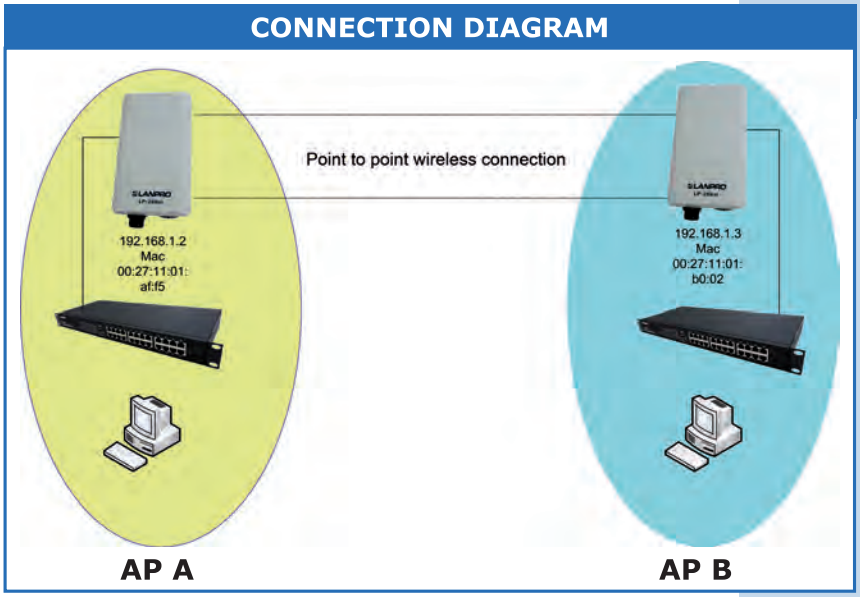
LP288aiV21B2_M123_END01W

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 V2.0.1B2P4

CONNECTION DIAGRAM



1

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

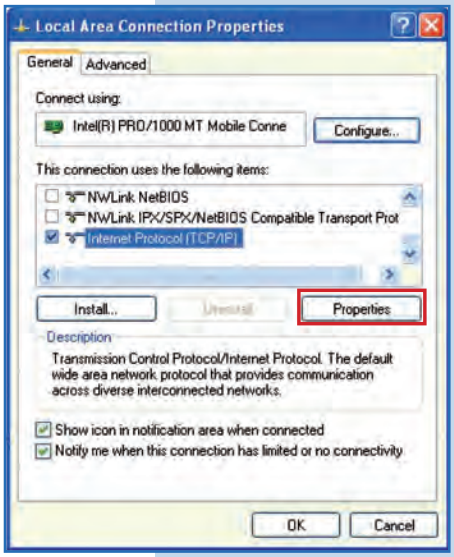


Figure 1

2

Select **Use the following IP address** and type an IP address in the LP-288ai IP range by default. For this example we have selected the address **192.168.1.201**, the LP-288ai has 192.168.1.2 by default. In **Subnet mask** type **255.255.255.0**, as shown in **Figure 2.**

Once you have finished select **OK** twice.

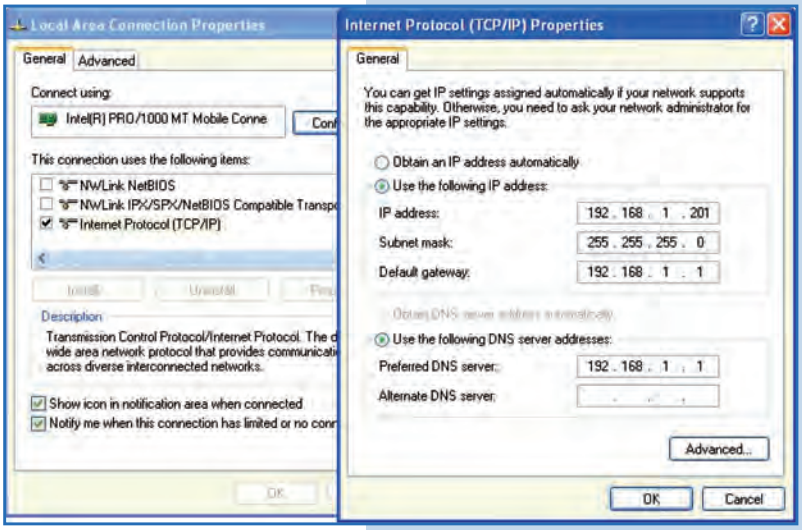


Figure 2

3

For this configuration you will need the equipment MAC Addresses for point to point connection. Additionally, two different IP addresses will be used within the range to manage them.

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.**

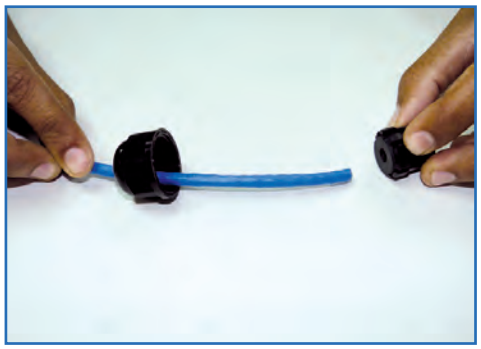


Figure 3a-1

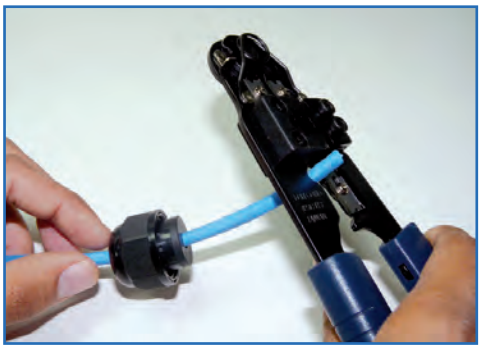


Figure 3a-2

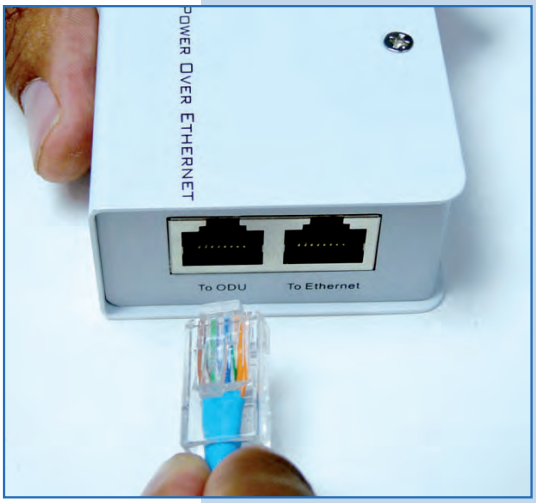
Figure 3a-3

- **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.**

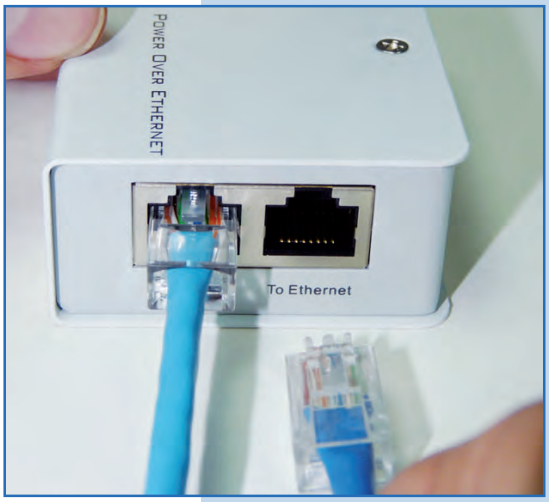


Figure 3d

- **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 **192.168.1.2**, as shown in **Figure 3f.**

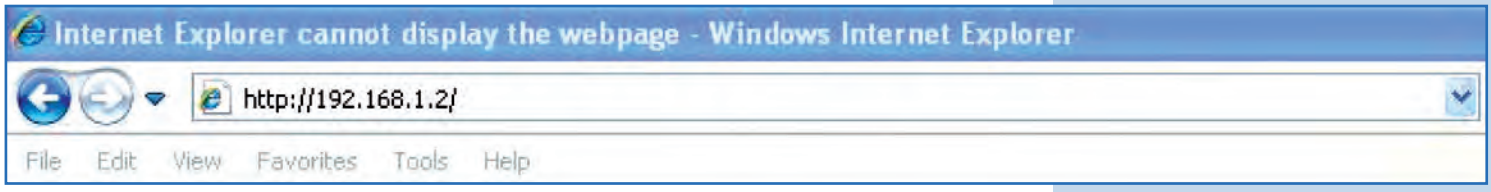


Figure 3f

- **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 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 3g.**

