APPENDIX I

OWENERS MANUAL

RangeLAN802 Access Point
User Guide

1. Introduction

Congratulations on your purchase of the RangeLAN802 Access Point, a member of the RangeLAN802 family, Proxim's IEEE 802.11-compliant wireless LAN products. Proxim has long been a leader in wireless networking and is excited to introduce IEEE 802.11 products.

RangeLAN802 Access Point was designed to be a "plug-and-play" product. In many cases, you will not even need to run any software to configure it. If you need to use it, you will find it easy to use. In no time, you will have a wireless connection to your network's application software, printing, e-mail, and other network services!

This wireless access point allows for easy expandability of your wireless network, increasing range and facilitating mobility applications. It operates at the Data Link level (layer 2) of the OSI model, providing protocol-independent access for RangeLAN802 computer users into an existing wired Ethernet LAN.

Today, Proxim is the leading supplier of spread spectrum radio networking technology for local area environments. Proxim's unmatched spread spectrum networking expertise, combined with the company's extensive experience serving the communications needs of the mobile computing user, have kept Proxim at the forefront of the emerging wireless LAN market.

Proxim also manufactures the RangeLAN2 family, a family of WLIF-compatible (Wireless LAN Interoperability Forum) wireless LAN products. If you would like more information on RangeLAN2, please contact Proxim's Sales Department at 800/229-1630.

The RangeLAN802 Family

RangeLAN802 Access Point is part of a family of high-performance products that provides a complete wireless networking solution.

- **RangeLAN802 8400** is a wireless LAN adapter which fits into a PC Card (PCMCIA) Type II slot on a portable notebook, laptop or pen-based computer.

System Requirements

To begin using your RangeLAN802 Access Point, you need the following minimum system requirements:

- An Ethernet cable drop (10BASE-T or 10BASE2)
- A terminal or PC with a terminal emulation software package and a null modem cable

  OR

  a computer running a TCP/IP telnet client **AND** a BOOTP server
- At least one other RangeLAN802 LAN adapter product installed on the network

The Product Package

Each RangeLAN802 Access Point comes with:

- ❑ One RangeLAN802 Access Point
- ❑ One antenna
- ❑ One RangeLAN802 Access Point User's Guide
- ❑ One power adapter

If any of these items are missing or damaged, please contact your reseller or Proxim Technical Support.

Figure 1
RangeLAN802 Access Point components

2. Quick Installation

You may follow the quick installation steps if the following conditions are true:

- ❑ There will only be one Access Point on this network
- ❑ You will use all the software default values
- ❑ You do not need to configure an IP address for the Access Point and do not intend to manage it via telnet or a Web browser
- ❑ You will not be setting ESS IDs on your network

If the above conditions are not true, more detailed configuration information is described in Chapter 5.

If your installation meets the preceding criteria, proceed with the following instructions:

1. Firmly screw in clockwise the antenna onto the antenna connector on the back panel of the Access Point.

Note

Government regulatory agencies mandate that the antenna not be alterable. Therefore, RangeLAN802 Access Point uses a custom antenna connector. Do not attempt to use a different antenna or you may damage the connector and the Access Point unit.

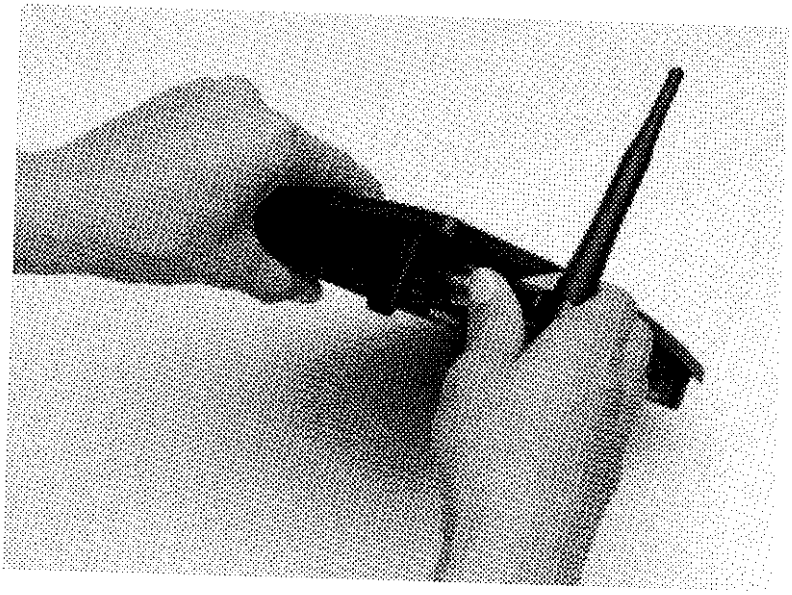


Figure 2
Attachment of the RangeLAN802 Access Point Antenna

2. Attach an Ethernet cable to the Ethernet port on the back of the RangeLAN802 Access Point.

3. Plug the power cable into the back of the RangeLAN802 Access Point and into an AC power outlet. Since there is no On/Off switch on the Access Point box, the unit will turn on as soon as power is applied.

3. Installation

Ethernet Installation

The RangeLAN802 Access Point is attached to the wired LAN backbone via an Ethernet cable. Two types of Ethernet connection are supported: 10BASE-T and 10BASE2.

10BASE-T Cabling

The RangeLAN802 Access Point 10BASE-T cable is typically connected between the device and a 10BASE-T hub or wiring rack. It will use the same cable that would otherwise be plugged into a 10BASE-T workstation on the Ethernet LAN. If you are using a functional cable, the LED nearest the connector will light. Standard 10BASE-T specifications apply to the 10BASE-T interface of the RangeLAN802 Access Point. No segment can exceed 100 meters.

10BASE2 Cabling

When using 10BASE2 cabling with the RangeLAN802 Access Point, the cable must be properly terminated on each end. Standard 10BASE2 specifications apply to the 10BASE2 interface of the RangeLAN802 Access Point. Each coax cable segment can support up to 30 devices and the cable itself cannot exceed 185 meters.

Antenna Options

The RangeLAN802 Access Point is shipped with a standard directly-connected antenna. To install the antenna, screw it clockwise onto the antenna connector. Proxim sells several antenna alternatives including higher gain and directional antennas. Each of these antennas ships with installation and mounting instructions. For information on additional antenna options, please contact your Proxim Sales Representative.

Mounting Options

The RangeLAN802 Access Point was designed to sit on a desktop. You may optionally purchase a mounting hardware bracket to attach it to a cubicle or a wall.

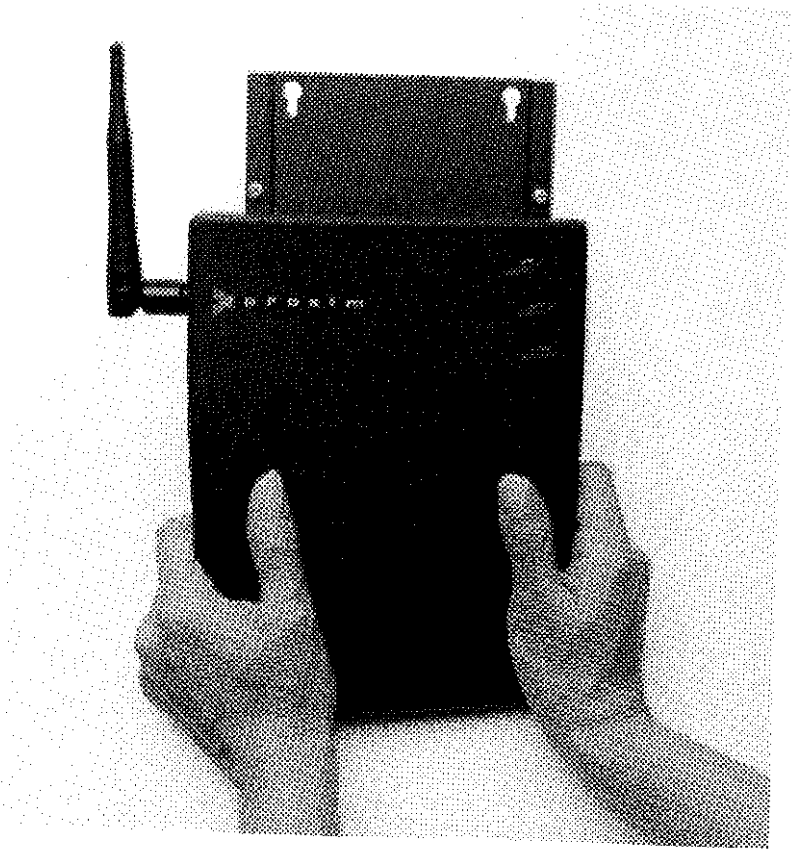


Figure 3
Wall Mount

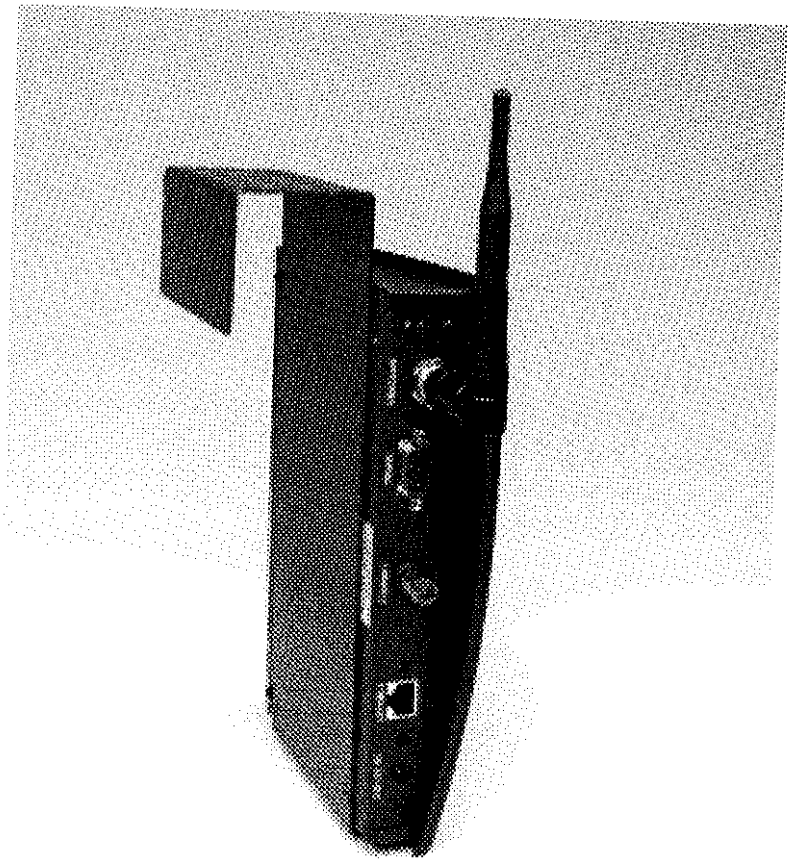


Figure 4
Cubicle Mount

4. Wireless Topologies

RangeLAN802 products look and operate similar to Ethernet products. The only difference is that a radio replaces the wire between various nodes. This means that all of your existing applications that operate over Ethernet will work with RangeLAN802 without any special wireless networking software. Wireless products are typically used in several network topologies described in this chapter.

Ad Hoc

With wireless LANs, one or more computers easily establish an ad hoc network when the units are in range of each other. Each computer can dynamically connect and reconnect to the others with no additional configuration, using off-the-shelf peer-to-peer network operating systems. With this capability, many companies are developing applications optimized for ad hoc networks.

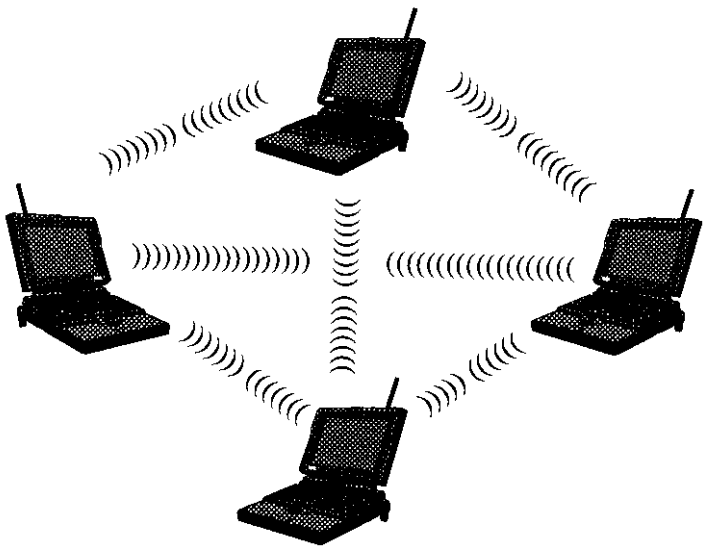


Figure 5
Ad Hoc

Infrastructure

Many companies have an existing Ethernet or wired LAN infrastructure and want to be able to extend that capability to wireless nodes. This is accomplished by attaching an Access Point to the wired LAN. This allows the wireless clients to access the network resources.

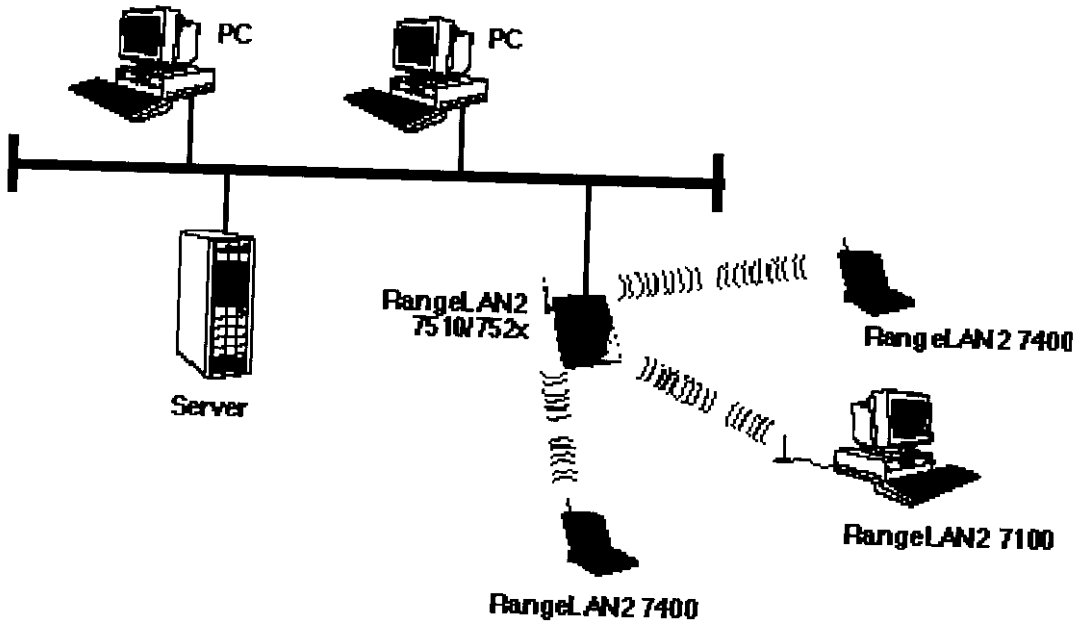


Figure 6
Single AP

For larger environments, RangeLAN802 products support the ability to roam from one wireless cell to another while maintaining the same network connection. The Access Points establish coverage areas or cells similar in concept to those of a cellular phone network. The mobile clients will connect with any Access Point that is within range.

