

Downlinks

 Roles: admin, org-admin, device-admin

Downlinks can be queued under **Device Downlinks** or **Devices Bulk Operations Downlinks**

 Currently only Platform Admins can Access the Interface on the Device. Org Admins and Device Admins must use the Bulk Operations as a workaround.

IoT Platform

DevicesDataIntegrationsDevice TypesOrganisationConfigurationTools

Devices > Pegasus_100

Pegasus_100 (id: 100)

Location: Pegasus Location - 100.000000, 100.000000

OverviewDevice DataUplinksDownlinksConfigSettingsSecurity

↺

▼ Schedule Downlink

Type*

fw/config

☐ Confirmable

*Data

JSON as expected by the device

Create

There are different downlink Types to be queued:

Downlink Types

Type	Data (example)	Data
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config	<pre>{ "d": { "mFilter": "LOB", "listenCron": "0 0/20 * * * *", "cmodeDurSec": "600" }, "q": "config" }</pre> <i>The JSON Format might be subject to change in future releases.</i>	The config values to be updated.
fw	<pre>{ "d": { "app": "app- firmware-1.x.x- mcuboot-slot1. hex", "boot": "app-boot- nrf9160-sec-TZ2- 1.8.2-mcuboot- slot1.hex" }, "q": "fw" }</pre> <i>The JSON Format might be subject to change in future releases.</i>	The application + secure boot firmware files to be downloaded by the device. - app: Application firmware file ("device.app") - boot: Associated matching secure boot firmware file ("device.boot")  The firmware that works for remote firmware updates is uploaded to the platform by Lobar. This is a different version than the one used via the USB adapter!
fw	<pre>{ "d": { "app": "app- firmware-1.x.x- mcuboot-slot1. hex" }, "q": "fw" }</pre> <i>The JSON Format might be subject to change in future releases.</i>	Only the application firmware file to be downloaded by the device. app: Application firmware file ("device.app")  This is the faster (since less data has to be downloaded by the device) alternative of the firmware update command above and can be used if the needed "device.boot" firmware is already present in the device. The appropriate boot firmware version for a particular application firmware can be obtained from Lobar. The currently installed boot firmware can be read from the device properties in the Lobar platform. If in doubt use the command above that updates both firmware images.

fw	<pre>{ "d": { "boot": "app-boot-nrf9160-sec-TZ2-1.8.2-mcuboot-slot1.hex", "q": "fw" } }</pre> <i>The JSON Format might be subject to change in future releases.</i>	Only secure boot firmware to be downloaded by the device. boot: Associated matching secure boot firmware file ("device.boot") If in doubt use the command above that updates both application + secure boot firmware images.
fw	<pre>{ "d": { "mfw": "mfw_nrf9160_update_from_1.3.2_to_1.3.4.bin", "q": "fw" } }</pre> <i>The JSON Format might be subject to change in future releases.</i>	Delta modem firmware update to be downloaded by the device. mfw: Associated matching delta modem firmware file provided by Nordic Semiconductor ("device.modem") Delta modem firmware updates can only be performed in small version steps. Please consult Lobaró for available options. Only newer Lobaró firmware support this type of update, e.g. app-nrf9160-wmbus+0.24.0 onwards.
lorawan	<pre>{ "data": "scmodeDurSec=15", "type": "ascii", "fPort": 128 }</pre>	to insert a lorawan downlink over the platform a json object with the fields type, data and fPort needs to be added. TYPE: choose "base64", "hex" or "ascii" depending on the data content. data needs to contain the content that is sent to the device over the network server. Details about data and the right fPort for Lobaró Devices can be found under: LoRaWAN Downlink Config ATTENTION: the downlinks will only be sent if you have a default LoraWan Server defined under Integrations or the device is assigned to a lorawan server integration!
fw	<pre>{ "q": "reboot" }</pre> <i>The JSON Format might be subject to change in future releases.</i>	
fw	<pre>{ "d": "ASCII string to print to log", "q": "comment" }</pre> <i>The JSON Format might be subject to change in future releases.</i>	ASCII String that will be printed to device's Log.

raw	<pre>{ format: "ASCII", data: "ascii-downlink- payload" }</pre> Lobaro NB-IoT Devices: Config change: <pre>{ "format": "cbor" "data": { "d": { "cmodeDurSec": 123 }, "q": "config" } }</pre> reboot: <pre>{ "format": "cbor" "data": { "q": "reboot" } }</pre>	Raw downlink data, with tyoe ASCII currently only supported for Tektelek devices. Format: "cbor": meant for Lobaro Devices. The content JSON Object of "data" is marshaled to cbor and send to the device.
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Raw Downlinks

Tekelek

Scheduling TCP/IP downlinks for Tekelek devices.

You can schedule a downlink with the following content:

Type: raw

Data:

```
{
  format: "ASCII",
  data: "ascii-downlink-payload"
}
```

Currently only the format "ASCII" is supported.

Lorawan (additional Information)

At the moment Chirpstack is the supported LoRaWAN Server for Downlinks.

Configure the Server under Integrations LoRaWAN in your Platform instance and mark it as the default Server.

When you create a downlink it will be queued at the platform but only one downlink will be put into the downlink queue of the chirpstack server at any time. Because there chirpstack will drop the queue on a device reconnect. This and other cases will lead to situations where we can't say if a downlink was sent by chirpstack or not. For more information observe the information in the downlink tab of your platform for the device. (Or use the getDownlinks API Endpoint. The fields Completed and Error shall make clear if a downlink was sent, an error occurred or it is unclear if the downlink was really sent by the gateway. Always keep in mind that even a successfully sent downlink not necessarily was received by the device if it is an unconfirmed downlink.