

FANOTEC
Nodal Ninja



MECHA

Controller C1

Reference Manual

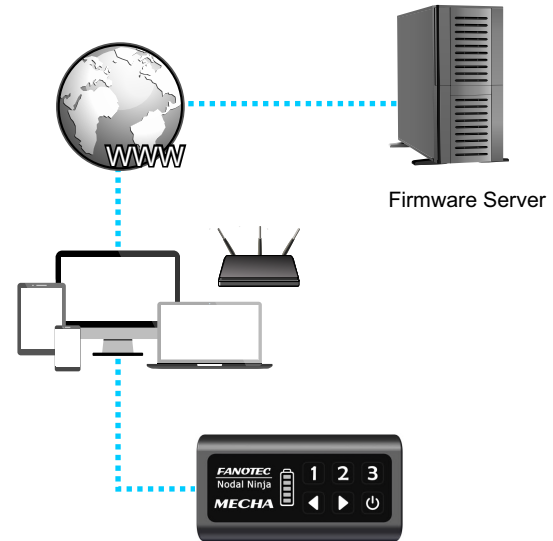
Support Forum:
www.nodalninja.com/forum



Video Tutorials:
www.youtube.com/nodalninja



Web Control Interface and Firmware Update



URLs in the hyperlinks are listed in the [Reference](#) section in P7. Their QR codes are also shown. Each URL is indexed with a superscript number in a bracket, eg ^[1].

EN Version 0.1 (Aug 2019)

Accessing the Web Control Interface and Firmware Update

Access Point (AP) Mode Versus Station (STA) Mode

MECHA Controller C1 (MECHA) works in two network modes: Access Point (AP) or Station (STA). AP mode allows it to create its own network and have up to 5 devices to connect to it. STA mode allows it to connect to a Wi-Fi network (eg one created by your wireless router), acting as a client.

Out of box, MECHA works in AP mode. Since it does not have a wireless modem, it does not have Internet access. A device connected to it may also lose Internet access.

MECHA as an Access Point



ap_ip: 192.168.8.1



To connect to a MECHA in AP mode, in Wi-Fi network list of the device, browse for network name (SSID): **MECHA-123ABC**, where **123ABC** are last 6 digits of MECHA's MAC address. Enter **12345678** as the password.

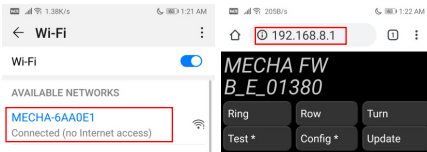
Refer to device manual on how to connect to Wi-Fi. [Here](#)^[1] is a web page for animated instruction for many smartphones. [Here](#)^[2] is a generic guide.

Upon connection to the network, user can access the web control interface by typing **192.168.8.1** in web browser address bar. For the first connection or right after firmware update, MECHA will show the **"What is new?"** page. If you enter **Ring**, **Row** or **Turn** page, the last visit will be memorized and opened instead. The **"What is new?"** page can also be opened by entering **192.168.8.1/new** in the browser address bar.

Tips

Your device may say this network has no Internet access. You must select stay connected.

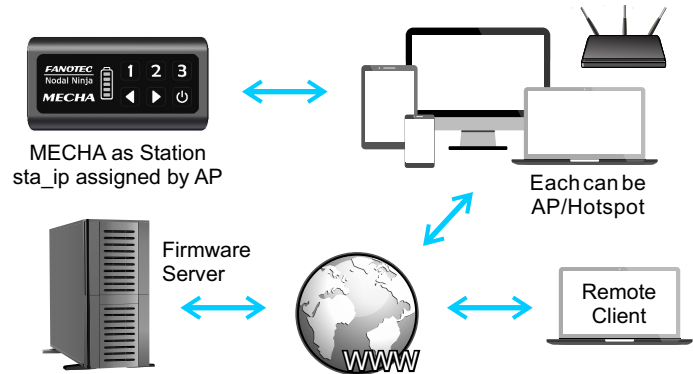
You can add **192.168.8.1** to Home Screen on any smartphone or tablet. See [here](#)^[3] for instructions. You can also bookmark it.



To force MECHA in AP mode (when it was previously in station mode), during MECHA powering up, when LEDs show **--|--|--|--** splitting lights, press button **[1]** for about 3 seconds until you hear a beep.

