



Daniele Polencic — @danielepolencic@hachyderm.io  
@danielepolencic



Do you know all the YAML tricks and gotchas?

Are there any YAML tips for Kubernetes?

Read along!



# KUBERNETES

# YAML

# TIPS

```
apiVersion: v1
kind: Pod
metadata:
  name: test-pod
spec:
  containers:
    - image: busybox
      env:
        - name: ENV
          value: prod
```

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Let's cover the basics first

YAML has three basic rules:

- ① Indentation — only 2 or 4 spaces
- ② Maps — key-value pairs
- ③ Lists — collections of things

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A YAML file uses spaces as indentation; you can use 2 or 4 spaces but no tab

Why no tabs?

It's in the official YAML website FAQ: [yaml.org/faq.html](https://yaml.org/faq.html)

```
● ● ●  
apiVersion: v1  
kind: Pod  
metadata:  
  name: test-pod  
spec:  
  containers:  
    - name: test-container  
      image: k8s.gcr.io/busybox  
      env:  
        - name: ENV  
          value: production
```

**2 spaces**

```
● ● ●  
apiVersion: v1  
kind: Pod  
metadata:  
  name: test-pod  
spec:  
  containers:  
    -  
      name: test-container  
      image: k8s.gcr.io/busybox  
      env:  
        -  
          name: ENV  
          value: production
```

**4 spaces**

✗ no tabs!

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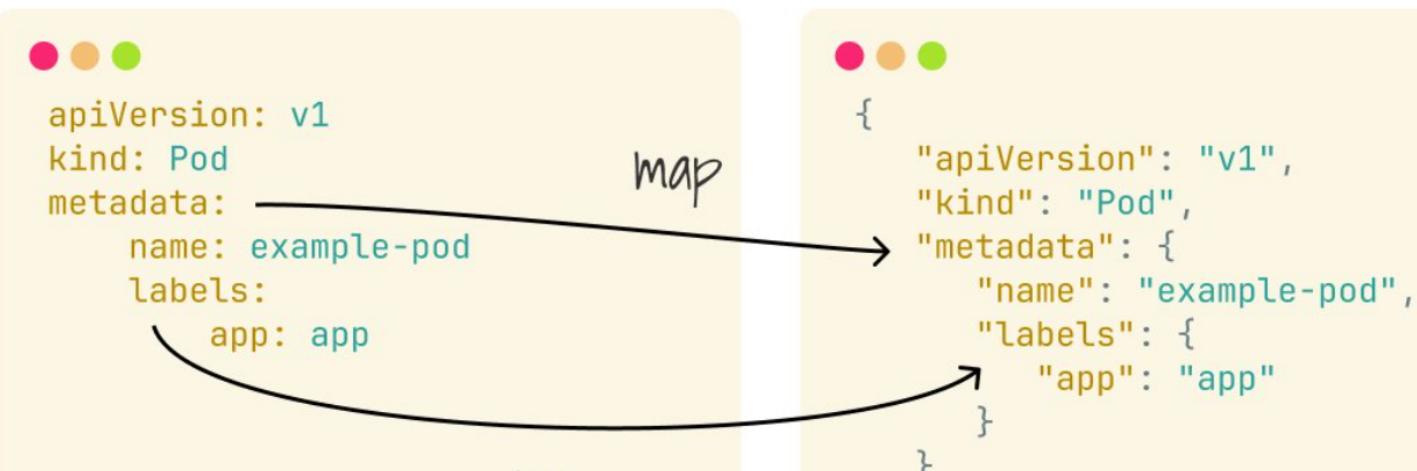
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Maps let you associate key-value pairs

Maps can be nested, and in Kubernetes, you usually nest a lot of maps!



