

MOS Release Notes

version latest

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MOS Ussuri GA release

Release date	Name	Container Cloud Cluster release	Highlights
November 05, 2020	MOS Ussuri	6.8.1	General availability of the product with OpenStack Ussuri and choice of Neutron/OVS or Tungsten Fabric 5.1 for networking. Runs on top of a bare metal Kubernetes cluster managed by Container Cloud.

Product highlights

Mirantis OpenStack for Kubernetes (MOS) represents a frictionless cloud infrastructure on-premise. MOS Ussuri is integrated with Container Cloud bare metal with Ceph and StackLight onboard and, optionally, supports Tungsten Fabric 5.1 as a back end for the OpenStack networking. In terms of updates, MOS Ussuri fully relies on the Container Cloud update delivery mechanism.

OpenStack Ussuri

MOS provides support for OpenStack Ussuri and the following OpenStack components of this release, in particular:

- Identity service (Keystone)
- Compute service (Nova)
- Image service (Glance)
- Block Storage service (Cinder)
- Orchestration (Heat)
- Networking (Neutron)
- Load Balancer (Octavia)
- DNS service (Designate)
- Dashboard (Horizon)
- Key management (Barbican)
- Tempest

Learn more

- [MOS Reference Architecture](#)

- [MOS Deployment Guide](#)
- [MOS Operations Guide](#)

Tungsten Fabric 5.1

MOS provides support for Tungsten Fabric 5.1 as an SDN back end for OpenStack.

The list of the key highlights include:

- Integration with OpenStack Ussuri
- Implementation of the Octavia Tungsten Fabric driver for OpenStack LBaaS
- LCM operations for supported Tungsten Fabric services as well as third-party services such as Cassandra, ZooKeeper, Kafka, Redis, and RabbitMQ.

Learn more

- [MOS Reference Architecture: Tungsten Fabric](#)
- [MOS Deployment Guid: Deploy Tungsten Fabric](#)
- [MOS Operations Guide: Tungsten Fabric operations](#)

Major components versions

Mirantis has tested MOS against a very specific configuration and can guarantee a predictable behavior of the product only in the exact same environments. The table below includes the major MOS components with the exact versions against which testing has been performed.

MOS GA components versions

Component	Version
Cluster release	6.8.1
OpenStack	Ussuri
openstack-operator	0.3.9
Tungsten Fabric	5.1
tungstenfabric-operator	0.1.3

Known issues

This section contains the description of the known issues with available workarounds.

OpenStack known issues and limitations

- Limitations
 - [6912] Octavia load balancers may not work properly with DVR
 - [8573] External authentication to Horizon fails to log in a different user
-

Limitations

Due to limitations in the Octavia and MOS integration, the clusters where Neutron is deployed in the Distributed Virtual Router (DVR) mode are not stable. Therefore, Mirantis does not recommend such configuration for production deployments.

[6912] Octavia load balancers may not work properly with DVR

Target fix version: next MOS update

When Neutron is deployed in the DVR mode, Octavia load balancers may not work correctly. The symptoms include both failure to properly balance traffic and failure to perform an amphora failover.

[8573] External authentication to Horizon fails to log in a different user

Target fix version: next MOS update

Horizon retains the user's credentials following their initial login using External Authentication Service, and does not allow to log in with another user credentials.

Workaround:

1. Clear cookies in your browser.
2. Select External Authentication Service on the Horizon login page.
3. Click Sign In. The Keycloak login page opens.

If the following error occurs, refresh the page and try again:

CSRF token missing or incorrect. Cookies may be turned off.
Make sure cookies are enabled and try again.

Tungsten Fabric known issues and limitations

- Limitations
 - [8469] Load balancer port always has default security group
 - [8293] Error messages on attempts to use loggers
 - [10096] tf-control service does not refresh IP addresses of Cassandra pods
-

Limitations

- Tungsten Fabric is not monitored by StackLight
- Tungsten Fabric does not provide the following functionality:
 - Automatic generation of network port records in DNSaaS (Designate) as Neutron with Tungsten Fabric as a back end is not integrated with DNSaaS. As a workaround, you can use the Tungsten Fabric built-in DNS service that enables virtual machines to resolve each other names.
 - Secret management (Barbican). You cannot use the certificates stored in Barbican to terminate HTTPs in a load balancer.
 - Role Based Access Control (RBAC) for Neutron objects.

Learn more

[MOS Reference Architecture: Tungsten Fabric known limitations](#)

[8469] Load balancer port always has default security group

Fixed in MOS Ussuri Update

Octavia always enables a default security group for a newly created load balancer causing the issue with the load balancer accessibility. To workaround the issue, select one of the following options:

- Add the required rules to the default security group.
- Delete the security group through the Tungsten Fabric web UI:
 1. Navigate to Configure > Networking > Ports.
 2. Remove the security group from the non-VIP ports. The VIP port has neutron:LOADBALANCER in the Device column.

[8293] Error messages on attempts to use loggers

Fixed in MOS Ussuri Update

The HAProxy service, which is used as a back end for load balancers in Tungsten Fabric, uses non-existing socket files from the log collection service. This error in the configuration causes the logging of error messages on attempts to use loggers in contrail-lbaas-haproxy-stdout.log. The issue does not affect the service operability.

[10096] tf-control service does not refresh IP addresses of Cassandra pods

The tf-control service resolves the DNS names of Cassandra pods at startup and does not update them if Cassandra pods got new IP addresses, for example, in case of a restart. As a workaround, to refresh the IP addresses of Cassandra pods, restart the tf-control pods one by one:

Caution!

