

如何将 Milesight 的网关和设备集成到 KaaloT 平台



Version Change Log			
Version	Revision Date	Revision Details	Revised By
V1.0	20250313	Initial	Lockon



前言

KaaloT 是一家专注于物联网 (IoT) 平台和解决方案的技术公司，提供开源和企业级 IoT 平台 Kaa，用于设备管理、数据收集、远程控制和分析。KaaloT 的平台支持各种 IoT 生态系统，能够帮助企业快速构建和部署可扩展的物联网应用。其解决方案广泛应用于智能制造、智慧城市、能源管理、远程监控等领域，为用户提供高效、安全和灵活的 IoT 连接能力。

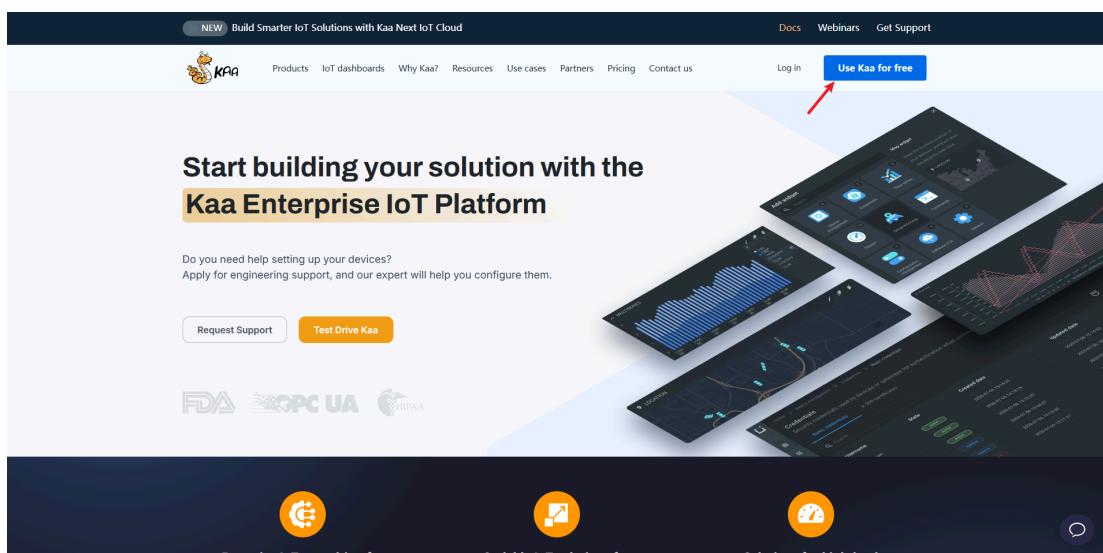
本文主要介绍如何使用 UG65 网关对接 KaaloT 平台（借助第三方 LNS，也就是 TTN 平台），并且在 KaaloT 平台上添加 AM319 设备作为示例的完整操作过程。

1. 前置条件

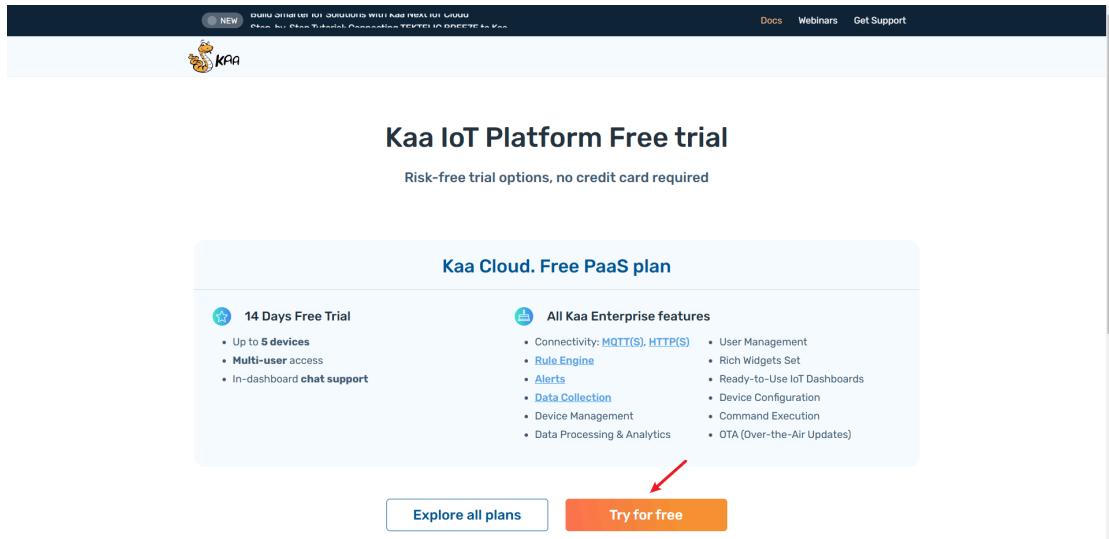
- 网关型号：UG65（固件版本 v60.0.0.45）或者 UG56、UG67 也可以
- 传感器型号：AM319，固件为 v1.6
- 本文演示用到的频段：US915
- 网关已经接入互联网

