Gemtek
Wireless Broadband Anywhere

GIoT ODU-LBT
User Guide
WMDS-183 LoRa RF Borad

Device Photo

1. Open Admin GUI
Access ODU WebUI via WAN IP address assigned by dhcp.
The WAN IP address will configure to 192.168.77.1 after enabling 3G/4G LTE.
Default username is "*admin*" and password is "*admin*"

Figure 1

2. GIoT

The GIoT menu consists of the following categories: Status, Provision, Configuration and Network Server.

2.1 GIoT - Status

The purpose of this category is to view GIoT information as in its provision code, gateway type, gateway ID or LoRa modules, channels and spreading factor.

Figure 2 - GIoT Info

2.2 GIoT - Provision
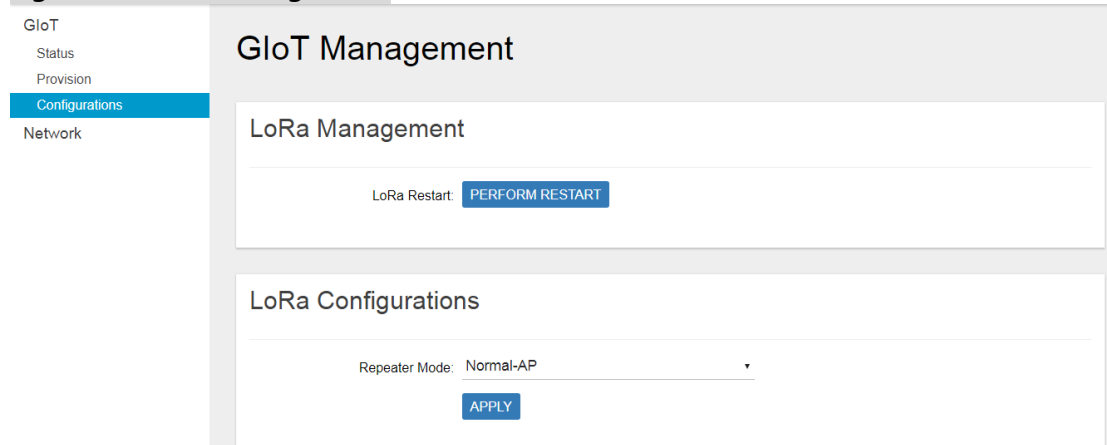GIoT provision code can be setup on this page.

Figure 3 - Provision Code

2.3 GIoT - Configuration

Click "*PERFORM RESTART*" button to restart LoRa server.

LoRa provides 3 modes: Normal AP, Repeater AP and Repeater. Users can set up the required mode in LoRa Configuration.

Figure 4 - GIoT Management

2.4 GIoT - Network Server

Users can configure ODU to connect to mqtt broker over the network server. The proper provision code has to be in place to reveal and access the network server features on the system menu. Please contact GIoT personnel if needed.

Figure 5 - GIoT Network Server
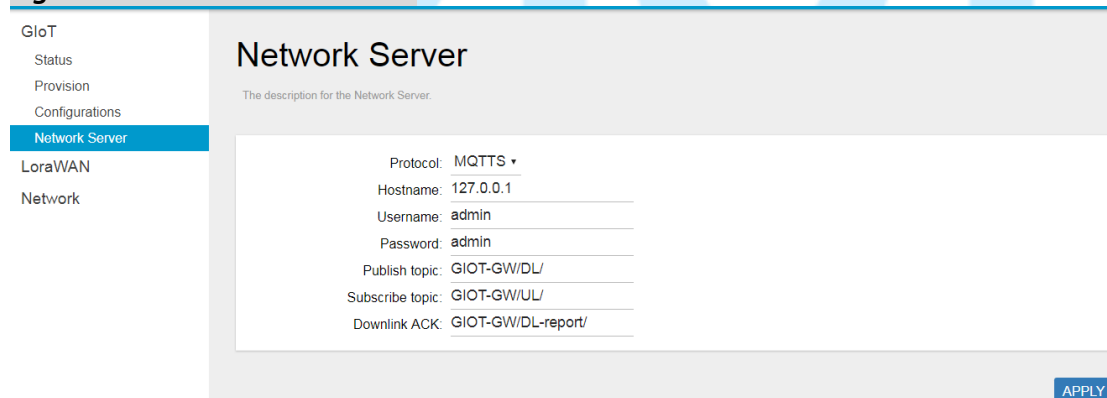
3.   LoRaWan

The LoRaWan menu consists of the following categories: OTAA Status, Node Parameters, OTAA and ABP. The proper provision code has to be in place to reveal and access the LoRaWan features on the system menu. Please contact GIoT personnel if needed.

