

SensusRF Gateway



User Guide

SensusRF gateway user manual

SensusRF Gateway User's Guide

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1 Introduction

The SensusRF™ Integrated Gateway is responsible for integrating Sensus RF Endpoints with an AMR (automatic meter reading) system platform via a cellular network data connection. A network of Integrated Gateways is managed by a centralized network management platform IRIS¹. The Gateway receives readings and alarms from meters and repeaters and transmits them to the IRIS server. Meter information collected by IRIS can either be passed to the Sensus Meter Data Manager Hemera² or a utility's own Meter Data Manager. An individual Gateway can also be managed locally by its own internal IRIS Lite management system instead of the centralized IRIS server.

The SensusRF Gateway has an inbuilt webserver that can display and configure information about the Gateway itself, perform the configurations of GPRS, Ethernet and IRIS Lite Server, verify Task Status, upgrade firmware and verify radio information that is being collected.

The Gateway can send the information through GPRS using a SIM card or through the Internet using an Ethernet cable. This document will describe the operation of SensusRF Integrated Gateway and a step-by-step of configuration that must be executed on SensusRF Gateway webserver.

Warning: The power supply has live parts when switched on that may cause electric shock. The electrical installation must be made by a trained professional.

Disposal: Some versions of this product may contain rechargeable batteries. In the interest of protecting the environment, these batteries may not be disposed in household waste.

The local and national regulations for environmental protection are to be considered.

^{1,2} IRIS & Hemera are trademarks of CAS Tecnologia



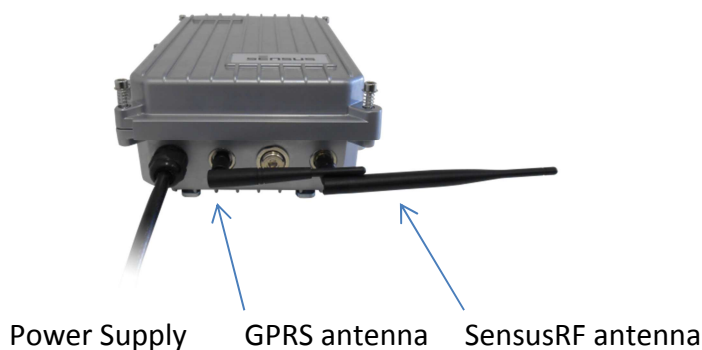
2 Hardware Description

2.1 Packaging

The package contains:

- The SensusRF Integrated Gateway
- Gateway USB cable
- 2 Antennas (one SensusRF, one GPRS)
- Installation Guide

3 Outside the cabinet



Warning: Internally there are live parts when switched on that may cause electric shock. The electrical installation must be made by a trained professional.

The power supply is suitable for AC 88-264 volts, 50-60Hz.

Connect the GPRS/GSM antenna, handtight only.

Connect SensusRF antenna, handtight only. There are two different antennas available for the gateway (one for 433 MHz and a different one for 868 MHz). The antenna supplied with the gateway will match the SensusRF frequency of the Gateway.

4 Inside the cabinet

ⓘ Attention: Before opening the cabinet, make sure that the AC power is disconnected!

The figure below illustrates the layout inside the cabinet:

SIM card holder



5 Power Supply

5.1 Mains Power Supply AC

ⓘ Attention: Before opening the cabinet, make sure that all AC power is disconnected!

Warning: Internally there are live parts when switched on that may cause electric shock. The electrical installation must be made by a trained professional.

AC POWER SUPPLY	
AC INPUT	88 ~ 264 VAC
Frequency	50-60 Hz
Output Voltage	12V
Output Current	0.83 A
Output Power	10W max

5.2 Optional DC power supply

There is an option for the Gateway to be powered by DC e.g. using Solar panel with battery backup.



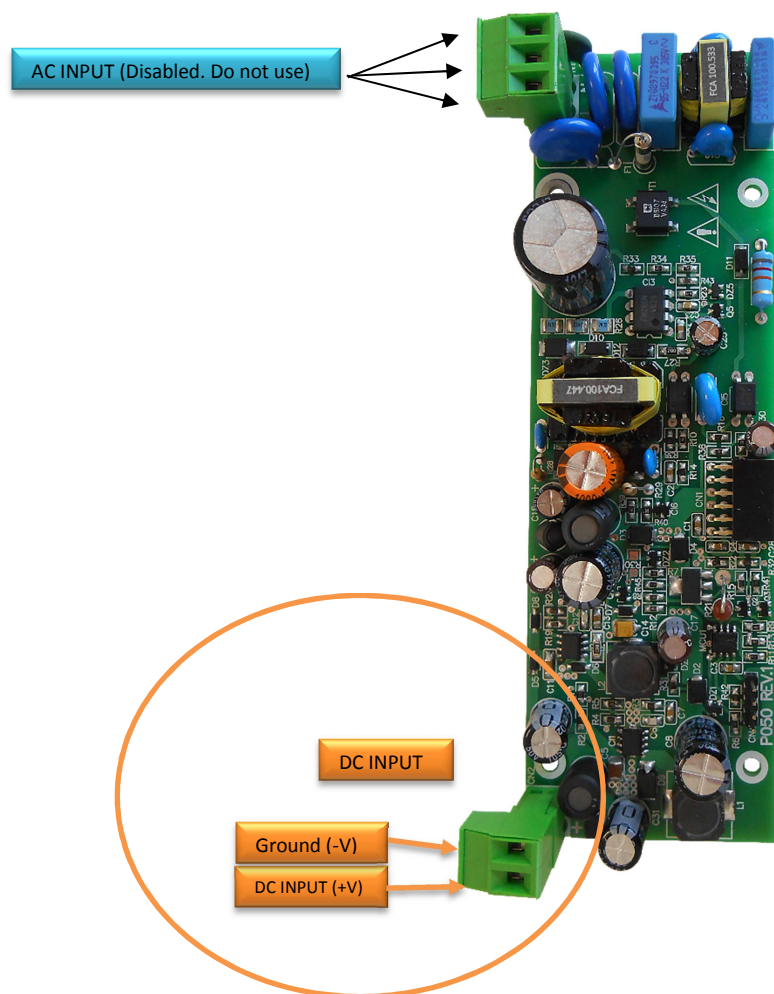
To connect an optional DC power supply:

Warning: Internally there are live parts that may cause electric shock when switched on. The electrical installation must be made by a trained professional.

Disconnect the AC voltage cable from the mains power supply and disconnect and remove it from the Gateway.

Use the cable from the external DC feed pull it through the cable fixing screw.

Connect the DC voltage to the green DC input terminal connector indicated below. Ensure the polarity is correct!

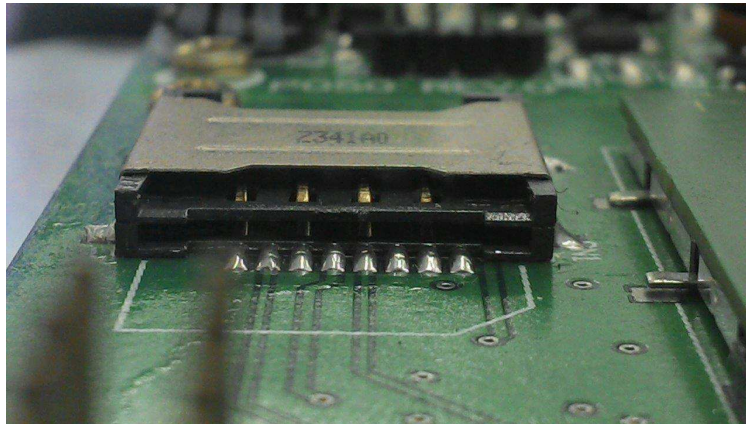


5.2.1 DC power Specification

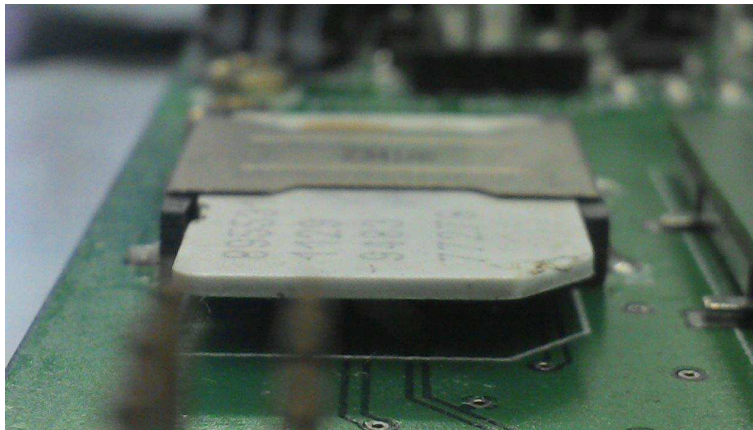
Model	300.128
DC INPUT	12 to 24 VDC
Battery Charger	230mA (Max)
Output Voltage	6.5V
Output Current	2A
Output Power	13.7W

5.3 SIM Card Connectors

On the Gateway main board, there are two SIM card slots as illustrated below:



SIM card in slot 1 (top slot):



SIM card in slot 2 (bottom slot - do not use):



NOTE

Use the SIM card slot 1 only.

Before inserting the SIM card make sure that:

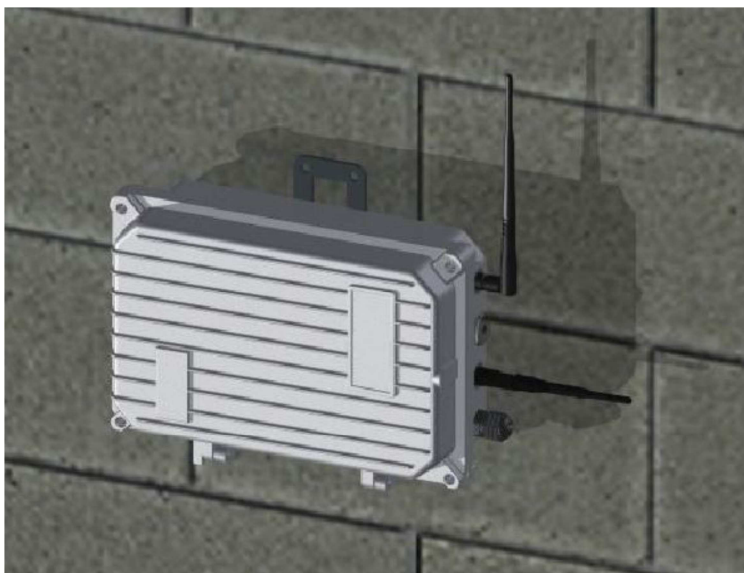
1. Either the correct SIM pin code is already configured in the gateway software as shown in the following chapters, or
2. The PIN code is disabled.

Otherwise the SIMcard might be blocked due to the gateway using the default PIN which may be the wrong PIN code.

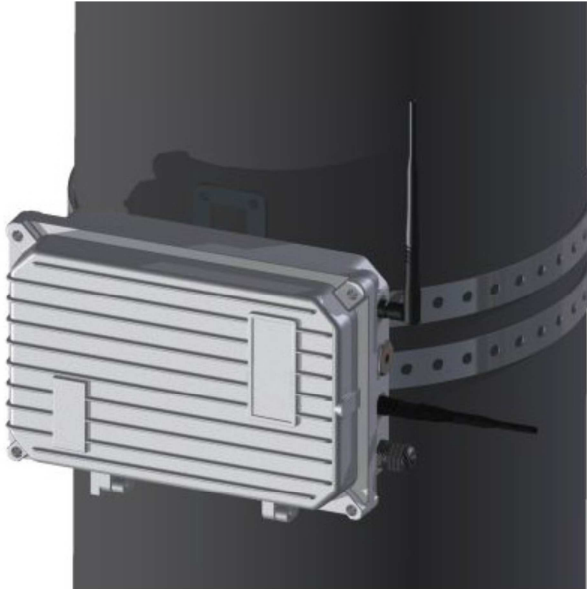
6 Installation

Wall Mounting: For wall mounting, the enclosure should be fixed to the wall, using 7mm diameter screws.

The antenna should be positioned as shown below:



Pole Mounting : For pole mounting, hanger straps (not supplied) must be used.

