OcNOS® VM VirtualBox Hypervisor Quick Start Guide 6.3.0

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About the OcNOS VM

The OcNOS Virtual Machine (VM) from IP Infusion helps you get familiar with OcNOS. The OcNOS VM runs on a standard x86 environment. The OcNOS VM is used to validate configurations and test L2, L3, and MPLS features at your own pace, with no costs associated. Without bare metal switches, OcNOS VM can be on popular hypervisors including KVM, VirtualBox, and VMware. This document provides information on how to create an OcNOS VM in VirtualBox hypervisor.

All basic Layer 2, Layer 3, and multicast functionality are available. MPLS support is also available, including limited support of MPLS forwarding. The OcNOS VM comes with a 365 days valid license.

The data plane forwarding functions have limited support. OcNOS VM is designed for feature testing, and not for data plane performance testing or full bandwidth traffic testing.

Benefits of the OcNOS VM

Following are benefits of OcNOS VM:

- Free
- No need to wait for the hardware
- Get familiar with OcNOS software
- Validate configurations
- Test L2, L3, and MPLS features without any risk
- Prototype network operations

Feature List

CLIs for the following features are available. The complete feature set of OcNOS is supported on hardware platforms such as the whitebox switches from Dell, Delta Agema, Edgecore, and UFISpace. For the complete feature list, please contact IP Infusion Sales.

SYSTEM FEATURES

- ARP support
- SSH/Telnet
- SNMP
- Debugging and logging
- AAA
- DHCP, DNS

LAYER-2 FEATURES

- STP/RSTP/MSTP
- BPDU Guard and Root Guard
- VLAN, Private VLAN
- LACP
- LLDP
- VLAN Interface
- QinQ
- 802.1x

LAYER-3 FEATURES

- IPv4 Routing
- VRF Support
- RIP v2, RIP NG
- BFD with BGP, OSPF, ISIS
- BGP
- OSPF v2, OSPF v3
- ISIS
- VRRP

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MPLS FEATURES

- MPLS Label Switching
- LDP and RSVP Support
- RSVP FRR
- VPLS with LDP Signaling
- VPWS with 1:1 backup support

- BGP MPLS L3VPN
- MPLS DCI using ICCP and VPLS redundancy

MULTICAST FEATURES

- IGMP
- PIM-SM/SSM/DM
- MSDP Support

Download the Virtual Machine Image

The OcNOS VM is available in these virtual environments:

Hypervisor Name	Format
VirtualBox, VMware	vmdk.xz
KVM	qcow2.xz

For the KVM hypervisor, download the OcNOS *qcow2.xz* image. OcNOS VM image file is archive compressed using XZ compression. Use Mac OS *Archive Utility* or *7-zip* tools to uncompress the file. To uncompress the file in Linux, use the command *xz -d <file_name>.xz*.

Create a New OcNOS VM on VirtualBox Hypervisor

Following are steps to create a new OcNOS VM on VirtualBox Hypervisor:

1. Start Virtual Box. Launch the from All Programs submenu Oracle VM Virtual Box.

   The Virtual Box window allows you to create a new virtual machine by clicking the New Icon.

