



# User Guide

## ORiNOCO USB-9100 802.11a/b/g/n/ac Adapter



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**IMPORTANT!**

**Proxim recommends you to visit its support site at <http://my.proxim.com> for Regulatory Information and latest product updates.**

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# Introduction

## Overview

The ORiNOCO USB-9100 802.11a/b/g/n/ac Adapter is the next generation Wireless USB Adapter capable of supporting 5 GHz bands. It provides high-speed (up to 300/ 867 Mbps) wireless access and networking for a USB-enabled desktop and laptop anywhere, anytime. It is compatible with next generation WiFi devices and backward compatible with 802.11 b/g/n +AC devices. The USB Adapter is a Plug-and-Play device that connects to and draws power from a computer's USB port.

This ORiNOCO USB-9100 is compatible with a USB 2.0/3.0 slot from any manufacturer. As a Plug-and-Play device, Windows 7/Windows 8 automatically detects the wireless USB Client Adapter and initiates the installation process. Upon successful installation, the wireless USB Adapter communicates seamlessly with other IEEE 802.11ac wireless products as well as legacy products. The ORiNOCO USB-9100 can be used with other 802.11ac devices to form a stand-alone wireless Peer-to-Peer Group or used in conjunction with an Access Point infrastructure to provide mobile clients with wireless access.

## Product Features

The ORiNOCO USB-9100 provides the following features:

- USB 2.0/3.0 interface
- Configurable 802.11a/b/g/n/ac mode support
- 2x2 MIMO configurations
- 802.11ac MIMO solution for 5G band
- 802.11n MIMO solution for 2.4GHz and 5GHz band
- Maximum PHY data rate up to 173.3 Mbps using 20MHz bandwidth, 400Mbps using 40MHz bandwidth and 866.7Mbps using 80MHz bandwidth
- Backward compatible with 802.11a/b/g devices while operating at 802.11n data rates
- Backward compatible with 802.11a/n devices while operating at 802.11ac data rates
- IEEE 802.11a/b/g/n/ac draft 2.0 compatible WLAN
- IEEE 802.11e QoS Enhancement (WMM)
- IEEE 802.11i (WPA,WPA2), open, shared key, and pair-wise key authentication services
- IEEE 802.11h TPC, Spectrum Measurement
- IEEE 802.11k Radio Resource Measurement
- WAPI (Wireless Authentication Privacy Infrastructure) certified
- QoS
- Provides seamless connectivity to existing Ethernet networks
- Eliminates the hassle and cost of cabling.
- Supports an easy Plug-and-Play installation

## System Requirements

You must have the following minimum requirements for using an ORiNOCO USB-9100:

1. A computer that meets the following specifications:
  - Windows 7/Windows 8 installed
  - Equipped with a USB 2.0/3.0 port
  - At least 64 MB of free hard disk space
  - At least 128 MB of RAM (recommended)

- A 300 MHz processor or higher

At least one IEEE 802.11 compliant Access Point

2. If your wireless network uses EAP-TLS or PEAP authentication, the system must contain a Certificate Authority (CA) and user certificates for EAP-TLS authentication or CA certificate for PEAP authentication
3. If your wireless network uses PEAP (EAP-GTC) authentication with a One-Time Password (OTP) user database, you need a hardware token device and your hardware or software token password
4. If PSK key authentication is used, you must know the key information
5. In case the USB port is not exposed outside, it is advised to use a USB cable to ensure higher signal strength.
6. The following information from your system administrator:
  - The logical name for your workstation (also known as *client name*).
  - The protocols necessary to bind to the client adapter, such as TCP/IP.
  - The case-sensitive service set identifier (SSID) for your RF network.
  - If your network setup does not include a DHCP server, the IP address, subnet mask, and default gateway address of your computer.
  - The Wired Equivalent Privacy (WEP) keys of the access points with which your client adapter will communicate, if your wireless network uses static WEP for security.
  - The username and password for your network account.

# Installation



This chapter describes the steps required to install the ORiNOCO USB-9100.

## IMPORTANT!

For the latest product updates, we recommend you to visit Proxim support site at <http://my.proxim.com>.

## Product Package

The Product Package includes the following items. If any of the items are missing or damaged, please contact your local reseller.

Component	Image
ORiNOCO USB-9100 with cap	
Quick Installation Guide	

## Installation Procedure for ORiNOCO USB-9100

This section provides information on how to install the ORiNOCO USB-9100 for Windows 7/Window 8.

