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v1.21.11

Downloads for v1.21.11

Source Code

filename	sha512 hash
kubernetes.tar.gz	654dbddda1bfc8cf9ef439561f2661f948191c6eb1b502f9756416a8f1a3dbe347d26bc2ba3edac
kubernetes-src.tar.gz	6f3e8b54eb06aea56fdee0b9dcd2404f4531b66d9ffde6ea977cebe6f61957276377b8f7c2e0d4c

Client Binaries

filename	sha512 hash
kubernetes-client-darwin-amd64.tar.gz	b4d3348384346e288762f2aa57c43b6502814bae1123716bb1d7ea8e3a89bf6d50bf041e906bb65f
kubernetes-client-darwin-arm64.tar.gz	2fad4ead5ab00bb1a71092a04c03307ea9445deb65f9d753ae892987141b074f42996e57b08f44d8
kubernetes-client-linux-386.tar.gz	b8114e1e877613ac6642a121ce6513e8af9b1a23f417c66f6ebfa0d91ff41a115dd28037e5aa466ce1
kubernetes-client-linux-amd64.tar.gz	84d128d1021167d3c58cc142115b0a6b31a50e3e78eb234648cdb6e26f42ab76143c0b5fd34f5476
kubernetes-client-linux-arm.tar.gz	4cd3ef06b8eb806f17eab383c8b97b943c8864e8103e9330732dfcc849cc76baaf0d5bd000be1155f
kubernetes-client-linux-arm64.tar.gz	62601d78baf10115246de1956bd0f24c30d412e910c942ebbd8a7157fd9eb3845c213b47075cb94c
kubernetes-client-linux-ppc64le.tar.gz	02c20f3ffc214f4f171c9ef05efe13015077deff142f452dc9dfe224483065b85776b5c2f0356d5e22e6
kubernetes-client-linux-s390x.tar.gz	a4a072246afdfeae41bad025a4d66acd5612dc7dba1fb97c1c8809e50e37772fb7545f31471f75f515
kubernetes-client-windows-386.tar.gz	8273d3b6a975f1bac3fccfd81f0cd9b755e2313555882c34810e33c651eeebfabcd9d693059999850
kubernetes-client-windows-amd64.tar.gz	2a3729e4eae348fa8e14aaf3f7eb92794309e5e2a994e176ee61edcbc36aea25f1276716cde4b3ba6

Server Binaries

filename	sha512 hash
kubernetes-server-linux-amd64.tar.gz	8d9a636a37af1f361c6350b7c3fbd7b1b723a5c396579ee29fe74751ab51ca5ed17a6d69d06d52b5
kubernetes-server-linux-arm.tar.gz	c7105dd353c0089303ccfebf9534418995f5418a080411b773e9616f042284e3b3d4b9718f5248eda
kubernetes-server-linux-arm64.tar.gz	258bdc66264a6a18007c4839ce3138904a26479dad9c7f99610416f439aa2ff0538d398fdeca323a3f
kubernetes-server-linux-ppc64le.tar.gz	71321a7fd9c5d02b7b00e92b4c818c9b7b95d722377e94f23c88cdde2e2bbfd362fc608bbe71494d
kubernetes-server-linux-s390x.tar.gz	af037fe2028c7176622154fe97b0fa6b46034c7ffa9237eb01d4dabc61a03b9c04d4b97079ea807bf2

Node Binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	9937dad3d9c8712f508c0df572faa58af1fd09e7e9c81ccd3c964e59ec95abe9c9617fe7899a41b6a2
kubernetes-node-linux-arm.tar.gz	a27c766eed26bc8280908232b8713811c7d84eeb428177462e370f45adad6ce89fd08caf2a781c6a2
kubernetes-node-linux-arm64.tar.gz	362b3bf24ea715521fe6835d7949fa386d4f3baab89d8ed38351fd522fbe29b1e3b79b07ff9f762168
kubernetes-node-linux-ppc64le.tar.gz	7964a70aa21835d8d56185d7a9c5e90253953c99fa21a6ad2b9cb057b96c95cab2cae517fa8e7c0d
kubernetes-node-linux-s390x.tar.gz	31d11883546c088de577413460ff13f8a14c69ef9278ef62586302158583ea050afa8c8c7bb54b4a51
kubernetes-node-windows-amd64.tar.gz	8fb7b9873dc24069a2975f7afe2f146f8ce0c684ccd181fcccefb35f04cbbb153b90bf7f258c409fc2be

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:v1.21.11	amd64 , arm , arm64 , ppc64le , s390x
k8s.gcr.io/kube-apiserver:v1.21.11	amd64 , arm , arm64 , ppc64le , s390x
k8s.gcr.io/kube-controller-manager:v1.21.11	amd64 , arm , arm64 , ppc64le , s390x
k8s.gcr.io/kube-proxy:v1.21.11	amd64 , arm , arm64 , ppc64le , s390x
k8s.gcr.io/kube-scheduler:v1.21.11	amd64 , arm , arm64 , ppc64le , s390x

Changelog since v1.21.10

Changes by Kind

API Change

- 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. ([#108142](#), [@liggitt](#)) [SIG Auth and Testing]

Feature

- Kubernetes is now built with Golang 1.16.15 ([#108565](#), [@cpanato](#)) [SIG Cloud Provider, Instrumentation, Release and Testing]

Bug or Regression

- Bump sigs.k8s.io/apiserver-network-proxy/konnectivity-client to v0.0.30, fixing goroutine leaks in kube-apiserver. ([#108440](#), [@andrewsykim](#)) [SIG API Machinery and Cloud Provider]
- Fixes a bug where a partial EndpointSlice update could cause node name information to be dropped from endpoints that were not updated. ([#108203](#), [@roboscott](#)) [SIG Network]
- Kubelet: Fixes memory usage within the kubelet's inotify subsystem. ([#108335](#), [@rphillips](#)) [SIG API Machinery, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Node and Storage]

Dependencies

Added

- go.uber.org/goleak: v1.1.10

Changed

- k8s.io/utils: da69540 → 6203023
- sigs.k8s.io/apiserver-network-proxy/konnectivity-client: v0.0.27 → v0.0.30

Removed

Nothing has changed.

v1.21.10

Downloads for v1.21.10

Source Code

filename	sha512 hash
kubernetes.tar.gz	3347bfe32a12f2bc19a43197929e4cd032d2def13e818b771fddb946a511c0889676078e3ad7c3
kubernetes-src.tar.gz	8c40b76190c1b2b8645e37010fb0d966751b9600f3c9ae2ac0d431e695284b0c1626795f5783c

Client Binaries

filename	sha512 hash
kubernetes-client-darwin-amd64.tar.gz	2604fabb39dee3fbe39da9ecd8169724b7ec67e4e67ca02a452d3f053e070223d0f0168e86309080
kubernetes-client-darwin-arm64.tar.gz	2a3ff3686a201247291ae1d32c1653ce3f8372f5ecd9a486bff7f2cfa52acd9af693db13341f75fa78b2
kubernetes-client-linux-386.tar.gz	97d3dc330fe89810b5abff539c05817d61f8aa71f691f460e1b07c827152b1cb031bbbfec656d7624
kubernetes-client-linux-amd64.tar.gz	6ffd76390fe0c1d1e550930d4abdfc73198e63baa2f6a4de0492c2254aee88204b820fc055bcb5857
kubernetes-client-linux-arm.tar.gz	0ef6696d1d2f6790c2ad9ea75ae574eff50ac9b32e1ba869bd7fa13fecff3dbdab237a9ce45efc380af
kubernetes-client-linux-arm64.tar.gz	7d49c30e86fd20ef28d1e43e333fc81869d844f5ae30a17a160833b5b4a6ffa65862ab470723d6d64
kubernetes-client-linux-ppc64le.tar.gz	d3b8552eeb796daa6d485d26e5b961852ff8f47f9ed8de98130649d6f022a37a2f8cab538b729218
kubernetes-client-linux-s390x.tar.gz	7f16fb933a649f7863e87d2a46f1f2d583c7205d9f81371938646eaa4e16fed8cf30d43a24752141af
kubernetes-client-windows-386.tar.gz	0294286299f0c0e3767c64cc502a72069e0c6345e385ea88fad7031acb65d0886e6a6526a8e6b210

kubernetes-client-windows-amd64.tar.gz	7d8cf06ac466f66e0fa465934f92aa0aa4a341840a6b64ed5769e055598de8eef768efdd371d66ccea
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Server Binaries

filename	sha512 hash
kubernetes-server-linux-amd64.tar.gz	a3b22da73e9f5b88cd9b589363492cd70c85e5fdef90ed61fe1b118a6e16d080b00bb8bbc888efd0
kubernetes-server-linux-arm.tar.gz	c0bb83fa395b6c86e5dad69a7ef5944bd1220896918ea04a1adf7203ed7c61ef52dc520952d7471e
kubernetes-server-linux-arm64.tar.gz	6572f557d7b0666a6527873fd0b6b996c0ed22031337d1fefacfa176555d999d5a31fcc4d48cf9d6c2
kubernetes-server-linux-ppc64le.tar.gz	5b2376e4eec6e22f987a0ab9b5a63602dc8dd987d87a8a71e2648e2033d484b09446ea65b291489
kubernetes-server-linux-s390x.tar.gz	c454702e6de40d0ae89bf5c28839a5ceb2e11084bcbe9a4e18e291843e6f1584e4ecc4e3443f9d177

Node Binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	2511056ad624a2779f7e17209e8b354aedb555febc2b1a71c5ebd06599644b98951114b1cb50573
kubernetes-node-linux-arm.tar.gz	8eed7587c401291bebdf2da2bf172c648abbdc950929257688fe7becf72222a250496a9e2aef1a63c
kubernetes-node-linux-arm64.tar.gz	ea7740c957de8c2bbad1b27629eab0b5d5fb65574125e0b1ae1913a5b3fda7e91f5e2d4aae70bf9f
kubernetes-node-linux-ppc64le.tar.gz	188a2193839ee2991919c7e34f5789be1f86176027c3866a189060d1600f821ad688f86053fff8d4b5
kubernetes-node-linux-s390x.tar.gz	7ccb6611f966366c9af02e24e19f0e5133792a4237c9462fe677ea2b5bfd9914f328cbd0c29dedc917
kubernetes-	d0de58045f6930652f0aca3d21e671e4163deb29e63fabec454fb0d3e72282feb40554baecf9739f4

[node-](#)
[windows-](#)
[amd64.tar.gz](#)

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:v1.21.10	amd64, arm, arm64, ppc64le, s390x
k8s.gcr.io/kube-apiserver:v1.21.10	amd64, arm, arm64, ppc64le, s390x
k8s.gcr.io/kube-controller-manager:v1.21.10	amd64, arm, arm64, ppc64le, s390x
k8s.gcr.io/kube-proxy:v1.21.10	amd64, arm, arm64, ppc64le, s390x
k8s.gcr.io/kube-scheduler:v1.21.10	amd64, arm, arm64, ppc64le, s390x

Changelog since v1.21.9

Changes by Kind

Feature

- Kubernetes is now built with Golang 1.16.13 ([#107615](#), [@palnabarun](#)) [SIG Cloud Provider, Instrumentation, Release and Testing]
- Kubernetes is now built with Golang 1.16.14 ([#108102](#), [@xmudrii](#)) [SIG Cloud Provider, Instrumentation, Release and Testing]

Bug or Regression

- An issue preventing the daemonset controller to retry on status updates that failed because of conflicts is now fixed. ([#107639](#), [@ialidzhikov](#)) [SIG Apps]
- Fix Azurefile volumeid collision issue in csi migration ([#107575](#), [@andyzhangx](#)) [SIG Cloud Provider and Storage]
- Fix: delete non existing Azure disk issue ([#107406](#), [@andyzhangx](#)) [SIG Cloud Provider]

Dependencies

Added

Nothing has changed.

Changed

Nothing has changed.

Removed

Nothing has changed.

v1.21.9

Downloads for v1.21.9

Source Code

filename	sha512 hash
kubernetes.tar.gz	525d981f5fa61abfd52df07e49a3bbe87a11e1e654d63e601124e35fb5b82d23390601562300ct
kubernetes-src.tar.gz	e9f506722ab67c594b46a082e69661812eb0b2562d66204d497067c128985bce91e11c0fcb67c

Client Binaries

filename	sha512 hash
kubernetes-client-darwin-amd64.tar.gz	5598923aa727cbc897c93e15ece19db73cd8f6644280a13d8f34ccba8f19a16b1e58406cb9f54b23f
kubernetes-client-darwin-arm64.tar.gz	4f37beba73fec432d647c4113af1612e4132fb75e8c87536116acbf1fd5c53b54013d29bea7c3207ce
kubernetes-client-linux-386.tar.gz	7520d505175857e390e84494c076223a64c448b3a62411a131ae40df375ea9df176b0ba48aa80fd4
kubernetes-client-linux-amd64.tar.gz	ebc42133afe7c54095ae72b2b4ccb98c2a450701671a584ee6659a78b091bf91f7f2d161b77824d8c
kubernetes-client-linux-arm.tar.gz	3573921054b9f620651a965fe3acb4c4dce621c657022f23e53e78fcce2a9e2f1ad006946795fc1967
kubernetes-client-linux-arm64.tar.gz	4e0b091dd44f175f603caf8ed3162707094c28c96b04b1d4dfc4f6b3f9ffac2f52d60a66651e91bf263
kubernetes-client-linux-ppc64le.tar.gz	ca627f1f47d04cd25490f967a9c7717cf0dd77ace759f6144c85cf081d7644b2367934ab1842f9a4f4c
kubernetes-client-linux-s390x.tar.gz	fe1ebe7660ede23cb1689401d71be77ff96ce3726a9fee382207e3c719d55db6d82696ab1890ee64.
kubernetes-client-windows-386.tar.gz	3d44ec09edaa4481c750537fffebe1dfd0cea84039383be1b38d842f5e6e5b7853d14d58dbd05c4d!

kubernetes-client-windows-amd64.tar.gz	34ec7389e0966d2579bd703ac56b5ffbf448f1c1bf48f674ee54ef1bd26dec732bee55c3e140005722
--	--

Server Binaries

filename	sha512 hash
kubernetes-server-linux-amd64.tar.gz	574eb1cfc5b36bf93df361395212149d8afcd6ccf8a410ab3080484744f37f264cf4a96723b155bc75c
kubernetes-server-linux-arm.tar.gz	325b7dd1d14ff08bb04e8db15e20fd8e42c67b38de80f4a056931673a4bd3d2542f575adddb5c79c
kubernetes-server-linux-arm64.tar.gz	af6f5d62c400113ec980cc135a249ae53c691a30258d28421e1e43c469ef0712c0ba36048a73c445c
kubernetes-server-linux-ppc64le.tar.gz	e53c8b74714e32955be63342785e7a0888de9c8a540d59031489f2d5003cd388ff27abb7e5a61a09
kubernetes-server-linux-s390x.tar.gz	aa2ca699498a196d6cb6a7773c2e49f628e64b8f54fd28f962a030cf25f025d55438fd092b694835d5

Node Binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	ecfbddd6d7e21cb1357001f9bae2adf678b382e2ef9229e573c7eaa267b556ffcce8c6928651e51f49
kubernetes-node-linux-arm.tar.gz	578dc334690254f00d346d443a668fbf9dfd8920ec2b4db3aeea221aa5ad21759a1862a05095c463
kubernetes-node-linux-arm64.tar.gz	ac089d151baa9c3b6dca5825f569a071e8f6be61eca9f0cd17eedf8a0f47455fb4f12f9f662e3bb2965
kubernetes-node-linux-ppc64le.tar.gz	1642ecce783b0565e516330bdeda454ae1c617873a5d652b5b783b03c94a760a37e9a9c83ca63af9
kubernetes-node-linux-s390x.tar.gz	d50dbfc328e75ed3a253fb2bed141ed84428e9e62a0482a4407c621d0e74c647e9887a847e0577b5
kubernetes-	29b8fc0a4e9eace791df958ff36166c5913a1fafa2113f86605b73a7926abe0dfcd686e7e7d88302c4c

[node-
windows-
amd64.tar.gz](#)

Changelog since v1.21.8

Changes by Kind

Feature

- Kube-apiserver: when merging lists, Server Side Apply now prefers the order of the submitted request instead of the existing persisted object ([#107569](#), [@jiahuiif](#)) [SIG API Machinery, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Storage and Testing]

Bug or Regression

- 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. ([#107169](#), [@roboscott](#)) [SIG Apps and Network]
- Client-go: fix that paged list calls with ResourceVersionMatch set would fail once paging kicked in. ([#107336](#), [@fasaxc](#)) [SIG API Machinery]
- Fix a panic when using invalid output format in kubectl create secret command ([#107345](#), [@rikatz](#)) [SIG CLI]
- Fixes a rare race condition handling requests that timeout ([#107460](#), [@liggitt](#)) [SIG API Machinery]
- Mount-utils: Detect potential stale file handle ([#107040](#), [@andyzhangx](#)) [SIG Storage]

Other (Cleanup or Flake)

- Updates konnectivity-network-proxy to v0.0.27. This includes a memory leak fix for the network proxy ([#107188](#), [@rata](#)) [SIG API Machinery and Cloud Provider]

Dependencies

Added

Nothing has changed.

Changed

- github.com/google/cadvisor: [v0.39.0](#) → [v0.39.3](#)
- sigs.k8s.io/apiserver-network-proxy/konnectivity-client: v0.0.22 → v0.0.27
- sigs.k8s.io/structured-merge-diff/v4: v4.1.2 → v4.2.1

Removed

Nothing has changed.

v1.21.8

Downloads for v1.21.8

Source Code

filename	sha512 hash

kubernetes.tar.gz	84e6742f2341a7288b23dae90111a377621babf1bdd9e167a57c31b577b95594fd451e9acf216f
kubernetes-src.tar.gz	93561a6fcca2bfd6491643c33f10068d4cabb2ae6304b24955202d1d97af04dc9255f2491aa74d

Client Binaries

filename	sha512 hash
kubernetes-client-darwin-amd64.tar.gz	55f84b9951126f1d720b8f6ab7a91af0718ac606c96045fd947156e51d8c63a81ca3338cb00b22702
kubernetes-client-darwin-arm64.tar.gz	bd58541ebd2112b4180d2b70bdd4beca590908f626ab1e1d2a4ac39c4a1091de88f7e0d292ac841
kubernetes-client-linux-386.tar.gz	74daacebbfd85e7b429672386adf4a9504d3e447d13667c15ffe625fc0c3c9d5d70c65aa6030631d3
kubernetes-client-linux-amd64.tar.gz	36ee8e17cd088d02eeadf8279aed5d1e64316c2cd7cbb81857a83035f8e61cec2ac34b1243863cf9e
kubernetes-client-linux-arm.tar.gz	0f9db9b2b4b46da8bfc7ffd3c93dfc59a9a8400553ecf470cbb6d5d3fbb928ff513de2d7566151a8d4
kubernetes-client-linux-arm64.tar.gz	275e4f1185949ee39aba61690434571ab219b07b277ad3639e09ec4bd2ebb1cd78f255e9ffe93637
kubernetes-client-linux-ppc64le.tar.gz	8a8cadb86b1d6a3aba33f596f58dd15fa91ecc7414b005c018ab0fe40159caa07455dd8ff6294bd77
kubernetes-client-linux-s390x.tar.gz	112e1d63bd92553f45dee1d3ff5748cb9b20ad92117b231efaa1336ff5a1f5fa53c9d6d455c1dd88c3
kubernetes-client-windows-386.tar.gz	808f139f0e542e95f3537ce663a3bd781f3769efdd33210030a72d70e507c5e32428ce54fef5891814
kubernetes-client-windows-amd64.tar.gz	96ee2b00b0996f7cefcd8fffa68263302a6d6ee15a6ce99d92b06d912249a43eb3f952d051c8f237ff

Server Binaries

filename	sha512 hash

kubernetes-server-linux-amd64.tar.gz	d059b68bb9fedd24af0b70debc8074ad61c223f787fd0d6867c3e3ee19d907f0cb51dd41dbb5c82d
kubernetes-server-linux-arm.tar.gz	8cb9cc950c4accf39929da5f885dade95ab0b741c8d93fe61986bdd36e43c508073d6d5bac3b8bf27
kubernetes-server-linux-arm64.tar.gz	34e1ec0dee4878eb4b0c37b0452257d9426a66558fd133ce838953eae1cf34edc21c994216d153d3
kubernetes-server-linux-ppc64le.tar.gz	9262613f51ebb57db5c87d2e62960a37dea91f33bd5257796f2d001d0d96c1bf40f2679d9ece88f74
kubernetes-server-linux-s390x.tar.gz	bd54d2af171e89b732a78494adc5f5d1e776a716eeb0ac8b910fcd780426980adb23655ee84ca49a

Node Binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	2f85dc09e62febd5803e1d564339c4905d647bc8ac972f66dccc1aca4b5cab4ff592e8bd342adcb88f
kubernetes-node-linux-arm.tar.gz	d972321851c3d9ec10650d2df7728de98528304fc6ee2980de45e2d99a165f4cd468cacbf4e92469t
kubernetes-node-linux-arm64.tar.gz	6a9d574c10dd2ffe729d28dcf147aa8e6dfaa0127be130e5b7cada4ec3e8fb241012676511c55ae4a
kubernetes-node-linux-ppc64le.tar.gz	1bbe450cdc3df9732e9a95eb2dedf4e218db700f20c9e861eab0db944631b4fc8cbcf71c188eedfb4
kubernetes-node-linux-s390x.tar.gz	05b23eedbb06650f2aba4d6ef0d575a7ee3dfdb4b2c0c8d5b0e29e2d0e15ee7d620190a05f2dc2fd
kubernetes-node-windows-amd64.tar.gz	df924885dc3d2ad706c0a2f793e4e9d6104ea1f892195f972128786c35019ff2e5052448ee1bcd925f

Changelog since v1.21.7

Changes by Kind

Feature

- Kubernetes is now built with Golang 1.16.11 ([#106839](#), [@cpanato](#)) [SIG Cloud Provider, Instrumentation, Release and Testing]
- Kubernetes is now built with Golang 1.16.12 ([#106983](#), [@cpanato](#)) [SIG Cloud Provider, Instrumentation, Release and Testing]
- Update golang.org/x/net to v0.0.0-20211209124913-491a49abca63 ([#106961](#), [@cpanato](#)) [SIG API Machinery, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Node and Storage]

Bug or Regression

- Fix: skip instance not found when decoupling vmss from lb ([#105835](#), [@nilo19](#)) [SIG Cloud Provider]
- Fixed SELinux relabeling of CSI volumes after CSI driver failure. ([#106553](#), [@jsafrane](#)) [SIG Node and Storage]
- 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. ([#106929](#), [@neolit123](#)) [SIG Cluster Lifecycle]
- 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. ([#106924](#), [@neolit123](#)) [SIG Cluster Lifecycle]
- The scheduler's assumed pods have 2min instead of 30s to receive nodeName pod updates ([#106632](#), [@ahg-g](#)) [SIG Scheduling]

Dependencies

Added

Nothing has changed.

Changed

- golang.org/x/net: 3d97a24 → 491a49a

Removed

Nothing has changed.

v1.21.7

Downloads for v1.21.7

Source Code

filename	sha512 hash
kubernetes.tar.gz	272b73d76a8d90cea95940bf5b67eb04b9b5d118734398072955b556a9c05f72b5a200b1d546
kubernetes-src.tar.gz	ca3de4042795d663c1a68a2a782842904b7f95eb91b9e4c87db0c161fb510b4dcdb7b1d8209

Client Binaries

filename	sha512 hash
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kubernetes-client-darwin-amd64.tar.gz	4bc06c7b023d7a1f5b592c97b46c979e89e168d188d1bcf8999256a38dee63122a4bfd5756fc881e
kubernetes-client-darwin-arm64.tar.gz	73a0e841f631cae0f7a84c3460187e7c8718f77d82e13af57204ba83cc40e1421ae423a30c4565234c
kubernetes-client-linux-386.tar.gz	dca88b5c60a7e512195c29157a25b3b3702d50c24b3b90f719b1f887bd1c4284dcedc8f9358e5828
kubernetes-client-linux-amd64.tar.gz	aafab261dae85c3a4a3e4affbf8e24d62a80c34c6fdbba312cf741588825cf50a85821a8afb98430db8
kubernetes-client-linux-arm.tar.gz	08441420659c960c1661fd2c4d4b68dd2bc4b51e63e14d08e28aa79d1835f302a9472ab6cf6c4dd6
kubernetes-client-linux-arm64.tar.gz	4f90190543a02e65bae7f21ed4ea9af870471703bbf47a5cb89e589784f467b11aa2212347656aa9c
kubernetes-client-linux-ppc64le.tar.gz	7e8d37ac1f5b17bb18396e5d1ed60533b8634608a5c33aaa9a477544dba7b78b6f3aaab850853a0
kubernetes-client-linux-s390x.tar.gz	9843d0f53f9113a70701b407dc857d15103e7161abbe56c6267935c33eb2851a79537e1b51e9defc
kubernetes-client-windows-386.tar.gz	c5785c684e604fa67250cf778bbae5ff33aa114358ac450c2cbd6ce333dc1e11213682e3f1de7dc68f
kubernetes-client-windows-amd64.tar.gz	fb65022c279fcd5e6dc6618670126aa9ed08d641c152b62c603bd7b40840a47a1ccdf8811df08ef3

Server Binaries

filename	sha512 hash
kubernetes-server-linux-amd64.tar.gz	720cbc936a81f117c479456b939a8e2920e235a70c0111cb35e77acd71d9cc0da4d8fc7668ef64581
kubernetes-server-linux-arm.tar.gz	47481f83ac7fb801a5df8a6ed92fc91af3a001250749b5523450332d8335afd27119599e96aee3798

kubernetes-server-linux-arm64.tar.gz	3ddbdf5e4c8274dd3a8e717454feb4c6440d10772ebadde64f37de90debf95dede8a5b005a79f881
kubernetes-server-linux-ppc64le.tar.gz	440bd7b2972623d1347f494e6b17b8a55a26056f5f259bc31c4ec936654c9e8583a7d8eff4b8f9e45
kubernetes-server-linux-s390x.tar.gz	b749113d963f2b3f56025fa8d832f552be5b6ff814fe5888c91d934e5cfadbd2ce0e6b3b8042257c2c

Node Binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	e6a7f2507f6a4b2f36523573deac0ad3d7922638ca7a0b8c0f8fda32cd512cf342a66ab041d43e7c85
kubernetes-node-linux-arm.tar.gz	74512bc870bd4b678cce0951f6b62143a5863b429178c1a34f4c83126c7560632a39ad43c77cdf8f4
kubernetes-node-linux-arm64.tar.gz	5d983437f08cdb402aa5204ad005df9e8e3bbac0853477d6f4d61887e5cfdcadb3de5fd91b13a8d
kubernetes-node-linux-ppc64le.tar.gz	63b2c9aaf54e053630690be69a33a5914445bddb2609843e4f8d3c89006bea234e77e4d0ece8e50c
kubernetes-node-linux-s390x.tar.gz	3beef616efce3bdda0dee08df850762d9f2945f08b6b377519058daaf56856325b54d892c9233dab5
kubernetes-node-windows-amd64.tar.gz	989bae0ba9ce584c2906392d0629446b1cc662878339115e6136c69210d053092ca7e3114ba9769

Changelog since v1.21.6

Changes by Kind

Feature

- Kubernetes is now built with Golang 1.16.10 (#106224, @cpanato) [SIG Cloud Provider, Instrumentation, Release and Testing]
- Update debian-base, debian-iptables, setcap images to pick up CVE fixes
 - Debian-base to v1.9.0
 - Debian-iptables to v1.6.7
 - setcap to v2.0.4 (#106147, @cpanato) [SIG Release and Testing]

Failing Test

- Fixes hostpath storage e2e tests within SELinux enabled env (#105787, @Elbehery) [SIG Testing]

Bug or Regression

- EndpointSlice Mirroring controller now cleans up managed EndpointSlices when a Service selector is added (#106135, @roboscott) [SIG Apps, Network and Testing]
- Fix a bug that `--disabled-metrics` doesn't function well. (#106391, @Huang-Wei) [SIG API Machinery, Cluster Lifecycle and Instrumentation]
- Fix a panic in kubectl when creating secrets with an improper output type (#106354, @lauchokyip) [SIG CLI]
- Fix concurrent map access causing panics when logging timed-out API calls. (#106113, @marseel) [SIG API Machinery]
- Fixed very rare volume corruption when a pod is deleted while kubelet is offline. Retry FibreChannel devices cleanup after error to ensure FC device is detached before it can be used on another node. (#102656, @jsafrane) [SIG API Machinery, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation and Storage]
- Support more than 100 disk mounts on Windows (#105673, @andyzhangx) [SIG Storage and Windows]

Dependencies

Added

Nothing has changed.

