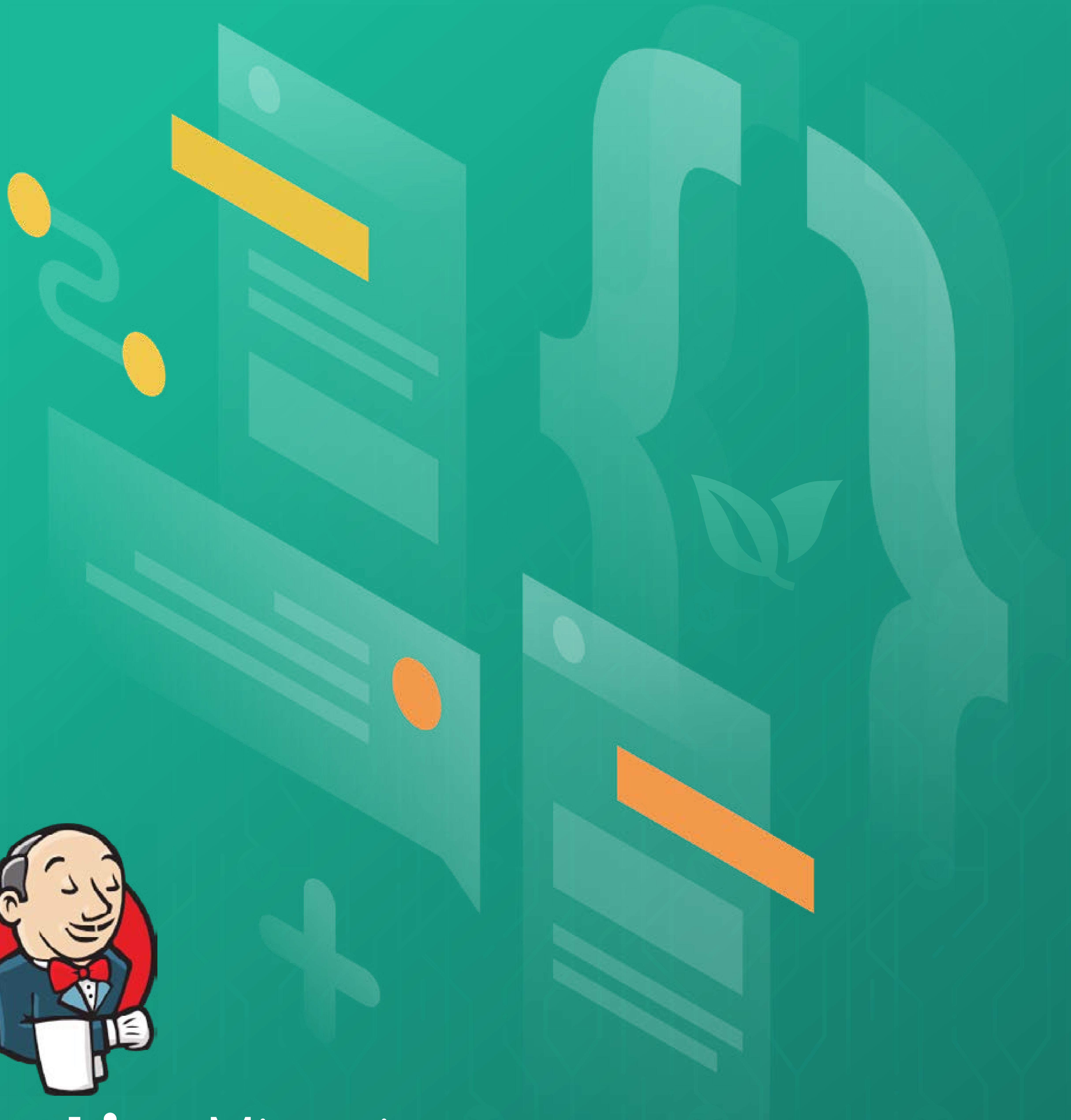


Jenkins Migration GUIDE

codefresh

Table of Contents

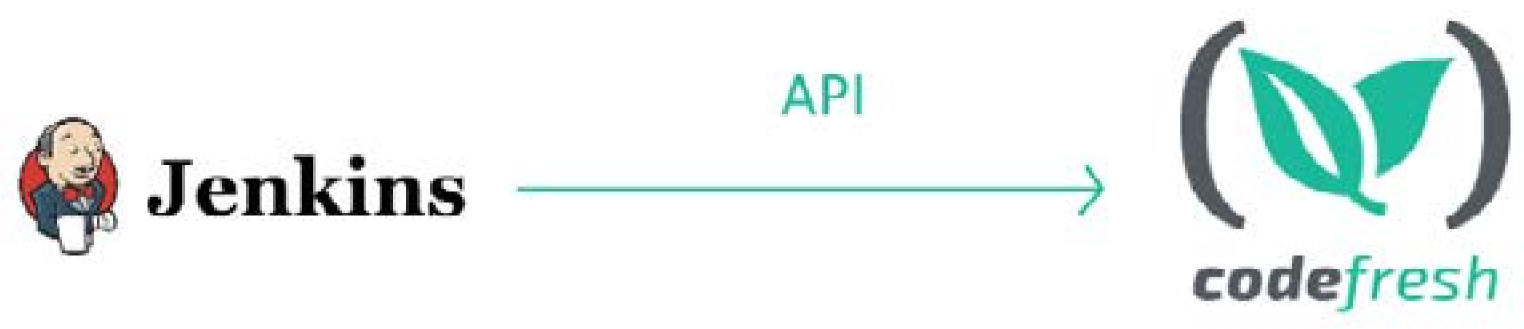
Migration from Jenkins to Codefresh

Codefresh offers a superset of the capabilities offered by Jenkins, and therefore you can fully replace a Jenkins solution using only Codefresh on its own.

During that migration period, it is very easy to make both solutions work together. This allows you to move gradually new CI/CD tasks to Codefresh and still keep the existing functionality in Jenkins jobs.

Calling Codefresh pipelines from Jenkins Jobs

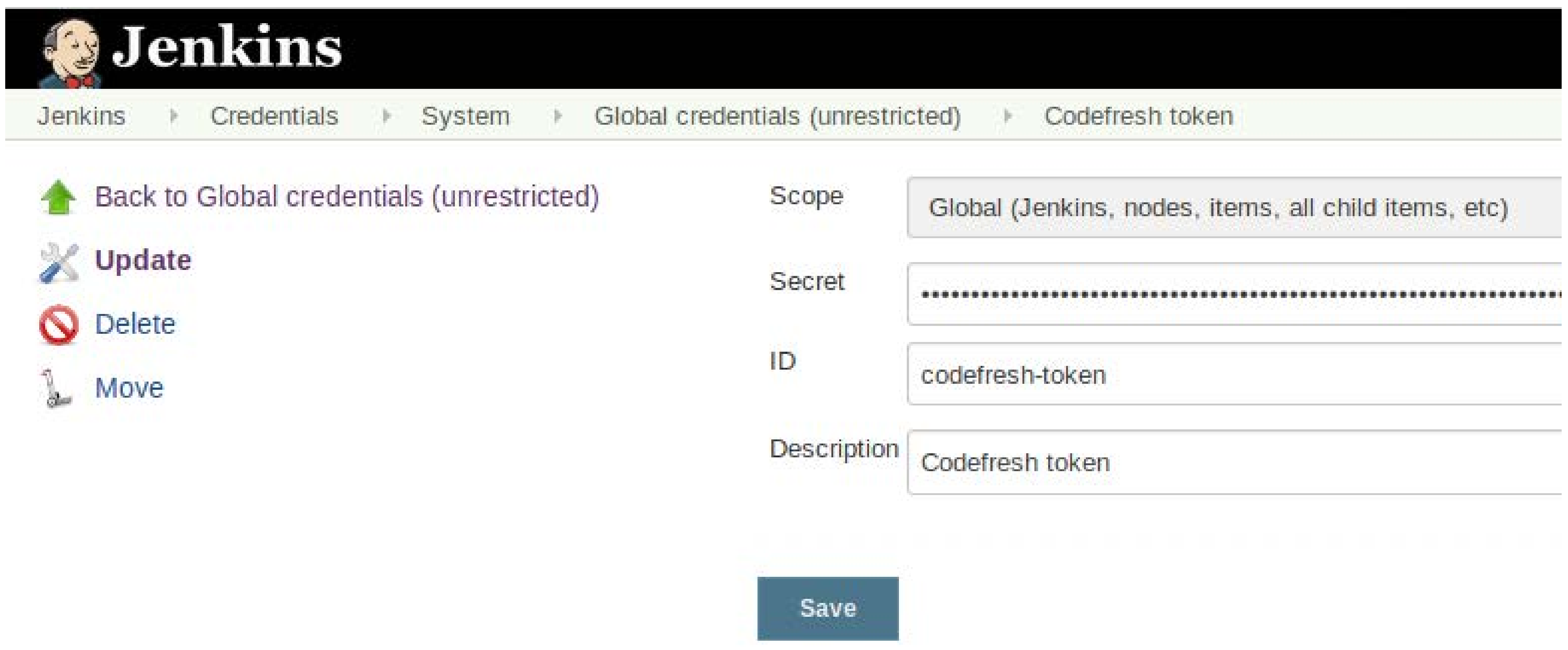
This is the most common scenario for the migration period. The CI part (i.e. code packaging) is still in Jenkins, where actual deployments happen with Codefresh (the CD part)



Calling a Codefresh pipeline from a Jenkins Job

First, you need to create a Codefresh API token so that Jenkins can connect to your Codefresh account.

