

**123 Manual, LP-288ai V2.0 TURBO OFDM Compact Outdoor Radio with Throughput Booster,
INSTALLATION IN POINT TO POINT, POINT TO MULTIPOINT MODE WITH FIRMWARE V2.0.3B2P1**

LP288aiV23B2_M123_END01W



**123 Manual, LP-288ai V2.0
TURBO OFDM Compact Outdoor Radio
with Throughput Booster,
INSTALLATION IN POINT TO POINT,
POINT TO MULTIPOINT MODE
WITH FIRMWARE V2.0.3B2P1**

3

For this configuration you will need the MAC Addresses of the Access Points you are going to use for point to point connection. You will also use two different IP addresses in the range for their management.

In order to verify the MAC Addresses you shall access each LP-288ai and check it in **System Status** window. To do so:

- a. Prepare the cable with the connector, as shown in **Figures 3a-1, 3a-2, and 3a-3.**

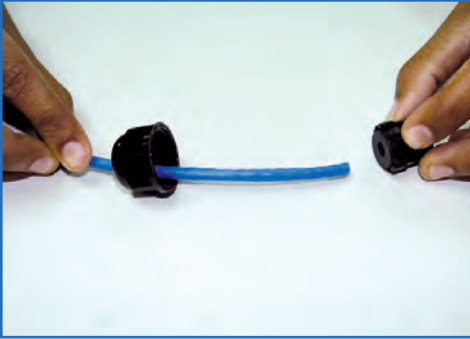


Figure 3a-1



Figure 3a-2



Figure 3a-3

- b. Connect the cable as shown in **Figure 3b.**

Figure 3b



- c. Connect the POE as shown in **Figure 3c.**

Figure 3c



- d. Connect your PC or switch to the LP-288ai POE, as shown in **Figure 3d**.

Figure 3d



- e. Connect to electric power, as shown in **Figure 3e**.

Figure 3e



- f. Open the web browser of your preference and type the default address **192.168.1.20**, as shown in **Figure 3f**.

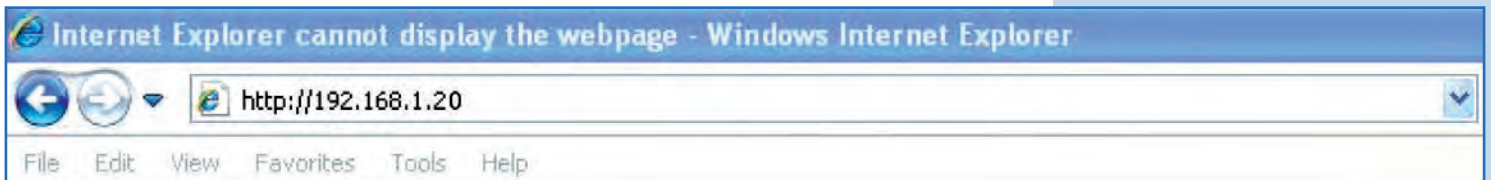


Figure 3f

- g. The equipment will request a user and a password. The LP-288ai has two user levels, one with all the privileges, which is **super** by default with **super** as password, and another with fewer privileges with **admin** as user and **admin** as password. Type **super** in user and password and select **OK**, as shown in **Figure 3g**.

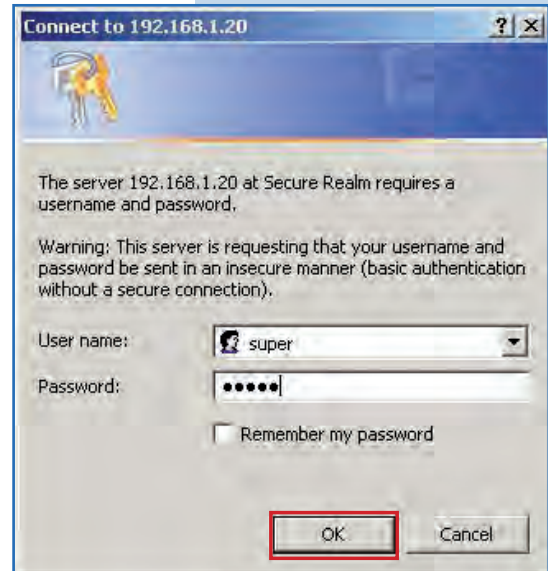


Figure 3g

- h. In the initial window (**System Status**), take note of the MAC Address of the first equipment, as shown in **Figure 3f**. Repeat this procedure with the second LP-288ai (From step a to h).

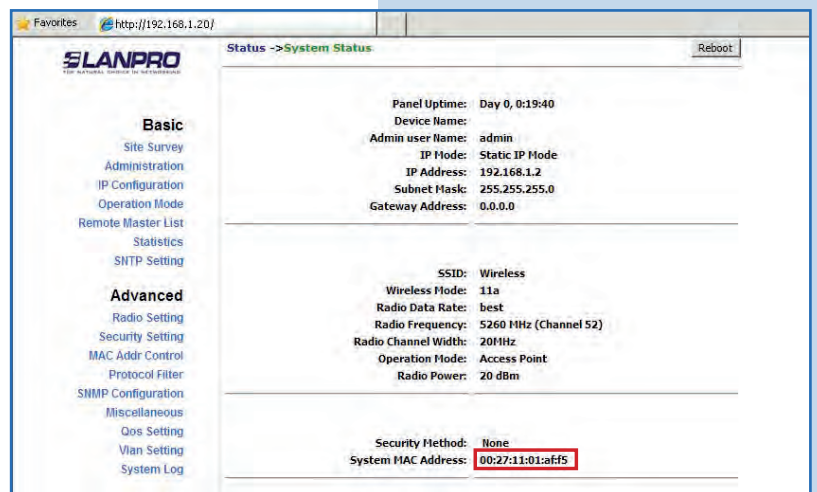


Figure 3h

- i. Reconnect the first equipment and proceed to access it. To do so, open the web browser of your preference and type the default address **192.168.1.20**, as shown in **Figure 3i**.

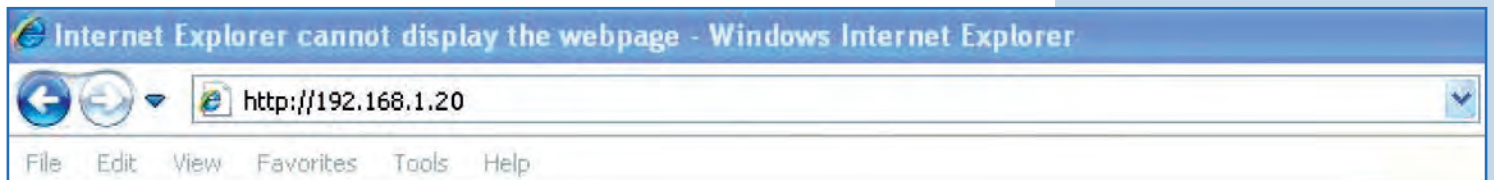


Figure 3i

4

Proceed to change the IP of AP A, which will be 192.168.1.2 according to the diagram. To do so, select **IP Configuration**, type **192.168.1.2** in **IP Address** box and click on **Update**, as shown in **Figure 4**.

AP A

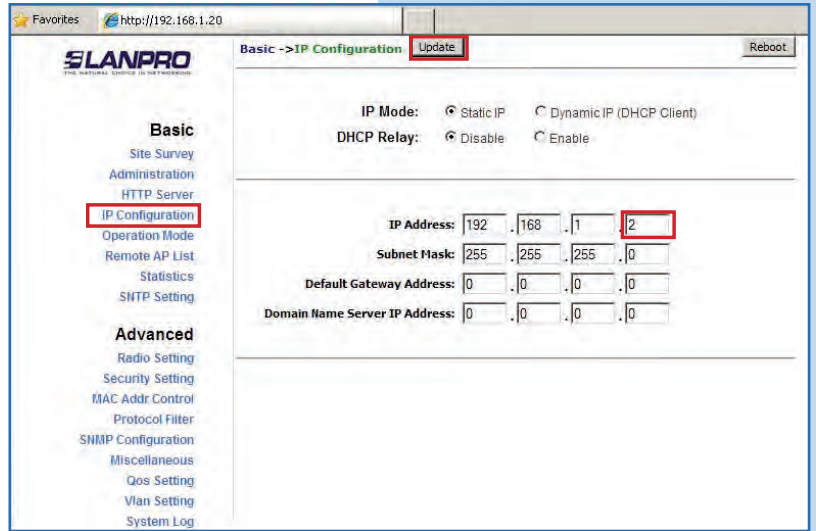


Figure 4

5

To make changes effective select **Reboot**, as shown in **Figure 5**.

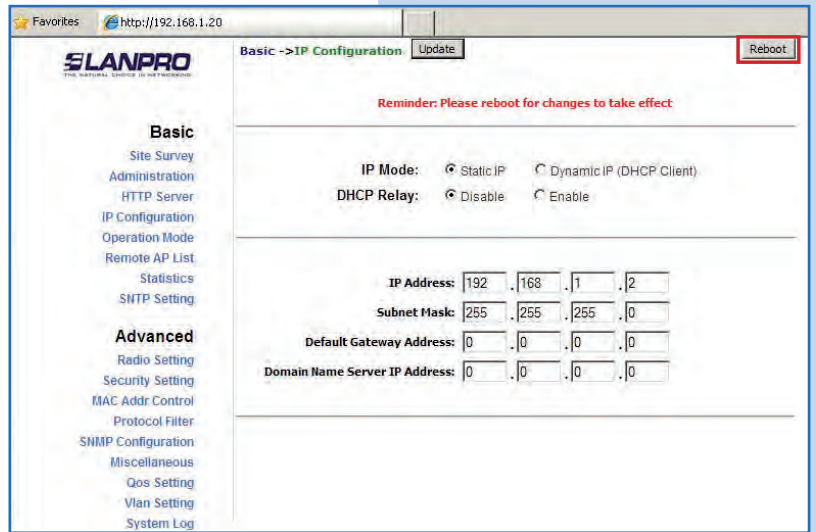


Figure 5

6

A progress bar indicating that the equipment is rebooting will be displayed, as shown in **Figure 6**.