Changed

- k8s.io/kube-openapi: 591a79e → 3cc51fd
- k8s.io/utils: 67b214c → da69540

Removed

Nothing has changed.

v1.21.6

Downloads for v1.21.6

Source Code

filename	sha512 hash
kubernetes.tar.gz	1a88a2f9d2ab9a5d7abe16d788c0d690a217b08313e94c923911bee71c9d0520ec2c9f09bc79d
kubernetes-src.tar.gz	3816ddf61d578052c53eba635ad2f4f1e160ca267bd13cdf6d4a6db551a65c2ef62ec1542679db

Client Binaries

filename	sha512 hash
kubernetes-client-darwin-amd64.tar.gz	5eaf7ca84cf1fa0bb41581bf99bdaa08de51e56d5345cc03c45eb5082952cf0ac9d2c3cf34c9fbd779f

kubernetes-client-darwin-arm64.tar.gz	21bf5b81d36f97a4ee4f83f52899588738c542dfbaef21656468156e0a4e247e02c970a794089be5b
kubernetes-client-linux-386.tar.gz	302e80b5e868c867245c4cbd110670dab5db4847f96de6199c4005d3d28f6a0945a73fddfebdea05
kubernetes-client-linux-amd64.tar.gz	79efb1b99acecbdc605b2cd6cc5c563ed80bf0e433b444908778fbcefeae34334d254a2e4c7822bdt
kubernetes-client-linux-arm.tar.gz	4edb5f26636d5d6e9bb463bfbc794e16a1ca1e641ad02e024f23c46381d5dad361edbfa6ff35abe7
kubernetes-client-linux-arm64.tar.gz	95857d18fb3e4f02408cdd99eade98a8275e8d5663104c235a4bee0a5dd256c8bfc57261c59d80a8
kubernetes-client-linux-ppc64le.tar.gz	51df9a87c5bf1d746afcf13333367d9aec18d10db49ada29b8eed8e25be9714bc16fb46bc9bfc5b2a
kubernetes-client-linux-s390x.tar.gz	2f4701611b3b83326f93b510e5a0387a547984abab9f5534675278ebee5fc97832b314bd0a061ae2
kubernetes-client-windows-386.tar.gz	ad8dc908960f61e3f0aed29d5e5a95fccc06fc9859f8dc47086d4341c044d04259334f484af2c42221
kubernetes-client-windows-amd64.tar.gz	afa5a32c131378dac1892a93169f6dd861111c90743c923a979731ff88898898752afe1c696eb26aa5

Server Binaries

filename	sha512 hash
kubernetes-server-linux-amd64.tar.gz	03a0243fbe69a1f11f72fd7d670862a219074dea872dcac7b9d580051ac5d005015a1bfcab239c8ca
kubernetes-server-linux-arm.tar.gz	99c7563d85df914516c8f8f2d4d0118583103e1e32f31a37690d7eb24057382dd9dcf682d34f4d182
kubernetes-server-linux-arm64.tar.gz	7625075f3708dc0d453b0e7f63a9526cb68412ff20e75cc0f9e7f08712b3bc9a0c6f5fbcad84f941f5b
kubernetes-	e8428545883e5a5c5b66c50125854417f9a9f536d4b18a0b56e829ba5412839cc3cad70807d3f684.

server-linux-ppc64le.tar.gz	
kubernetes-server-linux-s390x.tar.gz	9c0ab0b5fe01817c6485a54f660a5b4bd452b50c412c7ecc209db1758e7b7f9e3b62f7a14d409ab4

Node Binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	1e9d5b2be8874b1f87e8d551c1020d321988652ad0fcde59836adc6d4eb18c99c44aa0fb5923eea3
kubernetes-node-linux-arm.tar.gz	3586d44bc96ff850ddf9e57be5bd3ae501de9aefe2a52aff9714366e70ef2c3c9516e1ae15e1a01ff66
kubernetes-node-linux-arm64.tar.gz	b722f001aeb89dffe52c4503a20b635e56a93dedc0434f91351d028ab31432e0de494798b3fd83434
kubernetes-node-linux-ppc64le.tar.gz	e510932f0c1f77042df1215cde46e11e17c51c7ed16986dcb078442420c7c845e39695c6f5fb73c031
kubernetes-node-linux-s390x.tar.gz	df6dde4f9a9a23eed9bc69e88d88edd840d8260d5f9368836ba3138943591b55fab399251695c10c
kubernetes-node-windows-amd64.tar.gz	998a1aeeb5bd119d3df5b85e867cac2e4d3ad4ffeb6de558834e87b9f67bec4380878a573769b49a

Changelog since v1.21.5

Changes by Kind

API Change

- Kube-apiserver: Fixes handling of CRD schemas containing literal null values in enums (#104989, @liggitt) [SIG API Machinery, Apps and Network]

Feature

- Kubernetes is now built with Golang 1.16.9 (#105672, @cpanato) [SIG Cloud Provider, Instrumentation, Release and Testing]

Failing Test

- Backport: e2e.test now uses the secure port to retrieve metrics data to ensure compatibility with 1.21 and 1.22 (for upgrade tests) (#104328, @pohly) [SIG API Machinery, Instrumentation, Storage and Testing]

Bug or Regression

- Aggregate errors when putting vmss fix: consolidate logs for instance not found error (#105365, @nilo19) [SIG Cloud Provider]
- Allow CSI drivers to just run offline expansion tests (#102740, @gnufied) [SIG Storage and Testing]
- Bump klog to v2.9.0, fixing log lines that render as byte arrays (#105407, @ehashman) [SIG Architecture, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation and Storage]
- Fix overriding logs files on reboot. (#105614, @rphillips) [SIG Node]
- Fix winkernel kube-proxy to only use dual stack when host and networking supports it (#101047, @jsturtevant) [SIG Network and Windows]
- Fix: ignore not a VMSS error for VMAS nodes in EnsureBackendPoolDeleted. (#105402, @ialidzhikov) [SIG Cloud Provider]
- Fix: ignore the case when updating Azure tags (#104686, @nilo19) [SIG Cloud Provider]
- Revert PR #102925 which introduced unexpected scheduling behavior based on balanced resource allocation (#105238, @damemi) [SIG Scheduling]
- Updates golang.org/x/text to v0.3.6 to fix CVE-2020-28852 (#102601, @jonesbr17) [SIG API Machinery, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Node and Storage]

Dependencies

Added

Nothing has changed.

Changed

- golang.org/x/text: v0.3.4 → v0.3.6
- k8s.io/klog/v2: v2.8.0 → v2.9.0

Removed

Nothing has changed.

v1.21.5

Downloads for v1.21.5

Source Code

filename	sha512 hash
kubernetes.tar.gz	e0f22fb6db131eb1bb0bbd26a3bb230a42dc9c36e867d3511789a8312bed8381137ea8c72cb0
kubernetes-src.tar.gz	793dcdce411d456879dd6602a420d5d42980adef3eff93e6b7c356948e028f86f7a74b69ec25fe

Client Binaries

filename	sha512 hash
kubernetes-client-darwin-amd64.tar.gz	4d14904d69e9f50f6c44256b4942d6623e2233e45601fb17b2b58a7f6601adacd27add292f64dbe8

kubernetes-client-darwin-arm64.tar.gz	c7ea9ddf73d5be842d96e904abf0b4bb3057199957c1e5f8daae3955904c58d209dc52168623cbb1
kubernetes-client-linux-386.tar.gz	6bffb84698f72e9606449dbb95b04e0aec8f0e91eb4fb22f26354e932bf9909e23cda1da780d9b1a2
kubernetes-client-linux-amd64.tar.gz	0bd3f5a4141bf3aaf8045a9ec302561bb70f6b9a7d988bc617370620d0dbadef947e1c8855cda0347
kubernetes-client-linux-arm.tar.gz	c91b99bf58d1e4d881a61051436afc1b2f6286c26bf2be6e9041c4f1f1239f67c315e4167f4e3c7ecb7
kubernetes-client-linux-arm64.tar.gz	ce9ce6e9798f1ca0ecafc7217f30c721540b6882e89d5f48aaa0498a02f22cdead07514168f778d64b
kubernetes-client-linux-ppc64le.tar.gz	1b2604fca222592db9c6344cf848cc5740db18e170ca30ac3cb30f771dbaf0fe10ff9e3c114cc6e7ff5
kubernetes-client-linux-s390x.tar.gz	63f8706e097e5c61b6a27d01066b453fe253ad35e18aff280fda17b0c9a2fa64d4c9db8167040b65c
kubernetes-client-windows-386.tar.gz	38b39b8fa66e74492c7c819c206a2add852b8db19bf3fac9076b5f9dd821ccf1b653bf80dcbb23cd6
kubernetes-client-windows-amd64.tar.gz	21ace8644bad6890c256aedba7553f49df16142db8e1d28ac525eabc877e717406781792ffbeed89

Server Binaries

filename	sha512 hash
kubernetes-server-linux-amd64.tar.gz	4800486117fc95f5d73a58dd0709acacf1d80ffba70a765fdbba3d79cc6438d23332478696783979b
kubernetes-server-linux-arm.tar.gz	c577b97d1e6adbe24c65891714306cd6d053bbfde0ea5e9a5e886e3a0bcb677c86c67dae098baa2
kubernetes-server-linux-arm64.tar.gz	91f237f7ca4211261c3c9968e56635fbd9105c8e0d5cde03e36b547de459ab172e7e57e9bf143cfb0
kubernetes-	f6ac5cbbb084ce9d22dabd54166260c53cb6287938a2196bd45e5315e28ff8ed56c4978510216e90

server-linux-ppc64le.tar.gz	
kubernetes-server-linux-s390x.tar.gz	44afad116c8f6774a755f138e10805b6cb73c0adf9a7933b2f2b03c218d002d8669506e545277a792

Node Binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	41bd25451f71dd714ff186db409c7dd0ec1a5f95178d14fe47c0a12f20c024dc12fd14d4766cab825f
kubernetes-node-linux-arm.tar.gz	460b4bd98eab684b7315c0f5df647cd83c817703a77f31de7e67658221e404fd41139528d6980c43
kubernetes-node-linux-arm64.tar.gz	0937053bbe03752ce2782c03c4d206c1e96796d765c70dd2e048961e2e7c405b562240b409af2b1f
kubernetes-node-linux-ppc64le.tar.gz	4e102436ecd5ed8cff460c004169f266308ab4d003a3eb872fe923718dca37373915f24f257fbc38d6
kubernetes-node-linux-s390x.tar.gz	30266d0f899b404f188b067c890fcc0aa6a0cbaa6cabf251472ea91b70ab7cb273bc39b461c66b87b
kubernetes-node-windows-amd64.tar.gz	75e478e1fbbb34d6992470769f4e61a3a73546b1481897aedeb2d1db0c71aa344284ef57f25a81bc

Changelog since v1.21.4

Important Security Information

This release contains changes that address the following vulnerabilities:

CVE-2021-25741: Symlink Exchange Can Allow Host Filesystem Access

A security issue was discovered in Kubernetes where a user may be able to create a container with subpath volume mounts to access files & directories outside of the volume, including on the host filesystem.

Affected Versions:

- kubelet v1.22.0 - v1.22.1
- kubelet v1.21.0 - v1.21.4
- kubelet v1.20.0 - v1.20.10
- kubelet <= v1.19.14

Fixed Versions:

- kubelet v1.22.2
- kubelet v1.21.5
- kubelet v1.20.11
- kubelet v1.19.15

This vulnerability was reported by Fabricio Voznika and Mark Wolters of Google.

CVSS Rating: High (8.8) [CVSS:3.0/AV:N/AC:L/PR:L/UI:N/S:U/C:H/I:H/A:H](#)

Changes by Kind

Feature

- Kubernetes is now built with Golang 1.16.8 ([#104906](#), [@cpanato](#)) [SIG Cloud Provider, Instrumentation, Release and Testing]

Bug or Regression

- Fix NodeAuthenticator tests in dualstack ([#104840](#), [@ardaguclu](#)) [SIG Auth and Testing]
- Fix: skip case sensitivity when checking Azure NSG rules fix: ensure InstanceShutdownByProviderID return false for creating Azure VMs ([#104447](#), [@feiskyer](#)) [SIG Cloud Provider]
- Fixed occasional pod cgroup freeze when using cgroup v1 and systemd driver. Fixed "failed to create container ... unit already exists" when using cgroup v1 and systemd driver. ([#104530](#), [@kolyshkin](#)) [SIG CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Node, Storage and Testing]
- Kube-proxy: delete stale conntrack UDP entries for loadbalancer ingress IP. ([#104151](#), [@aojea](#)) [SIG Network]
- Metrics changes: Fix exposed buckets of `scheduler_volume_scheduling_duration_seconds_bucket` metric ([#100720](#), [@dntosas](#)) [SIG Apps, Instrumentation, Scheduling and Storage]
- Pass additional flags to subpath mount to avoid flakes in certain conditions ([#104347](#), [@mauriciopoppe](#)) [SIG Storage]
- When using `kubectl replace` (or the equivalent API call) on a Service, the caller no longer needs to do a read-modify-write cycle to fetch the allocated values for `.spec.clusterIP` and `.spec.ports[].nodePort`. Instead the API server will automatically carry these forward from the original object when the new object does not specify them. ([#104673](#), [@thockin](#)) [SIG Network]

Other (Cleanup or Flake)

- Kube-apiserver: sets an upper-bound on the lifetime of idle keep-alive connections and time to read the headers of incoming requests ([#103958](#), [@liggitt](#)) [SIG API Machinery and Node]

Dependencies

Added

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

Changed

- github.com/cilium/ebpf: [v0.5.0](#) → [v0.6.2](#)
- github.com/coreos/go-systemd/v22: [v22.3.1](#) → [v22.3.2](#)
- github.com/golang/protobuf: [v1.4.3](#) → [v1.5.0](#)
- github.com/google/go-cmp: [v0.5.4](#) → [v0.5.5](#)

- github.com/opencontainers/runc: [v1.0.0-rc95](#) → [v1.0.2](#)
- github.com/opencontainers/selinux: [v1.8.0](#) → [v1.8.2](#)
- github.com/sirupsen/logrus: [v1.7.0](#) → [v1.8.1](#)
- google.golang.org/protobuf: v1.25.0 → v1.26.0

Removed

- github.com/willf/bitset: [v1.1.11](#)

v1.21.4

Downloads for v1.21.4

Source Code

filename	sha512 hash
kubernetes.tar.gz	e0651f30e883194bcfa59cf57dbb40f853f9e84e79472f35db75e37af09f63de1ed960694376e62
kubernetes-src.tar.gz	fe3b571b654b7db3bdd2b6b4d231b4fdb82cba643bce91108bacf7a0dc80ca9fa3236a2693862

Client Binaries

filename	sha512 hash
kubernetes-client-darwin-amd64.tar.gz	dff004b8ee195143949854553373fe23fae0abe234a416a364ddbf37bc18c1ab895cc9089b3c9625b
kubernetes-client-darwin-arm64.tar.gz	b452e5240c5bed55970f4e3023dcf45ba4a29f9ce93364ad23a5c00b68eb887e502aef569b3af4ee2
kubernetes-client-linux-386.tar.gz	3ea3f2d158f213f665784bb1d946f85dfe6dc1b484f662ad16c57114a270ecfec664a94087e4df0e20
kubernetes-client-linux-amd64.tar.gz	ae95dc475d442f06dec8a6c071f3e1be4222dd50610f32297f5e7e0a05cd853723885ba0a25e46835
kubernetes-client-linux-arm.tar.gz	3aefede77e7f8c76f89d51dac0f2c858c31f1e3ec6d874847019230c9db3dacd2637b66b74e1c36cac
kubernetes-client-linux-arm64.tar.gz	ad8d2289c2def736fe3ade8f58288db4a6d435df6886e89f0fca70286c6d15432d1dd4c75eb865929
kubernetes-client-linux-ppc64le.tar.gz	e8ba8239a80aefe058a475009ba94cab428311a21f7d83c752b91520fe0fb464c4cd135dd0ff554129

kubernetes-client-linux-s390x.tar.gz	c0793027f484b3a69db8f38f15a87cf6a5bf71c2416afc528c264dc27ae15f8923b9ea96a508e752ae
kubernetes-client-windows-386.tar.gz	e8c12e960f7c3dc990d7a12838ec27f83bd4b56fe04753e166aa21d62fe2f1ba7d206a0a290d0430b
kubernetes-client-windows-amd64.tar.gz	6155124609e3a88ad10991167c1b6727cf2785c05c261f62e895df4e7383c004ec8d3b05a02f57061

Server Binaries

filename	sha512 hash
kubernetes-server-linux-amd64.tar.gz	006f27ef85b038a8443e521873ea1b3c891d98a93718d374b8168da69900733822a91de29d05cde
kubernetes-server-linux-arm.tar.gz	592ef90a48a934a2968067e154c786793e409fca47a013e0958690083f97f14d51222d73c07858d82
kubernetes-server-linux-arm64.tar.gz	8f8f70605e78a491c98e6ed7609e74d29a79ba8a603f2444905b5584c82e311ca3df25c949e890588
kubernetes-server-linux-ppc64le.tar.gz	484f84ce8a2e7fc0a3b46c528497624a314e3024b8a30b4a61aba753ff4b302a462d318775be3b1f4
kubernetes-server-linux-s390x.tar.gz	a2701033e2b667b026bc5b2386aead64ab521c4949099b4e937b6eacb5ff75aafc83afa0c04fa3557

Node Binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	de99c3ec833401de7165b16aec3893fec002e327e49b42d397bc2475c4215173b36029459d96a6e
kubernetes-node-linux-arm.tar.gz	c9665002bcb84e454f5f43e054674fa0259540bc85155bafcb63c8716a28b04cb7d31590268ac67a6
kubernetes-node-linux-arm64.tar.gz	1ed7193022eebedc988fe64257c11788b6104054c6496768a6f704c98c54573f9e98ea588f0971546

kubernetes-node-linux-ppc64le.tar.gz	420353da529474f8e9856fbbc10eae343776d8121b9d53c318a1eb354e0c1ff693a4c1961ca692fae
kubernetes-node-linux-s390x.tar.gz	e7df41ce015229a733953a39a2f54cf46566885f403d6c091244ea0a37875d279ffdc2fae7de9510e
kubernetes-node-windows-amd64.tar.gz	c9b31c6eedb7f1ee84b8920be92a187f19ce6e5575c693f94a88fa990e9f8e53e6f4aec6b47163d2b4

Changelog since v1.21.3

Changes by Kind

Feature

- Kubernetes is now built with Golang 1.16.7 ([#104201](#), [@cpanato](#)) [SIG Cloud Provider, Instrumentation, Release and Testing]

Bug or Regression

- Disable aufs module for gce clusters ([#103831](#), [@lizhuqi](#)) [SIG Cloud Provider]
- Fix kube-apiserver metric reporting for the deprecated watch path of /api//watch/... ([#104190](#), [@wojtekt-t](#)) [SIG API Machinery and Instrumentation]
- Fix the code is leaking the defaulting between unrelated pod instances. ([#103284](#), [@kebe7jun](#)) [SIG CLI]
- Fix: Provide IPv6 support for internal load balancer ([#103794](#), [@nilo19](#)) [SIG Cloud Provider]
- Fix: cleanup outdated routes ([#102935](#), [@nilo19](#)) [SIG Cloud Provider]
- Fix: delete non existing disk issue ([#102083](#), [@andyzhangx](#)) [SIG Cloud Provider]
- Fix: ignore not a VMSS error for VMAS nodes in reconcileBackendPools ([#103997](#), [@nilo19](#)) [SIG Cloud Provider]
- Fix: return empty VMAS name if using standalone VM ([#103470](#), [@nilo19](#)) [SIG Cloud Provider]
- Fixed a bug that scheduler extenders are not called on preemptions ([#103019](#), [@ordovicia](#)) [SIG Scheduling]
- Fixes an issue cleaning up CertificateSigningRequest objects with an unparseable `status.certificate` field ([#103948](#), [@liggitt](#)) [SIG Apps and Auth]
- Fixes issue with websocket-based watches of Service objects not closing correctly on timeout ([#102541](#), [@liggitt](#)) [SIG API Machinery and Testing]

Dependencies

Added

Nothing has changed.

Changed

- sigs.k8s.io/apiserver-network-proxy/konnectivity-client: v0.0.19 → v0.0.22

Removed

Nothing has changed.

v1.21.3

Downloads for v1.21.3

Source Code

filename	sha512 hash
kubernetes.tar.gz	da3b444a24d29a88357f69b34029c6aa1cfd4ffb8380c4f02b56fca24ac7f04ad8832484080f83a2
kubernetes-src.tar.gz	2de636025d611728460db92564aec42de1fdab52b2a310a4e390a013e0f62a0fe0987b243cfb9:

Client Binaries

filename	sha512 hash
kubernetes-client-darwin-amd64.tar.gz	e6b5a70fd9e0cb279ef4a6890e0bde3dcac6265d125c845b00afad7118f6dd97c952b62cbcf7e28ab
kubernetes-client-darwin-arm64.tar.gz	213345f9a215d6cf9d67cfbb8be948c7977e5bd2efc16a9b5443311dece5ee5883c2df6d4a342c8bd
kubernetes-client-linux-386.tar.gz	caeba030682ee4bb02afb9558ec9fdf7b7d3d03cd016fdb6479b94db1c1e752721443d4f3b488ec8:
kubernetes-client-linux-amd64.tar.gz	a2ccab98460d80c9dcbc4c776e373c88e0921883da05610e17acf51e6f1c50a46891482cc62720647
kubernetes-client-linux-arm.tar.gz	c299c36ca76216b0025690f005e72ba93693a56901a38c2e176d09fd696a8b26cc1d30b9be68976a
kubernetes-client-linux-arm64.tar.gz	d7f27dd115bca27d85ea83925a1b46fe6211ab503bc05a0c3a9558027fcaa11bddc7fef3dd1183c76
kubernetes-client-linux-ppc64le.tar.gz	8c3058245c90f2ef3bf2f3bfa610b2be50d69110d3b6ab24cd10f0372bed488a6c9e8181827ae597d
kubernetes-client-linux-s390x.tar.gz	4125c3b54e144a42dcbd08a958c057009f4d4cfd9e3be1a3310e18bd85296415018249799c6b8bb-
kubernetes-client-windows-386.tar.gz	100db1eb541cf08cc87dc3e5b4843286202f2156cfb8af885bd9577322f3b6d34b573c12ee7c6292e

kubernetes-client-windows-amd64.tar.gz	9300a7630110f9a10b8de731b7d368bbc5b35ac9f59d4da0a3a72fcae3797c8de77a9fd16e85b9c77
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Server Binaries

filename	sha512 hash
kubernetes-server-linux-amd64.tar.gz	a516adcd06fcb0ace9a1cfb1519f57f4e4ca59183043a5245354403a6c42c0bbfe968cc02741d7b6f2
kubernetes-server-linux-arm.tar.gz	a7da6578aa738cab1875e5d5df65454b2fa7f26bf149b655233e53718350e7d57ef64b929448a134f
kubernetes-server-linux-arm64.tar.gz	57cd457ef8bcf90e5205e8dc63ab989ec5f669f56dce30dd9ebb1f4ccbad9001bf8f56b85311400f0b
kubernetes-server-linux-ppc64le.tar.gz	3a311f17d0e90a1b93c9e2ae97068e2c6d84526d499853850e5ef0718fb99c17251420a7377f595d2
kubernetes-server-linux-s390x.tar.gz	8c709dfabf06d7aa77dbf21af814b5d35964bb43791ef3954d1b3d7e1c0a15a7b80d1d4c96855f23e

Node Binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	16802f95a9c75aa7a4643b60d19d6d1245f036a3c6b6687ee756715210c15a4b7716c76f584d0364
kubernetes-node-linux-arm.tar.gz	60a13c386ab6765acfcdfdd3ebd5bcd1d6f266719653eff17a5a78f19ab410d99c9d8b9baaa085702
kubernetes-node-linux-arm64.tar.gz	c4a6e153be21c0755b55fb7ed0c965726a9b6801ef5e0d3d574f8449f8b98137e5c6484f14daa7f62
kubernetes-node-linux-ppc64le.tar.gz	c14e0324bf7bf75a6c20e42a7b8f5ef447f74db2cd4b365985c8456619d0c09c970beb50ca811e166
kubernetes-node-linux-s390x.tar.gz	2977f7c1196e92f4efd69f51e16cf54096fa52d3fb62178f17daab2b17de9f8e6a71517c6a79859b62f
kubernetes-	0f9181d7c455deb7e872983998c4250de321c85277144b0ecd205d379fb2f5cdcb4a63231878dd11

[node-
windows-
amd64.tar.gz](#)

Changelog since v1.21.2

Changes by Kind

Feature

- Kubernetes is now built with Golang 1.16.6 ([#103670](#), [@cpanato](#)) [SIG Cloud Provider, Instrumentation, Release and Testing]
- Updates the following images to pick up CVE fixes:
 - `debian` to v1.8.0
 - `debian-iptables` to v1.6.5
 - `setcap` to v2.0.3 ([#103235](#), [@thejoycekung](#)) [SIG API Machinery, Release and Testing]

Bug or Regression

- Fix scoring for NodeResourcesMostAllocated and NodeResourcesBalancedAllocation plugins when nodes have containers with no requests. This was leaving to under-utilization of small nodes. ([#102925](#), [@alculquicondor](#)) [SIG Scheduling]
- ServiceOwnsFrontendIP shouldn't report error when the public IP doesn't match ([#102516](#), [@nilo19](#)) [SIG Cloud Provider]
- Switch scheduler to generate the merge patch on pod status instead of the full pod ([#103133](#), [@marwanad](#)) [SIG Scheduling]
- VSphere: Fix regression during attach disk if datastore is within a storage folder or datastore cluster. ([#102969](#), [@gnufied](#)) [SIG Cloud Provider]

Dependencies

Added

Nothing has changed.

Changed

- sigs.k8s.io/structured-merge-diff/v4: v4.1.0 → v4.1.2

Removed

Nothing has changed.

v1.21.2

Downloads for v1.21.2

Source Code

filename	sha512 hash
kubernetes.tar.gz	7626af740aef3ec01e50cef0eb418b4a53305259a60aaa7886087378565baf7e30865fbb40f8b26

kubernetes-src.tar.gz	e9236f76593e7f7ef13f95e9c8ef41e37368f8b9b3823b74009778d30a5f794367af437556c7d79
---------------------------------------	---

Client Binaries

filename	sha512 hash
kubernetes-client-darwin-amd64.tar.gz	6245ebb73ac4215420f1453906ac7a63b25954dd89a40c6f99b88cede14016d106226e6284fdc6f0
kubernetes-client-darwin-arm64.tar.gz	671f571541d325acd6789db233961d6924dbf442bb9e61aa4248e324e08906dec7997d6ed4560df
kubernetes-client-linux-386.tar.gz	5885dc7269a5323406c8f7366528b824b2cb876943a2e534b57e4375f367838cf7109062f47ccb2d
kubernetes-client-linux-amd64.tar.gz	0d744eec49354250a43510efc4d911a4b67f3b36dc62c28e2b852e31e9d00e474d0f44287c5b89cd
kubernetes-client-linux-arm.tar.gz	2937bfc5c0f1c8ad2d28c88394ee2781c47d19fb7ceba00c68e6dab3448988fe748d2c7db7c67799
kubernetes-client-linux-arm64.tar.gz	137d6cd5bb8110ce47b4ebf0b9725a1b303e03263c2ce8fe7069ff51aae2d209bab94bb5dc056da8
kubernetes-client-linux-ppc64le.tar.gz	6eafe1aeb08186d3cbf046be7a9b8456b49cae44cbdb9f265ad4f5347b81a52cb6b3ce22ec24330a
kubernetes-client-linux-s390x.tar.gz	eda9716935bc8a955e0a86d2957479c53dda875dd2ae7d5d12927d6dd358be89befeaf5643e17ce
kubernetes-client-windows-386.tar.gz	deb12050d694763b252f3208ff90392b70ed469c76b5f49b4ecb4368c317ae314e6a3f3e09f22d5d9
kubernetes-client-windows-amd64.tar.gz	997ae278d08d99bb75c67dfe86d35c023682296a8e7b7b78c08ae468924c0464cd5f81674cb18813

Server Binaries

filename	sha512 hash
kubernetes-	2fa740e6144c68ee040d616a42b67e10989b9ef9460248c006b86aa549b99ec27527bf75cb8f11154

server-linux-amd64.tar.gz	
kubernetes-server-linux-arm.tar.gz	fa51f2cc2f05c19123e0f73df54859176ce314b87dc8dcf9d163c953d1716ef88e6d87b58f55e28a0a
kubernetes-server-linux-arm64.tar.gz	897e9e5a43da6f4030b5254f13c8a54146f54883ee03726bc1228cf589c26e29d76ea38196f2afe709
kubernetes-server-linux-ppc64le.tar.gz	8caa368a632bdc5ffebb02ff6329a6248ab5140159c792010bd94fc6f3090bee10c7d9404b7cb6e70
kubernetes-server-linux-s390x.tar.gz	83fc6ee6368c1ce749e640725ea0351145118a98f9313cac5cb49dbc8380dcdd56ae7a794b86229cc

Node Binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	589c62ccdeeddc023b3a3cd8127b87ca532ab4ff481f74c876863ba89429e2dc537664d036f98fd18
kubernetes-node-linux-arm.tar.gz	a8374564aa2f7baeab61df3501a3b75d348815ded92b2e2c41b6f50bb630d5bac22c3d02df6ce0c2
kubernetes-node-linux-arm64.tar.gz	ea00bd5340e745593fbc119e008e8f9feb83f1f8f2e878e4de9ec5fe6605a4068cc5527f76e336809ef
kubernetes-node-linux-ppc64le.tar.gz	3e1916be9226bc0410e3fb49335458193ba88ab6eba692ce1c179a4b39d017afe6ac9062562a54de
kubernetes-node-linux-s390x.tar.gz	bcb149e814d5ad328fef82f496ed92792e147e42fd68521f02e6e25838dd101cbd72c93dd424c17ac
kubernetes-node-windows-amd64.tar.gz	6528327d22aa64c90356bf55a60b8183fa054070c69c81185f33936ac02487b1d1a3308c9df0e6dd4

Changelog since v1.21.1

Changes by Kind

Feature

- Kubernetes is now built with Golang 1.16.5 ([#102739](#), [@cpanato](#)) [SIG Cloud Provider, Instrumentation, Release and Testing]
- Update the setcap image to buster-v2.0.1 ([#102377](#), [@xmudrii](#)) [SIG Release]

Failing Test

- Fixes the `should receive events on concurrent watches in same order` conformance test to work properly on clusters that auto-create additional configmaps in namespaces ([#101950](#), [@liggitt](#)) [SIG API Machinery and Testing]

Bug or Regression

- Added jitter factor to lease controller that better smears load on kube-apiserver over time. ([#101652](#), [@marseel](#)) [SIG API Machinery and Scalability]
- Avoid caching the Azure VMSS instances whose network profile is nil ([#100948](#), [@feiskyer](#)) [SIG Cloud Provider]
- Azure: avoid setting cached Sku when updating VMSS and VMSS instances ([#102005](#), [@feiskyer](#)) [SIG Cloud Provider]
- Fix a bug on the endpoint slices mirroring controller where endpoint NotReadyAddresses were mirrored as Ready to the corresponding EndpointSlice ([#102683](#), [@aojea](#)) [SIG Apps and Network]
- Fix a bug that a preemptor pod may exist as a phantom in the scheduler. ([#102498](#), [@Huang-Wei](#)) [SIG Scheduling]
- Fix removing pods from podTopologyHints mapping ([#101892](#), [@aheng-ch](#)) [SIG Node]
- Fix resource enforcement when using systemd cgroup driver ([#102147](#), [@kolyshkin](#)) [SIG API Machinery, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Node, Storage and Testing]
- Fix: avoid nil-pointer panic when checking the frontend IP configuration ([#101739](#), [@nilo19](#)) [SIG Cloud Provider]
- Fix: not tagging static public IP ([#101752](#), [@nilo19](#)) [SIG Cloud Provider]
- Fixed false-positive uncertain volume attachments, which led to unexpected detachment of CSI migrated volumes ([#101737](#), [@Jiawei0227](#)) [SIG Apps and Storage]
- Fixed garbage collection of dangling VolumeAttachments for PersistentVolumes migrated to CSI on startup of kube-controller-manager. ([#102176](#), [@timebertt](#)) [SIG Apps and Storage]
- Kube-proxy log now shows the "Skipping topology aware endpoint filtering since no hints were provided for zone" warning under the right conditions ([#101857](#), [@dervoeti](#)) [SIG Network]
- Kubeadm: remove the "ephemeral_storage" request from the etcd static pod that kubeadm deploys on stacked etcd control plane nodes. This request has caused sporadic failures on some setups due to a problem in the kubelet with cadvisor and the LocalStorageCapacityIsolation feature gate. See this issue for more details: <https://github.com/kubernetes/kubernetes/issues/99305> ([#102673](#), [@jackfrancis](#)) [SIG Cluster Lifecycle]
- Kubeadm: when using a custom image repository for CoreDNS kubeadm now will append the "coredns" image name instead of "coredns/coredns", thus restoring the behaviour existing before the v1.21 release. Users who rely on nested folder for the coredns image should set the "clusterConfiguration.dns.imageRepository" value including the nested path name (e.g using "registry.company.xyz/coredns" will force kubeadm to use "registry.company.xyz/coredns/coredns" image). No action is needed if using the default registry (k8s.gcr.io). ([#102502](#), [@ykakarap](#)) [SIG Cluster Lifecycle]
- Register/Deregister Targets in chunks for AWS TargetGroup ([#101592](#), [@M00nF1sh](#)) [SIG Cloud Provider]
- Respect annotation size limit for server-side apply updates to the client-side apply annotation. Also, fix opt-out of this behavior by setting the client-side apply annotation to the empty string. ([#102105](#), [@julianvmodesto](#)) [SIG API Machinery]
- Reverted the previous fix for portforward cleanup because it introduced a kubelet regression which can lead into segmentation faults. ([#102587](#), [@saschagrunert](#)) [SIG API Machinery and Node]

