PROFITAP

# IOTA CM

*USER MANUAL*

IOTA CM software version: v0.1.4

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**www.profitap.com**

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# 1. Overview

IOTA CM is an application for centralized management of IOTA EDGE and CORE devices. Bringing together analytics from all IOTA capture points into a single interface, network administrators can centrally maintain a fleet of IOTA devices and perform advanced measurements, such as multi-segment analysis between capture points.

All IOTA devices capture network traffic locally. IOTA CM pulls metadata from all connected IOTA devices, giving insight into performance metrics from each capture segment and allowing you to get a holistic view of the network and compare specific capture locations for further analysis.

# 2. Deployment and Update

## 2.1. Installation

### 2.1.1. Prerequisites

In order to perform the application deployment, the following elements are necessary:

- *docker* installed and running;
- Profitap IOTA CM *docker* image: https://iota.profitap.com/release-cm/.

### 2.1.2. System requirements

Minimum:

- Processor: 4 CPU cores;
- RAM: 8 GB;
- Available disk space: 10 GB.

Suggested:

- Processor: 8 CPU cores;
- RAM: 16 GB;
- Available disk space: 10 GB.

### 2.1.3. Installation

The installation can be performed using the following commands in order:

1. Create a directory to be used to store the IOTA CM configuration:

```
mkdir -p /home/user/iota-cm-data/
```

This is only a reference path used for this documentation. If a different path is used, edit the following commands accordingly.

2. Load the provided *docker* container (replace 'X.Y.Z' with the appropriate version number):

```
docker load -i profitap-iota-cm-vX.Y.Z.tar
```

3. Run the *docker* container, specifying the correct data directory (replace 'X.Y.Z' with the appropriate version number):

```
docker run -v /home/user/iota-cm-data:/data:Z --network host --rm --name iota-cm
-d profitap-iota-cm:vX.Y.Z
```

At this point, the IOTA CM application should be running. If you wish to verify that deployment has proceeded correctly, you can check the running containers using the following command:

```
docker ps
```

The Profitap IOTA CM container should appear.

## *2.2. Installing a custom SSL certificate*

1. Stop the *docker* container:

```
docker stop iota-cm
```

2. Replace the certificate (cert.pem) and key (key.pem) files in the data folder with the one you want to use.

3. Restart the *docker* container:

```
docker run -v /home/user/iota-cm-data:/data:Z --network host --rm --name iota-cm
-d profitap-iota-cm:vX.Y.Z
```

If you wish to recreate a new self-signed certificate, in step 2, remove the cert.pem and key.pem files.

## *2.3. Update*

When using the IOTA CM *docker* container, the update process simply consists of shutting down the currently-running *docker* container, and starting the new updated *docker* container using the same data folder. The new instance will perform all of the necessary data migration.

### *2.3.1. Prerequisites*

In order to perform the update, the following elements are necessary:

- Currently installed IOTA CM *docker* container;
- Data folder (we are using `/home/user/iota-cm-data` for this example).

### *2.3.2. Update*

The steps for updating IOTA CM are as follows:

1. Load the new *docker* container in your local registry (replace 'X.Y.Z' with the appropriate version number):

```
docker load -i profitap-iota-cm-vX.Y.Z.tar
```

2. Stop previous instance using the following command:

```
docker stop iota-cm
```

3. Start a new *docker* container instance (replace 'X.Y.Z' with the appropriate version number):

```
docker run -v /home/user/iota-cm-data:/data:Z --network host --rm --name iota-cm
-d profitap-iota-cm:vX.Y.Z
```

## 2.4. Access

When deployed, IOTA CM is accessible through the following ports:

- **443:** HTTPS GUI and API access;
- **80:** HTTP redirection to HTTPS GUI;
- **9090:** HTTP API access (docker container only).

The first access is possible using the following default credentials:

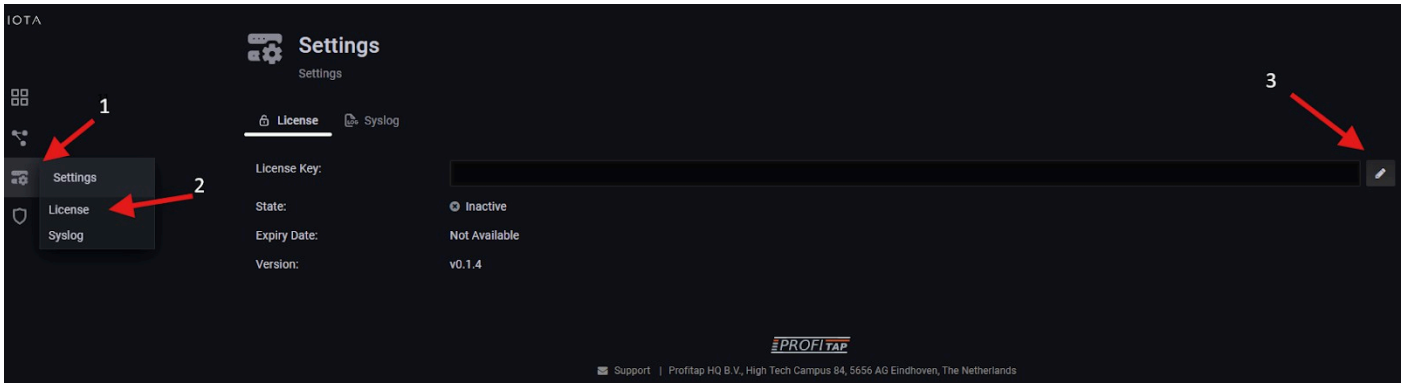
- **username:** `admin`
- **password:** `admin`