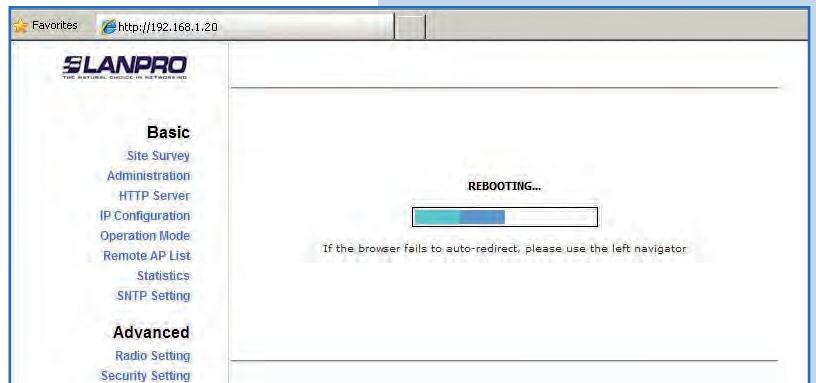


Figure 6

7

Select **Basic/Operation Mode** and then **Access Point** in **Operation Mode**. Enter the network name in the **SSID** field and select the channel in **Radio Frequency** field, which will depend on the existing links and/or interferences (See **Appendix 1**), and check **Suppress SSID** to hide it. Additionally, we recommend you to adjust the distance in **Distance** option (See **Appendix 2**). Select **Update**, as shown in **Figure 7**.

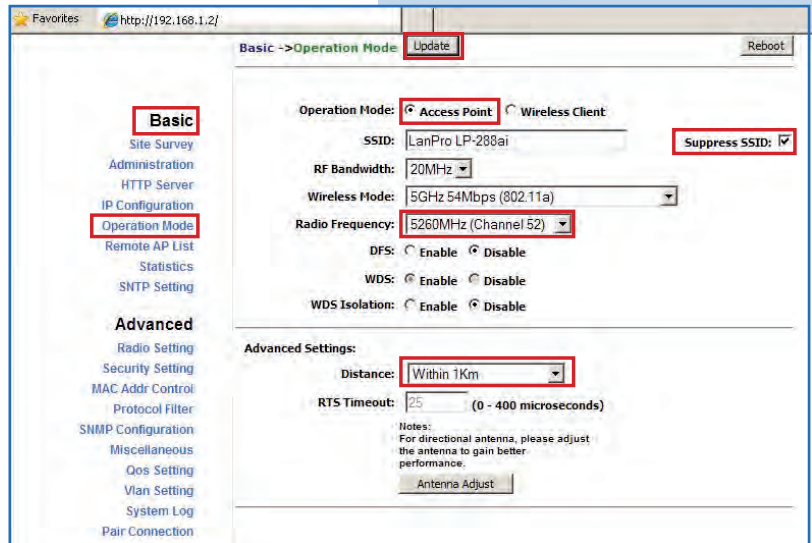


Figure 7

8

The equipment will save changes, but they won't be effective unless you reboot it. Select **Reboot**, as shown in **Figure 8**.

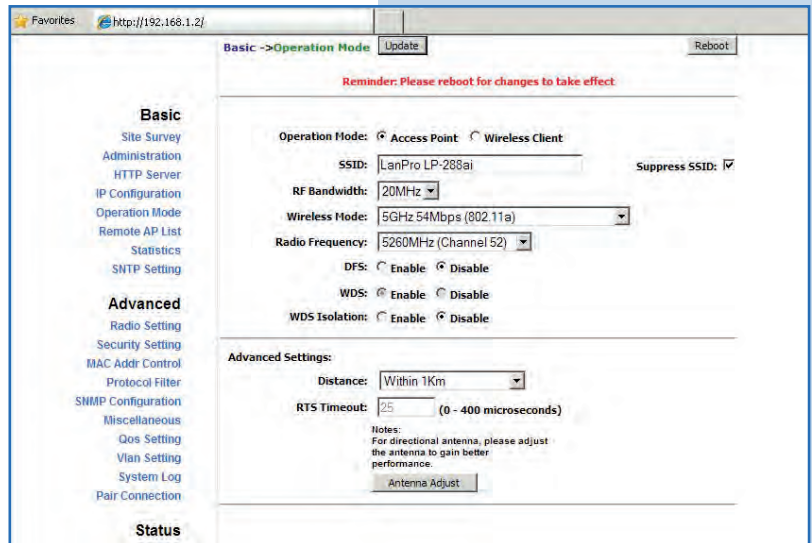


Figure 8

9

A progress bar indicating the equipment is rebooting will be displayed, as shown in **Figure 9**.

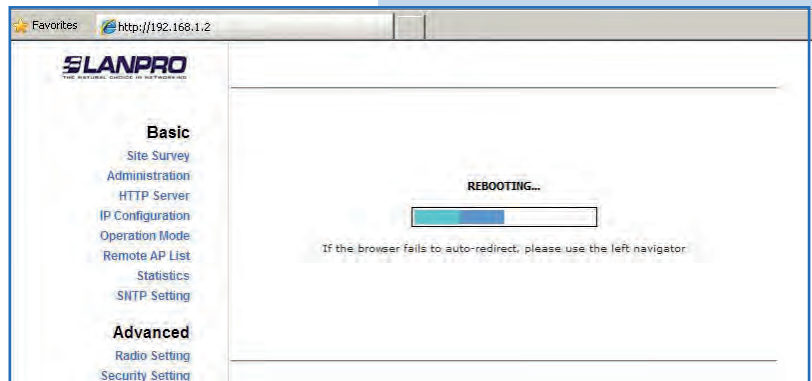


Figure 9

10

Proceed to add the MAC Address of the Access Point B (the second LP-288ai) in **Basic/Remote AP List**. To do so, select **Remote AP List**, add the **MAC Address** of the AP B in MAC Address field and enter the priority for point to point links (we recommend priority 1). Select **Add/Update**, as shown in **Figure 10**.

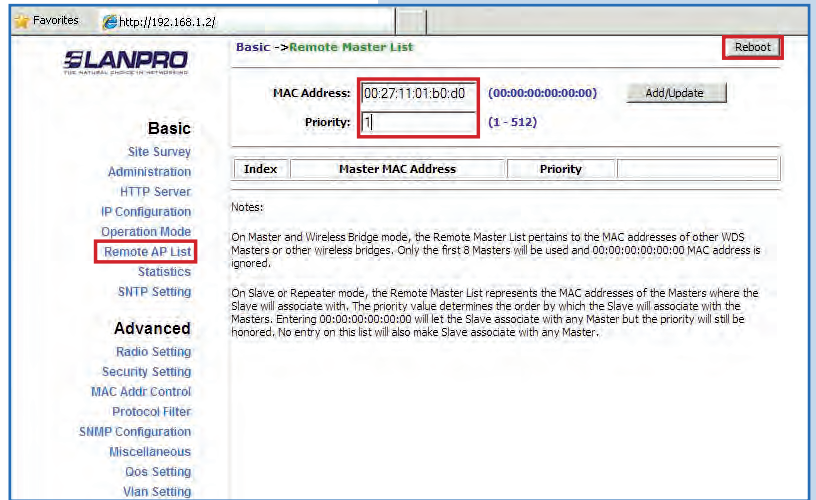


Figure 10

11

Once you have saved the changes, you must select **Reboot** so they will be effective, as shown in **Figure 11**.

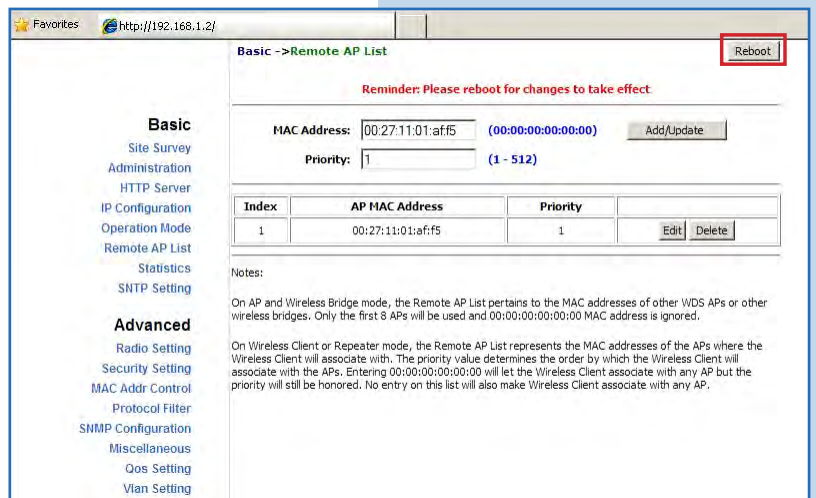


Figure 11

12

A progress bar indicating that the equipment is rebooting will be displayed, as shown in **Figure 12**.

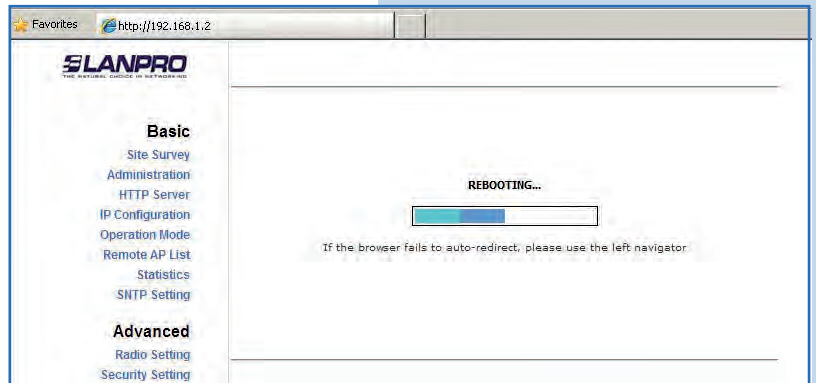


Figure 12

13

Select **Advanced/Security Setting** and in **Security Mode** select the **WEP** encryption mode, as shown in **Figure 13**. It is important to mention that in PtP mode **this is the only security mode permitted**.

