

Ansible F5 Agility 2021 Workshop

Overview

We make every effort to ensure the lab guide has step by step instructions to complete the tasks, however some topics are not covered in depth due to a lack of time. Throughout the labs we hope to share features, elements, good and bad practices to using Ansible Tower for Automation.

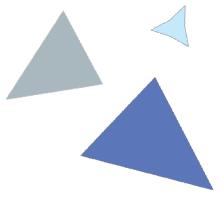
You will be required to modify some files during the course of this workshop. You will not be required to write your own playbooks. The playbooks used are open source and thus free to use and modify. That being said, writing playbooks and running them in a test environment is the best way to learn.

Outline

- Part 1: Getting setup
 - Fork Git Repo
 - Connect to Ansible Tower
 - Run a job to spin up your student F5 in AWS
 - Review the Ansible playbooks
 - Connecting to your student F5
- Part 2: Tower lab 1 (Imperative)
 - Connect to Ansible Tower
 - Explore Ansible Tower
 - Create a project
 - Create an inventory
 - Create job templates
 - Create a workflow
 - Add rescue logic to a workflow
- Part 3: Tower lab 2 – AS3 (Declarative)
 - Overview of AS3 Ansible Components
 - Create job templates

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.

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/f5-agility-2021-tower-labs>

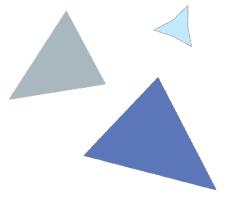
Step 3

Click on the Fork button in upper right.

The screenshot shows the GitHub repository page for 'mysidlabs / f5-agility-2021-tower-labs'. The repository is private. At the top, there are buttons for Watch (2), Star (0), and Fork (0). The Fork button is highlighted with a red box. Below the header, there are navigation links for Code, Issues, Pull requests, Actions, Projects, Security, Insights, and Settings. Under the 'Code' tab, it shows the main branch, 1 branch, and 0 tags. A list of recent commits includes: 'lonibble init' (38e8d21, 14 minutes ago, 83 commits), 'Lab1' (init, 1 hour ago), 'Lab2' (init, 1 hour ago), and 'F5 Agility 2021 - Tower lab ...' (Add files via upload, 17 minutes ago). On the right side, there's an 'About' section with the message 'No description, website, or topics provided.' and a 'Releases' section stating 'No releases published' with a link to 'Create a new release'.

Note: Once forked you can modify all files within GitHub





Connecting to Ansible Tower

Step 1

Open your web browser (Chrome or Firefox)

Step 2

Put the address of the lab Ansible Tower

<https://tower.mysidlabs.com>

Step 3

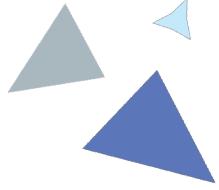
Login with your student ID and password provided in the chat window

The screenshot shows a login interface for the Red Hat Ansible Automation Platform. At the top left is the Red Hat logo and the text "Ansible Automation Platform". Below that is a red warning message: "⚠ You have been logged out. Please sign in.". There are two input fields: "USERNAME" with the value "siduser208" and "PASSWORD" with a redacted value. At the bottom right is a green "SIGN IN" button.

Step 4

Navigate to Templates and click the rocket ship icon next to “Student F5 Lab Self Setup”





TEMPLATES

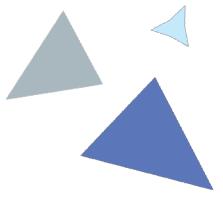
TEMPLATES 1

SEARCH  KEY

f5  CLEAR ALL

   ITEMS 1 - 1

| Student F5 lab Self Setup | Job Template | Actions |
|---------------------------|--------------|---|
| Student F5 lab Self Setup | Job Template |  |



Step 5

Enter your student ID number provided in chat and click next. Your student ID will be different than the below screenshot.

STUDENT F5 LAB SELF SETUP

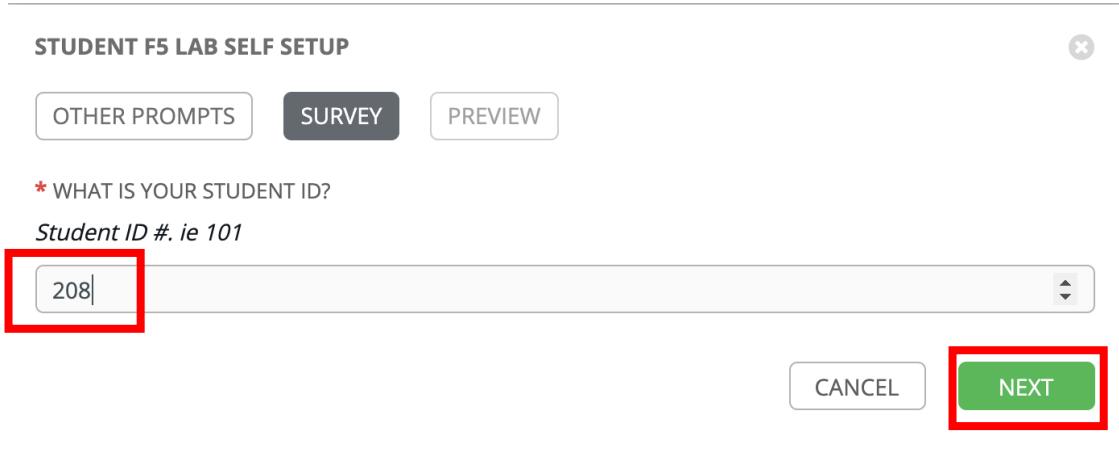
OTHER PROMPTS SURVEY PREVIEW

* WHAT IS YOUR STUDENT ID?

Student ID #. ie 101

208

CANCEL NEXT



Step 6

Click Launch

STUDENT F5 LAB SELF SETUP

OTHER PROMPTS SURVEY PREVIEW

JOB TYPE Playbook Run

CREDENTIAL aws-api

INVENTORY localhost-inventory

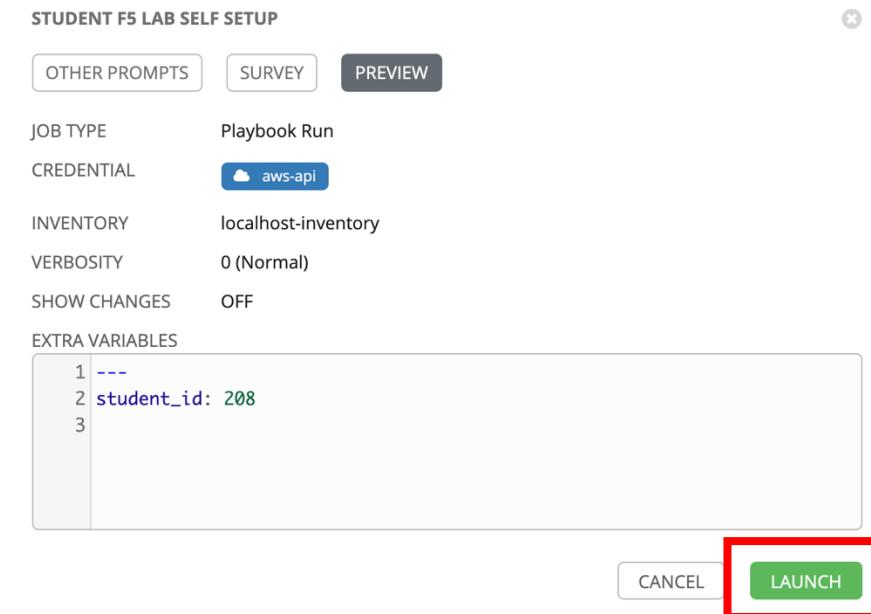
VERBOSITY 0 (Normal)

