

Quick Installation Guide

ISPAIR 54Mb CPE 500 Series



Package Contents:

- Netkrom CPE unit
- Mounting bracket includes: 2 stainless steel U-Bolt, 2 mounting brackets, 2 pipe Brackets and 4 screw nuts
- PoE Injector
- Power Cable
- RJ45 Waterproof Connector System
- CD-ROM



1 . Hardware Installation

Warnings

- Do not work on the system or connect or disconnect cables during periods of lightning activity.
- **NETKROM shall not be liable for incidental or consequential damages resulting from the furnishing, performance, or use of this manual.**
- Do not locate the antenna near overhead power lines or other electric light or power circuits, or where it can come into contact with such circuits. When installing the antenna, take extreme care not to come into contact with such circuits, as they may cause serious injury or death.
- Only trained and qualified personnel should be allowed to install, replace, or service this equipment.
- To meet regulatory restrictions, the radio and the external antenna must be professionally installed. The network administrator or other IT professional responsible for installing and configuring the unit must be a suitable professional installer. Following installation, access to the unit should be password protected by the network administrator to maintain regulatory compliance.
- The ISPAIR CPE 500 and PoE injector can be damaged by incorrect power application. Read and carefully follow the installation instructions before connecting the system to its power source.

Package contents

Take a moment to ensure you have all of the following parts in your Outdoor Waterproof Unit installation kit before you begin installing the product. If any parts are missing, please contact your local vendor or contact us, please see the contact information in [Section 7](#).

CPE



Setup Requirements

Before starting, please verify that the following is available:

- CAT5/5e or FTP Outdoor Ethernet cable (from the CPE to PoE Injector)
- At least one computer is installed with a Web browser and a wired or wireless network interface adapter
- TCP/IP protocol is installed and IP address parameters are properly configured on all your network's nodes

Important!

- Configure and verify the CPE operations first before you mount the unit in a remote location.
- You may need to install a lightning arrester to protect your CPE from lightning.
- For choosing the best location for your CPE choose an elevated location where trees, buildings and large steel structures will not obstruct the antenna signals and which offers maximum line-of-sight propagation with the users.



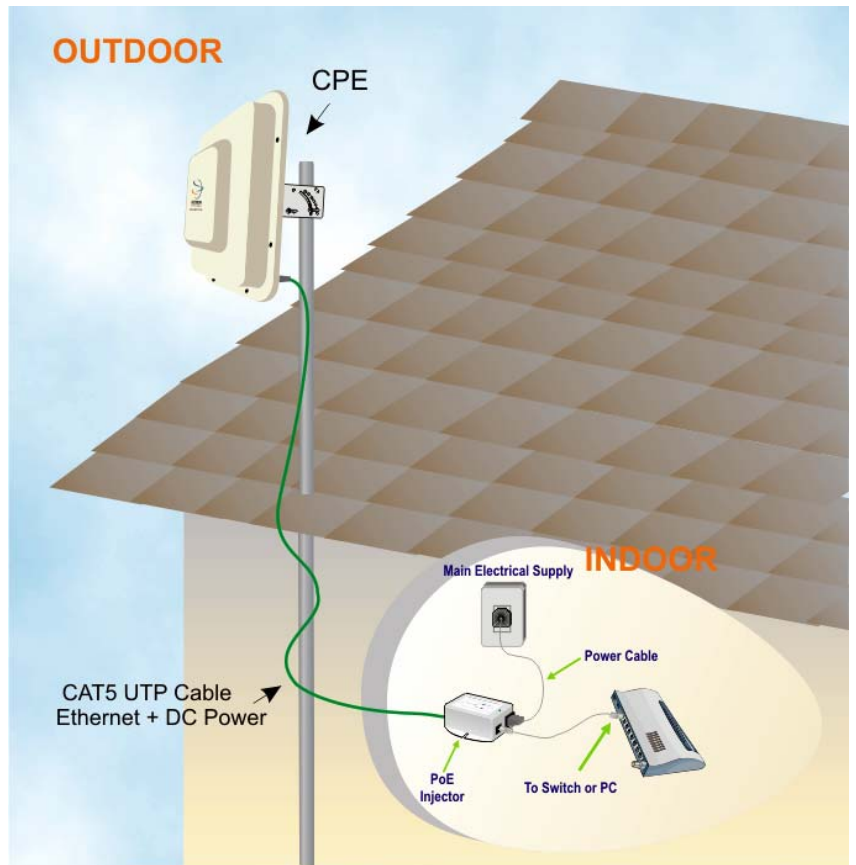
ISPAIR CPE 500

Installation

Step 1:

Connect one end of your UTP or FTP Outdoor cat.5 Ethernet cable with waterproof connector to the RJ-45 connector located in the CPE. Then connect the other end of the cable to the PoE injector.

For the Netkrom PoE, the recommended length of the Category 5 cable is up to 260 feet or 80 meters.



1.- Remove the thin enclosure nut from the feedthru assembly. This can be discarded. Loosen the compression nut completely

2.- Insert the RJ45 connector thru the feedthru assembly

3.- Tighten the compression nut loosely to the feedthru assembly



4.- Screw the entire feedthru assembly into the RJ45-ECS housing which is already mounted in the CPE. There should be a rubber gasket between the two assemblies. Tighten the feedthru assembly to create a seal.

5.- The final step is to tighten the compression nut until the gaskets are tight around the Cat5 cable. Always push the cable toward the connector while tightening to ensure good strain relief of cable to connector.

