Red Hat OpenStack Platform 17.0

Keeping Red Hat OpenStack Platform Updated

Performing minor updates of Red Hat OpenStack Platform
Performing minor updates of Red Hat OpenStack Platform

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Abstract

You can perform a minor update of your Red Hat OpenStack Platform (RHOSP) environment to keep it updated with the latest packages and containers.
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MAKING OPEN SOURCE MORE INCLUSIVE

Red Hat is committed to replacing problematic language in our code, documentation, and web properties. We are beginning with these four terms: master, slave, blacklist, and whitelist. Because of the enormity of this endeavor, these changes will be implemented gradually over several upcoming releases. For more details, see our CTO Chris Wright’s message.
PROVIDING FEEDBACK ON RED HAT DOCUMENTATION

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7. Click Submit.
CHAPTER 1. PREPARING FOR A MINOR UPDATE

Keep your Red Hat OpenStack Platform (RHOSP) 17.0 environment updated with the latest packages and containers.

Use the upgrade path for the following versions:

<table>
<thead>
<tr>
<th>Old RHOSP Version</th>
<th>New RHOSP Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Hat OpenStack Platform 17.0.z</td>
<td>Red Hat OpenStack Platform 17.0 latest</td>
</tr>
</tbody>
</table>

The “The RHOSP minor update process workflow” outlines the steps you must complete to update your RHOSP environment.

**The RHOSP minor update process workflow**

1. Prepare your environment for the RHOSP minor update.
2. Update the undercloud to the latest OpenStack 17.0.z version.
3. Update the overcloud to the latest OpenStack 17.0.z version.
4. Upgrade all Red Hat Ceph Storage services.

If you have a multistack infrastructure, update each overcloud stack completely, one at a time. If you have a distributed compute node (DCN) infrastructure, update the overcloud at the central location completely, and then update the overcloud at each edge site, one at a time.

**Considerations before you update your RHOSP environment**

To help guide you during the update process, consider the following information:

- Red Hat recommends backing up the undercloud and overcloud control planes. For more information about backing up nodes, see Backing up and restoring the undercloud and control plane nodes.
- Familiarize yourself with the known issues that might block an update.
- Familiarize yourself with the possible update and upgrade paths before you begin your update. For more information, see Section 1.1, “Upgrade paths for long life releases”.
- To identify your current maintenance release, run $ cat /etc/rhosp-release. You can also run this command after updating your environment to validate the update.

**Known issues that might block an update**

There are currently no known issues.

**Procedure**

To prepare your RHOSP environment for the minor update, complete the following procedures:

1. Section 1.2, “Locking the environment to a Red Hat Enterprise Linux release”
2. Section 1.3, “Changing to Extended Update Support (EUS) repositories”
3. Section 1.4, “Updating Red Hat Openstack Platform and Ansible repositories”
1.1. UPGRADE PATHS FOR LONG LIFE RELEASES

Familiarize yourself with the possible update and upgrade paths before you begin an update.

NOTE

You can view your current RHOSP and RHEL versions in the /etc/rhosp-release and /etc/redhat-release files.

### Table 1.1. Updates version path

<table>
<thead>
<tr>
<th>Current version</th>
<th>Target version</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHOSP 10.0.x on RHEL 7.x</td>
<td>RHOSP 10.0 latest on RHEL 7.7 latest</td>
</tr>
<tr>
<td>RHOSP 13.0.x on RHEL 7.x</td>
<td>RHOSP 13.0 latest on RHEL 7.9 latest</td>
</tr>
<tr>
<td>RHOSP 16.1.x on RHEL 8.2</td>
<td>RHOSP 16.1 latest on RHEL 8.2 latest</td>
</tr>
<tr>
<td>RHOSP 16.2.x on RHEL 8.4</td>
<td>RHOSP 16.2 latest on RHEL 8.4 latest</td>
</tr>
<tr>
<td>RHOSP 17.0.x on RHEL 9.0</td>
<td>RHOSP 17.0 latest on RHEL 9.0 latest</td>
</tr>
</tbody>
</table>

### Table 1.2. Upgrades version path

<table>
<thead>
<tr>
<th>Current version</th>
<th>Target version</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHOSP 10 on RHEL 7.7</td>
<td>RHOSP 13 latest on RHEL 7.9 latest</td>
</tr>
<tr>
<td>RHOSP 13 on RHEL 7.9</td>
<td>RHOSP 16.1 latest on RHEL 8.2 latest</td>
</tr>
<tr>
<td>RHOSP 13 on RHEL 7.9</td>
<td>RHOSP 16.2 latest on RHEL 8.4 latest</td>
</tr>
<tr>
<td>RHOSP 16 on RHEL 8.4</td>
<td>RHOSP 17.1 latest on RHEL 9.0 latest</td>
</tr>
</tbody>
</table>
NOTE

In RHOSP 17.0, upgrades from previous versions are not supported. Upgrades will be supported in RHOSP 17.1.

For more information about upgrading to versions earlier than 17.0, see the following guides:

- Framework for Upgrades (13 to 16.2)
- Framework for Upgrades (13 to 16.1)
- Fast Forward Upgrades 13

1.2. LOCKING THE ENVIRONMENT TO A RED HAT ENTERPRISE LINUX RELEASE

Red Hat OpenStack Platform (RHOSP) 17.0 is supported on Red Hat Enterprise Linux (RHEL) 9.0. Before you perform the update, lock the undercloud and overcloud repositories to the RHEL 9.0 release to avoid upgrading the operating system to a newer minor release.