SHOW CHANGES OFF

EXTRA VARIABLES

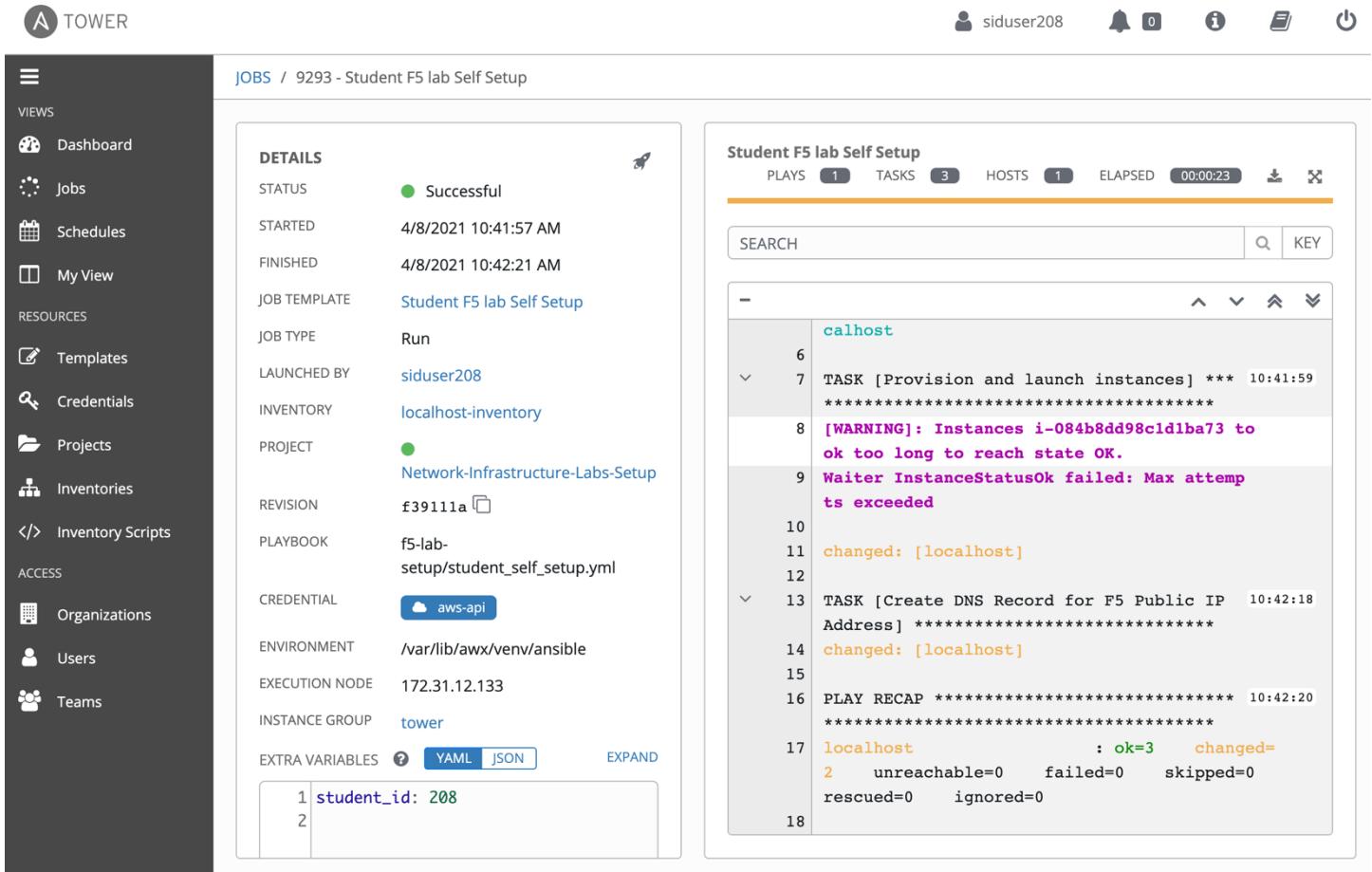
```
1 ---
2 student_id: 208
3
```

CANCEL LAUNCH



Step 7

Wait for a minute or so for the job to run, validate it was successful



The screenshot shows the Ansible Tower interface. On the left is a dark sidebar with navigation links: Views, Dashboard, Jobs, Schedules, My View, Templates, Credentials, Projects, Inventories, Inventory Scripts, Organizations, Users, and Teams. The main area has a header 'JOBS / 9293 - Student F5 lab Self Setup'. Below the header are two panels: 'DETAILS' on the left and the 'Student F5 lab Self Setup' log on the right.

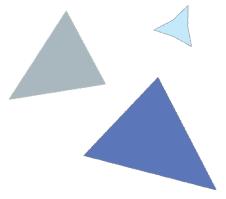
DETAILS

- STATUS: Successful
- STARTED: 4/8/2021 10:41:57 AM
- FINISHED: 4/8/2021 10:42:21 AM
- JOB TEMPLATE: Student F5 lab Self Setup
- JOB TYPE: Run
- LAUNCHED BY: siduser208
- INVENTORY: localhost-inventory
- PROJECT: Network-Infrastructure-Labs-Setup
- REVISION: f39111a
- PLAYBOOK: f5-lab-setup/student_self_setup.yml
- CREDENTIAL: aws-api
- ENVIRONMENT: /var/lib/awx/venv/ansible
- EXECUTION NODE: 172.31.12.133
- INSTANCE GROUP: tower
- EXTRA VARIABLES:
 - student_id: 208
 - 2

Student F5 lab Self Setup

| PLAYS | 1 | TASKS | 3 | HOSTS | 1 | ELAPSED | 00:00:23 | Download | X |
|--------|--|-------|---|-------|---|---------|----------|----------|---|
| SEARCH | Q | KEY | | | | | | | |
| - | | | | | | | | | |
| 6 | calhost | | | | | | | | |
| 7 | TASK [Provision and launch instances] *** 10:41:59 ***** | | | | | | | | |
| 8 | [WARNING]: Instances i-084b8dd98c1d1ba73 to ok too long to reach state OK. | | | | | | | | |
| 9 | Waiter InstanceStatusOk failed: Max attemp ts exceeded | | | | | | | | |
| 10 | | | | | | | | | |
| 11 | changed: [localhost] | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | TASK [Create DNS Record for F5 Public IP Address] *** 10:42:18 | | | | | | | | |
| 14 | changed: [localhost] | | | | | | | | |
| 15 | | | | | | | | | |
| 16 | PLAY RECAP ***** 10:42:20 ***** | | | | | | | | |
| 17 | localhost : ok=3 changed= 2 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0 | | | | | | | | |
| 18 | | | | | | | | | |





Review the Ansible Playbooks

Step 1

Open your web browser (Chrome or Firefox)

Step 2

Go to <https://github.com/mysidlabs/f5-agility-2021-tower-labs> or your forked version of this repo. Review the folder structure. Go to setup > deploy-student-instance.yml to review the code used to spin up the student F5's in AWS.

Tip: Cloud Init is your friend

<https://clouddocs.f5.com/cloud/public/v1/shared/cloudinit.html#cloudconfig-tmosdecl>



Connecting to your F5

Step 1

Open your web browser (Chrome or Firefox)

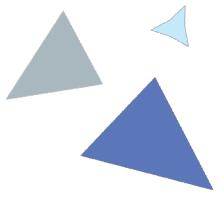
Step 2

Put the address of your F5 in the address bar including the port number 8443. **NOTE:** Your student F5 will have a different number!

<https://siduser155.f5.mysidlabs.com:8443>



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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

The screenshot shows the F5 BIG-IP Configuration Utility login interface. On the left, there is a sidebar with fields for Hostname (ip-172-31-13-240.us-east-2.compute.internal) and IP Address (172.31.13.240, which is highlighted with a red border). Below these are fields for Username and Password, both of which are currently empty and highlighted with yellow backgrounds. At the bottom of the sidebar is a 'Log in' button. The main right-hand panel displays a welcome message: 'Welcome to the BIG-IP Configuration Utility. Log in with your username and password using the fields on the left.'

