

Proxmox Server Setup plus iiiDevops install

First the installation of Proxmox Server is on a new system. Here are the prerequisite of hardware:

1. MotherBoard supports Gen10th or Gen11th CPU which supports Linux kernel 5.13
2. CPU Intel Gen10th/Gen11th
3. Storage > 1TB (SSD or HD)
4. Memory > 32GB
5. Wireless Network card that supports dual band IEEE802.11 which driver also supports Linux kernel 5.13 (For ethernet network it will be easier, requires no labor)

To install proxmox on the machine, we will use Proxmox 7.1-2. You can download via proxmox website or through github.

```
1 # On your mac
2 # Download via github
3 # You must have git cli I assume
4 # First install git-lfs
5 brew install git-lfs
6 git lfs install
7 cd ~/
8 git clone https://github.com/NinoX-RD/DevPaul.git
9 cd DevPaul/proxmox_server_setup
```

Then you will see **proxmox-ve_7.1-2.iso**. Now flash it to a usb drive to be a bootable. I recommend using **belenaEtcher**.

Install Proxmox and Network configuration

Install using Graphical install. Only thing to notice is that ip address setup is irrelevant for now. Therefore it is really straightforward.

After installation finished, login to Proxmox server. The main problem is to setup network configuration.

In the beginning, there is no network connection. We need to manually download **wpasupplicant** from debian at another environment (mac).

Go to Debian official package website to download deb package:

<https://packages.debian.org/bullseye/wpasupplicant>

Since it depends on other packages, we need to download them as well. Take a usb drive and create an empty folder named **packages** which we will put all the download Debian package in there.

****Remember to download **amd64** ones.

The packages needed are:

- wpa_supplicant
- libnl-genl-3-200
- libpcslite1

After that we need to mount usb to our Proxmox using command.

```
1 # find device partition that is your usb
2 lsblk
3 # create a folder for which the data is mounted on
4 mkdir /mnt/usb
5 # mount
6 mount /dev/DEVICE_PARTITION /mnt/usb
```

Then we can install the packages:

```
1 cd /mnt/usb/packages
2 # If encountering any error, don't worry. Repeat the command again
3 dpkg -i *.deb
4 # Check wpa_supplicant is installed
5 wpa_supplicant -v
```

Now we can connect to AP, but you have to know essid and password in advance.

```
1 wpa_passphrase ESSID WIFI_PASSWORD >> /etc/wpa_supplicant/wpa_supplicant.conf
2 nano /etc/wpa_supplicant/wpa_supplicant.conf
3 # adding the following at the top of the file
4 ctrl_interface=/run/wpa_supplicant
5 ctrl_interface_group=root
6 update_config=1
7 ap_scan=1
```

After that we can go to /etc/network/interfaces to configure network and NAT routing.

```
1 # The Configuration is as follow. Be sure to change your interface's name and ip
2 auto lo
3 iface lo inet loopback
4 auto wlp1s0
5 iface wlp1s0 inet static
6     address 192.168.0.68/23 # change accordingly
7     gateway 192.168.0.1      # change accordingly
8     post-up echo 1 > /proc/sys/net/ipv4/conf/wlp1s0/proxy_arp
9     post-up echo 1 > /proc/sys/net/ipv4/ip_forward
10 auto vmbr0
11 iface vmbr0 inet static
12     address 10.20.0.1/24
13     bridge-ports none
14     bridge-stp off
15     bridge-fd 0
16     post-up iptables -t nat -A POSTROUTING -s '10.20.0.0/24' -o wlp1s0 -j MASQUERADE
17     post-down iptables -t nat -D POSTROUTING -s '10.20.0.0/24' -o wlp1s0 -j MASQUERADE
18     post-up iptables -t nat -A PREROUTING -i wlp1s0 -p tcp --dport 30000:32767 -j DNAT --to 10.20.0.70
19     post-down iptables -t nat -D PREROUTING -i wlp1s0 -p tcp --dport 30000:32767 -j DNAT --to 10.20.0.70
```

Reboot the system. Then try to ping 8.8.8.8 and make sure that network is working.

