

# OCEABridge



## Installation and Operation Guide



**ZEBRA**

ZEBRA and the stylized Zebra head are trademarks of Zebra Technologies Corporation, registered in many jurisdictions worldwide. All other trademarks are the property of their respective owners.  
© 2021 Zebra Technologies Corporation and/or its affiliates. All rights reserved.

Information in this document is subject to change without notice. The software described in this document is furnished under a license agreement or nondisclosure agreement. The software may be used or copied only in accordance with the terms of those agreements.

For further information regarding legal and proprietary statements, please go to:

SOFTWARE: [zebra.com/linkoslegal](https://zebra.com/linkoslegal)

COPYRIGHTS: [zebra.com/copyright](https://zebra.com/copyright)

WARRANTY: [zebra.com/warranty](https://zebra.com/warranty)

END USER LICENSE AGREEMENT: [zebra.com/eula](https://zebra.com/eula)

## Terms of Use

### Proprietary Statement

This manual contains proprietary information of Zebra Technologies Corporation and its subsidiaries (“Zebra Technologies”). It is intended solely for the information and use of parties operating and maintaining the equipment described herein. Such proprietary information may not be used, reproduced, or disclosed to any other parties for any other purpose without the express, written permission of Zebra Technologies.

### Product Improvements

Continuous improvement of products is a policy of Zebra Technologies. All specifications and designs are subject to change without notice.

### Liability Disclaimer

Zebra Technologies takes steps to ensure that its published Engineering specifications and manuals are correct; however, errors do occur. Zebra Technologies reserves the right to correct any such errors and disclaims liability resulting therefrom.

### Limitation of Liability

In no event shall Zebra Technologies or anyone else involved in the creation, production, or delivery of the accompanying product (including hardware and software) be liable for any damages whatsoever (including, without limitation, consequential damages including loss of business profits, business interruption, or loss of business information) arising out of the use of, the results of use of, or inability to use such product, even if Zebra Technologies has been advised of the possibility of such damages. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

## Publication Date

March 26, 2021

# Contents

<b>Notices and Safety</b> .....	<b>5</b>
Disclaimer and Limitation of Liability .....	5
Safety Instructions .....	5
Standards and Approvals.....	5
Bluetooth .....	5
Wi-Fi .....	5
Cellular Data .....	5
EC.....	6
Safety .....	6
Environmental Protection .....	6
RoHS Compliance.....	6
<b>Introduction</b> .....	<b>7</b>
OCEABridge Solution Overview.....	7
Architecture .....	7
Package Contents.....	8
Gateway Presentation .....	9
Overhead/Front View .....	9
Description of Status LEDs.....	9
Front View .....	10
Side View (Right-hand Side) .....	11
Back/Bottom .....	11
<b>Starting the Gateway</b> .....	<b>12</b>
Prerequisites .....	12
Plugging in OCEABridge.....	13
Connecting to the Configuration Application .....	14
Gateway Properties.....	14

Gateway Settings .....	15
Cloud Server .....	15
Operating Mode .....	15
<b>Wireless Network Management .....</b>	<b>17</b>
Connecting to a Wi-Fi network .....	17
Adding a Wireless Network .....	19
Configuring Wi-Fi Connection .....	20
Enabling an Existing Wireless Network .....	21
Configuring a 3G/4G Connection .....	21
For OCEABridge Devices Equipped with a Pre-programmed Micro SIM Card .....	21
For OCEABridge Devices Not Equipped with a Pre-programmed Micro SIM Card .....	22
Configuring the Network LED .....	23
<b>Managing Network Interfaces .....</b>	<b>24</b>
WAN and WLAN Interface .....	24
General Setup .....	25
Advanced Settings .....	25
Cellular Data Interface .....	27
<b>OCEABridge Maintenance .....</b>	<b>29</b>
Changing the Password .....	29
Updating OCEABridge Data Collection Firmware .....	29
Backing Up and Updating System Firmware .....	30
Archiving Your Data .....	30
Restoring an Archived Backup .....	30
Complete Firmware Upgrade .....	31
Restarting OCEABridge .....	31
<b>Diagnostics and Statistics .....</b>	<b>32</b>
Platform Information .....	32
Module Statistics .....	32
Real-time Network Traffic .....	33
Startlog .....	36
Troubleshooting .....	37
WAN and LAN IP Address Conflict .....	37
<b>Technical Specifications .....</b>	<b>39</b>

# Notices and Safety

## Disclaimer and Limitation of Liability

Zebra assumes no responsibility for any loss or claims by third parties which may arise through the use of this product. In particular, users must not use the product in any manner not specifically indicated by Zebra. Zebra shall not be held liable for improper use of this product. This document is non-contractual and subject to change without notice.

## Safety Instructions



**IMPORTANT:** Do not use this product for protection or as part of an automated emergency system or as for any other application that involves protecting people and/or property. Customers and users of Temptime products are responsible for making sure that the product is fit for the intended usage. Do not open the product casing and do not disassemble or modify internal components in any manner. Temptime products do not contain any internal components that require user intervention or repair. If the device shows signs of improper operation, disconnect it immediately from its power source and contact Temptime technical services.

## Standards and Approvals

### Bluetooth

- EC
- FCC: QOQBLED112
- IC: 5123A-BGTBLED112
- KCC (Korea): KCC-CRM-BGT-BLED112
- MIC (Japan): 003WWA111471

### Wi-Fi

- EC
- FCC: ZHZHEe

### Cellular Data

- ANATEL
- AT&T, EC, FCC, IC, JATE, NBTC, PTCRB, RCM, Rogers, TELECOM

### EC

- EMC: EN 301 489-17 V.3.1.1 in compliance with EN 301 489-1V2.1.1.
- RF radiation: EN 300 328V2.1.1

### Safety

- EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 +A2:2013

## Environmental Protection

Please respect local regulations concerning disposal of packaging, unused wireless devices and their accessories, and promote their recycling.



## RoHS Compliance

The wireless device complies with the restriction of the use of certain hazardous substances in electrical and electronic equipment, 2011/65/EU Restriction of Hazardous Substances Directive (RoHS Directive). Do not dispose of this product with household trash. Temptime recycles this product under certain conditions. Please contact us for more information.



# Introduction

Congratulations and thank you for choosing the OCEABridge wireless gateway solution.

This guide provides a general description of the OCEABridge solution as well as practical instructions for installation and easy setup of your device.

OCEABridge is designed to interact with the following Zebra products and applications:

- M-300 modules: Bluetooth-enabled data loggers for monitoring temperature during shipping.
- S-400 modules: limited duration Bluetooth-enabled data logger for monitoring the cold chain on-the-go.
- EdgeVue: Web application dedicated to Zebra's Bluetooth-enabled S-400, and M-300 solutions.

For more information about these products (sold separately), please read the specific instructions provided with each one.

## OCEABridge Solution Overview

Main features:

- Ethernet wired or Wi-Fi wireless connectivity
- Optional 3G/4G cellular data connectivity
- Automatic detection of compatible Zebra data loggers within Bluetooth coverage zone
- Data collected and sent automatically to EDGECloud Cloud platform
- Integrated web interface for easy OCEABridge gateway configuration
- Unlimited storage for sensor readings on EDGECloud.