3.1 LoRaWan - OTAA Status

The purpose of this category is to view the process status of a node joining Network Server via OTAA, which includes DevAddr, Device EUI, App EUI, OTAA Group Index and Latest Update Time.

Figure 6 - OTAA Status

Click "**REFRESH**"to renew OTAA information.
When there are over 20 OTAA Status entries on the page, users can click on the page number on the upper-right corner to move on to the next page.

Definition of OTAA Status Fields:

> **DevAddr**: The device address of node assigned by network server
> **Device EUI**: The unique device EUI of node.
> **App EUI**: The unique app EUI of node.
> **OTAA Group Index**: The unique index of OTAA EUID group.
> **Latest Update Time**: The last time an uplink data was sent (sync per hour)

3.2 LoRaWan - Node Parameters

The purpose of this category is to view node parameters, which includes DevAddr, Rx1DrOffset, Rx2DataRate, Delay, Rx2Freq and LastDownMsgSeqNo.

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Figure 7 - Node Parameters

User can input a device address in the blank field and click "**APPLY**" to filter, click "**CLEAR**" to cancel filter.
Click "**REFRESH**"to renew Node Parameter information.
When there are over 20 Node Parameters entries on the page, users can click on the page number on the upper-right corner to move on to the next page.

Definition of Node Parameters Fields:

DevAddr: The unique device address of node.
Rx1DrOffset: The downlink data rate offset of Rx1.
Rx2DataRate: The downlink data rate of Rx2.
Delay: The delay between TX and RX.
Rx2Freq: The downlink frequency of RX2.
LastDownMsgSeqNo: The number of downlink data sent.

3.3 LoRaWan - OTAA
The purpose of this category is to view and configure OTAA rules.

Click "**ADD**" button to enter OTAA add page and input Group Index, AppEUI Start, AppEUI Counts , DevEUI Start , DevEUI Counts , Devaddr Start, Devaddr Counts, Appkey and Aging Out Time, then click "**SAVE**" to create an OTAA rule.
User will leave OTAA add page after clicking "**CANCEL**".

Following information on the OTAA:

Group Index: The unique index of OTAA EUID group.
AppEUI Start: The start number of AppEUI.
App Counts: The number of AppEUI in this Group.
DevEUI Start: The start number of DevEUI.
DevEUI Counts: The number of DevEUI in this Group.

DevAddr Start: The start number of DevAddr.

DevAddr Counts: The number of DevAddr in this Group.

AppKey: Appkey for OTAA join request.

Aging Out Time(Minutes): If the Node hasn't sent uplink within the aging out time limit, the allocated OTAA DevAddr will be expired and released.

Note: The Aging Out Time must be at least 60 minutes.

Figure 8.A - OTAA - Add

To delete entries, select one or more OTAA rule entries and click "**DELETE**" button.

Figure 8.B - OTAA - Delete

To edit an entry, select a rule entry and click "**EDIT**" button to proceed. Edit AppEUI Start, AppEUI Counts , DevEUI Start , DevEUI Counts , Devaddr Start, Devaddr Counts, Appkey and Aging Out Time, then click "**SAVE**" to edit the OTAA rule.

User will leave OTAA edit page after clicking "**CANCEL**".

Figure 8.C - OTAA - Edit

3.4 LoRaWan - ABP

The main function of this feature is to add/delete/edit ABP rule entries on this page. The ABP menu consists of the following categories: INDIVIDUAL and NETID GROUP.

3.4.1 INDIVIDUAL
Click "**INDIVIDUAL**" button to enter the INDIVIDUAL function page.

Figure 9.A – INDIVIDUAL

Click "**ADD**" button to enter ABP add page and input DevAddr, NwkSKey and AppSKey then click "**SAVE**" to create an ABP (INDIVIDUAL) rule.
User will leave ABP add page after clicking "**CANCEL**".

Definition of ABP (INDIVIDUAL) Fields:

DevAddr: The unique device address of node.
NwkSKey: The network session key.
AppSKey: The app session key.