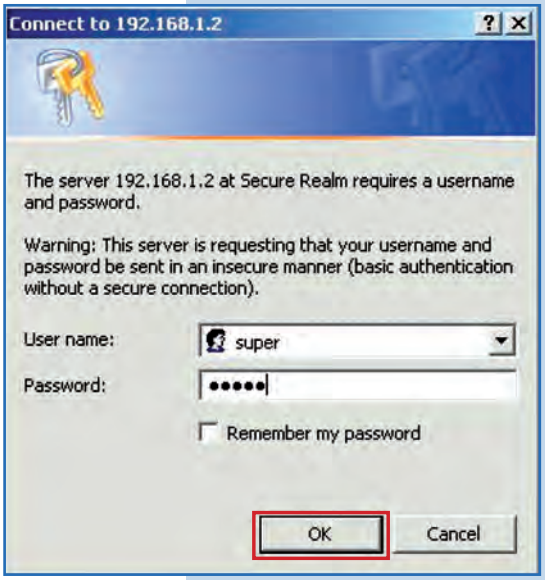


Figure 3g

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

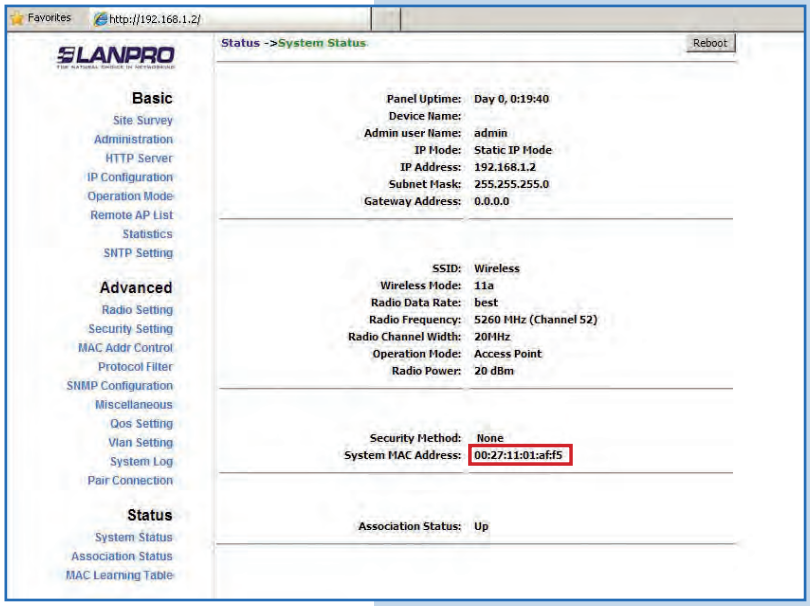


Figure 3h

4 Equipment A

Reconnect the first equipment and proceed to access it, therefore you shall open the web browser of your preference and type the default IP address **192.168.1.2**, as shown in **Figure 4.**

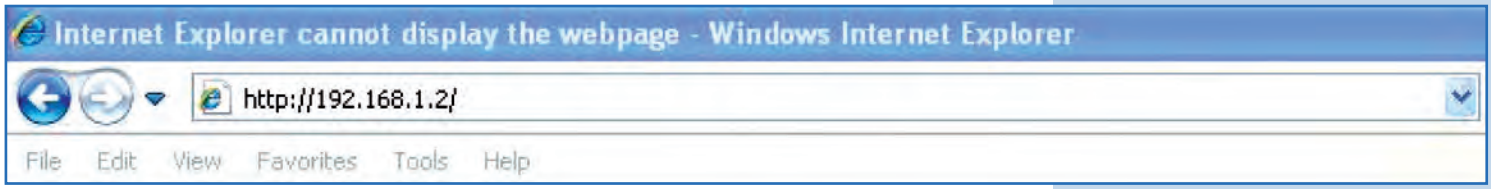


Figure 4

5

The equipment will request your user and password once again. Type **super** in user and password and select **OK**, as shown in **Figure 14g.** (If you changed the passwords, use the appropriate ones).

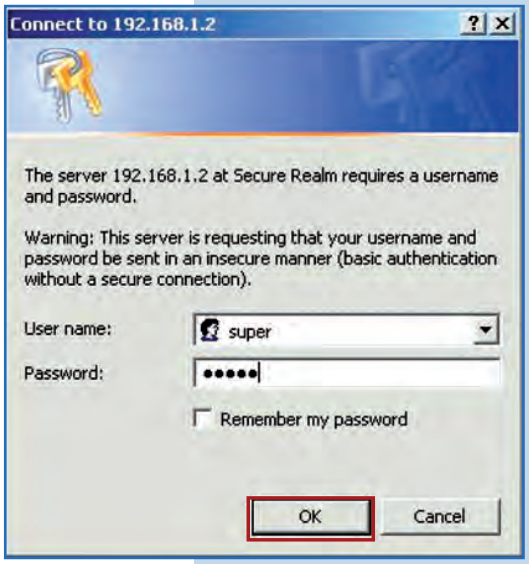


Figure 14g

6

Select **Operation Mode** and then check **Wireless Bridge.** Select the channel in **Radio Frequency**, which will depend on the existing links and/or interferences (see **Appendix 1**). Additionally, we recommend adjusting the distance in the corresponding option (see **Appendix 2**) and click on **Update**, as shown in **Figure 6.**

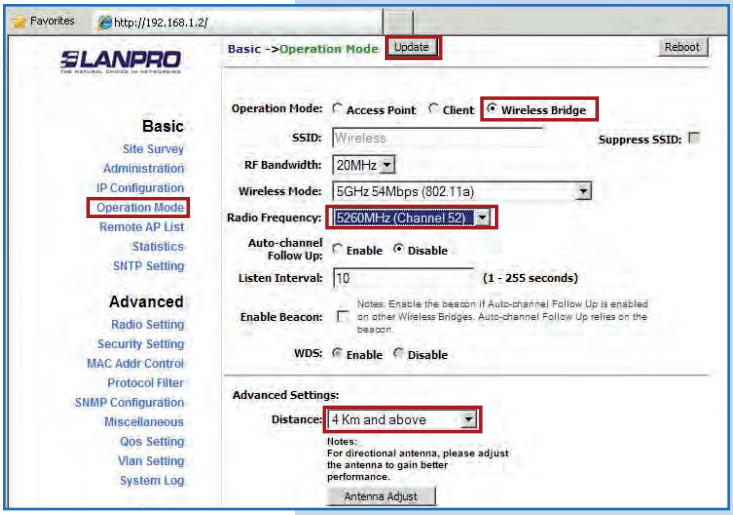


Figure 6

7

The equipment will save changes, but they will not be effective unless you reboot it. Select **Reboot** as shown in **Figure 7.**

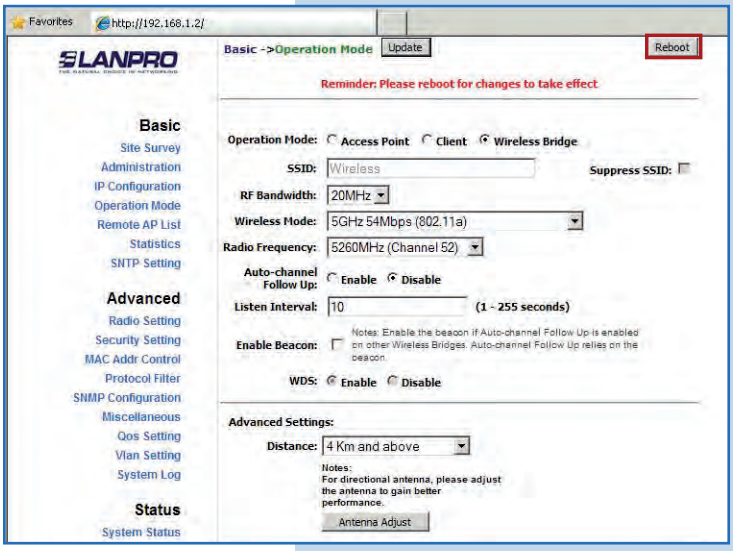


Figure 7

8

The equipment will indicate when is rebooting and applying the changes, as shown in **Figure 8.**

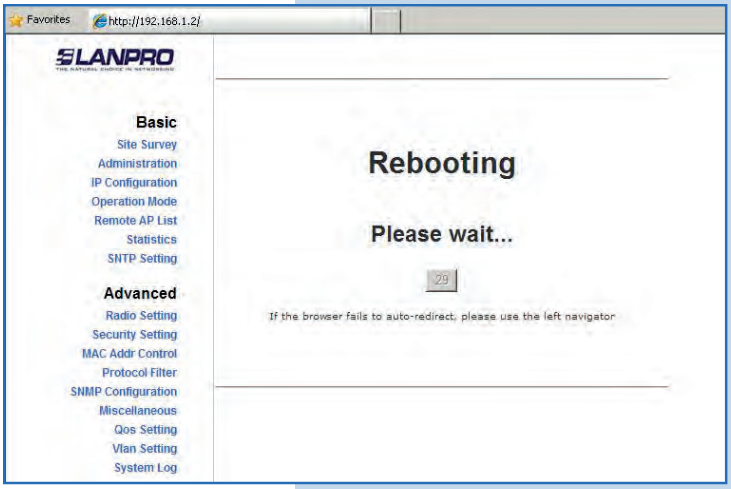


Figure 8

9

Proceed to add the Equipment B MAC Address (the second LP-288ai). Select **Remote AP List**, add the Equipment B MAC Address in the corresponding field, enter the priority for point to point links (priority 1 is recommended), and click on **Add/Update**, as shown in **Figure 9.**