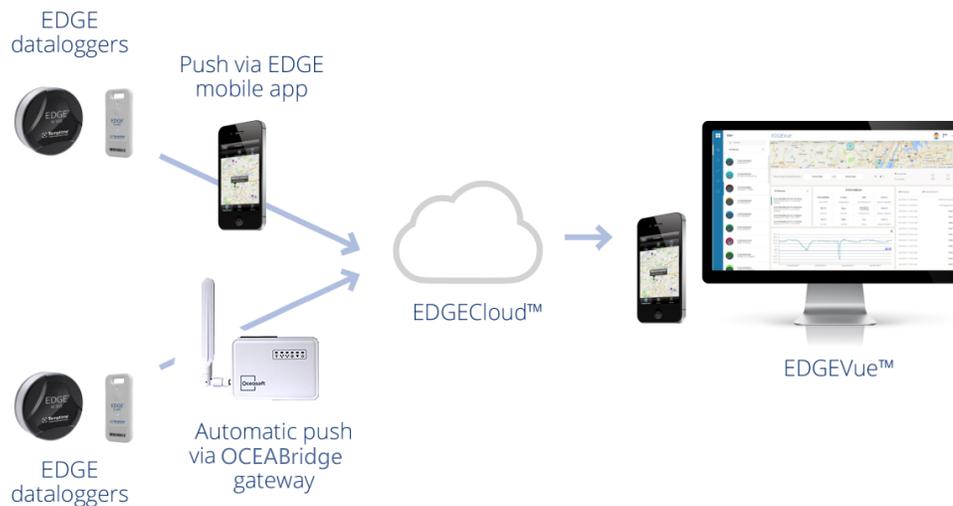
## Architecture

The OCEABridge Bluetooth gateway automatically detects all compatible Zebra data logger within wireless range and collects the data stored in their memory.

The gateway is continually connected via the internet to the EDGECloud platform, where data is transferred and available to users with the EdgeVue web application.

[Figure 1](#) shows how the OCEABridge gateway functions:

**Figure 1** Data Flow from Wireless Modules to EDGECloud via OCEABridge



The following steps describe the OCEABridge gateway functions in more detail.

1. Simply install your OCEABridge gateway in a loading or unloading zone, or product handling area.
2. Use the embedded web application to set up your OCEABridge gateway. Data is collected automatically and sent to the server.
3. Whenever Zebra Bluetooth-enabled data loggers pass withing range, OCEABridge retrieves their stored data wirelessly.
4. Data on the EDGECloud platform is accessible using the EdgeVue application.

## Package Contents

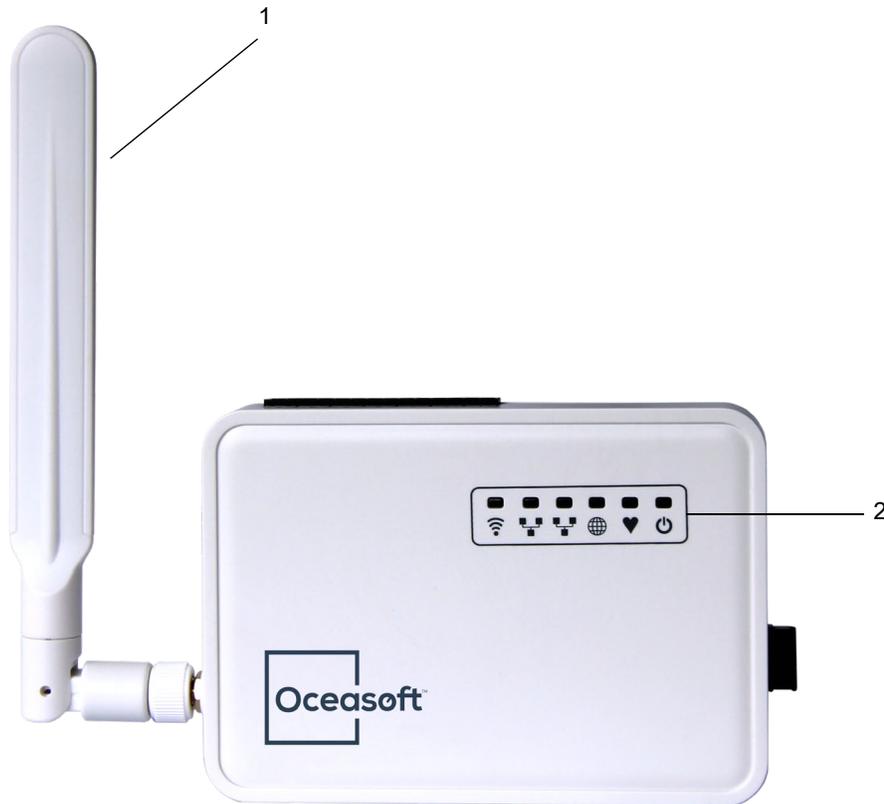
- Zebra OCEABridge gateway
- AC power adapter
- Bluetooth dongle

To be ordered separately (depending on your gateway model):

- Zebra wireless dataloggers
- 3G/4G cellular data module
- Micro SIM card for cellular data

## Gateway Presentation

**Figure 2** OCEABridge Gateway Overhead View



1	3G/4G antenna (for use with model containing an integrated 3G/4G modem)
2	Status LEDs

## Overhead/Front View

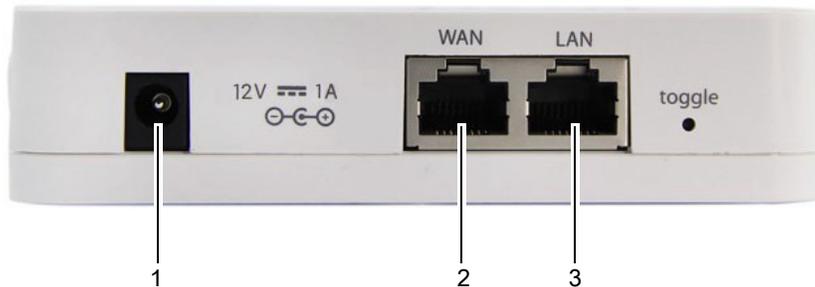
### Description of Status LEDs

The OCEABridge gateway has 6 LEDs with colors and blinking patterns that vary with the device's status and network traffic:

**Table 1** Status LED Descriptions

LED	Description
	WLAN. Indicator for Wi-Fi or 3G/4G wireless activity (see <a href="#">Configuring the Network LED on page 23</a> for more information).
	WAN. RJ-45 port for sending information.
	LAN. RJ-45 port for OCEABridge configuration.
	System. This LED blinks while OCEABridge is booting (about 15 seconds) and remains on during normal operation.
	Heartbeat (not used).
	Power indicator. Green light remains on, indicating power on.

## Front View

**Figure 3** Front View of OCEABridge Gateway

1	Power port for provided power adapter
2	WAN RJ-45 port for data transmission to Cloud
3	LAN RJ-45 port for device configuration

## Side View (Right-hand Side)

You must use a Bluetooth dongle for Bluetooth connectivity between Zebra modules and OCEABridge. Insert the dongle into the USB port located on the right-hand side of the gateway.

**Figure 4** USB Port for Bluetooth Dongle



1	USB port
---	----------

## Back/Bottom

The OCEABridge gateway may be placed on a flat surface or mounted using the mounting holes under the casing.

**Figure 5** Back/Bottom View of OCEABridge Gateway



1	Mounting holes
---	----------------

# Starting the Gateway

There are no switches or control buttons on the OCEABridge gateway. All settings are configured using the embedded web application.

You must use the configuration interface to determine how OCEABridge connects to the internet via Ethernet, Wi-Fi, or a cellular data connection.

This section describes how to set up your OCEABridge gateway.

## Prerequisites

- Internet connectivity (type depends on your needs):
  - Ethernet network
  - Wi-Fi network
  - Cellular data service
- Cloud access requires the purchase of an EDGECloud subscription for M-300 modules. S-400 modules are activated for use on the Cloud by default.



