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v1.24.0-beta.0

Downloads for v1.24.0-beta.0

Source Code

filename	sha512 hash
kubernetes.tar.gz	fee35c2c970d740f4d1cd06ab8f661a025d03639e30ea9d88c711a6e5292396499fd5751929766
kubernetes-src.tar.gz	79a8ebfe8d822e8e4b5fa888d37b078ac8b19641692364058a274dc63a3dd0f7fc6ad2dcba72c

Client Binaries

filename	sha512 hash
kubernetes-client-darwin-amd64.tar.gz	ee6f396270db71e7a74545a2868705985a59edc400951f4c368e4471f152b1dd2456de26dcdc187d
kubernetes-client-darwin-arm64.tar.gz	dd08e3148f184410a865356754b1b1be21afecb3b671aff52b2b7d037da22cde8ec4cc5e53c01f418
kubernetes-client-linux-386.tar.gz	bc10a3b0b81a0dde4fb1c1d9dfe5c6ec81122c71bd215b1da629a94993fed2e55e8367f7e916557a
kubernetes-client-linux-amd64.tar.gz	f8ce5bd528b0d31b98164d03b2d1906dce61747e9d64632064000fe872384d6abca66b3dfe8023e
kubernetes-client-linux-arm.tar.gz	044005bed2812d80bd90bcd5bf015082af54f4d02218f137d304d0d2b2933bac904bdc5d63695d7
kubernetes-client-linux-arm64.tar.gz	886604d1f21486fb78a8053c43e58c5753a058d6f67c554c072cf8d6c061cd007a1648bb013956901
kubernetes-client-linux-ppc64le.tar.gz	f6c84131ee7a6f1561b2000073841387846d1c457d489d2d6f86dbafdeba2b131ee7bec460e321b8
kubernetes-client-linux-s390x.tar.gz	a6fce005a85893bb9618e8e7f51f052625b42098fe30561b32031edf2f5b815ac951249651ede1c74
kubernetes-	62aaf0a58ca5182a22e4eae4fcb4f69a8bc415d28a54dce6386784cf396ffa61f95f9c0232d876b7b81

client-windows-386.tar.gz	
kubernetes-client-windows-amd64.tar.gz	658bf802631693d14fcf25546af4e1d7040e535d4915d6fde3e6ba84e404221142a26b41b2c915793
kubernetes-client-windows-arm64.tar.gz	7f7ee26073c736ca0ffe09f169d51169ecb753eccc4969d369460d7b867ec1a0f17a2606b908d457d

Server Binaries

filename	sha512 hash
kubernetes-server-linux-amd64.tar.gz	579e5574f0dc7ac8f2c628474dddf2c61146a696c12344bebeeb7dd2ba615f81b08c4710a61ada715
kubernetes-server-linux-arm.tar.gz	22d3da15193ad6fa9ad4261ab7eba6465a6b7bf444bc30b2aad71c3e40da2b3540c44d27556b8eb
kubernetes-server-linux-arm64.tar.gz	15d643d90c0d64303946a7493ac48f8331933f59418b4dc0e2bd7ebbf3f7979f8f1915b82e05eb8d0
kubernetes-server-linux-ppc64le.tar.gz	e89646d4056cd82fb0b84b3e44dc93878f92800113220d2b4354c37d99ef82b4b62eb370406ef503
kubernetes-server-linux-s390x.tar.gz	321a31f3a8e4aea274943d5cfb0fd41dd40e785cf7d90efd80e4fe9dc45f8e1138685a0637538f7c11

Node Binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	26c94e60a56ae3c56f3882745cb2cab76d1ffdd9a5a7539491e181431040f5a471e31bf30b496c7bb
kubernetes-node-linux-arm.tar.gz	7112ff9f692f8f8e65211d86ce35581c2a48cd849982112018d6f9d8bea1cd49211333571de0958a8
kubernetes-node-linux-arm64.tar.gz	58df66e532c1a3f668cf414bd11da72926cc95e28491528b4f618710b16e577d557d89f43a3c4891c

kubernetes-node-linux-ppc64le.tar.gz	0a58004da31b1407e2299a74664d94500fd2afe726dd76713f0bfbfd36713621d23ac450b8c3cee45
kubernetes-node-linux-s390x.tar.gz	ac5895babb4b19e301c65bcf03913408ee887f217efe47710bbbed9e885e4191171e182fc394610f5d
kubernetes-node-windows-amd64.tar.gz	ee512b1144c33bd8b503ce6de43fe22543988cfd7665d2048588c7367bdacda31761fe4c93b3c1c1

Container Images

All container images are available as manifest lists and support the described architectures. It is also possible to pull a specific architecture directly by adding the "-\$ARCH" suffix to the container image name.

name	architectures
k8s.gcr.io/conformance:v1.24.0-beta.0	amd64 , arm , arm64 , ppc64le , s390x
k8s.gcr.io/kube-apiserver:v1.24.0-beta.0	amd64 , arm , arm64 , ppc64le , s390x
k8s.gcr.io/kube-controller-manager:v1.24.0-beta.0	amd64 , arm , arm64 , ppc64le , s390x
k8s.gcr.io/kube-proxy:v1.24.0-beta.0	amd64 , arm , arm64 , ppc64le , s390x
k8s.gcr.io/kube-scheduler:v1.24.0-beta.0	amd64 , arm , arm64 , ppc64le , s390x

Changelog since v1.24.0-alpha.4

Changes by Kind

Deprecation

- Remove insecure serving configuration from cloud-provider package, which is consumed by cloud-controller-managers. ([#108953](#), [@nckturner](#)) [SIG Cloud Provider and Testing]
- The metadata.clusterName field is deprecated. This field has always been unwritable and always blank, but its presence is confusing, so we will remove it next release. Out of an abundance of caution, this release we have merely changed the name in the go struct to ensure any accidental client uses are found before complete removal. ([#108717](#), [@lavalamp](#)) [SIG API Machinery, Apps, Auth, Scheduling and Testing]
- VSphere releases less than 7.0u2 are deprecated as of v1.24. Please consider upgrading vSphere to 7.0u2 or above. vSphere CSI Driver requires minimum vSphere 7.0u2.

General Support for vSphere 6.7 will end on October 15, 2022. vSphere 6.7 Update 3 is deprecated in Kubernetes v1.24. Customers are recommended to upgrade vSphere (both ESXi and vCenter) to 7.0u2 or above. vSphere CSI Driver 2.2.3 and higher supports CSI Migration.

Support for these deprecations will be available till October 15, 2022. ([#109089](#), [@deepakkinni](#)) [SIG Cloud Provider]

API Change

- Adds a new Status subresource in Network Policy objects ([#107963](#), [@rikatz](#)) [SIG API Machinery, Apps, Network and Testing]
- Adds support for "InterfaceNamePrefix" and "BridgeInterface" as arguments to --detect-local-mode option and also introduces a new optional `--pod-interface-name-prefix` and `--pod-bridge-interface` flags to kube-proxy. ([#95400](#), [@tssurya](#)) [SIG API Machinery and Network]
- CEL CRD validation expressions may now reference existing object state using the identifier `oldSelf`. ([#108073](#), [@benluddy](#)) [SIG API Machinery and Testing]
- CSIStorageCapacity.storage.k8s.io: The v1beta1 version of this API is deprecated in favor of v1, and will be removed in v1.27. If a CSI driver supports storage capacity tracking, then it must get deployed with a release of external-provisioner that supports the v1 API. ([#108445](#), [@pohly](#)) [SIG API Machinery, Architecture, Auth, Scheduling, Storage and Testing]
- Custom resource requests with fieldValidation=Strict consistently require apiVersion and kind, matching non-strict requests ([#109019](#), [@liggitt](#)) [SIG API Machinery]
- Improve kubectl's user help commands readability ([#104736](#), [@lauchokyip](#)) [SIG API Machinery, Apps, Architecture, Auth, Autoscaling, CLI, Cloud Provider, Cluster Lifecycle, Contributor Experience, Instrumentation, Network, Node, Release, Scalability, Scheduling, Security, Storage, Testing and Windows]
- Indexed Jobs graduates to stable ([#107395](#), [@alculquicondor](#)) [SIG Apps, Architecture and Testing]
- Introduce a v1alpha1 networking API for ClusterCIDRConfig ([#108290](#), [@sarveshr7](#)) [SIG API Machinery, Apps, Auth, CLI, Cloud Provider, Instrumentation, Network and Testing]
- JobReadyPods graduates to Beta and it's enabled by default. ([#107476](#), [@alculquicondor](#)) [SIG API Machinery, Apps and Testing]
- Kubelet external Credential Provider feature is moved to Beta. Credential Provider Plugin and Credential Provider Config API's updated from v1alpha1 to v1beta1 with no API changes. ([#108847](#), [@adisky](#)) [SIG API Machinery and Node]
- MaxUnavailable for StatefulSets, allows faster RollingUpdate by taking down more than 1 pod at a time. The number of pods you want to take down during a RollingUpdate is configurable using maxUnavailable parameter. ([#82162](#), [@krmayankk](#)) [SIG API Machinery and Apps]
- Non graceful node shutdown handling. ([#108486](#), [@sonasingh46](#)) [SIG Apps, Node and Storage]
- OpenAPI V3 is turned on by default ([#109031](#), [@Jefftree](#)) [SIG API Machinery, Apps, Architecture, Auth, Autoscaling, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Network, Node, Scheduling, Storage and Testing]
- Promote IdentifyPodOS feature to beta. ([#107859](#), [@ravisantoshgudimetla](#)) [SIG API Machinery, Apps, Node, Testing and Windows]
- Skip x-kubernetes-validations rules if having fundamental error against OpenAPIv3 schema. ([#108859](#), [@cici37](#)) [SIG API Machinery and Testing]
- Support for gRPC probes is now in beta. GRPCContainerProbe feature gate is enabled by default. ([#108522](#), [@SergeyKanzhelev](#)) [SIG API Machinery, Apps, Node and Testing]
- The AnyVolumeDataSource feature is now beta, and the feature gate is enabled by default. In order to provide user feedback on PVCs with data sources, deployers must install the VolumePopulators CRD and the data-source-validator controller. ([#108736](#), [@bswartz](#)) [SIG Apps, Storage and Testing]
- The `ServerSideFieldValidation` feature has graduated to beta and is now enabled by default. Kubectl 1.24 and newer will use server-side validation instead of client-side validation when writing to API servers with the feature enabled. ([#108889](#), [@kevindegado](#)) [SIG API Machinery, Architecture, CLI and Testing]
- The infrastructure for contextual logging is complete (feature gate implemented, JSON backend ready). ([#108995](#), [@pohly](#)) [SIG API Machinery, Architecture, Auth, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Network, Node, Scheduling and Testing]

- This adds an optional `timeZone` field as part of the CronJob spec to support running cron jobs in a specific time zone. ([#108032](#), [@deejross](#)) [SIG API Machinery and Apps]

Feature

- **Additional documentation e.g., KEPs (Kubernetes Enhancement Proposals), usage docs, etc.:**

([#109024](#))(<https://github.com/kubernetes/kubernetes/pull/109024>), [[@stlaz](#)](<https://github.com/stlaz>)) [SIG API Machinery and Instrumentation]

