# Ansible F5 Agility 2021 Workshop

## Overview

While you can go through these labs there may be concepts that are not as it is expected that these concepts are already understood. Throughout the labs we hope to share some additional features, elements, good and bad practices and patterns to using Ansible for Automation.

You will be required to modify some files during the course of this workshop. You will not be required to write your own playbooks as this would require much more time. The playbooks used are open source and thus free to use and modify. That being said, writing playbooks and running them in a test environment is one of the best ways to learn.

***Outline***

* Part 1: Getting setup
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  + Connecting to F5
  + Downloading forked Git Repo
* Part 2: Basic F5 labs
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  + Gather data from F5
  + Adding nodes to F5
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  + Adding members to a pool
  + Adding a virtual server
  + Adding and attaching an iRule to a virtual server
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  + Error Handling
* Part 4: F5 AS3 labs
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  + Deleting a web application
* Part 5: Tower labs
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  + Create an Ansible Tower job template
  + Create an Ansible Tower workflow
  + Create a node maintenance workflow

**Note: Assume the output shown in the examples below will be different to yours.**

## Part 1: Getting setup

### ***Overview***

* Fork the lab github repository to your own repository so you can edit and modify.
* Accessing the jump station
* Downloading your forked repository to the jump station

## *Fork the Sirius ansible networking GitHub repository*

### Step 1

## Login in to Github at <https://github.com>

### Step 2

## Go to <https://github.com/mysidlabs/ansible-f5-labs>

### Step 3

## Click on the Fork button in upper right.

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## Note: Once forked you can modify all files within GitHub

## *Connect to the Jump Host*

### Step 1

## SSH to the jump station at jump.mysidlabs.com

## For MacOS or Linux users the following is an example using the terminal:

## $ ssh <<siduserID>>@jump.mysidlabs.com

## Ex. $ssh siduser101@jump.mysidlabs.com

## You may get the following message, type yes at the prompt:

The authenticity of host 'jump.mysidlabs.com (3.132.28.93)' can't be established.

ECDSA key fingerprint is SHA256: xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

Are you sure you want to continue connecting (yes/no/[fingerprint])? **Yes**

## Warning: Permanently added 'jump.mysidlabs.com,3.132.28.93' (ECDSA) to the list of known hosts.

## Note: You can remove from known hosts when workshop is completed.

## When prompted for your password type in the password the instructor provides

## password: \*\*\*\*\*\*\*

## For Windows users the following is an example using Putty:

## Type jump.mysidlabs.com in the Host Name box and click the Open button

## A screenshot of a cell phone Description automatically generated

## Click the Yes button to accept the ssh key

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## Type in username and password in the terminal screen at the appropriate prompts

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## *Connecting to your F5*

### Step 1

## Open your web browser (Chrome or Firefox)

### Step 2

Put the address of your F5 in the address bar including the port number 8443

## https://siduser155.f5.mysidlabs.com:8443

### Step 3

## Proceed through the warnings regarding the SSL certificate not being valid

## Note: Some browsers will not allow you to connect/bypass the security warning due to settings and the fact that the SSL certificate is a self-signed certificate and cannot be validated. You may have to change browsers in order to bypass the security warning.

### Step 4

Record the F5 Private IP address

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### Step 5

## Login into the F5 BigIP

## Username: admin

## Password: Mys1dlabspw!

## *Download repository to jump station*

### Step 1

Your terminal prompt should change to something like the following:

## siduser250@jump:~$

### Step 2

Type in ‘lab ansible’ at the promt:

## siduser101@jump:~$ TAG=1.3.1 lab ansible

### Step 3

Your terminal prompt should change to something like the following:

## siduser250@toolkit ~ #

### Step 4

Clone your repository

## siduser250@toolkit ~ # git clone [https://github.com/<<YOUR\_GITHUB\_USER>>/ansible-f5-labs](https://github.com/%3c%3cYOUR_GITHUB_USER%3e%3e/ansible-f5-labs)

|  |  |
| --- | --- |
| Tip | The usage of git becomes very important to “infrastructure as code”. Everything resides in github including your changes. If you lose connection from the jump box, the repository will be deleted automatically. All you need to do is clone your repository and you are back to where you were. |

### Step 5

## You should now see the repository in your directory

siduser250@toolkit ~ # **ls**

## ansible-f5-labs dev

### Step 6

## Move into the ansible-network-labs directory

siduser250@toolkit ~ # **cd ansible-f5-labs**

siduser250@toolkit ~/ansible-f5-labs #

### Additional Information

You can now explore the labs directory

cd = change directory

ls = list contents

pwd = display current working directory

cat = display file

nano or vim = file editor

tree = display file structure from current directory

## Part 2: Basic F5 labs

### Topology

The topology is simple for the sake of learning some ansible basics. The diagram below is an example, the XXX in the hostname is your Student ID. If you are student 199 then the hostname for the F5 would be siduser199.f5.mysidlabs.com.

A close up of a map

Description automatically generated

### Lab 1.0: Explore the lab environment

### Step 1

Make sure you are in the ansible-f5-labs folder

siduser250@toolkit ~/ansible-f5-labs # **pwd**

/home/siduser250/ansible-f5-labs

If you are not, change to the ansible-f5-labs directory

siduser250@toolkit ~ # **cd ~/ansible-f5-labs/**

### Step 2

Run the ansible command with the --version command to look at what is configured:

siduser250@toolkit ~/ansible-f5-labs # **ansible --version**

ansible 2.9.7

config file = /home/siduser250/ansible-f5-labs/ansible.cfg

configured module search path = ['/home/siduser250/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']

ansible python module location = /usr/lib/python3.7/site-packages/ansible

executable location = /usr/bin/ansible

python version = 3.7.7 (default, Mar 13 2020, 10:23:39) [GCC 9.2.1 20190827 (Red Hat 9.2.1-1)]

This command gives you information about the version of Ansible, location of the executable, version of Python, search path for the modules and location of the ansible configuration file.

### Step 3

Use the cat command to view the contents of the ansible.cfg file.

siduser250@toolkit ~/ansible-f5-labs # **cat ansible.cfg**

[defaults]

deprecation\_warnings = False

gathering = explicit

retry\_files\_enabled = False

**inventory = ~/ansible-f5-labs/hosts**

connection = smart

timeout = 60

forks = 50

host\_key\_checking = False

[ssh\_connection]

ssh\_args = -o ControlMaster=auto -o ControlPersist=30m

scp\_if\_ssh = True

[paramiko\_connection]

host\_key\_auto\_add = True

[persistent\_connection]

connect\_timeout = 60

command\_timeout = 60

##### Note: the following parameters within the ansible.cfg file:

**inventory**: shows the location of the ansible inventory being used

### Step 4

The scope of a play within a playbook is limited to the groups of hosts declared within an Ansible inventory. Ansible supports multiple inventory types. An inventory could be a simple flat file with a collection of hosts defined within it or it could be a dynamic script (potentially querying a CMDB backend) that generates a list of devices to run the playbook against.

