![u-blox logo]

Configuring C099-F9P boards for a moving base setup using on-board Wi-Fi, with ODIN-W2 Connectivity SW

October 2019

Introduction

- This presentation gives instructions on how to set up C099-F9P Base and Rover in a static base and in a moving base setup, using Wi-Fi.

  - The C099-F9P board features the u-blox ZED-F9P high-precision GNSS receiver and the u-blox ODIN-W2 Wi-Fi/Bluetooth module.

  - The ODIN-W2 module can run either Connectivity SW or Mbed FW.

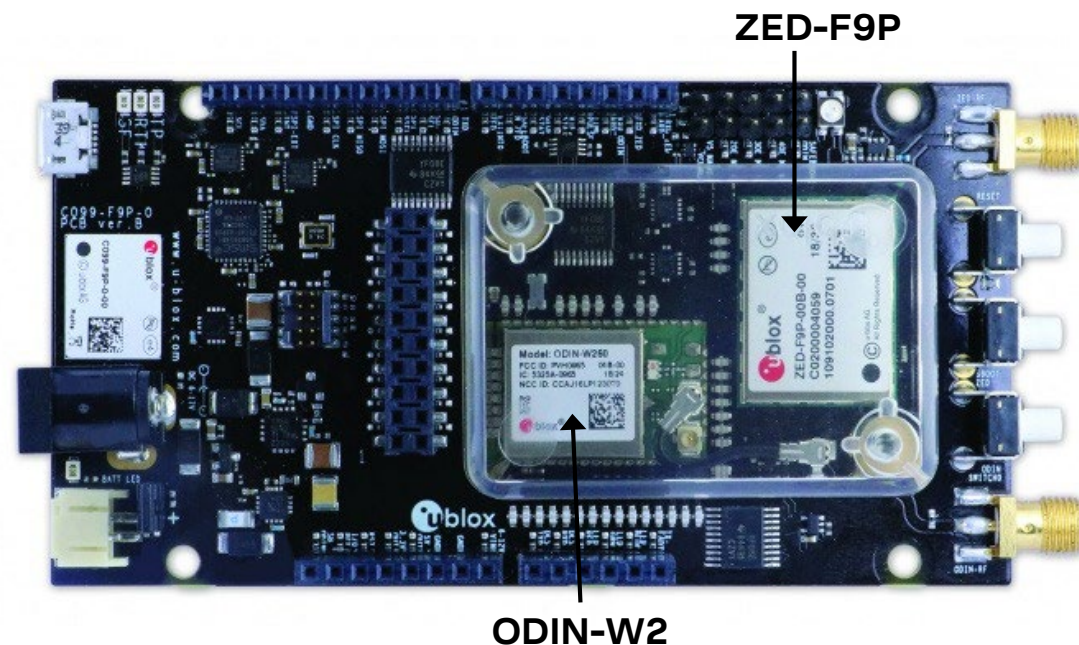 - These instructions are for ODIN-W2 with Connectivity SW.

  Note that the Connectivity SW name has changed to u-connectXpress.

ZED-F9P application board: C099-F9P

Designed for easy evaluation

- Includes u-blox ODIN-W2 module, with Wi-Fi and Bluetooth connectivity.