- Adds `OpenAPIV3SchemaInterface` to `DiscoveryClient` and its variants for fetching OpenAPI v3 schema documents. ([#108992](#), [@alexzielenski](#)) [SIG API Machinery, Architecture, CLI, Cloud Provider, Cluster Lifecycle and Instrumentation]
- Allow kubectl to manage resources by filename patterns without the shell expanding it first ([#102265](#), [@danielrodriguez](#)) [SIG CLI]
- An alpha flag `--subresource` is added to get, patch, edit replace kubectl commands to fetch and update status and scale subresources. ([#99556](#), [@nikhita](#)) [SIG API Machinery, CLI and Testing]
- `Apiextensions_openapi_v3_regeneration_count` metric (alpha) will be emitted for OpenAPI V3. ([#109128](#), [@Jefftree](#)) [SIG API Machinery and Instrumentation]
- Apply `ProxyTerminatingEndpoints` to all traffic policies (external, internal, cluster, local). ([#108691](#), [@andrewsykim](#)) [SIG Network and Testing]
- CEL regex patterns in x-kubernetes-validation rules are compiled when CRDs are created/updated if the pattern is provided as a string constant in the expression. Any regex compile errors are reported as a CRD create/update validation error. ([#108617](#), [@jpbetz](#)) [SIG API Machinery, Architecture, Auth, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Node and Storage]
- Changes the kubectl `--validate` flag from a bool to a string that accepts the values {true, strict, warn, false, ignore}
 - true/strict - perform validation and error the request on any invalid fields in the object. It will attempt to perform server-side validation if it is enabled on the apiserver, otherwise it will fall back to client-side validation.
 - warn - perform server-side validation and warn on any invalid fields (but ultimately let the request succeed by dropping any invalid fields from the object). If validation is not available on the server, perform no validation.
 - false/ignore - perform no validation, silently dropping invalid fields from the object. ([#108350](#), [@kevindelgado](#)) [SIG API Machinery, CLI, Node and Testing]
- CycleState is now optimized for "write once and read many times". ([#108724](#), [@sanposhiho](#)) [SIG Scheduling]
- Enable beta feature `HonorPVRclaimPolicy` by default. ([#109035](#), [@deepakkinni](#)) [SIG Apps and Storage]
- Kube-apiserver: Subresources such as 'status' and 'scale' now support tabular output content types. ([#103516](#), [@yakarap](#)) [SIG API Machinery, Auth and Testing]
- Kubeadm: add the flag `--experimental-initial-corrupt-check` to etcd static Pod manifests to ensure etcd member data consistency ([#109074](#), [@neolit123](#)) [SIG Cluster Lifecycle]
- Kubectl now supports shell completion for the `/` format for specifying resources.

kubectl now provides shell completion for container names following the `--container/-c` flag of the `exec` command.

kubectl's shell completion now suggests resource types for commands that only apply to pods. ([#108493](#), [@marckhouzam](#)) [SIG CLI]

- Kubelet now creates an iptables chain named `KUBE-IPTABLES-HINT` in the `mangle` table. Containerized components that need to modify iptables rules in the host network namespace can use the existence of this chain to more-reliably determine whether the system is using iptables-legacy or iptables-nft. ([#109059](#), [@danwinship](#)) [SIG Network and Node]
- Kubernetes 1.24 bumped version of golang it is compiled with to go1.18, which introduced significant changes to its garbage collection algorithm. As a result, we observed an increase in memory usage for kube-apiserver in larger and heavily loaded clusters up to ~25% (with the benefit of API call latencies drop by up to 10x on 99th percentiles). If the memory increase is not acceptable for you you can mitigate by setting GOGC env variable (for our tests using GOGC=63 brings memory usage back to original value, although the exact value may depend on usage patterns on your cluster). ([#108870](#), [@dims](#)) [SIG Architecture, Release and Testing]
- Leader Migration is now GA. All new configuration files onwards should use version v1. ([#109072](#), [@jiahuiif](#)) [SIG Cloud Provider]
- Mark AzureDisk CSI migration as GA ([#107681](#), [@andyzhangx](#)) [SIG Cloud Provider and Storage]
- Move volume expansion feature to GA ([#108929](#), [@gnufied](#)) [SIG API Machinery, Apps, Auth, Node, Storage and Testing]
- New "field_validation_request_duration_seconds" metric, measures how long requests take, indicating the value of the fieldValidation query parameter and whether or not server-side field validation is enabled on the apiserver ([#109120](#), [@kevindelgado](#)) [SIG API Machinery and Instrumentation]
- New feature gate, ServiceIPStaticSubrange, to enable the new strategy in the Service IP allocators, so the IP range is subdivided and dynamic allocated ClusterIP addresses for Services are allocated preferentially from the upper range. ([#106792](#), [@aojea](#)) [SIG Instrumentation]
- OpenAPI definitions served by kube-api-server now include enum types by default. ([#108898](#), [@jiahuiif](#)) [SIG API Machinery]
- Promote graceful shutdown based on pod priority to beta ([#107986](#), [@wzshiming](#)) [SIG Instrumentation, Node and Testing]
- Update the k8s.io/system-validators library to v1.7.0 ([#108988](#), [@neolit123](#)) [SIG Cluster Lifecycle]
- Updates `kubectl kustomize` and `kubectl apply -k` to Kustomize v4.5.4 ([#108994](#), [@KnVerey](#)) [SIG CLI]
- `kubectl version` now includes information on the embedded version of Kustomize ([#108817](#), [@KnVerey](#)) [SIG CLI and Testing]

Bug or Regression

- A node IP provided to kublet via `--node-ip` will now be preferred for when determining the node's primary IP and using the external cloud provider (CCM). ([#107750](#), [@stephenfin](#)) [SIG Cloud Provider and Node]

- Add one metrics(`kubelet_volume_stats_health_abnormal`) of volume health state to kubelet ([#108758](#), [@fengzixu](#)) [SIG Instrumentation, Node, Storage and Testing]
- CEL validation failure returns object type instead of object. ([#107090](#), [@cici37](#)) [SIG API Machinery]
- Call NodeExpand on all nodes in case of RWX volumes ([#108693](#), [@gnufied](#)) [SIG Apps, Node and Storage]
- Failure to start a container cannot accidentally result in the pod being considered "Succeeded" in the presence of deletion. ([#107845](#), [@smarterclayton](#)) [SIG Node]
- Fix --retries functionality for negative values in kubectl cp ([#108748](#), [@atiratree](#)) [SIG CLI]
- Fix a bug that out-of-tree plugin is misplaced when using scheduler v1beta3 config ([#108613](#), [@Huang-Wei](#)) [SIG Scheduling and Testing]
- Fix a race in timeout handler that could lead to kube-apiserver crashes ([#108455](#), [@Argh4k](#)) [SIG API Machinery]
- Fix indexer bug that resulted in incorrect index updates if number of index values for a given object was changing during update ([#109137](#), [@wojtek-t](#)) [SIG API Machinery]
- Fix issue where the job controller might not remove the job tracking finalizer from pods when deleting a job, or when the pod is orphan ([#108752](#), [@alculquicondor](#)) [SIG Apps and Testing]
- Kubelet now checks "NoExecute" taint/toleration before accepting pods, except for static pods. ([#101218](#), [@gjkim42](#)) [SIG Node]
- Re-adds response status and headers on verbose kubectl responses ([#108505](#), [@rikatz](#)) [SIG API Machinery and CLI]
- Record requests rejected with 429 in the apiserver_request_total metric ([#108927](#), [@wojtek-t](#)) [SIG API Machinery and Instrumentation]
- Services with "internalTrafficPolicy: Local" now behave more like "externalTrafficPolicy: Local". Also, "internalTrafficPolicy: Local, externalTrafficPolicy: Cluster" is now implemented correctly. ([#106497](#), [@danwinship](#)) [SIG Network]
- Skip re-allocate logic if pod is already removed to avoid panic ([#108831](#), [@waynepeking348](#)) [SIG Node]
- Updating kubelet permissions check for Windows nodes to see if process is elevated instead of checking if process owner is in Administrators group ([#108146](#), [@marosset](#)) [SIG Node and Windows]

Other (Cleanup or Flake)

- Add PreemptionPolicy in PriorityClass describe ([#108701](#), [@denkensk](#)) [SIG CLI and Scheduling]
- Deprecate apiserver_dropped_requests_total metric. The same data can be read from apiserver_request_terminations_total metric. ([#109018](#), [@wojtek-t](#)) [SIG API Machinery and Instrumentation]
- Migrate statefulset files to structured logging ([#106109](#), [@h4ghhh](#)) [SIG Apps and Instrumentation]
- Remove deprecated `--serviceaccount`, `--hostport`, `--requests` and `--limits` from kubectl run. ([#108820](#), [@mozillazg](#)) [SIG CLI]
- Remove deprecated generator and container-port flags ([#106824](#), [@lauchokyip](#)) [SIG CLI]
- Rename unschedulableQ to unschedulablePods ([#108919](#), [@denkensk](#)) [SIG Instrumentation, Scheduling and Testing]
- SPDY transport in client-go will no longer follow redirects. ([#108531](#), [@tallclair](#)) [SIG API Machinery and Node]
- ServerResources was deprecated in February 2019 (<https://github.com/kubernetes/kubernetes/commit/618050e>) and now it's being removed and ServerGroupsAndResources is suggested to be used instead ([#107180](#), [@ardaguclu](#)) [SIG API Machinery, Apps and CLI]
- Update runc to 1.1.0 Update cadvisor to 0.44.0 ([#109029](#), [@ehashman](#)) [SIG CLI, Node and Testing]
- Update runc to 1.1.1 ([#109104](#), [@kolyshkin](#)) [SIG Node]
- Users who look at iptables dumps will see some changes in the naming and structure of rules. ([#109060](#), [@thockin](#)) [SIG Network and Testing]

Uncategorized

- Deprecate kubect! version long output, will be replaced with kubect! version --short. Users requiring full output should use --output=yaml!json instead. ([#108987](#), [@soltys!h](#)) [SIG CLI]

Dependencies

Added

- github.com/blang/semver/v4: [v4.0.0](#)

Changed

- github.com/checkpoint-restore/go-criu/v5: [v5.0.0 → v5.3.0](#)
- github.com/cilium/ebpf: [v0.6.2 → v0.7.0](#)
- github.com/containerd/console: [v1.0.2 → v1.0.3](#)
- github.com/containerd/containerd: [v1.4.11 → v1.4.12](#)
- github.com/cyphar/filepath-securejoin: [v0.2.2 → v0.2.3](#)
- github.com/docker/distribution: [v2.7.1+incompatible → v2.8.1+incompatible](#)
- github.com/docker/docker: [v20.10.7+incompatible → v20.10.12+incompatible](#)
- github.com/godbus/dbus/v5: [v5.0.4 → v5.0.6](#)
- github.com/golang/mock: [v1.5.0 → v1.6.0](#)
- github.com/google/cadvisor: [v0.43.0 → v0.44.0](#)
- github.com/moby/sys/mountinfo: [v0.4.1 → v0.6.0](#)
- github.com/opencontainers/image-spec: [v1.0.1 → v1.0.2](#)
- github.com/opencontainers/runc: [v1.0.3 → v1.1.1](#)
- github.com/opencontainers/selinux: [v1.8.2 → v1.10.0](#)
- github.com/seccomp/libseccomp-golang: [v0.9.1 → 3879420](#)
- go.etcd.io/etcd/api/v3: v3.5.0 → v3.5.1
- go.etcd.io/etcd/client/pkg/v3: v3.5.0 → v3.5.1
- go.etcd.io/etcd/client/v3: v3.5.0 → v3.5.1
- k8s.io/klog/v2: v2.40.1 → v2.60.1
- k8s.io/kube-openapi: ddc6692 → 3ee0da9
- k8s.io/system-validators: v1.6.0 → v1.7.0
- sigs.k8s.io/kustomize/api: v0.10.1 → v0.11.4
- sigs.k8s.io/kustomize/cmd/config: v0.10.2 → v0.10.6
- sigs.k8s.io/kustomize/kustomize/v4: v4.4.1 → v4.5.4
- sigs.k8s.io/kustomize/kyaml: v0.13.0 → v0.13.6

Removed

- github.com/bits-and-blooms/bitset: [v1.2.0](#)

v1.24.0-alpha.4

Downloads for v1.24.0-alpha.4

Source Code

filename	sha512 hash
kubernetes.tar.gz	951531e83aed1aaaf6df424e195a913aa7c6faf9aae4f4b55970b37bc223727201088011f5ed35t
kubernetes-src.tar.gz	c715efaa416a7fe208188bf01f40c34e559cf1c2ed6b153eb843563398ec05b1b4574219bb9a4a!

