



Helm Intro

What We Will Cover

- What is Helm and *why you need it*
- Where is the Helm project going?
- Where you can learn what's coming in Helm v3
- How you can get involved

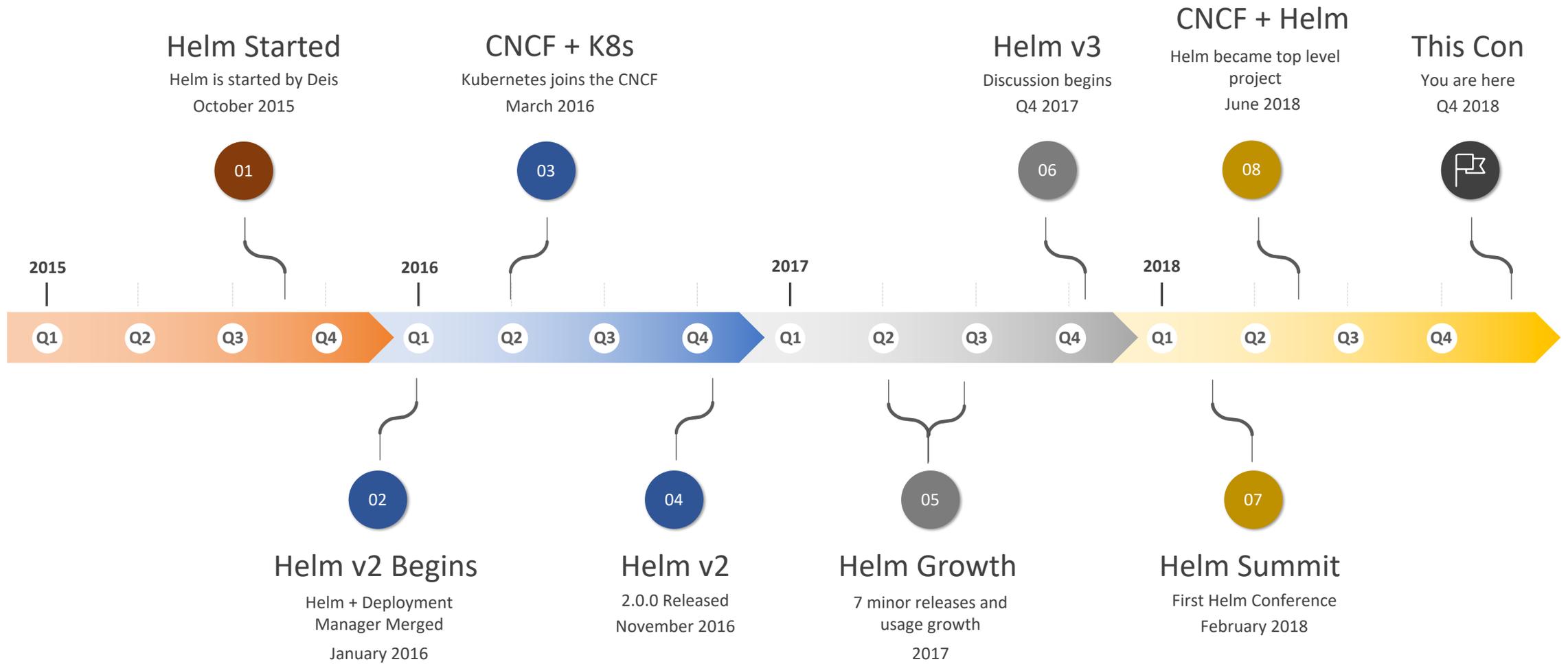


Hi, I'm Matt

- 1 of 3 of the Helm Matts
- I work at Samsung SDS
- I'm a Helm Maintainer
- Also a Kubernetes SIG Chair
- I've written things and built stuff
- mattfarina.com

What is Helm?

1. A CNCF Project
2. A package manager, that is a method to easily share, consume, and manage applications defined by Kubernetes resources



01 Kubern etes	02 gRPC	03 Helm	04 Promet heus	05 Fluentd	06 Harbor	07 Envoy	08 Jaeger	09 rtk	10 Linkerd	11 contain erd	12 Rook	13 CoreD NS	14 OpenTr acing	15 CNI	16 Vitess	17 Notary	18 TUF
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CNCF graduated and incubating projects
ordered by number of contributors



57+ Million

Why move to the CNCF?