MECHA as a Station

MECHA connects to an AP or a hotspot. The hotspot server or other stations in the same network can connect to MECHA by using its IP, the **sta_ip**. If the hotspot has Internet access, all the connected stations gain Internet access. This is the recommended mode when the controlling device needs Internet access. In this mode, MECHA can connect to firmware server for updates, download tools or images to enhance the web control interface. It can even be controlled by a remote client over the Internet for advanced applications.



Modern mobile and desktop operating systems allow creating a Wi-Fi hotspot with customizable network name (SSID) and password. There are also third-party applications supporting older systems. See P4-7 for instructions on how to setup a hotspot.

To connect to a hotspot, use **[Connect to Wi-Fi]** button at the lower left corner of **Ring**, **Row** or **Turn** page. Enter SSID and password of the hotspot. Note they are case sensitive and beware of any extra



Access Point (AP) Mode Versus Station (Sta) Mode

space. MECHA will save these network credentials and scan for the network (green LEDs running up and down). MECHA will shut down its network and connect to the hotspot if SSID and password match. MECHA can no longer be reached at [192.168.8.1](#) in station mode. It will revert to AP mode if connection fails.

Tips

You can use the controlling device as the hotspot if this feature is supported. Turn off MECHA after entering SSID and password, then turn on hotspot on your device. Turn on MECHA, it will scan and connect to your hotspot.

You can use [\[Connect to Wi-Fi\]](#) button to switch to another Wi-Fi network even if MECHA is in station mode.

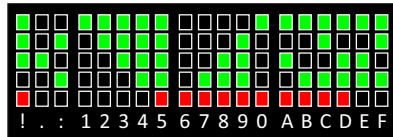
To connect to MECHA in station mode, you need to be on the same network and know the IP assigned to MECHA. For clarity, we will use [ap_ip](#) for IP of AP, and [sta_ip](#) for IP of station. Many hotspot will show the IP and MAC address of connected devices. Refer to specific hotspot for details. See P4-7.

In general, a hotspot assigns IP addresses to the connected devices in the following manner:

- ✦ For standalone Wi-Fi Router, assigned IP will be [192.168.1.x](#) or [192.168.0.x](#), where x can be 2-254.
- ✦ For Android, assigned IP will be [192.168.43.x](#), where x can be 2-254.
- ✦ For iPhone/iPad, assigned IP will be [172.20.10.x](#), where x can be 2-14.
- ✦ For Windows or Mac, assigned IP will be [192.168.y.x](#) where y can be 1-255 and x can be 2-254.

On the same hotspot, the first 3 parts of IP (eg [192.168.1.](#)) are fixed for every connection, once you know them, it suffices to know the last part (the [x](#)) of the IP. This saves lots of time in decoding the LED signals.

In firmware B_E_01325 and later, IP of MECHA can be displayed using the onboard LEDs. Each column is an LED combination that corresponds to a code underneath.

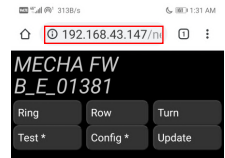


Each digit is shown for 3 seconds. After the complete address is shown, MECHA exits from IP address display mode automatically.

- ✦ To show the entire IP address (after it connects to a network) on LED like [192.168.0.100](#), enter code [323](#) using MECHA's buttons [\[3\]](#) [\[2\]](#) [\[3\]](#) [\[4\]](#).
- ✦ To show the last part of IP address starting with dot, like [.100](#), enter code [321](#) using MECHA's buttons [\[3\]](#) [\[2\]](#) [\[1\]](#) [\[4\]](#).
- ✦ The LEDs will show and repeat the codes entered before pressing any one of buttons [\[4\]](#) [\[5\]](#) [\[6\]](#), eg for code [323](#) entered, 3 green LEDs light up briefly, followed by 2 green LEDs and then 3 green LEDs. The sequence then repeats itself indefinitely. In case of mistake, press [\[6\]](#) to cancel and re-enter the codes.
- ✦ If [AAA](#) is shown, MECHA is in AP mode and the IP address is [192.168.8.1](#).
- ✦ If [!!!](#) is shown, Wi-Fi is OFF.
- ✦ If either [.0](#) or [0.0.0.0](#) is shown, MECHA isn't in AP mode nor have an IP assigned.

