QUICK START GUIDE-M2M products

E200 Series – Cellular / WAN / LAN / Wi-Fi Router

Version 1.1

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This manual cover the following M2M products:

- Maestro E205XT02
- Maestro E205XT04
- Maestro E206XT

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1.0 Initial document release	26 Sep. 14
1.1 Added illustration	18 Mar. 15

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1 Safety Precautions

1.1 General precautions

- The router generates radio frequency (RF) power. When using the router, care must be taken to ensure safety as well as compliance with all the regulations surrounding the use of RF equipment.
- Do not use the router in aircraft, hospitals and petrol stations or in places where using GSM products or other RF equipment is prohibited.
- Be sure that the router will not be interfering with nearby equipment such as pacemakers or medical equipment. The antenna of the router should be directed away from computers, office equipment, home appliance, etc.
- Always keep the router at a minimally safe distance of 26.6cm or more from a human body.
- Do not put the antenna inside metallic boxes or other containers

1.2 Using the router in vehicle

- Check for any regulation or law authorizing the use of GSM equipment in vehicles in your country before installing the router.
- Installation of the router should be done by qualified personnel. Consult your vehicle dealer for any possible interference concerns related to the use of the router.
- Be careful when the router is powered by the vehicle's main battery. The battery may be drained after extended period.

1.3 Protecting your router

To ensure error-free usage, please install and operate your router with care and comply with the following:

- Do not expose the router to extreme conditions such as high humidity/rain, high temperatures, direct sunlight, caustic/harsh chemicals, dust, or water.

- Do not try to disassemble or modify the router as there are no user serviceable parts inside and the warranty would be void in case of tampering.
- Do not drop, hit or shake the router.
- Do not use the router under extreme vibrating conditions.
- Do not pull the power supply cable. Please attach or detach it by holding the connector after switching off the supply.
- Install and connect the router in accordance to the instruction manual. Failure to do so will void the warranty.

2 Overview

2.1 Scope

This document provides you all the information you need to set-up, configure and use the Maestro E200 Series router.

2.2 Target audience

This document is intended for customers and integrators who understand basic telecommunications and information technology terminology and concepts.

3 Prerequisites

Before continuing with the installation of your E200 Series router, make sure you have a computer equipped with the following:

- A computer with an Ethernet port
- A web browser such as Google Chrome, Mozilla Firefox, Apple Safari or Internet Explorer

4 User manual conventions

The following symbols are used throughout the user manual:

The following symbol indicates **attention** must be paid

The following symbol indicates a **warning**

The following symbol provides **information**

5 Product overview

5.1 E200 Series at a glance

- Dual-band HSDPA (E205XT020), tri-band HSDPA (E205XT04), quad-band HSPA+ & dual-band EV-DO (E206XT)
- GPRS/EDGE auto-fallback
- LAN on RJ45 port
- Switchable WAN/LAN on RJ45 port (E206XT only)
- Built-in Wi-Fi with an external RP-SMA antenna connector
- Automatic WAN / 3G failover
- Built-in GPS supporting active antenna via an external SMA connector (E205XT02, E205XT04 only)
- Built-in concurrent diversity/GPS antenna supporting active antenna via an external SMA connector (E206XT only)
- External SMA antenna connectors for 3G
- Two digital inputs/outputs
- Six color LED's for displaying for Wi-Fi and network activity, signal, power and alarm
- Device management and configuration via a web GUI
- DIN rail mountable

5.2 Bundle content

- E200 Series router x 1
- 1m Ethernet cable 8P8C x 1
- 2G/3G/4G terminal antenna （Length> 20mm） SMA x 1
- 3.8 dBi, 2.4/5.1~5.9 GHz dipole antenna RP-SMA (M) hinged 90° x 1
- Industrial grade 1.2 A power supply x 1
- DIN clip x 1

If any of these items are missing or damaged, please contact Maestro Support immediately. The Maestro Support website can be found at: http://support.maestro-wireless.com/

6 Product features

With high-speed cellular (3G and beyond), WAN, LAN and Wi-Fi connectivity, the E200 is a highly versatile, reliable and rugged router designed for mission-critical enterprise applications requiring faultless connectivity.

The E200 comes in two models; the cost-effective HSDPA ensures always- on connectivity for 2G migration or low-latency applications such as energy and sales & payment, while the HSPA+ penta-band is ideal for deployment in vertical markets requiring high-speed data or global roaming, such as security and transportation.

The E200 can be configured through an easy-to-use web interface; a configuration wizard will help the user set-up the router step-by-step and select their primary and redundancy network. Advanced configuration setting for functions such as VPN, IPsec, OpenVPN and Wi-Fi hotspot are also directly available through the web interface. Once configured, a set of 6 LED's on the top of the aluminum alloy casing will help the user ensure that the device is operating correctly. Users can also remotely manage the router is also available through an HTTPS connection over the LAN or WAN.