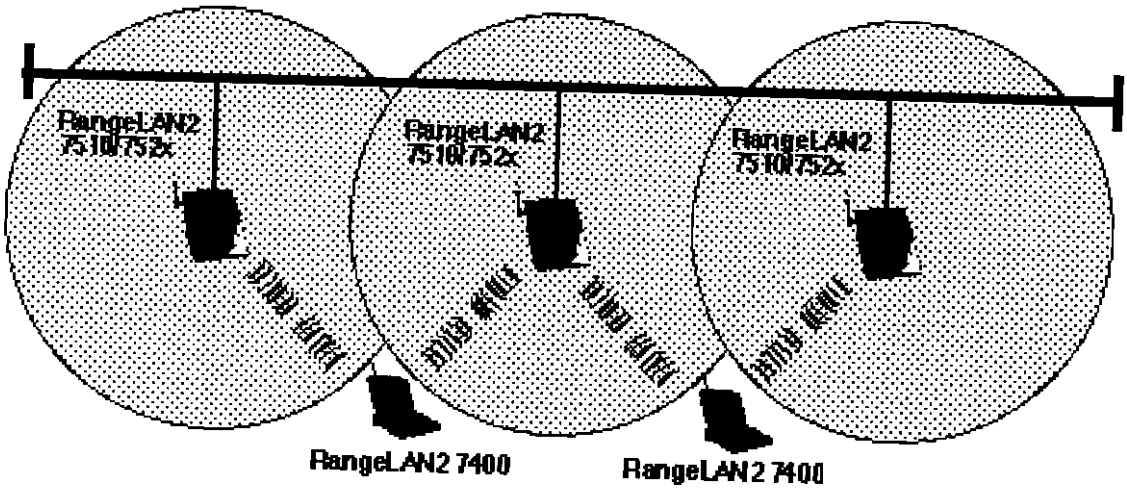


Figure 7
Roaming

Each RangeLAN802 Access Point within a roaming network must be configured on a unique Pattern, but all must have the sameSet and ESS ID. The portable PCs are equipped with RangeLAN8028400 cards which are also set to the same ESS ID. As the portable PC *seamlessly* switches from cell to cell, its network connectivity is preserved.

The user can move freely between the RangeLAN802 Access Points in the network. When the roaming PC leaves the transmission range of one RangeLAN802 Access Point, the software automatically polls the other RangeLAN802 Access Point in the same ESS ID to continue the network connection.

Note that the cells must overlap to ensure that there are no gaps in coverage, and that the roaming PC will always have a connection available.

Note:
Roaming stations will only roam among RangeLAN802 Access Points with the same ESS ID.

Guidelines for Roaming

- ❑ All RangeLAN802 Access Points must have the same ESS ID.
- ❑ All RangeLAN802 Access Points have a unique Set.
- ❑ All workstations with RangeLAN802 8400 cards are configured with an ESS ID matching the RangeLAN802 Access Points they will roam between.
- ❑ The cells created by RangeLAN802 Access Points must overlap.
- ❑ Roaming will not occur across routers unless using a roaming protocol like Mobile IP or Mobile IPX.

5. Configuration

You need to configure the RangeLAN802 Access Point if:

- ❑ There is more than one RangeLAN802 Access Point on this network, for example in a roaming environment
- ❑ You need to change the software default values, including IP addresses
- ❑ You want to set ESS ID on your network

There are five ways to configure the RangeLAN802 Access Point:

- ❑ Locally via a null modem cable and a terminal or terminal emulation package
- ❑ Remotely across the network using a telnet session
- ❑ Remotely across dial-up modems
- ❑ Remotely across the network using an SNMP management package
- ❑ Remotely across the network via a Web browser

Locally (Out-of-band)

You may use the DB-9 Local Management Port on the back of the Access Point to configure the unit. To locally configure the RangeLAN802 Access Point, you need a null modem RS-232 cable with a nine pine female connector on the Access Point side and a terminal or PC with an available serial port running a terminal application package.

Note:

If you use a terminal application that has the option to check for the CD signal before establishing a connection, configure the software to ignore CD. Alternatively, verify that your null modem cable is a full handshake cable and pulls CD high.

1. Connect the null modem RS-232 cable between the RangeLAN802 Access Point Local Management Port and a free serial port on your terminal or PC.

2. Configure the terminal or terminal emulation package for 9600 bps N81 operation. If you are using a terminal emulation package, choose TTY as the terminal type.

3. Apply power to the RangeLAN802 Access Point. During the boot process messages will be displayed on the terminal screen. When they are completed and you see the "Initialization Complete" message, press <Enter> to enter the software configuration menu. If the unit was already turned on, you can press <Enter> to display the menu.

Remotely (In-band)

The second configuration option is remote configuration across the wired network.

Note:

The RangeLAN802 Access Point is not manufactured with a default IP address. In order to telnet to the RangeLAN802 Access Point, you must first assign it a valid IP address for your network using null modem cable configuration or a BOOTP server.

1. From a wired client on your network, open a telnet session to the RangeLAN802 Access Point.

2. You will be prompted for a password if you enabled this option through the TCP/IP Configuration Menu.

3. You will enter the configuration menu.

Modem Support

The RangeLAN802 Access Point may be remotely configured via a dial-up modem. To allow for this type of configuration:

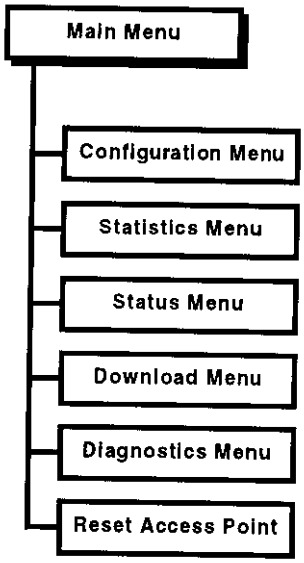
1. Configure the modem from a terminal or terminal emulation program at 9600 bps.
2. Issue the following commands to the modem:

`ATS0=1`	(Auto-answer after 1 ring)
`AT&D0`	(Ignore DTR)
`ATE0`	(No local echo)
`ATQ1`	(Suppress result codes)
`AT&W0`	(Store configuration in non-volatile memory)

3. Attach a modem via a straight-through cable to the RangeLAN802 Access Point.
4. From a remote modem, dial the phone number of the modem connected to the RangeLAN802 Access Point.
5. After the RangeLAN802 Access Point's modem has answered the phone, press <Enter> on the terminal connected to the remote modem until you see the configuration menu tree.

Main Menu

After using one of the above three methods, you will see the following software menu whose choices will be described in the next chapters:



Note:
Depending on the current settings of the RangeLAN802 Access Point, the order of the options in the menu tree may change slightly.

SNMP Management

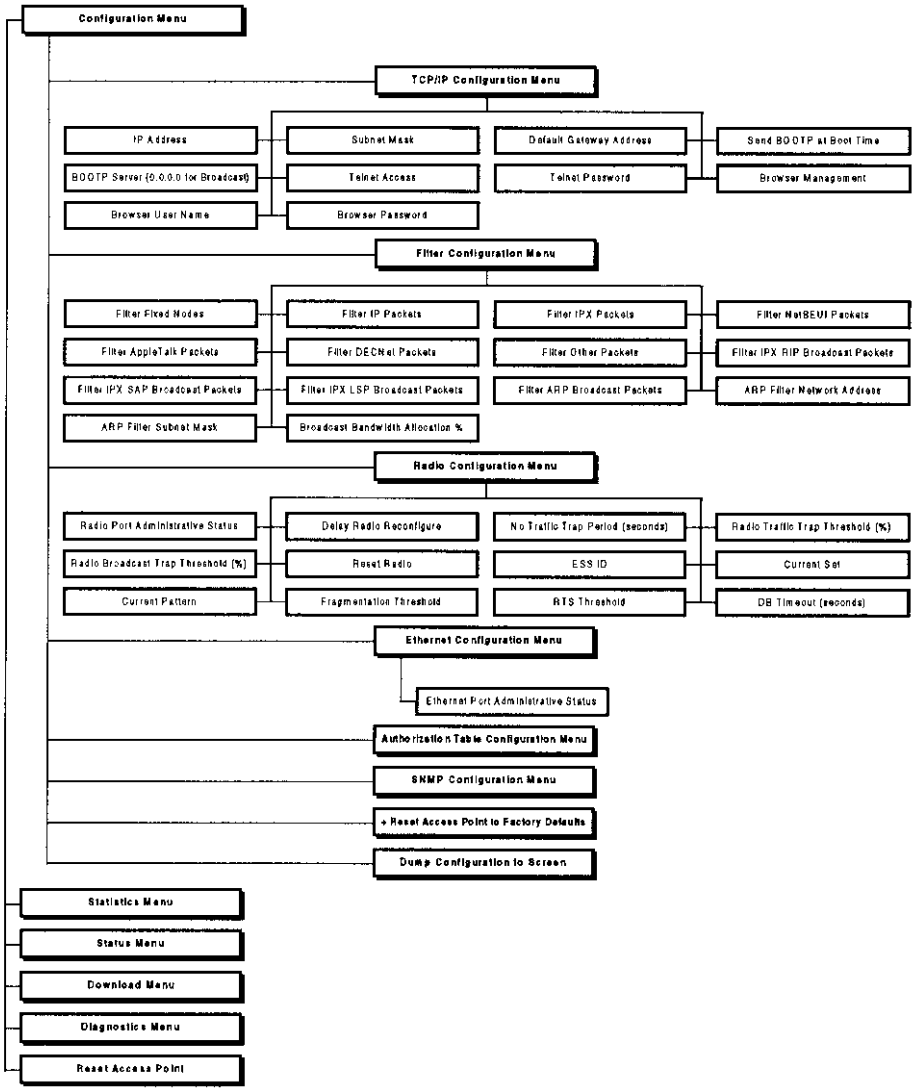
You may configure and monitor the RangeLAN802 Access Point using an SNMP management package. SNMP Management of the RangeLAN802 Access Point is described in Chapter 9.

Remotely via a Web Browser

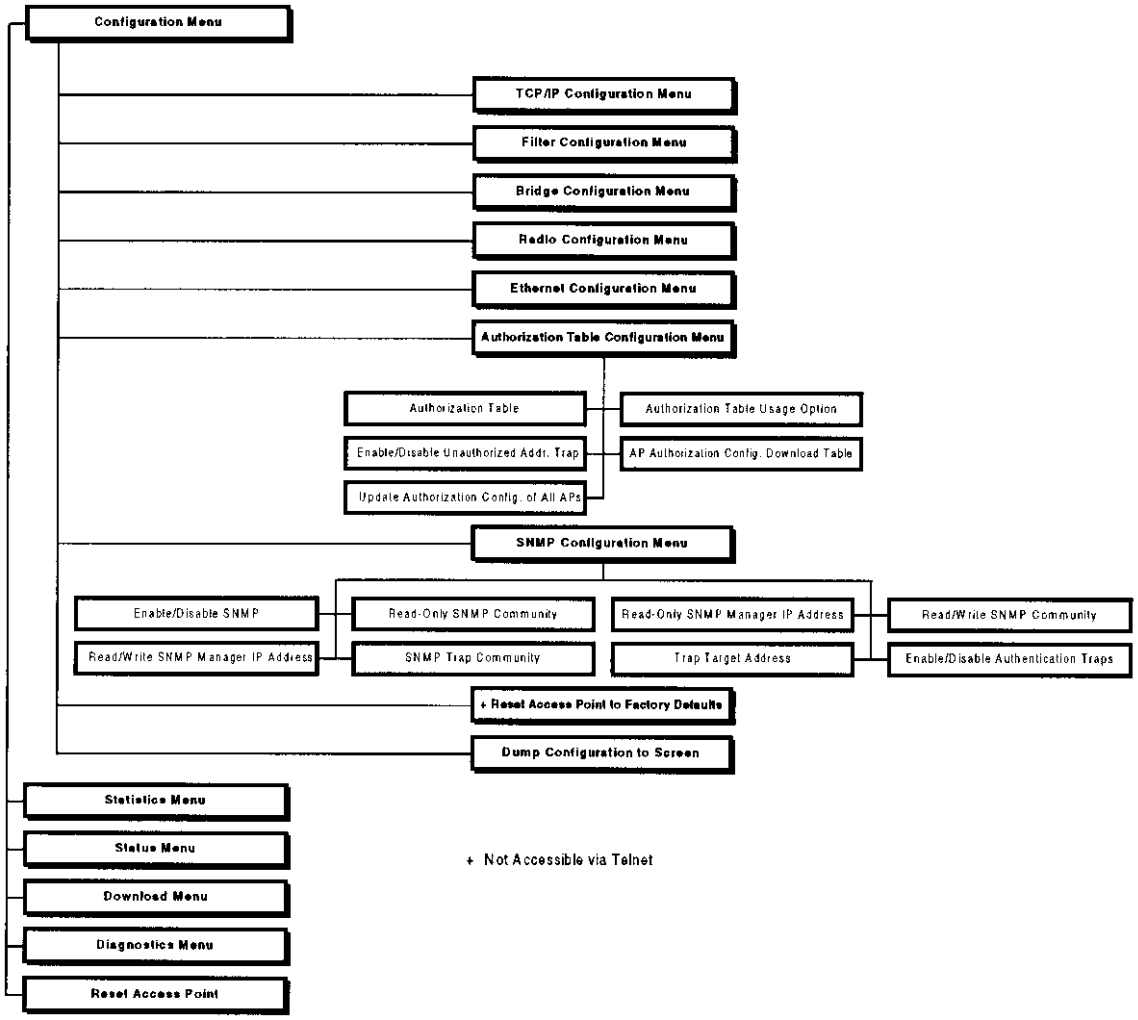
You may configure and monitor the Access Point via a Web Browser. Web Browser management is described in Chapter 10.

