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Dynamox DynaGateway Gateway Novo User Guide

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Dynamox DynaGateway Gateway Novo User Guide

Contents

Introduction

This document outlines the purpose and operation of the DynaGateway- the automatic data collector of DynaLoggers.

The purpose of the DynaGateway is to interact with DynaLoggers within its Bluetooth range, collecting measurements and requesting spectral analyses according to the time intervals defined by the user. The collected data is sent directly to the Web Platform via a Wifi, Ethernet or Mobile Network connection.

The following section presents the prerequisites for the operation of the device, as well as the system configuration screens.

Prerequisites

To be able to operate and make full use of the DynaGateway features, some requirements are necessary:

- Mains power supply;
- Internet connection
- Release of data traffic (Wifi and Ethernet);

By using a Wifi or Ethernet network for the communication of the gateway, it's necessary to release outbound data traffic to the following hostnames:

- mqtt.googleapis.com Port: 8883
- mqtt.2030.ltsapis.goog Port: 8883
- time.google.com Port: 123

For more information regarding the release of the network, get in touch with our support team (**support@dynamox.net**).

Positioning

In an open field, the Bluetooth range of the Gateway with DynaLoggers is approximately 60 meters. However, each company possesses distinct machinery with different levels of interference.

In general, the Gateways should be positioned centrally in the area to be monitored and at a higher level in relation to the monitored equipment, thus avoiding communication barriers.

Installing the DynaGateway within metal cases drastically reduces the Bluetooth range.

The option "visibility update" on the Web Platform also allows the user to know which DynaLoggers are within the Bluetooth range of the selected Gateway. In other words, which theoretically could be collected by it (more details in section 5.1). This information could influence the decision regarding positioning.

Installation

As mentioned in section 2, the DynaGateway must be connected to a mains power supply and an internet network via one of the communication interfaces available.

Mains Power Supply

It's possible to connect the DynaGateway to a 110/220V AC supply, as well as a 12/24V DC supply. Therefore, it's necessary to connect the power cable to the corresponding terminals (Figure 1).

Figure 1 – Connection terminals

Communication Interface

After connecting to the power supply, the communication interface of the DynaGateway with the internet must be configured. To do this, the device's "Configuration" mode must be initiated, by executing the following steps:

1. Press and hold the "Config AP" button for 7 seconds (Figure 2). On release, the Network LED will turn yellow.
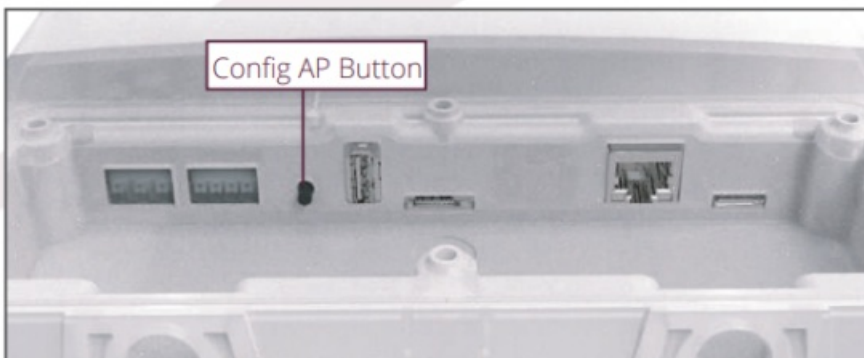
Figure 2 – Configuration button

