



## IGEL OS Base System



- Boot Process(see page 3)
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## Boot Process

The following stages of the boot process are important from a configuration perspective:

1. Second stage loader, the loading of the kernel
  - You can access the Boot Menu in this stage. For details, see [Boot Menu\(see page 4\)](#).
  - You can set up Base Custom Commands with specific execution times. For details, see [Base\(see page 334\)](#).
2. Network Integration
  - After the kernel has loaded, network configurations are applied. Depending on the settings of the endpoint device, there are three possible ways of integrating the endpoint device into the network environment:
    - **DHCP**
    - **BOOTP**
    - **Manually configured IP address**
3. Starting the X server and the local windowmanager
  - You can set up Desktop Custom Commands for the stages of the X server launch. For details, see [Desktop\(see page 336\)](#).

**i** The network interface can be stopped and restarted on the Linux Console (accessible via [Ctrl]+[Alt]+[F11]) with this command: `/etc/init.d/network stop /etc/init.d/network start`

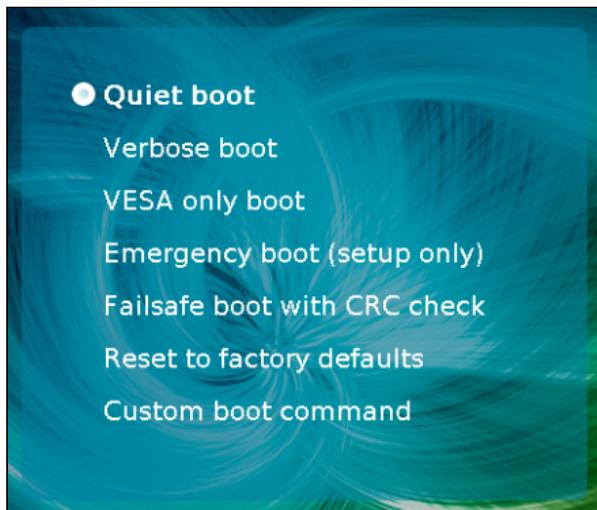


## Boot Menu

During the boot process, a boot menu is available on request. Through this menu, you can start boot modes for troubleshooting. There are modes to access system parameters, or to reset the device to the factory defaults if the device is configured incorrectly or if you experience problems when booting.

- During the boot process, press the [Esc] key repeatedly in rapid succession in the second stage loader, when the `loading kernel` message is shown on the screen.

The boot menu is displayed with the available boot modes:



Using the arrow keys, navigate to one of the boot modes and press the [Enter] key to start the process. You can start the following boot modes:

- [Quiet boot](#)(see page 4): Normal startup. (Default)
- [Verbose boot](#)(see page 5): Start with system messages and an interactive root shell
- [VESA only boot](#)(see page 5): Basic graphic boot
- [Emergency boot \(setup only\)](#)(see page 5): Only the **Setup** window is available
- [Failsafe boot with CRC check](#)(see page 6): Start with an integrity check of the operating system
- [Reset to factory defaults](#)(see page 6): Reset the client to factory defaults
- [Custom boot command](#)(see page 6): Boot with configurable command line options

### Quiet Boot

**Quiet boot** is the default boot mode. It is the normal startup mode. In this mode, all kernel messages are disabled and the graphical user interface is started.



## Verbose Boot

Unlike in **Quiet boot** mode, the kernel messages are shown in **Verbose boot** mode. The boot process also pauses before the graphics system and the user session start.

This gives you an opportunity to open a root shell and interactively execute debugging commands (for example, `ifconfig` ).

- ⚠ Only use the root shell if you have adequate knowledge of Linux or if you are instructed to do so by the IGEL Helpdesk and are given appropriate guidance. Incorrect use can destroy the operating system.

To execute debugging commands:

1. Select **Verbose boot** from the boot menu.
2. Wait until the boot messages stop at `Reached target IGEL Network Online`.
3. Open a virtual console with one of the key combinations:
  - `[Ctrl] + [Alt] + [F11]`
  - `[Ctrl] + [Alt] + [F12]`
4. Log in by pressing `[Return]` and enter the root password if necessary.
5. Go through the desired individual commands.
6. Now enter the following command to continue the normal boot process: `systemctl default`  
The graphical user session starts.

## VESA Only Boot

Use this boot mode if normal boot has graphic issues, for example, if the device has limited Graphical Processor Unit (GPU) support. This mode is not manufacturer specific. In this mode resolution and multimonitor mode and performance might be limited.

## Emergency Boot (Setup Only)

In the **Emergency boot** mode, the device is started without network drivers and with a resolution of 640 x 480 - 60 Hz. After the boot process, the **Setup** window is opened automatically.

This mode is useful, for example, if you have selected an excessively high screen resolution or a wrong mouse type and these settings can no longer be changed in the normal setup. Unlike with a reset, the setup opens with the actual settings.

- Once you are done with the changes, close the setup window to reboot the device.



## Failsafe Boot with CRC Check

During a **Failsafe boot**, a check of the file system is carried out first. Then, the **Verbose boot** is started.

This mode is helpful if you no longer have a bootable system after a firmware update. The **Failsafe boot** checks where the problem is. If need be, an old version will be booted and you will need to repeat the firmware update.

## Reset to Factory Defaults

-  If you select **Reset to factory defaults**, all personal settings on the device (including your password and the sessions you have configured) will be lost.

Before the procedure is carried out, a warning message is displayed. If the device is protected by an administrator password, you will be prompted to enter this password.

If you know the password:

1. Confirm the warning message.
2. Enter the password. You have three attempts.

If you do not know the password:

1. Confirm the warning message.
2. When you are prompted to enter the password, press the [Enter] key three times.
3. Press [c].  
The Terminal Key is displayed.
4. Contact us using [license@igel.com](mailto:license@igel.com)<sup>1</sup>.
5. Enter the Terminal Key that is shown, the firmware version, and your contact details.  
IGEL will send you a Reset to Factory Defaults Key that is specific to your device. To ensure that the process is as straightforward and yet as secure as possible, each key is valid for just one device.

-  You can also reset your device to factory defaults through the UMS Web App. In this case, the device will be removed from the UMS and you will have to register your device with the UMS again. For details, see Resetting a Device to Factory Defaults via the IGEL UMS Web App.

## Custom Boot Command

In the **Custom boot command** mode, preconfigured options are placed on the kernel command line. This allows you, for example, to investigate and rectify problems with specific hardware components.

<sup>1</sup> <mailto:license@igel.com>



- ⚠️ The **Custom boot command** is merely a temporary solution – it is not an everyday booting method. It must therefore be selected manually in the boot menu.

To configure the options for the **Custom boot command**, proceed as follows:

1. Open a local terminal and log in as `root`.
2. Enter the following command to bring up the current options:  
`bootreg get /dev/igfdisk boot_cmd`
3. Save your desired options with the following command:  
`bootreg set /dev/igfdisk boot_cmd "<Your Options>"`
4. Check the options that you have entered:  
`bootreg get /dev/igfdisk boot_cmd`

ⓘ If you would like to delete options for the Custom boot command, leave an empty string of characters in their place: `bootreg set /dev/igfdisk boot_cmd ""`

## IGEL Tech Video



Sorry, the widget is not supported in this export.  
But you can reach it using the following URL:

<https://www.youtube.com/watch?v=bpfWNIR6eUE>

- ⚠️ In the video, IGEL OS11 is used for demonstration.



## Configuration

With the help of configurations, you can change the system and session settings of the endpoint device.

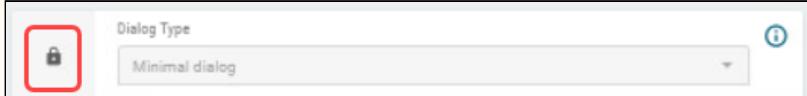
### Configuration Options

You can use the following configuration methods:

Description on Method	Opening Options	
IGEL Setup	<p>Configurations are made locally on the device.</p> <p>For more information, see <a href="#">IGEL Setup</a>(see page 38).</p>	<ul style="list-style-type: none"> <li>Starting methods defined under <b>Accessories &gt; Setup</b></li> <li>Keyboard command [Ctrl] + [Alt] + [s]</li> <li>Keyboard command [Ctrl] + [Alt] + [F2] in the Appliance Mode</li> </ul>
Device Configurator	<p>The Device Configurator can be opened from the <b>Devices</b> area of the UMS Web App. Configurations made here have the same effect as local configurations.</p> <p>For more information, see <a href="#">Devices - IGEL UMS Web App</a>.</p>	<ul style="list-style-type: none"> <li>Double clicking on the device name</li> <li>Clicking the <b>Edit Configuration</b> button</li> <li>Selecting <b>Edit Configuration</b> command in the context menu of the device</li> </ul>
Profile Configurator	<p>The Profile Configurator can be opened from the <b>Configuration</b> area of the UMS Web App. Configurations are made through activating parameters to be defined by the profile and then applying the profile to the device.</p> <p>For more information, see <a href="#">Configuration - IGEL UMS Web App</a>.</p>	<ul style="list-style-type: none"> <li>Double clicking on the profile name</li> <li>Clicking the <b>Edit Configuration</b> button</li> </ul>

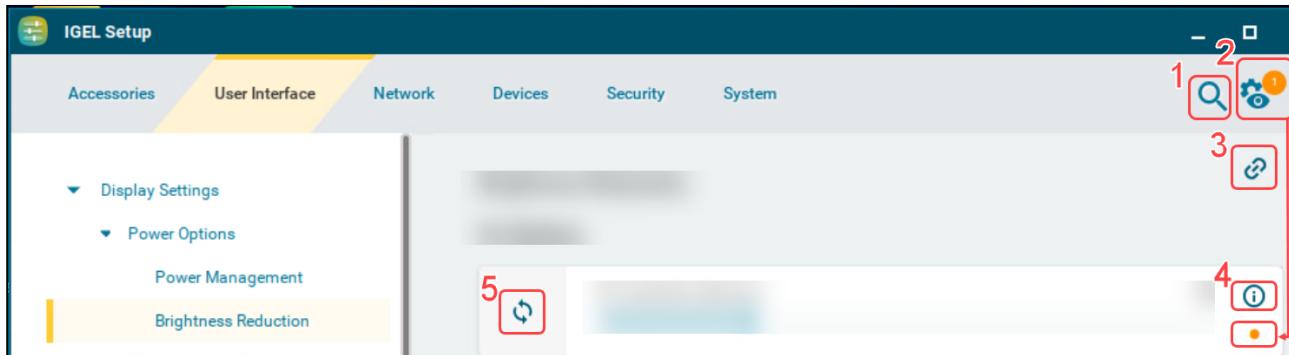


Configurations applied through profiles take precedence and cannot be changed through other configuration methods. In other configuration methods, the parameter is grayed out and a lock symbol indicates that the setting is configured through a profile:





## General GUI Elements



	GUI Element	Description
1	Search for Settings	<p>Clicking the icon opens the <b>Search for Settings</b> tab. You can use free text to search for parameter fields or parameter values. Clicking on a search result displays the setup page containing the result. The result is highlighted on the page.</p> <p>The search menu remains displayed in the top right corner with the following navigation options:</p> <ul style="list-style-type: none"> <li>• &lt;&gt; to go the next or the previous search result</li> <li>• search icon to expand the search bar</li> <li>• X to close the search</li> </ul>
2	Unsaved Adjustments	Clicking the icon opens the <b>Unsaved Adjustments</b> tab. The tab displays a list of pages that contain unsaved changes. The unsaved changes are marked with a dot.
3	Related Pages	Clicking the icon displays the <b>Related Pages</b> tab. The tab displays a list of pages that contain settings related to the settings on the current page.
4	Tooltip	Clicking the icon displays information about the parameter.
5	Reset to default	Clicking the icon resets the parameter to the default value.



	<b>GUI Element</b>	<b>Description</b>
		In the Profile Configurator this icon is replaced by the parameter activator: . When you deactivate the parameter, the value will be automatically set back to the default value. For more on profile creation, see How to Create and Assign Profiles in the IGEL UMS Web App.

## Saving Changes and Exiting the Configurator

You have the following options to save changes and close the configurator:

- ▶ Click on **Save and Close** to save your changes and close the configurator.
  
- ▶ Click **Close** if you have not made any changes and would like to abort the configurator. If you have made changes, a confirmation dialog is displayed. In the dialog, you have the following options:
  - Click **Discard** to close without saving the changes.
  - Click **Save and Close** to save the changes before closing.
  - Click **Cancel** to go back and see the list of unsaved changes.
  
- ▶ Click **Save** if you have finished configuring a setup area and would like to save your settings without closing the configurator.

## Configurator Tabs

Configurations are grouped by function under the following tabs:

- [Accessories](#)(see page 11)
- [User Interface](#)(see page 48)
- [Network](#)(see page 140)
- [Devices](#)(see page 226)
- [Security](#)(see page 259)
- [System](#)(see page 288)



## Accessories

In this chapter, you find information on the configuration of accessories in IGEL OS.

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- [Terminals](#)(see page 12)
- [SSH Client](#)(see page 14)
- [VNC Viewer](#)(see page 16)
- [Network Tools](#)(see page 24)
- [Application Launcher](#)(see page 28)
- [App Portal](#)(see page 31)
- [System Information](#)(see page 32)
- [Screenshot Tool](#)(see page 35)
- [Setup](#)(see page 38)
- [System Log Viewer](#)(see page 40)
- [Task Manager](#)(see page 43)



## Terminals

With a local terminal, you can execute local commands on your device. This article shows how to configure the starting methods for terminals, and how to use local terminals in IGEL OS.

- i** It is also possible to access a local shell without a terminal session: Alternatively, you can switch to the virtual terminals `tty11` and `tty12` by pressing [Ctrl]+[Alt]+[F11] or [Ctrl]+[Alt]+[F12]. Pressing [Ctrl]+[Alt]+[F1] takes you back to the user interface.

Menu path: **Accessories > Terminals**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The navigation bar has tabs for "Accessories", "User Interface", "Network", "Devices", "Security", and "System". The "Accessories" tab is selected. On the left, there's a sidebar with a tree view containing "Terminals" (which is expanded), "SSH Client", "VNC Viewer", "Network Tools", "Application Launcher" (expanded), "App Portal", "System Information", "Screenshot Tool", "Setup", "System Log Viewer" (expanded), and "Task Manager". The main panel is titled "Terminal Sessions". It shows a table with one row: "Session Name" (Local Terminal). At the bottom are buttons for "Close", "Save", and "Save and Close".

### Terminal Sessions

List of configured local terminal sessions

To manage the list of sessions, proceed as follows:

- Click to create a new entry.



- Click to remove the selected entry.
- Click to edit the selected entry.
- Click to copy the selected entry.

- Click to define the starting methods for the session.

The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).

## Using Local Terminal

To use the local terminal, proceed as follows:

1. Start the local terminal.
2. Log in as `user` or `root`.

**⚠** If **Use password** is enabled in the **Administrator** area under **Security > Password**, you need to enter the administrator password to access a local terminal as `root`.

If an administrator password is set, accessing a local terminal as `user` is only possible if the following two conditions are met:

- Access to local terminals has been activated for `user`. This is possible with the registry key `system.security.usershell` under **System > Registry**. The default setting of the registry key forbids terminal access for `user`.
- **Use password** is enabled in the **User** area under **Security > Password**.

For accessing a local terminal as `user`, the user password has to be entered.

For more on password configuration, see [Password](#)(see page 263).

3. Enter the shell commands supported by IGEL OS.

**i** For a collection of commands supported by IGEL OS, see the [IGEL Community cheatsheet](#)<sup>2</sup>.

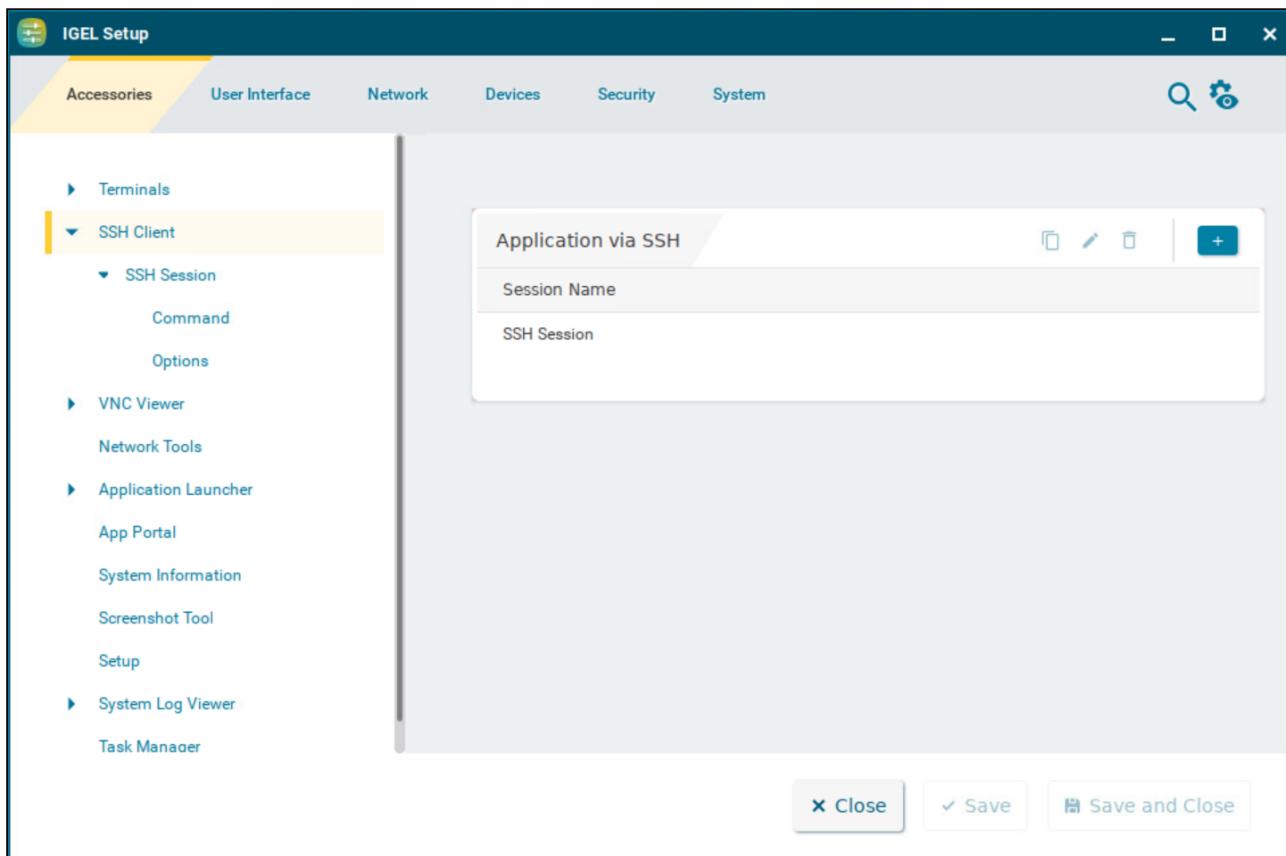
<sup>2</sup> <https://www.igelcommunity.com/post/igel-os-linux-commands-cheatsheet>



## SSH Client

You can launch applications on a remote computer via SSH (Secure Shell). The display is usually on the terminal; X11 connections can also be routed via SSH. This article shows how to configure SSH sessions in IGEL OS.

Menu path: **Accessories > SSH Client**



### Application via SSH

To manage the list of SSH sessions, proceed as follows:

- Click to create a new entry.
- Click to remove the selected entry.
- Click to edit the selected entry.
- Click to copy the selected entry.



- Click to define the starting methods for the session.

The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).

## Command

Menu path: **SSH Client > [Session Name] > Command**

Here, you can change the following settings:

### Remote user name

User name under which the application runs on the remote computer. If left blank, user will be asked for it at session startup.

### Remote Host

Host name or IP address of the remote computer.

### Command Line

Command which is to be executed on the remote computer immediately after logging in.

## Options

Menu path: **SSH Client > [Session Name] > Options**

Here, you can change the following settings:

### Enable X11 connection forwarding

X11 applications on the remote computer that are launched via the SSH session will be shown on your device. (Default)

No X11 programs can be launched on the remote computer via the SSH session.

### Enable compression

The data will be compressed for transmission.

The data will not be compressed for transmission. (Default)

### Port

SSH port. (Default: 22)



## VNC Viewer

With the VNC viewer, you can access the graphical user interface of a remote computer. This article shows how to configure the starting methods for VNC viewer sessions in IGEL OS.

Menu path: **Accessories > VNC Viewer**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories (which is selected and highlighted in yellow), User Interface, Network, Devices, Security, and System. To the right of the tabs are search and settings icons. The left sidebar contains a tree view of configuration categories: Terminals, SSH Client, VNC Viewer (selected and expanded), Connection, Compression, Input, Misc, Network Tools, Application Launcher, App Portal, System Information, Screenshot Tool, and Setups. The main content area is titled "VNC Viewer Sessions". It shows a table with one row: "Session Name" (containing "VNC Viewer") and a "+" button to add more entries. At the bottom are buttons for "Close", "Save", and "Save and Close".

To manage the list of session, proceed as follows:

- Click to create a new entry.
- Click to remove the selected entry.
- Click to edit the selected entry.
- Click to copy the selected entry.



- Click to define the starting methods for the session.

The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).

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- [Connection](#)(see page 18)
- [Compression](#)(see page 19)
- [Input](#)(see page 20)
- [Misc](#)(see page 22)



## Connection

This article shows how to configure the connection for VNC viewer sessions in IGEL OS.

Menu path: **Accessories > VNC Viewer > [Session Name] > Connection**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The top navigation bar includes tabs for "Accessories", "User Interface", "Network", "Devices", "Security", and "System", along with search and settings icons. The left sidebar contains a tree view with categories like "Terminals", "SSH Client", "VNC Viewer" (which is expanded to show "Connection", "Compression", "Input", and "Misc"), "Network Tools", "Application Launcher", "App Portal", "System Information", "Screenshot Tool", and "Setup". The main content area is titled "Name or IP-Address of VNC-Server" and contains three input fields: "Name or IP-Address of VNC-Server" (with a refresh icon), "Password" (containing "New password" and an info icon), and "New password (repeated)". A "Set password" button is located below these fields. At the bottom of the window are buttons for "Close", "Save", and "Save and Close".

### Name or IP address of VNC server

Host name or IP address of the VNC server

### Password

User password for logging on to the VNC server, if necessary

**⚠️** Session passwords are stored with reversible encryption. Therefore, we strongly recommend not to store the session password on the endpoint device.



## Compression

This article shows how to configure the compression for VNC viewer sessions in IGEL OS.

Menu path: **Accessories > VNC Viewer > [Session Name] > Compression**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The left sidebar shows a tree view of configuration categories: Accessories (selected), User Interface, Network, Devices, Security, System, and a search/filter icon. Under "Accessories", the "VNC Viewer" category is expanded, and its "Compression" sub-category is selected. On the right, there are two configuration fields: "Compression Level (default=2)" with a dropdown menu showing the value "2", and "JPEG quality level" with a dropdown menu showing the value "8". At the bottom right are three buttons: "Close", "Save" (with a checkmark icon), and "Save and Close".

Setting	Value
Compression Level (default=2)	2
JPEG quality level	8

### Compression level (default=2)

Allows you to select the compression level; 0 ist the lowest, 9 is the highest compression. (Default: 2)

### JPEG quality level

Allows you to select the image quality. 1 means the highest compression and the lowest image quality, 9 means the lowest compression and the highest image quality. (Default: 8)



## Input

This article shows how to configure keyboard input for VNC viewer sessions in IGEL OS.

Menu path: **Accessories > VNC Viewer > [Session Name] > Input**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The left sidebar shows a tree view with "Accessories" selected, followed by "User Interface", "Network", "Devices", "Security", and "System". Under "Accessories", "VNC Viewer" is expanded, and "Input" is selected. The main panel displays three configuration options: "View only" (unchecked), "Pass system keys directly to the server (full-screen)" (checked), and "Menu key" (set to F8). At the bottom are buttons for "Close", "Save", and "Save and Close".

The screenshot shows the "Input" configuration for a VNC session. It includes settings for "View only", "Pass system keys directly to the server (full-screen)", and the "Menu key" (set to F8).

### **View only**

- Mouse and keyboard inputs are not forwarded to the remote computer. You can only observe the remote computer.
- Mouse and keyboard inputs are forwarded to the remote computer. You can remote control the remote computer. (Default)

### **Pass system keys directly to the server (full-screen)**

- You can use system key combinations in the VNC session, e.g. [Alt] + [Tab]. (Default)
- System key combinations cannot be used in the VNC session.



### Menu key

Key which brings up the menu

Possible options:

- **F8** (Default)
- **F2 ... F12**
- **Pause**
- **Print**
- **Scroll\_lock**
- **Escape**
- **Insert**
- **Delete**
- **Home**
- **Page\_up**
- **Page\_down**



## Misc

This article shows how to configure session modes and color level for VNC viewer sessions in IGEL OS.

Menu path: **Accessories > VNC Viewer > [Session Name] > Misc**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The left sidebar shows a navigation tree with "Accessories" selected. Under "Accessories", "VNC Viewer" is expanded, and "Misc" is selected. The main panel displays three configuration options: "Shared mode" (unchecked), "Full-screen mode" (unchecked), and "Color Level" (set to "Default"). At the bottom are buttons for "Close", "Save", and "Save and Close".

The screenshot shows the "Misc" configuration for a VNC viewer session. It includes settings for "Shared mode" (unchecked), "Full-screen mode" (unchecked), and "Color Level" (set to "Default").

### Shared mode

- When starting a session, other users' sessions with the same server are not terminated. The sessions run alongside each other with equal status.
- If another user has a VNC session with the same server, the other user's session will be terminated when the session is started. (Default)

### Fullscreen mode

- The session will be shown in full-screen mode. The taskbar is not visible.
- The taskbar is visible. (Default)



### Color Level

The color level used in VNC viewer sessions. If the session is running over a small bandwidth connection, the value can be configured to reduce the needed bandwidth.

Possible values:

- **Default:** The highest available color level is used. The VNC viewer automatically selects the level based on the speed of the connection. (Default)
- **Very Low (8 colors):** The VNC viewer is forced to use the color level regardless of the speed of the connection.
- **Low (64 colors):** The VNC viewer is forced to use the color level regardless of the speed of the connection.
- **Medium (256 colors):** The VNC viewer is forced to use the color level regardless of the speed of the connection.



## Network Tools

This article shows the starting methods configuration and the use of Network Tools in IGEL OS. The tool provides network analysis, for example, Ping, Netstat, Traceroute.

Menu path: **Accessories > Network Tools**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The left sidebar has a "Session name" field containing "Network Tools". The main panel is titled "Starting Methods for Session" and contains four items: "Start Menu" (unchecked), "Start Menu's System tab" (checked), and "Application Launcher" (unchecked). The bottom right has buttons for "Close", "Save", and "Save and Close".

Starting Method	Status
Start Menu	unchecked
Start Menu's System tab	checked
Application Launcher	unchecked

You can configure the starting methods for an easy access of the Network Tool.

The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).

## Using Network Tools

- Start **Network Tools**.

A screenshot of the "Devices - Network Tools" application window. The title bar says "Devices - Network Tools". The menu bar includes "Tool", "Edit", "Help", and tabs for "Devices", "Ping", "Netstat", "Traceroute", "Port Scan", "Lookup", "Finger", and "Whois".

The "Devices" tab is selected. Under "IP Information", there is a table:

Protocol	IP Address	Netmask / Prefix	Broadcast	Scope
IPv6	::	0		Unknown
IPv4				

Under "Interface Information", there is a list of properties:

- Hardware address: [blurred]
- Multicast: [blurred]
- MTU: [blurred]
- Link speed: [blurred]
- State: [blurred]

Under "Interface Statistics", there is a list of metrics:

- Transmitted bytes: [blurred]
- Transmitted packets: [blurred]
- Transmission errors: [blurred]
- Received bytes: [blurred]
- Received packets: [blurred]
- Reception errors: [blurred]
- Collisions: [blurred]

At the bottom left, it says "Idle".

To obtain information regarding a network device available on your device, proceed as follows:

1. Switch to the **Devices** tab.
2. Under **Network device**, select the network device for which you would like to obtain information. The information regarding the selected network device will be shown.

To send a ping query to a device in your network, proceed as follows:

1. Switch to the **Ping** tab.
2. Under **Network address**, enter the IP address or the host name of the device to which you would like to send a ping query.
3. If necessary, add the number of ping queries under **Send**.



4. Click **Ping**.

The set number of ping queries will be sent. The results will then be shown.

To obtain information regarding the network status of your device, proceed as follows:

1. Switch to the **Netstat** tab.

2. Select the desired information under **Display**:

- **Routing Table Information**
- **Active Network Services**
- **Multicast Information**

3. Click **Netstat**.

The desired information will be shown.

To identify the router via which an IP data packet from your device reaches a specific target computer, proceed as follows:

1. Switch to the **Traceroute** tab.

2. Under **Network address**, give the IP address of the target computer.

3. Click **Trace**.

The device will send IP packets to the target computer at short intervals, each with a TTL (Time To Live, i.e. maximum number of hops) increased by 1.

When the packet reaches the target computer, "reached" will be shown in the last line and no further packet will be sent.

If no computer replies, "no reply" will be shown.

To obtain DNS information regarding an address on the Internet from your device, proceed as follows:

1. Switch to the **Lookup** tab.

2. Under **Network address**, give the IP address or the host name.

3. Under **Information type**, select which information is to be shown.

The following information types are available:

- **Default Information**
- **Internet Address**
- **Canonical Name**
- **CPU / OS Type**
- **Mailbox Exchange**
- **Mailbox Information**
- **Name Server**
- **Host name for Address**
- **Text Information**
- **Well Known Services**



- Any / All information

4. Click **Lookup**.

The desired information will be shown.

Further information regarding the DNS (Domain Name System) can be found on Wikipedia under [Domain Name System](#)<sup>3</sup>.

Detailed descriptions of the Domain Name concept can be found in [RFC 1034](#)<sup>4</sup> and in related RFCs.

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<sup>3</sup> [https://en.wikipedia.org/wiki/Domain\\_Name\\_System](https://en.wikipedia.org/wiki/Domain_Name_System)

<sup>4</sup> <https://tools.ietf.org/html/rfc1034>



## Application Launcher

With the Application Launcher, you can launch predefined sessions, and device functions and tools. You are also given information regarding the device and the licenses used. This article shows how to configure the Application Launcher in IGEL OS.

Menu path: **Accessories > Application Launcher**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The main menu has tabs: Accessories (which is selected), User Interface, Network, Devices, Security, and System. On the right side of the menu bar are a search icon and a settings gear icon. The left sidebar contains a tree view of tools: Terminals, SSH Client, VNC Viewer, Network Tools, Application Launcher (which is expanded and selected), App Portal, System Information, Screenshot Tool, Setup, System Log Viewer, and Task Manager. The main content area is titled "Starting Methods for Session". It shows four configuration items with checkboxes:

- Start Menu: checked
- Menu folder: empty input field
- Start Menu's System tab: checked
- Application Launcher: empty input field

At the bottom are buttons for Close, Save, and Save and Close.

You can configure the starting methods for an easy access of the Application Launcher.

The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).

### Application Launcher Configuration

Menu path: **Application Launcher > Application Launcher Configuration**



The screenshot shows the IGEL Setup application window titled "IGEL Setup". The top navigation bar includes tabs for "Accessories", "User Interface", "Network", "Devices", "Security", "System", and "Apps", along with search and settings icons. The left sidebar lists various system tools under "User Interface": "Terminals", "SSH Client", "VNC Viewer", "Network Tools", "Application Launcher" (which is expanded to show "Application Launcher Configuration", "App Portal", "System Information", "Screenshot Tool", and "Setup"), "System Log Viewer", and "Task Manager". The main panel displays three configuration options:

- Hide system page (unchecked)
- Show current user name in About, Application Launcher and start menu (checked)
- Single Click Mode (unchecked)

At the bottom right are buttons for "Close", "Save", and "Save and Close".

### Hide system page

The button for displaying the system tools (accessories) will not be shown.

The button for displaying the system tools (accessories) will be shown. (Default)

### Show current user name in About, Application Launcher and start menu

The current user will be shown at the top edge of the relevant window. (Default)

The current user will not be shown.

- In order for user names to be recognized and passed on, you must configure two settings beforehand:
- Enable using Active Directory/Kerberos under **Security > Active Directory/Kerberos**. For details, see [Active Directory/Kerberos](#)(see page 277)
  - Enable local logon under **Security > Logon > Active Directory/Kerberos**. For details, see [Active Directory/Kerberos](#)(see page 271)



**Single click mode**

- Sessions are started with a single-click. Recommended for users of touchscreen monitors.
- Sessions are started with a double-click. (Default)

- ⓘ You can hide the shutdown menu from the Application Launcher using the **Hide Shutdown menu button** option under **User Interface > Commands > Shutdown Menu > Quick Access**. For more information, see [Commands](#)(see page 137).



## App Portal

This article shows how to configure the starting methods for the App Portal in IGEL OS.

- ⓘ To use the IGEL App Portal locally on the device, verify first that **Permit local app installation** is enabled under **Security > Update**. (Default)  
For detailed information on how to use the App Portal, see [Installing IGEL OS Apps Locally on the Device](#).

---

Menu path: **Accessories > App Portal**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories (which is selected), User Interface, Network, Devices, Security, and System. On the far right of the top bar are a search icon and a gear icon. The left sidebar has a tree view with categories like Terminals, SSH Client, VNC Viewer, Network Tools, Application Launcher, System Information, Screenshot Tool, Setup, System Log Viewer, and Task Manager. The "App Portal" item under Application Launcher is currently selected and highlighted with a yellow background. The main content area shows a "Session name" field with "App Portal" entered. Below it is a section titled "Starting Methods for Session" with four options: "Start Menu" (unchecked), "Menu folder" (empty), "Start Menu's System tab" (checked), and "Application Launcher" (unchecked). At the bottom are three buttons: "Close", "Save" (with a checkmark), and "Save and Close".

Starting Method	Status
Start Menu	<input type="checkbox"/>
Menu folder	
Start Menu's System tab	<input checked="" type="checkbox"/>
Application Launcher	<input type="checkbox"/>

The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).



## System Information

This article shows the starting methods configuration and the use of System Information in IGEL OS. Through System Information, you can obtain information regarding the operating system of your device, the installed system components, internal and connected hardware, and the network. You can also measure the performance of your device using various benchmarks.

- ⓘ An administrator password is required by default to start **System Information** if **Use Password** is enabled under **Security > Password**. For details, see [Password](#)(see page 263).  
The password requirement can be changed through the **Password protection** option in the starting methods configuration.

---

Menu path: **Accessories > System Information**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The left sidebar has a tree view with categories like "Accessories", "User Interface", "Network", "Devices", "Security", and "System". Under "Accessories", "System Information" is selected and highlighted with a yellow bar. The main panel shows a "Session name" input field with "System Information" typed in. Below it is a section titled "Starting Methods for Session" with four items: "Start Menu" (unchecked), "Menu folder" (unchecked), "Start Menu's System tab" (checked), and "Application Launcher" (unchecked). At the bottom are "Close", "Save", and "Save and Close" buttons.

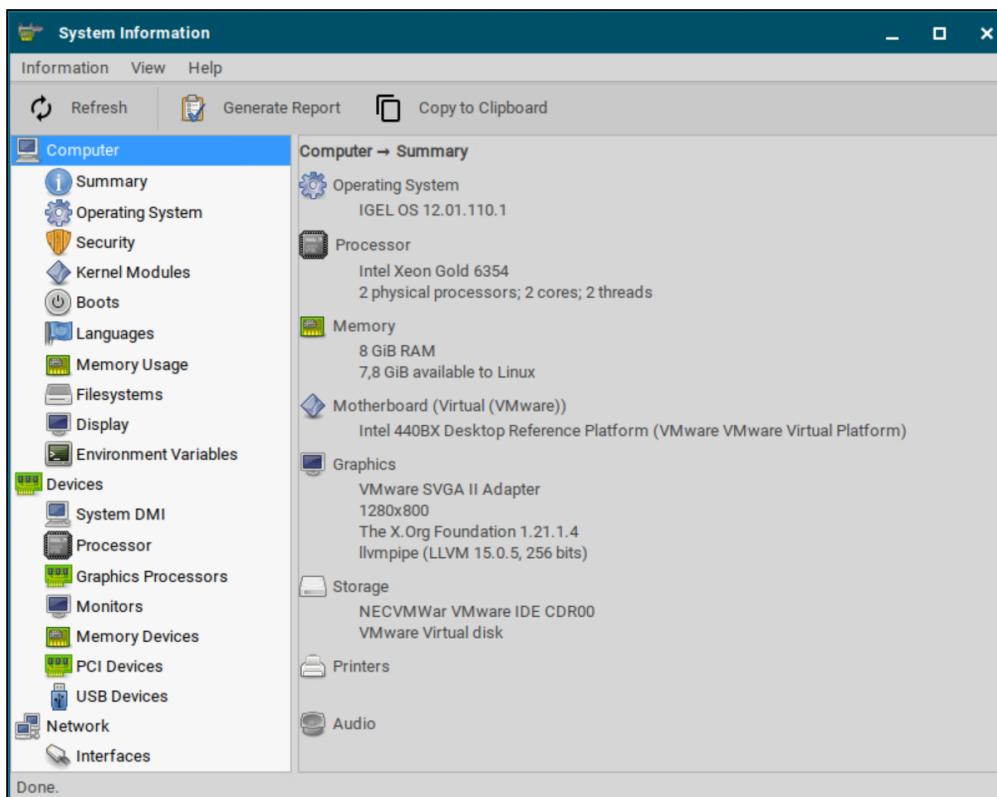
Starting Method	Status
Start Menu	<input type="checkbox"/>
Menu folder	<input type="checkbox"/>
Start Menu's System tab	<input checked="" type="checkbox"/>
Application Launcher	<input type="checkbox"/>

You can configure the starting methods for an easy access of the System Information.

The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).

## Using System Information

- ▶ Start **System Information**.



To obtain system information regarding a specific component of your IGEL OS device, proceed as follows:

1. Navigate to the desired area, e.g. **Computer > Operating System**.  
The information regarding the desired area will be shown.
2. To send the information shown, e.g. to the IGEL Support, click **Copy to Clipboard**.  
The information is on your clipboard. With **Paste** or **[Ctrl] + [V]**, you can paste the information into an e-mail or a web form.

 You can use the **System Information** function to find out the **Vendor ID** and **Product ID** of your connected hardware. They are required, for example, if you want to configure **Device Rules** under **Setup > Devices > USB Access Control**. For more information, see [USB Access Control\(see page 246\)](#).

A screenshot of the "Devices - USB Devices - System Information" window. The left sidebar shows navigation categories like Computer, Devices (selected), Network, and USB Devices (also selected). The main pane lists USB devices: 001:001 [Linux] 2.0 root hub, 002:001 [Linux] 1.1 root hub, and 002:004 Plantronics, Inc. Poly BT700. The last item is highlighted with a blue selection bar. A red box highlights the "Device Information" section for the selected device, which contains the following details:

Product [0x02e6] (Unknown)  
Vendor [0x047f] Plantronics, Inc.  
Device Poly BT700  
Manufacturer Plantronics  
Max Current 100 mA  
USB Version 2.00  
Speed 12 Mb/s  
Class [0] (Defined at Interface level)  
Sub-class [0] (Unknown)  
Protocol [0] (Unknown)  
Device Version 6.93



## Screenshot Tool

This article shows the starting methods configuration and the use of the Screenshot Tool in IGEL OS.

Menu path: **Accessories > Screenshot Tool**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The left sidebar has a "Accessories" tab selected, showing options like Terminals, SSH Client, VNC Viewer, Network Tools, Application Launcher, App Portal, System Information, Screenshot Tool (which is highlighted), Setup, System Log Viewer, and Task Manager. The main panel has a "Session name" field set to "Screenshot Tool". Below it is a section titled "Starting Methods for Session" with five entries: "Start Menu" (unchecked), "Menu folder" (empty), "Start Menu's System tab" (checked), "Application Launcher" (unchecked), and "Application Launcher folder" (empty). At the bottom are "Close", "Save", and "Save and Close" buttons.

Starting Method	Status	Description
Start Menu	<input type="checkbox"/>	
Menu folder		
Start Menu's System tab	<input checked="" type="checkbox"/>	
Application Launcher	<input type="checkbox"/>	
Application Launcher folder		

You can configure the starting methods for an easy access of the System Information.

The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).

## Using Screenshot Tool

### 1. Start the **Screenshot Tool**.

- i** Hotkeys can be configured for using the Screenshot Tool under **User Interface > Hotkeys**. Hotkeys can be configured to take **Screenshot of active window** or **Screenshot of entire screen**. When using the hotkeys, the screenshot is taken without delay, and the mouse

pointer is not captured. For more information on hotkey configuration, see [Hotkeys](#)(see page 112).

2. Select a **Region to capture** option. You have the following options:

- **Entire screen**

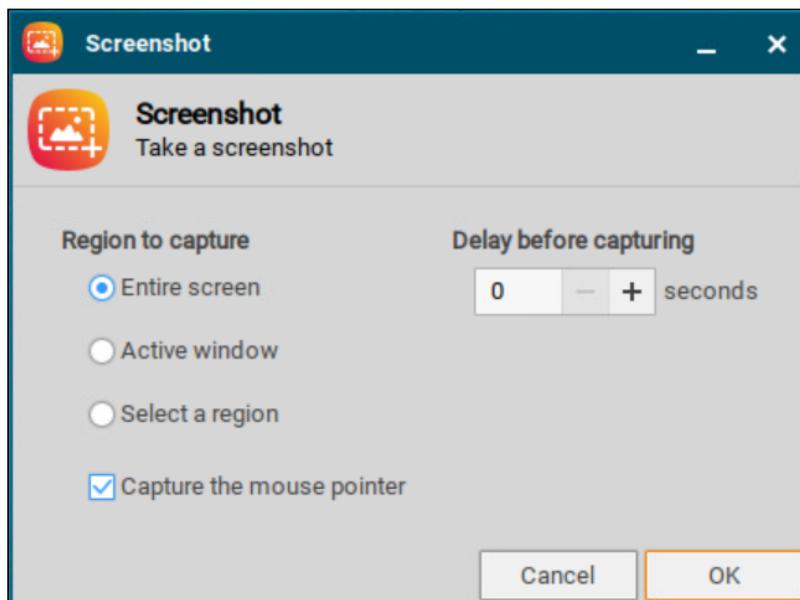
The entire screen content will be photographed.

- **Active window**

The window that is currently active will be photographed.

- **Select a region**

You can select a section of the screen using the mouse.



3. Set the **Capture the mouse pointer** option.

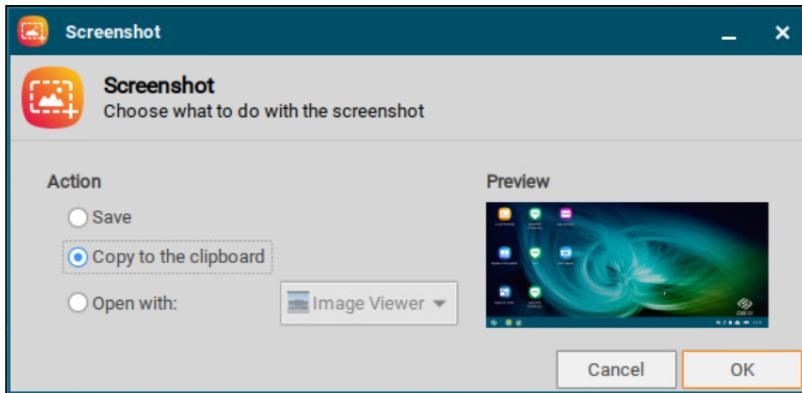
The mouse pointer is visible on the screenshot.

4. Specify the **Delay before capturing** in seconds. The minimum value is 0.

5. Click **OK**.

If you have enabled **Entire screen** or **Active window**, the screenshot will be taken after the **Delay before capturing** has elapsed.

If you have enabled **Select a region**, you can select the desired part of the screen using the mouse. To do this, press and hold the left mouse button while dragging the mouse across the screen.



6. Specify how the screenshot is to be used.

You have the following options:

- **Save**

If this option is enabled, the screenshot will be saved in PNG format via your device. You can save the screenshot locally, on a network drive or on a USB mass storage device.

- **Copy to the clipboard**

If this option is enabled, the screenshot will be available in the device's local cache.

- **Open with**

If this option is enabled, the screenshot will be opened in your device's image viewer.



## Setup

With the IGEL Setup, you can configure your endpoint device. This article shows how to configure the starting methods for the IGEL Setup in IGEL OS.

Menu path: **Accessories > Setup**

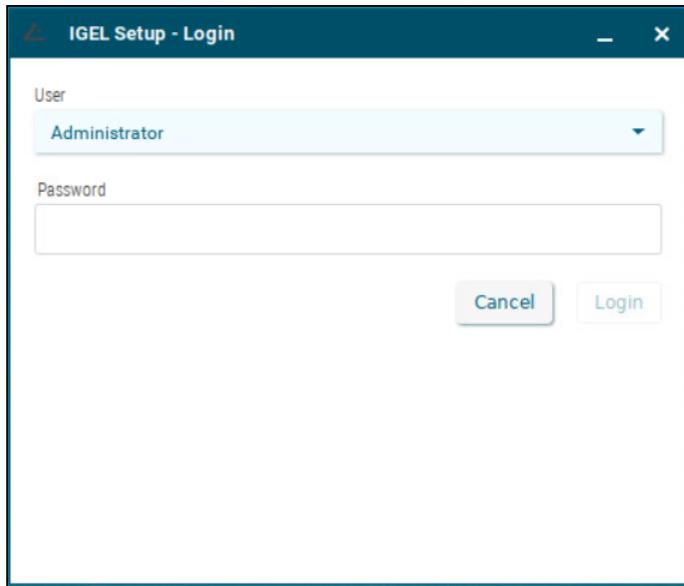
A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The menu bar includes "Accessories" (which is highlighted), "User Interface", "Network", "Devices", "Security", and "System". On the far right of the menu bar are a search icon and a settings gear icon. The left sidebar has a tree view with nodes like "Terminals", "SSH Client", "VNC Viewer", "Network Tools", "Application Launcher", "App Portal", "System Information", "Screenshot Tool", "Setup" (which is selected and highlighted in yellow), "System Log Viewer", and "Task Manager". The main content area is titled "Starting Methods for Session". It contains four items: "Start Menu" (unchecked), "Start Menu's System tab" (checked), and "Application Launcher" (unchecked). Each item has a refresh icon and an information icon. At the bottom are three buttons: "Close", "Save" (with a checkmark), and "Save and Close".

Starting Method	Status
Start Menu	<input type="checkbox"/>
Start Menu's System tab	<input checked="" type="checkbox"/>
Application Launcher	<input type="checkbox"/>

The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).

If you configure user types and passwords under **Security > Password**, a login window appears at the start of the IGEL Setup. For more information, see [Password](#)(see page 263).

- ⚠** If you do not configure the user types and passwords, the IGEL Setup can be opened without password protection.



- ▶ Select from the configured user types and provide the corresponding password.

The following user types can be configured to access the IGEL Setup:

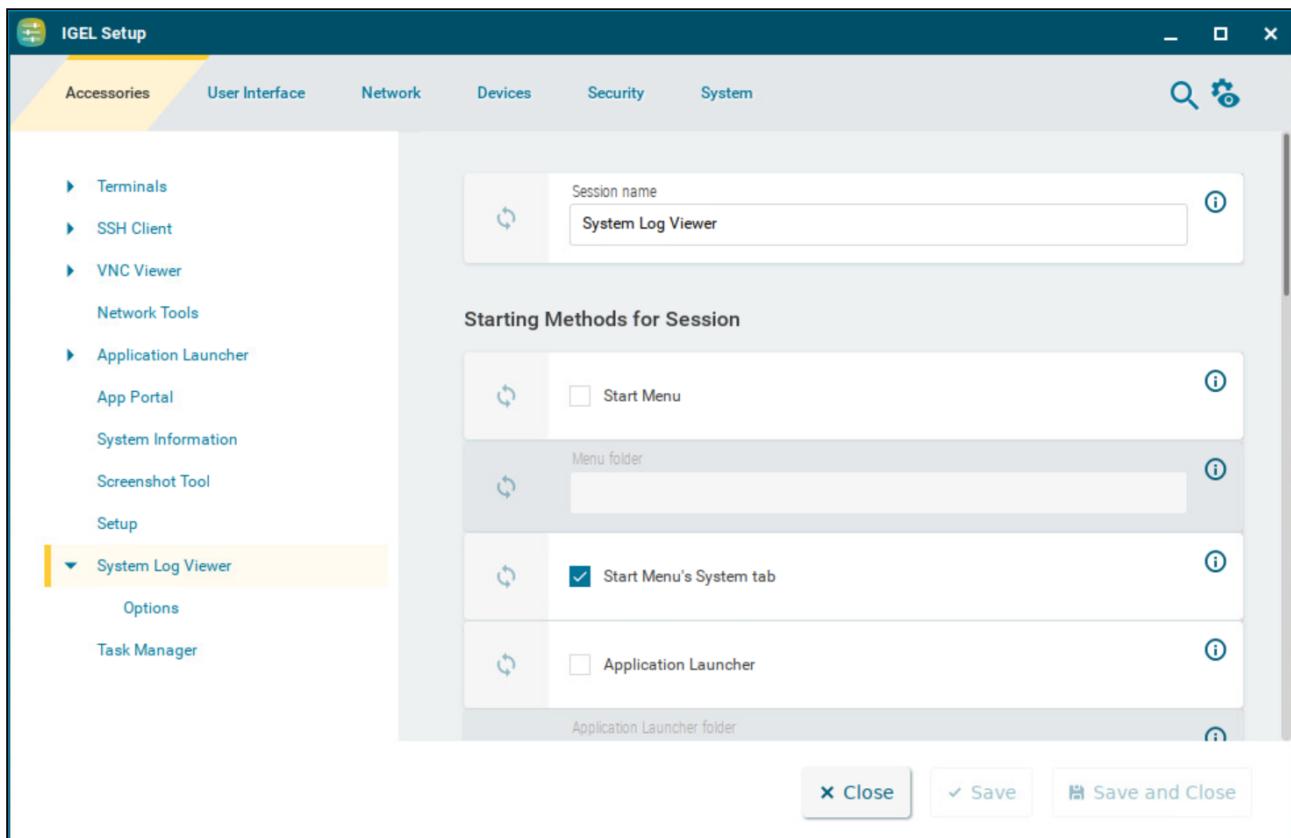
- Administrator
- Setup administrator
- Setup user



## System Log Viewer

This article shows how to configure the System Log Viewer in IGEL OS. With this function, you can view your device's system logs.

Menu path: **Accessories > System Log Viewer**



You can configure the starting methods for an easy access of the System Log Viewer.

The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).

### Options

Menu path: **Accessories > System Log Viewer > Options**

Here, you can add additional files to the files shown by default. The System Log Viewer shows the following files by default:

- `/config/Xserver/card0`
- `/config/Xserver/monitor-info`



- `/config/Xserver/xorg.conf-0`
- `/var/log/Xorg.0.log`
- `/var/log/auth.log`
- `/var/log/daemon.log`
- `/var/log/igfmount.log`
- `/var/log/kern.log`
- `/var/log/syslog`
- `/var/log/tcsetup.log`
- `/wfs/user/setup-assistant.log`

To add a further file to the display, proceed as follows:

1. Click .
2. In the **Add** dialog, enter the path and the file name of the desired file. Example: `/var/log/splash.debug`

If you want to add several files, you can also use the asterisk \*. Example: `/var/log/*.log` or `/var/log/*.txt`
3. Click **OK**.

When the System Log Viewer is started, the file that you have added will be shown.

**Known Issue**

For OS version 12.02.x, the added file is only shown after the restart of the device. The configuration will be reworked in a future release.

## Using System Log Viewer

- ▶ Start the **System Log Viewer**.

A screenshot of a terminal window titled "/config/Xserver/monitor-info - System Log Viewer". The window has a menu bar with File, Edit, View, and Help. On the left, there is a tree view of log files:

- /config/Xserver/card0
- /config/Xserver/monitor-info (selected)
- /config/Xserver/xorg.conf-0
- /var/log/Xorg.0.log
- ↳ /var/log/auth.log
- ↳ /var/log/daemon.log
- ↳ /var/log/igfmount.log
- ↳ /var/log/kern.log
- ↳ /var/log/syslog
- /var/log/user/tcsetup.log
- /wfs/user/setup-assistant.log

The right-hand pane displays the content of the selected file: "NUMBER\_OF\_MONITORS=0". At the bottom, a status bar shows "365 lines (26,8 kB) - last update: Fr Mai 12 10:30:35 2023".

- ▶ In the left-hand column, select the file that you want to view.

The selected file will be shown in the right-hand column.



## Task Manager

The Task Manager provides an overview of the applications and other processes running on the device. It can be used to pause, end, or change the priority of processes. This article shows the starting methods configuration and the use of the Task Manager in IGEL OS.

