There are lots of ways to contribute to Kubernetes. You can work on designs for new features, you can document the code we already have, you can write for our blogs. There's more: you can implement those new features or fix bugs. You can help people join our contributor community, or support existing contributors.

With all these different ways to make a difference to the project, we - Kubernetes - have made a dedicated website: https://k8s.dev/. You can go there to learn more about contributing to Kubernetes.

If you specifically want to learn about contributing to the documentation or other parts of *this* website, read Contribute to Kubernetes documentation. If you specifically want to help with the official Kubernetes blogs, read Contributing to Kubernetes blogs.

You can also read the CNCF page about contributing to Kubernetes.

Contribute to Kubernetes Documentation

This website is maintained by Kubernetes SIG Docs. The Kubernetes project welcomes help from all contributors, new or experienced!

Kubernetes documentation contributors:

- Improve existing content
- Create new content
- Translate the documentation
- Manage and publish the documentation parts of the Kubernetes release cycle

The blog team, part of SIG Docs, helps manage the official blogs. Read contributing to Kubernetes blogs to learn more.

Note:

To learn more about contributing to Kubernetes in general, see the general contributor documentation site.

Getting started

Anyone can open an issue about documentation, or contribute a change with a pull request (PR) to the `kubernetes/website` GitHub repository. You need to be comfortable with git and GitHub to work effectively in the Kubernetes community.

To get involved with documentation:

1. Sign the CNCF Contributor License Agreement.
2. Familiarize yourself with the documentation repository and the website's static site generator.
3. Make sure you understand the basic processes for opening a pull request and reviewing changes.

   flowchart TB subgraph third[Open PR] direction TB U[ ] -.- Q[Improve content] --- N[Create content] N --- O[Translate docs] O --- P[Manage/publish docs parts of K8s release cycle] end subgraph second[Review] direction TB T[ ] -.- D[Look over

the
kubernetes/website
repository] --- E[Check out the
Hugo static site
generator] E --- F[Understand basic
GitHub commands] F --- G[Review open PR
and change review
processes] end subgraph first[Sign up] direction TB S[ ] -.- B[Sign the CNCF
Contributor
License Agreement] --- C[Join sig-docs
Slack channel] C --- V[Join kubernetes-sig-docs
mailing list] V --- M[Attend weekly
sig-docs calls
or slack meetings] end A([fa:fa-user New
Contributor]) --> first A --> second A --> third A --> H[Ask Questions!!!] classDef
grey fill:#dddddd,stroke:#ffffff,stroke-width:px,color:#000000, font-size:15px; classDef
white fill:#ffffff,stroke:#000,stroke-width:px,color:#000,font-weight:bold classDef
spacewhite fill:#ffffff,stroke:#fff,stroke-width:0px,color:#000 class
A,B,C,D,E,F,G,H,M,Q,N,O,P,V grey class S,T,U spacewhite class first,second,third
white

JavaScript must be enabled to view this content
Figure 1. Getting started for a new contributor.

Figure 1 outlines a roadmap for new contributors. You can follow some or all of the steps for `Sign up` and `Review`. Now you are ready to open PRs that achieve your contribution objectives with some listed under `Open PR`. Again, questions are always welcome!

Some tasks require more trust and more access in the Kubernetes organization. See Participating in SIG Docs for more details about roles and permissions.

Your first contribution

You can prepare for your first contribution by reviewing several steps beforehand. Figure 2 outlines the steps and the details follow.

flowchart LR subgraph second[First Contribution] direction TB S[ ] -.- G[Review PRs
from other
K8s members] --> A[Check kubernetes/website
issues list for
good first PRs] --> B[Open a PR!!] end subgraph first[Suggested Prep] direction TB
T[ ] -.- D[Read contribution overview] -->E[Read K8s content
and style guides] E --> F[Learn about Hugo page
content types
and shortcodes] end first ----> second classDef grey fill:#dddddd,stroke:#ffffff,stroke-
width:px,color:#000000, font-size:15px; classDef white fill:#ffffff,stroke:#000,stroke-
width:px,color:#000,font-weight:bold classDef spacewhite fill:#ffffff,stroke:#fff,stroke-
width:0px,color:#000 class A,B,D,E,F,G grey class S,T spacewhite class first,second
white

JavaScript must be enabled to view this content
Figure 2. Preparation for your first contribution.

- Read the Contribution overview to learn about the different ways you can contribute.
- Check `kubernetes/website` issues list for issues that make good entry points.

- Open a pull request using GitHub to existing documentation and learn more about filing issues in GitHub.
- Review pull requests from other Kubernetes community members for accuracy and language.
- Read the Kubernetes content and style guides so you can leave informed comments.
- Learn about page content types and Hugo shortcodes.

Getting help when contributing

Making your first contribution can be overwhelming. The New Contributor Ambassadors are there to walk you through making your first few contributions. You can reach out to them in the Kubernetes Slack preferably in the `#sig-docs` channel. There is also the New Contributors Meet and Greet call that happens on the first Tuesday of every month. You can interact with the New Contributor Ambassadors and get your queries resolved here.

Next steps

- Learn to work from a local clone of the repository.
- Document features in a release.
- Participate in SIG Docs, and become a member or reviewer.
- Start or help with a localization.

Get involved with SIG Docs

SIG Docs is the group of contributors who publish and maintain Kubernetes documentation and the website. Getting involved with SIG Docs is a great way for Kubernetes contributors (feature development or otherwise) to have a large impact on the Kubernetes project.

SIG Docs communicates with different methods:

- Join `#sig-docs` on the Kubernetes Slack instance. Make sure to introduce yourself!
- Join the `kubernetes-sig-docs` mailing list, where broader discussions take place and official decisions are recorded.
- Join the SIG Docs video meeting held every two weeks. Meetings are always announced on `#sig-docs` and added to the Kubernetes community meetings calendar. You'll need to download the Zoom client or dial in using a phone.
- Join the SIG Docs async Slack standup meeting on those weeks when the in-person Zoom video meeting does not take place. Meetings are always announced on `#sig-docs`. You can contribute to any one of the threads up to 24 hours after meeting announcement.

Other ways to contribute

- Visit the Kubernetes community site. Participate on Twitter or Stack Overflow, learn about local Kubernetes meetups and events, and more.
- Read the contributor cheatsheet to get involved with Kubernetes feature development.
- Visit the contributor site to learn more about Kubernetes Contributors and additional contributor resources.
- Learn how to contribute to the official blogs
- Submit a case study

Contributing to Kubernetes blogs

There are two official Kubernetes blogs, and the CNCF has its own blog where you can cover Kubernetes too. For the main Kubernetes blog, we (the Kubernetes project) like to publish articles with different perspectives and special focuses, that have a link to Kubernetes.

With only a few special case exceptions, we only publish content that hasn't been submitted or published anywhere else.

Read the blog guidelines for more about that aspect.

Official Kubernetes blogs

Main blog

The main Kubernetes blog is used by the project to communicate new features, community reports, and any news that might be relevant to the Kubernetes community. This includes end users and developers. Most of the blog's content is about things happening in the core project, but Kubernetes as a project encourages you to submit about things happening elsewhere in the ecosystem too!

Anyone can write a blog post and submit it for publication. With only a few special case exceptions, we only publish content that hasn't been submitted or published anywhere else.

Contributor blog

The Kubernetes contributor blog is aimed at an audience of people who work **on** Kubernetes more than people who work **with** Kubernetes. The Kubernetes project deliberately publishes some articles to both blogs.

Anyone can write a blog post and submit it for review.

Article updates and maintenance

The Kubernetes project does not maintain older articles for its blogs. This means that any published article more than one year old will normally **not** be eligible for issues or pull requests that ask for changes. To avoid establishing precedent, even technically correct pull requests are likely to be rejected.

However, there are exceptions like the following:

- (updates to) articles marked as evergreen
- removing or correcting articles giving advice that is now wrong and dangerous to follow
- fixes to ensure that an existing article still renders correctly

For any article that is over a year old and not marked as *evergreen*, the website automatically displays a notice that the content may be stale.

Evergreen articles

You can mark an article as evergreen by setting `evergreen: true` in the front matter.

We only mark blog articles as maintained (`evergreen: true` in front matter) if the Kubernetes project can commit to maintaining them indefinitely. Some blog articles absolutely merit this; for example, the release comms team always marks official release announcements as evergreen.

What's next

- Discover the official blogs:
  - Kubernetes blog
  - Kubernetes contributor blog
- Read about reviewing blog pull requests

- Submitting articles to Kubernetes blogs
- Blog guidelines
- Blog article mirroring
- Post-release communications
- Helping as a blog writing buddy

Submitting articles to Kubernetes blogs

There are two official Kubernetes blogs, and the CNCF has its own blog where you can cover Kubernetes too. For the main Kubernetes blog, we (the Kubernetes project) like to publish articles with different perspectives and special focuses, that have a link to Kubernetes.

With only a few special case exceptions, we only publish content that hasn't been submitted or published anywhere else.

Writing for the Kubernetes blog(s)

As an author, you have three different routes towards publication.

Recommended route

The approach the Kubernetes project recommends is: pitch your article by contacting the blog team. You can do that via Kubernetes Slack (#sig-docs-blog). For articles that you want to publish to the contributor blog only, you can also pitch directly to SIG ContribEx comms.

Unless there's a problem with your submission, the blog team / SIG ContribEx will pair you up with:

- a blog *editor*
- your *writing buddy* (another blog author)

When the team pairs you up with another author, the idea is that you both support each other by reviewing the other author's draft article. You don't need to be a subject matter expert; most of the people who read the article also won't be experts. We, the Kubernetes blog team, call the other author a writing buddy.

The editor is there to help you along the journey from draft to publication. They will either be directly able to approve your article for publication, or can arrange for the approval to happen.

Read authoring a blog article to learn more about the process.

Starting with a pull request

The second route to writing for our blogs is to start directly with a pull request in GitHub. The blog team actually don't recommend this; GitHub is quite useful for collaborating on code, but isn't an ideal fit for prose text.

It's absolutely fine to open a placeholder pull request with just an empty commit, and then work elsewhere before returning to your placeholder PR.

Similar to the recommended route, we'll try to pair you up with a writing buddy and a blog editor. They'll help you get the article ready for publication.

Post-release blog article process

The third route is for blog articles about changes in Kubernetes relating to a release. Each time there is a release, the Release Comms team takes over the blog publication schedule. People adding features to a release, or who are planning other changes that the project needs to announce, can liaise with Release Comms to get their article planned, drafted, edited, and eventually published.

Article scheduling

For the Kubernetes blog, the blog team usually schedules blog articles to publish on weekdays (Gregorian calendar, as used in the USA and other countries). When it's important to publish on a specific date that falls on a weekend, the blog team try to accommodate that.

The section on authoring a blog article explains what to do:

- initially, don't specify a date for the article
- however, do set the article as draft (put `draft: true` in the front matter)

When the Prow bot merges the PR you write, it will be a draft and won't be set to publish. A Kubernetes contributor (either you, your writing buddy or someone from the blog team) then opens a small follow-up PR that marks it for publication. Merging that second PR releases the previously-draft article so that it can automatically publish.

On the day the article is scheduled to publish, automation triggers a website build and your article becomes visible.

Authoring an article

After you've pitched, we'll encourage you to use either HackMD (a web Markdown editor) or a Google doc, to share an editable version of the article text. Your writing buddy can read your draft text and then either directly make suggestions or provide other feedback. They should also let you know if what you're drafting feedback isn't in line with the blog guidelines.

At the same time, you'll normally be **their** writing buddy and can follow our guide about supporting their work.

Initial administrative steps

You should sign the CLA if you have not yet done so. It is best to make sure you start this early on; if you are writing as part of your job, you may need to check with the workplace legal team or with your manager, to make sure that you are allowed to sign.

Initial drafting

The blog team recommends that you either use HackMD (a web Markdown editor) or a Google doc, to prepare and share an initial, live-editable version of the article text.

Note:

If you choose to use Google Docs, you can set your document into Markdown mode.

Your writing buddy can provide comments and / or feedback for your draft text and will (or should) check that it's in line with the guidelines. At the same time, you'll be their writing buddy and can follow the guide that explains how you'll be supporting their work.

Don't worry too much at this stage about getting the Markdown formatting exactly right, though.

If you have images, you can paste in a bitmap copy for early feedback. The blog team can help you (later in the process), to get illustrations ready for final publication.

Markdown for publication

Have a look at the Markdown format for existing blog posts in the website repository in GitHub.

If you're not already familiar, read contributing basics. This section of the page assumes that you don't have a local clone of your fork and that you are working within the GitHub web UI. You do need to make a remote fork of the website repository if you haven't already done so.

In the GitHub repository, click the **Create new file** button. Copy your existing content from HackMD or Google Docs, then paste it into the editor. There are more details later in the section about what goes into that file. Name the file to match the proposed title of the blog post, but don't put the date in the file name. The blog reviewers will work with you to set the final file name and the date when the article will be published.

1. When you save the file, GitHub will walk you through the pull request process.
2. Your writing buddy can review your submission and work with you on feedback and final details. A blog editor approves your pull request to merge, as a draft that is not yet scheduled.

Front matter

The Markdown file you write should use YAML-format Hugo front matter.

Here's an example:

```
---
layout: blog
title: "Your Title Here"
draft: true # will be changed to date: YYYY-MM-DD before
publication
```

```
slug: lowercase-text-for-link-goes-here-no-spaces # optional
author: >
  Author-1 (Affiliation),
  Author-2 (Affiliation),
  Author-3 (Affiliation)
---
```

- initially, don't specify a date for the article
- however, do set the article as draft (put `draft: true` in the article front matter)

Article content

Make sure to use second-level Markdown headings (`##` not `#`) as the topmost heading level in the article. The `title` you set in the front matter becomes the first-level heading for that page.

You should follow the style guide, but with the following exceptions:

- we are OK to have authors write an article in their own writing style, so long as most readers would follow the point being made
- it is OK to use "we" in a blog article that has multiple authors, or where the article introduction clearly indicates that the author is writing on behalf of a specific group. As you'll notice from this section, although we avoid using "we" in our documentation, it's OK to make justifiable exceptions.
- we avoid using Kubernetes shortcodes for callouts (such as `{{< caution >}}`). This is because callouts are aimed at documentation readers, and blog articles aren't documentation.
- statements about the future are OK, albeit we use them with care in official announcements on behalf of Kubernetes
- code samples used in blog articles don't need to use the `{{< code_sample >}}` shortcode, and often it is better (easier to maintain) if they do not

Diagrams and illustrations

For illustrations, diagrams or charts, use the figure shortcode can be used where feasible. You should set an `alt` attribute for accessibility.

For illustrations and technical diagrams, try to use vector graphics. The blog team recommend SVG over raster (bitmap / pixel) diagram formats, and also recommend SVG rather than Mermaid (you can still capture the Mermaid source in a comment). The preference for SVG over Mermaid is because when maintainers upgrade Mermaid or make changes to diagram rendering, they may not have an easy way to contact the original blog article author to check that the changes are OK.

The diagram guide is aimed at Kubernetes documentation, not blog articles. It is still good to align with it but:

- there is no need to caption diagrams as Figure 1, Figure 2, etc.

The requirement for scalable (vector) imanges makes the process more difficult for less-familiar folks to submit articles; Kubernetes SIG Docs continues to look for ways to lower this bar. If you have ideas on how to lower the barrier, please volunteer to help out.

For other images (such as photos), the blog team strongly encourages use of `alt` attributes. It is OK to use an empty `alt` attribute if accessibility software should not mention the image at all, but this is a rare situation.

Commit messages

At the point you mark your pull request ready for review, each commit message should be a short summary of the work being done. The first commit message should make sense as an overall description of the blog post.

Examples of a good commit message:

- *Add blog post on the foo kubernetes feature*
- *blog: foobar announcement*

Examples of bad commit messages:

- *Placeholder commit for announcement about foo*
- *Add blog post*
- *asdf*
- *initial commit*
- *draft post*

Squashing

Once you think the article is ready to merge, you should squash the commits in your pull request; if you're not sure how to, it's OK to ask the blog team for help.

Blog guidelines

These guidelines cover the main Kubernetes blog and the Kubernetes contributor blog.

All blog content must also adhere to the overall policy in the content guide.

Before you begin

Make sure you are familiar with the introduction sections of contributing to Kubernetes blogs, not just to learn about the two official blogs and the differences between them, but also to get an overview of the process.

Original content

The Kubernetes project accepts **original content only**, in English.

Note:

The Kubernetes project cannot accept content for the blog if it has already been submitted or published outside of the Kubernetes project.

The official blogs are not available as a medium to repurpose existing content from any third party as new content.

This restriction even carries across to promoting other Linux Foundation and CNCF projects. Many CNCF projects have their own blog. These are often a better choice for posts about a specific

project, even if that other project is designed specifically to work with Kubernetes (or with Linux, etc).

Relevant content

Articles must contain content that applies broadly to the Kubernetes community. For example, a submission should focus on upstream Kubernetes as opposed to vendor-specific configurations. For articles submitted to the main blog that are not mirror articles, hyperlinks in the article should commonly be to the official Kubernetes documentation. When making external references, links should be diverse - for example, a submission shouldn't contain only links back to a single company's blog.

The official Kubernetes blogs are **not** the place for vendor pitches or for articles that promote a specific solution from outside Kubernetes.

Sometimes this is a delicate balance. You can ask in Slack (#sig-docs-blog) for guidance on whether a post is appropriate for the Kubernetes blog and / or contributor blog - don't hesitate to reach out.

The content guide applies unconditionally to blog articles and the PRs that add them. Bear in mind that some restrictions in the guide state that they are only relevant to documentation; those marked restrictions don't apply to blog articles.

Localization

The website is localized into many languages; English is the “upstream” for all the other localizations. Even if you speak another language and would be happy to provide a localization, that should be in a separate pull request (see languages per PR).

Copyright and reuse

You must write original content and you must have permission to license that content to the Cloud Native Computing Foundation (so that the Kubernetes project can legally publish it). This means that not only is direct plagiarism forbidden, you cannot write a blog article if you don't have permission to meet the CNCF copyright license conditions (for example, if your employer has a policy about intellectual property that restricts what you are allowed to do).

The license for the blog allows commercial use of the content for commercial purposes, but not the other way around.

Special interest groups and working groups

Topics related to participation in or results of Kubernetes SIG activities are always on topic (see the work in the Contributor Comms Team for support on these posts).

The project typically mirrors these articles to both blogs.

National restrictions on content

The Kubernetes website has an Internet Content Provider (ICP) licence from the government of China. Although it's unlikely to be a problem, Kubernetes cannot publish articles that would be blocked by the Chinese government's official filtering of internet content.

Blog-specific content guidance

As well as the general style guide, blog articles should (not must) align to the blog-specific style recommendations.

The remainder of this page is additional guidance; these are not strict rules that articles must follow, but reviewers are likely to (and should) ask for edits to articles that are obviously not aligned with the recommendations here.

Diagrams and illustrations

For illustrations - including diagrams or charts - use the figure shortcode where feasible. You should set an `alt` attribute for accessibility.

Use vector images for illustrations, technical diagrams and similar graphics; SVG format is recommended as a strong preference.

Articles that use raster images for illustrations are more difficult to maintain and in some cases the blog team may ask authors to revise the article before it could be published.

Timelessness

Blog posts should aim to be future proof

- Given the development velocity of the project, SIG Docs prefers *timeless* writing: content that won't require updates to stay accurate for the reader.
- It can be a better choice to add a tutorial or update official documentation than to write a high level overview as a blog post.
- Consider concentrating the long technical content as a call to action of the blog post, and focus on the problem space or why readers should care.

Content examples

Here are some examples of content that is appropriate for the main Kubernetes blog:

- Announcements about new Kubernetes capabilities
- Explanations of how to achieve an outcome using Kubernetes; for example, tell us about your low-toil improvement on the basic idea of a rolling deploy
- Comparisons of several different software options that have a link to Kubernetes and cloud native. It's OK to have a link to one of these options so long as you fully disclose your conflict of interest / relationship.
- Stories about problems or incidents, and how you resolved them
- Articles discussing building a cloud native platform for specific use cases
- Your opinion about the good or bad points about Kubernetes
- Announcements and stories about non-core Kubernetes, such as the Gateway API
- Post-release announcements and updates
- Messages about important Kubernetes security vulnerabilities
- Kubernetes projects updates
- Tutorials and walkthroughs
- Thought leadership around Kubernetes and cloud native
- The components of Kubernetes are purposely modular, so writing about existing integration points like CNI and CSI are on topic. Provided you don't write a vendor pitch, you can also write about what is on the other end of these integrations.

Here are some examples of content that is appropriate for the Kubernetes contributor blog:

- articles about how to test your change to Kubernetes code
- content around non-code contribution
- discussions about alpha features where the design is still under discussion
- "Meet the team" articles about working groups, special interest groups, etc.
- a guide about how to write secure code that will become part of Kubernetes itself
- articles about maintainer summits and the outcome of those summits

Examples of content that wouldn't be accepted

However, the project will not publish:

- vendor pitches
- an article you've published elsewhere, even if only to your own low-traffic blog
- large chunks of example source code with only a minimal explanation
- updates about an external project that works with our relies on Kubernetes (put those on the external project's own blog)
- articles about using Kubernetes with a specific cloud provider
- articles that criticise specific people, groups of people, or businesses
- articles that have important technical mistakes or misleading details (for example: if you recommend turning off an important security control in production clusters, because it can be inconvenient, the Kubernetes project is likely to reject the article).

Blog article mirroring

There are two official Kubernetes blogs, and the CNCF has its own blog where you can cover Kubernetes too. For the main Kubernetes blog, we (the Kubernetes project) like to publish articles with different perspectives and special focuses, that have a link to Kubernetes.

Some articles appear on both blogs: there is a primary version of the article, and a *mirror article* on the other blog.

This page describes the criteria for mirroring, the motivation for mirroring, and explains what you should do to ensure that an article publishes to both blogs.

Before you begin

Make sure you are familiar with the introduction sections of contributing to Kubernetes blogs, not just to learn about the two official blogs and the differences between them, but also to get an overview of the process.

Why we mirror

Mirroring is nearly always from the contributor blog to the main blog. The project does this for articles that are about the contributor community, or a part of it, but are also relevant to the wider set of readers for Kubernetes' main blog.

As an author (or reviewer), consider the target audience and whether the blog post is appropriate for the main blog. For example: if the target audience are Kubernetes contributors only, then the

contributor blog. may be more appropriate; if the blog post is about open source in general then it may be more suitable on another site outside the Kubernetes project.

This consideration about target audience applies to original and mirrored articles equally.

The Kubernetes project is willing to mirror any blog article that was published to https://kubernetes.dev/blog/ (the contributor blog), provided that all of the following criteria are met:

- the mirrored article has the same publication date as the original (it should have the same publication time too, but you can also set a time stamp up to 12 hours later for special cases)
- For PRs that add a mirrored article to the main blog *after* the original article has merged into the contributor blog, ensure that all of the following criteria are met:
  - No articles were published to the main blog after the original article was published to the contributor blog.
  - There are no main blog articles scheduled for publication between the publication time of the original article and the publication time of your mirrored article.

  This is because the Kubernetes project doesn't want to add articles to people's feeds, such as RSS, except at the very end of their feed.
- the original article doesn't contravene any strongly recommended review guidelines or community norms
- the mirrored article will have `canonicalUrl` set correctly in its front matter
- the audience for the original article would find it relevant
- the article content is not off-topic for the target blog where the mirror article would appear

Mirroring from the main blog to the contributor blog is rare, but could feasibly happen.

How to mirror

You make a PR against the other Git repository (usually, https://github.com/kubernetes/website) that adds the article. You do this *before* the articles merge.

As the article author, you should set the canonical URL for the mirrored article, to the URL of the original article (you can use a preview to predict the URL and fill this in ahead of actual publication). Use the `canonicalUrl` field in front matter for this.

Post-release communications

The Kubernetes *Release Comms* team (part of SIG Release) looks after release announcements, which go onto the main project blog.

After each release, the Release Comms team take over the main blog for a period and publish a series of additional articles to explain or announce changes related to that release. These additional articles are termed *post-release comms*.

Opting in to post-release comms

During a release cycle, as a contributor, you can opt in to post-release comms about an upcoming change to Kubernetes.

To opt in you open a draft, *placeholder* pull request (PR) against k/website. Initially, this can be an empty commit. Mention the KEP issue or other Kubernetes improvement issue in the description of your placeholder PR.

When you open the **draft** pull request, you open it against *main* as the base branch and not against the `dev-1.35` branch. This is different from the process for upcoming release changes and new features.

You should also leave a comment on the related kubernetes/enhancements issue with a link to the PR to notify the Release Comms team managing this release. Your comment helps the team see that the change needs announcing and that your SIG has opted in.

As well as the above, you should ideally contact the Release Comms team via Slack (channel `#release-comms`) to let them know that you have done this and would like to opt in.

Preparing the article content

You should follow the usual article submission process to turn your placeholder PR into something ready for review. However, for post-release comms, you may not have a *writing buddy*; instead, the Release Comms team may assign a member of the team to help guide what you're doing.

You should squash the commits in your pull request; if you're not sure how to, it's absolutely OK to ask Release Comms or the blog team for help.

Provided that your article is flagged as a draft (`draft: true`) in the front matter, the PR can merge at any time during the release cycle.

Publication

Ahead of the actual release, the Release Comms team check what content is ready (if it's not ready by the deadline, and you didn't get an exception, then the announcement won't be included). They build a schedule for the articles that will go out and open new pull requests to turn those articles from draft to published.

Caution:

All these pull requests to actually publish post-release articles **must** be held (Prow command `/hold`) until the release has actually happened.

The blog team approvers still provide final sign off on promoting the content from draft to accepted for publication. Ahead of release day, the PR (or PRs) for publishing these announcements should have LGTM ("looks good to me") and approved labels, along with the **do-not-merge/hold** label to ensure the PR doesn't merge too early.

Release Comms / the Release Team can then *unhold* that PR (or set of PRs) as soon as the website Git repository is unfrozen after the actual release.

On the day each article is scheduled to publish, automation triggers a website build and that article becomes visible.

Helping as a blog writing buddy

There are two official Kubernetes blogs, and the CNCF has its own blog where you can cover Kubernetes too. Read contributing to Kubernetes blogs to learn about these two blogs.

When people contribute to either blog as an author, the Kubernetes project pairs up authors as *writing buddies*. This page explains how to fulfil the buddy role.

You should make sure that you have at least read an outline of article submission before you read on within this page.

Buddy responsibilities

As a writing buddy, you:

- help the blog team get articles ready to merge and to publish
- support your buddy to produce content that is good to merge
- provide a review on the article that your buddy has written

When the team pairs you up with another author, the idea is that you both support each other by reviewing the other author's draft article. Most people reading articles on the Kubernetes blog are not experts; the content should try to make sense for that audience, or at least to support non-expert readers appropriately.

The blog team are also there to help you both along the journey from draft to publication. They will either be directly able to approve your article for publication, or can arrange for the approval to happen.

Supporting the blog team

Your main responsibility here is to communicate about your capacity, availability and progress in a reasonable timeline. If many weeks go by and your buddy hasn't heard from you, it makes the overall work take more time.

Supporting your buddy

There are two parts to the process

- Collaborative editing
- Markdown / Git editing

(This is the recommended option)

The blog team recommend that the main author for the article sets up collaborative editing using either a Google Doc or HackMD (their choice). The main author then shares that document with the following people:

- Any co-authors
- You (their writing buddy)

- Ideally, with a nominated person from the blog team.

As a writing buddy, you then read the draft text and either directly make suggestions or provide feedback in a different way. The author of the blog is very commonly also **your** writing buddy in turn, so they will provide the same kind of feedback on the draft for your blog article.

Your role here is to recommend the smallest set of changes that will get the article look good for publication. If there's a diagram that really doesn't make sense, or the writing is really unclear: provide feedback. If you have a slight different of opinion about wording or punctuation, skip it. Let the article author(s) write in their own style, provided that they align to the blog guidelines.

After this is ready, the lead author will open a pull request and use Markdown to submit the article. You then provide a review.

Some authors prefer to start with collaborative editing; others like to go straight into GitHub.

Whichever route they take, your role is to provide feedback that lets the blog team provide a simple signoff and confirm that the article can merge as a draft. See submitting articles to Kubernetes blogs for what the authors need to do.

Use GitHub suggestions to point out any required changes.

Once the Markdown and other content (such as images) look right, you provide a formal review.

Pull request review

Follow the blog section of *Reviewing pull requests*.

When you think that the open blog pull request is good enough to merge, add the `/lgtm` comment to the pull request.

This indicates to the repository automation tooling (Prow) that the content "looks good to me". Prow moves things forward. The `/lgtm` command lets you add your opinion to the record whether or not you are formally a member of the Kubernetes project.

Either you or the article author(s) should let the blog team know that there is an article ready for signoff. It should already be marked as `draft: true` in the front matter, as explained in the submission guidance.

Subsequent steps

For you as a writing buddy, **there is no step four**. Once the pull request is good to merge, the blog team (or, for the contributor site, the contributor comms team) take things from there. It's possible that you'll need to return to an earlier step based on feedback, but you can usually expect that your work as a buddy is done.