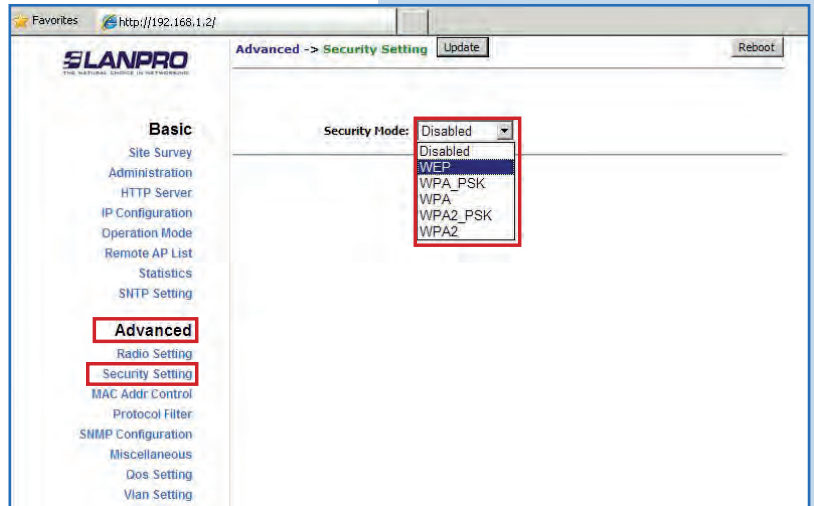


Figure 13

14

Select the authentication method, which is **Shared Key** for this example. Select the key entry method, in this case **Ascii Text**, enable **Key 1**, type it in **Encryption Key**, and select its length in **Key Length** (128 bit) in this case. Select **Update** to save changes, as shown in **Figure 14**.

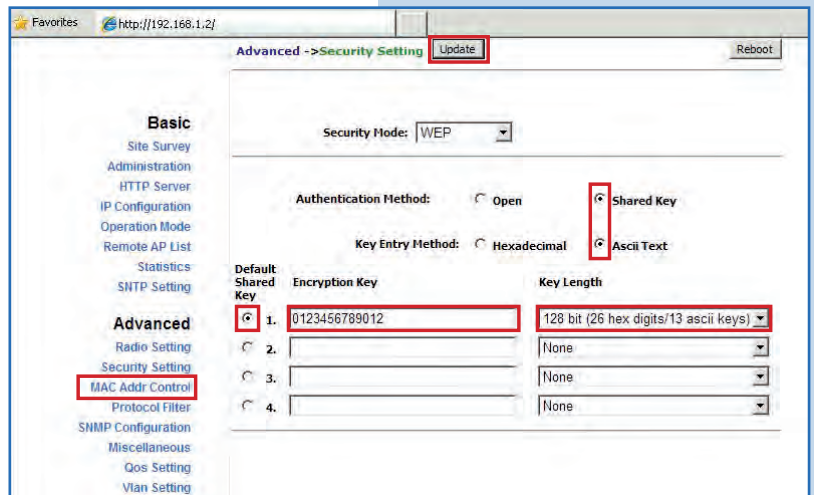


Figure 14

15

Select **Reboot** so the changes will be effective, as shown in **Figure 15**.

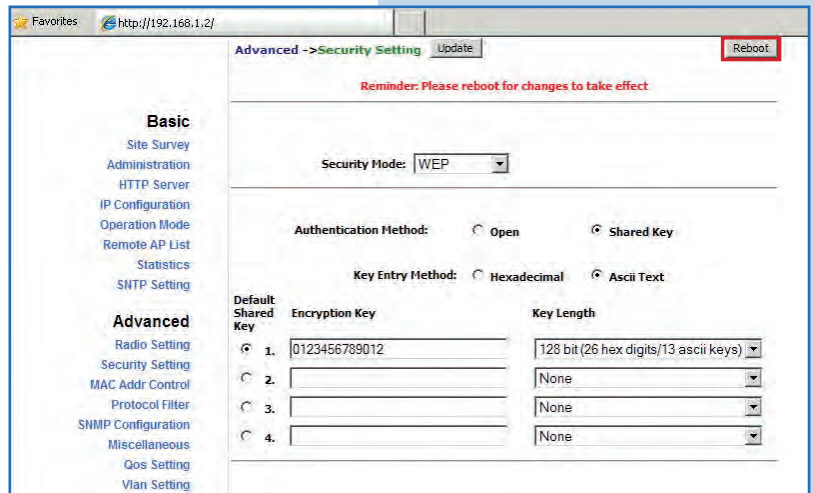


Figure 15

16

A progress bar indicating that the equipment is rebooting will be displayed, as shown in **Figure 16**.

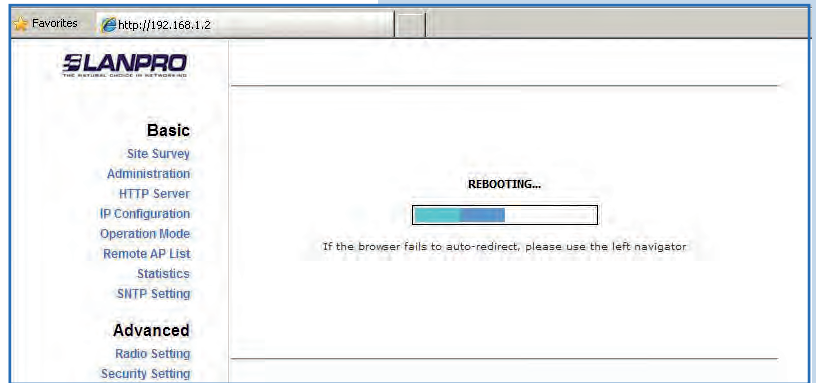


Figure 16

17

Proceed to add the AP B MAC Address in **Advanced/MAC Addr Control** to limit the connection to this equipment only the LP-288ai B. Select **MAC Addr Control** and check **Enable**, add the AP B MAC Address and select **Add**, as shown in **Figure 17**.

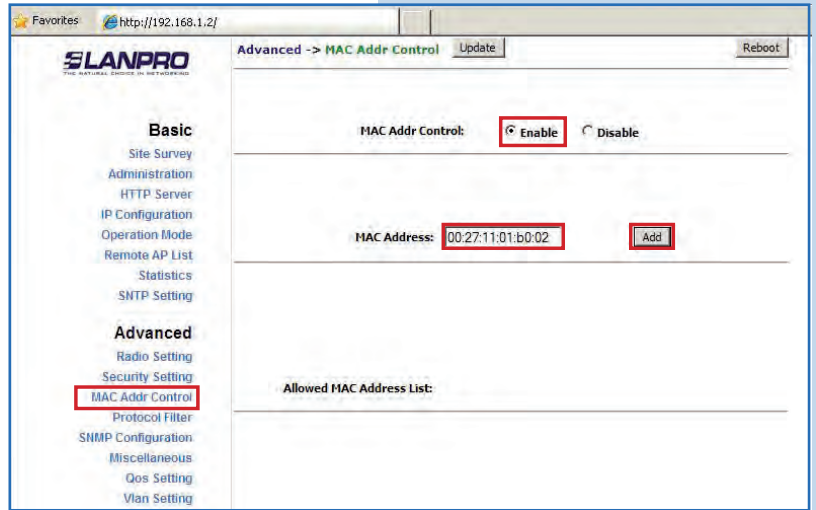


Figure 17

18

Observe how the access of the MAC Address is allowed. Select **Update**, as shown in **Figure 18**.

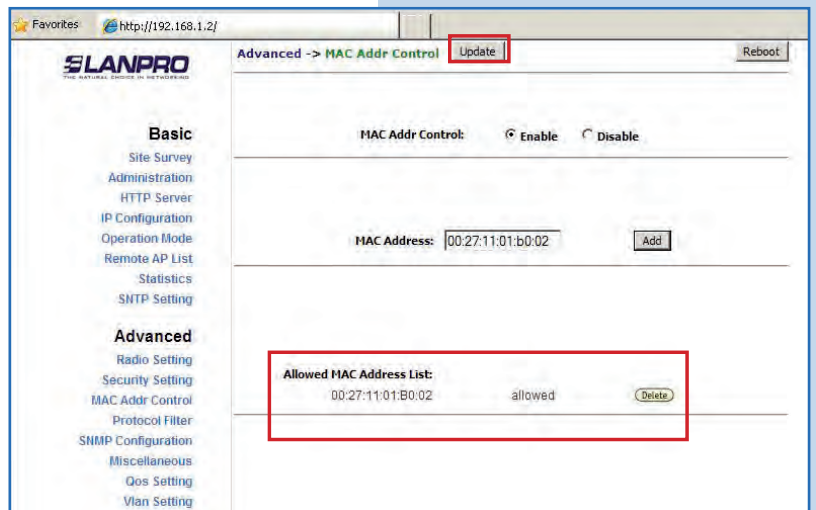


Figure 18

19

To make changes effective select **Reboot**, as shown in **Figure 19**.

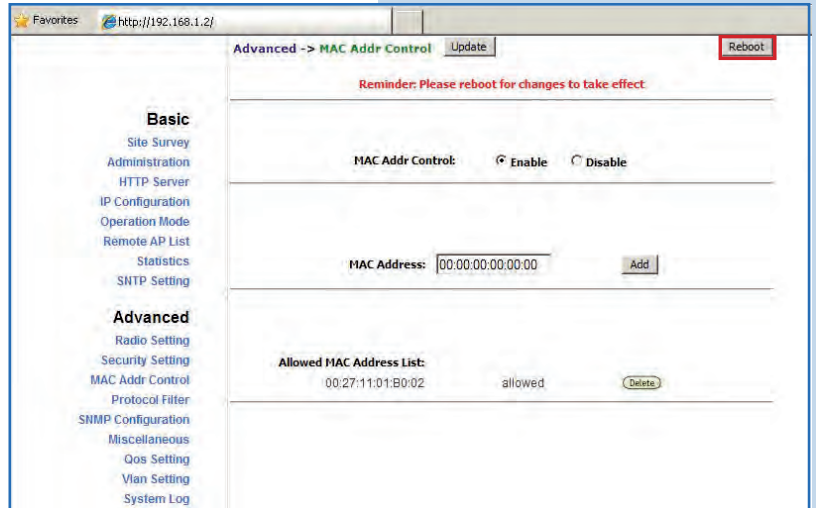


Figure 19

20

A progress bar indicating that the equipment is rebooting will be displayed, as shown in **Figure 20**.

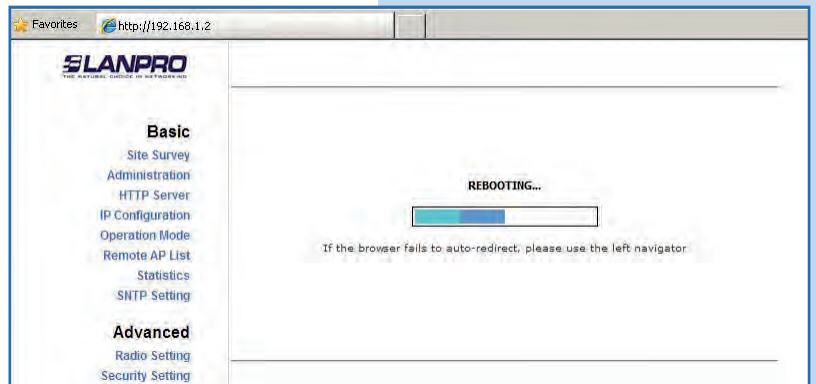


Figure 20

21

Important Recommendation (Optional)

Proceed to change the passwords of the users **admin** and **super** of your equipment. To change **admin** password, select **Basic/Administration** and type the new password on the corresponding field, then select **Update**, as shown in **Figure 21**.