Menu path: **Accessories > Task Manager**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The left sidebar has a "Accessories" tab selected, showing options like Terminals, SSH Client, VNC Viewer, Network Tools, Application Launcher, App Portal, System Information, Screenshot Tool, Setup, System Log Viewer, and Task Manager. The "Task Manager" option is highlighted with a yellow bar. The main panel shows a "Session name" field with "Task Manager" entered. Below it is a section titled "Starting Methods for Session" with four items: "Start Menu" (unchecked), "Menu folder" (disabled), "Start Menu's System tab" (checked), and "Application Launcher" (unchecked). At the bottom are "Close", "Save", and "Save and Close" buttons.

Starting Method	Status
Start Menu	<input type="checkbox"/>
Menu folder	(disabled)
Start Menu's System tab	<input checked="" type="checkbox"/>
Application Launcher	<input type="checkbox"/>

You can configure the starting methods for an easy access of the Task Manager.

The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).

## Using Task Manager

With the Task Manager, you can observe and influence applications and processes in the following ways:

- Determining device processor usage
- Determining device memory usage
- Determining processor usage by a specific application
- Determining memory usage by a specific application



- Pausing and continuing an application
- Closing an application
- Force closing an application
- Changing the priority of an application

► Start the **Task Manager**.

To determine the device's total processor usage:

► Read the percentage value under **CPU**.



To determine the device's total memory usage:

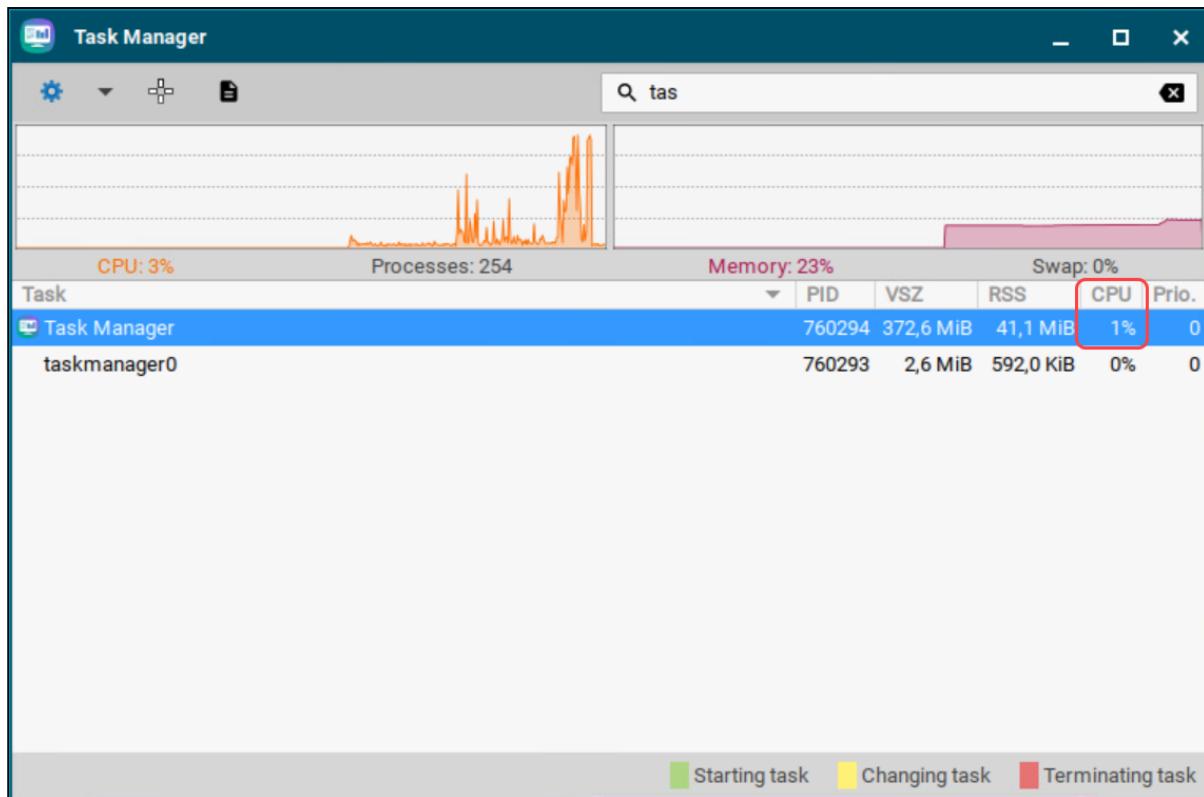
► Read the percentage value under **Memory**.



To calculate the value in bytes, click and enable **Show memory usage in bytes**.

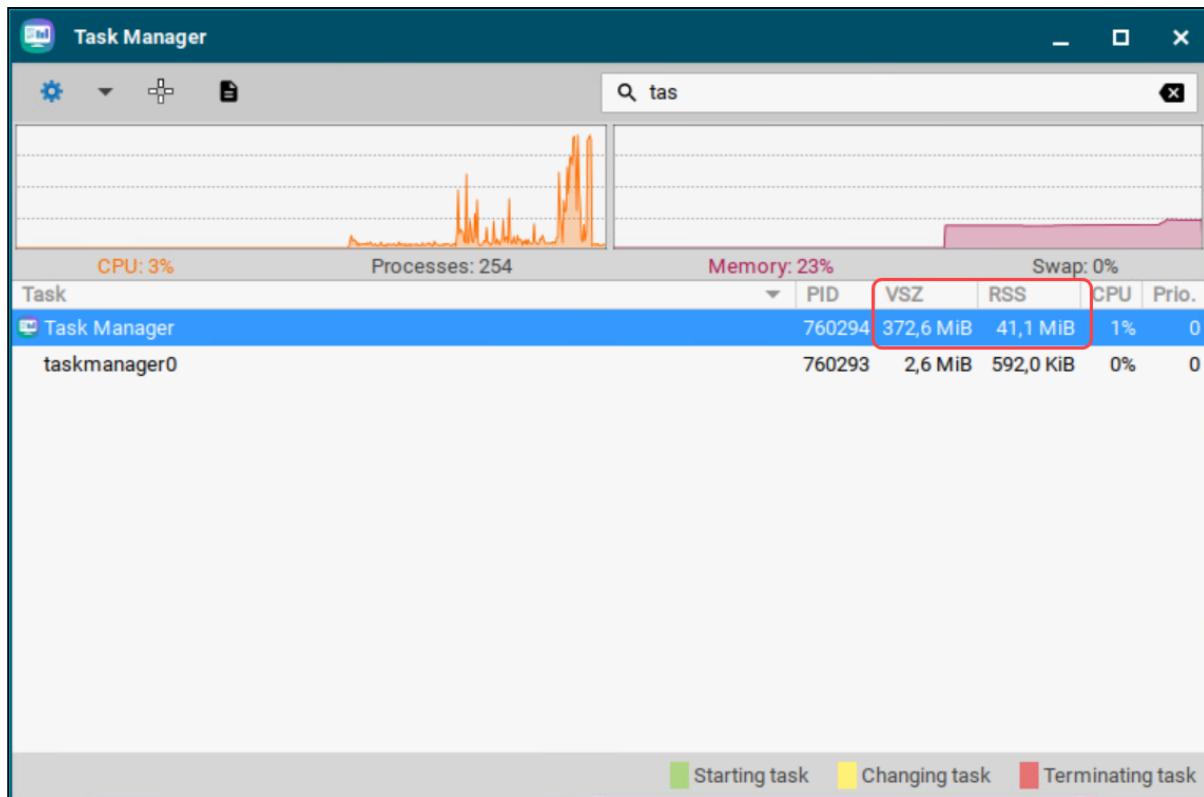
To determine the extent to which a specific application contributes to processor usage, proceed as follows:

1. In the search window, enter the name of the application or part of the name.  
The Task Manager will now show only the relevant applications and processes.
2. Read the percentage value for the relevant application in the **CPU** column.



To determine the extent to which a specific application contributes to memory usage, proceed as follows:

1. Click next to and ensure that **Virtual Bytes** and **Private Bytes** are enabled.
2. In the search window, enter the name of the application or part of the name.  
The Task Manager will now show only the relevant applications and processes.
3. Read the values in the **VSZ** and **RSS** columns.  
The **VSZ** column shows how much memory is available for the application. The **RSS** column shows how much memory the application is currently using.



To pause an application, proceed as follows:

1. Highlight the application.
2. Open the application's context menu by right-clicking on it and select **Stop**.  
The application will be paused (Signal SIGSTOP). You can then continue the application.

To continue an application, proceed as follows:

1. Highlight the application.
2. Open the application's context menu by right-clicking on it and select **Continue**.  
The application will continue (Signal SIGCONT).

To close an application, proceed as follows:

1. Highlight the application.
2. Open the application's context menu by right-clicking on it and select **Terminate**.  
The application will close (Signal SIGTERM).



- i** In this case, the application is instructed to close by the operating system. If the application does not react to this instruction, you can force it to close with the **Kill** command.

To force an application to close, proceed as follows:

1. Highlight the application.
2. Open the application's context menu by right-clicking on it and select **Kill**.  
The application will be forced to close (Signal SIGKILL).

To change the priority of an application, proceed as follows:

1. Highlight the application.
2. Open the application's context menu by right-clicking on it and select **Priority**.
3. Select one of the following values for the priority:
  - **Very low** (nice value: 15)
  - **Low** (nice value: 5)
  - **Normal** (nice value: 0)
  - **High** (nice value: -5). This value can only be set by the administrator.
  - **Very high** (nice value: -15) This value can only be set by the administrator.

- i** As a normal user, you can only change the priority from a higher value to a lower value.  
Example: If you have changed the priority from **Normal** to **Low**, you can only then change it to **Very low** – you can no longer change it back to **Normal**. The administrator can increase the priority.
- i** The priority corresponds to the nice value. High values result in a low priority, while low values result in a high priority.



## User Interface

In this chapter, you find information on the configuration of the user interface in IGEL OS.

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- [Display Settings](#)(see page 49)
- [Display Configurator](#)(see page 61)
- [Desktop](#)(see page 75)
- [Language](#)(see page 99)
- [Screenlock / Screensaver](#)(see page 101)
- [Hotkeys](#)(see page 112)
- [Input](#)(see page 114)
- [Commands](#)(see page 137)



## Display Settings

This article shows how to configure the display settings for the monitors in IGEL OS.

Take notice that a successful and correct display configuration depends, however, on many factors. For example, cables, current driver, BIOS settings, etc. can influence your screen configuration and, thus, have to be considered when setting up the monitor environment.

- ⓘ For information on how to use the Display Configurator for quick display configuration, see [Display Configurator](#)(see page 61).

Menu path: **User Interface > Display Settings**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The navigation bar has tabs: Accessories, User Interface (which is highlighted in yellow), Network, Devices, Security, and System. There are search and settings icons in the top right. The left sidebar has a tree view with "Display Settings" expanded, showing "Power Options", "Access Control", "Gamma correction", "DPI Options", "Display Configurator", "Desktop", "Language", "Screenlock / Screensaver", "Hotkeys", "Input", and "Commands". The main content area is titled "General Settings" and shows a "Number of Screens" section with a row of buttons numbered 1 through 8. The button for "1" is highlighted with a yellow border. Below this is a large preview window showing a single monitor setup with a yellow border around it. At the bottom are buttons for "Close", "Save", and "Save and Close".

**⚠** Always try the configuration locally before applying it to multiple devices via a profile: A faulty display configuration can cause your GUI to become unstable and lead to a black screen.

If you face a black screen problem because of the wrong display configuration, try one of the following recovery options:

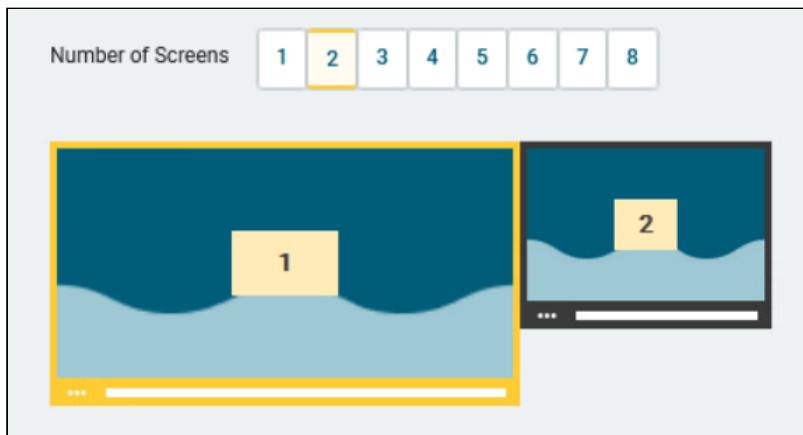
- In the UMS: Edit the display configuration via **Devices > [device name] > [device's context menu] > Edit Configuration** or via a new profile.
- In Web UMS: Edit the settings by clicking **Edit Configuration** in the Device Information of the device under **Devices > [device name]**.
- On the endpoint device: Restart the device and select **Emergency boot (setup only)** during the boot procedure. In the Setup, you can then change the display configuration.

## General Settings

### Number of screens

The number of monitors used can be selected by clicking the numbered buttons.

In a multimonitor configuration, every screen connected to the endpoint device can be configured independently after selecting the screen. The selected screen is highlighted with a yellow frame. The white bar at the bottom edge of the screen represents the physical orientation of the monitor. The position of the screens can be configured by drag&drop.



### Screen resolution

The resolution can be selected from a drop-down menu. (Default: Autodetect)

- i** You have the option of defining your own resolutions via the registry key `x.xserver0.custom_resolution`. In order for the values set there to take effect, the resolution must be set to **Autodetect**. The following parameters apply to the entry in the registry:
- `WxH` : W = width, H = height (example: 1920x1080)
  - `WxH@R` : W = width, H = height, R = refresh rate (example: 1920x1080@60 or 1920x1200@59.8)



**⚠** Be careful when changing resolutions manually. Excessively high resolutions can cause a black screen.

**i** For details of the display resolution supported by your IGEL device, please see the datasheet archive for legacy IGEL devices.

For detailed instructions on MST configuration for UD3 and UD7, see:

- UD3 Model M350C: Multistream Transport
- UD7 Model H860C: Multistream Transport (MST) / Monitor Daisy Chaining

## Screen rotation

The rotation can be selected from a drop-down menu. (Default: None)

## Advanced Settings for the Screen

### Detect refresh rate automatically

A refresh rate for the monitor is identified automatically. (Default)

A refresh rate for the monitor is to be set manually.

### Refresh rate

Number of individual images per second

Possible values:

- **30 ... 100** (Default: 60)

**⚠** Be careful when changing the refresh rate manually since a faulty configuration can cause a black screen.

## Graphic card

Graphic card assigned to the selected screen. A graphic card can have more outputs than are actually used. In order to ensure transparency, you may need to assign the graphic cards manually.

**i** If **Automatic** is set for the **Monitor** and no configurable monitor is found for the selected graphic card, the next available monitor will be used by another graphic card.

## Monitor

Connection type. (Default: Automatic)

- [Power Options](#)(see page 52)
- [Access Control](#)(see page 55)
- [Gamma Correction](#)(see page 57)
- [DPI Options](#)(see page 59)



## Power Options

This article shows how to configure energy-saving stages in IGEL OS.

### Power Management

Menu path: **Display Settings > Power Options > Power Management**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The left sidebar shows a tree view with "Display Settings" expanded, "Power Options" selected, and "Power Management" highlighted. The main panel is titled "Display Power Management Settings". It contains two sections: "On Battery" and "Plugged In". Under "On Battery", there are three dropdown menus: "Standby Time" set to "6 Minutes", "Suspend Time" set to "8 Minutes", and "Off Time" set to "10 Minutes". At the bottom of the main panel are buttons for "Close", "Save", and "Save and Close".

Setting	Value
Standby Time	6 Minutes
Suspend Time	8 Minutes
Off Time	10 Minutes

#### Handle display power management

The DPMS energy saving functions are enabled. (Default)

The screen must support Display Power Management Signaling (DPMS).

#### On Battery / Plugged In

You can select time frames after which energy-saving modes get activated. The time frames are configured separately for **On Battery** and **Plugged In** use of the device. When **Never** is selected, the energy-saving mode is



disabled.

The following energy-saving modes can be configured:

- **Standby Time**  
After this time frame the device goes to standby mode.
- **Suspend Time**  
After this time frame the device goes to sleep mode.
- **Off Time**  
After this time frame the device turns off.

## Brightness Reduction

Menu path: **Display Settings > Power Options > Brightness Reduction**

Setting	On Battery	Plugged In
On inactivity reduce to	20	80
Reduce after	9	9

If a device is switched on but not used for some time, energy can also be saved by brightness reduction. The values of the reduction are configured separately for **On Battery** and **Plugged In** use of the device.

### On Battery / Plugged In

#### On inactivity reduce to

The percent value to which the brightness is reduced after a period of inactivity.



**Reduce after**

The period of inactivity after which brightness is reduced. You can set the period between 10-120 seconds. Setting the value to 9 deactivates the reduction.



## Access Control

This article shows how to control access to the display in IGEL OS. Device access control is enabled by default.

Menu path: **User Interface > Display Settings > Access Control**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface (which is selected and highlighted in yellow), Network, Devices, Security, and System. On the far right of the top bar are a search icon and a gear icon. The left sidebar contains a tree view of settings: Display Settings (expanded), Power Options, Access Control (selected and highlighted in orange), Gamma correction, DPI Options, Display Configurator, Desktop, Language, Screenlock / Screensaver, Hotkeys, Input, and Commands. The main content area shows three configuration items: "Disable console switching" (unchecked), "Access control" (checked), and "Disable TCP connections" (checked). Below these is a table titled "List of Trusted X Hosts" with one row labeled "Trusted host". At the bottom are buttons for "Close", "Save", and "Save and Close".

List of Trusted X Hosts	
Trusted host	

### Disable console switching

- You can NOT switch to the console using [Ctrl] + [Alt] + [F11] or [Ctrl] + [Alt] + [F12].  
 You can access the console using [Ctrl] + [Alt] + [F11] or [Ctrl] + [Alt] + [F12]. (Default)

### Access control

- Access to this display from other computers will be controlled. (Default)

### Disable TCP connections

- All TCP connections to the display are disabled. Only local applications are displayed. The xhost mechanism does not function. (Default)



 This parameter is ignored if XDMCP is configured.

### List of Trusted X Hosts

List of approved computers for console access

To manage the list:

- Click  to create a new entry.
- Click  to remove the selected entry.
- Click  to edit the selected entry.
- Click  to copy the selected entry.

When adding the **Trusted host**, give the name of the remote host (not the IP address) you would like to add.



## Gamma Correction

This article shows how to increase or decrease the various brightness ranges in order to adjust the display on your screen in IGEL OS.

Menu path: **User Interface > Display Settings > Gamma Correction**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface (which is selected and highlighted in yellow), Network, Devices, Security, and System. To the right of the tabs are search and settings icons. The left sidebar contains a tree view of configuration categories: Display Settings (expanded), Power Options, Access Control, Gamma correction (selected and highlighted in yellow), DPI Options, Display Configurator, Desktop, Language, Screenlock / Screensaver, Hotkeys, Input, and Commands. The main content area is divided into two sections: "Screen 1" and "Screen 2". Each section contains three sliders for "Gamma Value Red", "Gamma Value Green", and "Gamma Value Blue". Each slider has a current value (e.g., 1.00 for Red), a scale from 0.1 to 10, and an information icon (i). At the bottom right of the content area are three buttons: "Close", "Save", and "Save and Close".

Screen	Color	Value	Scale Range
Screen 1	Red	1.00	0.1 to 10
	Green	1.00	0.1 to 10
	Blue	1.00	0.1 to 10
Screen 2	Red	1.00	0.1 to 10
	Green	1.00	0.1 to 10
	Blue	1.00	0.1 to 10

You can change the gamma values for red, green and blue on each screen separately. The scale ranges from 0.10 (dark) to 10 (light) and is set to 1.00 by default.

### Gamma Value Red

Changes the brightness curve for the red color portion.

### Gamma Value Green

Changes the brightness curve for the green color portion.



**Gamma Value Blue**

Changes the brightness curve for the blue color portion.



## DPI Options

This article shows how to configure DPI values for the display in IGEL OS.

Menu path: **User Interface > Display Settings > DPI Options**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface (which is selected and highlighted in yellow), Network, Devices, Security, and System. On the far right of the top bar are a search icon and a settings gear icon. The left sidebar contains a tree view of configuration categories: Display Settings (expanded), Power Options, Access Control, Gamma correction, DPI Options (selected and highlighted in yellow), Display Configurator, Desktop, Language, Screenlock / Screensaver, Hotkeys, Input, and Commands. The main content area shows two configuration items under "DPI Options": "Monitor DPI detection" set to "Smart" (with an info icon) and "Monitor DPI" set to "96" (with an info icon). At the bottom right of the content area are three buttons: "Close", "Save" (with a checkmark icon), and "Save and Close".

### Monitor DPI detection

Defines how the DPI value should be determined.

Possible options:

- **Off:** The DPI value is defined by **Monitor DPI**. There is no automatic detection.
- **Smart** (Default):  
The DPI value is defined automatically. With this setting, the user interface is readable also on monitors with very high resolutions, e.g. 4k monitors. The DPI value is set to either 96, 125, 150, 175, 200, 225, 250, 275 or 300, depending on which value is closest to the value calculated based on the monitor resolution.
- **Pixel-Precise:**  
The DPI value is defined automatically. With this setting, the user interface is readable also on



monitors with very high resolutions, e.g. 4k monitors. The value calculated based on the monitor resolution is used directly.

#### **Monitor DPI**

The DPI resolution (dots per inch) for your monitor. (Default: 96)

This parameter is only available if **Monitor DPI detection** is set to **Off**.



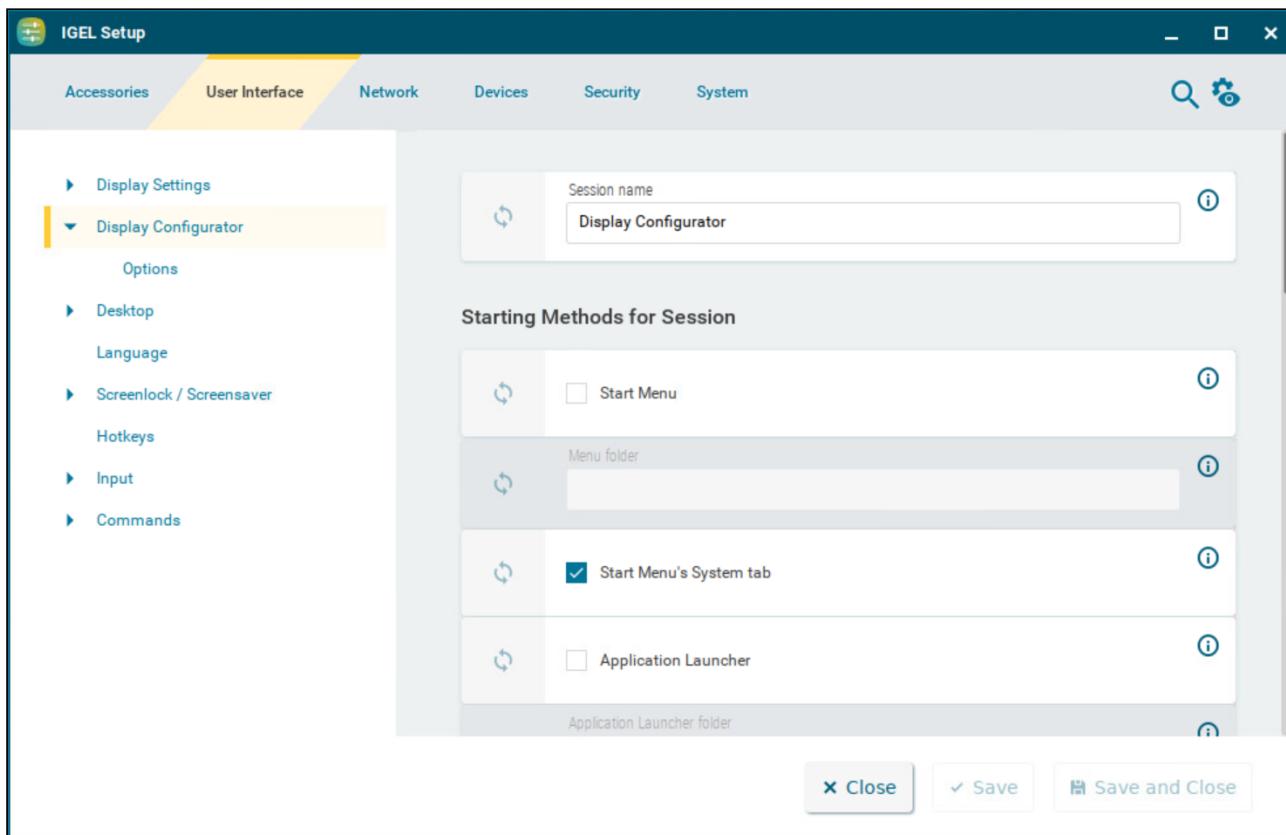
## Display Configurator

With the Display Configurator, you can configure the display on several screens. This article shows how to configure the starting methods for the Display Configurator in IGEL OS.

- ⓘ For details on how to use the function, see [Using Display Configurator](#)(see page 71).  
For details on how to configure the function, see [Options](#)(see page 63).

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Menu path: **User Interface > Display Configurator**



You can configure the starting methods for easy access to the Display Configurator.

The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).

- [Options](#)(see page 63)
- [Minimal Dialog](#)(see page 66)
- [Advanced Dialog](#)(see page 68)



- Using Display Configurator(see page 71)



## Options

This article shows how to configure the details of the Display Configurator function in IGEL OS.

Menu path: **User Interface > Display Configurator > Options**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The top navigation bar includes tabs for "Accessories", "User Interface" (which is highlighted in yellow), "Network", "Devices", "Security", and "System", along with search and settings icons. The left sidebar contains a tree view with categories like "Display Settings", "Display Configurator" (selected and highlighted in orange), "Desktop", "Language", "Screenlock / Screensaver", "Hotkeys", "Input", and "Commands". The main content area is titled "Options" and displays configuration options for "Display Configurator". It includes a "Dialog Type" dropdown set to "Minimal dialog", a checkbox for "Smart display configuration" (checked), a checkbox for "Preserve settings over reboot" (checked), and an unchecked checkbox for "Configure new displays when connected". Below this is a section titled "Options in Minimal Dialog" with a checked "Mirror displays" option and an unchecked "Extend to the left" option. At the bottom are "Close", "Save", and "Save and Close" buttons.

Option	Description	Value
Dialog Type	Minimal dialog	Selected
Smart display configuration	Configure displays automatically	Checked
Preserve settings over reboot	Keep display settings after reboot	Checked
Configure new displays when connected	Automatically detect and configure new displays	unchecked
Mirror displays	Configure displays in mirror mode	Checked
Extend to the left	Configure displays in extended mode (left)	unchecked

### Dialog type

Defines the opening dialog of the Display Configurator.

Possible values:

- **Minimal dialog:** The Display Configurator starts with the minimal dialog.
- **Advanced dialog:** The Display Configurator starts with the advanced dialog.

### Smart display configuration

Configurations of the displays will be saved and automatically re-applied when the same displays are re-connected. (Default)

Display configurations will not be saved.

**Preserve settings over reboot**

- The display settings will be preserved over a reboot. (Default)
- The display settings will be reset to the default settings in the event of a reboot.

**Configure new displays when connected**

- The Display Configurator starts as soon as new screens are connected.
- The Display Configurator does not start automatically when new screens are connected. (Default)

Options in Minimal Dialog

**Mirror displays**

- The option to mirror the displays is shown in the minimal dialog. (Default)
- The option is not shown in the minimal dialog.

**Extend to the left**

- The **Extend to the left** option is shown in the minimal dialog. (Default)
- The option is not shown in the minimal dialog.

**Extend to the right**

- The **Extend to the right** option is shown in the minimal dialog. (Default)
- The option is not shown in the minimal dialog.

**Rotate displays (Page orientation)**

- The **Rotate displays (Page orientation)** option is shown in the minimal dialog.
- The option is not shown in the minimal dialog. (Default)

**Mouse options**

- Options to quickly change the mouse configurations are shown in the minimal dialog. (Default)
- The mouse settings are not shown.

**Advanced**

- The **Advanced** button is shown in the minimal dialog. With this button, you can switch to the advanced dialog. (Default)
- The **Advanced** button is not shown.



**Reset**

- The **Reset** button is shown in the minimal dialog. With this button, you can restore the default settings. (Default)
- The **Reset** button is not shown.

**Timeout for confirmation dialog**

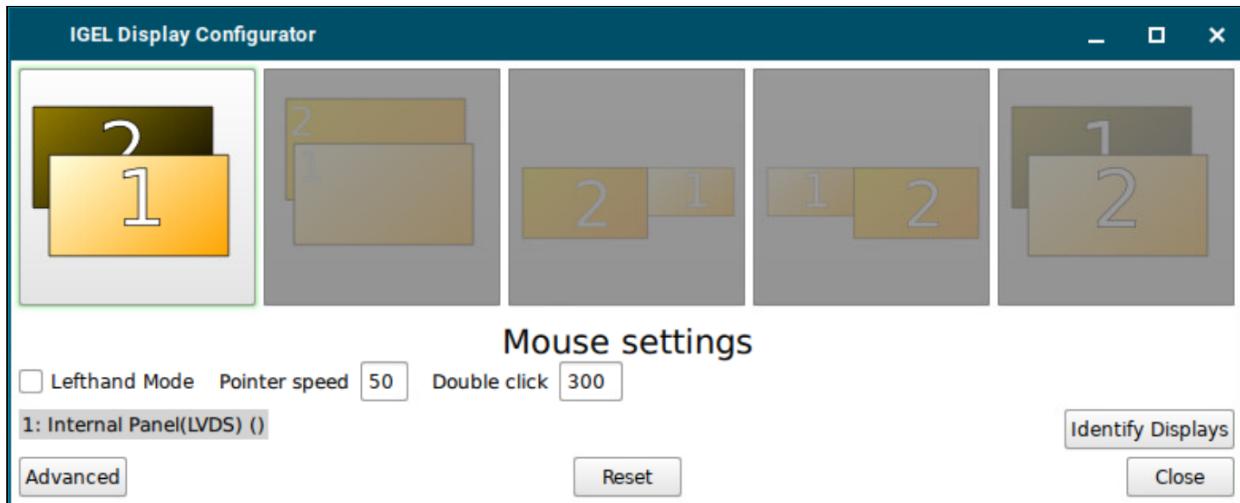
Specifies a timeout for the confirmation dialog.

The value can be set between 0-120 seconds. (Default: 10 seconds)

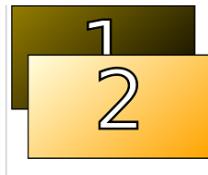
## Minimal Dialog

This article shows the functions of the minimal dialog of the IGEL Display Configurator dialog. For details on how to use the function, see [Using Display Configurator](#)(see page 71).

If the Display Configurator starts with the advanced dialog, you can access the minimal dialog by clicking **Simple**.



Selection	Function
	Uses only display 1.
	Shows the same content on all screens, i.e. clone mode or mirroring.
	Extends the display area to the screen on the left
	Extends the display area to the screen on the right.
	Uses only display 2.



### Identify displays

Starts the monitor detection.

### Advanced

Switches to advanced mode of display configuration.

### Reset

Restores the default settings.

### Close

Closes the dialog.

## Mouse Settings

- ⓘ** The following parameter must be activated for the configuration of mouse settings:  
• **User Interface > Display Configurator > Options > Mouse options** (disabled by default)

### Lefthand Mode

- Lefthand mode is active.  
 Righthand mode is active. (Default)

### Pointer speed

Value for the mouse speed in percentage between 1 (slow) and 100 (fast). (Default: 50)

### Double click

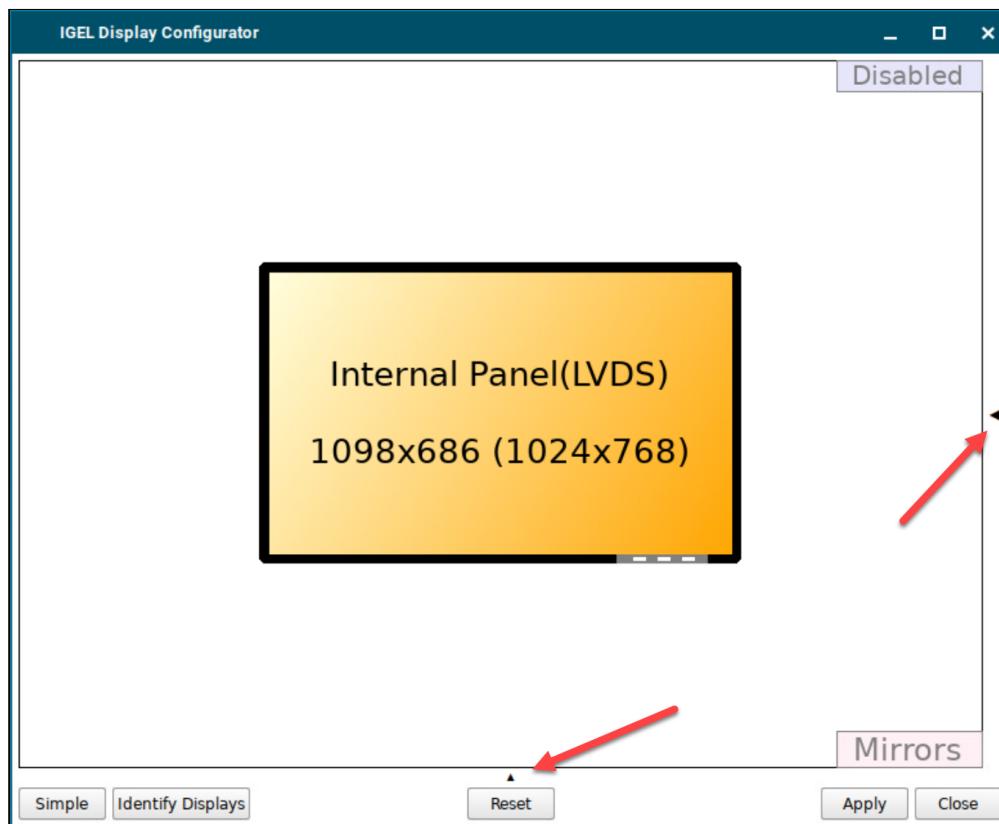
Maximum interval in milliseconds between two mouse clicks to still be recognized as a double-click. (Default: 300)



## Advanced Dialog

This article shows the functions of the advanced dialog of the IGEL Display Configurator. For details on how to use the function, see [Using Display Configurator](#).

If the Display Configurator starts with the minimal dialog, you can access the advanced dialog by clicking **Advanced**.



### Advanced Settings

Advanced settings (pan/scale/resolution) can be configured in a collapsible area on the right side of the window.

- ▶ Click the arrow on the right side of the window, to enlarge the advanced settings area.

The display selector at the top defines the display for which the following settings are configured:

#### Use this display

- Enables the display.
- Disables the display.



## Index

Gives the display an order number.

## Rotation

Rotates the display.

Possible values:

- **None** (Default)
- **Left**
- **Inverted**
- **Right**

## Resolution

The resolution of the display can be selected. (Default: Automatic)

## Refresh rate

The refresh rate of the display can be selected. The available values depend on the selected resolution. (Default: Automatic)

## Panning

Sets up a virtual screen that is larger than your physical screen. It will look like an enlarged screen. By moving the mouse to the edge of the screen, hidden parts become visible. (Default: None)

## Reflection

Transforms the display as if being reflected by a mirror.

Possible values:

- **None** (Default)
- **Horizontal**
- **Vertical**
- **Horizontal and Vertical**

## Scale from

A software variant of the resolution. This can be useful if you need a resolution that is not available on the hardware. (Default: None)

## Mouse Settings

**(i)** The following parameter must be activated for the configuration of mouse settings:



- **User Interface > Display Configurator > Options > Mouse options** (disabled by default)

Mouse settings can be configured in a collapsible area on the bottom of the window.

- ▶ Click the arrow on the bottom of the window, to enlarge the mouse settings area.

#### **Lefthand mode**

- Lefthand mode is active.  
 Righthand mode is active. (Default)

#### **Pointer speed**

Value for the mouse speed in percentage between 1 (slow) and 100 (fast). (Default: 50)

#### **Double click**

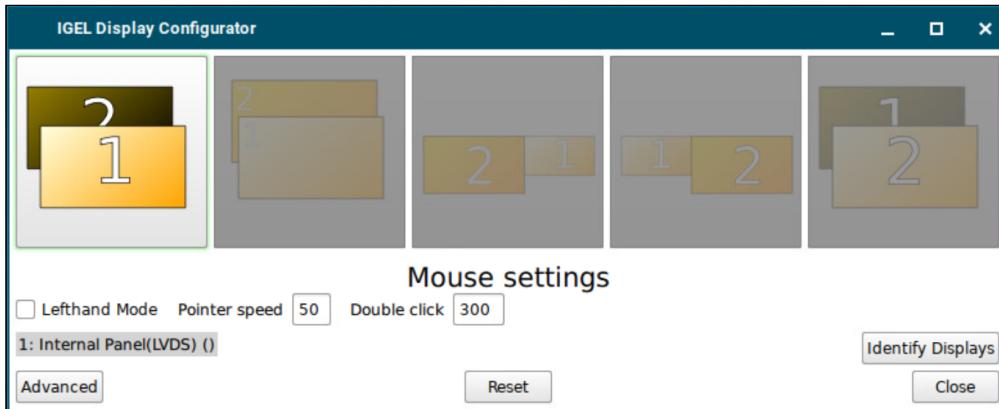
Maximum interval in milliseconds between two mouse clicks to still be recognized as a double-click. (Default: 300)

## Using Display Configurator

This article shows how to use the Display Configurator in IGEL OS.

- ⓘ To save the configured settings, the following parameters need to be enabled:
  - **User Interface > Display Configurator > Options > Smart display configuration**  
(enabled by default)
  - **User Interface > Display Configurator > Options > Preserve settings over reboot**  
(enabled by default)

- 
- ▶ Start the **Display Configurator**. The starting options are described under [Display Configurator](#)(see page 61).



It is possible to use several different profiles in the Display Configurator. The profiles are automatically selected at runtime depending on the currently connected monitors. A profile is created when the current monitor layout, or the current resolution is configured via Display Configurator. The profile is automatically assigned to the currently connected monitors and recognizes the manufacturer, model by plug, and, if available, the status of the laptop cover. When the screen configuration changes (by hot (un)plugging), the system will automatically switch to the profile.

### Identify Displays

- ▶ Click **Identify Displays** to start screen detection.
- The names and properties of the screens will be detected. The connection, the assigned number (**1** = main screen) and the name will be shown on each screen. Example: **1: DVI-D(II): Samsung 24"**

### Define Main Screen

1. If necessary, switch to the advanced dialog by clicking **Advanced**.



2. Select the screen that you wish to define as the main screen under the advanced settings.

3. Set the **Index** to 1.

The display is now marked as the main screen.

#### Split Display over Several Screens

You have various options for using several screens. In the dialog, the connection, the assigned number (**1** = main screen) and the name is shown for each screen. (Example: **1: DVI-D(II): Samsung 24"**)

The procedure with the minimal dialog:

1. If necessary, switch to the minimal dialog by clicking **Simple**.

2. Select according to your needs:

- To show the same content on all screens (Shadow screens), select .
- If you would like to expand the display to all screens and the other screens are to the left of the main screen, select .
- If you would like to expand the display to all screens and the other screens are to the right of the main screen, select .

The procedure with the advanced dialog:

1. If necessary, switch to the advanced dialog by clicking **Advanced**.

2. Use drag-and-drop to move the displays to the desired configuration.

- Move the displays to the desired layout. They will snap together when they touch each other at the edge.
- If you no longer need a monitor, drag it to the upper right corner to the **Disabled** area to disable it.
- To display the same content on multiple displays, drag them one on top the other. **Mirror \<other>** will be displayed. The mirroring monitor is displayed in the lower right corner.

3. Click **Apply** to set the current status. Click **Yes** in the confirmation window to save the configuration permanently and associate it with the profile.

#### Rotate Displays (Page Orientation)

**i** The following parameter must be activated for the configuration:

- **Setup > User Interface > Display Configurator > Options > Rotate displays (Page orientation)** (disabled by default)



1. If necessary, switch to the advanced dialog by clicking **Advanced**.



2. To rotate the display counterclockwise, click on . To rotate the display clockwise, click on .
3. Click **Apply** to set the current status. Click **Yes** in the confirmation window to save the configuration permanently and associate it with the profile.

#### Change Mouse Settings

- ⓘ The following parameter must be activated for the configuration of mouse settings:
- **Setup > User Interface > Display Configurator > Options > Mouse options** (disabled by default)

1. If necessary, switch to the minimal dialog by clicking **Simple**.
2. To adjust the mouse for left-handed users, enable the **Lefthanded Mode**.
3. To adjust the speed of the mouse pointer, change the value under **Pointer speed**. The higher the value, the further the mouse pointer will move when the mouse is moved.
4. To change the time interval within which two consecutive mouse clicks are recognized as a double-click, change the number of milliseconds under **Double click interval**.

#### Zoom Display (Screen Magnifying Glass)

You can magnify the screen content. The effect is the same as with the screen magnifying glass in Microsoft Windows: All text and graphics are magnified by the same factor; this results in a virtual display area which is bigger than the monitor's available display area. The user therefore sees a magnified section of the entire screen; the section can be moved by moving the mouse to the edge of the screen.

To activate the function:

1. If necessary, switch to the advanced dialog by clicking **Advanced**.
2. Under **Panning**, set the desired value. Example: **3860x2160**
3. Under **Resolution**, set a low value. This value simulates the actual resolution of the screen. Example: **1280x800**
4. Click **Apply**.  
The screen content will be magnified. The magnification factor results from the ratio of the virtual resolution and the simulated actual resolution.



- ⓘ If the same content is displayed on a number of screens (Shadow screens), all screens will show the same section. However, you can set a different magnification level for each of the screens.

### Change Refresh Rate

- ⓘ This is only possible if a resolution has been selected. The respective resolutions can be different. A refresh rate of 60 Hz is usually suitable for standard screens.

1. If necessary, switch to the advanced dialog with **Advanced**.
2. Under **Refresh rate**, set the desired value.

### Restore Default Settings

- ▶ Click **Reset** to restore the default settings.



## Desktop

This article shows how to configure general settings for the appearance of the desktop in IGEL OS.

Menu path: **User Interface > Desktop**

A screenshot of the IGEL Setup application window titled "User Interface". The left sidebar shows a tree view with "Display Settings", "Display Configurator", "Options", "Desktop" (which is selected), "Background (1st Monitor)", "Taskbar", "Taskbar Background", "Taskbar Items", "Pager", "Start Menu", and "In-Session Control Bar". The main panel shows configuration for the selected "Desktop" category. It includes a checkbox for "Local Window Manager for this Display" which is checked. Below it are sections for "User Interface Theme" (set to "IGEL Color"), "Base color of the UI theme" (#004f68), "Highlight color of the UI theme" (#0088ac), and "Icon and font color" (set to "Optimized for color backgrounds"). At the bottom are "Close", "Save", and "Save and Close" buttons.

The screenshot shows the "User Interface" tab selected in the top navigation bar. The left sidebar lists various configuration categories. The main area displays settings for the "Desktop" category, including a checked checkbox for "Local Window Manager for this Display".

### Local window manager for this display

Enables local window management for the display. (Default)

### User interface theme

You can either select one of our predefined color schemes or define a color scheme of your own.

- **IGEL color:** The color of dialog frames and the taskbar is blue, headings and icons are white, highlights are light blue.
- **IGEL dark:** The color of dialog frames and the taskbar is black, headings and icons are white, highlights are dark gray.
- **IGEL light:** The color of dialog frames and the taskbar is light gray, headings and icons are black, highlights are dark grey.
- **Custom colors:** Define your own color combinations below.



- **Base color of the UI theme:** The color of dialog frames and the taskbar. Click the color preview square to open the color selector.
- **Highlight color of the UI theme:** The color of highlights. Click the color preview square to open the color selector.
- **Icon and font color:** The optimization can be selected based on custom colors.

#### Desktop icon size

The size of icons displayed on the desktop

#### Desktop icon font color

The font color for the labels associated with the desktop icons. Click the color preview square to open the color selector.

#### Monitor for desktop icons

If you use several monitors, select the one that is to display desktop icons.

- **All monitors**
- **Same as taskbar**
- **1st monitor**
- **2nd monitor**
- (other monitors if connected)

#### Single click mode

Programs are opened with a single click. (Default)

### Desktop Fonts

#### Default font

The font type of texts appearing on the taskbar and in the start menu. The following fonts are available to choose from:

- **RobotoRegular** (Default)
- **Sans**
- **Sans Bold**
- **Serif**
- **Serif Bold**

#### Default font size

The font size of texts appearing on the taskbar and in the start menu in pt (points).

#### Desktop icon font size



The font size of texts for desktop icons in pt (points).

### Titlebar font

The font type of texts appearing in titlebars. The following fonts are available to choose from:

- **RobotoBold** (Default)
- **Sans**
- **Sans bold**
- **Serif**
- **Serif Bold**

### Titlebar font size

The font size of texts appearing in titlebars in pt (points).

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- [Background \(1st Monitor\)](#)(see page 78)
- [Taskbar](#)(see page 82)
- [Taskbar Background](#)(see page 85)
- [Taskbar Items](#)(see page 87)
- [Pager](#)(see page 90)
- [Start Menu](#)(see page 95)
- [In-Session Control Bar](#)(see page 97)



## Background (1st Monitor)

This article shows how to configure the desktop background in IGEL OS.

Menu path: **User Interface > Desktop > Background (1st Monitor)**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The top navigation bar includes tabs for "Accessories", "User Interface" (which is selected and highlighted in yellow), "Network", "Devices", "Security", and "System". To the right of the tabs are search and settings icons. The left sidebar contains a tree view of configuration categories: Display Settings, Display Configurator, Desktop (selected), Taskbar, Taskbar Background, Taskbar Items, Pager, Start Menu, In-Session Control Bar, Language, Screenlock / Screensaver, Hotkeys, and Input. Under the "Desktop" category, "Background (1st Monitor)" is selected and highlighted in orange. The main content area displays several configuration options for the 1st monitor's desktop background:

- Wallpaper (1st monitor): IGEL (with a dropdown arrow)
- Wallpaper style (1st monitor): Stretched (with a dropdown arrow)
- Color style (1st monitor): Horizontal gradient (with a dropdown arrow)
- Desktop color (1st monitor): # 027498 (with a color swatch and info icon)
- 2nd desktop color (1st monitor): # 015a76 (with a color swatch and info icon)

At the bottom of the main area is a checkbox labeled "Custom wallpaper download (1st monitor)". Below the configuration area are three buttons: "Close", "Save" (with a checkmark icon), and "Save and Close".

You can use predefined IGEL backgrounds, a fill color or a color gradient. You can also use a background image of your own.

i You can set up a separate background image for each monitor that is connected to the device.

### Wallpaper

Provides a selection of predefined IGEL backgrounds:

- **Neutral**
- **Off**
- **IGEL (Default)**



## Wallpaper style

Provides various design versions:

- **Auto**
- **Centered**
- **Tiled**
- **Stretched** (Default)
- **Scaled**
- **Zoomed**

## Color style

Sets a fill color or a color gradient.

- **Solid color**
- **Horizontal gradient** (Default)
- **Vertical gradient**

## Desktop color

The desktop color if **Wallpaper** is set to **Off**. Click the color preview square to open the color selector.

## 2nd desktop color

The second desktop color if **Wallpaper** is set to **Off** and a gradient **Color style** is selected. Click the color preview square to open the color selector.

## Custom wallpaper download

You can provide a user-specific background image on a download server. Specify the download server under **Desktop > Background > Custom Wallpaper Server**.

Custom wallpaper is not used. (Default)

## Custom wallpaper file

The name of the background image file

The user-specific background image will be downloaded from the specified server if the function was enabled and if requested manually through **Wallpaper update** under **Desktop > Background > Custom Wallpaper Server**. The download can also be launched from the IGEL Universal Management Suite (UMS) via the **Update desktop customization** command.

- i** A user-specific boot image can be provided on a download server. The file types BMP, JPG, GIF, TIF, PNG and SVG are supported for an own background image and bootsplash. A total storage area of 25 MB is available for all user-specific images. For more information, see Firmware Customizations in the IGEL UMS.



## Custom Wallpaper Server

This article shows how to configure the download server for your own background images in IGEL OS.

Menu path: **User Interface > Desktop > Background > Custom Wallpaper Server**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface (which is selected and highlighted in yellow), Network, Devices, Security, and System. On the far right of the top bar are search and settings icons. The left sidebar contains a tree view of configuration categories: Display Settings, Display Configurator, Desktop (with a expanded "Background (1st Monitor)" node), Taskbar, Taskbar Background, Taskbar Items, Pager, Start Menu, In-Session Control Bar, Language, Screenlock / Screensaver, and Hotkeys. The "Custom Wallpaper Server" node under "Background" is currently selected and highlighted in orange. The main content area is titled "Custom Wallpaper - Server Location". It contains five input fields with spinners: "Protocol" set to "HTTP", "Server name" (empty), "Server path" (empty), "Port" set to "80", and "User name" (empty). Below these is a password field with placeholder text "New password". At the bottom are three buttons: "Close", "Save" (with a checkmark icon), and "Save and Close".

### Protocol

Determines the protocol that is to be used. The following are available to choose from:

- **HTTP:** Download from a web server. (Default)
- **HTTPS:** Download from a TLS/SSL-secured web server
- **FTP:** Download from an FTP server
- **SecureFTP:** Download via SSH-secured FTP
- **FTPS:** Download from a TLS/SSL-secured FTP server
- **File:** The image file lies in the file system of the device, possibly as a shared NFS or Windows update. You can enter the location under **Local path**.

### Local path



The path to the background image. The parameter is shown when **File** is selected as protocol.

**Server name**

Name or IP address of the server used

**Server path**

Directory in which you saved the background image

**Port**

Port used (Default: 80)

**User name**

Name of the user account on the server

**Password**

Password for this account

**Wallpaper update**

The button refreshes the background image when clicked.



## Taskbar

This article shows how to enable and configure the taskbar in IGEL OS.

- ⓘ Further settings can be found under **User Interface > Screenlock / Screensaver > Taskbar**. For detailed information on those settings, see [Taskbar](#)(see page 106).

Menu path: **User Interface > Desktop > Taskbar**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The window has a dark header bar with the title and standard window controls. Below the header is a navigation bar with tabs: "Accessories", "User Interface" (which is highlighted in yellow), "Network", "Devices", "Security", and "System". To the right of the navigation bar are search and settings icons. The main content area is divided into two columns by a vertical scroll bar. The left column contains a sidebar with the following items: "Display Settings", "Display Configurator", "Desktop" (with "Background (1st Monitor)" and "Taskbar" expanded), "Taskbar Background", "Taskbar Items", "Pager", "Start Menu", "In-Session Control Bar", "Language", "Screenlock / Screensaver", "Hotkeys", and "Input". The "Taskbar" item is currently selected and highlighted with a yellow background. The right column displays several configuration options: "Use taskbar" (checkbox checked), "Taskbar position" (dropdown set to "Bottom"), "Vertical taskbar mode" (dropdown set to "Desobar"), "Taskbar height/width" (text input set to "48"), "Number of rows/columns in taskbar" (dropdown set to "Automatic"), and "Multimonitor taskbar size" (dropdown set to "Restrict taskbar onto one monitor"). At the bottom right are three buttons: "Close", "Save" (with a checkmark), and "Save and Close".

The screenshot shows the "User Interface" tab selected. In the left sidebar, under "Desktop", the "Taskbar" option is selected and highlighted. The right panel shows various taskbar configuration settings, such as position (set to "Bottom"), height (set to 48), and mode (set to "Desobar").

### Use taskbar

The taskbar is displayed and the setting options are available. (Default)

### Taskbar position

Specifies the display position of the taskbar.

Possible values:



- **Bottom** (Default)
- **Top**
- **Left**
- **Right**

#### Vertical taskbar mode

Specifies how items are shown in the taskbar. This parameter is available if **Taskbar position** is set to **Left** or **Right**. Possible values:

- **Vertical**: The session texts are rotated by 90°.
- **Deskbar**: The session texts are not shown. (Default)

#### Taskbar height/width

Specifies the size of the taskbar in pixels. This is the height of the taskbar if the position is top or bottom, and the width of the taskbar if the position is left or right. (Default: 48)

**i** If **Maximum number of rows/columns in window button list** is set to **Automatic**, the window buttons as well as the icons in the Quick Start Panel will be shown in a number of rows depending on the height of the taskbar. The number of rows increases in increments of 55 pixels:

- 1 - 55 pixels: One row
- 56 - 110 pixels: Two rows
- 111 - 165 pixels: Three rows
- 166 - 220 pixels: Four rows
- 221 - 275 pixels: Five rows
- 276 or more pixels: Six rows

The **Maximum number of rows/columns in window button list** parameter is described under [Taskbar Items](#)(see page 87).

#### Number of rows/columns in taskbar

Specifies the number of rows for the Quick Start Panel. The following taskbar items can be broken down into a number of rows and columns: Icons in the Quick Start Panel, window buttons.

Possible values:

- **Automatic**: The number of rows for the Quick Start Panel depends on the height and width of the taskbar.
- **Numeric value**: The chosen value specifies the number of rows for the Quick Start Panel.

#### Multimonitor taskbar size

Specifies whether the taskbar is expanded onto several monitors or restricted to one monitor.