Suggesting content improvements

If you notice an issue with Kubernetes documentation or have an idea for new content, then open an issue. All you need is a GitHub account and a web browser.

In most cases, new work on Kubernetes documentation begins with an issue in GitHub. Kubernetes contributors then review, categorize and tag issues as needed. Next, you or another member of the Kubernetes community open a pull request with changes to resolve the issue.

Opening an issue

If you want to suggest improvements to existing content or notice an error, then open an issue.

1. Click the **Create an issue** link on the right sidebar. This redirects you to a GitHub issue page pre-populated with some headers.
2. Describe the issue or suggestion for improvement. Provide as many details as you can.
3. Click **Submit new issue**.

After submitting, check in on your issue occasionally or turn on GitHub notifications. Reviewers and other community members might ask questions before they can take action on your issue.

Suggesting new content

If you have an idea for new content, but you aren't sure where it should go, you can still file an issue. Either:

- Choose an existing page in the section you think the content belongs in and click **Create an issue**.
- Go to GitHub and file the issue directly.

How to file great issues

Keep the following in mind when filing an issue:

- Provide a clear issue description. Describe what specifically is missing, out of date, wrong, or needs improvement.
- Explain the specific impact the issue has on users.
- Limit the scope of a given issue to a reasonable unit of work. For problems with a large scope, break them down into smaller issues. For example, "Fix the security docs" is too broad, but "Add details to the 'Restricting network access' topic" is specific enough to be actionable.
- Search the existing issues to see if there's anything related or similar to the new issue.
- If the new issue relates to another issue or pull request, refer to it either by its full URL or by the issue or pull request number prefixed with a `#` character. For example, `Introduced by #987654`.
- Follow the Code of Conduct. Respect your fellow contributors. For example, "The docs are terrible" is not helpful or polite feedback.

Contributing new content

This section contains information you should know before contributing new content.

There are also dedicated pages about submitting case studies and blog articles.

New content task flow

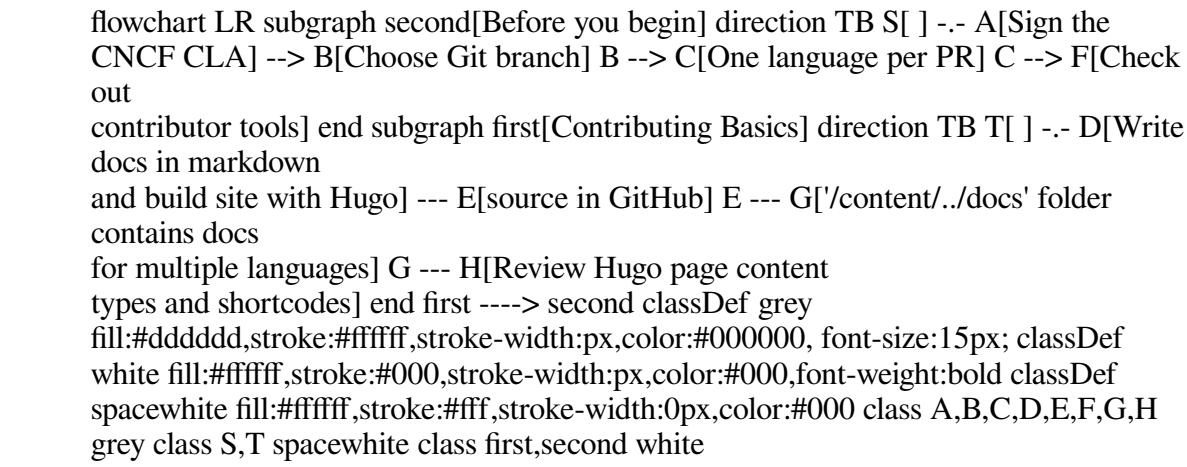

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Figure - Contributing new content preparation

The figure above depicts the information you should know prior to submitting new content. The information details follow.

Contributing basics

- Write Kubernetes documentation in Markdown and build the Kubernetes site using Hugo.
- Kubernetes documentation uses CommonMark as its flavor of Markdown.
- The source is in GitHub. You can find Kubernetes documentation at `/content/en/docs/`. Some of the reference documentation is automatically generated from scripts in the `update-imported-docs/` directory.
- Page content types describe the presentation of documentation content in Hugo.
- You can use Docsy shortcodes or custom Hugo shortcodes to contribute to Kubernetes documentation.
- In addition to the standard Hugo shortcodes, we use a number of custom Hugo shortcodes in our documentation to control the presentation of content.
- Documentation source is available in multiple languages in `/content/`. Each language has its own folder with a two-letter code determined by the ISO 639-1 standard . For example, English documentation source is stored in `/content/en/docs/`.
- For more information about contributing to documentation in multiple languages or starting a new translation, see localization.

Before you begin

Sign the CNCF CLA

All Kubernetes contributors **must** read the Contributor guide and sign the Contributor License Agreement (CLA) .

Pull requests from contributors who haven't signed the CLA fail the automated tests. The name and email you provide must match those found in your `git config`, and your git name and email must match those used for the CNCF CLA.

Choose which Git branch to use

When opening a pull request, you need to know in advance which branch to base your work on.

Scenario	Branch
Existing or new English language content for the current release	`main`
Content for a feature change release	The branch which corresponds to the major and minor version the feature change is in, using the pattern `dev-<version>`. For example, if a feature changes in the `v1.35` release, then add documentation changes to the `dev-1.35` branch.
Content in other languages (localizations)	Use the localization's convention. See the Localization branching strategy for more information.

If you're still not sure which branch to choose, ask in `#sig-docs` on Slack.

Note:

If you already submitted your pull request and you know that the base branch was wrong, you (and only you, the submitter) can change it.

Languages per PR

Limit pull requests to one language per PR. If you need to make an identical change to the same code sample in multiple languages, open a separate PR for each language.

Tools for contributors

The doc contributors tools directory in the `kubernetes/website` repository contains tools to help your contribution journey go more smoothly.

What's next

- Read about submitting blog articles.

- Opening a pull request
- Documenting a feature for a release
- Submitting case studies

Opening a pull request

Note:

Code developers: If you are documenting a new feature for an upcoming Kubernetes release, see Document a new feature.

To contribute new content pages or improve existing content pages, open a pull request (PR). Make sure you follow all the requirements in the Before you begin section.

If your change is small, or you're unfamiliar with git, read Changes using GitHub to learn how to edit a page.

If your changes are large, read Work from a local fork to learn how to make changes locally on your computer.

Changes using GitHub

If you're less experienced with git workflows, here's an easier method of opening a pull request. Figure 1 outlines the steps and the details follow.

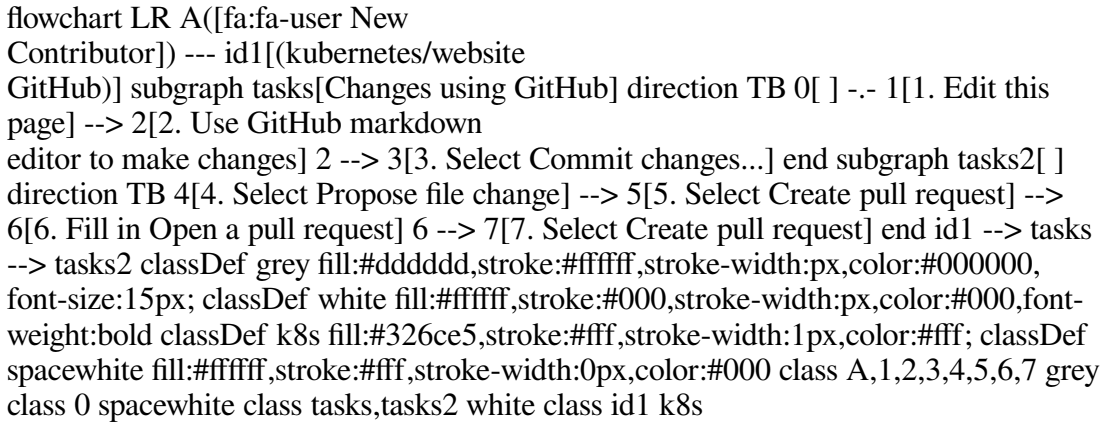

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Figure 1. Steps for opening a PR using GitHub.

1. On the page where you see the issue, select the **Edit this page** option in the right-hand side navigation panel.

2. Make your changes in the GitHub markdown editor.

3. On the right above the editor, Select **Commit changes**. In the first field, give your commit message a title. In the second field, provide a description.

   Note:

   Do not use any GitHub Keywords in your commit message. You can add those to the pull request description later.

4. Select **Propose changes**.

5. Select **Create pull request**.

6. The **Open a pull request** screen appears. Fill in the form:

   - The **Add a title** field of the pull request defaults to the commit summary. You can change it if needed.
   - The **Add a description** field contains your extended commit message, if you have one, and some template text. Add the details the template text asks for, then delete the extra template text.
   - Leave the **Allow edits from maintainers** checkbox selected.

Note:

PR descriptions are a great way to help reviewers understand your change. For more information, see Opening a PR.

7. Select **Create pull request**.

Addressing feedback in GitHub

Before merging a pull request, Kubernetes community members review and approve it. The `k8s-ci-robot` suggests reviewers based on the nearest owner mentioned in the pages. If you have someone specific in mind, leave a comment with their GitHub username in it.

If a reviewer asks you to make changes:

1. Go to the **Files changed** tab.
2. Select the pencil (edit) icon on any files changed by the pull request.
3. Make the changes requested.
4. Commit the changes.

If you are waiting on a reviewer, reach out once every 7 days. You can also post a message in the `#sig-docs` Slack channel.

When your review is complete, a reviewer merges your PR and your changes go live a few minutes later.

Work from a local fork

If you're more experienced with git, or if your changes are larger than a few lines, work from a local fork.

Make sure you have git installed on your computer. You can also use a git UI application.

Figure 2 shows the steps to follow when you work from a local fork. The details for each step follow.

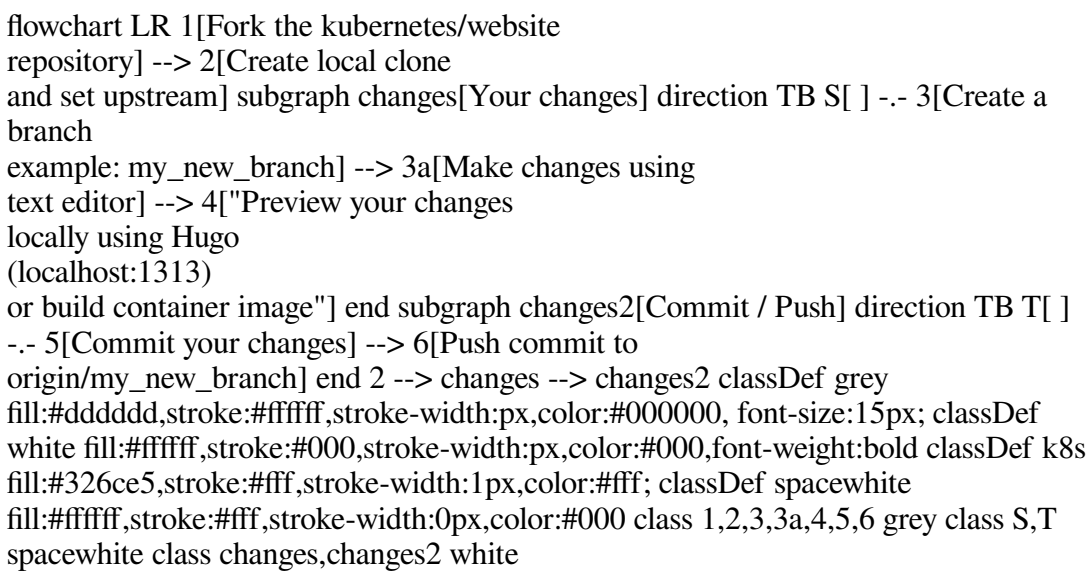

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Figure 2. Working from a local fork to make your changes.

Fork the kubernetes/website repository

1. Navigate to the `kubernetes/website` repository.
2. Select **Fork**.

Create a local clone and set the upstream

1. In a terminal window, clone your fork and update the Docsy Hugo theme:

   ```
   git clone git@github.com:<github_username>/website
   cd website
   ```

2. Navigate to the new `website` directory. Set the `kubernetes/website` repository as the `upstream` remote:

   ```
   cd website

   git remote add upstream https://github.com/kubernetes/
   website.git
   ```

3. Confirm your `origin` and `upstream` repositories:

   ```
   git remote -v
   ```

   Output is similar to:

   ```
   origin  git@github.com:<github_username>/website.git (fetch)
   origin  git@github.com:<github_username>/website.git (push)
   upstreamhttps://github.com/kubernetes/website.git (fetch)
   upstreamhttps://github.com/kubernetes/website.git (push)
   ```

4. Fetch commits from your fork's `origin/main` and `kubernetes/website`'s `upstream/main`:

   ```
   git fetch origin
   git fetch upstream
   ```

   This makes sure your local repository is up to date before you start making changes.

   Note:

   This workflow is different than the Kubernetes Community GitHub Workflow. You do not need to merge your local copy of `main` with `upstream/main` before pushing updates to your fork.

Create a branch

1. Decide which branch to base your work on:

   - For improvements to existing content, use `upstream/main`.
   - For new content about existing features, use `upstream/main`.
   - For localized content, use the localization's conventions. For more information, see localizing Kubernetes documentation.

    - For new features in an upcoming Kubernetes release, use the feature branch. For more information, see documenting for a release.
    - For long-running efforts that multiple SIG Docs contributors collaborate on, like content reorganization, use a specific feature branch created for that effort.

  If you need help choosing a branch, ask in the `#sig-docs` Slack channel.

2. Create a new branch based on the branch identified in step 1. This example assumes the base branch is `upstream/main`:

   ```
   git checkout -b <my_new_branch> upstream/main
   ```

3. Make your changes using a text editor.

At any time, use the `git status` command to see what files you've changed.

Commit your changes

When you are ready to submit a pull request, commit your changes.

1. In your local repository, check which files you need to commit:

   ```
   git status
   ```

   Output is similar to:

   ```
   On branch <my_new_branch>
   Your branch is up to date with 'origin/<my_new_branch>'.

   Changes not staged for commit:
   (use "git add <file>..." to update what will be committed)
   (use "git checkout -- <file>..." to discard changes in
   working directory)

   modified:   content/en/docs/contribute/new-content/
   contributing-content.md

   no changes added to commit (use "git add" and/or "git commit
   -a")
   ```

2. Add the files listed under **Changes not staged for commit** to the commit:

   ```
   git add <your_file_name>
   ```

   Repeat this for each file.

3. After adding all the files, create a commit:

   ```
   git commit -m "Your commit message"
   ```

   Note:

   Do not use any GitHub Keywords in your commit message. You can add those to the pull request description later.

4. Push your local branch and its new commit to your remote fork:

```
git push origin <my_new_branch>
```

Preview your changes locally

It's a good idea to preview your changes locally before pushing them or opening a pull request. A preview lets you catch build errors or markdown formatting problems.

You can either build the website's container image or run Hugo locally. Building the container image is slower but displays Hugo shortcodes, which can be useful for debugging.

- Hugo in a container
- Hugo on the command line

Note:

The commands below use Docker as default container engine. Set the `CONTAINER_ENGINE` environment variable to override this behaviour.

1. Build the container image locally
   You only need this step if you are testing a change to the Hugo tool itself

   ```
   # Run this in a terminal (if required)
   make container-image
   ```

2. Fetch submodule dependencies in your local repository:

   ```
   # Run this in a terminal
   make module-init
   ```

3. Start Hugo in a container:

   ```
   # Run this in a terminal
   make container-serve
   ```

4. In a web browser, navigate to `http://localhost:1313`. Hugo watches the changes and rebuilds the site as needed.

5. To stop the local Hugo instance, go back to the terminal and type `Ctrl+C`, or close the terminal window.

Alternately, install and use the `hugo` command on your computer:

1. Install the Hugo (Extended edition) and Node version specified in `website/netlify.toml`.

2. Install any dependencies:

   ```
   npm ci
   ```

3. In a terminal, go to your Kubernetes website repository and start the Hugo server:

   ```
   cd <path_to_your_repo>/website
   make serve
   ```

   If you're on a Windows machine or unable to run the `make` command, use the following command:

```
hugo server --buildFuture
```

4. In a web browser, navigate to `http://localhost:1313`. Hugo watches the changes and rebuilds the site as needed.

5. To stop the local Hugo instance, go back to the terminal and type `Ctrl+C`, or close the terminal window.

Open a pull request from your fork to kubernetes/website

Figure 3 shows the steps to open a PR from your fork to the kubernetes/website. The details follow.

Please, note that contributors can mention `kubernetes/website` as `k/website`.

flowchart LR subgraph first[ ] direction TB 1[1. Go to kubernetes/website repository] --> 2[2. Select New Pull Request] 2 --> 3[3. Select compare across forks] 3 --> 4[4. Select your fork from
head repository drop-down menu] end subgraph second [ ] direction TB 5[5. Select your branch from
the compare drop-down menu] --> 6[6. Select Create Pull Request] 6 --> 7[7. Add a description
to your PR] 7 --> 8[8. Select Create pull request] end first --> second classDef grey fill:#dddddd,stroke:#ffffff,stroke-width:px,color:#000000, font-size:15px; classDef white fill:#ffffff,stroke:#000,stroke-width:px,color:#000,font-weight:bold class 1,2,3,4,5,6,7,8 grey class first,second white

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Figure 3. Steps to open a PR from your fork to the kubernetes/website.

1. In a web browser, go to the `kubernetes/website` repository.

2. Select **New Pull Request**.

3. Select **compare across forks**.

4. From the **head repository** drop-down menu, select your fork.

5. From the **compare** drop-down menu, select your branch.

6. Select **Create Pull Request**.

7. Add a description for your pull request:

    - **Title** (50 characters or less): Summarize the intent of the change.

    - **Description**: Describe the change in more detail.

        - If there is a related GitHub issue, include `Fixes #12345` or `Closes #12345` in the description. GitHub's automation closes the mentioned issue after merging the PR if used. If there are other related PRs, link those as well.
        - If you want advice on something specific, include any questions you'd like reviewers to think about in your description.

8. Select the **Create pull request** button.

Congratulations! Your pull request is available in Pull requests.

After opening a PR, GitHub runs automated tests and tries to deploy a preview using Netlify.

- If the Netlify build fails, select **Details** for more information.
- If the Netlify build succeeds, select **Details** opens a staged version of the Kubernetes website with your changes applied. This is how reviewers check your changes.

GitHub also automatically assigns labels to a PR, to help reviewers. You can add them too, if needed. For more information, see Adding and removing issue labels.

Addressing feedback locally

1. After making your changes, amend your previous commit:

   ```
   git commit -a --amend
   ```

   - `-a`: commits all changes
   - `--amend`: amends the previous commit, rather than creating a new one

2. Update your commit message if needed.

3. Use `git push origin <my_new_branch>` to push your changes and re-run the Netlify tests.

   Note:

   If you use `git commit -m` instead of amending, you must squash your commits before merging.

Changes from reviewers

Sometimes reviewers commit to your pull request. Before making any other changes, fetch those commits.

1. Fetch commits from your remote fork and rebase your working branch:

   ```
   git fetch origin
   git rebase origin/<your-branch-name>
   ```

2. After rebasing, force-push new changes to your fork:

   ```
   git push --force-with-lease origin <your-branch-name>
   ```

Merge conflicts and rebasing

Note:

For more information, see Git Branching - Basic Branching and Merging, Advanced Merging, or ask in the `#sig-docs` Slack channel for help.

If another contributor commits changes to the same file in another PR, it can create a merge conflict. You must resolve all merge conflicts in your PR.

1. Update your fork and rebase your local branch:

```
git fetch origin
git rebase origin/<your-branch-name>
```

Then force-push the changes to your fork:

```
git push --force-with-lease origin <your-branch-name>
```

2. Fetch changes from `kubernetes/website`'s `upstream/main` and rebase your branch:

```
git fetch upstream
git rebase upstream/main
```

3. Inspect the results of the rebase:

```
git status
```

This results in a number of files marked as conflicted.

4. Open each conflicted file and look for the conflict markers: `>>>`, `<<<`, and `===`. Resolve the conflict and delete the conflict marker.

Note:

For more information, see How conflicts are presented.

5. Add the files to the changeset:

```
git add <filename>
```

6. Continue the rebase:

```
git rebase --continue
```

7. Repeat steps 2 to 5 as needed.

After applying all commits, the `git status` command shows that the rebase is complete.

8. Force-push the branch to your fork:

```
git push --force-with-lease origin <your-branch-name>
```

The pull request no longer shows any conflicts.

Squashing commits

Note:

For more information, see Git Tools - Rewriting History, or ask in the `#sig-docs` Slack channel for help.

If your PR has multiple commits, you must squash them into a single commit before merging your PR. You can check the number of commits on your PR's **Commits** tab or by running the `git log` command locally.

Note:

This topic assumes `vim` as the command line text editor.

1. Start an interactive rebase:

   ```
   git rebase -i HEAD~<number_of_commits_in_branch>
   ```

   Squashing commits is a form of rebasing. The `-i` switch tells git you want to rebase interactively. `HEAD~<number_of_commits_in_branch` indicates how many commits to look at for the rebase.

   Output is similar to:

   ```
   pick d875112ca Original commit
   pick 4fa167b80 Address feedback 1
   pick 7d54e15ee Address feedback 2

   # Rebase 3d18sf680..7d54e15ee onto 3d183f680 (3 commands)

   ...

   # These lines can be re-ordered; they are executed from top
   to bottom.
   ```

   The first section of the output lists the commits in the rebase. The second section lists the options for each commit. Changing the word `pick` changes the status of the commit once the rebase is complete.

   For the purposes of rebasing, focus on `squash` and `pick`.

   Note:

   For more information, see Interactive Mode.

2. Start editing the file.

   Change the original text:

   ```
   pick d875112ca Original commit
   pick 4fa167b80 Address feedback 1
   pick 7d54e15ee Address feedback 2
   ```

   To:

   ```
   pick d875112ca Original commit
   squash 4fa167b80 Address feedback 1
   squash 7d54e15ee Address feedback 2
   ```

   This squashes commits `4fa167b80 Address feedback 1` and `7d54e15ee Address feedback 2` into `d875112ca Original commit`, leaving only `d875112ca Original commit` as a part of the timeline.

3. Save and exit your file.

4. Push your squashed commit:

```
git push --force-with-lease origin <branch_name>
```

Contribute to other repos

The Kubernetes project contains 50+ repositories. Many of these repositories contain documentation: user-facing help text, error messages, API references or code comments.

If you see text you'd like to improve, use GitHub to search all repositories in the Kubernetes organization. This can help you figure out where to submit your issue or PR.

Each repository has its own processes and procedures. Before you file an issue or submit a PR, read that repository's `README.md`, `CONTRIBUTING.md`, and `code-of-conduct.md`, if they exist.

Most repositories use issue and PR templates. Have a look through some open issues and PRs to get a feel for that team's processes. Make sure to fill out the templates with as much detail as possible when you file issues or PRs.

What's next

- Read Reviewing to learn more about the review process.

Documenting a feature for a release

Each major Kubernetes release introduces new features that require documentation. New releases also bring updates to existing features and documentation (such as upgrading a feature from alpha to beta).

Generally, the SIG responsible for a feature submits draft documentation of the feature as a pull request to the appropriate development branch of the `kubernetes/website` repository, and someone on the SIG Docs team provides editorial feedback or edits the draft directly. This section covers the branching conventions and process used during a release by both groups.

To learn about announcing features on the blog, read post-release communications.

For documentation contributors

In general, documentation contributors don't write content from scratch for a release. Instead, they work with the SIG creating a new feature to refine the draft documentation and make it release ready.

After you've chosen a feature to document or assist, ask about it in the `#sig-docs` Slack channel, in a weekly SIG Docs meeting, or directly on the PR filed by the feature SIG. If you're given the go-ahead, you can edit into the PR using one of the techniques described in Commit into another person's PR.

Find out about upcoming features

To find out about upcoming features, attend the weekly SIG Release meeting (see the community page for upcoming meetings) and monitor the release-specific documentation in the kubernetes/sig-release repository. Each release has a sub-directory in the /sig-release/tree/master/releases/

directory. The sub-directory contains a release schedule, a draft of the release notes, and a document listing each person on the release team.

The release schedule contains links to all other documents, meetings, meeting minutes, and milestones relating to the release. It also contains information about the goals and timeline of the release, and any special processes in place for this release. Near the bottom of the document, several release-related terms are defined.

This document also contains a link to the **Feature tracking sheet**, which is the official way to find out about all new features scheduled to go into the release.

The release team document lists who is responsible for each release role. If it's not clear who to talk to about a specific feature or question you have, either attend the release meeting to ask your question, or contact the release lead so that they can redirect you.

The release notes draft is a good place to find out about specific features, changes, deprecations, and more about the release. The content is not finalized until late in the release cycle, so use caution.

Feature tracking sheet

The feature tracking sheet for a given Kubernetes release lists each feature that is planned for a release. Each line item includes the name of the feature, a link to the feature's main GitHub issue, its stability level (Alpha, Beta, or Stable), the SIG and individual responsible for implementing it, whether it needs docs, a draft release note for the feature, and whether it has been merged. Keep the following in mind:

- Beta and Stable features are generally a higher documentation priority than Alpha features.
- It's hard to test (and therefore to document) a feature that hasn't been merged, or is at least considered feature-complete in its PR.
- Determining whether a feature needs documentation is a manual process. Even if a feature is not marked as needing docs, you may need to document the feature.

For developers or other SIG members

This section is information for members of other Kubernetes SIGs documenting new features for a release.

If you are a member of a SIG developing a new feature for Kubernetes, you need to work with SIG Docs to be sure your feature is documented in time for the release. Check the feature tracking spreadsheet or check in the `#sig-release` Kubernetes Slack channel to verify scheduling details and deadlines.

Open a placeholder PR

1. Open a **draft** pull request against the `dev-1.35` branch in the `kubernetes/website` repository, with a small commit that you will amend later. To create a draft pull request, use the **Create Pull Request** drop-down and select **Create Draft Pull Request**, then click **Draft Pull Request**.
2. Edit the pull request description to include links to kubernetes/kubernetes PR(s) and kubernetes/enhancements issue(s).
3. Leave a comment on the related kubernetes/enhancements issue with a link to the PR to notify the docs person managing this release that the feature docs are coming and should be tracked for the release.

If your feature does not need any documentation changes, make sure the sig-release team knows this, by mentioning it in the `#sig-release` Slack channel. If the feature does need documentation but the PR is not created, the feature may be removed from the milestone.

PR ready for review

When ready, populate your placeholder PR with feature documentation and change the state of the PR from draft to **ready for review**. To mark a pull request as ready for review, navigate to the merge box and click **Ready for review**.

Do your best to describe your feature and how to use it. If you need help structuring your documentation, ask in the `#sig-docs` Slack channel.

When you complete your content, the documentation person assigned to your feature reviews it. To ensure technical accuracy, the content may also require a technical review from corresponding SIG(s). Use their suggestions to get the content to a release ready state.

If your feature needs documentation and the first draft content is not received, the feature may be removed from the milestone.

Feature gates

If your feature is an Alpha or Beta feature and is behind a feature gate, you need a feature gate file for it inside `content/en/docs/reference/command-line-tools-reference/feature-gates/`. The name of the file should be the name of the feature gate with `.md` as the suffix. You can look at other files already in the same directory for a hint about what yours should look like. Usually a single paragraph is enough; for longer explanations, add documentation elsewhere and link to that.

Also, to ensure your feature gate appears in the Alpha/Beta Feature gates table, include the following details in the front matter of your Markdown description file:

```
stages:
  - stage: <alpha/beta/stable/deprecated>  # Specify the
development stage of the feature gate
    defaultValue: <true or false>
# Set to true if enabled by default, false otherwise
    fromVersion: <Version>             # Version from which the
feature gate is available
    toVersion: <Version>               # (Optional) The version
until which the feature gate is available
```

With net new feature gates, a separate description of the feature gate is also required; create a new Markdown file inside `content/en/docs/reference/command-line-tools-reference/feature-gates/` (use other files as a template).

When you change a feature gate from disabled-by-default to enabled-by-default, you may also need to change other documentation (not just the list of feature gates). Watch out for language such as "The `exampleSetting` field is a beta field and disabled by default. You can enable it by enabling the `ProcessExampleThings` feature gate."

If your feature is GA'ed or deprecated, include an additional `stage` entry within the `stages` block in the description file. Ensure that the Alpha and Beta stages remain intact. This step transitions the feature gate from the Feature gates for Alpha/Beta table to Feature gates for graduated or deprecated features table. For example:

```
stages:
  - stage: alpha
    defaultValue: false
    fromVersion: "1.12"
    toVersion: "1.12"
  - stage: beta
    defaultValue: true
    fromVersion: "1.13"
  # Added a `toVersion` to the previous stage.
    toVersion: "1.18"
  # Added 'stable' stage block to existing stages.
  - stage: stable
    defaultValue: true
    fromVersion: "1.19"
    toVersion: "1.27"
```

Eventually, Kubernetes will stop including the feature gate at all. To signify the removal of a feature gate, include `removed: true` in the front matter of the respective description file. Making that change means that the feature gate information moves from the Feature gates for graduated or deprecated features section to a dedicated page titled Feature Gates (removed), including its description.

