



***Central America Workshop - Guatemala City
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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 PC performing as a DNS server.

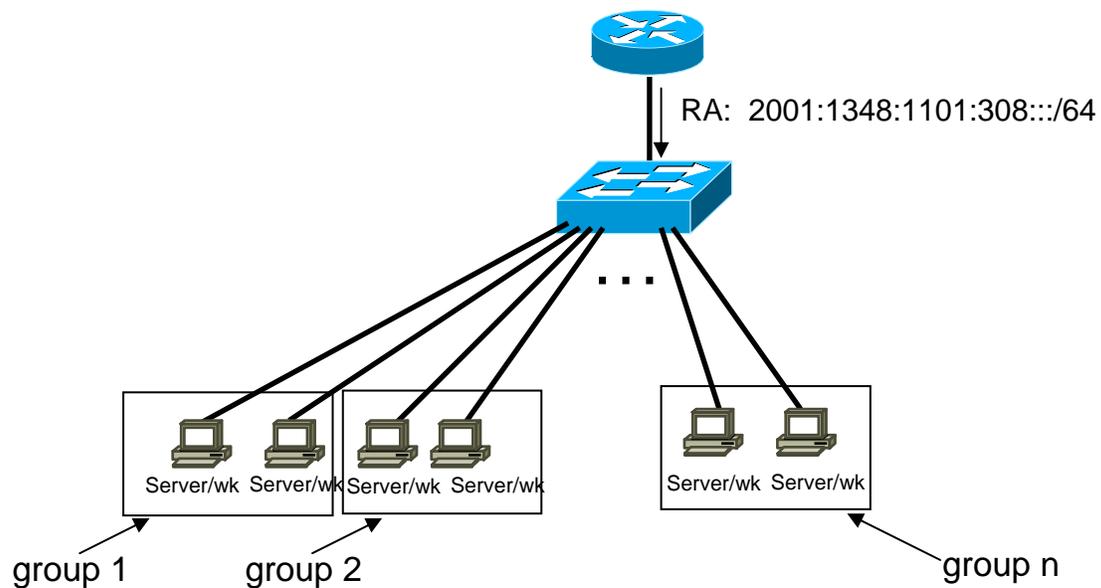


Figure 1: Scenario topology

Setup

Your IPv4 address is assigned by DHCPv4.

Scenario

*A laptop with Linux Ubuntu is running BIND 9. The DNS server IPv4 address is 192.168.8.150. The access to the DNS server is allowed via ssh (port 22) at the addresses **2001:1348:1101:308::53** or **192.168.8.150** using the login/password: *simon/6diss*.*

In the `/etc/bind/` directory there are already files with IPv4 DNS (A, PTR) records. 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/bind/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: Example

```
zone "grupo7.guatemala.6diss.org" in {
    type master;
    file "/etc/bind/guatemala/grupo7";
};
```

Reverse zone:

```
zone "8.0.3.0.1.0.1.1.8.4.3.1.1.0.0.2.ip6.arpa" in {
    type master;
    file
"/etc/bind/guatemala/8.0.3.0.1.0.1.1.8.4.3.1.1.0.0.2.ip6.arpa";
};
```

In order to add IPv6 DNS entries for PC X in group Y, the zone file `grupoY.guatemala.6diss.org.zone` and the reverse-zone file `8.0.3.0.1.0.1.1.8.4.3.1.1.0.0.2.ip6.arpa` have to be created. (The file `/etc/bind/named.conf` already contains the appropriate entries.)

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

Complete the following exercise's steps:

- **Step 1:** In `/etc/bind/guatemala/` directory of DNS Server create and populate the file correspondent to your zone (`groupY.guatemala.6diss.org`). For your host's

name use **pcX**. For example: **pc1.group4.guatemala.6diss.org** (**Tip:** See configuration examples at the end of the document and group7 file in DNS server)

- **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). Use the command **rndc** specifying your zone.
- **Step 4:** Check DNS server logs (**Tip:** **grep named /var/log/messages**)
- **Step 5:** Validate DNS queries using your lab PC.

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

Complete the following exercise's steps:

- **Step 1:** In **/etc/bind/Guatemala/** directory create and populate the file correspondent to your reverse zone **8.0.3.0.1.0.1.1.8.4.3.1.1.0.0.2.ip6.arpa** As in the previous task use **pcX** 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)
- **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*