2. 注册 KaaloT 账号

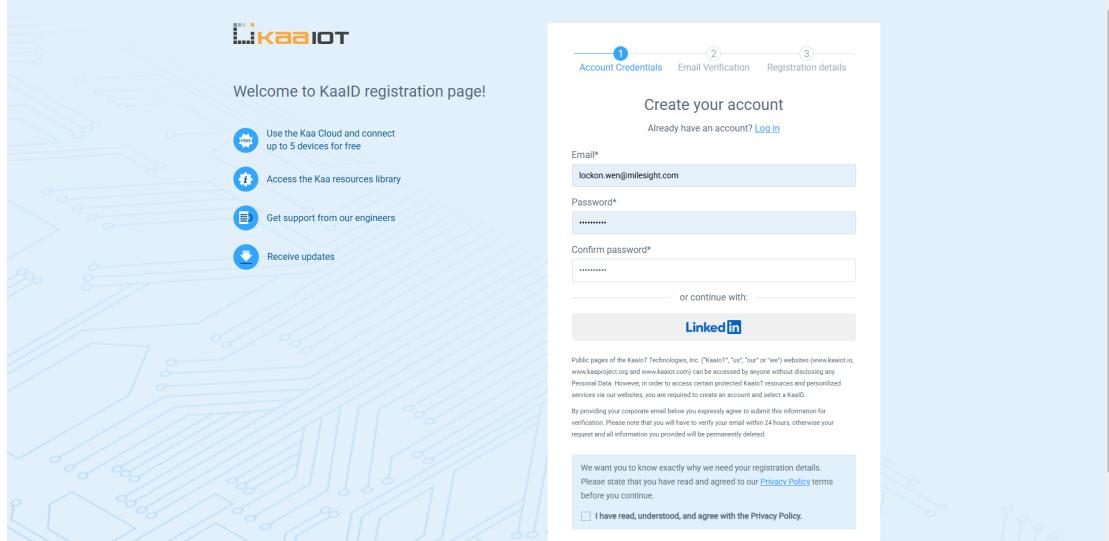
访问 <https://www.kaaiot.com/>，点击 “Use Kaa for free” 按钮：



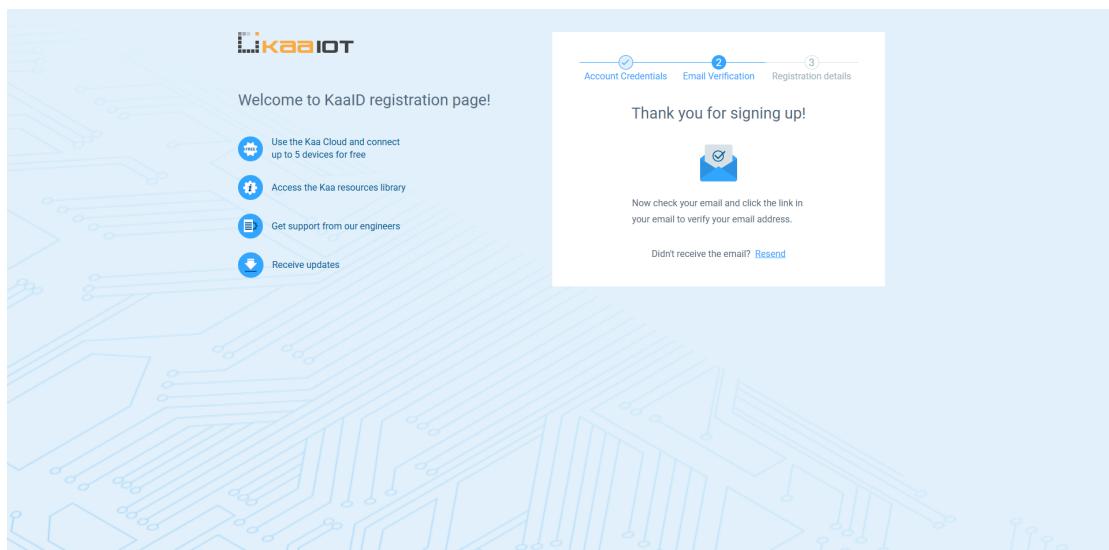
官方允许注册一个 14 天试用的免费账号，根据提示填写信息即可：



The screenshot shows the Kaa IoT Platform Free trial landing page. At the top, there's a navigation bar with links for 'Docs', 'Webinars', and 'Get Support'. Below the navigation is a logo featuring a small orange tiger-like creature with the word 'Kaa' next to it. The main heading is 'Kaa IoT Platform Free trial' with the subtext 'Risk-free trial options, no credit card required'. A large call-to-action button labeled 'Try for free' is prominently displayed, with a red arrow pointing towards it from the right side of the page.



This screenshot shows the first step of the KaaID registration process, titled 'Create your account'. It includes fields for 'Email*', 'Password*', and 'Confirm password*'. There's also a 'or continue with:' section featuring a LinkedIn button. At the bottom, there's a note about accepting the Privacy Policy and a checkbox for 'I have read, understood, and agree with the Privacy Policy.'

