

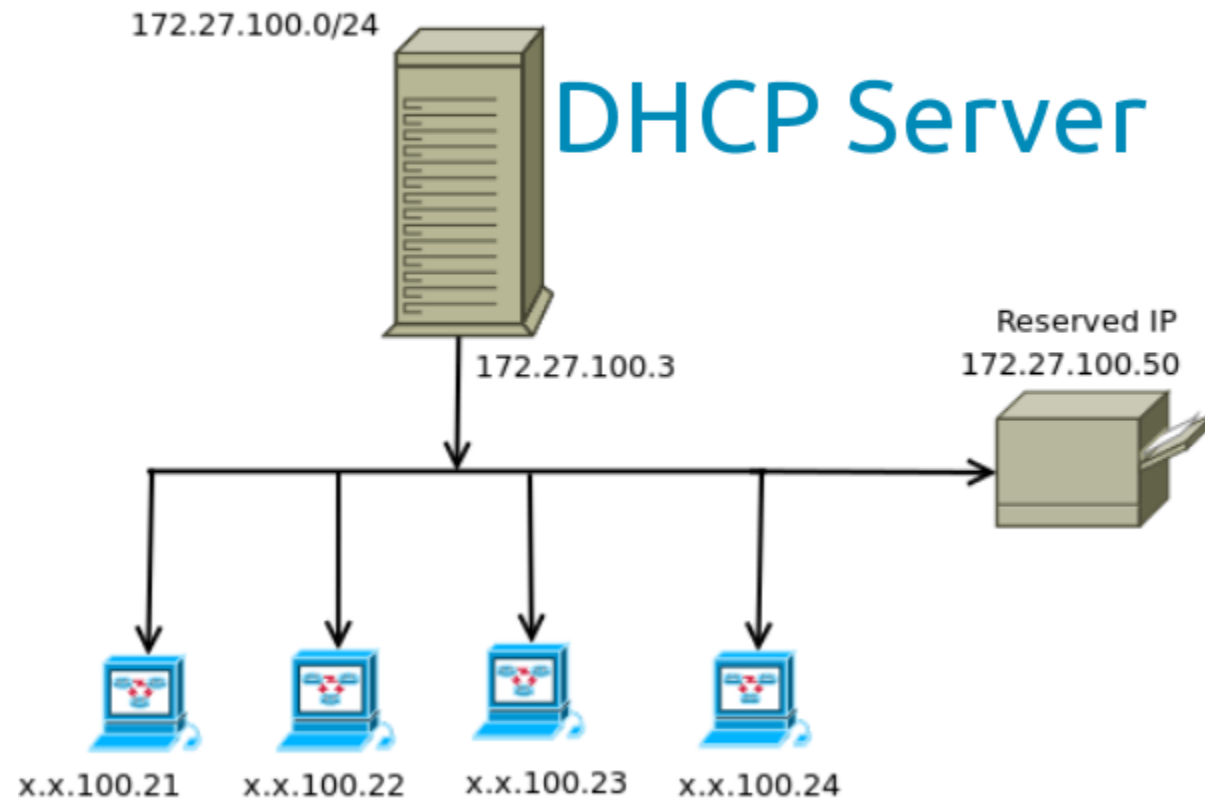
DHCP Anonymity Profiles and implementations



Contents

- DHCP Anonymity Profiles
- dhcpcanon
- systemd DHCP client
- MirageOS DHCP client
- You can help
- Questions

DHCP



Anonymity Profiles

- RFC 7844 (2016)
- MAC randomization
- Windows 10 implementation for Wifi interfaces



Summary RFC 7844

- Do not send Hostname
- Do not send Hardware vendor
- Client identifier is the MAC
- Parameter Request List (minimized, randomized)
 - In implementations: same options and same order

Windows 10 capture

[illegible]

ISC DHCP client (dhclient) capture

Client MAC address: HuaweiTe_a4:61:38 (cc:96:a0:a4:61:38) randomized :)

```
Client hardware address padding: 0000000000000000000000
```

