

Docker Plugin

Plugin Information

View Docker on the [plugin site](#) for more information.

This plugin allows slaves to be dynamically provisioned using Docker.

Background

Docker plugin allows to use a docker host to dynamically provision build agents, run a single build, then tear-down agent.

Optionally, the container can be committed, so that (for example) manual QA could be performed by the container being imported into a local docker provider, and run from there.

Setup

A quick setup is :

- get a docker environment running
- follow the instructions for creating a docker image that can be used as a Jenkins Agent

Docker Environment

Follow the installation steps on [docker.io](#).

If your host needs to allow connections from a jenkins instance hosted on a different machine, you will need to open up the TCP port. This can be achieved by editing the docker config file and setting (for example)

```
DOCKER_OPTS="-H tcp://0.0.0.0:2376 -H unix:///var/run/docker.sock"
```

The docker configuration file location will depend your system, but it is likely to be `/etc/init/docker.conf`, `/etc/default/docker` or `/etc/default/docker.io`

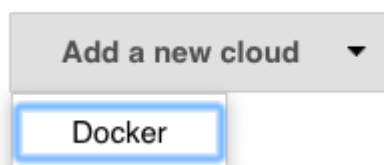
Multiple Docker Hosts

If you want to use more than just a physical node to run containers, you can rely on [Docker Swarm Standalone](#) - docker engine swarm mode isn't yet supported.

Follow docker swarm standalone instruction and configure docker swarm API endpoint in Jenkins.

Jenkins Configuration

Docker plugin is a "Cloud" implementation. You'll need to edit Jenkins system configuration (Jenkins > Manage > System configuraiton) and add a new Cloud of type "Docker".



Configure Docker (or Swarm standalone) API URL with required credentials. A test button let you connection with API is well set.

Then configure Agent templates, assigning them labels you can use for your jobs to select the adequate template, and docker container to run

Creating a docker image


You need a docker image that can be used to run Jenkins agent runtime. Depending on the launch method you select, there's some prerequisites for the Docker image to be used :

Launch via SSH

- `sshd` server and a JDK installed. You can just use [jenkins/ssh-slave](#) as a basis for a custom image.
- a SSH key (based on unique Jenkins master instance identity) can be injected in container on startup, you don't need any credential set as long as you use standard openssl sshd.

Connect method

➔ Prerequisites: Docker image must have [sshd](#) installed.

SSH key 

For backward compatibility *or* non-standard sshd packaged in your docker image, you also have option to provide manually configured ssh credentials

Launch via JNLP

- a JDK installed. You can just use [jenkins/jnlp-slave](#) as a basis for a custom image.
- Jenkins master URL has to be reachable from container.
- container will be configured automatically with agent's name and secret, so you don't need any special configuration of the container

Launch attached

- a JDK installed. You can just use [jenkins/slave](#) as a basis for a custom image.
- Please note this mode is **experimental** at time writing.

To create a custom image and bundle your favorite tools, just create a Dockerfile with FROM to point to one of the `jenkins/*-slave` reference image, and install everything needed for your own usage

Dockerfile

```
FROM jenkins/ssh-slave
RUN apt-get update && apt-get install XXX
COPY your-favorite-tool-here
```

Note on ENTRYPOINT

Avoid overriding the docker command, as SSH Launcher relies on it.

You can use an Entrypoint to run some side service inside your build agent container before the agent runtime starts and establish a connexion. Just ensure your entrypoint eventually run the passed command :

```
exec "$@"
```

