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<td>Artifacts</td>
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<td>Components versions</td>
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**Deprecation notes** 253
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Preface

This documentation provides information on how to use Mirantis products to deploy cloud environments. The information is for reference purposes and is subject to change.

Intended audience

This documentation assumes that the reader is familiar with network and cloud concepts and is intended for the following users:

- Infrastructure Operator
  - Is member of the IT operations team
  - Has working knowledge of Linux, virtualization, Kubernetes API and CLI, and OpenStack to support the application development team
  - Accesses Mirantis KaaS and Kubernetes through a local machine or web UI
  - Provides verified artifacts through a central repository to the Tenant DevOps engineers
- Tenant DevOps engineer
  - Is member of the application development team and reports to line-of-business (LOB)
  - Has working knowledge of Linux, virtualization, Kubernetes API and CLI to support application owners
  - Accesses Mirantis KaaS and Kubernetes through a local machine or web UI
  - Consumes artifacts from a central repository approved by the Infrastructure Operator

Documentation history

The following table lists the released revisions of this documentation:

<table>
<thead>
<tr>
<th>Revision date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 19, 2019</td>
<td>Mirantis KaaS Beta</td>
</tr>
</tbody>
</table>
KaaS product highlights

Mirantis Kubernetes-as-a-Service (KaaS) is currently available from Mirantis as beta software. It is available for evaluation purposes and will enable you to deploy a KaaS management cluster along with one or more small Kubernetes clusters, so that you can observe its benefits in your own cloud environment.

Mirantis does not provide any guaranteed support or service level agreements for the beta software. However, we welcome feedback from the registered users on their experience with the software.

The major features of the Mirantis KaaS beta include:

- **Self-service Kubernetes cluster deployment**
  Provides the web UI, CLI, and API to enable self-service deployment of a KaaS management and child Kubernetes clusters.

- **Pure-play Kubernetes**
  Provides full support for the Kubernetes 1.16 and 1.17 versions.

- **Highly available Kubernetes clusters**
  Allows for automatic deployment and scaling of the child Kubernetes clusters in an HA configuration.

- **Support for different cloud providers**
  Enables deployment and management of the Kubernetes clusters on OpenStack, AWS, and bare metal workloads.

- **Host operating system LCM**
  Configuration, patching, and update of the host operating system for the cluster components.

- **Calico Networking CNI**
  Calico provides the default networking services within the Kubernetes clusters.

- **Development and support for the meaningful add-ons**
  - Central Identity and Access Management (IAM) provided through Keycloak as common integration point to enterprise identity providers
  - Ceph Storage utilizing Rook to provide and manage a robust and scalable Ceph deployment that can be used by Kubernetes workloads.
  - Kubernetes Dashboard.
  - StackLight (LMA) including Prometheus, Grafana, Alertmanager, and other services.

Within the scope of the Mirantis KaaS beta, minor releases are being published continuously with new features, improvements, and critical issues resolutions delivered to enhance the Mirantis KaaS beta version. For details, see: KaaS releases and Cluster releases.
KaaS releases

Once a new KaaS release is available, a management cluster automatically upgrades to a newer consecutive KaaS release unless this cluster contains child clusters with a Cluster release unsupported by a newer KaaS release. Any Cluster release is supported at least by two KaaS releases before it becomes unsupported. For more details about the Mirantis KaaS release mechanism, see KaaS Reference Architecture: Release controller.

The following table describes the history of the KaaS releases as well as their compatibility with the Cluster releases and Kubernetes versions delivered within the scope of the Mirantis KaaS beta.

<table>
<thead>
<tr>
<th>Cluster release (child cluster)</th>
<th>KaaS release date</th>
<th>KaaS release</th>
<th>1.6.0</th>
<th>1.5.0</th>
<th>1.4.0</th>
<th>1.3.0</th>
<th>1.2.2</th>
<th>1.2.1</th>
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<td>4.0.0 k8s 1.17</td>
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<tr>
<td>3.3.0 k8s 1.16</td>
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<tr>
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<tr>
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<tr>
<td>2.2.0 k8s 1.15</td>
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<td>-</td>
</tr>
</tbody>
</table>
This section outlines the release notes for the minor KaaS release versions that are being continuously published within the scope of the Mirantis KaaS beta.

1.6.0 (current)

This section outlines release notes for the KaaS release 1.6.0 that introduces support for the Cluster release 4.0.0 with Kubernetes 1.17 and Cluster release 3.3.0 with Kubernetes 1.16. The KaaS release 1.6.0 also supports the older Cluster releases 3.2.0 and 2.3.0.

The KaaS release 1.6.0 is available starting from 18 March 2020.

Enhancements

This section outlines new features and enhancements introduced in the KaaS release version 1.6.0:

- Kubernetes 1.16 for the KaaS management cluster
- Cluster release 3.3.0 and 4.0.0 support
- HA mode for the Helm controller
- Fast preflight validation for a bare metal management cluster bootstrap
- KaaS web UI improvements

Kubernetes 1.16 for the KaaS management cluster

Implemented automatic Kubernetes version upgrade on the KaaS management cluster from the community version 1.15 to 1.16. For the list of enhancements and bug fixes, see: Kubernetes 1.16 release notes.

Cluster release 3.3.0 and 4.0.0 support

The KaaS release 1.6.0 introduces support for the following Cluster releases:

- The Cluster release 4.0.0 that introduces support for Kubernetes 1.17
The Cluster release 3.3.0 that supports Kubernetes 1.16 with an option to upgrade to the Cluster release 4.0.0 with Kubernetes 1.17
For details, see: Cluster release 4.0.0 and Cluster release 3.3.0.

Caution!

• The Cluster releases 2.3.0 and 3.2.0 are deprecated and will become unsupported in the next KaaS release.
• The Cluster releases 2.2.0 and 3.1.0 are removed from the supported Cluster releases starting from the KaaS release 1.6.0.

If the Cluster release of your KaaS child cluster is 2.x, update the cluster to the latest supported Cluster release using the KaaS web UI as described in KaaS User Guide: Update a child cluster. Otherwise, the Cluster release eventually becomes unsupported and the KaaS release autoupgrade stops.

HA mode for the Helm controller

Enabled HA mode for the Helm controller with a leader election enabled by default. This prevents temporary unavailability of the Helm controller if a node becomes unreachable or not ready.

Fast preflight validation for a bare metal management cluster bootstrap

Implemented the bootstrap.sh preflight verification command for KaaS bare metal that validates the Baseboard Management Controller (BMC) access credentials and the PXE service configuration in the deployment templates before the baremetal-based KaaS management cluster bootstrap.

The fast preflight command is executed by default by the bare metal bootstrap script.

Learn more

KaaS Deployment Guide: Prepare metadata and deploy the KaaS management cluster

KaaS web UI improvements

Improved user experience by adding the fields for a provider credentials creation to the Create new cluster wizard in the KaaS web UI. At the same time, a dedicated tab for creating and managing these parameters is also available in the KaaS web UI.
Learn more

KaaS User Guide: Create and manage a KaaS child cluster

Addressed issues

In the KaaS release 1.6.0, fixed the issue with the kubeadm token not being updated after expiration. The issue occurred when upgrading an OpenStack-based KaaS child cluster with an earlier Cluster release version to the latest one.

Known issues

This section lists known issues with available workarounds for the KaaS release 1.6.0.

- 3157
- 2757
- 2411
- 2591

3157

During a Ceph cluster deployment on a KaaS child cluster, the Ceph pools cannot be created due to missing pods of the list-ceph-devs jobs.

Workaround:

1. After the Ceph cluster deployment starts, log in to any Ceph controller node.
2. Start inspecting the deployment execution log. Wait for the system to output the following information:

   ```
   [INFO ] Parsing input data
   ...
   [INFO ] Validating
   [INFO ] Updating RookCRD cr
   [INFO ] Waiting for deployment to complete
   ```

3. Obtain the list-ceph-devs jobs list:

   ```
   kubectl -n rook-ceph get job | grep list-ceph-devs
   ```

   Example of system response:
4. Obtain the list of these Ceph jobs pods:

```
kubectl -n rook-ceph get po | grep list-ceph-devs
```

Example of system response:

```
list-ceph-devs-1-ghvxq         0/1     Completed   0     21s
list-ceph-devs-2-q6qvd         0/1     Completed   0     21s
```

The example output does not contain a pod for the ceph-devs-0 job.

5. Delete the jobs that do not have pods. For example:

```
kubectl -n rook-ceph delete job list-ceph-devs-0
```

6. Repeat the steps 4-5 for the remaining jobs that do not have pods. Once done, ceph-controller continues the cluster deployment and creates the required Ceph pools.

2757

During a KaaS management cluster deployment, IAM fails to start with the IAM pods being in the CrashLoopBackOff status.

Workaround:

1. Log in to the bootstrap node.
2. Remove the iam-mariadb-state configmap:

```
kubectl delete cm -n kaas iam-mariadb-state
```

3. Manually delete the mariadb pods:

```
kubectl delete po -n kaas mariadb-server-{0,1,2}
```

Wait for the pods to start. If the mariadb pod does not start with the connection to peer timed out exception, repeat the step 2.

4. Obtain the MariaDB database admin password:
5. Log in to MariaDB:

```
kubectl exec -it -n kaas mariadb-server-0 -- bash -c 'mysql -uroot -p<mysqlDbadminPassword>'
```

Substitute `<mysqlDbadminPassword>` with the corresponding value obtained in the previous step.

6. Run the following command:

```
DROP DATABASE IF EXISTS keycloak
```

7. Manually delete the Keycloak pods:

```
kubectl delete po -n kaas iam-keycloak-{0,1,2}
```

2411

After deploying a KaaS child cluster, provisioning of machines fails with the failed to create containerd task: OCI runtime create failed error in the affected pod logs. The issue is caused by the Kubernetes upstream bug.

Workaround:

1. Delete the affected pods by scaling down the controller replicas to 0. For example, for `kaas-kaas-ui`:

```
kubectl scale deploy -n kaas kaas-kaas-ui --replicas=0
```

2. Restart the affected pods by scaling up the controller replicas to 3. For example:

```
kubectl scale deploy -n kaas kaas-kaas-ui --replicas=3
```

2591

During an automatic upgrade of the KaaS management cluster, the following false-positive error may appear in the KaaS API: Error updating the release: rpc error: code = Unavailable desc = transport is closing, while the cluster upgrade is successful. No workaround is required.

Components versions

The following table lists the KaaS components of the KaaS release 1.6.0.
The components that are newly added, updated, deprecated, or removed as compared to the previous release version, are marked with a corresponding superscript, for example, `lcm-ansible` _Updated_.

### KaaS release components versions

<table>
<thead>
<tr>
<th>Component</th>
<th>Application/Service</th>
<th>Version</th>
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<tr>
<td>AWS</td>
<td>aws-provider <em>Updated</em></td>
<td>1.2.0</td>
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<tr>
<td>Bare metal</td>
<td>baremetal-operator</td>
<td>base-bionic-20200206170622</td>
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<tr>
<td></td>
<td>baremetal-provider <em>Updated</em></td>
<td>1.2.0</td>
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<td></td>
<td>httpd</td>
<td>2.4.41-20191125174821</td>
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<tr>
<td></td>
<td>ironic</td>
<td>stein-bionic-20200207104704</td>
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<tr>
<td></td>
<td>kaas-ipam</td>
<td>base-bionic-20200206170624</td>
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<tr>
<td></td>
<td>mariadb</td>
<td>10.2.29-bionic-20200206163515</td>
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<tr>
<td>IAM</td>
<td>iam</td>
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<tr>
<td></td>
<td>iam-controller <em>Updated</em></td>
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<td></td>
<td>keycloak</td>
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<td>KaaS</td>
<td>kaas-public-api <em>Updated</em></td>
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<td>kaas-ui <em>Updated</em></td>
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<tr>
<td></td>
<td>lcm-controller <em>Updated</em></td>
<td>0.2.0-82-g746c593</td>
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<td>metallb</td>
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<td></td>
<td>release-controller <em>Updated</em></td>
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<td></td>
<td>squid-cache <em>Updated</em></td>
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<tr>
<td>OpenStack</td>
<td>openstack-provider <em>Updated</em></td>
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<tr>
<td></td>
<td>os-resources-controller <em>Updated</em></td>
<td>1.2.0</td>
</tr>
</tbody>
</table>

### Artifacts

This section lists all components artifacts of the KaaS release 1.6.0.

- Bare metal artifacts
- Core components artifacts
• IAM artifacts

---

**Note**

The components that are newly added, updated, deprecated, or removed as compared to the previous release version, are marked with a corresponding superscript, for example, lcm-ansible\textsuperscript{Updated}.

---

### Bare metal artifacts

<table>
<thead>
<tr>
<th>Artifact</th>
<th>Component</th>
<th>Path</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binaries</td>
<td>Target system image (ubuntu-bionic)</td>
<td><a href="https://binary.mirantis.com/bm/bin/efi/ubuntu/qcow2-bionic-debug-20200206163203">https://binary.mirantis.com/bm/bin/efi/ubuntu/qcow2-bionic-debug-20200206163203</a></td>
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<tr>
<td></td>
<td>ironic-python-agent.initramfs</td>
<td><a href="https://binary.mirantis.com/bm/bin/ironic/ipa/ubuntu/initramfs-stein-bionic-debug-20200206163203">https://binary.mirantis.com/bm/bin/ironic/ipa/ubuntu/initramfs-stein-bionic-debug-20200206163203</a></td>
</tr>
<tr>
<td></td>
<td>kaas-ipam</td>
<td><a href="https://binary.mirantis.com/bm/helm/kaas-ipam-1.0.5.tgz">https://binary.mirantis.com/bm/helm/kaas-ipam-1.0.5.tgz</a></td>
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**Docker images**

<table>
<thead>
<tr>
<th>Artifact</th>
<th>Component</th>
<th>Path</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>baremetal-operator</td>
<td>mirantis.azurecr.io/bm/baremetal-operator:base-bionic-20200206170622</td>
</tr>
<tr>
<td>httpd</td>
<td></td>
<td>mirantis.azurecr.io/bm/external/httpd:2.4.41</td>
</tr>
<tr>
<td>ironic</td>
<td></td>
<td>mirantis.azurecr.io/openstack/ironic:stein-bionic-20200207104704</td>
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<tr>
<td>ironic-inspector</td>
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<tr>
<td>kaas-ipam</td>
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### Core components artifacts

<table>
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<th>Artifact</th>
<th>Component</th>
<th>Path</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bootstrap tarball Updated</td>
<td>bootstrap-linux</td>
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<td>iam-controller</td>
<td>mirantis.azurecr.io/core/iam-controller:1.2.0</td>
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<td>kind-cache</td>
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<td>lcm-controller</td>
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<td>os-resources-controller (OpenStack controller manager)</td>
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<td>release-controller</td>
<td>mirantis.azurecr.io/core/release-controller:1.2.0</td>
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<tr>
<td>squid-cache</td>
<td>mirantis.azurecr.io/core/squid-cache:1.2.0</td>
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### IAM artifacts

<table>
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<tr>
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<th>Path</th>
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<td>Binaries</td>
<td>hash-generate-linux</td>
<td><a href="http://binary.mirantis.com/iam/bin/hash-generate-linux-0.0.1-236-9cea809-linux">http://binary.mirantis.com/iam/bin/hash-generate-linux-0.0.1-236-9cea809-linux</a></td>
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<td>hash-generate-darwin</td>
<td><a href="http://binary.mirantis.com/iam/bin/hash-generate-darwin-0.0.1-236-9cea809-darwin">http://binary.mirantis.com/iam/bin/hash-generate-darwin-0.0.1-236-9cea809-darwin</a></td>
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<td>iamctl-linux</td>
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<td>iamctl-darwin</td>
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<td>iamctl-windows</td>
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<td>iam</td>
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<td>iam-proxy</td>
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<td>Docker images</td>
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<td></td>
<td>auxiliary</td>
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</table>
## Obsolete KaaS releases

### 1.5.0

This section outlines release notes for the KaaS release 1.5.0 that introduces support for the Cluster release 3.2.0 with Kubernetes 1.16 and Cluster release 2.3.0 with Kubernetes 1.15. The KaaS release 1.5.0 also supports the older Cluster releases 3.1.0 and 2.2.0.

