



VIRTUAL
CABLE

Optimization of UDS Enterprise in Windows 8



UDS
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3.6



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Optimizing UDS Enterprise in Windows 8

Deploying virtual desktops with Windows 8 requires planning and configuration that provides users with a secure and optimized virtual desktop platform.

This document describes a series of good practices, referring to the configuration and characteristics of Windows 8, which will allow optimizing the performance and behavior of the endowment of virtual desktops deployed for users.

The user configuration will be carried out on the Active Directory group policy objects that directly affect the user profile at the time of loading said source template or golden image.

The rest of the proposed configurations and modifications will be made on the virtual machine image defined as the source template, which will later be used as the basis for deploying virtual desktops. These are modifications to the system registry and to the operating system services.

It should be noted that most of the modifications indicated in this document are recommended, so the system administrator can choose whether or not to disable each of the described features at his convenience. The character of the type of configuration for optimization, recommended or mandatory, is indicated in the title of the corresponding section.

Some of the modifications described in this document are generic and apply to any virtual desktop platform, while others are exclusive to non-persistent virtual desktop platforms.

The proposed configurations and modifications are in no case necessary for the correct operation of a desktop virtualization platform, they simply optimize certain aspects of its operation, the changes adopted and the correct operation of the platform being the responsibility of the system administrator.

VirtualCable and the UDS Enterprise team are not responsible in any way for the possible consequences on the stability of the system once the changes proposed in this document are applied.

User settings

Unlike machine settings, user settings cannot be applied to the base template on which virtual desktops are to be deployed. To make changes centrally, it is recommended to use Group Policy Objects or GPOs.

Recommended Generic User Configurations

Group Policy Objects: It is recommended to apply the following GPO settings on any virtual desktop platform.

Element	Route	Explanation
screensaver	Administrative Templates – Control Panel – Personalization Activate screen saver: Enabled Prevent screen saver changes: Enabled Screen saver with password protection: Enabled Screen saver activation time: 600 seconds Force specific screensaver: scrnsave.scr	Using complex screensavers consumes a large amount of resources. Basic screen saver can be used to secure virtual desktop without consuming resources

Virtual machine (VM) configuration or source template

For the configurations described in this section that involve changes in the Windows registry, it is advisable to take into account the possible implications when making such changes.

Incorrectly modifying the Windows registry can make the system unstable. It is recommended to make a backup of the Windows registry before making any changes to it.

For a correct optimization of the source virtual machine, there are a series of parameters that we can fine-tune in order to improve its performance.

The settings on the source virtual machine go through modifications in three sections: system registry, Group Policy Objects or GPO and Windows 8 services.

Recommended generic VM configurations

System Log: The following system registry changes are valid for any virtual desktop platform, persistent or non-persistent. These modifications will reduce the resource consumption of virtual desktops on the hypervisor platform.

Setting	Modification in the registry	Explanation
Disable "Last Access Timestamp"	[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\FileSystem] "NtfsDisableLastAccessUpdate"=dword:00000001	Increases file viewing speed
Reduce delay in displaying the Menu	[HKEY_CURRENT_USER\Control Panel\Desktop] "MenuShowDelay"="150"	Reduces the delay when displaying the Windows menu. Provides a better user experience
Disable all visual effects except "Using Common Tasks on Folders" and "Using Visual Styles on Buttons and Windows"	[HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\VisualEffects] "VisualFXSetting"=dword:00000003 [HKEY_CURRENT_USER\Control Panel\Desktop\WindowMetrics] "MinAnimate"="0" [HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\Advanced] "ListViewAlphaSelect"=dword:00000000 "TaskbarAnimations"=dword:00000000 "ListViewShadow"=dword:00000000 [HKEY_CURRENT_USER\Control Panel\Desktop] "DragFullWindows"="0" "FontSmoothing"="0" "UserPreferencesMask"=binary:90,12,01,80,10,00,00,00	Provides a better user experience
Hide "Hard Error Messages"	[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Windows] "ErrorMode"=dword:00000002	Does not show error messages

Recommended VM configurations for non-persistent desktops

System Log: These registry changes are recommended for non-persistent virtual desktops. As can be seen in the following table, the parameters are used to configure event logs, log storage, and disk defragmentation; services that in non-persistent virtual desktops have no use.