- Name: OcNOS-VM
- Machine Folder: leave the default folder
- Type: Linux
- Version: Debian (64 bit)
- Click Continue
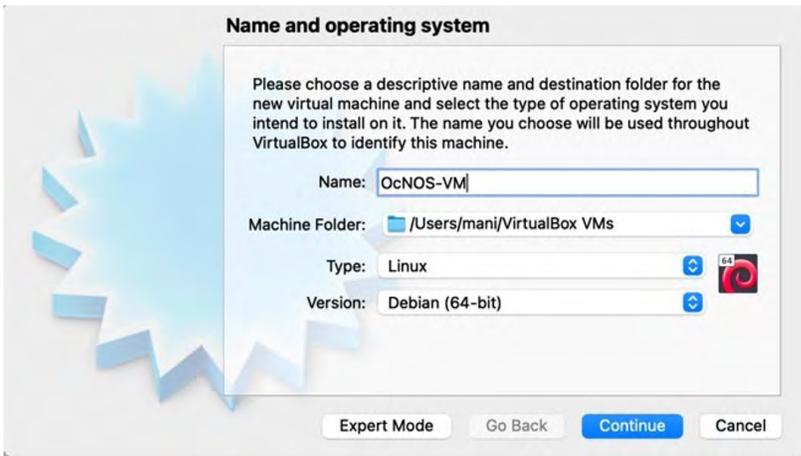
2. Configure the amount of memory to allocate to the virtual machine. The recommended memory size is 4096 MB. Click Continue.
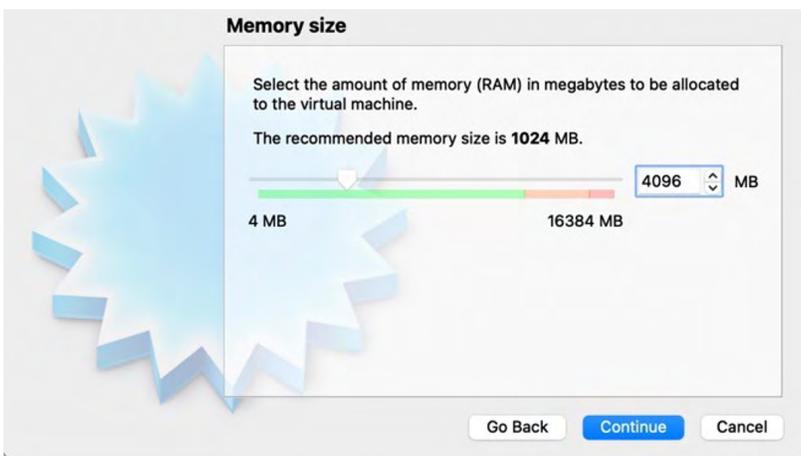
3. Add a virtual hard disk to the new virtual machine.

- Select Use an existing virtual hard disk drive

- Specify the-VM image path

- Click Create
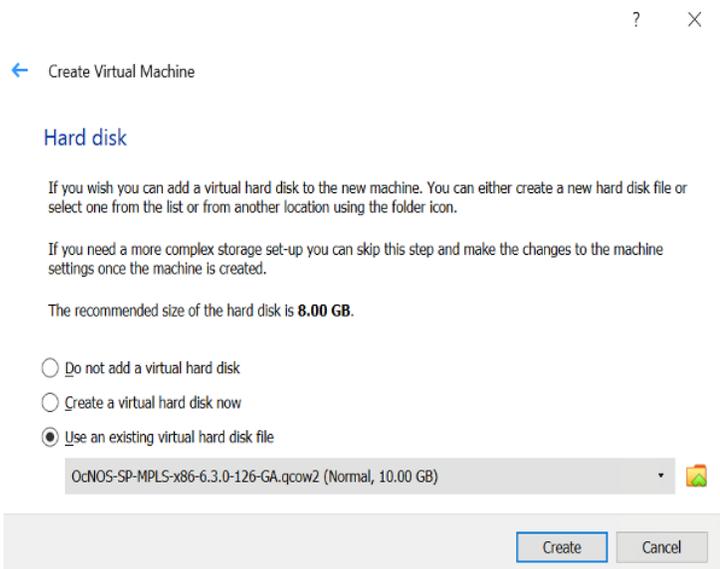
4. Select the VM and click Settings.
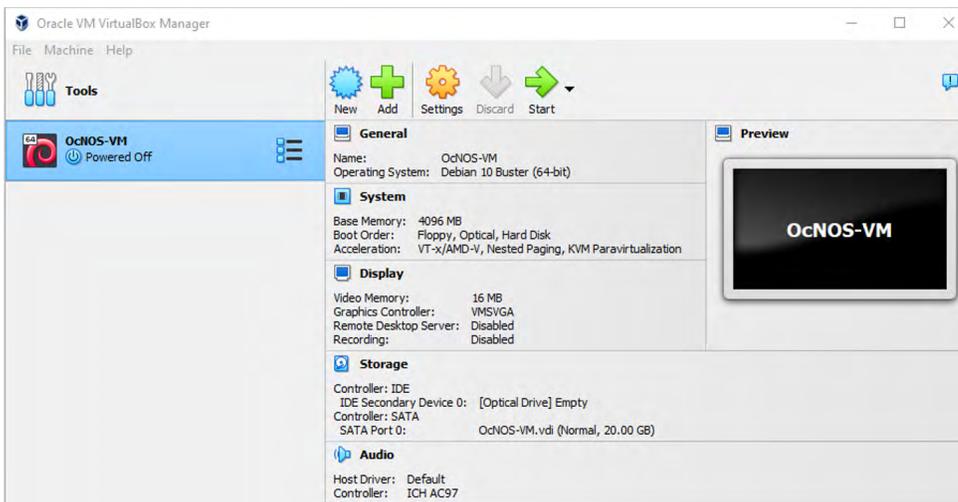
5. Click Display, click graphics card, select VBoxVGA Graphics Controller, and click OK.

