DEIF Smart Remote

4189341476-A

Quick start guide

Improve
Tomorrow

1. About this guide

1.1 Purpose

This guide describes how to install, connect, configure, and onboard a DEIF Smart Remote gateway in the DEIF Equip web application.

The guide covers the complete workflow from preparing the gateway to verifying that data is available in the platform.

Use this guide to:

- Prepare the gateway for installation
- Install the SIM card and antennas
- Connect power and communication interfaces
- Onboard the gateway in DEIF Smart Equip using Asset Tagging
- Configure connectivity using the DEIF Smart Diagnostic app
- Verify that data is transmitted successfully

During onboarding, the system automatically:

- Verifies gateway connectivity
- Applies the required configuration based on the selected controller model

After successful onboarding, gateway data becomes available in the platform after a short delay.

1.2 Intended users

This guide is intended for users who install, configure, or commission DEIF Smart Remote gateways.

The onboarding procedure can be performed by any user with valid admin access to the DEIF Equip web application and the Asset Tagging module, including:

- DEIF HQ users
- DEIF subsidiaries
- OEMs
- Dealers
- Customers or asset owners

1.3 Gateway variants

Two hardware variants are available:

Pluto 313	Venus 511
	

Specification	Pluto 313	Venus 511
Connectivity	4G LTE, BLE 4.2, RS485	4G LTE, BLE 4.2, RS485, CAN
SIM type	Micro SIM	Micro SIM
Power supply	11 to 30 V DC	11 to 90 V DC
Memory	1000 strings	64 MB
Battery backup	None	850 mAh Li-Ion
Protocol	MQTT	HTTP, MQTT
GNSS	GPS, BeiDou, Galileo, QZSS	GPS, BeiDou, Galileo, QZSS
Operating temperature	-40 to +85 °C	-40 to +85 °C
Vibration	2G, 10 to 150 Hz	2G, 10 to 150 Hz
Protection	IP65	IP65

1.4 Resources and support

Resource	Details
DEIF Smart Remote product page	https://www.deif.com/products/remote-monitoring-systems/deif-smart-remote/
DEIF Equip web application	https://deif.tor-iot.com/auth/login
DEIF Smart Diagnostic app	https://play.google.com/store/apps/details?id=com.torai.tor_diagnostics
DEIF Smart Equip app	https://play.google.com/store/apps/details?id=com.torai.deif_equip https://apps.apple.com/in/app/deif-smart-equip/id6762806866
Documentation	https://www.deif.com/documentation/deif-smart-remote/
Technical support	https://deifsupport.deif.com/support/home
Sales	https://www.deif.com/contact-sales/

2. Pre-installation

2.1 Prerequisites

Before starting the installation and onboarding procedure, make sure that:

- The gateway is physically available.
- The Device ID label is readable.
- A SIM card with an active data plan is available.
- The SIM card has no PIN lock enabled.
- Mobile network coverage is available at the installation site.
- You have valid login credentials for the DEIF Equip web application.
- The Asset Tagging module is available in your DEIF Equip account.
- An Android mobile device is available for Bluetooth configuration.
- The DEIF Smart Diagnostic app is installed or can be installed on the mobile device.

2.2 Required tools and equipment

The following tools and materials are required for installation:

Category	Description
Basic tools	Screwdrivers, pliers, wire strippers, multimeter, and other common hand tools.
Power tools	Electric drills and other power tools may be required depending on mounting requirements.
Diagnostic tools	CAN analyser diagnostic tool and RS-485 test tool.
Mounting hardware *	Brackets, screws, and other hardware required for securely affixing the unit.

NOTE * After a successful pilot, mounting provisions will be implemented in the genset canopy based on available space, in accordance with OEM requirements.

2.3 Controller compatibility check

Before installing the gateway, verify that the genset controller is compatible with the selected Smart Remote gateway variant.

Check the following:

1. *Communication interface*: Make sure that the controller or communication network supports CAN J1939 or RS-485.
2. *Power supply*: Make sure that the genset power system meets the voltage requirements of the selected gateway variant.
3. *Physical space*: Make sure that there is sufficient space inside or near the genset canopy without obstructing genset components.
4. *Antenna placement*: Make sure that the GSM and GPS antennas can be installed externally.

More information
For voltage requirements, see Gateway variants.

Compatible DEIF controllers

- SGC 420 Mk II
- SGC 120 Mk II
- iE 150
- AGC 150

- AGC-4 Mk II
- AGC-4

2.4 Safety precautions

Follow these safety precautions during installation.

NOTE Disconnect the genset battery power source before making any electrical connections.

- Disconnect the genset battery before connecting power or communication wiring.
- Place the genset on a stable and level surface before installation.
- Follow the genset manufacturer’s installation instructions.
- Make sure that the installation does not affect genset safety or warranty compliance.
- Protect cables from sharp edges, heat sources, moving parts, and water ingress.

3. Installation

3.1 Identify the device ID

Before installing the gateway, identify and record the Device ID.

Procedure:

1. Locate the Device ID label on the gateway.
2. Note the Device ID printed on the label.
3. Make sure that the Device ID starts with the DEIF prefix `DEXXXX`.

Examples:

- `DE200XXX`
- `DE1000XXX`

NOTE Do not continue the installation if the Device ID is missing or does not match the DEIF format.

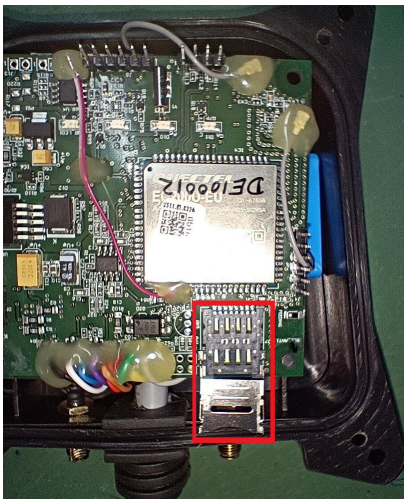
3.2 Insert the SIM card

Prepare the gateway by inserting the SIM card.

Procedure

1. Open the gateway enclosure by removing the screws.

2. Locate the SIM card slot on the circuit board.



3. Insert a SIM card with an active data plan.

4. Make sure that:
   - The SIM card is correctly inserted.
   - No PIN lock is enabled.
5. Close the enclosure and tighten all screws.

NOTE The Venus variant includes an internal 800 mAh Li-Ion battery backup. Ensure it is not fully depleted before first power-on.

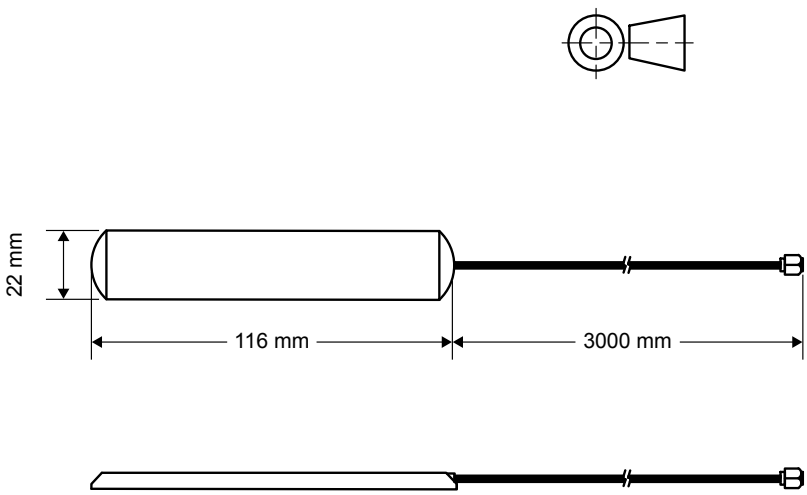
3.3 Install the antennas

Install the GSM and GPS antennas externally to ensure reliable communication and positioning.

