

IGEL OS with Chromium – Guide



Written By: Leon Beitsch, Version 1.10 (March 5, 2023)

This guide is based on IGEL UMS version:



...and based on IGEL OS version:

Firmwareversion	11.08.230.01
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Table of Contents

Contents

1. Introduction.....	3
2. Wiki.....	3
2.1. How to configure Chromium with IGEL OS – Easy	3
2.2. How to configure Chromium with IGEL OS – Advanced.....	8
3. Tips and tricks.....	9
3.1. How to define the Chromium browser as default browser with/without the IGEL setup.....	9
3.2. How to activate the hardware accelerated mode in Chromium w/o the IGEL setup	12
3.3. How to specify a set of pages on startup for Chromium w/o the IGEL setup?	16
3.4. How to deploy a Chrome extension in the Chromium browser w/o the IGEL setup.....	18
3.5. How to block another chrome://url like chrome://downloads w/o the IGEL setup.....	20
3.6. How to start Chromium in Incognito mode with a startup page w/o the IGEL setup	21
3.7. How to install the Microsoft Teams PWA in Chromium w/o the IGEL setup.....	23
3.8. How to configure Chrome bookmarks with/without the IGEL setup.....	28
3.9. How to configure the auto open dialog for applications with/without the IGEL setup.....	30
4. Important links	31
98. Planned	31
99. Version history.....	32

1. Introduction

Since IGEL released the new firmware IGEL OS 11.04.100 on August 5th, 2021 the Chromium browser is integrated as an experimental feature in IGEL OS. Additionally, Chromium is officially supported by IGEL since IGEL OS 11.06.100, released on September 22nd, 2021. Chromium uses a large part of the source code from the browser Google Chrome and will be provided as an open source project. Many other browsers are based on Chromium, for example Microsoft Edge, Opera, Vivaldi and Brave. Google Chrome owns around 3/4 of the global desktop browser market, making it the most popular browser. But of course, there are also many other browsers that also have their *raison d'être*. Nevertheless, this guide specializes in: All about Chromium with IGEL OS.

I'm an IT administrator who has been configuring the Chrome/Chromium browser for a few years and since IGEL OS 11 first with a Google Chrome Custom Partition (CP) and a JSON policy file, then with Chromium and various configuration options. With this guide I would like to share my knowledge/experiences and use it to create a guide with how-to's, tips and tricks for working with Chromium/Chrome browser and IGEL OS. It should also be said that my knowledge is completely self-taught, acquired through reading and learned through practical experience, so it's probably not perfect and I'm always open to suggestions for improvement. Please don't hesitate to contact me for suggestions or if you need help with Chrome/Chromium browser. I'm glad to help with the deployment, configuration and issues with these two browsers.

2. Wiki

2.1. How to configure Chromium with IGEL OS – Easy

2.1.1. Easy over the IGEL setup - Explanation

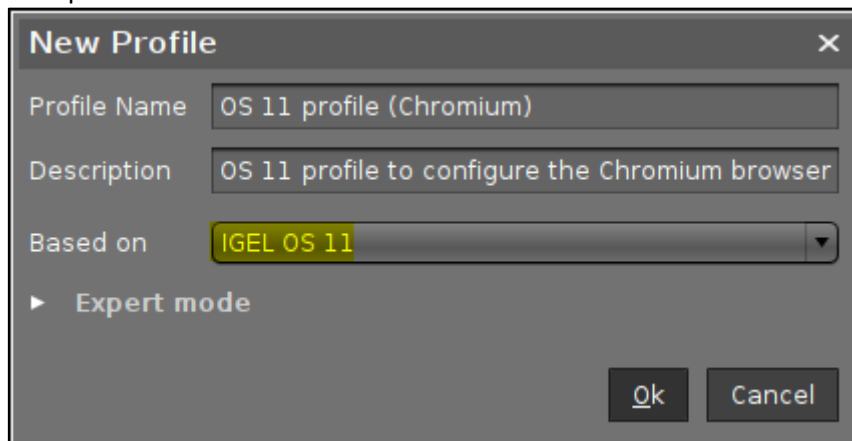
With the IGEL setup and the *Chromium Browser Global Session* configuration IGEL provides basic and easy configuration options to configure the Chromium browser. Additional to that IGEL provides a good mix of command line switches and policies, but not all and not too much, at some positions there are missing some practical functions. So, the benefits for this configuration way is, that it's easy to configure the browser, provide a mix of command line options and policies and is pretty much expected to be updated/maintained and expanded by IGEL. You can also setup Chromium policies and command line options, but not that much easy like the predefined options provided by IGEL. Also, I don't have the best experiences with the Custom setup and the configuration of many policies. My experience is that a loss of policies can occur. I worked with various UMS server and various profiles and at any of these sides when editing and working with the IGEL Setup frequently, a policy loss occurred from time to time. This represented itself in that way, that the policy name was deleted from nowhere and thus the Custom setup no longer worked properly. Maybe some others have better experience with it or at other sides it's working, but with these experiences I can't recommend to define much policies with the Custom setup. The *Chromium Browser Global Session* remains a good and easy way to configure the Chromium browser.

2.1.2. Easy over the IGEL setup - Guide

This is the easy and basic way to configure the Chromium browser. Attached are several step-by-step guidance for configuring the Chromium Browser with the IGEL setup. The first guidance is for the basic configuration, that IGEL provides, the second guidance is for the advanced configuration with Chromium policies and the third guidance is for the advanced configuration with Chromium command line options, that you can also do with the IGEL setup.

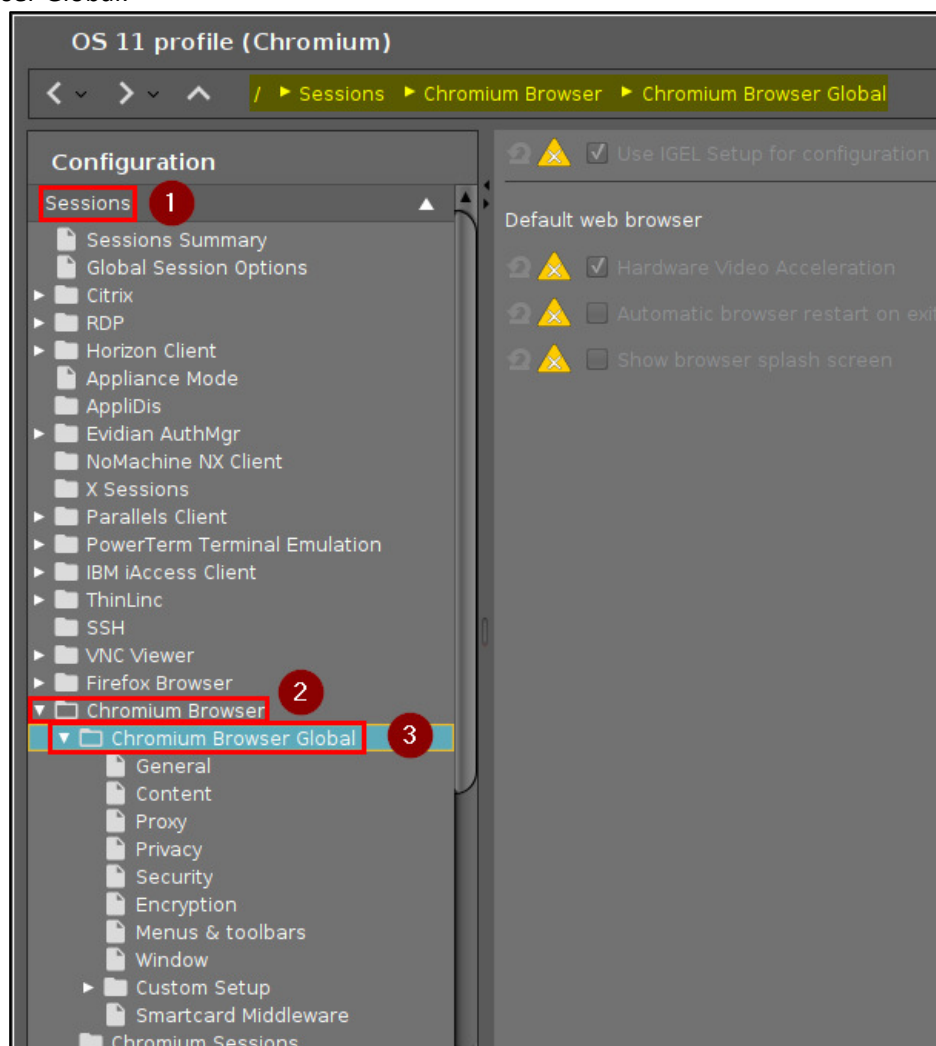
1. Guidance -> Basic configuration:

1.1. First create a profile with the newest available IGEL OS version.



(It's recommended to use the newest IGEL OS version to get the newest implemented features and bug fixes. Additional to that you also need the newest available UMS version, so that the UMS server also shows the latest configuration options. I know it's said so often, but in the case of the Chromium browser and the IGEL setup, I can highly recommend it too, because I see many new IGEL OS versions, where new features were implemented and can only be used with the newest software.)

1.2. Then go in the IGEL profile to the following path: Sessions -> Chromium Browser -> Chromium Browser Global:



- 1.3. There you have the predefined configuration options and you can configure your Chromium browser like you want. There are separated in individual categories with the exception of the category Custom Setup, which I will go into in detail in the following guidance. I don't want to explain all the single configuration options, that you can use, because IGEL has a really good knowledge base for this. So please take a look there, if you don't know, what one of these configuration options means.

[Link to the IGEL KB Entries for the Chromium Browser Global settings:](https://kb.igel.com/igelos-11.08.200/en/chromium-browser-global-session-in-igel-os-69177714.html)

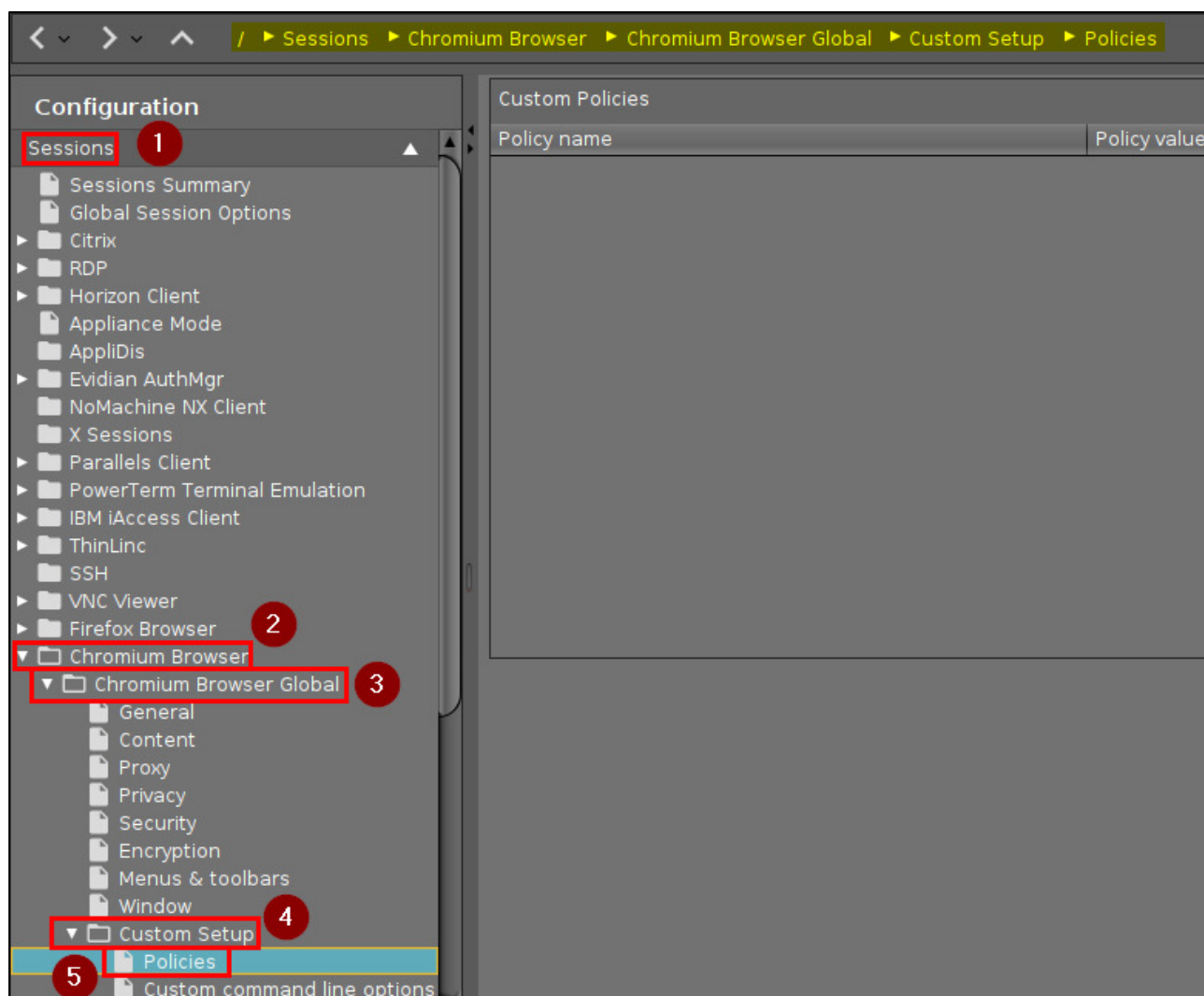
<https://kb.igel.com/igelos-11.08.200/en/chromium-browser-global-session-in-igel-os-69177714.html>

2. Guidance -> Advanced configuration for Chromium policies:

After you created your profile with the newest available IGEL OS version, like described in the guidance for the basic configuration, you can now configure custom values, like Chromium policies or Chromium command line options, that are not included in the IGEL setup. In this guidance I explain you, how you can configure Chromium policies.