- Shipped with ANN-MB multi-band GNSS antenna.
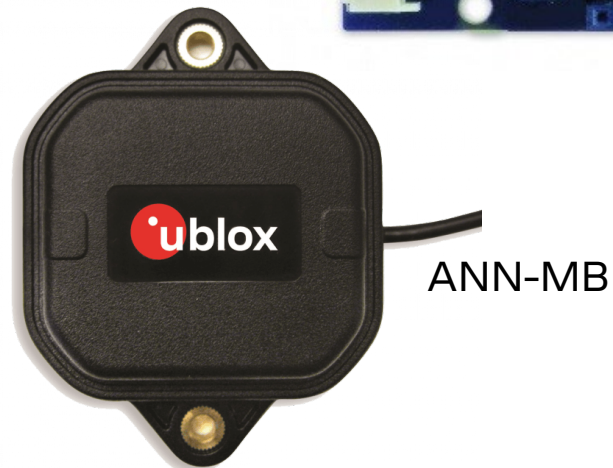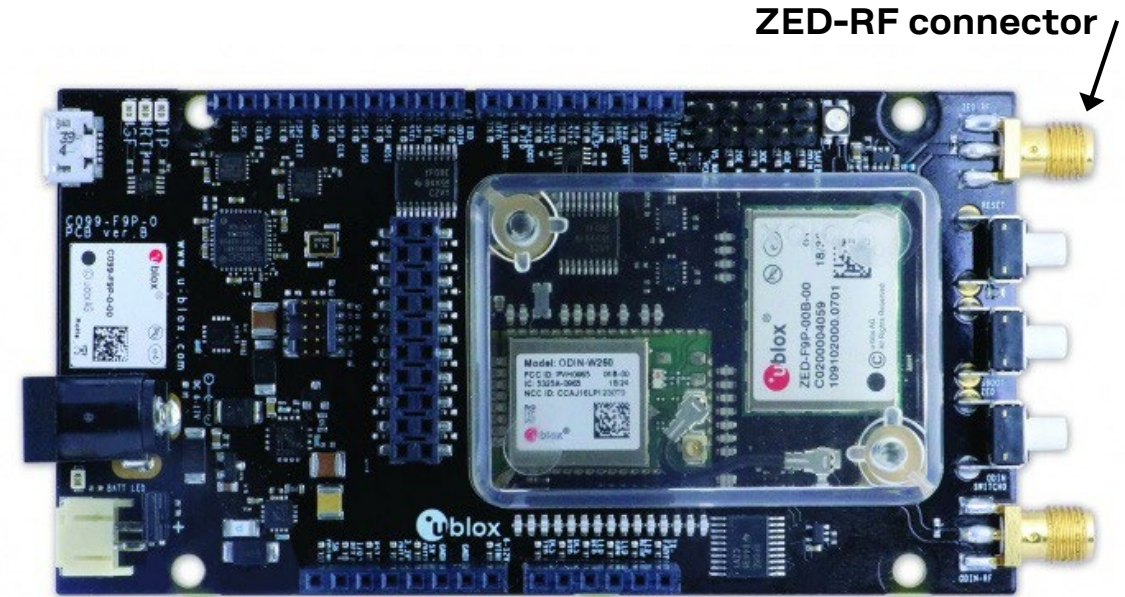
ZED-F9P

ODIN-W2

Note: There is one board per kit.
For a Rover + Base setup, please order two kits.

Connecting antenna

- Connect the supplied multi-band GNSS antenna to the ZED-RF SMA connector.

- Ensure good signal reception. Take special care of the Base station antenna placement.

- Use ground plane with ANN-MB.

**ZED-RF connector**

ANN-MB

Configuration overview
Base / Rover setup with two boards connected using Wi-Fi

- To make the setup easy, configuration files are available in the u-blox GitHub repository: https://github.com/u-blox/ublox-C099_F9P-uCS.

- For the Base, the configuration file ensures that ZED-F9P UART1 have all input protocols disabled. It also ensures that only RTCM messages are output on UART1, and all other protocols are disabled. There are two Base station configuration files available:

  - Static Base station: "*ZED-F9P Base config C099.txt*"

  - Moving Base station: "*ZED-F9P Base moving base config C099.txt*"