Once you have the token, enter it in Jenkins as a global Credential.


Jenkins > Credentials > System > Global credentials (unrestricted) > Codefresh token

Back to Global credentials (unrestricted)
Update
Delete
Move

Scope	Global (Jenkins, nodes, items, all child items, etc)
Secret	••
ID	codefresh-token
Description	Codefresh token

Save

Storing the Codefresh API token in Jenkins

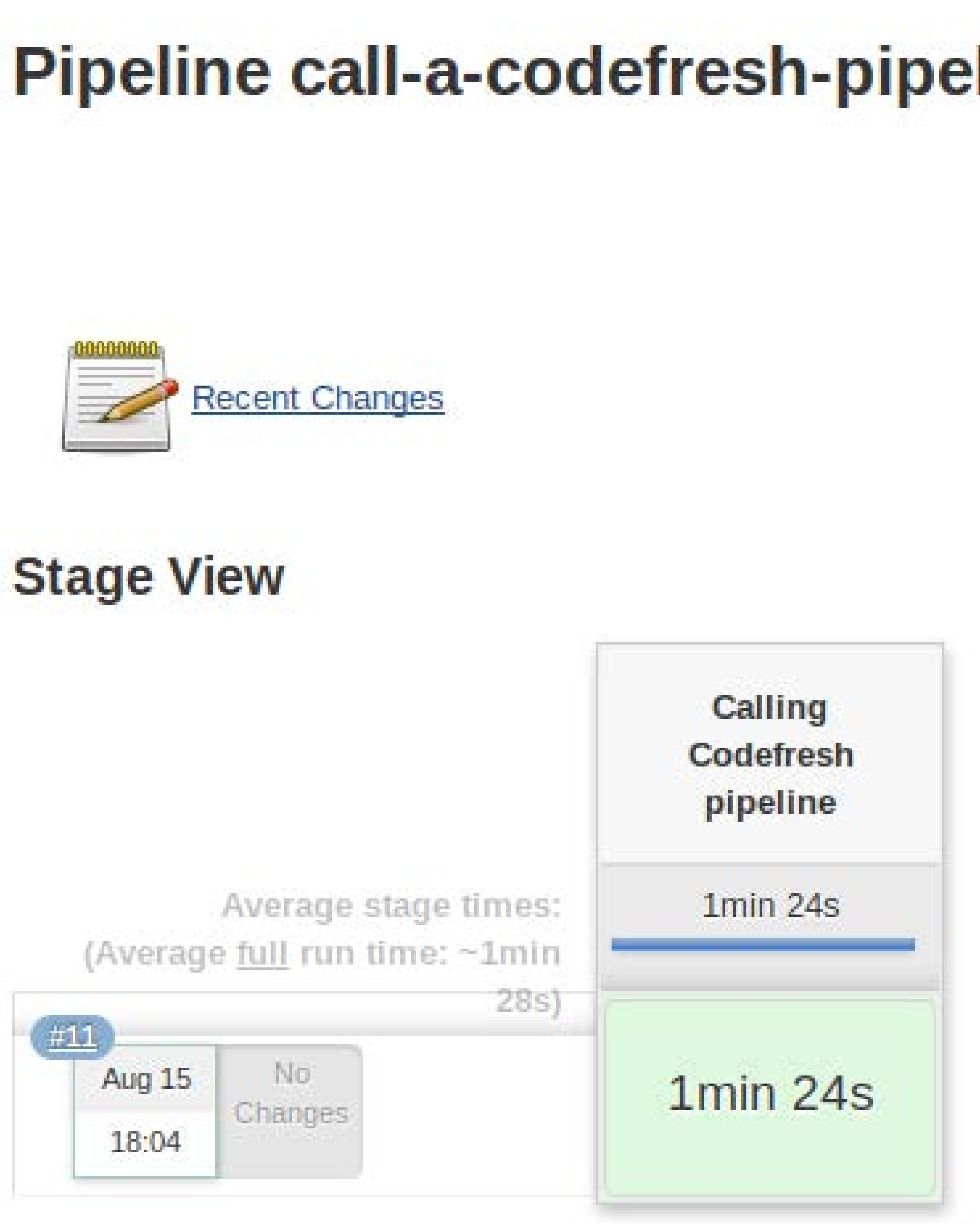
Now you can create any declarative or scripted Jenkins pipeline that uses the token and the Codefresh CLI to call Codefresh pipelines from Jenkins.

Here is a very simple example:

Jenkinsfile

```
pipeline {
    agent {
        docker {
            image 'codefresh/cli:latest'
            args '--entrypoint=""'
        }
    }
    environment {
        CODEFRESH_API_TOKEN= credentials('codefresh-token')
    }
    stages {
        stage('Calling Codefresh pipeline') {
            steps {
                sh 'codefresh auth create-context --api-key $CODEFRESH_API_
TOKEN'
                sh 'codefresh run my-first-project/basic-build -t my-trigger -b
master'
            }
        }
    }
}
```

Run the Jenkins job and it will also trigger a Codefresh pipeline:


Pipeline call-a-codefresh-pipeline

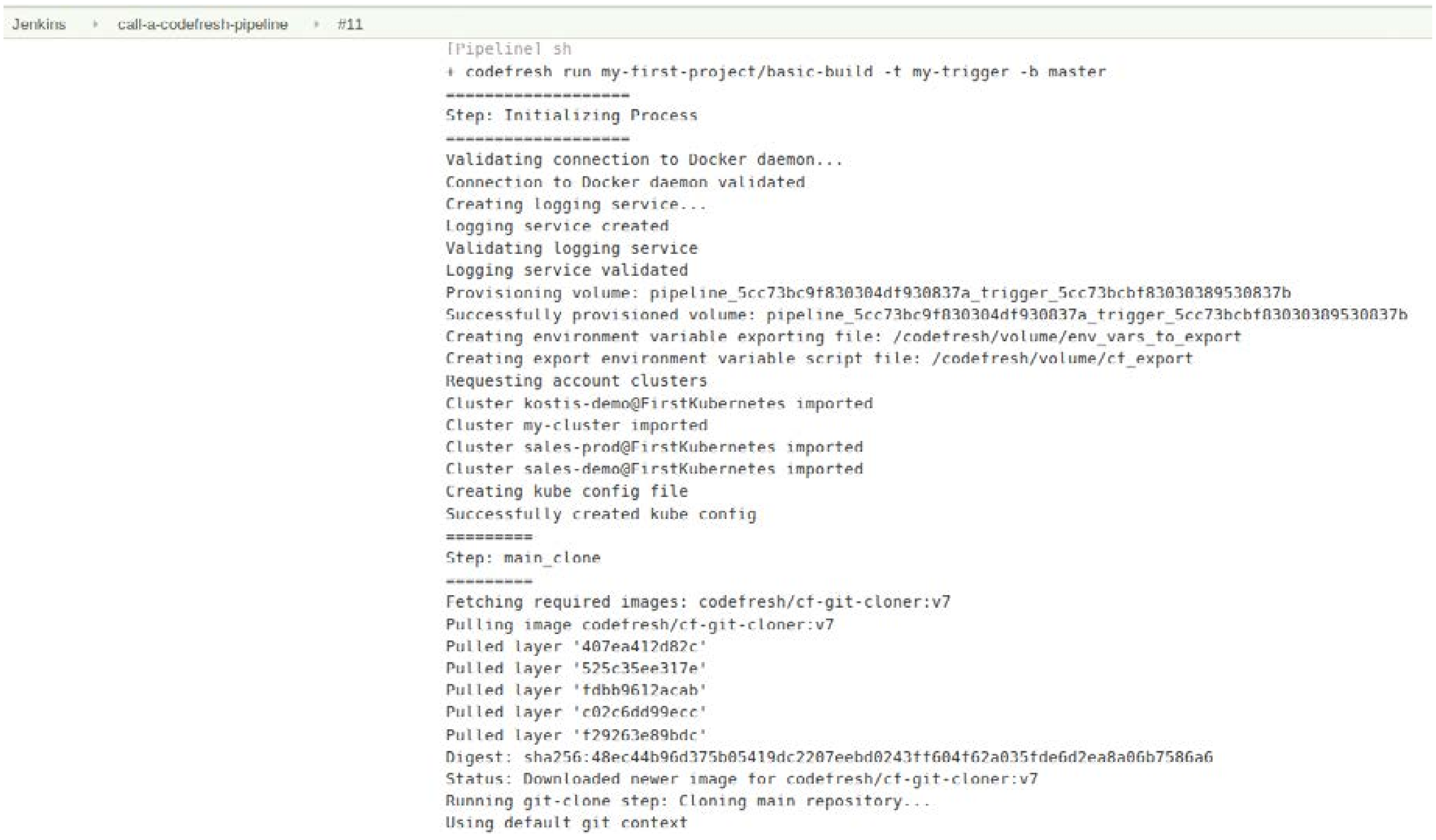
Recent Changes

Stage View

	Calling Codefresh pipeline
Average stage times: (Average full run time: ~1min 28s)	1min 24s
#11 Aug 15 18:04 No Changes	1min 24s

Calling a Codefresh pipeline in a Jenkins step

In the logs of the Jenkins job, you will see the Codefresh logs (the Codefresh CLI automatically shows logs in standard output).



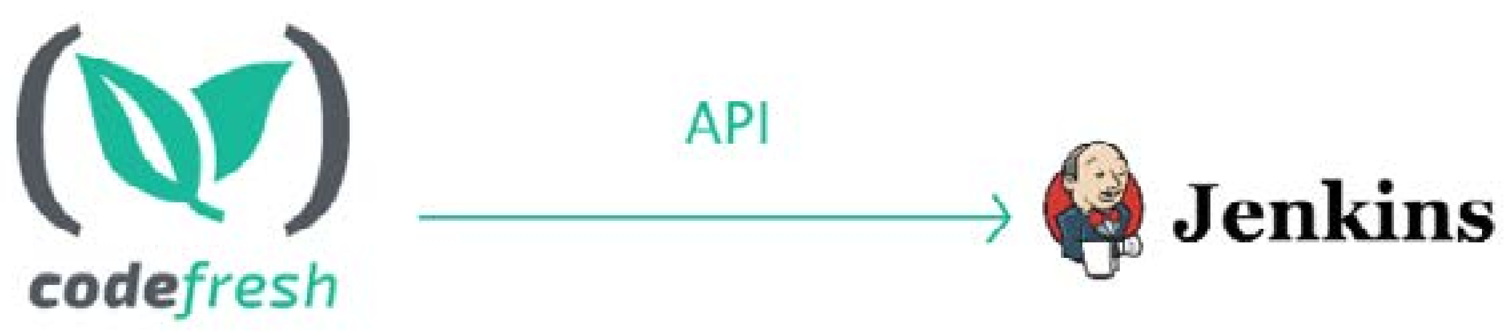
```
[Pipeline] sh
+ codefresh run my-first-project/basic-build -t my-trigger -b master
===================
Step: Initializing Process
===================
Validating connection to Docker daemon...
Connection to Docker daemon validated
Creating logging service...
Logging service created
Validating logging service
Logging service validated
Provisioning volume: pipeline_5cc73bc9f830304df930837a_trigger_5cc73bcbf83030389530837b
Successfully provisioned volume: pipeline_5cc73bc9f830304df930837a_trigger_5cc73bcbf83030389530837b
Creating environment variable exporting file: /codefresh/volume/env_vars_to_export
Creating export environment variable script file: /codefresh/volume/cf_export
Requesting account clusters
Cluster kostis-demo@FirstKubernetes imported
Cluster my-cluster imported
Cluster sales-prod@FirstKubernetes imported
Cluster sales-demo@FirstKubernetes imported
Creating kube config file
Successfully created kube config
=========
Step: main_clone
=========
Fetching required images: codefresh/cf-git-cloner:v7
Pulling image codefresh/cf-git-cloner:v7
Pulled layer '407ea412d82c'
Pulled layer '525c35ee317e'
Pulled layer 'fdbb9612acab'
Pulled layer 'c02c6dd99ecc'
Pulled layer 'f29263e89bdc'
Digest: sha256:48ec44b96d375b05419dc2207eebd0243ff604f62a035fde6d2ea8a06b7586a6
Status: Downloaded newer image for codefresh/cf-git-cloner:v7
Running git-clone step: Cloning main repository...
Using default git context
```

Viewing Codefresh logs from Jenkins

Of course, if you visit the Codefresh Web UI you will also see the running pipeline. With this kind of integration, it is very easy to create Jenkins Jobs that compile/package code and add a step onto them that calls Codefresh for deployment.

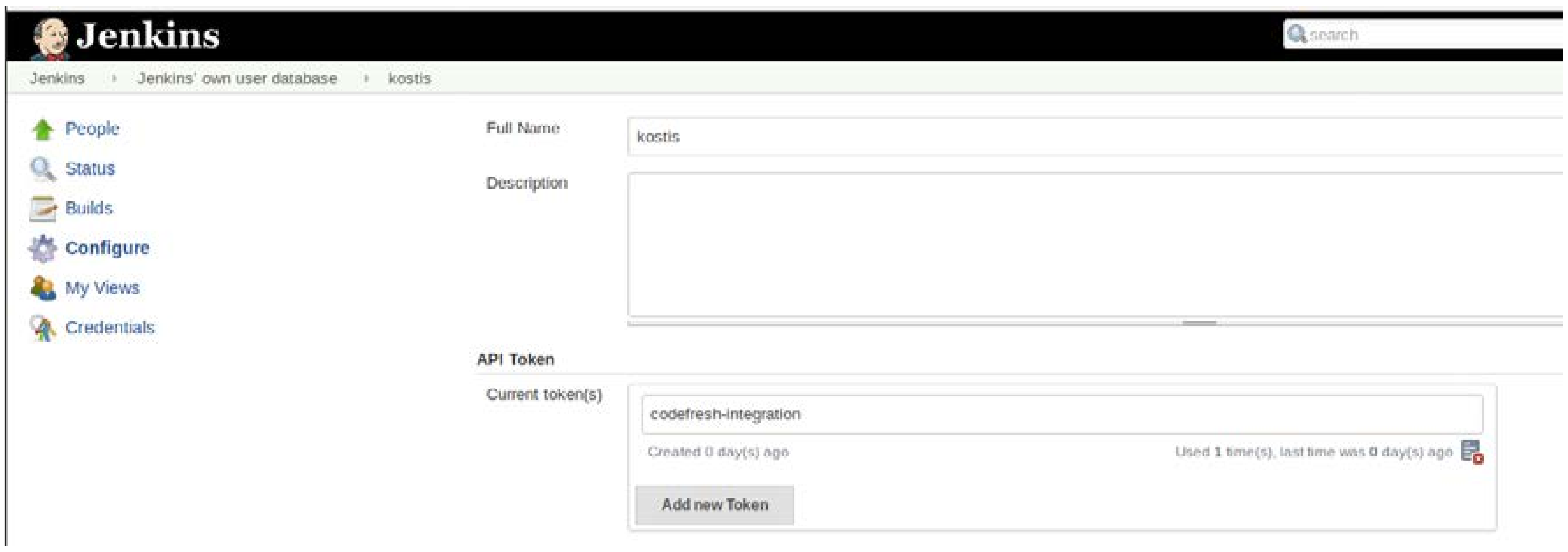
Calling Jenkins jobs from Codefresh pipelines.

This is the opposite scenario. As you move more functionality into Codefresh, it might make sense to have a Codefresh pipeline that actually calls Jenkins jobs for tasks that are not migrated yet.



Calling a Jenkins Job from a Codefresh pipeline

First, you need to create a Jenkins API token so that Codefresh can authenticate to your Jenkins instance. This is done from your User Settings in the Jenkins UI. Give your token any name that reminds you of its purpose. The name itself is arbitrary.