Procedure

1. Log in to the undercloud host as the stack user.

2. Source the stackrc undercloud credentials file:

   ```bash
   $ source ~/stackrc
   ```

3. Edit your overcloud subscription management environment file, which is the file that contains the RhsmVars parameter. The default name for this file is usually rhsm.yml.

4. Check if your subscription management configuration includes the rhsm_release parameter. If the rhsm_release parameter is not present, add it and set it to 9.0:

   ```yaml
   parameter_defaults:
     RhsmVars:
       ...
       rhsm_username: "myusername"
       rhsm_password: "p@55w0rd!"
       rhsm_org_id: "1234567"
       rhsm_pool_ids: "1a85f9223e3d5e43013e3d6e8ff506fd"
       rhsm_method: "portal"
       rhsm_release: "9.0"
   ```

5. Save the overcloud subscription management environment file.

6. Create a playbook that contains a task to lock the operating system version to RHEL 9.0 on all nodes:

   ```bash
   $ cat > ~/set_release.yaml <<EOF
   - hosts: all
     gather_facts: false
     tasks:
       - name: set release to 9.0
   EOF
   ```
environment:

SMDEV_CONTAINER_OFF: True
command: subscription-manager release --set=9.0
become: true
EOF

7. Run the `set_release.yaml` playbook:

```
$ ansible-playbook -i ~/overcloud-deploy/<stack>/tripleo-ansible-inventory.yaml -f 25
~/set_release.yaml --limit undercloud,Controller,Compute
```

- Replace `<stack>` with the name of your stack.
- Use the `--limit` option to apply the content to all RHOSP nodes. Do not run this playbook against Ceph Storage nodes because you might have a different subscription for these nodes.

**NOTE**

To manually lock a node to a version, log in to the node and run the `subscription-manager release` command:

```
$ sudo SMDEV_CONTAINER_OFF=True subscription-manager release --set=9.0
```

### 1.3. CHANGING TO EXTENDED UPDATE SUPPORT (EUS) REPOSITORIES

Your Red Hat OpenStack Platform (RHOSP) subscription includes repositories for Red Hat Enterprise Linux (RHEL) 9.0 Extended Update Support (EUS). The EUS repositories include the latest security patches and bug fixes for RHEL 9.0. Switch to the following repositories before you perform an update.

**Table 1.3. EUS repositories for RHEL 9.0**

<table>
<thead>
<tr>
<th>Standard repository</th>
<th>EUS repository</th>
</tr>
</thead>
<tbody>
<tr>
<td>rhel-9-for-x86_64-baseos-rpms</td>
<td>rhel-9-for-x86_64-baseos-eus-rpms</td>
</tr>
<tr>
<td>rhel-9-for-x86_64-appstream-rpms</td>
<td>rhel-9-for-x86_64-appstream-eus-rpms</td>
</tr>
<tr>
<td>rhel-9-for-x86_64-highavailability-rpms</td>
<td>rhel-9-for-x86_64-highavailability-eus-rpms</td>
</tr>
</tbody>
</table>

**Procedure**

1. Log in to the undercloud host as the `stack` user.
2. Source the `stackrc` undercloud credentials file:

```
$ source ~/stackrc
```
3. Edit your overcloud subscription management environment file, which is the file that contains the `RhsmVars` parameter. The default name for this file is usually `rhsm.yml`.

```bash
$ source ~/stackrc
```
4. Check the `rhsm_repos` parameter in your subscription management configuration. If this parameter does not include the EUS repositories, change the relevant repositories to the EUS versions:

```yaml
parameter_defaults:
  RhsmVars:
    rhsm_repos:
      - rhel-9-for-x86_64-baseos-eus-rpms
      - rhel-9-for-x86_64-appstream-eus-rpms
      - rhel-9-for-x86_64-highavailability-eus-rpms
      - ansible-2.12-for-rhel-9-x86_64-rpms
      - openstack-17.0-for-rhel-9-x86_64-rpms
      - rhceph-5-tools-for-rhel-9-x86_64-rpms
      - fast-datapath-for-rhel-9-x86_64-rpms
```

5. Save the overcloud subscription management environment file.

6. Create a playbook that contains a task to set the repositories to RHEL 9.0 EUS on all nodes:

```yaml
$ cat > ~/change_eus.yaml <<'EOF'
- hosts: all
  gather_facts: false
  tasks:
    - name: change to eus repos
      command: subscription-manager repos --enable=rhel-9-for-x86_64-baseos-eus-rpms --enable=rhel-9-for-x86_64-appstream-eus-rpms --enable=rhel-9-for-x86_64-highavailability-eus-rpms
      become: true
EOF
```

7. Run the `change_eus.yaml` playbook:

```bash
$ ansible-playbook -i ~/overcloud-deploy/<stack>/tripleo-ansible-inventory.yaml -f 25 ~/change_eus.yaml --limit undercloud,Controller,Compute
```

   - Replace `<stack>` with the name of your stack.

   - Use the `--limit` option to apply the content to all Red Hat OpenStack Platform nodes. Do not run this playbook against Ceph Storage nodes because they usually use a different subscription.

