



# TEKTELIC COMMUNICATIONS INC.

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## 1 Introduction

This guide provides step by step instructions and troubleshooting tips to users to setup their Gateway quickly and correctly with a Network Server.

## 2 What is in the Box

### 2.1 Product and installation material

For different Kona Micro models and field installation, refer Kona Micro User Guide T0005281\_UG.

- Kona Micro Gateway
- AC-DC power adapter
- LoRa Antenna
- Ethernet Cable
- Documentation: User Guide and Declaration of Conformance (EU versions only)



**Figure 1: Equipment inside the Box**

## 3 Quick Start Setup

### 3.1 Required Equipment

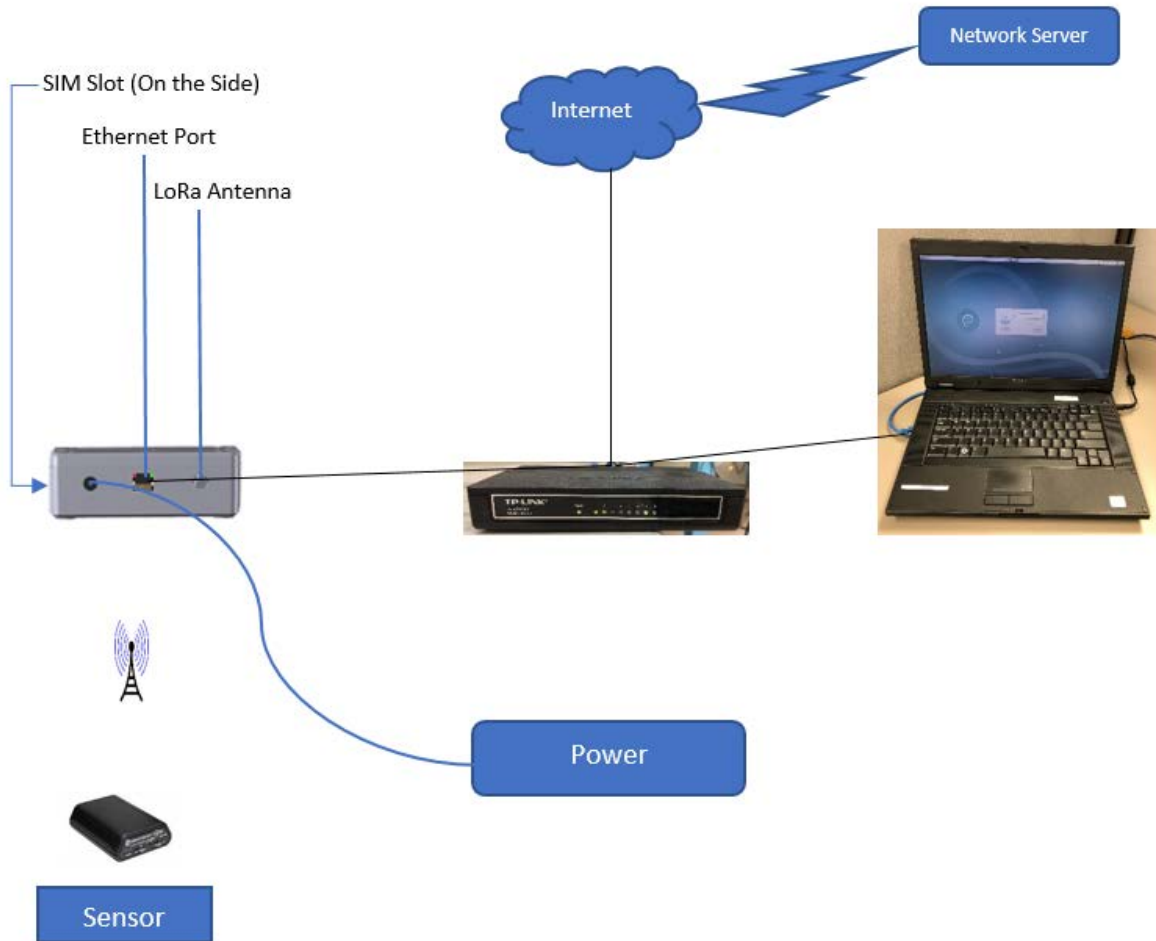
The following equipment is required for commissioning and monitoring the Kona Micro Gateway.

1. Laptop running Windows XP/Vista/7
2. KonaFT self-extracting installer (software)
3. Kona Micro Gateway
4. Cat5 or better Ethernet cable
5. RF antenna for LoRa communication

### 3.2 Quick Start Procedure

#### 1. Gateway Setup:

Follow the below diagram to setup Micro gateway. Make sure that the Ethernet cable, and LoRa antenna are connected to their respective ports properly on the Gateway.