All PRs reviewed and ready to merge

If your PR has not yet been merged into the `dev-1.35` branch by the release deadline, work with the docs person managing the release to get it in by the deadline. If your feature needs documentation and the docs are not ready, the feature may be removed from the milestone.

Submitting case studies

Case studies highlight how organizations are using Kubernetes to solve real-world problems. The Kubernetes marketing team and members of the CNCF collaborate with you on all case studies.

Case studies require extensive review before they're approved.

Submit a case study

Have a look at the source for the existing case studies.

Refer to the case study guidelines and submit your request as outlined in the guidelines.

Reviewing changes

Reviewing pull requests

Reviewing for approvers and reviewers

Reviewing pull requests

Anyone can review a documentation pull request. Visit the pull requests section in the Kubernetes website repository to see open pull requests.

Reviewing documentation pull requests is a great way to introduce yourself to the Kubernetes community. It helps you learn the code base and build trust with other contributors.

Before reviewing, it's a good idea to:

- Read the content guide and style guide so you can leave informed comments.
- Understand the different roles and responsibilities in the Kubernetes documentation community.

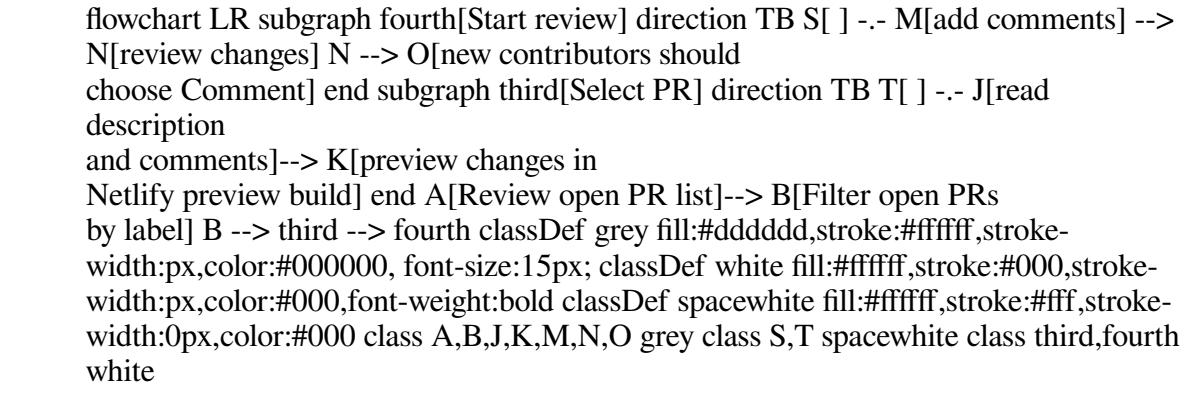
Before you begin

Before you start a review:

- Read the CNCF Code of Conduct and ensure that you abide by it at all times.
- Be polite, considerate, and helpful.
- Comment on positive aspects of PRs as well as changes.
- Be empathetic and mindful of how your review may be received.
- Assume good intent and ask clarifying questions.
- Experienced contributors, consider pairing with new contributors whose work requires extensive changes.

Review process

In general, review pull requests for content and style in English. Figure 1 outlines the steps for the review process. The details for each step follow.



JavaScript must be enabled to view this content

Figure 1. Review process steps.

1. Go to https://github.com/kubernetes/website/pulls. You see a list of every open pull request against the Kubernetes website and docs.

2. Filter the open PRs using one or all of the following labels:

    - `cncf-cla: yes` (Recommended): PRs submitted by contributors who have not signed the CLA cannot be merged. See Sign the CLA for more information.
    - `language/en` (Recommended): Filters for english language PRs only.
    - `size/<size>`: filters for PRs of a certain size. If you're new, start with smaller PRs.

    Additionally, ensure the PR isn't marked as a work in progress. PRs using the `work in progress` label are not ready for review yet.

3. Once you've selected a PR to review, understand the change by:

    - Reading the PR description to understand the changes made, and read any linked issues
    - Reading any comments by other reviewers
    - Clicking the **Files changed** tab to see the files and lines changed
    - Previewing the changes in the Netlify preview build by scrolling to the PR's build check section at the bottom of the **Conversation** tab. Here's a screenshot (this shows GitHub's desktop site; if you're reviewing on a tablet or smartphone device, the GitHub web UI is slightly different):

        GitHub pull request details including link to Netlify preview

        To open the preview, click on the **Details** link of the **deploy/netlify** line in the list of checks.

4. Go to the **Files changed** tab to start your review.

    1. Click on the `+` symbol beside the line you want to comment on.
    2. Fill in any comments you have about the line and click either **Add single comment** (if you have only one comment to make) or **Start a review** (if you have multiple comments to make).
    3. When finished, click **Review changes** at the top of the page. Here, you can add a summary of your review (and leave some positive comments for the contributor!). Please always use the "Comment"

    - Avoid clicking the "Request changes" button when finishing your review. If you want to block a PR from being merged before some further changes are made, you can leave a "/hold" comment. Mention why you are setting a hold, and optionally specify the conditions under which the hold can be removed by you or other reviewers.

    - Avoid clicking the "Approve" button when finishing your review. Leaving a "/approve" comment is recommended most of the time.

Reviewing checklist

When reviewing, use the following as a starting point.

Language and grammar

- Are there any obvious errors in language or grammar? Is there a better way to phrase something?
    - Focus on the language and grammar of the parts of the page that the author is changing. Unless the author is clearly aiming to update the entire page, they have no obligation to fix every issue on the page.

    - When a PR updates an existing page, you should focus on reviewing the parts of the page that are being updated. That changed content should be reviewed for technical and editorial correctness. If you find errors on the page that don't directly relate to what the PR author is attempting to address, then it should be treated as a separate issue (check that there isn't an existing issue about this first).
    - Watch out for pull requests that *move* content. If an author renames a page or combines two pages, we (Kubernetes SIG Docs) usually avoid asking that author to fix every grammar or spelling nit that we could spot within that moved content.
- Are there any complicated or archaic words which could be replaced with a simpler word?
- Are there any words, terms or phrases in use which could be replaced with a non-discriminatory alternative?
- Does the word choice and its capitalization follow the style guide?
- Are there long sentences which could be shorter or less complex?
- Are there any long paragraphs which might work better as a list or table?

Content

- Does similar content exist elsewhere on the Kubernetes site?
- Does the content excessively link to off-site, individual vendor or non-open source documentation?

Documentation

Some checks to consider:

- Did this PR change or remove a page title, slug/alias or anchor link? If so, are there broken links as a result of this PR? Is there another option, like changing the page title without changing the slug?

- Does the PR introduce a new page? If so:

    - Is the page using the right page content type and associated Hugo shortcodes?
    - Does the page appear correctly in the section's side navigation (or at all)?
    - Should the page appear on the Docs Home listing?

- Do the changes show up in the Netlify preview? Be particularly vigilant about lists, code blocks, tables, notes and images.

Blog

Early feedback on blog posts is welcome via a Google Doc or HackMD. Please request input early from the #sig-docs-blog Slack channel.

Before reviewing blog PRs, be familiar with the blog guidelines and with submitting blog posts and case studies.

Make sure you also know about evergreen articles and how to decide if an article is evergreen.

Blog articles may contain direct quotes and indirect speech. Avoid suggesting a rewording for anything that is attributed to someone or part of a dialog that has happened - even if you think the original speaker's grammar was not correct. For those cases, also, try to respect the article author's suggested punctuation unless it is obviously wrong.

As a project, we only mark blog articles as maintained (`evergreen: true` in front matter) if the Kubernetes project is happy to commit to maintaining them indefinitely. Some blog articles

absolutely merit this, and we always mark our release announcements evergreen. Check with other contributors if you are not sure how to review on this point.

The content guide applies unconditionally to blog articles and the PRs that add them. Bear in mind that some restrictions in the guide state that they are only relevant to documentation; those restrictions don't apply to blog articles.

Check if the Markdown source is using the right page content type and / or `layout`.

Other

Watch out for trivial edits; if you see a change that you think is a trivial edit, please point out that policy (it's still OK to accept the change if it is genuinely an improvement).

Encourage authors who are making whitespace fixes to do so in the first commit of their PR, and then add other changes on top of that. This makes both merges and reviews easier. Watch out especially for a trivial change that happens in a single commit along with a large amount of whitespace cleanup (and if you see that, encourage the author to fix it).

As a reviewer, if you identify small issues with a PR that aren't essential to the meaning, such as typos or incorrect whitespace, prefix your comments with `nit:`. This lets the author know that this part of your feedback is non-critical.

If you are considering a pull request for approval and all the remaining feedback is marked as a nit, you can merge the PR anyway. In that case, it's often useful to open an issue about the remaining nits. Consider whether you're able to meet the requirements for marking that new issue as a Good First Issue; if you can, these are a good source.

Reviewing for approvers and reviewers

SIG Docs Reviewers and Approvers do a few extra things when reviewing a change.

Every week a specific docs approver volunteers to triage and review pull requests. This person is the "PR Wrangler" for the week. See the PR Wrangler scheduler for more information. To become a PR Wrangler, attend the weekly SIG Docs meeting and volunteer. Even if you are not on the schedule for the current week, you can still review pull requests (PRs) that are not already under active review.

In addition to the rotation, a bot assigns reviewers and approvers for the PR based on the owners for the affected files.

Reviewing a PR

Kubernetes documentation follows the Kubernetes code review process.

Everything described in Reviewing a pull request applies, but Reviewers and Approvers should also do the following:

- Using the `/assign` Prow command to assign a specific reviewer to a PR as needed. This is extra important when it comes to requesting technical review from code contributors.

Note:

Look at the `reviewers` field in the front-matter at the top of a Markdown file to see who can provide technical review.

- Making sure the PR follows the Content and Style guides; link the author to the relevant part of the guide(s) if it doesn't.
- Using the GitHub **Request Changes** option when applicable to suggest changes to the PR author.
- Changing your review status in GitHub using the `/approve` or `/lgtm` Prow commands, if your suggestions are implemented.

Commit into another person's PR

Leaving PR comments is helpful, but there might be times when you need to commit into another person's PR instead.

Do not "take over" for another person unless they explicitly ask you to, or you want to resurrect a long-abandoned PR. While it may be faster in the short term, it deprives the person of the chance to contribute.

The process you use depends on whether you need to edit a file that is already in the scope of the PR, or a file that the PR has not yet touched.

You can't commit into someone else's PR if either of the following things is true:

- If the PR author pushed their branch directly to the https://github.com/kubernetes/website/ repository. Only a reviewer with push access can commit to another user's PR.

  Note:

  Encourage the author to push their branch to their fork before opening the PR next time.

- The PR author explicitly disallows edits from approvers.

Prow commands for reviewing

Prow is the Kubernetes-based CI/CD system that runs jobs against pull requests (PRs). Prow enables chatbot-style commands to handle GitHub actions across the Kubernetes organization, like adding and removing labels, closing issues, and assigning an approver. Enter Prow commands as GitHub comments using the `/<command-name>` format.

The most common prow commands reviewers and approvers use are:

Prow commands for reviewing

Prow Command	Role Restrictions	Description
`/lgtm`	Organization members	Signals that you've finished reviewing a PR and are satisfied with the changes.
`/approve`	Approvers	Approves a PR for merging.
`/assign`	Anyone	Assigns a person to review or approve a PR

Prow Command	Role Restrictions	Description
`/close`	Organization members	Closes an issue or PR.
`/hold`	Anyone	Adds the `do-not-merge/hold` label, indicating the PR cannot be automatically merged.
`/hold cancel`	Anyone	Removes the `do-not-merge/hold` label.

To view the commands that you can use in a PR, see the Prow Command Reference.

Triage and categorize issues

In general, SIG Docs follows the Kubernetes issue triage process and uses the same labels.

This GitHub Issue filter finds issues that might need triage.

Triaging an issue

1. Validate the issue
    - Make sure the issue is about website documentation. Some issues can be closed quickly by answering a question or pointing the reporter to a resource. See the Support requests or code bug reports section for details.
    - Assess whether the issue has merit.
    - Add the `triage/needs-information` label if the issue doesn't have enough detail to be actionable or the template is not filled out adequately.
    - Close the issue if it has both the `lifecycle/stale` and `triage/needs-information` labels.
2. Add a priority label (the Issue Triage Guidelines define priority labels in detail)

Issue labels

Label	Description
`priority/critical-urgent`	Do this right now.
`priority/important-soon`	Do this within 3 months.
`priority/important-longterm`	Do this within 6 months.
`priority/backlog`	Deferrable indefinitely. Do when resources are available.
`priority/awaiting-more-evidence`	Placeholder for a potentially good issue so it doesn't get lost.
`help` or `good first issue`	Suitable for someone with very little Kubernetes or SIG Docs experience. See Help Wanted and Good First Issue Labels for more information.

At your discretion, take ownership of an issue and submit a PR for it (especially if it's quick or relates to work you're already doing).

If you have questions about triaging an issue, ask in `#sig-docs` on Slack or the kubernetes-sig-docs mailing list.

Adding and removing issue labels

To add a label, leave a comment in one of the following formats:

- `/<label-to-add>` (for example, `/good-first-issue`)
- `/<label-category> <label-to-add>` (for example, `/triage needs-information` or `/language ja`)

To remove a label, leave a comment in one of the following formats:

- `/remove-<label-to-remove>` (for example, `/remove-help`)
- `/remove-<label-category> <label-to-remove>` (for example, `/remove-triage needs-information`)

In both cases, the label must already exist. If you try to add a label that does not exist, the command is silently ignored.

For a list of all labels, see the website repository's Labels section. Not all labels are used by SIG Docs.

Issue lifecycle labels

Issues are generally opened and closed quickly. However, sometimes an issue is inactive after its opened. Other times, an issue may need to remain open for longer than 90 days.

Issue lifecycle labels

Label	Description
`lifecycle/stale`	After 90 days with no activity, an issue is automatically labeled as stale. The issue will be automatically closed if the lifecycle is not manually reverted using the `/remove-lifecycle stale` command.
`lifecycle/frozen`	An issue with this label will not become stale after 90 days of inactivity. A user manually adds this label to issues that need to remain open for much longer than 90 days, such as those with a `priority/important-longterm` label.

Handling special issue types

SIG Docs encounters the following types of issues often enough to document how to handle them.

Duplicate issues

If a single problem has one or more issues open for it, combine them into a single issue. You should decide which issue to keep open (or open a new issue), then move over all relevant information and link related issues. Finally, label all other issues that describe the same problem with `triage/duplicate` and close them. Only having a single issue to work on reduces confusion and avoids duplicate work on the same problem.

Dead link issues

If the dead link issue is in the API or `kubectl` documentation, assign them `/priority critical-urgent` until the problem is fully understood. Assign all other dead link issues `/priority important-longterm`, as they must be manually fixed.

Blog issues

We expect Kubernetes Blog entries to become outdated over time. Therefore, we only maintain blog entries less than a year old. If an issue is related to a blog entry that is more than one year old, you should typically close the issue without fixing.

You can send a link to article updates and maintenance as part of the message you send when you close the PR.

It is OK to make an exception where a relevant justification applies.

Support requests or code bug reports

Some docs issues are actually issues with the underlying code, or requests for assistance when something, for example a tutorial, doesn't work. For issues unrelated to docs, close the issue with the `kind/support` label and a comment directing the requester to support venues (Slack, Stack Overflow) and, if relevant, the repository to file an issue for bugs with features (`kubernetes/kubernetes` is a great place to start).

Sample response to a request for support:

```
This issue sounds more like a request for support and less
like an issue specifically for docs. I encourage you to bring
your question to the `#kubernetes-users` channel in
[Kubernetes slack](https://slack.k8s.io/). You can also search
resources like
[Stack Overflow](https://stackoverflow.com/questions/tagged/
kubernetes)
for answers to similar questions.

You can also open issues for Kubernetes functionality in
https://github.com/kubernetes/kubernetes.

If this is a documentation issue, please re-open this issue.
```

Sample code bug report response:

```
This sounds more like an issue with the code than an issue with
the documentation. Please open an issue at
https://github.com/kubernetes/kubernetes/issues.

If this is a documentation issue, please re-open this issue.
```

Squashing

As an approver, when you review pull requests (PRs), there are various cases where you might do the following:

- Advise the contributor to squash their commits.
- Squash the commits for the contributor.
- Advise the contributor not to squash yet.
- Prevent squashing.

Advising contributors to squash: A new contributor might not know that they should squash commits in their pull requests (PRs). If this is the case, advise them to do so, provide links to useful information, and offer to arrange help if they need it. Some useful links:

- Opening pull requests and squashing your commits for documentation contributors.
- GitHub Workflow, including diagrams, for developers.

Squashing commits for contributors: If a contributor might have difficulty squashing commits or there is time pressure to merge a PR, you can perform the squash for them:

- The kubernetes/website repo is configured to allow squashing for pull request merges. Simply select the *Squash commits* button.
- In the PR, if the contributor enables maintainers to manage the PR, you can squash their commits and update their fork with the result. Before you squash, advise them to save and push their latest changes to the PR. After you squash, advise them to pull the squashed commit to their local clone.
- You can get GitHub to squash the commits by using a label so that Tide / GitHub performs the squash or by clicking the *Squash commits* button when you merge the PR.

Advise contributors to avoid squashing

- If one commit does something broken or unwise, and the last commit reverts this error, don't squash the commits. Even though the "Files changed" tab in the PR on GitHub and the Netlify preview will both look OK, merging this PR might create rebase or merge conflicts for other folks. Intervene as you see fit to avoid that risk to other contributors.

Never squash

- If you're launching a localization or releasing the docs for a new version, you are merging in a branch that's not from a user's fork, *never squash the commits*. Not squashing is essential because you must maintain the commit history for those files.

Localizing Kubernetes documentation

This page shows you how to localize the docs for a different language.

Contribute to an existing localization

You can help add or improve the content of an existing localization. In Kubernetes Slack, you can find a channel for each localization. There is also a general SIG Docs Localizations Slack channel where you can say hello.

Note:

For extra details on how to contribute to a specific localization, look for a localized version of this page.

Find your two-letter language code

First, consult the ISO 639-1 standard to find your localization's two-letter language code. For example, the two-letter code for Korean is `ko`.

Some languages use a lowercase version of the country code as defined by the ISO-3166 along with their language codes. For example, the Brazilian Portuguese language code is `pt-br`.

Fork and clone the repo

First, create your own fork of the kubernetes/website repository.

Then, clone your fork and `cd` into it:

```
git clone https://github.com/<username>/website
cd website
```

The website content directory includes subdirectories for each language. The localization you want to help out with is inside `content/<two-letter-code>`.

Suggest changes

Create or update your chosen localized page based on the English original. See localize content for more details.

If you notice a technical inaccuracy or other problem with the upstream (English) documentation, you should fix the upstream documentation first and then repeat the equivalent fix by updating the localization you're working on.

Limit changes in a pull requests to a single localization. Reviewing pull requests that change content in multiple localizations is problematic.

Follow Suggesting Content Improvements to propose changes to that localization. The process is similar to proposing changes to the upstream (English) content.

Start a new localization

If you want the Kubernetes documentation localized into a new language, here's what you need to do.

Because contributors can't approve their own pull requests, you need *at least two contributors* to begin a localization.

All localization teams must be self-sufficient. The Kubernetes website is happy to host your work, but it's up to you to translate it and keep existing localized content current.

You'll need to know the two-letter language code for your language. Consult the ISO 639-1 standard to find your localization's two-letter language code. For example, the two-letter code for Korean is `ko`.

If the language you are starting a localization for is spoken in various places with significant differences between the variants, it might make sense to combine the lowercased ISO-3166 country code with the language two-letter code. For example, Brazilian Portuguese is localized as `pt-br`.

When you start a new localization, you must localize all the minimum required content before the Kubernetes project can publish your changes to the live website.

SIG Docs can help you work on a separate branch so that you can incrementally work towards that goal.

Find community

Let Kubernetes SIG Docs know you're interested in creating a localization! Join the SIG Docs Slack channel and the SIG Docs Localizations Slack channel. Other localization teams are happy to help you get started and answer your questions.

Please also consider participating in the SIG Docs Localization Subgroup meeting. The mission of the SIG Docs localization subgroup is to work across the SIG Docs localization teams to collaborate on defining and documenting the processes for creating localized contribution guides. In addition, the SIG Docs localization subgroup looks for opportunities to create and share common tools across localization teams and identify new requirements for the SIG Docs Leadership team. If you have questions about this meeting, please inquire on the SIG Docs Localizations Slack channel.

You can also create a Slack channel for your localization in the `kubernetes/community` repository. For an example of adding a Slack channel, see the PR for adding a channel for Persian.

Join the Kubernetes GitHub organization

When you've opened a localization PR, you can become members of the Kubernetes GitHub organization. Each person on the team needs to create their own Organization Membership Request in the `kubernetes/org` repository.

Add your localization team in GitHub

Next, add your Kubernetes localization team to `sig-docs/teams.yaml`. For an example of adding a localization team, see the PR to add the Spanish localization team.

Members of `@kubernetes/sig-docs-**-owners` can approve PRs that change content within (and only within) your localization directory: `/content/**/`. For each localization, The `@kubernetes/sig-docs-**-reviews` team automates review assignments for new PRs. Members of `@kubernetes/website-maintainers` can create new localization branches to coordinate translation efforts. Members of `@kubernetes/website-milestone-maintainers` can use the `/milestone` Prow command to assign a milestone to issues or PRs.

Configure the workflow

Next, add a GitHub label for your localization in the `kubernetes/test-infra` repository. A label lets you filter issues and pull requests for your specific language.

For an example of adding a label, see the PR for adding the Italian language label.

Modify the site configuration

The Kubernetes website uses Hugo as its web framework. The website's Hugo configuration resides in the `hugo.toml` file. You'll need to modify `hugo.toml` to support a new localization.

Add a configuration block for the new language to `hugo.toml` under the existing `[languages]` block. The German block, for example, looks like:

```
[languages.de]
title = "Kubernetes"
languageName = "Deutsch (German)"
weight = 5
contentDir = "content/de"
```

```
languagedirection = "ltr"

[languages.de.params]
time_format_blog = "02.01.2006"
language_alternatives = ["en"]
description = "Produktionsreife Container-Orchestrierung"
languageNameLatinScript = "Deutsch"
```

The language selection bar lists the value for `languageName`. Assign "language name in native script and language (English language name in Latin script)" to `languageName`. For example, `languageName = "     (Korean)"` or `languageName = "Deutsch (German)"`.

`languageNameLatinScript` can be used to access the language name in Latin script and use it in the theme. Assign "language name in latin script" to `languageNameLatinScript`. For example, `languageNameLatinScript ="Korean"` or `languageNameLatinScript = "Deutsch"`.

The `weight` parameter determines the order of languages in the language selection bar. A lower weight takes precedence, resulting in the language appearing first. When assigning the `weight` parameter, it is important to examine the existing languages block and adjust their weights to ensure they are in a sorted order relative to all languages, including any newly added language.

For more information about Hugo's multilingual support, see "Multilingual Mode".

Add a new localization directory

Add a language-specific subdirectory to the `content` folder in the repository. For example, the two-letter code for German is `de`:

```
mkdir content/de
```

You also need to create a directory inside `i18n` for localized strings; look at existing localizations for an example.

For example, for German the strings live in `i18n/de/de.toml`.

Localize the community code of conduct

Open a PR against the `cncf/foundation` repository to add the code of conduct in your language.

Set up the OWNERS files

To set the roles of each user contributing to the localization, create an `OWNERS` file inside the language-specific subdirectory with:

- **reviewers**: A list of kubernetes teams with reviewer roles, in this case,
- the `sig-docs-**-reviews` team created in Add your localization team in GitHub.
- **approvers**: A list of kubernetes teams with approvers roles, in this case,
- the `sig-docs-**-owners` team created in Add your localization team in GitHub.
- **labels**: A list of GitHub labels to automatically apply to a PR, in this case, the language label created in Configure the workflow.

More information about the `OWNERS` file can be found at go.k8s.io/owners.

The Spanish OWNERS file, with language code `es`, looks like this:

```
# See the OWNERS docs at https://go.k8s.io/owners

# This is the localization project for Spanish.
# Teams and members are visible at https://github.com/orgs/
kubernetes/teams.

reviewers:
- sig-docs-es-reviews

approvers:
- sig-docs-es-owners

labels:
- area/localization
- language/es
```

After adding the language-specific `OWNERS` file, update the root `OWNERS_ALIASES` file with the new Kubernetes teams for the localization, `sig-docs-**-owners` and `sig-docs-**-reviews`.

For each team, add the list of GitHub users requested in Add your localization team in GitHub, in alphabetical order.

```
--- a/OWNERS_ALIASES
+++ b/OWNERS_ALIASES
@@ -48,6 +48,14 @@ aliases:
     - stewart-yu
     - xiangpengzhao
     - zhangxiaoyu-zidif
+  sig-docs-es-owners: # Admins for Spanish content
+    - alexbrand
+    - raelga
+  sig-docs-es-reviews: # PR reviews for Spanish content
+    - alexbrand
+    - electrocucaracha
+    - glo-pena
+    - raelga
   sig-docs-fr-owners: # Admins for French content
     - perriea
     - remyleone
```

Open a pull request

Next, open a pull request (PR) to add a localization to the `kubernetes/website` repository. The PR must include all the minimum required content before it can be approved.

For an example of adding a new localization, see the PR to enable docs in French.

Add a localized README file

To guide other localization contributors, add a new `README-**.md` to the top level of kubernetes/website, where `**` is the two-letter language code. For example, a German README file would be `README-de.md`.

Guide localization contributors in the localized `README-**.md` file. Include the same information contained in `README.md` as well as:

- A point of contact for the localization project

- Any information specific to the localization

After you create the localized README, add a link to the file from the main English `README.md`, and include contact information in English. You can provide a GitHub ID, email address, Slack channel, or another method of contact. You must also provide a link to your localized Community Code of Conduct.

Launch your new localization

When a localization meets the requirements for workflow and minimum output, SIG Docs does the following:

- Enables language selection on the website.
- Publicizes the localization's availability through Cloud Native Computing Foundation(CNCF) channels, including the Kubernetes blog.

Localize content

Localizing *all* the Kubernetes documentation is an enormous task. It's okay to start small and expand over time.

Minimum required content

At a minimum, all localizations must include:

Description	URLs
Home	All heading and subheading URLs
Setup	All heading and subheading URLs
Tutorials	Kubernetes Basics, Hello Minikube
Site strings	All site strings in a new localized TOML file
Releases	All heading and subheading URLs

Translated documents must reside in their own `content/**/` subdirectory, but otherwise, follow the same URL path as the English source. For example, to prepare the Kubernetes Basics tutorial for translation into German, create a subdirectory under the `content/de/` directory and copy the English source or directory:

```
mkdir -p content/de/docs/tutorials
cp -ra content/en/docs/tutorials/kubernetes-basics/ content/de/docs/tutorials/
```

Translation tools can speed up the translation process. For example, some editors offer plugins to quickly translate text.

Caution:

Machine-generated translation is insufficient on its own. Localization requires extensive human review to meet minimum standards of quality.

To ensure accuracy in grammar and meaning, members of your localization team should carefully review all machine-generated translations before publishing.

Localize SVG images

The Kubernetes project recommends using vector (SVG) images where possible, as these are much easier for a localization team to edit. If you find a raster image that needs localizing, consider first redrawing the English version as a vector image, and then localize that.

When translating text within SVG (Scalable Vector Graphics) images, it's essential to follow certain guidelines to ensure accuracy and maintain consistency across different language versions. SVG images are commonly used in the Kubernetes documentation to illustrate concepts, workflows, and diagrams.

1. **Identifying translatable text**: Start by identifying the text elements within the SVG image that need to be translated. These elements typically include labels, captions, annotations, or any text that conveys information.

2. **Editing SVG files**: SVG files are XML-based, which means they can be edited using a text editor. However, it's important to note that most of the documentation images in Kubernetes already convert text to curves to avoid font compatibility issues. In such cases, it is recommended to use specialized SVG editing software, such as Inkscape, for editing, open the SVG file and locate the text elements that require translation.

3. **Translating the text**: Replace the original text with the translated version in the desired language. Ensure the translated text accurately conveys the intended meaning and fits within the available space in the image. The Open Sans font family should be used when working with languages that use the Latin alphabet. You can download the Open Sans typeface from here: Open Sans Typeface.

4. **Converting text to curves**: As already mentioned, to address font compatibility issues, it is recommended to convert the translated text to curves or paths. Converting text to curves ensures that the final image displays the translated text correctly, even if the user's system does not have the exact font used in the original SVG.

5. **Reviewing and testing**: After making the necessary translations and converting text to curves, save and review the updated SVG image to ensure the text is properly displayed and aligned. Check Preview your changes locally.

Source files

Localizations must be based on the English files from a specific release targeted by the localization team. Each localization team can decide which release to target, referred to as the *target version* below.