Possible values:

- **Restrict taskbar to one monitor**
- **Extend taskbar to all monitors**



## Monitor

Specifies the screen on which the taskbar is shown. This parameter is available if **Multimonitor taskbar size** is set to **Restrict taskbar to one monitor**. (Default: 1st monitor)

### Taskbar on top of all windows

- The taskbar is displayed on all screens, even in sessions with a full-screen window.  
 The taskbar is not displayed in sessions with a full-screen window. (Default)

### Taskbar auto hide

- The taskbar is hidden automatically and will only be shown if the mouse pointer is moved to the position of the taskbar at the edge of the screen.  
 The taskbar is always displayed. (Default)

### Auto hide behavior

Specifies when the taskbar is automatically hidden.

Possible values:

- **Intelligently:** The taskbar is shown as standard. The taskbar will be hidden if the space is needed by a window, e. g. a window in full-screen mode.
- **Always:** The taskbar is hidden as standard. The taskbar will be shown if the mouse pointer is moved to the edge of the screen.

### Taskbar show delay

Time interval in milliseconds before the taskbar is shown. The mouse pointer must be at the edge of the screen constantly during this time interval. This setting is only effective if **Taskbar auto hide** is enabled. (Default: 600)

- i** With the show delay, you can prevent the taskbar for a full-screen session being covered by the device's taskbar. A show delay is necessary if the taskbar for the full-screen session is set to be shown automatically and both taskbars are positioned at the same screen edge. If no show delay is set and the user brings up the taskbar for the full-screen session, this will immediately be covered by the device's taskbar. During the show delay time interval, the user has time to move the mouse pointer away from the edge of the screen.

### Taskbar hide delay

Time interval in milliseconds before the taskbar is hidden. This setting is only effective if **Taskbar auto hide** is enabled. (Default: 400)



## Taskbar Background

This article shows how to configure the background style of the taskbar in IGEL OS.

Menu path: **User Interface > Desktop > Taskbar Background**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface (which is highlighted in yellow), Network, Devices, Security, and System. On the far right of the top bar are a search icon and a settings gear icon. The main content area has a sidebar on the left with the following categories and sub-categories:

- Display Settings
- Display Configurator
- Desktop
  - Background (1st Monitor)
  - Taskbar
    - Taskbar Background (this item is selected and highlighted in yellow)
    - Taskbar Items
    - Pager
    - Start Menu
    - In-Session Control Bar
  - Language
  - Screenlock / Screensaver
  - Hotkeys
  - Input

On the right side of the main content area, there is a panel titled "Background style" with a dropdown menu showing "System preset". At the bottom right of the main content area are three buttons: "Close", "Save" (with a checkmark icon), and "Save and Close".

### Background style

Possible values:

- **System preset** (Default)
- **Solid color**
- **Color gradient**
- **Background image**

Further settings depending on the style selection:

### Taskbar color



The color for the taskbar. Click the color preview square to open the color selector.

#### **2nd taskbar color**

The 2nd color for the taskbar if you want to create gradient colors. Click the color preview square to open the color selector.

#### **Reverse gradient**

- The color gradient is reverse.
- The color gradient is normal. (Default)

#### **Background image path**

Path to the background image



## Taskbar Items

This article shows how to configure taskbar items in IGEL OS.

**i** Further taskbar settings can be found under:

- **User Interface > Desktop > Taskbar.** For more information, see [Taskbar\(see page 82\)](#).
- **User Interface > Input > Keyboard.** For more information, see [Keyboard\(see page 115\)](#).
- **User Interface > Input > Touchscreen > On-screen keyboard > Application Integration.** For more information, see [Application Integration\(see page 135\)](#).

Menu path: **User Interface > Desktop > Taskbar Items**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface (which is selected and highlighted in yellow), Network, Devices, Security, and System. To the right of the tabs are search and settings icons. The left sidebar contains a tree view of configuration categories: Display Settings, Display Configurator, Desktop (expanded), Background (1st Monitor), Taskbar, Taskbar Background, Taskbar Items (selected and highlighted in orange), Pager, Start Menu, In-Session Control Bar, Language, Screenlock / Screensaver, Hotkeys, and Input. The main content area shows several configuration sections with checkboxes and dropdown menus. One section is titled "Taskbar clock" with a checked checkbox. Another section is titled "Sorting order in window button bar" with a dropdown menu set to "Group and timestamp". A third section is titled "Maximum number of rows/columns in window button bar" with a dropdown menu set to "1". A fourth section is titled "Show labels in window button bar" with a checked checkbox. At the bottom are "Close", "Save", and "Save and Close" buttons.

The screenshot shows the "Taskbar Items" section of the "User Interface" configuration. It includes settings for the taskbar clock, window button bar sorting order, maximum rows/columns, and labels. The "Taskbar system tray" setting is also shown.

### Taskbar clock

A clock is shown in the taskbar.



### Sorting order in window button bar

Specifies the criteria according to which the window buttons are sorted.

Possible values:

- **Timestamp:** The window buttons are sorted in the chronological order in which the windows were opened.
- **Group and timestamp:** The window buttons are grouped according to the type of application. If, for example, a number of setup applications are open, all associated window buttons will be arranged next to each other. Within the group, the window buttons are sorted chronologically. (Default)
- **Window title:** The window buttons are sorted alphabetically.
- **Group and window title:** The window buttons are grouped according to type. If for example a number of setup applications are open, all associated window buttons will be arranged next to each other. Within the group, the window buttons are sorted alphabetically.
- **Drag'n'Drop:** You can order the buttons as you wish using drag and drop. You must drag a button over at least half of the button to be skipped.

### Maximum number of rows/columns in window button bar

Specifies the maximum number of rows available for window buttons.

Possible values:

- **Automatic:** The number of rows depends on the settings of the **Taskbar height/width** and **Number of rows/columns in taskbar** parameters under **User Interface > Desktop > Taskbar**. For details on the parameters, see [Taskbar](#)(see page 82).
- **Numeric values:** This value specifies the maximum number of rows. (Default: 1)

### Show labels in window button bar

The names of the ongoing sessions are displayed in the associated window buttons. (Default)

Only the icons are displayed.

### Taskbar system tray

The system tray is shown in the taskbar. (Default)

### Show UMS connection status tray icon on desktop



The icon is shown in the system tray. (Default)

### Show battery tray icon on desktop



The icon is shown in the system tray. (Default)

**Show ethernet connection status tray icon on desktop**

The  icon is shown in the system tray. (Default)

**Show wifi connection status tray icon on desktop**

The  icon is shown in the system tray. (Default)

**Size of icons in system tray**

Specifies the size of system tray icons (volume, network connection etc.). You can select a pre-defined value or enter a numeric value.

Predefined values:

- **Automatic:** The size is adjusted to the height and width of the taskbar.
- **Small:** 20 pixels (Default)
- **Medium:** 40 pixels
- **Large:** 60 pixels



## Pager

You can use the Pager tool to enable the use of multiple virtual desktops and organize your IGEL OS desktop. The Pager allows you to divide one desktop into several virtual workspaces. This article shows how to configure and use the Pager tool in IGEL OS. For details on how to use the pager, see the below section [Using Pager\(see page 91\)](#).

- ⚠** Make sure you have enabled **User Interface > Desktop > Taskbar > Taskbar on top of all windows** before using the Pager. For more information on the setting, see [Taskbar\(see page 82\)](#).

Menu path: **User Interface > Desktop > Pager**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The navigation bar has tabs: Accessories, User Interface (which is highlighted in yellow), Network, Devices, Security, and System. On the far right of the navigation bar are a search icon and a settings gear icon. The left sidebar contains a tree view of configuration categories: Display Settings, Display Configurator, Desktop (expanded), Background (1st Monitor), Taskbar, Taskbar Background, Taskbar Items, Pager (which is selected and highlighted in orange), Start Menu, In-Session Control Bar, Language, Screenlock / Screensaver, Hotkeys, and Input. The main content area shows the "Pager" configuration. It includes a "Use Pager" checkbox (unchecked), a "Number of Screens - Horizontal" input field set to 2, a "Number of Screens - Vertical" input field set to 1, a "Paging Resistance" input field set to 10, and two checkboxes: "Wrap Workspaces while dragging a window" (unchecked) and "Wrap Workspaces with pointer" (unchecked). At the bottom are three buttons: "Close", "Save", and "Save and Close".

IGEL Setup

Accessories User Interface Network Devices Security System

Display Settings

Display Configurator

Desktop

- Background (1st Monitor)
- Taskbar
- Taskbar Background
- Taskbar Items
- Pager**
- Start Menu
- In-Session Control Bar
- Language
- Screenlock / Screensaver
- Hotkeys
- Input

Use Pager

Number of Screens - Horizontal: 2

Number of Screens - Vertical: 1

Paging Resistance: 10

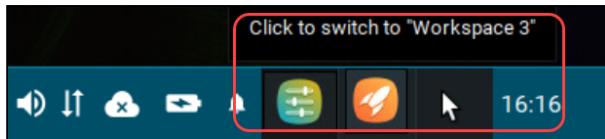
Wrap Workspaces while dragging a window

Wrap Workspaces with pointer

Close Save Save and Close

### Use pager

- The Pager is enabled. You can configure up to 25 virtual desktops. The Pager will be displayed on the right of the taskbar:



The Pager is disabled. (Default)

#### Number of screens - Horizontal

Specifies how many workspaces will be shown next to each other. (Default: 2)

#### Number of screens - Vertical

Specifies how many workspaces will be shown above each other. (Default: 1)

##### Known Issue

For OS version 12.2.x, the vertical value is implemented as horizontal and all the screens are shown next to each other. The configuration will be reworked in a future release.

#### Paging resistance

Specifies how many pixels the cursor needs to be moved over the edge of the screen before it triggers a switch of the desktop. (Default: 10)

You only need to use this setting if you enable at least one of the following options – **Wrap workspaces while dragging a window** or **Wrap workspaces with pointer**.

#### Wrap workspaces while dragging a window

- The desktop is switched as soon as a window is dragged out of view.  
 The desktop is not switched when a window is dragged out of view. (Default)

#### Wrap workspaces with pointer

- The desktop is switched as soon as the mouse reaches the edge of the screen.  
 The desktop is not switched when the mouse reaches the edge of the screen. (Default)

#### Using Pager

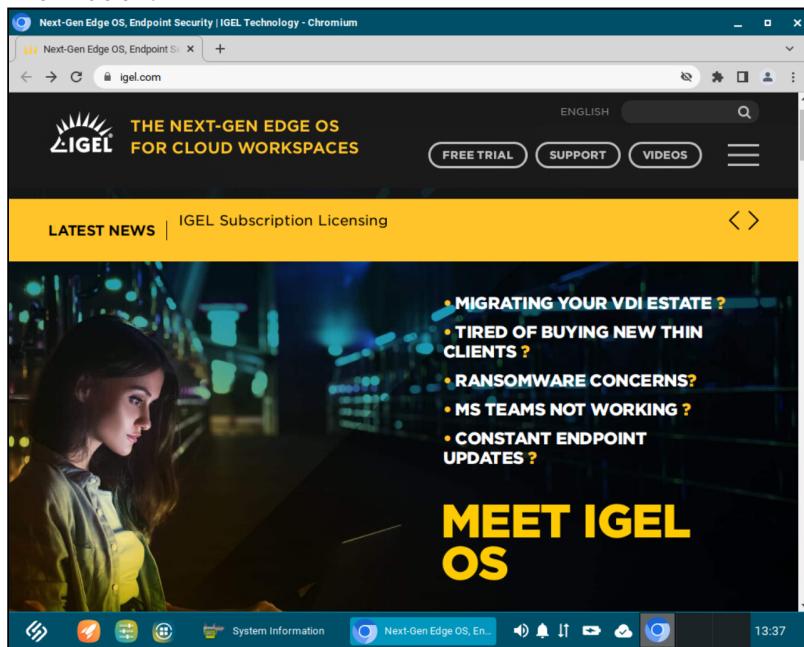
The Pager makes switching between multiple full-screen applications easier. Instead of minimizing/maximizing sessions or switching between them using key combinations, you simply click on the desired workspace using the mouse. When you switch back, the virtual desktop is displayed exactly as before (unless you restarted the system or changed the language in the IGEL Setup).

The Pager can only be used in non-appliance mode.

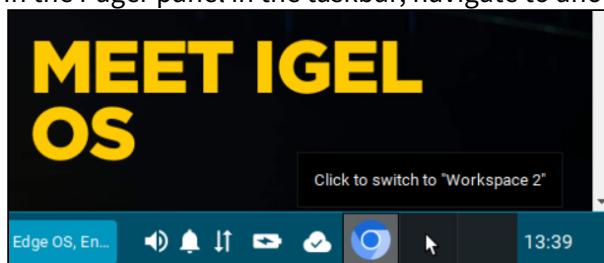


To use multiple workspaces:

1. Launch the desired sessions/applications on your device, e.g. Chromium browser and System Information.



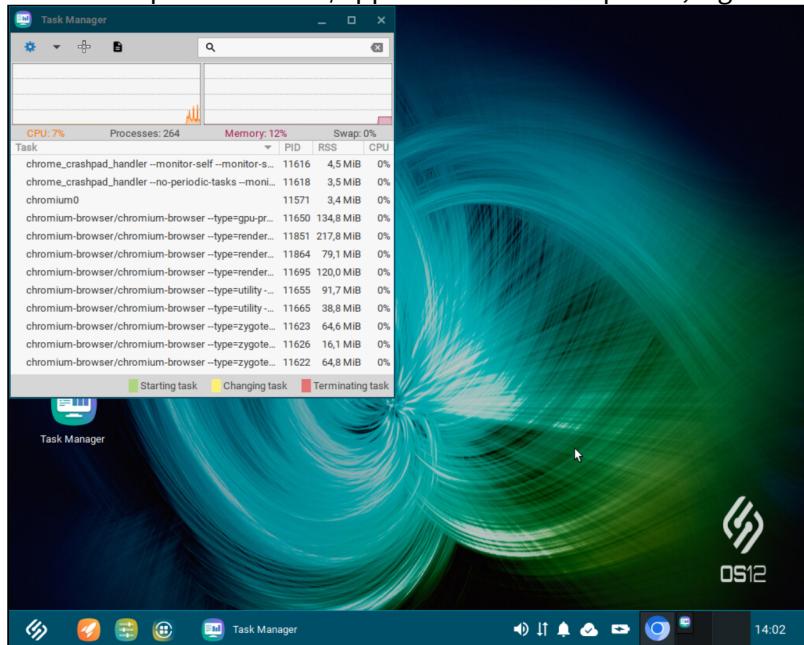
2. In the Pager panel in the taskbar, navigate to another workspace, e.g. Workspace 2, and click it.



In Workspace 2, you will see the empty desktop, without opened sessions/applications.



3. Start the required sessions/applications in Workspace 2, e.g. the Task Manager.



4. When you need to switch back to the Chromium browser and System Information, simply select the corresponding workspace (in this example, Workspace 1) in the Pager panel in the taskbar. Your desktop will be displayed exactly as before switching to Workspace 2.



 **Tip**

You can use drag & drop to rearrange the sessions/applications between the workspaces. Click and hold the application/session symbol in the taskbar and drag it to the desired workspace in the Pager panel.



## Start Menu

This article shows how to configure the desktop start menu in IGEL OS.

Menu path: **User Interface > Desktop > Start Menu**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The navigation bar has tabs: Accessories, User Interface (which is selected and highlighted in yellow), Network, Devices, Security, System, and Apps. Below the tabs is a search icon and a gear icon. The left sidebar contains a tree view of configuration options under "User Interface": Display Settings, Display Configurator, Desktop (with sub-options: Background (1st Monitor), Taskbar, Taskbar Background, Taskbar Items, Pager, Start Menu, In-Session Control Bar, Language), Screenlock / Screensaver (with sub-options: Hotkeys, Input, Commands). The "Start Menu" option is selected and highlighted with a yellow background. The main content area is titled "Options in Start Menu" and lists five items, each with a circular refresh icon and a checked checkbox: Screenlock, Show Shutdown menu button, System tab, About, and Show current user name in About, Application Launcher and start menu. At the bottom are buttons for Close, Save, and Save and Close.

The following options, which are all enabled by default, can be configured to be shown in the start menu:

- **Screenlock**

The icon is shown. (Default)

- i** For the icon to be displayed, the following parameters need to be enabled:
  - at least one login method under **Security > Logon**. For more information, see Logon.



- the **Require password to unlock (screenlock)** option under **User Interface > Screenlock / Screensaver > Options**. For more information, see Options.

- **Show Shutdown menu button**

The  icon is shown. (Default)

- **System tab**

The  icon is shown. (Default)

- **About**

The  icon is shown. (Default)

- **Show current user name in About, Application Launcher and start menu**

-  In order for user names to be recognized and passed on, you must configure two settings beforehand:
- Enable using Active Directory/Kerberos under **Security > Active Directory/Kerberos**. For details, see [Active Directory/Kerberos\(see page 277\)](#)
  - Enable local logon under **Security > Logon > Active Directory/Kerberos**. For details, see [Active Directory/Kerberos\(see page 271\)](#)



## In-Session Control Bar

This article shows how to configure the control bar for full-screen sessions in IGEL OS.

Menu path: **User Interface > Desktop > In-Session Control Bar**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The top navigation bar includes tabs for "Accessories", "User Interface" (which is highlighted in yellow), "Network", "Devices", "Security", and "System", along with search and settings icons. The left sidebar contains a tree view of configuration categories: Display Settings, Display Configurator, Desktop (with sub-options like Background (1st Monitor), Taskbar, Taskbar Background, Taskbar Items, Pager, Start Menu, and In-Session Control Bar, which is selected and highlighted in orange), Language, Screenlock / Screensaver, Hotkeys, and Input. The main content area shows two configuration sections: "Use in-session control bar in all supported sessions" (with a checked checkbox) and "Start Monitor" (set to "Automatic"). At the bottom are "Close", "Save" (with a checkmark), and "Save and Close" buttons.

In a full-screen session, the in-session control bar allows you

- to eject a USB drive.
- to start the wireless manager (only available in Appliance Mode).
- to minimize the session view (not available in Appliance Mode).
- to end the session.

### Use in-session control bar in all supported sessions

The in-session control bar is shown. Depending on the configuration, the in-session control bar will be permanently visible or will be shown as soon as you move the cursor to the top edge of the screen.

In-session control bar is not used. (Default)



- ⓘ The in-session control bar is available for the following session types:
- Citrix - see Citrix Workspace App
  - ThinLinc

## Start Monitor

The monitor on which to start the session window.

### Using In-Session Control Bar

- ▶ To eject a USB device, click .
- ▶ To start the wireless manager in Appliance Mode, click .
- ▶ To minimize the session view, click . (Not available in Appliance Mode.)
- ▶ To end the session, click .
- ▶ To make the in-session control bar permanently visible, click .



## Language

This article shows how to configure the country-specific language settings in IGEL OS.

Menu path: **User Interface > Language**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The window has a dark blue header bar with tabs: "Accessories", "User Interface" (which is highlighted in yellow), "Network", "Devices", "Security", and "System". To the right of the tabs are search and settings icons. The main content area is divided into two sections. The top section is titled "Language" and contains three items: "English" (selected), "Keyboard layout" set to "German", and a checkbox for "Show indicator in taskbar" which is unchecked. The bottom section is titled "Input" and contains two items: "Input language" set to "Follows Keyboard layout" and "Standards and formats" set to "Follows Input language". At the bottom right are three buttons: "Close", "Save", and "Save and Close".

Language	English	<input checked="" type="button"/>
Keyboard layout	German	<input type="button"/>
Show indicator in taskbar	<input type="checkbox"/>	<input type="button"/>
Input language	Follows Keyboard layout	<input type="button"/>
Standards and formats	Follows Input language	<input type="button"/>

### Language

The language of the user interface.

### Keyboard layout

When the language is changed for the first time, the keyboard layout is automatically set to the same language.

### Show indicator in taskbar

- Shows a country abbreviation for the keyboard layout in the taskbar.
- No indicator is shown. (Default)



### **Input language**

The default setting is geared to the selected keyboard layout.

### **Standards and formats**

Sets the country-specific standards and formats, e.g. time and currency. The default setting is geared to the selected input language.



## Screenlock / Screensaver

This article shows how to configure the starting methods for the screenlock and screensaver in IGEL OS.

- ⓘ The automatic activation of the screensaver separate from the screenlock can be configured under **Screenlock / Screensaver > Options**. For details, see [Options\(see page 103\)](#).  
The look of the taskbar on the locked screen can be configured under **Screenlock / Screensaver > Taskbar**. For details, see [Taskbar\(see page 106\)](#).

Menu path: **User Interface > Desktop > Screenlock / Screensaver**

The screenshot shows the IGEL Setup application window with the title bar "IGEL Setup". The top navigation bar includes tabs for "Accessories", "User Interface" (which is highlighted in yellow), "Network", "Devices", "Security", and "System". To the right of the tabs are search and settings icons. The left sidebar contains a tree view with categories like "Display Settings", "Display Configurator", "Desktop", "Language", "Screenlock / Screensaver" (which is selected and highlighted in orange), "Hotkeys", "Input", and "Commands". The main content area is titled "Starting Methods for Session" and displays four configuration options, each with a refresh icon and an information button (i):

- Start Menu
- Menu folder
- Start Menu's System tab
- Application Launcher

At the bottom of the main panel are three buttons: "Close", "Save", and "Save and Close".

You can configure the screenlock and screensaver to be activated via icons in the Quick Start Panel and on the desktop or via hotkey.

The starting methods parameters are described under [Starting Methods for Apps\(see page 369\)](#).

- [Options\(see page 103\)](#)



- Taskbar(see page 106)
- Screensaver(see page 109)



## Options

This article shows how to configure the setting options for the screenlock and the screensaver in IGEL OS.

Menu path: **User Interface > Screenlock / Screensaver > Options**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The top navigation bar includes tabs for "Accessories", "User Interface" (which is highlighted in yellow), "Network", "Devices", "Security", and "System". On the far right of the header are search and settings icons. The left sidebar contains a tree view with categories like "Display Settings", "Display Configurator", "Desktop", "Language", and "Screenlock / Screensaver". Under "Screenlock / Screensaver", the "Options" tab is selected. The main panel displays three configuration sections: 1) "Start automatically" (checked, timeout 5 minutes), 2) "Require password to unlock (screenlock)" (checked), and 3) "Allow administrator password" (unchecked). At the bottom are "Close", "Save", and "Save and Close" buttons.

<input checked="" type="checkbox"/>	Start automatically	<input type="button" value="i"/>
<input checked="" type="checkbox"/>	Timeout 5	<input type="button" value="i"/>
<input checked="" type="checkbox"/>	Require password to unlock (screenlock)	<input type="button" value="i"/>
<input type="checkbox"/>	Different screenlock timeout	<input type="button" value="i"/>
<input type="checkbox"/>	Screenlock timeout 5	<input type="button" value="i"/>
<input type="checkbox"/>	Allow administrator password	<input type="button" value="i"/>

### Start automatically

The screenlock and screensaver starts automatically if there is no activity on the device within the **Timeout** period. Depending on the configurations under **Require password to unlock (screenlock)** and **Allow administrator password**, the screen can be unlocked with the local user/administrator password. (Default)

### Timeout

Period of time in minutes before the screenlock and the screensaver starts. (Default: 5)

### Require password to unlock (screenlock)



- If a user is logged in, the same authentication is required to unlock the screen. For example, if the user is logged in via Active Directory (AD), the AD credentials are used to unlock the screen. For more information, see [Active Directory/Kerberos](#)(see page 271). The authentication methods can be configured under **Security > Logon**. For more information, see [Logon](#)(see page 267). (Default)
- The screen can be unlocked without authentication.

#### Different screenlock timeout

- You can specify a time limit for the screenlock to activate separately from the screensaver.
- The same time limit will be used for the screenlock and the screensaver. This means that after the set time the screen will be locked and then the screensaver will appear. (Default)

#### Screenlock timeout

Period of time in minutes before the screenlock starts. (Default: 5)

#### Allow administrator password

- Access is allowed for the user and the administrator. The screen can also be unlocked by the administrator password, if the administrator password is configured. For more information, see [Password](#)(see page 263).
- Access is allowed for the user only. (Default)

#### Countdown duration in seconds

Countdown time after which the screenlock is initiated. If the value is 0, the screen is locked without a countdown. (Default: 0)

- i** The appearance of the digits for the countdown is specified together with the settings for the clock display under **Screenlock / Screensaver > Screensaver**. The following parameters are relevant for the countdown:
- **Clock display monitor**
  - **Show seconds**
  - **Horizontal clock position**
  - **Vertical clock position**
  - **Clock background color**
  - **Clock foreground color**

For detailed information, see [Screensaver](#)(see page 109).

#### Countdown visual effect

While the countdown is running, a current screenshot is displayed in the background. This parameter determines the visual effect that the screenshot will be displayed with.

Possible options:

- **Dark screenshot**



- **Gray screenshot**

#### **Countdown background image**

Path and file name of an image file, which is displayed in the background while the countdown is running. This background image is displayed instead of the screenshot, if the path and file name are valid; if the field is empty, the screenshot is displayed. Supported file formats: JPEG, PNG, GIF. Example: /images/image.jpg



## Taskbar

This article shows how to configure the taskbar for the login dialog and for when the screen is locked in IGEL OS.

Menu path: **User Interface > Desktop > Screenlock / Screensaver > Taskbar**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface (which is highlighted in yellow), Network, Devices, Security, and System. To the right of the tabs are search and settings icons. The left sidebar has a tree view with categories: Display Settings, Display Configurator, Desktop, Language, Screenlock / Screensaver (which is expanded), Options, Taskbar (which is selected and highlighted in yellow), Screensaver, Hotkeys, Input, and Commands. The main content area is titled "Taskbar settings for the login dialog". It contains a list of checkboxes with descriptions and information icons. The checkboxes are: "Show taskbar in login screen" (checked), "Show clock" (checked), "Show keyboard layout switcher" (checked), "Show on-screen keyboard button" (unchecked), "Start on-screen keyboard automatically" (unchecked), and "Show reboot button" (unchecked). At the bottom are "Close", "Save" (with a checkmark), and "Save and Close" buttons.

	Setting	Description
<input checked="" type="checkbox"/>	Show taskbar in login screen	
<input checked="" type="checkbox"/>	Show clock	
<input checked="" type="checkbox"/>	Show keyboard layout switcher	
<input type="checkbox"/>	Show on-screen keyboard button	
<input type="checkbox"/>	Start on-screen keyboard automatically	
<input type="checkbox"/>	Show reboot button	

### Taskbar Settings for the Login Dialog

#### Show taskbar in login screen

A taskbar is shown in the login screen. (Default)

#### Show clock

A clock is shown in the taskbar in the login screen. (Default)

#### Show keyboard layout switcher

A keyboard layout switcher is shown in the taskbar in the login screen. (Default)

**Show on-screen keyboard button**

- A button to start an on-screen keyboard is shown in the taskbar in the login screen.  
 The button is not shown. (Default)

**Start on-screen keyboard automatically**

- The on-screen keyboard is started automatically with the login screen.  
 The on-screen keyboard is not started automatically. (Default)

**Show reboot button**

- Reboot button is shown in the taskbar in the login screen.  
 The button is not shown. (Default)

**Show shutdown button**

- Shutdown button is shown in the taskbar in the login screen. (Default)

Taskbar Settings When the Screenlock Is Active

**Show taskbar in screenlock**

- A taskbar is shown when the screen is locked. (Default)

**Show clock**

- A clock is shown in the taskbar when the screen is locked. (Default)

**Show keyboard layout switcher**

- A keyboard layout switcher is shown in the taskbar when the screen is locked. (Default)

**Show on-screen keyboard button**

- A button to start an on-screen keyboard is shown in the taskbar when the screen is locked.  
 The button is not shown. (Default)

**Start on-screen keyboard automatically**

- The on-screen keyboard is started automatically when the screen is locked.  
 The on-screen keyboard is not started automatically. (Default)

**Show reboot button**

- Reboot button is shown in the taskbar when the screen is locked.  
 The button is not shown. (Default)

**Show shutdown button**

- Shutdown button is shown in the taskbar when the screen is locked.  
 The button is not shown. (Default)

**Show logoff button**

- Logoff button is shown in the taskbar when the screen is locked.  
 The button is not shown. (Default)

- i** There is no separate option for enabling/disabling network connection icons in the login dialog and/or on the locked screen. With **Show taskbar in login screen** and **Show taskbar in screenlock** enabled, the icons appear automatically if **Enable tray icon** is activated under:
- **Network > LAN Interfaces > Interface 1 / Interface 2 / Wireless**
  - **Network > Mobile Broadband**
  - **Network > VPN**

The network connection icons in the login dialog and on the locked screen serve for information purposes only and thus are inactive on clicking, except for the Wi-Fi icon.

The Wi-Fi icon invokes a dialog for turning Wi-Fi on/off, or the Wireless Manager in case it is activated under **Network > LAN Interfaces > Wireless**. For more information, see [Switching the Wi-Fi Connection Off or On](#)(see page 164) and [Wireless Manager](#)(see page 162).



## Screensaver

This article shows how to configure the screensaver in IGEL OS.

You can configure the activation of the screensaver under **Screenlock / Screensaver > Options**. For details, see [Options](#)(see page 103).

Menu path: **User Interface > Desktop > Screenlock / Screensaver > Screensaver**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The left sidebar shows navigation categories: Accessories, User Interface (selected), Network, Devices, Security, and System. Under "User Interface", the "Screensaver" option is highlighted. The main panel displays screensaver configuration settings:

- Screen background color: A color palette with hex code #000000 and a preview square.
- Enable image display: A checked checkbox.
- File for screensaver logo: An empty text input field with an information icon.
- One image per monitor: A checked checkbox.
- Image duration: A text input field containing the value 10.
- Image display mode: A dropdown menu set to "Small-sized hopping".

At the bottom are buttons for Close, Save, and Save and Close.

### Screen background color

Color palette for determining the background color of the screen in screensaver mode. Click the color preview square to open the color selector.

### Enable image display

An image will be shown as the screensaver. (Default)

### File for screensaver logo



Complete path for an individual image file or directory that contains an unlimited number of images. If no path is given, the IGEL logo will be used.

- i** If you enter a folder instead of a single image file as the source, all images in the folder will be displayed as a slide show. The display time for the images can be configured under **Image duration**.

### One image per monitor

- If a number of monitors are used, a different image will be shown on each one. (Default)  
 Images will be distributed over the monitors.

### Image duration

Time in seconds until the image is changed. (Default: 10)

### Image display mode

Type of display. The following are available to choose from:

- **Small-sized hopping:** Small images are shown in changing positions. (Default)
- **Medium-sized hopping:** Larger images are shown in changing positions.
- **Full-screen center cut-out:** The images are shown in full-screen size. However, they may be clipped.
- **Full-screen letterbox:** The images are shown as large as possible in relation to the screen size.

### Clock display monitor

Selects the monitor on which the clock is to be shown. The following are available to choose from:

- **None** (Default)
- **All**
- **Display [1-8]**

### Show seconds

- Time is shown with seconds in digital format.  
 Time is shown without seconds in digital format. (Default)

### Clock display size

The following sizes are available to choose from:

- **Tiny**
- **Small**
- **Medium**
- **Large**



- **Huge**

#### **Horizontal clock position**

The following screen positions are available to choose from:

- **Left**
- **Center**
- **Right**

#### **Vertical clock position**

The following screen positions are available to choose from:

- **Top**
- **Center**
- **Bottom**

#### **Clock background color**

Color palette for determining the background color of the clock. Click the color preview square to open the color selector.

#### **Clock background opacity percentage**

The opacity of the clock background. (Default: 75)

#### **Clock foreground color**

Color palette for determining the color of the numbers displayed. Click the color preview square to open the color selector.



## Hotkeys

Hotkeys configured for frequently used operations make it easier to use the device. A hotkey is a combination of one or more modifiers and an alphanumeric key. This article shows how to configure hotkeys in IGEL OS.

Menu path: **User Interface > Hotkeys**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The top navigation bar includes tabs for "Accessories", "User Interface" (which is selected and highlighted in yellow), "Network", "Devices", "Security", and "System". To the right of the tabs are search and refresh icons. The left sidebar contains a tree view with categories like "Display Settings", "Display Configurator", "Desktop", "Language", "Screenlock / Screensaver" (with "Options", "Taskbar", and "Screensaver" listed under it), and "Hotkeys" (which is also expanded, showing "Input" and "Commands"). The main content area is titled "Hotkeys" and displays a table of operations and their assigned keys. The table has two columns: "Session name" and "Key".

Session name	Key
Restart windowmanager	
Logoff	
Sort icons	
Switch focus to next window	Escape
Switch between active windows using Task Switc...	Tab
Switch between active windows using Task Switc...	Tab
Switch focus to next window (alternative)	Up
Switch focus to next window (reverse order)	Down
Open start menu	Super_L
Open start menu (alternative)	Super_R

At the bottom right of the content area are three buttons: "Close", "Save", and "Save and Close".

## Editing Hotkeys

You can enable or disable hotkeys and change the keys used:

1. Click to edit the hotkey of the selected operation.

2. Use the **Hotkey** option to enable the hotkey.

3. Select a predefined **Modifier**.

A modifier is a key symbol or key combination. These are the pre-defined modifiers and the associated key symbols:



- **None:** No modifier is used
- **Shift:**
- **Ctrl:** [Ctrl]
- **Win:**

When this keyboard key is used as a modifier, it is represented as Win; when it is used as a key, it is represented as Super\_L.

- **Alt:** [Alt]

Key combinations are formed as follows with | :

- **Ctrl|Alt:** [Ctrl] + [Alt]

4. Enter a **Key** that is to be used as the hotkey to start the operation.

To enter a key that does not have a visible character, e. g. the [Tab] key, open a terminal, log on as user and enter xev -event keyboard . Press the key to be used for the hotkey. The text in brackets that begins with keysym contains the key symbol for the **Key** field. Example: Tab in (keysym 0xff09, Tab)

5. Click **Confirm**.



## Input

The following input devices can be configured in IGEL OS.

---

- [Keyboard](#)(see page 115)
- [Additional Keyboard Layouts](#)(see page 117)
- [Mouse](#)(see page 120)
- [Touchpad](#)(see page 122)
- [Touchscreen](#)(see page 128)



## Keyboard

This article shows how to configure the keyboard settings in IGEL OS.

Menu path: **User Interface > Input > Keyboard**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The left sidebar shows navigation categories: Accessories, User Interface (which is selected and highlighted in yellow), Network, Devices, Security, and System. Under "User Interface", there are sub-categories: Display Settings, Display Configurator, Desktop, Language, Screenlock / Screensaver, Hotkeys, Input (expanded), Keyboard (selected and highlighted in orange), Additional keyboard layouts, Mouse, Touchpad, Touchscreen, and Commands. The main content area displays keyboard configuration options. At the top, there is a "Keyboard layout" dropdown set to "German". Below it is a checkbox for "Enable dead keys", which is checked. The next section is "Keyboard type" with a dropdown set to "Default". There is also a checkbox for "Show indicator in taskbar". At the bottom of the configuration area, there are three buttons: "Close", "Save", and "Save and Close".

The screenshot shows the "Keyboard" configuration page within the "Input" section of the IGEL Setup application. Key settings include:

- Keyboard layout:** German
- Enable dead keys:** Checked
- Keyboard type:** Default
- Show indicator in taskbar:** Unchecked
- Repeat delay:** 660 (range 0-1000)
- Repeat rate:** 40 (range 0-40)

At the bottom are buttons for Close, Save, and Save and Close.

### Keyboard layout

Specify the keyboard layout. The selected layout applies to all parts of the system including emulations, window sessions and X applications.

### Enable dead keys

- Dead keys can be used to enter special characters.  
 Dead keys cannot be used to enter special characters. (Default)

### Keyboard type



Specifies the keyboard type.

Possible values:

- **Default:** Automatically selects the keyboard type according to the computer type (Macbook, Chromebook or PC105 for all others).
- **Standard PC keyboard (105 keys)**
- **IBM keyboard (122 keys)**
- **Trimodal keyboard**
- **Sun Type 6 keyboard**
- **Chromebook**
- **Macbook**
- **Macbook international**
- **Thinkpad**

#### Show indicator in taskbar

Shows the language code for the keyboard in the taskbar.

Hides the language code for the keyboard in the taskbar. (Default)

#### Repeat delay

Determines the delay (in milliseconds) before automatic repetition begins. (Default: 660)

#### Repeat rate

Determines the number of times a character repeats per second. (Default: 40)

#### Test

Free-text area to test the repeat settings.

#### Start with NumLock on

NumLock will be enabled automatically during the boot process. (Default)

#### Secure keyboard input with Cherry SECURE BOARD

A secure keyboard input mode will be enabled for the connected Cherry SECURE BOARD. In this mode, keyboard traffic between the keyboard and the endpoint is transmitted over a TLS 1.3 encrypted connection. The standard keyboard channel will be locked, which means that keyboard input devices without the secure mode will be blocked; see <https://www.cherry-world.com/cherry-secure-board-1-0.html>.

The secure keyboard input mode is disabled. (Default)



## Additional Keyboard Layouts

This article shows how to configure additional keyboard layouts in IGEL OS.

For information on how to configure an on-screen keyboard, see [On-screen Keyboard](#)(see page 132).

Menu path: **User Interface > Input > Additional Keyboard Layouts**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The navigation bar has tabs: Accessories, User Interface (which is selected and highlighted in yellow), Network, Devices, Security, and System. There are also search and settings icons. The left sidebar has sections: Display Settings, Display Configurator, Desktop, Language, Screenlock / Screensaver, Hotkeys, Input (expanded to show Keyboard, Mouse, Touchpad, Touchscreen, Commands), and Additional keyboard layouts (which is selected and highlighted in orange). The main content area is titled "Layout 1". It contains five sections: "Enable this layout" (with a checked checkbox), "Keyboard layout" (set to English(US)), "Enable dead keys" (unchecked), "Hotkey" (empty field), and "Modifiers" (set to None). At the bottom are buttons for Close, Save, and Save and Close.

### Layout [1-3]

#### Enable this layout

- Keyboard layout is enabled and can be defined.  
 Keyboard layout is disabled. (Default)

#### Keyboard layout

Selects the language for the keyboard layout.

**Enable dead keys**

Enable this function if the keyboard used supports dead keys for special characters.

**Hotkey**

- A hotkey can be used to switch to this keyboard.  
 The hotkey is disabled. (Default)

**Key**

Key for the hotkey

**Modifiers**

Additional modifier for the hotkey

Hotkey for Default Keyboard Layout

**Activate hotkey to switch to the default keyboard layout**

- A hotkey can be used to take you back to the default keyboard layout. This is useful when a number of keyboard layouts are configured.  
 The hotkey is disabled. (Default)

**Hotkey**

Key for the hotkey

**Modifiers**

Additional modifier for the hotkey

Hotkey for Next Keyboard Layout

**Activate hotkey to switch between a number of keyboard layouts**

- A hotkey which switches to the next keyboard layout can be used. This is useful when a number of keyboard layouts are configured.  
 The hotkey is disabled. (Default)

**Hotkey**

Key for the hotkey

**Modifiers**

Configuration



Additional modifier for the hotkey



## Mouse

This article shows how to configure the mouse in IGEL OS.

Menu path: **User Interface > Input > Mouse**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The top navigation bar includes tabs for "Accessories", "User Interface" (which is selected and highlighted in yellow), "Network", "Devices", "Security", and "System". On the far right of the top bar are a search icon and a settings gear icon. The left sidebar contains a tree view of configuration categories: "Display Settings", "Display Configurator", "Desktop", "Language", "Screenlock / Screensaver", "Hotkeys", "Input" (which is expanded to show "Keyboard", "Additional keyboard layouts", "Mouse" - which is selected and highlighted in orange, "Touchpad", "Touchscreen", and "Commands"). The main content area displays several configuration options for the selected "Mouse" category. Each option consists of a small circular icon with a refresh symbol, a checkbox, a descriptive label, and an information icon (a blue circle with an 'i').

- Left-handed mode
- Emulate 3 Button Mouse
- Emulate Timeout:  
50
- Hide Cursor
- Idle Time for visible Cursor:  
1

At the bottom right of the content area are three buttons: "Close" (with a red 'X'), "Save" (with a green checkmark), and "Save and Close" (with a blue checkmark and a floppy disk icon).

### Left-handed mode

- The mouse is in left-handed mode.  
 The mouse is in right-handed mode. (Default)

### Emulate 3 button mouse

- Enables emulation of the third (middle) mouse button for mice with only two physical buttons. This third button is emulated by pressing both buttons at the same time. The **Emulate timeout** determines how long (in milliseconds) the driver waits before deciding whether two buttons were pressed at the same time.  
 Disables emulation of the third (middle) mouse button for mice with only two physical buttons. (Default)

**Emulate timeout**

Determines how long (in milliseconds) the driver waits before deciding whether two buttons were pressed at the same time.

**Hide cursor**

- The mouse pointer will be hidden after the defined time limit.
- The mouse pointer is never hidden. (Default)

**Idle time for visible cursor**

The period after which the pointer is hidden.

**Pointer speed**

Determines the mouse resolution in counts per inch.

**Double click interval**

Changes the maximum interval in milliseconds between two consecutive mouse clicks which are to be recognized as a double-click.

**Double click distance**

Changes the maximum distance in pixels between two clicks which are to be recognized as a double-click. The object under the second click is double-clicked.



## Touchpad

This article shows how to configure touchpad settings in IGEL OS.

**i** The actual settings depend on the hardware supported by the particular touchpad.

Menu path: **User Interface > Input > Touchpad**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The navigation bar has tabs: Accessories, User Interface (which is highlighted in yellow), Network, Devices, Security, and System. Below the tabs is a search icon and a gear icon. The left sidebar has a tree view with categories like Desktop, Language, Screenlock / Screensaver, Hotkeys, Input (expanded), Keyboard, Additional keyboard layouts, Mouse, Touchpad (selected and highlighted in orange), Scrolling, Advanced, Touchscreen, Commands, and Logoff. The main panel shows configuration options for the selected "Touchpad" category. It includes a checkbox for "Enable Touchpad on Boot" (checked), a checkbox for "Hotkey" (unchecked), a dropdown for "Modifiers" set to "None", a dropdown for "Key" (empty), a checkbox for "Custom configuration" (unchecked), and a dropdown for "Tapping Mode" set to "With tapping". At the bottom are buttons for "Close", "Save", and "Save and Close".

### Enable touchpad on boot

The touchpad is enabled on boot. This can be overridden by the hotkey configured below. (Default)

### Hotkey

- Each time you press the hotkey, you activate or deactivate the touchpad.  
 No hotkey can be used to activate or deactivate the touchpad. (Default)



## Modifiers

Modifiers for the hotkey

## Key

Key for the hotkey

## Custom configuration

- Further touchpad settings can be configured according to your needs.  
 No custom configuration can be made. (Default)

## Tapping mode

Switches the tapping mode on or off.

Possible values:

- **With tapping** (Default)
- **Without tapping**

## Min speed

Minimum speed of the pointer in seconds. (Default: 1.00)

## Max speed

Maximum speed of the pointer in seconds. (Default: 1.75)

## Acceleration

Acceleration from the minimum to the maximum speed in seconds. (Default: 0.01)

With some touchpads, you can assign mouse actions to tapping the corners of the touchpad. The action can be configured for each corner to trigger a right, left, or middle mouse click.

- **Top left action** (Default: No action)
  - **Top right action** (Default: Middle mouse button)
  - **Bottom left action** (Default: No action)
  - **Bottom right action** (Default: Right mouse button)
- 
- [Scrolling](#)(see page 124)
  - [Advanced](#)(see page 126)



## Scrolling

This article shows how to configure the scrolling with the touchpad in IGEL OS.

- Info:** In order to configure scrolling, **Custom configuration** needs to be enabled under **User Interface > Input > Touchpad**.

Menu path: **User Interface > Input > Touchpad > Scrolling**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The top navigation bar includes tabs for "Accessories", "User Interface" (which is highlighted in yellow), "Network", "Devices", "Security", and "System". On the far right of the header are search and settings icons. The left sidebar contains a tree view of configuration categories: Desktop, Language, Screenlock / Screensaver, Hotkeys, Input (expanded to show Keyboard, Additional keyboard layouts, Mouse), Touchpad (selected, expanded to show Scrolling, Advanced), Touchscreen, Commands, and Logoff. The main content area is titled "Touchpad" and "Scrolling". It contains three sections: "Vertical scroll" (checked), "Vertical scroll speed" (set to 25), and "Two finger vertical scroll" (unchecked). Below that is a section for "Horizontal scroll" (unchecked), "Horizontal scroll speed" (set to 25), and "Two finger horizontal scroll" (unchecked). At the bottom right are buttons for "Close", "Save", and "Save and Close".

### Vertical scroll

- The right edge of the touchpad will be used as a vertical scrollbar. The vertical scroll speed can be set. (Default)  
 The right edge is not enabled as a scrollbar.

### Vertical scroll speed

The distance from which scrolling is recognized when moving the finger in a vertical direction. (Default: 25)



#### Two finger vertical scroll

- Two-finger scrolling is enabled for vertical scrolling.
- Two-finger scrolling is disabled. (Default)

#### Horizontal scroll

- The bottom edge of the touchpad will be used as a horizontal scrollbar. The horizontal scroll speed can be set.
- The bottom edge is not enabled as a scrollbar. (Default)

#### Horizontal scroll speed

The distance from which scrolling is recognized when moving the finger in a horizontal direction. (Default: 25)

#### Two finger horizontal scroll

- Two-finger scrolling is enabled for horizontal scrolling.
- Two-finger scrolling is disabled. (Default)



## Advanced

This article shows how to configure advanced settings of the touchpad in IGEL OS.

- ⓘ** In order to configure advanced settings, **Custom configuration** needs to be enabled under **User Interface > Input > Touchpad**.

Menu path: **User Interface > Input > Touchpad > Advanced**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The navigation bar has tabs: Accessories, User Interface (which is highlighted in yellow), Network, Devices, Security, and System. On the far right of the navigation bar are a search icon and a gear icon. The left sidebar has a tree view with categories: Desktop, Language, Screenlock / Screensaver, Hotkeys, Input (expanded), Keyboard, Additional keyboard layouts, Mouse, Touchpad (expanded), Scrolling (selected), Advanced (highlighted in orange), Touchscreen, Commands, and Logoff. The main content area shows scroll settings for the "Advanced" tab. It includes: "Corner coasting" (unchecked), "Circular scrolling" (unchecked), "Circular scroll trigger:" dropdown set to "All Edges", "Tap and drag gesture" (checked), "Locked drags" (unchecked), and "Palm detect" (unchecked). At the bottom are buttons for "Close", "Save", and "Save and Close".

### Corner coasting

- You can continue scrolling if your finger reaches the corner when scrolling vertically or horizontally along the touchpad edges. The scrolling continues while the finger stays in the corner.
- The scrolling stops as soon as the reaches the corner. (Default)

### Circular scrolling

- You can scroll in a circle. In the selection menu, you can specify where to begin the circular scrolling.



Circular scrolling is disabled. (Default)

### Circular scroll trigger

Trigger region of the touchpad to start circular scrolling.

Possible values:

- **All edges** (Default)
- **Top edge**
- **Top right corner**
- **Right edge**
- **Bottom right corner**
- **Bottom edge**
- **Bottom left corner**
- **Left edge**
- **Top left corner**

### Tap and drag gesture

You can move items by tapping them and then touching again and dragging them by moving the finger on the touchpad. (Default)

### Locked drags

The tap and drag gesture ends only after an additional tap.

The tap and drag gesture ends when you release the finger. (Default)

### Palm detect

Avoids triggering a function accidentally with the palm of your hand. The function must be supported by the device.

Palm detection is disabled. (Default)

### ClickPad

ClickPads are permitted. These are touchpads with so-called integrated soft buttons on which physical clicks are possible.



## Touchscreen

This article shows how to configure the touchscreen connected to your endpoint device in IGEL OS. To ensure that you can open the setup and navigate within it, the initial configuration should take place with a mouse and keyboard connected.

For information on how to calibrate the touchscreen, see [Touchscreen Calibration](#)(see page 131).

For information on how to configure an on-screen keyboard, see [On-screen Keyboard](#)(see page 132).

Menu path: **User Interface > Input > Touchscreen**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface (which is highlighted in yellow), Network, Devices, Security, and System. On the far right of the top bar are search and settings icons. The left sidebar contains a tree view of configuration categories: Display Configurator, Desktop, Language, Screenlock / Screensaver, Hotkeys, Input (expanded), Keyboard, Additional keyboard layouts, Mouse, Touchpad, Touchscreen (selected and expanded), Touchscreen Calibration, On-screen keyboard, and Commands. The main content area shows the "Touchscreen" configuration page. It includes a "Enable touchscreen" checkbox (unchecked by default), a "Touchscreen type" dropdown set to "EvTouch (USB)", a "Touchscreen already calibrated" checkbox (unchecked), a "Swap X and Y values" checkbox (unchecked), and two input fields for "Minimal X value" (set to 0) and "Maximal X value". At the bottom are "Close", "Save", and "Save and Close" buttons.

The screenshot shows the "User Interface" tab selected in the top navigation bar. The "Input" section in the sidebar is expanded, and the "Touchscreen" option under it is also expanded, indicating the current configuration page. The main panel displays settings for enabling the touchscreen, selecting its type, and configuring calibration parameters.

### Enable touchscreen

- The touchscreen is enabled.  
 The touchscreen is disabled. (Default)

### Touchscreen type



Selects the touchscreen driver which is to be used.

Possible options:

- **EvTouch (USB)** (Default)
- **eGalax**
- **Elo Multitouch (USB)**
- **Elo Singletouch (USB)**
- **TSharc**

#### **Touchscreen already calibrated**

If you enable the touchscreen function, the touchscreen must be calibrated before use.

Calibration starts automatically after each system boot. (Default)

Calibration does not start automatically after each system boot.

#### **Swap X and Y values**

X values are interpreted as Y values and Y values as X values. Enable this option if the mouse pointer moves vertically when you move your finger in a horizontal direction. Enable if the touchscreen is used rotated by 90°.

X and Y values are not swapped. (Default)

#### **Minimal X value / Minimal Y value**

These values are determined by the calibration tool. However, you can also change them manually. (Default: 0)

#### **Maximal X value / Maximal Y value**

These values are determined by the calibration tool. However, you can also change them manually. (Default: 4000)

#### **Emulate right button**

A right-click is generated by touching the screen for the period of time defined under **Right button timeout**.

Touching the screen for a long time does not generate a right-click. (Default)

#### **Right button timeout**

Time (in milliseconds) after which a right-click is generated. (Default: 1000)

Multimonitor

#### **Graphic card**

Graphics card assigned to the selected touchscreen. A graphics card can have more outputs than are actually used. In order to ensure transparency, you may need to assign the graphics cards manually.



- ⓘ If **Automatic** is set for the **Touchscreen monitor** and no configurable monitor is found for the selected graphics card, the next available monitor will be used by another graphics card.

### Touchscreen monitor

Assigns a monitor connection to the touchscreen. Example: **DisplayPort**. (Default: Automatic)

- [Touchscreen Calibration](#)(see page 131)
- [On-screen Keyboard](#)(see page 132)



## Touchscreen Calibration

This article shows the starting options for the touchscreen calibration tool in IGEL OS.

Menu path: **User Interface > Input > Touchscreen > Touchscreen Calibration**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface (which is highlighted in yellow), Network, Devices, Security, and System. To the right of the tabs are search and settings icons. The main content area has a sidebar on the left with sections: Display Configurator, Desktop, Language, Screenlock / Screensaver, Hotkeys, Input (expanded), Keyboard, Additional keyboard layouts, Mouse, Touchpad, Touchscreen (expanded), Touchscreen Calibration (selected and highlighted with a yellow background), On-screen keyboard, and Commands. The main panel on the right shows a "Session name" field with "Touchscreen Calibration" and a "Starting Methods for Session" section with four items: "Start Menu" (unchecked), "Menu folder" (unchecked), "Start Menu's System tab" (checked), and "Application Launcher" (unchecked). At the bottom are buttons: Close, Save, and Save and Close.

The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).



## On-screen Keyboard

This article shows how to configure the starting methods for an on-screen keyboard in IGEL OS.

Menu path: **User Interface > Input > Touchscreen > On-screen keyboard**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface (which is selected and highlighted in yellow), Network, Devices, Security, and System. To the right of the tabs are search and settings icons. The left sidebar contains a tree view of configuration categories: Display Configurator, Desktop, Language, Screenlock / Screensaver, Hotkeys, Input (expanded), Keyboard, Additional keyboard layouts, Mouse, Touchpad, Touchscreen (expanded), Touchscreen Calibration, On-screen keyboard (selected and highlighted in yellow), and Commands. The main content area is titled "Starting Methods for Session". It shows a list of starting methods for the "On-screen keyboard" session: "Start Menu" (unchecked), "Menu folder" (unchecked), "Start Menu's System tab" (unchecked), and "Application Launcher" (unchecked). At the bottom of the content area, it says "Application Launcher folder". At the very bottom are three buttons: "Close", "Save" (with a checkmark icon), and "Save and Close".

The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).

- [Appearance](#)(see page 133)
- [Application Integration](#)(see page 135)



## Appearance

This article shows how to configure the appearance of the on-screen keyboard in IGEL OS.

