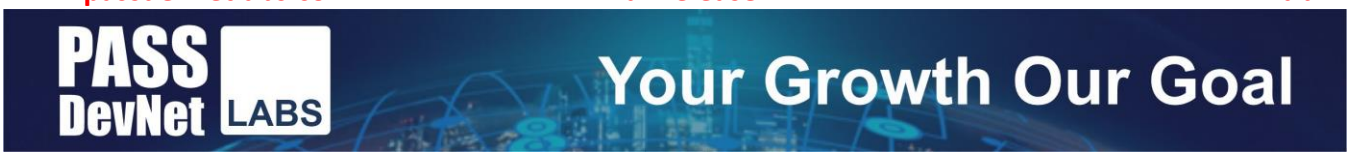
PASS DevNet LABS

CCIE DevNet v1.0 Real Labs

Deploy Module

Lab 2 – Perpetual Motion Machine



Lab Workbook Policy

1. We highly discourage sharing of the workbook hence the workbooks are mapped to Laptop/Desktop MAC address. If one tries to open the workbook on desktop or laptop other than the registered MAC address; account will get locked and we will not unlock it for any reasons.

2. The workbook does not have print access; kindly do not request to enable to print access. You will have access to the documents for 120 days post that your document will not be accessible.

3. One will be provided with free updates up to 120 days from the date of purchase, post that one need to renew his/her account to access the latest update.

4. If one wish to renew their subscription/account, you need to renew within 120 days or before the account gets expired. Post 120 days one can renew their account however the renewal will be considered has a new purchase. Hence we encourage eveyone to renew within 120 days of the purchase.

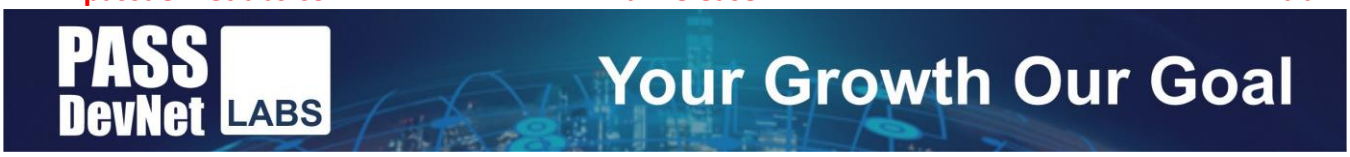
5. The renewal cost is 999 USD if one pay within 120 days, if one fail to renew then the cost will be equivalent of a new purchase. (The renewal price can change at any time, without informing the client)

6. Every workbook is uniquely identified for each user with hidden words. If one shares his/her workbooks with others, and if the system detects the share, the account will be banned and we will not entertain any explanation of any sort.

7. For any queries regarding Questions/Solutions, you can contact us on email: support@passdevnetlabs.com or skype @ cciedevnetlabs@gmail.com. Response time to any of the queries is 24 hours.

8. We do require CISCO ID, CCIE# and personal email id for securing the workbooks. We do not sell without these details. We do background verification of the details provided, so request to give us the correct CISCO ID and official email id.

9. The workbooks are in secured pdc format and delivered via email within 24 hours after payment is received.



10. License is provided for only one Device. And we don't give license again if the device crashes or company security policies. Please install license on the device cautiously as the license will not be provided again.

11. We do support devices running Windows OS, Mac OS, Android and Mac iOS only. Virtualized Machines or Citrix based devices are not supported at all.

12. We do not provide Refund in any circumstances once the product is sold.

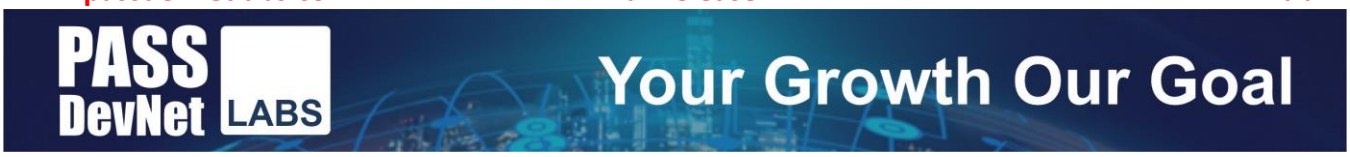
13. The most Updated deploy workbooks are given 30 days before the Exam. Exam booking is manually verified using remote desktop.

