

April 18th-20th, 2024

#GlobalAzure



HELM

For developers

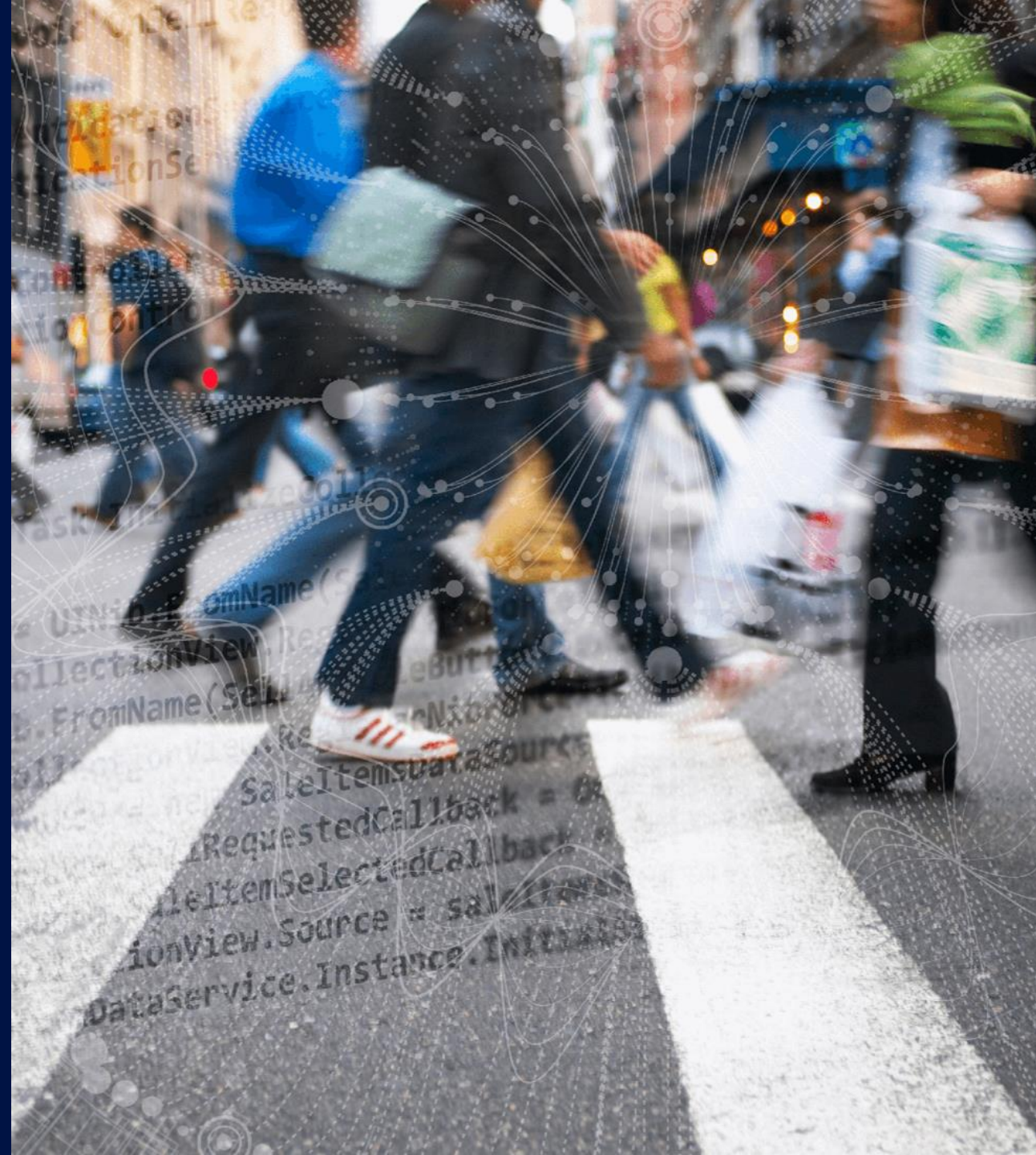
Leonardo Micheloni



¿Quién soy?

