

Copyright © 2002 by Raylink, Inc.

All rights reserved.

This publication conveys information that is the property of Raylink, Inc. It shall not be copied, reproduced or duplicated in whole or in part without the express written permission of Raylink, Inc.

The information contained herein is subject to change without notice.

Document version 1.0

Software builds: Raylink NOS 4.16, Raylink NMS 1.6.114

Published by Raylink, Inc.

SALES

Address:

Raylink, Inc.
424 A Cloverleaf Drive
Baldwin Park, CA 91706
U.S.A.

Phone: +1 626 336 1133

Fax: +1 626 336 0517

Email: sales@raylink.com

TECHNICAL SUPPORT

Address:

Raylink, Inc.
424 A Cloverleaf Drive
Baldwin Park, CA 91706
U.S.A.

Phone: +1 626 336 1133

Fax: +1 626 336 0517

Email: support@raylink.com

INTERNET

Web:

www.raylink.com

Limited Warranty

Raylink, Inc. Limited Warranty

Raylink, Inc. ("RAYLINK") makes the following limited warranty. This limited warranty extends to the original consumer purchaser and to no other purchaser or transferee.

Limited One (1) Year Parts and Labor Warranty for Raylink 12dBi CPE Unit.

RAYLINK warrants this product and its parts against defects in materials and/or workmanship for a period of one (1) year after the date of original retail purchase. During this period, RAYLINK will repair or replace a defective product or part without charge to you.

Warranty Conditions

The above LIMITED WARRANTY is subject to the following conditions:

1. Warranty extends only to products distributed by RAYLINK.
2. Warranty extends only to defects in materials and/or workmanship as limited above. Warranty extends only to defects which occur during normal use and do not extend to damage to products or parts which results from alternation, repair, modification, faulty installation or service by anyone other than an Authorized RAYLINK Service Center; damage to products or parts caused by accident, abuse, or misuse, or maintenance, mishandling, misapplication, or use in violation of instructions furnished by us; damage which occurs in shipment or any damage caused by acts of God, such as lightening or line surges.
3. You must retain your bill of sale or provide other proof of purchase.
4. Any replacement parts furnished at no cost to the purchaser in fulfillment of this warranty are warranted only for the unexpired portion of the original warranty.
5. Warranty is effective only if the product is purchased and operated in the U.S.A. and Canada.

Obtaining Warranty Service

If your Raylink product is still under warranty, visit the Raylink website at www.Raylink.com/rma.htm to request a return merchandise authorization ("RMA") number. An RMA number will be issued and emailed to you. Authorized RAYLINK Service Centers or RAYLINK will not accept any returned product without an RMA number.

Ship the product to RAYLINK, postage prepaid, together with your bill of sale or other proof of purchase, your name, address, description of the problem(s), and the RMA number you have obtained from RAYLINK. All products returned for warranty service must be carefully packaged in the original packing materials.

ALL WARRANTY REQUIRED TO BE IMPLIED BY STATE LAW ARE EXPRESSLY LIMITED TO THE DURATION OF THE LIMITED WARRANTY SET FORTH ABOVE.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. WITH THE EXCEPTION OF ANY WARRANTIES REQUIRED TO BE IMPLIED BY STATE LAW AS HEREBY LIMITED, THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES.

IN NO EVENT SHALL RAYLINK BE LIABLE FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES, INCLUDING, WITHOUT LIMITATION, DAMAGE TO THE PROPERTY CAUSED BY ANY DEFECT IN THIS PRODUCT, INCONVENIENCE, LOSS OF GOODWILL, LOST PROFITS OR REVENUE, LOSS OF USE OF THIS PRODUCT OR ANY ASSOCIATED EQUIPMENT, COST OF SUBSTITUTIVE EQUIPMENT, DOWNTIME COSTS OR CLAIMS OF ANY PARTY DEALING WITH PURCHASER FOR SUCH DAMAGES, RESULTING FROM THE USE OF THIS PRODUCT, OR ANY OTHER LEGAL THEORY. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY HAVE OTHER RIGHTS, WHICH VARY FROM STATE TO STATE.

For more information, please call (626) 336-1133.

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

Any changes or modifications made to this equipment may void a user's authority to operate this equipment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference with radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

Table of Contents

Section 1: Introduction	1
System Overview.....	1
Product Features.....	1
Safety Precautions.....	3
Important Notes.....	3
Description of LED Indicators.....	4
Section 2: Before You Begin	5
Verify Contents of Installation Kit.....	5
Tools and Hardware Needed.....	6
Section 3: Selecting a Location for the CPE	7
Section 4: Installing the Raylink 12dBi CPE Unit	9
Assemble the CPE.....	9
Mount the CPE.....	10
Connect the Cat 5 Cable to Power Supply and PC.....	12
Aim the CPE.....	14
Secure the CPE and Cable.....	15
Section 5: Configuring the Raylink 12dBi CPE Unit	17
Before You Begin.....	17
Configuration Overview.....	17
Installing the Network Management Software.....	17
Changing the CPE and Computer Network Settings.....	18
Glossary	23
Index	25

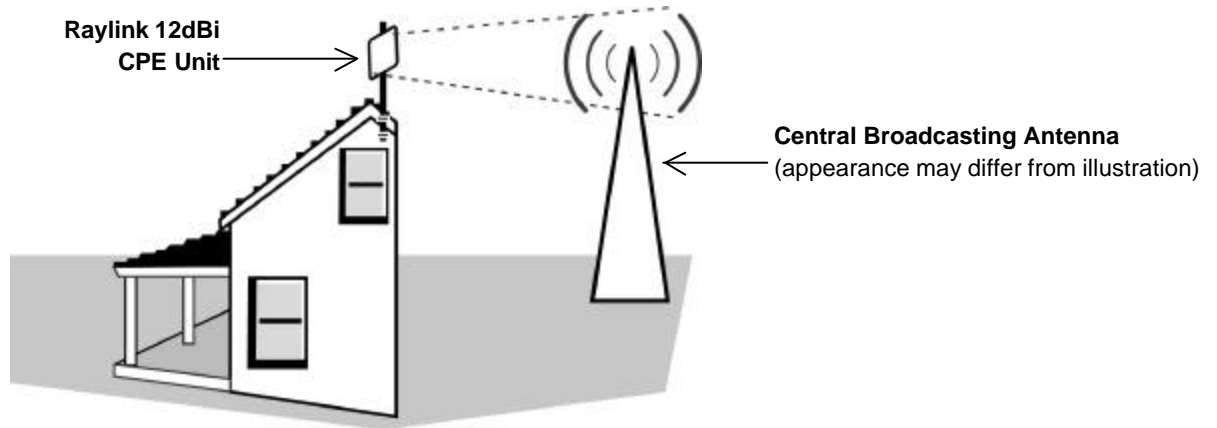
Section 1:

Introduction

The Raylink 12dBi CPE Unit offers a cost-effective alternative to accessing the Internet or a corporate network through expensive dedicated phone lines or fiber networks. It provides the high-performance, cost effective LAN-to-LAN (local area network) and LAN-to-WAN (wide area network) connectivity that is ideally suited for a wireless network or wireless Internet access.

