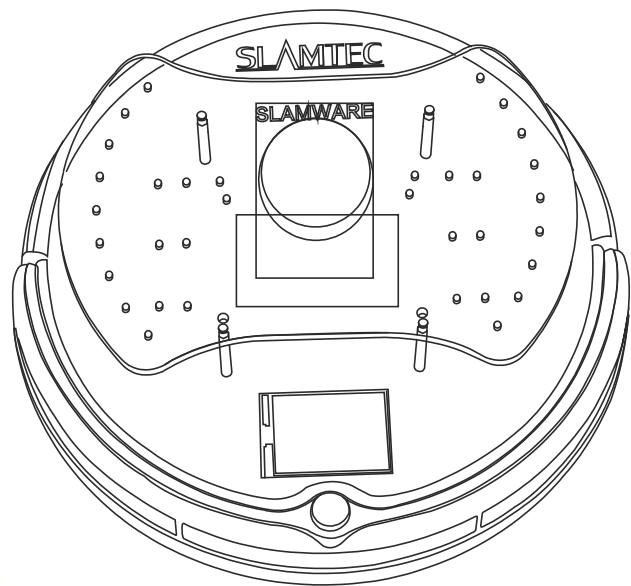


SLAMWARE SDP

Modular Autonomous Robot Localization and Navigation Solution

SDP User Manual



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The SLAMTEC SLAMWARE SDP is a general purpose robotics development platform with built-in function of simultaneous localization and mapping.

The construction of SLAMWARE SDP is based on the RoboPeak RPLIDAR sensor and the SLAMWARE software technology. The platform can arm your robot with auto-mapping and localization capabilities and you don't need to worry about any details of SLAM algorithm or robot localization technology.

For application developers, the SLAMWARE SDP has a user-friendly API (Application Programming Interface). With the application, we can obtain all the previously discovered map, the location of the robot in the map and its heading direction (aka. Pose), and we can deliver commands via the API to make the robot moving automatically to the specified location.

Feature

This module comes with following features:

- simultaneous localization and mapping
- high-resolution and high-frequency LIDAR sensor
- high-accuracy map with resolution up to 2 cm
- map updated every 200ms
- D* routine planning algorithm
- transparent obstacle avoidance
- color touchscreen for checking the robot status and setting the robot
- 802.11n Wi-Fi connection both in AP/Station mode (which means we can connect the SLAMWARE SDP to our existed wireless network for development)

Connect to PC via Wifi

The SLAMWARE SDP connects to PC via wifi in AP or Station mode:

AP Mode

After launching SLAMWARE SDP, we can connect the SLAMWARE SDP to a SSID named SLAMWARE-XXXXXXXXXXXX detected from wifi scanning. The automatically distributed network segment is 192.168.11.x.

Station Mode

We can set the SLAMWARE SDP into Station Mode and connect it to LAN (Local Area Network) . The following section introduces detailed steps.