Leonardo Micheloni
Argentino
Developer +20
MVP 9 años

Tokiota



No soy
experto



Know how previo

Docker
Kubernetes
YAML???

Temario

- ¿Qué es HELM?
- ¿Para qué se usa?
- Componentes
 - Chart
 - Release
 - Repositorio
 - Template
 - Variables
- Crear nuestro propio Chart



Helm es un gestor de paquetes para K8S

HELM permite a los usuarios instalar,
configurar y actualizar aplicaciones.

¿Qué problema queremos solucionar?


```
version: '3.1'


services:


  wordpress:
    image: wordpress
    restart: always
    ports:
      - 8080:80
    environment:
      WORDPRESS_DB_HOST: db
      WORDPRESS_DB_USER: exampleuser
      WORDPRESS_DB_PASSWORD: examplepass
      WORDPRESS_DB_NAME: exampledb
    volumes:
      - wordpress:/var/www/html


  db:
    image: mysql:5.7
    restart: always
    environment:
      MYSQL_DATABASE: exampledb
      MYSQL_USER: exampleuser
      MYSQL_PASSWORD: examplepass
      MYSQL_RANDOM_ROOT_PASSWORD: '1'
    volumes:
      - db:/var/lib/mysql


volumes:
  wordpress:
  db:
```


 app-deployment.yaml


 app-pv.yaml


 app-pvc.yaml


 app-service.yaml


 configmap.yaml

 db-deployment.yaml

 db-pv.yaml

 db-pvc.yaml

 db-service.yaml

 secret.yaml

¿En qué me ayuda HELM?

- Gestión de dependencias
- Gestión de templates
- Versiones
- Reutilización de configuraciones
- Entornos
- Secretos

Ejemplo

1 - 20 of 44 results for "wordpress"

Sort: Relevance

Show:

20



FILTERS

- ☐ Official ⓘ
- ☐ Verified publishers ⓘ
- ☐ CNCF ⓘ

KIND

- ☐ Helm charts (43)
- ☐ KubeArmor policies (1)

CATEGORY

- ☐ Integration and delivery (4)
- ☐ Security (2)

LICENSE

- ☐ Apache-2.0 (5)

OPERATOR CAPABILITIES

- ☐ Basic Install (1)
- ☐ Full Lifecycle (1)

OTHERS

- ☐ Only operators
- ☐ Include deprecated



wordpress

Bitnami Bitnami

★ 76

Helm chart

Updated 3 days ago

Version 22.1.3

WordPress is the world's most popular blogging and content management platform. Powerful yet simple, everyone from students to global corporations ...



wordpress

groundhog2k Helm charts based on original (unmodified) docker images

★ 5

Helm chart

Updated 2 months ago

Version 0.10.6

A Helm chart for Wordpress on Kubernetes



wordpress

[riftbit] [riftbit]

★ 0

Helm chart

Updated 3 years ago

Version 12.1.16

Web publishing platform for building blogs and websites.




```
helm repo add https://codecentric.github.io/helm-  
charts
```

```
helm install keycloak codecentric/keycloak
```

```
helm list
```

```
helm upgrade keycloak set replicas=3
```

```
helm history keycloak
```

```
helm rollback
```

