Dublin Jenkins Meetup

demonware

Agenda

- Build your own Jenkins2 Master
- Install Blue Ocean (Optional but really cool)
- What is a Pipeline ?
- Create “HelloWorld” pipeline
- Create more complex pipeline
- What is a seed file ?
- Create Jenkins jobs using a seed file

Build your own Jenkins2 Master

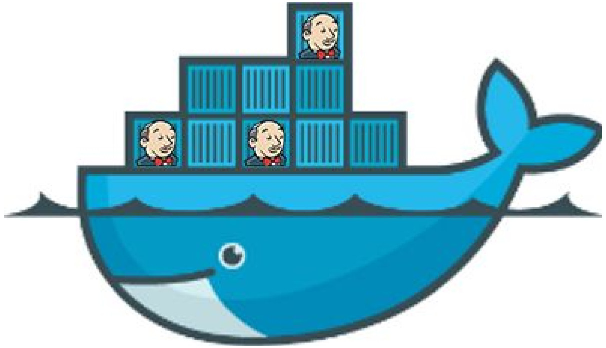
(Requires docker 1.12 and docker compose 1.6.2 to be installed)

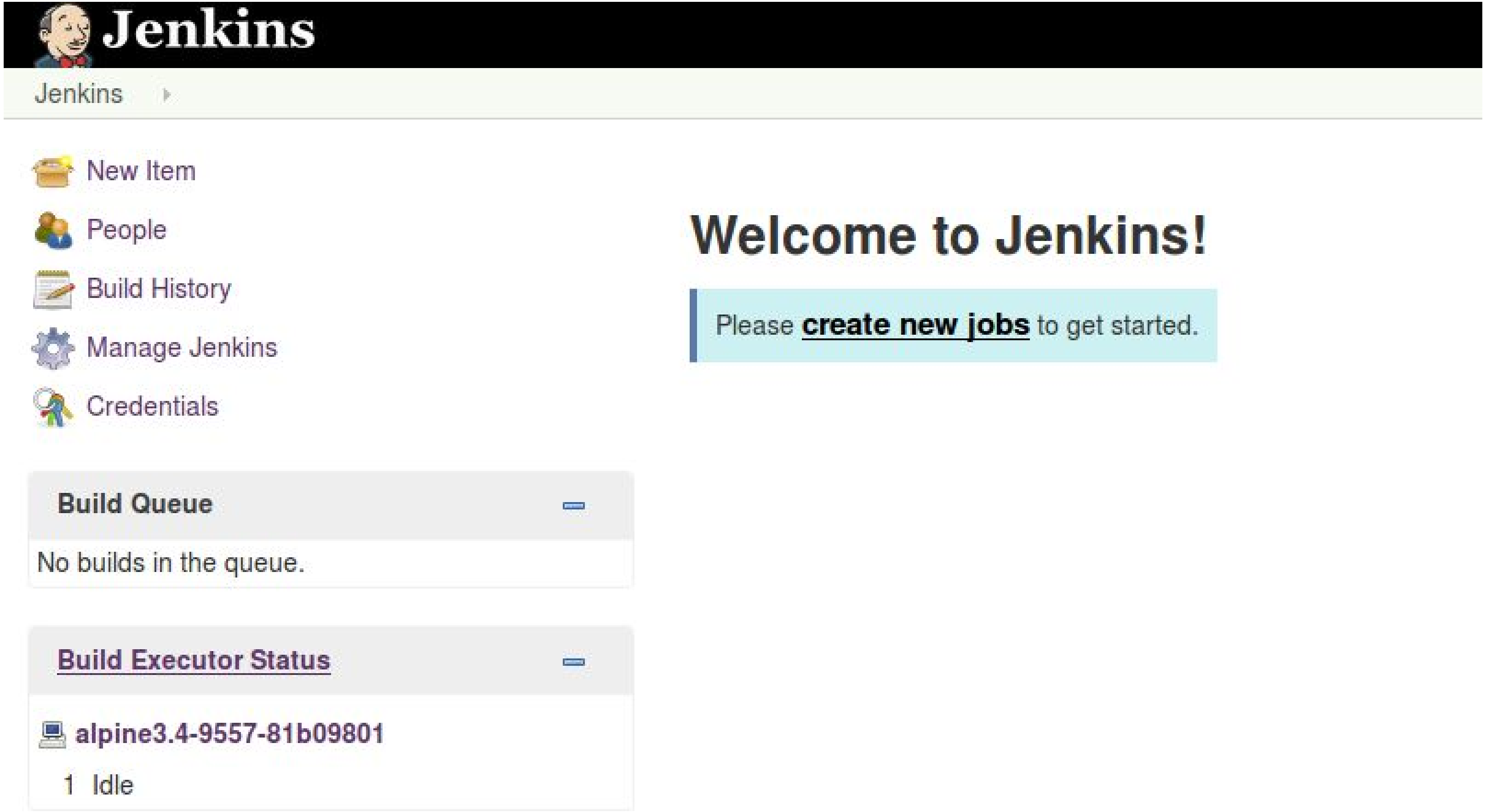
```
git clone https://github.com/tomwillfixit/jenkins2ci

make start

make status

make health
```

Jenkins Master available at : http://localhost

Why run Jenkins in a container?

- Portable
- Defined in code
- Lightweight
- Easy to build and deploy
- Everyone can have their own Jenkins for experimenting
- Enables more agile CI/CD practices





Welcome to Jenkins!

Please **create new jobs** to get started.

No builds in the queue.