**Network disconnection:** Do not disrupt the OCEABridge gateway's internet connection during use. Module data and alarms cannot be sent to the Cloud without an internet connection.

**Power outage:** Data and alarm transmission is interrupted if the device's power is turned off or disconnected. We highly recommend that you use an uninterruptible power supply (UPS). When power is restored after an outage or disconnection, OCEABridge connects to wireless modules within range to collect any data that may have been missed.

## Plugging in OCEABridge

1. Insert the power adapter plug into the power port on the front of the device:

**Figure 6** Plugging in Power Cable



2. Plug the power adapter in to a wall outlet to turn on your gateway. When the device is ready for use, the green light turns on and remains on. The system LED blinks during OCEABridge startup.

The first step in configuration is to access the OCEABridge web application from your computer using an Ethernet cable.

1. Disconnect your computer from the regular network to avoid any IP address conflict when connecting to OCEABridge.
2. Plug one end of an Ethernet cable into the RJ-45 LAN port on the front of the gateway. This port is only used to configure OCEABridge using the embedded web Interface.

**Figure 7** Inserting the Ethernet Cable into the LAN Port



3. Plug the other end of the cable into your computer.



The WAN Ethernet connector is configured as a DHCP client by default.

If your network has a DHCP server, you may plug in a second Ethernet cable to the WAN port and connect the other end to your network in order to access EDGECloud immediately.

**Attention:** The subnet LAN interface address is 192.168.1.0/24. If your network is also set to use 192.168.1.0/24, do not plug the WAN Ethernet cable into OCEABridge while you are setting up the device via the LAN connection.

## Connecting to the Configuration Application



OCEABridge is delivered with a fixed IP address. To access the configuration interface, the computer you are using for the connection will automatically obtain an IP address via DHCP. That address will be within same address range as that used by OCEABridge.

1. On your computer, use a web browser to access this address: **http://192.168.1.1**.

**Figure 8** Connecting to the OCEABridge configuration interface

The screenshot shows the OCEABridge configuration interface. At the top, there is a dark header with the text "OCEABRIDGE" in white. Below the header, the main heading is "Authorization Required" in bold. Underneath, it says "Please enter your username and password." There are two input fields: "Username" with the text "root" entered, and "Password" which is empty. Below the input fields are two buttons: "Login" with a green play icon and "Reset" with a red 'x' icon.

2. Enter the default user name and password:
  - Username: **root**
  - Password: **root**.

## Gateway Properties

After you connect, OCEABridge properties are displayed on the screen:

**Figure 9** OCEABridge Gateway Properties

The screenshot shows the OCEABridge Gateway Properties configuration page. At the top, there is a dark header with the text "OCEABRIDGE" in white. To the right of the header are several navigation links: "Gateway", "Network", "Status", "Logout", "AUTO REFRESH ON" (with a green play icon), and "OCEABridge Administration". Below the header, the main heading is "Gateway Properties" in bold. Underneath, it says "Here you can configure the basic aspects of your device like its hostname or the timezone." There are four configuration items: "Local Time" showing "Thu Nov 29 10:43:05 2018" with a "Sync with browser" button (green play icon), "Hostname" with the text "OCEABRIDGE" in a text input field, "Timezone" with a dropdown menu showing "UTC", and "Language" with a dropdown menu showing "English".

Change this information as necessary:

- **Local time** — The device's internal clock adjusts automatically to network time.

- **Hostname** — Enter a name for your OCEABridge gateway. This name is displayed in the upper left-hand corner of the screen. If the WAN interface is set as a DHCP client, this name is provided to the DHCP server. If allowed by your network equipment, the name will also be recorded in the domain name server (DNS), which makes it easier to locate your gateway on the network.
- **Timezone** — Select the time zone according to your geographical region.
- **Language** — You may change the OCEABridge display language at any time. Choose the language you want from the drop-down list.

## Gateway Settings

In the main menu, click **Gateway > Settings** for Cloud settings and OCEABridge gateway operation.

### Cloud Server

Adjust settings for accessing the server on the **Cloud Server** tab.

**Figure 10** Cloud Server Settings

## Gateway Settings

Server & Operating Mode Settings

The screenshot shows a web interface for Gateway Settings. At the top, there are two tabs: 'Cloud Server' (which is selected and highlighted in light blue) and 'Operating Mode'. Below the tabs, there are two input fields. The first is labeled 'Server URL' and contains the text 'www.oceaview.com'. The second is labeled 'Server Port' and contains the text '8080'.

- **Server URL** — Address used by OCEABridge to access the EDGECloud platform. The default address is `edgevue.temptimecorp.com`.
- **Server port** — Port number used to access the EDGECloud server. The default value is 8080.

### Operating Mode

Click the **Operating mode** tab to determine how the gateway will operate.

**Figure 11** Setting the OCEABridge Operating Mode

The screenshot shows a configuration window with two tabs: "Cloud Server" and "Operating Mode". The "Operating Mode" tab is active. It contains the following elements:

- A "Mode" dropdown menu currently set to "Read data and send to server".
- A "Serial Numbers White List" text input field, which is currently empty.
- Help text for the white list: "Optional limited list of serial numbers to handle (e.g. 'e408020001;e408020002'). \*\* IF EMPTY, HANDLE ALL DISCOVERED MODULES \*\*"
- A checkbox for "Quick Data Upload" which is unchecked. The label next to it reads: "Do not sync with server when module is discovered but fetch all data in module immediately and upload to server".
- A checkbox for "Send Information Log to Server" which is unchecked. The label next to it reads: "Must be checked ONLY when instructed by Technical Support".

Use the **Mode** drop-down list to select the operating mode you want for your OCEABridge gateway:

- **Read data and send to server**

By default, OCEABridge collects the data stored in data logger memory (for data loggers within a wireless range of about 10 m/30 ft) and sends it automatically to the Cloud.

You may limit data reading to only include specific modules by entering their serial numbers (located on their casing) in the **List of modules to process** text field, with each serial number separated by a semi-colon (;). This white list enables you to choose which modules OCEABridge is authorized to handle, while excluding all others.

- **Module factory reset**

This operating mode restores factory settings in modules discovered by the OCEABridge gateway.

This is controlled by the option **Send latest data to server before stopping module**:

- **Activated** — ensures that all the data stored on the module has indeed been uploaded to the Cloud before reinitializing the module.
- **Deactivated** — reinitializes modules without verifying whether all the data has been uploaded to the server.



By default, OCEABridge reinitializes all discovered modules.

You may limit reinitialization only to specific modules by entering their serial numbers in the **List of modules to process** text field, with each serial number separated by a semi-colon (;). Only those modules listed will be reset to factory settings.

The following options are common to both operating modes. You may modify them to meet your needs:

- **Fast data download** — this option downloads all data from modules and uploads it directly to the Cloud, whether or not that same information is already on the server. This option can be particularly useful if you would like to quickly collect all the data from a palette arriving at the warehouse.
- **Send operating information to the server** — specific option for diagnostic purposes, generating detailed event logs. The log files contain information about connected modules, including detected errors.



This option should only be activated when requested by the Zebra support team.

- **Folder name for operating information** — enter the name of the log file folder provided by the Zebra support team.

# Wireless Network Management

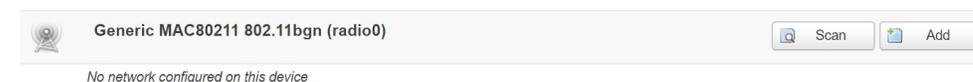
Integrating with wireless networks, OCEABridge uploads readings it collects from Zebra Bluetooth-enabled data loggers to the Cloud for a fully wireless solution.