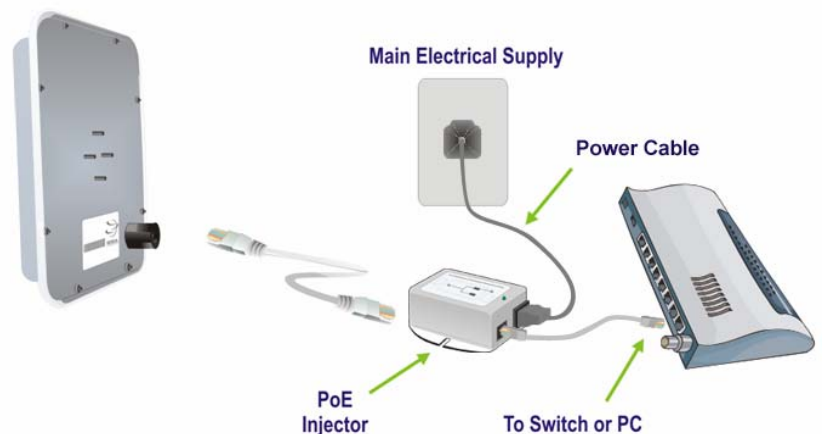
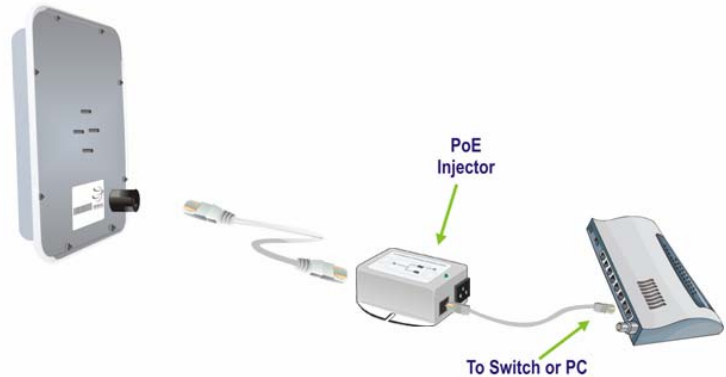
Step 2

From the PoE injector connect one cat.5 Ethernet cable to the radio and another cat.5 cable to a switch or PC.

Step 3

Connect the power cable supplied in the Netkrom PoE kit to the main electrical supply and the power plug into the socket of the injector. Now, turn on your power supply. Notice that the POWER LED has lighted up. This indicates that the CPE is receiving power through the NetkromPoE Injector and that connection between your CPE and your network has been established.

Note: Please use the PoE injector provided in the package. Using a PoE with a different voltage rating will damage this product.



Mounting the ISPAIR CPE 500 in a Pole or Tower

Netkrom CPE device can be mounted on the pole or tower as shown in following:

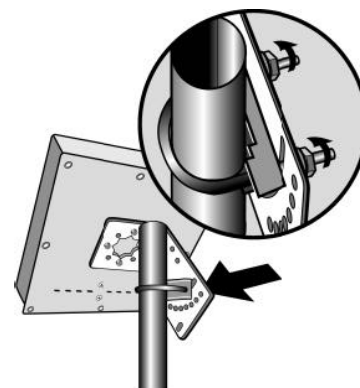
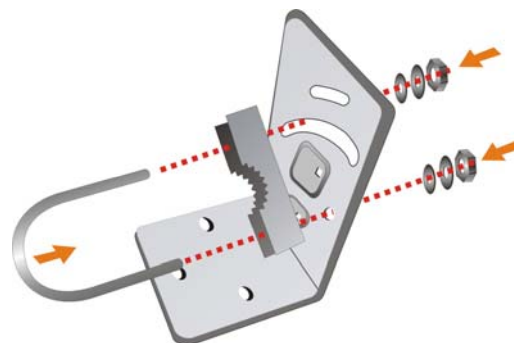
1.-Attach the mounting bracket to the back of the CPE using the three hex screws provided. (Do not over tighten the screws.)

Note: The bracket in the illustration side shows the normal orientation which allows the CPE to be pointed up towards the base station antenna. However, if you live somewhere that would require you pointing the CPE down towards the base station antenna (for example, you are on the side of a mountain in view of the base station antenna below), reverse the bracket so the Netkrom CPE Unit can be “tilted” downward when you aim the CPE in a later step.

3.-Remove the U-bolt and pipe bracket assembly from the plastic bag. Place the washer, lock nut to each side of the U-bolt, and then tighten until the U-bolts are approximately 1/4" from the end.

Note: Do not tighten the screws all the way because you will need to adjust the CPE direction in a later step.

4.-Mount the CPE to the top of the pipe or other support and point the CPE in the approximate direction of the base station antenna, then hand-tighten the nuts on the U-bolt.



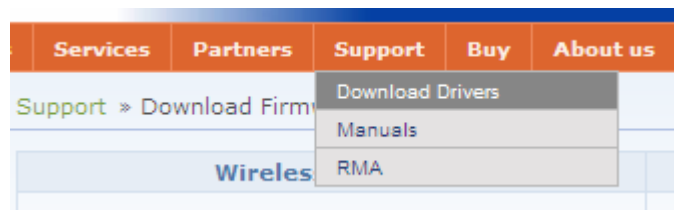
2. NETKROM NMS

NETKROM Network Management System (NMS) is a java based graphical user interface application, running on any operating system, providing ability to manage the wireless device remotely over the IP network. Its main purpose is to serve as a network tool for administrating and monitoring the wireless device. The NMS allows the user to setup all important hardware and software parameters of the device according to the user's requirements. Moreover, it has the ability to display information for data flow, device status, and event logging.

Installing The NMS

Step 1

Please visit <http://www.netkrom.com> and click on tab Support and click on Download Drivers. Download the latest version of the Netkrom Network Manager.