To find source files for your target version:

1. Navigate to the Kubernetes website repository at https://github.com/kubernetes/website.

2. Select a branch for your target version from the following table:

Target version	Branch
Latest version	`main`
Previous version	`release-1.33`
Next version	`dev-1.35`

The `main` branch holds content for the current release `v1.34`. The release team creates a `release-1.34` branch before the next release: v1.35.

Site strings in i18n

Localizations must include the contents of `i18n/en/en.toml` in a new language-specific file. Using German as an example: `i18n/de/de.toml`.

Add a new localization directory and file to `i18n/`. For example, with German (`de`):

```
mkdir -p i18n/de
cp i18n/en/en.toml i18n/de/de.toml
```

Revise the comments at the top of the file to suit your localization, then translate the value of each string. For example, this is the German-language placeholder text for the search form:

```
[ui_search]
other = "Suchen"
```

Localizing site strings lets you customize site-wide text and features: for example, the legal copyright text in the footer on each page.

Language-specific localization guide

As a localization team, you can formalize the best practices your team follows by creating a language-specific localization guide.

For example, see the Korean Localization Guide, which includes content on the following subjects:

- Sprint cadence and releases
- Branch strategy
- Pull request workflow
- Style guide
- Glossary of localized and non-localized terms
- Markdown conventions
- Kubernetes API object terminology

Language-specific Zoom meetings

If the localization project needs a separate meeting time, contact a SIG Docs Co-Chair or Tech Lead to create a new reoccurring Zoom meeting and calendar invite. This is only needed when the team is large enough to sustain and require a separate meeting.

Per CNCF policy, the localization teams must upload their meetings to the SIG Docs YouTube playlist. A SIG Docs Co-Chair or Tech Lead can help with the process until SIG Docs automates it.

Branch strategy

Because localization projects are highly collaborative efforts, we encourage teams to work in shared localization branches - especially when starting out and the localization is not yet live.

To collaborate on a localization branch:

1. A team member of @kubernetes/website-maintainers opens a localization branch from a source branch on https://github.com/kubernetes/website.

   Your team approvers joined the `@kubernetes/website-maintainers` team when you added your localization team to the `kubernetes/org` repository.

   We recommend the following branch naming scheme:

   `dev-<source version>-<language code>.<team milestone>`

   For example, an approver on a German localization team opens the localization branch `dev-1.12-de.1` directly against the `kubernetes/website` repository, based on the source branch for Kubernetes v1.12.

2. Individual contributors open feature branches based on the localization branch.

   For example, a German contributor opens a pull request with changes to `kubernetes:dev-1.12-de.1` from `username:local-branch-name`.

3. Approvers review and merge feature branches into the localization branch.

4. Periodically, an approver merges the localization branch with its source branch by opening and approving a new pull request. Be sure to squash the commits before approving the pull request.

Repeat steps 1-4 as needed until the localization is complete. For example, subsequent German localization branches would be: `dev-1.12-de.2`, `dev-1.12-de.3`, etc.

Teams must merge localized content into the same branch from which the content was sourced. For example:

- A localization branch sourced from `main` must be merged into `main`.
- A localization branch sourced from `release-1.33` must be merged into `release-1.33`.

Note:

If your localization branch was created from `main` branch, but it is not merged into `main` before the new release branch `release-1.34` created, merge it into both `main` and new release branch `release-1.34`. To merge your localization branch into the new release branch `release-1.34`, you need to switch the upstream branch of your localization branch to `release-1.34`.

At the beginning of every team milestone, it's helpful to open an issue comparing upstream changes between the previous localization branch and the current localization branch. There are two scripts for comparing upstream changes.

- `upstream_changes.py` is useful for checking the changes made to a specific file. And
- `diff_l10n_branches.py` is useful for creating a list of outdated files for a specific localization branch.

While only approvers can open a new localization branch and merge pull requests, anyone can open a pull request for a new localization branch. No special permissions are required.

For more information about working from forks or directly from the repository, see "fork and clone the repo".

Upstream contributions

SIG Docs welcomes upstream contributions and corrections to the English source.

Participating in SIG Docs

SIG Docs is one of the special interest groups within the Kubernetes project, focused on writing, updating, and maintaining the documentation for Kubernetes as a whole. See SIG Docs from the community github repo for more information about the SIG.

SIG Docs welcomes content and reviews from all contributors. Anyone can open a pull request (PR), and anyone is welcome to file issues about content or comment on pull requests in progress.

You can also become a member, reviewer, or approver. These roles require greater access and entail certain responsibilities for approving and committing changes. See community-membership for more information on how membership works within the Kubernetes community.

The rest of this document outlines some unique ways these roles function within SIG Docs, which is responsible for maintaining one of the most public-facing aspects of Kubernetes -- the Kubernetes website and documentation.

SIG Docs chairperson

Each SIG, including SIG Docs, selects one or more SIG members to act as chairpersons. These are points of contact between SIG Docs and other parts of the Kubernetes organization. They require extensive knowledge of the structure of the Kubernetes project as a whole and how SIG Docs works within it. See Leadership for the current list of chairpersons.

SIG Docs teams and automation

Automation in SIG Docs relies on two different mechanisms: GitHub teams and OWNERS files.

GitHub teams

There are two categories of SIG Docs teams on GitHub:

- `@sig-docs-{language}-owners` are approvers and leads
- `@sig-docs-{language}-reviews` are reviewers

Each can be referenced with their `@name` in GitHub comments to communicate with everyone in that group.

Sometimes Prow and GitHub teams overlap without matching exactly. For assignment of issues, pull requests, and to support PR approvals, the automation uses information from `OWNERS` files.

OWNERS files and front-matter

The Kubernetes project uses an automation tool called prow for automation related to GitHub issues and pull requests. The Kubernetes website repository uses two prow plugins:

- blunderbuss
- approve

These two plugins use the OWNERS and OWNERS_ALIASES files in the top level of the `kubernetes/website` GitHub repository to control how prow works within the repository.

An OWNERS file contains a list of people who are SIG Docs reviewers and approvers. OWNERS files can also exist in subdirectories, and can override who can act as a reviewer or approver of files in that subdirectory and its descendants. For more information about OWNERS files in general, see OWNERS.

In addition, an individual Markdown file can list reviewers and approvers in its front-matter, either by listing individual GitHub usernames or GitHub groups.

The combination of OWNERS files and front-matter in Markdown files determines the advice PR owners get from automated systems about who to ask for technical and editorial review of their PR.

How merging works

When a pull request is merged to the branch used to publish content, that content is published to https://kubernetes.io. To ensure that the quality of our published content is high, we limit merging pull requests to SIG Docs approvers. Here's how it works.

- When a pull request has both the `lgtm` and `approve` labels, has no `hold` labels, and all tests are passing, the pull request merges automatically.
- Kubernetes organization members and SIG Docs approvers can add comments to prevent automatic merging of a given pull request (by adding a `/hold` comment or withholding a `/lgtm` comment).
- Any Kubernetes member can add the `lgtm` label by adding a `/lgtm` comment.
- Only SIG Docs approvers can merge a pull request by adding an `/approve` comment. Some approvers also perform additional specific roles, such as PR Wrangler or SIG Docs chairperson.

What's next

For more information about contributing to the Kubernetes documentation, see:

- Contributing new content
- Reviewing content
- Documentation style guide

Roles and responsibilities

Issue Wranglers

PR wranglers

Roles and responsibilities

Anyone can contribute to Kubernetes. As your contributions to SIG Docs grow, you can apply for different levels of membership in the community. These roles allow you to take on more responsibility within the community. Each role requires more time and commitment. The roles are:

- Anyone: regular contributors to the Kubernetes documentation
- Members: can assign and triage issues and provide non-binding review on pull requests
- Reviewers: can lead reviews on documentation pull requests and can vouch for a change's quality
- Approvers: can lead reviews on documentation and merge changes

Anyone

Anyone with a GitHub account can contribute to Kubernetes. SIG Docs welcomes all new contributors!

Anyone can:

- Open an issue in any Kubernetes repository, including `kubernetes/website`
- Give non-binding feedback on a pull request
- Contribute to a localization
- Suggest improvements on Slack or the SIG docs mailing list.

After signing the CLA, anyone can also:

- Open a pull request to improve existing content, add new content, or write a blog post or case study
- Create diagrams, graphics assets, and embeddable screencasts and videos

For more information, see contributing new content.

Members

A member is someone who has submitted multiple pull requests to `kubernetes/website`. Members are a part of the Kubernetes GitHub organization.

Members can:

- Do everything listed under Anyone
- Use the `/lgtm` comment to add the LGTM (looks good to me) label to a pull request

  Note:

  Using `/lgtm` triggers automation. If you want to provide non-binding approval, commenting "LGTM" works too!

- Use the `/hold` comment to block merging for a pull request
- Use the `/assign` comment to assign a reviewer to a pull request
- Provide non-binding review on pull requests

- Use automation to triage and categorize issues
- Document new features

Becoming a member

After submitting at least 5 substantial pull requests and meeting the other requirements:

1. Find two reviewers or approvers to sponsor your membership.

   Ask for sponsorship in the #sig-docs channel on Slack or on the SIG Docs mailing list.

   Note:

   Don't send a direct email or Slack direct message to an individual SIG Docs member. You must request sponsorship before submitting your application.

2. Open a GitHub issue in the `kubernetes/org` repository. Use the **Organization Membership Request** issue template.

3. Let your sponsors know about the GitHub issue. You can either:

   - Mention their GitHub username in an issue (`@<GitHub-username>`)
   - Send them the issue link using Slack or email.

   Sponsors will approve your request with a `+1` vote. Once your sponsors approve the request, a Kubernetes GitHub admin adds you as a member. Congratulations!

   If your membership request is not accepted you will receive feedback. After addressing the feedback, apply again.

4. Accept the invitation to the Kubernetes GitHub organization in your email account.

   Note:

   GitHub sends the invitation to the default email address in your account.

Reviewers

Reviewers are responsible for reviewing open pull requests. Unlike member feedback, the PR author must address reviewer feedback. Reviewers are members of the @kubernetes/sig-docs-{language}-reviews GitHub team.

Reviewers can:

- Do everything listed under Anyone and Members
- Review pull requests and provide binding feedback

  Note:

  To provide non-binding feedback, prefix your comments with a phrase like "Optionally: ".

- Edit user-facing strings in code
- Improve code comments

You can be a SIG Docs reviewer, or a reviewer for docs in a specific subject area.

Assigning reviewers to pull requests

Automation assigns reviewers to all pull requests. You can request a review from a specific person by commenting: `/assign [@_github_handle]`.

If the assigned reviewer has not commented on the PR, another reviewer can step in. You can also assign technical reviewers as needed.

Using `/lgtm`

LGTM stands for "Looks good to me" and indicates that a pull request is technically accurate and ready to merge. All PRs need a `/lgtm` comment from a reviewer and a `/approve` comment from an approver to merge.

A `/lgtm` comment from reviewer is binding and triggers automation that adds the `lgtm` label.

Becoming a reviewer

When you meet the requirements, you can become a SIG Docs reviewer. Reviewers in other SIGs must apply separately for reviewer status in SIG Docs.

To apply:

1. Open a pull request that adds your GitHub username to a section of the OWNERS_ALIASES file in the `kubernetes/website` repository.

   Note:

   If you aren't sure where to add yourself, add yourself to `sig-docs-en-reviews`.

2. Assign the PR to one or more SIG-Docs approvers (usernames listed under `sig-docs-{language}-owners`).

If approved, a SIG Docs lead adds you to the appropriate GitHub team. Once added, K8s-ci-robot assigns and suggests you as a reviewer on new pull requests.

Approvers

Approvers review and approve pull requests for merging. Approvers are members of the @kubernetes/sig-docs-{language}-owners GitHub teams.

Approvers can do the following:

- Everything listed under Anyone, Members and Reviewers
- Publish contributor content by approving and merging pull requests using the `/approve` comment
- Propose improvements to the style guide
- Propose improvements to docs tests

- Propose improvements to the Kubernetes website or other tooling

If the PR already has a `/lgtm`, or if the approver also comments with `/lgtm`, the PR merges automatically. A SIG Docs approver should only leave a `/lgtm` on a change that doesn't need additional technical review.

Approving pull requests

Approvers and SIG Docs leads are the only ones who can merge pull requests into the website repository. This comes with certain responsibilities.

- Approvers can use the `/approve` command, which merges PRs into the repo.

  Warning:

  A careless merge can break the site, so be sure that when you merge something, you mean it.

- Make sure that proposed changes meet the documentation content guide.

  If you ever have a question, or you're not sure about something, feel free to call for additional review.

- Verify that Netlify tests pass before you `/approve` a PR.

  Netlify tests must pass before approving

- Visit the Netlify page preview for a PR to make sure things look good before approving.

- Participate in the PR Wrangler rotation schedule for weekly rotations. SIG Docs expects all approvers to participate in this rotation. See PR wranglers. for more details.

Becoming an approver

When you meet the requirements, you can become a SIG Docs approver. Approvers in other SIGs must apply separately for approver status in SIG Docs.

To apply:

1. Open a pull request adding yourself to a section of the OWNERS_ALIASES file in the `kubernetes/website` repository.

   Note:

   ```
   If you aren't sure where to add yourself, add yourself to
   `sig-docs-en-owners`.
   ```

2. Assign the PR to one or more current SIG Docs approvers.

If approved, a SIG Docs lead adds you to the appropriate GitHub team. Once added, @k8s-ci-robot assigns and suggests you as a reviewer on new pull requests.

What's next

- Read about PR wrangling, a role all approvers take on rotation.

Issue Wranglers

Alongside the PR Wrangler, formal approvers, reviewers and members of SIG Docs take week-long shifts triaging and categorising issues for the repository.

Duties

Each day in a week-long shift the Issue Wrangler will be responsible for:

- Triaging and tagging incoming issues daily. See Triage and categorize issues for guidelines on how SIG Docs uses metadata.
- Keeping an eye on stale & rotten issues within the kubernetes/website repository.
- Maintenance of the Issues board.

Requirements

- Must be an active member of the Kubernetes organization.
- A minimum of 15 non-trivial contributions to Kubernetes (of which a certain amount should be directed towards kubernetes/website).
- Performing the role in an informal capacity already.

Helpful Prow commands for wranglers

Below are some commonly used commands for Issue Wranglers:

```
# reopen an issue
/reopen

# transfer issues that don't fit in k/website to another
repository
/transfer[-issue]

# change the state of rotten issues
/remove-lifecycle rotten

# change the state of stale issues
/remove-lifecycle stale

# assign sig to an issue
/sig <sig_name>

# add specific area
/area <area_name>

# for beginner friendly issues
/good-first-issue

# issues that needs help
/help wanted

# tagging issue as support specific
/kind support

# to accept triaging for an issue
```

```
/triage accepted

# closing an issue we won't be working on and haven't fixed yet
/close not-planned
```

To find more Prow commands, refer to the Command Help documentation.

When to close Issues

For an open source project to succeed, good issue management is crucial. But it is also critical to resolve issues in order to maintain the repository and communicate clearly with contributors and users.

Close issues when:

- A similar issue is reported more than once. You will first need to tag it as `/triage duplicate`; link it to the main issue & then close it. It is also advisable to direct the users to the original issue.
- It is very difficult to understand and address the issue presented by the author with the information provided. However, encourage the user to provide more details or reopen the issue if they can reproduce it later.
- The same functionality is implemented elsewhere. One can close this issue and direct user to the appropriate place.
- The reported issue is not currently planned or aligned with the project's goals.
- If the issue appears to be spam and is clearly unrelated.
- If the issue is related to an external limitation or dependency and is beyond the control of the project.

To close an issue, leave a `/close` comment on the issue.

PR wranglers

SIG Docs approvers take week-long shifts managing pull requests for the repository.

This section covers the duties of a PR wrangler. For more information on giving good reviews, see Reviewing changes.

Duties

Each day in a week-long shift as PR Wrangler:

- Review open pull requests for quality and adherence to the Style and Content guides.
  - Start with the smallest PRs (`size/XS`) first, and end with the largest (`size/XXL`). Review as many PRs as you can.
- Make sure PR contributors sign the CLA.
  - Use this script to remind contributors that haven't signed the CLA to do so.
- Provide feedback on changes and ask for technical reviews from members of other SIGs.
  - Provide inline suggestions on the PR for the proposed content changes.
  - If you need to verify content, comment on the PR and request more details.
  - Assign relevant `sig/` label(s).
  - If needed, assign reviewers from the `reviewers:` block in the file's front matter.
  - You can also tag a SIG for a review by commenting `@kubernetes/<sig>-pr-reviews` on the PR.

- Use the `/approve` comment to approve a PR for merging. Merge the PR when ready.
  - PRs should have a `/lgtm` comment from another member before merging.
  - Consider accepting technically accurate content that doesn't meet the style guidelines. As you approve the change, open a new issue to address the style concern. You can usually write these style fix issues as good first issues.
  - Using style fixups as good first issues is a good way to ensure a supply of easier tasks to help onboard new contributors.
- Also check for pull requests against the reference docs generator code, and review those (or bring in help).
- Support the issue wrangler to triage and tag incoming issues daily. See Triage and categorize issues for guidelines on how SIG Docs uses metadata.

Note:

PR wrangler duties do not apply to localization PRs (non-English PRs). Localization teams have their own processes and teams for reviewing their language PRs. However, it's often helpful to ensure language PRs are labeled correctly, review small non-language dependent PRs (like a link update), or tag reviewers or contributors in long-running PRs (ones opened more than 6 months ago and have not been updated in a month or more).

Helpful GitHub queries for wranglers

The following queries are helpful when wrangling. After working through these queries, the remaining list of PRs to review is usually small. These queries exclude localization PRs. All queries are against the main branch except the last one.

- No CLA, not eligible to merge: Remind the contributor to sign the CLA. If both the bot and a human have reminded them, close the PR and remind them that they can open it after signing the CLA. **Do not review PRs whose authors have not signed the CLA!**
- Needs LGTM: Lists PRs that need an LGTM from a member. If the PR needs technical review, loop in one of the reviewers suggested by the bot. If the content needs work, add suggestions and feedback in-line.
- Has LGTM, needs docs approval: Lists PRs that need an `/approve` comment to merge.
- Quick Wins: Lists PRs against the main branch with no clear blockers. (change "XS" in the size label as you work through the PRs [XS, S, M, L, XL, XXL]).
- Not against the primary branch: If the PR is against a `dev-` branch, it's for an upcoming release. Assign the docs release manager using: `/assign @<manager's_github-username>`. If the PR is against an old branch, help the author figure out whether it's targeted against the best branch.

Helpful Prow commands for wranglers

```
# add English label
/language en

# add squash label to PR if more than one commit
/label tide/merge-method-squash

# retitle a PR via Prow (such as a work-in-progress [WIP] or
better detail of PR)
/retitle [WIP] <TITLE>
```

When to close Pull Requests

Reviews and approvals are one tool to keep our PR queue short and current. Another tool is closure.

Close PRs where:

- The author hasn't signed the CLA for two weeks.

  Authors can reopen the PR after signing the CLA. This is a low-risk way to make sure nothing gets merged without a signed CLA.

- The author has not responded to comments or feedback in 2 or more weeks.

Don't be afraid to close pull requests. Contributors can easily reopen and resume works in progress. Often a closure notice is what spurs an author to resume and finish their contribution.

To close a pull request, leave a `/close` comment on the PR.

Note:

The `k8s-triage-robot` bot marks issues as stale after 90 days of inactivity. After 30 more days it marks issues as rotten and closes them. PR wranglers should close issues after 14-30 days of inactivity.

PR Wrangler shadow program

In late 2021, SIG Docs introduced the PR Wrangler Shadow Program. The program was introduced to help new contributors understand the PR wrangling process.

Become a shadow

- If you are interested in shadowing as a PR wrangler, please visit the PR Wranglers Wiki page to see the PR wrangling schedule for this year and sign up.
- Others can reach out on the #sig-docs Slack channel for requesting to shadow an assigned PR Wrangler for a specific week. Feel free to reach out to one of the SIG Docs co-chairs/leads.
- Once you've signed up to shadow a PR Wrangler, introduce yourself to the PR Wrangler on the Kubernetes Slack.

Documentation style overview

The topics in this section provide guidance on writing style, content formatting and organization, and using Hugo customizations specific to Kubernetes documentation.

Documentation Content Guide

Documentation Style Guide

Diagram Guide

Documentation Content Guide

This page contains guidelines for Kubernetes documentation.

If you have questions about what's allowed, join the #sig-docs channel in Kubernetes Slack and ask!

You can register for Kubernetes Slack at https://slack.k8s.io/.

For information on creating new content for the Kubernetes docs, follow the style guide.

Overview

Source for the Kubernetes website, including the docs, resides in the kubernetes/website repository.

Located in the `kubernetes/website/content/<language_code>/docs` folder, the majority of Kubernetes documentation is specific to the Kubernetes project.

What's allowed

Kubernetes docs allow content for third-party projects only when:

- Content documents software in the Kubernetes project
- Content documents software that's out of project but necessary for Kubernetes to function
- Content is canonical on kubernetes.io, or links to canonical content elsewhere

Third party content

Kubernetes documentation includes applied examples of projects in the Kubernetes project—projects that live in the kubernetes and kubernetes-sigs GitHub organizations.

Links to active content in the Kubernetes project are always allowed.

Kubernetes requires some third party content to function. Examples include container runtimes (containerd, CRI-O, Docker), networking policy (CNI plugins), Ingress controllers, and logging.

Docs can link to third-party open source software (OSS) outside the Kubernetes project only if it's necessary for Kubernetes to function.

Dual sourced content

Wherever possible, Kubernetes docs link to canonical sources instead of hosting dual-sourced content.

Dual-sourced content requires double the effort (or more!) to maintain and grows stale more quickly.

Note:

If you're a maintainer for a Kubernetes project and need help hosting your own docs, ask for help in #sig-docs on Kubernetes Slack.

More information

If you have questions about allowed content, join the Kubernetes Slack #sig-docs channel and ask!

What's next

- Read the Style guide.

Documentation Style Guide

This page gives writing style guidelines for the Kubernetes documentation. These are guidelines, not rules. Use your best judgment, and feel free to propose changes to this document in a pull request.

For additional information on creating new content for the Kubernetes documentation, read the Documentation Content Guide.

Changes to the style guide are made by SIG Docs as a group. To propose a change or addition, add it to the agenda for an upcoming SIG Docs meeting, and attend the meeting to participate in the discussion.

Note:

Kubernetes documentation uses Goldmark Markdown Renderer with some adjustments along with a few Hugo Shortcodes to support glossary entries, tabs, and representing feature state.

Language

Kubernetes documentation has been translated into multiple languages (see Localization READMEs).

The way of localizing the docs for a different language is described in Localizing Kubernetes Documentation.

The English-language documentation uses U.S. English spelling and grammar.

Documentation formatting standards

Use upper camel case for API objects

When you refer specifically to interacting with an API object, use UpperCamelCase, also known as Pascal case. You may see different capitalization, such as "configMap", in the API Reference. When writing general documentation, it's better to use upper camel case, calling it "ConfigMap" instead.

When you are generally discussing an API object, use sentence-style capitalization.

The following examples focus on capitalization. For more information about formatting API object names, review the related guidance on Code Style.

Do and Don't - Use Pascal case for API objects

Do	Don't
The HorizontalPodAutoscaler resource is responsible for ...	The Horizontal pod autoscaler is responsible for ...
A PodList object is a list of pods.	A Pod List object is a list of pods.
The Volume object contains a `hostPath` field.	The volume object contains a hostPath field.
Every ConfigMap object is part of a namespace.	Every configMap object is part of a namespace.
For managing confidential data, consider using the Secret API.	For managing confidential data, consider using the secret API.

Use angle brackets for placeholders

Use angle brackets for placeholders. Tell the reader what a placeholder represents, for example:

Display information about a pod:

```
kubectl describe pod <pod-name> -n <namespace>
```

If the namespace of the pod is `default`, you can omit the '-n' parameter.

Use bold for user interface elements

Do and Don't - Bold interface elements

Do	Don't
Click **Fork**.	Click "Fork".
Select **Other**.	Select "Other".

Use italics to define or introduce new terms

Do and Don't - Use italics for new terms

Do	Don't
A *cluster* is a set of nodes ...	A "cluster" is a set of nodes ...
These components form the *control plane*.	These components form the **control plane**.

Use code style for filenames, directories, and paths

Do and Don't - Use code style for filenames, directories, and paths

Do	Don't
Open the `envars.yaml` file.	Open the envars.yaml file.
Go to the `/docs/tutorials` directory.	Go to the /docs/tutorials directory.
Open the `/_data/concepts.yaml` file.	Open the /_data/concepts.yaml file.

Use the international standard for punctuation inside quotes

Do and Don't - Use the international standard for punctuation inside quotes

Do	Don't
events are recorded with an associated "stage".	events are recorded with an associated "stage."
The copy is called a "fork".	The copy is called a "fork."

Inline code formatting

Use code style for inline code, commands

For inline code in an HTML document, use the `<code>` tag. In a Markdown document, use the backtick (`` ` ``). However, API kinds such as StatefulSet or ConfigMap are written verbatim (no backticks); this allows using possessive apostrophes.

Do and Don't - Use code style for inline code, commands, and API objects

Do	Don't
The `kubectl run` command creates a Pod.	The "kubectl run" command creates a Pod.
The kubelet on each node acquires a Lease…	The kubelet on each node acquires a `Lease`…
A PersistentVolume represents durable storage…	A `PersistentVolume` represents durable storage…
The CustomResourceDefinition's `.spec.group` field…	The `CustomResourceDefinition.spec.group` field…
For declarative management, use `kubectl apply`.	For declarative management, use "kubectl apply".
Enclose code samples with triple backticks. (```)	Enclose code samples with any other syntax.
Use single backticks to enclose inline code. For example, `var example = true`.	Use two asterisks (`**`) or an underscore (_) to enclose inline code. For example, **var example = true**.
Use triple backticks before and after a multi-line block of code for fenced code blocks.	Use multi-line blocks of code to create diagrams, flowcharts, or other illustrations.
Use meaningful variable names that have a context.	Use variable names such as 'foo','bar', and 'baz' that are not meaningful and lack context.
Remove trailing spaces in the code.	Add trailing spaces in the code, where these are important, because the screen reader will read out the spaces as well.

Note:

The website supports syntax highlighting for code samples, but specifying a language is optional. Syntax highlighting in the code block should conform to the contrast guidelines.

Use code style for object field names and namespaces

Do and Don't - Use code style for object field names

Do	Don't
Set the value of the `replicas` field in the configuration file.	Set the value of the "replicas" field in the configuration file.
The value of the `exec` field is an ExecAction object.	The value of the "exec" field is an ExecAction object.
Run the process as a DaemonSet in the `kube-system` namespace.	Run the process as a DaemonSet in the kube-system namespace.

Use code style for Kubernetes command tool and component names

Do and Don't - Use code style for Kubernetes command tool and component names

Do	Don't
The `kubelet` preserves node stability.	The kubelet preserves node stability.
The `kubectl` handles locating and authenticating to the API server.	The kubectl handles locating and authenticating to the apiserver.
Run the process with the certificate, `kube-apiserver --client-ca-file=FILENAME`.	Run the process with the certificate, kube-apiserver --client-ca-file=FILENAME.

Starting a sentence with a component tool or component name

Do and Don't - Starting a sentence with a component tool or component name

Do	Don't
The `kubeadm` tool bootstraps and provisions machines in a cluster.	`kubeadm` tool bootstraps and provisions machines in a cluster.
The kube-scheduler is the default scheduler for Kubernetes.	kube-scheduler is the default scheduler for Kubernetes.

Use a general descriptor over a component name

Do and Don't - Use a general descriptor over a component name

Do	Don't
The Kubernetes API server offers an OpenAPI spec.	The apiserver offers an OpenAPI spec.
Aggregated APIs are subordinate API servers.	Aggregated APIs are subordinate APIServers.

Use normal style for string and integer field values

For field values of type string or integer, use normal style without quotation marks.

Do and Don't - Use normal style for string and integer field values

Do	Don't
Set the value of `imagePullPolicy` to Always.	Set the value of `imagePullPolicy` to "Always".
Set the value of `image` to nginx:1.16.	Set the value of `image` to `nginx:1.16`.
Set the value of the `replicas` field to 2.	Set the value of the `replicas` field to `2`.

However, consider quoting values where there is a risk that readers might confuse the value with an API kind.

Referring to Kubernetes API resources

This section talks about how we reference API resources in the documentation.

Clarification about "resource"

Kubernetes uses the word *resource* to refer to API resources. For example, the URL path `/apis/apps/v1/namespaces/default/deployments/my-app` represents a Deployment named "my-app" in the "default" namespace. In HTTP jargon, namespace is a resource - the same way that all web URLs identify a resource.

Kubernetes documentation also uses "resource" to talk about CPU and memory requests and limits. It's very often a good idea to refer to API resources as "API resources"; that helps to avoid confusion with CPU and memory resources, or with other kinds of resource.

If you are using the lowercase plural form of a resource name, such as `deployments` or `configmaps`, provide extra written context to help readers understand what you mean. If you are using the term in a context where the UpperCamelCase name could work too, and there is a risk of ambiguity, consider using the API kind in UpperCamelCase.