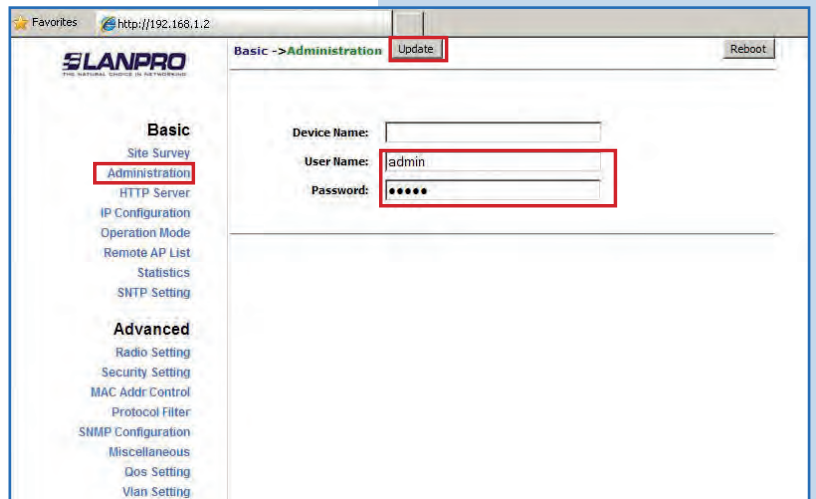


Figure 21

22

To make changes effective select **Reboot**, as shown in **Figure 22**.

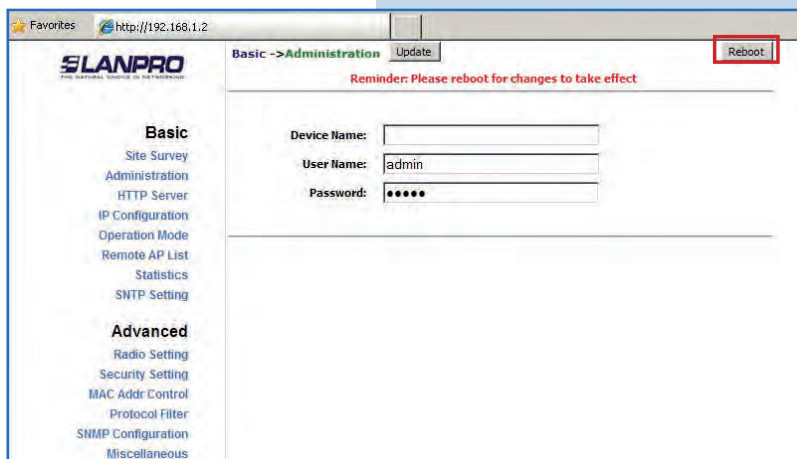


Figure 22

23

A progress bar indicating that the equipment is rebooting will be displayed, as shown in **Figure 23**.

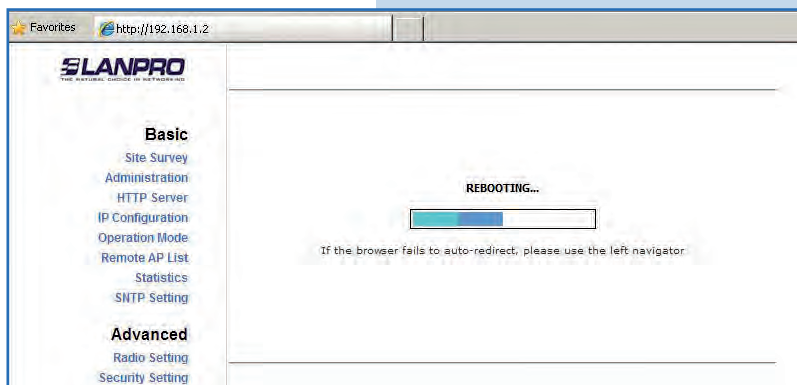


Figure 23

24

Proceed to change the password of user **super**. Remember you have to be authenticated as user **super** to make this change. Select **Super User/ Super User** option and type the new password, then click on **Update**, as shown in **Figure 24**.

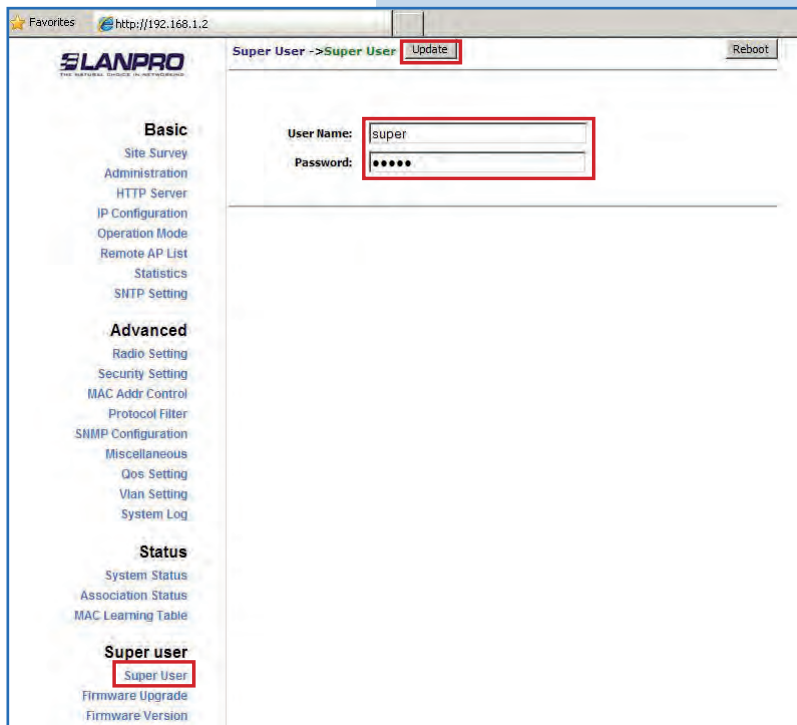


Figure 24

25

To make changes effective select **Reboot**, as shown in **Figure 25**.

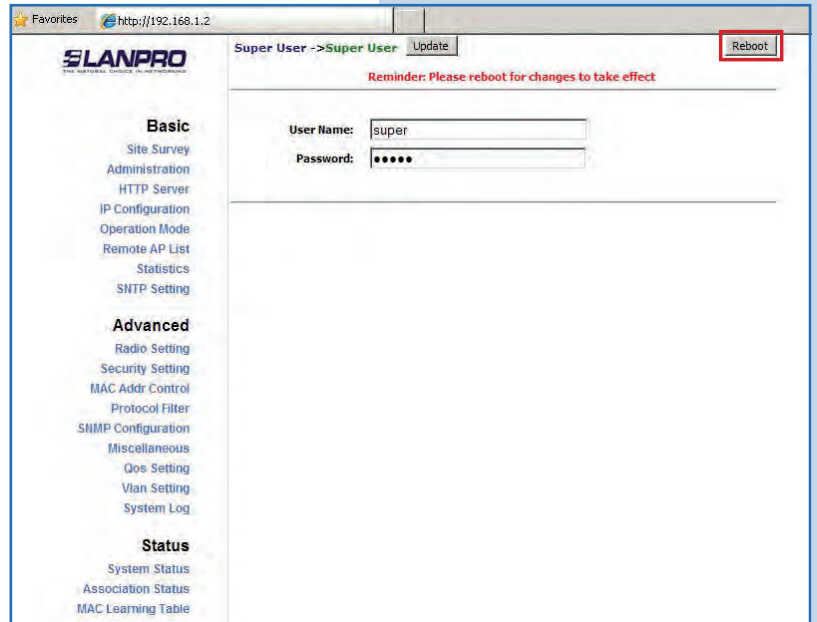


Figure 25

26

A progress bar indicating the equipment is rebooting will be displayed, as shown in **Figure 26**.

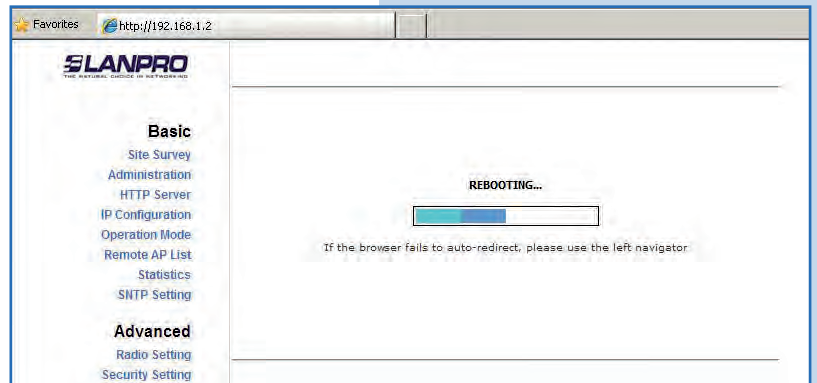


Figure 26

27

The equipment will request your user and password once again. Enter the value you changed and select **OK**, as shown in **Figure 27**.

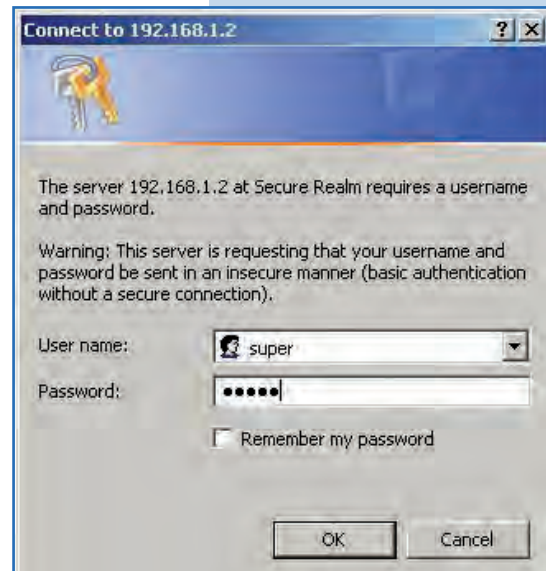


Figure 27

28

AP B

Connect the second LP-288ai and access it. To do so, open the web browser of your preference and type the default address **192.168.1.20**, as shown in **Figure 28**.