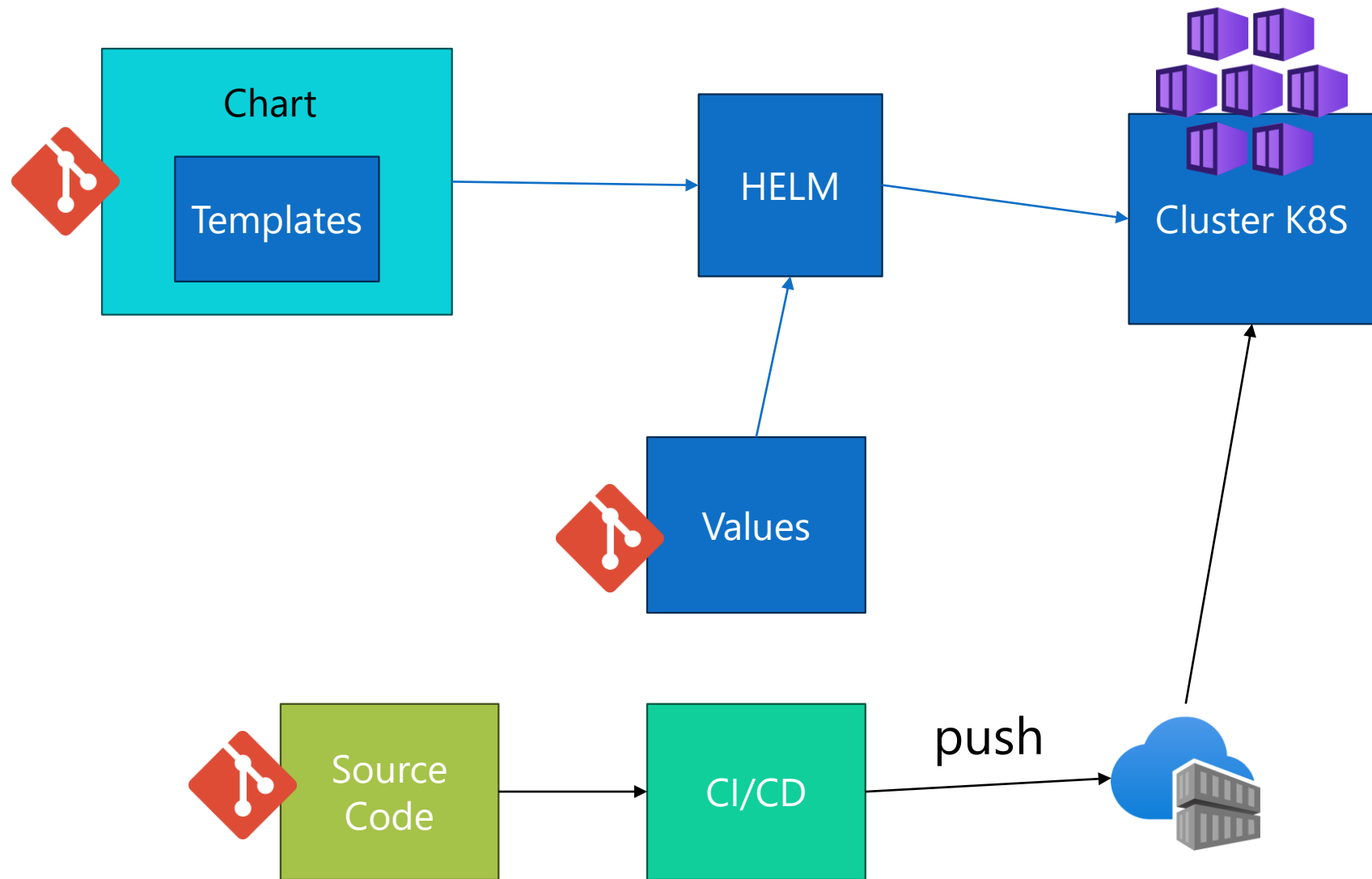
```
helm show chart mychart
```

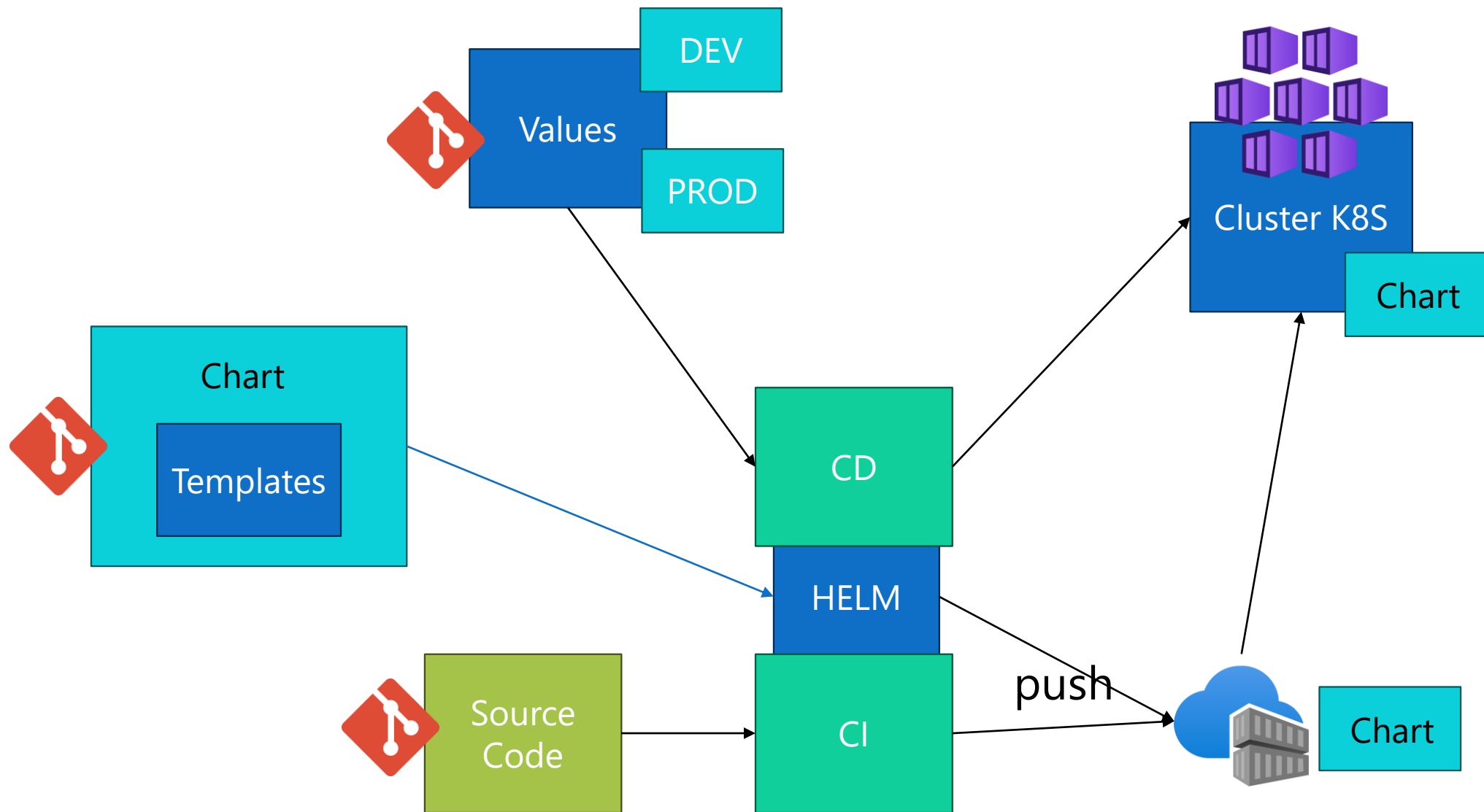
```
helm show values mychart
```

En pocas palabras

Permite automatizar la implementación y el mantenimiento de K8S

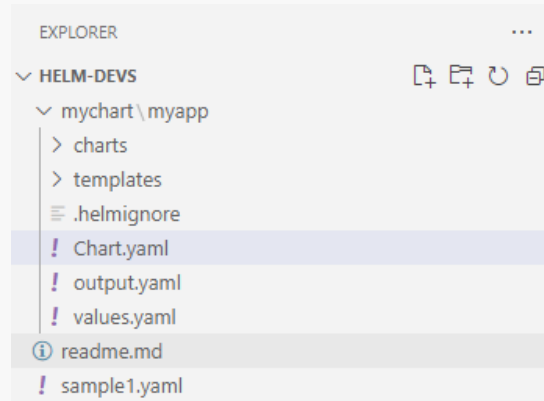
- Charts: son los paquetes de HELM
- Repositorio: un lugar donde hay Charts
- Releases: es una instancia de un Chart en ejecución
- Template: son archivos que definen los objetos de K8S
- Variables: son valores que pueden asignarse dentro de los templates





