Lab 2 – Ad-hoc Commands

Introduction

In this lab we’re going to start by running ad-hoc commands in Ansible. Ad-hoc is a great to become familiar with certain modules prior to adding them into your playbooks (discussed later). We’ll be using a variety of modules geared towards Arista, Cisco IOS and Cisco NXOS.

1. Ad-hoc setup

**1.1** Let’s create a workspace for our Ad-hoc commands. Please note, some of the things we’re going to create will be discussed later in this course.

Make sure you are in the **lab2-adhoc folder** for this lab.

cd lab2-ad-hoc

**1.2** Now let’s create an ansible configuration and Inventory file

**Copy and paste the following to create an Ansible Config file. You can also create this on your own in a file editor like vim.**

cat > ansible.cfg <<EOF

[defaults]

hostfile = inventory

host\_key\_checking = False

deprecation\_warnings=False

EOF

**Copy and paste the following to create an inventory file**

cat > inventory <<EOF

n9k-standalone-01.localdomain ansible\_ssh\_host=10.1.150.13 ansible\_ssh\_user=admin ansible\_ssh\_pass=#cisco123

csr1000v-pod-00.localdomain ansible\_ssh\_host=172.16.15.218 ansible\_ssh\_user=admin ansible\_ssh\_pass=!Cisco123

veos-pod-00.localdomain ansible\_ssh\_host=172.16.15.209 ansible\_ssh\_user=admin ansible\_ssh\_pass=!Cisco123

[network]

n9k-standalone-01.localdomain

csr1000v-pod-00.localdomain

veos-pod-00.localdomain

[9k]

n9k-standalone-01.localdomain

[csr]

csr1000v-pod-00.localdomain

[arista]

veos-pod-00.localdomain

[datacenter:children]

network

EOF

**Create Group\_vars directory**

mkdir group\_vars && cd group\_vars

cat > network.yml <<EOF

---

ansible\_connection: network\_cli

EOF

cat > arista.yml <<EOF

---

ansible\_become: yes

ansible\_network\_os: eos

ansible\_become\_method: enable

ansible\_become\_pass: "!Cisco123"

EOF

cat > csr.yml <<EOF

---

ansible\_become: yes

ansible\_network\_os: ios

ansible\_become\_method: enable

ansible\_become\_pass: "!Cisco123"

EOF

cat > 9k.yml <<EOF

---

ansible\_network\_os: nxos

EOF

**NOTE: Since we’re connecting to different devices, we are using the group variables file to identify nuances for each. For example, the 9k group we’re identifying what OS we are connecting to. For the CSR and Arista devices however, we need to also tell ansible that we need to connect to the device and enter enable mode before running any commands. The Ansible become command is used to accomplish this.**

2. Ad-hoc Commands on NXOS

**2.1** Now that we have our inventory, config and variables set up, lets start running some ad-hoc commands. Ad-hoc is a great way to test out an ansible module prior to creating a playbook. We have 3 devices in the lab that we’ll be running commands against. We have a Cisco Nexus 9K (NXOS), a Cisco CSR (IOS) and a Arista Router (EOS). We’ll start by running commands against our NXOS device.

Execute Ad-Hoc commands against NXOS device

ansible -m nxos\_command  -u admin -k -a "commands='show vlan'" 9k

**Example of output:**

]# ansible -m nxos\_command -u admin -a "commands='show vlan'" 9k

n9k-standalone-01.localdomain | SUCCESS => {

"changed": false,

"stdout": [

"VLAN Name Status Ports\n---- -------------------------------- --------- -------------------------------\n1 default active Eth1/4, Eth1/5, Eth1/6, Eth1/7\n Eth1/8, Eth1/9, Eth1/10, Eth1/11\n Eth1/12, Eth1/13, Eth1/14\n Eth1/15, Eth1/16, Eth1/17\n Eth1/18, Eth1/19, Eth1/20\n Eth1/21, Eth1/22, Eth1/23\n Eth1/24, Eth1/25, Eth1/26\n Eth1/27, Eth1/28, Eth1/29\n Eth1/33, Eth1/34, Eth1/35\n Eth1/36, Eth1/37, Eth1/38\n Eth1/39, Eth1/40, Eth1/41\n Eth1/42, Eth1/43, Eth1/44\n Eth1/45, Eth1/46, Eth1/47\n Eth1/48, Eth1/49, Eth1/50\n Eth1/51, Eth1/54\n100 web active Eth1/30\n101 app active Eth1/31\n102 storage active Eth1/32\n1001 VLAN1001 active \n2000 VLAN2000 active \n\nVLAN Type Vlan-mode\n---- ----- ----------\n1 enet CE \n100 enet CE \n101 enet CE \n102 enet CE \n1001 enet CE \n2000 enet CE \n\nRemote SPAN VLANs\n-------------------------------------------------------------------------------\n\nPrimary Secondary Type Ports\n------- --------- --------------- -------------------------------------------"

