

LOW-COST LORA GATEWAY: WEB ADMIN INTERFACE



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CONTENTS

- ❑ This tutorial presents the web admin interface which is an add-on to the low-cost gateway
- ❑ Please read first the "Low-cost LoRa gateway: a step-by-step tutorial" to understand the gateway configuration
- ❑ Let's get started...

GATEWAY WEB ADMIN INTERFACE (1)

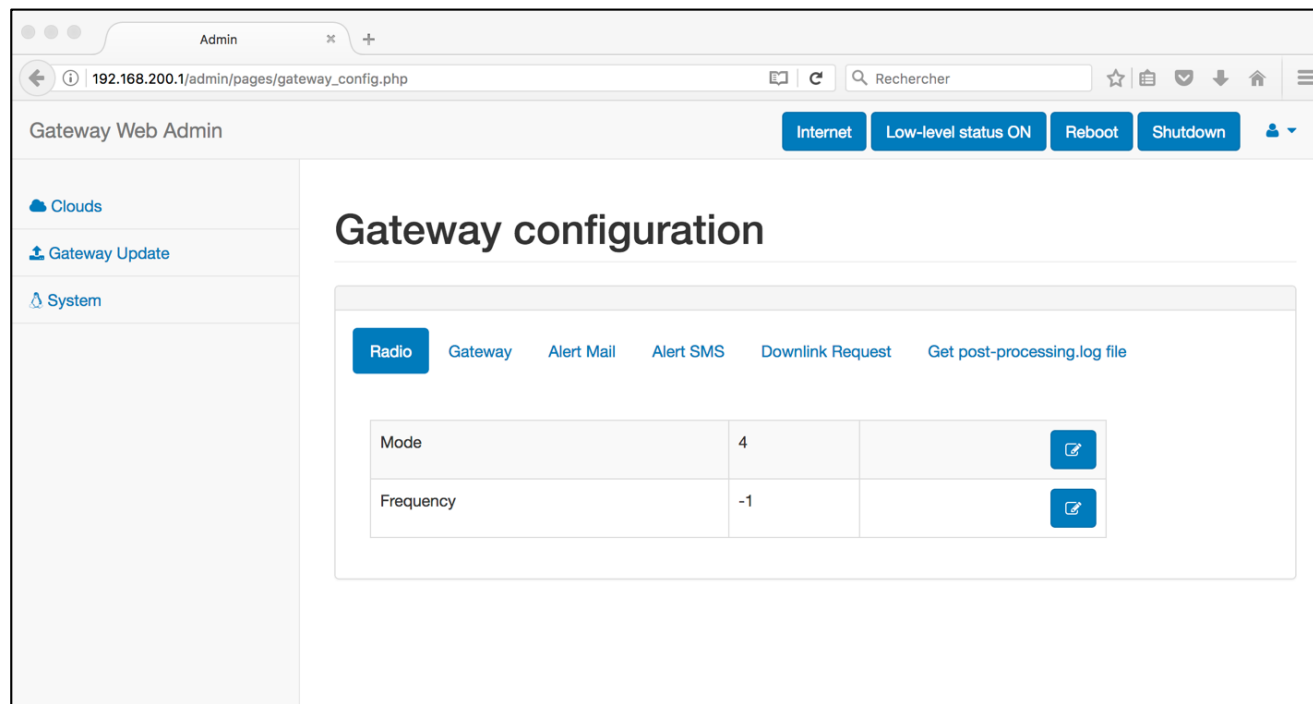
- ❑ A gateway web admin interface has been added to the latest version
- ❑ To install the web admin interface, check if you have the `gw_web_admin` folder in your `lora_gateway` folder
- ❑ If you don't, then update to the latest version
- ❑ Then, go into `gw_web_admin` and run the `install.sh` script
 - ❑ `cd gw_web_admin`
 - ❑ `sudo ./install.sh`

GATEWAY WEB ADMIN INTERFACE (2)

□ <http://192.168.200.1/admin>

□ Login: admin

□ Password: loragateway



WEB ADMIN FEATURES

- ❑ Currently, you can use the web admin to:
 - ❑ Test Internet connectivity
 - ❑ Easily reboot and shutdown your gateway
 - Be carefull, if you shut down the gateway, you need to physically access the gateway to power it it on again
 - ❑ Change LoRa mode and frequency
 - ❑ Set your gateway id and configure alerting system (mail, SMS)
 - ❑ Update your gateway with the latest github version and perform the basic configuration procedure
 - ❑ Upgrade your gateway by preserving your configuration files
 - ❑ Change the WiFi SSID and password
 - ❑ Enable/Disable local AES decryption
 - ❑ Enable/Disable ThingSpeak and WAZIUP Orion cloud
 - ❑ For ThingSpeak, you can specify a new write key
 - ❑ For WAZIUP Orion, you can specify the project name, the organization name and the service tree
 - Fiware-service=project_name
 - sensor_name=organization_name+"_Sensor"
 - Fiware-servicePath='/' + organization_name + service_tree

GATEWAY MAIN PAGE

□ Gateway main page (configuration page)

The screenshot shows the 'Gateway Web Admin' interface in a web browser. The address bar displays '192.168.200.1/admin/pages/gateway_config.php'. The page title is 'Gateway configuration'. On the left sidebar, there are links for 'Clouds', 'Gateway Update', and 'System'. The main content area has a top navigation bar with buttons: 'Internet', 'Low-level status ON', 'Reboot', and 'Shutdown'. Below this, there are tabs: 'Radio', 'Gateway', 'Alert Mail', 'Alert SMS', 'Download request', and 'Get post-processing log file'. The 'Radio' tab is active, showing a table with columns for 'Mode' and 'Frequency'. The 'Mode' column contains the value '4'. Four blue callout boxes with arrows point to specific elements: 'Check Internet connectivity' points to the 'Internet' button; 'Display the last low-level gw status' points to the 'Low-level status ON' button; 'Reboot the gateway. Need to reboot after any update' points to the 'Reboot' button; and 'Shutdown the gateway' points to the 'Shutdown' button.