   (OcNOS does not support the VMSVGA graphic controller in Oracle VirtualBox. Select either VBoxVGA in the display settings.)
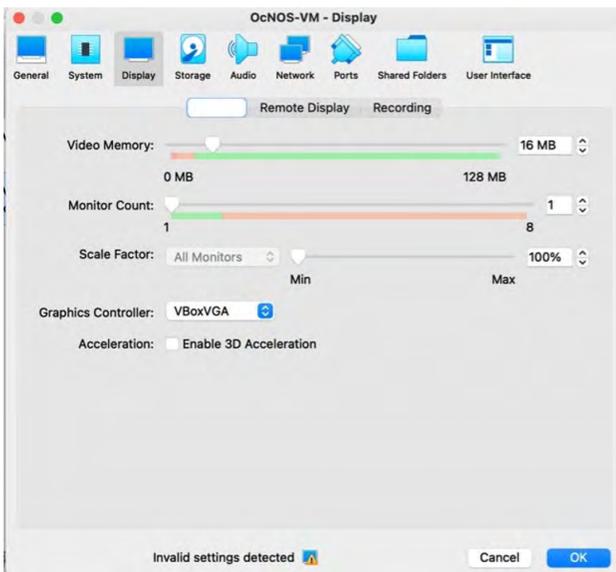
Now you can see VBoxVGA shown as Graphics Controller.
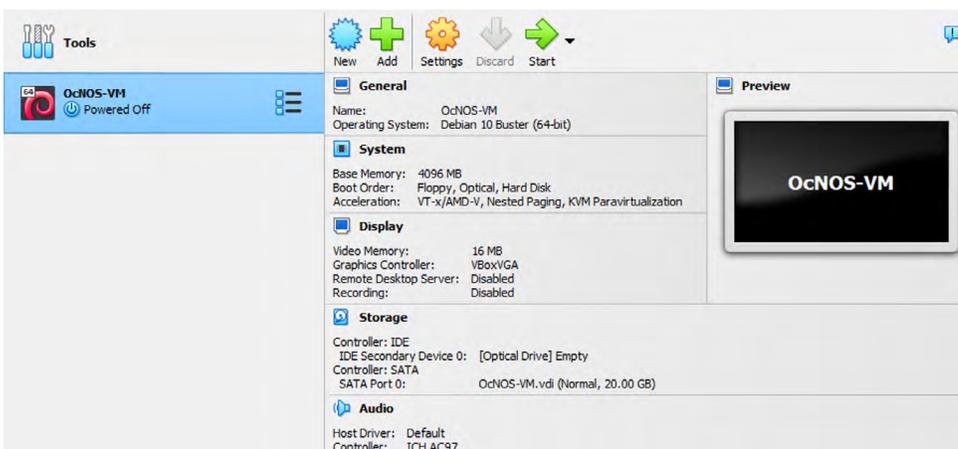
6. Set up the network adapters:

a. Management port: Select Settings > Network > Adapter 1 and set values:

- Choose the adapter setting as Bridge Adapter
- Choose the port to appropriate Management NIC port for the hypervisor as shown below and click OK
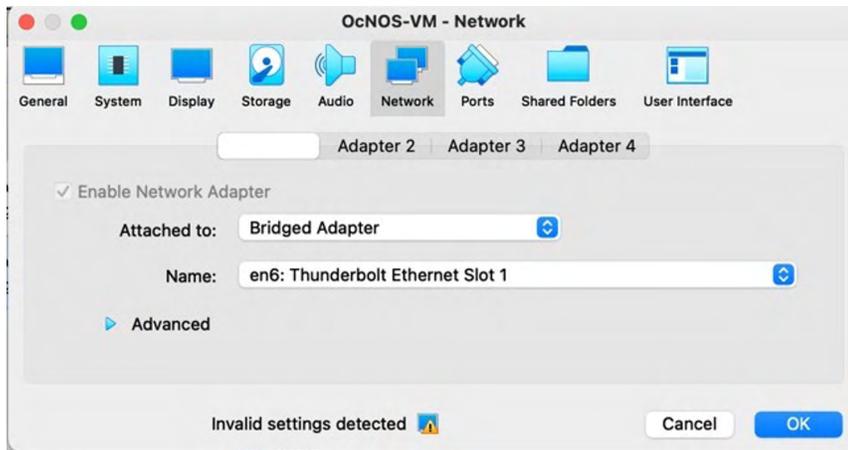
7. Add data ports: adapters 2, 3, and 4 are used for data ports. Set up a virtual network that the host-only adapter(s) will communicate through.

a. Click File > Host Network Manager > Create.

b. Check Enable under the DHCP Server column of the network you just created.

c. Click Close.