Record the IP of MECHA. Re-enter the code to show IP again if needed. Press [\[6\]](#) briefly to end the display of IP address quickly.

With MECHA and your device on the same network, you can access the web control interface by typing its IP in web browser address bar. Its last visited page in memory will be opened. Right after firmware update, MECHA will show the "What is new?" page. The "What is new?" page can also be opened by entering [ip/new](#) in the browser address bar.



On the next power up, MECHA will scan for network saved in memory. If it fails to connect in a specified time period, it will revert to AP mode. To save time, you can bypass the scanning and go directly to AP mode. When LEDs show [- - - - -](#) splitting lights, press button [\[1\]](#) for 3 seconds until you hear a beep.

To connect to a new network, open the web control interface, click the [\[Connect to Wi-Fi\]](#) button and enter a new network name (SSID) and password.

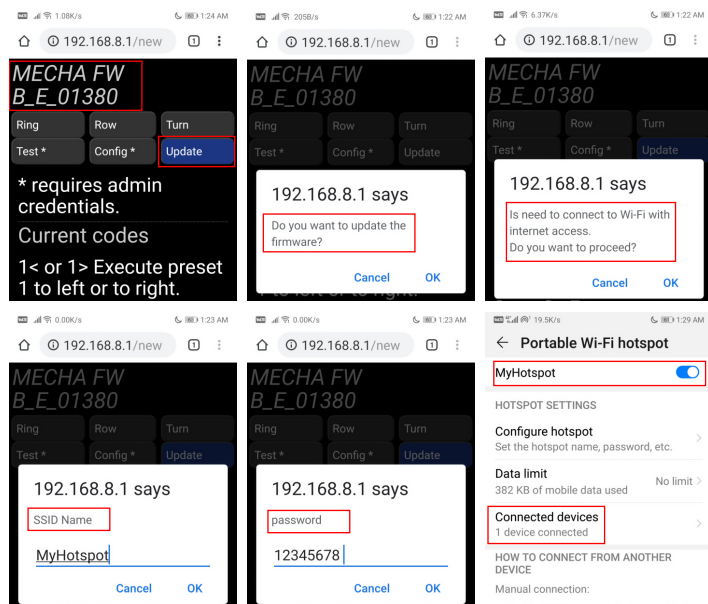
If Wi-Fi has been turned off, on the next power up, MECHA will be in AP mode. To enter station mode, when LEDs show [- - - - -](#) splitting lights, press [\[2\]](#) for about 3 seconds until you hear a beep.

Firmware Version and Update

A hotspot with Internet access is needed for firmware update. Refer to P2 for details. Setup and turn on the hotspot in advance if it is not on the same controlling device. MECHA firmware update is set to be automatic for firmware B_E_1368 or older. With newer firmware, update must be manually activated. Update the firmware only if you have time to test it thoroughly before any critical job.

Check [here](#)^[4] for current firmware version and update history. Changes in each firmware is also listed. Open [192.168.8.1/new](#) or [sta_ip/new](#) in web browser. At the top of page, it will show the firmware version. To turn on update, click [\[Update\]](#) button in [ip/new](#) page. A pop up will ask for confirmation. Click [OK](#).

In AP mode, a pop up will ask for connection to a hotspot. Click [OK](#). Enter SSID of hotspot and password. Note they are case sensitive and beware of any extra space. If you will use the controlling device as the hotspot as in this



instruction, power off MECHA and turn on the hotspot. Then turn on MECHA again. MECHA will connect to your hotspot automatically if SSID and password match.

In STA mode, a pop up will ask for confirmation of update. It will not ask for SSID. Once MECHA is connected to the Internet, it will check with server, download any new firmware, install it and reboot. It will give a series of LED sequence and 3 beeps twice after successful firmware update. Power cycle MECHA. When LEDs show `----` splitting lights, press button [\[1\]](#) for 3 seconds until you hear a beep. It will revert to AP mode and can be reached by [192.168.8.1](#). In firmware C1_1400 and later, MECHA will default to AP mode after update. There is no need to press [\[1\]](#) for 3 seconds.

