### **Step 1: Download the Ubuntu ISO**

First, download the Ubuntu netboot mini ISO pr whatever installed you want on your Dell server:

| wget -O /var/lib/libvirt/boot/bionic-mini.iso \  http://archive.ubuntu.com/ubuntu/dists/bionic/main/installer-amd64/current/images/netboot/mini.iso |
| --- |

Verify the file exists:

| ls -lh /var/lib/libvirt/boot/ |
| --- |

Make sure bionic-mini.iso is listed.

### **Step 2: Create the Virtual Machine**

Now, create the VM with graphics enabled (VNC):

| sudo virt-install \  --virt-type kvm \  --name bionic \  --ram 2048 \  --vcpus 2 \  --disk path=/var/lib/libvirt/images/bionic.qcow2,size=10,format=qcow2 \  --cdrom /var/lib/libvirt/boot/bionic-mini.iso \  --network network=default \  --os-variant=ubuntu18.04 \  --graphics vnc,listen=0.0.0.0 \  --noautoconsole |
| --- |

Explanation:

* **VNC enabled** (--graphics vnc,listen=0.0.0.0) → Allows you to connect via VNC from your Mac.
* **No autoconsole** (--noautoconsole) → Prevents auto-attaching to a text console.

### **Step 3: Find the VNC Port**

Once the VM starts, check which VNC port it’s running on:

| sudo virsh dumpxml bionic | grep vnc |
| --- |

Example output:

| <graphics type='vnc' port='5902' autoport='yes' listen='0.0.0.0'/> |
| --- |

This means the VNC server is listening on port **5902**.

### **Step 4: Connect to VNC from Mac**

Since your Dell server has no GUI, use your Mac to connect.

#### **Use a VNC Client**

Install:

* [**RealVNC Viewer**](https://www.realvnc.com/en/connect/download/viewer/)
* [**TigerVNC**](https://tigervnc.org/)

Then, connect using:

| your-server-ip:5902 |
| --- |

### **Step 5: Install Ubuntu (Graphical)**

Now, follow the graphical **Ubuntu installation wizard**.

**Select Language & Keyboard**

* Choose "Install Ubuntu".
* Select **Keyboard Layout** → Default is **English (US)**.

**Network Setup**

* If prompted, select **Use DHCP** (default).

**Choose Disk Partitioning**

* Select **"Guided - use entire disk"** (Recommended).
* Select the available disk (should be **/dev/vda** or similar).
* Confirm and select **"Yes"** when asked to write changes.

**Create a User Account**

* **Username:** ubuntu
* **Password:** <your-password> (Set a strong one)
* Choose **automatic login** if needed.

**Wait for the Installation to Finish**

* The installation will take a few minutes.
* Once done, **remove the installation media** when prompted.
* **Click "Reboot Now"**.

### **Step 6: Prepare Ubuntu for OpenStack**

Once the VM reboots, reconnect to it.

#### **Connect via VNC Again**

#### **OR Connect via SSH (Recommended)**

On your **Dell server**, run:

| sudo virsh list --all |
| --- |

Find the running VM and access it:

| sudo virsh console bionic |
| --- |

Now, login using the credentials you set during installation.

### **Step 7: Install cloud-init and Prepare for OpenStack**

Once logged into the VM via **VNC or console**, run on the VM:

| sudo apt update sudo apt install -y cloud-init qemu-guest-agent |
| --- |

This ensures that OpenStack can configure instances when launched.

#### **Clean Up the VM Before Uploading**

| sudo cloud-init clean sudo rm -rf /var/log/\* sudo shutdown -h now |
| --- |

**The VM is now ready to be converted into an OpenStack image.**

### **Step 8: Upload the Image to OpenStack**

Now, go **back to your Dell server (SSH)** and upload the image.

#### **Load OpenStack Credentials**

| source openstackrc.sh |
| --- |

#### **Upload the Image**

| openstack image create \  --disk-format qcow2 \  --container-format bare \  --file /var/lib/libvirt/images/bionic.qcow2 \  --property hw\_disk\_bus=scsi \  --property hw\_scsi\_model=virtio-scsi \  --property os\_type=linux \  "ubuntu-18.04" |
| --- |

**Verify the upload:**

| openstack image list |
| --- |

### **Step 9: Launch an Instance in OpenStack**

#### **Find the Image ID**

| openstack image list | grep ubuntu-18.04 |
| --- |

#### **Find the Network ID**

| openstack network list |
| --- |

#### **Launch the VM in OpenStack**

| openstack server create \  --flavor m1.small \  --image ubuntu-18.04 \  --nic net-id=<NETWORK\_ID> \  --security-group default \  --key-name my-key \  ubuntu-test-instance |
| --- |

**Check if it’s running:**

| openstack server list |
| --- |

**Now your Ubuntu VM is successfully installed and running in OpenStack!**