likes that:



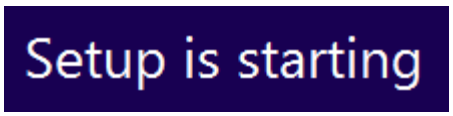
From now, the following step must be done in the virtual machine / target computer!

9.3 Windows installation

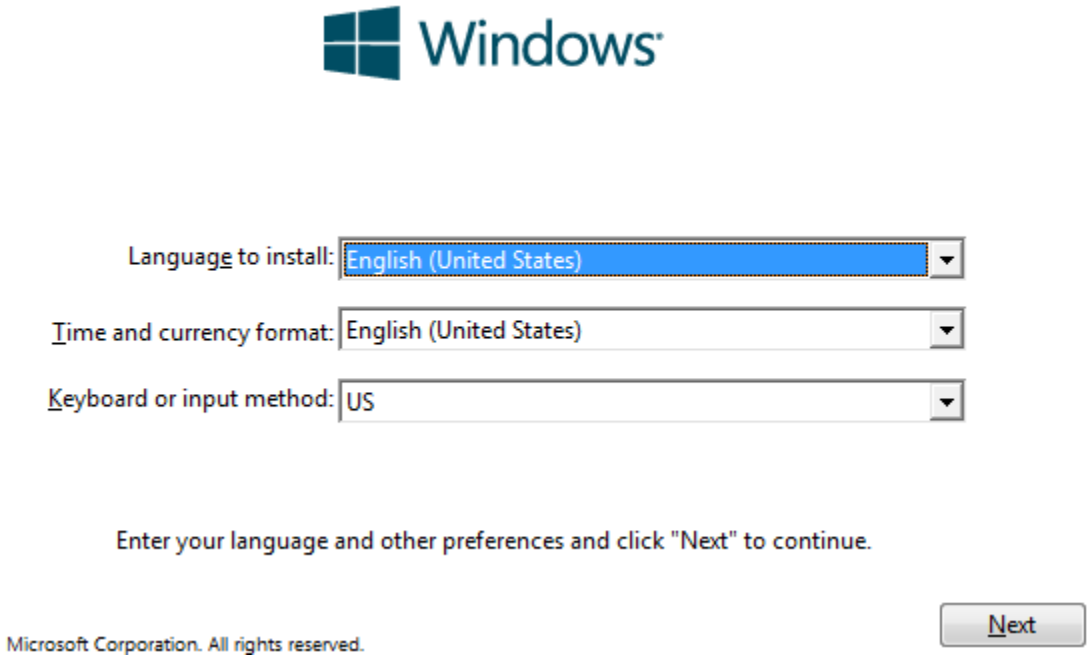
Start the computer and let it boot from the USB media.



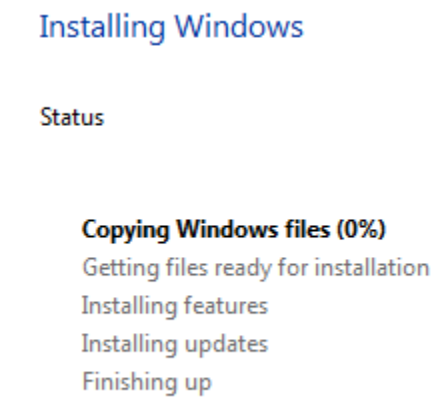
Since we are using an AutoUnattend.xml file, the Windows setup will automatically start.



