

making
kubectl plugins
mainstream

ahmet alp balkan (@ahmetb)
google cloud

about me

@ahmetb on {twitter, github}

- ported docker.exe, docker maintainer ~2015
- started Azure Container Registry ~2016
- developer advocate @ Google ~2017
working on Google Cloud Run, Knative, dev tools
- *kubectx & kubens & kubectl-aliases*
- Google's *microservices-demo*
- kubectl plugin manager [krew.dev](#)

agenda

- user {
 1. kubectl plugins 101
 2. **krew** (plugin manager) overview
 3. why did we need plugins?
- developer {
 4. let's develop a plugin
 5. plugin runtime
 6. why develop a plugin?
 7. how to distribute your plugins
 8. best practices for writing plugins

USING PLUGINS



kubectl plugins

circa v1.12

*an extension mechanism
that lets you write
your own kubectl subcommands.*



kubectl plugin mechanism

in a nutshell

1. write an executable program
2. name it `kubectl-something`
3. put it in your `$PATH`
4. invoke as `"kubectl something"`

where do I find plugins?

- github?
- some list?
- package manager?



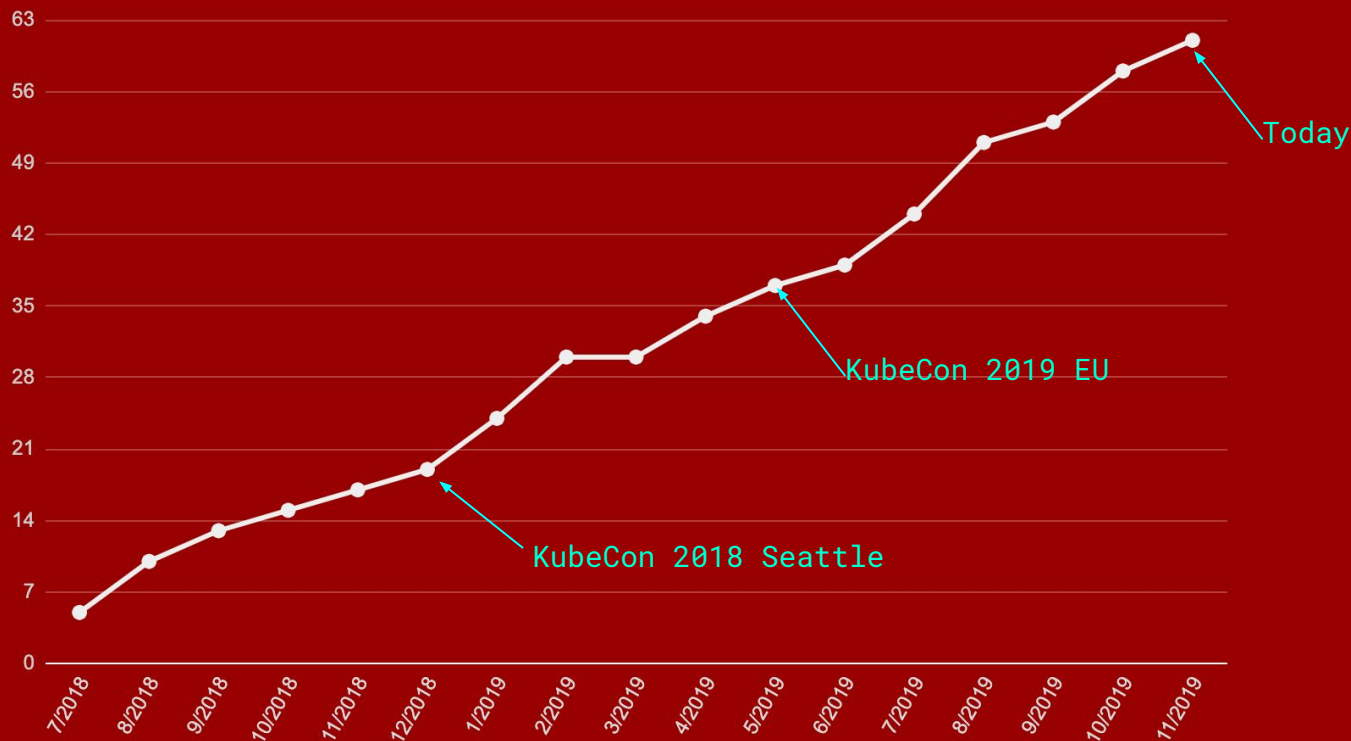
the missing plugin manager for kubectl
Kubernetes SIG CLI sub-project

<https://krew.dev>
(sigs.k8s.io/krew)