Troubleshooting Firmware Update

If MECHA somehow fails to connect to a hotspot as described above, create a Wi-Fi hotspot as follows:

Network Name: [M-123ABC](#)

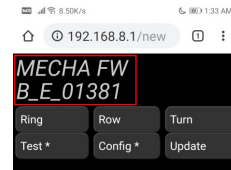
Password: [12345678](#)

where [123ABC](#) is the last part of MECHA network name, which appears as [MECHA-123ABC](#) in Wi-Fi network list when MECHA is first turned on. For MECHA used in this guide, network name to create is [M-6AAOE1](#).

Then start/restart MECHA, when LEDs show `----` splitting lights, press Button [\[3\]](#) for about 3 seconds, until you hear 6 rapid beeps. MECHA will reset its Wi-Fi settings to factory default and try to connect [M-123ABC](#) network. With access to the Internet, it will connect to server, download any new firmware, install it and reboot. It will give a series of LED sequence and 3 beeps twice after successful firmware update.

Power cycle MECHA. When LEDs show `----` splitting lights, press button [\[1\]](#) for 3 seconds until you hear a beep. It will return to AP mode and can be reached by [192.168.8.1](#). In firmware C1_1400 and later, MECHA will default to AP mode after update. There is no need to press [\[1\]](#) for 3 seconds.

To check whether update is successful, connect to MECHA. Open [192.168.8.1/new](#) in web browser. At the top of page, it will show firmware version with a greater number than before. A recent list of firmware updates is also shown.



Sharing Your Internet Connection by Wi-Fi Hotspot

Sharing Your Internet Connection on Android

You can use your Android phone's mobile data to connect another phone, tablet, or computer to the Internet. Sharing a connection this way is called tethering or using a hotspot. Most Android phones support Wi-Fi hotspot . [Here](#) ^[5] is a web page for animated instruction for many smartphones.

Notes

This feature may not be available with all carriers. Additional fees may apply. Contact your carrier for more information.

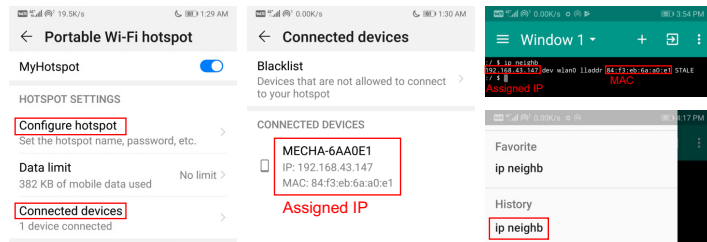
Tethering by Wi-Fi hotspot

You can share your phone's mobile data with up to 10 other devices.

1. Open your phone's [Settings](#) app.
2. Tap [Network & Internet](#) > [Hotspot & tethering](#).
3. Tap [Wi-Fi hotspot](#).
4. Turn on [Wi-Fi hotspot](#).
5. To see or change a hotspot setting, like the name or password, tap it. If needed, first tap [Set up Wi-Fi hotspot](#).

After you turn on [Hotspot](#), on the device, choose your phone's hotspot name from the list of available Wi-Fi networks.

Upon connection, your device will show up in [Connected devices](#). Many phones will also show the IP and MAC of the connected devices. This is important for connecting to MECHA in station mode. If IP is not shown, install the free [Material Terminal](#) app and execute the `ip neigh` (all lowercase) command. It will display both the IP and the MAC of the connected devices. Identify MECHA by MAC. Later you can use the history as shortcut to input this command. You can also save it in [Favorite commands](#) for future use.



Sharing Your Internet Connection on iPhone

Use the Personal Hotspot feature to share your iPhone Internet connection. Other devices can share the connection using Wi-Fi. Personal Hotspot works only if iPhone is connected to the Internet over the cellular data network. [Here](#) ^[5] is a web page for animated instruction for many iPhone models.

Notes

This feature may not be available with all carriers. Additional fees may apply. Contact your carrier for more information.