You will work with a file-based inventory written in the **ini** format. Use the cat command to view the contents of your inventory:

siduser250@toolkit ~/ansible-f5-labs # **cat hosts**

[lb:children]

f5

[f5]

<<siduserID>>.f5.mysidlabs.com private\_ip=<<privateIP>>

[webservers]

web1 ansible\_host=3.136.84.180 private\_ip=172.31.19.21

web2 ansible\_host=3.136.11.17 private\_ip=172.31.20.204

### Step 5

In the above output every **[ ]** defines a group. For example **[webservers]** is a group that contains the hosts, web1 and web2.

Note: A group called **all** always exists and contains all groups and hosts defined within an inventory.

We can associate variables to groups and hosts. Host variables are declared/defined on the same line as the host themselves. For example, for the host f5:

<<siduserID>>.f5.mysidlabs.com private\_ip=<<privateIP>>

**<<siduserID>>.f5.mysidlabs.com** - The name that Ansible will use. Since this is an FQDN Ansible will do a DNS lookup to get the IP address. We will need to modify this to a valid FQDN.

**private\_ip=<<privateIP>>** - Because we are using AWS the F5 interface is assigned a private IP and then uses NAT for its public IP.

### Step 6

Modify your hosts file in your github repository

#### Step 6.a

Click on your hosts file

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#### Step 6.b

Notice the hostname and private\_ip are invalid. Click on the pencil Icon on the right hand side to modify

A screenshot of a computer screen

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#### Step 6.c

Change <<siduserID>> to your siduser which was assign at the start of the labs. Change the private IP to the IP recorded in Step 4 of the Connecting to your F5 section. The following example shows what it would be modified to if your siduserID was siduser155 and the private ip was 172.31.13.240.

A close up of a logo

Description automatically generated

#### Step 6.d

Scroll to the bottom of the page and click on the “Commit changes” button.

A picture containing drawing

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#### Step 6.e

Pull the changes you made to your repository down to the jump station.

Make sure you are in the ansible-f5-labs directory

siduser155@toolkit ~/ansible-f5-labs # **pwd**

/home/siduser155/ansible-f5-labs

Issue the git pull command

siduser155@toolkit ~/ansible-f5-labs # **git pull**

remote: Enumerating objects: 5, done.

remote: Counting objects: 100% (5/5), done.

remote: Compressing objects: 100% (3/3), done.

remote: Total 3 (delta 1), reused 0 (delta 0), pack-reused 0

Unpacking objects: 100% (3/3), 730 bytes | 730.00 KiB/s, done.

From https://github.com/lonibble/ansible-f5-labs

6d7e7c5..65b3753 master -> origin/master

Updating 6d7e7c5..65b3753

Fast-forward

hosts | 2 +-

1 file changed, 1 insertion(+), 1 deletion(-)

Lab 1.1: Using Ansible Vault

### Step 1

Look at the all.yaml group variable file. Notice it is not encrypted.

siduser150@toolkit ~/ansible-f5-labs # **cat group\_vars/all.yaml**

f5\_username: admin

f5\_password: Mys1dlabspw!

web\_username: centos

web\_key: ~/.ssh/network-key.pem

### Step 2

Encrypt all.yaml file and look at it again.

siduser150@toolkit ~/ansible-f5-labs # **ansible-vault encrypt group\_vars/all.yaml**

New Vault password:

Confirm New Vault password:

Encryption successful

siduser150@toolkit ~/ansible-f5-labs # **cat group\_vars/all.yaml**

$ANSIBLE\_VAULT;1.1;AES256

37646633316539343132663961316431323234383262653935393939343161366466333262626134

3939396462623137643934316165653865393131643763390a393039306337323638323362613830

34313765343462383533363936316231346231303030373830646638353066373632373766623537

6634636330663663640a653730343433636431353364626138653532626131366566636439666466

66653732653764616436306439363165656265306336653063343465313235393237323938653938

33356633633130626663663264643030336261363339616433363134336538636237303532633262

65396433643062326136383633343733383164633939643465623834663932366632396136303066

33626334386436323031306336303135323337626432633863313431396431353639383933383563

39643665653733633035653132633831393539386166613933323736633164643063

### Step 4

Use view command to unencrypt and view the file.

siduser150@toolkit ~/ansible-f5-labs # **ansible-vault view group\_vars/all.yaml**

Vault password:

f5\_username: admin

f5\_password: Mys1dlabspw!

web\_username: centos

web\_key: ~/.ssh/network-key.pem

### Step 6

Use rekey command to change the file encryption key.

siduser150@toolkit ~/ansible-f5-labs # **ansible-vault rekey group\_vars/all.yaml**

Vault password:

New Vault password:

Confirm New Vault password:

Rekey successful

### Step 7

Use the “- - help” command to see what other options are available. Also review the ansible-vault documentation. <https://docs.ansible.com/ansible/latest/user_guide/vault.html#vault-ids-and-multiple-vault-passwords>

siduser150@toolkit ~/ansible-f5-labs # **ansible-vault --help**

Lab 1.2: Gather data from F5

### Step 1:

Look at the file called 1.2.1-bigip-facts.yaml.

siduser250@toolkit ~/ansible-f5-labs **# cat 1.2.1-bigip-facts.yaml**

**---**

**- name: GRAB F5 FACTS**

**hosts: f5**

**connection: local**

**gather\_facts: false**

**<< output omitted >>**

### Step 2:

Ansible playbooks are YAML files. The extension for these files is typically, yml or yaml. YAML is a structured encoding format that is also extremely human readable.

**---** - at the top of the file indicates that this is the start of the YAML file.

**hosts: f5** - indicates the play is run only on the F5 BIG-IP device

**connection: local** - tells the playbook to run locally (rather than SSHing to itself)

**gather\_facts: no** - disables facts gathering. We are not using any fact variables for this playbook.

Step 3:

Run the playbook:

siduser250@toolkit ~/ansible-f5-labs # **ansible-playbook 1.2.1-bigip-facts.yaml --ask-vault-pass**

**<< output omitted >>**

Step 4:

Review the output and see what information is in the output. Notice the formatting is in JSON format.