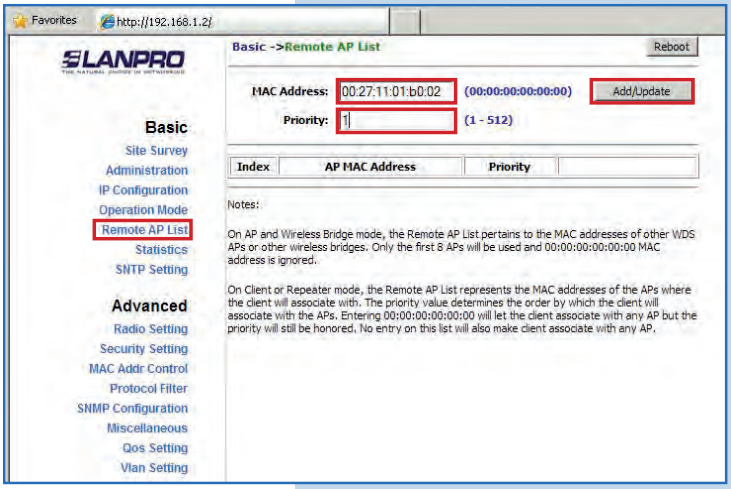


Figure 9

10

Select **Reboot** to apply the changes, as shown in **Figure 10.**

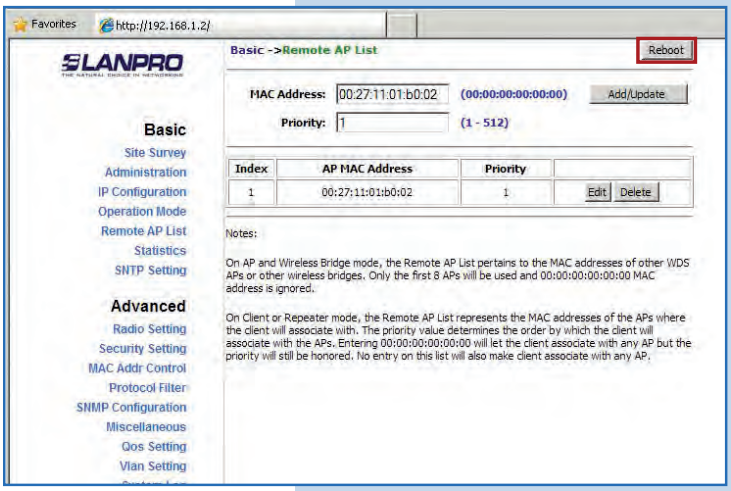


Figure 10

11

The equipment will indicate when is rebooting and applying the changes, as shown in **Figure 11.**

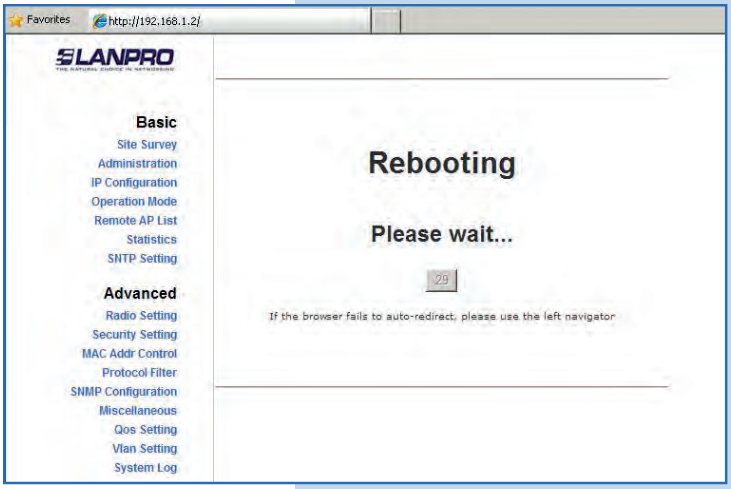


Figure 11

12

Select **Security Setting** and then **Security Mode.** Choose the **WEB** encryption mode, as shown in **Figure 12.** It is important to mention that ***this is the only security mode permitted*** in PtP mode.

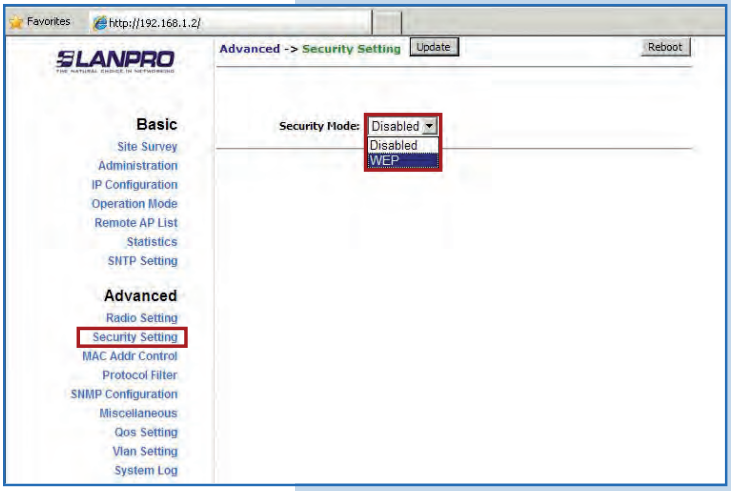


Figure 12

13

Select the authentication method, in this case **Shared Key,** then the key type (**Ascii Text**), enable key 1, enter it in **Encryption Key** and in **Key Length** select its length (in this case 128 bit). Click on **Update** to save changes, as shown in **Figure 13.**

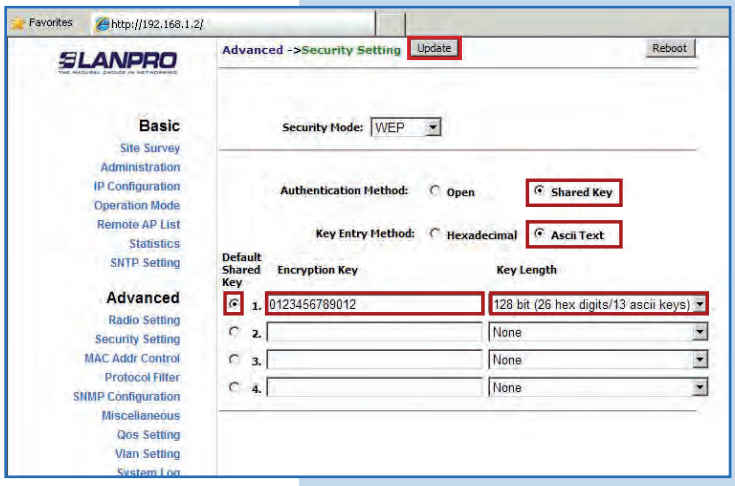


Figure 13

14

Once you have saved changes, you shall select **Reboot** to make them effective, as shown in **Figure 14.**

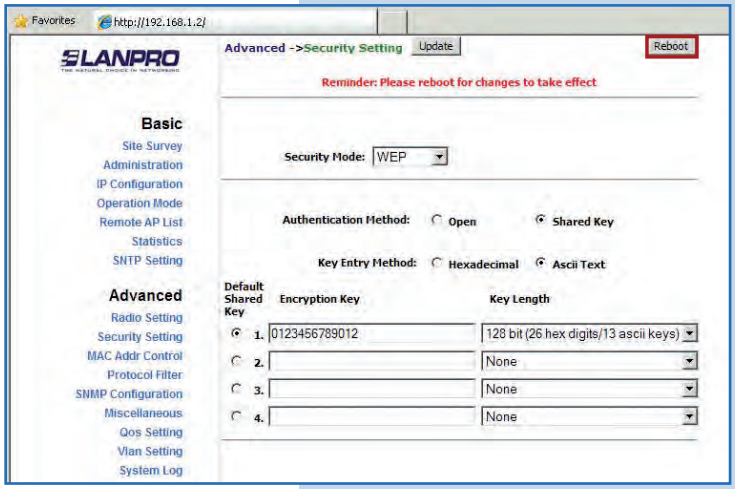


Figure 14

15

The equipment will indicate when is rebooting and applying the changes, as shown in **Figure 15.**

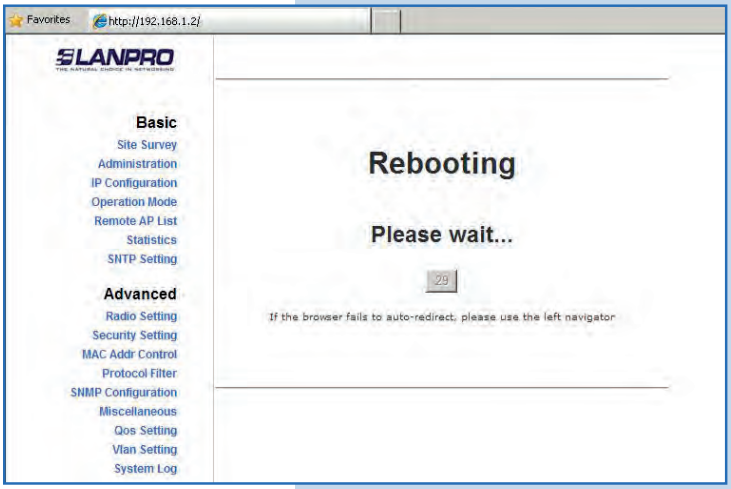


Figure 15

IMPORTANT RECOMMENDATION (OPTIONAL):

- **a.** Proceed to change the password of the user **admin** and **super** of your equipment.