## Connecting to a Wi-Fi network

To connect OCEABridge to your Wi-Fi network, click **Network > Wireless**. The **WiFi Overview** screen is displayed on the screen.

**Figure 12** Wireless Network Detection

### Wifi Overview



### Associated Stations

SSID	MAC-Address	Host	Signal / Noise	RX Rate / TX Rate
Collecting data...				

1. Click on the **Scan** button to detect nearby wireless networks.
2. Click **Join Network** to associate OCEABridge with the chosen wireless network.

**Figure 13** List of Wireless Networks

### Join Network: Wifi Scan



3. Enter the required information shown in [Figure 14](#):

**Figure 14** Configuring the Selected Wireless Network  
Joining Network: "Oceasoft"

Replace Wifi configuration   Check this option to delete the existing networks from this radio.

WPA passphrase    
 Specify the secret encryption key here.

Name of the new network   
 The allowed characters are: A-Z, a-z, 0-9 and 

Create / Assign firewall-zone

lan: (empty)

wan: (empty)

unspecified -or- create:

Choose the firewall zone you want to assign to this interface. Select *unspecified* to remove the interface from the associated zone or fill out the *create* field to define a new zone and attach the interface to it.

- **Replace wireless configuration** — we recommend replacing the previous wireless configuration, as the device can only have one Wi-Fi connection at a time.
  - **WPA passphrase** — enter the password for the Wi-Fi network.
  - **Name of the new network:** — enter the name of the new network. The network name is displayed in the list of network interfaces. We recommend entering a relevant name (such as Wi-Fi) for easier identification.
  - Select the **Unspecified** firewall zone.
4. Scroll down the page and click **Submit** to save the information.

- Click **Save and Apply** on the Device Configuration Screen as shown in [Figure 15](#) to associate and configure address.

**Figure 15** Associating WiFi Network

The screenshot shows two configuration panels. The top panel, 'Device Configuration', has tabs for 'General Setup' and 'Advanced Settings'. It displays 'Status' as 'SSID: Note9 | Mode: Client' and '0% Wifi is disabled or not associated'. A 'Wifi network is enabled' toggle is set to 'Disable'. 'Operating frequency' is set to 'N' mode, '1 (2412 MHz)' channel, and '20 MHz' width. 'Transmit Power' is set to 'auto' dBm. The bottom panel, 'Interface Configuration', has tabs for 'General Setup', 'Wifi Security', and 'Advanced Settings'. 'Mode' is set to 'Client'. 'ESSID' is 'Note9' and 'BSSID' is 'CE:C0:79:66:49:02'. Under 'Network', 'RJ45\_LAN', 'RJ45\_WAN', and 'create:' are unchecked, while 'note9' is checked. A note says 'Choose the network(s) you want to attach to this Wifi interface or fill out the create field to define a new network.' At the bottom, there are buttons for 'Back to Overview', 'Save & Apply' (circled in red), 'Save', and 'Reset'.

Wi-Fi is now enabled and listed in the **Associated Stations** section.

**Figure 16** Wi-Fi Access Configured

## Wifi Overview

The screenshot shows the 'Wifi Overview' section. It displays 'Generic MAC80211 802.11bgn (radio0)' with 'Channel: 1 (2.412 GHz)' and 'Bitrate: 57.8 Mbit/s'. There are 'Scan' and 'Add' buttons. Below, it shows '72%' signal strength, 'SSID: Oceansoft | Mode: Client', and 'BSSID: 04:BD:88:0B:29:81 | Encryption: WPA2 PSK (CCMP)'. There are 'Disable', 'Edit', and 'Remove' buttons.

## Associated Stations

	SSID	MAC-Address	Host	Signal / Noise	RX Rate / TX Rate
	Oceansoft	04:BD:88:0B:29:81	?	-59 / -95 dBm	72.2 Mbit/s, 20MHz, MCS 7, Short GI 57.8 Mbit/s, 20MHz, MCS 5, Short GI

## Adding a Wireless Network

Follow these steps to add a wireless network:

- Click **Network > Wireless**.

2. In the **Wifi Overview** screen, click **Add**.

**Figure 17** Adding a Wireless Network

### Wifi Overview



### Associated Stations

SSID	MAC-Address	Host	Signal / Noise	RX Rate / TX Rate
------	-------------	------	----------------	-------------------

Collecting data...

3. Configure the wireless network as described in the next section.

## Configuring Wi-Fi Connection

Manage the advanced settings for your current wireless network by clicking on **Edit**:

**Figure 18** Configuring the Wireless Network

### Wifi Overview



In the screen that opens, you may modify all settings to meet your needs.



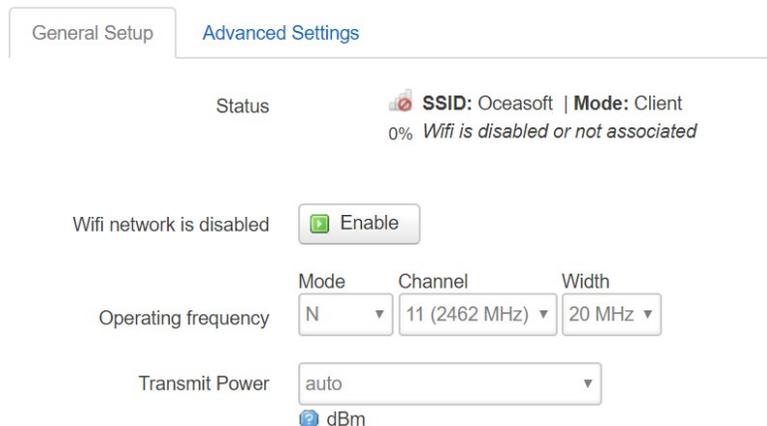
If you change the settings for your wireless network while the OCEABridge gateway is in use, the device' internet connection will be deactivated.

The **Device Configuration** section contains the wireless settings that are common for all defined wireless networks.

1. Click on **General Setup** to change the information as needed:

**Figure 19** Entering Wi-Fi Network Settings

### Device Configuration



2. Click **Enable/Disable** to enable or disable the Wi-Fi network as appropriate.

## Enabling an Existing Wireless Network

To enable an existing Wi-Fi access point, click **Enable** in the **Network > Wireless** screen.

**Figure 20** Enabling a Wi-Fi network

### Wifi Overview



If you only have one wireless network, then your configuration is complete at this time. You may connect to the Wi-Fi network using the security key you defined.

If you have several wireless networks, you must configure each one by repeating these steps.



**NOTE:** If you are having trouble connecting to the WAN Network, there may be a conflict with the LAN IP Address of the Gateway. See [Troubleshooting - WAN and LAN IP Address Conflict](#).

## Configuring a 3G/4G Connection

This section describes how to connect your OCEABridge gateway to a cellular data network.

1. Insert the provided cellular antenna in to the 3G/4G connector and turn the ring in a clockwise direction to firmly attach the antenna.

**Figure 21** Connecting the Antenna for Cellular Communication



## For OCEABridge Devices Equipped with a Pre-programmed Micro SIM Card

If your OCEABridge gateway has an integrated 3G/4G modem and a pre-programmed multi-carrier micro SIM card, see section [Cellular Data Interface](#) to setup cellular data access.

## For OCEABridge Devices Not Equipped with a Pre-programmed Micro SIM Card

The wireless module for cellular data requires a valid micro SIM card. If your OCEABridge gateway does not have a pre-programmed SIM card, follow these steps to insert the SIM card from your carrier. For this, you must be in possession of an appropriate micro SIM card.

