



IGEL OS Creator

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UDC3 Reference Manual

 For rolling out **UDC3** via the **IGEL Deployment Appliance**, you need to have installed Deployment Appliance *version 4.1*.

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General Information

The IGEL Universal Desktop Converter (UDC3) software allows the migration of existing PC and thin client hardware to create a functionally standardized IGEL Universal Desktop thin client infrastructure. In the process, the existing operating system is replaced by IGEL Universal Desktop Linux. The devices can then be administered via the IGEL Universal Management Suite (UMS).

 Installing the IGEL Linux operating system via UDC3 destroys all data on the target device's mass storage device (hard disk, flash memory, SSD).

This manual describes installation using UDC3. The installed system corresponds to IGEL Linux 10 and is described in detail in the IGEL OS Reference Manual manual.

Devices Supported by UDC3 and UD Pocket

Core Requirements

- CPU with 64-bit support
- CPU speed: ≥ 1 GHz
- Memory (RAM): ≥ 2 GB

i With devices that have 2 GB RAM and shared video memory, a maximum of 512 MB may be used as video memory.

- Storage: ≥ 2 GB
- No VIA graphic adapter; VIA graphics support is discontinued in UDC3.

Devices Officially Supported by UDC3 and UD Pocket with IGEL OS 10

i For some of the devices listed here, Flash memory must be extended to ≥ 2 GB. For these devices, an appropriate note is added.

Acer

Name	64-bit	Memory (RAM)	Storage	Processor	Supported from IGEL OS version
Veriton N2110G	yes	16 GB	8 GB	AMD G-T56N	10.01.100

Advantech

Name	64-bit	Memory (RAM)	Storage	Processor	Supported from IGEL OS version
POC-W213	yes	4 GB	128 GB	Intel Core i7-6600U	10.03.210
POC-W243	yes	4 GB	128 GB	Intel Core i7-6600U	10.03.210

Advantech-DLoG

Name	64-bit	Memory (RAM)	Storage	Processor	Supported from IGEL OS version
DLT-V6210	yes	4 GB	32 GB	Intel Atom	10.02.120
DLT-V7210	yes	4 GB	4 GB	Intel Atom E3845	10.01.100
DLT-V7210 K	yes	4 GB	4 GB	Intel Atom E3845	10.03.210
DLT-V7212	yes	4 GB	4 GB	Intel Atom E3845	10.01.100

Dell / Wyse

Name	64-bit	Memory (RAM)	Storage	Processor	Supported from IGEL OS version
(AiO)* (see page 10) 5040 (=5212)	yes	2 GB	2 GB	AMD G-T48E	10.04.270
D10D	yes	2 GB	2 GB	AMD G-T48E	10.01.100
D50D	yes	2 GB	8 GB	AMD G-T48E	10.01.100
Z50D	yes	2 GB	2 GB	AMD G-T56N	10.01.100
Z90Q7	yes	4 GB	16 GB	AMD GX-420CA	10.01.100
Z90QQ7	yes	4 GB	16 GB	AMD GX-415GA	10.01.100
3040	yes	2 GB	8 GB	Intel Atom x5-Z8350	10.04.270
5060	yes	4 GB	8 GB	AMD GX-424CC	10.01.100
5070	yes	8 GB	32 GB	Intel Celeron J4105 1,5 GHz	10.05.500
Optiplex 9020	yes	8 GB	320 GB	Intel Core i5-4590S	10.06.130
Latitude E6440	yes	8 GB	500 GB	Intel Core i5-4300M	10.06.130

Fujitsu

Name	64-bit	Memory (RAM)	Storage	Processor	Supported from IGEL OS version
Futro S720	yes	2 GB	2 GB	AMD GX-222GA	10.01.100
Futro S920	yes	2 GB	2 GB	AMD GX-415GA	10.01.100
Futro X913	yes	2 GB	≥ 2 GB (Flash extension might be necessary)	AMD G-T44R	10.01.100
Futro X923	yes	2 GB	2 GB	AMD GX-415 GA	10.01.100

HP

Name	64-bit	Memory (RAM)	Storage	Processor	Supported from IGEL OS version
t520	yes	8 GB	8 GB	AMD GX-212JC	10.01.100
t530	yes	4 GB	8 GB	AMD GX-215JJ Dual-Core	10.05.570
t610	yes	2 GB	≥ 2 GB (Flash extension might be necessary)	AMD T56N APU	10.01.100
t620	yes	16 GB	8 GB	AMD GX-217GA APU	10.01.100
T630	yes	4 GB	8 GB	AMD GX-420GI	10.04.270
t730	yes	16 GB	8 GB	AMD RX-427BB APU	10.01.100
t820	yes	16 GB	16 GB	Intel Core i5-4570S	10.01.100
EliteDesk 800 G3	yes	8 GB	128 GB	Intel Core i3 – i7	10.05.812
EliteDesk 800 G3 mini	yes	8 GB	256 GB	Intel Core i5-7500	10.05.812
EliteDesk 800 G1 SFF	yes	4 GB	128 GB	Intel Core i5-4570	10.06.130
HP EliteBook 840 G3	yes	16 GB	256 GB	Intel® Core™ i7-6500U	10.06.130
Compaq Elite 8300	yes	8 GB	500 GB	Intel Core i5-3470	10.05.812

Intel

Name	64-bit	Memory (RAM)	Storage	Processor	Supported from IGEL OS version
Compute Stick STK2m3W64CC	yes	4 GB	64 GB	Intel Core m3-6Y30	10.02.120
NUC 5i5MYBE	yes	2 GB	32 GB	Intel i5-5300U	10.04.270
NUC 5i3RYH	yes	2 GB	2 GB	Intel i3-5010U	10.04.270
NUC 7CJYH	yes	2 GB	4 GB	Intel Celeron J4005	10.04.270

Lenovo

Name	64-bit	Memory (RAM)	Storage	Processor	Supported from IGEL OS version
ThinkCentre M700	yes	4 GB	500 GB	Intel Core i3-6100T	10.01.100
Tiny M600	yes	4 GB	500 GB	Intel Pentium N3700	10.03.210

