



Factory Reset Using Wyse Converter for PCs or Standard Windows Tools

Factory Reset Document

Dell Engineering
January 2019

Revisions

Date	Description	Authors
December 2018	1.0 Initial release	Deep Ashok

THIS WHITE PAPER IS FOR INFORMATIONAL PURPOSES ONLY, AND MAY CONTAIN TYPOGRAPHICAL ERRORS AND TECHNICAL INACCURACIES. THE CONTENT IS PROVIDED AS IS, WITHOUT EXPRESS OR IMPLIED WARRANTIES OF ANY KIND.

© 2019 Dell Inc. All rights reserved. Reproduction of this material in any manner whatsoever without the express written permission of Dell Inc. is strictly forbidden. For more information, contact Dell.

Dell, the DELL logo, and the DELL badge are trademarks of Dell Inc. Microsoft, Windows, and Windows Server are registered trademarks of Microsoft Corporation in the United States and/or other countries. Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Dell disclaims any proprietary interest in the marks and names of others.



Table of contents

Revisions	2
Glossary.....	4
Executive summary	5
Windows Based Solution to Factory Reset	6
System Restore.....	6
Using Wyse Management Suite to push System Restore point.....	7
Refresh, Reset or Restore Factory settings (Only Windows 10).....	8
Restore or Reset using recovery drive.....	10
Restore or reset PC using installation media.....	11
Wyse Converter for PCs Solution to Factory Reset	12
Virtual Clean State using WyseEasySetup.....	12
References	13



Glossary

Note: The below definitions provided are solely in the context of this document and may not have the same meaning in general if referred from any source outside the document.

Clean State – The state of the computer, where computer is installed with the Operating System and applications shipped by the OEM. This means the initial state of the computer where user did not add any new application or save any data on it.

Factory Reset - The process of achieving Clean State is called Factory Reset.

Virtual Clean State – The state of the computer, where the user interface is masked and only relevant applications are made visible. This will deliver a state similar to Clean State, but nothing is actually removed or deleted from the computer, unlike a Factory Reset.

Executive summary

Wyse Converter for PCs is a stand-alone software that enables you to provide a thin client-like experience on a full Windows PC. With Wyse Converter for PCs, one can achieve a secure and seamless interface of a thin client to connect to Virtual Desktop Infrastructure (VDI) sessions. The existing data and applications still continue to live on the device in the background, but are inaccessible to the user.

In order to create a Clean State environment, Factory Reset is required so that the user does not have the capability to access any local applications other than the original set of applications set by the OEM and the VDI applications chosen during the Wyse Converter for PCs installation.

The admin can also choose to achieve a Virtual Clean State with Wyse Easy Setup without getting rid of the applications from the system. Wyse Easy Setup allows the admin to customize which applications needs to be made available in a kiosk environment.



Windows Based Solution to Factory Reset

Factory Reset can be done using multiple Microsoft Windows Recovery Tools. Microsoft Windows Recovery tools are not part of the Wyse Converter for PCs installer, but the approach is documented in this White Paper. The possible solutions that can be looked over as different methods for factory reset are listed below.

Note: Once the device is Factory Reset, the Wyse Software Thin Client communication to Wyse Management Suite is lost. That is because as part of the Factory Reset, the Wyse Device Agent (WDA) is also removed.

System Restore

System Restore monitors and records key system changes on a user's computer. This is a feature in Microsoft Windows that allows the user to revert their computer's state (including system files, installed applications, Windows Registry, and system settings) to that of a previous point in time, which can be used to recover from system malfunctions or other situations. It is designed to reduce support costs and increase customer satisfaction by enabling a user to undo a change that may have caused a problem with the system, or revert to a day when the system was performing optimally.

Restore points are automatically generated when you install a new application, driver, or Windows update, or when you create a restore point manually. Restoring won't affect your personal files, but it will remove applications, drivers, and updates installed after the restore point was made. System Restore is turned off by default and must be enabled by users in order to function. To turn on, follow the steps below:

1. Select the **Start** button, type **Control Panel** and then choose it from the list of results.
2. Within **Control Panel**, search for **Recovery**.
3. Select **Recovery > Open System Restore > Next**.
4. Choose from the list of restore points, and then select **Next > Finish**.

Note: If you're not seeing any restore points, it might be because system protection wasn't turned on, and no restore points have been captured so far. To check, go to the **Control Panel**, search for **Recovery**, and then select **Recovery > Configure System Restore > Configure** and make sure **Turn on system protection** is selected.

This method will only remove the applications or data which were stored after the restore point. After using System restore, you can install Wyse Converter for PCs. Please keep in mind, since the PC has been reset, the data and applications are lost and will not be reverted if you uninstall Wyse Converter for PCs.