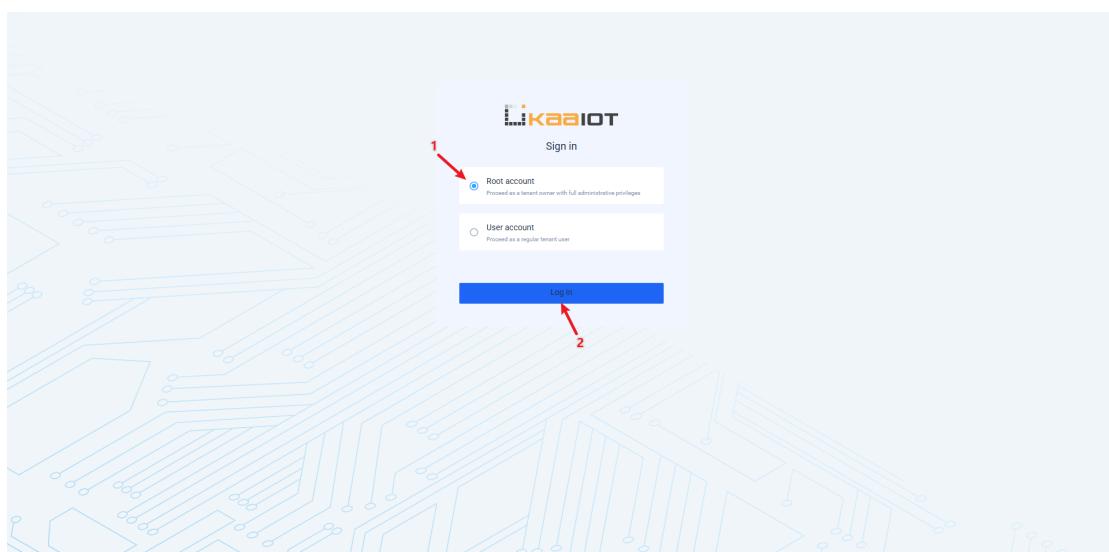
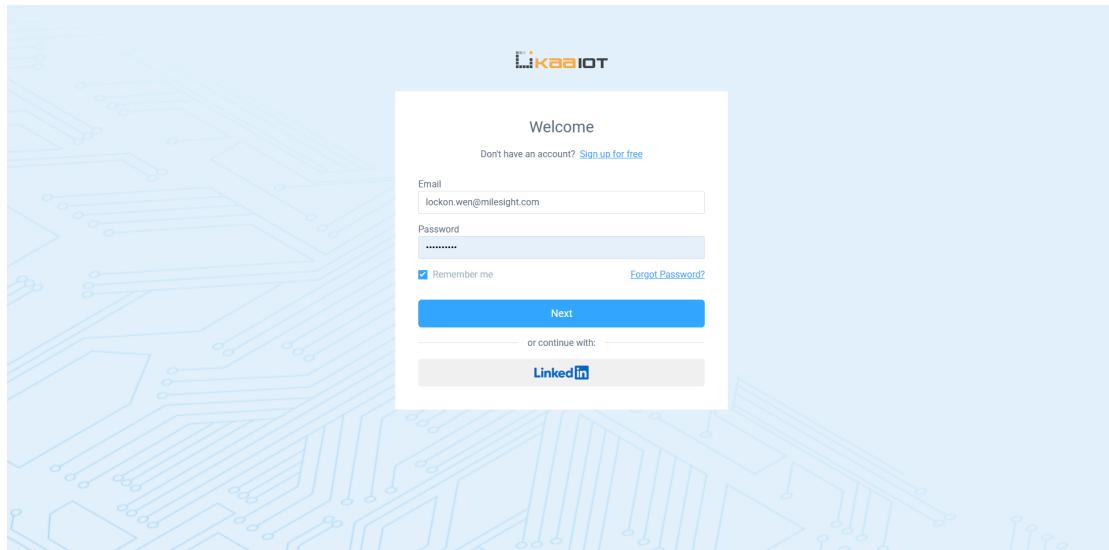


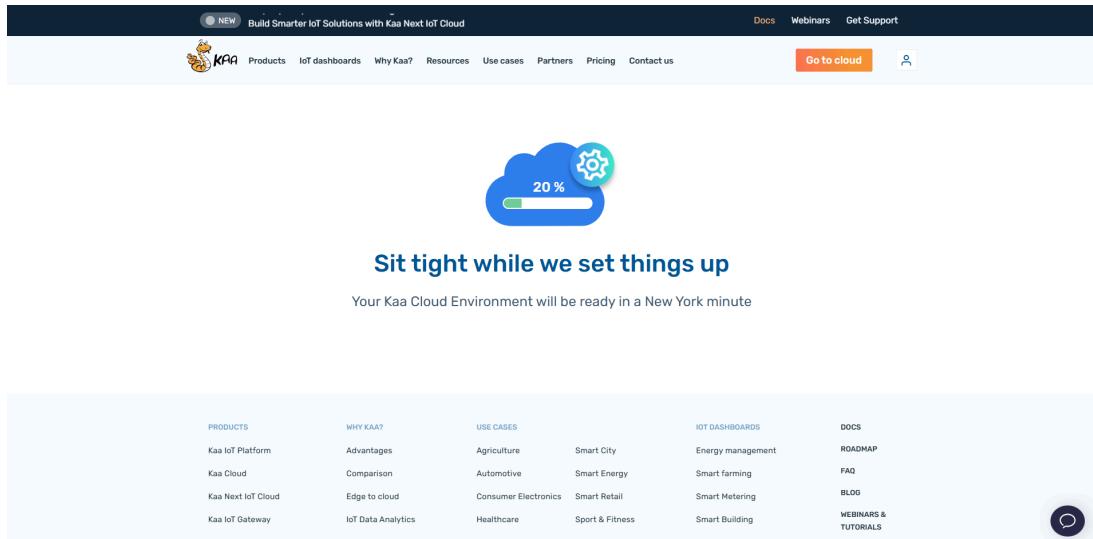
This screenshot shows the second step of the registration process, 'Email Verification'. It displays a confirmation message 'Thank you for signing up!' with a checkmark icon. Below it, there's a note instructing users to check their email for a verification link, and a 'Didn't receive the email?' link with a 'Resend' button.

