

¿Cómo hacer un Proxy de TOR con un Raspberry Pi?

This page is also available in the following languages:



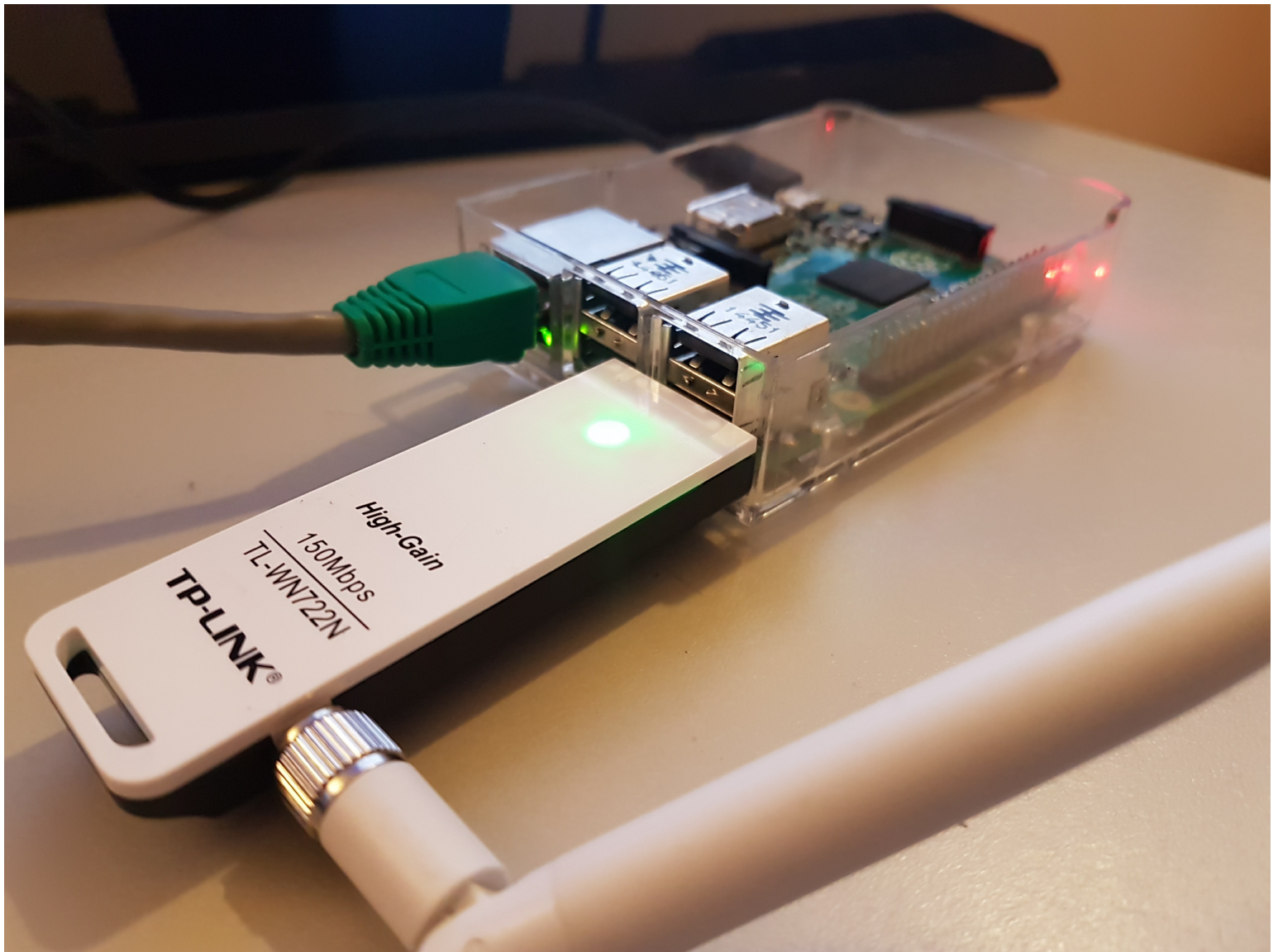
Congratulations. This browser is configured to use Tor.

Your IP address appears to be: **185.29.8.132**

Please refer to the [Tor website](#) for further information about using Tor safely. You are now free to browse the Internet anonymously. For more information about this exit relay, see: [Atlas](#).

