GNS-3 TUTORIAL

Welcome to the first tutorial for the **alpha release of GNS-3.** GNS-3 is a GUI for the network simulator NS-3 (http://www.nsnam.org) and for Dynamips, an IOS emulator which allows the user to run IOS binary images from Cisco Systems.

Users must provide their own Cisco IOS to use GNS-3 with Dynamips.

In the current version (alpha release) which is **still under heavy development**, GNS-3 works only with Dynamips. The ns-3 simulation mode has not been implemented yet.

To run IOS systems with Dynamips, GNS-3 uses it in a mode called "hypervisor". This mode is in fact a server that waits for commands from the local host or the network.

1 – Initial setup (optional):

Starting and stopping Dynamips in hypervisor mode is handled entirely by GNS-3. To run the hypervisor automatically with GNS-3, just edit the gns3.conf file or run gns3-config.pyw.

The program will ask you for:

- The path to Dynamips.
- The port on which to run dynamips in hypervisor mode (default is 7200).
- An optional working directory for Dynamips (logs will be put here).
- The command to execute when connecting to an IOS instance, which is typically a console that starts telnet.
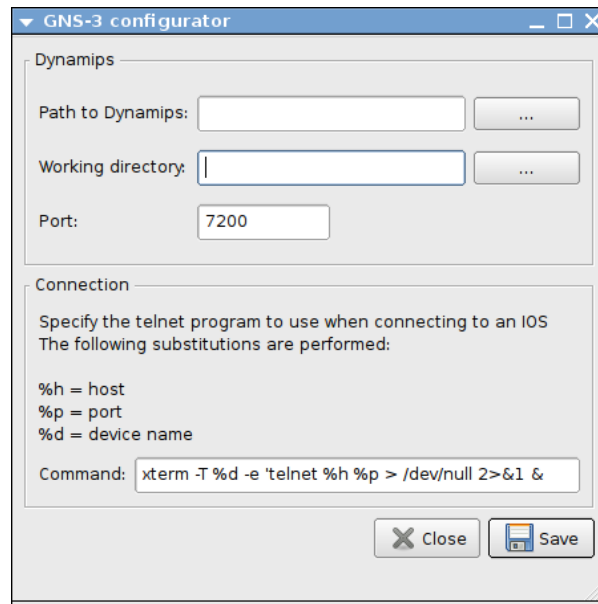
2 – Start GNS-3:

To start GNS-3, just run gns3.pyw. If you have not installed the dependencies, please look at the README.3 – The design mode:
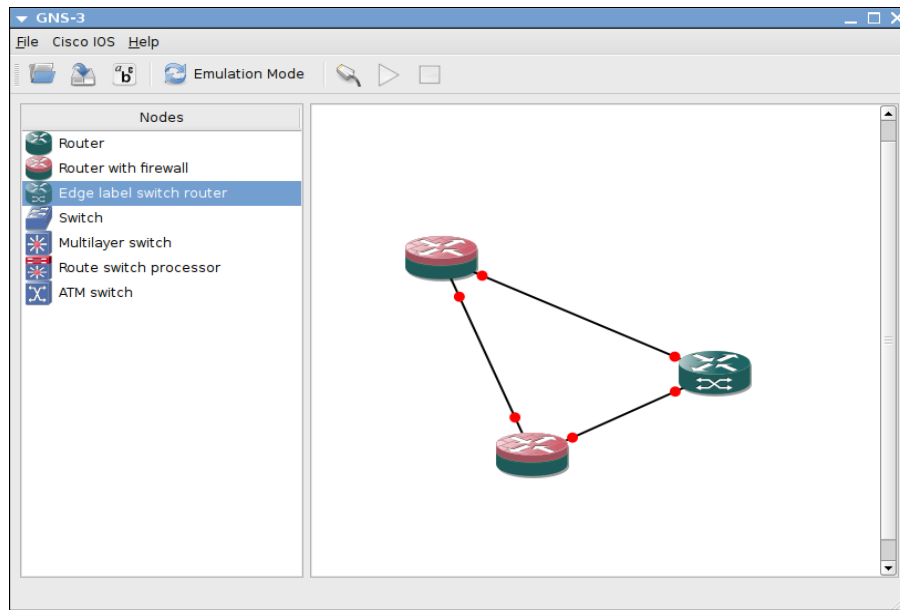
By default, GNS-3 starts in "design mode". In this mode you can create your network topology by dragging and dropping nodes from the list on the left to the scene on the right.