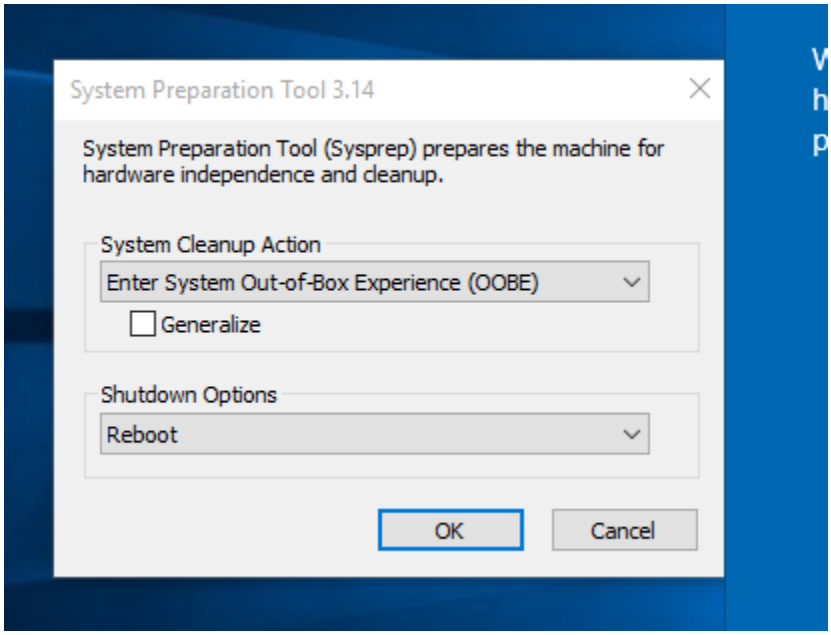
Select you keyboard and language settings.



Wait for the Windows installation to complete.



Once Windows installed, you should see that on the last reboot.

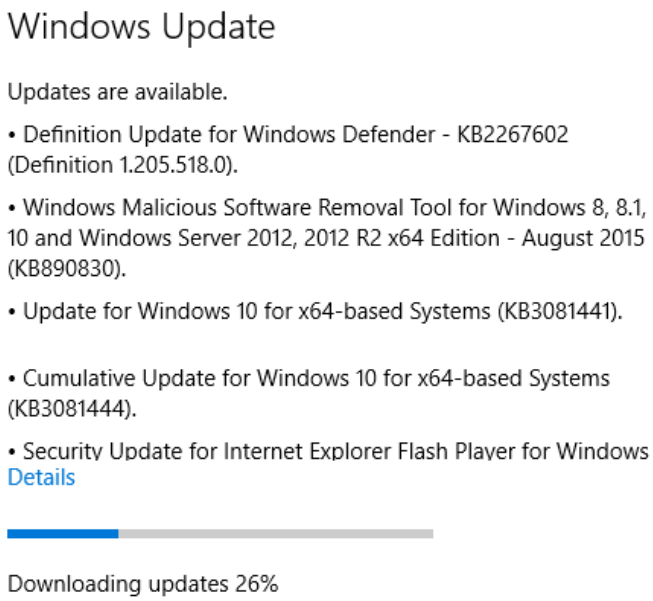


9.4 Applications and drivers installation

Since we are installing Windows under VmWare, we will install the VmWare tools and some test application using Ninite.

We will install WinRar, FireFox and Notepad++.

We also installed the available updates.

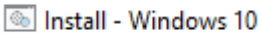


Once the updates installed, disconnect the computer from the network and reboot before continuing to the next step.

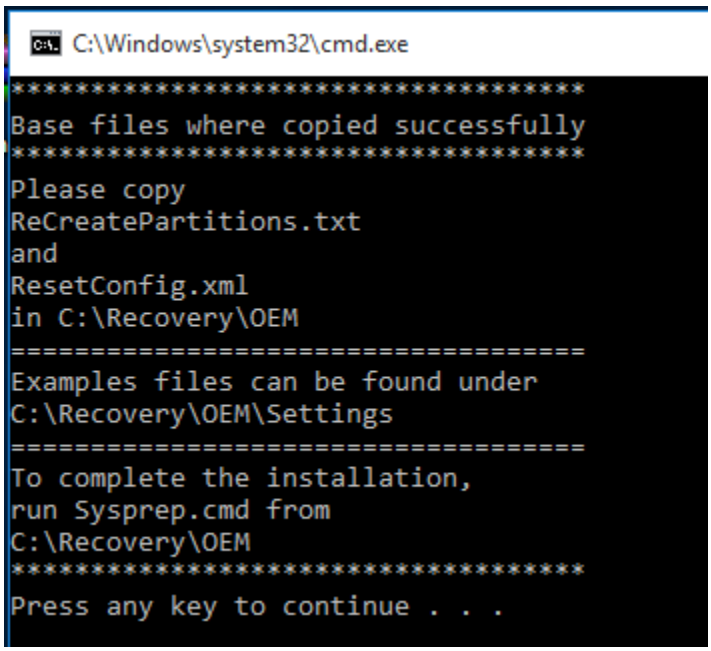
9.5 Recovery tools installation

Now, we must go on the USB installation media in the "Windows 10 Recovery Tools" folder

And execute the "Install – Windows 10.cmd" script.