When to use Kubernetes API terminologies

The different Kubernetes API terminologies are:

- *API kinds*: the name used in the API URL (such as `pods`, `namespaces`). API kinds are sometimes also called *resource types*.
- *API resource*: a single instance of an API kind (such as `pod`, `secret`).
- *Object*: a resource that serves as a "record of intent". An object is a desired state for a specific part of your cluster, which the Kubernetes control plane tries to maintain. All objects in the Kubernetes API are also resources.

For clarity, you can add "resource" or "object" when referring to an API resource in Kubernetes documentation. An example: write "a Secret object" instead of "a Secret". If it is clear just from the capitalization, you don't need to add the extra word.

Consider rephrasing when that change helps avoid misunderstandings. A common situation is when you want to start a sentence with an API kind, such as “Secret”; because English and other languages capitalize at the start of sentences, readers cannot tell whether you mean the API kind or the general concept. Rewording can help.

API resource names

Always format API resource names using UpperCamelCase, also known as PascalCase. Do not write API kinds with code formatting.

Don't split an API object name into separate words. For example, use PodTemplateList, not Pod Template List.

For more information about PascalCase and code formatting, review the related guidance on Use upper camel case for API objects and Use code style for inline code, commands, and API objects.

For more information about Kubernetes API terminologies, review the related guidance on Kubernetes API terminology.

Code snippet formatting

Don't include the command prompt

Do and Don't - Don't include the command prompt

Do	Don't
`kubectl get pods`	`$ kubectl get pods`

Separate commands from output

Verify that the pod is running on your chosen node:

```
kubectl get pods --output=wide
```

The output is similar to this:

```
NAME     READY     STATUS    RESTARTS   AGE     IP            NODE
nginx    1/1       Running   0          13s     10.200.0.4
worker0
```

Versioning Kubernetes examples

Code examples and configuration examples that include version information should be consistent with the accompanying text.

If the information is version specific, the Kubernetes version needs to be defined in the `prerequisites` section of the Task template or the Tutorial template. Once the page is saved, the `prerequisites` section is shown as **Before you begin**.

To specify the Kubernetes version for a task or tutorial page, include `min-kubernetes-server-version` in the front matter of the page.

If the example YAML is in a standalone file, find and review the topics that include it as a reference. Verify that any topics using the standalone YAML have the appropriate version information defined. If a stand-alone YAML file is not referenced from any topics, consider deleting it instead of updating it.

For example, if you are writing a tutorial that is relevant to Kubernetes version 1.8, the front-matter of your markdown file should look something like:

```
---
title: <your tutorial title here>
min-kubernetes-server-version: v1.8
---
```

In code and configuration examples, do not include comments about alternative versions. Be careful to not include incorrect statements in your examples as comments, such as:

```
apiVersion: v1 # earlier versions use...
kind: Pod
...
```

Formulae and equations

You can use the Docsy support for diagrams and formulae.

For example: `\\(\frac{7}{9} \sqrt{K^8 s}\\)`, which renders as \(\frac{7}{9} \sqrt{K^8 s}\).

Prefer inline formulae where reasonable, but you can use a `math` block if that's likely to help readers.

Read the Docsy guide to find out what you need to change in your page to activate support; if you have problems, add `math: true` to the page front matter (you can do this even if you think the automatic activation should be enough).

Kubernetes.io word list

A list of Kubernetes-specific terms and words to be used consistently across the site.

Kubernetes.io word list

Term	Usage
Kubernetes	Kubernetes should always be capitalized.
Docker	Docker should always be capitalized.
SIG Docs	SIG Docs rather than SIG-DOCS or other variations.
On-premises	On-premises or On-prem rather than On-premise or other variations.
cloud native	Cloud native or cloud native as appropriate for sentence structure rather than cloud-native or Cloud Native.
open source	Open source or open source as appropriate for sentence structure rather than open-source or Open Source.

Shortcodes

Hugo Shortcodes help create different rhetorical appeal levels. Our documentation supports three different shortcodes in this category: **Note** `{{< note >}}`, **Caution** `{{< caution >}}`, and **Warning** `{{< warning >}}`.

1. Surround the text with an opening and closing shortcode.

2. Use the following syntax to apply a style:

   ```
   {{< note >}}
   No need to include a prefix; the shortcode automatically
   provides one. (Note:, Caution:, etc.)
   {{< /note >}}
   ```

   The output is:

   Note:

   The prefix you choose is the same text for the tag.

Note

Use `{{< note >}}` to highlight a tip or a piece of information that may be helpful to know.

For example:

```
{{< note >}}
You can _still_ use Markdown inside these callouts.
{{< /note >}}
```

The output is:

Note:

You can *still* use Markdown inside these callouts.

You can use a `{{< note >}}` in a list:

```
1. Use the note shortcode in a list

1. A second item with an embedded note

   {{< note >}}
   Warning, Caution, and Note shortcodes, embedded in lists, need
to be indented four spaces. See [Common Shortcode Issues]
(#common-shortcode-issues).
   {{< /note >}}

1. A third item in a list

1. A fourth item in a list
```

The output is:

1. Use the note shortcode in a list
2. A second item with an embedded note

   Note:

   ```
   Warning, Caution, and Note shortcodes, embedded in lists,
   need to be indented four spaces. See [Common Shortcode
   Issues](#common-shortcode-issues).
   ```

3. A third item in a list
4. A fourth item in a list

Caution

Use `{{< caution >}}` to call attention to an important piece of information to avoid pitfalls.

For example:

```
{{< caution >}}
The callout style only applies to the line directly above the
```

```
tag.
{{< /caution >}}
```

The output is:

Caution:

The callout style only applies to the line directly above the tag.

Warning

Use `{{< warning >}}` to indicate danger or a piece of information that is crucial to follow.

For example:

```
{{< warning >}}
Beware.
{{< /warning >}}
```

The output is:

Warning:

Beware.

Common Shortcode Issues

Ordered Lists

Shortcodes will interrupt numbered lists unless you indent four spaces before the notice and the tag.

For example:

```
1. Preheat oven to 350˚F

1. Prepare the batter, and pour into springform pan.
   {{< note >}}Grease the pan for best results.{{< /note >}}

1. Bake for 20-25 minutes or until set.
```

The output is:

1. Preheat oven to 350˚F
2. Prepare the batter, and pour into springform pan.

   Note:

   Grease the pan for best results.
3. Bake for 20-25 minutes or until set.

Include Statements

Shortcodes inside include statements will break the build. You must insert them in the parent document, before and after you call the include. For example:

```
{{< note >}}
{{< include "task-tutorial-prereqs.md" >}}
{{< /note >}}
```

Markdown elements

Line breaks

Use a single newline to separate block-level content like headings, lists, images, code blocks, and others. The exception is second-level headings, where it should be two newlines. Second-level headings follow the first-level (or the title) without any preceding paragraphs or texts. A two line spacing helps visualize the overall structure of content in a code editor better.

Manually wrap paragraphs in the Markdown source when appropriate. Since the git tool and the GitHub website generate file diffs on a line-by-line basis, manually wrapping long lines helps the reviewers to easily find out the changes made in a PR and provide feedback. It also helps the downstream localization teams where people track the upstream changes on a per-line basis. Line wrapping can happen at the end of a sentence or a punctuation character, for example. One exception to this is that a Markdown link or a shortcode is expected to be in a single line.

Headings and titles

People accessing this documentation may use a screen reader or other assistive technology (AT). Screen readers are linear output devices, they output items on a page one at a time. If there is a lot of content on a page, you can use headings to give the page an internal structure. A good page structure helps all readers to easily navigate the page or filter topics of interest.

Do and Don't - Headings

Do	**Don't**
Update the title in the front matter of the page or blog post.	Use first level heading, as Hugo automatically converts the title in the front matter of the page into a first-level heading.
Use ordered headings to provide a meaningful high-level outline of your content.	Use headings level 4 through 6, unless it is absolutely necessary. If your content is that detailed, it may need to be broken into separate articles.
Use pound or hash signs (`#`) for non-blog post content.	Use underlines (`---` or `===`) to designate first-level headings.
Use sentence case for headings in the page body. For example, **Extend kubectl with plugins**	Use title case for headings in the page body. For example, **Extend Kubectl With Plugins**
Use title case for the page title in the front matter. For example, `title: Kubernetes API Server Bypass Risks`	Use sentence case for page titles in the front matter. For example, don't use `title: Kubernetes API server bypass risks`
Place relevant links in the body copy.	Include hyperlinks (`<a href=""></a>`) in headings.

Do	Don't
Use pound or hash signs (`#`) to indicate headings.	Use **bold** text or other indicators to split paragraphs.

Paragraphs

Do and Don't - Paragraphs

Do	Don't
Try to keep paragraphs under 6 sentences.	Indent the first paragraph with space characters. For example, ···Three spaces before a paragraph will indent it.
Use three hyphens (`---`) to create a horizontal rule. Use horizontal rules for breaks in paragraph content. For example, a change of scene in a story, or a shift of topic within a section.	Use horizontal rules for decoration.

Links

Do and Don't - Links

Do	Don't
Write hyperlinks that give you context for the content they link to. For example: Certain ports are open on your machines. See Check required ports for more details.	Use ambiguous terms such as "click here". For example: Certain ports are open on your machines. See here for more details.
Write Markdown-style links: `[link text](URL)`. For example: `[Hugo shortcodes](/docs/contribute/style/hugo-shortcodes/#table-captions)` and the output is Hugo shortcodes.	Write HTML-style links: `<a href="/media/examples/link-element-example.css" target="_blank">Visit our tutorial!</a>`, or create links that open in new tabs or windows. For example: `[example website](https://example.com){target="_blank"}`

Lists

Group items in a list that are related to each other and need to appear in a specific order or to indicate a correlation between multiple items. When a screen reader comes across a list—whether it is an ordered or unordered list—it will be announced to the user that there is a group of list items. The user can then use the arrow keys to move up and down between the various items in the list. Website navigation links can also be marked up as list items; after all they are nothing but a group of related links.

- End each item in a list with a period if one or more items in the list are complete sentences. For the sake of consistency, normally either all items or none should be complete sentences.

  Note:

  Ordered lists that are part of an incomplete introductory sentence can be in lowercase and punctuated as if each item was a part of the introductory sentence.

- Use the number one (`1.`) for ordered lists.

- Use (+), (*), or (-) for unordered lists.
- Leave a blank line after each list.
- Indent nested lists with four spaces (for example, ····).
- List items may consist of multiple paragraphs. Each subsequent paragraph in a list item must be indented by either four spaces or one tab.

Tables

The semantic purpose of a data table is to present tabular data. Sighted users can quickly scan the table but a screen reader goes through line by line. A table caption is used to create a descriptive title for a data table. Assistive technologies (AT) use the HTML table caption element to identify the table contents to the user within the page structure.

- Add table captions using Hugo shortcodes for tables.

Content best practices

This section contains suggested best practices for clear, concise, and consistent content.

Use present tense

Do and Don't - Use present tense

Do	Don't
This command starts a proxy.	This command will start a proxy.

Exception: Use future or past tense if it is required to convey the correct meaning.

Use active voice

Do and Don't - Use active voice

Do	Don't
You can explore the API using a browser.	The API can be explored using a browser.
The YAML file specifies the replica count.	The replica count is specified in the YAML file.

Exception: Use passive voice if active voice leads to an awkward construction.

Use simple and direct language

Use simple and direct language. Avoid using unnecessary phrases, such as saying "please."

Do and Don't - Use simple and direct language

Do	Don't
To create a ReplicaSet, ...	In order to create a ReplicaSet, ...
See the configuration file.	Please see the configuration file.
View the pods.	With this next command, we'll view the pods.

Address the reader as "you"

Do and Don't - Addressing the reader

Do	Don't
You can create a Deployment by ...	We'll create a Deployment by ...
In the preceding output, you can see...	In the preceding output, we can see ...

Avoid Latin phrases

Prefer English terms over Latin abbreviations.

Do and Don't - Avoid Latin phrases

Do	Don't
For example, ...	e.g., ...
That is, ...	i.e., ...

Exception: Use "etc." for et cetera.

Patterns to avoid

Avoid using "we"

Using "we" in a sentence can be confusing, because the reader might not know whether they're part of the "we" you're describing.

Do and Don't - Patterns to avoid

Do	Don't
Version 1.4 includes ...	In version 1.4, we have added ...
Kubernetes provides a new feature for ...	We provide a new feature ...
This page teaches you how to use pods.	In this page, we are going to learn about pods.

Avoid jargon and idioms

Some readers speak English as a second language. Avoid jargon and idioms to help them understand better.

Do and Don't - Avoid jargon and idioms

Do	Don't
Internally, ...	Under the hood, ...
Create a new cluster.	Turn up a new cluster.

Avoid statements about the future

Avoid making promises or giving hints about the future. If you need to talk about an alpha feature, put the text under a heading that identifies it as alpha information.

An exception to this rule is documentation about announced deprecations targeting removal in future versions. One example of documentation like this is the Deprecated API migration guide.

Avoid statements that will soon be out of date

Avoid words like "currently" and "new." A feature that is new today might not be considered new in a few months.

Do and Don't - Avoid statements that will soon be out of date

Do	Don't
In version 1.4, ...	In the current version, ...
The Federation feature provides ...	The new Federation feature provides ...

Avoid words that assume a specific level of understanding

Avoid words such as "just", "simply", "easy", "easily", or "simple". These words do not add value.

Do and Don't - Avoid insensitive words

Do	Don't
Include one command in ...	Include just one command in ...
Run the container ...	Simply run the container ...
You can remove ...	You can easily remove ...
These steps ...	These simple steps ...

EditorConfig file

The Kubernetes project maintains an EditorConfig file that sets common style preferences in text editors such as VS Code. You can use this file if you want to ensure that your contributions are consistent with the rest of the project. To view the file, refer to `.editorconfig` in the repository root.

What's next

- Learn about writing a new topic.
- Learn about using page templates.
- Learn about custom hugo shortcodes.
- Learn about creating a pull request.

Diagram Guide

This guide shows you how to create, edit and share diagrams using the Mermaid JavaScript library. Mermaid.js allows you to generate diagrams using a simple markdown-like syntax inside Markdown files. You can also use Mermaid to generate `.svg` or `.png` image files that you can add to your documentation.

The target audience for this guide is anybody wishing to learn about Mermaid and/or how to create and add diagrams to Kubernetes documentation.

Figure 1 outlines the topics covered in this section.

```
flowchart LR subgraph m[Mermaid.js] direction TB S[ ]-.- C[build
diagrams
with markdown] --> D[on-line
live editor] end A[Why are diagrams
```

useful?] --> m m --> N[3 x methods
for creating
diagrams] N --> T[Examples] T --> X[Styling
and
captions] X --> V[Tips] classDef box fill:#fff,stroke:#000,stroke-width:1px,color:#000;
classDef spacewhite fill:#ffffff,stroke:#fff,stroke-width:0px,color:#000 class
A,C,D,N,X,m,T,V box class S spacewhite %% you can hyperlink Mermaid diagram
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IG1cbiAgICBtIC0tPiBOWzMgeCBtZXRob2RzPGJyPmZvciBjcmVhdGluZzxicj5kaWFncmFtc11cbiAgI
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IG1cbiAgICBtIC0tPiBOWzMgeCBtZXRob2RzPGJyPmZvciBjcmVhdGluZzxicj5kaWFncmFtc11cbiAgI
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dXNlZnVsP10gLS0-
IG1cbiAgICBtIC0tPiBOWzMgeCBtZXRob2RzPGJyPmZvciBjcmVhdGluZzxicj5kaWFncmFtc11cbiAgI
IFhbU3R5bGluZzxicj5hbmQ8YnI-
Y2FwdGlvbnNdXG4gICAgWCAtLT4gVltUaXBzXVxuICAgIFxuIFxuICAgIGNsYXNzRGVmIGJveCBn
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Figure 1. Topics covered in this section.

All you need to begin working with Mermaid is the following:

- Basic understanding of markdown.
- Using the Mermaid live editor.
- Using Hugo shortcodes.
- Using the Hugo {{< figure >}} shortcode.
- Performing Hugo local previews.
- Familiar with the Contributing new content process.

Note:

You can click on each diagram in this section to view the code and rendered diagram in the Mermaid live editor.

Why you should use diagrams in documentation

Diagrams improve documentation clarity and comprehension. There are advantages for both the user and the contributor.

The user benefits include:

- **Friendly landing spot**. A detailed text-only greeting page could intimidate users, in particular, first-time Kubernetes users.
- **Faster grasp of concepts**. A diagram can help users understand the key points of a complex topic. Your diagram can serve as a visual learning guide to dive into the topic details.
- **Better retention**. For some, it is easier to recall pictures rather than text.

The contributor benefits include:

- **Assist in developing the structure and content** of your contribution. For example, you can start with a simple diagram covering the high-level points and then dive into details.
- **Expand and grow the user community**. Easily consumed documentation augmented with diagrams attracts new users who might previously have been reluctant to engage due to perceived complexities.

You should consider your target audience. In addition to experienced K8s users, you will have many who are new to Kubernetes. Even a simple diagram can assist new users in absorbing Kubernetes concepts. They become emboldened and more confident to further explore Kubernetes and the documentation.

Mermaid

Mermaid is an open source JavaScript library that allows you to create, edit and easily share diagrams using a simple, markdown-like syntax configured inline in Markdown files.

The following lists features of Mermaid:

- Simple code syntax.
- Includes a web-based tool allowing you to code and preview your diagrams.
- Supports multiple formats including flowchart, state and sequence.
- Easy collaboration with colleagues by sharing a per-diagram URL.
- Broad selection of shapes, lines, themes and styling.

The following lists advantages of using Mermaid:

- No need for separate, non-Mermaid diagram tools.
- Adheres to existing PR workflow. You can think of Mermaid code as just Markdown text included in your PR.
- Simple tool builds simple diagrams. You don't want to get bogged down (re)crafting an overly complex and detailed picture. Keep it simple!

Mermaid provides a simple, open and transparent method for the SIG communities to add, edit and collaborate on diagrams for new or existing documentation.

Note:

You can still use Mermaid to create/edit diagrams even if it's not supported in your environment. This method is called **Mermaid+SVG** and is explained below.

Live editor

The Mermaid live editor is a web-based tool that enables you to create, edit and review diagrams.

The following lists live editor functions:

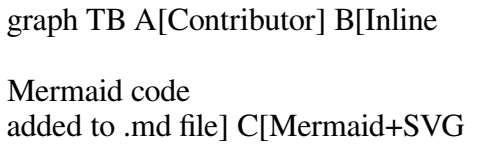
- Displays Mermaid code and rendered diagram.
- Generates a URL for each saved diagram. The URL is displayed in the URL field of your browser. You can share the URL with colleagues who can access and modify the diagram.
- Option to download `.svg` or `.png` files.

Note:

The live editor is the easiest and fastest way to create and edit Mermaid diagrams.

Methods for creating diagrams

Figure 2 outlines the three methods to generate and add diagrams.

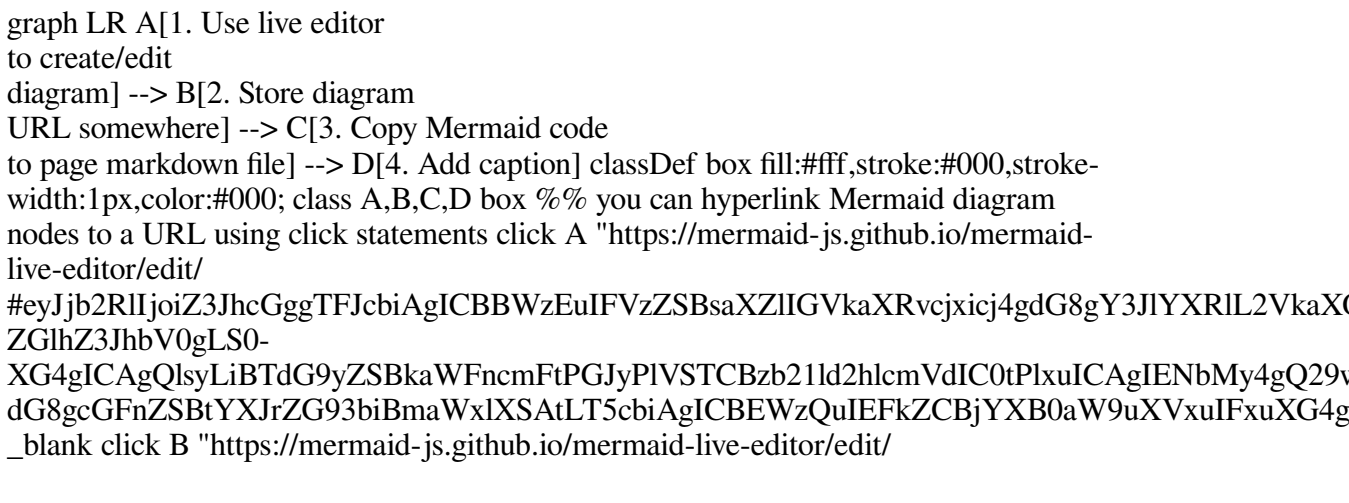


JavaScript must be enabled to view this content

Figure 2. Methods to create diagrams.

Inline

Figure 3 outlines the steps to follow for adding a diagram using the Inline method.



#eyJjb2RlIjoiZ3JhcGggTFJcbiAgICBBWzEuIFVzZSBsaXZlIGVkaXRvcjxicj4gdG8gY3JlYXRlL2VkaX
ZGlhZ3JhbV0gLS0-
XG4gICAgQlsyLiBTdG9yZSBkaWFncmFtPGJyPlVSTCBzb21ld2hlcmVdIC0tPlxuICAgIENbMy4gQ29w
dG8gcGFnZSBtYXJrZG93biBmaWxlXSAtLT5cbiAgICBEWzQuIEFkZCBjYXB0aW9uXVxuICAgIFxuXG4g
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ZGlhZ3JhbV0gLS0-
XG4gICAgQlsyLiBTdG9yZSBkaWFncmFtPGJyPlVSTCBzb21ld2hlcmVdIC0tPlxuICAgIENbMy4gQ29w
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XG4gICAgQlsyLiBTdG9yZSBkaWFncmFtPGJyPlVSTCBzb21ld2hlcmVdIC0tPlxuICAgIENbMy4gQ29w
dG8gcGFnZSBtYXJrZG93biBmaWxlXSAtLT5cbiAgICBEWzQuIEFkZCBjYXB0aW9uXVxuICAgIFxuXG4g
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Figure 3. Inline Method steps.

The following lists the steps you should follow for adding a diagram using the Inline method:

1. Create your diagram using the live editor.
2. Store the diagram URL somewhere for later access.
3. Copy the mermaid code to the location in your `.md` file where you want the diagram to appear.
4. Add a caption below the diagram using Markdown text.

A Hugo build runs the Mermaid code and turns it into a diagram.

Note:

You may find keeping track of diagram URLs is cumbersome. If so, make a note in the `.md` file that the Mermaid code is self-documenting. Contributors can copy the Mermaid code to and from the live editor for diagram edits.

Here is a sample code snippet contained in an `.md` file:

```
---
title: My PR
---
Figure 17 shows a simple A to B process.
some markdown text
...
{{< mermaid >}}
    graph TB
    A --> B
{{< /mermaid >}}

Figure 17. A to B
more text
```

Note:

You must include the Hugo Mermaid shortcode tags at the start and end of the Mermaid code block. You should add a diagram caption below the diagram.

For more details on diagram captions, see How to use captions.

The following lists advantages of the Inline method:

- Live editor tool.
- Easy to copy Mermaid code to and from the live editor and your `.md` file.
- No need for separate `.svg` image file handling.
- Content text, diagram code and diagram caption contained in the same `.md` file.

You should use the local and Netlify previews to verify the diagram is properly rendered.

Caution:

The Mermaid live editor feature set may not support the kubernetes/website Mermaid feature set. And please, note that contributors can mention `kubernetes/website` as `k/website`. You might see a syntax error or a blank screen after the Hugo build. If that is the case, consider using the Mermaid+SVG method.

Mermaid+SVG

Figure 4 outlines the steps to follow for adding a diagram using the Mermaid+SVG method.

flowchart LR A[1. Use live editor
to create/edit
diagram] B[2. Store diagram
URL somewhere] C[3. Generate .svg file
and download to
images/ folder] subgraph w[ ] direction TB D[4. Use figure shortcode
to reference .svg
file in page
.md file] --> E[5. Add caption] end A --> B B --> C C --> w classDef box
fill:#fff,stroke:#000,stroke-width:1px,color:#000; class A,B,C,D,E,w box click A
"https://mermaid-js.github.io/mermaid-live-editor/edit/
#eyJjb2RlIjoiZmxvd2NoYXJ0IExSXG4gICAgQVsxLiBVc2UgbGl2ZSBlZGl0b3I8YnI-
IHRvIGNyZWF0ZS9lZGl0PGJyPmRpYWdyYW1dXG4gICAgQlsyLiBTdG9yZSBkaWFncmFtPGJyPlV
YW5kIGRvd25sb2FkIHRvPGJyPmltYWdlcy8gZm9sZGVyXVxuICAgIHN1YmdyYXBoIHdbIF1cbiAgI
XG4gICAgRVs1LiBBZGQgY2FwdGlvbl1cbiAgICBlbmRcbiAgICA
IENcbkMgLS0-
IHdcblxuICAgIGNsYXNzRGVmIGJveCBmaWxsOiNmZmYsc3Ryb2tlOiMwMDAsc3Ryb2tlLXdpZHRo
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#eyJjb2RlIjoiZmxvd2NoYXJ0IExSXG4gICAgQVsxLiBVc2UgbGl2ZSBlZGl0b3I8YnI-
IHRvIGNyZWF0ZS9lZGl0PGJyPmRpYWdyYW1dXG4gICAgQlsyLiBTdG9yZSBkaWFncmFtPGJyPlV
YW5kIGRvd25sb2FkIHRvPGJyPmltYWdlcy8gZm9sZGVyXVxuICAgIHN1YmdyYXBoIHdbIF1cbiAgI
XG4gICAgRVs1LiBBZGQgY2FwdGlvbl1cbiAgICBlbmRcbiAgICA
IENcbkMgLS0-
IHdcblxuICAgIGNsYXNzRGVmIGJveCBmaWxsOiNmZmYsc3Ryb2tlOiMwMDAsc3Ryb2tlLXdpZHRo
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IHRvIGNyZWF0ZS9lZGl0PGJyPmRpYWdyYW1dXG4gICAgQlsyLiBTdG9yZSBkaWFncmFtPGJyPlV
YW5kIGRvd25sb2FkIHRvPGJyPmltYWdlcy8gZm9sZGVyXVxuICAgIHN1YmdyYXBoIHdbIF1cbiAgI
XG4gICAgRVs1LiBBZGQgY2FwdGlvbl1cbiAgICBlbmRcbiAgICA
IENcbkMgLS0-
IHdcblxuICAgIGNsYXNzRGVmIGJveCBmaWxsOiNmZmYsc3Ryb2tlOiMwMDAsc3Ryb2tlLXdpZHRo
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IHRvIGNyZWF0ZS9lZGl0PGJyPmRpYWdyYW1dXG4gICAgQlsyLiBTdG9yZSBkaWFncmFtPGJyPlV
YW5kIGRvd25sb2FkIHRvPGJyPmltYWdlcy8gZm9sZGVyXVxuICAgIHN1YmdyYXBoIHdbF1cbiAgI
XG4gICAgRVs1LiBBZGQgY2FwdGlvbl1cbiAgICBlbmRcbkEgLS0-IEJcbkIgLS0-
IENcbkMgLS0-
IHdcblxuICAgIGNsYXNzRGVmIGJveCBmaWxsOiNmZmYsc3Ryb2tlOiMwMDAsc3Ryb2tlLXdpZHRo
_blank click E "https://mermaid-js.github.io/mermaid-live-editor/edit/
#eyJjb2RlIjoiZmxvd2NoYXJ0IExSXG4gICAgQVsxLiBVc2UgbGl2ZSBlZGl0b3I8YnI-
IHRvIGNyZWF0ZS9lZGl0PGJyPmRpYWdyYW1dXG4gICAgQlsyLiBTdG9yZSBkaWFncmFtPGJyPlV
YW5kIGRvd25sb2FkIHRvPGJyPmltYWdlcy8gZm9sZGVyXVxuICAgIHN1YmdyYXBoIHdbF1cbiAgI
XG4gICAgRVs1LiBBZGQgY2FwdGlvbl1cbiAgICBlbmRcbkEgLS0-IEJcbkIgLS0-
IENcbkMgLS0-
IHdcblxuICAgIGNsYXNzRGVmIGJveCBmaWxsOiNmZmYsc3Ryb2tlOiMwMDAsc3Ryb2tlLXdpZHRo
_blank

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Figure 4. Mermaid+SVG method steps.

The following lists the steps you should follow for adding a diagram using the Mermaid+SVG method:

1. Create your diagram using the live editor.
2. Store the diagram URL somewhere for later access.
3. Generate an `.svg` image file for the diagram and download it to the appropriate `images/` folder.
4. Use the `{{< figure >}}` shortcode to reference the diagram in the `.md` file.
5. Add a caption using the `{{< figure >}}` shortcode's `caption` parameter.