6. Configuration Parameters

To configure the RangeLAN802 Access Point, pick the Configuration option from the Main Menu. The following two diagrams illustrates the software tree:



+ Not Accessible via Telnet


Configuration Menu
TCP/IP Configuration Menu
Filter Configuration Menu
Bridge Configuration Menu
Radio Configuration Menu
Ethernet Configuration Menu
Authorization Table Configuration Menu
Authorization Table
Enable/Disable Unauthorized Addr. Trap
Update Authorization Config. of All APs
Authorization Table Usage Option
AP Authorization Config. Download Table
SNMP Configuration Menu
Enable/Disable SNMP
Read/Write SNMP Manager IP Address
Read-Only SNMP Community
SNMP Trap Community
Read-Only SNMP Manager IP Address
Trap Target Address
Read/Write SNMP Community
Enable/Disable Authentication Traps
+ Reset Access Point to Factory Defaults
Dump Configuration to Screen
Statistics Menu
Status Menu
Download Menu
Diagnostics Menu
Reset Access Point
+ Not Accessible via Telnet

TCP/IP Configuration Menu

Use this option to change the TCP/IP parameters of the RangeLAN802 Access Point.

Parameter Name	Range	Default
IP Address	-	0.0.0.0
Subnet Mask	-	0.0.0.0
Default Gateway Address	-	0.0.0.0
Send BOOTP at Boot Time	True/False	True
BOOTP Server Address	-	0.0.0.0 *
Telnet Access	Enabled/Disabled	Enabled
Telnet Password	10 characters	-
Browser Management	Enabled/Disabled	Enabled
Browser User Name	10 characters	-
Browser Password	10 characters	-

* 0.0.0.0 is used to send a broadcast

IP Address indicates the IP address that will be assigned to the RangeLAN802 Access Point. It must be a unique number on the network. This parameter will not change until the Access Point is reset.

Subnet Mask indicates the mask that will be used to determine what network the RangeLAN802 Access Point is on. This parameter will not change until the Access Point is reset.

If a packet is destined for an IP host or node belongs to a different IP subnet, the RangeLAN802 Access Point will send IP packets to the **Default Gateway** (usually a router) for the packets to be routed to the proper destination. This parameter will not change until the Access Point is reset.

You can enable or disable the RangeLAN802 Access Point's ability to request its IP address from a BOOTP server at boot time, and you can supply the IP address of that server.

You can enable or disable the ability to open a telnet session to the RangeLAN802 Access Point and set a password to control telnet access.

You can enable or disable the ability to manage the RangeLAN802 Access Point via a Web browser, and set a user name and password to control the Web browser access.

Filter Configuration Menu

The filter configuration allows you to customize the type of traffic which is forwarded from the Ethernet network to the RangeLAN802 network. None of these filters affect traffic flowing from the wireless clients to the wired backbone.

Parameter Name	Range	Default
Filter Fixed Nodes	Filtering/Not Filtering	Filtering
Filter IP Packets	Filtering/Not Filtering	Not Filtering
Filter IPX Packets	Filtering/Not Filtering	Not Filtering
ilter NetBEUI Packe	Filtering/Not Filtering	Not Filtering
lter AppleTalk Pack	Filtering/Not Filtering	Filtering
Filter DECNet Packet	Filtering/Not Filtering	Not Filtering
Filter Other Packets	Filtering/Not Filtering	Not Filtering
lter IPX RIP Broadca Packets	Filtering/Not Filtering	Filtering
lter IPX SAP Broadca Packets	Filtering/Not Filtering	Filtering
lter IPX LSP Broadca Packets	Filtering/Not Filtering	Filtering
Filter ARP Broadcas Packets	Filtering/Not Filtering	Not Filtering
ARP Filter Network Address	-	0.0.0.0
RP Filter Subnet Mas	-	0.0.0.0
Broadcast Bandwidth Allocation (%)	0-100	80

The **Fixed Nodes Filter** will prevent traffic which is destined to a non-broadcast, non-multicast, non-RangeLAN802 address from being forwarded from Ethernet to wireless. *DO NOT* use this filter when using the node address overwrite feature on RangeLAN802 stations.

The **Protocol Type Filters** prevent traffic of a particular protocol type from being forwarded from Ethernet to RangeLAN802. When "Other Types" is enabled, all types other than those listed will be filtered out. *DO NOT* filter out the types of packets you know RangeLAN802 nodes will need to receive. For example, if you use TCP/IP as a protocol on your wireless nodes, do not filter IP traffic. If you have Macintosh computers on your Ethernet network that send AppleTalk traffic only to each other, you may want to filter those packets from RangeLAN802 stations. The **Protocol Type Filters** include **IP, IPX, NetBEUI, AppleTalk, DECNet**, and **Other** (none of the above).

The **IPX Broadcast Filters** prevent IPX broadcasts of the specified types from being forwarded from Ethernet to RangeLAN802. Since RIP, SAP, and LSP broadcasts are of interest to routers and not end stations, these filters can typically be turned on, saving valuable bandwidth.

The **ARP Filter Network Address** and **ARP Filter Subnet Mask** enable IP ARP broadcast filtering. When these filters are configured, ARP broadcasts will be forwarded from Ethernet to RangeLAN802 only if the destination IP address is on the IP network defined by the ARP Filter Network Address and ARP Filter Subnet Mask fields.

Broadcast Bandwidth Allocation allows you to specify the maximum percentage of RangeLAN802 bandwidth that may be allocated for broadcast traffic. There may be cases when you want to limit broadcast traffic. As an example, to prioritize directed packets, you might want to reserve radio bandwidth for directed packets by setting this limit to less than 100%.

Radio Configuration Menu

Parameter Name	Range	Default
Radio Port Administrative Status	Enabled/Disabled	Enabled
Delay Radio Reconfigure	True/False	False
No Traffic Trap Period (seconds)	0-10,000,000	0
Radio Traffic Trap Threshold (%)	10-100	100 *
Radio Broadcast Trap Threshold (%)	10-100	100 *
ESS ID	0-32 characters	PROXIM
Set	1-3	1
Pattern	1-26	1
Fragmentation Threshold	256-2346	2346
RTS Threshold	0-3000	2305
DB Timeout (seconds)	1-600	600

* a value of 100 disables this trap

This option allows you to change the various wireless parameters.

The **Radio Port Administrative Status** is for SNMP usage. It corresponds to the SNMP MIB-II Administrative status parameter and can be used to bring the radio interface back up after it has been disabled by an SNMP manager.

The **Delay Radio Reconfigure** parameter allows you to delay radio parameter changes from taking effect. You might want to enable this feature if you were wirelessly configuring the RangeLAN802 Access Point, so that you did not lose communication when the parameters changed. For example, suppose you were changing a RangeLAN802 Access Point's ESS ID. If you did not use the **Delay Radio Reconfigure** parameter, when the ESS ID changed, the wireless client would no longer be able to communicate with the RangeLAN802 Access Point.

The **No Traffic Trap Period** specifies the number of seconds after which a No Traffic trap is sent via SNMP.

The **Radio Traffic Trap Threshold** specifies a percentage of radio traffic after which a Radio High Usage trap is sent via SNMP.

The **Radio Broadcast Trap Threshold** specifies a percentage of radio broadcast traffic after which a Radio High Usage trap is sent via SNMP.

Reset Radio allows you to reset the radio contained in the RangeLAN802 Access Point without resetting the entire unit. This will cause any changes to the radio parameters which haven't yet taken effect (because the **Delay Radio Reconfigure** parameter is set) to take effect.

The **ESS ID** is a string that must match on all communicating RangeLAN802 products. All Access Points and clients that are involved in a roaming network will have the same ESS ID.

The **Set** defines a table of hopping sequences, as specified by the IEEE. All Access Points in a roaming environment have the same Set.

The **Pattern** defines a hopping sequence from within a Set. All Access Points in a roaming environment must have a unique Pattern.

Fragmentation Threshold defines the maximum packet size, after which all packets will be broken up. This parameter does not need to be changed from its default setting in most environments.

RTS Threshold defines a minimum packet size below which RTC/CTS handshaking will not be performed. This parameter does not need to be changed from its default setting in most environments.

The **DB Timeout** parameter specifies the time after which the learned physical address of the network node is discarded. This data is dynamically acquired by the RangeLAN802 Access Point so that it can forward packets properly.

Ethernet Configuration Menu

Parameter Name	Range	Default
* Ethernet Port Administrative Status	Enabled/Disabled	Enabled

The only option in this menu, **Ethernet Port Administrative Status**, is visible on the RangeLAN802 Access Point only for SNMP usage. It corresponds to the SNMP MIB-II Administrative status parameter and can be used to bring the Ethernet interface back up after it has been disabled by an SNMP manager.

Authorization Table

The Authorization Table is described in Chapter 11.

SNMP Management

SNMP Management is described in Chapter 9.

Reset Access Point to Factory Defaults

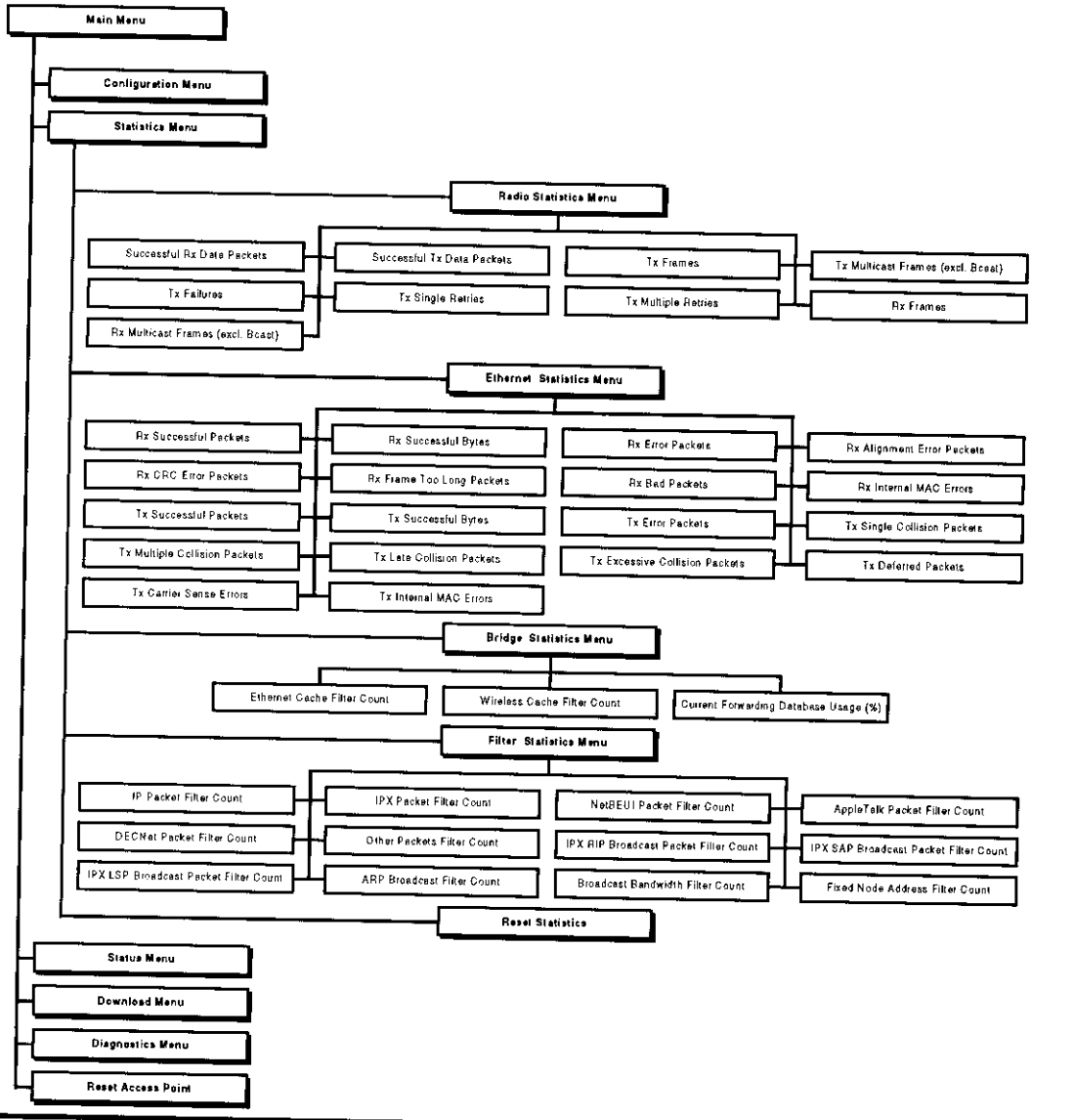
Use this option to reset all the parameters to default values. This option is only visible when configuring the Access Point via a terminal, not via telnet.

Dump Configuration to Screen

This parameter displays the current configuration of the RangeLAN802 Access Point to the screen. Using a screen snapshot program you can save these settings. A member of the Proxim Technical Support Department may ask you to print out this snapshot for trouble-shooting purposes.

7. Statistics Menu

You can view statistics about the RangeLAN802 Access Point from the Statistics Menu. The following diagram illustrates the software tree:



Radio Statistics Menu

This menu displays the number of successfully transmitted and received packets through the radio interface of the RangeLAN802 Access Point.

Ethernet Statistics Menu

This menu displays various statistics about Ethernet traffic to and from the RangeLAN802 Access Point.

Bridge Statistics Menu

This menu displays information regarding packets that were filtered due to the bridge's learning about the location of nodes. It also shows the percentage of the bridge's forwarding table that is used up already by learned node addresses.