This will copy the tools to "C:\Recovery". Once completed, the USB installation media can be removed.

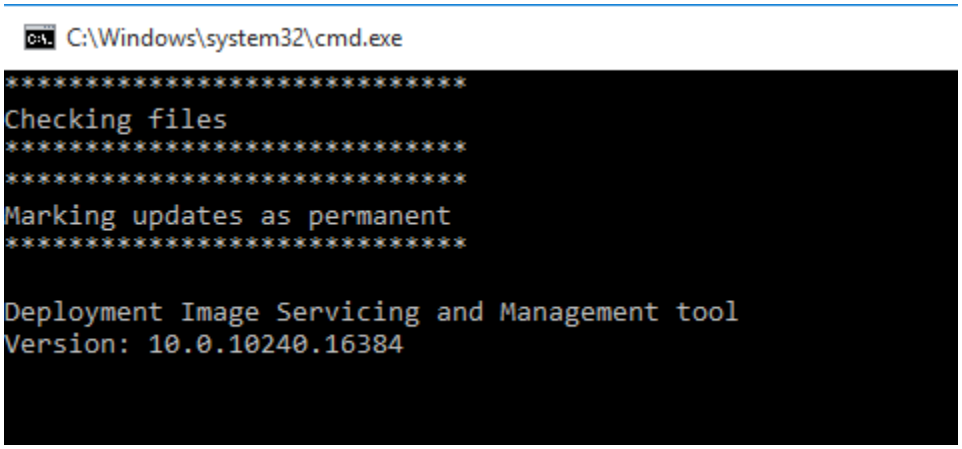


Now, from "C:\Recovery\OEM\Settings\UEFI - Default with data partition", copy all the files to "C:\Recovery\OEM".

Adapt the source files depending of you current partition layout.

Now, from "C:\Recovery\OEM" execute the "Sysprep.cmd" script.

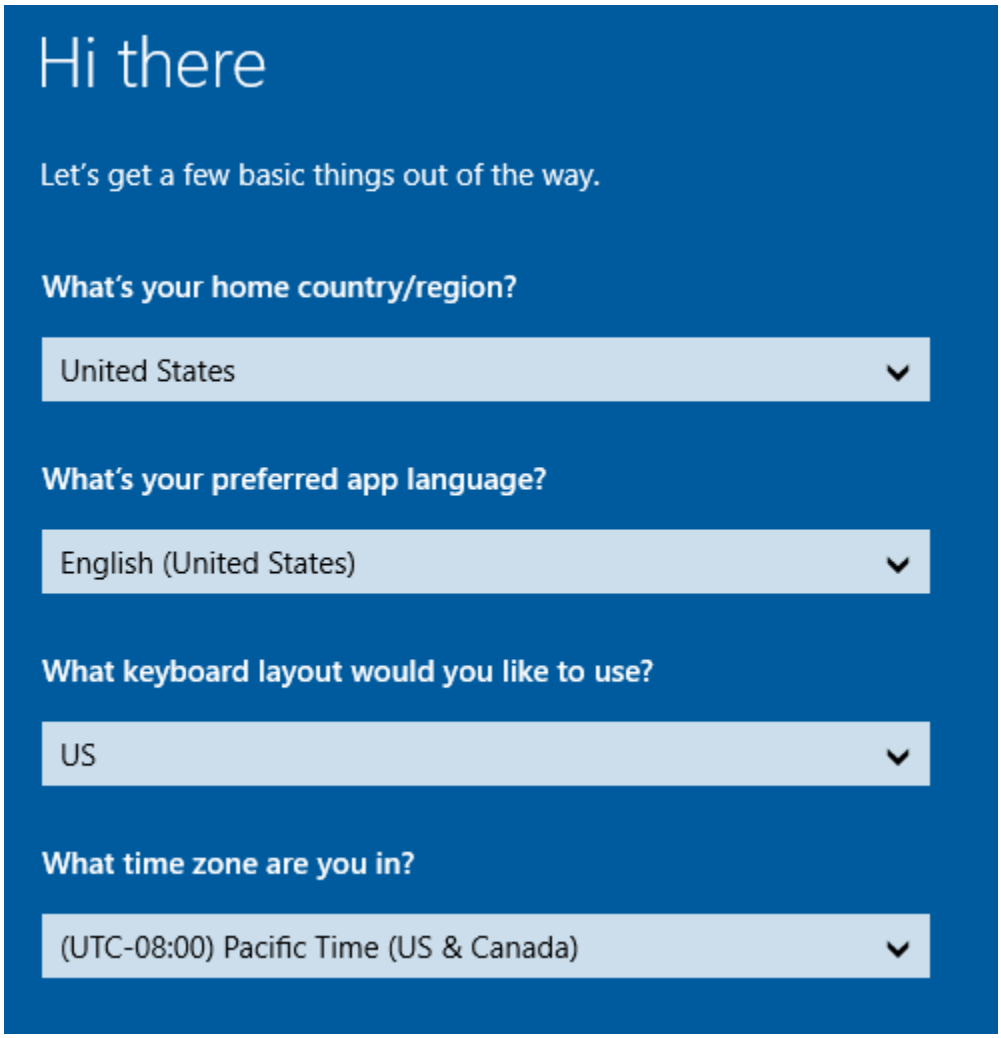
This will capture all the drivers, applications, settings, etc. and then shut down the computer.