2. On a computer close to the DynaGateway, connect to the Wifi network generated by the device (Figure 3), identified as:
   - SSID (Name): Serial number of the DynaGateway, recorded on the device
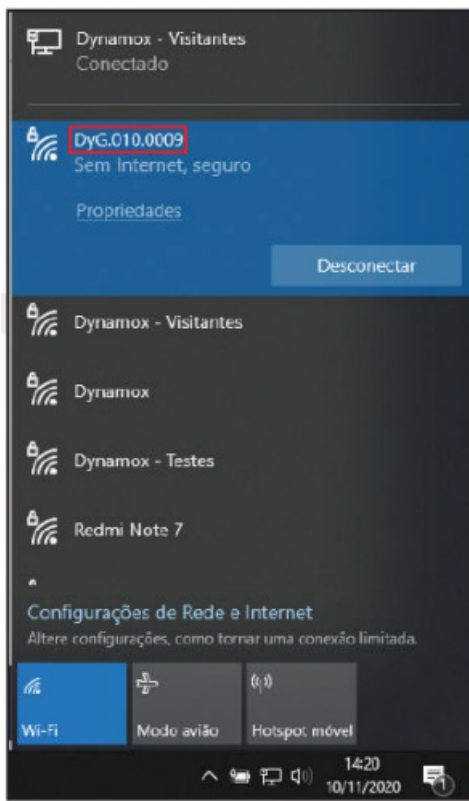   - Password: Consult Dynamox support

Figure 3 – Wifi network of the device.

3. On an internet navegator, access the address: 192.168.10.1. The system will request login information in order to access the DynaGateway configuration page (Figure 4).
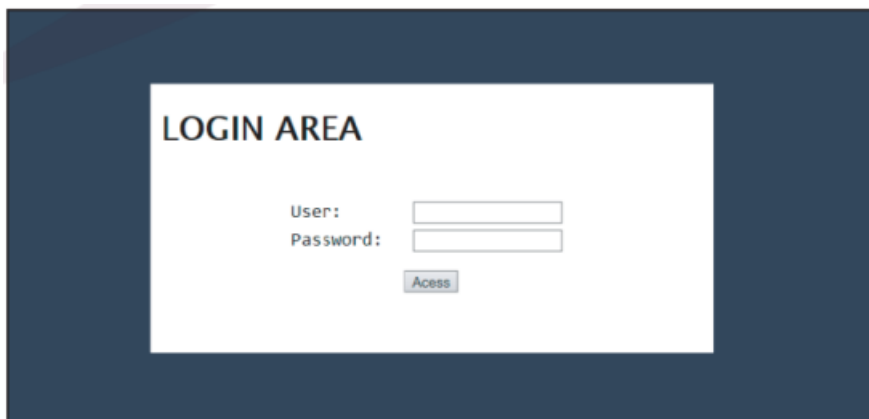
- User: admin
- Password: admin

Figure 4 – DynaGateway access screen

4. After logging in to the system, access the "Wan" tab on the top menu, according to figure 5.
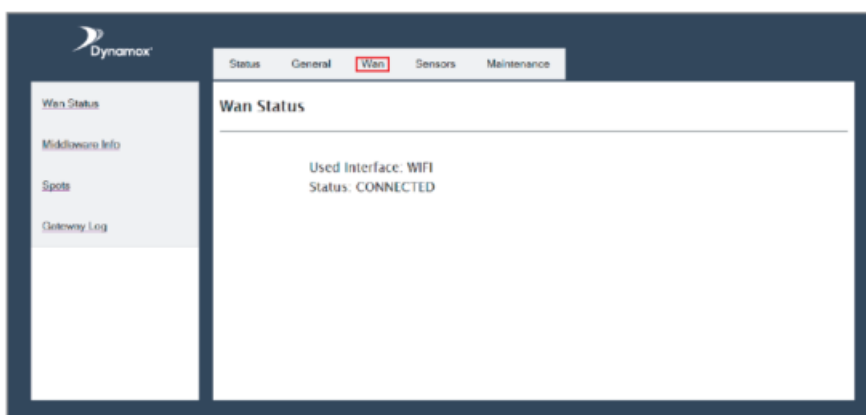

Figure 5 – DynaGateway home page

5. On the next screen, the 4 available communication interfaces will be shown according to the device model:

- DUO: allows gateway connection by Mobile Networks (LTE), Wifi or Ethernet.
- EWI: allows gateway connection by Ethernet or Wi-Fi.
- LRD: allows gateway connection by LoRaWan* , Mobile Networks (LTE), Wifi or Ethernet.
- LRW: allows the gateway to connect by LoRaWan* , Ethernet or Wifi.