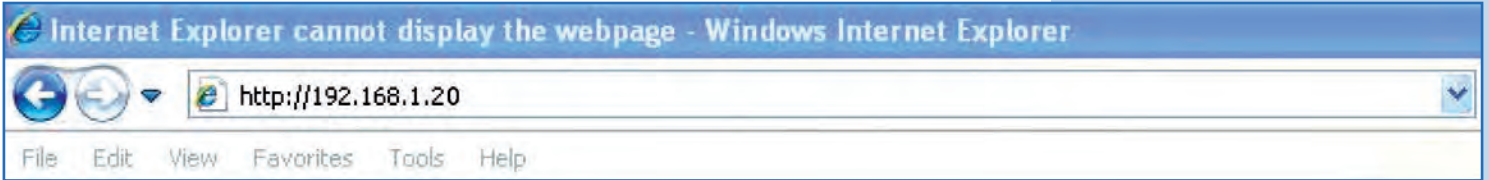


Figure 28

29

Proceed to change the IP of AP B, which is **192.168.1.3** according to the diagram. Select **Basic/IP Configuration**, and in **IP Address** box enter **192.168.1.3**. Select **Update**, as shown in **Figure 29**.

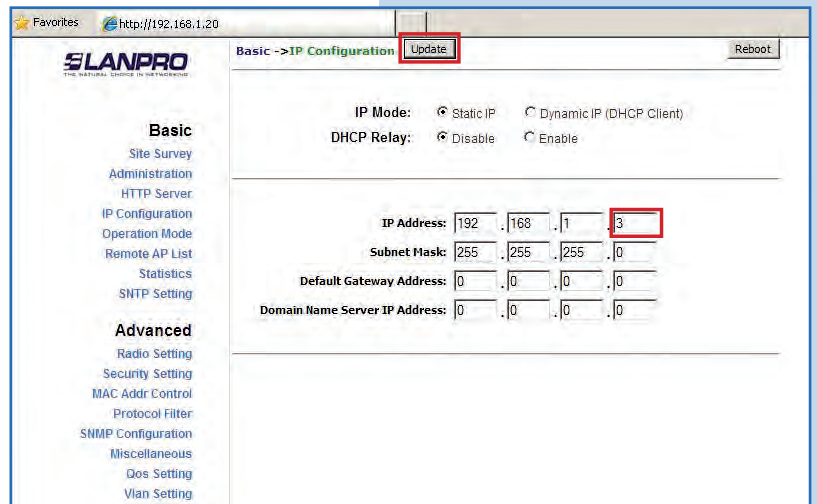


Figure 29

30

To make changes effective select **Reboot**, as shown in **Figure 30**.

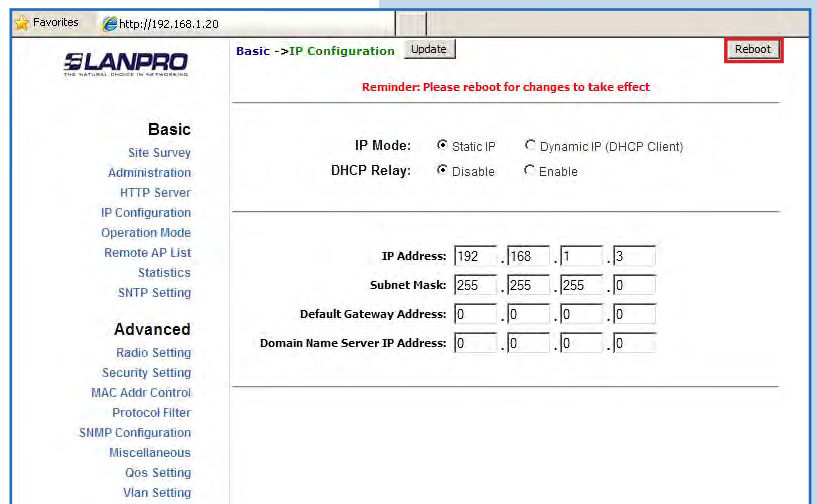
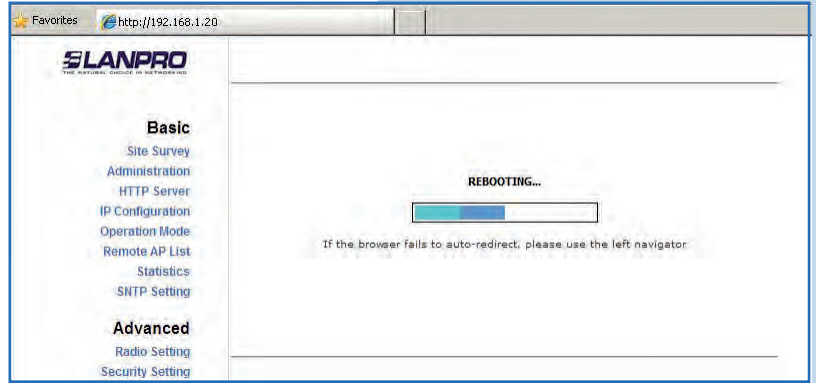


Figure 30

31

A progress bar indicating that the equipment is rebooting will be displayed, as shown in **Figure 31**.

Figure 31



32

Open the web browser of your preference and type the new address **192.168.1.3**, as shown in **Figure 32**.

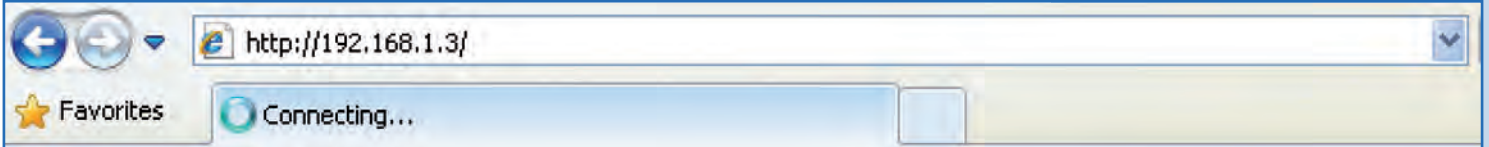
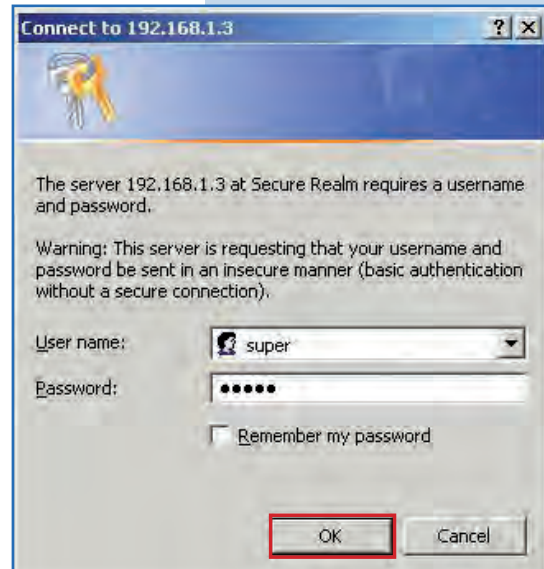


Figure 32

33

The equipment will request your user and password once again. Enter the value you changed and select **OK**, as shown in **Figure 33**.

Figure 33



34

Select **Basic/Operation Mode** and then **Access Point** in **Operation Mode**. Enter the network name in the **SSID** field of AP A, select the channel in **Radio Frequency** field, which value is the same as AP A, and check **Suppress SSID** to hide it. Additionally, we recommend you to adjust the distance in **Distance** option (See **Appendix 2**). Select **Update**, as shown in **Figure 34**.

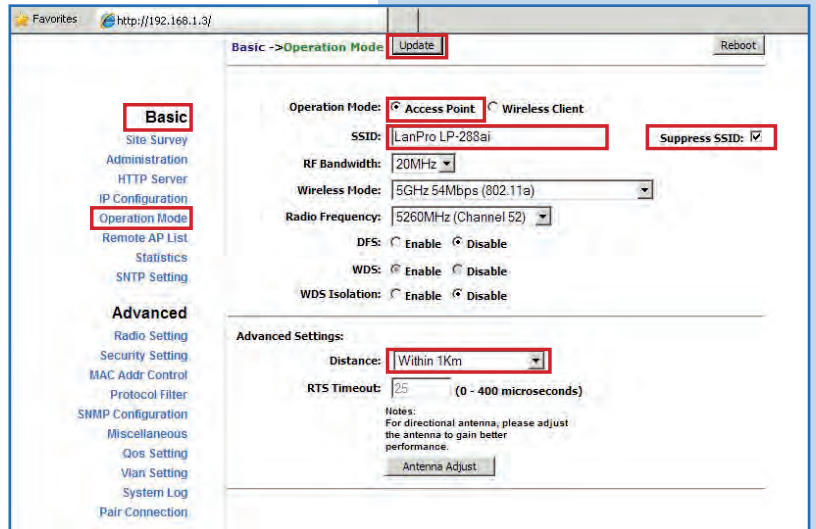


Figure 34

35

The equipment will save changes, but they won't become effective unless you reboot it. Select **Reboot**, as shown in **Figure 35**.

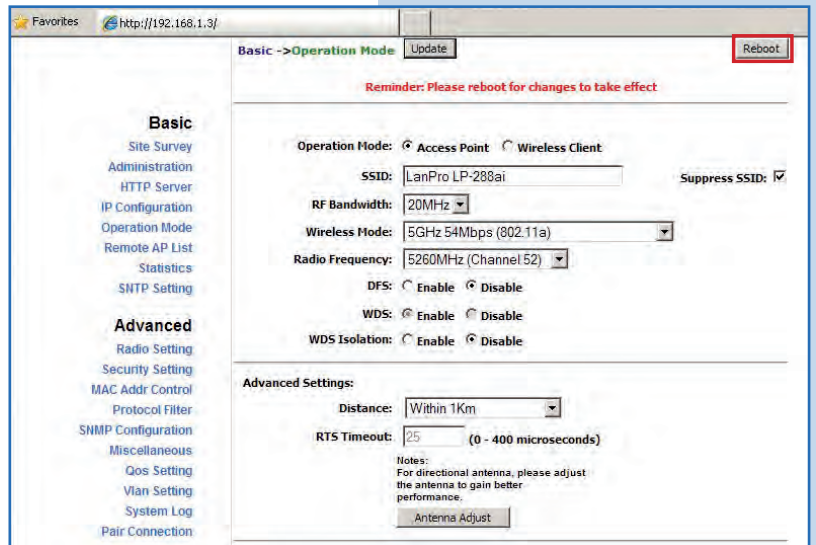


Figure 35

36

A progress bar indicating that the equipment is rebooting will be displayed, as shown in **Figure 36**.