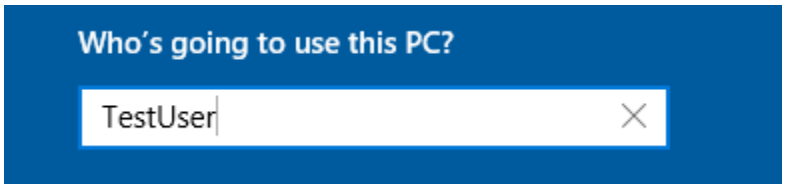
The recovery image is now ready.

9.6 OOBE execution

On the next boot, the computer will go through the regular OOBE process, where you can create a new user.



Here a new user name "TestUser" was created.

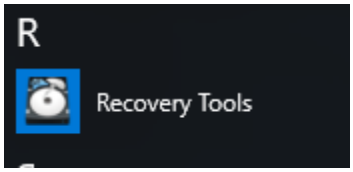


Now the computer is ready to use.

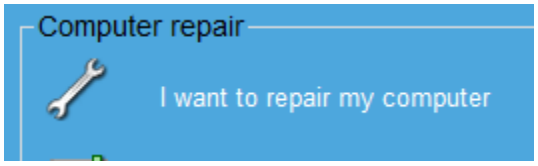
9.7 Testing recovery from local partition

We will now test the recovery process.

First, we must launch the recovery tool from the start menu.

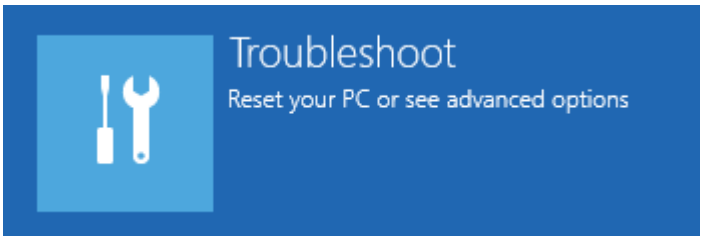


Now, we will select the "I want to repair my computer" option and confirm to reboot.

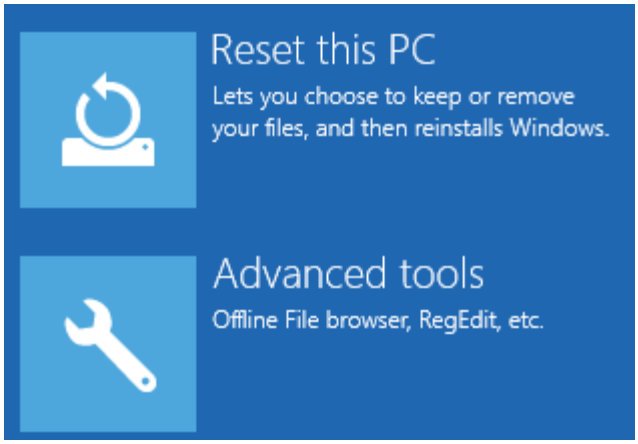


The recovery environment will start on the next boot.