Other (Cleanup or Flake)

- Client-go: reduce verbosity of "Starting/Stopping reflector" messages to 3 again ([#102788](#), [@pohly](#)) [SIG API Machinery]
- Update the Debian images to pick up CVE fixes in the base images:
 - Update the `debian-base` image to v1.7.0
 - Update the `debian-iptables` image to v1.6.1 ([#102340](#), [@cpanato](#)) [SIG API Machinery and Testing]

Dependencies

Added

- [github.com/checkpoint-restore/go-criu/v5: v5.0.0](#)
- [github.com/frankban/quicktest: v1.11.3](#)

Changed

- [github.com/cilium/ebpf: v0.2.0 → v0.5.0](#)
- [github.com/containerd/console: v1.0.1 → v1.0.2](#)
- [github.com/coreos/go-systemd/v22: v22.1.0 → v22.3.1](#)
- [github.com/godbus/dbus/v5: v5.0.3 → v5.0.4](#)
- [github.com/google/go-cmp: v0.5.2 → v0.5.4](#)
- [github.com/kr/pretty: v0.2.0 → v0.2.1](#)
- [github.com/moby/sys/mountinfo: v0.4.0 → v0.4.1](#)
- [github.com/opencontainers/runc: v1.0.0-rc93 → v1.0.0-rc95](#)
- [github.com/opencontainers/runtime-spec: e6143ca → 1c3f411](#)
- [golang.org/x/sys: a50acf3 → d19ff85](#)
- [sigs.k8s.io/apiserver-network-proxy/konnectivity-client: v0.0.15 → v0.0.19](#)

Removed

- [github.com/checkpoint-restore/go-criu/v4: v4.1.0](#)

v1.21.1

Downloads for v1.21.1

Source Code

filename	sha512 hash
kubernetes.tar.gz	39005d4e11684d732babf419e06403a67ffb4f6c78cb7cb6e8214a7a1e6171de2a302d20d72bbl
kubernetes-src.tar.gz	2d25debd4a4559ca9338c7f35682ec72d8aa5c1ebe424b9866fc9391fbbbc21dac5498b5af35c5

Client Binaries

filename	sha512 hash
kubernetes-client-darwin-	b5ee08ce233f80f3c9d8918347169752df49f9745792762893b3bbc5c7a36246028533a405c8a4117

amd64.tar.gz	
kubernetes-client-darwin-arm64.tar.gz	3e10c84c3cb184bf3d81bc62009e85dc9f6df00d381136617a71007c2b4758cc3879b4bb90b7e416
kubernetes-client-linux-386.tar.gz	34391ca524b35d2f970ffd2f59becb4f8131b6576976af4724212afbdb972449deca87ee6bdcd4f10c
kubernetes-client-linux-amd64.tar.gz	97050c54cd0f41e2efc954400bf65726c699b456506a0cbbb752aa79ec8662335dffa81c5373fb2e32
kubernetes-client-linux-arm.tar.gz	2bb268e38004bde0ed27ac0c2a2fdb5fe2c2a95272ef2f289c53049e24ee0b94bf4590dfec99a1e8
kubernetes-client-linux-arm64.tar.gz	ef67fc5795c95f3b9d8dab2476805167af5b3b84242fd5f340e73bb144a99040462093a6db53719de
kubernetes-client-linux-ppc64le.tar.gz	701e54ee5d3f0754c88ca766c3ce624157a2e96b57a72ea8a5e350e2ed4ac8302e9940b851bbfb93
kubernetes-client-linux-s390x.tar.gz	d44519897d65308d47a621a5995938379bdf022bf69ed5b3468d09b04800970e61e57d03acd0d4f
kubernetes-client-windows-386.tar.gz	a404d61d60e14182c931819512e5048f2ba3d51381a1b14fe52c54c49abc828aa32cad4c377291d
kubernetes-client-windows-amd64.tar.gz	0474acd68f2d298e772af003631d437fb4c7a445955f740389e01096910b20639a45d16012208202

Server Binaries

filename	sha512 hash
kubernetes-server-linux-amd64.tar.gz	9e370a48ef2a428ad3b0878d0ae0989caf156e36a2b40bf803aaddeed941c09120900eedc21e643d
kubernetes-server-linux-arm.tar.gz	1a6e256ba0a3318b1a419aac17eaabce9df9650a70974da0b677fcc6b628f87473394dc45b052473:
kubernetes-server-linux-arm64.tar.gz	24b146b1befbcc845b4e95e7b24d9d9cfc06bdf77409135ce6c7c0c99f4803ee9aed7f3cc99023ec0:

kubernetes-server-linux-ppc64le.tar.gz	36708c18c4760f2766245fd8c58038d1f21d118b0ccf50183a154e5a1c299a5f04db5c6b19d295b64
kubernetes-server-linux-s390x.tar.gz	3e9333253875306e055c00c0cced7d564c512807ada0ad499524b3a11b3fb4cfbca944c711b41ce9

Node Binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	752bfccbc40b710a6042c4d590a8bf43b14c9dbf6d1afd1f5d87bd11465b45279d0d7508227eaedf
kubernetes-node-linux-arm.tar.gz	892781b14d2750c007133cc43cb12cdd7ccce9f03b28b40f4f840484b170349900b2016f7c3797f9d
kubernetes-node-linux-arm64.tar.gz	af95314feb5085e0a13b271b78754c617f93846d67149931d6cd8d93d816e51cbf556b146b0992e6
kubernetes-node-linux-ppc64le.tar.gz	382512bfe522544d8f537133d4c62e2f976a1e6ccca7aaecbb8d974b839fba2bda4d4392de4096c9c
kubernetes-node-linux-s390x.tar.gz	14060d0ce6bb640ed6af389f1f20bc0219a59d5090eaac308f3aee6e0aed1236e786e015505bbbed4c
kubernetes-node-windows-amd64.tar.gz	c72121f132107ebddf7a55a412e28f83633ffc78038c35e85dbe7eed253acf3370e56fe304b842c15a

Changelog since v1.21.0

Changes by Kind

API Change

- "Auto" is now a valid value for the `service.kubernetes.io/topology-aware-hints` annotation. ([#100728](#), [@robscott](#)) [SIG Apps, Instrumentation and Network]
- We have added a new Priority & Fairness rule that exempts all probes (/readyz, /healthz, /livez) to prevent restarting of "healthy" kube-apiserver instance(s) by kubelet. ([#101111](#), [@tkashem](#)) [SIG API Machinery]

Feature

- Add NeedResize function to kubernetes/mount-utils, user can call this function to determine if fs need to be resized ([#101253](#), [@AndyXiangLi](#)) [SIG Storage]
- Base image updates to mitigate kube-proxy and etcd container image CVEs

- debian-base to buster-v1.6.0
- debian-iptables to buster-v1.6.0 ([#100976](#), [@jindijamie](#)) [SIG Release and Testing]
- Kubernetes is now built with Golang 1.16.3 ([#101209](#), [@justaugustus](#)) [SIG Cloud Provider, Instrumentation, Release and Testing]
- Kubernetes is now built with Golang 1.16.4 ([#101811](#), [@justaugustus](#)) [SIG Cloud Provider, Instrumentation, Release and Testing]

Failing Test

- Fixed generic ephemeral volumes with OwnerReferencesPermissionEnforcement admission plugin enabled. ([#101186](#), [@jsafrane](#)) [SIG Auth and Storage]
- Resolves an issue with the "ServiceAccountIssuerDiscovery should support OIDC discovery" conformance test failing on clusters which are configured with issuers outside the cluster ([#101725](#), [@mtaufen](#)) [SIG Auth and Testing]

Bug or Regression

- Adds node event handlers to dual stack kube-proxy implementation to fix Topology Aware Hints. ([#101054](#), [@roboscott](#)) [SIG Network]
- Azurefile: Normalize share name to not include capital letters ([#100731](#), [@kassarl](#)) [SIG Cloud Provider and Storage]
- EndpointSlice IP validation now matches Endpoints IP validation. ([#101084](#), [@roboscott](#)) [SIG Apps and Network]
- Ensure service deleted when the Azure resource group has been deleted ([#100944](#), [@feiskyer](#)) [SIG Cloud Provider]
- Fix EndpointSlice describe panic when an Endpoint doesn't have zone ([#101025](#), [@tnqn](#)) [SIG CLI]
- Fix display of Job completion mode on kubectl describe ([#101198](#), [@alculquicondor](#)) [SIG CLI]
- Fix: azure file inline volume namespace issue in csi migration translation ([#101235](#), [@andyzhangx](#)) [SIG Apps, Cloud Provider, Node and Storage]
- Fix: set "host is down" as corrupted mount ([#101398](#), [@andyzhangx](#)) [SIG Cloud Provider and Storage]
- Fixed a bug where startupProbe stopped working after a container's first restart ([#101093](#), [@wzshiming](#)) [SIG Node]
- Fixed port-forward memory leak for long-running and heavily used connections. ([#99839](#), [@saschagrunert](#)) [SIG API Machinery and Node]
- Kubectl create service now respects namespace flag ([#101005](#), [@zxh326](#)) [SIG CLI]
- Kubelet: improve the performance when waiting for a synchronization of the node list with the kube-apiserver ([#99336](#), [@neolit123](#)) [SIG Node]
- No support endpointslice in linux userpace mode ([#101504](#), [@JornShen](#)) [SIG Network]
- Renames the timeout field for the DelegatingAuthenticationOptions to TokenRequestTimeout and set the timeout only for the token review client. Previously the timeout was also applied to watches making them reconnecting every 10 seconds. ([#101102](#), [@p0lyn0mial](#)) [SIG API Machinery, Auth and Cloud Provider]
- Respect ExecProbeTimeout=false for dockershim ([#101127](#), [@jackfrancis](#)) [SIG Node and Testing]
- Upgrades functionality of `kubectl kustomize` as described at <https://github.com/kubernetes-sigs/kustomize/releases/tag/kustomize%2Fv4.1.0> ([#101177](#), [@KnVerey](#)) [SIG CLI]

Dependencies

Added

Nothing has changed.

Changed

- sigs.k8s.io/kustomize/api: v0.8.5 → v0.8.8
- sigs.k8s.io/kustomize/cmd/config: v0.9.7 → v0.9.10
- sigs.k8s.io/kustomize/kustomize/v4: v4.0.5 → v4.1.2
- sigs.k8s.io/kustomize/kyaml: v0.10.15 → v0.10.17

Removed

Nothing has changed.

v1.21.0

[Documentation](#)

Downloads for v1.21.0

Source Code

filename	sha512 hash
kubernetes.tar.gz	19bb76a3fa5ce4b9f043b2a3a77c32365ab1fcb902d8dd6678427fb8be8f49f64a5a03dc46aaef9c7dad
kubernetes-src.tar.gz	f942e6d6c10007a6e9ce21e94df597015ae646a7bc3e515caf1a3b79f1354efb9aff59c40f2553a8e3d4

Client Binaries

filename	sha512 hash
kubernetes-client-darwin-amd64.tar.gz	be9d1440e418e5253fb8a3d8aba705ca8160746a9bd17325ad626a986b6da9f733af864155a651a32b7bca9
kubernetes-client-darwin-arm64.tar.gz	eed0ddc81d104bb2d41ace13f737c490423d5df4ebddc7376e45c18ed66af35933c9376b912c1c3da105945
kubernetes-client-linux-386.tar.gz	8a2f30c4434199762f2a96141dab4241c1cce2711bea9ea39cc63c2c5e7d31719ed7f076efac1931604e3a9
kubernetes-client-linux-amd64.tar.gz	cd3cfa645fa31de3716f1f63506e31b73d2aa8d37bb558bb3b3e8c151f35b3d74d44e03cbd05be67e380f9a
kubernetes-client-linux-arm.tar.gz	936042aa11cea0f6dfd2c30fc5dbe655420b34799bede036b1299a92d6831f589ca10290b73b9c9741560b6
kubernetes-client-linux-arm64.tar.gz	42beb75364d7bf4bf526804b8a35bd0ab3e124b712e9d1f45c1b914e6be0166619b30695feb24b3eecef134
kubernetes-client-linux-	4baba2ed7046b28370eccc22e2378ae79e3ce58220d6f4f1b6791e8233bec8379e30200bb20b971456b83f2

ppc64le.tar.gz	
kubernetes-client-linux-s390x.tar.gz	37fa0c4d703aef09ce68c10ef3e7362b0313c8f251ce38eea579cd18fae4023d3d2b70e0f31577cabe6958a
kubernetes-client-windows-386.tar.gz	6900db36c1e3340edfd6dfd8d720575a904c932d39a8a7fa36401595e971a0235bd42111dbcc1cbb77e7374
kubernetes-client-windows-amd64.tar.gz	90de67f6f79fc63bcfdf35066e3d84501cc85433265ffad36fd1a7a428a31b446249f0644a1e97495ea8b2a

Server Binaries

filename	sha512 hash
kubernetes-server-linux-amd64.tar.gz	3941dcc2309ac19ec185603a79f5a086d8a198f98c04efa23f15a177e5e1f34946ea9392ba9f5d24d0d7278
kubernetes-server-linux-arm.tar.gz	6507abf6c2ec2b336901dc23269f6c577ec0049b8bad3c9dd6ad63f21aa10f09bfbfbfa6e064c2466d250411
kubernetes-server-linux-arm64.tar.gz	5abe76f867ca6865344e957bf166b81766c049ec4eb183a8a5580c22a7f8474db1edf90fd901a5833e56128
kubernetes-server-linux-ppc64le.tar.gz	62507b182ca25396a285d91241536860e58f54fac937e97cbdf91948c83bb41be97d33277400489bf50e851
kubernetes-server-linux-s390x.tar.gz	04f2a1f7d1388e4a7d7d9f597f872a3da36f26839cfed16aad6df07021c03f4dca1df06b19cfda56df09d1c

Node Binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	c1831c708109c31b3878e5a9327ea4b9e546504d0b6b00f3d43db78b5dd7d5114d32ac24a9a505f9cadbe61
kubernetes-node-linux-arm.tar.gz	b68dd5bcfc7f9ce2781952df40c8c3a64c29701beff6ac22f042d6f31d4de220e9200b7e8272ddf60811432
kubernetes-node-linux-	7fa84fc500c28774ed25ca34b6f7b208a2bea29d6e8379f84b9f57bd024aa8fe574418cee7ee26edd553107

arm64.tar.gz	
kubernetes-node-linux-ppc64le.tar.gz	a4278b3f8e458e9581e01f0c5ba8443303c987988ee136075a8f2f25515d70ca549fbd2e4d10eefca816c75
kubernetes-node-linux-s390x.tar.gz	8de2bc6f22f232ff534b45012986eac23893581ccb6c45bd637e40dbe808ce31d5a92375c00dc578bdbadec
kubernetes-node-windows-amd64.tar.gz	b82e94663d330cff7a117f99a7544f27d0bc92b36b5a283b3c23725d5b33e6f15e0ebf784627638f22f2d58

Changelog since v1.20.0

What's New (Major Themes)

Deprecation of PodSecurityPolicy

PSP as an admission controller resource is being deprecated. Deployed PodSecurityPolicy's will keep working until version 1.25, their target removal from the codebase. A new feature, with a working title of "PSP replacement policy", is being developed in [KEP-2579](#). To learn more, read [PodSecurityPolicy Deprecation: Past, Present, and Future](#).

Kubernetes API Reference Documentation

The API reference is now generated with [gen-resourcesdocs](#) and it is moving to [Kubernetes API](#)

Kustomize Updates in Kubectl

[Kustomize](#) version in kubectl had a jump from v2.0.3 to [v4.0.5](#). Kustomize is now treated as a library and future updates will be less sporadic.

Default Container Annotation

Pod with multiple containers can use `kubectl.kubernetes.io/default-container` annotation to have a container preselected for kubectl commands. More can be read in [KEP-2227](#).

Immutable Secrets and ConfigMaps

Immutable Secrets and ConfigMaps graduates to GA. This feature allows users to specify that the contents of a particular Secret or ConfigMap is immutable for its object lifetime. For such instances, Kubelet will not watch/poll for changes and therefore reducing apiserver load.

Structured Logging in Kubelet

Kubelet has adopted structured logging, thanks to community effort in accomplishing this within the release timeline. Structured logging in the project remains an ongoing effort -- for folks interested in participating, [keep an eye / chime in to the mailing list discussion](#).

Storage Capacity Tracking

Traditionally, the Kubernetes scheduler was based on the assumptions that additional persistent storage is available everywhere in the cluster and has infinite capacity. Topology constraints addressed the first point, but up to now pod scheduling was still done without considering that the remaining storage capacity may not be enough to start a new pod. [Storage capacity tracking](#) addresses that by adding an API for a CSI driver to report storage capacity and uses that information in the Kubernetes scheduler when choosing a node for a pod. This feature serves as a stepping stone for supporting dynamic provisioning for local volumes and other volume types that are more capacity constrained.

Generic Ephemeral Volumes

[Generic ephemeral volumes](#) feature allows any existing storage driver that supports dynamic provisioning to be used as an ephemeral volume with the volume's lifecycle bound to the Pod. It can be used to provide scratch storage that is different from the root disk, for example persistent memory, or a separate local disk on that node. All StorageClass parameters for volume provisioning are supported. All features supported with PersistentVolumeClaims are supported, such as storage capacity tracking, snapshots and restore, and volume resizing.

CSI Service Account Token

CSI Service Account Token feature moves to Beta in 1.21. This feature improves the security posture and allows CSI drivers to receive pods' [bound service account tokens](#). This feature also provides a knob to re-publish volumes so that short-lived volumes can be refreshed.

CSI Health Monitoring

The CSI health monitoring feature is being released as a second Alpha in Kubernetes 1.21. This feature enables CSI Drivers to share abnormal volume conditions from the underlying storage systems with Kubernetes so that they can be reported as events on PVCs or Pods. This feature serves as a stepping stone towards programmatic detection and resolution of individual volume health issues by Kubernetes.

Known Issues

TopologyAwareHints feature falls back to default behavior

The feature gate currently falls back to the default behavior in most cases. Enabling the feature gate will add hints to `EndpointSlices`, but functional differences are only observed in non-dual stack kube-proxy implementation. This is fixed by [#101054](#).

Urgent Upgrade Notes

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

- Kube-proxy's IPVS proxy mode no longer sets the `net.ipv4.conf.all.route_localnet` sysctl parameter. Nodes upgrading will have `net.ipv4.conf.all.route_localnet` set to 1 but new nodes will inherit the system default (usually 0). If you relied on any behavior requiring `net.ipv4.conf.all.route_localnet`, you must set ensure it is enabled as kube-proxy will no longer set it automatically. This change helps to further mitigate CVE-2020-8558. ([#92938](#), [@lbernail](#)) [SIG Network and Release]
- Kubeadm: during "init" an empty `cgroupDriver` value in the `KubeletConfiguration` is now always set to "systemd" unless the user is explicit about it. This requires existing machine setups to configure the container runtime to use the "systemd" driver. Documentation on this topic can be found here: <https://kubernetes.io/docs/setup/production-environment/container-runtimes/>. When upgrading existing clusters / nodes using "kubeadm upgrade" the old `cgroupDriver` value is preserved, but in 1.22 this change will also apply to "upgrade". For more information on migrating to the "systemd" driver or remaining on the

"cgroups" driver see: <https://kubernetes.io/docs/tasks/administer-cluster/kubeadm/configure-cgroup-driver/>. (#99471, @neolit123) [SIG Cluster Lifecycle]

- Newly provisioned PVs by EBS plugin will no longer use the deprecated "failure-domain.beta.kubernetes.io/zone" and "failure-domain.beta.kubernetes.io/region" labels. It will use "topology.kubernetes.io/zone" and "topology.kubernetes.io/region" labels instead. (#99130, @ayberk) [SIG Cloud Provider, Storage and Testing]
- Newly provisioned PVs by OpenStack Cinder plugin will no longer use the deprecated "failure-domain.beta.kubernetes.io/zone" and "failure-domain.beta.kubernetes.io/region" labels. It will use "topology.kubernetes.io/zone" and "topology.kubernetes.io/region" labels instead. (#99719, @jsafrane) [SIG Cloud Provider and Storage]
- Newly provisioned PVs by gce-pd will no longer have the beta FailureDomain label. gce-pd volume plugin will start to have GA topology label instead. (#98700, @Jiawei0227) [SIG Cloud Provider, Storage and Testing]
- OpenStack Cinder CSI migration is on by default, Clinder CSI driver must be installed on clusters on OpenStack for Cinder volumes to work. (#98538, @dims) [SIG Storage]
- Remove alpha `CSIMigrationXXComplete` flag and add alpha `InTreePluginXXUnregister` flag. Deprecate `CSIMigrationvSphereComplete` flag and it will be removed in v1.22. (#98243, @Jiawei0227)
- Remove storage metrics `storage_operation_errors_total`, since we already have `storage_operation_status_count`. And add new field `status` for `storage_operation_duration_seconds`, so that we can know about all status storage operation latency. (#98332, @JornShen) [SIG Instrumentation and Storage]
- The metric `storage_operation_errors_total` is not removed, but is marked deprecated, and the metric `storage_operation_status_count` is marked deprecated. In both cases the `storage_operation_duration_seconds` metric can be used to recover equivalent counts (using `status=fail-unknown` in the case of `storage_operations_errors_total`). (#99045, @mattcary)
- `ServiceNodeExclusion`, `NodeDisruptionExclusion` and `LegacyNodeRoleBehavior` features have been promoted to GA. `ServiceNodeExclusion` and `NodeDisruptionExclusion` are now unconditionally enabled, while `LegacyNodeRoleBehavior` is unconditionally disabled. To prevent control plane nodes from being added to load balancers automatically, upgrade users need to add "node.kubernetes.io/exclude-from-external-load-balancers" label to control plane nodes. (#97543, @pacoxu)

Changes by Kind

Deprecation

- Aborting the drain command in a list of nodes will be deprecated. The new behavior will make the drain command go through all nodes even if one or more nodes failed during the drain. For now, users can try such experience by enabling `--ignore-errors` flag. (#98203, @yuzhiquan)
- Delete deprecated `service.beta.kubernetes.io/azure-load-balancer-mixed-protocols` mixed protocol annotation in favor of the `MixedProtocolLBService` feature (#97096, @nilo19) [SIG Cloud Provider]
- Deprecate the `topologyKeys` field in Service. This capability will be replaced with upcoming work around Topology Aware Subsetting and Service Internal Traffic Policy. (#96736, @andrewsykim) [SIG Apps]
- Kube-proxy: remove deprecated `--cleanup-ipvs` flag of kube-proxy, and make `--cleanup` flag always to flush IPVS (#97336, @maaoBit) [SIG Network]

- Kubeadm: deprecated command "alpha selfhosting pivot" is now removed. ([#97627](#), [@knight42](#))
- Kubeadm: graduate the command `kubeadm alpha kubeconfig user` to `kubeadm kubeconfig user`. The `kubeadm alpha kubeconfig user` command is deprecated now. ([#97583](#), [@knight42](#)) [SIG Cluster Lifecycle]
- Kubeadm: the "kubeadm alpha certs" command is removed now, please use "kubeadm certs" instead. ([#97706](#), [@knight42](#)) [SIG Cluster Lifecycle]
- Kubeadm: the deprecated kube-dns is no longer supported as an option. If "ClusterConfiguration.dns.type" is set to "kube-dns" kubeadm will now throw an error. ([#99646](#), [@rajansandeep](#)) [SIG Cluster Lifecycle]
- Kubectl: The deprecated `kubectl alpha debug` command is removed. Use `kubectl debug` instead. ([#98111](#), [@pandaamanda](#)) [SIG CLI]
- Official support to build kubernetes with docker-machine / remote docker is removed. This change does not affect building kubernetes with docker locally. ([#97935](#), [@adeniyistephen](#)) [SIG Release and Testing]
- Remove deprecated `--generator`, `--replicas`, `--service-generator`, `--service-overrides`, `--schedule` from `kubectl run`. Deprecate `--serviceaccount`, `--hostport`, `--requests`, `--limits` in `kubectl run` ([#99732](#), [@soltys](#))
- Remove the deprecated metrics "scheduling_algorithm_preemption_evaluation_seconds" and "binding_duration_seconds", suggest to use "scheduler_framework_extension_point_duration_seconds" instead. ([#96447](#), [@chendave](#)) [SIG Cluster Lifecycle, Instrumentation, Scheduling and Testing]
- Removing experimental windows container hyper-v support with Docker ([#97141](#), [@wawa0210](#)) [SIG Node and Windows]
- Rename metrics `etcd_object_counts` to `apiserver_storage_object_counts` and mark it as stable. The original `etcd_object_counts` metrics name is marked as "Deprecated" and will be removed in the future. ([#99785](#), [@erain](#)) [SIG API Machinery, Instrumentation and Testing]
- The GA TokenRequest and TokenRequestProjection feature gates have been removed and are unconditionally enabled. Remove explicit use of those feature gates in CLI invocations. ([#97148](#), [@wawa0210](#)) [SIG Node]
- The PodSecurityPolicy API is deprecated in 1.21, and will no longer be served starting in 1.25. ([#97171](#), [@deads2k](#)) [SIG Auth and CLI]
- The `batch/v2alpha1` CronJob type definitions and clients are deprecated and removed. ([#96987](#), [@soltys](#)) [SIG API Machinery, Apps, CLI and Testing]
- The `export` query parameter (inconsistently supported by API resources and deprecated in v1.14) is fully removed. Requests setting this query parameter will now receive a 400 status response. ([#98312](#), [@deads2k](#)) [SIG API Machinery, Auth and Testing]
- `audit.k8s.io/v1beta1` and `audit.k8s.io/v1alpha1` audit policy configuration and audit events are deprecated in favor of `audit.k8s.io/v1`, available since v1.13. kube-apiserver invocations that specify alpha or beta policy configurations with `--audit-policy-file`, or explicitly request alpha or beta audit events with `--audit-log-version` / `--audit-webhook-version` must update to use `audit.k8s.io/v1` and accept `audit.k8s.io/v1` events prior to v1.24. ([#98858](#), [@carlory](#)) [SIG Auth]
- `discovery.k8s.io/v1beta1` EndpointSlices are deprecated in favor of `discovery.k8s.io/v1`, and will no longer be served in Kubernetes v1.25. ([#100472](#), [@liggitt](#))

- `diskformat` storage class parameter for in-tree vSphere volume plugin is deprecated as of v1.21 release. Please consider updating storageclass and remove `diskformat` parameter. vSphere CSI Driver does not support diskformat storageclass parameter.

vSphere releases less than 67u3 are deprecated as of v1.21. Please consider upgrading vSphere to 67u3 or above. vSphere CSI Driver requires minimum vSphere 67u3.

VM Hardware version less than 15 is deprecated as of v1.21. Please consider upgrading the Node VM Hardware version to 15 or above. vSphere CSI Driver recommends Node VM's Hardware version set to at least vmx-15.

Multi vCenter support is deprecated as of v1.21. If you have a Kubernetes cluster spanning across multiple vCenter servers, please consider moving all k8s nodes to a single vCenter Server. vSphere CSI Driver does not support Kubernetes deployment spanning across multiple vCenter servers.

