

# Automatically connect a Raspberry Pi to a Wifi network

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A big part of Raspberry Pi's usefulness comes from its size. A lot of those benefits get lost when you need an external display and keyboard (and mouse maybe) to actually do anything with it. In this post I'll quickly cover how you can set up your Raspberry Pi (A, but B would work too, it'd actually be a little bit easier) to automatically connect to your wireless network and obtain a static IP. All you need is a WiFi-dongle.

Because the Raspberry Pi A only has one USB-port, there'll be a lot of USB switching.

## Setting up WiFi connection

Start by booting the Raspberry Pi, connected to a display and a keyboard. Open up the terminal and edit the network interfaces file:

```
$ sudo nano /etc/network/interfaces
```

This file contains all known network interfaces, it'll probably have a line or two in there already.

Change the first line (or add it if it's not there) to:

```
auto wlan0
```

Then at the bottom of the file, add these lines telling the Raspberry Pi to allow wlan as a network connection method and use the /etc/wpa\_supplicant/wpa\_supplicant.conf as your configuration file.

```
allow-hotplug wlan0
iface wlan0 inet dhcp
wpa-conf /etc/wpa_supplicant/wpa_supplicant.conf
iface default inet dhcp
```

*(ctrl-X, then type Y to quit and save)*

The next step is to create this configuration file.

## Configuring WiFi connection

Open up the wpa\_supplicant.conf file in the editor.

```
$ sudo nano /etc/wpa_supplicant/wpa_supplicant.conf
```

Again, some lines might already be present, just add the following.

```
network={
ssid="YOUR_NETWORK_NAME"
psk="YOUR_NETWORK_PASSWORD"
proto=RSN
key_mgmt=WPA-PSK
pairwise=CCMP
auth_alg=OPEN
}
```

The other parameters are network specific, I can't tell you what you need. If you boot Raspbian to desktop, you can launch the `wpa_gui` (WiFi config) application and click 'Scan'. You'll find a list that has your network too with all flags you need. To do this on a RPi A you'll have to disconnect your keyboard and connect your dongle once the scanning list is open.

- `proto` could be either RSN (WPA2) or WPA (WPA1).
- `key_mgmt` could be either WPA-PSK (most probably) or WPA-EAP (enterprise networks)
- `pairwise` could be either CCMP (WPA2) or TKIP (WPA1)
- `auth_alg` is most probably OPEN, other options are LEAP and SHARED

## Make sure it works

Reboot the Raspberry Pi and it should connect to the wireless network. If it doesn't, repeat above steps or get help from an adult.

## A static IP

Since the goal of this tutorial is to be able to work with the RPi without external keyboard or display, you want to be able to ssh into it. The best way is to make sure it'll always have a static IP on your network.

Doing so is simple. Open the `/etc/network/interfaces` file again and add the following changes:

Change `iface wlan0 inet dhcp` into `iface wlan0 inet static`. This changes the `wlan0` interface from DHCP to static.

Add the following lines before the `wpa-conf` line:

```
address 192.168.1.155 # Static IP you want
netmask 255.255.255.0
gateway 192.168.1.1   # IP of your router
```

The Raspberry Pi will still be able to connect to the internet.

## Wrapping up

With these changes you'll be able to always connect to your Raspberry Pi over your wireless network via ssh at the same, static IP. This means you can disconnect keyboard, mouse and display and have it plugged in a wall socket, anywhere, taking almost no space.

As an overview, my `interfaces-` and `wpa_supplicant-`files:

```
# /etc/network/interfaces
```

---

```
auto wlan0
```

---

```
iface lo inet loopback
```

---

```
iface eth0 inet dhcp
```

---

```
allow-hotplug wlan0

iface wlan0 inet static
    address 192.168.1.155
    netmask 255.255.255.0
    gateway 192.168.1.1

wpa-conf /etc/wpa_supplicant/wpa_supplicant.conf

iface default inet dhcp

# /etc/wpa_supplicant/wpa_supplicant.conf

ctrl_interface=DIR=/var/run/wpa_supplicant GROUP=netdev
update_config=1

network={
    ssid="NYO_WWWP"
    psk="topsecret"
    proto=RSN
    key_mgmt=WPA-PSK
    pairwise=CCMP
    auth_alg=OPEN
}
```



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