**LANPRO**

Wireless - Equipment

123 Manual, LP-288ai V2.0 TURBO OFDM Compact outdoor radio with throughput booster.
INSTALLATION IN POINT TO POINT, POINT TO MULTI-POINT MODE. FIRMWARE V2.0.2B5P1

LP288aiV22B5_M123_END01W

LP-288ai

LANPRO
LP-288ai

123 Manual, LP-288ai V2.0 TURBO OFDM Compact outdoor radio with throughput booster. INSTALLATION IN POINT TO POINT, POINT TO MULTI-POINT MODE. FIRMWARE V2.0.2B5P1

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IMPORTANT INFORMATION: For the LP-288ai equipment with firmware (V2.0.2B5P1), it is only possible to connect equipment with this firmware. If you want to interconnect other equipment different from the LP-288ai V2.0 AP with firmware (V2.0.2B5P1), you shall change the firmware for the V2.0.3B2P1 or V2.0.3B5P0T2E1 version.

CONNECTION DIAGRAM

Master A   Master A
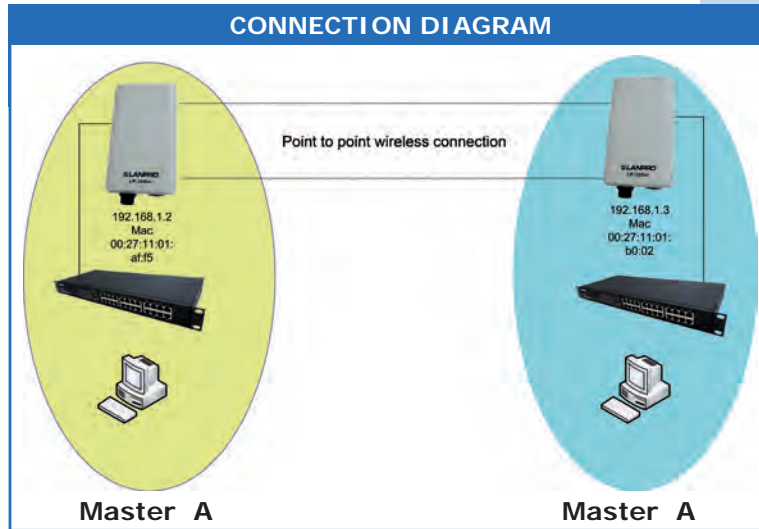
1

Go to the properties of your network card and select **Internet Protocol (TCP/IP)** and then **Properties**, as shown in **Figure 1.**
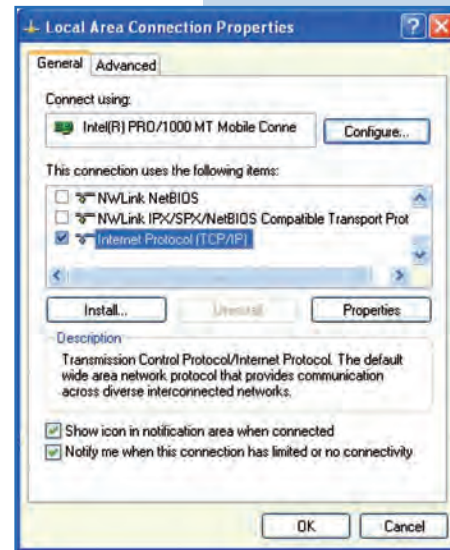

Figure 1

2

Select **Use the following IP address** and type an IP address in the LP-288ai V2.0 IP range by default; for this example we have selected the 192.168.1.201 address. The LP-288ai V2.0 has the 192.168.1.2 address by default. In **Subnet mask** type 255.255.255, as shown in **Figure 2**. Once you have finished, select **OK** twice.
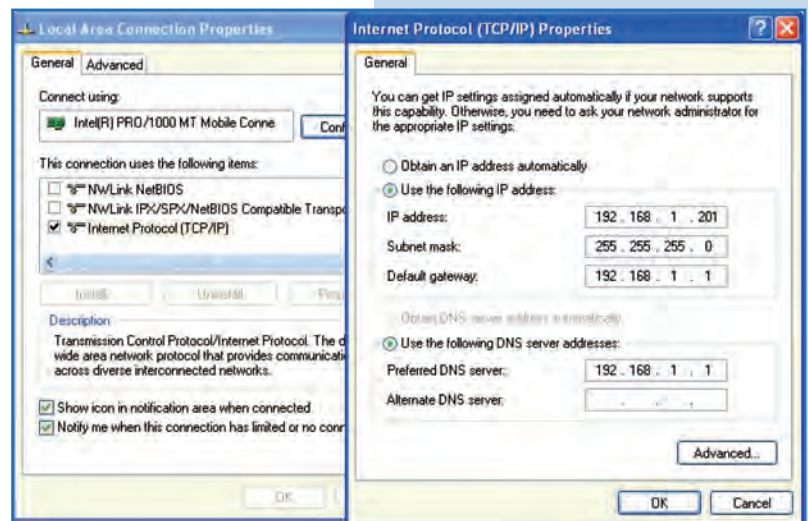
Figure 2

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3

For this configuration you will need the MAC Addresses of the equipment, which 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 en **System Status** window. To do so:

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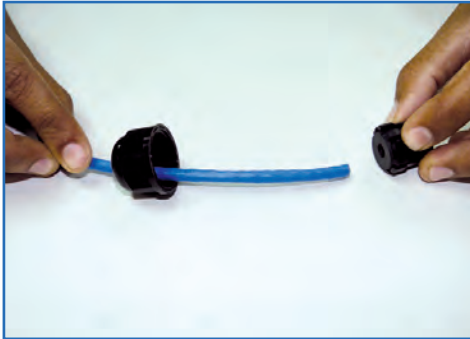
Figure 3a-1

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

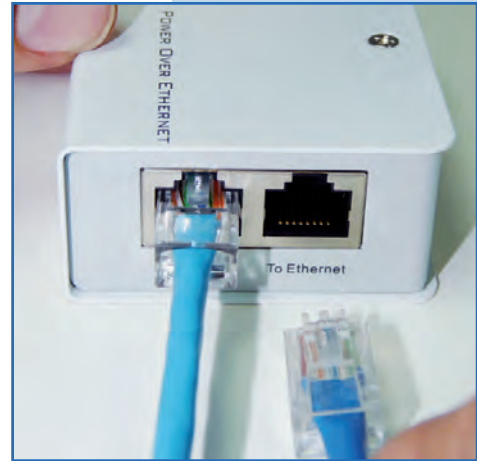● **d.** Connect your PC or switch to the LP-288ai POE, as shown in **Figure 3d.**

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 **192.168.1.2**, as shown in **Figure 3d.**
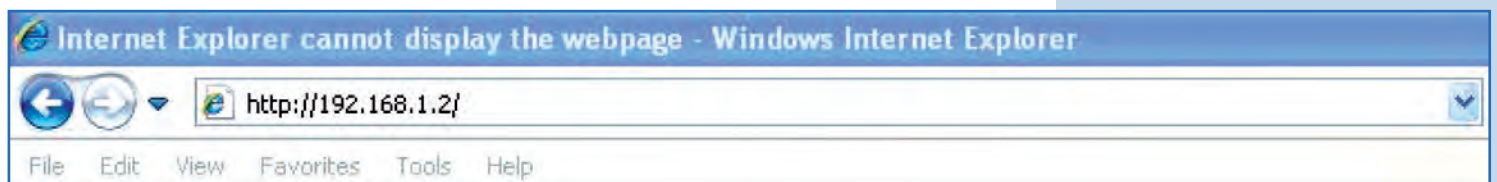

Figure 3f

4

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● **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 one with fewer privileges with **admin** as user and **admin** as password. Type **super** in user and password and select **OK**, as shown in **Figure 3e**.
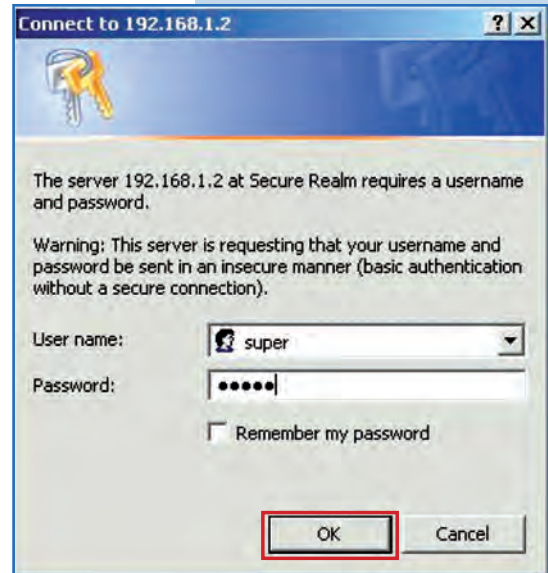
Figure 3g

● **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**).
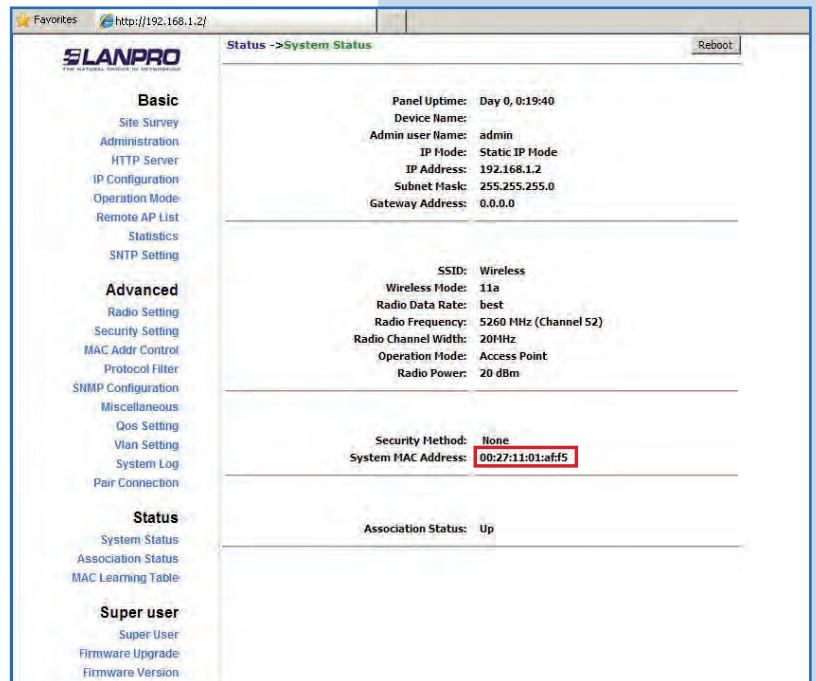
Figure 3f