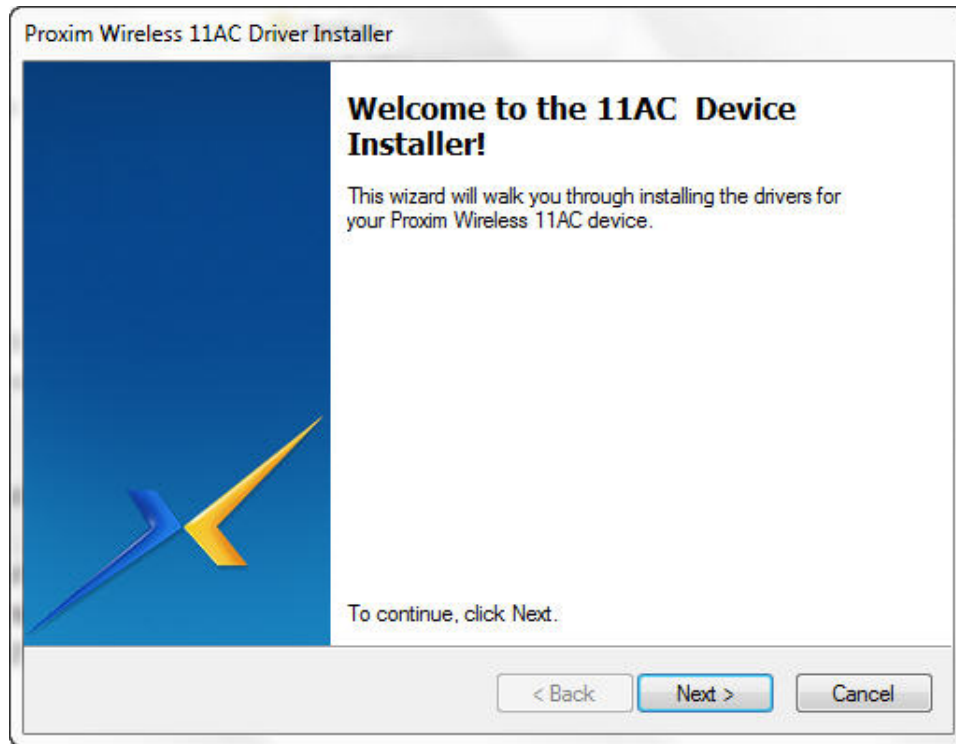
1. To install the device driver, please visit the below mentioned location:



<https://my.proxim.com/article/3027>

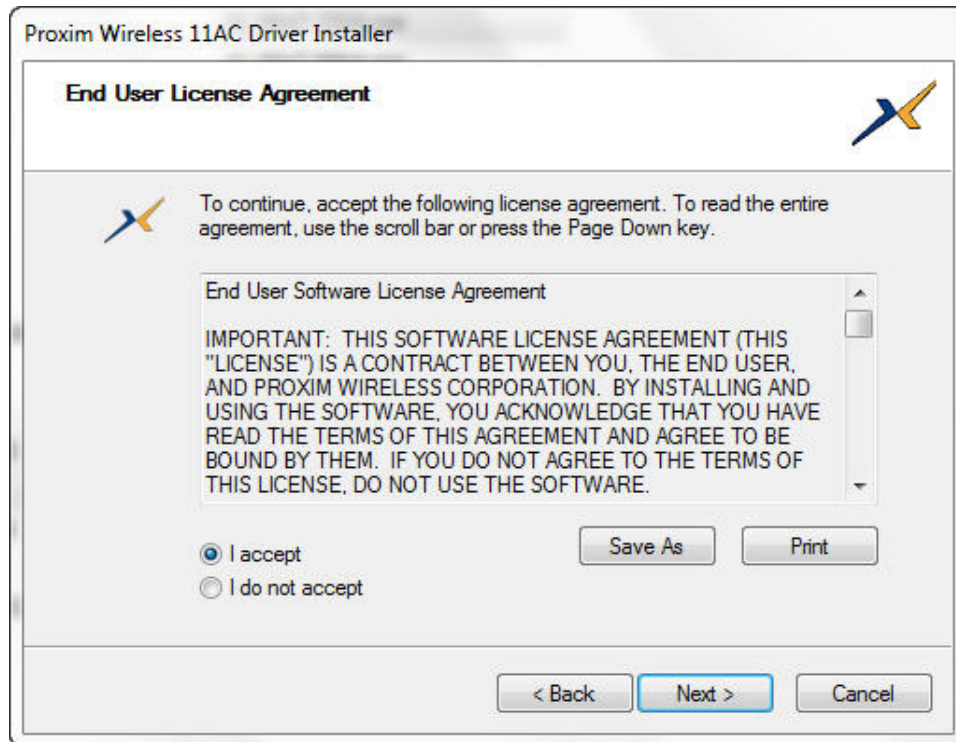
2. Based on your system specification, select the **.exe** file (Win7-32bit.exe/Win7-64bit.exe/Win8.1-32bit.exe/Win8.1-64bit.exe) and double-click to manually run it.