For example, use the live editor to create a diagram called `boxnet`. Store the diagram URL somewhere for later access. Generate and download a `boxnet.svg` file to the appropriate `../images/` folder.

Use the `{{< figure >}}` shortcode in your PR's `.md` file to reference the `.svg` image file and add a caption.

```
{{< figure src="/static/images/boxnet.svg" alt="Boxnet figure" cl
ass="diagram-large" caption="Figure 14. Boxnet caption" >}}
```

For more details on diagram captions, see How to use captions.

Note:

The figure shortcode is the preferred method for adding `.svg` image files to your documentation. You can also use the standard markdown image syntax like so: `![my boxnet diagram](static/images/boxnet.svg)`. And you will need to add a caption below the diagram.

You should add the live editor URL as a comment block in the `.svg` image file using a text editor. For example, you would include the following at the beginning of the `.svg` image file:

```
<!-- To view or edit the mermaid code, use the following URL: -->
<!-- https://mermaid-js.github.io/mermaid-live-editor/edit/
#eyJjb ... <remainder of the URL> -->
```

The following lists advantages of the Mermaid+SVG method:

- Live editor tool.
- Live editor tool supports the most current Mermaid feature set.
- Employ existing kubernetes/website methods for handling `.svg` image files.
- Environment doesn't require Mermaid support.

Be sure to check that your diagram renders properly using the local and Netlify previews.

External tool

Figure 5 outlines the steps to follow for adding a diagram using the External Tool method.

First, use your external tool to create the diagram and save it as an `.svg` or `.png` image file. After that, use the same steps as the **Mermaid+SVG** method for adding `.svg` image files.

flowchart LR A[1. Use external
tool to create/edit
diagram] B[2. If possible, save
diagram coordinates
for contributor
access] C[3. Generate .svg
or.png file
and download to
appropriate
images/ folder] subgraph w[ ] direction TB D[4. Use figure shortcode
to reference svg or
png file in
page .md file] --> E[5. Add caption] end A --> B B --> C C --> w classDef box
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"https://mermaid-js.github.io/mermaid-live-editor/edit/
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dG9vbCB0byBjcmVhdGUvZWRpdDxicj5kaWFncmFtXVxuICAgIEJbMi4gSWYgcG9zc2libGUsIHNhdr
ZGlhZ3JhbSBjb29yZGluYXRlczxicj5mb3IgY29udHJpYnV0b3I8YnI-
YWNjZXNzXVxuICAgIENbMy4gR2VuZXJhdGUgLnN2ZyA8YnI-
b3IucG5nIGZpbGU8YnI-
YW5kIGRvd25sb2FkIHRvPGJyPmltYWdlcy8gZm9sZGVyXVxuICAgIHN1
cG5nIGZpbGUgaW48YnI-cGFnZSAubWQgZmlsZV0gLS0-
XG4gICAgRVs1LiBBZGQgY2FwdGlvbl1cbiAgICBlbmRcbiAgICBBIC0tPiBCXG4gICAgQiAtLT4gQ
IHdcbiAgICBjbGFzc0RlZiBib3ggZmlsbDojZmZmLHN0cm9rZTojMDAwLHN0cm9rZS13aWR0aDoxc
click B "https://mermaid-js.github.io/mermaid-live-editor/edit/
#eyJjb2RlIjoiZmxvd2NoYXJ0IExSXG4gICAgQVsxLiBVc2UgZXh0ZXJuYWw8YnI-
dG9vbCB0byBjcmVhdGUvZWRpdDxicj5kaWFncmFtXVxuICAgIEJbMi4gSWYgcG9zc2libGUsIHNhdr
ZGlhZ3JhbSBjb29yZGluYXRlczxicj5mb3IgY29udHJpYnV0b3I8YnI-
YWNjZXNzXVxuICAgIENbMy4gR2VuZXJhdGUgLnN2ZyA8YnI-
b3IucG5nIGZpbGU8YnI-
YW5kIGRvd25sb2FkIHRvPGJyPmltYWdlcy8gZm9sZGVyXVxuICAgIHN1
cG5nIGZpbGUgaW48YnI-cGFnZSAubWQgZmlsZV0gLS0-
XG4gICAgRVs1LiBBZGQgY2FwdGlvbl1cbiAgICBlbmRcbiAgICBBIC0tPiBCXG4gICAgQiAtLT4gQ
IHdcbiAgICBjbGFzc0RlZiBib3ggZmlsbDojZmZmLHN0cm9rZTojMDAwLHN0cm9rZS13aWR0aDoxc
click C "https://mermaid-js.github.io/mermaid-live-editor/edit/
#eyJjb2RlIjoiZmxvd2NoYXJ0IExSXG4gICAgQVsxLiBVc2UgZXh0ZXJuYWw8YnI-
dG9vbCB0byBjcmVhdGUvZWRpdDxicj5kaWFncmFtXVxuICAgIEJbMi4gSWYgcG9zc2libGUsIHNhdr
ZGlhZ3JhbSBjb29yZGluYXRlczxicj5mb3IgY29udHJpYnV0b3I8YnI-
YWNjZXNzXVxuICAgIENbMy4gR2VuZXJhdGUgLnN2ZyA8YnI-

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Figure 5. External Tool method steps

The following lists the steps you should follow for adding a diagram using the External Tool method:

1. Use your external tool to create a diagram.
2. Save the diagram coordinates for contributor access. For example, your tool may offer a link to the diagram image, or you could place the source code file, such as an `.xml` file, in a public repository for later contributor access.
3. Generate and save the diagram as an `.svg` or `.png` image file. Download this file to the appropriate `../images/` folder.
4. Use the `{{< figure >}}` shortcode to reference the diagram in the `.md` file.
5. Add a caption using the `{{< figure >}}` shortcode's `caption` parameter.

Here is the `{{< figure >}}` shortcode for the `images/apple.svg` diagram:

```
{{< figure src="/static/images/apple.svg" alt="red-apple-figure"
class="diagram-large" caption="Figure 9. A Big Red Apple" >}}
```

If your external drawing tool permits:

- You can incorporate multiple `.svg` or `.png` logos, icons and images into your diagram. However, make sure you observe copyright and follow the Kubernetes documentation guidelines on the use of third party content.
- You should save the diagram source coordinates for later contributor access. For example, your tool may offer a link to the diagram image, or you could place the source code file, such as an `.xml` file, somewhere for contributor access.

For more information on K8s and CNCF logos and images, check out CNCF Artwork.

The following lists advantages of the External Tool method:

- Contributor familiarity with external tool.
- Diagrams require more detail than what Mermaid can offer.

Don't forget to check that your diagram renders correctly using the local and Netlify previews.

Examples

This section shows several examples of Mermaid diagrams.

Note:

The code block examples omit the Hugo Mermaid shortcode tags. This allows you to copy the code block into the live editor to experiment on your own. Note that the live editor doesn't recognize Hugo shortcodes.

Example 1 - Pod topology spread constraints

Figure 6 shows the diagram appearing in the Pod topology spread constraints page.

graph TB subgraph "zoneB" n3(Node3) n4(Node4) end subgraph "zoneA" n1(Node1) n2(Node2) end classDef plain fill:#ddd,stroke:#fff,stroke-width:4px,color:#000; classDef k8s fill:#326ce5,stroke:#fff,stroke-width:4px,color:#fff; classDef cluster fill:#fff,stroke:#bbb,stroke-width:2px,color:#326ce5; class n1,n2,n3,n4 k8s; class zoneA,zoneB cluster; click n3 "https://mermaid-js.github.io/mermaid-live-editor/edit/#eyJjb2RlIjoiZ3JhcGggVEJcbiAgICBzdWJncmFwaCBcInpvbmVCXCJcbiAgICAgICAgbjMoTm9kZTM) _blank click n4 "https://mermaid-js.github.io/mermaid-live-editor/edit/#eyJjb2RlIjoiZ3JhcGggVEJcbiAgICBzdWJncmFwaCBcInpvbmVCXCJcbiAgICAgICAgbjMoTm9kZTM) _blank click n1 "https://mermaid-js.github.io/mermaid-live-editor/edit/#eyJjb2RlIjoiZ3JhcGggVEJcbiAgICBzdWJncmFwaCBcInpvbmVCXCJcbiAgICAgICAgbjMoTm9kZTM) _blank click n2 "https://mermaid-js.github.io/mermaid-live-editor/edit/#eyJjb2RlIjoiZ3JhcGggVEJcbiAgICBzdWJncmFwaCBcInpvbmVCXCJcbiAgICAgICAgbjMoTm9kZTM) _blank

JavaScript must be enabled to view this content

Figure 6. Pod Topology Spread Constraints.

Code block:

```
graph TB
   subgraph "zoneB"
       n3(Node3)
       n4(Node4)
   end
   subgraph "zoneA"
       n1(Node1)
       n2(Node2)
   end

   classDef plain fill:#ddd,stroke:#fff,stroke-
width:4px,color:#000;
```

```
   classDef k8s fill:#326ce5,stroke:#fff,stroke-
width:4px,color:#fff;
   classDef cluster fill:#fff,stroke:#bbb,stroke-
width:2px,color:#326ce5;
   class n1,n2,n3,n4 k8s;
   class zoneA,zoneB cluster;
```

Example 2 - Ingress

Figure 7 shows the diagram appearing in the What is Ingress page.

graph LR; client([client])-. Ingress-managed
load balancer .->ingress[Ingress]; ingress-->|routing rule|service[Service]; subgraph
cluster ingress; service-->pod1[Pod]; service-->pod2[Pod]; end classDef plain
fill:#ddd,stroke:#fff,stroke-width:4px,color:#000; classDef k8s
fill:#326ce5,stroke:#fff,stroke-width:4px,color:#fff; classDef cluster
fill:#fff,stroke:#bbb,stroke-width:2px,color:#326ce5; class ingress,service,pod1,pod2
k8s; class client plain; class cluster cluster; click client "https://mermaid-js.github.io/
mermaid-live-editor/edit/
#eyJjb2RlIjoiZ3JhcGggIExSXG4gIGNsaWVudChbY2xpZW50XSktLiBJbmdyZXNzLW1hbmFnZWQgb
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#eyJjb2RlIjoiZ3JhcGggIExSXG4gIGNsaWVudChbY2xpZW50XSktLiBJbmdyZXNzLW1hbmFnZWQgb
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#eyJjb2RlIjoiZ3JhcGggIExSXG4gIGNsaWVudChbY2xpZW50XSktLiBJbmdyZXNzLW1hbmFnZWQgb
_blank click pod1 "https://mermaid-js.github.io/mermaid-live-editor/edit/
#eyJjb2RlIjoiZ3JhcGggIExSXG4gIGNsaWVudChbY2xpZW50XSktLiBJbmdyZXNzLW1hbmFnZWQgb
_blank click pod2 "https://mermaid-js.github.io/mermaid-live-editor/edit/
#eyJjb2RlIjoiZ3JhcGggIExSXG4gIGNsaWVudChbY2xpZW50XSktLiBJbmdyZXNzLW1hbmFnZWQgb
_blank

JavaScript must be enabled to view this content
Figure 7. Ingress

Code block:

```
graph LR;
 client([client])-. Ingress-managed <br> load balancer .-
>ingress[Ingress];
 ingress-->|routing rule|service[Service];
 subgraph cluster
 ingress;
 service-->pod1[Pod];
 service-->pod2[Pod];
 end
 classDef plain fill:#ddd,stroke:#fff,stroke-
width:4px,color:#000;
 classDef k8s fill:#326ce5,stroke:#fff,stroke-
width:4px,color:#fff;
 classDef cluster fill:#fff,stroke:#bbb,stroke-
width:2px,color:#326ce5;
 class ingress,service,pod1,pod2 k8s;
 class client plain;
 class cluster cluster;
```

Example 3 - K8s system flow

Figure 8 depicts a Mermaid sequence diagram showing the system flow between K8s components to start a container.

K8s system flow diagram

Figure 8. K8s system flow diagram

Code block:

```
%%{init:{"theme":"neutral"}}%%
sequenceDiagram
    actor me
    participant apiSrv as control plane<br><br>api-server
    participant etcd as control plane<br><br>etcd datastore
    participant cntrlMgr as control
plane<br><br>controller<br>manager
    participant sched as control plane<br><br>scheduler
    participant kubelet as node<br><br>kubelet
    participant container as node<br><br>container<br>runtime
    me->>apiSrv: 1. kubectl create -f pod.yaml
    apiSrv-->>etcd: 2. save new state
    cntrlMgr->>apiSrv: 3. check for changes
    sched->>apiSrv: 4. watch for unassigned pods(s)
    apiSrv->>sched: 5. notify about pod w nodename=" "
    sched->>apiSrv: 6. assign pod to node
    apiSrv-->>etcd: 7. save new state
    kubelet->>apiSrv: 8. look for newly assigned pod(s)
    apiSrv->>kubelet: 9. bind pod to node
    kubelet->>container: 10. start container
    kubelet->>apiSrv: 11. update pod status
    apiSrv-->>etcd: 12. save new state
```

How to style diagrams

You can style one or more diagram elements using well-known CSS nomenclature. You accomplish this using two types of statements in the Mermaid code.

- `classDef` defines a class of style attributes.
- `class` defines one or more elements to apply the class to.

In the code for figure 7, you can see examples of both.

```
classDef k8s fill:#326ce5,stroke:#fff,stroke-
width:4px,color:#fff; // defines style for the k8s class
class ingress,service,pod1,pod2 k8s; // k8s class is applied to
elements ingress, service, pod1 and pod2.
```

You can include one or multiple `classDef` and `class` statements in your diagram. You can also use the official K8s `#326ce5` hex color code for K8s components in your diagram.

For more information on styling and classes, see Mermaid Styling and classes docs.

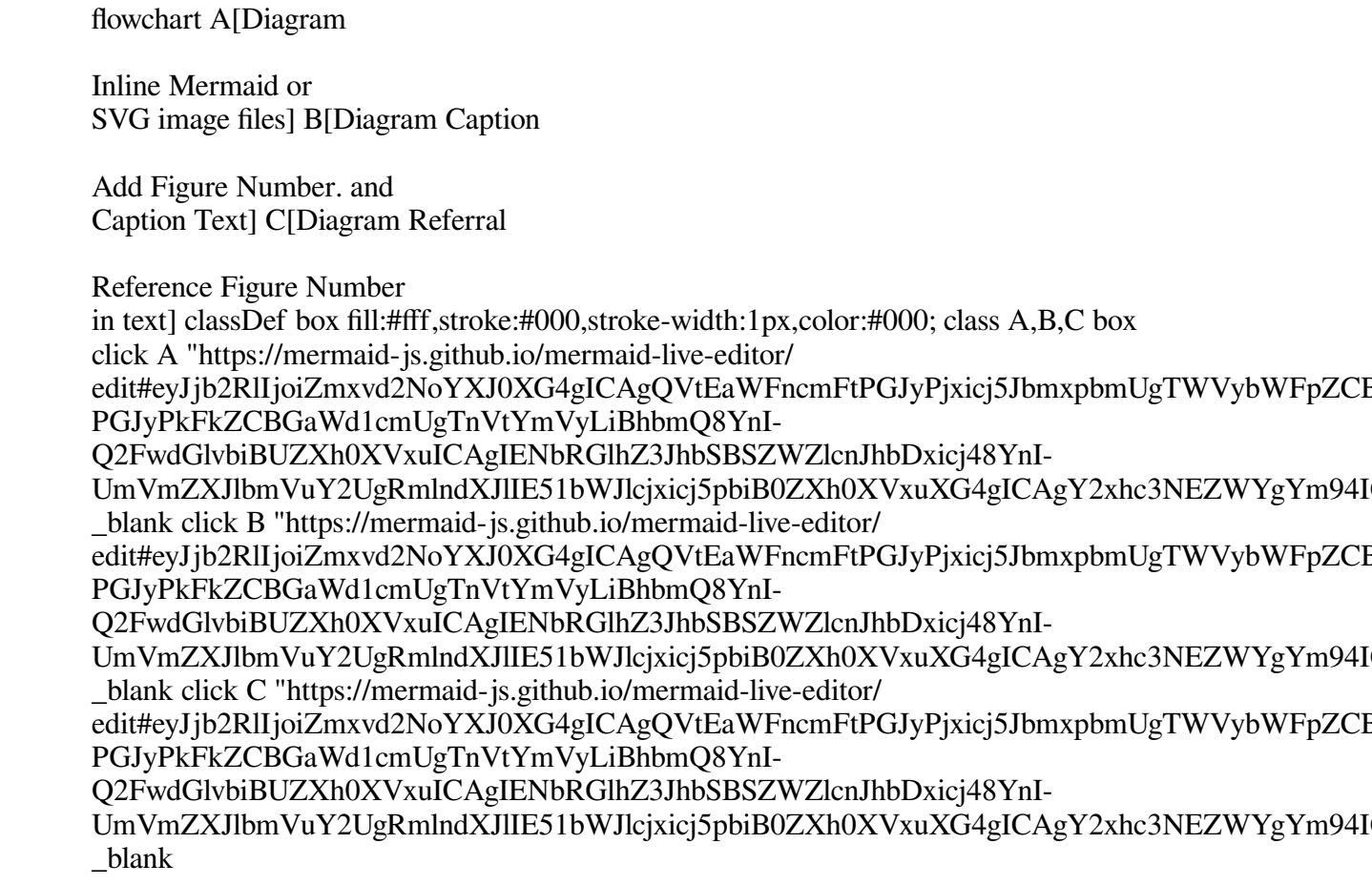
How to use captions

A caption is a brief description of a diagram. A title or a short description of the diagram are examples of captions. Captions aren't meant to replace explanatory text you have in your documentation. Rather, they serve as a "context link" between that text and your diagram.

The combination of some text and a diagram tied together with a caption help provide a concise representation of the information you wish to convey to the user.

Without captions, you are asking the user to scan the text above or below the diagram to figure out a meaning. This can be frustrating for the user.

Figure 9 lays out the three components for proper captioning: diagram, diagram caption and the diagram referral.



JavaScript must be enabled to view this content
Figure 9. Caption Components.

Note:

You should always add a caption to each diagram in your documentation.

Diagram

The `Mermaid+SVG` and `External Tool` methods generate `.svg` image files.

Here is the `{{< figure >}}` shortcode for the diagram defined in an `.svg` image file saved to `/images/docs/components-of-kubernetes.svg`:

```
{{< figure src="/images/docs/components-of-kubernetes.svg"
alt="Kubernetes pod running inside a cluster" class="diagram-
large" caption="Figure 4. Kubernetes Architecture Components" >}}
```

You should pass the `src`, `alt`, `class` and `caption` values into the `{{< figure >}}` shortcode. You can adjust the size of the diagram using `diagram-large`, `diagram-medium` and `diagram-small` classes.

Note:

Diagrams created using the `Inline` method don't use the figure shortcode. The Mermaid code defines how the diagram will render on your page.

See Methods for creating diagrams for more information on the different methods for creating diagrams.

Diagram Caption

Next, add a diagram caption.

If you define your diagram in an `.svg` image file, then you should use the `{{< figure >}}` shortcode's `caption` parameter.

```
{{< figure src="/images/docs/components-of-kubernetes.svg"
alt="Kubernetes pod running inside a cluster" class="diagram-
large" caption="Figure 4. Kubernetes Architecture Components" >}}
```

If you define your diagram using inline Mermaid code, then you should use Markdown text.

```
Figure 4. Kubernetes Architecture Components
```

The following lists several items to consider when adding diagram captions:

- Use the `{{< figure >}}` shortcode to add a diagram caption for `Mermaid+SVG` and `External Tool` diagrams.
- Use simple Markdown text to add a diagram caption for the `Inline` method.
- Prepend your diagram caption with `Figure NUMBER.`. You must use `Figure` and the number must be unique for each diagram in your documentation page. Add a period after the number.
- Add your diagram caption text after the `Figure NUMBER.` on the same line. You must puncuate the caption with a period. Keep the caption text short.
- Position your diagram caption **BELOW** your diagram.

Diagram Referral

Finally, you can add a diagram referral. This is used inside your text and should precede the diagram itself. It allows a user to connect your text with the associated diagram. The `Figure NUMBER` in your referral and caption must match.

You should avoid using spatial references such as `..the image below..` or `..the following figure ..`

Here is an example of a diagram referral:

```
Figure 10 depicts the components of the Kubernetes architecture.
The control plane ...
```

Diagram referrals are optional and there are cases where they might not be suitable. If you are not sure, add a diagram referral to your text to see if it looks and sounds okay. When in doubt, use a diagram referral.

Complete picture

Figure 10 shows the Kubernetes Architecture diagram that includes the diagram, diagram caption and diagram referral. The `{{< figure >}}` shortcode renders the diagram, adds the caption and includes the optional `link` parameter so you can hyperlink the diagram. The diagram referral is contained in this paragraph.

Here is the `{{< figure >}}` shortcode for this diagram:

```
{{< figure src="/images/docs/components-of-kubernetes.svg"
alt="Kubernetes pod running inside a cluster" class="diagram-
large" caption="Figure 10. Kubernetes Architecture."
link="https://kubernetes.io/docs/concepts/overview/components/"
>}}
```

Figure 10. Kubernetes Architecture.

Tips

- Always use the live editor to create/edit your diagram.
- Always use Hugo local and Netlify previews to check out how the diagram appears in the documentation.
- Include diagram source pointers such as a URL, source code location, or indicate the code is self-documenting.
- Always use diagram captions.
- Very helpful to include the diagram `.svg` or `.png` image and/or Mermaid source code in issues and PRs.
- With the `Mermaid+SVG` and `External Tool` methods, use `.svg` image files because they stay sharp when you zoom in on the diagram.
- Best practice for `.svg` files is to load it into an SVG editing tool and use the "Convert text to paths" function. This ensures that the diagram renders the same on all systems, regardless of font availability and font rendering support.
- No Mermaid support for additional icons or artwork.
- Hugo Mermaid shortcodes don't work in the live editor.
- Any time you modify a diagram in the live editor, you **must** save it to generate a new URL for the diagram.

- Click on the diagrams in this section to view the code and diagram rendering in the live editor.
- Look over the source code of this page, `diagram-guide.md`, for more examples.
- Check out the Mermaid docs for explanations and examples.

Most important, **Keep Diagrams Simple**. This will save time for you and fellow contributors, and allow for easier reading by new and experienced users.

Writing a new topic

This page shows how to create a new topic for the Kubernetes docs.

Before you begin

Create a fork of the Kubernetes documentation repository as described in Open a PR.

Choosing a page type

As you prepare to write a new topic, think about the page type that would fit your content the best:

Guidelines for choosing a page type

Type	Description
Concept	A concept page explains some aspect of Kubernetes. For example, a concept page might describe the Kubernetes Deployment object and explain the role it plays as an application while it is deployed, scaled, and updated. Typically, concept pages don't include sequences of steps, but instead provide links to tasks or tutorials. For an example of a concept topic, see Nodes.
Task	A task page shows how to do a single thing. The idea is to give readers a sequence of steps that they can actually do as they read the page. A task page can be short or long, provided it stays focused on one area. In a task page, it is OK to blend brief explanations with the steps to be performed, but if you need to provide a lengthy explanation, you should do that in a concept topic. Related task and concept topics should link to each other. For an example of a short task page, see Configure a Pod to Use a Volume for Storage. For an example of a longer task page, see Configure Liveness and Readiness Probes
Tutorial	A tutorial page shows how to accomplish a goal that ties together several Kubernetes features. A tutorial might provide several sequences of steps that readers can actually do as they read the page. Or it might provide explanations of related pieces of code. For example, a tutorial could provide a walkthrough of a code sample. A tutorial can include brief explanations of the Kubernetes features that are being tied together, but should link to related concept topics for deep explanations of individual features.

Creating a new page

Use a content type for each new page that you write. The docs site provides templates or Hugo archetypes to create new content pages. To create a new type of page, run `hugo new` with the path to the file you want to create. For example:

```
hugo new docs/concepts/my-first-concept.md
```

Choosing a title and filename

Choose a title that has the keywords you want search engines to find. Create a filename that uses the words in your title separated by hyphens. For example, the topic with title Using an HTTP Proxy to Access the Kubernetes API has filename `http-proxy-access-api.md`. You don't need to put "kubernetes" in the filename, because "kubernetes" is already in the URL for the topic, for example:

```
/docs/tasks/extend-kubernetes/http-proxy-access-api/
```

Adding the topic title to the front matter

In your topic, put a `title` field in the front matter. The front matter is the YAML block that is between the triple-dashed lines at the top of the page. Here's an example:

```
---
title: Using an HTTP Proxy to Access the Kubernetes API
---
```

Choosing a directory

Depending on your page type, put your new file in a subdirectory of one of these:

- /content/en/docs/tasks/
- /content/en/docs/tutorials/
- /content/en/docs/concepts/

You can put your file in an existing subdirectory, or you can create a new subdirectory.

Placing your topic in the table of contents

The table of contents is built dynamically using the directory structure of the documentation source. The top-level directories under `/content/en/docs/` create top-level navigation, and subdirectories each have entries in the table of contents.

Each subdirectory has a file `_index.md`, which represents the "home" page for a given subdirectory's content. The `_index.md` does not need a template. It can contain overview content about the topics in the subdirectory.

Other files in a directory are sorted alphabetically by default. This is almost never the best order. To control the relative sorting of topics in a subdirectory, set the `weight:` front-matter key to an integer. Typically, we use multiples of 10, to account for adding topics later. For instance, a topic with weight `10` will come before one with weight `20`.

Embedding code in your topic

If you want to include some code in your topic, you can embed the code in your file directly using the markdown code block syntax. This is recommended for the following cases (not an exhaustive list):

- The code shows the output from a command such as `kubectl get deploy mydeployment -o json | jq '.status'`.

- The code is not generic enough for users to try out. As an example, you can embed the YAML file for creating a Pod which depends on a specific FlexVolume implementation.
- The code is an incomplete example because its purpose is to highlight a portion of a larger file. For example, when describing ways to customize a RoleBinding, you can provide a short snippet directly in your topic file.
- The code is not meant for users to try out due to other reasons. For example, when describing how a new attribute should be added to a resource using the `kubectl edit` command, you can provide a short example that includes only the attribute to add.

Including code from another file

Another way to include code in your topic is to create a new, complete sample file (or group of sample files) and then reference the sample from your topic. Use this method to include sample YAML files when the sample is generic and reusable, and you want the reader to try it out themselves.

When adding a new standalone sample file, such as a YAML file, place the code in one of the `<LANG>/examples/` subdirectories where `<LANG>` is the language for the topic. In your topic file, use the `code_sample` shortcode:

```
{{% code_sample file="<RELPATH>/my-example-yaml>" %}}
```

where `<RELPATH>` is the path to the file to include, relative to the `examples` directory. The following Hugo shortcode references a YAML file located at `/content/en/examples/pods/storage/gce-volume.yaml`.

```
{{% code_sample file="pods/storage/gce-volume.yaml" %}}
```

Showing how to create an API object from a configuration file

If you need to demonstrate how to create an API object based on a configuration file, place the configuration file in one of the subdirectories under `<LANG>/examples`.

In your topic, show this command:

```
kubectl create -f https://k8s.io/examples/pods/storage/gce-volume.yaml
```

Note:

When adding new YAML files to the `<LANG>/examples` directory, make sure the file is also included into the `<LANG>/examples_test.go` file. The Travis CI for the Website automatically runs this test case when PRs are submitted to ensure all examples pass the tests.

For an example of a topic that uses this technique, see Running a Single-Instance Stateful Application.

Adding images to a topic

Put image files in the `/images` directory. The preferred image format is SVG.

What's next

- Learn about using page content types.
- Learn about creating a pull request.

Page content types

The Kubernetes documentation follows several types of page content:

- Concept
- Task
- Tutorial
- Reference

Content sections

Each page content type contains a number of sections defined by Markdown comments and HTML headings. You can add content headings to your page with the `heading` shortcode. The comments and headings help maintain the structure of the page content types.

Examples of Markdown comments defining page content sections:

```
<!-- overview -->
```

```
<!-- body -->
```

To create common headings in your content pages, use the `heading` shortcode with a heading string.

Examples of heading strings:

- whatsnext
- prerequisites
- objectives
- cleanup
- synopsis
- seealso
- options

For example, to create a `whatsnext` heading, add the heading shortcode with the "whatsnext" string:

```
## {{% heading "whatsnext" %}}
```

You can declare a `prerequisites` heading as follows:

```
## {{% heading "prerequisites" %}}
```

The `heading` shortcode expects one string parameter. The heading string parameter matches the prefix of a variable in the `i18n/<lang>/<lang>.toml` files. For example:

`i18n/en/en.toml`:

```
[whatsnext_heading]
other = "What's next"
```

`i18n/ko/ko.toml`:

```
[whatsnext_heading]
other = "      "
```

Content types

Each content type informally defines its expected page structure. Create page content with the suggested page sections.

Concept

A concept page explains some aspect of Kubernetes. For example, a concept page might describe the Kubernetes Deployment object and explain the role it plays as an application once it is deployed, scaled, and updated. Typically, concept pages don't include sequences of steps, but instead provide links to tasks or tutorials.