Increase Storage

First, we open the website on your mac

website : https://PROXMOX_SERVER_IP:8006

- Step1 : Click datacenter -> Storage -> local-lvm(YOUR_NAME) -> remove

ID ↑	Type	Content	Path/Target	Sha...	Ena...	Bandwidth Limit
local	Dire...	VZDump backup file, ISO...	/var/lib/vz	No	Yes	
local-lvm	LVM...	Disk image, Container		No	Yes	

- Step2 : Choose the folder, which contains your storage named local. Then click shell.

The screenshot shows the Proxmox VE interface. On the left, the Datacenter tree is visible with nodes: Datacenter, ninox (selected), 100 (iiidevops), and local (ninox). A red circle labeled '1' is around the 'ninox' node. On the right, a terminal window is open with the following content:

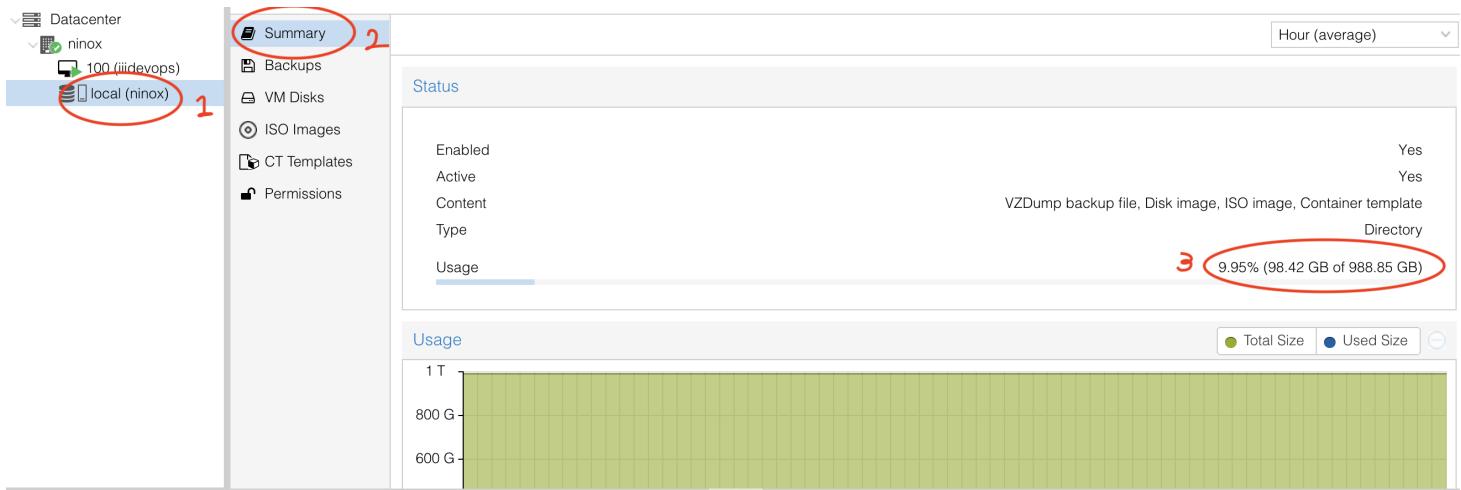
```
Linux ninox 5.13.19-2-pve #1 SMP PVE 5.13.19-4 (Mon, 29 Nov 2021 12:10:00 +0000)
The programs included with the Debian GNU/Linux system are free software.
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/*copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Thu Feb 10 15:23:48 CST 2022 on pts/1
root@ninox:~#
```

- Step3 : Using the following command to increase storage.

```
1 lvremove /dev/pve/data #enter y
2 lvresize -l +100%FREE /dev/pve/root
3 resize2fs /dev/mapper/pve-root
```

Then we can check the Summary of local.