The KaaS release 1.5.0 is available starting from 26 February 2020.

### Enhancements

In the KaaS release 1.5.0, refactored the kaas-ipam controller by completely reworking and adding the required functionality of the upstream inwinstack service to kaas-ipam. Removed the inwinstack-ipam controller from the IP Address Management in Mirantis KaaS.

### Learn more

[KaaS Reference Architecture: IP Address Management](#)

### Addressed issues

This section provides the list of issues addressed in the KaaS release 1.5.0:

- [2151] [Bare metal] Fixed the issue with failure to provision machines after deploying a baremetal-based KaaS child cluster, causing the failed to create containerd task: OCI runtime create failed error in the affected pod logs. The issue occurred due to the Kubernetes upstream bug.
• [1757] [Bare metal] Fixed the issue with a KaaS child cluster controller and worker nodes failing with the kernel: watchdog: BUG: soft lockup - CPU#15 stuck for xxs! error when using the Ubuntu 18.04.3 LTS kernel version 4.15.0-58-generic. The fix upgrades the Ubuntu kernel to version 4.15.0-76-generic.

• [2080] [Bare metal] Fixed failures during the Ironic data pivoting from the bootstrap to management cluster while executing the bootstrap.sh script. The issue occurred due to the ironic and ironic-inspector services concurrently writing to the database. Now, these services automatically scale down during pivot.

• [2149] [Bare metal] [IPAM] Fixed the issue with the IpamHost and related resources not being released and remaining in the ONLINE=true status after the corresponding machine was removed.

• [1425] [Ceph] Fixed the issue with the ceph-csi memory leaks caused by the CephFS plugin Alpha version. The fix disables CephFS plugin for the Ceph CSI driver.

• [2705] [StackLight] Fixed the cluster size default CPU and memory limits, defined in resourcesPerClusterSize, being improperly applied to services.

Known issues
This section lists known issues with available workarounds for the KaaS release 1.5.0.

• 2757
• 2908
• 2591
• 2411
• 2680

2757
During a KaaS management cluster deployment, IAM fails to start with the IAM pods being in the CrashLoopBackOff status.

Workaround:
1. Log in to the bootstrap node.
2. Remove the iam-mariadb-state configmap:
   ```bash
ekubectl delete cm -n kaas iam-mariadb-state
   ```
3. Manually delete the mariadb pods:
   ```bash
ekubectl delete po -n kaas mariadb-server-{0,1,2}
   ```

   Wait for the pods to start. If the mariadb pod does not start with the connection to peer timed out exception, repeat the step 2.
4. Obtain the MariaDB database admin password:

```sh
kubectl get secrets -n kaas mariadb-dbadmin-password \
-o jsonpath='{.data.MYSQL_DBADMIN_PASSWORD}' | base64 -d ; echo
```

5. Log in to MariaDB:

```sh
kubectl exec -it -n kaas mariadb-server-0 -- bash -c '
mysql -uroot -p<mysqlDbadminPassword>
'
```

Substitute `<mysqlDbadminPassword>` with the corresponding value obtained in the previous step.

6. Run the following command:

```sh
DROP DATABASE IF EXISTS keycloak
```

7. Manually delete the Keycloak pods:

```sh
kubectl delete po -n kaas iam-keycloak-{0,1,2}
```

2908

After deploying a baremetal-based KaaS management cluster, all StackLight web UI endpoints are not accessible returning Access denied HTTP ERROR 403.

Workaround:

1. Log in to the management cluster.
2. Obtain the list of the iam-api pods:

```sh
kubectl get po -n kaas -l app.kubernetes.io/name=iam-api
```

3. On every iam-api pod, search for the conflicting IAM role in logs:

```sh
grep 'Error during upserting of role' $(kubectl logs -n kaas iam-api<podID>)
```

In the output, obtain the conflicting role name, for example, m:sl:default:kaas-mgmt@admin.

4. Obtain the Keycloak login credentials:

```sh
kubectl get secret iam-api-secrets -n \
kaas -o jsonpath='{.data.keycloak_password}' | base64 -d ; echo
```

5. Log in to the Keycloak Administration console with the credentials obtained in the previous step.
7. Search for the role name obtained in the step 3.
8. Delete the conflicting role.

2591

During an automatic upgrade of the KaaS management cluster, the following false-positive error may appear in the KaaS API: Error updating the release: rpc error: code = Unavailable desc = transport is closing, while the cluster upgrade is successful. No workaround is required.

2411

After deploying a KaaS child cluster, provisioning of machines fails with the failed to create containerd task: OCI runtime create failed error in the affected pod logs. The issue is caused by the Kubernetes upstream bug.

Workaround:

1. Delete the affected pods by scaling down the controller replicas to 0. For example, for kaas-kaas-ui:

   ```
   kubectl scale deploy -n kaas-kaas-ui --replicas=0
   ```

2. Restart the affected pods by scaling up the controller replicas to 3. For example:

   ```
   kubectl scale deploy -n kaas-kaas-ui --replicas=3
   ```

2680

Fixed in KaaS 1.6.0

When upgrading an OpenStack-based KaaS child cluster with an earlier Cluster release version to the latest one, for example from 2.2.0 to 3.1.0, the worker nodes stuck in the Upgrading state due to the kubeadm token not being updated after expiration.

As a workaround, add a new machine to the cluster for the kubeadm token to be recreated. This allows the stuck worker nodes to complete the upgrade. Once the upgrade succeeds, remove the newly added machine.

Components versions

The following table lists the KaaS components of the KaaS release 1.5.0.

<table>
<thead>
<tr>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>The components that are newly added, updated, deprecated, or removed as compared to the previous release version, are marked with a corresponding superscript, for example, lcm-ansible Updated.</td>
</tr>
</tbody>
</table>

KaaS release components versions
<table>
<thead>
<tr>
<th>Component</th>
<th>Application/Service</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS</td>
<td>aws-provider</td>
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</tr>
<tr>
<td>Bare metal</td>
<td>baremetal-operator</td>
<td>Updated</td>
</tr>
<tr>
<td></td>
<td>baremetal-provider</td>
<td>Updated 0.2.49</td>
</tr>
<tr>
<td></td>
<td>httpd</td>
<td></td>
</tr>
<tr>
<td></td>
<td>inwinstack-ipam</td>
<td>Removed n/a</td>
</tr>
<tr>
<td></td>
<td>ironic</td>
<td>Updated</td>
</tr>
<tr>
<td></td>
<td>kaas-ipam</td>
<td>Updated</td>
</tr>
<tr>
<td></td>
<td>mariadb</td>
<td>Updated</td>
</tr>
<tr>
<td>IAM</td>
<td>iam</td>
<td></td>
</tr>
<tr>
<td></td>
<td>iam-controller</td>
<td>Updated 0.2.49</td>
</tr>
<tr>
<td></td>
<td>keycloak</td>
<td></td>
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<tr>
<td>KaaS</td>
<td>kaas-public-api</td>
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</tr>
<tr>
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<td>kaas-ui</td>
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<td>lcm-controller</td>
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</tr>
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<td>metallb</td>
<td></td>
</tr>
<tr>
<td></td>
<td>release-controller</td>
<td>Updated 0.2.49</td>
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<td>squid-cache</td>
<td>Updated 0.2.49</td>
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<tr>
<td>OpenStack</td>
<td>openstack-provider</td>
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<tr>
<td></td>
<td>os-resources-controller</td>
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</table>

Artifacts

This section lists all components artifacts of the KaaS release 1.5.0.

- Bare metal artifacts for KaaS v1.5.0
- Core components artifacts for KaaS v1.5.0
- IAM artifacts for KaaS v1.5.0
Note
The components that are newly added, updated, deprecated, or removed as compared to the previous release version, are marked with a corresponding superscript, for example, lcm-ansible\textsuperscript{Updated}.

Bare metal artifacts for KaaS v1.5.0

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<th>Path</th>
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</thead>
<tbody>
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<tr>
<td></td>
<td>ironic-python-agent.initramfs</td>
<td><a href="https://binary.mirantis.com/bm/bin/ironic/ipa/ubuntu/initramfs-stein-bionic-debug-20200206163203">https://binary.mirantis.com/bm/bin/ironic/ipa/ubuntu/initramfs-stein-bionic-debug-20200206163203</a></td>
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<td>kaas-ipam</td>
<td><a href="https://binary.mirantis.com/bm/helm/kaas-ipam-1.0.5.tgz">https://binary.mirantis.com/bm/helm/kaas-ipam-1.0.5.tgz</a></td>
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<td>mirantis.azurecr.io/bm/external/httpd:2.4.41</td>
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Core components artifacts for KaaS v1.5.0

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<td>kaas-public-api</td>
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<td>keycloak_proxy</td>
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<td>kubernetes-dashboard</td>
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<td>os-provider</td>
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<td>os-resources-controller</td>
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<td>release-controller</td>
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<td>Docker images for KaaS deployment</td>
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<td>cluster-api-provider-baremetal</td>
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<td>Artifact</td>
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<tr>
<td>iam-controller</td>
<td>mirantis.azurecr.io/core/iam-controller:0.2.49</td>
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<td>openstack-cluster-api-controller</td>
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<tr>
<td>os-resources-controller (OpenStack controller manager)</td>
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<tr>
<td>release-controller</td>
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**IAM artifacts for KaaS v1.5.0**

<table>
<thead>
<tr>
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<th>Component</th>
<th>Path</th>
</tr>
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<tbody>
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<td><a href="http://binary.mirantis.com/iam/bin/hash-generate-0.0.1-236-9cea809-linux">http://binary.mirantis.com/iam/bin/hash-generate-0.0.1-236-9cea809-linux</a></td>
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</table>
1.4.0

This section outlines release notes for the KaaS release 1.4.0 that introduces support for the Cluster release 3.1.0 with Kubernetes 1.16 and Cluster release 2.2.0 with Kubernetes 1.15. The KaaS release 1.4.0 also supports the older Cluster releases 3.0.0 and 2.1.0.

The KaaS release 1.4.0 is available starting from 7 February 2020.

Enhancements

This section outlines new features and enhancements introduced in the KaaS release version 1.4.0:

- HA mode for the KaaS components
- KaaS web UI improvements

HA mode for the KaaS components

Enabled HA mode for the following KaaS components with a leader election enabled on all controllers by default:

- aws-provider, openstack-provider, baremetal-provider
- release-controller, lcm-controller
- keycloak, kaas-ui
- squid-cache

This prevents temporary unavailability of the KaaS services if a node becomes unreachable or not ready.

KaaS web UI improvements

Improved the KaaS web UI with the following changes:

- Added the possibility to change the configuration of the following cluster components after deployment:
  - Added check boxes to enable or disable Istio and Kubernetes Dashboard
- Added a check box to enable or disable StackLight. If enabled, you can also configure the StackLight parameters.
- Added a warning announcing that a specific Cluster release will not be supported in the next KaaS release. In such case, update the KaaS child cluster in question using the Update button.

Learn more

- KaaS User Guide: Change a cluster configuration
- KaaS User Guide: Update a child cluster
- KaaS Reference Architecture: KaaS release controller

Addressed issues

This section provides the list of issues addressed in Mirantis KaaS release 1.4.0:

- [2229] [StackLight] Fixed the issue with the Memory panel of the Prometheus Relay Grafana dashboard failing to show data.
- [2136] [IAM] Fixed the issue with the Keycloak pod restarting during the Keycloak database migration in MariaDB due to the MariaDB startup time issue. The fix decreases the time for waiting of the MariaDB quorum.

Known issues

This section lists known issues with available workarounds for the KaaS release 1.4.0.

- 2411
- 2680

2411

After deploying a KaaS child cluster, provisioning of machines fails with the failed to create containerd task: OCI runtime create failed error in the affected pod logs. The issue is caused by the Kubernetes upstream bug.

Workaround:

1. Delete the affected pods by scaling down the controller replicas to 0. For example, for kaas-kaas-ui:

   ```bash
   kubectl scale deploy -n kaas kaas-kaas-ui --replicas=0
   ```

2. Restart the affected pods by scaling up the controller replicas to 3. For example:

   ```bash
   kubectl scale deploy -n kaas kaas-kaas-ui --replicas=3
   ```
When upgrading an OpenStack-based KaaS child cluster with an earlier Cluster release version to the latest one, for example from 2.2.0 to 3.1.0, the worker nodes stuck in the Updating state due to the kubeadm token not being updated after expiration.

As a workaround, add a new machine to the cluster for the kubeadm token to be recreated. This allows the stuck worker nodes to complete the upgrade. Once the upgrade succeeds, remove the newly added machine.

Components versions
The following table lists the KaaS components of the KaaS release version 1.4.0.

<table>
<thead>
<tr>
<th>Component</th>
<th>Application/Service</th>
<th>Version</th>
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<tbody>
<tr>
<td>AWS</td>
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<tr>
<td>Bare metal</td>
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<td>httpd</td>
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<td></td>
<td>inwinstack-ipam</td>
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<tr>
<td></td>
<td>ironic</td>
<td>stein-bionic-20191204180018</td>
</tr>
<tr>
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<td>kaas-ipam</td>
<td>base-bionic-20191223114758</td>
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<td>mariadb</td>
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<td>iam-controller</td>
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<td></td>
<td>keycloak</td>
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<tr>
<td>KaaS</td>
<td>kaas-public-api</td>
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<td>kaas-ui</td>
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<td>lcm-controller</td>
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<tr>
<td></td>
<td>metallb</td>
<td>0.8.1-3</td>
</tr>
</tbody>
</table>

Note
The components that are newly added, updated, deprecated, or removed as compared to the previous release version, are marked with a corresponding superscript, for example, lcm-ansible^{Updated}.
Artifacts
This section lists all components artifacts of the KaaS release version 1.4.0.

- Bare metal artifacts for KaaS v1.4.0
- Core components artifacts for KaaS v1.4.0
- IAM artifacts for KaaS v1.4.0

Note
The components that are newly added, updated, deprecated, or removed as compared to
the previous release version, are marked with a corresponding superscript, for example,
lcm-ansible $^{Updated}$.

### Bare metal artifacts for KaaS v1.4.0

<table>
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<th>Artifact</th>
<th>Component</th>
<th>Type</th>
<th>Path</th>
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<td>(ubuntu-bionic)</td>
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IAM artifacts for KaaS v1.4.0
<table>
<thead>
<tr>
<th>Artifact</th>
<th>Component</th>
<th>Type</th>
<th>Path</th>
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<tbody>
<tr>
<td>Binaries</td>
<td>hash-generate-linux</td>
<td>binary</td>
<td><a href="http://binary.mirantis.com/iam/bin/hash-generate-0.0.1-236-9cea809-linux">http://binary.mirantis.com/iam/bin/hash-generate-0.0.1-236-9cea809-linux</a></td>
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<td>hash-generate-darwin</td>
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<td>keycloak-gatekeeper</td>
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</table>

See also
- Cluster releases
- Deprecation notes

1.3.0
This section outlines release notes for the KaaS release 1.3.0 that introduces support for the Cluster release 3.0.0 with Kubernetes 1.16 and Cluster release 2.1.0 with Kubernetes 1.15. The KaaS release 1.3.0 also supports the older Cluster release 2.0.0.

The KaaS release 1.3.0 is available starting from 17 January 2020.

Enhancements
This section outlines new features and enhancements introduced in the KaaS release version 1.3.0:

• General availability for KaaS bare metal
• IP address management API for KaaS bare metal
• Cluster release 3.0.0 and 2.1.0 support
• Kubernetes 1.16 support

General availability for KaaS bare metal
Introduced official support for the bare metal operator in Mirantis KaaS that provides for deployment and management of Kubernetes on bare metal hosts. The feature is now fully integrated into Mirantis KaaS with IP address management (IPAM) API enabled. For details about IPAM, see: IP address management API for KaaS bare metal.

Learn more

- KaaS Reference Architecture: KaaS bare metal
- KaaS Deployment Guide: Deploy a baremetal-based management cluster

IP address management API for KaaS bare metal
Added support for the IP Address Management (IPAM) to keep track of the network addresses allocated to bare metal hosts. IPAM allows you to avoid IP address conflicts and expiration of address leases to machines through DHCP.