Full Name: kostis
Description:

API Token
Current token(s): codefresh-integration
Created 0 day(s) ago — Used 1 time(s), last time was 0 day(s) ago

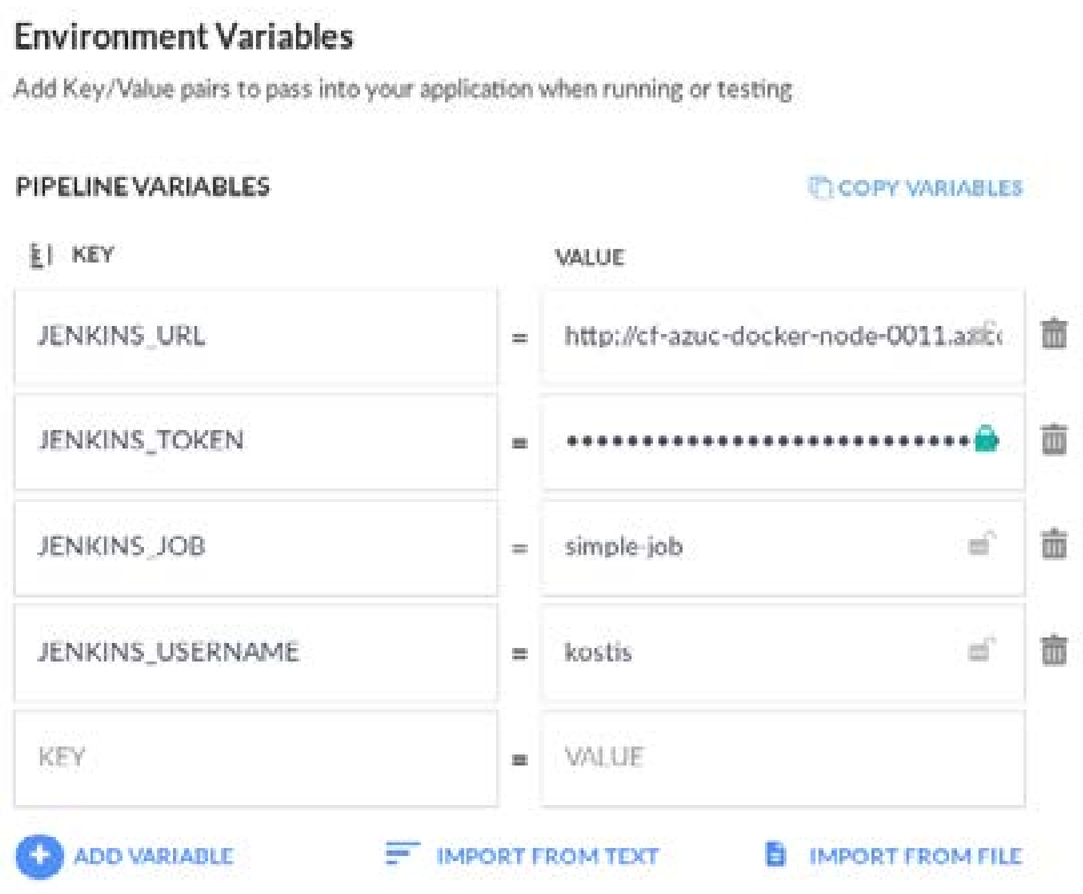
Jenkins API token

Once you have the token, you can use the Codefresh plugin for triggering Jenkins Jobs in any pipeline like this:

codefresh.yml

```
version: ‘1.0’
steps:
  RunJenkins:
    title: Triggering Jenkins Job
    image: codefresh/cf-run-jenkins-job
    environment:
    - JENKINS_URL=${{JENKINS_URL}}
    - JENKINS_USER=${{JENKINS_USERNAME}}
    - JENKINS_TOKEN=${{JENKINS_TOKEN}}
    - JENKINS_JOB=${{JENKINS_JOB}}
```

The value of the variables can be stored either in your Codefresh shared configuration or directly in the pipeline:



Environment Variables

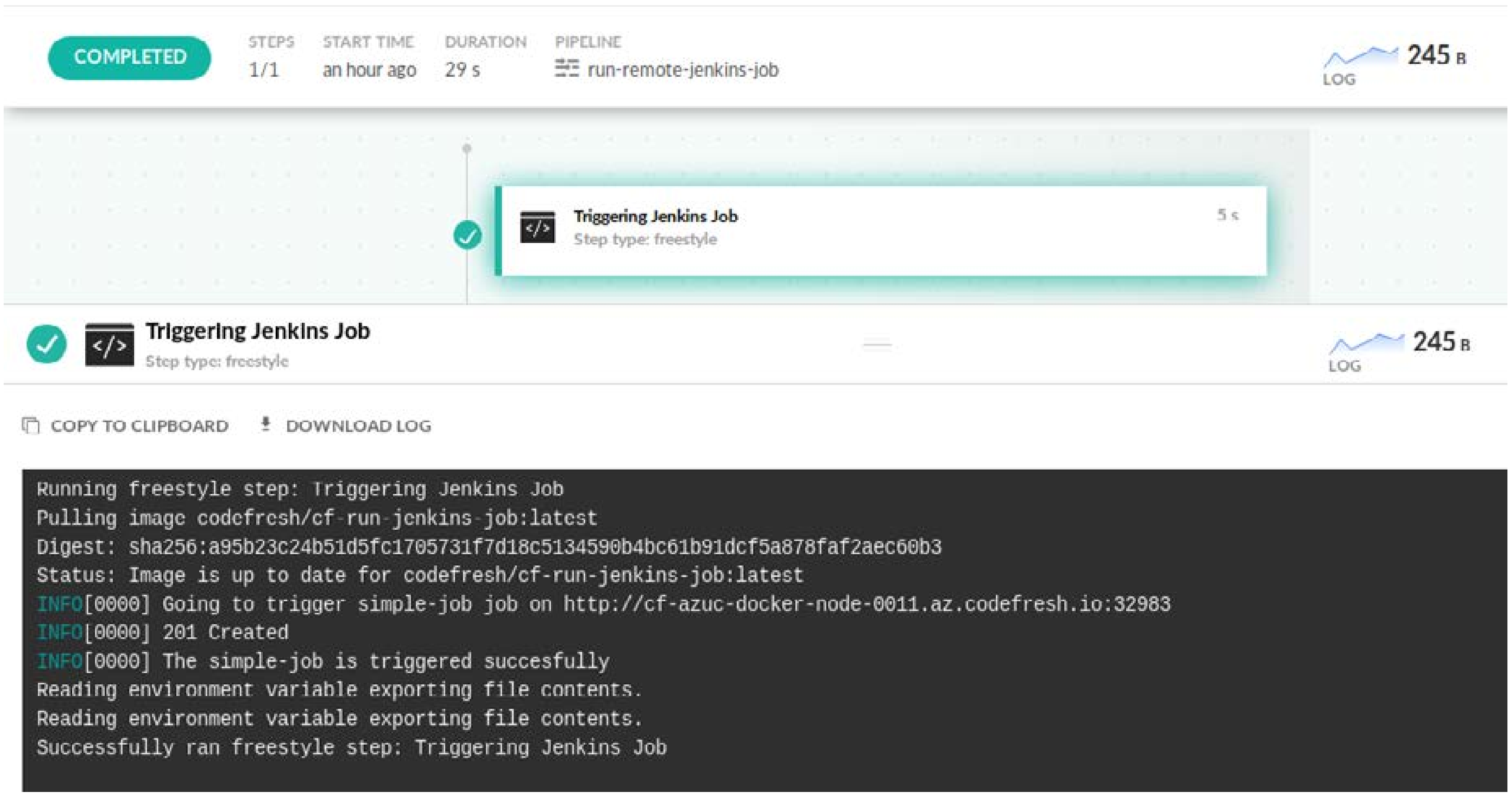
Add Key/Value pairs to pass into your application when running or testing

PIPELINE VARIABLES

KEY		VALUE
JENKINS_URL	=	http://cf-azuc-docker-node-0011.az
JENKINS_TOKEN	=	••••••••••••••••••••••••••••
JENKINS_JOB	=	simple-job
JENKINS_USERNAME	=	kostis
KEY	=	VALUE

Jenkins Jobs variables

Then when you launch the Codefresh pipeline the remote Jenkins Job will be triggered as well.



```
Running freestyle step: Triggering Jenkins Job
Pulling image codefresh/cf-run-jenkins-job:latest
Digest: sha256:a95b23c24b51d5fc1705731f7d18c5134590b4bc61b91dcf5a878faf2aec60b3
Status: Image is up to date for codefresh/cf-run-jenkins-job:latest
INFO[0000] Going to trigger simple-job job on http://cf-azuc-docker-node-0011.az.codefresh.io:32983
INFO[0000] 201 Created
INFO[0000] The simple-job is triggered succesfully
Reading environment variable exporting file contents.
Reading environment variable exporting file contents.
Successfully ran freestyle step: Triggering Jenkins Job
```

Trigger remote Jenkins Job

It is possible to mix both scenarios at the same time (Codefresh pipelines that call Jenkins Jobs and vice-versa).