It is strongly advised to change these credentials on first access.

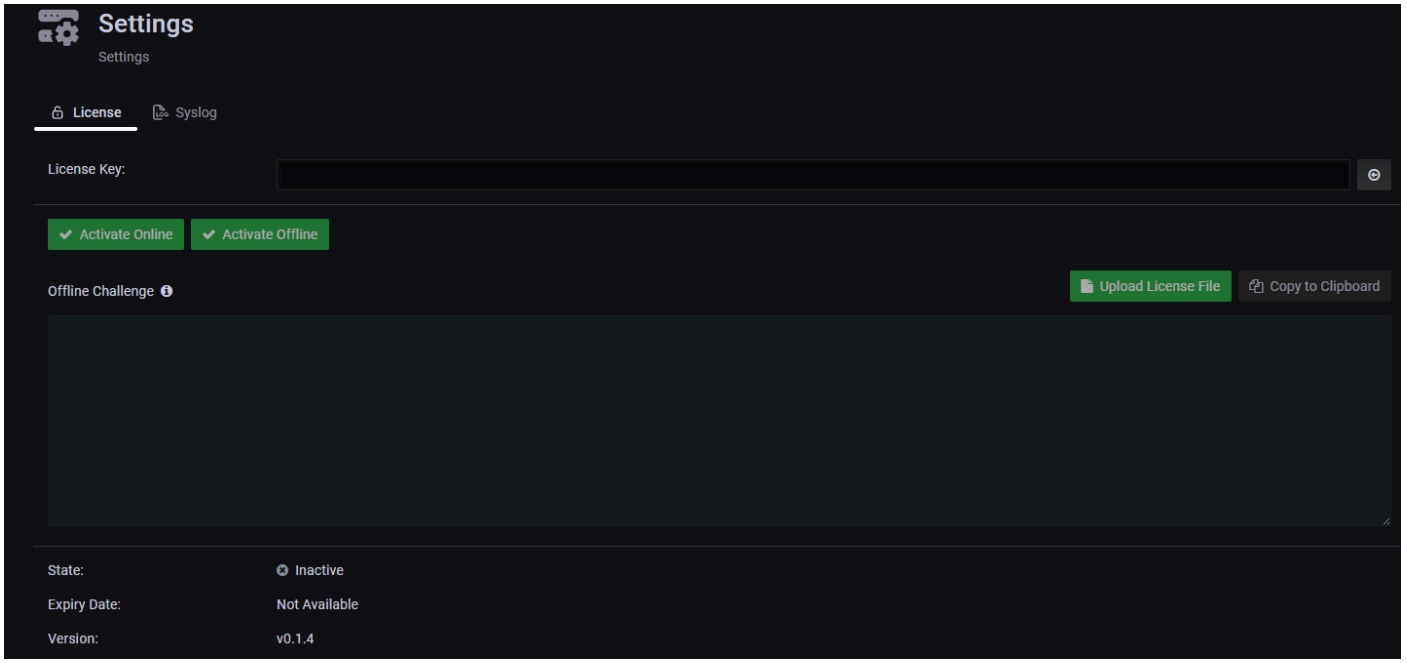
## 2.5. License activation

Log in to the IOTA CM GUI.

Navigate to the **Settings > License** page and click the *Edit* button.




Paste the license key into the *License Key* field.