7 Physical dimensions and LED

7.1 Physical dimensions

E200 Series dimensions without connector	
Lenght	83.9mm
Depth	60mm
Height	25mm
Weight	90g

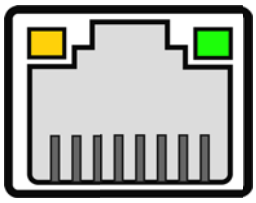
7.2 LED indicators

The E200 Series features 6 LEDs on the front to display critical system information

NAME	COLOUR	STATE	DESCRIPTION
WI-FI		**OFF**	Wi-Fi network is deactivated
		**Flashing**	Wi-Fi network connection traffic
		**ON**	Wi-Fi network is activated
Activity		**OFF**	Cellular data service is not connected
		**Flashing**	Cellular data service traffic
		**ON**	Cellular data service is connected
Network		**OFF**	SIM card is not inserted
		**Flashing**	Device is registered on the cellular network
		**ON**	SIM card is inserted
Signal		**OFF**	No signal (CSQ<10)
		**Flashing**	Weak signal (10<CSQ<20)
		**ON**	Strong signal (CSQ>20)
Power		**OFF**	Power off
		**ON**	Power on
Alert 		**OFF**	No alert, device is running smoothly
		**Flashing**	Software fault (crash, issues…)
		**ON**	Hardware fault (high temperature, problem with module or SIM card)

7.3 Ethernet port LED indicators

The E200 Series router features two Ethernet ports with two LED.

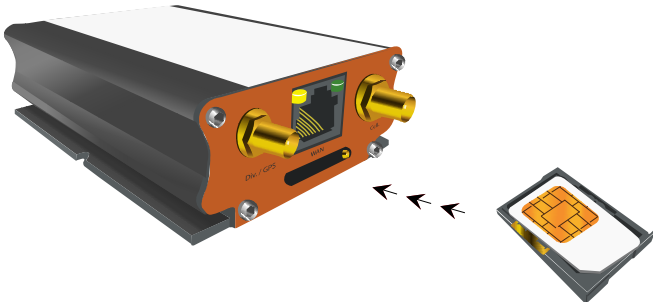


LED	STATUS	DESCRIPTION
Green	On	There is a valid network link.
	Blinking	There is activity on the network link.
	Off	No valid network link detected.
Amber	On	The Ethernet port is operating at a speed of 1000Mbps.
	Off	The Ethernet port is operating at a speed of 10/100Mbps or no Ethernet cable is connected.

8 Hardware installation

8.1 Install the SIM card

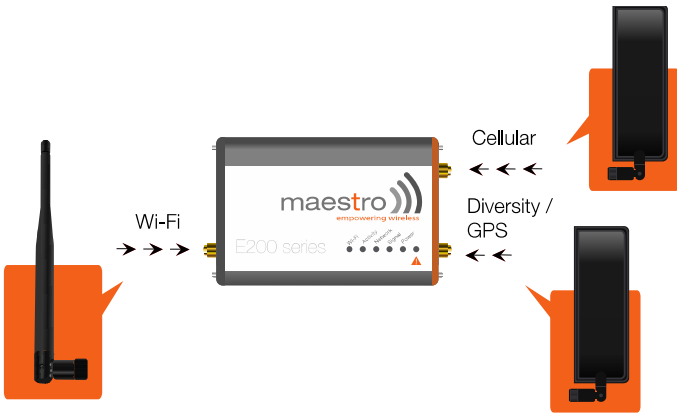
SIM card(s) should be inserted into the SIM tray as illustrated in the image below. SIM card contact should be face up.



8.2 Connect the Cellular (WWAN) Antenna(s)

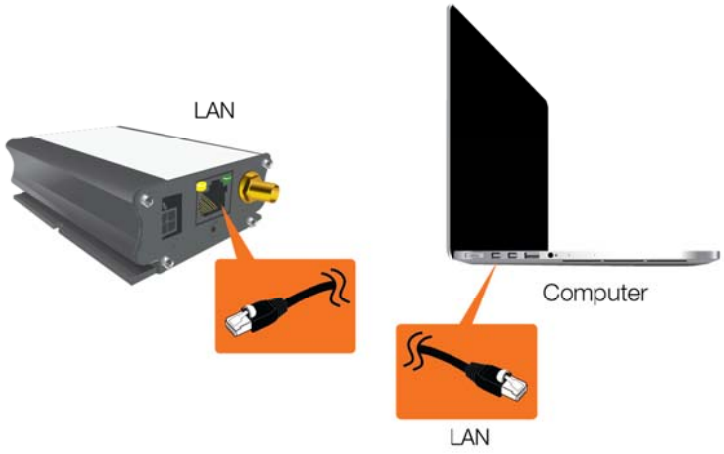
Connect the cellular antenna to the "Cellular" connector (SMA Female) on the unit. If the unit is equipped with a secondary cellular antenna connector "Div.", it is highly recommended to connect an additional antenna to this connector for diversification. Dual antennas will provide improved signal strength thus better performance.