**YAML**

**JSON**

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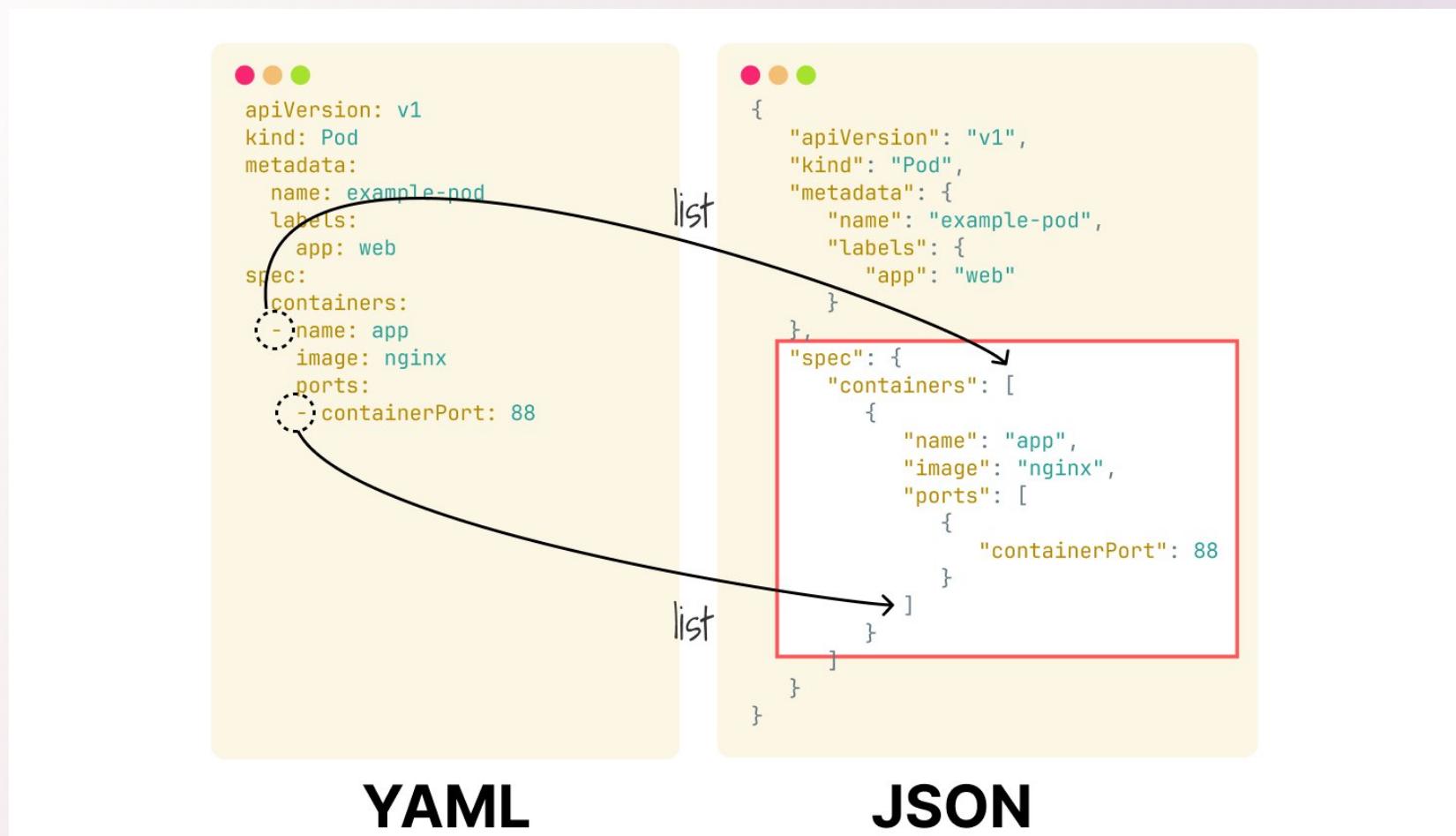
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YAML lists are a sequence of objects

You can have virtually any number of items in a list, defined as items that start with a dash ` `-` indented from the parent



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Maps and lists are the basic building blocks of any YAML file

Any list or map's value can be a string, a number, a boolean, `null`, or another dictionary or list

In most cases, strings don't require quotes

But sometimes if you miss them... 💣💥

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Listing countries?