---

**1.4. UPDATING RED HAT OPENSTACK PLATFORM AND ANSIBLE REPOSORIES**

Update your repositories to use Red Hat OpenStack Platform (RHOSP) 17.0 and Ansible 2.12 packages.

**Procedure**

1. Log in to the undercloud host as the `stack` user.

2. Source the `stackrc` undercloud credentials file:

   ```bash
   $ source ~/stackrc
   ```
3. Edit your overcloud subscription management environment file, which is the file that contains the RhsmVars parameter. The default name for this file is usually rhsm.yml.

4. Check the rhsm_repos parameter in your subscription management configuration. If the rhsm_repos parameter is using the RHOSP 17.0 and Ansible 2.12 repositories, change the repository to the correct versions:

```yaml
parameter_defaults:
  RhsmVars:
    rhsm_repos:
      - rhel-9-for-x86_64-baseos-eus-rpms
      - rhel-9-for-x86_64-appstream-eus-rpms
      - rhel-9-for-x86_64-highavailability-eus-rpms
      - ansible-2.12-for-rhel-9-x86_64-rpms
      - openstack-17.0-for-rhel-9-x86_64-rpms
      - fast-datapath-for-rhel-9-x86_64-rpms
```

5. Save the overcloud subscription management environment file.

6. Create a playbook that contains a task to set the repositories to RHOSP 17.0 on all nodes:

```yaml
$ cat > ~/update_rhosp_repos.yaml <<'EOF'
  - hosts: all
    gather_facts: false
    tasks:
      - name: change osp repos
        command: subscription-manager repos --enable=openstack-17.0-for-rhel-9-x86_64-rpms
                  --enable=ansible-2.12-for-rhel-9-x86_64-rpms
        become: true
EOF
```

7. Run the `update_rhosp_repos.yaml` playbook:

```bash
$ ansible-playbook -i ~/overcloud-deploy/<stack>/tripleo-ansible-inventory.yaml -f 25
~/update_rhosp_repos.yaml --limit undercloud,Controller,Compute
```

- Replace `<stack>` with the name of your stack.
- Use the `--limit` option to apply the content to all RHOSP nodes. Do not run this playbook against Ceph Storage nodes because they usually use a different subscription.

8. Create a playbook that contains a task to set the repositories to RHOSP 17.0 on all nodes:

```yaml
$ cat > ~/update_ceph_repos.yaml <<'EOF'
  - hosts: all
    gather_facts: false
    tasks:
      - name: change ceph repos
        command: subscription-manager repos --enable=openstack-17.0-deployment-tools-for-rhel-9-x86_64-rpms
                  --enable=ansible-2.12-for-rhel-9-x86_64-rpms
        become: true
EOF
```

9. Run the `update_ceph_repos.yaml` playbook:
1.5. UPDATING THE CONTAINER IMAGE PREPARATION FILE

The container preparation file is the file that contains the `ContainerImagePrepare` parameter. You use this file to define the rules for obtaining container images for the undercloud and overcloud.

Before you update your environment, check the file to ensure that you obtain the correct image versions.

**Procedure**

1. Edit the container preparation file. The default name for this file is usually `containers-prepare-parameter.yaml`.

```yaml
parameter_defaults:
  ContainerImagePrepare:
    - push_destination: true
    set:
      ...  
      tag: '17.0'
      tag_from_label: '{version}-{release}'
```

**NOTE**

If you do not want to use a specific tag for the update, such as `17.0` or `17.0.1`, remove the `tag` key-value pair and specify `tag_from_label` only. This uses the installed Red Hat OpenStack Platform version to determine the value for the tag to use as part of the update process.

3. Save this file.

1.6. UPDATING THE SSL/TLS CONFIGURATION

Remove the `NodeTLSData` resource from the `resource_registry` to update your SSL/TLS configuration.

**Procedure**

1. Log in to the undercloud host as the `stack` user.

2. Source the `stackrc` undercloud credentials file:

   ```bash
   $ source ~/stackrc
   ```

3. Edit your custom overcloud SSL/TLS public endpoint file, which is usually named `~/templates/enable-tls.yaml`.  

Use the `--limit` option to apply the content to Ceph Storage nodes.
4. Remove the NodeTLSData resource from the resource_registry:

resource_registry:
  OS::TripleO::NodeTLSData: /usr/share/openstack-tripleo-heat-templates/puppet/extraconfig/tls/tls-cert-inject.yaml

The overcloud deployment uses a new service in HAProxy to determine if SSL/TLS is enabled.

NOTE

If this is the only resource in the resource_registry section of the enable-tls.yaml file, remove the complete resource_registry section.

5. Save the SSL/TLS public endpoint file.

1.7. DISABLING FENCING IN THE OVERCLOUD

Before you update the overcloud, ensure that fencing is disabled.

If fencing is deployed in your environment during the Controller nodes update process, the overcloud might detect certain nodes as disabled and attempt fencing operations, which can cause unintended results.

If you have enabled fencing in the overcloud, you must temporarily disable fencing for the duration of the update.

Procedure

1. Log in to the undercloud host as the stack user.

2. Source the stackrc undercloud credentials file:

   $ source ~/stackrc

3. Log in to a Controller node and run the Pacemaker command to disable fencing:

   $ ssh tripleo-admin@<controller_ip> "sudo pcs property set stonith-enabled=false"

   • Replace <controller_ip> with the IP address of a Controller node. You can find the IP addresses of your Controller nodes with the metalsmith list command.