- (i) The layout for the normal keyboard is used for the on-screen keyboard.

Menu path: **User Interface > Input > Touchscreen > On-screen keyboard > Appearance**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface (which is highlighted in yellow), Network, Devices, Security, and System. To the right of the tabs are a search icon and a settings gear icon. The left sidebar has a tree view of settings: Desktop, Language, Screenlock / Screensaver, Hotkeys, Input (expanded to show Keyboard, Additional keyboard layouts, Mouse, Touchpad, and Touchscreen), Touchscreen Calibration, On-screen keyboard (expanded to show Appearance, Application Integration), and Commands. The "Appearance" option under "On-screen keyboard" is currently selected and highlighted in yellow. The main content area shows a list of configuration options with checkboxes:

	<input checked="" type="checkbox"/> Show Function Keys	
	<input checked="" type="checkbox"/> Show Navigation Keys	
	<input type="checkbox"/> Show Numpad	
	<input type="checkbox"/> Enable switching to alternative layout	

At the bottom right of the content area are three buttons: "Close" (with an X), "Save" (with a checkmark), and "Save and Close" (with a document icon).

### Show function keys

The on-screen keyboard features the function keys [F1] ... [F12]. (Default)

### Show navigation keys

The on-screen keyboard features the arrow keys for navigating on the screen. (Default)

**Show Numpad**

- The on-screen keyboard features the number block.  
 The on-screen keyboard does not feature the number block. (Default)

**Enable switching to alternative layout**

- The on-screen keyboard has an additional key by which the user can toggle between the normal layout and a reduced layout. The reduced layout resembles the numpad, with the following differences:
- Additional backspace key [←]
  - Additional tab key [⇥]
  - Additional space key [ ]
  - Additional escape key [Esc]
  - Return key [↵] instead of [Enter] key
- Switching to the reduced layout is not possible. (Default)



## Application Integration

This article shows how to configure the integration of the on-screen keyboard in IGEL OS.

Menu path: **User Interface > Input > Touchscreen > On-screen keyboard > Application Integration**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface (which is selected and highlighted in yellow), Network, Devices, Security, and System. To the right of the tabs are search and settings icons. The left sidebar contains a tree view of configuration categories: Desktop, Language, Screenlock / Screensaver, Hotkeys, Input (expanded to show Keyboard, Additional keyboard layouts, Mouse, Touchpad, and Touchscreen), Touchscreen Calibration, On-screen keyboard (expanded to show Appearance and Application Integration), and Commands. The "Application Integration" item under On-screen keyboard is currently selected and highlighted in blue. The main content area shows "Taskbar settings for the login dialog" with two options: "Show on-screen keyboard button" (unchecked) and "Start on-screen keyboard automatically" (unchecked). Below that is "Taskbar settings when the screenlock is active" with similar two options. At the bottom is "On-screen keyboard toggle button" with a small preview image. At the bottom right are three buttons: "Close" (with an X icon), "Save" (with a checkmark icon), and "Save and Close" (with both X and checkmark icons).

### Taskbar Settings for the Login Dialog

These settings are relevant if a login is necessary in order to use the device. This applies to all logon methods that are possible with the device.

#### Show on-screen keyboard button

- A button for launching the on-screen keyboard is shown during the login dialog.  
 The on-screen keyboard cannot be launched during the login dialog. (Default)

#### Start on-screen keyboard automatically

- The on-screen keyboard is shown during the login dialog and can be used for input.



The on-screen keyboard is not shown during the login dialog. However, it can be launched via a button if **Show on-screen keyboard button** is enabled. (Default)

Taskbar Settings When the Screenlock Is Active

**Show on-screen keyboard button**

A button for launching the on-screen keyboard is shown when the screen is locked.

The on-screen keyboard cannot be launched when the screen is locked. (Default)

**Start on-screen keyboard automatically**

The on-screen keyboard is shown when the screen is locked.

The on-screen keyboard is not shown when the screen is locked. However, it can be launched via a button if **Show on-screen keyboard button** is enabled. (Default)

On-Screen Keyboard Toggle Button

**Show button**

A button for switching the on-screen keyboard on and off is shown on the desktop.

The toggle button is not shown. (Default)

**Button size**

The size of the toggle button. A size between 40 and 80 pixels can be chosen. (Default: 60px)

**Automatically show on-screen keyboard when text field is selected**

The on-screen keyboard is shown automatically when an input field is selected.

The on-screen keyboard is not shown automatically. (Default)



## Commands

This article shows how to set up system command sessions in IGEL OS.

Menu path: **User Interface > Commands > Shutdown menu / Sort icons / Restart windowmanager**

A screenshot of the IGEL Setup application window titled 'IGEL Setup'. The top navigation bar includes tabs for 'Accessories', 'User Interface' (which is selected and highlighted in yellow), 'Network', 'Devices', 'Security', and 'System'. On the far right of the top bar are search and settings icons. The left sidebar contains a tree view of configuration categories: 'Display Settings', 'Display Configurator', 'Desktop', 'Language', 'Screenlock / Screensaver', 'Hotkeys', 'Input', 'Commands' (which is expanded to show 'Shutdown menu', 'Sort icons', and 'Restart windowmanager'), and 'Session name' is set to 'Shutdown menu'. Below this is a section titled 'Starting Methods for Session' containing seven items, each with a checkbox and an information icon: 'Start Menu' (unchecked), 'Menu folder' (unchecked), 'Start Menu's System tab' (unchecked), 'Application Launcher' (unchecked), 'Application Launcher's System tab' (unchecked), 'Desktop' (unchecked), and 'Desktop folder' (unchecked). At the bottom right are buttons for 'Close', 'Save', and 'Save and Close'.

System commands can be made accessible to the user through configuring them as sessions:

- **Shutdown menu:** Opens the shutdown menu. You can configure the shutdown menu under **System > Power Options > Shutdown**. For more information, see [Shutdown](#)(see page 319).
- **Sort icons:** Sorts the symbols on the desktop so that they form a block.
- **Restart windowmanager:** Restarts the device's user interface.

The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).



## Quick Access

Menu path: **User Interface > Commands > Shutdown Menu > Quick Access**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The left sidebar shows a tree view of configuration categories under "User Interface". The "Commands" category is expanded, and its "Shutdown menu" sub-category is also expanded. The "Quick access" item under "Shutdown menu" is highlighted with a yellow background. The main panel contains two sections: "Start Menu options" and "Application Launcher options". In "Start Menu options", there is a checkbox labeled "Show Shutdown menu button" which is checked. In "Application Launcher options", there is a checkbox labeled "Hide Shutdown menu button" which is unchecked. At the bottom right are three buttons: "Close", "Save", and "Save and Close".

The screenshot shows the "User Interface" tab selected in the top navigation bar. The left sidebar lists various configuration categories. The "Commands" category is expanded, and its "Shutdown menu" sub-category is also expanded. The "Quick access" item under "Shutdown menu" is highlighted with a yellow background. The main panel displays settings for the Start Menu and Application Launcher.

Here, you can configure the quick access to the shutdown menu from the start menu and the Application Launcher.

### Show Shutdown menu button

The icon is shown in the start menu. (Default)



**Hide Shutdown menu button**

- The  icon is shown in the Application Launcher.
- The  icon is not shown in the Application Launcher. (Default)



## Network

In this chapter, you find information on network configuration in IGEL OS.

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- [LAN Interfaces](#)(see page 141)
- [Wireless](#)(see page 151)
- [Mobile Broadband](#)(see page 170)
- [Computer Name](#)(see page 173)
- [DHCP Options](#)(see page 174)
- [DNS](#)(see page 178)
- [VPN](#)(see page 180)
- [SCEP Client \(NDES\)](#)(see page 202)
- [Default Gateway](#)(see page 210)
- [Hosts](#)(see page 214)
- [Network Drives](#)(see page 216)
- [Proxy](#)(see page 223)



## LAN Interfaces

This article shows how to configure LAN interfaces in IGEL OS.

Menu path: **Network > LAN Interfaces > [Interface]**

The screenshot shows the 'LAN Interfaces' configuration page for 'Interface 1'. The left sidebar lists various network options: LAN Interfaces (selected), Interface 1 (selected), Authentication, Wake On Lan, Interface 2, Wireless, Mobile Broadband, Computer name, DHCP Options, DNS, VPN, SCEP Client (NDES), Default gateway, Hosts, Network Drives, and Proxy. The main panel has several configuration sections:

- Activate default interface (Ethernet)**: A checked checkbox.
- Get IP from DHCP server** (radio button selected) and **Specify an IP address** (radio button unselected).
- IP address** and **Network mask** input fields.
- IPv6 configuration**: A dropdown menu set to **Compatibility mode**.
- Network link type**: A dropdown menu set to **Auto Sense**.
- Force auto-negotiation**: An unchecked checkbox.

At the bottom are three buttons: **Close**, **Save**, and **Save and Close**.

**(i) Predictable Network Interface Names (PNINs)**

The names of Ethernet and WLAN interfaces are predictable network interface names (PNINs), see [Predictable Network Interface Names](#)<sup>5</sup>. This ensures the stability of interface names on reboot and generally improves the reliability of associating configurations with interfaces.

- As "eth0", "eth1", and "wlan0" have been replaced by PNINs, configurations or custom scripts that include the old names of Ethernet and WLAN interfaces, e.g. `eth0`, `eth2`, `wlan0`, have to be adjusted.

<sup>5</sup> <https://www.freedesktop.org/wiki/Software/systemd/PredictableNetworkInterfaceNames/>



The following already existing configurations do NOT require manual adjustment since old names `eth0`, `eth1`, etc. will internally be replaced by the correct PNINs automatically:

- `Tcpdump`
- To view the PNINs and the order of the configured interfaces, you can use the following commands. The default interface is always listed first, the second interface is listed second, etc.  
**Ethernet (LAN):** `cat /config/net/en-interfaces`  
**WLAN:** `cat /config/net/wl-interfaces`  
(Note: Only the first wireless interface (former `wlan0`) is supported. All other wireless interfaces will be ignored.)
- If you need to configure more than two Ethernet interfaces, go to **System > Registry > network.interfaces.ethernet.device%** and add an instance by clicking **Add Instance**. To explicitly assign a configuration instance to a certain interface, enter the corresponding PNIN for the registry key **network.interfaces.ethernet.device%.ifname**.

#### Activate default interface (Ethernet)

- The interface is enabled. (Default)  
 The interface is disabled.

#### Get IP from DHCP server

- The IP address of the client will be obtained automatically using DHCP. (Default)

DHCP options can be specified under **Network > DHCP Options > Standard Options**. For more information, see [DHCP Options](#)(see page 174).

#### Specify an IP address

The IP address and the network mask are entered manually.

#### IP address

IP address of the device

#### Network mask

Network mask of the device

#### IPv6 configuration

- **Compatibility mode:** Behavior of earlier firmware versions. (Default)
- **Disabled:** IPv6 completely disabled



- **Automatic:** IPv6 auto configuration based on router advertisements (can include DHCPv6).  
For further information, see [RFC 4861](#).<sup>6</sup>
- **DHCPv6:** IPv6 configuration using DHCPv6 if router advertisements are not available.  
This is mentioned in [RFC 4862 Section 5.5.2](#).<sup>7</sup>

#### Network link type

- **Auto sense** (Default)
- **1000 Mbps Full Duplex**
- **100 Mbps Full Duplex**
- **100 Mbps Half Duplex**
- **10 Mbps Full Duplex**
- **10 Mbps Half Duplex**

#### Force auto-negotiation

The half-/full-duplex problems can be avoided for switches that expect the auto-negotiation flag for fixed bandwidths.

Auto-negotiation is not forced. (Default)

#### LAN Tray App

Based on the status of the LAN connection, one of the following icons is shown in the taskbar. Clicking the icon opens the LAN tray app. The app displays details about the network connection and provides an option to quickly connect to and disconnect from LAN networks.

Taskbar Icon	LAN Status
	Connected
	No connection
	Connected, but no internet
	Connecting
	Disconnected by user
	Connection error

<sup>6</sup> <https://tools.ietf.org/html/rfc4861>

<sup>7</sup> <https://tools.ietf.org/html/rfc4862#section-5.5.2>



- [Authentication](#)(see page 145)
- [Wake On LAN](#)(see page 149)



## Authentication

This article shows how to enable and configure network port authentication in IGEL OS.

Menu path: **Network > LAN Interfaces > [Interface] > Authentication**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network (which is highlighted in yellow), Devices, Security, and System. On the far right of the top bar are a search icon and a settings gear icon. The left sidebar contains a tree view of network settings: LAN Interfaces (selected), Interface 1 (selected), Authentication (highlighted in orange), Wake On Lan, Interface 2, Wireless, Mobile Broadband, Computer name, DHCP Options, DNS, VPN, SCEP Client (NDES), Default gateway, Hosts, Network Drives, and Proxy. The main content area shows the "Authentication" configuration for Interface 1. It includes fields for: "Enable IEEE 802.1x Authentication" (checkbox), "EAP Type" (dropdown set to PEAP), "Anonymous Identity" (text input field), "Auth Method" (dropdown set to MSCHAPV2), "Validate Server Certificate" (checkbox checked), "CA Root Certificate" (text input field), and "Identity" (text input field). At the bottom are three buttons: "Close", "Save" (with a checkmark icon), and "Save and Close".

### Enable IEEE-802.1x authentication

- Network port authentication is enabled.
- Network port authentication is disabled. (Default)

If you enable authentication, further options become available:

#### EAP type



The type of the authentication procedure:

- **PEAP**: Protected Extensible Authentication Protocol (Default)
- **TLS**: Transport Layer Security with client certificate
- **TTLS**: Tunneled Transport Layer Security
- **FAST**: Flexible Authentication via Secure Tunneling

#### Anonymous identity

This identity is sent by authentication instead of the actual **Identity**. This prevents the disclosure of the actual identity of the user. The anonymous identity is relevant for any of the above-mentioned **EAP Types**, except for **TLS**.

#### Auth method

The following authentication methods are available:

- **MSCHAPV2**: Microsoft Challenge Handshake Authentication Protocol (Default)
- **TLS**: Transport Layer Security with client certificate
- **GTC**: Generic Token Card
- **MD5**: MD5-Challenge
- **PAP**: Password Authentication Protocol

#### Validate server certificate

The server's certificate is checked cryptographically. (Default)

#### CA root certificate

The path to the CA root certificate file. This can be in PEM or DER format.

#### Identity

User name for RADIUS

#### Password

Password for network access

- i** If you leave the **Identity** and **Password** fields empty, an entry mask for authentication purposes will be shown. However, this does not apply to the methods with a client certificate (TLS and PEAP-TLS) where these details are mandatory.

The following settings are relevant if you have selected **TLS** as **EAP Type**:

#### Manage certificates with SCEP (NDES)



Client certificates will automatically be managed with SCEP. For more information, see [SCEP Client \(NDES\)](#)(see page 202).

Client certificates will not be managed with SCEP. (Default)

### Client certificate

Path to the file with the certificate for client authentication in the PEM (base64) or DER format.

**i** If a private key in the PKCS#12 (PFX) format is used, leave this field empty.

### Private key

Path to the file with the private key for the client certificate. The file can be in the PEM (base64), DER, or PKCS#12 (PFX) format. The **Private key password** may be required for access.

### Identity

User name for network access

### Private key password

Password for the **Private key** for the client certificate

The following setting is relevant if you have selected **FAST** as **EAP Type**:

### Automatic PAC provisioning

Specifies how the PAC (Protected Access Credential) is delivered to the client.

Possible options:

- **Disabled**: PAC files have to be transferred to the device manually, e.g. via UMS file transfer.
- **Unauthenticated**: An anonymous tunnel will be used for PAC provisioning.
- **Authenticated**: An authenticated tunnel will be used for PAC provisioning.
- **Unrestricted**: Both authenticated and unauthenticated PAC provisioning is allowed. PAC files are automatically created after the first successful authentication. (Default)

**i** PAC files are stored in `/wfs/eap_fast_pacs/`.  
PAC file names are automatically derived from the **Identity**, but are coded. In the case of the manual PAC provisioning, you can determine the PAC file names with the following script: `/bin/gen_pac_filename.sh`

**i** In tests with `hostapd`, it has been necessary to disable TLS 1.2. To do that, enter the following command for **System > Registry**  
`> network.interfaces.ethernet.device0.ieee8021x.phase1_direct: tls_disable_tls1_2=1`



To add further device registry keys, go to **System > Registry > network.interfaces.ethernet.device%** and click **Add Instance**.



## Wake On LAN

With Wake-on-Lan (WoL), you can switch on devices over the network. This article shows how to configure the packets or messages with which the endpoint device can be started in IGEL OS.

Menu path: **Network > LAN Interfaces > [Interface] > Wake On LAN**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network (which is highlighted in yellow), Devices, Security, System, and Apps. To the right of the tabs are search and settings icons. The left sidebar has a tree view with nodes like LAN Interfaces, Interface 1, Authentication, Wake On Lan (which is selected and highlighted in yellow), Interface 2, Wireless, Mobile Broadband, Computer name, DHCP Options, DNS, VPN, SCEP Client (NDES), Default gateway, Hosts, and Network Drives. On the right, there's a list of six options with checkboxes: "Wake on magic packet" (checked), "Wake on ARP packet" (unchecked), "Wake on broadcast message" (unchecked), "Wake on multicast message" (unchecked), "Wake on physical activity" (unchecked), and "Wake on unicast message" (unchecked). At the bottom are buttons for Close, Save, and Save and Close.

### Wake on magic packet

The device can be started with a Wake-on-LAN magic packet. (Default)

### Wake on ARP packet

- The device can be started with a Wake on ARP packet.  
 The device cannot be started with a Wake on ARP packet. (Default)

### Wake on broadcast message

The device can be started with a Wake on broadcast message.



- The device cannot be started with a Wake on broadcast message. (Default)

**Wake on multicast message**

- The device can be started with a Wake on multicast message.
- The device cannot be started with a Wake on multicast message. (Default)

**Wake on physical activity**

- The device can be started with a physical activity.
- The device cannot be started with a physical activity. (Default)

**Wake on unicast message**

- The device can be started with a Wake on unicast message.
- The device cannot be started with a Wake on unicast message. (Default)



## Wireless

This article shows how to configure wireless connections in IGEL OS.

- ⓘ If you have to frequently switch between LAN and WLAN networks, it is useful to activate **Enable Wi-Fi automatic switch**.**
- For the Wi-Fi tray icon to be displayed, **Show wifi connection status tray icon on desktop** needs to be enabled under **User Interface > Desktop > Taskbar Items**. For details, see [Taskbar Items\(see page 87\)](#).

Menu path: **Network > Wireless**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The "Network" tab is selected in the top navigation bar. On the left, a sidebar lists network-related settings: LAN Interfaces, Wireless (which is currently selected and highlighted in yellow), Mobile Broadband, Computer name, DHCP Options, DNS, VPN, SCEP Client (NDES), Default gateway, Hosts, Network Drives, and Proxy. The main panel contains configuration fields for the selected "Wireless" interface. It includes:

- A checkbox labeled "Activate wireless interface" which is checked.
- Two radio buttons for IP configuration: "Get IP from DHCP server" (selected) and "Specify an IP address".
- Input fields for "IP address" and "Network mask".
- A section for "IPv6 configuration" with a dropdown menu set to "Compatibility mode".
- A checkbox labeled "Enable Wi-Fi automatic switch" which is unchecked.

At the bottom of the panel are three buttons: "Close", "Save", and "Save and Close".



You can find details of compatible wireless hardware in the [IGEL Linux 3rd Party Hardware Database](#)<sup>8</sup>.

#### **(i) Predictable Network Interface Names (PNINs)**

The names of Ethernet and WLAN interfaces are predictable network interface names (PNINs), see [Predictable Network Interface Names](#)<sup>9</sup>. This ensures the stability of interface names on reboot and generally improves the reliability of associating configurations with interfaces.

- As "eth0", "eth1", and "wlan0" have been replaced by PNINs, configurations or custom scripts that include the old names of Ethernet and WLAN interfaces, e.g. eth0, eth2, wlan0, have to be adjusted.

The following already existing configurations do NOT require manual adjustment since old names eth0, eth1, etc. will internally be replaced by the correct PNINs automatically:

- Tcpdump
- To view the PNINs and the order of the configured interfaces, you can use the following commands. The default interface is always listed first, the second interface is listed second, etc.
  - Ethernet (LAN):** `cat /config/net/en-interfaces`
  - WLAN:** `cat /config/net/wl-interfaces`

(Note: Only the first wireless interface (former wlan0) is supported. All other wireless interfaces will be ignored.)
- If you need to configure more than two Ethernet interfaces, go to **System > Registry > network.interfaces.ethernet.device%** and add an instance by clicking **Add Instance**. To explicitly assign a configuration instance to a certain interface, enter the corresponding PNIN for the registry key **network.interfaces.ethernet.device%.ifname**.

#### **Activate wireless interface**

The wireless interface is enabled. (Default)

The wireless interface is disabled.

#### **Get IP from DHCP server**

The IP address of the endpoint device will be obtained automatically using DHCP. (Default)

DHCP options can be specified under **Network > DHCP Options**. For details on the configuration, see [DHCP Options](#)(see page 174).

#### **Specify IP address**

The IP address and the network mask are entered manually.

<sup>8</sup> <https://www.igel.com/linux-3rd-party-hardware-database/>

<sup>9</sup> <https://www.freedesktop.org/wiki/Software/systemd/PredictableNetworkInterfaceNames/>



## IP address

IP address of the endpoint device

## Network mask

Network mask of the endpoint device

### IPv6 configuration:

- **Compatibility mode:** Behavior of earlier firmware versions. (Default)
- **Disabled:** IPv6 is completely disabled.
- **Automatic:** IPv6 auto-configuration is based on router advertisements (can include DHCPv6).  
You will find further information in [RFC 4861](#)<sup>10</sup>.
- **DHCPv6:** IPv6 configuration using DHCPv6 if router advertisements are not available.  
You will find further information in [RFC 4862 Section 5.5.2](#)<sup>11</sup>.

### Enable Wi-Fi automatic switch

Wi-Fi is turned on automatically when a wired LAN connection is disconnected and Wi-Fi is turned off automatically when a wired LAN connection is established.

Wi-Fi is not turned on automatically when a wired LAN connection is disconnected and Wi-Fi is not turned off automatically when a wired LAN connection is established. (Default)

- i** If the toggle button in the Wi-Fi tray app is used for turning the Wi-Fi on or off, the Wi-Fi automatic switch gets disabled until the reboot of the device. On reboot, the previously configured setting will be restored. For more information on the toggle button, see [Switching the Wi-Fi Connection Off or On](#)(see page 164).

- 
- [Wi-Fi Networks](#)(see page 154)
  - [Wireless Regulatory Domain](#)(see page 160)
  - [Wireless Manager](#)(see page 162)
  - [Switching the Wi-Fi Connection Off or On](#)(see page 164)
  - [Wi-Fi Tray App](#)(see page 166)

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<sup>10</sup> <https://tools.ietf.org/html/rfc4861>

<sup>11</sup> <https://tools.ietf.org/html/rfc4862#section-5.5.2>



## Wi-Fi Networks

This article shows how to configure wireless network connections in IGEL OS. All the wireless network connections configured for the device are shown in the list, including connections configured through the UMS or the Wi-Fi tray app. For more information on the tray app, see [Wi-Fi Tray App](#)(see page 166).

Menu path: **Network > Wireless > Wi-Fi Networks**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The window has a dark header bar with the title and standard window controls. Below the header is a navigation menu with tabs: Accessories, User Interface, Network (which is highlighted in yellow), Devices, Security, System, and Apps. To the right of the tabs are a search icon and a gear icon. The main content area is divided into two sections. On the left is a sidebar with a tree view of network configuration options: LAN Interfaces, Wireless (with "Wi-Fi networks" selected and highlighted in yellow), Wireless regulatory domain, Mobile Broadband, Computer name, DHCP Options, DNS, VPN, SCEP Client (NDES), Default gateway, Hosts, Network Drives, and Proxv. On the right is a table titled "Wi-Fi networks" with one row visible: "Wireless Network Name (SSID)" set to "User-defined". At the bottom of the right section are four icons: a blue square with a white plus sign (+), a blue square with a white minus sign (-), a blue square with a white edit pen, and a blue square with a white copy icon. At the very bottom of the window are three buttons: "Close" (with a red X), "Save" (with a green checkmark), and "Save and Close" (with a blue checkmark and a small "X").

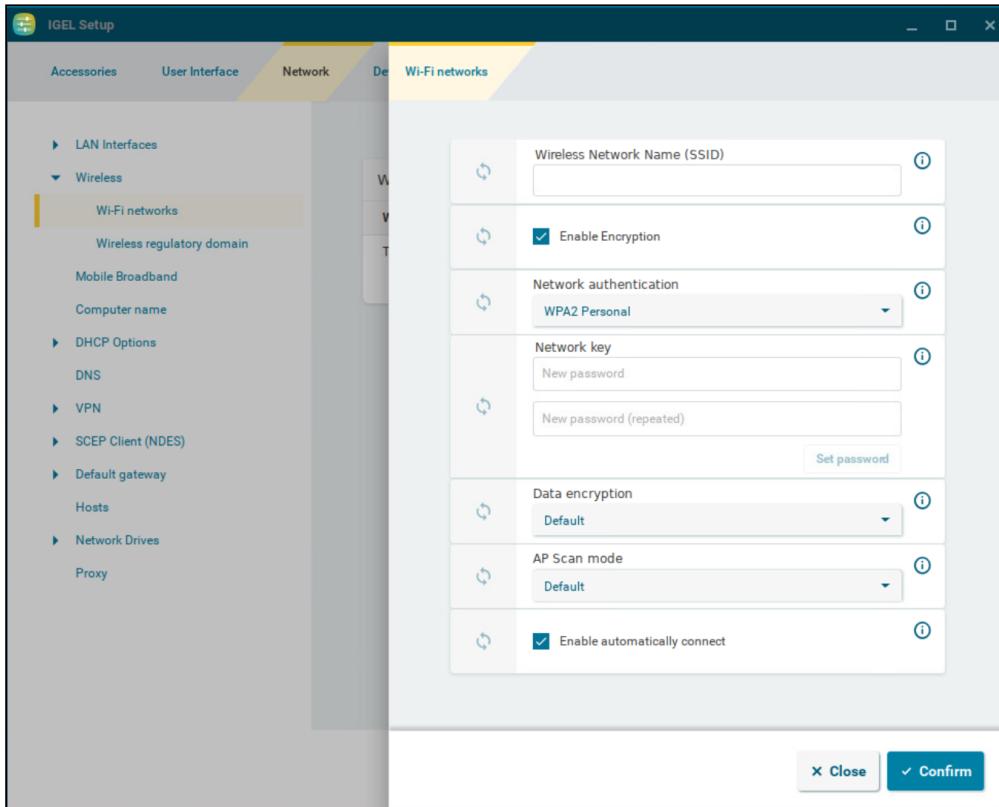
To edit the Wi-Fi networks list, proceed as follows:

- Click to create a new entry.
- Click to remove the selected entry.
- Click to edit the selected entry.
- Click to copy the selected entry.



Clicking brings up the **Add** dialogue, where you can define the settings of the wireless network.

## Wi-Fi Networks Settings



### Wireless network name (SSID)

Name of the wireless network (SSID)

### Enable encryption

- Encrypted connection is used. (Default)

### Network authentication

You can configure the following network authentication methods.

- **WPA Personal:** Wi-Fi Protected Access Pre-Shared Key (WPA / IEEE 802.11i/D3.0)
- **WPA2 Personal:** Wi-Fi Protected Access Pre-Shared Key (WPA2 / IEEE 802.11i/RSN) (Default)
- **WPA3 Personal:** Wi-Fi Protected Access SAE (Simultaneous Authentication of Equals)
- **WPA Enterprise:** Wi-Fi Protected Access with 802.1X authentication (WPA / IEEE 802.11i/D3.0)
- **WPA2 Enterprise:** Wi-Fi Protected Access with 802.1X authentication (WPA2/IEEE 802.11i/RSN)



Depending on the selection, you can configure the corresponding parameters below.

- For **WPA/WPA2/WPA3 Personal** encryption, see [WPA/WPA2/WPA3 Personal](#)(see page 156).
- For **WPA/WPA2 Enterprise** encryption, see [WPA/WPA2 Enterprise](#)(see page 156).

## WPA/WPA2/WPA3 Personal Encryption

### Network key

WPA network key/passphrase as set at the access point. This is either an ASCII character string with a length of 8...63 or exactly 64 hexadecimal digits.

### Data encryption

- **Default:** The default value depends on which network authentication method is selected. For WPA, TKIP is the default. For WPA2, AES (CCMP) is the default. (Default)
- **TKIP:** Temporal Key Integrity Protocol (IEEE 802.11i/D7.0)
- **AES (CCMP):** AES in Counter mode with CBC-MAC (RFC 3610, IEEE 802.11i/D7.0)
- **AES (CCMP) + TKIP:** One of two encryption methods is selected by the access point.
- **Automatic:** The access point can choose the encryption method freely – nothing is stipulated.

### AP scan mode

Scan mode for access points.

- **Default (Default)**
- **Broadcast:** Alternative for access points which allow the SSID broadcast
- **No broadcast:** Alternative for access points which refuse the SSID broadcast (hidden access points)

### Enable automatically connect

- ▶ Automatic connection to the access point is enabled. (Default)

## WPA/WPA2 Enterprise Encryption

### Data encryption

- **Default:** The default value depends on which network authentication method is selected - TKIP for WPA, AES (CCMP) for WPA2. (Default)
- **TKIP:** Temporal Key Integrity Protocol (IEEE 802.11i/D7.0)
- **AES (CCMP):** AES in Counter mode with CBC-MAC (RFC 3610, IEEE 802.11i/D7.0)
- **AES (CCMP) + TKIP:** One of two encryption methods is selected by the access point.
- **Automatic:** The access point can choose the encryption method freely – nothing is stipulated.

### AP scan mode



#### Scan mode for access points

- **Default** (Default)
- **Broadcast**: Alternative for access points which allow the SSID broadcast
- **No broadcast**: Alternative for access points which refuse the SSID broadcast (hidden access points)

#### EAP type

- **PEAP**: Protected Extensible Authentication Protocol
- **TLS**: Transport Layer Security with client certificate
- **TTLS**: Tunneled Transport Layer Security
- **FAST**: Flexible Authentication via Secure Tunneling

#### Anonymous identity

This identity is sent by authentication instead of the actual **Identity**. This prevents the disclosure of the actual identity of the user. The anonymous identity is relevant for any of the above-mentioned **EAP Types**, except for **TLS**.

#### Auth method

Method for authentication that is available for the selected EAP type.

Possible options:

- **MSCHAPv2**: Microsoft Challenge Handshake Authentication Protocol (Default)
- **TLS**: Transport Layer Security with client certificate
- **GTC**: Generic Token Card
- **MD5**: MD5-Challenge
- **PAP**: Password Authentication Protocol

#### Validate server certificate

The endpoint device validates the authenticity of the authentication server against the certificate file. This certificate file is stored under the path defined by **CA root certificate**.

The authenticity of the authentication server is not validated.

#### CA root certificate

Path and file name of the file that contains the certificates with which the authentication server authenticates itself.

#### Identity

User name that is stored at the authentication server

#### Password



Password relevant to the user name

The following settings are relevant if you have selected **TLS** as **EAP type**:

#### Manage certificates with SCEP (NDES)

- Client certificates will automatically be managed with SCEP. For more information on SCEP configuration, see [SCEP Client \(NDES\)](#)(see page 202).
- Client certificates will not be managed with SCEP. (Default)

#### Client certificate

Path to the file with the certificate for client authentication in the PEM (base64) or DER format.

If a private key in the PKCS#12 (PFX) format is used, leave this field empty.

#### Private key

Path to the file with the private key for the client certificate. The file can be in the PEM (base64), DER, or PKCS#12 (PFX) format. The **Private key password** may be required for access.

#### Identity

User name for network access

#### Private key password

Password for the **Private key** for the client certificate

The following setting is relevant if you have selected **FAST** as **EAP type**:

#### Automatic PAC provisioning

Specifies how the PAC (Protected Access Credential) is delivered to the client.

Possible options:

- **Disabled**: PAC files have to be transferred to the device manually, e.g. via UMS file transfer.
- **Unauthenticated**: An anonymous tunnel will be used for PAC provisioning.
- **Authenticated**: An authenticated tunnel will be used for PAC provisioning.
- **Unrestricted**: Both authenticated and unauthenticated PAC provisioning is allowed. PAC files are automatically created after the first successful authentication. (Default)

PAC files are stored in `/wfs/eap_fast_pacs/`.



PAC file names are automatically derived from the **Identity**, but are coded. In the case of the manual PAC provisioning, you can determine the PAC file names with the following script: `/bin/gen_pac_filename.sh`



## Wireless Regulatory Domain

This article shows how to set the location of the device in IGEL OS.

Menu path: **Network > Wireless > Wireless Regulatory Domain**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The window has a dark header bar with the title and several tabs: "Accessories", "User Interface", "Network" (which is highlighted in yellow), "Devices", "Security", "System", and "Apps". Below the tabs is a search bar and a settings gear icon. The main content area is divided into two columns. The left column contains a sidebar with the following items: LAN Interfaces, Wireless (with "Wi-Fi networks" and "Wireless regulatory domain" listed under it, where "Wireless regulatory domain" is highlighted with a yellow box), Mobile Broadband, Computer name, DHCP Options, DNS, VPN, SCEP Client (NDES), Default gateway, Hosts, Network Drives, and Proxy. The right column displays two configuration sections: "Wireless regulatory domain" (status: Not configured) and "Location" (status: Not configured). At the bottom right are three buttons: "Close", "Save", and "Save and Close".

Wireless regulatory domain	Not configured
Location	Not configured

### Wireless regulatory domain

Select the area in which the device is located.

- **Not configured** (Default)
- **Africa**
- **Arctic**
- **Asia**
- **Australia**
- **Europe**
- **North America**
- **South America**
- **World**



### Location

Select the country in which the device is located. The available options are based on the selected area.

- **Not configured** (Default)
- **World**
- **Albania**
- **Armenia**
- [...]
- **Cyprus**

## Wireless Manager

The Wireless Manager tool allows the user to connect quickly to available wireless networks. This article shows how to use the Wireless Manager in IGEL OS.

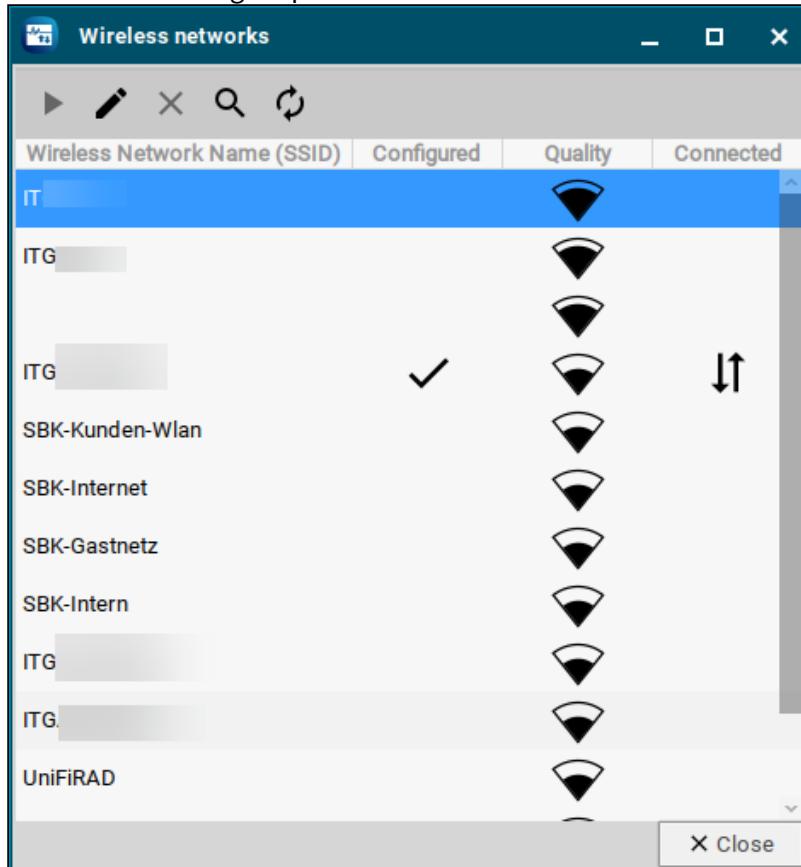
- i** The Wireless Manager is only available from the Wi-Fi tray icon in the login screen or the locked screen. Once the screen is unlocked and the user is logged in, the Wi-Fi tray app can be used for the same purpose. For the description of the tray app, see [Wi-Fi Tray App](#)(see page 166).

This is how you can use the Wireless Manager:

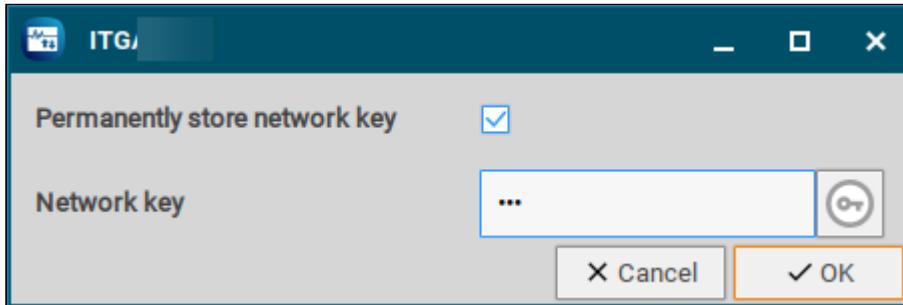
1. To bring up the Wireless Manager, click the tray icon for wireless:



The Wireless Manager opens.



2. Search for available networks.
  - The list of active networks is sorted according to the quality of their signal strength.
  - Previously configured connections are flagged with a tick in the **Configured** column.
  - The connection currently active is likewise flagged with a symbol under **Connected**.
3. Double-click on a network in the list in order to open the entry mask.  
You can either **permanently store** the login information or enter it each time you establish a connection to this network.



**i** Click on the key symbol in order to display the key phrase while you are typing.

4. Click on the **Connect network** button in order to establish the previously configured connection:  
The tray icon will change to show the connection quality.  
Hidden networks appear in the Wireless Manager with the network name empty or can be defined using the **Search for network** button.  
In order to connect to a previously unknown hidden network, you must first enter the SSID before the access data are retrieved:

**i** If you have configured the available connections, you will no longer need the Wireless Manager in order to establish a connection.

In the context menu for the tray icon, all available networks are listed and can be brought up from here.

5. The IGEL Setup shows all connections configured for the device under **Network > Wireless > Wi-Fi Networks**. For more information, see [Wi-Fi Networks](#)(see page 154).

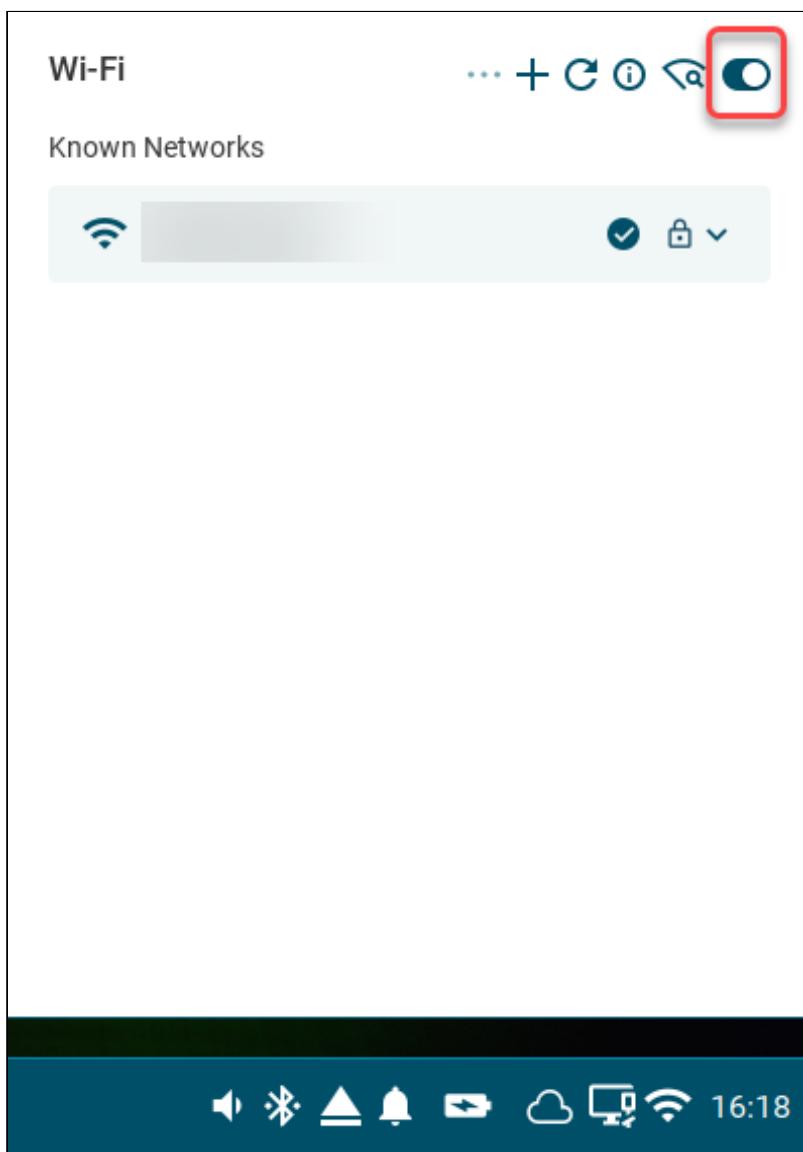


## Switching the Wi-Fi Connection Off or On

This article shows how to turn Wi-Fi off or on in IGEL OS. The switch works differently if you are logged in and if the login dialog is displayed or the screen is locked.

### Turning Wi-Fi Off or On If You Are Logged In

- ▶ Use the toggle switch of the Wi-Fi tray app to turn Wi-Fi off and on.





- ⓘ Once the toggle switch is used, the **Enable Wi-Fi automatic switch** option under **Network > Wireless** becomes disabled until the reboot of the device. On reboot, the previously configured setting will be restored. For more information, see [Wireless](#)(see page 151).

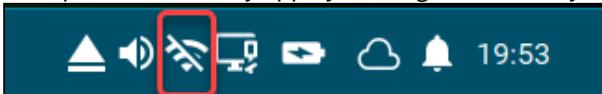
#### Turning Wi-Fi Off or On In the Login Dialog or the Locked screen

- ▶ To turn Wi-Fi off, click the tray icon  and select **OK** in the **Turn Wi-Fi off** dialog.
- ▶ To turn Wi-Fi on, click  and select **OK** in the **Turn Wi-Fi on** dialog.

## Wi-Fi Tray App

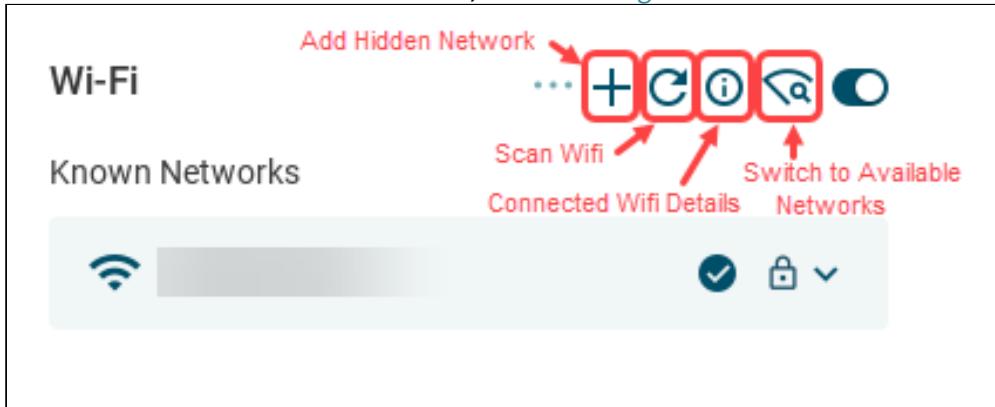
The Wi-Fi tray app allows the user to connect quickly to available wireless networks. This article shows how to establish a Wi-Fi connection using the Wi-Fi tray app in IGEL OS.

- Open the Wi-Fi tray app by clicking the Wi-Fi tray icon:



The Wi-Fi tray app opens. Using the icons at the top of the window, you can:

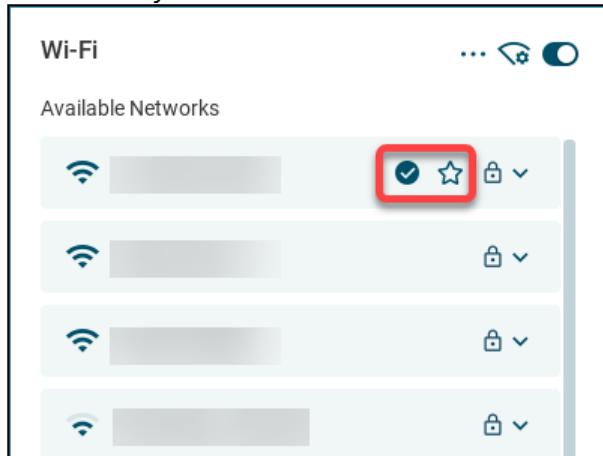
- Add a hidden network.
- Scan for Wi-Fi networks to refresh the list of available networks.
- Check the details of the connected network.
- Switch between the **Known Networks** list and the **Available Networks** list.
- Switch the Wi-Fi on and off. For details, see [Switching the Wi-Fi Connection Off or On](#)(see page 164).



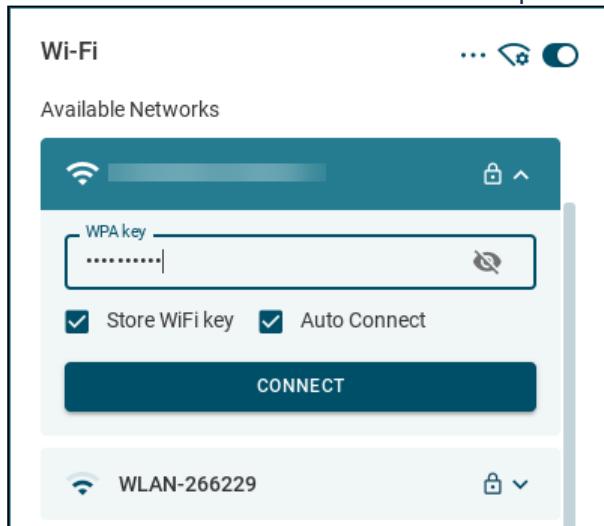
### Connect to Available Wi-Fi Networks

1. Switch to the **Available Networks** list or use the **Scan Wifi** icon to refresh the list.
  - The list of networks is sorted according to the quality of their signal strength.
  - Previously configured networks are marked with a star icon. They are listed in the Known Networks List.

- The currently connected network is marked with a tick icon.



- Click on the network to be connected and provide the network key.



You can enable the **Store WiFi key** and **Auto Connect** parameters according to your needs.

- Click **Connect**.

The Wi-Fi tray icon changes to show the active connection.

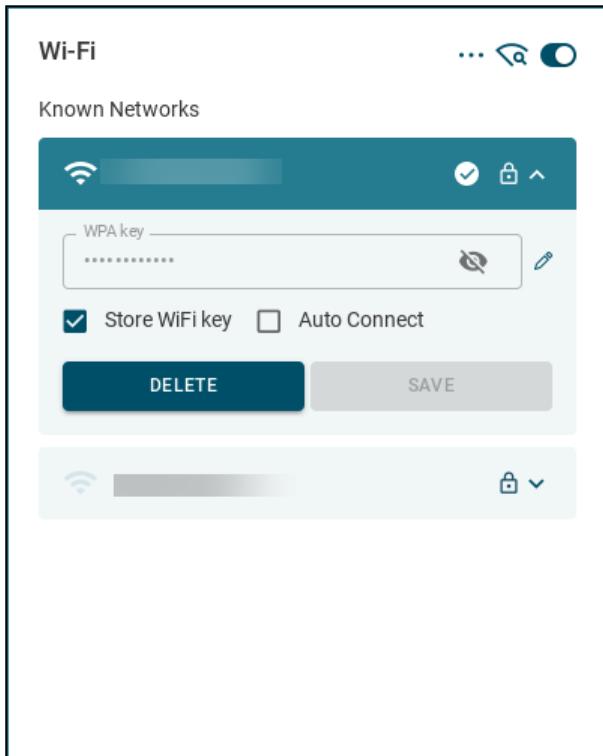
The configured network is listed in the Known Networks list.

The configured connections get listed in the IGEL Setup under **Network > Wireless > Wi-Fi Networks**. For more information, see [Wi-Fi Networks](#)(see page 154).

- To disconnect from the connected network, click on the network and click **Disconnect**.

## Edit and Delete Known Networks

1. Switch to the **Known Networks** list.



2. Click on the network to be edited or deleted.  
You can enable the **Store WiFi key** and **Auto Connect** parameters according to your needs.
3. Click **Save** to save the changed configuration or click **Delete** to remove the network from the list.

## Connect to Hidden Networks

1. Switch to the **Known Networks** list.



2. Click the **Add Hidden Network** icon at the top of the window.

A screenshot of a Windows-style Wi-Fi configuration dialog box. At the top left is the text "Wi-Fi". To the right are three small icons: a gear, a signal strength bar, and a power switch. Below this is a section titled "Known Networks". Underneath is a "Encryption Type" section with two radio buttons: "OPEN" (selected) and "WPA". Below that is a text input field for "SSID". Underneath the SSID field is another text input field for "WPA key" with a small "key" icon to its right. At the bottom of the dialog are two checked checkboxes: "Store WiFi key" and "Auto Connect". A large grey "CONNECT" button is centered at the bottom.

3. Set the Encryption Type, provide the SSID and the network key.

4. Click **Connect**.

The Wi-Fi tray icon changes to show the active connection.

The configured network is listed in the **Available Networks** list and in the **Known Networks** list.

The configured connections get listed in the IGEL Setup under **Network > Wireless > Wi-Fi Networks**. For more information, see [Wi-Fi Networks](#)(see page 154).

5. To disconnect from the connected network, click on the network in the **Available Networks** list and click **Disconnect**.



## Mobile Broadband

This article shows how to configure a modem or a surf stick in IGEL OS.

Menu path: **Network > Mobile Broadband**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network (which is highlighted in yellow), Devices, Security, and System. Below the tabs is a search bar and a settings gear icon. On the left is a sidebar with expandable sections: LAN Interfaces, Wireless, Mobile Broadband (which is expanded and highlighted in orange), Computer name, DHCP Options, DNS, VPN, SCEP Client (NDES), Default gateway, Hosts, Network Drives, and Proxy. The main content area shows configuration for "Mobile Broadband". It includes a checkbox for "Enable Mobile Broadband" which is unchecked. Below it is a dropdown menu for "Device type" set to "Modem". There are four input fields for "Number", "User name", "Password", and "New password (repeated)". A "Set password" button is located to the right of the password fields. At the bottom are three buttons: "Close", "Save", and "Save and Close".

The screenshot shows the "Mobile Broadband" configuration page. The "Enable Mobile Broadband" checkbox is currently unchecked. The "Device type" dropdown is set to "Modem". The "Number", "User name", "Password", and "New password (repeated)" fields are empty. A "Set password" button is visible. At the bottom, there are "Close", "Save", and "Save and Close" buttons.

- ⚠ Ensure that data traffic is adequately secured. You can do this in the following ways:
- Use a private APN.
  - Use OpenVPN and block traffic that would circumvent VPN with firewall rules.



If the surf stick is inserted and has been configured, the network connection will be established after the endpoint device boots. It can take between a few seconds and around 1 minute to establish a connection. The network connection will remain in place until the surf stick is removed or the endpoint device is put on standby or shut down.

The status of the network connection is shown in the system tray:

- The network connection is established; the endpoint device is online. This symbol is shown if **Modem** is selected as the device type:



If **Router** is selected as the device type, the corresponding symbol for a LAN connection is shown: .

- The network connection was interrupted; the endpoint device is offline. This symbol is shown if **Modem** is selected as the device type:



If **Router** is selected as the device type, the corresponding symbol for a LAN connection is shown: .

You can change the following settings:

#### **Enable Mobile Broadband**

- The mobile broadband network can be used if a supported modem is connected.  
 The mobile broadband network cannot be used. (Default)

#### **Device type**

The type of the connected device.

Possible options:

- **Modem**: The device will be operated as a modem. The access data can be changed with the parameters **number**, **user name**, **password**, **APN**, **network ID** and **PIN**. (Default)
- **Router**: The device will be operated as a router. The device must be configured in advance in such a way that it is ready for use when it is inserted.

 Select the **Router** device type if you use a device from Huawei in the HiLink mode; example: Huawei E3372.

#### **Number**

Access number for your network connection. If you do not know the access number, ask your mobile communications operator for it.

**User name**

User name for your network connection. If you do not know the user name, ask your mobile communications operator for it.

**Password**

Password for your network connection. If you do not know the password, ask your mobile communications operator for it.

**APN**

APN (Access Point Name) for your network connection. If you do not know the APN, ask your mobile communications operator for it.

**Network ID**

Network ID for your network connection. If you do not know the network ID, ask your mobile communications operator for it.