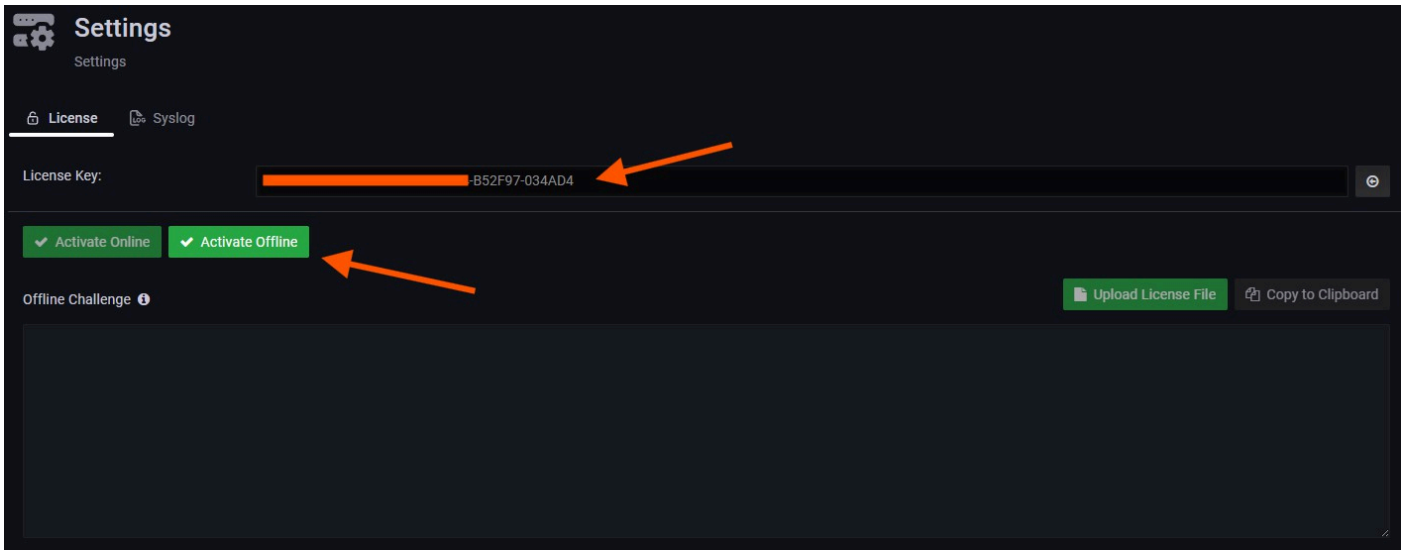



### 2.5.1. Online license activation

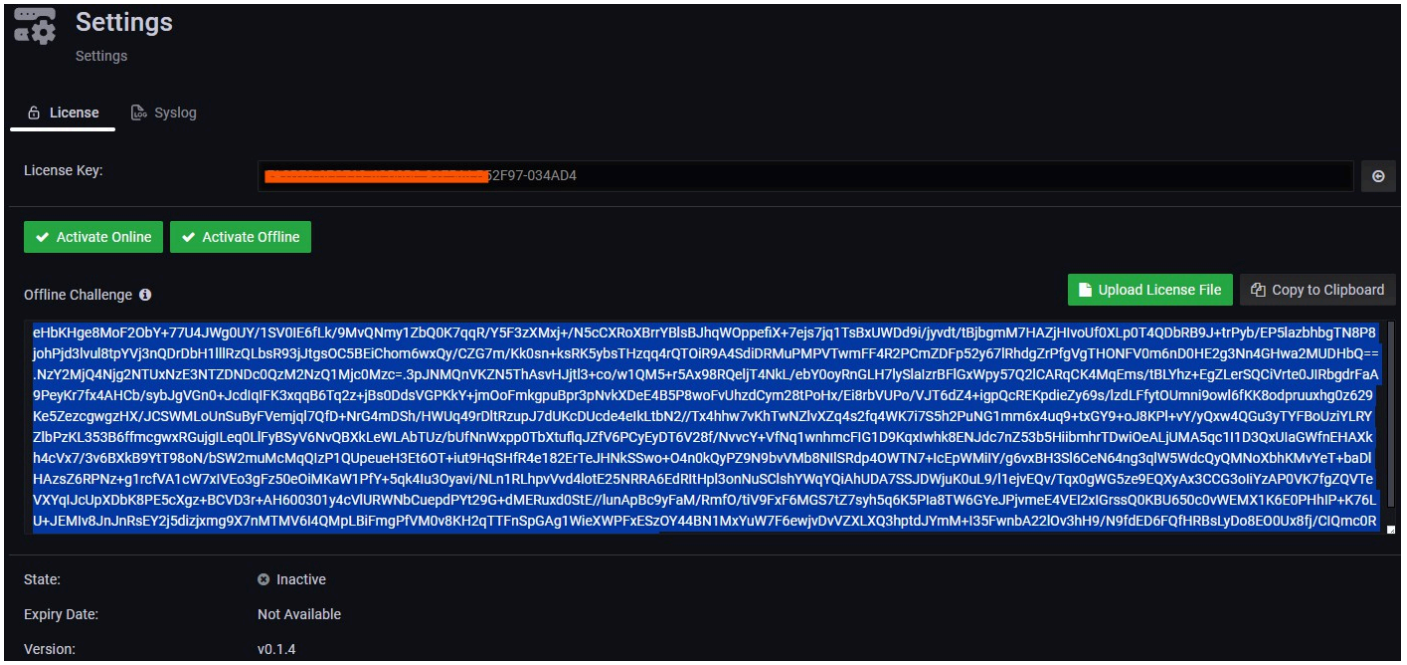
If IOTA CM can access the Internet, click the *Activate Online* button to activate the license.