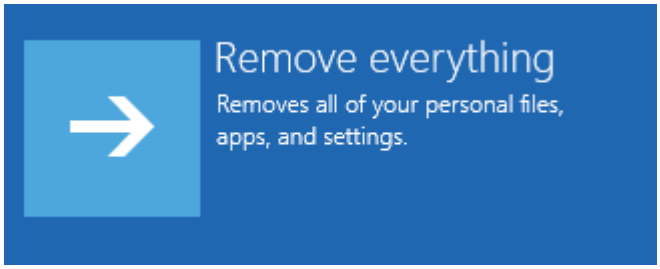
We will select the "Troubleshoot" option.



From there we can select the "Advanced tools" which includes the **registry editor, the file browser, etc.** But to restore the computer, it is the "Reset this PC" option that we need.

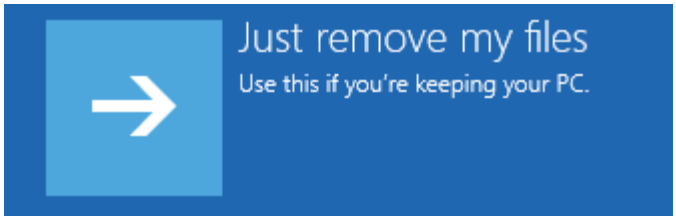


We will select the "Remove everything" option to completely clean the computer.

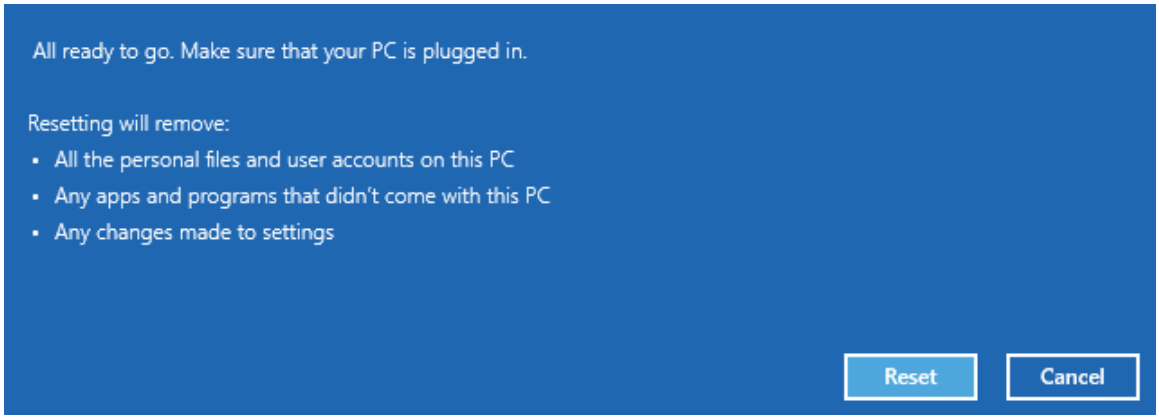


Since we have multiple partitions, we will select to clean only the Windows partition by clicking on "Only the drive where Windows is installed".

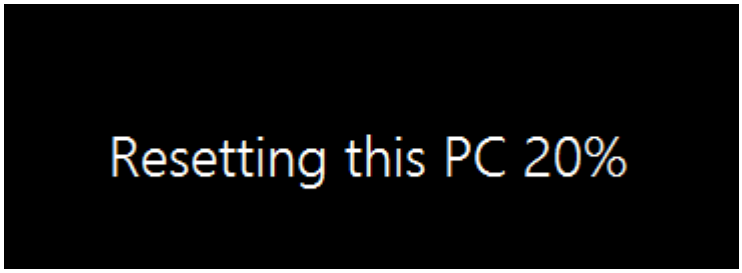
Finally, we will select the option "Just remove my files" which delete everything but without completely formatting the disk first. It is faster.



