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## Introduction

The Essex Swift Administrator's Guide provides instructions for managing an OpenStack Swift environment. The guide is meant to compliment the existing [OpenStack Swift Administrator's Guide](#) by including details of the Cisco OpenStack reference architecture.

## Dependencies

The Admin Guide is based on the following software versions:

- **Ubuntu:** 12.04
- **Puppet:** 2.7.11
- **swift-proxy:** 1.4.8+stable+17-0~precise1
- **swift-account:** 1.4.8+stable+17-0~precise1
- **swift-container:** 1.4.8+stable+17-0~precise1
- **swift-object:** 1.4.8+stable+17-0~precise1

## Remove a Failed Hard Drive

This process is used for removing a failed hard drive from a Swift Storage Node.

1. Comment-out or remove definitions for the bad hard drive from the container, object, account rings of the swift-nodes manifest. Here is an example of commenting-out device sdb from a Swift Storage Node named swift01:

```

@@@ring_object_device { "${swift01_local_net_ip}:6000/sdb":
#   zone           => $swift_zone,
#   weight         => 1,
#}

@@@ring_account_device { "${swift01_local_net_ip}:6002/sdb":
#   zone           => $swift_zone,
#   weight         => 1,
#}

@@@ring_container_device { "${swift01_local_net_ip}:6001/sdb":
#   zone           => $swift_zone,
#   weight         => 1,
#}

```

2. From the Proxy Node, remove the bad drive from the 3 swift rings:

```
swift-ring-builder /etc/swift/account.builder remove <ip_address>/<device_name>
```

```
swift-ring-builder /etc/swift/container.builder remove <ip_address>/<device_name>
```

```
swift-ring-builder /etc/swift/object.builder remove <ip_address>/<device_name>
```

### 3. From the Proxy Node, rebalance the Swift rings:

```
swift-ring-builder /etc/swift/account.builder rebalance
```

```
swift-ring-builder /etc/swift/container.builder rebalance
```

```
swift-ring-builder /etc/swift/object.builder rebalance
```

### 4. Verify the drive has been removed from the 3 rings:

```
swift-ring-builder /etc/swift/account.builder
```

```
swift-ring-builder /etc/swift/container.builder
```

```
swift-ring-builder /etc/swift/object.builder
```

### 5. Repeat steps 3-5 if you have additional proxy nodes.

## Add a New Hard Drive

This process is used for adding a new hard drive to a Swift Storage Node.

1. Uncomment or add definitions for the new hard drive of the container, object, account rings of the swift-nodes manifest. Here is an example of adding device sdb to a Swift Storage Node named swift01:

```
@@ring_object_device { "${swift01_local_net_ip}:6000/sdb":  
    zone      => $swift_zone,  
    weight    => 1,  
}
```

```
@@ring_account_device { "${swift01_local_net_ip}:6002/sdb":  
    zone      => $swift_zone,  
    weight    => 1,  
}
```

```
@@ring_container_device { "${swift01_local_net_ip}:6001/sdb":  
    zone      => $swift_zone,  
    weight    => 1,  
}
```

2. Run puppet on the Storage Node where the new drive has been added.

```
puppet agent -t -d
```

3. **Note:** Depending on how long it has been since the rings have been rebalanced, you may receive an error similar to the one below. You can disregard the error.

```
Scheduling refresh of Swift::Ringbuilder::Rebalance[account]info:  
Swift::Ringbuilder::Rebalance[object]: Scheduling refresh of Exec[rebalance_object]  
err: /Stage[main]/Swift::Ringbuilder/Swift::Ringbuilder::Rebalance[object]/Exec[rebalance_o  
Failed to call refresh: swift-ring-builder /etc/swift/object.builder rebalance returned 1  
instead of one of [0] at /usr/share/puppet/modules/swift/manifest/ringbuilder/rebalance.pp:  
Swift::Ringbuilder::Rebalance[account]: Scheduling refresh of Exec[rebalance_account]err: /  
/Swift::Ringbuilder/Swift::Ringbuilder::Rebalance[account]/Exec[rebalance_account]:  
Failed to call refresh: swift-ring-builder /etc/swift/account.builder rebalance  
returned 1 instead of one of [0] at /usr/share/puppet/modules/swift/manifests/ringbuilder/r  
info:Swift::Ringbuilder::Rebalance[container]: Scheduling refresh of Exec[rebalance_contain  
/Stage[main]/Swift::Ringbuilder/Swift::Ringbuilder::Rebalance[container]/Exec[rebalance_con  
Failed to call refresh: swift-ring-builder /etc/swift/container.builder
```