Master A

Reconnect the first equipment and proceed to access it. To do so, open the web browser of your preference and type the default address **192.168.1.2**, as shown in **Figure 4**.
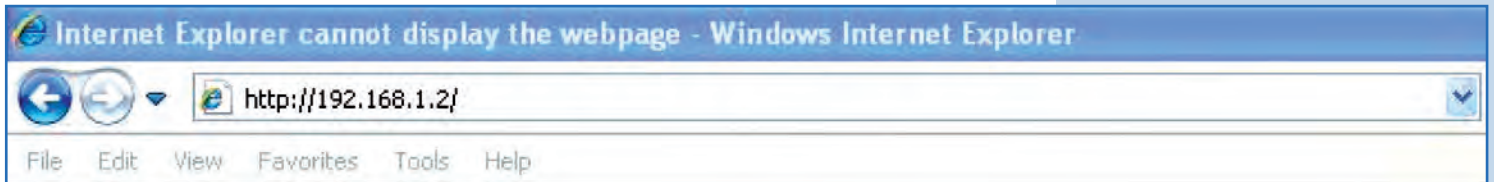

Figure 4

Select **Basic/Operation Mode** and then **Master** 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**). Additionally, we recommend you to adjust the distance in **Distance** option (See **Appendix 2**). Select **Update**, as shown in **Figure 5**.
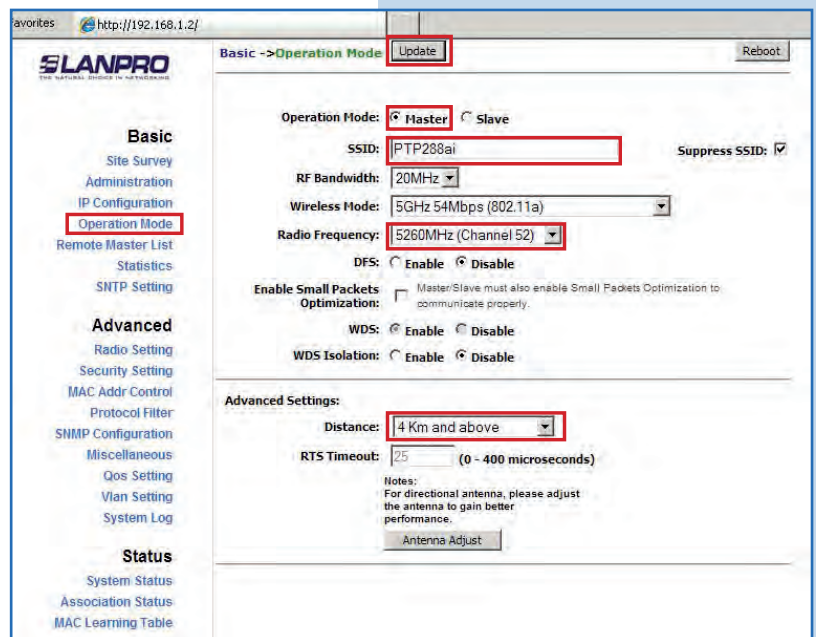
Figure 5

The equipment will save the changes, but they won´t be effective unless you reboot the equipment. To do so, select **Reboot** as shown in **Figure 6**.
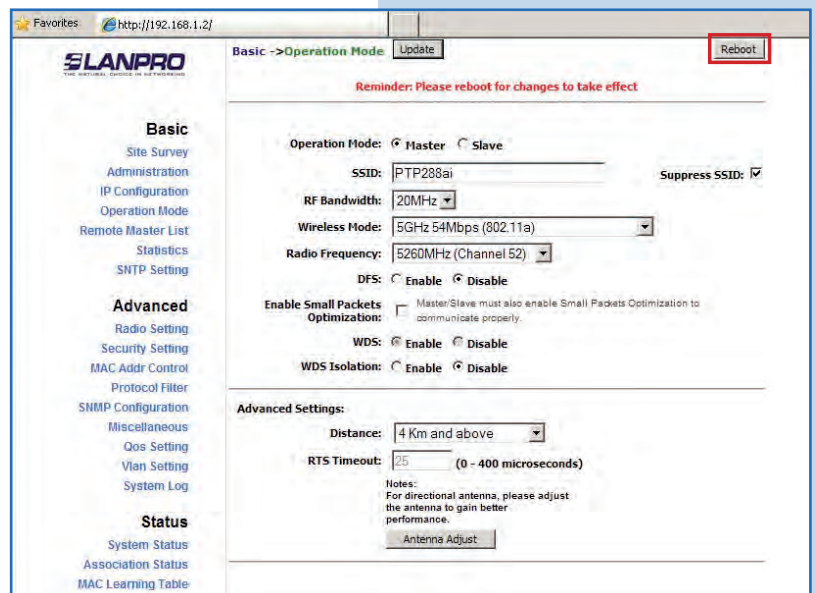
Figure 6

7

You can see on the screen the process of rebooting. Wait for the equipment to finish, as shown in **Figure 7**.
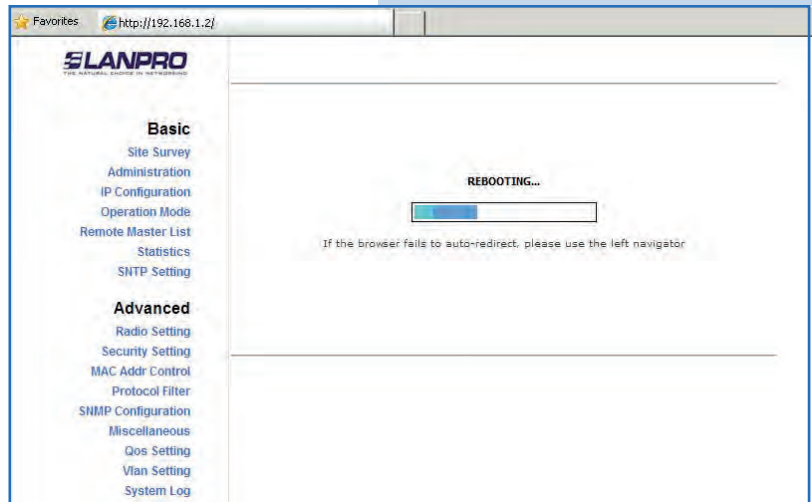
Figure 7

8

Proceed to add the MAC Address of the Master B equipment (the second LP-288ai) in **Basic/Remote Master List**. To do so, select **Remote Master List**, add the **MAC Address** of the equipment B in MAC Address field and enter the point to point links priority (we recommend priority 1). Select **Add/Update**, as shown in **Figure 8**.
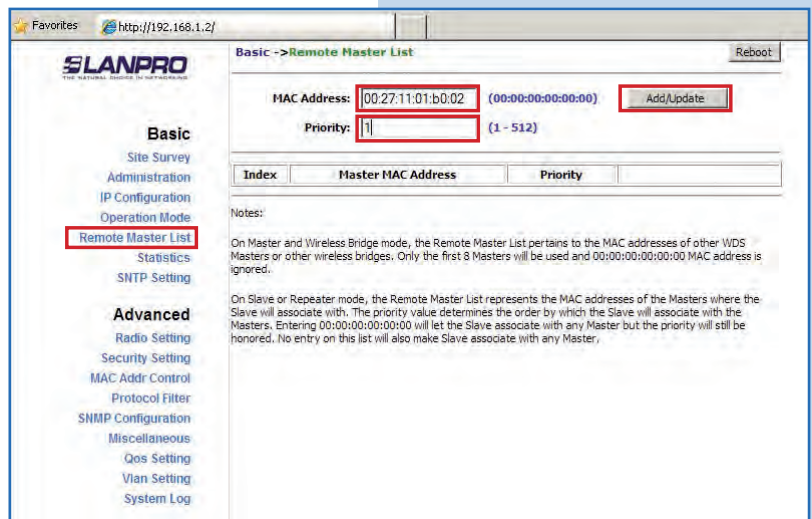
Figure 8

9

Select **Reboot** to apply the changes, as shown in **Figure 9**.
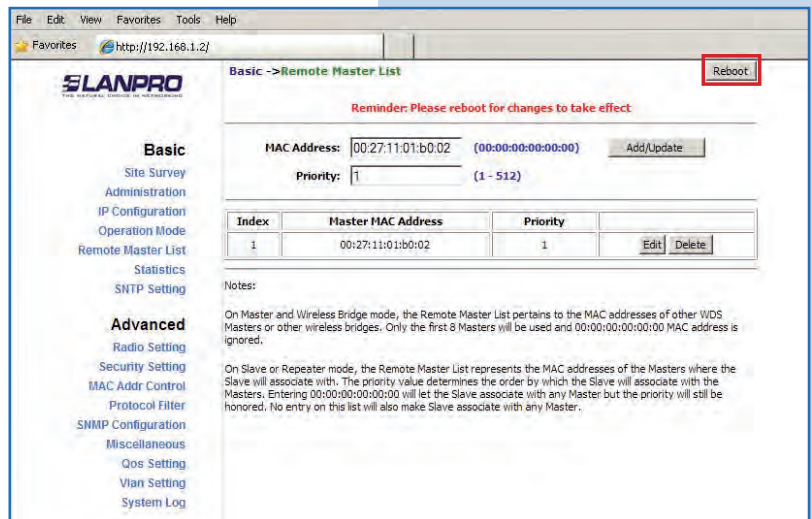
Figure 9