Filter Statistics Menu

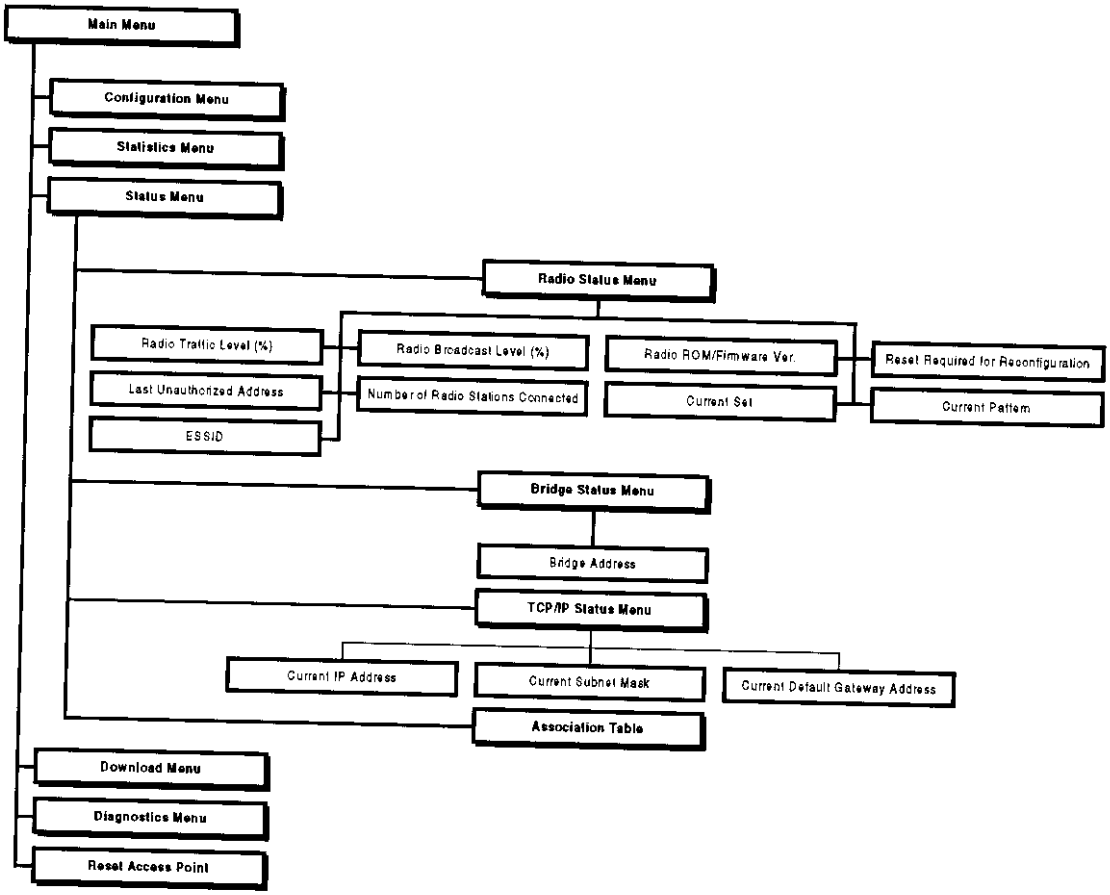
This menu displays the count of packets that were filtered out due to the various filter options.

Reset Statistics

You may reset the RangeLAN802 Access Point statistics from this menu option.

8. Status Menu

The Status Menu shows you the current state of RangeLAN802 Access Point parameters. The following diagram illustrates the software tree:



Radio Status Menu

The current RangeLAN802 Access Point radio parameters are displayed in this menu option. These will match those in the Configuration Menu.

The **Radio Traffic Level** and **Radio Broadcast Level** parameters show the current values of these parameters which may cause an SNMP trap. Similarly, the **Last Unauthorized Address** shows the MAC address of the last wireless client who tried to attach to the wired network via this Access Point, but was prevented because of the Authorization Table.

The **Radio ROM/Firmware version** of the radio contained inside the RangeLAN802 Access Point is available for viewing.

If there is a parameter that will not take effect until the RangeLAN802 Access Point or radio is reset, the **Reset Required for Reconfiguration** parameter will be set to "true." For example, after changing the radio Pattern through the Configuration Menu, this parameter would be set to "true."

The **Number of Radio Stations Connected** parameter displays a count of the current RangeLAN802 devices configured as Stations that are synchronized to this RangeLAN802 Access Point.

Bridge Status Menu

The **Bridge Address** is the MAC address of this RangeLAN802 Access Point.

TCP/IP Status Menu

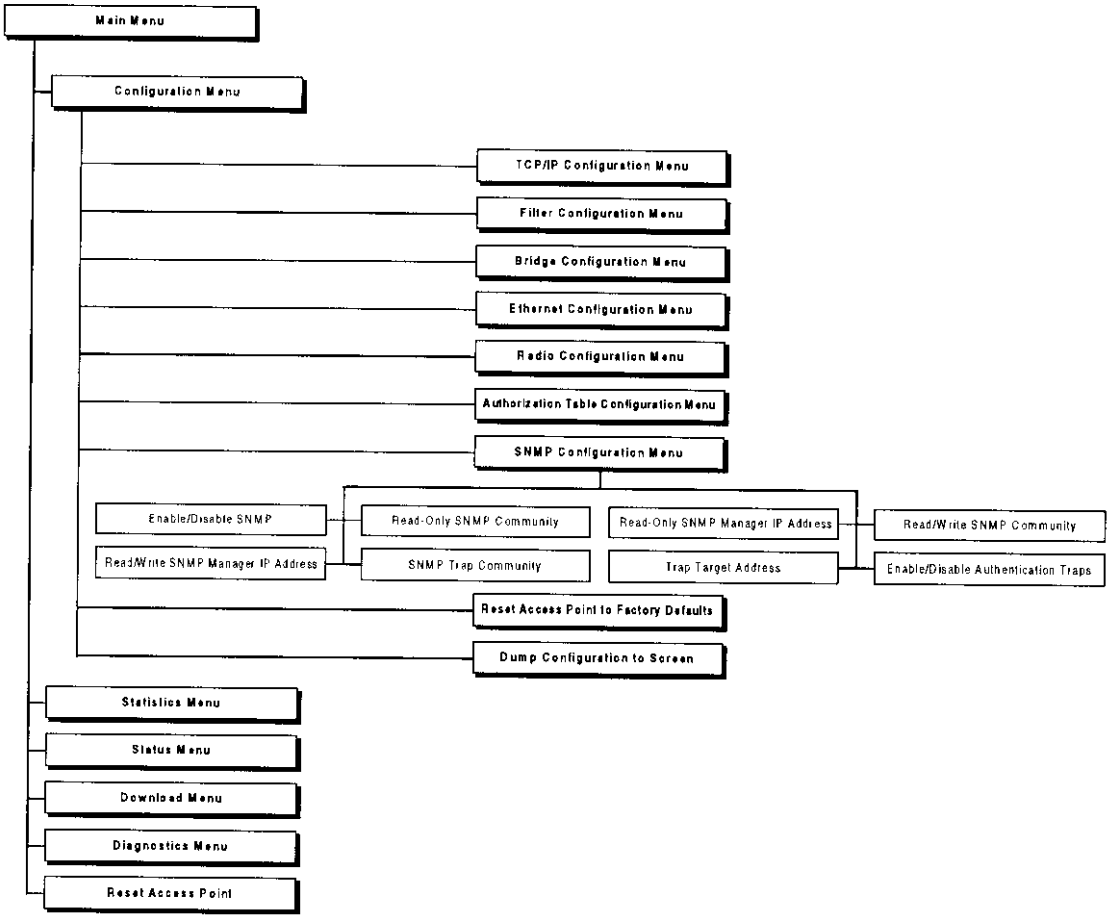
The current IP Address, Subnet Mask and Default Gateway are displayed.

Association Table

You can view the table of wireless nodes that are currently associated with this RangeLAN802 Access Point. The table can hold a maximum of 2048 entries

9. SNMP Management

You may configure and monitor the RangeLAN802 Access Point using an SNMP management package. The following illustrates the software menu:



The RangeLAN802 Access Point supports the following MIBs:

- ❑ MIB-II (RFC 1213)
- ❑ IEEE 802.1d Bridge MIB (RFC 1493)
- ❑ Extended Ethernet MIB (RFC 1643)
- ❑ Proxim Enterprise MIB

The Proxim Enterprise MIB is supplied in ASN.1 format. It is available on the Proxim BBS and Web site. The filename is AP8520.MIB. Follow the instructions in your SNMP management package for incorporating enterprise-specific MIBs.

Note:

The RangeLAN802 Access Point is not manufactured with a default IP address. In order to SNMP manage the RangeLAN802 Access Point, you must first assign it a valid IP address for your network using null modem cable configuration or a BOOTP server.

You may choose to configure the RangeLAN802 Access Point through the menu trees (in-band or out-of-band) to set SNMP parameters before using an SNMP manager.

Enable/Disable SNMP allows you to enable or disable SNMP management of the RangeLAN802 Access Point.

The **Read-Only SNMP Community** parameter specifies a community supported by the RangeLAN802 752x Access Point. Actions permitted by this community are "read-only" (GET and GET-NEXT). SET attempts using this community will result in rejection of the attempt with a general error response and the generation of an authentication trap (if so enabled).

The **Read-Only SNMP Manager IP Address** specifies the IP address of the SNMP manager which is permitted to use the Read-Only SNMP Community. An address of 0.0.0.0 indicates any manager may use this community.

The **Read/Write SNMP Community** parameter specifies the a community supported by the RangeLAN802 Access Point. Actions permitted by this community are "read-write" (GET, GET-NEXT, and SET).

The **Read/Write SNMP Manager IP Address** specifies the IP address of the SNMP manager which is permitted to use the Read/Write SNMP Community. An address of 0.0.0.0 indicates any manager may use the community.

The **SNMP Trap Community** parameter specifies the community that will be used by the RangeLAN802 Access Point when generating TRAP PDUs to remote managers.

The **Trap Target Address** specifies the IP address of the device to which generated TRAP PDUs will be sent. A value of 0.0.0.0 disables trap generation.

Authentication Traps are sent to the Trap Target Address whenever anyone attempts to SNMP manage the RangeLAN802 Access Point with an invalid community or from an invalid community. You may enable or disable the sending of these traps.

SNMP Supported Traps

The following traps are supported by the RangeLAN802 Access Point and are sent to the SNMP manager defined by the Trap Target Address when they occur.

MIB II Traps

Cold Start - Sent when the RangeLAN802 Access Point powers on or reboots.

Link Up - Sent by each interface at start-up or after coming back up.

Link Down - Sent when the RangeLAN802 Access Point software cannot initialize or communicate with either interface.

Authorization - Sent to the network manager when someone tries to manage a RangeLAN802 Access Point with an invalid community.

Enterprise Specific Traps

No Traffic - Sent when set to a non-zero value and when the RangeLAN802 Access Point does not receive any traffic from other radios for the configured period of time. The time may be configured in the Radio Configuration Menu.

Broadcast Threshold - Sent if the radio broadcast traffic exceeds the limit set by the Radio Configuration parameter, Radio Broadcast Trap Threshold.

Cache Table High Usage - Sent when the cache table usage percentage has exceeded the limit set by the Bridge Configuration parameter Forwarding DB Usage Trap Threshold. For example, if this limit were set to 50%, when the RangeLAN802 Access Point knows 1024 (out of the 2048 possible) entries, it will send this trap message.

Radio High Usage - Sent if the radio traffic has crossed the limit set by the Radio Configuration parameter Radio Traffic Threshold.

Serial Port Down - Sent when the serial port of the RangeLAN802 Access Point is not working. The status of this port is checked only at boot time.

Unauthorized Usage Trap - Sent when an unauthorized wireless user tries to attach to the network through the RangeLAN802 Access Point.

10. Web Browser Management

You may configure and monitor the RangeLAN802 Access Point using a Web browser.

Supported Web Browsers

- ❑ Netscape Navigator 3.01 or above for Win95/WinNT
- ❑ Netscape Navigator 3.01 or above for Macintosh
- ❑ Netscape Navigator 3.01 or above for SUN
- ❑ Microsoft Internet Explorer 3.01 or above for Win95/WinNT

Establishing a Connection

Note:

The RangeLAN802 Access Point is not manufactured with a default IP address. In order to manage the RangeLAN802 Access Point with a Web browser, you must first assign it a valid IP address for your network using null modem cable configuration or a BOOTP server.

Start a supported Web browser on a network computer, connected to the network either via a wired or wireless connection. Highlight and replace the existing URL path with the IP address of the RangeLAN802 752x Access Point. For example, the starting URL may be similar to 'http://www.proxim.com.' Highlight and replace the 'www.proxim.com' with the IP address of the RangeLAN802 752x Access Point. A final result would appear similar in form to 'http://100.25.200.1.'

The browser will display the Proxim screen for the RangeLAN802 Access Point Web management. A password may be required at this point if the RangeLAN802 Access Point has had **Browser User Name** and **Browser Password** set. After 5 minutes or more the user is re-prompted for the password.

Main Display

On the right side of the screen, there is a picture of the RangeLAN802 Access Point along with the text "Web Manager For Wireless Networks." Proxim Technical Support contact information is listed below.

The first half of the menu on the left side details the Web options. The second half lists the RangeLAN802 Access Point device management functions available through the other access methods (telnet, terminal interface, SNMP).

Next to each menu item is either a [+] or [-]. A [+] indicates that there are sub-menu items which are not being displayed. To display these hidden items left-click on the [+] symbol. Clicking on the [-] symbol shrinks the menu.

Text without a [+] or [-] will take you to that function screen directly.

RangeLAN802 Access Point Network Management

Discover AP's

This screen displays all RangeLAN802 Access Points detected on the network. When the mouse is positioned over the picture of the unit, the IP address appears on the status line. Click on the picture to configure the RangeLAN802 Access Point.

The columns display the MAC address, the IP address, the Domain, the Channel, the Subchannel, and the Master Name of the Access Point.

Network Map

This display shows all Proxim network components which have been detected.

As with the "Discover AP" page, when the mouse is positioned over the picture of the unit, the IP address appears on the status line. Clicking on that picture will redirect the browser to that RangeLAN802 Access Point's configuration page. The leftmost column is the unit being currently browsed.

Displayed under each RangeLAN802 Access Point is a list of MAC addresses of the Proxim devices currently synchronized to that Access Point.

Press the Update button of your Web browser to see the latest view of the network map.

Traffic Monitor

This page displays a real-time graph of the traffic being processed by each RangeLAN802 Access Point on the network.

Each RangeLAN802 Access Point, is displayed with its Master Name and MAC address. Each has a graph showing the following types and volume of traffic:

- ❑ Transmitted unicast packets
- ❑ Transmitted broadcast packets
- ❑ Received unicast packets
- ❑ Received broadcast packets

Unicast packets are transmissions in which the destination is a single, known node and is specified in the packet.

The broadcast packets indicator also includes multicast packets. Both types are packets in which the destination is two or more nodes.