### 2.5.2. Offline license activation

If IOTA CM cannot access the Internet, use the following procedure to manually activate the license.

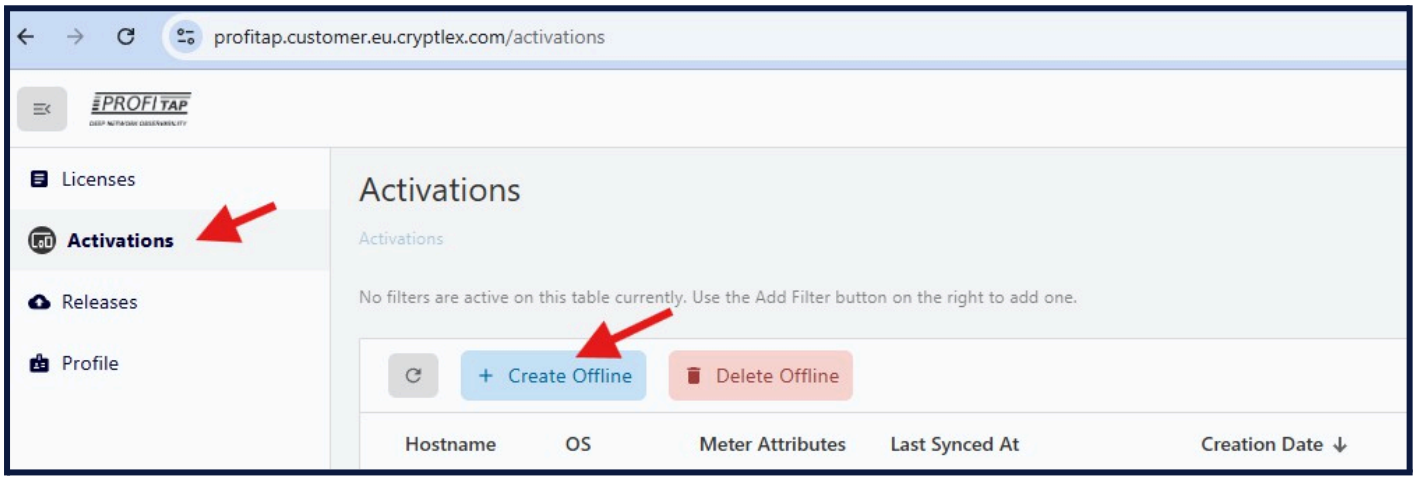



Click the *Activate Offline* button. An *Offline Challenge* text will be generated. Click the *Copy to Clipboard* button to copy this text, and paste it in a new plain text file (e.g. '`offline-challenge.txt`').

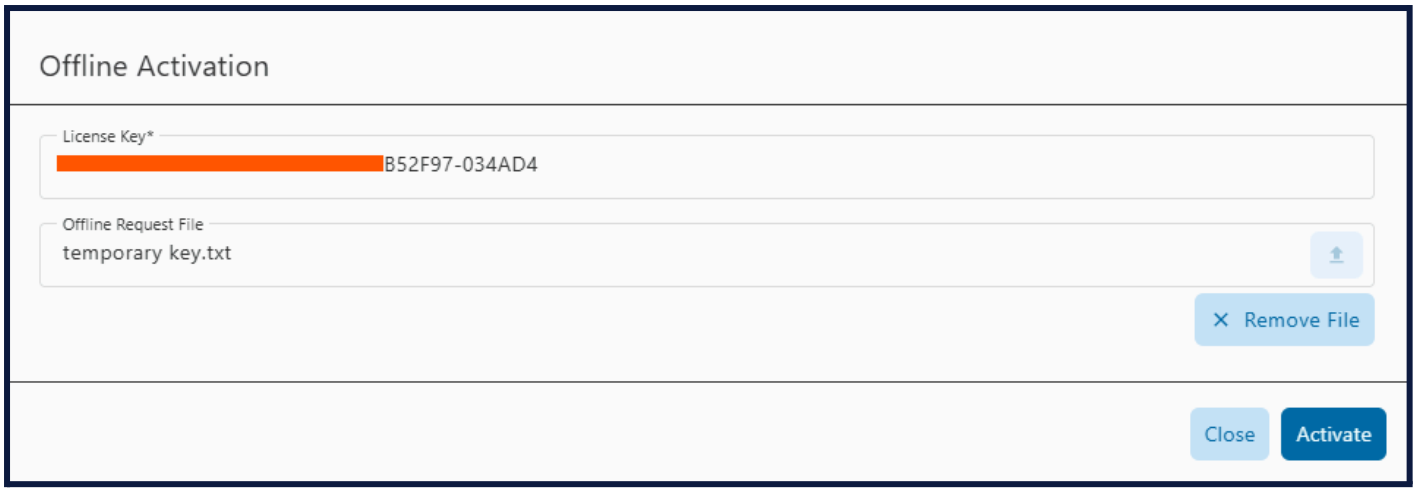



Navigate to [https://profitap.customer.eu.cryptlex.com/](https://profitap.customer.eu.cryptlex.com/) and log in with your credentials.