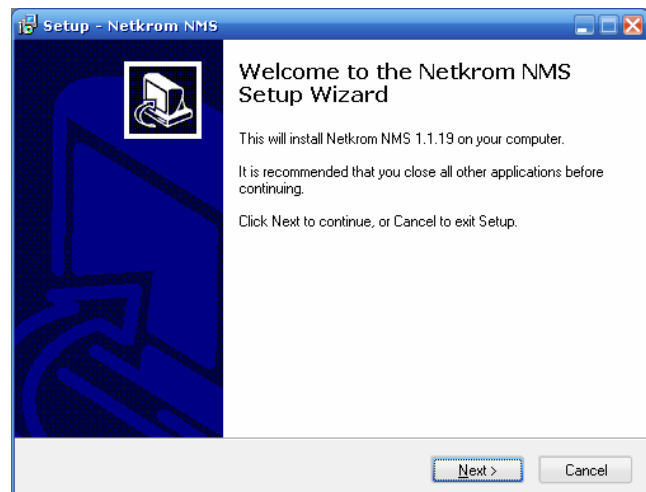
Step 2

After the download is completed, run the NMS installer.



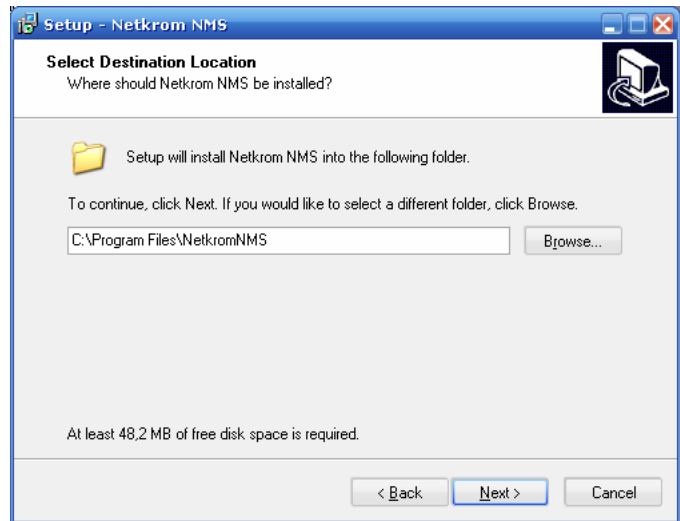
Step 3

Follow the wizard installation instructions.



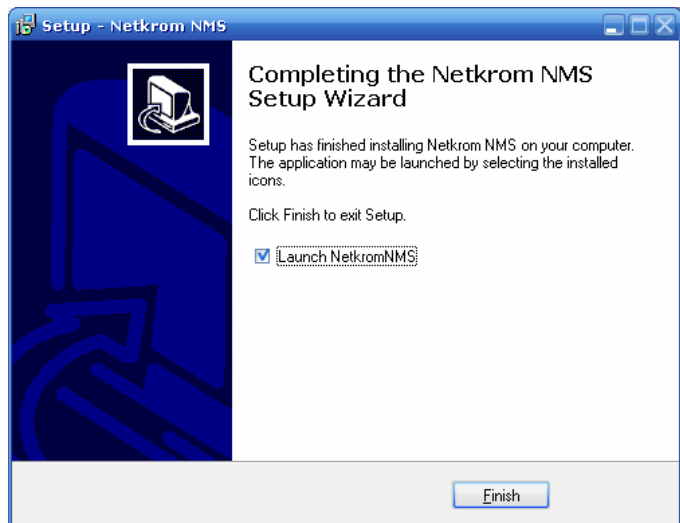
Step 4

Please select the folder the NMS application will be installed and press the next button.



Step 5

Finally, the installation process has finished



Step 6

Now you can run the Netkrom NMS on your system.



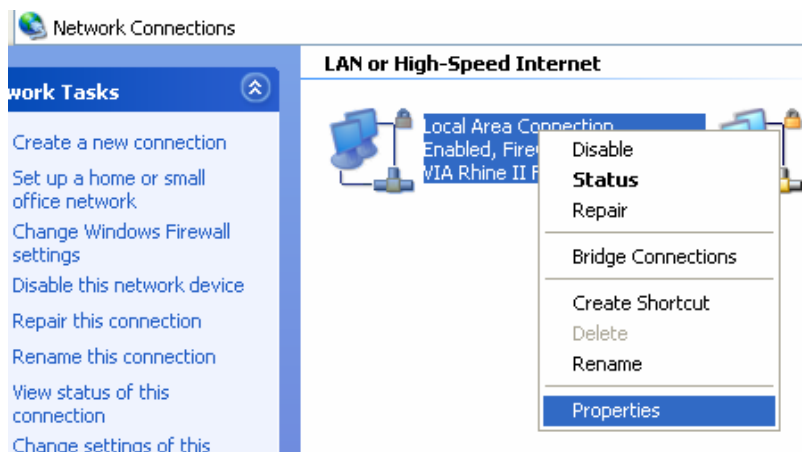
3. PC Configuration

Now you need to establish connection between your PC and the ISPAIR CPE 500. You need to use the Netkrom NMS application to configure the radio, by default the ISPAIR CPE 500 has the IP address 192.168.1.3. Therefore, your PC must be in the same network segment as the ISPAIR CPE 500 is to get Ethernet connectivity.

Step 1

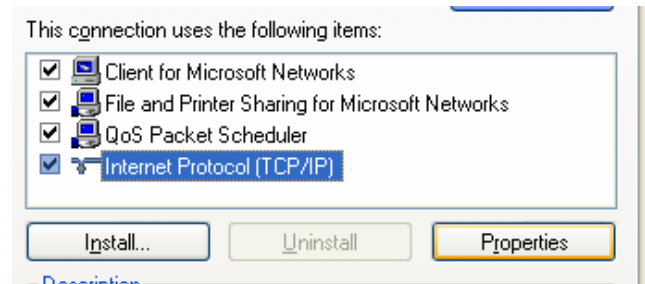
Go to Start button then go to My Network Places and finally click on Network Connections.