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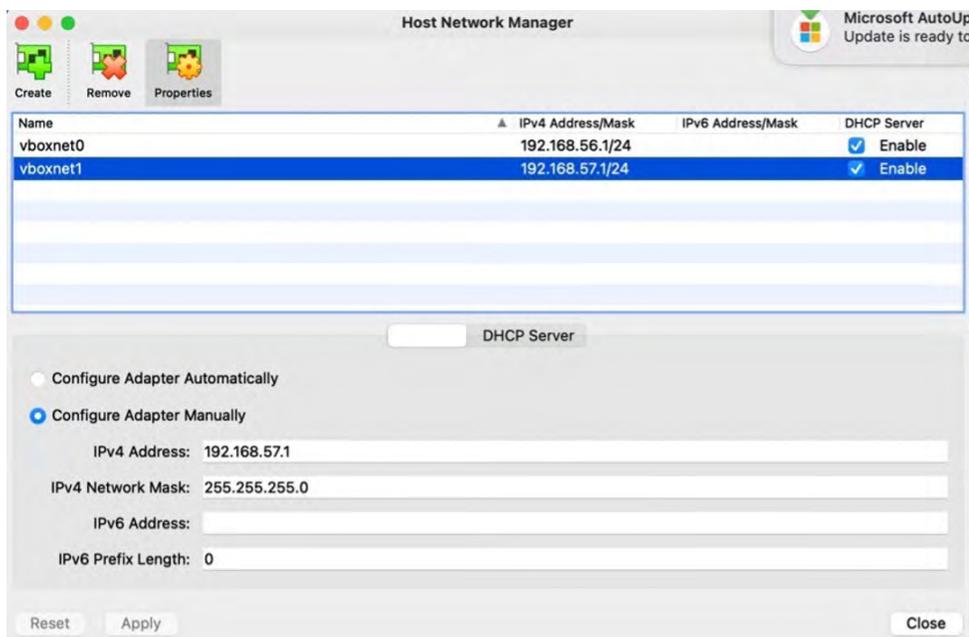
8. Configure the network adapters for data ports:

   a. With the OcNOS VM selected in the VirtualBox console, click Settings > Network. In the Adapter 2, 3, and 4 tabs, check Enable Network Adapter:

   b. For Attached to for each adapter, select Host-Only Adapter or data port NIC.

   c. In the Name field, select the virtual network you created in the previous step.
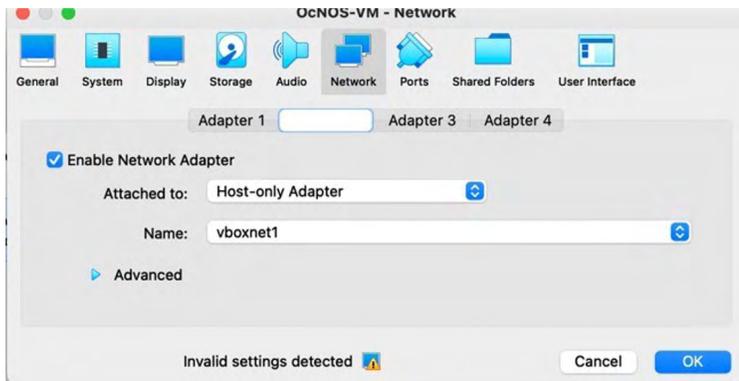
   d. Click OK
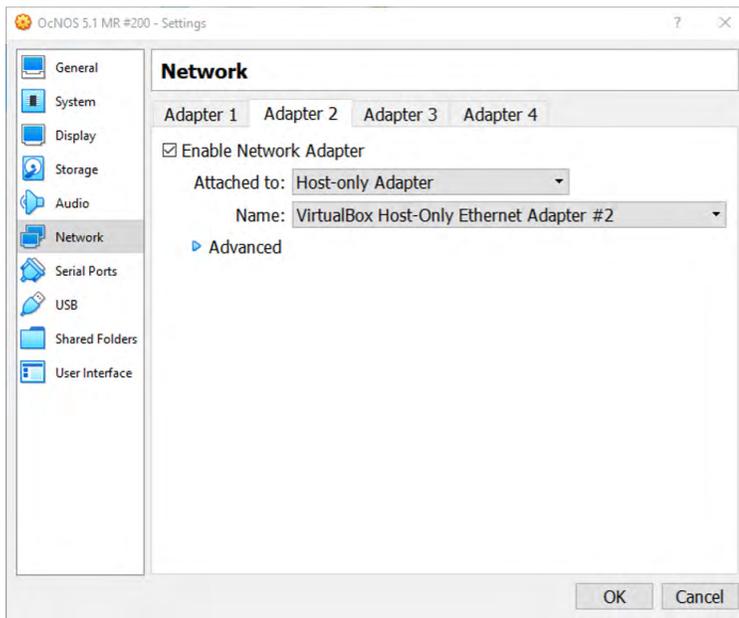
9. Start the VM by double-clicking it in the list or by selecting it and clicking Start.

