

NCAE competition

SSH

SSH Server gets public key from SSH client

- Install ssh for both server and client
 - `sudo apt update`
 - `sudo apt install ssh`
 - `sudo ufw enable`
 - `sudo ufw allow ssh`
- Create an SSH key in the client.
 - `SSH-keygen` → Make it store in `id_rsa.pub`
 - Press enter to every prompt
- Copy public key to authorized keys directory (`~/.ssh`)
 - `ssh-copy-id -f bob@192.168.1.26`
 - client's public key should be in the authorized key
 - In SSH server, read out the authorized key file.
 - `cat ~/.ssh/authorized_keys`
 - now ssh

DNS Server

- `cd /etc/bind`
 - If bind does not exist, install bind9
- `sudo nano named.conf.default-zones`
- Add these lines for each domain name and ip address:

```
zone "<domain_name>" IN {
    type master;
    file "/etc/bind/zones/forward.<domain_name>";
    allow-update { none; };
};

zone "<first parts of ip>.in-addr-arpa" IN {
    type master;
    file "/etc/bind/zones/reverse.<domain_name>";
    allow-update { none; };
};
```

- Create the forward and reverse files. Copy the db.empty template

```
sudo cp db.empty /etc/bind/zones/forward.<domain_name>
sudo cp db.empty /etc/bind/zones/reverse.<domain_name>
```

- Edit forward.<domain_name>

```

GNU nano 4.8                                forward.ncaecybergames.org                Modified
; BIND reverse data file for empty rfc1918 zone
;
; DO NOT EDIT THIS FILE - it is used for multiple zones.
; Instead, copy it, edit named.conf, and use that copy.
;
$TTL      86400
@         IN      SOA      ncaecybergames.org root (
                                2          ; Serial
                                604800     ; Refresh
                                86400      ; Retry
                                2419200    ; Expire
                                86400      ; Negative Cache TTL
;
@         IN      NS       sandbox-Ubuntu
sandbox-Ubuntu IN A      192.168.183.2
www      IN      A        192.168.183.2

```

Handwritten annotations in the image:

- 1: Points to ncaecybergames.org
- 2: Points to 2 (Serial)
- 3: Points to sandbox-Ubuntu
- 4: Points to 192.168.183.2 (for sandbox-Ubuntu)
- 5: Points to 192.168.183.2 (for www)

Terminal footer:

```

^G Get Help  ^O Write Out ^W Where Is  ^K Cut Text  ^J Justify  ^C Cur Pos
^X Exit      ^R Read File ^\ Replace   ^U Paste Text ^T To Spell ^_ Go To Line

```

- 1: Change from localhost. to <domain_name>
 - 2: Always increment by 1 every time the file is changed
 - 3: Change localhost. to hostname of domain server
 - 4: add the line to resolve the ip of domain server to the domain name
 - 5: add the line to resolve the ip of web server to a www.<domain_name>
- Edit reverse.<domain_name>

```
sandbox@sandbox-Ubuntu: /etc/bind/zones
GNU nano 4.8 reverse.ncaecybergames.org Modified
; BIND reverse data file for empty rfc1918 zone
;
; DO NOT EDIT THIS FILE - it is used for multiple zones.
; Instead, copy it, edit named.conf, and use that copy.
;
$TTL      86400
@          IN      SOA      ncaecybergames.org. root.ncaecybergames.org. (
                                2          ; Serial
                                604800     ; Refresh
                                86400      ; Retry
                                2419200    ; Expire
                                86400      ; Negative Cache TTL
;
@          IN      NS       sandbox-Ubuntu.
2          IN      PTR      www.ncaecybergames.org.
2          IN      PTR      sanbox-Ubuntu.ncaecybergames.org.
```

- **Note: in reverse lookups, domain names always end with a period.**
- 1: add the domain name
- 2: add domain name with a "root." in front of it
- 3: increment by 1 every time the file is changed
- 4: add the hostname of domain server
- 5: add this line with last number of the ip of webserver.
- 6: add this line with the last number of the ip of domain server.
- Change dns addresses to the dns server ip through netplan or resolv.conf

```
sudo iptables -F
sudo iptables -F -t nat
sudo iptables -t nat -A PREROUTING -d 172.20.<team_num>.1 -p tcp --dport 80 -j DNAT --to-destination 192.168.<team_num>.2:80
sudo iptables -t nat -A POSTROUTING -j MASQUERADE
```