Note: For most applications, the antenna(s) included with the unit will provide suitable reception, but some circumstances/environments may require a higher quality antenna or one mounted in a different location. If this is the case, Maestro has many antenna options to chose from, please contact us or visit maestro-wireless.com.



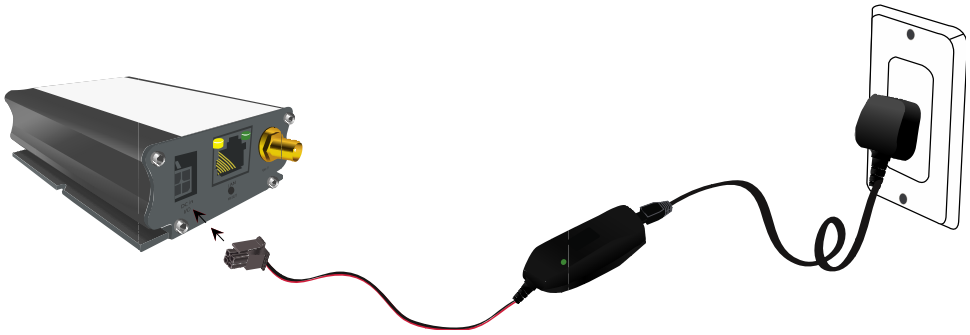
8.3 Connect the LAN Cable

Connect one end of the Ethernet cable to the "LAN" port on the unit and the other end to a LAN port on a PC.



8.4 Connect the power supply

Connect the Micro-Fit 4-pin male connector of the power supply to the power connector located on the LAN side of the unit.



9 E205 Basic configuration

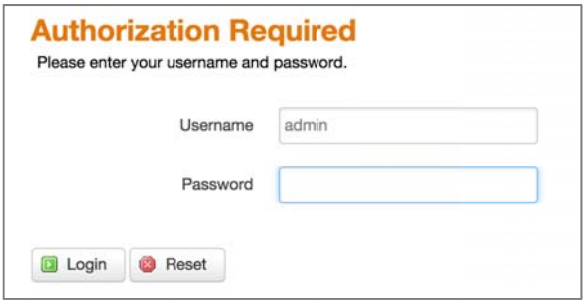
9.1 Connecting to the web interface

Connect the LAN interface of your E200 to a computer via the RJ-45 cable and and start your web browser. Enter the device LAN IP address in the browser address field.

http://192.168.1.1

Note: If you change the IP address, remember to reboot the router and enter the new IP address into your browser address bar.

You will be invited to enter the admin username and password:



- Default login – admin
- Default password – admin

(This is the default username and password for Maestro routers. The admin and read-only user passwords can be changed at System>Administration

After successfully login the Quick Setup page will show up

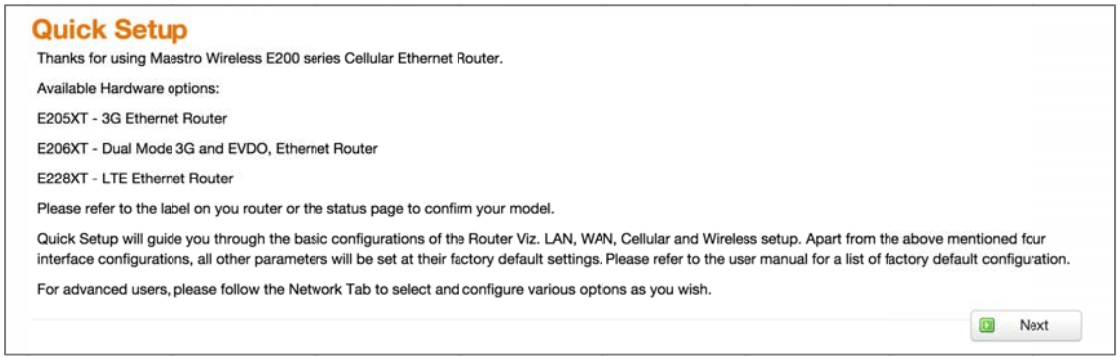


Figure 1: Quick Setup

If you need to access advanced feature you can navigate directly in the menu.

If you want to follow the quick user guide click on the Next button and you will enter quick setup page.

