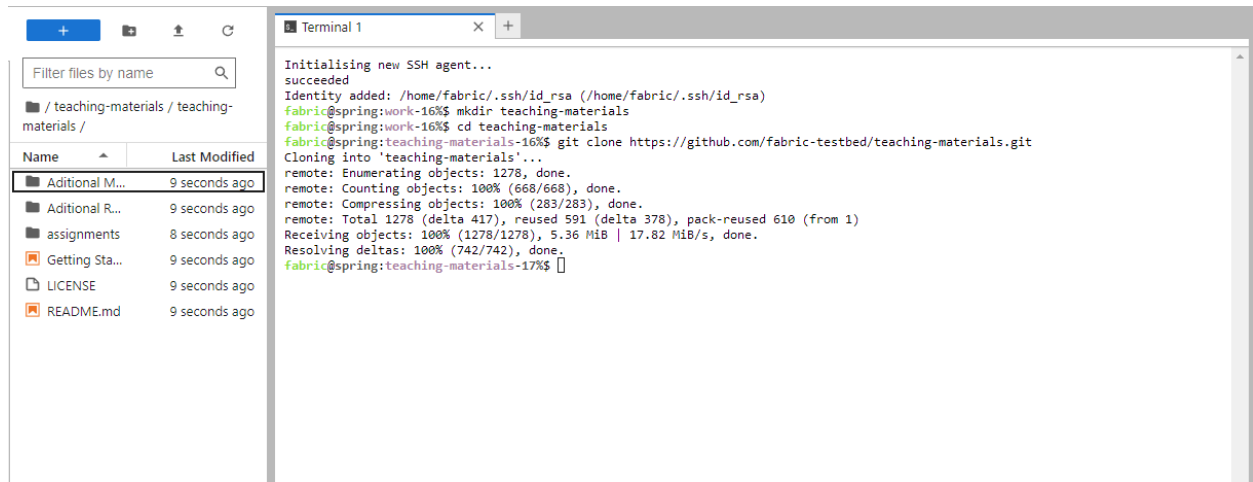


Samantha Jackson  
CSCI4406\_Lab  
10-20-2024

## CLab 6 - Routing with IPv4

### Installing the Tutorial

Observations/Issues: None.



The screenshot shows a terminal window with the following output:

```
Initialising new SSH agent...
succeeded
Identity added: /home/fabric/.ssh/id_rsa (/home/fabric/.ssh/id_rsa)
fabric@spring:work-16% mkdir teaching-materials
fabric@spring:work-16% cd teaching-materials
fabric@spring:teaching-materials-16% git clone https://github.com/fabric-testbed/teaching-materials.git
Cloning into 'teaching-materials'...
remote: Enumerating objects: 1278, done.
remote: Counting objects: 100% (668/668), done.
remote: Compressing objects: 100% (283/283), done.
remote: Total 1278 (delta 417), reused 591 (delta 378), pack-reused 610 (from 1)
Receiving objects: 100% (1278/1278), 5.36 MiB | 17.82 MiB/s, done.
Resolving deltas: 100% (742/742), done.
fabric@spring:teaching-materials-17%$
```

On the left side of the terminal window, there is a file explorer showing the contents of the 'teaching-materials' directory. The files listed are:

Name	Last Modified
Additional M...	9 seconds ago
Additional R...	9 seconds ago
assignments	8 seconds ago
Getting Sta...	9 seconds ago
LICENSE	9 seconds ago
README.md	9 seconds ago

### Creating the Slice

Observations/Issues: Had issues with the first script where the `project_id` was not defined. Was remedied by specifying the ID for the Computer Networks Project.

```
[4]: # Import Fablib
from fabrictestbed_extensions.fablib.fablib import FablibManager as fablib_manager

fablib = fablib_manager(project_id="a70de2f5-9e12-4b6b-b412-0ae1a2c553b0")

fablib.show_config()

import json
import traceback
```



### FABlib Config

Credential Manager	cm.fabric-testbed.net
Orchestrator	orchestrator.fabric-testbed.net
Bastion Host	bastion.fabric-testbed.net
Bastion Private Key File	/home/fabric/work/fabric_config/fabric-bastion-key
Slice Private Key File	/home/fabric/work/fabric_config/slice_key
Slice Public Key File	/home/fabric/work/fabric_config/slice_key.pub
Log Level	INFO
Log File	/tmp/fablib/fablib.log
Version	1.7.3
Project ID	a70de2f5-9e12-4b6b-b412-0ae1a2c553b0
Data directory	/tmp/fablib
SSH Command Line	ssh -i {{ _self_.private_ssh_key_file }} -F /home/fabric/work/fabric_config/ssh_config {{ _self_.username }}@{{ _self_.management_ip }}
Core API	uis.fabric-testbed.net
Token File	/home/fabric/tokens.json
Sites to avoid	
Bastion SSH Config File	/home/fabric/work/fabric_config/ssh_config
Bastion Username	sjack012_0000240143

## Importing the Fabric API

Observations/Issues: None.