The configuration of each of the interfaces is described below. After configuring the chosen interface, check the option "Use this interface" and at the end of the page click "Save".
The LoRaWan interface is not covered in the document. For more information, contact technical support.

Wifi (LED: White)

For Wifi connection, the SSID (name of the Wifi network) and the network password will be required (Figure 6). It's important to remember that the name of the Wifi network to be used is exactly the same as that registered here.

For operation via Wifi, it's necessary to release the network. When this interface is used, the Network LED will turn white when the connection is successful.
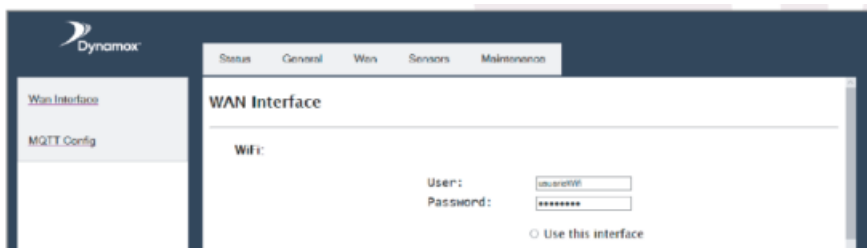

Figure 6 – Wifi interface

LTE * (LED: Red)

To use the mobile network interface, a Nano SIM card is necessary, which should be inserted into the bottom part of the DynaGateway (Figure 7).
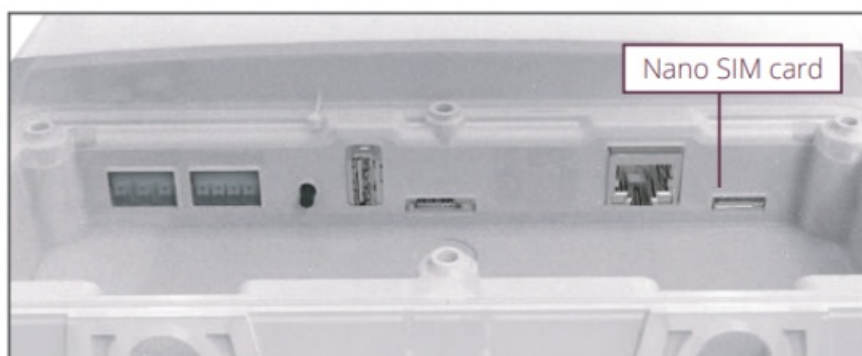

Figure 7 – SIM card slot

In the "GSM" section, insert the APN, Login and Password used by the operator (Figure 8). This information can be obtained from the operator. The chip needs to be unblocked and have an active internet package.

When this interface is used, the Network LED will turn red when the connection is successful.
Available on DUO and LRD versions.

Figure 8 – LTE interface

Ethernet (LED: Blue)

To use the Ethernet interface, a network cable is required to be connected to the bottom part of the DynaGateway (Figure 9).

If the user opts to use the DHCP service on their network, no additional configuration is necessary. Just check the option "use this interface" in the Ethernet section. When setting the IP for the DynaGateway, it will also be required to define the IP that the device should use.

For operation with an Ethernet network, a network release is necessary. When this interface is used, the Network LED will turn blue when the connection is successful.

Figure 9 below shows the correct way of connecting an RJ-45 cable:
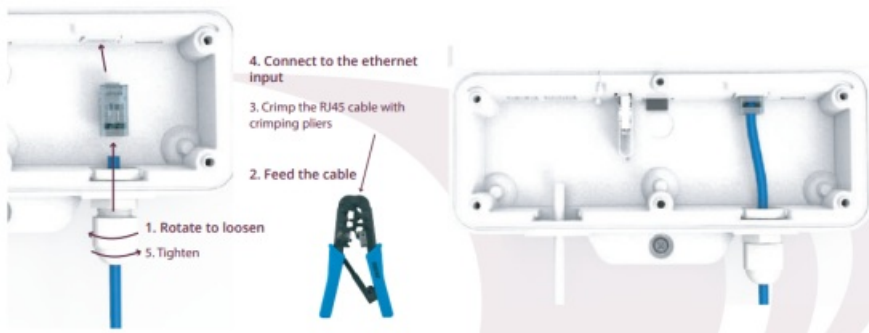
Figure 9 – Network cable installation procedure