LG

Name	64-bit	Memory (RAM)	Storage	Processor	Supported from IGEL OS version
(AiO)* (see page 10) 24CK550N	yes	4 GB	32 GB	AMD G-Series GX-212JJ	10.04.270
(AiO)* (see page 10) 24CK550W	yes	4 GB	32 GB	AMD G-Series GX-212JJ	10.04.270
CK500W	yes	4 GB	32 GB	AMD G-Series GX-212JJ	10.05.500

Onyx Healthcare

Name	64-bit	Memory (RAM)	Storage	Processor	Supported from IGEL OS version
Venus 222	yes	4/8 GB	≥ 2 GB (Flash extension might be necessary)	Intel Celeron J1900	10.01.100
Venus 223	yes	4 GB	128 GB	Intel Quad-Core J1900	10.05.500

Secunet

Name	64-bit	Memory (RAM)	Storage	Processor	Supported from IGEL OS version
SINA Workstation S EliteDesk 800 G2	yes	16 GB	256 GB	Intel Core i7-6700	10.03.500

Stone

Name	64-bit	Memory (RAM)	Storage	Processor	Supported from IGEL OS version
N130 Notebook	yes	8 GB	750 GB	Intel Core i7-6700	10.01.100

Toshiba

Name	64-bit	Memory (RAM)	Storage	Processor	Supported from IGEL OS version
Portegé X20W-D	yes	8 GB	256 GB	Intel Core i5-7200U	10.03.210
Portegé X30-D	yes	8 GB	256 GB	Intel Core i5-7300U	10.03.210
Tecra C50	yes	4 GB	500 GB	Intel i5-4210U	10.04.270
Tecra Z50-D	yes	8 GB	256 GB	Intel Core i5-7200U	10.03.210
SATELLITE R50	yes	4 GB	500 GB	Intel i3-6006U	10.04.270



* AiO = All in One



Licensing

UDC3 licensing is based on a subscription model. For further information, see Maintenance. For general information, see IGEL Software License Overview.

You can distribute licenses for UDC3 to the devices using the IGEL Universal Management Suite (UMS). For instructions on license deployment, see Licensing UDC3.


Installation


- [Installation Requirements](#) (see page 13)
- [Create USB installation medium \(Windows\)](#) (see page 14)
- [Create USB installation medium \(Linux\)](#) (see page 17)
- [Create DVD installation medium](#) (see page 19)
- [Boot settings](#) (see page 20)
- [Installation procedure](#) (see page 21)

Installation Requirements

In order to install the IGEL OS operating system via UDC3, the target device must meet the following requirements:

- 64-bit-capable CPU
- CPU speed \geq 1 GHz
- At least 2 GB RAM
- At least 2 GB mass storage space: hard disk, flash memory, SSD, eMMC or NVME.
- Intel, ATI/AMD or Nvidia graphics chip
For information about supported graphics chipsets, see the [IGEL Linux 3rd Party Hardware Database¹](#).
- USB 3.0 or 2.0 port from which the device can boot (alternatively a DVD drive)
- Ethernet or wireless adapter


 If these requirements are not fulfilled, the full functionality of the device with IGEL OS can not be guaranteed, and technical support will not be provided by IGEL.

 Installing the IGEL Linux operating system via UDC3 destroys all data on the target device's mass storage device (hard disk, flash memory, SSD).


¹ <https://www.igel.com/linux-3rd-party-hardware-database/>

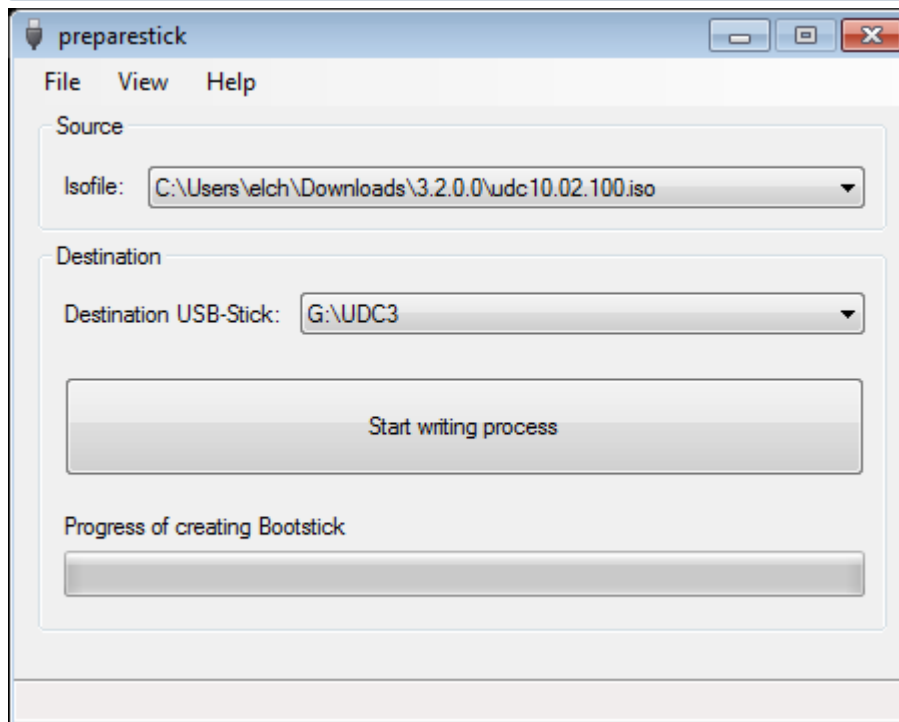
Create USB installation medium (Windows)

1. Download the Zip archive for UDC3 from our [download server](#)²:
 - For new devices, use the standard installer.
 - For older devices or if you haven't been able to boot the installer at all (e.g. on Dell Wyse Dx0D), use the legacy installer.
2. Unzip its contents into a local directory.
3. Connect a USB memory stick with at least 2 GB capacity to the computer.

 All existing data on the USB memory stick will be destroyed.

4. Double-click the `preparestick.exe` file from the unzipped directory (for *IGEL Linux 10.01*: `UDC2Stick.exe` with similar operation).

 If you are in the "administrators" group, the program will start after you have confirmed a dialog. If you are not in the "administrators" group, you must enter the administrator password to start the program.



