

StarlingX installation report

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1. Installation overview

STX release 10

SW version 24.09

Downloaded from

https://mirror.starlingx.windriver.com/mirror/starlingx/release/latest_release/debian/monolithic/outputs/iso/

We have installed a Central Cloud with a AIO-DX, we have follow this procedure to the installation [Link to the guide](#). With ceph-rook as storage backend.

The central cloud work well and from them we have added an edge cloud from the central with the command:

```
dcmanager subcloud add
```

The edge cloud is configured as Standard with controller storage (2 nodes) and workers (2 nodes)

We have followed this guide : [Link](#)

Below are the details of the **controller-0** node of our edge cloud environment.

Property	Value
action	none
administrative	unlocked
apparmor	disabled
availability	available
bm_ip	None
bm_type	none
bm_username	None
boot_device	/dev/disk/by-path/pci-0000:18:00.0-scsi-0:2:0:0
capabilities	{'is_max_cpu_configurable': 'configurable', 'Personality': 'Controller-Active'}
clock_synchronization	ntp
config_applied	38a91b11-e577-4066-b7d1-bb254f28c138
config_status	Config out-of-date
config_target	b8a91b11-e577-4066-b7d1-bb254f28c138
console	ttyS0,115200
created_at	2025-07-24T18:31:06.169370+00:00
cstates_available	C1,C1E,C6,POLL
device_image_update	None
hostname	controller-0
hw_settle	0
id	1
install_output	graphical
install_state	None
install_state_info	None
inv_state	inventoried
invprovision	provisioned
iscsi_initiator_name	iqn.2018-05.io.starlingx:8e99e39e4dcc
location	{}
max_cpu_mhz_allowed	None
max_cpu_mhz_configured	None
mgmt_mac	bc:97:e1:af:a5:71
min_cpu_mhz_allowed	None
nvme_host_id	711732e7-6fc1-4a82-bcf5-8794a04e771f
nvme_host_nqn	nqn.2014-08.org.nvmexpress:uuid:44d79654-19d5-4fa5-b79e-3d346a095862
operational	enabled
personality	controller
reboot_needed	False
reserved	False
rootfs_device	/dev/disk/by-path/pci-0000:18:00.0-scsi-0:2:0:0
serialid	None
sw_version	24.09
task	
tboot	
ttys_dcd	False
updated_at	2025-07-30T10:26:18.369884+00:00
uptime	69010
uuid	b67ed04b-928d-4dee-a581-f6a5366d6a6e
vim_progress_status	services-enabled

2. Storage Backend

2.1. Host-based ceph

After the installation of the edge we have decided to install on the edge the host-based ceph with the 2 OSD on the controller and worker-0 as monitor, as the guide suggest.

During early testing on the edge cloud, we experienced frequent micro-disconnections between the two Ceph OSDs, which led to a degraded cluster state and a high volume of events being generated on the central cloud.

We have ruled out hardware-related issues and router misconfigurations after careful troubleshooting.

On the **controller nodes of the edge cloud**, we observed that the **host-based Ceph version** installed is: 14.2.22 but on the central with rook the version is 18.2.2

According to the [documentation](#)

we noticed that host-based Ceph is deprecated in recent releases, so we decided to move to rook-ceph on the edge cloud.

2.2. Rook-Ceph

Following this, we have reinstalled the whole edge and migrated to **Rook-Ceph**, which was installed successfully.

we installed all the three storage classes that the stx application enable for us with the command:

```
system storage-backend-add ceph-rook --deployment controller --services block,filesystem,object --confirmed
```

After thorough testing with Kubernetes, we have not encountered any further issues related to OSD degradation, all the storage classes provided by Kubernetes have been tested.

NAME↑	PROVISIONER	RECLAIMPOLICY
ceph-bucket	rook-ceph.ceph.rook.io/bucket	Delete
cephfs	rook-ceph.cephfs.csi.ceph.com	Delete
general (default)	rook-ceph.rbd.csi.ceph.com	Delete

After the configuration of the two OSD and additional monitor, the cluster is healthy and installed on rook-ceph namespace

```
health: HEALTH_OK

services:
  mon: 3 daemons, quorum a,b,c (age 29h)
  mgr: a(active, since 29h), standbys: c, b
  mds: 1/1 daemons up, 1 hot standby
  osd: 2 osds: 2 up (since 30h), 2 in (since 30h)
  rgw: 1 daemon active (1 hosts, 1 zones)

data:
  volumes: 1/1 healthy
  pools:   12 pools, 169 pgs
  objects: 535 objects, 258 MiB
  usage:   1.3 GiB used, 4.4 TiB / 4.4 TiB avail
  pgs:     169 active+clean

io:
  client:  1.2 KiB/s rd, 2 op/s rd, 0 op/s wr

ysadmin@controller-0:~$
```

3. Openstack

The main goal of this testing is to install OpenStack on the StarlingX platform. After successfully deploying Rook-Ceph and validating its functionality, we proceeded with the installation of OpenStack on the edge cloud.