Por [@oschvr](#)

Video

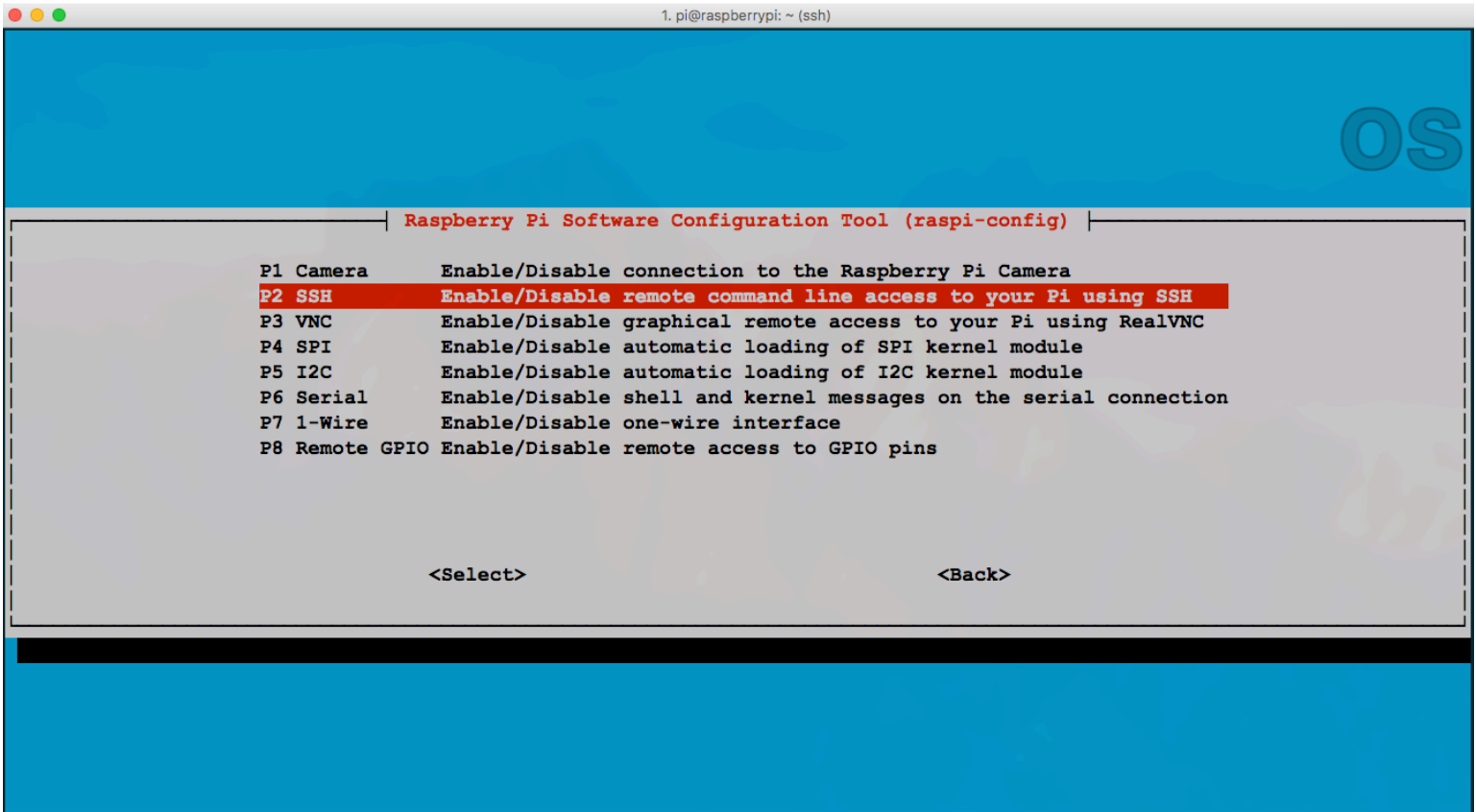


Requisitos

- Raspberry Pi (2 o 3)
- ISO de Raspbian Jessie (Debian) [Descargar](#)
- Tarjeta SD > 8Gb (SDCard)
- Tarjeta Inalámbrica (Wifi Dongle)
- Conexión a Router por Ethernet
- Periféricos (Teclado, Mouse, Monitor, Cable HDMI)

Iniciando

1. Flashear el ISO de Raspbian a la SDCard. Yo usé [ApplePi Baker](#). Aquí hay un [excelente tutorial](#)
2. Conectar todos los periféricos (mouse, teclado, monitor) y el micro Usb para encender el Raspberry
3. Abrir una terminal y escribir `sudo raspi-config`
4. Ir a 'Interfacing Options' > 'SSH' y habilitar el server de SSH y salir.
5. Escribir `ifconfig` y copiar la dirección IP que está a un lado de `inet` en la parte de `eth0`



Tutorial

Primero que nada, establecemos la conexión a nuestro RaspberryPi por medio de *SSH*

Abrimos nuestra terminal y tecleamos:

```
ssh pi@<dirección IP que conseguimos en el paso anterior>
```

en mi caso es:

```
ssh pi@192.168.100.5
```

Y escribimos la contraseña, que por default es `raspberrypi`.