- The "*ZED-F9P Rover config C099.txt*" file holds the Rover configuration and ensures the right port configurations are used.
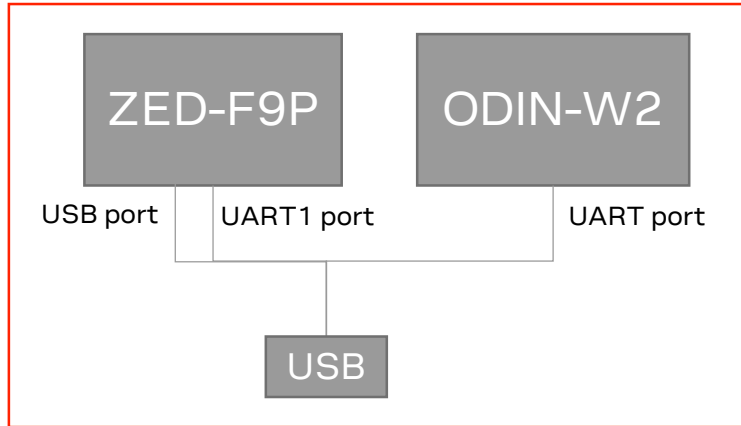
Powering up the board

- Connect the USB to a Windows PC; this will power the board.
- The FTDI and USB drivers will be installed automatically.
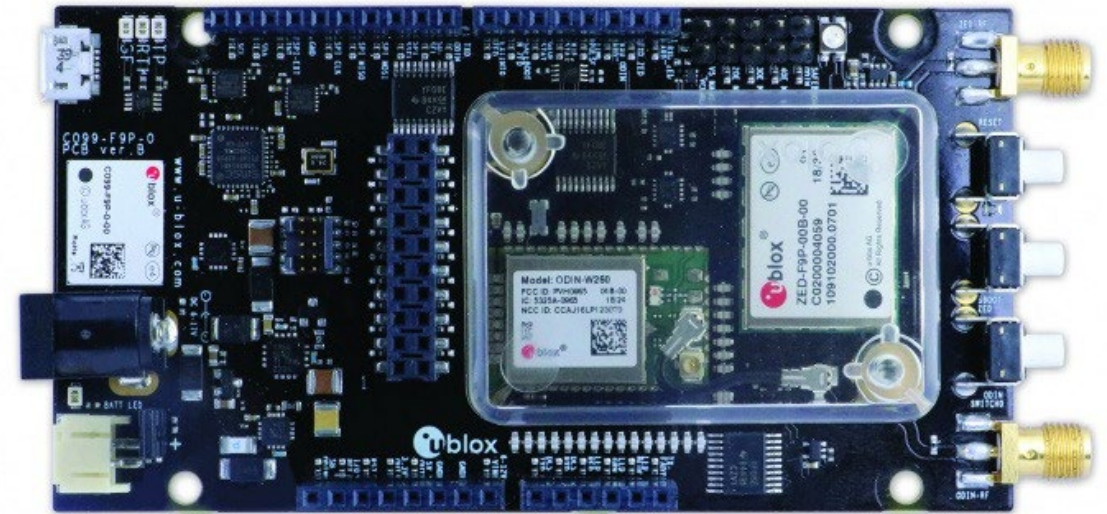
A single USB connector for connection to ZED-F9P UART1, ODIN UART and ZED-F9P USB
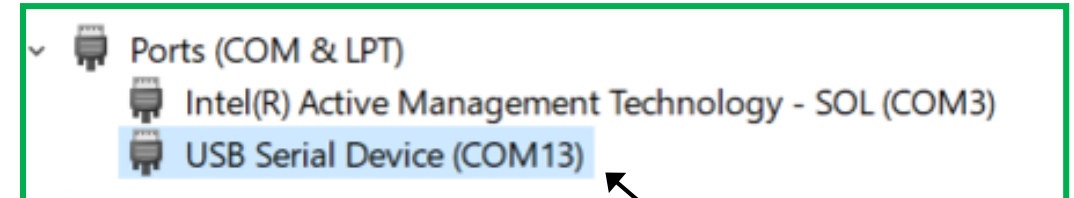
Communication ports on C099-F9P

Overview

u-blox

ZED-F9P | ODIN-W2

USB port | UART1 port | UART port

USB

A single USB connector connects to ZED-F9P USB and UART1, and ODIN UART. The figure depicts the situation without jumper (3OE).