Before restarting the tf-control pods:

- Verify that the new pods are successfully spawned.
- Verify that no vRouters are connected to only one tf-control pod that will be restarted.

```
kubectl -n tf delete pod tf-control-<hash>
```

Release artifacts

This section lists the components artifacts of the MOS Ussuri release:

- OpenStack Ussuri release artifacts
- Tungsten Fabric release artifacts

OpenStack Ussuri release artifacts

Component	Path	License information for main executable programs
Binaries		

octavia-amphora	https://binary.mirantis.com/openstack/bin/octavia/amphora-x64-haproxy-ussuri-20200926005743.qcow2	Mirantis Prortietary License
mirantis	https://binary.mirantis.com/openstack/bin/horizon/mirantis-ussuri-26b0ff5.tar.gz	Mirantis Prortietary License
Docker images		
placement	mirantis.azurecr.io/openstack/placement:ussuri-bionic-20201019180023	Apache License 2.0
keystone	mirantis.azurecr.io/openstack/keystone:ussuri-bionic-20201019180023	Apache License 2.0
heat	mirantis.azurecr.io/openstack/heat:ussuri-bionic-20201019180023	Apache License 2.0
glance	mirantis.azurecr.io/openstack/glance:ussuri-bionic-20201019180023	Apache License 2.0
cinder	mirantis.azurecr.io/openstack/cinder:ussuri-bionic-20201019180023	Apache License 2.0
neutron	mirantis.azurecr.io/openstack/neutron:ussuri-bionic-20201019180023	Apache License 2.0
nova	mirantis.azurecr.io/openstack/nova:ussuri-bionic-20201019180023	Apache License 2.0
horizon	mirantis.azurecr.io/openstack/horizon:ussuri-bionic-20201019180023	Apache License 2.0
tempest	mirantis.azurecr.io/openstack/tempest:ussuri-bionic-20201019180023	Apache License 2.0
dashboard-selenium	mirantis.azurecr.io/openstack/dashboard-selenium:ussuri-bionic-20201006074752	Apache License 2.0
octavia	mirantis.azurecr.io/openstack/octavia:ussuri-bionic-20201019180023	Apache License 2.0
designate	mirantis.azurecr.io/openstack/designate:ussuri-bionic-20201019180023	Apache License 2.0
ironic	mirantis.azurecr.io/openstack/ironic:ussuri-bionic-20201019180023	Apache License 2.0
barbican	mirantis.azurecr.io/openstack/barbican:ussuri-bionic-20201019180023	Apache License 2.0
libvirt	mirantis.azurecr.io/general/libvirt:6.0.0-bionic-20201007084753	LGPL-2.1 License
pause	mirantis.azurecr.io/general/external/pause:3.1	Apache License 2.0
openvswitch	mirantis.azurecr.io/general/openvswitch:2.11-bionic-20200812034813	Apache License 2.0

rabbitmq-3.8	mirantis.azurecr.io/general/rabbitmq:3.8.7	Mozilla Public License 2.0
rabbitmq-3.8-management	mirantis.azurecr.io/general/rabbitmq:3.8.7-management	Mozilla Public License 2.0
kubernetes-entrypoint	mirantis.azurecr.io/openstack/extra/kubernetes-entrypoint:v1.0.0-20200311160233	Apache License 2.0
docker	mirantis.azurecr.io/openstack/extra/docker:17.07.0	Apache License 2.0
memcached	mirantis.azurecr.io/general/memcached:1.6.6-alpine	BSD 3-Clause "New" or "Revised" License
ceph-config-helper	mirantis.azurecr.io/openstack/extra/ceph-config-helper:nautilus-bionic-20200810084204	Apache License 2.0, LGPL-2.1 or LGPL-3
etcd	mirantis.azurecr.io/openstack/extra/etcd:3.2.26	Apache License 2.0
powerdns	mirantis.azurecr.io/openstack/extra/powerdns:4.2-alpine-20200117133238	GPL-2.0 License
nginx-ingress-controller	mirantis.azurecr.io/openstack/extra/nginx-ingress-controller:0.32.0	Apache License 2.0
defaultbackend	mirantis.azurecr.io/openstack/extra/defaultbackend:1.0	Apache License 2.0
mariadb	mirantis.azurecr.io/general/mariadb:10.4.14-bionic-20200812025059	GPLv2, LGPLv2.1 (client libraries)
rabbitmq-exporter	mirantis.azurecr.io/stacklight/rabbitmq-exporter:v0.29.0	MIT License
prometheus-memcached-exporter	mirantis.azurecr.io/stacklight/memcached-exporter:v0.5.0	Apache License 2.0
prometheus-mysql-exporter	mirantis.azurecr.io/stacklight/mysqld-exporter:v0.11.0	Apache License 2.0
xrally-openstack	mirantis.azurecr.io/openstack/extra/xrally-openstack:1.5.0	Apache License 2.0
aodh	mirantis.azurecr.io/openstack/aodh:ussuri-bionic-20201019180023	Apache License 2.0
panko	mirantis.azurecr.io/openstack/panko:ussuri-bionic-20201019180023	Apache License 2.0
ceilometer	mirantis.azurecr.io/openstack/ceilometer:ussuri-bionic-20201019180023	Apache License 2.0
gnocchi	mirantis.azurecr.io/openstack/gnocchi:ussuri-bionic-20201019180023	Apache License 2.0
redis	mirantis.azurecr.io/openstack/extra/redis:5.0-alpine	BSD 3-Clause "New" or "Revised" License