10

You can see the process of rebooting on the screen. Wait for the equipment to finish, as shown in **Figure 10**.
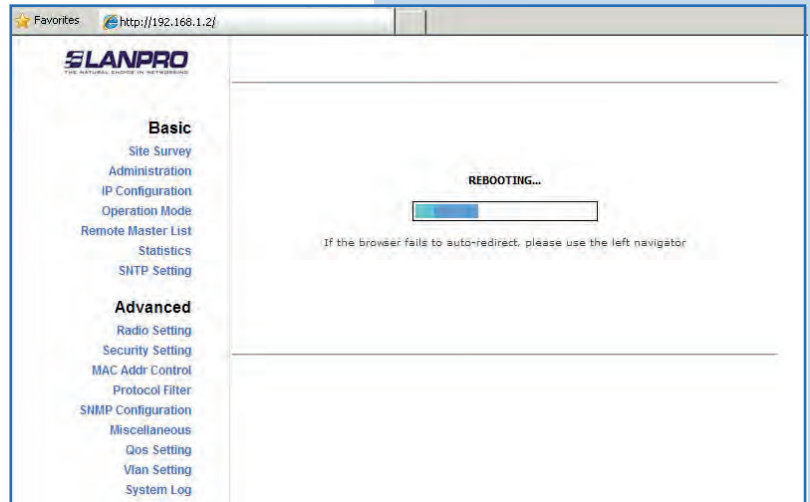
Figure 10

11

Select **Advanced/Security Setting** and in **Security Mode** select the **WEP** encryption mode, as shown in **Figure 11**. It is important to mention that in Point to point, Point to Multi-point ((PtP/PtmP) mode, *this is the only security mode permitted.*
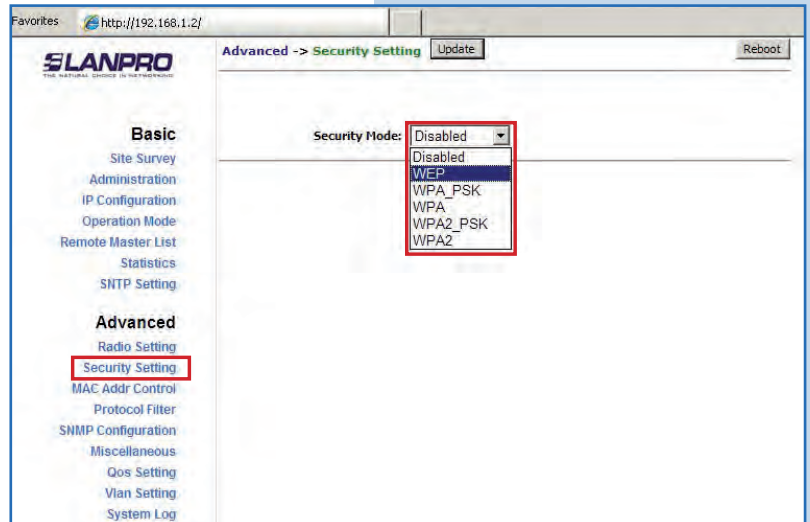
Figure 11

12

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). Select **Update** to save changes, as shown in **Figure 12**.
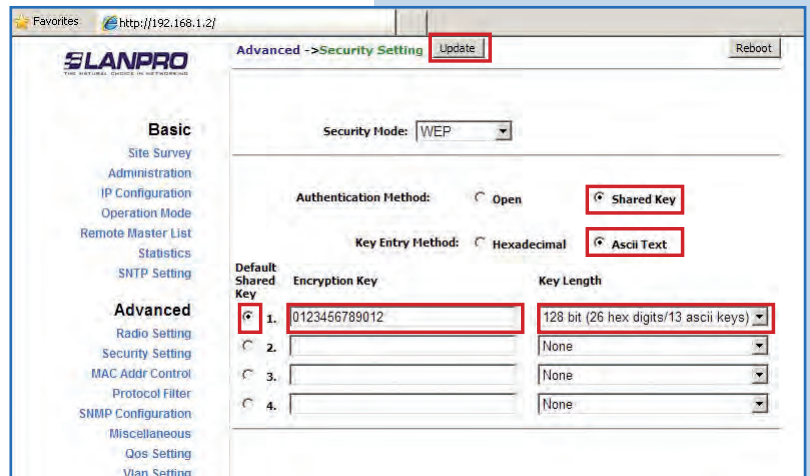
Figure 12

13

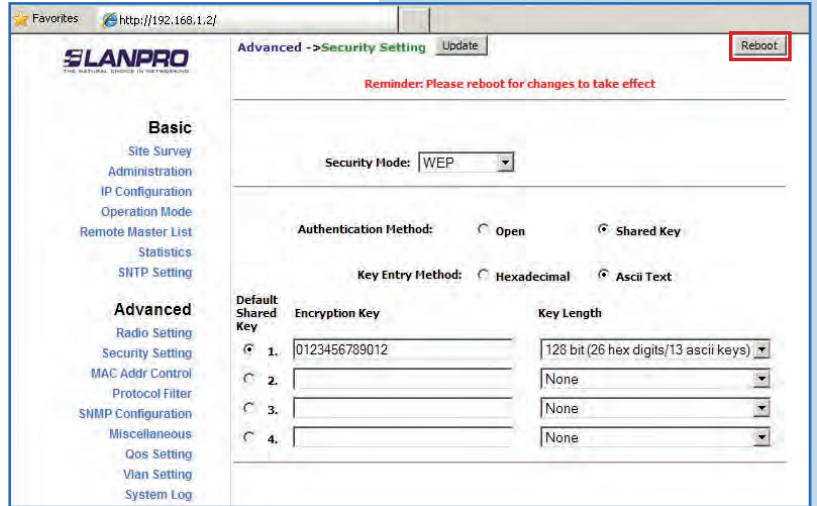Select **Reboot** to apply the changes, as shown in **Figure 13**.

Figure 13

14

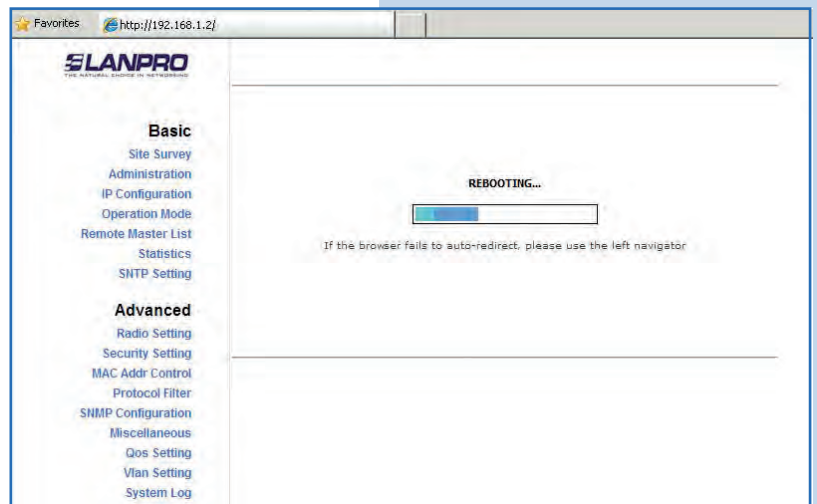You can see the process of rebooting on the screen, as shown in **Figure 14**.

Figure 14

15

Proceed to add the Master B MAC Address in **MAC Addr Control** to limit the connection to this equipment only by the LP-288aiB. Select **MAC Addr Control** and check **Enable,** add the equipment B MAC Address and select **Add**, as shown in **Figure 15**.
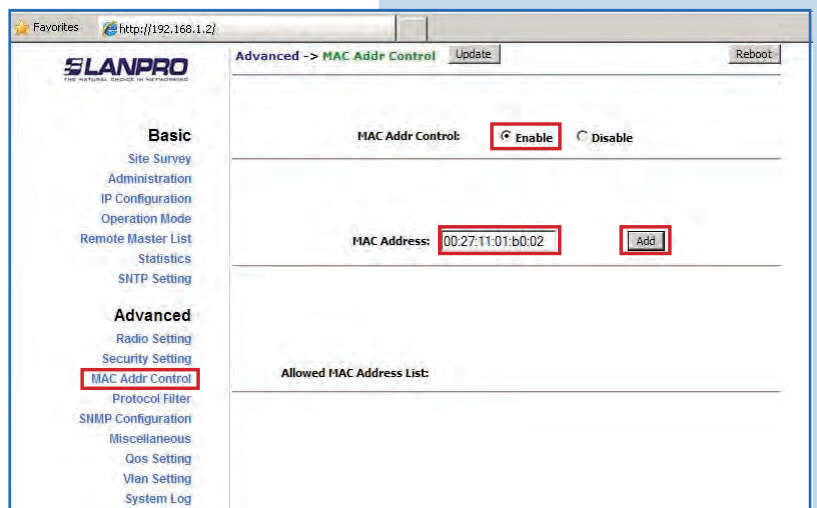
Figure 15

16

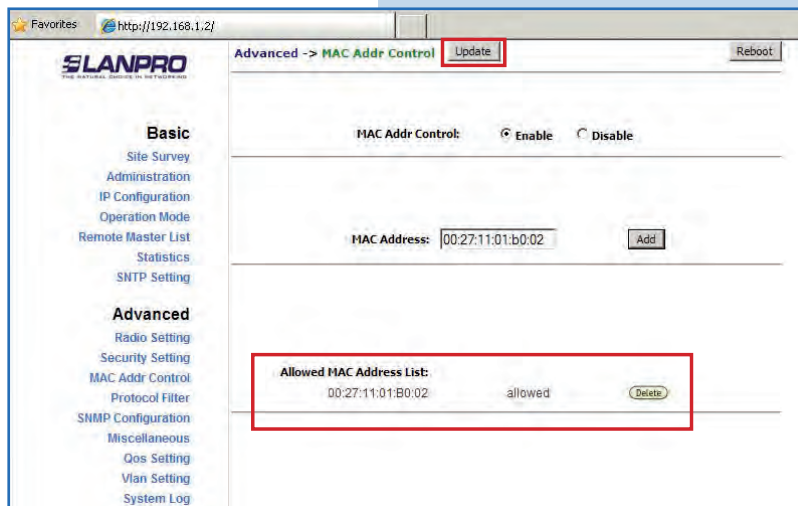Observe how the access of the MAC Address is allowed and select it, as shown in **Figure 16**.