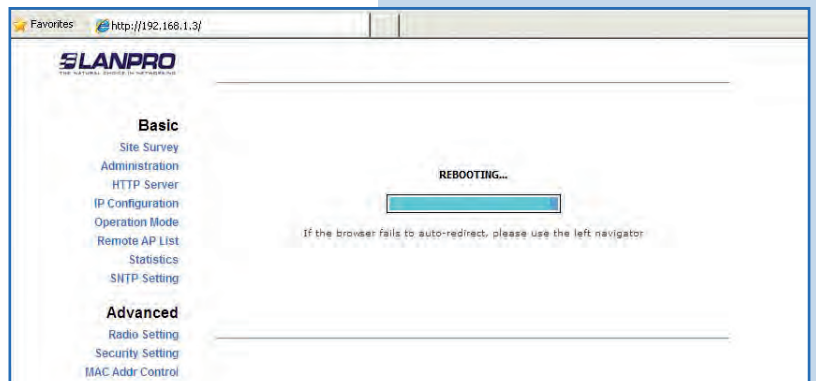


Figure 36

37

Proceed to add the MAC Address of the Access Point A in **MAC Address** field in **Basic/Remote AP List**. Enter the priority for point to point links (we recommend priority 1). Select **Add/Update**, as shown in **Figure 37**.

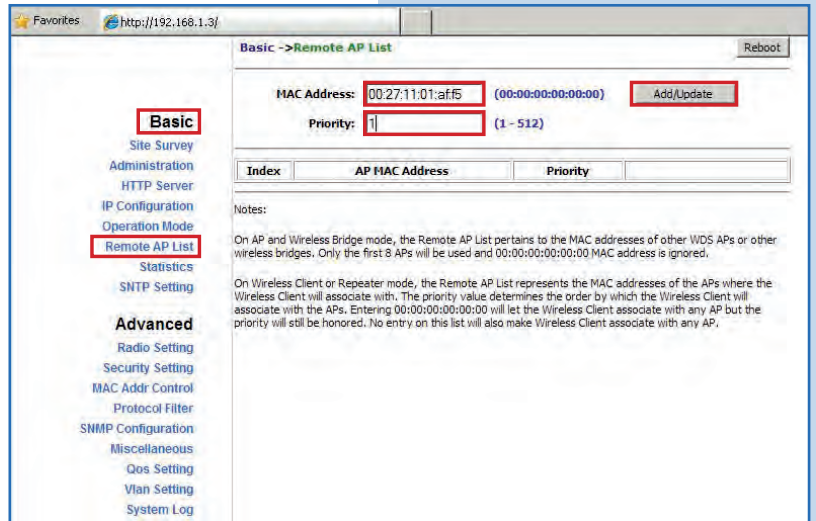


Figure 37

38

Select **Reboot** to apply the changes, as shown in **Figure 38**.

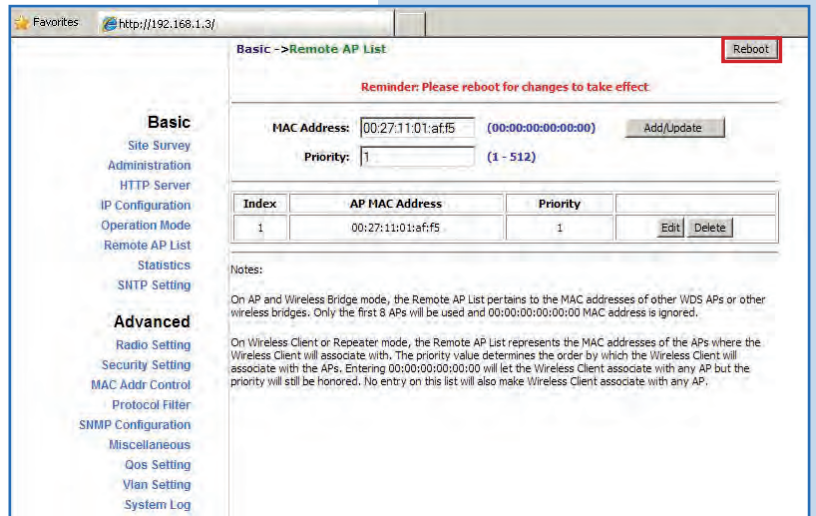


Figure 38

39

A progress bar indicating that the equipment is rebooting will be displayed, as shown in **Figure 39**.

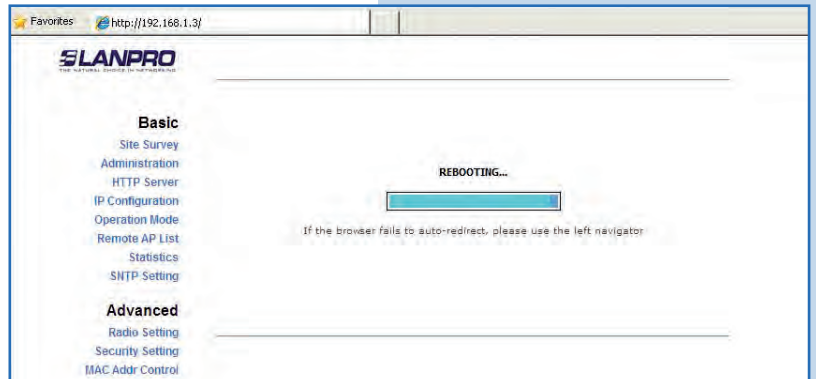
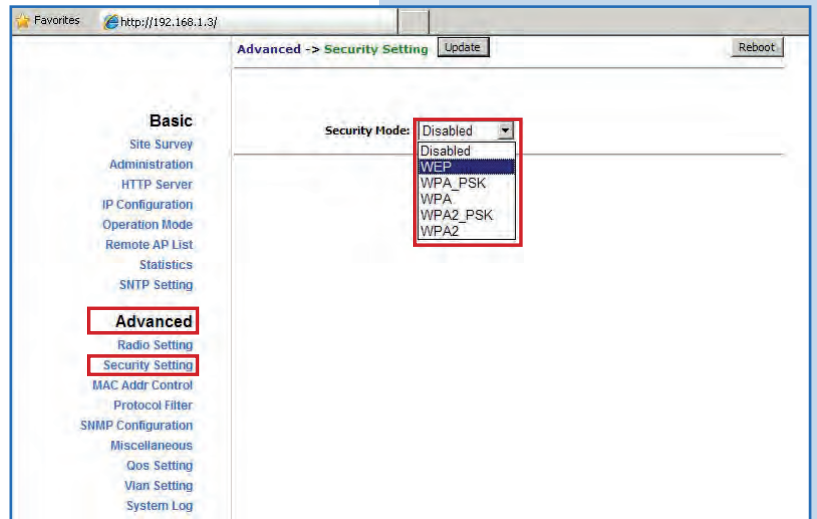


Figure 39

40

Select **Advanced/Security** Setting and in **Security Mode** select the **WEP** encryption mode, as shown in **Figure 40**. It is important to mention that in PtP and PtmP mode *this is the only security mode permitted*.

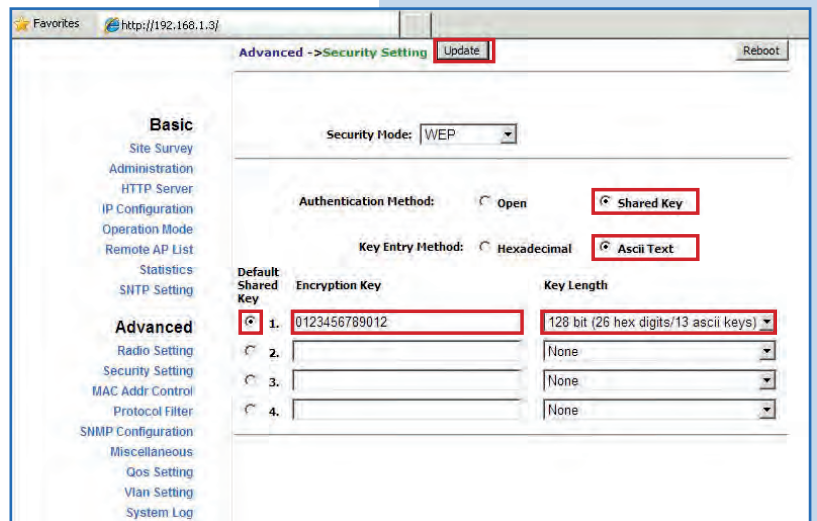
Figure 40



41

Select the authentication method, which is **Shared Key** for this example (the same as AP A). Select the key entry method, in this case **Ascii Text**, enable **Key 1**, type it in **Encryption Key**, and select its length in **Key Length** (128 bit). Select **Update** to save changes, as shown in **Figure 41**.

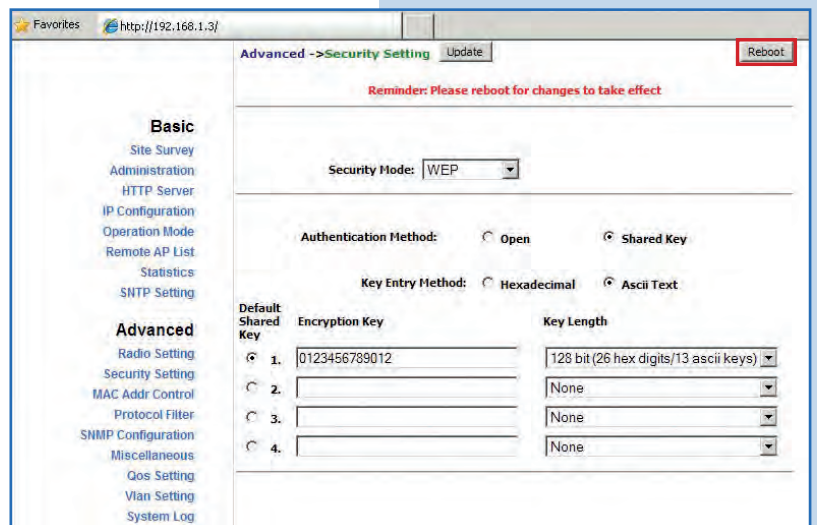
Figure 41



42

Once you have saved changes select **Reboot** to make them effective, as shown in **Figure 42**.

