Solution Automation

NetApp Solutions

NetApp
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Table of Contents

Solution Automation

NetApp Solution Automation

Introduction

One of the objectives of validating and architecting solutions is to make it easily consumable. Therefore, it is paramount that the deployment and configuration of infrastructure and/or applications delivered through our solutions is simplified through automation. NetApp is committed to simplifying solution consumption through automation using RedHat Ansible.

Ansible is an open-source automation engine that helps IT teams automate application deployment, cloud provisioning, configuration management, and many other IT needs. Ansible is agentless and does not require a custom security infrastructure. You can manage automation of multiple systems from your control system remotely via SSH making it a robust solution for IT teams looking to automate their tedious and repetitive IT needs.

For more information about RedHat Ansible, refer the documentation here.

Setup the Ansible control node (For CLI based deployments)

NetApp Solution Automation

Procedure

1. Requirements for the Ansible control node,:
    a. A RHEL/CentOS machine with the following packages installed:
        i. Python3
        ii. Pip3
        iii. Ansible (version greater than 2.10.0)
        iv. Git

If you have a fresh RHEL/CentOS machine without the above requirements installed, follow the below steps to setup that machine as the Ansible control node:

1. Enable the Ansible repository for RHEL-8/RHEL-7
    a. For RHEL-8 (run the below command as root)

```
subscription-manager repos --enable ansible-2.9-for-rhel-8-x86_64-
rpms
```

    b. For RHEL-7 (run the below command as root)

```
subscription-manager repos --enable rhel-7-server-ansible-2.9-rpms
```

2. Create a .sh file

```
vi setup.sh
```

3. Paste the below content in the file

```
#!/bin/bash
echo "Installing Python ------>"
sudo yum -y install python3 >/dev/null
echo "Installing Python Pip ------>"
sudo yum -y install python3-pip >/dev/null
echo "Installing Ansible ------>"
python3 -W ignore -m pip --disable-pip-version-check install ansible
>/dev/null
echo "Installing git ------>"
sudo yum -y install git >/dev/null
```

4. Make the file executable

```
chmod +x setup.sh
```

5. Run the script (as root)

```
./setup.sh
```

NetApp Solution Automation

Procedure

1. Requirements for the Ansible control node,:
   a. A Ubuntu/Debian machine with the following packages installed:
      i. Python3
      ii. Pip3
      iii. Ansible (version greater than 2.10.0)
      iv. Git

If you have a fresh Ubuntu/Debian machine without the above requirements installed, follow the below steps to setup that machine as the Ansible control node:

1. Create a .sh file

```
vi setup.sh
```

2. Paste the below content in the file

```
#!/bin/bash
echo "Installing Python ------>"
sudo apt-get -y install python3 >/dev/null
echo "Installing Python Pip ------>"
sudo apt-get -y install python3-pip >/dev/null
echo "Installing Ansible ------>"
python3 -W ignore -m pip --disable-pip-version-check install ansible
>/dev/null
echo "Installing git ------>"
sudo apt-get -y install git >/dev/null
```

3. Make the file executable

```
chmod +x setup.sh
```

4. Run the script (as root)

```
./setup.sh
```

NetApp Solution Automation

Procedure

This section describes the steps to configure the parameters in AWX/Ansible Tower that will prepare the environment for consuming NetApp automated solutions.

1. Configure Inventory
    a. Go to 'Resources' → 'Inventories' → 'Add' and click on 'Add Inventory'.
    b. Provide name and organization details and click on 'Save'.
    c. In 'Inventories' page, click on the Inventory created.
    d. If there are any inventory variables, paste them in the variables field.
    e. Go to 'Groups' sub-menu and click on 'Add'
    f. Provide name of the group, paste the group variables (if any) and click on 'Save'
    g. Then click on the group created, go to 'Hosts' sub-menu and click on 'Add New Host'
    h. Provide hostname/IP address of the host, paste the host variables (if any) and click on 'Save'
2. Create Credential Types

a. For solutions involving ONTAP, Element, VMware or any other https based transport connection, you will require to configure credential type to match username and password entries.

b. Go to 'Administration' → 'Credential Types' and click on 'Add'

c. Provide name and description

d. Paste the following content in 'Input Configuration':

```
fields:
- id: username
type: string
label: Username
- id: password
type: string
label: Password
secret: true
```

e. Paste the following content in 'Injector Configuration':

```
extra_vars:
password: '{{ password }}'
username: '{{ username }}'
```

3. Configure Credentials

a. Go to 'Resources' → 'Credentials' and click on 'Add'

b. Enter the name and organization details

c. Select the right credential type - if you intend to use the standard ssh login, select type Machine or select the custom credential type you might have created

d. Enter the other corresponding details and click on 'Save'

4. Configure Project

a. Go to 'Resources' → 'Projects' and click on 'Add'

b. Enter the name and organization details

c. Select 'Git' in 'Source Control Credential Type'

d. Paste the Source Control URL (or git clone URL) corresponding to the specific solution

e. Optionally, if the Git URL is access controlled, create and attach the corresponding credential in 'Source Control Credential'

f. Click on 'Save'

5. Configure Job Template

a. Go to 'Resources' → 'Templates' → 'Add' and click on 'Add Job Template'

b. Enter the name and description

c. Select the Job type - 'Run' configures the system based on playbook and 'Check' performs a dry run of playbook without actually configuring the system

d. Select the corresponding inventory, project and credentials for the playbook
e. Select the playbook that is desired to be run as part of the job template
f. Usually the variables will be pasted during runtime. So to get the prompt to populate the variables during runtime, make sure to tick the checkbox 'Prompt on Launch' corresponding to the 'Variable' field.
g. Provide any other details as required and click on Save

6. Launching the Job Template
   a. Go to 'Resources' → 'Templates'
   b. Click on the desired template and then click on 'Launch'
   c. Fill in any variables if prompted on launch and then click on 'Launch' again

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