Since E200 has multiple WAN interfaces, the default priority settings for switching between various WAN interfaces is as follows and cannot be changed in Quick setup. To make any changes the WAN priority settings, please go to the **Network / Load Balancing** Tab

- Priority 1 – Wired WAN
- Priority 2 – Wi-Fi as WAN (WWAN) (Wi-Fi in Client Mode)
- Priority 3 – Cellular

In the quick setup page, you can perform basic configuration settings for the LAN, WAN, Cellular and Wi-Fi interfaces. All other configurations will be set to the factory default or previously saved values..

9.2 LAN configuration

The LAN configuration page is used to configure the LAN settings of the router

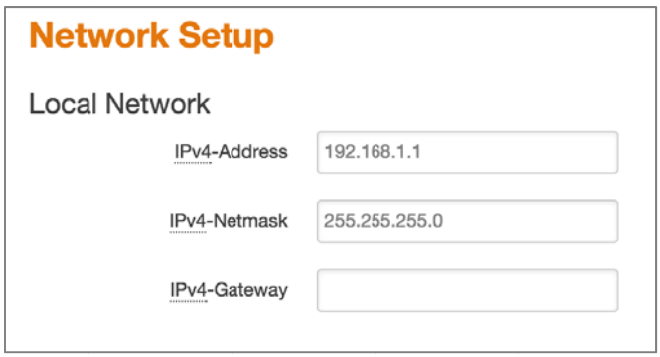


Figure 2: IP address

The modem router is shipped preconfigured to use private IP addresses on the LAN side, and to act as a DHCP server. The modem router's default LAN IP configuration is as follows:

- LAN IP address: 192.168.1.1
- IPv4 Netmask : 255.255.255.0

These addresses are part of the designated private address range for use in private networks, and should be suitable in most applications. If your network has a requirement to use a different IP addressing scheme, you can make those changes here and click.

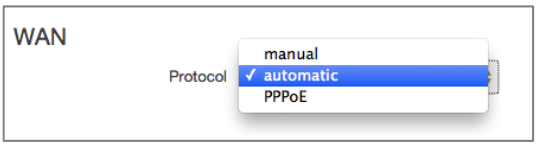
The LAN TCP/IP Setup settings are

- IPv4 Address: This is the LAN IP address of the modem router.
- IPv4 Netmask: This is the LAN subnet mask of the modem router. Combined with the IP address, the IP subnet mask allows a device to know which other addresses are local to it, and which must be reached through a gateway or modem router.

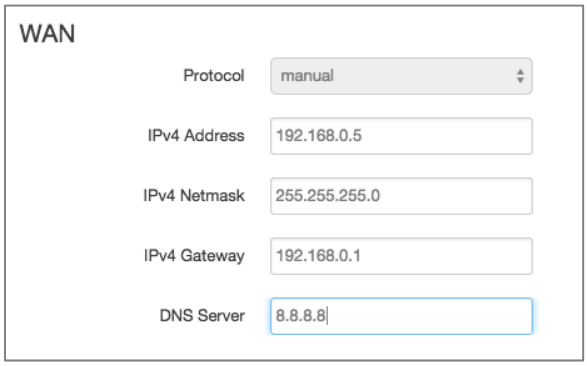
Advanced LAN configuration parameters could be found under Network/Interfaces, under LAN parameters click Edit > Advanced Settings.

9.3 WAN configuration

By default the WAN is in automatic mode, you can also set it to Manual or PPPoE



9.3.1 Manual



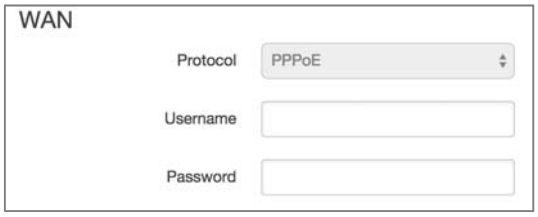
- IPv4 Address: The IP address to assign to the selected WAN interface.
- IPv4 Netmask: The Subnet mask of the IP address above.
- IPv4 Gateway: The gateway to assign this WAN interface.
- DNS server: The DNS server for the WAN interface.

9.3.2 Automatic

The WAN will be setup automatically.

9.3.3 PPPoE (Point-to-Point Protocol over Ethernet)

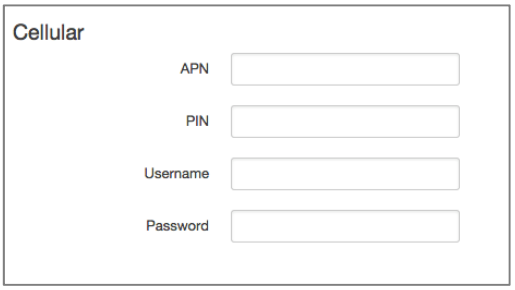
Acquire IP Address automatically from your Provider using the PPPoE protocol.



