

Alibaba Cloud

**Container Service for
Kubernetes**

Release notes

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Document conventions









Style	Description	Example
 Danger	A danger notice indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	 Danger: Resetting will result in the loss of user configuration data.
 Warning	A warning notice indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	 Warning: Restarting will cause business interruption. About 10 minutes are required to restart an instance.
 Notice	A caution notice indicates warning information, supplementary instructions, and other content that the user must understand.	 Notice: If the weight is set to 0, the server no longer receives new requests.
 Note	A note indicates supplemental instructions, best practices, tips, and other content.	 Note: You can use Ctrl + A to select all files.
>	Closing angle brackets are used to indicate a multi-level menu cascade.	Click Settings> Network> Set network type .
Bold	Bold formatting is used for buttons, menus, page names, and other UI elements.	Click OK .
Courier font	Courier font is used for commands	Run the <code>cd /d C:/window</code> command to enter the Windows system folder.
<i>Italic</i>	Italic formatting is used for parameters and variables.	<code>bae log list --instanceid</code> <i>Instance_ID</i>
[] or [a b]	This format is used for an optional value, where only one item can be selected.	<code>ipconfig [-all -t]</code>
{ } or {a b}	This format is used for a required value, where only one item can be selected.	<code>switch {active stand}</code>

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1.Release notes

This topic provides release notes for Alibaba Cloud Container Service for Kubernetes (ACK).

- ACK supports Kubernetes V1.16.9, V1.14.8, and V1.12.6. V1.12.6 is only available to users in the whitelist.
- ACK supports the following operating systems: CentOS 7.7, AliyunLinux 2.1903, and Windows Server 2019.

May 2020

Feature	Description	Released in	Related topics
Alibaba Cloud Container Service for Kubernetes (ACK) adds support for advanced security groups	ACK provides multiple types of security group when you create a cluster. You can select a basic security group, an advanced security group, or an existing security group. Compared with basic security groups, each advanced security group can contain up to 65,536 private IP addresses. This is suitable for clusters where a large number of containers or instances are deployed.	All regions	Create a cluster of ACK Managed Edition
Adds support for Prometheus and Event Center	ACK is integrated with the most commonly used Prometheus component in the container monitoring field, and the most commonly used Node-problem-detector (NPD) component in the O&M field. You can select the components when you create a cluster. You can also upgrade and maintain the components on the Components page. Prometheus is provided by Application Real-Time Monitoring Service (ARMS). NPD is a tool used for node problem detection. NPD can export events that record node exceptions, such as Docker Engine hangs, Linux kernel hangs, network access issues, and file descriptor issues. To view these events, choose Clusters > Event Center in the ACK console.	All regions	Enable ARMS Prometheus
Releases Kubernetes V1.16.9	Releases Kubernetes V1.16.9. You can create a cluster of Kubernetes V1.16.9. If your service version is earlier than V1.16.9, choose More > Upgrade Cluster , and upgrade the service on the Upgrade Cluster page. Compared with the previous Kubernetes V1.16.9, CVE-2020-8555 is fixed. This fixes the SSRF vulnerability in kube-controller-manager.	All regions	
Adds support for elastic workload	Adds support for elastic workload. On the App Catalog page, select ack-kubernetes-elastic-workload to use the application. You can use ACK and Virtual Kubelet in combination to schedule pay-as-you-go and preemptible instances proportionally. This allows you to schedule your workload with elasticity.	All regions	View the application catalog

Feature	Description	Released in	Related topics
Adds support for Application Management	In earlier versions, after applications are deployed, the topology of applications is not displayed in a unified view. Therefore, version management and rollback cannot be unified for continuous deployments. Application Management provides a unified portal for your applications. This allows you to view the deployment of applications in a global manner. You can also view the deployment status and changes of all ACK sub-resources allocated to each application. In addition, Gits and Helm charts are used to deploy applications in ACK clusters based on versions. This allows you to publish or roll back applications deployed in ACK clusters of different versions.	All regions	-

April 2020

Feature	Description	Released in	Related topics
Alibaba Cloud Genomics Compute Service (AGS) is commercialized.	AGS is an Alibaba Cloud Container Service for Kubernetes (ACK)-based big data compute service provided by Alibaba Cloud for users in the biological industry. AGS provides efficient, elastic, and reliable services. Therefore, AGS is faster in computing and more cost-efficient than traditional methods. AGS is billed in the pay-as-you-go method based on the number of successful API calls in the backend. To submit a computing task, you need to run a command on the client. This process is one API call.	All regions	Overview
Dynamic volumes support online scale-out	For Kubernetes V1.16 and later, ACK supports volume scale-out without restarting pods.	All regions	-
Adds support for deployment of multiple Ingress controllers	An Ingress is an important entry for Layer-7 services. If you create only one Ingress for a cluster, the routing performance may encounter a bottleneck. If an Ingress allows inbound access through a public network and private network at the same time, security risks exist. To solve these issues, ACK provides a Helm chart of Ingress controller for an Ingress. The name of the Helm chart is ack-ingress-nginx. You can deploy multiple Ingress controllers in App Catalog. You can use YAML files to configure access to the Server Load Balancer (SLB) instances through a public network or private network independently.	All regions	Deploy a highly reliable Ingress controller
Serverless Kubernetes (ASK) adds support for the India (Mumbai) region	ASK is available in the India (Mumbai) region.	India (Mumbai)	Create a serverless Kubernetes cluster

March 2020

Feature	Description	Released in	Related topics
Adds more features to component management	<p>The following features are added to component management:</p> <ul style="list-style-type: none"> • Adds support for viewing the YAML files of components. • Adds support for conducting pre-checks before the health check on nodes. This prevents component upgrade failures caused by node drains or exceptions. • Adds support for manually refreshing the Components page. 	All regions	Upgrade system components
Cloud Controller Manager (CCM) supports adding custom Elastic Compute Service (ECS) instances to the backend of Server Load Balancer (SLB) instances.	CCM supports adding user-created ECS instance-based nodes to the backend of SLB instances. Therefore, the existing applications and containerized applications share the same SLB instances and inbound traffic. This is suitable for scenarios where existing applications are gradually replaced by containerized applications.	All regions	Cloud Controller Manager
Terway supports expanding clusters and changing node specifications	When you manually expand a cluster, you may need to create nodes in new zones. In earlier versions, to create pods in a new zone, you must first add new pod VSwitches in the new zone. You can add pod VSwitches in Terway ConfigMaps. When you change node specifications, the maximum number of pods that you can create in the node also changes. After this release, the K8s max-pod parameter is automatically adjusted to fit the specifications of the node.	All regions	Use Terway
Adds support for node pool management	A node pool is a group of nodes with the same configurations. For example, nodes in a node pool are configured with the same container runtime, operating system (OS), and security group. You can create multiple node pools for a cluster. This allows you to deploy a variety of services to different node pools in a cluster. Node pools also support auto scaling. New nodes can be automatically added when a node pool is running with insufficient resources.	All regions	-

Feature	Description	Released in	Related topics
Cluster check is optimized	<p>Cluster check is the core feature of Alibaba Cloud Container Service for Kubernetes (ACK) maintenance. Cluster check dynamically scans clusters to identify potential risks. The following checking items are optimized:</p> <ul style="list-style-type: none"> • Displays information about unknown hosts. • Checks the availability of Yellow dogUpdater, Modified (YUM). • Checks the availability of systemd. 	All regions	Check a Kubernetes cluster to troubleshoot exceptions
Adds support for Kubernetes V1.16 upgrades	ACK allows you to create clusters of Kubernetes V1.16. You can also upgrade Kubernetes V1.14.8 to V1.16.6. Before you upgrade your clusters, we recommend that you refer to the upgrade notes.	All regions	Upgrade a cluster
Managed ACK clusters add support for the China South 1 Finance region on Alibaba Finance Cloud	Managed ACK clusters are available in the China South 1 Finance region on Alibaba Finance Cloud	China South 1 Finance	Create a cluster of ACK Managed Edition
Adds support for configuring ephemeral-storage for containers on the Create Application page	ephemeral-storage is a new resource mode similar to CPU and memory modes. Kubernetes uses this parameter to manage and schedule the transient storage of applications running in Kubernetes clusters. The root directory and log directories (<i>/var/log</i>) of kubelet are stored on the primary partition of a node. In addition, emptyDir volumes, container logs, image layers, and the writable layers of containers are also stored on the primary partition. Therefore, ephemeral-storage is used to manage the primary partition of a node. You can set requests and limits when you create an application. This allows you to schedule and manage the storage allocation to the application in the primary partition.	All regions	Create deployments by using images

February 2020

Feature	Description	Released in	Related topics
Adds support for Kubernetes V1.16 and Docker V19.03.5	Alibaba Cloud Container Service for Kubernetes (ACK) supports Kubernetes V1.16 and provides enhanced cloud-native capabilities. Compared to the earlier version, Kubernetes V1.16 accelerates pod creation, and optimizes features such as affinity, stability, and observability. You can select Docker V19.03.5 when you create clusters. ACK accelerates image building and container startup based on Docker V19.03.5.	All regions	Kubernetes 1.16 release notes

Feature	Description	Released in	Related topics
Auto scaling supports AliyunLinux 2, custom security groups, and preemptible instances with GPU capabilities.	The auto scaling feature is updated to add the following options: the Aliyun Linux2 operating system, custom security groups, and preemptible instances with GPU capabilities. The first two options are only available to users in the whitelist. If you are not in the whitelist, submit a ticket.	All regions	Submit a ticket
Adds support for CentOS 7.7	ACK supports CentOS 7.7. You can specify the CentOS 7.7 operating system when you create worker nodes. CentOS 7.7 will also be automatically used for cluster expansion and node auto scaling.	All regions	Submit a ticket
App Catalog upgrades Helm to V3	ACK supports Helm V3. You can install Helm V3 in App Catalog. Compared with Helm V2, Helm V3 reinforces security on per user basis, provides full compatibility with Kubernetes Role-Based Access Control (RBAC), and supports more useful hooks.	All regions	If you have installed Helm V2, see Helm v2 upgrade notice .
Serverless Kubernetes (ASK) clusters add support for the Indonesia (Jakarta) and UK (London) regions	ASK clusters are available in the Indonesia (Jakarta) and UK (London) regions. You can create ASK clusters in the Indonesia (Jakarta) and UK (London) regions through the console.	Indonesia (Jakarta) and UK (London)	Create an ASK cluster
ASK adds support for ClusterIP services	ASK adds support for more options to deploy containerized applications. You can create ClusterIP services in ASK clusters. This enables access to your workload from within the cluster.	All regions	Create a service
CCM supports attaching both ECS instances and ECIs to the backend of SLB instances	Cloud Controller Manager (CCM) supports attaching both Elastic Compute Service (ECS) instances and Elastic Container Instances (ECIs) to the backend of SLB instances that are associated with application services. This enables unified scheduling of application pods across worker nodes and virtual nodes, improving application resilience.	All regions	Cloud Controller Manager
Edge clusters support 32-bit and 64-bit ARM nodes	Edge clusters support more heterogeneous infrastructures. Edge clusters allow you to add 32-bit and 64-bit ARM nodes. You can add Edge Node Service (ENS) nodes or nodes of on-premises data centers to edge clusters.	All regions	Add an edge node

January 2020

Feature	Description	Released in	Related topics
ACK allows Elastic Container Instance (ECI) pods deployed on virtual nodes to access ClusterIP services	Alibaba Cloud Container Service for Kubernetes (ACK) allows ECI pods deployed on virtual nodes to access ClusterIP services. This enables Kubernetes to centrally manage virtual nodes and elastic container groups. You can deploy applications on virtual nodes without the trouble of resource capacity planning. This meets the requirements of scenarios such as online workload scaling, offline computing, and CI/CD, and reduces the overall computing costs. To enable this feature, log on to the console, choose App Catalog, find and install the ack-virtual-node plug-in.	All regions	Virtual nodes
Adds support for ServiceAccountTokenVolumeProjection on the Kubernetes API server	ACK allows you to enable the ServiceAccountTokenVolumeProjection option on the API server when you create a cluster. This enables service account authentication on pods. This option is also required if mutual Transport Layer Security (TLS) authentication is enabled on Istio through Secret Discovery Service (SDS).	All regions	Create a cluster of ACK Proprietary Edition
CSI plug-ins support more features	ACK has optimized CSI plug-ins to support the following features: <ul style="list-style-type: none"> • Adds support for mounting Object Storage Service (OSS) subdirectories to containers. • Adds support for the Memory type emptyDir volumes. The Memory type volume is a RAM-based temporary file system, whose storage space is limited by memory. This type of file system offers good performance and is typically used to provide cache space in containers. • Adds support for accelerated OSSFS transmission. OSSFS allows you to share data by mounting OSS buckets to local file systems in Linux. To meet the needs of big data and AI scenarios, ACK improves read speed by adjusting concurrency, block size, and libfuse configurations. For more information, see alibaba-cloud-csi-driver. 	All regions	Install CSI plug-ins
Sandboxed containers support more storage features	Sandboxed containers enhance cloud-native capabilities and support cloud disks and Network Attached Storage (NAS) file systems. This allows ACK to provide the same storage performance as when these storage services are used on virtual machines. ACK also supports RootFS BLKIO Limit and disk I/O throttling on pods, and optimizes its support for multi-tenancy.	All regions	Create an ACK cluster that supports sandboxed containers