  To change **admin** password, select **Administration** and enter the new password in the corresponding field, then select **Update** as shown in **Figure 15a.**

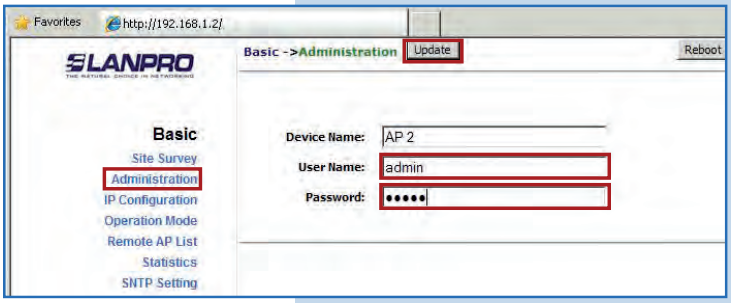
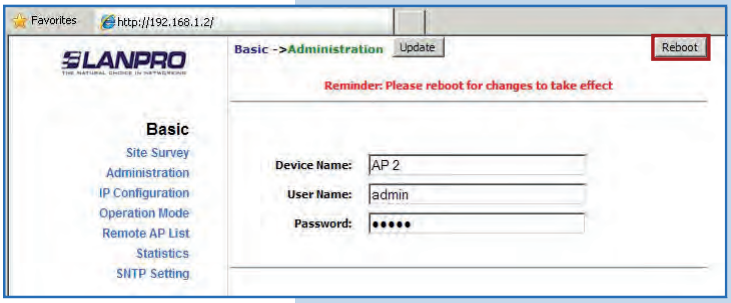


Figure 15a

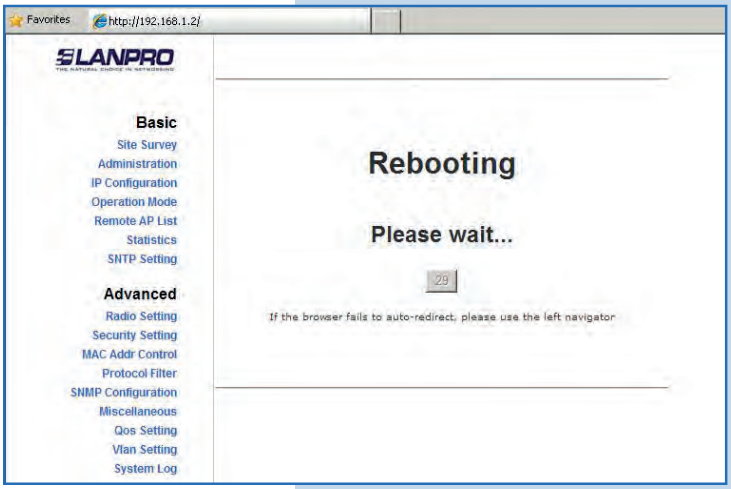
- **b.** To apply changes select **Reboot,** as shown in **Figure 15b.**

Figure 15b



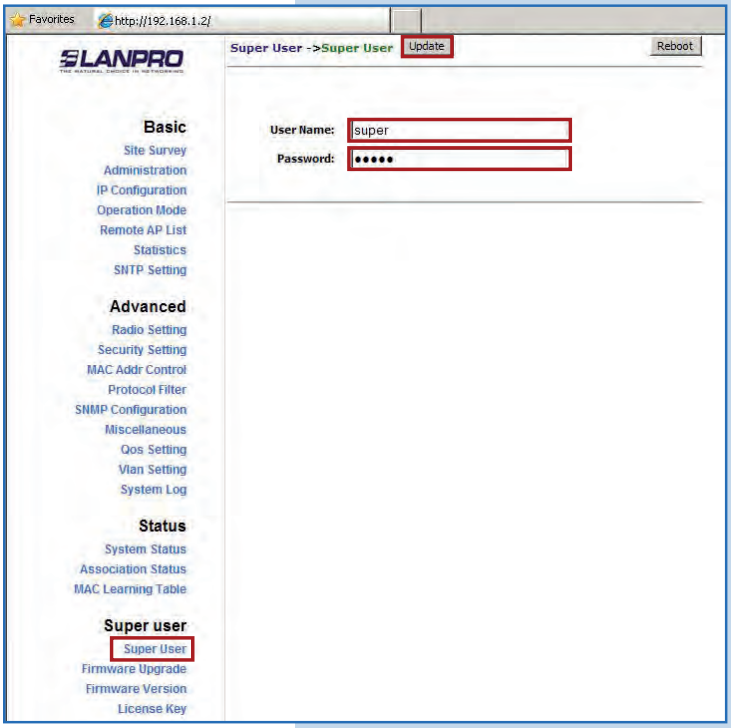
- **c.** The equipment will indicate when is rebooting and applying the changes, as shown in **Figure 15c.**

Figure 15c



- **d.** Proceed to change the password of the user **super** (remember you have to be authenticated as user super). Select the option **Super User** and enter the new password, then click on **Update** as shown in **Figure 15d.**

Figure 15d



- **e.** To make changes effective, select **Reboot** as shown in **Figure 15e.**

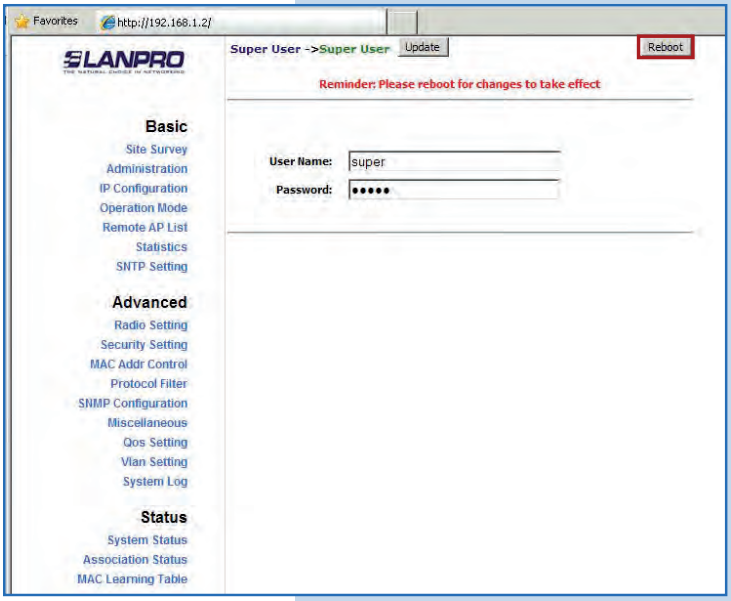


Figure 15e

- **f.** The equipment will indicate when is rebooting and applying the changes, as shown in **Figure 15f.**

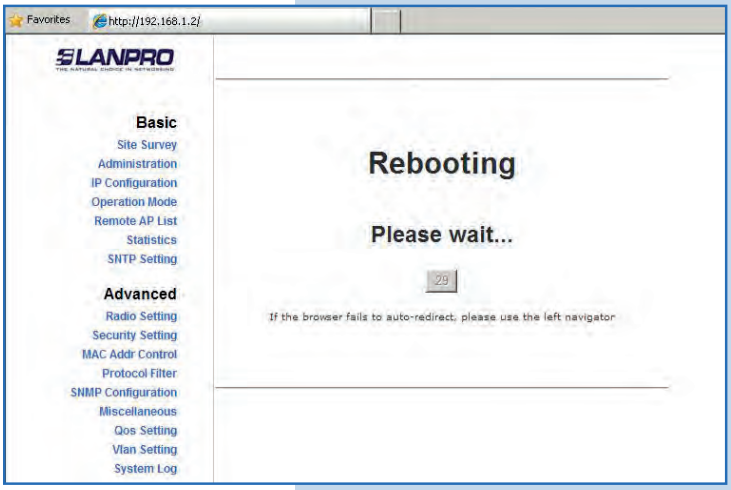


Figure 15f

- **g.** The equipment will request your user and password once again. Enter the value you changed and select **OK**, as shown in **Figure 15g.**

