HARDWARE NATION®

Guide for vTestbed Setup in GNS3

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Revision No.	Description	Editor	Date
1.0	Guide for vTestbed Setup in GNS3	Humza Altaf	Sep 22, 2023

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Testbed Setup

To deploy any topology, we will need a testbed that will set up the perfect environment where we can deploy our topologies. Now testbeds are of two types i.e., physical and virtual, depending on our availability of resources (switches, hosts, servers). If we have the required devices available for our topology, then we can go with a physical testbed otherwise we will opt for the virtual one.

Note: Testbed is made using Ubuntu 22.04 on a personal computer.

Virtual Switch Testbed

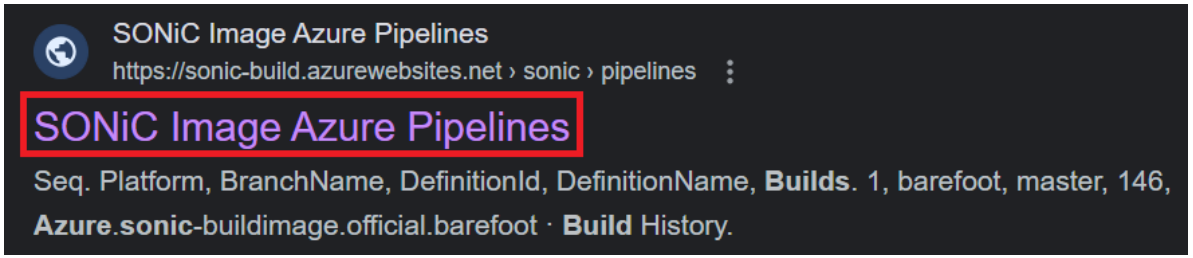
SONiC (Software for Open Networking in the Cloud) is a free and open-source network operating system (OS) based on Linux that runs on switches from multiple vendors and ASICs and uses a key-value database (Redis). To prepare the testbed, we need the following things:

- `GNS3 Software`
- `SONiC image (.img file)`
- `Device image for GNS3 (appliance file)`

SONiC Image for GNS3

To download the SONiC image (.img file) for GNS3, the procedure is given below:

- Open the web browser and type “SONiC- Build Azure pipelines” in the search bar.
- Click the first link.



- To download the latest vs image, scroll down and check available images on the website, confirm the recent build date (e.g., 202305), and click "Build History" to proceed.

81	vs	master	142	Azure.sonic-buildimage.official.vs	Build History
82	vs	202305	142	Azure.sonic-buildimage.official.vs	Build History
83	vs	202211	142	Azure.sonic-buildimage.official.vs	Build History
84	vs	202205	142	Azure.sonic-buildimage.official.vs	Build History

- It displays a list of different Build Number of the “vs” images. Select the most recent one and verify the "Result" column which shows "succeeded". Then click "Artifacts" to proceed further.

BuildId	BuildNumber	BranchName	BuildName	Result	StartTime	FinishTime	Commit	BuildLink	Artifacts
367261	20230920.6	202305	Azure.sonic-buildimage.official.vs	succeeded	2023-09-20T08:19:40	2023-09-20T12:46:46	a49860cc7f	Build Link	Artifacts
366458	20230919.6	202305	Azure.sonic-buildimage.official.vs	succeeded	2023-09-19T08:39:37	2023-09-19T13:03:16	a49860cc7f	Build Link	Artifacts
365620	20230918.6	202305	Azure.sonic-buildimage.official.vs	succeeded	2023-09-18T08:15:36	2023-09-18T12:57:18	2b381b1fd4	Build Link	Artifacts

- After clicking on the "Artifacts" button, a new tab will open displaying “sonic-buildimage.vs” file. Click on it.

Seq.	ArtifactId	Name
1	534077	sonic-buildimage.vs

- Locate the "target/sonic-vs.img.gz” file in the new tab. Click on it to initiate the downloading process.

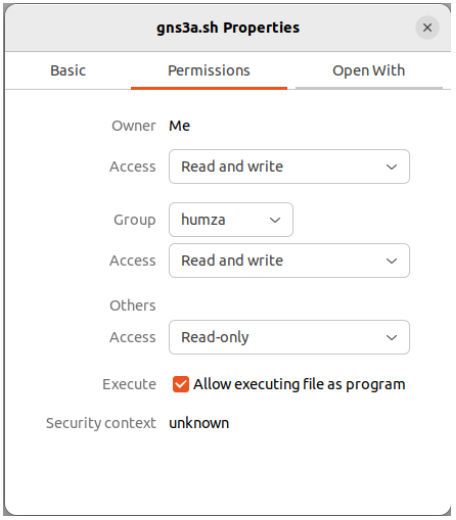
1276	target/sonic-vs.bin	861687790	file	Copy Latest Static Link
1277	target/sonic-vs.img.gz	877720260	file	Copy Latest Static Link
1278	target/sonic-vs.img.gz.log	867082	file	Copy Latest Static Link

Device Image for GNS3

- To deploy a SONiC Image in GNS3, we need a device image. To download that image, go to the link given here.
- Copy the whole code from the link provided above and create a new shell file.

