



Disabling GPU Hardware Acceleration

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Configuration Guide

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Document Purpose: Making a few simple tweaks to the registry, group policy, or ProfileUnity to turn off hardware acceleration to core applications on non vGPU virtual machines can result in a CPU reduction on your host operating system.

Background:

Many applications today offload their graphics rendering to the graphics processing unit (GPU) and this can have a significant impact on user experience. You may be thinking that you don't run any graphic intensive apps. That is simply not true. The Windows OS, web browsers, and normal MS Office applications have a lot of graphics requirements. Think about any desktop/laptop built in the last 10 years. They all have a GPU. These processors are used by the OS and applications to offload drawing of boxes, circles and other complex shapes from the main CPU and rendering them on the monitor. In a virtual machine however, even though there is no vGPU in the host, VMware tools still have a driver that looks like a GPU to the OS and the applications.

Disclaimer:

These simple application changes CAN result in a 10% CPU reduction on your host operating system. Your results will vary based on the OS, Application and Host. This can be monitored by Stratusphere

Note:

The following are all user-based policies and only apply to the currently logged on user. Be sure you are working in the "User Policy" GPO or the HKEY_CURRENT_USER of the registry.

A. Good Blogs

- [SpotCheck Methodology](#)
- [Grey Matter is Required – Automated Solutions don't work](#)
- [Monitoring vs. Diagnostics](#)

B. Liquidware Community Site and Other Important Links

- [Liquidware Community](#) - Slack, Blogs, Socials, etc...
- [Other Important Links](#) - SE Field Articles, Product Documentation, etc...

Google Chrome:

A. GPO

- ADMX download: <https://support.google.com/chrome/a/answer/187202?hl=en>
- User Configuration>Administrative Templates>Google>Google Chrome
“Use hardware acceleration when available” = Disabled

Setting	State	Comment
Set disk cache size in bytes	Not configured	No
Set download directory	Not configured	No
Allow download restrictions	Not configured	No
Enable or disable bookmark editing	Not configured	No
Enable deprecated web platform features for a limited time	Not configured	No
Enable online OCSP/CRL checks	Not configured	No
Enable trust in Symantec Corporation's Legacy PKI Infrastructure	Not configured	No
Enables managed extensions to use the Enterprise Hardware...	Not configured	No
Ephemeral profile	Not configured	No
Force Google SafeSearch	Not configured	No
Force networking code to run in the browser process	Not configured	No
Force minimum YouTube Restricted Mode	Not configured	No
Allow fullscreen mode	Not configured	No
Use hardware acceleration when available	Disabled	No
Hide the web store from the New Tab Page and app launcher	Not configured	No
Enable HTTP/0.9 support on non-default ports	Not configured	No
Import autofill form data from default browser on first run	Not configured	No

B. Registry

- Key: `HKEY_CURRENT_USER\Software\Policies\Google\Chrome`
Value: `HardwareAccelerationModeEnabled`
Type: `REG_DWORD`
Data: `0`

Name	Type	Data
(Default)	REG_SZ	(value not set)
HardwareAccelerationModeEnabled	REG_DWORD	0x00000000 (0)

C. ProfileUnity Registry Module

Edit Registry Setting

Filter

No Filter - Apply this to all

No filters will be applied to this item.