14. If there is any update, one will receive the update automatically on their respective skype id.

15. Design Module will be given only 15 days before the CCIE exam .

17. CCIE Labs are always published in phases. For e.g. if there is a new lab we publish it as First, Second, Third ... till Final release.

18. Client who have purchased our workbooks and services and wishes to attempt the lab, need to consult our experts before their CCIE Lab.



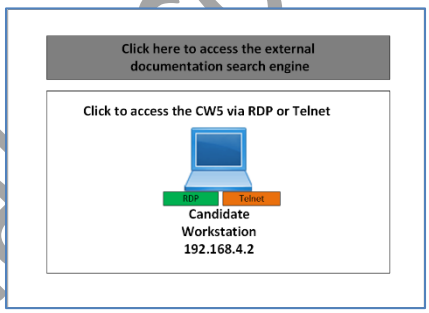
DevNet Expert Developer Environment

Assigned Tasks to complete

Locate your exam tasks under “Exam Content”.

Any additional resources or Information that might be needed to complete a task can be found under “Resources”.

Candidate Workstation (CWS)



The Candidate Workstation (CWS) is your workspace for writing code, accessing infrastructure components, and interacting with all development systems. It has the standard development tools and utilities installed and ready for your use.

It is an Ubuntu based desktop environment that can be accessed through RDP for a full GUI experience, Or through telnet if a pure command line interface is preferred.

To grab all keyboard events (such as Alt+Tab) in the RDP session, click the keyboard icons in the toolbar (of the RDP session) on the left side.

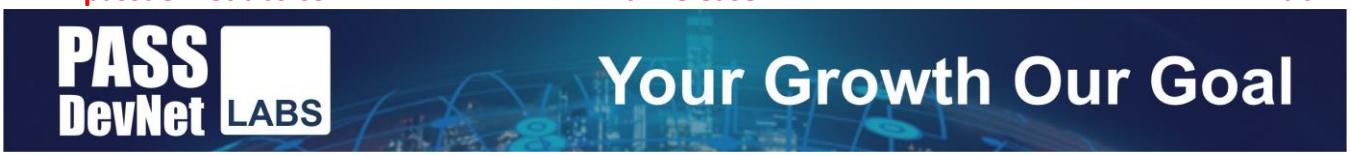
Upon logging into your CWS, a web browser will open to a homepage that contains useful links for the tasks you will be working on. Also opening automatically is a terminal window that displays some useful Information for running code.

Note: Also, upon accessing your CWS for the first time, you’ll be promoted to “Choose a password for new keyring”. This password would be used if you were to save passwords within your web browser for accessing systems. You can set a passphrase or just “Cancel”. This prompt may come up twice.

Source Code, Version Control, and CICD Tooling

All code repositories are located at ~/src/tasks. There is one directory per question. Be sure to push all commits to the main branch in Gitlab.

GitLab can be accessed at https://gitlab-01.ppm.example.com from your Candidate Workstation.



All necessary configuration of your git, client, including ssh keys for communication, have been configured on your CWS for you. You will be able to commit and push without any changes.

Python Virtual Environments

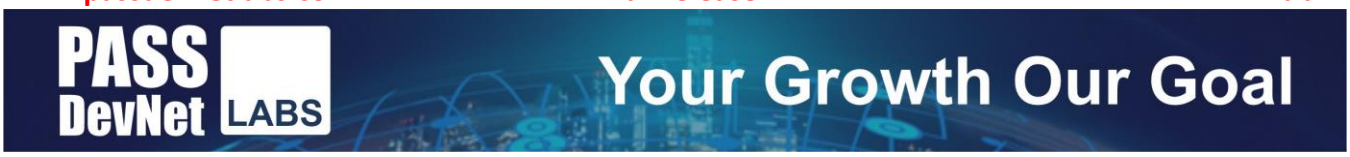
Python libraries and environments are already configured on your CWS and are as follows.