Step 1: connect to the AP of SLAMWARE Core via computer

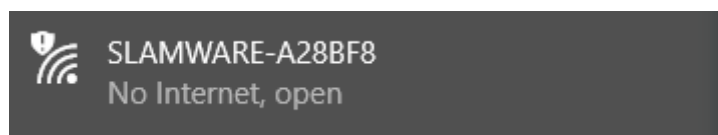


Figure 2-1 AP of SLAMWARE Core

Step 2: input <http://192.168.11.1> in the browser address bar and open it

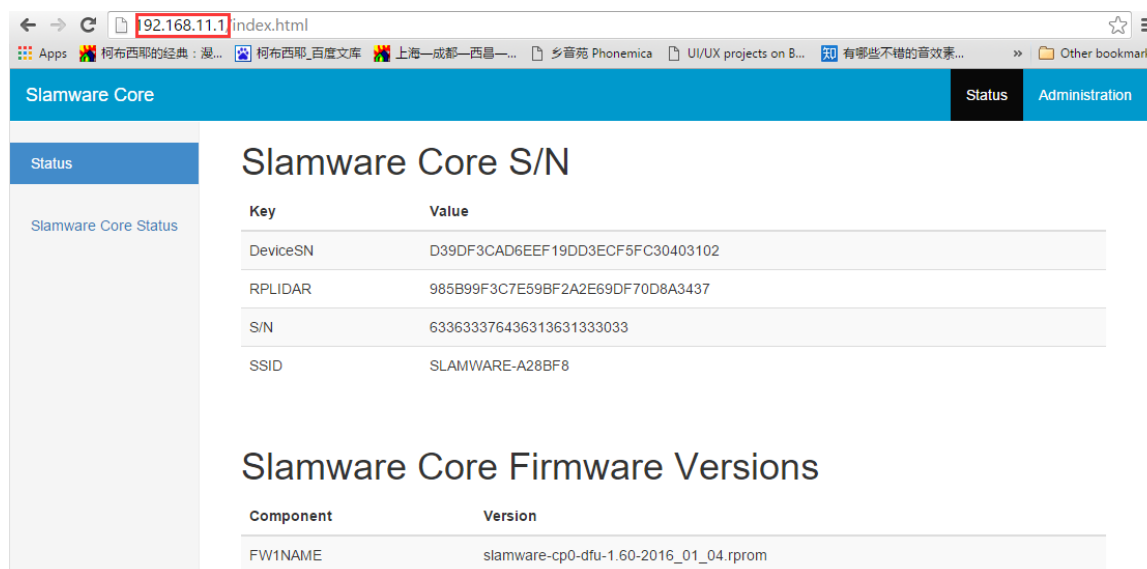
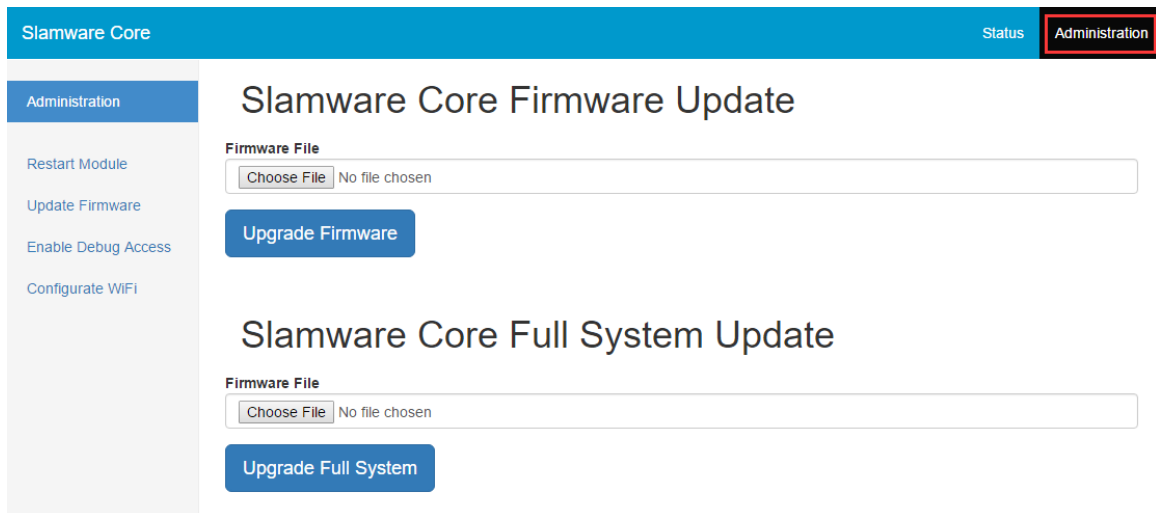


