



South America Workshop

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DNS

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Laboratory Exercise: DNS

Objectives

In this laboratory exercise you will complete the following tasks:

- Create a forward zone
- Create a reverse zone
- Insert IPv6-related records
- Do some A and AAAA queries to the server

Visual Objective

The following figure shows the topology of the current laboratory. This laboratory is similar with the ones on the first day. Now we have a laptop, performing as a DNS server.

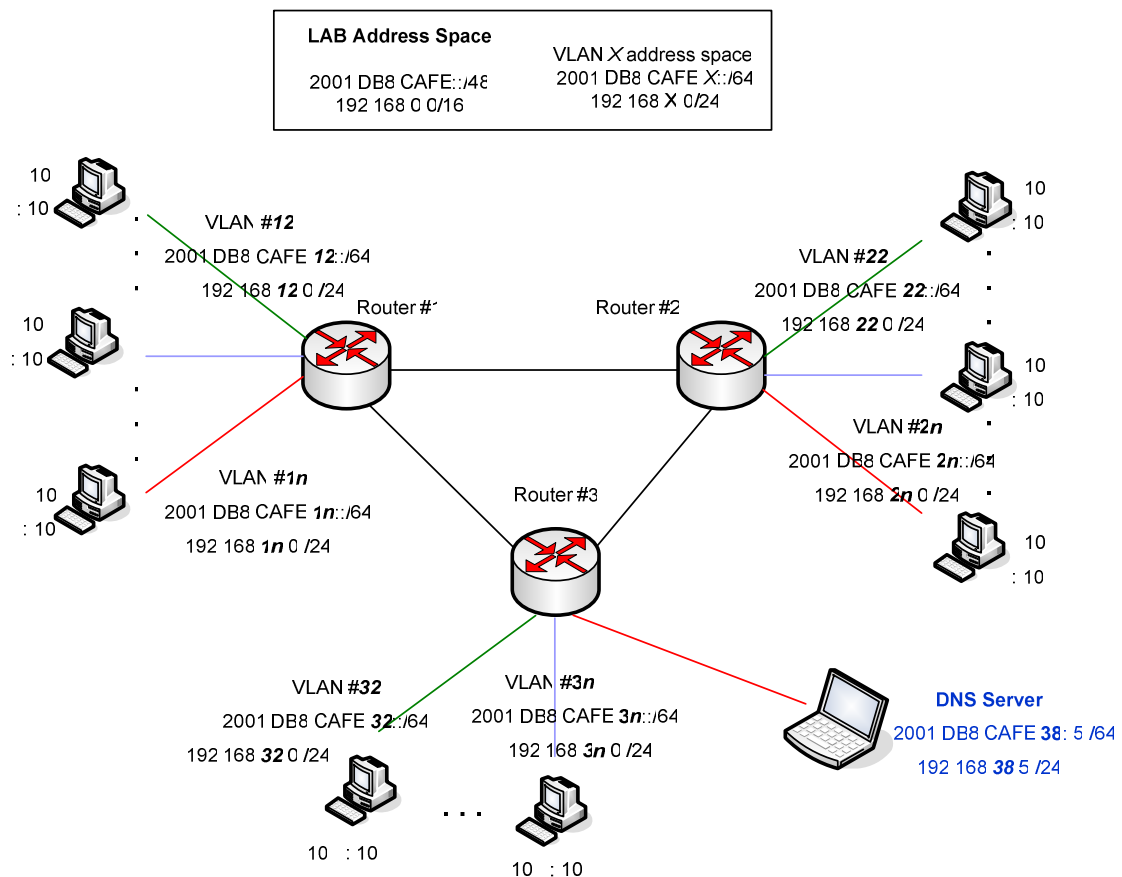


Figure 1: Scenario topology

Setup

Check your IPv4 address using the command line. The third octet will be your group's number and also the VLAN number you will be using for this exercise. You can see that the $VLAN = (router_number * 10) + port_number$.

Your IPv4 address is assigned by DHCPv4. Verify your PC's IPv4 address. Check if you have one manually configured address on the correct VLAN and with the host part equal to `::10`. I.e. with the following format: `2001:DB8:CAFE:vlan_number::10`

If you don't have one, please configure it. This is very IMPORTANT !!!

Check if you have IPv4 and IPv6 connectivity to the DNS server.

Scenario

A laptop with Linux Fedora Core 5 is running BIND 9.3.2. The DNS server IPv4 address is sent to the different hosts via router's DHCPv4 server. The access to the DNS server (laptop) is allowed via telnet (port 23) at the addresses `2001:DB8:CAFE:38::5` or `192.168.38.5` using the login/password: `6diss/6diss`.

In the `/var/named/` directory there are already files with IPv4 DNS (A, PTR) records for all lab PCs. Trainees should create the relevant IPv6 DNS (AAAA, PTR) records. (Students should have basic knowledge of BIND/DNS)

The DNS server is configured via the `/etc/named.conf` file. The "forward or reverse-zone" files that contain the DNS entries are defined in the `/etc/named.conf` via the following syntax:

Forward zone:

```
zone "quito.6diss.org" in {
    type master;
    file "quito.6diss.org.zone";
};
```

Reverse zone:

```
zone "0.168.192.in-addr.arpa" in {
    type master;
    file "192.168.0.zone ";
};
```

In order to add IPv6 DNS entries for PCs in VLAN XY, the zone file `vlanXY.quito.6diss.org.zone` and the reverse-zone file

YX.CAFE.DB8.2001.zone have to be created. (The file */etc/named.conf* already contains the appropriate entries.)

```
zone "vlanXY.quito.6diss.org" in {
    type master;
    file "vlanXY.quito.6diss.org.zone";
};

zone "Y.X.0.0.E.F.A.C.8.B.D.0.1.0.0.2.ip6.arpa" in {
    type master;
    file "XY.CAFE.DB8.2001.zone";
};
```

Task 1: Create an IPv6 forward zone file and insert IPv6 records

Complete the following exercise's steps:

- **Step 1:** In `/var/named/` directory create and populate the file correspondent to your zone (*vlanXY.quito.6diss.org*). For your host's name use `pc`. For example: **pc.vlan38.quito.6diss.org** (**Tip:** See configuration examples at the end of the document)
- **Step 2:** Validate the zone file using the command `named-checkzone`
- **Step 3:** Restart DNS server (**Tip:** In order to restart the DNS server, root privileges are required. DNS will be restarted on-demand by the trainer)
- **Step 4:** Check DNS server logs (**Tip:** `grep named /var/log/messages`)
- **Step 5:** Validate DNS queries using your lab PC. Do the same using the local Linux server.

Task 2: Create an IPv6 reverse zone file and insert IPv6 records

Complete the following exercise's steps:

- **Step 1:** In `/var/named/` directory create and populate the file correspondent to your reverse zone (*YX.CAFE.DB8.2001*). As in the previous task use `pc` for your host's name. (**Tip:** See configuration examples at the end of the document)
- **Step 2:** Validate the zone file using the command `named-checkzone`

- **Step 3:** Restart DNS server (**Tip:** In order to restart the DNS server, root privileges are required. DNS will be restarted on demand by the trainer)
- **Step 4:** Check DNS server logs (**Tip:** `grep named /var/log/messages`)
- **Step 5:** Validate DNS queries using your lab PC. Do the same using the local linux server.

Summary

After completing these exercises, you should be able to:

- *Create a forward zone*
- *Create a reverse zone*
- *Insert IPv6 related records*