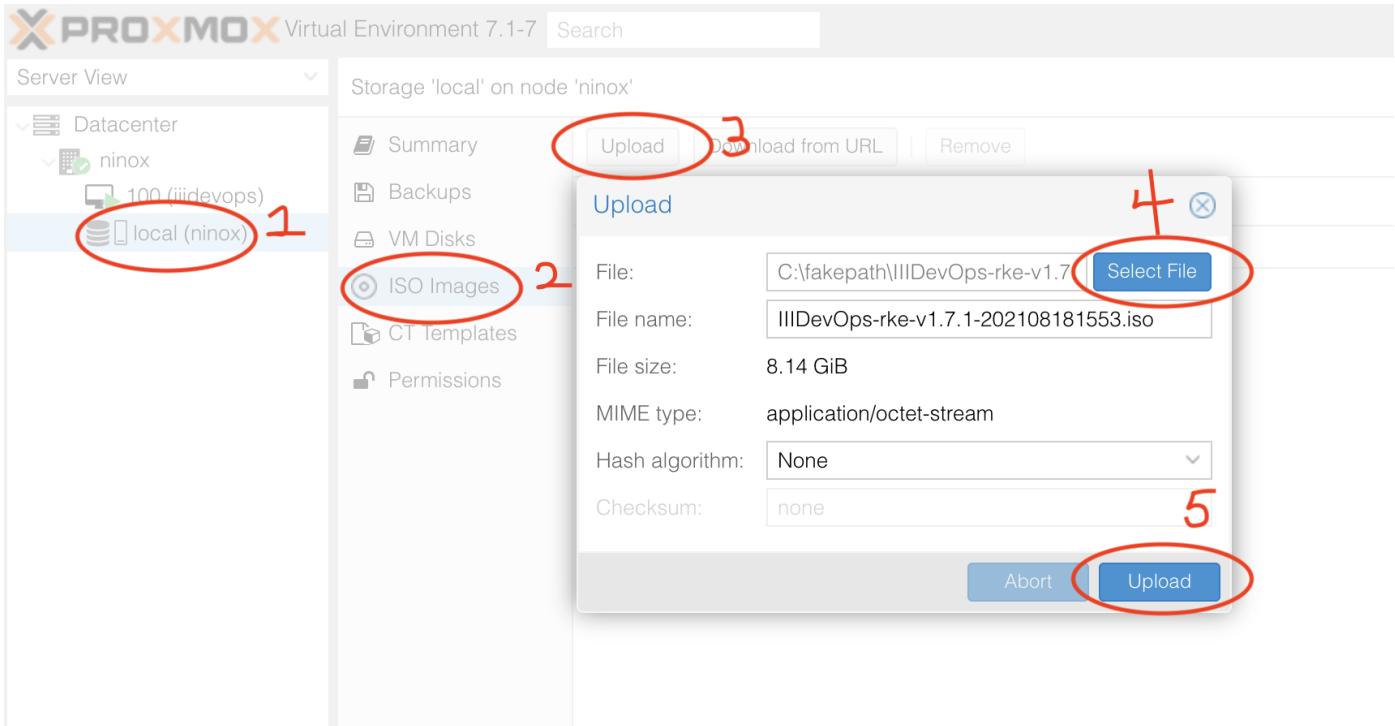


Create Virtual Machines

- Step1 : Upload your ISO_images

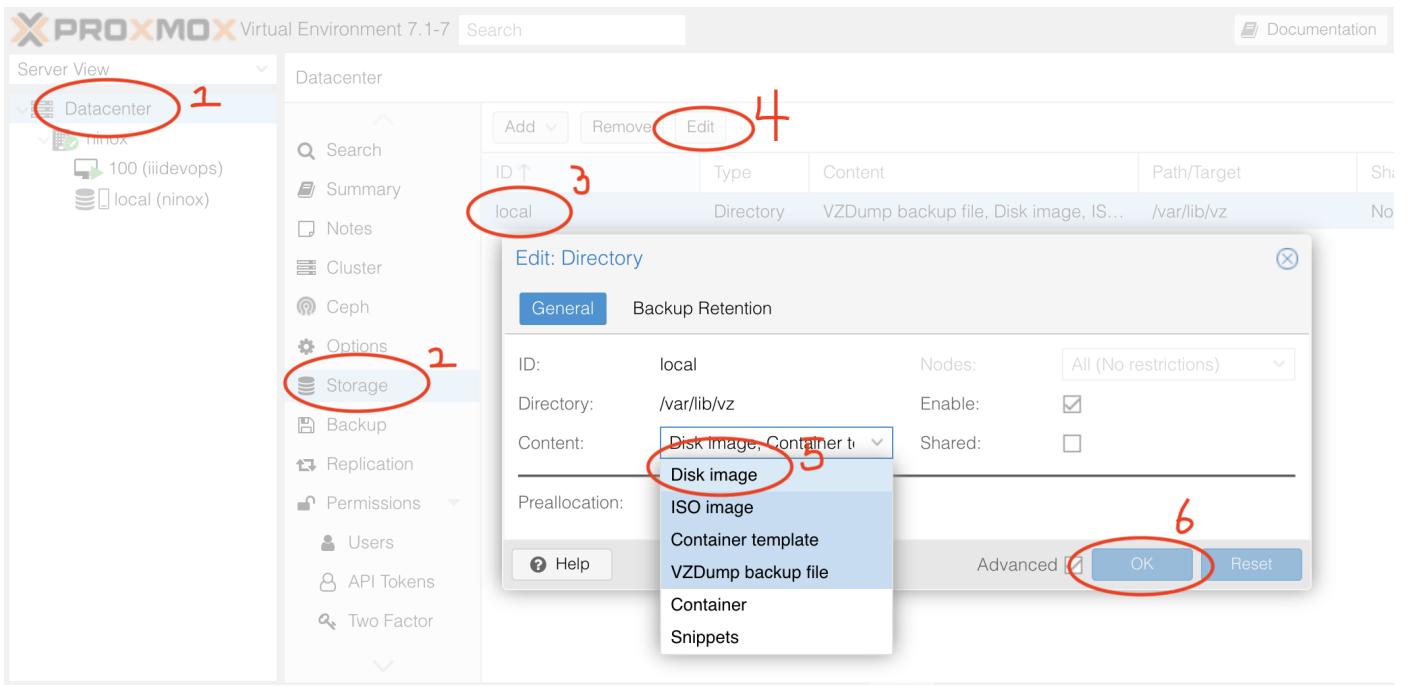
(IIIDevOps-rke-v1.7.1-202108181553.iso)