Note: currently the symbols are purely decorative, meaning there isn't any difference between them. This will change in a future release.

Before configuring your nodes, you have to record IOS images by selecting Cisco IOS -> IOS images from the menu, and then choosing the path to an IOS image, the platform, the chassis (if applicable), and an IDLE PC value. By default you are using the integrated hypervisor (the dynamips managed by GNS-3) to run your IOS.

Note: Setting an IDLE PC value lessens CPU load. Please see the README for Dynamips to learn how to determine an IDLE PC value. In a future release we will provide a way to do this directly from GNS-3 (via the menu).
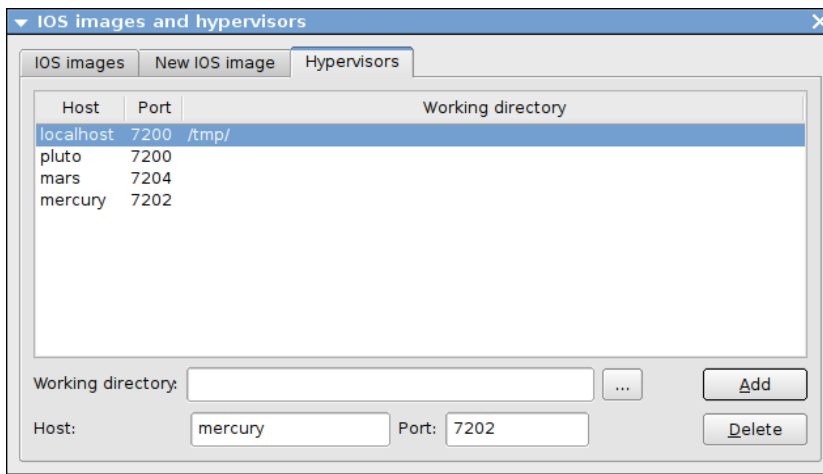

Note: The options "Use ghost file" and "size" are currently not used. This will change in a future release.

All of the recorded IOS systems and hypervisors are saved in gns3.conf, so you just have to record them once.

IOS images and hypervisors ✕

| IOS images | New IOS image | Hypervisors |

IOS file name	Platform	Chassis	Idle PC	Hypervisor
localhost:/ho...	3600	3640		localhost:7200

Edit Delete Close
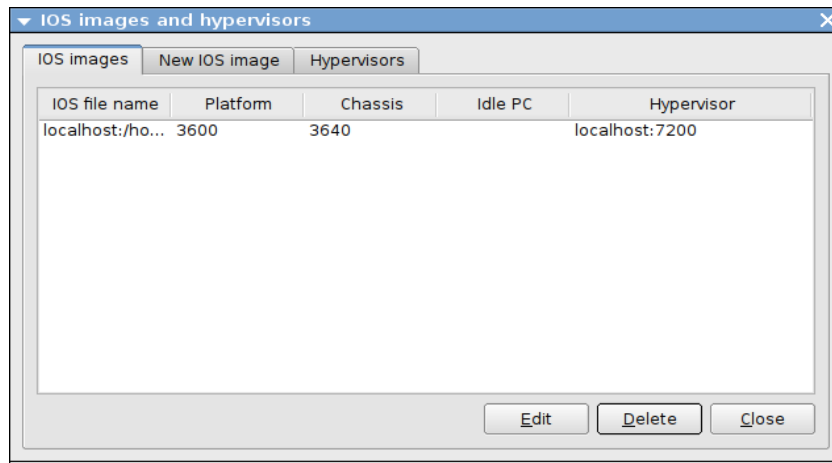
If you want to use external hypervisors (started by yourself), you can record them in the "hypervisors" table. This will allow you to load-balance the emulation effort on multiple hosts/hypervisors.

