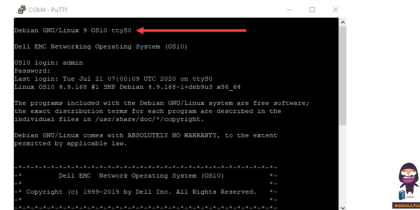


DELL EMC OS10 Switch Basic Configuration Virtualization



DELL EMC OS10 Switch Basic Configuration Virtualization User Guide

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DELL EMC OS10 Switch Basic Configuration Virtualization

FAQ

Q: Do the GNS3 client and server need to be on the same version?

A: Yes, both the GNS3 client and server must have the same version for proper functionality.

Q: Can the GNS3 Server VM use DHCP for IP configuration?

A: Yes, it is possible to configure the GNS3 Server VM to use DHCP services to assign the desired IP configuration.

Q: What network settings need to be configured for connectivity between GNS3 client and server?

A: The GNS3 Server VM IP address needs to be reachable by the GNS3 Management Station IP address, and both need to be connected to a LAN/Management network.

OS10 Virtualization Guide

OS10

- Dell EMC Networking OS10 combines the best of Linux, open computing, and networking to advance open networking disaggregation.
- You can simulate OS10 devices using OS10 VM appliances. The OS10 VM appliances execute the same software deployed on OS10-enabled hardware devices, except for the hardware abstraction layer.
- The OS10 VM hardware abstraction layer simulates hardware devices in a VM environment.

GNS3

- GNS3 is an environment that allows the simulation of networking equipment in realistic scenarios. It can be used to emulate, configure, test, and troubleshoot networks in a simulated environment.
- GNS3 allows you to run a small network topology consisting of only a few devices on your Windows 10 laptop, or larger network topologies on VMware ESXi hypervisor or VMware Workstation server.

OS10 simulation features

- All OS10 CLI commands and north-bound interfaces (RESTCONF, SNMP) are available including.
- System management (SSH, AAA, DHCP, and so on)
- Management port
- L3 data plane and control plane (using Linux functionality)

Partial support for L2 data plane and control plane (using Linux functionality):

- LACP
- VLAN
- LLDP
- VLT

OS10 feature limitations

- No ACL or QoS support (NPU is not available) — ACL and QoS CLI commands are available (but do not affect traffic)
- Limited L2 functionality (NPU is not available on a simulator) — no spanning-tree control plane functionality

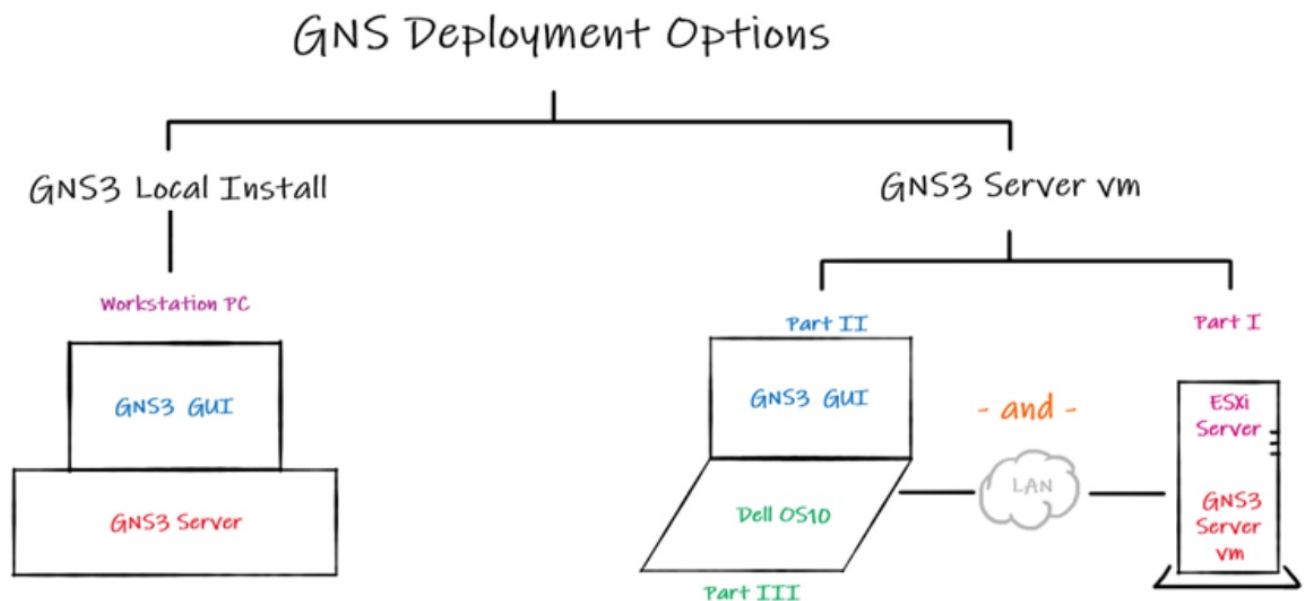
Requirements

- A workstation or laptop with 16 GB RAM or larger recommended
- 64-bit x86 CPU with 2 GHz or faster core speed (dual-core or larger recommended)
- SSD with 64 GB available space
- Virtualization environment — you can use either Linux or VMware as a host system for the GNS3 Server VM
- VMware ESXi server recommended for large network simulation

Deploying OS10 in GNS3

Choose your deployment preference

- Local Deployment
- GNS3 Server VM Deployment
- This guide will outline the steps required when deploying the GNS3 server VM on an ESXi Host server



Deploy GNS3 Server VM

You must first install the GNS3 Server VM to act as the simulated network server. The GNS3 client visualizes the configuration while the GNS3 server controls and executes OS10 VMs.

