

Using Custom DNS on LANforge with DNSmasq

Goal: Create a nameserver for your test network when no Internet access is available.

Isolated testbeds still regularly require their DUTs to resolve hostnames. The `dnsmasq` package on Linux provides this feature. Requires release 5.4.6 or later.

Role of dnsmasq and how to combine it with Virtual Routers

The `dnsmasq` service provides BOTH DHCP and DNS services.

i If the `dhcp-range` directive is present in the `/etc/dnsmasq.conf` file, then it will respond to DHCP requests.

This setting is NOT governed by the Netsmith -> Virtual Router -> Modify -> DHCP setting. You can accidentally leave `DNsmasq` running in DHCP serving mode and use Chamber View test scenarios that also create a new DHCP service in a virtual router. LANforge does not track the status of `DNsmasq` like it does the `dhcpd` process it starts in a virtual router. You can end up running two DHCP services if you are not careful

The two modes you would configure are:

- **DNS mode** and use virtual routers for DHCP. Configure the DNS entry of the virtual router to let clients see the nameserver entry.
- **DNS and DHCP mode** and never use the DHCP option of the virtual router.

We suggest configuring `DNsmasq` in a DNS-only mode most of the time.

Typical Port Setup

If you are crafting a test scenario where you are providing DHCP as an upstream port, create a Virtual Router and drag your upstream port into it. You will probably want a static IP on the port. For this example, we will use `eth1` with address `10.45.0.1`.

- Right-click the port and select **Modify**
- In the Create/Modify Connection window:
 - Select DHCP
 - Configure DHCP DNS to be the IP of the port (10.45.0.1)

Enable the DNS service on the port

- Open the Port modify window by either double-clicking on the row in the Port Mgr tab or selecting the **Modify Port** option from the Netsmith right-click menu.
- At the lower left of the window, in the Services box, select **DNS**.
- Click **OK**.

You have now enabled DHCP in the virtual router.

Configure DNSmasq

The `/etc/dnsmasq.conf` file controls the behavior of the DNSmasq service. The configuration below will serve entries out of `/etc/hosts`. This example is configured to run on interface `eth1`.

`/etc/dnsmasq.conf`

```
domain=lanforge.com
expand-hosts
local=/local/
local=/0.45.10.in-addr.arpa/
log-dhcp
log-queries
interface=eth1
```

Hosts file `/etc/hosts`

```
# Loopback entries; do not change.
::1 localhost.localdomain localhost localhost6.localdomain6 localhost6
127.0.0.1 localhost.localdomain localhost localhost4.localdomain4 localhost4 vm-6006-local
192.168.1.101 lanforge.localnet lanforge.localdomain
###-LF-HOSTNAME-NEXT-###
192.168.45.94 vm-6006 4585-f38.bitratchet.net
# Custom hostnames:
10.45.0.1 www.lanforge.com lanforge.com
```

Running DNSmasq:

- Check for configuration errors using `dnsmasq --test`.
- Restart DNSmasq to apply changes: `sudo systemctl restart dnsmasq.service`.