10. Click Start icon and the click Show as shown below. This will provide you console to the newly created OcNOS VM.
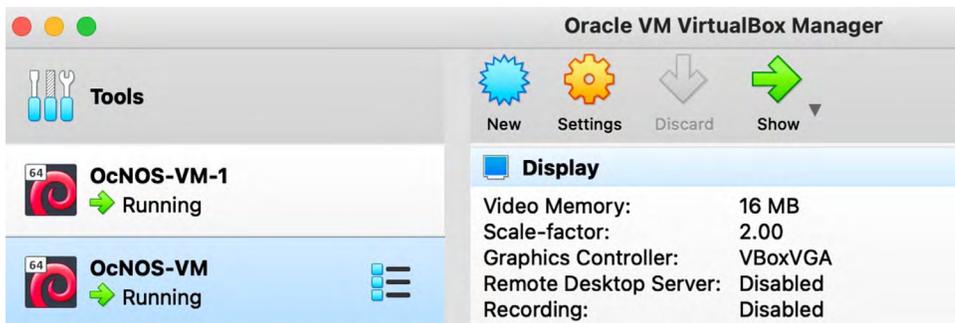
Set up Basic Configuration in the OcNOS VM

Following are steps to setup basic configuration in OcNOS VM so that we can connect to the OcNOS VM via SSH. This enables us to further configure various features and test them.

1. Log in using the following credentials from the console:

    -   Username: ocnos
    -   Password: ocnos

    This displays the OcNOS shell prompt.

2. Enter the following commands:

-   Enter enable mode
    ```
    OcNOS>en
    ```
-   Enter configuration mode:
    ```
    OcNOS#conf t
    ```
-   Two options to configure the management port:

    If you have a DHCP server in your network, use the following commands:
    ```
    OcNOS (config)# int eth0
    OcNOS (config-if)# ip address dhcp
    OcNOS (config-if)# exit
    OcNOS (config)# commit
    OcNOS (config) #exit
    ```

    Otherwise manually configure the IP address using the following commands:
    ```
    OcNOS (config)# int eth0
    OcNOS (config-if)# ip address 10.12.44.120/24
    OcNOS (config-if)# exit
    OcNOS (config)# commit
    OcNOS (config) #exit
    ```

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3. Check the IP address assigned to the OcNOS VM using the following command:

```
OcNOS#show int eth0 | incl inet
   inet 10.10.27.162/24 broadcast 10.10.27.255
   inet6 fe80::a00:27ff:fe8e:7f07/64
OcNOS#
```

In this example, 10.10.27.162 is the IP address of the newly created VM in VirtualBox.

4. Using the IP address, you can connect to the VM via `ssh` as follows below using *ocnos* userid and *ocnos* password.

```
% ssh ocnos@10.10.27.162
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '10.10.27.162' (ED25519) to the list of known
hosts. ocnos@10.10.27.162's password:
Linux OcNOS 4.19.91-g37f56f98f #1 Fri Oct 16 09:13:49 UTC 2020 x86_64
Last login: Mon Jun 12 16:37:15 2023
OcNOS version DEMO_VM-OcNOS-6.3.0.126-SP_MPLS-x86_-GA  06/02/2023 17:30:26
OcNOS>
```

Now you can configure and test the newly created VM.

References

The following are reference materials related to OcNOS:

- [OcNOS Configuration Guides](#)