RangeLAN802 Access Point Device Management

This menu offers configuration options for the RangeLAN802 Access Point as described in Chapter 6.

11. Authorization Table

For added security, you can use the **Authorization Table** to hold the MAC addresses of the wireless nodes that will be allowed or disallowed to connect to the Ethernet LAN through the RangeLAN802 Access Point. These addresses are manually added and deleted. For example, if a RangeLAN802 client card is missing, you can specifically disallow it access to the network.

The **Authorization Table Usage Option** determines if this table will include or exclude wireless users and if the table will be used at all. If you have not recently updated the table, you may want to disable usage until you can add all the proper entries. By default, it is disabled. The table can hold a maximum of 256 nodes.

You can also enable or disable an SNMP trap that will tell the SNMP manager an unauthorized user has tried to use the RangeLAN802 Access Point.

The **Update Authorization Config. of All APs** parameter distributes the Authorization Table from this Access Point to all other RangeLAN802 Access Points on the network. This feature is useful in that you do not have to set the **Authorization Table** individually on all RangeLAN802 Access Points in the same network. Choose the **AP Authorization Config. Download Table** to watch progress of the distribution. In most cases, the distribution will take place so quickly that you will only see the final status of the distribution.

The Authorization Table configuration options can be found under the Configuration Menu.

12. Performance Hints

This section provides the user with ideas as to how to increase performance and network satisfaction on a wireless network.

Microwave Ovens

Microwave ovens operate in the same frequency band as RangeLAN802. Therefore, if you use a microwave within range of RangeLAN802 you may notice network performance degradation. However, both your microwave and your RangeLAN802 network will continue to function.

Range

Every environment is unique with different obstacles, barriers, materials, etc. and therefore, it is difficult to determine the exact range that will be achieved with testing. The site survey tool was developed to aid in this process. Additionally, Proxim has developed some guidelines to estimate the range that users will see when the product is installed in their facility, but there are no hard and fast specifications.

Radio signals may reflect off of some obstacles or be absorbed by others depending on their construction. For example, with two RangeLAN802 radios you may achieve up to 1000' in open space outdoors where the two antennas are line of sight, meaning they see each other with no obstacles. However, the same two units will only achieve up to 500' of range when they have to travel through the cubicles usually used in modern offices. If there are office walls to penetrate, the signal range may decrease even further to up to 300'.

If you are interested in antenna options, contact your Proxim Sales Representative about antenna kits.

Proper antenna placement can help improve range. Here are some guidelines:

- ❑ The antenna should be placed in a vertical position. It can be mounted upside down to the ceiling or a beam.

- ❑ Place the antenna as high as possible. In an office environment, try to place it above cubicle walls.

- ❑ Do not place a sheet of metal (like a filing cabinet) between two antennas.
- ❑ Two antennas that are communicating should be in the same plane. For example, do not lie one antenna on its side and have its partner standing upright.

13. Site Survey Tool

The RangeLAN802 Access Point has a site survey tool to determine proper placement of radios and antennas.

A network administrator might want to use this tool when diagnosing user performance problems. A network installer might use it to aid in determining placement of the Access Point and wireless client antennas.

The site survey tool is accessible from the **Radio Diagnostics Menu**. The site survey tool shows the Addresses, Link Quality and RSSI of each node that the RangeLAN802 Access Point can find wirelessly.

To perform a site survey, first choose the **Run Broadcast Site Survey** option and let the RangeLAN802 Access Point sit for a period of time that you specify. Then look at the list of Addresses found, Link Quality and RSSI data. The results will show an average value for each parameter over the time period for which the site survey was run. If you check the data before the full time has elapsed, you will see values that are an average of the time thus far elapsed.

```
                              Radio Diagnostics Menu                FF Beta 1.3-B10

Selection   Description                                       Current Value
---------   -----------                                       -------------
1           Run Broadcast Site Survey
2           Run Directed Site Survey
3           Run Antenna Pointing Tool
4           Run Master Search Tool
5           Radio ROM Version                                 V1.57B

Enter a selection number or <ESC> for previous menu -> 1

Site Survey Duration (seconds)  [10]
Enter new value->

Warning -- Site survey results for power-managed wireless nodes may not be
accurate.  Perform a directed site survey for these nodes.

Hit <ESC> to terminate and any other key for intermediate results
..........

Site Survey Completed


Site Survey Table

Address               Link Quality (1=poor, 5=strong)  RSSI
-------               -------------------------------  ----
00:20:a6:00:12:85     4                                144
00:20:a6:00:12:c0     5                                134
00:20:a6:00:22:92     4                                136
00:20:a6:30:19:9c     5                                158
00:20:a6:30:20:6b     4                                145

Hit any key to continue ...
```

Figure 8
Broadcast Site Survey

The higher the Link Quality number from a particular node, the greater the link. A Link Quality number of 0 indicates that the node is no longer responding at all. This is the most important parameter to watch to verify that you will be able to maintain a reliable wireless connection. **Note that the Link Quality number of RangeLAN802 8400 adapters may be low if those adapters are in their doze mode when being surveyed. As these adapters wake up, the Link Quality number may change, so this number may not always be accurate.**

Received signal strength (RSSI) indicates how strong a signal was received from a particular node.

After using the Broadcast Site Survey, you can choose the **Run Directed Site Survey** to check the packets per second and bytes per second measurements between the RangeLAN802Access Point and the node you select.

```
                              Radio Diagnostics Menu                FF Beta 1.3-B10

Selection   Description                                    Current Value
---------   -----------                                    -------------
1           Run Broadcast Site Survey
2           Run Directed Site Survey
3           Run Antenna Pointing Tool
4           Run Master Search Tool
5           Radio ROM Version                              V1.57B

Enter a selection number or <ESC> for previous menu -> 2

Site Survey Table

Index  Address             Link Quality (1=poor, 5=strong) RSSI
-----  -------             ------------------------------- ----
1      00:20:a6:00:12:85   4                                144
2      00:20:a6:00:12:c0   5                                151
3      00:20:a6:00:22:92   4                                136
4      00:20:a6:30:19:9c   5                                158
5      00:20:a6:30:20:6b   4                                145

Index of the Node to Perform a Directed Site Survey on  [1]
Enter new value-> 2

Packet Size (Bytes)  [1500]
Enter new value->

Site Survey Duration (seconds)  [10]
Enter new value->

Performing Site Survey
Hit <ESC> to terminate and any other key for intermediate results
..........

Site Survey Completed

Node Address                              00:20:a6:00:12:c0
Packets Per Second                        46
Bytes Per Second                          69000
Average RSSI                              151
Average Latency (mS)                      42
Maximum Latency (mS)                      150
Standard Deviation of Latency (mS)        22
```

Figure 9
Directed Site Survey

14. Troubleshooting

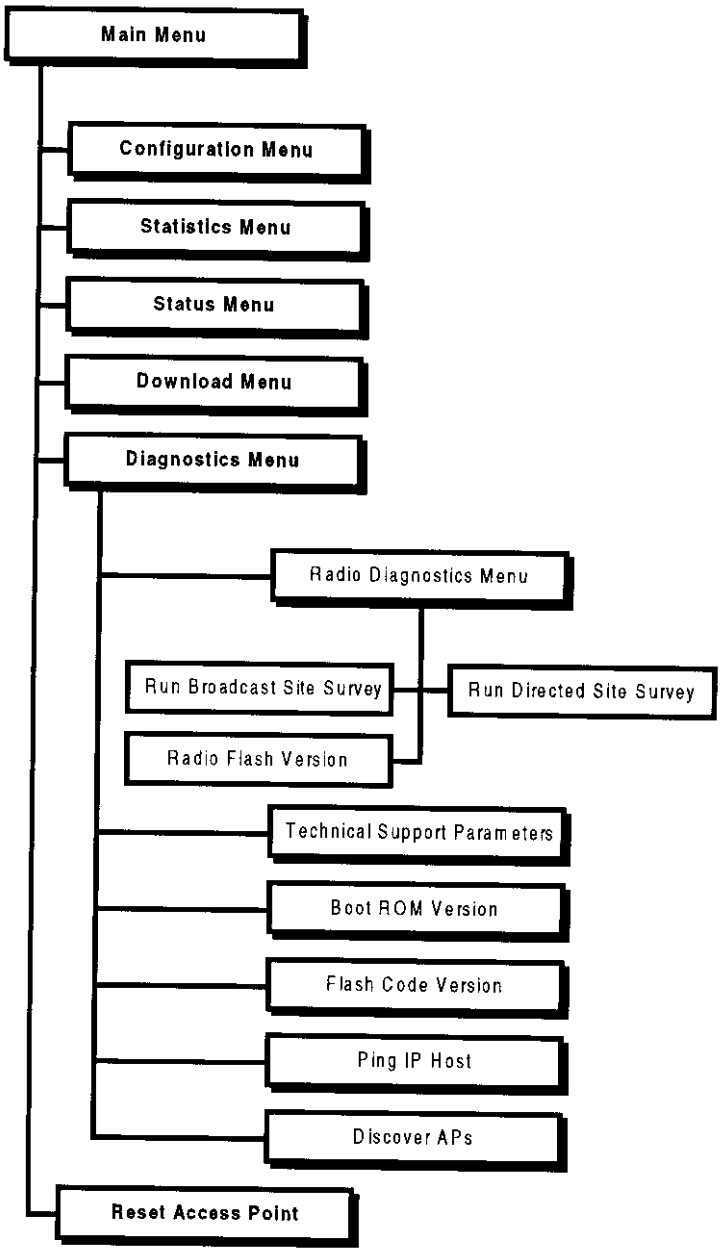
RangeLAN802 Access Point is designed to be very easy to install and operate. If you do experience difficulties, however, use the information in this chapter to help diagnose and solve the problem. If you cannot resolve the problem, contact Proxim, as described in Appendix F, "How to Reach Technical Support."

How to Obtain Help with Your LAN Installation

If you require assistance to install your LAN, Proxim can put you in contact with a RangeLAN802 reseller in your area. The reseller is an expert in the design, installation, and maintenance of LANs and will be able to examine your needs and recommend the most cost-effective solution for your LAN whether you are installing a new LAN or adding on to an existing one. For the location of the RangeLAN802 reseller nearest you, contact Proxim at 800-229-1630 and ask for the Sales Department.

Diagnostics Menu

There are diagnostic tools built into the RangeLAN802 Access Point that will assist you and your reseller or Proxim Technical Support in solving problems. The following diagram illustrates the software tree:


Main Menu
Configuration Menu
Statistics Menu
Status Menu
Download Menu
Diagnostics Menu
Radio Diagnostics Menu
Run Broadcast Site Survey
Run Directed Site Survey
Radio Flash Version
Technical Support Parameters
Boot ROM Version
Flash Code Version
Ping IP Host
Discover APs
Reset Access Point

Versions

You can read the **ROM version** of the radio in the RangeLAN802 Access Point. You can also read the **Boot ROM version** and **Flash Code version**.

Technical Support Parameters

If you call Proxim Technical Support, they may ask you to enable the **Technical Support Parameters** to perform more detailed diagnostics on the unit.

Ping IP Host

From the Diagnostics Menu, you can cause the RangeLAN802 Access Point to **Ping any IP Host** on the network.

Discover APs

The RangeLAN802 Access Point will display all RangeLAN802 and RangeLAN2 Access Points that it is able to discover on the Ethernet backbone along with their configuration.

```
                    Diagnostics Menu                    IM Beta 1.0-B5

Selection   Description                              Current Value
---------   -----------                              -------------
1           Radio Diagnostics Menu
2           Technical Support Parameters             disabled
3           Boot ROM Version                         Beta 1.0-B3
4           Flash Code Version                       IM Beta 1.0-B5
5           Ping IP Host
6           Discover APs

Enter a selection number or <ESC> for previous menu -> 6

Discovering....



Discovered IEEE 802.11 APs Table

MAC Address        IP Address      ESSID                          Set  Pat.
-----------        ----------      -----                          ---  ----
00:20:a6:34:8b:40  10.1.150.36     Wiring_Closet                  1    1
00:20:a6:31:64:1a  10.30.255.8     MKTG                           1    2
00:20:a6:34:f9:ef  10.9.50.70      2ND_FLOOR                      2    3



Discovered APs Table

MAC Address        IP Address      Domain  Channel  Subchannel  Master Name
-----------        ----------      ------  -------  ----------  -----------
00:20:a6:30:a1:3f  10.10.253.26    10      8        15          1st_FLR
00:20:a6:30:f0:04  10.5.30.4       4       3        6           SALES
00:20:a6:30:f0:3e  10.8.31.9       7       7        1           HOSPITAL

Hit any key to continue ...
```

Figure 10
Discover APs

Commonly Asked Technical Support Questions

Problem/Symptom/Question	Possible Solution/Answer	Chapter in User's Guide
Is Access Point fully booted?	The status LED changes from steady yellow to steady green	14
I can't connect to the network from wireless client.	1. Verify wireless connection using the Site Survey Tool of the Access Point or using the client site survey tool. 2 . Check the Ethernet Statistics to verify there is Ethernet traffic that the Access Point can detect. If you are using 10BASE-T Ethernet cable, you can also view the Ethernet LINK light to verify the cable is functional. 3. Verify you are not filtering out the kind of traffic you are trying to pass.	# 1 - 13 # 2 - 7 # 3 - 6
Are the wrong filters set?	Turn on one of the filters through the Configuration Menu. Then check the Filter Statistics. If the count is increasing on the filter you set, that kind of traffic is on the network. If wireless clients cannot attach to the network after setting this filter, turn that filter off.	6, 7
I can't ping, telnet, or Web browse my brand new RangeLAN802 Access Point.	There is no default IP address. The first time you use it, you should set an IP address using a terminal and null modem cable or a BOOTP server.	5
How can I tell which clients are associated with this Access Point?	View theAssociation Table in the Status Menu.	8
I can't configure the Access Point locally via the serial port.	Verify you are using a null modem cable and that the terminal is set to 9600 N81.	5
I can't establish a wireless connection with the Access Point.	Verify that the client is set to the same ESS ID and that the client is configured as in Infrastructure mode.	6
The throughput seems slow.	1. To achieve maximum throughput, verify your antennas are well-placed, not behind metal, and there are not too many obstacles. If you move the antenna closer to the client and throughput increases, you may want to consider adding a second Access Point and implementing roaming. 2. Also, you may be able to set filters to filter out Ethernet traffic from the wireless side of the network.	# 1- 12 # 2 - 6
The status LED on the Access Point is steady red.	Call Technical Support	F

LED Indicators

There are three LEDs on the front of the RangeLAN802 Access Point:

- The cornermost LED, called the Status LED, changes from yellow to green to indicate it is forwarding packets and functional. It changes from yellow to red if there is a hardware problem with the unit. If this LED does turn red, contact Proxim Technical Support.