Download the GNS3 VM software





<https://www.gns3.com/> <https://www.gns3.com/software/download>

If selecting to use the GNS3 Server VM, choose your Virtualization Platform



- Linux KVM
- VMware Player
- VMware Workstation
- VMware ESXi (recommended)

Download GNS3 VM

The GNS3 VM is recommended for most situations when you are using Windows or Mac OS. The GNS3 development team have worked hard to create a lightweight, robust way of creating GNS3 topologies that avoids multiple common issues experienced when using a local install of GNS3.

	VirtualBox Version 2.2.31	Download
	VMware Workstation and Fusion Version 2.2.31	Download
	VMware ESXi Version 2.2.31	Download
	Microsoft Hyper-V Version 2.2.31	Download

Extract the downloaded zip file GNS3.VM.VMware.ESXi.2.2.31 = 1.4 GB

	GNS3 VM.ova	13/03/2022 04:29	OVA File	1,489,424 KB
	GNS3.VM.VMware.ESXi.2.2.31.zip	18/03/2022 13:21	WinRAR ZIP archive	1,462,490 KB

Login to vCenter and import the GNS3 VM into your ESXi environment – choose to deploy the OVF Template and point the wizard at the downloaded GNS3 VM .ova file

Deploy OVF Template

- 1 Select an OVF template
- 2 Select a name and folder
- 3 Select a compute resource
- 4 Review details
- 5 Select storage
- 6 Select networks
- 7 Ready to complete

Ready to complete

Review your selections before finishing the wizard

▼ Select a name and folder

NameGNS3 Server VM (2.2.31)
Template nameGNS3 VM
FolderMoy

▼ Select a compute resource

ResourceMoy-RT-Cluster

▼ Review details

Download size1.4 GB

▼ Select storage

Size on disk507.8 GB
Storage mapping1
All disksDatastore: EQL-PS2-Shared-Storage, Format: Thick provision lazy zeroed

▼ Select networks

Network mapping1
hostonlyGNS3
IP allocation settings
IP protocolIPv4

[CANCEL](#) [BACK](#) [FINISH](#)

Adding more resources to the GNS3 Server VM will enable the building of larger topologies

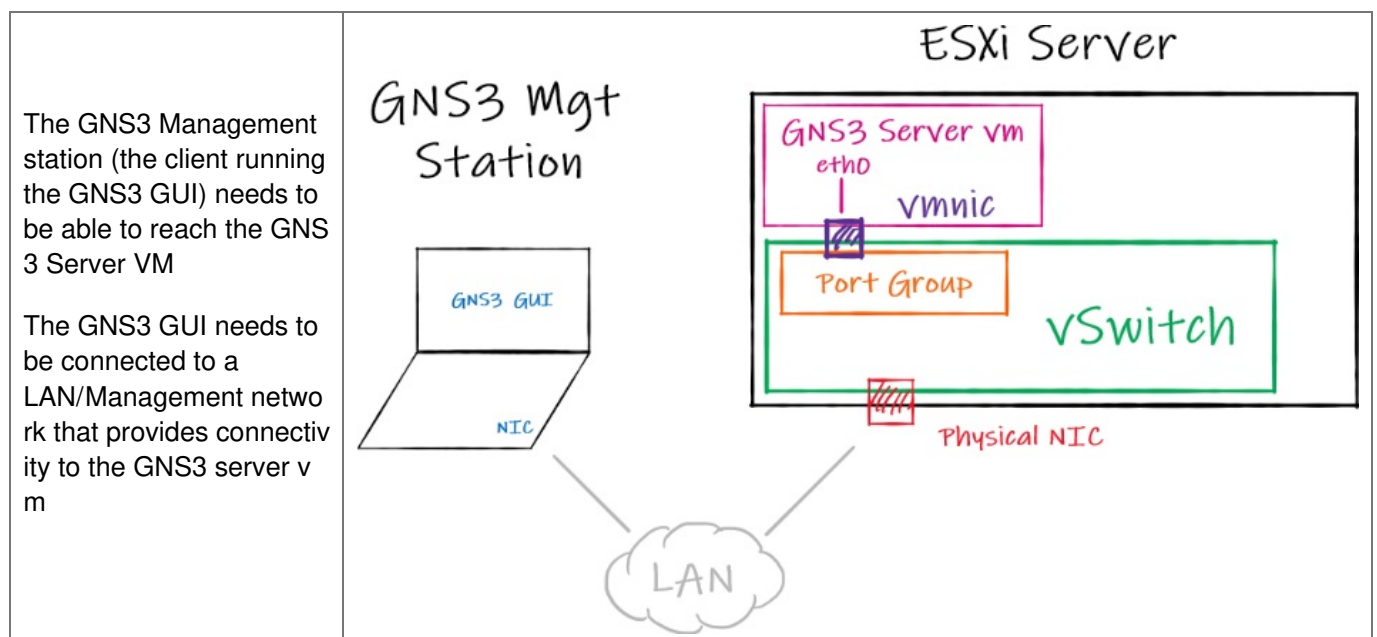
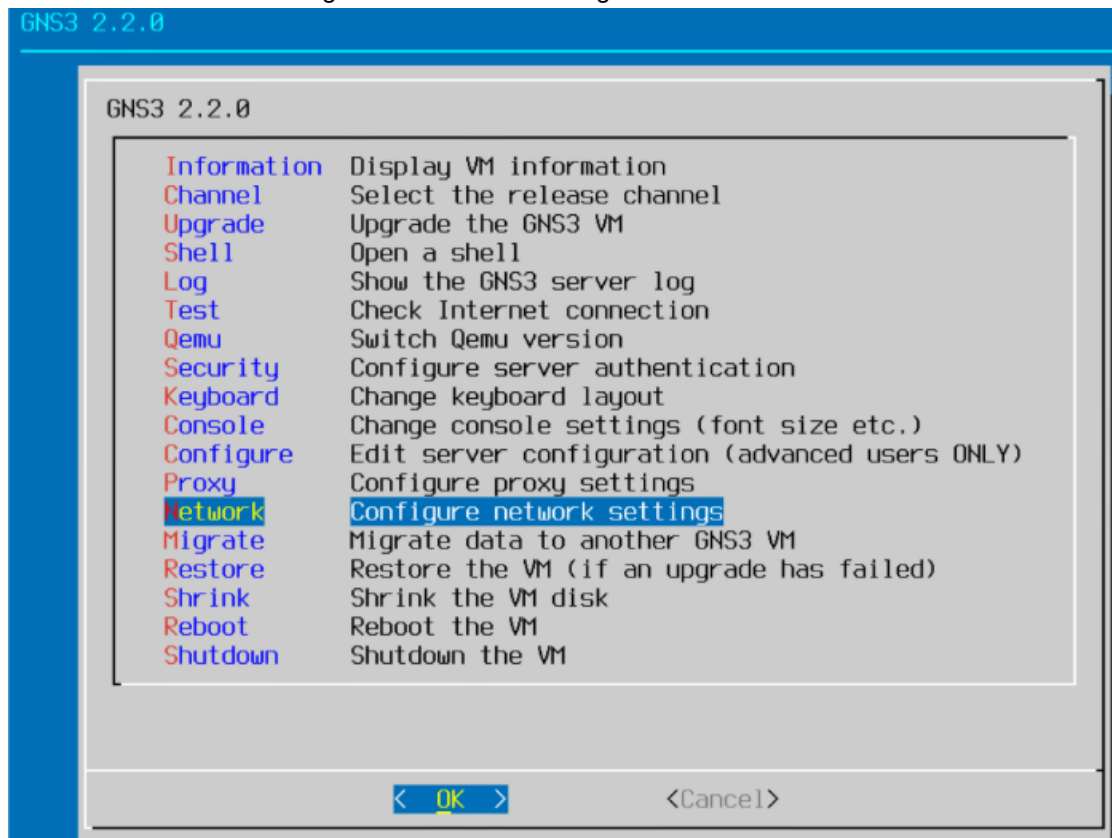
Edit Settings | GNS3_Server_VM_2.2.31

