



# WELCOME TO SS Track

SomNOG6

21 – 23 October 2023

Mogadishu, Somalia

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Systems and Services Track

# What is SS Track?

- **Systems and Services** is a track that teaches advanced topics on designing, configuring, and managing large-scale Internet Services run on UNIX/Linux servers.
- **What sort of services?**
  - DNS, Web, Email
  - Monitoring, Authentication, Collaboration, and
  - Many Others
- **Basically, any service that can be offered on a Linux/ UNIX server over the Internet**

# Your instructors


- Mohamed Ali - [Waafi](#)
- Liban Abdilatif - [SIU](#)
- Ismail Mumin - [Tabarak ICT](#)
- Mohamed Bile - [SomaliREN](#)
- Abdifatah Mohamed - [Somtel](#)
- Omar Adan - [SomaliREN](#)

# Let's Play a Game



# How about you....?

## Introduce yourself:

- Name
- Work
- Hobbies 

# Course teaching style

- Theory explained first then followed by a practical session
- Each of you has been assigned a Virtual Machine running Ubuntu 22.04 (Jammy Jellyfish) that **you will access from your laptop**
- **Feel free to ask questions anytime**
- If you need help during the practical labs, **raise your hand** so the instructors can assist.
- **Kindly mute your phones during classes** 😊
- Please pay attention to theory sessions. 😊

# Timetable – please keep time 😊

- **First Session 08:00 to 10:00**
  - Tea break 10:00 to 10:30
- **Second Session from 10:30 to 12:30**
  - Prayer & Lunch from 12:30 to 13:30
- **Third Session- from 13:30 to 15:30**
  - Tea break - 16:00 to 16:30
- **Fourth Session - 16:00 to 17:30**
  - Closing

**Lunch: The room next to the lecture room**

**Tea break: In the corridor outside the lecture rooms**

**Washrooms: On the third floor, right next to dining room**

# Inventory

## You should have received:

- Name badges
- notepad, pen

## Keep your name badge with you

At the end of the workshop, you will receive:

- Many resources about Linux/Unix
- Please share the resources with your colleagues at your institution.



# Connectivity

- **Use your own laptops for:**
  - Web browsing
  - Control your virtual machines
  - Virtualization exercises
- **Wireless Internet**
  - Use the **SomNOG6** or your Track SSID
  - The password for both is "SomNOGSuccess"

# Access Your Virtual Machines

- **Virtual servers (named pc1 - pc40)**
  - DNS names are `pc1.somnog.so` (etc.)
  - PC Assignment exercise
- **Ubuntu 22.04 Jammy Jellyfish installed**
- **Use SSH to access your server (e.g. Putty for Windows)**
- **Login with `somnog/somnog`**
- **Use `sudo` to execute commands as root**
- **Don't change passwords**
- **Don't "close security holes."**
- **Don't shut down your server (there's no power button!)**
- **Your servers are accessible over the Internet.**

# Windows Users

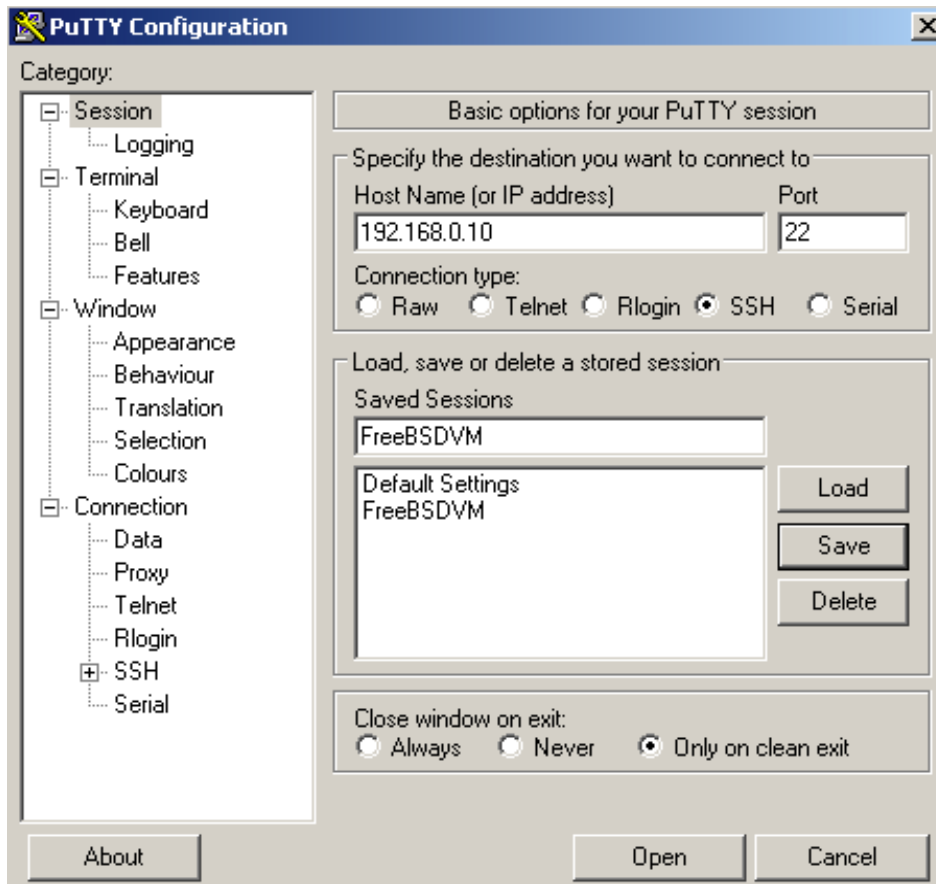
- Install putty or MobaXterm from: <https://the.earth.li/~sgtatham/putty/latest/w64/putty.exe>