Step 5

Login into the F5 BigIP

Username: admin

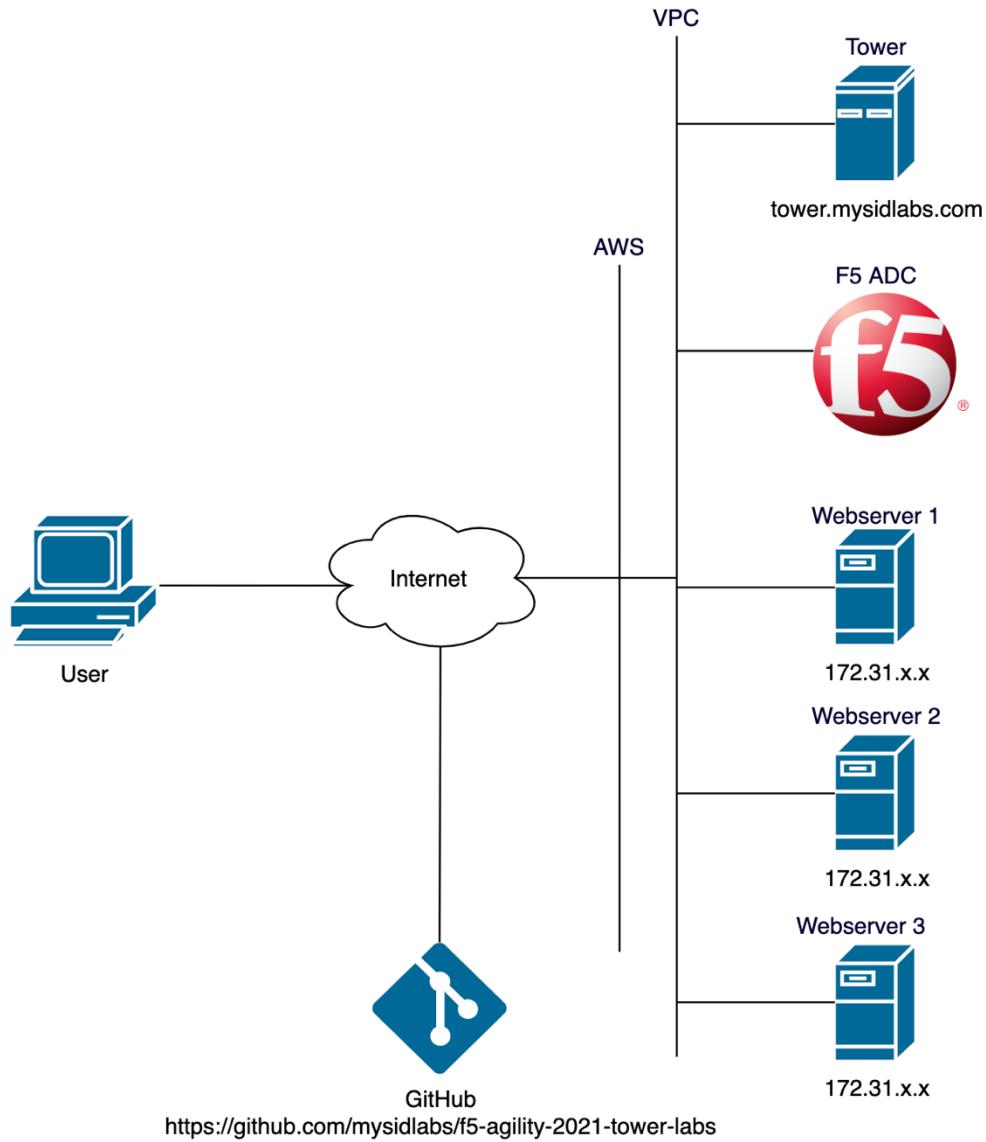
Password: Mys1dlabspw!

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.

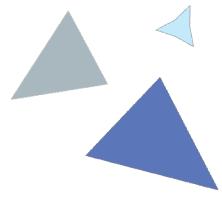




<https://github.com/mysidlabs/f5-agility-2021-tower-labs>



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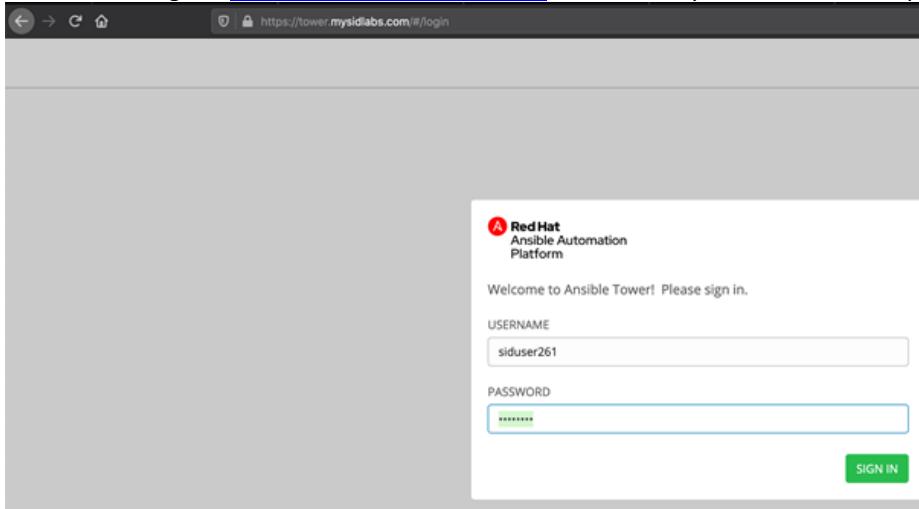


Part 2: Tower lab 1

Explore Ansible Tower

Step 1:

Open web browser and go to <https://tower.mysidlabs.com> and enter in your username and password.



Step 2:

Once logged in explore the interface

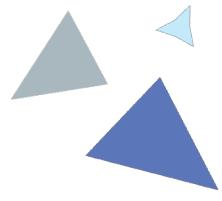
| NAME | ACTIVITY | ACTIONS |
|-------------------|--------------|---------|
| lab2-clean | [green dots] | [edit] |
| lab2-configure | [green dots] | [edit] |
| lab2-wait-for-ssh | [green dots] | [edit] |
| lab2-create | [green dots] | [edit] |
| network_lab_setup | [green dots] | [edit] |

| NAME | TIME |
|-------------------|---------------------|
| lab2-clean | 5/1/2020 5:19:35 AM |
| lab2-clean | 5/1/2020 6:10:47 AM |
| lab2-configure | 5/1/2020 6:08:25 AM |
| lab2-wait-for-ssh | 5/1/2020 6:08:15 AM |
| lab2-create | 5/1/2020 6:08:04 AM |

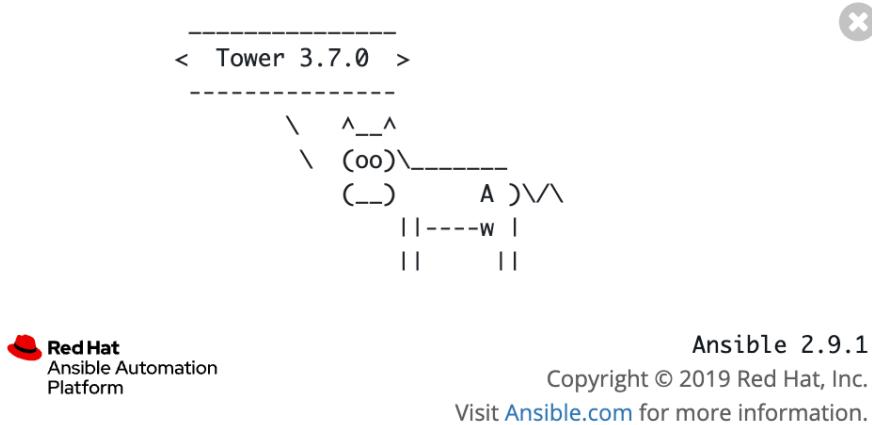
Step 3:

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





You will get something similar to the following:

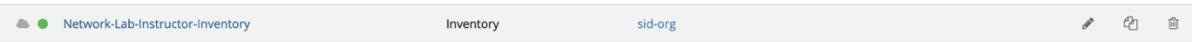


Step 4:

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



Click on Network-Lab-Instructor-Inventory



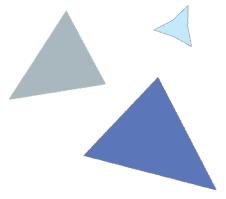
You will see the following

The screenshot shows the "Network-Lab-Instructor-Inventory" configuration form. The top navigation bar includes "INVENTORIES / Network-Lab-Instructor-Inventory", "Inventory", "sid-org", and edit, copy, delete, and refresh icons. The main form has tabs for "DETAILS", "PERMISSIONS", "GROUPS", "HOSTS", "SOURCES", and "COMPLETED JOBS". The "DETAILS" tab is selected. It contains fields for "NAME" (Network-Lab-Instructor-Inventory), "DESCRIPTION" (empty), "ORGANIZATION" (sid-org), "INSIGHTS CREDENTIAL" (empty), "INSTANCE GROUPS" (empty), and "VARIABLES" (YAML tab selected, showing code:

```
1 ---  
2 ansible_network_os: ios  
3 ansible_connection: network_cli
```

). There are "EXPAND" and "CANCEL" buttons at the bottom right.