Learn more

KaaS Reference Architecture: IP Address Management

Cluster release 3.0.0 and 2.1.0 support
Introduced support for the Cluster release versions 3.0.0 and 2.1.0. For details, see: Cluster release 3.0.0 and Cluster release 2.1.0.

Caution!

- The Cluster release versions 2.0.0 and 2.1.0 are deprecated and become unsupported in the next KaaS release.
- The Cluster release version 1.0.0 is removed from the supported Cluster releases starting from the KaaS release 1.3.0.

If the Cluster release version of your KaaS child cluster is 2.1.0, 2.0.0, or 1.0.0, update the cluster to the latest supported Cluster version using the KaaS web UI as described in KaaS User Guide: Update a child cluster.

Kubernetes 1.16 support

Added support for the community Kubernetes version 1.16. For the list of enhancements and bug fixes, see: Kubernetes release notes.

Kubernetes 1.14 is not supported anymore. Therefore, if the Cluster release version of your KaaS child cluster is 1.0.0 with Kubernetes 1.14, update it to the Cluster release version 2.0.0 to upgrade Kubernetes to version 1.15. The Cluster release version 2.0.0 is supported by the new KaaS release version 1.3.0 with an option to upgrade Kubernetes to version 1.16.

Learn more

- KaaS User Guide: Update a child cluster
- KaaS Reference Architecture: Release controller

Addressed issues

This section provides the list of issues addressed in Mirantis KaaS release 1.3.0:

- [1555] Fixed the issue with the kubernetes-dashboard-proxy init container failing to start due to inability to obtain the service external address after deploying a KaaS child cluster.
- [1340] Fixed the issue with failure to remove a VPC due to the active load balancers left from Kubernetes workloads. Now, load balancers for the Kubernetes workloads are deleted during a KaaS child cluster deletion.
- [1442] Fixed the issue with failure to remove a VPC failing due to the network VPC resources, such as security groups, NAT gateways, load balancers, wrongly filtered by the KaaS provider.
- [1806] Fixed the issue with an AWS-based KaaS child deployment failure due to the wrong security groups tagging.
• [2016] Fixed the issue with a KaaS child cluster upgrade failure due to the lcm-agent version upgrade failure.
• [236] Fixed the issue with empty panels in the System Grafana dashboard.
• [1607] Fixed the issue with empty panels in the Kubernetes namespaces Grafana dashboard.
• [1316] Fixed the following issues with StackLight alerts:
  • Disabled the etcdHighNumberOfFailedGRPCRequests* alerts raising false-positively due to etcd issues.
  • Removed the obsolete etcd HTTP-related alerts due to the HTTP metrics being not present because etcd3 uses the gRPC protocol instead of HTTP (used for etcd2).
• [531] Fixed the issue with a KaaS management or child cluster deployment failing if one of the latest Ubuntu base image release builds is used during the deployment.

Known issues
This section lists known issues with available workarounds for the KaaS release 1.3.0.

• 2080
• 2151
• 2136
• 2229

2080
Fixed in 1.5.0

[Bare metal] The Ironic data pivoting from the bootstrap cluster to the management cluster fails during the execution of the bootstrap.sh script due to the ironic and ironic-inspector services concurrently writing to the database.

Workaround:

1. Log in to the bootstrap node.
2. Start executing bootstrap.sh again and inspect the execution log.
3. Wait for ironic and ironic-inspector to be added to the management cluster. Once done, the system outputs the following example log:

```
I1216 21:31:40.770630   23820 cluster.go:658] found resource 'baremetalhosts' for Kind=BareMetalHost in version metal3.io/v1alpha1
I1216 21:31:40.770678   23820 cluster.go:658] found resource 'baremetalhosts/status' for Kind=BareMetalHost in version metal3.io/v1alpha1
```

4. Manually scale down the ironic and ironic-inspector pods:

```
kubectl scale deployment ironic --replicas=0 -n kaas
kubectl scale deployment ironic-inspector --replicas=0 -n kaas
```
5. Wait for other bare metal resources to be scaled down and for data pivoting to be completed.

6. Manually scale up ironic and ironic-inspector pods:

```
kubectl scale deployment ironic --replicas=1 -n kaas
kubectl scale deployment ironic-inspector --replicas=1 -n kaas
```

2151

Fixed in 1.5.0

[Bare metal] Some time after deploying a baremetal-based KaaS child cluster, provisioning of machines fails due to the baremetal-provider pods staying in the CrashLoopBackOff status with the failed to create containerd task: OCI runtime create failed error in logs. The issue is caused by the Kubernetes upstream bug.

As a workaround, manually delete the baremetal-provider pod and wait for the pod to be automatically restarted.

2136

Fixed in 1.4.0

[IAM] The Keycloak pod may restart during the Keycloak database migration in MariaDB due to the MariaDB startup time issue.

Workaround:

1. Delete the Keycloak database in MariaDB.
2. Delete the Keycloak pod.
   Keycloak recreates the database and performs its migration.

2229

Fixed in 1.4.0

[StackLight] The Memory panel of the Prometheus Relay Grafana dashboard may fail to show data.

Workaround:

1. Log in to the Grafana web UI and open the Prometheus Relay dashboard.
2. Hover over a failed panel and click Edit.
3. Change all container_name occurrences to container.
4. Perform the steps 2-3 for other failed panels.
5. On the Prometheus Relay page, click the gear icon.
6. On the Settings page, click Save as... and save the dashboard under a new name, for example, Prometheus Relay fixed.

Components versions
The following table lists the KaaS components of the KaaS release version 1.3.0.

<table>
<thead>
<tr>
<th>Component</th>
<th>Application/Service</th>
<th>Version</th>
</tr>
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<tbody>
<tr>
<td>AWS</td>
<td>aws-provider</td>
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<tr>
<td>Bare metal</td>
<td>baremetal-operator</td>
<td>base-bionic-20191226080713</td>
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<tr>
<td>Bare metal</td>
<td>baremetal-provider</td>
<td>0.2.44</td>
</tr>
<tr>
<td>httpd</td>
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<td>2.4.11-2019125174821</td>
</tr>
<tr>
<td>inwinstack-ipam</td>
<td>New</td>
<td>base-bionic-20191223114741</td>
</tr>
<tr>
<td>ironic</td>
<td>Updated</td>
<td>stein-bionic-20191204180018</td>
</tr>
<tr>
<td>kaas-ipam</td>
<td>New</td>
<td>base-bionic-20191223114758</td>
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<td>mariadb</td>
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<td>10.2.26-bionic-20191204171714</td>
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<td>IAM</td>
<td>iam</td>
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<td>IAM</td>
<td>iam-controller</td>
<td>0.2.44</td>
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<td>keycloak</td>
<td>7.0</td>
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<td>KaaS</td>
<td>kaas-public-api</td>
<td>0.2.44</td>
</tr>
<tr>
<td>KaaS</td>
<td>kaas-ui</td>
<td>0.2.44</td>
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<tr>
<td></td>
<td>lcm-controller</td>
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</tr>
<tr>
<td></td>
<td>metallb</td>
<td>0.8.1-3</td>
</tr>
<tr>
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<td>release-controller</td>
<td>0.2.44</td>
</tr>
<tr>
<td></td>
<td>squid-cache</td>
<td>0.2.44</td>
</tr>
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<td>OpenStack</td>
<td>openstack-provider</td>
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<tr>
<td></td>
<td>os-resources-controller</td>
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</tr>
</tbody>
</table>

Artifacts
This section lists all components artifacts of the KaaS release version 1.3.0.
• Bare metal artifacts for KaaS v1.3.0
• Core components artifacts for KaaS v1.3.0
• IAM artifacts for KaaS v1.3.0

Note
The components that are newly added, updated, deprecated, or removed as compared to the previous release version, are marked with a corresponding superscript, for example, lcm-ansible

Bare metal artifacts for KaaS v1.3.0

<table>
<thead>
<tr>
<th>Artifact</th>
<th>Component</th>
<th>Type</th>
<th>Path</th>
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<tbody>
<tr>
<td>Binaries</td>
<td>Target system image</td>
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<td></td>
<td>(ubuntu-bionic)</td>
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<tr>
<td></td>
<td>Updated</td>
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<tr>
<td></td>
<td>ironic-python-agent.initramfs</td>
<td>binary</td>
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<tr>
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<td>binary</td>
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<tr>
<td>Docker images</td>
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<td>httpd</td>
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<td>ironic</td>
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<td>kaas-ipam</td>
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Core components artifacts for KaaS v1.3.0
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<td></td>
<td>bootstrap-darwin</td>
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<td>os-resources-controller</td>
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<td>squid-cache</td>
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Docker images for KaaS deployment

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<thead>
<tr>
<th>Service</th>
<th>Docker URL</th>
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<tbody>
<tr>
<td>aws-cluster-api-controller</td>
<td>mirantis.azurecr.io/core/aws-cluster-api-controller:0.2.44</td>
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<td>Component</td>
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<td>cluster-api-provider-baremetal</td>
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<td>frontend</td>
<td>mirantis.azurecr.io/core/frontend:0.2.44</td>
</tr>
<tr>
<td>iam-controller</td>
<td>mirantis.azurecr.io/core/iam-controller:0.2.44</td>
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<td>imc-sync</td>
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<td>kind-cache</td>
<td>mirantis.azurecr.io/core/kind-cache:0.2.44</td>
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<tr>
<td>ntpd</td>
<td>mirantis.azurecr.io/core/ntpd:0.2.44</td>
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<tr>
<td>openstack-cluster-api-controller</td>
<td>mirantis.azurecr.io/core/openstack-cluster-api-controller:0.2.44</td>
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### IAM artifacts for KaaS v1.3.0

<table>
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<tr>
<th>Artifact</th>
<th>Component</th>
<th>Type</th>
<th>Path</th>
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<tbody>
<tr>
<td>Binaries</td>
<td>hash-generate-linux</td>
<td>Binary</td>
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<td>hash-generate-darwin</td>
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<td>iamctl-linux</td>
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<table>
<thead>
<tr>
<th>Component</th>
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</thead>
<tbody>
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<td>iamctl-windows</td>
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<td>Helm charts</td>
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<td>iam-proxy</td>
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<td>Docker images</td>
<td>api</td>
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<td>auxiliary</td>
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<td>mirantis.azurecr.io/iam/external/kubernetes-entrypoint:v0.3.1</td>
</tr>
</tbody>
</table>
### Components versions

The following table lists the KaaS components of the 1.2.2 version.

<table>
<thead>
<tr>
<th>Component</th>
<th>Application/Service</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>mariadb</td>
<td>docker</td>
<td>mirantis.azurecr.io/iam/external/mariadb:10.2.18</td>
</tr>
<tr>
<td>keycloak</td>
<td>docker</td>
<td>mirantis.azurecr.io/iam/keycloak:0.3.9</td>
</tr>
<tr>
<td>keycloak-gatekeeper</td>
<td>docker</td>
<td>mirantis.azurecr.io/iam/keycloak-gatekeeper:6.0.1</td>
</tr>
</tbody>
</table>

### Note

The components that are newly added, updated, deprecated, or removed as compared to the previous release version, are marked with a corresponding superscript, for example, `lcm-ansible Updated`.

### 1.2.2

This section outlines the release notes for the hotfix KaaS release 1.2.2 that supports the Cluster release 2.0.0 with Kubernetes 1.15 and Cluster release 1.0.0 with Kubernetes 1.14.

### See also

- Cluster releases
- Deprecation notes
### Artifacts

This section lists artifacts for the components of the KaaS v1.2.2:

- Bare metal artifacts for KaaS v1.2.2
- Core components artifacts for KaaS v1.2.2
- IAM artifacts for KaaS v1.2.2

#### Note

The components that are newly added, updated, deprecated, or removed as compared to the previous release version, are marked with a corresponding superscript, for example, `lcm-ansible` updated.

### Bare metal artifacts for KaaS v1.2.2
<table>
<thead>
<tr>
<th>Artifact</th>
<th>Component</th>
<th>Type</th>
<th>Path</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binaries</td>
<td>Target system image (ubuntu-bionic)</td>
<td>binary</td>
<td><a href="https://binary.mirantis.com/bm/efi/ubuntu/qcow2-bionic-20190902114807">https://binary.mirantis.com/bm/efi/ubuntu/qcow2-bionic-20190902114807</a></td>
</tr>
<tr>
<td>Docker images</td>
<td>baremetal-operator</td>
<td>docker</td>
<td>mirantis.azurecr.io/bm/baremetal-operator:base-bionic-20190925135809</td>
</tr>
<tr>
<td></td>
<td>httpd</td>
<td>docker</td>
<td>mirantis.azurecr.io/bm/external/httpd:2.4.41</td>
</tr>
<tr>
<td></td>
<td>ironic</td>
<td>docker</td>
<td>mirantis.azurecr.io/openstack/ironic:stein-bionic-20191027180018</td>
</tr>
<tr>
<td></td>
<td>ironic-inspector</td>
<td>docker</td>
<td>mirantis.azurecr.io/openstack/ironic-inspector:stein-bionic-20191027180018</td>
</tr>
<tr>
<td>Artifact</td>
<td>Component</td>
<td>Type</td>
<td>Path</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------</td>
<td>--------</td>
<td>-------------------------------------------</td>
</tr>
<tr>
<td>Bootstrap tarball</td>
<td>bootstrap-linux</td>
<td>binary</td>
<td><a href="https://binary.mirantis.com/core/bin/bootstrap-linux-0.2.36.tar.gz">https://binary.mirantis.com/core/bin/bootstrap-linux-0.2.36.tar.gz</a></td>
</tr>
<tr>
<td></td>
<td>bootstrap-darwin</td>
<td>binary</td>
<td><a href="https://binary.mirantis.com/core/bin/bootstrap-darwin-0.2.36.tar.gz">https://binary.mirantis.com/core/bin/bootstrap-darwin-0.2.36.tar.gz</a></td>
</tr>
<tr>
<td>Helm charts</td>
<td>aws-provider</td>
<td>binary</td>
<td><a href="https://binary.mirantis.com/core/helm/aws-provider-0.2.36.tgz">https://binary.mirantis.com/core/helm/aws-provider-0.2.36.tgz</a></td>
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<tr>
<td></td>
<td>baremetal-provider</td>
<td>binary</td>
<td><a href="https://binary.mirantis.com/core/helm/baremetal-provider-0.2.36.tgz">https://binary.mirantis.com/core/helm/baremetal-provider-0.2.36.tgz</a></td>
</tr>
<tr>
<td></td>
<td>ceph-controller</td>
<td>binary</td>
<td><a href="https://binary.mirantis.com/core/helm/ceph-controller-0.2.36.tgz">https://binary.mirantis.com/core/helm/ceph-controller-0.2.36.tgz</a></td>
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<tr>
<td>Component</td>
<td>Binary URL</td>
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<tr>
<td>------------------------</td>
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<td></td>
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</tr>
<tr>
<td>harbor</td>
<td><a href="https://binary.mirantis.com/core/harbor/harbor-0.2.36.tgz">https://binary.mirantis.com/core/harbor/harbor-0.2.36.tgz</a></td>
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<tr>
<td>iam-controller</td>
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<td>Updated</td>
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<td>istio</td>
<td><a href="https://binary.mirantis.com/core/istio/istio-0.2.36.tgz">https://binary.mirantis.com/core/istio/istio-0.2.36.tgz</a></td>
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<tr>
<td>kaas-public-api</td>
<td><a href="https://binary.mirantis.com/core/helm/kaas-public-api-0.2.36.tgz">https://binary.mirantis.com/core/helm/kaas-public-api-0.2.36.tgz</a></td>
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<tr>
<td>kaas-ui</td>
<td><a href="https://binary.mirantis.com/core/helm/kaas-ui-0.2.39.tgz">https://binary.mirantis.com/core/helm/kaas-ui-0.2.39.tgz</a></td>
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</tr>
<tr>
<td>keycloak_proxy</td>
<td><a href="https://binary.mirantis.com/core/helm/keycloak_proxy-0.2.36.tgz">https://binary.mirantis.com/core/helm/keycloak_proxy-0.2.36.tgz</a></td>
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</tr>
<tr>
<td>kubernetes-dashboard</td>
<td><a href="https://binary.mirantis.com/core/helm/kubernetes-dashboard-0.2.36.tgz">https://binary.mirantis.com/core/helm/kubernetes-dashboard-0.2.36.tgz</a></td>
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<tr>
<td>lcm-controller</td>
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<td></td>
</tr>
<tr>
<td>metallb</td>
<td>binary</td>
<td><a href="https://binary.mirantis.com/core/helm/metallb-0.2.36.tgz">https://binary.mirantis.com/core/helm/metallb-0.2.36.tgz</a></td>
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<tr>
<td>ntpd</td>
<td>binary</td>
<td><a href="https://binary.mirantis.com/core/helm/ntpd-0.2.36.tgz">https://binary.mirantis.com/core/helm/ntpd-0.2.36.tgz</a></td>
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<tr>
<td>openstack-provider</td>
<td>binary</td>
<td><a href="https://binary.mirantis.com/core/helm/openstack-provider-0.2.36.tgz">https://binary.mirantis.com/core/helm/openstack-provider-0.2.36.tgz</a></td>
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<td>os-provider</td>
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<td>release-controller</td>
<td>binary</td>
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<td>Component</td>
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<td>Docker Image</td>
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<tr>
<td>Docker images for KaaS deployment</td>
<td></td>
<td><strong>aws-cluster-api-controller</strong></td>
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<tr>
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<td>mirantis.azurecr.io/core/aws-cluster-api-controller:0.2.36</td>
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<td><strong>cluster-api-provider-baremetal</strong></td>
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<td>mirantis.azurecr.io/core/cluster-api-provider-baremetal:0.2.37</td>
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<td><strong>frontend</strong></td>
<td></td>
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<tr>
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<td></td>
<td>mirantis.azurecr.io/core/frontend:0.2.39 Updated</td>
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<tr>
<td></td>
<td></td>
<td><strong>iam-controller</strong></td>
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<tr>
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<td></td>
<td>mirantis.azurecr.io/core/iam-controller:0.2.40 Updated</td>
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<tr>
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<td><strong>imc-sync</strong></td>
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<td>mirantis.azurecr.io/core/imc-sync:0.2.36</td>
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<td><strong>kind-cache</strong></td>
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<td></td>
<td></td>
<td>mirantis.azurecr.io/core/kind-cache:0.2.36</td>
<td></td>
</tr>
<tr>
<td>Artifact</td>
<td>Component</td>
<td>Type</td>
<td>Path</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------------------</td>
<td>--------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>ntpd</td>
<td>dockerd</td>
<td></td>
<td>mirantis.azuerocr.io/core/ntpd:0.2.36</td>
</tr>
<tr>
<td>openstack-cluster-api-controller</td>
<td>dockerd</td>
<td></td>
<td>mirantis.azuerocr.io/core/openstack-cluster-api-controller:0.2.36</td>
</tr>
<tr>
<td>os-resources-controller (OpenStack controller manager)</td>
<td>dockerd</td>
<td></td>
<td>mirantis.azuerocr.io/core/os-resources-controller:0.2.36</td>
</tr>
<tr>
<td>release-controller</td>
<td>dockerd</td>
<td></td>
<td>mirantis.azuerocr.io/core/release-controller:0.2.36</td>
</tr>
<tr>
<td>squid-cache</td>
<td>dockerd</td>
<td></td>
<td>mirantis.azuerocr.io/core/squid-cache:0.2.36</td>
</tr>
</tbody>
</table>