Helm charts		
openstack-operator	https://binary.mirantis.com/openstack/helm/openstack-controller/openstack-operator-0.3.9.tgz	Mirantis Prortietary License
aodh	https://binary.mirantis.com/openstack/helm/openstack-helm/aodh-0.1.0-mcp-3742.tgz	Apache License 2.0 (no License file in Helm chart)
barbican	https://binary.mirantis.com/openstack/helm/openstack-helm/barbican-0.1.0-mcp-3742.tgz	Apache License 2.0 (no License file in Helm chart)
ceilometer	https://binary.mirantis.com/openstack/helm/openstack-helm/ceilometer-0.1.0-mcp-3742.tgz	Apache License 2.0 (no License file in Helm chart)
cinder	https://binary.mirantis.com/openstack/helm/openstack-helm/cinder-0.1.0-mcp-3742.tgz	Apache License 2.0 (no License file in Helm chart)
designate	https://binary.mirantis.com/openstack/helm/openstack-helm/designate-0.1.0-mcp-3742.tgz	Apache License 2.0 (no License file in Helm chart)
glance	https://binary.mirantis.com/openstack/helm/openstack-helm/glance-0.1.0-mcp-3742.tgz	Apache License 2.0 (no License file in Helm chart)
heat	https://binary.mirantis.com/openstack/helm/openstack-helm/heat-0.1.0-mcp-3742.tgz	Apache License 2.0 (no License file in Helm chart)
horizon	https://binary.mirantis.com/openstack/helm/openstack-helm/horizon-0.1.0-mcp-3742.tgz	Apache License 2.0 (no License file in Helm chart)
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neutron	https://binary.mirantis.com/openstack/helm/openstack-helm/neutron-0.1.0-mcp-3742.tgz	Apache License 2.0 (no License file in Helm chart)
nova	https://binary.mirantis.com/openstack/helm/openstack-helm/nova-0.1.0-mcp-3742.tgz	Apache License 2.0 (no License file in Helm chart)
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ingress	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/ingress-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)
kibana	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/kibana-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)
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kubernetes-keystone-webhook	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/kubernetes-keystone-webhook-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)
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mariadb	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/mariadb-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)
memcached	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/memcached-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)
mongodb	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/mongodb-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)
nagios	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/nagios-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)

nfs-provisioner	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/nfs-provisioner-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)
openvswitch	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/openvswitch-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)
podsecuritypolicy	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/podsecuritypolicy-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)
postgresql	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/postgresql-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)
powerdns	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/powerdns-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)
prometheus	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/prometheus-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)
prometheus-alertmanager	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/prometheus-alertmanager-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)
prometheus-kube-state-metrics	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/prometheus-kube-state-metrics-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)
prometheus-node-exporter	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/prometheus-node-exporter-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)
prometheus-openstack-exporter	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/prometheus-openstack-exporter-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)
prometheus-process-exporter	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/prometheus-process-exporter-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)
rabbitmq	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/rabbitmq-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)
redis	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/redis-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)
registry	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/registry-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)
tiller	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/tiller-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)

zookeeper	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/zookeeper-0.1.0-mcp-2650.tgz	Apache License 2.0 (no License file in Helm chart)
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Tungsten Fabric release artifacts

Component	Path	License information for main executable programs
Helm charts		
Tungsten Fabric Operator	https://binary-mirantis-com/tungsten/helm/tungstenfabric-operator-0.1.3.tgz	Mirantis Prortietary License
Docker images		
TF Analytics	mirantis.azurecr.io/tungsten/contrail-analytics-api:5.1.20201022210010	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-analytics-collector:5.1.20201022210010	Apache License 2.0
TF Analytics Alarm	mirantis.azurecr.io/tungsten/contrail-analytics-alarm-gen:5.1.20201022210010	Apache License 2.0
TF Analytics DB	mirantis.azurecr.io/tungsten/contrail-analytics-query-engine:5.1.20201022210010	Apache License 2.0
TF Analytics SNMP	mirantis.azurecr.io/tungsten/contrail-analytics-snmpp-collector:5.1.20201022210010	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-analytics-snmpp-topology:5.1.20201022210010	Apache License 2.0
TF Config	mirantis.azurecr.io/tungsten/contrail-controller-config-api:5.1.20201022210010	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-controller-config-devicemgr:5.1.20201022210010	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-controller-config-schema:5.1.20201022210010	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-controller-config-svcmonitor:5.1.20201022210010	Apache License 2.0
TF Control	mirantis.azurecr.io/tungsten/contrail-controller-control-control:5.1.20201022210010	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-controller-control-dns:5.1.20201022210010	Apache License 2.0