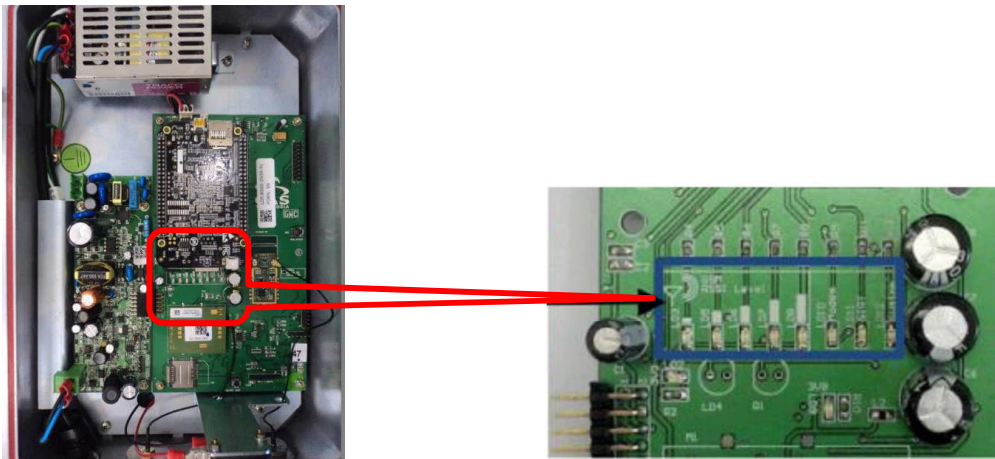


6.1 Physical & Environmental Specifications

Gateway enclosure details:

- Aluminum Enclosure
- Length: 306 mm
- Width: 242 mm
- Thickness: 113 mm
- Temperature stability: -20 C to +70 C
- Protection: IP65

7 LED Indicators (internal)

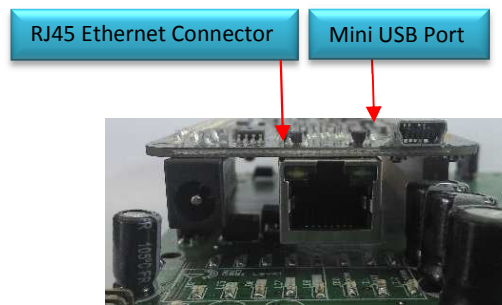


LEDs: The gateway has eight LEDs inside the enclosure, as described below:

- **System LED:** Green LED that indicates the operating status of the equipment.
 - Permanently lit: the unit is working correctly & (if in Iris server mode) connected to the Iris server, or
 - Blinking: the unit is trying to connect to the server.
- **Modem LED:** Red LED that indicates the state of the GPRS Modem.
 - Permanently off: The modem is turned ON
 - Permanently on: The modem is OFF
 - Blinking: The SIM Card is present & the GPRS modem is registered on the GSM Network.
- **Communication LED:** Orange LED that indicates the status of the SensusRF radio Transceiver (called SiRT).
 - LED blinks when the SiRT (SensusRF Radio Transceiver) receives any radio package (BUP, SEMI, RAT, ...). This LED is controlled by the CPU.
- **GPRS RSSI LEDs:** five LEDs indicating the signal strength

8 Gateway internal webserver

Local communications with the SensusRF Gateway (e.g. for initial configuration) can be performed by connecting the mini USB cable or the Ethernet cable connected to a PC or notebook with a standard web browser, such as Chrome or Firefox. The figure below illustrates the location of these connections:



Use only the top slot for the **SIMcard 1**, as indicated in Figure 8-1 below:

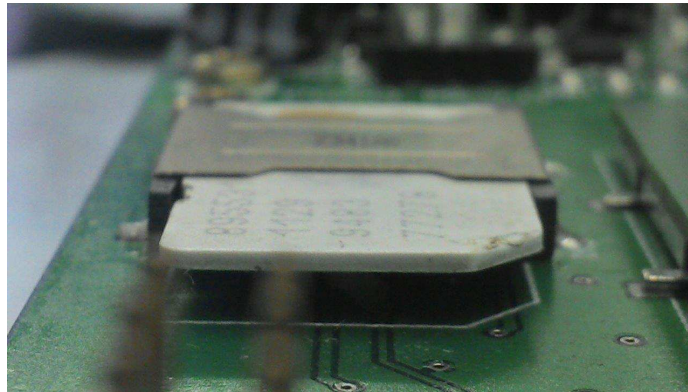
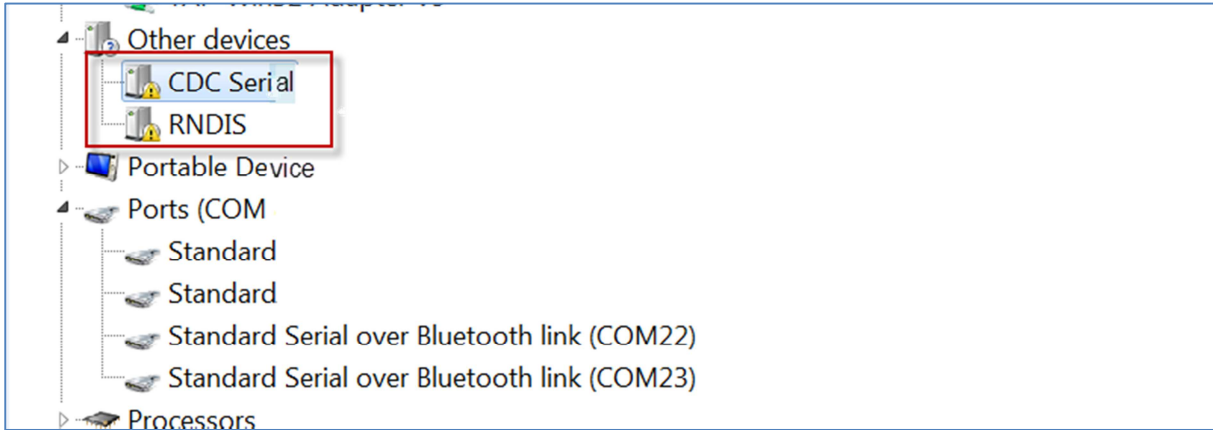


FIGURE 8-1 - SIMCARD 1

8.1 8.1 SensusRF Gateway Installation

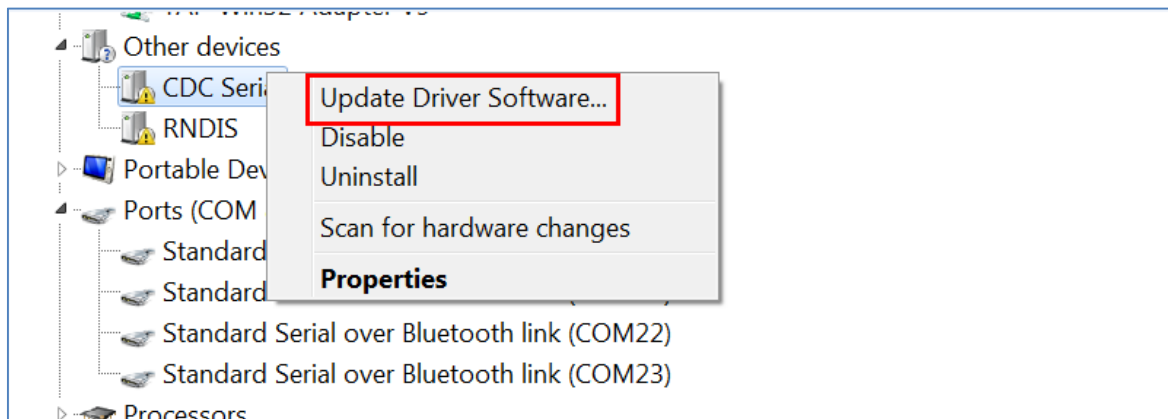
After connecting the Gateway via USB, there will be two components looking for drivers:

- **CDC Serial**, and
- **Linux USB Ethernet / RNDIS**:

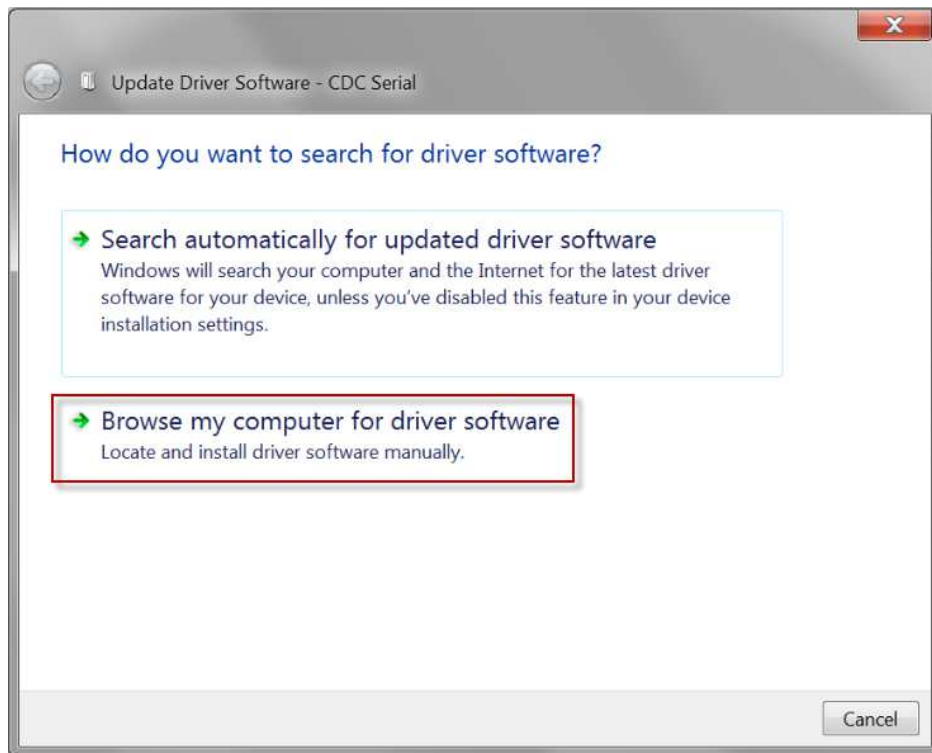


Both drivers are located on the virtual drive “CAS Gateway”. The first time a PC is connected to a gateway it will be necessary to install these drivers. For this follow the steps below:

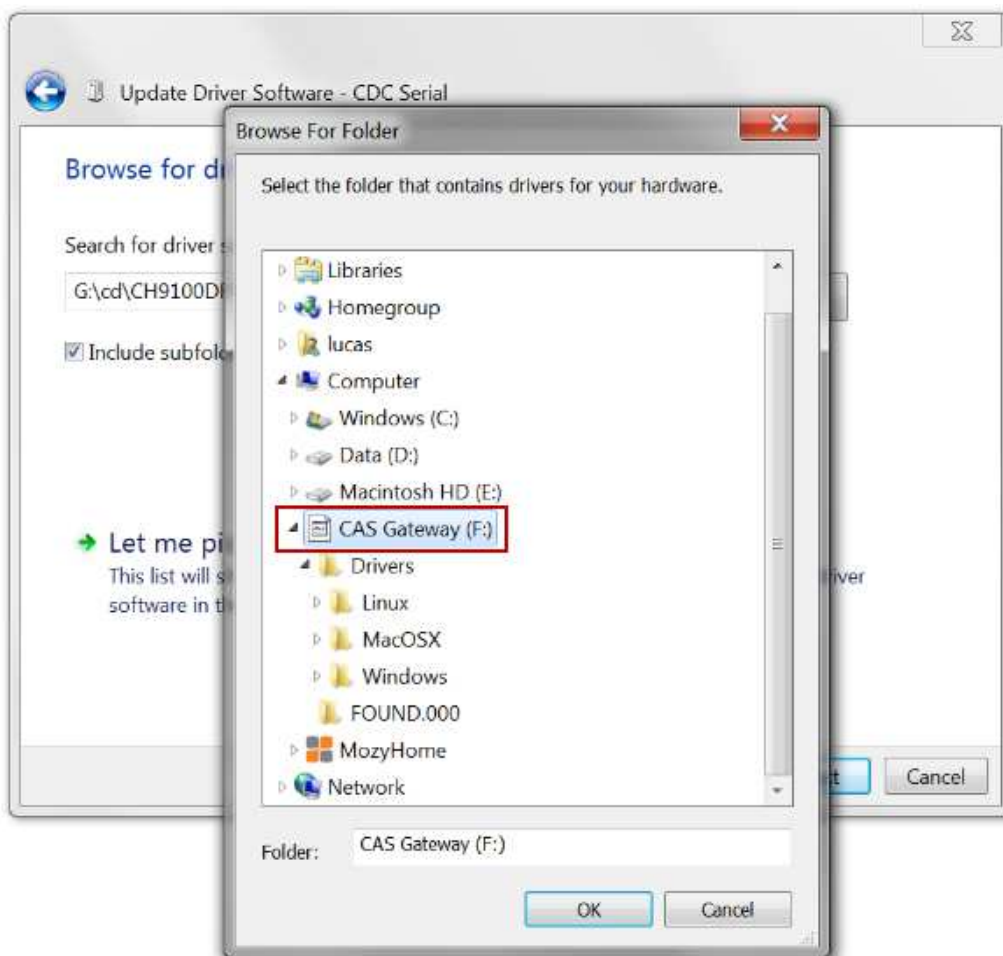
- 1) Access Device Manager by entering “Device Manager” in the start menu search field and click on the “Device Manager” application icon.
- 2) In “Device Manager”, right click on the icon CDC Serial and select the option “Update Driver Software”

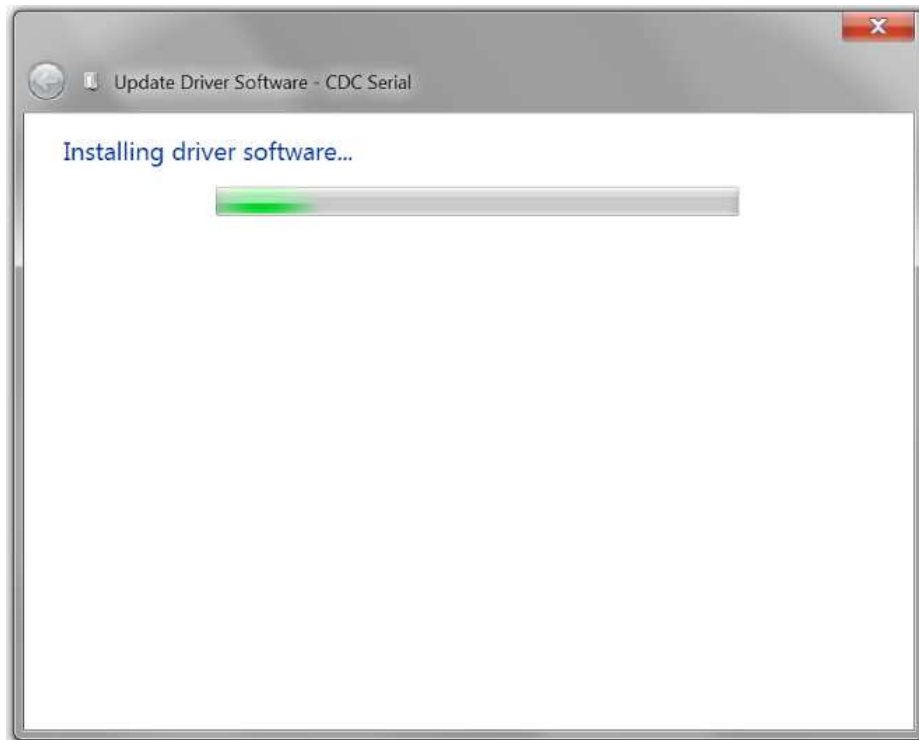


- 3) On the next screen, select the option to “Browse my computer for driver software”:

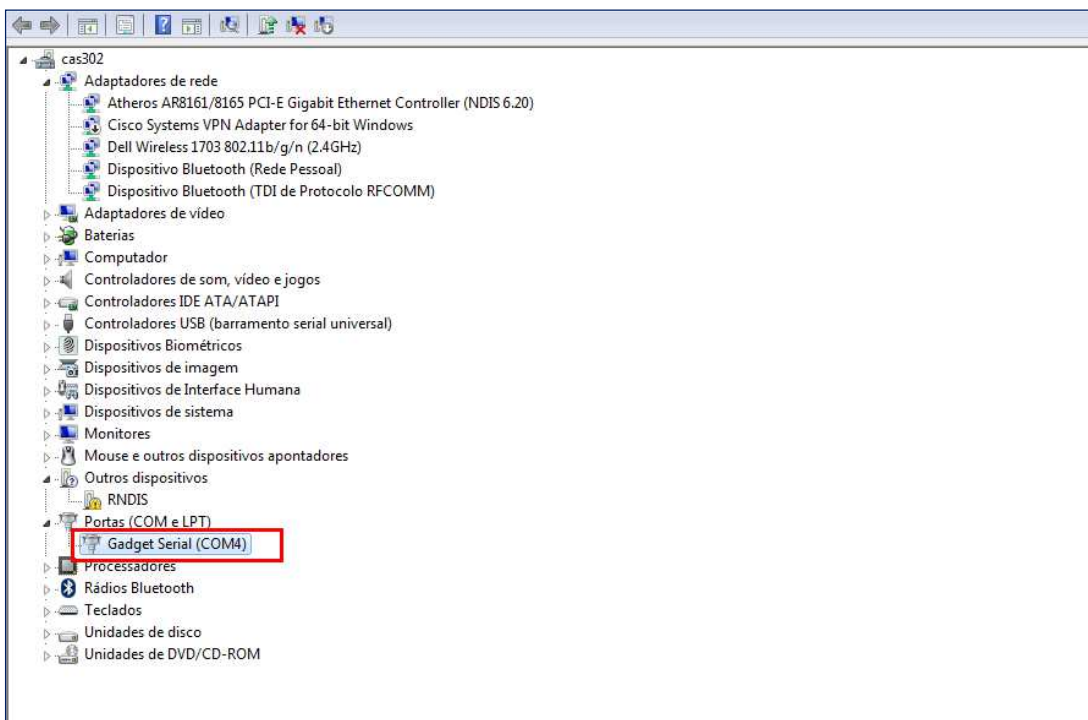


4) Then, select the option “CAS Gateway” and click on “OK”.

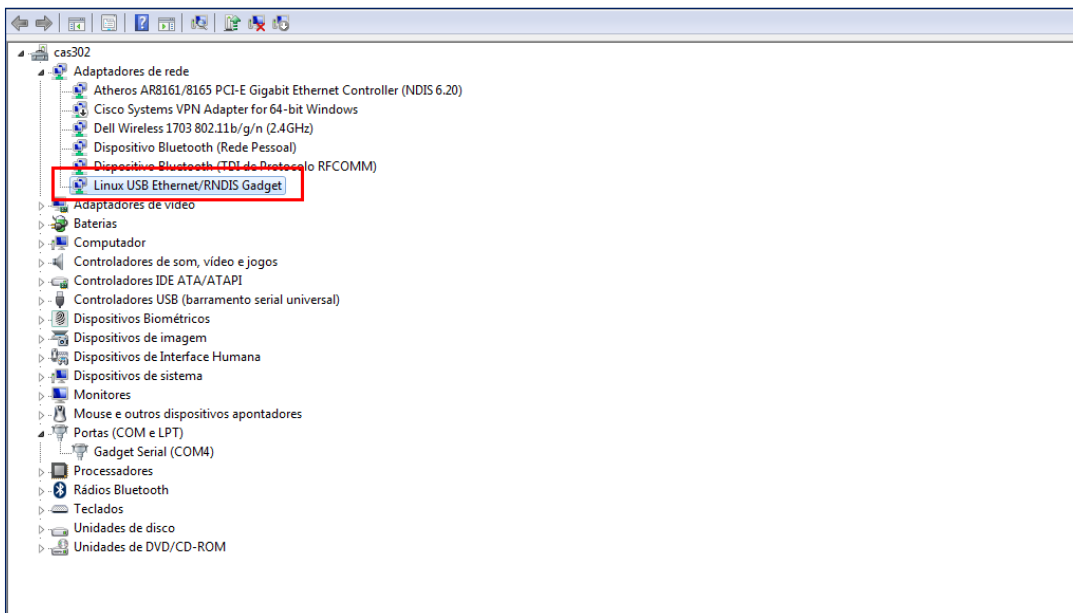
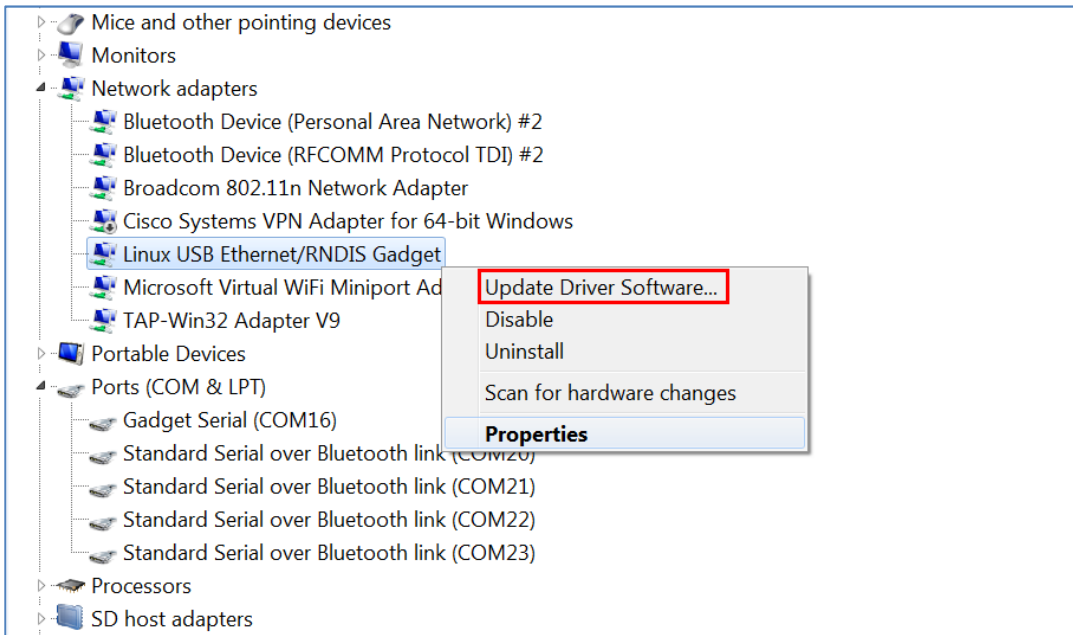




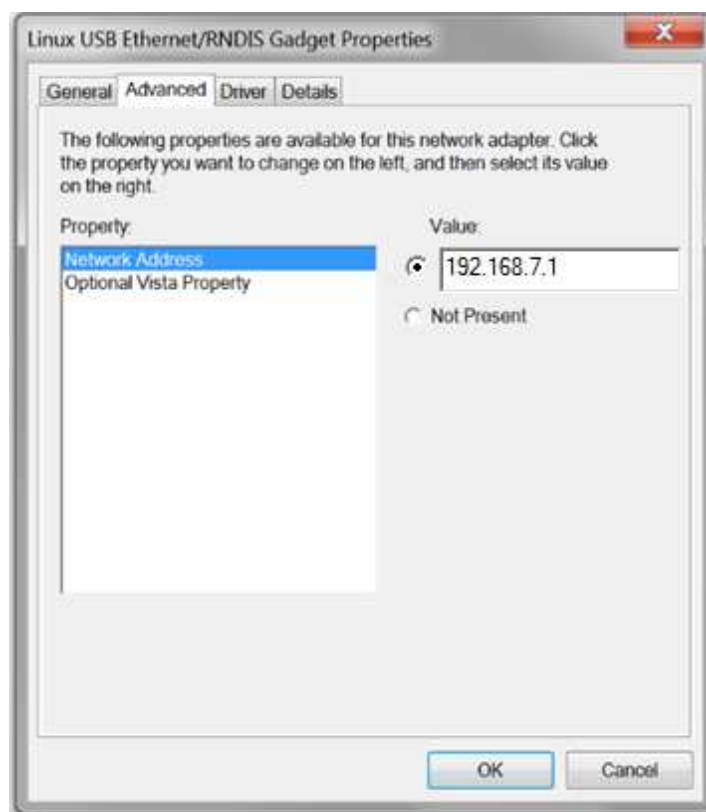
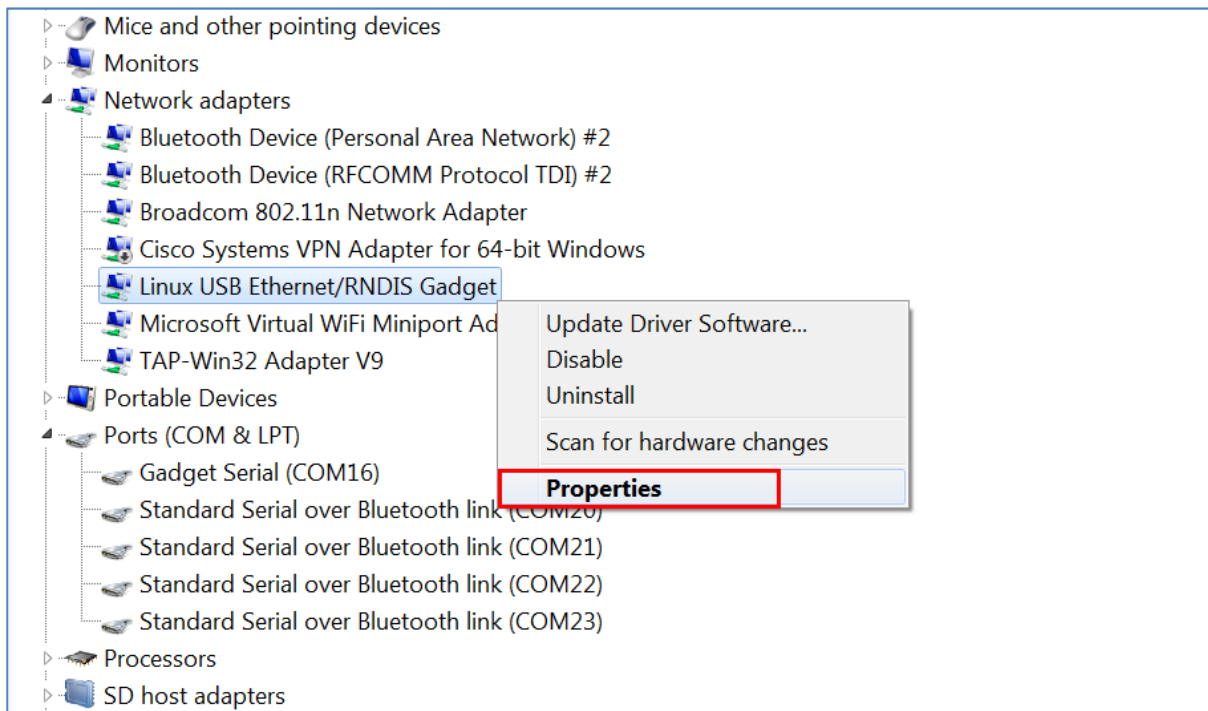
5) The device is updated, as shown below:



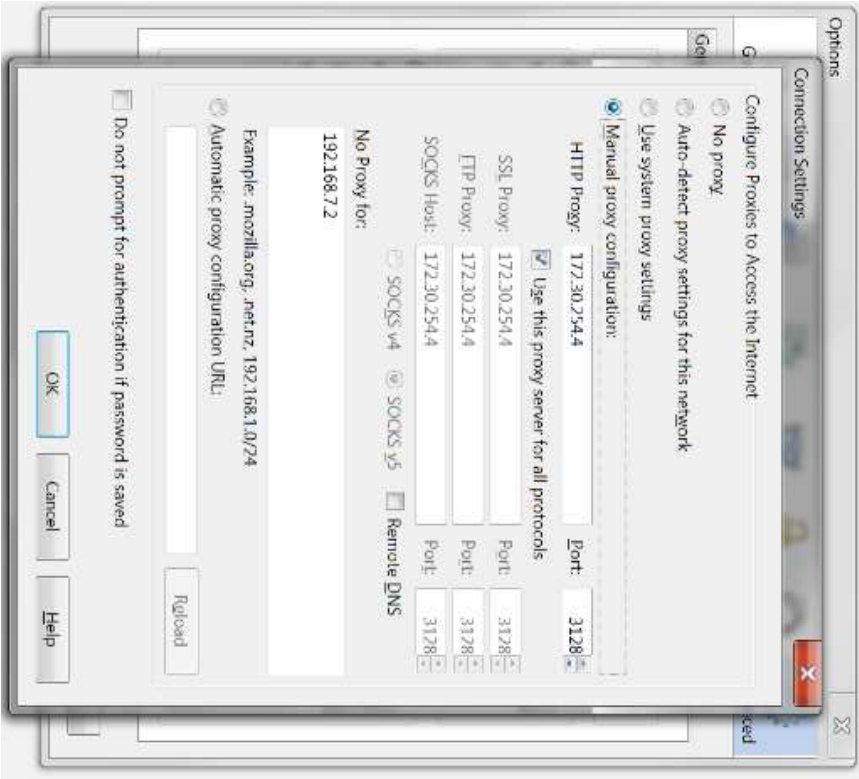
The same procedures must be applied for updating the **Linux USB Ethernet / RNDIS**. After updating, the driver will appear in “Device Manager” as below:



- 6) Check the extended properties of the device and enter manually the IP address of the gateway 192.168.7.1. For this, right click on icon and select the option “Properties”, then on “Advanced” tab, type the address as shown below:

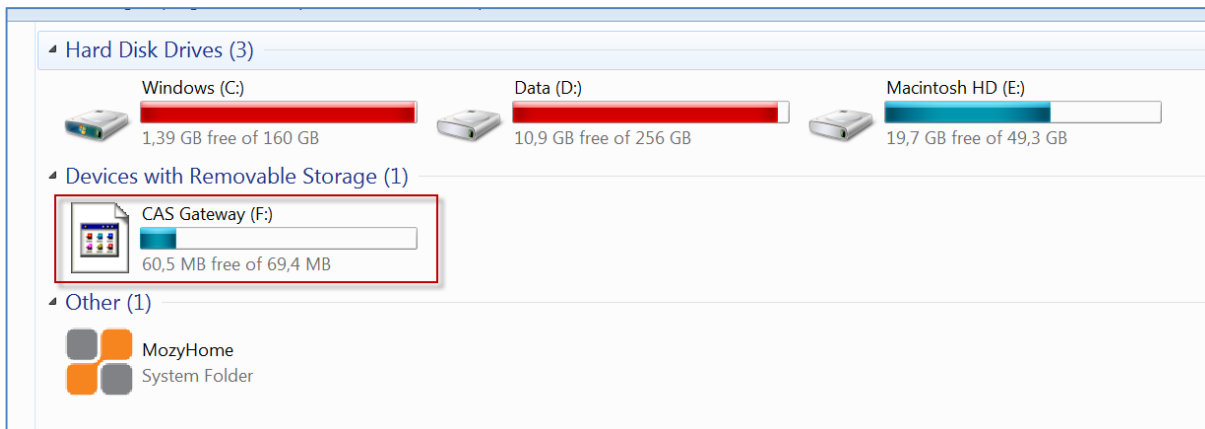


- 7) If you are using an http proxy, it is necessary to set the address 192.168.7.2 in the proxy configurations in order to access the SensusRF Gateway by Firefox:



9 Configuring the Gateway

The Gateway can be configured using a Chrome or Firefox webbrowser. Access the file storage in the gateway called “CAS Gateway” on “My computer” (Figure 9-1) and start the webserver application by double clicking on file “START.htm” (Figure 9-2).



