T28 Software Manual

Release 6.12

Embention

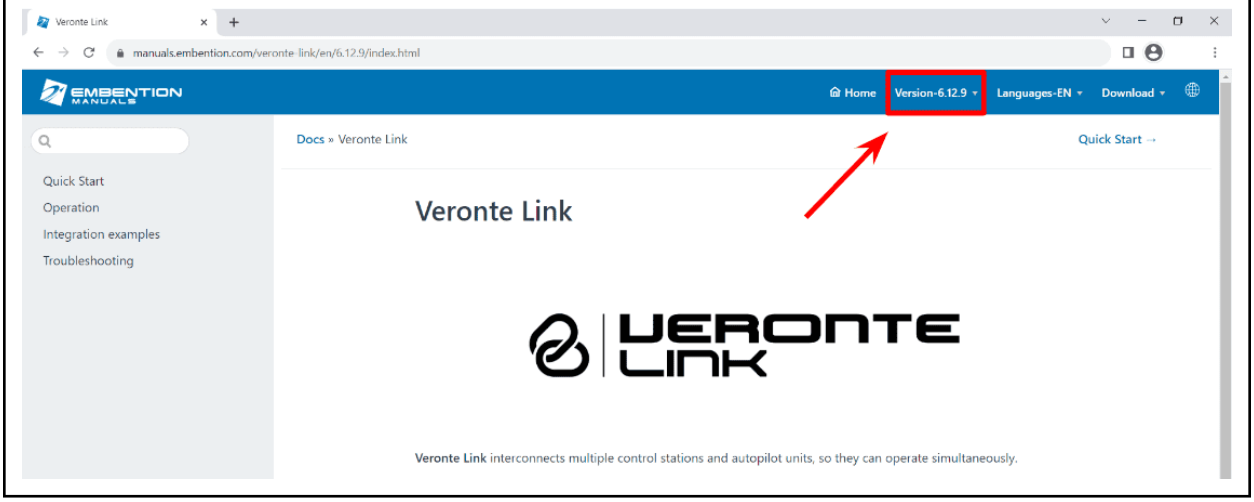
2023-11-09

CONTENTS

In this manual the user can consult a brief description of all the applications created and designed to work together with **Veronte T28**.

In addition, links are available to access the manual for each application.

Warning: Select your version before reading any user manual for software. The following image shows where to select a version from any Embention user manual.



CHAPTER

ONE

SOFTWARE APPLICATIONS

T28 is a tracking antenna which operates with a **Veronte PCS**. **PCS** in turn is controlled by an **Autopilot 1x**. Hence, the software configuration and operation is performed to the **Autopilot 1x** in the **PCS**.

1.1 Veronte Link

Veronte Link establishes communication between a computer and any Veronte product by creating a VCP bridge. It allows to use multiple control stations and autopilots to be interconnected, operating simultaneously. **Veronte Link** also includes a post-flight viewer, to reproduce all recorded data from previous flights and generate plots and reports.

For more information, visit the Veronte Link user manual.

1.2 1x PDI Builder

1x PDI Builder is the main configuration tool to adapt a **Veronte Autopilot 1x** to a specific vehicle, including user-defined commnication protocols. **1x PDI Builder** includes:

- Telemetry: real-time onboard UAV metrics, such as sensors, actuators and control states.
- Configuration: edit vehicle settings, such as servo trim, interface/port management and modes.
- Automations: actions that are automatically executed when a set of configured conditions are accomplished.
- Block Programs: Veronte Autopilot 1x can be programmed with a friendly-user programming language.

For more information, visit the 1x PDI Builder user manual.

1.3 Veronte Ops

Veronte Ops is the application employed to operate and monitor the vehicle during missions. Its interface can be easily customized and adapted to each case.

For more information, visit the Veronte Ops user manual.

CHAPTER

TWO

CONFIGURATION

The following steps show the basic configuration to operate with **T28**, the rest of configuration depend on the application and mission.