	mirantis.azurecr.io/tungsten/contrail-controller-control-named:5.1.20201022210010	Apache License 2.0
TF Web UI	mirantis.azurecr.io/tungsten/contrail-controller-webui-job:5.1.20201022210010	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-controller-webui-web:5.1.20201022210010	Apache License 2.0
Nodemanager	mirantis.azurecr.io/tungsten/contrail-nodemgr:5.1.20201022210010	Apache License 2.0
TF Status	mirantis.azurecr.io/tungsten/contrail-status:5.1.20201022210010	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-tf-status:5.1.20201022210010	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-tf-status-aggregator:5.1.20201022210010	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-tf-status-party:5.1.20201022210010	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-tungsten-pytest:5.1.20201022210010	MIT License
TF VRouter	mirantis.azurecr.io/tungsten/contrail-vrouter-agent:5.1.20201022210010	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-vrouter-kernel-build-init:5.1.20201022210010	Apache License 2.0
Cassandra operator	mirantis.azurecr.io/tungsten-operator/casskop:v0.5.3-release	Apache License 2.0
Cassandra	mirantis.azurecr.io/tungsten/cassandra-bootstrap:0.1.4	Apache License 2.0
	mirantis.azurecr.io/tungsten/cassandra:3.11.6	Apache License 2.0
Kafka operator	mirantis.azurecr.io/tungsten-operator/kafka-k8s-operator:0.0.6	Mirantis Prortietary License
Kafka	mirantis.azurecr.io/tungsten/cp-kafka:5.5.2	Apache License 2.0
RabbitMQ operator	mirantis.azurecr.io/tungsten-operator/rabbitmq-operator:0.0.7	Mirantis Prortietary License
RabbitMQ	mirantis.azurecr.io/general/rabbitmq:3.8.7	Mozilla Public License 2.0
Zookeeper operator	mirantis.azurecr.io/tungsten-operator/zookeeper-operator:0.2.9	Apache License 2.0
Zookeeper	mirantis.azurecr.io/tungsten/zookeeper:3.6.1-0.2.9	Apache License 2.0
Redis operator	mirantis.azurecr.io/tungsten-operator/redis-operator:0.1.5-1-ccd6a63	Apache License 2.0

Redis	mirantis.azurecr.io/tungsten/redis:5-alpine	BSD 3-Clause "New" or "Revised" License
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MOS Ussuri GA Update release

Release date	Name	Container Cloud Cluster release	Highlights
December 23, 2020	MOS Ussuri Update	6.10.0	The first update to MOS Ussuri release introducing support for object storage and a Telco deployment profile, which includes implementation of baseline Enhanced Platform Awareness (NUMA awareness, huge pages, CPU pinning) capabilities, and a technical preview of packet processing acceleration (Data Plane Development Kit-enabled Tungsten Fabric).

New features

- Node-specific overrides
- Customizable theme for OpenStack Dashboard
- DPDK for OVS
- Advanced configuration for OpenStack computes nodes
- Support for RADOS Gateway Object Storage
- Disabling HTTP probes
- DPDK for Tungsten Fabric vRouter
- Tungsten Fabric services status verification

Node-specific overrides

Implemented the capability to easily perform the node-specific configuration through the OpenStack Controller. More specifically, the node-specific overrides allow you to:

- Enable DPDK with OVS ^{Technical Preview}
- Enable libvirt CPU pinning

Learn more

[MOS Reference Architecture: Node-specific settings](#)

Customizable theme for OpenStack Dashboard

Implemented the capability to customize the look and feel of Horizon through the OpenStackDeployment custom resource. Cloud operator is now able to specify the origin of the theme bundle to be applied to OpenStack Horizon in features:horizon:themes.

Learn more

[MOS Reference Architecture: OsDpl standard configuration](#)

DPDK for OVS

Technical Preview

Implemented the capability to enable the DPDK mode for OVS.

Learn more

[MOS Deployment guide: OsDpl standard configuration](#)

Advanced configuration for OpenStack computes nodes

Implemented the capability to enable huge pages and configure CPU isolation and CPU pinning in your MOS deployment.

Learn more

[MOS Deployment guide: Advanced configuration for OpenStack computes nodes](#)

Support for RADOS Gateway Object Storage

Added support for RADOS Gateway Object Storage (SWIFT).

Learn more

[MOS Reference Architecture: OpenStack on Kubernetes architecture](#)

Disabling HTTP probes

Implemented the capability to disable HTTP probes for public endpoints from the OpenStack service catalog. In this case, Telegraf performs HTTP checks only for the admin and internal OpenStack endpoints. By default, Telegraf verifies all endpoints from the OpenStack service catalog.

Learn more

[MOS Operations Guide: StackLight configuration parameters](#)

DPDK for Tungsten Fabric vRouter

Technical Preview

Implemented the capability to enable DPDK mode for the Tungsten Fabric vRouter.

Learn more

[MOS Operations Guide: Enable DPDK for Tungsten Fabric](#)

Tungsten Fabric services status verification

Implemented the capability to verify the status of Tungsten Fabric services, including the third-party services such as Cassandra, ZooKeeper, Kafka, Redis, and RabbitMQ using the Tungsten Fabric Operator tf-status tool.

Learn more

[MOS Operations Guide: Verify the status of Tungsten Fabric services](#)

Major components versions

Mirantis has tested MOS against a very specific configuration and can guarantee a predictable behavior of the product only in the exact same environments. The table below includes the major MOS components with the exact versions against which testing has been performed.

MOS Ussuri Update components versions

Component	Version
Cluster release	6.10.0
OpenStack	Ussuri
openstack-operator	0.3.18
Tungsten Fabric	5.1
tungstenfabric-operator	0.2.1

Known issues

This section contains the description of the known issues with available workarounds.