FIGURE

9-1. SENSUSRF GATEWAY ON MY COMPUTER

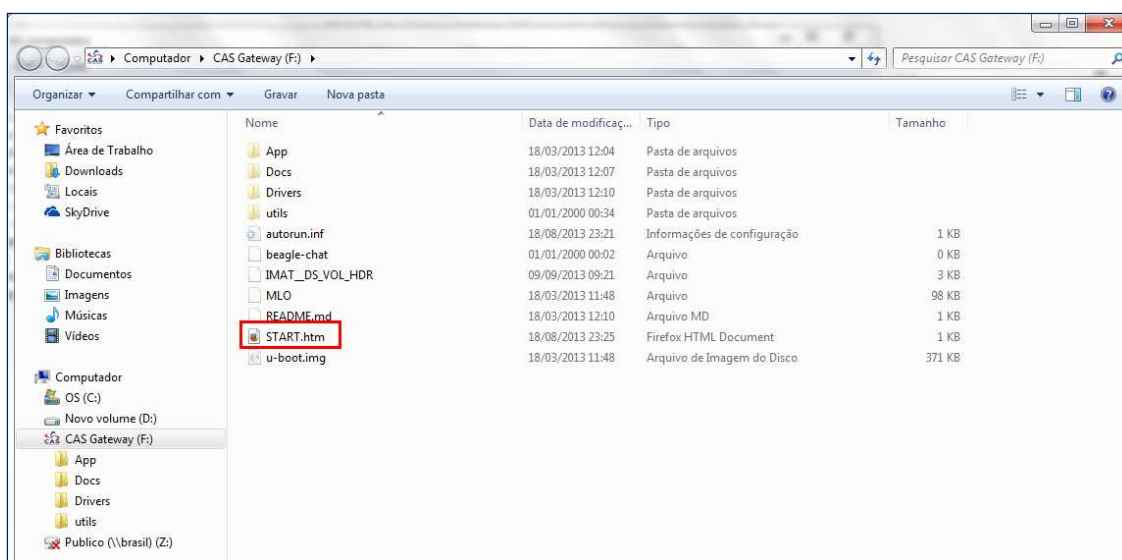


FIGURE 9-2. START.HTM ON MY COMPUTER

On the initial page of the SensusRF Gateway are displayed the login fields, as shown in figure 9-3.



FIGURE 9-3. GATEWAY HOME PAGE

To log in to the Gateway, user must use the information:

Username: **admin**

Password: **admin**

Note: Both are “admin”, all lower case letters.

Currently, the Gateway can be accessed by Firefox and Chrome browsers.

9.1 Gateway Online Status

After logging in to the Gateway, the initial page displayed is “Gateway Online Status” that provides information about Task Status, Connection Status and Sensors Status.

The figure 7-1 illustrates the “Gateway Online Status” page. Note that some of the “Connection” status boxes will be red if the gateway has not been configured.

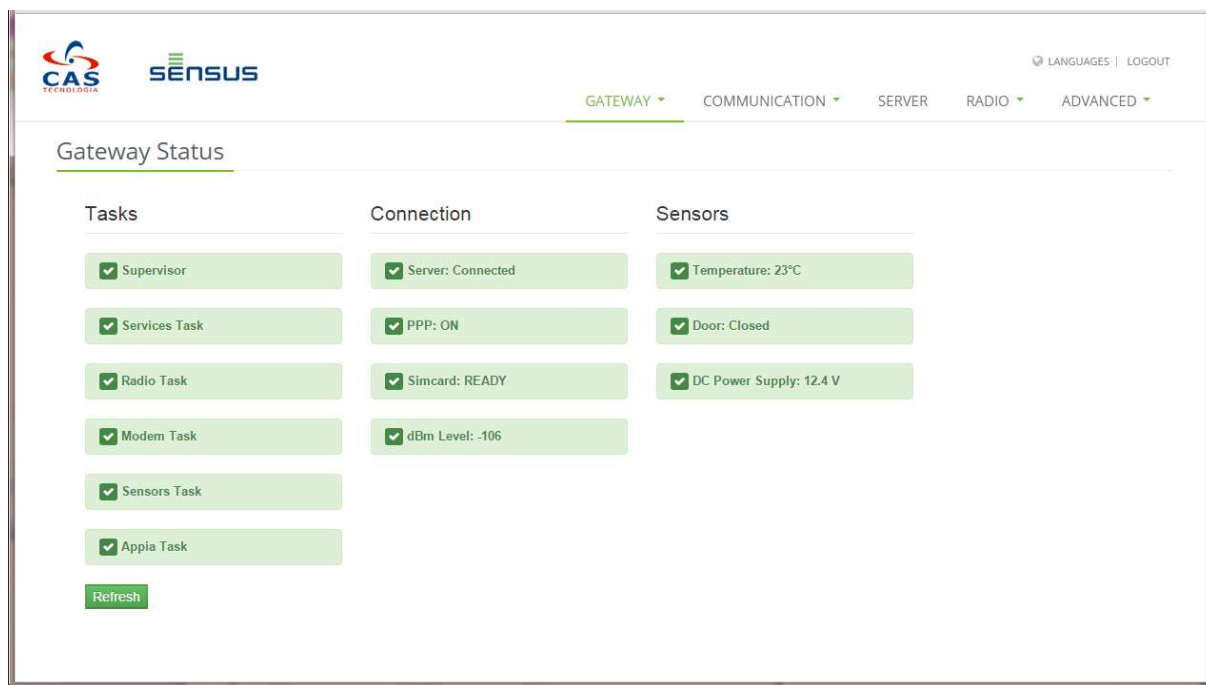


FIGURE 9-4 - GATEWAY ONLINE STATUS

The information relating to tasks, connections and sensors are displayed as green when they are operating correctly or within normal tolerances and red when are not. In order to update the information on screen it is necessary to click on the “Refresh” button.

9.2 Tasks

The tasks clouds are displayed according to their status. Below is a brief description of the tasks:

Supervisor – Task that supervises the Integrated Gateway verifying everything is working correctly.

Services Task – Task that manages the webserver communication

Radio Task - Task that controls the SensusRF Radio

Modem Task – Task that controls the GPRS communications

Sensors Task – Task that monitors the internal sensors (door, temperature etc)

Appia Task – Task that controls the communication protocol with the Modem.

In order to go back to “Gateway Online Status”, click the “Status” tab and select the option “Tasks”. The page does not automatically refresh but can be refreshed with the “Refresh” button.

9.3 Connection

The information displayed in the “Connection” column is “Server” (Connected or Disconnected), “PPP” (ON or OFF), “SIMCARD” (Ready or NOT Ready) and the GPRS received signal level. The same format is used as for Status: Online/Ready will be display in green and offline will be displayed in red.

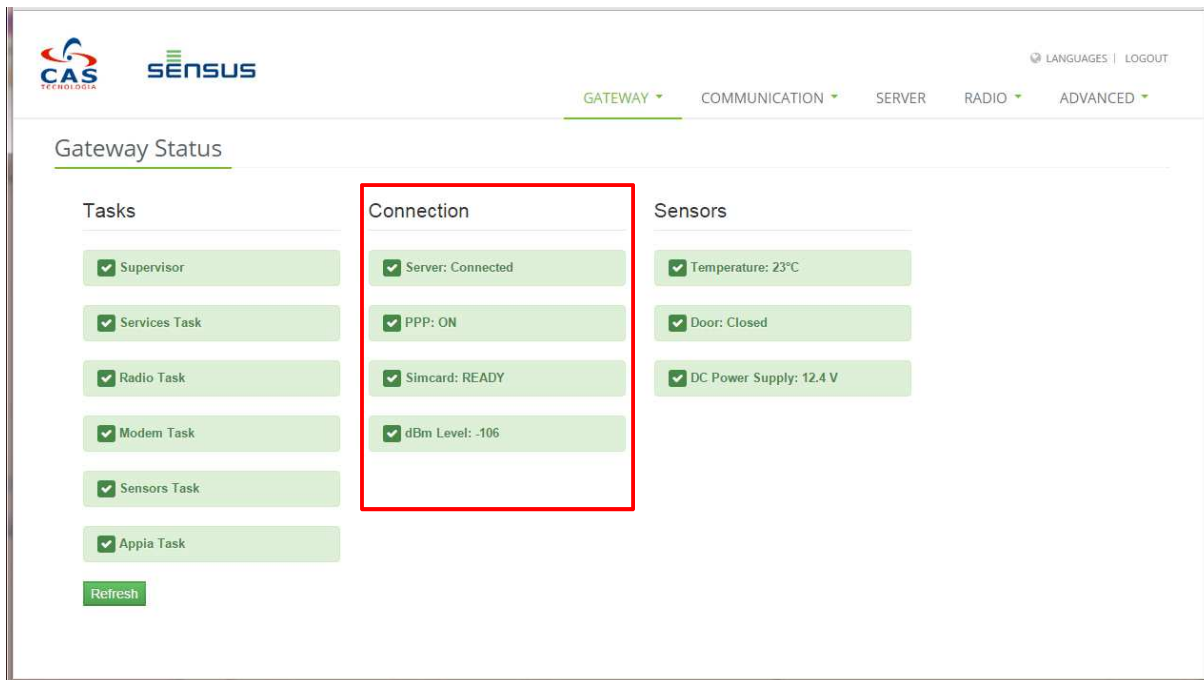


FIGURE 9-5 - GATEWAY ONLINE STATUS – CONNECTION

9.4 Sensors

The Status information displayed is Gateway Internal Temperature, Door Sensor (Open or Closed) and DC Power Supply (measured voltage).

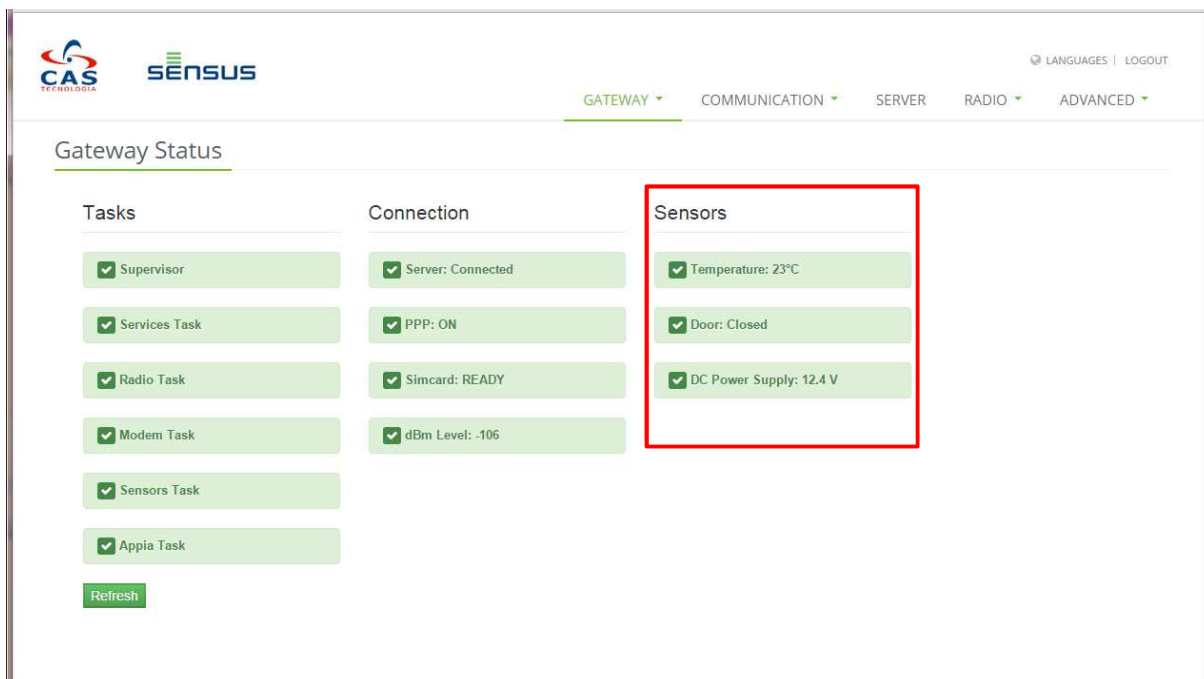


FIGURE 9-6 - GATEWAY ONLINE STATUS - SENSORS

9.5 Gateway Info

On the “Gateway Info” screen is information about the Gateway hardware and firmware configuration. The information refers to the GPRS Modem, Ethernet interface and SensusRF Radios as well as the firmware versions. In order to access “Gateway Info” screen, click the tab “Gateway” then “Info” as shown in Figure 9-7.