Ports (COM & LPT)
- C099 application board, ODIN-W2 (COM62)
- C099 application board, ZED-F9P (COM64)

Windows Device Manager view

These connect to ZED-F9P UART1 and ODIN-W2 UART.

A Virtual COM Port (VCP) will be created for the ZED-F9P USB port.
- For Windows 10 it will be shown as "USB Serial Device (COMx)".
- For Windows 7 64-bit it will be shown as "u-blox GNSS Receiver (COMx)".

Ports (COM & LPT)
- Intel(R) Active Management Technology - SOL (COM3)
- u-blox GNSS Receiver (COM13)

Windows 7 64-bit ZED-F9P USB port

Ports (COM & LPT)
- Intel(R) Active Management Technology - SOL (COM3)
- USB Serial Device (COM13)

Windows 10 ZED-F9P USB port

We will connect to the ZED-F9P USB port to upload Base and Rover configuration files. The USB port can also be used to monitor and log e.g. UBX messages. The UART ports will be used for Wi-Fi communication Base/Rover.

Base configuration
Six steps for a <u>static</u> Base station

STEP 1: Connect base ZED-F9P USB port to u-center.

STEP 2: Open u-center, select View > Generation 9 Configuration View > Advanced Configuration.

STEP 3: Return receiver to defaults by selecting this icon in the Action toolbar:
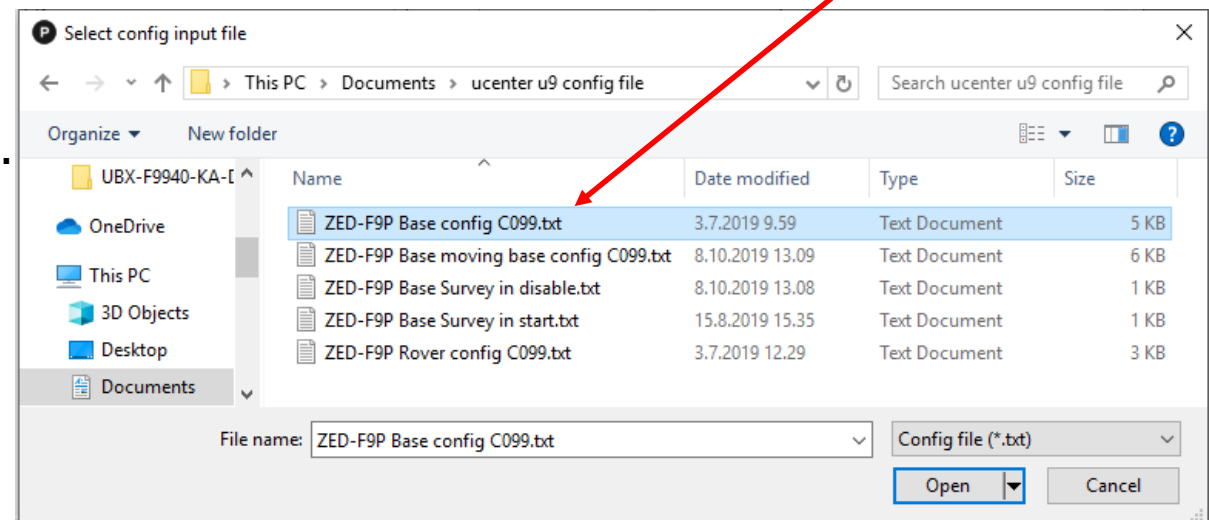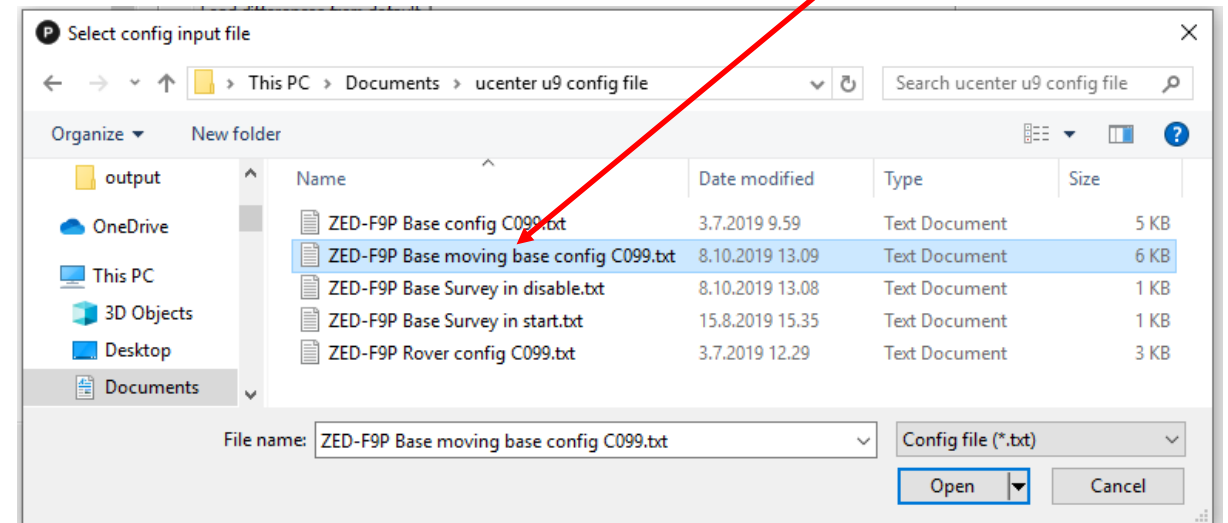
STEP 4: Select Load and ensure you select the "ZED-F9P Base config C099.txt" file.