Attention: Please handle/work really carefully with the Custom Setup and test it detailed in a test environment. If you use the wrong format, your entire Chromium setup incl. the basic configuration will no longer work, because the Chromium policy file created by IGEL OS can no longer be read by Chromium.

- 2.1. First navigate to the following path in your IGEL profile: Sessions -> Chromium Browser -> Chromium Browser Global -> Custom Setup -> Policies



2.2. Now you can add your wanted Chromium policies. Attached there are some examples for Chromium policies according to their data type. I hope this explains clearly how to specify the various policies, because it's important, how you specify the policy value in the IGEL setup.

Policy name	Policy value	Data type
HideWebStoreIcon	true	Boolean
DefaultCookiesSetting	4	Integer
BrowserThemeColor	#A1A1A1	String
URLAllowlist	*.example.com;*.example.local;chrome://settings/privacy;	List of strings
URLBlocklist	*.example.com;	List of string
URLAllowlist	;	Empty list

Custom Policies	
Policy name	Policy value
HideWebStoreIcon	true
DefaultCookiesSetting	4
BrowserThemeColor	#A1A1A1
URLAllowlist	*.example.com;*.example.local;chrome://settings/privacy;

Notice: You don't have to use quotation marks for strings or other values, the IGEL setup will set it for you and format the values, that Chromium can read it. Don't separate the values in a list of strings with commas, use semicolons instead. The IGEL setup works with an expected format, if you don't use it, the IGEL setup will corrupt the policy file and your Chromium basic and advanced configuration will no longer work. On IGEL OS 11.06. and previous versions it's not necessary to include a semicolon at the end of a list of strings, this has been/could be the case on IGEL OS 11.07, since IGEL OS 11.08. the semicolon is not necessary anymore.

Since IGEL OS 11.08. you can use the formatting as described on the Chromium website at the policy under "Example value (Linux):". Attached there are the same examples as described above in the formatting, which also can be used under IGEL OS 11.08.

Policy name	Policy value	Data type
HideWebStoreIcon	true	Boolean
DefaultCookiesSetting	4	Integer
BrowserThemeColor	#A1A1A1	String
URLAllowlist	["*.igelcommunity.com", "chrome://*"]	List of strings
URLBlocklist	["chrome://settings/privacy"]	List of string
URLAllowlist	[;]	Empty list

List of Chrome/Chromium policies:

<https://chromeenterprise.google/policies/>

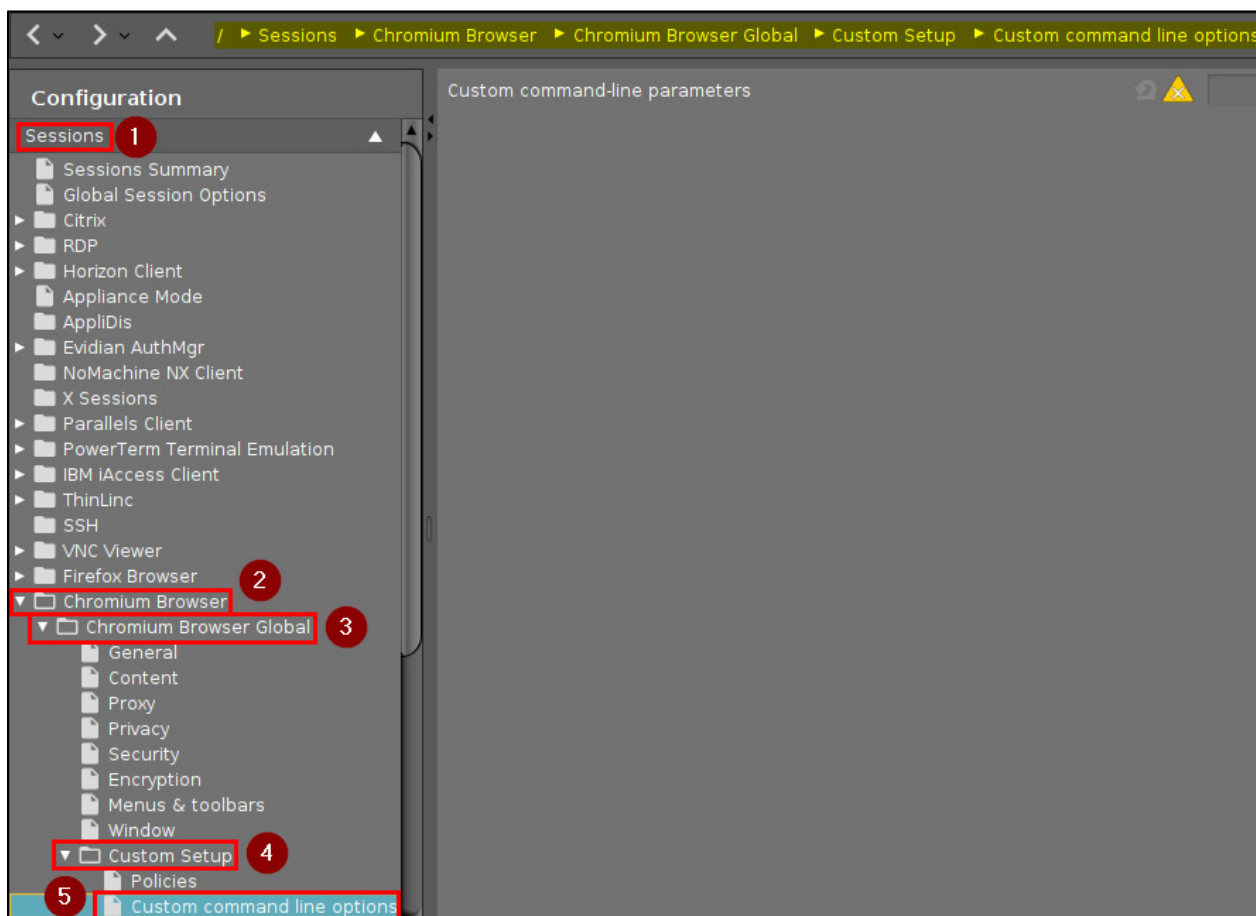
(Platform: Linux, Version: Choose the Chrome/Chromium version of the current IGEL OS version)

3. Guidance -> Advanced configuration for Chromium command line options/flags:

After you created your profile with the newest available IGEL OS version, like described in the guidance for the basic configuration, you can now configure custom values, like Chromium policies or Chromium command line options, that are not included in the IGEL setup. In this guidance I explain you, how you can configure Chromium command line options.

Attention: Please handle/work really carefully with the Custom Setup and test it detailed in a test environment. If you use the wrong format, your entire Chromium setup incl. the basic configuration will no longer work, because the Chromium policy file created by IGEL OS can no longer be read by Chromium.

3.1. First navigate to the following path in your IGEL profile: Sessions -> Chromium Browser -> Chromium Browser Global -> Custom Setup -> Custom command line options



3.2. Now you can add your wanted Chromium command line switches/flags. Attached there is an example for two Chromium command line switches based on their value, with and without a required value. I hope this explains clearly how to specify the various policies, because it's important, how you specify the command line flags in the IGEL setup.

Custom command-line parameters	--start-maximized --force-ui-direction=rtl	
Explanation	Command line flag	Value type
	--start-maximized	without a required value
	--force-ui-direction=rtl	with a required value



List of Chrome/Chromium command line switches:

<https://peter.sh/experiments/chromium-command-line-switches/>

2.2. How to configure Chromium with IGEL OS – Advanced

2.2.1. How the configuration of Chromium works – Short Technical perspective

Basically, there are two different possibilities to configure the Chromium browser.

The one way is to configure the global browser with policies, for example in the Chromium version 97 there are approx. 300 policies. The Chromium policies will be defined in the most cases in a “policy.json” or “initial_preferences.json” file. These files are a text file in JSON (JavaScript Object Notation) format and located for the Chromium browser at the path: `/etc/chromium-browser/policies/managed/` or `/etc/chromium-browser/policies/recommended/`

But the path `/etc/chromium-browser/policies/recommended/` is not used often, because under this path are JSON files with Chromium policies stored that an IT administrator recommend to the user. This means a policy is set in Chromium by default, but in difference to the policies stored in `*/managed/*` the user can change these policies. You can watch after the configured policies in Chromium under the following URL: <chrome://policy>

You can also configure single browser sessions with command line switches, so with the start command of the browser you define the settings and options. There are ca. 1400 command line switches, but many may be deprecated. It’s not recommended to define too much command line switches, because they may break, change or be removed in further versions without notice. Some command line switches are intended for development and temporary cases. To check whether a command line option works, take a look at: <chrome://flags>

It’s highly recommend, to check in <chrome://flags>, which flags are in the used browser version available, because many are deprecated. For example, in the web you can find 1400 command line switches, but in the Chromium browser version 95 are only 350 command line switches available. So, the better way is to configure Chromium with policies and use command line switches only very rarely or temporarily.

List of Chrome/Chromium policies:

<https://chromeenterprise.google/policies/>

(Platform: Linux, Version: Choose the Chrome/Chromium version of the current IGEL OS version)

List of Chrome/Chromium command line switches:

<https://peter.sh/experiments/chromium-command-line-switches/>

2.2.2. How you can configure Chromium – Introduction of the ways

There are three different ways to configure Chromium with IGEL OS, I have divided these once according to the level of difficulty. It should be said that the configuration options increase with the increasing difficulty level. If you looking for a simple way and want to configure the Chromium browser basically, then the IGEL setup is the right choice. Otherwise if you want to configure the Chromium browser from the beginning to the end with many policies, then the JSON policy file is the best solution. The way with Custom commands and command line switches is only for special use cases. For example, if you can’t/don’t want to use the IGEL setup, because the IGEL setup defining options, that blocks applications that you are using and you only need one or a small number of Chromium policies to configure the browser like installing a Chrome extension. In the next chapters I want to dive deeper into the advanced configurations ways. I already described the easy configuration way at the beginning of this guide.

Deeper dive in progress...

3. Tips and tricks

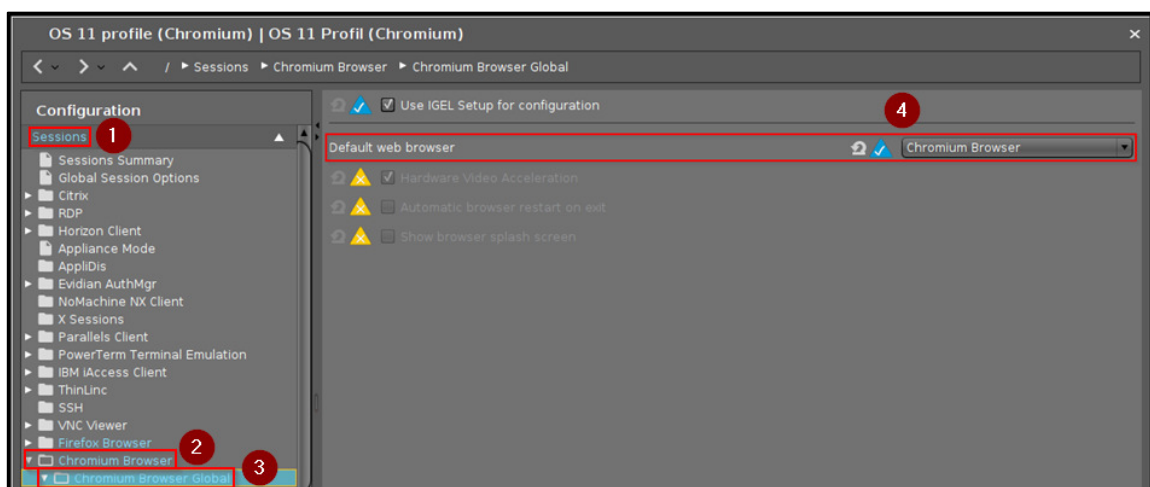
3.1. How to define the Chromium browser as default browser with/without the IGEL setup

3.1.1. ...with the IGEL setup

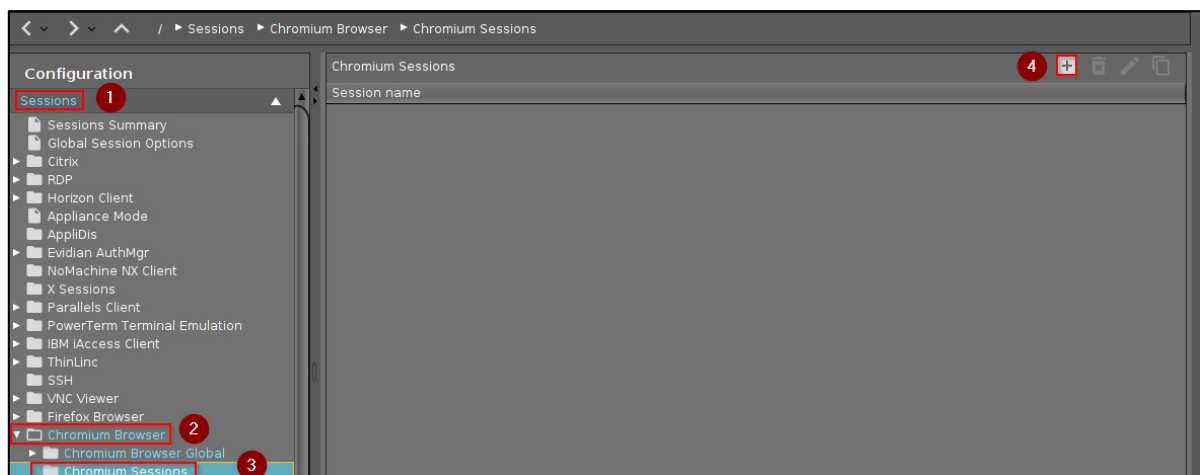
If you use the *Chromium Browser Global Session* options in the IGEL setup, you can easily set the Chromium browser as default browser. More can also be read here:

<https://kb.igel.com/igelos-11.08.200/en/chromium-browser-global-session-in-igel-os-69177714.html#ChromiumBrowserGlobalSessioninIGELOS-Defaultwebbrowser>

1. Go in the IGEL setup to Sessions > Chromium Browser > Chromium Browser Global
2. There you have the option *Default web browser*. Choose the Chromium Browser and your default web browser is the Chromium browser.