Chart

- Es la definición del paquete que contiene nuestro Sistema



```
! Chart.yaml x
mychart > myapp > ! Chart.yaml > apiVersion
Helm Chart.yaml - The Chart.yaml file is required for a chart (chart.json)
1  apiVersion: v2
2  name: myapp
3  description: A Helm chart for Kubernetes
4
5  # A chart can be either an 'application' or a 'library' chart.
6  #
7  # Application charts are a collection of templates that can be packaged into
8  # to be deployed.
9  #
10 # Library charts provide useful utilities or functions for the chart developer
11 # a dependency of application charts to inject those utilities and functions into
12 # pipeline. Library charts do not define any templates and therefore cannot
13 type: application
14
15 # This is the chart version. This version number should be incremented each
16 # to the chart and its templates, including the app version.
17 # Versions are expected to follow Semantic Versioning (https://semver.org/)
18 version: 0.1.0
19
20 # This is the version number of the application being deployed. This version
21 # incremented each time you make changes to the application. Versions are not
22 # follow Semantic Versioning. They should reflect the version the application
23 # It is recommended to use it with quotes.
24 appVersion: "1.16.0"
25
```

Templates

- Son objetos de Kubernetes que formarán parte del sistema final

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: {{ include "wordpress.fullname" . }}
  labels:
    {{- include "wordpress.labels" . | nindent 4 }}
spec:
  {{- if not .Values.autoscaling.enabled }}
  replicas: {{ .Values.replicaCount }}
  {{- end }}
  selector:
    matchLabels:
      {{- include "wordpress.selectorLabels" . | nindent 6 }}
  template:
    metadata:
      {{- with .Values.podAnnotations }}
      annotations:
        {{- toYaml . | nindent 8 }}
      {{- end }}
      labels:
        {{- include "wordpress.selectorLabels" . | nindent 8 }}
    spec:
      {{- with .Values.imagePullSecrets }}
      imagePullSecrets:
        {{- toYaml . | nindent 8 }}
      {{- end }}
      serviceAccountName: {{ include "wordpress.serviceAccountName" . }}
      securityContext:
        {{- toYaml .Values.podSecurityContext | nindent 8 }}
      initContainers:
        - name: copy-wordpress-app
          image: "{{ .Values.image.repository }}:{{ .Values.image.tag }}"
          imagePullPolicy: {{ .Values.image.pullPolicy }}
          securityContext:
            {{- toYaml .Values.securityContext | nindent 12 }}
```

Discover Packages > Standard library > text > template 

template

packagestandard library

Version: [go1.22.2](#) **Latest** | Published: Apr 3, 2024 | License: [BSD-3-Clause](#) | Imports: 16 | Imported by: 83,282

Jump to ...

f

Documentation

Overview

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Overview

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[Actions](#)

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[Pipelines](#)

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[Associated templates](#)

[Nested template definitions](#)

Package template implements data-driven templates for generating textual output.

To generate HTML output, see [html/template](#), which has the same interface as this package but automatically secures HTML against certain attacks.

Templates are executed by applying them to a data structure. Annotations in the template refer to elements of the data (typically a field of a struct or a key in a map) to control execution and derive values to be displayed. Execution of the template walks the structure and sets the cursor, represented by a period '.' and called "dot", to the value at the current location in the structure. When execution proceeds, the cursor is updated as the execution proceeds.

The input text for a template is UTF-8-encoded text in any format. "Actions" (text between {{ and }}) are evaluated or control structures; all text outside actions is copied to the output unchanged.

Once parsed, a template may be executed safely in parallel, although if parallel executions share a Writer the output may be interleaved.

Here is a trivial example that prints "17 items are made of wool".