Figure 2-2 <http://192.168.11.1>

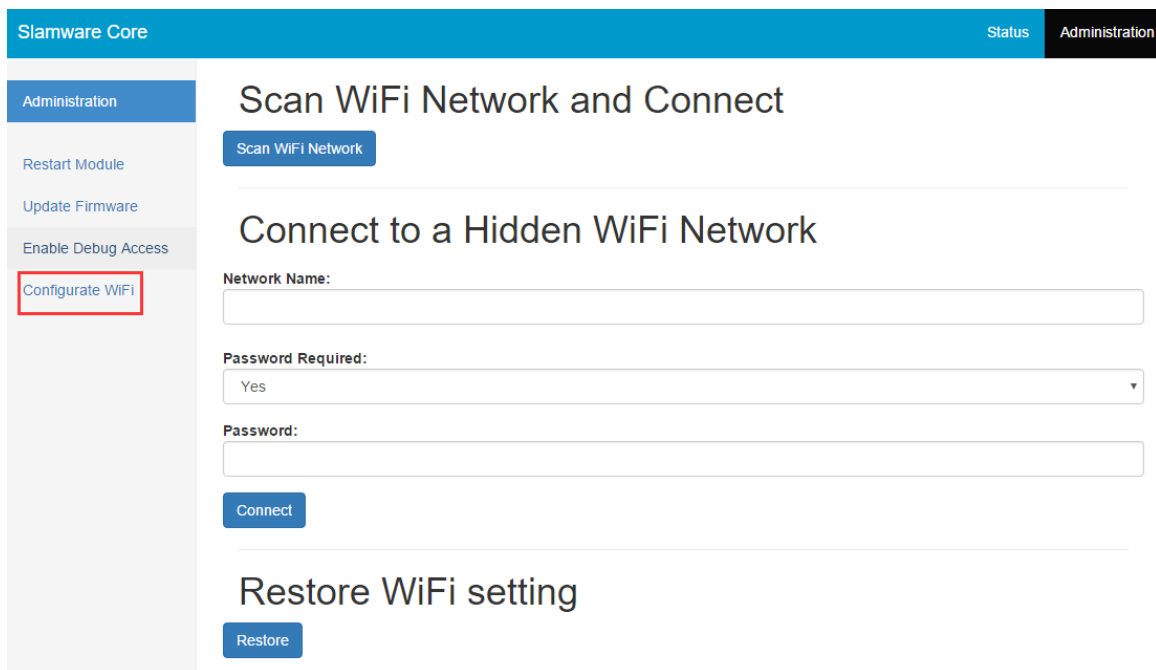
Step 3: click **Administration** on the upper right corner



The screenshot shows the 'Slamware Core' administration interface. The top navigation bar includes 'Slamware Core', 'Status', and 'Administration' (highlighted in red). The left sidebar lists 'Administration', 'Restart Module', 'Update Firmware', 'Enable Debug Access', and 'Configure WiFi'. The main content area is titled 'Slamware Core Firmware Update' and contains a 'Firmware File' section with a 'Choose File' button and 'No file chosen' text, followed by an 'Upgrade Firmware' button. Below this is a section titled 'Slamware Core Full System Update' with another 'Firmware File' section and an 'Upgrade Full System' button.

Figure 2-3 Administration Page in <http://192.168.11.1>

Step 4: choose **Configure WiFi** in the left panel



The screenshot shows the 'Slamware Core' WiFi configuration interface. The top navigation bar includes 'Slamware Core', 'Status', and 'Administration'. The left sidebar lists 'Administration', 'Restart Module', 'Update Firmware', 'Enable Debug Access', and 'Configure WiFi' (highlighted in red). The main content area is titled 'Scan WiFi Network and Connect' and contains a 'Scan WiFi Network' button. Below this is a section titled 'Connect to a Hidden WiFi Network' with fields for 'Network Name:', 'Password Required:' (set to 'Yes'), and 'Password:'. A 'Connect' button is located below these fields. At the bottom, there is a 'Restore WiFi setting' section with a 'Restore' button.

Figure 2-4 Wifi Configuration Page in <http://192.168.11.1>

Step 5: input WIFI configuration as shown in the following figure and click **Connect**

Connect to a Hidden WiFi Network

Network Name:

Password Required:

Password:

Figure 2-5 Wifi Configuration and Connection

Step 6: on the router, you will find the SLAMWARE Core has been connected to the WIFI successfully.