STEP 5: Send and verify configuration.

STEP 6: Configure Base station coordinates or perform a Survey-in.

For each step, more detailed description is given later in this presentation.

Select "ZED-F9P Base config" file.

Moving base configuration
Five steps for a moving Base station

STEP 1: Connect base ZED-F9P USB port to u-center.

STEP 2: Open u-center, select View > Generation 9 Configuration View > Advanced Configuration.

STEP 3: Return receiver to defaults by selecting this icon in the Action toolbar:
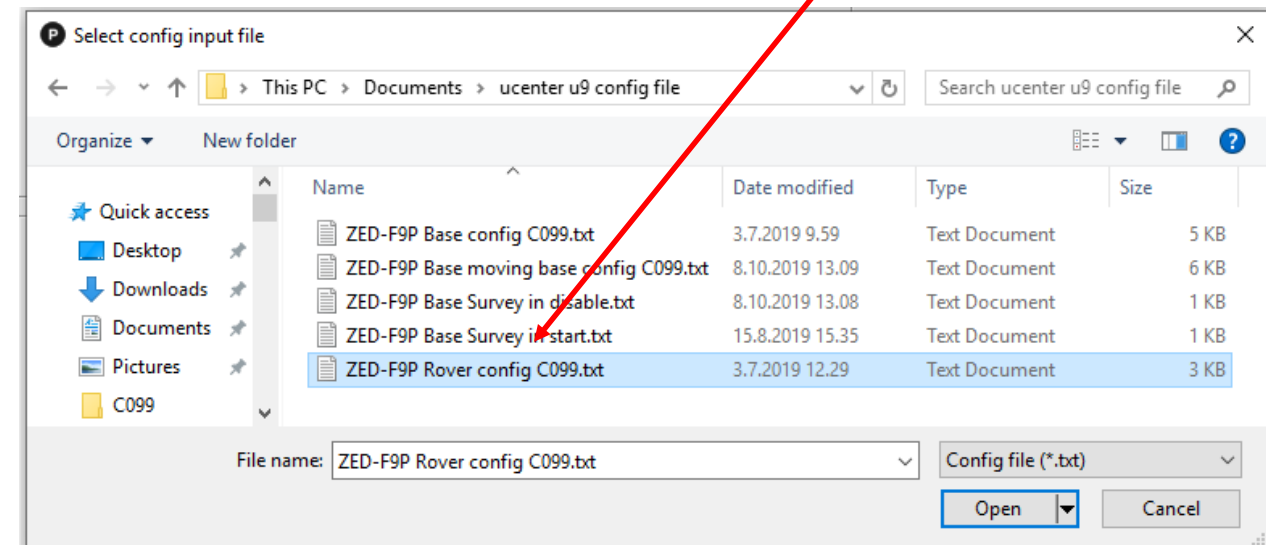
STEP 4: Select Load and ensure you select the "ZED-F9P Base moving base config C099.txt" file.