```
type Inventory struct {
    Material string
    Count     uint
}
```

<https://pkg.go.dev/text/template>

Variables

- Valores que se reemplazarán en los tempaltes
- Pueden ser establecidos por línea de comandos
- Lo más común es utilizar un archivo "values.yaml" por entorno

```
# Default values for wordpress.
# This is a YAML-formatted file.
# Declare variables to be passed into your templates.

replicaCount: 1

image:
  repository: wordpress
  pullPolicy: Always
  tag: "5.7-php7.4-fpm-alpine"

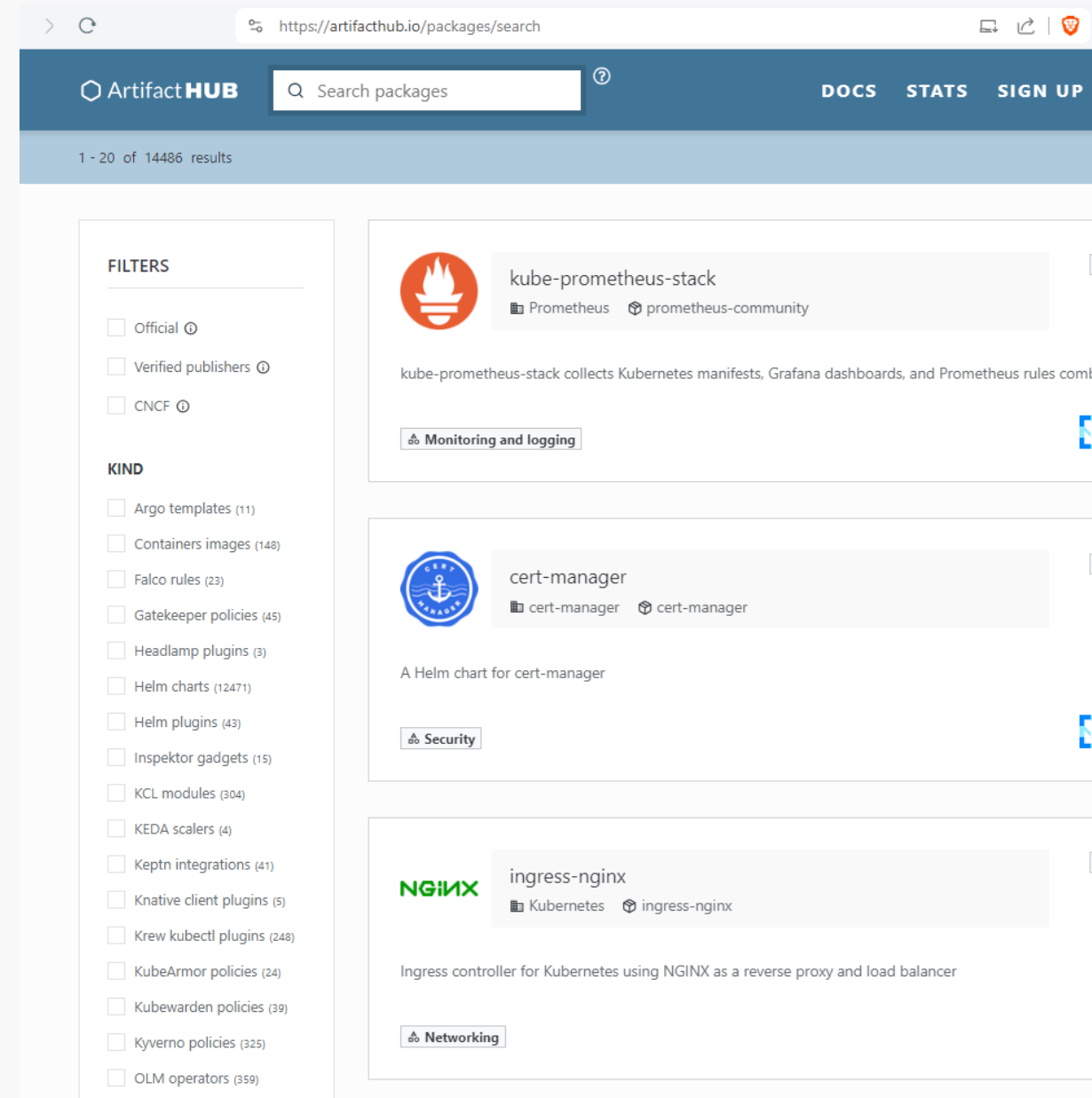
imageWeb:
  repository: nginx
  pullPolicy: Always
  # Overrides the image tag whose default is the chart appVersion.
  tag: mainline-alpine