[Virtual Hardware](#) [VM Options](#)

[ADD NEW DEVICE ▼](#)

> CPU	16	▼	①
> Memory	64	▼	GB ▼
> Hard disk 1	1	TB ▼	

Boot the GNS3 Server VM and configure the network settings



- Configure an IP address on eth0 of the GNS3 server VM
- The GNS3 server VM IP address needs to be able to reach the GNS3 Management Station IP address

```
GNU nano 2.9.3 /etc/netplan/90-gns3vm-static-netcfg.yaml Modified
# This file describes the network interfaces available on your system
# For more information, see netplan(5).

# Uncomment the following lines if you want to manually configure your network

network:
  version: 2
  renderer: networkd
  ethernets:
    eth0:
      addresses:
        - 10.206.134.119/26
      gateway4: 10.206.134.65
      nameservers:
        addresses: [8.8.8.8, 8.8.4.4]
```

- It is also possible to configure the GNS3 Server VM to use DHCP services to assign the desired IP configuration
- Notice KVM support in ESXi should auto-detect as True

```
GNS3 server version: 2.2.31
Release channel: 2.2
VM version: 0.13.0
Ubuntu version: focal
Qemu version: 4.2.1
Virtualization: vmware
KVM support available: True
Uptime: up 0 minutes

IP: 172.28.141.30 PORT: 80

To log in using SSH: ssh gns3@172.28.141.30
Password: gns3

To launch the Web-Ui: http://172.28.141.30

Images and projects are stored in '/opt/gns3'
```

< OK >

Open a console connection to the GNS3 Server vm and confirm the IP addressing used by eth0

This IP address will be used later when advising the GNS3 client what IP address to use for the GNS3 server vm

```
gns3@gns3vm:~$ ifconfig
docker0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    inet 172.17.0.1 netmask 255.255.0.0 broadcast 172.17.255.255
    ether 02:42:f8:a3:18:2f txqueuelen 0 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 172.28.141.30 netmask 255.255.255.0 broadcast 172.28.141.255
    inet6 fe80::250:56ff:fea0:8cea prefixlen 64 scopeid 0x20<link>
    ether 00:50:56:a0:8c:ea txqueuelen 1000 (Ethernet)
    RX packets 62295 bytes 81440391 (81.4 MB)
    RX errors 0 dropped 3 overruns 0 frame 0
    TX packets 25859 bytes 1765019 (1.7 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 14151 bytes 1353770 (1.3 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 14151 bytes 1353770 (1.3 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

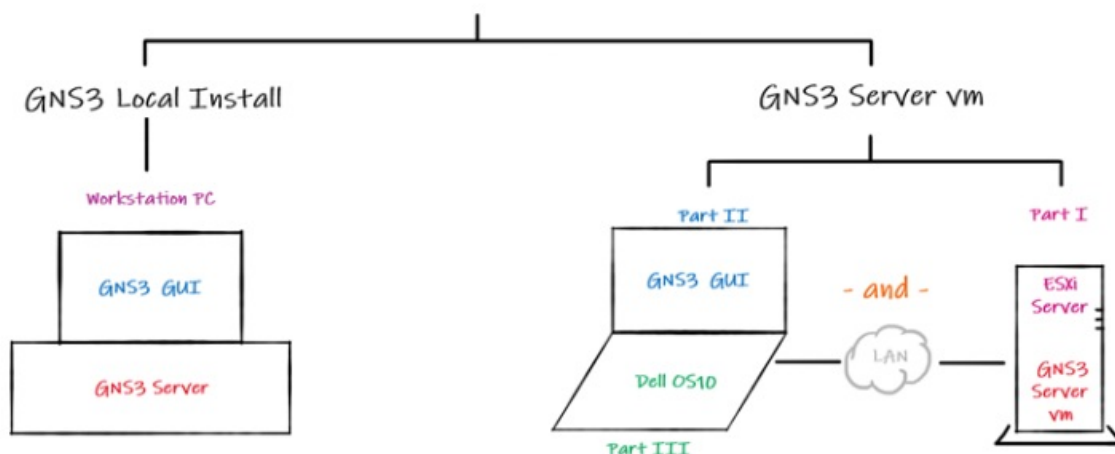
virbr0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    inet 192.168.122.1 netmask 255.255.255.0 broadcast 192.168.122.255
    ether 52:54:00:7b:50:93 txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

gns3@gns3vm:~$
```