Figure 16

17

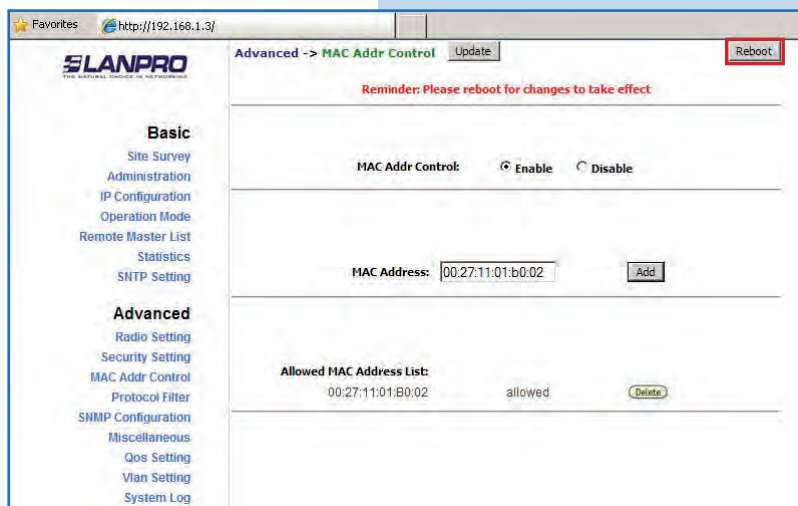Select **Reboot** so the changes will be effective, as shown in **Figure 17**.

Figure 17

18

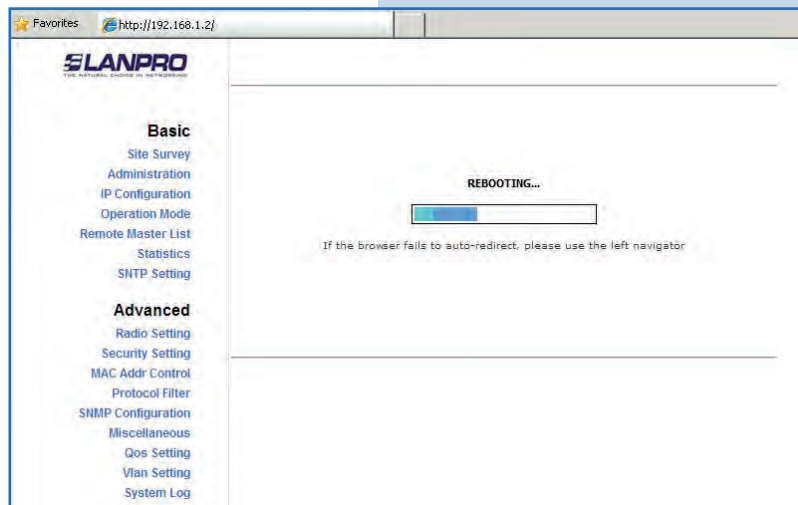A progress bar indicating the equipment is rebooting will be displayed, as shown in **Figure 18**.

Figure 18

19

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 19**.
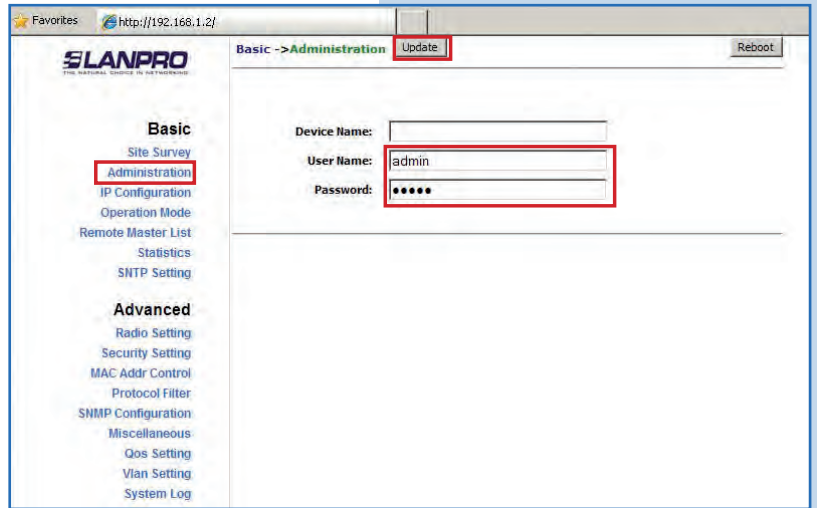
Figure 19

20

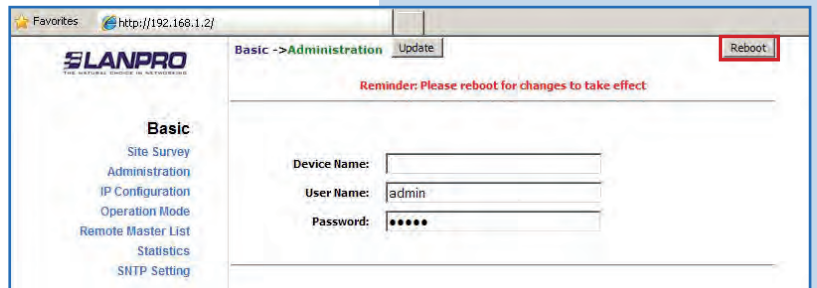Select **Reboot** to apply changes, as shown in **Figure 20**.

Figure 20

21

A progress bar indicating the equipment is rebooting will be displayed, as shown in **Figure 21**.
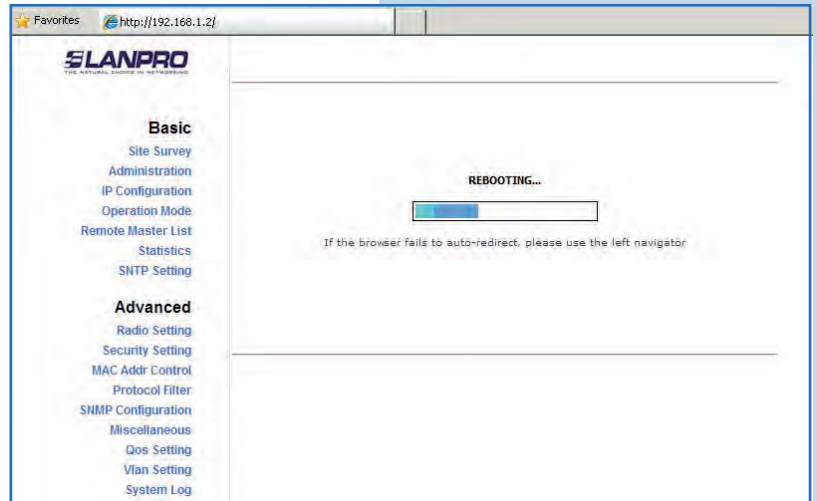
Figure 21

22

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, select **Update**, as shown in **Figure 22**.

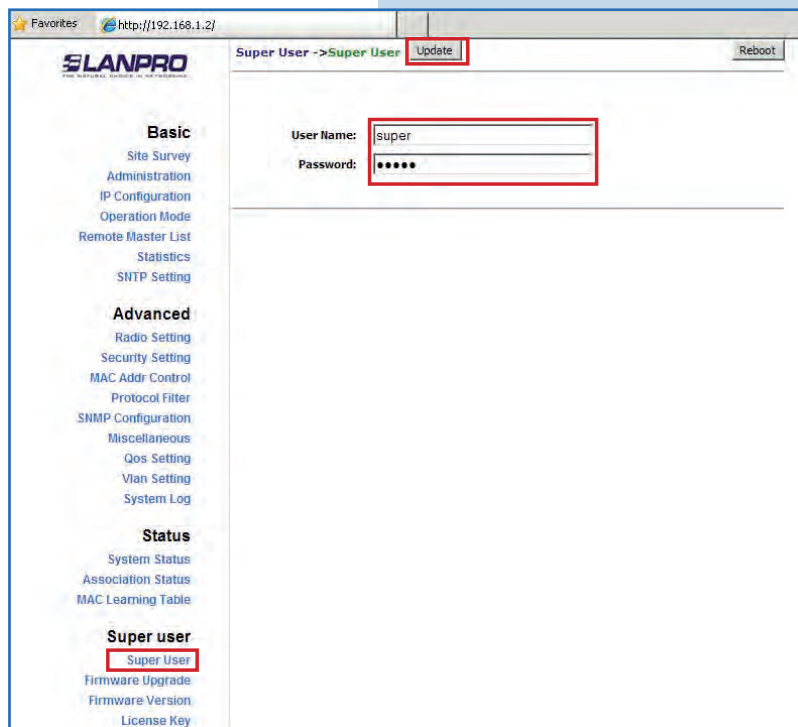**Figure 22**

23

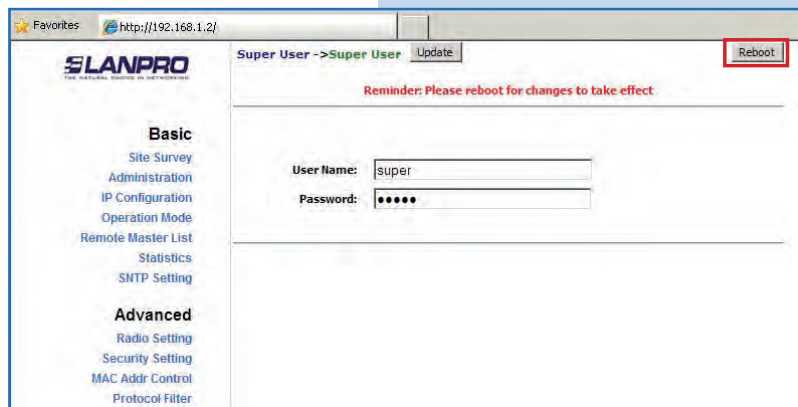To make the change effective, select **Reboot**, as shown in **Figure 23**.

Figure 23

24

A progress bar indicating the equipment is rebooting will be displayed, as shown in **Figure 24**.

Figure 24

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Wireless - Equipment - 123 Manual - LP-288ai V2.0 TURBO OFDM Compact outdoor radio
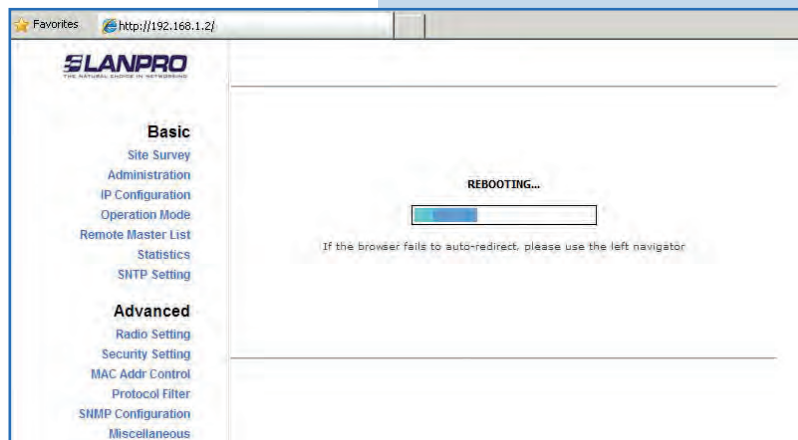with throughput booster. Installation in Point to Point, Point to Multi-Point Mode. Firmware V2.0.2B5P1

25

The equipment will request your user and password once again. Enter the value you changed and select **OK**, as shown in **Figure 25**.