The dropdown-menu **Isofile** shows the ISO files contained in the unzipped directory.

5. Under **Isofile**, select the file `udc[version].iso`, for example, `udc10.02.120.iso`

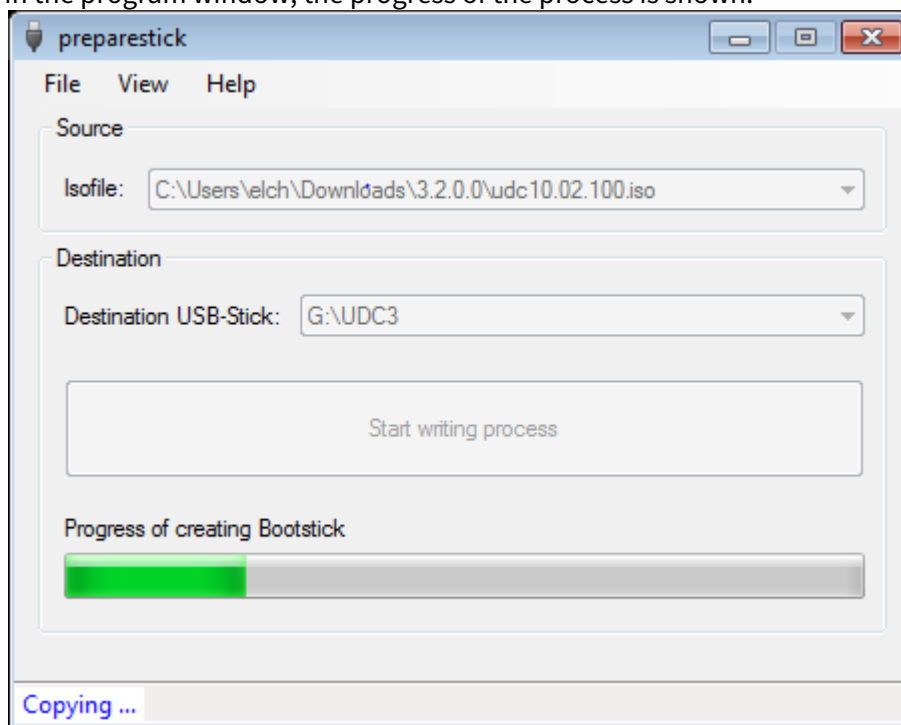
² <https://www.igel.com/software-downloads/>

- Under **Destination USB stick**, select the USB storage medium on which you would like to save the installation data.

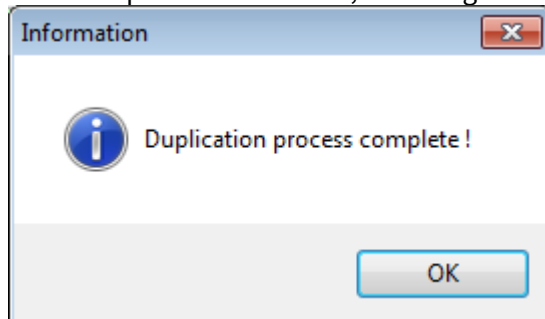
⚠ It is recommended that you only have one USB storage medium connected during this procedure. If you accidentally select the wrong medium, all data on it will be lost.

ℹ Generally speaking, the list of available USB storage media is refreshed automatically. If, however, you would like to refresh it manually, click on **View > Refresh USB Device List**.

- Click on **Start writing process**.
In the program window, the progress of the process is shown.



When the process is finished, a message window is displayed.



- Close the message window and the program.
- After about 3 seconds, remove the USB memory stick.


⚠ If you remove the USB memory stick immediately, there is a possibility that the writing process has not been completed. In this case, the data on the memory stick gets corrupted.

Create USB installation medium (Linux)

1. Download the Zip archive for UDC3 from our [download server](#)³:
 - For new devices, use the [standard installer](#)⁴.
 - For older devices or if you haven't been able to boot the installer at all (e.g. on Dell Wyse Dx0D), use the [legacy installer](#)⁵.
2. Unzip the contents of the Zip archive into a local directory, either with a graphical tool or with the `unzip` command.

From this directory, you will need the `udc10.02.120.iso` (or `udc10.02.120_legacy.iso`) file to create a bootable medium.

3. Connect a USB memory stick with at least 2 GB capacity to the computer.


 All existing data on the USB memory stick will be destroyed.

4. Open a terminal emulator and enter the command `dmesg` to determine the device name of the USB memory stick.

Example output:

```
[...]
[19514.742229] scsi 3:0:0:0: Direct-Access JetFlash Transcend 8GB
1100 PQ: 0 ANSI: 6
[19514.742805] sd 3:0:0:0: Attached scsi generic sgl type 0
[19514.744688] sd 3:0:0:0: [sdb] 15425536 512-byte logical blocks:
(7.89 GB/7.35 GiB)
[19514.745370] sd 3:0:0:0: [sdb] Write Protect is off
[19514.745376] sd 3:0:0:0: [sdb] Mode Sense: 43 (0) 00 00 00
[19514.746040] sd 3:0:0:0: [sdb] Write cache: enabled, read cache:
enabled, doesn't support DPO or FUA
[19514.752438] sdb: sdb1
```

In this example, the device name searched for is `/dev/sdb`.

 Ensure that you have determined the correct device name. Use of the `dd` command in the next step can destroy your operating system if you use the wrong device name.

³ <https://www.igel.com/software-downloads/>

⁴ http://myigel.biz/index.php?dir=IGEL_UNIVERSAL_DESKTOP_CONVERTER/UDC3_Stick_V10/

⁵ http://myigel.biz/index.php?dir=IGEL_UNIVERSAL_DESKTOP_CONVERTER/UDC3_Stick_V10/legacy/


5. The following command writes the installation data to the USB memory stick:

```
dd if=udc10.02.120.iso of=/dev/sdX bs=1M oflag=direct
```

Replace `sdX` with the device name of the USB memory stick that you have determined.

When the `dd` command has terminated, you can see the terminal emulator input prompt again.

6. Wait for about 3 seconds after the `dd` command has terminated, and remove the USB memory stick.

 If you remove the USB memory stick immediately, there is a possibility that the writing process has not been completed. In this case, the data on the memory stick gets corrupted.