System Overview

Wireless data is transmitted from a central broadcasting antenna to a receiving antenna called the *Raylink 12dBi CPE Unit*, or *CPE* for short. (“CPE” stands for “customer premises equipment.”).



The radio signals used to send and receive data from the CPE is a “line of sight” signal, meaning that data can only be sent or received if there is an unobstructed path between the central broadcasting antenna and the Raylink 12dBi CPE Unit.

Product Features

This section describes the product features of the Raylink 12dBi CPE Unit.

Bridging Features

- Layer 2 store and forward
- Up to 8 logical groups per port (VLAN)
- Packet filtering on MAC address level.

Packet Buffering

- Two 512 Kb shared software data buffer

Standards Compliance

- IEEE 802.3 Ethernet
- IEEE 802.3u Fast Ethernet
- IEEE 802.1d Transparent learning CPE
- IEEE 802.11 WLAN – Frequency-hopping spread spectrum (FHSS).

Wireless Features

- Infrastructure Client and Ad-Hoc (point-to-point)
- 2.4 GHz Industrial Scientific Medical (ISM) band
- Speeds up to 2 Mbps
- Distances up to 6 miles

Port Statistics

- Complete port traffic statistics
- Collection polling rate: 10 seconds

Address Table Features

- 2048 learned nodes
- Flushing time: 10 minutes

Security Features

- Password-protected management
- 64 bit software encryption
- Encrypted proprietary management protocol

System and Power Requirements

- PC with Ethernet connection (RJ45 connection)
- PC with TCP/IP protocol
- Power requirement: 110v

Advance Features

The Raylink 12dBi CPE Unit provides the high-performance, cost effective LAN-to-LAN and LAN-to-WAN connectivity that is ideally suited for a wireless ISP (WISP).

The medium access control (MAC) address table can handle a maximum 2048 learned network nodes. Two 512-Kilobit (Kb) internal buffers allow full speed on each Ethernet segment. Standard transparent bridging features can be configured, for example:

- Packets can be filtered (dropped) by MAC and IP address
- Packets can be forwarded based on specific CPE Groups and traffic queues
- Packet forwarding can be fully disabled over a chosen queue, port or entire CPE.

The Raylink Network Management Software (NMS) is a fully graphical Windows 32-bit program that is capable of managing your CPE from any networked personal computer (PC) over the Internet. Raylink NMS performs all remote control functions for management, forwarding, filtering, and monitoring of network services, traffic analysis and billing.

Additional Raylink NMS features include:

- Built-in triggers and event logging
- Configurable forwarding, filtering, and monitoring policies.

Safety Precautions

WARNING! Serious injury or death can occur if proper safety precautions are not taken during the installation of this equipment.

The U.S. Consumer Product Safety Commission advises consumers to use the following precautions when installing an antenna.

Site Selection:

Select a safe site to install the CPE.

The distance between any power lines and the installation site should be at least one and one-half times the height of the CPE and mast assembly. Make the distance even greater, if at all possible. Since all overhead power lines look somewhat alike, consider them all dangerous and stay well away from them.

If you have power lines in the area, call your local electric utility for assistance.

CPE Mounting:

NEVER work alone; always have someone near who can summon help.

Certain clothing may provide a degree of safety, but don't depend on it for your life (rubber boots or shoes, industrial rubber gloves and a long sleeve shirt or jacket).

Check weather conditions. Be sure that it hasn't rained recently and that the lawn is not wet or muddy. Make sure that rain or thunderstorms are not predicted for the day you decide to install the CPE.

The wind can blow the CPE into a nearby power line. Don't install or remove CPE in moderate or heavy winds.

If you need to use a ladder, make sure it is made of non-conductive (non-metallic) material. (This is a safety rule that you should follow whenever you're working with electrical equipment.)

If possible, have someone present who has been trained in electric shock first aid.

CPE Installation:

Properly assemble the CPE according to instructions (do this where the CPE is to be put up).

Once the CPE is up in full vertical position, securely fasten it by tying it to the side of the house or by using "guy" wires.

Ground the CPE according to the National Electrical Code.

Rooftop Installations:

DO NOT assume that just because you're on a roof, you're isolated from ground. You may still be electrocuted or fall off the roof.

Important Notes

- Read all instructions prior to installing any of the enclosed equipment. Pay particular attention to the warnings associated with the installation of the CPE.
- It is highly recommended that the installation of this equipment is done by a trained professional if you are not experienced with installation of communications equipment.
- Tampering with or breaking the seal on Raylink 12dBi CPE Unit back plate voids any warranty coverage on the CPE and will result in full equipment charge to the customer.

Description of LED Indicators

On the back of the Raylink 12dBi CPE Unit are several LEDs (light emitting diodes) that indicate how the CPE is operating.

The following LEDs indicate the strength of the radio signal being received:

Link	Radio signal is being received
High	Radio signal is 86 – 100% (best)
Medium	Radio signal is 61 – 85% (good)
Low	Radio signal is 0 – 60% (bad)

The following LEDs provide operation and network information:

Power	The CPE has power
TX/RX	Data is being transmitted/received
Link 100	The CPE is linked to a Ethernet device operating at 100 Mbps
Link 10	The CPE is linked to a Ethernet device operating at 10 Mbps

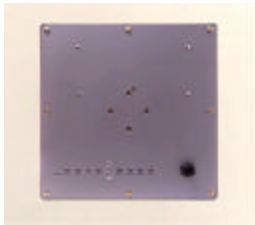
Section 2:

Before You Begin

Verify Contents of Installation Kit

Take a moment to ensure you have all of the following parts in your Raylink 18dBi CPE Unit installation kit *before* you begin installing the CPE. If any parts are missing, please contact Raylink at 1-626-336-1133.

