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Create VM lab guide

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# Lab 1: Creating Blueprint

1. Logged into Calm with the given credentials, and click on the **Blueprint** tab.
2. Select **+Create Blueprint** and select on **MultiVM/Pod Blueprint**.
3. Name the blueprint **RHEL VM Blueprint user<Number>**
4. (Optional) Provide a description for the Blueprint
5. Under **Project,** select the correct project based on your assigned user number

## Exercise 1: VM Service

This exercise allows you to create the Services required to create a VM.

1. Select on the **+ button** on **Service tab**.
2. You will be able to see a **VM1** block pop up, with configuration details shown on the right.
3. At the **Service Name**, input **“RHEL VM”** in the space

## Exercise 2: Add Credentials

Credentials allows you to preset the username and password for the VM itself.

1. Click on the **Credentials** tab
2. Click on the **+** button beside **credentials.**
3. Under **Name**, name it **root\_cred .**
4. **Check** the **Static** button.
5. For **Username** input “**root**”.
6. **Secret Type** check the **Password button.**
7. Lastly for **Password** input “**P@ssw0rd**” and check the **Use as** **default** button.
8. Click on **Save**
9. Click on **Back**

## Exercise 3: VM Configurations

In this exercise, you will be configuring your VM before being deployed.

1. There are 3 tabs within the service, **“VM” “Package” “Service”**
2. Click on “**VM”**

### Task 1: Add Name

1. Replace VM1 with **“RHEL VM user<Number>”**

### Task 2: Add Account

1. Select the Account drop-down field and choose **NTNX\_LOCAL\_AZ**

### Task 3: Add Operating System

1. Select Operating System drop-down field and choose **Linux**.

### Task 4: Choose Cluster

1. Select **Training-Cluster-0**

### Task 5: Variablized VM name

1. Under the tab **VM Name**, input the following **@@{calm\_application\_name}@@**

### Task 6: Add specifications for VM

1. Add 4 **vCPU** and **1 Core per vCPU**.
2. Under the **Memory(GiB)** input the value **8**
3. Check the **Running Man** logo for **vCPUs** and **Memory (GiB)**

### Task 7: Add Disk

1. Select on the drop-down **Disk tab**, and under Device Type choose **DISK**.
2. Under the **Device Bus** choose **SCSI**.
3. In the Operation tab select the “**Clone from Image Service**”.
4. Next, under the **Image** tab choose the **RHELSVR8.8\_Training** for your VM.
5. Lastly, **check** the **Bootable button.**

### Task 8: Boot configuration (UEFI Secure Boot)

1. Select the **UEFI** option for initializing boot up sequence.
2. Under the **Sheild VM Settings,** check the **Secure Boot** option

### Task 9: Network Adapters

1. Select the **+** button to add a **NIC**.
2. Expand the dropdown menu and select **user<Number>-overlay1**.
3. Under the **Private IP,** select the **Dynamic** option.

### Task 10: Connection

1. At the **Credential header**, select **root\_cred.**
2. Under Address select **NIC 1**.
3. At **Connection Type** choose **SSH.**

## Exercise 4: Service Configuration

### Task 11: Include Static Variable

1. Select the **+** button and name the variable **DNS\_SERVER**.
2. Expand the newly added variable, set the **Data Type** to **String.**
3. Input the **<DNS IP>** into the **Value** field.
4. Click on the **Show Additional Options.**
5. Under the **Label** field, input “DNS IP”
6. (Optional) Under the **Description** field, input a meaningful description for this variable

# Lab 2: Configuring VM

## Exercise 5: Pre-Create

The pre-create task in the blueprint allows the developer to perform tasks required before the blueprints provisions the VM.

### Task 13: Access Control

A sample task that can be in the pre-create could be an escript prevent **‘adminworkshop’** user to run the blueprint.