IAM artifacts for KaaS v1.2.2

<table>
<thead>
<tr>
<th>Artifact</th>
<th>Component</th>
<th>Type</th>
<th>Path</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binaries</td>
<td>hash-generate-linux</td>
<td>Binary</td>
<td><a href="http://binary.mirantis.com/iam/bin/hash-generate-0.0.1-236-9cea809-linux">http://binary.mirantis.com/iam/bin/hash-generate-0.0.1-236-9cea809-linux</a></td>
</tr>
<tr>
<td>hash-generate-darwin</td>
<td><a href="http://binary.mirantis.com/iam/bin/hash-generate-0.0.1-236-9cea809-darwin">http://binary.mirantis.com/iam/bin/hash-generate-0.0.1-236-9cea809-darwin</a></td>
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<td></td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>iamctl-linux</td>
<td><a href="http://binary.mirantis.com/iam/bin/iamctl-0.3.7-linux">http://binary.mirantis.com/iam/bin/iamctl-0.3.7-linux</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iamctl-darwin</td>
<td><a href="http://binary.mirantis.com/iam/bin/iamctl-0.3.7-darwin">http://binary.mirantis.com/iam/bin/iamctl-0.3.7-darwin</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iamctl-windows</td>
<td><a href="http://binary.mirantis.com/iam/bin/iamctl-0.3.7-windows">http://binary.mirantis.com/iam/bin/iamctl-0.3.7-windows</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Helm charts</td>
<td><a href="http://binary.mirantis.com/iam/helm/iam-1.0.1.tgz">http://binary.mirantis.com/iam/helm/iam-1.0.1.tgz</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iam-proxy</td>
<td><a href="http://binary.mirantis.com/iam/helm/iam-proxy-0.1.7.tgz">http://binary.mirantis.com/iam/helm/iam-proxy-0.1.7.tgz</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Docker images</td>
<td>mirantis.azurecr.io/iam/api:0.3.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1.2.1

This section outlines the release notes for the hotfix KaaS release 1.2.1 that supports the Cluster release 2.0.0 with Kubernetes 1.15 and Cluster release 1.0.0 with Kubernetes 1.14.

Components versions

The following table lists the KaaS components of the 1.2.1 version.

<table>
<thead>
<tr>
<th>Component</th>
<th>Application/Service</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS</td>
<td>aws-provider</td>
<td>0.2.36</td>
</tr>
<tr>
<td>Bare metal</td>
<td>baremetal-operator</td>
<td>base-bionic-20190925135809</td>
</tr>
<tr>
<td></td>
<td>baremetal-provider</td>
<td>0.2.37</td>
</tr>
<tr>
<td>Artifact</td>
<td>Component</td>
<td>Type</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Binaries</td>
<td>Target system image (ubuntu-bionic)</td>
<td>binary</td>
</tr>
<tr>
<td>Component</td>
<td>Binary URL</td>
<td></td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Docker images</td>
<td></td>
<td></td>
</tr>
<tr>
<td>baremetal-operator</td>
<td>mirantis.azurecr.io/bm/baremetal-operator:base-bionic-20190925135809</td>
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<td>httpd</td>
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<td>ironic</td>
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<tr>
<td>ironic-inspector</td>
<td>mirantis.azurecr.io/openstack/ironic-inspector:stein-bionic-20191027180018</td>
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<tr>
<td>mariadb</td>
<td>mirantis.azurecr.io/general/mariadb:10.2.23-bionic-20191004074513</td>
<td></td>
</tr>
</tbody>
</table>

Core components artifacts for KaaS v1.2.1
<table>
<thead>
<tr>
<th>Artifact</th>
<th>Component</th>
<th>Type</th>
<th>Path</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bootstrap tarball</td>
<td>bootstrap-linux</td>
<td>binary</td>
<td><a href="https://binary.mirantis.com/core/bin/bootstrap-linux-0.2.36.tar.gz">https://binary.mirantis.com/core/bin/bootstrap-linux-0.2.36.tar.gz</a></td>
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<tr>
<td>Helm charts</td>
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<td><a href="https://binary.mirantis.com/core/helm/aws-provider-0.2.36.tgz">https://binary.mirantis.com/core/helm/aws-provider-0.2.36.tgz</a></td>
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<tr>
<td></td>
<td>baremetal-provider</td>
<td>binary</td>
<td><a href="https://binary.mirantis.com/core/helm/baremetal-provider-0.2.36.tgz">https://binary.mirantis.com/core/helm/baremetal-provider-0.2.36.tgz</a></td>
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<tr>
<td></td>
<td>ceph-controller</td>
<td>binary</td>
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<td>Component</td>
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<td>kaas-public-api</td>
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<td>kaas-ui</td>
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<td>keycloak_proxy</td>
<td><a href="https://binary.mirantis.com/core/helm/keycloak_proxy-0.2.36.tgz">https://binary.mirantis.com/core/helm/keycloak_proxy-0.2.36.tgz</a></td>
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<td>kubernetes-dashboard</td>
<td><a href="https://binary.mirantis.com/core/helm/kubernetes-dashboard-0.2.36.tgz">https://binary.mirantis.com/core/helm/kubernetes-dashboard-0.2.36.tgz</a></td>
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</tr>
<tr>
<td>KaaS Component</td>
<td>Binary</td>
<td>Docker Image</td>
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</tr>
<tr>
<td>--------------------------------</td>
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<td>release-controller</td>
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<td>Docker images for KaaS deployment</td>
<td>aws-cluster-api-controller</td>
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<td>Component</td>
<td>Image</td>
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<tr>
<td>cluster-api-provider-baremetal</td>
<td>docker</td>
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<td></td>
<td>mirantis.azurecr.io/core/cluster-api-provider-baremetal:0.2.37</td>
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<tr>
<td>frontend</td>
<td>docker</td>
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<tr>
<td>iam-controller</td>
<td>docker</td>
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</tr>
<tr>
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<td>mirantis.azurecr.io/core/iam-controller:0.2.36</td>
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<tr>
<td>imc-sync</td>
<td>docker</td>
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<td>kind-cache</td>
<td>docker</td>
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<tr>
<td></td>
<td>mirantis.azurecr.io/core/kind-cache:0.2.36</td>
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<tr>
<td>ntpd</td>
<td>docker</td>
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<td></td>
<td>mirantis.azurecr.io/core/ntpd:0.2.36</td>
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</tr>
<tr>
<td>openstack-cluster-api-controller</td>
<td>docker</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>mirantis.azurecr.io/core/openstack-cluster-api-controller:0.2.36</td>
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</tr>
<tr>
<td>Artifact</td>
<td>Component</td>
<td>Type</td>
<td>Path</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------</td>
<td>-----------</td>
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</tr>
<tr>
<td>Binaries</td>
<td>hash-generate-linux</td>
<td>binary</td>
<td><a href="http://binary.mirantis.com/iam/bin/hash-generate-0.0.1-236-9cea809-linux">http://binary.mirantis.com/iam/bin/hash-generate-0.0.1-236-9cea809-linux</a></td>
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<tr>
<td></td>
<td>hash-generate-darwin</td>
<td>binary</td>
<td><a href="http://binary.mirantis.com/iam/bin/hash-generate-0.0.1-236-9cea809-darwin">http://binary.mirantis.com/iam/bin/hash-generate-0.0.1-236-9cea809-darwin</a></td>
</tr>
<tr>
<td></td>
<td>iamctl-linux</td>
<td>binary</td>
<td><a href="http://binary.mirantis.com/iam/bin/iamctl-0.3.7-linux">http://binary.mirantis.com/iam/bin/iamctl-0.3.7-linux</a></td>
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</table>

IAM artifacts for KaaS v1.2.1
<table>
<thead>
<tr>
<th>Component</th>
<th>Type</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>iamctl-darwin</td>
<td>binary</td>
<td><a href="http://binary.mirantis.com/iam/bin/iamctl-0.3.7-darwin">http://binary.mirantis.com/iam/bin/iamctl-0.3.7-darwin</a></td>
</tr>
<tr>
<td>iamctl-windows</td>
<td>binary</td>
<td><a href="http://binary.mirantis.com/iam/bin/iamctl-0.3.7-windows">http://binary.mirantis.com/iam/bin/iamctl-0.3.7-windows</a></td>
</tr>
<tr>
<td>Helm charts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IAM</td>
<td>binary</td>
<td><a href="http://binary.mirantis.com/iam/helm/iam-1.0.1.tgz">http://binary.mirantis.com/iam/helm/iam-1.0.1.tgz</a></td>
</tr>
<tr>
<td>iam-proxy</td>
<td>binary</td>
<td><a href="http://binary.mirantis.com/iam/helm/iam-proxy-0.1.7.tgz">http://binary.mirantis.com/iam/helm/iam-proxy-0.1.7.tgz</a></td>
</tr>
<tr>
<td>Docker images</td>
<td></td>
<td></td>
</tr>
<tr>
<td>API</td>
<td>docker</td>
<td>mirantis.azurecr.io/iam/api:0.3.7</td>
</tr>
<tr>
<td>auxiliary</td>
<td>docker</td>
<td>mirantis.azurecr.io/iam/auxiliary:0.3.7</td>
</tr>
<tr>
<td>kubernetes-entry point</td>
<td>docker</td>
<td>mirantis.azurecr.io/iam/external/kubernetes-entrypoint:v0.3.1</td>
</tr>
</tbody>
</table>
1.2.0

This section outlines the release notes for the KaaS release 1.2.0 that supports the Cluster release 2.0.0 with Kubernetes 1.15 and Cluster release 1.0.0 with Kubernetes 1.14.

Components versions

The following table lists the KaaS components of the 1.2.0 version.

<table>
<thead>
<tr>
<th>Component</th>
<th>Application/Service</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS</td>
<td>aws-provider</td>
<td>0.2.36</td>
</tr>
<tr>
<td>Bare metal</td>
<td>baremetal-operator</td>
<td>base-bionic-20190925135809</td>
</tr>
<tr>
<td></td>
<td>baremetal-provider</td>
<td>0.2.37</td>
</tr>
<tr>
<td>httpd</td>
<td></td>
<td>2.4.41</td>
</tr>
<tr>
<td></td>
<td>ironic-inspector</td>
<td>stein-bionic-20191027180018</td>
</tr>
<tr>
<td></td>
<td>mariadb</td>
<td>10.2.23-bionic-20191004074513</td>
</tr>
<tr>
<td>IAM</td>
<td>iam</td>
<td>0.3.7</td>
</tr>
<tr>
<td></td>
<td>iam-controller</td>
<td>0.2.36</td>
</tr>
<tr>
<td></td>
<td>keycloak</td>
<td>7.0</td>
</tr>
<tr>
<td>KaaS</td>
<td>kaas-public-api</td>
<td>0.2.36</td>
</tr>
</tbody>
</table>
Artifacts
This section lists artifacts for the components of the KaaS v1.2.0:

- Bare metal artifacts for KaaS v1.2.0
- Core components artifacts for KaaS v1.2.0
- IAM artifacts for KaaS v1.2.0

### Bare metal artifacts for KaaS v1.2.0

<table>
<thead>
<tr>
<th>Artifact</th>
<th>Component</th>
<th>Type</th>
<th>Path</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binaries</td>
<td>Target system image (ubuntu-bionic)</td>
<td>binary</td>
<td><a href="https://binary.mirantis.com/bm/efi/ubuntu/qcow2-bionic-20190902114807">https://binary.mirantis.com/bm/efi/ubuntu/qcow2-bionic-20190902114807</a></td>
</tr>
<tr>
<td>Docker images</td>
<td>baremetal-operator</td>
<td>Type</td>
<td>mirantis.azurecr.io/bm/baremetal-operator:base-bionic-20190925135809</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------</td>
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<td>---------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>baremetal-provider</td>
<td></td>
<td>mirantis.azurecr.io/core/cluster-api-provider-baremetal:0.2.37</td>
</tr>
<tr>
<td></td>
<td>httpd</td>
<td></td>
<td>mirantis.azurecr.io/bm/external/httpd:2.4.41</td>
</tr>
<tr>
<td></td>
<td>ironic</td>
<td></td>
<td>mirantis.azurecr.io/openstack/ironic:stein-bionic-20191027180018</td>
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<tr>
<td></td>
<td>ironic-inspector</td>
<td></td>
<td>mirantis.azurecr.io/openstack/ironic-inspector:stein-bionic-20191027180018</td>
</tr>
<tr>
<td></td>
<td>mariadb</td>
<td></td>
<td>mirantis.azurecr.io/general/mariadb:10.2.23-bionic-20191004074513</td>
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</table>