注册完毕后，点击邮箱链接激活然后，登录即可。

3. 首次登陆

首次登陆界面会提示初始化，等待片刻后才可以正常进入，才可以正常使用：





至此，我们的账号注册就完成了。

4. 网关对接 TTN

由于 Kaalot 本身不具备 LNS 功能，根据 Kaalot 的官网介绍，需要借助 TTN 平台进行对接，并且添加 Sensor 的操作也是需要提前在 TTN 上面操作，所以接下来开始介绍网关对接 TTN、添加 Sensor，以及创建 TTN 的 MQTT 接口的操作。

参考 <[The Things Stack-Milesight Gateway Integration via Semtech Packet Forwarder](#)> 操作即可，完成后的截图如下：

ID	Enable	Type	Server Address	Connect Status	Operation
0	Disabled	Embedded NS	localhost	Disconnected	
1	Disabled	Sentech	nam1.cloud.thethings.network	Disconnected	
2	Enabled	Sentech	nam1.cloud.thethings.network	Connected	

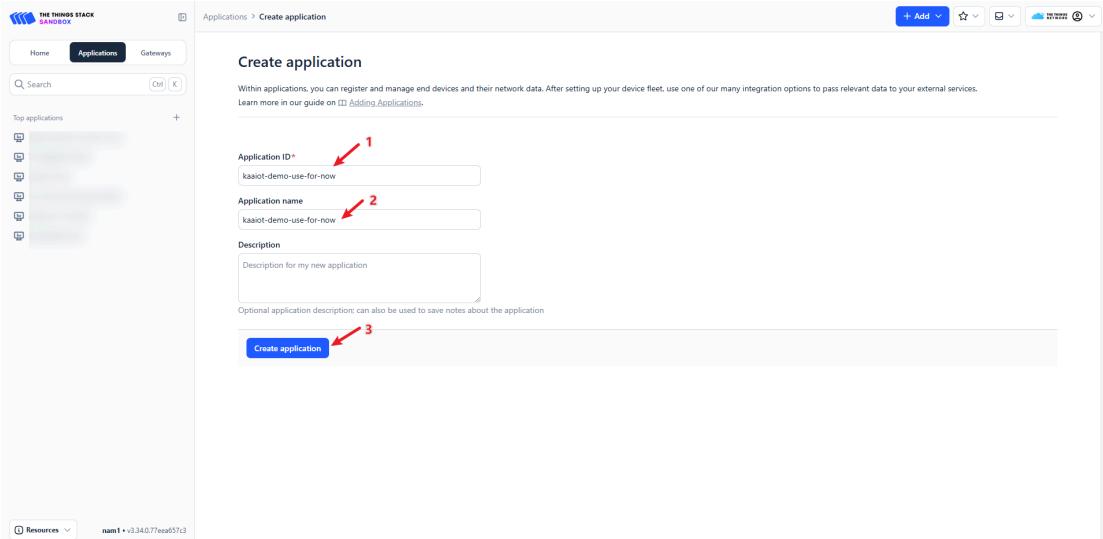
The screenshot shows the 'Gateway overview' page for gateway 45.211-lockon. The URL in the browser is `nam1.cloud.thethings.network/console/gateways/24e124fffffa1111`. The page includes sections for 'General information' (Gateway ID: 24e124fffffa1111, Gateway EUI: 24 E1 24 FF FE FA 11 11, Frequency plan: United States 902-928 MHz, FSB 2 (used by TTN), Created at: Feb 28, 2025 16:26:29) and 'Network settings' (Require authenticated connection: Disabled, Public status: Enabled, Public location: Enabled, Packet Broker forwarding: Enabled, Status location updates: Disabled, Enforce duty cycle: Enabled). On the right, there's a 'Gateway status' section showing 30 day uptime (30 days), Roundtrip times (ms) (194.37 - 196.85 ms, average 195.61 ms), Connection stats (Received 183,848 up, 206 down, 47 sec ago), Duty cycle utilization (902.3 - 914.9MHz, 923.3 - 927.5MHz, 0.00%), and a 'Location' section indicating 'No location yet'.