],

"stdout\_lines": [

[

"VLAN Name Status Ports",

"---- -------------------------------- --------- -------------------------------",

"1 default active Eth1/4, Eth1/5, Eth1/6, Eth1/7",

" Eth1/8, Eth1/9, Eth1/10, Eth1/11",

" Eth1/12, Eth1/13, Eth1/14",

**Create a loopback interface and bring it up**

ansible -m nxos\_interface -u admin -a "name='loopback100',admin\_state='up'" 9k

**Example output:**

n9k-standalone-01.localdomain | SUCCESS => {

"changed": true,

"commands": [

"interface loopback100",

"no shutdown"

**]**

**}**

**Configure OSPF on NXOS**

ansible -m nxos\_ospf -u admin -c nxapi -a "ospf='10'" 9k

**Example Output:**

n9k-standalone-01.localdomain | SUCCESS => {

"changed": false,

"commands": []

**}**

3. Ad-hoc Commands on IOS

**3.1** Now let’s run a few commands on an IOS device. In this case, this will be the Cisco CSR in our lab.

Execute Ad-Hoc commands against IOS device

**Show Version command on IOS**

ansible -m ios\_command -u admin -a "commands='show version'" csr

**Example Output:**

csr1000v-pod-00.localdomain | SUCCESS => {

"changed": false,

"stdout": [

"Cisco IOS XE Software, Version 03.16.06b.S - Extended Support Release\nCisco IOS Software, CSR1000V Software (X86\_64\_LINUX\_IOSD-UNIVERSALK9-M), Version 15.5(3)S6b, RELEASE SOFTWARE (fc4)\nTechnical Support: http://www.cisco.com/techsupport\nCopyright (c) 1986-2017 by Cisco Systems, Inc.\nCompiled Thu 02-Nov-17 10:49 by mcpre\n\n\nCisco IOS-XE software, Copyright (c) 2005-2017 by cisco Systems, Inc.\nAll rights reserved. Certain components of Cisco IOS-XE software are\nlicensed under the GNU General Public License (\"GPL\") Version 2.0. The\nsoftware code licensed under GPL Version 2.0 is free software that comes\nwith ABSOLUTELY NO WARRANTY. You can redistribute and/or modify such\nGPL code under the terms of GPL Version 2.0. For more details, see the\ndocumentation or \"License Notice\" file accompanying the IOS-XE software,\nor the applicable URL provided on the flyer accompanying the IOS-XE\nsoftware.\n\n\nROM: IOS-XE ROMMON\n\nCSR1000v-Pod-00 uptime is 2 hours, 14 minutes\nUptime for this control processor is 2 hours, 15 minutes\nSystem returned to ROM by reload\nSystem image file is \"bootflash:packages.conf\"\nLast reload reason: <NULL>\n\n\n\nThis product contains cryptographic features and is subject to United\nStates and local country laws governing import, export, transfer and\nuse. Delivery of Cisco cryptographic products does not imply\nthird-party authority to import, export, distribute or use encryption.\nImporters, exporters, distributors and users are responsible for\ncompliance with U.S. and local country laws. By using this product you\nagree to comply with applicable laws and regulations. If you are unable\nto comply with U.S. and local laws, return this product immediately.\n\nA summary of U.S. laws governing Cisco cryptographic products may be found at:\nhttp://www.cisco.com/wwl/export/crypto/tool/stqrg.html\n\nIf you require further assistance please contact us by sending email to\nexport@cisco.com.\n\nLicense Level: ax\nLicense Type: Default. No valid license found.\nNext reload license Level: ax\n\ncisco CSR1000V (VXE) processor (revision VXE) with 2055936K/6147K bytes of memory.\nProcessor board ID 96NCEYKC3PH\n3 Gigabit Ethernet interfaces\n32768K bytes of non-volatile configuration memory.\n3988292K bytes of physical memory.\n7774207K bytes of virtual hard disk at bootflash:.\n\nConfiguration register is 0x2102"

],

"stdout\_lines": [

**Gather Facts on IOS Device**

ansible -m ios\_facts  -u admin -a "gather\_subset='all'" csr

**Example Output:**

csr1000v-pod-00.localdomain | SUCCESS => {

"ansible\_facts": {

"ansible\_net\_all\_ipv4\_addresses": [

"172.16.15.218"