Setting	Modification in the registry
Disable Clear Page File at Shutdown	HKLM\SYSTEM\CurrentControlSet\Control\Session Manager\Memory Management "ClearPageFileAtShutdown"=dword:00000000
Disable Background Defragmentation	[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Dfrg\BootOptimize Function] "Enable"="N"
Disable Background Layout Service	[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\OptimalLayout] "EnableAutoLayout"=dword:00000000
Disable Bug Check Memory Dump	[HKLM\SYSTEM\CurrentControlSet\Control\CrashControl] "CrashDumpEnabled"=dword:00000000 "LogEvent"=dword:00000000
Disable Memory Dumps	[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\CrashControl] "CrashDumpEnabled"=dword:00000000 "LogEvent"=dword:00000000
Disable Mach. Act. Password Changes	[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Netlogon\Parameters] "DisablePasswordChange"=dword:00000001
Redirect Event Logs	HKLM\SYSTEM\CurrentControlSet\Services\Eventlog\Application] "File"="D:\EventLogs\Application.evtx" [HKLM\SYSTEM\CurrentControlSet\Services\Eventlog\Security] "File"="D:\EventLogs\Security.evtx" [HKLM\SYSTEM\CurrentControlSet\Services\Eventlog\System] "File"="D:\EventLogs\System.evtx"
Reduce Event Log Size to 64K	HKLM\SYSTEM\CurrentControlSet\Services\Eventlog\Application] "MaxSize"=dword:00010000 [HKLM\SYSTEM\CurrentControlSet\Services\Eventlog\Security] "MaxSize"=dword:00010000 [HKLM\SYSTEM\CurrentControlSet\Services\Eventlog\System] "MaxSize"=dword:00010000

Group Policy Objects: It is recommended to apply the following GPO settings on any virtual desktop platform. These settings are enabled by default in Windows 8. When performing template-based non-persistent virtual desktop deployments, it is not necessary to have these options enabled, since, apart from consuming resources, they are useful when the virtual desktop is persistent.

Element	Route	Explanation
bug report	Administrative Templates – Windows Components – Windows Error Reporting Turn off Windows error reporting: Enabled	It generates application dumps that are sent to Microsoft. It should be disabled unless you have to troubleshoot an application
windows update	Administrative Templates – Windows Components – Windows Update Configure automatic updates: Disabled	Windows updates should be done on top of the base template
system restore	Administrative Templates – System – System Restore Disable system restore: enabled	It is not necessary since the virtual desktops will be based on a base template

Required service configuration for non-persistent desktops

Services: Windows 8 includes a series of services activated by default. These services improve performance as the virtual desktop is maintained over time. UDS Enterprise allows, among other functions, to publish non-persistent virtual desktops, so in the face of this type of deployment, having these services active does not make much sense. Below we list the services that can be disabled.

Setting	Recommendation	Justification
Background Intelligent Transfer Service	disabled	This service uses idle network bandwidth for services like Windows Update. As services that depend on BITS are going to be disabled, this service will be disabled
Application experience	disabled	Automatically applies software updates to programs. This functionality is typically not required in a virtual desktop environment.
Feature Discovery Resource Publishing	disabled	This service posts desktop information on the web so that others can find it. This functionality is typically not required in a virtual desktop environment.
BitLocker Drive Encryption Service	disabled	This service is typically not required in a virtual desktop environment
Block Level Backup Module Service	disabled	Windows uses the WBENGINE service to perform backup and recovery operations
equipment examiner	disabled	It maintains an up-to-date list of computers on the network and provides this list to computers

		designated as browsers. This functionality is typically not required in a virtual desktop environment.
HomeGroup Listening	disabled	As in most environments the virtual desktops will be associated with a domain, HomeGroup functionality is not required
Home Group Provider	disabled	
Hyper-V Data Exchange Service	disabled	This functionality is not required
Hyper-V Guest Shutdown Service	disabled	This functionality is not required
Hyper-V Heartbeat Service	disabled	This functionality is not required
Hyper-V Remote Desktop Virtualization Service	disabled	This functionality is not required
Hyper-V Time Synchronization Service	disabled	This functionality is not required
Volume Shadow Copy Requester Hyper V	disabled	This functionality is not required
Child protection	disabled	This functionality is not required
Problem Reports and Solutions Control Panel Help	disabled	This service provides help with viewing, submitting, and deleting system-level problem reports for the Problem Reports and Solutions control panel. This functionality is typically not required in a virtual desktop environment.
UPnP host device	disabled	Allows UPnP devices to host the computer. This functionality is typically not required in a virtual desktop environment.
Windows Error Reporting Service	disabled	It allows you to report bugs when programs stop working or responding and provide existing solutions. It also allows you to generate logs for diagnostic and repair services. This service is typically not required in a virtual desktop environment
Volume snapshots	disabled	Manage and deploy Shadow Volume Copies used for backup and other purposes. This service must be disabled