## Import the Fabric API

```
[1]: # Load Fablib and Node Information
from fabrictestbed_extensions.fablib.fablib import FablibManager as fablib_manager
fablib = fablib_manager()
fablib.show_config()
import json
import traceback

slice_name = 'IPv4_Routing'
try:
    slice = fablib.get_slice(slice_name)
    slice.list_nodes()
except Exception as e:
    print(f"Get Slices Fail: {e}")
```

## FABlib Config

Credential Manager	cm.fabric-testbed.net
Orchestrator	orchestrator.fabric-testbed.net
Bastion Host	bastion.fabric-testbed.net
Bastion Private Key File	/home/fabric/work/fabric_config/fabric-bastion-key
Slice Private Key File	/home/fabric/work/fabric_config/slice_key
Slice Public Key File	/home/fabric/work/fabric_config/slice_key.pub
Log Level	INFO
Log File	/tmp/fablib/fablib.log
Version	1.7.3
Data directory	/tmp/fablib
SSH Command Line	ssh -i {{ _self_private_ssh_key_file }} -F /home/fabric/work/fabric_config/ssh_config {{ _self_username }}@{{ _self_management_ip }}
Core API	uis.fabric-testbed.net
Token File	/home/fabric/tokens.json
Sites to avoid	
Bastion SSH Config File	/home/fabric/work/fabric_config/ssh_config
Project ID	a70de2f5-9e12-4b6b-b412-0ae1a2c553b0
Bastion Username	sjack012_0000240143

## Nodes

ID	Name	Cores	RAM	Disk	Image	Image Type	Host	Site	Username	Management IP	State	Error	SSH Command	Pub
e577c208-5bba-45d4-90f0-89a1784ad7f7	ND_A	1	2	10	default_ubuntu_20	qcow2	eduky-w7.fabric-testbed.net	EDUKY	ubuntu		Ticketed			/hor
4421797d-5610-4c7f-9dda-1eb41763f89d	ND_B	1	2	10	default_ubuntu_20	qcow2	eduky-w7.fabric-testbed.net	EDUKY	ubuntu		Ticketed			/hor
abf40541-c94d-4cba-9676-ae35fbd0df08	ND_C	1	2	10	default_ubuntu_20	qcow2	eduky-w10.fabric-testbed.net	EDUKY	ubuntu		Ticketed			/hor

## SSH'ing Into Nodes

Observations/Issues: Cannot figure out how to SSH into these nodes. Managed to fix this by rerunning the hello-fabric script from [git clone](#). Then rerunning the script in IPv4

routing/Routing\_with\_IPv4.ipynb and I finally got the SSH commands. However, now I can't access the nodes because they are publickey. I'm not really sure how to fix this.

	Image Type	Host	Site	Username	Management IP	State	Error	SSH Command
ubuntu_20	qcow2	eduky-w7.fabric-testbed.net	EDUKY	ubuntu	2610:1e0:1700:206:f816:3eff:fe53:a0f2	Active		ssh -i /home/fabric/work/fabric_config/slice_key -F /home/fabric/work/fabric_config/ssh_config ubuntu@2610:1e0:1700:206:f816:3eff:fe53:a0f2
ubuntu_20	qcow2	eduky-w7.fabric-testbed.net	EDUKY	ubuntu	2610:1e0:1700:206:f816:3eff:fe74:13bf	Active		ssh -i /home/fabric/work/fabric_config/slice_key -F /home/fabric/work/fabric_config/ssh_config ubuntu@2610:1e0:1700:206:f816:3eff:fe74:13bf
ubuntu_20	qcow2	eduky-w10.fabric-testbed.net	EDUKY	ubuntu	2610:1e0:1700:206:f816:3eff:fed1:846e	Active		ssh -i /home/fabric/work/fabric_config/slice_key -F /home/fabric/work/fabric_config/ssh_config ubuntu@2610:1e0:1700:206:f816:3eff:fed1:846e

```

fabric@spring:work-17%$ ssh -i /home/fabric/work/fabric_config/slice_key -F /home/fabric
/work/fabric_config/ssh_config ubuntu@2610:1e0:1700:206:f816:3eff:fe53:a0f2
Warning: Permanently added 'bastion.fabric-testbed.net' (ED25519) to the list of known h
osts.
Warning: Permanently added '2610:1e0:1700:206:f816:3eff:fe53:a0f2' (ED25519) to the list
of known hosts.
ubuntu@2610:1e0:1700:206:f816:3eff:fe53:a0f2: Permission denied (publickey).
fabric@spring:work-17%$ ssh -i /home/fabric/work/fabric_config/slice_key -F /home/fabric
/work/fabric_config/ssh_config ubuntu@2610:1e0:1700:206:f816:3eff:fe53:a0f2
Warning: Permanently added 'bastion.fabric-testbed.net' (ED25519) to the list of known h
osts.
Warning: Permanently added '2610:1e0:1700:206:f816:3eff:fe53:a0f2' (ED25519) to the list
of known hosts.
ubuntu@2610:1e0:1700:206:f816:3eff:fe53:a0f2: Permission denied (publickey).
fabric@spring:work-17%$ ssh -i /home/fabric/work/fabric_config/slice_key -F /home/fabric
/work/fabric_config/ssh_config ubuntu@2610:1e0:1700:206:f816:3eff:fe53:a0f2
Warning: Permanently added 'bastion.fabric-testbed.net' (ED25519) to the list of known h
osts.
Warning: Permanently added '2610:1e0:1700:206:f816:3eff:fe53:a0f2' (ED25519) to the list
of known hosts.
ubuntu@2610:1e0:1700:206:f816:3eff:fe53:a0f2: Permission denied (publickey).
fabric@spring:work-17%$ ssh -i /home/fabric/work/fabric_config/slice_key -F /home/fabric
/work/fabric_config/ssh_config ubuntu@2610:1e0:1700:206:f816:3eff:fe74:13bf
Warning: Permanently added 'bastion.fabric-testbed.net' (ED25519) to the list of known h
osts.
Warning: Permanently added '2610:1e0:1700:206:f816:3eff:fe74:13bf' (ED25519) to the list
of known hosts.
ubuntu@2610:1e0:1700:206:f816:3eff:fe74:13bf: Permission denied (publickey).
fabric@spring:work-17%$

```