## GNS3 for our VoIP home training lab

Basic simulation element for our sw based home training lab will be GNS 3 simulator. But question is, what it is GNS3 simulator. Best description we found at www.gns3.org: "GNS3 is a FREE graphical network simulator that allows simulation of complex networks without the need to purchase network hardware. "

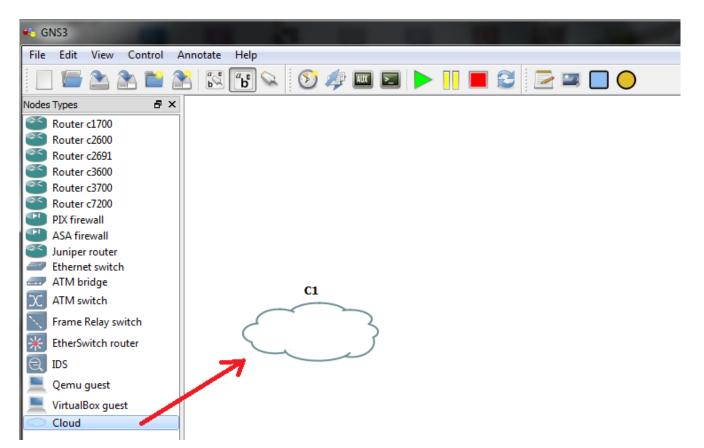
There will arisen second questions: **Is it free**? And answer is **yes and no** – application is free bud as they say: "Users have to provide their own IOS/IPS/PIX/ASA/JunOS to use with GNS3. GNS3 does not include IOS images – these are copyrighted and are the property of Cisco Systems and other copyright holders. ", www.gns3.org, 4.12.11

We will assume that you have appropriate IOS images from your cisco pages and are correctly licensed now.

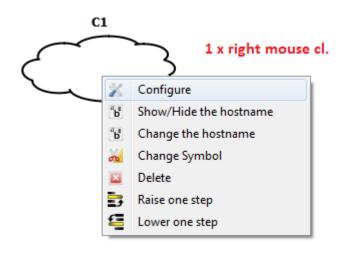
Great video about obtaining GNS3 and take basic setup is provided by project homepage: http://www.gns3.org/2011/09/video-how-to-download-in stall-and-get-working-gns3/. One of the most important thing is run virtualized IOS and calculate Idle PC value that are important for resource management of hosting PC. If you ignore this step, GNS simulator with only one running router will consume your whole pc computing resources (full load your system).

Before we start with basics voice simulations, i will introduce one great simulation component that enable us interconnect virtualized network environment with existing resources on our pc-s ore our home network.

This component is cloud and can be added this way



For proper configuration right click on cloud in topology pane and



In open dialog select instance name C1 and scroll your physical interface (network car of hosting pc) — in this case there were 6 interfaces (look at next 2 pictures).

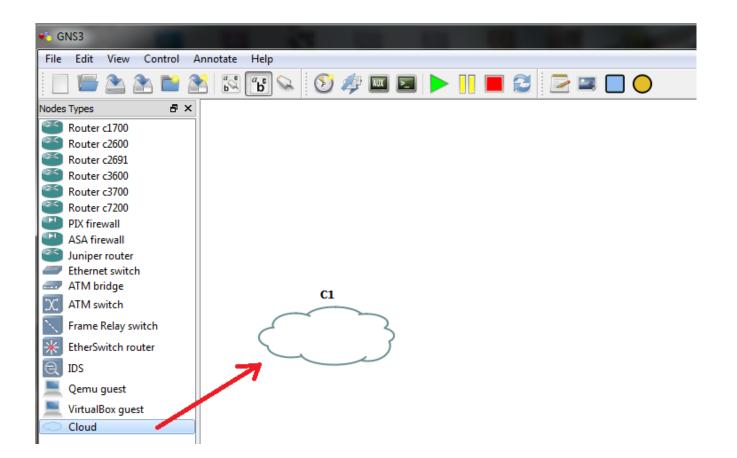
🍋 Node configurator	? <b>**</b>	
Clouds	C1 node	
	NIO Ethernet NIO UDP NIO TAP NIO NULL	
	Generic Ethernet NIO (Administrator access required) scrool your physical netw adapter	
	rpcap://\Device\WPF_{1FA1753C-91F0-4FAB-9135-EC560888B0CA} : Network adapter 'VMware Virte	
	hernet Adapter' on local host: VMware Network Adapter VMnet8 Add Delete	
Reset	OK Cancel Apply	
C1 node		
NIO Ethernet NIO UDP NIO TAP NIO NULL		
Generic Ethernet NIO (Administrator access required)		
rpcap://\Device\VPF_{1FA1753C-91F0-4FAB-9135-EC560888B0CA} : Network adapter 'VMware Virtu rpcap://\Device\VPF_{1FA1753C-91F0-4FAB-9135-EC560888B0CA} : Network adapter 'VMware Virtual Ethernet Adapter' on local host: VMware Network Adapter VMnet8		
rpcap://\Device\VPF_{2AA63275-E0EB-49E8-BEA5-14C2949C70CE} : Network adapter 'Microsoft' on local host: Wireless Network Connection 2 rpcap://\Device\VPF_{DE7B3672-30B6-44C6-9E02-CB7134C762D9} : Network adapter 'Microsoft' on local host: Wireless Network Connection rpcap://\Device\VPF_{14DD834D-70EC-42D6-9462-0E49DF8A1753} : Network adapter 'Sun' on local host: VirtualBox Host-Only Network		
rpcap://\Device\WPF_{698EE232-C6D4-4659-940	62-0E49DF8A1/53) : Network adapter 'Sun' on local host: VirtualBox Host-Only Network 22-8FDE5D149401} : Network adapter 'VMware Virtual Ethernet Adapter' on local host: VMware Network Adapter VMnet1 88-ECC306E73390 : Network adapter 'Marvell Yukon Ethernet Controller.' on local host: Local Area Connection	