Step 5:

Look at the file called 1.2.2-bigip-filter-facts.yaml.

siduser250@toolkit ~/ansible-f5-labs **# cat 1.2.2-bigip-filter-facts.yaml**

**<< output omitted >>**

Step 6:

Review the output and see what information is in the output. Notice:

**var: device\_facts['system\_info']['base\_mac\_address']**

and

**var: device\_facts['system\_info']['product\_version']**

**device\_facts** – This is the register variable created for the output of the information gathered by the bigip\_device\_info module

**system\_info** – This is the parent level of the JSON output of the information gathered by the bigip\_device\_info module

**base\_mac\_address** and **product\_version** – are the variable used to store the specific information

Step 7:

Run the playbook:

siduser250@toolkit ~/ansible-f5-labs # **ansible-playbook 1.2.2-bigip-filter-facts.yaml --ask-vault-pass**

**<< output omitted >>**

Bonus Exercise

For this bonus exercise add the following to the 1.2.2-bigip-filter-facts.yaml playbook

- name: DISPLAY COMPLETE BIG-IP SYSTEM INFORMATION

debug:

var: device\_facts

tags: debug

Note the “tags: debug: parameter (at the task level). Tags allow for flexibility when running playbooks.

Also add a facts tag to the gather facts play. Your play should look like the screenshot below:

A screenshot of a social media post

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Now re-run the playbook with the --skip-tags-debug command line option.

**ansible-playbook 1.2.2-bigip-filter-facts.yaml --ask-vault-pass --skip-tags=debug**

**ansible-playbook 1.2.2-bigip-filter-facts.yaml --ask-vault-pass --tags=facts,debug**

The Ansible Playbook will only run three tasks, skipping the DISPLAY COMPLETE BIG-IP SYSTEM INFORMATION task.

### Lab 1.3: Adding nodes to F5

### Step 1:

Look at the file called 1.3-bigip-node.yaml

siduser250@toolkit ~/ansible-f5-labs **# cat 1.3-bigip-node.yaml**

---

- name: BIG-IP SETUP

hosts: lb

connection: local

gather\_facts: false

tasks:

- name: CREATE NODES

bigip\_node:

provider:

server: "{{ ansible\_host }}"

user: "{{ f5\_username }}"

password: "{{ f5\_password }}"

server\_port: 8443

validate\_certs: false

host: "{{ hostvars[item].private\_ip }}"

name: "{{ hostvars[item].inventory\_hostname }}"

loop: "{{ groups['webservers'] }}"

### Step 2:

Review the output and see what information is in the output.

**name: CREATE NODES -** is a user defined description that will display in the terminal output

**bigip\_node:** - The module we are going to use. Everything except loop is a module parameter defined on the module documentation page.

**provider:** - is a group of connection details for the BIG-IP

**server: "{{ ansible\_host }}"** - tells the module to connect to the F5 BIG-IP

**user: "{{ f5\_username }}"** - the username to login to the F5 BIG-IP device with

**password: "{{ f5\_password }}"** - the password to login to the F5 BIG-IP device with

**server\_port: 8443** - the port to connect to the F5 BIG-IP device with

**host: "{{ hostvars[item].private\_ip }}"** - add a web server IP address already defined in our inventory

**name: "{{ hostvars[item].inventory\_hostname** }}" - use the inventory\_hostname as the name (which will be web1 and web2)

**validate\_certs: "no"** - do not validate SSL certificates. This is just used for demonstration purposes since this is a lab

**loop: "{{ groups['webservers'] }}"** - tells the task to loop over the webservers group. The list in this case includes two hosts.

Step 3:

Run the playbook:

siduser250@toolkit ~/ansible-f5-labs # **ansible-playbook 1.3-bigip-node.yaml --ask-vault-pass**

**<< output omitted >>**

Step 4:

Verifying that the playbook did what you expected. Login to the F5 with your web browser to see what was configured. Grab the IP information for the F5 load balancer from the lab\_inventory/hosts file and type it in like so: **https://<<siduserID>>.f5.mysidlabs.com:8443/**

Login information for the BIG-IP:

username: admin

password: found in the vault file

The list of nodes can be found by navigating the menu on the left. Click on Local Traffic-> then click on Nodes.

### Lab 1.4: Adding a load balancing pool

### Step 1:

Look at the file called 1.4-bigip-pool.yaml

siduser250@toolkit ~/ansible-f5-labs **# cat 1.4-bigip-pool.yaml**

---

- name: BIG-IP SETUP

hosts: lb

connection: local

gather\_facts: false

tasks:

- name: CREATE POOL

bigip\_pool:

provider:

server: "{{ ansible\_host }}"

user: "{{ f5\_username }}"

password: "{{ f5\_password }}"

server\_port: 8443

validate\_certs: false

name: "http\_pool"

lb\_method: "round-robin"

monitors: "/Common/http"

monitor\_type: "and\_list"

### Step 2:

Review the output and see what information is in the output.

**bigip\_pool:** - the module we are going to use

**name: "http\_pool"** - tells the module to create a pool named http\_pool

**lb\_method: "round-robin"** - the load balancing method will be round-robin. A full list of methods can be found on the documentation page for bigip\_pool

**monitors: "/Common/http"** - the http\_pool will only look at http traffic

**monitor\_type: "and\_list"** - ensures that all monitors are checked

Step 3:

Run the playbook:

siduser250@toolkit ~/ansible-f5-labs # **ansible-playbook 1.4-bigip-pool.yaml --ask-vault-pass**

**<< output omitted >>**

Step 4:

Verifying that the playbook did what you expected. Login to the F5 with your web browser to see what was configured.

The load balancer pool can be found by navigating the menu on the left. Click on Local Traffic-> then click on Pools.

### Lab 1.5: Adding members to a pool

### Step 1:

Look at the file called 1.5-bigip-pool-members.yaml

siduser250@toolkit ~/ansible-f5-labs **# cat 1.5-bigip-pool-members.yaml**

---

- name: BIG-IP SETUP

hosts: lb

connection: local

gather\_facts: false

tasks:

- name: ADD POOL MEMBERS

bigip\_pool\_member:

provider:

server: "{{ ansible\_host }}"

user: "{{ f5\_username }}"

password: "{{ f5\_password }}"

server\_port: 8443

validate\_certs: false

state: "present"

name: "{{ hostvars[item].inventory\_hostname }}"

host: "{{ hostvars[item].private\_ip }}"

port: "80"

pool: "http\_pool"

loop: "{{ groups['webservers'] }}"

### Step 2:

Review the output and see what information is in the output.

**bigip\_pool\_member:** - the module we are going to use

**state: "present"** - tells the module we want this to be added

**name: "{{hostvars[item].inventory\_hostname}}"** - parameter tells the module to use the inventory\_hostname as the name (which will be web1 and web2).

