

DT149G Administration of UNIX-like systems

## Laboratory Assignment: Sharing is caring

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## 1 Introduction

This lab is divided into two parts, in the first part of the lab you will set up and configure different services for file sharing, in the second part of this lab you will set up your own domain with the help of BIND [1]

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## 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.

## 3 Reading instructions

Before starting this assignment you should have read chapters 18, 19, 30.6, 17.1-17.10 in Nemeth et al. [6] During the lab you will also need to consult the following documents [4], [7], [2], [5], [3]

## 4 Tasks

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

### 4.1 Sharing files

There are numerous ways of sharing files over the network, in this section we are going to test three popular methods of sharing files. The first method covered in this lab is also one of the earliest method, the File Transfer Protocol (FTP). The first RFC about FTP was published April 16th 1971 [4] and an updated version of FTP was published in rfc959 [7].

#### 4.1.1 File Transfer Protocol

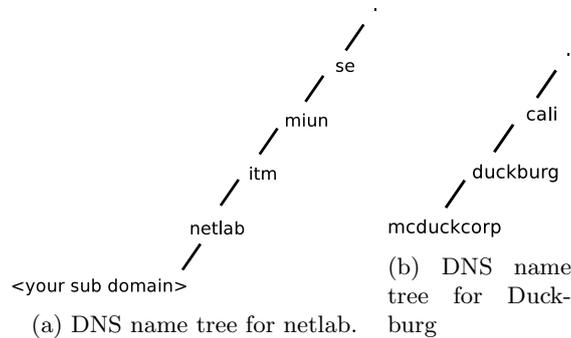
1. Find and install an FTP-server of your own choosing, for example `ftpd(8)`.
2. Configure your FTP-server daemon so that each user can access the files on their home-directory. Show all the steps taken to achieve this.
3. Only the users that belong to the `disney` group should be able to access the partition you created in a previous lab.

#### 4.1.2 Network File System

1. Install NFS on your system and configure it in the same way as you did with the FTP-server, that is, make sure that each user can access their home-directory and that only users that belong to the `disney` group can access your partition that you created in the second laboratory assignment.

#### 4.1.3 Samba - A Windows SMB/CIFS file server for UNIX

1. Finally install and configure SAMBA the same way as for FTP and NFS



## 4.2 DNS

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

### 4.2.1 Information for campus students

Ask your instructor what IP addresses to use for your virtual interfaces that you will create in 4.2.3. As you can see in Figure 1a you will add your domain as a sub domain for netlab. You must therefore, as well as configuring your own domain also add an NS record and a corresponding glue record to the netlab DNS-server. Since you don't have access to this server you must give the corresponding entries that you want to be added to the netlab DNS server to your instructor which will then add them to the server.

### 4.2.2 Information for distance students

In 4.2.3 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 both the duckburg.cali. and mcduckcorp.duckburg.cali. domain. See Figure 1b.

In 4.2.5 you will have to do this for both the duckburg.cali. and mcduckcorp.duckburg.cali. You only need to create the following resource records in duckburg.cali.: SOA, NS (one for this domain and one for the sub domain), glue record and an A-record for the name server for the subdomain.

### 4.2.3 Pre-installation

Before starting installing bind you should add two sub-interfaces which should all belong to the same subnet, see net [2] for more information how to do this. Make sure that they are working properly by testing the interface with ping(8).

### 4.2.4 Installation

Install Bind9 with the help of apt-get(8).

### 4.2.5 Post-installation

Motivate and explain the purpose of each entry you make in the various configuration files.

1. Create a file named *yourdomain.db* in */etc/bind/*, this file will contain all the resource records for your domain.
2. Edit the file created in 4.2.5.1 and add a SOA resource record. Consult Koch [5] and [3] before setting the SOA values.
3. Next set up an NS record and a corresponding glue record.
4. Add an A record for each of your virtual interfaces. Map one interface to *www.yourdomain* and the other to *mail.yourdomain*
5. Next create a CNAME resource record for *www* and name it *squirrel*.
6. 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*).
7. Use *rndc(8)* to either reload the configuration files or restart the service.
8. 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. 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.

## 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/software/bind>.
- [2] Multiple ip addresses on one interface, 2012. URL [http://wiki.debian.org/NetworkConfiguration#Multiple\\_IP\\_addresses\\_on\\_One\\_Interface](http://wiki.debian.org/NetworkConfiguration#Multiple_IP_addresses_on_One_Interface).

- [3] D. Barr. Common DNS Operational and Configuration Errors. RFC 1912 (Informational), February 1996. URL <http://www.ietf.org/rfc/rfc1912.txt>.
- [4] A.K. Bhushan. File Transfer Protocol. RFC 114, April 1971. URL <http://www.ietf.org/rfc/rfc114.txt>. Updated by RFCs 133, 141, 171, 172.
- [5] Peter Koch. Recommendations for dns soa values, 1999. URL <http://www.ripe.net/ripe/docs/ripe-203>.
- [6] 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).
- [7] J. Postel and J. Reynolds. File Transfer Protocol. RFC 959 (INTERNET STANDARD), October 1985. URL <http://www.ietf.org/rfc/rfc959.txt>. Updated by RFCs 2228, 2640, 2773, 3659, 5797, 7151.