<u>Part</u>	<u>Quantity</u>
Raylink 12dBi CPE Unit	1
Mounting Bracket	1
Pipe Bracket	1



Raylink 18dBi CPE Unit



Mounting Bracket



Pipe Bracket

<u>Part</u>	<u>Quantity</u>
Exterior Cat 5 Cable, 50'	1
Interior Cat 5 Cable, Regular	1
Interior Cat 5 Cable, Cross-over	1



Exterior Cat 5 Cable



Int. Cable, Regular



Int. Cable, Cross-over

<u>Part</u>	<u>Quantity</u>
DC Injector	1
Power Supply	1
Power Cord	1



DC Injector

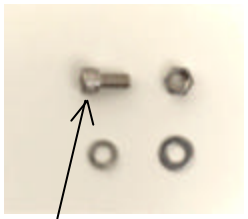


Power Supply

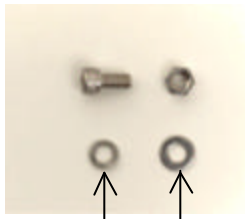


Power Cord

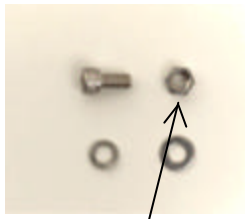
<u>Part</u>	<u>Quantity</u>
Hex-head Screws	4
Washers	4
Lock Washers	4
Nuts	4
U-bolt	1



Hex-head Screw



Washer Lock Washer



Nut



U-bolt

Tools and Hardware Needed

The following tools will be needed to assemble and mount your CPE:

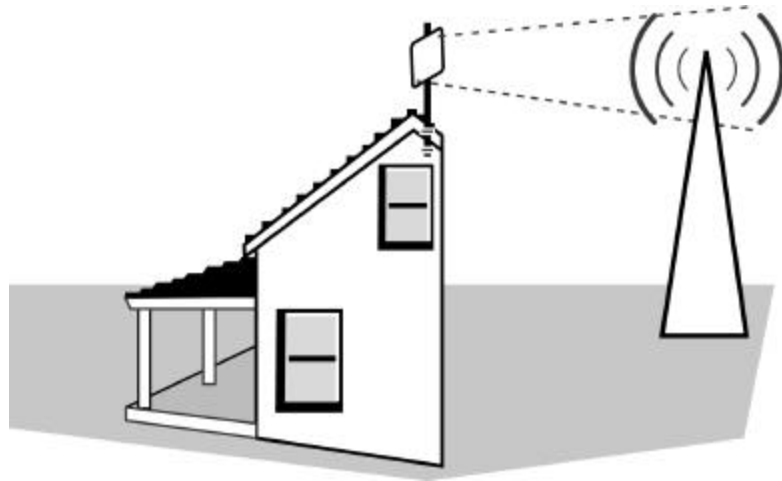
- Crescent wrench, channel locks, or a small pipe wrench
- Hex key (provided)
- Phillips head screw driver
- Pipe and other hardware on which to mount the CPE (See *Mount the CPE* on page 10 for illustration.)
- Cable ties and other hardware with which to secure the exterior Cat 5 cable to the CPE and building (See *Secure the CPE and Cable* on page 15 for illustration.)

Section 3:

Selecting a Location for the CPE

It is very important to position the CPE to ensure the highest possible data transfer speed. Do the following to select the best location for your CPE:

1. Contact your network or Internet service provider and get the location of the central broadcasting antenna in your community. Then choose a location for your Raylink 12dBi CPE Unit so that the CPE points directly at the central broadcasting antenna.

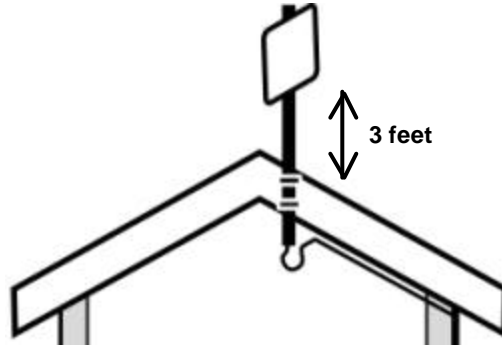


Note: Make sure that the line-of-sight from the CPE to the central broadcasting antenna is not obstructed by trees, other buildings, etc.

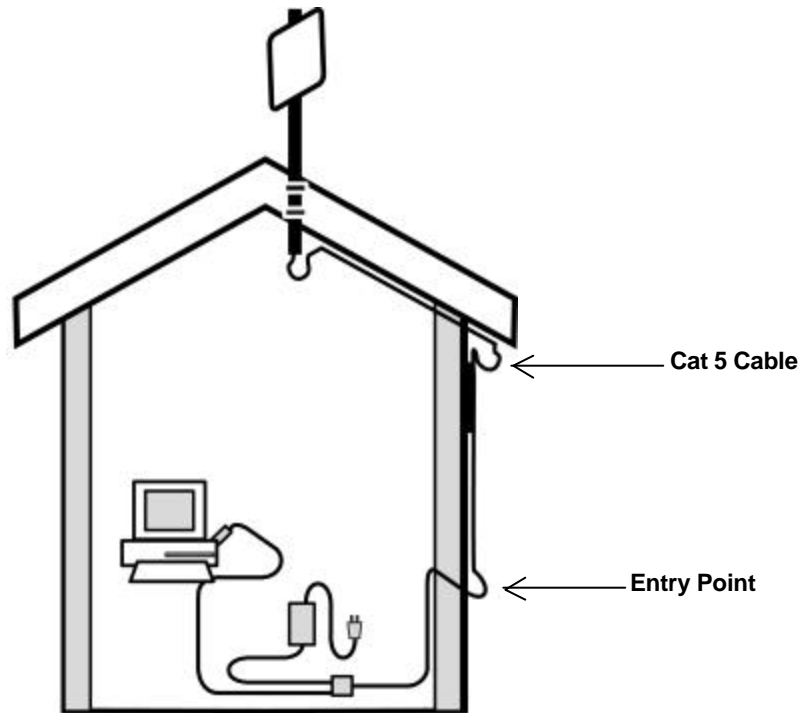
2. To achieve maximum signal strength, ensure the path between the CPE and the central broadcasting antenna does not pass within 6 feet of a roof, metallic obstructions such as water or fuel tanks, etc.



3. Make sure the proposed location of the CPE is more than 3 feet away from metal roofing or siding, and at least 6 feet away from other antennas.



4. Your CPE installation kit contains 50 feet of exterior "Cat 5" cable. You will need to run the cable down the side of your home or office and into the building (see illustration below) so be sure the location you select for the CPE is close enough to the final entry point into the building. (That is, make sure you will have enough cable to secure it properly and still reach the entry point.)



5. Locate a suitable place to get the exterior Cat 5 cable into the home and to the computer.
Note: Consult a professional in your area for the best way to bring the Cat 5 cable into your building.
6. If possible, limit the exposure of the Raylink 12dBi CPE Unit to wind. Mounting the CPE below an eave is best if you can meet the 3-foot rule for metal siding or roofs.