Figure 25

Master B

26

Proceed to connect the second LP-288ai and access it. To do so, open the web browser of your preference and type the default address **192.168.1.2**, as shown in Figure 26. Remember that **Master A** must be on.
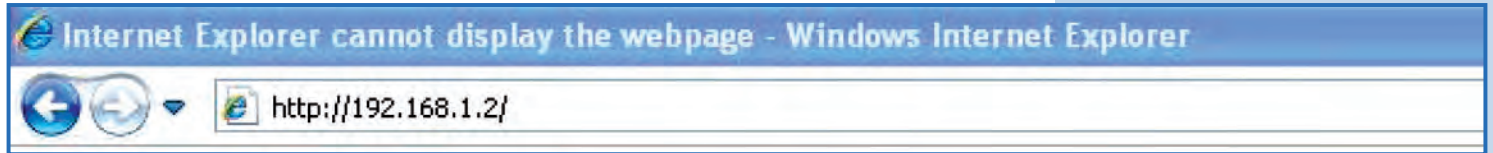

Figure 26

27

Change the Master B IP, 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 27**.
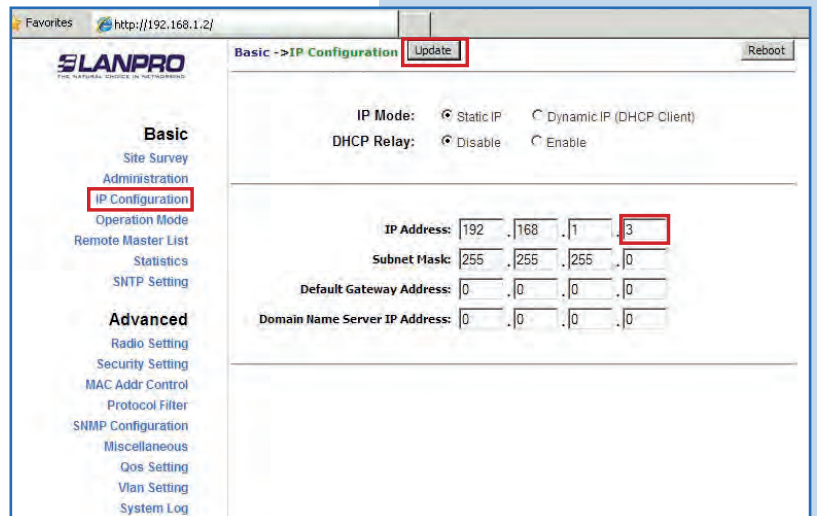
Figure 27

28

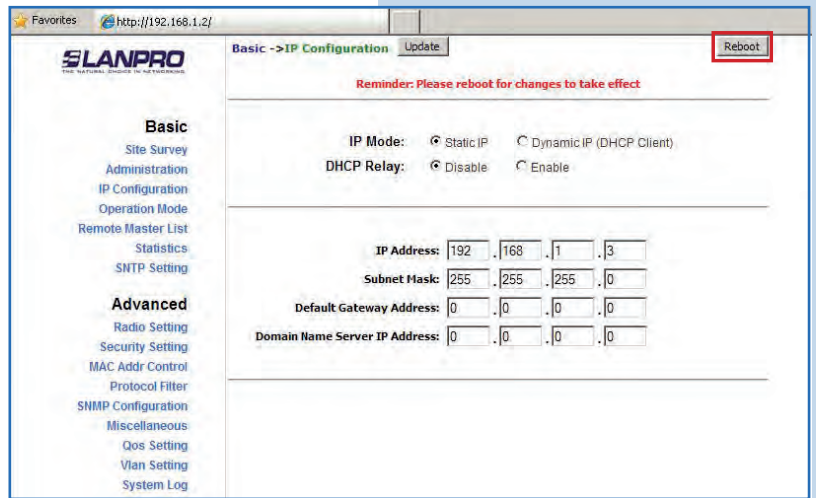Select **Reboot** to apply changes, as shown in **Figure 28**.

Figure 28

29

A progress bar indicating the equipment is rebooting will be displayed, as shown in **Figure 29**.
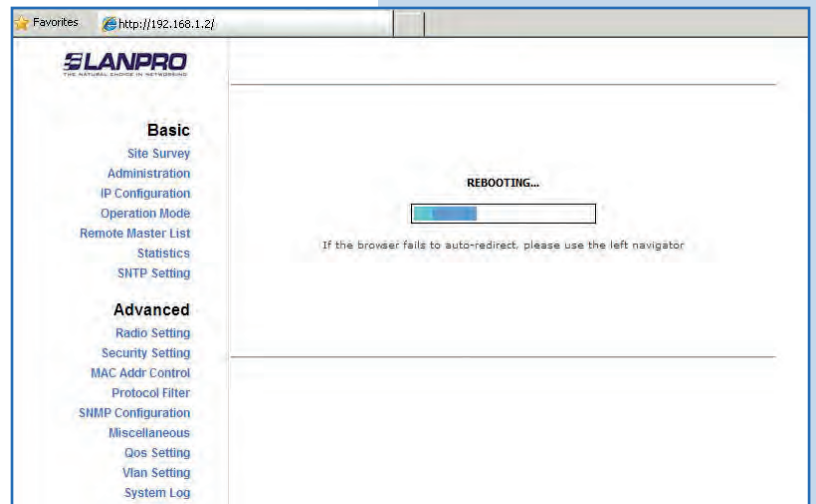
Figure 29

30

Open the web browser of your preference and type the default address **192.168.1.3**, as shown in **Figure 30**.
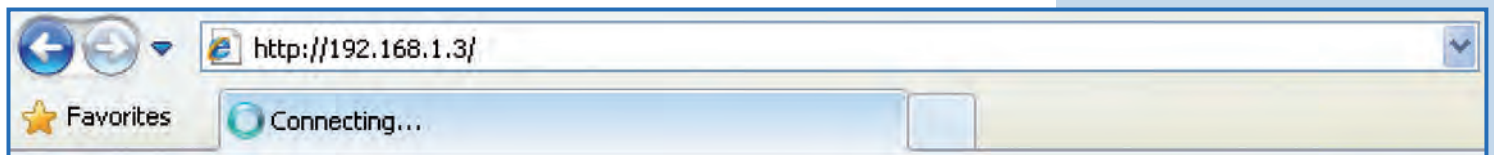
Figure 30

31

The equipment will request your user and password once again. Enter the value you changed and select **OK**, as shown in **Figure 31**.
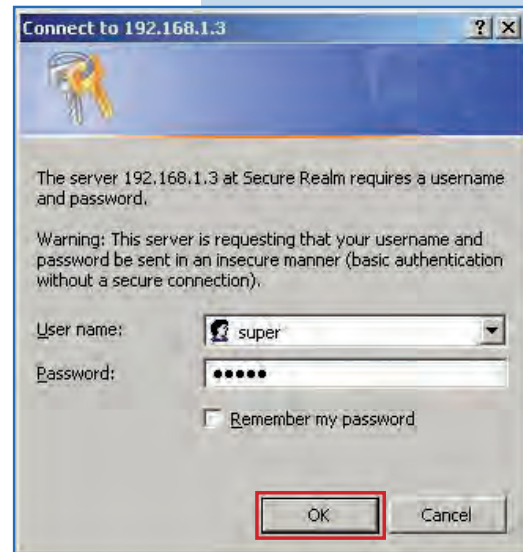
Figure 31

32

Select **Basic/Operation Mode** and then **Master** in **Operation Mode**. Enter the network name in the **SSID** field and select the channel in **Radio Frequency** field. Select **Update**, as shown in **Figure 32. (Remember these values must be the same in Master A)**.
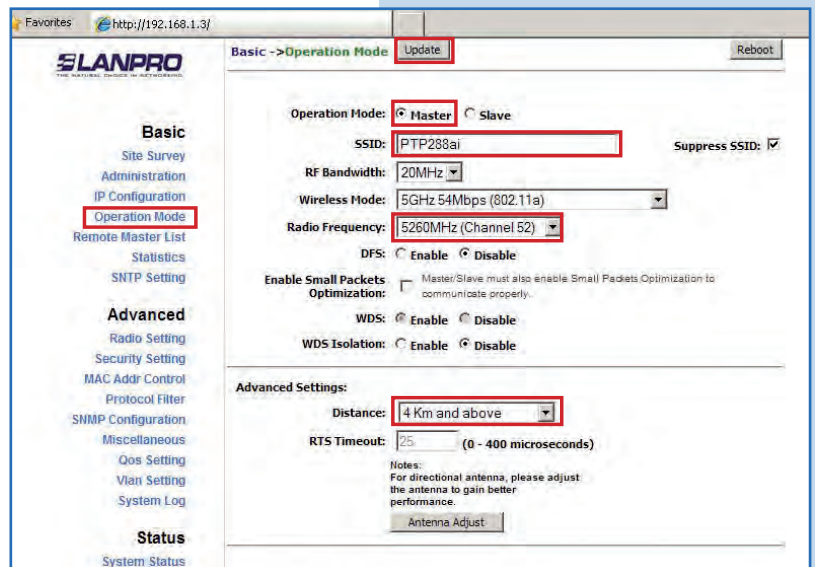
Figure 32