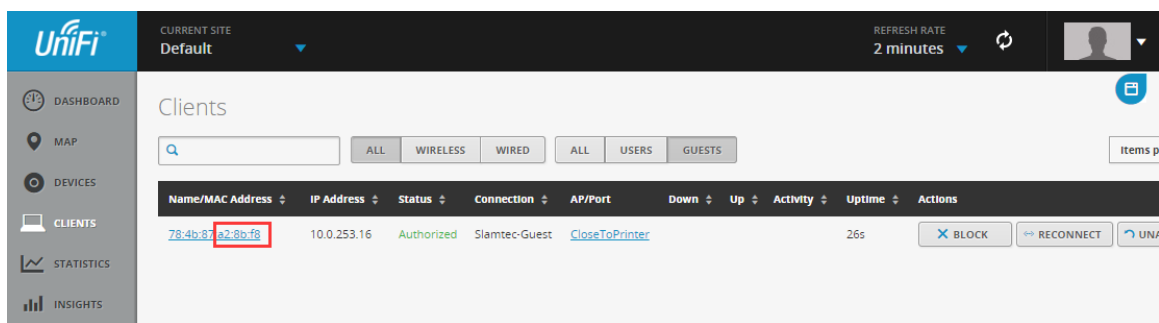


Figure 2-6 Wifi Connection Success

Note : AP mode is still functional when in Station mode.

Update the SLAMWARE SDP

SLAMTEC will provide a regular update for the SLAMWARE SDP firmware. We can manage the SLAMWARE SDP firmware easily via the backend admin of SDP.

Download the SLAMWARE SDP firmware

We can download the update package of SLAMWARE SDP from the address below:

<http://www.slamtec.com/zh-CN/slamware/index/24> (Only in Chinese)

Update the SLAMWARE SDP firmware via Web portal

Step 1: Connect to the wifi of Slamtec SDP**Step 2: Log into the SLAMWARE SDP backend admin**

Open browser and type <http://192.168.11.1> in the address bar to log in.

Step 3: Go to the Upgrade Firmware page

After logging in, click **Status** to go to the Firmware list page and click **Update Firmware**.