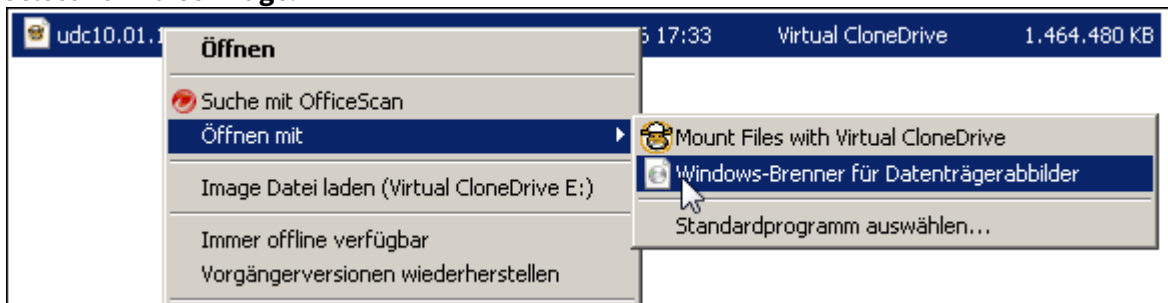
The USB memory stick for UDC3 installation is ready for use.

Create DVD installation medium

The `udc10.02.120.iso` (or `udc10.02.120_legacy.iso`) file in the installation directory for UDC3 is a so-called hybrid image. It can not only be copied onto USB storage devices but can also be used to create a bootable DVD.

Burn ISO image (Windows)

1. In Explorer, open the directory that contains the ISO file.
2. Right-click on the ISO file.
3. Select **Burn disc image**.



Burn ISO image (Linux)

Under Linux, various burning programs with a graphical user interface or for the command line are available.

The [Ubuntu Wiki](https://help.ubuntu.com/community/BurningIsoHowto)⁶ explains how to burn an ISO image onto a DVD using a number of programs.

⁶ <https://help.ubuntu.com/community/BurningIsoHowto>

Boot settings

UDC3 works on systems with BIOS and UEFI.

It is essential that your system supports booting from USB storage media. This may already be enabled, or you may have to enable it yourself. The required key presses for this may vary from vendor to vendor. However, here are some hints:

- ▶ While the device is booting, try pressing [F12] (in general), [F10] (Intel devices) or [F9] (Hewlett-Packard devices) in order to access a list of boot devices and select your USB installation medium.
- ▶ If the above does not work, access the BIOS settings via pressing [Del], [F1] or [F2] during boot and activate booting from USB storage media and/or change the boot order.
- ▶ See the BIOS/UEFI documentation for your system for details of how to boot from USB storage media.

i As of *version 10.04.100*, IGEL Linux supports UEFI Secure Boot. Refer to the manual of your device's manufacturer to learn whether your device supports Secure Boot and how to enable it. Enabling Secure Boot often consists of two steps. First, the boot mode has to be changed to UEFI Boot in the BIOS; after that, Secure Boot can be activated, also in the BIOS. How to check whether Secure Boot has been properly enabled you can learn here.


i If UDC3 fails to boot in UEFI mode, try it in legacy/BIOS mode. IGEL Linux will then be installed in legacy/BIOS mode.

i For older devices or if you haven't been able to boot the installer at all (e.g. on Dell Wyse Dx0D), use the [legacy installer](#)⁷.

⁷ http://myigel.biz/index.php?dir=IGEL_UNIVERSAL_DESKTOP_CONVERTER/UDC3_Stick_V10/legacy/

Installation procedure

1. Connect the prepared USB memory stick to the target device and switch the target device on.
2. Select one of the following options from the boot menu:
 - **UDC installation:** Boots the system with just a few messages from the USB memory stick and launches the installation program. (Default)
 - **UDC installation (verbose):** Boots the system from the USB memory stick and shows the Linux boot messages in the process.
 - **UDC Installation (Vesa only):** Fallback mode to be used if the graphical boot screen cannot be displayed.
 - **Memtest86+:** Memory test, only available in legacy/BIOS mode. This option does not carry out an installation.
 - **EFI debug shell:** Available only in UEFI boot mode. If the hardware in use is EFI capable, boot problems can be analyzed with that.
3. **Choose your language:** Select the language for the installation process.
4. Confirm the **license agreement** (up to IGEL *Linux 10.03.100*) resp. accept the **EULA** (from IGEL *Linux 10.04.100* onwards)
5. **Installation program:** Here, you can configure settings for the installation process and start it. Check the **target drive** to ensure that the system is installed on the desired drive.

 The installation will destroy all existing data on the target drive.

The following options are available:

- **Migrate old settings:**
 - Carries over the settings from a previously installed IGEL Linux 10 system. (Default)
- **Force legacy installation** (only available after UEFI boot)
 - The legacy/BIOS version of IGEL Linux will be installed, even if the system was booted in UEFI mode.

 Remember to set the system to legacy/BIOS mode after installation.

- UEFI booting results in a UEFI installation, and legacy/BIOS booting in a legacy/BIOS installation. (Default)
 - **Edit:** Open the IGEL setup where you can configure settings for the system to be installed.
 - **Reset:** Resets all changes to the setup made with **Edit**.
 - **Install firmware:** Starts the installation process.
 - **Cancel:** Cancels configuration for the installation and shuts down the device.
6. Click on **Install firmware**.
The installation program will set up IGEL Linux on the target drive. If you see the **IGEL Universal Desktop Converter build finished successfully** message, the installation is complete.
 7. Detach any external network adapters from the device.
In this way, you ensure that the unit ID for the device is derived from the built-in network adapter. The unit ID will be saved on the device persistently, regardless of any external network adapter that may be used in the future. This is important for licensing.
 8. Click on **Reboot** at the bottom of the installation window.



9. Remove the USB memory stick.
10. Close the message window.
The system will shut down and then boot IGEL Linux.

UDC 3 How-Tos

- [Café Wireless \(Wi-Fi\)](#) (see page 24)
- [Reduce CPU Power Consumption](#) (see page 28)
- [Setting up UDC3 on Mobile Devices](#) (see page 29)

Café Wireless (Wi-Fi)


When you use your mobile device frequently at different Wi-Fi hotspots, automatic Wi-Fi roaming may be useful. This is what IGEL Café Wireless does. The IGEL Café Wireless feature can be used, for instance, with IGEL UDC3. After you have configured your wireless networks, your mobile device is ready to roam.

