



## IGEL OS Deployment Appliance

IGEL OS Deployment Appliance for virtual environments.

- [IGEL OS Deployment Appliance Manual](#) (see page 3)
- [Notes for Release 11.5](#) (see page 32)
- [Notes for Release 11.2](#) (see page 33)

# IGEL OS Deployment Appliance Manual

## Overview

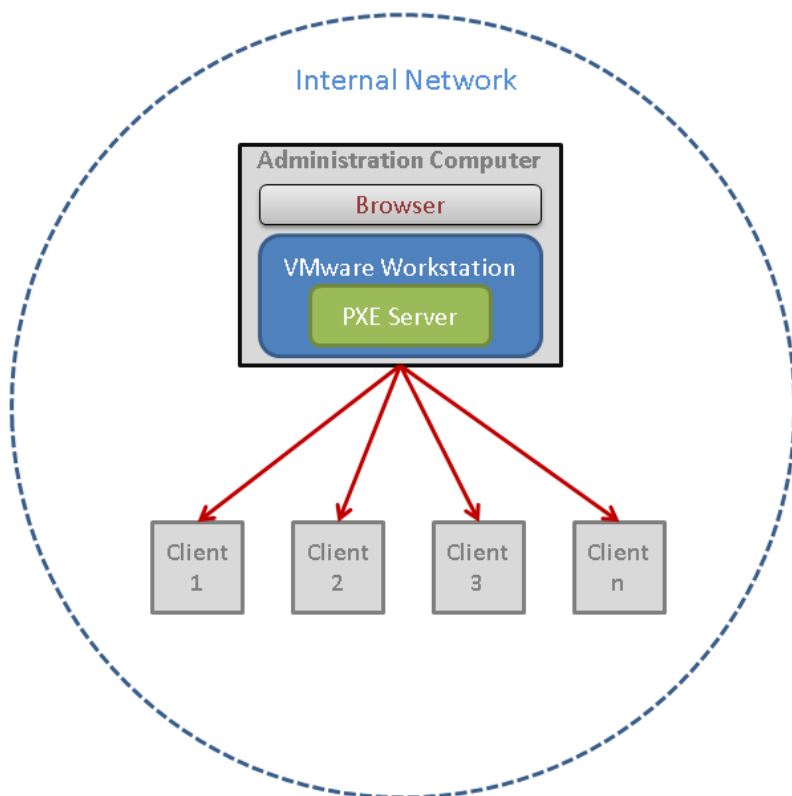
The IGEL OS Deployment Appliance enables you to migrate your existing PC or thin client hardware to fully manageable IGEL OS devices. The IGEL OS Deployment Appliance is implemented as a virtual machine which runs in a hypervisor, i.e. VMware Workstation, VMware Player, or Oracle VirtualBox.

The deployment procedure is as follows:

The Deployment Appliance is installed and placed in a separate network, together with all devices that are to be converted. Network booting is enabled on these devices. When a device boots, the PXE server inside the Deployment Appliance rolls out the IGEL OS firmware file to it.

Once a device is converted, the Deployment Appliance adds its MAC address to a filter so that the deployment process does not start again in the case of a reboot. In addition to that, you can add devices to the MAC address filter manually, if you want to prevent some devices from being converted.

The following figure shows an example setup with the Deployment Appliance running in a VMware Workstation:



## Supported IGEL Firmware

- IGEL OS 11
- IGEL OS 10

## Supported Devices

- For IGEL OS 11, see [Devices Supported by IGEL OS 11](#).
- For IGEL OS 10, see [Devices Supported by IGEL OS 10](#).

## System Requirements

Ensure that the administration computer meets the following requirements:

- 4 GB RAM
- 30 GB disk storage
- 64-bit compatible

## Hypervisor

Install one of the following hypervisors in a version that supports OVA files:

- VMware Workstation Pro
- VMware Workstation Player
- Oracle VirtualBox

## Web Browser

A web browser is needed to download the firmware from the IGEL download site and upload it to the Deployment Appliance.

## Deployment Steps

- [Importing the OVA File](#) (see page 6)
- [Configuring the Deployment Appliance](#) (see page 7)
- [Getting the Firmware Files](#) (see page 24)
- [Uploading the Firmware to the PXE Server](#) (see page 25)
- [Choosing the Deployment Type](#) (see page 29)
- [Installing IGEL OS](#) (see page 30)
- [Licensing IGEL OS](#) (see page 31)

## IGEL Tech Video

How to download, install and configure the IGEL OS Deployment Appliance:



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

<https://www.youtube-nocookie.com/embed/dW63l0n30ag>

## Importing the OVA File

**i** In the following step-by-step procedure, VMware Workstation is used. For other hypervisors, please refer to the appropriate documentation.