**Figure 2: Gateway Setup**

2. Install KonaFT on Windows laptop or PC. Copy the KonaFT self-extracting installer software onto the computer then double-click on the installer icon to start the installation process.
3. Register Gateway and Sensor on Network Server:

Register your Sensor (with OTAA) and Gateway on the Network Server. (Follow the Tektelic Network Server Guide T0005281\_NS.)

4. Apply power to the Gateway using the supplied AC-DC adapter:
5. Module Bootup:  
Bootup time of the Gateway is approximately 2 minutes. During bootup, the LED status is Flashing Green.
6. Module LED status:  
After bootup, LED status will be Flashing RED. The LED will remain flashing red until the Gateway receives a downlink packet from the Network Server. Upon reception of a downlink packet from the Network Server, the LED will change to Solid Green. (Refer table 1 for different LED states).
7. Retrieve Module IP address:  
The Kona Micro Gateway supports DHCP on the Ethernet port. The Gateway MAC address is printed on the Gateway label. Using the MAC address and your local DHCP tools, determine the IP address of the Gateway.
8. Start KonaFT:  
Launch KonaFT. Enter your gateway's IP address and port number 161 (default) on KonaFT then Select Start Button.

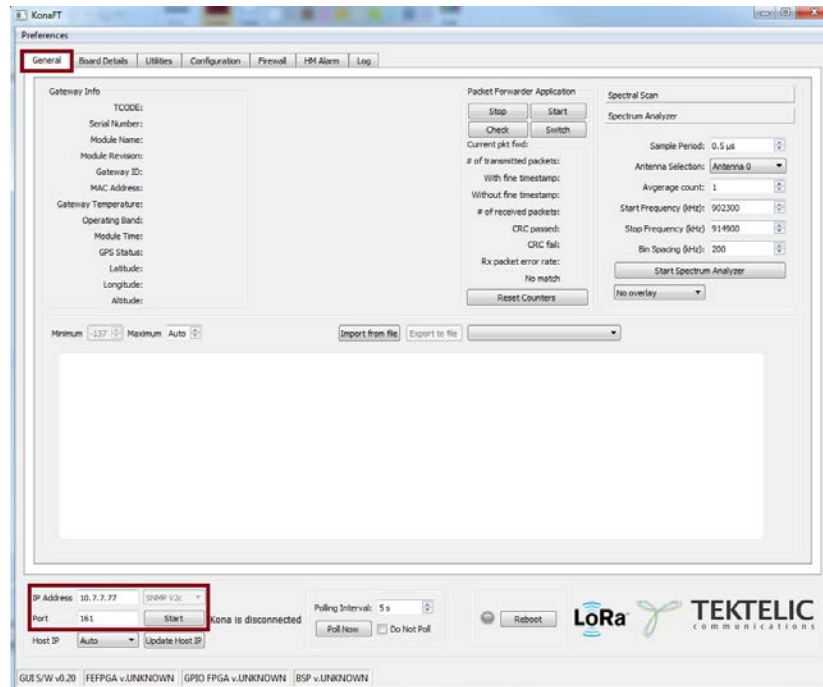


Figure 3: Start KonaFT

9. Verify 3G/4G Connectivity (on applicable modules only):

The Wireless Modem tab in KonaFT is only displayed on modules with a modem and provides LTE modem information, Network provider information, APN information, RF information, call statistics and IP address.

- Select the “Wireless Modem” tab and click “Poll Now” button in each section
- Verify a public IP is assigned in the top window
- Verify Session State is CONNECTED in the Home Network window
- Verify Call Status is CONNECTED in the Call Statistics window
- The APN setting of the modem can be viewed in the Active Profile Parameters window
- Signal Strength (RSSI) of the cellular connection is displayed in the RF Information window