FIGURE 9-7 - GATEWAY INFO

10 Configuring GPRS & Ethernet parameters

10.1 GPRS Parameters

To configure GPRS information, click the “Communication” tab then “GPRS”. This will display the “GPRS Parameters” screen. The Figure 10-1 illustrates the path to access this screen.

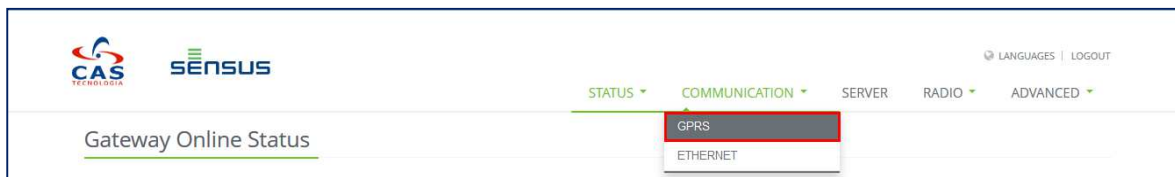


FIGURE 10-1 - GPRS PARAMETERS

In order to configure GPRS it is necessary to fill in the fields below and then click the “Save” button. The fields are:

Carrier APN – SIM1	Access Point Name (APN) of mobile network
Authentication – SIM 1	Type of authentication used (None, PAP or CHAP).
User name – SIM 1	User name for authentication
Password – SIM 1	Password for authentication
PIN Simcard 1	PIN code if PIN LOCK is enabled on the SIM card

The Figure 10-2 illustrates an example of a GPRS configuration.

FIGURE 10-2 - EXAMPLE OF GPRS CONFIGURATION

It is also possible to set the GPRS & server configuration remotely by sending SMS messages. This feature is explained in more detailed Section 20, SMS commands.

10.2 Ethernet Parameters

To configure the Ethernet settings, click the tab “Communication” then “Ethernet” (as shown in figure 10-1) which will display “Ethernet Parameters” screen.

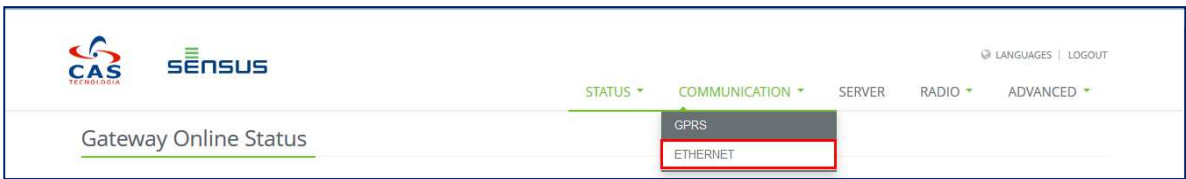


FIGURE 10-3 - ETHERNET PARAMETERS

DHCP can be enabled by toggling the button “Enable DHCP” to “ON” and then clicking the button “Config”. If DHCP is disabled (OFF), the fields IP, Mask and Gateway Default must be completed then saved with the “Config” button. Figure 10-4 illustrates an example of Ethernet configuration with HDCP enabled.

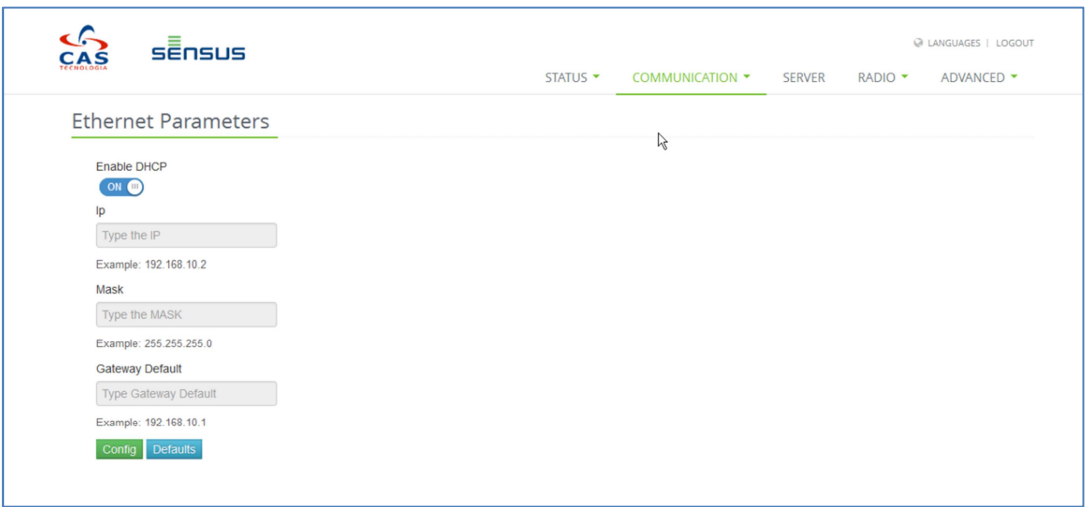


FIGURE 10-4 - ETHERNET PARAMETERS

11 Server Mode Configuration

When the Gateway is initialized for the first time, server mode should be configured. This configuration is available on the “Advanced” tab then the “Settings” option.

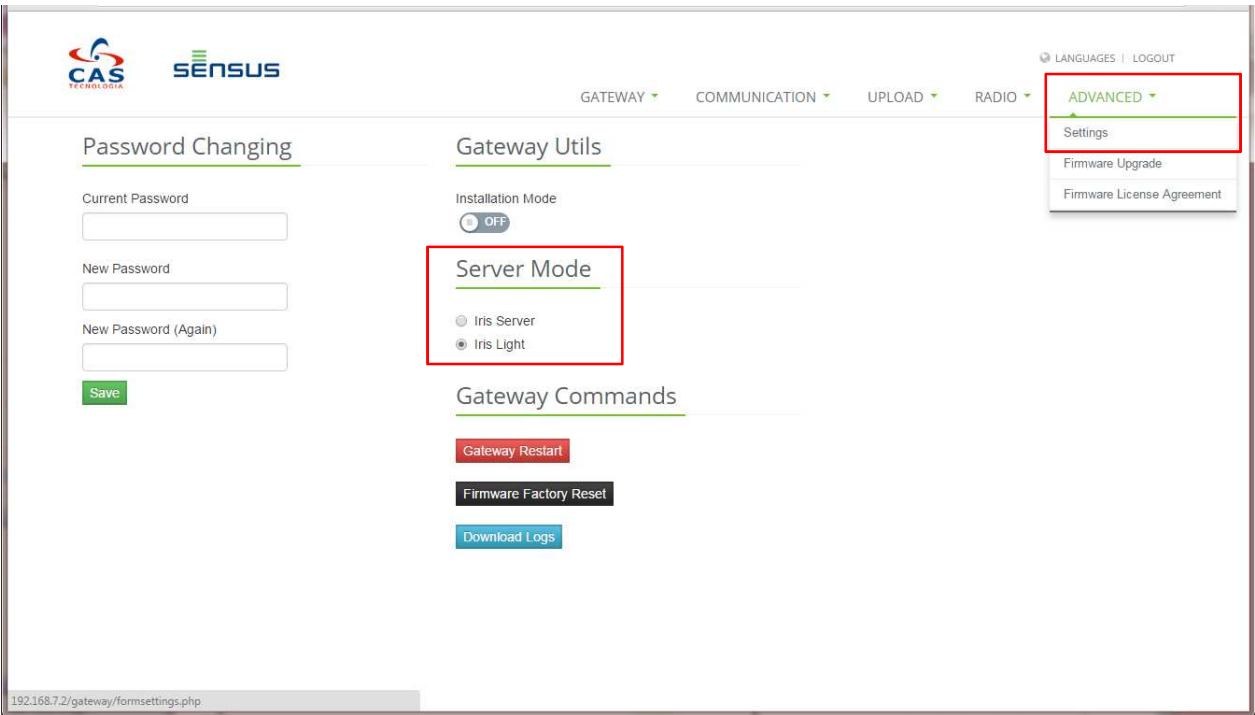


Figure 11.1 Advanced Settings

There are two server mode options: IRIS Server and Iris Light. In IRIS Server mode, all readings collected by the Gateway are processed by the central IRIS server, and collected by a Meter Data Manager (such as Hemera). In Iris Light mode, all readings collected are compiled into a CSV file, and either emailed to a pre-configured email address or uploaded via FTP/FTPS.

By default, the Gateway is configured in IRIS Server mode. When this option is selected, the Gateway displays the following tab options:



Figure 11.2 IRIS Mode – Tab options

When Gateway is configured on Iris Light mode, following tab options are displayed:



Figure 11.3 SMTP Mode – Tab options

11.1 IRIS Server Mode -Parameters

To connect with a central Iris Server it is necessary to configure the settings on the “Server” tab.

Fill in the fields IP address and the Port of the Iris Server, then click on button “Config”. Figure 11-1 shows the “Server Parameters” screen.

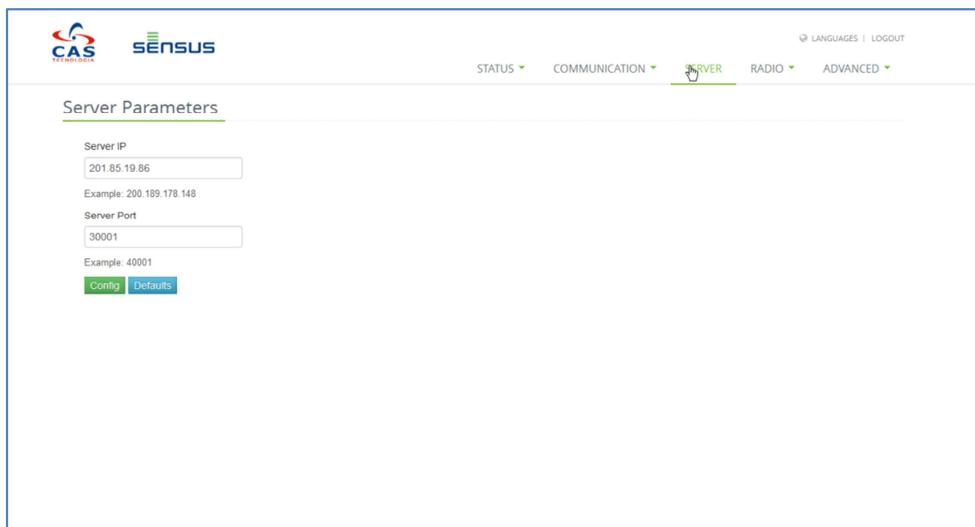


FIGURE 11-1 - SERVER PARAMETERS

11.2 Iris Light mode - Parameters

On tab “Upload” is possible to configure the parameters to allow SensusRF Gateway in SMTP Mode. For this, it is necessary to fill info in following tab options:

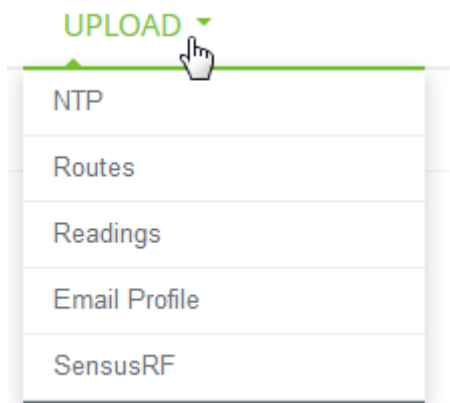
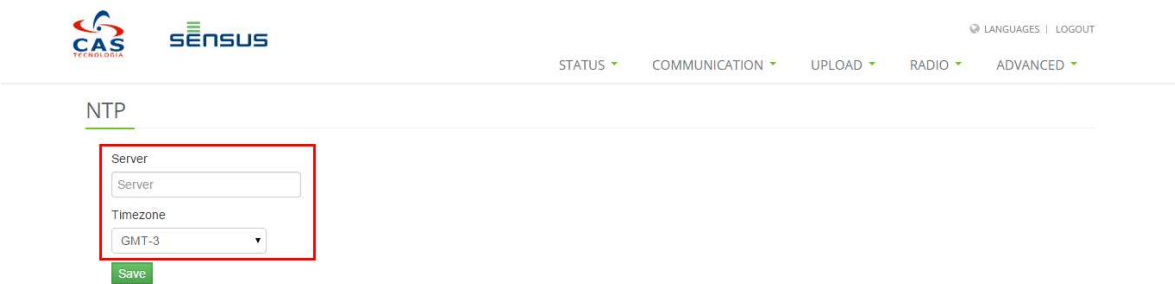


FIGURE 11-2 - UPLOAD TAB OPTIONS

11.2.1 NTP

It is essential that the gateway has the correct time and time-zone. Use the NTP option to configure the gateway to connect to a Network Time Server for the appropriate timezone.



11.2.2 SensusRF

On SensusRF option, should be informed two information: Encryption Key and Ghost Filter.

FIGURE 11-4 - SENSUSRF CONFIGURATION

In the Encryption Key field, enter the hexadecimal key used to decrypt the SensusRF meter reading messages. The key need to be a same as that used in all the meters. Note, if no key is entered, the default key is used.

In the Ghost Filter enter valid SensusRF network addresses masks, so that the Gateway only will register devices whose addresses are within one of the valid masks.

11.2.3 Email Profile

If the gateway is operating in Iris Light mode it is possible for the meter reading to be sent as a single comma delimited file (CSV) to a pre-configured destination either by SMTP email or by FTPS.

If the gateway is to send emails it requires a remote SMTP server. On the Email Profile page enter the parameters that allows the Gateway to connect to the remote server in order to send emails to one or more recipients.

The sending of emails can be enabled and disabled (without deleting the configuration) using the “ACTIVE” toggle switch.