4. In the fencing.yaml environment file, set the EnableFencing parameter to false to ensure that fencing stays disabled during the update process.

Additional Resources

• Fencing Controller nodes with STONITH
CHAPTER 2. UPDATING THE UNDERCLOUD

You can use director to update the main packages on the undercloud node. To update the undercloud and its overcloud images to the latest Red Hat OpenStack Platform (RHOSP) 17.0 version, complete the following procedures:

1. Section 2.1, “Performing a minor update of a containerized undercloud”
2. Section 2.2, “Updating the overcloud images”

Prerequisites

- Before you can update the undercloud to the latest RHOSP 17.0 version, ensure that you complete all the update preparation procedures. For more information, see Chapter 1, Preparing for a minor update

2.1. PERFORMING A MINOR UPDATE OF A CONTAINERIZED UNDERCLOUD

Director provides commands to update the main packages on the undercloud node. Use director to perform a minor update within the current version of your RHOSP environment.

Procedure

1. Log in to the undercloud host as the stack user.
2. Source the stackrc undercloud credentials file:

   ```
   $ source ~/stackrc
   ```
3. Update the director main packages with the dnf update command:

   ```
   $ sudo dnf update -y python3-tripleoclient ansible-*
   ```
4. Update the undercloud environment:

   ```
   $ openstack undercloud upgrade
   ```
5. Wait until the undercloud update process completes.
6. Reboot the undercloud to update the operating system’s kernel and other system packages:

   ```
   $ sudo reboot
   ```
7. Wait until the node boots.

2.2. UPDATING THE OVERCLOUD IMAGES

You must replace your current overcloud images with new versions to ensure that director can introspect and provision your nodes with the latest version of the RHOSP software.

Prerequisites

...
You have updated the undercloud node to the latest version. For more information, see Section 2.1, “Performing a minor update of a containerized undercloud”.

Procedure

1. Log in to the undercloud host as the stack user.

2. Source the stackrc undercloud credentials file:

   ```bash
   $ source ~/stackrc
   ```

3. Remove any existing images from the images directory on the stack user’s home (/home/stack/images):

   ```bash
   $ rm -rf ~/images/*
   ```

4. Extract the archives:

   ```bash
   $ cd ~/images
   $ for i in /usr/share/rhosp-director-images/overcloud-full-latest-17.0.tar /usr/share/rhosp-director-images/ironic-python-agent-latest-17.0.tar; do tar -xvf $i; done
   $ cd ~
   ```

5. Import the latest images into the director:

   ```bash
   $ openstack overcloud image upload --update-existing --image-path /home/stack/images/
   ```

6. Configure your nodes to use the new images:

   ```bash
   $ openstack overcloud node configure $(openstack baremetal node list -c UUID -f value)
   ```

7. Verify the existence of the new images:

   ```bash
   $ ls -l /var/lib/ironic/httpboot /var/lib/ironic/images
   ```

**IMPORTANT**

- When you deploy overcloud nodes, ensure that the overcloud image version corresponds to the respective heat template version. For example, use only the RHOSP 17.0 images with the RHOSP 17.0 heat templates.

- If you deployed a connected environment that uses the Red Hat Customer Portal or Red Hat Satellite Server, the overcloud image and package repository versions might be out of sync. To ensure that the overcloud image and package repository versions match, you can use the virt-customize tool. For more information, see the Red Hat Knowledgebase solution Modifying the Red Hat Linux OpenStack Platform Overcloud Image with virt-customize.

- The new overcloud-full image replaces the old overcloud-full image. If you made changes to the old image, you must repeat the changes in the new image, especially if you want to deploy new nodes in the future.
CHAPTER 3. UPDATING THE OVERCLOUD

After you update the undercloud, you can update the overcloud by running the overcloud and container image preparation commands, and updating your nodes. The control plane API is fully available during a minor update.

Prerequisites

- You have updated the undercloud node to the latest version. For more information, see Chapter 2, Updating the undercloud.

- If you use a local set of core templates in your stack user home directory, ensure that you update the templates and use the recommended workflow in Understanding heat templates in the Director Installation and Usage guide. You must update the local copy before you upgrade the overcloud.

Procedure

To update the overcloud, you must complete the following procedures:

1. Section 3.1, “Running the overcloud update preparation”
2. Section 3.2, “Running the container image preparation”
3. Section 3.3, “Optional: Updating the ovn-controller container on all overcloud servers”
4. Section 3.4, “Updating all Controller nodes”
5. Section 3.5, “Updating all Compute nodes”
6. Section 3.6, “Updating all HCI Compute nodes”
7. Section 3.8, “Updating all Ceph Storage nodes”
8. Section 3.9, “Updating the Red Hat Ceph Storage cluster”
9. Section 3.10, “Performing online database updates”
10. Section 3.11, “Re-enabling fencing in the overcloud”

3.1. RUNNING THE OVERCLOUD UPDATE PREPARATION

To prepare the overcloud for the update process, you must run the openstack overcloud update prepare command, which updates the overcloud plan to Red Hat OpenStack Platform (RHOSP) 17.0 and prepares the nodes for the update.