imagePullSecrets: []
nameOverride: ""
fullnameOverride: ""

serviceAccount:
  # Specifies whether a service account should be created
  create: false
  # Annotations to add to the service account
  annotations: {}
  # The name of the service account to use.
  # If not set and create is true, a name is generated using the fullname template
  name: ""
```


Repositorio

- Es un lugar para guardar Charts
- Podemos usar nuestro propio file system
- Podemos usar un repo OCI



The screenshot shows the Artifact Hub website interface. The header includes the Artifact HUB logo, a search bar with the text "Search packages", and links for "DOCS", "STATS", and "SIGN UP". Below the header, it indicates "1 - 20 of 14486 results".

The main content area is divided into two columns. The left column contains a "FILTERS" section with checkboxes for "Official", "Verified publishers", and "CNCF", and a "KIND" section with a list of categories and their counts, such as "Argo templates (11)", "Containers images (148)", "Falco rules (23)", "Gatekeeper policies (45)", "Headlamp plugins (3)", "Helm charts (12471)", "Helm plugins (43)", "Inspektor gadgets (15)", "KCL modules (304)", "KEDA scalars (4)", "Keptn integrations (41)", "Knative client plugins (5)", "Krew kubectrl plugins (248)", "KubeArmor policies (24)", "Kubewarden policies (39)", "Kyverno policies (325)", and "OLM operators (359)".

The right column displays three search results:

- kube-prometheus-stack**: A chart by Prometheus and prometheus-community. It is described as "kube-prometheus-stack collects Kubernetes manifests, Grafana dashboards, and Prometheus rules com" and is categorized under "Monitoring and logging".
- cert-manager**: A chart by cert-manager. It is described as "A Helm chart for cert-manager" and is categorized under "Security".
- ingress-nginx**: A chart by NGINX. It is described as "Ingress controller for Kubernetes using NGINX as a reverse proxy and load balancer" and is categorized under "Networking".

#GlobalAzure



#GlobalAzure

Qué hay dentro de un chart?

- Templates
- Helpers
- Values
- Chart definition
- Sub charts

#GlobalAzure



#GlobalAzure

Crear nuestro propio chart

- Helm create myapp

```
mychart \ myapp
├── charts
├── templates
│   ├── tests
│   ├── _helpers.tpl
│   ├── deployment.yaml
│   ├── hpa.yaml
│   ├── ingress.yaml
│   ├── NOTES.txt
│   ├── service.yaml
│   └── serviceaccount.yaml
├── .helmignore
├── Chart.yaml
├── output.yaml
└── values.yaml
```

#GlobalAzure



#GlobalAzure

Más cosas

- Sub charts
- Funciones
- Valores globales
- Tests
- Requirements
- Etc.

```
{{/* vim: set filetype=mustache: */}}
{{/*
Expand the name of the chart.
*/}}

{{- define "wordpress.name" -}}
{{- default .Chart.Name .Values.nameOverride | trunc 63 | trimSuffix "-" }}
{{- end }}

{{/*
Create a default fully qualified app name.
We truncate at 63 chars because some Kubernetes name fields are limited to this (by the DNS naming spec).
If release name contains chart name it will be used as a full name.
*/}}

{{- define "wordpress.fullname" -}}
{{- if .Values.fullnameOverride }}
{{- .Values.fullnameOverride | trunc 63 | trimSuffix "-" }}
{{- else }}
{{- $name := default .Chart.Name .Values.nameOverride }}
{{- if contains $name .Release.Name }}
{{- .Release.Name | trunc 63 | trimSuffix "-" }}
{{- else }}
{{- printf "%s-%s" .Release.Name $name | trunc 63 | trimSuffix "-" }}
{{- end }}
{{- end }}
{{- end }}

{{/*
Create chart name and version as used by the chart label.
*/}}

{{- define "wordpress.chart" -}}
{{- printf "%s-%s" .Chart.Name .Chart.Version | replace "+" "_" | trunc 63 | trimSuffix "-" }}
{{- end }}

{{/*
```

Preguntas?

Gracias!