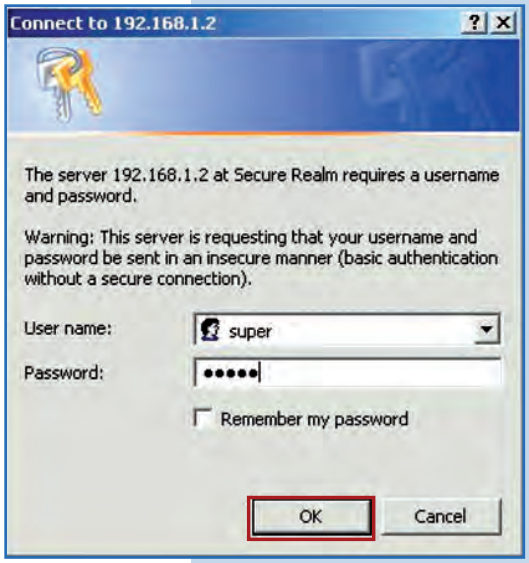


Figure 15g

16 Equipment B

Proceed to connect the second LP-288ai and access it, therefore you shall open the web browser of your preference and type the default IP address **192.168.1.2**, as shown in **Figure 16.**

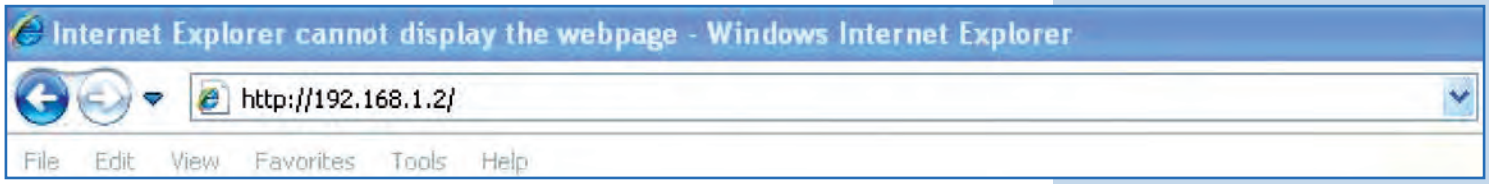


Figure 16

17

The equipment will request your user and password once again. Type **super** in user and password and select **OK**, as shown in **Figure 14g.** (If you changed the passwords, use the appropriate ones).

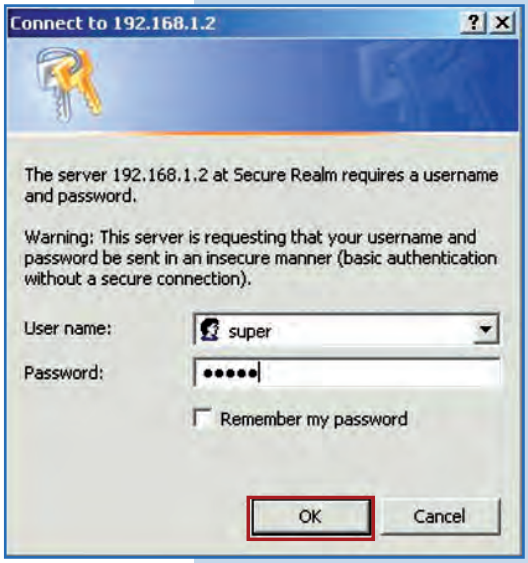


Figure 17

18

Proceed to change the Equipment B IP, which is **192.168.1.3** according to the diagram. To do so, select **IP Configuration**, enter 192.168.1.3 in the box **IP Address** and click on **Update**, as shown in **Figure 18.**

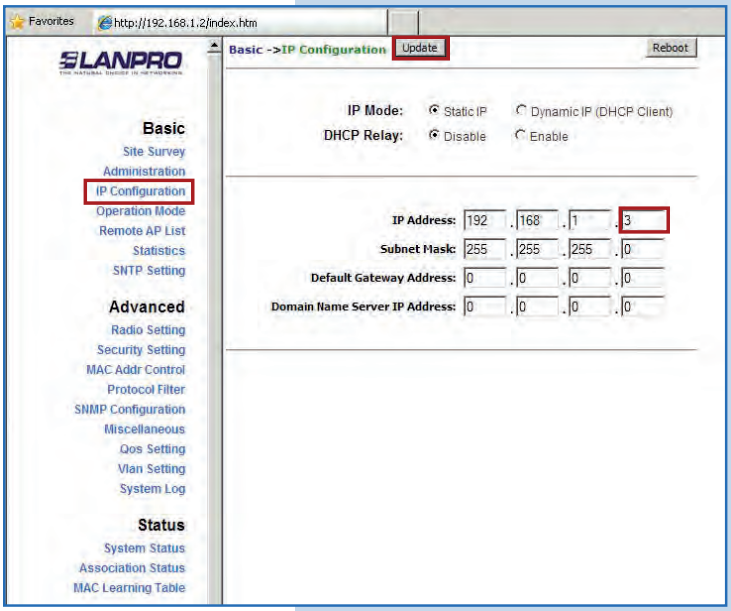


Figure 18

19

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

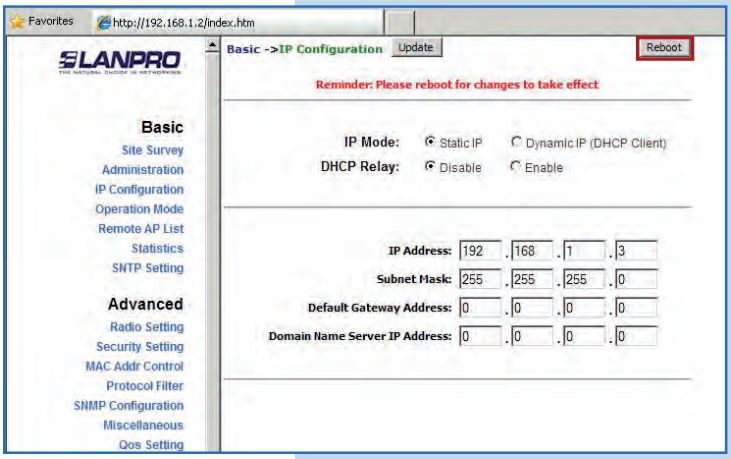


Figure 19

20

The equipment will indicate when is rebooting and applying the changes, as shown in **Figure 20.**

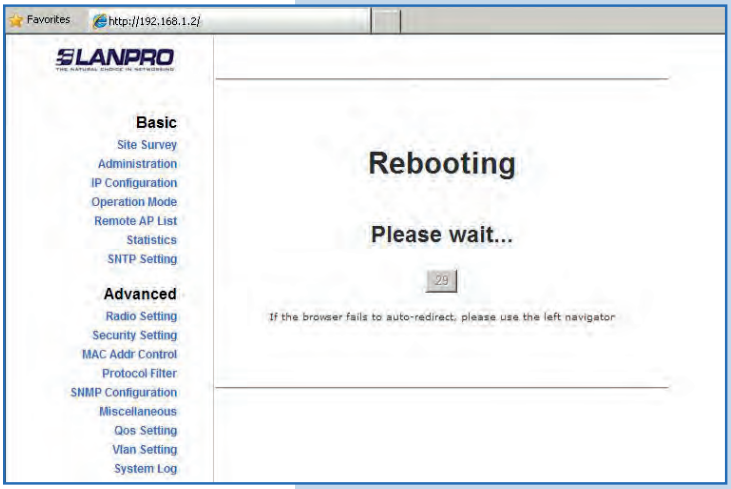


Figure 20

21

Open the web browser of your preference and type the default address **192.168.1.3**, as shown in **Figure 21.**

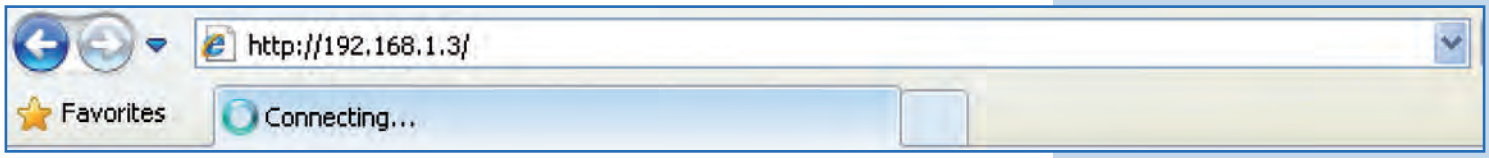


Figure 21

22

The equipment will request your user and password once again. Enter the value you changed and select **OK**, as shown in **Figure 22.**

Figure 22

23

Select **Operation Mode** and then check **Wireless Bridge.** Select the channel in **Radio Frequency**, which will depend on the existing links and/or interferences (see **Appendix 1**). Additionally, we recommend adjusting the distance in the corresponding option (see **Appendix 2**) and click on **Update**, as shown in **Figure 23.**