Many DSL providers use PPPoE. To acquire an IP Address from the PPPoE server, a username and password are required. Ask your Provider for your username and password if you don't know them.

Advanced WAN configuration parameters could be found under Network/Interfaces, under WAN parameters click Edit > Advanced Settings.

9.4 Cellular Setup

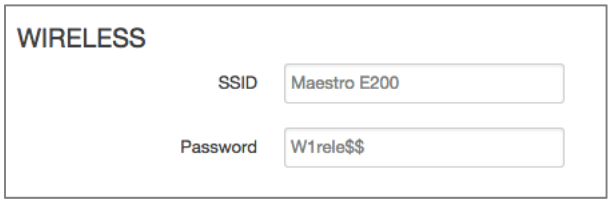


You can enter the cellular settings like APN, SIM PIN for security, Username and Password corresponding to your cellular connection (SIM Card), which you will receive from your Cellular Operator.

- APN: Access Point Name, enter the access point name provided by your network operator
- PIN: If required please enter your SIM card's PIN code
- Username and Password: If required enter login credentials provided by your network operator

Advanced cellular configuration parameters could be found under Network/Interfaces, under 3G parameters click Edit > Advanced Settings.

9.5 Wireless (Wi-Fi)



By default, the Wi-Fi is in Access Point mode:

- Default SSID: Maestro E200
- Default Password: W1rele$$

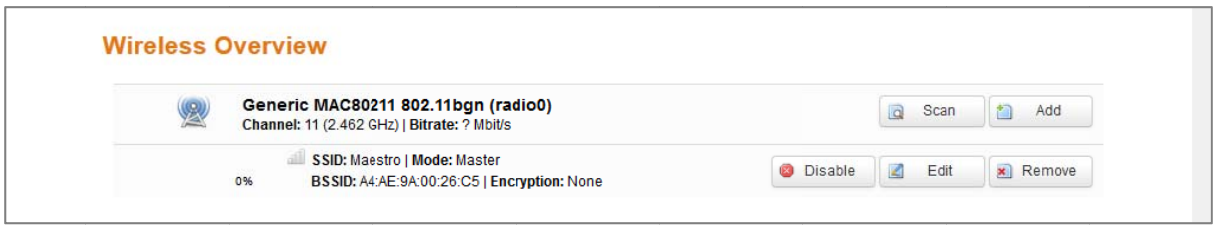
The E200 Wi-Fi can be configured either as

- An Access Point, in which case, the Wi-Fi acts as a LAN or
- As a Wi-Fi Client in which case, the E200 connects to an external Wi-Fi source which will be the source of Internet or WAN for the E200.

Default security settings used are WPA-PSK, WPA2-PSK Mixed Mode. You can choose your encryption and change your password accordingly. Bring up on boot tick box in Wireless section by default is enabled. Ticking the box will enable the Wi-Fi (Wireless) interface every time the Router Reboots.

Wi-Fi section from this Quick setup page will disappear when

- The default Wi-Fi interface is removed from Network / Wi-Fi page
- When you scan for available Wi-Fi networks and convert the Router to Client Mode.



If you create multiple access point networks (Multiple SSDI's), the additional Wi-Fi networks created will not show up in Quick Setup.

Advanced Wi-Fi configuration parameters could be found under Network/Wi-Fi, under Wireless Overview parameters click Edit > Advanced Settings.