Support for these deprecations will be available till Kubernetes v1.24. ([#98546](#), [@divyenpatel](#))

API Change

- 1. PodAffinityTerm includes a namespaceSelector field to allow selecting eligible namespaces based on their labels.
- 2. A new CrossNamespacePodAffinity quota scope API that allows restricting which namespaces allowed to use PodAffinityTerm with corss-namespace reference via namespaceSelector or namespaces fields. ([#98582](#), [@ahg-g](#)) [SIG API Machinery, Apps, Auth and Testing]
- Add Probe-level terminationGracePeriodSeconds field ([#99375](#), [@ehashman](#)) [SIG API Machinery, Apps, Node and Testing]
- Added `.spec.completionMode` field to Job, with accepted values `NonIndexed` (default) and `Indexed`. This is an alpha field and is only honored by servers with the `IndexedJob` feature gate enabled. ([#98441](#), [@alculquicondor](#)) [SIG Apps and CLI]
- Adds support for endPort field in NetworkPolicy ([#97058](#), [@rikatz](#)) [SIG Apps and Network]
- CSIServiceAccountToken graduates to Beta and enabled by default. ([#99298](#), [@zshihang](#))
- Cluster admins can now turn off `/debug/pprof` and `/debug/flags/v` endpoint in kubelet by setting `enableProfilingHandler` and `enableDebugFlagsHandler` to `false` in the Kubelet configuration file. Options `enableProfilingHandler` and `enableDebugFlagsHandler` can be set to `true` only when `enableDebuggingHandlers` is also set to `true`. ([#98458](#), [@SaranBalaji90](#))
- DaemonSets accept a MaxSurge integer or percent on their rolling update strategy that will launch the updated pod on nodes and wait for those pods to go ready before marking the old out-of-date pods as deleted. This allows workloads to avoid downtime during upgrades when deployed using DaemonSets. This feature is alpha and is behind the DaemonSetUpdateSurge feature gate. ([#96441](#), [@smarterclayton](#)) [SIG Apps and Testing]
- Enable SPDY pings to keep connections alive, so that `kubectl exec` and `kubectl portforward` won't be interrupted. ([#97083](#), [@knight42](#)) [SIG API Machinery and CLI]
- FieldManager no longer owns fields that get reset before the object is persisted (e.g. "status wiping"). ([#99661](#), [@kevindelgado](#)) [SIG API Machinery, Auth and Testing]
- Fixes server-side apply for APIService resources. ([#98576](#), [@kevindelgado](#))
- Generic ephemeral volumes are beta. ([#99643](#), [@pohly](#)) [SIG API Machinery, Apps, Auth, CLI, Node, Storage and Testing]
- Hugepages request values are limited to integer multiples of the page size. ([#98515](#), [@lala123912](#)) [SIG Apps]
- Implement the GetAvailableResources in the podresources API. ([#95734](#), [@fromanirh](#)) [SIG Instrumentation, Node and Testing]

- IngressClass resource can now reference a resource in a specific namespace for implementation-specific configuration (previously only Cluster-level resources were allowed). This feature can be enabled using the IngressClassNamespacedParams feature gate. ([#99275](#), [@hbagdi](#))
- Jobs API has a new `.spec.suspend` field that can be used to suspend and resume Jobs. This is an alpha field which is only honored by servers with the `SuspendJob` feature gate enabled. ([#98727](#), [@adtac](#))
- Kubelet Graceful Node Shutdown feature graduates to Beta and enabled by default. ([#99735](#), [@bobbypage](#))
- Kubernetes is now built using go1.15.7 ([#98363](#), [@cpanato](#)) [SIG Cloud Provider, Instrumentation, Node, Release and Testing]
- Namespace API objects now have a `kubernetes.io/metadata.name` label matching their `metadata.name` field to allow selecting any namespace by its name using a label selector. ([#96968](#), [@jayunit100](#)) [SIG API Machinery, Apps, Cloud Provider, Storage and Testing]
- One new field "InternalTrafficPolicy" in Service is added. It specifies if the cluster internal traffic should be routed to all endpoints or node-local endpoints only. "Cluster" routes internal traffic to a Service to all endpoints. "Local" routes traffic to node-local endpoints only, and traffic is dropped if no node-local endpoints are ready. The default value is "Cluster". ([#96600](#), [@maplain](#)) [SIG API Machinery, Apps and Network]
- PodDisruptionBudget API objects can now contain conditions in status. ([#98127](#), [@mortent](#)) [SIG API Machinery, Apps, Auth, CLI, Cloud Provider, Cluster Lifecycle and Instrumentation]
- PodSecurityPolicy only stores "generic" as allowed volume type if the GenericEphemeralVolume feature gate is enabled ([#98918](#), [@pohly](#)) [SIG Auth and Security]
- Promote CronJobs to batch/v1 ([#99423](#), [@soltys](#)) [SIG API Machinery, Apps, CLI and Testing]
- Promote Immutable Secrets/ConfigMaps feature to Stable. This allows to set `immutable` field in Secret or ConfigMap object to mark their contents as immutable. ([#97615](#), [@wojtek-t](#)) [SIG Apps, Architecture, Node and Testing]
- Remove support for building Kubernetes with bazel. ([#99561](#), [@BenTheElder](#)) [SIG API Machinery, Apps, Architecture, Auth, Autoscaling, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Network, Node, Release, Scalability, Scheduling, Storage, Testing and Windows]
- Scheduler extender filter interface now can report unresolvable failed nodes in the new field `FailedAndUnresolvableNodes` of `ExtenderFilterResult` struct. Nodes in this map will be skipped in the preemption phase. ([#92866](#), [@cofyc](#)) [SIG Scheduling]
- Services can specify `loadBalancerClass` to use a custom load balancer ([#98277](#), [@XudongLiuHarold](#))
- Storage capacity tracking (= the CSISStorageCapacity feature) graduates to Beta and enabled by default, `storage.k8s.io/v1alpha1/VolumeAttachment` and `storage.k8s.io/v1alpha1/CSISStorageCapacity` objects are deprecated ([#99641](#), [@pohly](#))
- Support for Indexed Job: a Job that is considered completed when Pods associated to indexes from 0 to `(.spec.completions-1)` have succeeded. ([#98812](#), [@alculquicondor](#)) [SIG Apps and CLI]
- The BoundServiceAccountTokenVolume feature has been promoted to beta, and enabled by default.
 - This changes the tokens provided to containers at `/var/run/secrets/kubernetes.io/serviceaccount/token` to be time-limited, auto-refreshed, and invalidated when the containing pod is deleted.
 - Clients should reload the token from disk periodically (once per minute is recommended) to ensure they continue to use a valid token. `k8s.io/client-go` version v11.0.0+ and v0.15.0+ reload tokens automatically.
 - By default, injected tokens are given an extended lifetime so they remain valid even after a new refreshed token is provided. The metric `serviceaccount_stale_tokens_total` can be used to monitor for workloads that are depending on the extended lifetime and are continuing to use tokens even after a refreshed token is provided to the container. If that metric indicates no existing workloads are depending on extended lifetimes, injected token lifetime can be shortened to 1 hour by starting `kube-apiserver` with `--service-account-extend-token-`

`expiration=false` . ([#95667](#), [@zshihang](#)) [SIG API Machinery, Auth, Cluster Lifecycle and Testing]

- The EndpointSlice Controllers are now GA. The `EndpointSliceController` will not populate the `deprecatedTopology` field and will only provide topology information through the `zone` and `nodeName` fields. ([#99870](#), [@swetharepakula](#))
- The Endpoints controller will now set the `endpoints.kubernetes.io/over-capacity` annotation to "warning" when an Endpoints resource contains more than 1000 addresses. In a future release, the controller will truncate Endpoints that exceed this limit. The EndpointSlice API can be used to support significantly larger number of addresses. ([#99975](#), [@roboscott](#)) [SIG Apps and Network]
- The PodDisruptionBudget API has been promoted to policy/v1 with no schema changes. The only functional change is that an empty selector (`{}`) written to a policy/v1 PodDisruptionBudget now selects all pods in the namespace. The behavior of the policy/v1beta1 API remains unchanged. The policy/v1beta1 PodDisruptionBudget API is deprecated and will no longer be served in 1.25+. ([#99290](#), [@mortent](#)) [SIG API Machinery, Apps, Auth, Autoscaling, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Scheduling and Testing]
- The `EndpointSlice` API is now GA. The `EndpointSlice` topology field has been removed from the GA API and will be replaced by a new per Endpoint Zone field. If the topology field was previously used, it will be converted into an annotation in the v1 Resource. The `discovery.k8s.io/v1alpha1` API is removed. ([#99662](#), [@swetharepakula](#))
- The `controller.kubernetes.io/pod-deletion-cost` annotation can be set to offer a hint on the cost of deleting a `Pod` compared to other pods belonging to the same `ReplicaSet`. Pods with lower deletion cost are deleted first. This is an alpha feature. ([#99163](#), [@ahg-g](#))
- The kube-apiserver now resets `managedFields` that got corrupted by a mutating admission controller. ([#98074](#), [@kwiesmueller](#))
- Topology Aware Hints are now available in alpha and can be enabled with the `TopologyAwareHints` feature gate. ([#99522](#), [@roboscott](#)) [SIG API Machinery, Apps, Auth, Instrumentation, Network and Testing]
- Users might specify the `kubectrl.kubernetes.io/default-exec-container` annotation in a Pod to preselect container for kubectrl commands. ([#97099](#), [@pacoxu](#)) [SIG CLI]

Feature

- A client-go metric, `rest_client_exec_plugin_call_total`, has been added to track total calls to client-go credential plugins. ([#98892](#), [@ankeesler](#)) [SIG API Machinery, Auth, Cluster Lifecycle and Instrumentation]
- A new histogram metric to track the time it took to delete a job by the `TTLAfterFinished` controller ([#98676](#), [@ahg-g](#))
- AWS cloud provider supports auto-discovering subnets without any `kubernetes.io/cluster/<clusterName>` tags. It also supports additional service annotation `service.beta.kubernetes.io/aws-load-balancer-subnets` to manually configure the subnets. ([#97431](#), [@kishorj](#))
- Aborting the drain command in a list of nodes will be deprecated. The new behavior will make the drain command go through all nodes even if one or more nodes failed during the drain. For now, users can try such experience by enabling `--ignore-errors` flag. ([#98203](#), [@yuzhiquan](#))
- Add `--permit-address-sharing` flag to `kube-apiserver` to listen with `SO_REUSEADDR` . While allowing to listen on wildcard IPs like 0.0.0.0 and specific IPs in parallel, it avoids waiting for the kernel to release socket in `TIME_WAIT` state, and hence, considerably reducing `kube-apiserver` restart times under certain conditions. ([#93861](#), [@sttts](#))
- Add `csi_operations_seconds` metric on kubelet that exposes CSI operations duration and status for node CSI operations. ([#98979](#), [@Jiawei0227](#)) [SIG Instrumentation and Storage]

- Add `migrated` field into `storage_operation_duration_seconds` metric ([#99050](#), [@Jiawei0227](#)) [SIG Apps, Instrumentation and Storage]
- Add flag `--lease-reuse-duration-seconds` for kube-apiserver to config etcd lease reuse duration. ([#97009](#), [@lingsamuel](#)) [SIG API Machinery and Scalability]
- Add metric `etcd_lease_object_counts` for kube-apiserver to observe max objects attached to a single etcd lease. ([#97480](#), [@lingsamuel](#)) [SIG API Machinery, Instrumentation and Scalability]
- Add support to generate client-side binaries for new darwin/arm64 platform ([#97743](#), [@dims](#)) [SIG Release and Testing]
- Added `ephemeral_volume_controller_create[_failures]_total` counters to kube-controller-manager metrics ([#99115](#), [@pohly](#)) [SIG API Machinery, Apps, Cluster Lifecycle, Instrumentation and Storage]
- Added support for installing `arm64` node artifacts. ([#99242](#), [@liu-cong](#))
- Adds alpha feature `VolumeCapacityPriority` which makes the scheduler prioritize nodes based on the best matching size of statically provisioned PVs across multiple topologies. ([#96347](#), [@cofyc](#)) [SIG Apps, Network, Scheduling, Storage and Testing]
- Adds the ability to pass `--strict-transport-security-directives` to the kube-apiserver to set the HSTS header appropriately. Be sure you understand the consequences to browsers before setting this field. ([#96502](#), [@249043822](#)) [SIG Auth]
- Adds two new metrics to cronjobs, a histogram to track the time difference when a job is created and the expected time when it should be created, as well as a gauge for the missed schedules of a cronjob ([#99341](#), [@alaypatel07](#))
- Alpha implementation of Kubectl Command Headers: SIG CLI KEP 859 enabled when `KUBECTL_COMMAND_HEADERS` environment variable set on the client command line. ([#98952](#), [@seans3](#))
- Base-images: Update to debian-iptables:buster-v1.4.0
 - Uses iptables 1.8.5
 - base-images: Update to debian-base:buster-v1.3.0
 - cluster/images/etcd: Build etcd:3.4.13-2 image
 - Uses debian-base:buster-v1.3.0 ([#98401](#), [@pacoxu](#)) [SIG Testing]
- CRIContainerLogRotation graduates to GA and unconditionally enabled. ([#99651](#), [@umohnani8](#))
- Component owner can configure the allowlist of metric label with flag `--allow-metric-labels`. ([#99385](#), [@YoyinZyc](#)) [SIG API Machinery, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation and Release]
- Component owner can configure the allowlist of metric label with flag `--allow-metric-labels`. ([#99738](#), [@YoyinZyc](#)) [SIG API Machinery, Cluster Lifecycle and Instrumentation]
- EmptyDir memory backed volumes are sized as the the minimum of pod allocatable memory on a host and an optional explicit user provided value. ([#100319](#), [@derekwaynecarr](#)) [SIG Node]
- Enables Kubelet to check volume condition and log events to corresponding pods. ([#99284](#), [@fengzixu](#)) [SIG Apps, Instrumentation, Node and Storage]
- EndpointSliceNodeName graduates to GA and thus will be unconditionally enabled -- NodeName will always be available in the v1beta1 API. ([#99746](#), [@swetharepakula](#))
- Export `NewDebuggingRoundTripper` function and `DebugLevel` options in the k8s.io/client-go/transport package. ([#98324](#), [@atosatto](#))
- Kube-proxy iptables: new metric `sync_proxy_rules_iptables_total` that exposes the number of rules programmed per table in each iteration ([#99653](#), [@aojea](#)) [SIG Instrumentation and Network]
- Kube-scheduler now logs plugin scoring summaries at `--v=4` ([#99411](#), [@damemi](#)) [SIG Scheduling]
- Kubeadm now includes CoreDNS v1.8.0. ([#96429](#), [@rajansandeep](#)) [SIG Cluster Lifecycle]
- Kubeadm: IPv6DualStack feature gate graduates to Beta and enabled by default ([#99294](#), [@pacoxu](#))
- Kubeadm: a warning to user as ipv6 site-local is deprecated ([#99574](#), [@pacoxu](#)) [SIG Cluster Lifecycle and Network]

- Kubeadm: add support for certificate chain validation. When using kubeadm in external CA mode, this allows an intermediate CA to be used to sign the certificates. The intermediate CA certificate must be appended to each signed certificate for this to work correctly. ([#97266](#), [@robbiemcmichael](#)) [SIG Cluster Lifecycle]
- Kubeadm: amend the node kernel validation to treat CGROUP_PIDS, FAIR_GROUP_SCHED as required and CFS_BANDWIDTH, CGROUP_HUGETLB as optional ([#96378](#), [@neolit123](#)) [SIG Cluster Lifecycle and Node]
- Kubeadm: apply the "node.kubernetes.io/exclude-from-external-load-balancers" label on control plane nodes during "init", "join" and "upgrade" to preserve backwards compatibility with the legacy LB mode where nodes labeled as "master" were excluded. To opt-out you can remove the label from a node. See [#97543](#) and the linked KEP for more details. ([#98269](#), [@neolit123](#)) [SIG Cluster Lifecycle]
- Kubeadm: if the user has customized their image repository via the kubeadm configuration, pass the custom pause image repository and tag to the kubelet via `--pod-infra-container-image` not only for Docker but for all container runtimes. This flag tells the kubelet that it should not garbage collect the image. ([#99476](#), [@neolit123](#)) [SIG Cluster Lifecycle]
- Kubeadm: perform pre-flight validation on host/node name upon `kubeadm init` and `kubeadm join`, showing warnings on non-compliant names ([#99194](#), [@pacoxu](#))
- Kubectl version changed to write a warning message to stderr if the client and server version difference exceeds the supported version skew of +/-1 minor version. ([#98250](#), [@brianpursley](#)) [SIG CLI]
- Kubectl: Add `--use-protocol-buffers` flag to kubectl top pods and nodes. ([#96655](#), [@serathius](#))
- Kubectl: `kubectl get` will omit managed fields by default now. Users could set `--show-managed-fields` to true to show managedFields when the output format is either `json` or `yaml`. ([#96878](#), [@knight42](#)) [SIG CLI and Testing]
- Kubectl: a Pod can be preselected as default container using `kubectl.kubernetes.io/default-container` annotation ([#99833](#), [@mengjiao-liu](#))
- Kubectl: add bash-completion for comma separated list on `kubectl get` ([#98301](#), [@phil9909](#))
- Kubernetes is now built using go1.15.8 ([#98834](#), [@cpanato](#)) [SIG Cloud Provider, Instrumentation, Release and Testing]
- Kubernetes is now built with Golang 1.16 ([#98572](#), [@justaugustus](#)) [SIG API Machinery, Auth, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Node, Release and Testing]
- Kubernetes is now built with Golang 1.16.1 ([#100106](#), [@justaugustus](#)) [SIG Cloud Provider, Instrumentation, Release and Testing]
- Metrics can now be disabled explicitly via a command line flag (i.e. '`--disabled-metrics=metric1,metric2`') ([#99217](#), [@logicalhan](#))
- New admission controller `DenyServiceExternalIPs` is available. Clusters which do not *need* the Service `externalIPs` feature should enable this controller and be more secure. ([#97395](#), [@thockin](#))
- Overall, enable the feature of `PreferNominatedNode` will improve the performance of scheduling where preemption might frequently happen, but in theory, enable the feature of `PreferNominatedNode`, the pod might not be scheduled to the best candidate node in the cluster. ([#93179](#), [@chendave](#)) [SIG Scheduling and Testing]
- Persistent Volumes formatted with the btrfs filesystem will now automatically resize when expanded. ([#99361](#), [@Novex](#)) [SIG Storage]
- Port the devicemanager to Windows node to allow device plugins like directx ([#93285](#), [@aarnaud](#)) [SIG Node, Testing and Windows]
- Removes cAdvisor JSON metrics (`/stats/container`, `/stats/`, `/stats/`) from the kubelet. ([#99236](#), [@pacoxu](#))
- Rename metrics `etcd_object_counts` to `apiserver_storage_object_counts` and mark it as stable. The original `etcd_object_counts` metrics name is marked as "Deprecated" and will be removed in the future. ([#99785](#), [@erain](#)) [SIG API Machinery, Instrumentation and Testing]
- Sysctls graduates to General Availability and thus unconditionally enabled. ([#99158](#), [@wgahnagl](#))

- The Kubernetes pause image manifest list now contains an image for Windows Server 20H2. ([#97322](#), [@claudiubelu](#)) [SIG Windows]
- The NodeAffinity plugin implements the PreFilter extension, offering enhanced performance for Filter. ([#99213](#), [@AliceZhang2016](#)) [SIG Scheduling]
- The `CronJobControllerV2` feature flag graduates to Beta and set to be enabled by default. ([#98878](#), [@soltys](#))
- The `EndpointSlice` mirroring controller mirrors endpoints annotations and labels to the generated endpoint slices, it also ensures that updates on any of these fields are mirrored. The well-known annotation `endpoints.kubernetes.io/last-change-trigger-time` is skipped and not mirrored. ([#98116](#), [@aojea](#))
- The `RunAsGroup` feature has been promoted to GA in this release. ([#94641](#), [@krmayankk](#)) [SIG Auth and Node]
- The `ServiceAccountIssuerDiscovery` feature has graduated to GA, and is unconditionally enabled. The `ServiceAccountIssuerDiscovery` feature-gate will be removed in 1.22. ([#98553](#), [@mtaufen](#)) [SIG API Machinery, Auth and Testing]
- The `TTLAfterFinished` feature flag is now beta and enabled by default ([#98678](#), [@ahg-g](#))
- The apimachinery util/net function used to detect the bind address `ResolveBindAddress()` takes into consideration global IP addresses on loopback interfaces when 1) the host has default routes, or 2) there are no global IPs on those interfaces in order to support more complex network scenarios like BGP Unnumbered RFC 5549 ([#95790](#), [@aojea](#)) [SIG Network]
- The feature gate `RootCAConfigMap` graduated to GA in v1.21 and therefore will be unconditionally enabled. This flag will be removed in v1.22 release. ([#98033](#), [@zshihang](#))
- The pause image upgraded to `v3.4.1` in kubelet and kubeadm for both Linux and Windows. ([#98205](#), [@pacoxu](#))
- Update pause container to run as pseudo user and group `65535:65535`. This implies the release of version 3.5 of the container images. ([#97963](#), [@saschagrunert](#)) [SIG CLI, Cloud Provider, Cluster Lifecycle, Node, Release, Security and Testing]
- Update the latest validated version of Docker to 20.10 ([#98977](#), [@neolit123](#)) [SIG CLI, Cluster Lifecycle and Node]
- Upgrade node local dns to 1.17.0 for better IPv6 support ([#99749](#), [@pacoxu](#)) [SIG Cloud Provider and Network]
- Upgrades `IPv6Dualstack` to `Beta` and turns it on by default. New clusters or existing clusters are not be affected until an actor starts adding secondary Pods and service CIDRS CLI flags as described here: [IPv4/IPv6 Dual-stack](#) ([#98969](#), [@khenidak](#))
- Users might specify the `kubect1.kubernetes.io/default-container` annotation in a Pod to preselect container for kubect1 commands. ([#99581](#), [@mengjiao-liu](#)) [SIG CLI]
- When downscaling ReplicaSets, ready and creation timestamps are compared in a logarithmic scale. ([#99212](#), [@damemi](#)) [SIG Apps and Testing]
- When the kubelet is watching a ConfigMap or Secret purely in the context of setting environment variables for containers, only hold that watch for a defined duration before cancelling it. This change reduces the CPU and memory usage of the kube-apiserver in large clusters. ([#99393](#), [@chenyw1990](#)) [SIG API Machinery, Node and Testing]
- WindowsEndpointSliceProxying feature gate has graduated to beta and is enabled by default. This means kube-proxy will read from EndpointSlices instead of Endpoints on Windows by default. ([#99794](#), [@robscott](#)) [SIG Network]
- `kubect1 wait` ensures that `observedGeneration >= generation` to prevent stale state reporting. An example scenario can be found on CRD updates. ([#97408](#), [@KnickKnic](#))

Documentation

- Azure file migration graduates to beta, with CSIMigrationAzureFile flag off by default as it requires installation of AzureFile CSI Driver. Users should enable CSIMigration and CSIMigrationAzureFile features and install the [AzureFile CSI Driver](#) to avoid disruption to existing Pod and PVC objects at that time. Azure File CSI driver does not support using same persistent volume with different fsGroups. When CSI migration is enabled for azurefile driver, such case is not supported. (there is a case we support where volume is mounted with 0777 and then it readable/writable by everyone) ([#96293](#), [@andyzhangx](#))
- Official support to build kubernetes with docker-machine / remote docker is removed. This change does not affect building kubernetes with docker locally. ([#97935](#), [@adeniyistephen](#)) [SIG Release and Testing]
- Set kubelet option `--volume-stats-aggr-period` to negative value to disable volume calculations. ([#96675](#), [@pacoxu](#)) [SIG Node]

Failing Test

- Escape the special characters like `[`, `]` and `^` that exist in vsphere windows path ([#98830](#), [@liyanhui1228](#)) [SIG Storage and Windows]
- Kube-proxy: fix a bug on UDP `NodePort` Services where stale connection tracking entries may blackhole the traffic directed to the `NodePort` ([#98305](#), [@aojea](#))
- Kubelet: fixes a bug in the HostPort dockershim implementation that caused the conformance test "HostPort validates that there is no conflict between pods with same hostPort but different hostIP and protocol" to fail. ([#98755](#), [@aojea](#)) [SIG Cloud Provider, Network and Node]

Bug or Regression

- AcceleratorStats will be available in the Summary API of kubelet when cri_stats_provider is used. ([#96873](#), [@ruiwen-zhao](#)) [SIG Node]
- All data is no longer automatically deleted when a failure is detected during creation of the volume data file on a CSI volume. Now only the data file and volume path is removed. ([#96021](#), [@huffmanca](#))
- Clean ReplicaSet by revision instead of creation timestamp in deployment controller ([#97407](#), [@waynepeking348](#)) [SIG Apps]
- Cleanup subnet in frontend IP configs to prevent huge subnet request bodies in some scenarios. ([#98133](#), [@nilo19](#)) [SIG Cloud Provider]
- Client-go exec credential plugins will pass stdin only when interactive terminal is detected on stdin. This fixes a bug where previously it was checking if `stdout` is an interactive terminal. ([#99654](#), [@ankeesler](#))
- Cloud-controller-manager: routes controller should not depend on `--allocate-node-cidrs` ([#97029](#), [@andrewsykim](#)) [SIG Cloud Provider and Testing]
- Cluster Autoscaler version bump to v1.20.0 ([#97011](#), [@towca](#))
- Creating a PVC with DataSource should fail for non-CSI plugins. ([#97086](#), [@xing-yang](#)) [SIG Apps and Storage]
- EndpointSlice controller is now less likely to emit FailedToUpdateEndpointSlices events. ([#99345](#), [@roboscott](#)) [SIG Apps and Network]
- EndpointSlice controllers are less likely to create duplicate EndpointSlices. ([#100103](#), [@roboscott](#)) [SIG Apps and Network]
- EndpointSliceMirroring controller is now less likely to emit FailedToUpdateEndpointSlices events. ([#99756](#), [@roboscott](#)) [SIG Apps and Network]
- Ensure all vSphere nodes are tracked by volume attach-detach controller ([#96689](#), [@gnufied](#))
- Ensure empty string annotations are copied over in rollbacks. ([#94858](#), [@waynepeking348](#))
- Ensure only one LoadBalancer rule is created when HA mode is enabled ([#99825](#), [@feiskyer](#)) [SIG Cloud Provider]
- Ensure that client-go's EventBroadcaster is safe (non-racy) during shutdown. ([#95664](#), [@DirectXMan12](#)) [SIG API Machinery]
- Explicitly pass `KUBE_BUILD_CONFORMANCE=y` in `package-tarballs` to reenble building the conformance tarballs. ([#100571](#), [@puerco](#))

- Fix Azure file migration e2e test failure when CSIMigration is turned on. ([#97877](#), [@andyzhangx](#))
- Fix CSI-migrated inline EBS volumes failing to mount if their volumeID is prefixed by aws:// ([#96821](#), [@wongma7](#)) [SIG Storage]
- Fix CVE-2020-8555 for Gluster client connections. ([#97922](#), [@liggitt](#)) [SIG Storage]
- Fix NPE in ephemeral storage eviction ([#98261](#), [@wzshiming](#)) [SIG Node]
- Fix PermissionDenied issue on SMB mount for Windows ([#99550](#), [@andyzhangx](#))
- Fix bug that would let the Horizontal Pod Autoscaler scale down despite at least one metric being unavailable/invalid ([#99514](#), [@mikkeloscar](#)) [SIG Apps and Autoscaling]
- Fix cgroup handling for systemd with cgroup v2 ([#98365](#), [@odinuge](#)) [SIG Node]
- Fix counting error in service/nodeport/loadbalancer quota check ([#97451](#), [@pacoxu](#)) [SIG API Machinery, Network and Testing]
- Fix errors when accessing Windows container stats for Dockershim ([#98510](#), [@jsturtevant](#)) [SIG Node and Windows]
- Fix kube-proxy container image architecture for non amd64 images. ([#98526](#), [@saschagrunert](#))
- Fix missing cadvisor machine metrics. ([#97006](#), [@lingsamuel](#)) [SIG Node]
- Fix nil VMSS name when setting service to auto mode ([#97366](#), [@nilo19](#)) [SIG Cloud Provider]
- Fix privileged config of Pod Sandbox which was previously ignored. ([#96877](#), [@xeniumlee](#))
- Fix the panic when kubelet registers if a node object already exists with no Status.Capacity or Status.Allocatable ([#95269](#), [@SataQiu](#)) [SIG Node]
- Fix the regression with the slow pods termination. Before this fix pods may take an additional time to terminate - up to one minute. Reversing the change that ensured that CNI resources cleaned up when the pod is removed on API server. ([#97980](#), [@SergeyKanzhelev](#)) [SIG Node]
- Fix to recover CSI volumes from certain dangling attachments ([#96617](#), [@yuga711](#)) [SIG Apps and Storage]
- Fix: azure file latency issue for metadata-heavy workloads ([#97082](#), [@andyzhangx](#)) [SIG Cloud Provider and Storage]
- Fixed Cinder volume IDs on OpenStack Train ([#96673](#), [@jsafrane](#)) [SIG Cloud Provider]
- Fixed FibreChannel volume plugin corrupting filesystems on detach of multipath volumes. ([#97013](#), [@jsafrane](#)) [SIG Storage]
- Fixed a bug in kubelet that will saturate CPU utilization after containerd got restarted. ([#97174](#), [@hanlins](#)) [SIG Node]
- Fixed a bug that causes smaller number of conntrack-max being used under CPU static policy. ([#99225](#), [@xh4n3](#)) ([#99613](#), [@xh4n3](#)) [SIG Network]
- Fixed a bug that on k8s nodes, when the policy of INPUT chain in filter table is not ACCEPT, healthcheck nodeport would not work. Added iptables rules to allow healthcheck nodeport traffic. ([#97824](#), [@hanlins](#)) [SIG Network]
- Fixed a bug that the kubelet cannot start on Btrfs. ([#98042](#), [@gjkim42](#)) [SIG Node]
- Fixed a race condition on API server startup ensuring previously created webhook configurations are effective before the first write request is admitted. ([#95783](#), [@roycaiwh](#)) [SIG API Machinery]
- Fixed an issue with garbage collection failing to clean up namespaced children of an object also referenced incorrectly by cluster-scoped children ([#98068](#), [@liggitt](#)) [SIG API Machinery and Apps]
- Fixed authentication_duration_seconds metric scope. Previously, it included whole apiserver request duration which yields inaccurate results. ([#99944](#), [@marseel](#))
- Fixed bug in CPUManager with race on container map access ([#97427](#), [@klueska](#)) [SIG Node]
- Fixed bug that caused cAdvisor to incorrectly detect single-socket multi-NUMA topology. ([#99315](#), [@iwankgb](#)) [SIG Node]
- Fixed cleanup of block devices when /var/lib/kubelet is a symlink. ([#96889](#), [@jsafrane](#)) [SIG Storage]
- Fixed no effect namespace when exposing deployment with --dry-run=client. ([#97492](#), [@masap](#)) [SIG CLI]
- Fixed provisioning of Cinder volumes migrated to CSI when StorageClass with AllowedTopologies was used. ([#98311](#), [@jsafrane](#)) [SIG Storage]
- Fixes a bug of identifying the correct containerd process. ([#97888](#), [@pacoxu](#))

- Fixes add-on manager leader election to use leases instead of endpoints, similar to what kube-controller-manager does in 1.20 ([#98968](#), [@liggitt](#))
- Fixes connection errors when using `--volume-host-cidr-denylist` or `--volume-host-allow-local-loopback` ([#98436](#), [@liggitt](#)) [SIG Network and Storage]
- Fixes problem where invalid selector on `PodDisruptionBudget` leads to a nil pointer dereference that causes the Controller manager to crash loop. ([#98750](#), [@mortent](#))
- Fixes spurious errors about IPv6 in `kube-proxy` logs on nodes with IPv6 disabled. ([#99127](#), [@danwinship](#))
- Fixing a bug where a failed node may not have the NoExecute taint set correctly ([#96876](#), [@howieyuen](#)) [SIG Apps and Node]
- GCE Internal LoadBalancer sync loop will now release the ILB IP address upon sync failure. An error in ILB forwarding rule creation will no longer leak IP addresses. ([#97740](#), [@prameshj](#)) [SIG Cloud Provider and Network]
- Ignore update pod with no new images in alwaysPullImages admission controller ([#96668](#), [@pacoxu](#)) [SIG Apps, Auth and Node]
- Improve speed of vSphere PV provisioning and reduce number of API calls ([#100054](#), [@gnufied](#)) [SIG Cloud Provider and Storage]
- KUBECTL_EXTERNAL_DIFF now accepts equal sign for additional parameters. ([#98158](#), [@dougsland](#)) [SIG CLI]
- Kube-apiserver: an update of a pod with a generic ephemeral volume dropped that volume if the feature had been disabled since creating the pod with such a volume ([#99446](#), [@pohly](#)) [SIG Apps, Node and Storage]
- Kube-proxy: remove deprecated `--cleanup-ipvs` flag of kube-proxy, and make `--cleanup` flag always to flush IPVS ([#97336](#), [@maaoBit](#)) [SIG Network]
- Kubeadm installs etcd v3.4.13 when creating cluster v1.19 ([#97244](#), [@pacoxu](#))
- Kubeadm: Fixes a kubeadm upgrade bug that could cause a custom CoreDNS configuration to be replaced with the default. ([#97016](#), [@rajansandeep](#)) [SIG Cluster Lifecycle]
- Kubeadm: Some text in the `kubeadm upgrade plan` output has changed. If you have scripts or other automation that parses this output, please review these changes and update your scripts to account for the new output. ([#98728](#), [@stmcginnis](#)) [SIG Cluster Lifecycle]
- Kubeadm: fix a bug in the host memory detection code on 32bit Linux platforms ([#97403](#), [@abelbarrera15](#)) [SIG Cluster Lifecycle]
- Kubeadm: fix a bug where "kubeadm join" would not properly handle missing names for existing etcd members. ([#97372](#), [@ihgann](#)) [SIG Cluster Lifecycle]
- Kubeadm: fix a bug where "kubeadm upgrade" commands can fail if CoreDNS v1.8.0 is installed. ([#97919](#), [@neolit123](#)) [SIG Cluster Lifecycle]
- Kubeadm: fix a bug where external credentials in an existing admin.conf prevented the CA certificate to be written in the cluster-info ConfigMap. ([#98882](#), [@kvaps](#)) [SIG Cluster Lifecycle]
- Kubeadm: get k8s CI version markers from k8s infra bucket ([#98836](#), [@hasheddan](#)) [SIG Cluster Lifecycle and Release]
- Kubeadm: skip validating pod subnet against node-cidr-mask when allocate-node-cidrs is set to be false ([#98984](#), [@SataQiu](#)) [SIG Cluster Lifecycle]
- Kubectl logs: `--ignore-errors` is now honored by all containers, maintaining consistency with `parallelConsumeRequest` behavior. ([#97686](#), [@wzshiming](#))
- Kubectl-convert: Fix `no kind "Ingress" is registered for version` error ([#97754](#), [@wzshiming](#))
- Kubectl: Fixed panic when describing an ingress backend without an API Group ([#100505](#), [@lauchokyip](#)) [SIG CLI]
- Kubelet now cleans up orphaned volume directories automatically ([#95301](#), [@lorenz](#)) [SIG Node and Storage]