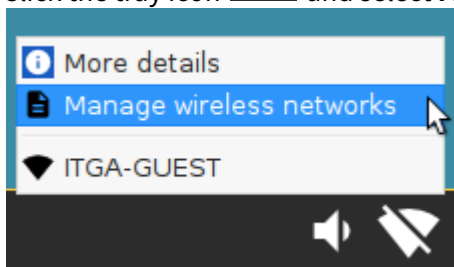
For optimizing the network switchover, please see [Configuring Wi-Fi Network Roaming](#).

If the network's SSID is hidden, see [Connecting to a Wi-Fi Network with Hidden SSID](#).

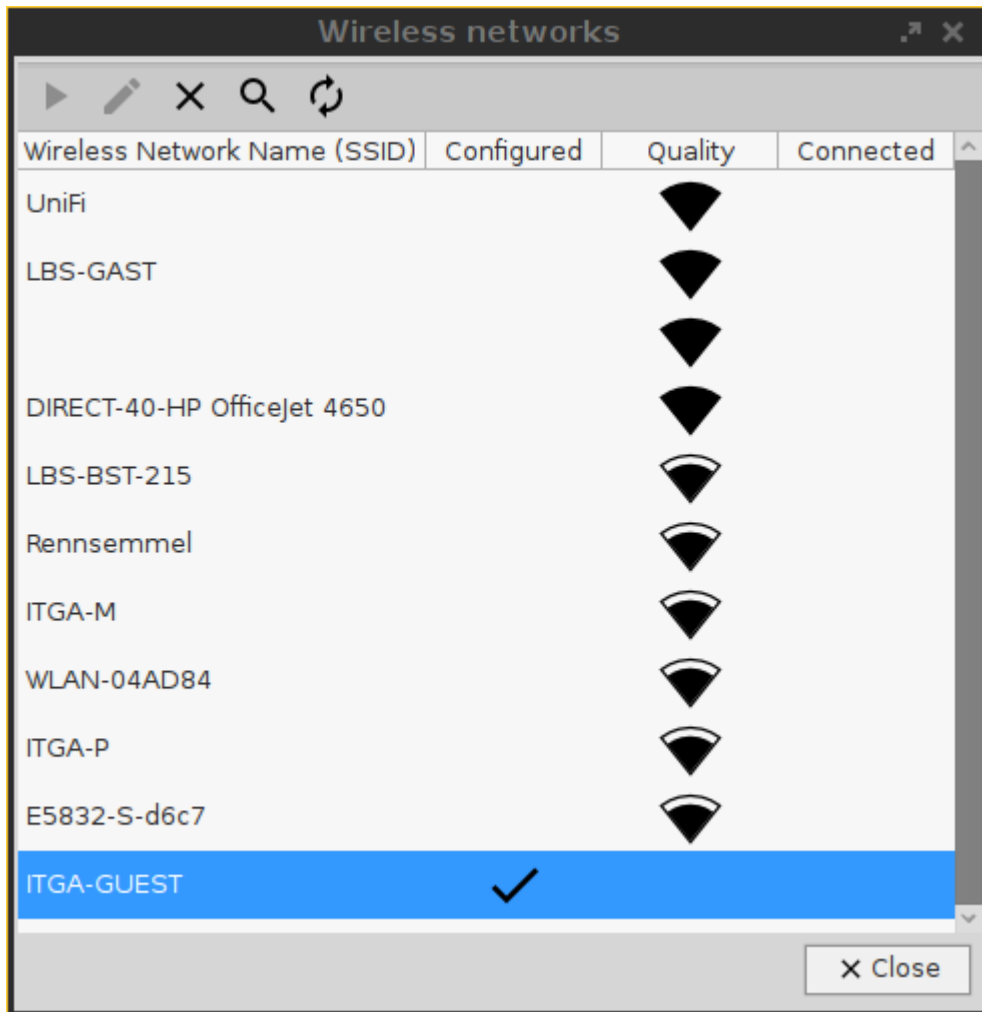
See also the manual chapter "Wireless".

To configure a wireless network with the Wireless Manager:

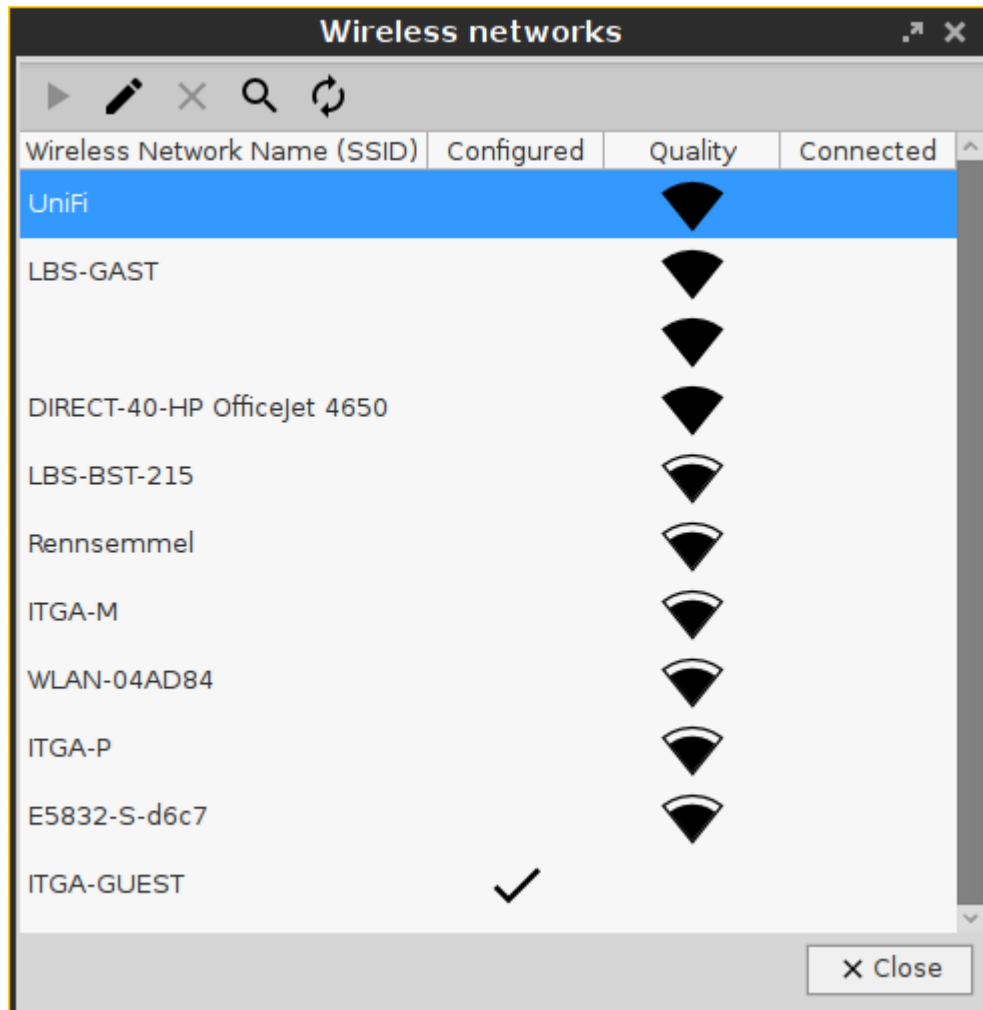
1. Open **Network > LAN interfaces > Wireless** in the Setup.
2. Enable **Activate wireless interface**.
3. Activate **Enable Wireless Manager**.
4. Click the tray icon  and select **Manage wireless networks**.