GNS3 Client Install

Now that you've set up the GNS3 Server VM to act as your server, you are ready to set up the client side of your network to simulate OS10 devices.

GNS Deployment Options

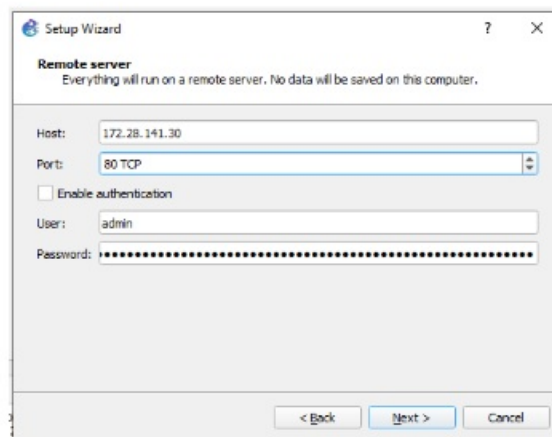
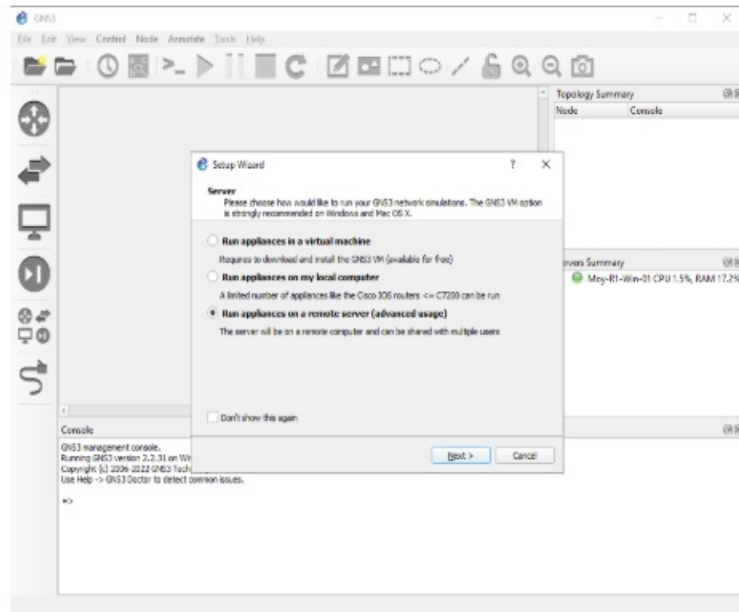


- Once you install the GNS3 client on your Windows laptop, you can then connect to the remote GNS3 server.
- The GNS3 client and server must have the same version.

Download GNS3

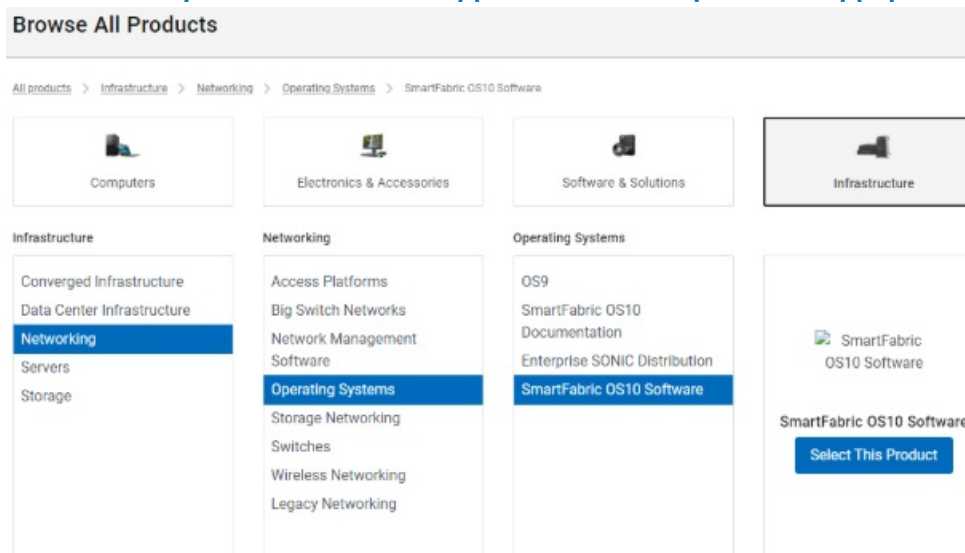
- @version 2.2.31 @18.03.2022
- GNS3-2.2.31-all-in-one-regular.exe = 95MB
- <https://www.gns3.com/>

- <https://www.gns3.com/software/download>
- Install the GNS3 client on a management station (laptop/desktop etc.)
- Launch the GNS3 client and point to the IP address of the external GNS3 server vm



Deploy OS10 Appliances

Go to the Dell Support site, browse all products, under infrastructure, select Networking, Operating Systems, SmartFabric OS10 Software <https://www.dell.com/support/home/en-us/products?app=products>.