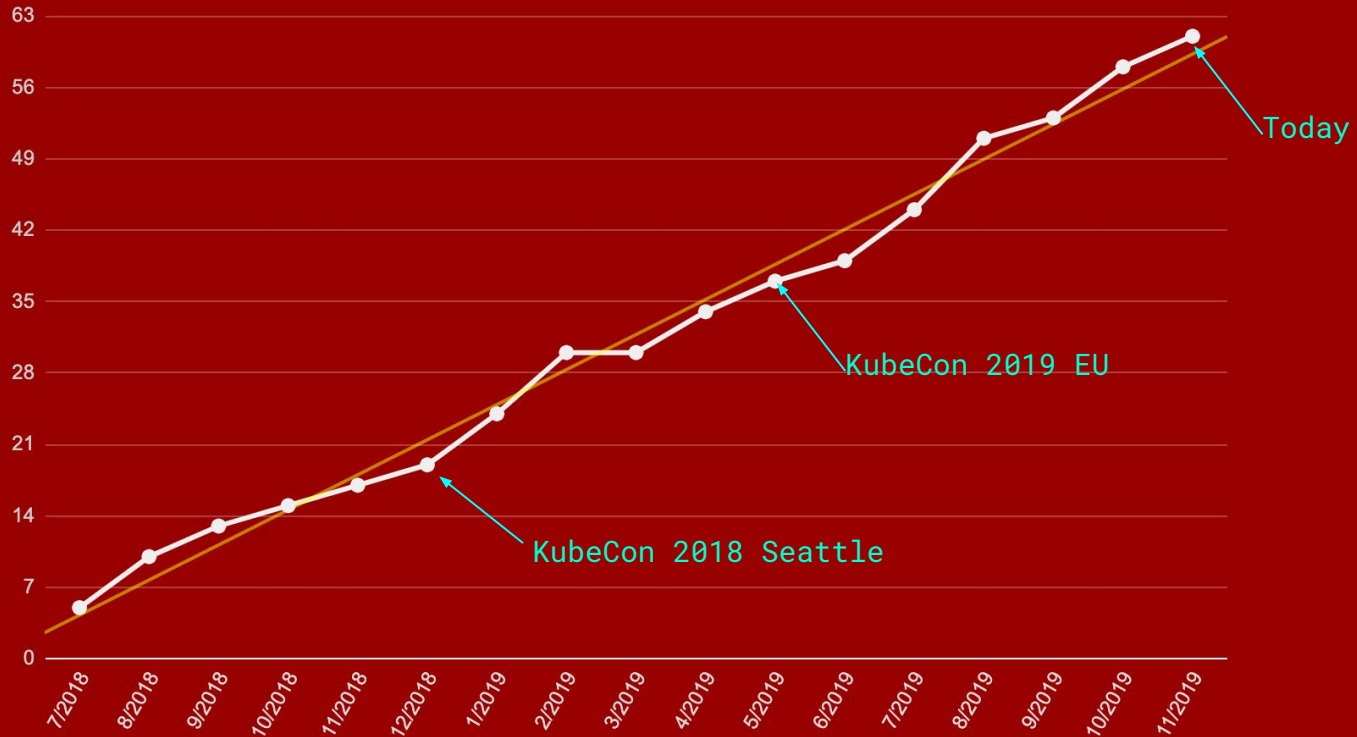
What is Krew?

- Functionality
 - discover plugins
 - install plugins
 - update plugins
 - remove plugins
- Started in 2018 as an intern project at Google Cloud.
- Donated to Kubernetes project in May 2019.
- Not an actual package manager
 - Doesn't handle dependencies.

kubectl plugins on Krew



kubectl plugins on Krew



demo: let's try

crew

why did we need
kubectl plugins?

1.
people want to add
new sub-commands
to kubectl

is:issue label:area/kubectl label:kind/feature

Feature request: Support Oauth2 authorization flow in kubectl

#54201 by tamalsaha was closed on Jun 5, 2018

area/kubectl kind/feature lifecycle/rotten sig/cli

[Feature request] Get resource usage per namespace using kubectl

#55046 opened on Nov 2, 2017 by gheon

area/kubectl kind/feature lifecycle/stale sig/cli

kubectl get pods should report last restart time?

#54491 by smarterclayton was closed on Jul 25, 2018

area/kubectl kind/feature lifecycle/rotten sig/cli

Feature request: Support reading secrets from terminal in kubectl

#54200 by tamalsaha was closed on Jun 5, 2018

area/kubectl kind/feature lifecycle/rotten sig/cli

kubectl top node/pod should have option like "--watch"

#52963 by u2takey was closed on Aug 16, 2018

area/kubectl kind/feature lifecycle/rotten priority/awaiting-more-evidence sig/cli

FR: New kubectl command kubectl debug

#45922 opened on May 16, 2017 by verb

area/kubectl kind/feature priority/important-longterm sig/cli

need an API for a user to know which actions they can perform

#31292 by deads2k was closed on Sep 11, 2017 v1.8

area/kubectl kind/feature priority/important-soon sig/auth

PROPOSAL: Subcommand for easier editing of configmap keys

#37965 by juanvallejo was closed on Feb 27, 2018 updated on Feb 27, 2018

lifecycle/rotten sig/cli

Create kubectl lint command

#39699 by pwitrock was closed on May 17, 2018

area/kubectl kind/feature lifecycle/rotten priority/i

By default, merge more .kubeconfig files

#9298 opened on Jun 4, 2015 by ghdss

area/kubectl kind/feature lifecycle/frozen priority/ba

Need a "whoami" sub-command for kubectl

#65798 by yue9944882 was closed on Jul 5, 2018

kind/feature sig/cli

kubectl diff command

#6284 by fgzadkowski was closed on Feb 13, 2018

area/app-lifecycle area/kubectl help wanted kind/fea

kubectl export and clone

#13038 by bgrant0607 was closed on Jan 16, 2016

area/app-lifecycle area/kubectl kind/feature priority

[WIP]exec: supprt exec as a specific user

#81883 opened on Aug 23 by max88991

area/kubectl area/kubelet cncf-cla: yes do-not-merge

kubectl port-forward should allow forwarding to a Service

#15180 by thockin was closed on Feb 15, 2018

area/kubectl help wanted kind/feature priority/important-soon sig/cli

kubectl login should support the Google OAuth device flow

#35906 by justinsb was closed on Mar 11, 2018

area/kubectl kind/feature lifecycle/rotten priority/backlog sig/auth sig/cli

2.
everybody has
opinions

 [johanhaleby / kubetail](#)

★ Star 1.6k

Bash script to tail Kubernetes logs from multiple pods at the same time

 [wercker / stern](#)

★ Star 2.9k

⊗ Multi pod and container log tailing for Kubernetes

 [dtan4 / k8stail](#)

★ Star 97

tail -f experience for Kubernetes Pods

 [boz / kail](#) ✓

★ Star 888

kubernetes log viewer

 [atombender / ktail](#) ✓

★ Star 102

ktail is a tool to easily tail Kubernetes logs.