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

The screenshot shows the 'Edit Survey' configuration dialog for the 'Instructor-SNMP' template. It includes fields for Name (Instructor-SNMP), Inventory (Network-Lab-Instructor-inventory), Project (Instructor-ansible-network-labs), Playbook (lab2/tower-snmp.yml), Job Type (Run), and various launch options like 'PROMPT ON LAUNCH' and 'LIMIT'. The 'OPTIONS' section contains checkboxes for privilege escalation, provisioning callbacks, webhook, concurrent jobs, and fact cache.

Step 6:

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

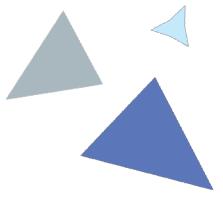


Type network in the search field and click on the magnifying glass icon



Click on network-lab-key





You will see the following

The screenshot shows the 'DETAILS' tab of a 'network-lab-key' configuration page. It includes fields for Name (network-lab-key), Description, Organization (sid-org), Credential Type (Machine), Username (ec2-user), Password, SSH Private Key (Encrypted), Signed SSH Certificate (drag-and-drop field), Private Key Passphrase, Privilege Escalation Method, and Privilege Escalation Username. Buttons for 'CANCEL' and 'SAVE' are at the bottom right.

Step 7:

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

Templates

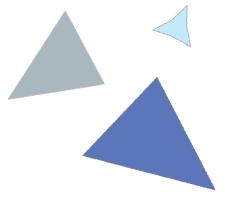
Click on any of the available templates. Below I selected Instructor-SNMP as an example, but it may not exist when you do this.

Instructor-SNMP Job Template

You will see the following

The screenshot shows the 'EDIT SURVEY' tab of the 'Instructor-SNMP' template configuration page. It includes fields for Name (Instructor-SNMP), Description, Job Type (Run), Inventory (Network-Lab-Instructor-Inventory), Project (Instructor-ansible-network-labs), Playbook (instructor-ansible-network-labs.yml), Forks, Limit, Job Tags, Skip Tags, Job Slicing, Extra Variables (NAME, JSON), and Options (checkboxes for privilege escalation, provisioning callbacks, fact gathering, concurrent jobs, and fact cache). Buttons for 'LAUNCH', 'CANCEL', and 'SAVE' are at the bottom right.



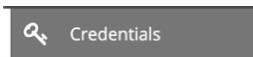


Lab 1.1: Create an Ansible Tower job template

Step 1:

Create a Credential

Click on Credentials section using the left navigation bar.



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



Fill out the following fields as follows, and click SAVE

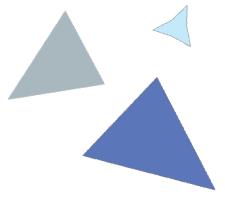
| | |
|-----------------|--------------------------------|
| Name | <<siduserID>>.f5.mysidlabs.com |
| Credential Type | Network |
| Username | admin |
| Password | Mys1dlabspw! |

Step 2:

Create a Project

Click on Projects section using the left navigation bar.





Projects

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



Fill out the following fields as follows, and click SAVE

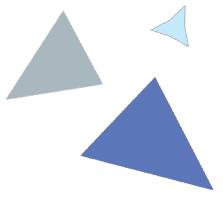
| | |
|--|---|
| Name | <>siduserID>>.f5.mysidlabs.com |
| Organization | sid-org |
| SCM Type | git |
| SCM URL | <a href="https://github.com/<>your-github-user>>/f5-agility-2021-tower-labs">https://github.com/<>your-github-user>>/f5-agility-2021-tower-labs |
| Clean/Delete on Update/ Update Revision on Launch | Checked |

NEW PROJECT

DETAILS PERMISSIONS JOB TEMPLATES SCHEDULES

| | | |
|---|--|--|
| * NAME <input type="text" value="siduser155.f5.mysidlabs.com"/> | DESCRIPTION <input type="text"/> | * ORGANIZATION <input type="text" value="sid-org"/> |
| * SCM TYPE <input type="text" value="Git"/> | SCM BRANCH/TAG/COMMIT <input type="text"/> | SCM REFSPEC <input type="text"/> |
| SOURCE DETAILS | SCM UPDATE OPTIONS | CACHE TIMEOUT (SECONDS) |
| * SCM URL <input type="text" value="https://github.com/lonibble/ansible-f5-labs"/> | <input checked="" type="checkbox"/> CLEAN <input checked="" type="checkbox"/> DELETE ON UPDATE <input checked="" type="checkbox"/> UPDATE REVISION ON LAUNCH <input type="checkbox"/> ALLOW BRANCH OVERRIDE | <input type="text" value="0"/> |
| SCM CREDENTIAL <input type="text"/> | | CANCEL SAVE |





Step 3:

Create an Inventory

Click on Inventories section using the left navigation bar.



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



Fill out the following fields and click SAVE

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

NEW INVENTORY

DETAILS PERMISSIONS GROUPS HOSTS SOURCES COMPLETED JOBS

* NAME: siduser155.f5.mysidlabs.com

DESCRIPTION: (empty)

* ORGANIZATION: sid-org

INSIGHTS CREDENTIAL: (empty)

INSTANCE GROUPS: (empty)

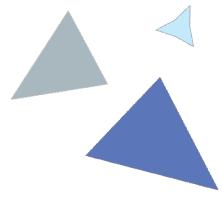
VARIABLES: (empty)

YAML JSON

EXPAND

CANCEL SAVE





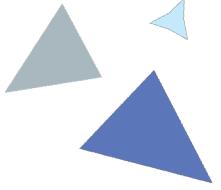
Click on the Sources tab, click the green plus button

The screenshot shows a user interface for managing sources. At the top, there are tabs labeled 'DETAILS', 'PERMISSIONS', 'GROUPS', 'HOSTS', 'SOURCES' (which is highlighted with a red box), and 'COMPLETED JOBS'. Below the tabs is a large input field with a placeholder 'PLEASE ADD ITEMS TO THIS LIST'. In the bottom right corner of the input field, there is a small green square button with a white plus sign (+).

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 |





CREATE SOURCE

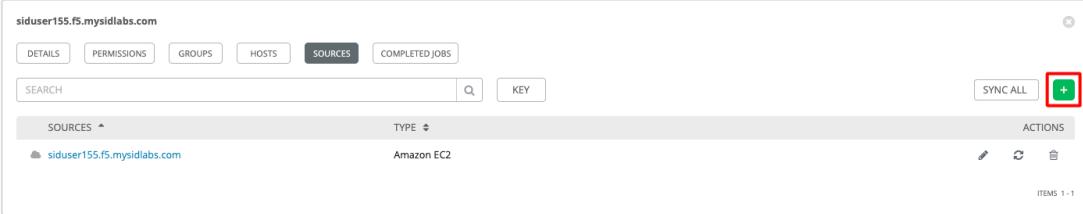
DETAILS **SCHEDULES**

| | | |
|--|---------------------------|---|
| * NAME siduser155.f5.mysidlabs.com | DESCRIPTION | * SOURCE Amazon EC2 |
| SOURCE DETAILS | | |
| CREDENTIAL aws-api | REGIONS US East (Ohio) | INSTANCE FILTERS tag:Name=F5-Lab-siduser155 |
| ONLY GROUP BY Tags | VERBOSITY 1 (INFO) | UPDATE OPTIONS <input checked="" type="checkbox"/> OVERWRITE <input type="checkbox"/> OVERWRITE VARIABLES <input checked="" type="checkbox"/> UPDATE ON LAUNCH |
| CACHE TIMEOUT (SECONDS) 0 | | |
| SOURCE VARIABLES YAML JSON | | |
| <pre>1 ---</pre> | | |
| | | CANCEL SAVE |

Click on the Sources link at the top left

[INVENTORIES / siduser155.f5.mysidlabs.com / SOURCES / siduser155.f5.mysidlabs.com](#)

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



siduser155.f5.mysidlabs.com

SOURCES

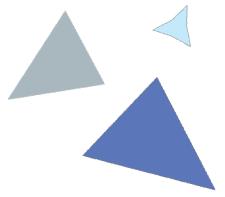
| SOURCES | TYPE | ACTIONS |
|-----------------------------|------------|---------|
| siduser155.f5.mysidlabs.com | Amazon EC2 | |