The genset canopy is metallic and can block radio signals. Antennas installed inside the canopy may cause poor signal quality, signal loss, or inaccurate GPS positioning.

3.3.1 GSM antenna

The GSM antenna must be installed outside the genset canopy.



Placement and location

- Install the GSM antenna outside the genset canopy.
- Upper section of the canopy side wall (using an external bracket).
- Top edge or corner of the canopy.
- On a non-metallic spacer or bracket (preferred).

Positioning guidelines

- Mount the antenna vertically (upright).
- Position it as high as possible on the genset.
- Maintain 5-10 cm clearance from metal surfaces, especially for adhesive mounts.
- Minimum 20 cm distance from the GPS antenna.

Cable routing

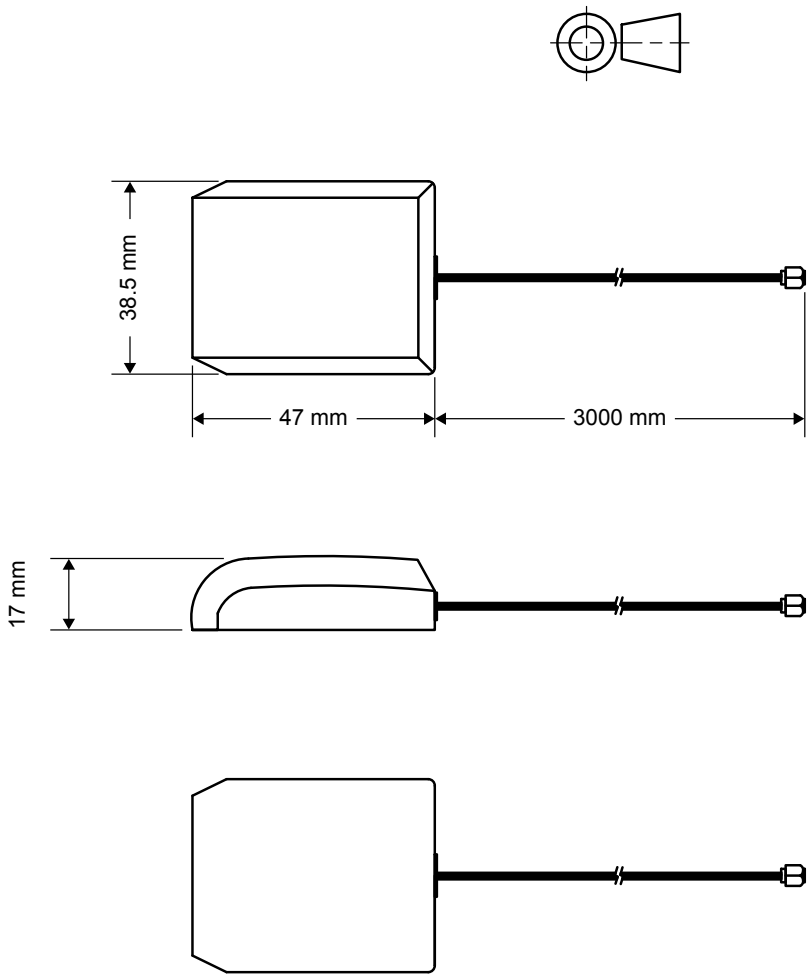
- Route cables through grommet-protected openings.
- Use UV-resistant sleeves or conduits for outdoor exposure.
- Secure cables properly to prevent vibration damage.

Do not

- Install the GSM antenna inside the canopy.
- Mount directly flush on metal surfaces without spacing.
- Route cables alongside high-current wiring.
- Install near exhaust outlets, alternators, or high EMI areas.

3.3.2 GPS antenna

The GPS antenna requires clear sky visibility for accurate positioning.



Placement and location

1. Install the GPS antenna externally with an unobstructed view of the sky.
2. For optimal performance, install the antenna on the top surface of the genset canopy. This provides the best possible satellite visibility.

Mounting instructions

1. Use the magnetic base on a clean, flat metal surface.
2. Remove dust, oil, or debris before mounting.
3. Make sure that the antenna is firmly attached.

Positioning guidelines

1. Place the antenna at least 5 cm inward from canopy edges.
2. Maintain 20 to 30 cm separation from the GSM antenna.

Cable routing

1. Route the cable through a sealed, grommet-protected entry point.
2. Protect the cable from sharp edges, heat sources, and water ingress.

3.4 Connect the power supply

Connect the gateway to a stable DC power supply.

NOTE Disconnect the genset battery power source before making electrical connections.

Procedure:

1. Verify that the genset supply voltage matches the selected gateway variant.
2. Connect the gateway directly to the genset battery.
3. Connect the positive wire to the battery positive terminal.
4. Connect the negative wire only to the battery negative terminal. Do not use chassis ground for the negative connection.

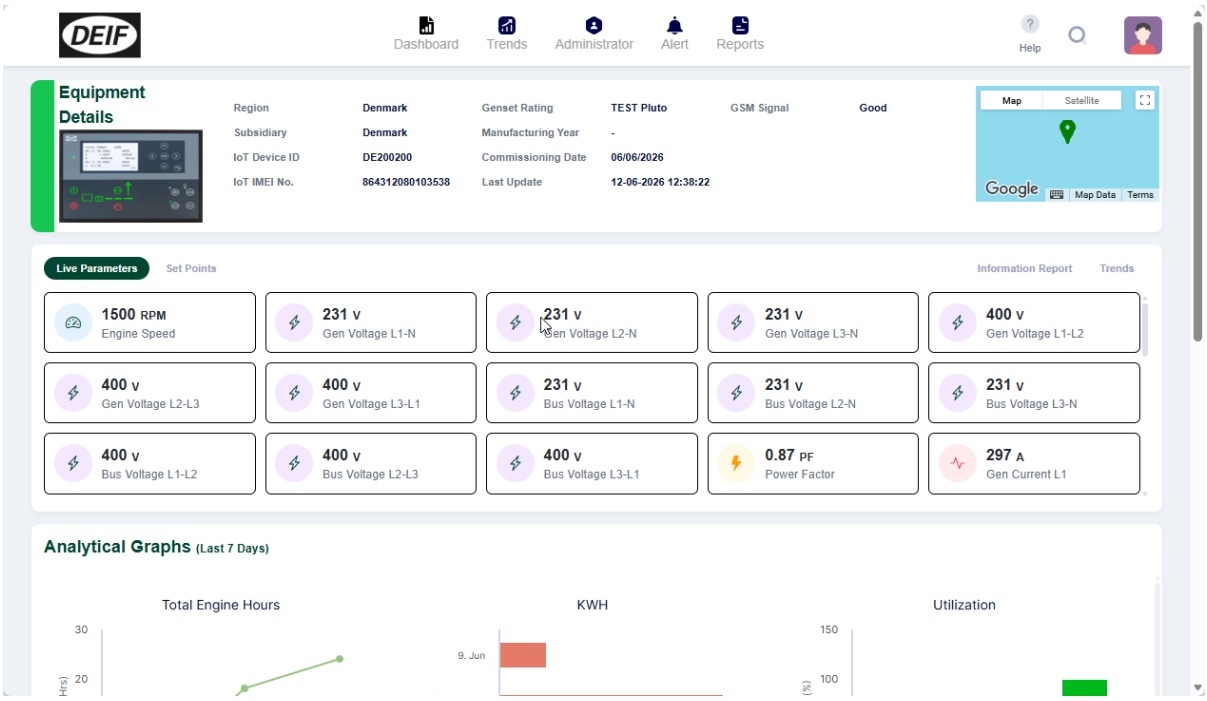
3.5 Connect the communication interface

Connect the gateway to the genset controller using the required communication interface. It is recommended to connect the communication interface after the gateway has been configured. The Modbus ID of the controller must remain at its default value. Changing the Modbus ID will prevent the gateway from communicating with the controller.