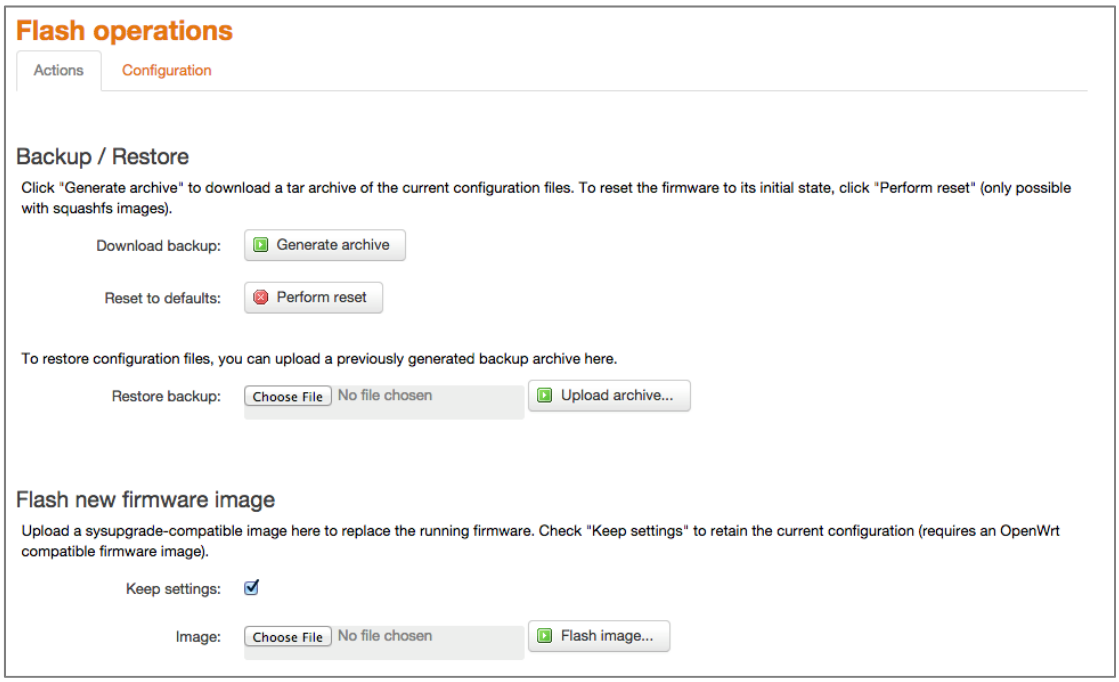
Once the Quick Setup is done, you will have basic LAN connectivity, Internet access over WAN and/or Cellular and Wi-Fi will be configured as Access Point.

To verify that your setup were succefully applied and your router is now running go to Network/Interfaces.

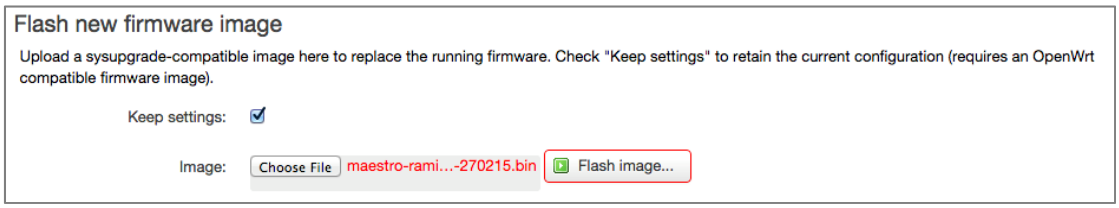
10 E205 advanced configuration

10.1 Flashing firmware and updating your device

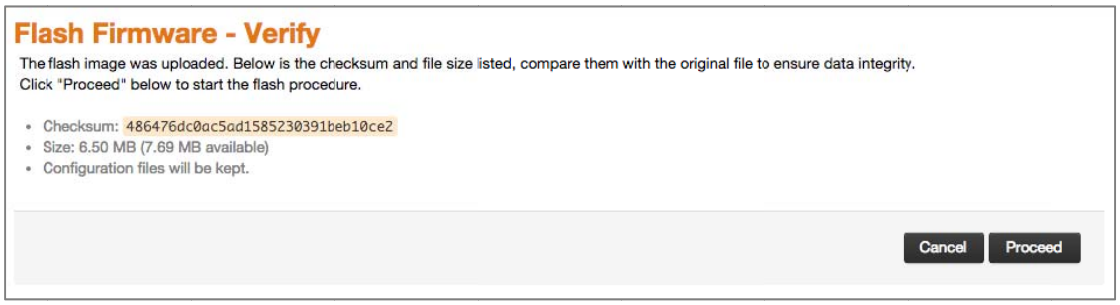
E200 Series can be updated through the web interface. Go to System/Back-up / Flash Firmware.



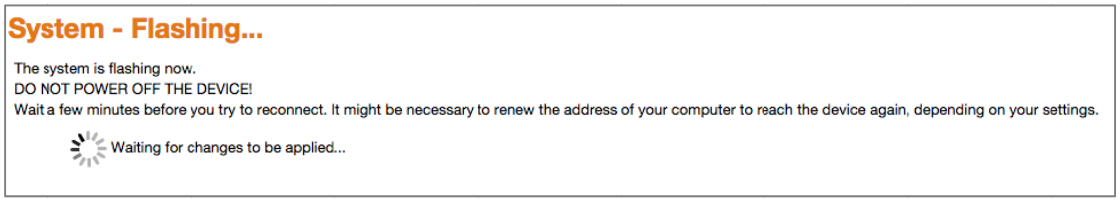
Under Flash new firmware image, click on Choose File and locate the .bin file on your computer.



Once the file located on the computer click Flash image…



Click Proceed



The system will now be flashing.

DO NOT POWER OFF THE DEVICE!

Wait a few minutes before you try to reconnect. It might be necessary to renew the address of your computer to reach the device again, depending on your settings.