Core components artifacts for KaaS v1.2.0

<table>
<thead>
<tr>
<th>Artifact</th>
<th>Component</th>
<th>Type</th>
<th>Path</th>
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<table>
<thead>
<tr>
<th>Bootstrap tarball</th>
<th>bootstrap-linux</th>
<th><img src="https://binary.mirantis.com/core/bin/bootstrap-linux-0.2.36.tar.gz" alt="Binary" /></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>bootstrap-darwin</td>
<td><img src="https://binary.mirantis.com/core/bin/bootstrap-darwin-0.2.36.tar.gz" alt="Binary" /></td>
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<tr>
<td>Helm charts</td>
<td>aws-provider</td>
<td><img src="https://binary.mirantis.com/core/helm/aws-provider-0.2.36.tgz" alt="Binary" /></td>
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<tr>
<td></td>
<td>baremetal-provider</td>
<td><img src="https://binary.mirantis.com/core/helm/baremetal-provider-0.2.36.tgz" alt="Binary" /></td>
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<tr>
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<td>ceph-controller</td>
<td><img src="https://binary.mirantis.com/core/helm/ceph-controller-0.2.36.tgz" alt="Binary" /></td>
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<td></td>
<td>harbor</td>
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<td>iam-controller</td>
<td><img src="https://binary.mirantis.com/core/helm/iam-controller-0.2.36.tgz" alt="Binary" /></td>
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<td>Component</td>
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<td>istio</td>
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<tr>
<td>kaas-public-api</td>
<td><a href="https://binary.mirantis.com/core/helm/kaas-public-api-0.2.36.tgz">https://binary.mirantis.com/core/helm/kaas-public-api-0.2.36.tgz</a></td>
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<tr>
<td>kaas-ui</td>
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<tr>
<td>keycloak_proxy</td>
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<tr>
<td>kubernetes-dashboard</td>
<td><a href="https://binary.mirantis.com/core/helm/kubernetes-dashboard-0.2.36.tgz">https://binary.mirantis.com/core/helm/kubernetes-dashboard-0.2.36.tgz</a></td>
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<tr>
<td>ntpd</td>
<td>binary</td>
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<tr>
<td>openstack-provider</td>
<td>binary</td>
<td><a href="https://binary.mirantis.com/core/helm/openstack-provider-0.2.36.tgz">https://binary.mirantis.com/core/helm/openstack-provider-0.2.36.tgz</a></td>
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<tr>
<td>os-provider</td>
<td>binary</td>
<td><a href="https://binary.mirantis.com/core/helm/os-provider-0.2.36.tgz">https://binary.mirantis.com/core/helm/os-provider-0.2.36.tgz</a></td>
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<tr>
<td>os-resources-controller</td>
<td>binary</td>
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<td>squid-cache</td>
<td>binary</td>
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<tr>
<td>Docker images for KaaS deployment</td>
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<td>mirantis.azurecr.io/core/aws-cluster-api-controller:0.2.36</td>
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<tr>
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<td>cluster-api-provider-baremetal</td>
<td>mirantis.azurecr.io/core/cluster-api-provider-baremetal:0.2.36</td>
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</tr>
<tr>
<td>frontend</td>
<td>mirantis.azurecr.io/core/frontend:0.2.36</td>
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</tr>
<tr>
<td>iam-controller</td>
<td>mirantis.azurecr.io/core/iam-controller:0.2.36</td>
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</tr>
<tr>
<td>imc-sync</td>
<td>mirantis.azurecr.io/core/imc-sync:0.2.36</td>
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<tr>
<td>kind-cache</td>
<td>mirantis.azurecr.io/core/kind-cache:0.2.36</td>
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<tr>
<td>ntpd</td>
<td>mirantis.azurecr.io/core/ntpd:0.2.36</td>
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<tr>
<td>openstack-cluster-api-controller</td>
<td>mirantis.azurecr.io/core/openstack-cluster-api-controller:0.2.36</td>
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<tr>
<td>Artifact</td>
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<td>Type</td>
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</tr>
<tr>
<td>Binaries</td>
<td>hash-generate-linux</td>
<td>binary</td>
</tr>
<tr>
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<td>hash-generate-darwin</td>
<td>binary</td>
</tr>
<tr>
<td></td>
<td>iamctl-linux</td>
<td>binary</td>
</tr>
<tr>
<td>Component</td>
<td>Binary/Repository</td>
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</tr>
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<td>-------------------------</td>
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<tr>
<td><code>iamctl-darwin</code></td>
<td><a href="http://binary.mirantis.com/iam/bin/iamctl-0.3.7-darwin">http://binary.mirantis.com/iam/bin/iamctl-0.3.7-darwin</a></td>
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<tr>
<td><code>iamctl-windows</code></td>
<td><a href="http://binary.mirantis.com/iam/bin/iamctl-0.3.7-windows">http://binary.mirantis.com/iam/bin/iamctl-0.3.7-windows</a></td>
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</tr>
<tr>
<td>Helm charts</td>
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</tr>
<tr>
<td><code>iam</code></td>
<td><a href="http://binary.mirantis.com/iam/helm/iam-1.0.1.tgz">http://binary.mirantis.com/iam/helm/iam-1.0.1.tgz</a></td>
<td></td>
</tr>
<tr>
<td><code>iam-proxy</code></td>
<td><a href="http://binary.mirantis.com/iam/helm/iam-proxy-0.1.7.tgz">http://binary.mirantis.com/iam/helm/iam-proxy-0.1.7.tgz</a></td>
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</tr>
<tr>
<td>Docker images</td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>api</code></td>
<td>mirantis.azurecr.io/iam/api:0.3.7</td>
<td></td>
</tr>
<tr>
<td><code>auxiliary</code></td>
<td>mirantis.azurecr.io/iam/auxiliary:0.3.7</td>
<td></td>
</tr>
<tr>
<td><code>kubernetes-entrypoint</code></td>
<td>mirantis.azurecr.io/iam/external/kubernetes-entrypoint:v0.3.1</td>
<td></td>
</tr>
</tbody>
</table>
1.1.0

This section outlines the release notes for the KaaS release 1.1.0 that supports the Cluster release 2.0.0 with Kubernetes 1.15 and Cluster release 1.0.0 with Kubernetes 1.14.

Components versions

The following table lists the KaaS components of the 1.1.0 version.

### KaaS cluster components versions

<table>
<thead>
<tr>
<th>Component</th>
<th>Application/Service</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS</td>
<td>aws-provider</td>
<td>0.2.34</td>
</tr>
<tr>
<td>Bare metal</td>
<td>baremetal-operator</td>
<td>base-bionic-20190925135809</td>
</tr>
<tr>
<td></td>
<td>baremetal-provider</td>
<td>0.2.34</td>
</tr>
<tr>
<td></td>
<td>httpd</td>
<td>2.4.41</td>
</tr>
<tr>
<td></td>
<td>ironic-inspector</td>
<td>stein-bionic-20191027180018</td>
</tr>
<tr>
<td></td>
<td>mariadb</td>
<td>10.2.23-bionic-20191004074513</td>
</tr>
<tr>
<td>IAM</td>
<td>iam</td>
<td>0.3.7</td>
</tr>
<tr>
<td></td>
<td>iam-controller</td>
<td>0.2.34</td>
</tr>
<tr>
<td></td>
<td>keycloak</td>
<td>7.0</td>
</tr>
<tr>
<td>KaaS</td>
<td>kaas-public-api</td>
<td>0.2.34</td>
</tr>
</tbody>
</table>
Artifacts
This section lists artifacts for the components of the KaaS v1.1.0:

- Bare metal artifacts for KaaS v1.1.0
- Core components artifacts for KaaS v1.1.0
- IAM artifacts for KaaS v1.1.0

Bare metal artifacts for KaaS v1.1.0

<table>
<thead>
<tr>
<th>Artifact</th>
<th>Component</th>
<th>Type</th>
<th>Path</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binaries</td>
<td>Target system image (ubuntu-bionic)</td>
<td>binary</td>
<td><a href="https://binary.mirantis.com/bm/efi/ubuntu/qcow2-bionic-20190902114807">https://binary.mirantis.com/bm/efi/ubuntu/qcow2-bionic-20190902114807</a></td>
</tr>
<tr>
<td>Docker images</td>
<td>Component</td>
<td>Type</td>
<td>Path</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------------------</td>
<td>-----------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>baremetal-operator</td>
<td>docker</td>
<td>mirantis.azurecr.io/bm/baremetal-operator:base-bionic-20190925135809</td>
<td></td>
</tr>
<tr>
<td>baremetal-provider</td>
<td>docker</td>
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<td>mariadb</td>
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Core components artifacts for KaaS v1.1.0
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<td>baremetal-provider</td>
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<td>Package</td>
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<td>istio</td>
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<td>kaas-ui</td>
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<td>kubernetes-dashboard</td>
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<td>os-provider</td>
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<td>os-resources-controller</td>
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<td>release-controller</td>
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<td>squid-cache</td>
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<tr>
<td>Docker images for KaaS deployment</td>
<td>aws-cluster-api-controller:0.2.34</td>
<td></td>
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<tr>
<td>Component</td>
<td>Image URL</td>
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</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------------------</td>
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</tr>
<tr>
<td>cluster-api-provider-baremetal</td>
<td>mirantis.azurecr.io/core/cluster-api-provider-baremetal:0.2.34</td>
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</tr>
<tr>
<td>frontend</td>
<td>mirantis.azurecr.io/core/frontend:0.2.34</td>
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<tr>
<td>iam-controller</td>
<td>mirantis.azurecr.io/core/iam-controller:0.2.34</td>
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<tr>
<td>imc-sync</td>
<td>mirantis.azurecr.io/core/imc-sync:0.2.34</td>
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<tr>
<td>kind-cache</td>
<td>mirantis.azurecr.io/core/kind-cache:0.2.34</td>
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<tr>
<td>ntpd</td>
<td>mirantis.azurecr.io/core/ntpd:0.2.34</td>
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<tr>
<td>openstack-cluster-api-controller</td>
<td>mirantis.azurecr.io/core/openstack-cluster-api-controller:0.2.34</td>
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</tr>
<tr>
<td>Artifact</td>
<td>Component</td>
<td>Type</td>
</tr>
<tr>
<td>--------------</td>
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<tr>
<td>Binaries</td>
<td>hash-generate-linux</td>
<td>binary</td>
</tr>
<tr>
<td></td>
<td>hash-generate-darwin</td>
<td>binary</td>
</tr>
<tr>
<td></td>
<td>iamctl-linux</td>
<td>binary</td>
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IAM artifacts for KaaS v1.1.0
<table>
<thead>
<tr>
<th>IAMctl</th>
<th>Binary Link</th>
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<tr>
<td>iamctl-darwin</td>
<td><a href="http://binary.mirantis.com/iam/bin/iamctl-0.3.7">http://binary.mirantis.com/iam/bin/iamctl-0.3.7</a></td>
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<td></td>
<td>-darwin</td>
</tr>
<tr>
<td>iamctl-windows</td>
<td><a href="http://binary.mirantis.com/iam/bin/iamctl-0.3.7">http://binary.mirantis.com/iam/bin/iamctl-0.3.7</a></td>
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<tr>
<td></td>
<td>-windows</td>
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<tr>
<td>Helm charts</td>
<td>xsb</td>
</tr>
<tr>
<td></td>
<td><a href="http://binary.mirantis.com/iam/helm/iam-1.0.1.tgz">http://binary.mirantis.com/iam/helm/iam-1.0.1.tgz</a></td>
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<tr>
<td>iam-proxy</td>
<td><a href="http://binary.mirantis.com/iam/helm/iam-proxy">http://binary.mirantis.com/iam/helm/iam-proxy</a></td>
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<td></td>
<td>-0.1.7.tgz</td>
</tr>
<tr>
<td>Docker images</td>
<td>api</td>
</tr>
<tr>
<td></td>
<td>mirantis.azurecr.io/iam/api:0.3.7</td>
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<td></td>
<td>mirantis.azurecr.io/iam/auxiliary:0.3.7</td>
</tr>
<tr>
<td></td>
<td>kubernetes-entry point</td>
</tr>
<tr>
<td></td>
<td>mirantis.azurecr.io/iam/external/kubernetes-entrypoint:v0.3.1</td>
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</table>
1.0.0

This section outlines the release notes for the initial KaaS release 1.0.0 that supports the Cluster release 2.0.0 with Kubernetes 1.15 and Cluster release 1.0.0 with Kubernetes 1.14.

Components versions

The following table lists the KaaS components of the 1.0.0 version.

<table>
<thead>
<tr>
<th>Component</th>
<th>Application/Service</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS</td>
<td>aws-provider</td>
<td>0.2.33</td>
</tr>
<tr>
<td>Bare metal</td>
<td>baremetal-operator</td>
<td>base-bionic-20190925135809</td>
</tr>
<tr>
<td></td>
<td>baremetal-provider</td>
<td>0.2.33</td>
</tr>
<tr>
<td></td>
<td>httpd</td>
<td>2.4.41</td>
</tr>
<tr>
<td></td>
<td>ironic-inspector</td>
<td>stein-bionic-20191027180018</td>
</tr>
<tr>
<td></td>
<td>mariadb</td>
<td>10.2.23-bionic-20191004074513</td>
</tr>
<tr>
<td>IAM</td>
<td>iam</td>
<td>0.3.7</td>
</tr>
<tr>
<td></td>
<td>iam-controller</td>
<td>0.2.33</td>
</tr>
<tr>
<td></td>
<td>keycloak</td>
<td>7.0</td>
</tr>
<tr>
<td>KaaS</td>
<td>kaas-public-api</td>
<td>0.2.33</td>
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</tbody>
</table>
## Artifacts

This section lists artifacts for the components of the KaaS v1.0.0:

- Bare metal artifacts for KaaS v1.0.0
- Core components artifacts for KaaS v1.0.0
- IAM artifacts for KaaS v1.0.0

### Bare metal artifacts for KaaS v1.0.0

<table>
<thead>
<tr>
<th>Artifact</th>
<th>Component</th>
<th>Type</th>
<th>Path</th>
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</thead>
<tbody>
<tr>
<td>Binaries</td>
<td>Target system image (ubuntu-bionic)</td>
<td>binary</td>
<td><a href="https://binary.mirantis.com/bm/efi/ubuntu/qcow2-bionic-20190902114807">https://binary.mirantis.com/bm/efi/ubuntu/qcow2-bionic-20190902114807</a></td>
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## Core components artifacts for KaaS v1.0.0

<table>
<thead>
<tr>
<th>Artifact</th>
<th>Component</th>
<th>Type</th>
<th>Path</th>
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</thead>
<tbody>
<tr>
<td>Docker images</td>
<td>baremetal-operator</td>
<td>Docker</td>
<td>mirantis.azurecr.io/bm/baremetal-operator:base-bionic-20190925135809</td>
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<tr>
<td></td>
<td>baremetal-prov</td>
<td>Docker</td>
<td>mirantis.azurecr.io/core/cluster-api-provider-baremetal:0.2.33</td>
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<tr>
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<td>httpd</td>
<td>Docker</td>
<td>mirantis.azurecr.io/bm/external/httpd:2.4.41</td>
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<td>ironic</td>
<td>Docker</td>
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<td>ironic-inspector</td>
<td>Docker</td>
<td>mirantis.azurecr.io/openstack/ironic-inspector:stein-bionic-20191027180018</td>
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<td>mariadb</td>
<td>Docker</td>
<td>mirantis.azurecr.io/general/mariadb:10.2.23-bionic-20191004074513</td>
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<tr>
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<td>Helm charts</td>
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<tr>
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<td>kaas-ui</td>
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<td>keycloak_proxy</td>
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<td>kubernetes-dashboard</td>
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<td>metallb</td>
<td><a href="https://binary.mirantis.com/core/helm/metallb-0.2.33.tgz">https://binary.mirantis.com/core/helm/metallb-0.2.33.tgz</a></td>
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<td>ntpd</td>
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<tr>
<td>Component</td>
<td>Binary/Repository</td>
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</tr>
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<td><a href="https://binary.mirantis.com/core/helm/os-resources-controller-0.2.33.tgz">https://binary.mirantis.com/core/helm/os-resources-controller-0.2.33.tgz</a></td>
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<td>release-controller</td>
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<td>squid-cache</td>
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Docker images for KaaS deployment

<table>
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<tr>
<th>Component</th>
<th>Repository</th>
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</thead>
<tbody>
<tr>
<td>aws-cluster-api-controller</td>
<td>mirantis.azurecr.io/core/aws-cluster-api-controller:0.2.33</td>
</tr>
<tr>
<td>cluster-api-provider-baremetal</td>
<td>mirantis.azurecr.io/core/cluster-api-provider-baremetal:0.2.33</td>
</tr>
<tr>
<td>frontend</td>
<td>mirantis.azurecr.io/core/frontend:0.2.33</td>
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<tr>
<td>Component</td>
<td>Image</td>
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<tr>
<td>---------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>iam-controller</td>
<td><code>mirantis.azurecr.io/core/iam-controller:0.2.33</code></td>
</tr>
<tr>
<td>imc-sync</td>
<td><code>mirantis.azurecr.io/core/imc-sync:0.2.33</code></td>
</tr>
<tr>
<td>kind-cache</td>
<td><code>mirantis.azurecr.io/core/kind-cache:0.2.33</code></td>
</tr>
<tr>
<td>ntpd</td>
<td><code>mirantis.azurecr.io/core/ntpd:0.2.33</code></td>
</tr>
<tr>
<td>openstack-cluster-api-controller</td>
<td><code>mirantis.azurecr.io/core/openstack-cluster-api-controller:0.2.33</code></td>
</tr>
<tr>
<td>os-resources-controller</td>
<td><code>mirantis.azurecr.io/core/os-resources-controller:0.2.33</code></td>
</tr>
<tr>
<td>release-controller</td>
<td><code>mirantis.azurecr.io/core/release-controller:0.2.33</code></td>
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### IAM artifacts for KaaS v1.0.0

<table>
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<th>Artifact</th>
<th>Component</th>
<th>Type</th>
<th>Path</th>
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<tbody>
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<td>Binaries</td>
<td>hash-generate-linux</td>
<td>binary</td>
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<tr>
<td></td>
<td>hash-generate-darwin</td>
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</table>
Known issues

- 531
- 245
- 1564

531
Fixed in KaaS 1.3.0
The deployment of a KaaS management or child cluster may fail if one of the latest Ubuntu base image release builds is used during the deployment.
As a workaround, use the release-20190813.1 release build of the base Ubuntu 18.04 image for a KaaS cluster deployment.