Sharing an Internet Connection

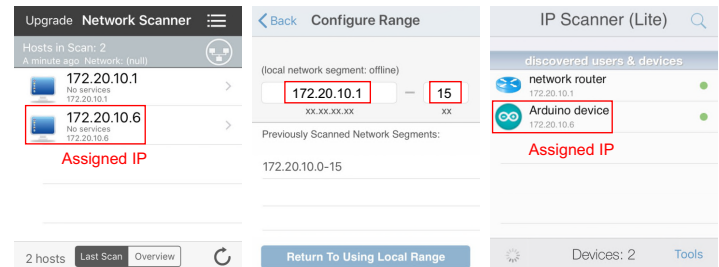
Go to [Settings](#), tap [Cellular](#), then tap [Personal Hotspot](#). To change the Wi-Fi password, tap [Personal Hotspot](#) > [Wi-Fi Password](#). Enter a password of at least eight characters.

After you turn on Personal Hotspot, on the device, choose your iPhone from the list of available Wi-Fi networks.

You can change the name of your Personal Hotspot by changing the name of your iPhone.

Go to [Settings](#), then tap [General](#) > [About](#) > [Name](#).

Personal Hotspot does not reveal the IP of the connected devices. Free apps like [iNet - Network Scanner](#) and [IP Network Scanner Lite](#) are the solutions. [iNet](#) shows the IP of connected devices once it runs. [IP Network Scanner Lite](#) requires inputting `172.20.10.1-15` in [Configure Active Scan Range](#). Both show `172.20.10.1` which is iPhone itself, and `172.20.10.6` which is MECHA. MECHA may be displayed with other device name. Identify it with MAC. Use this IP to connect to MECHA by typing it in browser address bar.

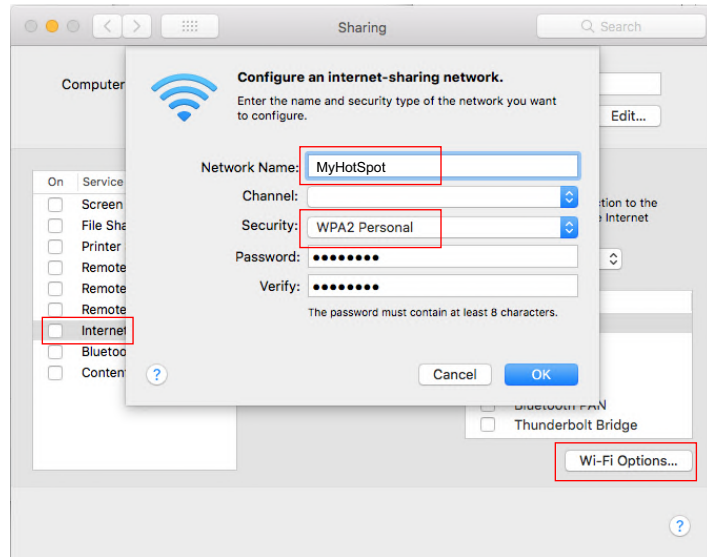


Sharing Your Internet Connection by Wi-Fi Hotspot

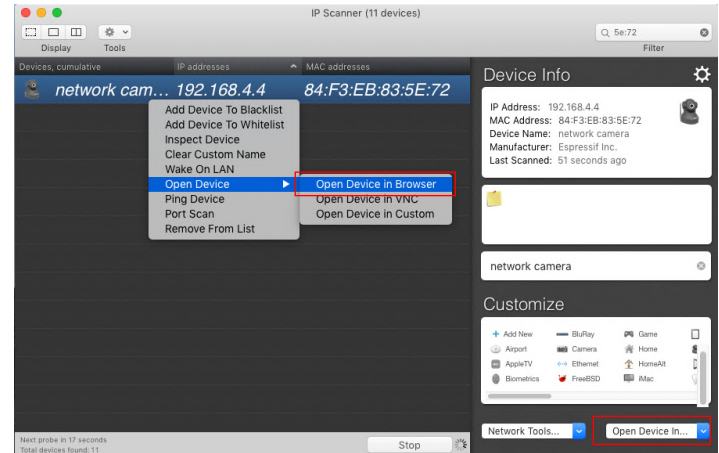
Sharing Your Internet Connection on Mac.

You can share the Internet connection on your Mac with other users on your local network. [Here](#)^[6] is a video specifically for MECHA.