Right-Click over your network adapter and select Properties.



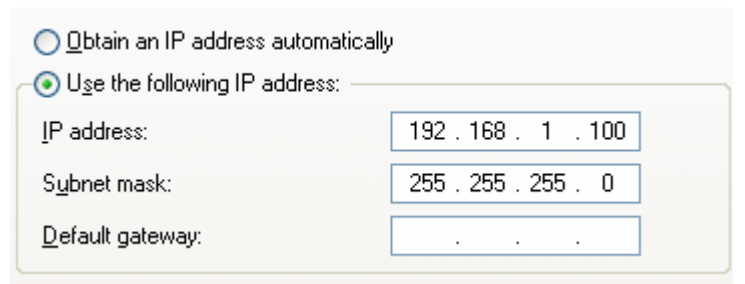
Step 2

Select the Internet Protocol Option and then click in Properties.

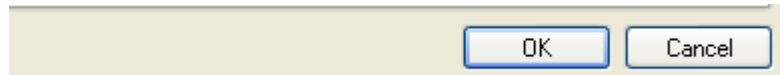


Step 3

Now configure the IP Address of your network adapter with an IP in the same IP Network of your ISPAIR CPE 500 as it is shown in the picture, you don't need to assign any gateway address.



Then click in OK button and Close button.



4. Common Configurations

Find below typical and basic configurations using our units. For advanced features please refer to the user manual.

Getting Started

In order to start configuring your ISPAIR CPE 500 you need to create a new node:

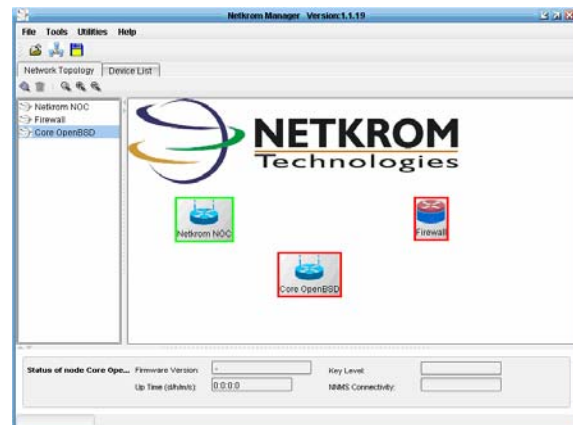
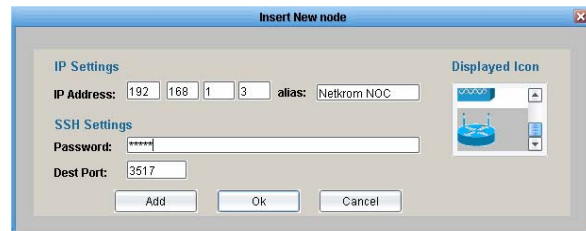
Right click anywhere in the topology map, and then click the Insert new node button.

The default IP address of the radio is: **192.168.1.3**, the default password of the radio is: **admin**, use any alias.

Make sure you have configured in your PC an IP address like 192.168.1.x with netmask 255.255.255.0 and be able to ping the IP address 192.168.1.3. Click the Add button. The icon will appear in the topology map.

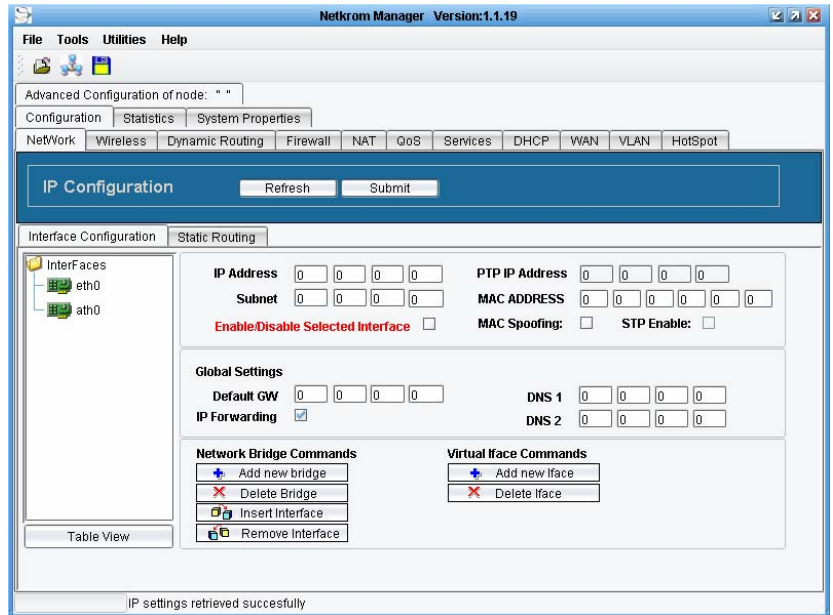
If the newly inserted node has successfully responded to a network probe, a green outline appears around the icon. A red outline indicates the node is not responding.

You can manage and configure a variety of operating parameters of network nodes from the Node Shortcut Menu, which can be accessed by giving a right click any node in the topology map and select the Advance Node Configuration option.