245
In the OpenStack-based KaaS management or child clusters, the long-running connections, for example, used by kubectl logs -f or kubectl exec are timed out after 30 seconds due to the default timeouts set in the load balancers by Octavia.

1564
During the upgrade of a KaaS child cluster with Istio from Kubernetes 1.14.8-10 to Kubernetes 1.15.5-11, the worker nodes hang in the Pending state.
Workaround:

1. Log in to any local machine with kubectl installed.
2. Run the following command:

```
kubectl scale --current-replicas=1 --replicas=2
  deployment.apps/istio-galley deployment.apps/istio-citadel
  deployment.apps/istio-ingressgateway deployment.apps/istio-pilot
  deployment.apps/istio-policy deployment.apps/istio-sidecar-injector
  deployment.apps/istio-telemetry deployment.apps/istio-coredns
```
Cluster releases

This section outlines the release notes for the Mirantis KaaS Cluster releases that are supported by specific KaaS releases. For the release schedule, compatibility matrix, and details about the KaaS releases, see: KaaS releases.

4.0.0

This section outlines release notes for the Cluster release 4.0.0 that is introduced in the KaaS release 1.6.0 and introduces support for Kubernetes 1.17. For the list of addressed and known issues, refer to the KaaS release 1.6.0 Addressed issues and Known issues.

Enhancements

In the Cluster release 4.0.0 that is introduced in the KaaS release 1.6.0, added support for the community Kubernetes version 1.17 on the KaaS child clusters. For the list of enhancements and bug fixes, see: Kubernetes release notes.

Kubernetes 1.15 is not supported anymore by Mirantis KaaS. Therefore, if the Cluster release of your KaaS child cluster is 2.x with Kubernetes 1.15:

1. Update your cluster to the latest Cluster release available through the KaaS web UI to upgrade Kubernetes to the version 1.16.
2. Update your cluster to the Cluster release 3.3.0 introduced in the KaaS release 1.6.0 to upgrade Kubernetes to the version 1.17.

Learn more

• KaaS User Guide: Update a child cluster
• KaaS Reference Architecture: Release controller

Also, the Cluster release 4.0.0 includes the same enhancements that are added in the Cluster release 3.3.0. For details, see the Cluster release 3.3.0 enhancements.

Components versions

The following table lists the components versions of the Cluster release 4.0.0.

Note

The components that are newly added, updated, deprecated, or removed as compared to the previous release version, are marked with a corresponding superscript, for example, lcm-ansible

Updated.
# Components versions of the Cluster release 4.0.0

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<tr>
<th>Component</th>
<th>Application/Service</th>
<th>Version</th>
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<td>containerd</td>
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<td>CoreDNS</td>
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<td>CNI plugins</td>
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<td>Helm</td>
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<td>Istio</td>
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<td>Kubernetes Dashboard</td>
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<td>Typha</td>
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<td>descheduler</td>
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<td>helm-controller</td>
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<td>kubespray</td>
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<td>lcm-agent</td>
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<td>metrics-server</td>
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<td>Alerta</td>
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<td>Alertmanager</td>
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<td>Prometheus Node Exporter</td>
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**Artifacts**

This section lists the components artifacts of the Cluster release 4.0.0.

- Ceph artifacts
- Istio artifacts
- Kubernetes artifacts
- LCM artifacts
- StackLight artifacts
Note
The components that are newly added, updated, deprecated, or removed as compared to the previous release version, are marked with a corresponding superscript, for example, \texttt{lcm-ansible\textsuperscript{Updated}}.

### Ceph artifacts

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<th>Artifact</th>
<th>Component</th>
<th>Path</th>
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<td>ceph-controller</td>
<td>mirantis.azurecr.io/ceph/helm/ceph-controller-0.1.0-mcp-51.tgz</td>
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<td>ceph-operator</td>
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<td>csi-node-driver-registry</td>
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### Istio artifacts

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### Kubernetes artifacts

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### LCM artifacts

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## StackLight artifacts

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**Docker images**

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3.3.0

This section outlines release notes for the Cluster release 3.3.0 that is introduced in the KaaS release 1.6.0 and supports Kubernetes 1.16.

For the list of addressed and known issues, refer to the KaaS release 1.6.0 Addressed issues and Known issues.

Enhancements

This section outlines new features and enhancements introduced in the Cluster release 3.3.0:

- Support for Horizontal Pod Autoscaler and Metrics Server
- Support for the Kubernetes descheduler
- Disabling of workload monitoring in StackLight metrics
- Persistent storage for Grafana

Support for Horizontal Pod Autoscaler and Metrics Server

Added support for Horizontal Pod Autoscaler (HPA) and Metrics Server:

- Horizontal Pod Autoscaler (HPA) automatically scales the number of pods depending on the CPU usage metrics that are collected by Metrics Server and received by HPA through the resource Metrics API.
- The Metrics Server service collects resource metrics from kubelets and exposes them in Kubernetes API Server through Metrics API. Metrics Server is enabled by default in the KaaS management and child clusters.

Learn more

- Metrics Server GitHub project
- Horizontal Pod Autoscaler walkthrough

Support for the Kubernetes descheduler
Enabled descheduler for Kubernetes on the KaaS child clusters by default. Descheduler identifies and evicts the pods that can be moved to a node that has more resources available. Scheduling of the replacement for evicted pods is out of the current descheduler implementation, relying on the default cluster scheduler for this purpose.

Learn more

Descheduler GitHub project

Disabling of workload monitoring in StackLight metrics

Added the possibility to disable resource-consuming workload monitoring in the StackLight metrics to prevent generation of excessive metrics on big workloads and monitor infrastructure only. The feature is implemented using the metricFilter parameter that enables the cAdvisor (Container Advisor) and kubeStateMetrics metric ingestion filters for Prometheus. The feature is disabled by default. If enabled, you can select the required namespaces to which the filter will apply.

Learn more

KaaS User Guide: Disable workload monitoring

Persistent storage for Grafana

Enabled persistent volume for Grafana in the StackLight charts by default. The feature enables the user to store custom dashboards and settings.

Components versions

The following table lists the components versions of the Cluster release 3.3.0.

Components versions of the Cluster release 3.3.0

<table>
<thead>
<tr>
<th>Component</th>
<th>Application/Service</th>
<th>Version</th>
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Note

The components that are newly added, updated, deprecated, or removed as compared to the previous release version, are marked with a corresponding superscript, for example, lcm-ansible\textsuperscript{Updated}.
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<td></td>
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Artifacts

This section lists the components artifacts of the Cluster release 3.3.0.

- Ceph artifacts
- Istio artifacts
- Kubernetes artifacts
- LCM artifacts
- StackLight artifacts

Note

The components that are newly added, updated, deprecated, or removed as compared to the previous release version, are marked with a corresponding superscript, for example, lcm-ansible\sup\textsuperscript{Updated}.  

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### Ceph artifacts

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<tr>
<th>Artifact</th>
<th>Component</th>
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<td>Helm chart</td>
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### Istio artifacts

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**LCM artifacts**

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**StackLight artifacts**

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See also
- KaaS release 1.6.0
- Cluster release 4.0.0
- Deprecation notes

### Obsolete Cluster releases
This section describes the release notes for the obsolete Cluster releases.

### 3.x series
This section outlines release notes for the obsolete Cluster releases of the 3.x series.

#### 3.2.0
This section outlines release notes for the Cluster release 3.2.0 that supports Kubernetes 1.16 and is supported by the KaaS release 1.5.0.

For the list of addressed and known issues, refer to the KaaS release 1.5.0 Addressed issues and Known issues.

Enhancements

The Cluster release 3.2.0 includes the same enhancements that are added in the Cluster release 2.3.0. For details, see the Cluster release 2.3.0 enhancements.

Components versions

The following table lists the components versions of the Cluster release 3.2.0.

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Note

The components that are newly added, updated, deprecated, or removed as compared to the previous release version, are marked with a corresponding superscript, for example, lcm-ansible ^Updated.
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<td>Prometheus ES Exporter</td>
<td>0.5.1-mcp-1</td>
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<tr>
<td>Prometheus libvirt Exporter</td>
<td>0.1</td>
</tr>
<tr>
<td>Prometheus Memcached Exporter</td>
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</tr>
<tr>
<td>Prometheus MySQL Exporter</td>
<td>0.11.0</td>
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<tr>
<td>Prometheus Node Exporter</td>
<td>0.17.0</td>
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<tr>
<td>Prometheus NGINX Exporter</td>
<td>0.4.0</td>
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<tr>
<td>Prometheus RabbitMQ Exporter</td>
<td>0.29.0</td>
</tr>
<tr>
<td>Prometheus Relay</td>
<td>0.2</td>
</tr>
<tr>
<td>Pushgateway</td>
<td>0.6.0</td>
</tr>
<tr>
<td>sf-notifier</td>
<td>0.3</td>
</tr>
<tr>
<td>telegraf-ds</td>
<td>1.9.1-mcp-3</td>
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<tr>
<td>telegraf-s</td>
<td>1.9.1-mcp-3</td>
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</table>

Artifacts
This section lists the components artifacts of the Cluster release 3.2.0.
• Ceph artifacts for Cluster release 3.2.0
• Istio artifacts for Cluster release 3.2.0
• Kubernetes artifacts for Cluster release 3.2.0
• LCM artifacts for Cluster release 3.2.0
• StackLight artifacts for Cluster release 3.2.0

Note
The components that are newly added, updated, deprecated, or removed as compared to
the previous release version, are marked with a corresponding superscript, for example,
lcm-ansible

Ceph artifacts for Cluster release 3.2.0

<table>
<thead>
<tr>
<th>Artifact</th>
<th>Component</th>
<th>Path</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helm chart</td>
<td>ceph-controller</td>
<td>mirantis.azurecr.io/ceph/helm/ceph-controller-0.1.0-mcp-51.tgz</td>
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<tr>
<td>Docker images</td>
<td>ceph</td>
<td>mirantis.azurecr.io/ceph/ceph:v14.2.6</td>
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<td>ceph-operator</td>
<td>mirantis.azurecr.io/ceph/mcp/ceph-operator:v1.0.2-20200116141654</td>
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<td>cephcsi</td>
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<td></td>
<td>csi-node-driver-registrar</td>
<td>mirantis.azurecr.io/ceph/k8scsi/csi-node-driver-registrar:v1.2.0</td>
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<td>csi-provisioner</td>
<td>mirantis.azurecr.io/ceph/k8scsi/csi-provisioner:v1.4.0</td>
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<td>csi-snapshotter</td>
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<td>csi-attacher</td>
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<tr>
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<td>rook</td>
<td>mirantis.azurecr.io/ceph/rook/ceph:v1.1.8</td>
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Istio artifacts for Cluster release 3.2.0

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<th>Artifact</th>
<th>Component</th>
<th>Path</th>
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</thead>
<tbody>
<tr>
<td>Helm chart</td>
<td>Component</td>
<td>Path</td>
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<tr>
<td>-----------</td>
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<td>Deprecated Istio</td>
<td><code>istio</code></td>
<td><a href="https://binary.mirantis.com/core/helm/istio-0.2.4.4.tgz">https://binary.mirantis.com/core/helm/istio-0.2.4.4.tgz</a></td>
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<thead>
<tr>
<th>Docker images</th>
<th>Component</th>
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</thead>
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<tr>
<td>Deprecated BusyBox</td>
<td><code>busybox</code></td>
<td><code>mirantis.azurecr.io/core/istio/busybox:1.30.1</code></td>
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<tr>
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<td>Citadel</td>
<td><code>mirantis.azurecr.io/core/istio/citadel:release-1.1-20190809-09-16</code></td>
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<tr>
<td></td>
<td>CoreDNS-Plugin</td>
<td><code>mirantis.azurecr.io/core/istio/coredns-plugin:0.2-istio-1.1</code></td>
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<td>CoreDNS</td>
<td><code>mirantis.azurecr.io/core/istio/coredns:1.1.2</code></td>
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<td>Galley</td>
<td><code>mirantis.azurecr.io/core/istio/galley:release-1.1-20190809-09-16</code></td>
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<td>Kubectl</td>
<td><code>mirantis.azurecr.io/core/istio/kubectl:release-1.1-20190809-09-16</code></td>
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<td>Mixer</td>
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<td><code>mirantis.azurecr.io/core/istio/pilot:release-1.1-20190809-09-16</code></td>
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<td>Proxyv2</td>
<td><code>mirantis.azurecr.io/core/istio/proxyv2:release-1.1-20190809-09-16</code></td>
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<td>Sidecar Injector</td>
<td><code>mirantis.azurecr.io/core/istio/sidecar_injector:release-1.1-20190809-09-16</code></td>
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<td>Proxy Init</td>
<td><code>mirantis.azurecr.io/core/istio/proxy_init:release-1.1-20190809-09-16</code></td>
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## Kubernetes artifacts for Cluster release 3.2.0