Feature	Description	Released in	Related topics
<p>Releases public preview of confidential computing clusters</p>	<p>Based on Intel Software Guard Extensions (SGX), confidential computing clusters are particularly suitable for sensitive data protection and scenarios such as smart contracts in blockchains, user secrets processing, intellectual property protection, genomics computing in bioinformatics, and edge computing. Currently, you can create confidential computing clusters, manually expand clusters, enable auto scaling, and add different types of nodes to the clusters. For more information, see Create a managed Kubernetes cluster that supports confidential computing and SGX application development guide. ACK also provides open source plug-in <code>sgx-device-plugin</code> to help you deploy SGX applications on Kubernetes clusters. For more information, see Kubernetes device plugin for Intel SGX.</p> <div style="background-color: #e0f2f7; padding: 10px; border: 1px solid #ccc;"> <p> Note Intel (R) Software Guard Extensions (Intel(R) SGX) are a set of central processing unit (CPU) instruction code developed by Intel. Intel(R) SGX allows developers to run application code and data in a special runtime environment called enclave, which is built based on hardware silos and memory encryption technology. Enclaves refers to Trusted Execution Environment (TEE). No application, OS Kernel, BIOS, or hardware other than the CPU can access an enclave without verification. All data in enclave memory is encrypted. Users encrypt the code and data in an enclave with their private keys obtained from Intel. An enclave can only be started after the signature is verified through remote certification service Intel IAS.</p> </div>	<p>All regions</p>	<p>Create a managed Kubernetes cluster that supports confidential computing</p>
<p>Alibaba Genomics Service (AGS) supports gene sequencing through API operations</p>	<p>ACK has released a set of API operations for genomics computing. You can call these API operations to submit gene sequencing tasks. Results are automatically uploaded to your OSS buckets. This saves you from the trouble of cluster creation and task deployments. These APIs support different SLA levels and provide computing resources based on actual needs. This allows you to reduce costs and improve efficiency. Currently, this feature is in public preview. To use the feature, submit a ticket.</p>	<p>All regions</p>	<p>Perform Whole Genome Sequencing (WGS) through AGS</p>

December 2019

Feature	Description	Released in	Related topics
Alibaba Cloud Container Service for Kubernetes (ACK) adds support for component management	ACK allows you to manage cluster components. You can log on to the ACK console. On the Clusters page, find the target cluster, choose More > Manage System Components on the right side of the page to manage cluster components. You can manage all system components and optional components with operations such as upgrade, uninstall, and reinstall. More custom configurations will be available soon.	All regions	Upgrade system components
App Catalog supports node local DNS to speed up DNS queries	App Catalog supports node local DNS, which sends internal DNS queries to CoreDNS and directly forwards external DNS queries to external DNS resolvers. Node local DNS caches all queries and provides DNS caching on each node. This significantly improves the overall DNS QPS of the cluster.	All regions	View the application catalog
Managed ACK clusters add support for the China East 1 Finance region on Alibaba Finance Cloud	You can create managed ACK clusters in the China East 1 Finance region on Alibaba Finance Cloud. You only need to create worker nodes in managed clusters. ACK creates and manages master nodes. This type of cluster is easier to use and provides high availability at low costs. You can focus on business development without the trouble of master node maintenance.	China East 1 Finance	Create a cluster of ACK Managed Edition
Adds support for Alibaba Cloud NPU	You can select Elastic Compute Service (ECS) instances of NPU type when you create managed or dedicated ACK clusters. The instance type is ecs.ebman1.26xlarge, which is suitable for big data analytics and AI scenarios in video and graphics industries.	All regions	Create a cluster of ACK Managed Edition
ACK updates the user interface for Terway configuration	After you select the Terway plug-in, you may want to know the number of pods that are supported by different ECS instance types. The user interface provides information about the number of pods that are supported by each ECS instance type when you create a cluster. When you expand a cluster, the user interface also provides multiple options. This allows you to select VSwitches for nodes and pods. The user interface is optimized to provide information clearly and accurately.	All regions	Use Terway

November 2019

Feature	Description	Released in	Related topics
Alibaba Cloud Container Service for Kubernetes (ACK) adds support for selecting multiple zones and disks when you expand a cluster	The user interface for expanding clusters is updated to provide the same configuration options as those for creating clusters. You can select multiple zones when you expand a cluster. You can also mount multiple disks to a node and choose to encrypt these disks.	All regions	Scale out a cluster
ACK adds support for custom data scripts, custom tags, and OOS	You can write user data scripts to configure nodes when you create or expand a cluster. To use this feature, submit a ticket. With this feature, you can specify operating systems for your nodes. Instead of building custom images, you can directly inject scripts into standard images. Auto Scaling allows you to add tags to Elastic Compute Service (ECS) instance-based nodes. This makes it easier to identify ECS nodes and allocate cost of nodes. ACK is integrated with Operation Orchestration Service (OOS). You can run OOS scripts to maintain nodes after you set nodes to unschedulable on the Nodes page.	All regions	Scale out a cluster
Serverless Kubernetes (ASK) adds support for multiple zones and log auditing	After ASK is upgraded to architecture 2.0, ASK clusters provide more cloud-native features. Multiple zones and log auditing are available. You can deploy pods across zones to improve the availability of your workloads. Log auditing provides multiple features to improve the security of ASK clusters. ASK clusters will provide the same functions as dedicated and managed ACK clusters.	All regions	Create a serverless Kubernetes cluster
Adds support for vGPU instances	To meet the needs of AI and big data applications, ACK supports vGPU resources. You can select instance types of the vgn5i instance family to create a cluster.	All regions	Use GPU container instances
Terway adds support for Elastic Network Interface (ENI) buffer pool	Terway is a container network plug-in developed based on Alibaba Cloud ENI. The update enables Terway to create a buffer pool of ENI IP addresses during node initialization. This makes it quicker to create pods and improves user experience.	All regions	Use Terway

Feature	Description	Released in	Related topics
Cloud Controller Manager (CCM) adds support for adding external ECS instance-based nodes as backend servers to SLB instances	CCM is a system component for mounting services to the backend of SLB instances. By default, cluster nodes that host services are all mounted to the backend of the SLB instances attached to the cluster. The update allows you to add ECS instance-based nodes outside the cluster as backend servers to the SLB instances. This makes it easier to perform application migration and canary releases.	All regions	Cloud Controller Manager

October 2019

Feature	Description	Released in	Related topics
Adds support for AliyunLinux2	AliyunLinux2 is the latest operating system version developed by Alibaba Cloud based on an advanced CentOS kernel version. AliyunLinux2.1903 is fully adapted to Alibaba Cloud Container Service for Kubernetes (ACK). The operating system supports faster startups and optimized performance, and improves the efficiency and reliability of the cluster.	All regions	Create a cluster of ACK Proprietary Edition
Adds support for enabling the ingress dashboard feature	In earlier versions, you need to manually configure the ingress dashboard, which is a time-consuming and error-prone task. A check box is added to the ingress configuration page. You only need to select the check box to enable the ingress dashboard feature. The ingress dashboard is automatically installed after the cluster is created.	All regions	Create a cluster of ACK Proprietary Edition
Adds support for selecting Server Load Balancer (SLB) instance types	In earlier versions, when you create a service of the SLB type, ACK creates shared-performance SLB instances by default. To meet your needs in various scenarios, ACK allows you to select SLB instance types when you create a service. These SLB instances adopt the pay-as-you-go billing method.	All regions	Create a service
Adds support for binding the API server with an Elastic IP address	SLB instances provide access to the API server in a cluster. When you create a cluster, ACK allows you to specify an internal or public SLB instance to handle traffic to the cluster. However, you may want to change the network settings of the SLB instance after the cluster is created. ACK allows you to bind an Elastic IP address to the SLB instance after the cluster is created. You can easily bind or unbind the Elastic IP address on the cluster details page. This allows you to change the network access settings of the cluster API server based on your needs.	All regions	Create a cluster of ACK Proprietary Edition

Feature	Description	Released in	Related topics
Adds support for automatic scaling of edge clusters	ACK allows you to set up automatic scaling of an edge cluster by adding or removing Edge Node Service (ENS) nodes to meet the needs of different scenarios. Currently, this feature can only be implemented through API operations.	All regions	节点自动伸缩
Serverless Kubernetes (ASK) adds support for more regions	ASK clusters are available in the China (Zhangjiakou-Beijing Winter Olympics) region.	China (Zhangjiakou-Beijing Winter Olympics)	Create a serverless Kubernetes cluster

September 2019

Feature	Description	Released in	Related topics
Alibaba Cloud Container Service for Kubernetes (ACK) adds support for more regions	Alibaba Cloud supports the China (Chengdu) region. ACK clusters are available in this region. You can create dedicated ACK clusters. To create managed ACK clusters, submit a ticket.	China (Chengdu)	Create a cluster of ACK Proprietary Edition
Adds support for upgrading to Kubernetes V1.14.6 and releases new upgrade features	The canary release of Kubernetes V1.14.6 upgrade function has been implemented in the following regions: China (Shanghai), China (Zhangjiakou-Beijing Winter Olympics), Singapore, and Germany (Frankfurt). The upgrade function will soon be available in all regions. ACK also provides new features to simplify the upgrade process. You can click Upgrade Cluster on the Clusters page to perform the upgrade. The following features are updated: <ul style="list-style-type: none"> • A comprehensive checkup is performed before the upgrade to see whether the upgrade will succeed. • You can manually pause or resume the upgrade process. • Detailed logs of the upgrade are recorded. 	<ul style="list-style-type: none"> • China (Shanghai) • China (Zhangjiakou-Beijing Winter Olympics) • Singapore • Germany (Frankfurt) 	Upgrade a cluster

Feature	Description	Released in	Related topics
Supports node maintenance	<p>To perform maintenance operations on a cluster node, you need to make sure that pods are not scheduled to the node. ACK supports node maintenance.</p> <p>To perform node maintenance, you can select one or more nodes and set them to unschedulable on the Nodes page. You can also drain the nodes.</p> <ul style="list-style-type: none"> After you set a node to unschedulable, no new pods will be scheduled to the node. When you choose to drain a node, existing pods on the node will be migrated to other nodes and no new pods will be scheduled to the node. However, pods managed by DaemonSets will not be evicted from the node. <p>If you have a service of Server Load Balancer type and the pods running the service are deployed on a node, you can configure the service to remove the node from the backend of the SLB instance when the node is set to unschedulable. This allows you to manage your nodes and workloads more flexibly.</p>	All regions	Mark a node as schedulable or unschedulable
Supports custom node names	<p>To manage a large-scale cluster that consists of a large number of nodes, it is important to quickly identify nodes by name. ACK allows you to custom node names when you create a cluster. On the Create Kubernetes Cluster page, you can click Show Advanced Options to custom node names in the Custom Node Name field by defining a prefix, an IP substring length, and a suffix. The IP substring length specifies the number of digits at the end of the node IP address that is returned and can be used to uniquely identify a node.</p>	All regions	Create a cluster of ACK Proprietary Edition
Supports advanced security groups	<p>Compared with basic security groups, advanced security groups support more Elastic Compute Service (ECS) instances, more Elastic Network Interfaces (ENIs), and effective management of private IP addresses. Advance security groups are suitable for scenarios that require high O&M efficiency, high configuration ECS instances, and large-scale compute nodes. To meet the needs of large-scale clusters, you can click Show Advanced Options and select an advanced security group in the Security Group field when you create a large-scale cluster.</p>	All regions	Create a cluster of ACK Proprietary Edition
Adds support for disk encryption and CSI drivers	<p>ACK allows you to encrypt data disks. You can enable data disk encryption when you create a cluster. This feature can automatically encrypt the data transmitted from an ECS instance to a disk and automatically decrypt the data when it is read. This improves data security. Kubernetes V1.14.6 supports the standard CSI drivers. You can choose between Flexvolume and CSI when you create a cluster.</p>	All regions	Create a cluster of ACK Proprietary Edition, Overview

August 2019

Feature	Description	Released in	Related topics
Adds support for Kubernetes V1.14.6	Alibaba Cloud Container Service for Kubernetes (ACK) supports Kubernetes V1.14.6. You can select Kubernetes V1.14.6 when you create a new cluster. Upgrade to Kubernetes V1.14.6 is currently not available.	All regions	Kubernetes release notes
Serverless Kubernetes (ASK) adds support for more regions.	ASK allows you to create containerized applications without managing or maintaining cluster nodes. You are billed based on the actual amount of Elastic Container Instance (ECI) resources consumed by applications. With ASK clusters, you can focus on the design and development of applications, instead of managing the underlying infrastructure.	Singapore China (Hong Kong) Australia (Sydney)	Create a serverless Kubernetes cluster
Releases ASK V2.0 architecture, which supports more native Kubernetes features	ASK has upgraded ASK to the 2.0 architecture and added support for CRD, RBAC, PV/PVC, and creating multiple namespaces. The upgrade also enhances cluster security and isolation capability. Starting this month, ASK reduces the average price by 46% as a result of the price reductions of ECIs. This includes a 30% reduction in CPUs and a 65% reduction in memory. This further lowers your costs.	All regions	Create a serverless Kubernetes cluster
Adds support for creating ACK clusters based on Super Computing Cluster (SCC) resources	Super Computing Clusters (SCCs) are based on Elastic Compute Service Bare Metal (EBM) instances. Supported by the high-speed Remote Direct Memory Access (RDMA) technology, SCCs greatly improve network performance and are widely used in scenarios such as high-performance computing, artificial intelligence, machine learning, scientific and engineering computing, data analysis, and audio and video processing. ACK supports Kubernetes clusters that are based on SCCs. This type of cluster combines high-performance infrastructure resources with lightweight and agile containers, and is suitable for high network throughput and compute-intensive scenarios.	All regions	Create a cluster of ACK Proprietary Edition
Auto scaling adds support for creating multiple scaling groups and configuring policies to schedule resources across multiple zones.	The auto scaling feature is optimized. You can configure multiple scaling groups so that resources of different specifications are displayed when the threshold is met. This feature meets the requirements for running different types of applications, such as high-computing applications and GPU computing applications. When you configure auto scaling policies, you can specify different scheduling policies across multiple zones, including priority policies, cost optimization policies, and zone balancing policies. This meets your resource scheduling needs when the cluster is deployed across multiple zones.	All regions	节点自动伸缩