--click : local -> ISO_images -> Upload. Select your file and upload.



- Step2 : Edit local

--click : Datacenter -> Storage -> local -> Edit -> Content. Include "Disk image" to your content and press OK.



- Step3 : **Create VM**

Click Create VM.

--General : Input your name.

--OS : choose your iso.

--system : Click Next.

--Disks : change your Disk size.(For me, I used 200G)

--CPU : Increase core

--Memory : change your Memory.(I used 20GiB)

--Network : Click Next.

It should look like this.(vmid should be 100)

Create: Virtual Machine

[General](#)[OS](#)[System](#)[Disks](#)[CPU](#)[Memory](#)[Network](#)[Confirm](#)

Key ↑	Value
cores	3
ide2	local:iso/IIIIDevOps-rke-v1.7.1-202108181553.iso,media=cdrom
memory	20480
name	myname
net0	virtio,bridge=vmbr0,firewall=1
nodename	ninox
numa	0
ostype	l26
scsi0	local:200,format=qcow2
scsihw	virtio-scsi-pci
sockets	1
vmid	101

Download iiiDevops

Open VM

Click your vm, and start it.

(Or you also can use command to open it)

```
1 | qm start VM_ID
```

System Install

- ip (only configure nat adapter one's): 10.20.0.70/24

[!!] Configure the network

The IP address is unique to your computer and may be:

- * four numbers separated by periods (IPv4);
- * blocks of hexadecimal characters separated by colons (IPv6).

You can also optionally append a CIDR netmask (such as "/24").

If you don't know what to use here, consult your network administrator.

IP address:

10.20.0.70/24

<Go Back>

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons

- gateway: 10.20.0.1

[!!] Configure the network

The gateway is an IP address (four numbers separated by periods) that indicates the gateway router, also known as the default router. All traffic that goes outside your LAN (for instance, to the Internet) is sent through this router. In rare circumstances, you may have no router; in that case, you can leave this blank. If you don't know the proper answer to this question, consult your network administrator.

Gateway:

10.20.0.1

<Go Back>

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons

- name server: 8.8.8.8

[!] Configure the network

The name servers are used to look up host names on the network. Please enter the IP addresses (not host names) of up to 3 name servers, separated by spaces. Do not use commas. The first name server in the list will be the first to be queried. If you don't want to use any name server, just leave this field blank.

Name server addresses:

8.8.8.8

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<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons

- partition disk: use entire disk and set up LVM just choose default for the subsequent questions
(Choose default for the subsequent questions)

[!!] Partition disks

The installer can guide you through partitioning a disk (using different standard schemes) or, if you prefer, you can do it manually. With guided partitioning you will still have a chance later to review and customise the results.

If you choose guided partitioning for an entire disk, you will next be asked which disk should be used.