Client Binaries

filename	sha512 hash
kubernetes-client-darwin-amd64.tar.gz	dd7d18c1babbc2fcbe481f8e41335cadcd9274b27f05c2d3ded19e820e9b8cc55be72eb2cc404afee
kubernetes-client-darwin-arm64.tar.gz	0ce731610736b3ed26ac0aa9f193cd76adee1e7d34e4dcfb233dbcb83fcd8620e13371ec9583629b
kubernetes-client-linux-386.tar.gz	bc5e071407dd994bfa45788e4aa395d23e0a3c0431703804db910dc76eea9cff2ff3d02046e4ead8t
kubernetes-client-linux-amd64.tar.gz	2e52b5d5b7852f1d61a7d03bbcf2d20967846f3295501b32014ed99db0694868a5f67e8ea835d58t
kubernetes-client-linux-arm.tar.gz	6210c9e5a0327b483fa243b88be0f9afeec36c435c0e001bc25360204ea32ebddf98d4dfdf42b93cac
kubernetes-client-linux-arm64.tar.gz	acba30ad585a11e1a875660556118fb449a2e2e92c19d647c030323bbb3f265face715bda90e6745
kubernetes-client-linux-ppc64le.tar.gz	9336988dd0933424f70772b21d17a8c798965abbb77722dec58b3a92da8e6ab2f2dcf8702def7f0d
kubernetes-client-linux-s390x.tar.gz	d073aa8ad2ee476b12ae1fabcc762d514a01dab18e3e0afb27396e4d2d77bc9091858146c30c8906
kubernetes-client-windows-386.tar.gz	4096d1de90320c4ad68abf7458eb3d57e6e4e8603a430e0109d4b3e1086a8784f284adc567bd99b
kubernetes-client-windows-amd64.tar.gz	e86cc5e6817f5defbc344958ca88c5d0272d65449bf9bedf95a4588ba188d1c1b870c71513fdbf815t
kubernetes-client-windows-arm64.tar.gz	bcac6d5daeb604857feff355a6e999ae7f64d748a4c9ecb4393282b6a6ad488bbb43f770de86e173t

Server Binaries

filename	sha512 hash

kubernetes-server-linux-amd64.tar.gz	d511b8ab8d3ecb70f35f472a25de8d3b301d384e347f5aedcaeb286e82f264c8715bd87ac9dbf847
kubernetes-server-linux-arm.tar.gz	2b2f4f596675ac3871f0f8ba12f619e550395c3ac40cf3c26b8b5aab4f0a9c0e5b30398bcb9aaf5c5e7
kubernetes-server-linux-arm64.tar.gz	4da262bb6112ae5a8bf0b65659a8a15fda17fdeab4935f137e7680bef03e6262b7db57cea2db6c1a
kubernetes-server-linux-ppc64le.tar.gz	e64aa2f04c46deef946a88a87449dd46f6cbc5ee7cf4662ba6f455877c4bdc3527edeb8eb861e56fe4
kubernetes-server-linux-s390x.tar.gz	75a4ad3e091709ff2e8ac04f7a7af2999527322a9e857a41985413080a01c5989208648765617ee8b

Node Binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	1593bd6ced1aa42e1834a6e049d257a298c7964c706ac07f57d087271e5a4d13866fadcd36661affa0
kubernetes-node-linux-arm.tar.gz	883a6b24e134d825330baf1805d563f94300fa060b3c978da9138bba174059b604e28c115437673t
kubernetes-node-linux-arm64.tar.gz	d317105d7ef00696cc27660a871f181a319fcf2d4c1f19a88091f8c7d2bbfbd0a9a4ac8f0fa1e28e432
kubernetes-node-linux-ppc64le.tar.gz	01bd08aabd58aee0db6b1e376e76d741d2ebd592995407a47cb315f73c2a5b311a540ae620eb447
kubernetes-node-linux-s390x.tar.gz	81cd8e22010cab4cabefb4e2a879a61dd1d5d057ec15bb3b98d5aa5e79820abf0a650cb7c667d7fb
kubernetes-node-windows-amd64.tar.gz	033527ea64ddc4d4f166eb9e171958fd8b25f1f515c736fe820ae1e7c763b1a79e402e2f8446a21t

Container Images

All container images are available as manifest lists and support the described architectures. It is also possible to pull a specific architecture directly by adding the "-\$ARCH" suffix to the container image name.

--	--

name	architectures
k8s.gcr.io/conformance:v1.24.0-alpha.4	amd64 , arm , arm64 , ppc64le , s390x
k8s.gcr.io/kube-apiserver:v1.24.0-alpha.4	amd64 , arm , arm64 , ppc64le , s390x
k8s.gcr.io/kube-controller-manager:v1.24.0-alpha.4	amd64 , arm , arm64 , ppc64le , s390x
k8s.gcr.io/kube-proxy:v1.24.0-alpha.4	amd64 , arm , arm64 , ppc64le , s390x
k8s.gcr.io/kube-scheduler:v1.24.0-alpha.4	amd64 , arm , arm64 , ppc64le , s390x

Changelog since v1.24.0-alpha.3

Urgent Upgrade Notes

(No, really, you MUST read this before you upgrade)

- The `LegacyServiceAccountTokenNoAutoGeneration` feature gate is beta, and enabled by default. When enabled, Secret API objects containing service account tokens are no longer auto-generated for every ServiceAccount. Use the [TokenRequest](#) API to acquire service account tokens, or if a non-expiring token is required, create a Secret API object for the token controller to populate with a service account token by following this [guide](#). ([#108309](#), [@zshihang](#)) [SIG API Machinery, Apps, Auth and Testing]

Changes by Kind

Deprecation

- `--pod-infra-container-image` kubelet flag is deprecated and will be removed in future releases ([#108045](#), [@hakman](#)) [SIG Node]
- Client.authentication.k8s.io/v1alpha1 ExecCredential has been removed. If you are using a client-go credential plugin that relies on the v1alpha1 API please contact the distributor of your plugin for instructions on how to migrate to the v1 API. ([#108616](#), [@margocrawf](#)) [SIG API Machinery and Auth]
- Remove deprecated feature gates `ValidateProxyRedirects` and `StreamingProxyRedirects` ([#106830](#), [@pacoxu](#)) [SIG API Machinery]
- The node.k8s.io/v1alpha1 RuntimeClass API is no longer served. Use the node.k8s.io/v1 API version, available since v1.20 ([#103061](#), [@SergeyKanzhelev](#)) [SIG API Machinery, CLI, Node and Testing]

API Change

- Add 2 new options for kube-proxy running in winkernel mode. `--forward-healthcheck-vip`, if specified as true, health check traffic whose destination is service VIP will be forwarded to kube-proxy's healthcheck service. `--root-hnsendpoint-name` specifies the name of the hns endpoint for the root network namespace. This option enables the pass-through load balancers like Google's GCLB to correctly health check the backend services. Without this change, the health check packets is dropped, and Windows node will be considered to be unhealthy by those load balancers. ([#99287](#), [@anfernee](#)) [SIG API Machinery, Cloud Provider, Network, Testing and Windows]
- Added CEL runtime cost calculation into CustomerResource validation. CustomerResource validation will fail if runtime cost exceeds the budget. ([#108482](#), [@cici37](#)) [SIG API Machinery]
- CRD writes will generate validation errors if a CEL validation rule references the identifier "oldSelf" on a part of the schema that does not support it. ([#108013](#), [@benluddy](#)) [SIG API Machinery]
- Feature of `DefaultPodTopologySpread` is graduated to GA ([#108278](#), [@kerthcet](#)) [SIG Scheduling]

- Feature of `PodOverhead` is graduated to GA ([#108441](#), [@pacoxu](#)) [SIG API Machinery, Apps, Node and Scheduling]
- Fixes a regression in v1beta1 `PodDisruptionBudget` handling of "strategic merge patch"-type API requests for the `selector` field. Prior to 1.21, these requests would merge `matchLabels` content and replace `matchExpressions` content. In 1.21, patch requests touching the `selector` field started replacing the entire selector. This is consistent with server-side apply and the v1 `PodDisruptionBudget` behavior, but should not have been changed for v1beta1. ([#108138](#), [@liggitt](#)) [SIG Apps, Auth and Testing]
- Kube-apiserver: `--audit-log-version` and `--audit-webhook-version` now only support the default value of `audit.k8s.io/v1`. The v1alpha1 and v1beta1 audit log versions, deprecated since 1.13, have been removed. ([#108092](#), [@carlory](#)) [SIG API Machinery, Auth and Testing]
- Pod-affinity namespace selector and cross-namespace quota graduated to GA. The feature gate `PodAffinityNamespaceSelector` is locked and will be removed in 1.26. ([#108136](#), [@ahg-g](#)) [SIG API Machinery, Apps, Scheduling and Testing]
- Suspend job to GA. The feature gate `SuspendJob` is locked and will be removed in 1.26. ([#108129](#), [@ahg-g](#)) [SIG Apps and Testing]
- The `CertificateSigningRequest` `spec.expirationSeconds` API field has graduated to GA. The `CSRDuration` feature gate for the field is now unconditionally enabled and will be removed in 1.26. ([#108782](#), [@cfryanr](#)) [SIG API Machinery, Apps, Auth, Instrumentation and Testing]
- `TopologySpreadConstraints` includes `minDomains` field to limit the minimum number of topology domains. ([#107674](#), [@sanposhiho](#)) [SIG API Machinery, Apps and Scheduling]

Feature

- Add a deprecated cmd flag for the time interval between flushing pods from `unscheduledbeQ` to `activeQ` or `backoffQ`. ([#108017](#), [@denkensk](#)) [SIG Scheduling]
- Add one metrics(`kubelet_volume_stats_health_abnormal`) of volume health state to kubelet ([#105585](#), [@fengzixu](#)) [SIG Instrumentation, Node, Storage and Testing]
- Add the metric `container_oom_events_total` to kubelet's cAdvisor metric endpoint. ([#108004](#), [@jonkerj](#)) [SIG Node]
- Added support for btrfs resizing ([#108561](#), [@RomanBednar](#)) [SIG Storage]
- CRD x-kubernetes-validations rules now support the CEL functions: `isSorted`, `sum`, `min`, `max`, `indexOf`, `lastIndexOf`, `find` and `findAll`. ([#108312](#), [@jpbetz](#)) [SIG API Machinery]
- Client-go metrics: change bucket distribution for `rest_client_request_duration_seconds` and `rest_client_rate_limiter_duration_seconds` from [0.001, 0.002, 0.004, 0.008, 0.016, 0.032, 0.064, 0.128, 0.256, 0.512] to [0.005, 0.025, 0.1, 0.25, 0.5, 1.0, 2.0, 4.0, 8.0, 15.0, 30.0, 60.0] ([#106911](#), [@aojea](#)) [SIG API Machinery, Architecture and Instrumentation]
- Client-go: add new histogram metric to record the size of the requests and responses. ([#108296](#), [@aojea](#)) [SIG API Machinery, Architecture and Instrumentation]
- Cluster/gce/gci/configure.sh now supports downloading `crictl` on ARM64 nodes ([#108034](#), [@tstapler](#)) [SIG Cloud Provider]
- Env var for additional cli flags used in the `csi-proxy` binary when a Windows nodepool is created with `kube-up.sh` ([#107806](#), [@mauriciopoppe](#)) [SIG Cloud Provider and Windows]
- Increase default value of discovery cache TTL for `kubectl` to 6 hours. ([#107141](#), [@mk46](#)) [SIG CLI]
- Introduce policy to allow the HPA to consume the `external.metrics.k8s.io` API group. ([#104244](#), [@dgrisonnet](#)) [SIG Auth, Autoscaling and Instrumentation]
- Kubeadm: apply "second stage" of the plan to migrate kubeadm away from the usage of the word "master" in labels and taints. For new clusters, the label `"node-role.kubernetes.io/master"` will no longer be added to control plane nodes, only the label `"node-role.kubernetes.io/control-plane"` will be added. For clusters that are being upgraded to 1.24 with "kubeadm upgrade apply", the command will remove the label `"node-role.kubernetes.io/master"` from existing control plane nodes. For new clusters, both the old taint `"node-role.kubernetes.io/master:NoSchedule"` and new taint `"node-role.kubernetes.io/control-plane:NoSchedule"`

will be added to control plane nodes. In release 1.20 ("first stage"), a release note instructed to preemptively tolerate the new taint. For clusters that are being upgraded to 1.24 with "kubeadm upgrade apply", the command will add the new taint "node-role.kubernetes.io/control-plane:NoSchedule" to existing control plane nodes. Please adapt your infrastructure to these changes. In 1.25 the old taint "node-role.kubernetes.io/master:NoSchedule" will be removed. ([#107533](#), [@neolit123](#)) [SIG Cluster Lifecycle and Testing]