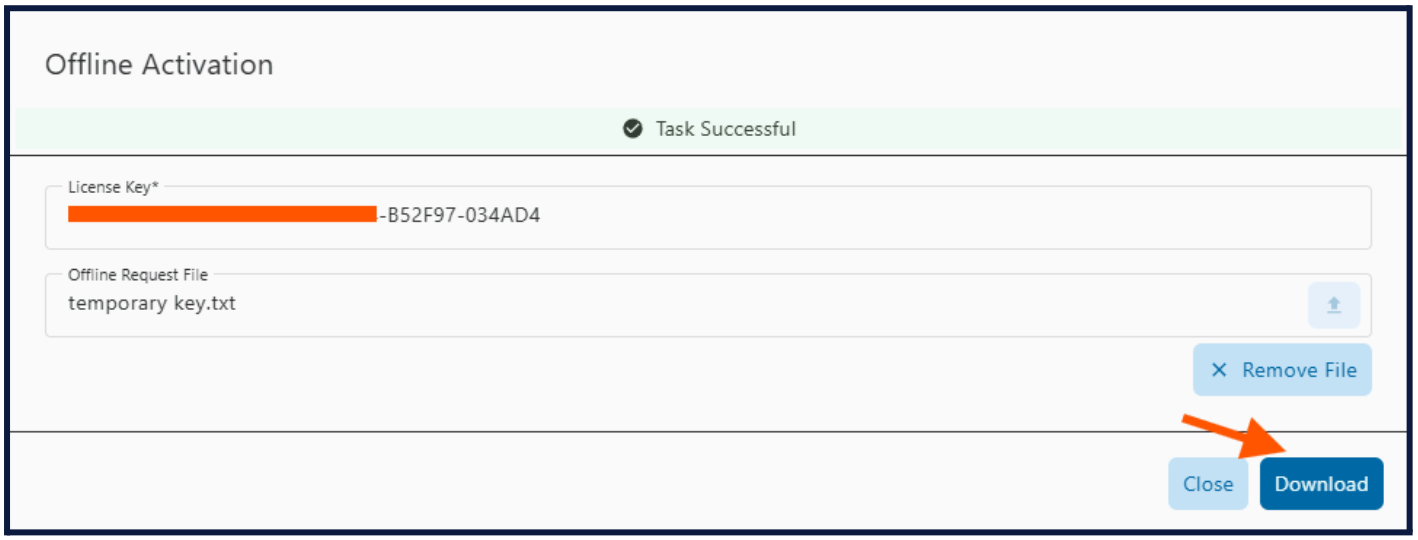
Navigate to the *Activations* page and click the *Create Offline* button.