Configuration

The DynaGateway is configured on the Web Platform. After gaining access, which can be done via the link **https://dyp.dynamox-,solutions**, the user will have access to the "Gateways" option on the side menu, as shown in Figure 10.
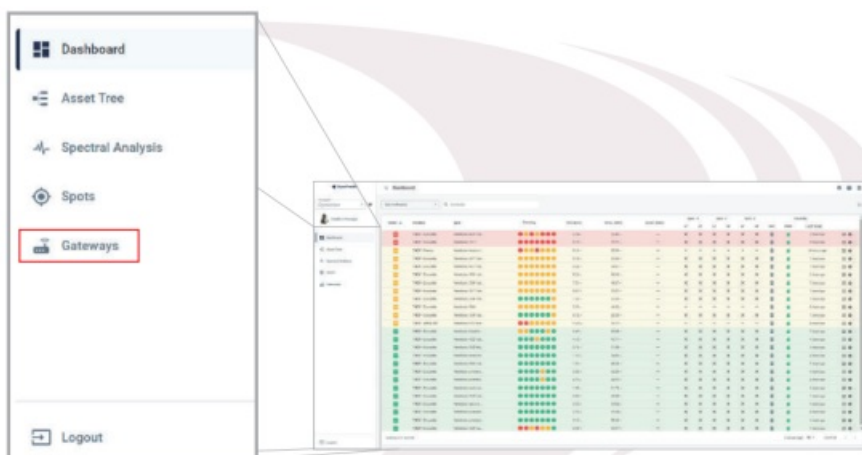
Figure 10 – Web Platform Dashboard, highlighting the side menu

By selecting the Gateways option, a new screen will open showing a list of the Gateways that have already been registered. If there are no devices registered to the company, the message "No gateways to view" will be shown.
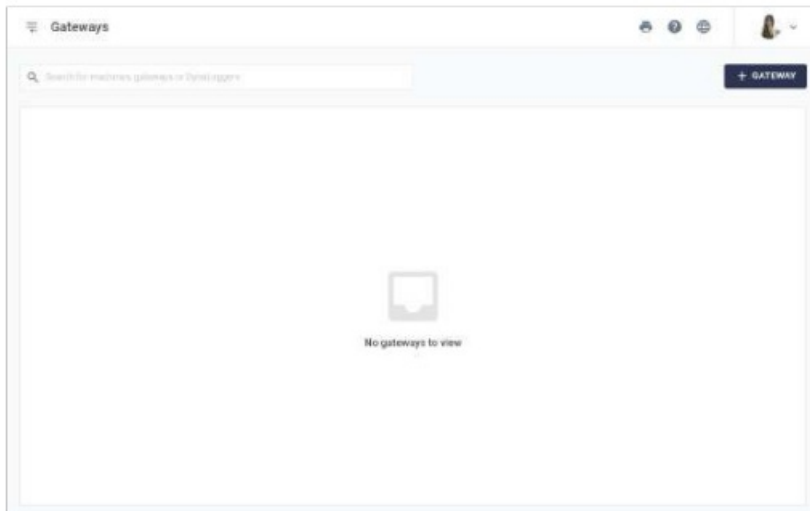

Figure 11 – Gateways list

Registering a DynaGateway

By clicking the button on the top right corner, a new screen requesting the PIN of the Gateway will be shown to the user, as shown in Figure 12. The PIN for each DynaGateway is recorded on the product case.