3.
reaching **consensus**
in open source
is not trivial

Proposal: make `kubectl` respect `KUBECTL_{CONTEXT,NAMESPACE}` environment variables



cole Mickens opened this issue on Jun 13, 2016 · 54 comments



Cole Mickens on Jun 13, 2016 • edited ▾

Member + 😊 ...

I'm curious if there is interest in creating some environment variables (`KUBECTL_CONTEXT` and `KUBECTL_NAMESPACE`) to make `kubectl` a bit easier to use when one has multiple clusters configured in `~/.kube/config` .

The alternative to these environment variables either require a lot of typing (specify `--context` and `--namespace` to all `kubectl` commands) or requires changing the global context, such that it affects other looping `kubectl` invocations. Or as I've done so far, wrapper functions in my shell, but I've been unable to setup my environment such that I can have helper functions without breaking the tab completion for `kubectl` .

Is there interest in this? Or asked differently, would such a PR be accepted?



165




7



15



Proposal: make kubectl respect KUBECTL_{CONTEXT,NAMESPACE} environment variables

 **Closed** cole Mickens opened this issue on Jun 13, 2016 · 54 comments

Cole Mickens on Jun 13, 2016 • edited

 **ahmetb / kubectx**

 Watch 85

 Star 5.7k

 Fork 378

Switch faster between clusters and namespaces in kubectl <https://kubectx.dev>

kubernetes

kubectl

kubectl-plugins

Is there interest in this? Or asked differently, would such a PR be accepted?



165



7

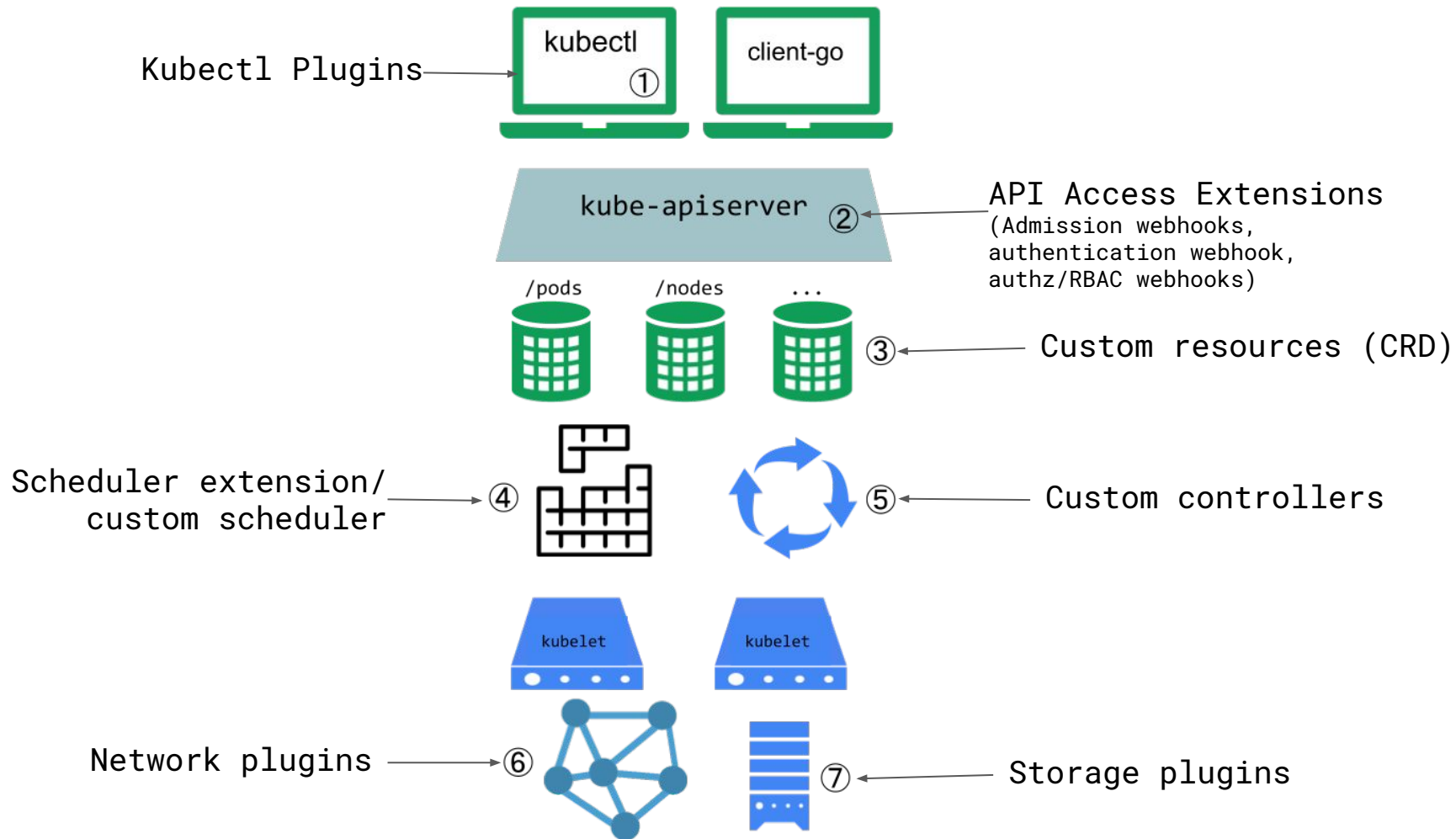


15



4.