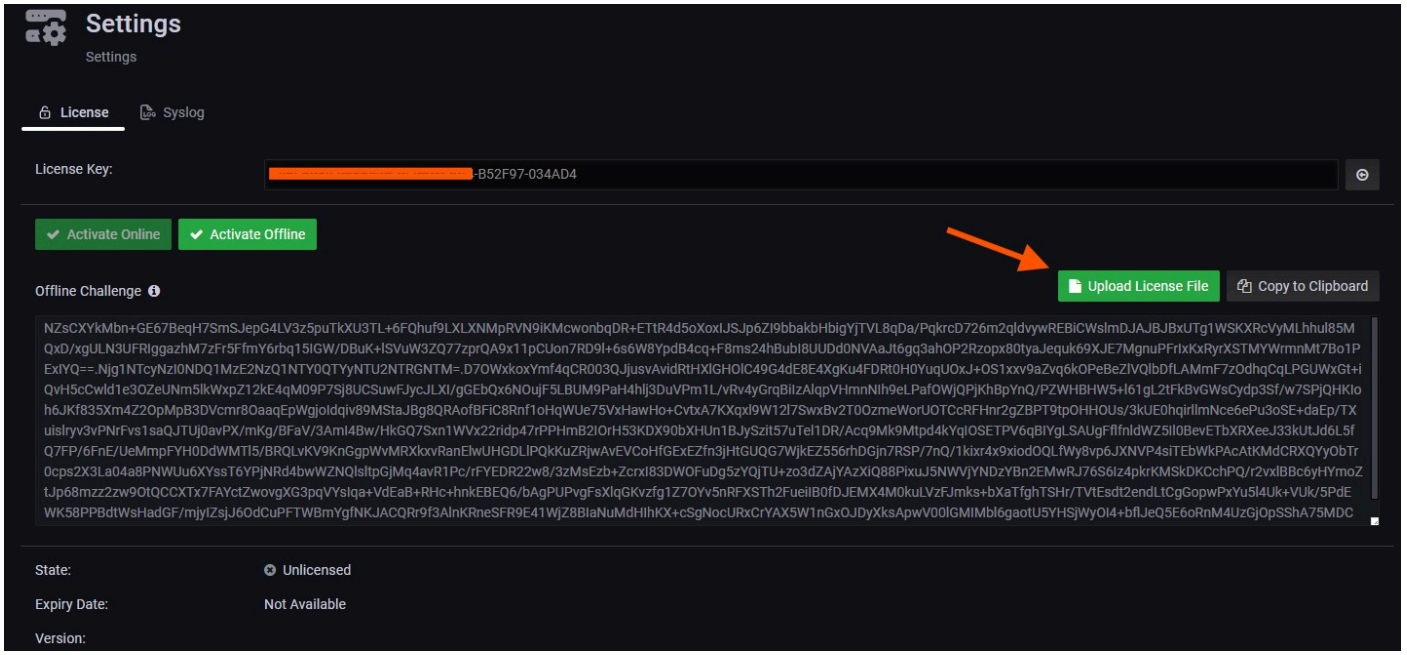

The following window will open. Fill in the license key (this is the same key we pasted into the IOTA CM's *License Key* field previously). In the *Offline Request File* box, upload the Offline Challenge text file that we created previously (`offline-challenge.txt`). Press the *Activate* button.



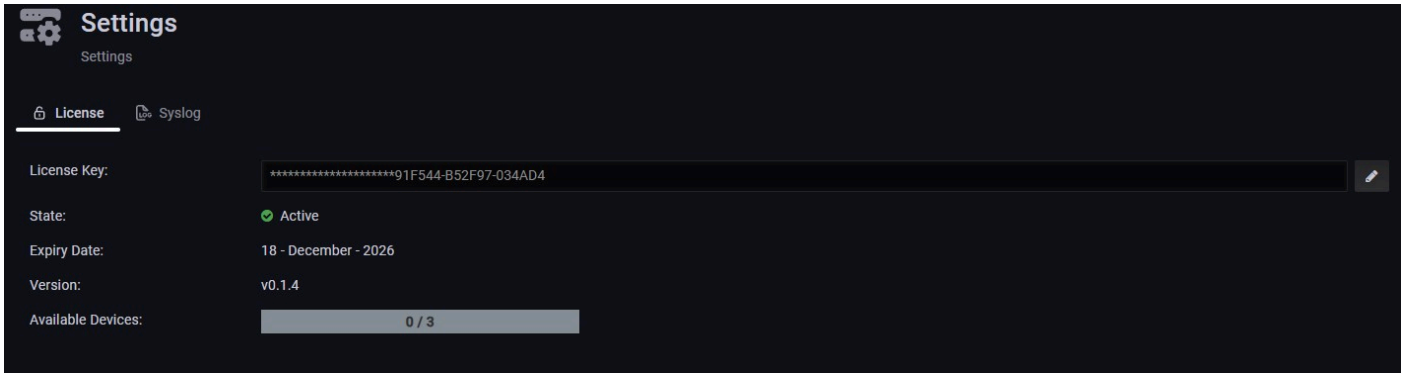

A license file will be generated. The file will have a .dat extension. Click the *Download* button to download it.




Back on the IOTA CM's License page, click the *Upload License File* button and select the .dat file that we received in the previous step.




IOTA CM should now show that the license activation was successful.



# 3. Configuration

## 3.1. Login

Open a web browser and enter the IOTA CM address in the address bar:

`https://<ip_addr>`

`<ip_addr>` being the IP address of the machine running the docker container.

Login, using the appropriate account credentials.

The initial credentials are as follows:

**Default username:** `admin`
**Default password:** `admin`

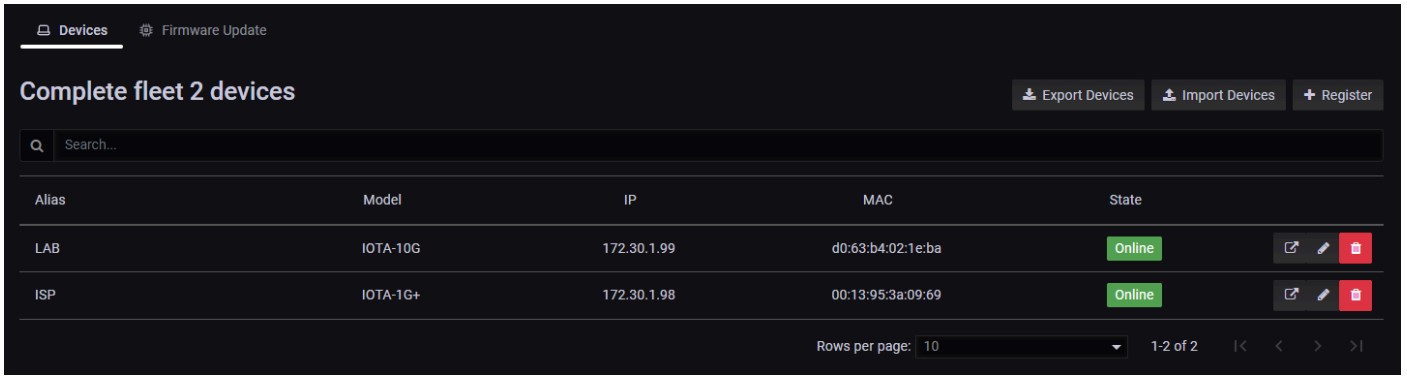
**Note:** It is strongly recommended to change the default administrator password when first accessing IOTA CM.