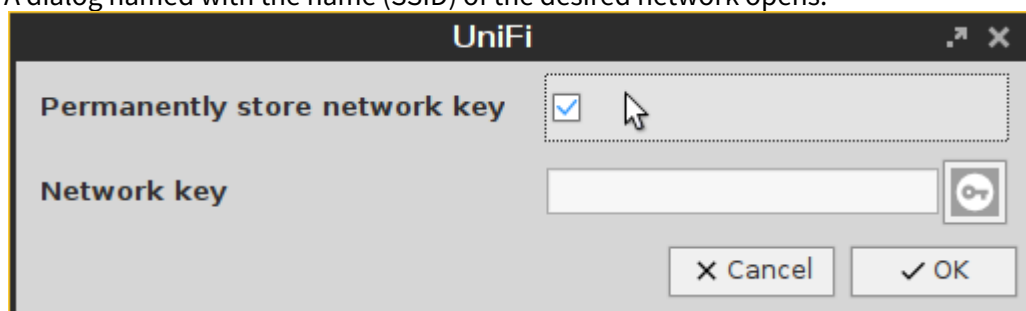
The **Wireless networks** dialog opens. After a few seconds, all wireless networks within reach are shown, sorted by signal strength. Previously configured connections are flagged with a tick in the **Configured** column. The connection currently active is flagged with a symbol under **Connected**.




5. Double-click the network to be configured.



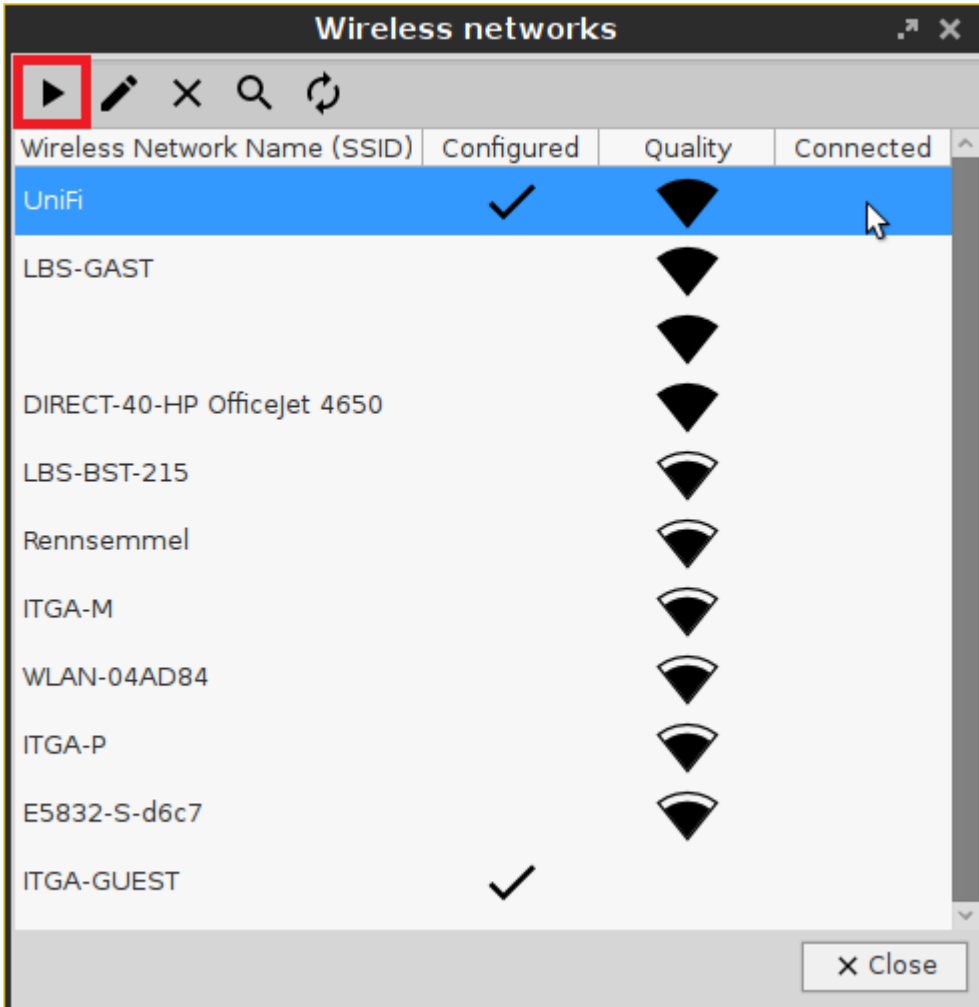
A dialog named with the name (SSID) of the desired network opens.