- Kubeadm: better surface errors during "kubeadm upgrade" when waiting for the kubelet to restart static pods on control plane nodes ([#108315](#), [@Monokaix](#)) [SIG Cluster Lifecycle]
- Kubeadm: improve the strict parsing of user YAML/JSON configuration files. Next to printing warnings for unknown and duplicate fields (current state), also print warnings for fields with incorrect case sensitivity - e.g. "controlPlaneEndpoint" (valid), "ControlPlaneEndpoint" (invalid). Instead of only printing warnings during "init" and "join" also print warnings when downloading the ClusterConfiguration, KubeletConfiguration or KubeProxyConfiguration objects from the cluster. This can be useful if the user has patched these objects in their respective ConfigMaps with mistakes. ([#107725](#), [@neolit123](#)) [SIG Cluster Lifecycle]
- Kubelet: add kubelet_volume_metric_collection_duration_seconds metrics for volume disk usage calculation duration ([#107201](#), [@pacoxu](#)) [SIG Instrumentation, Node and Storage]
- Kubernetes is now built with go1.18rc1 ([#107105](#), [@justaugustus](#)) [SIG API Machinery, Architecture, Auth, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Node, Release, Storage and Testing]
- No ([#108432](#), [@iXingji](#)) [SIG Testing and Windows]
- PreFilter extension in the scheduler framework now returns not only status but also PreFilterResult ([#108648](#), [@ahg-g](#)) [SIG Scheduling, Storage and Testing]
- Remove the deprecated flag `--experimental-check-node-capabilities-before-mount`. With CSI now GA, there is a better alternative. Remove any use of `--experimental-check-node-capabilities-before-mount` from your kubelet scripts or manifests. ([#104732](#), [@mengjiao-liu](#)) [SIG Apps, Cloud Provider, Node and Storage]
- Set PodMaxUnschedulableQDuration as 5 min. ([#108761](#), [@denkensk](#)) [SIG Scheduling]
- Support in-tree PV deletion protection finalizer. ([#108400](#), [@deepakkinni](#)) [SIG Apps and Storage]
- The .spec.loadBalancerClass field for Services is now generally available. ([#107979](#), [@XudongLiuHarold](#)) [SIG Cloud Provider, Network and Testing]
- Turn on CSIMigrationAzureFile by default on 1.24 ([#105070](#), [@andyzhangx](#)) [SIG Cloud Provider]
- When invoked with `-list-images`, the e2e.test binary now also lists the images that might be needed for storage tests. ([#108458](#), [@pohly](#)) [SIG Testing]

Bug or Regression

- fails for unexpected extra arguments ([#107967](#), [@jsong01](#)) [SIG CLI]
- Bug: client-go clientset was not defaulting the user agent, using the default golang agent for all the requests. ([#108772](#), [@aojea](#)) [SIG API Machinery and Instrumentation]
- Bump sigs.k8s.io/apiserver-network-proxy/[connectivity-client@v0.0.30](#) to fix a goroutine leak in kube-apiserver when using egress selector with the gRPC mode. ([#108437](#), [@andrewsykim](#)) [SIG API Machinery, Auth and Cloud Provider]
- Existing InTree AzureFile PVs which don't have a secret namespace defined will now work properly after enabling CSI migration - the namespace will be obtained from ClaimRef. ([#108000](#), [@RomanBednar](#)) [SIG Cloud Provider and Storage]
- Fix a bug in attachdetach controller that didn't properly handle kube-apiserver errors leading to stuck attachments/detachments. ([#108167](#), [@jfremy](#)) [SIG Apps]
- Fix a bug that out-of-tree plugin is misplaced when using scheduler v1beta3 config ([#108613](#), [@Huang-Wei](#)) [SIG Scheduling and Testing]
- Fix container creation errors for pods with cpu requests bigger than 256 cpus ([#106570](#), [@odinuge](#)) [SIG Node]

- Fix to allow fsGroup to be applied for CSI Inline Volumes ([#108662](#), [@dobsonj](#)) [SIG Storage]
- Fix: do not return early in the node informer when there is no change of the topology label. ([#108149](#), [@nilo19](#)) [SIG Cloud Provider]
- Fixed a bug that caused credentials in an exec plugin to override the static certificates set in a kubeconfig. ([#107410](#), [@margocrawf](#)) [SIG API Machinery, Auth and Testing]
- Fixed a regression that could incorrectly reject pods with OutOfCpu errors if they were rapidly scheduled after other pods were reported as complete in the API. The Kubelet now waits to report the phase of a pod as terminal in the API until all running containers are guaranteed to have stopped and no new containers can be started. Short-lived pods may take slightly longer (~1s) to report Succeeded or Failed after this change. ([#108366](#), [@smarterclayton](#)) [SIG Apps, Node and Testing]
- Fixes a bug where a partial EndpointSlice update could cause node name information to be dropped from endpoints that were not updated. ([#108198](#), [@liggitt](#)) [SIG Network]
- Fixes bug in CronJob Controller V2 where it would lose track of jobs upon job template labels change. ([#107997](#), [@d-honeybadger](#)) [SIG Apps]
- Improved logging when volume times out waiting for attach/detach. ([#108628](#), [@RomanBednar](#)) [SIG Storage]
- Increase Azure ACR credential provider timeout ([#108209](#), [@andyzhangx](#)) [SIG Cloud Provider]
- Kube-apiserver: ensures the namespace of objects sent to admission webhooks matches the request namespace. Previously, objects without a namespace set would have the request namespace populated after mutating admission, and objects with a namespace that did not match the request namespace would be rejected after admission. ([#94637](#), [@liggitt](#)) [SIG API Machinery and Testing]
- Kube-apiserver: removed apf_fd from server logs which could contain data identifying the requesting user ([#108631](#), [@jupblb](#)) [SIG API Machinery]
- Kube-proxy in iptables mode now only logs the full iptables input at -v=9 rather than -v=5. ([#108224](#), [@danwinship](#)) [SIG Network]
- Kube-proxy will no longer hold service node ports open on the node. Users are still advised not to run any listener on node ports range used by kube-proxy. ([#108496](#), [@khenidak](#)) [SIG Network]
- Kubeadm: fix a bug when using "kubeadm init --dry-run" with certificate authority files (ca.key / ca.crt) present in /etc/kubernetes/pki) ([#108410](#), [@Halegyo](#)) [SIG Cluster Lifecycle]
- Kubeadm: fix a bug where Windows nodes fail to join an IPv6 cluster due to preflight errors ([#108769](#), [@SataQiu](#)) [SIG Cluster Lifecycle]
- Kubelet don't forcefully close active connections on heartbeat failures, using the http2 health check mechanism to detect broken connections. Users can force the previous behavior of the kubelet by setting the environment variable DISABLE_HTTP2. ([#108107](#), [@aojea](#)) [SIG API Machinery and Node]
- Prevent unnecessary Endpoints and EndpointSlice updates caused by Pod ResourceVersion change ([#108078](#), [@tnqn](#)) [SIG Apps and Network]
- Print as the value in case kubectl describe ingress shows default-backend:80 when no default backend is present ([#108506](#), [@jlsong01](#)) [SIG CLI]
- Replace the url label of rest_client_request_duration_seconds and rest_client_rate_limiter_duration_seconds metrics with a host label to prevent cardinality explosions and keep only the useful information. This is a breaking change required for security reasons. ([#106539](#), [@dgrissonnet](#)) [SIG Instrumentation]
- The `TopologyAwareHints` feature gate is now enabled by default. This will allow users to opt-in to Topology Aware Hints by setting the `service.kubernetes.io/topology-aware-hints` on a Service. This will not affect any Services without that annotation set. ([#108747](#), [@roboscott](#)) [SIG Network]
- This code change fixes the bug that UDP services would trigger unnecessary LoadBalancer updates. The root cause is that a field not working for non-TCP protocols is considered. ref: <https://github.com/kubernetes-sigs/cloud-provider-azure/pull/1090> ([#107981](#), [@lzhecheng](#)) [SIG Cloud Provider]
- Topology translation of in-tree vSphere volume to vSphere CSI. ([#108611](#), [@divyenpatel](#)) [SIG Storage]

Other (Cleanup or Flake)

- API server's deprecated `--deserialization-cache-size` flag is now removed. ([#108448](#), [@ialidzhikov](#)) [SIG API Machinery]
- API server's deprecated `--experimental-encryption-provider-config` flag is now removed. Adapt your machinery to use the `--encryption-provider-config` flag that is available since v1.13. ([#108423](#), [@ialidzhikov](#)) [SIG API Machinery]
- API server's deprecated `--target-ram-mb` flag is now removed. ([#108457](#), [@ialidzhikov](#)) [SIG API Machinery, Cloud Provider, Scalability and Testing]
- Endpoints and EndpointSlice controllers no longer populate `resourceVersion of targetRef` in Endpoints and EndpointSlices ([#108450](#), [@tnqn](#)) [SIG Apps and Network]
- Improve error message when applying CRDs before the CRD exists in a cluster ([#107363](#), [@eddiezane](#)) [SIG CLI]
- Improved algorithm for selecting "best" non-preferred hint in the TopologyManager ([#108154](#), [@klueska](#)) [SIG Node]
- Kube-proxy doesn't set the `sysctl net.ipv4.conf.all.route_localnet=1` if no IPv4 loopback address is selected by the `nodePortAddresses` configuration parameter. ([#107684](#), [@aojea](#)) [SIG Network]
- Remove support for node-expansion between node-stage and node-publish ([#108614](#), [@gnufied](#)) [SIG Storage]
- The `WarningHeaders` feature gate that is GA since v1.22 is unconditionally enabled, and can no longer be specified via the `--feature-gates` argument. ([#108394](#), [@ialidzhikov](#)) [SIG API Machinery]
- The `e2e.test` binary supports a new `--kubelet-root` parameter to override the default `/var/lib/kubelet` path. CSI storage tests use this. ([#108253](#), [@pohly](#)) [SIG Node, Storage and Testing]
- The scheduler framework option `runAllFilters` is removed. ([#108829](#), [@kerthcet](#)) [SIG Scheduling]
- Windows Pause no longer has support for SAC releases 1903, 1909, 2004. Windows image support is now Lts 2019 (1809), 20H2, LTSC 2022 ([#107056](#), [@jsturtevant](#)) [SIG Windows]
- `kube-addon-manager` image version is bumped to 9.1.6 ([#108341](#), [@zshihang](#)) [SIG Cloud Provider, Scalability and Testing]

Dependencies

Added

- github.com/google/gnostic: [v0.5.7-v3refs](#)

Changed

- github.com/cpuguy83/go-md2man: [v2.0.0](#) → [v2.0.1](#)
- github.com/google/cel-go: [v0.9.0](#) → [v0.10.1](#)
- github.com/prometheus/client_golang: [v1.12.0](#) → [v1.12.1](#)
- github.com/russross/blackfriday: [v2.0.1](#) → [v2.1.0](#)
- github.com/spf13/cobra: [v1.2.1](#) → [v1.4.0](#)
- golang.org/x/crypto: 32db794 → 8634188
- golang.org/x/mod: v0.5.1 → 9b9b3d8
- golang.org/x/net: 491a49a → cd36cc0
- golang.org/x/oauth2: 2bc19b1 → d3ed0bb
- golang.org/x/sys: da31bd3 → 3681064
- golang.org/x/term: 6886f2d → 03fcf44
- golang.org/x/time: 1f47c86 → 90d013b
- golang.org/x/tools: v0.1.8 → 897bd77
- google.golang.org/genproto: fe13028 → 42d7afd
- k8s.io/kube-openapi: e816edb → ddc6692