Gateway Web Admin

Internet Low-level status ON Reboot Shutdown

Gateway configuration

Radio Gateway Alert Mail Alert SMS Download request Get post-processing log file

| Mode | Frequency |
|------|-----------|
| 4 | |

Check Internet connectivity

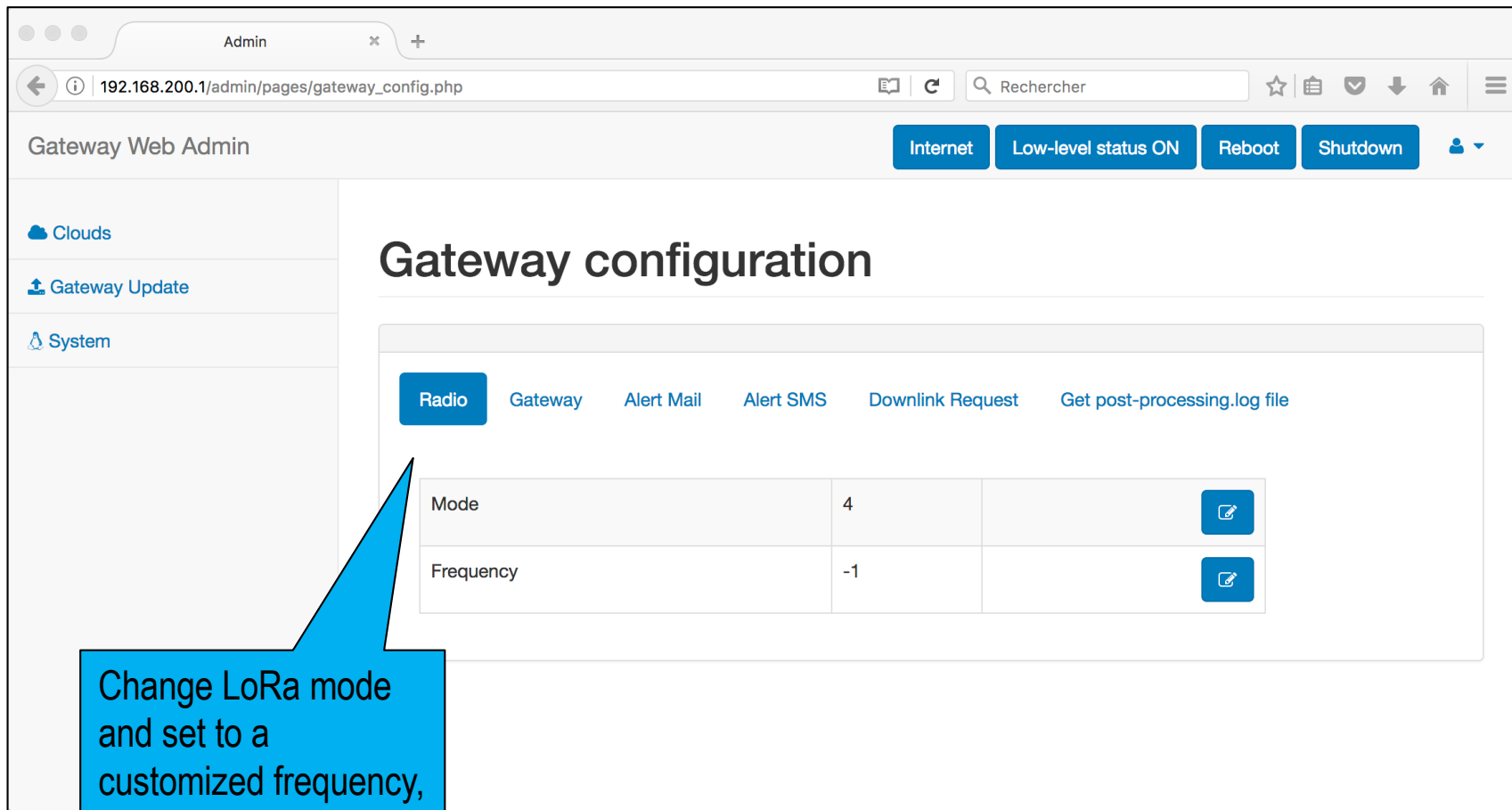
Display the last low-level gw status

Reboot the gateway. Need to reboot after any update

Shutdown the gateway

GATEWAY CONFIGURATION (1)