1. Select the **+ Task** button.
2. Change the **Task Name** on the right to **“Do not allow admin user to run”**
3. Expand the **Type** dropdown menu and select **Execute**
4. Expand the **Script Type** dropdown menu and select **EScript**
5. Type in the code as follow to implement the logic to ensure that admin user is not allowed to run this blueprint
6. username = '@@{calm\_username}@@'
7. print("Current user: @@{calm\_username}@@")
8. if 'adminworkshop' in username.lower():
9. print("DO NOT LAUNCH WITH ADMINWORKSHOP ACCOUNT")
10. exit(1)

# Lab 3: Configuring Package

## Exercise 6: Package Install

Click the **drop-down tab** from **Package** and select **Install**. The tasks that are created here will be running through after the VM is created.

### Task 14: Configure DNS Repo List

1. Click on the **+Task** and a new task will be created within Package Install.
2. On the right, rename the task to be “**Configure DNS Repo List**”.
3. Type: **Execute**
4. Script Type: **Shell**
5. Input the following into the Script.

ip\_dns\_list="@@{DNS\_SERVER}@@"

nic\_device\_name=$(nmcli -t -f Device,Type d | cut -d ':' -f 1 | head -n 1)

nic\_connection\_name=$(nmcli -t -f NAME,DEVICE con show --active | grep "$device\_name" | cut -d ':' -f 1)

nmcli con mod "$nic\_connection\_name" ipv6.ignore-auto-dns yes

nmcli con mod "$nic\_connection\_name" ipv4.ignore-auto-dns yes

nmcli con mod "$nic\_connection\_name" ipv4.dns "$ip\_dns\_list"

nmcli con down "$nic\_connection\_name" && nmcli con up "$nic\_connection\_name"

### Task 15: Configure media Repo

1. Click on the **+Task** and a new task will be created within Package Install.
2. On the right, rename the task to be “**Configure media Repo**”.
3. Type: **Execute**
4. Script Type: **Shell**
5. Input the following into the Script.

touch /etc/yum.repos.d/media.repo

cat > /etc/yum.repos.d/media.repo <<EOF

[BaseOS]

name=BaseOS

baseurl=http://@@{repo\_ip}@@/BaseOS

gpgcheck=0

enabled=1

[AppStream]

name=AppStream

baseurl=http://@@{repo\_ip}@@/AppStream

gpgcheck=0

enabled=1

### Task 16: Configure NTP

Chrony is a versatile implementation of the of Network Time Protocol with faster time synchronization and accuracy.

1. Click on the **+Task** and a new task will be created within Package Install.
2. On the right, rename the task to be “**Check if Chrony is Installed**”.
3. Type: **Execute**
4. Script Type: **Shell**
5. Input the following into the Script.

dnf install -y chrony

systemctl enable chronyd

systemctl start chronyd

echo "server time.google.com iburst" | tee -a /etc/chrony.conf

systemctl restart chronyd

### Task 17: Patch to Latest

1. Click on the **+Task** and a new task will be created within Package Install.
2. On the right, rename the task to be “**Patch to Latest**”.
3. Type: **Execute**
4. Script Type: **Shell**
5. Input the following into the Script.

dnf clean all

dnf update -y

|  |  |
| --- | --- |
| **Lab Variables** | |
| **Item Name** | **Value** |
| Prism Central IP | 172.16.11.1 |
| Prism Central Admin Username | admin |
| Prism Central Admin Password | P@ssw0rd12345$ |
| Login Username | user<Number>@teamX.lab |
| Login Password | P@ssw0rd12345$ |
| Image to Use | RHELSVR8.8\_Training |
| Rhel Username | root |
| Rhel Password | P@ssw0rd |
| DNS Server | <To Be Updated> |
| Rhel Repo | <To Be Updated> |
| Underlay Name | VPC-Underlay |
| Underlay UUID | 700520b1-aa87-43f7-9b77-2265ee95788e |

|  |  |
| --- | --- |
| **LOGIN CREDENTIALS** | |
| **Item Name** | **Value** |
| Prism Central URL | https://172.16.11.1:9440/dm/infrastructure |
| Calm URL | https://172.16.11.1:9440/dm/self\_service/ |
| Admin Username | admin\_workshop |
| Admin Password | P@ssw0rd |
| Student Username | User<Number>@teamX.lab |
| Student Password | P@ssw0rd |