- Download OS 10 virtualization files

- Select the GNS3 bundle for your desired version of OS10.

Overview Drivers & Downloads Documentation Advisories

Find a download for your SmartFabric OS10 Software

Keyword

Category

☐ Only show downloads I have access to. ⓘ

☐ Show recommended downloads only.

Version

- ☐ 10.5.2
- ☐ 10.5.1
- ☐ 10.5.0
- ☐ 10.4.3
- ☐ 10.4.2
- ☐ 10.4.1
- ☐ 10.4.0
- ☐ 10.3.2
- ☐ 10.3.1
- ☐ 10.3.0
- ☐ 1.0

Download list (1 File: 786.33 MB) [Remove Selected](#) [Download Selected](#)

NAME	CATEGORY	PUBLISH DATE	ACTION
<input type="checkbox"/> SmartFabric OS10 10.5.3.3	Full Release	03 Mar 2022	Download
<input type="checkbox"/> SmartFabric OS10 10.5.3.3 JSON	Full Release	03 Mar 2022	Download
<input type="checkbox"/> SmartFabric OS10 10.5.3.3 MIB	Full Release	03 Mar 2022	Download
<input type="checkbox"/> SmartFabric OS10 10.5.3.3 PROTO	Full Release	03 Mar 2022	Download
<input checked="" type="checkbox"/> SmartFabric OS10 10.5.3.2 GNS3 Bundle	Full Release	04 Feb 2022	Download
<input type="checkbox"/> SmartFabric OS10 10.5.3.2 JSON	Full Release	13 Dec 2021	Download

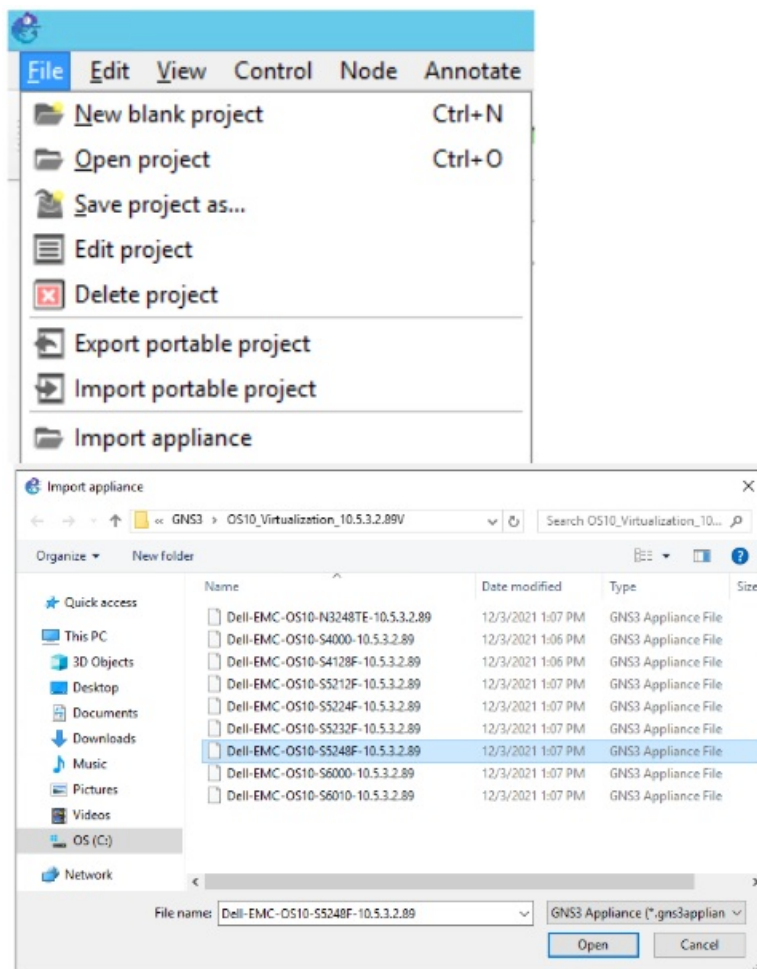
- Extract the zip file i.e.
- OS10_Virtualization_10.5.3.2 (approx. 807 MB)

OS10_Virtualization_10.5.3.2.89V 3/19/2022 10:45 PM Compressed (zipp... 807,253 KB