-/venvs/main - The primary virtual environment used for most tasks
-/venvs/ansible - A virtual environment with Ansible installed
-/venvs/yangsuite - A virtual environment with YANG Suite installed

Terminal sessions will automatically have the “main” venv activated.

The following terminal aliases have been created to change venvs if you need to do so:

-venvs-main
-venvs-ansible
-venvs-yangsuite



PART1: DAY 0 Infrastructure Provisioning

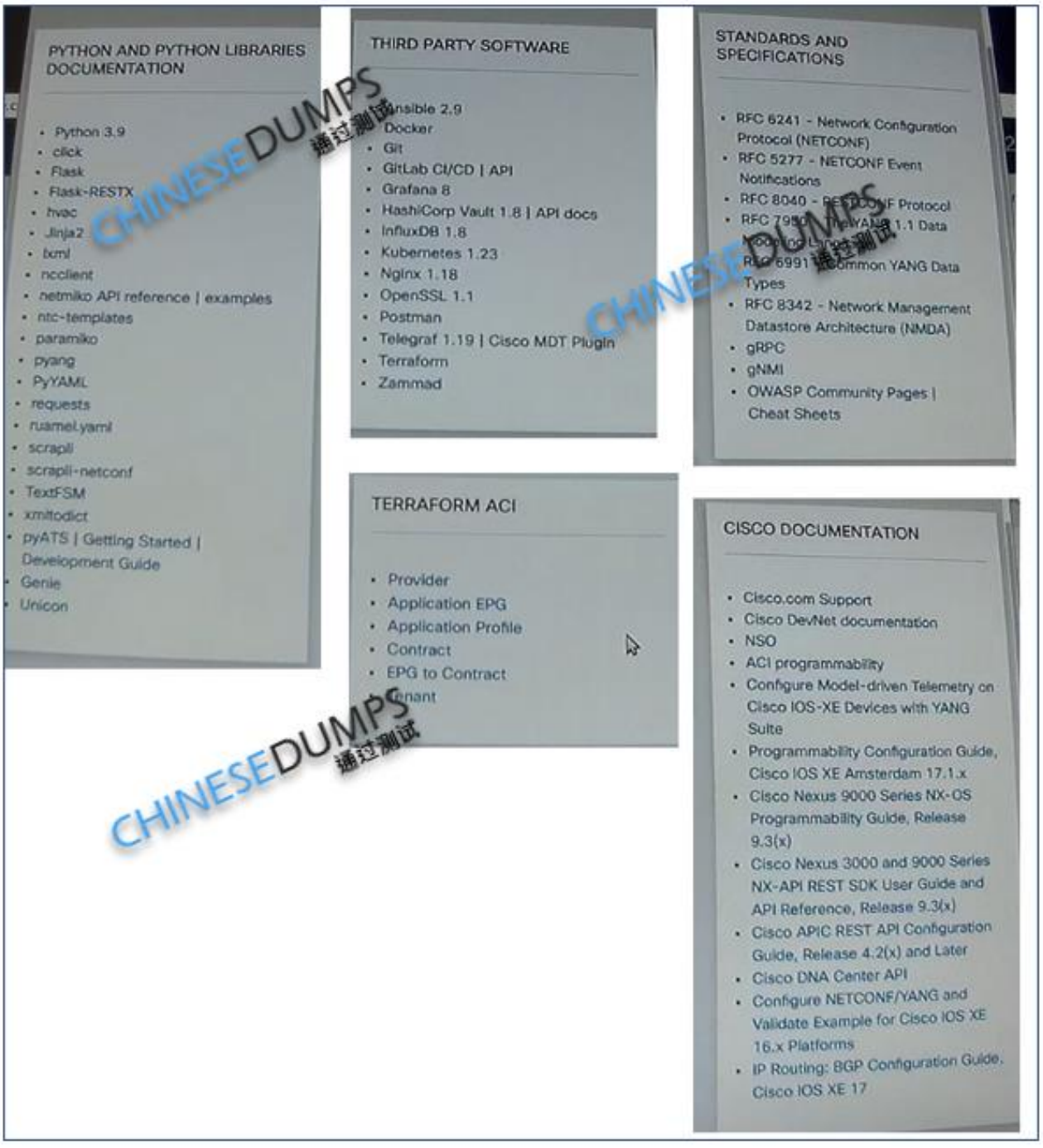
Welcome back to Perpetual Motion Machine!

