

# Quarkus - Reading properties from Consul

This guide explains how your Quarkus application can read configuration properties at runtime from [Consul](#).



This technology is considered preview.

In *preview*, backward compatibility and presence in the ecosystem is not guaranteed. Specific improvements might require to change configuration or APIs and plans to become *stable* are under way. Feedback is welcome on our [mailing list](#) or as issues in our [GitHub issue tracker](#).

For a full list of possible extension statuses, check our [FAQ entry](#).

## Prerequisites

To complete this guide, you need:

- less than 15 minutes
- an IDE
- JDK 1.8+ installed with `JAVA_HOME` configured appropriately
- Apache Maven 3.6.3

## Solution

We recommend that you follow the instructions in the next sections and create the application step by step.

## Introduction

Consul is a versatile system which among other things, provides a distributed Key-Value store that is used in many architectures as a source of configuration for services. This Key-Value store is what the `quarkus-consul-config` extension interacts with in order to allow Quarkus applications to read runtime configuration properties from Consul.

## Starting Consul

There are various ways to start Consul that vary in complexity, but for the purposes of this guide, we elect to start a single Consul server with no persistence via Docker, like so:

```
docker run --rm --name consul -p 8500:8500 -p 8501:8501 consul:1.7
agent -dev -ui -client=0.0.0.0 -bind=0.0.0.0 --https-port=8501
```

Please consult the [documentation](#) to learn more about the various Consul installation options.

## Creating the Maven project

First, we need a new project. Create a new project with the following command:

```
mvn io.quarkus:quarkus-maven-plugin:1.8.0.Final:create \
  -DprojectId=org.acme \
  -DprojectArtifactId=consul-config-quickstart \
  -DclassName="org.acme.consul.config.GreetingResource" \
  -Dpath="/greeting" \
  -Dextensions="consul-config"
cd consul-config-quickstart
```

This command generates a Maven project with a REST endpoint and imports the `consul-config` extension.

If you already have your Quarkus project configured, you can add the `consul-config` extension to your project by running the following command in your project base directory:

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

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

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

## GreetingController

The Quarkus Maven plugin automatically generated a `GreetingResource` JAX-RS resource in the `src/main/java/org/acme/consul/config/client/GreetingResource.java` file that looks like:

```

package org.acme.consul.config.client;

import javax.ws.rs.GET;
import javax.ws.rs.Path;
import javax.ws.rs.Produces;
import javax.ws.rs.core.MediaType;

@Path("/hello")
public class GreetingResource {

    @GET
    @Produces(MediaType.TEXT_PLAIN)
    public String hello() {
        return "hello";
    }
}

```

As we want to use configuration properties obtained from the Config Server, we will update the **GreetingResource** to inject the **message** property. The updated code will look like this:

```

package org.acme.consul.config.client;

import javax.ws.rs.GET;
import javax.ws.rs.Path;
import javax.ws.rs.Produces;
import javax.ws.rs.core.MediaType;

import org.eclipse.microprofile.config.inject.ConfigProperty;

@Path("/hello")
public class GreetingResource {

    @ConfigProperty(name = "message", defaultValue="Hello from default")
    String message;

    @GET
    @Produces(MediaType.TEXT_PLAIN)
    public String hello() {
        return message;
    }
}

```

## Configuring the application

Quarkus provides various configuration knobs under the **quarkus.consul-config** root. For the

purposes of this guide, our Quarkus application is going to be configured in `application.properties` as follows:

```
# use the same name as the application name that was configured
when standing up the Config Server
quarkus.application.name=consul-test
# enable retrieval of configuration from Consul - this is off by
default
quarkus.consul-config.enabled=true
# this is a key in Consul's KV store that the Quarkus application
will read and try to extract properties from
quarkus.consul-config.properties-value-
keys=config/${quarkus.application.name}
```

## Add Configuration to Consul

For the previous application configuration to work, we need to add a `config/consul-test` key under Consul's Key Value store. The value of this key will essentially be a properties "file" containing the application configuration. In this case we want to add the following data to the `config/consul-test` key:

```
greeting.message=Hello from Consul
```

When adding this configuration from the UI, Consul will automatically convert the data into the necessary base64 encoding. If you instead add the configuration via the Consul's [REST API](#), make sure to first encode the previous data into base64.