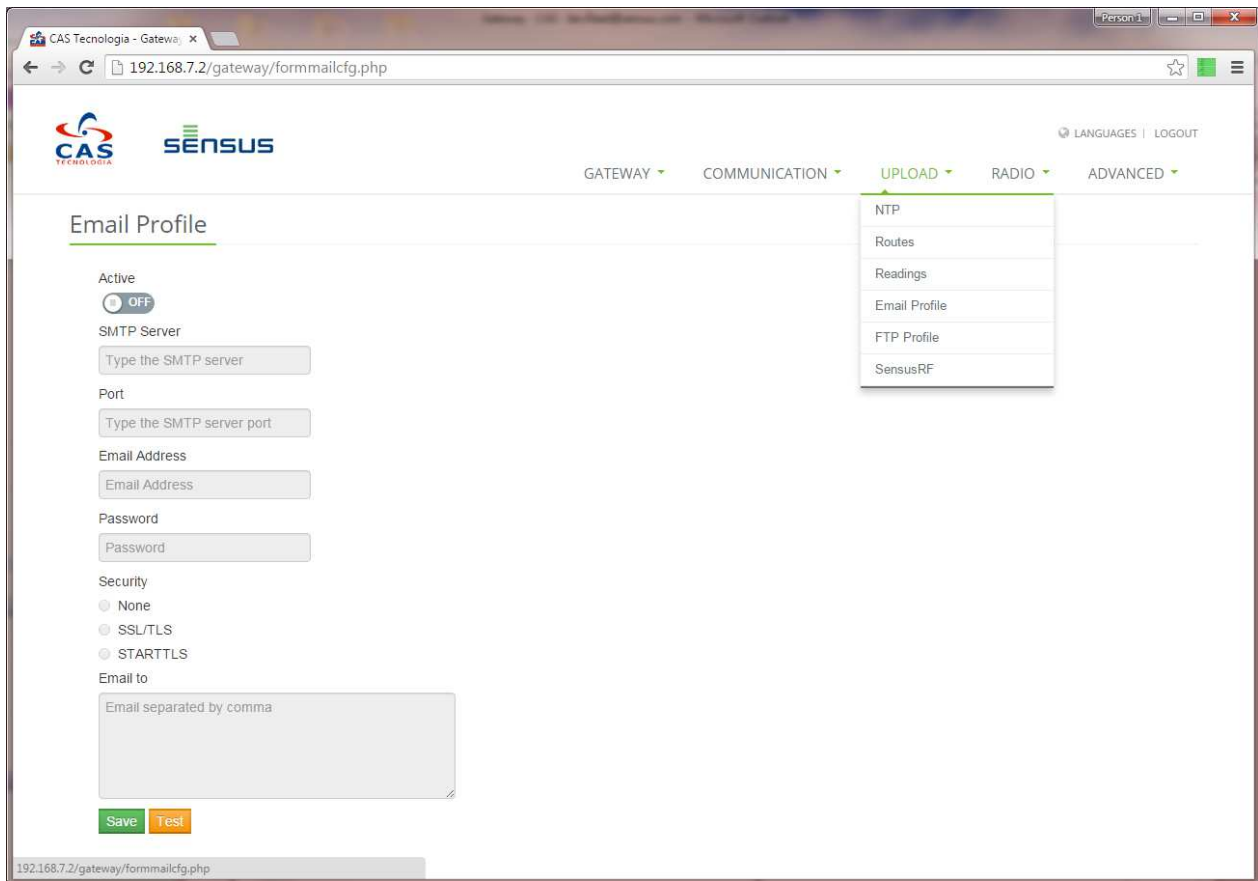


FIGURE 11-5 - EMAIL PROFILE CONFIGURATION

The following fields must be configured:

- SMTP Server name
- SMTP Server port
- Login information about the email account: address and password
- Type of security used
- Email addresses to send the files to (separated by a comma)

Click the “Save” button to save configuration. To validate this configuration, click on Test button.

11.2.4 FTP Profile

If the meter readings CSV file is to be sent by FTP or FTPS then the FTP page must be configured (“Upload” tab then “FTP profile”).

The screenshot shows the SensusRF Gateway web interface. At the top, there are logos for CAS and Sensus, and navigation tabs: GATEWAY, COMMUNICATION, **UPLOAD**, RADIO, and ADVANCED. The 'UPLOAD' tab is selected. Below the tabs, the 'FTP' section is active. It contains the following fields and options:

- Active:** A toggle switch set to 'OFF'.
- Server:** A text input field with the placeholder 'Example: ftp.cas.com'.
- Port:** A text input field with the placeholder 'FTP Port'.
- User:** A text input field with the placeholder 'User'.
- Pass:** A text input field with the placeholder 'Password'.
- FTP Protocol:** Two radio buttons: 'FTP' (selected) and 'FTPS (Over TLS)'.
- Directory (Empty for root directory):** A text input field with the placeholder 'Use / to separate'.
- Buttons:** A green 'Save' button and an orange 'Test' button.

At the bottom left of the page, the URL '192.168.7.2/gateway/formftp.php' is visible.

FIGURE 11-6 - FTP PROFILE PAGE

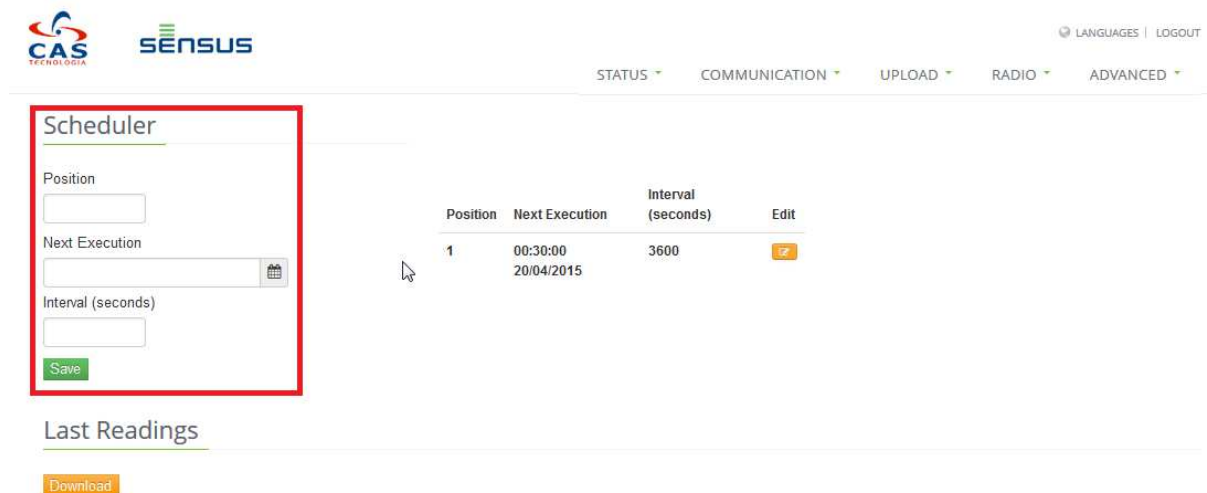
The following fields must be configured:

- Server name
- Server port
- Login information about the FTP account: address and password
- The FTP protocol used
- Destination directory

Click the “Save” button to save configuration. To validate this configuration, click on Test button.

11.2.5 Meter Readings

In order for the gateway to collect meter readings and send them either via SMTP email or via FTP, it is necessary to configure 1 or more schedules on the scheduler page.




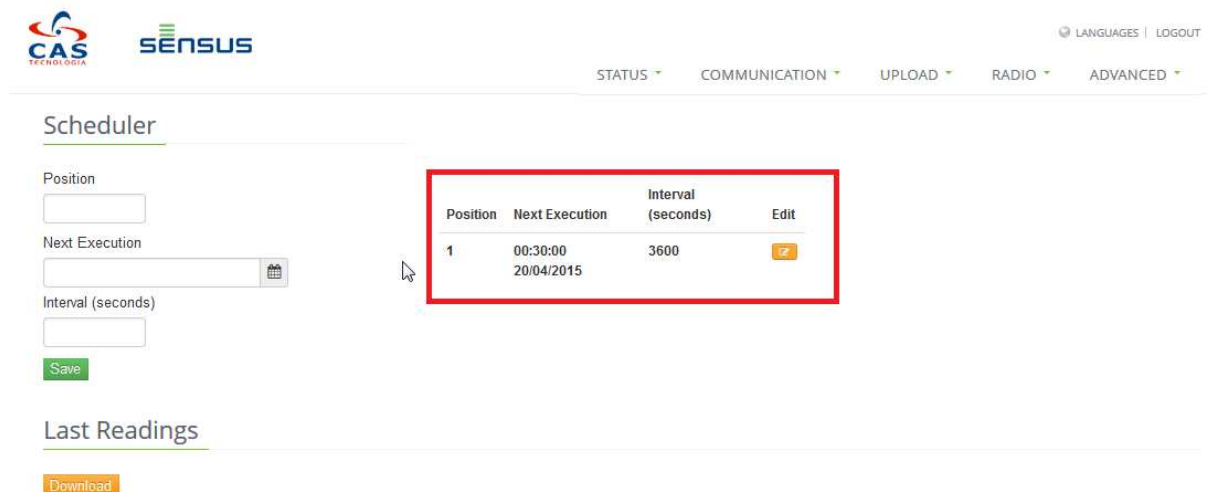
Position	Next Execution	Interval (seconds)	Edit
1	00:30:00 20/04/2015	3600	

Figure 11-9 Reading configuration

To configure a task, enter:

- Position: the row in the gateways schedule table this command should be stored. There are 255 positions.
- Start Date: Indicates when the command should be executed by the first time (date and hour). This will be updated automatically by the gateway once the schedule has executed. It will be incremented by the interval set.
- Interval: How often (in seconds) should this command be executed. An interval of '-1' disables a particular task.





Position	Next Execution	Interval (seconds)	Edit
1	00:30:00 20/04/2015	3600	

FIGURE 11-7 - EXAMPLE READING SCHEDULED (HOURLY READS STARTING AT 00:30 ON 20-APRIL 2015)

To change the schedule information, click on button . Schedule information is displayed on correspondent fields. Make with changes and click on Save button.

To disable a schedule, enter "-1" in the Interval field and save it.

When the “Download” button is clicked, 2 files are downloaded:

- one with the last readings collected and decrypted by the Gateway;
- one with any readings that the Gateway could not decrypt. These may then be decrypted if the encryption key is available.

The content of readings files requested via the application or sent by email/FTP is the same.

A decrypted readings file is composed of the following fields:

- METER_ADDRESS
- READING_DATE
- READING_VALUE_L
- LOW_BATTERY_ALR
- LEAK_ALR
- MAGNETIC_TAMPER_ALR
- METER_ERROR_ALR
- BACK_FLOW_ALR
- BROKEN_PIPE_ALR
- EMPTY_PIPE_ALR
- SPECIFIC_ERROR_ALR

When an alarm field has 0, it means that this alarm is inactive. When it has 1, alarm is active.

File with readings that couldn't be decrypting file is composed by the following fields:

- METER_ADDRESS
- READING_DATE
- RAW_TELEGRAM

11.2.6 Routes

On the Routes option are recorded all the activation routes for repeaters present in network.

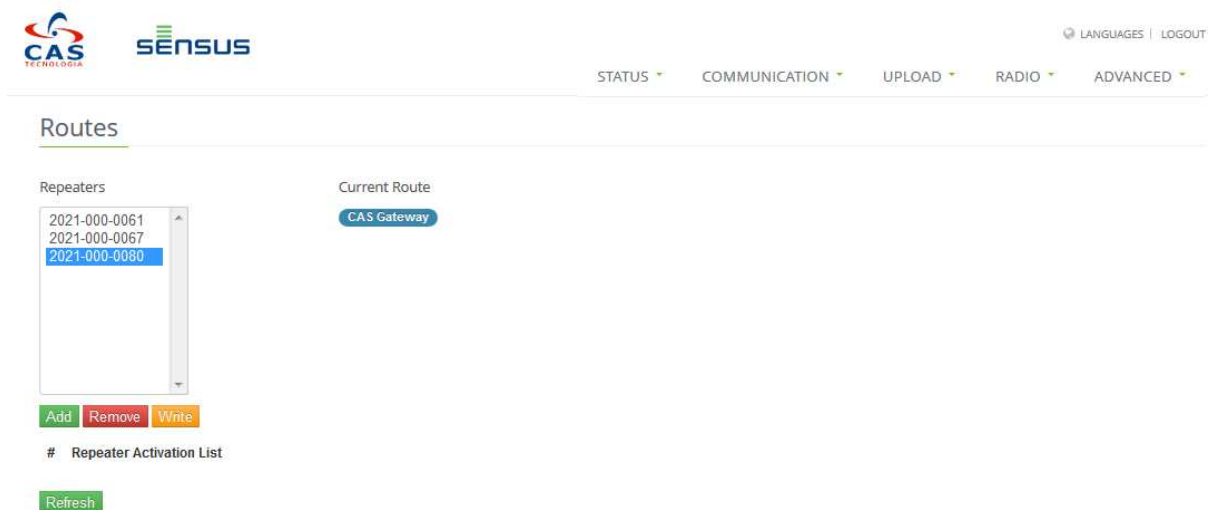


FIGURE 11-8 - ROUTES CONFIGURATION

In the Repeaters box are listed all the repeaters reached by gateway. This is populated automatically by the Gateway. These repeaters can be used to build one or more routes to access meters.

To add a new activation route, select the desired repeater and click the Add button. The Repeater is added to the current route. To register this route, click on Write button.

When route is writing, it is listed on Repeater Activation List area.