You will now develop, test, deploy, and maintain software solutions.

The topology that you will be working with will be similar, but not necessarily identical, to the network that was designed in the previous module. It might include technologies and feature sets that were not touched upon previously

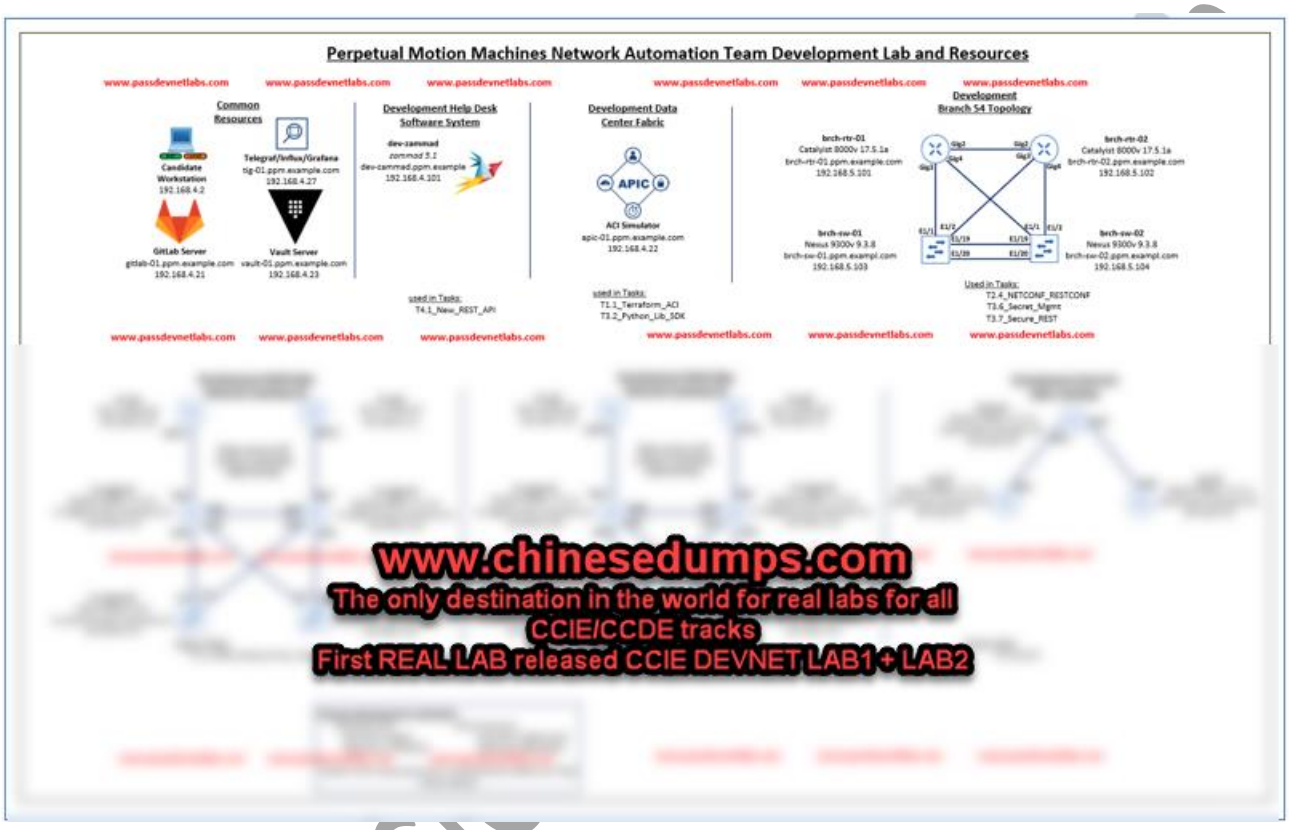
The best of success!