],

"ansible\_net\_all\_ipv6\_addresses": [],

"ansible\_net\_config": "Building configuration...\n\nCurrent configuration : 1379 bytes\n!\n! Last configuration change at 19:01:30 UTC Tue Sep 4 2018\n!\nversion 15.5\nservice timestamps debug datetime msec\nservice timestamps log datetime msec\nno platform punt-keepalive disable-kernel-core\nplatform console virtual\n!\nhostname CSR1000v-Pod-00\n!\nboot-start-marker\nboot-end-marker\n!\n!\nenable secret 5 $1$yi5n$DdPlzdtgxHTm3bJmuTPkf0\nenable password !Cisco123\n!\nno aaa new-model\n!\n!\n!\n!\n!\n!\n!\n!\n!\n!\n!\n\n\n\nip domain name cisco\n!\n!\n!\n!\n!\n!\n!\n!\n!\n!\nsubscriber templating\n!\nmultilink bundle-name authenticated\n!\n!\n!\n!\n!\n!\n!\n!\n!\n!\n!\n!\n!\nlicense udi pid CSR1000V sn 96NCEYKC3PH\n!\nspanning-tree extend system-id\n!\nusername admin secret 5 $1$z1pJ$YixfpjjFUE68QsjIDImid1\n!\nredundancy\n!\n!\n!\n!\n!\n!\n! \n!\n!\n!\n!\n!\n!\n!\n!\n!\n!\n!\n! \n! \n! \n! \n! \n! \n!\n!\ninterface GigabitEthernet1\n ip address 172.16.15.218 255.255.0.0\n negotiation auto\n!\ninterface GigabitEthernet2\n no ip address\n shutdown\n negotiation auto\n!\ninterface GigabitEthernet3\n no ip address\n shutdown\n negotiation auto\n!\n!\nvirtual-service csr\_mgmt\n!\nip forward-protocol nd\n!\nno ip http server\nno ip http secure-server\nip tftp source-interface GigabitEthernet1\nip route 0.0.0.0 0.0.0.0 GigabitEthernet1 172.16.0.1\nip ssh version 2\n!\n!\n!\n!\ncontrol-plane\n!\n !\n !\n !\n !\n!\n!\n!\n!\n!\nline con 0\n stopbits 1\nline vty 0\n login local\n transport input ssh\nline vty 1 4\n login local\n length 0\n transport input ssh\n!\nntp server pool.ntp.org\n!\nend",

"ansible\_net\_filesystems": [

"bootflash:"

],

**Perform Basic Ping Test**

ansible -m ios\_ping -u admin -a "dest='10.1.1.1'" csr

**Example Output:**

csr1000v-pod-00.localdomain | SUCCESS => {

"changed": false,

"commands": [

"ping 10.1.1.1"

],

"packet\_loss": "20%",

"packets\_rx": 4,

"packets\_tx": 5,

"rtt": {

"avg": 1,

"max": 2,

"min": 1

}

}

4. Ad-hoc Commands on EOS

**4.1** Now we’ll run a few commands on an Arista EOS device

Execute Ad-Hoc commands against EOS device

**Show Version command on EOS**

ansible -m ios\_command -u admin -a "commands='show version'" arista

**Example Output:**

veos-pod-00.localdomain | SUCCESS => {

"changed": false,

"stdout": [

"Arista vEOS\nHardware version: \nSerial number: \nSystem MAC address: 000c.29dd.cd6b\n\nSoftware image version: 4.20.7M\nArchitecture: i386\nInternal build version: 4.20.7M-8944203.4207M\nInternal build ID: d28d91e2-20a0-4846-91c7-f3c2158211e9\n\nUptime: 6 weeks, 4 days, 17 hours and 27 minutes\nTotal memory: 4010988 kB\nFree memory: 3137020 kB"

],

"stdout\_lines": [

[

"Arista vEOS",

"Hardware version: ",

"Serial number: ",

"System MAC address: 000c.29dd.cd6b",

"",

"Software image version: 4.20.7M",

"Architecture: i386",

"Internal build version: 4.20.7M-8944203.4207M",

"Internal build ID: d28d91e2-20a0-4846-91c7-f3c2158211e9",

"",

"Uptime: 6 weeks, 4 days, 17 hours and 27 minutes",

"Total memory: 4010988 kB",

"Free memory: 3137020 kB"

]

]

**Create Loopback interface on EOS Device**

ansible -m eos\_interface -a "name='loopback 100'" arista

**Example Output:**

veos-pod-00.localdomain | SUCCESS => {

"changed": true,

"commands": [

"interface loopback 100"

],

"session\_name": "ansible\_1536097252"

}

Now commit your files to your repo. Reference the Git lab if you are unsure on the process for this.