2.1 Air unit

1. Go to  → **Telemetry** → **Data to VApp**. Then set the **Address** to "Broadcast".

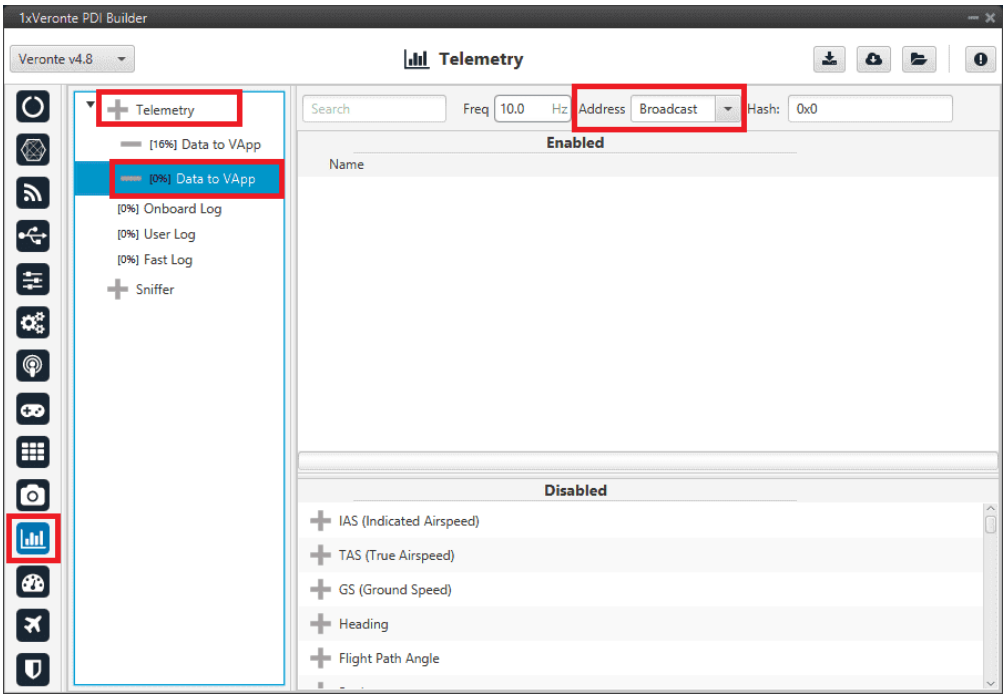


Fig. 1: **1x PDI Builder - Telemetry**

2. Add the variables `UAV position` and `Position not fixed` from the **Disabled** window. It is recommended to use the **Search** bar.

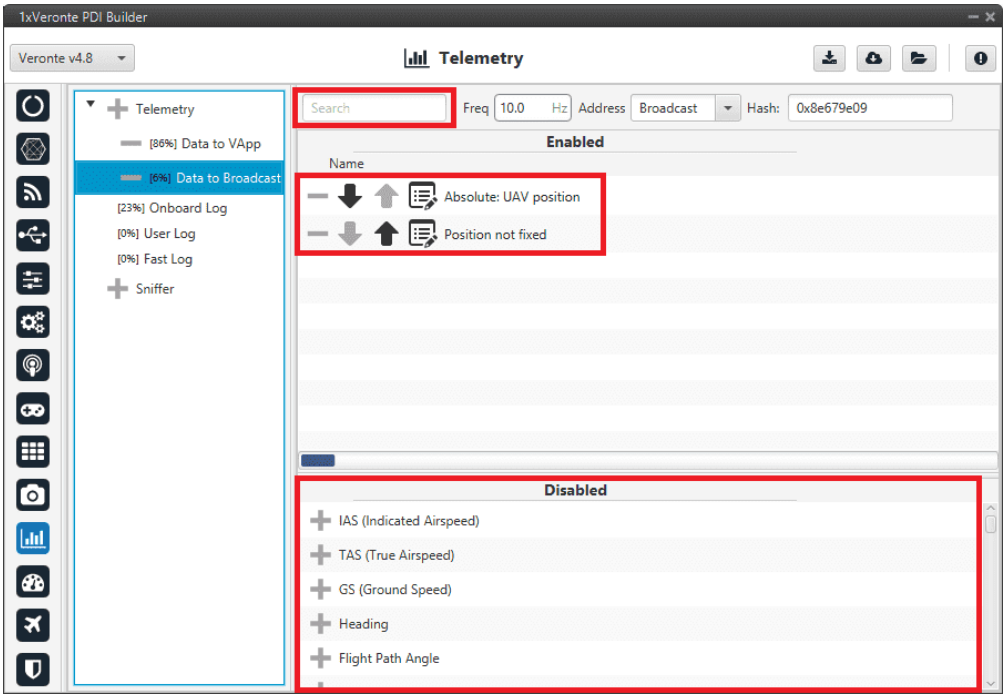


Fig. 2: **Telemetry - Add variables**

3. Complete the rest of the configuration according to the vehicle and mission requirements, then click on  to write the configuration in **Autopilot 1x**.