1. Open the browser on the administration computer and download the `ova` file from <https://www.igel.com/software-downloads/workspace-edition/> > **OS DEPLOYMENT APPLIANCE**.
2. Import the `ova` file into VMware Workstation.
3. Click **File > Import OVF Template** in VMware Workstation to start importing a virtual machine.
4. Follow the **Connection Wizard** through the import process.
5. Choose `Virtual Appliance` as **source type**.
6. Choose `(ova) location` as **source file**.
7. Choose `Other Virtual Machine` as **Destination Type**.
8. Enter the **Name** and **Location** for the virtual machine.
9. Choose `Import and Convert` as **Import Option**.
10. Choose `Bridged` as **VMNetwork Configuration**.
11. Start the import process.

## Configuring the Deployment Appliance

1. Start the Deployment Appliance.  
The End User License Agreement (EULA) screen opens.

```
IGEL OS Deployment Appliance
-----
End-User License Agreement (EULA) |
-----

Please read the End-User License Agreement (EULA) carefully before
selecting I accept ([a] key) or using IGEL products.

By selecting I accept or using IGEL products you are agreeing
to be bound by the terms and conditions of the EULA.

If you do not agree to the terms and conditions of the EULA, do not select
I accept or use IGEL products.

[r]  Read the End-User License Agreement
[a]  I accept the terms in the license agreement
[d]  I do not accept the terms in the license agreement

Make a selection by pressing the [r], [a] or [d] key: _
```

2. Press the [A] key to accept the EULA.  
The main menu opens. The default password "igel" is shown. For security reasons, you should

change the password; see [Changing the Password](#) (see page 23).

```

IGEL OS Deployment Appliance
-----
Current Configuration |
-----
Virtual Appliance
> Version: 11.0
> IP: Press [1] key to configure
> Netmask: Press [1] key to configure
> Gateway: Press [1] key to configure
> DHCP range: Press [2] key to configure
> Status: Please check settings

Web Interface
> URL: Web interface not available
> User: igel
> Password: igel (default)

Firmware
> Version: Please upload firmware. Supported IGEL OS versions are 10.x and 11.x.

Configure Settings [Keyboard Layout: en_US] |
-----
Virtual Appliance
[1] Configure network settings
[2] Configure DHCP range
[a] Advanced settings

Web Interface
[l] Change password

Firmware
[I] Change deployment type

Press the appropriate key to proceed: _

```

3. Continue with [Configuring the Network Settings](#) (see page 9).

- [Configuring the Network Settings](#) (see page 9)
- [Configuring the DHCP Range](#) (see page 10)
- [Using Your Own DHCP Server](#) (see page 11)
- [Configuring Advanced Settings](#) (see page 12)
- [Changing the Password](#) (see page 23)



## Configuring the Network Settings

1. In the main menu, press [1] to configure the network settings.  
The network settings menu opens.

```
IGEL OS Deployment Appliance
-----
Configure Network Settings |
-----
Enter new IP address or CIDR address (aka IP/CIDR):
xxx.xxx.xxx.xxx > 192.168.0.1
Netmask:
xxx.xxx.xxx.xxx > 255.255.255.0
Gateway or type none if you don't need one:
xxx.xxx.xxx.xxx > none

Confirm settings
> IP:                192.168.0.1
> Netmask:           255.255.255.0
> (CIDR address:    192.168.0.1/24)

> Gateway:           none

Press [y] key to apply settings or [n] key to return to the main menu: _
```

2. Enter the following parameters:
  - **IP address or CIDR address:** The IGEL OS Deployment Appliance will use this address for firmware delivery. Also, the web interface can be reached via this IP address.
  - **Netmask:** Netmask for the IGEL OS Deployment Appliance.
  - **Gateway:** Default gateway for the IGEL OS Deployment Appliance.
3. Press [Y] to confirm the settings.