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<tr>
<th>Artifact</th>
<th>Component</th>
<th>Path</th>
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<tbody>
<tr>
<td>Binaries</td>
<td>calicoctl</td>
<td><a href="https://binary.mirantis.com/lcm/bin/projectcalico/calicoctl/calicoctl-v3.11.1">https://binary.mirantis.com/lcm/bin/projectcalico/calicoctl/calicoctl-v3.11.1</a></td>
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<td>containerd</td>
<td><a href="https://mirror.mirantis.com/kaas/kubernetes-extra-0.0.3/bionic/pool/main/c/containerd/containerd_1.2.10-1~u18.04+mcp_amd64.deb">https://mirror.mirantis.com/kaas/kubernetes-extra-0.0.3/bionic/pool/main/c/containerd/containerd_1.2.10-1~u18.04+mcp_amd64.deb</a></td>
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<td>container networking-plugins</td>
<td><a href="https://binary.mirantis.com/lcm/bin/kubernetes/containernetworking-plugins/containernetworking-plugins_v0.8.5-12-g28e3aef.tar.gz">https://binary.mirantis.com/lcm/bin/kubernetes/containernetworking-plugins/containernetworking-plugins_v0.8.5-12-g28e3aef.tar.gz</a></td>
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<td></td>
<td>etcdctl</td>
<td><a href="https://tarfile.mirantis.com/lcm/bin/etcd/v3.4.3-2/etcd-linux-amd64.tar.gz">https://tarfile.mirantis.com/lcm/bin/etcd/v3.4.3-2/etcd-linux-amd64.tar.gz</a></td>
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<tr>
<td>Artifact</td>
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<td>mirantis.azurecr.io/lcm/projectcalico/calico/node:v3.11.1</td>
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<td>calico-cni</td>
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<td>calico-policy</td>
<td>mirantis.azurecr.io/lcm/projectcalico/calico/kube-controllers:v3.11.1</td>
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<td>calico-typha</td>
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<td>coredns</td>
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<td>helm</td>
<td>mirantis.azurecr.io/lcm/helm/tiller:v2.15.2-1</td>
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<td>kube-apiserver</td>
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<td>kube-controller-manager</td>
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<td>kube-proxy</td>
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<td>kube-scheduler</td>
<td>mirantis.azurecr.io/lcm/kubernetes/kube-scheduler:v1.16.6-11</td>
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<td>hyperkube</td>
<td>mirantis.azurecr.io/lcm/kubernetes/hyperkube:v1.16.6-11</td>
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<td>metallb-controller</td>
<td>mirantis.azurecr.io/lcm/metallb/controller:v0.8.1-3</td>
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<td>metallb-speaker</td>
<td>mirantis.azurecr.io/lcm/metallb/speaker:v0.8.1-3</td>
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<td>nginx</td>
<td>mirantis.azurecr.io/lcm/nginx:v1.17.8-2</td>
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**LCM artifacts for Cluster release 3.2.0**

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<thead>
<tr>
<th>Artifact</th>
<th>Component</th>
<th>Path</th>
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</thead>
<tbody>
<tr>
<td>Binaries</td>
<td>kubespray</td>
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<tr>
<td>Artifact</td>
<td>Component</td>
<td>Path</td>
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<td>---------------</td>
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<td>-------------------------------------------------------------</td>
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<td>lcm-ansible</td>
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<tr>
<td>Docker images</td>
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<td>helm-controller</td>
<td>mirantis.azurecr.io/lcm/lcm-controller:v0.2.0-62-gbf079b6</td>
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### StackLight artifacts for Cluster release 3.2.0

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<tr>
<th>Artifact</th>
<th>Component</th>
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<td>alerta</td>
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<td>elasticsearch-curator</td>
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<td>fluentd</td>
<td><a href="https://binary.mirantis.com/stacklight/helm/fluentd-2.0.3-mcp-6.tgz">https://binary.mirantis.com/stacklight/helm/fluentd-2.0.3-mcp-6.tgz</a></td>
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<td>gainsight</td>
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<td>metricbeat</td>
<td><a href="https://binary.mirantis.com/stacklight/helm/metricbeat-1.7.1-mcp-4.tgz">https://binary.mirantis.com/stacklight/helm/metricbeat-1.7.1-mcp-4.tgz</a></td>
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<tr>
<td>Module</td>
<td>GKE Helm Chart</td>
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<td>prometheus-libvirt-exporter</td>
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<td>sf-notifier</td>
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**Docker images**

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<thead>
<tr>
<th>Module</th>
<th>GKE Helm Chart</th>
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<td>mirantis.azurecr.io/stacklight/alertmanager:v0.1.5.3</td>
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<td>mirantis.azurecr.io/stacklight/alpine-python3-requests:latest</td>
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<td>mirantis.azurecr.io/stacklight/busybox:1.30</td>
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<td>mirantis.azurecr.io/stacklight/configmap-reload:v0.2.2</td>
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<td>curl</td>
<td>mirantis.azurecr.io/stacklight/curl:latest</td>
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<td>elasticsearch</td>
<td>mirantis.azurecr.io/stacklight/elasticsearch:7.1.0</td>
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<td>elasticsearch-curato</td>
<td>mirantis.azurecr.io/stacklight/elasticsearch-curato:5.7.6</td>
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<td>mirantis.azurecr.io/stacklight/fluentd:1.4.2-mcp2</td>
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<td>mirantis.azurecr.io/stacklight/prometheus-relay:v0.2</td>
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<td>mirantis.azurecr.io/stacklight/sf_notifier:v0.3</td>
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<td>telegraf</td>
<td>mirantis.azurecr.io/stacklight/telegraf:v1.9.1-mcp3</td>
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</tbody>
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Seealso

• KaaS release 1.5.0
• Cluster release 2.3.0
• Deprecation notes

3.1.0
This section outlines release notes for the Cluster release 3.1.0 that supports Kubernetes 1.16 and is supported by the KaaS release 1.4.0.

For the list of addressed and known issues, refer to the KaaS release 1.4.0 Addressed issues and Known issues.

Caution!

Deprecation notes
Since the Cluster release 3.1.0 and 2.2.0, removed Harbor support and deprecated Istio support. Istio will be removed in future Cluster releases.

Enhancements
The Cluster release 3.1.0 includes the same enhancements that are added in the Cluster release 2.2.0. For details, see the Cluster release 2.2.0 enhancements.

Components versions
The following table lists the components versions of the Cluster release 3.1.0.

Caution!

Deprecation notes
Since the Cluster release 3.1.0 and 2.2.0, removed Harbor support and deprecated Istio support. Istio will be removed in future Cluster releases.
Note
The components that are newly added, updated, deprecated, or removed as compared to
the previous release version, are marked with a corresponding superscript, for example,
\texttt{lcm-ansible} \textsuperscript{Updated}.

Components versions of the Cluster release 3.1.0

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Artifacts

This section lists the components artifacts of the Cluster release 3.1.0.

- Ceph artifacts for Cluster release 3.1.0
- Istio artifacts for Cluster release 3.1.0
- Kubernetes artifacts for Cluster release 3.1.0
- LCM artifacts for Cluster release 3.1.0
- StackLight artifacts for Cluster release 3.1.0
Caution!

Deprecation notes
Since the Cluster release 3.1.0 and 2.2.0, removed Harbor support and deprecated Istio support. Istio will be removed in future Cluster releases.

Note
The components that are newly added, updated, deprecated, or removed as compared to the previous release version, are marked with a corresponding superscript, for example, lcm-ansible $\text{Updated}$.  

Ceph artifacts for Cluster release 3.1.0

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<td>binary</td>
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Istio artifacts for Cluster release 3.1.0
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<td>Artifact</td>
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<td>Type</td>
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Kubernetes artifacts for Cluster release 3.1.0

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LCM artifacts for Cluster release 3.1.0
## StackLight artifacts for Cluster release 3.1.0

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</table>
This section outlines release notes for the Cluster release 3.0.0 that supports Kubernetes 1.16 and is supported by the KaaS releases 1.3.0 and 1.4.0. For the list of addressed and known issues, see the KaaS releases 1.3.0 and 1.4.0.

Caution!

Deprecation note
Since the Cluster releases 3.0.0 and 2.1.0, deprecated Harbor support. The feature will be removed since the Cluster releases 3.1.0 and 2.2.0.

Enhancements
In the Cluster release 3.0.0 that is supported by the 1.3.0 KaaS release, added support for Calico Typha that is now enabled by default in the KaaS child clusters. For the feature overview, refer to the Typha official documentation. The TLS configuration on the communications from Felix to Typha is not supported yet.

Components versions
The following table lists the components versions of the Cluster release 3.0.0:
Caution!

Deprecation note
Since the Cluster releases 3.0.0 and 2.1.0, deprecated Harbor support. The feature will be removed since the Cluster releases 3.1.0 and 2.2.0.

Note
The components that are newly added, updated, deprecated, or removed as compared to the previous release version, are marked with a corresponding superscript, for example, lcm-ansible\textsuperscript{Updated}.

Components versions of the Cluster release 3.0.0

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<td>sf-notifier 0.3</td>
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Artifacts
This section lists the components artifacts of the Cluster release 3.0.0.

- Ceph artifacts for Cluster release 3.0.0
- Harbor artifacts for Cluster release 3.0.0
- Istio artifacts for Cluster release 3.0.0
- Kubernetes artifacts for Cluster release 3.0.0
- LCM artifacts for Cluster release 3.0.0
- StackLight artifacts for Cluster release 3.0.0

---

Caution!

Deprecation note
Since the Cluster releases 3.0.0 and 2.1.0, deprecated Harbor support. The feature will be removed since the Cluster releases 3.1.0 and 2.2.0.

---

Note
The components that are newly added, updated, deprecated, or removed as compared to the previous release version, are marked with a corresponding superscript, for example, lcm-ansible\(^\text{Updated}\).

---

### Ceph artifacts for Cluster release 3.0.0

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Harbor artifacts for Cluster release 3.0.0
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Istio artifacts for Cluster release 3.0.0

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## Kubernetes artifacts for Cluster release 3.0.0

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See also
Cluster release 2.1.0

2.x series
This section outlines release notes for the obsolete Cluster releases of the 2.x series.

2.3.0
This section outlines release notes for the Cluster release 2.3.0 that supports Kubernetes 1.15 and is supported by the KaaS release 1.5.0. For the list of addressed and known issues, refer to the KaaS release 1.5.0 Addressed issues and Known issues.

Enhancements
The Cluster release 2.3.0 introduces the following enhancements for StackLight:

• Improved user experience by reorganizing the alerts descriptions and expressions and sorting the alerts alphabetically within the alert file.
• Reduced the storage footprint by removing the unused metrics and time series.
• Improved the Grafana dashboards by aligning the overall style and adding the rate_interval and panels descriptions. Additionally, changed the following Grafana dashboards to simplify the usage:
  • Added the Prometheus dashboard that now includes the panels of the Prometheus Performances and Prometheus Stats dashboards.
  • Added the Ceph OSD dashboard that now includes the panels of the removed Ceph OSD device details and Ceph OSD Overview dashboards.
  • Renamed the Ceph Pools Overview and Ceph Hosts Overview dashboards to Ceph Pools and Ceph Nodes accordingly.

Learn more
KaaS User Guide: View Grafana dashboards
Components versions

The following table lists the components versions of the Cluster release 2.3.0.

Note

The components that are newly added, updated, deprecated, or removed as compared to the previous release version, are marked with a corresponding superscript, for example, lcm-ansible\textsuperscript{Updated}.

Components versions of the Cluster release 2.3.0

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Artifacts
This section lists the components artifacts of the Cluster release 2.3.0.

- Ceph artifacts for Cluster release 2.3.0
- Istio artifacts for Cluster release 2.3.0
- Kubernetes artifacts for Cluster release 2.3.0
- LCM artifacts for Cluster release 2.3.0
- StackLight artifacts for Cluster release 2.3.0
Note

The components that are newly added, updated, deprecated, or removed as compared to the previous release version, are marked with a corresponding superscript, for example, lcm-ansible\textsuperscript{Updated}.

### Ceph artifacts for Cluster release 2.3.0

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### Istio artifacts for Cluster release 2.3.0

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### Kubernetes artifacts for Cluster release 2.3.0

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LCM artifacts for Cluster release 2.3.0

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StackLight artifacts for Cluster release 2.3.0
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Seealso
- KaaS release 1.5.0
- Cluster release 3.2.0
- Deprecation notes

2.2.0
This section outlines release notes for the Cluster release 2.2.0 that supports Kubernetes 1.15 and is supported by the KaaS releases 1.4.0 and 1.5.0. For the list of addressed and known issues, refer to the KaaS release 1.4.0 Addressed issues and Known issues.

Caution!

Deprecation notes
Since the Cluster release 3.1.0 and 2.2.0, removed Harbor support and deprecated Istio support. Istio will be removed in future Cluster releases.

Enhancements

Added support for Calico BGP route reflectors that can be used in the KaaS child clusters to reduce the number of BGP peerings used on each node. All Calico nodes on the Kubernetes controller nodes are configured as route reflectors (RR) that form a single RR cluster.

The feature is enabled by default starting from the Cluster release 2.2.x and 3.1.x series. In the Cluster release 3.0.x series, the feature is supported but not enabled by default.

Learn more

Calico official documentation: Configure BGP peering

Components versions

The following table lists the components versions of the Cluster release 2.2.0.

Caution!

Deprecation notes
Since the Cluster release 3.1.0 and 2.2.0, removed Harbor support and deprecated Istio support. Istio will be removed in future Cluster releases.

Note
The components that are newly added, updated, deprecated, or removed as compared to the previous release version, are marked with a corresponding superscript, for example, lcm-ansible\textsuperscript{Updated}.  

©2020, Mirantis Inc.
## Components versions of the Cluster release 2.2.0

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Artifacts

This section lists the components artifacts of the Cluster release 2.2.0.

- Ceph artifacts for Cluster release 2.2.0
- Istio artifacts for Cluster release 2.2.0
- Kubernetes artifacts for Cluster release 2.2.0
- LCM artifacts for Cluster release 2.2.0
- StackLight artifacts for Cluster release 2.2.0

---

Caution!

Deprecation notes

Since the Cluster release 3.1.0 and 2.2.0, removed Harbor support and deprecated Istio support. Istio will be removed in future Cluster releases.
Note
The components that are newly added, updated, deprecated, or removed as compared to the previous release version, are marked with a corresponding superscript, for example, lcm-ansible\textsuperscript{Updated}.

# Ceph artifacts for Cluster release 2.2.0

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Kubernetes artifacts for Cluster release 2.2.0

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LCM artifacts for Cluster release 2.2.0
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StackLight artifacts for Cluster release 2.2.0

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2.1.0
This section outlines release notes for the Cluster release 2.1.0 that supports Kubernetes 1.15 and is supported by the KaaS releases 1.3.0 and 1.4.0. For the list of addressed and known issues, see the KaaS releases 1.3.0 and 1.4.0.

Caution!

Deprecation note
Since the Cluster releases 3.0.0 and 2.1.0, deprecated Harbor support. The feature will be removed since the Cluster releases 3.1.0 and 2.2.0.

Enhancements

• Netchecker support
• Metricbeat support

Netchecker support
Implemented the Netchecker service as part of the monitoring system to monitor the network connectivity between the Kubernetes nodes. Implemented the Netchecker alerts.
Learn more

- KaaS Reference Architecture: StackLight deployment architecture
- KaaS User Guide: StackLight alerts for Netchecker

Metricbeat support

Implemented the Metricbeat service as part of the monitoring system. Metricbeat collects Kubernetes events and sends them to Elasticsearch for further storage. You can view and search the Kubernetes events through the Kibana web UI.

Learn more

- KaaS Reference Architecture: StackLight deployment architecture
- KaaS User Guide: View Kibana dashboards

Components versions

The following table lists the components versions of the Cluster release 2.1.0:

Caution!

Deprecation note

Since the Cluster releases 3.0.0 and 2.1.0, deprecated Harbor support. The feature will be removed since the Cluster releases 3.1.0 and 2.2.0.

Note

The components that are newly added, updated, deprecated, or removed as compared to the previous release version, are marked with a corresponding superscript, for example, `Icm-ansible` **Updated**.

Components versions of the Cluster release 2.1.0
<table>
<thead>
<tr>
<th>Component</th>
<th>Application/Service</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distributed storage</td>
<td>Ceph</td>
<td>14.2.2-20190722 (Nautilus)</td>
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<tr>
<td></td>
<td>Rook</td>
<td>1.1.7</td>
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<tr>
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<td>containerd</td>
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<td>CoreDNS</td>
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<td>CNI plugins</td>
<td>0.8.2-48-g7703590</td>
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<td></td>
<td>crictl</td>
<td>1.16.1-2</td>
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<td>etcd</td>
<td>3.4.2-1</td>
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<tr>
<td></td>
<td>Harbor</td>
<td>1.8.1 (Deprecated)</td>
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<tr>
<td></td>
<td>Helm</td>
<td>2.15.2-1</td>
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<td>Istio</td>
<td>1.1.0</td>
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<td></td>
<td>Kubernetes</td>
<td>1.15.5-11</td>
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<td>Kubernetes Dashboard</td>
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<td>NGINX</td>
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<td>LCM</td>
<td>helm-controller</td>
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<td></td>
<td>kubespray</td>
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<td>lcm-ansible</td>
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<td>lcm-agent</td>
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<td>lcm-controller</td>
<td>0.2.0-43</td>
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<td>StackLight</td>
<td>Alerta</td>
<td>6.8.5</td>
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<td></td>
<td>Alertmanager</td>
<td>0.15.3</td>
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<td></td>
<td>Elasticsearch</td>
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<td>Elasticsearch curator</td>
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<td>Elasticsearch exporter</td>
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<td>Fluentd</td>
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<td>Gainsight</td>
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<td>Grafana</td>
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<td></td>
<td>IAM Proxy</td>
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<td>Kibana</td>
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<td></td>
<td>Metricbeat</td>
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<td>Prometheus Blackbox Exporter</td>
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<td>Prometheus libvirt Exporter</td>
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<td>Prometheus Memcached Exporter</td>
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<td>Prometheus MySQL Exporter</td>
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<td>Prometheus Node Exporter</td>
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<td>Prometheus NGINX Exporter</td>
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<td>Prometheus RabbitMQ Exporter</td>
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<td>Prometheus Relay</td>
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<td>Pushgateway</td>
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<td>sf-notifier</td>
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<tr>
<td>telegraf-ds</td>
<td>1.9.1-mcp-3</td>
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<tr>
<td>telegraf-s</td>
<td>1.9.1-mcp-3</td>
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</table>

Artifacts

This section lists the components artifacts of the Cluster release 2.1.0.

