

Welcome to ss-e Tznog - 2016 tanzania

Scalable Services - English

What is SS-E?

- **Scalable Services - English** is a track that teaches advanced topics on designing, configuring and managing large scale **Internet Services run on UNIX/Linux servers**
- It builds on Track Zero which covered introductory topics on UNIX/Linux and Internet Services
- **What sort of services?**
 - DNS, Web Email
 - Monitoring, Authentication
 - Many others
- **Basically any service that can be offered on a Linux/UNIX server over the Internet**

Your instructors

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- Kevin Chege – Kenya
- Damas Makweba -ternet
- Bryton Focus - tcra

How about you....?

Introduce yourself:

- **Name**
- **Country**
- **Work**
- **Hobbies** ≡
- **Experience in linux**

Course teaching style

- Theory explained first then followed by a practical session
- Each of you has been assigned a Virtual Machine running Debian 8.0.0 (Jessie) 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 during theory sessions ⌘

Timetable - please keep time



- Breakfast starts at 6am*
- **First Session 09:00 to 11:00**
 - Tea break 11:00 to 11:00
- **Second Session from 11:30 to 13:00**
 - Lunch from 13:00 to 14:00
- **Third Session- from 14:00 to 16:00**
 - Tea break - 16:00 to 16:30
- **Fourth Session - 16:30 to 18:00**
 - Dinner

Breakfast: **At 8-9am**

Lunch : 13:00 to 14:00

Washrooms: **Out of the hall go right the you will see**

Connectivity

- **Use your own laptops for:**
 - Web browsing
 - Control your virtual machines
 - Virtualization exercises
- **Wireless Internet**
 - Use the sse network if possible
 - Password for both is "**ten 8s**"
- **Hotel wifi is available in your rooms**

Access Your Virtual Machines

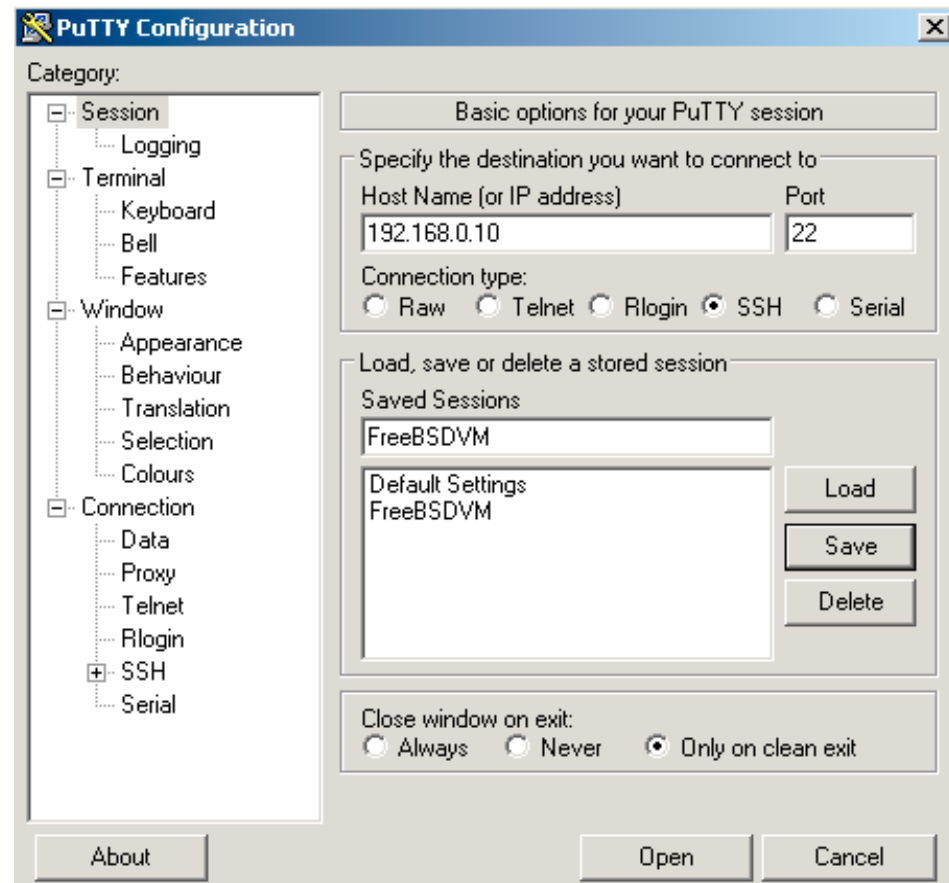
- **Virtual servers (named pc1 - pc30)**
 - DNS names are **pc1.sse.ws.afnog.org** (etc)
 - PC Assignment exercise
- **Debian 8.0.0 OS installed**
- **Use SSH to access your server (e.g. Putty for Windows)**
- **Login with afnog/afnog**
- **Use sudo to execute commands as root**
- **Don't change passwords**
- **Don't "close security holes"**
- **Don't shutdown your server (there's no power button!)**
- **Your servers are accessible over the Internet**

