

1.4 Generate VM template

Generate an empty VM with XEN

Install the xen-tools to automate the creation of the VM template.

```
apt-get install xen-tools
```

Edit the `/etc/xen-tools/xen-tools.conf` file and add the following line:

```
dir = /data/vm_storage
```

Save the file and create the directory:

```
mkdir -p /data/vm_storage
```

Generate a new VM image to be used as the default VM template for experiments.

```
xen-create-image --install-method=debootstrap --dist wheezy --pygrub --password=openflow --ip 10.XXX.0.254 --netmask=255.255.0.0 --gateway=10.XXX.0.30 --bridge=br_control --hostname=fibre-default
```



Note: Substitute the 'XXX' with your assigned island ID.



The default root password of the template VM should be "openflow"

Start the VM:

```
xm create -c fibre-default.cfg
```



Note: Login using the default root password: openflow

Install the required packages on the created VM:

```
apt-get update  
apt-get install libpam-ldap nscd libnss-ldap vlan
```



Note: Use the default options when the package settings are requested. These will be configured manually later.



Optionally install desired default packages:

```
apt-get install vim less netcat-openbsd iperf htop
```



Note: Update the `/etc/resolv.conf` file to the DNS of your island or use the DNS server of the Fibre NOC (10.128.0.80)

Shutdown the VM:

```
shutdown -h now
```

Configuring the LDAP authentication

Mount the VM template image to a directory:

```
mount -o loop /data/vm_storage/domains/fibre-default/disk.img /mnt  
cd /mnt
```

Update the following files inside the VM template image:

File #1: `/mnt/etc/libnss-ldap.conf`

The file should have the following contents:

```
base dc=fibre  
uri ldap://ldap.INSTITUTION.fibre.org.br  
ldap_version 3  
nss_base_passwd dc=fibre?subtree?userEnable=TRUE
```

Note: The INSTITUTION field should be changed so that it suits the LDAP of your institution.

File #2: `/mnt/etc/pam_ldap.conf`

The file should have the following contents:

```
base dc=fibre  
uri ldap://ldap.INSTITUTION.fibre.org.br  
ldap_version 3  
pam_password crypt
```

Note: The INSTITUTION field should be changed so that it suits the LDAP of your institution.

File #3: `/mnt/etc/pam.d/common-auth`

Append the following lines to the end of the file:

```
auth required pam_access.so

auth sufficient pam_ldap.so use_first_pass

account [default=bad success=ok user_unknown=ignore authinfo_unavail=ignore] pam_ldap.so

password sufficient pam_ldap.so use_authtok

session optional pam_ldap.so
```

File #4: **/mnt/etc/pam.d/common-session**

Append the following lines to the end of the file:

```
session required pam_mkhomedir.so skel=/etc/skel umask=0022
```

File #5: **/mnt/etc/ldap/ldap.conf**

The file should have the following contents:

```
BASE dc=fibre

URI ldap://ldap.INSTITUTION.fibre.org.br
```

Note: The INSTITUTION field should be changed so that it suits the LDAP of your institution.

File #6: **/mnt/etc/security/access.conf**

The file should have the following contents:

```
+:root:LOCAL

+:_projectId:ALL

-:ALL:ALL
```

File #7: **/mnt/etc/nsswitch.conf**

The file should have the following contents:

```
passwd:      compat ldap
group:       compat ldap
shadow:      compat ldap

hosts:       files dns
networks:    files

protocols:   db files
services:    db files
ethers:      db files
rpc:         db files

netgroup:    ldap
```

File #8: **/mnt/etc/ssh/sshd_config**

Edit the following line to disable root ssh access.

```
PermitRootLogin no
```

Packaging the Template:

Access the directory where the VM template image is mounted:

```
cd /mnt
```

Compact the template image:

```
tar pcfz default.tar.gz *
```

Move the image to the OXA template directory:

```
mkdir /opt/ofelia/oxa/cache/templates/default  
mv default.tar.gz /opt/ofelia/oxa/cache/templates/default/
```

Unmount the VM image:

```
cd  
umount /mnt
```

Create the hash signature of the template:

```
cd /opt/ofelia/oxa/cache/templates/default/  
md5sum default.tar.gz > default.hash  
cp default.hash .default.hash
```