Section 4:

Installing the Raylink 12dBi CPE Unit

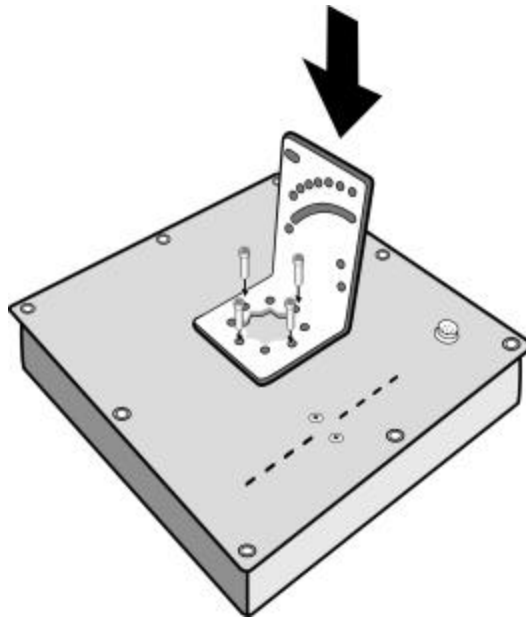
This section describes how to assemble and mount your Raylink 12dBi CPE Unit.

Assemble the CPE

Note: Tampering with or breaking the seal on the back plate of your CPE voids any warranty coverage on the CPE.

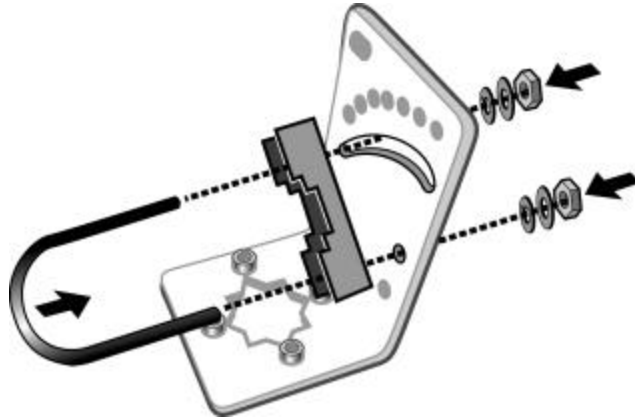
Do the following to assemble the CPE:

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



Note: The bracket in the illustration above shows the normal orientation which allows the CPE to be pointed up towards the central broadcasting antenna. However, if you live somewhere that would require you pointing the CPE *down* towards the central broadcasting antenna (for example, you are on the side of a mountain in view of the central broadcasting antenna below), reverse the bracket so the Raylink 12dBi CPE Unit can be “tilted” downward when you aim the CPE in a later step.

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



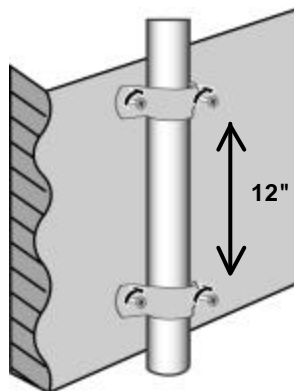
Note: Do not tighten the screws all the way because you will need to adjust the CPE direction in a later step.

Mount the CPE

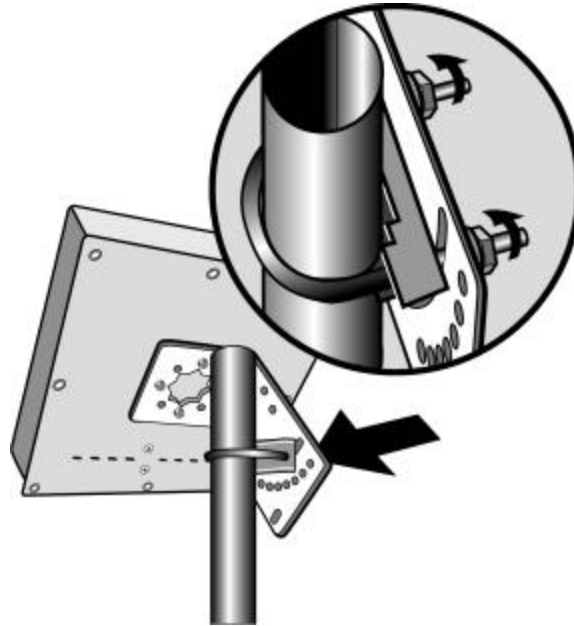
WARNING: Raylink strongly recommends you have a trained professional do the installation if you do not have experience installing communications equipment. If you choose to install this equipment yourself, you do so at your own risk.

Do the following to mount the CPE:

- Review the safety precautions on page 3, and make sure you have all the tools and equipment needed to install the CPE.
- Mount the bottom of a pipe or other support to the location you chose for the CPE using the mounting straps and screws or other appropriate hardware. (Place the two straps at least 6" to 12" apart for best stability.)



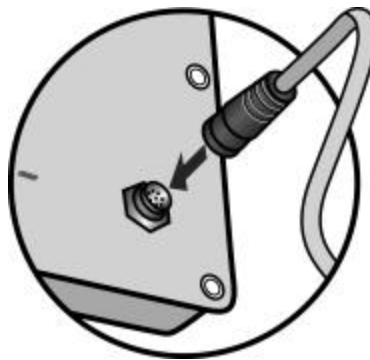
3. Mount the CPE to the top of the pipe or other support and point the CPE in the approximate direction of the central broadcasting antenna, then hand-tighten the nuts on the U-bolt.



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

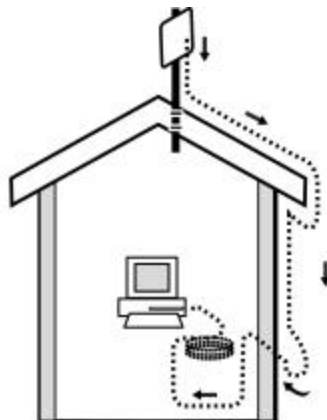
4. Attach the external Cat 5 cable to the back of the CPE: place the round cable connection on the cable with the round jack on the back of the CPE, gently twist the cable until it slides down, then tighten the locking ring by turning it to the right (clockwise) until it is finger-tight. The connector has a guide key and can only go on one way.

Note: It is important to keep all connections clean and dry. While the connection is water resistant, getting moisture or debris in the connection will reduce or prevent transmission speed.



Note: Do not secure the exterior Cat 5 cable to the CPE or to the building at this time. You will do this after you have completed aiming the CPE in a later step.

- Run the exterior Cat 5 cable from the CPE into the house. Determine the Cat 5 cable length needed inside the house to reach from the wall where it enters the house to the computer. Add some slack (about 3 feet) then coil the excess Cat 5 cable. **DO NOT CUT OFF THE EXCESS CABLE.**

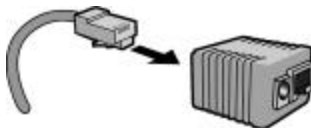


WARNING! If a hole is to be made in the exterior wall of the building, use extreme caution to avoid interior wiring, plumbing and other potential hazards. If the installer is not absolutely sure of the location of potential hazards, consult a qualified electrical contractor to install the exterior Cat 5 cable.