Description

Disable Hardware Acceleration - Chrome

Action

Add Value

Process Action After Login

Hive

HKEY_CURRENT_USER

Key REQUIRED

Software\Policies\Google\Chrome

Type

REG_DWORD

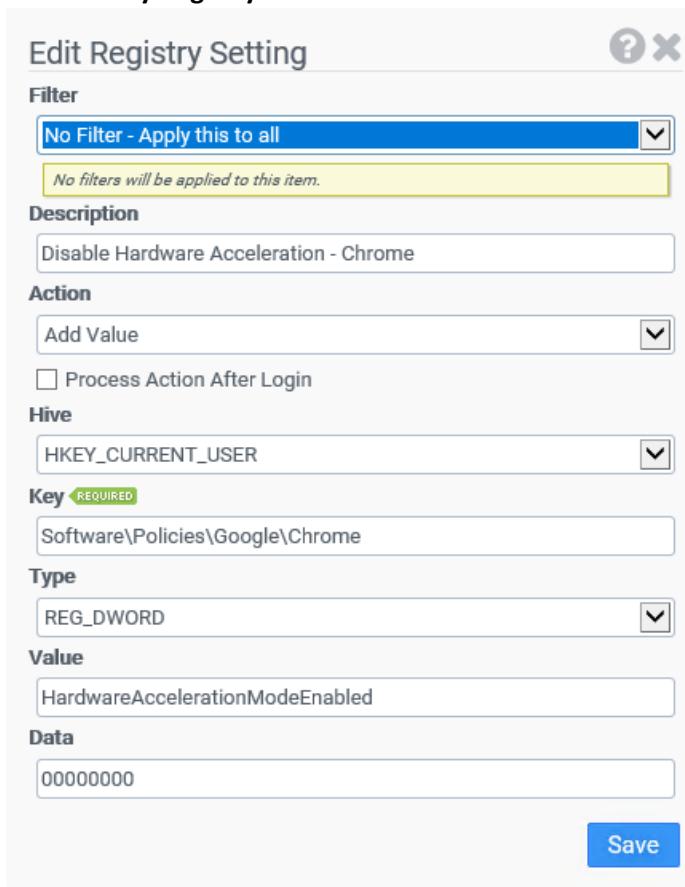
Value

HardwareAccelerationModeEnabled

Data

00000000

Save



Mozilla Firefox:

A. GPO

- ADMX download: <https://github.com/mozilla/policy-templates/releases>
- User Configuration>Administrative Templates>Mozilla>Firefox
“Hardware Acceleration” = Disabled

The screenshot shows the Group Policy Management Editor interface. On the left, the navigation pane displays a tree structure under 'Test [ARDC.AR.COM] Policy'. The 'User Configuration' node is expanded, showing 'Policies', 'Software Settings', 'Windows Settings', and 'Administrative Templates: Policy definitions (ADMX files)'. The 'Administrative Templates' node is also circled in red. The 'Mozilla' node is expanded, and its 'Firefox' sub-node is also circled in red. The main pane on the right is titled 'Firefox' and contains the 'Hardware Acceleration' policy settings. A red arrow points from the left margin towards the 'Hardware Acceleration' section in the main pane.

Setting	State	Comment
Blocked websites	Not configured	No
Exceptions to blocked websites	Not configured	No
Block Add-ons Manager	Not configured	No
Block about:config	Not configured	No
Block about:profiles	Not configured	No
Block Troubleshooting Information	Not configured	No
Clear all data when browser is closed	Not configured	No
Captive Portal	Not configured	No
Configure DNS Over HTTPS	Not configured	No
Disable Update	Not configured	No
Disable Built-in PDF Viewer (PDF.js)	Not configured	No
Disable Developer Tools	Not configured	No
Disable Feedback Commands	Not configured	No
Disable Firefox Accounts	Not configured	No
Disable Firefox Screenshots	Not configured	No
Disable Firefox Studies	Not configured	No
Disable Forget Button	Not configured	No
Disable Form History	Not configured	No
Disable Master Password Creation	Not configured	No
Disable Pocket	Not configured	No
Disable Private Browsing	Not configured	No
Disable Profile Import	Not configured	No
Disable Profile Refresh	Not configured	No
Disable Safe Mode	Not configured	No
Disable Set Desktop Background	Not configured	No
Disable System Addon Updates	Not configured	No
Disable Telemetry	Not configured	No
Display Bookmarks Toolbar	Not configured	No
Display Menu Bar	Not configured	No
Don't Check Default Browser	Not configured	No
Hardware Acceleration	Disabled	No
Network Prediction	Not configured	No
No Default Bookmarks	Not configured	No
Offer to save logins	Not configured	No
Override the first run page	Not configured	No