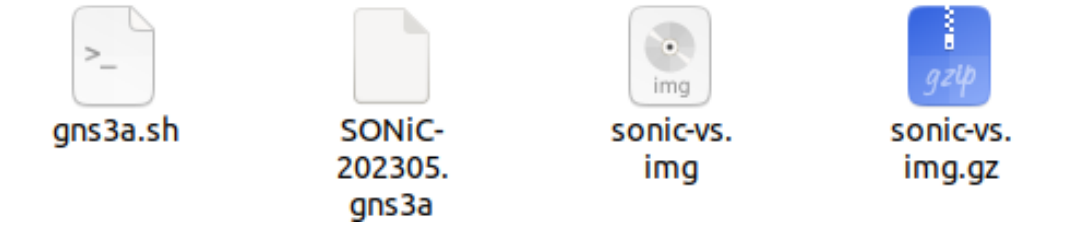
```
humza@humza-Elitebook:~/SONiC 202305$ touch gns3a.sh
humza@humza-Elitebook:~/SONiC 202305$ sudo vi gns3a.sh
[sudo] password for humza:
```

- Paste code in the file and make it executable by "right-click>properties>permissions>allow executing file as program."



Note: Before executing the shell file, it must be noted that ".sh" and "sonic-vs.img" files must be in the same directory.

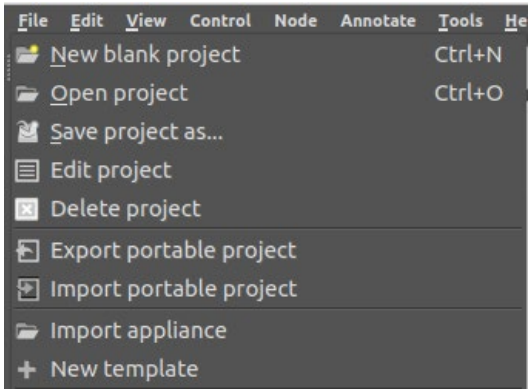
- Open the terminal and go to the directory where the newly created shell file is present. Execute this file by using the command “./<filename>”



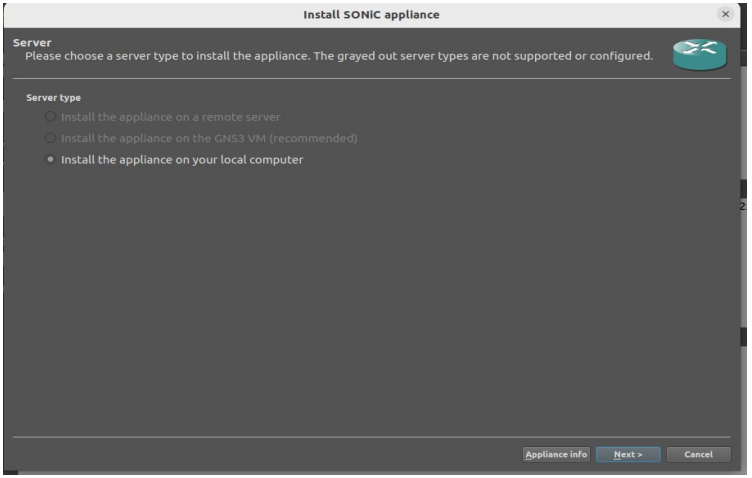
Importing GNS3 device

To import the device and SONiC image in GNS3 after creating a project , follow the procedure given below:

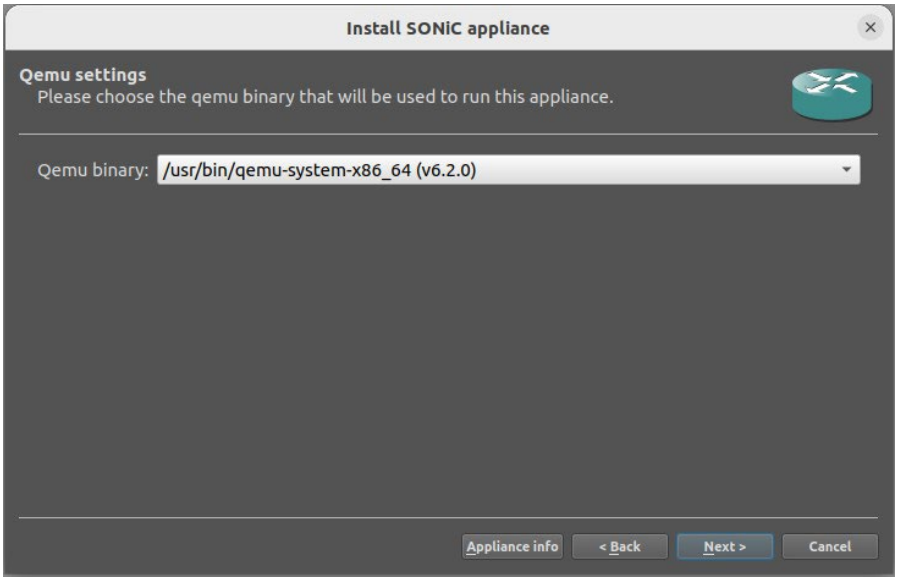
- `file>import appliance`



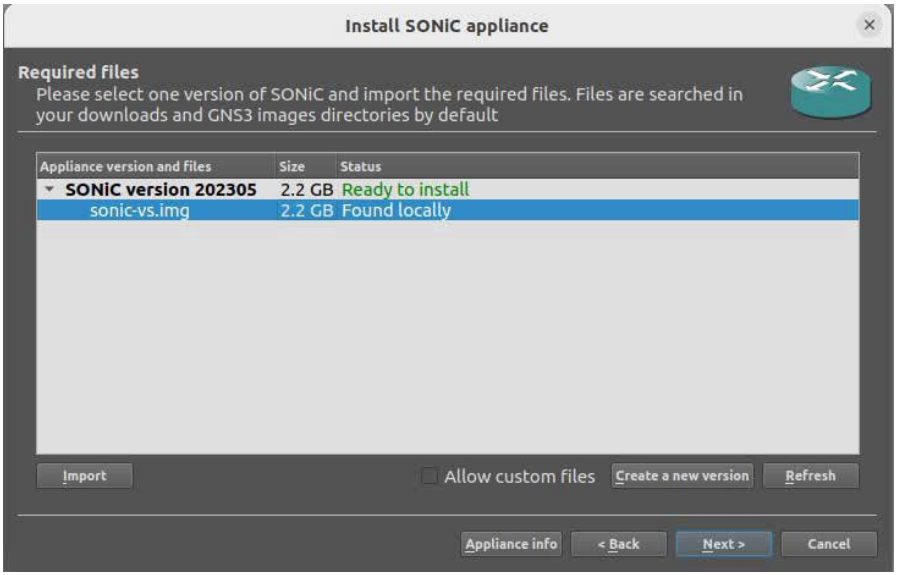
- `Go to the directory where appliance file (.gns3a) is present and select the file.`
- `After that, a pop-up menu will open. Click on “Install the appliance on your local computer” and then click on the “Next” button.`



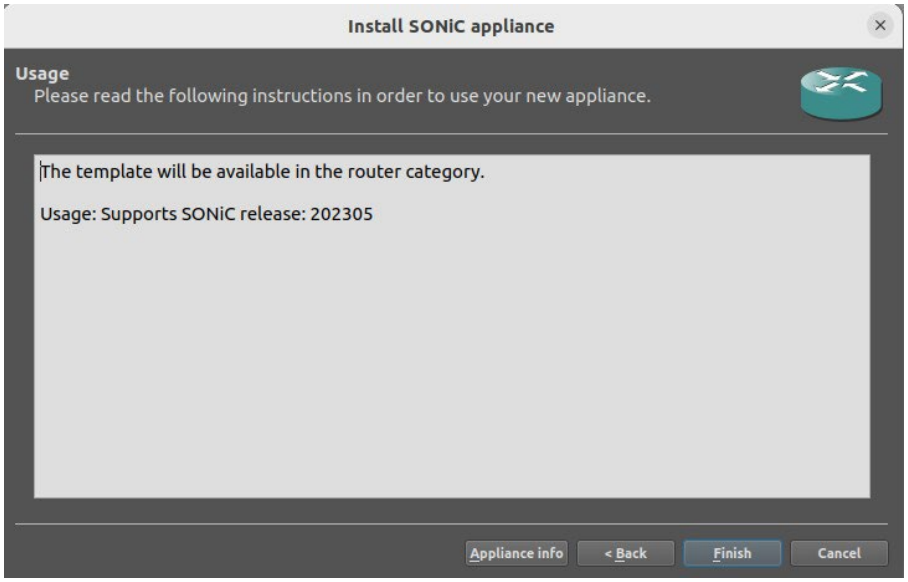
- Choose “Qemu binary” and then click on “Next” button.



- Click on “Next” button.



- Click on “Finish” button.



- Drag and drop the router/switch. Run the device by pressing the green “Start” button on the top bar. Enter the credentials to have access to the SONiC router/switch.

Credentials

sonic login	admin
Password	YourPaSsWoRd

References

https://study-ccna.com/what-is-a-vlan/
https://github.com/sonic-net/sonic-utilities/blob/master/doc/Command-Reference.md

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