□ Gateway radio configuration section



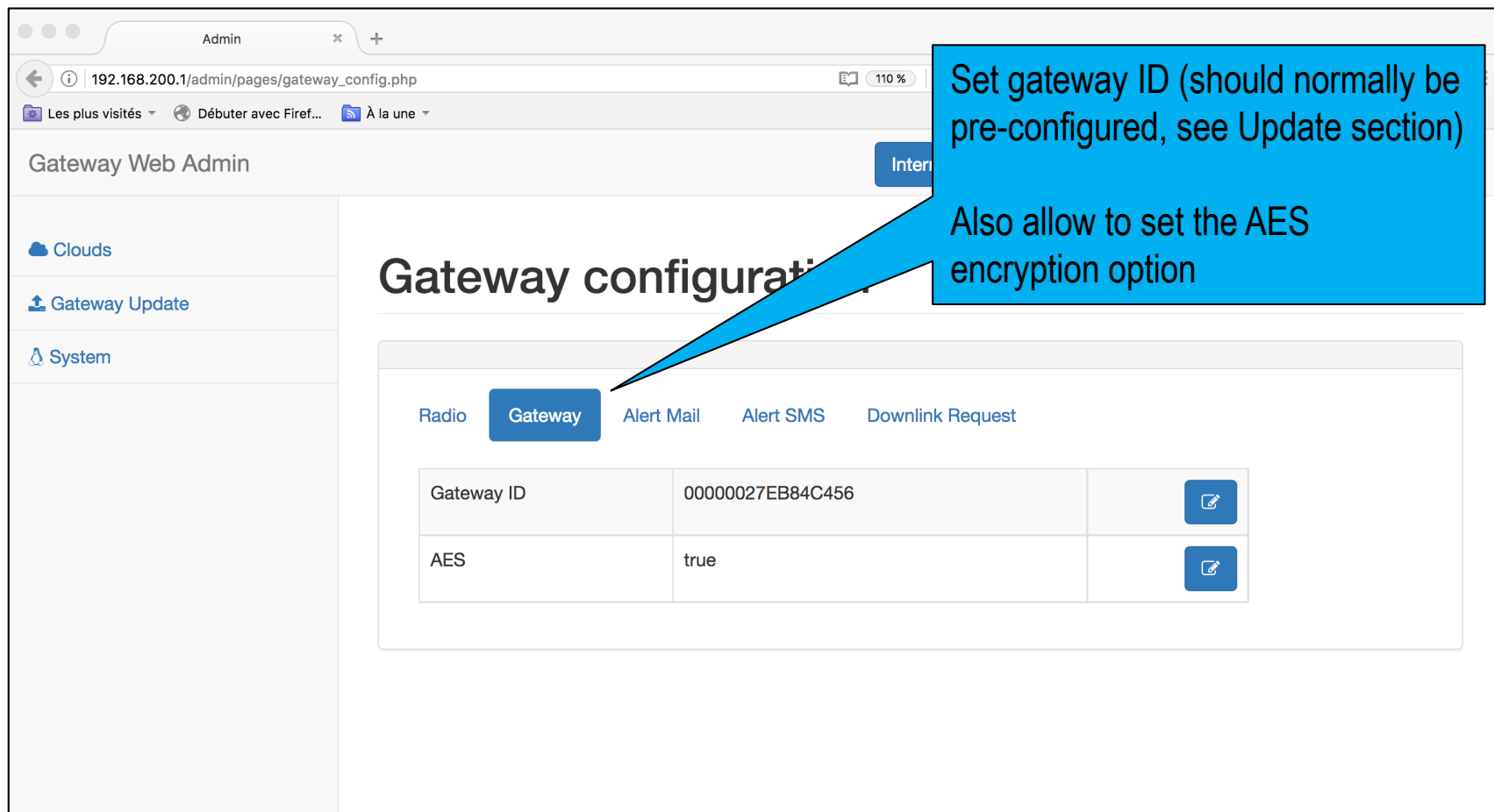
The screenshot shows the 'Gateway Web Admin' interface. The main heading is 'Gateway configuration'. Below it, there are tabs: 'Radio' (selected), 'Gateway', 'Alert Mail', 'Alert SMS', 'Downlink Request', and 'Get post-processing.log file'. The 'Radio' tab contains a table with two rows: 'Mode' and 'Frequency'. The 'Mode' row has a value of '4' and an edit icon. The 'Frequency' row has a value of '-1' and an edit icon. A blue callout box points to the 'Radio' tab with the text: 'Change LoRa mode and set to a customized frequency, e.g. 433.3MHz'.

| Mode | Frequency |
|------|-----------|
| 4 | -1 |

Change LoRa mode and set to a customized frequency, e.g. 433.3MHz

GATEWAY CONFIGURATION (2)

□ Gateway configuration section



Admin

192.168.200.1/admin/pages/gateway_config.php

Gateway Web Admin



Clouds

Gateway Update

System

Gateway configuration

Radio Gateway Alert Mail Alert SMS Downlink Request

| | | |
|------------|------------------|---|
| Gateway ID | 00000027EB84C456 |  |
| AES | true |  |

Set gateway ID (should normally be pre-configured, see Update section)

Also allow to set the AES encryption option

GATEWAY CONFIGURATION (3)

□ Gateway email alerting section

Your email account password

Enter your mail address for sending emails

The SMTP mail server to send emails

A list of email recipient addresses to receive alert notifications

The screenshot shows a web browser window with the title 'Admin'. The main heading is 'Gateway configuration'. Below this, there are tabs for 'Gateway', 'Alert Mail', 'Alert SMS', and 'Downlink Re'. The 'Alert Mail' tab is selected. The configuration table is as follows:

| | |
|---------------|---|
| Enabled | false |
| Mail Account | a_gmail_address |
| Mail Password | 7c9268550caa0e9c6b282d2fe9946e89 |
| Mail Server | smtp.gmail.com |
| Contacts | the_contact_mail_address,another_contact_mail_address_if_needed |

Each row in the table has a small edit icon (pencil) to its right.

GATEWAY CONFIGURATION (4)

□ Gateway SMS alerting section

The screenshot shows a web browser window with the title 'Admin'. The main content area is titled 'Gateway configuration'. On the left, there is a sidebar with links for 'Clouds', 'Gateway Update', and 'System'. The main area has tabs for 'Radio', 'Gateway', 'Alert Mail', 'Alert SMS', and 'Downlink Request'. The 'Alert SMS' tab is selected. Below the tabs is a table with the following data:

| Parameter | Value | Action |
|-----------|----------------------------|--------|
| Enabled | false | |
| Pin code | 0 | |
| Contacts | +33XXXXXXXXX, +33XXXXXXXXX | |

Two blue callout boxes provide additional information:

- A callout box pointing to the 'Pin code' field contains the text: 'The SIM card pin code'.
- A callout box pointing to the 'Contacts' field contains the text: 'A list of mobile phone numbers to receive alert notifications'.