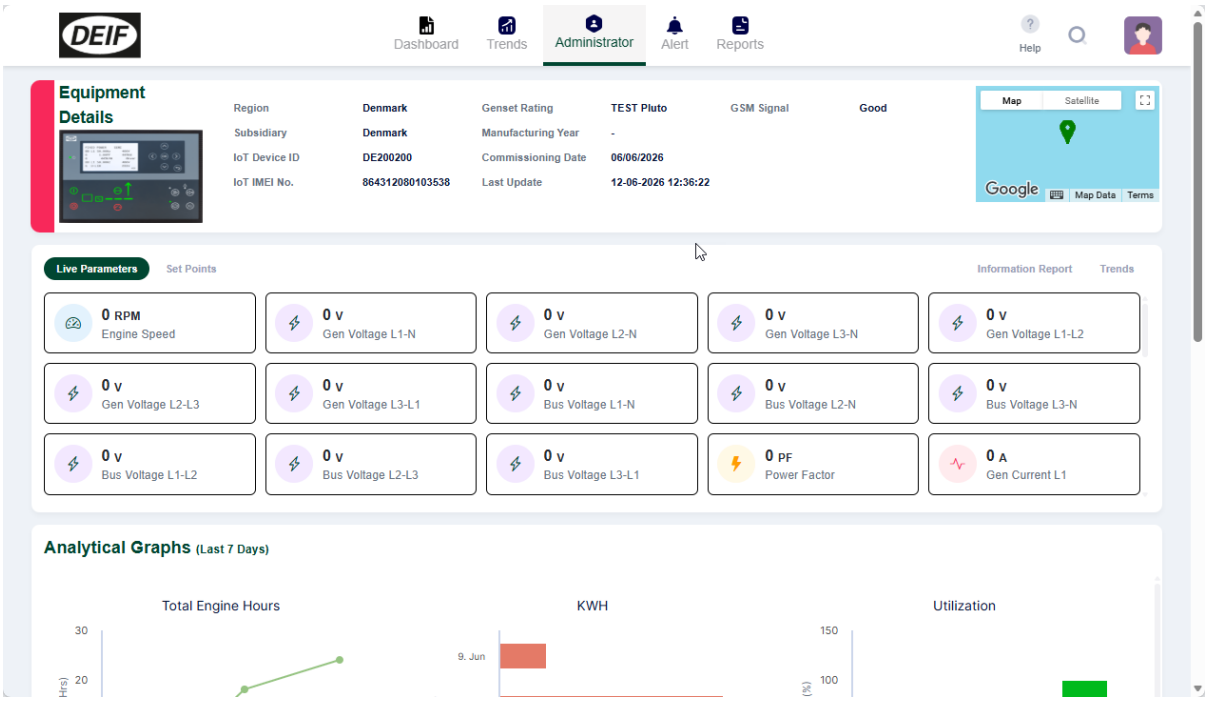
Procedure:

1. Identify the CAN J1939 or RS-485 port on the genset controller.
2. Connect the gateway to the correct controller port.
3. Use the ferrules provided.
4. Wiring details depend on the selected SKU and protocol scope. Follow the wiring drawings for exact pin assignments.

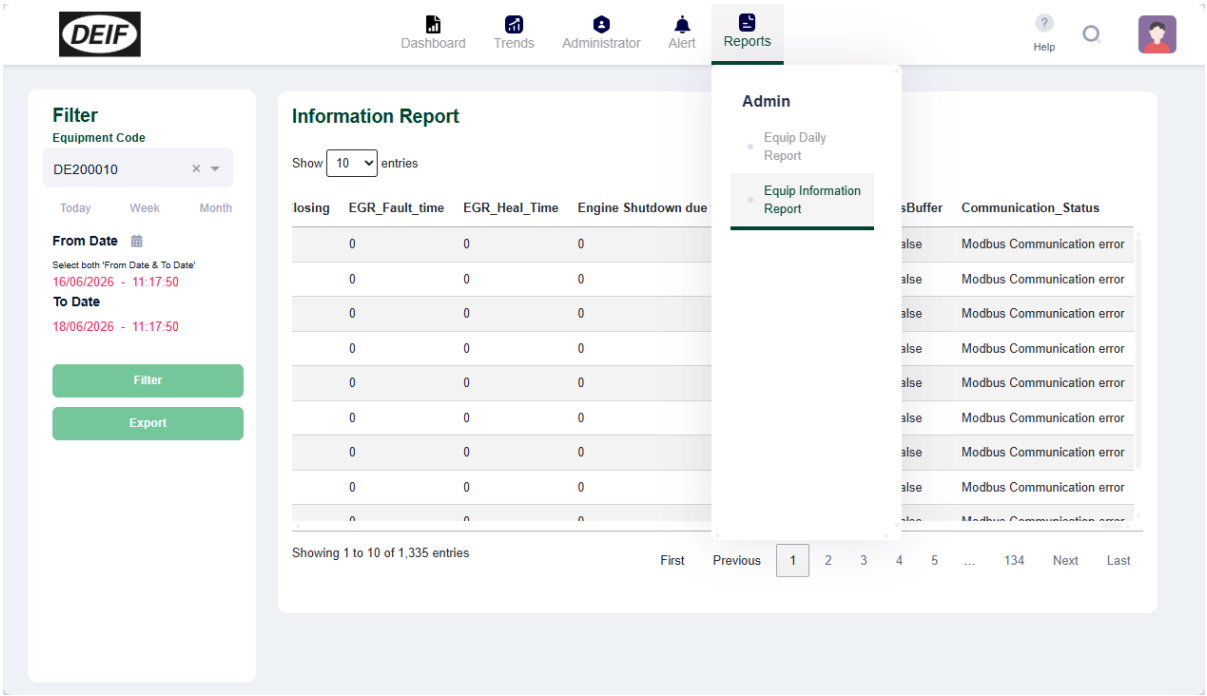
When communication is established, live parameters (such as voltage, current, speed, and power factor) are displayed and updated.



If communication is not established, live parameters remain at zero or are not updated.



Use this report to check whether there are any issues with Modbus communication.



3.6 Verify the installation

Before proceeding to gateway configuration, verify that the hardware installation is complete.

Test	What to verify
Power-on test	The gateway powers on and initializes correctly. The LEDs activate.
Communication test	The gateway communicates with the genset controller.
GPS signal reception	The gateway receives a GPS signal. Check the GPS status in the app.
Data transmission	The gateway transmits data to the DEIF Equip server or platform.

If any test fails, resolve the issue before continuing.

More information
For troubleshooting steps, see General troubleshooting.

4. Onboard the gateway

4.1 Power on the gateway

Power on the gateway to start the initialisation process.