1. If present, remove the Bluetooth dongle from the USB port.
2. Open the OCEABridge casing and identify the location for the SIM as shown here:

**Figure 22** Micro SIM Card Location



3. Insert your micro SIM card (contact facing up) in the SIM card slot.

**Figure 23** Placement of the micro SIM Card



4. Insert the micro SIM card completely into the slot until it locks in.

**Figure 24** Inserting the micro SIM Card



5. See [Cellular Data Interface on page 27](#) to adjust the settings under **Mobile network** for your 3G/4G network.

## Configuring the Network LED

You may customize the wireless network LED so that it shows activity either on the wireless network or on the cellular network. The LED is identified on the device casing by the  icon.

1. To configure LED behavior, click **Network > LED Configuration**.
2. Use the drop-down list **Show activity for** to select which network you would like the LED to indicate:

**Figure 25** Configuring the Wireless Network Activity LED

### LED Configuration

'Wireless' LED

Show activity for

- Wifi
- Mobile Network

3. Click on **Save** to record your changes.
4. Check to make sure that the corresponding LED blinks as expected on your device.

# Managing Network Interfaces

Click **Network > Interfaces** to edit settings for your OCEABridge gateway's network interfaces.

Depending on the model, OCEABridge offers three types of network interface:

- Cellular (only on gateways equipped with a 3G/4G modem)
- RJ45\_WAN (Ethernet interface)
- WLAN (Wi-Fi interface).

In this context, the term interface does not refer to a physical network, but rather a logical function. Each interface is listed, along with the number of data packets sent and received. The LAN and WAN interfaces also include their MAC and IP addresses.

**Figure 26** OCEABridge Interfaces

## Interfaces

### Interface Overview

Network	Status	Actions
<b>CELLULAIRE</b> qmi-Cellulaire	RX: 0 B (0 Pkts.) TX: 0 B (0 Pkts.)	Connect  Stop  Edit
<b>RJ45_WAN</b> eth1	Uptime: 0h 32m 34s MAC-Address: A8:40:41:18:92:96 RX: 6.12 MB (50605 Pkts.) TX: 1.81 MB (10580 Pkts.) IPv4: 192.168.0.121/24	Connect  Stop  Edit
<b>WIFI</b> Client "Oceasoft_Invite"	Uptime: 0h 34m 17s MAC-Address: A8:40:41:18:92:94 RX: 104.86 KB (948 Pkts.) TX: 120.32 KB (936 Pkts.) IPv4: 172.16.0.11/24	Connect  Stop  Edit

Each interface may be controlled by the following functions:

- **Connect** — click on this button to connect the interface. A new IP address is assigned to the interface and the corresponding LED turns on.
- **Stop** — click on this button to stop the interface. The interface stops immediately and the corresponding LED turns off.

Click **Edit** to adjust settings for the interface as needed for your network.

## WAN and WLAN Interface

Configuration parameters are divided into two groups (**General setup** and **Advanced Settings**) and are common for both WAN and WLAN network interfaces.

You may adjust the various interface settings according to your network.

## General Setup

**Figure 27** General Settings for the Interface

The screenshot shows the 'General Setup' tab for a network interface. At the top, there are two tabs: 'General Setup' (selected) and 'Advanced Settings'. Below the tabs, there are two main sections: 'Status' and 'Protocol'. The 'Status' section displays the interface name 'eth1' and several statistics: Uptime: 0h 34m 2s, MAC-Address: A8:40:41:18:92:96, RX: 6.40 MB (52825 Pkts.), TX: 1.91 MB (11277 Pkts.), and IPv4: 192.168.0.121/24. The 'Protocol' section has a dropdown menu currently set to 'DHCP client'. Below the protocol dropdown is a text input field labeled 'Hostname to send when requesting DHCP' with the value 'OCEABRIDGE' entered.

- **Status** — Displays statistics for the interface, such as up-time, MAC address, data sent and received by the device, and its IPv4 address.
- **Protocol** — By default, **DHCP client** is selected. Your OCEABridge gateway will obtain its IP address automatically from your network router. Enter the name to use for this device in the **Hostname to send when requesting DHCP** field. This name is seen by the remote DHCP server.

If you choose to use a **Fixed address**, confirm the address protocol change by clicking on **Protocol on switch**, then enter the OCEABridge IP address and subnet mask in the fields displayed on the screen.

Click on **Save and apply** to record your changes.

## Advanced Settings

The options present on the **Advanced Settings** tab depend on the protocol you are using.

**Figure 28** Advanced Settings for the Interface

General Setup
Advanced Settings

Bring up on boot

Use builtin IPv6-management

Use broadcast flag  ? Required for certain ISPs, e.g. Charter with DOCSIS 3

Use default gateway  ? If unchecked, no default route is configured

Use DNS servers advertised by peer  ? If unchecked, the advertised DNS server addresses are ignored

Use gateway metric

Client ID to send when requesting DHCP

Vendor Class to send when requesting DHCP

Override MAC address

Override MTU

Back to Overview

Save & Apply
Save
Reset

Change this information as necessary:

- **Bring up on boot** — specify whether you want to start the interface when OCEABridge boots. Make sure the cable is connected correctly.
- **Use broadcast flag** — this parameter may be required by some internet Service Providers (ISPs). Not selected by default.
- **Use default gateway** — selected by default. If not selected, no default routing is configured.
- **Use DNS servers advertised by peer** — uses the DNS parameters published by the DHCP server. If not selected, the DNS server addresses are ignored.
- **Use gateway metric** — the metric makes it possible to use one interface instead of another to establish the internet connection. To do this, enter a different **metric** for each interface you want to use. Priority is given to the interface with the lowest metric.



For OCEABridge gateways equipped with a 3G/4G modem, the metric for **Mobile interface** is set to **300** by default. Adjust priorities for the WAN and WLAN interfaces by entering a higher or lower metric value based on the connection order you would like to assign to the different network interfaces.

- **Client ID to send when requesting DHCP** — identifier required by ISP or network administrator. If no other information is provided, the client's MAC address is sent.
- **Vendor class to send when requesting DHCP** — designates the class of options defined by the provider and used by DHCP clients.
- **Override MAC address** — enables you to specify a MAC address that is different from that of the router.

- **Override MTU** — the maximum transmission unit (1500 bytes by default). This setting does not need to be changed unless requested by your ISP.

Click **Save and apply** to record your changes.

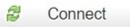
## Cellular Data Interface

Click **Network > Interfaces** in the OCEABridge configuration interface.

Click **Edit** to adjust settings for the **Cellular data** interface as needed for your 3G/4G network.

**Figure 29** Editing Cellular Data Settings  
**Interfaces**

Interface Overview

Network	Status	Actions
<b>CELLULAIRE</b>  qmi-Cellulaire	RX: 0 B (0 Pkts.) TX: 0 B (0 Pkts.)	 Connect  Stop  Edit
<b>RJ45_WAN</b>  eth1	Uptime: 0h 44m 22s MAC-Address: A8:40:41:18:92:96 RX: 8.32 MB (68744 Pkts.) TX: 2.73 MB (14922 Pkts.) IPv4: 192.168.0.121/24	 Connect  Stop  Edit
<b>WIFI</b>  Client "Oceasoft_Invite"	Uptime: 0h 46m 5s MAC-Address: A8:40:41:18:92:94 RX: 147.58 KB (1289 Pkts.) TX: 139.38 KB (1092 Pkts.) IPv4: 172.16.0.11/24	 Connect  Stop  Edit

The **General Setup** tab contains options for the interface as well as parameters that depend on your carrier.