3. If you don't have an existing Chromium session, create a new Chromium session in the IGEL setup under Sessions -> Chromium Browser -> Chromium Session by clicking on the Add icon.

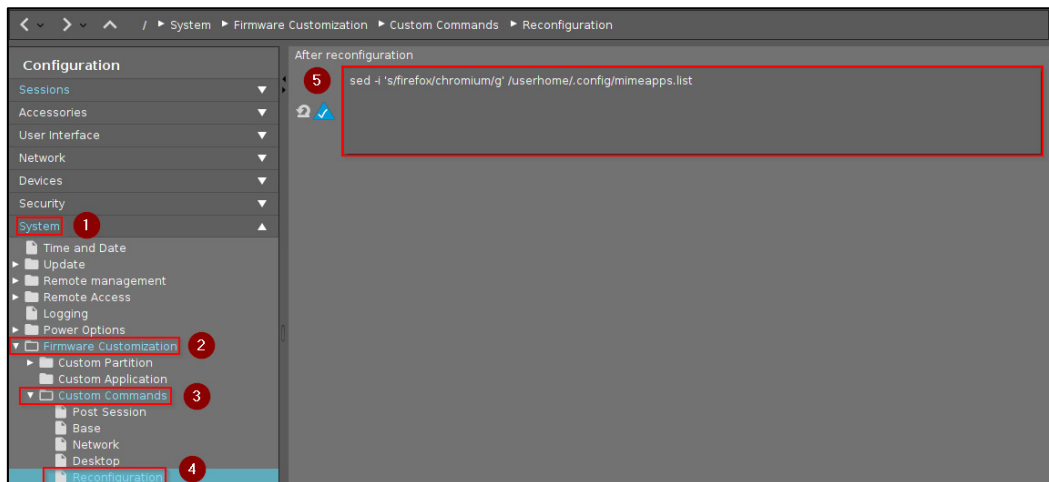


4. If you want, you can disable all starting methods, so the user can't see and can't use this Chromium session. For example, if you want to start the Chromium browser with command line switches and use a custom application for it. Just disable the starting methods *Start menu*, *Application Launcher* and *Desktop*. Note: You need this Dummy browser to set the default browser.

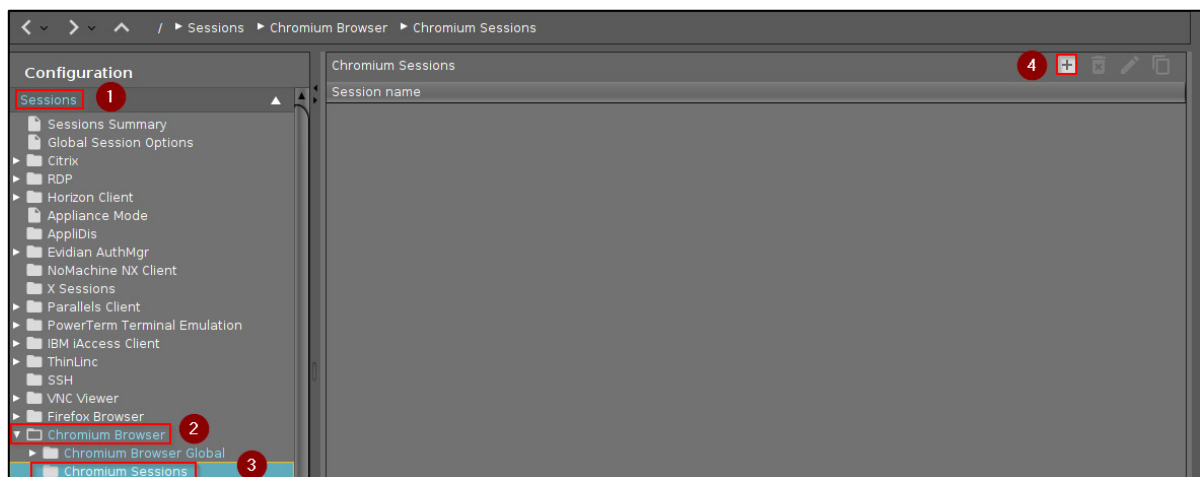
3.1.2. ...without the IGEL setup

If you can't/don't want to use the IGEL setup for the Chromium settings (found in *Chromium Browser Global Session*), there is also a way to configure the Chromium browser as default browser.

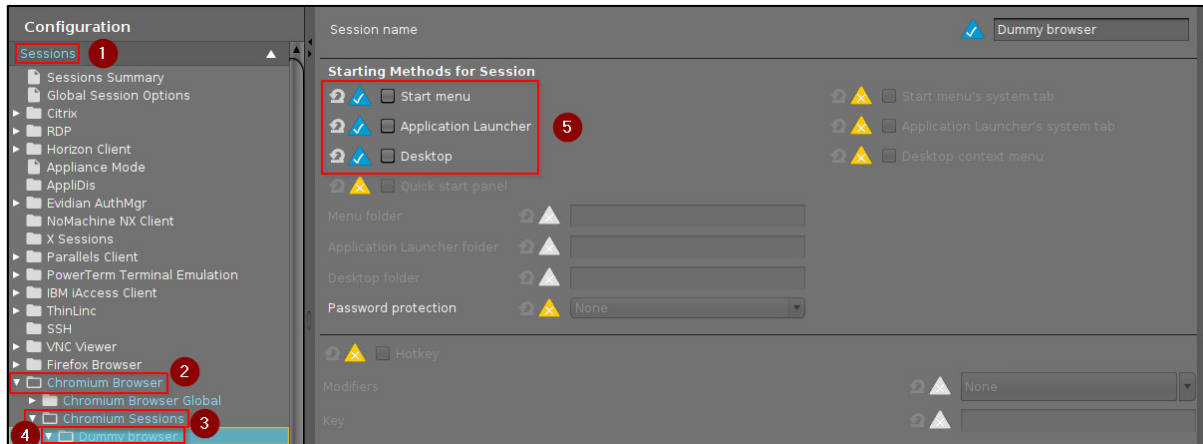
1. Go in the IGEL setup to System > Firmware Customization > Custom Commands > Reconfiguration (You can find an explanation to these commands here: <https://kb.igel.com/igelos-11.08.200/en/reconfiguration-69178203.html>)
2. Add the following command into the text box *After reconfiguration*:
`sed -i 's/firefox/chromium/g' /userhome/.config/mimeapps.list`



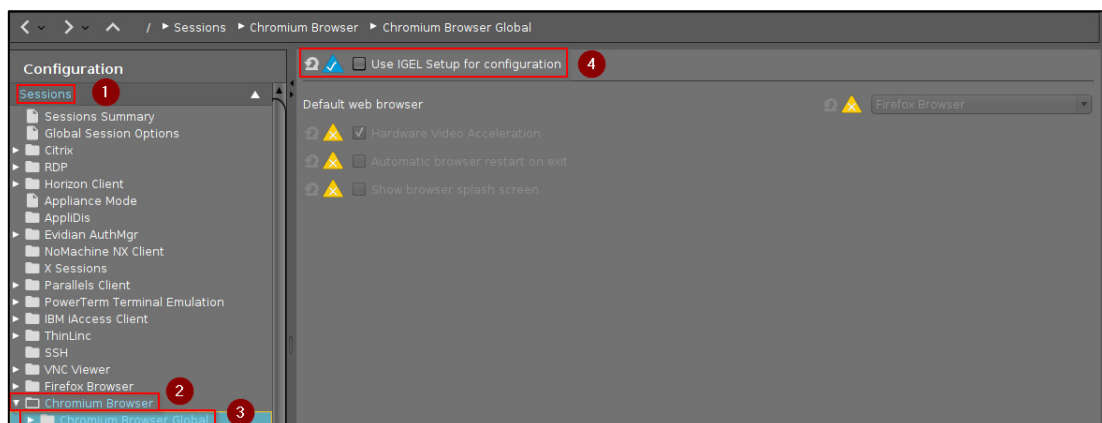
3. Create a new Chromium session in the IGEL setup under Sessions -> Chromium Browser -> Chromium Session by clicking on the Add icon.



- If you want, you can disable all starting methods, so the user can't see and can't use this Chromium session. For example, if you want to start the Chromium browser with command line switches and use a custom application for it. Just disable the starting methods *Start menu*, *Application Launcher* and *Desktop*. Note: You need this Dummy browser to set the default browser.



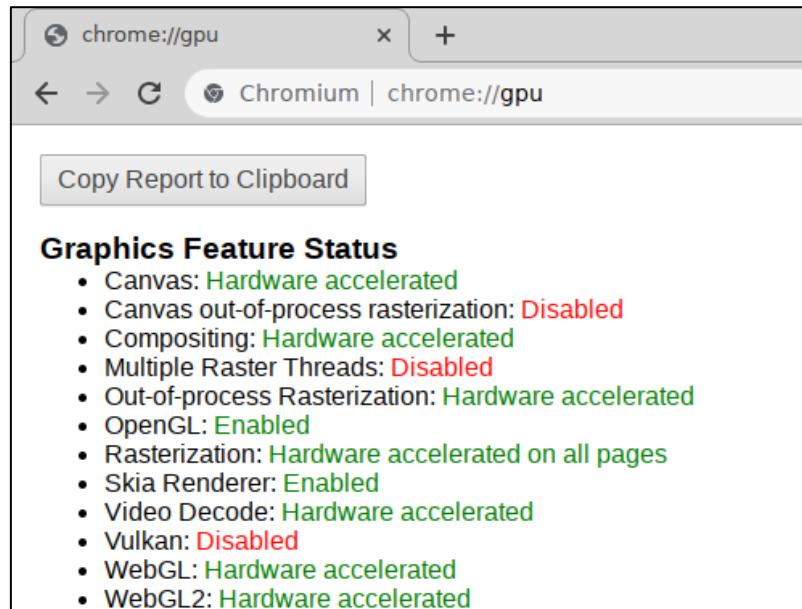
- Now you can disable the IGEL setup for configure the *Chromium Browser Global* settings under Session -> Chromium Browser -> Chromium Browser Global by disable the option *Use IGEL Setup for configuration*. Now your default web browser is the Chromium browser.