IOS images and hypervisors ✕

| IOS images | New IOS image | Hypervisors |

Host	Port	Working directory
localhost	7200	/tmp/
pluto	7200	
mars	7204	
mercury	7202	

Working directory: [   ] [...] Add

Host: [mercury] Port: [7202] Delete

When you record your IOS you can bind it to an external hypervisor by choosing one from the list.
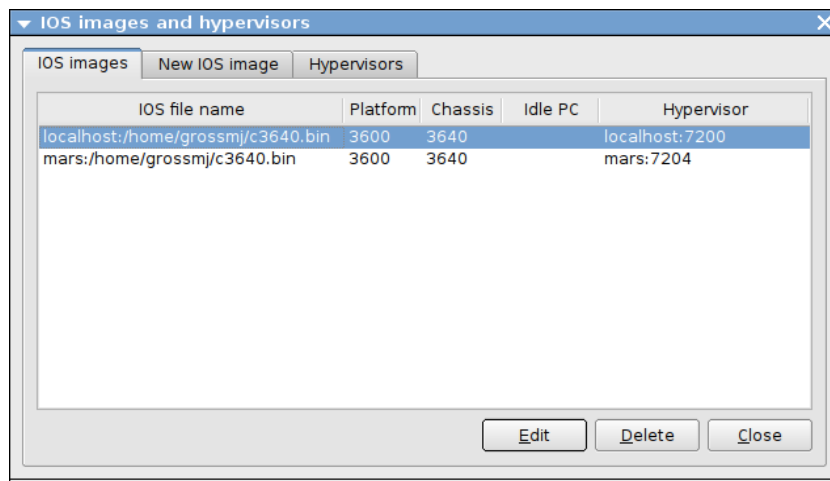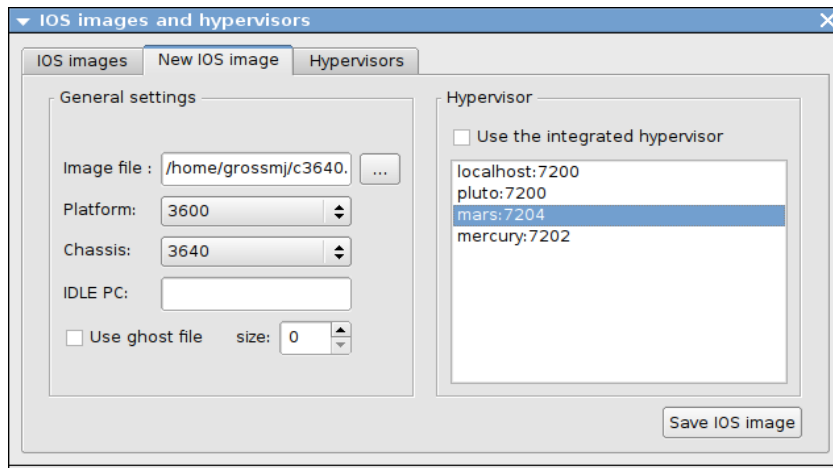
After your IOS images are recorded, you can configure your nodes by double-clicking on them to bring up the Node configuration window.
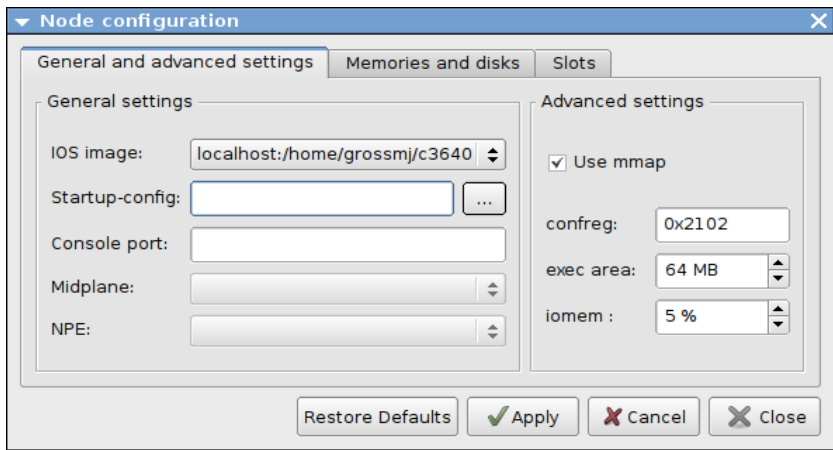
The Node configuration window has three tabs. There are a number of settings under each tab. Under General and advanced settings, you must at least select an IOS image. You may also need to adjust the RAM size under Memories and disks. Under Slots you will need to choose at least one network module (contains one or more interfaces) if you wish to connect your node to another node.

