In-place Upgrades

In-place upgrades from Red Hat OSP13 to OSP16 are supported starting from Cisco ACI OpenStack Plug-in 5.2(1). The upgrade process is related to, and largely based on the procedures discussed in the *FRAMEWORK FOR UPGRADES (13 TO 16.1)* Red Hat guide.

Each of procedures discussed in this chapter are mandatory and required for the upgrade. The associated procedure from the *FRAMEWORK FOR UPGRADES (13 TO 16.1)* guide is indicated.

Removing Custom ACI Repository

Use this procedure to remove the custom ACI repository.

Before you begin

Follow the steps documented in the *FRAMEWORK FOR UPGRADES (13 TO 16.1)* Red Hat guide, up until the *Updating composable services and parameters* section.

Procedure

Step 1 Create the following ansible playbook to remove the ACI repo from the current yum repos on overcloud nodes.

```
---
- name: Remove ACI Repo
  hosts: overcloud
  become: yes
  tasks:
    - name: remove_acirepo
      ansible.builtin.file:
        path: /etc/yum.repos.d/ciscoaci.repo
        state: absent
```

Step 2 Run the playbook from the undercloud.

```
ansible-playbook -i ~/inventory.yaml <name of playbook file>
```

Customizing Roles

Use this procedure for customizing roles.

In the *Updating composable services in custom roles_data files* section in the *FRAMEWORK FOR UPGRADES (13 TO 16.1)* guide, use a custom roles template to add the Cisco composable services. An ansible playbook is provided that modifies the upstream `/usr/share/openstack-tripleo-heat-templates/roles_data.yaml` file to add these roles.

Procedure

Run the playbook using the following command.

```
ansible-playbook -i ~/inventory.yaml \
/opt/ciscoaci-tripleo-heat-templates/tools/generate_ciscoaci_role_data.yaml
```

This creates a new custom_roles_data.yaml file in the `/home/stack/templates` directory.

If you are using a custom roles file, then, instead of the step indicated above, you must add the services to the Controller and Compute roles.

Add the following services for the Controller role:

```
OS::TripleO::Services::CiscoAciAIM
OS::TripleO::Services::CiscoAciLldp
OS::TripleO::Services::CiscoAciOpflexAgent
```

Add the following services for the Compute role:

```
OS::TripleO::Services::CiscoAciLldp
OS::TripleO::Services::CiscoAciOpflexAgent
```

Open vSwitch Compatibility

Skip the *Maintaining Open vSwitch compatibility during the upgrade* section in the *FRAMEWORK FOR UPGRADES (13 TO 16.1)* Red Hat guide. Following is an example of Cisco-specific configuration environment yaml file (`ciscoaci-config.yaml`):

```
# A Heat environment file which can be used to enable a
# a Neutron Cisco Aci backend on the controller, configured via puppet
resource_registry:

  #controller
  OS::TripleO::ControllerExtraConfigPre: /opt/ciscoaci-tripleo-heat-templates//nodepre.yaml
```

```
  OS::TripleO::Services::NeutronOvsAgent:
/opt/ciscoaci-tripleo-heat-templates/deployment/neutron_opflex/neutron-opflex-agent-container-puppet.yaml

  OS::TripleO::Docker::NeutronMl2PluginBase:
/opt/ciscoaci-tripleo-heat-templates/deployment/neutron/neutron-ml2-ciscoaci.yaml
  OS::TripleO::Services::CiscoAciAIM:
/opt/ciscoaci-tripleo-heat-templates/deployment/aciaim/cisco-aciaim-container-puppet.yaml
  OS::TripleO::Services::NeutronMetadataAgent:
/usr/share/openstack-tripleo-heat-templates/deployment/neutron/neutron-metadata-container-puppet.yaml

  OS::TripleO::Services::NeutronDhcpAgent:
/usr/share/openstack-tripleo-heat-templates/deployment/neutron/neutron-dhcp-container-puppet.yaml

  #compute
  OS::TripleO::ComputeExtraConfigPre: /opt/ciscoaci-tripleo-heat-templates//nodepre.yaml
  OS::TripleO::Services::ComputeNeutronOvsAgent:
/opt/ciscoaci-tripleo-heat-templates/deployment/neutron_opflex/neutron-opflex-agent-container-puppet.yaml

  OS::TripleO::Services::ComputeNeutronMetadataAgent:
/opt/ciscoaci-tripleo-heat-templates/deployment/compute_neutron_metadata/compute-neutron-metadata.yaml


  OS::TripleO::Services::CiscoAciOpflexAgent:
/opt/ciscoaci-tripleo-heat-templates/deployment/opflex/opflex-agent-container-puppet.yaml
  OS::TripleO::Services::CiscoAciLldp:
/opt/ciscoaci-tripleo-heat-templates/deployment/lldp/cisco_lldp.yaml

  OS::TripleO::Services::OVNDBs: OS::Heat::None
  OS::TripleO::Services::OVNController: OS::Heat::None
  OS::TripleO::Services::OVNMetadataAgent: OS::Heat::None
  OS::TripleO::Services::ComputeNeutronL3Agent: OS::Heat::None
  OS::TripleO::Services::NeutronL3Agent: OS::Heat::None

parameter_defaults:

  EC2MetadataIp: 1.100.1.1
  ControlPlaneDefaultRoute: 1.100.1.1
  OvercloudControllerFlavor: control
  OvercloudComputeFlavor: compute

  DockerInsecureRegistryAddress: ["ostack-pt-1-s1-ucloud-13.ctlplane.localdomain:8787",
"1.100.1.1:8787"]

  NeutronCorePlugin: 'ml2plus'
  NeutronServicePlugins: 'group_policy,ncp,apic_aim_l3'
  NeutronEnableIsolatedMetadata: true
  NeutronEnableForceMetadata: true
  NeutronPhysicalDevMappings: physnet1:eth1,physnet2:eth2
  EnablePackageInstall: true
  ACIScopeNames: true
  ACIApicHosts: 10.30.120.190
  ACIApicUsername: admin
  ACIApicPassword: noir0123
  ACIApicSystemId: ostack-pt-1-s1
  ACIMechanismDrivers: 'apic_aim'
  ACIApicEntityProfile: sauto_ostack-pt-1-s1_aep
  ACIApicInfraVlan: 3701
  ACIApicInfraSubnetGateway: 10.0.0.30
  ACIApicInfraAnycastAddr: 10.0.0.32
  ACIOpflexUplinkInterface: bond1
  ACIYumRepo: http://1.100.1.1:8787/v2/__acirepo

  ACIOpflexEncapMode: vxlan
```

```
  NeutronNetworkVLANRanges: physnet1:1751:1800
  ACIOpflexVlanRange: 751:800
  HeatEnginePluginDirs:
/usr/lib64/heat,/usr/lib/heat,/usr/local/lib/heat,/usr/local/lib64/heat,/usr/lib/python2.7/site-packages/gbpautomation/heat

  ACIVpcPairs: 101:102
  NeutronPluginML2PuppetTags: 'neutron_plugin_ml2,neutron_plugin_cisco_aci'
  AciVmmMcastRanges: 225.2.1.1:225.2.255.255
  AciVmmMulticastAddress: 225.2.10.3

#Below parameters are only needed when installing Openshift on Openstack
  ACIOpflexInterfaceType: 'ovs'
  ACIOpflexInterfaceMTU: 8000
```