Configure plugin via Groovy script

Either automatically upon [Jenkins post-initialization](#) or through [Jenkins script console](#). Example running locally, connecting to Docker service through `unix:///var/run/docker.sock` and launching attached:

```
import com.nirima.jenkins.plugins.docker.DockerCloud
import com.nirima.jenkins.plugins.docker.DockerTemplate
import com.nirima.jenkins.plugins.docker.DockerTemplateBase
import com.nirima.jenkins.plugins.docker.launcher.
```

```

AttachedDockerComputerLauncher
import io.jenkins.docker.connector.DockerComputerAttachConnector
import jenkins.model.Jenkins

// parameters
def dockerTemplateBaseParameters = [
    bindAllPorts:      false,
    bindPorts:         '',
    cpuShares:         null,
    dnsString:         '',
    dockerCommand:     '',
    environmentsString: '',
    extraHostsString:  '',
    hostname:          '',
    image:              'jenkinsci/slave:latest',
    macAddress:        '',
    memoryLimit:       null,
    memorySwap:        null,
    network:           '',
    privileged:        false,
    pullCredentialsId: '',
    sharedMemorySize:  null,
    tty:               true,
    volumesFromString: '',
    volumesString:     ''
]

def DockerTemplateParameters = [
    instanceCapStr: '4',
    labelString:    'docker.local.jenkins.slave',
    remoteFs:       ''
]

def dockerCloudParameters = [
    connectTimeout: 3,
    containerCapStr: '4',
    credentialsId:  '',
    dockerHostname: '',
    name:           'docker.local',
    readTimeout:   60,
    serverUrl:      'unix:///var/run/docker.sock',
    version:        ''
]

// https://github.com/jenkinsci/docker-plugin/blob/docker-plugin-1.1.2
//src/main/java/com/nirima/jenkins/plugins/docker/DockerTemplateBase.java
DockerTemplateBase dockerTemplateBase = new DockerTemplateBase(
    dockerTemplateBaseParameters.image,
    dockerTemplateBaseParameters.pullCredentialsId,
    dockerTemplateBaseParameters.dnsString,
    dockerTemplateBaseParameters.network,
    dockerTemplateBaseParameters.dockerCommand,
    dockerTemplateBaseParameters.volumesString,
    dockerTemplateBaseParameters.volumesFromString,
    dockerTemplateBaseParameters.environmentsString,
    dockerTemplateBaseParameters.hostname,
    dockerTemplateBaseParameters.memoryLimit,

```

```

dockerTemplateBaseParameters.memorySwap,
dockerTemplateBaseParameters.cpuShares,
dockerTemplateBaseParameters.sharedMemorySize,
dockerTemplateBaseParameters.bindPorts,
dockerTemplateBaseParameters.bindAllPorts,
dockerTemplateBaseParameters.privileged,
dockerTemplateBaseParameters.tty,
dockerTemplateBaseParameters.macAddress,
dockerTemplateBaseParameters.extraHostsString
)

// https://github.com/jenkinsci/docker-plugin/blob/docker-plugin-1.1.2
//src/main/java/com/nirima/jenkins/plugins/docker/DockerTemplate.java
DockerTemplate dockerTemplate = new DockerTemplate(
    dockerTemplateBase,
    new DockerComputerAttachConnector(),
    DockerTemplateParameters.labelString,
    DockerTemplateParameters.remoteFs,
    DockerTemplateParameters.instanceCapStr
)

// https://github.com/jenkinsci/docker-plugin/blob/docker-plugin-1.1.2
//src/main/java/com/nirima/jenkins/plugins/docker/DockerCloud.java
DockerCloud dockerCloud = new DockerCloud(
    dockerCloudParameters.name,
    [dockerTemplate],
    dockerCloudParameters.serverUrl,
    dockerCloudParameters.containerCapStr,
    dockerCloudParameters.connectTimeout,
    dockerCloudParameters.readTimeout,
    dockerCloudParameters.credentialsId,
    dockerCloudParameters.version,
    dockerCloudParameters.dockerHostname
)

// get Jenkins instance
Jenkins jenkins = Jenkins.getInstance()

// add cloud configuration to Jenkins
jenkins.clouds.add(dockerCloud)

// save current Jenkins state to disk
jenkins.save()

```

Changelog

See <https://github.com/jenkinsci/docker-plugin/blob/master/CHANGELOG.md>