SUPPORT WITH CONFERENCES



HELP WITH FIGURING OUR
CHART SHARING



DIRECT ACCESS TO CNCF TEAM
TO KEEP UP WITH GROWTH

Package Manager

A method to **easily** *share, consume, and manage*
applications defined by Kubernetes resources

Configuration Manager

Package Manager

Binaries

Config

Operating System

Chef, Puppet, Ansible

apt, yum, etc

ELF Binaries

Config in /etc

GNU/Linux

Helmfile, Armada, Landscaper, etc

Helm

Images

K8s Objects

Kubernetes

By Example: WordPress



Questions like, will it be served with HTTPS?



The Application is 6 Kubernetes objects



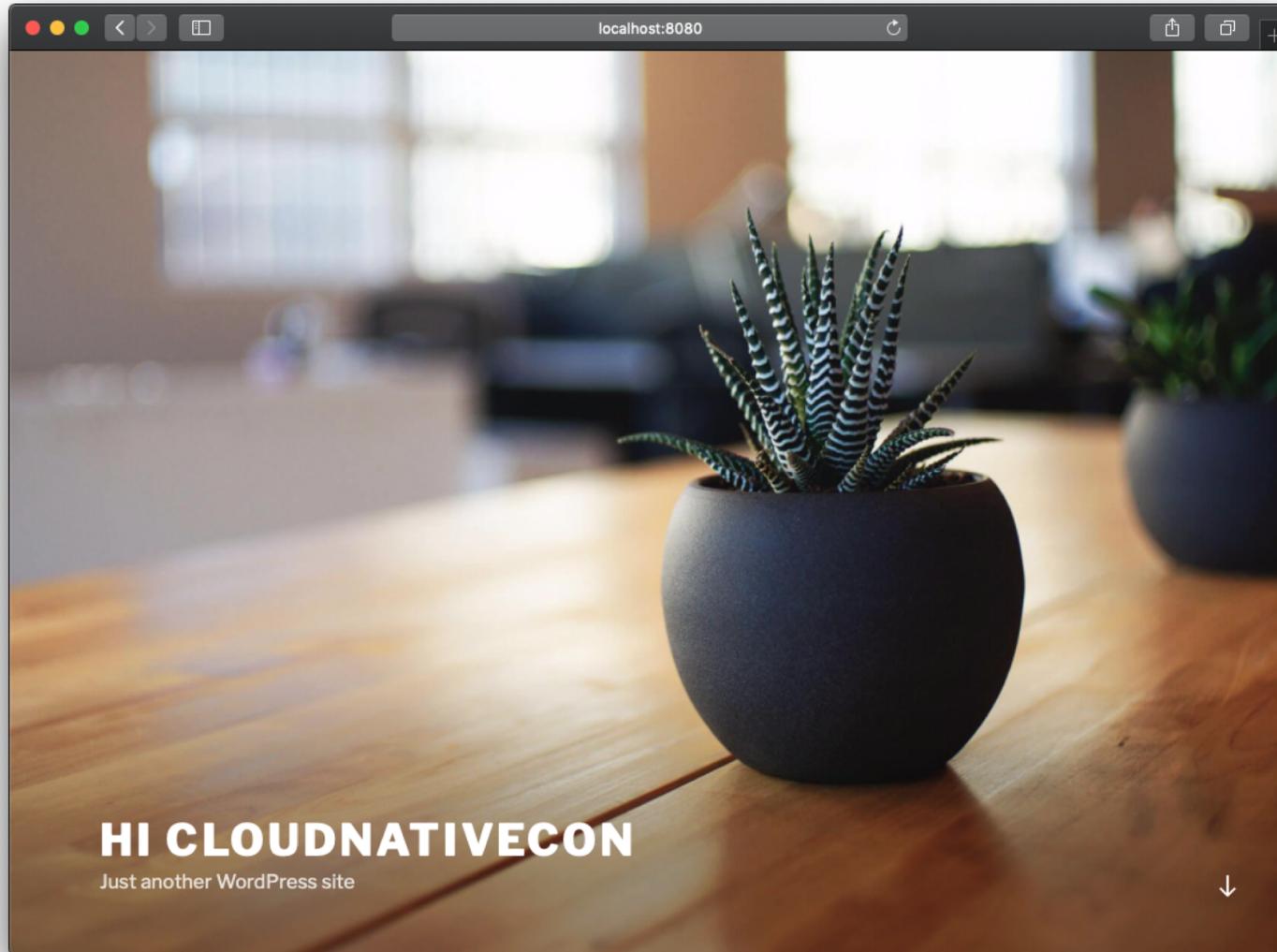
Depends on a database

A SaaS

Installed database (8 more Kubernetes objects)