Prerequisites

- If you use a Ceph subscription and have configured director to use the overcloud-minimal image for Ceph storage nodes, you must ensure that in the roles_data.yaml role definition file, the rhsm_enforce parameter is set to False.

- If you rendered custom NIC templates, you must regenerate the templates with the updated version of the openstack-tripleo-heat-templates collection to avoid incompatibility with the overcloud version. For more information about custom NIC templates, see Custom network interface templates in the Director Installation and Usage guide.
NOTE

For distributed compute node (edge) architectures with OVN deployments, you must complete this procedure for each stack with Compute, DistributedCompute, or DistributedComputeHCI nodes before proceeding with section Updating the ovn-controller container on all overcloud servers.

Procedure

1. Log in to the undercloud host as the stack user.

2. Source the stackrc undercloud credentials file:

   ```
   $ source ~/stackrc
   ```

3. Run the update preparation command:

   ```
   $ openstack overcloud update prepare \
   --templates \
   --stack <stack_name> \
   -r <roles_data_file> \
   -n <network_data_file> \
   -e <environment_file> \
   ...
   ```

   Include the following options relevant to your environment:

   - If the name of your overcloud stack is different to the default name overcloud, include the --stack option in the update preparation command and replace <stack_name> with the name of your stack.

   - If you use your own custom roles, use the -r option to include the custom roles (<roles_data_file>) file.

   - If you use custom networks, use the -n option to include your composable network in the (<network_data_file>) file.

   - If you deploy a high availability cluster, include the --ntp-server option in the update preparation command, or include the NtpServer parameter and value in your environment file.

   - Include any custom configuration environment files with the -e option.

4. Wait until the update preparation process completes.

3.2. RUNNING THE CONTAINER IMAGE PREPARATION

Before you can update the overcloud, you must prepare all container image configurations that are required for your environment and pull the latest RHOSP 17.0 container images to your undercloud.

To complete the container image preparation, you must run the openstack overcloud external-update run command against tasks that have the container_image_prepare tag.

Procedure
1. Log in to the undercloud host as the stack user.

2. Source the stackrc undercloud credentials file:

   $ source ~/stackrc

3. Run the openstack overcloud external-update run command against tasks that have the container_image_prepare tag:

   $ openstack overcloud external-update run --stack <stack_name> --tags container_image_prepare

   - If the name of your overcloud stack is different from the default stack name overcloud, set your stack name with the --stack option and replace <stack_name> with the name of your stack.

### 3.3. OPTIONAL: UPDATING THE OVN-CONTROLLER CONTAINER ON ALL OVERCLOUD SERVERS

If you deployed your overcloud with the Modular Layer 2 Open Virtual Network mechanism driver (ML2/OVN), update the ovn-controller container to the latest RHOSP 17.0 version. The update occurs on every overcloud server that runs the ovn-controller container.

- Ovn-controller containers fail to update during the overcloud update. The Red Hat Engineering team is investigating this issue. For more information, see BZ#2126081.

- The following procedure updates the ovn-controller containers on servers that are assigned the Compute role before it updates the ovn-northd service on servers that are assigned the Controller role.

- For distributed compute node (edge) architectures, you must complete this procedure for each stack with Compute, DistributedCompute, or DistributedComputeHCI nodes before proceeding with section Updating all Controller nodes. If you accidentally updated the ovn-northd service before following this procedure, you might not be able to connect to your virtual machines or create new virtual machines or virtual networks. The following procedure restores connectivity.

**Procedure**

1. Log in to the undercloud host as the stack user.

2. Source the stackrc undercloud credentials file:

   $ source ~/stackrc

3. Run the openstack overcloud external-update run command against the tasks that have the ovn tag:

   $ openstack overcloud external-update run --stack <stack_name> --tags ovn

   - If the name of your overcloud stack is different from the default stack name overcloud, set your stack name with the --stack option and replace <stack_name> with the name of your stack.
4. Wait until the ovn-controller container update completes.

### 3.4. UPDATING ALL CONTROLLER NODES

Update all the Controller nodes to the latest RHOSP 17.0 version. Run the `openstack overcloud update run` command and include the `--limit Controller` option to restrict operations to the Controller nodes only. The control plane API is fully available during the minor update.

**Procedure**

1. Log in to the undercloud host as the `stack` user.
2. Source the `stackrc` undercloud credentials file:
   ```bash
   $ source ~/stackrc
   ```
3. Run the update command:
   ```bash
   $ openstack overcloud update run --stack <stack_name> --limit Controller --playbook all
   ```
   - If the name of your overcloud stack is different from the default stack name `overcloud`, set your stack name with the `--stack` option and replace `<stack_name>` with the name of your stack.
4. Wait until the Controller node update completes.

### 3.5. UPDATING ALL COMPUTE NODES

Update all Compute nodes to the latest RHOSP 17.0 version. To update Compute nodes, run the `openstack overcloud update run` command and include the `--limit Compute` option to restrict operations to the Compute nodes only.