3. The Proxim Wireless 11AC Driver Installer Wizard screen will take you through the step-by-step procedure to install the driver. Click **Next** to continue.



4. Please read the End User License Agreement section and if you agree to the license terms, select **I agree** option. Click **Next** to continue.

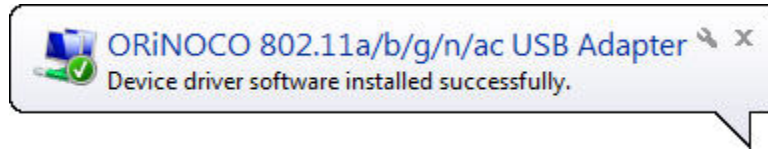




5. On successful installation of the device driver, Click **Finish** to complete the process.



6. Insert the USB Adapter in to USB 2.0/3.0 port of your computer. The system will now automatically detect the new hardware.



7. Run the Microsoft Wireless Zero Configuration (WZC) tool. Please refer [Windows Zero Configuration Tool](#) section for a detailed description on how to connect to a wireless network in Windows 7 and Windows 8.
8. Upon successful configuration of WZC tool, the device is ready to connect to the network.

**NOTE:** The country code selection is for non-US models only and is not available for all US models. Per FCC regulations, all WiFi products marketed in the US must be fixed to US operation channels only.

### Wi-Fi Protected Setup (WPS)

Wi-Fi Protected Setup enables you to easily secure Wi-Fi network in small spaces. In order to enable data encryption to secure your system from possible external threats, simply push the **Push Configuration Button** (PBC) on the USB Adapter and then the physical button on your Access Point (AP) or the software based button on the WPS configuration page.



Figure 2-1 ORiNOCO USB-9100 Adapter

### LED Behavior

LED Behavior	Status
Slow blink (1 blink per second)	Standby (No connection to AP)
Normal blink (2 blinks per second)	Wi-Fi Protected Setup (WPS)
Fast blink (3 blinks per second)	Transmission (Tx)/ Reception (Rx)

### Windows Zero Configuration Tool

In this section let us see how to configure a wireless network in Windows 7 and Window 8.

#### Windows 7

You can connect to a wireless network in two ways: View and connect to available wireless network (or) Manually create a network profile.