**host: "{{hostvars[item].private\_ip}}"** - add web server IP address already defined in our inventory

**port: "80"** - pool member port

**pool: "http\_pool"** - put this node into a pool named http\_pool

**loop: "{{ groups['webservers'] }}"** - loop over the list of webservers

Step 3:

Run the playbook:

siduser250@toolkit ~/ansible-f5-labs # **ansible-playbook 1.5-bigip-pool-members.yaml --ask-vault-pass**

**<< output omitted >>**

Step 4:

Verifying that the playbook did what you expected. Login to the F5 with your web browser to see what was configured.

The pool will now show two members (web1 and web2). Click on Local Traffic-> then click on Pools. Click on http\_pool to get more granular information. Click on the Members tab in the middle to list all the Members.

### Lab 1.6: Adding a virtual server

### Step 1:

Look at the file called 1.6-bigip-virtual-server.yaml

siduser250@toolkit ~/ansible-f5-labs **# cat 1.6-bigip-virtual-server.yaml**

---

- name: BIG-IP SETUP

hosts: lb

connection: local

gather\_facts: false

tasks:

- name: ADD VIRTUAL SERVER

bigip\_virtual\_server:

provider:

server: "{{ ansible\_host }}"

user: "{{ f5\_username }}"

password: "{{ f5\_password }}"

server\_port: 8443

validate\_certs: false

name: "vip"

destination: "{{ private\_ip }}"

port: "443"

enabled\_vlans: "all"

all\_profiles: ['http', 'clientssl', 'oneconnect']

pool: "http\_pool"

snat: "Automap"

### Step 2:

Review the output and see what information is in the output.

**bigip\_virtual\_server:** - the module we are using

**name: "vip"** - parameter tells the module to create a virtual server with name “vip”

**destination: "{{ private\_ip }}"** - IP address to assign for the virtual server

**port: "443"** - port the virtual server will be listening on

**enabled\_vlans: "all"** - which vlans the virtual server is enbaled on

**all\_profiles: ['http', 'clientssl', 'oneconnect']** – the profiles that are assigned to the virtuals server

**pool: "http\_pool"** - the pool to assigned to the virtual server

**snat: "Automap"** - In this module we are assigning it to be Automap which means the source address on the request that goes to the backend server will be the self-ip address of the BIG-IP

Step 3:

Run the playbook:

siduser250@toolkit ~/ansible-f5-labs # **ansible-playbook 1.6-bigip-virtual-server.yaml --ask-vault-pass**

**<< output omitted >>**

Step 4:

Verifying that the playbook did what you expected. Login to the F5 with your web browser to see what was configured.

The load balancer virtual server can be found by navigating the menu on the left, click on Local Traffic, then click on Virtual Server.

If everything looks good from an F5 standpoint, verifying the web servers

Each web server is already running apache. Exercises 1.1 through 1.5 have successfully setup the load balancer for the pool of web servers. Open up the public IP of the F5 load balancer in your web browser:

https://<<siduserID>>.f5.mysidlabs.com/

Each time you refresh the host will change between web1 and web2.

**Alternate Verification Method**

You can use the curl command on the jump station to access public IP. Since the entire website is loaded on the command line it is recommended to use something like **| grep** for a specific piece of the web page.

siduser250@toolkit ~/ansible-f5-labs # curl https:// <<siduserID>>.f5.mysidlabs.com:443 --insecure

siduser250@toolkit ~/ansible-f5-labs # curl https:// <<siduserID>>.f5.mysidlabs.com:443 --insecure

siduser250@toolkit ~/ansible-f5-labs # curl https:// <<siduserID>>.f5.mysidlabs.com:443 --insecure

### Lab 1.7: Adding and attaching an iRule to a virtual server

### Step 1:

Look at the file called 1.7-bigip-irule.yaml

siduser250@toolkit ~/ansible-f5-labs **# cat 1.7-bigip-irule.yaml**

---

- name: BIG-IP SETUP

hosts: lb

connection: local

gather\_facts: false

vars:

irules: ['irule1', 'irule2']

tasks:

- name: ADD iRules

bigip\_irule:

provider:

server: "{{ ansible\_host }}"

user: "{{ f5\_username }}"

password: "{{ f5\_password }}"

server\_port: 8443

validate\_certs: false

module: "ltm"

name: "{{ item }}"

content: "{{ lookup('file','{{item}}') }}"

with\_items: "{{ irules }}"

- name: ATTACH iRules TO VIRTUAL SERVER

bigip\_virtual\_server:

provider:

server: "{{ ansible\_host }}"

user: "{{ f5\_username }}"

password: "{{ f5\_password }}"

server\_port: 8443

validate\_certs: false

name: "vip"

irules: "{{ irules }}"

### Step 2:

Review the output and see what information is in the output.

**irules: ['irule1', 'irule2']** - a list variable defined with two irules => 'irule1' and ‘irule2'

**bigip\_irule:** - the module we are using

**module: "ltm"** - the module that F5 uses for the iRule

**name: "{{ item }}"** - create an iRule with the name 'irule1' and 'irule2'

**content: "{{ lookup('file','{{item}}') }}"** - content to add to the iRule using the lookup plugin

**bigip\_virtual\_server:** - the second module we are using

**name: "vip"** - name of the vip to assign irule to

**irules: "{{ irules }}"** - list of irules to attach to vip

### Step 3:

Look at the file called 1.7.1-irule1 and 1.7.2-irule2

siduser250@toolkit ~/ansible-f5-labs **# cat irule1**

when HTTP\_REQUEST {

log local0. "Accessing iRule1"

}

siduser250@toolkit ~/ansible-f5-labs **# cat irule2**

when HTTP\_REQUEST {

if { [HTTP::uri] ends\_with "web1" } {

HTTP::uri "/"

pool http\_pool member 172.31.19.21 80

} elseif { [HTTP::uri] ends\_with "web2" } {

HTTP::uri "/"

pool http\_pool member 172.31.20.204 80

} else {

pool http\_pool

}

}

The irule files are formatted for the F5. These tell the F5 to log locally when there is an http request.

Step 4:

Run the playbook:

siduser250@toolkit ~/ansible-f5-labs # **ansible-playbook 1.7-bigip-irule.yaml --ask-vault-pass**

**<< output omitted >>**

Step 5:

Verifying that the playbook did what you expected. Login to the F5 with your web browser to see what was configured.

The list of iRules can be found by navigating the menu on the left. Click on Local Traffic-> iRules -> iRules List.

