

# Versioning HelmReleases using Kustomize

- [Overview](#)
- [Background](#)
- [Releases](#)
  - [Cluster Layer](#)
  - [Release Layer](#)
  - [Base Layer](#)
- [Creating a Cluster from the Template](#)
  - [Updating the Components and Version](#)

## Overview

This document will cover the steps required to configure a cluster with a defined version.

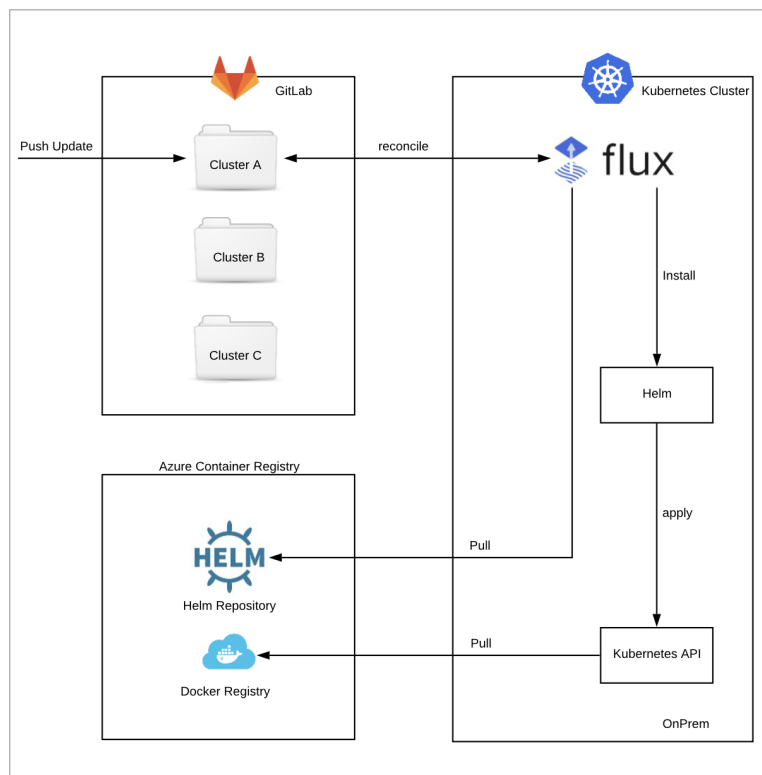
When configuring a cluster's deployment we will be defining the following:

- Version of helm charts and images
- Components to be installed.
- Custom configurations/overrides

## Background

Our components are deployed using [Flux](#).

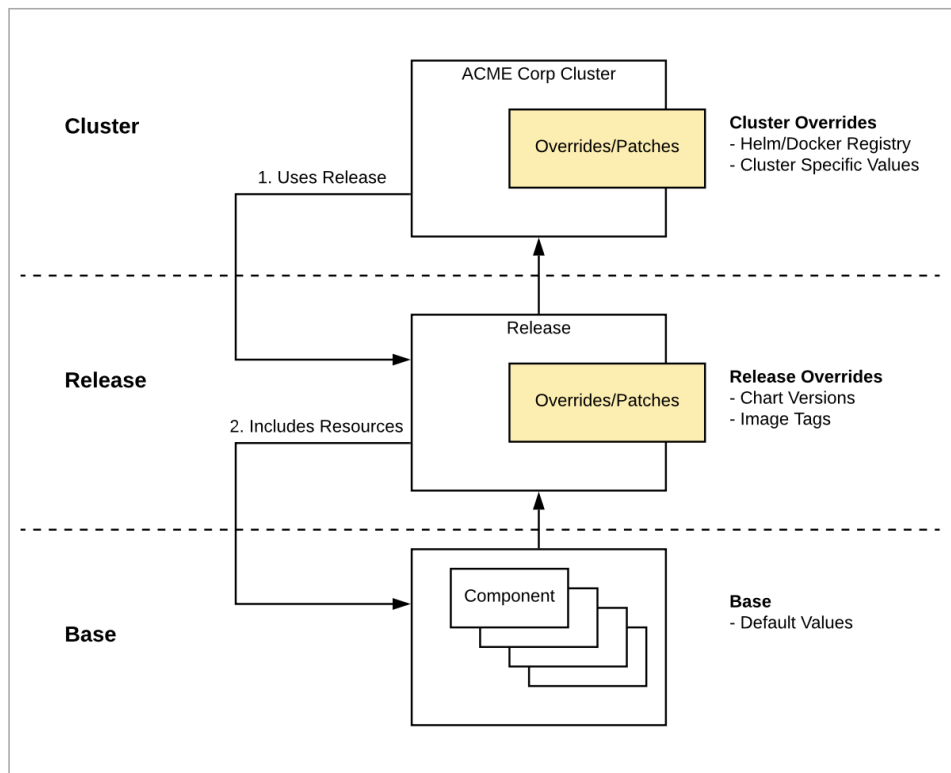
Flux is a tool that allows us to define the components to install on a cluster. After initial installation, Flux will poll the source(GitLab) and apply any changes.



In our configuration, we use GitLab as our source for defining multiple Helm Releases. A Helm Release defines the helm chart and configuration values to use for a particular component.

## Releases

Using Kustomize, we can package our components into releases. This is done by applying overrides on top of the base layer.



## Cluster Layer

The cluster layer defines what release to use and the overrides to apply for the specific cluster.