OpenStack known issues and limitations

- Limitations
- [9809] The default max_pods setting does not allow upgrading a MOS cluster
- [6912] Octavia load balancers may not work properly with DVR
- [8573] External authentication to Horizon fails to log in a different user

Limitations

Due to limitations in the Octavia and MOS integration, the clusters where Neutron is deployed in the Distributed Virtual Router (DVR) mode are not stable. Therefore, Mirantis does not recommend such configuration for production deployments.

[9809] The default max_pods setting does not allow upgrading a MOS cluster

During update of a MOS managed cluster, the pods may get stuck in the Pending state with the following example warning:

Warning FailedScheduling <unknown> default-scheduler 0/9 nodes are available:
1 node(s) were unschedulable, 2 Too many pods, 6 node(s) didn't match node selector.

Workaround

1. Before you update the managed cluster:

1. Set kubelet_max_pods to 250:

```
UCP_HOST=$(kubectl -n <child name space> get clusters <child name> -o jsonpath='{.status.providerStatus.ucpDashboard}')
AUTHTOKEN=$(curl --silent --insecure --data '{"username":"admin","password":"<PASSWORD>"}' $UCP_HOST/auth/login | jq --raw-output .auth_token)
curl --insecure -X GET "$UCP_HOST/api/ucp/config-toml" -H "accept: application/toml" -H "Authorization: Bearer $AUTHTOKEN" > ucp-config.toml
sed -i 's/kubelet_max_pods = 110/kubelet_max_pods = 250/g' ucp-config.toml
curl --insecure -X PUT -H "accept: application/toml" -H "Authorization: Bearer $AUTHTOKEN" --upload-file 'ucp-config.toml' -H "X-Ucp-Allow-Restricted-API: i-solemnly-swear-i-am-up-to-no-good" $UCP_HOST/api/ucp/config-toml
curl -k -X PUT "$UCP_HOST/api/ucp/config/tuning" -H "X-Ucp-Allow-Restricted-API: i-solemnly-swear-i-am-up-to-no-good" -H "Authorization: Bearer $AUTHTOKEN" --data '{"kaasManagedCluster":true}'
```

2. Verify that the changes have been applied:

```
kubectl get nodes -o jsonpath='{.items[*].status.capacity.pods}'
```

Example of a positive system response:

```
250 250 250 250 250 250 250 250 250
```

2. After you update the managed cluster, set kubelet_max_pods to the default 110 value:

```
UCP_HOST=$(kubectl -n <child name space> get clusters <child name> -o jsonpath='{.status.providerStatus.ucpDashboard}')
AUTHTOKEN=$(curl --silent --insecure --data '{"username":"admin","password":"<PASSWORD>"}' $UCP_HOST/auth/login | jq --raw-output .auth_token)
curl --insecure -X GET "$UCP_HOST/api/ucp/config-toml" -H "accept: application/toml" -H "Authorization: Bearer $AUTHTOKEN" > ucp-config.toml
sed -i 's/kubelet_max_pods = 250/kubelet_max_pods = 110/g' ucp-config.toml
curl --insecure -X PUT -H "accept: application/toml" -H "Authorization: Bearer $AUTHTOKEN" --upload-file 'ucp-config.toml' -H "X-Ucp-Allow-Restricted-API: i-solemnly-swear-i-am-up-to-no-good" $UCP_HOST/api/ucp/config-toml
curl -k -X PUT "$UCP_HOST/api/ucp/config/tuning" -H "X-Ucp-Allow-Restricted-API: i-solemnly-swear-i-am-up-to-no-good" -H "Authorization: Bearer $AUTHTOKEN" --data '{"kaasManagedCluster":true}'
```

[6912] Octavia load balancers may not work properly with DVR

When Neutron is deployed in the DVR mode, Octavia load balancers may not work correctly. The symptoms include both failure to properly balance traffic and failure to perform an amphora failover.

[8573] External authentication to Horizon fails to log in a different user

Horizon retains the user's credentials following their initial login using External Authentication Service, and does not allow to log in with another user credentials.

Workaround:

1. Clear cookies in your browser.
2. Select External Authentication Service on the Horizon login page.
3. Click Sign In. The Keycloak login page opens.

If the following error occurs, refresh the page and try again:

CSRF token missing or incorrect. Cookies may be turned off.
Make sure cookies are enabled and try again.

Tungsten Fabric known issues and limitations

- Limitations
 - [10096] tf-control service does not refresh IP addresses of Cassandra pods
-

Limitations

- Tungsten Fabric is not monitored by StackLight
- Tungsten Fabric does not provide the following functionality:
 - Automatic generation of network port records in DNSaaS (Designate) as Neutron with Tungsten Fabric as a back end is not integrated with DNSaaS. As a workaround, you can use the Tungsten Fabric built-in DNS service that enables virtual machines to resolve each other names.
 - Secret management (Barbican). You cannot use the certificates stored in Barbican to terminate HTTPs in a load balancer.
 - Role Based Access Control (RBAC) for Neutron objects.

Learn more

[MOS Reference Architecture: Tungsten Fabric known limitations](#)

[10096] tf-control service does not refresh IP addresses of Cassandra pods

The tf-control service resolves the DNS names of Cassandra pods at startup and does not update them if Cassandra pods got new IP addresses, for example, in case of a restart. As a workaround, to refresh the IP addresses of Cassandra pods, restart the tf-control pods one by one:

Caution!