Building Cisco Containers

Use this procedure for building Cisco containers.

Before proceeding to the *Upgrading a standard overcloud* section of the *FRAMEWORK FOR UPGRADES (13 TO 16.1)* Red Hat guide , you need to build Cisco-specific containers.

Procedure

Step 1 Delete the OSP13 Cisco tripleo package from the undercloud, and install the new OSP16 RPM.

Example: For installing `tripleo-ciscoaci-16.1-1054.noarch.rpm`, use the following commands:

```
sudo yum remove tripleo-ciscoaci
sudo yum install ./tripleo-ciscoaci-16.1-1054.noarch.rpm
```

Step 2 Log in to an upstream container registry. For example, if you are using the upstream container registry from Red Hat, run the following command:

```
sudo podman login registry.redhat.io
```

Step 3 After logging in to the upstream container registry, run the ACI containers build script for OSP16 using:

```
sudo /opt/ciscoaci-tripleo-heat-templates/tools/build_openstack_aci_containers.py -z
openstack-ciscorpms-repo-16.1-1006.tar.gz
```

This script creates the `/home/stack/templates/ciscoaci_containers.yaml` file, which provides the mapping for the Cisco-specific or modified upstream services to their container images.

Step 4 After building the containers for OSP16, build the transitional (Stein) containers, using the following command:

```
sudo /opt/ciscoaci-tripleo-heat-templates/tools/build_transitional_aci_containers.py -z
openstack-ciscorpms-repo-15.0-995.tar.gz --force
```

This script builds the ACI transitional containers for OSP15, and provides a mapping of the Cisco-specific services to their container images in the `/home/stack/templates/ciscoaci_containers_stein.yaml` file.

Upgrade Prepare

In the *Running the overcloud upgrade preparation* section of the *FRAMEWORK FOR UPGRADES (13 TO 16.1)* Red Hat guide, ensure to include files specific for Cisco ACI integration. They are:

- Custom roles file
- Cisco ACI OSP16 containers mapping Heat environment file
- Cisco ACI OSP15 containers mapping Heat environment file
- Cisco ACI specific configuration environment file

Following is an example of the **upgrade prepare** command with Cisco specific templates:

```
source ~/stackrc
openstack overcloud upgrade prepare \
            --templates /home/stack/tripleo-heat-templates \
            -r /home/stack/templates/custom_roles_data.yaml \
            -e /home/stack/tripleo-heat-templates/environments/network-isolation.yaml \
            -e /home/stack/templates/containers-prepare-parameter.yaml \
            -e /home/stack/templates/network-environment.yaml \
            -e /home/stack/templates/ciscoaci_containers.yaml \
            -e /home/stack/templates/ciscoaci_containers_stein.yaml \
            -e /home/stack/templates/ciscoaci-config.yaml \
            -e /home/stack/templates/rhsm.yaml \
            -e /home/stack/templates/upgrades-environment.yaml -y
```

Upgrade Converge

In the *Synchronizing the overcloud stack* section of the *FRAMEWORK FOR UPGRADES (13 TO 16.1)* Red Hat guide, ensure to include files specific for Cisco ACI integration. They are:

- Custom roles file
- Cisco ACI OSP16 containers mapping Heat environment file
- Cisco ACI OSP15 containers mapping Heat environment file
- Cisco ACI specific configuration environment file

Following is an example of the **upgrade converge** command with Cisco specific yaml files:

```
source ~/stackrc
openstack overcloud upgrade converge \
            --templates /home/stack/tripleo-heat-templates \
            -r /home/stack/templates/custom_roles_data.yaml \
            -e /home/stack/tripleo-heat-templates/environments/network-isolation.yaml \
            -e /home/stack/templates/containers-prepare-parameter.yaml \
            -e /home/stack/templates/network-environment.yaml \
            -e /home/stack/templates/ciscoaci_containers.yaml \
            -e /home/stack/templates/ciscoaci_containers_stein.yaml \
            -e /home/stack/templates/ciscoaci-config.yaml \
            -e /home/stack/templates/rhsm.yaml \
            -e /home/stack/templates/upgrades-environment.yaml -y
```