To write a new concept page, create a Markdown file in a subdirectory of the `/content/en/docs/concepts` directory, with the following characteristics:

Concept pages are divided into three sections:

Page section
overview
body
whatsnext

The `overview` and `body` sections appear as comments in the concept page. You can add the `whatsnext` section to your page with the `heading` shortcode.

Fill each section with content. Follow these guidelines:

- Organize content with H2 and H3 headings.
- For `overview`, set the topic's context with a single paragraph.
- For `body`, explain the concept.
- For `whatsnext`, provide a bulleted list of topics (5 maximum) to learn more about the concept.

Annotations is a published example of a concept page.

Task

A task page shows how to do a single thing, typically by giving a short sequence of steps. Task pages have minimal explanation, but often provide links to conceptual topics that provide related background and knowledge.

To write a new task page, create a Markdown file in a subdirectory of the `/content/en/docs/tasks` directory, with the following characteristics:

Page section
overview

Page section
prerequisites
steps
discussion
whatsnext

The `overview`, `steps`, and `discussion` sections appear as comments in the task page. You can add the `prerequisites` and `whatsnext` sections to your page with the `heading` shortcode.

Within each section, write your content. Use the following guidelines:

- Use a minimum of H2 headings (with two leading `#` characters). The sections themselves are titled automatically by the template.
- For `overview`, use a paragraph to set context for the entire topic.
- For `prerequisites`, use bullet lists when possible. Start adding additional prerequisites below the `include`. The default prerequisites include a running Kubernetes cluster.
- For `steps`, use numbered lists.
- For discussion, use normal content to expand upon the information covered in `steps`.
- For `whatsnext`, give a bullet list of up to 5 topics the reader might be interested in reading next.

An example of a published task topic is Using an HTTP proxy to access the Kubernetes API.

Tutorial

A tutorial page shows how to accomplish a goal that is larger than a single task. Typically a tutorial page has several sections, each of which has a sequence of steps. For example, a tutorial might provide a walkthrough of a code sample that illustrates a certain feature of Kubernetes. Tutorials can include surface-level explanations, but should link to related concept topics for deep explanations.

To write a new tutorial page, create a Markdown file in a subdirectory of the `/content/en/docs/tutorials` directory, with the following characteristics:

Page section
overview
prerequisites
objectives
lessoncontent
cleanup
whatsnext

The `overview`, `objectives`, and `lessoncontent` sections appear as comments in the tutorial page. You can add the `prerequisites`, `cleanup`, and `whatsnext` sections to your page with the `heading` shortcode.

Within each section, write your content. Use the following guidelines:

- Use a minimum of H2 headings (with two leading `#` characters). The sections themselves are titled automatically by the template.
- For `overview`, use a paragraph to set context for the entire topic.

- For `prerequisites`, use bullet lists when possible. Add additional prerequisites below the ones included by default.
- For `objectives`, use bullet lists.
- For `lessoncontent`, use a mix of numbered lists and narrative content as appropriate.
- For `cleanup`, use numbered lists to describe the steps to clean up the state of the cluster after finishing the task.
- For `whatsnext`, give a bullet list of up to 5 topics the reader might be interested in reading next.

An example of a published tutorial topic is Running a Stateless Application Using a Deployment.

Reference

A component tool reference page shows the description and flag options output for a Kubernetes component tool. Each page generates from scripts using the component tool commands.

A tool reference page has several possible sections:

Page section
synopsis
options
options from parent commands
examples
seealso

Examples of published tool reference pages are:

- kubeadm init
- kube-apiserver
- kubectl

What's next

- Learn about the Style guide
- Learn about the Content guide
- Learn about content organization

Content organization

This site uses Hugo. In Hugo, content organization is a core concept.

Note:

Hugo Tip: Start Hugo with `hugo server --navigateToChanged` for content edit-sessions.

Page Lists

Page Order

The documentation side menu, the documentation page browser etc. are listed using Hugo's default sort order, which sorts by weight (from 1), date (newest first), and finally by the link title.

Given that, if you want to move a page or a section up, set a weight in the page's front matter:

```
title: My Page
weight: 10
```

Note:

For page weights, it can be smart not to use 1, 2, 3 ..., but some other interval, say 10, 20, 30... This allows you to insert pages where you want later. Additionally, each weight within the same directory (section) should not be overlapped with the other weights. This makes sure that content is always organized correctly, especially in localized content.

Documentation Main Menu

The `Documentation` main menu is built from the sections below `docs/` with the `main_menu` flag set in front matter of the `_index.md` section content file:

```
main_menu: true
```

Note that the link title is fetched from the page's `linkTitle`, so if you want it to be something different than the title, change it in the content file:

```
main_menu: true
title: Page Title
linkTitle: Title used in links
```

Note:

The above needs to be done per language. If you don't see your section in the menu, it is probably because it is not identified as a section by Hugo. Create a `_index.md` content file in the section folder.

Documentation Side Menu

The documentation side-bar menu is built from the *current section tree* starting below `docs/`.

It will show all sections and their pages.

If you don't want to list a section or page, set the `toc_hide` flag to `true` in front matter:

```
toc_hide: true
```

When you navigate to a section that has content, the specific section or page (e.g. `_index.md`) is shown. Else, the first page inside that section is shown.

Documentation Browser

The page browser on the documentation home page is built using all the sections and pages that are directly below the `docs section`.

If you don't want to list a section or page, set the `toc_hide` flag to `true` in front matter:

```
toc_hide: true
```

The Main Menu

The site links in the top-right menu -- and also in the footer -- are built by page-lookups. This is to make sure that the page actually exists. So, if the `case-studies` section does not exist in a site (language), it will not be linked to.

Page Bundles

In addition to standalone content pages (Markdown files), Hugo supports Page Bundles.

One example is Custom Hugo Shortcodes. It is considered a `leaf bundle`. Everything below the directory, including the `index.md`, will be part of the bundle. This also includes page-relative links, images that can be processed etc.:

```
en/docs/home/contribute/includes
├── example1.md
├── example2.md
├── index.md
└── podtemplate.json
```

Another widely used example is the `includes` bundle. It sets `headless: true` in front matter, which means that it does not get its own URL. It is only used in other pages.

```
en/includes
├── default-storage-class-prereqs.md
├── index.md
├── partner-script.js
├── partner-style.css
├── task-tutorial-prereqs.md
├── user-guide-content-moved.md
└── user-guide-migration-notice.md
```

Some important notes to the files in the bundles:

- For translated bundles, any missing non-content files will be inherited from languages above. This avoids duplication.
- All the files in a bundle are what Hugo calls `Resources` and you can provide metadata per language, such as parameters and title, even if it does not supports front matter (YAML files etc.). See Page Resources Metadata.
- The value you get from `.RelPermalink` of a `Resource` is page-relative. See Permalinks.

Styles

The SASS source of the stylesheets for this site is stored in `assets/sass` and is automatically built by Hugo.

What's next

- Learn about custom Hugo shortcodes
- Learn about the Style guide
- Learn about the Content guide

Custom Hugo Shortcodes

This page explains the custom Hugo shortcodes that can be used in Kubernetes Markdown documentation.

Read more about shortcodes in the Hugo documentation.

Feature state

In a Markdown page (`.md` file) on this site, you can add a shortcode to display version and state of the documented feature.

Feature state demo

Below is a demo of the feature state snippet, which displays the feature as stable in the latest Kubernetes version.

```
{{< feature-state state="stable" >}}
```

Renders to:

FEATURE STATE: `Kubernetes v1.34 [stable]`

The valid values for `state` are:

- alpha
- beta
- deprecated
- stable

Feature state code

The displayed Kubernetes version defaults to that of the page or the site. You can change the feature state version by passing the `for_k8s_version` shortcode parameter. For example:

```
{{< feature-state for_k8s_version="v1.10" state="beta" >}}
```

Renders to:

FEATURE STATE: `Kubernetes v1.10 [beta]`

Feature state retrieval from description file

To dynamically determine the state of the feature, make use of the `feature_gate_name` shortcode parameter. The feature state details will be extracted from the corresponding feature gate

description file located in `content/en/docs/reference/command-line-tools-reference/feature-gates/`. For example:

```
{{< feature-state feature_gate_name="NodeSwap" >}}
```

Renders to:

FEATURE STATE: `Kubernetes v1.34 [stable]` (enabled by default: true)

Feature gate description

In a Markdown page (`.md` file) on this site, you can add a shortcode to display the description for a shortcode.

Feature gate description demo

Below is a demo of the feature state snippet, which displays the feature as stable in the latest Kubernetes version.

```
{{< feature-gate-description name="DryRun" >}}
```

Renders to:

`DryRun`: Enable server-side dry run requests so that validation, merging, and mutation can be tested without committing.

Glossary

There are two glossary shortcodes: `glossary_tooltip` and `glossary_definition`.

You can reference glossary terms with an inclusion that automatically updates and replaces content with the relevant links from our glossary. When the glossary term is moused-over, the glossary entry displays a tooltip. The glossary term also displays as a link.

As well as inclusions with tooltips, you can reuse the definitions from the glossary in page content.

The raw data for glossary terms is stored at the glossary directory, with a content file for each glossary term.

Glossary demo

For example, the following include within the Markdown renders to cluster with a tooltip:

```
{{< glossary_tooltip text="cluster" term_id="cluster" >}}
```

Here's a short glossary definition:

```
{{< glossary_definition prepend="A cluster is" term_id="cluster"
length="short" >}}
```

which renders as:

A cluster is a set of worker machines, called nodes, that run containerized applications. Every cluster has at least one worker node.

You can also include a full definition:

```
{{< glossary_definition term_id="cluster" length="all" >}}
```

which renders as:

A set of worker machines, called nodes, that run containerized applications. Every cluster has at least one worker node.

The worker node(s) host the Pods that are the components of the application workload. The control plane manages the worker nodes and the Pods in the cluster. In production environments, the control plane usually runs across multiple computers and a cluster usually runs multiple nodes, providing fault-tolerance and high availability.

Links to API Reference

You can link to a page of the Kubernetes API reference using the `api-reference` shortcode, for example to the Pod reference:

```
{{< api-reference page="workload-resources/pod-v1" >}}
```

The content of the `page` parameter is the suffix of the URL of the API reference page.

You can link to a specific place into a page by specifying an `anchor` parameter, for example to the PodSpec reference or the environment-variables section of the page:

```
{{< api-reference page="workload-resources/pod-v1"
anchor="PodSpec" >}}
{{< api-reference page="workload-resources/pod-v1"
anchor="environment-variables" >}}
```

You can change the text of the link by specifying a `text` parameter, for example by linking to the Environment Variables section of the page:

```
{{< api-reference page="workload-resources/pod-v1"
anchor="environment-variables" text="Environment Variable" >}}
```

Table captions

You can make tables more accessible to screen readers by adding a table caption. To add a caption to a table, enclose the table with a `table` shortcode and specify the caption with the `caption` parameter.

Note:

Table captions are visible to screen readers but invisible when viewed in standard HTML.

Here's an example:

```
{{< table caption="Configuration parameters" >}}
Parameter | Description | Default
:---------|:------------|:-------
`timeout` | The timeout for requests | `30s`
`logLevel` | The log level for log output | `INFO`
{{< /table >}}
```

The rendered table looks like this:

Configuration parameters

Parameter	Description	Default
`timeout`	The timeout for requests	`30s`
`logLevel`	The log level for log output	`INFO`

If you inspect the HTML for the table, you should see this element immediately after the opening `<table>` element:

```
<caption style="display: none;">Configuration parameters</
caption>
```

Tabs

In a markdown page (`.md` file) on this site, you can add a tab set to display multiple flavors of a given solution.

The `tabs` shortcode takes these parameters:

- `name`: The name as shown on the tab.
- `codelang`: If you provide inner content to the `tab` shortcode, you can tell Hugo what code language to use for highlighting.
- `include`: The file to include in the tab. If the tab lives in a Hugo leaf bundle, the file -- which can be any MIME type supported by Hugo -- is looked up in the bundle itself. If not, the content page that needs to be included is looked up relative to the current page. Note that with the `include`, you do not have any shortcode inner content and must use the self-closing syntax. For example, `{{< tab name="Content File #1" include="example1" />}}`. The language needs to be specified under `codelang` or the language is taken based on the file name. Non-content files are code-highlighted by default.
- If your inner content is markdown, you must use the `%`-delimiter to surround the tab. For example, `{{% tab name="Tab 1" %}}This is **markdown**{{% /tab %}}`
- You can combine the variations mentioned above inside a tab set.

Below is a demo of the tabs shortcode.

Note:

The tab **name** in a `tabs` definition must be unique within a content page.

Tabs demo: Code highlighting

```
{{< tabs name="tab_with_code" >}}
{{< tab name="Tab 1" codelang="bash" >}}
echo "This is tab 1."
{{< /tab >}}
{{< tab name="Tab 2" codelang="go" >}}
println "This is tab 2."
{{< /tab >}}
{{< /tabs >}}
```

Renders to:

- Tab 1
- Tab 2

```
echo "This is tab 1."
```

```
println "This is tab 2."
```

Tabs demo: Inline Markdown and HTML

```
{{< tabs name="tab_with_md" >}}
{{% tab name="Markdown" %}}
This is **some markdown.**
{{< note >}}
It can even contain shortcodes.
{{< /note >}}
{{% /tab %}}
{{< tab name="HTML" >}}
<div>
        <h3>Plain HTML</h3>
        <p>This is some <i>plain</i> HTML.</p>
</div>
{{< /tab >}}
{{< /tabs >}}
```

Renders to:

- Markdown
- HTML

This is **some markdown.**

Note:

It can even contain shortcodes.

Plain HTML

This is some *plain* HTML.

Tabs demo: File include

```
{{< tabs name="tab_with_file_include" >}}
{{< tab name="Content File #1" include="example1" />}}
{{< tab name="Content File #2" include="example2" />}}
{{< tab name="JSON File" include="podtemplate" />}}
{{< /tabs >}}
```

Renders to:

- Content File #1
- Content File #2
- JSON File

This is an **example** content file inside the **includes** leaf bundle.

Note:

Included content files can also contain shortcodes.

This is another **example** content file inside the **includes** leaf bundle.

```
  {
    "apiVersion": "v1",
    "kind": "PodTemplate",
    "metadata": {
      "name": "nginx"
    },
    "template": {
      "metadata": {
        "labels": {
          "name": "nginx"
        },
        "generateName": "nginx-"
      },
      "spec": {
         "containers": [{
           "name": "nginx",
           "image": "dockerfile/nginx",
           "ports": [{"containerPort": 80}]
         }]
      }
    }
  }
```

Source code files

You can use the `{{% code_sample %}}` shortcode to embed the contents of file in a code block to allow users to download or copy its content to their clipboard. This shortcode is used when the contents of the sample file is generic and reusable, and you want the users to try it out themselves.

This shortcode takes in two named parameters: `language` and `file`. The mandatory parameter `file` is used to specify the path to the file being displayed. The optional parameter `language` is used to specify the programming language of the file. If the `language` parameter is not provided, the shortcode will attempt to guess the language based on the file extension.

For example:

```
{{% code_sample language="yaml" file="application/deployment-
scale.yaml" %}}
```

The output is:

application/deployment-scale.yaml

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nginx-deployment
spec:
```

```
  selector:
    matchLabels:
      app: nginx
  replicas: 4 # Update the replicas from 2 to 4
  template:
    metadata:
      labels:
        app: nginx
    spec:
      containers:
      - name: nginx
        image: nginx:1.16.1
        ports:
        - containerPort: 80
```

When adding a new sample file, such as a YAML file, create the file in one of the `<LANG>/examples/` subdirectories where `<LANG>` is the language for the page. In the markdown of your page, use the `code` shortcode:

```
{{% code_sample file="<RELATIVE-PATH>/example-yaml>" %}}
```

where `<RELATIVE-PATH>` is the path to the sample file to include, relative to the `examples` directory. The following shortcode references a YAML file located at `/content/en/examples/configmap/configmaps.yaml`.

```
{{% code_sample file="configmap/configmaps.yaml" %}}
```

The legacy `{{% codenew %}}` shortcode is being replaced by `{{% code_sample %}}`. Use `{{% code_sample %}}` (not `{{% codenew %}}` or `{{% code %}}`) in new documentation.

Third party content marker

Running Kubernetes requires third-party software. For example: you usually need to add a DNS server to your cluster so that name resolution works.

When we link to third-party software, or otherwise mention it, we follow the content guide and we also mark those third party items.

Using these shortcodes adds a disclaimer to any documentation page that uses them.

Lists

For a list of several third-party items, add:

```
{{% thirdparty-content %}}
```

just below the heading for the section that includes all items.

Items

If you have a list where most of the items refer to in-project software (for example: Kubernetes itself, and the separate Descheduler component), then there is a different form to use.

Add the shortcode:

```
{{% thirdparty-content single="true" %}}
```

before the item, or just below the heading for the specific item.

Details

You can render a `<details>` HTML element using a shortcode:

```
{{< details summary="More about widgets" >}}
The frobnicator extension API implements _widgets_ using example
running text.

Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet,
consectetur,
adipisci velit, sed quia non numquam eius modi tempora incidunt
ut labore et
dolore magnam aliquam quaerat voluptatem.
{{< /details >}}
```

This renders as:

More about widgets

The frobnicator extension API implements *widgets* using example running text.

Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit, sed quia non numquam eius modi tempora incidunt ut labore et dolore magnam aliquam quaerat voluptatem.

Note:

Use this shortcode sparingly; it is usually best to have all of the text directly shown to readers.

Version strings

To generate a version string for inclusion in the documentation, you can choose from several version shortcodes. Each version shortcode displays a version string derived from the value of a version parameter found in the site configuration file, `hugo.toml`. The two most commonly used version parameters are `latest` and `version`.

`{{< param "version" >}}`

The `{{< param "version" >}}` shortcode generates the value of the current version of the Kubernetes documentation from the `version` site parameter. The `param` shortcode accepts the name of one site parameter, in this case: `version`.

Note:

In previously released documentation, `latest` and `version` parameter values are not equivalent. After a new version is released, `latest` is incremented and the value of `version` for the documentation set remains unchanged. For example, a previously released version of the documentation displays `version` as `v1.19` and `latest` as `v1.20`.

Renders to:

v1.34

`{{< latest-version >}}`

The `{{< latest-version >}}` shortcode returns the value of the `latest` site parameter. The `latest` site parameter is updated when a new version of the documentation is released. This parameter does not always match the value of `version` in a documentation set.

Renders to:

v1.34

`{{< latest-semver >}}`

The `{{< latest-semver >}}` shortcode generates the value of `latest` without the "v" prefix.

Renders to:

1.34

`{{< version-check >}}`

The `{{< version-check >}}` shortcode checks if the `min-kubernetes-server-version` page parameter is present and then uses this value to compare to `version`.

Renders to:

To check the version, enter `kubectl version`.

`{{< latest-release-notes >}}`

The `{{< latest-release-notes >}}` shortcode generates a version string from `latest` and removes the "v" prefix. The shortcode prints a new URL for the release note CHANGELOG page with the modified version string.

Renders to:

https://git.k8s.io/kubernetes/CHANGELOG/CHANGELOG-1.34.md

What's next

- Learn about Hugo.
- Learn about writing a new topic.
- Learn about page content types.
- Learn about opening a pull request.
- Learn about advanced contributing.

Updating Reference Documentation

The topics in this section document how to generate the Kubernetes reference guides.

To build the reference documentation, see the following guide:

- Generating Reference Documentation Quickstart

Contributing to the Upstream Kubernetes Code

Generating Reference Documentation for the Kubernetes API

Generating Reference Documentation for kubectl Commands

Generating Reference Documentation for Metrics

Generating Reference Pages for Kubernetes Components and Tools

Reference Documentation Quickstart

This page shows how to use the `update-imported-docs.py` script to generate the Kubernetes reference documentation. The script automates the build setup and generates the reference documentation for a release.

Before you begin

Requirements:

- You need a machine that is running Linux or macOS.
- You need to have these tools installed:
  - Python v3.7.x+
  - Git
  - Golang version 1.13+
  - Pip used to install PyYAML
  - PyYAML v5.1.2
  - make
  - gcc compiler/linker
  - Docker (Required only for `kubectl` command reference)
- Your `PATH` environment variable must include the required build tools, such as the `Go` binary and `python`.
- You need to know how to create a pull request to a GitHub repository. This involves creating your own fork of the repository. For more information, see Work from a local clone.

Getting the docs repository

Make sure your `website` fork is up-to-date with the `kubernetes/website` remote on GitHub (`main` branch), and clone your `website` fork.

```
mkdir github.com
cd github.com
git clone git@github.com:<your_github_username>/website.git
```

Determine the base directory of your clone. For example, if you followed the preceding step to get the repository, your base directory is `github.com/website.` The remaining steps refer to your base directory as `<web-base>`.

Note:

If you want to change the content of the component tools and API reference, see the contributing upstream guide.

Overview of update-imported-docs

The `update-imported-docs.py` script is located in the `<web-base>/update-imported-docs/` directory.

The script builds the following references:

- Component and tool reference pages
- The `kubectl` command reference
- The Kubernetes API reference

Note:

The `kubelet` reference page is not generated by this script and is maintained manually. To update the kubelet reference, follow the standard contribution process described in Opening a pull request.

The `update-imported-docs.py` script generates the Kubernetes reference documentation from the Kubernetes source code. The script creates a temporary directory under `/tmp` on your machine and clones the required repositories: `kubernetes/kubernetes` and `kubernetes-sigs/reference-docs` into this directory. The script sets your `GOPATH` to this temporary directory. Three additional environment variables are set:

- `K8S_RELEASE`
- `K8S_ROOT`
- `K8S_WEBROOT`

The script requires two arguments to run successfully:

- A YAML configuration file (`reference.yml`)
- A release version, for example:`1.17`

The configuration file contains a `generate-command` field. The `generate-command` field defines a series of build instructions from `kubernetes-sigs/reference-docs/Makefile`. The `K8S_RELEASE` variable determines the version of the release.

The `update-imported-docs.py` script performs the following steps:

1. Clones the related repositories specified in a configuration file. For the purpose of generating reference docs, the repository that is cloned by default is `kubernetes-sigs/reference-docs`.

2. Runs commands under the cloned repositories to prepare the docs generator and then generates the HTML and Markdown files.
3. Copies the generated HTML and Markdown files to a local clone of the `<web-base>` repository under locations specified in the configuration file.
4. Updates `kubectl` command links from `kubectl`.md to the refer to the sections in the `kubectl` command reference.

When the generated files are in your local clone of the `<web-base>` repository, you can submit them in a pull request to `<web-base>`.

Configuration file format

Each configuration file may contain multiple repos that will be imported together. When necessary, you can customize the configuration file by manually editing it. You may create new config files for importing other groups of documents. The following is an example of the YAML configuration file:

```
repos:
- name: community
  remote: https://github.com/kubernetes/community.git
  branch: master
  files:
  - src: contributors/devel/README.md
    dst: docs/imported/community/devel.md
  - src: contributors/guide/README.md
    dst: docs/imported/community/guide.md
```

Single page Markdown documents, imported by the tool, must adhere to the Documentation Style Guide.

Customizing reference.yml

Open `<web-base>/update-imported-docs/reference.yml` for editing. Do not change the content for the `generate-command` field unless you understand how the command is used to build the references. You should not need to update `reference.yml`. At times, changes in the upstream source code, may require changes to the configuration file (for example: golang version dependencies and third-party library changes). If you encounter build issues, contact the SIG-Docs team on the #sig-docs Kubernetes Slack channel.

Note:

The `generate-command` is an optional entry, which can be used to run a given command or a short script to generate the docs from within a repository.

In `reference.yml`, `files` contains a list of `src` and `dst` fields. The `src` field contains the location of a generated Markdown file in the cloned `kubernetes-sigs/reference-docs` build directory, and the `dst` field specifies where to copy this file in the cloned `kubernetes/website` repository. For example:

```
repos:
- name: reference-docs
  remote: https://github.com/kubernetes-sigs/reference-docs.git
  files:
  - src: gen-compdocs/build/kube-apiserver.md
    dst: content/en/docs/reference/command-line-tools-reference/
```

```
kube-apiserver.md
  ...
```

Note that when there are many files to be copied from the same source directory to the same destination directory, you can use wildcards in the value given to `src`. You must provide the directory name as the value for `dst`. For example:

```
  files:
  - src: gen-compdocs/build/kubeadm*.md
    dst: content/en/docs/reference/setup-tools/kubeadm/generated/
```

Running the update-imported-docs tool

You can run the `update-imported-docs.py` tool as follows:

```
cd <web-base>/update-imported-docs
./update-imported-docs.py <configuration-file.yml> <release-
version>
```

For example:

```
./update-imported-docs.py reference.yml 1.17
```

Fixing Links

The `release.yml` configuration file contains instructions to fix relative links. To fix relative links within your imported files, set the`gen-absolute-links` property to `true`. You can find an example of this in `release.yml`.

Adding and committing changes in kubernetes/website

List the files that were generated and copied to `<web-base>`:

```
cd <web-base>
git status
```

The output shows the new and modified files. The generated output varies depending upon changes made to the upstream source code.

Generated component tool files

```
content/en/docs/reference/command-line-tools-reference/kube-
apiserver.md
content/en/docs/reference/command-line-tools-reference/kube-
controller-manager.md
content/en/docs/reference/command-line-tools-reference/kube-
proxy.md
content/en/docs/reference/command-line-tools-reference/kube-
scheduler.md
content/en/docs/reference/setup-tools/kubeadm/generated/
kubeadm.md
content/en/docs/reference/kubectl/kubectl.md
```

Generated kubectl command reference files

```
static/docs/reference/generated/kubectl/kubectl-commands.html
static/docs/reference/generated/kubectl/navData.js
static/docs/reference/generated/kubectl/scroll.js
static/docs/reference/generated/kubectl/stylesheet.css
static/docs/reference/generated/kubectl/tabvisibility.js
static/docs/reference/generated/kubectl/node_modules/bootstrap/
dist/css/bootstrap.min.css
static/docs/reference/generated/kubectl/node_modules/
highlight.js/styles/default.css
static/docs/reference/generated/kubectl/node_modules/
jquery.scrollto/jquery.scrollTo.min.js
static/docs/reference/generated/kubectl/node_modules/jquery/dist/
jquery.min.js
static/docs/reference/generated/kubectl/css/font-awesome.min.css
```

Generated Kubernetes API reference directories and files

```
static/docs/reference/generated/kubernetes-api/v1.34/index.html
static/docs/reference/generated/kubernetes-api/v1.34/js/
navData.js
static/docs/reference/generated/kubernetes-api/v1.34/js/scroll.js
static/docs/reference/generated/kubernetes-api/v1.34/js/
query.scrollTo.min.js
static/docs/reference/generated/kubernetes-api/v1.34/css/font-
awesome.min.css
static/docs/reference/generated/kubernetes-api/v1.34/css/
bootstrap.min.css
static/docs/reference/generated/kubernetes-api/v1.34/css/
stylesheet.css
static/docs/reference/generated/kubernetes-api/v1.34/fonts/
FontAwesome.otf
static/docs/reference/generated/kubernetes-api/v1.34/fonts/
fontawesome-webfont.eot
static/docs/reference/generated/kubernetes-api/v1.34/fonts/
fontawesome-webfont.svg
static/docs/reference/generated/kubernetes-api/v1.34/fonts/
fontawesome-webfont.ttf
static/docs/reference/generated/kubernetes-api/v1.34/fonts/
fontawesome-webfont.woff
static/docs/reference/generated/kubernetes-api/v1.34/fonts/
fontawesome-webfont.woff2
```

Run `git add` and `git commit` to commit the files.

Creating a pull request

Create a pull request to the `kubernetes/website` repository. Monitor your pull request, and respond to review comments as needed. Continue to monitor your pull request until it is merged.

A few minutes after your pull request is merged, your updated reference topics will be visible in the published documentation.

What's next

To generate the individual reference documentation by manually setting up the required build repositories and running the build targets, see the following guides:

- Generating Reference Documentation for Kubernetes Components and Tools
- Generating Reference Documentation for kubectl Commands
- Generating Reference Documentation for the Kubernetes API

Contributing to the Upstream Kubernetes Code

This page shows how to contribute to the upstream `kubernetes/kubernetes` project. You can fix bugs found in the Kubernetes API documentation or the content of the Kubernetes components such as `kubeadm`, `kube-apiserver`, and `kube-controller-manager`.

If you instead want to regenerate the reference documentation for the Kubernetes API or the `kube-*` components from the upstream code, see the following instructions:

- Generating Reference Documentation for the Kubernetes API
- Generating Reference Documentation for the Kubernetes Components and Tools

Before you begin

- You need to have these tools installed:
  - Git
  - Golang version 1.13+
  - Docker
  - etcd
  - make
  - gcc compiler/linker
- Your `GOPATH` environment variable must be set, and the location of `etcd` must be in your `PATH` environment variable.
- You need to know how to create a pull request to a GitHub repository. Typically, this involves creating a fork of the repository. For more information, see Creating a Pull Request and GitHub Standard Fork & Pull Request Workflow.

The big picture

The reference documentation for the Kubernetes API and the `kube-*` components such as `kube-apiserver`, `kube-controller-manager` are automatically generated from the source code in the upstream Kubernetes.

When you see bugs in the generated documentation, you may want to consider creating a patch to fix it in the upstream project.

Clone the Kubernetes repository

If you don't already have the kubernetes/kubernetes repository, get it now:

```
mkdir $GOPATH/src
cd $GOPATH/src
go get github.com/kubernetes/kubernetes
```

Determine the base directory of your clone of the kubernetes/kubernetes repository. For example, if you followed the preceding step to get the repository, your base directory is `$GOPATH/src/github.com/kubernetes/kubernetes`. The remaining steps refer to your base directory as `<k8s-base>`.

Determine the base directory of your clone of the kubernetes-sigs/reference-docs repository. For example, if you followed the preceding step to get the repository, your base directory is `$GOPATH/src/github.com/kubernetes-sigs/reference-docs`. The remaining steps refer to your base directory as `<rdocs-base>`.

Edit the Kubernetes source code

The Kubernetes API reference documentation is automatically generated from an OpenAPI spec, which is generated from the Kubernetes source code. If you want to change the API reference documentation, the first step is to change one or more comments in the Kubernetes source code.

The documentation for the `kube-*` components is also generated from the upstream source code. You must change the code related to the component you want to fix in order to fix the generated documentation.

Make changes to the upstream source code

Note:

The following steps are an example, not a general procedure. Details will be different in your situation.

Here's an example of editing a comment in the Kubernetes source code.

In your local kubernetes/kubernetes repository, check out the default branch, and make sure it is up to date:

```
cd <k8s-base>
git checkout master
git pull https://github.com/kubernetes/kubernetes master
```

Suppose this source file in that default branch has the typo "atmost":

kubernetes/kubernetes/staging/src/k8s.io/api/apps/v1/types.go

In your local environment, open `types.go`, and change "atmost" to "at most".

Verify that you have changed the file:

```
git status
```

The output shows that you are on the master branch, and that the `types.go` source file has been modified:

```
On branch master
...
    modified:   staging/src/k8s.io/api/apps/v1/types.go
```

Commit your edited file

Run `git add` and `git commit` to commit the changes you have made so far. In the next step, you will do a second commit. It is important to keep your changes separated into two commits.

Generate the OpenAPI spec and related files

Go to `<k8s-base>` and run these scripts:

```
./hack/update-codegen.sh
./hack/update-openapi-spec.sh
```

Run `git status` to see what was generated.