To view the Virtual Server click on Local Traffic-> Virtual Servers, click on the Virtual Server then click on the 'resoruces' tab and view the iRules attached to the Virtual Server

Step 6:

Test iRule functionality by opening web browser and going to and validating that you get to the correct web server

https://<<siduserID>>.f5.mysidlabs.com/web1

https://<<siduserID>>.f5.mysidlabs.com/web2

### Lab 1.8: Save the running configuration

### Step 1:

Look at the file called 1.8-bigip-virtual-server.yaml

siduser250@toolkit ~/ansible-f5-labs **# cat 1.8-bigip-config.yaml**

---

- name: BIG-IP SETUP

hosts: lb

connection: local

gather\_facts: false

tasks:

- name: SAVE RUNNING CONFIG ON BIG-IP

bigip\_config:

provider:

server: "{{ private\_ip }}"

user: "{{ f5\_username }}"

password: "{{ f5\_password }}"

server\_port: 8443

validate\_certs: false

save: true

### Step 2:

Review the output and see what information is in the output.

**bigip\_config:** - the module we are using

**save: true** - tells the module to save the running-config to startup-config. This operation is performed after any changes are made to the current running config. If no changes are made, the configuration is still saved to the startup config. This option will always cause the module to return changed

Step 3:

Run the playbook:

siduser250@toolkit ~/ansible-f5-labs # **ansible-playbook 1.8-bigip-config.yaml --ask-vault-pass**

**<< output omitted >>**

Step 4:

Verifying that the playbook did what you expected. Login to the F5 with your web browser to see that the configuration was saved.

## Part 3: F5 operational labs

Lab 2.0: Disabling a pool member

### Step 1:

### Decrypt the vault

siduser150@toolkit ~/ansible-f5-labs # **ansible-vault decrypt group\_vars/all.yaml**

Vault password: password

Decryption successful

### Step 2:

Look at the file called 2.0-bigip-disable-pool-member.yaml

siduser250@toolkit ~/ansible-f5-labs **# cat 2.0-bigip-disable-pool-member.yaml**

---

- name: "Disabling a pool member"

hosts: lb

gather\_facts: false

connection: local

vars\_prompt:

- name: "username"

prompt: "Enter Username:"

private: no

default: "admin"

- name: "lb\_password"

prompt: "Enter User Password:"

private: yes

default: "Mys1dlabspw!"

tasks:

- name: Setup provider

set\_fact:

provider:

server: "{{ ansible\_host }}"

user: "{{ username }}"

password: "{{ lb\_password }}"

server\_port: "8443"

validate\_certs: "no"

- name: Query BIG-IP facts

bigip\_device\_info:

provider: "{{ provider }}"

gather\_subset:

- ltm-pools

register: bigip\_facts

- name: Display Pools available

debug: "msg={{ item.name }}"

loop: "{{ bigip\_facts.ltm\_pools }}"

loop\_control:

label: "{{ item.name }}"

- name: Store pool name in a variable

set\_fact:

pool\_name: "{{ item.name }}"

loop: "{{ bigip\_facts.ltm\_pools }}"

no\_log: true

- name: "Show members belonging to pool {{ pool\_name }}"

debug: "msg={{ item }}"

loop: "{{ bigip\_facts.ltm\_pools | json\_query(query\_string) }}"

vars:

query\_string: "[?name=='{{ pool\_name }}'].members[\*].name[]"

- pause:

prompt: "To disable a particular member enter member with format member\_name:port \nTo disable all members of the pool enter 'all'"

register: member\_name

- name: Disable ALL pool members

bigip\_pool\_member:

provider: "{{ provider }}"

state: "forced\_offline"

name: "{{ item.split(':')[0] }}"

pool: "{{ pool\_name }}"

port: "{{ item.split(':')[1] }}"

host: "{{ hostvars[item.split(':')[0]].ansible\_host }}"

loop: "{{ bigip\_facts.ltm\_pools | json\_query(query\_string) }}"

vars:

query\_string: "[?name=='{{ pool\_name }}'].members[\*].name[]"

when: '"all" in member\_name.user\_input'

- name: Disable pool member {{ member\_name.user\_input }}

bigip\_pool\_member:

provider: "{{ provider }}"

state: "forced\_offline"

name: "{{ member\_name.user\_input.split(':')[0] }}"

pool: "{{ pool\_name }}"

port: "{{ member\_name.user\_input.split(':')[1] }}"

host: "{{ hostvars[member\_name.user\_input.split(':')[0]].ansible\_host }}"

when: '"all" not in member\_name.user\_input'

### Step 3:

Review the output and see what information is in the output.

**vars\_prompt:** - this section is used to prompt the user for input. In this case we will be asking for username and password.

NOTE: Setting the default parameter for username and password prompts is a very bad idea. They are used here for simplicity in a lab environment that gets erased.

**set\_fact:** - this section is to store the login information for the F5 in a variable that every module can use. This eliminates the need to duplicate this information for every module

**loop\_control:** - used to limit the output displayed on cli. When looping over complex data structures, the console output of your task can be enormous

**no\_log: true** - keep sensitive values out of your logs

**pause:** - pauses the running of the playbook. Can be used to pause for a specific amount of time or to ask for user input

**when:** - runs the task, or group of tasks when used with block: when conditions are met

Step 4:

Run the playbook:

siduser250@toolkit ~/ansible-f5-labs # **ansible-playbook 2.0-bigip-disable-pool-member.yaml**

**<< output omitted >>**

Step 5:

Verifying that the playbook did what you expected. Login to the F5 with your web browser to see what was configured.

The load balancer pool can be found by navigating the menu on the left. Click on Local Traffic-> then click on Pools ->then http\_pool->then Members

### Lab 2.1: Deleting F5 configuration

### Step 1:

Look at the file called 2.1-bigip-pool-members.yaml

siduser250@toolkit ~/ansible-f5-labs **# cat 2.1-bigip-delete-configuration.yaml**

---

- name: BIG-IP TEARDOWN

hosts: lb

connection: local

gather\_facts: false

vars\_prompt:

- name: "username"

prompt: "Enter Username:"

private: no

default: "admin"

- name: "lb\_password"

prompt: "Enter User Password:"

private: yes

default: "Mys1dlabspw!"

tasks:

- name: Setup provider

set\_fact:

provider:

server: "{{ private\_ip }}"

user: "{{ username }}"

password: "{{ lb\_password }}"

server\_port: "8443"

validate\_certs: "no"

- name: DELETE VIRTUAL SERVER

bigip\_virtual\_server:

provider: "{{ provider }}"

name: "vip"

state: absent

- name: DELETE POOL

bigip\_pool:

provider: "{{ provider }}"

name: "http\_pool"

state: absent

- name: DELETE NODES

bigip\_node:

provider: "{{ provider }}"

name: "{{ hostvars[item].inventory\_hostname }}"

state: absent

loop: "{{ groups['webservers'] }}"

### Step 2:

Review the output and see what information is in the output.

Step 3:

Run the playbook:

siduser250@toolkit ~/ansible-f5-labs # **ansible-playbook 2.1-bigip-delete-configuration.yaml**

**<< output omitted >>**

Step 4:

Verifying that the playbook did what you expected. Login to the F5 with your web browser to see what was configured.