至此，网关对接 TTN 完成，注意，这里的 TTN 区域是 `nam1.cloud.thethings.network` 不能弄错，后面会用到。

5. TTN 上面创建 Application

如图进行操作即可：

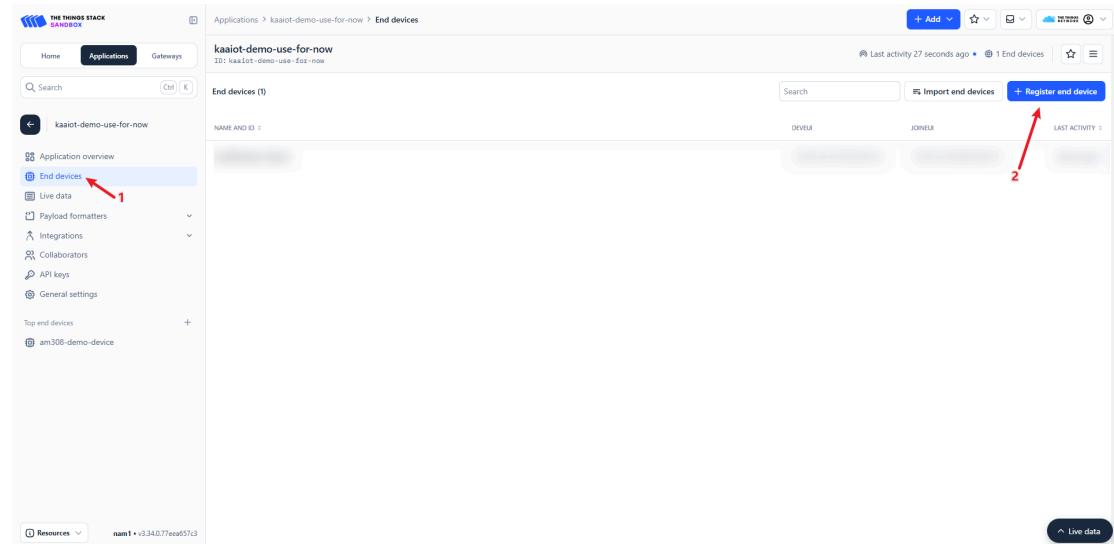
The screenshot shows the 'Applications > List' page. The URL in the browser is `nam1.cloud.thethings.network/applications`. The page displays a table of applications with columns for NAME AND ID, DEVICES, and CREATED IN. There are six applications listed, all created within the last 3 days. The first application is 'Other cluster' with 1 device, created 3 days ago. The second is 'nam1' with 0 devices, created 7 days ago. The third is 'nam1' with 0 devices, created 13 days ago. The fourth is 'nam1' with 0 devices, created 17 days ago. The fifth is 'nam1' with 1 device, created Jan 9, 2025. The sixth is 'nam1' with 1 device, created 3 days ago. A red arrow points to the '+ Add application' button in the top right corner of the search bar.



注意，本次演示的 Application ID 是 kaaiot-demo-use-for-now，后面会用到。

6. TTN 上面添加 Device

本次演示使用的是 AM308，这里我们还需要在 TTN 上面把这台设备添加进去，如图进行操作即可：



根据提示一步一步填写 AM308 的参数即可，注意这里的 Frequency plan 不要选错，要按照图中所示的信息选择。

添加完毕后，我们会在 TTN 这边看到被添加的设备基本信息：

至此，TTN 上面添加 Device 结束。

7. TTN 上面创建 MQTT integration 信息

如图操作：

The screenshot shows the MQTT configuration page. The sidebar on the left has a 'MQTT' tab highlighted with a red arrow labeled '1'. Below it, there's a 'Connection information' section with fields for 'Public address' (nam1.cloud.thethings.network:1883) and 'Public TLS address' (nam1.cloud.thethings.network:8883). Under 'Connection credentials', there's a 'Username' field containing 'kaaiot-demo-use-for-now@ttn' and a 'Password' field. A red arrow labeled '2' points to the 'Generate new API key' button.

注意这里点击一次“**Generate new API key**”后，会临时显示一次明文的信息，此时要保存好，这个值，只显示一次：

The screenshot shows the MQTT configuration page after generating a new API key. The 'Password' field now contains a long, complex string of characters: 'NNSXS.RIEZLBB2315T2QMBS51KPNNMBXBVDCQC5YCVEVA.FRJ2NMKKL2XDLW6065NXCW7OXIWHN3USGMZ3XCFX4T73HDJ70NNQ'. A red arrow labeled '3' points to the 'Copy to clipboard' button next to the password field.

这里的明文 Key 信息如下（仅供示例使用），这个信息很重要后面会用到，要单独记下来：

NNSXS.RIEZLBB2315T2QMBS51KPNNMBXBVDCQC5YCVEVA.FRJ2NMKKL2XDLW6065NXCW7OXIWHN3USGMZ3XCFX4T73HDJ70NNQ

同时，TTN 的 MQTT 地址和 Username 也要记下来：

nam1.cloud.thethings.network:1883
kaaiot-demo-use-for-now@ttn

特别注意：KaaloT 平台使用的是 1883 端口的地址，不是 8883 的地址。

接下来配置这个 key 的权限（这一步一定要做，否则后面无法使用），如图进行操作即可：

The screenshot shows the MQTT configuration page. The left sidebar has 'MQTT' selected under 'Integrations'. The main area is titled 'MQTT' and contains sections for 'Connection information' and 'Connection credentials'. Under 'Connection credentials', there is a 'Username' field containing 'kaiiot-demo-use-for-now@ttn' and a 'Password' field containing a long hex string. A red arrow points to the 'API keys' link in the sidebar.

