# Quick Installation Guide

## ISPAIR 54Mb CPE 510 Series

Package Contents:

- Netkrom CPE unit
- Brackets and 2 screws
- PoE Injector
- Power Adapter
- 2 Zip Ties
- CD-ROM

**NETKROM**
Technologies

# **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 510 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 .

**ISP-CPE510**

# 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 the NNMS 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 arrestor 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.
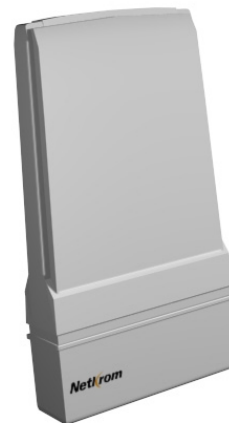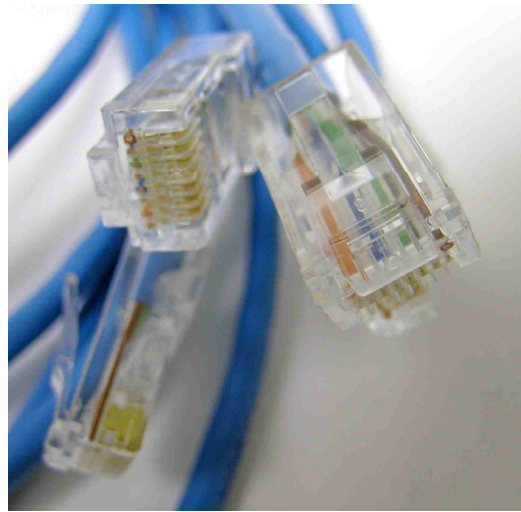
# ISPAIR CPE 510 Installation
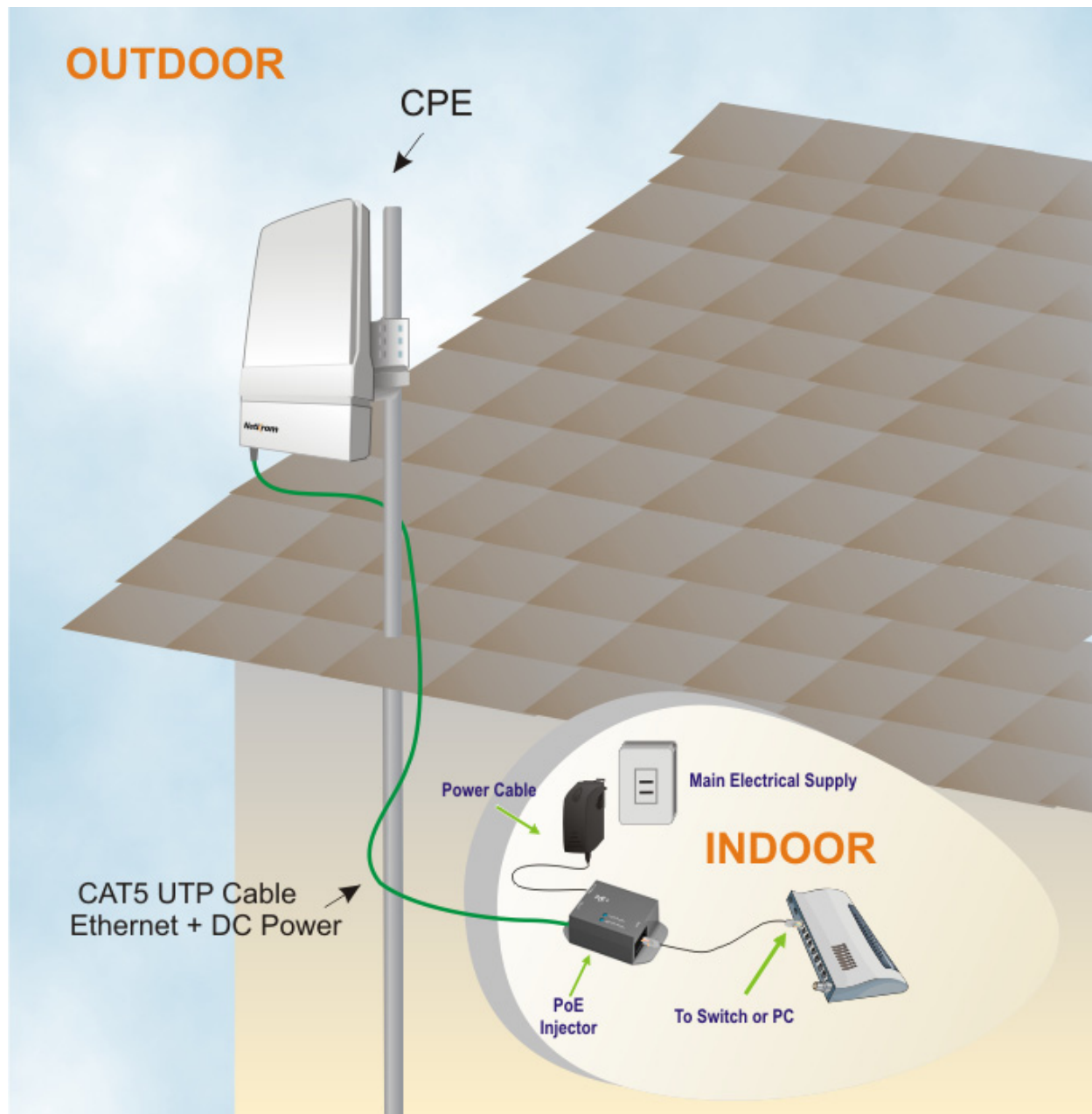
## Step 1