- Kubelet.exe on Windows now checks that the process running as administrator and the executing user account is listed in the built-in administrators group. This is the equivalent to checking the process is running as uid 0. ([#96616](#), [@perithompson](#)) [SIG Node and Windows]
- Kubelet: Fix kubelet from panic after getting the wrong signal ([#98200](#), [@wzshiming](#)) [SIG Node]
- Kubelet: Fix repeatedly acquiring the inhibit lock ([#98088](#), [@wzshiming](#)) [SIG Node]
- Kubelet: Fixed the bug of getting the number of cpu when the number of cpu logical processors is more than 64 in windows ([#97378](#), [@hwdef](#)) [SIG Node and Windows]
- Limits lease to have 1000 maximum attached objects. ([#98257](#), [@lingsamuel](#))
- Mitigate CVE-2020-8555 for kube-up using GCE by preventing local loopback volume hosts. ([#97934](#), [@mattcary](#)) [SIG Cloud Provider and Storage]
- On single-stack configured (IPv4 or IPv6, but not both) clusters, Services which are both headless (no clusterIP) and selectorless (empty or undefined selector) will report `ipFamilyPolicy RequireDualStack` and will have entries in `ipFamilies[]` for both IPv4 and IPv6. This is a change from alpha, but does not have any impact on the manually-specified Endpoints and EndpointSlices for the Service. ([#99555](#), [@thockin](#)) [SIG Apps and Network]
- Performance regression #97685 has been fixed. ([#97860](#), [@MikeSpreitzer](#)) [SIG API Machinery]
- Pod Log stats for windows now reports metrics ([#99221](#), [@jsturtevant](#)) [SIG Node, Storage, Testing and Windows]
- Pod status updates faster when reacting on probe results. The first readiness probe will be called faster when startup probes succeeded, which will make Pod status as ready faster. ([#98376](#), [@matthyx](#))
- Readjust `kubelet_containers_per_pod_count` buckets to only show metrics greater than 1. ([#98169](#), [@wawa0210](#))
- Remove CSI topology from migrated in-tree gcepd volume. ([#97823](#), [@Jiawei0227](#)) [SIG Cloud Provider and Storage]
- Requests with invalid timeout parameters in the request URL now appear in the audit log correctly. ([#96901](#), [@tkashem](#)) [SIG API Machinery and Testing]
- Resolve a "concurrent map read and map write" crashing error in the kubelet ([#95111](#), [@choury](#)) [SIG Node]
- Resolves spurious `Failed to list *v1.Secret` or `Failed to list *v1.ConfigMap` messages in kubelet logs. ([#99538](#), [@liggitt](#)) [SIG Auth and Node]
- ResourceQuota of an entity now inclusively calculate Pod overhead ([#99600](#), [@gjkim42](#))
- Return zero time (midnight on Jan. 1, 1970) instead of negative number when reporting `startedAt` and `finishedAt` of the not started or a running Pod when using `dockershim` as a runtime. ([#99585](#), [@Iceber](#))
- Reverts breaking change to inline AzureFile volumes; referenced secrets are now searched for in the same namespace as the pod as in previous releases. ([#100563](#), [@msau42](#))
- Scores from InterPodAffinity have stronger differentiation. ([#98096](#), [@leileiwan](#)) [SIG Scheduling]
- Specifying the KUBE_TEST_REPO environment variable when e2e tests are executed will instruct the test infrastructure to load that image from a location within the specified repo, using a predefined pattern. ([#93510](#), [@smarterclayton](#)) [SIG Testing]
- Static pods will be deleted gracefully. ([#98103](#), [@gjkim42](#)) [SIG Node]
- Sync node status during kubelet node shutdown. Adds an pod admission handler that rejects new pods when the node is in progress of shutting down. ([#98005](#), [@wzshiming](#)) [SIG Node]
- The calculation of pod UIDs for static pods has changed to ensure each static pod gets a unique value - this will cause all static pod containers to be recreated/restarted if an in-place kubelet upgrade from 1.20 to 1.21 is performed. Note that draining pods before upgrading the kubelet across minor versions is the supported upgrade path. ([#87461](#), [@bboreham](#)) [SIG Node]
- The maximum number of ports allowed in EndpointSlices has been increased from 100 to 20,000 ([#99795](#), [@roboscott](#)) [SIG Network]
- Truncates a message if it hits the `NoteLengthLimit` when the scheduler records an event for the pod that indicates the pod has failed to schedule. ([#98715](#), [@carlory](#))

- Updated `k8s.gcr.io/ingress-gce-404-server-with-metrics-amd64` to a version that serves `/metrics` endpoint on a non-default port. ([#97621](#), [@vbannai](#)) [SIG Cloud Provider]
- Updates the commands `
 - `kubectl kustomize {arg}`
 - `kubectl apply -k {arg}` to use same code as `kustomize CLI v4.0.5` ([#98946](#), [@monopole](#))
- Use `force unmount` for NFS volumes if regular mount fails after 1 minute timeout ([#96844](#), [@gnufied](#)) [SIG Storage]
- Use `network.Interface.VirtualMachine.ID` to get the binded VM Skip standalone VM when reconciling `LoadBalancer` ([#97635](#), [@nilo19](#)) [SIG Cloud Provider]
- Using `exec auth` plugins with `kubectl` no longer results in warnings about constructing many client instances from the same `exec auth` config. ([#97857](#), [@liggitt](#)) [SIG API Machinery and Auth]
- When a CNI plugin returns dual-stack pod IPs, kubelet will now try to respect the "primary IP family" of the cluster by picking a primary pod IP of the same family as the (primary) node IP, rather than assuming that the CNI plugin returned the IPs in the order the administrator wanted (since some CNI plugins don't allow configuring this). ([#97979](#), [@danwinship](#)) [SIG Network and Node]
- When dynamically provisioning Azure File volumes for a premium account, the requested size will be set to 100GB if the request is initially lower than this value to accommodate Azure File requirements. ([#99122](#), [@huffmanca](#)) [SIG Cloud Provider and Storage]
- When using `Containerd` on Windows, the `C:\Windows\System32\drivers\etc\hosts` file will now be managed by kubelet. ([#83730](#), [@claudiubelu](#))
- `VolumeBindingArgs` now allow `BindTimeoutSeconds` to be set as zero, while the value zero indicates no waiting for the checking of volume binding operation. ([#99835](#), [@chendave](#)) [SIG Scheduling and Storage]
- `kubectl exec` and `kubectl attach` now honor the `--quiet` flag which suppresses output from the local binary that could be confused by a script with the remote command output (all non-failure output is hidden). In addition, print inline with `exec` and `attach` the list of alternate containers when we default to the first `spec.container`. ([#99004](#), [@smarterclayton](#)) [SIG CLI]

Other (Cleanup or Flake)

- APIs for kubelet annotations and labels from `k8s.io/kubernetes/pkg/kubelet/apis` are now moved under `k8s.io/kubelet/pkg/apis/` ([#98931](#), [@michaelbeaumont](#))
- `Apiserver_request_duration_seconds` is promoted to stable status. ([#99925](#), [@logicalhan](#)) [SIG API Machinery, Instrumentation and Testing]
- Bump `github.com/Azure/go-autorest/autorest` to v0.11.12 ([#97033](#), [@patrickshan](#)) [SIG API Machinery, CLI, Cloud Provider and Cluster Lifecycle]
- Clients required to use go1.15.8+ or go1.16+ if kube-apiserver has the goaway feature enabled to avoid unexpected data race condition. ([#98809](#), [@answer1991](#))
- Delete deprecated `service.beta.kubernetes.io/azure-load-balancer-mixed-protocols` mixed protocol annotation in favor of the `MixedProtocolLBService` feature ([#97096](#), [@nilo19](#)) [SIG Cloud Provider]
- `EndpointSlice` generation is now incremented when labels change. ([#99750](#), [@roboscott](#)) [SIG Network]
- `Featuregate AllowInsecureBackendProxy` graduates to GA and unconditionally enabled. ([#99658](#), [@deads2k](#))
- Increase timeout for pod lifecycle test to reach pod status=`ready` ([#96691](#), [@hh](#))
- Increased `CSINodeIDMaxLength` from 128 bytes to 192 bytes. ([#98753](#), [@Jiawei0227](#))
- Kube-apiserver: The OIDC authenticator no longer waits 10 seconds before attempting to fetch the metadata required to verify tokens. ([#97693](#), [@enj](#)) [SIG API Machinery and Auth]
- Kube-proxy: Traffic from the cluster directed to ExternalIPs is always sent directly to the Service. ([#96296](#), [@aojea](#)) [SIG Network and Testing]

- Kubeadm: change the default image repository for CI images from 'gcr.io/kubernetes-ci-images' to 'gcr.io/k8s-staging-ci-images' ([#97087](#), [@SataQiu](#)) [SIG Cluster Lifecycle]
- Kubectl: The deprecated `kubectl alpha debug` command is removed. Use `kubectl debug` instead. ([#98111](#), [@pandaamanda](#)) [SIG CLI]
- Kubelet command line flags related to dockershim are now showing deprecation message as they will be removed along with dockershim in future release. ([#98730](#), [@dims](#))
- Official support to build kubernetes with docker-machine / remote docker is removed. This change does not affect building kubernetes with docker locally. ([#97618](#), [@jherrera123](#)) [SIG Release and Testing]
- Process start time on Windows now uses current process information ([#97491](#), [@jsturtevant](#)) [SIG API Machinery, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation and Windows]
- Resolves flakes in the Ingress conformance tests due to conflicts with controllers updating the Ingress object ([#98430](#), [@liggitt](#)) [SIG Network and Testing]
- The `AttachVolumeLimit` feature gate (GA since v1.17) has been removed and now unconditionally enabled. ([#96539](#), [@ialidzhikov](#))
- The `CSINodeInfo` feature gate that is GA since v1.17 is unconditionally enabled, and can no longer be specified via the `--feature-gates` argument. ([#96561](#), [@ialidzhikov](#)) [SIG Apps, Auth, Scheduling, Storage and Testing]
- The `apiserver_request_total` metric is promoted to stable status and no longer has a content-type dimensions, so any alerts/charts which presume the existence of this will fail. This is however, unlikely to be the case since it was effectively an unbounded dimension in the first place. ([#99788](#), [@logicalhan](#))
- The default delegating authorization options now allow unauthenticated access to healthz, readyz, and livez. A system:masters user connecting to an authz delegator will not perform an authz check. ([#98325](#), [@deads2k](#)) [SIG API Machinery, Auth, Cloud Provider and Scheduling]
- The deprecated feature gates `CSIDriverRegistry`, `BlockVolume` and `CSIBlockVolume` are now unconditionally enabled and can no longer be specified in component invocations. ([#98021](#), [@gavinfish](#)) [SIG Storage]
- The deprecated feature gates `RotateKubeletClientCertificate`, `AttachVolumeLimit`, `VolumePVCDDataSource` and `EvenPodsSpread` are now unconditionally enabled and can no longer be specified in component invocations. ([#97306](#), [@gavinfish](#)) [SIG Node, Scheduling and Storage]
- The e2e suite can be instructed not to wait for pods in kube-system to be ready or for all nodes to be ready by passing `--allowed-not-ready-nodes=-1` when invoking the e2e.test program. This allows callers to run subsets of the e2e suite in scenarios other than perfectly healthy clusters. ([#98781](#), [@smarterclayton](#)) [SIG Testing]
- The feature gates `WindowsGMSA` and `WindowsRunAsUserName` that are GA since v1.18 are now removed. ([#96531](#), [@ialidzhikov](#)) [SIG Node and Windows]
- The new `-gce-zones` flag on the `e2e.test` binary instructs tests that check for information about how the cluster interacts with the cloud to limit their queries to the provided zone list. If not specified, the current behavior of asking the cloud provider for all available zones in multi zone clusters is preserved. ([#98787](#), [@smarterclayton](#)) [SIG API Machinery, Cluster Lifecycle and Testing]
- Update cri-tools to [v1.20.0](#) ([#97967](#), [@rajibmitra](#)) [SIG Cloud Provider]
- Windows nodes on GCE will take longer to start due to dependencies installed at node creation time. ([#98284](#), [@pjh](#)) [SIG Cloud Provider]
- `apiserver_storage_objects` (a newer version of `etcd_object_counts`) is promoted and marked as stable. ([#100082](#), [@logicalhan](#))

Uncategorized

- GCE L4 Loadbalancers now handle > 5 ports in service spec correctly. ([#99595](#), [@prameshj](#)) [SIG Cloud Provider]

- The DownwardAPIHugePages feature is beta. Users may use the feature if all workers in their cluster are min 1.20 version. The feature will be enabled by default in all installations in 1.22. ([#99610](#), [@derekwaynecarr](#)) [SIG Node]

Dependencies

Added

- [github.com/go-errors/errors: v1.0.1](#)
- [github.com/gobuffalo/here: v0.6.0](#)
- [github.com/google/shlex: e7afc7f](#)
- [github.com/markbates/pkger: v0.17.1](#)
- [github.com/moby/spdystream: v0.2.0](#)
- [github.com/monochromegane/go-gitignore: 205db1a](#)
- [github.com/niemeyer/pretty: a10e7ca](#)
- [github.com/xlab/treeprint: a009c39](#)
- [go.starlark.net: 8dd3e2e](#)
- [golang.org/x/term: 6a3ed07](#)
- [sigs.k8s.io/kustomize/api: v0.8.5](#)
- [sigs.k8s.io/kustomize/cmd/config: v0.9.7](#)
- [sigs.k8s.io/kustomize/kustomize/v4: v4.0.5](#)
- [sigs.k8s.io/kustomize/kyaml: v0.10.15](#)

Changed

- [dmitri.shuralyov.com/gpu/mtl: 666a987 → 28db891](#)
- [github.com/Azure/go-autorest/autorest: v0.11.1 → v0.11.12](#)
- [github.com/NYTimes/gziphandler: 56545f4 → v1.1.1](#)
- [github.com/cilium/ebpf: 1c8d4c9 → v0.2.0](#)
- [github.com/container-storage-interface/spec: v1.2.0 → v1.3.0](#)
- [github.com/containerd/console: v1.0.0 → v1.0.1](#)
- [github.com/containerd/containerd: v1.4.1 → v1.4.4](#)
- [github.com/coredns/corefile-migration: v1.0.10 → v1.0.11](#)
- [github.com/creack/pty: v1.1.7 → v1.1.11](#)
- [github.com/docker/docker: bd33bbf → v20.10.2+incompatible](#)
- [github.com/go-logr/logr: v0.2.0 → v0.4.0](#)
- [github.com/go-openapi/spec: v0.19.3 → v0.19.5](#)
- [github.com/go-openapi/strfmt: v0.19.3 → v0.19.5](#)
- [github.com/go-openapi/validate: v0.19.5 → v0.19.8](#)
- [github.com/gogo/protobuf: v1.3.1 → v1.3.2](#)
- [github.com/golang/mock: v1.4.1 → v1.4.4](#)
- [github.com/google/cadvisor: v0.38.5 → v0.39.0](#)
- [github.com/heketi/heketi: c2e2a4a → v10.2.0+incompatible](#)
- [github.com/kisielk/errcheck: v1.2.0 → v1.5.0](#)
- [github.com/konsorten/go-windows-terminal-sequences: v1.0.3 → v1.0.2](#)
- [github.com/kr/text: v0.1.0 → v0.2.0](#)
- [github.com/matttn/go-runewidth: v0.0.2 → v0.0.7](#)
- [github.com/miekg/dns: v1.1.4 → v1.1.35](#)
- [github.com/moby/sys/mountinfo: v0.1.3 → v0.4.0](#)
- [github.com/moby/term: 672ec06 → df9cb8a](#)
- [github.com/mrunalp/fileutils: abd8a0e → v0.5.0](#)
- [github.com/olekukonko/tablewriter: a0225b3 → v0.0.4](#)

- [github.com/opencontainers/runc: v1.0.0-rc92 → v1.0.0-rc93](#)
- [github.com/opencontainers/runtime-spec: 4d89ac9 → e6143ca](#)
- [github.com/opencontainers/selinux: v1.6.0 → v1.8.0](#)
- [github.com/sergi/go-diff: v1.0.0 → v1.1.0](#)
- [github.com/sirupsen/logrus: v1.6.0 → v1.7.0](#)
- [github.com/syndtr/gocapability: d983527 → 42c35b4](#)
- [github.com/willf/bitset: d5bec33 → v1.1.11](#)
- [github.com/yuin/goldmark: v1.1.27 → v1.2.1](#)
- [golang.org/x/crypto: 7f63de1 → 5ea612d](#)
- [golang.org/x/exp: 6cc2880 → 85be41e](#)
- [golang.org/x/mobile: d2bd2a2 → e6ae53a](#)
- [golang.org/x/mod: v0.3.0 → ce943fd](#)
- [golang.org/x/net: 69a7880 → 3d97a24](#)
- [golang.org/x/sync: cd5d95a → 67f06af](#)
- [golang.org/x/sys: 5cba982 → a50acf3](#)
- [golang.org/x/time: 3af7569 → f8bda1e](#)
- [golang.org/x/tools: c1934b7 → v0.1.0](#)
- [gopkg.in/check.v1: 41f04d3 → 8fa4692](#)
- [gopkg.in/yaml.v2: v2.2.8 → v2.4.0](#)
- [gotest.tools/v3: v3.0.2 → v3.0.3](#)
- [k8s.io/gengo: 83324d8 → b6c5ce2](#)
- [k8s.io/klog/v2: v2.4.0 → v2.8.0](#)
- [k8s.io/kube-openapi: d219536 → 591a79e](#)
- [k8s.io/system-validators: v1.2.0 → v1.4.0](#)
- [sigs.k8s.io/apiserver-network-proxy/konnectivity-client: v0.0.14 → v0.0.15](#)
- [sigs.k8s.io/structured-merge-diff/v4: v4.0.2 → v4.1.0](#)

Removed

- [github.com/codegangsta/negroni: v1.0.0](#)
- [github.com/docker/spdystream: 449fdcf](#)
- [github.com/golangplus/bytes: 45c989f](#)
- [github.com/golangplus/fmt: 2a5d6d7](#)
- [github.com/gorilla/context: v1.1.1](#)
- [github.com/kr/pty: v1.1.5](#)
- [rsc.io/quote/v3: v3.1.0](#)
- [rsc.io/sampler: v1.3.0](#)
- [sigs.k8s.io/kustomize: v2.0.3+incompatible](#)

v1.21.0-rc.0

Downloads for v1.21.0-rc.0

Source Code

filename	sha512 hash
kubernetes.tar.gz	ef53a41955d6f8a8d2a94636af98b55d633fb8a5081517559039e019b3dd65c9d10d4e7fa297ak
kubernetes-src.tar.gz	9335a01b50d351776d3b8d00c07a5233844c51d307e361fa7e55a0620c1cb8b699e43eacf45ae

Client binaries

filename	sha512 hash
kubernetes-client-darwin-amd64.tar.gz	964135e43234cee275c452f5f06fb6d2bcd3cff3211a0d50fa35fff1cc4446bc5a0ac5125405dadcfb65
kubernetes-client-darwin-arm64.tar.gz	50d782abaa4ded5e706b3192d87effa953ceabbd7d91e3d48b0c1fa2206a1963a909c14b923560f5
kubernetes-client-linux-386.tar.gz	72af5562f24184a2d7c27f95fa260470da979fbdcacce39a372f8f3add2991d7af8bc78f4e1dbe7a0f9
kubernetes-client-linux-amd64.tar.gz	1eddb8f6b51e005bc6f7b519d036cbe3d2f6d97dbf7d212dd933fb56354c29f222d050519115a9bc
kubernetes-client-linux-arm.tar.gz	670f8ca60ea3cf0bb3262a772715e0ea735fccda6a92f3186299361dc455b304ae177d4017e0b67bt
kubernetes-client-linux-arm64.tar.gz	a69a47907cff138ba393d8c87044fd95d97f3ca8f35d301b50742e2801ad7c229d99d6667971091f6
kubernetes-client-linux-ppc64le.tar.gz	b929feade94b71c81908abcdcd4343b1e1e20098fd65e10d4d02585ad649d292d06f52c7ddc349efa
kubernetes-client-linux-s390x.tar.gz	899d1470e412282cf289d8e24806d1a08c62ec0151f345ae3c9e497cc7bc0feab76498de4dd897d6;
kubernetes-client-windows-386.tar.gz	9f0bc90a269eabd06fe4f637b5172a3a6a7d3de26de0d66504c2e1f2093083c584ea39031db6075a
kubernetes-client-windows-amd64.tar.gz	05c8cc10188a1294b0d51d052942742a9b26411a08ec73494bf0e728a8a167e0a7863bdfc8864e76

Server binaries

filename	sha512 hash
kubernetes-server-linux-amd64.tar.gz	355f278728ef7ac7eb2f5568c99c1429543c6302bbd0ed3bd0378c08116075e56ae850a49241313fc
kubernetes-	9ac02c2825e2fd4e92f0c0f67180c67c24e32841ccbab82284bf6293727ffecfae65e8a42b527c2a7c

server-linux-arm.tar.gz	
kubernetes-server-linux-arm64.tar.gz	eb412453da03c82a9248412c8ccf4d4baa1fbfa81edd8d4f81d28969b40a3727e18934accc68f643d
kubernetes-server-linux-ppc64le.tar.gz	07da2812c35bbc427ee5b4a0b601c3ae271e0d50ab0dd4c5c25399f43506fa2a187642eb9d4d208f
kubernetes-server-linux-s390x.tar.gz	3b79442a3d6e389c4ff105922a8e49994c0b6c088d2c501bd8c78d9f9e814902f5bb72c8f9c89380b

Node binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	f12edf1faf5f07de1ebc5a8626601c12927902e10aca3f11e398637382fdf55365dbd9a0ef38858553f
kubernetes-node-linux-arm.tar.gz	4fba8fc4e2102f07fb778aab597ec7231ea65c35e1aa618fe98b707b64a931237bd842c173e912032
kubernetes-node-linux-arm64.tar.gz	a2e1be5459a8346839970faf4e7ebdb8ab9f3273e02babf1f3199b06bdb67434a2d18fcd1628cf1b9
kubernetes-node-linux-ppc64le.tar.gz	16d2c1cc295474fc49fe9a827ddd73e81bdd6b76af7074987b90250023f99b6d70bf474e204c7d55f
kubernetes-node-linux-s390x.tar.gz	9dc6faa6cd007b13dfce703f3e271f80adcc4e029c90a4a9b4f2f143b9756f2893f8af3d7c2cf813f2bd
kubernetes-node-windows-amd64.tar.gz	f8bac2974c9142bfb80cd5eaded79f79f27b78899a4e6e71809b795c708824ba442be83fdbadb98e

Changelog since v1.21.0-beta.1

Urgent Upgrade Notes

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

- Migrated pkg/kubelet/cm/cpuset/cpuset.go to structured logging. Exit code changed from 255 to 1.
([#100007](#), [@utsavoza](#)) [SIG Instrumentation and Node]

Changes by Kind

API Change

- Add Probe-level terminationGracePeriodSeconds field ([#99375](#), [@ehashman](#)) [SIG API Machinery, Apps, Node and Testing]
- CSIServiceAccountToken is Beta now ([#99298](#), [@zshihang](#)) [SIG Auth, Storage and Testing]
- Discovery.k8s.io/v1beta1 EndpointSlices are deprecated in favor of discovery.k8s.io/v1, and will no longer be served in Kubernetes v1.25. ([#100472](#), [@liggitt](#)) [SIG Network]
- FieldManager no longer owns fields that get reset before the object is persisted (e.g. "status wiping"). ([#99661](#), [@kevindegado](#)) [SIG API Machinery, Auth and Testing]
- Generic ephemeral volumes are beta. ([#99643](#), [@pohly](#)) [SIG API Machinery, Apps, Auth, CLI, Node, Storage and Testing]
- Implement the GetAvailableResources in the podresources API. ([#95734](#), [@fromanirh](#)) [SIG Instrumentation, Node and Testing]
- The Endpoints controller will now set the `endpoints.kubernetes.io/over-capacity` annotation to "warning" when an Endpoints resource contains more than 1000 addresses. In a future release, the controller will truncate Endpoints that exceed this limit. The EndpointSlice API can be used to support significantly larger number of addresses. ([#99975](#), [@roboscott](#)) [SIG Apps and Network]
- The PodDisruptionBudget API has been promoted to policy/v1 with no schema changes. The only functional change is that an empty selector (`{ }`) written to a policy/v1 PodDisruptionBudget now selects all pods in the namespace. The behavior of the policy/v1beta1 API remains unchanged. The policy/v1beta1 PodDisruptionBudget API is deprecated and will no longer be served in 1.25+. ([#99290](#), [@mortent](#)) [SIG API Machinery, Apps, Auth, Autoscaling, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Scheduling and Testing]
- Topology Aware Hints are now available in alpha and can be enabled with the `TopologyAwareHints` feature gate. ([#99522](#), [@roboscott](#)) [SIG API Machinery, Apps, Auth, Instrumentation, Network and Testing]

Feature

- Add e2e test to validate performance metrics of volume lifecycle operations ([#94334](#), [@RaunakShah](#)) [SIG Storage and Testing]
- EmptyDir memory backed volumes are sized as the the minimum of pod allocatable memory on a host and an optional explicit user provided value. ([#100319](#), [@derekwaynecarr](#)) [SIG Node]
- Enables Kubelet to check volume condition and log events to corresponding pods. ([#99284](#), [@fengzixu](#)) [SIG Apps, Instrumentation, Node and Storage]
- Introduce a churn operator to scheduler perf testing framework. ([#98900](#), [@Huang-Wei](#)) [SIG Scheduling and Testing]
- Kubernetes is now built with Golang 1.16.1 ([#100106](#), [@justaugustus](#)) [SIG Cloud Provider, Instrumentation, Release and Testing]
- Migrated pkg/kubelet/cm/devicemanager to structured logging ([#99976](#), [@knabben](#)) [SIG Instrumentation and Node]
- Migrated pkg/kubelet/cm/memorymanager to structured logging ([#99974](#), [@knabben](#)) [SIG Instrumentation and Node]
- Migrated pkg/kubelet/cm/topologymanager to structure logging ([#99969](#), [@knabben](#)) [SIG Instrumentation and Node]
- Rename metrics `etcd_object_counts` to `apiserver_storage_object_counts` and mark it as stable. The original `etcd_object_counts` metrics name is marked as "Deprecated" and will be removed in the future. ([#99785](#), [@erain](#)) [SIG API Machinery, Instrumentation and Testing]
- Update pause container to run as pseudo user and group `65535:65535` . This implies the release of version 3.5 of the container images. ([#97963](#), [@saschagrunert](#)) [SIG CLI, Cloud Provider, Cluster Lifecycle,

Node, Release, Security and Testing]

- Users might specify the `kubect1.kubernetes.io/default-exec-container` annotation in a Pod to preselect container for kubect1 commands. ([#99833](#), [@mengjiao-liu](#)) [SIG CLI]

Bug or Regression

- Add ability to skip OpenAPI handler installation to the GenericAPIServer ([#100341](#), [@kevindelgado](#)) [SIG API Machinery]
- Count pod overhead against an entity's ResourceQuota ([#99600](#), [@gjkim42](#)) [SIG API Machinery and Node]
- EndpointSlice controllers are less likely to create duplicate EndpointSlices. ([#100103](#), [@roboscott](#)) [SIG Apps and Network]
- Ensure only one LoadBalancer rule is created when HA mode is enabled ([#99825](#), [@feiskyer](#)) [SIG Cloud Provider]
- Fixed a race condition on API server startup ensuring previously created webhook configurations are effective before the first write request is admitted. ([#95783](#), [@roycaiwh](#)) [SIG API Machinery]
- Fixed authentication_duration_seconds metric. Previously it included whole apiserver request duration. ([#99944](#), [@marseel](#)) [SIG API Machinery, Instrumentation and Scalability]
- Fixes issue where inline AzureFile secrets could not be accessed from the pod's namespace. ([#100563](#), [@msau42](#)) [SIG Storage]
- Improve speed of vSphere PV provisioning and reduce number of API calls ([#100054](#), [@gnufied](#)) [SIG Cloud Provider and Storage]
- Kubect1: Fixed panic when describing an ingress backend without an API Group ([#100505](#), [@lauchokyip](#)) [SIG CLI]
- Kubect1: fix case of age column in describe node (#96963, [@bl-ue](#)) ([#96963](#), [@bl-ue](#)) [SIG CLI]
- Kubelet.exe on Windows now checks that the process running as administrator and the executing user account is listed in the built-in administrators group. This is the equivalent to checking the process is running as uid 0. ([#96616](#), [@perithompson](#)) [SIG Node and Windows]
- Kubelet: Fixed the bug of getting the number of cpu when the number of cpu logical processors is more than 64 in windows ([#97378](#), [@hwdef](#)) [SIG Node and Windows]
- Pass `KUBE_BUILD_CONFORMANCE=y` to the package-tarballs to reenale building the conformance tarballs. ([#100571](#), [@puerco](#)) [SIG Release]
- Pod Log stats for windows now reports metrics ([#99221](#), [@jsturtevant](#)) [SIG Node, Storage, Testing and Windows]

Other (Cleanup or Flake)

- A new storage E2E testsuite covers CSIStorageCapacity publishing if a driver opts into the test. ([#100537](#), [@pohly](#)) [SIG Storage and Testing]
- Convert cmd/kubelet/app/server.go to structured logging ([#98334](#), [@wawa0210](#)) [SIG Node]
- If kube-apiserver enabled goaway feature, clients required golang 1.15.8 or 1.16+ version to avoid unexpected data race issue. ([#98809](#), [@answer1991](#)) [SIG API Machinery]
- Increased CSINodeIDMaxLength from 128 bytes to 192 bytes. ([#98753](#), [@Jiawei0227](#)) [SIG Apps and Storage]
- Migrate `pkg/kubelet/pluginmanager` to structured logging ([#99885](#), [@qingwave](#)) [SIG Node]
- Migrate `pkg/kubelet/preemption/preemption.go` and `pkg/kubelet/logs/container_log_manager.go` to structured logging ([#99848](#), [@qingwave](#)) [SIG Node]
- Migrate `pkg/kubelet/(cri)` to structured logging ([#99006](#), [@yangjunmyfm192085](#)) [SIG Node]
- Migrate `pkg/kubelet/(node, pod)` to structured logging ([#98847](#), [@yangjunmyfm192085](#)) [SIG Node]
- Migrate `pkg/kubelet/(volume, container)` to structured logging ([#98850](#), [@yangjunmyfm192085](#)) [SIG Node]

- Migrate `pkg/kubelet/kubelet_node_status.go` to structured logging ([#98154](#), [@yangjunmyfm192085](#)) [SIG Node and Release]
- Migrate `pkg/kubelet/lifecycle,oom` to structured logging ([#99479](#), [@mengjiao-liu](#)) [SIG Instrumentation and Node]
- Migrate `cmd/kubelet/+ pkg/kubelet/cadvisor/cadvisor_linux.go + pkg/kubelet/cri/remote/util/util_unix.go + pkg/kubelet/images/image_manager.go` to structured logging ([#99994](#), [@AfrouzMashayekhi](#)) [SIG Instrumentation and Node]
- Migrate `pkg/kubelet/cm/container_manager_linux.go` and `pkg/kubelet/cm/container_manager_stub.go` to structured logging ([#100001](#), [@shiyajuan123](#)) [SIG Instrumentation and Node]
- Migrate `pkg/kubelet/cm/cpumanage/{topology/topology.go, policy_none.go, cpu_assignment.go}` to structured logging ([#100163](#), [@lala123912](#)) [SIG Instrumentation and Node]
- Migrate `pkg/kubelet/cm/cpumanager/state` to structured logging ([#99563](#), [@jmguzik](#)) [SIG Instrumentation and Node]
- Migrate `pkg/kubelet/config` to structured logging ([#100002](#), [@AfrouzMashayekhi](#)) [SIG Instrumentation and Node]
- Migrate `pkg/kubelet/kubelet.go` to structured logging ([#99861](#), [@navidshaikh](#)) [SIG Instrumentation and Node]
- Migrate `pkg/kubelet/kubeletconfig` to structured logging ([#100265](#), [@ehashman](#)) [SIG Node]
- Migrate `pkg/kubelet/kuberuntime` to structured logging ([#99970](#), [@krzysiek](#)) [SIG Instrumentation and Node]
- Migrate `pkg/kubelet/prober` to structured logging ([#99830](#), [@krzysiek](#)) [SIG Instrumentation and Node]
- Migrate `pkg/kubelet/winstats` to structured logging ([#99855](#), [@hexxdump](#)) [SIG Instrumentation and Node]
- Migrate probe log messages to structured logging ([#97093](#), [@aldudko](#)) [SIG Instrumentation and Node]
- Migrate remaining kubelet files to structured logging ([#100196](#), [@ehashman](#)) [SIG Instrumentation and Node]
- `apiserver_storage_objects` (a newer version of `etcd_object_counts`) is promoted and marked as stable. ([#100082](#), [@logicalhan](#)) [SIG API Machinery, Instrumentation and Testing]

Dependencies

Added

Nothing has changed.