2.2 Ground unit (T28)

When the ground system is delivered to the costumer, it has the necessary configuration to operate. The user only has to verify that the **Address** of the air unit is correctly configured in the **Sniffer**.

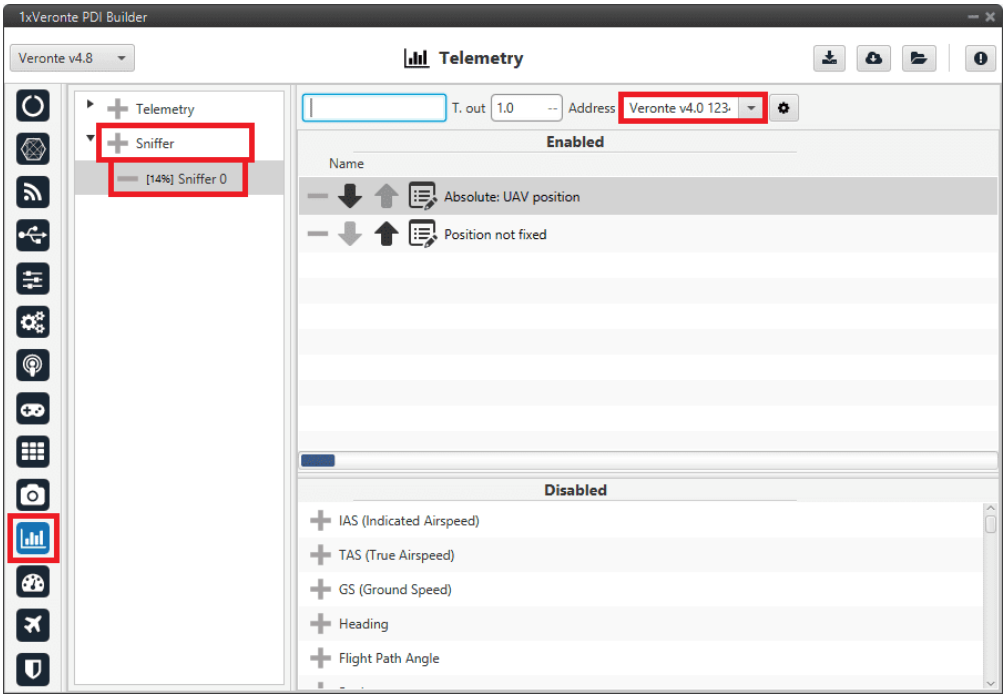


Fig. 3: **1x PDI Builder - Address verification**

Note: In case of any problem with the configuration, it can be reset as explained in the *T28 configuration reset* section.

CHAPTER

THREE

OPERATION

The **T28** is operated with **Veronte Ops** with its own **Veronte Panel**. This panel can be displayed accessing the widgets menu in the workspace toolbar. To do this, click on the '**+**' button → **Main** → **Veronte Panel**.

For more information on the Veronte panel widget, please refer to the Main widgets section of the **Veronte Ops** user manual.

Note: The Veronte Panel is configured in the autopilot. In consequence, to obtain it, it is necessary to connect the computer to the device.

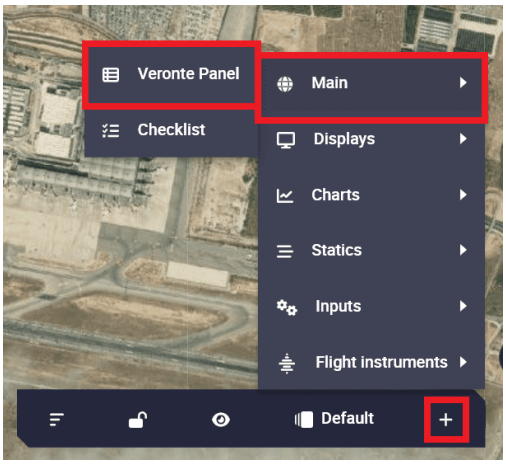


Fig. 1: **How to open Veronte panels**

3.1 Veronte Tracker buttons

Note: The buttons of **Veronte Tracker panel** exist and perform their respective functions because they were programmed with 1x PDI Builder automations.