1. Open [Sharing](#) preferences. Choose [Apple menu](#) > [System Preferences](#), then click [Sharing](#).
2. Select the [Internet Sharing](#) checkbox.
3. Beside [Share your connection from](#), choose the Internet connection you want to share, eg [Ethernet](#).
4. Beside [To computers using](#), choose [Wi-Fi](#).
5. Click [Wi-Fi Options](#), give your network a name and password (at least eight characters), keep [WPA2 Personal](#) selected beside [Security](#). Click [OK](#) then select the [Internet Sharing](#) checkbox again. Confirm turning on Internet sharing by clicking [Start](#). Then, on the device, choose your hotspot from the list of available Wi-Fi networks.



[IP Scanner](#) for Macintosh scans your local area networks and identify the devices on the networks by showing their device names, IP and MAC addresses. Free version will only display the first 8 devices. MECHA may be identified as a [network camera](#) and can even be hidden. Search MECHA by inputting part of the MAC address in the search box at the upper right corner. For example, for MECHA with network name [MECHA-835E72](#), search for [5e:72](#). MECHA will be displayed. Right click to open MECHA in browser. See this [video](#)^[7] for details.



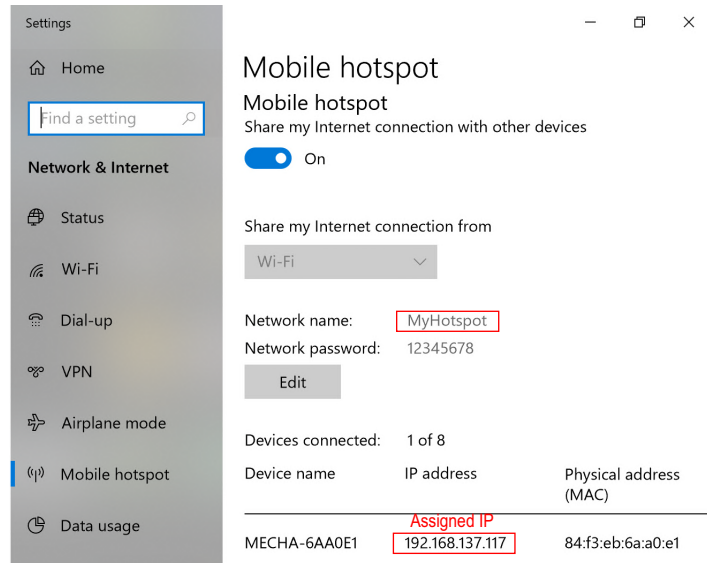
Sharing Your Internet Connection by Wi-Fi Hotspot

Sharing Your Internet Connection on Windows 10.

You can share a Wi-Fi, Ethernet, or cellular data connection by creating a mobile hotspot in Windows 10. If you share a cellular data connection, it will use data from your data plan. See [here](#)⁽⁶⁾ for a more detailed guide.

1. Select the [Start](#) button, then select [Settings](#) > [Network & Internet](#) > [Mobile hotspot](#).
2. Below [Share my Internet connection from](#), choose the Internet connection you want to share.
3. Click [Edit](#), enter a new network name and password. Click [Save](#).
4. Turn on [Share my Internet connection with other devices](#).
5. On the device, choose your hotspot from the list of available Wi-Fi networks.

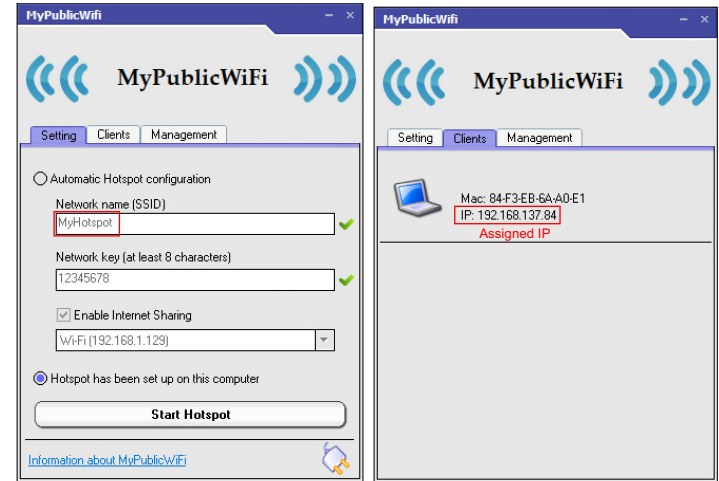
Once MECHA is connected to the hotspot, it will be assigned an IP address which can be seen below [Devices connected](#). Use it to connect to MECHA.