Migrating from Jenkins to Codefresh

Now that you know how to mix pipelines from both platforms, it is helpful to understand how you can migrate all your Jenkins Jobs to Codefresh. In most cases, several actions that require custom scripts in Jenkins (or plugins/shared libraries) are already integrated into the core Codefresh platform. Here are some high-level differences between the two platforms:

Feature	Jenkins	Codefresh
Architecture	VM based	container-based
Pipeline definition	Groovy	YAML
Tool installation	installed on build node	dynamically launched
Plugin mechanism	Java/Groovy using Jenkins API	Docker image (any programming language)
Plugin installation	Central (requires admin access)	Per pipeline (no admin access needed)
Docker agent builds	Extra plugin	Built-in
Kubernetes agent builds	Extra plugin	Built-in
Docker commands	Manually run in pipelines	Built-in pipeline steps
Access to Kubectl	External plugin	Built-in
Kubernetes deployments	External plugin	Built-in

It is important to understand that when you are switching to Codefresh you get a set of higher level abstraction for your builds:

- Unlike Jenkins, Codefresh automatically has a distributed fleet of build nodes and manages all builds on its own.
- With Codefresh you don't need to install anything on the build nodes (in fact you don't even have SSH access on them). All build tools are automatically launched in pipelines as Docker images.
- It is possible in Codefresh to use the same tools in the same pipeline with a different version without any special configuration (e.g. use Java 5 and Java 8 in the same pipeline).
- Codefresh plugins are used per pipeline by simply mentioning them. There is nothing to install centrally (such as Jenkins plugins or shared libraries). Different teams can use different tools on their pipeline without affecting each other.
- Codefresh plugins are just Docker images with predefined inputs/outputs. They can be programmed in any programming language (not just Java/Groovy) and are not tied to Codefresh in any way (i.e. there is no need to know the Codefresh API for writing a Codefresh plugin).
- Jenkins pipelines can be free-style (VM based), scripted (VM/container-based) or declarative (VM/container based) meaning that there are at least 5 ways on how you can write your pipeline. In Codefresh there is only way (declarative/container-based).
- Jenkins pipelines are connected to a single git repository. Codefresh pipelines can be connected to multiple git triggers which themselves are connected to git repositories. Therefore a Codefresh pipeline can be reused for multiple projects.
- Specifically for building Docker images, Codefresh includes a private Docker registry and automatically pushes Docker images from successful builds there. There is nothing to set up to achieve this behavior. You can also connect external Docker registries.
- Specifically for Kubernetes deployments, Codefresh automatically sets up kubectl access in pipelines from connected clusters. There is no configuration needed to achieve this behavior. Codefresh also has several built-in ways for Kubernetes deployments and a dedicated UI dashboard to see what your cluster is doing.
- Specifically for Helm deployments, Codefresh includes a private Helm repository and several Helm dashboards.

Migrating Jenkins freestyle jobs

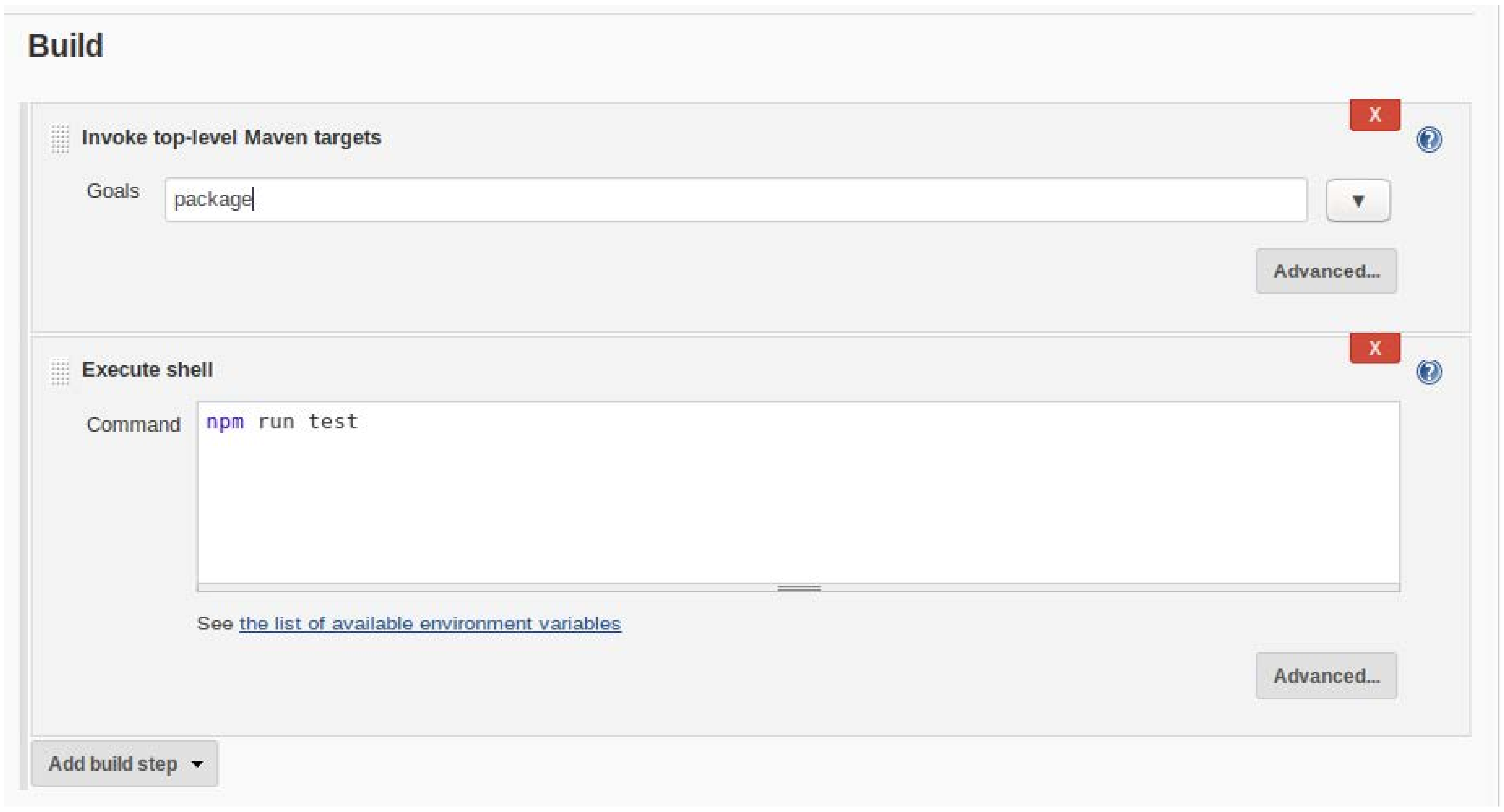
If you have freestyle Jenkins Jobs (or are still using Jenkins 1.x), it is very easy to migrate your builds to Codefresh. In Jenkins you are accustomed to:

1. Install a programming tool on the Jenkins node.
2. call it directly in a build step.

For Codefresh a similar process would be the following:

1. Find a Docker image in Dockerhub or create one by yourself that has the tools that you need
2. Use a freestyle step and run the exact same command in a Codefresh pipeline

For example this Jenkins job...