Navigate the menu on the left and view that the configuration has been deleted:

Local Traffic Manager -> Virtual Server

Local Traffic Manager -> Pool

Local Traffic Manager -> Node

## Lab 2.2: Error handling

### Step 1:

Look at the file called 2.2-bigip-error-handling.yaml

siduser250@toolkit ~/ansible-f5-labs **# cat 2.2-bigip-error-handling.yaml**

---

- name: BIG-IP SETUP

hosts: lb

connection: local

gather\_facts: false

vars\_prompt:

- name: "username"

prompt: "Enter Username:"

private: no

default: "admin"

- name: "lb\_password"

prompt: "Enter User Password:"

private: yes

default: "Mys1dlabspw!"

tasks:

- name: Setup provider

set\_fact:

provider:

server: "{{ private\_ip }}"

user: "{{ username }}"

password: "{{ lb\_password }}"

server\_port: "8443"

validate\_certs: "no"

- name: SETUP AND GRACEFUL ROLLBACK BIG-IP CONFIGURATION

block:

- name: CREATE NODES

bigip\_node:

provider: "{{ provider }}"

host: "{{ hostvars[item].ansible\_host }}"

name: "{{ hostvars[item].inventory\_hostname }}"

loop: "{{ groups['webservers'] }}"

- name: CREATE POOL

bigip\_pool:

provider: "{{ provider }}"

name: "http\_pool"

lb\_method: "round-robin"

monitors: "/Common/http"

monitor\_type: "and\_list"

- name: ADD POOL MEMBERS

bigip\_pool\_member:

provider: "{{ provider }}"

state: "present"

name: "{{ hostvars[item].inventory\_hostname }}"

host: "{{ hostvars[item].ansible\_host }}"

port: "80"

pool: "http\_pool"

loop: "{{ groups['webservers'] }}"

- name: ADD VIRTUAL SERVER

bigip\_virtual\_server:

provider: "{{ provider }}"

name: "vip"

destination: "{{ private\_ip }}"

port: "443"

enabled\_vlans: "all"

all\_profiles: ['http', 'clientssl', 'oneconnect']

pool: "http\_pool"

snat: "Automap1"

rescue:

- name: DELETE VIRTUAL SERVER

bigip\_virtual\_server:

provider: "{{ provider }}"

name: "vip"

state: absent

- name: DELETE POOL

bigip\_pool:

provider: "{{ provider }}"

name: "http\_pool"

state: absent

- name: DELETE NODES

bigip\_node:

provider: "{{ provider }}"

name: "{{ hostvars[item].inventory\_hostname }}"

state: absent

loop: "{{ groups['webservers'] }}"

always:

- name: SAVE RUNNING CONFIGURATION

bigip\_config:

provider: "{{ provider }}"

save: true

### Step 2:

Review the output and see what information is in the output.

**block:** - used to create logical grouping of tasks

**rescue:** - if there is a task error in the main [block](https://docs.ansible.com/ansible/latest/reference_appendices/playbooks_keywords.html#term-block) do the following tasks

**always:** - execute tasks no matter if there is an error in the main block or not.

Step 3:

Run the playbook:

siduser250@toolkit ~/ansible-f5-labs # **ansible-playbook 2.2-bigip-error-handling.yaml**

**<< output omitted >>**

Step 4:

## You will see that the playbook will try and configure the Virtual Server, Pool and Nodes but that there is failure and the 'rescue' block runs

Bonus:

Based on the above information and the output from the play fix the playbook, execute the playbook and verify that everything is working as expected.

## Part 4: F5 AS3 labs

Lab 3.0: Intro to AS3

### Step 1:

**Make sure the BIG-IP configuration is clean, run exercise 2.1 delete-configuration before proceeding**

siduser250@toolkit ~/ansible-f5-labs # **ansible-playbook 2.1-bigip-delete-configuration.yaml**

**<< output omitted >>**

### Step 2:

Download AS3 RPM at

https://github.com/F5Networks/f5-appsvcs-extension/releases/download/v3.22.0/f5-appsvcs-3.22.0-2.noarch.rpm

### Step 3:

Install AS3

Login to the F5 BIG-IP through your web browser.

Click on the iApps button, Click the Package Management LX, Click the Import… button

A picture containing screenshot

Description automatically generated

Click Browse… button, Select the RPM, Click the Upload button, then wait for upload to finish

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Make sure that f5-appsvcs is installed. You may need too refresh the screen a few times.

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If this is not working, please ask your instructor for help.

### Step 4:

Before starting we look at the Playbooks, it is important to understand how AS3 works. AS3 requires a JSON template to be sent as an API call to the F5. You do not need to fully understand every parameter or create these templates from scratch.

Look at the file called 30\_as3\_template.j2

siduser250@toolkit ~/ansible-f5-labs **# cat 30\_as3\_template.j2**

{

"class": "AS3",

"action": "deploy",

"persist": false,

"declaration": {

"class": "ADC",

"schemaVersion": "3.22.0",

"id": "123abc",

"label": "Sample 2",

"remark": "HTTPS with round robin pool",

"{{ tenant\_name }}": {

"class": "Tenant",

"A1": {

"class": "Application",

"service": {

"class": "Service\_HTTPS",

"virtualAddresses": [

"{{ private\_ip }}"

],

"profileMultiplex": {

"bigip": "/Common/oneconnect"

},

"pool": "web\_pool",

"persistenceMethods": [],

"serverTLS": "webtls"

},

"web\_pool": {

"class": "Pool",

"loadBalancingMode": "round-robin",

"monitors": [

"http"

],

"members": [{

"servicePort": 443,

"serverAddresses": [

{% set comma = joiner(",") %}

{% for mem in pool\_members %}

{{comma()}} "{{ hostvars[mem]['ansible\_host'] }}"

{% endfor %}

]

**<< output omitted >>**

This template is a JSON representation of the Web Application. The important parts to note are:

The template is a Jinja2 template which allows us to use variables. In this case we have a few variable such as "{{ tenant\_name }}" and "{{ private\_ip }}"

The jinja2 template can use loops to grab all the pool members (which points to our web servers group).

### Step 4:

Look at the file called 3.0-as3.yaml

siduser250@toolkit ~/ansible-f5-labs **# cat 3.0-as3.yaml**

---

- name: AS3

hosts: lb

connection: local

gather\_facts: false

vars:

pool\_members: "{{ groups['webservers'] }}"

vars\_prompt:

- name: "tenant\_name"

prompt: "Enter the Tenant name:"

private: no

default: "WorkshopExample"

tasks:

- name: Push AS3

uri:

url: "https://{{ ansible\_host }}:8443/mgmt/shared/appsvcs/declare"

method: POST

body: "{{ lookup('template', '30\_as3\_template.j2', split\_lines=False) }}"

status\_code: 200

timeout: 300

body\_format: json

force\_basic\_auth: true

user: "{{ username }}"

password: "{{ lb\_password }}"

validate\_certs: false

### Step 5:

Review the output and see what information is in the output.