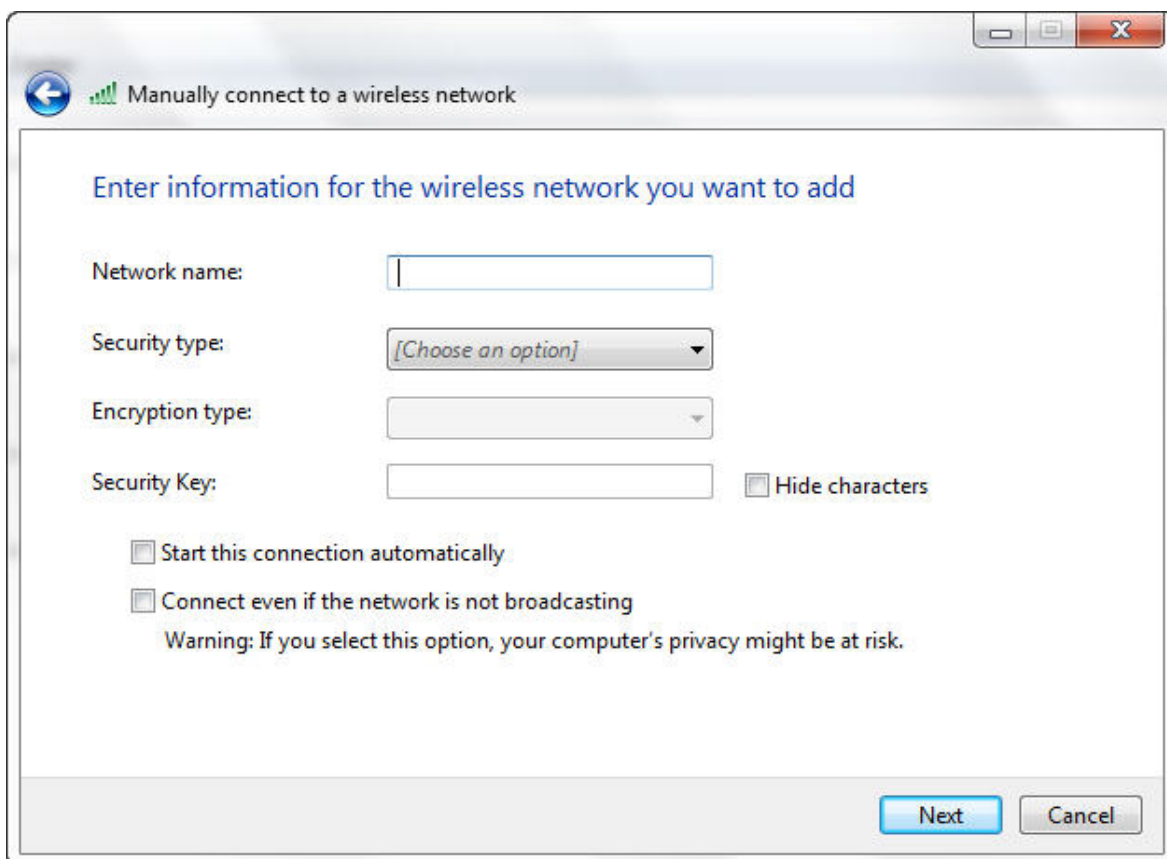
### View and connect to available wireless network

- Click the network icon in the notification area.
- In the list of available networks, select the network you want to connect to, and then click **Connect**. You may be required to enter a security network key/ a pass word to connect to the network.

### Manually create a network profile

In this method, in order to connect to a wireless network, you need to first create a network profile.

- Click **Start**, navigate to **Control Panel > Networking and Sharing Center > Manage wireless networks**.
- Click the **Add** button and then select **Manually create a network profile** option. The following screen appears:



Manually connect to a wireless network

Enter information for the wireless network you want to add

Network name:

Security type:

Encryption type:

Security Key:   Hide characters

Start this connection automatically

Connect even if the network is not broadcasting

Warning: If you select this option, your computer's privacy might be at risk.

Next Cancel

- In the above screen, type the name of the access point/ SSID in the Network name field, select the appropriate Security type from drop-down menu, and then type the Security Key.
- Click **Next** and when you are finished, click **Close**.

## Windows 8

You can connect to a wireless network in two ways: Join a network (or) Manually create a network profile or connect to a hidden network.

### Join a network

- Open the Charms bar (press **Windows key + C** or move your cursor to the lower right corner of the screen) and select **Settings**.
- Click **Available** or the network icon to list the available wireless networks.

- Select the network you want to connect to, and then click **Connect**.

### Manually create a network profile or connect to a hidden network

- Press the **Windows Logo + X** from the Start screen and then select **Control Panel** from the menu.
- Navigate to **Network and Internet > Network and Sharing Center** and then click the **Set up a new connection or network**.
- From the list, Select **Manually connect to a wireless network** and click **Next**. The following dialog box as shown in the figure below will appear.

Manually connect to a wireless network

Enter information for the wireless network you want to add

Network name:

Security type: [Choose an option] ▼

Encryption type:

Security Key:   Hide characters

Start this connection automatically

Connect even if the network is not broadcasting

Warning: If you select this option, your computer's privacy might be at risk.

Next Cancel

- In the above screen, type the name of the access point/ SSID in the Network name field, select the appropriate Security type from drop-down menu, and then type the Security Key; Click **Next** to add the network profile. If you have to make a change, you can easily do so at the last step.
- Click **Close** when you are finished.