Connect one end of a Cat5 Ethernet cable to the LAN **OUT** port of the PoE Injector and the other end of the Ethernet cable to **LAN 1** port of the access point. Finally, connect the LAN **IN** port of the PoE injector to a switch or PC using another Cat5 Ethernet cable.

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

## Step 2

Connect the power adapter included in the Netkrom PoE kit to the main electrical supply and the power plug into the socket of the PoE injector.
Now, turn on your power supply. Notice that the POWER LED has lighted up. This indicates that the ISPAIR CPE 510 is receiving power through the Netkrom PoE Injector and that connection between your CPE and your network has been established.

Note:
Please use the power adapter provided in the package. Using a power adapter with a different voltage rating will damage this product.
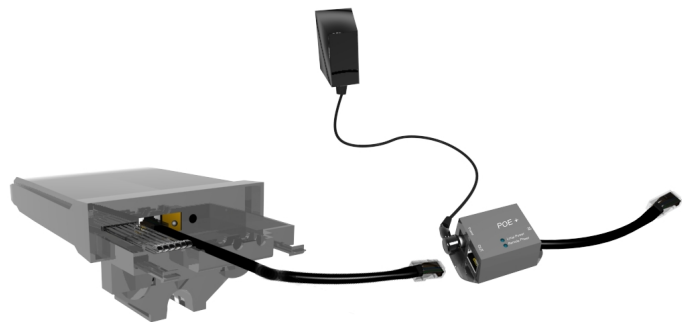
# Mounting the ISPAIR CPE 510 on a Wall

Netkrom CPE device can be mounted on a wall as shown in following:

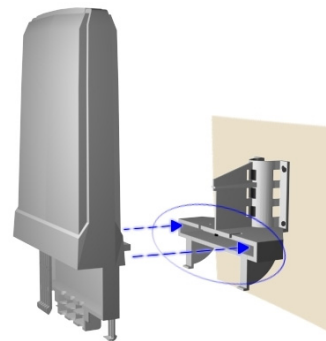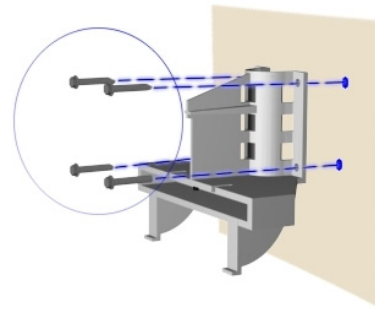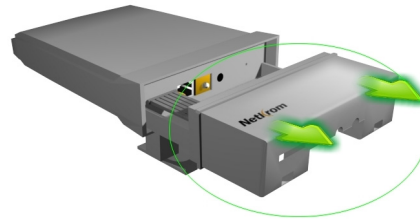**1.-** Hold the catches upward as shown in the figure.

**2.-** While still holding the catches, push the cover outwards.

**3.-** Align the bracket to the wall, Use the bracket as a guideline, make 4 marks and drill 4 holes into the wall.

Next, secure the brackets to the wall as shown in the figure on the right.

**4.-**Align the main unit with the bracket to attach them as shown in the figure.

**5.-** Next, fasten two screws that are provided in the packaging to secure the main unit to the bracket.

# Mounting the ISPAIR CPE 510 in a Pole

**1.-** Hold the catches upward as shown in the figure.



**2.-** While still holding the catches, push the cover outwards.



**3.-** Use metal straps to secure the bracket to the pole. Place the straps through the slots in the bracket and then around the pole. Tighten the straps.



**4.-**Align the main unit with the bracket to attach them as shown in the figure.



**5.-** Next, fasten two screws that are provided in the packaging to secure the main unit to the bracket.
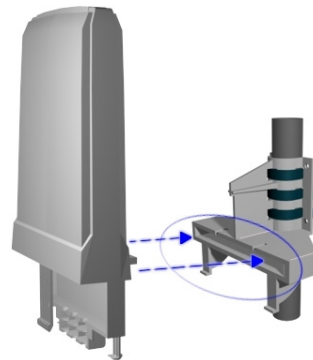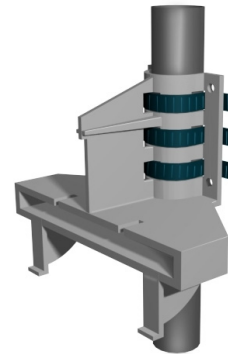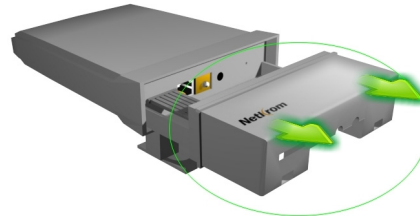
# 2. NETKROM NMS