## Configuring the DHCP Range

1. In the main menu, press [2] to configure the DHCP range for the built-in DHCP server. The DHCP range menu opens.

```

IGEL OS Deployment Appliance
-----
Configure DHCP Range 1
-----

Current built-in DHCP server network configuration
> IP: 192.168.0.1
> Netmask: 255.255.255.0

> Usable range: 192.168.0.1 - 192.168.0.254

The range must not contain 192.168.0.1.


Enter the range start IP address:
xxx.xxx.xxx.xxx > 192.168.0.10
Enter the range end IP address:
xxx.xxx.xxx.xxx > 192.168.0.20
Enter the lease time in minutes:
x > 15


Confirm Settings
> Start IP address: 192.168.0.10
> End IP address: 192.168.0.20
> Lease time: 15 minutes

Press [y] key to apply settings, or [n] key to return to the main menu:

```

2. Enter the following parameters:
  - **Start IP address:** Lowest IP address of the DHCP range.
  - **End IP address:** Highest IP address of the DHCP range.
  - **Lease time:** Time span during which an IP address is reserved for a device.
3. Press [Y] to confirm the settings. The DHCP server will restart and assign IP addresses to all devices in the network.

 It is possible to exclude a device from being configured by the built-in DHCP server. For further information, see [Adding a MAC Address to the Filter](#) (see page 21).

 It is possible to use your own DHCP server instead of the built-in DHCP server of the Deployment Appliance, see [Using Your Own DHCP Server](#) (see page 11).

## Using Your Own DHCP Server

If your environment does not allow for using the DHCP server that comes with the Deployment Appliance, you can use your own DHCP server instead.

**i** When you use your own DHCP server instead of the built-in DHCP server, the MAC address filter will not be effective (see [Listing the MAC Address Filter \(see page 20\)](#)). The MAC address filter is required if some devices in the network are not to be converted. Moreover, the MAC address filter prevents the devices from being provided with the firmware multiple times.

To enable firmware deployment with an external server instead of the Deployment Appliance's built-in DHCP server, proceed as follows:

1. Ensure that the DHCP server built into the Deployment Appliance is stopped or disabled; see [Starting/Stopping the DHCP Service \(see page 17\)](#) or [Enabling/Disabling the DHCP Service \(see page 18\)](#).
2. Configure your DHCP server as follows:
  - DHCP option 66 (Server-Name) must be set to the IP address of the Deployment Appliance.
  - For devices that have legacy BIOS enabled, DHCP option 67 (Bootfile-Name) must be set to `pxelinux.0`
  - For devices that have UEFI enabled, DHCP option 67 (Bootfile-Name) must be set to `BOOTX64.EFI`

## Configuring Advanced Settings

1. In the main menu, press [A] to open the advanced settings menu.  
The advanced settings menu opens.

```

IGEL OS Deployment Appliance
-----
Configure Advanced Settings |
-----
Virtual Appliance
[1] Restart OS Deployment Appliance
[2] Shut down OS Deployment Appliance

Keyboard
[3] Change keyboard layout

DHCP Server
[S] Start/stop DHCP service
[E] Enable/disable DHCP service at boot time
[I] List DHCP leases

Manual MAC Address Filter
[m] List MAC address filter
[a] Add MAC address
[r] Remove MAC address

Press the appropriate key to proceed, or any other key to return to main menu:
    
```

2. To change settings or start/stop services, use the following keys:

Key	Action
[1]	Restart the Deployment Appliance; see <a href="#">Restarting the Deployment Appliance (see page 14)</a> .
[2]	Shut down the Deployment Appliance; see <a href="#">Shutting Down the Deployment Appliance (see page 15)</a> .
[3]	Change the keyboard layout; see <a href="#">Changing the Keyboard Layout (see page 16)</a> .
[S]	Start or stop the DHCP service; see <a href="#">Starting/Stopping the DHCP Service (see page 17)</a> .
[E]	Enable or disable the DHCP service at boot time; see <a href="#">Enabling/Disabling the DHCP Service (see page 18)</a> .

[L]	List the current DHCP leases; see <a href="#">Listing the DHCP Leases (see page 19)</a> .
[M]	List the MAC addresses that are to be filtered out by the MAC address filter; see <a href="#">Listing the MAC Address Filter (see page 20)</a> .
[A]	Add MAC address to the MAC address filter; see <a href="#">Adding a MAC Address to the Filter (see page 21)</a> .
[R]	Remove MAC address from the MAC address filter; see <a href="#">Removing a MAC Address from the Filter (see page 22)</a> .