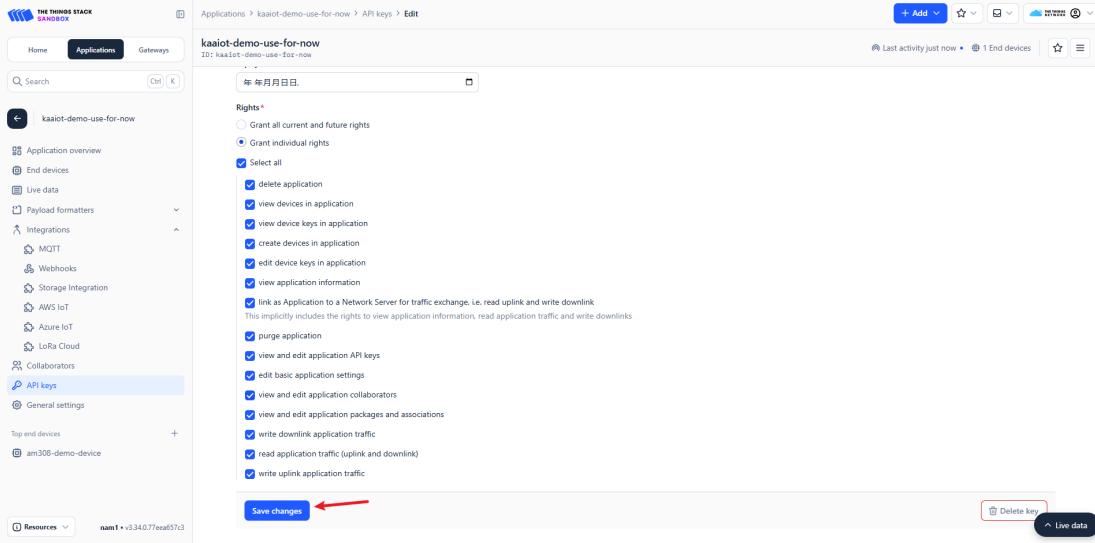
找到我们刚刚创建的 Key 的信息 (一般是最新的那一条记录就是我们需要的) :

The screenshot shows the API keys list page. The left sidebar has 'API keys' selected under 'Integrations'. The main area lists three API keys. The first key, 'R1E2LB82315T2QMBS51KPNNMBXBVDCQC5YCVI mqtt-password-key-1742176306494', is highlighted with a red arrow. It has 'GRANTED RIGHTS' 'Read application traffic (uplink and downlink)' and 'Write downlink application traffic'. The 'CREATED AT' timestamp is '4 minutes ago'. The other two keys were created '3 days ago'.

点击进去后，把所有权限都勾选，如图所示：

The screenshot shows the 'Edit API key' page for the key 'R1E2LB82315T2QMBS51KPNNMBXBVDCQC5YCVI'. The 'Rights' section is highlighted with a red arrow. Under 'Rights', there are two radio buttons: 'Grant all current and future rights' and 'Grant individual rights'. The 'Grant individual rights' button is selected. Below it, a checkbox 'Select all' is checked, and a list of permissions is shown, all of which are checked: 'delete application', 'view devices in application', 'view device keys in application', 'create devices in application', 'edit device keys in application', 'view application information', 'link as Application to a Network Server for traffic exchange, i.e. read uplink and write downlink', 'purge application', and 'view and edit application API keys'.