Before restarting the tf-control pods:

- Verify that the new pods are successfully spawned.
- Verify that no vRouters are connected to only one tf-control pod that will be restarted.

```
kubectl -n tf delete pod tf-control-<hash>
```

Release artifacts

This section lists the components artifacts of the MOS Ussuri Update release:

- OpenStack Ussuri Update artifacts
- Tungsten Fabric Ussuri Update artifacts

OpenStack Ussuri Update artifacts

Component	Path	License information for main executable programs
Binaries		
mirantis	https://binary.mirantis.com/openstack/bin/horizon/mirantis-ussuri-43c3886-20201121205800.tar.gz	Mirantis Prortietary License
octavia-amphora	https://binary.mirantis.com/openstack/bin/octavia/amphora-x64-haproxy-ussuri-20201120005752.qcow2	Mirantis Prortietary License
Docker images		
aodh	mirantis.azurecr.io/openstack/aodh:ussuri-bionic-20201121180111	Apache License 2.0
barbican	mirantis.azurecr.io/openstack/barbican:ussuri-bionic-20201121180111	Apache License 2.0
ceilometer	mirantis.azurecr.io/openstack/ceilometer:ussuri-bionic-20201121180111	Apache License 2.0
ceph-config-helper	mirantis.azurecr.io/openstack/extra/ceph-config-helper:nautilus-bionic-20200810084204	Apache License 2.0, LGPL-2.1 or LGPL-3
cinder	mirantis.azurecr.io/openstack/cinder:ussuri-bionic-20201121180111	Apache License 2.0
dashboard-selenium	mirantis.azurecr.io/openstack/dashboard-selenium:ussuri-bionic-20201123130303	Apache License 2.0
defaultbackend	mirantis.azurecr.io/openstack/extra/defaultbackend:1.0	Apache License 2.0
designate	mirantis.azurecr.io/openstack/designate:ussuri-bionic-20201121180111	Apache License 2.0
docker	mirantis.azurecr.io/openstack/extra/docker:17.07.0	Apache License 2.0
etcd	mirantis.azurecr.io/openstack/extra/etcd:3.2.26	Apache License 2.0

glance	mirantis.azurecr.io/openstack/glance:ussuri-bionic-20201121180111	Apache License 2.0
gnocchi	mirantis.azurecr.io/openstack/gnocchi:ussuri-bionic-20201121180111	Apache License 2.0
heat	mirantis.azurecr.io/openstack/heat:ussuri-bionic-20201121180111	Apache License 2.0
horizon	mirantis.azurecr.io/openstack/horizon:ussuri-bionic-20201121180111	Apache License 2.0
ironic	mirantis.azurecr.io/openstack/ironic:ussuri-bionic-20201121180111	Apache License 2.0
keystone	mirantis.azurecr.io/openstack/keystone:ussuri-bionic-20201121180111	Apache License 2.0
kubernetes-entrypoint	mirantis.azurecr.io/openstack/extra/kubernetes-entrypoint:v1.0.0-20200311160233	Apache License 2.0
libvirt	mirantis.azurecr.io/general/libvirt:6.0.0-bionic-20201105044831	LGPL-2.1 License
mariadb	mirantis.azurecr.io/general/mariadb:10.4.16-bionic-20201105025052	GPLv2, LGPLv2.1 (client libraries)
memcached	mirantis.azurecr.io/general/memcached:1.6.6-alpine	BSD 3-Clause "New" or "Revised" License
neutron	mirantis.azurecr.io/openstack/neutron:ussuri-bionic-20201121180111	Apache License 2.0
nginx-ingress-controller	mirantis.azurecr.io/openstack/extra/nginx-ingress-controller:0.32.0	Apache License 2.0
nova	mirantis.azurecr.io/openstack/nova:ussuri-bionic-20201121180111	Apache License 2.0
octavia	mirantis.azurecr.io/openstack/octavia:ussuri-bionic-20201121180111	Apache License 2.0
openvswitch	mirantis.azurecr.io/general/openvswitch:2.11-bionic-20201109141859	Apache License 2.0
openvswitch-dpdk	mirantis.azurecr.io/general/openvswitch-dpdk:2.11-bionic-20201109141858	Apache License 2.0
panko	mirantis.azurecr.io/openstack/panko:ussuri-bionic-20201121180111	Apache License 2.0
pause	mirantis.azurecr.io/general/external/pause:3.1	Apache License 2.0
placement	mirantis.azurecr.io/openstack/placement:ussuri-bionic-20201121180111	Apache License 2.0
powerdns	mirantis.azurecr.io/openstack/extra/powerdns:4.2-alpine-20200117133238	GPL-2.0 License