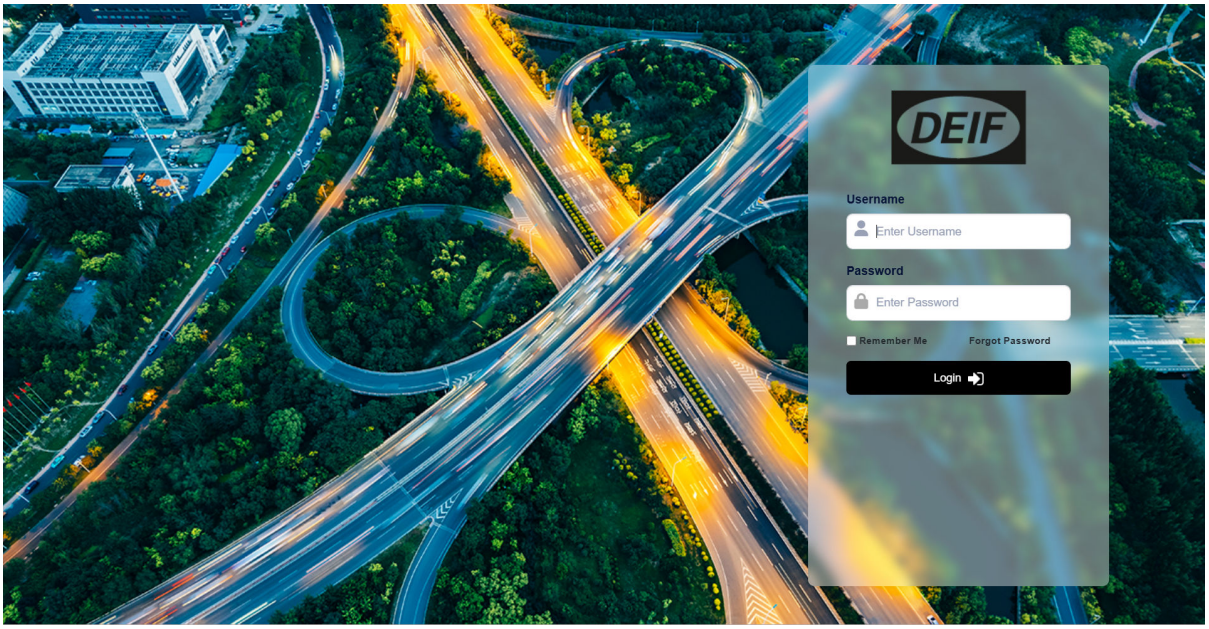
- Connect the gateway to a +12 V or +24 V DC power supply.
- Wait for the gateway to start.
- Make sure that Bluetooth is active.

Bluetooth Low Energy is activated automatically when the gateway starts.

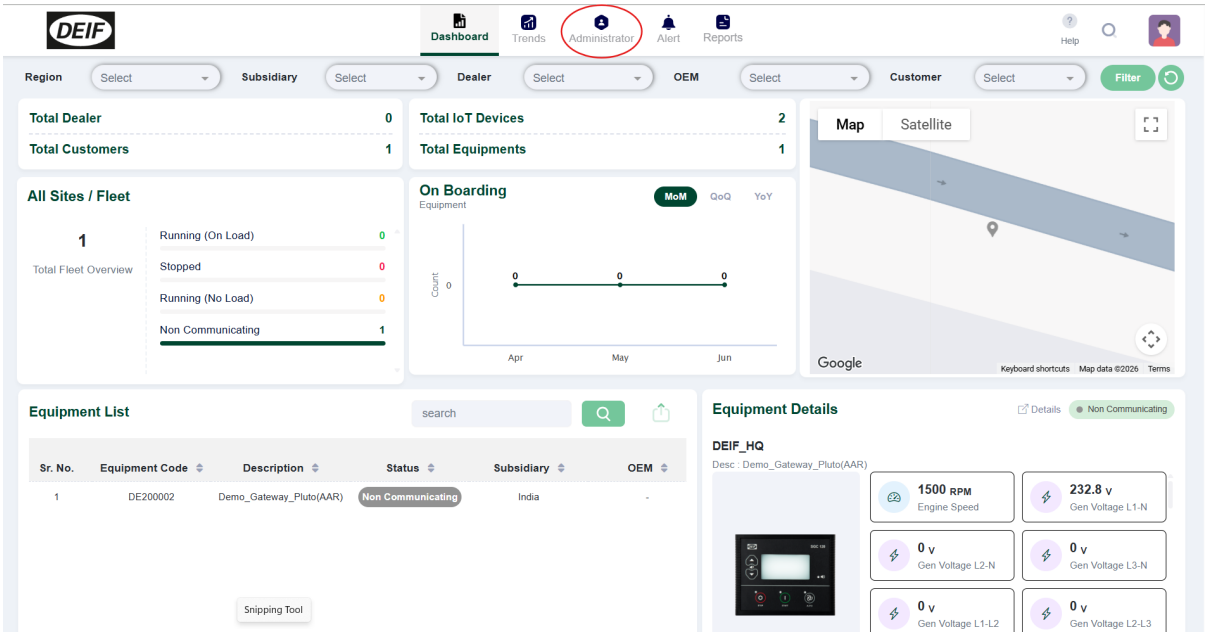
4.2 Open Asset Tagging

Use the Asset Tagging module in DEIF Equip to onboard the gateway.

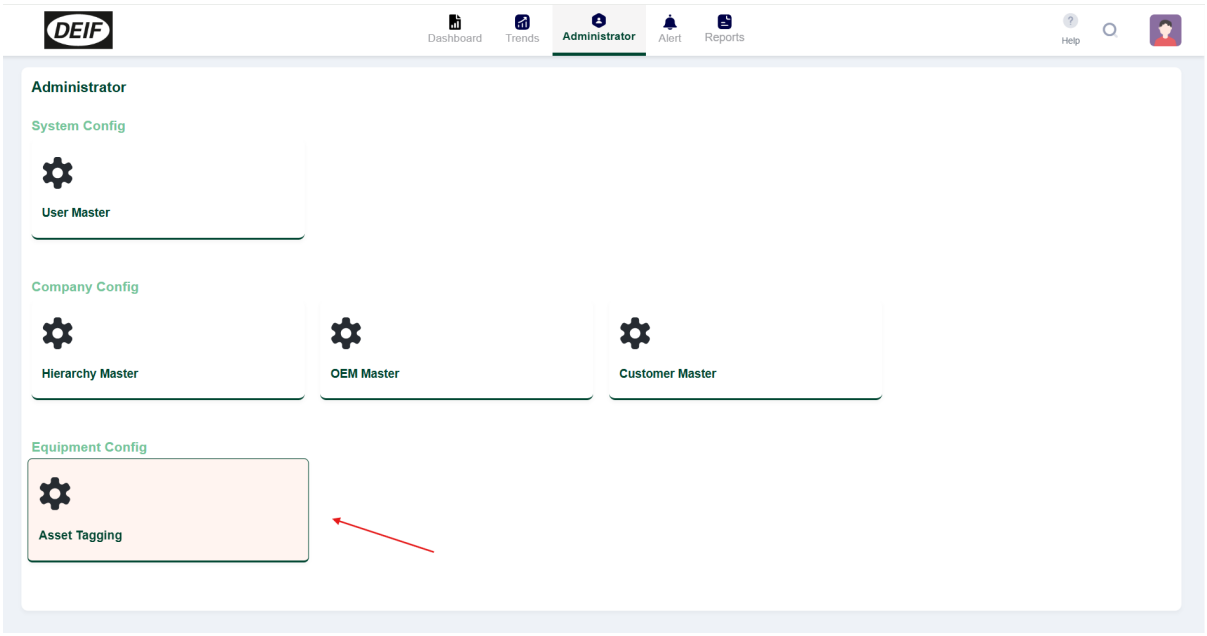
1. Open the DEIF Smart Equip web application and log in.



2. Go to *Administrator* tab.



3. Click on *Asset Tagging*.



The Asset Tagging page opens and displays the available devices.

4.3 Search or add gateway

Search for an existing gateway or create a new record.