B. Registry

- Key: HKEY_CURRENT_USER\Software\Policies\Mozilla\Firefox
Value: HardwareAcceleration
Type: REG_DWORD
Data: 0

The screenshot shows the Windows Registry Editor. The left pane displays a tree structure of registry keys under 'Computer\HKEY_CURRENT_USER\Software\Policies\Mozilla\Firefox'. The 'Mozilla' and 'Firefox' nodes are circled in red. The right pane shows a table of registry entries. A red arrow points from the left margin towards the 'HardwareAcceleration' entry in the right pane.

Name	Type	Data
(Default)	REG_SZ	(value not set)
HardwareAcceleration	REG_DWORD	0x00000000 (0)

C. ProfileUnity Registry Module

Edit Registry Setting

Filter: No Filter - Apply this to all
No filters will be applied to this item.

Description: Disable Hardware Acceleration - Firefox

Action: Add Value

Process Action After Login

Hive: HKEY_CURRENT_USER

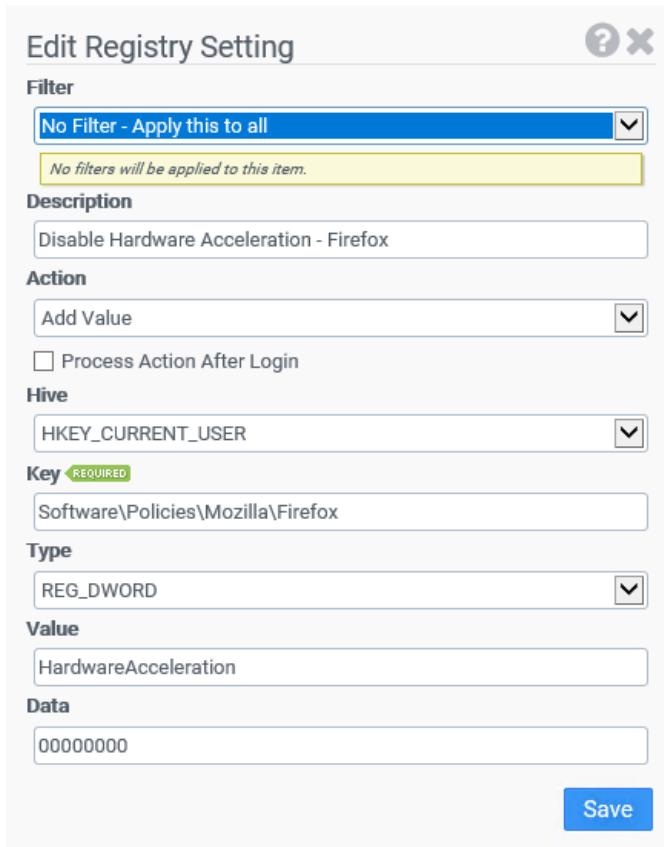
Key: Software\Policies\Mozilla\Firefox

Type: REG_DWORD

Value: HardwareAcceleration

Data: 00000000

Save



Microsoft Office:

A. GPO

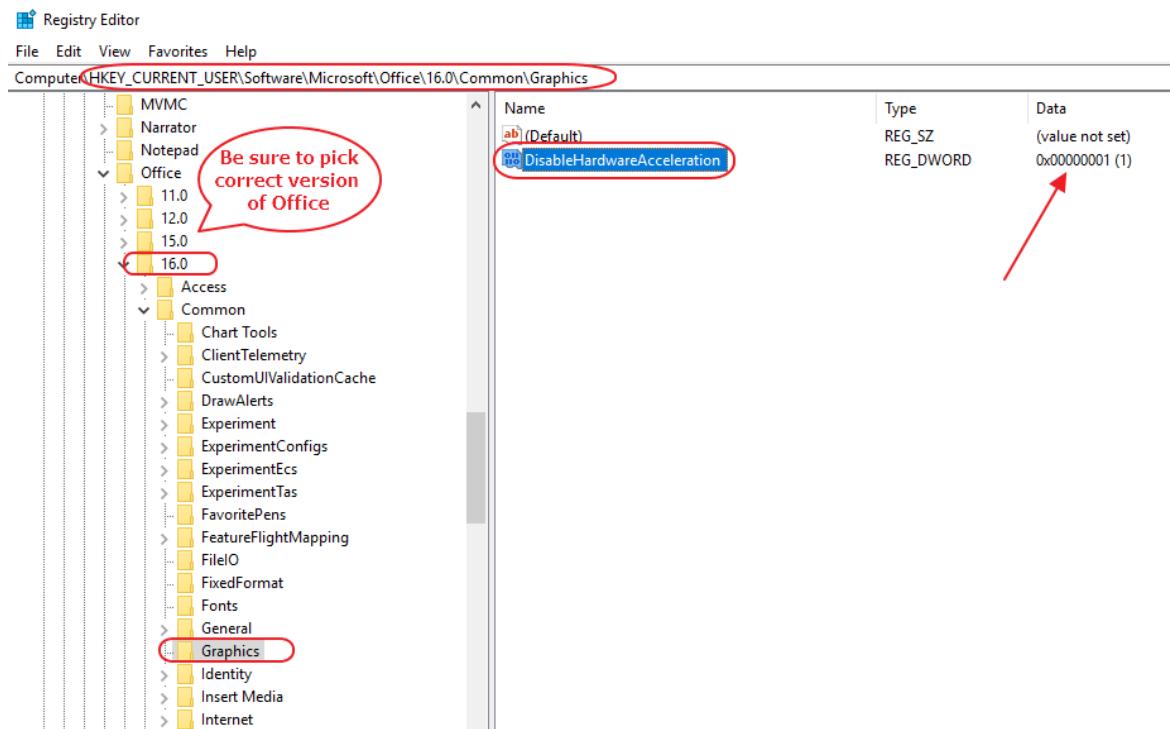
- ADMX download: <https://www.microsoft.com/en-us/download/details.aspx?id=49030>
- User Configuration>Administrative Templates>Microsoft Office (Version)>Miscellaneous
“Do not use hardware graphics acceleration” = Enabled

The screenshot shows two windows side-by-side. On the left is the Group Policy Editor under 'Computer Configuration > User Configuration > Policies > Microsoft Office 2016 > Administrative Templates: Policy definitions > Miscellaneous'. A red box highlights the 'Miscellaneous' folder. On the right is the 'Stratusphere SpotCheck for Amazon Workspaces' interface, specifically the 'Miscellaneous' section. It lists various policy settings with their current state. A red arrow points from the highlighted 'Miscellaneous' folder in the Group Policy Editor to the 'Do not use hardware graphics acceleration' row in the SpotCheck table, which is also highlighted with a red box. The table columns are 'Setting', 'State', and 'Comment'.

Setting	State	Comment
Workflow Cache	Not configured	No
Show LinkedIn features in Office applications	Not configured	No
Show additional sharing choices under the File tab	Not configured	No
Change destination URL for SharePoint hyperlink	Not configured	No
SharePoint Product Name	Not configured	No
Control Blogging	Not configured	No
Disable Office animations	Not configured	No
Disable Office Backgrounds	Not configured	No
Disable Clipboard Toolbar triggers	Not configured	No
Open Office file links in Office Online	Not configured	No
Disable the Office Start screen for all Office applications	Not configured	No
Turn off roaming of on-premises file names and metadata	Not configured	No
Do not automatically hyperlink screenshots	Not configured	No
Disable web view in the Office file dialog boxes	Not configured	No
Disallow Convert Document (Excel, PowerPoint, Word)	Not configured	No
Do not use hardware graphics acceleration	Enabled	No
Do not validate printers before using them	Not configured	No
Do not display paths in alerts	Not configured	No
Emulate tabs with spaces when exporting HTML	Not configured	No
Do not track document editing time	Not configured	No
Do not upload media files	Not configured	No
Enable Workflows on My Site	Not configured	No
Enable Smart Resume	Not configured	No
Graphic filter legacy mode	Not configured	No
Hide the Learn more about SharePoint Hyperlink	Not configured	No
Home Workflow Library	Not configured	No
Increase the visibility of Accessibility Checker violations	Not configured	No
Take users to a custom File menu tab	Not configured	No
Show the Custom tab as the default tab when creating a new...	Not configured	No
Most Recently Used Template List Length	Not configured	No
Disable Microsoft Office shared drawing code for blip caching	Not configured	No
Disable Microsoft Office shared drawing code for metafile re...	Not configured	No
Hide file locations when opening or saving files	Not configured	No
Print ticket safe mode	Not configured	No
Provide feedback with sound	Not configured	No
Show Paste Options button when content is pasted	Not configured	No