**Parallelization considerations**

When you update a large number of Compute nodes, to improve performance, you can run multiple update tasks in the background and configure each task to update a separate group of 20 nodes. For example, if you have 80 Compute nodes in your deployment, you can run the following commands to update the Compute nodes in parallel:

```bash
$ openstack overcloud update run -y --limit 'Compute[0:19]' > update-compute-0-19.log 2>&1 &
$ openstack overcloud update run -y --limit 'Compute[40:59]' > update-compute-40-59.log 2>&1 &
$ openstack overcloud update run -y --limit 'Compute[60:79]' > update-compute-60-79.log 2>&1 &
```

This method of partitioning the nodes space is random and you do not have control over which nodes are updated. The selection of nodes is based on the inventory file that you generate when you run the `tripleo-ansible-inventory` command.

To update specific Compute nodes, list the nodes that you want to update in a batch separated by a comma:

```bash
$ openstack overcloud update run --limit <Compute0>,<Compute1>,<Compute2>,<Compute3>
```
Procedure

1. Log in to the undercloud host as the stack user.

2. Source the stackrc undercloud credentials file:

   $ source ~/stackrc

3. Run the update command:

   $ openstack overcloud update run --stack <stack_name> --limit Compute --playbook all

   • If the name of your overcloud stack is different from the default stack name overcloud, set your stack name with the --stack option and replace <stack_name> with the name of your stack.

4. Wait until the Compute node update completes.

3.6. UPDATING ALL HCI COMPUTE NODES

Update the Hyperconverged Infrastructure (HCI) Compute nodes to the latest RHOSP 17.0 version.

Prerequisites

• On a Ceph Monitor or Controller node that is running the ceph-mon service, check that the Red Hat Ceph Storage cluster status is healthy and the pg status is active+clean:

   $ sudo cephadm -- shell ceph status

   If the Ceph cluster is healthy, it returns a status of HEALTH_OK.

   If the Ceph cluster status is unhealthy, it returns a status of HEALTH_WARN or HEALTH_ERR. For troubleshooting guidance, see the Red Hat Ceph Storage 5 Troubleshooting Guide.

Procedure

1. Log in to the undercloud host as the stack user.

2. Source the stackrc undercloud credentials file:

   $ source ~/stackrc

3. Run the update command:

   $ openstack overcloud update run --stack <stack_name> --limit ComputeHCI --playbook all

   • If the name of your overcloud stack is different from the default stack name overcloud, set your stack name with the --stack option and replace <stack_name> with the name of your stack.

4. Wait until the node update completes.

3.7. UPDATING ALL DISTRIBUTEDCOMPUTEHCI NODES
Update roles specific to distributed compute node architecture. When you upgrade distributed compute nodes, update DistributedComputeHCI nodes first, and then update DistributedComputeHCIScaleOut nodes.

**Prerequisites**

- On a Ceph Monitor or Controller node that is running the `ceph-mon` service, check that the Red Hat Ceph Storage cluster status is healthy and the pg status is active+clean:

  ```
  $ sudo cephadm -- shell ceph status
  ```

  If the Ceph cluster is healthy, it returns a status of `HEALTH_OK`.
  
  If the Ceph cluster status is unhealthy, it returns a status of `HEALTH_WARN` or `HEALTH_ERR`. For troubleshooting guidance, see the Red Hat Ceph Storage 5 Troubleshooting Guide.

**Procedure**

1. Log in to the undercloud host as the `stack` user.

2. Source the `stackrc` undercloud credentials file:

   ```
   $ source ~/stackrc
   ```

3. Run the update command:

   ```
   $ openstack overcloud update run --stack <stack_name> --limit DistributedComputeHCI --playbook all
   ```

   If the name of your overcloud stack is different from the default stack name `overcloud`, set your stack name with the `--stack` option and replace `<stack_name>` with the name of your stack.

4. Wait until the DistributedComputeHCI node update completes.

5. Use the same process to update DistributedComputeHCIScaleOut nodes.

### 3.8. UPDATING ALL CEPH STORAGE NODES

Update the Red Hat Ceph Storage nodes to the latest RHOSP 17.0 version.

**IMPORTANT**

RHOSP 17.0 is supported on RHEL 9.0. However, hosts that are mapped to the Ceph Storage role update to the latest major RHEL release. For more information, see Red Hat Ceph Storage: Supported configurations.

**Prerequisites**

- On a Ceph Monitor or Controller node that is running the `ceph-mon` service, check that the Red Hat Ceph Storage cluster status is healthy and the pg status is active+clean:

  ```
  $ sudo cephadm -- shell ceph status
  ```
If the Ceph cluster is healthy, it returns a status of **HEALTH_OK**.

If the Ceph cluster status is unhealthy, it returns a status of **HEALTH_WARN** or **HEALTH_ERR**. For troubleshooting guidance, see the [Red Hat Ceph Storage 5 Troubleshooting Guide](#).

**Procedure**

1. Log in to the undercloud host as the **stack** user.
2. Source the **stackrc** undercloud credentials file:
   
   ```bash
   $ source ~/stackrc
   ```
3. Run the update command:
   
   ```bash
   $ openstack overcloud update run --stack <stack_name> --limit CephStorage --playbook all
   ```
   
   - If the name of your overcloud stack is different from the default stack name `overcloud`, set your stack name with the `--stack` option and replace `<stack_name>` with the name of your stack.
4. Wait until the node update completes.

### 3.9. UPDATING THE RED HAT CEPH STORAGE CLUSTER

Update the Red Hat Ceph Storage cluster to the latest RHOSP 17.0 version by using the `cephadm` command.