Feature	Description	Released in	Related topics
<p>ACK supports custom cluster-domains</p>	<p>ACK allows you to custom cluster domains by specifying custom cluster-domains. A cluster-domain is the local domain name used for service discovery. When you have multiple clusters, you need to customize the local domain names. This makes it easier to manage clusters and services. ACK allows you to custom cluster-domains when you create clusters. This simplifies the management process and improves the O&M efficiency.</p>	<p>All regions</p>	<p>Create a cluster of ACK Proprietary Edition</p>
<p>App Catalog adds support for cloud-native App Hub</p>	<p>Cloud-native App Hub provides various open-source and free to use containerized applications. This update integrates ACK App Catalog with cloud-native App Hub. To deploy an application in your cluster, take the following steps: Log on to the ACK console. On the App Catalog > App Hub page, click the tab, and select the target application. This saves you the trouble of deploying the application by using CLI.</p>	<p>All regions</p>	<p>View the application catalog</p>

Feature	Description	Released in	Related topics
Releases a new Cloud Controller Manager version	<p>Cloud Controller Manager (CCM) is the core component in a cluster and is responsible for managing various cloud resources, such as Server Load Balancer (SLB) instances and Virtual Private Cloud (VPC) networks. This update adds the following features:</p> <ul style="list-style-type: none"> • Adds support for creating SLB instances with access control settings. You can specify an IP whitelist for an SLB instance that is created through ACK. This enhances the security of the cluster. • Adds support for setting whether to remove the nodes that are set to unschedulable when you run the <code>kubectl cordon</code> or <code>kubectl drain</code> command. Cordonning and draining nodes are important features in cluster maintenance. However, the community has not reached an agreement on whether to remove a node from the backend of an SLB instance when the node is set to unschedulable for maintenance. CCM provides an interface that allows you to choose whether to remove the node from the backend of an SLB instance. This ensures the flexibility of maintenance operations. • Adds support for mounting pods to the backend of an SLB instance through the Terway Elastic Network Interface (ENI). Terway ENI is the latest network plug-in released by ACK. The core function of Terway ENI is to mount the ENI IP address of a node to a pod. CCM supports mounting pods instead of nodes to the backend of an SLB instance. This avoids traffic forwarding through nodes and improves network performance. • Adds support for setting node weights based on the number of pods on the node for services in Local mode. CCM can adjust the percentage of traffic that is sent to each node based on the number of pods on the node. This helps balance the workloads among nodes. This feature only applies to services in Local mode. 	All regions	Cloud Controller Manager

July 2019

Feature	Description	Released in	Related topics
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Feature	Description	Released in	Related topics
Releases public preview of managed edge clusters	Alibaba Cloud Container Service for Kubernetes (ACK) releases the public preview of managed edge clusters. You can add edge nodes or Edge Node Service (ENS) nodes to managed edge clusters. This type of cluster supports edge computing and fully manages edge nodes and ENS nodes to help you reduce O&M costs. This type of cluster also provides support for autonomous edges and networks to meet the needs of different edge computing scenarios. You can select this type of cluster from the cluster template page.	China site	-
Releases public preview of multi-cluster management	ACK supports multi-cluster management. You can select Register Kubernetes Cluster on the cluster template page to add Kubernetes clusters from on-premises data centers or other public offerings of Alibaba Cloud to the ACK console. Then, you can deploy applications to these clusters through the console. You can easily manage hybrid cloud clusters and clusters deployed across multiple clouds. After you add self-created clusters from on-premises data centers to ACK, you can manage these clusters with the operations and maintenance features provided by ACK.	China site	Register a cluster
Managed ACK clusters add support for more regions on public offering of Alibaba Cloud	<p>You can create managed ACK clusters on public offering of Alibaba Cloud Japan site.</p> <ul style="list-style-type: none"> Saves resources. <p>Managed ACK clusters do not require you to create master nodes.</p> Easy maintenance operations. <p>ACK fully manages the maintenance of master nodes.</p> Enhanced security. <p>ACK meets various security needs.</p> 	Japan site	Create a cluster of ACK Managed Edition
Adds support for adding multiple disks to nodes when you create a cluster	ACK allows you to add multiple disks to nodes when you create a cluster. To save you the trouble of adding disks in the future, you can request to add multiple disks on the cluster creation page. ACK will format and mount one of the requested disks to the docker directory. You can decide how to handle the other disks.	All regions	Create a cluster of ACK Proprietary Edition
Adds support for selecting an existing security group when you create a cluster	ACK allows you to select an existing security group when you create a cluster. You can click Show Advanced Options to specify an existing security group for the Virtual Private Cloud (VPC) network of your cluster. This allows you to use custom security group rules to further enhance the security of your cluster.	All regions	Create a cluster of ACK Proprietary Edition

Feature	Description	Released in	Related topics
Releases cluster deletion protection	ACK supports cluster deletion protection to ensure the security of your cluster. In earlier versions, you were only required to enter a Short Message Service (SMS) verification code when you delete a cluster. However, you may still delete the cluster directly by calling API operations. To ensure the security of clusters, ACK supports cluster deletion protection. You can enable this feature when you create a cluster. When this feature is enabled, you cannot delete the cluster through the console or by calling API operations. To delete the cluster, you must disable this feature first. You can enable or disable this feature on the cluster basic information page.	All regions	Create a cluster of ACK Proprietary Edition
Adds support for simultaneously authorizing multiple users on the Authorizations page	ACK supports simultaneously authorizing multiple Resource Access Management (RAM) users and centrally managing the permissions on all clusters. This makes it easy to manage user authorizations and improves user experience. The authorization management procedure has been optimized to suit your habits.	All regions	Overview
Adds support for synchronizing time zones among nodes when you create an application	You can select the Synchronize the Timezone from the Node to the Container check box when you create an application from an image. This ensures that the pods running the application and the host node have the same time zone.	All regions	Create deployments by using images
Container Registry Enterprise Edition adds support for more regions	You can use Container Registry Enterprise Edition in the UK (London) region. Container Registry Enterprise Edition supports large-scale image distribution with enhanced security. It is suitable for enterprise users who require high security and large-scale nodes.	UK (London)	-
Container Registry Enterprise Edition adds support for Helm charts	Container Registry Enterprise Edition supports Helm charts V2. This makes it easy for you to manage cloud-native assets. You can enable the charts component on the Overview page of your Enterprise Edition instance. When the component is in the running state, you can start managing Helm chart repositories.	All regions	-

June 2019

Feature	Description	Released in	Related topics
Managed Alibaba Cloud Container Service for Kubernetes (ACK) clusters add support for more regions on public offering of Alibaba Cloud	You can create managed ACK clusters in the Japan (Tokyo) and UK (London) regions on public offering of Alibaba Cloud.	Japan (Tokyo) UK (London)	What is Container Service for Kubernetes?
Terway adds support for sharing one Elastic Network Interface (ENI) among multiple pods	<p>The latest Terway plug-in allows you to assign one ENI to each pod or share one ENI among multiple pods. The default mode is One ENI for Multi-Pod.</p> <ul style="list-style-type: none"> One ENI per Pod: In this mode, the number of pods that can be deployed on a node must match the number of ENIs that can be created on the node. This mode improves network performance. One ENI for Multi-Pod: In this mode, you can deploy multiple pods on a node. The pods share the same ENI. 	All regions	Use Terway
Adds support for Knative	<p>Knative is a Kubernetes-based serverless framework. One important goal of Knative is to establish a cloud-native and cross-platform orchestration standard. Knative implements this serverless standard by integrating with the creation of container or function, workload management and auto scaling, and event models. ACK supports Knative and allows you to install and upgrade the Build, Serving, and Eventing components. Note that you must deploy Istio before you use Knative. A wizard for deploying sample applications, and best practices of tracing, monitoring, and logging applications are also provided.</p>	All regions	Overview, Use Knative to deploy a Hello World application
Adds support for searching pods by node IP or pod IP	You can search pods by node IP address or pod IP address on the Pods page. In the ACK console, choose Applications > Pods and specify a node IP address or pod IP address to start the search.	All regions	-

May 2019

Feature	Description	Released in	Related topics
Managed Alibaba Cloud Container Service for Kubernetes (ACK) clusters add support for more regions on public offering of Alibaba Cloud and Alibaba Finance Cloud	<p>Managed ACK clusters support the Australia (Sydney) region on public offering of Alibaba Cloud and the China (Shanghai) region on Alibaba Finance Cloud.</p> <p>You can create managed ACK clusters in the Australia (Sydney) region on public offering of Alibaba Cloud and in the China East 2 Finance region on Alibaba Finance Cloud.</p>	<p>Australia (Sydney)</p> <p>China East 2 Finance</p>	<p>What is Container Service for Kubernetes?</p>
Releases genomics computing clusters	<p>ACK supports dedicated genomics computing clusters. This type of cluster uses high performance computing (HPC) instances as worker nodes and provides a large-scale workflow engine for accelerated genomics computing. Dedicated genomics computing clusters are suitable for data splitting and mutation detection and support the following data formats: BCL, FASTQ, BAM, SAM, and VCF. In the ACK console, choose Clusters > Clusters, click Create Kubernetes Cluster. On the Select Cluster Template page, select Genomics Computing Cluster to create a cluster.</p>	<p>All regions</p>	<p>-</p>
Releases FPGA clusters for accelerating image and video processing	<p>ACK supports FPGA clusters. This type of cluster uses FPGA F3 instances as worker nodes and is suitable for workloads such as H265 video encoding and image conversion from JPEG to HEIF. FPGA-based video encoding reduces the processing time from more than one week to 15 minutes. This significantly reduces the bitrate and saves the bandwidth when transcoding videos of the same quality. In the ACK console, choose Clusters > Clusters, click Create Kubernetes Cluster. On the Select Cluster Template page, select Dedicated FPGA Cluster to create a cluster.</p>	<p>All regions</p>	<p>-</p>
Releases a new Cloud Controller Manager (CCM) version	<p>CCM is upgraded to V1.9.3.110-g4938309-aliyun. This version supports more Server Load Balancer (SLB) configuration options. This update adds the following features:</p> <ul style="list-style-type: none"> • Adds support for setting parameters to determine whether public SLB instances can be created. • Adds support for changing the certificate ID. • Adds support for specifying a VSwitch when you attach an internal SLB instance to a service. • Adds support for configuring SLB instances to redirect traffic from HTTP to HTTPS. 	<p>All regions</p>	<p>Cloud Controller Manager</p>

Feature	Description	Released in	Related topics
Upgrades Istio to V1.1.4 and adds support for Time Series Database (TSDB)	<p>Istio V1.1.4 improves self-recovery capabilities and supports automatic recovery of the control plane and automatic upgrade of earlier versions. Istio is integrated with TSDB. TSDB is a database service that supports high-speed read/write, compressed storage, and real-time computing. To address the problems of local storage in Prometheus, TSDB offers remote storage services with high performance and high reliability at low costs.</p> <p>Compared with other open-source remote storage solutions, TSDB is easier to use and only needs you to change Prometheus configurations. The solution supports parallel reads and writes and is highly compatible with PromQL. It is a distributed storage system with auto scaling capabilities.</p>	All regions	-
Container Registry Enterprise Edition adds support for synchronizing images across all regions	Container Registry Enterprise Edition supports synchronizing images across all regions. This solves the issues in the global delivery of applications and helps enterprises improve the iteration efficiency of businesses. Container Registry Enterprise Edition supports large-scale image distribution with enhanced security. It is suitable for enterprise users who require high security and large-scale nodes.	All regions	-
Adds support for clusters deployed across multiple zones and adding five master nodes to ensure high availability	You can select multiple zones when you create a cluster. Meanwhile, you can configure five master nodes for a dedicated cluster. This significantly improves the availability of clusters.	All regions	-

April 2019

Feature	Description	Released in	Related topics
Adds support for upgrading to Kubernetes V1.12.6	The Kubernetes V1.12.6 upgrade is available in all regions. You can directly upgrade managed and dedicated ACK clusters from Kubernetes V1.11.5 to V1.12.6 through the console.	All regions	-
Managed ACK clusters support audit logs	You can collect audit logs in managed ACK clusters. Audit logs record operations on the API server and help cluster administrators trace the activities by different users.	All regions	kube-apiserver audit logs

Feature	Description	Released in	Related topics
Istio V1.1 adds support for application management in the console	ACK supports Istio V1.1 and allows you to manage Istio applications in the console. You can create and manage Istio applications and services through a graphical interface. You can create different application versions and implement canary releases with different policies. You can also configure fault injection policies to test the resilience of your services. In the console, choose Service Mesh > Virtual Services , and configure the settings.	All regions	Manage traffic
Serverless Kubernetes (ASK) clusters support pods with GPU capabilities.	You can create applications that run on pods with GPU capabilities in ASK clusters. When you create an application from a template, specify the pod type as GPU in the YAML file.	All regions	Use GPU container instances
Container Registry Enterprise Edition adds support for more regions	You can use Container Registry Enterprise Edition in the China (Beijing) region.	China (Beijing)	
Releases FPGA clusters for accelerating image and video processing	ACK supports FPGA clusters. This type of cluster uses FPGA F3 instances as worker nodes and is suitable for workloads such as H265 video encoding and image conversion from JPEG to HEIF. FPGA-based video encoding reduces the processing time from more than one week to a short time period. This ready-to-use service significantly reduces the bitrate and saves the bandwidth when transcoding videos of the same quality. In the ACK console, choose Clusters > Clusters , click Create Kubernetes Cluster . On the Select Cluster Template page, select Dedicated FPGA Cluster to create a cluster.	All regions	-

March 2019

Feature	Description	Released in	Related topics
Managed Alibaba Cloud Container Service for Kubernetes (ACK) clusters add support for more regions	You can create managed ACK clusters in the following regions: China (Zhangjiakou-Beijing Winter Olympics), China (Hohhot), US (Silicon Valley), and Germany (Frankfurt).	China (Zhangjiakou-Beijing Winter Olympics) China (Hohhot) Germany (Frankfurt) US (Silicon Valley)	What is Container Service for Kubernetes?