Build
Invoke top-level Maven targets
Advanced...
Execute shell
See the list of available environment variables
Advanced...
Add build step

Goals: package

Command:

```
npm run test
```

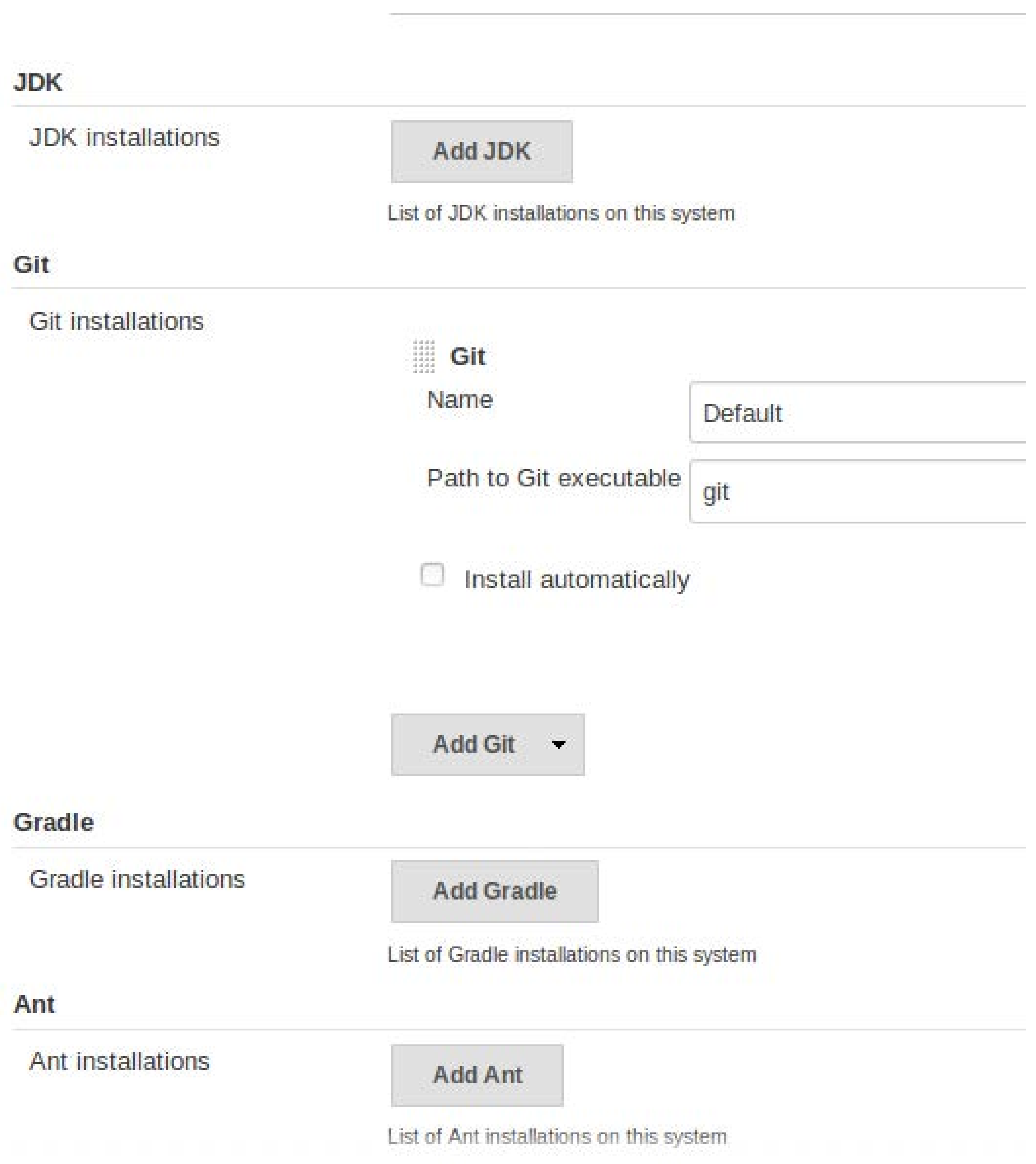
Jenkins freestyle job

...can be easily converted to a Codefresh pipeline like this:

codefresh.yml

```
version: '1.0'
steps:
  my_jar_compilation:
    title: Compile/Unit test
    image: maven:3.5.2-jdk-8-alpine
    commands:
     - mvn package
  my_node_app:
    title: Running unit tests
    image: node:11
    commands:
     - npm run test
```

Unlike Jenkins, Codefresh does not need any global installation of tools beforehand.


JDK

JDK installations

Add JDK

List of JDK installations on this system

Git

Git installations

Git

Name: Default

Path to Git executable: git

Install automatically

Add Git

Gradle

Gradle installations

Add Gradle

List of Gradle installations on this system

Ant

Ant installations

Add Ant

List of Ant installations on this system

Jenkins Tool installation - not needed with Codefresh

In Codefresh you can just use one or more Docker images in your pipeline. The tool versions will be launched only while the pipeline is active. Once the pipeline finished all Docker images that took part in it are discarded. The Codefresh build node has only Docker installed and nothing else. This means that you can easily mix and match tool versions. Here is a Codefresh pipeline that uses multiple versions of Java and Node.

codefresh.yml

```
version: ‘1.0’
steps:
  PackageMyNode1App:
    title: Packaging Node application 1
    stage: packaging
    image: node:11.1
    working_directory: ./dashboard
    commands:
      - echo “My Node version is”
      - node --version
      - npm install
  PackageMyNode2App:
    title: Packaging Node application 2
    stage: packaging
    image: node:9.3.0-slim
    working_directory: ./website
    commands:
      - echo “My Node version is”
      - node --version
      - npm install
  RunUnitTests:
    title: Running Unit tests
    image: maven:3.6.1-jdk-11
    working_directory: ./backend
    commands:
     - java -version
     - mvn test
  PackageBackend:
    title: Compile/Unit test
    image: maven:3.5.2-jdk-8-alpine
    working_directory: ./backend
    commands:
     - java -version
     - mvn package -Dmaven.test.skip
```

Meanwhile, another team might have a different pipeline that is using different versions of Maven and/or Java. Each team can decide on the exact version needed just by changing the Codefresh YAML.

It should be easy to see now that by migrating from Jenkins to Codefresh, a lot of Jenkins problems are simply eliminated:

- You do not need to be an admin to install programming tools anymore,
- Tools are defined per pipeline instead of being preloaded centrally,
- Multiple versions of the same tool can be used on the same pipeline (or different pipelines),
- Upgrading a tool to a new version is trivial (just change the docker tag in the freestyle step),
- You don’t need to label build nodes anymore with specific labels that show which tools they contain,
- All public Dockerhub images can be used with zero changes in a Codefresh step.

Notice that for several popular tools, Dockerhub already contains several images.

- Maven
- Gradle
- Node
- Python
- Terraform
- Packer

- Sonar
- Nexus
- Helm
- Kubectl
- gcloud
- Ansible
- Azure CLI
- AWS CLI

Of course, you can create your own Docker image with the exact tools that you want and then use it from the private Codefresh registry or any other registry in your pipeline.

Migrating Jenkins pipelines

In the case of Jenkins pipelines, things are a bit more complicated because there is not a single way anymore on how to structure your pipelines. First of all, the best-case scenario is when you have declarative Jenkins pipelines that already use Docker images for stage execution.

Jenkinsfile

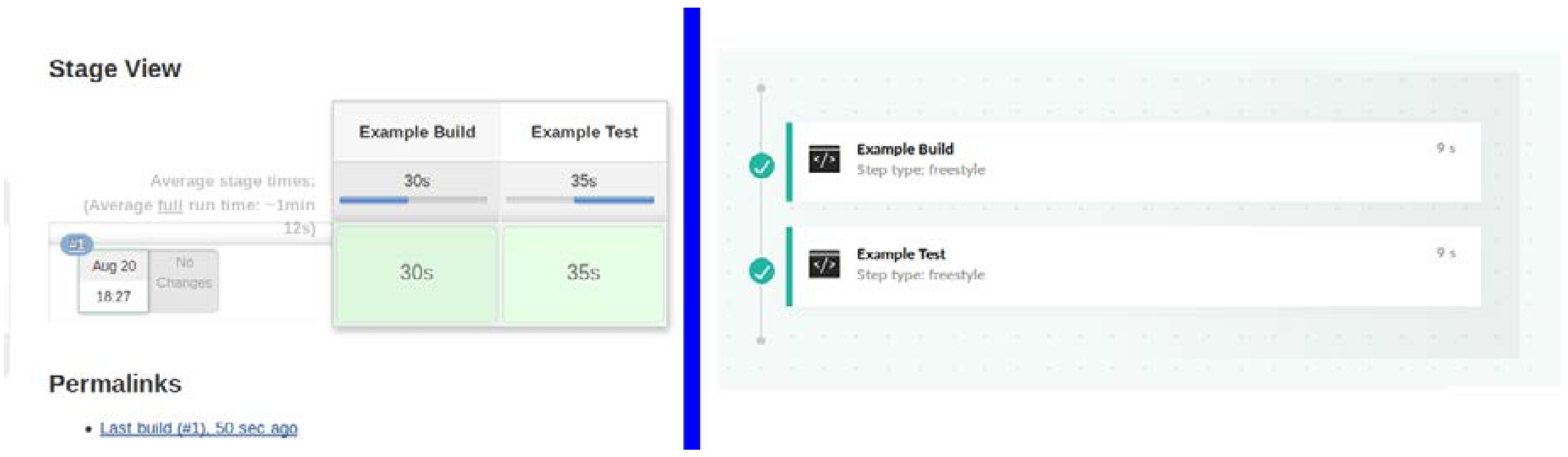
```
pipeline {
    agent none
    stages {
        stage('Example Build') {
            agent { docker 'maven:3-alpine' }
            steps {
                echo 'Hello, Maven'
                sh 'mvn --version'
            }
        }
        stage('Example Test') {
            agent { docker 'openjdk:8-jre' }
            steps {
                echo 'Hello, JDK'
                sh 'java -version'
            }
        }
    }
}
```