33

The equipment will save the changes, but they won´t be effective unless you reboot the equipment. To do so, select **Reboot** as shown in **Figure 33**.
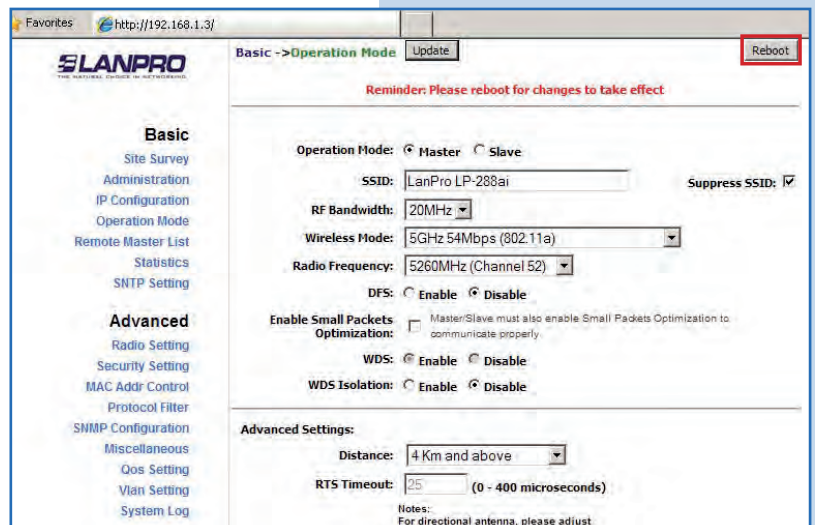
Figure 33

34

A progress bar indicating the equipment is rebooting will be displayed. Wait until the process is finished, as shown in **Figure 34**.
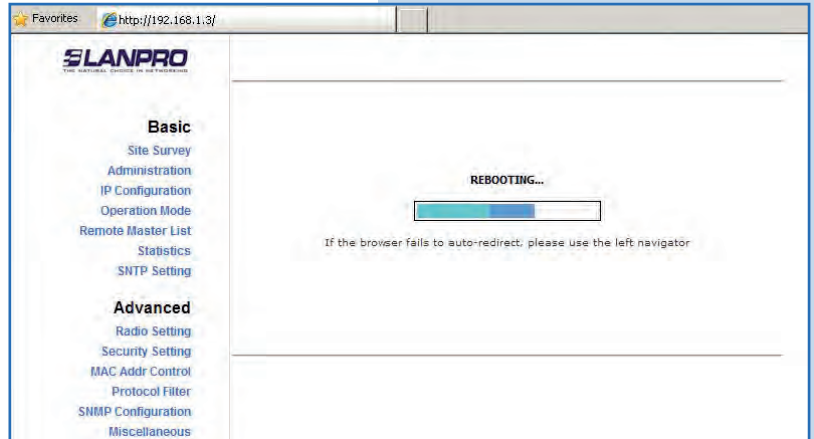
Figure 34

35

Proceed to add the MAC Address of the Master A equipment in **Remote Master List**. To do so, select **Basic/Remote Master List**, add the MAC Address of the equipment A in **MAC Address** field and enter the point to point links priority (we recommend priority 1). Select **Add/Update**, as shown in **Figure 35**.
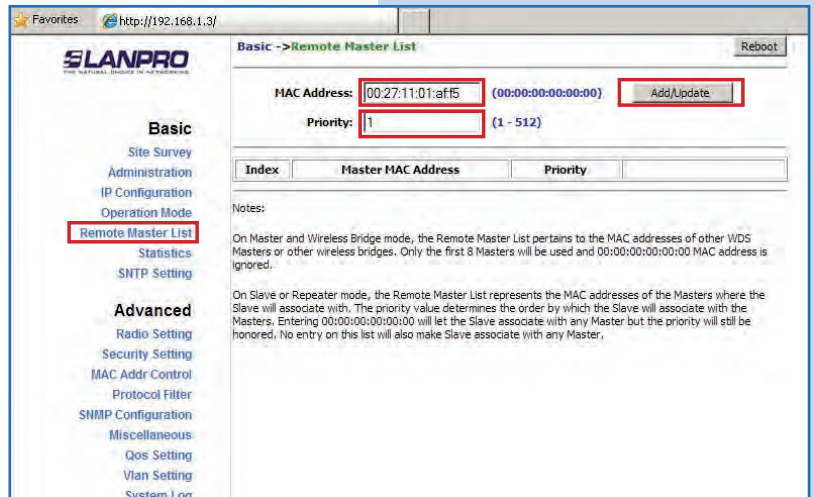
Figure 35

36

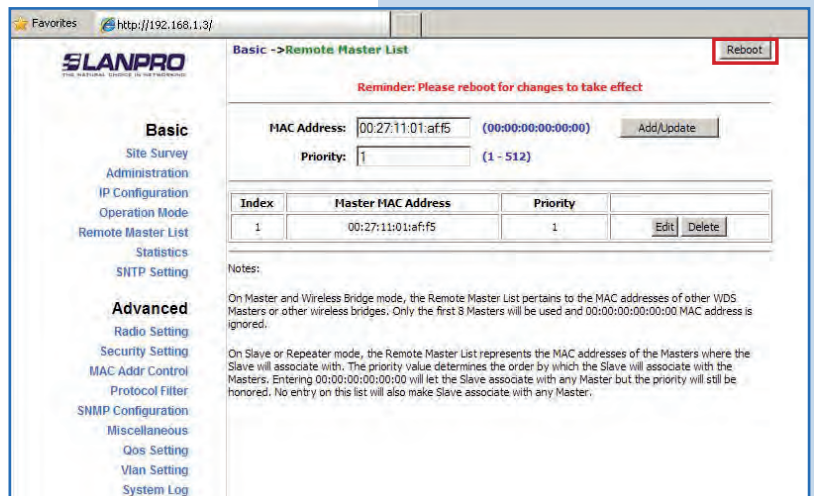Select **Reboot** to apply the changes, as shown in **Figure 36**.

Figure 36

37

A progress bar indicating the equipment is rebooting will be displayed. Wait until the process is finished, as shown in **Figure 37**.
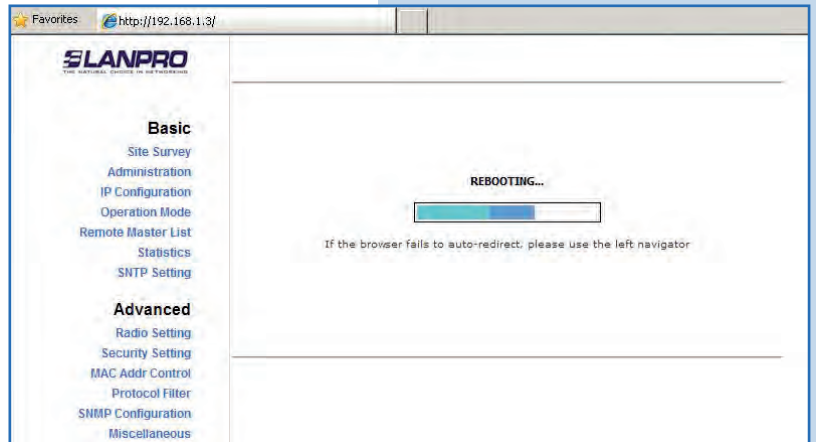
Figure 37

38

Select **Advanced/Security Setting** and in **Security Mode** select the **WEP** encryption mode, as shown in **Figure 38**. It is important to mention that in Point to point, Point to Multi-point (PtP/PtmP) mode, *this is the only security mode permitted.*
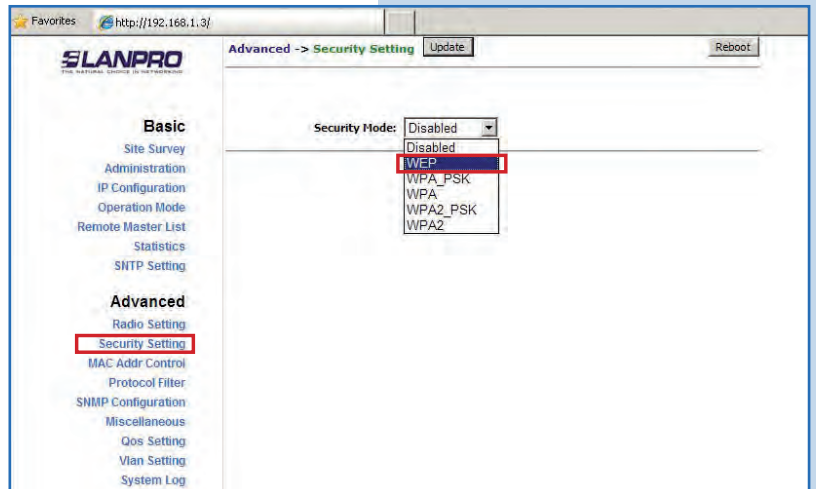
Figure 38

39

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). Select **Update** to save changes, as shown in **Figure 39**. **(Remember these values must be the same in Master A)**
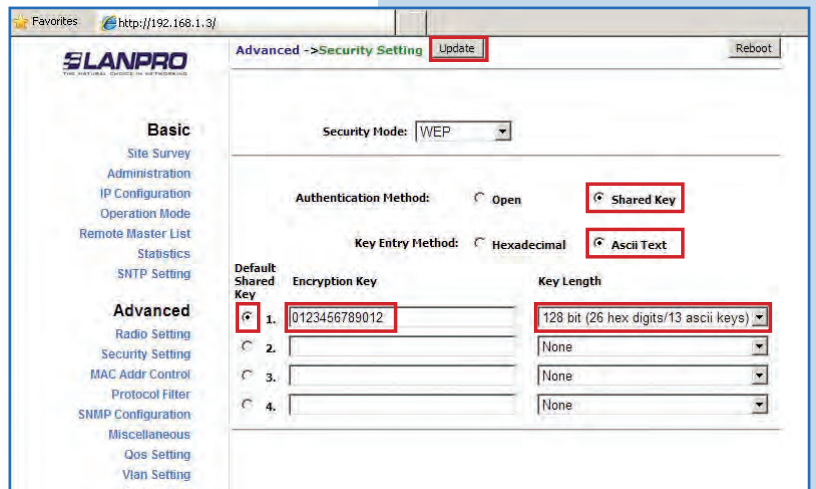
Figure 39

40

Once you have saved the changes, select **Reboot** to make them effective, as shown in **Figure 40**.
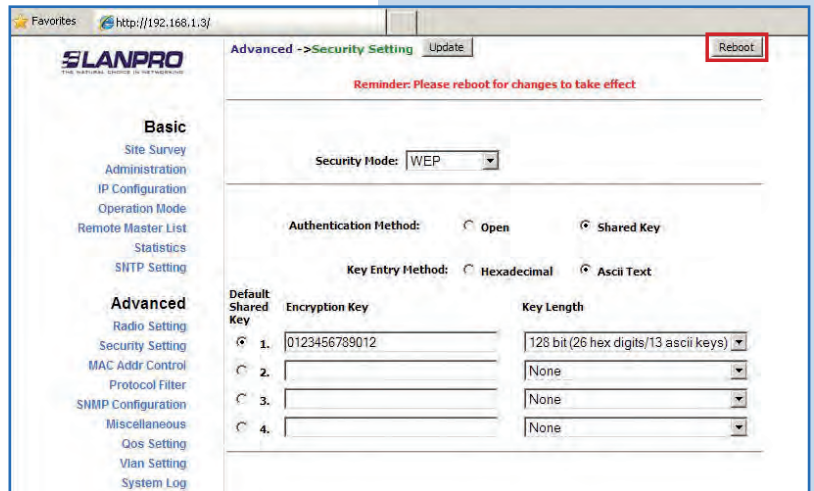
Figure 40