Option A: Select an existing gateway

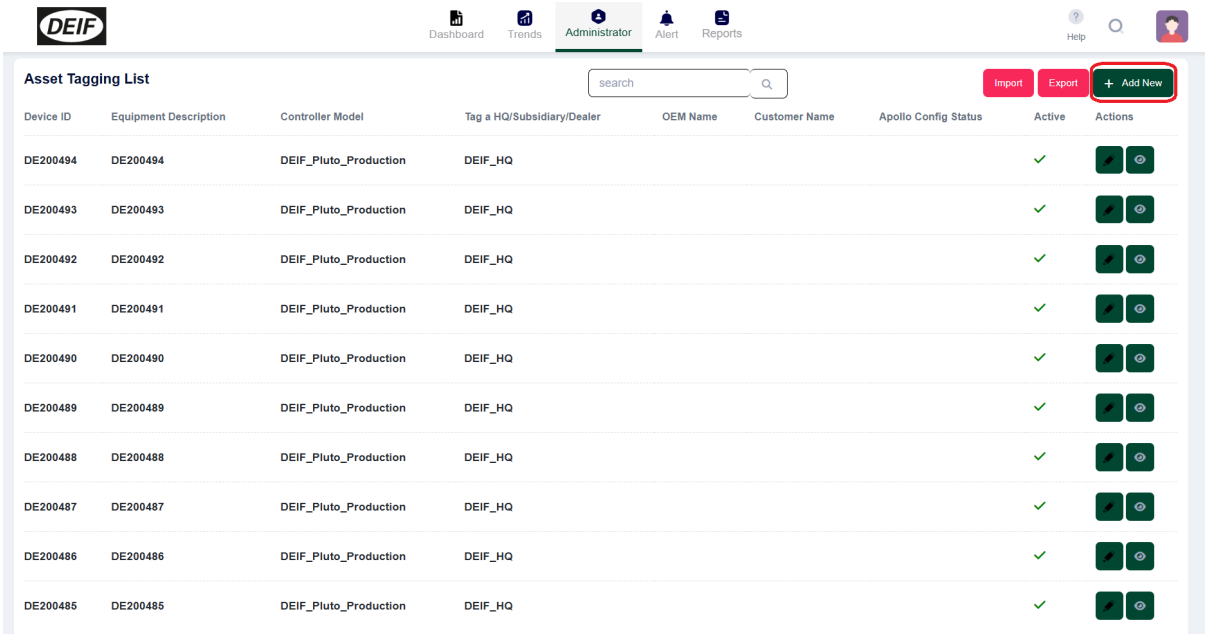
Use this option if the gateway already exists in the system.

1. Enter the Device ID for the gateway in the search field.
2. Locate the matching gateway in the list.
3. Open the gateway record.

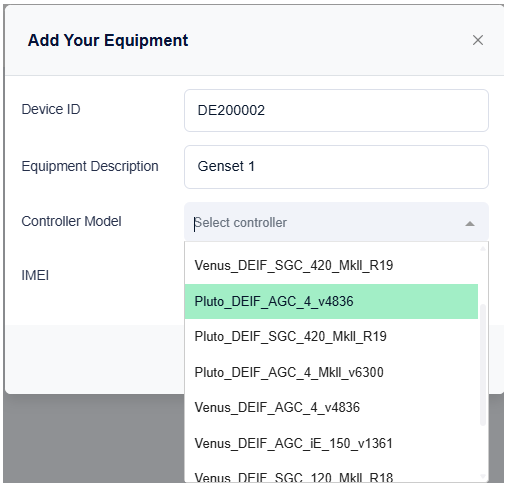
Option B: Add a new gateway

Use this option if no existing record is found.

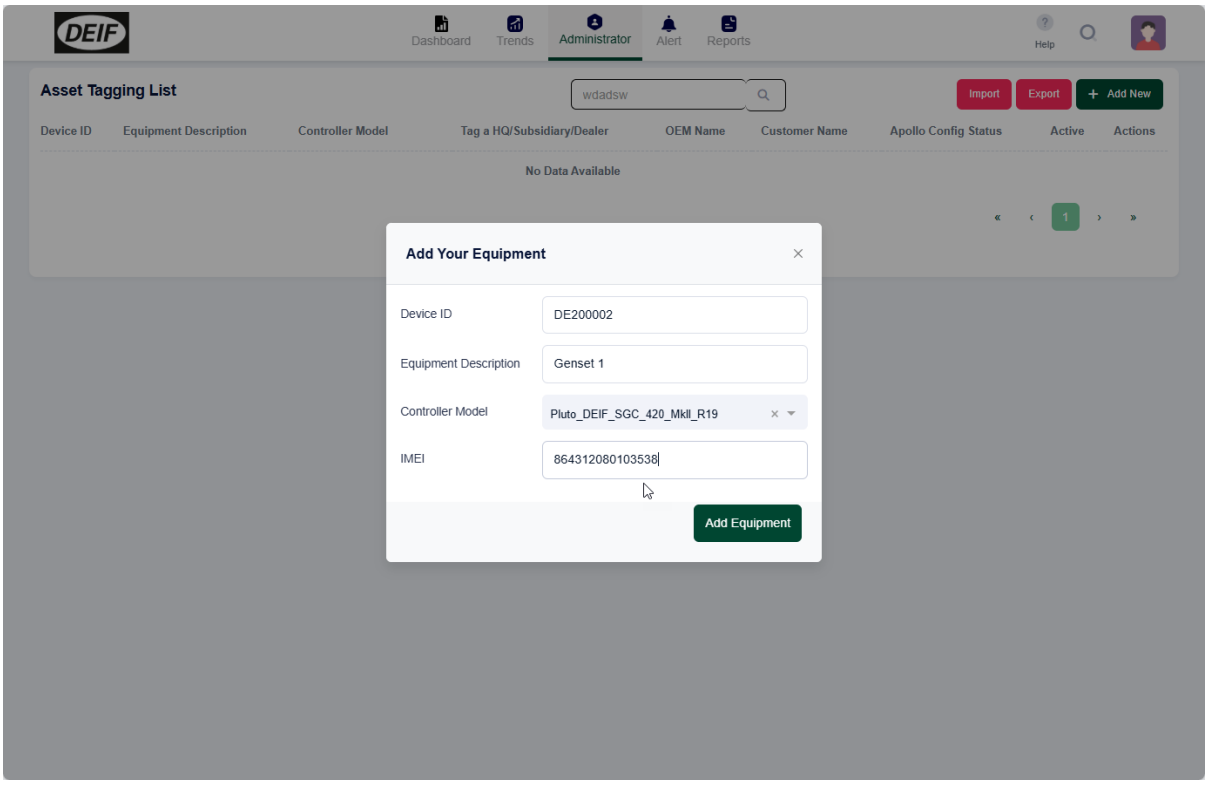
1. Click *Add New*.



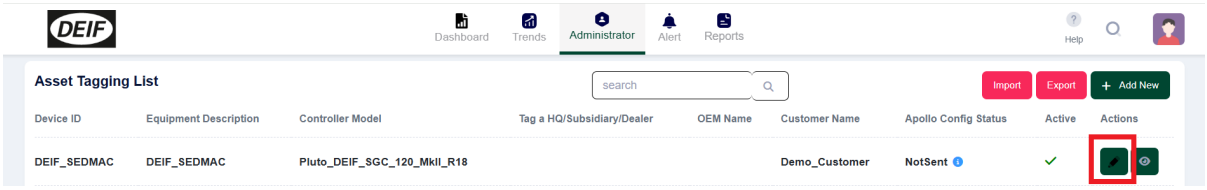
2. Enter the *Device ID*, select the correct controller model.