# Specifications

## ORINOCO USB-9100 Specifications

<b>Chipset –RTL8812AU</b>	
<b>Host Interface</b>	
Complies with USB Revision 3.0	
<b>Radio</b>	
Antenna	2 Internal Printed Antennas
Operating	2.412 - 2.484GHz(Subject to Local Regulations) 5.15 - 5.35 GHz, 5.47 - 5.825 GHz
Data Rate	802.11b: 1, 2, 5.5, 11Mbps 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: up to 300Mbps 802.11ac: up to 867Mbps
Modulation	802.11b: DSSS(DBPSK, DQPSK, CCK) 802.11a/g: OFDM(BPSK, QPSK, 16-QAM, 64-QAM) 802.11n: OFDM(BPSK, QPSK, 16-QAM, 64-QAM) 802.11ac: OFDM(BPSK, QPSK, 16-QAM, 64-QAM,256-QAM)
Transmit Power	802.11a/g: 14 +/-1.5dBm@54Mbps 802.11b: 17+/-1.5dBm@11Mbps 802.11gn HT20: 14+/-1.5dBm@MCS7 802.11gn HT40: 14+/-1.5dBm@MCS7 802.11ac HT20: 12+/-1.5dBm@MCS8 802.11ac HT40: 12+/-1.5dBm@MCS9 802.11ac HT80: 12+/-1.5dBm@MCS9 <b>CE/TELEC</b> 802.11an HT20: 14+/-1.5dBm@MCS7 802.11an HT40: 14+/-1.5dBm@MCS7 <b>FCC</b> 802.11an HT20: 13+/-1.5dBm@MCS7 802.11an HT40: 12+/-1.5dBm@MCS7
Receive Sensitivity	802.11b: -72dBm+/-2dBm@11Mbps 802.11a/g: -65dBm+/-2dBm@54Mbps 802.11n: -64dBm+/-2dBm @HT20 MCS7 802.11n: -61dBm+/-2dBm @HT40 MCS7 802.11ac: -57dBm+/-2dBm @HT20 MCS8 802.11ac: -54dBm+/-2dBm @HT40 MCS9 802.11ac: -51dBm+/-2dBm @HT80 MCS9
Power Consumption	Standby: 173mA / 5V (Max) Full load: 426mA / 5V (Max)

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<b>Environmental</b>	
Operating	0~40 <sup>0</sup> C. 20% to 90% Non-Condensing
Storage	-30 ~ 70 <sup>0</sup> C. 20% to 95% Non-Condensing
Operating Voltage	5V +/-5%
<b>Physical Specification</b>	
Housing / Weight	14.6g/+0.2g

# Safety and Regulatory Information

**IMPORTANT!**

Proxim recommends you to visit the Proxim Support site at <http://my.proxim.com> for Regulatory Information and latest product updates.

## U.S. Federal Communications Commission (FCC) Statements

### Country Code Statement

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

### FCC Interference 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. 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 to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference
2. This device must accept any interference received, including interference that may cause undesired operation.

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

### FCC Radiation Exposure Statement

This EUT is compliance with SAR for general population/uncontrolled exposure limits in ANSI/IEEE C95.1-1999 and had been tested in accordance with the measurement methods and procedures specified in OET Bulletin 65 Supplement C. This equipment should be installed and operated with minimum distance 0.5 cm between the radiator & your body.

## Canada IC Statements

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B conforme á la norme NMB-003 du Canada.

Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

## IC Country Code Statement

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

The device could automatically discontinue transmission in case of absence of information to transmit, or operational failure. Note that this is not intended to prohibit transmission of control or signaling information or the use of repetitive codes where required by the technology.

This device is operating in 5.15~5.25GHz frequency range in indoor environment only.

The maximum antenna gain permitted (for devices in the bands 5250-5350 MHz and 5470-5725 MHz) to comply with the e.i.r.p. limit.

The maximum antenna gain permitted (for devices in the band 5725-5825 MHz) to comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate, as stated in section A9.2(3).

High-power radars are allocated as primary users (meaning they have priority) of the bands 5250-5350 MHz and 5650-5850 MHz and these radars could cause interference and/or damage to LE-LAN devices.

## IC Radiation Exposure Statement

This EUT is compliance with SAR for general population/uncontrolled exposure limits in IC RSS-102 and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528. This equipment should be installed and operated with minimum distance 0.5cm between the radiator & your body.



## European Community Countries Regulatory Statements

Hereby, Proxim Wireless Corporation, declares that this device is in compliance with the essential requirement and other relevant provisions of the R&TTE Directive 1999/5/EC.

This device will be sold in the following EEA countries: Austria, Italy, Belgium, Liechtenstein, Denmark, Luxembourg, Finland, Netherlands, France, Norway, Germany, Portugal, Greece, Spain, Iceland, Sweden, Ireland, United Kingdom, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Slovakia, Poland, Slovenia Bulgaria, Romania.