**Figure 30** Configuring Interface Settings

General Setup
Advanced Settings

Status

Protocol

Modem device

APN

PIN

PAP/CHAP username

PAP/CHAP password

Authentication Type



qmi-Cellulaire

RX: 0 B (0 Pkts.)

TX: 0 B (0 Pkts.)

QMI Cellular

/dev/cdc-wdm0

mmsbouygtel.com

0000

-- Please choose --



You may adjust the various interface settings according to your network at any time.

- **Protocol** — select the protocol **QMI Cellular**.

- **Modem device** — leave the default value.
- **APN** (network access point name):
  - If your OCEABridge is equipped with a pre-programmed cellular connectivity module, leave the default value.
  - If you use your own SIM card, enter the code provided by your carrier.
- **PIN** — if necessary, enter the PIN code to unblock access to your SIM card. Many IoT connectivity solutions do not require a PIN code.
- **PAP/CHAP username** — enter the user name for PAP/CHAP authentication.
- **PAP/CHAP password** — enter the password for PAP/CHAP authentication.
- **Authentication type** — select the type of authentication.

You may leave the default values for the fields on the **Advanced Settings** tab.

Click **Save and apply** to record your changes.

# OCEABridge Maintenance

## Changing the Password

Users with administrator rights may change all OCEABridge configuration options. Access is controlled by a login/password combination.

Follow these steps to change the administrator password:

1. In the main menu, click **Gateway > Change password**.
2. Enter the new password in the two displayed fields.
3. Click on the  icon on the right-hand side of the fields if you want to verify the password you entered. This displays the password you typed.
4. Click on **Save** to apply your changes.

## Updating OCEABridge Data Collection Firmware

You may update the firmware in OCEABridge manually in order to benefit from the latest features and improvements. Your gateway configuration remains unchanged when you update firmware.

1. To see the firmware version running on your device, click **Gateway > Version – Update**.
2. The number of the current version in your device and the latest version are displayed. If a more recent version is available, you will be prompted to proceed with the update by clicking on **Download Latest, Install, and Reboot**:

### Gateway Version and Upgrade

Check current version and upgrade if a more recent one is available

---

Currently installed version: 0.0.0-(null)

Latest available version: 2.0.0-rc5



3. Wait during the firmware download and update process.
4. Once the operation is done, the newly installed firmware version is displayed on the screen.

## Gateway Version and Upgrade

Check current version and upgrade if a more recent one is available

Currently installed version: 2.0.0-rc5

Latest available version: 2.0.0-rc5

You are running the latest version

## Backing Up and Updating System Firmware

OCEABridge contains important information that you may back up at any time.

The backup function creates a current copy of OCEABridge data (such as the module list, operating mode, and configuration settings) that can be restored at a later time in case of problems or high-volume deployment.

### Archiving Your Data

Follow these instruction to archive your data:

1. Click **Gateway > Backup – Firmware update**.
2. Click **Generate archive**.

#### Backup / Restore

Click "Generate archive" to download a tar archive of the current configuration files. To reset the firmware to its initial state, click "Perform reset" (only possible with squashfs images).

Download backup:

To restore configuration files, you can upload a previously generated backup archive here.

Restore backup:  No file chosen

The backup file is generated automatically and stored in the Download folder on your computer.

By default, each `.tar` file is named as follows:

`backup-hostname-date.tar`

Where:

- host name is that which you configured in OCEABridge settings.
- date - Backup file creation date.

### Restoring an Archived Backup

To restore your data from an existing backup:

1. Click **Choose a file** and then select the backup archive that you want to use to restore your data.
2. Then, simply click on **Upload archive** to restore the data.

## Complete Firmware Upgrade

It is possible to update the entire OCEABridge firmware.

To do so:

1. Click on **Gateway > Backup – Firmware update**.
2. In the section **Flash new firmware image**, click on **Choose file** to select the system file to import. That image will be loaded onto the device.

### Flash new firmware image

Upload a sysupgrade-compatible image here to replace the running firmware. Check "Keep settings" to retain the current configuration (requires a compatible firmware image).

Keep settings:

Image:  No file chosen

3. Select the option **Keep settings** if you would like to preserve all your current configuration settings.
4. Lastly, click on **Flash image** to proceed with the update.



Please wait while the new system image is transferred. The process may take several minutes.

Your system will then restart automatically using the new system image (the LEDs on the casing will blink together). If you selected the option "Keep settings", the system will reboot two times consecutively.

## Restarting OCEABridge

To restart the operating system on your device:

1. Click on **Gateway > Restart**.
2. Then click on **Restart**.
3. Your browser window will close. The gateway will power down and restart right away. You may connect to the configuration interface again after it has finished rebooting.

# Diagnostics and Statistics

The **Status** menu contains various functions for statistics and diagnostics so you can make sure your gateway is running properly.

## Platform Information

Click **Status > Platform Information** to access OCEABridge system information:

**Figure 31** OCEABridge System Information

### Platform Information

#### System

Hostname	OCEABRIDGE
Firmware Version	LEDE Reboot 17.01-SNAPSHOT r3982-01a8f0e444 / LuCI lede-17.01 branch (git-18.201.27126-7bf0367)
Kernel Version	4.4.153
Local Time	Thu Nov 29 11:32:56 2018
Uptime	0h 4m 43s

#### Memory

Total Available	
Free	
Buffered	

## Module Statistics

The **Statistics** function enables you to monitor the wireless signal strength of Zebra Bluetooth dataloggers within wireless range of the OCEABridge gateway.

To access statistics, click **Status > Module Statistics**.

This function uses Received Signal Strength Indicator (RSSI) to evaluate data logger visibility by the gateway. Zebra Bluetooth dataloggers emit a wireless frame about every second, but many of those frames are lost due to range or wireless interference.

This table shows the intervals at which those frames are effectively captured by OCEABridge.

**Table 2** Module Statistics

### Modules Statistics

Advertisements received: Total: 14787 - Relevant: 3038 - Noise: 11749

Serial	Temp (°C)	Last Read	Last Pushed	First Seen	Last Seen	Adv Count	rssi-avg	int<2s	int 2-5s	int 5-10s	int 10-15s	int 15-30s	int 30-45s	int 45-60s	int 60-90s	int 90-180s	int 180-360s	int>360s	int avg	int max
e30833000034	22.71875	3891	0	2018-11-29 11:29:28	2018-11-29 11:33:29	44	-86	19	11	3	5	4	1	0	0	0	0	0	5.48	31.31
e30a03000020	23.75000	544507	0	2018-11-29 11:29:08	2018-11-29 11:33:29	97	-64	50	41	3	0	2	0	0	0	0	0	0	2.70	28.94
e30a03000021	20.75000	108900	0	2018-11-29 11:29:08	2018-11-29 11:33:40	62	-76	29	15	12	3	1	1	0	0	0	0	0	4.39	37.36
e4080200028a	23.18750	16384	16384	2018-11-29 11:29:07	2018-11-29 11:33:39	93	-71	51	31	5	4	1	0	0	0	0	0	0	2.93	21.60
e4080200028b	4.73438	122157	0	2018-11-29 11:29:07	2018-11-29 11:33:40	83	-77	38	33	8	1	1	1	0	0	0	0	0	3.29	32.54
e40802000290	4.96094	122292	0	2018-11-29 11:29:07	2018-11-29 11:33:40	81	-79	39	29	9	1	2	0	0	0	0	0	0	3.38	21.70
e40802000311	23.37500	23646	23646	2018-11-29 11:29:29	2018-11-29 11:33:29	34	-85	15	5	2	6	4	1	0	0	0	0	0	7.05	44.56
e40802000336	23.53906	23646	23646	2018-11-29 11:29:38	2018-11-29 11:33:40	26	-84	11	1	2	5	5	0	1	0	0	0	0	9.31	46.96