- The center yellow LED, called the Radio LED, flashes when the Access Point transmits wirelessly.

- The third green LED, called the Backbone LED, flashes when the Access Point transmits over the Ethernet.

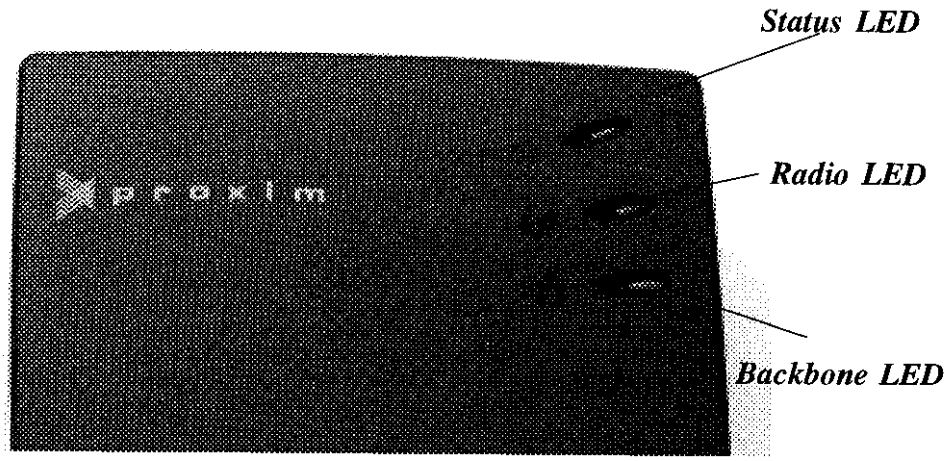


Figure 11
Front Panel LEDs

The following table illustrates the state of the LEDs during power-up:

State	Status LED	Radio LED	Backbone LED
Unit off	Off	Off	Off
Power-On Diagnostics	Yellow	Off	Off
Diagnostics Failed	Red	Off	Off
Normal	Green	Blinking Yellow	Blinking Green

There are three functional LEDs on the back panel of the RangeLAN802 Access Point:

- The cornermost green LED is on steady when the Access Point is ready for operation.
- The green LED nearest the 10BASE-T connector is on steady when a functional 10BASE-T cable is plugged in. It will not light if you are using 10BASE2 cable.
- The third LED is reserved for future functionality.

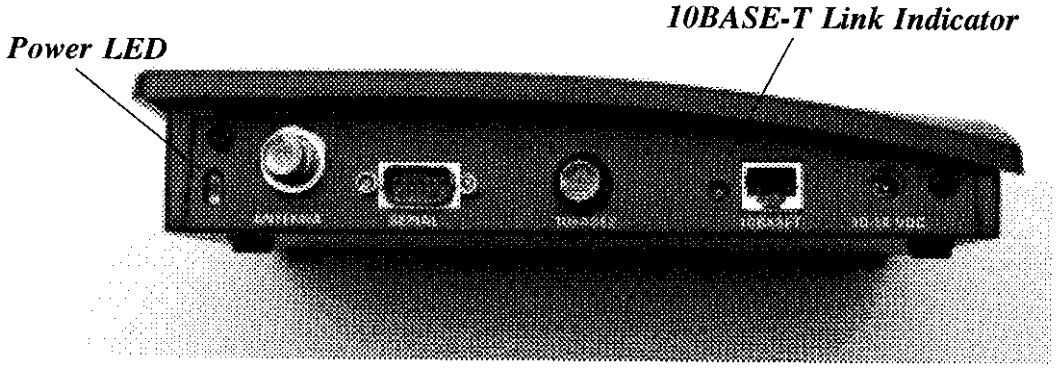
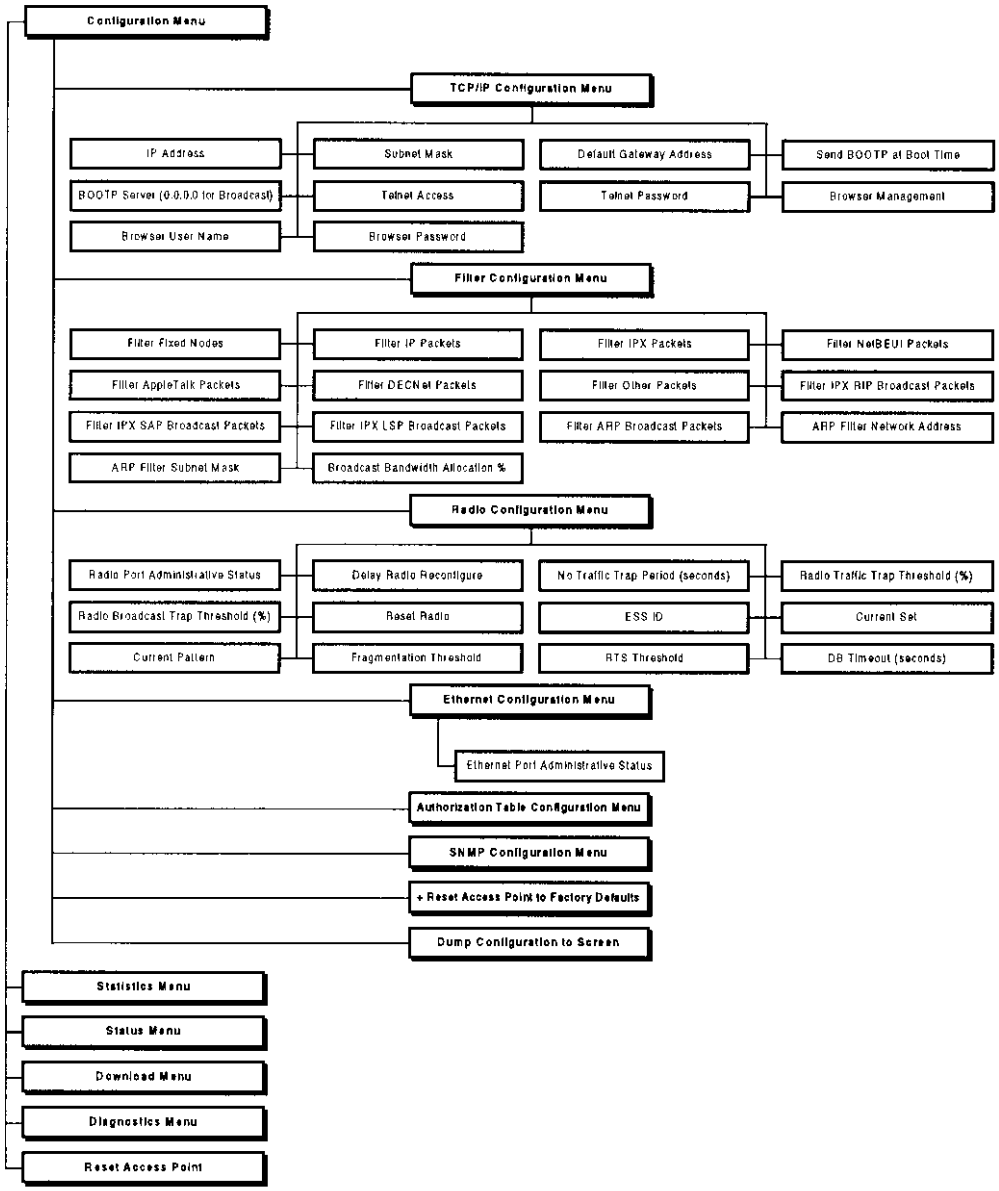
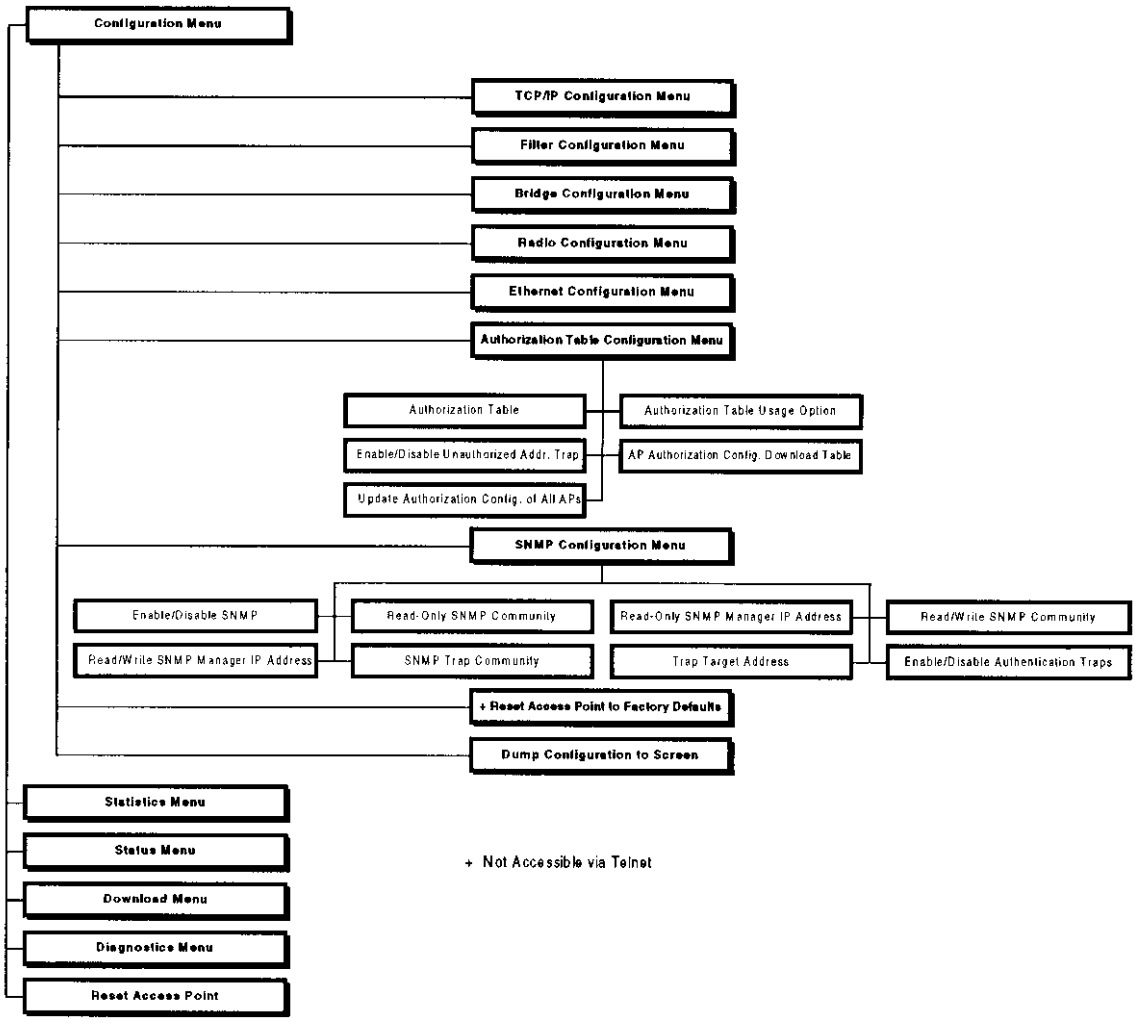