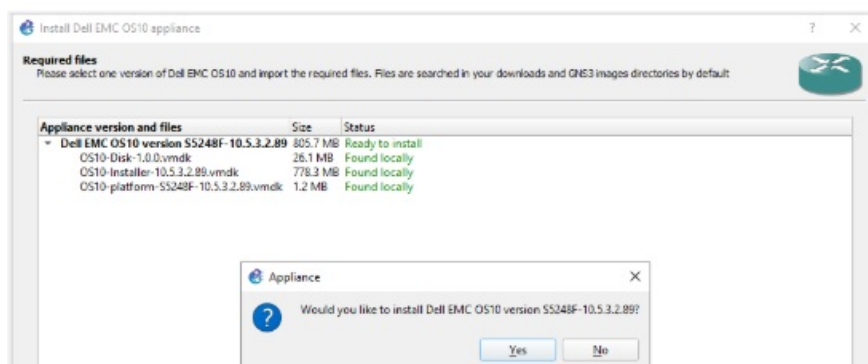
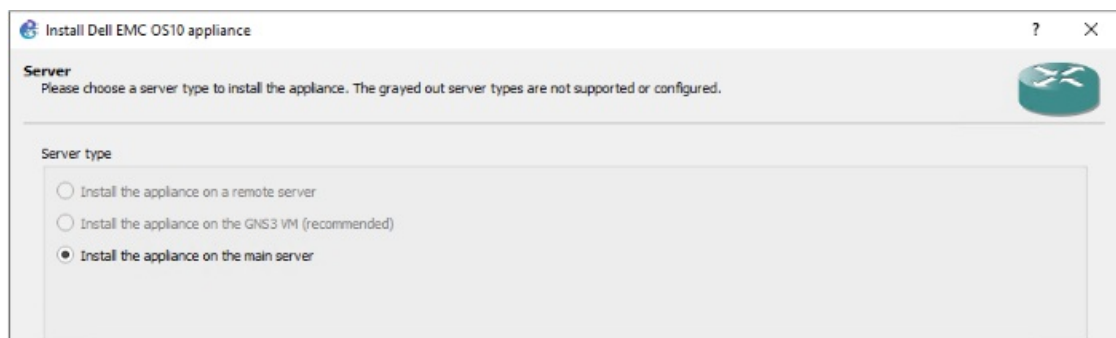
> This PC > OS (C:) > GNS3 > OS10_Virtualization_10.5.3.2.89V

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Dell-EMC-OS10-S5224F-10.5.3.2.89	12/3/2021 1:07 PM	GNS3 Appliance File	3 KB
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Dell-EMC-OS10-S5248F-10.5.3.2.89	12/3/2021 1:07 PM	GNS3 Appliance File	3 KB
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OS10-platform-S6000-10.5.3.2.89.vmdk	12/3/2021 1:07 PM	VMDK File	1,280 KB
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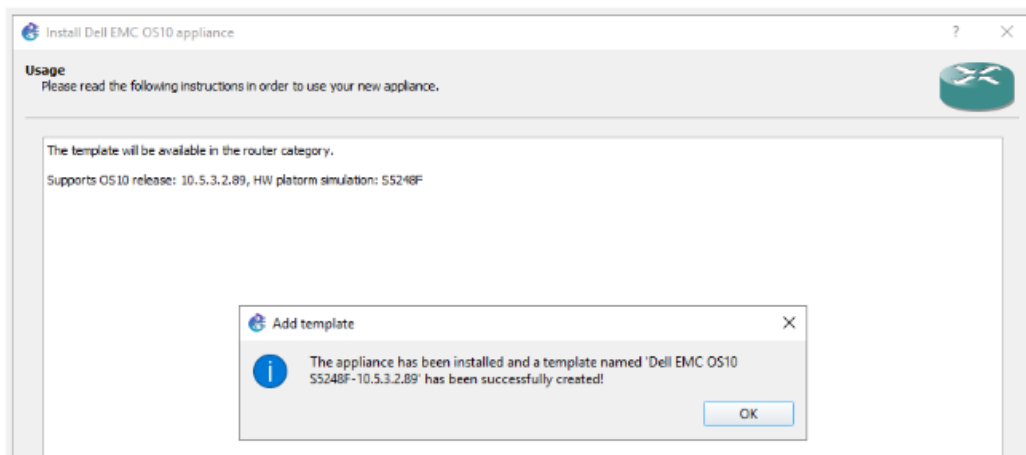
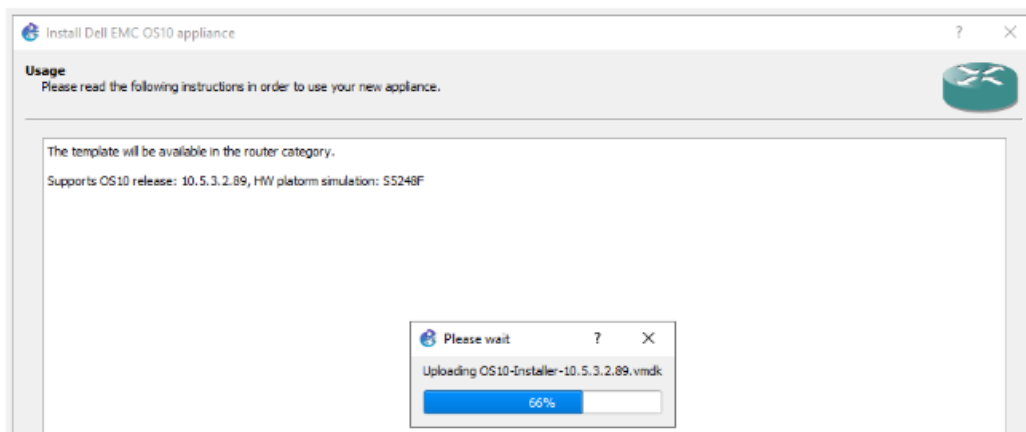
- Open the GNS3 client and import the OS10 appliances into the GNS3 inventory