**PIN**

PIN for the SIM card used.

**Enable tray icon**

The current status of the network connection is shown with the symbol  or . (Default)

**Enable context menu**

If you click on  or , a context menu can be opened. (Default)

**Enable network info dialog**

Via the context menu, you can bring up detailed information regarding the network connection. (Default)

**Enable mobile broadband configuration dialog**

Via the context menu, you can open a configuration dialog in order to change the access data.

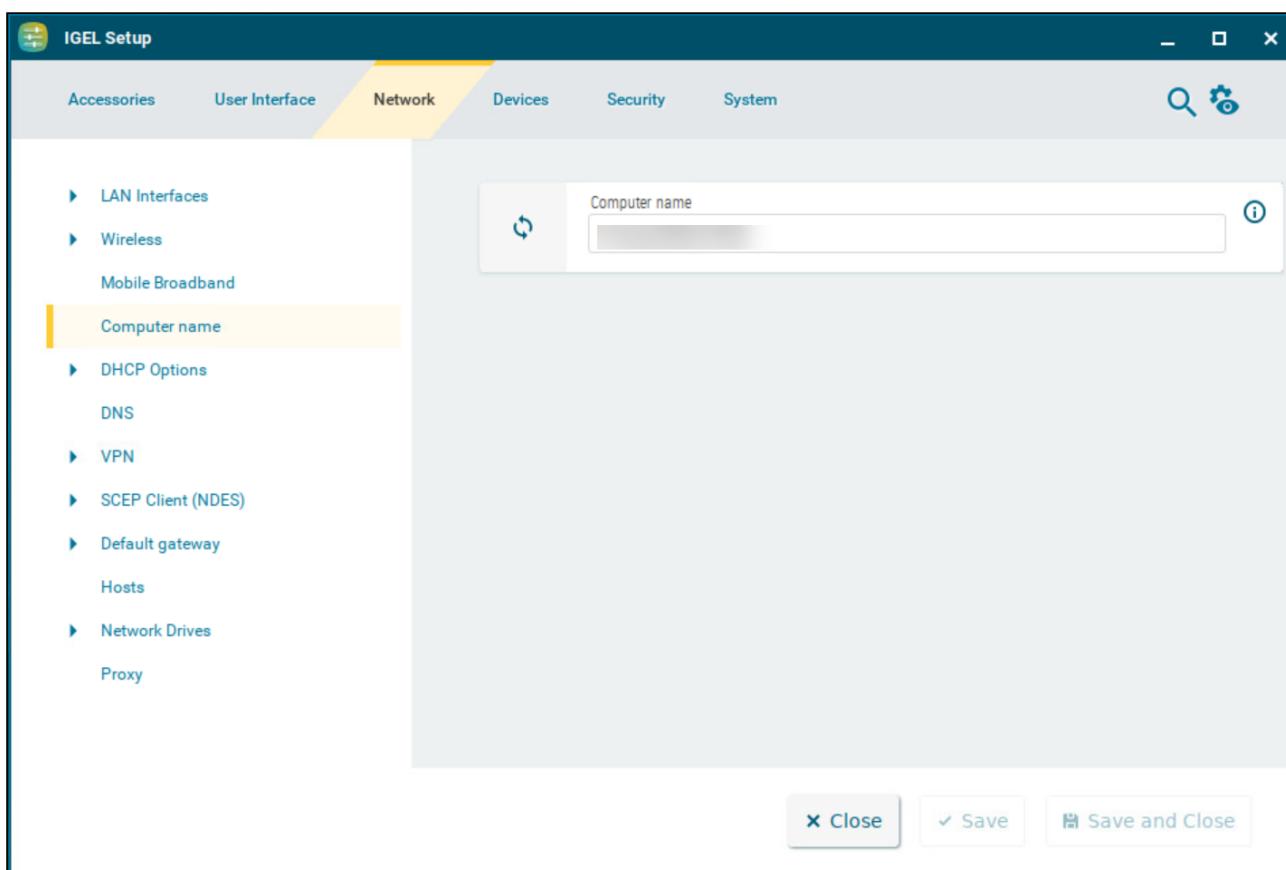
The configuration dialog cannot be opened. (Default)



## Computer Name

This article shows how to configure the local name of the device in IGEL OS.

Menu path: **Network > Computer name**



### Computer name

Local name of the device. If the field is empty, the default name is used. The default name is combined of 'ITC' and the MAC address of the device.

For more information on naming configuration in Endpoint Management (UMS), see Renaming IGEL OS Devices.



## DHCP Options

This article shows how to configure standard and custom DHCP options with which the client can request information from the DHCP server in IGEL OS.

### Standard Options

Menu path: **Network > DHCP Options > Standard Options**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The top navigation bar includes tabs for "Accessories", "User Interface", "Network" (which is highlighted in yellow), "Devices", "Security", and "System". To the right of the tabs are search and filter icons. The left sidebar contains a tree view of network configuration options: LAN Interfaces, Wireless, Mobile Broadband, Computer name, DHCP Options (selected), Standard Options (highlighted in orange), Custom Options, DNS, VPN, SCEP Client (NDES), Default gateway, Hosts, Network Drives, and Proxy. The main content area is titled "List of standard opti..." and displays a table with columns for "Activated" and "Option Name". At the bottom right of the content area are buttons for "Close", "Save", and "Save and Close".

#### User class

A freely definable character string which can serve as a criterion for allocating specific settings for the DHCP server.

### List of standard options

Options with which the client can request information from the DHCP server.

You will find information regarding the various DHCP options in [RFC 2132 DHCP Options and BOOTP Vendor Extensions](#)<sup>12</sup>.

To manage the list of options, proceed as follows:

- Click  to create a new entry.
- Click  to remove the selected entry.
- Click  to edit the selected entry.
- Click  to copy the selected entry.

Clicking  brings up the **Add** dialogue, where you can define the following settings:

#### Activated

The option is enabled. (Default)

#### Option name

The name of the option. Select from the list of predefined names.

#### Custom Options

Menu path: **Network > DHCP Options > Custom Options**

---

<sup>12</sup> <https://tools.ietf.org/html/rfc2132>



A screenshot of the IGEL Setup software interface. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network (which is highlighted in yellow), Devices, Security, and System. To the right of the tabs are search and settings icons. The left sidebar has a tree view with nodes like LAN Interfaces, Wireless, Mobile Broadband, Computer name, DHCP Options (expanded), Standard Options (expanded), Custom Options (highlighted in yellow), DNS, VPN, SCEP Client (NDES), Default gateway, Hosts, Network Drives, and Proxy. The main right panel is titled "List of custom options" and contains a table with four columns: Activated, Option Name, Code, and Data Type. There are four rows in the table, but they are completely blank. At the bottom of the main panel are three buttons: "Close", "Save", and "Save and Close".

**i** For more information regarding these options, see the manual for your DHCP server or your network components.

To manage the list of options, proceed as follows:

- Click to create a new entry.
- Click to remove the selected entry.
- Click to edit the selected entry.
- Click to copy the selected entry.



Clicking brings up the **Add** dialogue, where you can define the following settings:

#### Activated

The option is enabled. (Default)

#### Option name

The name of the option. Add a prefix of your own in order to prevent a conflict with the default DHCP options.

Example of the syntax: [YourPrefix] – [OptionName]. English letters, numbers and the special character “\_” are allowed.

#### Code

A number that is used by the DHCP server and DHCP client to reference an option. A number between 80 and 254 can be chosen. (Default: 80)

#### Data type

Type of option.

Possible values:

- **Boolean**
- **Integer 8**
- **Integer 16**
- **Integer 32**
- **Signed integer 8**
- **Signed integer 16**
- **Signed integer 32**
- **Unsigned integer 8**
- **Unsigned integer 16**
- **Unsigned integer 32**
- **IP address**
- **Text** (Default)
- **String**



## DNS

This article shows how to configure DNS settings in IGEL OS.

Menu path: **Network > DNS**

A screenshot of the IGEL Setup software interface. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network (which is highlighted in yellow), Devices, Security, and System. To the right of the tabs are search and settings icons. The left sidebar contains a tree view of network settings: LAN Interfaces, Wireless, Mobile Broadband, Computer name, DHCP Options, DNS (which is selected and highlighted in orange), VPN, Open VPN, SCEP Client (NDES), Default gateway, Hosts, Network Drives, and Proxy. The main content area is titled "DNS". It contains several configuration fields with "refresh" icons: "Enable DNS" (unchecked), "Default domain" (empty input field), "Nameserver" (empty input field), and another "Nameserver" (empty input field). Below this is a section titled "Advanced Options" with two more fields: "Manually overwrite DHCP settings" (unchecked) and "Dynamic DNS registration" (unchecked). At the bottom are three buttons: "Close", "Save" (with a checkmark), and "Save and Close".

The screenshot shows the "DNS" configuration page in the IGEL Setup application. The "Enable DNS" checkbox is unchecked. The "Default domain" field is empty. There are two "Nameserver" fields, both of which are also empty. In the "Advanced Options" section, the "Manually overwrite DHCP settings" and "Dynamic DNS registration" checkboxes are both unchecked. At the bottom of the page are three buttons: "Close", "Save", and "Save and Close".

### Enable DNS

- The manual DNS configuration will be used.  
 The DNS configuration will be carried out by DHCP or BOOTP. (Default)

### Default domain

Usually the name of the local network.



#### **Nameserver**

IP address of the nameserver to be used.

#### **Nameserver**

IP address of an alternative nameserver.

#### **Manually overwrite DHCP settings**

- The default route, the domain name, and the DNS server will be overwritten by manual entries.  
 Manual entries will not overwrite DHCP settings. (Default)

#### **Dynamic DNS registration**

- The terminal name will be registered dynamically via the DNS or DHCP server.  
 The terminal name will not be registered dynamically. (Default)

#### **Dynamic DNS registration method**

- **DHCP:** Updates the terminal name through DHCP option 81. (Default)
- **DNS:** Sends updates to the DNS server in accordance with RFC 2136.

#### **TSIG key file for additional DNS authentication**

Path to the private key if TSIG-based DDNS registration is used.



## VPN

Remote users securely access company networks via virtual private network (VPN) protocols. This article shows how to configure the tray icon, the context menu, and the dialog window for VPN in IGEL OS.

Menu path: **Network > VPN**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network (which is highlighted in yellow), Devices, Security, and System. To the right of the tabs are search and settings icons. The left sidebar contains a tree view with nodes like LAN Interfaces, Wireless, Mobile Broadband, Computer name, DHCP Options, DNS, VPN (which is selected and highlighted in orange), SCEP Client (NDES), Default gateway, Hosts, Network Drives, and Proxy. On the right side, there's a configuration panel with three items, each with a circular refresh icon and a checked checkbox: "Enable tray icon", "Enable context menu", and "Enable network info dialog". At the bottom right are buttons for "Close", "Save", and "Save and Close".

### Enable tray icon

A tray icon for the network interface will be shown. (Default)

### Enable context menu

A context menu will be shown when you click on the tray icon. (Default)

### Enable network info dialog

A dialog window with information regarding the network connection will be shown when you click on the context menu. (Default)



- OpenVPN(see page 182)



## OpenVPN

The OpenVPN client puts in place a virtual private network using TLS encryption and requires OpenVPN 2.x as a VPN server. This article shows how to configure OpenVPN connection in IGEL OS.

- i** If problems occur with OpenVPN, read the `/var/log/syslog` file with the System Log Viewer. For more information, see [System Log Viewer](#)(see page 40).

Menu path: **Network > VPN > OpenVPN**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network (which is selected and highlighted in yellow), Devices, Security, and System. On the far right of the top bar are a magnifying glass icon for search and a gear icon for settings. The left sidebar contains a tree view of network settings: LAN Interfaces, Wireless, Mobile Broadband, Computer name, DHCP Options, DNS, VPN (expanded to show OpenVPN, SCEP Client (NDES), Default gateway, Hosts, Network Drives, and Proxy). The main content area shows configuration options for OpenVPN: "Enable autostart during boot" (unchecked), "Restart connection when disconnected" (unchecked), and an "Autostart Session ID" dropdown set to "None". Below this is an "OpenVPN Session List" table with a single row for "Session Name". At the bottom are three buttons: "Close", "Save", and "Save and Close".

### Enable autostart during boot

- Autostart will be enabled for the session selected under **Autostart session ID**.  
 Autostart is disabled. (Default)

### Restart connection when disconnected



- The connection is restarted automatically when a disconnect occurs.
- The connection is not restarted automatically when a disconnect occurs. (Default)

### Autostart session ID

Select the desired session from the list of OpenVPN sessions to enable this connection to be established during the boot procedure.

To manage the list of OpenVPN sessions, proceed as follows:

- Click  to create a new entry.
- Click  to remove the selected entry.
- Click  to edit the selected entry.
- Click  to copy the selected entry.

Clicking  opens the configuration pages for the OpenVPN session.

### OpenVPN Session Configuration

Menu path: **Network > VPN > OpenVPN > [OpenVPN Session Name]**

The screenshot shows the IGEL Setup interface with the Network tab selected. In the left sidebar under 'VPN', 'Open VPN' is expanded, and 'OpenVPN Connection' is selected. The main panel displays the session configuration. The 'Session name' field contains 'OpenVPN Connection'. Below it, the 'Starting Methods for Session' section lists several options with checkboxes:
 

- 'Start Menu' is checked.
- 'Menu folder' is unchecked.
- 'Start Menu's System tab' is unchecked.
- 'Application Launcher' is checked.
- 'Application Launcher folder' is unchecked.

 At the bottom are buttons for 'Close', 'Save', and 'Save and Close'.



**Session name:** Name for the session.

The session name must not contain any of these characters: \ / : \* ? “ < > | [ ] { } ( )

## Starting Methods for Session

### Start menu

The session can be launched from the start menu.

### Menu folder

If you specify a folder name or a path comprising a number of folder names separated by "/", a menu path will be created for the session. The menu path will be used in the start menu and in the desktop context menu.

### Start menu's system tab

The session can be launched with the start menu's system tab.

### Application Launcher

The session can be launched with the Application Launcher.

### Application Launcher folder

If you specify a folder name or a path comprising a number of folder names separated by "/", a menu path will be created for the session. The menu path will be used in the Application Launcher.

### Desktop

The session can be launched with a program launcher on the desktop.

### Desktop folder

If you specify a folder name or a path comprising a number of folder names separated by "/", a menu path will be created for the session. The menu path will be used for the program launcher on the desktop.

### Desktop context menu

The session can be launched with the desktop context menu.

### Quick start panel

The session can be launched with the quick start panel.



## Password protection

Specifies which password will be requested when launching the session.

Possible values:

- **None:** No password is requested when launching the session.
- **Administrator:** The administrator password is requested when launching the session.
- **User:** The user password is requested when launching the session.
- **Setup user:** The setup user password is requested when launching the session.

**⚠ Password protection** only works if the selected password is configured under **Security > Password**. Without the password configuration, the session will launch without requesting a password. For more information, see [Password](#)(see page 263).

## Hotkey Configuration

### Hotkey

The session can be started with a hotkey. A hotkey consists of one or more **modifiers** and a **key**.

### Modifiers

A modifier or a combination of several modifiers for the hotkey. You can select a set key symbol/combination or your own key symbol/combination. A key symbol is a defined chain of characters, e.g. `Ctrl`.

**⚠** Do not use [AltGr] as a modifier (represented as `Mod5`). Otherwise, the key that is configured as a hotkey with AltGr cannot be used as a regular key anymore. Example: If you configure [AltGr] + [E] as a hotkey, it is impossible to enter an "e".

These are the pre-defined modifiers and the associated key symbols:

- (No modifier) = `None`
- = `Shift`
- = `Ctrl`
- = `Mod4`

When this keyboard key is used as a modifier, it is represented as `Mod4`; when it is used as a key, it is represented as `Super_L`.

- `[Alt]` = `Alt`

Key combinations are formed as follows with `|`:

- `Ctrl + Windows` = `Ctrl|Super_L`

### Key

Key for the hotkey



- ⓘ To enter a key that does not have a visible character, e. g. the [Tab] key, open a terminal, log on as `user` and enter `xev -event keyboard`. Press the key to be used for the hotkey. The text in brackets that begins with `keysym` contains the key symbol for the **Key** field. Example: `Tab` in `(keysym 0xff09, Tab)`

- 
- [IPv4](#)(see page 187)
  - [Options](#)(see page 189)
  - [Proxy](#)(see page 192)
  - [Route](#)(see page 194)
  - [Session](#)(see page 196)
  - [TLS-Options](#)(see page 200)



## IPv4

This article shows how to configure DNS and routing settings for OpenVPN connections in IGEL OS. By default, OpenVPN uses the server's DNS and routing settings.

Menu path: **Network > VPN > OpenVPN > [OpenVPN Connection] > IPv4**

A screenshot of the IGEL Setup interface. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network (which is highlighted in yellow), Devices, Security, and System. To the right of the tabs are search and settings icons. The left sidebar has a tree view: Open VPN &gt; OpenVPN Connection &gt; IPv4 (which is selected and highlighted in yellow). Other options in the tree include Options, Proxy, Route 0, Route 1, Route 2, Session, TLS-Options, SCEP Client (NDES), Default gateway, Hosts, Network Drives, and Proxy. The main content area shows configuration settings for IPv4: "Automatic DNS" (checkbox checked, status: "i"), "Extra nameserver(s)" (text input field: empty, status: "i"), "Extra search domains" (text input field: empty, status: "i"), "Automatic Routes" (checkbox checked, status: "i"), and "VPN is the default route" (checkbox checked, status: "i"). At the bottom are buttons: Close, Save, and Save and Close.

### Automatic DNS

- The nameserver(s) will be carried over by the OpenVPN server. (Default)
- The nameserver(s) specified under **Extra nameserver(s)** will be used.

### Extra nameserver(s)

One or more nameservers, IP addresses separated by commas.

### Extra search domains



One or more search domains, separated by commas.

**Automatic routes**

- The routing table will be carried over by the OpenVPN server. (Default)
- Extra routes will be configured.

**VPN is the default route**

- All the traffic is routed through the VPN by default. (Default)
- Extra routes will be configured.

For details on extra route configuration, see [Route](#)(see page 194).



## Options

This article shows how to configure the options for the OpenVPN client in IGEL OS in order to ensure interaction with the server.

- ⓘ Further information regarding the options can be found in the [OpenVPN documentation](#)<sup>13</sup> which is maintained by the OpenVPN project.

Menu path: **Network > VPN > OpenVPN > [OpenVPN Connection] > Options**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The top navigation bar includes tabs for Accessories, User Interface, Network (which is selected), Devices, Security, and System, along with search and settings icons. The left sidebar contains a tree view of network configurations: DNS, VPN (selected), Open VPN (selected), OpenVPN Connection (selected), IPv4, Options (highlighted in yellow), Proxy, Route 0, Route 1, Route 2, Session, TLS-Options, SCEP Client (NDES), Default gateway, Hosts, Network Drives, and Proxy. The main right panel displays various configuration options for the selected "OpenVPN Connection" under "Options":

- Gateway Port: 1194
- Custom renegotiation interval: 0
- Use LZO data compression
- Protocol used for communication to the host: udp
- Virtual network type: tun
- Use custom tunnel Maximum Transmission Unit (MTU): 0
- UDP fragment size: 0
- Restrict tunnel TCP Maximum Segment Size (MSS)

At the bottom right are buttons for Close, Save, and Save and Close.

## Gateway port

<sup>13</sup> <https://openvpn.net/index.php/open-source/documentation.html>



Local gateway port. (Default: 1194)

#### Custom renegotiation interval

Renegotiate data channel key after given number of seconds. (Default: 0)

#### Use LZO data compression

- The client will use LZO compression. Necessary if the server uses compression.
- The client will not use LZO compression. (Default)

#### Protocol used for communication to the host

- **UDP:** UDP will be used. (Default)
- **TCP-client:** TCP will be used.

**i** If you use a proxy, select **TCP-client**.

#### Virtual network type

- **TUN:** Routing will be used. (Default)
- **TAP:** Bridging will be used.

#### Use custom tunnel Maximum Transmission Unit (MTU)

The MTU of the TUN device will be used as a given value. The MTU of the interface will be derived from it.

#### UDP fragment size

Allow internal data fragmenting up to this size in bytes. Leave this field empty to keep the default value.

#### Restrict tunnel TCP Maximum Segment Size (MSS)

- The TCP segment size (MSS) of the tunnel will be restricted.
- The TCP segment size (MSS) will not be restricted. (Default)

#### Randomize remote hosts

- The remote gateways will be ordered randomly as a simple type of load balancing.
- The remote computers will not be ordered randomly. (Default)

#### Cipher



Encryption algorithm for data packets. (Default: BF-CBC - Blowfish in the Cipher Block Chaining Mode)

**HMAC authentication**

Hashing algorithm for packet authentication (Default: SHA1)



## Proxy

This article shows how to set up an optional proxy server for the VPN connection in IGEL OS.

- ⓘ If you use a proxy, set the **Communication protocol to the host** as **tcp-client** under **OpenVPN > [OpenVPN Connection] > Options**. For detailed information on options settings, see [Options](#)(see page 189).

Menu path: **Network > VPN > OpenVPN > [OpenVPN Connection] > Proxy**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The window has a dark header bar with tabs: Accessories, User Interface, Network (which is highlighted in yellow), Devices, Security, and System. Below the tabs is a search bar and a refresh icon. The left sidebar contains a tree view of network settings: DNS, VPN (selected), Open VPN (selected), OpenVPN Connection (selected), IPv4, Options, and Proxy (highlighted with a yellow bar). Other items like Route 0, Route 1, Route 2, Session, TLS-Options, SCEP Client (NDES), Default gateway, Hosts, Network Drives, and another Proxy item are also listed. The main content area shows proxy configuration fields: "Proxy Type" dropdown set to "None" (with an info icon), "Proxy Address" input field, "Proxy Port" input field set to "0", and a checkbox "Retry indefinitely when errors occur" (unchecked). Below that is a section for "Proxy user name" and "Proxy Password" (set to "New password") with a "Set password" button. At the bottom are three buttons: "Close", "Save", and "Save and Close".

### Proxy type

- **None:** Direct connection to the Internet. (Default)
- **HTTP:** HTTP proxy will be used.



- **SOCKS:** SOCKS proxy will be used.

#### **Proxy address**

Name or IP address of the proxy server

#### **Proxy port**

Port on which the proxy service is available

#### **Retry indefinitely when errors occur**

- In the event of errors, repeated attempts to establish a connection via proxy will be made.  
 No further attempts to establish a connection will be made. (Default)

The following credentials are for the **HTTP** proxy type:

#### **Proxy user name**

User name for the proxy server

#### **Proxy password**

Password for the proxy server



## Route

This article shows how to configure extra routes for the network in IGEL OS.

Menu path: **Network > VPN > OpenVPN > [OpenVPN Connection] > Route [0,1,2]**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network (which is selected), Devices, Security, and System. On the far right of the top bar are search and settings icons. The left sidebar contains a tree view of network settings: LAN Interfaces, Wireless, Mobile Broadband, Computer name, DHCP Options, DNS, VPN (selected), Open VPN (selected), OpenVPN Connection (selected), IPv4, Options, Proxy, Route 0 (highlighted in yellow), and Route 1. The main content area shows the configuration for "Route 0". It includes fields for "enable" (checkbox), "Network Route" (radio button selected), "Host Route" (radio button unselected), "Network/Host IP" (text input field), "Network mask" (text input field), "Gateway" (text input field), and "Metric" (text input field). At the bottom are buttons for "Close", "Save" (with a checkmark), and "Save and Close".

### Enable

- This route is enabled.  
 This route is not enabled. (Default)

### Network route / Host route

- **Network route:** The routing relates to a (sub) network. (Default)
- **Host route:** The routing relates to the address of a computer.

### Network/Host IP

The address of the network (for a network route) or the IP address or the name of the host (for a host route).



**Network mask**

Mask for the desired IP range, e.g. 255.255.255.0

**Gateway**

Gateway that routes the packets to the target network.

**Metric**

The numerical quality assessment for routing decisions, 0 is the best value.



## Session

This article shows how to configure the authentication of the Open VPN session in IGEL OS.

Menu path: **Network > VPN > OpenVPN > [OpenVPN Connection] > Session**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network (which is selected and highlighted in yellow), Devices, Security, and System. On the far right of the top bar are search and settings icons. The left sidebar contains a tree view of configuration categories: DNS, VPN (expanded), Open VPN (expanded), OpenVPN Connection (selected and highlighted in yellow), IPv4, Options, Proxy, Route 0, Route 1, Route 2, Session (highlighted in orange), TLS-Options, SCEP Client (NDES), Default gateway, Hosts, Network Drives, and Proxy. The main content area shows the "Session" configuration for an OpenVPN connection. It includes fields for "OpenVPN Server(s)" (empty), "Authentication Type" set to "TLS-Certificates", "Client Certificate file" set to "client.crt", "CA certificate file" set to "ca.crt", "Private key file" set to "client.key", "Private Key password" set to "New password", and "New password (repeated)". There is also a "Set password" button. At the bottom are three buttons: "Close", "Save" (with a checkmark icon), and "Save and Close".

### OpenVPN server(s)

Name or public IP address of the OpenVPN server. You can enter multiple values separated by commas.

### Authentication type

- **TLS-Certificates:** Authentication with user certificate and private key.
- **Name/Password:** Authentication with user name and password.
- **Name/Password with TLS-Certificates:** Combines name/password with user certificate.
- **Static Key:** Authentication with a private key. No PKI infrastructure is needed for this.



## TLS Certificates Authentication Type

- i** Persistent storage of files is possible in the folder `/wfs` resp. subfolders of `/wfs` only.  
Files stored under other paths will be lost when the device is rebooted.

**Client certificate file**

File with the client certificate. Enter a path relative to `/wfs/OpenVPN`.

**CA certificate file**

File with the CA certificate. Enter a path relative to `/wfs/OpenVPN`.

**Private key file**

File with the private key. Enter a path relative to `/wfs/OpenVPN`.

**Private key password**

Password in case one is set for the private key.

- i** If you have a PKCS#12 file which contains the client certificate, CA certificate and private key, always enter its name in the three file fields. The advantage lies in the fact that only a single file needs to be distributed.

## Name/Password Authentication Type

**User name**

User name - if you leave this field empty, the user will be asked for it when establishing a connection.

**Password required**

The user must enter a password. (Default)

**Password**

Password - if you leave this field empty, the user will be asked for it when establishing a connection.

**CA certificate file**

File with the CA certificate. Enter a path relative to `/wfs/OpenVPN`.



### Name/Password with TLS-Certificates Authentication Type

#### User name

User name - if you leave this field empty, the user will be asked for it when establishing a connection.

#### Password required

The user must enter a password. (Default)

#### Password

Password - if you leave this field empty, the user will be asked for it when establishing a connection.

#### Client certificate file

File with the user certificate. Enter a path relative to `/wfs/OpenVPN`.

#### CA certificate file

File with the CA certificate. Enter a path relative to `/wfs/OpenVPN`.

#### Private key file

File with the private key. Enter a path relative to `/wfs/OpenVPN`.

#### Private key password

Password in case one is set for the private key.

- i** If you have a PKCS#12 file which contains the user certificate, CA certificate and private key, always enter its name in the three file fields. The advantage lies in the fact that only a single file needs to be distributed.

### Static Key Authentication Type

#### Private key file

File with the static key. Enter a path relative to `/wfs/OpenVPN`.

#### Key Direction

- **None:** No key direction. (Default)
- **0:** If the default option is not used, one side of the connection should use Direction 0 and the other Direction 1.
- **1:** If the default option is not used, one side of the connection should use Direction 0 and the other Direction 1.



**Remote IP address**

The VPN IP address of the server

**Local IP address**

The VPN IP address of the client



## TLS-Options

Transport Layer Security (TLS) is the successor to Secure Sockets Layer (SSL). It is a standard consisting of several protocols that can transmit encrypted data between authenticated communication partners over potentially insecure IP networks such as the Internet. This article shows how to configure TLS options for the OpenVPN protocol in IGEL OS.

Menu path: **Network > VPN > OpenVPN > [OpenVPN Connection] > TLS-Options**

The screenshot shows the IGEL Setup application window with the following details:

- Left sidebar (Tree View):**
  - Accessories
  - User Interface
  - Network
  - Devices** (selected)
  - Security
  - System
- Central pane (TLS-Options configuration):**
  - Subject Match:** An empty text input field.
  - Remote peer certificate TLS type:** A dropdown menu set to "Do not verify".
  - Key file for additional TLS authentication:** A "Browse..." button to select a file.
  - tls-auth (Key Direction) / tls-crypt:** A dropdown menu set to "None".
- Bottom right (Buttons):**
  - Close
  - Save
  - Save and Close

### Subject match

The Subject Match accept/reject the server connection based on a custom test of the server certificate's embedded X509 subject details. The formatting of these fields changed into a more standardized format: **C= US , L= Somewhere , CN= JohnDoe , emailAddress= john@example.com**.

For more information, see the [Reference manual for OpenVPN 2.6](#)<sup>14</sup>.

### Remote peer certificate TLS type

<sup>14</sup> <https://openvpn.net/community-resources/reference-manual-for-openvpn-2-6/>



Require that peer certificate was signed with an explicit key usage and extended key usage based on RFC3280 TLS rules.

This is a useful security option for clients, to ensure that the host they connect to is a designated server. Or the other way around; for a server to verify that only hosts with a client certificate can connect.

- **Do not verify:** No remote certificate check. (Default)
- **Check for server certificate:** The `--remote-cert-tls server` option is equivalent to `--remote-cert-ku --remote-cert-eku "TLS Web Server Authentication"`.
- **Check for client certificate:** The `--remote-cert-tls client` option is equivalent to `--remote-cert-ku --remote-cert-eku "TLS Web Client Authentication"`.

**i** This is an important security precaution to protect against a man-in-the-middle attack, where an authorized client attempts to connect to another client by impersonating the server. The attack is easily prevented by having clients verify the server certificate using any one of `--remote-cert-tls`, `--verify-x509-name`, or `--tls-verify`.

#### Key file for additional TLS authentication

As the path enter relative to `/wfs/OpenVPN` or select using the file selection. This adds an additional HMAC legitimization level above the TLS control channel in order to prevent DDOS attacks.

#### tls-auth (Key Direction) / tls-crypt

- **None:** No key direction. (Default)
- **tls-auth 0:** If the default option is not used, one side of the connection should use Direction 0 and the other Direction 1.
- **tls-auth 1:** If the default option is not used, one side of the connection should use Direction 0 and the other Direction 1.
- **tls-crypt:** In contrast to tls-auth, setting a key direction is not required. Use this option if the version of the OpenVPN server is 2.4 or higher. For more information on tls-crypt, see [Reference manual for OpenVPN 2.6](#)<sup>15</sup>.

<sup>15</sup> <https://openvpn.net/community-resources/reference-manual-for-openvpn-2-6/>



## SCEP Client (NDES)

SCEP allows the automatic provision of client certificates via an SCEP server and a certification authority. This type of certificate is automatically renewed before it expires and can be used for purposes such as network authentication (e.g. IEEE 802.1x). This article shows how to configure SCEP certificate management in IGEL OS.

Menu path: **Network > SCEP Client (NDES)**

A screenshot of the IGEL Setup software interface. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network (which is highlighted in yellow), Devices, Security, and System. To the right of the tabs are search and settings icons. The left sidebar contains a tree view of network configuration options: LAN Interfaces, Wireless, Mobile Broadband, Computer name, DHCP Options, DNS, VPN, SCEP Client (NDES) (which is selected and highlighted in orange), Default gateway, Hosts, Network Drives, and Proxy. The main pane shows a section titled "Manage certificates with SCEP" with a checkbox labeled "Manage certificates with SCEP". At the bottom right of the main pane are buttons for "Close", "Save", and "Save and Close".

### Manage certificates with SCEP

- Certificate management via SCEP Client (NDES) is enabled.  
 Certificate management via SCEP Client (NDES) is not enabled. (Default)

A Microsoft Windows Server (MSCEP, NDES) for example can serve as a queried counterpart (SCEP server and certification body). More information can be found at Microsoft, e.g. in the following Technet article: [Network Device Enrollment Service \(NDES\) in Active Directory Certificate Services \(AD CS\)](#)<sup>16</sup>.

<sup>16</sup> <http://social.technet.microsoft.com/wiki/contents/articles/9063.network-device-enrollment-service-ndes-in-active-directory-certificate-services-ad-cs.aspx>



- [SCEP Server](#)(see page 204)
- [Certificate](#)(see page 206)
- [Certification Authority](#)(see page 209)



## SCEP Server

This article describes the settings required for a SCEP server in IGEL OS.

Menu path: **Network > SCEP Client (NDES) > SCEP Server**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The "Network" tab is selected in the top navigation bar. On the left, a sidebar lists various network-related settings like LAN Interfaces, Wireless, and SCEP Client (NDES). Under "SCEP Client (NDES)", "SCEP Server" is currently selected and highlighted with a yellow background. The main panel contains several configuration fields:

- SCEP server URL: An empty input field with a refresh icon.
- Proxy server for SCEP requests: An empty input field with an information icon.
- Challenge password: Two input fields for "New password" and "New password (repeated)". A "Set password" button is located to the right of the first field.
- Certificate renewal period (days): An input field containing the value "30" with an information icon.
- Certificate expiry check interval (days): An input field containing the value "1" with an information icon.

At the bottom of the panel are three buttons: "Close", "Save", and "Save and Close".

- ⓘ Because of the need to enter a fingerprint (CA root certificate) and the **Challenge password** (SCEP server), the configuration process is somewhat complicated. Ideally, it should be set up in the UMS as a profile and distributed to the devices. For more information, see How to Create and Assign Profiles in the IGEL UMS Web App.  
At the same time, the certificate cannot yet be used for communication purposes.

### SCEP server URL

Address of the SCEP server.

Examples:



- `http://myserver.mydomain.com/certsrv/mscep/mscep.dll` (Windows Server 2019)
- `http://myserver.mydomain.com/certsrv/mscep` (before Windows Server 2019)

#### Proxy server for SCEP requests

Proxy server in the format `host:port`. If this field is empty, no proxy will be used.

#### Challenge password

Password for queries

#### Certificate renewal period (days)

Time interval before certificate expiry after which the certificate renewal procedure is started. (Default: 30)

#### Certificate expiry check interval (days)

Specifies how often the certificate is checked against its expiry date. (Default: 1)

- (i)* As an example, a certificate is valid until 31.12. of a year. If the period for renewal is set to 10 days, a new certificate will be requested for the first time on 21.12. of the same year.



## Certificate

This article shows how to specify the basic data for the certificate to be issued by the certification body for SCEP in IGEL OS.

Menu path: **Network > SCEP Client (NDES) > Certificate**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network (which is highlighted in yellow), Devices, Security, and System. To the right of the tabs are search and settings icons. The left sidebar has a tree view of network settings: LAN Interfaces, Wireless, Mobile Broadband, Computer name, DHCP Options, DNS, VPN, SCEP Client (NDES) (which is expanded and has "Certificate" selected), SCEP Server, Default gateway, Hosts, Network Drives, and Proxy. The main panel on the right is titled "Type of CommonName/SubjectAltName" and has a dropdown menu set to "DNS name". It contains fields for "CommonName/SubjectAltName" (with an info icon), "CommonName/SubjectAltName Suffix" (set to "none"), "Organizational unit" (empty), "Organization" (empty), "Locality" (empty), and "State" (empty). At the bottom are three buttons: "Close", "Save" (with a checkmark icon), and "Save and Close".

### Type of CommonName/SubjectAltName

The characteristic for linking the certificate to the device.

- **IP address:** The IP address of the device.
- **DNS name:** The DNS name of the device. (Default)
- **IP address (auto):** The IP address of the device (inserted automatically).
- **DNS name (auto):** The DNS name of the device (inserted automatically).
- **Email address:** An email address.
- **DNS name as UPN (auto)**

- i** If the client automatically obtains its network name, **DNS name (auto)** is a good type for the client certificate.

### CommonName/SubjectAltName

The parameter is available if **Type of CommonName/SubjectAltName** is set to **IP address**, **DNS name**, or **Email address**. Give a designation which matches the **Type of CommonName/SubjectAltName**.

### CommonName/SubjectAltName Suffix

The parameter is available if **Type of CommonName/SubjectAltName** is set to **IP address (auto)**, **DNS name (auto)**, or **DNS name as UPN (auto)**. Specifies a suffix that will be added to CommonName/SubjectAltName.

Possible values:

- **None:** No suffix will be added.
- **Dot + DNS domain (auto):** The system's current DNS domain name separated with a dot will be added. Example: `.igel.local`
- Free text entry: The manually entered suffix will be added. Take notice that the percent symbol "%" is used for introducing the escape sequence, and thus the following replacements take place automatically:
  - `% D` is replaced by the system's DNS domain name at the time the certificate signing request (CSR) is created. Example: `@% D` will be changed into `@ igel.de` if the system's current DNS domain name is `igel.de`.
  - `%%` will be replaced by `%`. Example: `A %% B` will be changed into `A % B`.
  - Other combinations with `%` are currently discarded. Example: `A % BC` will be changed into `A C`.

- i** If you have to specify the suffix manually, make sure you enter the separator.

### Organizational unit

Stipulated by the certification authority

### Organization

A freely definable designation for the organization to which the client belongs

### Locality

Details regarding the device's locality. Example: "Augsburg".



**State**

Details regarding the device's locality. Example: "Bayern".

**Country**

Two-digit ISO 3166-1 country code. Example: "DE".

**RSA key length (bits)**

Defines the key length (one suited to the certification authority) for the certificate that is to be issued.  
Possible values:

- **1024**
- **2048**
- **4096**



## Certification Authority

This article shows how to configure the details of the certification authority in IGEL OS.

Menu path: **Network > SCEP Client (NDES) > Certification Authority**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network (which is selected and highlighted in yellow), Devices, Security, and System. To the right of the tabs are search and settings icons. The left sidebar contains a tree view of network settings: LAN Interfaces, Wireless, Mobile Broadband, Computer name, DHCP Options, DNS, VPN, SCEP Client (NDES) (which is expanded to show SCEP Server, Certificate, and Certification Authority), Default gateway, Hosts, and Network Drives. The "Certification Authority" item under "SCEP Client (NDES)" is currently selected and highlighted with a yellow background. The main content area on the right has two input fields: "CA identifier" with a placeholder icon and an info button (i), and "CA certificate fingerprint (MD5)" with a placeholder icon and an info button (i). At the bottom right are three buttons: "Close", "Save", and "Save and Close".

The details for the following fields can be obtained from the certification authority:

### CA identifier

Name of Certification Authority

### CA certificate fingerprint (MD5)

MD5 fingerprint of the root certificate



## Default Gateway

This article shows how to configure the default gateway in IGEL OS.

Menu path: **Network > Default Gateway**

A screenshot of the IGEL Setup software interface. The window title is "IGEL Setup". The top navigation bar includes "Accessories", "User Interface", "Network" (which is highlighted in yellow), "Devices", "Security", and "System". To the right of the navigation bar are search and settings icons. The left sidebar contains a list of network-related settings: LAN Interfaces, Wireless, Mobile Broadband, Computer name, DHCP Options, DNS, VPN, SCEP Client (NDES), Default gateway (which is selected and highlighted in yellow), Hosts, Network Drives, and Proxy. The main content area shows the "Default gateway" configuration. It includes a checkbox labeled "Default gateway" which is checked, and two input fields: "Default gateway" (containing an IP address) and "Interface" (containing a network interface name). At the bottom right of the content area are three buttons: "Close", "Save" (with a checkmark icon), and "Save and Close".

### Default gateway

- Routing is enabled.
- Routing is disabled. (Default)

### Default gateway

Gateway that routes the packets to the target network

### Interface

The network interface via which the route is to run

ⓘ **Predictable Network Interface Names (PNINs)**

The names of Ethernet and WLAN interfaces are predictable network interface names (PNINs), see [Predictable Network Interface Names](#)<sup>17</sup>. This ensures the stability of interface names on reboot and generally improves the reliability of associating configurations with interfaces.

- As "eth0", "eth1", and "wlan0" have been replaced by PNINs, configurations or custom scripts that include the old names of Ethernet and WLAN interfaces, e.g. `eth0`, `eth2`, `wlan0`, have to be adjusted.

The following already existing configurations do NOT require manual adjustment since old names `eth0`, `eth1`, etc. will internally be replaced by the correct PNINs automatically:

- Tcpdump
- To view the PNINs and the order of the configured interfaces, you can use the following commands. The default interface is always listed first, the second interface is listed second, etc.

**Ethernet (LAN):** `cat /config/net/en-interfaces`

**WLAN:** `cat /config/net/wl-interfaces`

(Note: Only the first wireless interface (former `wlan0`) is supported. All other wireless interfaces will be ignored.)

- If you need to configure more than two Ethernet interfaces, go to **System > Registry > network.interfaces.ethernet.device%** and add an instance by clicking **Add Instance**. To explicitly assign a configuration instance to a certain interface, enter the corresponding PNIN for the registry key **network.interfaces.ethernet.device%.ifname**.

<sup>17</sup> <https://www.freedesktop.org/wiki/Software/systemd/PredictableNetworkInterfaceNames/>



## Routing

This article shows how to configure routing in IGEL OS.

Menu path: **Network > Default gateway > Routing [1-5]**

A screenshot of the IGEL Setup software interface. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network (which is highlighted in yellow), Devices, Security, and System. To the right of the tabs are search and settings icons. The left sidebar contains a tree view of network settings: LAN Interfaces, Wireless, Mobile Broadband, Computer name, DHCP Options, DNS, VPN, SCEP Client (NDES), Default gateway (which is expanded to show Routing 1, Routing 2, Routing 3, Routing 4, Routing 5, and Hosts), and Hosts. The main panel on the right is titled "Routing" and contains fields for "Network/Host IP or Name", "Network mask", "Gateway", and "Interface". There are radio buttons for "Network Route" and "Host Route". Below these fields are "Save" and "Save and Close" buttons. The "Routing 1" item in the sidebar is highlighted with a yellow background.

### Routing

This route is enabled.

This route is disabled. (Default)

### Network route / Host route

Type of route.

- **Network route:** The routing relates to a (sub) network. (Default)
- **Host route:** The routing relates to the address of a computer.



**Network/Host IP or Name**

The address of the network (for a network route) or the IP address or the name of the host (for a host route).

**Network mask**

Mask for the desired IP range, e.g. 255.255.255.0

**Gateway**

Gateway that routes the packets to the target network

**Interface**

The network interface via which the route is to run



## Hosts

This article shows how to configure hosts in IGEL OS. If no Domain Name Service (DNS) is used, you can specify a list with computers in order to allow translation between the fully qualified host name, the short host name and the IP address.

Menu path: **Network > Hosts**

A screenshot of the IGEL Setup software interface. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network (which is highlighted in yellow), Devices, Security, and System. To the right of the tabs are search and settings icons. The left sidebar contains a tree view of network configuration options: LAN Interfaces, Wireless, Mobile Broadband, Computer name, DHCP Options, DNS, VPN, SCEP Client (NDES), Default gateway, Hosts (which is selected and highlighted in orange), Network Drives, and Proxy. The main content area is titled "Host List" and contains a table with three columns: IP address, Fully qualified host name, and Short host name. There are four buttons at the bottom right of the table: a blue "+" button, a pencil edit icon, a trash icon, and a copy icon. Below the table are three buttons: "Close" (with an X), "Save" (with a checkmark), and "Save and Close" (with a checkmark and a document icon).

IP address	Fully qualified host name	Short host name

### Host List

List of configured hosts

To manage the list of computers, proceed as follows:

- Click to create a new entry.
- Click to remove the selected entry.
- Click to edit the selected entry.
- Click to copy the selected entry.



Clicking  brings up the **Add** dialogue, where you can define the following settings:

**IP address**

IP address of the host you would like to add.

**Fully qualified host name**

Host name along with the domain, e.g. `mail.example.com`

**Short host name**

E.g. `mail`



## Network Drives

The following network drives can be configured in IGEL OS.

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- [NFS](#)(see page 217)
- [Windows Drive](#)(see page 220)



## NFS

This article shows how to integrate network drives using the Network File System (NFS) in IGEL OS.

Menu path: **Network > Network Drives > NFS**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network (which is highlighted in yellow), Devices, Security, and System. To the right of the tabs are search and settings icons. The left sidebar contains a tree view with categories like LAN Interfaces, Wireless, Mobile Broadband, Computer name, DHCP Options, DNS, VPN, SCEP Client (NDES), Default gateway, Hosts, Network Drives (which is expanded to show NFS, Windows Drive, and Proxy), and a plus sign icon. The main content area is titled "NFS Mount List". It has a table with columns: Enabled, Local Mount Point, Directory Name, and Server. There are four buttons at the bottom right of the table: Close (with a red X), Save (with a checkmark), and Save and Close (with both a checkmark and a document icon).

Enabled	Local Mount Point	Directory Name	Server

### NFS Mount List

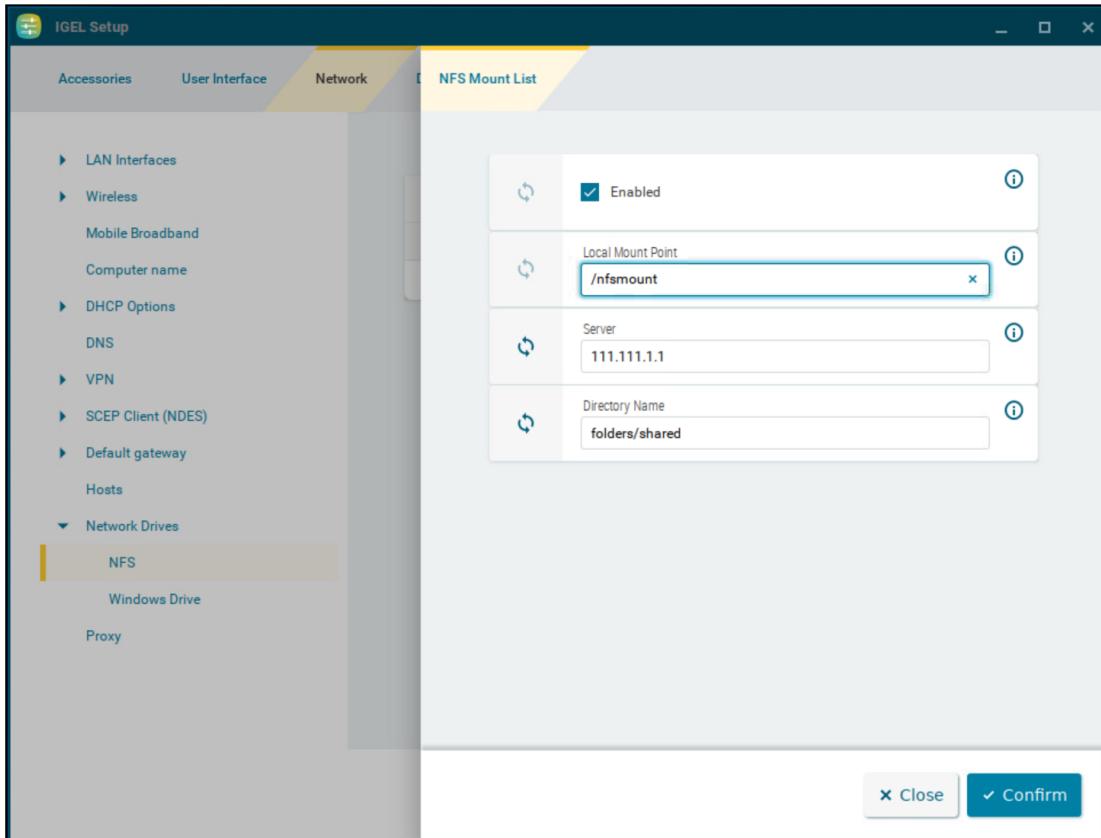
List of integrated network drives

To manage the network drives, proceed as follows:

- Click to create a new entry.
- Click to remove the selected entry.
- Click to edit the selected entry.
- Click to copy the selected entry.



Clicking brings up the **Add** dialogue, where you can define the following settings:



### Enabled

The network drive will be integrated. (Default)

### Local mount point

The local directory under which the server directory is to be visible. (Default: `/nfsmount`)

- In both the **Local mount point** and **Directory name** only `/` (Linux/Unix-style forward slash) is permitted as a path separator.

### Server

NFS server that exports the directory.

- For **Server**, you can provide an IP address, a hostname or a Fully-Qualified Domain Name (FQDN).



**Directory name**

Path under which the NFS server exports the directory.



## Windows Drive

This article shows how to integrate network drives shared by Windows as well as those from Linux/Unix servers via the SMB protocol (Samba) in IGEL OS.

Menu path: **Network > Network Drives > Windows Drive**

The screenshot shows the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network (which is highlighted in yellow), Devices, Security, and System. To the right of the tabs are search and settings icons. The left sidebar has a tree view with nodes like LAN Interfaces, Wireless, Mobile Broadband, Computer name, DHCP Options, DNS, VPN, SCEP Client (NDES), Default gateway, Hosts, Network Drives (which is expanded), NFS, Windows Drive (which is selected and highlighted in yellow), and Proxy. The main content area is titled "SMB Mount List". It has a table with columns: Enabled, Local Mount Point, Server, and Share Name. There are four buttons at the bottom right: "Close", "Save", and "Save and Close".

### SMB Mount List

List of integrated network drives shared through SMB

To manage the list of drives, proceed as follows:

- Click to create a new entry.
- Click to remove the selected entry.
- Click to edit the selected entry.
- Click to copy the selected entry.



Clicking brings up the **Add** dialogue, where you can define the following settings:

Setting	Value
Enabled	<input checked="" type="checkbox"/>
Local Mount Point	/smbmount
Server	111.111.1.1
Share Name	shared/folder
User name	username
Password	.....
User writeable	<input type="checkbox"/>

## Enabled

The network drive will be integrated. (Default)

## Local mount point

The local directory under which the server directory is to be visible. (Default: /smbmount )

- ⓘ For **Local mount point**, only / (Linux/Unix-style forward slash) can be used as a path separator. Note that if you enter, for example, \smbmount as a mount point, a directory called \smbmount will be created, because \ is a legal character in Linux directory names. For **Share name**, however, / (Linux/Unix-style forward slash) or \ (Windows-style backward slash) can be used as a path separator.

## Server

The IP address, Fully-Qualified Domain Name (FQDN) or NetBIOS name of the server



- !** If a NetBios name is provided for **Server**, make sure it is not preceded by slashes, e.g. `\myComputer` (wrong) vs. `myComputer` (correct).

### Share name

Path name as exported by the Windows or Unix Samba host

### User name

User name for your user account on the Windows or Unix Samba host

### Password

Password for your user account on the Windows or Unix Samba host

### User writable

The user can not only read but also write directory contents. Otherwise, only the local root user is able to do this.

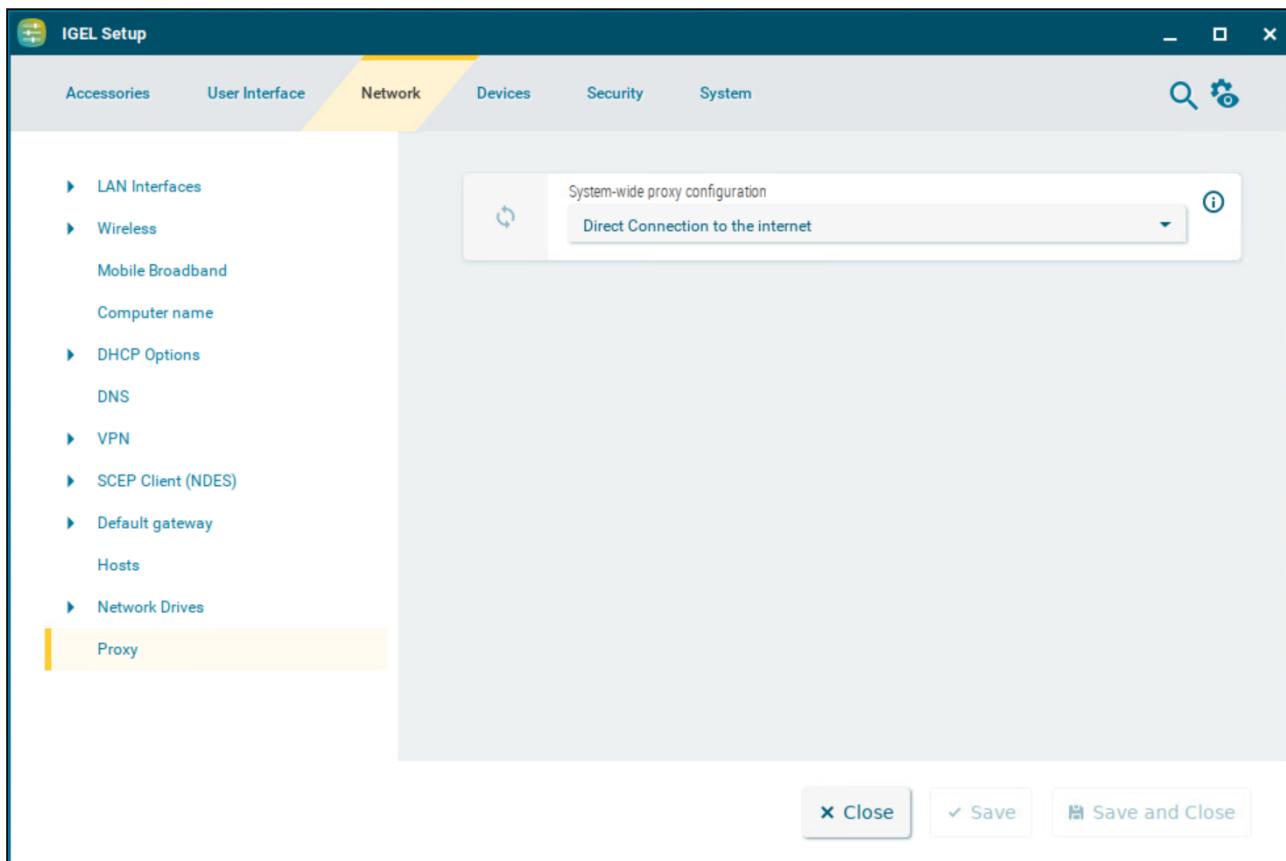
The user can only read directory contents. (Default)



## Proxy

This article shows how to select the communication protocols for which a system-wide proxy server is to be used in IGEL OS.