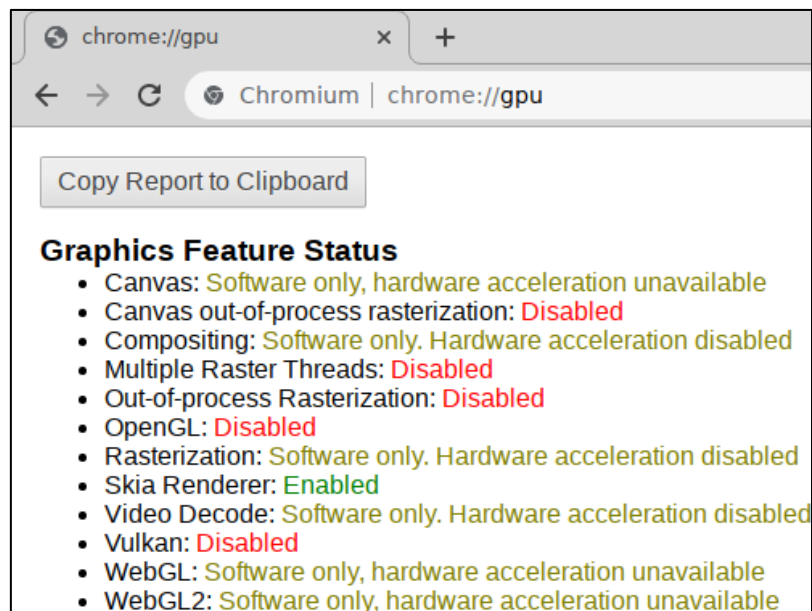
3.2. How to activate the hardware accelerated mode in Chromium w/o the IGEL setup

You can verify that the hardware accelerated mode is enabled and set correctly on your client by typing in your Chromium browser the URL: <chrome://gpu>

If it's correctly activated and set, the page will look like this:



If it's not activated and set correctly, the page will look like this:



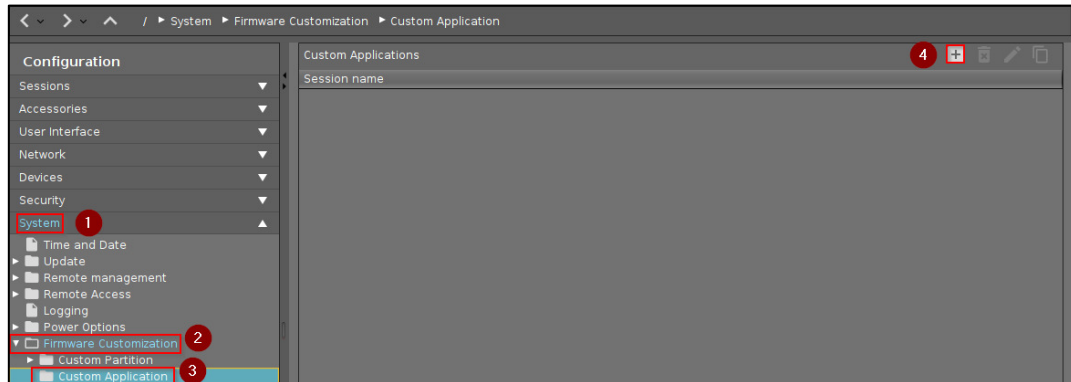
3.2.1. ...with the IGEL setup

If you use the *Chromium Browser Global Session* options in the IGEL setup, the hardware video acceleration is enabled by default, so you don't have to do something. If it doesn't work, IGEL has a good KB entry, where you can find some solution proposals. The KB entry can be found here: <https://kb.igel.com/igelos-11.08.200/en/how-can-i-use-h-264-hardware-acceleration-for-chromium-or-firefox-browsers-on-igel-os-endpoint-devices-69176096.html>

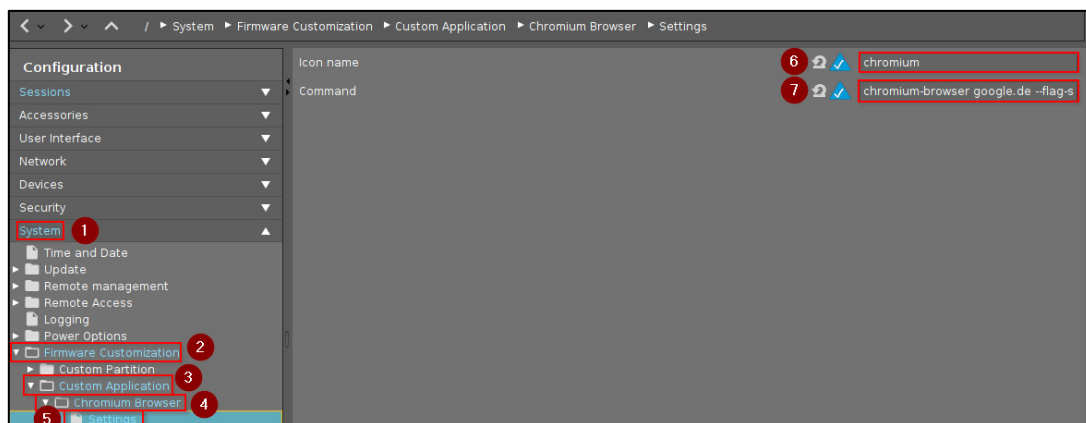
3.2.2. ...without the IGEL setup

If you can't/don't want to use the IGEL setup for the Chromium settings (found in *Chromium Browser Global Session*), there is also a way to configure the hardware accelerated mode in Chromium.

1. Create a new custom application in the IGEL setup under System -> Firmware Customization -> Custom Application by clicking on the Add icon. More can be read here: <https://kb.igel.com/igelos-11.08.200/en/custom-application-69178193.html>



2. For our example I named this session Chromium Browser, you can name it like you want. After you created the custom application go to the *Settings* under System -> Firmware Customization -> Custom Application -> [Application Name] -> Settings.

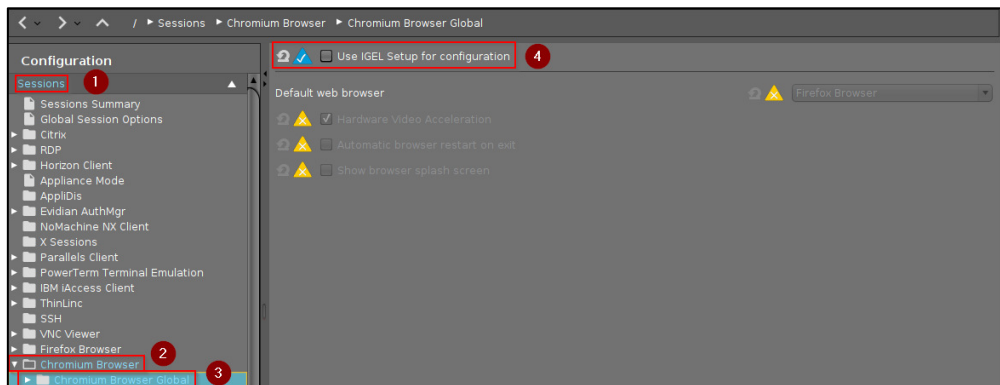


3. There you can set an icon for your application, for our example I used the default Chromium icon by use the *Icon name*: chromium. Then you set the command to start the Chromium browser beginning with: chromium-browser [startup page/-s] and then the command line switches. You can change google.de with your startup page/-s. The full command to start the Chromium browser with the hardware accelerated mode is the following:
chromium-browser google.de --flag-switches-begin --use-gl=desktop --enable-features=VaapiVideoDecoder --ignore-gpu-blocklist --enable-gpu-rasterization --flag-switches-end

The explanation for custom applications in the IGEL setup can be read here:

<https://kb.igel.com/igelos-11.08.200/en/settings-69178194.html>

- Now you can disable the IGEL setup for configure the *Chromium Browser Global* settings under Session -> Chromium Browser -> Chromium Browser Global by disable the option *Use IGEL Setup for configuration*.



- You also need to create/edit a new Chromium policy/preferences file, because you have to install a Chrome extension and enable one policy. In this example I work with an UMS file transfer, but you can also work like you want, for example with a custom command that create/edit the file.
So, create a new JSON file named *initial_preferences.json* or the older naming *managed_policies.json* with your editor. In our example I used the naming. We setup two policies. The first one is the policy *ExtensionInstallForcelist*, which force the installation of the Chrome extension *h264ify* and the second one is the policy *HardwareAccelerationModeEnabled*, which activate the hardware accelerated mode for the browser. Your JSON file should look like this:

```
{
  "ExtensionInstallForcelist": [
    "aleakchihdccplidncghkekgioiakgal"
  ],
  "HardwareAccelerationModeEnabled": true
}
```

```
{
  "ExtensionInstallForcelist": [
    "aleakchihdccplidncghkekgioiakgal"
  ],
  "HardwareAccelerationModeEnabled": true
}
```

The Chrome extension can be also found here:

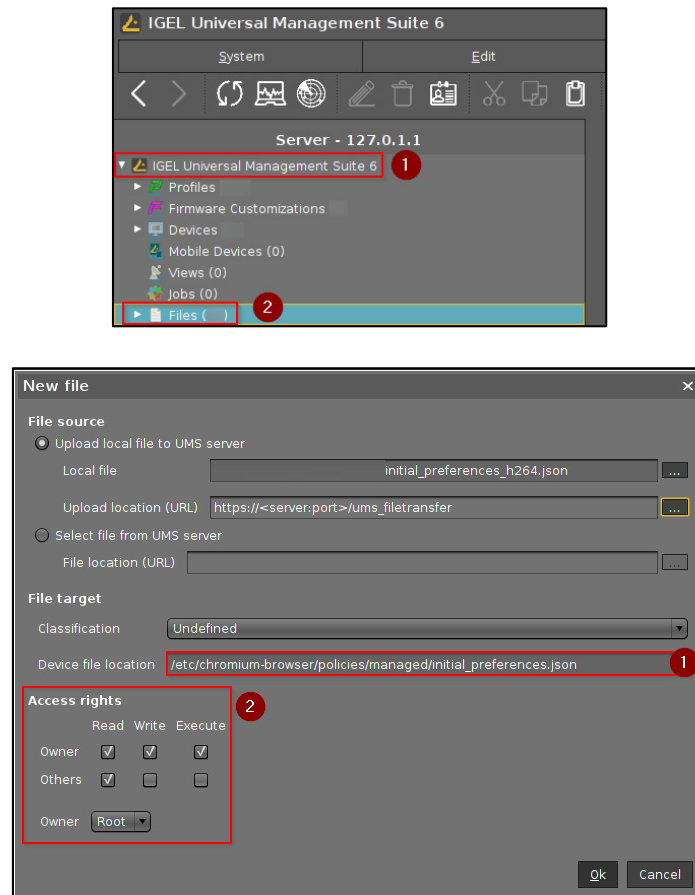
<https://chrome.google.com/webstore/detail/h264ify/aleakchihdccplidncghkekgioiakgal>

Both Chrome policies can be found here:

<https://chromeenterprise.google/policies/#ExtensionInstallForcelist>

<https://chromeenterprise.google/policies/#HardwareAccelerationModeEnabled>

6. Go in your UMS server to *Files* and upload your new JSON file. Set the following settings:
Device file location: /etc/chromium-browser/policies/managed/initial_preferences.json
Access rights for Owner: Read, Write and Execute and *Access rights for Others*: Read
Owner: Root



For more information about the UMS file transfer, look here:

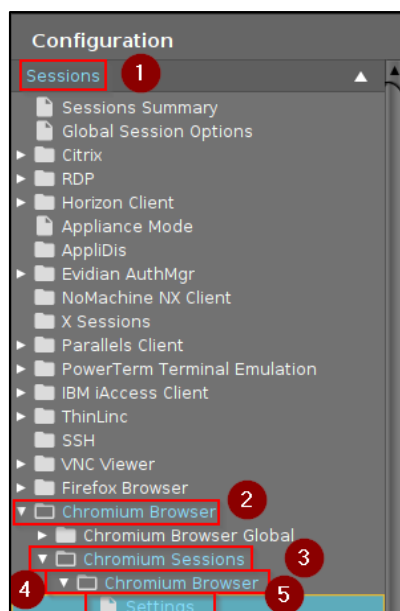
<https://kb.igel.com/endpointmgmt-6.10/en/files-57321597.html>

7. Add the newly created file to the UMS profile, where you also configured the *Custom Application* to start the Chromium browser. Now you activated the hardware accelerated mode in the Chromium browser.

3.3. How to specify a set of pages on startup for Chromium w/o the IGEL setup?

3.3.1. ...with the IGEL setup

1. Go in your IGEL setup to the following path: Sessions -> Chromium Browser -> Chromium Browser Global -> General -> Policies or if you only want to configure it for one Chromium session Sessions > Chromium Browser > Chromium Sessions > [Session Name] > Settings. In our example we configure it for a Chromium session.



2. There you have two settings. Select at the first setting *On startup* the option *Open a specific page or set of pages*. More about these settings can be read here: <https://kb.igel.com/igelos-11.08.200/en/settings-69177742.html>



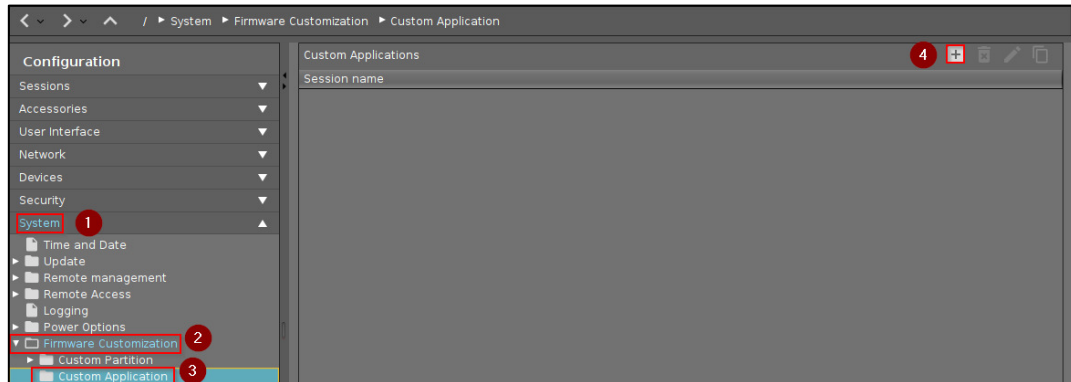
3. At the second setting *Startup page* you write your set of pages, but please pay attention to the formatting. I've tested it with the IGEL OS 11.08.100, 11.07.100, 11.06.250 and 11.05.120 and there are working various formatting. I would recommend the formatting with the pipes: |, these are also working with 11.05. With the various versions of IGEL OS the use of formatting could be different. See below possible formatting:

Startup page (formatting in IGEL setup) – Format 1				
https://www.example.com https://www.example.local https://igelcommunity.com/				
Working with...	11.05.120	11.06.250	11.07.100	11.08.100
Startup page (formatting in IGEL setup) – Format 2				
'https://www.example.com' 'https://www.example.local' 'https://igelcommunity.com/'				
Working with...	11.05.120	11.06.250	11.07.100	
Startup page (formatting in IGEL setup) – Format 3				
https://www.example.com;https://www.example.local;https://igelcommunity.com/				
Working with...	11.05.120			

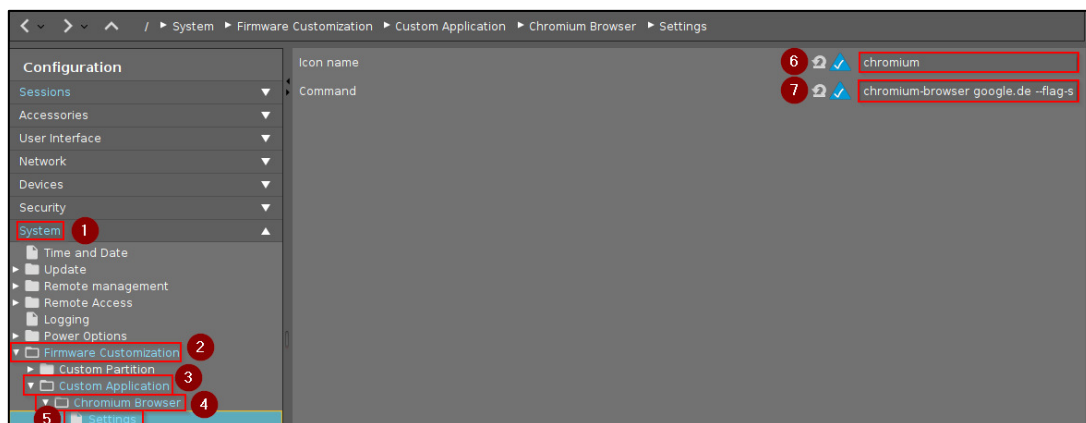
3.3.2. ...without the IGEL setup

If you can't/don't want to use the IGEL setup for the Chromium settings (found in *Chromium Browser Global Session*), there is also a way to configure the hardware accelerated mode in Chromium.