After downloading you will see the above icon. Double-click on it and you should see a window similar to the one below

# SSH Clients

- Putty



# Unix, Linux and macOS Users

- A default Secure Shell (SSH) client is already installed in Unix, Linux, and macOS
- To access the default SSH
  - Open: Terminal application
  - From the Terminal prompt, type the following;
  - [ssh somnog@pcX.somnog.so](ssh:somnog@pcX.somnog.so) where X is the pc number.

# Online Resources

## Web site:

<https://events.somaliren.org.so/e/SomNOG6SS>

## SomNOG Mailing List:

- Q&A on Internet operational and technical issues.
- No foul language or disrespect for other participants.
- No blatant product marketing.
- No political postings.

## Please [subscribe](#) while at the Workshop:

- So we can help you if you have problems subscribing.

**Please raise any questions related to the workshop content.**

# Safety

Please be careful in class:

- trip on power cords
- pull cables out of sockets
- knock equipment off tables
- fall from leaning back too far in your chair

# Core topics to be covered this week

- **DNS**
  - Resolver
  - Authoritative DNS
- **Firewalls and Network Security**
  - Host security using IPtables
- **Mail Services**
  - How to setup mail services
- **Hosting Web services**
  - Web server using Apache
- **Ansible**
  - Automation tools
- **RADIUS & LDAP**
  - For centralizing authentication
- **Virtualization**
  - How to build virtual servers



# Rough agenda for the track

- Go to the event page:

<https://events.somaliren.org.so/e/SomNOG6SS>

*Any questions?*

# Nano bootcamp

- We will use an editor called “nano” on the Ubuntu machines
- However, you should learn “vi” as it has way more features than most editors
- For nano, you can open a file by:

```
somnog@pcX :~$ nano /path/to/filename
```

OR 

```
somnog@pcX :~$ nano filename
```

Save the changes by:

```
ctrl X
```

```
answer “y”
```

Search the file for a specific word:

```
ctrl W <then the search term>
```

# Short nano exercise

- Go to your home directory:  
`somnog@pcX:~$ cd /home/somnog`
- Open a file:  
`somnog@pcX:~$ nano test-script.sh`
- Type the following 4 lines in the file:  
`#!/bin/bash`  
`# SS Track Test Script`  
`echo "Welcome $HOSTNAME to SomNOG6!"`  
`echo "SomNOG!, Success!"`
- Then Save and Exit:  
Ctrl X and Then answer y. Maintain the same filename (press enter)
- Change the file permissions:  
`somnog@pcX :~$ chmod +x test-script.sh`
- Run the file  
`somnog@pcX :~$ ./test-script.sh`

# More commands

- Ctrl y - previous Page
- Ctrl v - next page

Nano provides a menu at the bottom:

```

[ Read 28 lines ]
^G Get Help  ^O WriteOut  ^R Read File  ^Y Prev Page  ^K Cut Text   ^C Cur Pos
^X Exit      ^J Justify   ^W Where Is  ^V Next Page  ^U UnCut Text ^T To Spell
  
```

# POST-INSTALL BEST PRACTICES

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# Things to do post-install

- 1. Update the System

```
somnog@pcX :~$ sudo nano /etc/apt/sources.list
```

## Find

```
deb http://ftp.uk.debian.org/debian/ stretch main
```

```
deb http://security.debian.org/debian-security stretch/updates main
```

Add “contrib” and “non-free” repositories to look as follows (use tab key);

```
deb http://ftp.uk.debian.org/debian/ stretch main contrib non-free
```

```
deb http://security.debian.org/debian-security stretch/updates main contrib non-free
```

Save the file and exit

# Things to do post-install

- 2. Update the System  
somnog@pcX:~\$ sudo apt-get update  
somnog@pcX:~\$ sudo apt-get upgrade
- 3. Install SSH (If it was not installed during system installation)  
somnog@pcX:~\$ sudo apt-get install openssh-server
- 4. Check Listening Network Ports  
somnog@pcX :~\$ sudo netstat -tulpn



# Things to do post-install

- 6. Disable Remote SSH Root User Login

```
somnog@pcX:~$ sudo nano /etc/ssh/sshd_config
```

- *Find the line*

- PermitRootLogin prohibit-password

- *Change to* → PermitRootLogin no

- Save and Exit

```
somnog@pcX:~$ sudo service sshd restart
```

- 7. Configure NTP Server

```
somnog@pcX:~$ sudo apt-get install ntp
```

- (optional but necessary) Edit ntp servers and put local ones

```
somnog@pcX:~$ sudo nano /etc/ntp.conf
```

- Comment "server" sections or replace server with a local/internal one

```
somnog@pcX:~$ sudo service ntp start
```

```
somnog@pcX:~$ ntpdc -pn
```

```
somnog@pcX:~$ ntpq -pn
```

- More here:

<https://www.debian.org/doc/manuals/securing-debian-howto/>



**Thank you!**

**Questions?**