External Documentation



Diagrams

PPM Network Diagram



1.2: Cisco NSO service package

Your leadership has instructed you to create a service to automate the provisioning or Layer 2 and Layer 3 networks and their corresponding access ports on the switches. The network will be provided in an IPv4 prefix format with a VLAN identifier. Each network will be given a unique name to be used when provisioning the ports.

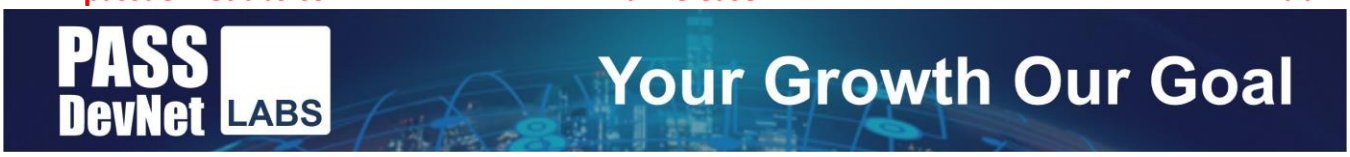
Service Design Requirements From the Network Architecture Team

- Ability to create a network based on name, prefix, description, and network identifier (VLAN ID)
- Ability to create Layer 2 and Layer 3 network characteristics (VLAN database, VLAN interface)
- The gateway address (SVI) must be the last available address within the prefix
- Ability to attach a network to a GigabitEthernet access port based on a lookup of available network names

Work has already begun on this service, and you must to complete these tasks:

- The list networks and list access-ports within the YANG model (access-service.yang) must be completed using this model:

Note: The networks/name leaf provides the name of the network within the NSO access-service. The networks/description provides the name of the VLAN when configured on devices.



- The XML templates access-service-network.xml and access-service-port.xml must generate the required configuration to implement the final device configuration for the service.

This XML code was pregenerated on your behalf with sample values. These examples are starting points in the XML templates within the code.

- Access Service Network Template

- Access Service Port Template

Note: The Python script and code that is required for this service is already completed, including the determination of the gateway address to be used for the SVI. No changes

should be made to the Python script.

Your solution should yield this CLI output from access-sw-01. The NetSim device access-sw-01 is based on the cisco-ios NED:

and your solution within NSO should yield this CLI output:

NSO Development Environment Details

An NSO local installation has been completed on your workstation in the ${HOME}/nso directory. ${HOME}/nso/ncsrc has been sourced as part of the bash profile configuration.

In the code directory for this task, you will find the access-service folder, which provides the initial state for your service package development. The YANG file and XML templates that you need to complete are located in the folder, as is the Python script that applies the configuration. No changes to the Python script are necessary to complete this task.

The setup-nso.sh script has been executed already. It sets up NSO within the code directory for this task, along with a NetSim IOS device for development and testing.

The clean-nso.sh script can be run to delete the NSO development environment. You can re-run setup-nso.sh to reset NSO and Netsim.

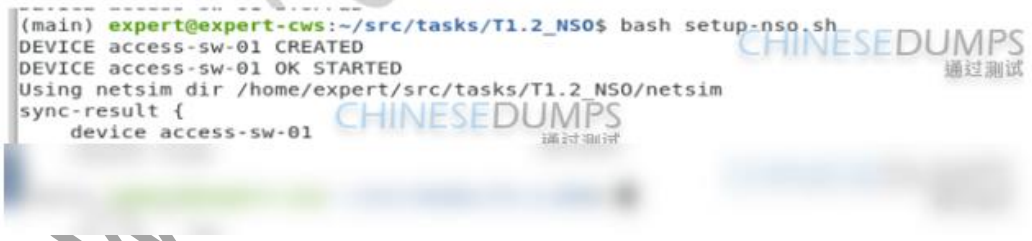
The start-nso.sh script is available to restart the NetSim device and NSO if they are stopped.