Handwriting Panel and Touch Keyboard Service	disabled	Enables the pen and ink functionality of the handwriting panel and touch keyboard. This service is typically not required in a virtual desktop environment
SSDP detection	disabled	Discover devices and services on the network that use the SSDP discovery protocol, such as UPnP devices. This service is typically not required in a virtual desktop environment
Secure Socket Tunneling Protocol Service	disabled	Provides support for Secure Socket Tunneling Protocol (SSTP) for connecting to remote computers using VPN. This service is typically not required in a virtual desktop environment
Windows Biometric Service	disabled	Provides client applications with the ability to capture, compare, manipulate, and store biometric data without gaining direct access to any biometric hardware or samples
Windows Store Service (WSService)	disabled	Provides infrastructure support for the Windows Store
Diagnostic Service Host	disabled	The Diagnostic Policy Service uses the Diagnostic Service Host to host diagnostics that need to be run in a Local Service context
Diagnostic system host	disabled	The Diagnostic Policy Service uses the Diagnostic Service Host to host diagnostics that need to be run in a Local Service context
Feature Discovery Provider Host	disabled	The FDPHOST service hosts FD network discovery (function discovery) providers. This functionality is typically not required in a virtual desktop environment.
Security Center	disabled	When disabled, the service does not report problems with antivirus, malware, or firewall settings. Many of these items are disabled in a virtual desktop environment. Disabling this service removes messages displayed to users
Superfetch	disabled	Maintains and improves system performance over time. In non-persistent virtual desktop environments this functionality is not required, as the data for this service is stored with the operating system.
Topics	disabled	Allows the user to manage desktop themes that include wallpapers and visual and sound effects that consume machine resources

IP helper application	disabled	Provides tunnel connectivity using IPv6 transition technologies
Microsoft iSCSI Initiator Service	disabled	Manages Internet SCSI (iSCSI) sessions. This service must be disabled.
Microsoft Software Snapshot Provider	disabled	Manages software-based volume shadow copies taken by the Volume Shadow Copy Service. This functionality is typically not required in a virtual desktop environment.
offline files	disabled	The Offline Files service performs maintenance activities on the Offline Files cache. This functionality is typically not required in a virtual desktop environment.
Windows Defender	disabled	Most entities have their own antivirus system, for this reason this service must be disabled.
Windows Media Player Network Sharing Service	disabled	Unless users are going to share items using Media Player this service can be disabled
Automatic WWAN configuration	disabled	Manages mobile broadband embedded module/data card (GSM and CDMA) adapters and connections using automatic network configuration. It is not usually necessary in virtual desktops
Automatic WLAN configuration	disabled	The WLANSVC service provides the logic necessary to configure, discover, connect to, and disconnect from a wireless local area network (WLAN), as defined by the IEEE 802.11 standards. This service must be disabled
Windows Search	disabled	Provides content indexing, property caching, and search results for files, email, and other types of content. This service must be disabled
windows update	disabled	Enables detection, download, and installation of updates for Windows and other programs. This service must be disabled

Common settings

These latter settings optimize the desktop by removing unnecessary items. They are applied to different sections within the OS of the source machine itself. In the case of antivirus, we recommend consulting its manufacturer for this type of optimization.

Setting	Recommendation	Explanation
boot animation	Disable with the following command bcdedit /set bootux disabled	Disabling animation reduces resource consumption and speeds up the desktop boot process
Remove unused Windows components	windows media center dvd maker tablet components	These components are not used in a centralized VDI environment
paging file	Equate the minimum and maximum	Keeping the paging file with a single size prevents it from growing by avoiding high IO consumption
Disk Cleanup	Delete unnecessary files	clean unnecessary files
disk defragmentation	Perform disk defragmentation	Disk defragmentation should be performed as the last step in creating the base template
anti virus	Optimize	Configure the antivirus to perform a script scan and disable automatic updates. The base template must be scanned before going to production

About VirtualCable

[Virtual Cable](#) is a company specialized in the digital transformation of the workplace. The company develops, supports and markets UDS Enterprise. Its team of experts has designed VDI solutions tailored to each sector to provide a unique user experience fully adapted to the needs of each user profile. Virtual Cable professionals have more than 30 years of experience in IT and software development and more than 15 in virtualization technologies. Millions of Windows and Linux virtual desktops with UDS Enterprise are deployed all over the world every day.