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.
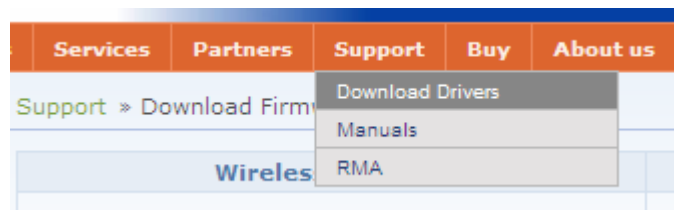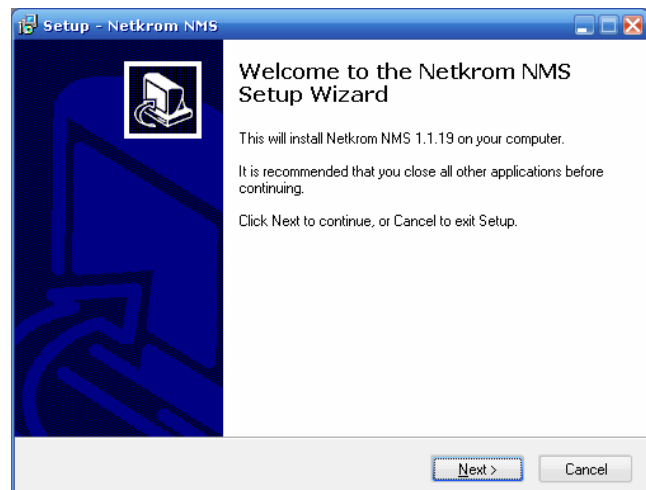


### Step 2

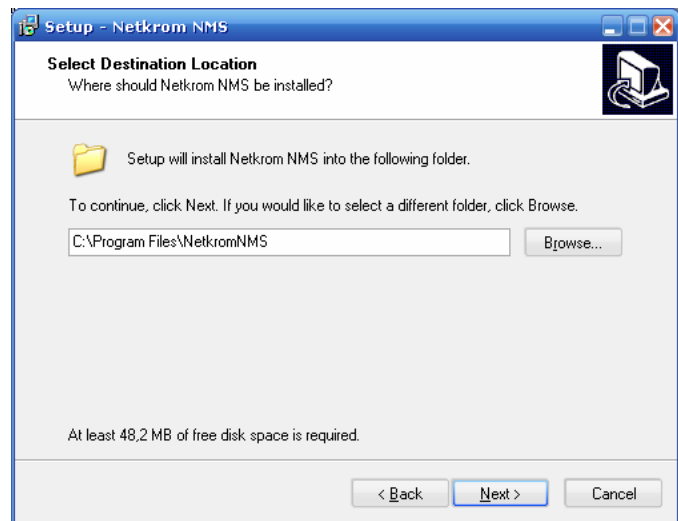After the download is completed, run the NMS installer.
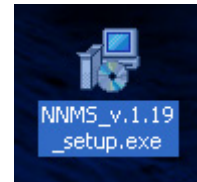


### Step 3
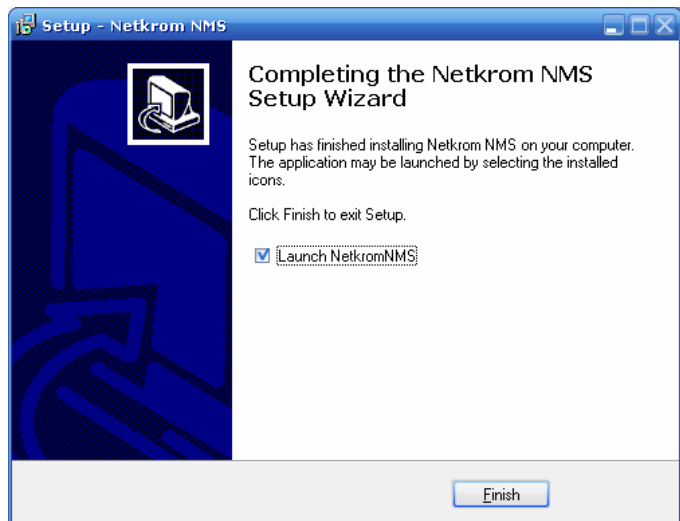
Follow the wizard installation instructions.

## Step 4

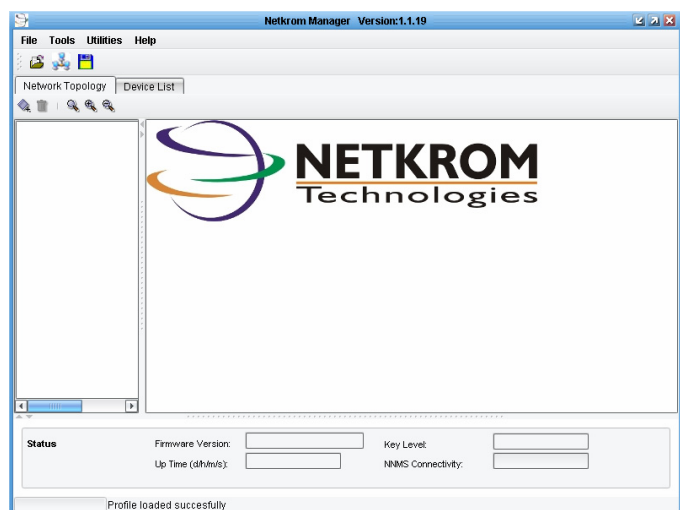Please select the folder the NMS application will be installed and press the next button.