Feature	Description	Released in	Related topics
Releases Container Registry Enterprise Edition	Container Registry Enterprise Edition was officially released at the Alibaba Cloud Summit on March 21, 2019. This edition offers higher security and supports large-scale image distribution. The public preview of Container Registry Enterprise Edition is available in the China (Shanghai) region. To use the service, submit a ticket.	China (Shanghai)	What is Container Registry
Container Registry Shared Edition supports more regions on Alibaba Cloud International site	Container Registry Shared Edition is available in all regions on Alibaba Cloud International site.	All regions	What is Container Registry
Adds support for Kubernetes V1.12.6	ACK supports Kubernetes V1.12.6. You can select Kubernetes V1.12.6 when you create a new cluster.	All regions	Create a cluster of ACK Proprietary Edition
Managed ACK clusters add support for the Log Service plug-in	Managed ACK clusters support the Log Service plug-in. You can choose to enable Log Service when you create a managed ACK cluster. After the plug-in is installed, you can use Log Service to manage Kubernetes logs with ease.	All regions	Create a cluster of ACK Managed Edition
Managed ACK clusters support Windows containers	Managed ACK clusters support Windows containers. You can create managed ACK clusters to deploy Windows containers through the console or by calling API operations. This allows you to deploy traditional Windows applications on cloud-native platforms to achieve agility and elasticity.	All regions	-
ACK adds support for IPVS	ACK supports the IPVS kube-proxy mode. Compared with the traditional iptables mode, the IPVS mode significantly improves the load balancing performance in large-scale clusters. You can use this mode in all clusters and all regions.	All regions	Create a cluster of ACK Proprietary Edition
Adds support for cluster templates	ACK provides multiple cluster templates in the console. You can select cluster templates based on your business needs. Supported templates include managed ACK clusters, Elastic Compute Service (ECS) Bare Metal clusters, clusters with GPU capabilities, and Windows clusters. Cluster templates make it easier to create and customize ACK clusters.	All regions	-

Feature	Description	Released in	Related topics
Serverless Kubernetes (ASK) clusters add support for high performance Elastic Container Instance (ECI) types	ASK clusters support high performance ECI instance types. The maximum CPU configuration is increased from 8 vCPUs to 64 vCPUs, which supports genomics computing scenarios. The maximum ECI specification is 64 vCPUs and 256 GiB and the minimum is 0.25 vCPU and 0.5 GiB. You can select from a wide range of instance types to achieve the highest price-performance ratio.	All regions	Limits

February 2019

Feature	Description	Released in	Related topics
Managed Alibaba Cloud Container Service for Kubernetes (ACK) clusters add support for more regions	<p>Managed ACK clusters provide the following benefits:</p> <ul style="list-style-type: none"> Saves resources. Managed ACK clusters do not require you to create master nodes. Easy maintenance operations. ACK fully manages the maintenance of master nodes. Enhanced security. ACK meets various security needs. 	China (Shenzhen)	Create a cluster of ACK Managed Edition
App Catalog adds support for Knative add-ons	<p>Knative is a scale-to-zero and request-driven compute runtime based on Kubernetes and Istio. It supports deploying and serving serverless applications and functions.</p> <p>ACK supports Knative add-ons to help you quickly build the Knative serving environment in your cluster.</p>	All regions	Overview
Adds support for cluster check	Cluster check helps you quickly identify the cause of errors in the cluster through in-depth checks on cluster resources, components, and configurations.	Mainland China (Great China)	Check a Kubernetes cluster to troubleshoot exceptions

January 2019

Feature	Description	Released in	Related topics
Releases preview of Windows containers	<p>Alibaba Cloud Container Service for Kubernetes (ACK) supports Windows containers. This enables Windows applications to run on Kubernetes based on elastic scheduling.</p> <p>The release allows you to add Windows nodes to standard ACK clusters and managed ACK clusters.</p> <p>The feature is currently in the preview period. To use the feature, submit a ticket.</p>	All regions	-

Feature	Description	Released in	Related topics
Releases preview of Container Registry Enterprise Edition	<p>Container Registry Enterprise Edition offers container image repositories based on dedicated resources. The edition provides enterprise-class image building and secure hosting services and supports large-scale image distribution. It is suitable for enterprise users who require high security and large-scale nodes.</p> <p>Container Registry Enterprise Edition is currently in the preview period. To use the service, submit a ticket.</p>	All regions	-
Cluster check supports more regions	Cluster check is designed to provide best practices for cluster management in different scenarios. It helps you quickly identify the cause of errors in the cluster by performing in-depth checks on cluster resources, components, and configurations.	China (Hangzhou)	Check a Kubernetes cluster to troubleshoot exceptions
ACK adds support for Application Real-Time Monitoring Service (ARMS)	<p>ACK is integrated with ARMS. After you install the ARMS agent, you can easily monitor the performance of applications in the cluster.</p> <p>ARMS is a monitoring service for application performance management (APM). To monitor a Java application, you only need to attach an ARMS agent to the startup script of the application. No code change is required. ARMS enables you to quickly locate failed API operations or slow calls, reproduce API parameters, detect memory leaks, and discover system bottlenecks. This significantly improves the efficiency of diagnosis.</p>	All regions	Monitor application performance
Releases the general availability of Elastic Container Instance (ECI)	On January 22, 2019, ECI released the general availability version. Fees will be charged when you create pods in Serverless Kubernetes (ASK) clusters. ASK clusters remain free to use.	All regions	Billing methods
ASK clusters add support for more regions	You can create ASK clusters in the China (Beijing) and China (Shenzhen) regions.	China (Beijing) China (Shenzhen)	Create a serverless Kubernetes cluster

December 2018

Feature	Description	Released in	Related topics
Kubernetes clusters support more regions	You can create Alibaba Cloud Container Service for Kubernetes (ACK) clusters in all regions on Alibaba Cloud China site and in the UK (London) region on Alibaba Cloud International site.	UK (London)	Create a cluster of ACK Proprietary Edition

Feature	Description	Released in	Related topics
Managed ACK clusters add support for more regions	You can create managed ACK clusters in the China (Shanghai), Malaysia (Kuala Lumpur), and India (Mumbai) regions.	China (Shanghai) Malaysia (Kuala Lumpur) India (Mumbai)	Create a cluster of ACK Managed Edition
Adds support for removing nodes from a cluster	You can remove nodes from a cluster and choose whether to release the corresponding Elastic Compute Service (ECS) instances.	All regions	Remove nodes from an ACK cluster
Adds support for deploying DaemonSet applications	You can create DaemonSet applications. DaemonSet is a daemon process that ensures all nodes run one copy of a pod.	All regions	-
Adds support for custom Istio gateways	You can customize Istio ingress and egress gateways with different parameters.	All regions	-
Adds support for Istio CoreDNS	ACK supports using a CoreDNS plug-in to read Istio service entries and associate the IP addresses of the services to their host addresses.	All regions	-
Managed ACK clusters add support for adding existing ECS instances as nodes	You can select existing ECS instances as nodes when you create a managed ACK cluster.	All regions	Create a cluster of ACK Managed Edition

November 2018

Feature	Description	Released in	Related topics
Managed Alibaba Cloud Container Service for Kubernetes (ACK) clusters add support for more regions	You can create managed ACK clusters in the Indonesia (Jakarta) region on Alibaba Cloud International site.	Indonesia (Jakarta)	Create a cluster of ACK Managed Edition
Releases Terway	ACK releases the Terway plug-in. Terway enables direct communication between containers through Elastic Network Interfaces (ENIs) and offers higher network performance than Flannel.	All regions	Use Terway

Feature	Description	Released in	Related topics
Adds support for using thumbnail images to display the performance metrics of worker nodes	ACK uses thumbnail images to display the performance metrics of worker nodes, which makes it easy to view the node status.	All regions	-
Adds support for simultaneously adding multiple nodes to a cluster	You can simultaneously add multiple existing nodes to a cluster.	All regions	-
ACK adds support for rolling renewal of cluster certificates	ACK supports rolling renewal of cluster certificates.	All regions	-

October 2018

Feature	Description	Released in	Related topics
Alibaba Cloud Container Service for Kubernetes (ACK) adds support for more regions on Alibaba Finance Cloud	You can create ACK clusters in the China (Shenzhen) region on Alibaba Finance Cloud.	China (Shenzhen)	Create a cluster of ACK Proprietary Edition
Managed ACK clusters add support for more regions	-	Outside China	Create a cluster of ACK Managed Edition
Adds support for deployment version management and rollback	ACK provides version management and rollback capabilities to help you better manage deployments.	All regions	-
Adds support for Istio addons	ACK is deeply integrated with Istio.	All regions	Overview

September 2018

Feature	Description	Released in	Related topics
Alibaba Cloud Container Service for Kubernetes (ACK) adds support for Kubernetes V1.11	<ul style="list-style-type: none"> • Adds new features such as CRD upgrade, CoreDNS GA, pod priority settings, and preemptive scheduling. • Adds support for multiple versions such as Kubernetes V1.10 and V1.11. • Adds support for multi-container applications and stateful applications in the console. 	All regions	Create a StatefulSet application by using an image
Adds support for pulling images from Container Registry private repositories without passwords	ACK allows you to pull images from Container Registry private repositories without passwords.	All regions	
Adds support for auto scaling of nodes	ACK provides the auto scaling component for nodes to automatically scale in and out. Regular instances, instances with GPU capabilities, and preemptible instances can be automatically added to or removed from an ACK cluster based on your requirements. This feature is applicable to instances deployed across multiple zones and diverse instance types, and also supports different scaling modes.	All regions	节点自动伸缩
Adds support for preemptible instances	-	All regions	

August 2018

Feature	Description	Released in	Related topics
Releases public preview of managed Alibaba Cloud Container Service for Kubernetes (ACK) clusters	ACK releases the public preview of managed ACK clusters.	All regions	Create a cluster of ACK Managed Edition
Releases Istio add-ons	ACK releases Istio add-ons.	All regions	Overview

July 2018

Feature	Description	Released in	Related topics
Alibaba Cloud Container Service for Kubernetes (ACK) clusters add support for more regions	-	Australia (Sydney)	Create a cluster of ACK Proprietary Edition
Adds support for canary release and phased release	-	All regions	Canary releases and blue/green deployment , Create a batch release

June 2018

Feature	Description	Released in	Related topics
Alibaba Cloud Container Service for Kubernetes (ACK) adds support for more regions	-	Japan (Tokyo) China (Hohhot)	Create a cluster of ACK Proprietary Edition
ACK V1.10 adds support for FPGA and HugePages	-	All regions	-
ACK adds support for application monitoring and alerting	ACK supports application monitoring and alerting.	All regions	Integration and usage with CloudMonitor
ACK adds support for the subscription billing method	-	All regions	Create a cluster of ACK Proprietary Edition
Serverless Kubernetes (ASK) adds support for exec/attach commands and ingresses	-	All regions	Features

May 2018

Feature	Description	Released in	Related topics
Alibaba Cloud Container Service for Kubernetes (ACK) adds support for more regions on Alibaba Finance Cloud	You can create ACK clusters in the China (Shanghai) region on Alibaba Finance Cloud.	China (Shanghai)	Create a cluster of ACK Proprietary Edition
Releases Serverless Kubernetes (ASK)	-	All regions	Create a serverless Kubernetes cluster
ACK adds support for blue-green release, canary release, and A/B testing	-	All regions	Canary releases and blue/green deployment

April 2018

Description	Released in	Related topics
Alibaba Cloud Container Service for Kubernetes (ACK) supports five regions in Southeast Asia, Middle East, and India. The latest stable ACK version is V1.9.	Malaysia (Kuala Lumpur) Indonesia (Jakarta) Singapore India (Mumbai) UAE (Dubai)	Create a cluster of ACK Proprietary Edition
ACK has updated Service Catalog to support MySQL, RDS, RabbitMQ, and Spark.	All regions	Overview
ACK has updated App Catalog to support managing applications that are released by using Helm.	All regions	Manage a Helm-based release

March 2018

Feature	Description	Released in	Related topics
Adds support for Alibaba Cloud Container Service for Kubernetes (ACK) V1.9 and custom Elastic Compute Service (ECS) instance images	ACK supports native Kubernetes V1.9.3 and releases Workloads API. Custom Resource Definition (CRD) is enabled by default and GPU scheduling is supported. You can select custom ECS instance images when you create a cluster. You can also reset images when you add nodes to a cluster.	All regions	-
ACK adds support for deploying applications by using Helm	ACK releases App Catalog, which allows you to quickly deploy applications by using Helm.	All regions	Manage a Helm-based release
ACK adds support for ServiceBroker	ACK releases Service Catalog, which supports ServiceBroker.	All regions	Overview
ACK adds support for node monitoring by using CloudMonitor	ACK allows you to monitor cluster nodes by using CloudMonitor.	All regions	Monitor resources

January 2018

Feature	Description	Released in	Related topics
Releases Alibaba Cloud Container Service for Kubernetes (ACK) and Container Registry on Alibaba Cloud International site	-	Outside China	What is Container Service for Kubernetes?
Adds support for Kubernetes V1.8.4 and features such as security enhancement and auto scaling	-	All regions	节点自动伸缩
ACK releases FlexVolume to support cloud disks, NAS volumes, and OSS volumes	ACK releases the FlexVolume plug-in to mount cloud disks, Network Attached Storage (NAS) volumes, and Object Storage Service (OSS) volumes	All regions	Use Alibaba Cloud disks as volumes , Use Alibaba Cloud NAS as volumes , and Use OSS volumes
ACK adds support for network policies and bandwidth throttling	ACK supports Kubernetes network policies and bandwidth throttling.	All regions	Use annotations to configure SLB instances
ACK adds support for Elastic Compute Service (ECS) Bare Metal instances	-	All regions	-

October 2017

Feature	Description	Released in	Related topics
Adds support for native Kubernetes	Alibaba Cloud Container Service for Kubernetes (ACK) supports Kubernetes V1.8.1.	All regions	What is Container Service for Kubernetes?
Releases public preview of the blockchain solution	-	All regions	N/A

August 2017

Feature	Description	Released in	Related topics
Adds support for Kubernetes V1.7.2	-	All regions	Create a cluster of ACK Proprietary Edition

2.Kubernetes release notes

2.1. ACK 1.12 release notes

This topic describes the changes made to the community version of Kubernetes by Alibaba Cloud Container Service for Kubernetes (ACK). The Kubernetes used by ACK shares the core code with the community Kubernetes. Therefore, each version of Kubernetes used by ACK is compatible with the corresponding version of the community Kubernetes.