we cannot solve
everything in the
kubernetes core



5.
kubernetes core
moves slower



official command	plugin
KEP + approval	no approvals
usefulness and stability	no restrictions
hosted in kubectl codebase (Go only)	any language
tied to Kubernetes release cycle	release at your own pace
has to be consistent with kubectl	has room for creativity
takes 0(months)..0(years) from alpha→beta→stable	develop & distribute in 0(hours)

6.
people are
creative

NAME	LIST	CREATE	UPDATE	DEL
ETC				
adapters.config.istio.io	✓	✓	✓	✓
apikkeys.config.istio.io	✓	✓	✓	✓
apiservices.apiregistration.k8s.io	✓	✓	✓	✓
attributemanifests.config.istio.io	✓	✓	✓	✓
authorizations.config.istio.io	✓	✓	✓	✓
backendconfigs.cloud.google.com	✓	✓	✓	✓
bindings		✓		
bypasses.config.istio.io	✓	✓	✓	✓
certificates.certmanager.k8s.io	✓	✓	✓	✓
certificates.networking.internal.knative.dev	✓	✓	✓	✓
certificatesigningrequests.certificates.k8s.io	✓	✓	✓	✓
challenges.certmanager.k8s.io	✓	✓	✓	✓
checknothings.config.istio.io	✓	✓	✓	✓

Namespace	Name	Kind	Ready	Reason
default	hello	Service	True	
default	hello	Configuration	True	
default	hello-zlr6t	Revision	True	
default	hello-zlr6t-deployment	Deployment	-	
default	hello-zlr6t-deployment-65695556d	ReplicaSet	-	
default	hello-zlr6t-cache	Image	-	
default	hello-zlr6t	PodAutoscaler	False	NoTraffic
default	hello-zlr6t-metrics	Service	-	
default	hello-zlr6t	Metric	True	
default	hello-zlr6t	ServerlessService	Unknown	NoHealthyBackends
default	hello-zlr6t-qs5k5	Service	-	
default	hello-zlr6t	Service	-	
default	hello-zlr6t	Endpoints	-	
default	hello-sr94v	Revision	True	
default	hello-sr94v-deployment	Deployment	-	
default	hello-sr94v-deployment-65989ddcc4	ReplicaSet	-	

zsh

3%

50%

2:33 23:24:01

```
kui> kubectl kui get pods
NAME                                READY STATUS RESTARTS AGE
details-v1-6865b9b99d-rjjvp        1/1   Running 0       12d
productpage-v1-f8c8fb8-x64fn       1/1   Running 0       12d
ratings-v1-77f657f55d-15wzv       1/1   Running 0       12d
reviews-v1-6b7f6db5c5-gwqrb       1/1   Running 0       12d
reviews-v2-7ff5966b99-sspnq       1/1   Running 0       12d
reviews-v3-5df889bcff-wz8sq       1/1   Running 0       12d
```

```
kui> kubectl kui get pods --ui
```

```
kui> kubectl kui status https://raw.githubusercontent.com/
/platform/kube/bookinfo.yaml
name      kind      namespace message
details   Service   default
details-v1 Deployment default
ratings   Service   default
ratings-v1 Deployment default
reviews   Service   default
reviews-v1 Deployment default
reviews-v2 Deployment default
reviews-v3 Deployment default
productpage Service   default
productpage-v1 Deployment default
name      kind      namespace
details-v1-6865b9b99d-rjjvp Pod default
ratings-v1-77f657f55d-15wzv Pod default
reviews-v1-6b7f6db5c5-gwqrb Pod default
reviews-v2-7ff5966b99-sspnq Pod default
reviews-v3-5df889bcff-wz8sq Pod default
productpage-v1-f8c8fb8-x64fn Pod default
```

```
kui> kubectl kui status https://raw.githubusercontent.com/
/platform/kube/bookinfo.yaml --ui
```

```
kui> 
```

get pods 9:29:04 PM

NAME	READY	STATUS	RESTARTS	AGE
details-v1-6865b9b99d-rjjvp	1/1	Running	0	12d
productpage-v1-f8c8fb8-x64fn	1/1	Running	0	12d
ratings-v1-77f657f55d-15wzv	1/1	Running	0	12d
reviews-v1-6b7f6db5c5-gwqrb	1/1	Running	0	12d
reviews-v2-7ff5966b99-sspnq	1/1	Running	0	12d

NAME	KIND	NAMESPACE	STATUS	MESSAGE
details	Service	default	Online	installed successfully
details-v1	Deployment	default	Online	11/30/2018, 6:54:47 PM
ratings	Service	default	Online	installed successfully
ratings-v1	Deployment	default	Online	11/30/2018, 6:54:47 PM
reviews	Service	default	Online	installed successfully
reviews-v1	Deployment	default	Online	11/30/2018, 6:54:47 PM
reviews-v2	Deployment	default	Online	11/30/2018, 6:54:48 PM
reviews-v3	Deployment	default	Online	11/30/2018, 6:54:48 PM
productpage	Service	default	Online	installed successfully
productpage-v1	Deployment	default	Online	11/30/2018, 6:54:48 PM

