Development Environment Setup

- Python 3
- PyCharm IDE, Python IDLE
- GNS3 (VM on Windows 10)
- Cisco IOU/IOS
- Linux VM
- Other Networking Devices: Arista vEOS, Juniper vSRX

GNS3 VM on Windows 10

1. How to Install GNS3 VM on Windows 10
2. How to load and run Cisco IOU in GNS3 on Windows 10
3. How to create a loopback adaptor in Windows 10 and connect to devices that run in GNS3

How to Install GNS3 VM on Windows

- Start with a fresh installation. Uninstall any GNS3 version that could be installed
- The 32 bit version is not discussed in this guide. For 32-bit CPU or older operating systems, please read here: https://docs.gns3.com/1bnYX0dFgp7aEMcsYLY3sZy_mbNBkn4EXyCdU_ZIKzRk/index.html
- **Minimum requirements:** https://docs.gns3.com/11YYG4NQIPSl31YwvVvBS9RAsOLSYv0Ocy-uG2K8ytIY/index.html

How to Install GNS3 VM on Windows 10

1. Download **GNS3 All In One for Windows** from https://gns3.com/software/download
   A free account is required.
2. Install GNS3 All In One for Windows.
   Note: It will download and install additional software that is required: Wireshark, pcap, SolarWinds, Microsoft Visual C++ redistribute etc.
3. Download **GNS3 VM** for VirtualBox or VmWare (this is a zip archive of type .ova) from https://gns3.com/software/download-vm
4. Download and install **VirtualBox** (https://www.virtualbox.org/wiki/Downloads), VmWare or VmPlayer
5. Unzip GNS3 VM and then import GNS3 VM (.ova file) in VirtualBox or VmWare (File -> Import Appliance).
6. Start GNS3 GUI and choose **VM Binding on localhost(127.0.0.1) and TCP/3080** and then choose VirtualBox or VmWare.

Note: We'll start VirtualBox or VmWare manually. It will be automatically started by GNS3 GUI. GNS3 is installed and can be used. Cisco, Juniper, Arista images could be loaded and run in GNS3

Cisco IOU

- **IOU** means **IOS on Unix** and it's a modified IOS used by Cisco for CCIE labs and virtual lab pods used in Cisco Learning Center.
- There are both a **L3 and L2** IOU versions .
- IOU is resource friendly and can be run smoothly on a normal laptop or PC .

Note: Unfortunately due to legal requirements, I am unable to provide IOS images or any other Cisco images like IOU (IOS os Unix). You will need to provide your own images to use them with GNS3.

How to run Cisco IOU on GNS3

1. **Start GNS3 GUI.** It will also automatically start GNS VM.
2. **Generate IOU Licence on GNS3 VM**

- Copy the licence python script using WinSCP to GNS3 VM in /opt/gns3/images/IOU/
- Using the GNS3 VM console go to /opt/gns3/images/IOU and run: sudo python3 script.py

3. The generated licence file must be copied on Windows too in a file named iourc.txt

4. In GNS3 GUI go to **Edit -> Preferences -> IOU for Unix** and paste the contents of the iourc.txt (step 3) file and also select the file using **Browse**.

5. In GNS3 GUI go to **Edit -> Preferences -> IOU Devices**, click on **New** and create a new template for the IOU L3 Image.

Windows Loopback Adapter for GNS3

1. Go to **Windows Run** and type **hdwwiz**
2. In **Add Hardware Wizard** select **Install the hardware that I manually select from a list.**
3. Select **Network Adapters,** click on **Next** and then **Microsoft** and **Microsoft KM-Test Loopback adapter**, **Next** and **Finish.**
4. The new adapter appears in **Control Panel -> Network And Internet -> Network Connections.** Rename it as GNS3 Loopback and restart the System.
5. **Set the IP** for the Loopback Adapter (10.1.1.2/24 in this example)
6. Open GNS3 and drag & drop a device (ex: Cisco IOU) and a Cloud to the project. Select **Desktop Interface** for the Cloud Server.
7. Right-click on the **Cloud -> Configure -> Ethernet Interfaces**, then select **“Show special Ethernet Interfaces”** and **Add the GNS3 Loopback Interface.**