STEP 5: Send and verify configuration.

For each step, more detailed description is given later in this presentation.

Select "ZED-F9P Base moving base config" file.

Rover configuration
Five steps for a Rover configuration

STEP 1: Connect base ZED-F9P USB port to u-center.

STEP 2: Open u-center, select View > Generation 9 Configuration View > Advanced Configuration.

STEP 3: Return receiver to defaults by selecting this icon in the Action toolbar:

STEP 4: Select Load and ensure you select the "ZED-F9P Rover config C099.txt" file.

STEP 5: Send and verify configuration.

Select "ZED-F9P Rover config" file.

For each step, more detailed description is given later in this presentation.

Select config input file

This PC > Documents > ucenter u9 config file

Organize ▾   New folder

Name	Date modified	Type	Size
ZED-F9P Base config C099.txt	3.7.2019 9.59	Text Document	5 KB
ZED-F9P Base moving base config C099.txt	8.10.2019 13.09	Text Document	6 KB
ZED-F9P Base Survey in disable.txt	8.10.2019 13.08	Text Document	1 KB
ZED-F9P Base Survey in start.txt	15.8.2019 15.35	Text Document	1 KB
ZED-F9P Rover config C099.txt	3.7.2019 12.29	Text Document	3 KB

Quick access
Desktop
Downloads
Documents
Pictures
C099

File name: ZED-F9P Rover config C099.txt   Config file (*.txt)

Open   Cancel

Enabling the Wi-Fi connection
ODIN-W2 Connectivity SW

- To enable the Base/Rover Wi-Fi communication with the Connectivity SW, place a jumper at position 'OE3' to connect ODIN-W2 and ZED-F9P UART1.
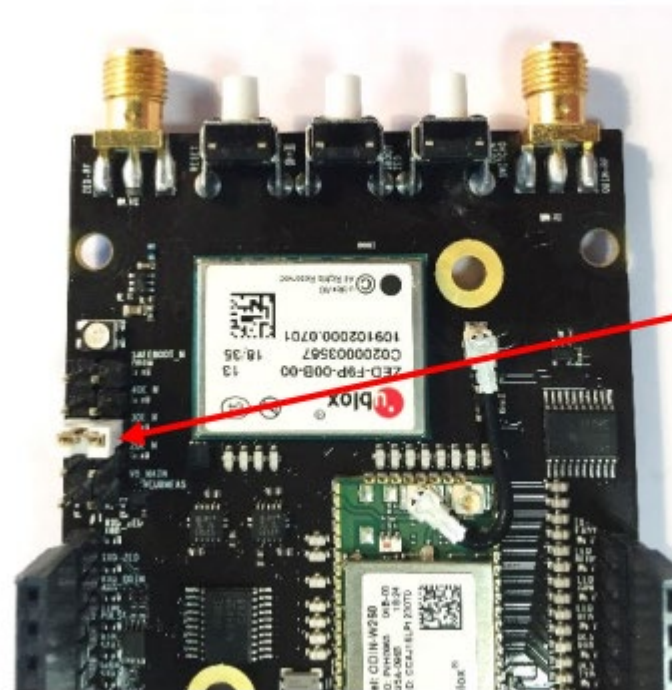
Jumper position "3OE"

- Use the ZED-F9P USB port to monitor and log e.g. UBX messages.