prometheus-memcached-exporter	mirantis.azurecr.io/stacklight/memcached-exporter:v0.5.0	Apache License 2.0
prometheus-mysql-exporter	mirantis.azurecr.io/stacklight/mysqld-exporter:v0.11.0	Apache License 2.0
rabbitmq-3.8	mirantis.azurecr.io/general/rabbitmq:3.8.7	Mozilla Public License 2.0
rabbitmq-3.8-management	mirantis.azurecr.io/general/rabbitmq:3.8.7-management	Mozilla Public License 2.0
rabbitmq-exporter	mirantis.azurecr.io/stacklight/rabbitmq-exporter:v1.0.0-RC7.1	MIT License
redis	mirantis.azurecr.io/openstack/extra/redis:5.0-alpine	BSD 3-Clause "New" or "Revised" License
tempest	mirantis.azurecr.io/openstack/tempest:ussuri-bionic-20201121180111	Apache License 2.0
xrally-openstack	mirantis.azurecr.io/openstack/extra/xrally-openstack:2.1.0	Apache License 2.0
Helm charts		
openstack-operator	https://binary.mirantis.com/openstack/helm/openstack-controller/openstack-operator-0.3.18.tgz	Mirantis Prortietary License
aodh	https://binary.mirantis.com/openstack/helm/openstack-helm/aodh-0.1.0-mcp-3760.tgz	Apache License 2.0 (no License file in Helm chart)
barbican	https://binary.mirantis.com/openstack/helm/openstack-helm/barbican-0.1.0-mcp-3760.tgz	Apache License 2.0 (no License file in Helm chart)
ceilometer	https://binary.mirantis.com/openstack/helm/openstack-helm/ceilometer-0.1.0-mcp-3760.tgz	Apache License 2.0 (no License file in Helm chart)
cinder	https://binary.mirantis.com/openstack/helm/openstack-helm/cinder-0.1.0-mcp-3760.tgz	Apache License 2.0 (no License file in Helm chart)
designate	https://binary.mirantis.com/openstack/helm/openstack-helm/designate-0.1.0-mcp-3760.tgz	Apache License 2.0 (no License file in Helm chart)
glance	https://binary.mirantis.com/openstack/helm/openstack-helm/glance-0.1.0-mcp-3760.tgz	Apache License 2.0 (no License file in Helm chart)
heat	https://binary.mirantis.com/openstack/helm/openstack-helm/heat-0.1.0-mcp-3760.tgz	Apache License 2.0 (no License file in Helm chart)
horizon	https://binary.mirantis.com/openstack/helm/openstack-helm/horizon-0.1.0-mcp-3760.tgz	Apache License 2.0 (no License file in Helm chart)
ironic	https://binary.mirantis.com/openstack/helm/openstack-helm/ironic-0.1.0-mcp-3760.tgz	Apache License 2.0 (no License file in Helm chart)
keystone	https://binary.mirantis.com/openstack/helm/openstack-helm/keystone-0.1.0-mcp-3760.tgz	Apache License 2.0 (no License file in Helm chart)

magnum	https://binary.mirantis.com/openstack/helm/openstack-helm/magnum-0.1.0-mcp-3760.tgz	Apache License 2.0 (no License file in Helm chart)
mistral	https://binary.mirantis.com/openstack/helm/openstack-helm/mistral-0.1.0-mcp-3760.tgz	Apache License 2.0 (no License file in Helm chart)
neutron	https://binary.mirantis.com/openstack/helm/openstack-helm/neutron-0.1.0-mcp-3760.tgz	Apache License 2.0 (no License file in Helm chart)
nova	https://binary.mirantis.com/openstack/helm/openstack-helm/nova-0.1.0-mcp-3760.tgz	Apache License 2.0 (no License file in Helm chart)
octavia	https://binary.mirantis.com/openstack/helm/openstack-helm/octavia-0.1.0-mcp-3760.tgz	Apache License 2.0 (no License file in Helm chart)
panko	https://binary.mirantis.com/openstack/helm/openstack-helm/panko-0.1.0-mcp-3760.tgz	Apache License 2.0 (no License file in Helm chart)
rally	https://binary.mirantis.com/openstack/helm/openstack-helm/rally-0.1.0-mcp-3760.tgz	Apache License 2.0 (no License file in Helm chart)
senlin	https://binary.mirantis.com/openstack/helm/openstack-helm/senlin-0.1.0-mcp-3760.tgz	Apache License 2.0 (no License file in Helm chart)
tempest	https://binary.mirantis.com/openstack/helm/openstack-helm/tempest-0.1.0-mcp-3742.tgz	Apache License 2.0 (no License file in Helm chart)
dashboard-selenium	https://binary.mirantis.com/openstack/helm/openstack-helm/dashboard-selenium-0.1.0-mcp-3760.tgz	Apache License 2.0 (no License file in Helm chart)
placement	https://binary.mirantis.com/openstack/helm/openstack-helm/placement-0.1.0-mcp-3760.tgz	Apache License 2.0 (no License file in Helm chart)
calico	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/calico-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
ceph-client	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/ceph-client-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
ceph-mon	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/ceph-mon-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
ceph-osd	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/ceph-osd-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
ceph-provisioners	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/ceph-provisioners-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
ceph-rgw	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/ceph-rgw-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
dnsmasq	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/dnsmasq-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)

elastic-apm-server	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/elastic-apm-server-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
elastic-filebeat	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/elastic-filebeat-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
elastic-metricbeat	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/elastic-metricbeat-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
elastic-packetbeat	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/elastic-packetbeat-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
elasticsearch	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/elasticsearch-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
etcd	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/etcd-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
falco	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/falco-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
flannel	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/flannel-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
fluentbit	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/fluentbit-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
fluentd	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/fluentd-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
gnocchi	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/gnocchi-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
grafana	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/grafana-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
helm-toolkit	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/helm-toolkit-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
ingress	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/ingress-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
kibana	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/kibana-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
kube-dns	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/kube-dns-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
kubernetes-keystone-webhook	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/kubernetes-keystone-webhook-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)

ldap	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/ldap-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
libvirt	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/libvirt-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
lockdown	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/lockdown-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
mariadb	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/mariadb-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
memcached	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/memcached-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
mongodb	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/mongodb-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
nagios	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/nagios-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
nfs-provisioner	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/nfs-provisioner-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
openvswitch	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/openvswitch-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
podsecuritypolicy	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/podsecuritypolicy-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
postgresql	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/postgresql-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
powerdns	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/powerdns-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
prometheus	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/prometheus-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
prometheus-alertmanager	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/prometheus-alertmanager-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
prometheus-kube-state-metrics	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/prometheus-kube-state-metrics-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
prometheus-node-exporter	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/prometheus-node-exporter-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)

prometheus-openstack-exporter	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/prometheus-openstack-exporter-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
prometheus-process-exporter	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/prometheus-process-exporter-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
rabbitmq	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/rabbitmq-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
redis	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/redis-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
registry	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/registry-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
tiller	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/tiller-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)
zookeeper	https://binary.mirantis.com/openstack/helm/openstack-helm-infra/zookeeper-0.1.0-mcp-2672.tgz	Apache License 2.0 (no License file in Helm chart)