Using Wyse Management Suite to push System Restore point

Wyse Management Suite (WMS) can be used to deploy a system restore point while upgrading the device to **Wyse Converter for PCs 2.0** from a previous installation. For that, one has to create a PowerShell script and point to the desired restore point. Deploy the PowerShell script as a pre-install parameter during the Wyse Converter for PCs upgrade using the Advanced App Policy in **WMS**. Please refer to WMS Admin guide to get more information.

To create a PowerShell scripts to push system restore from WMS which uses PowerShell Command-lets, refer this [link](#).

➤ **Advantages :**

1. System Restore can be easily triggered through WMS while upgrading to Wyse Converter for PCs 2.0.
2. System Restore can be done using the preset restore point. Note: The restore point should be known to push the PowerShell script through WMS.
3. No dependency on network or USB as it utilizes the restore point on the local disk.
4. System Restore deletes executable files and DLLs added after the restore point was created.

➤ **Disadvantages :**

1. System Restore will increase the size of System Volume Information, which can bring down the system performance.
2. If any new user accounts were created since the last restore point was set, while using System Restore they'll be erased, though any data files that user created will remain.
3. When you turn off/disable System Restore, all existing restore points are lost.
4. Restore point cannot be created while the system is in Safe Mode, so any restores performed in that mode cannot be undone.



Refresh, Reset or Restore Factory settings (Only Windows 10)

Microsoft Windows provides three ways to reset your PC and lets you choose whether to keep your files, or remove them, and then reinstalls Windows. To access the reset options, go to **Settings > Update & security > Recover > Reset this PC > Get started** and choose an option.

Note: If you can't open Settings, you can get to reset options by restarting your PC from the sign-in screen. Press the Windows logo key +L to get to the sign-in screen, then hold the Shift key down while you select **Power > Restart** in the lower-right corner of the screen. After your PC restarts, select **Troubleshoot > Reset this PC**. If you can't get to the sign-in screen, use a recovery drive or installation media to reset your PC.

Option	What it does
Keep my files (Refresh)	<ul style="list-style-type: none">• Reinstalls Windows 10• Keeps your personal files.• Removes apps and drivers you installed.• Removes changes you made to settings.• Reinstalls any apps your PC manufacturer installed.• Reinstalls any apps installed from Windows Store.
Remove everything (Reset)	<ul style="list-style-type: none">• Reinstalls Windows 10• Removes your personal files.• Removes apps and drivers you installed.• Removes changes you made to settings.• Reinstalls any apps your PC manufacturer installed. <p>If you choose to erase data thoroughly, it takes about 1-2 hours and makes recovering data less likely.</p>
Restore factory settings	<ul style="list-style-type: none">• Reinstalls the version of Windows that your PC came with• Removes your personal files.• Removes apps and drivers you installed.• Removes changes you made to settings.• Reinstalls any apps your PC manufacturer installed. <p>This option isn't available on all PCs.</p>

Note: The option in Settings to go back to your previous version of Windows is only available for a limited time after upgrading.



This method will reinstall the operating system which takes time. After the reinstallation of Operating system, you can install Wyse Converter for PCs. Please keep in mind, since the PC has been reset, the data and applications are lost and will not be reverted if you uninstall Wyse Converter for PCs.

➤ **Advantages :**

1. Clean State is achieved based on the desired level of reset.
2. Easy to use preset options and can be performed competently.

➤ **Disadvantages :**

1. Available only for Windows 10 & newer versions of Windows Operating Systems. It is not a part of Windows 7.
2. Drivers are removed as part of removing applications, so user has to reinstall them manually.
3. Unlike [System Restore method](#), this method may require source image or ISO file to proceed re-installation of the OS image. The source can be local disk, network location or USB drive.



Restore or Reset using recovery drive

Recovery drive is a special partition on the PC's hard drive or an external USB drive used to restore or reset the system.

You can use the recovery drive to restore from a system restore point or reset your PC using the following steps:

1. Connect the recovery drive and turn on your PC.
2. On the **Choose an option** screen, select **Troubleshoot**, and then select an option. (If you don't see the **Choose your option** screen, your PC might not be set up to boot from a drive. Check your PC manufacturer's website for info on how to change your PC's boot order.)
 - To restore from a system restore point, select **Advanced Options** > **System Restore**. This won't affect your personal files, but it will remove recently installed apps, drivers, and updates that might be causing your PC problems.
 - To reinstall Windows 10, select **Recover from a drive**. This will remove your personal files, apps and drivers you installed, and changes you made to settings. It requires an image backup to complete this.
 - To restore from a image , select **Backup and Restore**. Backup and Restore supports two different types of backup: file backup and system image.
 - File backup: File backups are saved to ZIP files. Two methods of file backup are supported. The first, normal backup, stores everything selected for backup. The second, incremental backup, stores only files that are changed after a previous backup. The other method of backup, system image, is a disk image of the backed up system saved block by block in a VHD file (versus file by file in the file backup and NTBackup). Block-based backup is more efficient at performing subsequent differential backups, as only the blocks that have changed need to be backed up.
 - System Image: The image-based full system backup in Windows 7, allows for the imaging of the entire system including operating system and data volumes. This backed up image can be stored locally into the recovery drive or network share. The backed up image can later be restored through the Windows Recovery Environment either to the same computer or to a new computer of different brand and type. The file format used when doing an image-based backup is VHD.