Watch out for "the Norway problem!"

By default, the word "yes" and "no" are converted into booleans

```
●●●  
apiVersion: v1  
kind: Pod  
metadata:  
  name: test-pod  
spec:  
  containers:  
    - name: test-container  
      image: k8s.gcr.io/busybox  
      env:  
        - name: ITALY  
          value: IT  
        - name: GERMANY  
          value: DE  
        - name: NORWAY  
          value: NO
```

the container sees  
NORWAY=false

## No is “False” in YAML

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Are you setting the version of a library without quotes?

YAML automatically converts it to a number!

```
apiVersion: v1
kind: Pod
metadata:
  name: test-pod
spec:
  containers:
    - name: test-container
      image: k8s.gcr.io/busybox
  env:
    - name: GO_VERSION
      value: 1.10
```

You can fix this by  
quoting the number  
(i.e. "1.10")

**1.10 is converted to 1.1 (number)**

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YAML automatically converts a date to a timestamp

In this case  $4\text{h } 60\text{m } 60\text{s} + 30\text{m} * 60\text{s} = 16200\text{s}$

```
apiVersion: v1        4 hours * 60 minutes * 60 seconds +  
kind: Pod           _____  
metadata:  
    name: test-pod          30 minutes * 60 seconds =  
spec:  
    containers:  
        - name: test-container  
          image: k8s.gcr.io/busybox  
          env:  
              - name: STARTING_AT  
                value: 04:30
```



**04:30 is converted into 16200**

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While keys in JSON are always strings, in YAML, they can be any value, including booleans

Having `on` as a key is a terrible idea

```
●●●  
apiVersion: v1  
kind: ConfigMap  
metadata:  
  name: cm  
data:  
  on: "yes"
```

```
{  
  "apiVersion": "v1",  
  "kind": "ConfigMap",  
  "metadata": {  
    "name": "cm"  
  },  
  "data": {  
    "True": "yes"  
  }  
}
```

**“on” is converted to True**

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Apart from edge cases, there are some actual valuable features if you write Kubernetes manifests:

- You can use `---` to delimit docs
- You can define snippets with `\*` and reference them with `&`

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YAML definitions in the same document can be separated using the `---` operator. A YAML file is terminated with `...` (3 dots)