- sigs.k8s.io/apiserver-network-proxy/konnectivity-client: v0.0.27 → v0.0.30

Removed

- cloud.google.com/go/firestore: v1.1.0
- github.com/armon/go-metrics: [f0300d1](#)
- github.com/armon/go-radix: [7fddfc3](#)
- github.com/bgentry/speakeasy: [v0.1.0](#)
- github.com/bketelsen/crypt: [v0.0.4](#)
- github.com/fatih/color: [v1.7.0](#)
- github.com/googleapis/gnostic: [v0.5.5](#)
- github.com/hashicorp/consul/api: [v1.1.0](#)
- github.com/hashicorp/consul/sdk: [v0.1.1](#)
- github.com/hashicorp/errwrap: [v1.0.0](#)
- github.com/hashicorp/go-cleanhttp: [v0.5.1](#)
- github.com/hashicorp/go-immutable-radix: [v1.0.0](#)
- github.com/hashicorp/go-msgpack: [v0.5.3](#)
- github.com/hashicorp/go-multierror: [v1.0.0](#)
- github.com/hashicorp/go-rootcerts: [v1.0.0](#)
- github.com/hashicorp/go-sockaddr: [v1.0.0](#)
- github.com/hashicorp/go-syslog: [v1.0.0](#)
- github.com/hashicorp/go-uuid: [v1.0.1](#)
- github.com/hashicorp/go.net: [v0.0.1](#)
- github.com/hashicorp/golang-lru: [v0.5.0](#)
- github.com/hashicorp/hcl: [v1.0.0](#)
- github.com/hashicorp/logutils: [v1.0.0](#)
- github.com/hashicorp/mdns: [v1.0.0](#)
- github.com/hashicorp/memberlist: [v0.1.3](#)
- github.com/hashicorp/serf: [v0.8.2](#)
- github.com/magiconair/properties: [v1.8.5](#)
- github.com/mattn/go-colorable: [v0.0.9](#)
- github.com/mattn/go-isatty: [v0.0.3](#)
- github.com/miekg/dns: [v1.0.14](#)
- github.com/mitchellh/cli: [v1.0.0](#)
- github.com/mitchellh/go-homedir: [v1.0.0](#)
- github.com/mitchellh/go-testing-interface: [v1.0.0](#)
- github.com/mitchellh/gox: [v0.4.0](#)
- github.com/mitchellh/iochan: [v1.0.0](#)
- github.com/pascaldekloe/goe: [57f6aae](#)
- github.com/pelletier/go-toml: [v1.9.3](#)
- github.com/posener/complete: [v1.1.1](#)
- github.com/ryanuber/columnize: [9b3edd6](#)
- github.com/sean-/seed: [e2103e2](#)
- github.com/shurcool/sanitized_anchor_name: [v1.0.0](#)
- github.com/spf13/cast: [v1.3.1](#)
- github.com/spf13/jwalterweatherman: [v1.1.0](#)
- github.com/spf13/viper: [v1.8.1](#)
- github.com/subosito/gotenv: [v1.2.0](#)
- gopkg.in/ini.v1: v1.62.0

v1.24.0-alpha.3

Downloads for v1.24.0-alpha.3

Source Code

filename	sha512 hash
kubernetes.tar.gz	9de65cc28a4a641c4bbfd386706cf61a8c36d8928623ab6cac28ac378d77aed458e14e8782703c
kubernetes-src.tar.gz	7f76982cbc1eb84883b86ac2b3b017b02dd970cd3a57883306ec0cbf7dfac9009ee368ca93cecf

Client Binaries

filename	sha512 hash
kubernetes-client-darwin-amd64.tar.gz	ff98f55de0e1db549135811e801afe85e7e4b2216d4dc543adc9e6039f997ad9f2ecbd06daf3deb14
kubernetes-client-darwin-arm64.tar.gz	8582dcb6cbf56eca07cbfe98f06adf0f6e0c2827783d6a8c3fbc7e7e5b69f4b5781643beae37fe0868t
kubernetes-client-linux-386.tar.gz	15a56b02915397970c90615ad921e9e3125e39b8ee8a857c22c855957fee8b2de540eb51b2be4f3f
kubernetes-client-linux-amd64.tar.gz	a16a6762713dd8aaf5a8f5cab4f9be949ac04ce7bd1e182858c47a1769f43d5c99faebee228e8543c2
kubernetes-client-linux-arm.tar.gz	ff9432a0b3538e5170276ced1f4878570a2a2ddb5c59c25d735eed09dde492bc2a2bbde5cccbcd83
kubernetes-client-linux-arm64.tar.gz	bbc22c098152f1a0e2532e3d7e700116a31fe59212ca8d47f9f95d3f3c997c1d8e8a1b75619bc73fet
kubernetes-client-linux-ppc64le.tar.gz	a6046b9726268f0557ab8c72fe5274ea5554afdf7b6b2aa77d41a207ecb5460e42d5ba68de3e3593
kubernetes-client-linux-s390x.tar.gz	c5701618eba6bec591445f2bd192301178fa6b0b8c5359d81faea92a393611a5fe697c2dea241769t
kubernetes-client-windows-386.tar.gz	87f8d99bacbf846b3cf0e6ccc72e99c38363ef606103ea924330a49f1a9d46c3043c8eda397246246c

kubernetes-client-windows-amd64.tar.gz	74ba2c6770113dc91f18072a1df15f368ea23312e418a016e25f93545a5e234d1e133210f0e136642
kubernetes-client-windows-arm64.tar.gz	f72d3d0948e0669b23227cc952d20e40054088df52c12c0f84ff9b2c6714e558f7d2349fc8b78758d5

Server Binaries

filename	sha512 hash
kubernetes-server-linux-amd64.tar.gz	f68d4691dfa7916c8e566c1ca2dfb11b0c675223a95cef8b90586ead93217713122ae402f1276246a
kubernetes-server-linux-arm.tar.gz	babf77bfb1061120dd525b25bf89b7bb0b81892dddfd70a1693ddbe642e3066104dd54938e1bfff6
kubernetes-server-linux-arm64.tar.gz	0b8846b01d20fada109fef957b5670ee2da9cb334090475ecf9de508beae912a330cb446d77a8308
kubernetes-server-linux-ppc64le.tar.gz	a6d3c3b261aa0abcfb5ecb8c94cec75ca01da839100c6ec0456a5b0e4e118b4c603954b5094e434d
kubernetes-server-linux-s390x.tar.gz	10cd559a40cac8e35d89976703a839a6095bf7a52e2cf1c090007e43bf3b487a6eba19e86d066f4a7

Node Binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	32702b81a4f0a19c9ef28978880b150284d12c766c25d89b83808bff44ec99ebf629585ec9a5ee4ce
kubernetes-node-linux-arm.tar.gz	2fca5344d8debe5a37676793992db19a1ef296d3d0d14682f7a8f023a5ee5c5a1691bbd585483b27
kubernetes-node-linux-arm64.tar.gz	424ea735c4bde3e3e70ae5e6517ec4c9ca46628b8f8e74eba5775b85faf31c9e3d9c6fb876f2965b8f
kubernetes-node-linux-ppc64le.tar.gz	517aff6677ac101bb09b2f2aba7d96d8901ae4b0ed6f7ba33bd8ab33447babd7eaf2a9482d0ebdc1

kubernetes-node-linux-s390x.tar.gz	dcc61fcc5ac44a6e25f53f2538e41bd23e8c34c2b481c3bb8be6caf42ab74b0363f9ddce16c41c5083
kubernetes-node-windows-amd64.tar.gz	95afe157524f285127fe2e808ec785fb0aa3205dd0b1f34233d35c0eabd8efbcbab6b9cd98d69b6646

Container Images

All container images are available as manifest lists and support the described architectures. It is also possible to pull a specific architecture directly by adding the "-\$ARCH" suffix to the container image name.

name	architectures
k8s.gcr.io/conformance:v1.24.0-alpha.3	amd64, arm, arm64, ppc64le, s390x
k8s.gcr.io/kube-apiserver:v1.24.0-alpha.3	amd64, arm, arm64, ppc64le, s390x
k8s.gcr.io/kube-controller-manager:v1.24.0-alpha.3	amd64, arm, arm64, ppc64le, s390x
k8s.gcr.io/kube-proxy:v1.24.0-alpha.3	amd64, arm, arm64, ppc64le, s390x
k8s.gcr.io/kube-scheduler:v1.24.0-alpha.3	amd64, arm, arm64, ppc64le, s390x

Changelog since v1.24.0-alpha.2

Urgent Upgrade Notes

(No, really, you MUST read this before you upgrade)

- Fixed bug with leads to Node goes "Not-ready" state when credentials for vCenter stored in a secret and Zones feature is in use. Zone labels setup moved to KCM component, kubelet skips this step during startup in such case. If credentials stored in cloud-provider config file as plaintext current behaviour does not change and no action required.

For proper functioning "kube-system:vsphere-legacy-cloud-provider" should be allowed to update node object if vCenter credentials stored in secret and Zone feature used. ([#101028](#), [@lobziik](#)) [SIG Cloud Provider]

Changes by Kind

Deprecation

- Cluster addon for dashboard was removed. To install dashboard, see [here](#). ([#107481](#), [@shu-mutou](#)) [SIG Cloud Provider and Testing]
- Kube-apiserver: the --master-count flag and --endpoint-reconciler-type=master-count reconciler are deprecated in favor of the lease reconciler ([#108062](#), [@aojea](#)) [SIG API Machinery]
- Kubeadm: graduate the UnversionedKubeletConfigMap feature gate to Beta and enable the feature by default. This implies that 1) for new clusters kubeadm will start using the "kube-system/kubelet-config" naming scheme for the kubelet ConfigMap and RBAC rules, instead of the legacy "kubelet-config-x.yy" naming. 2) during upgrade, kubeadm will only write the new scheme ConfigMap and RBAC objects. To disable the feature you can pass "UnversionedKubeletConfigMap: false" in the kubeadm config for new clusters. For upgrade on existing clusters you can also override the behavior by patching the

ClusterConfiguration object in "kube-system/kubeadm-config". More details in the associated KEP.

([#108027](#), [@neolit123](#)) [SIG Cluster Lifecycle and Testing]

- Remove `tolerate-unready-endpoints` annotation in Service deprecated from 1.11, use `Service.spec.publishNotReadyAddresses` instead. ([#108020](#), [@tossmilestone](#)) [SIG Apps and Network]
- The in-tree azure plugin has been deprecated. The <https://github.com/Azure/kubelogin> serves as an out-of-tree replacement via the kubectl/client-go credential plugin mechanism. Users will now see a warning in the logs regarding this deprecation. ([#107904](#), [@sabbey37](#)) [SIG Auth]

API Change

- CRD deep copies should no longer contain shallow copies of JSONSchemaProps.XValidations. ([#107956](#), [@benluddy](#)) [SIG API Machinery]
- Feature of `NonPreemptingPriority` is graduated to GA ([#107432](#), [@denkenski](#)) [SIG Apps, Scheduling and Testing]
- Fix OpenAPI serialization of the x-kubernetes-validations field ([#107970](#), [@liggitt](#)) [SIG API Machinery]
- Kube-apiserver: the `metadata.selfLink` field can no longer be populated by kube-apiserver; it was deprecated in 1.16 and has not been populated by default in 1.20+. ([#107527](#), [@wojtekt](#)) [SIG API Machinery, Apps, Auth, Autoscaling, CLI, Cloud Provider, Network, Scheduling, Storage and Testing]

Feature

- Kubernetes is now built with Golang 1.17.7 ([#108091](#), [@xmudrii](#)) [SIG Release and Testing]
- Remove feature gate `SetHostnameAsFQDN`. ([#108038](#), [@mengjiao-liu](#)) [SIG Node]
- The output of `kubectl describe ingress` now includes an IngressClass name if available ([#107921](#), [@mpuckett159](#)) [SIG CLI]
- The scheduler prints info logs when the extender returned an error. (--v>5) ([#107974](#), [@sanposhiho](#)) [SIG Scheduling]
- `kubectl config delete-user` now supports completion ([#107142](#), [@dimbleby](#)) [SIG CLI]
- `kubectl create token` can now be used to request a service account token, and permission to request service account tokens is added to the `edit` and `admin` RBAC roles ([#107880](#), [@liggitt](#)) [SIG Auth, CLI and Testing]

Bug or Regression

- A static pod that is rapidly updated was failing to start until the Kubelet was restarted. ([#107900](#), [@smarterclayton](#)) [SIG Node and Testing]
- CRI-API: IPs returned by PodSandboxNetworkStatus are ignored by the kubelet for host-network pods. ([#106715](#), [@aojea](#)) [SIG Node]
- Fixes bug in TopologyManager for ensuring aligned allocations on machines with more than 2 NUMA nodes ([#108052](#), [@klueska](#)) [SIG Node]
- Kubeadm: fix a bug related to a warning printed if the KubeletConfiguration "resolvConf" field value does not match "/run/systemd/resolve/resolv.conf" ([#107785](#), [@chendave](#)) [SIG Cluster Lifecycle]
- Kubeadm: fix the bug that 'kubeadm certs generate-csr' command does not remove duplicated SANs ([#107982](#), [@SataQiu](#)) [SIG Cluster Lifecycle]
- RunCordonOrUncordon error if drainer has nil Ctx or Client ([#105297](#), [@jackfrancis](#)) [SIG CLI]

Other (Cleanup or Flake)

- Added an e2e test to verify that the cluster is not vulnerable to CVE-2021-29923 when using Services with IPs with leading zeros, note that this test is a necessary but not sufficient condition, all the components in the clusters that consume IPs addresses from the APIs MUST interpret them as decimal or discard them. ([#107552](#), [@aojea](#)) [SIG Network and Testing]
- Kubectl stack traces will now only print at -v=99 and not -v=6 ([#108053](#), [@eddiezane](#)) [SIG CLI]

- Remove kubelet `--non-masquerade-cidr` deprecated CLI flag ([#107096](#), [@hakman](#)) [SIG Cloud Provider and Node]
- [k8s.io/utlis/clock]: IntervalClock is now deprecated in favour of SimpleIntervalClock ([#108059](#), [@RaghavRoy145](#)) [SIG API Machinery, Architecture, Auth, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation and Storage]

Dependencies

Added

Nothing has changed.