1. Create a new custom application in the IGEL setup under System -> Firmware Customization -> Custom Application by clicking on the Add icon. More can be read here: <https://kb.igel.com/igelos-11.08.200/en/custom-application-69178193.html>



2. For our example I named this session Chromium Browser, you can name it like you want. After you created the custom application go to the *Settings* under System -> Firmware Customization -> Custom Application -> [Application Name] -> Settings.

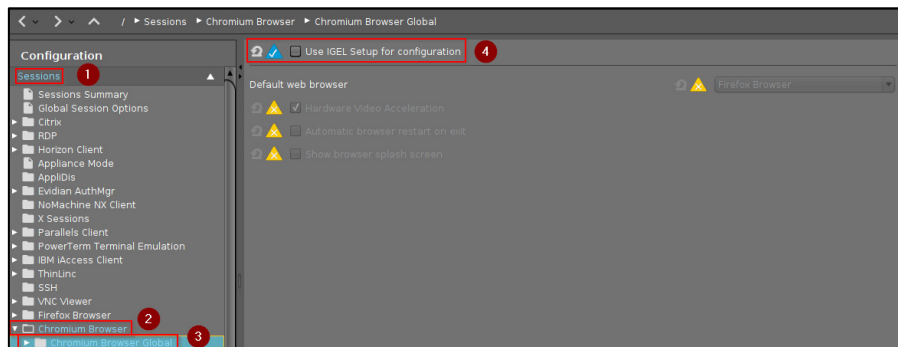


3. There you can set an icon for your application, for our example I used the default Chromium icon by use the *Icon name*: chromium. Then you set the command to start the Chromium browser beginning with: chromium-browser [startup page/-s]. You can change google.de with your startup page/-s. For example, if you want to open multiple pages you separate them with a space. This could be your command to start three different pages:
chromium-browser https://www.example.com https://www.example.local
https://igelcommunity.com/

The explanation for custom applications in the IGEL setup can be read here:

<https://kb.igel.com/igelos-11.08.200/en/settings-69178194.html>

- Now you can disable the IGEL setup for configure the *Chromium Browser Global* settings under Session -> Chromium Browser -> Chromium Browser Global by disable the option *Use IGEL Setup for configuration*.



3.4. How to deploy a Chrome extension in the Chromium browser w/o the IGEL setup

3.4.1. ...with the IGEL setup

As I explained in the chapter [2.1 How to configure Chromium with IGEL OS – Easy](#) in the guidance for the advanced configuration, it's possible to add Chromium policies, that are missing in the IGEL setup under Sessions -> Chromium Browser -> Chromium Browser Global. To install a Chrome extension, you need this configuration way.

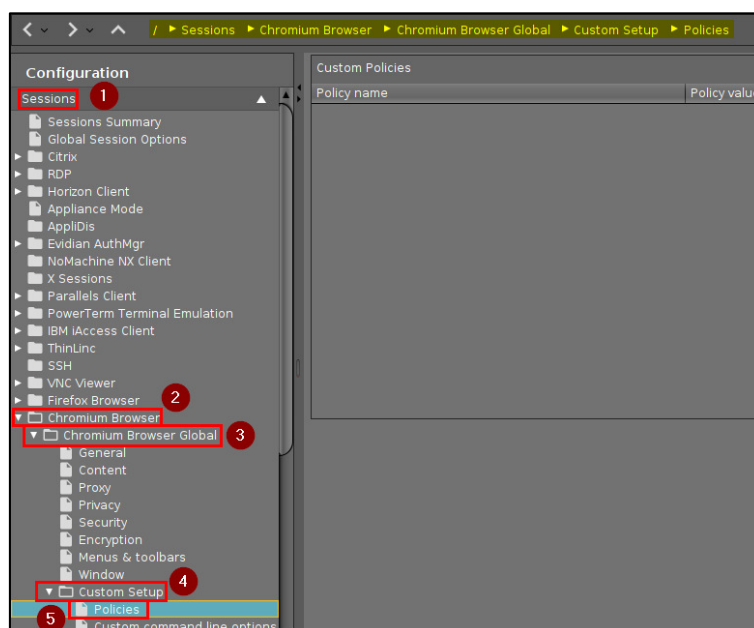
In our example I want to add the Speedtest by Ookla Chrome extension.

- Go to the Chrome web store under <https://chrome.google.com/webstore> and open the site of your Chrome extension. When you've done this, you should have a URL, in our example it's:

<https://chrome.google.com/webstore/detail/speedtest-by-ookla/pgjjikdiikhdpoppgaidccahalejhj>

From the extension website URL, you have to copy the extension-ID (32 characters long and at the end of the website URL). For the Speedtest by Ookla extension, the extension-ID is: pgjjikdiikhdpoppgaidccahalejhj

- Go in your IGEL setup to the following path: Sessions -> Chromium Browser -> Chromium Browser Global -> Custom Setup -> Policies



6. Now you can add the policy *ExtensionInstallForcelist*, which force the installation of Chrome extensions. Note: You have to add the following extension-IDs too, because IGEL added them by default and without these you can't deploy your Chrome extension, because it won't be accepted:

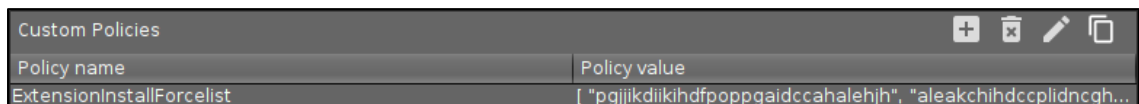
Chrome extension-ID/path	Extension name	Description
aleakchihdccplidncghkekgioiakgal	h264ify	Hardware acceleration in Chromium
kagafpaecfehghgckegkehmbhcnelfnkc; file:///services/chromium/config/update_extensions.xml	IGEL Utility	IGEL utilities for Chromium Browser

So, your policy should look like this:

Policy name: ExtensionInstallForcelist

Policy value:

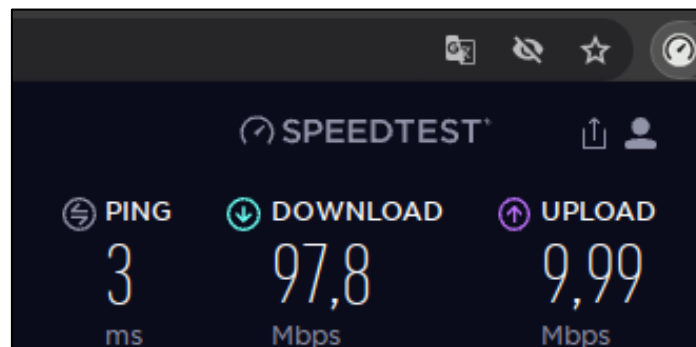
```
[ "pgjjikdiikihdfpoppgaidccahalehjh", "aleakchihdccplidncghkekgioiakgal",  
"kagafpaecfehghgckegkehmbhcnelfnkc;file:///services/chromium/config/update_extensions.xml" ]
```



Notice: The Chrome extension IGEL Utility is created by IGEL and deployed/saved locally. You can't find it in the Chrome web store.

See for the formatting of the policy value for every IGEL OS version in the chapter [2.1 How to configure Chromium with IGEL OS – Easy](#) in the guidance for the advanced configuration.

7. After the client got the new settings and Chromium was restarted, the Chrome extension is installed. See below a picture of the extension and his work (I'm sorry, I live in Germany, I can actually be proud of these internet speeds):



3.4.2. ...without the IGEL setup

...in progress...

3.5. How to block another chrome://url like chrome://downloads w/o the IGEL setup

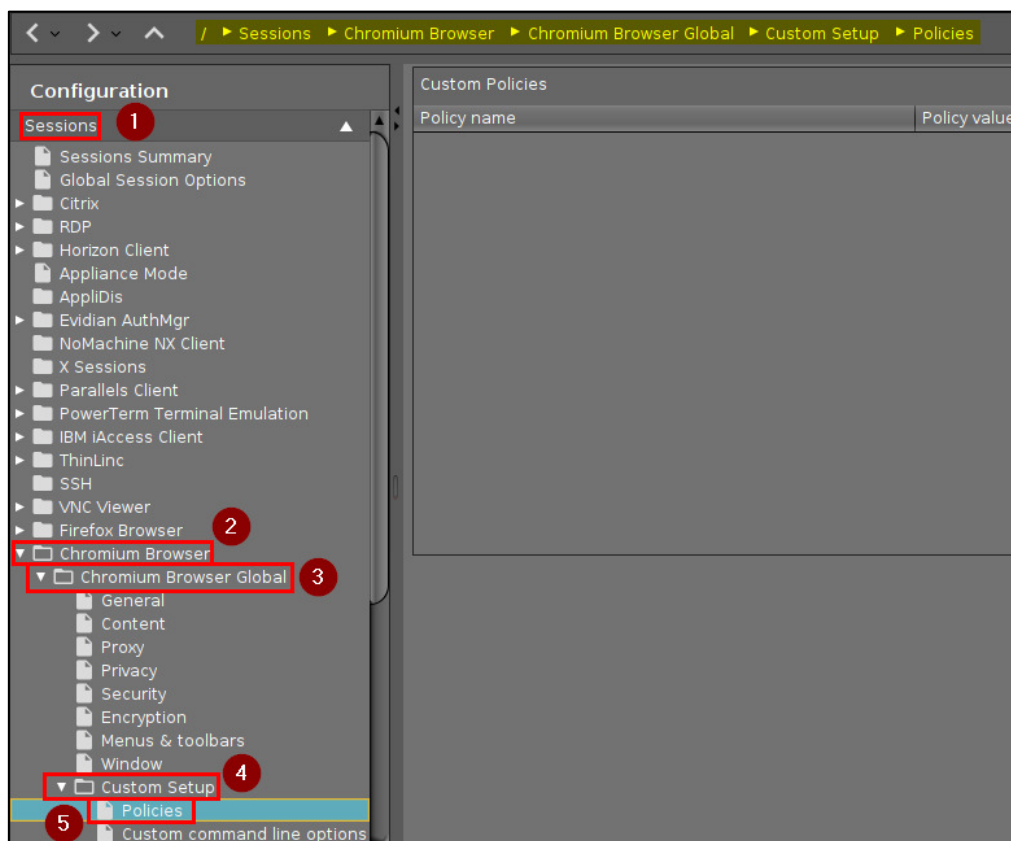
In our example I want to block additionally the Chromium Downloads page (chrome://downloads) and all other chrome:// URLs. So, the user can't access this page, but the download process continues to work and files like .rdp or .ica can be downloaded by the browser and run.

For explanation: The default IGEL setup blocks all chrome://urls with the exception of the following URLs chrome://downloads, chrome://management, chrome://print and chrome://bookmarks.

3.5.1. ...with the IGEL setup

As I explained in the chapter [2.1 How to configure Chromium with IGEL OS – Easy](#) in the guidance for the advanced configuration, it's possible to add Chromium policies, that are missing in the IGEL setup under Sessions -> Chromium Browser -> Chromium Browser Global. To install a Chrome extension, you need this configuration way.