These overrides include such things as:

- Helm Chart and Container Registry
- Host Aliases
- Cluster specific values

## clusters/acm/onprem/components/kustomization.yaml

```
apiVersion: kustomize.config.k8s.io/v1beta1
kind: Kustomization
# -----
# Resources
# core - contains core components
# infra - contains nginx-ingress controller used in develop and test environments
# extras - contains extra components used in develop and test environments
# monitoring - contains components used for monitoring
# usecases - contains etls for the various use cases
#
# additional helmreleases can be included in the custom folder
# and referenced under resources.
# -----
resources:
- ../../../../releases/2023-02-03_22.0.1-2525403/onprem/core
- ../../../../releases/2023-02-03_22.0.1-2525403/onprem/infra
- ../../../../releases/2023-02-03_22.0.1-2525403/onprem/extras
# - ../../../../releases/2023-01-16_22.0.1-2473477/onprem/monitoring

# use cases
# - ../../../../usecases/onprem/helmrelease-etlflow-1301-ncom-data-enrichment.yaml

# custom
# - ./custom/helmrelease_sample.yaml

# -----
# PatchesStrategicMerge
# define overrides specific for a cluster
# -----
patchesStrategicMerge:

#core
- ./overrides/core/helmrepo-ncyd-helm-virtual.yaml
- ./overrides/core/ckaf-connect.yaml
- ./overrides/core/ckaf-connect-configurator.yaml
- ./overrides/core/ckaf-kafka.yaml
- ./overrides/core/fluent-bit.yaml
- ./overrides/core/kafka-azure-sink.yaml
- ./overrides/core/nginx-proxy.yaml
- ./overrides/core/topology-adapter.yaml

# extras
- ./overrides/extras/azuremockapi.yaml
- ./overrides/extras/ckaf-rest.yaml
- ./overrides/extras/ckaf-schema-registry.yaml
- ./overrides/extras/jira.yaml
- ./overrides/extras/kowl.yaml
- ./overrides/extras/mock-server.yaml
- ./overrides/extras/ssh-server.yaml

# infra
- ./overrides/infra/ingress-nginx.yaml

# monitoring
# - ./overrides/monitoring/file.yaml

#usecases
# - ./overrides/usecases/helmrelease-etlflow-1301-ncom-data-enrichment.yaml
```

## Release Layer

A release specifies the base **resources** to use and applies a version/tag to the helm chart and images using an patch file defined under the **patchesStrategicMerge** section.

#### releases/2023-01-16\_22.0.1.../onprem/core/kustomization.yaml

```
apiVersion: kustomize.config.k8s.io/v1beta1
kind: Kustomization
resources:
- ../../../../base/onprem/core/helmrepo-ncyd-helm-virtual.yaml
- ../../../../base/onprem/core/ckaf-kafka.yaml
- ../../../../base/onprem/core/ckaf-connect.yaml
- ../../../../base/onprem/core/ckaf-connect-configurator.yaml
- ../../../../base/onprem/core/fluent-bit.yaml
- ../../../../base/onprem/core/kafka-azure-sink.yaml
- ../../../../base/onprem/core/nginx-proxy.yaml
- ../../../../base/onprem/core/topology-adapter.yaml
patchesStrategicMerge:
- ckaf-kafka.yaml
- ckaf-connect.yaml
- ckaf-connect-configurator.yaml
- fluent-bit.yaml
- nginx-proxy.yaml
- topology-adapter.yaml
- kafka-azure-sink.yaml
```

## Base Layer

The base layer defines all defaults for a component/resource.

## Creating a Cluster from the Template

All clusters are defined under the **/clusters** folder in the GitLab repository. A template has been created that can be copied for use with other clusters.

Copy the **/clusters/TEMPLATE** folder to a new folder. Once this is done, we can make changes specific to the cluster which includes:

- Release Version
- Cluster Overrides

## Updating the Components and Version

We can update the components and version by updating the following files:

- components/kustomization.yaml
- components/overrides/\*.yaml

## clusters/acm/onprem/components/kustomization.yaml

```
apiVersion: kustomize.config.k8s.io/v1beta1
kind: Kustomization

# -----
# Resources
# core - contains core components
# infra - contains nginx-ingress controller used in develop and test environments
# extras - contains extra components used in develop and test environments
# monitoring - contains components used for monitoring
# usecases - contains etls for the various use cases
#
# additional helmreleases can be included in the custom folder
# and referenced under resources.
# -----
resources:
- ../../../../releases/2023-02-03_22.0.1-2525403/onprem/core
- ../../../../releases/2023-02-03_22.0.1-2525403/onprem/infra
- ../../../../releases/2023-02-03_22.0.1-2525403/onprem/extras
# - ../../../../releases/2023-01-16_22.0.1-2473477/onprem/monitoring

# use cases
# - ../../../../usecases/onprem/helmrelease-etlflow-1301-ncom-data-enrichment.yaml

# custom
# - ./custom/helmrelease_sample.yaml

# -----
# PatchesStrategicMerge
# define overrides specific for a cluster
# -----
patchesStrategicMerge:

#core
- ./overrides/core/helmrepo-ncyd-helm-virtual.yaml
- ./overrides/core/ckaf-connect.yaml
- ./overrides/core/ckaf-connect-configurator.yaml
- ./overrides/core/ckaf-kafka.yaml
- ./overrides/core/fluent-bit.yaml
- ./overrides/core/kafka-azure-sink.yaml
- ./overrides/core/nginx-proxy.yaml
- ./overrides/core/topology-adapter.yaml

# extras
- ./overrides/extras/azuremockapi.yaml
- ./overrides/extras/ckaf-rest.yaml
- ./overrides/extras/ckaf-schema-registry.yaml
- ./overrides/extras/jira.yaml
- ./overrides/extras/kowl.yaml
- ./overrides/extras/mock-server.yaml
- ./overrides/extras/ssh-server.yaml

# infra
- ./overrides/infra/ingress-nginx.yaml

# monitoring
# - ./overrides/monitoring/file.yaml

#usecases
# - ./overrides/usecases/helmrelease-etlflow-1301-ncom-data-enrichment.yaml
```