Menu path: **Network > Proxy**



### System-wide proxy configuration

Possible options:

- **Direct connection to the Internet**

The endpoint device is directly connected to the Internet. No proxy is used. (Default)

- **Manual proxy configuration**

You can configure one or more proxies in the fields from **FTP proxy** up to **SOCKS protocol version**, see [Manual Proxy](#)(see page 224).

- **Automatic proxy configuration**



The proxy settings are dynamically retrieved via a PAC file (Proxy Auto Config) that you specify under **URL**, see [Automatic Proxy](#)(see page 225). For more information on PAC, see e.g. [https://en.wikipedia.org/wiki/Proxy\\_auto-config](https://en.wikipedia.org/wiki/Proxy_auto-config).

## Manual Proxy Configuration

### FTP proxy / Port

FTP proxy server and port

### HTTP proxy / Port

HTTP proxy server and port

### SSL proxy / Port

SSL proxy server and port

### SOCKS host / Port

Socks proxy server and port

### SOCKS protocol version

Selects the SOCKS protocol version. (Default: SOCKS v5)

### No proxy for

List of computers to which the endpoint device is to connect directly, separated by commas.  
(Default: localhost,127.0.0.1)

### Proxy realm for browser

Area in which the browser authenticates itself for the proxy. Together with the user name and password, this information is necessary for authentication.

### Use passthrough authentication

- The temporarily saved login information (user name and password) will be used to log in to the proxy server.  
 The login information entered under **User name** and **Password** will be used to log in to the proxy server.  
(Default)

### User name

User name for the proxy login

**Password**

Password for the proxy login

**Enable client-side NTLM authenticating proxy**

Client-side proxy is enabled. It stands between the application and the corporate proxy, adding NTLM authentication at the corporate proxy. The credentials specified on this Setup page are used. (Default)

**Listening port**

Port for client-side proxy

**Automatic Proxy Configuration****URL**

URL of the PAC file for automatic proxy configuration

**No Proxy for**

List of computers to which the endpoint device is to connect directly, separated by commas.  
(Default: localhost,127.0.0.1)

**Proxy realm for browser**

Area in which the browser authenticates itself for the proxy. Together with the user name and password, this information is necessary for authentication.

**Use passthrough authentication**

- The temporarily saved login information (user name and password) will be used to log in to the proxy server.
- The login information entered under **User name** and **Password** will be used to log in to the proxy server.  
(Default)

**User name**

User name for the proxy login

**Password**

Password for the proxy login



## Devices

In this chapter, you find information on the configuration of devices in IGEL OS.

---

- [Hardware Info](#)(see page 227)
- [Storage Devices](#)(see page 228)
- [Bluetooth](#)(see page 240)
- [USB Access Control](#)(see page 246)
- [Audio](#)(see page 251)
- [Webcam Information](#)(see page 257)

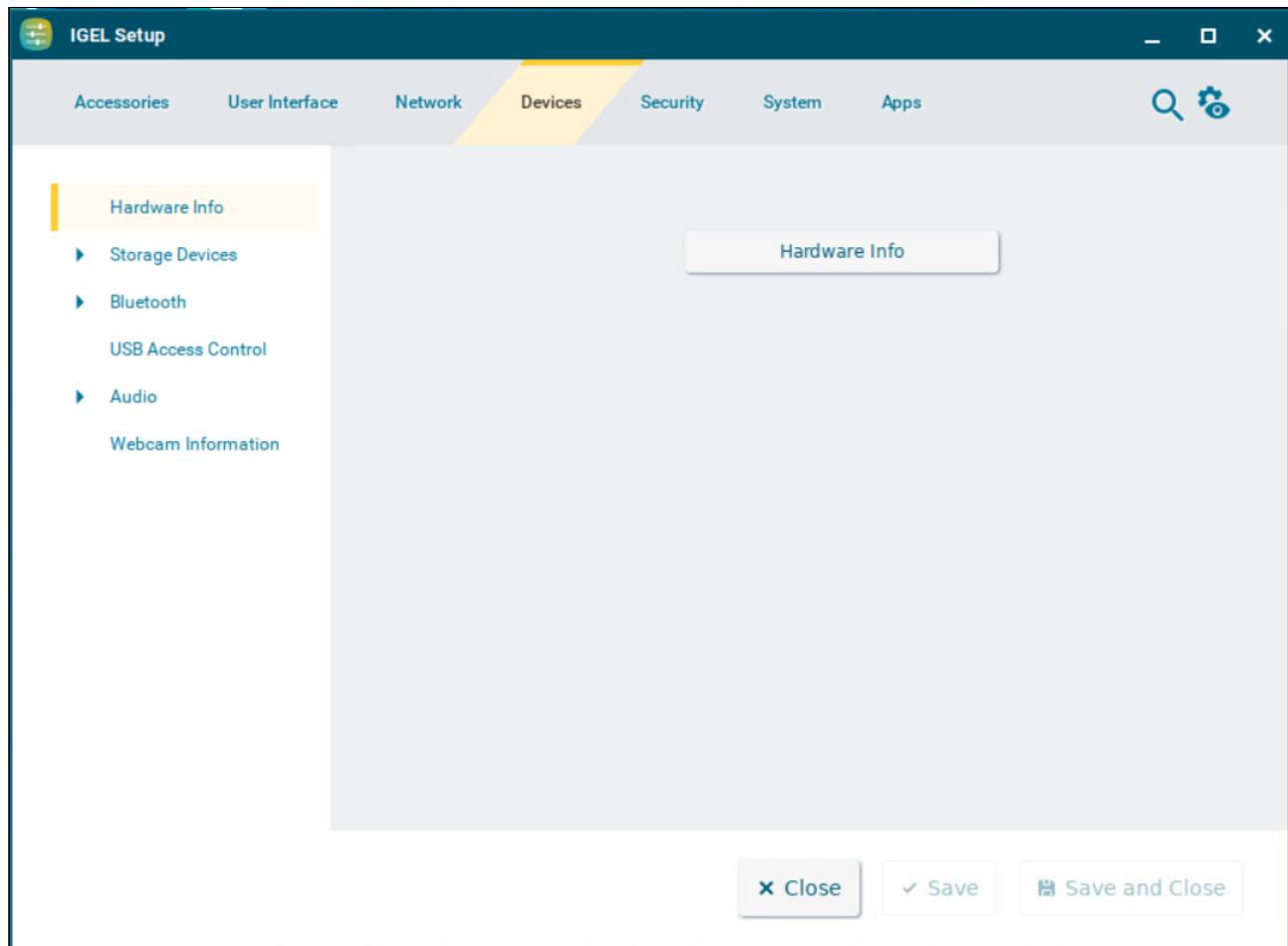


## Hardware Info

The **Hardware info** button provides quick access to information about the endpoint device and the connected devices.

- ⓘ The page is only available locally on the device in the IGEL Setup. In order to access the page from the UMS, you need to shadow the device. For detailed information on shadowing, see [Shadow\(see page 300\)](#) and [Shadowing - Observe IGEL OS Desktop via VNC](#).

Menu path: **Devices > Hardware Info**



- Click **Hardware info** to view information on the used hardware in the **System Information** dialog. For more information on the dialog, see [System Information\(see page 32\)](#).

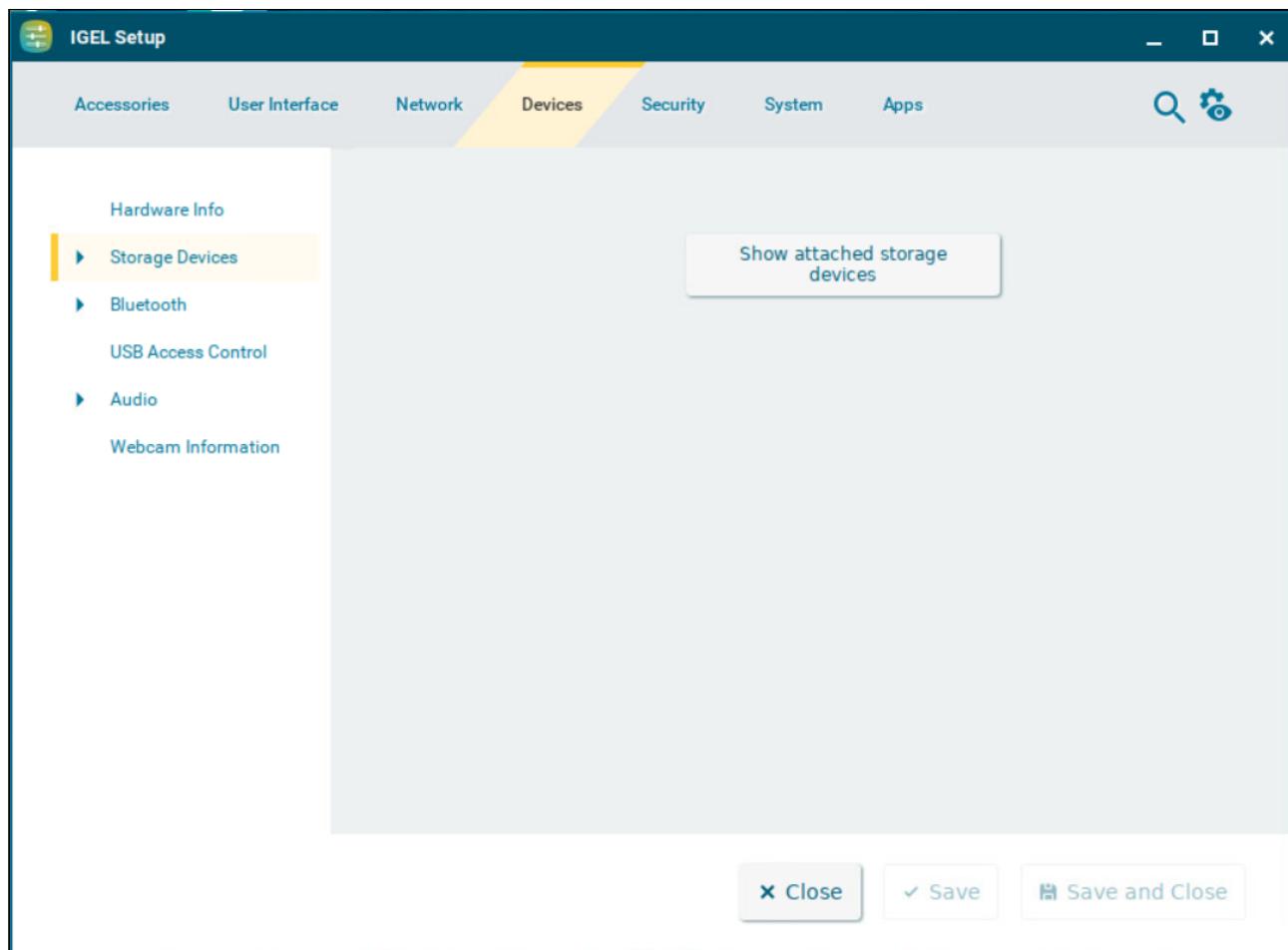


## Storage Devices

The **Show attached storage devices** button provides quick access to information about registered storage devices.

- ⓘ The page is only available locally on the device in the IGEL Setup. In order to access the page from the UMS, you need to shadow the device. For detailed information on shadowing, see [Shadow](#)(see page 300) and [Shadowing - Observe IGEL OS Desktop via VNC](#).

Menu path: **Devices > Storage Devices**



- Click **Show attached storage devices** to view a list of registered storage devices in the **Disk Utility** dialog. For more information on the dialog, see [Disk Utility](#)(see page 235).



- Storage Hotplug(see page 230)
- Options(see page 233)
- Disk Utility(see page 235)
- Safely Remove Hardware(see page 238)



## Storage Hotplug

This article shows how to set up the connection of hotplug storage devices to the device in IGEL OS. These can be, for example, USB mass storage devices or MMC card readers.

- ⓘ For related settings options of the Citrix Workspace App, see Configuration of the Citrix Workspace App on IGEL OS.  
For related settings in the Devices area, see [USB Access Control](#)(see page 246) and [Safely Remove Hardware](#)(see page 238).

Menu path: **Devices > Storage Devices > Storage Hotplug**

The screenshot shows the IGEL Setup application interface. The top navigation bar includes tabs for Accessories, User Interface, Network, Devices (which is highlighted in yellow), Security, System, and Apps, along with search and settings icons. The left sidebar contains a tree view with categories like Hardware Info, Storage Devices (selected and expanded), Options, Disk Utility, Safely Remove H..., Bluetooth, USB Access Control, Audio, and Webcam Information. The main content area is titled "Storage Hotplug" under the "Devices" tab. It displays two sections: "Default permission" (set to "Read/Write") and "Notification". The "Notification" section includes checkboxes for "Hotplug beep" (checked) and "Hotplug message" (checked), and a slider for "Timeout" set to 15. At the bottom are buttons for Close, Save, and Save and Close.



The following file systems are officially supported:

ext2, ext3, ext4	Standard Linux file systems
squashfs	a packed read-only file system
vfat	supports all FAT variants
exFAT	supports exFAT (found on SDXC SD-cards)
ISO 9660	CDROM/DVD file systems
udf	CDROM/DVD file systems
ntfs	supported with ntfs-3g (Fuse)

### Enable dynamic client drive mapping

Defines the creation of drives in ICA sessions, RDP sessions or Horizon sessions. The mounting of hotplug storage devices to the local file system is not influenced by this parameter.

- Drives are created automatically in a session when a hotplug storage device is connected to the device. When the device is removed, the corresponding drive is removed automatically.
- Drives are not created automatically in a session when a hotplug storage device is connected to the device.

**⚠** Before you unplug a hotplug storage device from the endpoint device, you must safely remove it. Otherwise, data on the hotplug storage device can be damaged. Depending on the configuration, there are several ways to safely remove a hotplug storage device:

- Click  in the task bar. The taskbar can be made available in a full-screen session by enabling **Taskbar on top of all windows** under **User Interface > Desktop > Taskbar**. For more information, see [Taskbar](#)(see page 82).
- Click  in the in-session control bar. Depending on the configuration, the in-session control bar may be available in a full-screen session. For further information, see [In-Session Control Bar](#)(see page 97).
- Use the **Safely Remove Hardware** function. The function can be configured under **Devices > Storage Devices > Safely Remove Hardware**. For more information, see [Safely Remove Hardware](#)(see page 238).

If the following warning is displayed: **Volume(s) still in use. Don't remove the device.**, then the hotplug storage device must not be removed. First, exit the program concerned or close all files or directories that reside on the hotplug storage device.

### Default permission

Default access rights for hotplug storage devices.

Possible values:

- **Read only**



- **Read/Write** (Default)

## Notification

### **Hotplug beep**

A signal tone will be heard when connecting and disconnecting hotplug storage devices. (Default)

### **Hotplug message**

Hotplug messages will be shown when connecting and disconnecting hotplug storage devices. (Default)

### **Timeout**

Period of time in seconds after which the window with the hotplug messages is hidden. If the parameter is set to **No timeout**, the window will be shown until it is closed manually. (Default: 15)



## Options

This article shows how to specify a directory in which external storage devices are accessible to the user in IGEL OS. The devices are always mounted in the `/media` directory.

Menu path: **Devices > Storage Devices > Options**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices (which is highlighted in yellow), Security, System, and Apps. To the right of the tabs are a search icon and a gear icon. On the left, there's a sidebar with categories like Hardware Info, Storage Devices (expanded), Storage Hotplug (selected), Options (highlighted in orange), Disk Utility, Safely Remove H..., Bluetooth, USB Access Control, Audio, and Webcam Information. The main content area shows three configuration items: "User browse directory" (checked), "Browse directory: /userhome/media" (with an info icon), and "Support for built-in floppy drives" (unchecked). At the bottom are buttons for Close, Save, and Save and Close.

### User browse directory

The directory defined under **Browse directory:** / is linked to the `/media` directory. (Default)

### Browse directory: /

Local directory in which the devices can be found. (Default: `userhome/media`)



### Support for built-in floppy drives

- Built-in disk drives are active.  
 Built-in disk drives are disabled. (Default)

i This option is only valid for drives which are not connected via USB.



## Disk Utility

With the Disk Utility function, you can obtain information regarding the hotplug storage devices connected to your endpoint device in IGEL OS. You can also use the function to safely remove hotplug storage devices.

- Info** The Disk Utility function can only be started if the automatic mounting of hotplug storage devices is enabled through the **Enable dynamic client drive mapping** option under **Devices > Storage Devices > Storage Hotplug**.

Menu path: **Devices > Storage Devices > Disk Utility**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The window has a dark header bar with tabs: Accessories, User Interface, Network, Devices (which is highlighted in yellow), Security, System, and Apps. To the right of the tabs are a search icon and a gear icon. The main content area has a sidebar on the left with categories like Hardware Info, Storage Devices (with Storage Hotplug, Options, and Disk Utility selected), Safely Remove H..., Bluetooth, USB Access Control, Audio, and Webcam Information. The main panel shows a "Session name" field containing "Disk Utility" with a refresh icon to its left. Below it is a section titled "Starting Methods for Session" with five items: "Start Menu" (unchecked), "Menu folder" (disabled), "Start Menu's System tab" (checked), "Application Launcher" (unchecked), and "Application Launcher folder" (disabled). At the bottom are three buttons: "Close", "Save" (highlighted in green), and "Save and Close".

The screenshot shows the configuration for the "Disk Utility" session. The "Session name" is set to "Disk Utility". Under "Starting Methods for Session", the "Start Menu's System tab" option is checked. The "Save" button is highlighted in green.

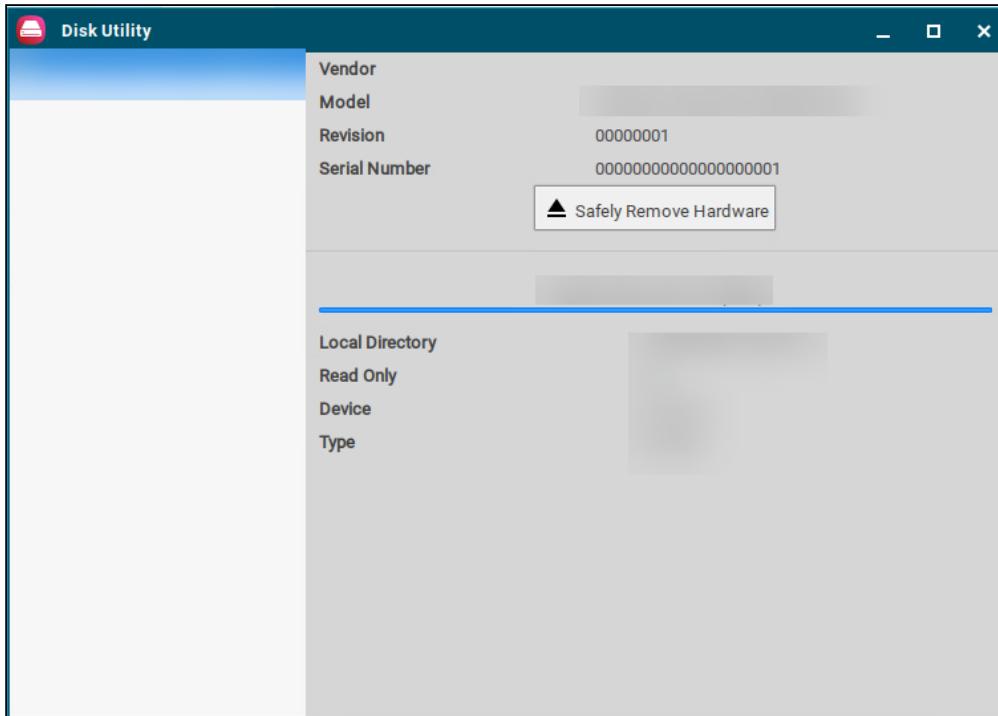


The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).

- ⓘ If the **Disk utility in eject menu** option is enabled under **Devices > Storage Devices > Safely Remove Hardware**, the Disk Utility can also be started from the context menu of the eject icon in the toolbar.

## Using Disk Utility

- ▶ Start **Disk Utility**.



To obtain information regarding a hotplug storage device connected to your endpoint device:

- ▶ Select the hotplug storage device in the left-hand column.  
The information regarding the hotplug storage device is shown in the right-hand column.

To remove a hotplug storage device safely:

- ▶ Click **Safely Remove Hardware** in the right-hand column.  
The hotplug storage device is disconnected from the endpoint device. Once it has been disconnected, the storage device can be removed from the device.

- ⓘ If the **Hotplug beep** option is enabled under **Devices > Storage Devices > Storage Hotplug**, a signal tone will signal that the device has been disconnected successfully.  
If the **Hotplug message** option is enabled under **Devices > Storage Devices > Storage Hotplug**, a message window will signal that the device has been disconnected successfully.



For more information, see [Storage Hotplug](#)(see page 230).



## Safely Remove Hardware

With the Safely Remove Hardware function, you can remove a hotplug storage device connected to your endpoint device safely, without the risk of losing data. This article shows how to configure the starting methods for the function in IGEL OS.

Menu path: **Devices > Storage Devices > Safely Remove Hardware**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The window has a dark header bar with tabs: Accessories, User Interface, Network, Devices (which is highlighted in yellow), Security, System, and Apps. To the right of the tabs are a search icon and a settings gear icon. The main content area has a sidebar on the left with categories: Hardware Info, Storage Devices (expanded), Storage Hotplug, Options, Disk Utility, Safely Remove H... (selected and highlighted in yellow), Bluetooth, USB Access Control, Audio, and Webcam Information. The main panel shows a "Session name" input field containing "Safely Remove Hardware". Below it is a section titled "Starting Methods for Session" with five entries: "Start Menu" (unchecked), "Start Menu's System tab" (checked), and "Application Launcher" (unchecked). Each entry has a small circular icon with a refresh symbol to its left and an information icon (i) to its right. At the bottom of the main panel are three buttons: "Close", "Save" (with a checkmark), and "Save and Close".

The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).

### Disk utility in eject menu

- The **Disk Utility** can be started from the context menu of the eject icon in the taskbar. (Default)



To start the function, click on  and select **Disk Utility**. For more information on using the function, see [Disk Utility](#)(see page 235).



## Bluetooth

This article shows how to set up a Bluetooth service in IGEL OS. For details on the settings options for Bluetooth devices, see [Bluetooth Tool](#)(see page 242).

Menu path: **Devices > Bluetooth**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices (which is highlighted in yellow), Security, System, and Apps. To the right of the tabs are a search icon and a gear icon. The left sidebar under "Hardware Info" has the following items: Storage Devices, Bluetooth (which is selected and highlighted in orange), USB Access Control, Audio, and Webcam Information. The main content area shows two items in a list: "Bluetooth" with a checked checkbox and "Tray Icon" with a checked checkbox. At the bottom of the window are three buttons: "Close", "Save", and "Save and Close".

### Bluetooth

The Bluetooth service is active. The **Bluetooth Tool** can be used. (Default)

### Tray icon

## Configuration



- A Bluetooth icon will be shown in the system tray. You can launch the **Bluetooth Tool** by double-clicking on the Bluetooth icon. Right-clicking on the Bluetooth icon will bring up an overview as to which Bluetooth devices are connected to the endpoint device and you can enable or disable Bluetooth. (Default)



## Bluetooth Tool

With the **Bluetooth Tool**, you can connect Bluetooth devices, e.g. a keyboard, a mouse, or a headset, to your endpoint device in IGEL OS.

- ⓘ In order to be able to use Bluetooth, it must be enabled under **Devices > Bluetooth**.
- ⓘ If your endpoint device does not support Bluetooth, it is necessary to connect a Bluetooth USB adapter to it.

Menu path: **Devices > Bluetooth > Bluetooth Tool**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices (which is highlighted in yellow), Security, System, and Apps. To the right of the tabs are a search icon and a gear icon. On the left, there's a sidebar with sections: Hardware Info, Storage Devices, Bluetooth (with "Bluetooth Tool" selected and highlighted in yellow), USB Access Control, Audio, and Webcam Information. The main content area shows a "Session name" field with "Bluetooth Tool" entered. Below it is a section titled "Starting Methods for Session" with five entries, each with a refresh icon and a checkbox:

- Start Menu
- Menu folder
- Start Menu's System tab
- Application Launcher

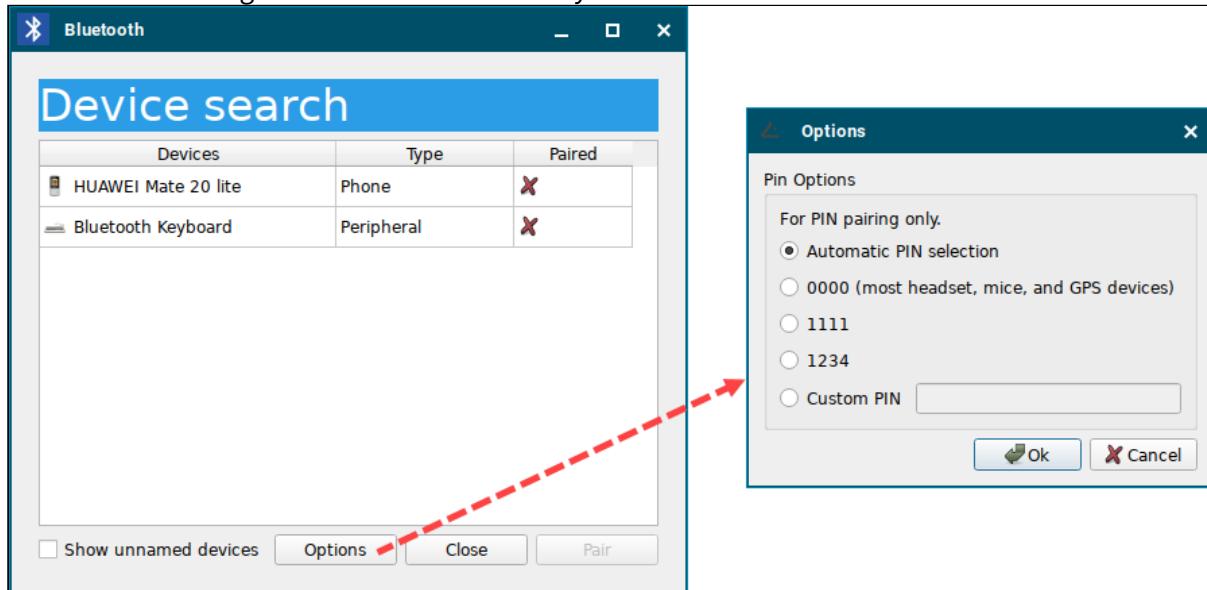
At the bottom are three buttons: "Close", "Save", and "Save and Close".

The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).

## Using Bluetooth Tool

The **Bluetooth Tool** supports the following coupling methods, i.e. the mutual authentication of the Bluetooth device and endpoint device:

- **Automatic PIN selection:** Pairing with automatic PIN allocation
- **0000, 1111, 1234:** Pairing with a fixed PIN (for most headsets, mice, or GPS devices)
- **Custom PIN:** Pairing with a fixed PIN entered by the user.



In addition, Bluetooth devices that do not require pairing are also supported.

### Connecting a Bluetooth Device with Automatic PIN Selection

1. Ensure that the coupling mode is enabled on the Bluetooth device.
2. Start the **Bluetooth Tool**.  
The **Device search** dialog will be shown.
3. Enable **Show unnamed devices** if you want to include unnamed Bluetooth devices in the search list.  
After a few seconds, the Bluetooth devices found by the endpoint device will be displayed.
4. Select the desired Bluetooth device.
5. Under **Options**, enable **Automatic PIN selection**.



6. Click **Pair**.
7. A PIN will be shown in the dialog on your endpoint device.
  - If the PIN is identical to the PIN shown on your Bluetooth device, confirm the coupling.
  - If a Bluetooth device requires the manual entering of a PIN (e.g. keyboard), type in the PIN shown in the dialog.In a few seconds, the status of the connection will be shown.

#### Connecting a Bluetooth Device with a Fixed PIN

1. Ensure that the coupling mode is enabled on the Bluetooth device.
2. Start the **Bluetooth Tool**.  
The **Device search** dialog will be shown.
3. Enable **Show unnamed devices** if you want to include unnamed Bluetooth devices in the search list.  
After a few seconds, the Bluetooth devices found by the endpoint device will be displayed.
4. Select the desired Bluetooth device.
5. Under **Options**, select one of the specified PINs or enable **Custom PIN** and enter the PIN for the Bluetooth device. You will find this PIN in the documentation for your Bluetooth device.
6. Click **Pair**.  
In a few seconds, the status of the connection will be shown.

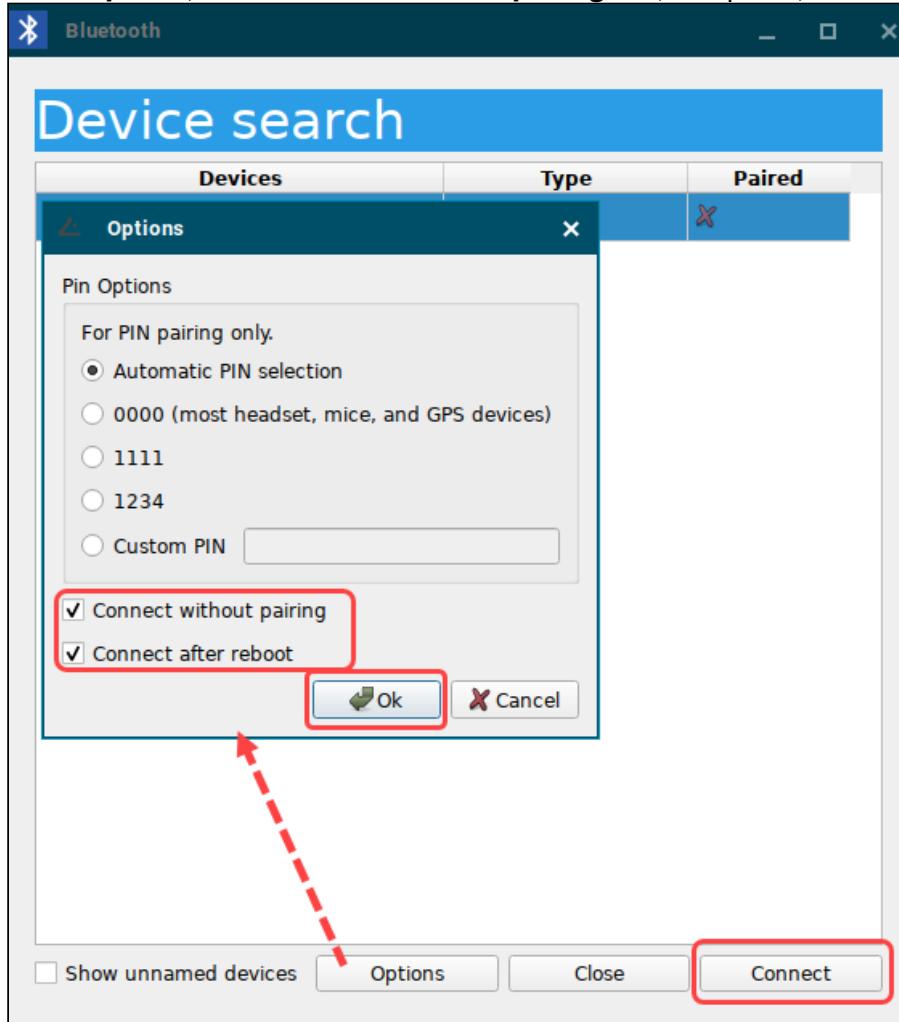
#### Cancelling Coupling to a Bluetooth Device

1. Start the **Bluetooth Tool**.  
The connected Bluetooth device will be shown in the **Device search** dialog.
2. Highlight the connected Bluetooth device and click **Unpair**.  
The status of the connection will be shown.

#### Enabling Support for Devices That Do Not Require Coupling

1. In the Setup or the configuration dialog of the UMS, go to **System > Registry > devices > bluetooth > connect\_only** and activate **Connect devices without pairing** (registry key: `devices.bluetooth.connect_only`).
2. Save the changes.
3. Start the **Bluetooth Tool**.  
The **Device search** dialog will be shown.

4. Highlight the desired Bluetooth device.
5. Under **Options**, enable **Connect without pairing** and, if required, **Connect after reboot**.



6. Click **Connect**.

**i** Some devices do not connect automatically after the reboot. To fix that, you can use the following command in a script:  
`bluetoothctl connect <device-ID>`  
The return value tells you if the device is connected (0) or not (1).



## USB Access Control

This article shows how to control USB access to the endpoint device in IGEL OS. You can allow or prohibit the use of USB devices on your endpoint. Specific rules for individual devices or device classes are possible.

Menu path: **Devices > USB Access Control**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The top navigation bar includes tabs for Accessories, User Interface, Network, Devices (which is highlighted in yellow), Security, System, and Apps, along with a search and settings icon. On the left, a sidebar lists Hardware Info, Storage Devices, Bluetooth, USB Access Control (which is selected and highlighted in orange), Audio, and Webcam Information. The main content area displays three sections: "Default rule" (Allow), "Default permission" (Read/Write), and "Class rules". The "Class rules" section contains one entry: Rule "allow", Class ID "03", and Name "Allow HID". Below this is a "Device Rules" section with columns for Rule, Vendor ID, Product ID, Device uuid, Permission, and Name. At the bottom are buttons for Close, Save, and Save and Close.

Rule	Class ID	Name
allow	03	Allow HID

Rule	Vendor ID	Product ID	Device uuid	Permission	Name

### Enable

- USB access control is enabled and the following settings can be configured.
- USB access control is inactive. (Default)

- ⚠** The activation of **USB Access Control** and setting the **Default rule** to **Deny** will block the use of USB devices locally and in the session and, thus, might disable devices needed for the users. Therefore, activate the USB access control only if your security policy requires that. In this case, set **Default rule** to **Deny** and configure **Allow** rules for the required USB devices and USB device classes.
- It is recommended to make settings for **USB Access Control** as the last step in the device configuration. Before activating the USB access control, check that all your other settings for printers, Unified Communication, USB redirections, mapping settings for USB devices are working as expected.
- Note that the USB access control is completely separate than USB redirection for remote sessions. Take also notice that the feature does not disable a USB port physically, i.e. power delivery will still work.

## Default rule

Specifies whether the use of USB devices is allowed or prohibited.

- **Allow** (Default)
- **Deny**

## Default permission

Default access rights for USB devices.

- **Read Only**
- **Read/Write** (Default)

## Class Rules

Class rules apply to USB device classes. To manage the list of class rules:

- Click  to create a new entry.
- Click  to remove the selected entry.
- Click  to edit the selected entry.
- Click  to copy the selected entry.

Clicking  brings up the **Add** dialogue, where you can define the following settings:

- **Rule**

Specifies whether the use of the device class defined here is allowed or prohibited.

- **Allow**
- **Deny** (Default)

- **Class ID**

Device class for which the rule should apply. (Examples: **Audio**, **Printers**, **Mass Storage**).



- **Name**

Name of the rule

## Device Rules

Device rules apply to specific USB devices. To manage the list of device rules:

- Click  to create a new entry.
- Click  to remove the selected entry.
- Click  to edit the selected entry.
- Click  to copy the selected entry.

Clicking  brings up the **Add** dialogue, where you can define the following settings:

- **Rule**

Specifies whether the use of the device defined here is allowed or prohibited.

- **Allow**
- **Deny** (Default)

- **Vendor ID**

Hexadecimal ID of the device manufacturer

- **Product ID**

Hexadecimal ID of the device

 **Getting USB Device Information**

To find out the **Class ID**, **Subclass ID**, **Vendor ID** and **Product ID** of the connected USB device, you can use the **System Information** tool. For further information, see [System Information\(see page 32\)](#).

System Information example:



**Devices - USB Devices - System Information**

Information View Help

Refresh Generate Report Copy to Clipboard

- Computer
- Summary
- Operating System
- Security
- Kernel Modules
- Boots
- Languages
- Memory Usage
- Filesystems
- Display
- Environment Variables
- Devices
- System DMI
- Processor
- Graphics Processors
- Monitors
- Memory Devices
- PCI Devices
- USB Devices**
- Network
- Interfaces
- IP Connections
- Routing Table
- ARP Table
- DNS Servers
- Statistics
- Shared Directories

001:001 Linux 2.0 root hub  
002:001 Linux 1.1 root hub  
002:004 Plantronics, Inc. Poly BT700

**Device Information**

Product [0x02e6] (Unknown)  
Vendor [0x047f] Plantronics, Inc.  
Device Poly BT700  
Manufacturer Plantronics  
Max Current 100 mA  
USB Version 2.0  
Speed 12 Mb/s  
Class [0] (Defined at Interface level)  
Sub-class [0] (Unknown)  
Protocol [0] (Unknown)  
Device Version 6.93

Done.

Alternatively, you can use the command `lsusb` (or `lsusb | grep -i [search term]`) in the terminal.

Example for `lsusb`:

**Local Terminal (on ITC00505693271E)**

```
root@ITC00505693271E:~# lsusb | grep -i plantronics
Bus 002 Device 004: ID 047f:02e6 Plantronics, Inc. Poly BT700
root@ITC00505693271E:~#
```

#### • Device UUID

Universal Unique Identifier (UUID) of the device

#### • Permission

Authorizations for access to the device

Possible values:



- **Global setting:** The default setting for hotplug storage devices is used; see the **Default permission** parameter under **Devices > Storage Devices > Storage Hotplug**. For more information, see [Storage Hotplug](#)(see page 230).
  - **Read only**
  - **Read/Write**
- **Name**

Name of the rule



## Audio

The audio settings of the device can be configured through the following.

---

- [Options](#)(see page 252)
- [Sound Preferences](#)(see page 255)



## Options

This article shows how to configure presets for the audio system in IGEL OS. The settings can be changed at any time with the Sound Preferences function. For details, see [Sound Preferences\(see page 255\)](#).

Menu path: **Devices > Audio > Options**

### Show volume control in taskbar

The  icon is shown in the taskbar. When you click the icon, the volume control is shown. When you right-click the icon, you can select **Sound preferences** to start the sound Sound Preferences function. (Default)

The  icon is not shown. You can only use the **Sound Preferences** function to change the volume.

### Remote volume settings

The settings for the parameters **Mute**, **PCM volume**, **Input mute**, and **Input volume** are restored after each system restart. The settings set in **Sound Preferences** or in the taskbar will only remain until system restart.

The settings set in **Sound Preferences** or in the taskbar will be restored after system restart. (Default)

**Mute**

- Audio playback is muted.  
 Audio playback is on. (Default)

**PCM volume**

Preset volume in percent. (Default: 50)

**Input mute**

- The audio input is muted. Sounds from a microphone that are recorded are not transferred to the endpoint device.  
 The audio input is switched on. Sounds from a microphone that are recorded can be transferred to the endpoint device. (Default)

**Input volume**

Volume of recorded sounds at the audio input device in percent. (Default: 100)

Default Sound Output

**Port name**

Name of the output port

Possible options:

- **Automatic:** The audio output is automatically assigned to a device. Not connected ports will be ignored. The following order applies here:
  1. USB devices
  2. PCI devices; this also includes the HDMI interface.
  3. Internal speaker
- **HDMI / DisplayPort**
- **Speakers**
- **Headphones**

**Device name**

Name of the output device. Select the device for audio output from a list of available devices. If the device is not present at the moment, you can type in its name.

Examples:

- Built-in Audio Analog Stereo
- Microsoft LifeChat LX-3000



## Default Sound Input

### Port name

Name of the input port

Possible options:

- **Automatic:** The audio input is automatically assigned to a device. Not connected ports will be ignored. The following order applies here:
  1. USB devices
  2. PCI devices
- **Microphone**
- **Headset microphone**

### Device name

Name of the input device. Select the device for audio input from a list of available devices. If the device is not present at the moment, you can type in its name.

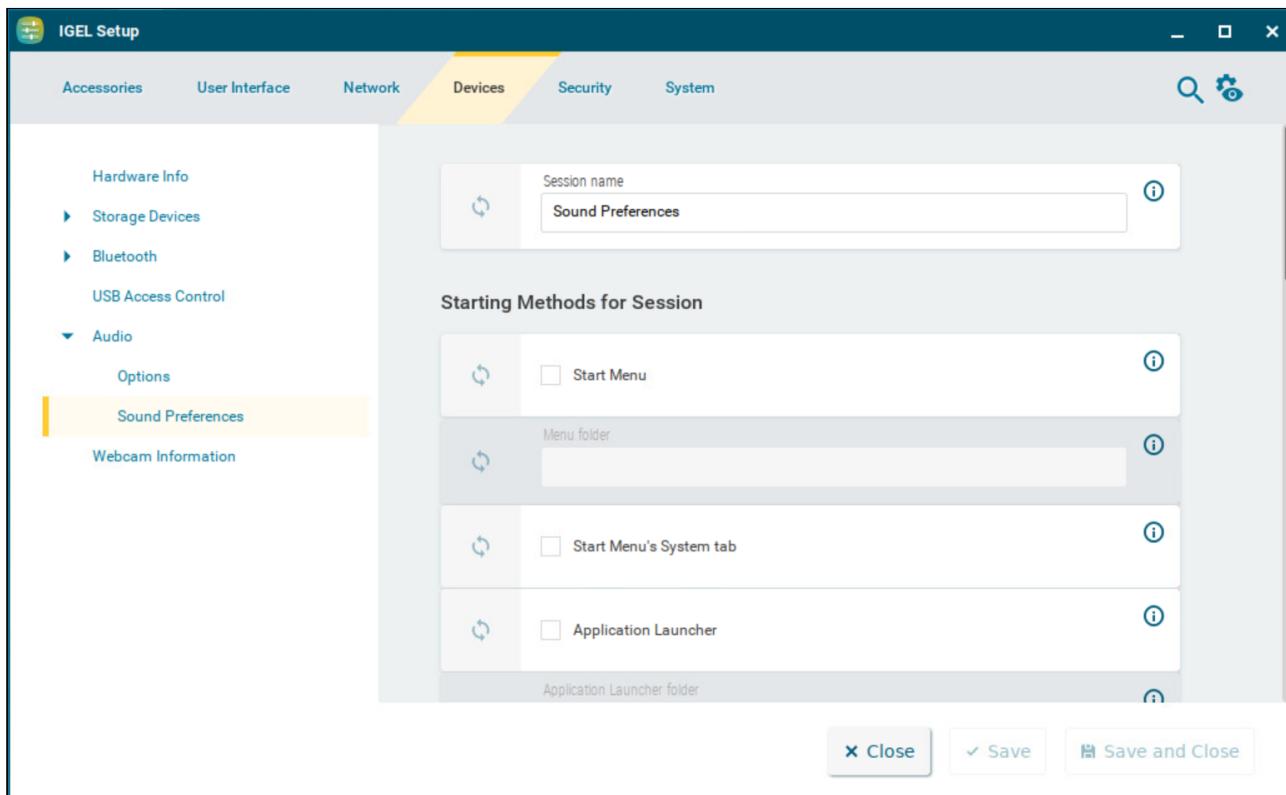
Example: Microsoft LifeChat LX-3000



## Sound Preferences

This article shows the starting methods and the use of **Sound Preferences** in IGEL OS. With this function, you can configure your device's audio settings.

Menu path: **Devices > Audio > Sound Preferences**

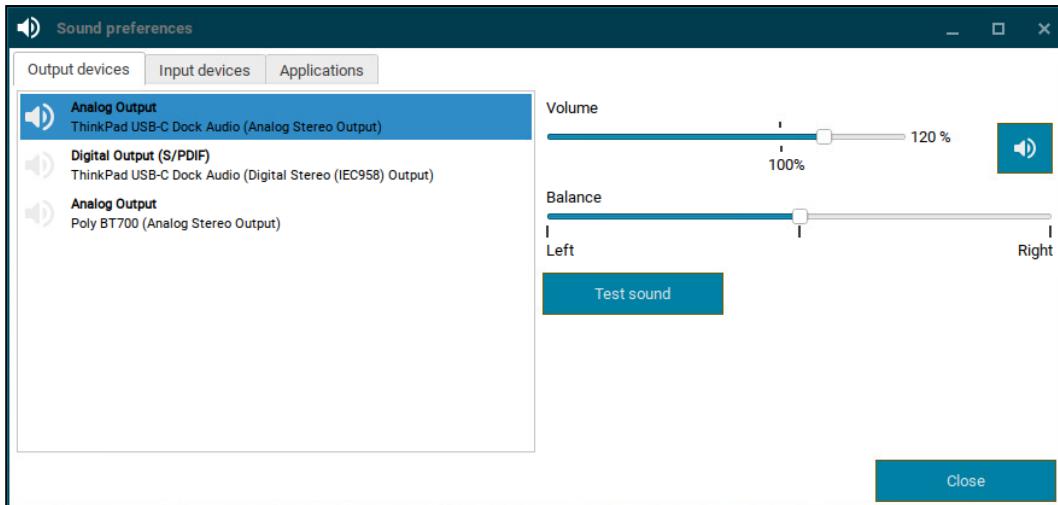


The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).

- ⓘ If the **Show volume control in taskbar** option is enabled under **Devices > Audio > Options**, you can also start the function by right-clicking the icon in the taskbar and selecting **Sound preferences**. For details on the preset options for the audio system, see [Options](#)(see page 252).

## Using Sound Preferences

- Start the **Sound Preferences** function.



To select and configure the device for playback, proceed as follows:

1. Navigate to the **Output devices** tab.
2. Select the device which is to be used for playback from the list of available devices.
3. If necessary, adjust the **Volume** and **Balance** settings. Optionally, you can test the configuration by clicking **Test sound**.

To select and configure the device for recording, proceed as follows:

1. Navigate to the **Input devices** tab.
2. Select the device which is to be used for recording from the list of available devices.
3. Adjust the **Volume** if necessary.

To change the playback volume for specific applications, proceed as follows:

1. Navigate to the **Applications** tab.
2. Adjust the volume control for the relevant application.



## Webcam Information

With the Webcam Information function, you can check and change the settings for a connected webcam in IGEL OS. You can configure the width, height and frame rate values for the connected webcam.

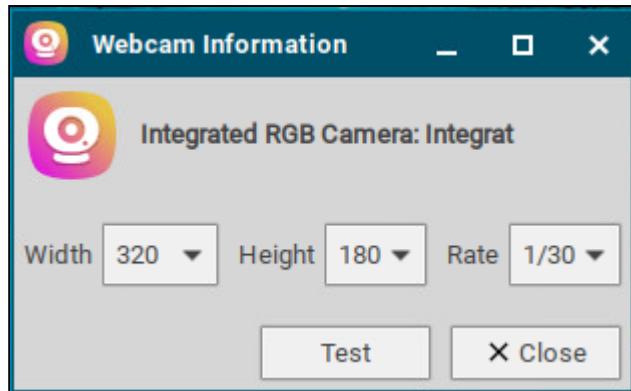
Menu path: **Devices > Webcam Information**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices (which is highlighted in yellow), Security, System, and Apps. To the right of the tabs are a search icon and a gear icon. The left sidebar contains a tree view with categories: Hardware Info, Storage Devices, Bluetooth, USB Access Control, Audio, and Webcam Information. "Webcam Information" is selected and highlighted with a yellow background. The main content area shows a "Session name" field with "Webcam Information" entered. Below it is a section titled "Starting Methods for Session" with five items: "Start Menu" (unchecked), "Menu folder" (disabled), "Start Menu's System tab" (checked), "Application Launcher" (unchecked), and "Application Launcher folder" (disabled). At the bottom are three buttons: "Close", "Save" (with a checkmark), and "Save and Close".

The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).

### Using Webcam Information

To determine and change the values for width, height and frame rate, proceed as follows:



1. Start the **Webcam Information** function.
2. The following values will be shown:
  - **Width:** Width of the image in pixels
  - **Height:** Height of the image in pixels
  - **Rate:** Frame rate in fps (frames per second: individual images per second).  
Example: **1/30** means 30 individual images per second.
3. Click on one of the fields to change the value. The supported values will be shown in the process.
4. Click **Test**.  
The video image generated by the webcam with the current settings will be shown.

 In order to check whether the webcam is functioning in a session (e.g. redirected via Citrix HDX Webcam Redirection), open <https://www.onlinemictest.com/webcam-test/> in your browser within the session.

 Alternatively, you can determine the values supported by the webcam in the local terminal with the command `webcam-info -l`.



## Security

In this chapter, you find information on security configuration in IGEL OS.

---

- [Device Encryption](#)(see page 260)
- [Password](#)(see page 263)
- [Logon](#)(see page 267)
- [Active Directory/Kerberos](#)(see page 277)
- [Smartcard Services](#)(see page 283)
- [Change Password](#)(see page 285)
- [Update](#)(see page 287)



## Device Encryption

If you want to strengthen the security of your endpoint device, you can deploy strong device encryption that is derived from a user password. The encryption is applied to all partitions that can contain user data, e.g. browser history or Custom Partitions.

Menu path: **Security > Device Encryption**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The window has a dark header bar with tabs: Accessories, User Interface, Network, Devices, Security (which is highlighted in yellow), System, and Apps. To the right of the tabs are search and settings icons. The main content area has a sidebar on the left with the following options: Device Encryption (selected and highlighted in yellow), Password, Logon, Active Directory/Kerberos, Smartcard, Change password, and Update. The main panel displays several configuration fields with "refresh" icons to their left:

- Device Encryption mode: A dropdown menu set to "keep".
- Change password: A button.
- Authentication type: A dropdown menu set to "PW".
- Security level: A dropdown menu set to "Auto, constant-time".
- Target time delay (ms): An input field containing "700".
- Password aggregation function: A dropdown menu set to "ll: Argon2id, 128M/3 ops".
- Minimum password length: An input field containing "8".

At the bottom right of the main panel are three buttons: "Close", "Save", and "Save and Close".

### Device encryption mode

Possible options:

- **Keep:** The default encryption scheme is maintained. If a password has been set, it will remain unchanged. (Default)



- **Activate:** The device will be re-encrypted using strong encryption methods when the user enters the password for the first time. It is strongly recommended to enforce the use of a strong password; see [Minimum password length](#)(see page 262) and the subsequent password settings. The re-encryption may take about 10 to 60 seconds; the duration depends on the hardware performance and the size of the Custom Partition.
- **Deactivate:** The device will be re-encrypted back to the default device encryption scheme on the next boot. The re-encryption may take about 10 to 60 seconds.

**⚠** If you want to switch back to the default device encryption, you must have the password. If the password gets lost, you must reinstall IGEL OS on the device, for example, using the OS Creator. For detailed instruction, see [Installing the Base System via IGEL OS Creator \(OSC\)](#).

### Change password

Only applicable if device encryption is activated. Click the button to change the password for device encryption.

### Authentication type

Possible options:

- **PW:** Password authentication.
- **TPM+PIN**
- **TPM PCR**
- **TPM PCR+PIN**

### Security level

Possible options:

- **Auto, constant-time:** The password aggregation function that fits best with the defined **Target time delay (ms)** is selected and the manual selection under **Password aggregation function** is ignored. (Default)
- **Auto, at least level:** The security level will be at least as high as the value selected by **Password aggregation function**; if the **Target time delay (ms)** allows for a higher security level, the higher security level will be used.
- **Manual:** The **Password aggregation function** can be set manually, irrespective of the delay time specified by **Target time delay (ms)**.

### Target time delay (ms)

Maximum time that should be consumed by the password aggregation function. This delay is effective when the user enters the device encryption password on boot or changes the device encryption password. (Default: 700)

### Password aggregation function

Security level of the encryption.

Possible options:

- **I: Argon2id, 8M/7 ops**



- **II: Argon2id, 128M/3 ops** (Default)
- **III: Argon2id, 256M/3 ops**
- **IV: Argon2id, 512M/3 ops**
- **V: Argon2id, 1024M/4 ops**
- **VI: Argon2id, 128M/4 ops**

#### **Minimum password length**

Minimum number of characters the password must be composed of. (Default: 8)

#### **Unwanted strings in password (comma separated)**

Comma-separated list of strings that must not be in the password

#### **The password must contain**

Defines how many of the subsequent minimum requirements (minimum amount of lower case letters, etc.) must be fulfilled.

Possible options:

- **All** (Default)
- **2 of**
- **3 of**

#### **Minimum amount of lower case letters**

Defines at least how many lower case letters must be in the password.

#### **Minimum amount of upper case letters**

Defines at least how many upper case letters must be in the password.

#### **Minimum amount of numbers**

Defines at least how many numbers must be in the password.