Actualizamos los paquetes

```
sudo apt-get update
```

HOSTAPD y ISC-DHCP-SERVER

Instalamos hostapd y isc-dhcp-server

```
sudo apt-get install hostapd isc-dhcp-server
```

Instalamos iptables-persistent

```
sudo apt-get install iptables-persistent
```

```
sudo nano /etc/dhcp/dhcpd.conf
```

Encontrar las líneas que dicen

```
option domain-name "example.org";  
option domain-name-servers ns1.example.org, ns2.example.org;
```

Comentarlas (ponerles un # al principio)

```
# option domain-name "example.org";
# option domain-name-servers ns1.example.org, ns2.example.org;
```

Encontrar las líneas que dicen

```
# If this DHCP server is the official DHCP server for the local
# network, the authoritative directive should be uncommented.
# authoritative;
```

Y quitar el #

```
# If this DHCP server is the official DHCP server for the local
# network, the authoritative directive should be uncommented.
authoritative;
```

Baja, agrega lo siguiente y guarda:

```
subnet 192.168.42.0 netmask 255.255.255.0 {
    range 192.168.42.10 192.168.42.50;
    option broadcast-address 192.168.42.255;
    option routers 192.168.42.1;
    default-lease-time 600;
    max-lease-time 7200;
    option domain-name "local";
    option domain-name-servers 8.8.8.8, 8.8.4.4;
}
```

```
sudo nano /etc/default/isc-dhcp-server
```

Baja a INTERFACES="" y actualiza a INTERFACES="wlan0"

```
sudo ifdown wlan0 sudo nano /etc/network/interfaces
```

Cambia manual por dhcp en iface eth0

Quita cualquier configuración de wlan0, agrega lo siguiente y guarda:

```
auto lo

iface lo inet loopback
iface eth0 inet dhcp

allow-hotplug wlan0

iface wlan0 inet static
address 192.168.42.1
netmask 255.255.255.0

#iface wlan0 inet manual
#wpa-roam /etc/wpa_supplicant/wpa_supplicant.conf
#iface default inet dhcp
```

Asigne la ip estática a wlan0

```
sudo ifconfig wlan0 192.168.42.1
```

```
sudo nano /etc/hostapd/hostapd.conf
```

Copia y pega la siguiente configuración de hostapd, recuerda cambiar el `ssid` y el `wpa_passphrase`.

```
interface=wlan0
#driver=rtl871xdrv
ssid=TORNet
country_code=US
hw_mode=g
channel=6
macaddr_acl=0
auth_algs=1
ignore_broadcast_ssid=0
wpa=2
wpa_passphrase=Raspberry
wpa_key_mgmt=WPA-PSK
wpa_pairwise=CCMP
wpa_group_rekey=86400
ieee80211n=1
wme_enabled=1
```

```
sudo nano /etc/default/hostapd
```

Encuentra `#DAEMONCONF=""` para que diga `DAEMONCONF="/etc/hostapd/hostapd.conf"`

```
sudo nano /etc/init.d/hostapd
```

Vuelve a hacer lo mismo en, `DAEMONCONF=""` para que diga `DAEMONCONF="/etc/hostapd/hostapd.conf"`

```
sudo nano /etc/sysctl.conf
```

Descomenta la línea: `net.ipv4.ip_forward=1`

Cambia las tablas de IP a lo siguiente:

```
sudo sh -c "echo 1 > /proc/sys/net/ipv4/ip_forward" sudo iptables -t nat -A POSTROUTING -o eth0 -j MASQUERADE
sudo iptables -A FORWARD -i eth0 -o wlan0 -m state --state RELATED,ESTABLISHED -j ACCEPT
sudo iptables -A FORWARD -i wlan0 -o eth0 -j ACCEPT sudo sh -c "iptables-save > /etc/iptables/rules.v4"
```