- To monitor the Rover status in the base station, refer to user guide.

Resources

- Configuration files and this presentation are shared on GitHub:

https://github.com/u-blox/ublox-C099_F9P-uCS

- User guide and more documentation is available on the product web page:

C099-F9P User Guide (with ODIN-W2 Connectivity SW)

https://www.u-blox.com/en/product/c099-f9p-application-board

STEP 2: u-center Configuration View

- Use the u-center View -> Generation 9 Configuration View -> Advanced Configuration to configure and upload the configuration files.
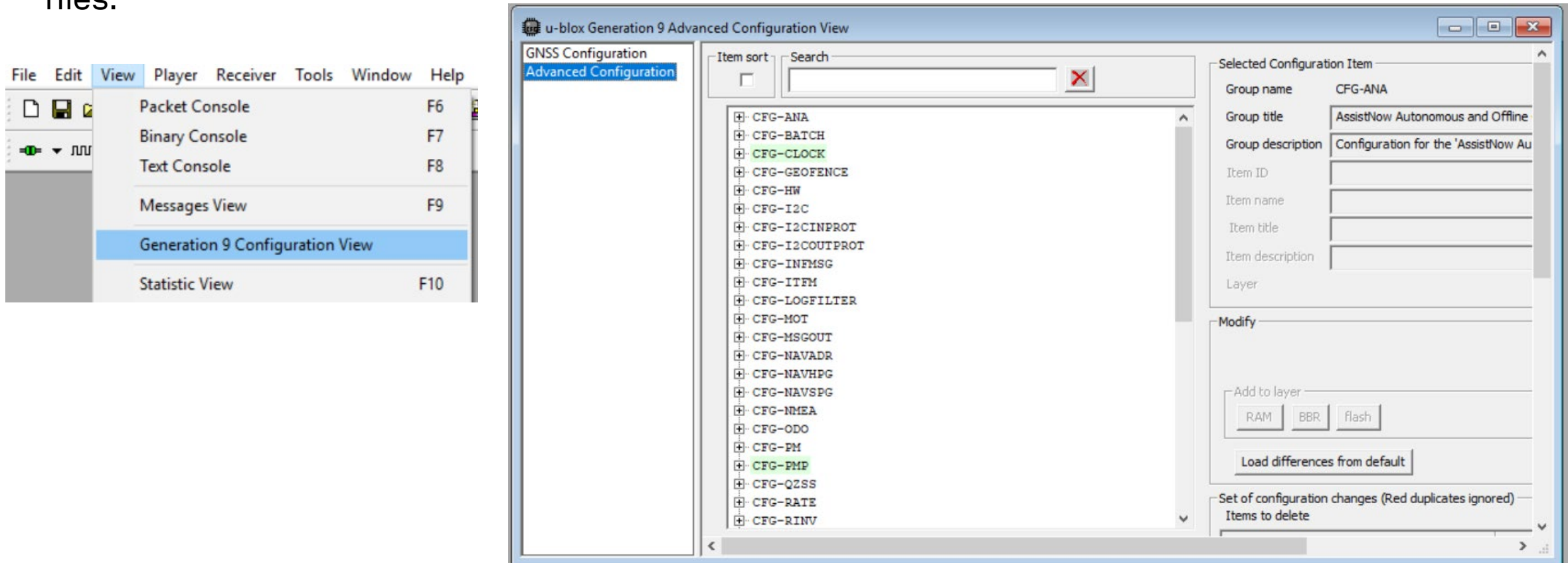
STEP 3: Return receiver to defaults

- Return receiver to defaults by clicking the icon shown with number 1 below. The icon is available in the Action toolbar.
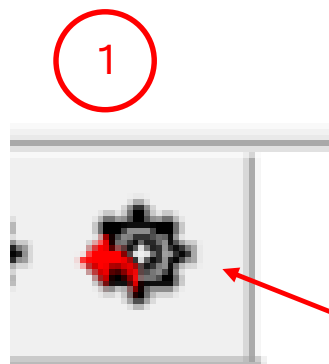
Return receiver to defaults by clicking this icon in the Action toolbar.