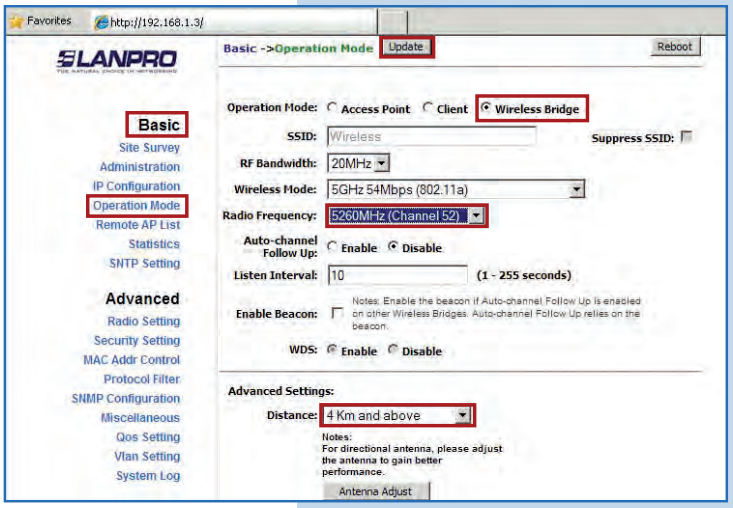


Figure 23

24

The equipment will save changes, but they will not be effective unless you reboot it. Select **Reboot** as shown in **Figure 24.**

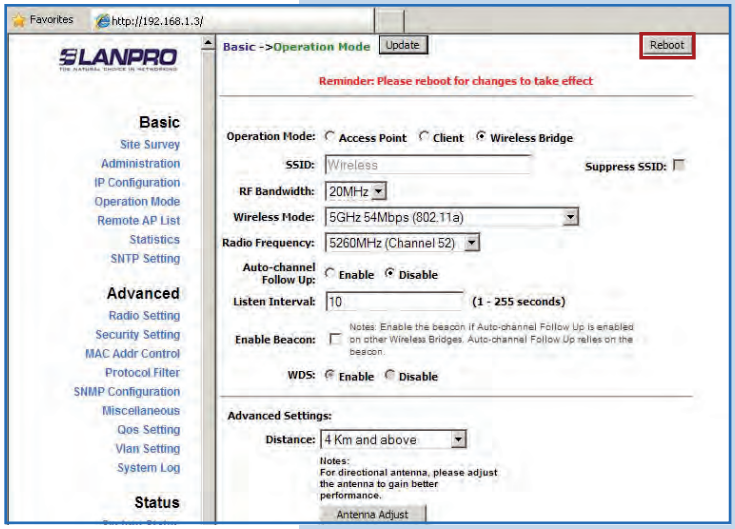


Figure 24

25

The equipment will indicate when is rebooting and applying the changes, as shown in **Figure 25.**

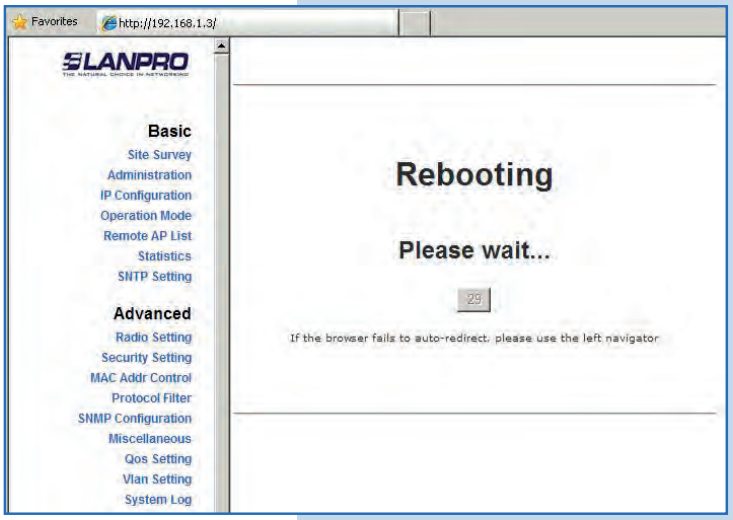


Figure 25

26

Proceed add the Equipment A MAC Address. Select **Remote AP List**, add the Equipment A MAC Address in the corresponding field, enter the priority for point to point links (priority 1 is recommended), and click on **Add/Update**, as shown in **Figure 26.**

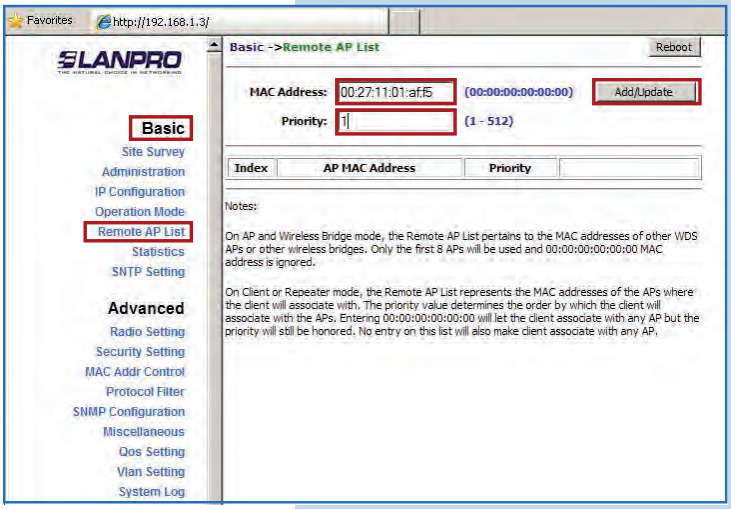


Figure 26

27

Select **Reboot** to apply changes, as shown in **Figure 27.**

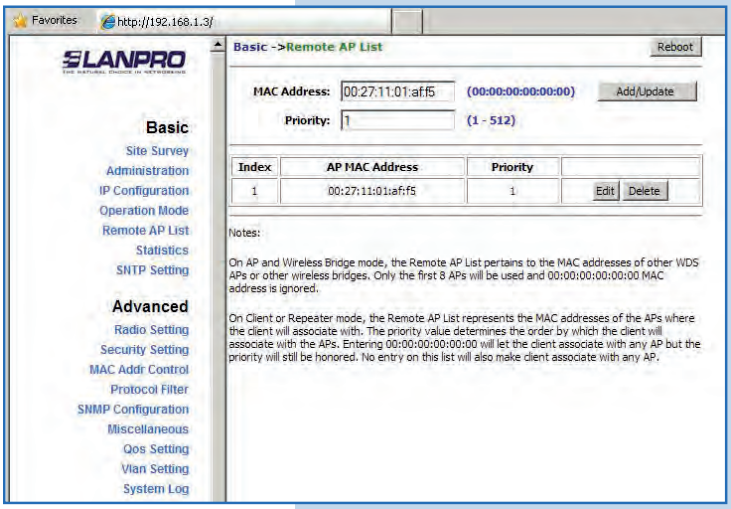


Figure 27

28

The equipment will indicate when is rebooting and applying the changes, as shown in **Figure 28.**

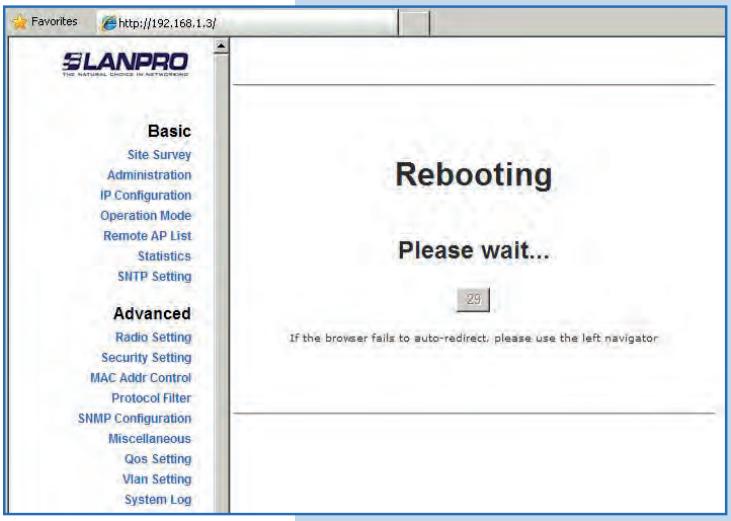


Figure 28

29

Select **Security Setting** and then **Security Mode.** Choose the **WEB** encryption mode, as shown in **Figure 29.** It is important to mention that ***this is the only security mode permitted*** in point to point and point to multi-point mode. (remember to enter the same security as Equipment A):