### 2.4 GHz Operation

- This device may be operated indoors in all EU and EFTA countries using the 2.4 GHz band (Channels 1-13).

### 5 GHz Operation

- This device requires the user or installer to properly enter the current country of operation in the 5 GHz Radio Configuration Window as described in the User Guide, before operating the device.
- This device will automatically limit the allowable channels determined by the current country of operation. Incorrectly entering the country of operation may result in illegal operation and may cause harmful interference to other systems. The user is obligated to ensure the device is operating according to the channel limitations, indoor/outdoor restrictions.
- This device is restricted to indoor use when operated in EU and EFTA countries using the 5.15-5.35 GHz band (Channels 36, 40 44, 48, 52, 56, 60, and 64).



## Glossary

OCU	ORiNOCO® Client Utility is the utility that configures the ORiNOCO® Wireless Client.
Access Point	An inter-networking device that seamlessly connects wired and wireless networks together.
Ad-Hoc	A peer-to-peer wireless network without Access Point. A group of wireless clients consistent an independent wireless LAN.
Backbone	The core infrastructure of a network, the portion of the network that transports information from one central location to another central location. The information is then off-loaded onto a local system.
BSS	Basic Service Set. An Access Point associated with several wireless stations.
CCKM	Cisco Centralized Key Management. Using CCKM, an AP configured to provide Wireless Domain Services (WDS) takes the place of the RADIUS server and authenticates the client without perceptible delay in voice or other time sensitive applications.
Control Channel	Control channel is a central channel that controls other constituent radio by handling data streams. It is often used in the context of a trunked radio system, where the control channel sends data which coordinates users in talkgroups.
ESS	Extended Service Set. More than one BSS can be configured as an Extended Service Set. An ESS is basically a roaming domain.
ESSID	Extended Service Set Identifier. The length of the ESSID information is between 0 and 32 octets. A 0 length identifier indicates the broadcast SSID.
Ethernet	A popular local area data communication network, originally developed by Xerox Corp., which accepts transmission from computers and terminals. Ethernet operates on 10/100 Mbps transmission rate over shielded coaxial cable or over shielded twisted pair telephone wire.
Infrastructure	An integrated wireless and wired LAN is called an infrastructure configuration.
MFP	Management Frame Protection. MFP enables authentication of all 802.11 management frames between the WLC and wireless Access Points. MFP protects against direct and man-in-the-middle attacks. It also detects and reports potential phishing attacks. MFP has three main functions, such as frame protection, frame validation and event reporting. You can selectively disable/enable MFP on specific wireless access points or WLANs.
Notification Area	The area on the right side of the taskbar. The clock and system notification area appear here.
Roaming	A function that allows one to travel with a mobile end system (wireless LAN mobile station, for example) through the territory of a domain (an ESS, for example) while continuously connecting to the infrastructure.

SSID	Service Set Identifier is a network name used by the Wireless LAN. The length of SSID information is between 0 and 32 octets.
WEP	Wired Equivalent privacy is the optional cryptographic confidentiality algorithm specified by IEEE 802.11 used to provide data confidentiality that is subjectively equivalent to the confidentiality of a wired local area network (LAN) medium that does not employ cryptographic techniques to enhance privacy.

# D

## Technical Services and Support

### Obtaining Technical Service and Support

If you are having trouble utilizing your Proxim product, please review this manual and the additional documentation provided with your product. If you require additional support to resolve your issue, please be ready to provide the following information before you contact Proxim's Technical Services:

- **Product information:**
  - Part number of suspected faulty unit
  - Serial number of suspected faulty unit
- **Trouble/error information:**
  - Trouble/symptom being experienced
  - Activities completed to confirm fault
  - Network information (what kind of network are you using?)
  - Circumstances that preceded or led up to the error
  - Message or alarms viewed
  - Steps taken to reproduce the problem
- **ServPak information** (if a Servpak customer):
  - ServPak account number
- **Registration information:**
  - If the product is not registered, date when you purchased the product
  - If the product is not registered, location where you purchased the product

**NOTE:** *Technical Support is free for the first 90 days from the date of purchase. If you would like to register your product now, visit the Proxim eService Web Site at <http://my.proxim.com> and click on New Product Registration.*

### Support Options

#### Proxim eService Web Site Support

The Proxim eService Web site is available 7x24x365 at <http://my.proxim.com>

On the Proxim eService Web Site, you can access the following services:

- **New Product Registration:** Register your product to gain access to technical updates, software downloads, and free technical support for the first 90 days from receipt of hardware purchase.
- **Open a Ticket or RMA:** Open a ticket or RMA
- **Search Knowledge base:** Locate white papers, software upgrades, and technical information.
- **ServPak Support:** Learn more about Proxim's ServPak global support service options.
- **Your Stuff:** Track status of your tickets or RMAs and receive product update notifications.
- **Provide Feedback:** Submit suggestions or other types of feedback.
- **Customer Survey:** Submit an On-Line Customer Survey response.