Added features in V1.12.6-aliyun.1

- Shielded TLS handshake logs generated by the apiserver kubelet to perform health checks on SLB instances.

CommitID: 4f1d96e153b050d8374bfbb66803d7b3d9181abe

- Added support for kubeadm to check Docker V18.09.2.

CommitID: 3b1ebfa1b857c44f5261a36f1420b10a08e01771

- Changed the level of watch logs of the aggregation controller.

CommitID: 01a904eed3f9486caa482c8983698075d1cea2f1

- The changes to kubeadm are as follows:
 - Increased the times of retries performed by kubeadm when cluster resources are updated.
 - Removed the feature that kubeadm deploys DNS servers.
 - Removed the feature that kubeadm deploys kubeproxy.
 - Increased the period of validity for certificates generated by kubeadm to 10 years.

For more information, see [Release notes for Kubernetes released by the Kubernetes community](#).

2.2. Kubernetes 1.16 release notes

Container Service for Kubernetes (ACK) strictly abides by the terms of the Certified Kubernetes Conformance Program. This topic describes the changes made to Kubernetes 1.16.

Version upgrade

Container Service for Kubernetes has upgraded the components of Kubernetes 1.16.6 to provide enhanced features.

Core component	Version	Upgrade notes
Kubernetes	1.16.6	<p>In Kubernetes 1.16, the built-in CoreDNS version is 1.6.2. Compared with CoreDNS 1.3.1 in Kubernetes 1.14, the new version has the following changes:</p> <ul style="list-style-type: none"> • The proxy plug-in is replaced with the forward plug-in, which offers higher performance. • The ready plug-in is enabled by default, which is used to check readiness. <p>The Corefile will be automatically migrated to match the new CoreDNS version when you upgrade Kubernetes to 1.16.</p>
Docker	19.03.5 (containerd 1.2.10)	None.

Core component	Version	Upgrade notes
etcd	3.4.3	None.

Version details

• Performance optimizations

Compared with Kubernetes 1.14, Kubernetes 1.16.6 has the following performance optimizations.

- Optimizes PodAffinity to improve performance by 100%.
- Optimizes serialization operations. Enhances the performance of the pod list operation by 40%. Enhances the performance of the node list operation by 30%.
- Enhances the performance of processing apply requests that involve large map objects on the server side.
- Optimizes the heartbeat solution based on node leases. Reduces the number of lease queries sent to the API server or etcd by 50,000 per minute in a cluster of 8,000 nodes.
- Dramatically speeds up the pod creation process. When it comes to creating stateless pods, which does not involve mounting volumes such as ConfigMap or secrets to the pods,
 - both Kubernetes 1.16.6 and 1.14 meet the SLAs defined by SIG Scalability. 99% of pods can be started within five seconds given that images are already pulled.
 - In the worst-case scenario, it takes Kubernetes 1.14 nearly five seconds to create a pod whereas Kubernetes 1.16.6 needs only three seconds under the same conditions.

Compared with previous versions, Docker 19.03.5 has the following improvements:

- The built-in buildkit speeds up image builds.
- The runC runtime optimizes systemd detection logic. Containers start faster and occupy less memory.


Docker 19.03.5 improves runtime stability as follows:

- Fixes the issue where pods occasionally restart during exec health checks.
- Fixes vulnerability CVE-2018-15664, which is exposed by the `docker cp` command.
- Fixes the issue where Docker does not respond when a rich container running multiple processes exits.
- Fixes the handle leak issue in containerd.

• Feature enhancements

Compared with Kubernetes 1.14, Kubernetes 1.16.6 has the following important changes.

- The following API versions are not supported by default: `extensions/v1beta1`, `apps/v1beta1`, and `apps/v1beta2`. `apps/v1beta1` and all resources defined in `apps/v1beta1` are replaced by `apps/v1`. The `daemonsets`, `deployments`, and `replicasets` resources defined in `extensions/v1beta1` are replaced by `apps/v1`. The `networkpolicies` resource defined in `extensions/v1beta1` is replaced by `networking.k8s.io/v1`.

 **Note** To ensure compatibility with your workloads, Container Service for Kubernetes has added support for the preceding API versions in Kubernetes 1.16.6 and will end the support in Kubernetes 1.18. We recommend that you change the API versions as soon as possible.

- The following kubelet security control parameters are deprecated and removed: `AllowPrivileged`, `HostNetworkSources`, `HostPIDSources`, and `HostIPCSources`. Instead, access control parameters such as `PodSecurityPolicy` are added for enhanced security.

- More features have stabilized. For example, CustomResourceDefinitions (CRDs) and admission webhooks are now in general availability.

Enhancements

Container Service for Kubernetes has enhanced Kubernetes 1.16 in the following aspects:

- Enhanced stability and performance
 - Adds retries for idempotent functions to improve the success rate of cluster creation.
 - Existing containers are not restarted during a kubelet upgrade.
 - Fixes kubelet startup failures caused by hugetlb.
- Improved observability
 - Optimizes logs of liveness probes sent from SLB to apiserver.
 - Adjusts the aggregationcontroller log level.
 - Optimizes the outputs of the `get cs` command in managed clusters.
 - Optimizes monitoring metrics on sandboxed containers based on compatibility with existing metrics APIs.

3. System Component change Records

3.1. Cloud Controller Manager

This topic provides release notes for Cloud Controller Manager (CCM).

June 2020

Version	Image address	Release date	Description
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Version	Image address	Release date	Description
v1.9.3.276-g372aa98-aliyun	<i>registry.cn-hangzhou.aliyuncs.com/acs/cloud-controller-manager-amd64:v1.9.3.276-g372aa98-aliyun</i>	June 11, 2020	<ul style="list-style-type: none"> • Features: <ul style="list-style-type: none"> ◦ You are not allowed to reuse the Server Load Balancer (SLB) instances of the cluster API Server for LoadBalancer services. ◦ Prometheus metrics (ccm_node_latencies_duration_millis econds, ccm_route_latencies_duration_millis econds, and ccm_slb_latencies_duration_millisec onds) are added to monitor information about the CCM synchronization delay from services to SLB instances. ◦ Adds events for monitoring the synchronization process between the service and LoadBalancer. • Improvements: <ul style="list-style-type: none"> ◦ Optimizes weight calculation for services in Local mode. You can set externalTrafficPolicy to Local to enable the Local mode. This improves the balance of loads among pods. For more information, see How to automate weight calculation for nodes in Local mode. ◦ Optimizes API calls of cloud services to improve efficiency and minimizes the chances of traffic throttling. ◦ When you delete a node attached with the service.beta.kubernetes.io/exclude-node label, the associated Ingress is no longer deleted. • Fixed bugs: <ul style="list-style-type: none"> ◦ Fixes the bug that persistence timeout cannot be set to 0 through annotations during service upgrades. ◦ Fixes the bug that bandwidth cannot be set to 100 through annotations during service upgrades.

March 2020

Version	Image address	Release date	Description
v1.9.3.239-g40d97e1-aliyun	<i>registry.cn-hangzhou.aliyuncs.com/acs/cloud-controller-manager-amd64:v1.9.3.239-g40d97e1-aliyun</i>	March 5, 2020	<ul style="list-style-type: none"> • Features: <p>For <i>Loadbalancer</i> services, CCM now allows you to mount both Elastic Compute Service (ECS) instance-based nodes and Elastic Network Interfaces (ENIs) to SLB instances as backend servers.</p> • Improvements: <ul style="list-style-type: none"> ◦ You must call APIs of Alibaba Cloud services over internal networks instead of the Internet. To call CCM operations, Internet access is no longer required in regions other than Beijing, Shanghai, and Dubai. ◦ The API operation to query VPC route entries is now changed to DescribeRouteEntryList. This provides higher performance when hundreds of queries are received within a short period of time.

December 2019

Version	Image address	Release date	Description
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Version	Image address	Release date	Description
v1.9.3.220-g24b1885-aliyun	<i>registry.cn-hangzhou.aliyuncs.com/acs/cloud-controller-manager-amd64:v1.9.3.220-g24b1885-aliyun</i>	December 31, 2019	<ul style="list-style-type: none"> • Adds support for VSwitchids. You can now specify VSwitchids in CloudConfig in the following format: <code>:vswitchid1,:vswitchid2</code> . • Adds support for Backoff when traffic throttling is enabled. Backoff allows failed requests to rejoin the reconcile queue every 30 to 180 seconds. • Adjusts the number of worker threads to be reconciled to 2. This makes full use of the queries per second (QPS) quota on API calls to accelerate the reconcile queue. • Fixes the crash caused by concurrent Map reads and writes through the aliyungo SDK. • When a node is removed from a Kubernetes cluster, CCM automatically deletes the related Virtual Private Cloud (VPC) route entries from the route table. • Fixes the issue where port configurations cannot be changed due to port dependencies in HTTP Forward. • If the backend server of an SLB instance is an ECS instance, the serverip field is no longer required when you update the backend server. This avoids errors caused by different default serverip values of API requests when you add backend servers. • Only when the status of a node is known, the related VPC route entries are added to the route table. • CCM no longer adds Network Address Translation (NAT) IP addresses to node metadata. This fixes the issue where APIServer cannot connect to kubelet in some cases. • When you modify the configurations of a listener, the start listener operation is only called when the listener status is inactive. This avoids throttling on API requests.

November 2019

Version	Image address	Release date	Description
v1.9.3.193-g6cddde4-aliyun	<i>registry.cn-hangzhou.aliyuncs.com/acs/cloud-controller-manager-amd64:v1.9.3.193-g6cddde4-aliyun</i>	November 19, 2019	<ul style="list-style-type: none"> • Adds support for adding label: <i>service.beta.kubernetes.io/exclude-node</i> to a node. In this case, you no longer require CCM to manage the node. • Adds support for simultaneously adding multiple pods (whose network type is Terway) to the backend of an SLB instance. • The node weight must not be less than 1 in Local mode (when <i>externalTrafficPolicy=Local</i> is set). • Fixes the issue where VServer groups are repeatedly created in case of concurrency. • Fixes the issue where dirty data is generated due to cache when you set node weights.

September 2019

Version	Image address	Release date	Description
---------	---------------	--------------	-------------

Version	Image address	Release date	Description
v1.9.3.164-g2105d2e-aliyun	<i>registry.cn-hangzhou.aliyuncs.com/acs/cloud-controller-manager-amd64:v1.9.3-164-g2105d2e-aliyun</i>	September 11, 2019	<ul style="list-style-type: none"> • Adds support for updating a certificate by using annotation: <i>service.beta.kubernetes.io/alibaba-cloud-loadbalancer-cert-id</i>. • Adds support for port forwarding from HTTP to HTTPS by using annotation: <i>service.beta.kubernetes.io/alibaba-cloud-loadbalancer-forward-port</i>. • Adds support for creating an SLB instance with access control list (ACL) settings by using the following annotations: <i>service.beta.kubernetes.io/alibaba-cloud-loadbalancer-acl-status</i>, <i>service.beta.kubernetes.io/alibaba-cloud-loadbalancer-acl-id</i>, and <i>service.beta.kubernetes.io/alibaba-cloud-loadbalancer-acl-type</i>. • Adds support for removing unschedulable nodes by using annotation: <i>service.beta.kubernetes.io/alibaba-cloud-loadbalancer-remove-unscheduled-backend</i>. • Adds support for mounting pods to the backend of an SLB instance by using annotation: <i>service.beta.kubernetes.io/backend-type: "eni"</i> in Terway mode. This improves network forwarding performance. • A service can automatically set the node weight based on the number of pods on the node in Local mode (when <i>externalTrafficPolicy=Local</i> is set).

April 2019

Version	Image address	Release date	Description
v1.9.3.105-gfd4e547-aliyun	<i>registry.cn-hangzhou.aliyuncs.com/acs/cloud-controller-manager-amd64:v1.9.3.105-gfd4e547-aliyun</i>	April 15, 2019	<ul style="list-style-type: none"> • Adds support for creating multiple route tables in a VPC network. You can now use the configuration file to set multiple route tables for a cluster. • Fixes the issue where updated HTTP configurations do not take effect.

March 2019

Version	Image address	Release date	Description
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Version	Image address	Release date	Description
v1.9.3.81-gca19cd4-aliyun	<i>registry.cn-hangzhou.aliyuncs.com/acs/cloud-controller-manager-amd64:v1.9.3.81-gca19cd4-aliyun</i>	March 20, 2019	<ul style="list-style-type: none"> Managed and dedicated Kubernetes clusters now support reusing existing SLB instances that are not created through Kubernetes. Adds support for custom node names. Node naming is no longer strongly reliant on the nodeName field in Kubernetes. Fixes the compatibility issue between CCM 1.8.4 and Kubernetes 1.11.5. We recommend that you upgrade CCM to the latest version.