Changed

- [github.com/cilium/ebpf: 1c8d4c9 → v0.2.0](#)
- [github.com/containerd/console: v1.0.0 → v1.0.1](#)
- [github.com/containerd/containerd: v1.4.1 → v1.4.4](#)
- [github.com/creack/pty: v1.1.9 → v1.1.11](#)
- [github.com/docker/docker: bd33bbf → v20.10.2+incompatible](#)
- [github.com/google/cadvisor: v0.38.8 → v0.39.0](#)
- [github.com/konsorten/go-windows-terminal-sequences: v1.0.3 → v1.0.2](#)
- [github.com/moby/sys/mountinfo: v0.1.3 → v0.4.0](#)
- [github.com/moby/term: 672ec06 → df9cb8a](#)
- [github.com/mrunalp/fileutils: abd8a0e → v0.5.0](#)
- [github.com/opencontainers/runc: v1.0.0-rc92 → v1.0.0-rc93](#)
- [github.com/opencontainers/runtime-spec: 4d89ac9 → e6143ca](#)
- [github.com/opencontainers/selinux: v1.6.0 → v1.8.0](#)
- [github.com/sirupsen/logrus: v1.6.0 → v1.7.0](#)
- [github.com/syndtr/gocapability: d983527 → 42c35b4](#)

- github.com/willf/bitset: [d5bec33](#) → [v1.1.11](#)
- [gotest.tools/v3](#): v3.0.2 → v3.0.3
- [k8s.io/klog/v2](#): v2.5.0 → v2.8.0
- [sigs.k8s.io/structured-merge-diff/v4](#): v4.0.3 → v4.1.0

Removed

Nothing has changed.

v1.21.0-beta.1

Downloads for v1.21.0-beta.1

Source Code

filename	sha512 hash
kubernetes.tar.gz	c9f4f25242e319e5d90f49d26f239a930aad69677c0f3c2387c56bb13482648a26ed234be2bfe23
kubernetes-src.tar.gz	255357db8fa160cab2187658906b674a8b0d9b9a5b5f688cc7b69dc124f5da00362c6cc18ae9b0

Client binaries

filename	sha512 hash
kubernetes-client-darwin-amd64.tar.gz	02efd389c8126456416fd2c7ea25c3cc30f612649ad91f631f068d6c0e5e539484d3763cb9a8645ad
kubernetes-client-darwin-arm64.tar.gz	ac90dcd1699d1d7ff9c8342d481f6d0d97ccdc3ec501a56dc7c9e1898a8f77f712bf66942d304bfe58
kubernetes-client-linux-386.tar.gz	cce5fb84cc7a1ee664f89d8ad3064307c51c044e9ddd2ae5a004939b69d3b3ef6f29acc5782e27d0c
kubernetes-client-linux-amd64.tar.gz	2e93bbd2e60ad7cd8fe495115e96c55b1dc8facd100a827ef9c197a732679b60cceb9ea7bf92a1f5e
kubernetes-client-linux-arm.tar.gz	23f03b6a8fa9decce9b89a2c1bd3dae6d0b2f9e533e35a79e2c5a29326a165259677594ae83c8772
kubernetes-client-linux-arm64.tar.gz	3acf3101b46568b0ded6b90f13df0e918870d6812dc1a584903ddb8ba146484a204b9e442f863df4
kubernetes-client-linux-ppc64le.tar.gz	f749198df69577f62872d3096138a1b8969ec6b1636eb68eb56640bf33cf5f97a11df4363462749a1

kubernetes-client-linux-s390x.tar.gz	3f6c0189d59fca22cdded3a02c672ef703d17e6ab0831e173a870e14ccec436c142600e9fc35b4035
kubernetes-client-windows-386.tar.gz	03d92371c425cf331c80807c0ac56f953be304fc6719057258a363d527d186d610e1d4b4d401b341
kubernetes-client-windows-amd64.tar.gz	489ece0c886a025ca3a25d28518637a5a824ea6544e7ef8778321036f13c8909a978ad4ceca966cec

Server binaries

filename	sha512 hash
kubernetes-server-linux-amd64.tar.gz	2e95cb31d5afcb6842c41d25b7d0c18dd7e65693b2d93c8aa44e5275f9c6201e1a67685c7a8ddefa
kubernetes-server-linux-arm.tar.gz	2927e82b98404c077196ce3968f3afd51a7576aa56d516019bd3976771c0213ba01e78da5b774785
kubernetes-server-linux-arm64.tar.gz	e0f7aea3ea598214a9817bc04949389cb7e4e7b9503141a590ef48c0b681fe44a4243ebc6280752fa
kubernetes-server-linux-ppc64le.tar.gz	c011f7eb01294e9ba5d5ced719068466f88ed595dcb8d554a36a4dd5118fb6b3d6baf8bf89aa2d4
kubernetes-server-linux-s390x.tar.gz	15f6683e7f16caab7eebead2b7c15799460abfb035a43de0b75f96b0be19908f58add98a777a0cca9

Node binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	ed58679561197110f366b9109f7afd62c227bfc271918ccf3eea203bb2ab6428eb5db4dd6c965f202
kubernetes-node-linux-arm.tar.gz	7e6c7f1957fcdecec8fef689c5019edbc0d0c11d22dafbfef0a07121d10d8f6273644f73511bd06a9a8
kubernetes-node-linux-arm64.tar.gz	a3618f29967e7a1574917a67f0296e65780321eda484b99aa32bfd4dc9b35acdefce33da952ac52df

kubernetes-node-linux-ppc64le.tar.gz	326d3eb521b41bdf489912177f70b8cdd7cd828bb9b3d847ed3694eb27e457f24e0a88b8e51b726
kubernetes-node-linux-s390x.tar.gz	022d05ebaa66a0332c4fe18cdaf23d14c2c7e4d1f2af7f27baaf1eb042e6890dc3434b4ac8ba58c35c
kubernetes-node-windows-amd64.tar.gz	fa691ed93f07af6bc1cf57e20a30580d6c528f88e5fea3c14f39c1820969dc5a0eb476c5b87b288593

Changelog since v1.21.0-beta.0

Urgent Upgrade Notes

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

- Kubeadm: during "init" an empty cgroupDriver value in the KubeletConfiguration is now always set to "systemd" unless the user is explicit about it. This requires existing machine setups to configure the container runtime to use the "systemd" driver. Documentation on this topic can be found here: <https://kubernetes.io/docs/setup/production-environment/container-runtimes/>. When upgrading existing clusters / nodes using "kubeadm upgrade" the old cgroupDriver value is preserved, but in 1.22 this change will also apply to "upgrade". For more information on migrating to the "systemd" driver or remaining on the "cgroups" driver see: <https://kubernetes.io/docs/tasks/administer-cluster/kubeadm/configure-cgroup-driver/>. (#99471, @neolit123) [SIG Cluster Lifecycle]
- Migrate `pkg/kubelet/(dockershim, network)` to structured logging Exit code changed from 255 to 1 (#98939, @yangjunmyfm192085) [SIG Network and Node]
- Migrate `pkg/kubelet/certificate` to structured logging Exit code changed from 255 to 1 (#98993, @SataQiu) [SIG Auth and Node]
- Newly provisioned PVs by EBS plugin will no longer use the deprecated "failure-domain.beta.kubernetes.io/zone" and "failure-domain.beta.kubernetes.io/region" labels. It will use "topology.kubernetes.io/zone" and "topology.kubernetes.io/region" labels instead. (#99130, @ayberk) [SIG Cloud Provider, Storage and Testing]
- Newly provisioned PVs by OpenStack Cinder plugin will no longer use the deprecated "failure-domain.beta.kubernetes.io/zone" and "failure-domain.beta.kubernetes.io/region" labels. It will use "topology.kubernetes.io/zone" and "topology.kubernetes.io/region" labels instead. (#99719, @jsafrane) [SIG Cloud Provider and Storage]
- OpenStack Cinder CSI migration is on by default, Clinder CSI driver must be installed on clusters on OpenStack for Cinder volumes to work. (#98538, @dims) [SIG Storage]
- Package `pkg/kubelet/server` migrated to structured logging Exit code changed from 255 to 1 (#99838, @adisky) [SIG Node]
- `Pkg/kubelet/kuberuntime/kuberuntime_manager.go` migrated to structured logging Exit code changed from 255 to 1 (#99841, @adisky) [SIG Instrumentation and Node]

Changes by Kind

Deprecation

- Kubeadm: the deprecated kube-dns is no longer supported as an option. If "ClusterConfiguration.dns.type" is set to "kube-dns" kubeadm will now throw an error. (#99646, @rajansandeep) [SIG Cluster Lifecycle]

- Remove deprecated `--generator` `--replicas` `--service-generator` `--service-overrides` `--schedule` from `kubectl run` `Deprecate --serviceaccount` `--hostport` `--requests` `--limits` in `kubectl run` ([#99732](#), [@soltys](#)) [SIG CLI and Testing]
- `audit.k8s.io/v1beta1` and `audit.k8s.io/v1alpha1` audit policy configuration and audit events are deprecated in favor of `audit.k8s.io/v1`, available since v1.13. kube-apiserver invocations that specify alpha or beta policy configurations with `--audit-policy-file`, or explicitly request alpha or beta audit events with `--audit-log-version` / `--audit-webhook-version` must update to use `audit.k8s.io/v1` and accept `audit.k8s.io/v1` events prior to v1.24. ([#98858](#), [@carlory](#)) [SIG Auth]
- `diskformat` storage class parameter for in-tree vSphere volume plugin is deprecated as of v1.21 release. Please consider updating storageclass and remove `diskformat` parameter. vSphere CSI Driver does not support diskformat storageclass parameter.

vSphere releases less than 67u3 are deprecated as of v1.21. Please consider upgrading vSphere to 67u3 or above. vSphere CSI Driver requires minimum vSphere 67u3.

VM Hardware version less than 15 is deprecated as of v1.21. Please consider upgrading the Node VM Hardware version to 15 or above. vSphere CSI Driver recommends Node VM's Hardware version set to at least vmx-15.

Multi vCenter support is deprecated as of v1.21. If you have a Kubernetes cluster spanning across multiple vCenter servers, please consider moving all k8s nodes to a single vCenter Server. vSphere CSI Driver does not support Kubernetes deployment spanning across multiple vCenter servers.

Support for these deprecations will be available till Kubernetes v1.24. ([#98546](#), [@divyenpatel](#)) [SIG Cloud Provider and Storage]

API Change

- 1. PodAffinityTerm includes a namespaceSelector field to allow selecting eligible namespaces based on their labels.
- 2. A new CrossNamespacePodAffinity quota scope API that allows restricting which namespaces allowed to use PodAffinityTerm with corss-namespace reference via namespaceSelector or namespaces fields. ([#98582](#), [@ahg-g](#)) [SIG API Machinery, Apps, Auth and Testing]
- Add a default metadata name labels for selecting any namespace by its name. ([#96968](#), [@jayunit100](#)) [SIG API Machinery, Apps, Cloud Provider, Storage and Testing]
- Added `.spec.completionMode` field to Job, with accepted values `NonIndexed` (default) and `Indexed` ([#98441](#), [@alculquicondor](#)) [SIG Apps and CLI]
- Clarified NetworkPolicy policyTypes documentation ([#97216](#), [@joejulian](#)) [SIG Network]
- DaemonSets accept a MaxSurge integer or percent on their rolling update strategy that will launch the updated pod on nodes and wait for those pods to go ready before marking the old out-of-date pods as deleted. This allows workloads to avoid downtime during upgrades when deployed using DaemonSets. This feature is alpha and is behind the DaemonSetUpdateSurge feature gate. ([#96441](#), [@smarterclayton](#)) [SIG Apps and Testing]
- EndpointSlice API is now GA. The EndpointSlice topology field has been removed from the GA API and will be replaced by a new per Endpoint Zone field. If the topology field was previously used, it will be converted into an annotation in the v1 Resource. The discovery.k8s.io/v1alpha1 API is removed. ([#99662](#), [@swetharepakula](#)) [SIG API Machinery, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Network and Testing]
- EndpointSlice Controllers are now GA. The EndpointSlice Controller will not populate the `deprecatedTopology` field and will only provide topology information through the `zone` and

- `nodeName` fields. ([#99870](#), [@swetharepakula](#)) [SIG API Machinery, Apps, Auth, Network and Testing]
- IngressClass resource can now reference a resource in a specific namespace for implementation-specific configuration (previously only Cluster-level resources were allowed). This feature can be enabled using the `IngressClassNamespacedParams` feature gate. ([#99275](#), [@hbagdi](#)) [SIG API Machinery, CLI and Network]
- Introduce conditions for `PodDisruptionBudget` ([#98127](#), [@mortent](#)) [SIG API Machinery, Apps, Auth, CLI, Cloud Provider, Cluster Lifecycle and Instrumentation]
- Jobs API has a new `.spec.suspend` field that can be used to suspend and resume Jobs ([#98727](#), [@adtac](#)) [SIG API Machinery, Apps, Node, Scheduling and Testing]
- Kubelet Graceful Node Shutdown feature is now beta. ([#99735](#), [@bobbypage](#)) [SIG Node]
- Limit the `quest` value of `hugepage` to integer multiple of page size. ([#98515](#), [@lala123912](#)) [SIG Apps]
- One new field "InternalTrafficPolicy" in Service is added. It specifies if the cluster internal traffic should be routed to all endpoints or node-local endpoints only. "Cluster" routes internal traffic to a Service to all endpoints. "Local" routes traffic to node-local endpoints only, and traffic is dropped if no node-local endpoints are ready. The default value is "Cluster". ([#96600](#), [@maplain](#)) [SIG API Machinery, Apps and Network]
- `PodSecurityPolicy` only stores "generic" as allowed volume type if the `GenericEphemeralVolume` feature gate is enabled ([#98918](#), [@pohly](#)) [SIG Auth and Security]
- Promote `CronJobs` to batch/v1 ([#99423](#), [@soltys](#)) [SIG API Machinery, Apps, CLI and Testing]
- Remove support for building Kubernetes with bazel. ([#99561](#), [@BenTheElder](#)) [SIG API Machinery, Apps, Architecture, Auth, Autoscaling, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Network, Node, Release, Scalability, Scheduling, Storage, Testing and Windows]
- Setting `loadBalancerClass` in load balancer type of service is available with this PR. Users who want to use a custom load balancer can specify `loadBalancerClass` to achieve it. ([#98277](#), [@XudongLiuHarold](#)) [SIG API Machinery, Apps, Cloud Provider and Network]
- Storage capacity tracking (= the `CSIStorageCapacity` feature) is beta, `storage.k8s.io/v1alpha1/VolumeAttachment` and `storage.k8s.io/v1alpha1/CSIStorageCapacity` objects are deprecated ([#99641](#), [@pohly](#)) [SIG API Machinery, Apps, Auth, Scheduling, Storage and Testing]
- Support for Indexed Job: a Job that is considered completed when Pods associated to indexes from 0 to `(.spec.completions-1)` have succeeded. ([#98812](#), [@alculquicondor](#)) [SIG Apps and CLI]
- The apiserver now resets managedFields that got corrupted by a mutating admission controller. ([#98074](#), [@kwiesmueller](#)) [SIG API Machinery and Testing]
- `controller.kubernetes.io/pod-deletion-cost` annotation can be set to offer a hint on the cost of deleting a pod compared to other pods belonging to the same ReplicaSet. Pods with lower deletion cost are deleted first. This is an alpha feature. ([#99163](#), [@ahg-g](#)) [SIG Apps]

Feature

- A client-go metric, `rest_client_exec_plugin_call_total`, has been added to track total calls to client-go credential plugins. ([#98892](#), [@ankeesler](#)) [SIG API Machinery, Auth, Cluster Lifecycle and Instrumentation]
- Add `--use-protocol-buffers` flag to `kubectl` top pods and nodes ([#96655](#), [@serathius](#)) [SIG CLI]
- Add support to generate client-side binaries for new darwin/arm64 platform ([#97743](#), [@dims](#)) [SIG Release and Testing]
- Added `ephemeral_volume_controller_create[_failures]_total` counters to kube-controller-manager metrics ([#99115](#), [@pohly](#)) [SIG API Machinery, Apps, Cluster Lifecycle, Instrumentation and Storage]
- Adds alpha feature `VolumeCapacityPriority` which makes the scheduler prioritize nodes based on the best matching size of statically provisioned PVs across multiple topologies. ([#96347](#), [@cofyc](#)) [SIG Apps, Network, Scheduling, Storage and Testing]
- Adds two new metrics to cronjobs, a histogram to track the time difference when a job is created and the expected time when it should be created, and a gauge for the missed schedules of a cronjob ([#99341](#), [@alaypatel07](#)) [SIG Apps and Instrumentation]

- Alpha implementation of Kubectl Command Headers: SIG CLI KEP 859 enabled when KUBECTL_COMMAND_HEADERS environment variable set on the client command line.
 - To enable: export KUBECTL_COMMAND_HEADERS=1; kubectl ... ([#98952](#), [@seans3](#)) [SIG API Machinery and CLI]
- Component owner can configure the allowlist of metric label with flag '--allow-metric-labels'. ([#99738](#), [@YoyinZyc](#)) [SIG API Machinery, Cluster Lifecycle and Instrumentation]
- Disruption controller only sends one event per PodDisruptionBudget if scale can't be computed ([#98128](#), [@mortent](#)) [SIG Apps]
- EndpointSliceNodeName will always be enabled, so NodeName will always be available in the v1beta1 API. ([#99746](#), [@swetharepakula](#)) [SIG Apps and Network]
- Graduate CRIContainerLogRotation feature gate to GA. ([#99651](#), [@umohnani8](#)) [SIG Node and Testing]
- Kube-proxy iptables: new metric sync_proxy_rules_iptables_total that exposes the number of rules programmed per table in each iteration ([#99653](#), [@aojea](#)) [SIG Instrumentation and Network]
- Kube-scheduler now logs plugin scoring summaries at --v=4 ([#99411](#), [@damemi](#)) [SIG Scheduling]
- Kubeadm: a warning to user as ipv6 site-local is deprecated ([#99574](#), [@pacoju](#)) [SIG Cluster Lifecycle and Network]
- Kubeadm: apply the "node.kubernetes.io/exclude-from-external-load-balancers" label on control plane nodes during "init", "join" and "upgrade" to preserve backwards compatibility with the legacy LB mode where nodes labeled as "master" were excluded. To opt-out you can remove the label from a node. See [#97543](#) and the linked KEP for more details. ([#98269](#), [@neolit123](#)) [SIG Cluster Lifecycle]
- Kubeadm: if the user has customized their image repository via the kubeadm configuration, pass the custom pause image repository and tag to the kubelet via --pod-infra-container-image not only for Docker but for all container runtimes. This flag tells the kubelet that it should not garbage collect the image. ([#99476](#), [@neolit123](#)) [SIG Cluster Lifecycle]
- Kubeadm: promote IPv6DualStack feature gate to Beta ([#99294](#), [@pacoju](#)) [SIG Cluster Lifecycle]
- Kubectl version changed to write a warning message to stderr if the client and server version difference exceeds the supported version skew of +/-1 minor version. ([#98250](#), [@brianpursley](#)) [SIG CLI]
- Kubernetes is now built with Golang 1.16 ([#98572](#), [@justaugustus](#)) [SIG API Machinery, Auth, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Node, Release and Testing]
- Persistent Volumes formatted with the btrfs filesystem will now automatically resize when expanded. ([#99361](#), [@Novex](#)) [SIG Storage]
- Remove cAdvisor json metrics api collected by Kubelet ([#99236](#), [@pacoju](#)) [SIG Node]
- Sysctls is now GA and locked to default ([#99158](#), [@wgahnagj](#)) [SIG Node]
- The NodeAffinity plugin implements the PreFilter extension, offering enhanced performance for Filter. ([#99213](#), [@AliceZhang2016](#)) [SIG Scheduling]
- The endpointslice mirroring controller mirrors endpoints annotations and labels to the generated endpoint slices, it also ensures that updates on any of these fields are mirrored. The well-known annotation endpoints.kubernetes.io/last-change-trigger-time is skipped and not mirrored. ([#98116](#), [@aojea](#)) [SIG Apps, Network and Testing]
- Update the latest validated version of Docker to 20.10 ([#98977](#), [@neolit123](#)) [SIG CLI, Cluster Lifecycle and Node]
- Upgrade node local dns to 1.17.0 for better IPv6 support ([#99749](#), [@pacoju](#)) [SIG Cloud Provider and Network]
- Users might specify the `kubectl.kubernetes.io/default-exec-container` annotation in a Pod to preselect container for kubectl commands. ([#99581](#), [@mengjiao-liu](#)) [SIG CLI]
- When downscaling ReplicaSets, ready and creation timestamps are compared in a logarithmic scale. ([#99212](#), [@damemi](#)) [SIG Apps and Testing]
- When the kubelet is watching a ConfigMap or Secret purely in the context of setting environment variables for containers, only hold that watch for a defined duration before cancelling it. This change reduces the CPU

and memory usage of the kube-apiserver in large clusters. ([#99393](#), [@chenyw1990](#)) [SIG API Machinery, Node and Testing]

- WindowsEndpointSliceProxying feature gate has graduated to beta and is enabled by default. This means kube-proxy will read from EndpointSlices instead of Endpoints on Windows by default. ([#99794](#), [@roboscott](#)) [SIG Network]

Bug or Regression

- Creating a PVC with DataSource should fail for non-CSI plugins. ([#97086](#), [@xing-yang](#)) [SIG Apps and Storage]
- EndpointSlice controller is now less likely to emit FailedToUpdateEndpointSlices events. ([#99345](#), [@roboscott](#)) [SIG Apps and Network]
- EndpointSliceMirroring controller is now less likely to emit FailedToUpdateEndpointSlices events. ([#99756](#), [@roboscott](#)) [SIG Apps and Network]
- Fix --ignore-errors does not take effect if multiple logs are printed and unfollowed ([#97686](#), [@wzshiming](#)) [SIG CLI]
- Fix bug that would let the Horizontal Pod Autoscaler scale down despite at least one metric being unavailable/invalid ([#99514](#), [@mikkeloscar](#)) [SIG Apps and Autoscaling]
- Fix cgroup handling for systemd with cgroup v2 ([#98365](#), [@odinuge](#)) [SIG Node]
- Fix smb mount PermissionDenied issue on Windows ([#99550](#), [@andyzhangx](#)) [SIG Cloud Provider, Storage and Windows]
- Fixed a bug that causes smaller number of conntrack-max being used under CPU static policy. ([#99225](#), [@xh4n3](#)) ([#99613](#), [@xh4n3](#)) [SIG Network]
- Fixed bug that caused cAdvisor to incorrectly detect single-socket multi-NUMA topology. ([#99315](#), [@iwankgb](#)) [SIG Node]
- Fixes add-on manager leader election ([#98968](#), [@liggitt](#)) [SIG Cloud Provider]
- Improved update time of pod statuses following new probe results. ([#98376](#), [@matthyx](#)) [SIG Node and Testing]
- Kube-apiserver: an update of a pod with a generic ephemeral volume dropped that volume if the feature had been disabled since creating the pod with such a volume ([#99446](#), [@pohly](#)) [SIG Apps, Node and Storage]
- Kubeadm: skip validating pod subnet against node-cidr-mask when allocate-node-cidrs is set to be false ([#98984](#), [@SataQiu](#)) [SIG Cluster Lifecycle]
- On single-stack configured (IPv4 or IPv6, but not both) clusters, Services which are both headless (no clusterIP) and selectorless (empty or undefined selector) will report `ipFamilyPolicy RequireDualStack` and will have entries in `ipFamilies[]` for both IPv4 and IPv6. This is a change from alpha, but does not have any impact on the manually-specified Endpoints and EndpointSlices for the Service. ([#99555](#), [@thockin](#)) [SIG Apps and Network]
- Resolves spurious `Failed to list *v1.Secret` or `Failed to list *v1.ConfigMap` messages in kubelet logs. ([#99538](#), [@liggitt](#)) [SIG Auth and Node]
- Return zero time (midnight on Jan. 1, 1970) instead of negative number when reporting startedAt and finishedAt of the not started or a running Pod when using dockershim as a runtime. ([#99585](#), [@Iceber](#)) [SIG Node]
- Stdin is now only passed to client-go exec credential plugins when it is detected to be an interactive terminal. Previously, it was passed to client-go exec plugins when **stdout** was detected to be an interactive terminal. ([#99654](#), [@ankeesler](#)) [SIG API Machinery and Auth]
- The maximum number of ports allowed in EndpointSlices has been increased from 100 to 20,000 ([#99795](#), [@roboscott](#)) [SIG Network]
- Updates the commands
 - `kubectl kustomize {arg}`
 - `kubectl apply -k {arg}` to use same code as kustomize CLI v4.0.5

- [v4.0.5]: <https://github.com/kubernetes-sigs/kustomize/releases/tag/kustomize%2Fv4.0.5> (#98946, @monopole) [SIG API Machinery, Architecture, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation, Node and Storage]
- When a CNI plugin returns dual-stack pod IPs, kubelet will now try to respect the "primary IP family" of the cluster by picking a primary pod IP of the same family as the (primary) node IP, rather than assuming that the CNI plugin returned the IPs in the order the administrator wanted (since some CNI plugins don't allow configuring this). (#97979, @danwinship) [SIG Network and Node]
- When using Containerd on Windows, the "C:\Windows\System32\drivers\etc\hosts" file will now be managed by kubelet. (#83730, @claudiubelu) [SIG Node and Windows]
- `VolumeBindingArgs` now allow `BindTimeoutSeconds` to be set as zero, while the value zero indicates no waiting for the checking of volume binding operation. (#99835, @chendave) [SIG Scheduling and Storage]
- `kubectrl exec` and `kubectrl attach` now honor the `--quiet` flag which suppresses output from the local binary that could be confused by a script with the remote command output (all non-failure output is hidden). In addition, print inline with `exec` and `attach` the list of alternate containers when we default to the first `spec.container`. (#99004, @smarterclayton) [SIG CLI]

Other (Cleanup or Flake)

- `Apiserver_request_duration_seconds` is promoted to stable status. (#99925, @logicalhan) [SIG API Machinery, Instrumentation and Testing]
- `Apiserver_request_total` is promoted to stable status and no longer has a content-type dimensions, so any alerts/charts which presume the existence of this will fail. This is however, unlikely to be the case since it was effectively an unbounded dimension in the first place. (#99788, @logicalhan) [SIG API Machinery, Instrumentation and Testing]
- `EndpointSlice` generation is now incremented when labels change. (#99750, @roboscott) [SIG Network]
- `Featuregate AllowInsecureBackendProxy` is promoted to GA (#99658, @deads2k) [SIG API Machinery]
- Migrate `pkg/kubelet/(eviction)` to structured logging (#99032, @yangjunmyfm192085) [SIG Node]
- Migrate deployment controller log messages to structured logging (#97507, @aldudko) [SIG Apps]
- Migrate `pkg/kubelet/cloudresource` to structured logging (#98999, @sladyn98) [SIG Node]
- Migrate `pkg/kubelet/cri/remote` logs to structured logging (#98589, @chenyw1990) [SIG Node]
- Migrate `pkg/kubelet/kuberuntime/kuberuntime_container.go` logs to structured logging (#96973, @chenyw1990) [SIG Instrumentation and Node]
- Migrate `pkg/kubelet/status` to structured logging (#99836, @navidshaikh) [SIG Instrumentation and Node]
- Migrate `pkg/kubelet/token` to structured logging (#99264, @palnabarun) [SIG Auth, Instrumentation and Node]
- Migrate `pkg/kubelet/util` to structured logging (#99823, @navidshaikh) [SIG Instrumentation and Node]
- Migrate `proxy/userspace/proxier.go` logs to structured logging (#97837, @JornShen) [SIG Network]
- Migrate some kubelet/metrics log messages to structured logging (#98627, @jialaijun) [SIG Instrumentation and Node]
- Process start time on Windows now uses current process information (#97491, @jsturtevant) [SIG API Machinery, CLI, Cloud Provider, Cluster Lifecycle, Instrumentation and Windows]