Levantamos para probar nuestro punto de acceso:

```
sudo /usr/sbin/hostapd /etc/hostapd/hostapd.conf
```

Deberíamos ver nuestro ssid en la lista de redes.

```
sudo mv /usr/share/dbus-1/system-services/fi.epitest.hostap.WPASupplicant.service ~/
```

Reiniciamos hostapd e isc-dhcp-server y con [update-rc.d](#) para iniciarlos al reiniciar el raspberry

```
sudo reboot
```

```
sudo /usr/sbin/hostapd /etc/hostapd/hostapd.conf
```

```
sudo service hostapd start
```

```
sudo service isc-dhcp-server start
```

```
sudo update-rc.d hostapd enable sudo update-rc.d isc-dhcp-server enable
```

Revisamos si ambos están arriba.

```
sudo service isc-dhcp-server status sudo service hostapd status
```

```

pi@raspberrypi:~$ sudo raspi-config
pi@raspberrypi:~$ sudo service hostapd status
● hostapd.service - LSB: Advanced IEEE 802.11 management daemon
   Loaded: loaded (/etc/init.d/hostapd)
   Active: active (running) since Tue 2017-08-29 06:40:22 UTC; 49min ago
   CGroup: /system.slice/hostapd.service
           └─1248 /usr/sbin/hostapd -B -P /run/hostapd.pid /etc/hostapd/hostapd.conf

Aug 29 06:41:23 raspberrypi hostapd[1248]: wlan0: STA 78:4f:43:5b:c2:0f RADIUS: starting accounting session 59A50..00000
Aug 29 06:41:23 raspberrypi hostapd[1248]: wlan0: STA 78:4f:43:5b:c2:0f WPA: pairwise key handshake completed (RSN)
Aug 29 06:41:53 raspberrypi hostapd[1248]: wlan0: STA 78:4f:43:5b:c2:0f IEEE 802.11: disassociated
Aug 29 06:41:54 raspberrypi hostapd[1248]: wlan0: STA 78:4f:43:5b:c2:0f IEEE 802.11: deauthenticated due to inact...MOVE)
Aug 29 06:48:07 raspberrypi hostapd[1248]: wlan0: STA 78:4f:43:5b:c2:0f IEEE 802.11: authenticated
Aug 29 06:48:07 raspberrypi hostapd[1248]: wlan0: STA 78:4f:43:5b:c2:0f IEEE 802.11: associated (aid 1)
Aug 29 06:48:07 raspberrypi hostapd[1248]: wlan0: STA 78:4f:43:5b:c2:0f RADIUS: starting accounting session 59A50..00001
Aug 29 06:48:07 raspberrypi hostapd[1248]: wlan0: STA 78:4f:43:5b:c2:0f WPA: pairwise key handshake completed (RSN)
Aug 29 07:16:01 raspberrypi hostapd[1248]: wlan0: STA 78:4f:43:5b:c2:0f IEEE 802.11: disassociated
Aug 29 07:16:02 raspberrypi hostapd[1248]: wlan0: STA 78:4f:43:5b:c2:0f IEEE 802.11: deauthenticated due to inact...MOVE)
Hint: Some lines were ellipsized, use -l to show in full.
pi@raspberrypi:~$ sudo service isc-dhcp-server status
● isc-dhcp-server.service - LSB: DHCP server
   Loaded: loaded (/etc/init.d/isc-dhcp-server)
   Active: active (running) since Tue 2017-08-29 06:41:03 UTC; 49min ago
   CGroup: /system.slice/isc-dhcp-server.service
           └─1392 /usr/sbin/dhcpd -q -cf /etc/dhcp/dhcpd.conf -pf /var/run/dhcpd.pid wlan0

Aug 29 07:25:09 raspberrypi dhcpd[1392]: DHCPDISCOVER from 84:16:f9:17:40:6d (raspberrypi) via wlan0
Aug 29 07:25:10 raspberrypi dhcpd[1392]: DHCPOFFER on 192.168.42.12 to 84:16:f9:17:40:6d (raspberrypi) via wlan0
Aug 29 07:26:12 raspberrypi dhcpd[1392]: DHCPDISCOVER from 84:16:f9:17:40:6d (raspberrypi) via wlan0
Aug 29 07:26:13 raspberrypi dhcpd[1392]: DHCPOFFER on 192.168.42.12 to 84:16:f9:17:40:6d (raspberrypi) via wlan0
Aug 29 07:27:17 raspberrypi dhcpd[1392]: DHCPDISCOVER from 84:16:f9:17:40:6d (raspberrypi) via wlan0
Aug 29 07:27:18 raspberrypi dhcpd[1392]: DHCPOFFER on 192.168.42.12 to 84:16:f9:17:40:6d (raspberrypi) via wlan0
Aug 29 07:28:21 raspberrypi dhcpd[1392]: DHCPDISCOVER from 84:16:f9:17:40:6d (raspberrypi) via wlan0
Aug 29 07:28:22 raspberrypi dhcpd[1392]: DHCPOFFER on 192.168.42.12 to 84:16:f9:17:40:6d (raspberrypi) via wlan0
Aug 29 07:29:26 raspberrypi dhcpd[1392]: DHCPDISCOVER from 84:16:f9:17:40:6d (raspberrypi) via wlan0
Aug 29 07:29:27 raspberrypi dhcpd[1392]: DHCPOFFER on 192.168.42.12 to 84:16:f9:17:40:6d (raspberrypi) via wlan0
pi@raspberrypi:~$
pi@raspberrypi:~$
pi@raspberrypi:~$