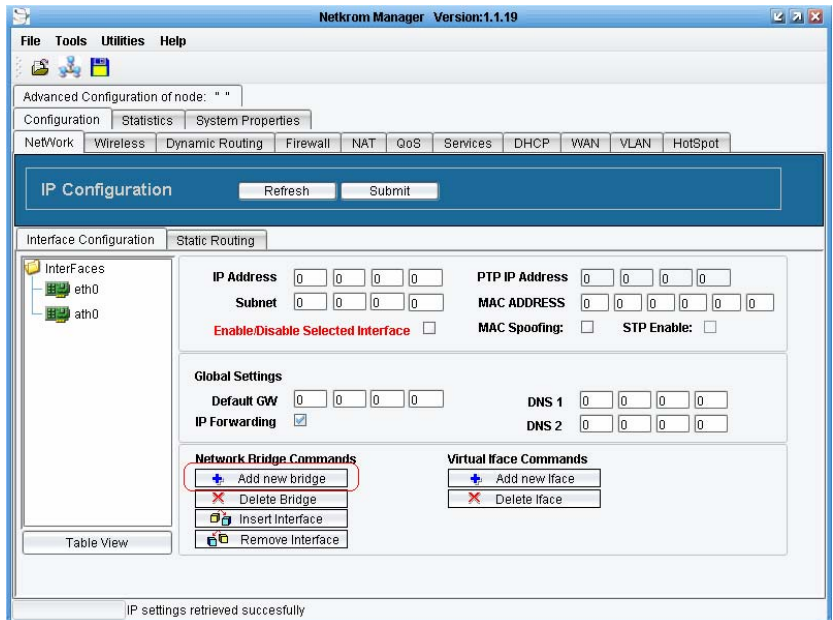


Wireless Bridge Setup

By default the ISPAIR CPE 500 is a router, if you want the ISPAIR CPE 500 to work as bridge please read this chapter. As soon as you manage to connect to your ISPAIR CPE 500 you can start configuring it. Check the picture of the NMS user interface.



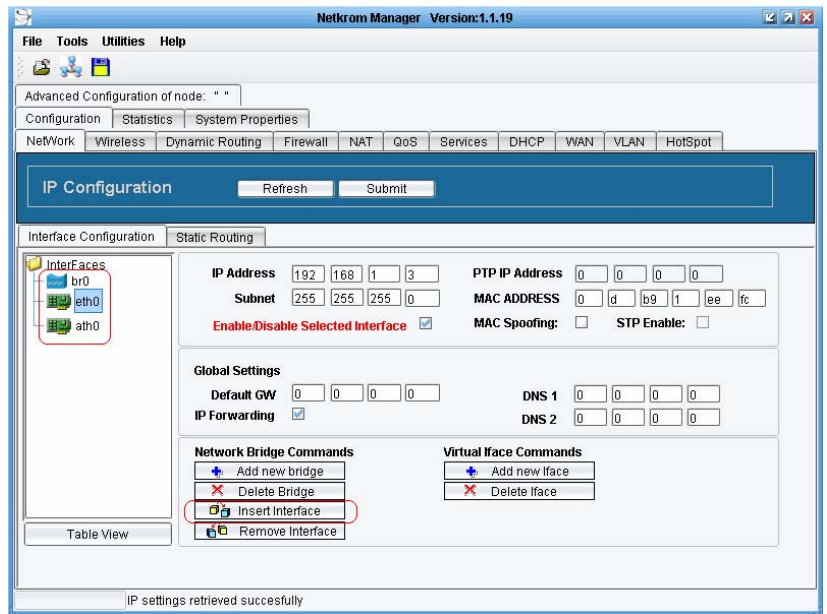
Create a new bridge clicking in the **Add new bridge** button.



Now assign a name for the bridge interface.



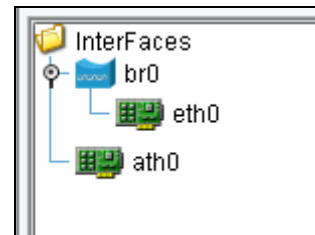
Now you need to insert the interface into the Bridge interface, select interface eth0 and click in the **Insert Interface** button.



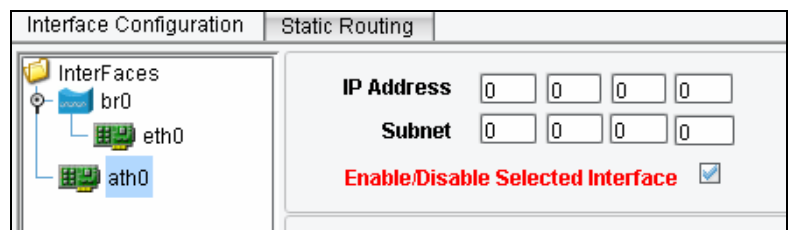
Now you need to select the bridge interface, select br0 and click in the **submit** button.



In the interfaces field you can see the eth0 interface underneath the br0 interface.

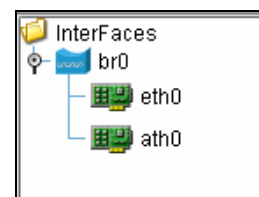


By default the wireless interface (ath0) is disabled, you need to enable the interface to be operational, select the ath0 interface and check the box **Enable/Disable Selected Interface**.



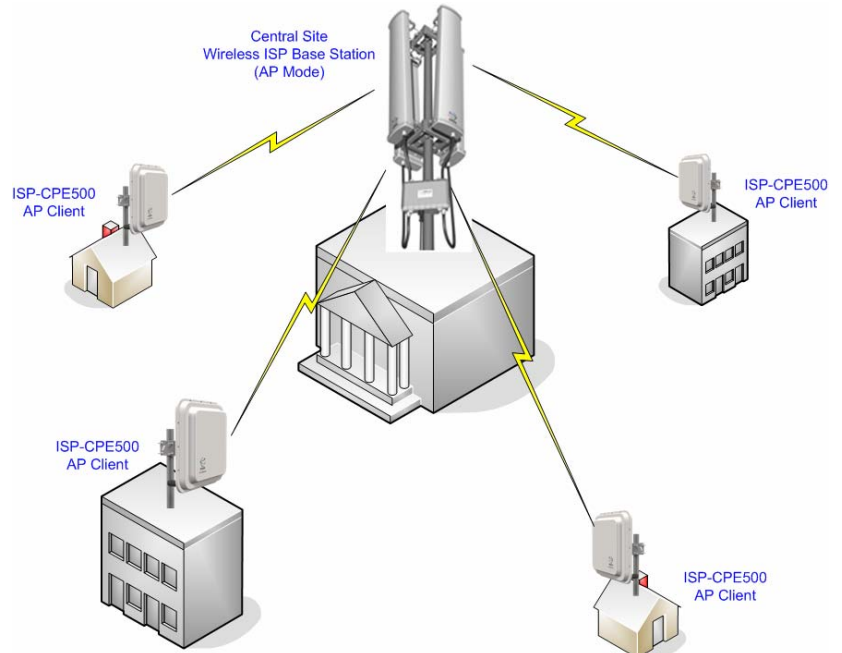
Finally, you have eth0 and ath0 underneath the bridge which means the ISPAIR CPE 500 is a bridge.