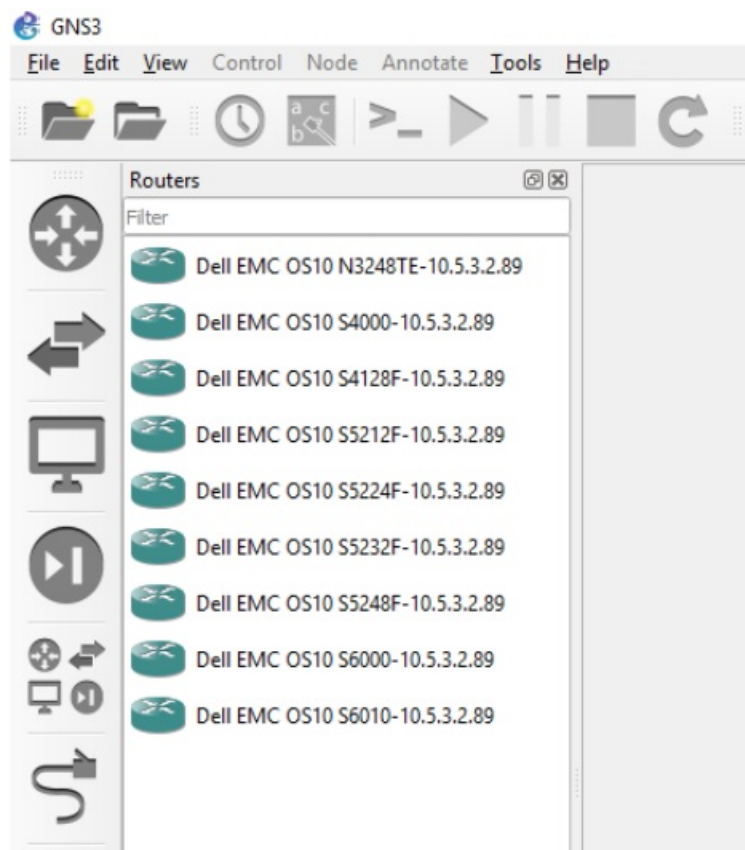
- Follow the import appliance wizard



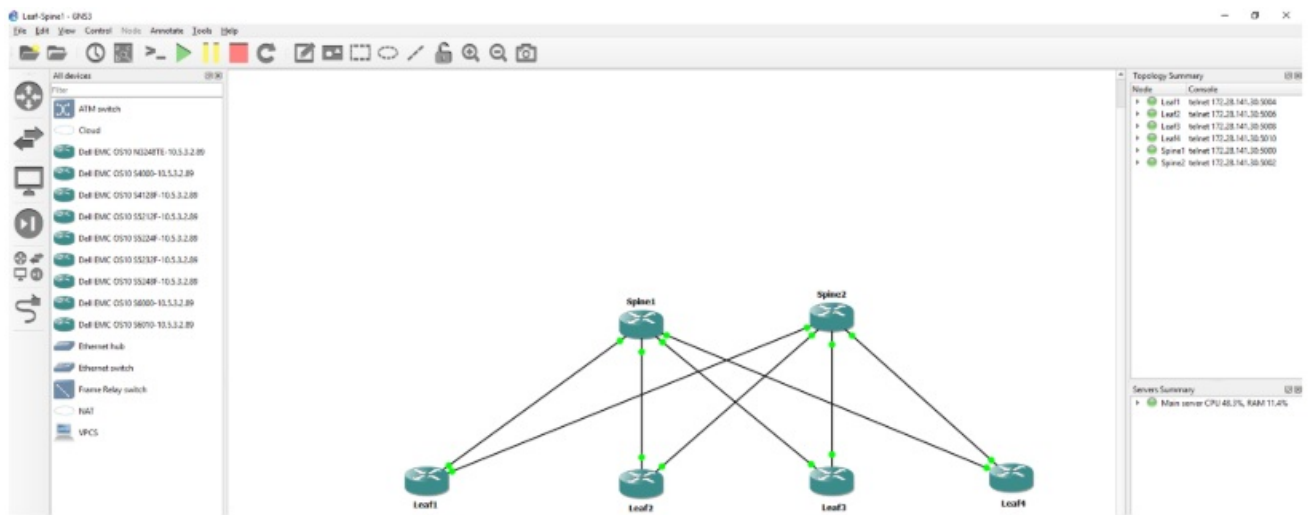
- Follow the import appliance wizard



- Repeat the import steps for each desired model
- Imported appliances will appear in the left-hand windowpane



- Create a new GNS3 project with OS10 switches
- Drag an OS10 appliance to the main topology view to add a new OS10 switch
- Each OS10 switch consumes approx. 4GB of RAM