Sharing Your Internet Connection on Windows 7/8.1/10

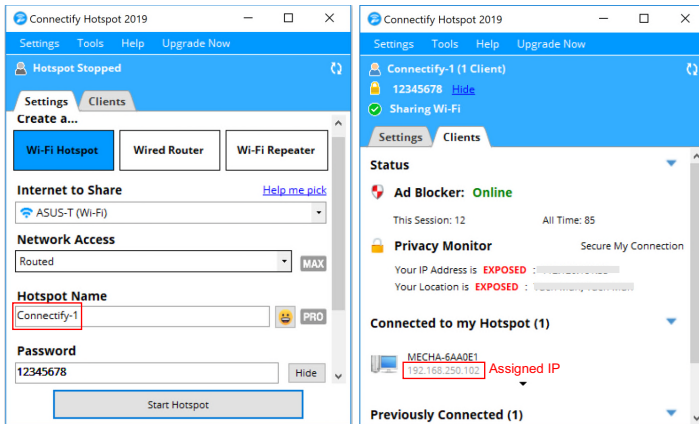
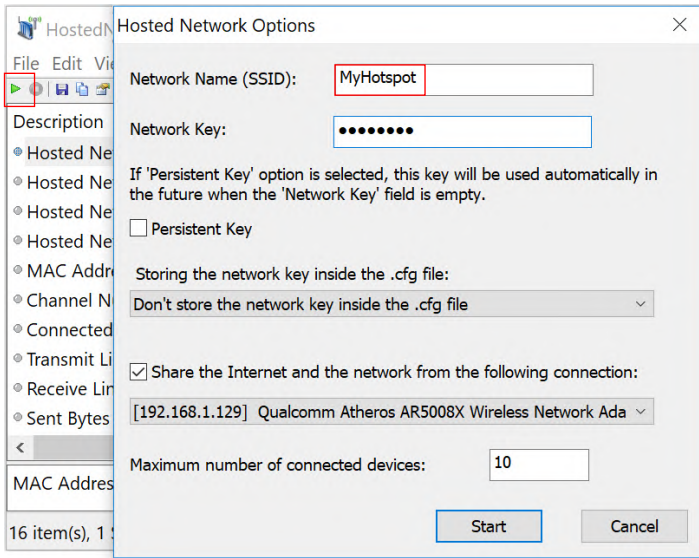
With the help of third party software, you can easily share a Wi-Fi, Ethernet, or cellular data connection by creating a mobile hotspot in Windows 7-10. If you share a cellular data connection, it will use data from your data plan.

[MyPublicWiFi](#) is free and easy to use with custom hotspot name. The IP and MAC addresses of connected clients are also displayed.











[HostedNetworkStarter](#) is free and easy to use with custom hotspot name. A portable version is available. No install is needed. Great for troubleshooting MECHA firmware update. Unfortunately the IP addresses of connected clients are not displayed, only MAC addresses are displayed. See screenshot at the upper left in P7 for details.

[Connectify](#) has very good system compatibility. Try it if other software fails on your system. Free version does not allow custom hotspot name. The IP addresses and device names of connected clients are also displayed. Paid version allow custom hotspot name and has many advanced functions. It is regularly on sale with 70% or even 80% off. Try DEAL70 or DEAL80 for coupon code. See screenshot at the lower left in P7 for details.



Reference

1. How to connect to WiFi 1  <http://bit.ly/2yKcCDk>
2. How to connect to Wi-Fi 2  <http://bit.ly/2KozWgj>
3. How to add a URL to Home Screen  <http://bit.ly/2DKjdrh>
4. Firmware - current version and changes  http://bit.ly/fw_ver
5. How to use your phone as hotspot  http://bit.ly/hotspot_p
6. How to use a Mac as hotspot for MECHA  http://bit.ly/hotspot_m
7. How to find MECHA on a Network from Mac OS  http://bit.ly/IP_scan
8. How to use Windows 10 as hotspot  http://bit.ly/hotspot_W