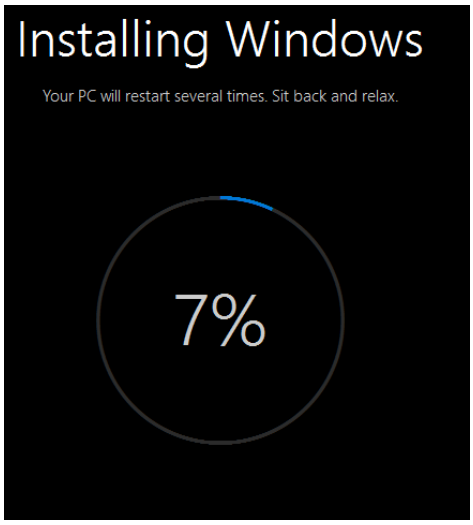
Now we must confirm one last time by clicking on “Reset”.



We must then wait for Windows to be reinstalled.

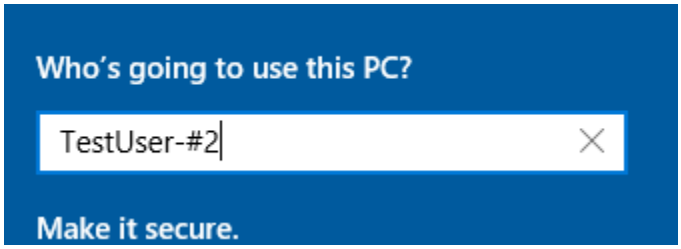


We have to wait again …



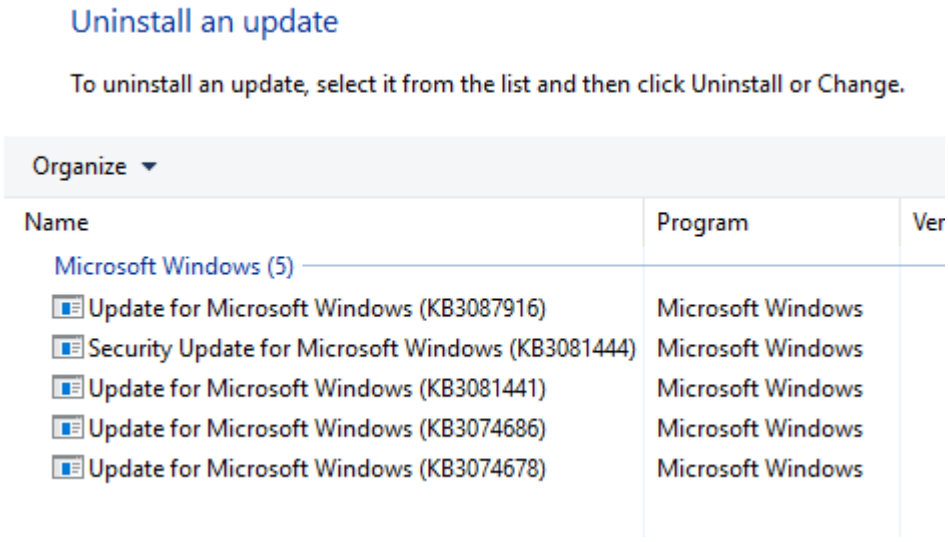
Once reinstalled, Windows will go through the OOBE process as usual.

We will create a new user. This time, we will call it "TestUser-#2".



We can see that all applications are still there.

Even the Windows updates are still present.



10 ADDON - Password protection

10.1 What will be protected

Access to the recovery tools are protected under Windows 7. The password of a local accout is required to access the recovery tools and, by extension, the file manager that this software add to it.

Starting with Windows 8, a password is no more required to access the recovery tools. With the fact that the recovery tools include a file browser, this pose a security risk.