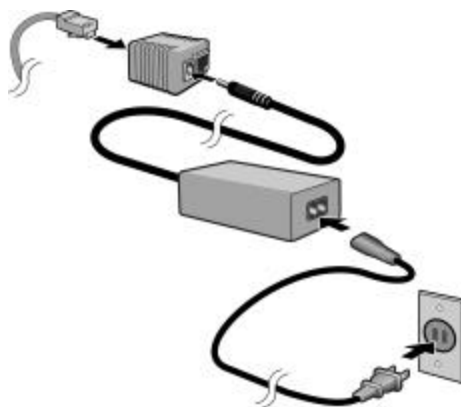
Connect the Cat 5 Cable to Power Supply and PC

Do the following to connect the CPE to the power supply and to your PC:

- Connect the end of the exterior Cat 5 cable to the of the DC Injector connection marked "ANT" (antenna). (The DC injector supplies the power (Direct Current) needed to get the signal to your PC.)



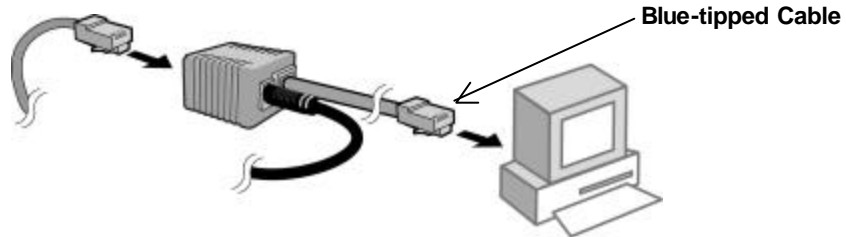
- Connect the power cord to the power supply, then connect one end of the power supply to the DC Injector (see illustration above) and plug the power cord into a 110v outlet.



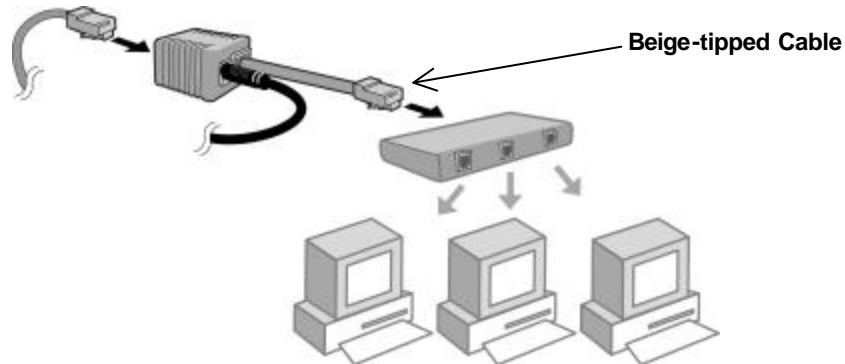
3. Do *one* of the following to connect the DC injector to your PC.

IMPORTANT NOTE: Be sure to use the correct cable when connecting the DC Injector to your PC or network hub. Your Internet service will not function if you use the wrong cable!

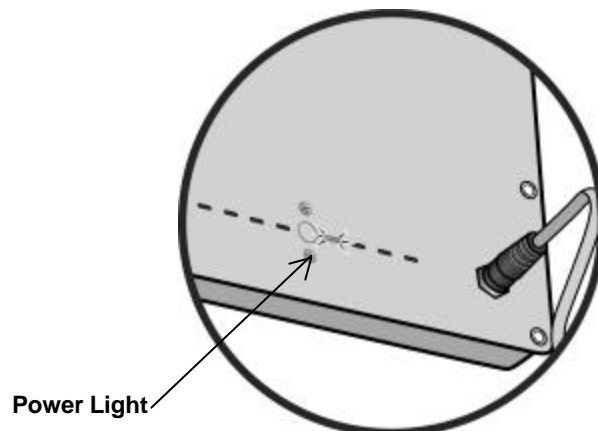
- If you are connecting the CPE directly to your computer, connect one end of the *blue*-tipped Cross-Ever Cat 5 cable to the open connector on the DC injector and the other end of the *blue*-tipped Cross-Ever Cat 5 cable to the Ethernet card in your PC.



- If you are connecting the CPE to a hub or router so multiple computers can share Internet access, connect one end of the *beige*-tipped Cat 5 cable to the open connector on the DC injector and the other end of *beige*-tipped Cat 5 cable to the hub or router.



4. Return to the CPE and verify the Power light on the back of the CPE is now on.



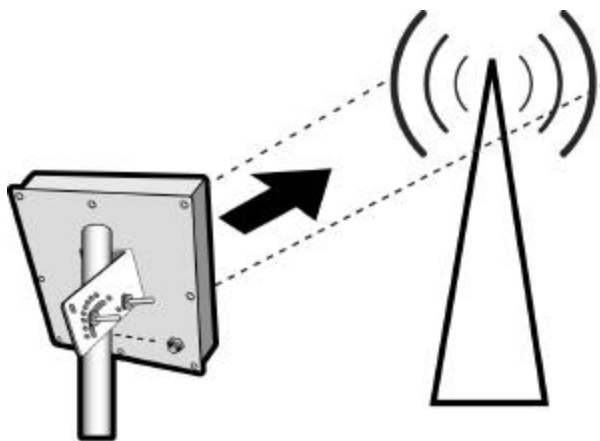
Aim the CPE

You will need to aim the Raylink 12dBi CPE Unit directly at the central broadcasting antenna to achieve maximum data speed. Do the following to aim the CPE:

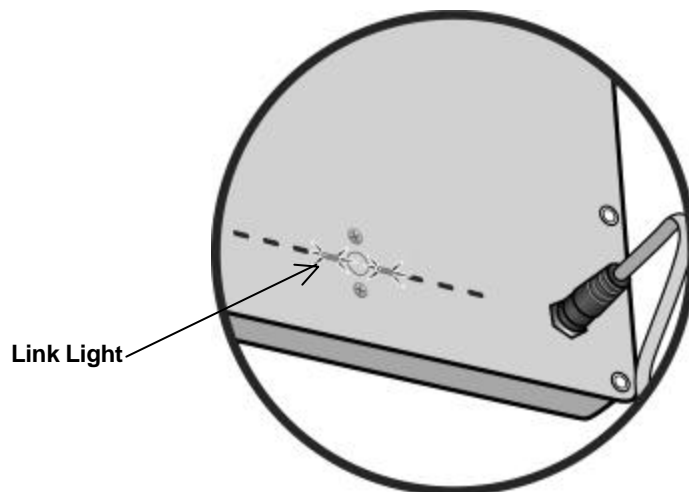
1. Make sure the CPE is loosely mounted, the exterior Cat 5 cable is connected to the CPE the exterior Cat 5 cable is plugged into the ANT side of the DC injector, and the DC injector is plugged in.

Note: You do not need to plug the Interior Cat 5 cable into your PC network interface card to aim the CPE, but you *must* have the Cat 5 cable connected to the DC Injector and the DC Injector plugged in for your CPE to acquire the signal from the central broadcasting antenna.

2. Locate the central broadcasting antenna and aim your CPE directly toward it.



The Link light on the back of the CPE should illuminate solid green.