ITEMS 1 - 1

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-Lab-Web* |





| | |
|----------------------------|---------|
| Only Group By | Tags |
| Overwrite/Update on Launch | Checked |

A TOWER

INVENTORIES / siduser208.f5.mysidlabs.com / SOURCES / siduser208-source2

siduser208.web.mysidlabs.com

DETAILS NOTIFICATIONS SCHEDULES

* NAME siduser208.web.mysidlabs.com DESCRIPTION * SOURCE Amazon EC2

SOURCE DETAILS CREDENTIAL aws-api REGIONS US East (Ohio) INSTANCE FILTERS tag:Name=F5-Lab-Web*

ONLY GROUP BY Tags VERBOSITY 1 (INFO)

UPDATE OPTIONS OVERWRITE OVERWRITE VARIABLES UPDATE ON LAUNCH

CACHE TIMEOUT (SECONDS) 0

SOURCE VARIABLES YAML JSON

1 ---

Click on Sources > Sync All

INVENTORIES / siduser204-inventory / SOURCES

siduser204-inventory

DETAILS PERMISSIONS GROUPS HOSTS SOURCES COMPLETED JOBS

SEARCH KEY

SOURCES TYPE ACTIONS

| | | |
|-----------------------|------------|--|
| siduser204-source | Amazon EC2 | |
| siduser204-source-web | Amazon EC2 | |

SYNC ALL +

ITEMS 1 - 2

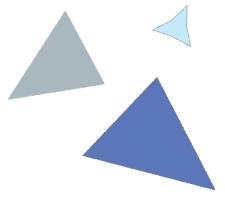
You should have green clouds next to your sources once sync is complete

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

INVENTORIES / **siduser155.f5.mysidlabs.com** / SOURCES / siduser155.f5.mysidlabs.com



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Click on Hosts and verify you have 4 hosts

| HOSTS ^ | DESCRIPTION ^ | RELATED GROUPS | ACTIONS |
|--|---------------|--|-----------------------------------|
| <input type="checkbox"/> <input checked="" type="checkbox"/> ● 18.189.26.22 | imported | aws_ec2 ✕ ec2 ✕ tag_Name ✕ tag_mysidlabs_cost ✕ tag_Name_F5_Lab_Web1 ✕ VIEW MORE | |
| <input type="checkbox"/> <input checked="" type="checkbox"/> ○ 3.133.107.65 | imported | aws_ec2 ✕ ec2 ✕ tag_Name ✕ tag_Name_F5_Lab_sidus ✕ er208 ✕ tag_lb ✕ VIEW MORE | |
| <input type="checkbox"/> <input checked="" type="checkbox"/> ● 3.142.230.207 | imported | aws_ec2 ✕ ec2 ✕ tag_Name ✕ tag_mysidlabs_cost ✕ tag_Name_F5_Lab_Web3 ✕ VIEW MORE | |
| <input type="checkbox"/> <input checked="" type="checkbox"/> ● 3.16.214.234 | imported | aws_ec2 ✕ ec2 ✕ tag_Name ✕ tag_mysidlabs_cost ✕ tag_Name_F5_Lab_Web2 ✕ VIEW MORE | |

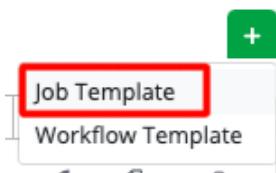
Step 4:

Create a Job Template

Click on Inventories section using the left navigation bar.

Templates

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



Fill out the following fields and click SAVE

| | |
|-----------|--------------------------------|
| Name | <<siduserID>>-create-nodes |
| Job Type | Run |
| Inventory | <<siduserID>>.f5.mysidlabs.com |



| | |
|-------------|---|
| Project | <<siduserID>>.f5.mysidlabs.com |
| Playbook | 1.1-create-nodes.yml |
| Credentials | Select Credential Type: Network <<siduserID>>.f5.mysidlabs.com |

NEW JOB TEMPLATE

DETAILS **PERMISSIONS** **COMPLETED JOBS** **SCHEDULES** **ADD SURVEY**

| | | | |
|---|---|---|--|
| * NAME <input type="text" value="siduser208-create-nodes"/> | DESCRIPTION <input type="text"/> | * JOB TYPE ? Run | <input type="checkbox"/> PROMPT ON LAUNCH |
| * INVENTORY ? <input type="text" value="siduser208.f5.mysidlabs.com"/> | * PROJECT ? <input type="text" value="siduser208.f5.mysidlabs.com"/> | * PLAYBOOK ? Lab1/1.1-create-nodes.yml | <input type="checkbox"/> |
| CREDENTIALS ? <input type="text" value="siduser208-f5-credentials"/> | FORKS ? <input type="text" value="0"/> | LIMIT ? <input type="text"/> | <input type="checkbox"/> PROMPT ON LAUNCH |
| * VERBOSITY ? 0 (Normal) | JOB TAGS ? <input type="text"/> | SKIP TAGS ? <input type="text"/> | <input type="checkbox"/> PROMPT ON LAUNCH |
| LABELS ? <input type="text"/> | INSTANCE GROUPS ? <input type="text"/> | JOB SLICING ? <input type="text" value="1"/> | <input type="checkbox"/> |
| TIMEOUT ? <input type="text" value="0"/> | SHOW CHANGES ? <input type="checkbox"/> | OPTIONS | <input type="checkbox"/> ENABLE PRIVILEGE ESCALATION ? <input type="checkbox"/> ENABLE PROVISIONING CALLBACKS ? <input type="checkbox"/> ENABLE WEBHOOK ? <input type="checkbox"/> ENABLE CONCURRENT JOBS ? <input type="checkbox"/> ENABLE FACT CACHE ? |

Click Save

Step 5:

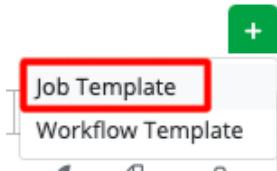
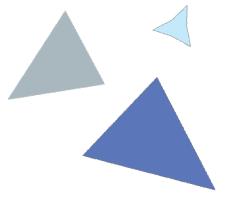
Create a Job Template

Click on Inventories section using the left navigation bar.

 Templates

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





Fill out the following fields and click SAVE

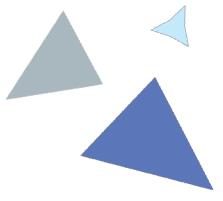
| | |
|-------------|---|
| Name | <<siduserID>>-create-pool |
| Job Type | Run |
| Inventory | <<siduserID>>.f5.mysidlabs.com |
| Project | <<siduserID>>.f5.mysidlabs.com |
| Playbook | 1.2-create-pool-add-mem.yml |
| Credentials | Select Credential Type: Network <<siduserID>>.f5.mysidlabs.com |

NEW JOB TEMPLATE

DETAILS PERMISSIONS COMPLETED JOBS SCHEDULES ADD SURVEY

| | | | |
|--|--|--|------------------|
| * NAME siduser209-create-pool | DESCRIPTION | * JOB TYPE Run | PROMPT ON LAUNCH |
| * INVENTORY Q siduser209.f5.mysidlabs.com | * PROJECT Q siduser209.f5.mysidlabs.com | * PLAYBOOK Lab1/1.2-create-pool-add-mem.yml | PROMPT ON LAUNCH |
| CREDENTIALS Q siduser209.f5.mysidlabs.com | FORKS 0 | LIMIT PROMPT ON LAUNCH | |
| * VERTIOSITY 0 (Normal) | JOB TAGS PROMPT ON LAUNCH | SKIP TAGS PROMPT ON LAUNCH | |
| LABELS Q | INSTANCE GROUPS Q | JOB SLICING 1 | PROMPT ON LAUNCH |
| TIMEOUT 0 | SHOW CHANGES ON | OPTIONS | PROMPT ON LAUNCH |
| | | <input type="checkbox"/> ENABLE PRIVILEGE ESCALATION <input type="checkbox"/> ENABLE PROVISIONING CALLBACKS <input type="checkbox"/> ENABLE WEBHOOK <input type="checkbox"/> ENABLE CONCURRENT JOBS <input type="checkbox"/> ENABLE FACT CACHE | |
| EXTRA VARIABLES YAML JSON | | | |





Click Save

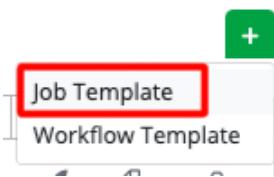
Step 6:

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



Fill out the following fields and click SAVE

| | |
|-------------|---|
| Name | <<siduserID>>-create-vip |
| Job Type | Run |
| Inventory | <<siduserID>>.f5.mysidlabs.com |
| Project | <<siduserID>>.f5.mysidlabs.com |
| Playbook | 1.3-create-vip.yml |
| Credentials | Select Credential Type: Network <<siduserID>>.f5.mysidlabs.com |

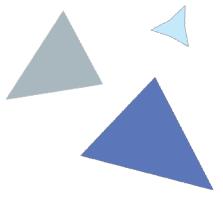


siduser208-create-vip

DETAILS **PERMISSIONS** **NOTIFICATIONS** **COMPLETED JOBS** **SCHEDULES** **ADD SURVEY**

| | | |
|--|--|---|
| * NAME siduser208-create-vip | DESCRIPTION | * JOB TYPE <input type="checkbox"/> PROMPT ON LAUNCH Run |
| * INVENTORY <input type="checkbox"/> PROMPT ON LAUNCH Q siduser208.f5.mysidlabs.com | * PROJECT <input type="checkbox"/> PROMPT ON LAUNCH Q siduser208.f5.mysidlabs.com | * PLAYBOOK <input type="checkbox"/> PROMPT ON LAUNCH Lab1/1.3-create-vip.yml |
| CREDENTIALS <input type="checkbox"/> PROMPT ON LAUNCH Q siduser208-f5-credentials | FORKS <input type="checkbox"/> PROMPT ON LAUNCH 0 | LIMIT <input type="checkbox"/> PROMPT ON LAUNCH |
| * VERBOSITY <input type="checkbox"/> PROMPT ON LAUNCH 0 (Normal) | JOB TAGS <input type="checkbox"/> PROMPT ON LAUNCH | SKIP TAGS <input type="checkbox"/> PROMPT ON LAUNCH |
| LABELS <input type="checkbox"/> | INSTANCE GROUPS <input type="checkbox"/> Q | JOB SLICING <input type="checkbox"/> 1 |
| TIMEOUT <input type="checkbox"/> 0 | SHOW CHANGES <input type="checkbox"/> <input checked="" type="checkbox"/> PROMPT ON LAUNCH | OPTIONS <input type="checkbox"/> ENABLE PRIVILEGE ESCALATION <input type="checkbox"/> ENABLE PROVISIONING CALLBACKS <input type="checkbox"/> ENABLE WEBHOOK <input type="checkbox"/> ENABLE CONCURRENT JOBS <input type="checkbox"/> ENABLE FACT CACHE |

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Step 7:

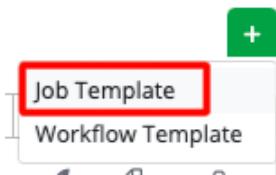
Create a template for cleanup

Create a Job Template

Click on Inventories section using the left navigation bar.



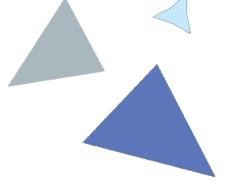
Click on the green plus button on the right-hand side and click Job Template to create a new inventory



Fill out the following fields and click SAVE

| | |
|-------------|---|
| Name | <<siduserID>>-cleanup |
| Job Type | Run |
| Inventory | <<siduserID>>.f5.mysidlabs.com |
| Project | <<siduserID>>.f5.mysidlabs.com |
| Playbook | 1.4-cleanup.yml |
| Credentials | Select Credential Type: Network <<siduserID>>.f5.mysidlabs.com |





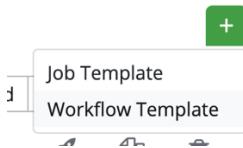
siduser208-clean

DETAILS **PERMISSIONS** **NOTIFICATIONS** **COMPLETED JOBS** **SCHEDULES** **EDIT SURVEY**

| | | | |
|---|---|--|--|
| * NAME siduser208-clean | DESCRIPTION | * JOB TYPE Run | <input type="checkbox"/> PROMPT ON LAUNCH |
| * INVENTORY <input type="text" value="siduser208.f5.mysidlabs.com"/> | <input type="checkbox"/> PROMPT ON LAUNCH | * PROJECT <input type="text" value="siduser208.f5.mysidlabs.com"/> | * PLAYBOOK Lab1/1.4-cleanup.yml |
| CREDENTIALS <input type="text" value="siduser208-f5-credentials"/> | <input type="checkbox"/> PROMPT ON LAUNCH | FORKS 0 | LIMIT <input type="checkbox"/> PROMPT ON LAUNCH |
| * VERBOSITY 0 (Normal) | <input type="checkbox"/> PROMPT ON LAUNCH | JOB TAGS <input type="checkbox"/> PROMPT ON LAUNCH | SKIP TAGS <input type="checkbox"/> PROMPT ON LAUNCH |
| LABELS <input type="text"/> | INSTANCE GROUPS <input type="text"/> | JOB SLICING 1 | <input type="checkbox"/> SHOW CHANGES <input type="checkbox"/> PROMPT ON LAUNCH |
| TIMEOUT 0 | OPTIONS | <input type="checkbox"/> ENABLE PRIVILEGE ESCALATION <input type="checkbox"/> ENABLE PROVISIONING CALLBACKS <input type="checkbox"/> ENABLE WEBHOOK <input type="checkbox"/> ENABLE CONCURRENT JOBS <input type="checkbox"/> ENABLE FACT CACHE | |

Step 8:

Create a workflow template. Click Templates > Green Plus > Workflow Template



Fill out according to table:

| | |
|--------------|--------------------------------|
| Name | <<siduserID>>-workflow |
| Inventory | <<siduserID>>.f5.mysidlabs.com |
| Organization | Sid-org |



siduser208-workflow

DETAILS **PERMISSIONS** **NOTIFICATIONS** **COMPLETED JOBS** **SCHEDULES** **EDIT SURVEY** **WORKFLOW VISUALIZER**

*** NAME** siduser208-workflow **DESCRIPTION** **ORGANIZATION** sid-org

INVENTORY siduser208.f5.mysidlabs.com **PROMPT ON LAUNCH** **LIMIT** **PROMPT ON LAUNCH** **SCM BRANCH** **PROMPT ON LAUNCH**

LABELS **OPTIONS** **PROMPT ON LAUNCH**

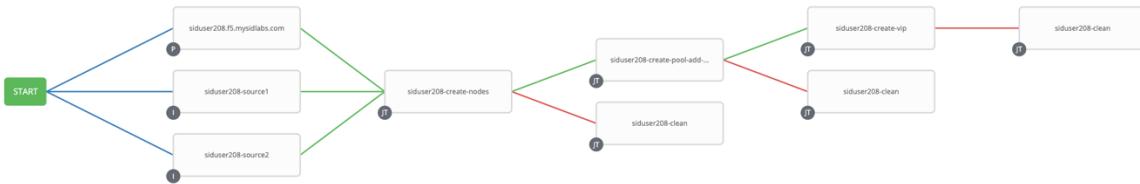
- ENABLE CONCURRENT JOBS
- ENABLE WEBHOOK

EXTRA VARIABLES **YAML** **JSON** **PROMPT ON LAUNCH**

```
1 ---
```

LAUNCH **CANCEL** **SAVE**

Click Save to bring you to the workflow visualizer. Click start to begin adding to the workflow. When complete it should look like the below:



Step 7.1

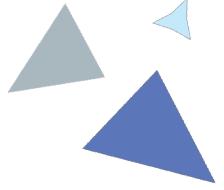
Click start and fill out the options on the right pane:

Select Project Sync from the drop down box

Select your project

Click Select





ADD A NODE

Project Sync

SEARCH KEY

209 CLEAR ALL

siduser209.f5.mysidlabs.com

ITEMS 1 - 1

* RUN
Always

* CONVERGENCE
Any

Step 7.2

Click start and fill out the options on the right pane:

Select Inventory Sync from the drop down box

Select your 1st inventory

Click Select

Step 7.3

Click start and fill out the options on the right pane:

Select Inventory Sync from the drop down box

Select your 2nd inventory

Click Select

Step 7.4

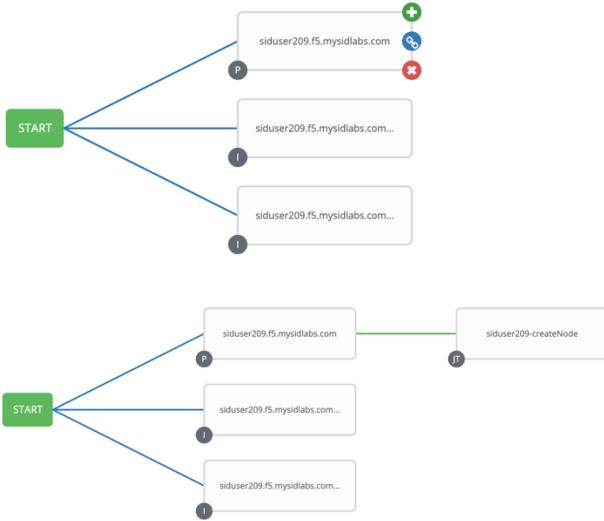
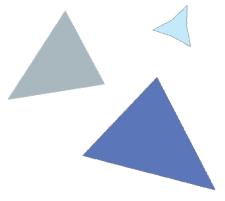
Click Green Plus and fill out the options on the right pane:

Select Template from the drop down box

Select your create-nodes job template

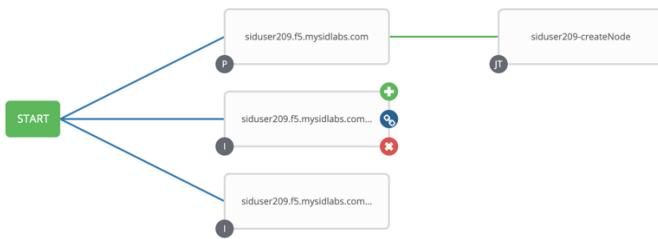
Click Select





Step 7.5

Click Blue chain and link the 2 remaining sync jobs with the create-node job



"On Success" should be selected and click Save

ADD LINK | siduser209.f5.mysidlabs.com-2 → siduser209-createNode

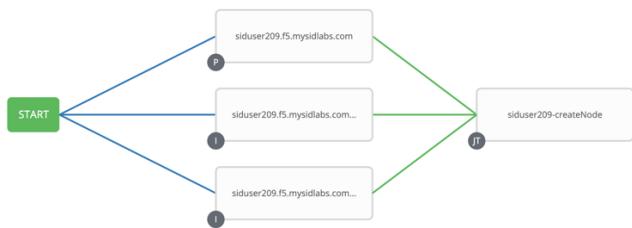
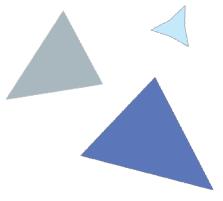
* RUN
On Success

CANCEL SAVE

Repeat for the last sync job.

Your workflow should now look like this:





Step 7.6

Click Green Plus on the create-node and fill out the options on the right pane:

Select Template from the drop down box

Select your create-pool job template

Click Select

Step 7.7

Click Green Plus on the create-pool and fill out the options on the right pane:

Select Template from the drop down box

Select your create-VIP job template

Click Select

Step 7.8

Click Green Plus on the create-VIP and fill out the options on the right pane:

Select Template from the drop down box

Select your cleanup job template

Change the drop down box to Run “on failure”

Click Select



Template

SEARCH KEY

209 CLEAR ALL

siduser209-cleanUp

siduser209-createNode

siduser209-create-pool

siduser209-createVIP

siduser209-workflow

ITEMS 1 - 5

* RUN

On Failure

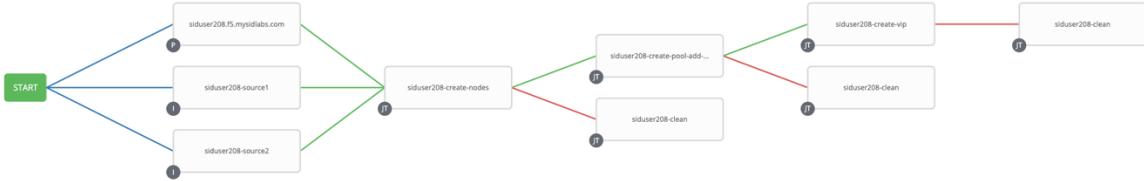
* CONVERGENCE

Any

The inventory of this node will not be overridden by the parent workflow inventory.

CANCEL

Repeat for the create-node and create-pool job templates. When done your workflow should look like the below:



Click Save

Step 8:

Create a survey for the workflow

Click add survey and fill out per screen shots below. **Note that variable names are case sensitive and use camel case.**



siduser208-workflow | SURVEY 

EDIT SURVEY PROMPT

* PROMPT

DESCRIPTION

* ANSWER VARIABLE NAME 

* ANSWER TYPE 

MINIMUM LENGTH

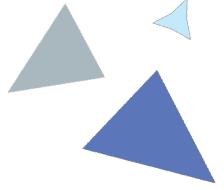
  

MAXIMUM LENGTH

DEFAULT ANSWER

REQUIRED



PREVIEW

* WHAT IS THE VIRTUAL SERVER NAME?

VIP



* WHAT IS THE POOL NAME

pool



siduser208-workflow | SURVEY 

EDIT SURVEY PROMPT

* PROMPT

DESCRIPTION

* ANSWER VARIABLE NAME 

* ANSWER TYPE 

MINIMUM LENGTH

MAXIMUM LENGTH

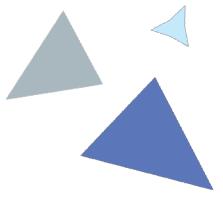
DEFAULT ANSWER

REQUIRED

Click Save



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Step 9:

Launch the workflow template, fill out the survey (remember what you name your vip and pool, maybe even write it down).

Step 10:

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, verify the web servers

Go to:

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

Each time you refresh the host will change between web1, web2 and web3.

Step 10:

Cleanup your F5 before running the next lab

Click on templates, search for your user number and select “siduserXXX-clean” job template.

In the extra variables box edit to include your VIP name and pool name like below:

EXTRA VARIABLES ?

YAML

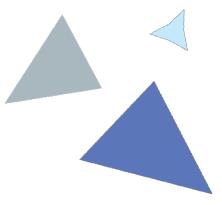
JSON

```
1 ---  
2 vipName: bigBaconClassicCombo  
3 poolName: smallFrosty
```

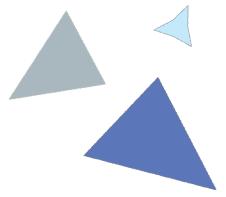
Click save and launch. Validate that your F5 no longer has nodes, pools and vips.



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Part 4: F5 AS3 labs

Lab 2.0: The way better AS3 method

Step 1:

Make sure the BIG-IP configuration is clean!!!

Click on templates, search for your user number and select “siduserXXX-clean” job template.

In the extra variables box edit to include your VIP name and pool name like below:

EXTRA VARIABLES ? YAML JSON

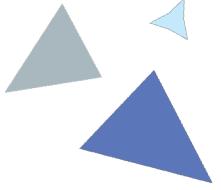
```
1 ---  
2 vipName: bigBaconClassicCombo  
3 poolName: smallFrosty
```

Click save and launch. Validate that your F5 no longer has nodes, pools and vips.

NOTE!!!!

If your AS3 playbook has errors remember what Moss and Roy always do. Did you turn it off and on?
Reboot your F5 > System > Configuration > Device > General





System > Configuration : Device : General

Properties and Operations

| | |
|-----------------------|---|
| Host Name | ip-172-31-11-95.us-east-2.compute.internal |
| Chassis Serial Number | 84302fec-d739-b7ba-07e320cd29ee |
| Version | BIG-IP 16.0.1.1 Build 0.0.6 Point Release 1 |
| CPU Count | 2 |
| Active CPUs | 2 |
| Operations | <input type="button" value="Reboot"/> This will cause the BIG-IP to reboot. <input type="button" value="Force Offline"/> This will force the BIG-IP into an Offline state. |

Properties

| | |
|---------------------|---|
| Network Boot | <input type="checkbox"/> |
| Quiet Boot | <input checked="" type="checkbox"/> Enabled |
| Compatibility Level | LEVEL 0 ▾ |

Geolocation

| | |
|------------|--|
| Operations | <input type="button" value="Reload"/> Click to reload the geolocation data files. <input type="button" value="Update"/> |
|------------|--|

Step 2:

Validate that your F5 has the AS3 package installed. Navigate to iApps > Package Management LX. You should see 2 packages for AS3 installed.



iApps > Package Management LX

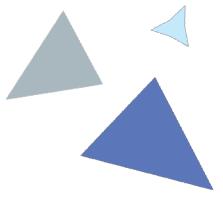
| Name | Version | Build | Package | Tags |
|----------------------|---------|-------|-------------------------------------|--------|
| f5-appsvcs | 3.27.0 | 3 | f5-appsvcs-3.27.0-noarch | PLUGIN |
| f5-service-discovery | 1.6.0 | 1 | f5-service-discovery-1.6.0-1.noarch | PLUGIN |

Note: AS3 can be downloaded here: <https://github.com/F5Networks/f5-appsvcs-extension/releases>

Step 3:

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.