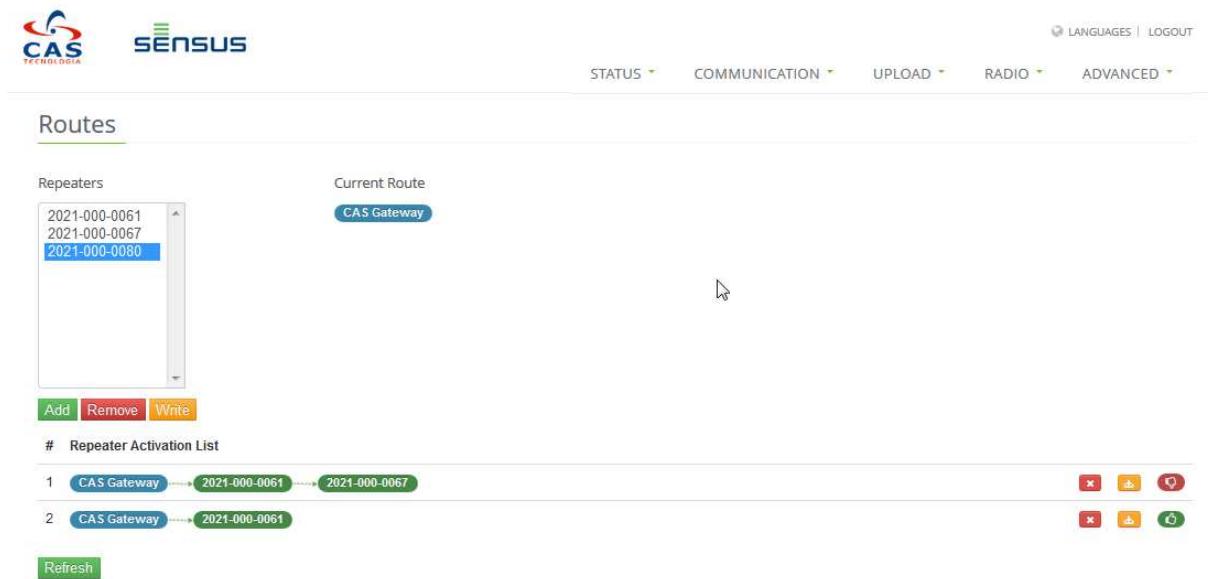





Figure 11-12 Repeaters Activation List

Below there is an example of activation route:



FIGURE 11-9 - ACTIVATION ROUTE EXAMPLE

In the example above, repeater 0080 should be activated by repeaters 0067 then 0061.

- To activate a route, click the button .
- When route is valid and was activated correctly, the Stat field show icon .
- When a route is invalid or is not activated, the Stat field displays icon .

Important:

1. Note that activation route should reflect the physical network.
2. If existing repeaters present in network that are not achieved directly by the Gateway, all possible routes at this time must be create and activate. Once the repeater is achieved indirectly by the gateway, it will be displayed in the Repeaters field and a new activation route must be create for this new repeater. This procedure should be executed until no repeater remained without activation route.

12 Radio Info

In order to select 'Devices Info', access the tab 'Radio'. On "Devices Info" it is possible to visualize the information that has been collected by the Gateway. The information displayed is Radio Address, last Signal Level received and Device Type from all Endpoints and Repeaters that are communicating. The Figure 12-1 illustrates "Devices Info" screen.

Date	Radio Address	Device Type	Signal Level
30/06/2015 09:59:32	1429-102-9127	Endpoint	-97.3
30/06/2015 09:59:17	1010-007-4519	Endpoint	-90.8
30/06/2015 09:59:29	1429-102-8766	Endpoint	-94.3
30/06/2015 09:59:29	1429-102-8788	Endpoint	-97.3
30/06/2015 09:59:18	1010-000-7553	Endpoint	-87.3
30/06/2015 09:59:33	1429-102-8720	Endpoint	-95.8
30/06/2015 09:59:33	1030-000-0955	Endpoint	-105.3
30/06/2015 09:55:43	1429-101-2131	Endpoint	-103.3
30/06/2015 09:59:18	1010-002-1094	Endpoint	-89.3
30/06/2015 09:59:21	1429-102-9421	Endpoint	-92.8
30/06/2015 09:59:33	1000-000-0000	Endpoint	-96.8
30/06/2015 09:59:31	1010-001-4198	Endpoint	-84.8
30/06/2015 09:59:31	1429-100-2140	Endpoint	-100.8
30/06/2015 09:59:31	1429-102-8921	Endpoint	-96.8
30/06/2015 09:59:31	1429-102-9179	Endpoint	-93.8
30/06/2015 09:59:31	1030-000-1493	Endpoint	-101.3
30/06/2015 09:59:31	1030-000-0363	Endpoint	-100.3

FIGURE 12-1 - DEVICES INFO SCREEN

12.1 Clear Table

On the Devices Info page there is the button 'Clear Table' that can be used to delete all devices (endpoints and repeaters) linked to the Gateway. This button can be used after an installation and if the user wants to delete all devices and load information again.

13 Operation Mode

On the 'Radio' tab there is the option 'Operation Mode'. The operation mode sets the Gateway to 'Normal Mode' or 'Transparent Mode'. The Transparent Mode sets the gateway to keep a direct channel with the SiRT. The Normal Mode is the default mode that sets the Gateway to access all functionalities, for example: Intelligent Block. In order to set the Gateway in any mode, select the option desired and click on 'Save' button. Also, there is the 'Default' button that sets the Gateway to 'Normal Mode' automatically. After save the option desired, it is necessary to Reset the Gateway. The Figure 13-1 illustrates the "Operation Mode" screen.

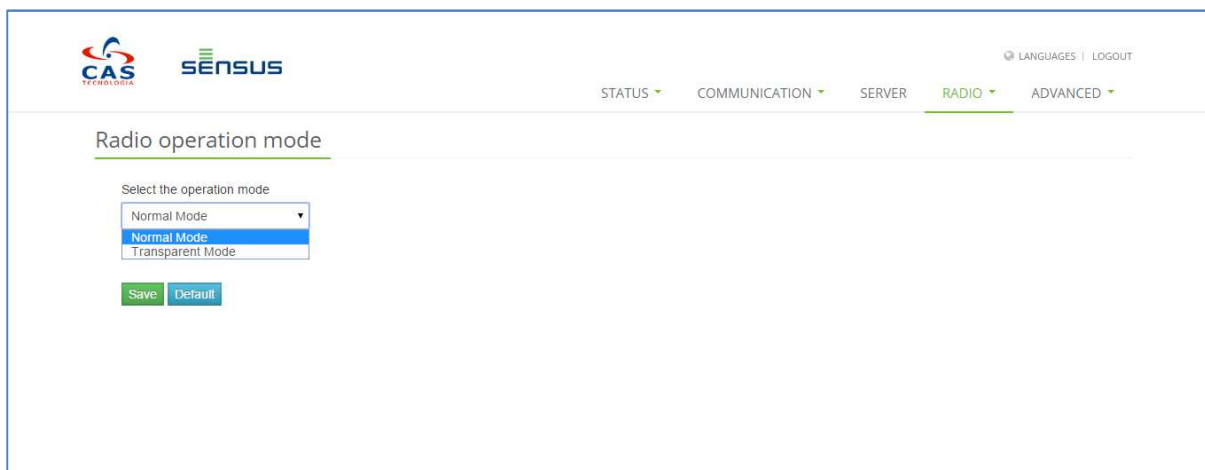
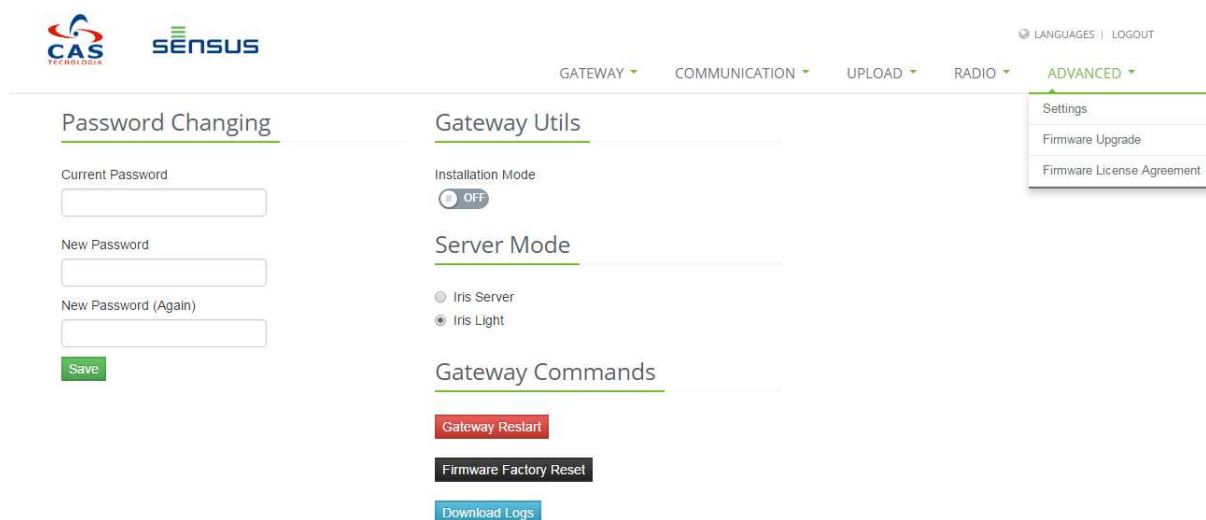


FIGURE 13-1 - OPERATION MODE SCREEN

14 Installation Mode

There is a functionality that sets the Gateway on 'Installation Mode' that allows the Gateway to keep devices information even if there is no connection. During the 'Installation Mode' configured, all readings will be received with date of the year 2000. This mode is configured just to verify if the network is working correctly between the gateway and devices. In order to activate this mode, it is necessary to access 'Advanced' tab > 'Settings'. On 'Installation Mode' set the button to 'ON', then reset the Gateway through 'Gateway Restart' button. The figure 14-1 illustrates "Installation Mode" button. The figure 14-1 illustrates the "Gateway Installation" mode.



The figure 14-1 illustrates the "Gateway Installation" mode

NOTE: For security reasons, if the SensusRF Gateway is left on 'Installation Mode' for more than 12 hours the gateway will disable automatically returning to the Normal Mode.

15 Resetting the Gateway

In order to reset the Gateway it is necessary to access the tab 'ADVANCED' and select the 'Settings' option. To reset, just click on 'Gateway Restart' button and wait a few seconds to finish the process. The Figure 15-1 illustrates the "Gateway Restart" button.

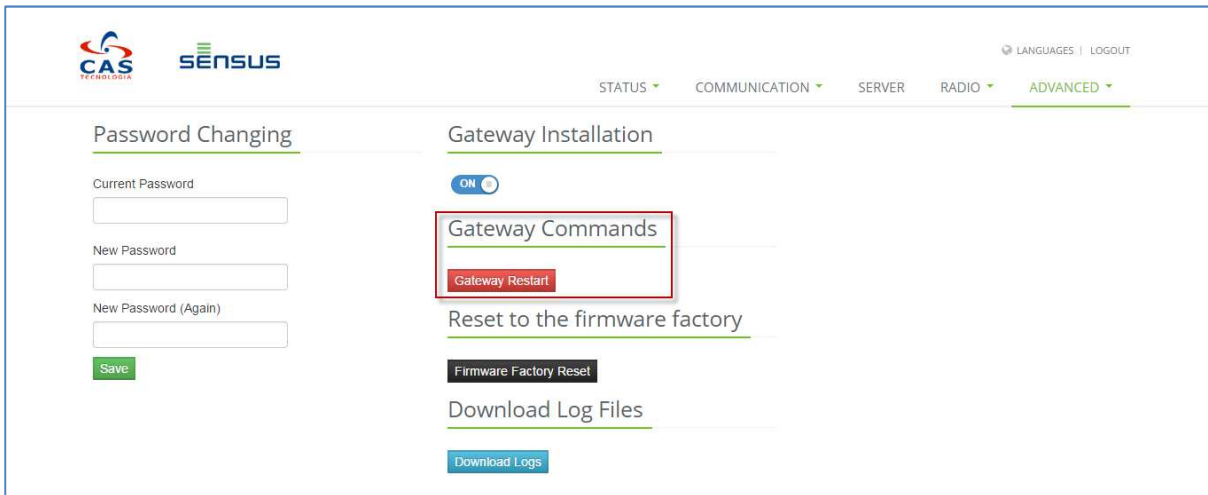


FIGURE 15-1 - “GATEWAY RESTART” BUTTON

16 Password Changing

On “Password Changing” is possible to update password of access to the system. For this, it is necessary to click on tab “Advanced” option “Settings”. The fields that must have be filled are Current Password, New Password and New Password (Again), and then click on button “Save”. The figure 16-1 illustrates “Password Changing” screen.

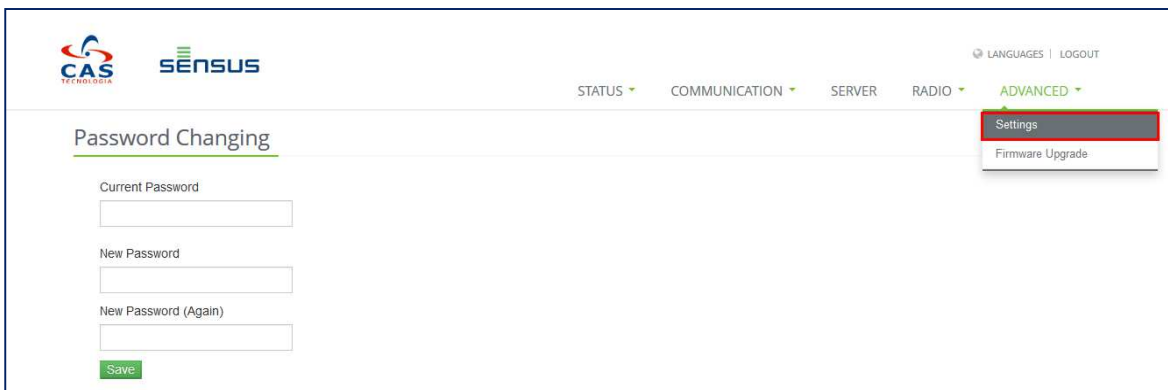


Figure 16-1 Password Changing

17 Firmware Upgrade

It is possible to upgrade the firmware in the gateway through the upload of Firmware Files from a PC connected to the gateway. For this it is necessary to access the screen “Firmware Upgrade” by clicking on tab “Advanced” option then “Firmware Upgrade”. The user must select the file of firmware (which must be on the attached PC) by clicking the button “Choose file” then clicking on “Upload”. The figure 17-1 illustrates “Firmware Upgrades” screen.