In this use case we made the value of the key as a properties "file", because we used `quarkus.consul-config.properties-value-keys` in the application. The extension also provides the ability to use the raw values of keys when `quarkus.consul-config.raw-value-keys` is used. Furthermore, these two properties can be used simultaneously, while each one also supports setting multiple keys.

## Package and run the application


Run the application with: `./mvnw compile quarkus:dev`. Open your browser to <http://localhost:8080/greeting>.

The result should be: `Hello from Consul` as it is the value obtained from the Consul Key Value store.

# Run the application as a native executable

You can of course create a native image using the instructions of the [Building a native executable guide](#).

## Configuration Reference

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

Configuration property	Type	Default
<code>quarkus.consul-config.enabled</code> If set to true, the application will attempt to look up the configuration from Consul	boolean	<code>false</code>
<code>quarkus.consul-config.agent.host-port</code> Consul agent host	host:port	<code>localhost:8500</code>
<code>quarkus.consul-config.agent.use-https</code> Whether or not to use HTTPS when communicating with the agent	boolean	<code>false</code>
<code>quarkus.consul-config.agent.token</code> Consul token to be provided when authentication is enabled	string	
<code>quarkus.consul-config.agent.trust-store</code> TrustStore to be used containing the SSL certificate used by Consul agent Can be either a classpath resource or a file system path	path	
<code>quarkus.consul-config.agent.trust-store-password</code> Password of TrustStore to be used containing the SSL certificate used by Consul agent	string	
<code>quarkus.consul-config.agent.key-store</code> KeyStore to be used containing the SSL certificate for authentication with Consul agent Can be either a classpath resource or a file system path	path	

<code>quarkus.consul-config.agent.key-store-password</code>		
Password of KeyStore to be used containing the SSL certificate for authentication with Consul agent	string	
<code>quarkus.consul-config.agent.key-password</code>		
Password to recover key from KeyStore for SSL client authentication with Consul agent If no value is provided, the key-store-password will be used	string	
<code>quarkus.consul-config.agent.trust-certs</code>		
When using HTTPS and no keyStore has been specified, whether or not to trust all certificates	boolean	<code>false</code>
<code>quarkus.consul-config.agent.connection-timeout</code>		
The amount of time to wait when initially establishing a connection before giving up and timing out. Specify <code>0</code> to wait indefinitely.	Duration ?	<code>10S</code>
<code>quarkus.consul-config.agent.read-timeout</code>		
The amount of time to wait for a read on a socket before an exception is thrown. Specify <code>0</code> to wait indefinitely.	Duration ?	<code>60S</code>
<code>quarkus.consul-config.prefix</code>		
Common prefix that all keys share when looking up the keys from Consul. The prefix is <b>not</b> included in the keys of the user configuration	string	
<code>quarkus.consul-config.raw-value-keys</code>		
Keys whose value is a raw string. When this is used, the keys that end up in the user configuration are the keys specified her with '/' replaced by '.'	list of string	
<code>quarkus.consul-config.properties-value-keys</code>		
Keys whose value represents a properties file. When this is used, the keys that end up in the user configuration are the keys of the properties file, not these keys	list of string	
<code>quarkus.consul-config.fail-on-missing-key</code>		
If set to true, the application will not start if any of the configured config sources cannot be located	boolean	<code>true</code>



#### *About the Duration format*

The format for durations uses the standard `java.time.Duration` format. You can learn more about it in the [Duration#parse\(\) javadoc](#).

You can also provide duration values starting with a number. In this case, if the value consists only of a number, the converter treats the value as seconds. Otherwise, `PT` is implicitly prepended to the value to obtain a standard `java.time.Duration` format.