

Container images

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Introduction

Container images (or *Docker images*) is a packaging format that allows you to build your application and its dependencies in a language-agnostic format. Container images can then be published to a registry and deployed to a platform like Substrate. While there are many tools available to build container images, this page will focus on using [Docker](#).

For an example of how to build and run a sample application using containers on your local machine, review [Create a sample application](#).

Considerations when building a container image

- DO use a well-known [base image](#).
 - DO prefer referring to a base image that is hosted in Artifactory. This will help avoid any rate-limits when pulling from public registries.
 - DO refer to the base image using a full version number. For example, FROM `alpine:3.17.2` instead of FROM `alpine:latest`.
- DO optimize the ordering of RUN/COPY/ADD directives to [use layer caching](#) to speed up builds.
- DO use [multi-stage builds](#), if possible, to reduce the deployable image size.
- DO use environment variables (ENV) for [application configurations](#) (for example, `LOG_LEVEL`, `DB_CONNECTION_STRING`, etc.).
- DO use EXPOSE to indicate ports (and protocols) your [application is listening on](#).
- DO configure an ENTRYPOINT to optionally load and execute any initialization scripts. For example, load any secrets present in `/vault/secrets` or additional scripts from `/docker-entrypoint.d/`.
- DO set a default CMD to start your application.
 - DO prefer running the application in a [single process](#).
 - DO prefer running the application [not as the root user](#).
- DO emit log messages to STDERR (preferred) and/or STDOUT streams.
- DO ensure your application can shutdown gracefully upon [receiving a SIGTERM signal](#).

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