1. Go in your IGEL setup to the following path: Sessions -> Chromium Browser -> Chromium Browser Global -> Custom Setup -> Policies



2. Now you can add the following two policies. First policy *URLAllowlist*, which allows access to specified URLs (configures/allows exceptions to the policy *URLBlocklist*). Note: You have to add the specified URLs, because IGEL added them by default and without these some Chrome or IGEL related configuration or user interface functions can break. The second policy *URLBlocklist*, which prevents access to specified URLs:

So, your policies should look like this:

Policy name	Policy value
URLAllowlist	chrome://management;chrome://print;chrome://bookmarks;
URLBlocklist	chrome://*;file://;

Custom Policies	
Policy name	Policy value
URLAllowlist	chrome://management;chrome://print;chrome://bookmarks;
URLBlocklist	chrome://*;file://;

Notice: See for the formatting of the policy value for every IGEL OS version in the chapter [2.1 How to configure Chromium with IGEL OS – Easy](#) in the guidance for the advanced configuration.

3. After the client got the new settings and Chromium was restarted, all Chrome URLs incl. chrome://downloads are blocked.

3.5.2. ...without the IGEL setup

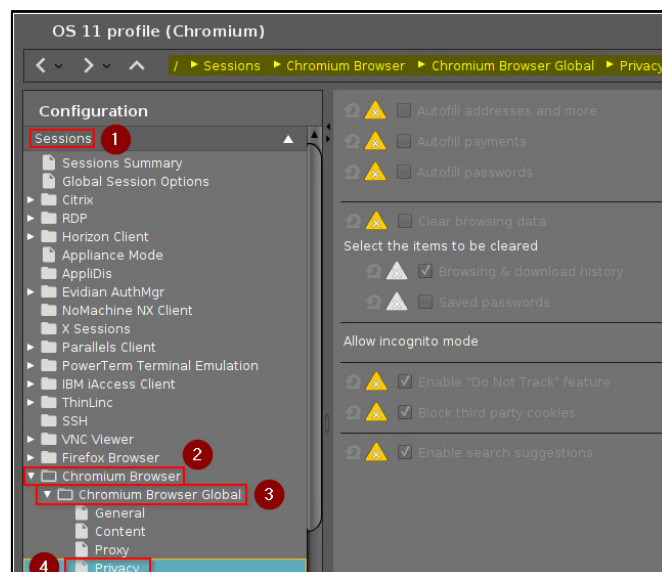
...in progress...

3.6. How to start Chromium in Incognito mode with a startup page w/o the IGEL setup

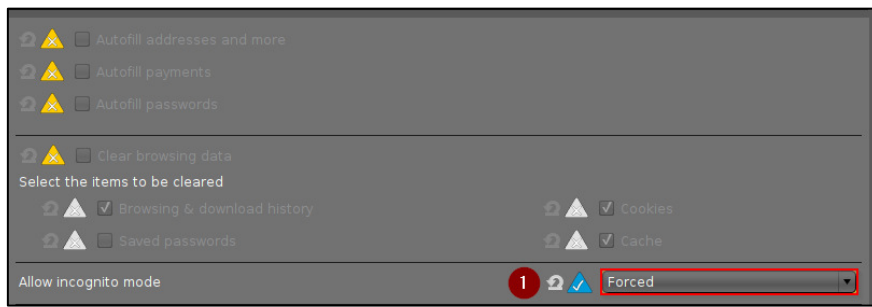
There is a known behavior, from the Chromium and Chrome browser under all operating systems. If you configure a startup page through the global settings, it won't open in Incognito mode and only a chrome://newtab page will open. If a startup page should be configured and Incognito mode should be active globally, then you need to configure the startup page directly in the browser session. Here's a quick guide on how to do that.

3.6.1. ...with the IGEL setup

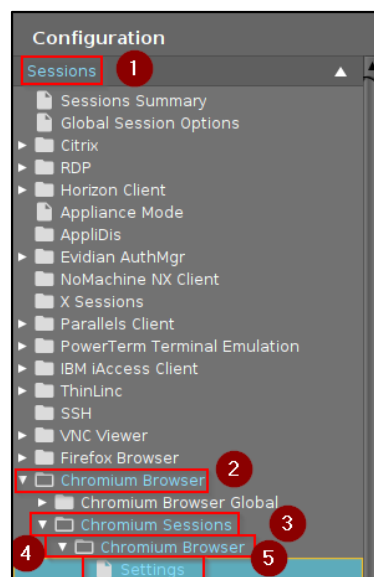
1. Go in your IGEL setup to the following path: Sessions -> Chromium Browser -> Chromium Browser Global -> Privacy



2. Change there the option under *Allow incognito mode* to *Forced*.



3. Now go in your IGEL setup to the following path: Sessions -> Chromium Browser -> Chromium Sessions > [Session Name] > Settings. In our example we configure it for a Chromium session.



4. There you have two settings. Select at the first setting *On startup* the option *Open a specific page or set of pages*. More about these settings can be read here: <https://kb.igel.com/igelos-11.08.200/en/settings-69177742.html>



5. At the second setting *Startup page* you write your startup page or set of pages, but please pay attention to the formatting. See for the formatting of the policy value for every IGEL OS version in the chapter: [3.3.1 How to specify a set of pages on startup for Chromium w/o the IGEL setup?](#)
6. After the client got the new settings and Chromium was restarted, the Incognito mode is enabled globally and the startup page will open.

3.6.2. ...without the IGEL setup

...in progress...

3.7. How to install the Microsoft Teams PWA in Chromium w/o the IGEL setup

On November 08, 2022, Microsoft announced that the Teams desktop client for Linux will be replaced by the Web App (PWA = progressive web app) in December 2022. As part of this I worked on a solution to install this web app automatically. Normally, this web app has to be installed manually by the user. More about the Teams client and PWA can be read here:

<https://techcommunity.microsoft.com/t5/microsoft-teams-blog/microsoft-teams-progressive-web-app-now-available-on-linux/bc-p/3674458/highlight/true#M11387%2309>

Unfortunately, setting up an automated and easy installation was very difficult. Nevertheless, I think the solution I have worked out is quite good. Below are the instructions and hints for my solution.

3.7.1. ...with the IGEL setup

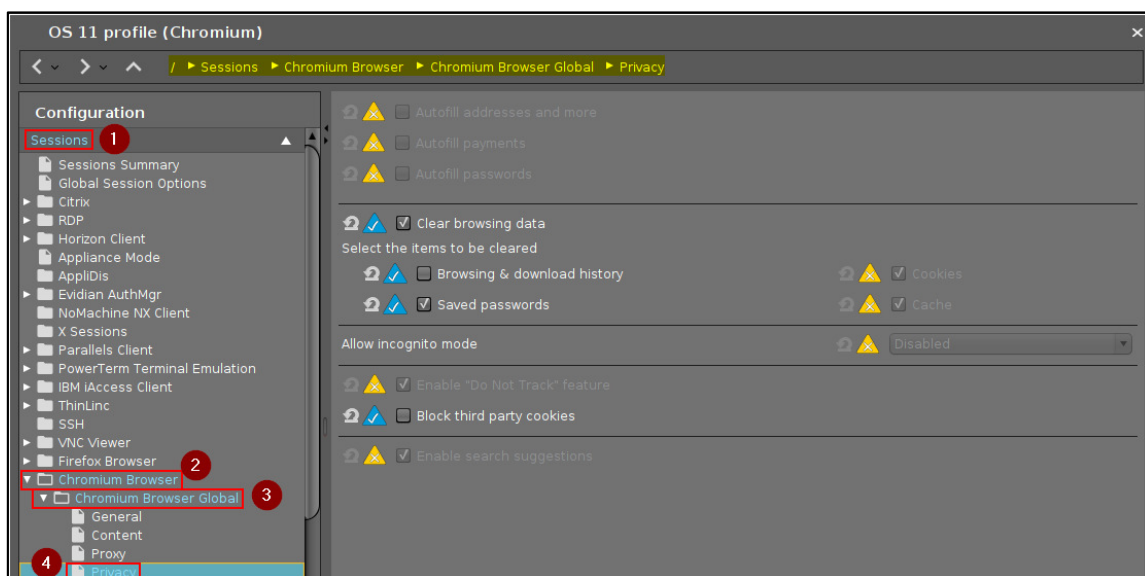
Only with the IGEL setup it's not possible to implement this solution. So, let's jump over to the chapter: 3.7.2 ...without the IGEL setup.

3.7.2. ...without the IGEL setup

Attached the IGEL profile settings, I've configured to install the MS Teams PWA:

You can also easily access my IGEL profile template with all the settings you need to install the PWA, look here: https://leon-beitsch.de/shared/Chromium_MS-Teams-PWA_profile.xml

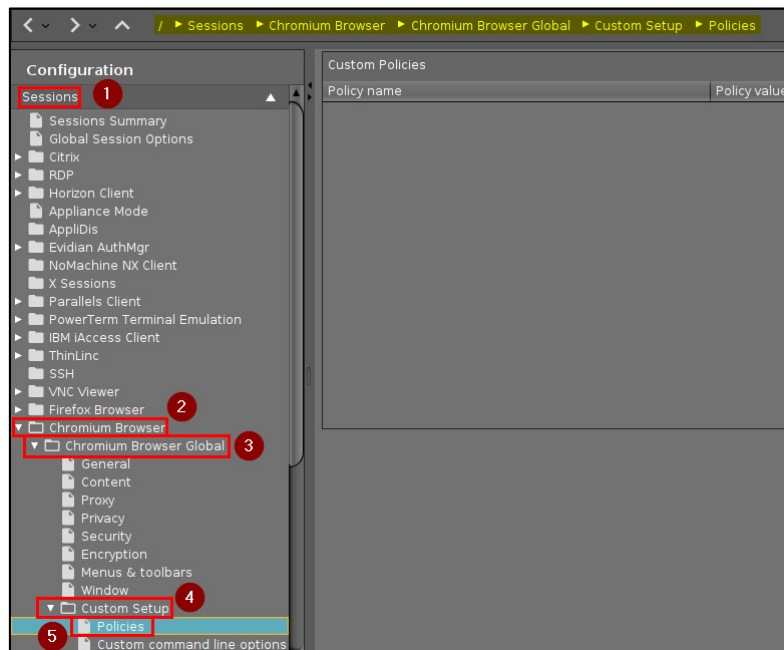
1. Go in your IGEL setup to the following path: Sessions -> Chromium Browser -> Chromium Browser Global -> Privacy and deactivate the option *Block third party cookies*.



Notice: Since the integration of the Chromium browser in IGEL OS, the "Clear browsing data" option in the IGEL setup doesn't work. I created a IGEL support ticket on December 30th, 2022. That's why and additional to that some missing items I worked with a custom command as a workaround, which will be described later in this chapter. The current status of the bug and support ticket can be read here:

<https://igelcommunity.slack.com/archives/C8GP9JHQE/p1672416071946279>

- Now go in your IGEL setup to the following path: Sessions -> Chromium Browser -> Chromium Browser Global -> Custom Setup -> Policies



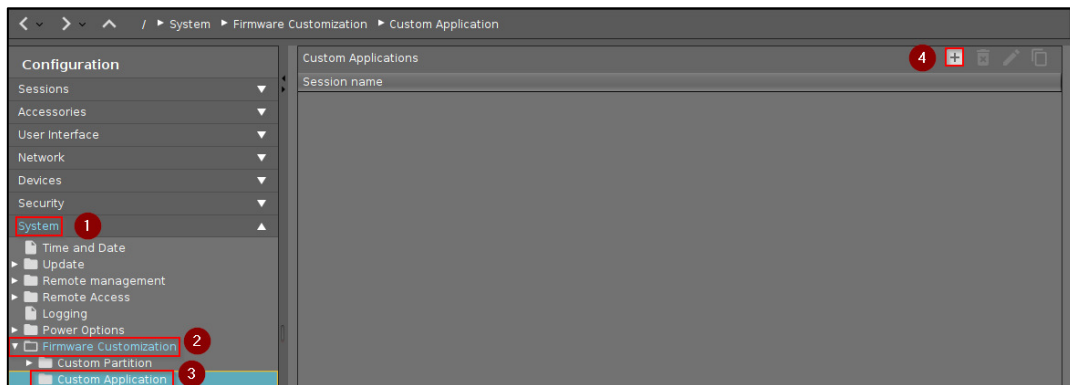
So, your policies should look like this:

Policy name	Policy value
WebAppInstallForcelist	[{"custom_name": "Microsoft Teams", "fallback_app_name": "Microsoft Teams", "create_desktop_shortcut": true, "default_launch_container": "window", "url": "https://teams.microsoft.com/?clientType=pwa"}]
CookiesAllowedForUrls	["*.microsoft.com", "*.microsoftonline.com", "*.teams.skype.com", "*.teams.microsoft.com", "*.sfbassets.com", "*.skypeforbusiness.com"]
ClearBrowsingDataOnExitList	["cookies_and_other_site_data", "password_signin", "autofill", "hosted_app_data"]
URLAllowlist	["chrome://downloads", "chrome://management", "chrome://print", "chrome://bookmarks", "chrome://apps", "chrome://app-settings"]
SyncDisabled	true
AudioCaptureAllowedUrls	["*.microsoft.com", "*.microsoftonline.com", "*.teams.skype.com", "*.teams.microsoft.com", "*.sfbassets.com", "*.skypeforbusiness.com"]
VideoCaptureAllowedUrls	["*.microsoft.com", "*.microsoftonline.com", "*.teams.skype.com", "*.teams.microsoft.com", "*.sfbassets.com", "*.skypeforbusiness.com"]