Figure 9.B – INDIVIDUAL–Add

To delete entries, select one or more ABP (INDIVIDUAL) rule entries and click "**DELETE**" button.
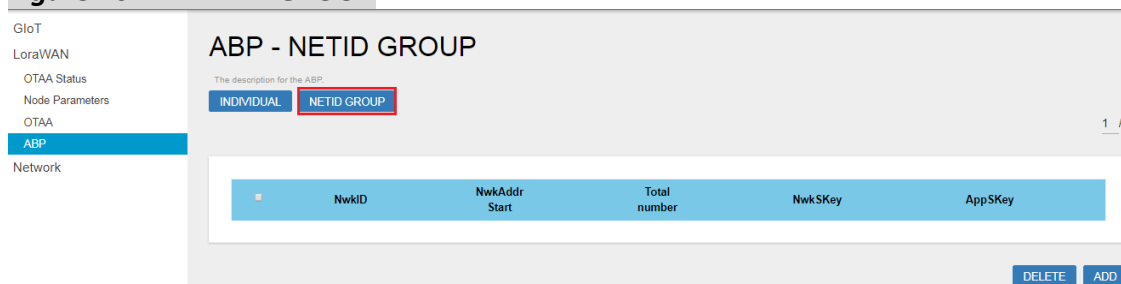
Figure 9.C – INDIVIDUAL–Delete

To edit an entry, select a rule entry and click "**EDIT**" button to proceed. Edit NwkSKey and AppSKey then click "**SAVE**" to edit the ABP (INDIVIDUAL).
User will leave ABP edit page after clicking "**CANCEL**".

Figure 9.D – INDIVIDUAL–Edit

3.4.2 NETID GROUP
Click **"NETID GROUP"** button to enter NETID GROUP function page.

Figure 10.A – NETID GROUP

Click "**ADD**" button to enter ABP add page and input NwkID, NwkAddr Start, NwkAddr Total Number ,NwkSKey and AppSKey then click "**SAVE**" to create an ABP (NETID GROUP) rule.
User will leave ABP add page after clicking "**CANCEL**".

Definition of ABP (NETID GROUP) Fields:
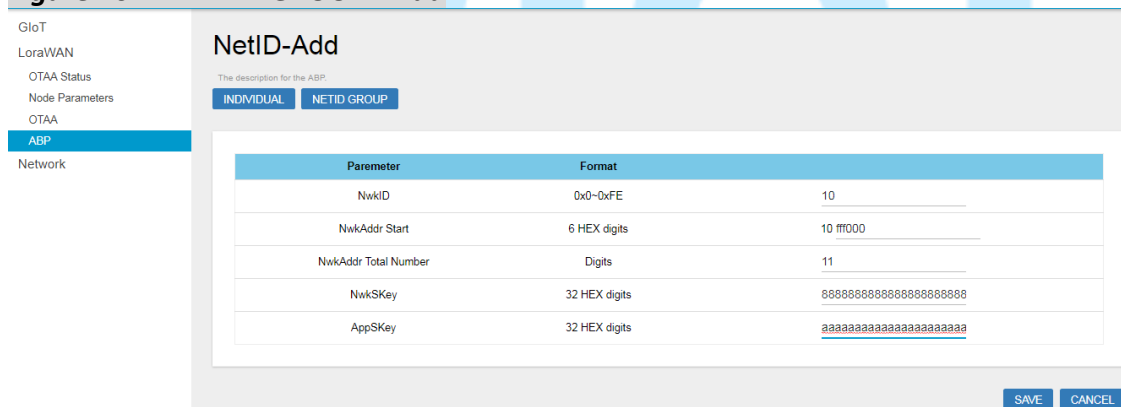
NwkID: The unique NETID of ABP group.
NwkAddr Start: The start number of ABP device address in the Group.
NwkAddr Total Number: The number of ABP device address in this Group.
NwkSKey: The network session key in the Group.
AppSKey: The app session key in the Group.

Figure 10.B - NETID GROUP - Add

To delete entries, select one or more ABP (NETID GROUP) rule entries and click "**DELETE**" button.

Figure 10.C - NETID GROUP - Delete

To edit an entry, select a rule entry and click "**EDIT**" button to proceed. Edit NwkAddr Start, NwkAddr ,NwkSKey and AppSKey then click "**SAVE**" to edit the ABP (NETID GROUP).
User will leave ABP edit page after clicking "**CANCEL**".

Figure 10.D - NETID GROUP - Edit

4.   Network

The System menu consists of the following categories: WAN. Introduction and input procedures for each category are described in the following paragraphs.

4.1 Network - WAN

The purpose of this category is to view current WAN settings.

This category is further divided into three sectors: Ethernet Wan and 3G/4G LTE. These individual options are lodged and labeled above the main content panel.