December 2018

Version	Image address	Release date	Description
v1.9.3.59-ge3bc999-aliyun	<i>registry.cn-hangzhou.aliyuncs.com/acs/cloud-controller-manager-amd64:v1.9.3.59-ge3bc999-aliyun</i>	December 26, 2018	<ul style="list-style-type: none"> Adds support for multiple Kubernetes services reusing the same SLB instance. <ul style="list-style-type: none"> If an SLB instance is created when you create a service, you cannot reuse this SLB instance when you create other services. Otherwise, the SLB instance may be deleted. You can only reuse SLB instances that are manually created in the console or by calling API operations. Services that reuse the same SLB instance cannot have the same frontend listening port. Otherwise, port conflicts may occur. When you reuse an SLB instance, you must use the listener name and VServer group name as identifiers. Do not modify the listener name or VServer group name. You can modify the name of the SLB instance. You cannot reuse SLB instances across clusters. Fixes the issue of traffic throttling by changing VPC route table operations from concurrent to sequential.

August 2018

Version	Image address	Release date	Description
---------	---------------	--------------	-------------

Version	Image address	Release date	Description
v1.9.3.10-gfb99107-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/cloud-controller-manager-amd64:v1.9.3.10-gfb99107-aliyun	August 15, 2018	<ul style="list-style-type: none"> • Adds support for specifying the primary zone to deploy automatically created SLB instances by using annotation: <i>service.beta.kubernetes.io/alibabacloud-loadbalancer-master-zoneid</i>. • Adds support for specifying the secondary zone to deploy automatically created SLB instances by using annotation: <i>service.beta.kubernetes.io/alibabacloud-loadbalancer-slave-zoneid</i>. <div style="border: 1px solid #ccc; background-color: #e6f2ff; padding: 5px; margin: 10px 0;"> <p> Note This parameter does not take effect in regions where SLB instances across primary and secondary zones are not supported.</p> </div> <ul style="list-style-type: none"> • Adds support for overwriting the existing listeners when you reuse an SLB instance by using annotation: <i>service.beta.kubernetes.io/alibabacloud-loadbalancer-force-override-listeners</i>. • Adds support for specifying the bandwidth when you create a pay-by-bandwidth SLB instance by using annotation: <i>service.beta.kubernetes.io/alibabacloud-loadbalancer-bandwidth</i>. The bandwidth is shared among listeners of the SLB instance.

June 2018

Version	Image address	Release date	Description
---------	---------------	--------------	-------------

Version	Image address	Release date	Description
v1.9.3	<code>registry.cn-hangzhou.aliyuncs.com/acs/cloud-controller-manager-amd64:v1.9.3</code>	June 25, 2018	<ul style="list-style-type: none"> • Adds support for setting worker nodes with specific labels as backend servers by using annotation: <code>service.beta.kubernetes.io/alibabacloud-loadbalancer-backend-label</code>. • Adds support for specifying the type of an SLB instance, such as shared-performance or exclusive, by using annotation: <code>service.beta.kubernetes.io/alibabacloud-loadbalancer-spec</code>. • Adds support for services in Local mode by setting <code>externalTraffic: Local</code>. When this mode is enabled, only nodes that host pods can be added to the backend of the SLB instance attached to the cluster. • When a node is added to or removed from a cluster, the system automatically adds the node to or removes it from the backend of the SLB instance attached to the cluster. • When the label of a node is changed, the system automatically adds the node to or removes it from the backend of the SLB instance attached to the cluster. • Adds support for sticky sessions. • When you create a service based on an existing SLB instance, the system no longer manages listeners for you. You must manually add listeners.

3.2. Release notes for Terway

This topic lists the latest changes to the Terway plug-in.

August 2020

Version	Image address	Release date	Description	Impact
v1.0.10.221-g8d6386a-aliyun	<code>registry.cn-hangzhou.aliyuncs.com/acs/terway:v1.0.10.221-g8d6386a-aliyun</code>	August 11, 2020	Supports IPVLAN and the extended Berkeley Packet Filter (eBPF) for network virtualization. This feature is available to only users in the whitelist. To use this feature, Submit a ticket .	No impact on workloads.

Version	Image address	Release date	Description	Impact
v1.0.10.213-g27145cc-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/terway:v1.0.10.213-g27145cc-aliyun	August 4, 2020	Fixes the issue where a pod cannot connect to the network due to occasional Elastic Network Interface (ENI) failures.	No impact on workloads.

July 2020

Version	Image address	Release date	Description	Impact
v1.0.10.208-gf3144bf-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/terway:v1.0.10.208-gf3144bf-aliyun	July 20, 2020	<ul style="list-style-type: none"> Fixes the issue where policy-based routes for high-density servers are leaked. Supports API calls through internal networks. Fixes the issue where IP addresses cannot be assigned to pods when the number of VSwitches reaches the upper limit. Optimizes the error report interface that returns Container Network Interface (CNI) errors. 	No impact on workloads.
v1.0.10.211-gef088a4-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/terway:v1.0.10.211-gef088a4-aliyun	July 24, 2020	Supports the feature of attaching tags of cluster IDs to Elastic Network Interfaces (ENIs).	No impact on workloads.

April 2020

Version	Image address	Release date	Description	Impact
v1.0.10.156-g8660a0f-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/terway:v1.0.10.156-g8660a0f-aliyun	April 22, 2020	<ul style="list-style-type: none"> Improves the efficiency of caching through Elastic Network Interfaces (ENIs). Upgrades Felix to V3.5.8. Supports the feature of reclaiming network resources from pods that are in the Completed Failed state. 	No impact on workloads.

February 2020

Version	Image address	Release date	Description	Impact
v1.0.10.139-g14a4f84-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/terway:v1.0.10.139-g14a4f84-aliyun	February 12, 2020	Fixes the issue where pod creation requests occasionally time out.	No impact on workloads.

January 2020

Version	Image address	Release date	Description	Impact
v1.0.10.133-g001396b-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/terway:v1.0.10.133-g001396b-aliyun	January 10, 2020	<ul style="list-style-type: none"> Supports the feature of disabling the NetworkPolicy feature. Clusters in One ENI for Multi-Pod mode support IPVLAN for network virtualization. 	No impact on workloads.

December 2019

Version	Image address	Release date	Description	Impact
v1.0.10.122-gd0be015-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/terway:v1.0.10.122-gd0be015-aliyun	December 24, 2019	Optimizes the efficiency of IP address allocation in One ENI for Multi-Pod mode.	No impact on workloads.

October 2019

Version	Image address	Release date	Description	Impact
v1.0.10.100-g92a3fa5-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/terway:v1.0.10.100-g92a3fa5-aliyun	October 11, 2019	Fixes the issue where the host node is not ready when a large number of jobs are concurrently requesting resources.	No impact on workloads.

August 2019

Version	Image address	Release date	Description	Impact
v1.0.9.20-g35ae000-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/terway:v1.0.9.20-g35ae000-aliyun	August 23, 2019	Supports Kubernetes 1.14.6.	No impact on workloads.

April 2019

Version	Image address	Release date	Description	Impact
v1.0.9.15-g3957085-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/terway:v1.0.9.15-g3957085-aliyun	April 11, 2019	Fixes occasional failures during the upgrade of Terway.	No impact on workloads.

March 2019

Version	Image address	Release date	Description	Impact
v1.0.9.14-ga0346bb-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/terway:v1.0.9.14-ga0346bb-aliyun	March 28, 2019	<ul style="list-style-type: none"> Fixes the issue where Terway fails to obtain the Elastic Network Interface (ENI) information when throttling is applied to the meta server. Fixes the issue where the failed to move veth to host netns: file exists error is reported during container creation. Supports periodic scanning to check the status of ENIs. ENIs that are abnormally released will be periodically recycled. Optimizes health checks. TCP port check is performed instead of HTTP path check. 	No impact on workloads.

3.3. kritis-validation-hook release notes

3.3.1. kritis-validation-hook introduction

kritis-validation-hook is a key component for verifying image signatures. You can use signature verification to ensure that only images signed by trusted authorities are deployed. This reduces the risks of malicious code execution. This topic provides examples about how kritis-validation-hook is used to verify signatures.

kritis-validation-hook Signature verification Container images

Context

Based on the open-source project [kritis](#), kritis-validation-hook is integrated with [Alibaba Cloud Container Registry \(ACR\)](#) to support signature verification for images that are signed by [Key Management Service \(KMS\)](#). kritis-validation-hook is integrated with [Security Center](#), KMS, and ACR to implement fully automated image signing and signature verification. This allows you to build a secure environment for clusters. For more information about how to enable signature verification for container images, see [Use kritis-validation-hook to automatically verify the signatures of container images](#).

Example

The following example demonstrates how kritis-validation-hook is used to enable image signature verification for the default namespace.

Note In this example, the procedure of image signing is not described because this procedure does not involve `kritis-validation-hook`. The following signed image and KMS key is used in this example:

- The address of the image signed by KMS is `kritis-demo-registry.cn-hangzhou.cr.aliyuncs.com/kritis-demo/alpine@sha256:ddba4d27a7ffc3f86dd6c2f92041af252a1f23a8e742c90e6e1297bfa1bc0c45`.
- The public key of the KMS key is stored in the `publickey.txt` file
- The ID of the KMS key is `4a2ef103-5aa3-4220-89ee-kms-key-id`.

1. Create an `AttestationAuthority` object to declare a trusted authority.

The preceding public key is used in the following code block:

```
$ cat <<EOF > AttestationAuthority.yaml
apiVersion: kritis.grafeas.io/v1beta1
kind: AttestationAuthority
metadata:
  name: demo-aa
spec:
  noteReference: namespaces/demo-aa
  publicKeyData: $(cat publickey.txt | base64 | tr -d '\n')
  publicKeyId: 4a2ef103-5aa3-4220-89ee-kms-key-id
EOF

$ kubectl apply -f AttestationAuthority.yaml
```

2. Create a `GenericAttestationPolicy` object to declare the attestation policy and specify the trusted authority for signature verification.

```
$ cat <<EOF > GenericAttestationPolicy.yaml
apiVersion: kritis.grafeas.io/v1beta1
kind: GenericAttestationPolicy
metadata:
  name: demo-gap
spec:
  attestationAuthorityNames:
  - demo-aa
EOF

$ kubectl apply -f GenericAttestationPolicy.yaml
```

3. Verify that images are not allowed to be deployed if they are not signed by the trusted authority.

```
$ kubectl create deployment test-denied --image=alpine:3.11
Error from server: admission webhook "kritis-validation-hook-deployments.grafeas.io" denied the request: image alpine:3.11 is not attested

$ kubectl create deployment test-denied --image=kritis-demo-registry.cn-hangzhou.cr.aliyuncs.com/kritis-demo/alpine:3.11
Error from server: admission webhook "kritis-validation-hook-deployments.grafeas.io" denied the request: image kritis-demo-registry.cn-hangzhou.cr.aliyuncs.com/kritis-demo/alpine:3.11 is not attested
```

4. Verify that images are allowed to be deployed if they are signed by the trusted authority.

```
$ kubectl create deployment test-allow --image=kritis-demo-registry.cn-hangzhou.cr.aliyuncs.com/kritis-demo/alpine@sha256:ddba4d27a7ffc3f86dd6c2f92041af252a1f23a8e742c90e6e1297bfa1bc0c45
deployment.apps/test-allow created
```

Next up

kritis-validation-hook will be integrated with other Alibaba Cloud services to provide more advanced features, including but not limited to:

- **Immutable image tags.** With immutable image tags, you can specify tags instead of image digests when you verify image signatures. This improves user experience
- **Image vulnerability detection.** With image vulnerability detection, you can deny requests for deploying images that contain vulnerabilities of specified levels. This reinforces the security of your environment.

Related information

- [Release notes](#)
- [Use kritis-validation-hook to automatically verify the signatures of container images](#)

3.3.2. Release notes

This topic lists the latest changes to kritis-validation-hook.

August 2020

Version	Image address	Release date	Description
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Version	Image address	Release date	Description
v0.2.5.26-g75d5297-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/kritis-server:v0.2.5.26-g75d5297-aliyun	August 12, 2020	<p>New features:</p> <ul style="list-style-type: none"> If a container image fails the signature verification, a cluster event is generated. The cause of this event is FailedKritisAdmission. Supports the dry run mode. By default, this mode is disabled. <p>When the dry run mode is enabled, container images that fail the signature verification can be deployed. If an image that fails the signature verification is deployed, a cluster event is generated. The cause of this event is DryRunKritisAdmission.</p>

June 2020

Version	Image address	Release date	Description
v0.2.4.1-ge5c1265-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/kritis-server:v0.2.4.1-ge5c1265-aliyun	June 22, 2020	Supports signature verification for signed Alibaba Cloud Container Registry (ACR) images in different regions.

April 2020

Version	Image address	Release date	Description
v0.2.3.1-00e70883-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/kritis-server:v0.2.3.1-00e70883-aliyun	April 07, 2020	Improves performance and optimizes log content.