In this case, there is a 1-1 mapping between Jenkins stages and Codefresh steps as you can simply convert each stage into a Codefresh step using the respective Docker image. The Jenkins pipeline above can be converted to a Codefresh pipeline with a series of freestyle steps:

`codefresh.yml`

```
version: '1.0'
steps:
  my_first_step:
    title: Example Build
    image: maven:3-alpine
    commands:
     - echo 'Hello, Maven'
     - mvn --version
  my_second_step:
    title: Example Test
    image: openjdk:8-jre
    commands:
     - echo 'Hello, JDK'
     - java -version
```

The final Codefresh pipeline will even look like the original Jenkins one.



Direct migration from Jenkins to Codefresh

If you don't use Docker containers in your Jenkins pipeline, then you need to follow the same advice as the previous section (i.e. find a Docker image that has the tools you need and create your own freestyle step in Codefresh).

Checking out source code

In Jenkins 1.x pipelines, code is automatically checked out by Jenkins when the pipeline starts. In Jenkins 2.x pipelines you are free to insert your own git steps inside a Job:

Jenkinsfile

```
node {
   stage('First Project') {
      git 'https://github.com/nodegui/react-nodegui.git'
   }
   stage('Second Project') {
      git url: 'https://github.com/jglick/simple-maven-project-with-tests.git'
          branch: 'master'
   }
}
```

Codefresh has a dedicated git clone step that can be used in a similar manner.

codefresh.yml

```
version: "1.0"
steps:
  first_project:
    type: "git-clone"
    description: "Cloning first project..."
    repo: "nodegui/react-nodegui"
    revision: "${{CF_BRANCH}}"
    git: github
  second_project:
    type: "git-clone"
    description: "Cloning second..."
    repo: "jglick/simple-maven-project-with-tests"
    revision: "master"
    git: github
```

You don't need to define any credentials or tokens, as they are already defined centrally in the git configuration screen. The CF_BRANCH variable is one of the built-in Codefresh variables that shows the branch that was used by the git commit as it came from the trigger attached to the pipeline.

You can also run manually git commands in Codefresh pipelines.

Step conditions

In several cases you want to add conditionals on steps such as the branch that is being compiled:

Jenkinsfile

```
pipeline {
    agent any
    stages {
        stage('Example Build') {
            steps {
                echo 'Hello World'
            }
        }
        stage('Example Deploy') {
            when {
                branch 'master'
            }
            steps {
                echo 'Deploying'
            }
        }
    }
}
```

This can be also configured in Codefresh using step conditionals:

codefresh.yml

```
version: '1.0'
steps:
  my_first_step:
    title: Example Build
    image: alpine:latest
    commands:
     - echo 'Hello World'
  my_second_step:
    title: Example Deploy
    image: alpine:latest
    commands:
     - echo 'Deploying'
    when:
      branch:
        only:
          - master
```

You can define much more complex conditions using the Codefresh expression language.

Migrating Jenkins credentials

Codefresh contains a central repository for user variables and secrets in the form of shared configuration. You can also inject variables on a specific project or a specific pipeline.

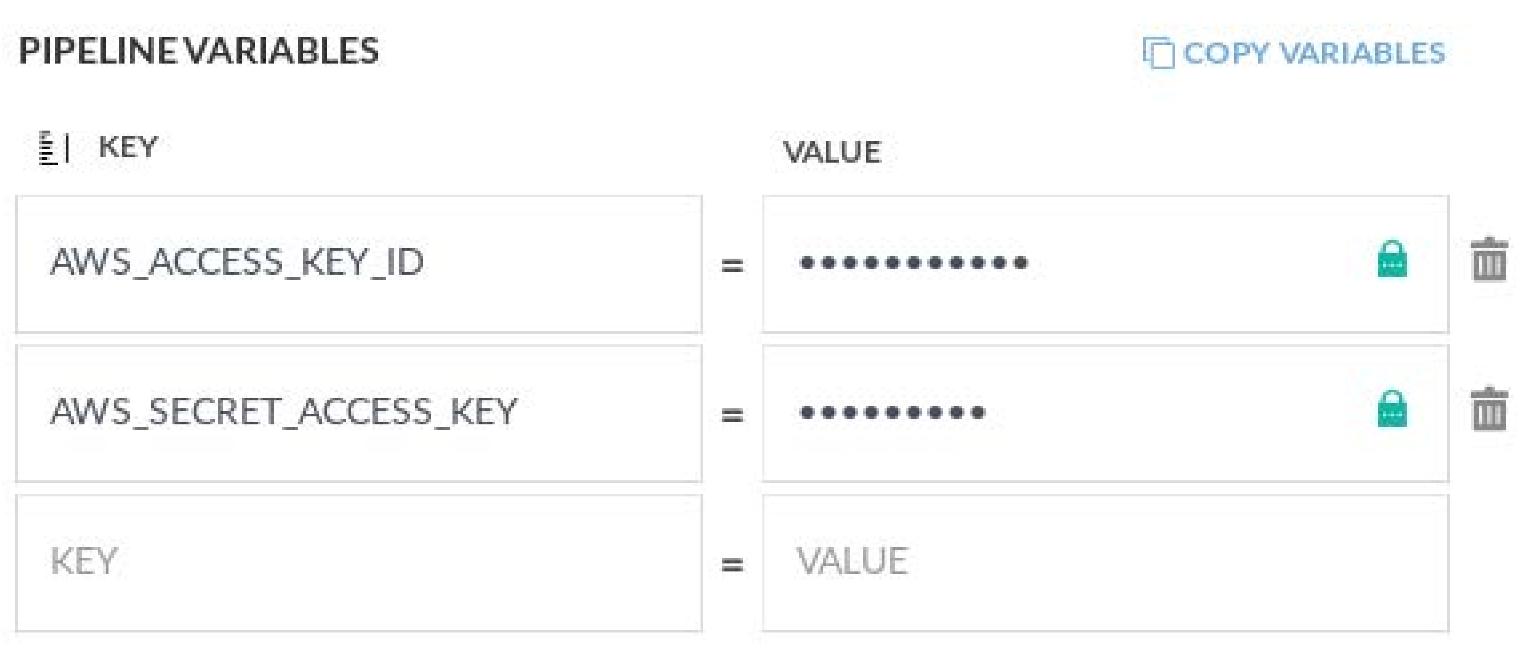
All injected variables are automatically available to all Codefresh freestyle steps. You don't need a special syntax or directive to enable this behavior (unlike Jenkins where you have to use a withCredentials block or something similar).

In Jenkins you have to explicitly ask for a secret:

Jenkinsfile

```
pipeline {
    agent any
    stages {
        stage('Example') {
            environment {
                  AWS_ACCESS_KEY_ID     = credentials('jenkins-aws-secret-key-
id')
                  AWS_SECRET_ACCESS_KEY = credentials('jenkins-aws-secret-
access-key')
            }
            steps {
                sh 'printenv'
            }
        }
    }
}
```

In Codefresh if you setup your variables in the pipeline settings, then the pipeline itself needs nothing special.