Changed

- k8s.io/utlis: 7d6a63d → 3a6ce19

Removed

Nothing has changed.

v1.24.0-alpha.2

Downloads for v1.24.0-alpha.2

Source Code

filename	sha512 hash
kubernetes.tar.gz	bd3257bbae848869e20696e4570f29d61d78187d710c99fa01c5602e4edcf818f8129a68d80e8:
kubernetes-src.tar.gz	d8235197b71248ffa5fcbabbdb11c208f9d55f58db498e038e7464c0caf99bfddfa8d34e8af46c:

Client Binaries

filename	sha512 hash
kubernetes-client-darwin-amd64.tar.gz	a17876d27eb72590893ddf440f9c0fd18137a6e5f9dc57b34a8a9057fffd6b6a5356bca92adf888e3e
kubernetes-client-darwin-arm64.tar.gz	9f513e665ebf86d795933d55ba7b2d9e183761d6ff36e04626cb2e597ba4af9a840dbf995466a4c4c
kubernetes-client-linux-386.tar.gz	511b2147da305368cc24c372f052aeaf1f2aa7bf7fdfdb4fc81a6b3163cda4bc8392b0392610799f0b
kubernetes-client-linux-amd64.tar.gz	94514f56a6fab4887ea44405ee59020115cfb53d7c1a4d2464fa3ceb804c3d141d4c1d090e7d7652c
kubernetes-	4a3a0c2fa1875caf5c0715b67a8b0e375362e02cd9be88439c32a853a73eff26b419da58772ab1b13

kubernetes-client-linux-arm.tar.gz	
kubernetes-client-linux-arm64.tar.gz	831b837ce1159bdd0e4b7a238d0bbf998b24495cf335fdf960b789fbe255ebee75a7f3d6e98317821
kubernetes-client-linux-ppc64le.tar.gz	09cd6c441ee4b57261966e8c93d45374b577818f79ccaae3042a17bb06203ad41a1a0d046d28382
kubernetes-client-linux-s390x.tar.gz	fe29b548df2d6016a98b4409ff783001be70945875f036d7a799445ef60a1493fd52618c8136cbb6a
kubernetes-client-windows-386.tar.gz	3ca9c008c79575525b1b758240e24466a60f9a34c5c12895bc0d8f79ff6b5ab057f3be1d1a7bb5610
kubernetes-client-windows-amd64.tar.gz	ee32c78eeae2c8db9f8fc4bac02b5c5a0b9eb29612bfac71f0c9c48f83fd03c31aa2b459a41f0a06087
kubernetes-client-windows-arm64.tar.gz	debcc893f4c4be2ef034e056b126ef5b7c0f60a0a7d43117e2271850ded56dcc9eb103cc764337506

Server Binaries

filename	sha512 hash
kubernetes-server-linux-amd64.tar.gz	ec33945179f1ea5ca6334cf761247c975e5d22b1bf9b415dae9903aef67443c94894794f1e2ae9324
kubernetes-server-linux-arm.tar.gz	77a7a799e675ee4fc5371768cbca36f624e2419611740393fd850c0f2506cd4926a0d31d8ed754c06
kubernetes-server-linux-arm64.tar.gz	6d198e0edf891f4b161d2f0df8945113264b31bafa153ca2a22f4cf0043a2810e2f1687d41e9f7fd235
kubernetes-server-linux-ppc64le.tar.gz	4c1e2a4f076297f4684f8c4781b5cfca685423a3b0b7e761b74d8e35860546437901f8a896a182c2a
kubernetes-server-linux-s390x.tar.gz	b3df4a87f3d3d9a2e83d7136bb8ebf6c2a625b893812e1c01bf6e7424e41b8c5c0373912b80e0a30

Node Binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	20aa621176d9f09cb4e32e4e56eaa933953871d877d4d9a55963f73290e3acce3773446c32e69624
kubernetes-node-linux-arm.tar.gz	6c7e549b50ba0a1d1ac6371bf72e3833f92187848fae3d75a52f7087336d2e85f976dbf8104ac0110
kubernetes-node-linux-arm64.tar.gz	99f25bc10d2f9139d92e3fb12186854da8b987fd3f060b5b7a906bc27345b93e3cde23b07527f42c3
kubernetes-node-linux-ppc64le.tar.gz	aa68d2de162cf75f58fb97b2a65a7d1963a9a2483dae565846da44a335696733aa10e0982badebe4
kubernetes-node-linux-s390x.tar.gz	d64ed933b24b7d897194bc70954a42d8217e9e4bc5f0bf797cad3fa54a16b63b5b5a1731886d4bd
kubernetes-node-windows-amd64.tar.gz	f3af562d8b4f3b17d039b56bec041166bcf9dfa831b3bbbc1ea67864dae00093e564ce7605855d57

Container Images

All container images are available as manifest lists and support the described architectures. It is also possible to pull a specific architecture directly by adding the "-\$ARCH" suffix to the container image name.

name	architectures
k8s.gcr.io/kube-apiserver:v1.24.0-alpha.2	amd64, arm, arm64, ppc64le, s390x
k8s.gcr.io/kube-controller-manager:v1.24.0-alpha.2	amd64, arm, arm64, ppc64le, s390x
k8s.gcr.io/kube-proxy:v1.24.0-alpha.2	amd64, arm, arm64, ppc64le, s390x
k8s.gcr.io/kube-scheduler:v1.24.0-alpha.2	amd64, arm, arm64, ppc64le, s390x
k8s.gcr.io/conformance:v1.24.0-alpha.2	amd64, arm, arm64, ppc64le, s390x

Changelog since v1.24.0-alpha.1

Urgent Upgrade Notes

(No, really, you **MUST** read this before you upgrade)

- Docker runtime support using dockshim in the kubelet is now completely removed in 1.24. The kubelet used to have a module called "dockershim" which implements CRI support for Docker and it has seen

maintenance issues in the Kubernetes community. From 1.24 onwards, please move to a container runtime that is a full-fledged implementation of CRI (v1alpha1 or v1 compliant) as they become available. ([#97252](#), [@dims](#)) [SIG Cloud Provider, Instrumentation, Network, Node and Testing]

- The calculations for Pod topology spread skew now excludes nodes that don't match the node affinity/selector. This may lead to unschedulable pods if you previously had pods matching the spreading selector on those excluded nodes (not matching the node affinity/selector), especially when the topologyKey is not node-level. Revisit the node affinity and/or pod selector in the topology spread constraints to avoid this scenario. ([#107009](#), [@kerthcet](#)) [SIG Scheduling]

Changes by Kind

Deprecation

- "kubeadm.k8s.io/v1beta2" has been deprecated and will be removed in a future release, possibly in 3 releases (one year). You should start using "kubeadm.k8s.io/v1beta3" for new clusters. To migrate your old configuration files on disk you can use the "kubeadm config migrate" command. ([#107013](#), [@pacoju](#)) [SIG Cluster Lifecycle]
- Deprecate Service.Spec.LoadBalancerIP. This field was under-specified and its meaning varies across implementations. As of Kubernetes v1.24, users are encouraged to use implementation-specific annotations when available. This field may be removed in a future API version. ([#107235](#), [@uablrek](#)) [SIG Apps and Network]
- Kube-apiserver: the insecure address flags `--address`, `--insecure-bind-address`, `--port` and `--insecure-port` (inert since 1.20) are removed ([#106859](#), [@knight42](#)) [SIG API Machinery, Cloud Provider and Cluster Lifecycle]
- The experimental dynamic log sanitization feature has been deprecated and removed in the 1.24 release. The feature is no longer available for use. ([#107207](#), [@ehashman](#)) [SIG Instrumentation, Scheduling and Security]
- The insecure address flags `--address` and `--port` in kube-controller-manager have been no effect since v1.20 and is removed in v1.24. ([#106860](#), [@knight42](#)) [SIG API Machinery, Node and Testing]

API Change

- Add a new metric `webhook_fail_open_count` to monitor webhooks that fail open ([#107171](#), [@ltagliamonte-dd](#)) [SIG API Machinery and Instrumentation]
- Fix failed flushing logs in defer function when kubelet cmd exit 1. ([#104774](#), [@kerthcet](#)) [SIG Node and Scheduling]
- Rename metrics `evictions_number` to `evictions_total` and mark it as stable. The original `evictions_number` metrics name is marked as "Deprecated" and will be removed in kubernetes 1.23 ([#106366](#), [@cylinder](#)) [SIG API Machinery, Apps, Architecture, Auth, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Network, Node, Release, Scalability, Scheduling, Storage, Testing and Windows]
- The `ServiceLBNodePortControl` feature graduates to GA. The feature gate will be removed in 1.26. ([#107027](#), [@uablrek](#)) [SIG Network and Testing]
- The feature DynamicKubeletConfig is removed from the kubelet. ([#106932](#), [@SergeyKanzhelev](#)) [SIG Apps, Auth, Instrumentation, Node and Testing]
- Update default API priority-and-fairness config to avoid endpoint/configmaps operations from controller-manager to all match leader-election priority level. ([#106725](#), [@wojtekt](#)) [SIG API Machinery]

Feature

- A new Priority and Fairness metric 'apiserver_flowcontrol_work_estimate_seats_samples' has been added that tracks the estimated seats associated with a request ([#106628](#), [@tkashem](#)) [SIG API Machinery and Instrumentation]

- Add completion for `kubectl config set-context` . ([#106739](#), [@kebe7jun](#)) [SIG CLI]
- Add metric for measuring end-to-end volume mount timing ([#107006](#), [@gnufied](#)) [SIG Node and Storage]
- Add more message for no PodSandbox container ([#107116](#), [@yxxhero](#)) [SIG Node]
- Added field `add_ambient_capabilities` to the Capabilities message in the CRI-API. ([#104620](#), [@vinayakankugoyal](#)) [SIG Node]
- Added label selector flag to all "kubectl rollout" commands ([#99758](#), [@aramperes](#)) [SIG CLI]
- Added prune flag into diff command to simulate `apply --prune` ([#105164](#), [@ardaguclu](#)) [SIG CLI and Testing]
- Adds SetTransform to SharedInformer to allow users to transform objects before they are stored. ([#107507](#), [@alexzielenski](#)) [SIG API Machinery]
- Adds proxy-url flag into kubectl config set-cluster ([#105566](#), [@ardaguclu](#)) [SIG CLI]
- Adds support for kubectl commands (`kubectl exec` and `kubectl port-forward`) via a SOCKS5 proxy. ([#105632](#), [@xens](#)) [SIG API Machinery, Architecture, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation and Storage]
- Feature of `PreferNominatedNode` is graduated to GA ([#106619](#), [@chendave](#)) [SIG Scheduling and Testing]
- In text format, log messages that previously used quoting to prevent multi-line output (for example, `text="some "quotation", a\nline break"`) will now be printed with more readable multi-line output without the escape sequences. ([#107103](#), [@pohly](#)) [SIG Auth, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation and Storage]
- Kube-apiserver: when merging lists, Server Side Apply now prefers the order of the submitted request instead of the existing persisted object ([#107565](#), [@jiahuiif](#)) [SIG API Machinery, Auth, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Storage and Testing]
- Kube-scheduler remove insecure flags. You can use `--bind-address` and `--secure-port` instead. ([#106865](#), [@jonyhy96](#)) [SIG Scheduling]
- Kubeadm: add support for dry running "kubeadm reset". The new flag "kubeadm reset --dry-run" is similar to the existing flag for "kubeadm init/join/upgrade" and allows you to see what changes would be applied. ([#107512](#), [@SataQiu](#)) [SIG Cluster Lifecycle]
- Kubeadm: default the kubeadm configuration to the containerd socket (Unix: `unix:///var/run/containerd/containerd.sock`, Windows: `npipe:///./pipe/containerd-containerd`) instead of the one for Docker. If the "InitJoinConfiguration.nodeRegistration.criSocket" field is empty during cluster creation and multiple sockets are found on the host always throw an error and ask the user to specify which one to use by setting the value in the field. Make sure you update any kubeadm configuration files on disk, to not include the dockershim socket unless you are still using kubelet version < 1.24 with kubeadm >= 1.24.