B. Registry

- For Office 2010: `HKCU\Software\Microsoft\Office\14.0\Gfx`
Value: `DisableHardware`
Type: `REG_DWORD`
Data: 1
- For Office 2013: `HKCU\Software\Microsoft\Office\15.0\Common\Graphics`
- For Office 2016: `HKCU\Software\Microsoft\Office\16.0\Common\Graphics`
- For Office 2019: `HKCU\Software\Microsoft\Office\18.0\Common\Graphics`
Value: `DisableHardwareAcceleration`
Type: `REG_DWORD`
Data: 1



C. ProfileUnity Registry Module

- Office 2010

Edit Registry Setting

Filter: No Filter - Apply this to all

Description: Disable Hardware Acceleration - Office 2010

Action: Add Value

Process Action After Login

Hive: HKEY_CURRENT_USER

Key (REQUIRED): Software\Microsoft\Office\14.0\Gfx

Type: REG_DWORD

Value: DisableHardware

Data: 00000001

Save

- Office 2013 – 2019

Edit Registry Setting

Filter: No Filter - Apply this to all
No filters will be applied to this item.

Description: Disable Hardware Acceleration - Office 2016

Action: Add Value

Process Action After Login **Edit for correct version**

Hive: HKEY_CURRENT_USER

Key **REQUIRED**: Software\Microsoft\Office\16.0\Common\Graphics

Type: REG_DWORD

Value: DisableHardwareAcceleration

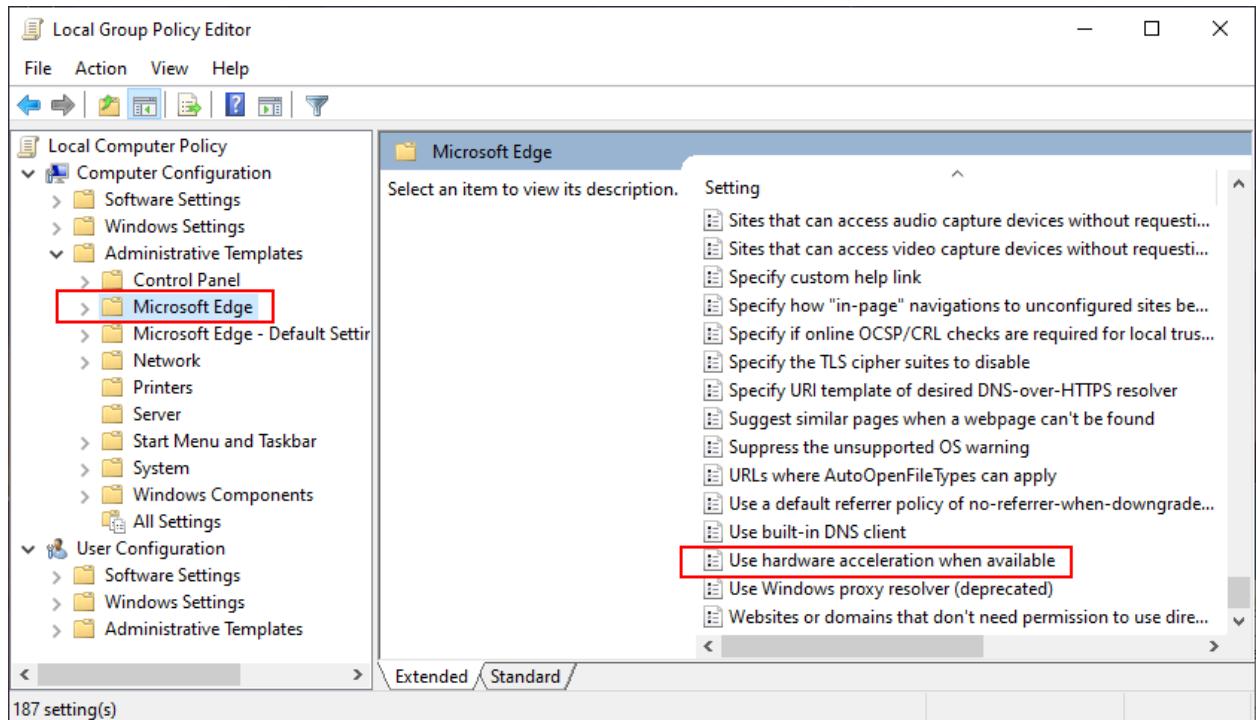
Data: 00000001

Save

Microsoft Edge:

A. GPO

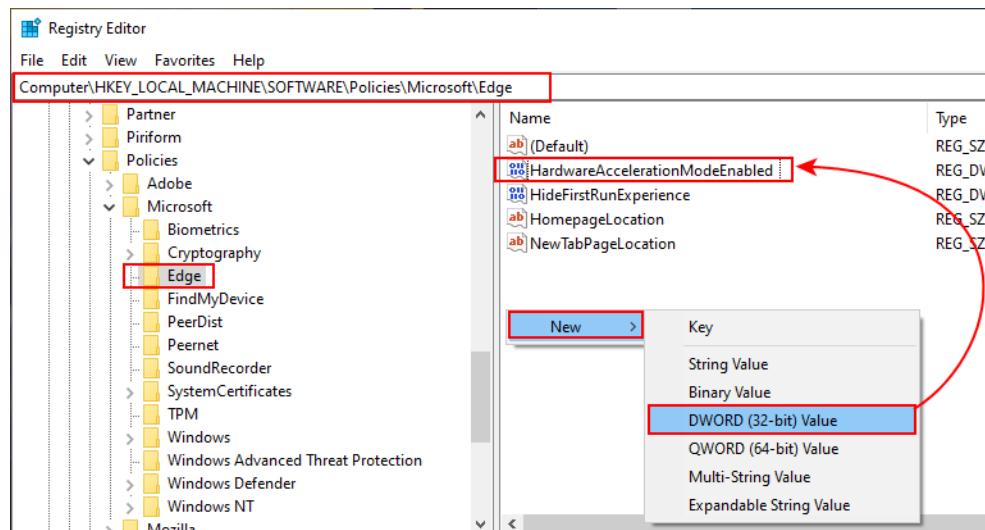
- ADMX download: <https://www.microsoft.com/en-us/download/101445> (Most recent policies from MSFT)
- Computer Configuration>Administrative Templates>Microsoft Edge>Miscellaneous
“Use hardware acceleration when available” = Disabled



B. Registry

- For Office 2010: `HKEY_CURRENT_USER\Software\Microsoft\Office\14.0\Gfx`
Value: `DisableHardware`
Type: `REG_DWORD`

Data: 1



C. ProfileUnity Registry Module

Edit Registry Setting

Filter
No Filter - Apply this to all

Description
Disable Hardware Acceleration - Microsoft Edge

Action
Add Value

Process Action After Login

Hive
HKEY_LOCAL_MACHINE

Key REQUIRED
Software\Policies\Microsoft\Edge

Type
REG_DWORD

Value
HardwareAccelerationModeEnabled

Data
00000000

Save