To install in a cluster is
13 Kubernetes objects

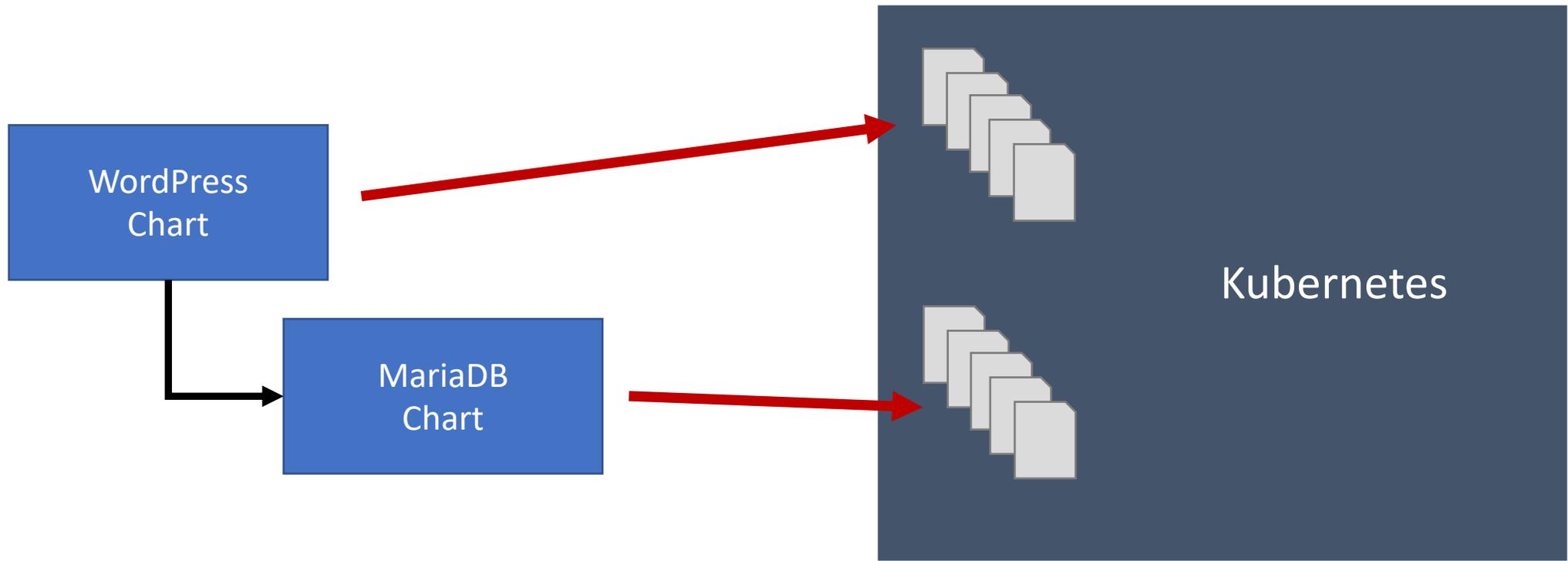
```
$ helm install stable/wordpress \  
  --set wordpressBlogName="Hi CloudNativeCon"
```