## Step 5

Finally, the installation process has finished

## Step 6

Now you can run the Netkrom NMS on your system.

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# **3**. PC Configuration

Now you need to establish connection between your PC and the ISPAIR CPE 510. You need to use the Netkrom NMS application to configure the radio, by default the ISPAIR CPE 510 has the IP address 192.168.1.3. Therefore, your PC must be in the same network segment as the ISPAIR CPE 510 is to get Ethernet connectivity.
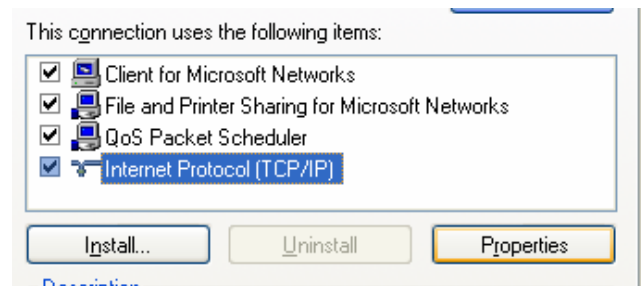
**Step 1**

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

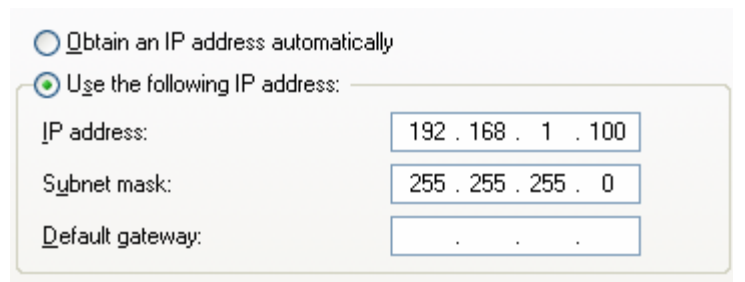Right-Click over your network adapter and select Properties.
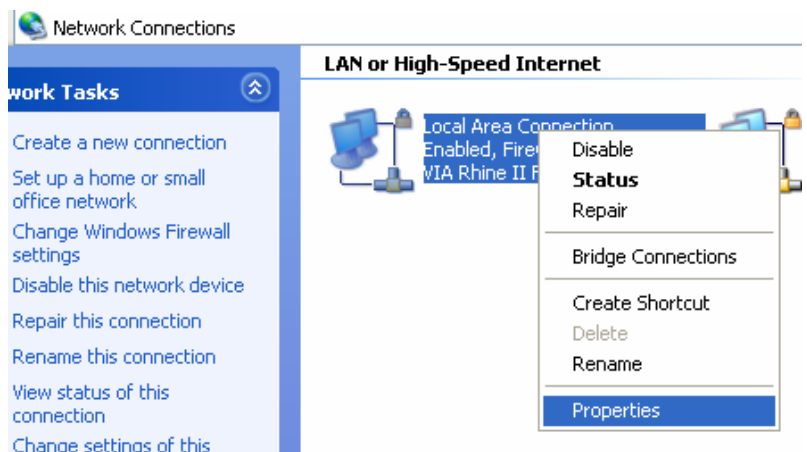
**Step 2**

Select the Internet Protocol Option and then click in Properties.
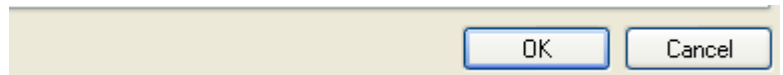
**Step 3**

Now configure the IP Address of your network adapter with an IP in the same IP Network of your ISPAIR CPE 510 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**