勾选完毕后，点击 “Save changes”就可以了：



至此，我们 TTN 的 MQTT 的 Key 参数配置完毕，接下来的操作需要回到 KaaloT 凭条那边进行操作，TTN 这边的操作到此结束。

8. KaaloT 创建 Solutions

登录到 KaaloT 平台后，如图进行操作，创建我们的第一个 Demo Solution：

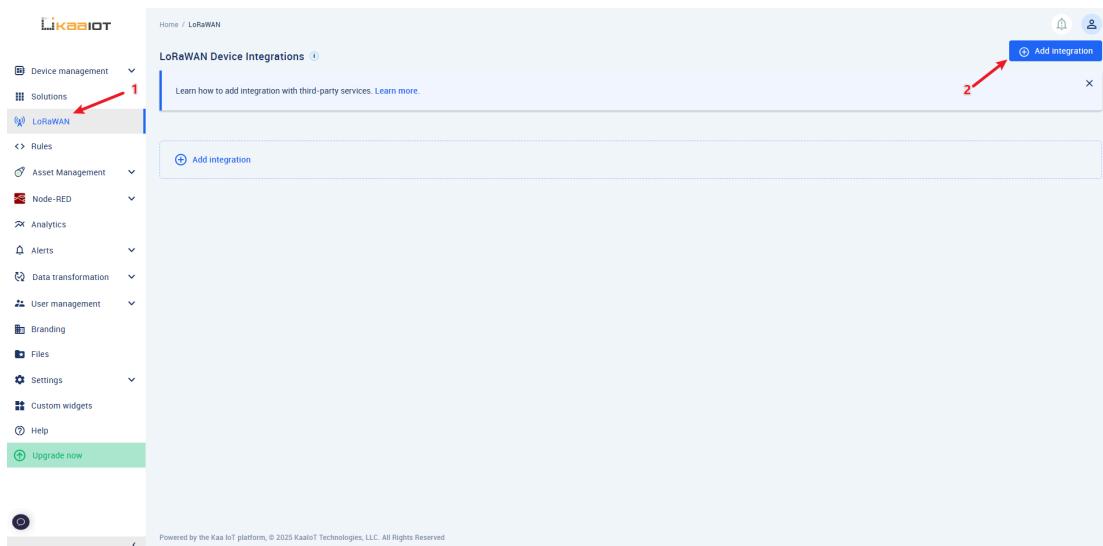


创建完毕后如图所示：

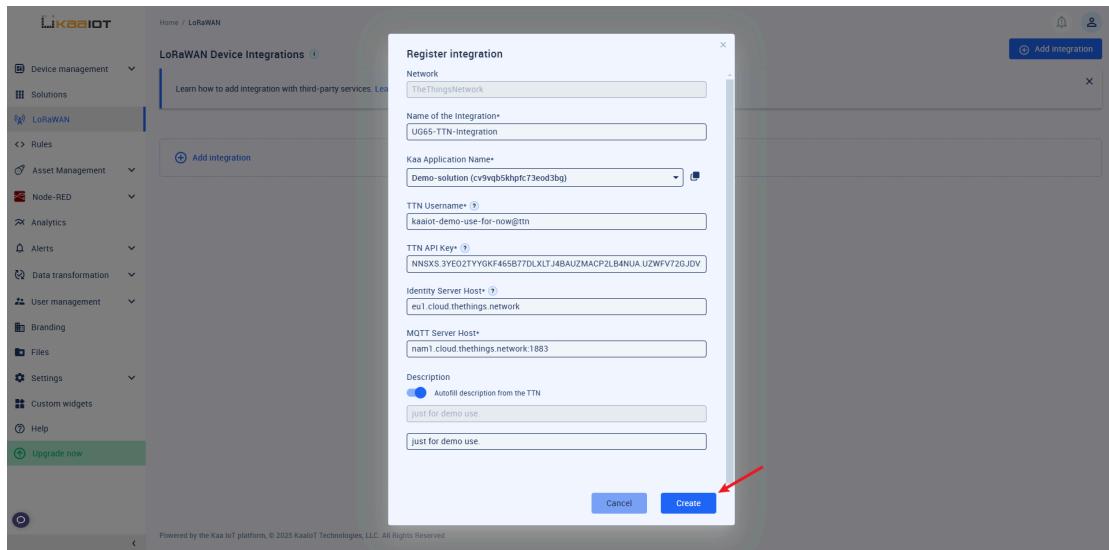


9. KaaIoT 添加 TTN 集成信息

如图操作即可：



在弹出的界面中填写信息，如下：



相关参数说明如下：

Name of the Integration：这里填写 UG65-TTN-Integration（建议以网关的形式命名）

Kaa Application Name：这里下拉选择我们刚才创建的 Solution

TTN Username：这里填写我们在第 7 步获取的参数，{application id}@ttn

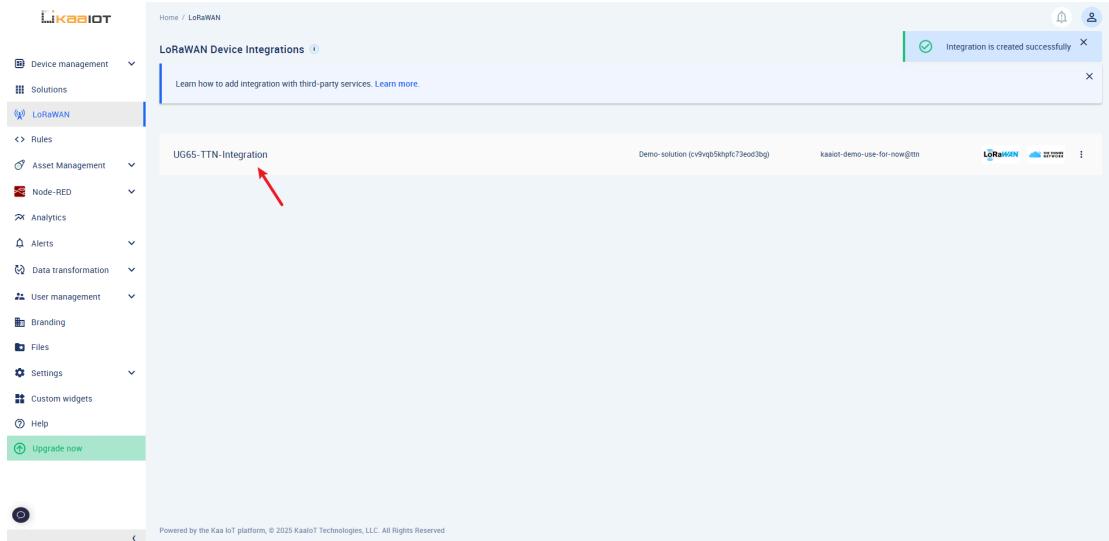
TTN API Key：这里填写我们在第 7 步获取的参数

Identity Server Host：这里必须填写 eu1.cloud.thethings.network（固定值）

MQTT Server Host：这里填写第 7 步获取的参数

注意：Identity Server Host 的值和你注册的 TTN 区域无关，必须填写固定值。

点击“Create”后，如图所示：



10. KaaIoT 添加 Device

这里的添加 Device，其实是记住刚才的 MQTT 的接口同步 TTN 上面注册的 Device 信息而已。

具体的操作如下：

Home / Device management / Devices

Devices 0

You're currently on Free plan with 5 devices limit
You're currently on Free plan with 5 devices limit | Upgrade now

There are no application versions configured currently. Create one to register a device.