GATEWAY CONFIGURATION (5)

□ Gateway generating downlink messages

Admin 192.168.200.1/admin/pages/gateway_config.php

Gateway Web Admin

Internet Low-level status ON Reboot Shutdown

Gateway configuration

Radio Gateway Alert Mail Alert SMS Downlink Request

Destination
2

Message
hello from gateway

Submit Clear

Destination node, between 2 and 255

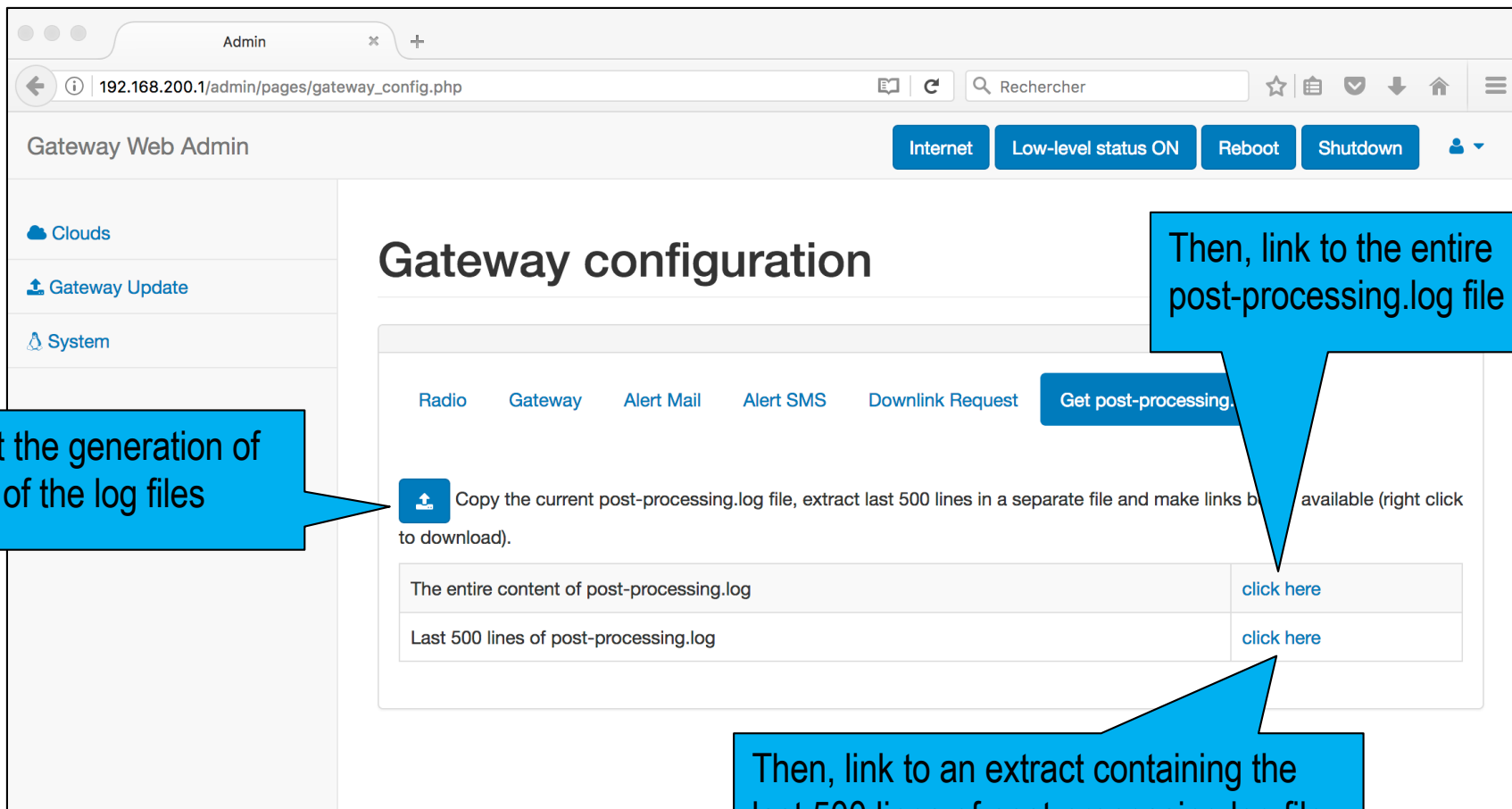
The string to send. Can be specific commands for the device if it has been programmed/configured accordingly.

That will generate in the downlink folder a downlink-post.txt file with the following entry:
`{"status": "send_request", "dst": 2, "data": "hello from gateway"}`

More info on https://github.com/CongducPham/LowCostLoRaGw/blob/master/gw_full_latest/README-downlink.md

GATEWAY CONFIGURATION (6)

□ Gateway log files section



The screenshot shows the 'Gateway Web Admin' interface. The main heading is 'Gateway configuration'. Below it, there are tabs: 'Radio', 'Gateway', 'Alert Mail', 'Alert SMS', 'Downlink Request', and 'Get post-processing.log'. A blue button labeled 'Get post-processing.log' is visible. Below the tabs, there is a section with a download icon and text: 'Copy the current post-processing.log file, extract last 500 lines in a separate file and make links b... available (right click to download)'. Below this, there are two rows of links:

| | |
|---|----------------------------|
| The entire content of post-processing.log | click here |
| Last 500 lines of post-processing.log | click here |