**Prerequisites**

- Complete the container image preparation in Section 3.2, “Running the container image preparation”.

**Procedure**

1. Log in to a Controller node.
2. Check the health of the cluster:
   
   ```bash
   $ sudo cephadm shell -- ceph health
   ```

   **NOTE**
   
   If the Ceph Storage cluster is healthy, the command returns a result of **HEALTH_OK**. If the command returns a different result, review the status of the cluster and contact Red Hat support before continuing the update. For more information, see [Upgrade a Red Hat Ceph Storage cluster using cephadm](#) in the [Red Hat Ceph Storage 5 Upgrade Guide](#).

3. Optional: Check which images should be included in the Ceph Storage cluster update:
   
   ```bash
   $ openstack tripleo container image list -f value | awk -F '//' '/ceph/ {print $2}'
   ```
4. Update the cluster to the latest Red Hat Ceph Storage version:

```bash
$ sudo cephadm shell -- ceph orch upgrade start --image <image_name>: <version>
```

- Replace `<image_name>` with the name of the Ceph Storage cluster image.
- Replace `<version>` with the target version to which you are updating the Ceph Storage cluster.

5. Wait until the Ceph Storage container update completes. To monitor the status of the update, run the following command:

```bash
sudo cephadm shell -- ceph orch upgrade status
```

### 3.10. PERFORMING ONLINE DATABASE UPDATES

Some overcloud components require an online update or migration of their databases tables. To perform online database updates, run the `openstack overcloud external-update run` command against tasks that have the `online_upgrade` tag.

Online database updates apply to the following components:

- OpenStack Block Storage (cinder)
- OpenStack Compute (nova)

**Procedure**

1. Log in to the undercloud host as the `stack` user.
2. Source the `stackrc` undercloud credentials file:

```bash
$ source ~/stackrc
```
3. Run the `openstack overcloud external-update run` command against tasks that use the `online_upgrade` tag:

```bash
$ openstack overcloud external-update run --stack <stack_name> --tags online_upgrade
```

### 3.11. RE-ENABLING FENCING IN THE OVERCLOUD

Before you updated the overcloud, you disabled fencing in Section 1.7, “Disabling fencing in the overcloud”. After you update the overcloud, re-enable fencing to protect your data if a node fails.

**Procedure**

1. Log in to the undercloud host as the `stack` user.
2. Source the `stackrc` undercloud credentials file:

```bash
$ source ~/stackrc
```
3. Log in to a Controller node and run the Pacemaker command to re-enable fencing:
$ ssh tripleo-admin@<controller_ip> "sudo pcs property set stonith-enabled=true"

- Replace `<controller_ip>` with the IP address of a Controller node. You can find the IP addresses of your Controller nodes with the `openstack server list` command.

4. In the `fencing.yaml` environment file, set the `EnableFencing` parameter to `true`.

Additional Resources

- Fencing Controller nodes with STONITH
CHAPTER 4. REBOOTING THE OVERCLOUD

After you perform a minor Red Hat OpenStack Platform (RHOSP) update to the latest 17.0 version, reboot your overcloud. The reboot refreshes the nodes with any associated kernel, system-level, and container component updates. These updates provide performance and security benefits. Plan downtime to perform the reboot procedures.

Use the following guidance to understand how to reboot different node types:

- If you reboot all nodes in one role, reboot each node individually. If you reboot all nodes in a role simultaneously, service downtime can occur during the reboot operation.

- Complete the reboot procedures on the nodes in the following order:
  1. Section 4.1, “Rebooting Controller and composable nodes”
  2. Section 4.2, “Rebooting a Ceph Storage (OSD) cluster”
  3. Section 4.3, “Rebooting Compute nodes”

4.1. REBOOTING CONTROLLER AND COMPOSABLE NODES

Reboot Controller nodes and standalone nodes based on composable roles, and exclude Compute nodes and Ceph Storage nodes.

Procedure

1. Log in to the node that you want to reboot.
2. Optional: If the node uses Pacemaker resources, stop the cluster:

   ```
   [tripleo-admin@overcloud-controller-0 ~]$ sudo pcs cluster stop
   ```

3. Reboot the node:

   ```
   [tripleo-admin@overcloud-controller-0 ~]$ sudo reboot
   ```

4. Wait until the node boots.

Verification

1. Verify that the services are enabled.
   a. If the node uses Pacemaker services, check that the node has rejoined the cluster:

      ```
      [tripleo-admin@overcloud-controller-0 ~]$ sudo pcs status
      ```
   b. If the node uses Systemd services, check that all services are enabled:

      ```
      [tripleo-admin@overcloud-controller-0 ~]$ sudo systemctl status
      ```
   c. If the node uses containerized services, check that all containers on the node are active:

      ```
      [tripleo-admin@overcloud-controller-0 ~]$ sudo podman ps
      ```
4.2. REBOOTING A CEPH STORAGE (OSD) CLUSTER

Complete the following steps to reboot a cluster of Ceph Storage (OSD) nodes.

Prerequisites

- On a Ceph Monitor or Controller node that is running the *ceph-mon* service, check that the Red Hat Ceph Storage cluster status is healthy and the pg status is **active+clean**:

  ```
  $ sudo cephadm -- shell ceph status
  ```

  If the Ceph cluster is healthy, it returns a status of **HEALTH_OK**.