HI CLOUDNATIVECON

Just another WordPress site







Things to know about Helm

Helm: The command line client

Tiller: Runs in your cluster

Repository: Like a container image repository to share and store charts

Chart: A package

Chart: WordPress

wordpress

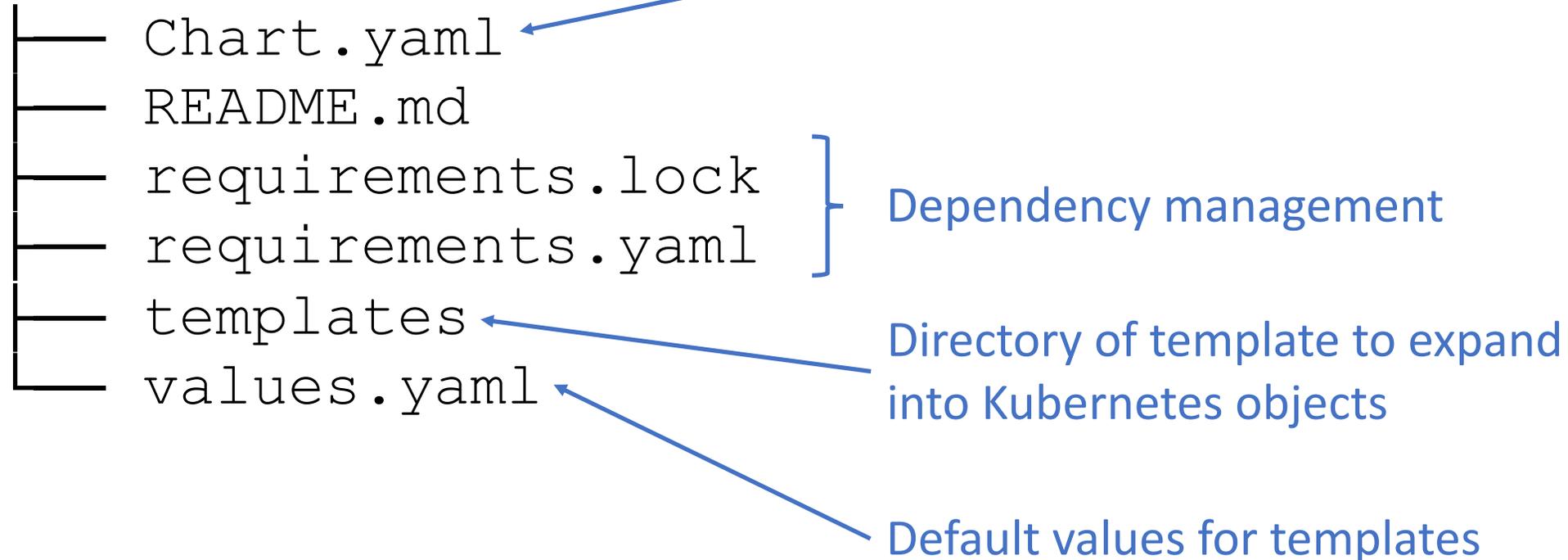
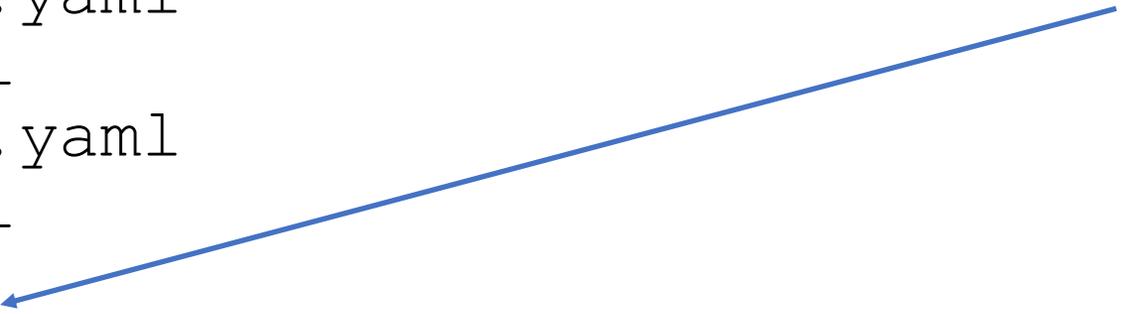


Chart: WordPress

templates

```
├── NOTES.txt
├── _helpers.tpl
├── deployment.yaml
├── externaldb-secrets.yaml
├── ingress.yaml
├── pvc.yaml
├── secrets.yaml
├── svc.yaml
├── tests
│   └── test-mariadb-connection.yaml
└── tls-secrets.yaml
```

Yes, you can even
have tests in charts



```
# First install a chart
```

```
$ helm install stable/wordpress --name wp
```

```
# Then test it
```

```
$ helm test wp
```