Figure 42



43

A progress bar indicating that the equipment is rebooting will be displayed, as shown in **Figure 43**.

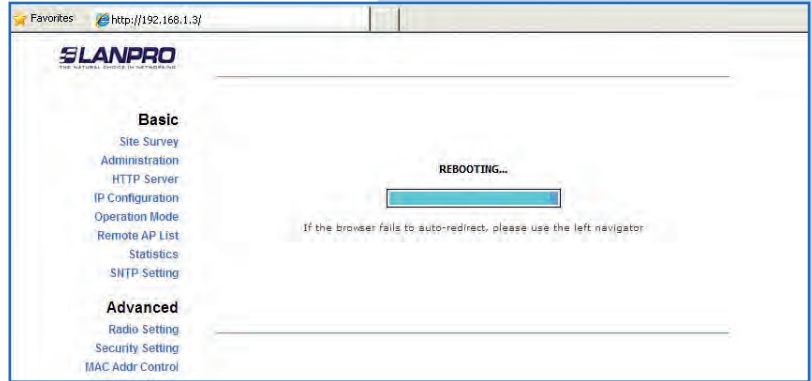


Figure 43

44

Proceed to add the Access Point A MAC Address in **MAC Addr Control** to limit the connection to this equipment only by the LP-288ai A. Select **Advanced/MAC Addr Control** and check **Enable**, add the AP A MAC Address and click on **Add**, as shown in **Figure 44**.

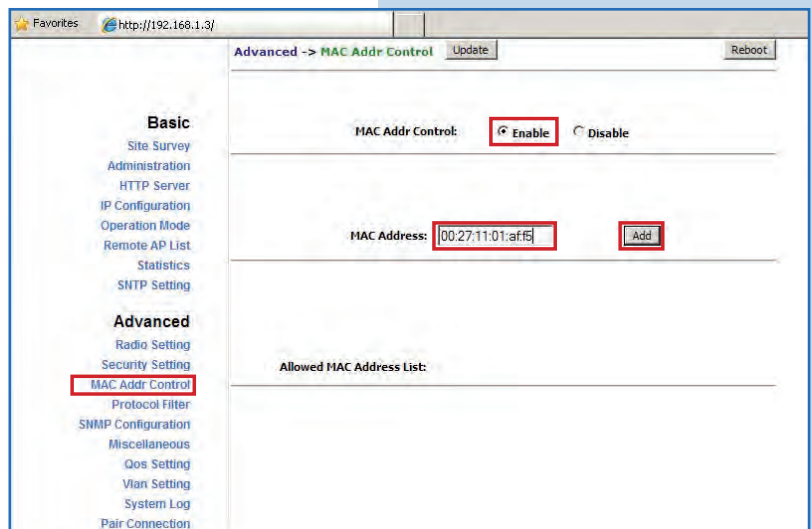


Figure 44

45

Observe how the access of the MAC Address is allowed. Select **Update**, as shown in **Figure 45**.

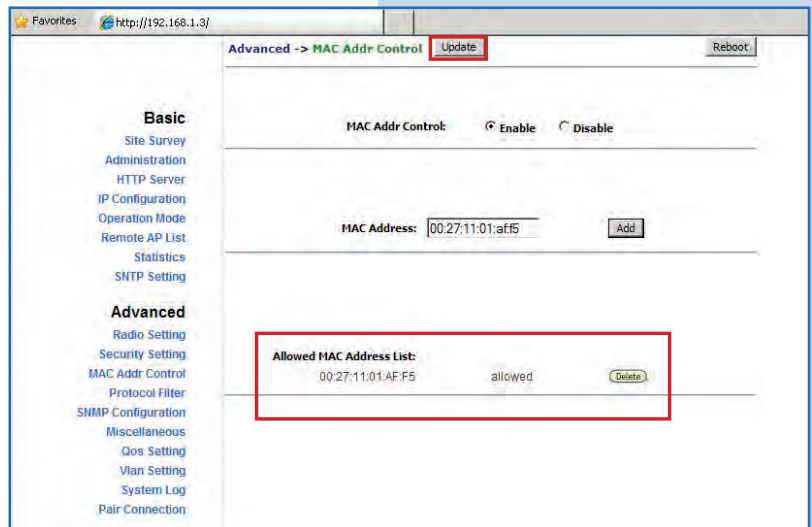


Figure 45

46

To make changes effective select **Reboot**, as shown in **Figure 46**.

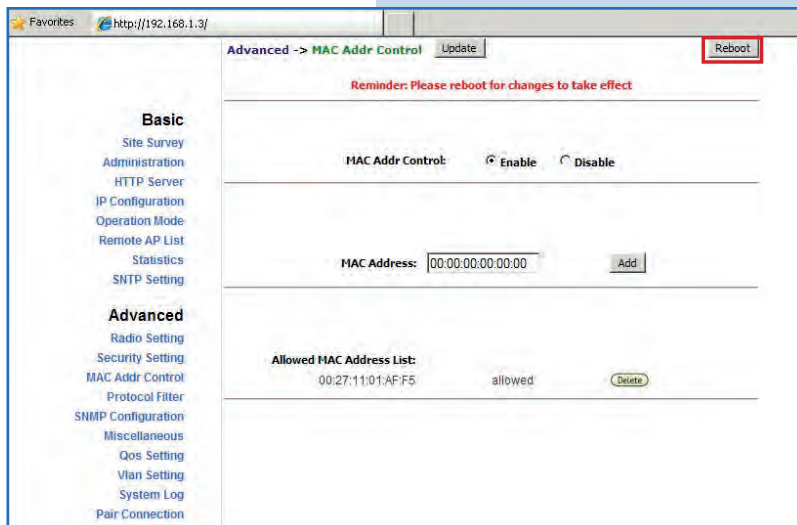


Figure 46

47

A progress bar indicating that the equipment is rebooting will be displayed, as shown in **Figure 47**.

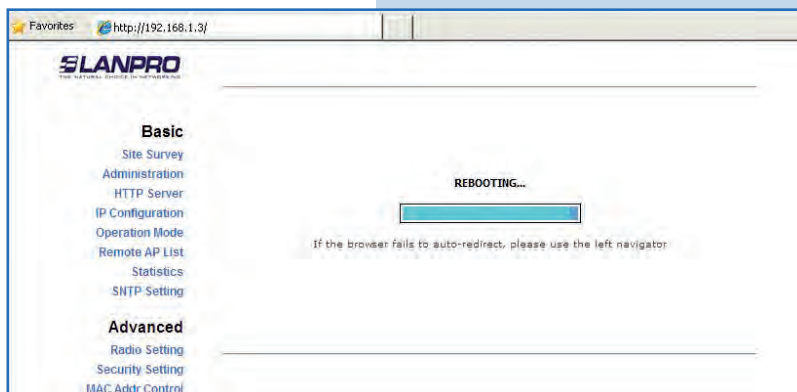


Figure 47

48

Important Recommendation (Optional)

Proceed to change the passwords of the users **admin** and **super** of your equipment. To change **admin** password, select **Basic/Administration** and type the new password in the corresponding field, then select **Update**, as shown in **Figure 48**.

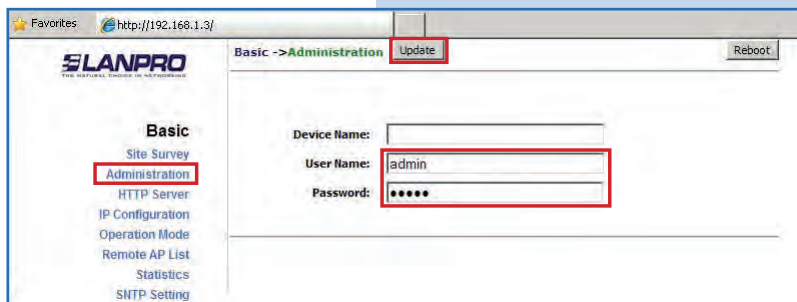
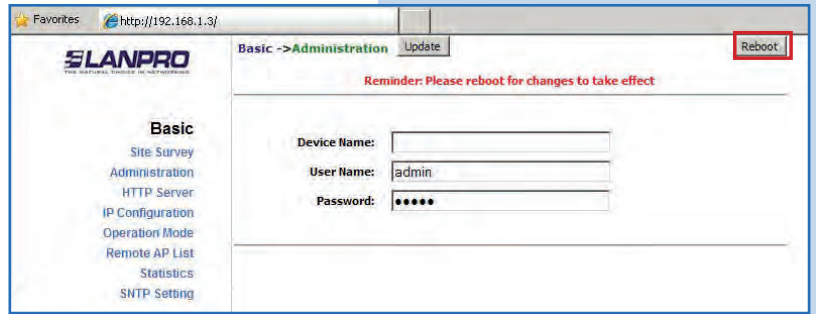


Figure 48

49

To make changes effective select **Reboot**, as shown in **Figure 49**.

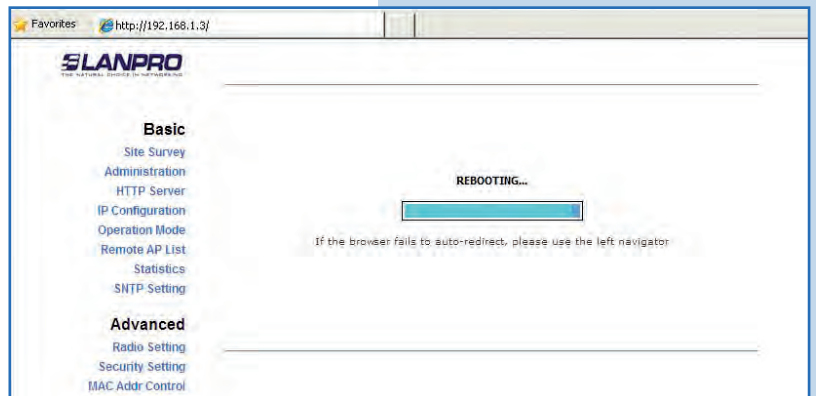
Figure 49



50

A progress bar indicating that the equipment is rebooting will be displayed, as shown in **Figure 50**.