This option will reinstall the operating system which takes time. After the reinstallation of Operating system, you can install Wyse Converter for PCs. Please keep in mind, since the PC has been reset, the data and applications are lost and will not be reverted if you uninstall Wyse Converter for PCs.



Restore or reset PC using installation media

Having installation media to recover or reset your PC is similar to that of having recovery drive for doing the same. Here instead of storing the image at special recovery partition on the Disk, it is instead stored at USB media. This media contains the entire recovery image with the default settings.

- Use your download installation media and use it to restore from a system restore point or reset your PC for using a USB based solution.
- This option will reinstall the operating system which takes a time. After the reinstallation of Operating system you can install Wyse Converter for PC's and also the no way that we can get back the data and application present before reinstallation of OS after you uninstall of Wyse Converter for PCs.

Advantages & Disadvantages in general to all the approach and with respect to Wyse Converter for PCs.

This section will walk through the advantages and disadvantages to factory reset in general to all the approaches.

➤ **Advantages :**

1. Gives back the clean state which is desired to have by doing a factory reset to the computer using reimaging & restore point.
2. Imaging through network is flexible as it is the single point distribution for the image.
3. Fresh copy of Windows will not have any applications installed in it apart from Drivers and later if the same copy of windows is used to install Wyse Converter for PCs, it gives a clean state installation for Wyse converter for PCs.
4. Wyse Converter for PC installed on a freshly imaged computer will give a very close thin client experience unlike when it is installed on old used PC.

➤ **Disadvantages :**

1. As known, any of the approach will remove the files & applications, there is no way to get the computer back to the state from where factory reset was triggered. Hence, roll back to the state of that computer is also not possible. By uninstalling the Wyse Converter for PCs, one can only obtain the state from where Wyse Converter for PCs was installed and not the state from where the factory reset was performed.
2. If this is performed in case of upgrade from Wyse converter for PC (1.0, 1.0.1 or 1.1), WDA (Wyse Device Agent) will also be removed, resulting in loss of connectivity of Wyse Software TC from WMS.



Wyse Converter for PCs Solution to Factory Reset

Virtual Clean State using WyseEasySetup

Wyse Converter for PCs installation results in a Virtual Clean State where only the VDI applications are visible on the desktop, and no other application can be accessible. To take the Virtual Clean State one step further, Wyse Easy Setup is provided as part of the Wyse Converter for PCs installation, to customize the user interface of the converted PC. By using Wyse Easy Setup, the administrator can choose to hide the Windows desktop user interface and display a kiosk on which applications of their choice are displayed rather than wiping the data or applications from the device. This is an alternate route, different from the Windows documented approach, to achieve Clean State-like state. If the desired state is Clean State, then the proposed solution is to use the standard Windows methodology to achieve Clean State. More about Wyse Easy Setup can be found in the help file of Wyse Easy Setup. Though this method does not Factory Reset the PC, it achieves the most prevalent use case.

➤ **Advantages:**

1. Virtual Clean State can be achieved without having to install a new tool. Wyse Easy Setup is installed by default during Wyse Converter for PCs installation.
2. Administrator's job is made easy by using Wyse Easy Setup to achieve the desired Virtual Clean State. Desired Virtual Clean State being the end user can use only the applications deployed on the User Interface.
3. In this case it is VDI applications or configured application and nothing else on the device.
4. Less time when compared to Windows Based Factory Reset Solution.
5. Data and applications are not deleted. This facilitates the Wyse Converter for PCs uninstallation to roll-back into the previous state.

➤ **Disadvantages:**

1. Data and applications may still be running in the background.



References

For more information on Windows Based Factory Reset options, refer the Microsoft website at

<https://support.microsoft.com/en-us/help/12415/windows-10-recovery-options>

[https://msdn.microsoft.com/en-us/library/windows/desktop/dd408121\(v=vs.85\).aspx](https://msdn.microsoft.com/en-us/library/windows/desktop/dd408121(v=vs.85).aspx)

<https://support.microsoft.com/en-us/help/17085/windows-8-restore-refresh-reset-pc>

<https://docs.microsoft.com/en-us/windows-hardware/manufacture/desktop/how-push-button-reset-features-work>

<https://www.cnet.com/news/the-pros-and-cons-of-windows-system-restore/>

https://en.wikipedia.org/wiki/Backup_and_Restore