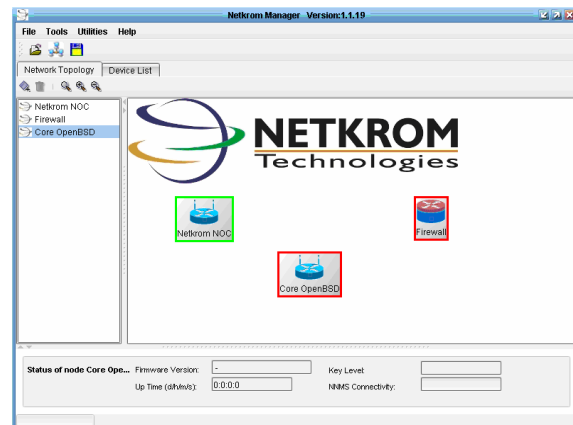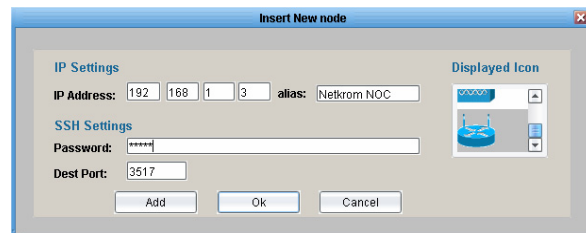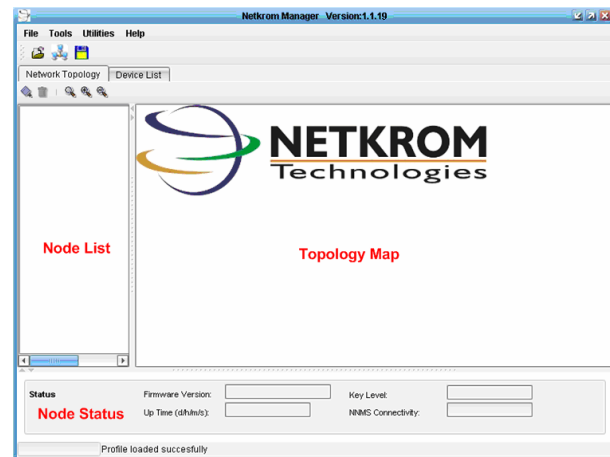In order to start configuring your ISPAIR CPE 510 you need to create a new node:

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.
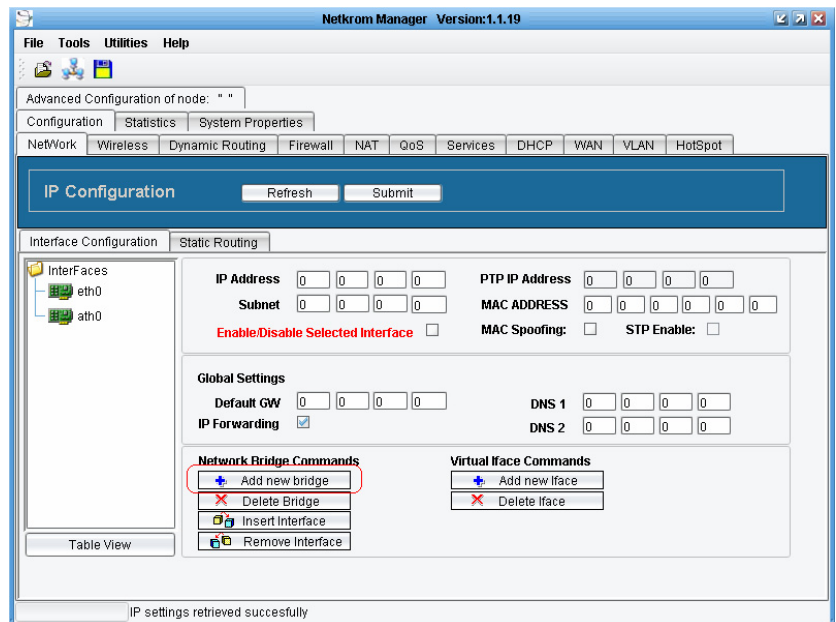
# Wireless Bridge Setup