Inside A Template

```
File: tls-secrets.yaml
1  {{- if .Values.ingress.enabled }}
2  {{- range .Values.ingress.secrets }}
3  apiVersion: v1
4  kind: Secret
5  metadata:
6    name: {{ .name }}
7    labels:
8      app: {{ template "fullname" $ }}
9      chart: "{{ $ .Chart.Name }}-{{ $ .Chart.Version }}"
10     release: "{{ $ .Release.Name }}"
11     heritage: "{{ $ .Release.Service }}"
12  type: kubernetes.io/tls
13  data:
14     tls.crt: {{ .certificate | b64enc }}
15     tls.key: {{ .key | b64enc }}
16  ---
17  {{- end }}
18  {{- end }}
```

wordpress-3.3.0.tgz

```
# Run from the root of a chart
$ helm package .
```

```
# Adding a repo is like adding a Git remote
$ helm repo add \
    incubator https://kubernetes-charts-incubator.storage.googleapis.com/

# Fetch the chart locally (like a docker pull)
$ helm fetch stable/wordpress

# Install a chart (will fetch the chart if needed)
$ helm install stable/wordpress

# Update an application to a newer version of the chart
$ helm update my-app stable/wordpress

# Rollback an application
$ helm rollback my-app 1
```

More To Helm Than Helm

Stable and Incubator Charts

The screenshot shows the GitHub repository page for 'helm/charts'. At the top, there is a navigation bar with links for Features, Business, Explore, Marketplace, and Pricing, along with a search bar and 'Sign in or Sign up' options. Below the navigation bar, the repository name 'helm / charts' is displayed, followed by statistics: 254 Watch, 5,582 Star, and 5,023 Fork. The page also shows 258 Issues, 385 Pull requests, and Insights. A section titled 'Curated applications for Kubernetes' includes tabs for 'kubernetes', 'charts', and 'helm'. Below this, repository statistics are shown: 5,674 commits, 2 branches, 0 releases, 1,315 contributors, and Apache-2.0 license. A 'Branch: master' dropdown and a 'New pull request' button are visible. A 'Find file' button and a 'Clone or download' button are also present. The commit history table shows the latest commit by 'mfpiere and k8s-ci-robot' [Datadog] adding a volume to avoid noexec on some setups (#9275) 4 minutes ago. Other recent commits include updates to chart-testing v2.0.0 (#8745) 7 days ago, updates to two spaces in the list (#8757) 2 months ago, deprecation and promotion of spring-cloud-data-flow to stable (#8757) 5 days ago, and a fix for setting Helm timeout (#9165) 4 days ago. The repository also contains files like .circleci, .github, incubator, stable, test, .gitignore, CONTRIBUTING.md, LICENSE, OWNERS, PROCESSES.md, README.md, REVIEW_GUIDELINES.md, and code-of-conduct.md. The README.md file is currently open, showing the title 'Helm Charts' and the beginning of the text: 'Use this repository to submit official Charts for Helm. Charts are curated application definitions for Helm. For more...

Commit	Message	Time
9e6a361	[Datadog] Add /var/run/s6 volume to avoid noexec on some setups (#9275)	4 minutes ago
	[test] Update to chart-testing v2.0.0 (#8745)	7 days ago
	update to two spaces the list because it create the markdown when add...	2 months ago
	Deprecate and promote spring-cloud-data-flow to stable (#8757)	5 days ago
	[Datadog] Add /var/run/s6 volume to avoid noexec on some setups (#9275)	4 minutes ago
	[test] Fix setting Helm timeout (#9165)	4 days ago
	Use factored out testing lib (#5231)	5 months ago
	fix docs - there is no CLA any longer (#7890)	2 months ago
	Add LICENSE and CONTRIBUTING.md	3 years ago
	adding @paulczar to root OWNERS (#7431)	3 months ago
	update PROCESSES.md to clarify promotion process (#6084)	5 months ago
	Adding process for trusted collaborator (#7724)	2 months ago
	Guidelines: set matchLabels as being mandatory (#7692)	21 days ago
	Add code-of-conduct.md (#3122)	11 months ago

Helm Hub

<https://hub.helm.sh>

The screenshot shows the Helm Hub website interface. At the top, there is a dark blue header with the text "Helm Hub" on the left and "Charts · About" on the right. Below the header, the main content area has a dark blue background with the text "Discover & launch great Kubernetes-ready apps" on the left. On the right, there is a search bar with the placeholder text "Search charts..." and a small blue text below it that says "264 charts ready to deploy".