To change the default password, click the *Default Admin* link at the bottom left of the screen and enter a new password in the *Edit User* window.

## 3.2. Device management

### 3.2.1. Devices

The **Devices** tab of the **Device Management** page provides an overview of IOTA devices managed by IOTA CM, and general information about them, such as their alias, model, IP address, MAC address, and state.




*List of registered devices*

Devices can be added by clicking the *Register* button, then specifying the IP address, username, password, and giving it an alias.

The list of registered devices can be exported to an encrypted file by clicking the *Export Devices* button and specifying a passphrase for encrypting the file. This file can then be imported to any IOTA CM by clicking the *Import Devices* button, specifying the passphrase that was used to encrypt the file, and selecting the file.

### 3.2.2. Firmware update

The **Firmware Update** tab of the **Device Management** page displays the list of registered IOTA devices, their current firmware version, whether an update is available for them, and the update state when an update has been launched. One or more IOTA devices can be updated at once by selecting the devices to update, and clicking either the *Cloud Update* or *File Update* button. Clicking the *Select Outdated* button selects all IOTA devices which can be updated.


*List of registered devices and information and controls pertaining to firmware versions*

## 3.3. Settings

### 3.3.1. License

The **License** tab of the **Settings** page contains information about the IOTA CM license, and the ability to update it, either online or offline (see License activation).

### 3.3.2. Syslog

The **Syslog** tab of the **Settings** page allows downloading the IOTA CM system logs, and setting up remote syslog collection servers.

#### 3.3.2.1 Logs

Click the *System Logs* button to download the system logs, which contains all of the IOTA CM system activity.

#### 3.3.2.2. Remote syslog

This facility allows IOTA CM to send its system logs to remote collection servers. For each destination, it is possible to specify the type of logs priority to send.

# 4. Analysis

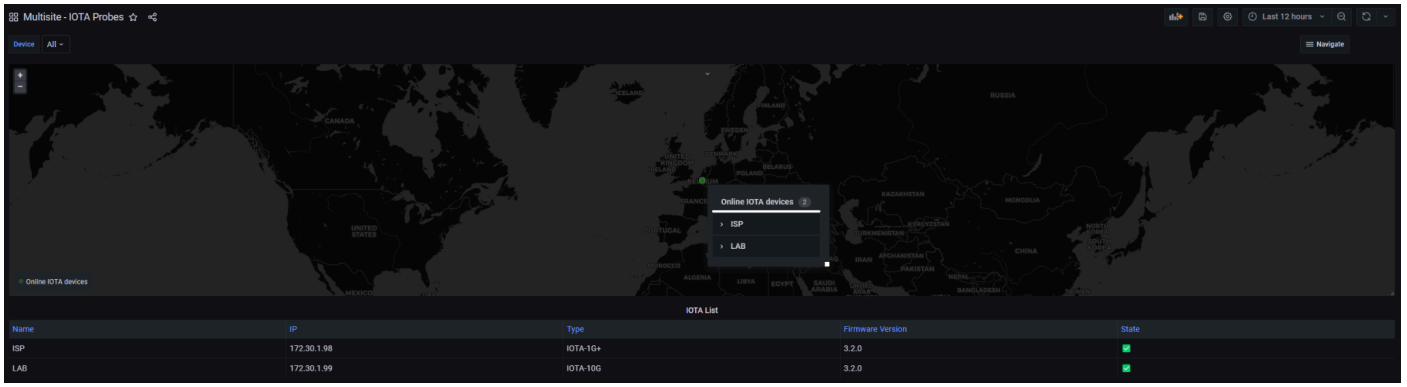
## 4.1. Dashboard overview

Dashboards use metadata retrieved from connected IOTA devices. This metadata is stored on the registered IOTA devices, with IOTA CM using the IOTA devices as distributed storage and dynamically fetching metadata necessary for analysis. This keeps IOTA devices self-sufficient while minimizing the amount of data exchanged between IOTA CM and registered IOTA devices.