By default the ISPAIR CPE 510 is a router, if you want the ISPAIR CPE 510 to work as bridge please read this chapter. As soon as you manage to connect to your ISPAIR CPE 510 you can start configuring it. Check the picture of the NMS user interface.
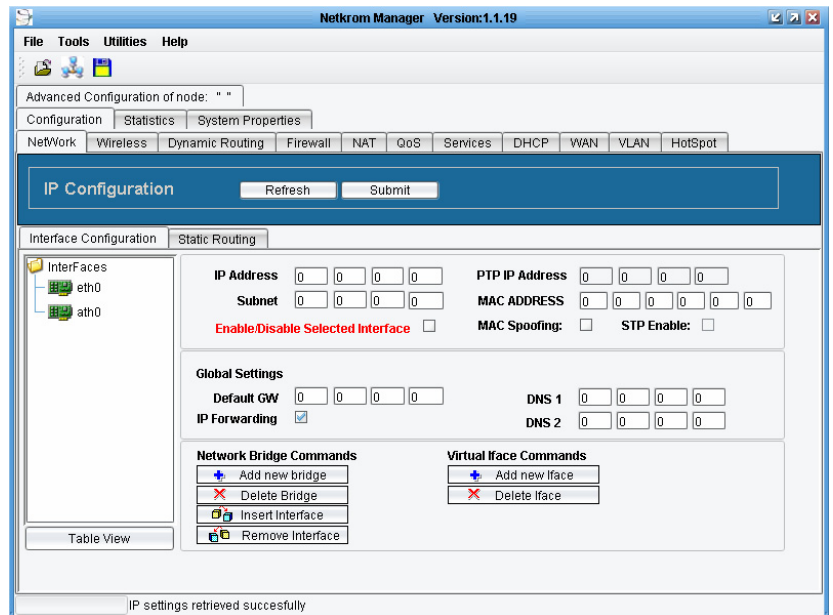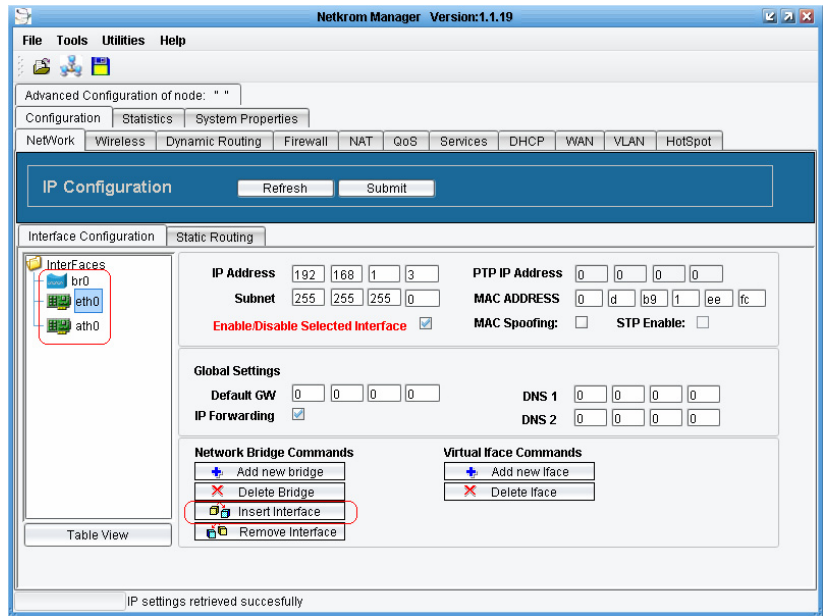


Create a new bridge clicking in the **Add new bridge** button.



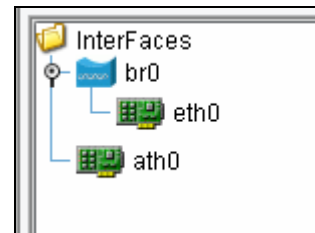Now assign a name for the bridge interface.

Now you need to insert the interface into the Bridge interface, select interface eth0 and click in the **Insert Interface** button.
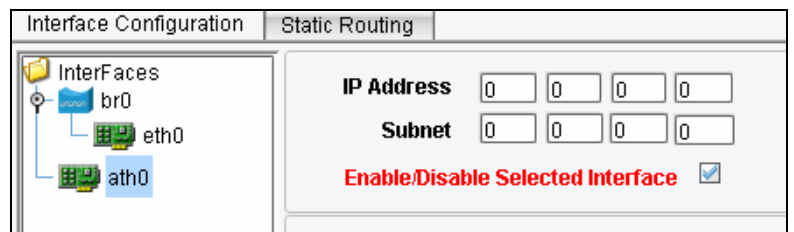
Now you need to select the bridge interface, select br0 and click in the **submit** button.

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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 510 is a bridge.
Click in the **Submit** button and then in **Save Node Configuration** to save the changes.
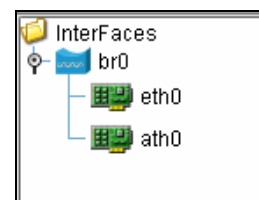
# AP Client Mode

The ISPAIR CPE 510 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).
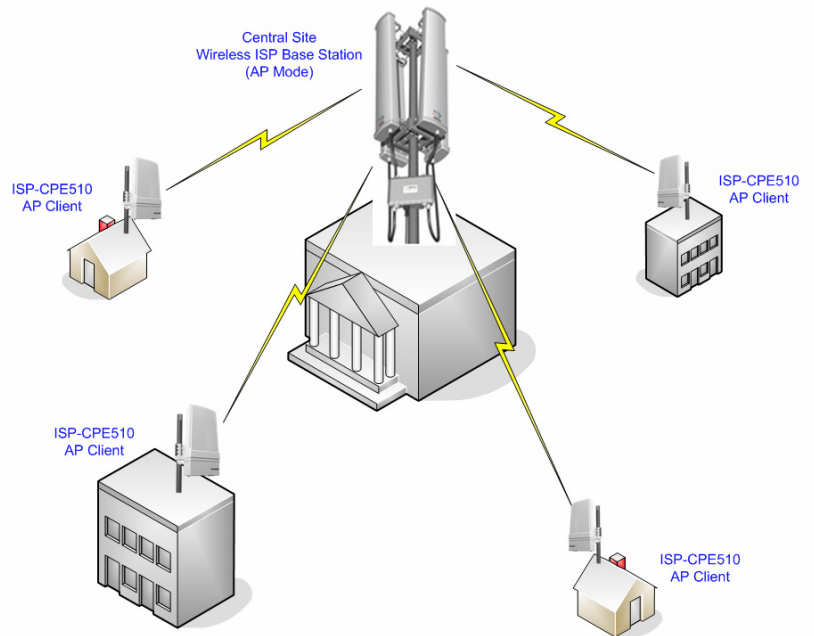