The main content area features a grid of application charts, each represented by a card with a logo, the chart name, and version information:

- acs-engine-autoscaler**: 2.1.1 stable
- aerospike**: v3.14.1.2 stable
- anchore-engine**: 0.3.0 stable
- apm-server**: 6.2.4 stable
- ark**: 0.9.1 stable
- artifactory**: incubator
- auditbeat**: 6.4.3 stable
- azuremonitor-containers**: 2.0.0-3 incubator
- litmus**: (partially visible)
- lookout**: (partially visible)
- hyperledger burrow**: (partially visible)
- opencost**: (partially visible)

ChartMuseum

The screenshot shows the GitHub repository page for `helm/chartmuseum`. The repository is under the `helm` organization. It has 42 watchers, 834 stars, and 101 forks. The repository is licensed under Apache-2.0 and has 334 commits, 1 branch, 23 releases, and 26 contributors. The current branch is `master`. A pull request #186 by `jdolitsky` is merged. The file list includes `.circleci`, `acceptance_tests`, `cmd/chartmuseum`, `loadtesting`, `pkg`, `scripts`, `testdata`, `.dockerignore`, `.gitignore`, `Dockerfile`, `Gopkg.lock`, `Gopkg.toml`, `LICENSE`, `Makefile`, `README.md`, `code-of-conduct.md`, and `logo.png`. The `README.md` file is open, showing the ChartMuseum logo and a badge indicating that the tests passed.

helm / chartmuseum

Watch 42 Star 834 Fork 101

Code Issues 35 Pull requests 0 Projects 0 Insights

Helm Chart Repository with support for Amazon S3, Google Cloud Storage, Microsoft Azure Blob Storage, Alibaba Cloud OSS Storage, Openstack Object Storage, and Oracle Cloud Infrastructure Object Storage

helm kubernetes chartmuseum

334 commits 1 branch 23 releases 26 contributors Apache-2.0

Branch: master New pull request Find file Clone or download

jdolitsky Merge pull request #186 from scottrigby/helm-coc Latest commit 0a9a1da 2 days ago

.circleci	cleanup oracle storage submission	13 days ago
acceptance_tests	Update code to support oci cloud storage #176	20 days ago
cmd/chartmuseum	Silence health route by default	10 days ago
loadtesting	update loadtesting python depends	13 days ago
pkg	Silence health route by default	10 days ago
scripts	Update code to support oci cloud storage #176	20 days ago
testdata	added test data generation for 0.2.0 mychart	6 months ago
.dockerignore	Fix concurrency issue in presence of download errors	a year ago
.gitignore	Removed debug binary from cmd/chartmuseum	6 months ago
Dockerfile	Dockerfile formatting	2 months ago
Gopkg.lock	cleanup oracle storage submission	13 days ago
Gopkg.toml	cleanup oracle storage submission	13 days ago
LICENSE	Switch license to Apache 2	4 months ago
Makefile	remove references to kubernetes-helm org	4 months ago
README.md	Silence health route by default	10 days ago
code-of-conduct.md	Helm code of conduct. See https://github.com/helm/chart-testing/issue...	5 days ago
logo.png	the museum is now open	a year ago

README.md

ChartMuseum

PASSED go report A+ godoc reference "Preserve your precious artifacts... in the cloud!"

Tools To Help You

GitHub repository page for `helm/chart-testing`. The page shows the repository name, navigation tabs (Code, Issues, Pull requests, Insights), a description "CLI tool for linting and testing Helm charts", and a list of files and folders with their commit history.