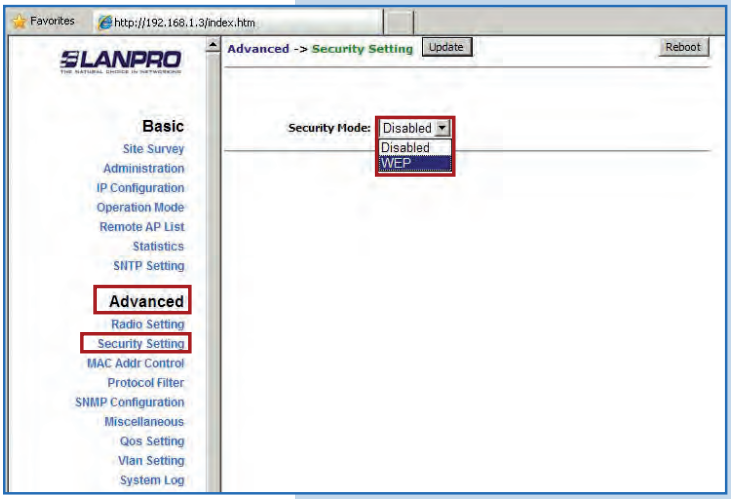


Figure 29

30

Select the authentication method, in this case **Shared Key,** then the key type (**Ascii Text**), enable key 1, enter it in **Encryption Key** ad in **Key Length** select its length (in this case 128 bit). Click on **Update** to save changes, as shown in **Figure 30.**

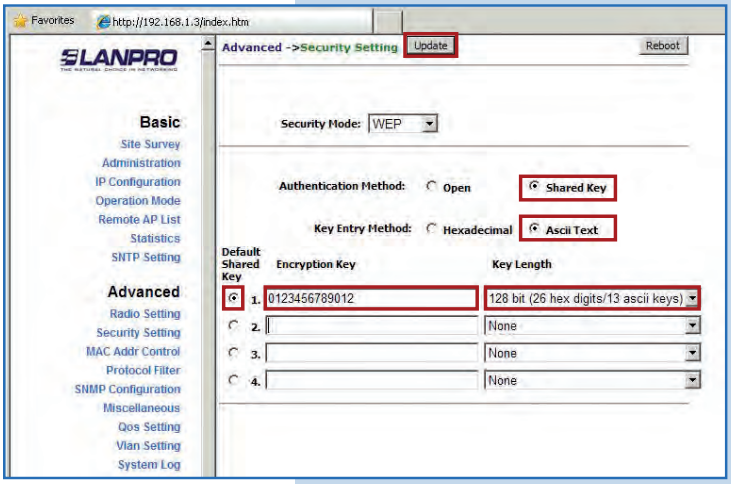


Figure 30

31

Once you have saved changes select **Reboot** to make them effective, as shown in **Figure 31.**

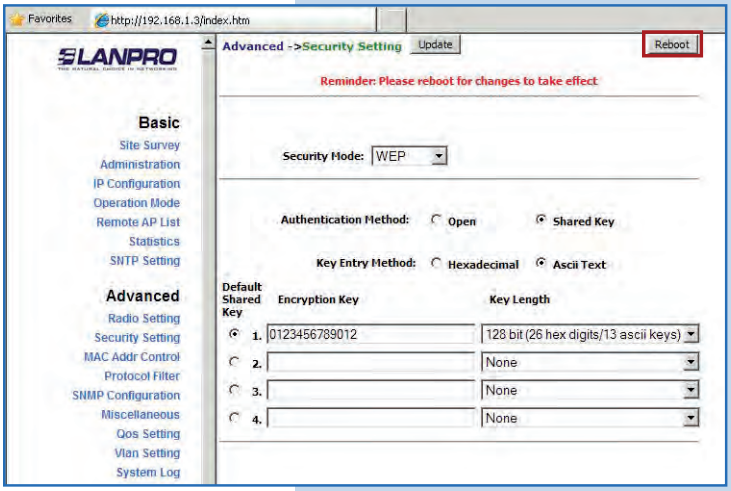


Figure 31

32

The equipment will indicate when is rebooting and applying the changes, as shown in **Figure 32.**

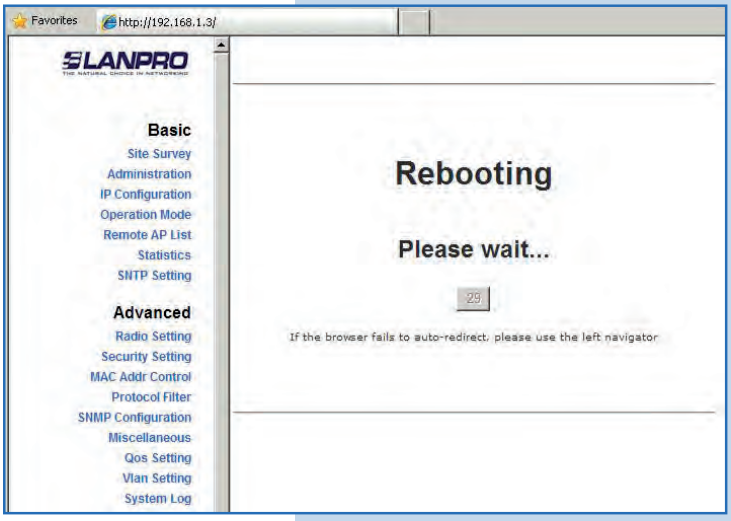


Figure 32

33

IMPORTANT RECOMMENDATION (OPTIONAL):

Proceed to change the password of the user **admin** and **super** of your equipment.

To **change** admin password, select **Administration** and enter the new password in the corresponding field, then select **Update** as shown in **Figure 33.**

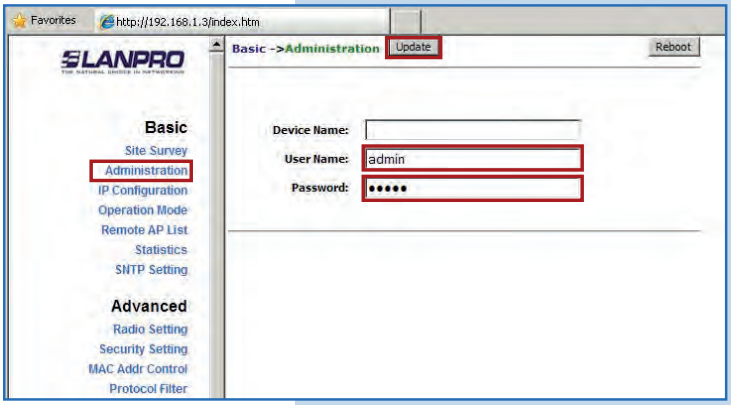


Figure 33

34

To make changes effective select **Reboot**, as shown in **Figure 34.**

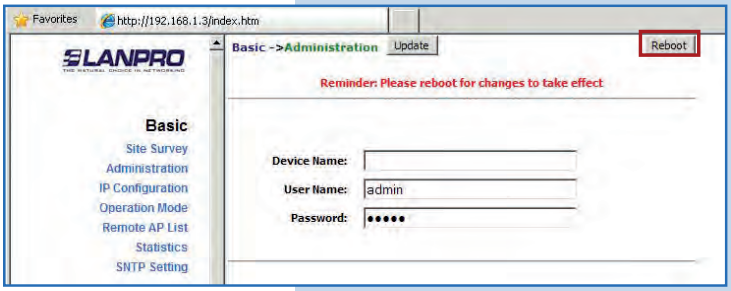


Figure 34

35

The equipment will indicate when is rebooting and applying the changes, as shown in **Figure 35.**

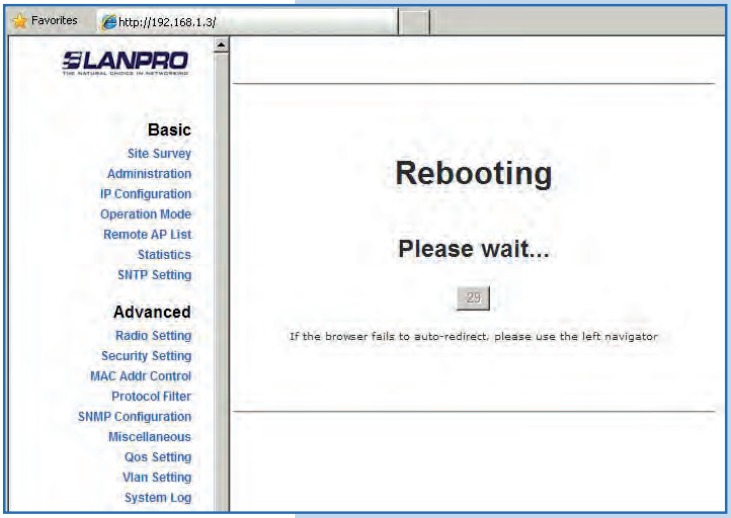


Figure 35

36

Proceed to change the password of the user super (to do this change you have to be authenticated as user super). Select the option Super User and enter the new password, then click on Update as shown in **Figure 36.**