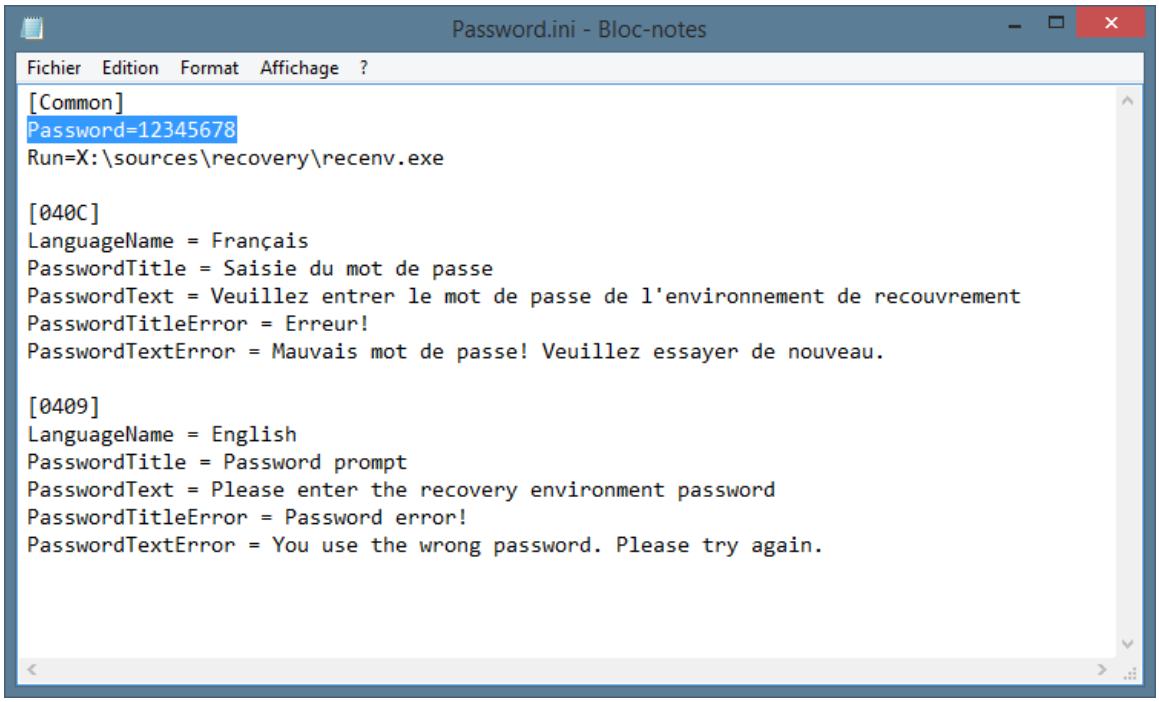
So, starting with version 4.0.0, a new password was added, which is optional and that can be installed at any time.

This password will protect the following

- Windows 7
  - Recovery tools from the hard disk drive
  - No password protection for USB recovery media
  - No password protection for DVD recovery media
- Windows 8/8.1/WIM
  - Recovery tools from the hard disk drive
  - Recovery tools from USB drive if created AFTER the password was added
  - No password protection for DVD recovery media
- Windows 10
  - Recovery tools from the hard disk drive
  - Recovery tools from USB drive if created AFTER the password was added

10.2 How to install

To install it, simply run the "Install Password.cmd" script from "\Add-On\WinRE Password". During the installation process, the following window will open.



Simply put the desired password in the file, save and exit. The password will be required each time you will enter the recovery tools.

10.3 How to uninstall

Uninstalling doesn't require knowing the previous password, so uninstalling can be used to remove the tool completely or in case the password is forgotten.

To remove, simply run the "Remove Password.cmd" file from "\Add-On\WinRE Password".

11 Technical support

Technical support is provided free of charge on the “My Digital Life” forums.

Update to this software can be found on my personal web page.

12 Credits and thanks

Thanks to the “My Digital Life” forums community. Without you guys, this software won’t have been made possible.

Also, thanks to my entire beta tester.

13 Licensing

- All scripts, either the one made for command line (CMD) or in AutoIT, where made by me, Anarethos. These files can be freely distributed and modified. Just give me credits.

- The file browser (DoubleCommander) included with this software is a SourceForge project and more info can be found by clicking here.

- The Hard Drive icon used in the software was found on Internet. Source unknown. If you are the owner of this icon, please contact me (support forum) so I may remove it from this software or gives you credits for your works.

- Icons used in this software seem to be licensed for redistribution. The icons package is under the “Source” folder.

- If you are a computer manufacturer/store/seller, you can use my tool without any compensation (free laptop may be cool though!). But, I would really appreciate if you can send me a message telling me that you are using my software. Also, please give me credits on your web site or instruction manual.