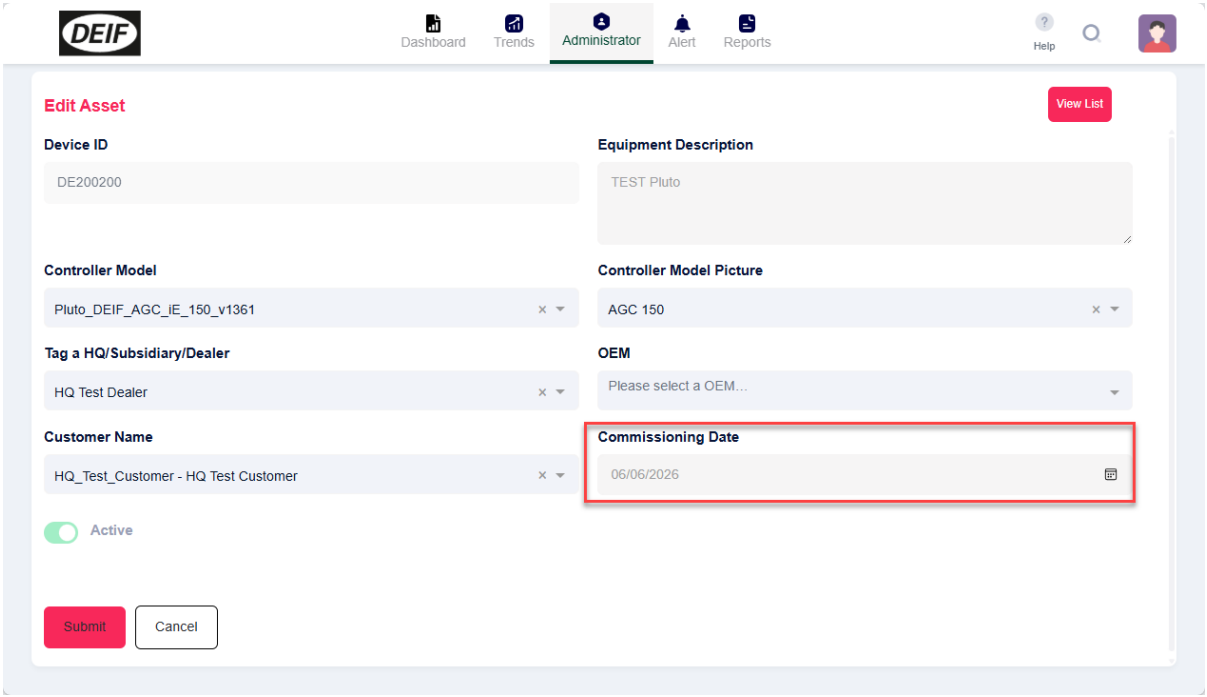
3. Click on *Add Equipment* to create a new gateway record.



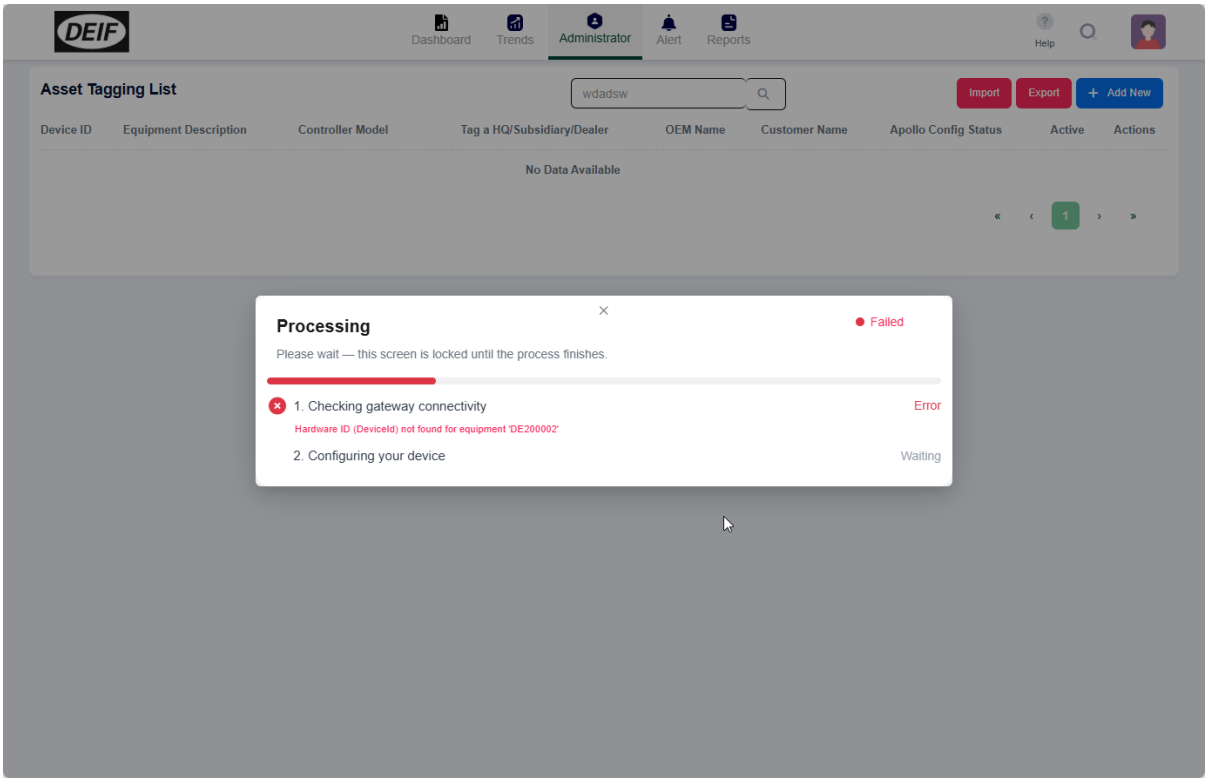
The commissioning date must be set after the asset is created. Click the *Edit* icon (as shown below) to open the *Edit Asset* window.



Enter the commissioning date in the relevant field, as illustrated in the following screenshot.



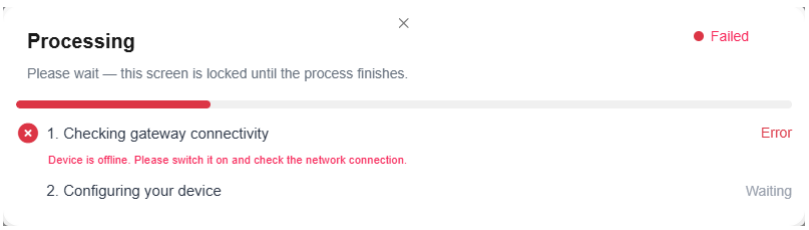
The gateway record is created, and the configuration process starts automatically. If the entered *Device ID* and *IMEI* do not match, the application displays an error message.



NOTE You can import or export gateway records using an Excel file. Use the *Import* and *Export* options in the Asset Tagging page to upload or download data in bulk.

4.4 Monitor the configuration process

After the gateway record is created or opened, the system starts the configuration process automatically. A status window displays the progress.



During this process:

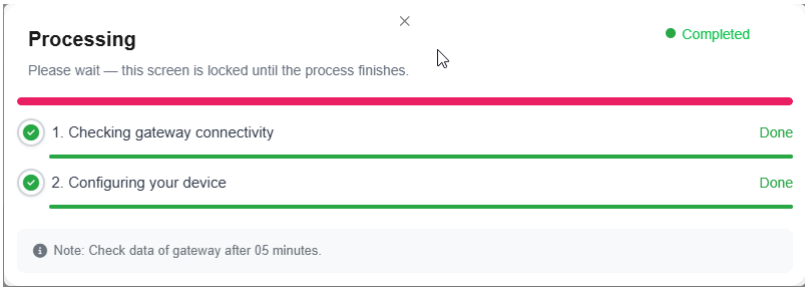
- A red progress bar indicates the configuration progress.
- The bar advances as each step is completed.
- A full red bar indicates that the configuration steps are complete.
- The status is shown as *In progress*, *Done*, or *Failed*.

The system first verifies connectivity and then applies the required configuration.

NOTE Do not close the page until the process is completed.

4.5 Confirm successful onboarding

When the configuration process is completed successfully, the gateway is ready for use.



Procedure

1. Verify that the status shows *Completed* and all steps are marked as *Done*.
2. Close the configuration window.
3. Wait approximately 5 minutes for the system to process and update the data.
4. Open the equipment dashboard or reports in the platform.

Result

- The gateway is onboarded successfully.
- Data is available and updating in the platform.

NOTE A short delay is expected before data becomes visible after onboarding.

4.6 Handle connectivity failure

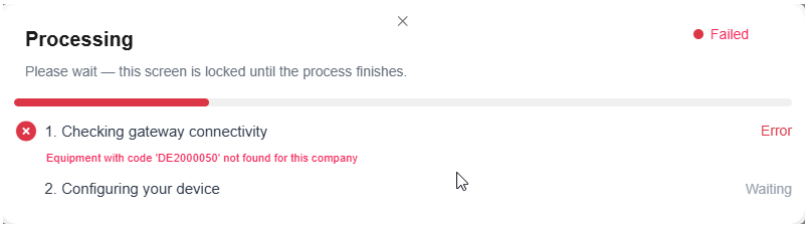
If onboarding fails, identify the failure scenario and resolve the issue before retrying.