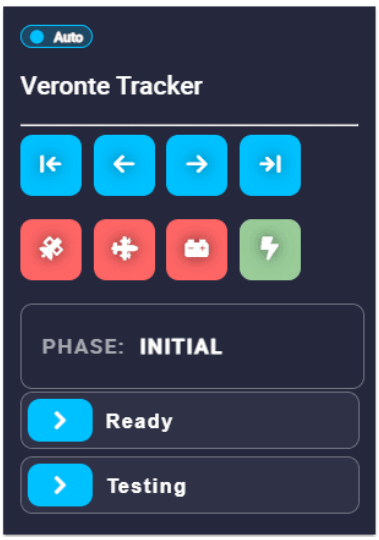


Fig. 2: **Veronte panel for T28**

 ⇒ **Trim buttons.** They adjust the **T28** position.

 ⇒ **GPS indicator.** It indicates whether the GPS has a valid position or not.

 ⇒ **Target indicator.** It indicates whether the **T28** is receiving the target position or not.

 ⇒ **Battery indicator.** It shows how much battery power remains:

- Green: > 70 %
- Yellow: 70 % - 40 %
- Orange: 40 % - 15 %
- Red: < 15%

 ⇒ **Charging indicator.** It shows the charging status:

- Green: charging.
- Blue: charged.
- Flashing yellow: discharging.

⇒ **Phase indicator.**

⇒ **Phase buttons.**

3.2 How to operate the Veronte Tracker panel

1. The **T28** starts with **Initial** phase.
2. Once the GPS indicator turns green, it automatically switches to the ready phase.
3. To switch to **Ready** phase, simply drag the **Ready** phase button.
4. Once in **Ready** phase (or during the **Initial** phase) the **T28** orientation must be calibrated. To do this, use the trim buttons to point the antenna north. The internal buttons move the antenna by 1 degree and the external buttons by 10 degrees.
5. Once the **T28** is calibrated and the GPS and target indicators are green, drag the **Tracking** phase button to switch to tracking.
6. To stop tracking, drag the **Ready** phase button to return to ready.

CHAPTER

FOUR

TROUBLESHOOTING

4.1 TCP Connection cannot be established

In order to correctly establish the connection with **T28** through TCP, make sure the computer is set to the following static IP address: **192.168.8.3**. This address should be automatically assigned when connecting to **T28** network.

If this is not the case, please follow the example below in order to assign a static IP address to your device:

- Click on '**Open Network Internet settings**' in the dropdown menu of the Internet configuration.

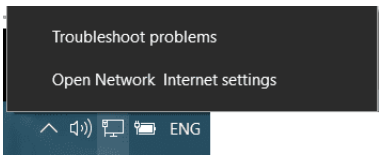


Fig. 1: **Open Network Internet settings**

- Click on '**Change adapter options**' and select your Internet connection method by double clicking on it.

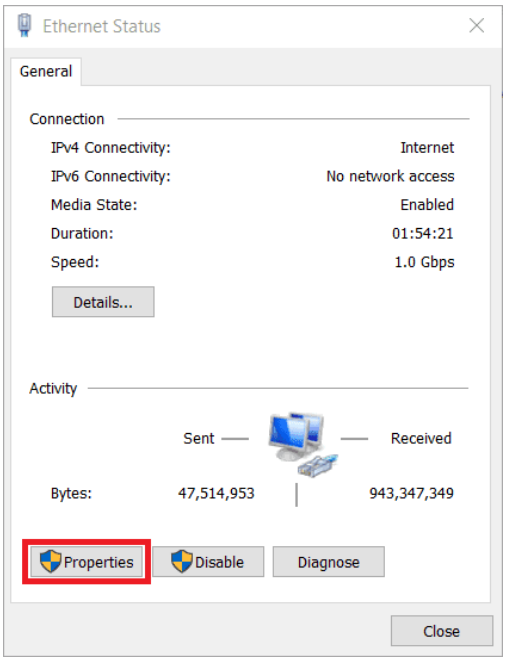


Fig. 2: **Connection status**

- Click on '**Properties**' and select **IPv4 Internet Protocol**, then click on 'Properties'.