Uncategorized

- Migrate `pkg/kubelet/stats` to structured logging (#99607, @krzysiek) [SIG Node]
- The `DownwardAPIHugePages` feature is beta. Users may use the feature if all workers in their cluster are min 1.20 version. The feature will be enabled by default in all installations in 1.22. (#99610, @derekwaynecarr) [SIG Node]

Dependencies

Added

- github.com/go-errors/errors: [v1.0.1](#)
- github.com/gobuffalo/here: [v0.6.0](#)
- github.com/google/shlex: [e7afc7f](#)
- github.com/markbates/pkger: [v0.17.1](#)
- github.com/monochromegane/go-gitignore: [205db1a](#)
- github.com/niemeyer/pretty: [a10e7ca](#)
- github.com/xlab/treeprint: [a009c39](#)
- go.starlark.net: 8dd3e2e
- golang.org/x/term: 6a3ed07
- sigs.k8s.io/kustomize/api: v0.8.5
- sigs.k8s.io/kustomize/cmd/config: v0.9.7
- sigs.k8s.io/kustomize/kustomize/v4: v4.0.5
- sigs.k8s.io/kustomize/kyaml: v0.10.15

Changed

- dmitri.shuralyov.com/gpu/mtl: 666a987 → 28db891
- github.com/creack/pty: [v1.1.7](#) → [v1.1.9](#)
- github.com/go-openapi/spec: [v0.19.3](#) → [v0.19.5](#)
- github.com/go-openapi/strfmt: [v0.19.3](#) → [v0.19.5](#)
- github.com/go-openapi/validate: [v0.19.5](#) → [v0.19.8](#)
- github.com/google/cadvisor: [v0.38.7](#) → [v0.38.8](#)
- github.com/kr/text: [v0.1.0](#) → [v0.2.0](#)
- github.com/matttn/go-runewidth: [v0.0.2](#) → [v0.0.7](#)
- github.com/olekukonko/tablewriter: [a0225b3](#) → [v0.0.4](#)
- github.com/sergi/go-diff: [v1.0.0](#) → [v1.1.0](#)
- golang.org/x/crypto: 7f63de1 → 5ea612d
- golang.org/x/exp: 6cc2880 → 85be41e
- golang.org/x/mobile: d2bd2a2 → e6ae53a
- golang.org/x/mod: v0.3.0 → ce943fd
- golang.org/x/net: 69a7880 → 3d97a24
- golang.org/x/sys: 5cba982 → a50acf3
- golang.org/x/time: 3af7569 → f8bda1e
- golang.org/x/tools: 113979e → v0.1.0
- gopkg.in/check.v1: 41f04d3 → 8fa4692
- gopkg.in/yaml.v2: v2.2.8 → v2.4.0
- k8s.io/kube-openapi: d219536 → 591a79e
- k8s.io/system-validators: v1.3.0 → v1.4.0

Removed

- github.com/codegangsta/negroni: [v1.0.0](#)
- github.com/golangplus/bytes: [45c989f](#)
- github.com/golangplus/fmt: [2a5d6d7](#)
- github.com/gorilla/context: [v1.1.1](#)
- github.com/kr/pty: [v1.1.5](#)
- sigs.k8s.io/kustomize: v2.0.3+incompatible

v1.21.0-beta.0

Downloads for v1.21.0-beta.0

Source Code

filename	sha512 hash
kubernetes.tar.gz	69b73a03b70b0ed006e9fef3f5b9bc68f0eb8dc40db6cc04777c03a2cb83a008c783012ca186b1
kubernetes-src.tar.gz	9620fb6d37634271bdd423c09f33f3bd29e74298aa82c47dff8cb6bd2ff44fa8987a53c53bc529

Client binaries

filename	sha512 hash
kubernetes-client-darwin-amd64.tar.gz	2a6f3fcd6b571f5ccde56b91e6e179a01899244be496dae16a2a16e0405c9437b75c6dc853b56f9a4
kubernetes-client-linux-386.tar.gz	78fe9ad9f9a9bc043293327223f0038a2c087ca65e87187a6dcae7a24aef9565fe498d295a4639b0b!
kubernetes-client-linux-amd64.tar.gz	c025f5e5bd132355e7dd1296cf2ec752264e7f754c4d95fc34b076bd75bef2f571d30872bcb3d138c
kubernetes-client-linux-arm.tar.gz	9975cd2f08fbc202575fb15ba6fc51dab23155ca4d294ebb48516a81efa51f58bab3a87d41c865103
kubernetes-client-linux-arm64.tar.gz	56a6836e24471e42e9d9a8488453f2d55598d70c8aca0a307d5116139c930c25c469fd0d1ab5060fl
kubernetes-client-linux-ppc64le.tar.gz	b6a6cc9baad0ad85ed079ee80e6d6acc905095cfb440998bbc0f553b94fa80077bd58b8692754de4
kubernetes-client-linux-s390x.tar.gz	7b743481b340f510bf9ae28ea8ea91150aa1e8c37fe104b66d7b3aff62f5e6db3c590d2c13d14dbb5
kubernetes-client-windows-386.tar.gz	df06c7a524ce84c1f8d7836aa960c550c88dbca0ec4854df4dd0a85b3c84b8ecbc41b54e8c4669ce2
kubernetes-client-windows-amd64.tar.gz	4568497b684564f2a94fba6cbfd778b891231470d9a6956c3b7a3268643d13b855c0fc5ebea5f765

Server binaries

filename	sha512 hash
kubernetes-server-linux-amd64.tar.gz	42883cca2d312153baf693fc6024a295359a421e74fd70eefc927413be4e0353debe634e7cca6b9a8
kubernetes-server-linux-arm.tar.gz	e0042215e84c769ba4fc4d159ccf67b2c4a26206bfff0ec5152723dc813ff9c1426aa0e9b963d7bfa2
kubernetes-server-linux-arm64.tar.gz	bfad29d43e14152cb9bc7c4df6aa77929c6eca64a294bb832215bdba9fa0ee2195a2b709c0267dc7
kubernetes-server-linux-ppc64le.tar.gz	ca67674c01c6cebd8c8160c85b449eab1a23bb0557418665246e0208543fa2eaa97679685c7b49be
kubernetes-server-linux-s390x.tar.gz	285352b628ec754b01b8ad4ef1427223a142d58ebcb46f6861df14d68643133b32330460b213b1b

Node binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	d92d9b30e7e44134a0cd9db4c01924d365991ea16b3131200b02a82cff89c8701f618cd90e7f1c654
kubernetes-node-linux-arm.tar.gz	551092f23c27fdea4bb2d0547f6075892534892a96fc2be7786f82b58c93bffd5e1c20f8f11beb8be
kubernetes-node-linux-arm64.tar.gz	26ae7f4163e527349b8818ee38b9ee062314ab417f307afa49c146df8f5a2bd689509b128bd4a1efd
kubernetes-node-linux-ppc64le.tar.gz	821fa953f6cebc69d2d481e489f3e90899813d20e2eefbabbcadd019d004108e7540f741fabe60e8e
kubernetes-node-linux-s390x.tar.gz	22197d4f66205d5aa9de83dfddcc4f2bb3195fd7067cdb5c21e61dbeae217bc112fb7ecff8a539579l
kubernetes-node-windows-amd64.tar.gz	7e22e0d9603562a04dee16a513579f06b1ff6354d97d669bd68f8777ec7f89f6ef027fb23ab0445d7l

Changelog since v1.21.0-alpha.3

Urgent Upgrade Notes

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

- The metric `storage_operation_errors_total` is not removed, but is marked deprecated, and the metric `storage_operation_status_count` is marked deprecated. In both cases the `storage_operation_duration_seconds` metric can be used to recover equivalent counts (using `status=fail-unknown` in the case of `storage_operations_errors_total`). ([#99045](#), [@mattcary](#)) [SIG Instrumentation and Storage]

Changes by Kind

Deprecation

- The `batch/v2alpha1` CronJob type definitions and clients are deprecated and removed. ([#96987](#), [@soltys](#)) [SIG API Machinery, Apps, CLI and Testing]

API Change

- Cluster admins can now turn off `/debug/pprof` and `/debug/flags/v` endpoint in kubelet by setting `enableProfilingHandler` and `enableDebugFlagsHandler` to false in their kubelet configuration file. `enableProfilingHandler` and `enableDebugFlagsHandler` can be set to true only when `enableDebuggingHandlers` is also set to true. ([#98458](#), [@SaranBalaji90](#)) [SIG Node]
- The `BoundServiceAccountTokenVolume` feature has been promoted to beta, and enabled by default.
 - This changes the tokens provided to containers at `/var/run/secrets/kubernetes.io/serviceaccount/token` to be time-limited, auto-refreshed, and invalidated when the containing pod is deleted.
 - Clients should reload the token from disk periodically (once per minute is recommended) to ensure they continue to use a valid token. `k8s.io/client-go` version v11.0.0+ and v0.15.0+ reload tokens automatically.
 - By default, injected tokens are given an extended lifetime so they remain valid even after a new refreshed token is provided. The metric `serviceaccount_stale_tokens_total` can be used to monitor for workloads that are depending on the extended lifetime and are continuing to use tokens even after a refreshed token is provided to the container. If that metric indicates no existing workloads are depending on extended lifetimes, injected token lifetime can be shortened to 1 hour by starting `kube-apiserver` with `--service-account-extend-token-expiration=false`. ([#95667](#), [@zshihang](#)) [SIG API Machinery, Auth, Cluster Lifecycle and Testing]

Feature

- A new histogram metric to track the time it took to delete a job by the `ttl-after-finished` controller ([#98676](#), [@ahg-g](#)) [SIG Apps and Instrumentation]
- AWS cloudprovider supports auto-discovering subnets without any `kubernetes.io/cluster/` tags. It also supports additional service annotation `service.beta.kubernetes.io/aws-load-balancer-subnets` to manually configure the subnets. ([#97431](#), [@kishorj](#)) [SIG Cloud Provider]
- Add `--permit-address-sharing` flag to `kube-apiserver` to listen with `SO_REUSEADDR`. While allowing to listen on wildcard IPs like `0.0.0.0` and specific IPs in parallel, it avoid waiting for the kernel to release socket in `TIME_WAIT` state, and hence, considerably reducing `kube-apiserver` restart times under certain conditions. ([#93861](#), [@sttts](#)) [SIG API Machinery]
- Add `csi_operations_seconds` metric on kubelet that exposes CSI operations duration and status for node CSI operations. ([#98979](#), [@Jiawei0227](#)) [SIG Instrumentation and Storage]

- Add `migrated` field into `storage_operation_duration_seconds` metric ([#99050](#), [@Jiawei0227](#)) [SIG Apps, Instrumentation and Storage]
- Add bash-completion for comma separated list on `kubectl get` ([#98301](#), [@phil9909](#)) [SIG CLI]
- Added support for installing arm64 node artifacts. ([#99242](#), [@liu-cong](#)) [SIG Cloud Provider]
- Feature gate RootCAConfigMap is graduated to GA in 1.21 and will be removed in 1.22. ([#98033](#), [@zshihang](#)) [SIG API Machinery and Auth]
- Kubeadm: during "init" and "join" perform preflight validation on the host / node name and throw warnings if a name is not compliant ([#99194](#), [@pacoxu](#)) [SIG Cluster Lifecycle]
- Kubectl: `kubectl get` will omit managed fields by default now. Users could set `--show-managed-fields` to true to show managedFields when the output format is either `json` or `yaml`. ([#96878](#), [@knight42](#)) [SIG CLI and Testing]
- Metrics can now be disabled explicitly via a command line flag (i.e. '`--disabled-metrics=bad_metric1,bad_metric2`') ([#99217](#), [@logicalhan](#)) [SIG API Machinery, Cluster Lifecycle and Instrumentation]
- TTLAfterFinished is now beta and enabled by default ([#98678](#), [@ahg-g](#)) [SIG Apps and Auth]
- The `RunAsGroup` feature has been promoted to GA in this release. ([#94641](#), [@krmayankk](#)) [SIG Auth and Node]
- Turn CronJobControllerV2 on by default. ([#98878](#), [@soltys](#)) [SIG Apps]
- UDP protocol support for Agnhost connect subcommand ([#98639](#), [@knabben](#)) [SIG Testing]
- Upgrades `IPv6Dualstack` to `Beta` and turns it on by default. Clusters new and existing will not be affected until user starting adding secondary pod and service cidrs cli flags as described here: <https://github.com/kubernetes/enhancements/tree/master/keps/sig-network/563-dual-stack> ([#98969](#), [@khenidak](#)) [SIG API Machinery, Apps, Cloud Provider, Network and Node]

Documentation

- Fix ALPHA stability level reference link ([#98641](#), [@Jeffwan](#)) [SIG Auth, Cloud Provider, Instrumentation and Storage]

Failing Test

- Escape the special characters like `[`, `]` and `&` that exist in vsphere windows path ([#98830](#), [@liyanhui1228](#)) [SIG Storage and Windows]
- Kube-proxy: fix a bug on UDP NodePort Services where stale conntrack entries may blackhole the traffic directed to the NodePort. ([#98305](#), [@aojea](#)) [SIG Network]

Bug or Regression

- Add missing `--kube-api-content-type` in kubemark hollow template ([#98911](#), [@Jeffwan](#)) [SIG Scalability and Testing]
- Avoid duplicate error messages when running `kubectl edit quota` ([#98201](#), [@pacoxu](#)) [SIG API Machinery and Apps]
- Cleanup subnet in frontend IP configs to prevent huge subnet request bodies in some scenarios. ([#98133](#), [@nilo19](#)) [SIG Cloud Provider]
- Fix errors when accessing Windows container stats for Dockershim ([#98510](#), [@jsturtevant](#)) [SIG Node and Windows]
- Fixes spurious errors about IPv6 in kube-proxy logs on nodes with IPv6 disabled. ([#99127](#), [@danwinship](#)) [SIG Network and Node]
- In the method that ensures that the docker and containerd are in the correct containers with the proper OOM score set up, fixed the bug of identifying containerd process. ([#97888](#), [@pacoxu](#)) [SIG Node]
- Kubelet now cleans up orphaned volume directories automatically ([#95301](#), [@lorenz](#)) [SIG Node and Storage]

- When dynamically provisioning Azure File volumes for a premium account, the requested size will be set to 100GB if the request is initially lower than this value to accommodate Azure File requirements. ([#99122](#), [@huffmanca](#)) [SIG Cloud Provider and Storage]

Other (Cleanup or Flake)

- APIs for kubelet annotations and labels from `k8s.io/kubernetes/pkg/kubelet/apis` are now available under `k8s.io/kubelet/pkg/apis/` ([#98931](#), [@michaelbeaumont](#)) [SIG Apps, Auth and Node]
- Migrate `pkg/kubelet/(pod, pleg)` to structured logging ([#98990](#), [@gjkim42](#)) [SIG Instrumentation and Node]
- Migrate `pkg/kubelet/nodestatus` to structured logging ([#99001](#), [@QiWang19](#)) [SIG Node]
- Migrate `pkg/kubelet/server` logs to structured logging ([#98643](#), [@chenyw1990](#)) [SIG Node]
- Migrate `proxy/winkernel/proxier.go` logs to structured logging ([#98001](#), [@JornShen](#)) [SIG Network and Windows]
- Migrate `scheduling_queue.go` to structured logging ([#98358](#), [@tanjing2020](#)) [SIG Scheduling]
- Several flags related to the deprecated dockershim which are present in the kubelet command line are now deprecated. ([#98730](#), [@dims](#)) [SIG Node]
- The deprecated feature gates `CSIDriverRegistry`, `BlockVolume` and `CSIBlockVolume` are now unconditionally enabled and can no longer be specified in component invocations. ([#98021](#), [@gavinfish](#)) [SIG Storage]

Dependencies

Added

Nothing has changed.

Changed

- `sigs.k8s.io/structured-merge-diff/v4`: v4.0.2 → v4.0.3

Removed

Nothing has changed.

v1.21.0-alpha.3

Downloads for v1.21.0-alpha.3

Source Code

filename	sha512 hash
kubernetes.tar.gz	704ec916a1dbd134c54184d2652671f80ae09274f9d23dbbed312944ebeccbc173e2e6b6949b5
kubernetes-src.tar.gz	57db9e7560cfc9c10e7059cb5faf9c4bd5eb8f9b7964f44f000a417021cf80873184b774e7c66c8f

Client binaries

filename	sha512 hash
kubernetes-client-darwin-	e2706efda92d5cf4f8b69503bb2f7703a8754407eff7f199bb77847838070e720e5f572126c14daa4c

amd64.tar.gz	
kubernetes-client-linux-386.tar.gz	007bb23c576356ed0890bdfd25a0f98d552599e0ffec19fb982591183c7c1f216d8a3ffa3abf15216b
kubernetes-client-linux-amd64.tar.gz	39504b0c610348beba60e8866fff265bad58034f74504951cd894c151a248db718d10f77ebc83f2c3
kubernetes-client-linux-arm.tar.gz	30bc2c40d0c759365422ad1651a6fb35909be771f463c5b971caf401f9209525d05256ab70c807e88
kubernetes-client-linux-arm64.tar.gz	085cdf574dc8fd33ece667130b8c45830b522a07860e03a2384283b1adea73a9652ef3dfaa566e69e
kubernetes-client-linux-ppc64le.tar.gz	b34b845037d83ea7b3e2d80a9ede4f889b71b17b93b1445f0d936a36e98c13ed6ada125630a68d9
kubernetes-client-linux-s390x.tar.gz	c4758adc7a404b776556efaa79655db2a70777c562145d6ea6887f3335988367a0c2fcd4383e46934
kubernetes-client-windows-386.tar.gz	f51edc79702bbd1d9cb3a672852a405e11b20feeab64c5411a7e85c9af304960663eb6b23ef96e0f8
kubernetes-client-windows-amd64.tar.gz	6a3507ce4ac40a0dc7e4720538863fa15f8faf025085a032f34b8fa0f6fa4e8c26849baf649b5b32829

Server binaries

filename	sha512 hash
kubernetes-server-linux-amd64.tar.gz	19181d162dfb0b30236e2bf1111000e037eece87c037ca2b24622ca94cb88db86aa4da4ca5335225
kubernetes-server-linux-arm.tar.gz	42a02f9e08a78ad5da6e5fa1ab12bf1e3c967c472fdbdadbd8746586da74dc8093682ba8513ff2a53
kubernetes-server-linux-arm64.tar.gz	3c8ba8eb02f70061689bd7fab7813542005efe2edc6cfc6b7aecdd03ffedf0b81819ad91d69fff588e83
kubernetes-server-linux-ppc64le.tar.gz	cd9e6537450411c39a06fd0b5819db3d16b668d403fb3627ec32c0e32dd1c4860e942934578ca0e7

kubernetes-server-linux-s390x.tar.gz	ada3f65e53bc0e0c0229694dd48c425388089d6d77111a62476d1b08f6ad1d8ab3d60b9ed7d95ac
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Node binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	ae0fec6aa59e49624b55d9a11c12fdf717ddfe04bdfd4f69965d03004a34e52ee4a3e83f7b61d0c6af
kubernetes-node-linux-arm.tar.gz	9a48c140ab53b7ed8ecec6903988a1a474efc16d2538e5974bc9a12f0c9190be78c4f9e326bf4e982
kubernetes-node-linux-arm64.tar.gz	6912adbc9300344bea470d6435f7b387bfce59767078c11728ce59faf47cd3f72b41b9604fcc5cda45
kubernetes-node-linux-ppc64le.tar.gz	d66dccfe3e6ed6d81567c70703f15375a53992b3a5e2814b98c32e581b861ad95912e03ed2562415
kubernetes-node-linux-s390x.tar.gz	ad8c69a28f1fbafa3f1cb54909bfd3fc22b104bed63d7ca2b296208c9d43eb5f2943a0ff267da4c1857
kubernetes-node-windows-amd64.tar.gz	91d723aa848a9cb028f5bcb41090ca346fb973961521d025c4399164de2c8029b57ca2c4daca560d

Changelog since v1.21.0-alpha.2

Urgent Upgrade Notes

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

- Newly provisioned PVs by gce-pd will no longer have the beta FailureDomain label. gce-pd volume plugin will start to have GA topology label instead. ([#98700](#), [@Jiawei0227](#)) [SIG Cloud Provider, Storage and Testing]
- Remove alpha CSIMigrationXXComplete flag and add alpha InTreePluginXXUnregister flag. Deprecate CSIMigrationvSphereComplete flag and it will be removed in 1.22. ([#98243](#), [@Jiawei0227](#)) [SIG Node and Storage]

Changes by Kind

API Change

- Adds support for portRange / EndPort in Network Policy ([#97058](#), [@rikatz](#)) [SIG Apps and Network]
- Fixes using server-side apply with APIService resources ([#98576](#), [@kevindelgado](#)) [SIG API Machinery, Apps and Testing]

- Kubernetes is now built using go1.15.7 ([#98363](#), [@cpanato](#)) [SIG Cloud Provider, Instrumentation, Node, Release and Testing]
- Scheduler extender filter interface now can report unresolvable failed nodes in the new field `FailedAndUnresolvableNodes` of `ExtenderFilterResult` struct. Nodes in this map will be skipped in the preemption phase. ([#92866](#), [@cofyc](#)) [SIG Scheduling]

Feature

- A lease can only attach up to 1k objects. ([#98257](#), [@lingsamuel](#)) [SIG API Machinery]
- Add ignore-errors flag for drain, support none-break drain in group ([#98203](#), [@yuzhiquan](#)) [SIG CLI]
- Base-images: Update to debian-iptables:buster-v1.4.0
 - Uses iptables 1.8.5
 - base-images: Update to debian-base:buster-v1.3.0
 - cluster/images/etcd: Build etcd:3.4.13-2 image
 - Uses debian-base:buster-v1.3.0 ([#98401](#), [@pacoxu](#)) [SIG Testing]
- Export NewDebuggingRoundTripper function and DebugLevel options in the k8s.io/client-go/transport package. ([#98324](#), [@atosatto](#)) [SIG API Machinery]
- Kubectl wait ensures that observedGeneration >= generation if applicable ([#97408](#), [@KnicKnic](#)) [SIG CLI]
- Kubernetes is now built using go1.15.8 ([#98834](#), [@cpanato](#)) [SIG Cloud Provider, Instrumentation, Release and Testing]
- New admission controller "denyserviceexternalips" is available. Clusters which do not *need* the Service "externalIPs" feature should enable this controller and be more secure. ([#97395](#), [@thockin](#)) [SIG API Machinery]
- Overall, enable the feature of `PreferNominatedNode` will improve the performance of scheduling where preemption might frequently happen, but in theory, enable the feature of `PreferNominatedNode`, the pod might not be scheduled to the best candidate node in the cluster. ([#93179](#), [@chendave](#)) [SIG Scheduling and Testing]
- Pause image upgraded to 3.4.1 in kubelet and kubeadm for both Linux and Windows. ([#98205](#), [@pacoxu](#)) [SIG CLI, Cloud Provider, Cluster Lifecycle, Node, Testing and Windows]
- The `ServiceAccountIssuerDiscovery` feature has graduated to GA, and is unconditionally enabled. The `ServiceAccountIssuerDiscovery` feature-gate will be removed in 1.22. ([#98553](#), [@mtaufen](#)) [SIG API Machinery, Auth and Testing]

Documentation

- Feat: azure file migration go beta in 1.21. Feature gates CSIMigration to Beta (on by default) and CSIMigrationAzureFile to Beta (off by default since it requires installation of the AzureFile CSI Driver) The in-tree AzureFile plugin "kubernetes.io/azure-file" is now deprecated and will be removed in 1.23. Users should enable CSIMigration + CSIMigrationAzureFile features and install the AzureFile CSI Driver (<https://github.com/kubernetes-sigs/azurefile-csi-driver>) to avoid disruption to existing Pod and PVC objects at that time. Users should start using the AzureFile CSI Driver directly for any new volumes. ([#96293](#), [@andyzhangx](#)) [SIG Cloud Provider]

Failing Test

- Kubelet: the HostPort implementation in dockershim was not taking into consideration the HostIP field, causing that the same HostPort can not be used with different IP addresses. This bug causes the conformance test "HostPort validates that there is no conflict between pods with same hostPort but different hostIP and protocol" to fail. ([#98755](#), [@aojea](#)) [SIG Cloud Provider, Network and Node]

Bug or Regression

- Fix NPE in ephemeral storage eviction ([#98261](#), [@wzshiming](#)) [SIG Node]

- Fixed a bug that on k8s nodes, when the policy of INPUT chain in filter table is not ACCEPT, healthcheck nodeport would not work. Added iptables rules to allow healthcheck nodeport traffic. ([#97824](#), [@hanlins](#)) [SIG Network]
- Fixed kube-proxy container image architecture for non amd64 images. ([#98526](#), [@saschagrunert](#)) [SIG API Machinery, Release and Testing]
- Fixed provisioning of Cinder volumes migrated to CSI when StorageClass with AllowedTopologies was used. ([#98311](#), [@jsafrane](#)) [SIG Storage]
- Fixes a panic in the disruption budget controller for PDB objects with invalid selectors ([#98750](#), [@mortent](#)) [SIG Apps]
- Fixes connection errors when using `--volume-host-cidr-denylist` or `--volume-host-allow-local-loopback` ([#98436](#), [@liggitt](#)) [SIG Network and Storage]
- If the user specifies an invalid timeout in the request URL, the request will be aborted with an HTTP 400.
 - in cases where the client specifies a timeout in the request URL, the overall request deadline is shortened now since the deadline is setup as soon as the request is received by the apiserver. ([#96901](#), [@tkashem](#)) [SIG API Machinery and Testing]
- Kubeadm: Some text in the `kubeadm upgrade plan` output has changed. If you have scripts or other automation that parses this output, please review these changes and update your scripts to account for the new output. ([#98728](#), [@stmcginnis](#)) [SIG Cluster Lifecycle]
- Kubeadm: fix a bug where external credentials in an existing admin.conf prevented the CA certificate to be written in the cluster-info ConfigMap. ([#98882](#), [@kvaps](#)) [SIG Cluster Lifecycle]
- Kubeadm: fix bad token placeholder text in "config print *-defaults --help" ([#98839](#), [@Mattias-](#)) [SIG Cluster Lifecycle]
- Kubeadm: get k8s CI version markers from k8s infra bucket ([#98836](#), [@hasheddan](#)) [SIG Cluster Lifecycle and Release]
- Mitigate CVE-2020-8555 for kube-up using GCE by preventing local loopback volume hosts. ([#97934](#), [@mattcary](#)) [SIG Cloud Provider and Storage]
- Remove CSI topology from migrated in-tree gcepd volume. ([#97823](#), [@Jiawei0227](#)) [SIG Cloud Provider and Storage]
- Sync node status during kubelet node shutdown. Adds an pod admission handler that rejects new pods when the node is in progress of shutting down. ([#98005](#), [@wzshiming](#)) [SIG Node]
- Truncates a message if it hits the NoteLengthLimit when the scheduler records an event for the pod that indicates the pod has failed to schedule. ([#98715](#), [@carlory](#)) [SIG Scheduling]
- We will no longer automatically delete all data when a failure is detected during creation of the volume data file on a CSI volume. Now we will only remove the data file and volume path. ([#96021](#), [@huffmanca](#)) [SIG Storage]

Other (Cleanup or Flake)

- Fix the description of command line flags that can override `--config` ([#98254](#), [@changshuchao](#)) [SIG Scheduling]
- Migrate scheduler/taint_manager.go structured logging ([#98259](#), [@tanjing2020](#)) [SIG Apps]
- Migrate staging/src/k8s.io/apiserver/pkg/admission logs to structured logging ([#98138](#), [@lala123912](#)) [SIG API Machinery]
- Resolves flakes in the Ingress conformance tests due to conflicts with controllers updating the Ingress object ([#98430](#), [@liggitt](#)) [SIG Network and Testing]
- The default delegating authorization options now allow unauthenticated access to healthz, readyz, and livez. A system:masters user connecting to an authz delegator will not perform an authz check. ([#98325](#), [@deads2k](#)) [SIG API Machinery, Auth, Cloud Provider and Scheduling]
- The e2e suite can be instructed not to wait for pods in kube-system to be ready or for all nodes to be ready by passing `--allowed-not-ready-nodes=-1` when invoking the e2e.test program. This allows callers

to run subsets of the e2e suite in scenarios other than perfectly healthy clusters. ([#98781](#), [@smarterclayton](#)) [SIG Testing]

- The feature gates `WindowsGMSA` and `WindowsRunAsUserName` that are GA since v1.18 are now removed. ([#96531](#), [@ialidzhikov](#)) [SIG Node and Windows]
- The new `-gce-zones` flag on the `e2e.test` binary instructs tests that check for information about how the cluster interacts with the cloud to limit their queries to the provided zone list. If not specified, the current behavior of asking the cloud provider for all available zones in multi zone clusters is preserved. ([#98787](#), [@smarterclayton](#)) [SIG API Machinery, Cluster Lifecycle and Testing]

Dependencies

Added

- [github.com/moby/spdystream](#): [v0.2.0](#)

Changed

- [github.com/NYTimes/gziphandler](#): [56545f4](#) → [v1.1.1](#)
- [github.com/container-storage-interface/spec](#): [v1.2.0](#) → [v1.3.0](#)
- [github.com/go-logr/logr](#): [v0.2.0](#) → [v0.4.0](#)
- [github.com/gogo/protobuf](#): [v1.3.1](#) → [v1.3.2](#)
- [github.com/kisielk/errcheck](#): [v1.2.0](#) → [v1.5.0](#)
- [github.com/yuin/goldmark](#): [v1.1.27](#) → [v1.2.1](#)
- [golang.org/x/sync](#): `cd5d95a` → `67f06af`
- [golang.org/x/tools](#): `c1934b7` → `113979e`
- [k8s.io/klog/v2](#): `v2.4.0` → `v2.5.0`
- [sigs.k8s.io/apiserver-network-proxy/konnectivity-client](#): `v0.0.14` → `v0.0.15`