Figure 11.A - WAN
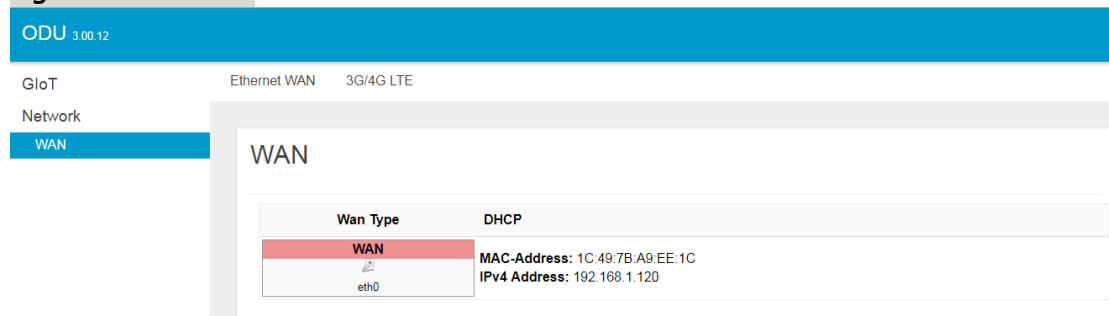
4.1.1 Ethernet WAN

This page is to setup the connection type in terms of Static IP and DHCP client. The three different options can be selected in the drop-down menu in "WAN Type". Please fill in the respective fields exhibited under each selection. Please make sure the Ethernet cable is connected to a WAN port.

Figure 11.A - WAN: Static IP

Figure 11.B - WAN: DHCP Client

4.1.2 3G/4G LTE
This page is to setup required information for 3G/4G LTE.
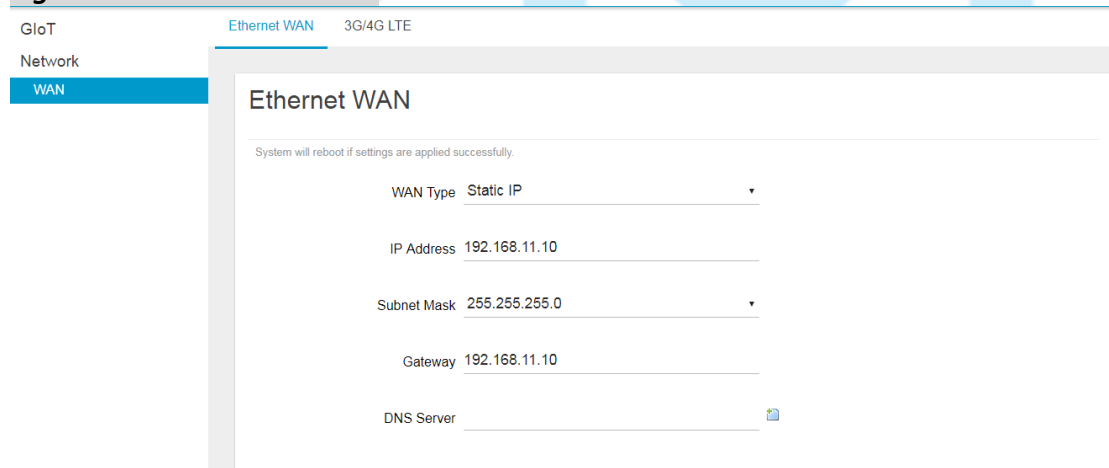Note: Make sure the SIM card is installed.

Figure 12 - WAN: 3G/4G LTE

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·Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:
Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Country Code selection feature to be disabled for products marketed to the US/CANADA

Operation of this device is restricted to indoor use only

This device is intended only for OEM integrators under the following conditions:
1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
2) The transmitter module may not be co-located with any other transmitter or antenna,

As long as 2 conditions above are met, further <u>transmitter</u> test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed

IMPORTANT NOTE
In the event that these conditions <u>can not be met</u> (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID <u>can not</u> be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling
This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: "Contains FCC ID:**" MXF-WMDS183**".

Manual Information to the End User
The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.
The end user manual shall include all required regulatory information/warning as show in this manual.

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Professional installation instruction

Please be advised that due to the unique function supplied by this product, the device is intended for use with our interactive entertainment software and licensed third-party only. The product will be distributed through controlled distribution channel and installed by trained professional and will not be sold directly to the general public through retail store.

1. Installation personal

    This product is designed for specific application and needs to be installed by a qualified personal who has RF and related rule knowledge. The general user shall not attempt to install or change the setting.

2. Installation location

    The product shall be installed at a location where the radiating antenna can be kept 20cm from nearby person in normal operation condition to meet regulatory RF exposure requirement.

3. External antenna

    Use only the antennas which have been approved by Gemtek Technology Co., Ltd. The non-approved antenna(s) may produce unwanted spurious or excessive RF transmitting power which may lead to the violation of FCC limit and is prohibited.

4. Installation procedure

    Please refer to user's manual for the detail.

5. Warning

    Please carefully select the installation position and make sure that the final output power does not exceed the limit set force in relevant rules. The violation of the rule could lead to serious federal penalty.

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