March 2020

Version	Image address	Release date	Description
v0.2.2.3-fe8a6319-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/kritis-server:v0.2.2.3-fe8a6319-aliyun	March 18, 2020	<p>New features: kritis-validation-hook is integrated with Container Registry. This allows you to verify the signatures of KMS-signed images. This ensures that only trusted images are deployed in clusters of Alibaba Cloud Container Service for Kubernetes (ACK).</p>

Related information

- [kritis-validation-hook introduction](#)
- [Use kritis-validation-hook to automatically verify the signatures of container images](#)

3.4.

v0.30.0.1-5f89cb606-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/aliyun-ingress-controller:v0.30.0.1-5f89cb606-aliyun		<ul style="list-style-type: none"> • • • • • • • ○ ○ ○ • 	
v0.22.0.5-552e0db-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/aliyun-ingress-controller:v0.22.0.5-552e0db-aliyun			
v0.22.0.4-5a14d4b-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/aliyun-ingress-controller:v0.22.0.4-5a14d4b-aliyun			
v0.22.0.3-da10b7f-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/aliyun-ingress-controller:v0.22.0.3-da10b7f-aliyun		<ul style="list-style-type: none"> • • • • 	
v0.20.0.2-cc39f1b-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/aliyun-ingress-controller:v0.20.0.2-cc39f1b-aliyun		<ul style="list-style-type: none"> • • • • 	

v0.20.0.1-4597ce2-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/aliyun-ingress-controller:v0.20.0.1-4597ce2-aliyun	• • • • • • •	
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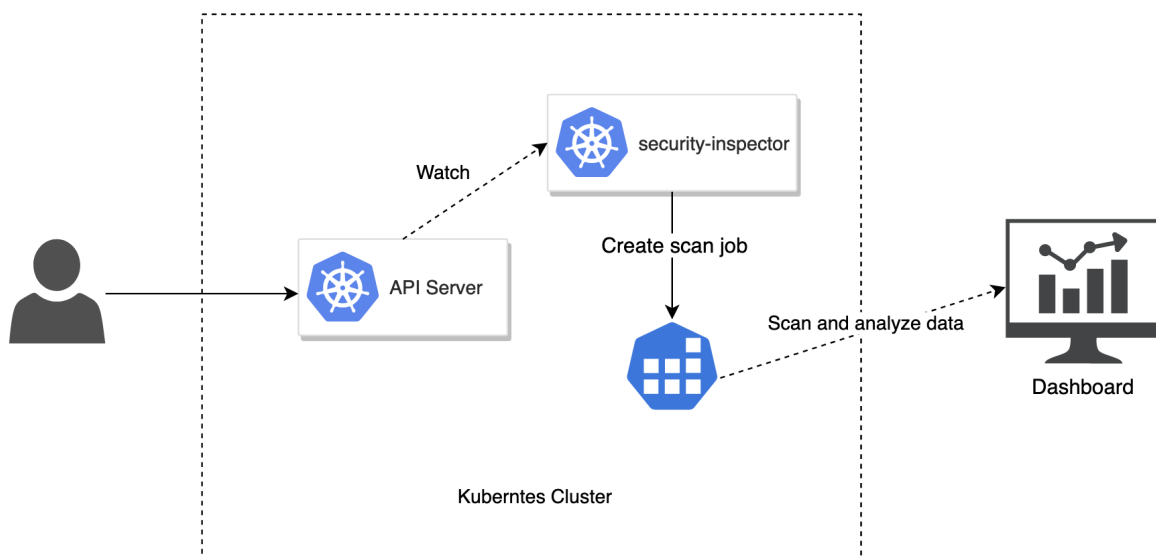
3.5. Release notes for security-inspector

3.5.1. Overview

This topic describes the architecture and features of security-inspector. The security-inspector component is the key component for implementing security inspection.

Architecture

The following figure shows the architecture of security-inspector.



Inspection features

security-inspector provides the following inspection features.

- The security-inspector component uses Polaris to implement security inspection. This allows you to detect security risks of workload configurations in a Kubernetes cluster in real time.

Note Polaris is an open-source project that is used to identify security risks of workload configurations in a Kubernetes cluster For more information, see [Polaris](#).

- The security-inspector component scans workload configurations in terms of health-checks, image policies, network configurations, resources, security capabilities, and security configurations. This

allows you to check whether security risks exist in applications in real time. Solutions are also provided for you to deal with the security risks. For more information, see [Use the Inspection component to check security risks of the workloads in an ACK cluster](#).

Related information

- [Release notes](#)

3.5.2. Release notes

This topic lists the latest changes to the security inspector component.

security-inspector Release notes Updates

July 2020

Version	Image address	Release date	Description
v0.1.0.3-g69f71f6-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/security-inspector:v0.1.0.3-g69f71f6-aliyun	July 6, 2020	Features: you can manually trigger an inspection to check the workload configurations in a Kubernetes cluster and generate corresponding inspection reports.

Related information

- [Overview](#)

3.6. Sandboxed-Container release notes

3.6.1. Release notes for Sandboxed-Container

This topic lists the latest changes to the Sandboxed-Container runtime.

Context

For more information about Sandboxed-Container, see [Overview](#).

August 2020

Version	Release date	Description	Impact
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Version	Release date	Description	Impact
2.0.0	August 28, 2020	<p>Upgrades the major version of Sandboxed-Container 2.0 to achieve the following benefits:</p> <ul style="list-style-type: none"> • The lightweight virtual machine container runtime developed by Alibaba Cloud supports more lightweight and efficient deployment. It also simplifies the architecture and maintenance of Kubernetes clusters. • Reduces the resource overheads by 90% and increases Sandboxed-Container startup speed by three times. • Increases the deployment density of standalone sandboxed containers by 10 times. • Supports the virtio-fs file system. This allows you to provide higher performance than the 9pfs file system. 	<p>During the upgrade, the pods on the nodes that use the runtime are rebuilt. We recommend that you create pod replicas before the upgrade.</p>

July 2020

Version	Release date	Description	Impact
1.1.1	July 27, 2020	<p>Fixes the following issues related to the stability of Sandboxed-Container:</p> <ul style="list-style-type: none"> • Eliminates a security risk related to the container-storaged component. • Fixes the issue when the <code>kubectl cp</code> command is blocked after you run this command. • Fixes the issue when logs cannot be printed to stdout files after containerd is restarted. • Fixes the issue when the system time of sandboxed containers may not be synchronized at regular intervals. 	<p>No impact on workloads.</p>

March 2020

Version	Release date	Description	Impact
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Version	Release date	Description	Impact
1.1.0	March 5, 2020	<p>Sandboxed-Container 1.1.0 supports the following new features:</p> <ul style="list-style-type: none"> Allows you to mount Alibaba Cloud disks and Network Attached Storage (NAS) volumes to sandboxed containers. This provides the same performance as the volumes that are mounted to the host. This avoids performance loss when storage devices are mounted over 9pfs. Supports RootFS block I/O throttling. <p>Improves stability by a significant amount.</p>	No impact on workloads.

September 2019

Version	Release date	Description	Impact
1.0.0	September 5, 2019	<p>Sandboxed-Container 1.0.0 supports the following features:</p> <ul style="list-style-type: none"> Strong isolation based on sandboxed and lightweight virtual machines. Good compatibility with runC in terms of application management. High performance that corresponds to 90% of the performance provided by applications based on runC. The same user experience as that provided by containers in runC in terms of monitoring, logging, and storage. Supports RuntimeClass (runC and runV). For more information, see RuntimeClass. Easy to use with limited expertise. Higher stability than that provided by Kata Containers. For more information about Kata Containers, see Kata Containers. 	No impact on workloads.

3.6.2. Introduction and release notes for sandboxed-container-controller

This topic describes sandboxed-container-controller and lists the latest changes to sandboxed-container-controller.

Introduction

sandboxed-container-controller is a controller component provided by the Sandboxed-Container runtime. You can use this component to directly mount NAS file systems and Alibaba Cloud disks to sandboxed containers. This offers the same storage I/O performance as when volumes are mounted through the host.

Release notes

August 2020

Version	Image address	Release date	Description	Impact
v1.0.1-8484958-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/sandboxed-container-controller:v1.0.1-8484958-aliyun	August 26, 2020	Supports Sandboxed-Container V2.0. Supports the PodQuota feature. This allows you to set the maximum number of pods that can run sandboxed containers in a specified namespace based on the total CPU and memory resources in pods.	No impact on workloads.

June 2020

Version	Image address	Release date	Description	Impact
v1.0.0-e408663-aliyun	registry.cn-beijing.aliyuncs.com/acs/sandboxed-container-controller:v1.0.0-e408663-aliyun	June 10, 2020	Changes the image address of the init container from a public image address to a private image address.	No impact on workloads.

March 2020

Version	Image address	Release date	Description	Impact
v1.0.0-a8b276f-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/sandboxed-container-controller:v1.0.0-a8b276f-aliyun	March 26, 2020	Supports the feature of mounting Alibaba Cloud disks and NAS file systems directly to sandboxed containers. This provides the same performance as when these volumes are mounted through the host. This feature allows you to avoid performance loss when volumes are mounted over 9pfs.	No impact on workloads.

3.6.3. sandboxed-container-helper release notes

This topic describes the latest changes in sandboxed-container-helper.

sandboxed-container-helper Change version

Overview

The sandboxed-container-helper component provides health checks and O&M on sandboxed containers. This component reports unusual events, such as container data leaks and orphaned pods. It also monitors the disk space usage of the device mapper and provides scripts for fixing system issues.

May 2020

Version	Image address	Date	Description	Impact
v1.0.0-7a70086-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/sandboxed-container-helper:v1.0.0-7a70086-aliyun	May 12, 2020	<p>New features:</p> <ul style="list-style-type: none"> • Reports unusual events such as container data leaks and orphaned pods to kube-apiserver. • Monitors the disk space usage of the device mapper. • Provides scripts for fixing system issues. 	Your workloads are not affected.

3.7. Introduction and release notes for alicloud-monitor-controller

alicloud-monitor-controller is a system component provided by Alibaba Cloud Container Service for Kubernetes (ACK) to integrate with Cloud Monitor. When an application is created, modified, or deleted, alicloud-monitor-controller automatically updates the metadata to Cloud Monitor. This allows you to monitor containers provisioned for an application. In addition, alicloud-monitor-controller provides alert settings. Developers can use this feature in the Cloud Monitor console.

Release notes

v1.4.0-49ff2362-aliyun

- Supports metadata collection from an ACK cluster where both nodes that run Windows and nodes that run Linux are deployed.
- Supports scaling periods of 15 seconds, 20 seconds, 30 seconds, and 60 seconds.
- Fixes the issue where Horizontal Pod Autoscaler (HPA) is activated during rolling updates of applications.

Troubleshooting

No application group is found in the Cloud Monitor console

Perform the following checks:

- Check whether the pod where alicloud-monitor-controller is deployed runs properly in the kube-system namespace.
- Check whether alicloud-monitor-controller is upgrade to the latest version. We recommend that you upgrade it to the latest version.
- Check the logs of alicloud-monitor-controller for issues such as connection timeouts and SDK errors.

If no error is found after you have performed the preceding checks, use the following ticket template to [submit a ticket](#).

Ticket template

1. Is alicloud-monitor-controller upgraded to the latest version?
Yes
2. Are SDK errors or connection timeouts found in the logs of alicloud-monitor-controller? If one of the preceding errors is found, delete the pod.
No application group is found in the Cloud Monitor console after the pod is restarted.
3. Provide a complete log file of alicloud-monitor-controller in the ticket.
Upload a compressed package of the log file.

No data is found in the application group in the Cloud Monitor console

Perform the following checks:

Check whether the name of the instance in the application group is the same as that of the pod where alicloud-monitor-controller is deployed.

- If the instance name is not the same as the pod name, perform the checks described in the preceding section.
- If the instance name is the same as the pod name, check whether the pod where the metrics-server component is deployed is running properly. You must also check whether logs can be printed properly. If the `Successful write 164190 bytes metrics to monitor server` message is found in log file, this indicates that the log can be printed properly.

If no error is found after you perform the preceding checks, use the following ticket template to [submit a ticket](#).

Ticket template

1. Is the name of the instance in the application group the same as that of the pod where alicloud-monitor-controller is deployed?
Yes
2. Can the logs of metrics-server in the kube-system namespace be printed properly?
Yes
3. Provide the cluster ID, the name of the application, and the name of the pod in the ticket.

3.8. Introduction and release notes for metrics-server

metrics-server is a component of Alibaba Cloud Container Service for Kubernetes (ACK). It is designed based on the open source monitoring component Metrics Server. metrics-server provides the Metrics API for you to collect resource usage metrics from nodes or pods in order to support Horizontal Pod Autoscaler (HPA).

For more information about the open source monitoring component Metrics Server, see [Kubernetes Metrics Server](#).

Release notes

v0.2.2-b4bf266-aliyun

- Supports metric collection in an ACK cluster where both nodes that run Windows and nodes that run

Linux are deployed.

- Supports scaling periods of 15 seconds, 20 seconds, 30 seconds, and 60 seconds.
- Fixes the issue where Horizontal Pod Autoscaler (HPA) is activated during rolling updates of applications.

Troubleshooting

No data is returned after I run the `kubectl top pod` or `kubectl top pod` command

Perform the following checks:

Run the `kubectl get apiservice` command to check whether the API service of metrics-server is working properly. If the API service is abnormal, check whether the pod where metrics-server is deployed can be accessed through port 443 and port 8082 inside the cluster. If you failed to access the pod, restart the pod and try again.

If no error is found after you perform the preceding checks, use the following ticket template to [submit a ticket](#).

Ticket template

1. Is the API service of metrics-server working properly?

Yes

2. Can the pod where metrics-server is deployed be accessed through port 443 and port 8082 inside the cluster?

Yes

3. Provide the cluster ID in the ticket.

No data is returned after I run the `kubectl top pod` or `kubectl top pod` or `kubectl top pod` command

Perform the following checks:

- Check whether all pods on a specified node failed to return data or only some pods failed to return data. If only some pods on the node failed to return data, check whether a timezone shift exists on the target node. You can use Network Time Protocol (NTP) to synchronize the system time
- Check whether the pod where metrics-server is deployed can connect to port 10255 of the node.

If no error is found after you perform the preceding checks, use the following ticket template to [submit a ticket](#).