6. Activate **Permanently store network key** so that your mobile device remembers the network key.
7. Enter the **Network key**. To have the network key displayed while typing, click .
8. Click **OK**.
9. Repeat the steps described above for the remaining networks.

To connect to a configured network manually:

- ▶ Highlight the network and click on ▶ in the **Wireless networks** dialog.




Your mobile device is connected to the wireless network. The icon  shows the network's current signal strength.

Reduce CPU Power Consumption


Reduce CPU Power Consumption

When you are using the *IGEL Universal Desktop Converter* (UDC2) on a mobile device in battery mode, you might want to reduce power consumption. One major power consumer is your CPU.

You can easily gain some control over the power consumption of your CPU using the tray icon  (**CPU Power Plan**) on your taskbar.

► If the tray icon is not displayed, open the IGEL Setup, go to **System > Power Options > System** and activate **Tray Icon**.

To change the CPU power settings:

1. Click on .
2. Select the appropriate option. **High Performance** gives you the highest performance, but also the highest CPU power consumption, **Power Saver** results in lowest performance and lowest CPU power consumption. The other options are in between.
For further information about the power plan settings, see the [system](#) (see page 28) chapter in the manual.

Setting up UDC3 on Mobile Devices


- [Multi Monitor Environment](#) (see page 30)
- [Presentation Mode](#) (see page 31)
- [Display Brightness](#) (see page 32)
- [Power Management](#) (see page 33)
- [Wireless Manager \(Café Wireless\)](#) (see page 34)
- [Shortening Network Timeouts in Mobile Scenarios](#) (see page 35)
- [Battery Level Control](#) (see page 37)

Multi Monitor Environment

If you use your notebook in an office workstation, you can use a multi monitor environment.

To configure the display for multiple screens, use the **Display Switch**.

Respective Tray Icon:

Tray Icon Name	Icon	Where to configure
Display Switch		Menu path: Setup > Accessories > Display Switch

Activating the Display Switch:

1. Enable the **Display Switch** in the **IGEL Setup** under **Accessories > Display Switch**.
2. Select **Quick Start Panel** as a starting method.
The **Display Switch** icon is shown in the quick start panel.
3. Click the icon to open the display configuration dialogue.
4. Switch between simple and advanced settings.


- i** For a detailed description, see the manual, chapter Display Switch.
Here you can find additional instructions concerning monitor settings:
- How-To Multimonitor
 - Manual topic RDP Global > Window

Presentation Mode

You are using your mobile device for a presentation. You neither want the monitor to enter power saving mode nor to start the screensaver during the presentation.

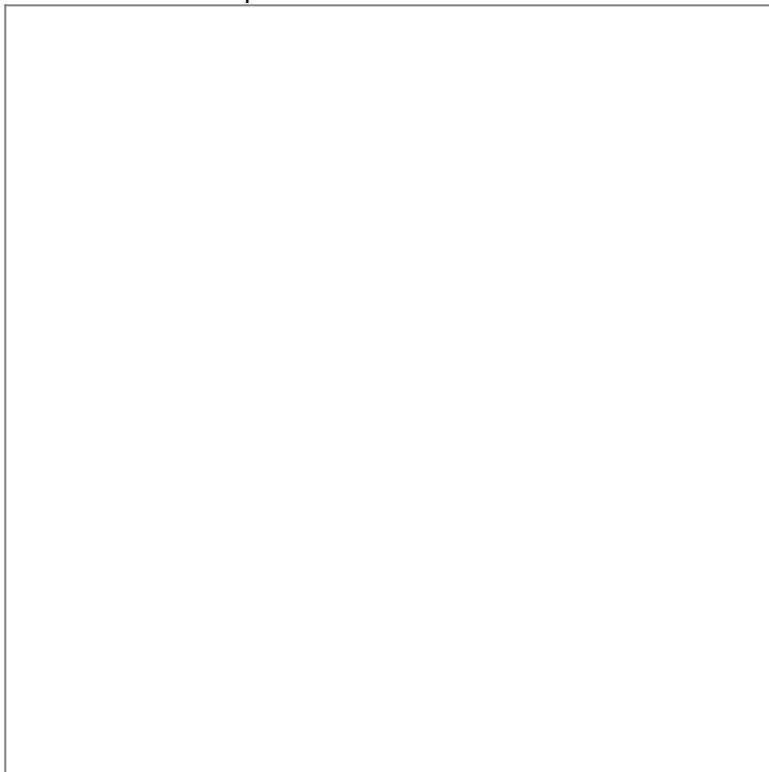
For this situation, use the **Presentation Mode** which disables the DPMS and the screen saver.

Respective Tray Icon:

Tray Icon Name	Icon	Where to configure
Notebook BAT		Menu path: Setup > System > Power Options > Battery

Activating the **Presentation Mode**:

1. Right-click the battery symbol in the system tray.
The context menu opens:




2. Click **Presentation Mode** to enable/disable it.

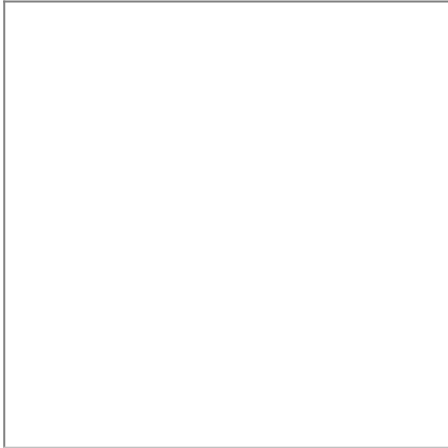
Display Brightness

In order to preserve the battery you want to reduce the display brightness.

Respective Tray Icon:

Tray Icon Name	Icon	Where to configure
Notebook BAT		Menu path: Setup > System > Power Options > Battery


1. Right-click the battery symbol in the system tray.
The context menu opens.
2. Click the slider of the brightness display to reduce the **Display Brightness**.