Click autobaud or select 38400 baud.

STEP 4: Load configuration

- Click the Load button in the Advanced Configuration dialog and select the right configuration file.

Configuration file for rover
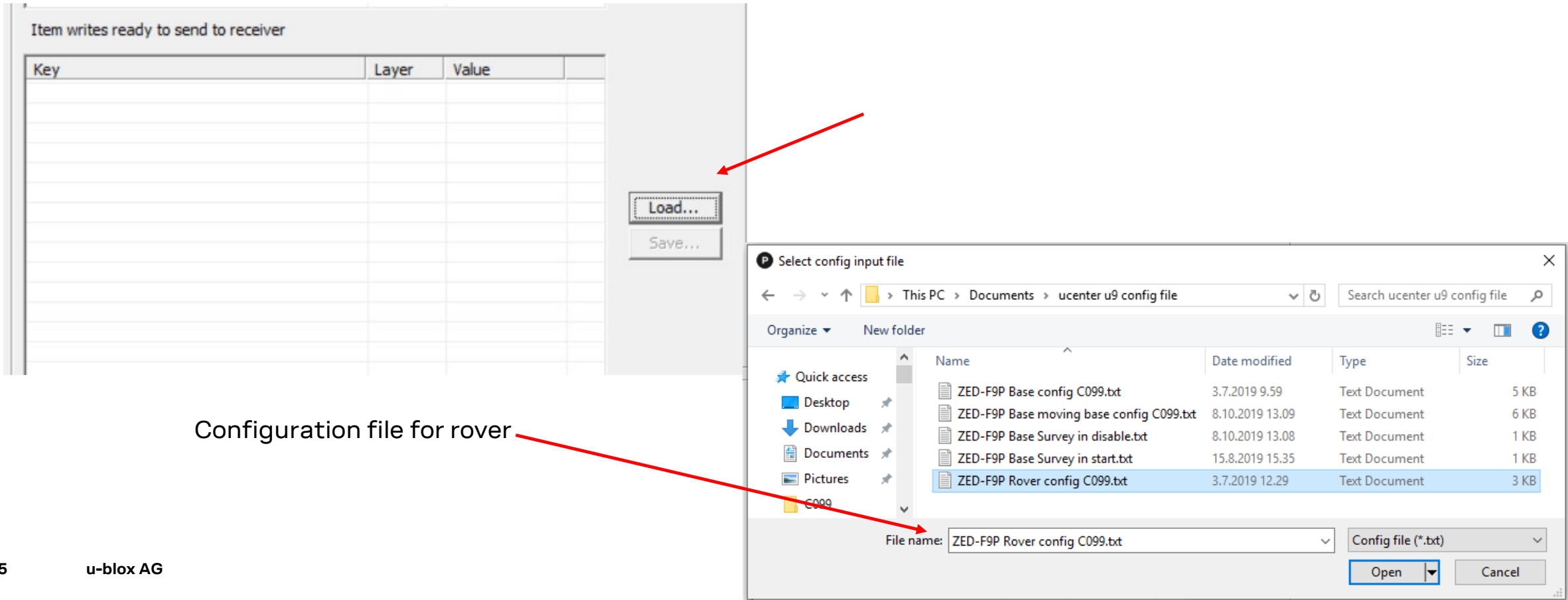
STEP 5: Send and verify configuration

Configuration (for rover in this example) loaded and ready to send.

Click Send button.

Tick marks indicate that configurations are successfully sent.

STEP 6: Static base station configuration

- A static base station needs fixed coordinates to be entered or needs Survey-in process to be run before it can act as a Base station.

- The configuration file "*F9P Base Survey in start.txt*" can be used to execute the commands needed for a Survey-in.

Thank you
for your attention