Remove the DockerValidator and ServiceCheck for the "docker" service from kubeadm preflight. Docker is no longer special cased during host validation and ideally this task should be done in the now external cri-dockerd project where the importance of the compatibility matters.

Use crictl for all communication with CRI sockets for actions like pulling images and obtaining a list of running containers instead of using the docker CLI in the case of Docker. ([#107317](#), [@neolit123](#)) [SIG Cluster

Lifecycle]

- Kubectl logs will now warn and default to the first container in a pod. This new behavior brings it in line with kubectl exec. ([#105964](#), [@kidlj](#)) [SIG CLI]
- Kubelet: following dockershim related flags are also removed along with dockershim --experimental-dockershim-root-directory, --docker-endpoint, --image-pull-progress-deadline, --network-plugin, --cni-conf-dir, --cni-bin-dir, --cni-cache-dir, --network-plugin-mtu ([#106907](#), [@cylcinder](#)) [SIG Cloud Provider, Node and Testing]
- Kubernetes is now built with Golang 1.17.5 ([#106956](#), [@cpanato](#)) [SIG API Machinery, Cloud Provider, Instrumentation, Release and Testing]
- Kubernetes is now built with Golang 1.17.6 ([#107612](#), [@palnabarun](#)) [SIG Release and Testing]
- OpenStack Cinder CSI migration is now GA and switched on by default, Cinder CSI driver must be installed on clusters on OpenStack for Cinder volumes to work (has been since v1.21). ([#107462](#), [@dims](#)) [SIG Scheduling and Storage]
- Remove feature gate `ImmutableEphemeralVolumes`. ([#107152](#), [@mengjiao-liu](#)) [SIG Node and Storage]
- This adds a path `/header?key=` to `agnhost netexec` allowing one to view what the header value is of the incoming request.

Ex:

```
$ curl -H "X-Forwarded-For: something" 172.17.0.2:8080/header?key=X-Forwarded-For something
```

([#107796](#), [@alexanderConstantinescu](#)) [SIG Testing]

- Update golang.org/x/net to v0.0.0-20211209124913-491a49abca63 ([#106949](#), [@cpanato](#)) [SIG API Machinery, Auth, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Node and Storage]
- We have added a new Priority and Fairness metric `apiserver_flowcontrol_request_dispatch_no_accommodation_total` to track the number of times a request dispatch attempt results in a no-accommodation status due to lack of available seats ([#106629](#), [@tkashem](#)) [SIG API Machinery and Instrumentation]

Bug or Regression

- A new label `type` has been added to `apiserver_flowcontrol_request_execution_seconds` metric - it has the following values:
 - 'regular': indicates that it is a non long running request
 - 'watch': indicates that it is a watch request ([#105517](#), [@tkashem](#)) [SIG API Machinery and Instrumentation]
- Add a test to guarantee that conformance clusters require at least 2 untainted nodes ([#106313](#), [@aojea](#)) [SIG Architecture and Testing]
- Allow attached volumes to be mounted quicker by skipping exp. backoff when checking for reported-in-use volumes ([#106853](#), [@gnufied](#)) [SIG Apps, Node and Storage]
- An inefficient lock in EndpointSlice controller metrics cache has been reworked. Network programming latency may be significantly reduced in certain scenarios, especially in clusters with a large number of Services. ([#107091](#), [@roboscott](#)) [SIG Apps, Network and Scalability]

- Apiserver will now reject connection attempts to 0.0.0.0/: when handling a proxy subresource request ([#107402](#), [@anguslees](#)) [SIG Network]
- Apiserver, if configured to reconcile the kubernetes.default service endpoints, checks if the configured Service IP range matches the apiserver public address IP family, and fails to start if not. ([#106721](#), [@aojea](#)) [SIG API Machinery and Testing]
- Change node staging path for csi driver to use a PV agnostic path. Nodes must be drained before updating the kubelet with this change. ([#107065](#), [@saikat-royc](#)) [SIG Storage and Testing]
- Client-go: fix that paged list calls with ResourceVersionMatch set would fail once paging kicked in. ([#107311](#), [@fasaxc](#)) [SIG API Machinery]
- Fix Azurefile volumeid collision issue in csi migration ([#107575](#), [@andyzhangx](#)) [SIG Cloud Provider and Storage]
- Fix a panic when using invalid output format in kubectl create secret command ([#107221](#), [@rikatz](#)) [SIG CLI]
- Fix libct/cg/fs2: fix GetStats for unsupported hugetlb error on Raspbian Bullseye ([#106912](#), [@Letme](#)) [SIG Node]
- Fix performance regression in JSON logging caused by syncing stdout every time error was logged. ([#107035](#), [@serathius](#)) [SIG Instrumentation and Scalability]
- Fix: azuredisk parameter lowercase translation issue ([#107429](#), [@andyzhangx](#)) [SIG Cloud Provider and Storage]
- Fix: delete non existing Azure disk issue ([#107406](#), [@andyzhangx](#)) [SIG Cloud Provider]
- Fix: remove outdated ipv4 route when the corresponding node is deleted ([#106164](#), [@nilo19](#)) [SIG Cloud Provider]
- Fixed a bug that a pod's .status.nominatedNodeName is not cleared properly, and thus over-occupied system resources. ([#106816](#), [@Huang-Wei](#)) [SIG Scheduling and Testing]
- Fixed a bug that could cause a panic when a /healthz request times out. ([#107034](#), [@benluddy](#)) [SIG API Machinery]
- Fixed a bug where vSphere client connections where not being closed during testing. Leaked vSphere client sessions were causing resource exhaustion during automated testing. ([#107337](#), [@derek-pryor](#)) [SIG Storage and Testing]
- Fixed detaching CSI volumes from nodes when a CSI driver name has prefix "csi-". ([#107025](#), [@jsafrane](#)) [SIG Storage]
- Fixed duplicate port opening in kube-proxy when "--nodeport-addresses" is empty ([#107413](#), [@tnqn](#)) [SIG Network]
- Fixed kubectl bug where bash completions don't work if --context flag is specified with a value that contains a colon ([#107439](#), [@brianpursley](#)) [SIG CLI]
- Fixes a bug where unwanted fields were being returned from a create dry-run: uid and, if generateName was used, name. ([#107088](#), [@joejulian](#)) [SIG API Machinery and Testing]
- Fixes a rare race condition handling requests that timeout ([#107452](#), [@liggitt](#)) [SIG API Machinery]

- Fixes a regression in 1.23 that incorrectly pruned data from array items of a custom resource that set `x-kubernetes-preserve-unknown-fields: true` ([#107688](#), [@liggitt](#)) [SIG API Machinery]
- Fixes a regression in 1.23 where update requests to previously persisted `Service` objects that have not been modified since 1.19 can be rejected with an incorrect `spec.clusterIPs: Required value error` ([#107847](#), [@thockin](#)) [SIG API Machinery, Network and Testing]
- Fixes handling of objects with invalid selectors ([#107559](#), [@liggitt](#)) [SIG API Machinery, Apps, Scheduling and Storage]
- Fixes regression in CPUManager that it will release exclusive CPUs in app containers inherited from init containers when the init containers were removed. ([#104837](#), [@eggiter](#)) [SIG Node]
- Fixes static pod add and removes restarts in certain cases. ([#107695](#), [@rphillips](#)) [SIG Node]
- Improve handling of unmount failures when device may be in-use by another container/process ([#107789](#), [@gnufied](#)) [SIG Storage]
- Improve rounding of PodTopologySpread scores to offer better scoring when spreading a low number of pods. ([#107384](#), [@sanposhiho](#)) [SIG Scheduling]
- Kubeadm: during execution of the "check expiration" command, treat the etcd CA as external if there is a missing etcd CA key file (etcd/ca.key) and perform the proper validation on certificates signed by the etcd CA. Additionally, make sure that the CA for all entries in the output table is included - for both certificates on disk and in kubeconfig files. ([#106891](#), [@neolit123](#)) [SIG Cluster Lifecycle]
- No ([#107769](#), [@liurupeng](#)) [SIG Cloud Provider and Windows]
- NodeRestriction admission: nodes are now allowed to update PersistentVolumeClaim status fields `resizeStatus` and `allocatedResources` when the `RecoverVolumeExpansionFailure` feature is enabled ([#107686](#), [@gnufied](#)) [SIG Auth and Storage]
- Only extend token lifetimes when `--service-account-extend-token-expiration` is true and the requested token audiences are empty or exactly match all values for `--api-audiences` ([#105954](#), [@jyotimahapatra](#)) [SIG Auth and Testing]
- Removed validation if AppArmor profiles are loaded on the local node. This should be handled by the container runtime. ([#97966](#), [@saschagrunert](#)) [SIG Auth, Node and Security]
- Restore NumPDBViolations info of nodes, when HTTPExtender ProcessPreemption. This info will be used in subsequent filtering steps - `pickOneNodeForPreemption` ([#105853](#), [@caden2016](#)) [SIG Scheduling]
- Reverts graceful node shutdown to match 1.21 behavior of setting pods that have not yet successfully completed to "Failed" phase if the GracefulNodeShutdown feature is enabled in kubelet. The GracefulNodeShutdown feature is beta and must be explicitly configured via kubelet config to be enabled in 1.21+. This changes 1.22 and 1.23 behavior on node shutdown to match 1.21. If you do not want pods to be marked terminated on node shutdown in 1.22 and 1.23, disable the GracefulNodeShutdown feature. ([#106901](#), [@bobbypage](#)) [SIG Node and Testing]
- Some command line errors (for example, "kubectl list" -> "unknown command") were printed as log message with escaped line breaks instead of a multi-line plain text, which made the error harder to read. ([#107044](#), [@pohly](#)) [SIG CLI and Testing]
- Some log messages were logged with `"v": 0` in JSON output although they are debug messages with a higher verbosity. ([#106978](#), [@pohly](#)) [SIG API Machinery, Apps, Auth, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Node, Scheduling and Storage]

- The Service field `spec.internalTrafficPolicy` is no longer defaulted for Services when the type is `ExternalName`. The field is also dropped on read when the Service type is `ExternalName`. ([#104846](#), [@andrewsykim](#)) [SIG Apps and Network]
- The feature gate was mentioned as `csiMigrationRBD` where it should have been `CSIMigrationRBD` to be in parity with other migration plugins. This release correct the same and keep it as `CSIMigrationRBD`.
users who have configured this feature gate as `csiMigrationRBD` has to reconfigure the same to `CSIMigrationRBD` from this release. ([#107554](#), [@humblec](#)) [SIG Storage]
- When doing `make test-integration`, you can now usefully include `-args $prog_args` in `KUBE_TEST_ARGS`. ([#107516](#), [@MikeSpreitzer](#)) [SIG Testing]

Other (Cleanup or Flake)