PODS

NAME	KIND	NAMESPACE	STATUS	MESSAGE
details-v1-6865b9b99d-rjjvp	Pod	default	Ready	11/30/2018, 6:54:49 PM
ratings-v1-77f657f55d-15wzv	Pod	default	Ready	11/30/2018, 6:54:50 PM
reviews-v1-6b7f6db5c5-gwqrb	Pod	default	Ready	11/30/2018, 6:54:50 PM
reviews-v2-7ff5966b99-sspnq	Pod	default	Ready	11/30/2018, 6:54:50 PM
reviews-v3-5df889bcff-wz8sq	Pod	default	Ready	11/30/2018, 6:54:50 PM
productpage-v1-f8c8fb8-x64fn	Pod	default	Ready	11/30/2018, 6:54:50 PM

get pods details-v1-6865b9b99d-rjjvp

details-v1-6865b9b99d-rjjvp

```
apiVersion: v1
kind: Pod
metadata:
  annotations:
    kubernetes.io/psp: ibm-privileged-ppp
  creationTimestamp: 2018-11-30T23:54:47Z
  generateName: details-v1-6865b9b99d-
  labels:
    app: details
    pod-template-hash: "2421656558"
    version: v1
  name: details-v1-6865b9b99d-rjjvp
  namespace: default
  ownerReferences:
  - apiVersion: extensions/v1beta1
    blockOwnerDeletion: true
    controller: true
    kind: ReplicaSet
    name: details-v1-6865b9b99d
    uid: 518a0fc8-f4fb-11e8-8485-6a5d33db9ea3
    resourceVersion: "1281697"
    selfLink: /api/v1/namespaces/default/pods/details-v1-6865b9b99d-
  rjjvp
  uid: 518bb23d-f4fb-11e8-8485-6a5d33db9ea3
spec:
  containers:
  - image: istio/examples-bookinfo-details-v1:1.8.0
    imagePullPolicy: IfNotPresent
    name: details
    ports:
    - containerPort: 9080
```

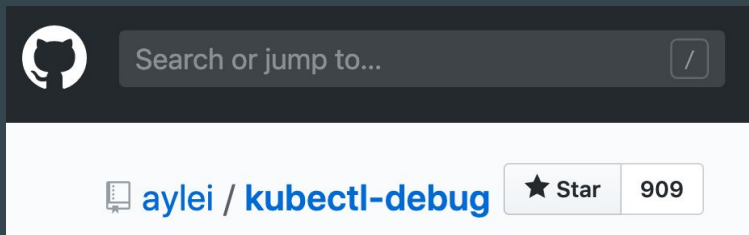
YAML Status

...even GUI-based plugins


7.
allow safe
experimentation

experimentation

- deprecating a `kubectl` command is painful.
- let people experiment, graduate successful ones.

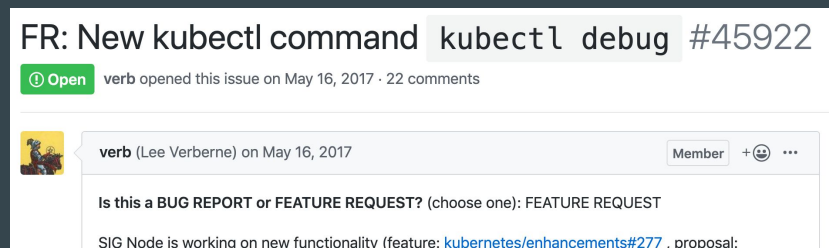


Search or jump to...


 [aylei / kubectl-debug](#) ★ Star 909




 [verb / kubectl-debug](#) ★ Star 27



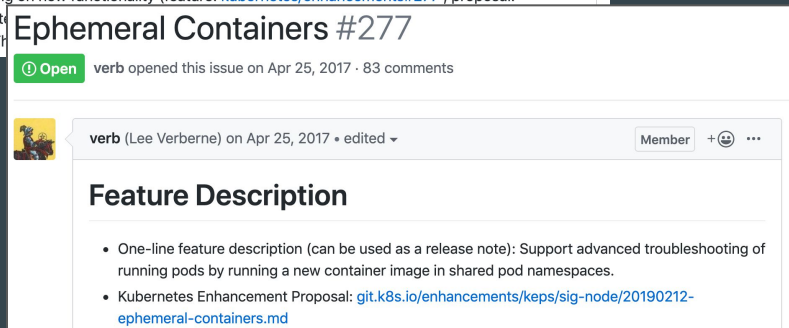
FR: New kubectl command `kubectl debug` #45922

 Open verb opened this issue on May 16, 2017 · 22 comments


 verb (Lee Verberne) on May 16, 2017 Member +😊 ...


Is this a **BUG REPORT** or **FEATURE REQUEST**? (choose one): FEATURE REQUEST

SIG Node is working on new functionality (feature: [kubernetes/enhancements#277](#), proposal: [#35584](#)) to execute troubleshooting. The



Ephemeral Containers #277

 Open verb opened this issue on Apr 25, 2017 · 83 comments

 verb (Lee Verberne) on Apr 25, 2017 • edited Member +😊 ...

Feature Description

- One-line feature description (can be used as a release note): Support advanced troubleshooting of running pods by running a new container image in shared pod namespaces.
- Kubernetes Enhancement Proposal: git.k8s.io/enhancements/keps/sig-node/20190212-ephemeral-containers.md

DEVELOPING PLUGINS



kubectl plugin mechanism

in a nutshell

1. write an executable program
2. name it `kubectl-something`
3. put it in your `$PATH`
4. invoke as `"kubectl something"`

demo: let's develop a plugin!

git.k8s.io/sample-cli-plugin



plugin lookup

```
"kubectl a b c"
```

- is "a" builtin command?
- kubectl-a-b-c ?
- kubectl-a-b ?
- kubectl-a ?

plugin execution runtime

1. look for the plugin executable in PATH
2. `execve()` syscall
replace `kubectl` with the plugin process
 - ◆ inherit **environment variables**
 - ◆ inherit **standard streams**
 - ◆ determine **exitcode** of `kubectl` invocation

why develop a kubectl plugin?