**connection:** - local tells the Playbook to run locally (rather than SSHing to itself)

**uri:** - this task is calling the uri module

**url: "https://{{ ansible\_host }}:8443/mgmt/shared/appsvcs/declare"** - webURL (API) for AS3

**method: POST** - HTTP method of the request, must be uppercase. Module documentation page has list of all options.

**body: "{{ lookup('template','j2/ as3\_template.j2', split\_lines=False) }}"** - This passed the template as the body for the API request

**status\_code: 200** - A valid, numeric, HTTP status code that signifies success of the request. This can be comma separated list of status codes. In this instance we use 200 which means OK, this is a standard response for successful HTTP requests

Step 3:

Run the playbook:

siduser250@toolkit ~/ansible-f5-labs # **ansible-playbook 3.0-as3.yaml**

**<< output omitted >>**

Step 4:

Login to the F5 with your web browser to see what was configured.

Click on the Local Traffic on the left-hand menu

Click on Virtual Servers.

On the top right, click on the drop-down menu titled Partition and select WorkshopExample, or whatever tenant name you used

The Virtual Server will be displayed.

Check Pools for app\_pool

Notice that it is not working.

### Lab 3.1: Operational changes with AS3

Step 1:

Login to the F5 with your web browser to see what was configured.

Click on the Pools under Local Traffic

Click on web\_pool

Click on the Members button

Look at the Service Port for each web server

The port 443 is incorrect. The two web servers are only running on port 80. This is why they are showing down.

### Step 2:

We need to get this up and working so we need to make sure that we are using port 80 not 443. Start by looking at the file called 31\_as3\_template.j2

siduser250@toolkit ~/ansible-f5-labs **# cat 31\_as3\_template.j2**

**<< output omitted >>**

"web\_pool": {

"class": "Pool",

"loadBalancingMode": "round-robin",

"monitors": [

"http"

],

"members": [{

**"servicePort": 80,**

"serverAddresses": [

{% set comma = joiner(",") %}

{% for mem in pool\_members %}

{{comma()}} "{{ hostvars[mem]['ansible\_host'] }}"

{% endfor %}

]

**<< output omitted >>**

While understanding the F5 AS3 JSON is out of scope for this class we can see that the servicePort parameter under the members section is set to port 80 instead of port 443 like it was in the 3.0 lab. To find out more about the AS3 formatting an option you can look at the F5 documentation:

<https://clouddocs.f5.com/products/extensions/f5-appsvcs-extension/latest/>

### Step 3:

Look at the file called 3.1-as3.yaml

siduser250@toolkit ~/ansible-f5-labs **# cat 3.1-as3.yaml**

**<< output omitted >>**

### Step 4:

Run the playbook:

siduser250@toolkit ~/ansible-f5-labs # **ansible-playbook 3.1-as3.yaml**

Step 5:

Verifying that the playbook did what you expected. Login to the F5 with your web browser to see what was configured.

Click on the Local Traffic on the left-hand menu

Click on Virtual Servers.

On the top right, click on the drop-down menu titled Partition and select WorkshopExample, or whatever tenant name you used

The Virtual Server will be displayed.

This time it will be Green (Available (Enabled) - The virtual server is available)

Check Pools for app\_pool that both web servers are set to port 80 for their service\_port

If everything looks good from an F5 standpoint, verifying the web servers

Open up the public IP of the F5 load balancer in your web browser:

https://<<siduserID>>.f5.mysidlabs.com/

Each time you refresh the host will change between web1 and web2.

Alternate Verification Method

You can use the curl command on the jump station to access public IP

siduser250@toolkit ~/ansible-f5-labs # curl https:// <<siduserID>>.f5.mysidlabs.com:443 --insecure

siduser250@toolkit ~/ansible-f5-labs # curl https:// <<siduserID>>.f5.mysidlabs.com:443 --insecure

siduser250@toolkit ~/ansible-f5-labs # curl https:// <<siduserID>>.f5.mysidlabs.com:443 --insecure

**<< output omitted >>**

## Lab 3.2: Deleting a web application

### Step 1:

Look at the file called 3.2-as3-delete.yaml

siduser250@toolkit ~/ansible-f5-labs **# cat 3.2-as3-delete.yaml**

---

- name: AS3

hosts: lb

connection: local

gather\_facts: false

vars\_prompt:

- name: "tenant\_name"

prompt: "Enter the Tenant name:"

private: no

default: "WorkshopExample"

tasks:

- name: Remove Tenant AS3

uri:

url: "https://{{ ansible\_host }}:8443/mgmt/shared/appsvcs/declare/{{ tenant\_name }}"

method: DELETE

status\_code: 200

timeout: 300

body\_format: json

force\_basic\_auth: true

user: "{{ username }}"

password: "{{ lb\_password }}"

validate\_certs: false

### Step 2:

Review the output and see what information is in the output.

**method: DELETE** – this tells AS3 to delete the tenant

Step 3:

Run the playbook:

siduser250@toolkit ~/ansible-f5-labs # **ansible-playbook 3.2-as3-delete.yaml**

**<< output omitted >>**

Step 4:

Verifying that the playbook did what you expected. Login to the F5 with your web browser to see that the configuration was saved.

## Part 5: Tower labs

Lab 4.0: Explore Ansible Tower

### Step 1:

Open web browser and go to [https://tower.mysidlabs.com](https://tower.mysidlabs.com/) and enter in your username and password.

A screenshot of a cell phone

Description automatically generated

### Step 2:

Once logged in explore the interface

A screenshot of a computer

Description automatically generated

### Step 3:

Click on the “i” information button on the top right of the user interface.



You will get something similar to the following:

A picture containing bird, flower

Description automatically generated

### Step 4:

Click on the Inventories Tab on the left side of the page

A close up of a logo

Description automatically generated

Click on Network-Lab-Instructor-Inventory



You will see the following

A screenshot of a cell phone

Description automatically generated

### Step 5:

Click on the Projects Tab on the left side of the page. Note that projects point to your source code repository where your playbooks exist.



Click on any of the available project. Below I selected Instructor-ansible-network-labs as an example, but it may not exist when you do this.



You will see the following

A screenshot of a cell phone

Description automatically generated

### Step 6:

Click on the Credentials Tab on the left side of the page

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Description automatically generated

Type network in the search field and click on the magnifying glass icon

A screenshot of a cell phone

Description automatically generated

Click on network-lab-key



You will see the following

A screenshot of a cell phone

Description automatically generated

### Step 7:

Click on the Templates Tab on the left side of the page

A picture containing table

Description automatically generated

Click on any of the available templates. Below I selected Instructor-SNMP as an example, but it may not exist when you do this.



