



How to Set up MP01 as a Wifi Access Point or Wifi Client

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This guide describes how to configure a MP01 as either a Wifi Access Point or as a Wifi Client so that it can be used in a simple (non-mesh) Wifi network.

The first section is common setup for both configurations. After completing this section, proceed with either Sect 2 or Sect 3 depending on whether you wish to run the MP as an Access Point or as a Client.

The setup was done with a PC running Ubuntu 10.04 and a Mesh Potato model MP01 v1.2 and v1.5.

1. Basic Setup

In this section the MP01 will be flashed with the required firmware and additional packages installed to support operation as a Wifi Access Point or Wifi Client.

1.1 Flash the MP with VT-rv273 firmware

The MP01 rv233 firmware as shipped from factory needs to be updated to support this configuration. Download firmware from:

http://www.atcom.cn/downloads/WiFi_Mesh_ATA/Firmware/rv273/openwrt-at-heros-combined-rv273.img

http://www.atcom.cn/downloads/WiFi_Mesh_ATA/Firmware/rv273/openwrt-at-heros-root-rv273.squashfs

http://www.atcom.cn/downloads/WiFi_Mesh_ATA/Firmware/rv273/openwrt-at-heros-vmlinux-rv273.lzma

Download the .img .squashfs .lzma files for the rv273 firmware version and save to a suitable directory. Connect the MP directly to your PC with an Ethernet cable with the MP Power off. Execute potato-flash:

```
$ sudo potato-flash eth0 openwrt-atheros-root-rv273.squashfs  
openwrt-atheros-vmlinux-rv273.lzma
```

Wait for the program to start looking for the MP device - a series of dots will appear onscreen. Switch the power on to the MP. Wait for the flashing process to complete and for the MP to restart. This will take several minutes.

1.2 Set up MP Fallback Ethernet profile on the PC

Set up the PC with an Ethernet profile in Network Manager as follows:

Static IP: 172.31.255.253

```
Netmask: 255.255.255.252
```

Save the profile in Network Manager for later use. At any stage of the configuration of the MP, it can always be accessed at the fallback address on Ethernet.

1.3 Connect the MP to a LAN

Connect the MP01 via Ethernet cable to a LAN with a DHCP server and internet access. Connect the PC to the same LAN and set it to the MP Fallback profile. Check that you can access the MP from the PC by pinging the MP fallback address 172.31.255.254. For Sections 1 and 2 of this guide, it is assumed that the MP and PC are connected to the LAN this way.

1.4 Set up root password on MP

Telnet to the MP at 172.31.255.254

```
$ telnet 172.31.255.254
```

Set the root password with the command:

```
# passwd
```

Exit and connect to the MP with ssh:

```
$ ssh root@172.31.255.254
```

1.5 Start DHCP on the MP Ethernet port

Open an ssh session on the MP from the PC. Start DHCP on the Ethernet port by issuing the command:

```
# udhcpc -i eth0
```

The MP will acquire an IP address on the LAN after a short time. DHCP will run on the Ethernet port only until the MP is powered down; it is not a permanent configuration. Check that the MP has internet access by pinging an internet address from the MP command line:

```
# ping www.google.com
```

1.6 Load the MP configuration files

Download the configuration files tarball (configs.tgz) to the PC from:

```
http://www.atcom.cn/downloads/WiFi\_Mesh\_ATA/Firmware/rv273/configs.tgz
```

Extract the tarball contents to a suitable directory and cd to the directory. Open a terminal session and copy the config directories/files to the MP /etc directory:

```
$ scp -r ./config-ap root@172.31.255.254:/etc
$ scp -r ./config-ap-client root@172.31.255.254:/etc
```

1.7 Install additional packages

Browse to the MP Fallback address to get the OpenWRT LuCI login page. Log in as root and go to the menu item: **System/Software**. This page will list the software packages installed on the MP. Select the '**Update package list**' link to show both installed and available packages. Select the checkboxes for the required packages as follows:

Access Point mode: hostapd-mini and hostapd-utils

Client mode: iptables, iptables-mod-nat, iptables-mod-nat-extra, and wpa-supPLICANT

Click on '**Perform Actions**' button at bottom of page. The page will refresh and show these packages as 'installed'.

Alternatively you can install these packages from the command line on the MP:

For Access Point mode:

```
opkg install hostapd-mini hostapd-utils
```

For Client mode:

```
opkg install iptables iptables-mod-nat iptables-mod-nat-extra wpa-supPLICANT
```

1.8 This completes the basic set up

Proceed with either Sect 2 for Access Point configuration, or Sect 3 for Client configuration.

2. MP Access Point Setup

In this section the MP will be configured as a Wifi Access Point and its configuration parameters will be set up. The MP Access point is configured to

obtain an IP address using DHCP when connected to a LAN via Ethernet. A Wifi enabled PC should be able to associate with the MP Access Point and access the internet.

2.1 Execute the Wifi Access Point configuration set up script

Connect to the MP with ssh on the Fallback IP address and execute the setup script:

```
# /bin/accesspoint.sh
```

The MP will restart. Allow several minutes for the MP to become fully operational in the new mode. Connect to the MP with ssh on the fallback IP address to check its operation.

Note: At this point the MP is acting as an open, un-encrypted Wifi Access Point, so be aware of security.

2.2 Set up the Wifi Access Point configuration

Connect to the MP with a browser and log in to the OpenWRT LuCI page. Select **Network/Wifi/WIFI0**. Set the required ESSID and channel for the MP Access Point. Scroll down to the Interfaces section and select required Encryption: e.g. WPA-PSK and enter the pass phrase Key. Scroll down and click on '**Save&Apply**'. The page will refresh with the new values Check that you are able to connect to the MP AP with a wifi enabled PC and access the internet.

3. Wifi Client Setup

In this section the MP will be configured as a Wifi Client and will be set up to associate with a Wifi Access Point. A PC connected to the MP Ethernet port will be then be able to access the Wifi Access Point LAN, and the Internet, via the LAN gateway.

3.1 Execute the Wifi Client configuration set up script

Connect a PC configured for MP Fallback address to the MP Ethernet port. Connect to the MP with ssh and execute the setup script for wireless client mode:

```
# /bin/wireless_client.sh
```

The MP will restart. Allow several minutes for the MP to become fully operational in the new mode.

3.2 Set up MP Wifi Client configuration

Browse to the MP Fallback address 172.31.255.254 to get to the OpenWRT LuCI login page. Log in as root and go to menu item **Network/Wifi/WIFI0**. Set the Channel, ESSID, Encryption type (eg WPA-PSK), and passphrase key, to match the required AP settings. Scroll down and click '**Save&Apply**'. The screen will refresh and the MP should associate with the required AP after a short time.

3.3 Connect a PC to the MP Ethernet port with DHCP

Connect a PC, with its ethernet port configured for DHCP, to the MP ethernet port. The PC should acquire an IP address lease in the range 10.10.10.100 - 200. Check that you can connect to the MP Ethernet address 10.10.10.1. Check that you have internet access on the PC by browsing to an internet site.

4. Reference

<http://wiki.villagetelco.org/>

<http://www.atcom.cn/>