3. To the left of the Link light there are three signal strength lights: Low, Med (medium), and High. For best reception and data speed, adjust the CPE (if needed) so the Link light and the High signal strength light illuminate at the same time.

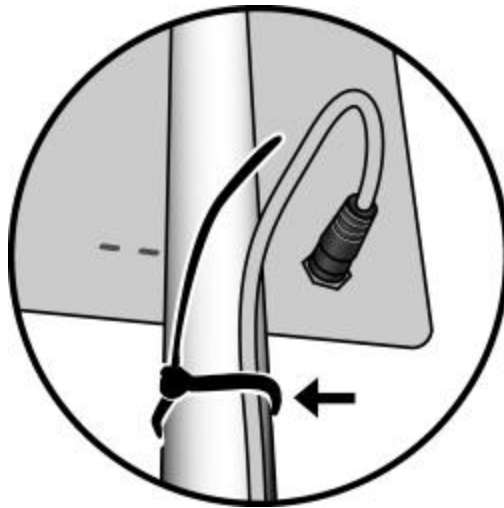
Your CPE will also work well if the Link light and the Med signal strength light are lit, but a Low signal strength light indicates that you may experience a slow connection.

It is recommended that you remount the CPE to get a better signal if you cannot get any of the signal strength lights to illuminate or if you experience a slow connection when only a Low signal strength light is illuminated.

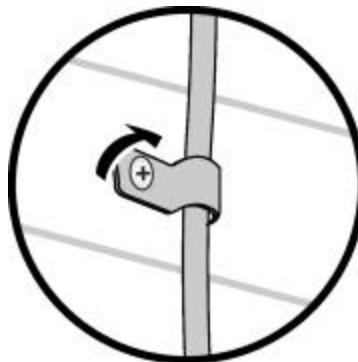
Secure the CPE and Cable

Do the following to secure the CPE and cable:

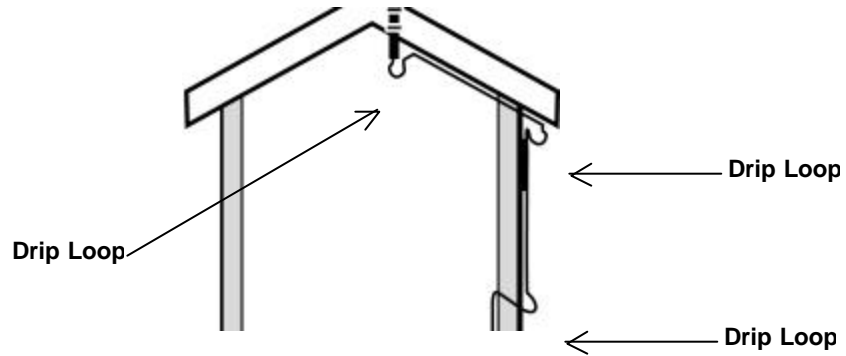
1. When you have completed aiming the CPE, tighten the CPE mounting bracket securely so the CPE won't move in the wind or other weather.
2. Secure the Cat 5 cable the mounting pipe or other support using wire ties or other suitable hardware.



3. Secure the Cat 5 cable to the outside of the house with the cable clamps and 1" stainless steel screws or other suitable hardware.



Note: Create a “drip loop” wherever the cable changes from vertical to horizontal to prevent water from traveling down the cable and into the building.



Note: Be careful when bending the cable in cold temperatures so the outer jacket doesn't crack.

4. Pull any excess cable into the building (except for the drip-loops), and then weather seal the hole around the Cat 5 cable by applying a quality exterior grade sealant entirely around the Cat 5 cable at the point where it enters the house.
5. Keep the remainder of the Cat 5 cable kink-free by coiling any extra cable inside and securing it with a black wire tie.

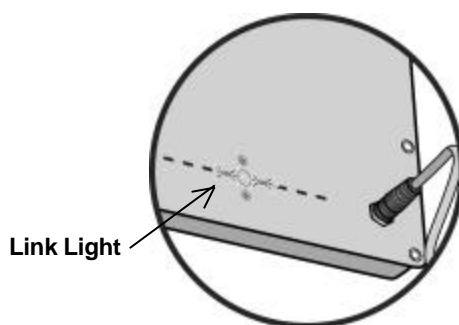
Section 5:

Configuring the Raylink 12dBi CPE Unit

This section describes how to configure the CPE so your computer can communicate with the CPE.

Before You Begin

Verify that you have correctly installed and aimed your CPE. You can tell if the CPE is correctly installed because the Link light on the back of the CPE will be lit:



See *Section 4: Installing the Raylink 12dBi CPE Unit* starting on page 9 if you have not yet installed and aimed your CPE.

Configuration Overview

You configure the CPE by:

- Installing the Raylink Network Management System (NMS) software
- Using the NMS software to change the network settings in both the CPE and your computer to match the settings provided by your network service provider

Installing the Network Management Software

Do the following to install the Raylink Network Management System (NMS) software:

1. Insert the Raylink Installation CD into your PC's CD-ROM drive. The installation program should start automatically.

If the installation program does *not* automatically appear, click the **Start** button on the Windows taskbar, type **drive:SETUP.EXE** where *drive:* is the letter of your CD-ROM drive (for example, d:SETUP.EXE), then click the **OK**.
2. Follow the on-screen instructions to install the NMS software.
3. After installing the NMS software, restart your computer.

Your Raylink NMS software should now be installed.

Changing the CPE and Computer Network Settings

Overview

The Raylink 12dBi CPE Unit is shipped with default (factory-set) values for certain network settings. You will need to change these settings to match those provided by your network service provider in order for your service provider to communicate with your CPE, and the CPE, in turn, to communicate with your computer.

To do this requires three main steps:

- Changing your computer network settings to match the default network settings in the CPE so your computer can communicate with the CPE
- Using the NMS software you installed, change the CPE network settings from the default values to the values provides by your network service provider so your CPE can communicate with the service provider central broadcasting antenna
- Changing your computer network settings so that all three devices (your computer, the CPE and the service provider central broadcasting antenna) are all communicating using the same network settings

IMPORTANT NOTES:

- If you do not know how to enable and change network settings on your PC, contact your network service provider support desk or a qualified PC technician for assistance.
- If your network service provider has not already provided you with specific network settings to use, contact them now and ask for the following (write down the values for future reference):
 - The I/P Address assigned to your CPE
 - The corresponding Subnet Mask
 - The corresponding Default Gateway
 - The corresponding DNS Server
 - The corresponding SSID (Service Set Identifier)

Tip: While you do not need to know exactly what these terms represent to configure your CPE, it is recommended you read the basic definitions for these terms in the glossary at the back of this manual.