- Once the GNS3 project is started, the OS10 appliances will default to an automatic OS install via ONIE
- The OS10 appliances may take several moments to install the OS10 operating system to primary and secondary partitions

```

GNU GRUB version 2.02-beta3

ONIE: Install OS
ONIE: Rescue
ONIE: Uninstall OS
ONIE: Update ONIE
ONIE: Embed ONIE

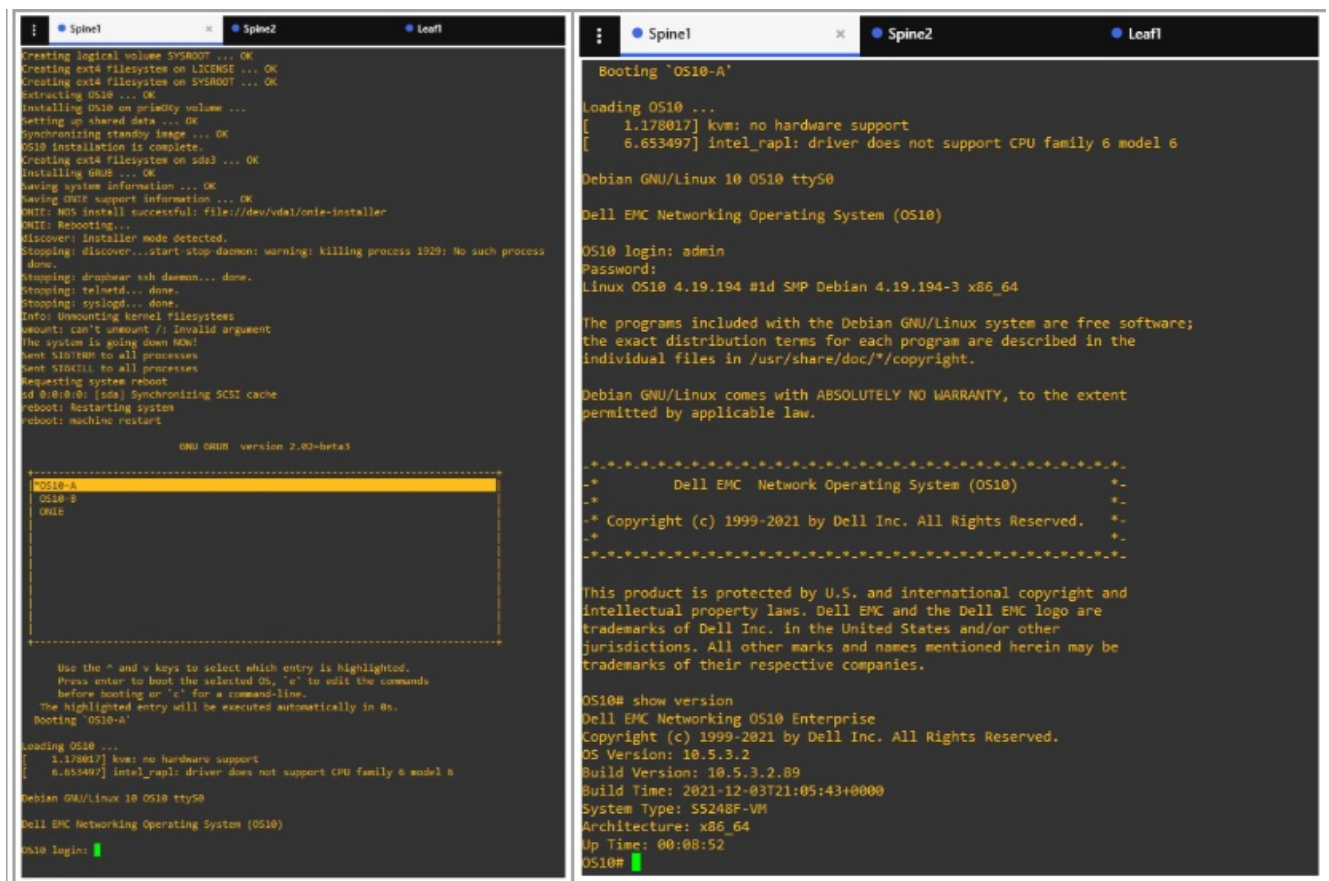
Use the ^ and v keys to select which entry is highlighted.
Press enter to boot the selected OS, 'e' to edit the commands
before booting or 'c' for a command-line.
The highlighted entry will be executed automatically in 0s.
Booting 'ONIE: Install OS'

ONIE: OS Install Mode ...
Version : 2017.05
Build Date: 2017-05-31T14:48-07:00
Info: Mounting kernel filesystems... done.
Info: Mounting ONIE-BOOT on /mnt/onie-boot ...
Running demonstration platform init pre_arch routines...
Running demonstration platform init post_arch routines...
Info: Making NOS install boot mode sticky.
Installing for i386-pc platform.
random: nonblocking pool is initialized
Installation finished. No error reported.
Info: Using eth0 MAC address: 0c:3d:7f:c5:00:00
Info: eth0: Checking link... down.
ONIE: eth0: link down. Skipping configuration.
ONIE: Failed to configure eth0 interface
Starting: dropbear ssh daemon... done.
Starting: telnetd... done.
discover: installer mode detected. Running installer.
Starting: discover... done.


Please press Enter to activate this console. Info: eth0: Checking link... down.
ONIE: eth0: link down. Skipping configuration.
ONIE: Failed to configure eth0 interface
ONIE: Starting ONIE Service Discovery
Info: Attempting file:///dev/vdb1/onie-installer-x86_64-kvm_x86_64-r0 ...
Info: Attempting file:///dev/vdb1/onie-installer-x86_64-kvm_x86_64 ...
Info: Attempting file:///dev/vdb1/onie-installer-kvm_x86_64 ...
Info: Attempting file:///dev/vdb1/onie-installer-x86_64-qemu ...
Info: Attempting file:///dev/vdb1/onie-installer-x86_64 ...
Info: Attempting file:///dev/vdb1/onie-installer ...
Info: Attempting file:///dev/vdai/onie-installer-x86_64-kvm_x86_64-r0 ...
Info: Attempting file:///dev/vdai/onie-installer-x86_64-kvm_x86_64 ...
Info: Attempting file:///dev/vdai/onie-installer-kvm_x86_64 ...
Info: Attempting file:///dev/vdai/onie-installer-x86_64-qemu ...
Info: Attempting file:///dev/vdai/onie-installer-x86_64 ...
Info: Attempting file:///dev/vdai/onie-installer ...
ONIE: Executing installer: file:///dev/vdai/onie-installer
Initializing installer ... OK
Verifying image checksum ... OK
OS10 Installer: machine: kvm_x86_64/s5212f
/tmp/os10vm/os10.bin: line 153: onie-syseeprom: not found
Creating partition sda3 ... OK
Creating partition sda4 ... OK
Creating physical volume ... OK
Creating volume group ... OK
Creating logical volume LICENSE ... OK
Creating logical volume SYSROOT ... OK
Creating ext4 filesystem on LICENSE ... OK
Creating ext4 filesystem on SYSROOT ... OK
Extracting OS10 ... OK
Installing OS10 on primary volume ...

```

- Allow a few minutes to pass before attempting to log in with admin/admin



Documents / Resources

	DELL EMC OS10 Switch Basic Configuration Virtualization [pdf] User Guide OS10 Switch Basic Configuration Virtualization, Switch Basic Configuration Virtualization, Basic Configuration Virtualization, Configuration Virtualization, Virtualization
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References

- gns3.com/
- gns3.com/software/download
- [User Manual](#)

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