

# Quarkus - Kubernetes Config

Quarkus includes the `kubernetes-config` extension which allows developers to use Kubernetes `ConfigMaps` and `Secrets` as a configuration source, without having to mount them into the `Pod` running the Quarkus application.

## Configuration

Once you have your Quarkus project configured you can add the `kubernetes-config` extension by running the following command in your project base directory.

```
./mvnw quarkus:add-extension -Dextensions="kubernetes-config"
```

This will add the following to your `pom.xml`:

```
<dependency>
  <groupId>io.quarkus</groupId>
  <artifactId>quarkus-kubernetes-config</artifactId>
</dependency>
```

## Usage

The extension works by reading `ConfigMaps` and `Secrets` directly from the Kubernetes API server using the `Kubernetes Client`.

The extension understands the following types of `ConfigMaps` and `Secrets` as input sources:

- `ConfigMaps` and `Secrets` that contain literal data (see [this](#) for an example on how to create one)
- `ConfigMaps` and `Secrets` created from files named `application.properties`, `application.yaml` or `application.yml` (see [this](#) for an example on how to create one).

You have to explicitly enable the retrieval of `ConfigMaps` and `Secrets` by setting `quarkus.kubernetes-config.enabled=true`. The default is `false` in order to make it easy to test the application locally.

Afterwards, set the `quarkus.kubernetes-config.configmaps` property to configure which `ConfigMaps` should be used. Set the `quarkus.kubernetes-config.secrets` property to configure which `Secrets` should be used. To access `ConfigMaps` and `Secrets` from a specific namespace, you can set the `quarkus.kubernetes-config.namespace` property.

## Priority of obtained properties

The properties obtained from the `ConfigMaps` and `Secrets` have a higher priority than (i.e. they

override) any properties of the same name that are found in `application.properties` (or the YAML equivalents), but they have lower priority than properties set via Environment Variables or Java System Properties.

Furthermore, when multiple ConfigMaps (or Secrets) are used, ConfigMaps (or Secrets) defined later in the list have a higher priority than ConfigMaps defined earlier in the list.

Finally, when both ConfigMaps and Secrets are used, the latter always has a higher priority than the former.

## Kubernetes Permissions


Since reading ConfigMaps involves interacting with the Kubernetes API Server, when `RBAC` is enabled on the cluster, the `ServiceAccount` that is used to run the application needs to have the proper permissions for such access.

Thankfully, when using the `kubernetes-config` extension along with the `Kubernetes` extension, all the necessary Kubernetes resources to make that happen are automatically generated.

### Secrets

By default, the `Kubernetes` extension doesn't generate the necessary resources to allow accessing secrets. Set `quarkus.kubernetes-config.secrets.enabled=true` to generate the necessary role and corresponding role binding.

## Configuration Reference

 Configuration property fixed at build time - All other configuration properties are overridable at runtime

Configuration property	Type	Default
<code>quarkus.kubernetes-config.enabled</code>  If set to true, the application will attempt to look up the configuration from the API server	boolean	<code>false</code>
<code>quarkus.kubernetes-config.fail-on-missing-config</code>  If set to true, the application will not start if any of the configured config sources cannot be located	boolean	<code>true</code>
<code>quarkus.kubernetes-config.config-maps</code>  ConfigMaps to look for in the namespace that the Kubernetes Client has been configured for. ConfigMaps defined later in this list have a higher priority than ConfigMaps defined earlier in this list. Furthermore any Secrets defined in <code>secrets</code> , will have higher priorities than all ConfigMaps.	list of string	

<code>quarkus.kubernetes-config.secrets</code>  Secrets to look for in the namespace that the Kubernetes Client has been configured for. If you use this, you probably want to enable <code>quarkus.kubernetes-config.secrets.enabled</code> . Secrets defined later in this list have a higher priority than ConfigMaps defined earlier in this list. Furthermore these Secrets have a higher priorities than all ConfigMaps defined in <code>configMaps</code> .	list of string	
<code>quarkus.kubernetes-config.namespace</code>  Namespace to look for config maps and secrets. If this is not specified, then the namespace configured in the kubectl config context is used. If the value is specified and the namespace doesn't exist, the application will fail to start.	string	