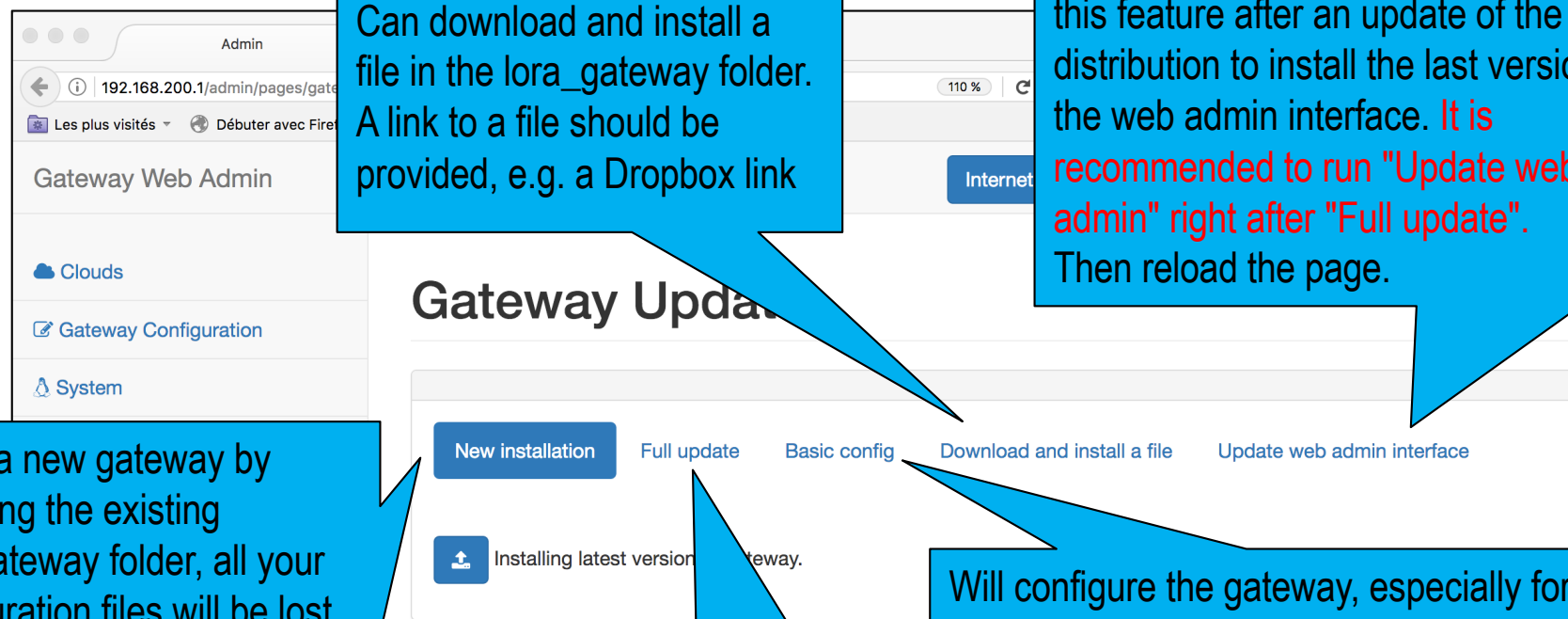
To start the generation of a copy of the log files

Then, link to the entire post-processing.log file

Then, link to an extract containing the last 500 lines of post-processing.log file

GATEWAY UPDATE PAGE

□ Gateway update section



Can download and install a file in the lora_gateway folder. A link to a file should be provided, e.g. a Dropbox link

Update the web admin interface. Use this feature after an update of the distribution to install the last version of the web admin interface. **It is recommended to run "Update web admin" right after "Full update".** Then reload the page.

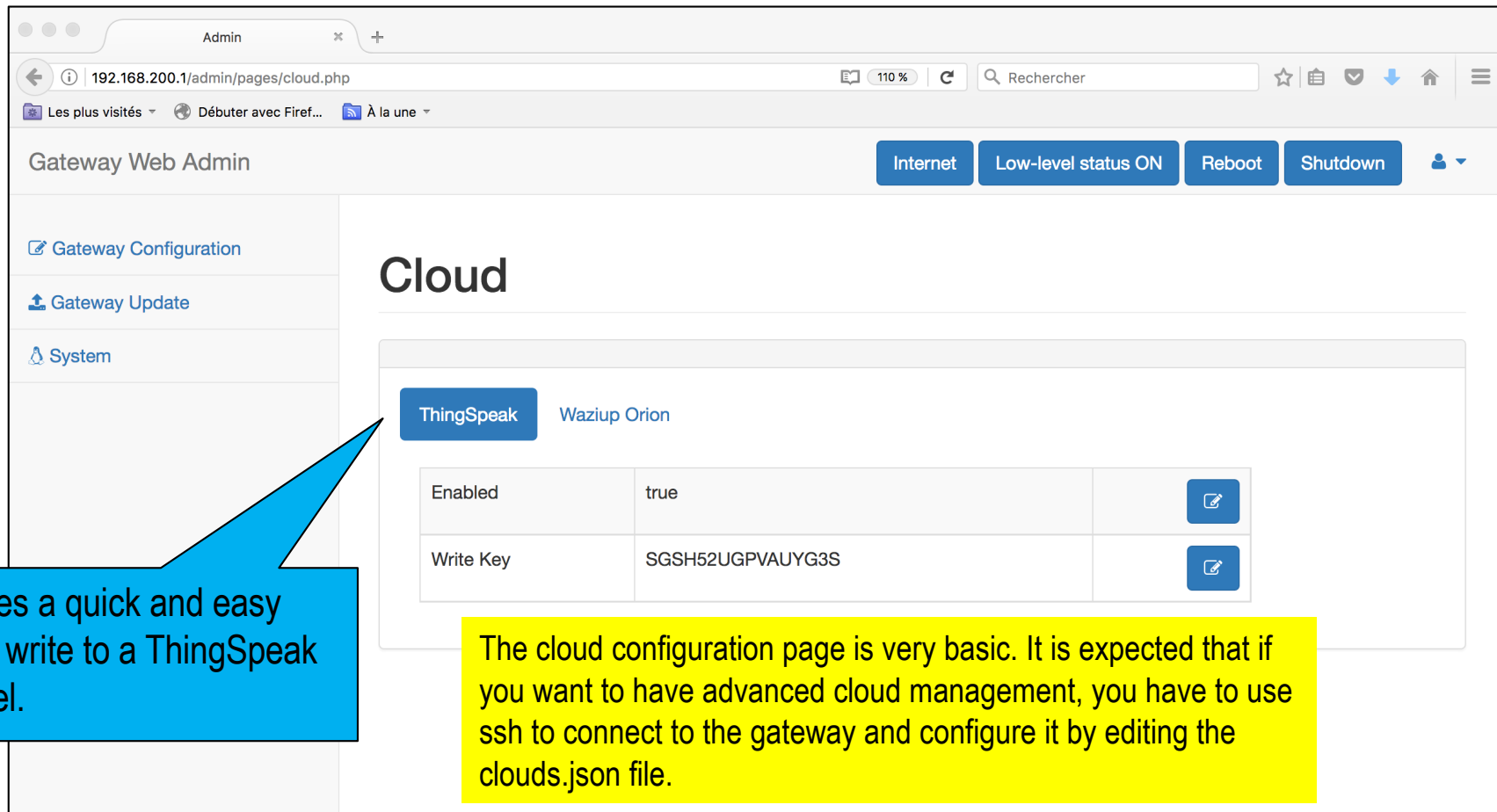
Install a new gateway by removing the existing lora_gateway folder, all your configuration files will be lost.