```
On branch master
...
    modified:   api/openapi-spec/swagger.json
    modified:   api/openapi-spec/v3/apis__apps__v1_openapi.json
    modified:   pkg/generated/openapi/zz_generated.openapi.go
    modified:   staging/src/k8s.io/api/apps/v1/generated.proto
    modified:   staging/src/k8s.io/api/apps/v1/
types_swagger_doc_generated.go
```

View the contents of `api/openapi-spec/swagger.json` to make sure the typo is fixed. For example, you could run `git diff -a api/openapi-spec/swagger.json`. This is important, because `swagger.json` is the input to the second stage of the doc generation process.

Run `git add` and `git commit` to commit your changes. Now you have two commits: one that contains the edited `types.go` file, and one that contains the generated OpenAPI spec and related files. Keep these two commits separate. That is, do not squash your commits.

Submit your changes as a pull request to the master branch of the kubernetes/kubernetes repository. Monitor your pull request, and respond to reviewer comments as needed. Continue to monitor your pull request until it is merged.

PR 57758 is an example of a pull request that fixes a typo in the Kubernetes source code.

Note:

It can be tricky to determine the correct source file to be changed. In the preceding example, the authoritative source file is in the `staging` directory in the `kubernetes/kubernetes` repository. But in your situation,the `staging` directory might not be the place to find the authoritative source. For guidance, check the `README` files in kubernetes/kubernetes repository and in related repositories, such as kubernetes/apiserver.

Cherry pick your commit into a release branch

In the preceding section, you edited a file in the master branch and then ran scripts to generate an OpenAPI spec and related files. Then you submitted your changes in a pull request to the master branch of the kubernetes/kubernetes repository. Now suppose you want to backport your change into a release branch. For example, suppose the master branch is being used to develop Kubernetes version 1.34, and you want to backport your change into the release-1.33 branch.

Recall that your pull request has two commits: one for editing `types.go` and one for the files generated by scripts. The next step is to propose a cherry pick of your first commit into the release-1.33 branch. The idea is to cherry pick the commit that edited `types.go`, but not the commit that has the results of running the scripts. For instructions, see Propose a Cherry Pick.

Note:

Proposing a cherry pick requires that you have permission to set a label and a milestone in your pull request. If you don't have those permissions, you will need to work with someone who can set the label and milestone for you.

When you have a pull request in place for cherry picking your one commit into the release-1.33 branch, the next step is to run these scripts in the release-1.33 branch of your local environment.

```
./hack/update-codegen.sh
./hack/update-openapi-spec.sh
```

Now add a commit to your cherry-pick pull request that has the recently generated OpenAPI spec and related files. Monitor your pull request until it gets merged into the release-1.33 branch.

At this point, both the master branch and the release-1.33 branch have your updated `types.go` file and a set of generated files that reflect the change you made to `types.go`. Note that the generated OpenAPI spec and other generated files in the release-1.33 branch are not necessarily the same as the generated files in the master branch. The generated files in the release-1.33 branch contain API elements only from Kubernetes 1.33. The generated files in the master branch might contain API elements that are not in 1.33, but are under development for 1.34.

Generate the published reference docs

The preceding section showed how to edit a source file and then generate several files, including `api/openapi-spec/swagger.json` in the `kubernetes/kubernetes` repository. The `swagger.json` file is the OpenAPI definition file to use for generating the API reference documentation.

You are now ready to follow the Generating Reference Documentation for the Kubernetes API guide to generate the published Kubernetes API reference documentation.

What's next

- Generating Reference Documentation for the Kubernetes API
- Generating Reference Docs for Kubernetes Components and Tools
- Generating Reference Documentation for kubectl Commands

Generating Reference Documentation for the Kubernetes API

This page shows how to update the Kubernetes API reference documentation.

The Kubernetes API reference documentation is built from the Kubernetes OpenAPI spec using the kubernetes-sigs/reference-docs generation code.

If you find bugs in the generated documentation, you need to fix them upstream.

If you need only to regenerate the reference documentation from the OpenAPI spec, continue reading this page.

Before you begin

Requirements:

- You need a machine that is running Linux or macOS.
- You need to have these tools installed:
  - Python v3.7.x+
  - Git
  - Golang version 1.13+
  - Pip used to install PyYAML
  - PyYAML v5.1.2
  - make
  - gcc compiler/linker
  - Docker (Required only for `kubectl` command reference)
- Your `PATH` environment variable must include the required build tools, such as the `Go` binary and `python`.
- You need to know how to create a pull request to a GitHub repository. This involves creating your own fork of the repository. For more information, see Work from a local clone.

Set up the local repositories

Create a local workspace and set your `GOPATH`:

```
mkdir -p $HOME/<workspace>

export GOPATH=$HOME/<workspace>
```

Get a local clone of the following repositories:

```
git clone github.com/kubernetes-sigs/reference-docs
```

Move into the `gen-apidocs` directory of the `reference-docs` repository and install the required Go packages:

```
go get -u github.com/go-openapi/loads
go get -u github.com/go-openapi/spec
```

If you don't already have the kubernetes/website repository, get it now:

```
git clone https://github.com/<your-username>/website
```

Get a clone of the kubernetes/kubernetes repository:

```
git clone https://github.com/kubernetes/kubernetes
```

- The base directory of your clone of the kubernetes/kubernetes repository is `<your-path-to>/kubernetes/kubernetes`. The remaining steps refer to your base directory as `<k8s-base>`.
- The base directory of your clone of the kubernetes/website repository is `<your-path-to>/website`. The remaining steps refer to your base directory as `<web-base>`.
- The base directory of your clone of the kubernetes-sigs/reference-docs repository is `<your-path-to>/reference-docs`. The remaining steps refer to your base directory as `<rdocs-base>`.

Generate the API reference docs

This section shows how to generate the published Kubernetes API reference documentation.

Set build variables

- Set `K8S_ROOT` to `<k8s-base>`.
- Set `K8S_WEBROOT` to `<web-base>`.
- Set `K8S_RELEASE` to the version of the docs you want to build. For example, if you want to build docs for Kubernetes 1.17.0, set `K8S_RELEASE` to 1.17.0.

For example:

```
export K8S_WEBROOT=<your-path-to>/website
export K8S_ROOT=<your-path-to>/kubernetes
export K8S_RELEASE=1.17.0
```

Create versioned directory and fetch Open API spec

The `updateapispec` build target creates the versioned build directory. After the directory is created, the Open API spec is fetched from the `<k8s-base>` repository. These steps ensure that the version of the configuration files and Kubernetes Open API spec match the release version. The versioned directory name follows the pattern of `v<major>_<minor>`.

In the `<rdocs-base>` directory, run the following build target:

```
cd <rdocs-base>
make updateapispec
```

Build the API reference docs

The `copyapi` target builds the API reference and copies the generated files to directories in `<web-base>`. Run the following command in `<rdocs-base>`:

```
cd <rdocs-base>
make copyapi
```

Verify that these two files have been generated:

```
[ -e "<rdocs-base>/gen-apidocs/build/index.html" ] && echo "index
.html built" || echo "no index.html"
[ -e "<rdocs-base>/gen-apidocs/build/navData.js" ] && echo "navDa
ta.js built" || echo "no navData.js"
```

Go to the base of your local `<web-base>`, and view which files have been modified:

```
cd <web-base>
git status
```

The output is similar to:

```
static/docs/reference/generated/kubernetes-api/v1.34/css/
bootstrap.min.css
static/docs/reference/generated/kubernetes-api/v1.34/css/font-
awesome.min.css
static/docs/reference/generated/kubernetes-api/v1.34/css/
stylesheet.css
static/docs/reference/generated/kubernetes-api/v1.34/fonts/
FontAwesome.otf
static/docs/reference/generated/kubernetes-api/v1.34/fonts/
fontawesome-webfont.eot
static/docs/reference/generated/kubernetes-api/v1.34/fonts/
fontawesome-webfont.svg
static/docs/reference/generated/kubernetes-api/v1.34/fonts/
fontawesome-webfont.ttf
static/docs/reference/generated/kubernetes-api/v1.34/fonts/
fontawesome-webfont.woff
static/docs/reference/generated/kubernetes-api/v1.34/fonts/
fontawesome-webfont.woff2
static/docs/reference/generated/kubernetes-api/v1.34/index.html
static/docs/reference/generated/kubernetes-api/v1.34/js/
jquery.scrollTo.min.js
static/docs/reference/generated/kubernetes-api/v1.34/js/
navData.js
static/docs/reference/generated/kubernetes-api/v1.34/js/scroll.js
```

API reference location and versioning

The generated API reference files (HTML version) are copied to `<web-base>/static/docs/reference/generated/kubernetes-api/v1.34/`. This directory contains the standalone HTML API documentation.

Note:

The Markdown version of the API reference located at `<web-base>/content/en/docs/reference/kubernetes-api/` is generated separately using the gen-resourcesdocs generator.

Locally test the API reference

Publish a local version of the API reference. Verify the local preview.

```
cd <web-base>
git submodule update --init --recursive --depth 1 # if not
already done
make container-serve
```

Commit the changes

In `<web-base>`, run `git add` and `git commit` to commit the change.

Submit your changes as a pull request to the kubernetes/website repository. Monitor your pull request, and respond to reviewer comments as needed. Continue to monitor your pull request until it has been merged.

What's next

- Generating Reference Documentation Quickstart
- Generating Reference Docs for Kubernetes Components and Tools
- Generating Reference Documentation for kubectl Commands

Generating Reference Documentation for kubectl Commands

This page shows how to generate the `kubectl` command reference.

Note:

This topic shows how to generate reference documentation for kubectl commands like kubectl apply and kubectl taint. This topic does not show how to generate the kubectl options reference page. For instructions on how to generate the kubectl options reference page, see Generating Reference Pages for Kubernetes Components and Tools.

Before you begin

Requirements:

- You need a machine that is running Linux or macOS.
- You need to have these tools installed:
  - Python v3.7.x+
  - Git
  - Golang version 1.13+
  - Pip used to install PyYAML
  - PyYAML v5.1.2
  - make

    - gcc compiler/linker
    - Docker (Required only for `kubectl` command reference)

- Your `PATH` environment variable must include the required build tools, such as the `Go` binary and `python`.

- You need to know how to create a pull request to a GitHub repository. This involves creating your own fork of the repository. For more information, see Work from a local clone.

Set up the local repositories

Create a local workspace and set your `GOPATH`:

```
mkdir -p $HOME/<workspace>

export GOPATH=$HOME/<workspace>
```

Get a local clone of the following repositories:

```
go get -u github.com/spf13/pflag
go get -u github.com/spf13/cobra
go get -u gopkg.in/yaml.v2
go get -u github.com/kubernetes-sigs/reference-docs
```

If you don't already have the kubernetes/website repository, get it now:

```
git clone https://github.com/<your-username>/website $GOPATH/src/
github.com/<your-username>/website
```

Get a clone of the kubernetes/kubernetes repository as k8s.io/kubernetes:

```
git clone https://github.com/kubernetes/kubernetes $GOPATH/src/
k8s.io/kubernetes
```

Remove the spf13 package from `$GOPATH/src/k8s.io/kubernetes/vendor/github.com`:

```
rm -rf $GOPATH/src/k8s.io/kubernetes/vendor/github.com/spf13
```

The kubernetes/kubernetes repository provides the `kubectl` and `kustomize` source code.

- Determine the base directory of your clone of the kubernetes/kubernetes repository. For example, if you followed the preceding step to get the repository, your base directory is `$GOPATH/src/k8s.io/kubernetes`. The remaining steps refer to your base directory as `<k8s-base>`.

- Determine the base directory of your clone of the kubernetes/website repository. For example, if you followed the preceding step to get the repository, your base directory is `$GOPATH/src/github.com/<your-username>/website`. The remaining steps refer to your base directory as `<web-base>`.

- Determine the base directory of your clone of the kubernetes-sigs/reference-docs repository. For example, if you followed the preceding step to get the repository, your base directory is `$GOPATH/src/github.com/kubernetes-sigs/reference-docs`. The remaining steps refer to your base directory as `<rdocs-base>`.

In your local k8s.io/kubernetes repository, check out the branch of interest, and make sure it is up to date. For example, if you want to generate docs for Kubernetes 1.33.0, you could use these commands:

```
cd <k8s-base>
git checkout v1.33.0
git pull https://github.com/kubernetes/kubernetes 1.33.0
```

If you do not need to edit the `kubectl` source code, follow the instructions for Setting build variables.

Edit the kubectl source code

The kubectl command reference documentation is automatically generated from the kubectl source code. If you want to change the reference documentation, the first step is to change one or more comments in the kubectl source code. Make the change in your local kubernetes/kubernetes repository, and then submit a pull request to the master branch of github.com/kubernetes/kubernetes.

PR 56673 is an example of a pull request that fixes a typo in the kubectl source code.

Monitor your pull request, and respond to reviewer comments. Continue to monitor your pull request until it is merged into the target branch of the kubernetes/kubernetes repository.

Cherry pick your change into a release branch

Your change is now in the master branch, which is used for development of the next Kubernetes release. If you want your change to appear in the docs for a Kubernetes version that has already been released, you need to propose that your change be cherry picked into the release branch.

For example, suppose the master branch is being used to develop Kubernetes 1.34 and you want to backport your change to the release-1.33 branch. For instructions on how to do this, see Propose a Cherry Pick.

Monitor your cherry-pick pull request until it is merged into the release branch.

Note:

Proposing a cherry pick requires that you have permission to set a label and a milestone in your pull request. If you don't have those permissions, you will need to work with someone who can set the label and milestone for you.

Set build variables

Go to `<rdocs-base>`. On you command line, set the following environment variables.

- Set `K8S_ROOT` to `<k8s-base>`.
- Set `K8S_WEBROOT` to `<web-base>`.
- Set `K8S_RELEASE` to the version of the docs you want to build. For example, if you want to build docs for Kubernetes 1.33, set `K8S_RELEASE` to 1.33.

For example:

```
export K8S_WEBROOT=$GOPATH/src/github.com/<your-username>/website
export K8S_ROOT=$GOPATH/src/k8s.io/kubernetes
export K8S_RELEASE=1.33
```

Creating a versioned directory

The `createversiondirs` build target creates a versioned directory and copies the kubectl reference configuration files to the versioned directory. The versioned directory name follows the pattern of `v<major>_<minor>`.

In the `<rdocs-base>` directory, run the following build target:

```
cd <rdocs-base>
make createversiondirs
```

Check out a release tag in k8s.io/kubernetes

In your local `<k8s-base>` repository, check out the branch that has the version of Kubernetes that you want to document. For example, if you want to generate docs for Kubernetes 1.33.0, check out the `v1.33` tag. Make sure your local branch is up to date.

```
cd <k8s-base>
git checkout v1.33.0
git pull https://github.com/kubernetes/kubernetes v1.33.0
```

Run the doc generation code

In your local `<rdocs-base>`, run the `copycli` build target. The command runs as `root`:

```
cd <rdocs-base>
make copycli
```

The `copycli` command cleans the temporary build directory, generates the kubectl command files, and copies the collated kubectl command reference HTML page and assets to `<web-base>`.

Locate the generated files

Verify that these two files have been generated:

```
[ -e "<rdocs-base>/gen-kubectldocs/generators/build/index.html" ]
&& echo "index.html built" || echo "no index.html"
[ -e "<rdocs-base>/gen-kubectldocs/generators/build/navData.js" ]
&& echo "navData.js built" || echo "no navData.js"
```

Locate the copied files

Verify that all generated files have been copied to your `<web-base>`:

```
cd <web-base>
git status
```

The output should include the modified files:

```
static/docs/reference/generated/kubectl/kubectl-commands.html
static/docs/reference/generated/kubectl/navData.js
```

The output may also include:

```
static/docs/reference/generated/kubectl/scroll.js
static/docs/reference/generated/kubectl/stylesheet.css
static/docs/reference/generated/kubectl/tabvisibility.js
static/docs/reference/generated/kubectl/node_modules/bootstrap/
dist/css/bootstrap.min.css
static/docs/reference/generated/kubectl/node_modules/
highlight.js/styles/default.css
static/docs/reference/generated/kubectl/node_modules/
jquery.scrollto/jquery.scrollTo.min.js
static/docs/reference/generated/kubectl/node_modules/jquery/dist/
jquery.min.js
static/docs/reference/generated/kubectl/node_modules/font-
awesome/css/font-awesome.min.css
```

Locally test the documentation

Build the Kubernetes documentation in your local `<web-base>`.

```
cd <web-base>
git submodule update --init --recursive --depth 1 # if not
already done
make container-serve
```

View the local preview.

Add and commit changes in kubernetes/website

Run `git add` and `git commit` to commit the files.

Create a pull request

Create a pull request to the `kubernetes/website` repository. Monitor your pull request, and respond to review comments as needed. Continue to monitor your pull request until it is merged.

A few minutes after your pull request is merged, your updated reference topics will be visible in the published documentation.

What's next

- Generating Reference Documentation Quickstart
- Generating Reference Documentation for Kubernetes Components and Tools
- Generating Reference Documentation for the Kubernetes API

Generating Reference Documentation for Metrics

This page demonstrates the generation of metrics reference documentation.

Before you begin

Requirements:

- You need a machine that is running Linux or macOS.
- You need to have these tools installed:
  - Python v3.7.x+
  - Git
  - Golang version 1.13+
  - Pip used to install PyYAML
  - PyYAML v5.1.2
  - make
  - gcc compiler/linker
  - Docker (Required only for `kubectl` command reference)
- Your `PATH` environment variable must include the required build tools, such as the `Go` binary and `python`.
- You need to know how to create a pull request to a GitHub repository. This involves creating your own fork of the repository. For more information, see Work from a local clone.

Clone the Kubernetes repository

The metric generation happens in the Kubernetes repository. To clone the repository, change directories to where you want the clone to exist.

Then, execute the following command:

```
git clone https://www.github.com/kubernetes/kubernetes
```

This creates a `kubernetes` folder in your current working directory.

Generate the metrics

Inside the cloned Kubernetes repository, locate the `test/instrumentation/documentation` directory. The metrics documentation is generated in this directory.

With each release, new metrics are added. After you run the metrics documentation generator script, copy the metrics documentation to the Kubernetes website and publish the updated metrics documentation.

To generate the latest metrics, make sure you are in the root of the cloned Kubernetes directory. Then, execute the following command:

```
./test/instrumentation/update-documentation.sh
```

To check for changes, execute:

```
git status
```

The output is similar to:

```
./test/instrumentation/documentation/documentation.md
./test/instrumentation/documentation/documentation-list.yaml
```

Copy the generated metrics documentation file to the Kubernetes website repository

1. Set the Kubernetes website root environment variable.

   Execute the following command to set the website root:

   ```
   export WEBSITE_ROOT=<path to website root>
   ```

2. Copy the generated metrics file to the Kubernetes website repository.

   ```
   cp ./test/instrumentation/documentation/documentation.md "${W
   EBSITE_ROOT}/content/en/docs/reference/instrumentation/
   metrics.md"
   ```

   Note:

   If you get an error, check that you have permission to copy the file. You can use `chown` to change the file ownership back to your own user.

Create a pull request

To create a pull request, follow the instructions in Opening a pull request.

What's next

- Contribute-upstream
- Generating Reference Docs for Kubernetes Components and Tools
- Generating Reference Documentation for kubectl Commands

Generating Reference Pages for Kubernetes Components and Tools

This page shows how to build the Kubernetes component and tool reference pages.

Before you begin

Start with the Prerequisites section in the Reference Documentation Quickstart guide.

Follow the Reference Documentation Quickstart to generate the Kubernetes component and tool reference pages.

What's next

- Generating Reference Documentation Quickstart
- Generating Reference Documentation for kubectl Commands
- Generating Reference Documentation for the Kubernetes API
- Contributing to the Upstream Kubernetes Project for Documentation

Requirements:

- You need a machine that is running Linux or macOS.
- You need to have these tools installed:
  - Python v3.7.x+
  - Git
  - Golang version 1.13+
  - Pip used to install PyYAML
  - PyYAML v5.1.2
  - make
  - gcc compiler/linker
  - Docker (Required only for `kubectl` command reference)
- Your `PATH` environment variable must include the required build tools, such as the `Go` binary and `python`.
- You need to know how to create a pull request to a GitHub repository. This involves creating your own fork of the repository. For more information, see Work from a local clone.

Advanced contributing

This page assumes that you understand how to contribute to new content and review others' work, and are ready to learn about more ways to contribute. You need to use the Git command line client and other tools for some of these tasks.

Propose improvements

SIG Docs members can propose improvements.

After you've been contributing to the Kubernetes documentation for a while, you may have ideas for improving the Style Guide , the Content Guide, the toolchain used to build the documentation, the website style, the processes for reviewing and merging pull requests, or other aspects of the documentation. For maximum transparency, these types of proposals need to be discussed in a SIG Docs meeting or on the kubernetes-sig-docs mailing list. In addition, it can help to have some context about the way things currently work and why past decisions have been made before proposing sweeping changes. The quickest way to get answers to questions about how the documentation currently works is to ask in the `#sig-docs` Slack channel on kubernetes.slack.com

After the discussion has taken place and the SIG is in agreement about the desired outcome, you can work on the proposed changes in the way that is the most appropriate. For instance, an update to the style guide or the website's functionality might involve opening a pull request, while a change related to documentation testing might involve working with sig-testing.

Coordinate docs for a Kubernetes release

SIG Docs approvers can coordinate docs for a Kubernetes release.

Each Kubernetes release is coordinated by a team of people participating in the sig-release Special Interest Group (SIG). Others on the release team for a given release include an overall release lead, as well as representatives from sig-testing and others. To find out more about Kubernetes release processes, refer to https://github.com/kubernetes/sig-release.

The SIG Docs representative for a given release coordinates the following tasks:

- Monitor the feature-tracking spreadsheet for new or changed features with an impact on documentation. If the documentation for a given feature won't be ready for the release, the feature may not be allowed to go into the release.
- Attend sig-release meetings regularly and give updates on the status of the docs for the release.
- Review and copyedit feature documentation drafted by the SIG responsible for implementing the feature.
- Merge release-related pull requests and maintain the Git feature branch for the release.
- Mentor other SIG Docs contributors who want to learn how to do this role in the future. This is known as "shadowing".
- Publish the documentation changes related to the release when the release artifacts are published.

Coordinating a release is typically a 3-4 month commitment, and the duty is rotated among SIG Docs approvers.

Serve as a New Contributor Ambassador

SIG Docs approvers can serve as New Contributor Ambassadors.

New Contributor Ambassadors welcome new contributors to SIG-Docs, suggest PRs to new contributors, and mentor new contributors through their first few PR submissions.

Responsibilities for New Contributor Ambassadors include:

- Monitoring the #sig-docs Slack channel for questions from new contributors.
- Working with PR wranglers to identify good first issues for new contributors.
- Mentoring new contributors through their first few PRs to the docs repo.
- Helping new contributors create the more complex PRs they need to become Kubernetes members.
- Sponsoring contributors on their path to becoming Kubernetes members.
- Hosting a monthly meeting to help and mentor new contributors.

Current New Contributor Ambassadors are announced at each SIG-Docs meeting and in the Kubernetes #sig-docs channel.

Sponsor a new contributor

SIG Docs reviewers can sponsor new contributors.

After a new contributor has successfully submitted 5 substantive pull requests to one or more Kubernetes repositories, they are eligible to apply for membership in the Kubernetes organization. The contributor's membership needs to be backed by two sponsors who are already reviewers.

New docs contributors can request sponsors by asking in the #sig-docs channel on the Kubernetes Slack instance or on the SIG Docs mailing list. If you feel confident about the applicant's work, you volunteer to sponsor them. When they submit their membership application, reply to the application with a "+1" and include details about why you think the applicant is a good fit for membership in the Kubernetes organization.

Serve as a SIG Co-chair

SIG Docs members can serve a term as a co-chair of SIG Docs.

Prerequisites

A Kubernetes member must meet the following requirements to be a co-chair:

- Understand SIG Docs workflows and tooling: git, Hugo, localization, blog subproject
- Understand how other Kubernetes SIGs and repositories affect the SIG Docs workflow, including: teams in k/org, the process in k/community, plugins in k/test-infra, and the role of SIG Architecture. In addition, understand how the Kubernetes docs release process works.
- Approved by the SIG Docs community either directly or via lazy consensus.
- Commit at least 5 hours per week (and often more) to the role for a minimum of 6 months

Responsibilities

The role of co-chair is one of service: co-chairs build contributor capacity, handle process and policy, schedule and run meetings, schedule PR wranglers, advocate for docs in the Kubernetes community, make sure that docs succeed in Kubernetes release cycles, and keep SIG Docs focused on effective priorities.

Responsibilities include:

- Keep SIG Docs focused on maximizing developer happiness through excellent documentation
- Exemplify the community code of conduct and hold SIG members accountable to it
- Learn and set best practices for the SIG by updating contribution guidelines
- Schedule and run SIG meetings: weekly status updates, quarterly retro/planning sessions, and others as needed
- Schedule and run doc sprints at KubeCon events and other conferences
- Recruit for and advocate on behalf of SIG Docs with the CNCF and its platinum partners, including Google, Oracle, Azure, IBM, and Huawei
- Keep the SIG running smoothly

Running effective meetings

To schedule and run effective meetings, these guidelines show what to do, how to do it, and why.

Uphold the community code of conduct:

- Hold respectful, inclusive discussions with respectful, inclusive language.

Set a clear agenda:

- Set a clear agenda of topics
- Publish the agenda in advance

For weekly meetings, copypaste the previous week's notes into the "Past meetings" section of the notes

Collaborate on accurate notes:

- Record the meeting's discussion
- Consider delegating the role of note-taker

Assign action items clearly and accurately:

- Record the action item, who is assigned to it, and the expected completion date

Moderate as needed:

- If discussion strays from the agenda, refocus participants on the current topic
- Make room for different discussion styles while keeping the discussion focused and honoring folks' time

Honor folks' time:

Begin and end meetings on time.

Use Zoom effectively:

- Familiarize yourself with Zoom guidelines for Kubernetes
- Claim the host role when you log in by entering the host key

Claiming the host role in Zoom

Recording meetings on Zoom

When you're ready to start the recording, click Record to Cloud.

When you're ready to stop recording, click Stop.

The video uploads automatically to YouTube.

Offboarding a SIG Co-chair (Emeritus)

See: k/community/sig-docs/offboarding.md

Viewing Site Analytics

This page contains information about the kubernetes.io analytics dashboard.

View the dashboard.

This dashboard is built using Google Looker Studio and shows information collected on kubernetes.io using Google Analytics 4 since August 2022.

Using the dashboard

By default, the dashboard shows all collected analytics for the past 30 days. Use the date selector to see data from a different date range. Other filtering options allow you to view data based on user location, the device used to access the site, the translation of the docs used, and more.

If you notice an issue with this dashboard, or would like to request any improvements, please open an issue.