Partitioning method:

Guided - use entire disk
Guided - use entire disk and set up LVM
Guided - use entire disk and set up encrypted LVM
Manual

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<Tab> moves; <Space> selects; <Enter> activates buttons

- Install the grub boot loader on a hard disk: Yes

[!] Install the GRUB boot loader on a hard disk

It seems that this new installation is the only operating system on this computer. If so, it should be safe to install the GRUB boot loader to the master boot record of your first hard drive.

Warning: If the installer failed to detect another operating system that is present on your computer, modifying the master boot record will make that operating system temporarily unbootable, though GRUB can be manually configured later to boot it.

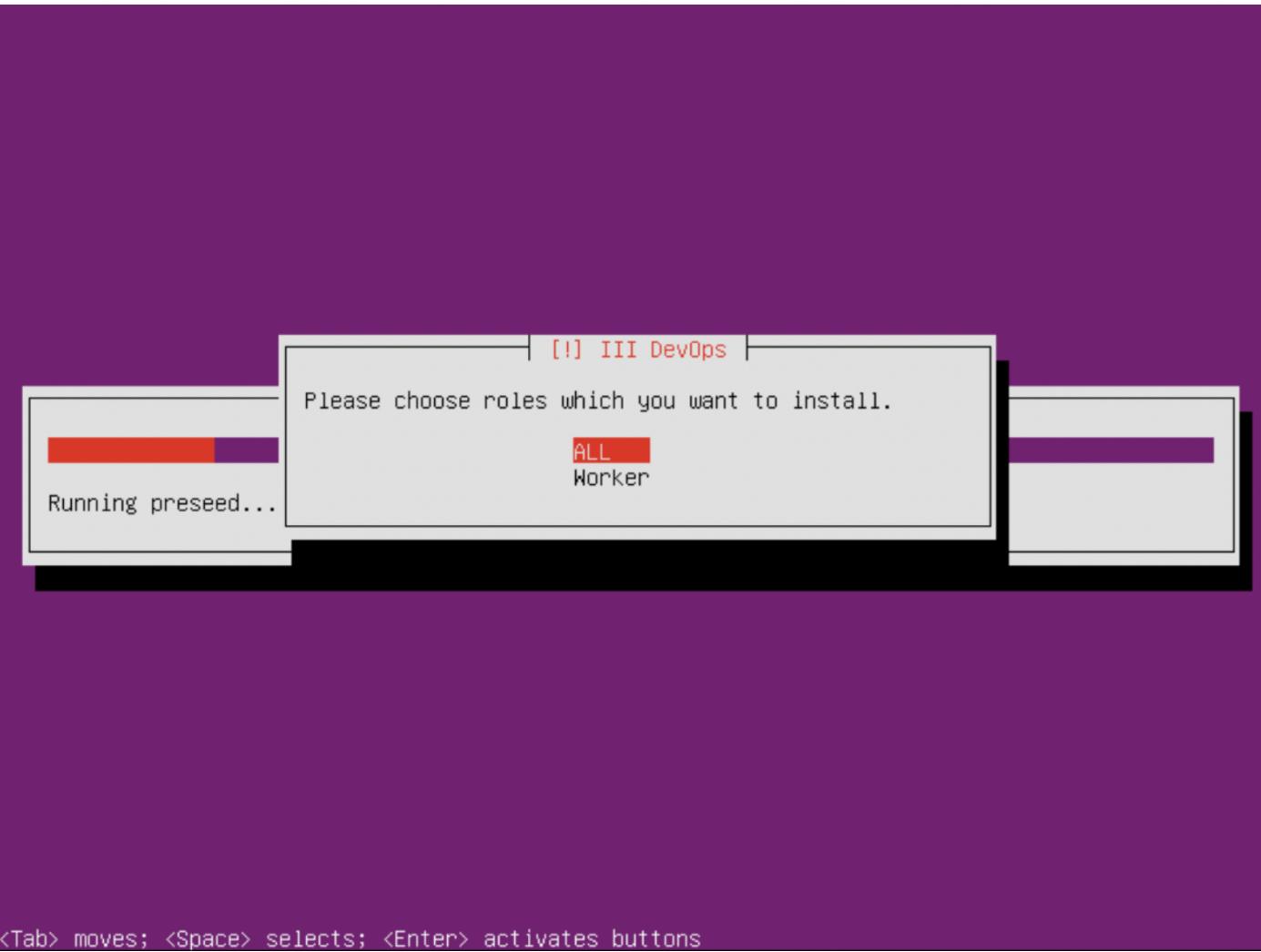
Install the GRUB boot loader to the master boot record?