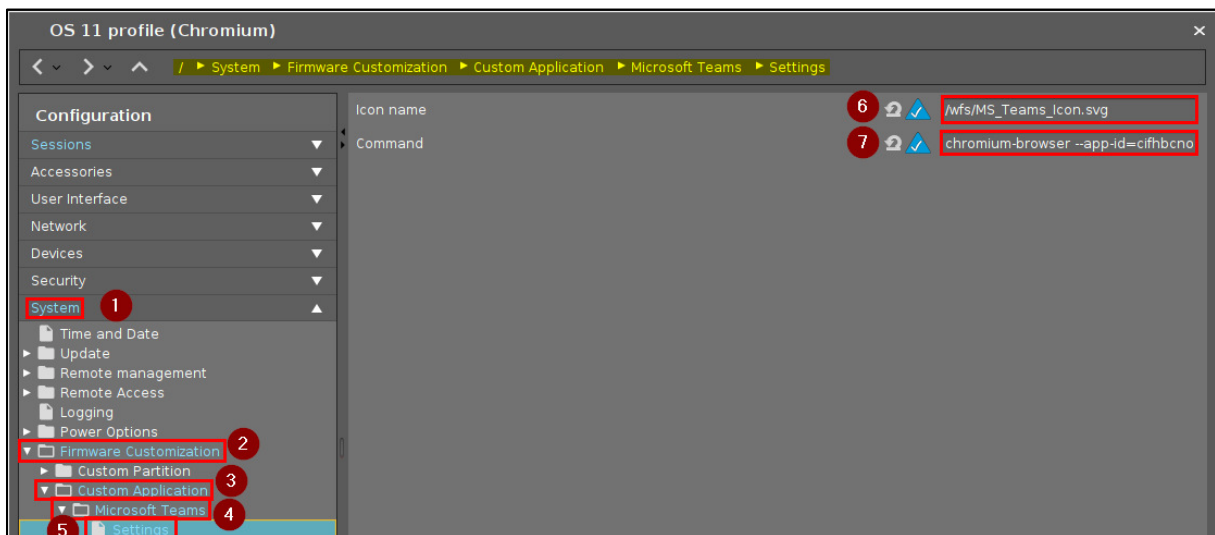
Custom Policies	
Policy name	Policy value
WebAppInstallForcelist	[{"custom name": "Microsoft Teams", "fallback app name": "Microsoft Teams", "create desktop shortcut": true, "default launch container": "window", "url": "https://teams.microsoft.com/?clientType=pwa"}]
CookiesAllowedForUrls	["*.microsoft.com", "*.microsoftonline.com", "*.teams.skype.com", "*.teams.microsoft.com", "*.sfbassets.com", "*.skypeforbusiness.com"]
ClearBrowsingDataOnExitList	["cookies and other site data", "password signin", "autofill", "hosted app data"]
URLAllowlist	["chrome://downloads", "chrome://management", "chrome://print", "chrome://bookmarks", "chrome://apps", "chrome://app-settings"]
SyncDisabled	true
AudioCaptureAllowedUrls	["*.microsoft.com", "*.microsoftonline.com", "*.teams.skype.com", "*.teams.microsoft.com", "*.sfbassets.com", "*.skypeforbusiness.com"]
VideoCaptureAllowedUrls	["*.microsoft.com", "*.microsoftonline.com", "*.teams.skype.com", "*.teams.microsoft.com", "*.sfbassets.com", "*.skypeforbusiness.com"]

Notice: See for the formatting of the policy value for every IGEL OS version in the chapter [2.1 How to configure Chromium with IGEL OS – Easy](#) in the guidance for the advanced configuration.

3. Create a new custom application in the IGEL setup under System -> Firmware Customization -> Custom Application by clicking on the Add icon. More can be read here: <https://kb.igel.com/igelos-11.08.200/en/custom-application-69178193.html>



4. I named the session Microsoft Teams, you can name it like you want. After you created the custom application go to the *Settings* under System -> Firmware Customization -> Custom Application -> [Application Name] -> Settings.



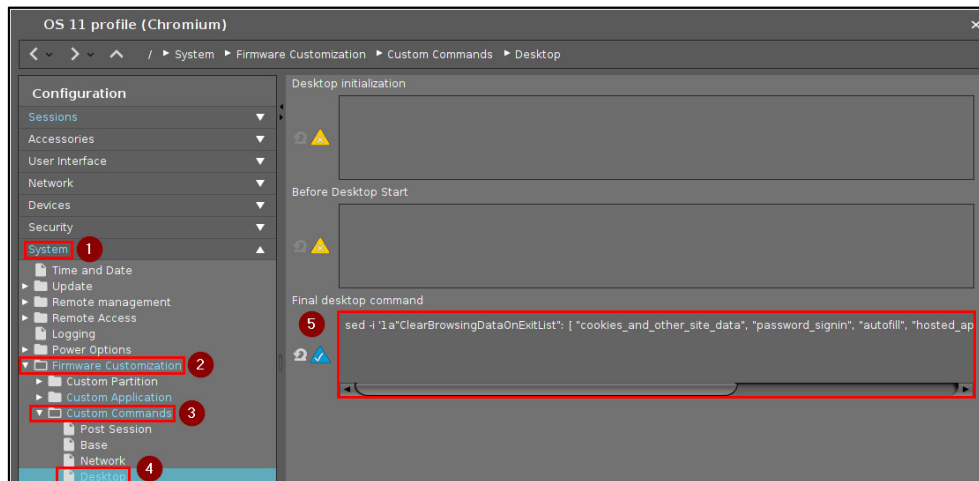
5. There you can set an icon for your MS Teams application, for our example I used the MS Teams icon, which I saved locally on the device. To do that go in your UMS server to *Files* and upload a MS Teams image file. For more information about the UMS file transfer, look here: <https://kb.igel.com/endpointmgmt-6.10/en/files-57321597.html>
Add the newly created file to the UMS profile, where you also configured rollout of the MS Teams PWA. Now you activated the hardware accelerated mode in the Chromium browser.

Alternatively, you can also refer to the MS Teams PWA icon path, but this didn't prove promising in my tests. In my tests the icon was only displayed in one of my tests. But anyway, here is the path to it: `/userhome/.config/chromium/Default/Web Applications/Manifest Resources/cifhbcnohmdccbgoicgdjpfamggdegmo/Icons/256.png`

6. Then you set the command to start the PWA. The full command to start the Microsoft Teams PWA is the following:
`chromium-browser --app-id=cifhbcnohmdccbgoicgdjpfamggdegmo "--app-url=https://teams.microsoft.com/?clientType=pwa"`

7. Go in the IGEL setup to System > Firmware Customization > Custom Commands > Desktop (You can find an explanation to these commands here: <https://kb.igel.com/igelos-11.08.200/en/reconfiguration-69178203.html>)
8. Add the following command into the text box *Final desktop command*:

```
sed -i '1a"ClearBrowsingDataOnExitList": [ "cookies_and_other_site_data",  
"password_signin", "autofill", "hosted_app_data" ],' /etc/chromium-  
browser/policies/managed/policies.json
```

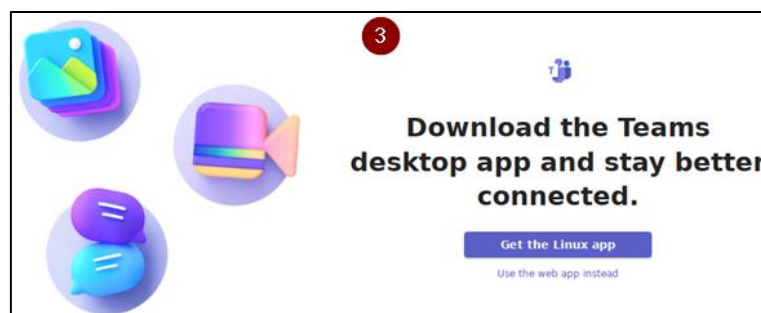
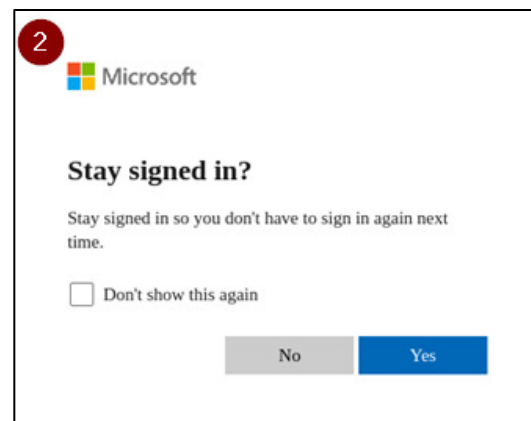
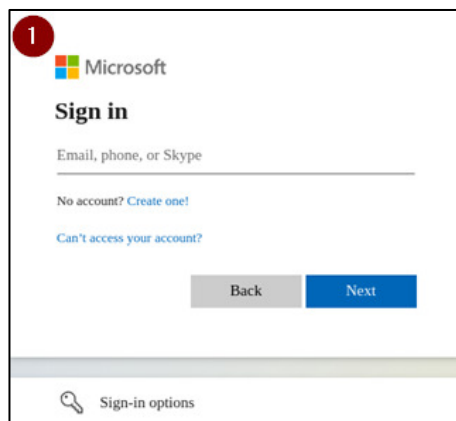


9. Now after a restart the Microsoft Teams PWA is installed and ready to use.

User perspective:

Now when a user clicks on the Custom Application to launch the MS Teams PWA, they only need three steps to use Teams:

First log in to the Microsoft account, as the second step respond the query "Stay signed in?" and finally for the download query click on "Use the web app instead". Now they can use MS Teams.



Installation notes/Readme:

Here I would like to explain possible configuration options and explanations for the configuration I made for the MS Teams PWA.

- **Clear browsing data on exit:** Since our devices are used by multiple employees, I have integrated the Chromium *ClearBrowsingDataOnExitList* policy. That means data like the Microsoft login, general logins, saved passwords, autofill information, cookies and app data are deleted after browser exit. Each time the MS Teams PWA is opened, the login data is requested again and the three steps for the user are always identical.
 - **If you don't want this, do the following:** If you want the logins and data to be saved, then delete the configured sed command under System > Firmware Customization > Custom Commands > Desktop; delete the custom policy *ClearBrowsingDataOnExitList* and *SyncDisabled* under Sessions -> Chromium Browser -> Chromium Browser Global -> Custom Setup -> Policies and deactivate the option *Clear browsing data* under Sessions -> Chromium Browser -> Chromium Browser Global -> Privacy.
- **Open MS Teams in browser window:** I decided to start the MS Teams PWA in a new browser window so that the user sees it as a separate app.
 - **If you don't want this, do the following:** If you want to open the MS Teams PWA in a new browser tab instead, then change the value of the custom policy *WebAppInstallForceList* to the following:

Policy name	Policy value
WebAppInstallForceList	[[{"custom_name": "Microsoft Teams", "fallback_app_name": "Microsoft Teams", "create_desktop_shortcut": true, "default_launch_container": "tab", "url": "https://teams.microsoft.com/?clientType=pwa"}]]

- **Camera and audio allowed for MS Teams:** I pre-enabled audio and video permission for MS Teams to increase usability. In this way, users can start video conferences directly without assigning permissions.
 - **If you don't want this, do the following:** If you want the users to grant the permissions for audio and video themselves, then delete the custom policy *AudioCaptureAllowedUrls* and *VideoCaptureAllowedUrls* under Sessions -> Chromium Browser -> Chromium Browser Global -> Custom Setup -> Policies.
- **Recommended way of configuration by Microsoft:** Since without this configuration the Teams web client is stuck in a login loop, I deactivated the option *Block third party cookies* under Sessions -> Chromium Browser -> Chromium Browser Global -> Privacy and I configured the custom policy *CookiesAllowedForUrls* under Sessions -> Chromium Browser -> Chromium Browser Global -> Custom Setup -> Policies. It's recommend by Microsoft for more information about this, look here:
https://learn.microsoft.com/en-us/microsoftteams/troubleshoot/teams-sign-in/sign-in-loop?WT.mc_id=M365-MVP-6771
- **Recommended way of configuration by Chromium/Google:** I configured the custom policy *SyncDisabled* under Sessions -> Chromium Browser -> Chromium Browser Global -> Custom Setup -> Policies. It's recommend by Google, if you want to use Chromium policy *ClearBrowsingDataOnExitList* for more information about this, look here:
https://chromeenterprise.google/intl/en_us/policies/#ClearBrowsingDataOnExitList

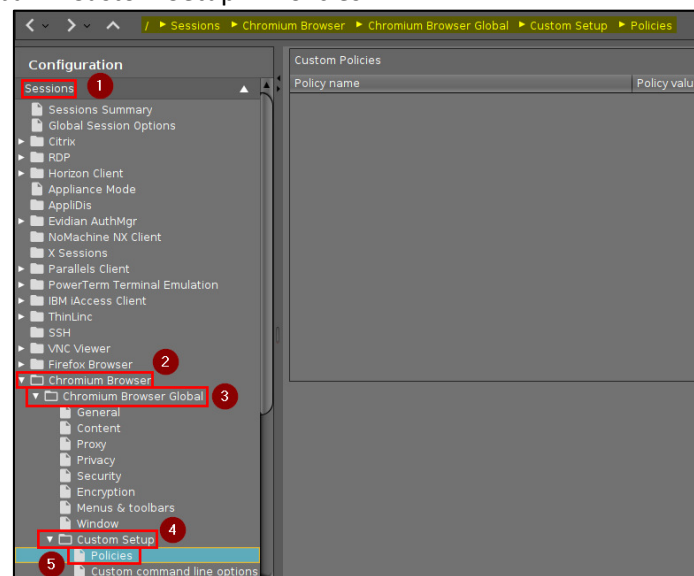
- **Access to the app settings app by user:** I configured the custom policy *URLAllowlist* under Sessions -> Chromium Browser -> Chromium Browser Global -> Custom Setup -> Policies with the configured allowed pages by IGEL and additional to that I allowed the sites `chrome://apps` and `chrome://app-settings`. With this setting, the user can open the MS Teams PWA manually in the Chromium browser and open the app settings.
 - **If you don't want this, do the following:** If you want to deny the user to access the app settings and manually opening the app in the Chromium browser, then delete the custom policy *URLAllowlist* under Sessions -> Chromium Browser -> Chromium Browser Global -> Custom Setup -> Policies.

