B3Africa Webinar 1
IT Focal Points

29 September, 14:00-15:30 CEST (UTC+2/ Paris)

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BRIDGING BIOBANKING AND BIOMEDICAL RESEARCH
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Overview

TOPIC 1: How to manage BIBBOX/eB3kit virtual machines

- What is VM
- Hypervisor
- BIBBOX VMs
- Connect to VM
- Backup/Snapshot

What is Virtualization

- Virtualization is a broad concept of simulating hardware and/or software (virtual memory, storage, network etc.). The simulated environment is called virtual machine (VM).
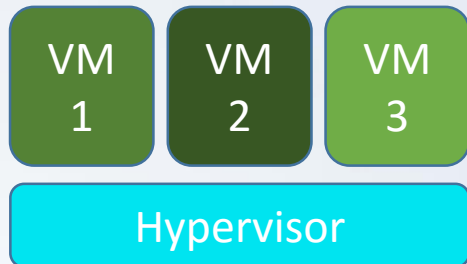
Hypervisor

Bear Metal

- Runs directly on the host hardware

- Oracle VM Server, Citrix XenServer, Microsoft Hyper-V, VMware ESX/ESXi, KVM, bhyve

VM 1	VM 2	VM 3

Hypervisor

Hardware:
CPU, RAM, Network, Storage

Host

- Runs on a convectional OS (Windows, Mac, Linux, …)

- Vmware (Workstation/ Player), Oracle VirtualBox, Parallels, Microsoft Windows Virtual PC, KVM, bhyve

VM 1	VM 2	VM 3

Hypervisor

Host OS

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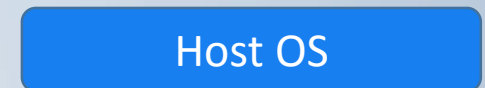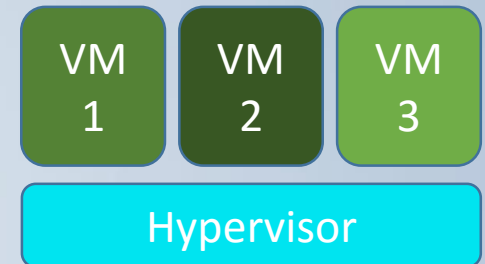
BIBBOX VM (demo)

Requirements:

- Download Oracle VirtualBox

- Download BIBBOX VM v0.5

- Install VirtualBox

- Import BIBBOXDemoServer

- https://www.virtualbox.org

- http://bibbox.org/virtual-machine

- Import BIBBOXDemoServer_0.5_20160929.ova

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BIBBOX VMs

Empty VM

- Startup Script

- Configuration Files

- BIBBOX Base scripts

- BIBBOX Portal (Liferay)

- OrientDB

- iRods

- OpenLDAP/CAS

Demo VMs

- Empty VM

+ BIKALims

+ OpenSpecimen

+ Liferay Document

+ iRods

+ Galaxy

eB3Kit: Use Case Clinical Biobank – Colon Cancer Cases
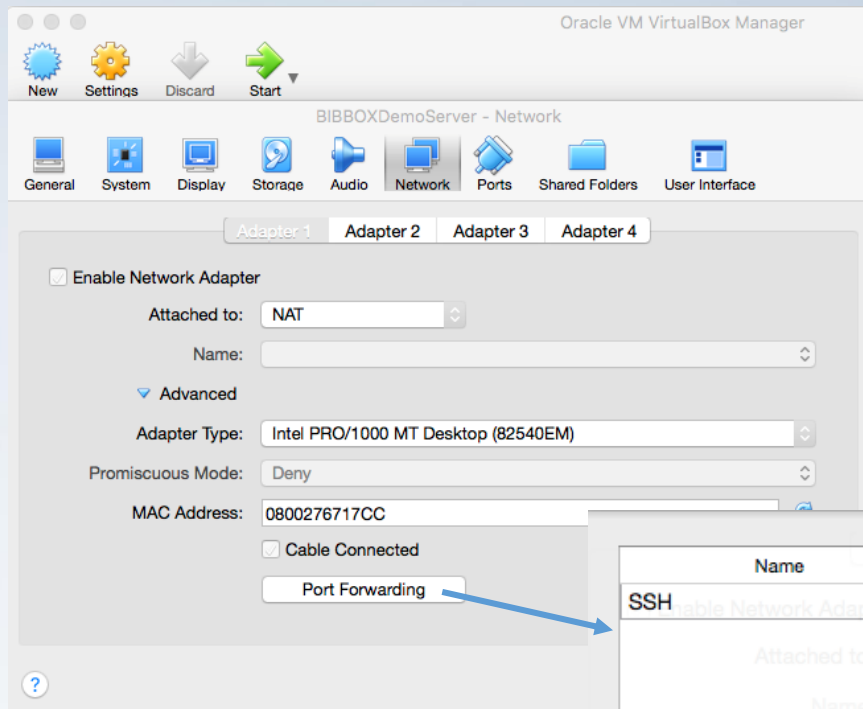
http://bibbox.org/virtual-machine