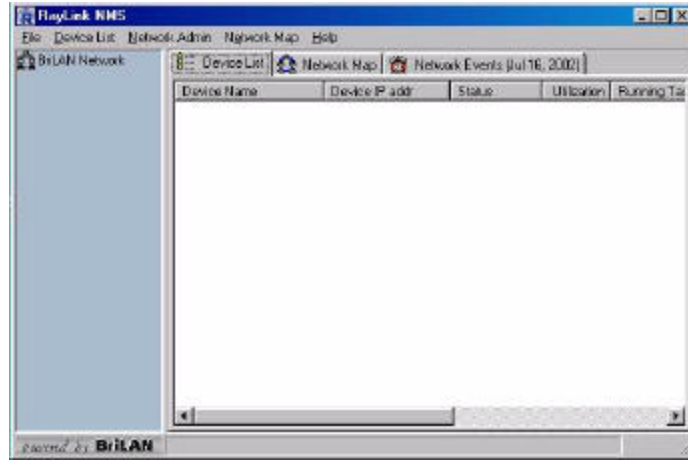
Steps

Do the following to configure the CPE:

1. The first step is to set your computer network settings to match the default network settings in the CPE so your computer can communicate with the CPE:
 - a. Enable TCP/IP networking on your PC if you have not already done so, then right-click (use the right mouse button, not the left) on the **Network** icon on your computer's desktop and select **Properties** from the pop-up menu.
 - b. Click on the installed **TCP/IP** protocol, then click **Properties**.
 - c. Enter the following settings:

I/P Address:	10.10.10.9
Subnet Mask:	255.255.255.0
Default Gateway:	10.10.10.1
 - d. Click **OK** to accept the changes.
 - e. Restart your computer when prompted.

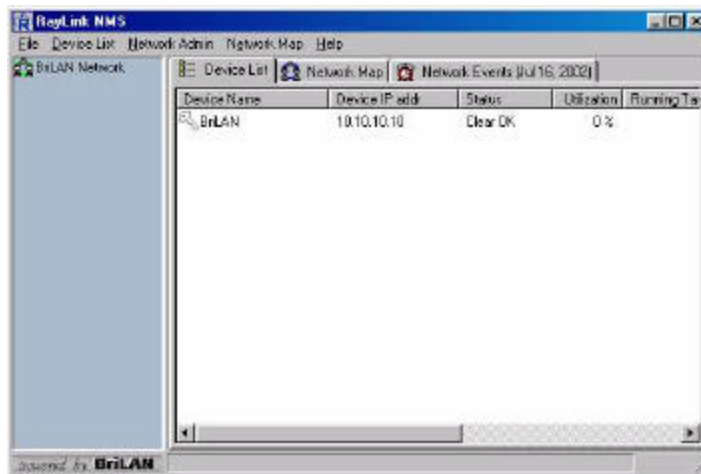
2. On the Windows task bar, click the **Start** button, point to **Raylink NMS** program group and click the **Raylink NMS** icon. The Raylink window will appear:



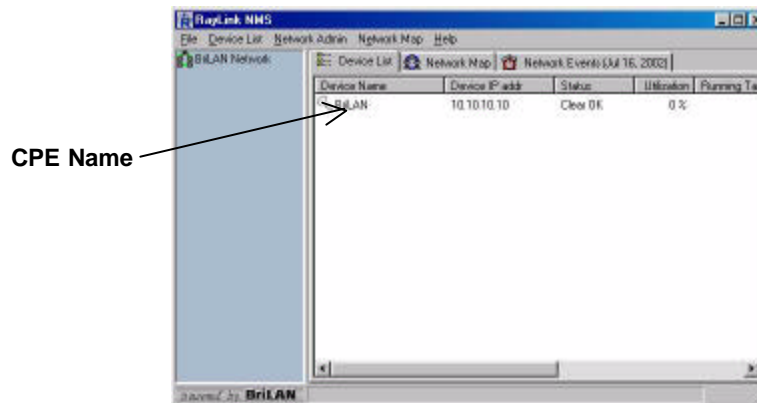
3. Add your CPE to the NMS device list:

- a. Click the **Device List** menu, then **Add Device to Map** option. The Add Device window will appear:

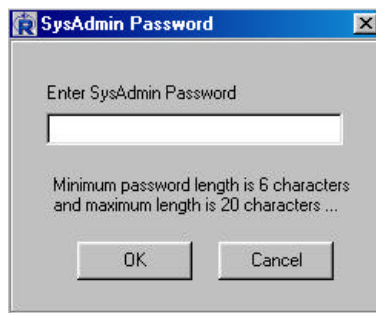
- b. Enter the default IP address for CPE: **10.10.10.10**, then click **OK**. (No password is needed.) The CPE will now appear on the NMS device list:



4. Change the software security level to "Sys Admin" (system administrator) so you can change the network settings in the CPE:
 - a. Click on the name of the CPE in the device list to select the CPE:



- b. Click on the **Device** menu, **SysAdmin Level** and then **Open SysAdmin Level**. The SysAdmin Password window will appear:



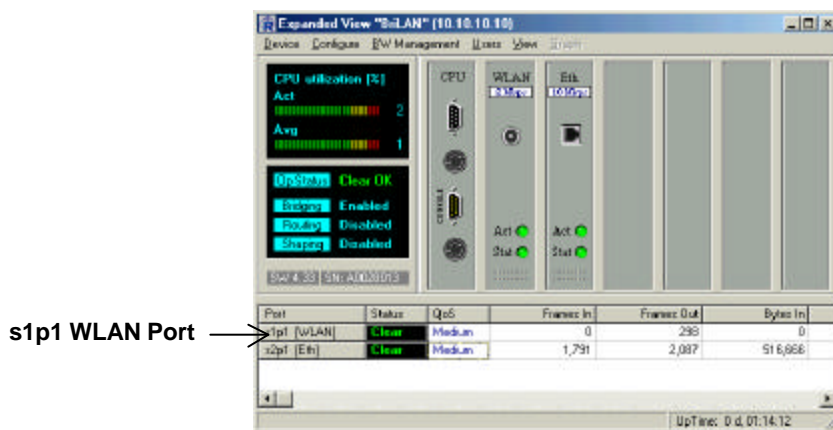
- c. Type the default password: SysAdmin (The password is case-sensitive, so be sure to use upper and lower case letters.) Then click **OK**.