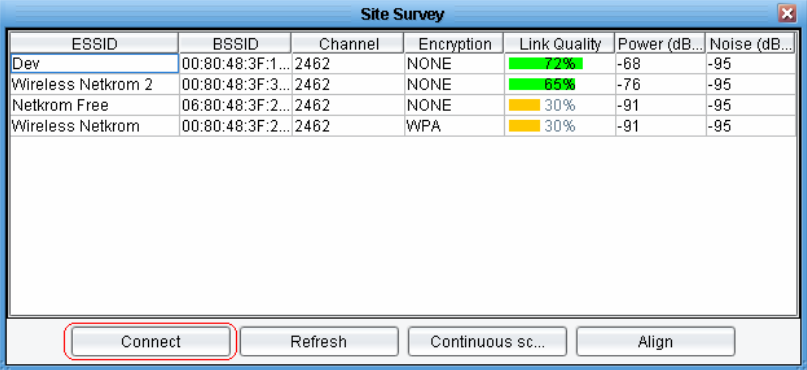Configure the Client device to operate in **Access Point Client Mode** and perform a Site Survey.

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

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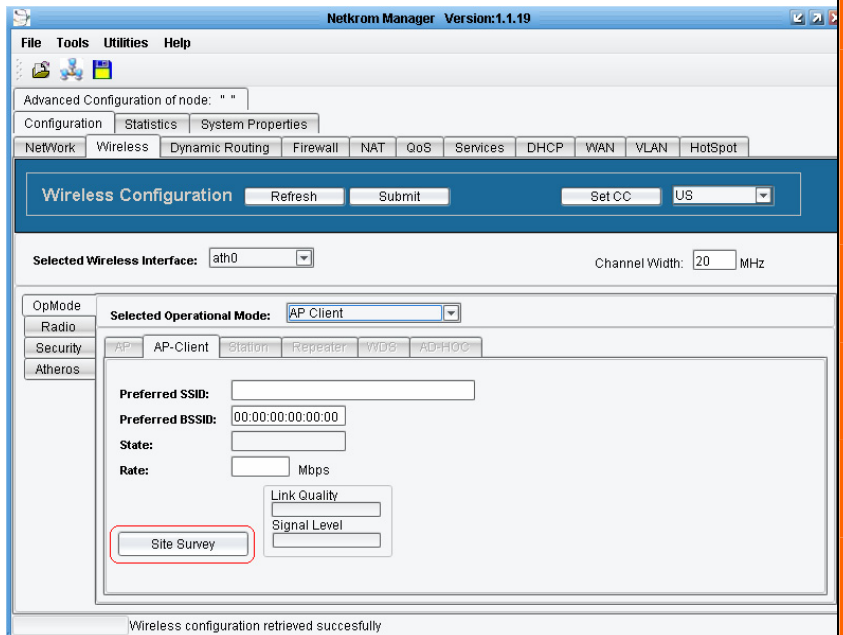
Connect with the desired Access Point. Select the desired ESSID from the Site Survey Pop-up Menu.
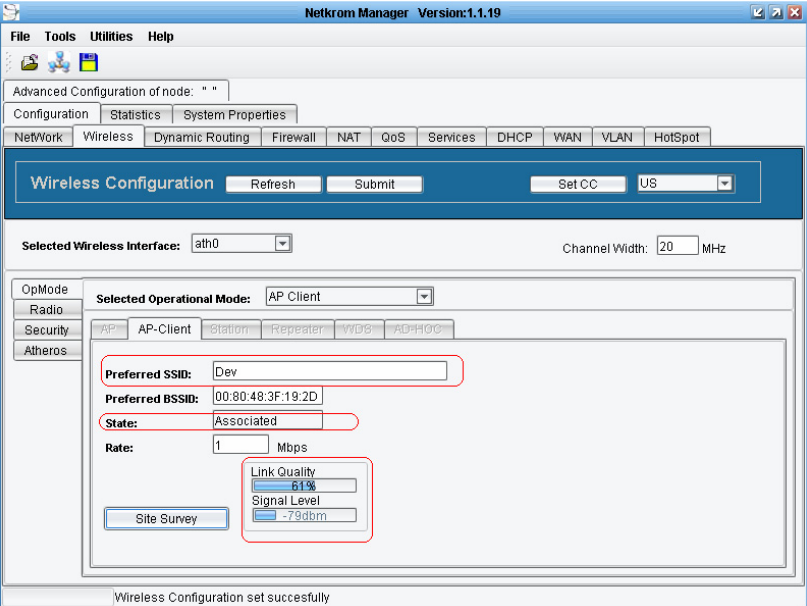Click the **Connect** button

| ESSID | BSSID | Channel | Encryption | Link Quality | Power (dB... | Noise (dB... |
|-------|-------|---------|------------|--------------|--------------|--------------|
| 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 |

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.