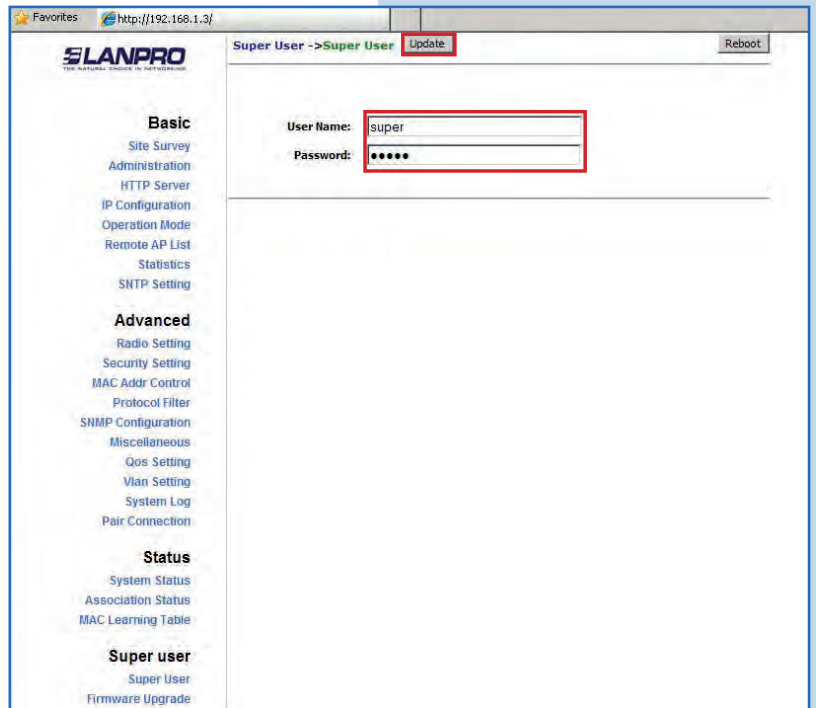
Figure 50



51

Proceed to change the password of user **super**. Remember you have to be authenticated as user **super** to make this change. Select **Super User/ Super User** option and type the new password, then click on **Update**, as shown in **Figure 51**.

Figure 51



52

To make changes effective select **Reboot**, as shown in **Figure 52**.

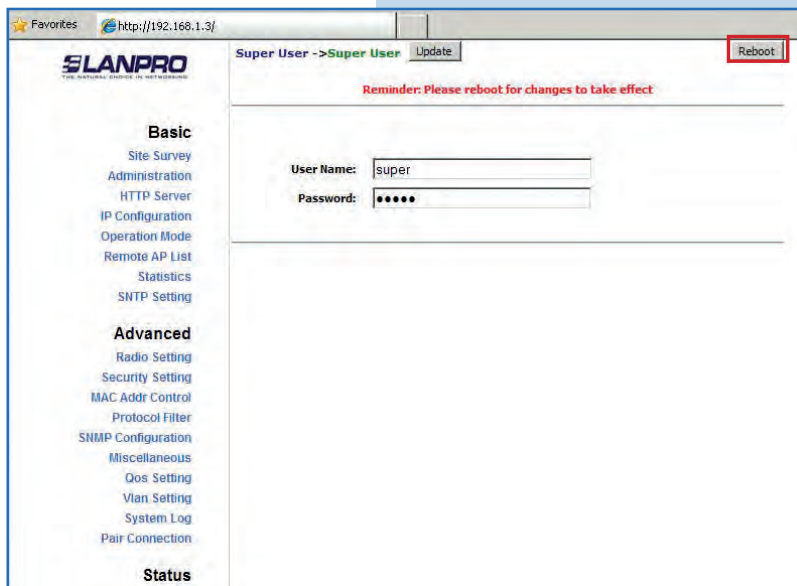


Figure 52

53

A progress bar indicating that the equipment is rebooting will be displayed, as shown in **Figure 53**.

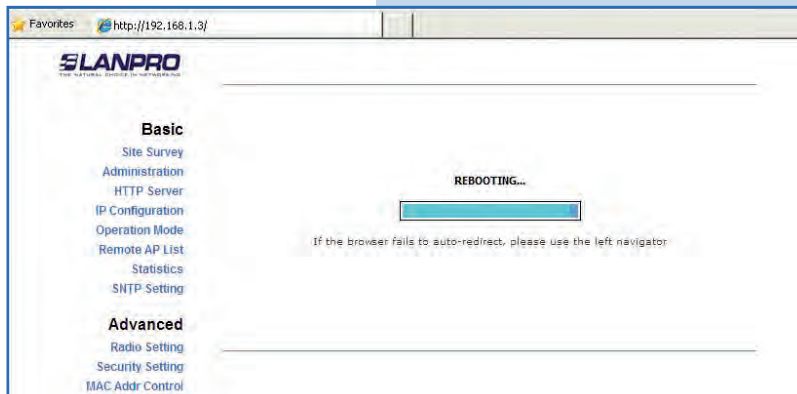


Figure 53

54

The equipment will request your user and password once again. Enter the value you changed and select **OK**, as shown in **Figure 54**.

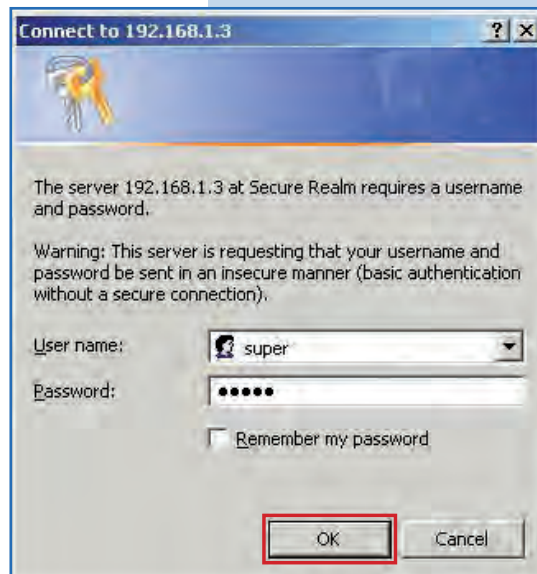


Figure 54

55

To check connectivity run the **Ping** command in a command window to the equipment IP you are connecting to (in this case 192.168.1.2). To do this, select **Start** or **Inicio**, then **Run** or **Ejecutar**, type the **cmd** command, and select **OK**, as shown in **Figures 55-1** and **55-2**. Remember that both APs must be on.

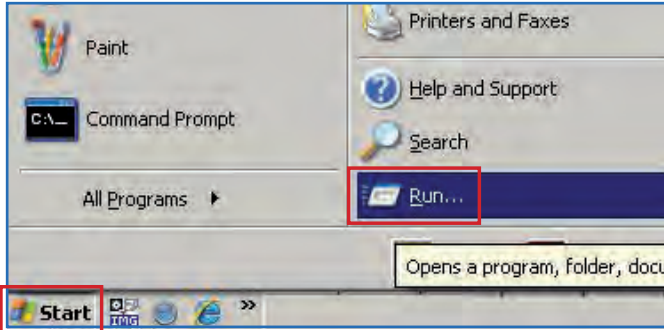


Figure 55-1

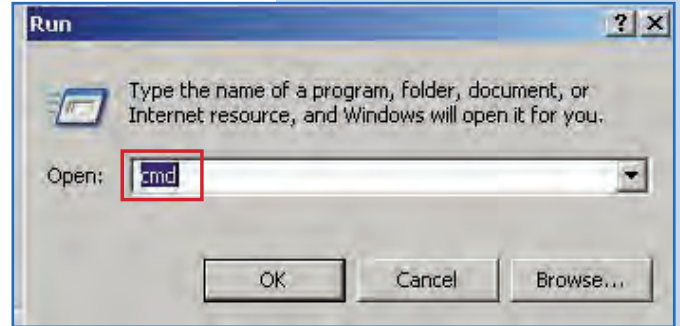


Figure 55-2

56

Type the **ping** command followed by the IP of the destination equipment (192.168.1.2 for this case), and press **Enter**. You will observe the answer of destination equipment, as shown in **Figures 56-1** and **56-2**.

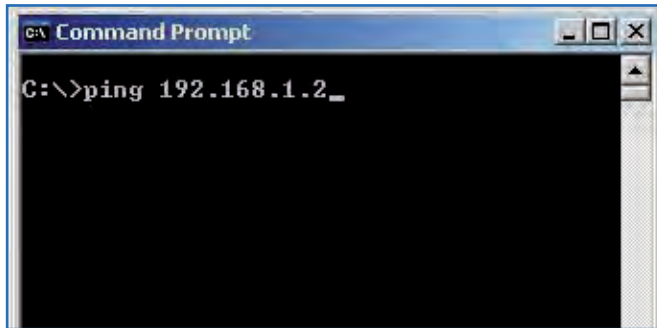


Figure 56-1

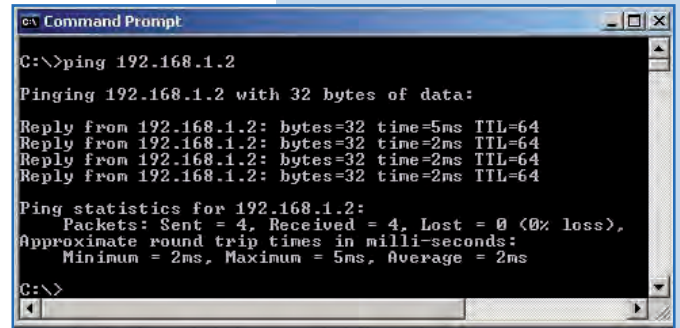


Figure 56-2

- **Appendix 1:** Consider that the correct selection of the frequency channel is a vital factor for your wireless network performance. The LP-288ai equipment operates in ISM 5 GHz frequency band and it has more frequency channels which do NOT overlap each other (because of the spacing in frequency among channels). However, there is the possibility that where you are installing your wireless network other transmission sources in the 5 GHz band exist. As a consequence, the signal of your wireless network can be interfered by other devices if they operate in the same frequency channel in the 5 GHz band. To avoid this, you can make a network survey through the **Site Survey** option and detect which frequency channels are being used in the site. The idea is to select or configure your LP-288ai in the frequency channel that you see clear or unused. In the unlikely event that all the channels are busy, it is recommended to use the frequency channel which transmission power is the lowest in the site.

- **Appendix 2:** In **Operation Mode/Advanced Settings** page, there are several options for the **Distance** parameter. This one allows the user to select the approximate distance between the *AP* device and the *Slave* device (or between *AP* devices). In case you select the proper distance, the LP-288ai will handle the latency on a long distance path. This allows reducing the error rate and increasing the transmission speed.