Scenario 1: Gateway is not reachable

The platform cannot connect to the gateway.

Possible causes:

- No mobile network connectivity
- Incorrect APN configuration
- SIM card issue
- Antenna installation issue



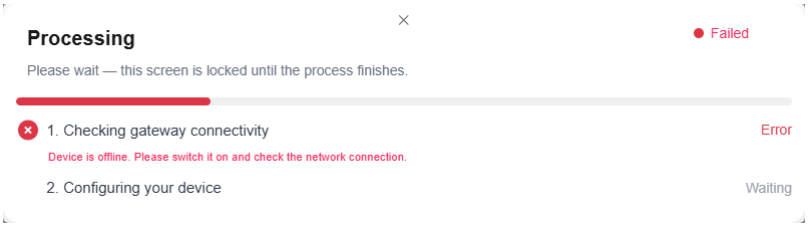
Scenario 2: Gateway is powered on but not connected to the network

The gateway is powered, but there is no network connection.

Possible causes:

- Weak or no signal

- SIM card is inactive
- SIM card has no data plan
- Network whitelisting is required
- GSM antenna is not installed correctly

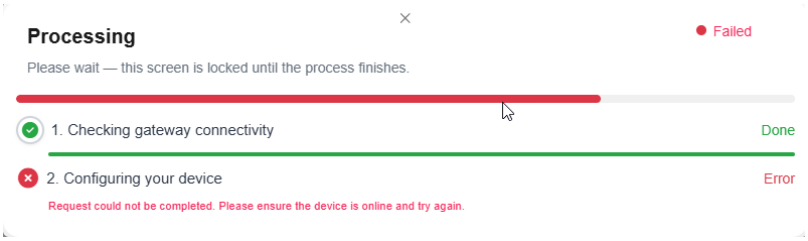


Scenario 3: Connectivity is verified, but configuration fails

The gateway responds, but configuration does not complete.

Possible causes:

- Temporary network interruption
- Unstable communication
- Gateway power interruption during configuration



Retry onboarding

After resolving the issue:

1. Verify that the gateway is powered and stable.
2. Confirm that the SIM card is active and configured.
3. Check network coverage and antenna installation.
4. Ensure that the APN is correct.
5. Repeat the onboarding procedure.

Result

- The gateway establishes connectivity.
- The configuration process can be completed successfully.

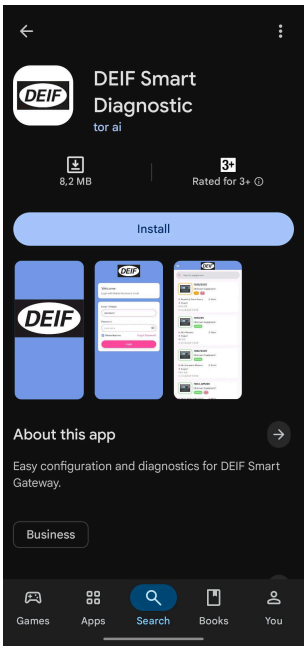
More information
For detailed checks, see General troubleshooting

5. Configure the gateway

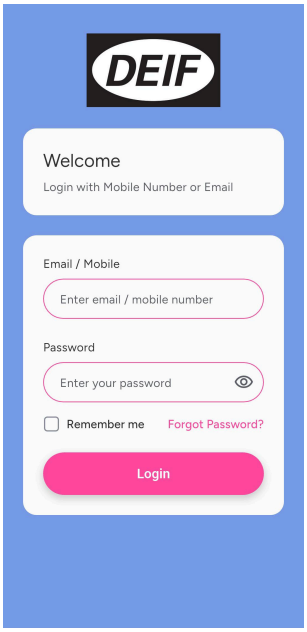
5.1 Install the DEIF Smart Diagnostic app

Install the *DEIF Smart Diagnostic* app on an Android mobile device.

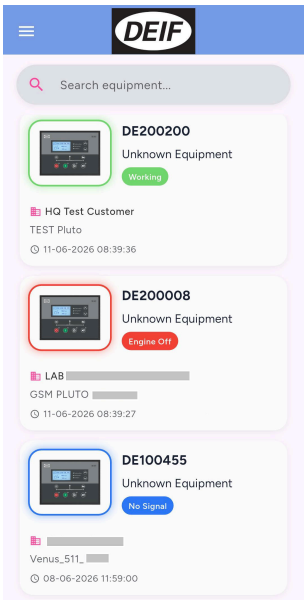
1. Open the Google Play Store on your mobile device and search for the *DEIF Smart Diagnostic App*.



2. Select the application from the results.
3. Tap Install and wait for the installation to complete.
4. Open the app.
5. Log in using your DEIF account credentials.



6. After login, the app shows a list of available gateways identified by Device ID, that you can connect to.



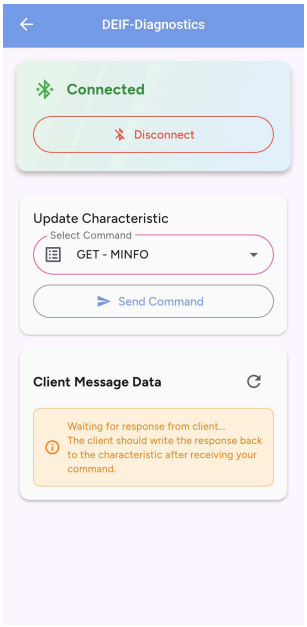
5.2 Connect to the gateway via Bluetooth

Connect the mobile device to the gateway using the DEIF Smart Diagnostic app.

Procedure:

1. Turn on Bluetooth on the mobile device.
2. Open the DEIF Smart Diagnostic app.
3. Find the gateway in the device list.
4. Select the gateway based on its Device ID.
5. Tap the device.
6. Select *Connect*.

Result: The connection status changes to *Connected*.

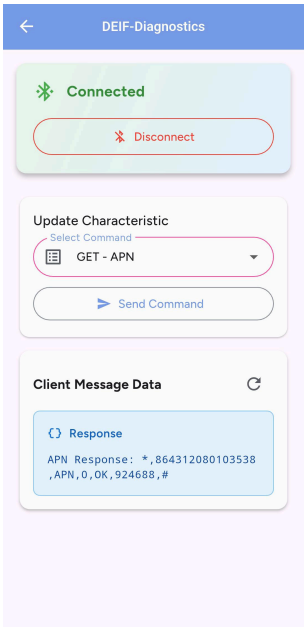


5.3 Configure the APN

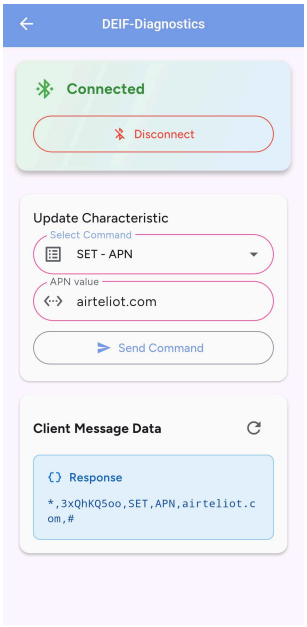
NOTE This is a critical step. The gateway cannot transmit data until the APN is configured correctly.

Configure the SIM APN settings to enable mobile data transmission.

1. **Check the current APN**
   - Select the command *GET - APN*.
   - Tap *Send Command*.
   - You will receive a response showing the current APN.



2. **Set APN**
   - Select the command *SET - APN*.
   - Enter the APN of your SIM provider (examples: Airtel, Jionet, Orange).
   - Tap *Send Command*.