#### **Minimum amount of special characters**

Defines at least how many special characters must be in the password.

#### **Special characters allowed**

Lists all the non-alphanumeric characters without separators that are allowed in the password.



## Password

The following article provides details on the user types and their roles in IGEL OS. You can configure passwords for the user types to protect your endpoint devices against unwanted changes.

Menu path: **Security > Password**

A screenshot of the IGEL Setup software interface. The window title is "IGEL Setup". The top navigation bar includes tabs for Accessories, User Interface, Network, Devices, Security (which is highlighted in yellow), System, and Apps. To the right of the tabs are search and settings icons. The main content area has two sections: "Administrator" and "Setup Administrator".  
**Administrator Section:**

- A "Use Password" checkbox is checked.
- Below it, there are fields for "Password", "New password", and "New password (repeated)".
- A "Set password" button is located at the bottom right of this section.

  
**Setup Administrator Section:**

- A "Setup Administrator Access" checkbox is checked.
- Below it, there are fields for "Setup Administrator Password", "New password", and "New password (repeated)".
- A "Set password" button is located at the bottom right of this section.

  
**Action Buttons:** At the bottom of the configuration window, there are three buttons: "Close" (with a red X icon), "Save" (with a green checkmark icon), and "Save and Close" (with both a green checkmark and a blue save icon).

### IGEL Setup Password Protection

Configure the administrator password to create the password protection for the IGEL Setup. You can also configure the setup administrator and the setup user to allow additional access to the IGEL Setup. For more information, see [Setup](#)(see page 38).



- ⓘ The assignment of the administrator password is a prerequisite for all other rights assignments. Even if the administrator wants to leave the administration of the IGEL Setup to the setup administrator, the administrator password must be set.

⚠ If you do not configure any password, the IGEL Setup can be opened without password protection.

## User Rights

The user types have the following access rights:

- **Administrator:** If configured, the administrator password protects the following critical actions/areas from unauthorized access:
  - IGEL Setup
  - Reset to factory defaults boot mode. (For more information, see [Boot Menu\(see page 4\)](#).)
  - Accessing the local terminal as `root`. (For more information, see [Terminals\(see page 12\)](#).)
  - Virtual console access. (For more information, see [Access Control\(see page 55\)](#).)
  - sessions, for which **Administrator** is set under **Password protection**. (For more information, see [Starting Methods for Apps\(see page 369\)](#).)

If configured, the administrator can access the following with a password:

- **Setup administrator :** If configured, the setup administrator can access the following with a password:
  - IGEL Setup
- **Setup user :** If configured, the setup user can access the following with a password:
  - IGEL Setup
  - sessions, for which **Setup user** is set under **Password protection**. (For more information, see [Starting Methods for Apps\(see page 369\)](#).)
- **User :** If configured, the user can access the following with a password:
  - the terminal session as `user`. (For more information, see [Terminals\(see page 12\)](#).)
  - sessions, for which **User** is set under **Password protection**. (For more information, see [Starting Methods for Apps\(see page 369\)](#).)

ⓘ You can also use the **User** password for starting the screenlock: **User Interface > Screenlock / Screensaver > Starting Methods for Session > Password protection**. For details, see [Screenlock / Screensaver\(see page 101\)](#).

However, note the following:



The **User** is not the same as the local user configured under **Security > Logon > Local User**. For unlocking the screenlock, the local user password (not the user password) is used. For details, see Local User and [Options](#)(see page 103).

- **User account for remote access:** If configured, the `ruser` can access the device via Secure Shell (SSH). (For more information, see [SSH Access](#)(see page 297).)

## Administrator

### Use password

Administrator password protection is enabled and further user types can be configured. The password is set by clicking **Set password**.

Administrator access is granted without password protection. No password can be configured for the user (`user`), the setup user, and the setup administrator. (Default)

### Change password

Click the button to set a new password.

#### Effects on local terminal access

Setting an administrator password has the following effects on the access to local terminals:

- For logging in as `root`, the administrator password must be entered.
- Logging in as `user` is no longer possible by default. However, you can allow access for `user` by making the following settings:
  - Enable the registry key `system.security.usershell` (Default: Disabled).
  - Set a user password.

For logging in as `user`, the user password will have to be entered.

## Setup Administrator

### Setup administrator access

This option is only available if an administrator password is set.

The setup administrator can access the IGEL Setup with a password. The password is set by clicking **Set password**.

The setup administrator cannot access the IGEL Setup. (Default)

### Change password

Click the button to set a new password.



## Setup User

### Setup user access

This option is only available if an administrator password is set.

- Setup user password protection is enabled. The password is set by clicking **Set password**.
- The setup user cannot access the IGEL Setup. Sessions, for which **Setup user** is set under **Password protection** will not have password protection. (Default)

### Change password

Click the button to set a new password.

## User

### Use password

This option is only available if an administrator password is set.

- User password protection is enabled. The password is set by clicking **Set password**.
- If an administrator password is set, the user ( `user` ) cannot log in to the device via the local terminal. Sessions, for which **User** is set under **Password protection** will not have password protection. (Default)

### Change password

Click the button to set a new password.

## User Account for Remote Access

### Enable login

- The remote user ( `ruser` ) can log in to the device via SSH. (Default)
- Logging in via SSH is not possible.

For further SSH access settings, see [SSH Access](#)(see page 297).

### Use password

- A password is needed to log in via SSH. The password is set by clicking **Set password**.
- No password is needed to log in via SSH. (Default)

### Change password

Click the button to set a new password.



## Logon

The following logon settings are available in IGEL OS.

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- Taskbar(see page 268)
- Active Directory/Kerberos(see page 271)
- Single Sign-On(see page 273)
- Local User(see page 275)



## Taskbar

This article shows how to configure the taskbar for the login dialog and for when the screen is locked in IGEL OS.

Menu path: **Security > Logon > Taskbar**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The top navigation bar includes tabs for Accessories, User Interface, Network, Devices, Security (which is highlighted in yellow), System, and Apps, along with search and settings icons. On the left, a sidebar menu lists "Device Encryption", "Password", "Logon" (which is expanded to show "Taskbar", "Active Directory/Kerberos", "Smartcard", "Change password", and "Update"), and "Single Sign-On", "Local User", and "Active Directory/Kerberos". The main content area is titled "Taskbar settings for the login dialog" and contains a list of seven items, each with a refresh icon, a checkbox, and a descriptive label. Most checkboxes are checked. At the bottom, there are buttons for "Close", "Save", and "Save and Close".

	Setting	Status
1	Show taskbar in login screen	<input checked="" type="checkbox"/>
2	Show clock	<input checked="" type="checkbox"/>
3	Show keyboard layout switcher	<input checked="" type="checkbox"/>
4	Show on-screen keyboard button	<input type="checkbox"/>
5	Start on-screen keyboard automatically	<input type="checkbox"/>
6	Show reboot button	<input type="checkbox"/>
7	Show shutdown button	<input checked="" type="checkbox"/>

### Taskbar Settings for the Login Dialog

#### Show taskbar in login screen

A taskbar is shown in the login screen. (Default)

**Show clock**

A clock is shown in the taskbar in the login screen. (Default)

**Show keyboard layout switcher**

A keyboard layout switcher is shown in the taskbar in the login screen. (Default)

**Show on-screen keyboard button**

A button to start an on-screen keyboard is shown in the taskbar in the login screen.

The button is not shown. (Default)

**Start on-screen keyboard automatically**

The on-screen keyboard is started automatically with the login screen.

The on-screen keyboard is not started automatically. (Default)

**Show reboot button**

Reboot button is shown in the taskbar in the login screen.

The button is not shown. (Default)

**Show shutdown button**

Shutdown button is shown in the taskbar in the login screen. (Default)

**Taskbar Settings When the Screenlock Is Active****Show taskbar in screenlock**

A taskbar is shown when the screen is locked. (Default)

**Show clock**

A clock is shown in the taskbar when the screen is locked. (Default)

**Show keyboard layout switcher**

A keyboard layout switcher is shown in the taskbar when the screen is locked. (Default)

**Show on-screen keyboard button**

A button to start an on-screen keyboard is shown in the taskbar when the screen is locked.

The button is not shown. (Default)



### Start on-screen keyboard automatically

- The on-screen keyboard is started automatically when the screen is locked.  
 The on-screen keyboard is not started automatically. (Default)

### Show reboot button

- Reboot button is shown in the taskbar when the screen is locked.  
 The button is not shown. (Default)

### Show shutdown button

- Shutdown button is shown in the taskbar when the screen is locked.  
 The button is not shown. (Default)

### Show logoff button

- Logoff button is shown in the taskbar when the screen is locked.  
 The button is not shown. (Default)

**i** There is no separate option for enabling/disabling network connection icons in the login dialog and/or on the locked screen. With **Show taskbar in login screen** and **Show taskbar in screenlock** enabled, the icons appear automatically if **Enable tray icon** is activated under:

- **Network > LAN Interfaces > Interface 1 / Interface 2 / Wireless**
- **Network > Mobile Broadband**
- **Network > VPN**

The network connection icons in the login dialog and on the locked screen serve for information purposes only and thus are inactive on clicking, except for the Wi-Fi icon.

The Wi-Fi icon invokes a dialog for turning Wi-Fi on/off, or the Wireless Manager in case it is activated under **Network > LAN Interfaces > Wireless**. For more information, see [Switching the Wi-Fi Connection Off or On](#)(see page 164) and [Wireless Manager](#)(see page 162).



## Active Directory/Kerberos

This article shows how to enable local login to the device via the Kerberos protocol in IGEL OS.

- i** Active Directory/Kerberos must be configured as a prerequisite, see [Active Directory/Kerberos\(see page 277\)](#).

Menu path: **Security > Logon > Active Directory/Kerberos**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices, Security (which is highlighted in yellow), System, and Apps. Below the tabs is a search bar and a gear icon. On the left, there's a sidebar with "Logon" expanded, showing "Taskbar", "Active Directory/Kerberos" (which is selected and highlighted in orange), "Single Sign-On", "Local User", "Active Directory/Kerberos" (under "Logon"), "Smartcard", "Change password", and "Update". The main content area is titled "Login Methods". It shows five items: "Login to Active Directory domain" (checkbox is empty), "Explicit" (checkbox is checked), "Remember last user name" (checkbox is empty), "Smartcard" (checkbox is empty), and "Smartcard removal action" (dropdown menu with "Log out" option). Each item has an "i" icon to its right.

- i** The login can be used for single sign-on in a number of session types (ICA, RDP).

### Login to Active Directory domain

- You can log in to the device via Active Directory.  
 You cannot log in to the device via Active Directory. (Default)

### Login Methods

#### Explicit



- You can log in with a user name and password. (Default)
- You cannot log in with a user name and password. If logging in with a smartcard is set up, you can log in with a smartcard.

#### Remember last user name

- The login dialog will be pre-populated with the last user name that logged on. **Explicit** must be enabled for this.
- The login dialog will not be pre-populated. (Default)

#### Smartcard

- You can log in using a smartcard.
- You cannot log in using a smartcard. (Default)

#### Smartcard removal action

Specifies what action is performed when the smartcard via which the user is logged in is removed.  
Possible actions:

- **Log out:** The user is logged out from the device. (Default)
- **Lock device:** The screen is locked.

- i** If the login method is configured and the **Allow system logoff** option is enabled under **System > Power Options > Shutdown**, the user can log off the device through the shutdown menu. For information on how to access the shutdown menu, see [Commands](#)(see page 137). For information on how to configure the shutdown menu, see [Shutdown](#)(see page 319).



## Single Sign-On

Single Sign-On (SSO) is an authentication method that can be used via a cloud-based identity provider (IdP) to access the local device and apps. This article describes the options used for configuring SSO in IGEL OS.

- i** For a detailed description of the entire SSO configuration process, see [Configuring Single Sign-On \(SSO\)](#).

Menu path: **Security > Logon > Single Sign-On**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices, Security (which is highlighted in yellow), System, and Apps. To the right of the tabs are search and settings icons. The left sidebar has a tree view with categories: Device Encryption, Password, Logon (expanded), Taskbar, Active Directory/Kerberos, Single Sign-On (selected and highlighted in yellow), Local User, Active Directory/Kerberos (disabled), Smartcard, Change password, and Update. The main content area is titled "Identity Providers". It shows a section for "Single Sign-On with Identity Provider" with a checkbox that is unchecked. Below that is a "Identity Provider" dropdown menu set to "Okta". There are four input fields: "Okta URL" (empty), "Client ID" (empty), "Client secret" (placeholder "New password"), and "New password (repeated)". A "Set password" button is at the bottom right of these fields.

### Single Sign-On with identity provider

- SSO is used as the authentication method.

- i** To have a fallback option if something goes wrong with SSO, e.g. a network failure, it is recommended to configure local login in addition under **Security > Logon > Local User**. For more information, see [Local User](#)(see page 275).



SSO is not used. (Default)

### Identity provider

The identity provider used for the SSO configuration.

Possible options:

- **Okta**
- **Azure AD**

Identity Provider is Set to "Okta"

#### Okta URL

The URL of the Okta identity provider.

#### Client ID

The client ID that was created in Okta.

#### Client secret

This is a value created by the identity provider. The value can be copied from the Identity Provider Admin Console.

Identity Provider is Set to "Azure AD"

#### Azure AD Tenant Name/ID

The value you have obtained as **Directory (tenant) ID** in Azure AD Portal.

#### Application (client) ID

The value you have obtained as **Application (client) ID** in your Azure AD Portal.

#### Client secret

This is a value created by the identity provider. The value can be copied from the Identity Provider Admin Console.

- ⓘ If the login method is configured and the **Allow system logoff** option is enabled under **System > Power Options > Shutdown**, the user can log off the device through the shutdown menu. For information on how to access the shutdown menu, see [Commands](#)(see page 137). For information on how to configure the shutdown menu, see [Shutdown](#)(see page 319).



## Local User

This article shows how to configure the local login authentication in IGEL OS. [Commands](#)(see page 137)

- i** If several login methods are enabled, the login method can be selected on the login screen.

Menu path: **Security > Logon > Local User**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices, Security (which is highlighted in yellow), System, and Apps. Below the tabs is a search bar with a magnifying glass icon and a gear icon. On the left, there's a sidebar with a tree view: Device Encryption, Password, Logon (expanded), Taskbar, Active Directory/Ker..., Single Sign-On, Local User (selected and highlighted in yellow), Active Directory/Kerberos, Smartcard, Change password, and Update. The main content area shows a "Logon with local user password" section with a checkbox labeled "Login with local user password" which is checked. Below it are fields for "Password", "New password", and "New password (repeated)". At the bottom right of this section is a "Set password" button.

### Login with local user password

- Upon the start of the device, a login screen is shown and authentication with a local user password is required. The password specified under **Password** is deployed to log in.
- No authentication is required upon device startup. (Default)

### Password

The password deployed to log in. This password is also required for unlocking the screen if the **Require password to unlock (screenlock)** option is enabled under **User Interface > Screenlock / Screensaver > Options**. For more information, see [Options](#)(see page 103).



- ⓘ If the login method is configured and the **Allow system logoff** option is enabled under **System > Power Options > Shutdown**, the user can log off the device through the shutdown menu. For information on how to access the shutdown menu, see [Commands](#)(see page 137). For information on how to configure the shutdown menu, see [Shutdown](#)(see page 319).



## Active Directory/Kerberos

This article shows how to configure the options for Active Directory with Kerberos in IGEL OS.

Menu path: **Security > Active Directory/Kerberos**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices, Security (which is highlighted in yellow), System, and Apps. To the right of the tabs are search and filter icons. The left sidebar contains a tree view of configuration categories: Device Encryption, Password, Logon, Active Directory/Kerberos (which is expanded to show Domain 1, Domain 2, Domain 3, Domain 4, and Domain Realm Map...), Smartcard, Change password, and Update. The main content area shows configuration options for Active Directory/Kerberos. It includes a "Enable" checkbox (unchecked), a "Default domain (fully qualified domain name)" input field with a refresh icon, and three checked checkboxes for "DNS lookup for domain controller", "DNS lookup for domain", and "Obtain Addressless Tickets". At the bottom are "Close", "Save", and "Save and Close" buttons.

Device Encryption

Password

Logon

Active Directory/Kerberos

- Domain 1
- Domain 2
- Domain 3
- Domain 4
- Domain Realm Map...

Smartcard

Change password

Update

Enable

Default domain (fully qualified domain name)

DNS lookup for domain controller

DNS lookup for domain

Obtain Addressless Tickets

Close Save Save and Close

### Enable

- The Kerberos basic configuration will be carried out.
- The Kerberos basic configuration will not be carried out. (Default)



#### Default domain (fully qualified domain name)

This value must match the Windows domain on which the logon is to take place. The value must be entered in upper case letters. e.g. `EXAMPLE.COM`.

#### DNS lookup for domain controller

- In order to find the Key Distribution Centers (KDCs, domain controllers) and other servers for a realm, if they are not explicitly indicated, DNS SRV records are used. (Default)
- The KDCs entered under **Security > Active Directory/Kerberos > Domain 1 ... Domain 4** will be used.

#### DNS lookup for domain

- In order to determine the Kerberos realm of a host, DNS TXT records are used. (Default)
- The details under **Setup > Security > Active Directory/Kerberos > Domain Realm Mapping** are used.

#### Obtain Addressless Tickets

- The first Kerberos ticket is addressless. This may be necessary if the client is located behind a Network Address Translation (NAT) device. (Default)

- 
- [Domain](#)(see page 279)
  - [Domain Realm Mapping](#)(see page 281)



## Domain

This article shows how to configure domains for the Active Directory/Kerberos configuration in IGEL OS. Up to four domains can be configured.

Menu path: **Security > Active Directory/Kerberos > Domain [1-4]**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices, Security (which is highlighted in yellow), System, and Apps. To the right of the tabs are a search icon and a gear icon. On the left, there's a sidebar with a tree view: Device Encryption, Password, Logon, Active Directory/Kerberos (with sub-options: Domain 1, Domain 2, Domain 3, Domain 4, Domain Realm Map...), Smartcard, Change password, and Update. The main content area has a "Fully qualified domain name" input field with a refresh button and an info icon. Below it is a "Domain Controller List" table with a header row "Domain Controller" and an empty data row. At the bottom are buttons for Close, Save, and Save and Close.

### Fully qualified domain name

Name of the domain



## Domain Controller List

To manage the list of domain controllers:

- Click to create a new entry.
- Click to remove the selected entry.
- Click to edit the selected entry.
- Click to copy the selected entry.

To configure a domain, proceed as follows:

1. Under **Fully qualified domain name**, give the name of the domain (Kerberos realm).
2. Click to create a new entry.
3. Under **Domain Controller**, give the name or IP address of the domain controller (Kerberos Key Distribution Center). A port number can be added to the host name; the port name must be preceded by a colon.
4. Click **Confirm**.  
The domain controller will be added to the **Domain Controller List**.



## Domain Realm Mapping

With domain realm assignment, a host name is translated into the corresponding Kerberos realm name. This article shows how to configure domain realm mapping in IGEL OS.

Menu path: **Security > Active Directory/Kerberos > Domain Realm Mapping**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices, Security (which is highlighted in yellow), System, and Apps. To the right of the tabs are a search icon and a gear icon. The left sidebar contains a tree view with nodes: Device Encryption, Password, Logon, Active Directory/Kerberos (expanded), Domain 1, Domain 2, Domain 3, Domain 4, Domain Realm Map... (selected and highlighted in yellow), Smartcard, Change password, and Update. The main content area is titled "Domain Realm Map..." and contains a table with two columns: "DNS host or domain name" and "Active Directory domain name". There is one row in the table. At the bottom of the content area are buttons for "Close", "Save", and "Save and Close".

DNS host or domain name	Active Directory domain name

### Use default DNS domain - Active Directory domain mapping

- The DNS name and Active Directory domain name match. (Default)  
 DNS name and Active Directory domain name assignments must be set up.



## Domain Realm Mapping

To manage the list of realm mappings:

- Click to create a new entry.
- Click to remove the selected entry.
- Click to edit the selected entry.
- Click to copy the selected entry.

To set up a DNS name to Active Directory domain name assignment proceed as follows:

1. Click to create a new entry.  
The Add dialog is displayed.
2. Under **DNS host or domain name**, enter the lower case FQDN name of a host or a domain that is to be assigned to an Active Directory domain name. Example: `.example.com`
3. Under **Active Directory domain name**, enter the Active Directory domain name that is to be assigned to the host name.
4. Click **Confirm**.  
The data entered will be added to the **Domain Realm Mapping** list.



## Smartcard Services

Smartcard services need to be configured in order to use smartcard readers. This article shows the settings options of smartcard services in IGEL OS.

- ⓘ You will find a list of supported smartcard readers in the [IGEL Hardware Database<sup>18</sup>](#).

Menu path: **Security > Smartcard > Services**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The window has a dark header bar with tabs: Accessories, User Interface, Network, Devices, Security (which is highlighted in yellow), System, and Apps. To the right of the tabs are a search icon and a gear icon. The main content area has a sidebar on the left with the following menu items: Device Encryption, Password, Logon, Active Directory/Kerberos, Smartcard (with "Services" selected and highlighted in orange), Change password, and Update. The main panel shows a configuration section for "Smartcard Services". It includes a checkbox labeled "Activate PC/SC daemon" which is checked. Below it is a message box stating "PC/SC devices:" followed by "There are no PC/SC devices available". At the bottom of the main panel are three buttons: "Refresh device list", "Close", "Save", and "Save and Close".

<sup>18</sup> <https://www.igel.com/linux-3rd-party-hardware-database/>



### Activate PC/SC daemon

The PC/SC daemon enables the smartcard reader to connect to the device, so that the smartcard is available to an application. This can be a server-side application where data is forwarded via an RDP or ICA connection or a local application, e.g. the browser.

- The PC/SC service is enabled. The card reader is available for applications. (Default)
- The PC/SC service is disabled. The card reader is not available.

### PC/SC devices

List of smartcard readers currently connected to the device. Internal smartcard readers and a variety of USB smartcard readers are supported.

### Refresh device list

Click the button to refresh the list of available PS/SC devices.



## Change Password

This article shows how to set up and use the Change Password function in IGEL OS.

Menu path: **Security > Change Password**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The top navigation bar includes tabs for Accessories, User Interface, Network, Devices, Security (which is highlighted in yellow), and System. Below the tabs are search and settings icons. The left sidebar contains a tree view with categories like Device Encryption, Password, Logon, Active Directory/Kerberos, Smartcard, Change password (which is selected and highlighted in orange), and Update. The main panel shows a "Session name" field containing "Change Password". Below it is a section titled "Starting Methods for Session" with four entries: "Start Menu" (unchecked), "Menu folder" (empty), "Start Menu's System tab" (unchecked), and "Application Launcher" (unchecked). At the bottom are buttons for Close, Save, and Save and Close.

With this function, the user can change the password or PIN for the login method he used for his current session, provided one of the following login methods was used:

- Active Directory with username and password
- Active Directory with third-party smartcard
- Local user password

The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).

**i** If autostart is enabled in the starting methods, the **Change Password** function is presented after login.



- ⓘ When a password change is required, a dialog informing the user is presented after login. When the user clicks the password change button in this dialog, the **Change Password** function starts automatically.

## Using Change Password

To change your password for your current login method, proceed as follows:

1. Start the **Change Password** function.
2. Enter the changed password or PIN in the dialog. The dialog differs according to the login method that is currently used.
3. Click **OK**.  
The password is changed.



## Update

This article shows how to enable local app installation in IGEL OS. For more information on local app installation, see [Installing IGEL OS Apps Locally on the Device](#). For more information on app updates, see [Update](#)(see page 362).

Menu path: **Security > Update**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices, Security (which is highlighted in yellow), System, and Apps. To the right of the tabs are a search icon and a settings gear icon. The left sidebar contains a tree view with nodes: Device Encryption, Password, Logon, Active Directory/Kerberos, Smartcard, Change password, and Update, with "Update" selected and highlighted with a yellow bar. The main content area shows a "Permit local app installation" section with a checkbox labeled "Permit local app installation" which is checked. Below the checkbox are "Close", "Save", and "Save and Close" buttons.

### Permit local app installation

- Enables the local app portal and the installation of apps by the user. (Default)



## System

In this chapter, you find information on system configuration in IGEL OS.

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- [Time and Date](#)(see page 289)
- [Remote Management](#)(see page 291)
- [Remote Access](#)(see page 296)
- [Logging](#)(see page 305)
- [Power Options](#)(see page 309)
- [System Customization](#)(see page 322)
- [Update](#)(see page 362)



## Time and Date

This article shows the time and date settings options in IGEL OS.

Menu path: **System > Time and Date**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The window has a dark header bar with tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. Below the tabs is a search bar and a gear icon. On the left, there's a sidebar with a tree view: Time and Date (selected and highlighted in yellow), Remote management, Remote Access, Logging, Power Options, System Customization, Update, and Registry. The main content area is titled "Timezone" and contains a dropdown menu set to "(UTC+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna". Below that is a section for "Time server" with a checkbox "Use NTP time server" which is checked, and an input field for "NTP time server" containing "ntp.igel.com". At the bottom, there's a section for "Manual date and time configuration" with two input fields: "06/28/2020" and "11:07 AM", and a "Change date and time" button. At the bottom right are three buttons: "Close", "Save", and "Save and Close".

### Timezone

Timezone of your location

### Use NTP time server

- The system clock is set via Network Time Protocol (NTP) during boot.
- The system clock is not set via NTP. (Default)



#### NTP time server

IP address or name of the NTP time server. If you would like to enter a list of NTP time servers for redundancy purposes, separate the names / IP addresses by spaces.

#### Manual Date and Time Configuration

Carries over the time and date and sets the hardware clock. Once the date and time is set, click **Change date and time** to save the change.

- ✓ You can set the date by selecting from the calendar, or using the arrow keys to adjust the date.  
You can set the time by typing it in, or using the arrow keys to adjust the time.



## Remote Management

In IGEL OS, endpoint devices are managed using the Universal Management Suite (UMS). This article shows the settings related to the remote management, for example, the configuration of UMS servers and user information dialogs on UMS updates. For more information on the UMS, see [Universal Management Suite \(UMS\)](#).

Menu path: **System > Remote Management**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The window has a dark header bar with the title and standard window controls. Below the header is a navigation menu with tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. To the right of the tabs are search and settings icons. The main content area is divided into sections. On the left, there's a sidebar with "Time and Date", "Remote management" (which is selected and highlighted in yellow), "Remote Access", "Logging", "Power Options", "System Customization", "Update", and "Registry". The main panel contains a table for "Universal Management Suite" settings. It lists two UMS servers: one at 192.168.30.109 port 8443 and another at 192.168.30.109 port 8443. Below the table are several configuration options with status indicators (green checkmarks or blue info icons): "Display 'Apply changes' dialog on boot" (checked), "Timeout" (set to 20, with a slider from 0 to 120), "Default action on boot" (set to "Apply changed configuration immediately"), and "Prompt user on UMS actions" (checked). At the bottom are three buttons: "Close", "Save" (with a checkmark), and "Save and Close".

Universal Management Suite	
UMS server	Port number
192.168.30.109	8443
192.168.30.109	8443

Display 'Apply changes' dialog on boot

Timeout  0 120

Default action on boot

Prompt user on UMS actions

### Universal Management Suite

If the device is registered on a **UMS Server**, its IP address / hostname and **Port number** will be shown in the list.



- i** The list can contain more than one UMS instance. If the device cannot contact a UMS Server under the hostname `igelrmserver`, and the DHCP option 244 is not set, the device will go through the entries in the list until it can contact a UMS Server successfully.

To manage the list of servers:

- Click to create a new entry.
- Click to remove the selected entry.
- Click to edit the selected entry.
- Click to copy the selected entry.

Clicking brings up the **Add** dialogue, where you can define the following settings:

- **UMS server**  
Name or IP of the UMS Server
- **Port number**  
Port number of the UMS Server (Default: 8443)

### Display “Apply changes” dialog on boot

If new settings were made in the UMS, the device may receive them during the boot procedure.

During the boot procedure, the **Apply changes** dialog is displayed and the user can decide whether the new settings are applied immediately. If the user does not allow them to be applied immediately, they will automatically be applied next time the system is restarted. (Default)

The **Apply changes** dialog will not be shown. The new settings will be applied or ignored depending on the setting under **Default action on boot**.

### Timeout

Number of seconds for which the **Apply changes** dialog is shown. If the timeout is exceeded, the received settings will automatically be applied. (Default: 20)

Setting the value to 0 disables the timeout, and the dialog is shown until the user clicks a button.

### Default action on boot

Configure the action that is to be performed if the dialog exceeds the timeout or if the timeout is disabled.

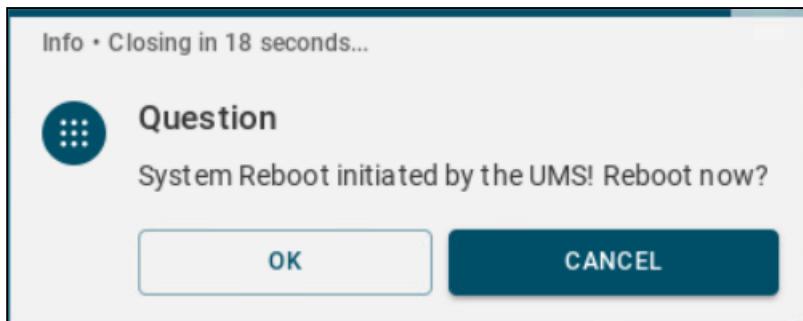
Possible values:

- **Apply changed configuration immediately:** New settings will take effect immediately, and programs that are running may be restarted. (Default)
- **Ignore changed configuration:** New settings will not be applied. The new configuration will be saved on the device, and applied the next time a new configuration is applied.



#### Prompt user on UMS actions

The user is informed through a message window when UMS actions are performed on the device. (Default)



The user is not informed when UMS actions are performed on the device.

#### Timeout

Number of seconds for which the UMS actions information dialog is shown. If the timeout is exceeded, the received settings will automatically be applied. (Default: 20)

Setting the value to 0 disables the timeout, and the dialog is shown until the user clicks on a button.

#### Structure tag

You can define a structure tag in order to sort the device into a directory in accordance with the UMS directory rules. For further information on the use of structure tags, see Using Structure Tags.

#### Show UMS connection status tray icon on desktop



The icon is displayed in the taskbar, showing the status of the UMS connection. Clicking the icon displays information about the connected UMS server.



## Options

This article shows how to enable the logging of remote management events in IGEL OS.

- ⓘ The event logs for the endpoint device can be found in the UMS console under **System > Logging**. For more information, see User Logs.

Menu path: **System > Remote Management > Options**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The window has a dark header bar with the title and standard window controls. Below the header is a navigation bar with tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. To the right of the tabs are a search icon and a gear icon. The main content area has a sidebar on the left containing a tree view of configuration categories: Time and Date, Remote management (which is expanded), Options (selected and highlighted in yellow), Remote Access, Logging, Power Options, System Customization, Update, and Registry. The main panel on the right shows a setting for "Log login and logoff events" with a checkbox that is currently unchecked. There is also a small info icon ( ⓘ ) next to the setting. At the bottom of the main panel are three buttons: "Close", "Save", and "Save and Close".

### Log login and logoff events



- If a user logs on or off via Citrix or Kerberos, details of this event are sent to the UMS and can be used there, e.g. to process support queries. Logoffs from the Shared Workplace are also logged (logons take place via the UMS anyway).

**(i)** For this option to work, the **Activate event logging** option must be enabled in **UMS Console > UMS Administration > Globale Configuration > Logging**. For more information, see **Logging**.

- Logon and logoff events are not relayed. (Default)



## Remote Access

To support remote management, the following remote access options can be configured for the device.

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- [SSH Access](#)(see page 297)
- [Shadow](#)(see page 300)
- [Secure Terminal](#)(see page 303)



## SSH Access

This article shows how to configure Secure Shell (SSH) access to the device in IGEL OS.

Menu path: **System > Remote Access > SSH Access**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The window has a dark header bar with the title and several tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. To the right of the tabs are search and settings icons. The main content area is divided into sections. On the left, there's a sidebar with a tree view of configuration categories: Time and Date, Remote management, Remote Access (with SSH Access selected and highlighted in yellow), Shadow, Secure Terminal, Logging, Power Options, System Customization, Update, and Registry. The main panel contains configuration fields and a table. At the top of the main panel is a section with a "Enable" checkbox (unchecked by default). Below it are checkboxes for "Permit empty passwords" and "Permit administrator login", both also unchecked. A "Port number" field is set to "22". Underneath these is a "User access" table with three rows:

User name	Host name	Deny
user	*	true
ruser	*	false

At the bottom of the main panel is another section with a "Permit X11 forwarding" checkbox (unchecked). At the very bottom are three buttons: "Close", "Save" (with a checkmark icon), and "Save and Close".

User name	Host name	Deny
user	*	true
ruser	*	false

### Enable

- The SSH service is enabled.
- The SSH service is disabled. (Default)

If SSH access is enabled, you can configure the following:



### Permit empty passwords

- Logging on without a password is allowed.  
 Logging on without a password is not allowed. (Default)

### Permit administrator logon

- Logging on as an administrator is allowed.  
 Logging on as an administrator is not allowed. (Default)

### Port number

Port number for SSH. (Default: 22)

## User Access

List of configured users

To manage the list:

- Click to create a new entry.
- Click to remove the selected entry.
- Click to edit the selected entry.
- Click to copy the selected entry.

Clicking brings up the **Add** dialogue, where you can define the following settings:

- **User name**

Permitted user

- **Hostname**

Name of the host from which SSH access takes place (example: `xterm.igel.de`)

- **Deny**

Access is denied.

Access is allowed. (Default)

- i** For `ruser` a password has to be assigned under **Security > Password**. The names `root` and `user` work also without passwords. For more information, see [Password](#)(see page 263).



### Permit X11 forwarding

- X11 forwarding is enabled.
- X11 forwarding is disabled. (Default)

### Applications Access for Remote User “ruser”

List of commands with availability configurations for the `ruser`

To manage the list:

- Click to create a new entry.
- Click to remove the selected entry.
- Click to edit the selected entry.
- Click to copy the selected entry.

Clicking brings up the **Add** dialogue, where you can define the following settings:

- **Command line**

Command that is allowed or prohibited for the remote user

- **Enable application**

The application given under **Command line** may be executed by the remote user. (Default)

The application given under **Command line** may not be executed by the remote user.



## Shadow

IGEL OS offers the ability to observe the endpoint device via shadowing. This is handy for helpdesks, troubleshooting, etc. This is possible via IGEL Virtual Network Computing (VNC) Viewer in the Universal Management Suite (UMS) or another VNC client (e.g. TightVNC), see [Shadowing - Observe IGEL OS Desktop via VNC](#).

This article shows the settings required for configuring VNC access to your devices.

Menu path: **System > Remote Access > Shadow**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. To the right of the tabs are search and settings icons. The left sidebar contains a tree view of configuration categories: Time and Date, Remote management, Remote Access (with SSH Access, Shadow selected, and Secure Terminal), Logging, Power Options, System Customization, Update, and Registry. The main content area shows the "Shadow" configuration page. It includes several settings with checkboxes: "Allow remote shadowing" (unchecked), "Secure mode" (checked), "Use Password" (unchecked). Below these are password fields for "New password" and "New password (repeated)" with a "Set password" button. Other checked checkboxes include "Prompt user to allow remote session", "Allow user to disconnect remote shadowing", and "Allow input from remote". At the bottom are buttons for "Close", "Save", and "Save and Close".

Setting	Description	Status
Allow remote shadowing	Desktop content can be accessed by remote computers with VNC software.	<input type="checkbox"/>
VNC shadowing is not allowed.	(Default)	<input type="checkbox"/>
Secure mode	Endpoint device is observed via shadowing.	<input checked="" type="checkbox"/>
Use Password	Endpoint device is observed via shadowing using a password.	<input type="checkbox"/>
Prompt user to allow remote session	User is prompted to allow remote session.	<input checked="" type="checkbox"/>
Allow user to disconnect remote shadowing	User can disconnect remote shadowing.	<input checked="" type="checkbox"/>
Allow input from remote	Input from remote is allowed.	<input checked="" type="checkbox"/>

### Allow remote shadowing

- Desktop content can be accessed by remote computers with VNC software.
- VNC shadowing is not allowed. (Default)

If **Allow remote shadowing** is activated, you can change the following settings:

#### Secure mode

- Communication will be secured via SSL/TLS and shadowing will only be possible for UMS administrators. (Default)
- Communication will not be secured via SSL/TLS.

#### For Remote Working, Use Secure Shadowing

If the endpoint device is in a mobile or work-from-home environment, it is highly recommended to use secure shadowing only. Regular shadowing without encryption poses a security risk.

#### Use password

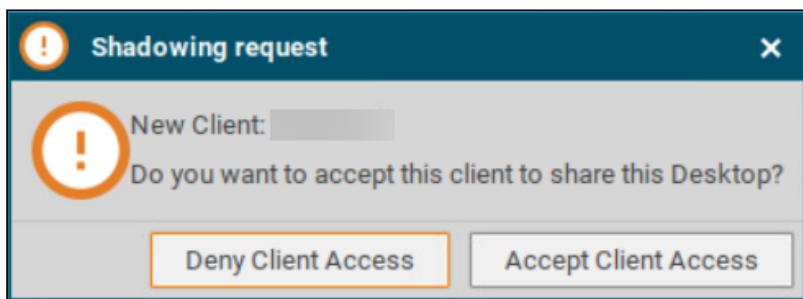
- The remote user is authenticated with a password before shadowing.
- The remote user is not authenticated for shadowing. (Default)

#### Password

Password for the VNC connection

#### Prompt user to allow remote session

- The local user will be asked for permission before shadowing. (Default)



 In a number of countries, for example, Germany, unannounced shadowing is prohibited by law. Do not disable this option if you are in one of these countries!

#### Allow user to disconnect remote shadowing

- A **Disconnect** button with which the user can terminate the VNC connection is shown. (Default)



### Allow input from remote

The remote user can make entries using the keyboard and mouse as if they were the local user. (Default)

### Scale frame buffer

- The screen content of the shadowed device is reduced or enlarged by the **Scale factor** before being transferred.
- The screen content is transferred in the original size. (Default)

### Scale factor

Factor by which the screen content of the shadowed device is enlarged or reduced. Values under 1 reduce the content. (Default: 1.0)

### Position of the indicator

Defines the position of the popup notification about being shadowed.

Possible options:

- **Top right**
- **Top left**
- **Bottom left**
- **Bottom right** (Default)

**i** Further parameters for the VNC server on the device are accessible under **System > Registry > network.vncserver**.



## Secure Terminal

This article shows how to enable or disable the secure terminal connection on the endpoint device in IGEL OS.

Menu path: **System > Remote Access > Secure Terminal**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. To the right of the tabs are search and settings icons. The left sidebar has a tree view with categories like Time and Date, Remote management, Remote Access (expanded), SSH Access, Shadow, Secure Terminal (selected and highlighted with a yellow bar), Logging, Power Options, System Customization, Update, and Registry. The main content area shows a "Secure Terminal" section with a checkbox labeled "Secure Terminal" which is unchecked. There is also a small circular icon with a dot and a question mark icon. At the bottom right of the content area are three buttons: "Close", "Save" (with a checkmark icon), and "Save and Close".

### Secure Terminal

- Secure terminal connection is enabled between the device and the Universal Management Suite (UMS).
- Secure terminal connection is disabled between the device and the UMS. (Default)



For information on how to use the secure terminal from the UMS, see Configuring the Secure Terminal and Using the Secure Terminal.

- ⓘ You can enable secure terminal connection for all registered devices by activating the **Enable secure terminal globally** option under **UMS Console > UMS Administration > Global Configuration > Remote Access**.  
For more information, see Remote Access.

- ⓘ For a list of IGEL specific commands collected by the IGEL Community, see [Cheatsheet-IGELCommunity](#)<sup>19</sup>.

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<sup>19</sup> <https://igel-community.github.io/IGEL-Docs-v02/Docs/Cheatsheet-IGELCommunity/>



## Logging

This article shows the options to configure local and remote logging for the device in IGEL OS.

- i** You can use the System Log Viewer to access system logs. For more information, see [System Log Viewer](#)(see page 40).

Menu path: **System > Logging**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The window has a dark header bar with tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. To the right of the tabs are search and settings icons. The main content area is divided into two columns. The left column is a sidebar with a tree view of configuration categories: Time and Date, Remote management, Remote Access, Logging (which is selected and highlighted in yellow), Power Options, System Customization, Update, and Registry. The right column contains four configuration items, each with a refresh icon and an info icon (i):

- Local logging: A checked checkbox.
- Persistent log partition: An unchecked checkbox.
- Partition size in MB: A text input field containing "100".
- Remote mode: A dropdown menu set to "Off".

At the bottom right of the content area are three buttons: "Close", "Save", and "Save and Close".

### Local logging



- The log messages are stored locally in `/var/log`. The format is human-readable. Log rotation is applied.  
 The log messages are not stored locally.

### Persistent log partition

This parameter is effective if **Local logging** is activated.

- The log messages are stored in a persistent partition on the device. This partition is encrypted.  
 The log messages are stored in temporary files that are deleted on reboot.

### Partition size in MB

Size of the persistent log partition

### Remote mode

Possible options:

- **Server:** The device receives log messages from a remote client.
- **Client:** The device sends its log messages to a remote server.
- **Off:** The device does not send or receive any log messages. (Default)

### Remote Mode Switched to Server

You can configure the device to act as a syslog server. Other clients can send log files to this server; you can create a separate server configuration for each client.

### Template for log file storage

Pattern from which the file path for storing the received log messages is created. For example, in `/var/log/%HOSTNAME%/messages`. `%HOSTNAME%` is the name of the sender which is configured under **Name**.

To manage the **Server** list:

- Click to create a new entry.
- Click to remove the selected entry.
- Click to edit the selected entry.
- Click to copy the selected entry.

Clicking brings up the **Add** dialogue, where you can define the following settings:

- **Local port**



Port on which the local server listens for log messages

- **Transport protocol**

Protocol to be used for the transmission of log messages

Possible options:

- **TCP** (Default)
- **UDP**

- **Name**

Hostname of the sender (optional). This is useful for filtering the log messages based on the clients that have sent them.

- **Local address**

Optional parameter; on multihomed machines (i. e. machines with multiple addresses), this specifies to which local address rsyslog is bound. If no address is specified it defaults to `0.0.0.0`, so that rsyslog listens on every network interface. For more information, see the official documentation at <https://www.rsyslog.com/doc/v8-stable/configuration/modules/imtcp.html>.

## Remote Mode Switched to Client

You can configure one or more clients, e.g. one server for kernel messages and another server for authentication messages.

To manage the **Clients** list:

- Click to create a new entry.
- Click to remove the selected entry.
- Click to edit the selected entry.
- Click to copy the selected entry.

Clicking brings up the **Add** dialogue, where you can define the following settings:

- **Remote address**

IP address or hostname of the remote server

- **Remote port**

Port on which the server listens for log messages

- **Transport protocol**

Protocol to be used for the transmission of log messages

Possible options:

- **TCP** (Default)
- **UDP**



- **Syslog facility**

Type of program for which log messages are created. (Default: Any)

- **Syslog level**

Severity level of the event. (Default: Any)

- **Syslog style template**

Format in which the messages are sent

Possible options:

- **RSYSLOG\_TraditionalForwardFormat** (Default)
- **RSYSLOG\_ForwardFormat**
- **RSYSLOG\_SyslogProtocol23Format**
- **RSYSLOG\_StdJSONFmt**

- **TLS enabled**

TLS encryption for the transmission of log messages is enabled.

Transmitted log messages are not encrypted. (Default)

- **CA certificate**

Path to the local CA root certificate file in PEM format which is used to verify the authenticity of the X.509 certificate of your log collector and analyzer. If the UMS is used to transfer the certificate file to devices, the same path and file name as in the UMS must be entered. Example: `/wfs/ca-certs/ca.pem`  
For more information, see Logging and Log Evaluation.



## Power Options

The following power option configurations are available in IGEL OS.

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- [System](#)(see page 310)
- [Battery](#)(see page 313)
- [Display](#)(see page 316)
- [Shutdown](#)(see page 319)



## System

This article shows how to configure settings for energy saving on your IGEL OS device. You can configure the behavior after a time of inactivity and the CPU power plan.

### **ⓘ Display of Energy Star Logo on Selected HP Endpoint Devices**

With selected Hewlett-Packard (HP) endpoint devices, the Energy Star certification mark is displayed on this Setup page.

Menu path: **System > Power Options > System**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. Below the tabs is a search bar and a gear icon. On the left is a sidebar with categories like Time and Date, Remote management, Remote Access, Logging, Power Options (which is expanded to show System, Battery, Display, Shutdown), System Customization, Update, and Registry. The main content area is titled "System" and contains several configuration items:

- "System suspend/shutdown on inactivity": Set to "Never".
- "System action on inactivity": Set to "Suspend".
- A checkbox "Without dialog" is unchecked.
- A slider for "Dialog timeout" is set to 10, with 0 and 120 as the extremes.
- "CPU power plan for battery mode": Set to "Balanced (recommended)".
- "CPU Power Plan for AC Mode": Set to "High Performance".

At the bottom are buttons for Close, Save, and Save and Close.



### System suspend/shutdown on inactivity

Specify how long the user can be inactive before the system switches to standby mode or shuts down, depending on the **System action on inactivity** setting.

Possible values:

- **Never** (Default)
- **After 1 minute**
- ...
- **After 24 hours**

### System action on inactivity

Possible options:

- **Suspend**: The system is set to standby mode after the timeout defined under **System suspend/shutdown on inactivity**. (Default)
- **Shutdown**: The system is shut down after the timeout defined under **System suspend/shutdown on inactivity**.

### Without dialog

The user is not asked if the system is to be set to standby mode.

The dialog asking for user confirmation is shown. (Default)

### Dialog timeout

Time in seconds, for which the dialog is to be displayed. (Default: 10 seconds)

### CPU power plan for battery mode

The CPU power plan (CPU Governor) used in battery mode

Possible options:

- **High performance**: full performance with maximum processor speed
- **Balanced**: regulation of performance in a balanced manner according to the demands of programs. (Default)
- **Power saver**: lowest processor speed

### CPU power plan for AC mode

The CPU power plan (CPU Governor) used in AC mode

Possible options:

- **High performance**: full performance with maximum processor speed. (Default)
- **Balanced**: slower regulation of performance in a balanced manner according to the demands of programs.
- **Power saver**: lowest processor speed



- ⓘ The CPU power plan can also be set using the battery tray app. For details, see [Battery](#)(see page 313).



## Battery

This article shows battery settings options in IGEL OS.

Menu path: **System > Power Options > Battery**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. To the right of the tabs are search and settings icons. The left sidebar has a tree view with categories: Time and Date, Remote management, Remote Access, Logging, Power Options (expanded), System (expanded), Battery (selected and highlighted in orange), Display, Shutdown, System Customization, Update, and Registry. The main content area is titled "Battery Notification". It contains two sections: "Critical battery level (percentage)" with a value of 5, "Critical battery action" set to "Show warning", and "Critical command" set to "Shutdown". Below this is another section for "Low battery level (percentage)" with a value of 10, "Low battery action" set to "Show warning", and "Low command" set to "Shutdown". At the bottom is a section titled "Battery Tray Icon". At the very bottom are three buttons: "Close", "Save", and "Save and Close".

**Battery Notification**

**Critical battery level (percentage)**

Percentage of remaining battery charge deemed critical. (Default: 5)

**Low battery level (percentage)**

Percentage of remaining battery charge deemed low. (Default: 10)

**Battery Tray Icon**

**Close** **Save** **Save and Close**

### Battery Notification

#### **Critical battery level (percentage)**

Percentage of remaining battery charge deemed critical. (Default: 5)



### Critical battery action

Action to be taken in the event of a critical charge level

Possible options:

- **Do nothing**
- **Show warning** (Default)
- **Run command**
- **Run command in terminal**

### Critical command

Command that is executed when a critical charge level is reached. (Default: Shutdown)

### Low battery level (percentage)

Percentage of remaining battery charge deemed low. (Default: 10)

### Low battery action

Action to be taken in the event of a low charge level

Possible options:

- **Do nothing**
- **Show warning** (Default)
- **Run command**
- **Run command in terminal**

### Low command

Command that is executed when a low charge level is reached. (Default: Shutdown)

Battery Tray Icon

#### Show battery tray icon on desktop

The battery icon is shown in the taskbar. (Default)

The battery icon is not shown.



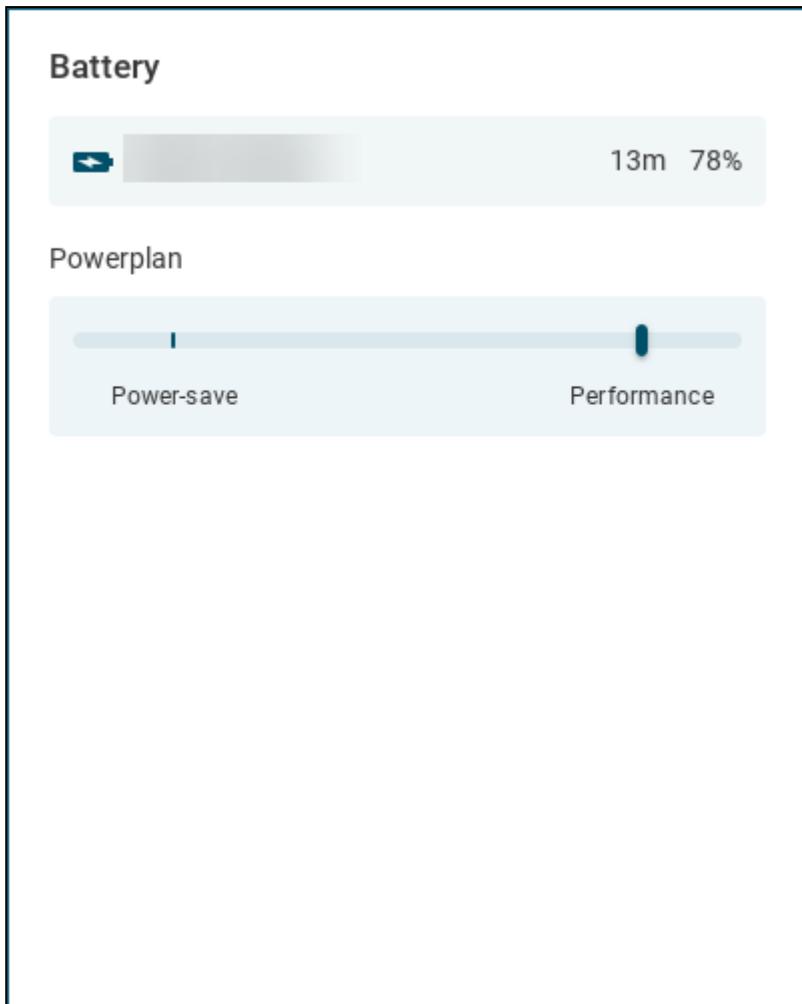
The icon is dynamic and represents the state of the battery charge. For example, is displayed when the battery is charging.

### Battery Tray App

The battery tray app shows information for all available batteries, including multiple internal batteries and batteries of connected bluetooth devices.



Hovering over the battery tray icon displays information on the charge level. Clicking the icon displays the battery tray app with details on the battery status and the option for setting the CPU power plan regulation.



- i** The CPU power plan is set for the current mode in use (AC or Battery). The CPU power plan can be set for all modes under **System > Power Options > System**. For the description of the power plans, see [System](#)(see page 310).



## Display

This article shows how to configure energy-saving stages in IGEL OS.

- ⓘ Naturally, all stages are gone through only if the X-Server does not receive any new entries during the configured time period.

## Power Management

Menu path: **System > Power Options > Display > Power Management**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. Below the tabs is a search bar and a settings gear icon. On the left is a sidebar with categories: Time and Date, Remote management, Remote Access, Logging, Power Options (expanded), System, Battery, Display (expanded), Power Management (selected), Brightness Reduction, Shutdown, System Customization (expanded), Update, and Registry. The main content area is titled "Display Power Management Settings". It contains a section for "On Battery" with three dropdowns: Standby Time (6 Minutes), Suspend Time (8 Minutes), and Off Time (10 Minutes). Below that is a section for "Plugged In" with three dropdowns: Standby Time (10 Minutes), Suspend Time (12 Minutes), and Off Time (disabled). At the bottom are buttons for Close, Save, and Save and Close.



### Handle display power management

The DPMS energy saving functions are enabled. (Default)

The screen must support Display Power Management Signaling (DPMS).

### On Battery / Plugged In

You can select time frames after which energy-saving modes get activated. The time frames are configured separately for **On Battery** and **Plugged In** use of the device. When **Never** is selected, the energy-saving mode is disabled.

The following energy-saving modes can be configured:

- **Standby time**  
After this time frame the device goes to standby mode.
- **Suspend time**  
After this time frame the device goes to sleep mode.
- **Off time**  
After this time frame the device turns off.