41

A progress bar indicating the equipment is rebooting will be displayed. Wait until the process is finished, as shown in **Figure 41**.
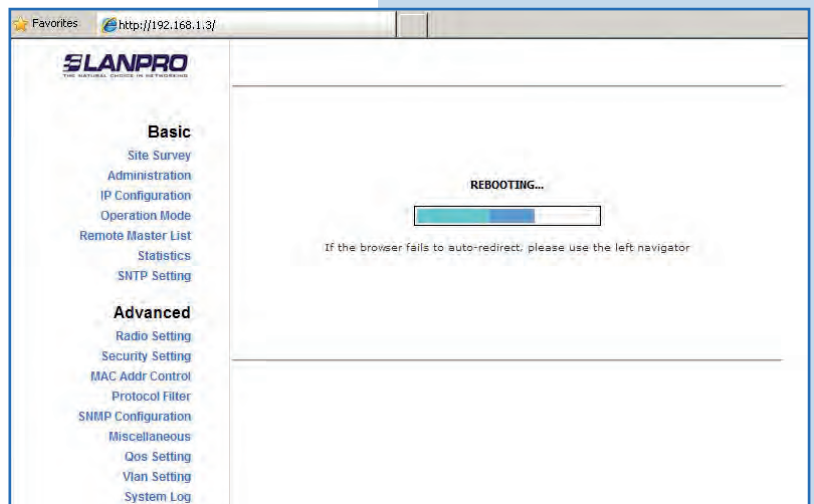
Figure 41

42

Proceed to add the Master A MAC Address in **MAC Addr Control** to limit the connection to this equipment only by the LP-288aiA. Select **MAC Addr Control** and check **Enable**, add the equipment A MAC Address and select **Add**, as shown in **Figure 42**.
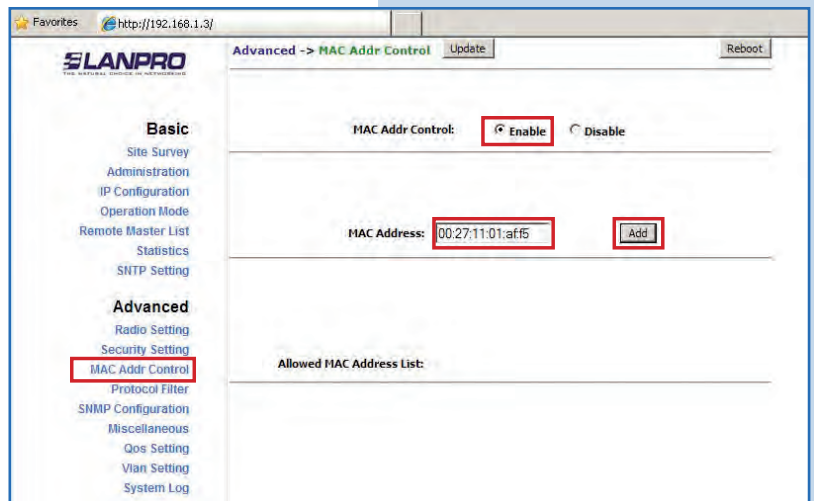
Figure 42

43

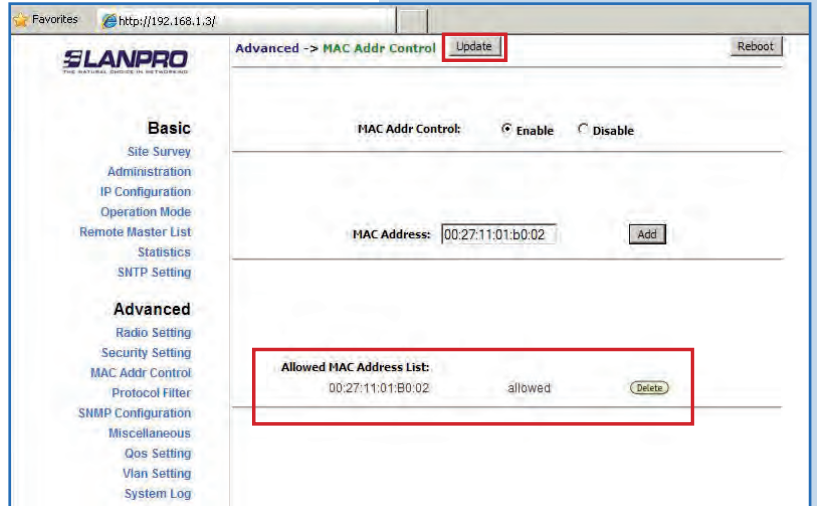Observe how the access of the MAC Address is allowed and select it, as shown in **Figure 43**.

Figure 43

44

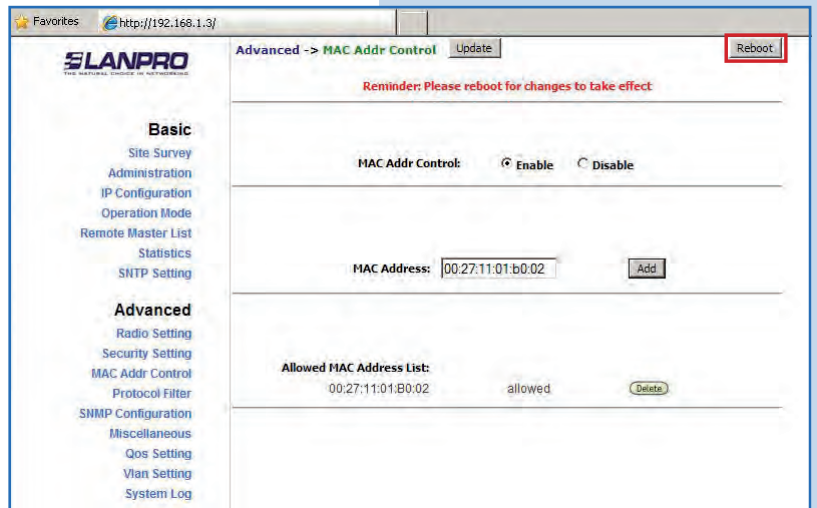Select **Reboot** so the changes will be effective, as shown in **Figure 44**.

Figure 44

45

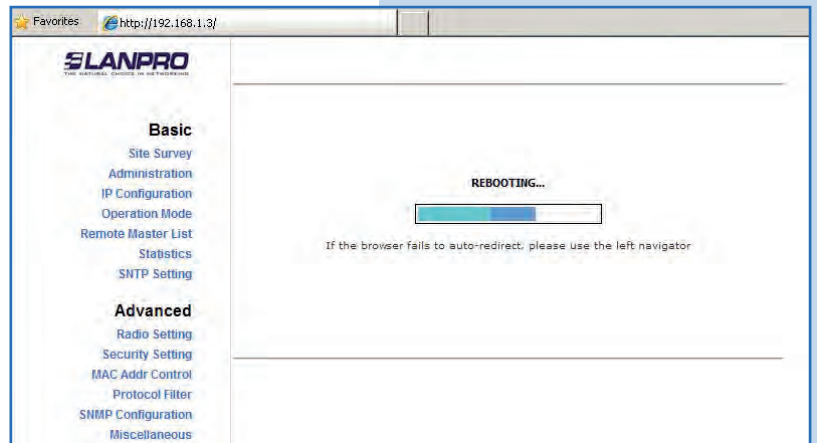A progress bar indicating the equipment is rebooting will be displayed, as shown in **Figure 45**.

Figure 45

46

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 46**.
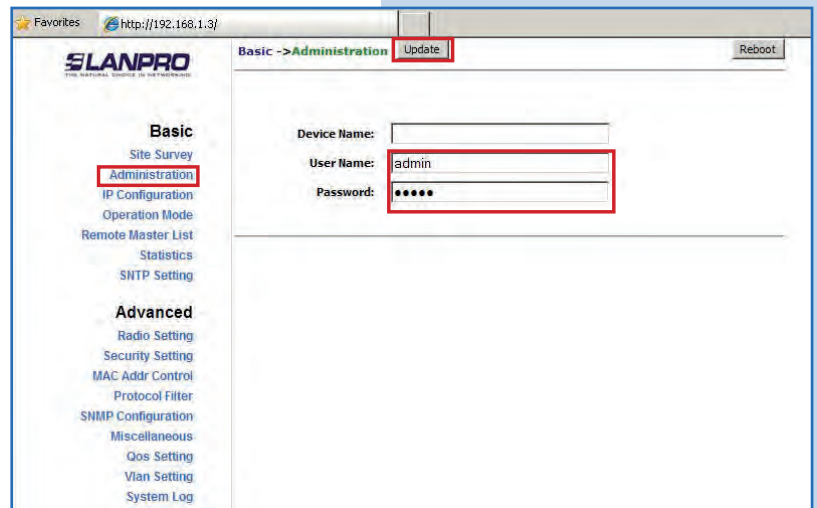
Figura 46

47

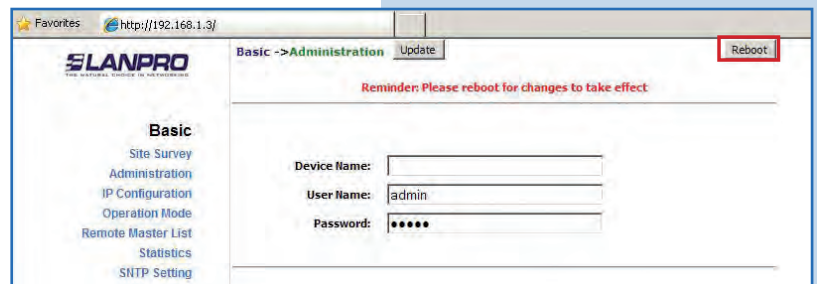Select Reboot to apply changes, as shown in **Figure 47**.