Take some time to review the documentation here: <https://clouddocs.f5.com/products/extensions/f5-appsvcs-extension/latest/refguide/understanding-the-json-schema.html>

Examples are located here: <https://clouddocs.f5.com/products/extensions/f5-appsvcs-extension/latest/userguide/examples.html>

And some really good info here on using AWAF with AS3: <https://clouddocs.f5.com/training/fas-ansible-workshop-101/3.3-as3-asm.html>

Step 4:

Look at the file called 2.1-as3.yml

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

Look at the file called AS3_template.j2

Look at the file called awaf.xml

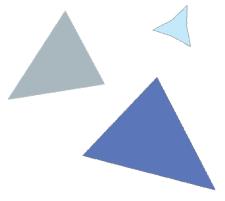
Step 5:

Create a new job in Ansible Tower to run the AS3 playbook:

Fill out the following fields and click SAVE

| | |
|-----------|--------------------------------|
| Name | <>siduserID>>-AS3 |
| Job Type | Run |
| Inventory | <>siduserID>>.f5.mysidlabs.com |





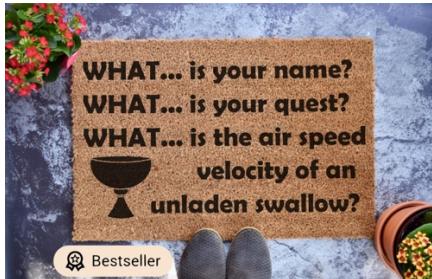
| | |
|-------------|---|
| Project | <<siduserID>>.f5.mysidlabs.com |
| Playbook | Lab2/2.1-as3.yml |
| Credentials | Select Credential Type: Network <<siduserID>>.f5.mysidlabs.com |

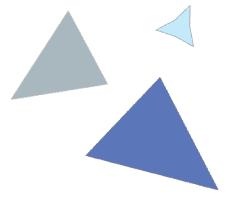
siduser208-AS3

DETAILS PERMISSIONS NOTIFICATIONS COMPLETED JOBS SCHEDULES EDIT SURVEY

| | | | |
|--|----------------------------------|--|---|
| * NAME | DESCRIPTION | * JOB TYPE <small>?</small> | PROMPT ON LAUNCH |
| siduser208-AS3 | | Run | <input type="button" value="▼"/> |
| * INVENTORY <small>?</small> | PROMPT ON LAUNCH | * PROJECT <small>?</small> | PROMPT ON LAUNCH |
| <input type="text" value="siduser208.f5.mysidlabs.com"/> | <input type="checkbox"/> | <input type="text" value="siduser208.f5.mysidlabs.com"/> | <input type="checkbox"/> |
| CREDENTIALS <small>?</small> | PROMPT ON LAUNCH | FORKS <small>?</small> | LIMIT <small>?</small> |
| <input type="text" value="siduser208-f5-credentials"/> | <input type="checkbox"/> | 0 | <input type="checkbox"/> PROMPT ON LAUNCH |
| * VERBOSITY <small>?</small> | PROMPT ON LAUNCH | JOB TAGS <small>?</small> | SKIP TAGS <small>?</small> |
| 0 (Normal) | <input type="checkbox"/> | | <input type="checkbox"/> PROMPT ON LAUNCH |
| LABELS <small>?</small> | INSTANCE GROUPS <small>?</small> | JOB SLICING <small>?</small> | OPTIONS |
| | <input type="text"/> | 1 | <input type="checkbox"/> ENABLE PRIVILEGE ESCALATION <small>?</small> <input type="checkbox"/> ENABLE PROVISIONING CALLBACKS <small>?</small> <input type="checkbox"/> ENABLE WEBHOOK <small>?</small> <input type="checkbox"/> ENABLE CONCURRENT JOBS <small>?</small> <input type="checkbox"/> ENABLE FACT CACHE <small>?</small> |
| TIMEOUT <small>?</small> | SHOW CHANGES <small>?</small> | | |
| 0 | <input type="checkbox"/> | | |

Add a survey to the job template





Question 1

Prompt: What is the tenant name?

Description: tenant

Answer variable name: tenantName

Answer type: text

Default Answer: workshopExample

Question 2

Prompt: What is the user name?

Description: username

Answer variable name: f5UserName

Answer type: text

Default Answer: admin

Question 3

Prompt: What is the password?

Description: password

Answer variable name: f5Password

Answer type: password

Default Answer: Mys1dlabspw!

siduser208-AS3 | SURVEY

ADD SURVEY PROMPT

* PROMPT

DESCRIPTION

* ANSWER VARIABLE NAME

* ANSWER TYPE

REQUIRED

PREVIEW

* WHAT IS THE TENANT NAME?
tenant

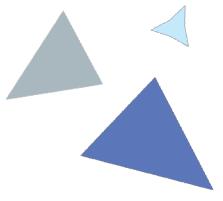
* WHAT IS THE USERNAME?
username

* WHAT IS THE PASSWORD?
password

Step 6:



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Launch the job, fill out the survey and then login to the F5 with your web browser to see what was configured.
Finally, test and see if you get dancing polar bears.

F5: <https://siduserXXX.f5.mysidlabs.com:8443>

Website: <https://siduserXXX.f5.mysidlabs.com>



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Step 7:

Copy or clone your siduserXXX-AS3 job from the previous task. Edit the copy to rename and change the playbook. By copying the previous job template you will be able to use the same survey questions.

| | |
|-------------|---|
| Name | <<siduserID>>-AS3-cleanup |
| Job Type | Run |
| Inventory | <<siduserID>>.f5.mysidlabs.com |
| Project | <<siduserID>>.f5.mysidlabs.com |
| Playbook | Lab2/2.2-as3-delete.yml |
| Credentials | Select Credential Type: Network <<siduserID>>.f5.mysidlabs.com |

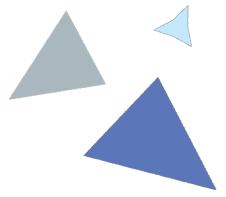
siduser208-AS3-clean

DETAILS **PERMISSIONS** **NOTIFICATIONS** **COMPLETED JOBS** **SCHEDULES** **EDIT SURVEY**

| | | |
|--|----------------------------------|--|
| * NAME siduser208-AS3-clean | DESCRIPTION | * JOB TYPE Run |
| * INVENTORY siduser208.f5.mysidlabs.com | PROMPT ON LAUNCH | * PROJECT siduser208.f5.mysidlabs.com |
| CREDENTIALS siduser208-f5-credentials | PROMPT ON LAUNCH | * PLAYBOOK Lab2/2.2-as3-delete.yml |
| * VERBOSITY 0 (Normal) | PROMPT ON LAUNCH | LIMIT 0 |
| LABELS | INSTANCE GROUPS | SKIP TAGS PROMPT ON LAUNCH |
| TIMEOUT 0 | SHOW CHANGES PROMPT ON LAUNCH | JOB SLICING 1 |
| OPTIONS | | |
| <input type="checkbox"/> ENABLE PRIVILEGE ESCALATION <input type="checkbox"/> ENABLE PROVISIONING CALLBACKS <input type="checkbox"/> ENABLE WEBHOOK <input type="checkbox"/> ENABLE CONCURRENT JOBS <input type="checkbox"/> ENABLE FACT CACHE | | |
| PROMPT ON LAUNCH | | |

EXTRA VARIABLES **YAML** **JSON**





Run the job and verify your Big IP configuration is clean

Success - Congratulations.



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

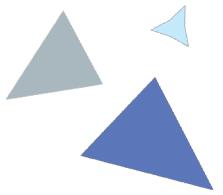
Ansible cli_command module information

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

Variable precedence



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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 are 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.