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```
rebalance returned 1 instead of one of [0] at /usr/share/puppet/modules/swift/manifests/rin
notice: Finished catalog run in 9.10 seconds
```

### 4. From the Proxy Node, rebalance the Swift rings:

```
swift-ring-builder /etc/swift/account.builder rebalance

swift-ring-builder /etc/swift/container.builder rebalance

swift-ring-builder /etc/swift/object.builder rebalance
```

### 5. Verify the drive has been added to the 3 Swift rings:

```
swift-ring-builder /etc/swift/account.builder

swift-ring-builder /etc/swift/container.builder

swift-ring-builder /etc/swift/object.builder
```

### 6. Repeat steps 3-4 if you have additional Proxy Nodes.

## Remove a Failed Storage Node

This process is used for removing a failed Storage Node from the Swift Ring.

### 1. Remove the node definition for the failed Storage Node from swift-node manifest. In this example I place three X's in the node name so that it does not match the Puppet Master:

```
node /XXXswift01/ inherits swift_base {
```

### 2. Remove storeconfigs entries for Storage Node in Puppet Master database. The example below removes a Storage Node with the IP address of 192.168.220.71:

```
mysql -u<admin_user> -p<admin_password> puppet
```

```
mysql> delete from resources where title like "192.168.220.71:%";
```

### 3. Remove the bad Storage Node from the Swift Proxy. The example below removes a storage node with an IP address of 192.168.220.71 and ring builder files located at /etc/swift/:

```
swift-ring-builder /etc/swift/account.builder remove 192.168.220.71

swift-ring-builder /etc/swift/container.builder remove 192.168.220.71

swift-ring-builder /etc/swift/object.builder remove 192.168.220.71
```

### 4. From the Proxy Node, rebalance the Swift rings:

```
swift-ring-builder /etc/swift/account.builder rebalance

swift-ring-builder /etc/swift/container.builder rebalance

swift-ring-builder /etc/swift/object.builder rebalance
```

### 5. Verify the Node has been removed from the 3 Swift rings:

```
swift-ring-builder /etc/swift/account.builder

swift-ring-builder /etc/swift/container.builder

swift-ring-builder /etc/swift/object.builder
```

## Add a New Storage Node

This process is used for adding a new Storage Node to the Swift Ring.

1. Add a node definition to the swift-nodes manifest. The [swift-nodes manifest](#) provides an example of node definitions.
2. Remove the swift::ringsync storeconfig resource from the Puppet Master database:

```
mysql -u<admin_user> -p<admin_password> puppet
```

```
mysql> delete from resources where restype = 'Swift::Ringsync';
```

3. Verify the Swift::Ringsync restype does not appear in the database:

```
mysql> select * from resources;
```

4. Run puppet if the Node is already managed by the Puppet Master (Build Node).

```
puppet agent -t -d
```

5. If the Storage Node is new to the environment, add a node definition to the [cobbler-node manifest](#).

Apply the configuration to the Puppet Master:

```
puppet apply -v /etc/puppet/manifests/cobbler-node.pp
```

Verify the node has been added to Cobbler

```
cobbler system list
```

Start the provisioning process

```
cobbler system poweron --name=<hostname or FQDN>
```

6. From the Proxy Node, rebalance the Swift rings:

```
swift-ring-builder /etc/swift/account.builder rebalance
```

```
swift-ring-builder /etc/swift/container.builder rebalance
```

```
swift-ring-builder /etc/swift/object.builder rebalance
```

7. Verify the Node has been removed from the 3 Swift rings:

```
swift-ring-builder /etc/swift/account.builder
```

```
swift-ring-builder /etc/swift/container.builder
```

```
swift-ring-builder /etc/swift/object.builder
```

8. Repeat steps 6-7 if you have additional Proxy Nodes.

## Feedback

Provide documentation bugs or feedback to [openstack-support@cisco.com](mailto:openstack-support@cisco.com)