Removed

- [github.com/docker/spdystream](#): [449fd9c](#)

v1.21.0-alpha.2

Downloads for v1.21.0-alpha.2

Source Code

filename	sha512 hash
kubernetes.tar.gz	6836f6c8514253fe0831fd171fc4ed92eb6d9a773491c8dc82b90d171a1b10076bd6bfaea56ec1
kubernetes-src.tar.gz	d137694804741a05ab09e5f9a18448b66aba0146c028eafce61bcd9d7c276521e345ce9223ffb

Client binaries

filename	sha512 hash
kubernetes-client-darwin-amd64.tar.gz	9478b047a97717953f365c13a098feb7e3cb30a3df22e1b82aa945f2208dcc5cb90afc441ba059a3a
kubernetes-	44c8dd4b1ddfc256d35786c8abf45b0eb5f0794f5e310d2efc865748adddc50e8bf38aa71295ae8a8

kubernetes-client-linux-386.tar.gz	
kubernetes-client-linux-amd64.tar.gz	e1291989892769de6b978c17b8612b94da6f3b735a4d895100af622ca9ebb968c75548afea7ab004
kubernetes-client-linux-arm.tar.gz	3c4bcb8cbe73822d68a2f62553a364e20bec56b638c71d0f58679b4f4b277d809142346f18506914
kubernetes-client-linux-arm64.tar.gz	9389974a790268522e187f5ba5237f3ee4684118c7db76bc3d4164de71d8208702747ec333b204c7
kubernetes-client-linux-ppc64le.tar.gz	63399e53a083b5af3816c28ff162c9de6b64c75da4647f0d6bbaf97afdf896823cb1e556f2abac75c6f
kubernetes-client-linux-s390x.tar.gz	50898f197a9d923971ff9046c9f02779b57f7b3cea7da02f3ea9bab8c08d65a9c4a7531a2470fa1478
kubernetes-client-windows-386.tar.gz	a7743e839e1aa19f5ee20b6ee5000ac8ef9e624ac5be63bb574fad6992e4b9167193ed07e03c9bc5f
kubernetes-client-windows-amd64.tar.gz	5f1d19c230bd3542866d16051808d184e9dd3e2f8c001ed4cee7b5df91f872380c2bf56a3add8c94f

Server binaries

filename	sha512 hash
kubernetes-server-linux-amd64.tar.gz	ef2cac10febde231aeb6f131e589450c560eeaab8046b49504127a091cddc17bc518c2ad56894a6ac
kubernetes-server-linux-arm.tar.gz	d11c9730307f08e80b2b8a7c64c3e9a9e43c622002e377dfe3a386f4541e24adc79a199a6f280f4029
kubernetes-server-linux-arm64.tar.gz	28f8c32bf98ee1add7edf5d341c3bac1afc0085f90dcbbfb8b27a92087f13e2b53c327c8935ee29bf1
kubernetes-server-linux-ppc64le.tar.gz	99ae8d44b0de3518c27fa8bbddd2ecf053dfb789fb9d65f8a4ecf4c8331cf63d2f09a41c2bcd557324
kubernetes-server-linux-s390x.tar.gz	f8c0e954a2dfc6845614488dadeed069cc7f3f08e33c351d7a77c6ef97867af590932e8576d12998a8

[s390x.tar.gz](#)

Node binaries

filename	sha512 hash
kubernetes-node-linux-amd64.tar.gz	c5456d50bfbe0d75fb150b3662ed7468a0abd3970792c447824f326894382c47bbd3a2cc5a290f69
kubernetes-node-linux-arm.tar.gz	335b5cd8672e053302fd94d932fb2fa2e48eeeb1799650b3f93acdfa635e03a8453637569ab710c46
kubernetes-node-linux-arm64.tar.gz	3ee87dbeed8ace9351ac89bdaf7274dd10b4faec3ceba0825f690ec7a2bb7eb7c634274a1065a093!
kubernetes-node-linux-ppc64le.tar.gz	6956f965b8d719b164214ec9195fdb2c776b907fe6d2c524082f00c27872a73475927fd7d2a994045
kubernetes-node-linux-s390x.tar.gz	3b643aa905c709c57083c28dd9e8ffd88cb64466cda1499da7fc54176b775003e08b9c7a07b09640
kubernetes-node-windows-amd64.tar.gz	b2e6d6fb0091f2541f9925018c2bdbb0138a95bab06b4c6b38abf4b7144b2575422263b78fb3c6fd

Changelog since v1.21.0-alpha.1

Urgent Upgrade Notes

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

- Remove storage metrics `storage_operation_errors_total` , since we already have `storage_operation_status_count` .And add new field `status` for `storage_operation_duration_seconds` , so that we can know about all status storage operation latency. ([#98332](#), [@JornShen](#)) [SIG Instrumentation and Storage]

Changes by Kind

Deprecation

- Remove the TokenRequest and TokenRequestProjection feature gates ([#97148](#), [@wawa0210](#)) [SIG Node]
- Removing experimental windows container hyper-v support with Docker ([#97141](#), [@wawa0210](#)) [SIG Node and Windows]
- The `export` query parameter (inconsistently supported by API resources and deprecated in v1.14) is fully removed. Requests setting this query parameter will now receive a 400 status response. ([#98312](#), [@deads2k](#)) [SIG API Machinery, Auth and Testing]

API Change

- Enable SPDY pings to keep connections alive, so that `kubectl exec` and `kubectl port-forward` won't be interrupted. ([#97083](#), [@knight42](#)) [SIG API Machinery and CLI]

Documentation

- Official support to build kubernetes with docker-machine / remote docker is removed. This change does not affect building kubernetes with docker locally. ([#97935](#), [@adeniyistephen](#)) [SIG Release and Testing]
- Set kubelet option `--volume-stats-aggr-period` to negative value to disable volume calculations. ([#96675](#), [@pacoxu](#)) [SIG Node]

Bug or Regression

- Clean ReplicaSet by revision instead of creation timestamp in deployment controller ([#97407](#), [@waynepeking348](#)) [SIG Apps]
- Ensure that client-go's EventBroadcaster is safe (non-racy) during shutdown. ([#95664](#), [@DirectXMan12](#)) [SIG API Machinery]
- Fix azure file migration issue ([#97877](#), [@andyzhangx](#)) [SIG Auth, Cloud Provider and Storage]
- Fix kubelet from panic after getting the wrong signal ([#98200](#), [@wzshiming](#)) [SIG Node]
- Fix repeatedly acquire the inhibit lock ([#98088](#), [@wzshiming](#)) [SIG Node]
- Fixed a bug that the kubelet cannot start on Btrfs. ([#98042](#), [@gjkim42](#)) [SIG Node]
- Fixed an issue with garbage collection failing to clean up namespaced children of an object also referenced incorrectly by cluster-scoped children ([#98068](#), [@liggitt](#)) [SIG API Machinery and Apps]
- Fixed no effect namespace when exposing deployment with `--dry-run=client`. ([#97492](#), [@masap](#)) [SIG CLI]
- Fixing a bug where a failed node may not have the NoExecute taint set correctly ([#96876](#), [@howieyuen](#)) [SIG Apps and Node]
- Indentation of `Resource Quota` block in `kubectl describe namespaces` output gets correct. ([#97946](#), [@dty1er](#)) [SIG CLI]
- KUBECTL_EXTERNAL_DIFF now accepts equal sign for additional parameters. ([#98158](#), [@dougslan](#)) [SIG CLI]
- Kubeadm: fix a bug where "kubeadm join" would not properly handle missing names for existing etcd members. ([#97372](#), [@ihgann](#)) [SIG Cluster Lifecycle]
- Kubelet should ignore cgroup driver check on Windows node. ([#97764](#), [@pacoxu](#)) [SIG Node and Windows]
- Make podTopologyHints protected by lock ([#95111](#), [@choury](#)) [SIG Node]
- Readjust kubelet_containers_per_pod_count bucket ([#98169](#), [@wawa0210](#)) [SIG Instrumentation and Node]
- Scores from InterPodAffinity have stronger differentiation. ([#98096](#), [@leileiwan](#)) [SIG Scheduling]
- Specifying the KUBE_TEST_REPO environment variable when e2e tests are executed will instruct the test infrastructure to load that image from a location within the specified repo, using a predefined pattern. ([#93510](#), [@smarterclayton](#)) [SIG Testing]
- Static pods will be deleted gracefully. ([#98103](#), [@gjkim42](#)) [SIG Node]
- Use network.Interface.VirtualMachine.ID to get the binded VM Skip standalone VM when reconciling LoadBalancer ([#97635](#), [@nilo19](#)) [SIG Cloud Provider]

Other (Cleanup or Flake)

- Kubeadm: change the default image repository for CI images from 'gcr.io/kubernetes-ci-images' to 'gcr.io/k8s-staging-ci-images' ([#97087](#), [@SataQiu](#)) [SIG Cluster Lifecycle]
- Migrate generic_scheduler.go and types.go to structured logging. ([#98134](#), [@tanjing2020](#)) [SIG Scheduling]
- Migrate proxy/winuserspace/proxier.go logs to structured logging ([#97941](#), [@JornShen](#)) [SIG Network]
- Migrate staging/src/k8s.io/apiserver/pkg/audit/policy/reader.go logs to structured logging. ([#98252](#), [@lala123912](#)) [SIG API Machinery and Auth]

- Migrate staging\src\k8s.io\apiserver\pkg\endpoints logs to structured logging ([#98093](#), [@lala123912](#)) [SIG API Machinery]
- Node ([#96552](#), [@pandaamanda](#)) [SIG Apps, Cloud Provider, Node and Scheduling]
- The kubect! alpha debug command was scheduled to be removed in v1.21. ([#98111](#), [@pandaamanda](#)) [SIG CLI]
- Update cri-tools to [v1.20.0](#) ([#97967](#), [@rajibmitra](#)) [SIG Cloud Provider]
- Windows nodes on GCE will take longer to start due to dependencies installed at node creation time. ([#98284](#), [@pjh](#)) [SIG Cloud Provider]

Dependencies

Added

Nothing has changed.

Changed

- github.com/google/cadvisor: [v0.38.6](#) → [v0.38.7](#)
- k8s.io/gengo: 83324d8 → b6c5ce2

Removed

Nothing has changed.

v1.21.0-alpha.1

Downloads for v1.21.0-alpha.1

Source Code

filename	sha512 hash
kubernetes.tar.gz	b2bacd5c3fc9f829e6269b7d2006b0c6e464ff848bb0a2a8f2fe52ad2d7c4438f099bd8be847d8c
kubernetes-src.tar.gz	518ac5acbcf23902fb1b902b69dbf3e86deca5d8a9b5f57488a15f185176d5a109558f3e4df0623

Client binaries

filename	sha512 hash
kubernetes-client-darwin-amd64.tar.gz	eea7aea84a5ed954df5ec710cbeb6ec88b46465f43cb3d09aabe2f714b84a050a50bf5736089f09db
kubernetes-client-linux-386.tar.gz	47f74b8d46ad1779c5b0b5f15aa15d5513a504eeb6f53db4201fbe9ff8956cb986b7c1b0e9d50a99f
kubernetes-client-linux-amd64.tar.gz	1a148e282628b008c8abd03dd12ec177ced17584b5115d92cd33dd251e607097d42e9da8c7089b
kubernetes-	d13d2feb73bd032dc01f7e2955b98d8215a39fe1107d037a73fa1f7d06c3b93ebaa53ed4952d845c

client-linux-arm.tar.gz	
kubernetes-client-linux-arm64.tar.gz	8252105a17b09a78e9ad2c024e4e401a69764ac869708a071aaa06f81714c17b9e7c5b2eb8efde33
kubernetes-client-linux-ppc64le.tar.gz	297a9082df4988389dc4be30eb636dff49f36f5d87047bab44745884e610f46a17ae3a08401e2cab1
kubernetes-client-linux-s390x.tar.gz	04c06490dd17cd5dccfd92bafa14acf64280ceaea370d9635f23aeb6984d1beae6d0d1d1506edc6f3
kubernetes-client-windows-386.tar.gz	ec6e9e87a7d685f8751d7e58f24f417753cff5554a7229218cb3a08195d461b2e12409344950228e9
kubernetes-client-windows-amd64.tar.gz	51039e6221d3126b5d15e797002ae01d4f0b10789c5d2056532f27ef13f35c5a2e51be27764fda68e

Server binaries

filename	sha512 hash
kubernetes-server-linux-amd64.tar.gz	4edf820930c88716263560275e3bd7fad8dc3700b9f8e1d266562e356e0abeb1a913f536377dab9
kubernetes-server-linux-arm.tar.gz	b15213e53a8ab4ba512ce6ef9ad42dd197d419c61615cd23de344227fd846c90448d8f3d98e555bf
kubernetes-server-linux-arm64.tar.gz	5be29cca9a9358fc68351ee63e99d57dc2ffce6e42fc3345753dbbf7542ff2d770c485242415854043
kubernetes-server-linux-ppc64le.tar.gz	89fd99ab9ce85db0b94b86709932105efc883cc93959cf7ea9a39e79a4acea23064d7010eeb57745f
kubernetes-server-linux-s390x.tar.gz	2fbc30862c77d247aa8d96ab9d1a144599505287b0033a3a2d0988958e7bb2f2e8b67f52c1fec74b

Node binaries

filename	sha512 hash
kubernetes-	95658d321a0a371c0900b401d1469d96915310afbc4e4b9b11f031438bb188513b57d5a60b5316c

node-linux-amd64.tar.gz	
kubernetes-node-linux-arm.tar.gz	f375acfb42aad6c65b833c270e7e3acfe9cd1d6b2441c33874e77faae263957f7acfe86f1b71f142981
kubernetes-node-linux-arm64.tar.gz	43b4bacc58d74e7f48d096ab92f2bbbcdf47e30e7a3d2b56c6cc9f90002cfd4fefaac894f69bd5f9f4
kubernetes-node-linux-ppc64le.tar.gz	e7962b522c6c7c14b9ee4c1d254d8bdd9846b2b33b0443fc9c4a41be6c40e5e6981798b720f0148f
kubernetes-node-linux-s390x.tar.gz	49ebc97f01829e65f7de15be00b882513c44782eaadd1b1825a227e3bd3c73cc6aca8345af05b303
kubernetes-node-windows-amd64.tar.gz	6e0fd7724b09e6befbcb53b33574e97f2db089f2eee4bbf391abb7f043103a5e6e32e3014c0531b8e

Changelog since v1.20.0

Urgent Upgrade Notes

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

- Kube-proxy's IPVS proxy mode no longer sets the `net.ipv4.conf.all.route_localnet` sysctl parameter. Nodes upgrading will have `net.ipv4.conf.all.route_localnet` set to 1 but new nodes will inherit the system default (usually 0). If you relied on any behavior requiring `net.ipv4.conf.all.route_localnet`, you must set ensure it is enabled as kube-proxy will no longer set it automatically. This change helps to further mitigate CVE-2020-8558. ([#92938](#), [@lbermail](#)) [SIG Network and Release]

Changes by Kind

Deprecation

- Deprecate the `topologyKeys` field in Service. This capability will be replaced with upcoming work around Topology Aware Subsetting and Service Internal Traffic Policy. ([#96736](#), [@andrewsykim](#)) [SIG Apps]
- Kubeadm: deprecated command "alpha selfhosting pivot" is removed now. ([#97627](#), [@knight42](#)) [SIG Cluster Lifecycle]
- Kubeadm: graduate the command `kubeadm alpha kubeconfig user` to `kubeadm kubeconfig user`. The `kubeadm alpha kubeconfig user` command is deprecated now. ([#97583](#), [@knight42](#)) [SIG Cluster Lifecycle]
- Kubeadm: the "kubeadm alpha certs" command is removed now, please use "kubeadm certs" instead. ([#97706](#), [@knight42](#)) [SIG Cluster Lifecycle]
- Remove the deprecated metrics "scheduling_algorithm_preemption_evaluation_seconds" and "binding_duration_seconds", suggest to use "scheduler_framework_extension_point_duration_seconds" instead. ([#96447](#), [@chendave](#)) [SIG Cluster Lifecycle, Instrumentation, Scheduling and Testing]

- The PodSecurityPolicy API is deprecated in 1.21, and will no longer be served starting in 1.25. ([#97171](#), [@deads2k](#)) [SIG Auth and CLI]

API Change

- Change the APIVersion proto name of BoundObjectRef from aPIVersion to apiVersion. ([#97379](#), [@kebe7jun](#)) [SIG Auth]
- Promote Immutable Secrets/ConfigMaps feature to Stable. This allows to set `Immutable` field in Secrets or ConfigMap object to mark their contents as immutable. ([#97615](#), [@wojtek-t](#)) [SIG Apps, Architecture, Node and Testing]

Feature

- Add flag `--lease-max-object-size` and metric `etcd_lease_object_counts` for kube-apiserver to config and observe max objects attached to a single etcd lease. ([#97480](#), [@lingsamuel](#)) [SIG API Machinery, Instrumentation and Scalability]
- Add flag `--lease-reuse-duration-seconds` for kube-apiserver to config etcd lease reuse duration. ([#97009](#), [@lingsamuel](#)) [SIG API Machinery and Scalability]
- Adds the ability to pass `--strict-transport-security-directives` to the kube-apiserver to set the HSTS header appropriately. Be sure you understand the consequences to browsers before setting this field. ([#96502](#), [@249043822](#)) [SIG Auth]
- Kubeadm now includes CoreDNS v1.8.0. ([#96429](#), [@rajansandeep](#)) [SIG Cluster Lifecycle]
- Kubeadm: add support for certificate chain validation. When using kubeadm in external CA mode, this allows an intermediate CA to be used to sign the certificates. The intermediate CA certificate must be appended to each signed certificate for this to work correctly. ([#97266](#), [@robbiemcmichael](#)) [SIG Cluster Lifecycle]
- Kubeadm: amend the node kernel validation to treat CGROUP_PIDS, FAIR_GROUP_SCHED as required and CFS_BANDWIDTH, CGROUP_HUGETLB as optional ([#96378](#), [@neolit123](#)) [SIG Cluster Lifecycle and Node]
- The Kubernetes pause image manifest list now contains an image for Windows Server 20H2. ([#97322](#), [@claudiubelu](#)) [SIG Windows]
- The apimachinery util/net function used to detect the bind address `ResolveBindAddress()` takes into consideration global ip addresses on loopback interfaces when: - the host has default routes - there are no global IPs on those interfaces. in order to support more complex network scenarios like BGP Unnumbered RFC 5549 ([#95790](#), [@aojea](#)) [SIG Network]

Bug or Regression

• Changelog

General

- Fix priority expander falling back to a random choice even though there is a higher priority option to choose
- Clone `kubernetes/kubernetes` in `update-vendor.sh` shallowly, instead of fetching all revisions
- Speed up binpacking by reducing the number of PreFilter calls (call once per pod instead of `#pods*#nodes` times)
- Speed up finding unneeded nodes by 5x+ in very large clusters by reducing the number of PreFilter calls
- Expose `--max-nodes-total` as a metric
- Errors in `IncreaseSize` changed from type `apiError` to `cloudProviderError`
- Make `build-in-docker` and `test-in-docker` work on Linux systems with SELinux enabled

- Fix an error where existing nodes were not considered as destinations while finding place for pods in scale-down simulations
- Remove redundant log lines and reduce severity around parsing kubeEnv
- Don't treat nodes created by virtual kubelet as nodes from non-autoscaled node groups
- Remove redundant logging around calculating node utilization
- Add configurable `--network` and `--rm` flags for docker in `Makefile`
- Subtract DaemonSet pods' requests from node allocatable in the denominator while computing node utilization
- Include taints by condition when determining if a node is unready/still starting
- Fix `update-vendor.sh` to work on OSX and zsh
- Add best-effort eviction for DaemonSet pods while scaling down non-empty nodes
- Add build support for ARM64

AliCloud

- Add missing daemonsets and replicaset to ALI example cluster role

Apache CloudStack

- Add support for Apache CloudStack

AWS

- Regenerate list of EC2 instances
- Fix pricing endpoint in AWS China Region

Azure

- Add optional jitter on initial VMSS VM cache refresh, keep the refreshes spread over time
- Serve from cache for the whole period of ongoing throttling
- Fix unwanted VMSS VMs cache invalidations
- Enforce setting the number of retries if cloud provider backoff is enabled
- Don't update capacity if VMSS provisioning state is updating
- Support allocatable resources overrides via VMSS tags
- Add missing stable labels in template nodes
- Proactively set instance status to deleting on node deletions

Cluster API

- Migrate interaction with the API from using internal types to using Unstructured
- Improve tests to work better with constrained resources
- Add support for node autodiscovery
- Add support for `--cloud-config`
- Update group identifier to use for Cluster API annotations

Exoscale

- Add support for Exoscale

GCE

- Decrease the number of GCE Read Requests made while deleting nodes
- Base pricing of custom instances on their instance family type
- Add pricing information for missing machine types
- Add pricing information for different GPU types
- Ignore the new `topology.gke.io/zone` label when comparing groups
- Add missing stable labels to template nodes

HuaweiCloud

- Add auto scaling group support
- Implement node group by AS
- Implement getting desired instance number of node group
- Implement increasing node group size
- Implement TemplateNodeInfo
- Implement caching instances

IONOS

- Add support for IONOS

Kubemark

- Skip non-kubemark nodes while computing node infos for node groups.

Magnum

- Add Magnum support in the Cluster Autoscaler helm chart

Packet

- Allow empty nodepools
- Add support for multiple nodepools
- Add pricing support

Image

Image: `k8s.gcr.io/autoscaling/cluster-autoscaler:v1.20.0` ([#97011](#), [@towca](#)) [SIG Cloud Provider]

- AcceleratorStats will be available in the Summary API of kubelet when cri_stats_provider is used. ([#96873](#), [@ruiwen-zhao](#)) [SIG Node]
- Add limited lines to log when having tail option ([#93920](#), [@zhouya0](#)) [SIG Node]
- Avoid systemd-logind loading configuration warning ([#97950](#), [@wzshiming](#)) [SIG Node]
- Cloud-controller-manager: routes controller should not depend on --allocate-node-cidrs ([#97029](#), [@andrewsykim](#)) [SIG Cloud Provider and Testing]
- Copy annotations with empty value when deployment rolls back ([#94858](#), [@waynepeking348](#)) [SIG Apps]
- Detach volumes from vSphere nodes not tracked by attach-detach controller ([#96689](#), [@gnufied](#)) [SIG Cloud Provider and Storage]
- Fix kubectcl label error when local=true is set. ([#97440](#), [@pandaamanda](#)) [SIG CLI]
- Fix Azure file share not deleted issue when the namespace is deleted ([#97417](#), [@andyzhangx](#)) [SIG Cloud Provider and Storage]
- Fix CVE-2020-8555 for Gluster client connections. ([#97922](#), [@liggitt](#)) [SIG Storage]
- Fix counting error in service/nodeport/loadbalancer quota check ([#97451](#), [@pacoxu](#)) [SIG API Machinery, Network and Testing]
- Fix kubectcl-conver import known versions ([#97754](#), [@wzshiming](#)) [SIG CLI and Testing]

- Fix missing cadvisor machine metrics. ([#97006](#), [@lingsamuel](#)) [SIG Node]
- Fix nil VMSS name when setting service to auto mode ([#97366](#), [@nilo19](#)) [SIG Cloud Provider]
- Fix the panic when kubelet registers if a node object already exists with no Status.Capacity or Status.Allocatable ([#95269](#), [@SataQiu](#)) [SIG Node]
- Fix the regression with the slow pods termination. Before this fix pods may take an additional time to terminate - up to one minute. Reversing the change that ensured that CNI resources cleaned up when the pod is removed on API server. ([#97980](#), [@SergeyKanzhelev](#)) [SIG Node]
- Fix to recover CSI volumes from certain dangling attachments ([#96617](#), [@yuga711](#)) [SIG Apps and Storage]
- Fix: azure file latency issue for metadata-heavy workloads ([#97082](#), [@andyzhangx](#)) [SIG Cloud Provider and Storage]
- Fixed Cinder volume IDs on OpenStack Train ([#96673](#), [@jsafrane](#)) [SIG Cloud Provider]
- Fixed FibreChannel volume plugin corrupting filesystems on detach of multipath volumes. ([#97013](#), [@jsafrane](#)) [SIG Storage]
- Fixed a bug in kubelet that will saturate CPU utilization after containerd got restarted. ([#97174](#), [@hanlins](#)) [SIG Node]
- Fixed bug in CPMManager with race on container map access ([#97427](#), [@klueska](#)) [SIG Node]
- Fixed cleanup of block devices when /var/lib/kubelet is a symlink. ([#96889](#), [@jsafrane](#)) [SIG Storage]
- GCE Internal LoadBalancer sync loop will now release the ILB IP address upon sync failure. An error in ILB forwarding rule creation will no longer leak IP addresses. ([#97740](#), [@prameshj](#)) [SIG Cloud Provider and Network]
- Ignore update pod with no new images in alwaysPullImages admission controller ([#96668](#), [@pacoxu](#)) [SIG Apps, Auth and Node]
- Kubeadm now installs version 3.4.13 of etcd when creating a cluster with v1.19 ([#97244](#), [@pacoxu](#)) [SIG Cluster Lifecycle]
- Kubeadm: avoid detection of the container runtime for commands that do not need it ([#97625](#), [@pacoxu](#)) [SIG Cluster Lifecycle]
- Kubeadm: fix a bug in the host memory detection code on 32bit Linux platforms ([#97403](#), [@abelbarrera15](#)) [SIG Cluster Lifecycle]
- Kubeadm: fix a bug where "kubeadm upgrade" commands can fail if CoreDNS v1.8.0 is installed. ([#97919](#), [@neolit123](#)) [SIG Cluster Lifecycle]
- Performance regression [#97685](#) has been fixed. ([#97860](#), [@MikeSpreitzer](#)) [SIG API Machinery]
- Remove deprecated --cleanup-ipvs flag of kube-proxy, and make --cleanup flag always to flush IPVS ([#97336](#), [@maaoBit](#)) [SIG Network]
- The current version of the container image publicly exposed IP serving a /metrics endpoint to the Internet. The new version of the container image serves /metrics endpoint on a different port. ([#97621](#), [@vbannai](#)) [SIG Cloud Provider]
- Use force unmount for NFS volumes if regular mount fails after 1 minute timeout ([#96844](#), [@gnufied](#)) [SIG Storage]

- Users will see increase in time for deletion of pods and also guarantee that removal of pod from api server would mean deletion of all the resources from container runtime. ([#92817](#), [@kmala](#)) [SIG Node]
- Using exec auth plugins with kubectl no longer results in warnings about constructing many client instances from the same exec auth config. ([#97857](#), [@liggitt](#)) [SIG API Machinery and Auth]
- Warning about using a deprecated volume plugin is logged only once. ([#96751](#), [@jsafrane](#)) [SIG Storage]

Other (Cleanup or Flake)

- Bump github.com/Azure/go-autorest/autorest to v0.11.12 ([#97033](#), [@patrickshan](#)) [SIG API Machinery, CLI, Cloud Provider and Cluster Lifecycle]
- Delete deprecated mixed protocol annotation ([#97096](#), [@nilo19](#)) [SIG Cloud Provider]
- Kube-proxy: Traffic from the cluster directed to ExternalIPs is always sent directly to the Service. ([#96296](#), [@aojea](#)) [SIG Network and Testing]
- Kubeadm: fix a whitespace issue in the output of the "kubeadm join" command shown as the output of "kubeadm init" and "kubeadm token create --print-join-command" ([#97413](#), [@SataQiu](#)) [SIG Cluster Lifecycle]
- Kubeadm: improve the error messaging when the user provides an invalid discovery token CA certificate hash. ([#97290](#), [@neolit123](#)) [SIG Cluster Lifecycle]
- Migrate log messages in pkg/scheduler/{scheduler.go,factory.go} to structured logging ([#97509](#), [@aldudko](#)) [SIG Scheduling]
- Migrate proxy/iptables/proxier.go logs to structured logging ([#97678](#), [@JornShen](#)) [SIG Network]
- Migrate some scheduler log messages to structured logging ([#97349](#), [@aldudko](#)) [SIG Scheduling]
- NONE ([#97167](#), [@geegeee](#)) [SIG Node]
- NetworkPolicy validation framework optimizations for rapidly verifying CNI's work correctly across several pods and namespaces ([#91592](#), [@jayunit100](#)) [SIG Network, Storage and Testing]
- Official support to build kubernetes with docker-machine / remote docker is removed. This change does not affect building kubernetes with docker locally. ([#97618](#), [@jherrera123](#)) [SIG Release and Testing]
- Scheduler plugin validation now provides all errors detected instead of the first one. ([#96745](#), [@lingsamuel](#)) [SIG Node, Scheduling and Testing]
- Storage related e2e testsuite redesign & cleanup ([#96573](#), [@Jiawei0227](#)) [SIG Storage and Testing]
- The OIDC authenticator no longer waits 10 seconds before attempting to fetch the metadata required to verify tokens. ([#97693](#), [@enj](#)) [SIG API Machinery and Auth]
- The `AttachVolumeLimit` feature gate that is GA since v1.17 is now removed. ([#96539](#), [@ialidzhikov](#)) [SIG Storage]
- The `CSINodeInfo` feature gate that is GA since v1.17 is unconditionally enabled, and can no longer be specified via the `--feature-gates` argument. ([#96561](#), [@ialidzhikov](#)) [SIG Apps, Auth, Scheduling, Storage and Testing]
- The deprecated feature gates `RotateKubeletClientCertificate`, `AttachVolumeLimit`, `VolumePVCDDataSource` and `EvenPodsSpread` are now unconditionally enabled and can no longer be specified in component invocations. ([#97306](#), [@gavinfish](#)) [SIG Node, Scheduling and Storage]
- `ServiceNodeExclusion`, `NodeDisruptionExclusion` and `LegacyNodeRoleBehavior` (locked to false) features have been promoted to GA. To prevent control plane nodes being added to load balancers automatically, upgrade users need to add "node.kubernetes.io/exclude-from-external-load-balancers" label to control plane nodes. ([#97543](#), [@pacoxu](#)) [SIG API Machinery, Apps, Cloud Provider and Network]

Uncategorized

- Adding Brazilian Portuguese translation for kubectl ([#61595](#), [@cpanato](#)) [SIG CLI]

Dependencies

Added

Nothing has changed.

Changed

- [github.com/Azure/go-autorest/autorest: v0.11.1 → v0.11.12](#)
- [github.com/coredns/corefile-migration: v1.0.10 → v1.0.11](#)
- [github.com/golang/mock: v1.4.1 → v1.4.4](#)
- [github.com/google/cadvisor: v0.38.5 → v0.38.6](#)
- [github.com/heketi/heketi: c2e2a4a → v10.2.0+incompatible](#)
- [github.com/miekg/dns: v1.1.4 → v1.1.35](#)
- [k8s.io/system-validators: v1.2.0 → v1.3.0](#)

Removed

- [rsc.io/quote/v3: v3.1.0](#)
- [rsc.io/sampler: v1.3.0](#)