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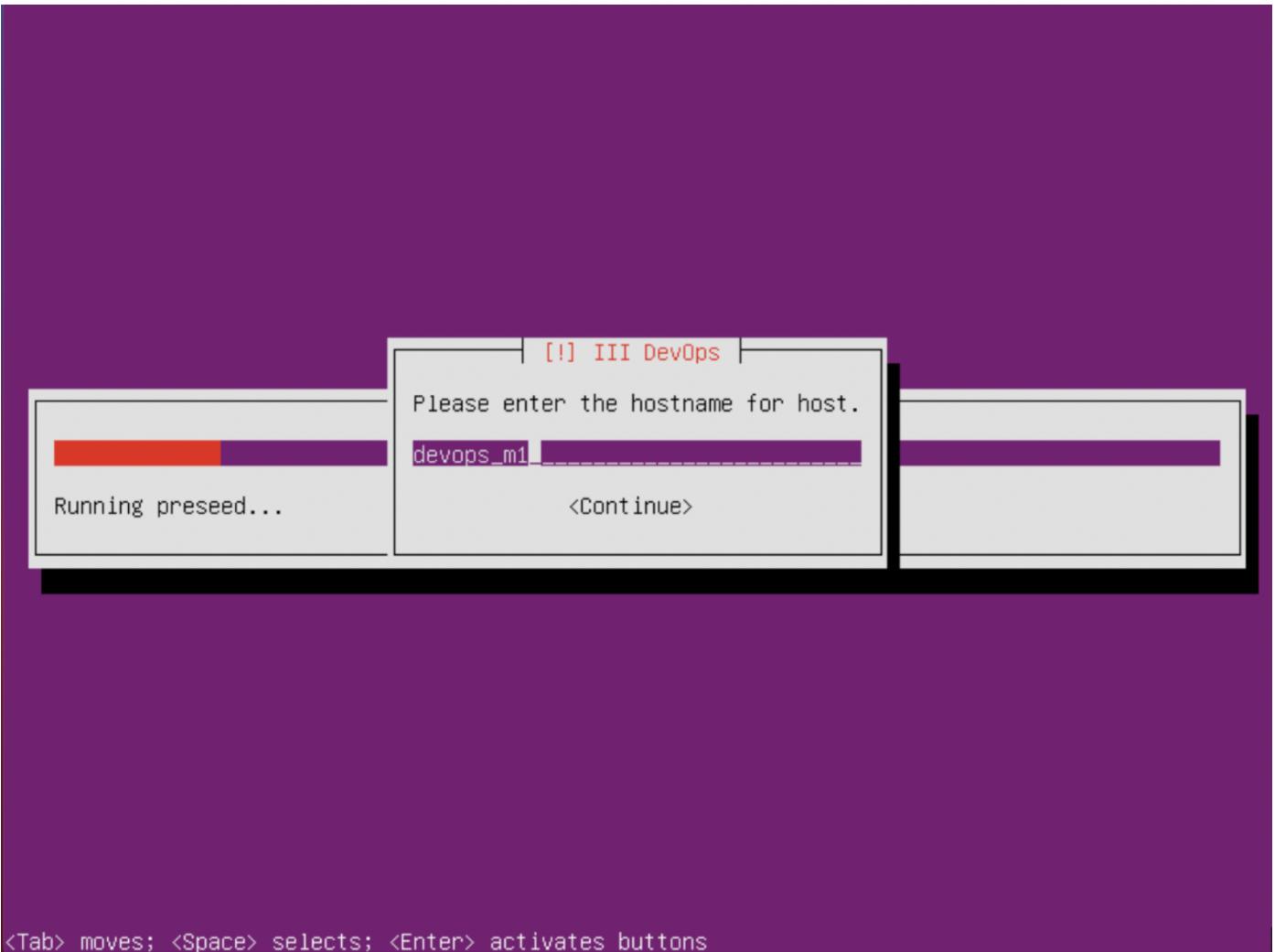
<Yes> <No>