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: app
...
---
apiVersion: v1
kind: Service
metadata:
  name: my-service
...
---
apiVersion: networking.k8s.io/v1
kind: Ingress
metadata:
  name: minimal-ingress
...
```

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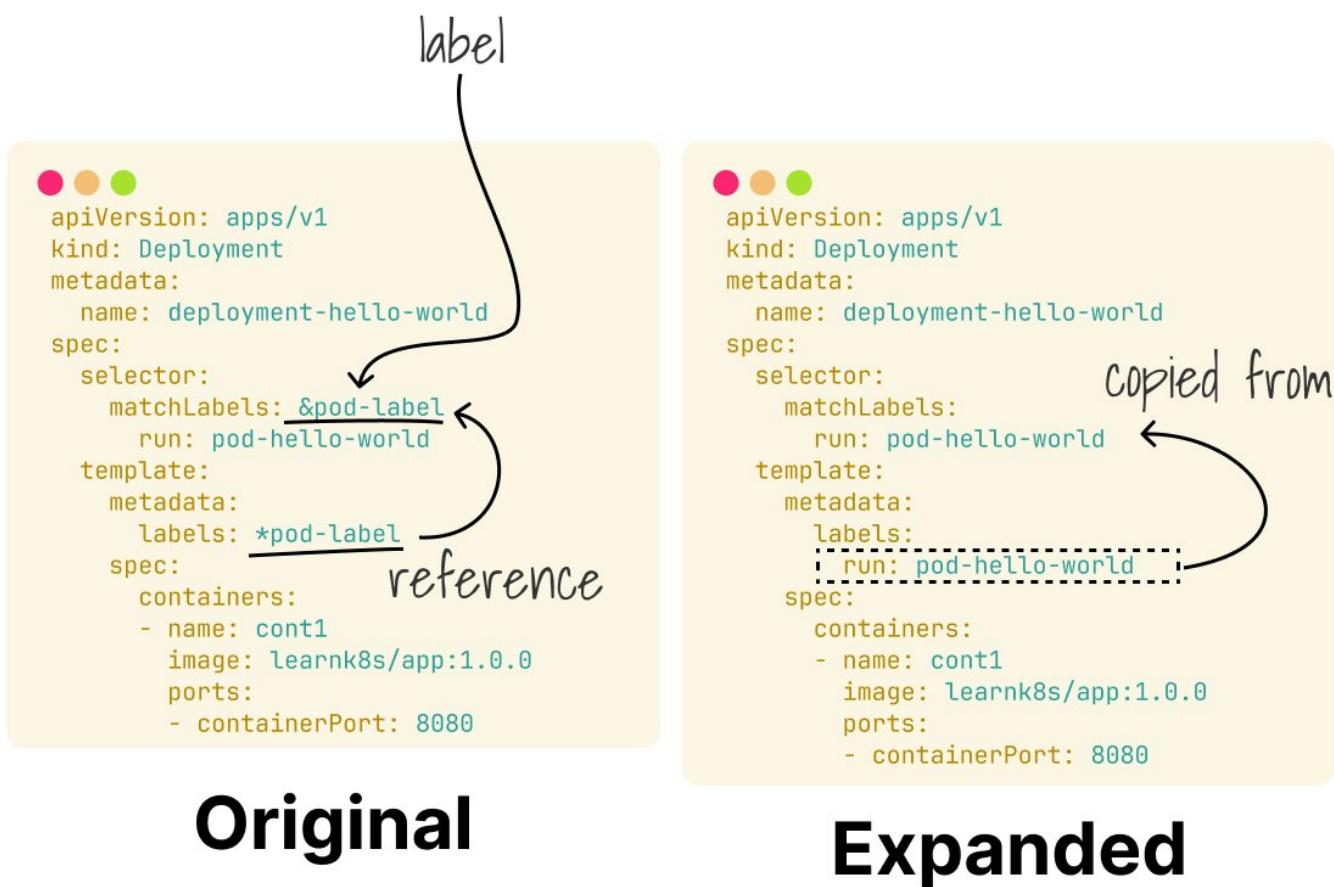


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In YAML, you can define structures and assign them labels using the `&` operator

You can recall the structure with the `\*` operator and the label name when you wish to reuse it

More: [yaml.org/spec/1.2/spec....](https://yaml.org/spec/1.2/spec....)



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What if you make a mistake?

How do you know? 🤔

You could use:

- ① an online YAML linter like [yamllint.com](https://yamllint.com)
- ② a CLI like [yamllint.readthedocs.io/en/stable/](https://yamllint.readthedocs.io/en/stable/)
- ③ if you use Visual Studio Code, install the YAML extension from Red Hat for autocomplete [marketplace.visualstudio.com/items?itemName...](https://marketplace.visualstudio.com/items?itemName...)

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Is there any useful tool to edit YAML other than by hand?

`yq` [mikefarah.gitbook.io/yq/](https://mikefarah.gitbook.io/yq/) is a command-line tool designed to transform YAML

It is similar to another popular tool called `jq` that focuses on JSON instead of YAML

## Manipulating YAML with yq

```
● ● ●  
# Read a value  
yq 'spec.containers[0].env[0].value' pod.yaml  
  
# Write a value  
yq '.metadata.name = "learnk8s"' pod.yaml  
  
# Merging two YAML files  
yq '. *+ load("proxy.yaml")' app.yaml  
  
# Output a YAML file as JSON  
yq --tojson sample.yaml
```

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That's it!

Do you know more tips? Let me know!

And finally, if you've enjoyed this thread, you might also like the Kubernetes workshops that we run at Learnk8s [learnk8s.io/training](https://learnk8s.io/training) or this collection of past Twitter threads

Until next time!

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