### Brightness Reduction

Menu path: **System > Power Options > Display > Brightness Reduction**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar includes "Accessories", "User Interface", "Network", "Devices", "Security", "System" (which is highlighted in yellow), and "Apps". There are also search and settings icons. The left sidebar has a tree view with categories like "Time and Date", "Remote management", "Remote Access", "Logging", "Power Options" (expanded to show "System", "Battery", "Display", "Power Management", and "Brightness Reduction"), "Shutdown", "System Customization", "Update", and "Registry". The main content area shows "Brightness Reduction" settings. Under "On Battery", there are two sliders: "On inactivity reduce to" set to 20 and "Reduce after" set to 9. Under "Plugged In", there are two sliders: "On inactivity reduce to" set to 80 and "Reduce after" set to 9. At the bottom are buttons for "Close", "Save", and "Save and Close".

Brightness Reduction

On Battery

On inactivity reduce to: 20

Reduce after: 9

Plugged In

On inactivity reduce to: 80

Reduce after: 9

**Close** **Save** **Save and Close**

If a device is switched on but not used for some time, energy can also be saved by brightness reduction. The values of the reduction are configured separately for **On Battery** and **Plugged In** use of the device.

### On Battery / Plugged In

#### On inactivity reduce to

The percent value to which the brightness is reduced after a period of inactivity.

#### Reduce after

The period of inactivity after which brightness is reduced. You can set the period between 10-120 seconds. Setting the value to 9 deactivates the reduction.



## Shutdown

This article shows the options to configure the behavior of shutdown menu in IGEL OS. The shutdown menu button can be displayed in the start menu and in the Application Launcher. For more information, see [Start Menu\(see page 95\)](#). You can also configure the shutdown menu as a command session and configure various starting methods. For more information, see [Commands\(see page 137\)](#).

Menu path: **System > Power Options > Shutdown**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The window has a dark header bar with tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. To the right of the tabs are search and settings icons. The main content area is divided into sections. On the left, there's a sidebar with "Time and Date", "Remote Management", "Remote Access", "Logging", "Power Options" (which is expanded to show "System", "Battery", "Display", and "Shutdown"), "System Customization", "Update", and "Registry". The "Shutdown" option is selected and highlighted with a yellow background. The main content area has two main sections: "Global options" and "Additional parameters when triggered via UMS".

**Global options**

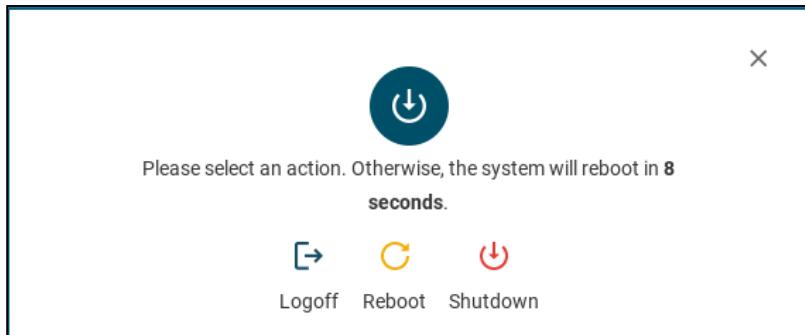
	<input checked="" type="checkbox"/> Allow system shutdown		
	<input checked="" type="checkbox"/> Allow system suspend		
	<input checked="" type="checkbox"/> Allow system reboot		
	<input checked="" type="checkbox"/> Allow system logoff		
<b>Default action</b>			
Suspend			
<b>Dialog timeout</b>		10	
		0	

**Additional parameters when triggered via UMS**

	<input checked="" type="checkbox"/> Allow canceling of shutdown process	
	<input type="checkbox"/> Without dialog	

At the bottom right are three buttons: "Close" (with an X icon), "Save" (with a checkmark icon), and "Save and Close" (with a disk icon).

By default, when the user clicks the shutdown button, an information dialog is displayed. The user can select from the enabled actions or cancel the procedure by closing the window by clicking X or by pressing [Esc].



## Global Options

### Allow system shutdown

- The user can shut down the device. The **Shutdown** button is shown in the info dialog. (Default)  
 The user cannot shut down the device. The **Shutdown** button is not shown in the info dialog.

### Allow system suspend

- The user can suspend the device. The **Suspend** button is shown in the info dialog. (Default)  
 The user cannot suspend the device. The **Suspend** button is not shown in the info dialog.

### Allow system reboot

- The user can reboot the device. The **Reboot** button is shown in the info dialog. (Default)  
 The user cannot reboot the device. The **Reboot** button is not shown in the info dialog.

### Allow system logoff

- The user can log off the device, if the user is logged in. The **Logoff** button is shown in the info dialog. (Default)  
 The user cannot log off the device. The **Logoff** button is not shown in the info dialog.

**i** To configure the option, at least one login method needs to be enabled under **Security > Logon**. For more information, see [Logon](#)(see page 267).

## Default action

The action that is carried out if the timeout defined under **Dialog timeout** expires.

Possible options:

- **Shutdown**
- **Suspend** (Default)
- **Reboot**
- **Logoff**
- **Cancel**



### Dialog timeout

Time (in seconds) after which the info dialog will close and the action specified under **Default action** will be carried out. If the value is set to 0, the dialog will be shown until the user selects one of the possible actions. (Default: 10)

Additional Parameters When Triggered via UMS

#### Known Issue

For OS version 12.2.0, the parameters of the **Additional Parameters When Triggered via UMS** are not effective. The parameters will be reworked in a future release.

### Allow canceling of shutdown process

- The user can cancel the shutdown procedures initiated from the UMS by clicking the **Cancel** button in the info dialog. (Default)
- The user cannot cancel the procedures.

For the manual cancellation to work, the following parameters need to be configured:

- **Without dialog** needs to be disabled.
- **Prompt user on UMS actions** under **System > Remote Management** needs to be enabled. For details, see [Remote Management](#)(see page 291).

### Without dialog

- The info dialog is not shown. The shutdown procedures initiated from the UMS are carried out without notification.
- The info dialog is shown. (Default)



## System Customization

You can use the following configuration to customize your IGEL OS.

---

- [Custom Partition](#)(see page 323)
- [Custom Application](#)(see page 329)
- [Custom Commands](#)(see page 333)
- [Corporate Design](#)(see page 341)
- [Environment Variables](#)(see page 356)



## Custom Partition

In IGEL OS, a custom data partition is available for use as required. A download/update function that loads data from a server and, where appropriate, updates them can be set up for this custom storage area.

Menu path: **System > System Customization > Custom Partition**

**⚠** The IGEL Support Team offers support for the deployment of Custom Partitions. However, it is not possible to offer support for any third-party software that is installed on a Custom Partition.

**◆** If the device is reset to the default settings (factory reset), the custom partition and all data stored on it will be deleted.

- [Partition](#)(see page 324)
- [Download](#)(see page 326)



## Partition

This article shows how to configure options to use a custom partition of your own in IGEL OS.

Menu path: **System > System Customization > Custom Partition > Partition**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The window has a dark blue header bar with tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. To the right of the tabs are search and settings icons. The main content area is divided into two sections. On the left, there is a sidebar with a tree view of configuration categories: Time and Date, Remote management, Remote Access, Logging, Power Options, System Customization (expanded to show Custom Partition), Custom Partition (selected and expanded to show Partition, Download, Custom Application, Custom Commands, Corporate Design, Environment Variables, Update, and Registry), and a general section. On the right, the "Partition" configuration screen is displayed. It contains three input fields: "Enable Partition" (checkbox), "Size" (text input field), and "Mount Point" (text input field with value "/custom"). Below these is a table titled "Partitions Parameters" with columns "Name" and "Value". At the bottom of the screen are three buttons: "Close", "Save", and "Save and Close".

Name	Value

### Enable partition

- The use of custom partitions is enabled.
- Custom partitions cannot be used. (Default)

### Size



Size of the partition in bytes. The number can be followed by a multiplicative ending, without a space in between.  
Example: "100K" stands for 100 Kibibytes, that is,  $100 * 1024$  bytes.

The following multiplicative endings are possible:

- k for Kilobytes
- K for Kibibytes (number \* 1024)
- m for Megabytes
- M for Mebibytes (number \* 1024 \* 1024)
- g for Gigabytes
- G for Gibibytes (number \* 1024 \* 1024 \* 1024)

**i** Sensible values are for example "100K" (for  $100 \text{ KiB} = 100 * 1024$  bytes) or "100M" (for  $100 \text{ MiB} = 100 * 1024 * 1024$  bytes). The size of the partition should be set to at least 100 KiB. However, no more than 300 MiB should be reserved for the customer-specific partition (based on the 1 GB standard CF used in IGEL Linux thin clients). This is because subsequent firmware updates may require more storage space than the current version.

### Mount point

Path on which the partition is to be mounted. (Default: `/custom`)

### Partitions Parameters

You can enter name value pairs which are passed on to the custom partition for further processing.  
To manage the list:

- Click to create a new entry.
- Click to remove the selected entry.
- Click to edit the selected entry.
- Click to copy the selected entry.

Clicking brings up the **Add** dialogue, where you can define the following settings:

- **Name**

Name of the parameter

- **Value**

Value of the parameter



## Download

This article shows how to set up data sources for the custom partitions in IGEL OS.

Menu path: **System > System Customization > Custom Partition > Download**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The top navigation bar includes tabs for Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. To the right of the tabs are search and settings icons. The left sidebar contains a tree view with categories like Time and Date, Remote management, Remote Access, Logging, Power Options, System Customization (expanded to show Custom Partition), Partition (expanded to show Download, Custom Application, Custom Commands, Corporate Design, Environment Variables), Update, and Registry. The main content area is titled "Partitions Data Sour..." and displays a table with two rows: "Automatic Update" and "URL". Below the table are standard window controls (Close, Save, Save and Close).

Automatic Update	URL

### Partitions Data Sources

In order to load data onto the custom partition, at least one partition data source must be set up here.

To manage the list, proceed as follows:

- Click to create a new entry.
- Click to remove the selected entry.



- Click to edit the selected entry.
- Click to copy the selected entry.

Clicking brings up the **Add** dialogue, where you can define the following settings:

- **Automatic update**

- The contents from this source will be updated automatically.  
 The contents from this source will not be updated automatically. (Default)

- **URL**

URL of the web server

- **User name**

User name for access to the web server

- **Password**

Password for access to the web server. Click **Set password** to save the password. Click **Change password** to change the password.

- **Initial action**

Action which is performed after mounting the partition (program or script with absolute path). For example, a program downloaded to the partition can be launched.

- **Final action**

Action which is performed before unmounting the partition (program or script with absolute path). For example, a program downloaded to the partition can be ended.

- The transfer protocols are the same as the ones for updating the firmware, e.g. HTTP and HTTPS. An **INF** file which in turn references a tar archive zipped using bzip2 must be referenced as the target. The structure of the INF file is as follows:

[INFO], [PART]	Header information
file="test.tar.bz2"	File name of the compressed tar archive
version="1"	Version number - a higher version results in an update if Update automatically is enabled.

The files to be transferred must therefore be zipped in a tar archive which is then compressed using bzip2. This file is referenced in the INF file which is the target of the URL.

The tar archive can be created under Windows, e.g. with the open source program 7-Zip ([www.7-zip.de](http://www.7-zip.de)<sup>20</sup>). This program also allows **bzip2** compression. Under Linux, tar and bz2 files can be created using onboard resources.

<sup>20</sup> <http://www.7-zip.de/>



The procedure makes it possible to replace the file(s) on the server with a new version which the thin client loads the next time it is booted. The `Version` parameter in the `INF` file must be increased for this purpose.



## Custom Application

You can configure the starting options for an application that was loaded onto a customer partition once it is defined as a custom application. To do this, give the command to call up the application under **System Customization > Custom Application > Settings**. For more information, see [Settings](#)(see page 331).

Menu path: **System > System Customization > Custom Application**

A screenshot of the IGEL Setup software interface. The window title is "IGEL Setup". The top navigation bar includes tabs for Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. There are also search and filter icons. The left sidebar contains a tree view of configuration categories: Time and Date, Remote management, Remote Access, Logging, Power Options, System Customization (expanded to show Custom Partition and Custom Application), Update, and Registry. The "Custom Application" node under System Customization is selected. The main content area shows a "Custom Applications" table with one entry: "Session Name" (Custom Application). Below the table are "Save" and "Save and Close" buttons. The overall theme is light blue and white.

### Custom Applications

To manage the list of custom applications:

- Click to create a new entry.



- Click to remove the selected entry.
- Click to edit the selected entry.
- Click to copy the selected entry.

► Click to define the starting options for the custom application.

A screenshot of the IGEL Setup software interface. The window title is "IGEL Setup". The top navigation bar includes tabs for Accessories, User Interface, Network, Devices, Security, System, and Apps. The "System" tab is active. On the far right of the top bar are search and settings icons. The left sidebar contains a tree view of configuration categories: Time and Date, Remote management, Remote Access, Logging, Power Options, System Customization (with Custom Partition and Custom Application expanded, and Custom Application selected), Settings (with Custom Commands, Corporate Design, and Environment Variables), Update, and Registry. The main content area shows a session configuration for "Session name: Custom Application". It includes sections for "Starting Methods for Session" with various checkboxes and dropdowns for Start Menu, Menu folder, Application Launcher, etc. At the bottom are buttons for Close, Save, and Save and Close.

The starting methods parameters are described under [Starting Methods for Apps](#)(see page 369).



## Settings

This article shows how to define a command for calling up an application in IGEL OS.

Menu path: **System > System Customization> Custom Application > [Custom Application Name] > Settings**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The window has a dark blue header bar with tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. To the right of the tabs are search and settings icons. The main content area is divided into two sections. On the left, there is a sidebar with a tree view of configuration options: Time and Date, Remote management, Remote Access, Logging, Power Options, System Customization (expanded to show Custom Partition, Custom Application, and another Custom Application node which is further expanded to show Settings, Custom Commands, Corporate Design, and Environment Variables), Update, and Registry. The "Custom Application" node under "System Customization" is currently selected. On the right, there are two input fields. The top field is labeled "Icon large" and contains the value "applications-other". The bottom field is labeled "Command" and is empty. At the bottom right of the content area are three buttons: "Close", "Save", and "Save and Close".

The screenshot shows the "System" tab selected in the top navigation bar. The main pane displays a configuration interface for a "Custom Application". On the left, a sidebar lists various system customization options. The "Custom Application" section is expanded, and its "Settings" sub-section is also expanded, showing "Custom Commands", "Corporate Design", and "Environment Variables". The "Icon large" field is set to "applications-other".

### Icon large

Select an icon provided. (Default: applications-other)

- i** Only the desktop icon of a session is customizable. The taskbar icon of a session cannot be customized and will remain the default icon. Complete customization is not possible.



**Command**

Give the name and path of the application. (Example: `/usr/bin/gpicview`)



## Custom Commands

Custom commands are executed at specific points of the system startup process. You can use environment variables in your custom commands. For more information on environment variables, see [Environment Variables](#)(see page 356).

You can define custom commands for the following startup processes:

- [Base](#)(see page 334)
- [Desktop](#)(see page 336)
- [Network](#)(see page 338)
- [Reconfiguration](#)(see page 340)



## Base

The commands defined here are executed at the specific execution times during the boot process.

Menu path: **System > System Customization > Custom Commands > Base**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. To the right of the tabs are search and settings icons. The left sidebar contains a tree view of configuration categories: Time and Date, Remote management, Remote Access, Logging, Power Options, System Customization (expanded to show Custom Partition, Custom Application, and Custom Commands), Base (selected and highlighted in orange), Network, Desktop, Reconfiguration, Corporate Design, Environment Variables, Update, and Registry. The main content area shows four execution times with associated command boxes: "Initialization" (empty), "Before session configuration" (empty), "After session configuration" (empty), and "Final initialization command" (empty). Each box has a refresh icon and an information icon (i). At the bottom right are buttons for Close, Save, and Save and Close.

You can define commands for the following execution times:

### Initialization

The command is executed during boot, at the beginning of initialization. At this point:



- Not all drivers are loaded, not all devices are available
- Network scripts are not launched, network is not available
- Partitions are available, except for *firefox profile, scim data, ncp data, custom partition*

### Before session configuration

The command is executed during boot, before the session configuration. At this point:

- Not all drivers are loaded, not all devices are available
- Network scripts are not launched, network is not available
- Partitions are available, except for *firefox profile, scim data, ncp data, custom partition*
- Sessions are not configured

### After session configuration

The command is executed during boot, after the session configuration. At this point:

- All drivers are loaded, all devices are available
- Network is available
- Partitions are available, except for *custom partition*
- System daemons are not launched (CUPS, ThinPrint etc.)
- Sessions are configured
- UMS settings are retrieved but not yet effective

### Final initialization command

The command is executed during boot, after the initialization. At this point:

- All partitions are available
- All system daemons are launched
- UMS settings are effective



## Desktop

The commands defined here are executed at the specific execution times when the X server is launched.

Menu path: **System > System Customization > Custom Commands > Desktop**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The window has a dark blue header bar with tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. To the right of the tabs are search and settings icons. The main content area is divided into three sections: "Desktop initialization" (top), "Before Desktop Start" (middle), and "Final desktop command" (bottom). Each section contains a large empty text input field and a small circular refresh/circular arrow icon to its left. On the far left of the main content area, there is a sidebar with a tree view of configuration categories. The "Custom Commands" category under "System Customization" is expanded, and the "Desktop" item under it is also expanded, showing "Reconfiguration", "Corporate Design", and "Environment Variables". Other collapsed categories include Time and Date, Remote management, Remote Access, Logging, Power Options, Custom Partition, Custom Application, Base, Network, Update, and Registry. At the bottom right of the main content area are three buttons: "Close", "Save", and "Save and Close".

The screenshot shows the "System" tab selected in the top navigation bar. The left sidebar is expanded to show the "Custom Commands" section under "System Customization". The "Desktop" section is currently selected. The main pane displays three execution times for custom commands: "Desktop initialization", "Before Desktop Start", and "Final desktop command". Each time has a text input field and a refresh icon.

You can define commands for the following execution times:

### Desktop initialization

The command is executed during the boot process, before the X server is started. At this point:

- Desktop environment is configured but not launched
- User is not logged on (Kerberos, smartcard etc.)



### **Before desktop start**

The command is executed before the windowmanager and the autostart sessions are started. At this point:

- Desktop environment is launched
- Message service is launched
- Session D-Bus is launched
- User is not logged on (Kerberos, smartcard etc.)

### **Final desktop command**

The command is executed after each user logon and desktop restart. At this point:

- User is logged on (Kerberos, smartcard etc.)
- User desktop is launched



## Network

You can define commands for network-related execution times.

Menu path: **System > System Customization > Custom Commands > Network**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. There are also search and settings icons. The left sidebar has a tree view with categories like Time and Date, Remote management, Remote Access, Logging, Power Options, System Customization (with sub-options like Custom Partition, Custom Application, and Custom Commands), Base, Network (which is selected and highlighted in orange), Desktop, Reconfiguration, Corporate Design, Environment Variables, Update, and Registry. The main panel shows four execution times for custom commands: "Network initialization" (with a preview window), "After network DNS", "Before network services", and "Final network command". Each time has a small circular refresh icon to its left and an information icon (i) to its right. At the bottom are buttons for Close, Save, and Save and Close.

You can define commands for the following execution times:

#### Network initialization

The command is executed at the beginning of the network configuration.



- ⓘ The commands in the below fields are executed each time the relevant network interface starts.  
The `INTERFACE` environment variable contains the name of the network interface started.

### After network DNS

The command is executed after each change in the IP address or host name / after each DNS configuration. At this point:

- IP address / name server settings are used (e.g. via DHCP)

### Before network services

The command is executed before network services are started. At this point:

- IP address / name server settings are used
- VPN is connected (if VPN autostart was enabled in the setup)
- No network / host routing settings used

### Final network command

The command is executed after network configuration is finished. At this point:

- Network / host routing settings are used
- NFS and SMB drives are available
- System time is synchronized with the time server
- UMS settings are retrieved but not effective yet



## Reconfiguration

The command defined here is executed after settings relating to the local setup or the UMS have been changed.

Menu path: **System > System Customization > Custom Commands > Reconfiguration**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. To the right of the tabs are search and settings icons. The left sidebar contains a tree view of configuration categories: Time and Date, Remote management, Remote Access, Logging, Power Options, System Customization (expanded), Custom Partition, Custom Application, Custom Commands (expanded), Base, Network, Desktop, Reconfiguration (selected and highlighted in yellow), Corporate Design, Environment Variables, Update, and Registry. The main content area has a header "After reconfiguration" with a refresh icon and an information icon. Below the header is a large empty rectangular box. At the bottom of the window are three buttons: "Close", "Save", and "Save and Close".

### After reconfiguration

The command is executed after an effective change in the endpoint device settings (local setup, UMS).



## Corporate Design

In this area, you can configure settings allowing you to adapt the user interface to your needs.

Use the settings on the following pages to create your design:

- [Custom Bootsplash](#)(see page 342)
- [Background \(1st Monitor\)](#)(see page 345)
- [Company Logos](#)(see page 353)



## Custom Bootsplash

With a bootsplash, you can show your company logo or a specific image during the booting procedure. The bootsplash will be shown instead of the console messages. You need to provide an image file for your custom bootsplash on a download server.

- i** The file types JPG, JPEG, BMP, PNG, SVG, GIF, and TIFF can be used for a bootsplash. A total storage area of 25 MB is available for all user-specific images. The image is 800 x 600 pixels in size (aspect ratio remains unchanged). It can be positioned vertically and horizontally.

Menu path: **System > System Configuration > Corporate Design > Custom Bootsplash**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. To the right of the tabs are search and settings icons. The left sidebar contains a tree view of configuration categories: Time and Date, Remote management, Remote Access, Logging, Power Options, System Customization (with sub-options like Custom Partition, Custom Application, Custom Commands), Corporate Design (with sub-options like Custom Bootsplash, Background (1st Monitor), Company Logos, Environment Variables), Update, and Registry. The "Custom Bootsplash" option under Corporate Design is selected and highlighted in yellow. The main content area is titled "Custom Bootsplash". It contains a "Custom Bootsplash" section with a refresh icon and a checkbox labeled "Enable custom bootsplash". Below it is a "Custom Bootsplash - Server Location" section. This section includes a "Protocol" dropdown set to "FTP", and four input fields with refresh icons: "Server name", "Server path", "Port" (set to 21), and "User name". Each of these four fields has an information icon (a blue circle with an "i") to its right. At the bottom of the content area are three buttons: "Close", "Save", and "Save and Close".

Custom Bootsplash

Custom Bootsplash - Server Location

Protocol: FTP

Server name:

Server path:

Port: 21

User name:

Close Save Save and Close



## Custom Bootsplash

### **Enable custom bootsplash**

- A custom bootsplash can be configured.  
 No custom bootsplash is configured. (Default)

## Custom Bootsplash - Server Location

### **Protocol**

Access method for the image

Possible options:

- **HTTP**: Download from a web server
- **HTTPS**: Download from a TLS/SSL-secured web server
- **FTP**: Download from an FTP server. (Default)
- **Secure FTP**: Download via SSH-secured FTP
- **FTPS**: Download from a TLS/SSL-secured FTP server
- **FILE**: The image file lies in the file system of the device, possibly as a shared NFS or Windows update. You can enter the location under **Local path**.

### **Local path**

The path to the background image. The parameter is shown when **FILE** is selected as protocol.

### **Server name**

Name or IP address of the server

### **Server path**

Path to the directory with the image file on the server

### **Port**

Port of the server on which the service is provided. The field is populated by protocol specific default values.

### **User name**

User name on the server

### **Password**

Password for the user account on the server



## Custom Bootsplash - Settings

### **Custom bootsplash file**

Filename of the custom image

### **Custom bootsplash style**

- **Original** (Default)
- **Stretched**
- **Scaled**
- **Zoomed**

### **Background color**

The background color of the bootsplash. Click the color preview square to open the color selector.

### **Horizontal position of the bootsplash image**

The following applies: 0 = left-justified, 50 = centered, 100 = right-justified. (Default: 50)

### **Vertical position of the bootsplash image**

The following applies: 0 = aligned on top, 50 = centered, 100 = aligned on bottom. (Default: 50)

### **Size of progress indicator**

Valid range is 72-256. (Default: 72)

### **Horizontal position of the progress indicator**

The following applies: 0 = left-justified, 50 = centered, 100 = right-justified. (Default: 90)

### **Vertical position of the progress indicator**

The following applies: 0 = aligned on top, 50 = centered, 100 = aligned on bottom. (Default: 90)

### **Bootsplash update**

When clicked the user-specific bootsplash is downloaded from the given server.

- i** If you change the image file or even just one of the settings for an existing bootsplash, be sure to click **Bootsplash update** in order to regenerate the system files used.



## Background (1st Monitor)

This article shows how to configure the desktop background for a corporate design in IGEL OS. You can use predefined IGEL backgrounds, a fill color/color gradient, or a background image of your own. You can set up different background images for each monitor connected to the device.

Menu path: **System > System Customization > Corporate Design > Background (1st Monitor)**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The top navigation bar includes tabs for Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. To the right of the tabs are search and settings icons. The left sidebar contains a tree view of configuration categories: Time and Date, Remote management, Remote Access, Logging, Power Options, System Customization (expanded to show Custom Partition, Custom Application, Custom Commands, Corporate Design, Custom Bootsplash, and Background (1st Monitor)), Company Logos, Environment Variables, Update, and Registry. The main content area is titled "Background (1st Monitor)" and contains several configuration options: "Wallpaper (1st monitor)" set to "IGEL", "Wallpaper style (1st monitor)" set to "Stretched", "Color style (1st monitor)" set to "Horizontal gradient", "Desktop color (1st monitor)" set to "# 027498" (represented by a blue square), "2nd desktop color (1st monitor)" set to "# 015a76" (represented by a dark blue square), and two sections for custom wallpaper: "Custom wallpaper download (1st monitor)" (checkbox is unchecked) and "Custom wallpaper file (1st monitor)" (input field is empty). At the bottom are "Close", "Save", and "Save and Close" buttons.

Wallpaper (1st monitor)  
IGEL

Wallpaper style (1st monitor)  
Stretched

Color style (1st monitor)  
Horizontal gradient

Desktop color (1st monitor)  
# 027498

2nd desktop color (1st monitor)  
# 015a76

Custom wallpaper download (1st monitor)

Custom wallpaper file (1st monitor)

## Wallpaper

Provides a selection of predefined IGEL backgrounds.

Possible options:

- **Neutral**
- **Off**
- **IGEL** (default)



### Wallpaper style

Provides various design versions.

Possible options:

- **Auto**
- **Centered**
- **Tiled**
- **Stretched** (Default)
- **Scaled**
- **Zoomed**

### Color style

Sets a fill color or a color gradient.

Possible options:

- **Solid color**
- **Horizontal gradient** (Default)
- **Vertical gradient**

### Desktop color

The desktop color if **Wallpaper** is set to **Off**. Click the color preview square to open the color selector.

### 2nd desktop color

The second desktop color if **Wallpaper** is set to **Off** and a gradient **Color style** is selected. Click the color preview square to open the color selector.

### Custom wallpaper download

You can provide a user-specific background image on a download server. Specify the download server under **System > System Customization > Corporate Design > Background > Custom Wallpaper Server**.

Custom wallpaper is not used. (Default)

### Custom wallpaper file

The name of the background image file

The user-specific background image will be downloaded from the specified server if the function was enabled and if requested manually by clicking **Wallpaper update** under **System > System Customization > Corporate Design > Background > Custom Wallpaper Server**. The download can also be launched from the IGEL Universal Management Suite (UMS) via the **Update desktop customization** command.



- ⓘ A user-specific image can be provided on a download server. The file types BMP, JPG, GIF, TIF, PNG and SVG are supported for an own background image and bootsplash. A total storage area of 25 MB is available for all user-specific images. For more information, see Firmware Customizations in the IGEL UMS.



## Background (2nd-8th Monitor)

This article shows how to configure the desktop background of further monitors in multi-monitor environments in IGEL OS.

Menu path: **System > System Customization > Corporate Design > Background (2nd-8th Monitor)**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The window has a dark header bar with the title and several tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. Below the tabs is a search bar and a gear icon. The main content area is divided into sections for different monitor configurations. On the left, a sidebar lists various options under "Corporate Design", including "Background (1st Monitor)" which is expanded to show "Background (2nd Monitor)", "Background (3rd Monitor)", "Background (4th Monitor)", "Background (5th Monitor)", "Background (6th Monitor)", "Background (7th Monitor)", "Background (8th Monitor)", "Custom Wallpapers", "Company Logos", "Environment Variables", "Update", and "Registry". The main content area contains three groups of settings for the second monitor. The first group is for "Wallpaper (2nd monitor)" with a dropdown menu set to "Follows configuration for first Monitor". The second group is for "Wallpaper style (2nd monitor)" with a dropdown menu set to "Follows configuration for first Monitor". The third group is for "Color style (2nd monitor)" with a dropdown menu set to "Follows configuration for first monitor". Below these are two color swatches: "Desktop color (2nd monitor)" set to "# 027498" and "2nd desktop color (2nd monitor)" set to "# 015a76". At the bottom are three buttons: "Close", "Save", and "Save and Close".

Background (2nd monitor)  
Follows configuration for first Monitor

Wallpaper style (2nd monitor)  
Follows configuration for first Monitor

Color style (2nd monitor)  
Follows configuration for first monitor

Desktop color (2nd monitor)  
# 027498

2nd desktop color (2nd monitor)  
# 015a76

Custom wallpaper download (2nd monitor)

Custom wallpaper file (2nd monitor)

You can use predefined IGEL backgrounds, a fill color or a color gradient. You can also use a background image of your own.

- i** You can set up a separate background image for each monitor that is connected to the device.

## Wallpaper



Provides a selection of predefined IGEL backgrounds.

Possible options:

- **Follows configuration for first monitor** (Default)
- **Neutral**
- **Off**
- **IGEL**

### Wallpaper style

Provides various design versions.

Possible options:

- **Follows configuration for first monitor** (Default)
- **Auto**
- **Centered**
- **Tiled**
- **Stretched**
- **Scaled**
- **Zoomed**

### Color style

Sets a fill color or a color gradient.

Possible options:

- **Follows configuration for first monitor** (default)
- **Solid color**
- **Horizontal gradient**
- **Vertical gradient**

### Desktop color

The desktop color if **Wallpaper** is set to **Off**. Click the color preview square to open the color selector.

### 2nd desktop color

The second desktop color if **Wallpaper** is set to **Off**. Click the color preview square to open the color selector.

### Custom wallpaper download

You can provide a user-specific background image on a download server. Specify the download server under **System > System Customization > Corporate Design > Background > Custom Wallpaper Server**.

Custom wallpaper is not used. (Default)

### Custom wallpaper file



The name of the background image file

The user-specific background image will be downloaded from the specified server if the function was enabled and if requested manually by clicking **Wallpaper update** under **System > System Customization > Corporate Design > Background > Custom Wallpaper Server**. The download can also be launched from the IGEL Universal Management Suite (UMS) via the **Update desktop customization** command.

- ⓘ A user-specific image can be provided on a download server. The file types BMP, JPG, GIF, TIF, PNG and SVG are supported for an own background image and bootsplash. A total storage area of 25 MB is available for all user-specific images. For more information, see [Firmwareanpassungen in der IGEL UMS](#).



## Custom Wallpaper Server

This article shows how to configure the download server for your own background images in IGEL OS.

Menu path: **System > System Customization > Corporate Design > Background (1st Monitor) > Custom Wallpaper Server**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. Below the tabs is a search icon and a gear icon. The left sidebar contains a tree view of configuration categories: Custom Application, Custom Commands, Corporate Design (with sub-options like Custom Bootsplash, Background (1st Monitor), etc.), Company Logos, Environment Variables, Update, and Registry. The "Custom Wallpa..." option under Corporate Design is currently selected and highlighted with a yellow bar. The main content area is titled "Custom Wallpaper - Server Location". It contains fields for Protocol (set to HTTP), Server name, Server path, Port (set to 80), User name, and Password (with two input fields: "New password" and "New password (repeated)"). There is also a "Set password" button. At the bottom are three buttons: "Close", "Save" (with a checkmark icon), and "Save and Close".

## Protocol

Access method for the image

Possible options:

- **HTTP:** Download from a web server. (Default)
- **HTTPS:** Download from a TLS/SSL-secured web server
- **FTP:** Download from an FTP server
- **Secure FTP:** Download via SSH-secured FTP
- **FTPS:** Download from a TLS/SSL-secured FTP server



- **FILE:** The image file lies in the file system of the device, possibly as a shared NFS or Windows update. You can enter the location under **Local path**.

#### **Local path**

The path to the background image. The parameter is shown when **FILE** is selected as protocol.

#### **Server name**

Name or IP address of the server used

#### **Server path**

Directory in which you saved the background image

#### **Port**

Port of the server on which the service is provided. The field is populated by protocol specific default values.

#### **User name**

Name of the user account on the server

#### **Password**

Password for this account

#### **Wallpaper update**

The button refreshes the background image when clicked.



## Company Logos

You can configure the device to show your company logo in the screensaver and in the start menu.

Menu path: **System > Firmware Customization > Corporate Design > Company Logos**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. To the right of the tabs are search and settings icons. The left sidebar contains a tree view of configuration categories: Time and Date, Remote management, Remote Access, Logging, Power Options, System Customization (with sub-options like Custom Partition, Custom Application, Custom Commands), Corporate Design (with sub-options like Custom Bootsplash, Background (1st Monitor), and Company Logos), Environment Variables, Update, and Registry. The "Company Logos" option under Corporate Design is currently selected and highlighted with a yellow bar at the bottom of the sidebar. The main content area is titled "Screensaver". It contains several configuration fields with icons: "Enable image display" (checkbox checked), "File for screensaver logo" (text input field with a browse button), "One image per monitor" (checkbox checked), "Image duration" (text input field with value "10"), and "Image display mode" (dropdown menu set to "Small-sized hopping"). Below this is a section titled "Start menu" with fields for "Start button icon" (text input field with a browse button) and "Company logo in start menu" (text input field with a browse button). At the bottom right are three buttons: "Close", "Save" (with a checkmark), and "Save and Close".

Screensaver

Enable image display

File for screensaver logo

One image per monitor

Image duration

Image display mode

Start menu

Start button icon

Company logo in start menu

Close

Save

Save and Close

## Screensaver

### Enable image display

The image defined below will be shown as the screensaver. (Default)

### File for screen saver logo

Complete path for an image file or a directory that contains a number of image files.



- i** If you enter a folder instead of a single image file as the source, all images in the folder will be displayed as a slide show. The **image display time** for the images can be configured. If you do not specify a file of your own, the *IGEL* logo will be used.

#### One image per monitor

The image will be shown on each individual monitor rather than one image across all monitors. (Default)

#### Image duration

Time in seconds until the image changes. (Default: 10)

#### Image display mode

Defines how the image is displayed

Possible options:

- **Small-sized hopping:** small image that jumps across the screen. (Default)
- **Medium-sized hopping:** larger image that jumps across the screen
- **Full screen center cut out:** Image is displayed across whole screen, edges can be cut off.
- **Full screen letterbox:** Complete image is shown. A black edge may be visible depending on the format.

Start menu

#### Start button icon

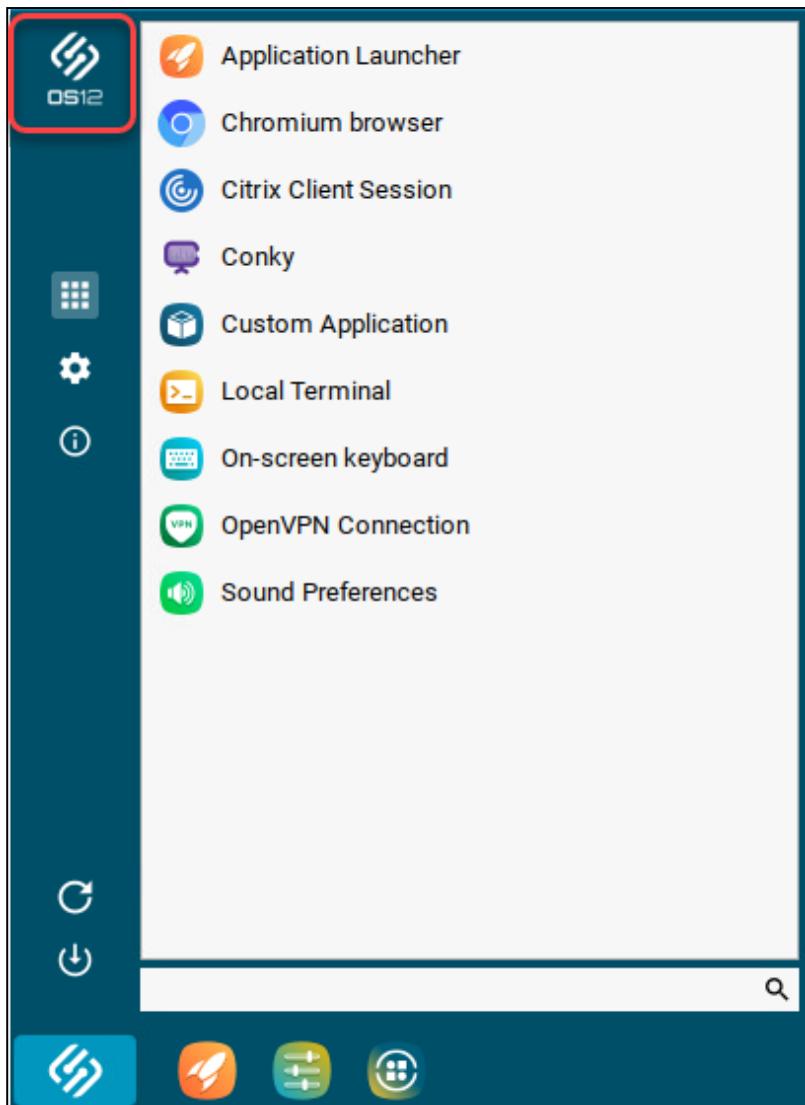
File name with full path to select your logo as the icon for the start menu in the taskbar. Size: 32x32 pixels



#### Company logo in start menu

File name with full path to show your company logo in the top of the start menu window. Size: 64x64 pixels

- i** In order to see the company logo in the start menu window, you must set the start menu type to **Advanced**. You can do this under **User Interface > Desktop > Start Menu**. For more information, see [Start Menu](#)(see page 95).





## Environment Variables

Environment variables allow you to use dynamic parameter values for a number of session types, e.g. so as not to have to enter ICA or RDP servers for every session. Predefined variables can also be allocated and distributed via the IGEL UMS. Additional variables can only be used locally on the device and may be overwritten by a UMS configuration.

Menu path: **System > System Customization > Environment Variables**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. To the right of the tabs are search and settings icons. The left sidebar contains a tree view of configuration categories: Time and Date, Remote management, Remote Access, Logging, Power Options, System Customization (with sub-options like Custom Partition, Custom Application, Custom Commands, Corporate Design), Environment Variables (which is selected and highlighted with an orange border), Predefined, Additional, Update, and Registry. The main content area shows a checkbox labeled "Enable variable substitution in session" with a tooltip "Enable variable substitution in session". At the bottom right of the content area are "Close", "Save", and "Save and Close" buttons.

### Enable variable substitution in session

- The use of variables in sessions such as ICA and RDP is enabled. If specific parameters contain a \$ , shell substitution will be carried out.
- The use of variables in sessions is not enabled. (Default)



You can use environment variables in custom commands. For more information on these, see [Custom Commands](#)(see page 333).

In addition, the following session parameters can be updated through variables:

- Legacy ICA sessions: Citrix Server or published application
- Legacy ICA sessions: User
- RDP session: Server
- RDP session: User

- 
- [Predefined](#)(see page 358)
  - [Additional](#)(see page 360)



## Predefined

This article shows the options to configure predefined environment variables in IGEL OS.

Menu path: **System > System Customization > Environment Variables > Predefined**

A screenshot of the IGEL Setup application window titled "IGEL Setup". The top navigation bar includes tabs for Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. Below the tabs is a search bar and a settings gear icon. The left sidebar contains a tree view with categories like Time and Date, Remote management, Remote Access, Logging, Power Options, System Customization (with sub-options like Custom Partition, Custom Application, Custom Commands, Corporate Design), Environment Variables (with sub-options like Predefined, Additional), Update, and Registry. The "Predefined" option under Environment Variables is selected and highlighted with a yellow background. The main content area displays a table with two columns: "Variable name" and "Value". There are four rows in the table, each with a "refresh" icon next to it. At the bottom right of the content area are three buttons: "Close", "Save" (with a checkmark icon), and "Save and Close".

Variable name	Value

### Variable name

Name for the variable

### Value

Value for the variable



## Using Environment Variables in Sessions

To use environment variables in sessions, proceed as follows:

1. Enable environment variables under **System > System Customization > Environment Variables** > **Enable variable substitution in session**.
2. Define the variable name and content, e.g.
  - **Variable name:** SERVERNAME
  - **Value:** testServer
3. Enter the variable name in the parameter field of the session with the \$ symbol before it.

Example: \$SERVERNAME

**i** In the case of RDP and ICA sessions, the value is entered in the session file after saving. With XenApp, the setting is not implemented until a session starts and is running.



## Additional

This article shows how to define other environment variables in addition to the predefined ones.

Menu path: **System > System Customization > Environment Variables > Additional**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. To the right of the tabs are search and settings icons. The left sidebar has a tree view with categories like Time and Date, Remote management, Remote Access, Logging, Power Options, System Customization (with sub-options like Custom Partition, Custom Application, Custom Commands, Corporate Design), Environment Variables (which is expanded), Predefined, and Additional (which is selected and highlighted in orange). Below the sidebar are buttons for Update and Registry. The main content area is titled "Additional" and contains a table with two columns: "Variable name" and "Value". There are four icons above the table: a delete icon, an edit icon, a copy icon, and a plus sign icon. At the bottom of the content area are buttons for Close, Save, and Save and Close.

To manage the list of **Additional** variables:

- Click to create a new entry.
- Click to remove the selected entry.
- Click to edit the selected entry.
- Click to copy the selected entry.



Clicking brings up the **Add** dialogue, where you can define the following settings:

- **Variable name**

Name for the variable

- **Value**

Value for the variable



## Update

This article shows how to configure app update settings in IGEL OS.

Apps can only be installed by the user if **Permit local app installation** is enabled under **Security > Update**. For more information, see [Update](#)(see page 287).

Menu path: **System > Update**

A screenshot of the IGEL Setup application window. The title bar says "IGEL Setup". The top navigation bar has tabs: Accessories, User Interface, Network, Devices, Security, System (which is highlighted in yellow), and Apps. To the right of the tabs are search and settings icons. The left sidebar has sections: Time and Date, Remote management, Remote Access, Logging, Power Options, System Customization, Update (which is selected and highlighted in orange), and Registry. The main content area is titled "App Update settings". It contains several configuration items with checkboxes and input fields:

- Automatical reboot of system once App is installed (checkbox, unchecked)
- Timeout for automatical reboot in seconds (input field, value: 60)
- Use a bandwidth limit while updating (checkbox, unchecked)
- Limit bandwidth used for updating (input field, value: 2MB)
- Seconds to wait for network connection during a multi stage update (input field, value: 60)
- Activate app after the installation (checkbox, checked)

Below this is a "Repositories" section with a table:

Repository URL	Priority	Actions
		<span>Close</span> <span>Save</span> <span>Save and Close</span>

### Automatic reboot of system once app is installed

- After app installation, the device reboots automatically. The user cannot postpone the reboot.
- After app installation, there is no automatic reboot. The user decides when to reboot. (Default)



### Timeout for automatical reboot in seconds

Time period between the app installation and the reboot. (Default: 60)

### Use a bandwidth limit while updating

Limits bandwidth usage during the downloading of updates to the value set under **Limit bandwidth used for updating**.

Bandwidth usage is not limited during the downloading of updates. (Default)

### Limit bandwidth used for updating

The value to which the bandwidth is limited during the downloading of updates. You can give the value with KB, MB and GB as quantifier. If no quantifier is given, the value is in megabytes. (Default: 2MB)

### Seconds to wait for network connection during a multi stage update

A multi stage update is cancelled if no network connection can be established during this time period. (Default: 60)

### Activate app after the installation

Apps are directly activated after installation, no separate action needed from the UMS Web App. (Default)

Apps are activated through a separate action from the UMS Web App.

### Repositories

Prioritized list of repositories used for app updates

To manage the list:

- Click to create a new entry.
- Click to remove the selected entry.
- Click to edit the selected entry.
- Click to copy the selected entry.

Clicking brings up the **Add** dialogue, where you can define the following settings:

- **Certificate**

The certificate used for authentication

- **Priority**



The number defines the priority of the repository, where larger number means higher priority. Numbers are accepted from 0 to 4294967295.

- **Repository URL**

The URL of the repository



# Facilitated Switching between IdPs for Single-Sign On (SSO) In IGEL OS 12.2

## Overview

Switching between Okta and Azure AD has been facilitated with IGEL OS 12.2.

With IGEL OS 12.01, the behavior of the SSO configuration was as follows: When you wanted to switch the IdP between Okta and Azure AD, you had to delete and re-enter the public client identifier and the secret every time. This goes back to the fact that these values were not stored as separate parameters on the device.

With IGEL OS 12.2 or higher, the SSO configuration has been optimized. The public client identifiers and the secrets are now handled separately for Okta and Azure AD. To benefit from this improvement, the profile must be based on IGEL OS 12.2.

### ⚠ Automatic Update Results in Broken SSO

If your devices have been updated because **Auto-update Default Version to newest version** is active (see Configuring Update Settings for Individual IGEL OS Apps), and the SSO settings are still defined by a profile for IGEL Base System 12.01, SSO will not function anymore. In this case, you must immediately create an appropriate profile for IGEL OS Base System 12.2, as described in this article.

### ⚠ Important Measures for Devices that Retain Base System 12.01

If some of your devices are to keep IGEL OS Base System 12.01, ensure the following:

- The current SSO profile is set to version 12.01.x of the IGEL OS Base System, not to the default version. This is done by setting the **App Selector** to version **12.01.x** explicitly. If the base system version remains set to the default version, and the default version is then set to 12.2 or higher, the settings will be lost when the profile is saved.
- The current SSO profile (based on IGEL OS Base System 12.01) remains assigned to those devices.

## Setting Up a New Profile for Easy IdP Switching

1. In the UMS Web App, create a new profile for the IGEL OS Base System based on version 12.2. This can be done by setting the profile's **App Selector** to version **12.2.0** explicitly or by setting the base system's default version to 12.2 and the profile's **App Selector** to **Default version**.
2. For your Okta configuration, go to **Security > Logon > Single Sign-On** and edit the settings as follows:
  - Enable **Single Sign-On with Identity Provider**.
  - Set **Identity Provider** to **Okta**.
  - Provide the **Okta URL** for your user. This is the Okta organization URL. Example: "<https://mycompany.okta.com>"



- Provide the **Client ID**. This is the client ID that was created in Okta.
- Provide the **Client secret**.

The screenshot shows the IGEL OS 12.2 web interface with the 'Security' tab selected. On the left, a sidebar under 'Logon' has 'Single Sign-On' highlighted. A red box highlights the 'Identity Providers' configuration dialog. Inside, the 'Identity Provider' dropdown is set to 'Okta'. The 'Okta URL' field contains 'https://mycompany.okta.com'. The 'Client ID' field is filled with a placeholder value and has a red border, indicating it is the current focus. The 'Client secret' field contains '.....'. At the bottom right of the dialog are 'Close', 'Save', and 'Save and Close' buttons.

3. For your Azure ID configuration, go to **Security > Logon > Single Sign-On** and edit the settings as follows:

- Enable **Single Sign-On with Identity Provider**.
- Set **Identity Provider** to **Azure AD**.
- Enter the **Azure AD Tenant Name/ID**. This is the value you have obtained as **Directory (tenant) ID** in Azure AD Portal.
- Set the appropriate **Application (client) ID**. This is the value you have obtained as **Application (client) ID** in your Azure AD Portal.
- Enter the **Client secret**.

**⚠️** The secret for Azure AD can only be viewed once. If you have not stored it, you need to generate a new one.



The screenshot shows the IGEL OS web interface with the 'Security' tab selected. On the left, a sidebar menu under 'Logon' includes options like 'Device Encryption', 'Password', 'Logon' (with 'Taskbar' and 'Active Directory/Kerberos' collapsed), 'Single Sign-On' (which is expanded and highlighted in yellow), 'Local User', 'Active Directory/Kerberos', 'Smartcard', 'Change password', and 'Update'. A red box highlights the 'Identity Providers' configuration dialog. This dialog has a title bar with a checkmark and the text 'Single Sign-On with Identity Provider'. It contains four input fields: 'Identity Provider' set to 'Azure AD', 'Azure AD Tenant Name/ID' (redacted), 'Application (client) ID' (redacted), and 'Client secret' (redacted). Below these fields is a 'Change password' button. At the bottom of the dialog are three buttons: 'Close', 'Save', and 'Save and Close'.

4. Assign this profile to all relevant devices.



5. If you want to switch between Okta and Azure AD, simply select the appropriate **Identity Provider**:

The screenshot shows the IGEL OS interface with the "Devices" tab selected. On the left, there's a sidebar with options like "Device Encryption", "Password", "Logon" (which is expanded to show "Taskbar", "Active Directory/Kerberos", "Single Sign-On" - this option is highlighted with a yellow bar, indicating it's the current selection), "Local User", "Active Directory/Kerberos", "Smartcard", "Change password", and "Update". The main panel is titled "Identity Providers" and contains four fields: "Identity Provider" (set to "Okta"), "Okta URL" (set to "https://mycompany.okta.com"), "Client ID" (a redacted placeholder), and "Client secret" (a redacted placeholder). A "Change password" button is located at the bottom right of this panel. At the very bottom of the screen are three buttons: "Close", "Save", and "Save and Close".



## Starting Methods for Apps

For all sessions that can be started by the user, a selection of starting methods is provided.

**Session name:** Name for the session.

 The session name must not contain any of these characters: \ / : \* ? “ < > | [ ] { } ( )

## Starting Methods for Session

### Start menu

The session can be launched from the start menu.

### Menu folder

If you specify a folder name or a path comprising a number of folder names separated by "/", a menu path will be created for the session. The menu path will be used in the start menu and in the desktop context menu.

### Start menu's system tab

The session can be launched with the start menu's system tab.

### Application Launcher

The session can be launched with the Application Launcher.

### Application Launcher folder

If you specify a folder name or a path comprising a number of folder names separated by "/", a menu path will be created for the session. The menu path will be used in the Application Launcher.

### Desktop

The session can be launched with a program launcher on the desktop.

### Desktop folder

If you specify a folder name or a path comprising a number of folder names separated by "/", a menu path will be created for the session. The menu path will be used for the program launcher on the desktop.



#### Desktop context menu

The session can be launched with the desktop context menu.

#### Quick start panel

The session can be launched with the quick start panel.

#### Password protection

Specifies which password will be requested when launching the session.

Possible values:

- **None:** No password is requested when launching the session.
- **Administrator:** The administrator password is requested when launching the session.
- **User:** The user password is requested when launching the session.
- **Setup user:** The setup user password is requested when launching the session.

**⚠️ Password protection** only works if the selected password is configured under **Security > Password**. Without the password configuration, the session will launch without requesting a password. For more information, see [Password](#)(see page 263).

## Hotkey Configuration

#### Hotkey

The session can be started with a hotkey. A hotkey consists of one or more **modifiers** and a **key**.

#### Modifiers

A modifier or a combination of several modifiers for the hotkey. You can select a set key symbol/combination or your own key symbol/combination. A key symbol is a defined chain of characters, e.g. `Ctrl`.

**⚠️** Do not use [AltGr] as a modifier (represented as `Mod5`). Otherwise, the key that is configured as a hotkey with AltGr cannot be used as a regular key anymore. Example: If you configure [AltGr] + [E] as a hotkey, it is impossible to enter an "e".

These are the pre-defined modifiers and the associated key symbols:

- (No modifier) = `None`
- = `Shift`
- `[Ctrl]` = `Ctrl`
- = `Mod4`



- i** When this keyboard key is used as a modifier, it is represented as `Mod4`; when it is used as a key, it is represented as `Super_L`.

- `[Alt]` = `Alt`

Key combinations are formed as follows with | :

- `Ctrl + Windows` = `Ctrl | Super_L`

### Key

Key for the hotkey

- i** To enter a key that does not have a visible character, e. g. the [Tab] key, open a terminal, log on as `user` and enter `xev -event keyboard`. Press the key to be used for the hotkey. The text in brackets that begins with `keysym` contains the key symbol for the **Key** field. Example: `Tab` in `(keysym 0xff09, Tab)`

## Autostart Configuration

### Autostart

- The session will be launched automatically when the device boots.

### Restart

- The session will be relaunched automatically after the termination.

### Autostart delay

Waiting time in seconds between the complete startup of the desktop and the automatic session launch.

### Autostart notification

This parameter is available if **Autostart** is activated and **Autostart delay** is set to a value greater than zero.

- For the duration defined by **Autostart delay**, a dialog is shown which allows the user to start the session immediately or cancel the automatic session start.

- No dialog is shown; the session is started automatically after the timespan specified with **Autostart delay**.

### Autostart requires network

- If no network is available at system startup, the session is not started. A message is shown. As soon as the network is available, the session is started automatically.

- The session is started automatically, even when no network is available.



## Upgrading from IGEL OS 11 to IGEL OS 12

For instructions on how to upgrade endpoint devices from IGEL OS 11.09.100 to IGEL OS 11 via the Universal Management Suite (UMS), see Upgrading from IGEL OS 11 to IGEL OS 12.