## Restarting the Deployment Appliance

1. In the advanced settings menu, press [1] to open the restart menu.  
The restart menu opens.

```
IGEL OS Deployment Appliance
-----
Restart |
-----
> Are you sure you want to restart now?
Press [y] to restart the IGEL Deployment Appliance,
or [n] key to return to the main menu:
```

2. Press [Y].  
The virtual machine containing the Deployment Appliance is restarted.

## Shutting Down the Deployment Appliance

1. In the advanced settings menu, press [2] to open the shutdown menu.  
The shutdown menu opens.

```
IGEL OS Deployment Appliance
-----
Shutdown |
-----
> Are you sure you want to shut down now?
Press [y] to shutdown the IGEL Deployment Appliance,
or [n] key to return to the main menu:
```

2. Press [Y].  
The virtual machine containing the Deployment Appliance is shut down.

## Changing the Keyboard Layout

1. In the advanced settings menu, press [3] to open the keyboard layout menu.  
The keyboard layout menu opens.

```
IGEL OS Deployment Appliance
-----
Change Keyboard Layout |
-----
[1] en_US.UTF-8 (default)
[2] en_GB.UTF-8
[3] de_DE.UTF-8
[4] fr_FR.UTF-8

Press the appropriate key to select a keyboard layout,
or any other key to return to the main menu:
```

2. Press the appropriate key to choose a system locale:
  - [1]: en\_US.UTF-8 (default) (US English)
  - [2]: en\_GB.UTF-8 (GB English)
  - [3]: de\_DE.UTF-8 (German)
  - [4]: fr\_FR.UTF-8 (French)

The keyboard layout is changed, together with the system locale.



## Starting/Stopping the DHCP Service

1. In the advanced settings menu, press [S] to open the DHCP start/stop menu.  
The current status of the DHCP service is shown in the menu.

```
IGEL OS Deployment Appliance
-----
Start/Stop DHCP Service |
-----

DHCP service is running.

> Are you sure you want to change the status of the DHCP service temporarily?

Press [y] key to change the status of the DHCP service,
or [n] key to return to the main menu:
```

2. Press [Y] to start or stop the DHCP service of the Deployment Appliance.  
If the DHCP service has been running before, it will stop now.  
If the DHCP service has not been running before, it will start now.

## Enabling/Disabling the DHCP Service

Disabling the DHCP service of the Deployment Service makes sense if you prefer using your own DHCP server; see [Using Your Own DHCP Server](#) (see page 11).

1. In the advanced settings menu, press [E] to open the DHCP enable/disable menu.  
The current setting for the DHCP service is shown in the menu.

```
IGEL OS Deployment Appliance
-----
Enable/Disable DHCP Service |
-----
DHCP service is enabled at boot time.
> Are you sure you want to change the status of the DHCP service permanently after reboot?
Press [y] key to change the status of the DHCP service,
or [n] key to return to the main menu: _
```

2. Press [Y] to enable or disable the DHCP server of the Deployment Appliance.  
If the DHCP has been enabled before, it will be disabled after the next reboot.  
If the DHCP has been disabled before, it will be enabled after the next reboot.



### Listing the DHCP Leases

- ▶ In the advanced settings menu, press [L] to open the DHCP leases menu. The current DHCP leases are shown in a table.

```

IGEL OS Deployment Appliance
-----
List DHCP Leases |
-----
1484727237 00:50:56:aa:18:95 192.168.0.102 * *
1484727120 00:50:56:aa:18:91 192.168.0.119 * *

Press any key to return to the advanced settings menu.
    
```

Example:

Point in time when the lease ends (epoch time)	MAC address of the device	IP address assigned to the device	Computer name (if known)	Client ID (if known)
1484727237	00:50:56:aa:18:95	192.168.0.102	device1	igel1

## Listing the MAC Address Filter

- ▶ In the advanced settings menu, press [M] to open the MAC address filter list.