Server host name not given

Boot file name not given

Magic cookie: DHCP **no client identifier**

- ```

▶ Option: (53) DHCP Message Type (Request)

```

- ```
► Option: (12) Host Name
```

- ▼ Option: (55) Parameter Request List

Length: 16

Parameter Request List Item: (1) Subnet Mask

Parameter Request List Item: (28) Broadcast Address

Parameter Request List Item: (2) Time Offset

Parameter Request List Item: (3) Router

Parameter Request List Item: (15) Domain Name

Parameter Request List Item: (6) Domain Name Server

Parameter Request List Item: (119) Domain Search

Parameter Request List Item: (12) Host Name

Parameter Request List Item: (44) NetBIOS over TCP/IP Name Server

Parameter Request List Item: (47) NetBIOS over TCP/IP Scope

Parameter Request List Item: (26) Interface MTU

Parameter Request List Item: (121) Classless Static Route

Parameter Request List Item: (42) Network Time Protocol Servers

Parameter Request List Item: (249) Private/Classless Static Route (Microsoft)

Parameter Request List Item: (33) Static Route

Parameter Request List Item: (252) Private/Proxy autodiscovery

- Option: (255) End

```
Padding: 00000000000000000000000000000000000000000000000..
```

unordered :(

dhcpcanon

(thanks  @prototypefund)

- GPL -> MIT
- implemented in Python
- packaged for Debian
- in Gnome Network Manager still "experimental" (not compiled by default with dhcpcanon)

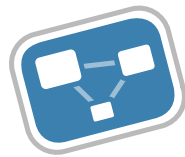


Ways to run dhcpcanon

- standalone (requires root)
- as a daemon with `systemd` (no root)
- with a `wrapper` (no root)
- with `resolvconf`, `resolvconf-admin` or `systemd-resolved`
- with Gnome Network Manager (requires root)

systemd DHCP client

- patched (in upstream v235)
- already in Debian sid



freedesktop.org

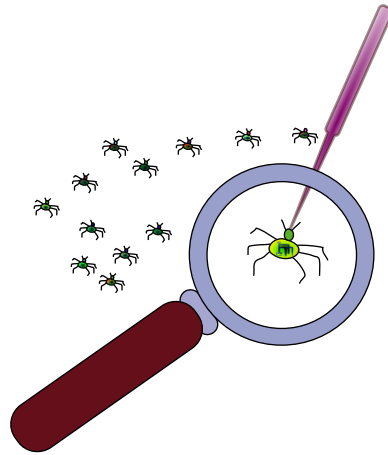
MirageOS DHCP client

- char rua - core DHCP library implemented in Ocaml
- patched in upstream
- TODO:
 - client running in Unix
 - unikernel that could be run in Qubes OS
 - ...

image

You can help

- Run and report bugs
 - `dhcpcanon` implementation
 - `systemd` DHCP client
 - Gnome Network Manager integration



Include in Debian derivatives

- Tails
- Subgraph OS



Package for other Linux OS

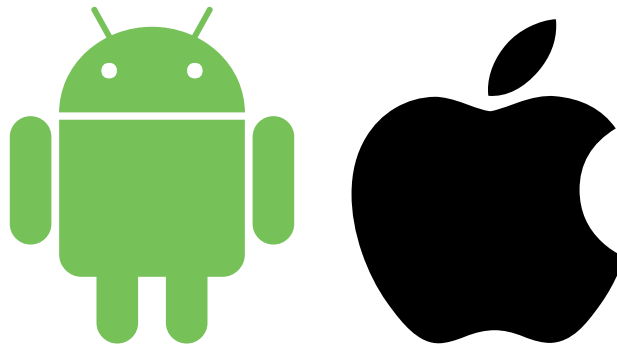
- package for your favorite OS
 - Archlinux
 - Fedora, Qubes
 - FreeBSD
 - ...



FreeBSD

Implementation in other OS

- Android
 - MAC randomization
 - patches for DHCP client
- Apple stuff
 - Mac OS
 - iOS



Questions

Thanks!

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2DA8 1D01 455C 3A00 3219 8850 F305 447A F806 D46B

<https://github.com/dhcpap>