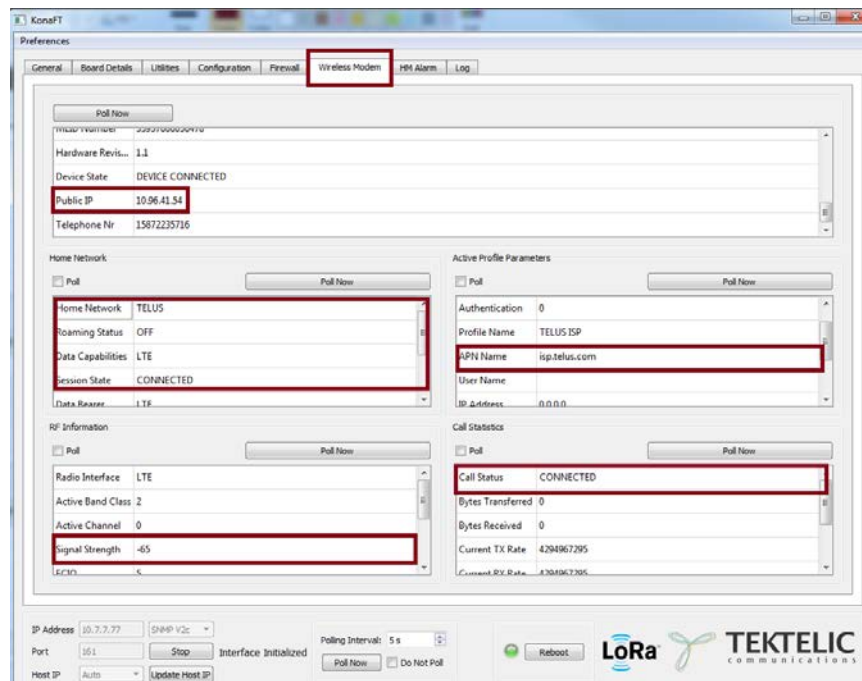


Figure 5: Wireless Modem Information

10. Verify Firewall configuration:

- Select Firewall tab on KonaFT, then select “Read Firewall Configuration”. The existing firewall rules will be displayed.
- Default Firewall rules will allow SSH connectivity from any address.
- Please contact Tektelic if pre-loaded Firewall rules are required from the Factory.
- The Firewall tab allows users to edit, create or delete Firewall rules for the Gateway.



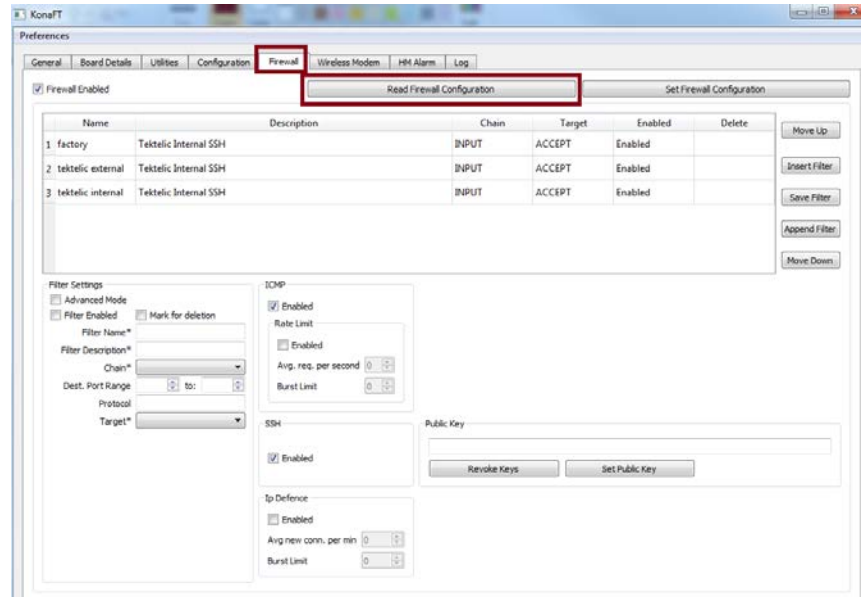


Figure 6: Firewall Information

11. Verify LoRa traffic:

LoRa operation can be confirmed by using an OTAA sensor and joining with a Network Server.

- Ensure that both Gateway and Sensor is registered on the network server.
- Power on the sensor to initiate the join request.
- When the Gateway receives an uplink packet (the join request from the Sensor), the CRC passed and #of received packets fields in KonaFT will increment.