Repository: `helm/chart-testing`

CLI tool for linting and testing Helm charts

29 commits, 2 branches, 3 releases, 10 contributors, Apache-2.0

Branch: `master` | New pull request | Find file | Clone or download

File/Folder	Description	Commit Info
<code>unguiculus</code>	Bind debug flag to Viper (#50)	Latest commit 5dfe136 21 hours ago
<code>.circleci</code>	Re-write it in Go (#35)	7 days ago
<code>app</code>	Bind debug flag to Viper (#50)	21 hours ago
<code>doc</code>	Re-write it in Go (#35)	7 days ago
<code>etc</code>	Factor out testing code from charts (#1)	5 months ago
<code>examples</code>	Fix wrong docker image tag for docker4mac (#51)	a day ago
<code>pkg</code>	Re-write it in Go (#35)	7 days ago
<code>.dockerignore</code>	Re-write it in Go (#35)	7 days ago
<code>.editorconfig</code>	Re-write it in Go (#35)	7 days ago
<code>.gitignore</code>	Re-write it in Go (#35)	7 days ago
<code>.goreleaser.yml</code>	Re-write it in Go (#35)	7 days ago
<code>Dockerfile</code>	Re-write it in Go (#35)	7 days ago
<code>Gopkg.lock</code>	Re-write it in Go (#35)	7 days ago
<code>Gopkg.toml</code>	Re-write it in Go (#35)	7 days ago
<code>LICENSE</code>	Initial commit	7 months ago
<code>README.md</code>	Document supported versions, upgrading, and version-specific PRs (#47)	5 days ago
<code>build.sh</code>	Re-write it in Go (#35)	7 days ago
<code>code-of-conduct.md</code>	Helm code of conduct. Fixes #48 (#49)	2 days ago
<code>tag.sh</code>	Re-write it in Go (#35)	7 days ago

README.md

Chart Testing

Then There's The Ecosystem

Plugins

- helm-s3
- helm-gcs
- helm-github
- helm-diff
- Tillerless Helm v2
- helm-gpg
- ...

Supporting Tools

- Helmfile
- Drone.io Helm Plugin
- Landscaper
- Kubeapps
- Chartify
- Harbor
- ...

Services

- Codefresh Managed Helm Repositories
- Quay App Registry
- Azure Container Registry Helm Chart Support
- Artifactory Helm Chart Support
- ...

Just To Name A Few

<https://docs.helm.sh/related/>

Find Ecosystem Projects



Where is Helm going?

Helm v3

- Breaking changes from lessons learned
- Carrying almost everyone forward
- **Helm Deep Dive:** Thursday @ 3:40 in this room

CNCF Graduation

CII Best Practices Badge Program

Get Your Badge Now!

The [Linux Foundation \(LF\) Core Infrastructure Initiative \(CII\) Best Practices badge](#) is a way for Free/Libre and Open Source Software (FLOSS) projects to show that they follow best practices. Projects can voluntarily self-certify, at no cost, by using this web application to explain how they follow each best practice. The CII Best Practices Badge is inspired by the many badges available to projects on GitHub. Consumers of the badge can quickly assess which FLOSS projects are following best practices and as a result are more likely to produce higher-quality secure software.

More information on the CII Best Practices Badging program, including background and [criteria](#), is [available on GitHub](#). [Project statistics](#) and [criteria statistics](#) are available. The [projects page](#) shows participating projects and supports queries (e.g., you can see [projects that have a passing badge](#)). You can also see [an example \(where we try to get our own badge\)](#).

Privacy and legal issues: Please see our [privacy policy](#), [about cookies](#), and [terms of use](#). The code for the badging application itself is released under the [MIT license](#) (projects pursuing a badge are under their respective licenses). All publicly-available non-code content managed by the badging application is released under at least the [Creative Commons Attribution License version 3.0 \(CC-BY-3.0\)](#); newer non-code content is released under CC-BY version 3.0 or later (CC-BY-3.0+). If referencing collectively or not otherwise noted, please credit the CII Best Practices badge contributors.



Some badge earners:





Hub Growth

How To Get Involved

Tue		Wed		Thu	
29	12pm Charts Chat (fortnightly)	30		31	12:30pm Helm Developer Call
5	12pm Charts Office Hours	6		7	12:30pm Helm Developer Call
12	12pm Charts Chat (fortnightly)	13		14	12:30pm Helm Developer Call
19	12pm Charts Office Hours	20		21	
26	12pm Charts Chat (fortnightly)	27		28	12:30pm Helm Developer Call

1. Attend A Meeting

helm / helm Unwatch 385 Unstar 8,613 Fork 2,883

Code Issues 571 Pull requests 90 Projects 1 Wiki Insights Settings

 Title

Write Preview AA B i       

<!-- If you need help or think you have found a bug, please help us with your issue by entering the following information (otherwise you can delete this text): -->

Output of `helm version`:

Output of `kubectl version`:

Cloud Provider/Platform (AKS, GKE, Minikube etc.):

Attach files by dragging & dropping, selecting them, or pasting from the clipboard.