This may be needed after a major upgrade of the distribution if you start from a very old SD card image.



Update with latest version on github, all your configuration files will be kept. This is the **recommended option**.

Will configure the gateway, especially for the **gateway id** & the **WiFi SSID** derived from the last 5 bytes of the eth MAC address. This is also required if you install a new gateway using the provided SD card image. **It is recommended to run "Basic config" right after "Full update".**

□ Gateway cloud configuration section



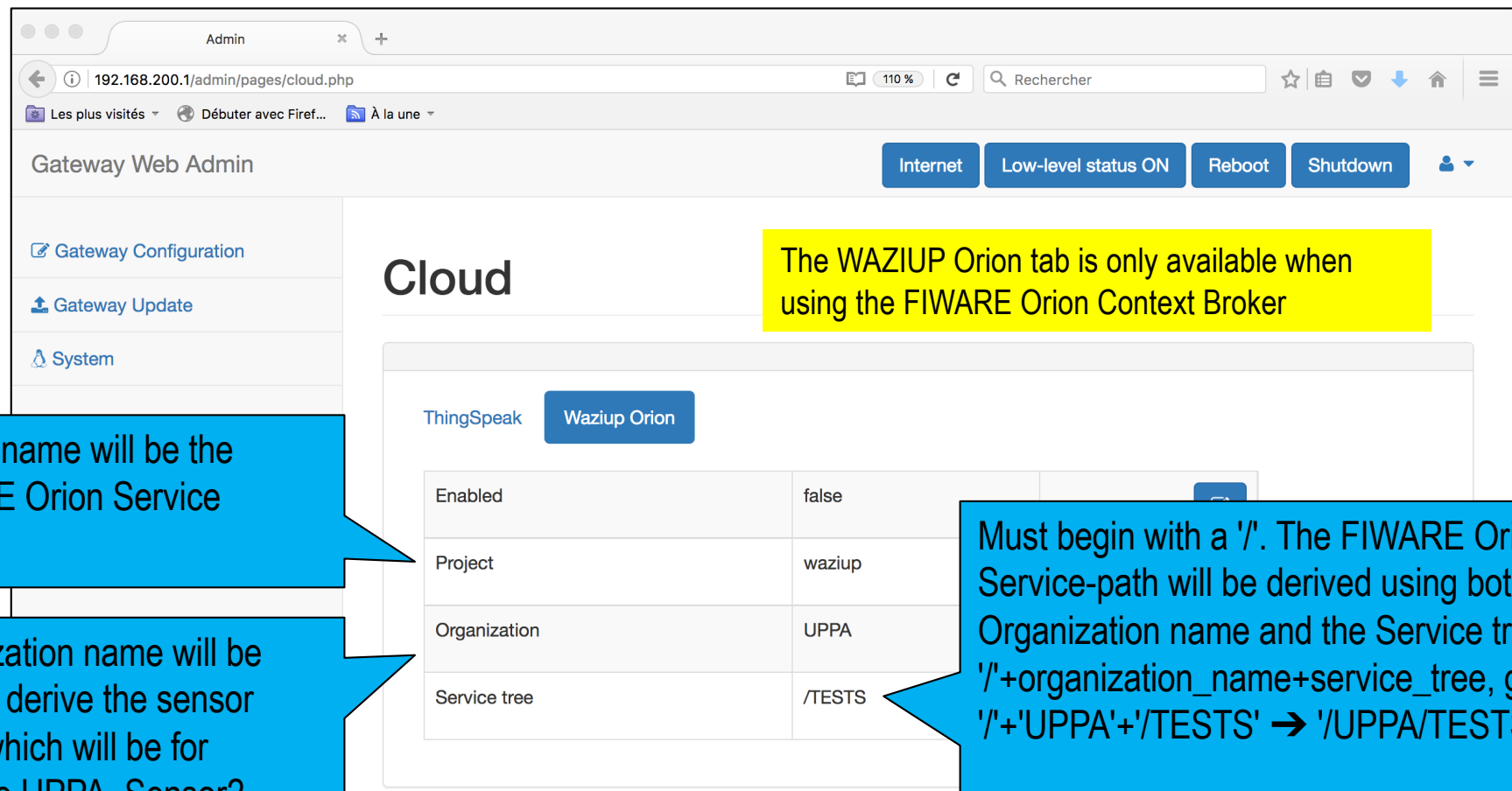
The screenshot shows the 'Gateway Web Admin' interface. The left sidebar contains 'Gateway Configuration', 'Gateway Update', and 'System'. The main content area is titled 'Cloud' and features a 'ThingSpeak' button and a 'Waziup Orion' button. Below these is a table with configuration details.

