

TC BSD Helpful Notes

Changing the login shell

Remembering is hard and typing is error prone!

To reduce your mental overhead so that you can concentrate on the important stuff, you should make use of more advanced shell applications which support at least autofill, reverse search and spelling correction. In Addition, colorized output can help you to quickly filter for relevant information.

Consequently, lets try to install and configure a different shell program as our default.

```
doas pkg install zsh git
```

```
cat /etc/shells
```

```
chsh -s /usr/local/bin/zsh Administrator
```

```
touch ~/.zshrc
```

```
doas reboot
```

Install oh-my-zsh for QoL shell improvements

```
curl -o install-oh-my-zsh.sh -fsSL  
https://raw.githubusercontent.com/ohmyzsh/ohmyzsh/master/tools/install.sh
```

```
ls -l
```

```
sh install-oh-my-zsh.sh
```

To use, press TAB to get an autocomplete feature. If you press TAB again, it will display all subdirectories. The TAB key also runs through a spell/path check.

Ubuntu Hypervisor

Preparing the system

Make sure the Bhyve package is installed

```
doas pkg update  
doas pkg install uefi-edk2-bhyve-bhf
```

Let's set up some directories for the VM files to be stored. These will be in the Administrator's user directory.

```
mkdir ~/vms  
mkdir ~/vms/ubuntu
```

Now we should download the latest ISO for Ubuntu

```
fetch -o ~/vms/ubuntu/ubuntu-installer.iso  
https://releases.ubuntu.com/24.04/ubuntu-24.04-desktop-amd64.iso
```

NOTE: If using a USB stick, you'll need to mount the drive and then copy the iso to the ~/vms/ubuntu/ directory.

Now we need to create a empty virtual disk for the VM to use. Be sure to check the size of disk needed for the OS; here we use 18G.

```
doas zfs create -V 18G -o volmode=dev "zroot/ubuntu-vm_disk0"
```

Next we need to create a bridge between the guest vm machine and the host computer.

Get the name of the interface

```
ifconfig
```

Look for the interface that you are using for SSH if you want to use the same network. In my case, the interface is 'igb1'.

Modify the rc.conf file

```
doas ee /etc/rc.conf
```

Add the following line to the file, but select an IP address on your subnet. This will be the address of the VM.

```
cloned_interfaces="bridge0"  
ifconfig_bridge0="inet 192.168.40.187 netmask 255.255.255.0"
```

Press esc, and save changes.

NOTE: If you have issues with networking down the line. Try manually typing out the settings in the ssh connection instead of copy/past. Sometimes Windows Powershell will copy characters incorrectly over ssh.

Now we need to set up firewall rules

```
doas ee /etc/pf.conf.d/bhf
```

Add the following below the allow ADS secure

```
# allow ADS unsecure
pass in quick proto tcp to port 48898

# allow VM
pass in quick on bridge0
pass in quick proto tcp to port 5900
```

Exit and save changes

Reboot the system

```
doas reboot now
```

Installing and configuring Ubuntu

Modify the variables inside the included ubuntu-vm.sh file. It's important to look around and get a feel for how the script works. Customers will need to make their own custom OS script most likely.

If you need to copy the ubuntu-vm.sh from your system to the remote. Use the SCP command in powershell.

NOTE: Pay attention to line 48. `bhyve -c 2 -m 6G` specifies 2 CPU core and 6G of memory.

```
scp "C:\Ubuntu Quick Start\ubuntu-vm.sh"
Administrator@192.168.40.183:~/vms/ubuntu
```

Make sure you are in the script directory location

```
cd ~/vms/ubuntu
```

Configure the VM

```
doas sh ubuntu-vm.sh config
```

Boot the VM and install

```
doas sh ubuntu-vm.sh run --install
```

With this ssh window open, open a TightVNC or UltraVNC client application and connect to the IP address you selected for the machine.

Follow the installation process over VNC as you would normally on a bare metal machine. Ubuntu Desktop might take a while to boot, and you might need to select (Safe Graphics) boot to installer.

Once the installation is complete, you can simply launch the system when you want using the command below.

```
doas sh ubuntu-vm.sh run
```

NOTE: You can stop the VM at any time by pressing Ctrl+C in the SSH session

If you get the feedback "vm_reinit: Device busy" you might need to destroy the session

```
doas sh ubuntu-vm.sh destroy  
doas sh ubuntu-vm.sh cleanup
```

```
doas sh ubuntu-vm.sh config  
doas sh ubuntu-vm.sh run
```