

Laboratory Assignment: Quem quaeritis?

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1 Introduction

In this lab you will set up your own domain with the help of BIND [1].

2 Aim

After completion of this assignment you will:

- Know how to set up and administrate different file-sharing network services.
- Be able to correctly set up and administrate your own domain using BIND.

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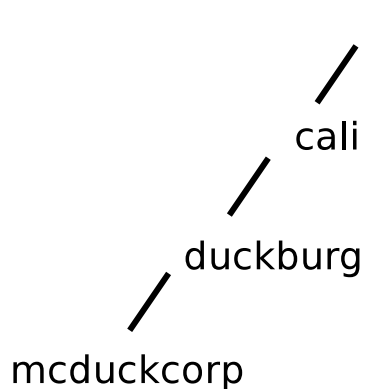


Figure 1: DNS name tree for Duckburg

3 Reading instructions

Before starting this assignment you should have read [2, 17.1-17.10, 18, 19, 30.6] or [3, 16, 21, 22]. During the lab you will also need to consult the following documents [4], [5], [6]

4 Tasks

Perform the following tasks and document all the steps taken to complete them

4.1 DNS

In this section you will set up your own DNS domain with the help of BIND9 [1].

In 4.1.1 you can set any available valid IP-address to your sub-interfaces, preferably on the same subnet as you're running on your LAN. In this lab scenario you will set up the domain for the McDuck-corporation which will be a sub domain of the Duckburg domain which in turn is a sub domain of the cali (calisota) TLD, e.g. you will administer the domains .cali, duckburg.cali. and mcduckcorp.duckburg.cali. domain. See Figure 1.

In 4.1.3 you will have to do this for all of the three domain-files (i.e cali.duckburg.cali. and mcduckcorp.duckburg.cali.)

4.1.1 Pre-installation

Before starting installing bind you should add three extra ip-addresses to your interface, this to make it easier to test your DNS-server later, see [4] for more information how to do this. Make sure that they are working properly by testing the interface with ping (8).

4.1.2 Installation

Install Bind9 as a container, for example with Snap.

To answer in your report For this task, answer the following questions in your report:

- Discuss the advantages and disadvantages of running containers instead of installing Bind9 with apt.
- Describe the installation process of installing with Snap.

4.1.3 Post-installation

Perform the following for all your three domain configuration files.

1. Create a file named *yourdomain*.db in `/etc/bind/`, this file will contain all the resource records for that domain.
2. Edit the file created in 4.1.3.1 and add a SOA resource record. Consult Koch [5] and [6] before setting the SOA values.
3. Next set up an NS record and a corresponding glue record. Allocate one of the IP-addresses you created in 4.1.1 to each subdomains NS

In the `mcduckcorp` domain, you should also add the following resource records.

1. Create an A-record for your remaining IP-address and point that to mail.*yourdomain*.
2. Next create a CNAME resource record pointing to mail and name it after your student-id.
3. Finally configure BIND9 such that it will respond to DNS-requests for your domain (s). This can be achieved in `named.conf` (or `named.conf.local`).
4. Use `rndc` (8) to either reload the configuration files or restart the service.
5. With the help of `dig` (1) test your DNS server by requesting the different resource records.

When your DNS-server is up and running, its time to configure the zones reverse file as well. *You should only create a reverse-zone for your mcduckcorp-zone.*

Create a zone-file for your IP-address range, for example if your address range is `10.2.3.0/24`, create the file `3.2.10.in-addr.arpa.db`

1. In this file start by adding the SOA-record, followed by the NS and the reverse glue.
2. Next add the PTR records for each A-record you put in your *yourdomain*.db
3. finally add this zone to bind in `named.conf` (or `named.conf.local`).
4. check with `dig` (1) to make sure that your reverse zone are up and running.

To answer in your report For this task, answer the following questions in your report:

- Include screenshot of all your three domain configuration files and the reverse zone configuration file.
- Explain the need for the GLUE-record
- Discuss the SOA-values that you set. What do we need to consider when deciding these values?
- Include a screenshot of the named.conf (or named.conf.local) showing what you had to include so that Bind will respond on DNS requests for the domains you just created.
- Include a screenshot showing that DIG can perform successful lookups on all three of your domains.
- Explain how the reverse zone-file work.
- If you wanted to move your mcduckcorp-domain from your local DNS-tree out to the public tree. What would you have to do?

5 Examination

Hand in a report containing all your solutions to the questions in section 4

References

- [1] Bind, 2012. URL <https://www.isc.org/bind>.
- [2] Evi Nemeth, Garth Snyder, Trent R. Hein, and Ben Whaley. *UNIX and Linux system administration handbook*. Prentice Hall, Upper Saddle River, NJ, 4th ed. edition, 2011. ISBN 978-0-13-148005-6 (pbk. : alk. paper).
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- [4] Multiple ip addresses on one interface. URL <https://netplan.io/examples>. Accessed: 2018-09-06.
- [5] Peter Koch. Recommendations for dns soa values, 1999. URL <http://www.ripe.net/ripe/docs/ripe-203>.
- [6] D. Barr. Common DNS Operational and Configuration Errors. RFC 1912 (Informational), February 1996. URL <http://www.ietf.org/rfc/rfc1912.txt>.