Click in the **Submit** button and then in **Save Node Configuration** to save the changes.



AP Client Mode

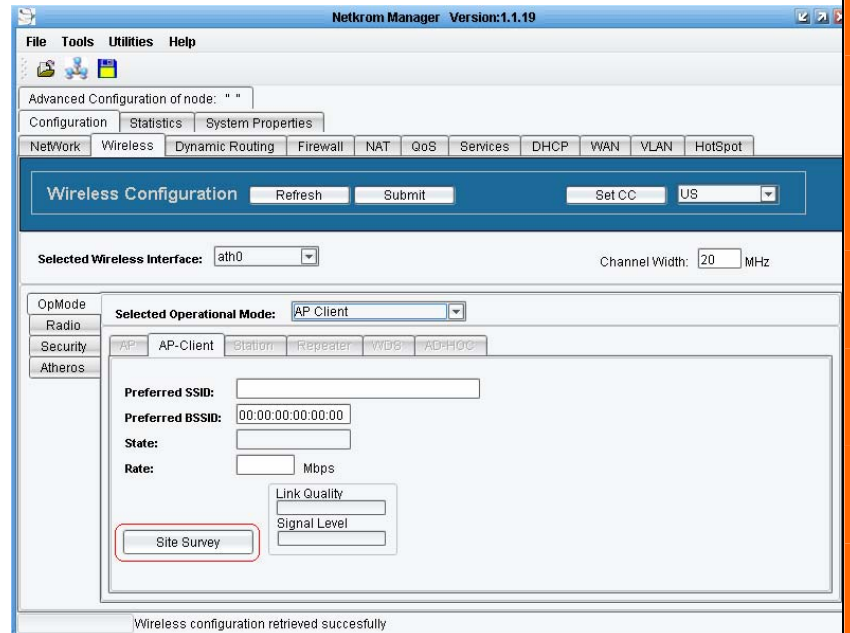
The ISPAIR CPE 500 is basically used as a Client unit under a Point to Multipoint Application. This type of application is usually used by WISPs (Wireless Internet Service Provider).



Configure the Client device to operate in Access Point Client Mode and perform a Site Survey.

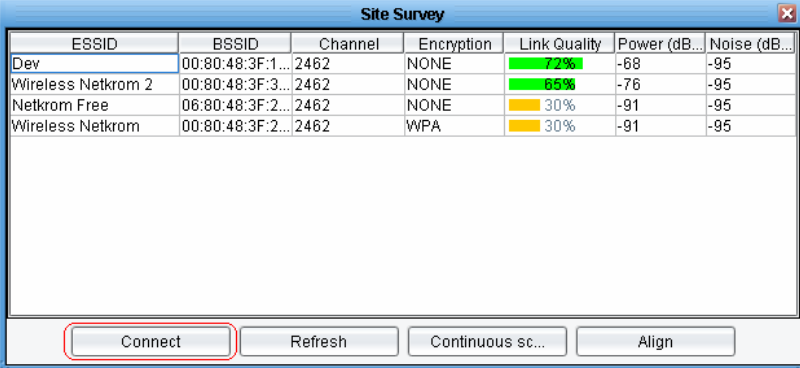
Select **AP Client** from the Selected Operational Mode Drop Down Menu.

Click the Site Survey button



Connect with the desired Access Point. Select the desired ESSID from the Site Survey Pop-up Menu.

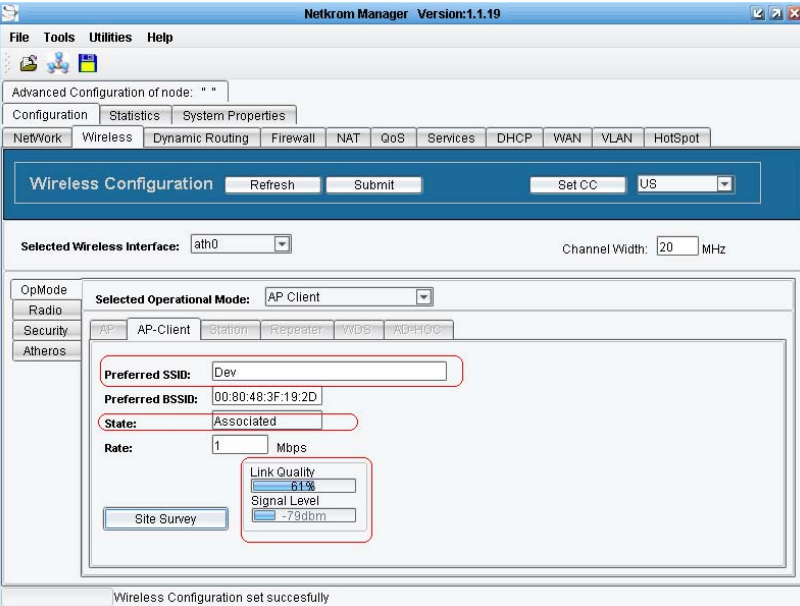
Click the **Connect** button



ESSID	BSSID	Channel	Encryption	Link Quality	Power (dBm)	Noise (dBm)
Dev	00:80:48:3F:1...	2462	NONE	72%	-68	-95
Wireless Netkrom 2	00:80:48:3F:3...	2462	NONE	65%	-76	-95
Netkrom Free	06:80:48:3F:2...	2462	NONE	30%	-91	-95
Wireless Netkrom	00:80:48:3F:2...	2462	WPA	30%	-91	-95

Buttons: Connect, Refresh, Continuous sc..., Align

As soon as the devices get connected, the connection status bar informs you about the link quality and the Signal Level.