your tool has a weird name

and it's not very memorable

rakless	kubectl access-matrix
ketall	kubectl get-all
ksort	kubectl sort-manifests
kail	kubectl tail

feels more natural

kubectl is missing a feature

! Support the user flag from docker exec in kubectl exec

#30656 opened on Aug 15, 2016 by VikParuchuri ⌚ updated 21 days ago

area/kubectl

sig/cli

sig/node

🔗 [WIP]exec: supprt exec as a specific user

#81883 opened on Aug 23 by max88991

area/kubectl

area/kubelet

cncf-cla: yes


do-not-merge


```

ahmetb@ahmetb-macbookpro2: ~ — 87X14
$
$ kubectl krew info exec-as
NAME: exec-as
URI: https://github.com/jordanwilson230/kubectl-plugins/archive/v1.0.2-krew.zip
SHA256: 9bd734b1dc08fc59df3f40418e92b228a830098a27257d454deccc5aa1384cf4
VERSION: v1.0.2-krew
HOMEPAGE: https://github.com/jordanwilson230/kubectl-plugins/tree/krew#kubectl-exec-as
DESCRIPTION:
Run `kubectl exec-as` for usage. Example, `kubectl exec-as -u root zookeeper-0`.
CAVEATS:
\
| The node which the pod is running on cannot have more than one taint.
/

```

kubectl is missing a feature


 **Need a "whoami" sub-command for kubectl**

#65798 by `yue9944882` was closed on Jul 5, 2018 

`kind/feature` `sig/cli`

```
ahmetb@ahmetb-macbookpro2: ~  
$ kubectl whoami  
ahmetb@google.com  
$
```

kubectl is missing a feature

 **kubectl export and clone**

#13038 by `bgrant0607` was closed on Jan 16, 2016

`area/app-lifecycle` `area/kubectl` `kind/feature` `priority`

```

ahmetb@ahme
$ kubectl krew info neat
NAME: neat
URI: https://github.com/itaysk/kubectl-neat/releases/download/v1.1.0/neat.tar.gz
SHA256: 0d8e3761c44edd826034a8e7c7bce36f63db725
VERSION: v1.0.0
HOMEPAGE: https://github.com/itaysk/kubectl-neat
DESCRIPTION:
If you try to `kubectl get` resources you have just created,
they be unreadably verbose. `kubectl-neat` cleans that up by
removing default values, runtime information, and other internal fields.
Examples:
`$ kubectl get pod mypod -o yaml | kubectl neat`
`$ kubectl neat pod mypod -o yaml`

```

```

ahmetb@ahmetb-macbookpro2: ~
$ kubectl krew info eksporter
NAME: eksporter
URI: https://github.com/Kyrremann/kubectl-eksporter/releases/download/v1.1.0/eksporter.tar.gz
SHA256: 65124766f929c5bcaab1f89b0b052b8e2f64c9dd9cb4daf062123c8c632668d5
VERSION: v1.1.0
HOMEPAGE: https://github.com/Kyrremann/kubectl-eksporter
DESCRIPTION:
This plugin helps you export a resource, and removes a pre-defined set of
fields. This is useful for when you have resource you want to migrate from
one namespace or cluster, to another one, but need to edit/add some fields
before applying.

If you just need to move one resource, it's probably easier to just:
  kubectl get -oyaml | kubectl create -f -

Run the tool with:
  kubectl eksporter <resource> <resource_name>
Or with piping:
  kubectl get pods -o yaml <resource_name> | kubectl eksporter

```

address shortcomings of kubectl

```
ahmetb@ahmetb-r  
$ kubectl get all --namespace=default  
NAME                TYPE          CLUSTER-IP  
service/kubernetes  ClusterIP     10.4.0.1  
$
```

kubectl get all:
lies to you

```
ahmetb@ahmetb-macbookp  
$ kubectl get-all --namespace default  
NAME                NAMESPACE  AGE  
endpoints/kubernetes  default     154d  
limitrange/limits     default     154d  
resourcequota/gke-resource-quotas  default     154d  
secret/default-token-g4lhx  default     154d  
secret/istio.default    default     19d  
serviceaccount/default  default     154d  
service/kubernetes    default     154d  
$
```

plugin: tells you the truth

enhances existing kubectl command

```

ahmetb@ahmetb-macbookpro2: ~ — 48X9
$ kubectl auth can-i delete serviceaccounts
yes
$ kubectl auth can-i create namespaces
yes
$ kubectl auth can-i list users
yes
$ kubectl auth can-i delete bindings
yes

```

builtin: query one
resource at a time

```

ahmetb@ahmetb-macbookpro2: ~
$ kubectl krew search access
NAME          DESCRIPTION
access-matrix Show an RBAC access matrix for server resources yes
$ kubectl access-matrix
NAME          LIST  CREATE  UPDATE  DELETE
adapters.config.istio.io    ✓      ✓      ✓      ✓
apikey.config.istio.io      ✓      ✓      ✓      ✓
apiservices.apiregistration.k8s.io  ✓      ✓      ✓      ✓
attributemanifests.config.istio.io  ✓      ✓      ✓      ✓
authorizations.config.istio.io      ✓      ✓      ✓      ✓
backendconfigs.cloud.google.com     ✓      ✓      ✓      ✓
bindings                          ✓      ✓      ✓      ✓
bypasses.config.istio.io          ✓      ✓      ✓      ✓
certificates.certmanager.k8s.io     ✓      ✓      ✓      ✓
certificates.networking.internal.knative.dev  ✓      ✓      ✓      ✓
certificatesigningrequests.certificates.k8s.io ✓      ✓      ✓      ✓
challenges.certmanager.k8s.io       ✓      ✓      ✓      ✓