BIBBOX VM (demo)

- Debian Script Structure   /etc/init.d/bibbox

  /etc/bibbox/bibbox.cfg

  /etc/bibbox/conf.d/*.cfg

- GitHub Scripts   /opt/bibbox/bibbox-scripts

  /initscripts

  addproxy.sh
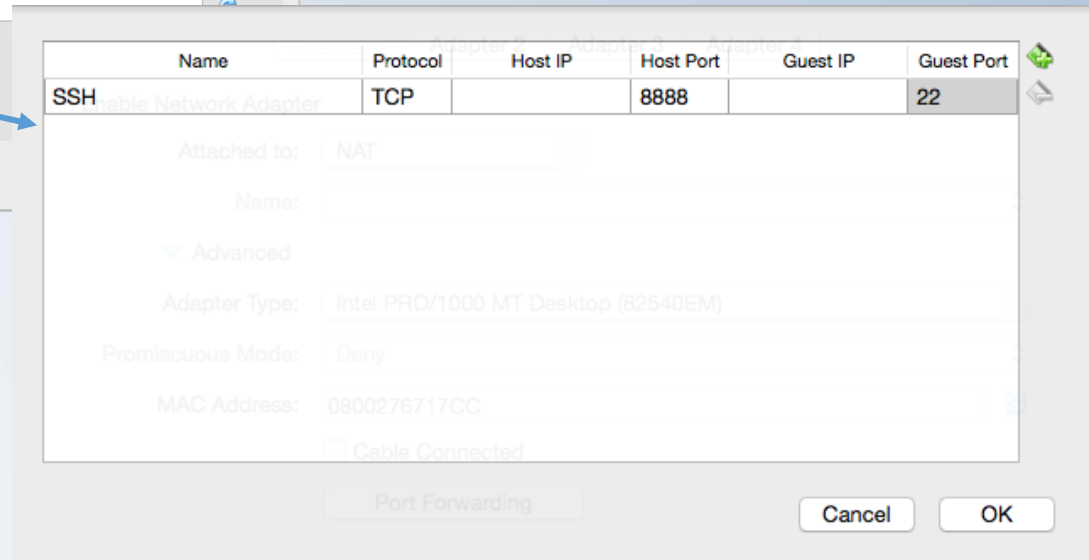
Connect to virtual machine

Command line:

VBoxManage modifyvm "BIBBOXDemoServer" --natpf1 "ssh,tcp,,8888,,22"

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Backup/Snapshot VMs

- Install backup software on guest

- Copy VM files

- Special Tools for backup and migration

- Clone (copy) => make an exact copy (also names and network settings)

- Export => move to a different host (with running VM called life migration)

- Import => import to exported VM (Register, Restore or Copy)

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Thank You!

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B3Africa Slack

Post webinar exercise:

- Download the BIBBOX VM or install docker
- Run the bibbox/phenotips container
- Create a docker-compose file to run phenotip

BIBBOX - Links

- BIBBOX Community
  - http://bibbox.org
- Application Repository
  - https://github.com/bibbox/application-store
- Script Repository
  - https://github.com/BiBBox/bibbox-scripts
- Docker Image Repository
  - https://hub.docker.com/u/bibbox/dashboard

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Glossary I

- VM – Virtual Machine
- OS – Operating System
- stdout - Standard Output
- stderr - Standard Error
- ETW - Event Tracing for Windows