11 Appendix

11.1 Default settings

The following tables list the default settings for the E200 Series router.

Note: The admin manager account allows you to manage all settings of the router except functions such as ...., which are privileged only to the root manager account.

LAN (MANAGEMENT)			
Static IP Address:		192.168.1.1	
Subnet Mask:		255.255.255.0	
Default Gateway:		192.168.1.1	
ADMIN MANAGER ACCOUNT		ROOT MANAGER ACCOUNT	
Username:	admin	Username:	root
Password:	admin	Password:	admin

E200 SERIES ROUTER TELNET ACCESS	
Username:	root
Password:	admin

11.2 Reset to factory default setting

Restoring factory defaults will reset the E200 Series router to its factory default configuration. You may encounter a situation where you need to restore the factory defaults on your E200 Series router such as:

- You have lost your username and password and are unable to login to the web configuration page
- You are asked to perform a factory reset by Maestro support staff.

There are two methods you can use to restore factory default settings on your E200, using the web-based user interface or using the reset button on the side of the router.

11.2.1 Using the web-based user interface

To restore your router to its factory default settings, please follow these steps:

Open a browser window and navigate to the IP address of the router (default address is http://192.168.1.1). Login to the router using root as the User Name and admin as the password.

Click the System item from the top menu bar, then Backup / Flash Firmware and then under Flash operations select the Actions tabs.

Under the Actions tabs, click the Perform reset button. The router asks you to confirm that you wish to reset all changes. Click OK to continue. The router will erase the configuration partition and reboot.

11.2.2 Using the reset button on the side of the router

Use a pin to push the Reset button on the device for XX seconds. The router will restore the factory default settings and reboot.

When you have reset your E200 Series router to its default settings you will be able to access the device's configuration web interface using http://192.168.1.1 with username admin or root and password admin.

11.3 List of acronyms

Acronym	Expansion / Meaning
2G	2nd Generation
3G	3rd Generation
ADSL	Asymmetric digital subscriber line, ADSL is a type of DSL broadband communications technology used for connecting to the Internet
AES	Advanced Encryption Standard
AP Client	Access Point Client
CSQ	
DHCP	Dynamic Host Configuration Protocol (DHCP) is a standardized networking protocol used on Internet Protocol (IP) networks for dynamically distributing network configuration parameters, such as IP addresses for interfaces and services.
DIN	DIN connector is an electrical connector that was originally standardized by the Deutsches Institut für Normung (DIN)
DMZ	In computer security, a DMZ or Demilitarized Zone is a physical or logical sub network that contains and exposes an organization's external-facing services to a larger and un-trusted network, usually the Internet.
DNS	Domain Name System (DNS) is a hierarchical distributed naming system for computers, services, or any resource connected to the Internet or a private network
DynDNS, DDNS	Dynamic DNS (DDNS) is a method of automatically updating a name server in the Domain Name System (DNS), often in real time, with the active DNS configuration of its configured hostnames, addresses or other information.
EDGE	Enhanced Data rates for GSM Evolution (EDGE) is a digital mobile phone technology that allows improved data transmission rates as a backward-compatible extension of GSM.
GPRS	General packet radio service (GPRS) is a packet oriented mobile data service on the 2G and 3G cellular communication system's global system for mobile communications
GSM	Global system for mobile communications
HT Physical mode	High Throughput Physical Mode
ICMP	Internet Control Message Protocol (ICMP) is one of the main protocols of the Internet Protocol Suite. It is used by network devices, like routers, to send error messages
IGMP	Internet Group Management Protocol is a communications protocol used by hosts and adjacent routers on IP networks to establish multicast group memberships
IP Sec	Internet Protocol Security is a protocol suite for securing Internet Protocol (IP) communications by authenticating and encrypting each IP packet of a communication session
ISP	Internet service provider
L2TP	Layer 2 Tunneling Protocol is a tunneling protocol used to support virtual private networks
LAN	Local Area Network
Acronym	Expansion / Meaning
LLTD	Link Layer Topology Discovery is a proprietary Link Layer protocol for network topology discovery and quality of service diagnostics
M2M	Machine to machine
MAC address	Media access control address is a unique identifier assigned to network interfaces for communications on the physical network segment
MTU	Maximum transmission unit of a communications protocol of a layer is the size (in