The columns in this table are described below:

- **Serial** — Module serial number.
- **Temp (°C)** — Latest temperature reading recorded by module.
- **Last Read** — Number of last data record received from the module.
- **LastPushed** — Number of the last data record pushed to the server. This number stops increasing if the network is too busy, or if the server has a problem. When the network is running again, this number increases to reach that of the latest reading.
- **First Seen** — Date and time at which the module was seen for the first time since the OCEABridge gateway started.
- **LastSeen** — Date and time at which the module was most recently seen.
- **AdvCount** — Number of Bluetooth frames received by OCEABridge.
- **Rssi-avg** — Average signal intensity (from -20 to -90) since the gateway was started. The lower the value for Rssi-avg, the stronger the signal.
- **Int <2s ....Int >360s** — Distribution of the reception interval between two Bluetooth frames.
  - This information determines the frequency at which a module transmits its data, and therefore the frequency at which it is seen by OCEABridge. This data enables you to estimate the distance between the module and the gateway. Interference and module placement may affect wireless signal performance.
- **Intavg** — Average interval between Bluetooth frame reception.
- **Int max** — Maximum publication interval.



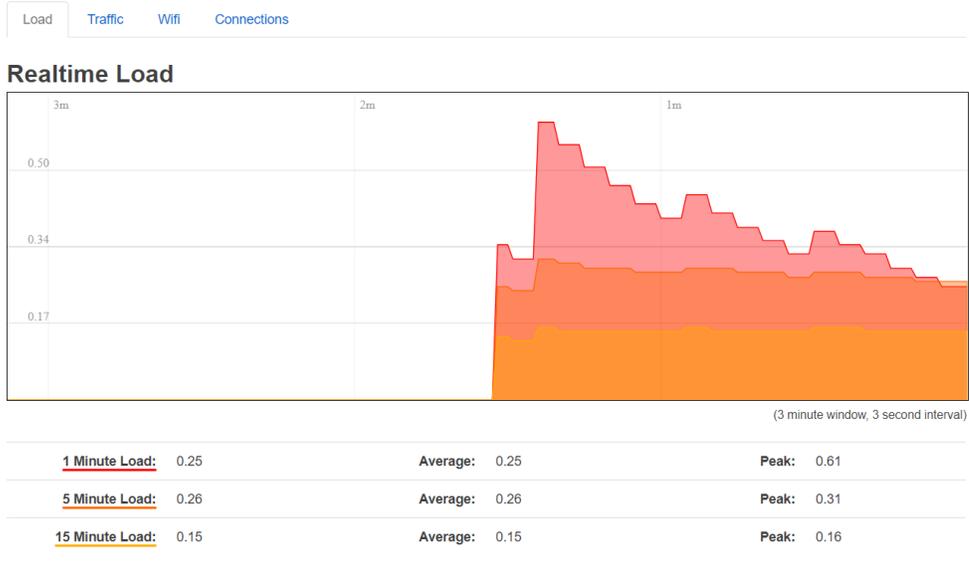
**NOTE:** Serial numbers shown on a dark gray background indicate that no data logging is currently active on the Cloud for the corresponding modules.

## Real-time Network Traffic

Click on **Status > Realtime graphics** to monitor traffic in real-time. Several graphs and histograms are available. Here are some examples:

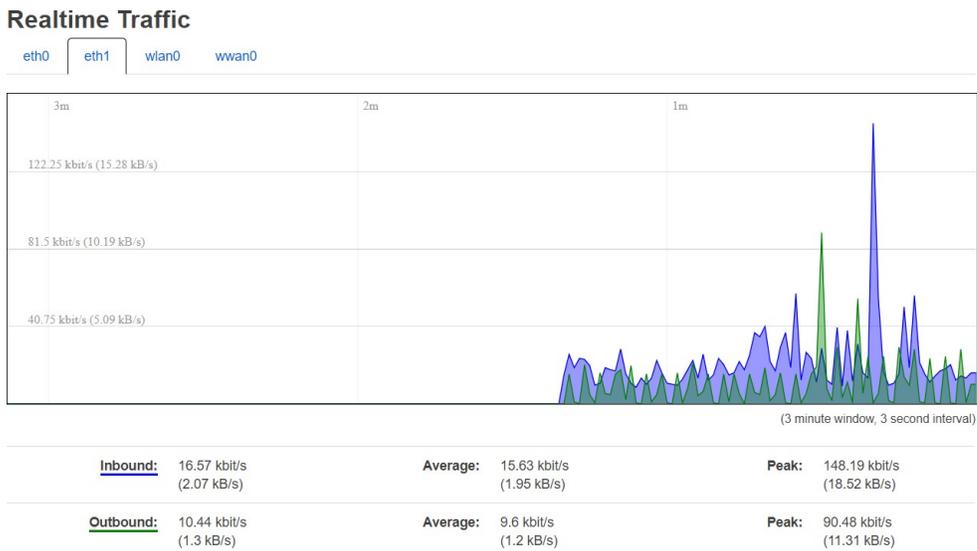
- Processor usage in intervals of 1, 5, and 15 minutes:

**Figure 32** Real-time Traffic Status



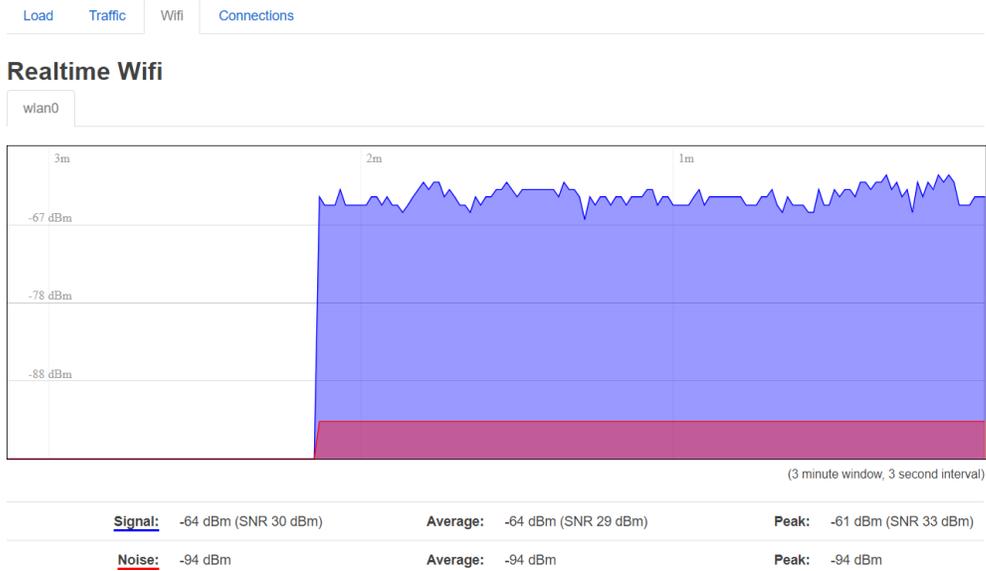
- Incoming and outgoing traffic on each interface:

**Figure 33** Network Traffic for Each Interface



- Real-time Wi-Fi connection:

**Figure 34** Real-time Traffic on Wi-Fi Network



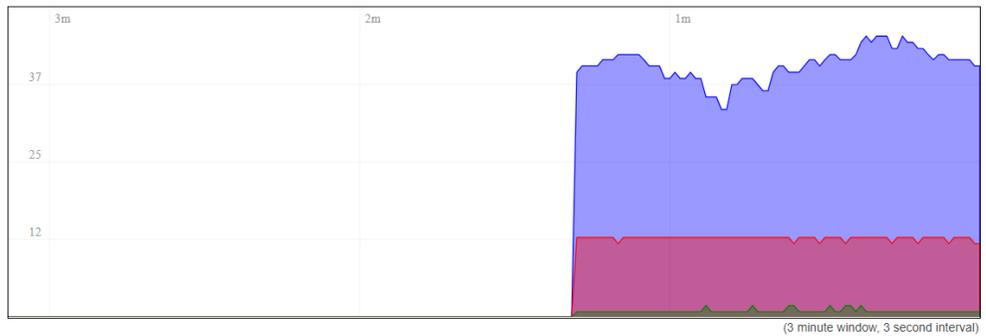
- Activate network connections:

**Figure 35** Network Connection Activity

### Realtime Connections

This page gives an overview over currently active network connections.