Power Management

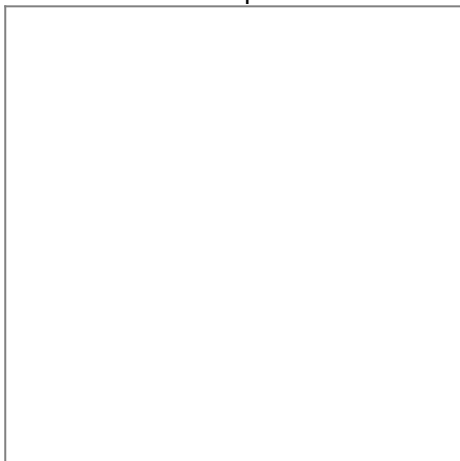
You are using your mobile device in battery mode and need to reduce power consumption to preserve the battery. To save power, set CPU power options to scale the CPU frequency down.

Respective Tray Icon:

Tray Icon Name	Icon	Where to configure
CPU Power Plan		Menu path: Setup > System > Power Options > System

Setting CPU power options:

1. Click the CPU Power Plan icon in the system tray.
The context menu opens.



2. Select the appropriate mode.

i Here you can find additional instructions concerning the power management:

- Define the **CPU Power Plan, Critical Battery Level, Standby Time or Suspend Time, Brightness reduction, and Shut-down Options**. See the manual, chapter System > Power Option > System.

Wireless Manager (Café Wireless)

If you are traveling with your notebook, you need to handle different WiFi connections.

You can use **Café wireless** to configure different wireless network connections.

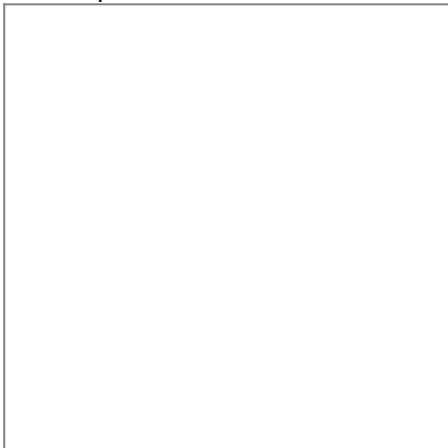
Respective Tray Icon:

Tray Icon Name	Icon	Where to configure
Wireless Network Connection		Menu path: Setup > Network > LAN Interfaces > Wireless


Defining **Café wireless**:

1. Enable the **Wireless Manager** under **Network > LAN Interface > Wireless**.

Set all options:



2. Click the WiFi tray icon in the right corner of the panel.
3. Open the **Wireless Manager** dialog.

 You can find the complete instruction in the manual, chapter Wireless Manager.

Shortening Network Timeouts in Mobile Scenarios

When on the road with their UDC2 mobile device, users often experience slow system startup. This is due to the system waiting for network connections or the UMS which are not available in the mobile scenario. This document describes how to minimize waiting by shortening various timeouts.

Don't Wait for Wired Network

When an Ethernet interface is configured but not physically connected, startup is delayed by default. The goal is to give the user an opportunity to plug in the network cable. If this is not desired, as of IGEL Linux version 5.10.100 waiting can be turned off.

1. In Setup, go to **System > Registry**.
2. Go to the `network.interfaces.ethernet.device[number].nolink_nowait` registry key. Replace [number] with:
 - 0 for eth0, the first Ethernet interface
 - 1 for eth1, the second Ethernet interface
3. Enable **No waiting without physical link**. By default, this option is disabled.

Don't Contact UMS Unless Specific Network Devices Are Up

Startup is also delayed because the system tries to contact UMS by default, which may not be available in a mobile scenario. You can configure IGEL Linux version 5.10.100 to contact UMS only if one of the network devices in a whitelist is up.

1. In Setup, go to **System > Registry**.
2. Go to the `system.remotemanager.device_whitelist` registry key.
3. Put a space-separated device list into the **Network device whitelist** field. Only if at least one of these devices is up, the system will try to contact UMS. Device names:
 - First Ethernet adapter: eth0
 - Second Ethernet adapter: eth1
 - Wireless: wlan0
 - Mobile broadband: ppp10
 - OpenVPN: tun0

Don't Contact UMS Unless Specific Networks Are Available

You can configure IGEL Linux version 5.10.100 to contact UMS only if one of the networks in a whitelist is reachable.

1. In Setup, go to **System > Registry**.
2. Go to the `system.remotemanager.network_whitelist` registry key.
3. Enter a space-separated list of networks in CIDR notation into the **Network whitelist** input field, e.g. 172.30.0.0/16 192.168.100.0/24. If there are entries in this field, the system will only try to contact UMS if one of the device's current IP addresses happens to be in one of these ranges.

Shorten the UMS Timeout

When different environments cannot be distinguished by the previous two mechanisms, as of IGEL Linux version 5.10.100 the startup delay can be reduced by setting a shorter timeout for connections to the UMS.

1. In Setup, go to **System > Registry**.

2. Go to the `system.remotemanager.rmagent_timeout` registry key.
3. Enter an integer number of seconds into **IGEL Remote Management Timeout**. The default is 90.

Don't Wait for All Network Interfaces

You can configure IGEL Linux to wait only for one of the network interfaces to be up instead of all. This also means that error messages concerning Ethernet devices will only be displayed shortly.

1. In Setup, go to **System > Registry**.
2. Go to the `network.global.waitfor_interfaces` registry key.
3. Disable **Wait for interfaces to come up**. By default, this option is enabled.

Battery Level Control

Since Linux *version 10.03.100* it is possible to display the battery level of a mobile device via UMS. The frequency of the battery level reports sent by the device to the UMS can be adjusted: A report is triggered when the battery status has changed at a specified percentage compared to the previously reported status. The percentage is specified by the **Battery status update frequency** parameter.

Example use case: The IT administrator in a hospital has to take care of battery-powered medical devices. Using the new feature, he can easily keep track of all these devices via the UMS, without any need of physical access or mirroring VNC.

To adjust the report frequency:

1. In Setup, go to **System > Registry**.
2. Go to the `system.remotemanager.battery_report_frequency` registry key.
3. Select the **Battery status update frequency**:
 - Often
 - Normal
 - Rarely
 - Very Rarely
 - Never
4. Click **Apply** or **Ok**.