Tungsten Fabric Ussuri Update artifacts

Component	Path	License information for main executable programs
Helm charts		
Tungsten Fabric Operator	https://binary-mirantis-com/tungsten/helm/tungstenfabric-operator-0.2.1.tgz	Mirantis Prortietary License
Docker images		
TF Analytics	mirantis.azurecr.io/tungsten/contrail-analytics-api:5.1.20201127135523	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-analytics-collector:5.1.20201127135523	Apache License 2.0
TF Analytics Alarm	mirantis.azurecr.io/tungsten/contrail-analytics-alarm-gen:5.1.20201127135523	Apache License 2.0
TF Analytics DB	mirantis.azurecr.io/tungsten/contrail-analytics-query-engine:5.1.20201127135523	Apache License 2.0
TF Analytics SNMP	mirantis.azurecr.io/tungsten/contrail-analytics-snmpp-collector:5.1.20201127135523	Apache License 2.0

	mirantis.azurecr.io/tungsten/contrail-analytics-s nmp-topology:5.1.20201127135523	Apache License 2.0
TF Config	mirantis.azurecr.io/tungsten/contrail-controller- config-api:5.1.20201127135523	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-controller- config-devicemgr:5.1.20201127135523	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-controller- config-schema:5.1.20201127135523	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-controller- config-svcmonitor:5.1.20201127135523	Apache License 2.0
TF Control	mirantis.azurecr.io/tungsten/contrail-controller- control-control:5.1.20201127135523	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-controller- control-dns:5.1.20201127135523	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-controller- control-named:5.1.20201127135523	Apache License 2.0
TF Web UI	mirantis.azurecr.io/tungsten/contrail-controller- webui-job:5.1.20201127135523	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-controller- webui-web:5.1.20201127135523	Apache License 2.0
Nodemanager	mirantis.azurecr.io/tungsten/contrail-nodemgr:5 .1.20201127135523	Apache License 2.0
TF Status	mirantis.azurecr.io/tungsten/contrail-status:5.1. 20201127135523	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-tf-status:5. 1.20201127135523	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-tf-status-a gggregator:5.1.20201127135523	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-tf-status-p arty:5.1.20201127135523	Apache License 2.0
TF VRouter	mirantis.azurecr.io/tungsten/contrail-vrouter-ag ent:5.1.20201127135523	Apache License 2.0
	mirantis.azurecr.io/tungsten/contrail-vrouter-ke rnel-build-init:5.1.20201127135523	Apache License 2.0
Cassandra operator	mirantis.azurecr.io/tungsten-operator/casskop:v 0.5.3-release	Apache License 2.0
Cassandra	mirantis.azurecr.io/tungsten/cassandra-bootstr ap:0.1.4	Apache License 2.0
	mirantis.azurecr.io/tungsten/cassandra:3.11.6	Apache License 2.0

Kafka operator	mirantis.azurecr.io/tungsten-operator/kafka-k8s-operator:0.0.6	Mirantis Prortietary License
Kafka	mirantis.azurecr.io/tungsten/cp-kafka:5.5.2	Apache License 2.0
RabbitMQ operator	mirantis.azurecr.io/tungsten-operator/rabbitmq-operator:0.0.7	Mirantis Prortietary License
RabbitMQ	mirantis.azurecr.io/general/rabbitmq:3.8.7	Mozilla Public License 2.0
Zookeeper operator	mirantis.azurecr.io/tungsten-operator/zookeeper-operator:0.2.9	Apache License 2.0
Zookeeper	mirantis.azurecr.io/tungsten/zookeeper:3.6.1-0.2.9	Apache License 2.0
Redis operator	mirantis.azurecr.io/tungsten-operator/redis-operator:0.1.5-1-ccd6a63	Apache License 2.0
Redis	mirantis.azurecr.io/tungsten/redis:5-alpine	BSD 3-Clause "New" or "Revised" License
TF Test	mirantis.azurecr.io/tungsten/tungsten-pytest:0.1-20201127103849	MIT License

Addressed issues

The following issues have been addressed in the Mirantis OpenStack for Kubernetes Ussuri Update release:

- [9681] [OS] Fixed the issue that caused the openstack-mariadb-cluster-wait job reaching the backoff limit during the MOS managed cluster update.
- [9883] [OS] Improved the logic of the MOS managed cluster update to prevent the occurrence of deadlock.

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- [8293] [TF] Fixed the configuration error that caused the logging of error messages on attempts to use loggers in contrail-lbaas-haproxy-stdout.log.
 - [8469] [TF] Fixed the issue with the load balancer accessibility caused by Octavia enabling a default security group for a newly created load balancer.