Netkrom Manager Version:1.1.19

File Tools Utilities Help

Advanced Configuration of node: **

Configuration Statistics System Properties

NetWork Wireless Dynamic Routing Firewall NAT QoS Services DHCP WAN VLAN HotSpot

Wireless Configuration Refresh Submit Set CC US

Selected Wireless Interface: ath0 Channel Width: 20 MHz

OpMode Selected Operational Mode: AP Client

Radio AP-Client Station Repeater WDS ADHOC

Security

Atheros

Preferred SSID: Dev

Preferred BSSID: 00:80:48:3F:19:2D

State: Associated

Rate: 1 Mbps

Link Quality: 61%

Signal Level: -79dbm

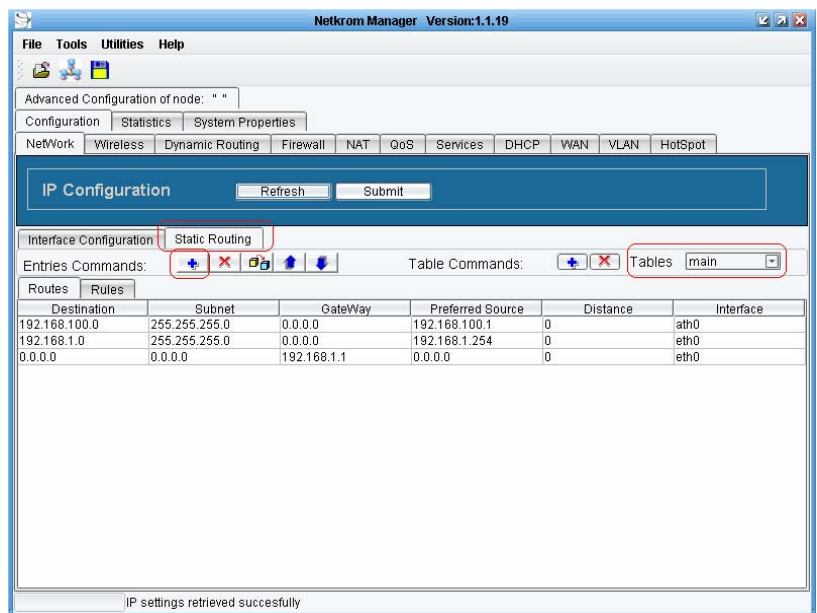
Site Survey

Wireless Configuration set successfully

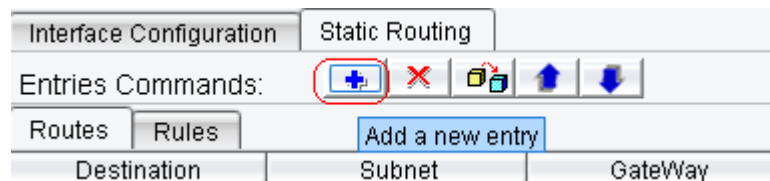
Repeat the Client Mode steps to add more Clients to the Point-to-MultiPoint connection.

Static IP Routing (No Bridge Mode)

To configure **Static IP Routing**, select the **Static Routing** tab, located under **Network** tab. In the **Static Routing** tab you can select the **Routes** tab or the **Rules** tab.



If you want to add static routes just click on the add symbol as shown.



In the Destination box, type the destination network or destination host address, in the Subnet box, type the netmask for the destination net. (255.255.255.255 for a host destination and 0.0.0.0 for the default route), in the Default Gateway box, type the gateway address (if required), In the Interface drop down list, select the interface to which packets for this route will be sent. To accept your settings, click the Insert New Route dialog Submit button, then click the IP Configuration pane Submit button to complete the process.

The 'Insert New Route' dialog box is shown. It contains the following fields:

- Destination: 192 168 60 0
- Subnet: 255 255 255 0
- Default Gateway: 10 0 0 2
- Preferred Source: 0 0 0 0
- Distance: 0
- Interface: ath0

A 'Submit' button is located at the bottom of the dialog.

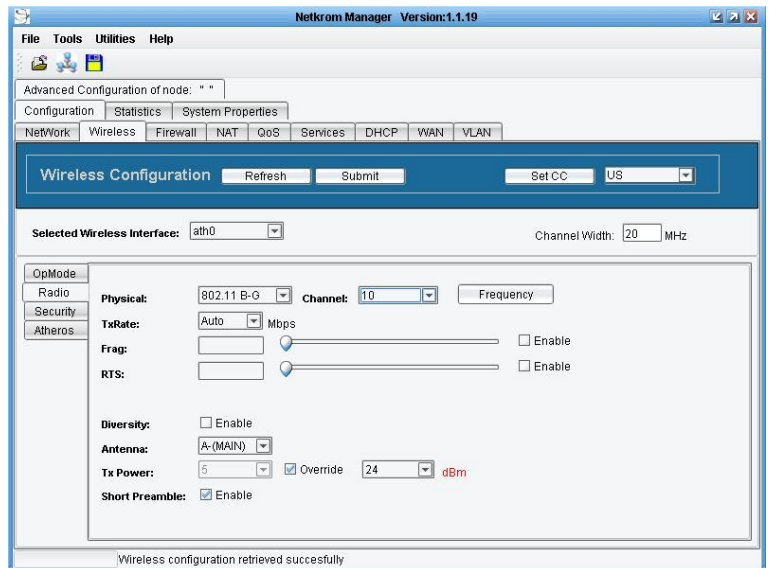
900 MHz Channel Conversion (ISP-CPE910)

In order to use your 900 MHz ISPAIR CPE, you have to select in **Wireless Profile** any of the following options:

- 802.11b only
- 802.11g only
- 802.11b/g mixed (recommended)

Channel conversion from 2.4 GHz to 900 MHz:

Channel 10 or 11 must be used in any Operational Mode when using a 900 MHz ISPAIR CPE .