```

TOR

```
sudo apt-get update
```

```
sudo apt-get install tor
```

```
sudo nano /etc/tor/torrc
```

e inserta lo siguiente en alguna parte de arriba del archivo:

```
Log notice file /var/log/tor/notices.log VirtualAddrNetwork 10.192.0.0/10 AutomapHostsSuffixes .onion,.exit AutomapHostsOnResolve 1 TransPor
```

Cambia las tablas de IP para rutear hacia el puerto 9040 de TOR.

```
sudo iptables -F
```

```
sudo iptables -t nat -F
```

```
sudo iptables -t nat -A PREROUTING -i wlan0 -p tcp --dport 22 -j REDIRECT --to-ports 22
```

```
sudo iptables -t nat -A PREROUTING -i wlan0 -p udp --dport 53 -j REDIRECT --to-ports 53
```

```
sudo iptables -t nat -A PREROUTING -i wlan0 -p tcp --syn -j REDIRECT --to-ports 9040
```

```
sudo iptables -t nat -L
```

```
sudo sh -c "iptables-save > /etc/iptables.ipv4.nat"
```

Reconfiguramos iptables-persistent para usar las reglas actuales

```
sudo dpkg-reconfigure iptables-persistent
```

Creamos los logs de tor y les cambiamos el *owner* y el *mode*

```
sudo touch /var/log/tor/notices.log
```

```
sudo chown debian-tor /var/log/tor/notices.log
```

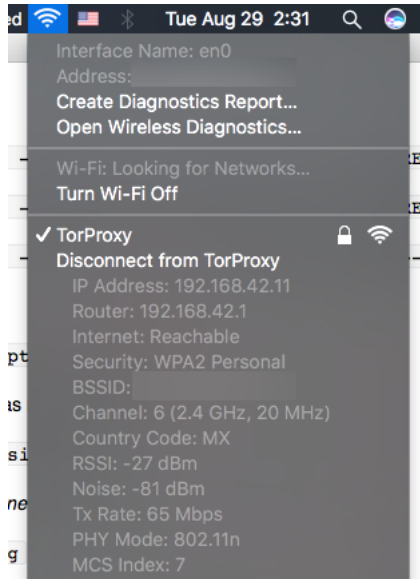
```
sudo chmod 644 /var/log/tor/notices.log ls -l /var/log/tor
```

Iniciamos el servicio de tor y lo hacemos automático al inicio del RPi. `sudo service tor start`

```
sudo service tor status
```

```
sudo update-rc.d tor enable
```

Prueba

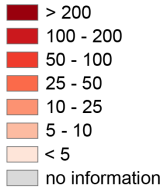


Nos conectamos a la red desde otra computadora o teléfono para probar, y visitamos <https://check.torproject.org/> para comprobar conexión a internet y que en efecto nuestro tráfico esta siendo ruteado por Tor.

[¿Qué es y cómo usar Tor?](#)

The anonymous Internet

Daily Tor users
per 100,000
Internet users



Average number of
Tor users per day
calculated between
August 2012 and
July 2013

data sources:
Tor Metrics Portal
metrics.torproject.org
World Bank
data.worldbank.org

by Mark Graham
(@geoplace) and
Stefano De Sabbata
(@maps4thought)
Internet Geographies at
the Oxford Internet Institute
2014 • geography.oii.ox.ac.uk

 Oxford Internet Institute
University of Oxford