Note: In a future release we will provide a way to configure network modules dynamically (when linking to other nodes).
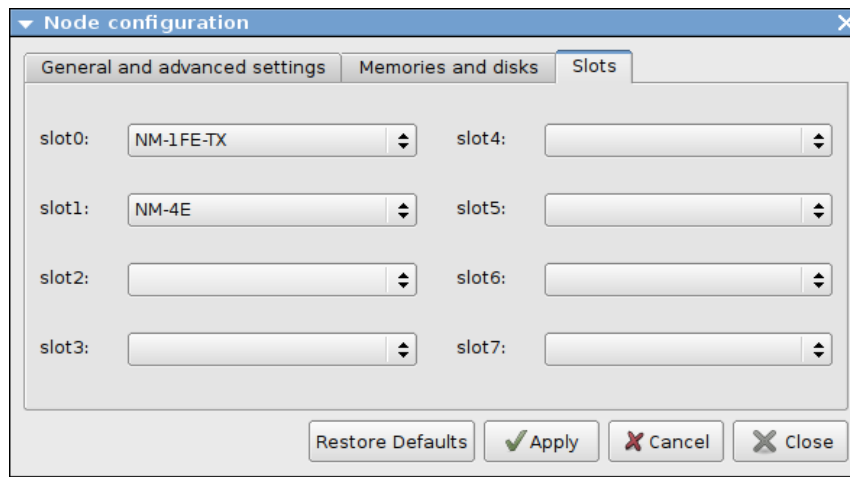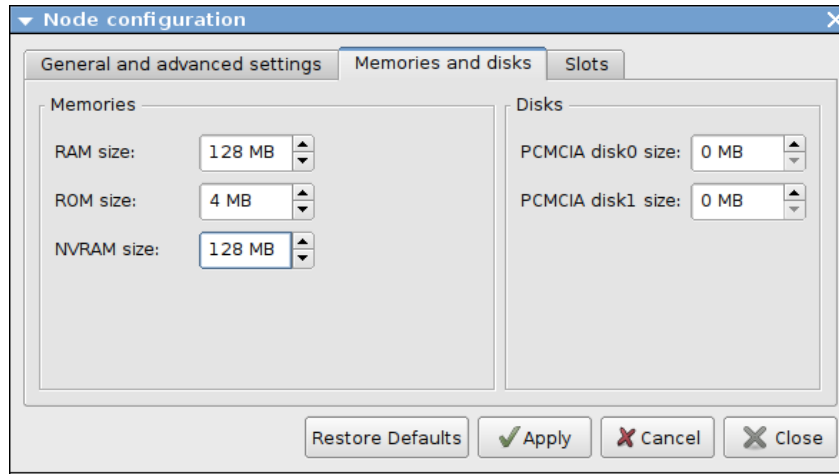
After configuring your network modules, add links between your nodes. Click the "Add a link" button on the toolbar. Select your source node, and then your destination node. Used interfaces are green; available interfaces are red.
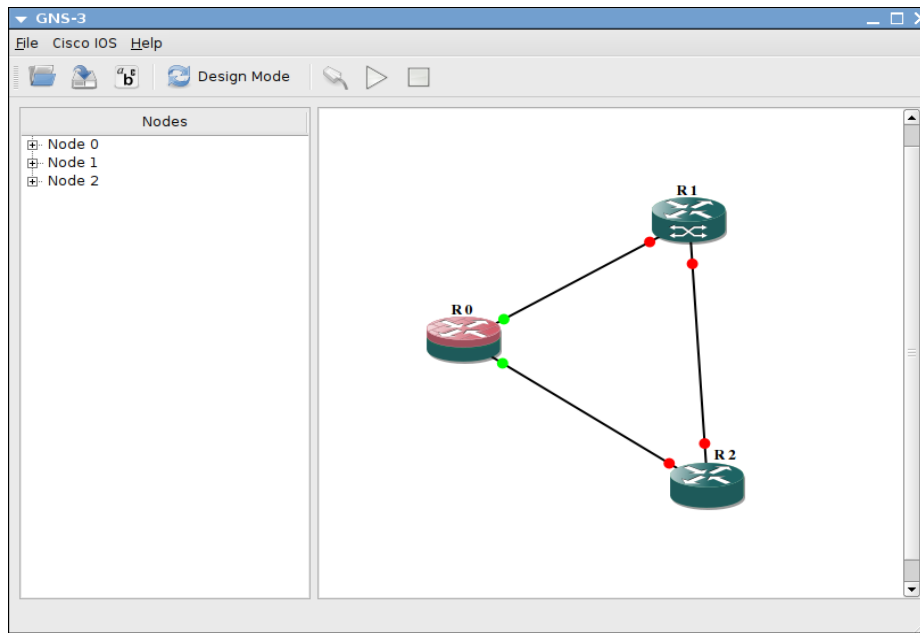
Note: Ethernet links are drawn whether you choose a serial or Ethernet interface. This will change in a future release.
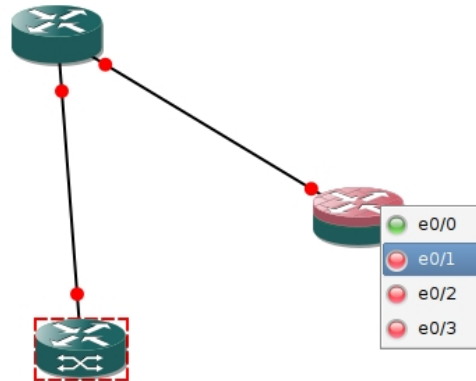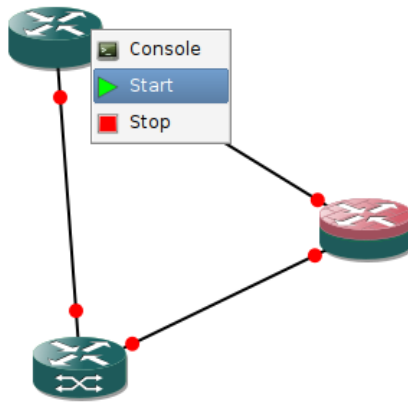

4 – The emulation mode:

After your network topology is created and configured, you may switch to "emulation mode" by clicking the button on the toolbar.

Your network topology and settings are then applied on the hypervisor(s). You may start or stop an IOS instance by right-clicking on a node, or you may start a console session.

![!] All IOS instances may be started at once by clicking the button on the toolbar. However, starting all IOS's at once may slow down your computer. In a future release, you will have the option to provide a 10 second delay between IOS launches.

The GNS-3 team welcomes your feedback on this alpha release. Enjoy.....