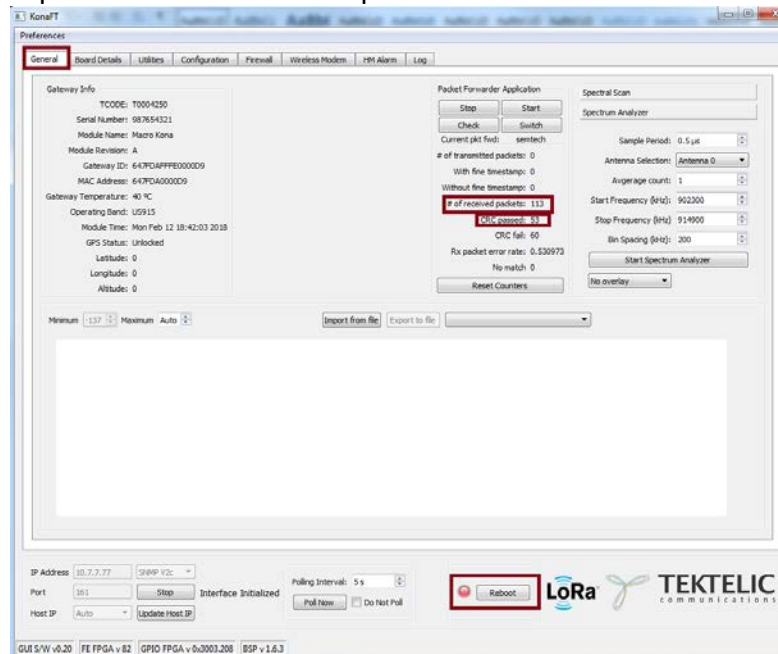
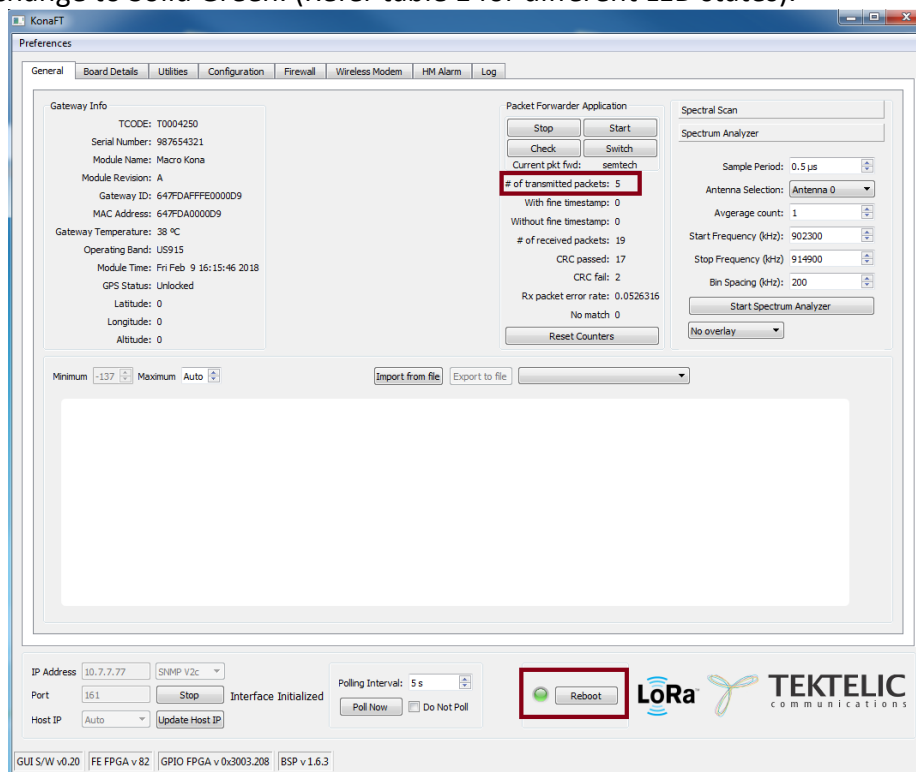


Figure 7: # of received packets and CRC information

- A join response from the Network Server will transmit a downlink packet to the sensor. This will increment the #of transmitted packets in KonaFT and LED status will change to Solid Green. (Refer table 1 for different LED states).



**Figure 8: # of transmitted packets**

Note:

At this point of time, you can check on NS that gateway is online and view the uplink and downlink packets. (Follow the Tektelic Network Server Guide T0005281\_NS.)

### 3.3 LED States

The following table describes different LED behaviours.

<b>LED States</b>	<b>Functional Description</b>	<b>How long is it reasonable to stay in this state</b>
<b>No LEDs</b>	No Power to gateway.	Until power is applied.
<b>Flashing Green</b>	Module is Initializing	Up to 15 minutes – Includes time for software upgrade or recovery. Typical boot time is < 2 minutes.
<b>Flashing RED</b>	No downlink packets have been transmitted by the gateway in the last 10 minutes.	Until the gateway starts transmitting packets. (downlink packets)
<b>Solid Green</b>	Gateway is operational with a packet forwarder running. LoRaWAN packet transmission and reception functions are operating normally.	It should stable in this state.
<b>Solid RED</b>	Unit is in fault condition and requires service	Undesired stable state. Power cycle the gateway. If the condition persists, contact customer support.

**Table 1: Different LED States**

## 4 Troubleshooting Tips

### 4.1 Can't install/launch the KonaFT

Missing LIBAY32.dll - Check whether open SSL is installed or not.

### 4.2 KonaFT can't connect with Micro Gateway

Check the IP address of the Micro gateway is correct. Check network connection is available.

### 4.3 LED remains Flashing Green

Check power supply capabilities. If the current is  $< 0.5V$  then radio won't start, and the gateway will start continuously.

### 4.4 Finding out Gateway's IP address

Check router logs or use IP scanner tools to look for gateway's MAC address and associated IP address.

### 4.5 3G/4G

Check APN settings via KonaFT (refer Figure 5). Check if SIM is activated by checking with your provider. You need to know ICCID from the label on the gateway before talking to your provider.

## 5 References

[1] Kona Micro User Guide T0005281\_UG, 2018.

[2] Tektelic Network Server Guide T0005281\_NS, 2018.

[3] Kona Micro FAQ T0005281\_FAQ, 2018.