We followed all the instructions to correctly configure data network, local volume groups (nova-local) and all the labels on controllers and workers.

While following this guide, we noticed a potential error in one of the labels assigned to the worker nodes.

```
kubectl taint nodes $NODE openstack-compute-node:NoSchedule
```

After all these preliminary stages we have downloaded the last release of openstack from this mirror:

https://mirror.starlingx.windriver.com/mirror/starlingx/release/latest_release/debian/openstack/outputs/helm-charts/

and proceeded with the execution of upload stx command:

```
system application-upload stx-openstack-24.09-0-debian-stable-latest.tgz
```

A few minutes later, we encounter an application upload error, with the following message logged in the system log (sysinv):

```
sysinv 2025-07-31 15:54:31.784 18151 INFO sysinv.common.rest_api [-] GET cmd:http://10.186.228.40:5497/v1/deploy/software upgrade hdr:None payload:None
sysinv 2025-07-31 15:54:32.589 19537 INFO sysinv.common.rest_api [req-fa0fa790-476d-4f18-960d-fd7ea72b3419 dcaagent services] GET cmd:http://controller-0:7777/v1/sm_sda hdr:{'Content-type': 'ap
plication/json', 'Accept': 'application/json', 'User-Agent': 'sysinv/1.0'} payload:None
sysinv 2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app [req-62bee347-2d8c-4906-8517-9d2a805ed5d6 None None] list index out of range: IndexError: list index out of range
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app Traceback (most recent call last):
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app File "/usr/lib/python3/dist-packages/sysinv/conductor/kube_app.py", line 2155, in perform_app_upload
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app self._save_images_list(app)
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app File "/usr/lib/python3/dist-packages/sysinv/conductor/kube_app.py", line 747, in _save_images_list
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app self._helm.generate_helm_application_overrides(
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app File "/usr/lib/python3/dist-packages/sysinv/helm/helm.py", line 59, in _wrapper
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app return func(self, *args, **kwargs)
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app File "/usr/lib/python3/dist-packages/oslo_concurrency/lockutils.py", line 360, in inner
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app return f(*args, **kwargs)
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app File "/usr/lib/python3/dist-packages/sysinv/helm/helm.py", line 757, in generate_helm_application_overrides
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app app_overrides = self._get_helm_application_overrides(plugin_name,
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app File "/usr/lib/python3/dist-packages/sysinv/helm/helm.py", line 619, in _get_helm_application_overrides
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app self._get_helm_chart_overrides(
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app File "/usr/lib/python3/dist-packages/sysinv/helm/helm.py", line 526, in _get_helm_chart_overrides
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app self.chart_operators[chart_name].get_overrides(
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app File "/opt/platform/helm/24.09/stx-openstack/24.09-0-debian-stable-latest/plugins/k8sapp_openstack/helm/libvirt.py", line 46, in
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app get_overrides
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app 'conf': self._get_conf_overrides(),
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app File "/opt/platform/helm/24.09/stx-openstack/24.09-0-debian-stable-latest/plugins/k8sapp_openstack/helm/libvirt.py", line 84, in
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app _get_conf_overrides
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app ceph_uuid = get_ceph_uuid()
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app File "/opt/platform/helm/24.09/stx-openstack/24.09-0-debian-stable-latest/plugins/k8sapp_openstack/utls.py", line 433, in get_c
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app eph_uuid
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app return pattern.findall(line)[0]
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app IndexError: list index out of range
2025-07-31 15:54:34.340 18151 ERROR sysinv.conductor.kube_app
sysinv 2025-07-31 15:54:34.463 18151 INFO sysinv.conductor.kube_app [req-62bee347-2d8c-4906-8517-9d2a805ed5d6 None None] lifecycle hook for application stx-openstack (24.09-0-debian-stable-lat
est) started {'lifecycle-type': 'operation', 'relative-timing': 'post', 'operation': 'abort', 'extra': {'aborted-op': 'upload'}}.
sysinv 2025-07-31 15:54:34.485 18151 ERROR sysinv.conductor.kube_app [req-62bee347-2d8c-4906-8517-9d2a805ed5d6 None None] Application upload aborted!: IndexError: list index out of range
sysinv 2025-07-31 15:54:34.485 18151 ERROR zerorpc.core [req-62bee347-2d8c-4906-8517-9d2a805ed5d6 None None] : sysinv.common.exception.KubeAppUploadFailure: Upload of application stx-openstack
(24.09-0-debian-stable-latest) failed: list index out of range
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core Traceback (most recent call last):
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core File "/usr/lib/python3/dist-packages/sysinv/conductor/kube_app.py", line 2155, in perform_app_upload
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core self._save_images_list(app)
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core File "/usr/lib/python3/dist-packages/sysinv/conductor/kube_app.py", line 747, in _save_images_list
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core self._helm.generate_helm_application_overrides(
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core File "/usr/lib/python3/dist-packages/sysinv/helm/helm.py", line 59, in _wrapper
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core return func(self, *args, **kwargs)
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core File "/usr/lib/python3/dist-packages/oslo_concurrency/lockutils.py", line 360, in inner
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core return f(*args, **kwargs)
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core File "/usr/lib/python3/dist-packages/sysinv/helm/helm.py", line 757, in generate_helm_application_overrides
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core app_overrides = self._get_helm_application_overrides(plugin_name,
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core File "/usr/lib/python3/dist-packages/sysinv/helm/helm.py", line 619, in _get_helm_application_overrides
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core self._get_helm_chart_overrides(
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core File "/usr/lib/python3/dist-packages/sysinv/helm/helm.py", line 526, in _get_helm_chart_overrides
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core self.chart_operators[chart_name].get_overrides(
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core File "/opt/platform/helm/24.09/stx-openstack/24.09-0-debian-stable-latest/plugins/k8sapp_openstack/helm/libvirt.py", line 46, in get_override
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core s
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core 'conf': self._get_conf_overrides(),
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core File "/opt/platform/helm/24.09/stx-openstack/24.09-0-debian-stable-latest/plugins/k8sapp_openstack/helm/libvirt.py", line 84, in _get_conf_ov
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core errides
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core ceph_uuid = get_ceph_uuid()
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core File "/opt/platform/helm/24.09/stx-openstack/24.09-0-debian-stable-latest/plugins/k8sapp_openstack/utls.py", line 433, in get_ceph_uuid
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core return pattern.findall(line)[0]
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core IndexError: list index out of range
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core During handling of the above exception, another exception occurred:
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core Traceback (most recent call last):
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core File "/usr/lib/python3/dist-packages/zerorpc/core.py", line 167, in _async_task
2025-07-31 15:54:34.485 18151 ERROR zerorpc.core functor.pattern.process_call(self._context, bufchan, event, functor)
```