Application Demo-solution (cv9vqb5hpf73eod3bg) Bulk import Add device

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Home / Device management / Applications

Applications

TYPES OF YOUR CONNECTED DEVICES AND CORRESPONDING PLATFORM CONFIGURATIONS

Tenant data sent: 4.02 MB, Total: 1.62 MB, 24 hours: 4.02 MB, last 7 days

Search Show hidden

Created Updated

Demo-solution cv9vqb5hpf73eod3bg 2025-03-14 17:55:56 2025-03-17 10:51:35

Demo-solution-1 cv9vqb5hpf73eod3bg-1 2025-03-17 10:51:35 2025-03-17 10:51:35

Demo-solution-1 configuration

This is the version-specific configuration that applies on top of the base configuration of your application. You can further adjust its behavior by configuring the corresponding services.

Data collection

dcx kdca epts

Device management

epmx epr cm

Communication

kpc epi

Configuration management

ecr cmx adx

Command invocation

cex

Request custom service Add application

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创建完毕后就可添加设备了，操作如下：

Home / LoRaWAN / Integration UG65-TTN-Integration

UG65-TTN-Integration

Info

just for demo use.

Demo-solution (cv9vqb5hpf73eod3bg) kaaiot-demo-use-for-now@ttn

Devices

NO DATA FOUND

Add devices to see their data

Add devices

Edit integration Add devices

Upgrade now

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在弹出的界面中，我们可以看到 AM308 的 Device EUI 数据，选中并添加即可：

The screenshot shows the LoRaWAN integration interface. A modal window titled 'Add devices' is open. Inside, the 'Application version*' dropdown is set to 'Demo-solution (cv9vqb5khpf73eed3bg)'. Below it, the 'Available Devices' list contains '24E124707E043923', which has a checkmark next to it. At the bottom right of the modal is a blue 'Add Device' button. Red arrows numbered 1, 2, and 3 point to these elements respectively.

添加完毕后如图所示：

The screenshot shows the 'Devices' list after the addition. A new row is present in the table:

EUI	Name	Description	Application version	Endpoint ID
am308-demo-device	24E124707E043923		cv9vqb5khpf73eed3bg-1	25948ee6-3809-4250-91d5-e0f3cf0c110b

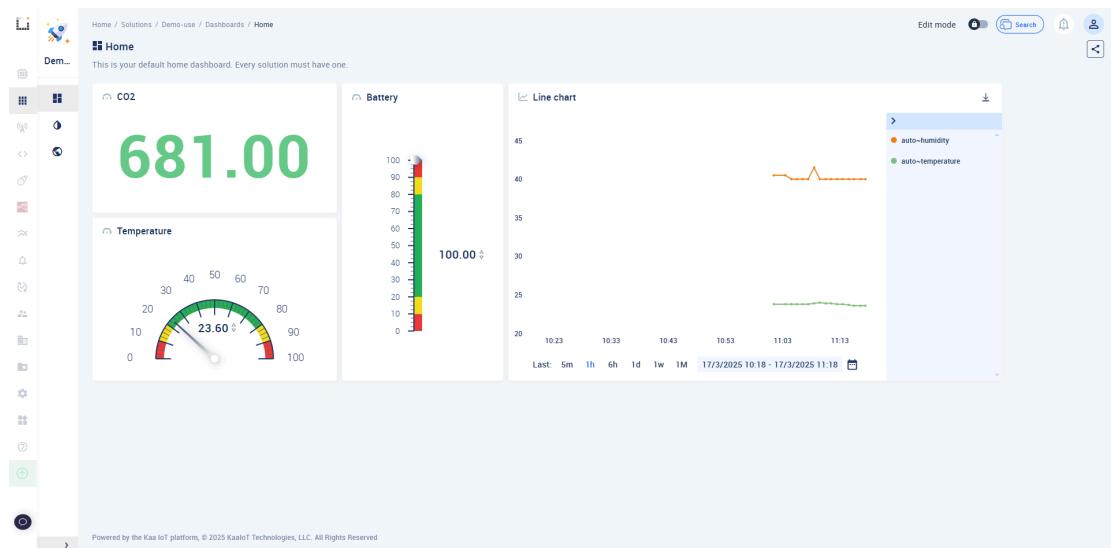
A red box highlights the newly added device row. A success message 'Device is added successfully' is visible at the top right.

The screenshot shows the detailed view of the added device. The 'Overview' tab is selected. Key information displayed includes:

- Metadata:**
 - appName: cv9vqb5khpf73eed3bg
 - appVersion.name: cv9vqb5khpf73eed3bg-1
 - appVersion.registeredDate: 2025-03-17T02:57:10.317Z
 - createdDate: 2025-03-17T02:57:10.317Z
 - endpointId: 25948ee6-3809-4250-91d5-e0f3cf0c110b
 - _integrationId: 235
 - _integrationStatus: Active
- Device statistics:**
 - Data sent total: 1.08 KB
 - 1.08 KB, 24 hours
 - 1.08 KB, last 7 days
- Telemetry:** A chart showing data over time from 10:56:53 to 11:01:35. The Y-axis ranges from -2500000 to 15000000. The X-axis shows minutes from 10:56:53 to 11:01:35. The chart area is mostly empty with a few small data points.

至此，我们的 AM308 示例设备添加完毕，并且数据可以正常上报和显示。

11. 创建简单的 Dashboard 示例



-END-