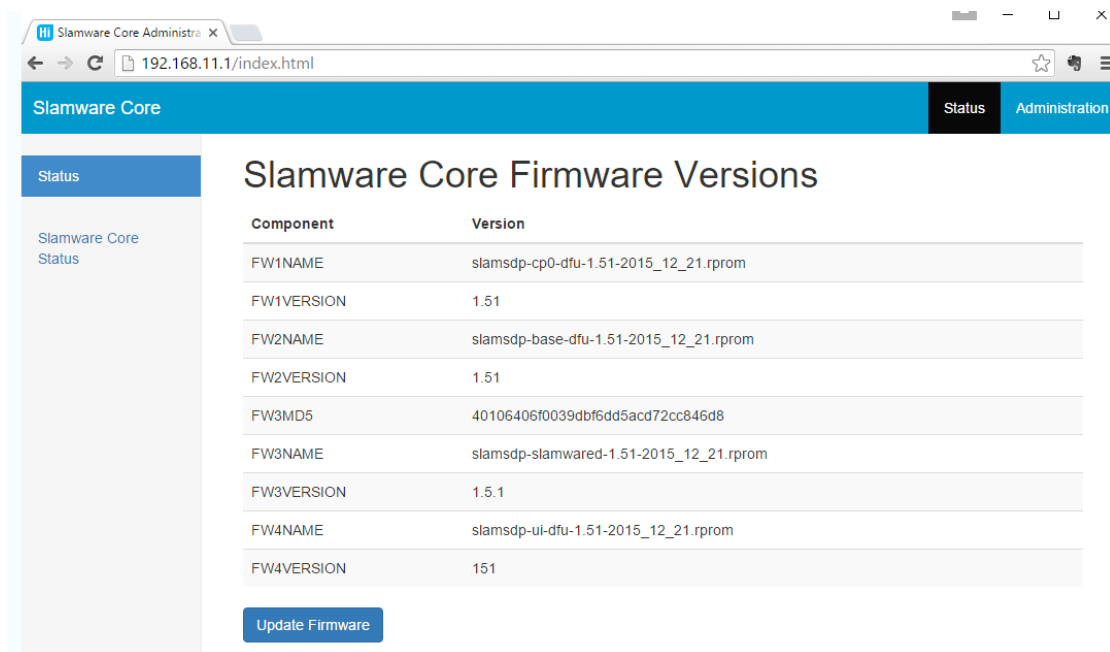


Figure 3-1 Firmware List Page

Step 4 Choose the firmware file and start updating

A . The following is the Upgrade Firmware page

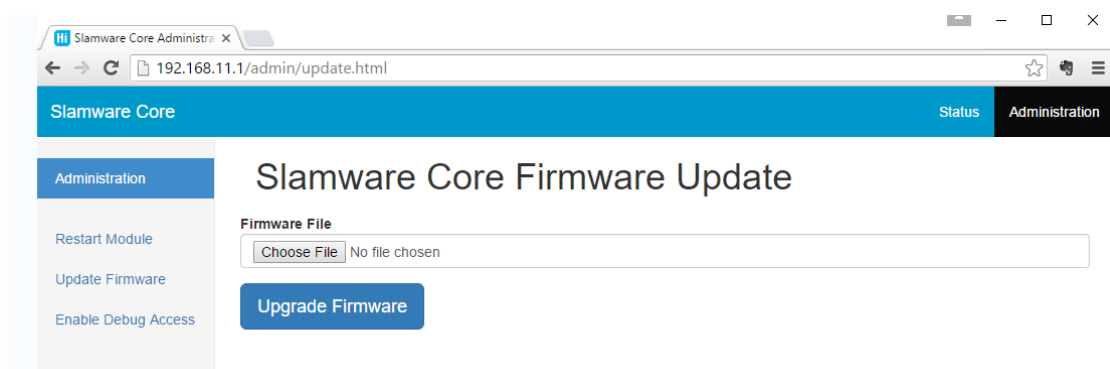


Figure 3-2 Firmware Upload Page

B. Click **Choose File** to choose the Firmware.

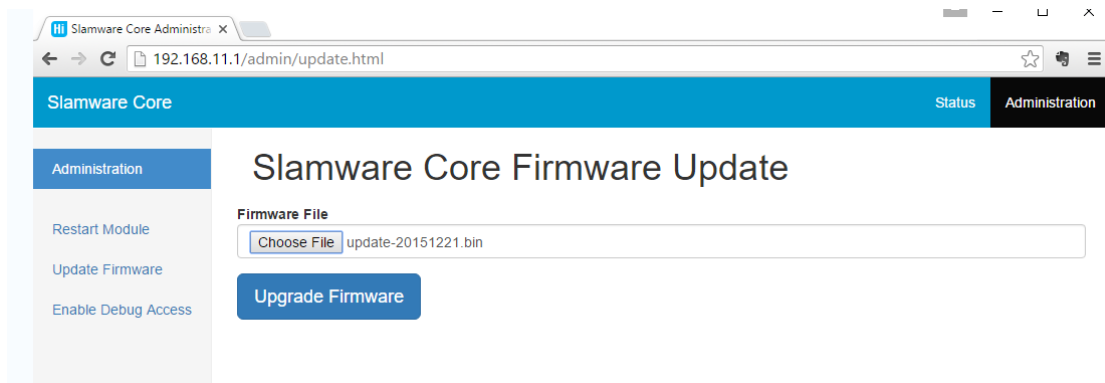


Figure 3-3 Firmware Update Confirmation Page

C. The following status shows the firmware starts updating.

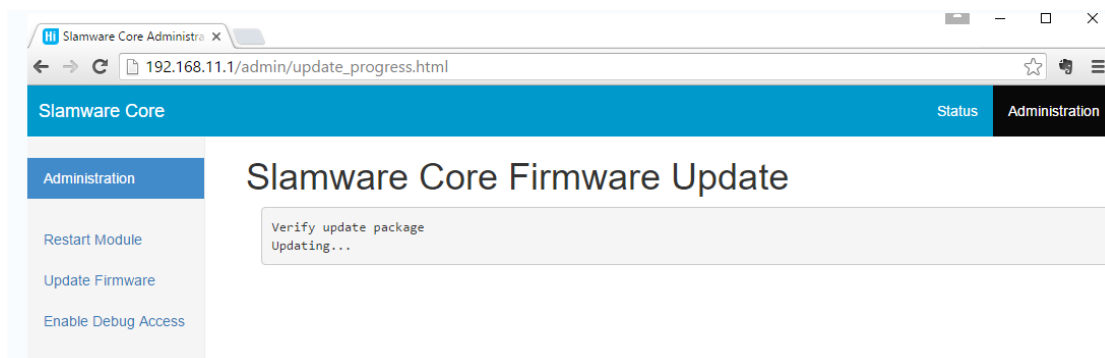


Figure 3-4 Firmware Update Status Page

Step 5: Finish the update

When the update finished, the page will show as below:

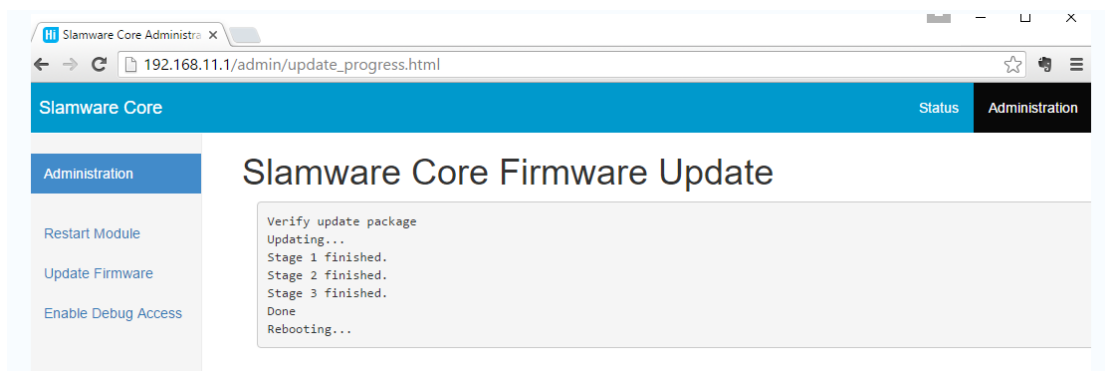


Figure 3-5 Firmware Update Finished Page

The update will last for 5-10 minutes and the SLAMWARE SDP will restart after the update finished. Please ensure the SLAMWARE SDP is fully charged for update.

After the SLAMWARE SDP restarting, the machine will buzz lowly several times. Please wait until the Idle show up on the screen to indicate the system relaunching

successfully. If the update fails, **“Firmware Update Fail”** would show up on the screen and we need to retry the previous steps or reset the system according to the notice on the screen.

3. Deep Dive

Please check the SDK instruction documents. (API)

(1). How to check the SSID of SLAMWARE SDP ?

We can check the SSID via the screen of SDP. Please tab the Gear icon after starting the SDP, then tab the Home icon, and we' ll find the SSID on the screen.

(2). How to fix it if Core Disconnected is continuously to show up on SLAMWARE SDP screen ?

We may see this symptom when the core module of SLAMWARE SDP is disconnected. Please double-check whether the power supply for the core module is ok and whether the network cable is connected to the machine correctly. If the above are fine, we can restart the SDP to see the outcome. If the issue still persists, the SLAMWARE SDP may be broken down. We can contact the dealer for free repair if the product is under warranty or ask for out-of-warranty repair if the product is man-made damaged or past warranty.

(3). How to fix it if SLAMWARE SDP cannot be charged ?

Please ensure the charge station is working properly, then make sure there is the battery in the SDP and it is connected properly. Generally, when plugging the charge station, you will hear the beep sound and the indicator light of charge on the SDP will turn red. And if the error indicator light also lights up, it shows the charging is abnormal. We can contact the dealer for free repair if the product is under warranty or ask for out-of-warranty repair if the product is man-made damaged or past warranty.

(4). Where we can get the latest news about SLAMWARE SDP ?

Please visit the home page of SLAMWARE SDP project for the latest version of SDK and related information :

<https://slamware.slamtec.com>

5. Revision History

Date	Note
2014-8-11	Initial version
2015-12-30	Change images in Update the SLAMWARE SDP firmware via Web portal and modify some steps
2016-.3-31	Added: in station mode, connect SLAMWARE Core to outside WIFI network
2016-04-01	Deleted: Chapter Application scenario
2016-04-15	Updated the answers in Q&A
2016-04-19	Updated the image in the cover
2016-05-26	Updated the layout
2016-06-28	Replaced the image of SDP (removed the Cubie board)

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