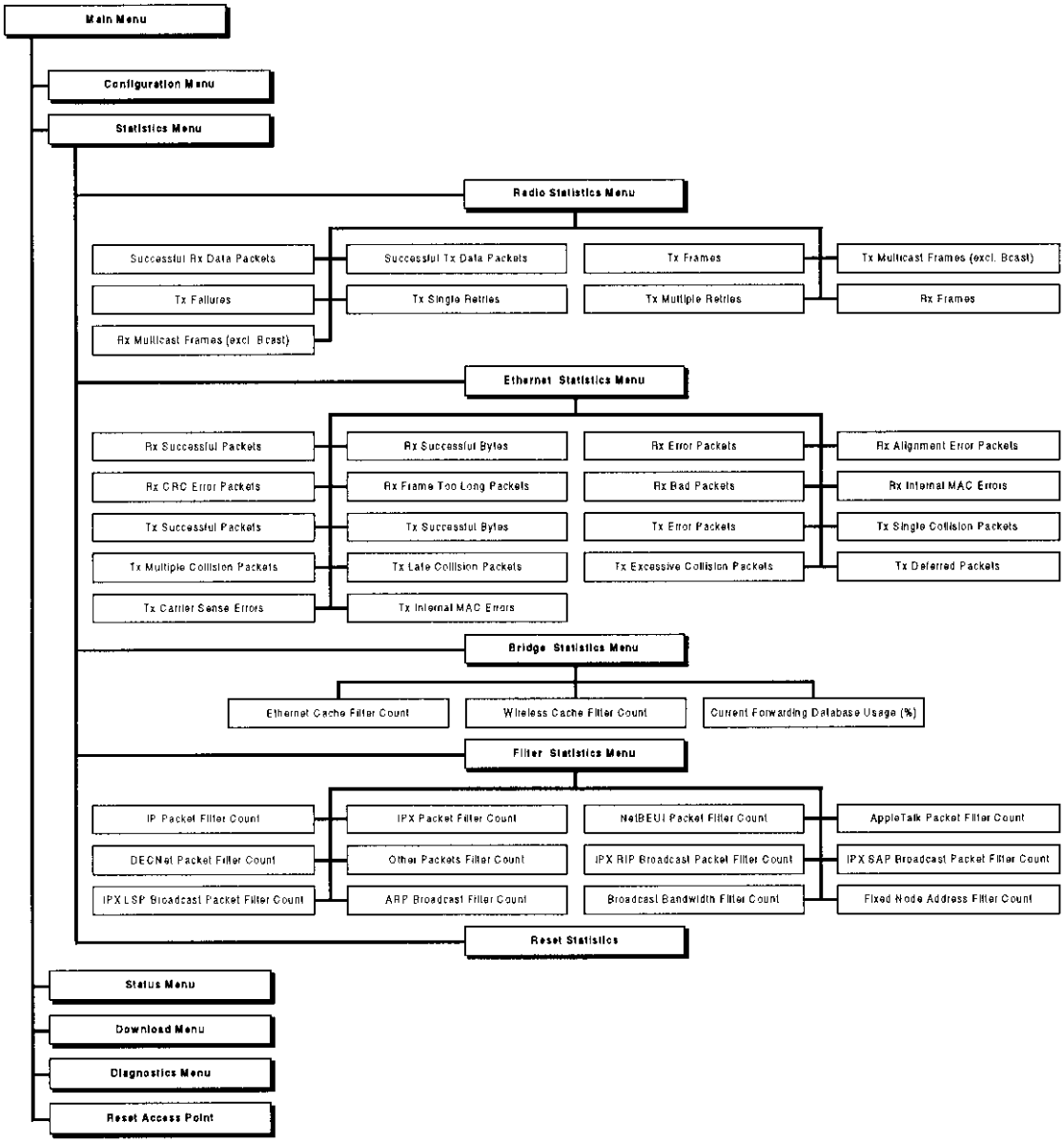
Figure 12
Back Panel LEDs

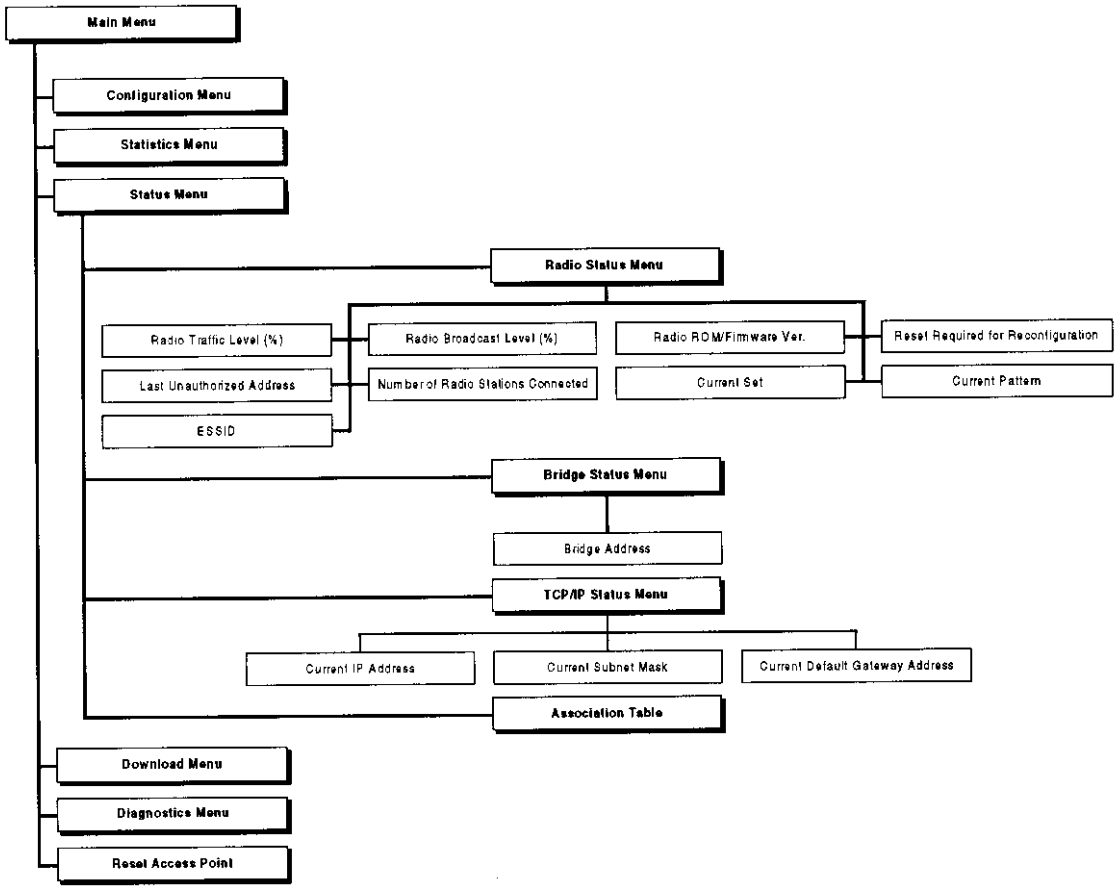
A. Menu Structure

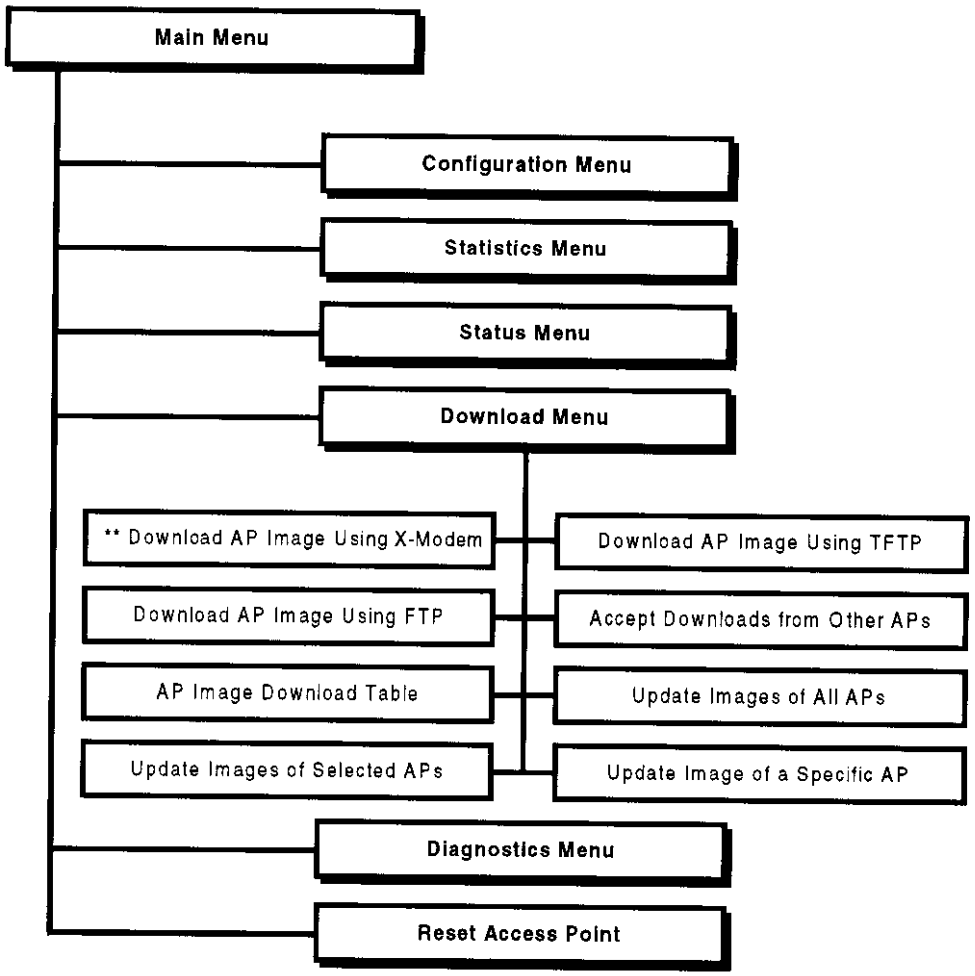


+ Not Accessible via Telnet

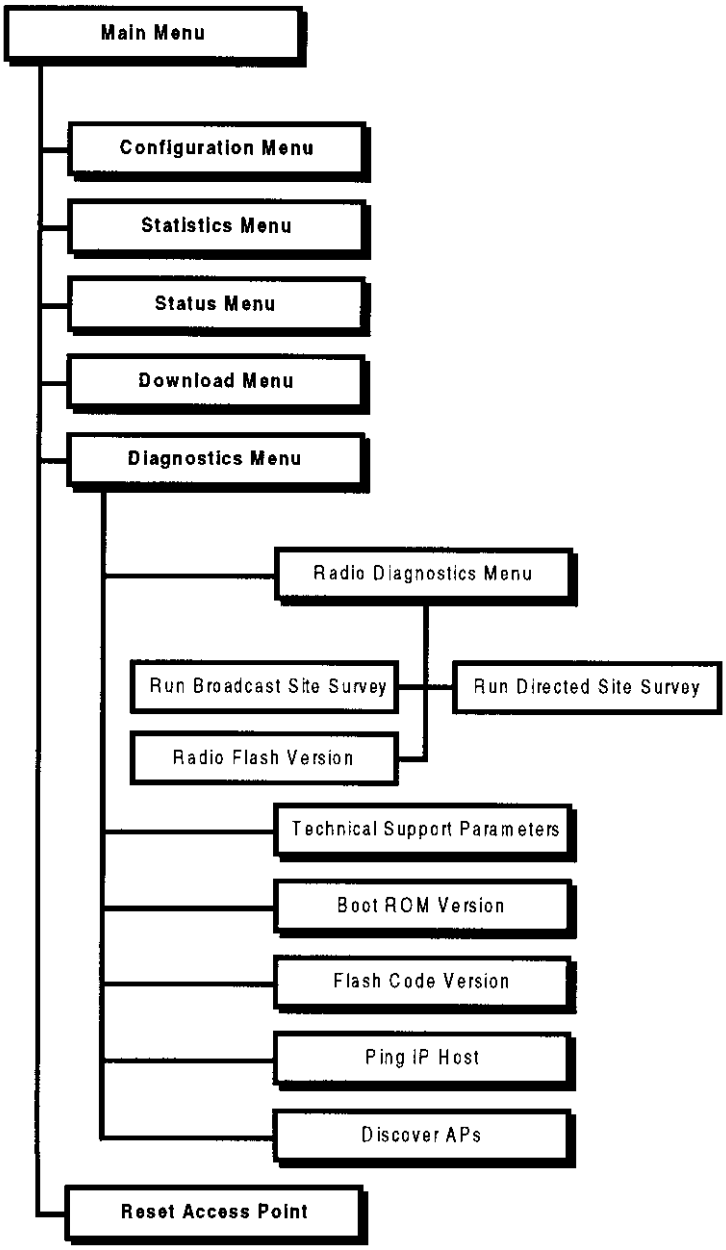

Configuration Menu
TCP/IP Configuration Menu
Filter Configuration Menu
Bridge Configuration Menu
Radio Configuration Menu
Ethernet Configuration Menu
Authorization Table Configuration Menu
Authorization Table
Authorization Table Usage Option
Enable/Disable Unauthorized Addr. Trap
AP Authorization Config. Download Table
Update Authorization Config. of All APs
SNMP Configuration Menu
Enable/Disable SNMP
Read-Only SNMP Community
Read-Only SNMP Manager IP Address
Read/Write SNMP Community
Read/Write SNMP Manager IP Address
SNMP Trap Community
Trap Target Address
Enable/Disable Authentication Traps
+ Reset Access Point to Factory Defaults
Dump Configuration to Screen
Statistics Menu
Status Menu
Download Menu
Diagnostics Menu
Reset Access Point
+ Not Accessible via Telnet


Main Menu
Configuration Menu
Statistics Menu
Radio Statistics Menu
Successful Rx Data Packets
Successful Tx Data Packets
Tx Frames
Tx Multicast Frames (excl. Bcast)
Tx Failures
Tx Single Retries
Tx Multiple Retries
Rx Frames
Rx Multicast Frames (excl. Bcast)
Ethernet Statistics Menu
Rx Successful Packets
Rx Successful Bytes
Rx Error Packets
Rx Alignment Error Packets
Rx CRC Error Packets
Rx Frame Too Long Packets
Rx Bad Packets
Rx Internal MAC Errors
Tx Successful Packets
Tx Successful Bytes
Tx Error Packets
Tx Single Collision Packets
Tx Multiple Collision Packets
Tx Late Collision Packets
Tx Excessive Collision Packets
Tx Deferred Packets
Tx Carrier Sense Errors
Tx Internal MAC Errors
Bridge Statistics Menu
Ethernet Cache Filter Count
Wireless Cache Filter Count
Current Forwarding Database Usage (%)
Filter Statistics Menu
IP Packet Filter Count
IPX Packet Filter Count
NetBEUI Packet Filter Count
AppleTalk Packet Filter Count
DECNet Packet Filter Count
Other Packets Filter Count
IPX RIP Broadcast Packet Filter Count
IPX SAP Broadcast Packet Filter Count
IPX LSP Broadcast Packet Filter Count
ARP Broadcast Filter Count
Broadcast Bandwidth Filter Count
Fixed Node Address Filter Count
Reset Statistics
Status Menu
Download Menu
Diagnostics Menu
Reset Access Point


Main Menu
Configuration Menu
Statistics Menu
Status Menu
Radio Status Menu
Radio Traffic Level (%)
Radio Broadcast Level (%)
Radio ROM/Firmware Ver.
Reset Required for Reconfiguration
Last Unauthorized Address
Number of Radio Stations Connected
Current Set
Current Pattern
ESSID
Bridge Status Menu
Bridge Address
TCP/IP Status Menu
Current IP Address
Current Subnet Mask
Current Default Gateway Address
Association Table
Download Menu
Diagnostics Menu
Reset Access Point

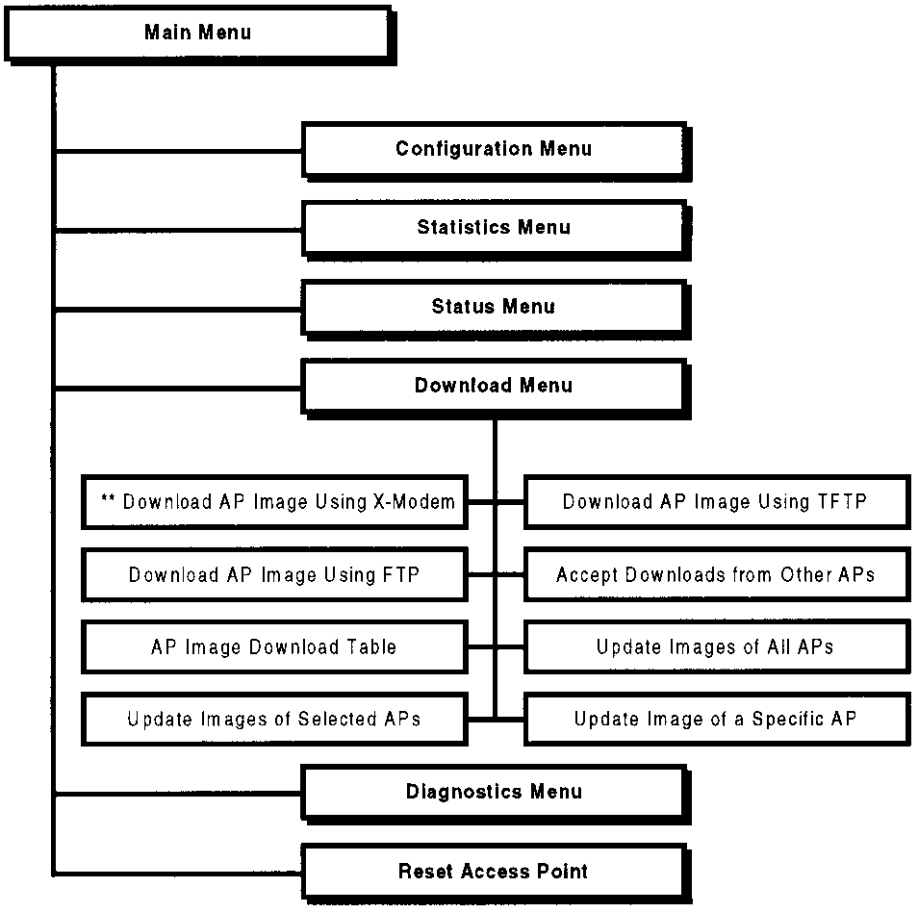


** Only visible when configuring via serial


Main Menu
Configuration Menu
Statistics Menu
Status Menu
Download Menu
Diagnostics Menu
Radio Diagnostics Menu
Run Broadcast Site Survey
Run Directed Site Survey
Radio Flash Version
Technical Support Parameters
Boot ROM Version
Flash Code Version
Ping IP Host
Discover APs
Reset Access Point

B. Download Menu

At some point in the future, you may need to upgrade the RangeLAN802 Access Point software. To do this, choose the Download Menu option. Then you can choose to download a new image. When configuring the RangeLAN802 Access Point through the serial port you may download using Xmodem, TFTP, or FTP. When configuring through the Ethernet, you will not have the Xmodem option. The following diagram illustrates the software tree:



** Only visible when configuring via serial

The steps for downloading a new image are:

1. Choose a method of download (Xmodem, TFTP, FTP) and place the image file on that hard drive, floppy diskette, server, etc.