```

plugin: shows a matrix
of all capabilities

enhances existing kubectl command

```

ahmetb@ahmetb-macbookpro2: ~
$ kubectl auth can-i delete namespace --as tom@google.com
no
$ kubectl auth can-i delete namespace --as omar@google.com
no
$ kubectl auth can-i delete namespace --as jeff@google.com
yes
$ kubectl auth can-i delete namespace --as ahmetb@google.com
yes
$
zsh 5% 78% 3:18 11:32

```

builtin: query one
user at a time

```

ahmetb@ahmetb-macbookpro2: ~
$ kubectl who-can delete namespaces
No subjects found with permissions to delete namespaces assigned through RoleBindings

CLUSTERROLEBINDING          SUBJECT                                TYPE
cluster-admin               system:masters                        Group
cluster-admin-binding      ahmetb@google.com                    User
jeff-is-admin               jeff@google.com                      User
knative-serving-controller-admin controller                             ServiceAccount
sundar-is-admin            sundar@google.com                    User
system:controller:clusterrole-aggregation-controller clusterrole-aggregation-controller  ServiceAccount
system:controller:generic-garbage-collector generic-garbage-collector            ServiceAccount
system:controller:namespace-controller namespace-controller                  ServiceAccount
$
zsh 0.0 kB↓ 0.0 kB↑ 4% 79% 3:28 11:

```

plugin: queries for all
subjects in the cluster

so you have a
plugin, now what?

- packaging
- distribution
- release

plugin developer problems

- How can **people hear** about my plugin?
- How can I **package** my plugin for others to install?
- How can I **deliver updates**?

If you're a kubectl plugin developer,
Krew solves these problems.

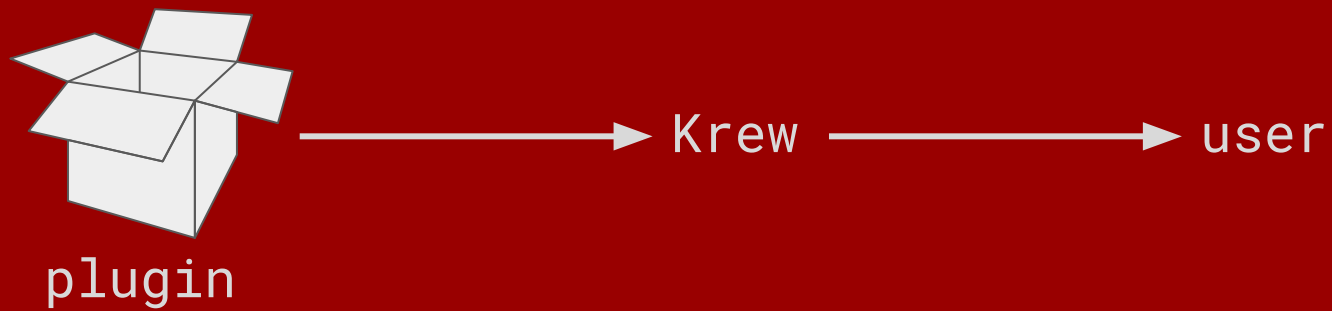
packaging/distribution



packaging/distribution



Krew to rescue!



Without krew

Installation

Installation via [krew](#)

```
$ kubectl krew install grep
```

how to update?



how to uninstall?



Manual Installation

```
$ export KUBECTL_VERSION="v1.2.1"  
$ wget https://github.com/guessi/kubectl-grep/releases/download/${KUBECTL_VERSION}/kubectl-grep-`uname -s`  
$ tar zxvf kubectl-grep-`uname -s`-`uname -m`.tar.gz  
$ mv kubectl-grep /usr/local/bin  
$ chmod +x /usr/local/bin/kubectl-grep
```


Krew helps...

...users to:

- install plugins
- keep them up to date
- remove plugins cleanly

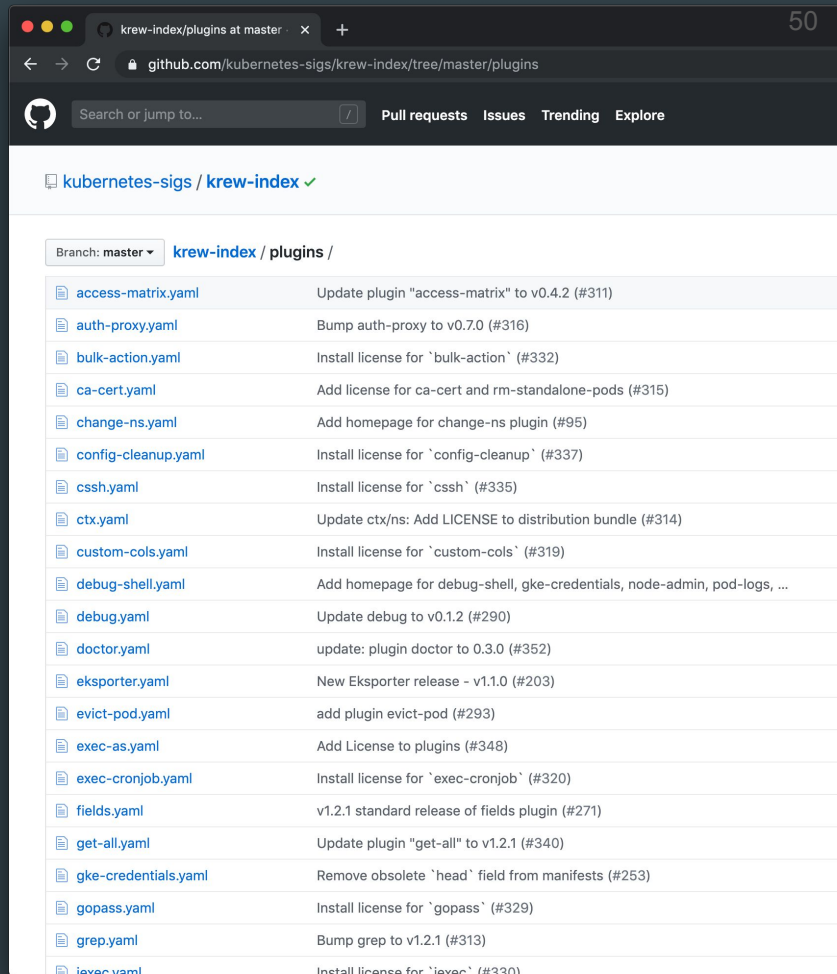
...developers to:

- make their plugins discoverable by users
- package their plugins for multiple platforms
- deliver updates

centralized discovery

Krew currently operates with a centralized package index.

sigs.k8s.io/krew-index



The screenshot shows the GitHub repository page for `kubernetes-sigs/krew-index` on the `master` branch. The page displays a list of plugins and their associated pull requests. The browser address bar shows the URL `github.com/kubernetes-sigs/krew-index/tree/master/plugins`. The repository name is `kubernetes-sigs / krew-index`. The current branch is `master`. The list of plugins and their pull requests is as follows:

Plugin	Pull Request Description
access-matrix.yaml	Update plugin "access-matrix" to v0.4.2 (#311)
auth-proxy.yaml	Bump auth-proxy to v0.7.0 (#316)
bulk-action.yaml	Install license for `bulk-action` (#332)
ca-cert.yaml	Add license for ca-cert and rm-standalone-pods (#315)
change-ns.yaml	Add homepage for change-ns plugin (#95)
config-cleanup.yaml	Install license for `config-cleanup` (#337)
cssh.yaml	Install license for `cssh` (#335)
ctx.yaml	Update ctx/ns: Add LICENSE to distribution bundle (#314)
custom-cols.yaml	Install license for `custom-cols` (#319)
debug-shell.yaml	Add homepage for debug-shell, gke-credentials, node-admin, pod-logs, ...
debug.yaml	Update debug to v0.1.2 (#290)
doctor.yaml	update: plugin doctor to 0.3.0 (#352)
eksporter.yaml	New Eksporter release - v1.1.0 (#203)
evict-pod.yaml	add plugin evict-pod (#293)
exec-as.yaml	Add License to plugins (#348)
exec-cronjob.yaml	Install license for `exec-cronjob` (#320)
fields.yaml	v1.2.1 standard release of fields plugin (#271)
get-all.yaml	Update plugin "get-all" to v1.2.1 (#340)
gke-credentials.yaml	Remove obsolete `head` field from manifests (#253)
gopass.yaml	Install license for `gopass` (#329)
grep.yaml	Bump grep to v1.2.1 (#313)
ixec.yaml	Install license for `ixec` (#330)

packaging & distributing with Krew

1. make your plugin available as a `.tar.gz` or `.zip` archive
2. write a **plugin manifest**
3. submit a pull request to `krew-index`
4. party! 🐦

plugin manifest

```
apiVersion: krew.googlecontainertools.github.com/v1alpha2
kind: Plugin
metadata:
  name: "access-matrix"
spec:
  version: "v0.4.0"
  homepage: "https://github.com/corneliusweig/rakless"
  platforms:
  - <PLATFORM1>
  - <PLATFORM2>
  - <PLATFORM3>
  - ...
```

plugin manifest - platform

... # continued

spec:

platforms:

```
- selector:  
  matchLabels:  
    os: linux  
    arch: amd64
```

uri: <https://github.com/corneliusweig/rakkess/releases/v0.4.0/bundle.tar.gz>

sha256: 7a16c61dfc4e2924fdedc894d59db7820bc4643a58d9a853c4eb83eadd4deee8

files:

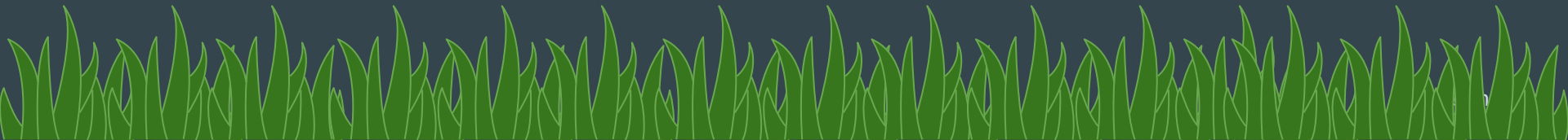
```
- from: ./rakkess_linux-amd64  
  to: ./rakkess  
- from: ./LICENSE  
  to: "."
```

bin: ./rakkess

recipes for success

1. name your plugin for clarity
(see *Krew Naming Guide*)
2. reuse flags/options and KUBECONFIG detection from
`k8s.io/cli-runtime/pkg/genericclioptions`
3. import auth plugins for cloud clusters
`import _ "k8s.io/client-go/plugin/pkg/client/auth"`

wrap up



Join us make kubectl plugins better!

- Become a kubectl plugin developer, submit your plugins to [Krew.dev](https://krew.dev).
- Join developing the **Krew** project.
 - you don't need to be a Kubernetes expert
 - clean and young codebase
 - low bug count, high creativity
- Bring your ideas to **Kubernetes SIG CLI**.

thanks!

sigs.k8s.io/krew

git.k8s.io/sample-cli-plugin

twitter.com/ahmetb

github.com/ahmetb