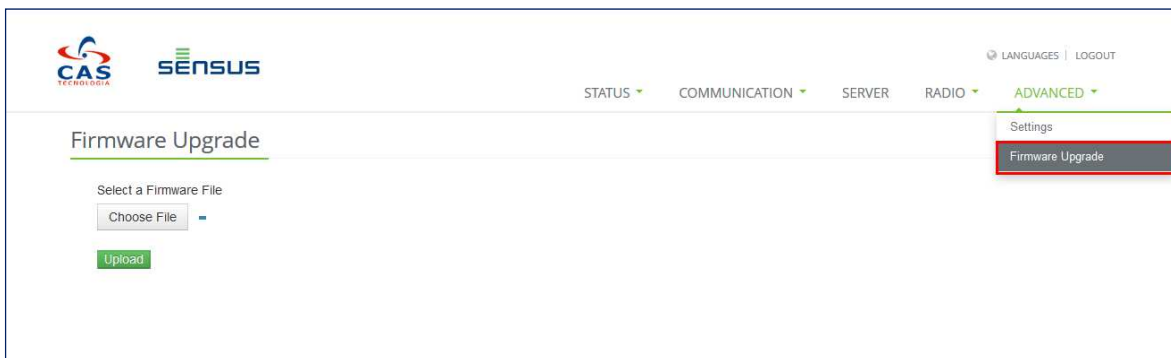
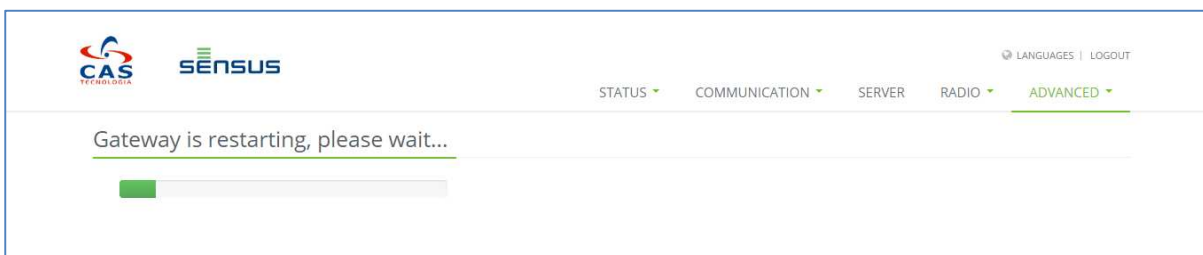


FIGURE 17-1 - FIRMWARE UPGRADE

After installing new firmware, the Gateway will restart automatically:



18 Languages

Currently, it is possible to select the language for Portuguese or English by clicking on “Languages”. The Figure 18-1 illustrates the option “Languages”.

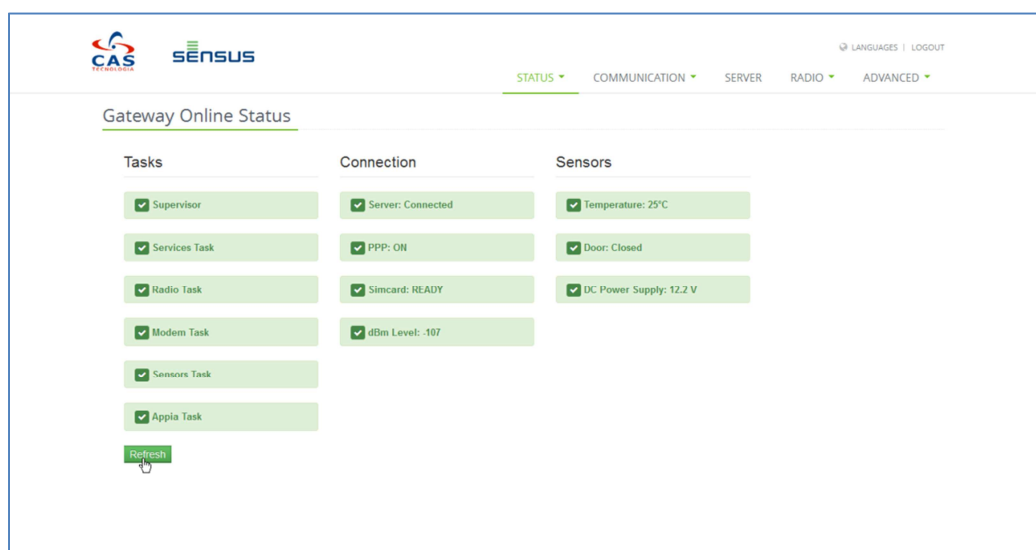


FIGURE 18-1 - LANGUAGES

19 Logout

To log out of the system, click the button “Logout” which is on the upper right corner of screen. The Figure 19-1 illustrates the location of the Logout link.

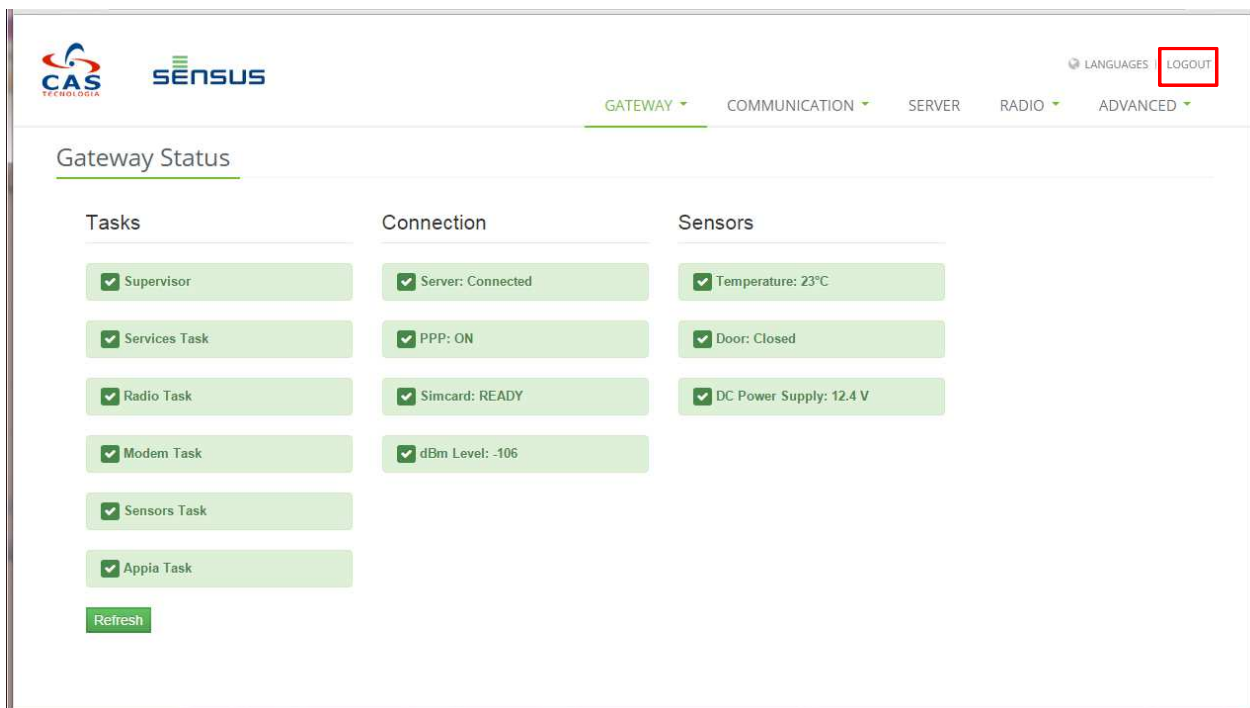


FIGURE 19-1 – LOGGING OUT OF THE GATEWAY

20 SMS commands

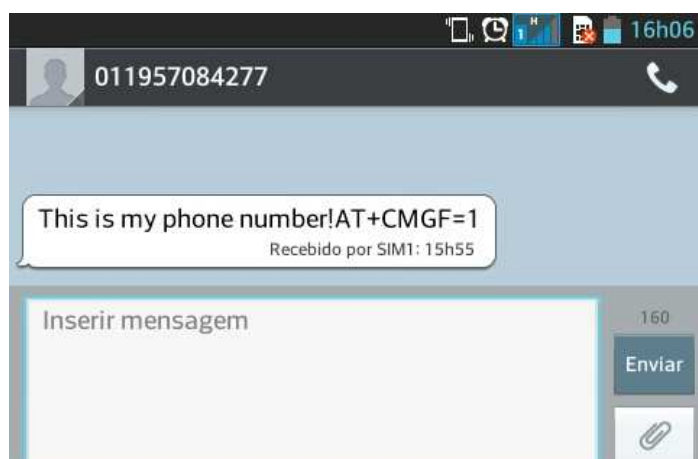
The SensusRF Gateway has functionality that allows the user to send commands via SMS. This is useful for situations where the user is not close to where the Gateway is installed. Firstly, in order to send a command to the Gateway it is necessary send the PIN command. The PIN command opens a session between the mobile phone and the Gateway. After the Gateway recognize the PIN, the session will remain active for 15 minutes. If a session has expired, the Gateway will answer an SMS sent to it with message: NACK-CLOSED-SESSION indicating that the session expired.

The first step to sending commands via SMS is to find the phone number of the SIM CARD. For this, it is necessary to send a specific command named as \$gmin by using the IRIS Server. After select the Gateway on IRIS Server, send the command below and the user will receive a SMS with the phone number:

*****,1,1,\$gmin,(user's mobile phone number).**

*For example: ***,1,1,\$gmin,07777123456*

After a few seconds, the user will receive a SMS with the phone number, as the example below:



Currently, there are five commands that are possible to send via SMS. These commands are explained in the chapters below.

20.1 “pin” command

The “pin” command opens a session between the mobile phone and the CAS Gateway. After sending the command, the Gateway will answer with an ACK (Acknowledge) or NAK (Not Acknowledge). The syntax of the command is:

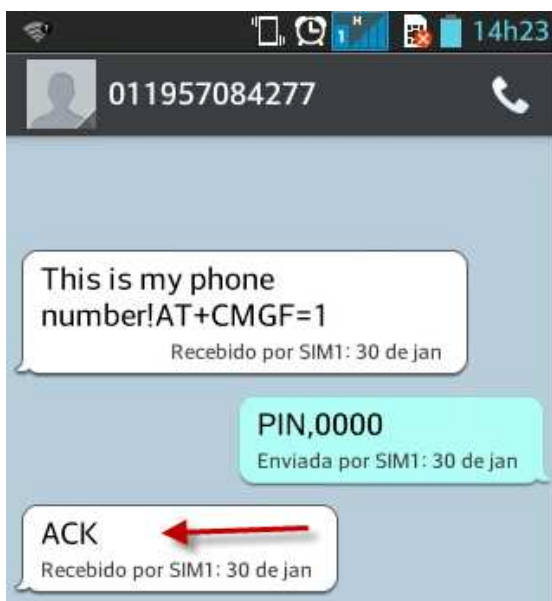
pin, PIN

Where:

PIN has to be the same PIN parameter registered on the Gateway (see Figure 10-1 - GPRS Parameters)



After send the PIN command, the CAS Gateway will answer ‘ACK’:



20.2 “Gwcont” command

The “gwcont” command is used for configure GPRS and server parameters. The syntax of the command is:

gwcont,1, APN, PORT, IP, USER, PASS

Where:

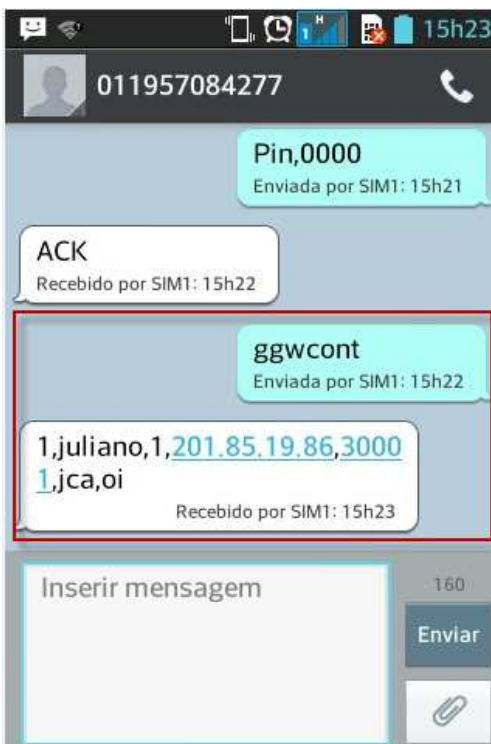
- 1- It means only one SIMCARD (NOTE: on the Gateway just SIMCARD slot one is used)
- APN is the carrier Access Point Name (APN)
- PORT, IP is the server port and IP the gateway has to connect to the IRIS Server
- USER, PASS is the apn username and password

20.3 “Ggwcont” command

The “ggwcont” command requests the GPRS & server parameters of configured on the Gateway. The syntax of the command is:

ggwcont

Returns: ggwcont , APN, IP, PORT, Authentication ,USER, PASS



20.4 “Restart” command

The “restart” command resets the Gateway remotely. The syntax of the command is:

restart

Returns: ACK – it indicates that the message was accepted

20.5 “signal” command

The “signal” command returns information to help with diagnostics of the state of communications with the gateway. Displays the current temperature and maximum temperature reached by the module among others information. The syntax to send the command is:

signal



Returns this example:

SIRT 12345678 02022015 S(10) GPRS: 3/ 1 -61dBm TEMP: 31 degrees

Where:

Information	Meaning
SIRT 12345678	Serial number of the meter
02022015	Date / time
S(10)	General state of the sensors
GPRS: [0-3]/[0-1]	See description below on the general state of the GPRS
-61dBm	GPRS signal level (from -51dBm to -113 dBm)
TEMP: 31 degrees	temperature in Celsius degrees

The state of GPRS connection is given by the indicators [0-3] / [0-1] representing:

[0-3] - Instantaneous state of connection to the server

0 = not connected

1 = performing input on GPRS network

2 = in process of authentication with the server

3 = successfully connected

Usually it is unlikely to see the states "1" and "2" because their transitions are fast.

[0-1] - The availability status of the GPRS network in place

This information is obtained from the GPRS network, and represents a reliable basis for determining whether or there is not any problem with the GPRS network in place (0 = GPRS not available, 1= GPRS available)

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