14 Change log

- 4.0.1
  - Removed : Files that can't be distributed
- 4.0.0
  - Added : Windows 10 support
  - Added : Password protection
  - Updated : DoubleCMD version
  - Fixed : Better identification of file browser in Windows 8.1 – WIM boot
  - Changed : Whole documentation (this file)
  - Changed : All AutoIT file where recompiled
  - Changed : Folder structure
  - Changed : Default certificate when signing programs
  - Changed : Version identification →X.Y.Z
    - X = Major version, changed when adding new operating system
    - Y = Minor version, changed when adding feature
    - Z = Revision, changed when fixing bug
- 3.0.0-Alpha 3
  - Added : WIM Boot support (Windows 8.1 Update)
- 3.0.0-Alpha 2
  - Changed : Recompiled EXE files to prevent false positive
- 3.0.0-Alpha 1
  - Added : DVD Media Creator for Windows 8 and Windows 7
  - Added : Windows 8.1 support
  - Added : Recovery Image on second partition for Windows 8
  - Removed : All language except French/English for Windows 8 and Windows 7 due to new menu made for DVD recovery
  - Removed : WIM on first partition for Windows 8
  - Removed : OscdImg.exe file which should not be distributed
  - Changed : Version numbering to stop confusion between "current" tools and "Legacy" tools
- 1.3.15
  - Added : UEFI support under Windows 8 32bits (still not supported under Windows 7 32bits)
- 1.3.14
  - Added : Italian under Windows 7 Recovery Tools
  - Added : New version for Windows 8 where recovery image is on the last partition of the computer, allowing the user to delete it after the creation of a recovery USB key
  - Updated : Instruction manual

- 1.3.13
  - Modification to capture and reinstallation script to prevent “phantom” recovery drive under Windows
  - Added : Full system recovery option in Recovery Environment under Windows 7
  - Added : Access to basic repair tools in Recovery Environment under Windows 7
- 1.3.12
  - Windows 8: Now using a FirstLogon script since SetupComplete was not working with OEM key. The script is configured to run by using the Sysprep.xml file.
  - Minor translation error in English fixed
- 1.3.11
  - Fixed bug with the path of the splash screen image
  - Fixed bug in Windows 7 recovery. Not more variable errors.
- 1.3.10
  - Added line-splitting in settings.ini. See translation section
  - Added auto-reboot at the end of the recovery process for Windows 7
  - Added support for splash image under Windows (not recovery media)
- 1.3.9
  - Added : Spanish, Hebrew and Arabic in Windows 7 tools
  - Added : Hebrew in Windows 8 tools
  - Modified recovery media creator script under Windows 7 to make the boot drive “Active”.
- 1.3.8
  - Fixed a bug in the “Update” script relating to SetupComplete script
    - Updates from 1.3.X to 1.3.7 will lose the ability to rename the off-line file browser in Windows 8
    - Updates from 1.3.X to 1.3.7 will lose the ability to dismount automatically the recovery partition in Windows 7 / 8
    - Clean install of 1.3.7 will not have the problem
    - Updating to 1.3.8 should fix that
- 1.3.7
  - Added a script (both in Windows 7 and Windows 8) to dismount the recovery partition from Windows at the end of OOBE
- 1.3.6
  - Added update tools for Windows 7 and 8
    - You can upgrade from 1.2.0 and 1.3.X
    - You must recreate the recovery media after upgrade
    - You must configure the settings file to match your configuration

- 1.3.5
  - Removed ImageX from the package, as required by Microsoft© EULA
  - New set of icons for the menus, which are not made by Microsoft©
- 1.3.4
  - Fixed a bug with the “SetupComplete.Cmd” script under Windows 8 to identify the File Browser
  - Updated the file browser to latest version
  - Added instruction guide (this guide)
- 1.3.3
  - Fixed Windows 8 recovery media. No more error about missing partitions
- 1.3.2
  - Modified installation script so Recovery partition is now hidden in Windows 7
- 1.3.1
  - Added some checkups (Winre.Wim file exist, etc.)
- 1.3.0
  - Initial release of this version which include Windows 8 support