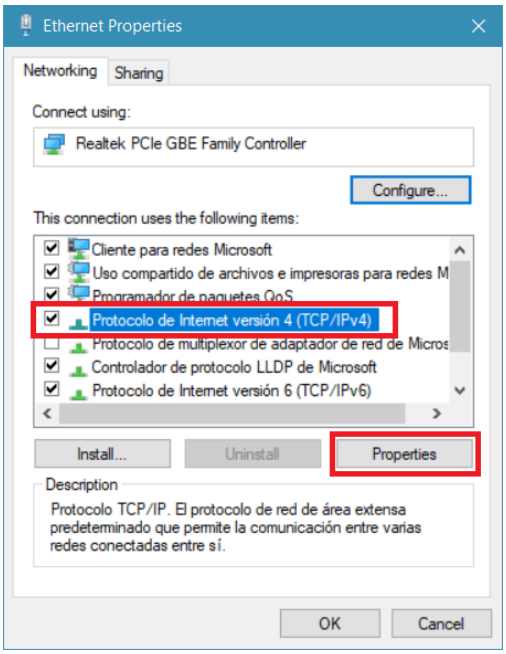


Fig. 3: **Connection properties**

- Select '**Use the following IP address:**' and type in the 'IP address' tab **192.168.8.3**.
- '**Subnet mask**' should be automatically fulfilled as observed in the following image, otherwise type the indicated subnet (*255 255 255 0*) mask manually.

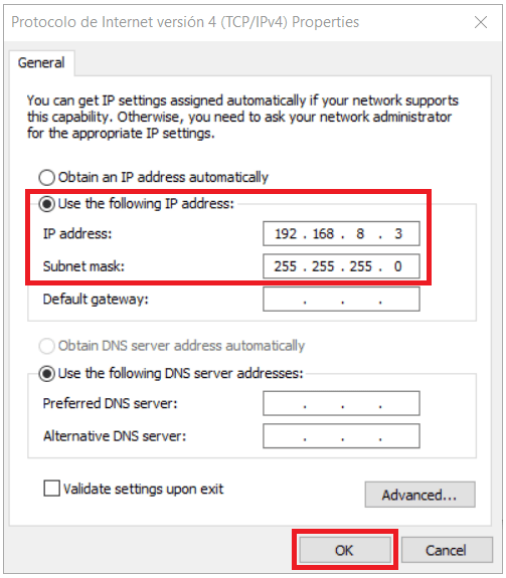


Fig. 4: **IP and subnet mask configuration**

- Click on '**Ok**' and close the opened windows.

4.2 T28 configuration reset

Autopilots 1x with software `version 6.8 or higher` can restore the configuration to the default one. To do it, follow the next steps:

- Connect the Autopilot 1x and check that it is detected in **Veronte Link**.
- Open **1x PDI Builder** and select the **Autopilot 1x**.

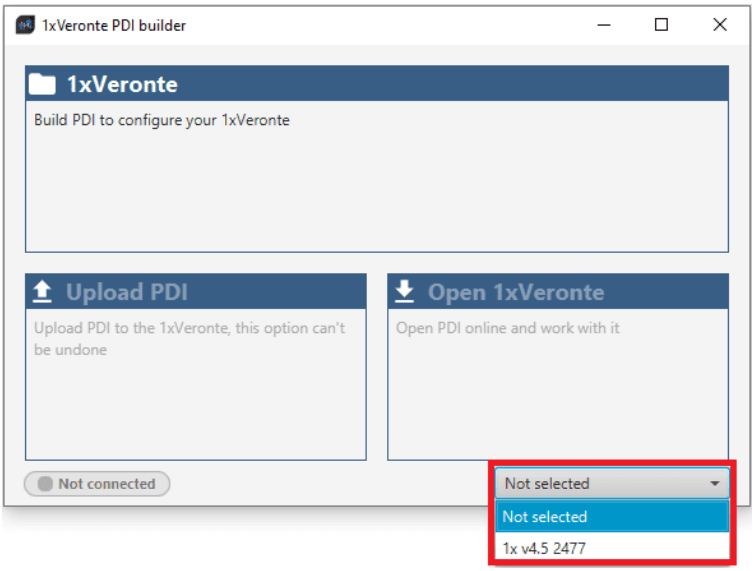


Fig. 5: **1x PDI Builder - Initial menu**

- Then click on **Open 1xVeronte** to open the configuration of the connected **1x**.
- Click on  .