	bytes) of the largest protocol data unit that the layer can pass onwards
NAT	Network address translation is a methodology of modifying network address information in Internet Protocol (IP) datagram packet headers while they are in transit across a traffic routing device for the purpose of remapping one IP address space into another.
NTP	Network Time Protocol is a networking protocol for clock synchronization between computer systems over packet-switched, variable-latency data networks
PPPoE	Point-to-Point Protocol over Ethernet
PPTP	Point-to-Point Tunneling Protocol
PSK	Pre-shared key
QoS	Quality of Service
RF	Radio Frequency
Rx	Reception
SIM	Subscriber identity module
SMA	SMA (Sub Miniature version A) connectors are semi-precision coaxial RF connectors
SMS	Short Message Service
SPI	Serial Peripheral Interface
SSID	Service set identification
TCP	Transmission Control Protocol
TKIP	Transmission Control Protocol
Tx	Transmission
UDP	User Datagram Protocol
UPnP	Universal Plug and Play
VPN	Virtual private network
WAN	Wide Area network
WCDMA	Wideband Code Division Multiple Access
WDS	Wireless distribution system
WEP	Wired Equivalent Privacy, is a wireless network security standard
Wi-Fi	Local area wireless technology that allows an electronic device to exchange data or connect to the internet using 2.4 GHz UHF and 5 GHz SHF radio waves
WPA	Wi-Fi Protected Access
WPA2	Wi-Fi Protected Access II

11.4 Support

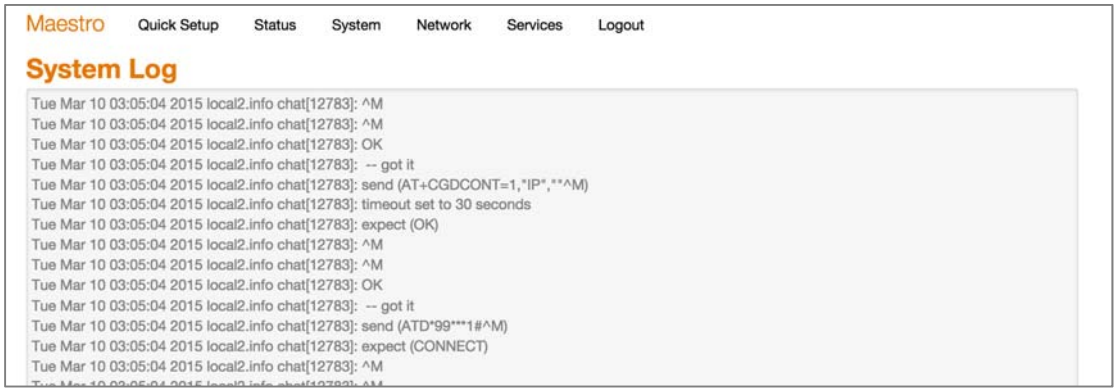
There are several resources available to you for support and troubleshooting of your Maestro product or for resolving configuration difficulties at Maestro's support website, http://support.maestro-wireless.com/knowledgebase.php.

Try these troubleshooting steps to eliminate your problem. After working through these steps and if your problem is not solved, please send a ticket to Maestro support team.

Fill out an Online Support Request via: http://support.maestro-wireless.com/index.php?a=add. You will need to create a user account if one is not already set up.

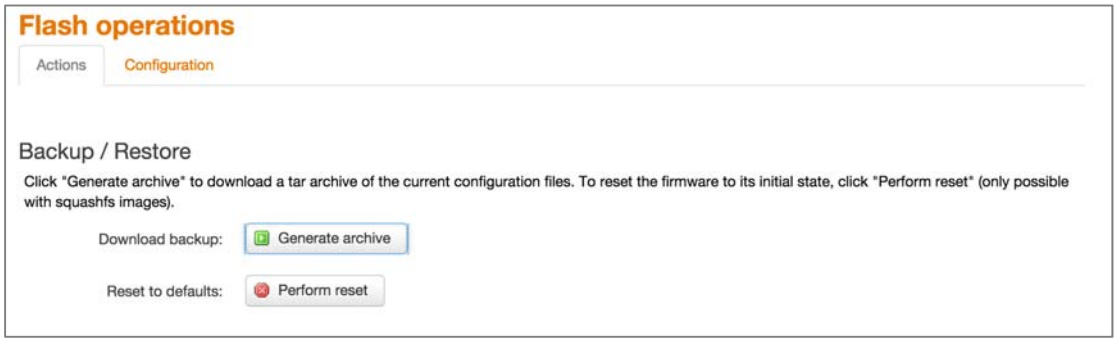
When submitting a support request, please include a copy of the System Log file from the unit's and the configuration files. This will greatly improve the quality of the initial response you receive. Without this file, it is often very difficult for the support team to provide accurate answers to your queries.

To create a copy of the system login on your router and go to Status > System Log.



Select the entire log, copy it and paste it on a new document file .

To generate an archive of your configuration go to System > Backup / Flash Firmware, under the Actions tabs click on Generate archive.



An archive file "backup-Maestro-201x-xx-xx.tar.gz will be downloaded on your default download folder, please attached the file while filling the support request online.