Click the IOTA logo or *Dashboards* menu item to navigate to the home dashboard. Use the *Navigate* drop-down menu at the upper right corner of the screen to navigate between dashboards.

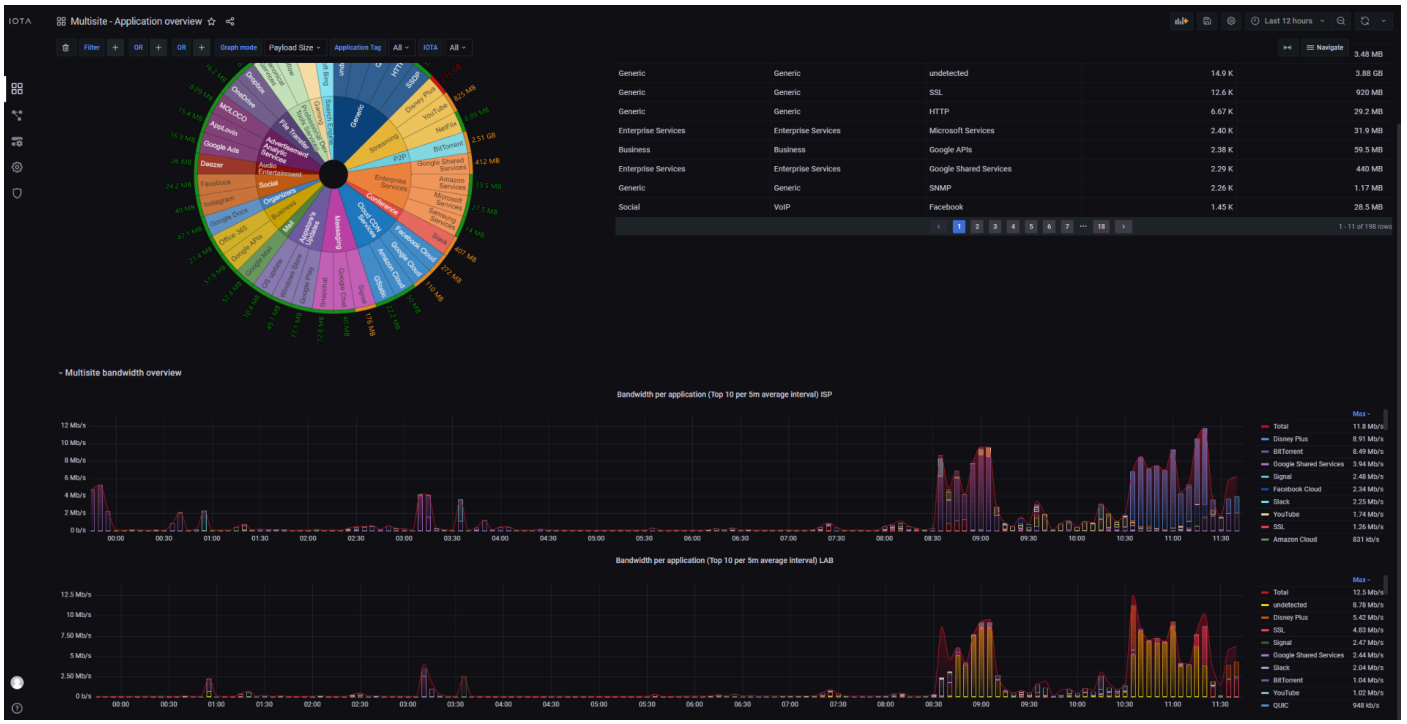
On some dashboards, display filters can be applied at the upper left corner of the screen.

### *4.1.1. Multisite - IOTA Probes*




This dashboard gives an overview of the registered devices and their status. The geolocalization map displays the devices' locations, provided they have internet access.

### *4.1.2. Multisite - Application Overview*




The *Application Overview* dashboard provides in-depth information about the application protocols detected in the analyzed traffic. On IOTA CM, it is possible to select multiple IOTA devices in the *IOTA* drop-down filter and compare the bandwidth usage over time between the devices. For each selected device, a chart will appear in the bottom section of the dashboard.

### *4.1.3. Multisite - Latency*


The *Latency* dashboard allows you to perform multi-segment traffic analysis to compare the RTT latency measured for TCP flows in two capture points. IOTA CM is capable of correlating flows captured in different points by looking at their metadata information. When the same flow is identified in the two selected capture points, the user is able to see the two-way latency measured on the difference of RTT. The dashboard provides the average and peak latency measured over time between the two devices, highlighting if any significant change of latency or behavior happens between the two monitored segments of the network.

### *4.1.4. Overview*


The *Overview* dashboard displays the metadata exposed from the different IOTA devices registered on IOTA CM from a single page, without the need to access each device's GUI page. Users can select which IOTA to query using the *IOTA* filter drop-down option in the upper-left section of the dashboard.

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Profitap HQ B.V.
High Tech Campus 84
5656 AG Eindhoven
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