The address filter list shows the MAC addresses of those devices which will not receive an IP address from the DHCP service, and will not be converted with the IGEL OS firmware.

```
-----  
List MAC Address Filter |  
-----  
  
> Manually added:  
3E:FD:2A:9B:17:54  4D:26:E4:74:AA:68  50:6D:14:07:E0:9E  
  
> Automatically added:  
00:50:56:93:F5:AB  00:50:56:AA:4D:B9  
  
Press any key to return to the advanced settings menu.
```

## Adding a MAC Address to the Filter

1. In the advanced settings menu, press [A] to open the menu for adding a MAC address to be filtered out.

The menu opens.

```
IGEL OS Deployment Appliance
-----
Add MAC Address to Filter |
-----
Enter MAC address:
xx:xx:xx:xx:xx:xx > 00:50:56:aa:18:91

Confirm MAC Address
> MAC address:      00:50:56:AA:18:91

Press [y] to add the MAC address to the filter or [n] key to abort: _
```

2. Enter the MAC address of the device you want to exclude from IGEL OS deployment.
3. Press [Y] to confirm.  
The device will not receive an IP address from the DHCP service, and will not be converted with the IGEL OS firmware.

## Removing a MAC Address from the Filter

1. In the advanced settings menu, press [A] to open the menu for removing a MAC address from the filter.

The menu opens.

```
IGEL OS Deployment Appliance
-----
Remove MAC Address from Filter |
-----
Enter MAC address, auto or manual:
xx:xx:xx:xx:xx:xx > manual

Confirm MAC Addresses
> Manually added MAC addresses:
3E:FD:2A:9B:17:54  4D:26:E4:74:AA:68  00:50:56:AA:18:91

Press [y] to remove the MAC addresses from the filter or [n] key to abort: _
```

2. Enter **auto**, **manual** or the **MAC address** of the device you want to remove from the filter. All members of the selected group or the MAC address will be deleted from the MAC address filter.
3. Press [Y] to confirm. The device will receive an IP address from the DHCP service, and can be converted with the IGEL OS firmware.



## Changing the Password

1. In the main menu, press [P] to change the password for the web interface.  
The password menu opens.

```

IGEL OS Deployment Appliance
-----
Change Password |
-----
Enter the new password:
x > Password1
Retype the new password:
x > Password1

Confirm new password
> Password: Password1

Press [y] to apply the new password or [n] key to abort:
    
```

2. Enter the new password.
3. Press [Y] to confirm the new password.  
The main menu indicates that the password has been changed, but the password is not shown.

```

IGEL OS Deployment Appliance
-----
Current Configuration |
-----
Virtual Appliance
> Version: 11.0
> IP: 192.168.0.1
> Netmask: 255.255.255.0
> Gateway: none
> DHCP range: 192.168.0.100 - 192.168.0.200 (active)
> Status: Please check settings

Web Interface
> URL: https://192.168.0.1
> User: igel
> Password: Default password has been changed

Firmware
> Version: Please upload firmware. Supported IGEL OS versions are 10.x and 11.x.

Configure Settings [Keyboard Layout: de_DE] |
-----
Virtual Appliance
[1] Configure network settings
[2] Configure DHCP range
[a] Advanced settings

Web Interface
[p] Change password

Firmware
[I] Change deployment type

Press the appropriate key to proceed:
    
```



## Getting the Firmware Files


The IGEL OS firmware is provided by <https://www.igel.com>. The download path depends on the exact version to be used.

- ▶ To download IGEL OS 11, go to <https://www.igel.com/software-downloads/workspace-edition/> > **OS 11** > **OS CREATOR (FORMER UDC, DEPLOYMENT TOOL FOR IGEL OS 11)** and download `OSC_[version].zip`
- ▶ To download IGEL OS 10 (UDC3), go to <https://www.igel.com/software-downloads/software-downloads-former-universal-desktop-and-legacy-versions/> **UNIVERSAL DESKTOP CONVERTER 3 (OS 10) (STICK)** and download `UDC3_[version].zip`



## Uploading the Firmware to the PXE Server

1. Open the web interface in a web browser. The URL is `https://[IP address of your Deployment Appliance]` . For defining the IP address, see [Configuring the Network Settings](#) (see page 9).

 If the browser presents a certificate warning, you can ignore it. The CA (certificate authority) is unknown to the administration computer because the certificate is self-signed.

2. Enter the login data for the web interface. The username is `igel` , and the default password is also `igel` ; it should be changed as soon as possible, see [Changing the Password](#) (see page 23). The web interface opens.
3. Click the button next to **Select firmware** and select the appropriate file (e.g. `OSC_11.01.100.zip` for IGEL OS 11 or `UDC3_10.05.500.zip` for IGEL OS 10).