- Ceph artifacts for Cluster release 2.1.0
- Harbor artifacts for Cluster release 2.1.0
- Istio artifacts for Cluster release 2.1.0
- Kubernetes artifacts for Cluster release 2.1.0
- LCM artifacts for Cluster release 2.1.0
- StackLight artifacts for Cluster release 2.1.0

Caution!

Deprecation note

Since the Cluster releases 3.0.0 and 2.1.0, deprecated Harbor support. The feature will be removed since the Cluster releases 3.1.0 and 2.2.0.
Note
The components that are newly added, updated, deprecated, or removed as compared to
the previous release version, are marked with a corresponding superscript, for example,
lcm-ansible\textsuperscript{Updated}.

<table>
<thead>
<tr>
<th>Artifact</th>
<th>Component</th>
<th>Type</th>
<th>Path</th>
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</thead>
<tbody>
<tr>
<td>Helm chart</td>
<td>ceph-controller</td>
<td>binary</td>
<td><a href="https://binary.mirantis.com/core/helm/ceph-controller-0.2.44.tgz">https://binary.mirantis.com/core/helm/ceph-controller-0.2.44.tgz</a></td>
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<td>Docker images</td>
<td>ceph</td>
<td>docker</td>
<td>mirantis.azurecr.io/ceph/ceph:v14.2.2-20190722</td>
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<tr>
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<td>ceph-operator</td>
<td>docker</td>
<td>mirantis.azurecr.io/ceph/ceph-operator:04092019-1</td>
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<td>cephcsi</td>
<td>docker</td>
<td>mirantis.azurecr.io/ceph/cephcsi/cephcsi:30082019-1</td>
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<tr>
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<td>csi-node-driver-registrar</td>
<td>docker</td>
<td>mirantis.azurecr.io/ceph/k8scsi/csi-node-driver-registrar:v1.1.0/</td>
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<td>Component</td>
<td>Docker Image</td>
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<td>csi-provisioner</td>
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<td>csi-snapshotter</td>
<td>mirantis.azurecr.io/ceph/k8scsi/csi-snapshotter:v1.2.0</td>
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<td>csi-attacher</td>
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<td>Artifact</td>
<td>Component</td>
<td>Type</td>
<td>Path</td>
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<td>Helm chart</td>
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<td>binary</td>
<td><a href="https://binary.mirantis.com/core/helm/harbor-0.2.44.tgz">https://binary.mirantis.com/core/helm/harbor-0.2.44.tgz</a></td>
</tr>
<tr>
<td>Docker images</td>
<td>chartmuseum-photon</td>
<td>docker</td>
<td>mirantis.azurecr.io/core/goharbor/chartmuseum-photon:v0.8.1-v1.8.1</td>
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<tr>
<td></td>
<td>clair-photon</td>
<td>docker</td>
<td>mirantis.azurecr.io/core/goharbor/clair-photon:v2.0.8-v1.8.1</td>
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<tr>
<td></td>
<td>harbor-core</td>
<td>docker</td>
<td>mirantis.azurecr.io/core/goharbor/harbor-core:v1.8.1</td>
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<td></td>
<td>harbor-db</td>
<td>docker</td>
<td>mirantis.azurecr.io/core/goharbor/harbor-db:v1.8.1</td>
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<tr>
<td></td>
<td>harbor-jobservice</td>
<td>docker</td>
<td>mirantis.azurecr.io/core/goharbor/harbor-jobservice:v1.8.1</td>
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<tr>
<td></td>
<td>harbor-portal</td>
<td>docker</td>
<td>mirantis.azurecr.io/core/goharbor/harbor-portal:v1.8.1</td>
</tr>
<tr>
<td>Artifact</td>
<td>Component</td>
<td>Type</td>
<td>Path</td>
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<tr>
<td>harbor-registryctl</td>
<td>docker</td>
<td></td>
<td>mirantis.azuercr.io/core/goharbor/harbor-registryctl:v1.8.1</td>
</tr>
<tr>
<td>nginx-photon</td>
<td>docker</td>
<td></td>
<td>mirantis.azuercr.io/core/goharbor/nginx-photon:v1.8.1</td>
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<tr>
<td>notary-server-photon</td>
<td>docker</td>
<td></td>
<td>mirantis.azuercr.io/core/goharbor/notary-server-photon:v0.6.1-v1.8.1</td>
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<tr>
<td>notary-signer-photon</td>
<td>docker</td>
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<td>mirantis.azuercr.io/core/goharbor/notary-signer-photon:v0.6.1-v1.8.1</td>
</tr>
<tr>
<td>redis-photon</td>
<td>docker</td>
<td></td>
<td>mirantis.azuercr.io/core/goharbor/redis-photon:v1.8.1</td>
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<tr>
<td>registry-photon</td>
<td>docker</td>
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<td>mirantis.azuercr.io/core/goharbor/registry-photon:v2.7.1-patch-2819-v1.8.1</td>
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Istio artifacts for Cluster release 2.1.0
<table>
<thead>
<tr>
<th>Helm chart</th>
<th>Docker images</th>
</tr>
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<tbody>
<tr>
<td>istio</td>
<td>busybox</td>
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<tr>
<td></td>
<td>mirantis.azurecr.io/core/istio/busybox:1.30.1</td>
</tr>
<tr>
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<td>mirantis.azurecr.io/core/istio/citadel:release-1.1-20190809-09-16</td>
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<tr>
<td></td>
<td>mirantis.azurecr.io/core/istio/coredns-plugin:0.2-istio-1.1</td>
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<td>mirantis.azurecr.io/core/istio/coredns:1.1.2</td>
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<td></td>
<td>mirantis.azurecr.io/core/istio/galley:release-1.1-20190809-09-16</td>
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<td>mirantis.azurecr.io/core/istio/kubectl:release-1.1-20190809-09-16</td>
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<td>Artifact</td>
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<tr>
<td>mixer</td>
<td>docker</td>
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<tr>
<td>pilot</td>
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<td>proxyv2</td>
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<tr>
<td>sidecar_injector</td>
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<td>proxy_init</td>
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Kubernetes artifacts for Cluster release 2.1.0

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<th>Component</th>
<th>Type</th>
<th>Path</th>
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<tbody>
<tr>
<td>Binaries</td>
<td>calicoctl</td>
<td>binary</td>
<td><a href="https://binary.mirantis.com/lcm/bin/projectcalico/calicoctl/calicoctl-v3.9.2">https://binary.mirantis.com/lcm/bin/projectcalico/calicoctl/calicoctl-v3.9.2</a></td>
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<tr>
<td>Containerd</td>
<td>Binary URL</td>
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<tr>
<td>Container network-plugins</td>
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<td>CRI-TLS</td>
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<td>Etcdctl</td>
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<td><a href="https://tarfile.mirantis.com/lcm/bin/etcd/v3.4.2-1/etcd-linux-amd64.tar.gz">https://tarfile.mirantis.com/lcm/bin/etcd/v3.4.2-1/etcd-linux-amd64.tar.gz</a></td>
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<td>Hyperkube-binary</td>
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<td><a href="https://binary.mirantis.com/lcm/bin/hyperkube-binaries/v1.15.5-11/hyperkube">https://binary.mirantis.com/lcm/bin/hyperkube-binaries/v1.15.5-11/hyperkube</a></td>
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**Docker Images**

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<tr>
<td>Calico Node</td>
<td>mirantis.azurecr.io/lcm/projectcalico/calico/node:v3.9.2</td>
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<td>Calico CNI</td>
<td>mirantis.azurecr.io/lcm/projectcalico/calico/cni:v3.9.2</td>
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<td>Package</td>
<td>Image</td>
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<td>calico-policy</td>
<td><code>mirantis.azurecr.io/lcm/projectcalico/calico/kube-controllers:v3.9.2</code></td>
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<tr>
<td>calico-typha</td>
<td><code>mirantis.azurecr.io/lcm/projectcalico/calico/typha:v3.9.2</code></td>
</tr>
<tr>
<td>coredns</td>
<td><code>mirantis.azurecr.io/lcm/coredns/coredns:v1.6.4-102</code></td>
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<td>etcd</td>
<td><code>mirantis.azurecr.io/lcm/etcd/etcd:v3.4.2-1</code></td>
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<td>helm</td>
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<td>kube-apiserver</td>
<td><code>mirantis.azurecr.io/lcm/kubernetes/kube-apiserver:v1.15.5-11</code></td>
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<td>kube-controller-manager</td>
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<td>kube-proxy</td>
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<td>kube-scheduler</td>
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<td>uler:v1.15.5-11</td>
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<td>hyperkube</td>
<td>mirantis.azurecr.io/lcm/kubernetes/hyperkube:</td>
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<tr>
<td></td>
<td>v1.15.5-11</td>
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| metallb-controller        | mirantis.azurecr.io/lcm/metallb/controller:v0.
|                            | 8.1-3                                         |
| metallb-speaker            | mirantis.azurecr.io/lcm/metallb/speaker:v0.8. |
|                            | 1-3                                           |
| nginx                      | mirantis.azurecr.io/lcm/nginx:v1.17.3-1       |

LCM artifacts for Cluster release 2.1.0
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<th>Artifact</th>
<th>Component</th>
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<th>Path</th>
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<tr>
<td>Binaries</td>
<td>kubespray</td>
<td>tar file</td>
<td><a href="https://binary.mirantis.com/lcm/bin/kubespray/v2.11-107/kubespray.tar.gz">https://binary.mirantis.com/lcm/bin/kubespray/v2.11-107/kubespray.tar.gz</a></td>
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<tr>
<td></td>
<td>lcm-ansible</td>
<td>tar file</td>
<td><a href="https://binary-mirantis-com/lcm/bin/lcm-ansible/v0.2.0-36/lcm-ansible.tar.gz">https://binary-mirantis-com/lcm/bin/lcm-ansible/v0.2.0-36/lcm-ansible.tar.gz</a></td>
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<tr>
<td>Docker images</td>
<td>lcm-controller and helm-controller</td>
<td>docker</td>
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StackLight artifacts for Cluster release 2.1.0

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<th>Artifact</th>
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<td>alerta</td>
<td>binary</td>
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<td>Status</td>
<td>Binary Link</td>
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<td>elasticsearch-curator</td>
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<td></td>
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<tr>
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| Docker images    | alert                                           | mirantis.azurecr.io/stacklight/alerta-web:6.8.5 |
|                  | alertmanager                                     | mirantis.azurecr.io/stacklight/alertmanager:v0.15.3 |
|                  | alpine-python3-requests                          | mirantis.azurecr.io/stacklight/alpine-python3-r
equests:latest |
<p>|                  | busybox                                          | mirantis.azurecr.io/stacklight/busybox:1.30    |
|                  | configmap-reload                                 | mirantis.azurecr.io/stacklight/configmap-reload:v0.2.2 |
|                  | curl                                             | mirantis.azurecr.io/stacklight/curl:latest     |</p>
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**SeeAlso**
Cluster release 3.0.0

**2.0.0**
This section outlines the release notes for the Cluster release 2.0.0 that supports Kubernetes 1.15 and is supported by the KaaS releases 1.3.0, 1.2.x, and 1.x. For the list of addressed and known issues, see the KaaS Addressed issues and Known issues.

**Components versions**
The following table lists the components versions of the Cluster release 2.0.0.
Components versions of the Cluster release 2.0.0

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Artifacts

This section lists artifacts for the components of the Cluster release 2.0.0.

- Ceph artifacts for KaaS cluster release 2.0.0
- Harbor artifacts for KaaS cluster release 2.0.0
- Istio artifacts for KaaS cluster release 2.0.0
- Kubernetes artifacts for KaaS cluster release 2.0.0
- LCM artifacts for KaaS cluster release 2.0.0
- StackLight artifacts for KaaS cluster release 2.0.0

Ceph artifacts for KaaS cluster release 2.0.0

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<th>Path</th>
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LCM artifacts for KaaS cluster release 2.0.0
### StackLight artifacts for KaaS cluster release 2.0.0

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1.x series

This section outlines the release notes for the obsolete Cluster releases of the 1.x series.

1.0.0

This section outlines the release notes for the Cluster release 1.0.0 that supports Kubernetes 1.14 and is supported by the KaaS releases 1.x and 1.2.x. For the list of known issues, see Known issues.

Components versions

The following table lists the components versions of the Cluster release 1.0.0.

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<td>telegraf-ds</td>
<td>1.9.1-mcp-2</td>
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Artifacts

This section lists artifacts for the components of the Cluster release 1.0.0.

- Ceph artifacts for KaaS cluster release 1.0.0
- Harbor artifacts for KaaS cluster release 1.0.0
- Istio artifacts for KaaS cluster release 1.0.0
- Kubernetes artifacts for KaaS cluster release 1.0.0
- LCM artifacts for KaaS cluster release 1.0.0
- StackLight artifacts for KaaS cluster release 1.0.0

### Ceph artifacts for KaaS cluster release 1.0.0

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<th>Artifact</th>
<th>Component</th>
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<th>Path</th>
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<td>ceph-controller</td>
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<td><a href="https://binary.mirantis.com/core/helm/ceph-controller-0.2.33.tgz">https://binary.mirantis.com/core/helm/ceph-controller-0.2.33.tgz</a></td>
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<td>Docker images</td>
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<td>docker</td>
<td>mirantis.azurecr.io/ceph:ceph:v14.2.2-20190722</td>
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<td>ceph-operator</td>
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<td>mirantis.azurecr.io/cephcsi/cephcsi:30082019-1</td>
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Harbor artifacts for KaaS cluster release 1.0.0

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<td>chartmuseum-photon</td>
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<td>mirantis.ubuntu.com/core/goharbor/chartmuseum-photon:v0.8.1-v1.8.1</td>
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### Istio artifacts for KaaS cluster release 1.0.0

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Kubernetes artifacts for KaaS cluster release 1.0.0

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<td>containerd</td>
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<td>kube-apiserver</td>
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### lcm-ansible

**Artifact**: lcm-ansible

**Path**: 
https://binary-mirantis-com/lcm/bin/lcm-ansible/v0.2.0-29/lcm-ansible.tar.gz

### lcm-agent

**Artifact**: lcm-agent

**Path**: 
https://binary-mirantis-com.s3.amazonaws.com/lcm/bin/lcm-agent/v0.2.0-43/lcm-agent

### Docker images

**Artifact**: Docker images

**Artifact**: lcm-controller and helm-controller

**Path**: 
mirantis.azurecr.io/lcm/lcm-controller/v0.2.0-43

### StackLight artifacts for KaaS cluster release 1.0.0

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<th>Artifact</th>
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Deprecation notes

Taking into account continuous reorganization and enhancement of Mirantis KaaS, certain components are deprecated and eventually removed from the product. This section provides the following details about the deprecated and removed functionality that may potentially impact the existing Mirantis KaaS deployments:

- The KaaS release version in which deprecation is initially announced
- The final KaaS release version in which a deprecated component is present
- The target KaaS release version in which a deprecated component is removed

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<tr>
<th>Component</th>
<th>Deprecated in</th>
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See also
KaaS release versions history and compatibility

1(1, 2) The target KaaS release version is currently being under review by the Mirantis product team and will be announced separately.