   When performing an Xmodem download, use the Xmodem or Xmodem CRC protocols.

2. Bring up the menu on the Access Point via a terminal with a null modem cable or a telnet session.
3. Choose the Download Menu off the Main Menu.
4. Choose the Download type, i.e. Download AP Image Using Xmodem, etc.
5. Answer the on-screen prompts for server IP address, username, etc.
6. When download is successful, the Access Point will automatically reboot and load the new image.

The RangeLAN802 Access Point also has the ability to update other Access Points' software on the Ethernet segment. You can choose to **Update Images of All APs** or **Update Images of Selected APs**. In these two cases, the Access Point will first discover other Access Points on the Ethernet segment. The difference between these two options is the ability to exclude certain units from receiving the new image. If you know the IP address of a specific Access Point that you would like to update, choose the **Update Image of a Specific AP** option and provide the IP address when prompted. If you do not want an Access Point to receive an updated image, disable the **Accept Downloads from Other APs** parameter.

To view the status of downloads on other Access Points, see the **Access Point Download Table**.

C. Glossary

Access Point - An internetworking device that seamlessly connects wired and wireless networks together.

Bandwidth — The size (in Hertz) of the frequency range that a signal transmission occupies. Typical narrow band signals occupy a 25 KHz bandwidth. The RangeLAN2 signal occupies a 1 MHz bandwidth.

BOOTP (Bootstrap Protocol) — A protocol used to assign IP addresses.

CSMA/CA — (Carrier Sense Multiple Access/Collision Avoidance) — CSMA is a protocol in which each node senses whether or not a channel is in use before attempting to transmit information. CA is an optimization by which channel time is reserved to avoid collisions.

Download Image — A software file that is used to upgrade the software code running on the RangeLAN2 Access Point.

Frequency Hopping — A spread spectrum technique by which the band is divided into a number of channels and the transmissions hop from channel to channel in a pre-specified sequence.

IEEE — The Institute of Electrical and Electronics Engineers, a trade organization and standards body.

Interference — A situation that occurs when an unwanted RF signal occupies the same frequency band as a desired signal.

IP Address (Internet protocol address) — A 32-bit address assigned to TCP/IP hosts.

Narrow Band — A channel of about 25 KHz bandwidth in the RF spectrum. The FCC allocates Narrow Band channels and issues a license to the user. Each user of a specific narrow band frequency range must obtain a site license from the FCC.

Spread Spectrum — A radio data transmission modulation technique by which the transmitted signal is spread over a bandwidth wider than the information bandwidth. Spread Spectrum bands are designated by the FCC and require no user license.

SNMP (Simple Network Management Protocol) — A protocol used to manage network nodes.

TCP/IP — Transmission Control Protocol / Internet Protocol. A suite of protocols developed under DARPA sponsorship for internetworking.

WLIF - The Wireless LAN Interoperability Forum, a group of wireless LAN vendors that supply interoperable wireless LAN products.

D. Parameters

TCP/IP Parameters

Parameter Name	Range	Default
IP Address	-	0.0.0.0
Subnet Mask	-	0.0.0.0
Default Gateway Address	-	0.0.0.0
Send BOOTP at Boot Time	True/False	True
BOOTP Server Address	-	0.0.0.0 *
Telnet Access	Enabled/Disabled	Enabled
Telnet Password	10 characters	-
Browser Management	Enabled/Disabled	Enabled
Browser User Name	10 characters	-
Browser Password	10 characters	-

* 0.0.0.0 is used to send a broadcast

Filter Parameters

Parameter Name	Range	Default
Filter Fixed Nodes	Filtering/Not Filtering	Filtering
Filter IP Packets	Filtering/Not Filtering	Not Filtering
Filter IPX Packets	Filtering/Not Filtering	Not Filtering
Filter NetBEUI Packets	Filtering/Not Filtering	Not Filtering
Filter AppleTalk Packets	Filtering/Not Filtering	Filtering
Filter DECNet Packets	Filtering/Not Filtering	Not Filtering
Filter Other Packets	Filtering/Not Filtering	Not Filtering
Filter IPX RIP Broadcast Packets	Filtering/Not Filtering	Filtering
Filter IPX SAP Broadcast Packets	Filtering/Not Filtering	Filtering
Filter IPX LSP Broadcast Packets	Filtering/Not Filtering	Filtering
Filter ARP Broadcast Packets	Filtering/Not Filtering	Not Filtering
ARP Filter Network Address	-	0.0.0.0
ARP Filter Subnet Mask	-	0.0.0.0
Broadcast Bandwidth Allocation (%)	0-100	80

Ethernet Parameters

Parameter Name	Range	Default
* Ethernet Port Administrative Status	Enabled/Disabled	Enabled

Radio Parameters

Parameter Name	Range	Default
Radio Port Administrative Status	Enabled/Disabled	Enabled
Delay Radio Reconfigure	True/False	False
No Traffic Trap Period (seconds)	0-10,000,000	0
Radio Traffic Trap Threshold (%)	10-100	100 *
Radio Broadcast Trap Threshold (%)	10-100	100 *
ESS ID	0-32 characters	PROXIM
Set	1-3	1
Pattern	1-26	1
Fragmentation Threshold	256-2346	2346
RTS Threshold	0-3000	2305
DB Timeout (seconds)	1-600	600

* a value of 100 disables this trap

E. U.S. Specifications

The following technical specification is for reference purposes only. Actual product's performance and compliance with local telecommunications regulations may vary from country to country. Proxim, Inc. will only ship products that are type approved in the destination country.

Network Interfaces	Ethernet 10BASE2 (Thin) BNC Ethernet 10BASET (Twisted-Pair)
Data Rate	2 Mbps —Radio 10 Mbps — Ethernet
Media Access Protocol	CSMA/CA
Ethernet compatibility	Ethernet packet types and Ethernet Addressing
Radio compatibility	IEEE 802.11
Frequency Band	2.4-2.5 GHz Worldwide (Depends on country) (spread spectrum frequency hopping)
Independent Channels	15
Output Power	100 mW or 500 mW (Depends on country)
ETSI Testing	For purposes of ETS 300 328 type testing, the RangeLAN802 Access Point was tested over a tempera ture range of -20 C to +55 C.
Operating Temperature	-20 C to +60 C
UL Listed Power Supply	The RangeLAN 802 Access Point requires an external power supply. If you have elected not to purchase the external power supply from Proxim or need a replacement, you must use only a UL listed, Class 2 power supply, rated min. 1A at 12VDC.

F. How to Reach Technical Support

If you're having a problem using RangeLAN802 Access Point and can't resolve it with the information in Chapter 14, gather the following information and contact Proxim Technical Support:

- ❑ What kind of network are you using?
- ❑ What were you doing when the error occurred?
- ❑ What error message did you see?
- ❑ Can you reproduce the problem?
- ❑ What version of the RangeLAN802 Access Point firmware and software are you using?

You can reach Proxim Technical Support by voice, fax, email, BBS, or mail:

Tel: 800-4PROXIM or 650-526-3640
Fax: 650-960-1106
Web: http://www.proxim.com
Email: support@proxim.com
BBS: 650-960-2419 (14400 bps, N/8/1)

Proxim, Inc.
Attn: Technical Support
295 North Bernardo Avenue
Mountain View, CA 94043

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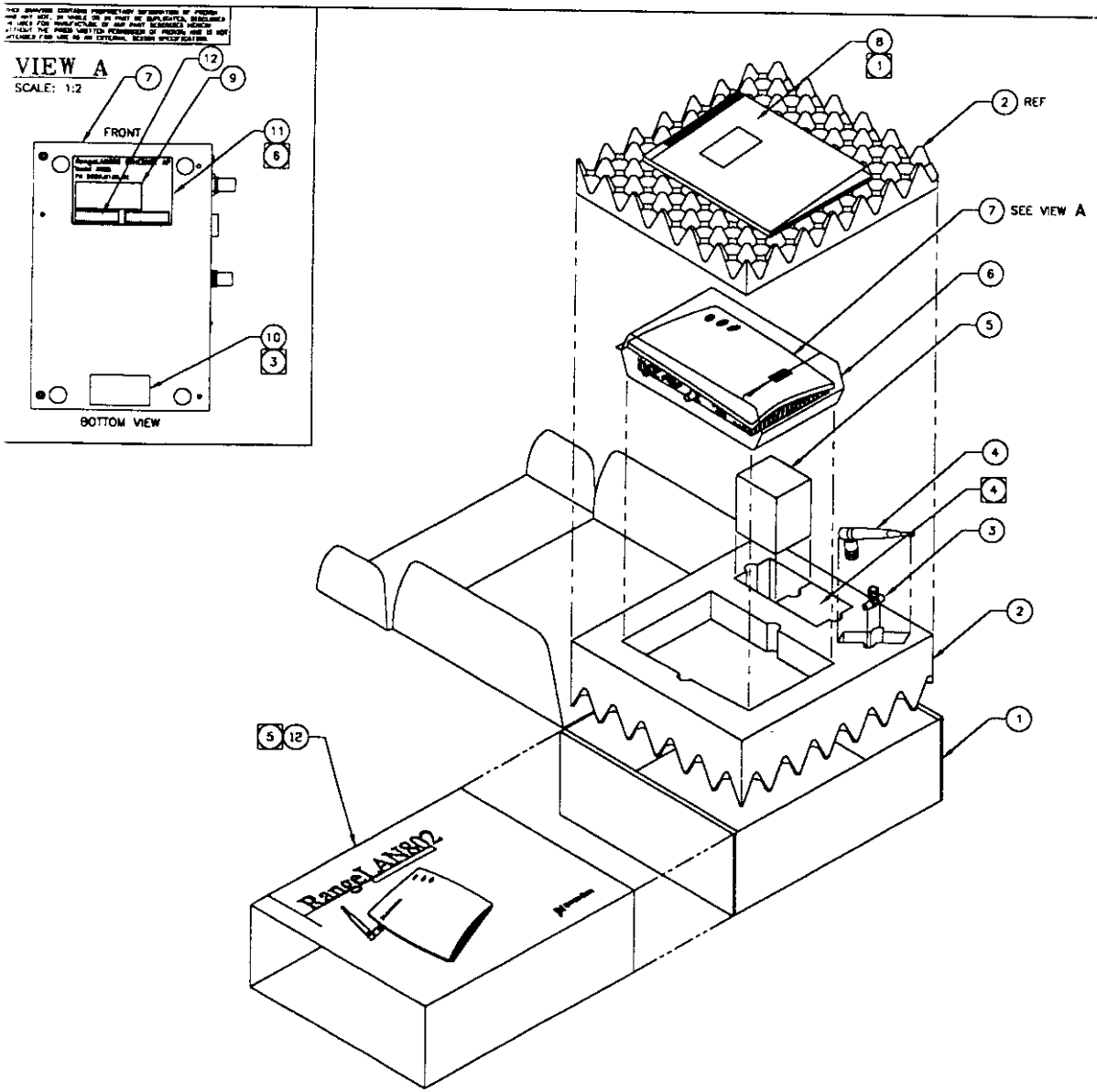

LTR	LTR	ECO	DATE	
01	01	P1302	1/23/98	INITIAL

TABLE A

COUNTRY CODE		SETTING INFO		
PROD NUMBER	C.C.	CODE, OFFSET	OCCUPIED FREQ. BAND (GHZ)	ETS
8520-02CE				X
8520-05	US	0,1	2.402-2.480	

NOTES: UNLESS OTHERWISE SPECIFIED

1. PLACE MANUAL (ITEM 8) ON TOP OF ASSEMBLED FOAM (ITEM 2).
2. NOT USED.
3. SET COUNTRY CODE OF SUB-ASSY (ITEM 7) PER SALES ORDER. CHECK APPROPRIATE BOXES ON LABEL (ITEM 10). AFFIX WHERE SHOWN FOR CE PRODUCTS.
4. REMOVE FOAM INSERT WHEN UNIVERSAL POWER SUPPLY (4000.0008) IS USED.
5. INSTALL SLEEVE (ITEM 12) AFTER BOX (ITEM 1) IS CLOSED.
6. AFFIX LABEL (ITEM 11) TO ASSY (ITEM 7) APPROX AS SHOWN.
7. PLASTIC SHRINK WRAP COMPLETE SHIPPING KIT ASSEMBLY.

A803014.DOC

DRAWN	ROD ECKEY	12-19-97	
MATERIAL			TITLE
FINISH			
CHECKED AND APPROVED			SIZE D
			SCALE