On this screen, the location of the Gateway must be defined on the Asset Tree, i.e. in which sub-area the gateway will be installed. This choice will impact the spots with which the Gateway will be able to communicate as well as which users will be able to alter the device settings.
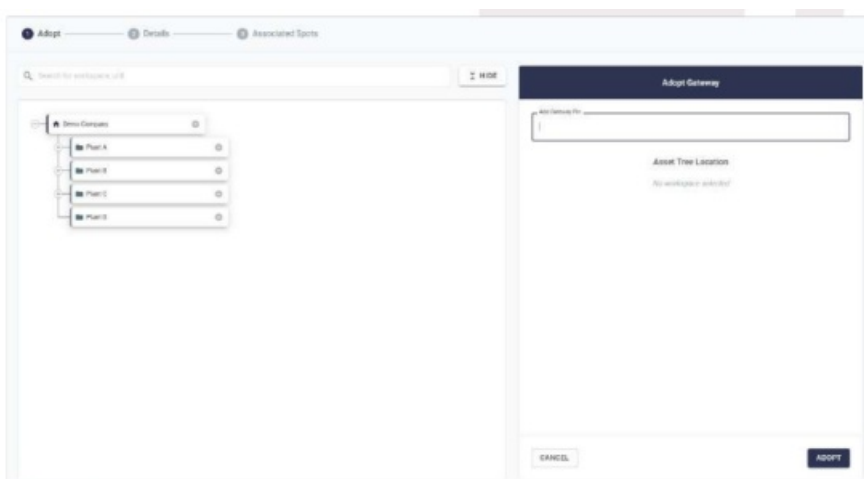
Figure 12 – Gateway adoption screen

Once the PIN has been entered and the "ADOPT" button clicked, a Gateway configuration screen will be displayed, shown in Figure 13.
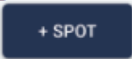
Figure 13 – Gateway configuration screen

The first part of the screen shows general information about the gateway:

- Gateway name;
- Device ID;
- Last update;
- Last scan.

Next, the "General View" is shown. This aims to show the general status, with the number of visible spots, associated spots and the status of each one.

By clicking "NEXT" it will be possible to associate spots to the gateway and configure how they will be collected.

By selecting this option, the list of spots associated to the Gateway will be displayed. To include a new spot, simply click the button on the top right corner of the screen.

Figure 14 – Screen showing association of the first spot to a Gateway

A new screen to search for the machines and spots within the company will be shown (Figure 15). The user should then select the desired spot for the Gateway in question to interact and collect data. The spots whose DynaLoggers are within the Bluetooth range of the DynaGateway can be viewed by selecting the "Only visible spots" option.
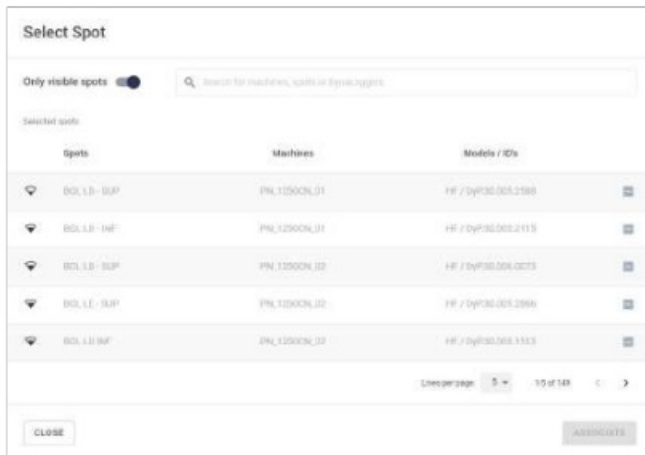

Figure 15 – Search spots for association with Gateway

To find a spot, the user can either use the search bar or navegate alphabetically through the page. The spot name, machine name and sensor model/ID are shown.

To associate a spot, simply select it and click "associate". It's possible to select various spots, but they must all be within the Bluetooth range of the Gateway.