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.
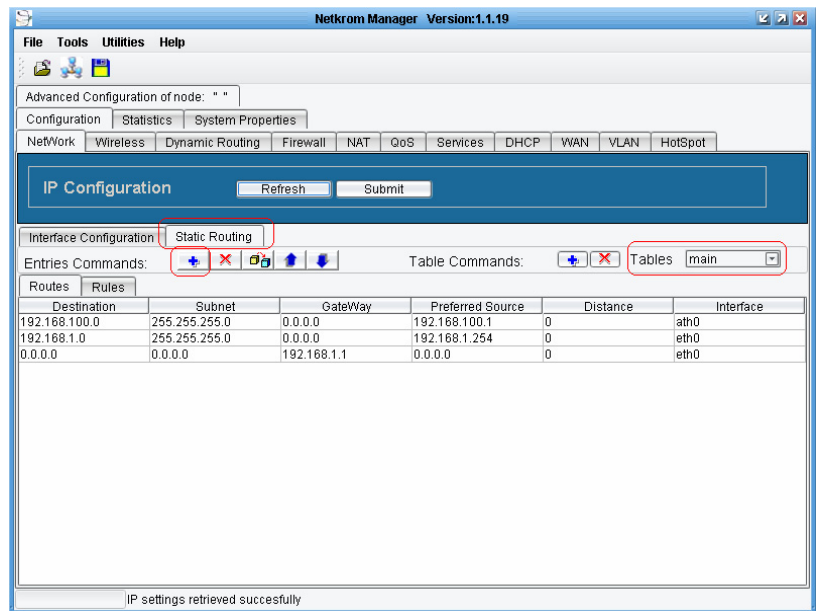


If you want to add static routes just click on the add symbol as shown.



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.

# **5**. Web Based Interface

The ISPAIR CPE510 supports a Basic Web Interface. For advanced features please refer to the User Manual using the Netkrom NMS.

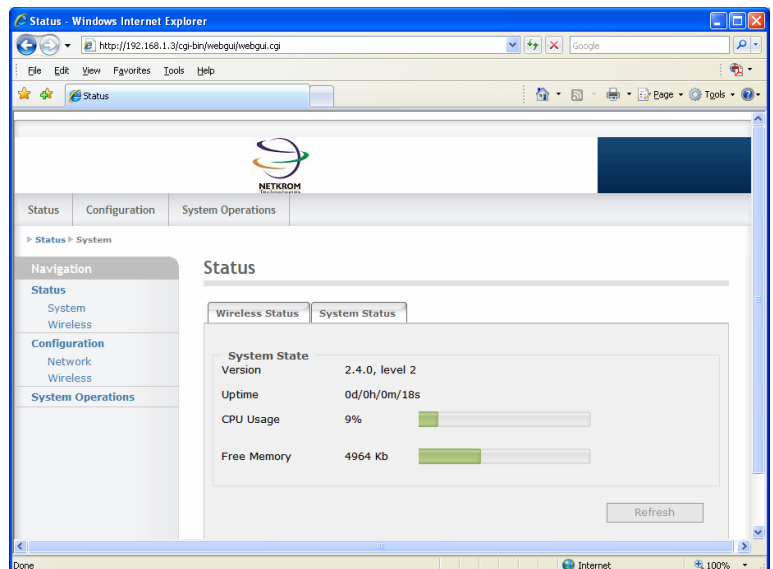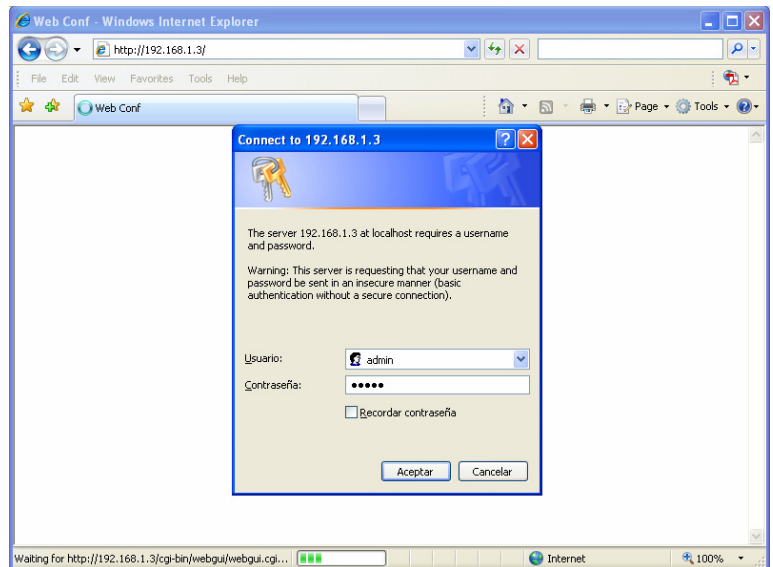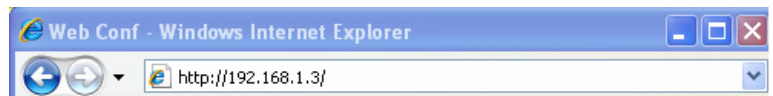## **Getting Started**

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 CPE510 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**

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