3. **Wait for the gateway to restart**

After the APN is set, the gateway performs a soft reset. Wait approximately 2 minutes before continuing.

4. **Verify the APN**
   - Select the command *GET - APN*.
   - Tap *Send Command*.
   - Confirm that the APN matches the value you entered.

NOTE Do no continue until the APN is correct.

5.4 Verify gateway operation

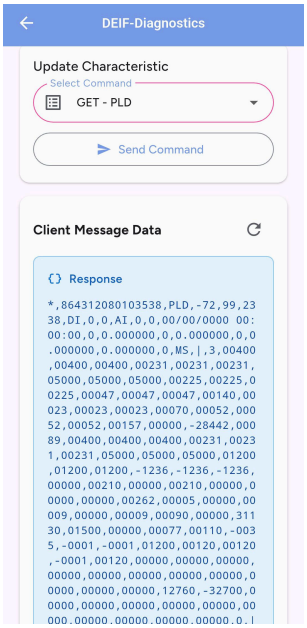
Verify that the gateway is operating correctly before onboarding it in DEIF Smart Equip.

Check data communication

Use the app to confirm that the gateway is sending valid data.

- Select the command *GET - PLD*.
- Tap *Send command*.

Result: A payload string is displayed, confirming that the gateway is transmitting data.

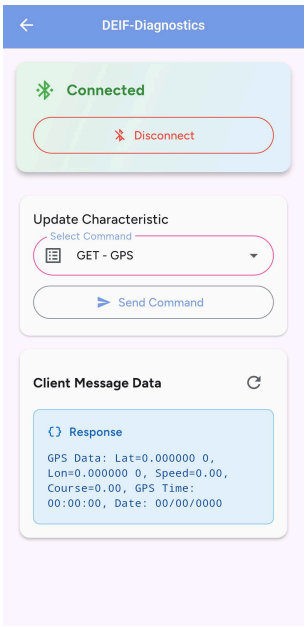


Check GPS data

Use the app to verify that the gateway is receiving GPS data.

- Select the command *GET - GPS*.
- Tap *Send command*.

Result: The GPS data is displayed, including latitude, longitude, date, and time.



LED indicators

Check the LED indicators on the gateway.

- Blinking LEDs indicate that data is being transmitted.
- If LEDs are not blinking or show an abnormal pattern, see Diagnostics with LED.

6. Troubleshooting

6.1 Troubleshooting checklist

Use this checklist if installation, configuration, or onboarding does not complete successfully.

Gateway identification

- Verify that the Device ID starts with the DEIF prefix.
- Confirm that the Device ID matches the label on the gateway.
- Ensure that the correct Device ID is entered in DEIF Equip.

Power supply

- Ensure that the gateway is powered on.
- Verify that the supply voltage matches the selected variant.
- Check that the positive and negative connections are correct.
- Ensure that the negative connection is made to the battery negative terminal.
- Confirm that the power supply remains stable during onboarding.

SIM and network

- Ensure that the SIM card is inserted correctly.
- Verify that the SIM card has an active data plan.
- Confirm that no PIN lock is enabled.
- Check that mobile network coverage is available at the installation site.
- Verify that the APN is configured correctly.
- Ensure that required endpoints are whitelisted, if applicable.

Antennas

- Verify that the GSM antenna is installed externally.
- Ensure that the GPS antenna has clear sky visibility.
- Check that both antennas are connected correctly.
- Inspect cables for damage.
- Maintain the required separation between GSM and GPS antennas.

Communication interface

- Verify that the correct interface (CAN J1939 or RS-485) is used.
- Check that all wiring connections are secure.
- Confirm correct baud rate and termination settings.
- Follow the wiring diagram for the selected configuration.

6.2 General troubleshooting

Issue	Check / Action
Gateway does not power on	Verify power supply connections and voltage levels.
No communication with controller	Check wiring, interface selection, and configuration parameters.
No GPS signal	Ensure the GPS antenna is installed externally with unobstructed sky view.
No data transmission	Verify APN configuration and mobile network connectivity.
Gateway not found in Asset Tagging	Add a new record and enter the Device ID manually.

Issue	Check / Action
Configuration fails during onboarding	Ensure stable power and network connectivity throughout the process.
Gateway not visible in Bluetooth list	Verify that the gateway is powered on and Bluetooth is enabled on the mobile device. Restart the app if required.

6.3 Diagnostics with LED

Pluto 313 LED blinking pattern

Use the LED indicators to determine the status of the Pluto 313 gateway. The table below describes the available LED blinking patterns.

Sr. no.	Color	LED icon	LED name	Blinking pattern
1	Red		Power LED	• *Continuously ON*: Gateway is powered by an external power supply or internal battery. • *Continuously OFF*: Gateway is powered off.
2	Green		GSM LED	• *Network searching*: Flicker slowly, 200 ms high and 1800 ms low. • *Idle state*: Flicker quickly, 234 ms high and 266 ms low. • *Data transfer*: Flicker rapidly, 62 ms high and 63 ms low.

Venus 511 LED blinking pattern

Use the LED indicators to determine the status of the Venus 511 gateway. The table below describes the available LED blinking patterns.

Sr. no.	Color	LED icon	LED name	Blinking pattern
1	Red		Power LED	• *Continuously ON*: Gateway is powered by an external power supply or the internal battery. • *Continuously OFF*: Gateway is powered off.
2	Green		GSM LED	• *Network searching*: Flicker slowly, 200 ms high and 1800 ms low. • *Idle*: Flicker quickly, 234 ms high and 266 ms low. • *Data transfer*: Flicker rapidly, 62 ms high and 63 ms low.
3	Yellow		GPS LED	• *Continuously ON*: GPS is present. • *Continuously OFF*: GPS is not present.
4	Yellow		Communication LED	• *Toggle after 3 seconds*: Gateway does not have CAN configuration. • *Toggle after 0.5 seconds*: Gateway is configured, but there is no active communication with the slave. • *Random flickering*: Data communication is active.

6.4 Network whitelisting

Whitelisting must be arranged by the end user or customer through the telecom provider. The required server endpoints and ports must be whitelisted at the SIM or network level. If an Onomondo SIM card is used, whitelisting is not required. The network configuration is handled automatically.

Endpoints

Endpoint	Port
iemqtt.tor-iot.com	1883
dpsmqtt.tor-iot.com	53788

SIM examples

Region / Operator	Action required
India (Airtel, Jio, Vodafone)	Request the telecom provider to whitelist the required endpoints for the SIM APN.
Middle East / Europe (Etisalat, Vodafone, Orange)	Coordinate with the local provider to whitelist the endpoints as part of SIM or firewall configuration.

7. Legal information

7.1 Disclaimer and copyright

Third party equipment

DEIF takes no responsibility for the installation or operation of any third party equipment, for example, a **genset**. Contact the **manufacturer** or third party equipment company if you have any doubt about how to install or operate the third party equipment.

Open source software

This product contains open source software licensed under, for example, the GNU General Public License (GNU GPL) and GNU Lesser General Public License (GNU LGPL). The source code for this software can be obtained by contacting DEIF at support@deif.com. DEIF reserves the right to charge for the cost of the service.

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The warranty period for the purchased product is defined in the contract and order acknowledgement. In general, DEIF's Terms and Conditions of Sale and Delivery apply.

The product continuously monitors the operating temperature and stores this information in a log file on the device. DEIF uses this information for service purpose and to validate if issues with the product are covered by the warranty.

The software packages supplied are believed to be of the highest quality. Due to the nature of the software development process, it is possible that there are hidden defects in the software which may affect its use, or the operation of any software or device developed with this software package.

DEIF does not undertake responsibility for determining whether this package is suitable for the application, nor for ensuring the correct operation of the application software and hardware.

The warranty does not cover product wear parts, such as:

- Internal flash disc
- If applicable, SD card (purchased separately)
- Replaceable coil-cell battery, used for the real-time clock (available as a spare part)

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