  If the Ceph cluster status is unhealthy, it returns a status of **HEALTH_WARN** or **HEALTH_ERR**. For troubleshooting guidance, see the *Red Hat Ceph Storage 5 Troubleshooting Guide*.

Procedure

1. Log in to a Ceph Monitor or Controller node that is running the *ceph-mon* service, and disable Ceph Storage cluster rebalancing temporarily:

   ```
   $ sudo cephadm shell -- ceph osd set noout
   $ sudo cephadm shell -- ceph osd set norebalance
   ```

   **NOTE**

   If you have a multistack or distributed compute node (DCN) architecture, you must specify the Ceph cluster name when you set the *noout* and *norebalance* flags. For example: `sudo cephadm shell -c /etc/ceph/<cluster>.conf -k /etc/ceph/<cluster>.client.keyring`

2. Select the first Ceph Storage node that you want to reboot and log in to the node.

3. Reboot the node:

   ```
   $ sudo reboot
   ```

4. Wait until the node boots.

5. Log in to the node and check the Ceph cluster status:

   ```
   $ sudo cephadm -- shell ceph status
   ```

   Check that the **pgmap** reports all **pgs** as normal (**active+clean**).

6. Log out of the node, reboot the next node, and check its status. Repeat this process until you have rebooted all Ceph Storage nodes.

7. When complete, log in to a Ceph Monitor or Controller node that is running the **ceph-mon** service and enable Ceph cluster rebalancing:
$ sudo cephadm shell -- ceph osd unset noout
$ sudo cephadm shell -- ceph osd unset norebalance

NOTE
If you have a multistack or distributed compute node (DCN) architecture, you must specify the Ceph cluster name when you unset the noout and norebalance flags. For example: sudo cephadm shell -c /etc/ceph/<cluster>.conf -k /etc/ceph/<cluster>.client.keyring

8. Perform a final status check to verify that the cluster reports HEALTH_OK:

$ sudo cephadm shell ceph status

4.3. REBOOTING COMPUTE NODES
To ensure minimal downtime of instances in your Red Hat OpenStack Platform environment, the Migrating instances workflow outlines the steps you must complete to migrate instances from the Compute node that you want to reboot.

Migrating instances workflow

1. Decide whether to migrate instances to another Compute node before rebooting the node.

2. Select and disable the Compute node that you want to reboot so that it does not provision new instances.

3. Migrate the instances to another Compute node.

4. Reboot the empty Compute node.

5. Enable the empty Compute node.

Prerequisites

- Before you reboot the Compute node, you must decide whether to migrate instances to another Compute node while the node is rebooting. Review the list of migration constraints that you might encounter when you migrate virtual machine instances between Compute nodes. For more information, see Migration constraints in Configuring the Compute Service for Instance Creation.

- If you cannot migrate the instances, you can set the following core template parameters to control the state of the instances after the Compute node reboots:

  **NovaResumeGuestsStateOnHostBoot**
  Determines whether to return instances to the same state on the Compute node after reboot. When set to **False**, the instances remain down and you must start them manually. The default value is **False**.

  **NovaResumeGuestsShutdownTimeout**
  Number of seconds to wait for an instance to shut down before rebooting. It is not recommended to set this value to 0. The default value is **300**. For more information about overcloud parameters and their usage, see Overcloud Parameters.
Procedure

1. Log in to the undercloud as the **stack** user.

2. List all Compute nodes and their UUIDs:
   
   ```
   $ source ~/stackrc
   (undercloud) $ metalsmith list | grep compute
   ```
   
   Identify the UUID of the Compute node that you want to reboot.

3. From the overcloud, select a Compute node and disable it:
   
   ```
   $ source ~/overcloudrc
   (overcloud)$ openstack compute service list
   (overcloud)$ openstack compute service set <hostname> nova-compute --disable
   ```
   
   Replace `<hostname>` with the hostname of your Compute node.

4. List all instances on the Compute node:
   
   ```
   (overcloud)$ openstack server list --host <hostname> --all-projects
   ```

5. Optional: To migrate the instances to another Compute node, complete the following steps:
   
   a. If you decide to migrate the instances to another Compute node, use one of the following commands:
      
      - To migrate the instance to a different host, run the following command:
        
        ```
        (overcloud) $ openstack server migrate <instance_id> --live <target_host> --wait
        ```
      
      - Replace `<instance_id>` with your instance ID.
      
      - Replace `<target_host>` with the host that you are migrating the instance to.

      - Let **nova-scheduler** automatically select the target host:
        
        ```
        (overcloud) $ nova live-migration <instance_id>
        ```

      - Live migrate all instances at once:
        
        ```
        $ nova host-evacuate-live <hostname>
        ```

      **NOTE**
      
      The **nova** command might cause some deprecation warnings, which are safe to ignore.

   b. Wait until migration completes.

   c. Confirm that the migration was successful:
      
      ```
      (overcloud) $ openstack server list --host <hostname> --all-projects
      ```
d. Continue to migrate instances until none remain on the Compute node.

6. Log in to the Compute node and reboot the node:

   $ sudo reboot

7. Wait until the node boots.

8. Re-enable the Compute node:

   $ source ~/overcloudrc
   (overcloud) $ openstack compute service set <hostname> nova-compute --enable

9. Check that the Compute node is enabled:

   (overcloud) $ openstack compute service list