Ticket template

1. Did all pods on a specified node fail to return data?

Yes

2. Does a timezone shift exist on the target node?

No

3. Can the pod where metrics-server is deployed access the specified node?

Yes

HPA failed to collect metrics

Perform the following checks:

Run the `kubectl top pod pod-id` command for the pod where metrics-server is deployed. If the returned data is abnormal, check the pod and node as described in the preceding section.

If no error is found after you perform the preceding checks, use the following ticket template to [submit a ticket](#).

Ticket template

1. Are anomalies found in the monitoring data?

No

2. Run the `kubectl describe hpa hpa-name` command and provide the metadata in the ticket.

Excessive pods are added by HPA during a rolling update

Perform the following checks:

Check whether the metrics-server component is upgraded to the latest version. If the metrics-server component is upgraded to the latest version, configure the following startup settings in the kube-system namespace for the pod where metrics-server is deployed.

```
--metric_resolution=15s
--enable-hpa-rolling-update-skipped=true
```

If no error is found after you perform the preceding checks, use the following ticket template to [submit a ticket](#).

Ticket template

1. Is the metrics-server component upgraded to the latest version?

Yes

2. Are startup settings configured for the pod where metrics-server is deployed?

Yes

3. Run the `kubectl describe hpa hpa-name` command and provide the HPA description in the ticket.

3.9. Release notes for aliyun-acr-credential-helper

aliyun-acr-credential-helper is a component that can be used to pull images without a password from instances of Container Registry Enterprise Edition and default instances. This topic lists the latest changes to aliyun-acr-credential-helper.

July 2020

Version	Image address	Release date	Description
v20.07.13.0-2866ccd-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/aliyun-acr-credential-helper:v20.07.13.0-2866ccd-aliyun	July 13, 2020	<p>Features:</p> <ul style="list-style-type: none"> • Supports API calls through internal networks. • Supports the feature of pulling images with the specified imagePullSecrets with AccessKey IDs and AccessKey secrets of Resource Access Management (RAM) roles. <p>Improvements: reduces the number of API calls required to pull images.</p>

March 2020

Version	Image address	Release date	Description
v20.03.16.0-36d5d7e-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/aliyun-acr-credential-helper:v20.03.16.0-36d5d7e-aliyun	March 16, 2020	New features: supports the feature of pulling private images.

3.10. Introduction and release notes for sgx-device-plugin

This topic describes sgx-device-plugin and lists the latest changes to sgx-device-plugin.

Overview

sgx-device-plugin is a plug-in developed by Alibaba Cloud and Ant Financial for Alibaba Cloud Container Service for Kubernetes (ACK). sgx-device-plugin facilitates the use of Intel (R) Software Guard Extensions (SGX) in containers. Intel (R) SGX is a set of CPU instructions provided by Intel. Intel (R) SGX increases the security of application code and data, and protects them from disclosure and malicious tampering. For more information, see [software-guard-extensions](#).

Features

sgx-device-plugin provides the following features:

- Supports Intel (R) SGX without the need to enable the privilege mode.
- Automatically retrieves the size of the Enclave Page Cache (EPC).
- Supports declarative EPC resource allocation.

Prerequisites

sgx-device-plugin is reliant on the following components and tools:

- [Intel \(R\) SGX Drivers](#)
- [Intel \(R\) SGX Platform Software \(PSW\)](#). This component is required if you need to enable Intel (R) SGX Architectural Enclave Service Manager (Intel (R) SGX AESM).
- The Kubernetes version must be V1.10 and later.
- The Go version must be V1.10 and later.

FAQ

- Can I deploy sgx-device-plugin in Kubernetes clusters that are deployed off Alibaba Cloud?
Yes. sgx-device-plugin can be deployed in all types of Kubernetes clusters. However, you can run sgx-device-plugin on only SGX-enabled nodes.
- Can I use sgx-device-plugin to control the EPC size for SGX-enabled containers?
No. The EPC size limit specified by the `alibabacloud.com/sgx_epc_MiB` parameter is applicable to only kube-scheduler. Intel (R) SGX Driver does not support this parameter.
- Is sgx-device-plugin open source?
Yes. For more information, see [sgx-device-plugin](#).

Release notes

Version	Image address	Release date	Description	Impact
v1.0.0-5f5b5ef-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/sgx-device-plugin:v1.0.0-5f5b5ef-aliyun	February 21, 2020	<ul style="list-style-type: none"> • Supports Intel (R) SGX without the need to enable the privilege mode. • Supports the feature of automatically retrieving the Enclave Page Cache (EPC) size. • Supports declarative EPC resource allocation. 	No impact on workloads.

3.11. Introduction and release notes for Intel (R) SGX AESM

This topic describes Intel (R) SGX Architectural Enclave Service Manager (Intel (R) SGX AESM) and lists the latest changes to Intel (R) SGX AESM.

Overview

Intel (R) SGX AESM is a system component of Intel (R) SGX. This component provides SGX1 launch support, Enhanced Privacy ID (EPID) provisioning and attestation, and related platform services. In trusted execution environments (TEEs) provided by Alibaba Cloud Container Service for Kubernetes (ACK), Intel (R) SGX AESM runs on DaemonSets in ACK clusters.

Release notes

Version	Image address	Release date	Description	Impact
2.7.1-4a8c95b-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/aesm:2.7.1-4a8c95b-aliyun	February 21, 2020	Supports Intel (R) SGX AESM. Intel (R) SGX AESM is a system component of Intel (R) SGX. This component provides SGX1 launch support, Enhanced Privacy ID (EPID) provisioning and attestation, and related platform services.	No impact on workloads.

3.12. Introduction and release notes for ack-node-problem-detector

The ack-node-problem-detector component is optimized and enhanced by Alibaba Cloud Container Service for Kubernetes (ACK) based on the open source Node Problem Detector (NPD) provided by the Kubernetes community. This component is used to monitor cluster nodes and integrate third-party node monitoring plug-ins. You can use ack-node-problem-detector to integrate custom monitoring plug-ins. This allows you to enhance the monitoring of nodes and detect more node anomalies.

For more information about the open source node-problem-detector, see [node-problem-detector](#).

For more information about the installation, scenarios, and features of ack-node-problem-detector, see [Event monitoring](#).

Release notes

Version	Image address	Release date	Description
v0.6.3-28-160499f	registry.aliyuncs.com/acs/node-problem-detector:v0.6.3-28-160499f	July 27, 2020	<ul style="list-style-type: none"> • Adds the following information to out of memory (OOM) Killer events: the name of the relative pod, the namespace to which the pod belongs, and the user IDs (UIDs) of the killed processes. • Improves the efficiency of the check_fd plug-in. • Optimizes nodes events that reports that the process ID (PID) usage of cluster nodes exceeds the threshold. • Upgrades plug-ins that detect network connections. • Supports alert plug-ins that send alerts when the inode usage of the system disks of cluster nodes exceeds the threshold.

3.13. Release notes for gatekeeper

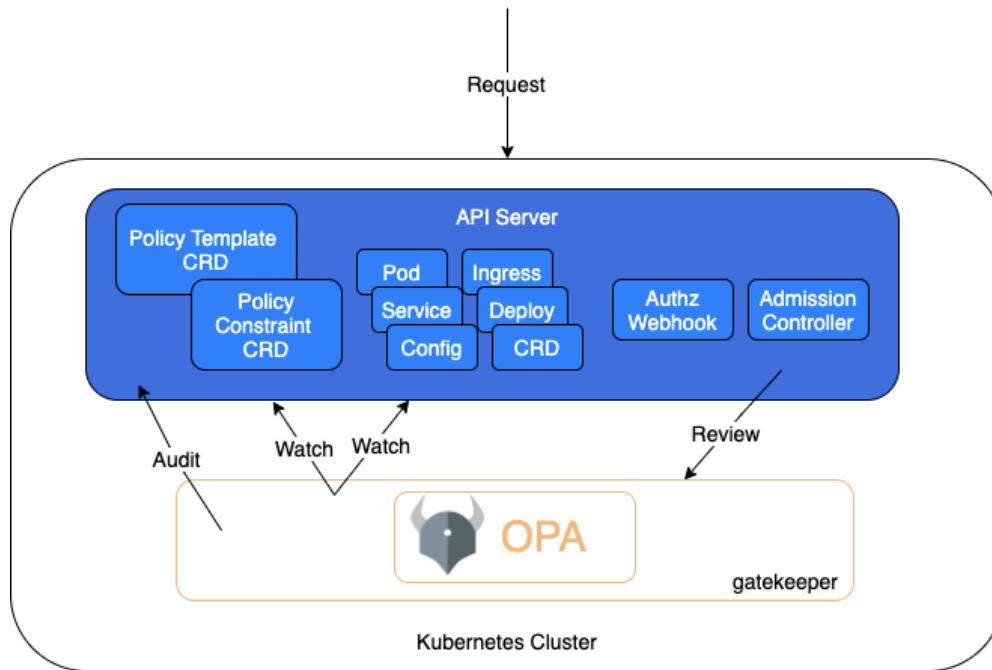
3.13.1. Introduction

The gatekeeper component facilitates the management and enforcement of policies executed by Open Policy Agent (OPA) in Kubernetes clusters. This topic describes the architecture of gatekeeper and provides an example of how to use gatekeeper.

Context

For more information about OPA, see [Open Policy Agent](#).

Architecture



Examples

You can use gatekeeper to constrain pod deployments in specified namespaces based on labels. In this example, a Constraint is defined to declare that all pods created in a specified namespace must be labeled with gatekeeper-test-label.

1. Run the following commands to create a test-gatekeeper namespace and attach the name=test-gatekeeper label to the namespace:

```
kubectl create ns test-gatekeeper
kubectl label ns test-gatekeeper name=test-gatekeeper
```

2. Run the following command to create a Constraint template that can be used to define Constraints on pod labels:

```
kubectl apply -f - <<EOF
apiVersion: templates.gatekeeper.sh/v1beta1
kind: ConstraintTemplate
metadata:
  name: k8srequiredlabels
spec:
  crd:
    spec:
      names:
        kind: K8sRequiredLabels
      validation:
        openAPIV3Schema:
          properties:
            labels:
              type: array
              items: string
      targets:
        - target: admission.k8s.gatekeeper.sh
          rego: |
            package k8srequiredlabels

            violation[{"msg": msg, "details": {"missing_labels": missing}}] {
              provided := {label | input.review.object.metadata.labels[label]}
              required := {label | label := input.parameters.labels[_]}
              missing := required - provided
              count(missing) > 0
              msg := sprintf("you must provide labels: %v", [missing])
            }

EOF
```

It takes about 10 seconds to initialize the Constraint template.

3. Run the following command to create a Constraint from the preceding Constraint template. This Constraint declares that all pods created in a namespace that is attached with the name=test-gatekeeper label must be labeled with gatekeeper-test-label.

```
kubectl apply -f - <<EOF
apiVersion: constraints.gatekeeper.sh/v1beta1
kind: K8sRequiredLabels
metadata:
  name: pod-must-have-gatekeeper-test-label
spec:
  match:
    kinds:
      - apiGroups: [""]
        kinds: ["Pod"]
    namespaceSelector:
      matchExpressions:
        - key: name
          operator: In
          values: ["test-gatekeeper"]
    parameters:
      labels: ["gatekeeper-test-label"]

EOF
```

It takes about 10 seconds to initialize the Constraint.

4. Perform the following steps to verify the enforcement of the Constraint:

- Run the following command to create a pod that is not labeled with `gatekeeper-test-label` in the `test-gatekeeper` namespace. The namespace is not attached with `name=test-gatekeeper`. Therefore, the creation fails.

```
kubectl -n test-gatekeeper run test-deny --image=nginx --restart=Never
```

```
Error from server ([denied by pod-must-have-gatekeeper-test-label] you must provide labels: {"gatekeeper-test-label"}): admission webhook "validation.gatekeeper.sh" denied the request: [denied by pod-must-have-gatekeeper-test-label] you must provide labels: {"gatekeeper-test-label"}
```

- Run the following command to create a pod that is labeled with `gatekeeper-test-label` in the `test-gatekeeper` namespace. The namespace is attached with `name=test-gatekeeper`. Therefore, the creation succeeds.

```
kubectl -n test-gatekeeper run test-pass -l gatekeeper-test-label=pass --image=nginx --restart=Never
```

```
pod/test-pass created
```

- Run the following command to create a pod that is not labeled with `gatekeeper-test-label` in the default namespace. The namespace is not subject to the Constraint. Therefore, the creation succeeds.

```
kubectl -n default run test-deny --image=nginx --restart=Never
```

```
pod/test-deny created
```

3.13.2. Release notes

This topic describes the latest changes to the gatekeeper component.

August 2020

Version	Image address	Release date	Description
v3.1.0.11-24bab09-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/security-inspector:v3.1.0.11-24bab09-aliyun	August 20, 2020	Updates: Upgrades Open Policy Agent (OPA) Gatekeeper to V3.1.0-beta.12.

Related information

- [Introduction](#)

3.14. Introduction and release notes for progressive-delivery-tool

This topic describes the features of the progressive-delivery-tool component and lists the latest changes to this component.

Description

Alibaba Cloud Container Service for Kubernetes (ACK) provides the progressive-delivery-tool component to support canary releases of your applications. When you deploy a canary version of an application next to the stable production version in a canary release, you can manage the network traffic that is incrementally routed to the canary version. This allows you to progressively release the new version for all users and minimize the potential risks of the new version within a limited scope. If the canary version fails specified health checks, quick rollback is supported.

Release notes

Version	Image address	Release date	Description
v1.0.3.6-79c468b-aliyun	registry.cn-hangzhou.aliyuncs.com/acs/appcenter-installer:v1.0.3.6-79c468b-aliyun	August 26, 2020	Releases the progressive-delivery-tool component that is used for canary deployments.