Your complete and functional service must be committed to the Git repository for the project and pushed to GitLab. Make sure to merge your updates into the main branch

3 points

You have to give permission in our lab you do not have to do this in Cisco lab

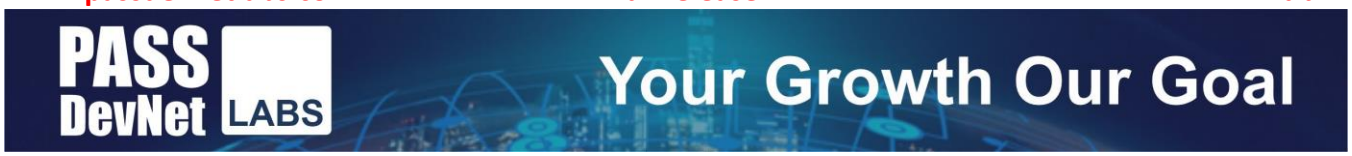
In Lab this should be our first step



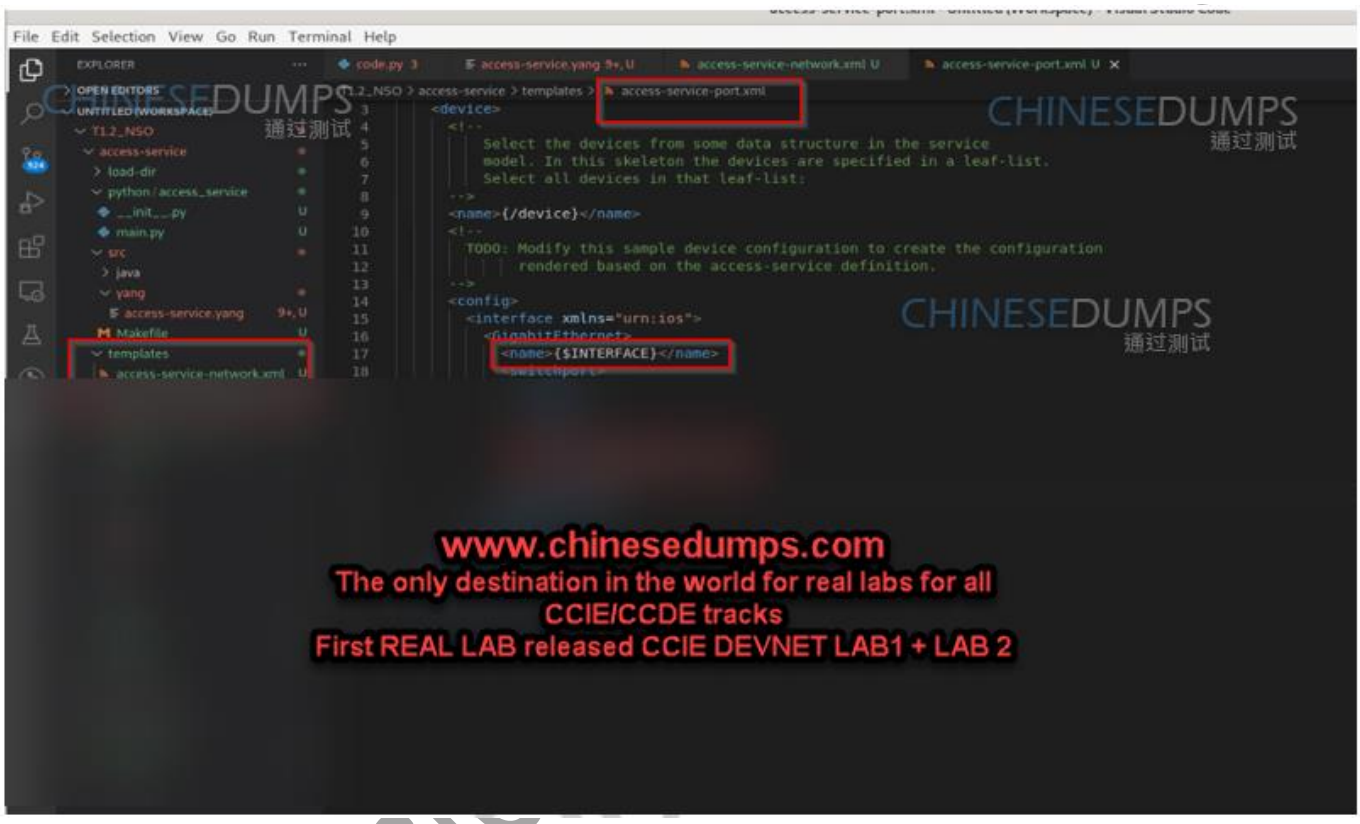
Now we just have to modify 3 files to complete this task.