| | | |
|-----------|------------------|---|
| Enabled | true |  |
| Write Key | SGSH52UGPVAUYG3S |  |

Provides a quick and easy way to write to a ThingSpeak channel.

The cloud configuration page is very basic. It is expected that if you want to have advanced cloud management, you have to use ssh to connect to the gateway and configure it by editing the clouds.json file.

□ Configuring WAZIUP Orion cloud



The screenshot shows the 'Gateway Web Admin' interface. The left sidebar contains 'Gateway Configuration', 'Gateway Update', and 'System'. The main content area is titled 'Cloud' and has a yellow callout: 'The WAZIUP Orion tab is only available when using the FIWARE Orion Context Broker'. Below this, there are two tabs: 'ThingSpeak' and 'Waziup Orion'. The 'Waziup Orion' tab is active, showing a configuration table:

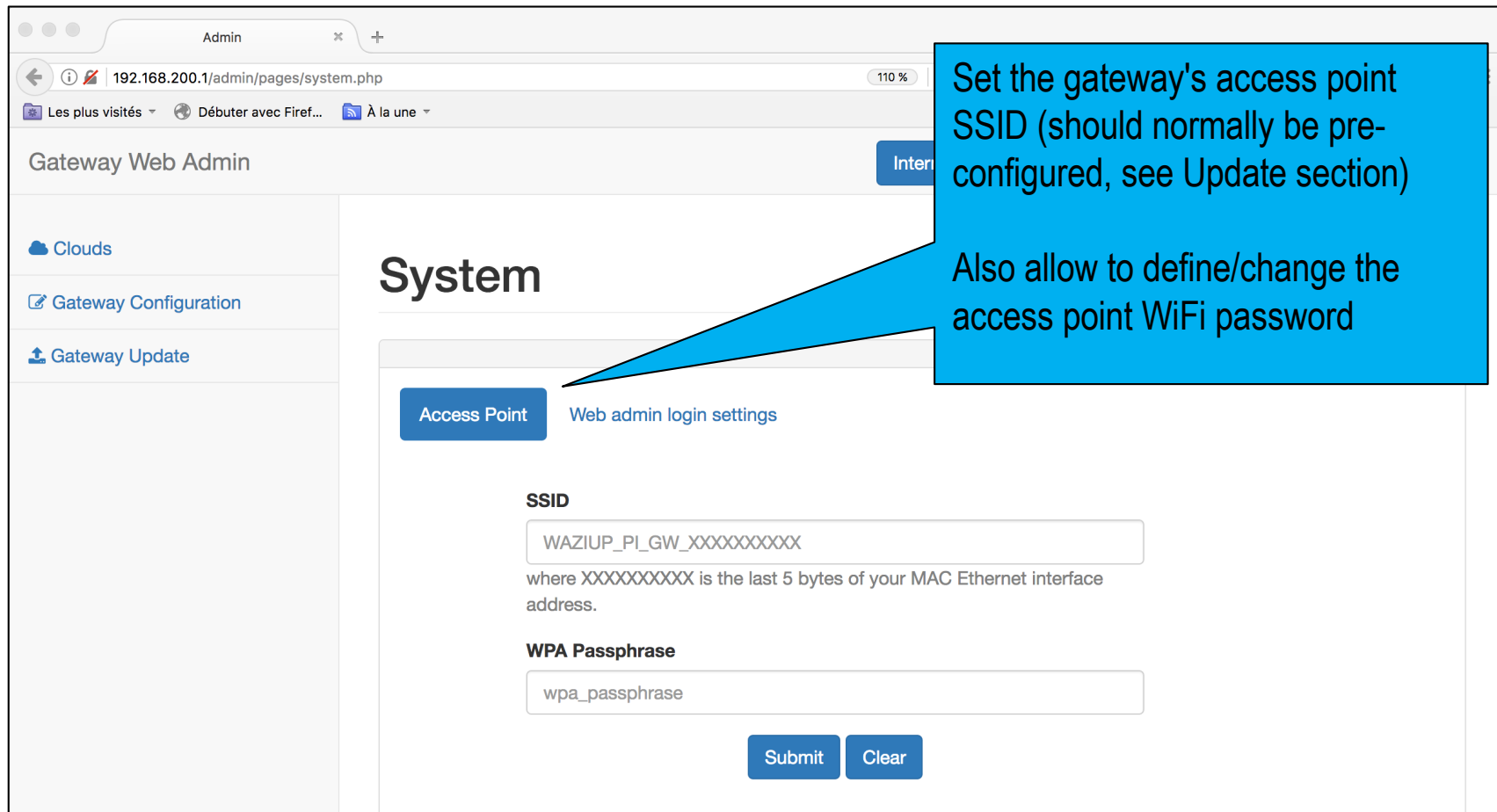
| | |
|--------------|--------|
| Enabled | false |
| Project | waziup |
| Organization | UPPA |
| Service tree | /TESTS |

Three blue callout boxes provide additional information:

- Project name will be the FIWARE Orion Service
- Organization name will be used to derive the sensor name which will be for instance UPPA_Sensor2
- Must begin with a '/'. The FIWARE Orion Service-path will be derived using both the Organization name and the Service tree: `'/' + organization_name + service_tree`, giving `'/' + 'UPPA' + '/TESTS' → '/UPPA/TESTS'`

GATEWAY SYSTEM CONFIGURATION (1)

□ Gateway WiFi access point



Admin

192.168.200.1/admin/pages/system.php

Gateway Web Admin

Clouds

Gateway Configuration

Gateway Update

System

Access Point Web admin login settings

SSID

WAZIUP_PI_GW_XXXXXXXXXX

where XXXXXXXXXX is the last 5 bytes of your MAC Ethernet interface address.