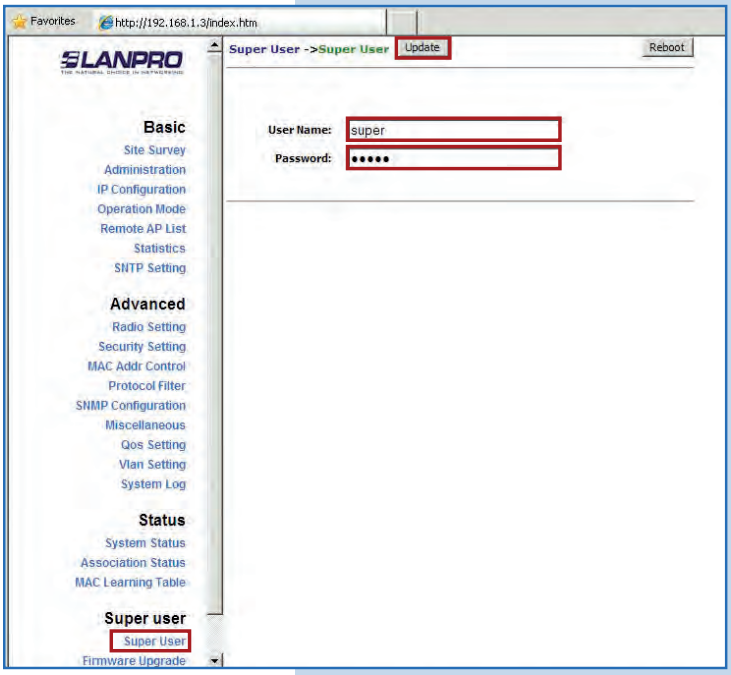


Figure 36

37

To make changes effective select **Reboot**, as shown in Figure **37.**

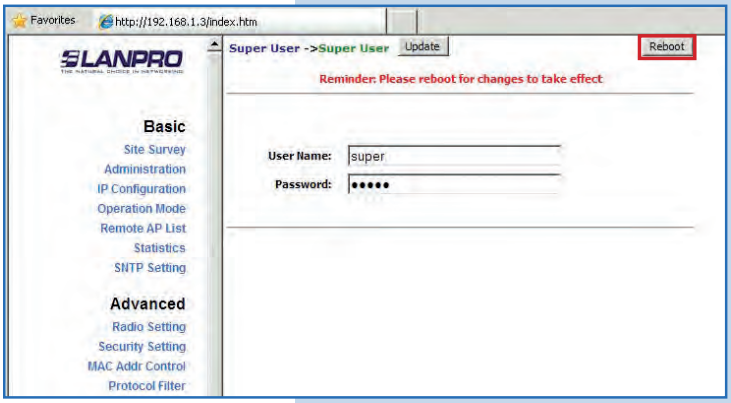


Figure 37

38

The equipment will indicate when is rebooting and applying the changes, as shown in **Figure 38.**

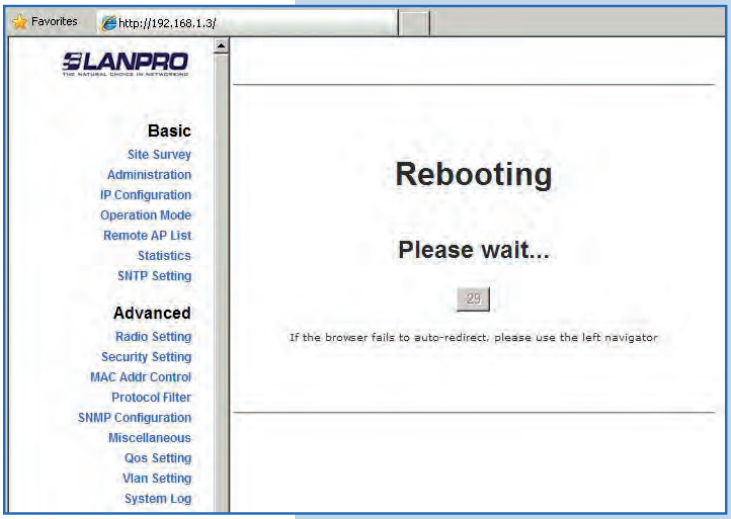


Figure 38

39

The equipment will request your user and password once again. Enter the value you changed and select **OK**, as shown in **Figure 39.**

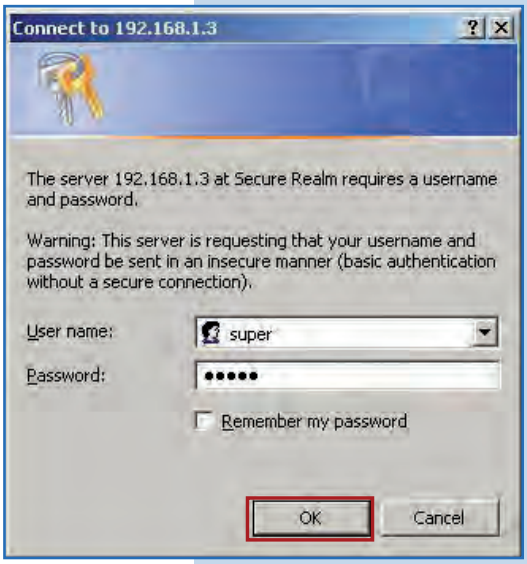


Figure 39

40

To check connectivity, execute the **Ping** command in a command window against the equipment IP you are connecting to (in this case **192.168.1.2**). To do so, select **Start** or **Inicio, Run** or **Ejecutar** as shown in **Figure 40-1.** Type the **cmd** command, as shown in **Figure 40-2.** Remember that the equipment has to be on.

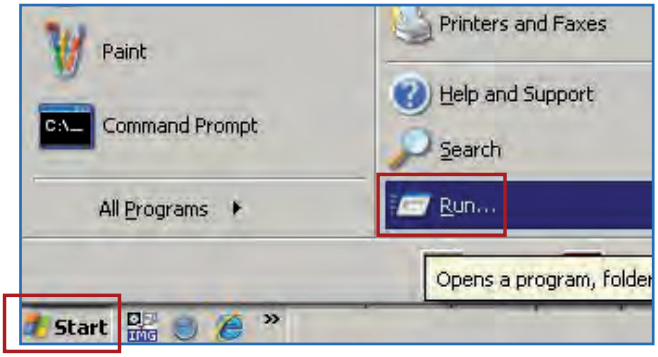


Figure 40-1

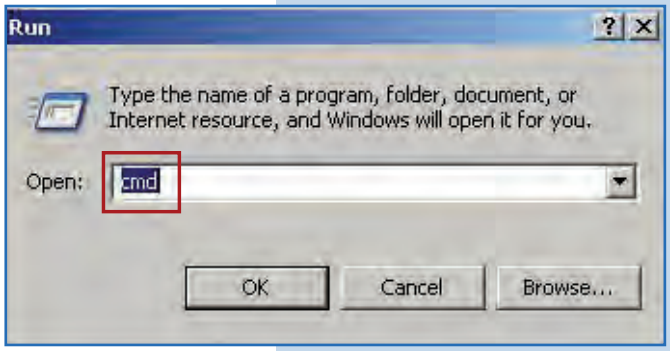


Figure 40-2

41

Type the **ping** command followed by the destination equipment IP (**192.168.1.2**) and press **Enter.** You will observe the answer of the destination equipment, as shown in **Figures 41-1** and **41-2**. In case you do not get any answer, please verify steps **7, 9, 12, 13, 23, 26, 29,** and **30.** Remember that the equipment has to be in the same frequency channel and have the same encryption mode and security key.

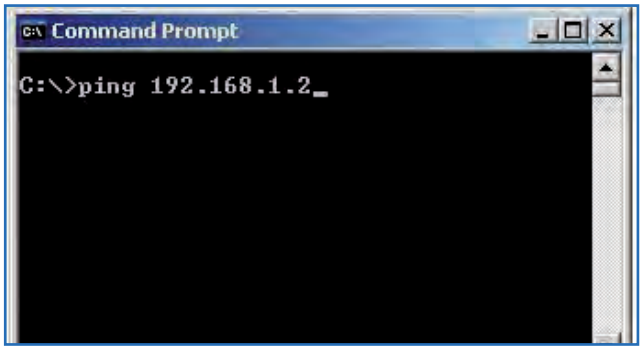


Figure 41-1

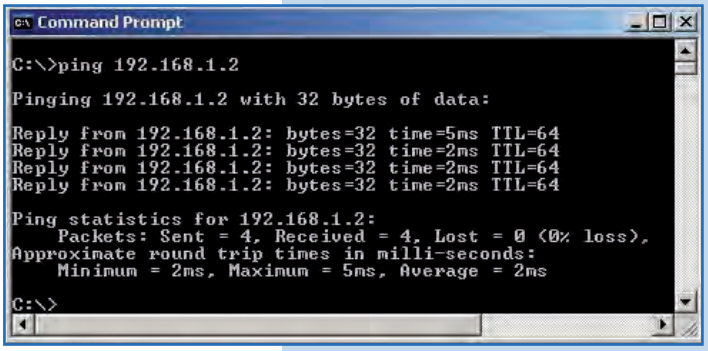


Figure 41-2

42

- **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.