Figure 47

48

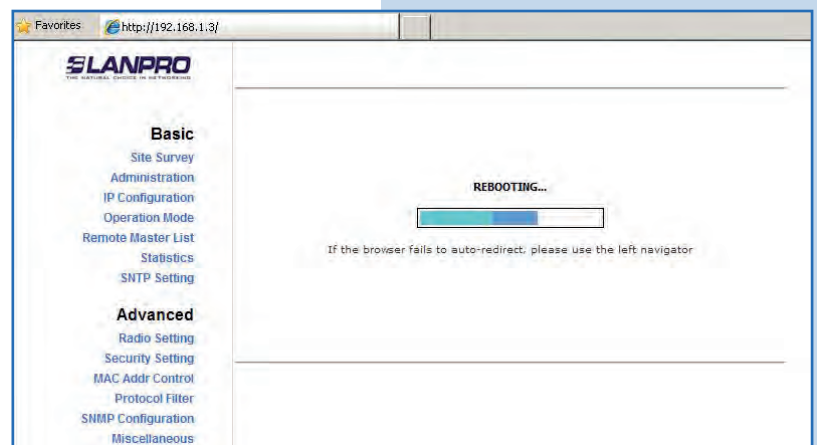A progress bar indicating the equipment is rebooting will be displayed, as shown in **Figure 48**.

Figure 48

49

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, select **Update**, as shown in **Figure 49**.

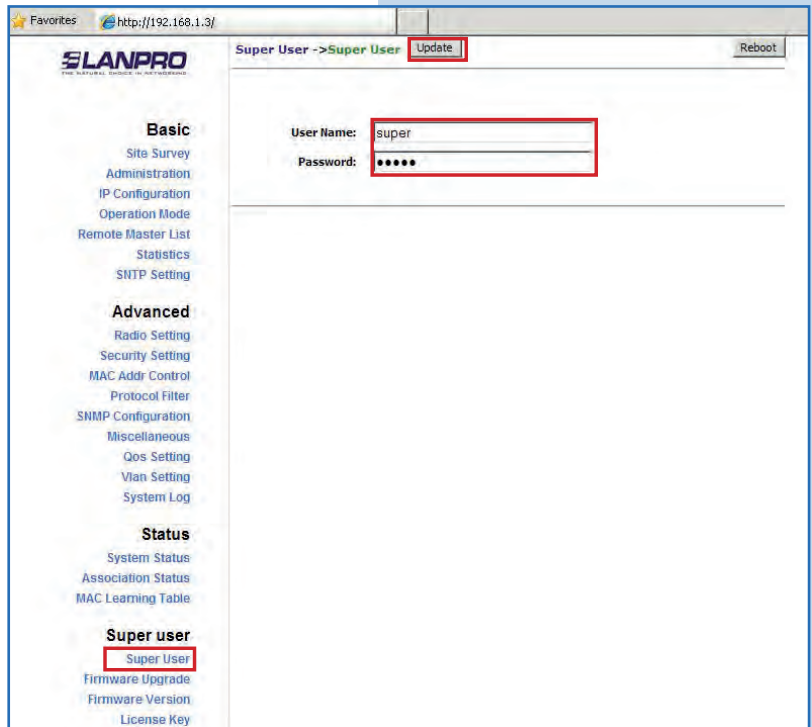**Figure 49**

50

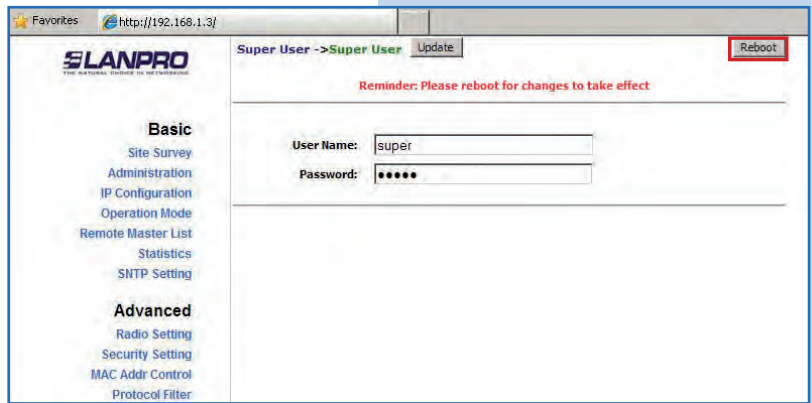Select **Reboot** to apply changes, as shown in **Figure 50**.

Figure 50

51

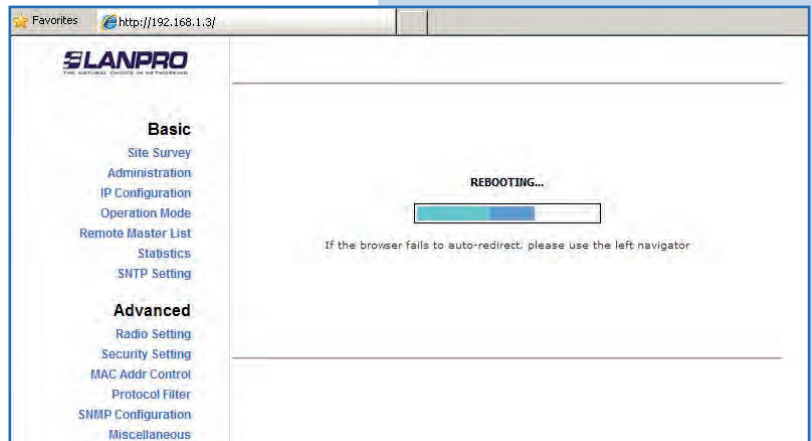A progress bar indicating the equipment is rebooting will be displayed, as shown in **Figure 51**.

Figure 51

52

The equipment will request your user and password once again. Enter the value you changed and select **OK**, as shown in **Figure 52**.
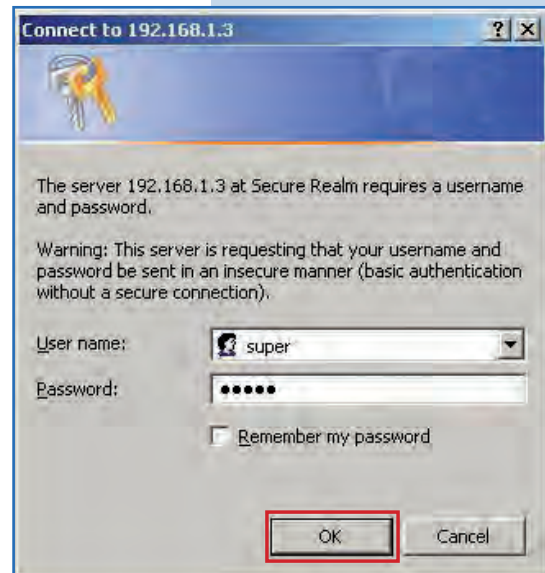
Figure 52

53

To verify the connectivity, run the Ping command in a command window against the equipment IP it is connecting, in this case 192.163.1.2. To do so, select **start** o **inicio**, select **Run** o **ejecutar**, as shown in **Figures 53-1** and **53-2**. Type the cmd command in the corresponding field and select **OK**.
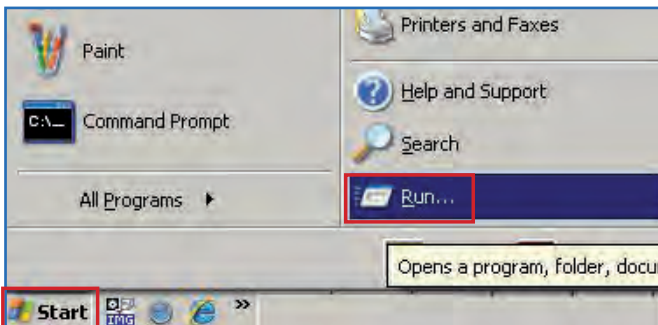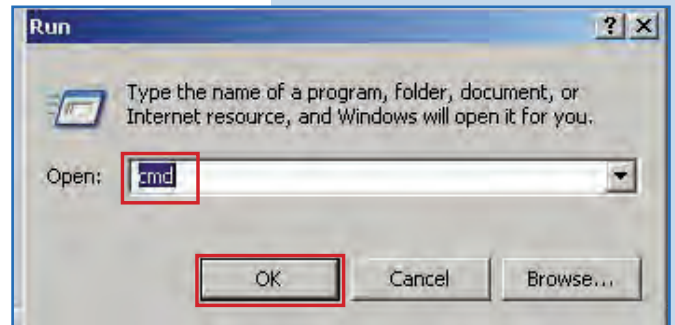
Figure 53-1

Figure 53-2

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Type the **Ping** command followed by the destination equipment IP, in this case 192.163.1.2. Press **Enter** and you will see the answer of the destination equipment, as shown in **Figures 54-1** and **54-2**.
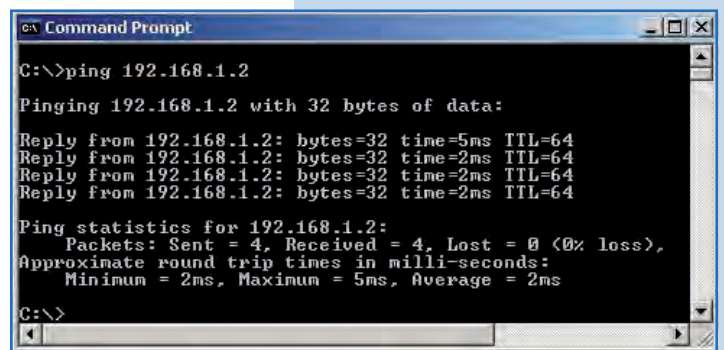
Figure 54-1

Figure 54-2

* In case the equipment does not work, please verify steps 5, 8, 12, 15, 32, 35, 38, 39, and 42.
* The MAC Address of Master A must be registered in Master B.
* The MAC Address of Master B must be registered in Master A.
* The security and the encryption key must be the same.
* The channel must be the same in Master A and B.

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 not used. 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** page, **Advanced Settings**, 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.

IMPORTANT INFORMATION:

For this V2.0.2.B5P1 firmware version, the equipment can only be LP-288ai of this firmware version.
If you want to interconnect another type of Mercury equipment or other 288ai of other firmware versions, you shall change the equipment firmware for the version V2.0.3B2P1 or version V2.0.3BP0T2E1.