#### Active Connections



<b>UDP:</b> 41	<b>Average:</b> 41	<b>Peak:</b> 46
<b>TCP:</b> 1	<b>Average:</b> 1	<b>Peak:</b> 2
<b>Other:</b> 12	<b>Average:</b> 12	<b>Peak:</b> 13

Network	Protocol	Source	Destination	Transfer
IPV4	TCP	192.168.0.115:58337	192.168.0.121:80	792.66 KB (1749 Pkts.)
IPV4	UDP	192.168.0.134:137	192.168.0.255:137	24.87 KB (326 Pkts.)
IPV4	UDP	192.168.0.65:1036	255.255.255.255:1037	22.24 KB (495 Pkts.)

## Startlog

Click on **Status > Start Log** to see if any problems were detected while OCEABridge was booting:

**Figure 36** OCEABridge Start Log

### Gateway Start Log

```
Starting S2U...  
options: -f -t -s -x 5 -w 10
```

To restart the Gateway software, click the button below

 Restart Gateway

## Troubleshooting

### WAN and LAN IP Address Conflict

If you are experiencing a problem connecting the OCEABridge Gateway to your local network, there may be a conflict with the LAN IP Address of the gateway and the WAN IP. In this instance you will need to change the IP Address of the OCEABridge.

1. Connect to the OCEABridge on the LAN Port 192.168.1.1 as standard.
  - The default URL is: <http://192.168.1.1/cgi-bin/luci/>
  - Use credential: username = root; Password = root
2. Connect as admin by copying/typing this URL: <http://192.168.1.1/cgi-bin/luci/admin>
  - To switch to the admin role, add “admin” to the end of the URL in step 1 and press **Enter**.
  - **Only if asked**, enter credentials: User = ADD, Password = admin.
3. Change the default IP on the OCEABridge LAN.
  - Go into **Menu / Network / Interface** and choose **RJ45\_LAN / Edit**.

**Figure 37** Changing the RJ45\_LAN Default IP Address

The screenshot displays the 'Interfaces' section of the LuCI web interface, specifically the 'Interface Overview' page. At the top, navigation tabs for 'MOBILE\_NETWORK', 'RJ45\_WAN', 'WLAN', and 'RJ45\_LAN' are visible. The main content area shows a table of network interfaces with columns for 'Network', 'Status', and 'Actions'. The 'RJ45\_LAN' interface is highlighted in red, indicating it is the selected interface. The details for 'RJ45\_LAN' (eth0) are as follows:

Network	Status	Actions
MOBILE_NETWORK wwan0	Uptime: 2h 53m 22s MAC-Address: A8:40:41:1B:0D:3B RX: 0 B (0 Pkts.) TX: 7.75 KB (76 Pkts.) No zone assigned	Connect Stop Edit Delete
<b>RJ45_LAN</b> eth0	Uptime: 2h 53m 23s MAC-Address: A8:40:41:1B:0D:3B RX: 1.24 MB (11463 Pkts.) TX: 1.16 MB (2567 Pkts.) IPv4: 192.168.1.1/24	Connect Stop Edit Delete
RJ45_WAN eth1	Uptime: 0h 0m 0s MAC-Address: A8:40:41:1B:0D:3A RX: 0 B (0 Pkts.) TX: 0 B (0 Pkts.)	Connect Stop Edit Delete
WLAN Client "SFR_6D90"	Uptime: 2h 45m 29s MAC-Address: A8:40:41:1B:0D:38 RX: 7.44 MB (30854 Pkts.) TX: 6.26 KB (54 Pkts.) IPv4: 192.168.1.51/24	Connect Stop Edit Delete

At the bottom left of the interface overview, there is a button labeled 'Add new interface...'.

4. Edit the LAN Interface and change the IPv4 Address.
  - Change the new default to 192.168.2.1 by replacing the xxx.xxx.1.1 with xxx.xxx.2.1.

**Figure 38** Changed the Default IP Address

## Interfaces - RJ45\_LAN

On this page you can configure the network interfaces. You can bridge several interfaces by ticking the "bridge interfaces" field and enter the names of network interfaces separated by spaces. You can also use VLAN notation INTERFACE.VLANNR (e.g.: eth0.1).

### Common Configuration

General Setup
Advanced Settings
Physical Settings
Firewall Settings

Status	 eth0	Uptime: 2h 50m 33s MAC-Address: A8:40:41:1B:0D:3B RX: 1.18 MB (11045 Pkts.) TX: 1.10 MB (2287 Pkts.) IPv4: 192.168.1.1/24
Protocol	<input type="text" value="Static address"/>	
IPv4 address	<input type="text" value="192.168.1.1"/>	
IPv4 netmask	<input type="text" value="255.255.255.0"/>	
IPv4 gateway	<input type="text"/>	
IPv4 broadcast	<input type="text"/>	
Use custom DNS servers	<input type="text"/>	
IPv6 assignment length	<input type="text" value="disabled"/>	
	<small>Assign a part of given length of every public IPv6-prefix to this interface</small>	
IPv6 address	<input type="text"/>	
IPv6 gateway	<input type="text"/>	
IPv6 routed prefix	<input type="text"/>	

5. Save and Apply.
6. Reboot OCEABridge by unplugging the power cable.
7. Restart the OCEABridge by plugging in the power cable.

# Technical Specifications

- **Wireless connectivity:**
  - Bluetooth Smart 4.0 (range about 10 m/30 ft)
  - Ethernet or wireless internet connectivity (Wi-Fi or 3G+/4G)
- **Line-of-sight range:** 10 to 15 m (about 30 to 50 feet) Results depend on various technical factors, including RF interference and physical obstructions (metal, cement, etc.)
- **Ethernet:** 2 x RJ-45 Ethernet 10/100 ports
- **Wi-Fi:** Integrated Wi-Fi module – 2.4 GHz / 100mW: IEEE 802.11b/g/n
- Modem 3G/4G (optional), delivered with screw-on antenna and external antenna
- **Hardware:**
  - **CPU:** AR9331
  - **DDR RAM:** 64 MB
  - **FLASH:** 16 MB
  - Bluetooth Smart USB dongle smart module
- **Current:** 12V –1A
- **Power:** AC power adapter, 110-240 VAC
- **Dimensions:** 12 x 8.5 x 3 cm (4.7 x 3.3 x 1.2in.)
- **Weight:** about 150g (5.3oz)
- **Casing:** ABS plastic
- **Operating ranges:** 0°C to+50°C
- **Relative humidity:** 0 to 90% (non-condensing)
- **Storage conditions:** 0° to +50°C
- **Protection index:** IP40