WPA Passphrase

wpa_passphrase

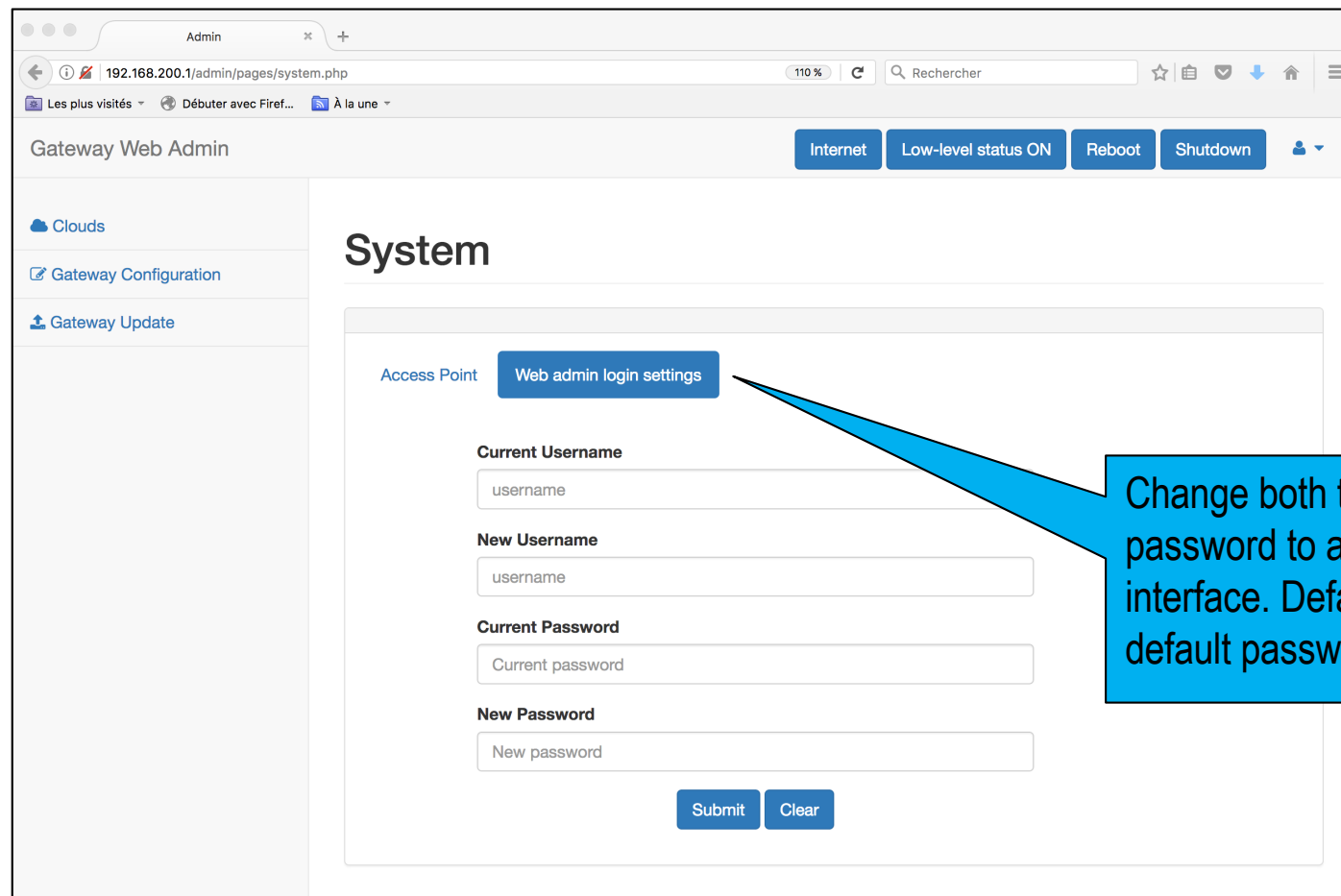
Submit Clear

Set the gateway's access point SSID (should normally be pre-configured, see Update section)

Also allow to define/change the access point WiFi password

GATEWAY SYSTEM CONFIGURATION (2)

□ Gateway web admin interface



The screenshot shows a web browser window with the address bar displaying `192.168.200.1/admin/pages/system.php`. The page title is "Gateway Web Admin". On the right side of the header, there are buttons for "Internet", "Low-level status ON", "Reboot", and "Shutdown", along with a user icon. The left sidebar contains links for "Clouds", "Gateway Configuration", and "Gateway Update". The main content area is titled "System" and contains a tabbed interface with "Access Point" and "Web admin login settings". The "Web admin login settings" tab is active and shows four input fields: "Current Username" (with placeholder "username"), "New Username" (with placeholder "username"), "Current Password" (with placeholder "Current password"), and "New Password" (with placeholder "New password"). At the bottom of these fields are "Submit" and "Clear" buttons. A blue callout box points to the "Web admin login settings" tab with the text: "Change both the login and password to access the web admin interface. Default login is admin and default password is loragateway".