<Tab> moves; <Space> selects; <Enter> activates buttons

- II Devops roles: ALL

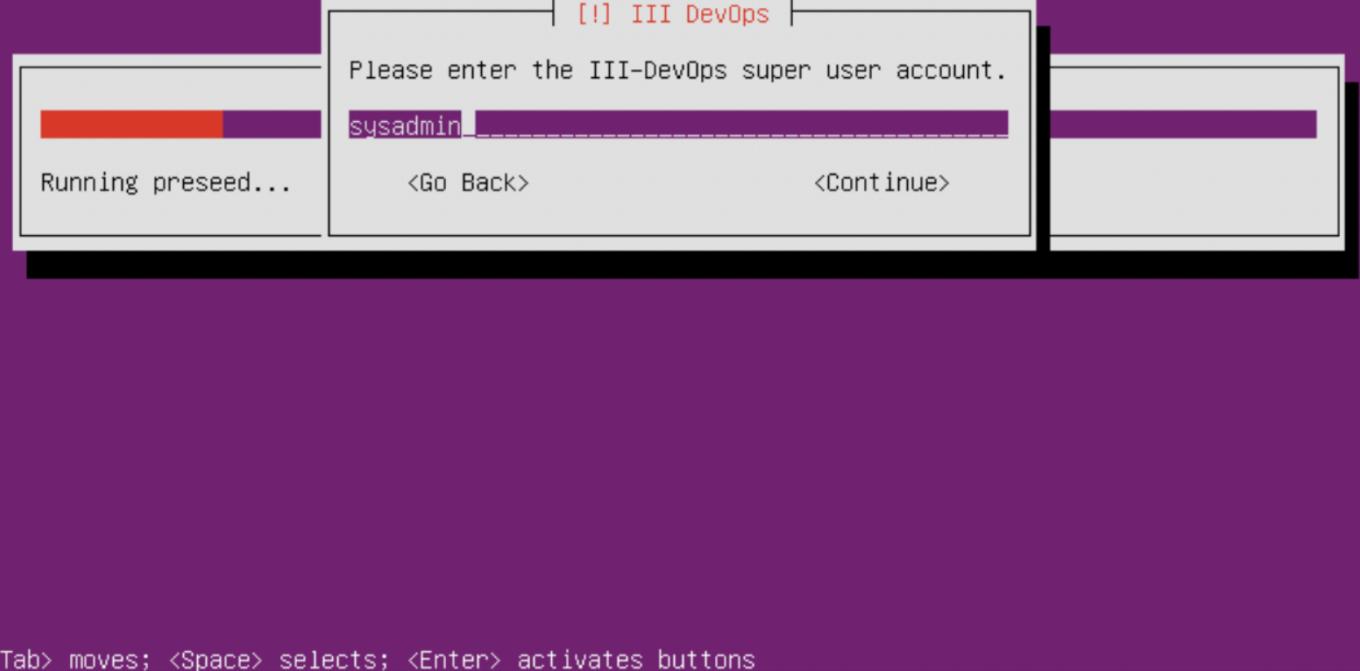


- hostname: Can be anything, easy to remember



<Tab> moves; <Space> selects; <Enter> activates buttons

- base Service IP, K8s IP, NFS IP, NFS Shared Directory: All using default
- version: standard
- deployment mode: IP
- IIIDevops (portal) super user: anything easy to remember.



- all service admin password and sudo password

[!] III DevOps

Please enter all services admin password and sudo password (Must be 8-20 characters long with at least 1 uppercase, 1 lowercase and 1 number).

Iii123456789!

[*] Show Password in Clear

<Go Back>

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons

- After system installation, the system will reboot. Using rkeuser (sudo user) and password setting above to login and continue the application installation.

```
Ubuntu 20.04.2 LTS localhost tty1
```

```
localhost login: rkeuser
Password: _
```

--Waiting for installing...

Check installation.

After anything was done, open those website to check it.

- Rancher - https://PROXMOX_SERVER_IP:31443/
- Gitlab - http://PROXMOX_SERVER_IP:32080/
- Redmine - http://PROXMOX_SERVER_IP:32748/
- Harbor - https://PROXMOX_SERVER_IP:32443/
- Sonarqube - http://PROXMOX_SERVER_IP:31910/

Notice

- Close Vm

--Open proxmox website and click shutdown.

--You also can use command to close it.

```
1 | qm stop "VM_ID"
```

If it was not work.

Use the following command.

```
1 | rm /var/lock/qemu-server/lock-"VM_ID".conf  
2 | qm stop "VM_ID"
```