5. Change the CPE network settings to match those given to you by your network service provider:

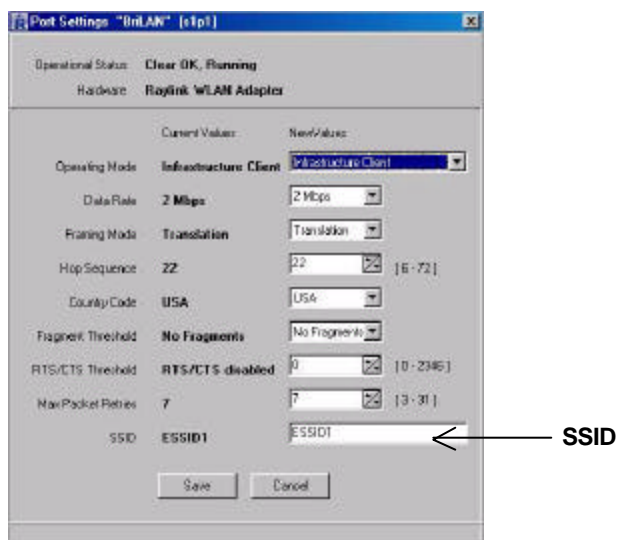
- a. Click the **Device** menu and select **SysAdmin Device Properties**. The Admin Properties window will appear:



- b. Type a name such as “Home” or “Office” in the Device Name field.
 - c. Enter the following (provided by your network service provider):
 - I/P Address
 - Subnet Mask
 - Default Gateway
 - d. Enter the address where the CPE is installed and the name and phone number of a contact person in case your network service provider needs to contact you about your service.
 - e. Save the current settings by clicking the **Save** button.
 - f. When prompted to confirm the changes, click **Yes**.
6. Specify the Service Set Identifier (SSID) to use with your CPE:
- a. The Expanded View window should still be displayed from the previous step. If not, double-click on the **CPE** in the **Device List** to open the window:



- b. Right-click on the **s1p1 WLAN** port in the window.
- c. In the popup menu, select **Configure Port**. The Port Settings window will appear:



- d. Enter the **SSID** provided by your network service provider.
- e. Click the **Save** button, then click **Yes** when prompted to confirm the changes.

7. The last step is to reset your computer network settings so they match the settings used by your CPE and your network service provider central broadcasting antenna:
 - a. Right-click on the **Network** icon on your computer's desktop and select **Properties** from the pop-up menu.
 - b. Click on the installed TCP/IP protocol, then click **Properties**.
 - c. Enter an I/P Address for your computer that is *one higher* than the I/P address that your network service provider assigned to the CPE. (Since the CPE and your computer are on the same network, they cannot have the same I/P address.)

For example, if your service provider assigned your CPE the IP address 192.168.1.22, then assign your computer the I/P address 192.168.1.23.
 - d. Change your computer's Subnet Mask, Default Gateway and DNS Server settings to match the values you received from your network service provider.
 - e. Click **OK** to accept the changes.
 - f. Restart your computer when prompted.

When the computer finishes restarting, attempt to access the Internet or your network and verify that you now have network access.

If for some reason you do *not* have Internet or network access, confirm that the Link light on the back of the CPE is still lit, that you have entered the network settings correctly in the CPE and in your computer, and that you restarted your computer after you made the changes.

If you still do not have network access, contact your network service provider support desk for assistance.

Glossary

Note: Words in *italics* within definitions are defined in this glossary.

Central Broadcasting Antenna	The central antenna in your community that sends and receives data between your <i>network service provider</i> and the <i>Raylink 12dBi CPE Unit</i> mounted on your home or office.
Cat 5	“Category 5” data cable, used for transmitting data between the CPE on your home or office and your computer.
CPE	See <i>Raylink 12dBi CPE Unit</i> .
DC Injector	A connector that provides the direct current (electricity) needed to power the <i>Raylink 12dBi CPE Unit</i> .
DNS Server	DNS stands for “Domain Name Server.” When you use a website address such as <i>www.CNN.com</i> or email address such as <i>newsdesk@CNN.com</i> , the name “CNN.com” must be translated to an <i>I/P address</i> before information can be sent or received. The name of the server (computer) at your <i>network service provider</i> that does this is called a DNS server.
Default Gateway	A number in the format of <i>xx.xx.xx.xx</i> that identifies the gateway to be used when communicating to the Internet or a corporate network. When information is sent from your computer, the <i>Raylink 12dBi CPE Unit</i> sends the information to a computer at your <i>network service provider</i> which, in turn, forwards the information to the intended recipient. In other words, the computer at your service provider that the CPE talks to is the “gateway” to the rest of the a corporate network or the Internet.
Ethernet	A type of local area network used to send and receive information. Ethernet is a popular way of connecting small computers to the Internet.
Internet Protocol	A protocol (method of sending data) used to send and receive information over the Internet.
I/P Address	An <i>Internet protocol</i> address is a number in the format <i>xx.xx.xx.xx</i> that uniquely identifies devices on a network (such as your <i>Raylink 12dBi CPE Unit</i> or your computer) so that information can be sent between them.
LED	Light Emitting Diode, one of the lights on the back of the <i>Raylink 12dBi CPE Unit</i> that give information on how the CPE is operating.
Mbps	Millions of Bits (pieces of information) Per Second, a way of measuring how fast a network sends and receives data.
Network Service Provider	The Internet provider or corporate network provider to which you are connecting using a <i>Raylink 12dBi CPE Unit</i> .

Raylink 12dBi CPE Unit	The CPE mounted on your home or office that sends data to and receives data from the <i>central broadcasting antenna</i> . CPE stands for “customer premises equipment.”
RJ45	A type of plug used to connect cables to a network card in your computer. The flat end of the <i>Cat 5</i> cables in your installation kit are RJ45 connectors.
SSID	Service Set Identifier, used to identify which wireless network your <i>Raylink 12dBi CPE Unit</i> is part of.
Subnet Mask	A number in the format of xx.xx.xx.xx that identifies a portion or subset of a network. By assigning the same subnet mask (a restrictive filter, so to speak) to your <i>Raylink 12dBi CPE Unit</i> and your computer, data you request is sent to your CPE and then to your computer, but not to computers on the Internet or your corporate network that have a different subnet mask.
TCP/IP	Transmission Control Protocol/Internet Protocol, a popular protocol (method of sending) information over a network.

Index

Aiming the CPE	14	DNS server	
Assembling the CPE	9	Definition of	23
Cable		Setting in your computer.....	22
Connecting to the CPE	14	Glossary	23
Securing.....	15	I/P address	
Cat 5, definition of.....	23	Definition of	23
Central broadcasting antenna		Setting in your computer.....	18, 22
Locating	7	Setting in your CPE.....	21
Relationship to the CPE	1	Installing the network management software ..	17
Configuring your CPE and computer	17	LED	
CPE		Definition of	23
Aiming.....	14	Meaning of	4
Assembling.....	9	Mounting the CPE.....	10
Configuring	18	Network management software, installing.....	17
Connecting to your PC	12	Safety precautions	3
Definition of	23	SSID	
Mounting	10	Definition of	24
Relationship to central antenna.....	1	Setting in your CPE.....	21
Securing.....	15	Subnet mask	
Selecting a location for	7	Definition of	24
DC injector, connecting	12	Setting in your computer.....	18, 22
Default gateway		Setting in your CPE.....	21
Definition of	23		
Setting in your computer.....	18, 22		
Setting in your CPE.....	21		