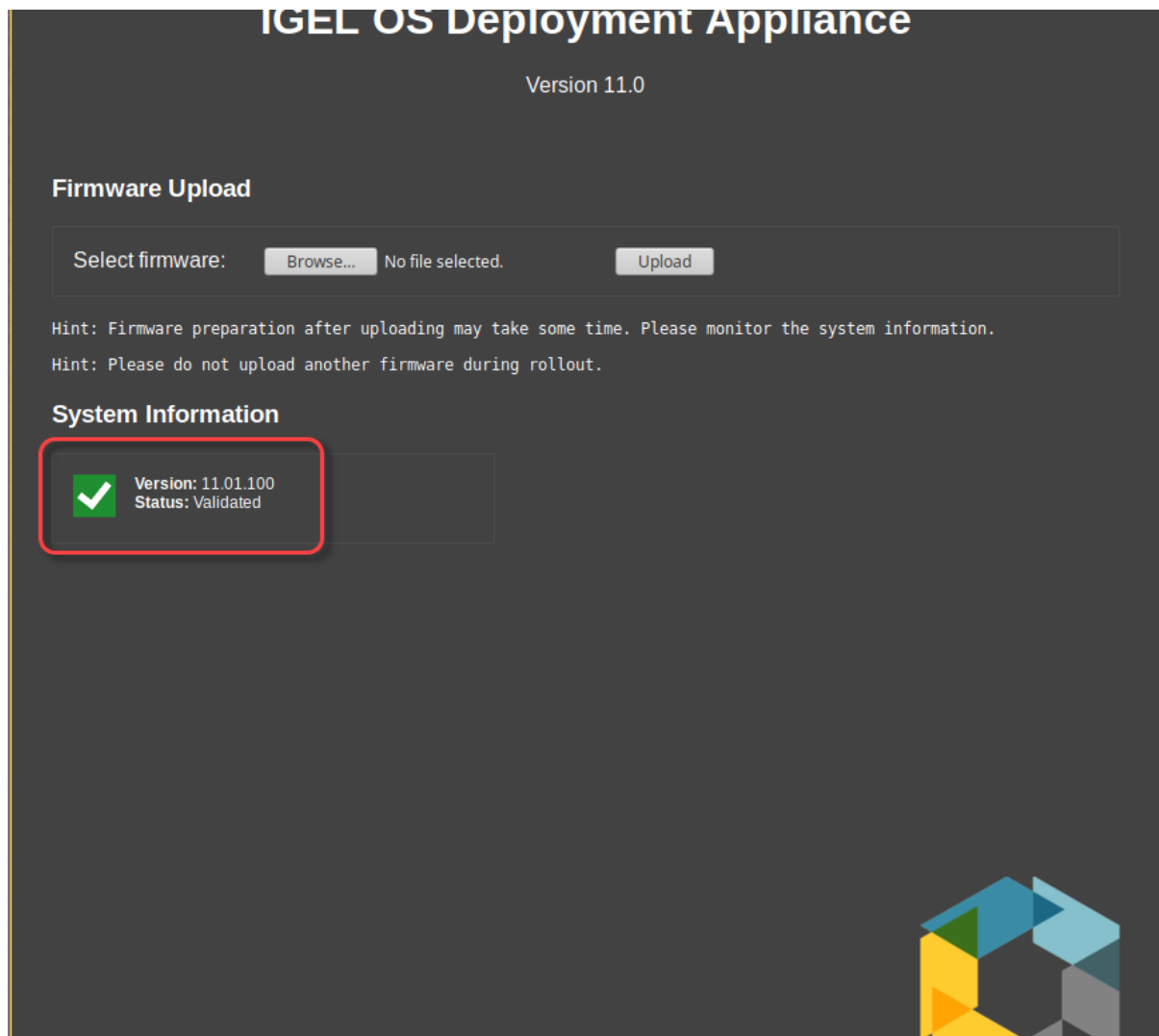
4. Click **Upload**.

The upload process starts.

When the upload is finished, the Deployment Appliance starts to prepare the firmware.



When the preparation is finished, the **System Information** is updated as follows:




The Deployment Appliance is ready for firmware deployment.

5. Continue with choosing the appropriate deployment type, see [Choosing the Deployment Type](#) (see page 29).

## Choosing the Deployment Type

Before you reboot each device, you can choose whether the conversion should be started manually or automatically:

 Make sure that your network only contains devices which are to be converted by IGEL OS Creator (installs IGEL OS 11 on the device) or UDC3 (IGEL OS 10 installs IGEL OS 10 on the device), and which have no valuable data. All data on the device's local storage will be lost!