## Telephone Support

Given below are the Proxim's technical support contact details.

### USA & Canada Customers

Call Technical Support: Phone: +1 866-674-6626

Hours: 6:00 AM to 6:00 P.M. Monday - Friday, Pacific Time

### International Customers

Call Technical Support: Phone: +1 408-383-7700

Hours: 6:00 AM to 6:00 P.M. Monday - Friday, Pacific Time

## ServPak Support

To provide even greater investment protection, Proxim Wireless offers a cost effective support program called ServPak. ServPak is a program of enhanced service support options that can be purchased as a bundle or individually, tailored to meet your specific needs. Whether your requirement is around the clock technical support or advance replacement service, we are confident that the level of support provided in every service in our portfolio will exceed your expectations.

- **Advanced Replacement of Hardware:** Can you afford to be down in the event of a hardware failure? Our guaranteed turnaround time for return to factory repair is 30 days or less. Those customers who purchase this service are entitled to advance replacement of refurbished or new hardware guaranteed to be shipped out by the Next Business Day. Hardware is shipped Monday – Friday, 8:00AM – 2:00PM (PST).
- **Extended Warranty:** Extend the life of your networking investment by adding 1, 2, or 3 years to your products standard warranty. This service coverage provides unlimited repair of your Proxim hardware for the life of the service contract. The cost of an extended warranty is far less than the cost of a repair providing a sensible return on your investment.
- **7x24x365 Technical Support:** This service provides unlimited, direct access to Proxim's world-class Tier 3 technical support engineers 24 hours a day, 7 days a week, 365 days a year including Holidays. Customers who purchase this service can rest assured that their call for technical assistance will be answered and a case opened immediately to document the problem, trouble shoot, identify the solution and resolve the incident in a timely manner or refer to an escalation manager for closure.
- **8x5 Technical Support:** This service provides unlimited, direct access to Proxim's world-class technical support 8 hours a day, 5 days a week from 8:00AM - 5:00PM {P.S.T (U.S.)}. Technical Support is available at no charge for the first 30 days from the purchase date. Beyond this period, a ServPak support agreement will be required for technical support. Self-help will be made available by accessing Proxim's extensive eService knowledgebase.
- **Software Maintenance:** It's important to maintain and enhance security and performance of wireless equipment and Proxim makes this easy by providing a Software Maintenance program that enables customers to access new feature and functionality rich software upgrades and updates. Customers will also have full access to Proxim's vast knowledgebase of technical bulletins, white papers and troubleshooting documents.
- **Priority Queuing Phone Support:** This service provides customers with a one hour response time for technical phone support. There is no waiting in line for those urgent calls for technical support.

ServPak Service	24x7Enhanced (Bundled Serv.)	8x5 Standard (Bundled Serv.)	Extended Warranty	Advance Hardware Replacement	Software Maintenance	24x7 Technical Support
Product Coverage Duration	Renewable Contracts	Renewable Contracts	Renewable Contracts	Renewable Contracts	No	Renewable Contracts
Software Coverage Duration	Renewable Contracts	Renewable Contracts	No	No	Renewable Contracts	No
Proxim TAC Support	Yes	Yes	No	No	No	Yes
Software Updates & Upgrades	Yes	Yes	No	No	Yes	No
Registered Access to Proxim.com	Yes	Yes	Yes	Yes	Yes	Yes
Registered Access to Knowledge Tool	Yes	Yes	Yes	Yes	Yes	Yes
Advance Replacement	Yes	No	No	Yes	No	No
Depot Repair	No	Yes	Yes	No	No	No

To purchase ServPak support services, please contact your authorized Proxim distributor. To receive more information or for questions on any of the available ServPak support options, please call Proxim Support at 408-383-7700 or send an email to [servpak@proxim.com](mailto:servpak@proxim.com).