3.8. How to configure Chrome bookmarks with/without the IGEL setup

3.8.1. ...with the IGEL setup

As I explained in the chapter [2.1 How to configure Chromium with IGEL OS – Easy](#) in the guidance for the advanced configuration, it's possible to add Chromium policies, that are missing in the IGEL setup under Sessions -> Chromium Browser -> Chromium Browser Global. To install bookmarks, you need this configuration way.

1. Go in your IGEL setup to the following path: Sessions -> Chromium Browser -> Chromium Browser Global -> Custom Setup -> Policies



2. Now you can add the policy *ManagedBookmarks*, which configures managed bookmarks. Note: You can change the top folder name in the bookmark bar, where your configured bookmarks are listed. The default name is "Managed bookmarks", in our example I named the folder "IGEL Community Bookmarks".

So, your policy could look like this:

Policy name: `ExtensionInstallForcelist`

Policy value:

```
[{"toplevel_name":"IGEL Community Bookmarks"}, {"name":"IGEL website", "url":"igel.com"}, {"name":"IGEL Knowledge Base", "url":"kb.igel.com"}, {"children":[{"name":"IGEL Community website", "url":"igelcommunity.com"}, {"name":"Github", "url":"github.com/IGEL-Community"}, {"name":"Join IGEL Community", "url":"join.igelcommunity.com"}], "name":"IGEL Community links"}]
```

Custom Policies	
Policy name	Policy value
ManagedBookmarks	[{"toplevel_name": "IGEL Community Bookmarks"}, {"name": "...

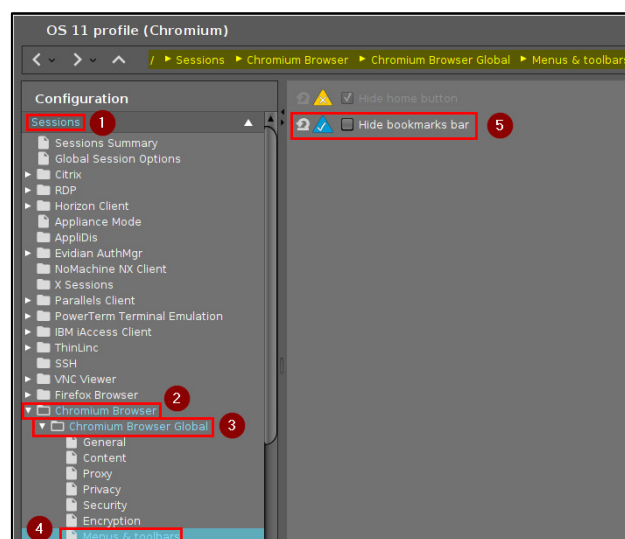
Notice: See for the formatting of the policy value for every IGEL OS version in the chapter [2.1 How to configure Chromium with IGEL OS – Easy](#) in the guidance for the advanced configuration.

Additional note: You can also configure, that users can't add, edit or delete bookmarks. Just add an additional Custom Policy like described above with the following value:

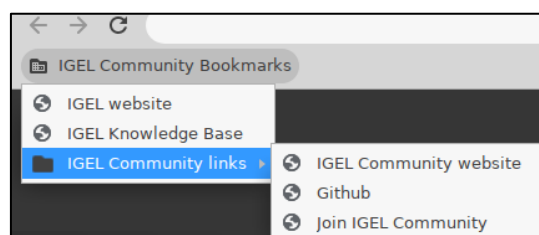
Policy name	Policy value
EditBookmarksEnabled	false

Custom Policies	
Policy name	Policy value
ManagedBookmarks	[{"toplevel_name": "IGEL Community Bookmarks"}, {"name": "...
EditBookmarksEnabled	false

- If you want the bookmarks bar to be visible you have to disable one IGEL profile option, because IGEL's default setting is to hide the bookmarks bar. To show the bookmarks bar go in your IGEL setup to the following path: Sessions -> Chromium Browser -> Chromium Browser Global -> Menus & toolbars and deactivate the option *Hide bookmarks bar*.



- After the client got the new settings and Chromium was restarted, the Chrome bookmarks are configured. See below a picture of the bookmarks bar:



3.8.2. ...without the IGEL setup

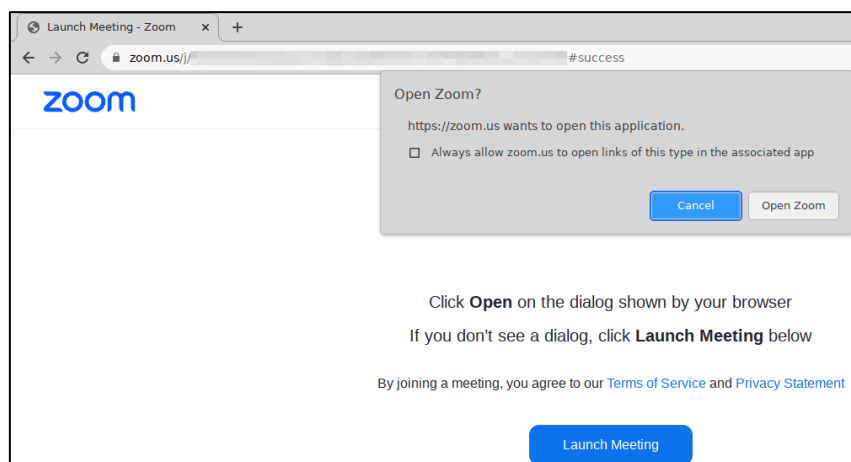
...in progress...

3.9. How to configure the auto open dialog for applications with/without the IGEL setup

3.9.1. ...with the IGEL setup

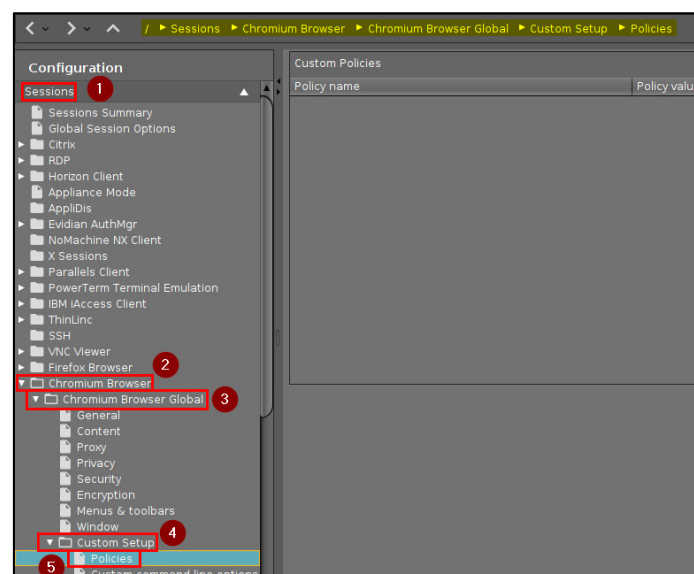
As I explained in the chapter [2.1 How to configure Chromium with IGEL OS – Easy](#) in the guidance for the advanced configuration, it's possible to add Chromium policies, that are missing in the IGEL setup under Sessions -> Chromium Browser -> Chromium Browser Global. You can also configure Chromium to automatically open applications when specific browser links are opened. In our example I explain it with Zoom meeting links and the Zoom CP.

So, typically when you open a Zoom link in the browser and click on *Launch Meeting*, you will be asked if you want to open the Zoom CP. You can overwrite this question and open the Zoom CP directly.



To configure this, follow the steps below.

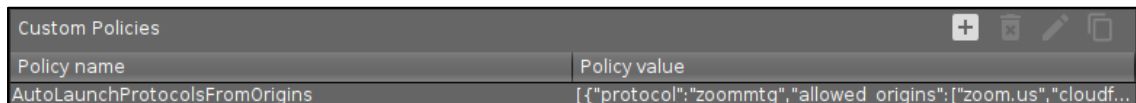
1. Go in your IGEL setup to the following path: Sessions -> Chromium Browser -> Chromium Browser Global -> Custom Setup -> Policies



2. Now you can add the policy *AutoLaunchProtocolsFromOrigins*, which specifies a list of protocols and associated URLs that are allowed to automatically open applications. So, in our example for Zoom, your policy should look like this:

Policy name: *AutoLaunchProtocolsFromOrigins*

Policy value: [{"protocol":"zoommtg","allowed_origins":["zoom.us","cloudfront.net"]}]]



Policy name	Policy value
AutoLaunchProtocolsFromOrigins	[{"protocol":"zoommtg","allowed_origins":["zoom.us","cloudf...

Notice: See for the formatting of the policy value for every IGEL OS version in the chapter [2.1 How to configure Chromium with IGEL OS – Easy](#) in the guidance for the advanced configuration.

After the client got the new settings and Chromium was restarted, you can open a Zoom meeting link in the Chromium browser and the Zoom CP will start directly without an additional question.

3.9.2. ...without the IGEL setup

...in progress...

4. Important links

- List of Chrome/Chromium policies: <https://chromeenterprise.google/policies/> (Platform: Linux, Version: Choose the Chrome/Chromium version of the current IGEL OS version)
- List of Chrome/Chromium command line switches: <https://peter.sh/experiments/chromium-command-line-switches/>
- IGEL Knowledge Base Entries for the Chromium Browser Global settings: <https://kb.igel.com/igelos-11.08.200/en/chromium-browser-global-session-in-igel-os-69177714.html>

98. Planned

- 3.4.2 How to`'s deploy a Chrome extension in the Chromium browser without the IGEL setup
- 3.5.2 How to block another chrome://url like chrome://downloads without the IGEL setup
- 3.6.2 How to start Chromium in Incognito mode with a startup pages without the IGEL setup
- Adding more chapter to “Tips and tricks” with useful hints and step-to-step guidance for past asked questions and problems
- 3.8.2 How to configure Chrome bookmarks without the IGEL setup
- 3.9.2 How to configure the auto open dialog for applications without the IGEL setup
- 2.2.3 Deeper dive into the advanced configuration ways (JSON policy file, command line switches and custom applications/commands)

99. Version history

Version	Date	Comment
1.0	19.12.2021	+ IGEL OS with Chromium - Guide + Introduction + Wiki
1.1	23.12.2021	+ Important links + How to configure Chromium with IGEL OS
1.2	22.01.2022	* Structure of Chapter "How to configure Chromium with IGEL OS"
1.3	23.01.2022	+ Guidance -> Advanced configuration for Chromium command line flags * First publication
1.4	19.02.2022	* Updated the IGEL KB links to the latest OS version 11.06.250 + Tips and tricks + Tips and tricks -> Chromium browser as default browser + Tips and tricks -> Activate Hardware video acceleration in Chromium + Tips and tricks -> Deploy a Chrome extension in Chromium
1.5	06.03.2022	+ Tips and tricks -> Block another chrome://url like chrome://downloads + Tips and tricks -> Specify a set of pages on startup for Chromium
1.6	11.03.2022	* Tips and tricks -> Chromium browser as default browser (In the guidance with IGEL setup essential steps were missing, so the configuration way couldn't work. I've corrected this now, I'm sorry for this.)
1.7	06.04.2022	* Updated the IGEL KB links to the latest OS version 11.07.100 and UMS version 6.10.100 * Updated the formatting of policy values (especially: list of strings) in the IGEL setup (new formatting since 11.07.) * Updated the formatting of the startup pages in the IGEL setup and added the results from tests with IGEL OS 11.05. – 11.07.
1.8	11.09.2022	* Updated the IGEL KB links to the latest OS version 11.08.100 * Updated the formatting of policy values (especially: list of strings) in the IGEL setup (new formatting since 11.08.100) * Added the results from tests with IGEL OS 11.08.100 for the formatting of the startup pages in the IGEL setup + Tips and tricks -> Start Chromium in Incognito mode with a startup page
1.9	16.01.2023	* Updated the IGEL KB links to the latest OS version 11.08.200 + Tips and tricks -> Install the Microsoft Teams PWA in Chromium
1.10	05.03.2023	* Tips and tricks -> Deploy a Chrome extension in Chromium (Corrected the Chrome extensions defined by IGEL and how to deploy them) + Tips and tricks -> Configure Chrome bookmarks + Tips and tricks -> Configure the auto open dialog for applications * Optimized/Improved the quality of the screenshots
+ Chapter/content added * Chapter/content edited - Chapter/content removed		