Then click add button and next ok.

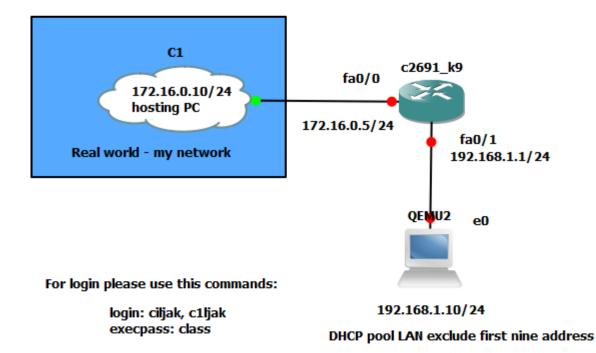
🍋 Node configurator	
Clouds Cl	C1 node         NIO Ethernet       NIO TAP       NIO NULL         Generic Ethernet NIO (Administrator access required)         rpcap://Device\WPF_{EA8336C3-880F-4810-AC88-ECC3D6E73390}: Network adapter 'Marvell Yuko         Yukon Ethernet Controller.' on local host: Local Area Connection       Add       Delete         click add - important!

🔸 Node configurator	? <b>**</b>
Clouds Cl	C1 node         NIO Ethernet       NIO UDP       NIO TAP       NIO NULL         Generic Ethernet NIO (Administrator access required)         [rpcap:///Device\VPF_{EA8336C3-8B0F-4810-AC88-ECC3D6E73390}: Network adapter 'Marvell Yuko         'Vukon Ethernet Controller.' on local host: Local Area Connection       Add       Delete         nio_gen_eth:\device\npf_{ea8336c3-8b0f-4810-ac8b-ecc3d6e73390}
Reset	Click on ok button

With interconnected hosting (your) PC and simulation environment (that is in fact not a simulation but Virtualization for run real IOS – but switching concepts are poorly implemented) you can try SSH access to router as you can see on next photos. But prerequisite is that you from CCNA know how to enable SSH access to VTY line of your router with appropriate user account and local or radius authentication.



SSH access to hosted IOS from hosting PC and qemu host



Config of router was

hostname c2691\_k9

```
Į.
boot-start-marker
boot-end-marker
1
enable secret 5 $1$e.aD$bBCjuv86TM6sbFKb7Spvm0
I.
no aaa new-model
memory-size iomem 5
ip cef
Ţ.
no ip domain lookup
ip domain name ciljak.com
Į.
!ip ssh authentication-retries 2
Т
interface FastEthernet0/0
 ip address 172.16.0.5 255.255.255.0
duplex auto
 speed auto
I.
interface FastEthernet0/1
 ip address 192.168.1.1 255.255.255.0
 duplex auto
 speed auto
1
Ţ
no ip http server
no ip http secure-server
1
control-plane
L
line con 0
 exec-timeout 0 0
logging synchronous
line aux 0
line vty 0 4
 login local
transport input ssh
line vty 5 935
 login local
```

```
transport input ssh
!
!
end
```

Some command was added automatically, that must be keep in you mind and some ! was omitted.