- `--container-runtime kubelet` flag is deprecated and will be removed in future releases ([#107094](#), [@adisky](#)) [SIG Node]
- Add details about preemption in the event for scheduling failed ([#107775](#), [@denkensk](#)) [SIG Scheduling]
- `Build/dependencies.yaml`: remove the dependency on Docker. With the dockershim removal, core Kubernetes no longer has to track the latest validated version of Docker. ([#107607](#), [@neolit123](#)) [SIG Cluster Lifecycle and Node]
- Correct the error message to not use the `--max-resource-write-bytes` & `--json-patch-max-copy-bytes` string. ([#106875](#), [@warmchang](#)) [SIG API Machinery]
- E2e tests wait for `kube-root-ca.crt` to be populated in namespaces for use with projected service account tokens, reducing delays starting those test pods and errors in the logs. ([#107763](#), [@smarterclayton](#)) [SIG Testing]
- Fix documentation typo in `cloud-provider` ([#106445](#), [@majst01](#)) [SIG Cloud Provider]
- Fix spelling of `implemented` in `pkg/proxy/apis/config/types.go` line 206 ([#106453](#), [@davidleitw](#)) [SIG Network]
- Kubeadm: all warning messages are printed to `stderr` instead of `stdout`. ([#107467](#), [@SataQiu](#)) [SIG Cluster Lifecycle]
- Kubeadm: handle the removal of dockershim related flags for new kubeadm clusters. If kubelet `<1.24` is on the host, kubeadm `>=1.24` can continue using the built-in dockershim in the kubelet if the user passes the `{Init|Join}Configuration.nodeRegistration.criSocket` value in the kubeadm configuration to be equal to `"unix:///var/run/dockershim.sock"` on Unix or `"npipe://./pipe/dockershim"` on Windows. If kubelet version `>=1.24` is on the host, kubeadm `>=1.24` will treat all container runtimes as "remote" using the kubelet flags `--container-runtime=remote --container-runtime-endpoint=scheme://some/path`. The special management for kubelet `<1.24` will be removed in kubeadm 1.25. ([#106973](#), [@neolit123](#)) [SIG Cluster Lifecycle]
- Kubeadm: make sure that "kubeadm init/join" always use a URL scheme (`unix://` on Linux and `npipe://` on Windows) when passing a value to the `--container-runtime-endpoint` kubelet flag. This flag's value is taken from the kubeadm configuration `"criSocket"` field or the `--cri-socket` CLI flag. Automatically add a missing URL scheme to the user configuration in memory, but warn them that they should also update their configuration on disk manually. During "kubeadm upgrade apply/node" mutate the `"/var/lib/kubelet/kubeadm-flags.env"` file on disk and the `"kubeadm.alpha.kubernetes.io/cri-socket"` annotation Node object if needed. These automatic actions are temporary and will be removed in a future release. In the future the kubelet may not support CRI endpoints without an URL scheme. ([#107295](#), [@neolit123](#)) [SIG Cluster Lifecycle]
- Kubeadm: remove the `IPv6DualStack` feature gate. The feature has been GA and locked to enabled since 1.23. ([#106648](#), [@calvin0327](#)) [SIG Cluster Lifecycle and Testing]

- Kubeadm: remove the deprecated output/v1alpha1 API used for machine readable output by some kubeadm commands. In 1.23 kubeadm started using the newer version output/v1alpha2 for the same purpose. ([#107468](#), [@neolit123](#)) [SIG Cluster Lifecycle]
- Kubeadm: remove the restriction that the ca.crt can only contain one certificate. If there is more than one certificate in the ca.crt file, kubeadm will pick the first one by default. ([#107327](#), [@SataQiu](#)) [SIG Cluster Lifecycle]
- Kubectl: restores `--dry-run`, `--dry-run=true`, and `--dry-run=false` for compatibility with pre-1.23 invocations. ([#107003](#), [@julianvmodesto](#)) [SIG CLI and Testing]
- Kubernetes e2e framework will use the url "invalid.registry.k8s.io/invalid" instead "invalid.com/invalid" for test that use an invalid registry. ([#107455](#), [@aojea](#)) [SIG Testing]
- Mark kubelet `--container-runtime-endpoint` and `--image-service-endpoint` CLI flags as stable ([#106954](#), [@saschagrunert](#)) [SIG Node]
- Migrate volume/csi/csi-client.go logs to structured logging ([#99441](#), [@CKchen0726](#)) [SIG Storage]
- Please check your kubelet command line for enabling features and drop "RuntimeClass" if present. Note that this feature has been on by default since 1.14 and was GA'ed in 1.20. ([#106882](#), [@cyclinder](#)) [SIG Node]
- The fluentd-elasticsearch addon is no longer included in the cluster directory. It is available from <https://github.com/kubernetes-sigs/instrumentation-addons/tree/master/fluentd-elasticsearch> ([#107553](#), [@liggitt](#)) [SIG Cloud Provider and Instrumentation]
- This PR deprecates types in `k8s.io/apimachinery/util/clock`. Please use `k8s.io/utils/clock` instead. ([#106850](#), [@MadhavJivrajani](#)) [SIG API Machinery, Auth, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation and Storage]
- Updated cri-tools to [v1.23.0](#) ([#107604](#), [@saschagrunert](#)) [SIG Cloud Provider and Release]

Dependencies

Added

- github.com/aron/go-socks5: [e753329](#)

Changed

- github.com/cespare/xxhash/v2: [v2.1.1](#) → [v2.1.2](#)
- github.com/moby/term: [9d4ed18](#) → [3f7ff69](#)
- github.com/opencontainers/runc: [v1.0.2](#) → [v1.0.3](#)
- github.com/prometheus/client_golang: [v1.11.0](#) → [v1.12.0](#)
- github.com/prometheus/common: [v0.28.0](#) → [v0.32.1](#)
- github.com/prometheus/procfs: [v0.6.0](#) → [v0.7.3](#)
- github.com/yuin/goldmark: [v1.4.0](#) → [v1.4.1](#)
- golang.org/x/mod: v0.4.2 → v0.5.1
- golang.org/x/net: e898025 → 491a49a
- golang.org/x/sys: f4d4317 → da31bd3
- golang.org/x/tools: d4cc65f → v0.1.8
- k8s.io/gengo: 485abfe → c02415c
- k8s.io/klog/v2: v2.30.0 → v2.40.1
- k8s.io/utils: cb0fa31 → 7d6a63d
- sigs.k8s.io/apiserver-network-proxy/konnectivity-client: v0.0.25 → v0.0.27
- sigs.k8s.io/json: c049b76 → 9f7c6b3
- sigs.k8s.io/structured-merge-diff/v4: v4.1.2 → v4.2.1

Removed

Nothing has changed.

v1.24.0-alpha.1

Downloads for v1.24.0-alpha.1

Source Code

filename	sha512 hash
kubernetes.tar.gz	966bcdcaadb18787bab26852602a56dc973d785d7d9620c9ca870eba7133d93b2aaebf369ce5:
kubernetes-src.tar.gz	107fe6bfba5ff79b28ab28a3652b6a3d03fe5a667217e3e6e8aabe391b95ddc8109e62b72239d0:

Client Binaries

filename	sha512 hash
kubernetes-client-darwin-amd64.tar.gz	70cc548677446b9e523c00b76b928ab7af0685bae57b4e52eb9916fd929d540a05596505cd1e198l
kubernetes-client-darwin-arm64.tar.gz	fdfa4ee47ea5fa40782cf1c719a1ae2bb33a491209e53761f3368fa409f81d0dfeceafa10fa4659032a7
kubernetes-client-linux-386.tar.gz	e7dbad9054cd7b2e7b212cb6403d8727470564b967e95f53e8ff1648f6fe7f63cee22fb1622fb4b27f
kubernetes-client-linux-amd64.tar.gz	28e9c8e79dc87dc701c87195589a5a38da7563f0c05ad1c0d40a1f545ef51ec4f6973b02e970bf741f
kubernetes-client-linux-arm.tar.gz	57f3ad5670e3a52a6f988a6c0177f530ec9cf1841829b5ee439dad57243898ddd53b89988873b60b
kubernetes-client-linux-arm64.tar.gz	99272cdc6adddf2f15b18070e8a174591192c27d419d80ce6f03f584e283c7626dea8b494c1f3b6b3
kubernetes-client-linux-ppc64le.tar.gz	dc638a62b53f15038554aea9a652b3688c7f9843f61d183d7984f20195d1d4183baa923ce0c17ccd0
kubernetes-client-linux-s390x.tar.gz	e330d88076c4bd788a17da59281a23fe31076c8c5409df688091dd8688f4f94028db06f3f6dd777a
kubernetes-client-windows-386.tar.gz	0b594d163496eadc8f1643e4d383b0fc96f820c47ec649b0d843cba7b43eb0df050c4fb7b6a23e3f5

kubernetes-client-windows-amd64.tar.gz	6c6656618e461a0c398cfc4fd69b5b2aa959c8ef6a25ec23e62e5504e5bd5c72572d6a5dbe795a465
kubernetes-client-windows-arm64.tar.gz	8394dec41b013f3869b32ee17ad82e55201f77573a84037c21511f732c851f6297dfd7c145fc9b65e

Server Binaries

filename	sha512 hash
kubernetes-server-linux-amd64.tar.gz	b781f1aa2ebdb89c0c2b35cba35c5c00cf8e6f87c71cc5cd9ac5938081d6914fb325a4a902e060a1f
kubernetes-server-linux-arm.tar.gz	0b92d1a3020c8128ea6dc337ce2fffb5dc8bf2500a02467434e90ad3025a699fea4eaca837bc9eea25
kubernetes-server-linux-arm64.tar.gz	e0804c2fa12d6c356a2dd32c26df3ae2b389ac21f5ea426abe1d3f99e0460d4096ad0a42bdf96fd1d
kubernetes-server-linux-ppc64le.tar.gz	2a520b5ea04d00c3c6f54f4ddb75b6e6ffa3c472d4951e51674b103187c8f129e20a5b1c22b0b3ce6
kubernetes-server-linux-s390x.tar.gz	4993090e12df0cb1a3a9abea52e1f6bc5efefe7202d81ec36646b02799200c7128721bffb940d88d7

Node Binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	4e8e4cea3ee4f2dfe12ad5d2361ac43dd1d961aa1bf0e5f9cedbe18ef37eae76bed6f9643ef4d771a5
kubernetes-node-linux-arm.tar.gz	10823d27fe41b45ea61a75974657d1a178af0ff2535dc8fb4aaf18ae69ddac73375be124294428e72
kubernetes-node-linux-arm64.tar.gz	5e3ff263b9b236c78af8fec2372e42ffaa5518a95b086ebe7cd133d0553581ccdba52048297614913e
kubernetes-node-linux-ppc64le.tar.gz	2bccdf4c9ad002cc8314ff528ae8d91cc3e83123ab8666ae92ea15e024469a01ff0ae18558f521489e

kubernetes-node-linux-s390x.tar.gz	cf1f4dddbc37d77b41e5bc2cea7c4086d1a45dc018a9b8a2cd91764c70c4818c4deb2d5be451720c
kubernetes-node-windows-amd64.tar.gz	5f8ded94c3833e3748eab6e45192aa49ec50adf6eb7eca57f9342d96c8592d7a33860c794a5222762

Changelog since v1.23.0

Urgent Upgrade Notes

(No, really, you MUST read this before you upgrade)

- Docker runtime support using dockshim in the kubelet is now completely removed in 1.24. The kubelet used to have a module called "dockershim" which implements CRI support for Docker and it has seen maintenance issues in the Kubernetes community. From 1.24 onwards, please move to a container runtime that is a full-fledged implementation of CRI (v1alpha1 or v1 compliant) as they become available. ([#97252](#), [@dims](#)) [SIG Cloud Provider, Instrumentation, Network, Node and Testing]

Changes by Kind

Feature

- Kubernetes is now built with Golang 1.17.4 ([#106833](#), [@cpanato](#)) [SIG API Machinery, Cloud Provider, Instrumentation, Release and Testing]
- The `NamespaceDefaultLabelName` feature gate, GA since v1.22, is now removed. ([#106838](#), [@mengjiao-liu](#)) [SIG Apps and Node]

Bug or Regression

- Address a bug in rbd migration translation plugin ([#106878](#), [@humblec](#)) [SIG Storage]
- Fix bug in error messaging for basic-auth and ssh secret validations. ([#106179](#), [@vivek-koppuru](#)) [SIG Apps and Auth]
- Kubeadm: allow the "certs check-expiration" command to not require the existence of the cluster CA key (ca.key file) when checking the expiration of managed certificates in kubeconfig files. ([#106854](#), [@neolit123](#)) [SIG Cluster Lifecycle]
- Publishing kube-proxy metrics for Windows kernel-mode ([#106581](#), [@knabben](#)) [SIG Instrumentation, Network and Windows]
- The deprecated flag `--really-crash-for-testing` is removed. ([#101719](#), [@SergeyKanzhelev](#)) [SIG API Machinery, Network, Node and Testing]
- [Metrics Server] Bump image to v0.5.2 ([#106492](#), [@serathius](#)) [SIG Cloud Provider and Instrumentation]

Other (Cleanup or Flake)

- Added an example for the kubectl plugin list command. ([#106600](#), [@bergerhoffer](#)) [SIG CLI]
- Kubelet config validation error messages are updated ([#105360](#), [@shuheiktgw](#)) [SIG Node]

Dependencies

Added

Nothing has changed.

Changed

Nothing has changed.

Removed

- github.com/containernetworking/cni: [v0.8.1](#)