You will see the following

A screenshot of a computer

Description automatically generated

### Lab 4.1: Create an Ansible Tower job template

### Step 1:

Create a Credential

Click on Credentials section using the left navigation bar.

A close up of a logo

Description automatically generated

Click on the green plus button on the right-hand side to create a new Credential

templates link

Fill out the following fields as follows, and click SAVE

|  |  |
| --- | --- |
| Name | <<siduserID>>.f5.mysidlabs.com |
| Credential Type | Network |
| Username | admin |
| Password | Mys1dlabspw! |

A screenshot of a cell phone

Description automatically generated

### Step 2:

Create a Project

Click on Projects section using the left navigation bar.

A picture containing table

Description automatically generated

Click on the green plus button on the right-hand side

templates link

Fill out the following fields as follows, and click SAVE

|  |  |
| --- | --- |
| Name | <<siduserID>>.f5.mysidlabs.com |
| Organization | sid-org |
| SCM Type | git |
| SCM URL | https://github.com/<<your-github-user>>/ansible-f5-labs |
| Clean/Delete on Update/  Update Revision on Launch | Checked |

A screenshot of a cell phone

Description automatically generated

### Step 3:

Create an Inventory

Click on Inventories section using the left navigation bar.

A close up of a logo

Description automatically generated

Click on the green plus button on the right-hand side and click Inventory to create a new inventory

A picture containing clock

Description automatically generated

Fill out the following fields and click SAVE

|  |  |
| --- | --- |
| Name | <<siduserID>>.f5.mysidlabs.com |
| Organization | sid-org |

A screenshot of a cell phone

Description automatically generated

Click on the Sources tab, click the green plus button

A screenshot of a cell phone

Description automatically generated

Fill out the following fields and click SAVE

|  |  |
| --- | --- |
| Name | <<siduserID>>.f5.mysidlabs.com |
| Source | Amazon EC2 |
| Credentials | aws-api |
| Regions | US East Ohio |
| Instance Filters | tag:Name=F5-Lab-<<siduserID>>  ex: tag:Name=F5-Lab-siduser155 |
| Only Group By | Tags |
| Overwrite/Update on Launch | Checked |

A screenshot of a social media post

Description automatically generated

Click on the Sources link at the top left



Click on the green plus button on the right-hand side to add another source

A screenshot of a cell phone

Description automatically generated

Fill out the following fields and click SAVE

|  |  |
| --- | --- |
| Name | <<siduserID>>.web.mysidlabs.com |
| Source | Amazon EC2 |
| Credentials | aws-api |
| Regions | US East Ohio |
| Instance Filters | tag:Name=F5-Web\* |
| Only Group By | Tags |
| Overwrite/Update on Launch | Checked |

A screenshot of a social media post

Description automatically generated

Click on the <<siduserID>>.f5.mysidlabs.com link at the top left



Click on Hosts and verify you have 3 hosts

A screenshot of a cell phone

Description automatically generated

### Step 4:

Create a Job Template

Click on Inventories section using the left navigation bar.



Click on the green plus button on the right-hand side and click Job Template to create a new inventory

A screenshot of a cell phone

Description automatically generated

Fill out the following fields and click SAVE and then LAUNCH

|  |  |
| --- | --- |
| Name | <<siduserID>>.f5.mysidlabs.com |
| Job Type | Run |
| Inventory | <<siduserID>>.f5.mysidlabs.com |
| Project | <<siduserID>>.f5.mysidlabs.com |
| Playbook | 4.1-bigip-create-vs.yaml |
| Credentials | Select Credential Type: Network  <<siduserID>>.f5.mysidlabs.com |

A screenshot of a social media post

Description automatically generated

Examine the Details pane

A screenshot of a cell phone

Description automatically generated

### Step 4:

Verifying that the playbook did what you expected. Login to the F5 with your web browser to see what was configured.

Click on the Local Traffic on the left-hand menu

Click on Virtual Servers.

The Virtual Server will be displayed.

This time it will be Green (Available (Enabled) - The virtual server is available)

Check Pools for app\_pool that both web servers are set to port 80 for their service\_port

If everything looks good from an F5 standpoint, verifying the web servers

Open up the public IP of the F5 load balancer in your web browser:

https://<<siduserID>>.f5.mysidlabs.com/

Each time you refresh the host will change between web1 and web2.

Alternate Verification Method

You can use the curl command on the jump station to access public IP.

siduser250@toolkit ~/ansible-f5-labs # curl https:// <<siduserID>>.f5.mysidlabs.com:443 --insecure

siduser250@toolkit ~/ansible-f5-labs # curl https:// <<siduserID>>.f5.mysidlabs.com:443 --insecure

siduser250@toolkit ~/ansible-f5-labs # curl https:// <<siduserID>>.f5.mysidlabs.com:443 --insecure

**<< output omitted >>**

## Success - Congratulations.

## Picture 2095273455

**Appendix A:**

Useful resource links and information

Links:

Ansible Best Practices

<https://docs.ansible.com/ansible/latest/user_guide/playbooks_best_practices.html>

Ansible Network troubleshooting

<https://docs.ansible.com/ansible/latest/network/user_guide/network_debug_troubleshooting.html>

Ansible cli\_command module information

https://www.ansible.com/blog/deep-dive-on-cli-command-for-network-automation

Variable precedence

<https://docs.ansible.com/ansible/latest/user_guide/playbooks_variables.html#variable-precedence-where-should-i-put-a-variable>

Additional Notes:

* Remember YAML is very sensitive to correct indentation
* **Hostvars** allow us to access meta-data about our inventory hosts.
* The use of an Ansible role is best practice when there is a well-defined scope with a high possibility of re-use.
* If you copy and paste text for a playbook you may get indentation issues. Ansible provides a simple syntax checker, try ansible-playbook --syntax-check backup.yml to verify. A Best Practice is to use a linter, for example ansible-review. Ansible provides excellent online documentation, which is also available from the command line, for example ansible-doc ios\_config. For a full list of modules try ansible-doc –l
* There where multiple ways of implementing a playbook where specific tasks or groups of tasks execute against specific hosts. For example, we could have used 1 playbook for configuring every router in the lab utilizing the “when:” statement to ensure specific tasks are only applied to a specific router. Although this is not necessarily following best practices.
* The use of handlers: which can be used in any playbook. A handler is a special way of calling a task whenever an action needs to be taken after a previous task. For example, both installing and configuring an application may require a restart. A handler would be notified by both tasks but would only run once when the playbook finishes.