We noticed that the get ceph UUID function retrieves the if from the Ceph configuration file (/etc/ceph/ceph.conf).

The file appears as follows:

```
[global]
# Unique ID for the cluster.
fsid = %CLUSTER_UUID%
# Public network where the monitor is connected to, i.e, 128.224.0.0/16
#public network = 127.0.0.1/24
# For version 0.55 and beyond, you must explicitly enable
# or disable authentication with "auth" entries in [global].
auth_cluster_required = cephx
auth_service_required = cephx
auth_client_required = cephx
osd_journal_size = 1024

# Uncomment the following line if you are mounting with ext4
# filestore xattr use omap = true

# Number of replicas of objects. Write an object 2 times.
# Cluster cannot reach an active + clean state until there's enough OSDs
# to handle the number of copies of an object. In this case, it requires
# at least 2 OSDs
osd_pool_default_size = 2

# Allow writing one copy in a degraded state.
osd_pool_default_min_size = 1

# Ensure you have a realistic number of placement groups. We recommend
# approximately 100 per OSD. E.g., total number of OSDs multiplied by 100
# divided by the number of replicas (i.e., osd pool default size). So for
# 2 OSDs and osd pool default size = 2, we'd recommend approximately
# (100 * 2) / 2 = 100.
osd_pool_default_pg_num = 64
osd_pool_default_pgp_num = 64
osd_crush_chooseleaf_type = 1
setuser match path = /var/lib/ceph/$type/$cluster-$id

# Override Jewel default of 2 reporters. StarlingX has replication factor 2
mon_osd_min_down_reporters = 1

# Use Hammer's report interval default value
osd_mon_report_interval_max = 120
```

At the moment we are unable to upload the application and consequently we are unable to apply the application.