access-service-network.xml
access-service-ports.xml
access-service.yang

access-service-network.xml



access-service-ports.xml



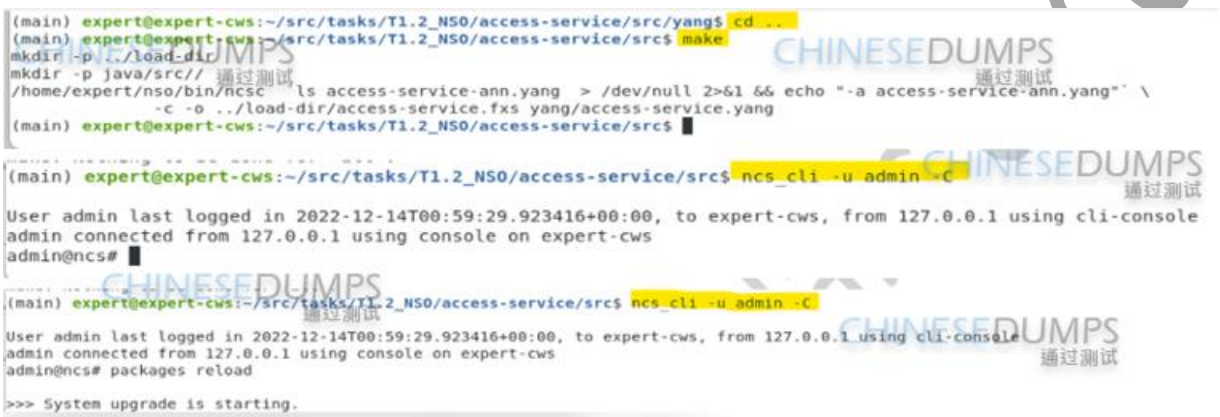
access-service.yang

You have to replace here

You have modified this and save the file.

Verification: -

After we configure above file you have to configure make this is compulsory to recompile the file perfectly.



```
admin connected from 127.0.0.1 using console on expert-cws
admin@ncs# config t
Entering configuration mode terminal
admin@ncs(config)# access-service access-sw-01 networks voice network-id 200 prefix 10.10.200.0/23 description voice
admin@ncs(config-networks-voice)# top
admin@ncs(config)# access-service access-sw-01 networks workstation network-id 100 prefix 10.10.100.0/24 description workstation
admin@ncs(config-networks-workstation)# access-service access-sw-01 access-ports 0/1 network workstation
admin@ncs(config-access-ports-0/1)# top
admin@ncs(config)# access-service access-sw-01 access-ports 0/2 network voice
admin@ncs(config-access-ports-0/2)# top
admin@ncs(config)# commit dry-run
cli {
    local-node {
        data +access-service access-sw-01 {
             +    networks voice {
             +        network-id 200;
             +        prefix 10.10.200.0/23;
             +        description voice;
             +    }
             +    networks workstation {
             +        network-id 100;
             +        prefix 10.10.100.0/24;
             +        description workstation;
             +    }
```

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