- **Attended installation (default):** The device presents a dialog. When the dialog is confirmed, the IGEL OS firmware is installed on the device.
- **Unattended installation:** The device presents a dialog with a timeout. When the dialog is confirmed or the timeout is reached, the firmware is written to the device.

To change the deployment type:

1. In the main menu, press [Shift] + [T].  
The deployment type menu opens.

```
IGEL OS Deployment Appliance
-----
Configure Deployment Type |
-----
Confirm settings
> Are you sure you want to change the deployment type from attended
  installation (recommendation) to unattended installation?
Press [y] to change the deployment type or any key to abort: _
```

2. Press [Y] to confirm the settings.  
If the installation type has been attended installation before, it will be changed to unattended installation.  
If the installation type has been unattended installation before, it will be changed to attended installation.

## Installing IGEL OS

- i** For security reasons, IGEL OS is not installed alongside the target system's legacy operating system, nor can it be installed in a dual-boot configuration. Nevertheless, in situations where it is absolutely necessary to preserve the target system's operating system, it is possible to install IGEL OS onto a live bootable USB memory stick.

To install IGEL OS via the IGEL OS Deployment Appliance:

1. Ensure that the BIOS of your target devices is set to network installation.
2. Reboot the target devices.

If you have chosen attended deployment, the firmware will be installed when the dialog on the devices is confirmed.

If you have chosen unattended deployment, the firmware will be installed after a 10-second timeout.

- i** The following mechanism ensures that IGEL OS is deployed only once to each device: After successful installation, the target device informs the appliance that IGEL OS is installed. Based on this information, the appliance adds the device's MAC address to the MAC address filter. You can find this MAC address under **Automatically added**; see [Listing the MAC Address Filter \(see page 20\)](#). When a device's MAC address is in the MAC address filter, the device will not receive a DHCP address from the build-in DHCP server. The device will boot into IGEL OS without network.

3. Continue with [Licensing the UDC \(see page 30\)](#).



## Licensing IGEL OS

The licensing process depends on whether IGEL OS 11 or IGEL OS 10 is used.

### IGEL OS 11

For general information on IGEL OS 11 licensing, see [IGEL Software License Overview](#).

For instructions on how to set up and use Automatic License Deployment (ALD) for IGEL OS 11, see [Setting up Automatic License Deployment \(ALD\)](#).

For instructions on how to deploy license manually to IGEL OS 11 devices, see [Manual License Deployment for IGEL OS](#).

### IGEL OS 10 (UDC3)

For general information on licensing before IGEL OS 10, see [IGEL Software License Overview](#).

For instructions on how to set up and use Automatic License Deployment (ALD) for IGEL OS 10, see [Automatic License Deployment \(ALD\) for UDC3](#).

For instructions on how to deploy license manually to IGEL OS 10 devices, see [Manual License Deployment for UDC3](#).



## Notes for Release 11.5

<b>Software:</b>	Version	11.5
<b>Release Date:</b>	2023-04-06	
<b>Last update:</b>	2023-04-06	

### Known Issues

- Deployment of firmware version 11.05.100 is not possible.

### New Features

### Base System

- Update and secure patches on all packages.


### Resolved Issues

- Fixed deployment on devices with the following error: `error: can't allocate initrd.`

In this case, the OS Creator image size is too big and the optional Nvidia partition must be stripped from the installer. The new stripping option must be set via the "**Change Nvidia strip setting**" menu option.



## Notes for Release 11.2

 The release notes for version 11.3 are available on our [download server](#)<sup>1</sup>.

<b>Software:</b>	Version	11.2
<b>Release Date:</b>	2020-08-05	
<b>Last update:</b>	2020-08-05	

### Known Issues

- Deployment of firmware version 11.03.570 or later is not possible, 11.04.100 and later is fully functional (again)

### New Features

#### Base system

- Updated to current Bionic mainline version.
- Improved performance and disk space efficiency.

### Resolved Issues

- Fixed problem that hard disk space is no longer sufficient due to increased firmware size.
- Fixed problem with unattended deployment of IGEL OS 10 firmware versions.

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<sup>1</sup> <https://www.igel.com/wp-content/uploads/2021/11/readme11.3.txt>