Windows Users

- **Install putty from:**
 - <https://the.earth.li/~sgtatham/putty/latest/x86/putty.exe>



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



Unix, Linux and OS X Users

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

Online Resources

Web site: <http://wiki.tznog.or.tz/doku.php?id=agenda3>

tznog 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

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
- **RADIUS & LDAP**
 - For centralizing authentication
- **Virtualization**
 - How to build virtual servers

Rough agenda for the week

▪ **Monday:**

- First Session: intro, nano bootcamp, Post-installation Best Practices
- Second Session: DNS (Intro)
- Third Session: Firewalls and Network Security
- Fourth Session: DNS (Resolver)
 - *Evening Session: General*

▪ **Tuesday:**

- First Session: Security (Public Key, SSL, PGP, Crypto)
- Second : DNS (Authoritative)
- Third Session: Apache + PHP
- Fourth Session: Postfix
 - *Evening Session: DNSSEC*

▪ **Wednesday:**

- First and Second Session: Postfix
- Third and Fourth Session: Open LDAP Directory
 - *Evening Session: Ansible*

Rough agenda for the week ...

- **Thursday:**
 - First and Second Session: RADIUS
 - Third Session: Dovecot IMAP
 - Fourth Session: Squirrelmail
- **Friday:**
 - First and Session: Load Balancing
 - Third and Fourth : Virtualization
 - Closing Survey

Any questions?

Nano bootcamp

- We will use an editor called “nano” on the Debian machines
 - However, you should learn “vi” as it has way more features than most editors
 - Install nano: `afnog@debian8:~$sudo apt-get install nano`
 - For nano you can open a file by:
 - `afnog@debian8:~$nano /path/to/filename`
- OR `afnog@debian8:~$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

```
afnog@debian8:~$ cd /home/afnog
```

Open a file:

- ```
afnog@debian8:~$ nano test-script.sh
```

- Type the following 4 lines in the file

```
#!/bin/bash
```

```
SSE Test Script
```

```
echo "Welcome $HOSTNAME to AfNOG SSE
2016!"
```

```
echo "AfNOG!, Success!"
```

- Then Save and Exit

```
Ctrl X and Then answer y. Maintain the same
```

# 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

```
afnog@debian8:~$ sudo nano /etc/apt/sources.list
```

## **Find**

```
deb http://httpredir.debian.org/debian jessie
```

```
main
```

```
deb http://security.debian.org/ jessie/updates main
```

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

```
deb http://httpredir.debian.org/debian jessie main
```

```
contrib non-free
```

```
deb http://security.debian.org/ jessie/updates main
```

```
contrib non-free
```

**Save the file and exit**

# Things to do post-install

- 2. Update the System

```
afnog@debian8:~$sudo apt-get update
```

```
afnog@debian8:~$sudo apt-get upgrade
```

- 3. Install SSH (If it was not installed during system installation)

```
afnog@debian8:~$sudo apt-get install openssh-server
```

- 4. Disable unwanted Services

```
afnog@debian8:~$sudo service - - status-all
```

```
afnog@debian8:~$sudo service exim4 stop
```

- 5. Check Listening Network Ports

```
afnog@debian8:~$sudo netstat -tulpn
```

# Things to do post-install

- 6. Disable Remote SSH Root User Login

afnog@debian8:~\$ **sudo nano /etc/ssh/sshd\_config**

- *Change line or if missing Add the line (use*

- PermitRootLogin without-password

PermitRootLogin no

afnog@debian8:~\$ **sudo service sshd restart**

- 7. Configure NTP Server

afnog@debian8:~\$ **sudo apt-get install ntp**

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

afnog@debian8:~\$ **sudo nano /etc/ntp.conf**

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

afnog@debian8:~\$ **sudo service ntp start**

afnog@debian8:~\$ **ntpd -pn**

afnog@debian8:~\$ **ntpq -pn**

Thank you!

Questions?