KEY		VALUE
AWS_ACCESS_KEY_ID	=	••••••••••••
AWS_SECRET_ACCESS_KEY	=	•••••••••
KEY	=	VALUE

Pipeline variables

You can simply run the pipeline on its own:

`codefresh.yml`

```
version: '1.0'
steps:
  my_first_step:
    title: Example1
    image: alpine:latest
    commands:
     - printenv # Injected variables are always available
  my_second_step:
    title: Example2
    image: alpine:latest
    commands:
     - echo $AWS_ACCESS_KEY_ID
     - echo $AWS_SECRET_ACCESS_KEY
```

If you want to use a different name for each variable/secret then you can simply assign them to your desired names:

`codefresh.yml`

```
version: '1.0'
steps:
  my_first_step:
    title: Example
    image: alpine:latest
    environment:
     - MY_KEY=${{AWS_ACCESS_KEY_ID}}
     - MY_ACCESS_KEY=${{AWS_SECRET_ACCESS_KEY}}
    commands:
     - echo $MY_KEY
     - echo $MY_ACCESS_KEY
```

In the example above, even though the secrets are already available as environment variables AWS_ACCESS_KEY_ID and AWS_SECRET_ACCESS_KEY, we instead pass them to the pipeline step as MY_KEY and MY_ACCESS_KEY.

Migrating Jenkins shared libraries

Creating a Jenkins shared library has a lot of challenges:

- The library must be written in Groovy/Java,
- The library must use the Jenkins API,
- It is very hard to write unit tests for it,
- Installing it requires admin access in the Jenkins master.

Codefresh plugins, on the other hand, are just Docker images written in any programming language.

First of all, look at Dockerhub and see if there is already a utility or CLI that has the same functionality with your shared library. Codefresh also has a free marketplace for pipeline steps (which are Docker images essentially).

As a last resort, you need to rewrite your shared library and convert it to a Docker image. The process is the following:

1. Start from a base image that contains Groovy and any other tool you need.
2. Convert your shared library to a single Groovy executable that reads input from environment variables and/or files and writes output data to files.
3. Remove all Jenkins specific APIs.
4. Package the image with a simple Dockerfile that just compiles your executable.

Note that there is nothing Codefresh specific to the end-result. You should end up with a standard Docker image that would be usable in any environment that has Docker installed.

Once you have that image you can use it like any other Codefresh freestyle step as described in the previous section.

Migration of Jenkins pipelines that create Docker images

Codefresh has native support for:

1. Building Docker images
2. Running commands inside Docker images
3. Pushing Docker images to different registries

It is important to understand that each Codefresh account also includes a free private Docker registry. So by using Codefresh you can start pushing Docker images right away.

If you are using Docker commands directly in your Jenkins file, or prefer to take advantage of the scripted variant of Docker image management then you can easily convert both approaches to Codefresh YAML like below:

Building Docker images

The most basic Docker operation is building an image. You will need a Dockerfile and a directory to use as build context (usually the same folder that contains the Dockerfile).

docker command

```
docker build . -t my-app-image:1.0.1
```

Or if you use Jenkins scripted pipelines...

Jenkinsfile

```
node {
    docker.build(“my-app-image:1.0.1”)
    docker.build(“test-image”, “./tests”)
}
```

...they will become in Codefresh the following build steps:

codefresh.yml

```
version: ‘1.0’
steps:
  my_first_step:
    title: Building My App image
    type: build
    image: my-app-image
    tag: 1.0.1
  my_second_step:
    title: Building My Test image
    type: build
    image: test-image
    working_directory: “./tests”
```

Running commands in created containers

Sometimes you want to run commands inside a Docker image. Either to have access to specialized tools or to run tests.

docker command

```
docker build . -t my-app-image:1.0.1
docker run my-app-image:1.0.1 npm install
```

Or, if you use Jenkins scripted pipelines...

Jenkinsfile

```
node {
    def customImage = docker.build(“my-app-image:1.0.1”)

    customImage.inside {
        sh ‘npm install’
    }
}
```

... they will become in Codefresh the following freestyle steps.

codefresh.yml

```
version: ‘1.0’
steps:
  my_first_step:
    title: Building My App image
    type: build
    image: my-app-image
    tag: 1.0.1
  my_second_step:
    title: Install Node dependencies
    image: ${{my_first_step}}
    commands:
      - npm install
```

Notice that the second pipeline step actually mentions the first one by name as a running context.

Pushing Docker images

Notice that in Codefresh all connected registries are automatically available to all pipelines. You don't need special directives such as withRegistry. All registries can be mentioned by their name in any push step (and will be used automatically for pulls when an image uses their domain).

`docker command`

```
docker build . -t my-app-image:1.0.1
docker tag my-app-image:1.0.1 registry.example.com/my-app-image:1.0.1
docker push registry.example.com/my-app-image:1.0.1
```

Or, if you use Jenkins scripted pipelines...

`Jenkinsfile`

```
node {
    def customImage = docker.build("my-app-image:1.0.1")

    docker.withRegistry('https://registry.example.com', 'example-registry-
credentials') {
            customImage.push("1.0.1")
            customImage.push("latest")
        }
}
```

...they will become in Codefresh the following push steps.

`codefresh.yml`

```
version: '1.0'
steps:
  my_first_step:
    title: Building My App image
    type: build
    image: my-app-image
    tag: 1.0.1
  my_second_step:
    title: Pushing image
    type: push
    candidate: ${{my_first_step}}
    tags:
    - 1.0.1
    - latest
    registry: example-registry
```

Notice again that the second step pushes the image created by the first one.

Complete Docker pipeline

Here is a full example with a pipeline that builds an image, runs tests, and pushes it to Dockerhub.

Jenkinsfile

```
node {
    def app

    stage('Clone repository') {
        checkout scm
    }

    stage('Build image') {
        app = docker.build("my-app-image:1.0.1")
    }

    stage('Test image') {
        app.inside {
            sh 'npm run test'
        }
    }

    stage('Push image') {
        docker.withRegistry('https://registry.hub.docker.com', 'docker-hub-
credentials') {
            app.push("1.0.1")
            app.push("latest")
        }
    }
}
```

Here is the same pipeline in Codefresh:

`codefresh.yml`

```
version: ‘1.0’
steps:
  main_clone:
    type: “git-clone”
    description: “Clone repository”
    repo: “my-account/my-git-repo”
    revision: “${{CF_BRANCH}}”
    git: github
  my_first_step:
    title: Build image
    type: build
    image: my-app-image
    tag: 1.0.1
  my_second_step:
    title: Test image
    image: ${{my_first_step}}
    commands:
      - npm run test
  my_third_step:
    title: Push image
    type: push
    candidate: ${{my_first_step}}
    tags:
    - 1.0.1
    - latest
    registry: dockerhub
```

Notice that Codefresh has much more context regarding Docker registries and credentials. The same approach is followed with Kubernetes deployments as we will see in the next section.

Migration of Jenkins pipelines that deploy to Kubernetes

Codefresh has first-class support for Kubernetes deployments. Codefresh can deploy on its own using different options and no external tools (i.e. Ansible or kubectl) are needed.

Specifically for Kubernetes and Helm, Codefresh has declarative pipeline steps:

`codefresh.yml`

```
version: ‘1.0’
steps:
  RunningDeploy:
    title: Kubernetes Deployment
    type: deploy
    kind: kubernetes
    cluster: myDemoGKEcluster
    namespace: production
    service: my-service
    candidate:
      image: ‘my-app-image:1.0.1’
      registry: ‘dockerhub’
  DeployMyChart:
    image: ‘codefresh/cfstep-helm:2.9.1’
    environment:
    - CHART_REF=charts/python
    - RELEASE_NAME=mypython-chart-prod
    - KUBE_CONTEXT=myDemoAKSCluster
```

As with Docker registries (described in the previous section), Codefresh makes all added Kubernetes clusters available to all pipelines. You don’t need any special plugin or directive (such as withKubeConfig) to work with Kubernetes clusters in Codefresh. You can see that the Codefresh pipeline simply mentions Kubernetes clusters and registries without any credential information.

Of course, it is also very easy to convert any existing Jenkins pipeline by just using any image that contains the kubectl executable.

Jenkinsfile

```
node {
  stage('Apply Kubernetes files') {
    withKubeConfig([credentialsId: 'user1', serverUrl: 'https://api.k8s.my-
company.com']) {
      sh 'kubectl apply -f my-kubernetes-directory'
    }
  }
}
```

Codefresh will automatically setup Kube config access to the pipeline behind the scenes. Zero configuration is needed for this behavior.

codefresh.yml

```
version: '1.0'
steps:
  MyCustomKubectlCommands:
    title: Running Kubectl
    image: codefresh/kubectl
    commands:
      - kubectl config use-context "my-k8s-my-company"
      - kubectl apply -f my-kubernetes-directory
```

Once you use Codefresh for your deployments you also get access to:

- The Kubernetes Dashboard
- A free built-in Helm repository with each Codefresh account
- The Helm chart dashboard
- The Helm Release dashboard
- The Helm environment dashboard

For some easy templating see also the cf-deploy plugin.

codefresh

www.codefresh.io