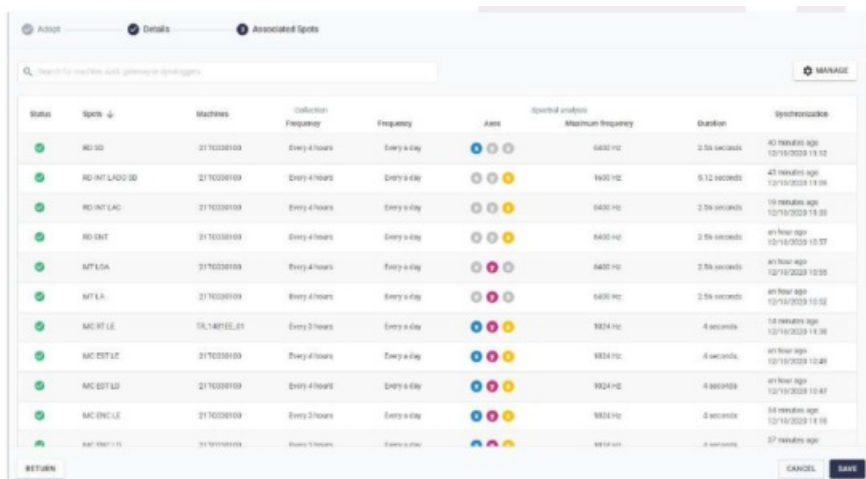The associated spots will be listed, as shown in Figure 16.

Figure 16 – List of spots associated to a Gateway

Configuring the associated spots

Once the desired spots have been selected, two parameters need to be configured for each. Both parameters can be modified by selecting the ⚙ icon, located on the far right side of each registered spot. A screen to edit the spot configurations will open (Figure 17).

1. Collection: time interval in which the Gateway will connect with the DynaLogger of the selected spot. In other

words, with what frequency it will collect the data measured by that DynaLogger. The interval between collections needs to be defined and it's also possible to define the start time of the Gateway collection. It's important to know the difference between the collection interval and the sample interval. Collection interval is with respect to the Gateway and sample interval concerns the DynaLogger. The measurements collected by the DynaLogger are obtained according to the sample interval and are stored in the internal memory of the sensor until the Gateway, based on the collection interval, performs a collection and clears the memory of the DynaLogger.

2. Spectral analysis: time interval in which the Gateway will connect with the DynaLogger of the selected spot to obtain a spectral analysis. It's necessary to define the interval between spectra and also the start time for the first spectrum to be performed. In addition, it's possible to choose on which axes the spectrum will be done, according to the image on the left.

Figure 17 – Collection configuration screen

Once the collection intervals have been defined, the information should be saved.
It's important to remember that the actions of the Gateway must be spaced between spots for the best performance of the Gateway.
At the end of the configuration, by clicking "SAVE", the user will receive a confirmation message for the configuration.

Batch configuration

The collection and spectral analysis configurations can also be made in batches, i.e. with a group of spots. To do this, select the checkbox of the spots to configure and click "Batch Configure" in the top right corner (Figure 18).

Figure 18 – Batch configuration

In the configuration window, the start time of the continuous collections and spectral analyses can be configured, as well as the time interval for which the actions should be repeated and the interval between each spot being collected.

Status

On the Gateway list, a screen accessible via the side menu (see section 5), all of the Gateways that are registered or are in the process of configuration are given a status. There are four possible statuses:

- Healthy: the Gateway is configured and was able to collect data from all of the registered spots;

- Not configured: The Gateway PIN has already been entered, but there are no spots associated to the Gateway;

- Delayed: the Gateway is configured, but hasn't communicated with at least one spot in the determined time period;

- Unhealthy: The Gateway is configured, but at least one spot can't be collected. By accessing the Gateway, it's possible to see which spots couldn't connect;

- Unknown: The Gateway still hasn't connected with any spots. In this case, it's recommended to check the internet connection and power supply of the Gateway.

This status is updated with each new collection cycle performed by the Gateway.

Dynamox – Exception Management
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Documents / Resources

	Dynamox DynaGateway Gateway Novo [pdf] User Guide DynaGateway, Gateway Novo
	Dynamox DynaGateway Gateway Novo [pdf] User Guide 010232, 2AT3M010232, DynaGateway Gateway Novo, DynaGateway, Gateway Novo

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