802.11 b/g	900 MHz
Channel 10 (2457)	913 MHz
Channel 11 (2462)	918 MHz

5. Web Based Interface

The ISPAIR CPE500 supports a Basic Web Interface. For advanced features please refer to the User Manual using the Netkrom NMS.

Getting Started

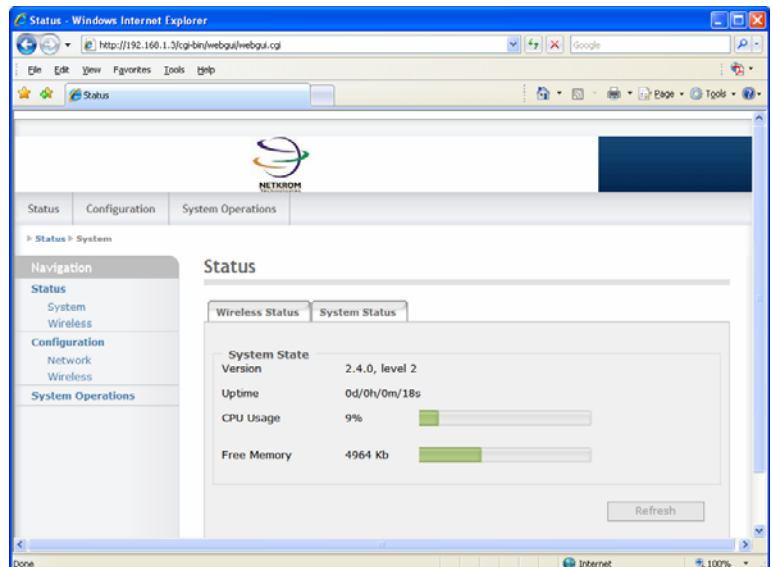
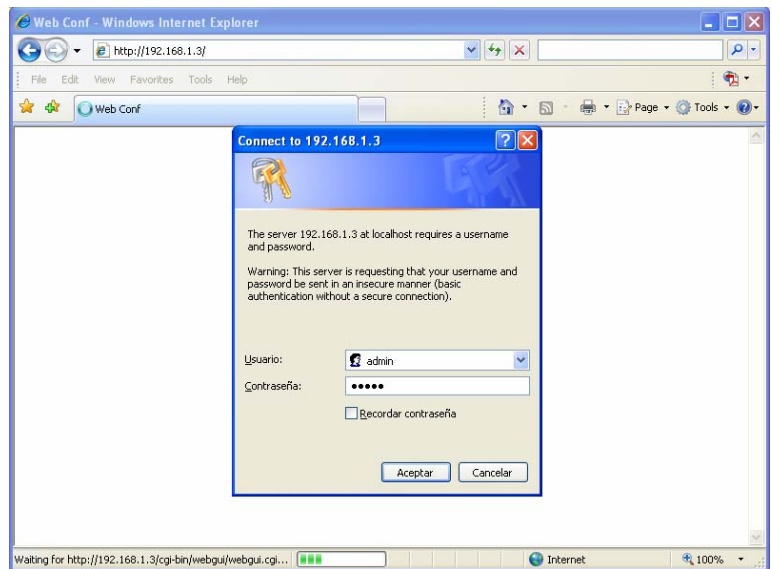
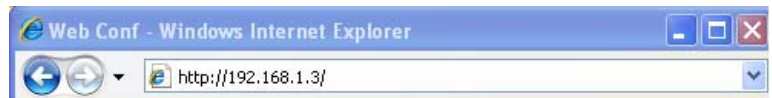
At the **Address** bar, type <http://192.168.1.3> and press **Enter**.

At the login popup window, fill the blanks as follows:

User: admin

Password: admin

You will then reach the home page of your ISPAIR CPE500 Web interface.



6. Advanced Configuration

1. – **Configuring AP mode:** Please go to page 51 of User Manual.
2. – **Configuring VLANs:** Please go to page 40 of User Manual.
3. - **Advanced Routing Configuration:** Please go to page 43 of User Manual.
4. - **Advanced Wireless Configuration:** Please go to page 49 of User Manual.
5. - **Wireless Security Settings:** Please go to page 63 of User Manual.
6. - **Configuring Atheros Advanced Capabilities:** Please go to page 67 of User Manual.
7. - **Firewall and NAT:** Please go to page 73 of User Manual.
8. - **DHCP Server, Client, Relay:** Please go to page 87 of User Manual.
9. - **Quality of Service:** Please go to page 99 of User Manual.

7 . Congratulations

With these basics steps you can enjoy your wireless link without problems, please for more information about the capabilities and advance configuration of our product please see the user manual.

Contact Information

Address:

2134 NW 99th Avenue, Miami FL 33172

Phones:

(+1) 305-418-2232

Fax:

(+1) 305-418-9266

Sales and ordering:

American Customers: salesusa@netkrom.com

Worldwide Customers: sales@netkrom.com

Latin American and Spanish Customers: ventas@netkrom.com

Technical Support :

Worldwide and English Customers: support@netkrom.com

Latin American Customers: soporte@netkrom.com