 Styling with Markdown is supported [Submit new issue](#)

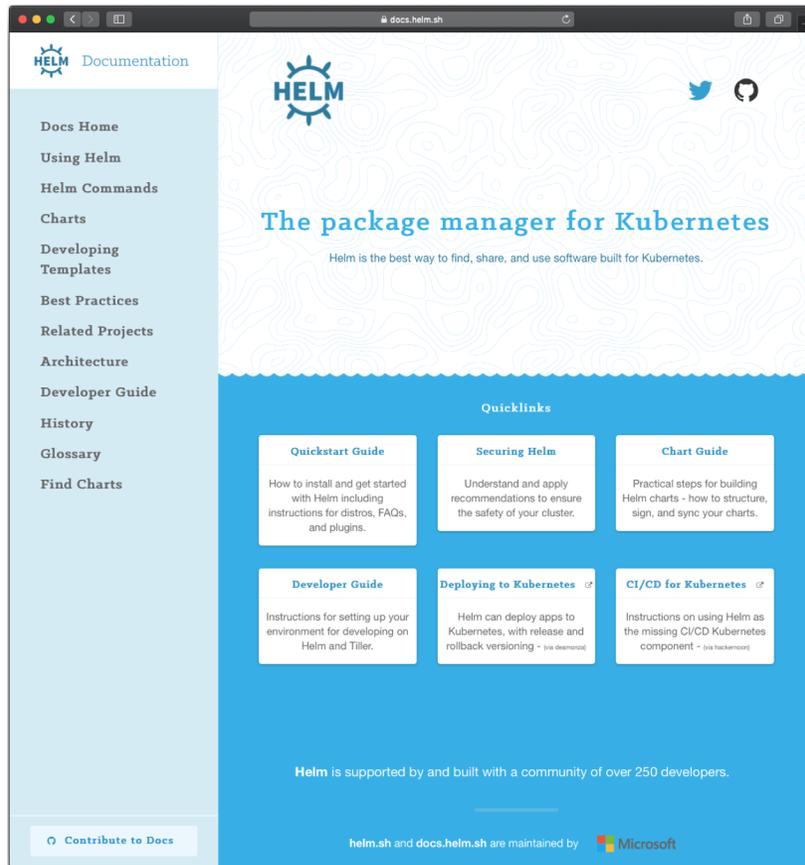
Assignees: No one—assign yourself

Labels: None yet

Projects: None yet

Milestone: No milestone

2. File An Issue



2. Contribute Code/Docs

github.com/helm/community

Why GitHub? Business Explore Marketplace Pricing Search Sign in Sign up

helm / community Watch 32 Star 56 Fork 35

Code Issues 4 Pull requests 8 Projects 0 Insights

Helm community content <https://helm.sh>

cncf

91 commits 2 branches 0 releases 11 contributors

Branch: master New pull request Find file Clone or download

bacongobbler Merge pull request #62 from budde377/patch-2 Latest commit 9a90777 7 days ago

governance	Adding org maintainers file	a month ago
helm-v3	Fix wrong chart lua-script path	7 days ago
proposals	Adding Monocular 1.0 proposal	3 months ago
MAINTAINERS.md	Adding Josh and Scott as org maintainers	20 days ago
README.md	Feedback fixes	2 months ago
communication.md	add link to meeting notes	13 days ago
helm-maintainers-onboarding-guid...	Initial addition of helm maintainers onboarding guide	10 months ago
incubator.md	initial commit of community documentation	a year ago
user-profiles.md	Adding user profile for cluster operators who are not in scope	8 months ago

README.md

Helm Community

Welcome to the Helm community!

This is the starting point for becoming a contributor to the Helm project - improving docs, improving code, giving talks etc.

Communicating

The [communication](#) page lists communication channels like chat, issues, mailing lists, conferences, etc.

How Can I Help?

Questions?

- <https://helm.sh>
- cncf-helm@lists.cncf.io
- <https://twitter.com/helmpack>
- #helm-users on Kubernetes Slack