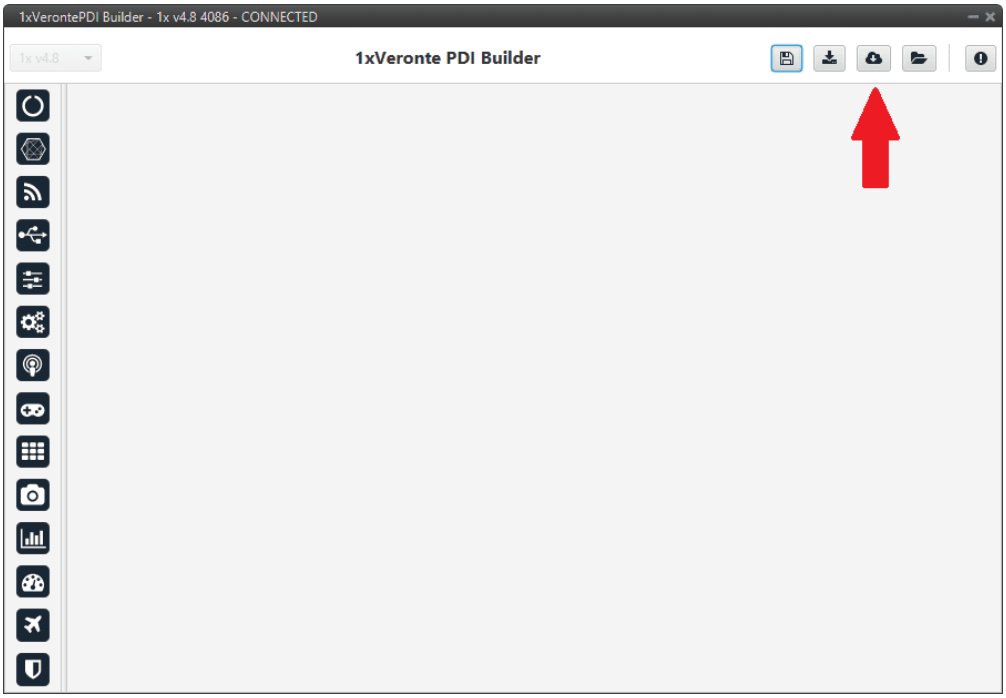


Fig. 6: **1x PDI Builder - Import PDI from repo**

- Select the last version of **T28** configuration, then click on **Import**.

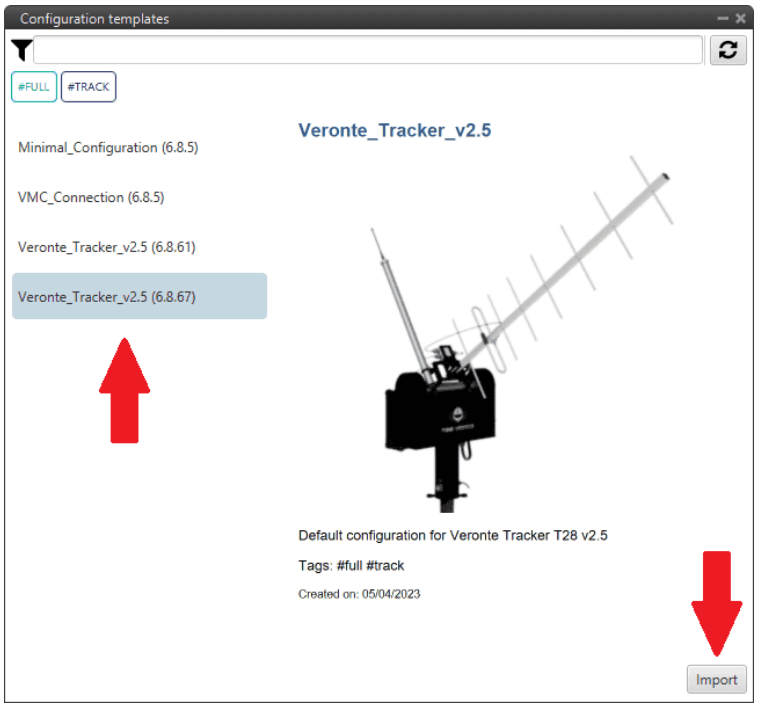


Fig. 7: **1x PDI Builder - Import Veronte Tracker configuration**

- Finally click on  to write the configuration in the autopilot.