Install Blue Ocean

- What is Blue Ocean?
- How do I install it?

Open a browser and go to : **http://localhost**

Manage Jenkins → Manage Plugins → Advanced Tab

Change : http://updates.jenkins-ci.org/update-center.json

To : http://updates.jenkins-ci.org/experimental/update-center.json

Click : Submit button

Install Blue Ocean (Contd)

- This next step will update the plugin manifest for experimental plugins

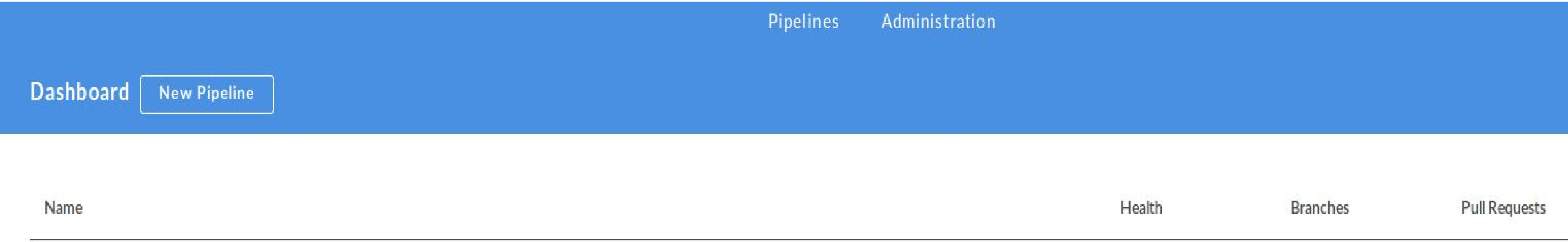
Manage Jenkins → Manage Plugins → Advanced Tab → Click “Check Now”

- Install Blue Ocean plugins

Manage Jenkins → Manage Plugins → Available tab → Filter box : blueocean

- Tick all Blue Ocean plugins and click “Download now and install after restart”
- Tick “Restart Jenkins when installation is complete and no jobs are running”

Blue Ocean Dashboard



What is a Pipeline ?

“Pipelines enable you to define the whole application lifecycle”

“Pipeline functionality helps Jenkins to support continuous delivery (CD). The Pipeline plugin was built with requirements for a flexible, extensible, and script-based CD workflow capability in mind.”

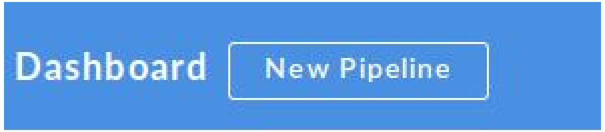
Source : https://jenkins.io/doc/pipeline/

Create a new pipeline

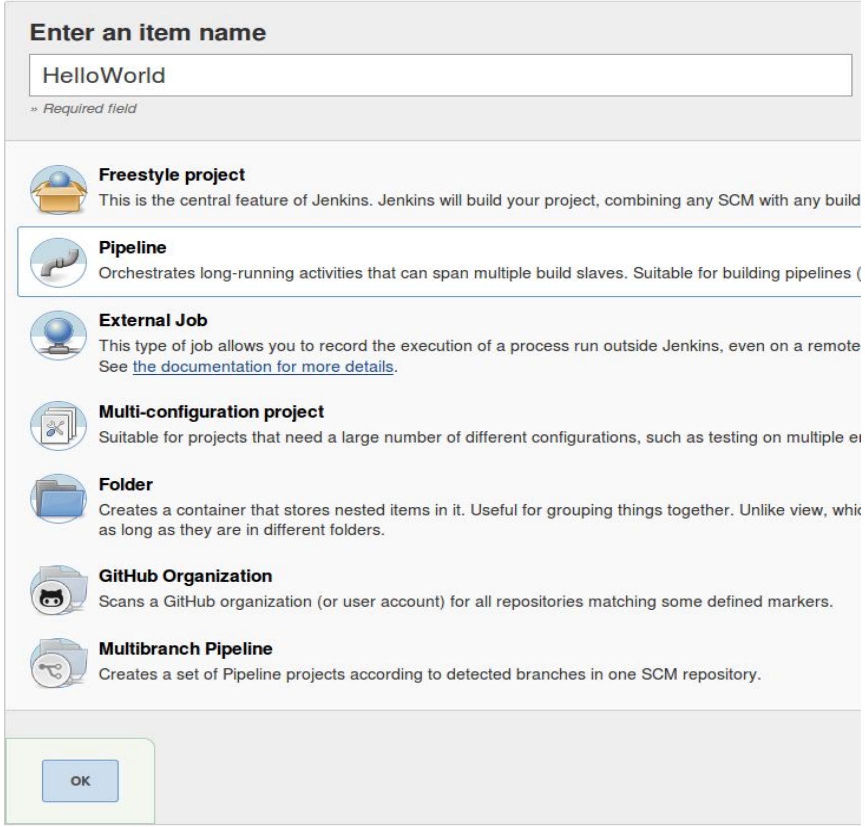
We will use the Blue Ocean UI for this but the steps are the same with the current Jenkins UI

Start at : http://localhost/blue/pipelines

Select “New Pipeline”



Name the pipeline “HelloWorld”



Enter an item name

HelloWorld

» Required field

Freestyle project
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build

Pipeline
Orchestrates long-running activities that can span multiple build slaves. Suitable for building pipelines (

External Job
This type of job allows you to record the execution of a process run outside Jenkins, even on a remote
See the documentation for more details.

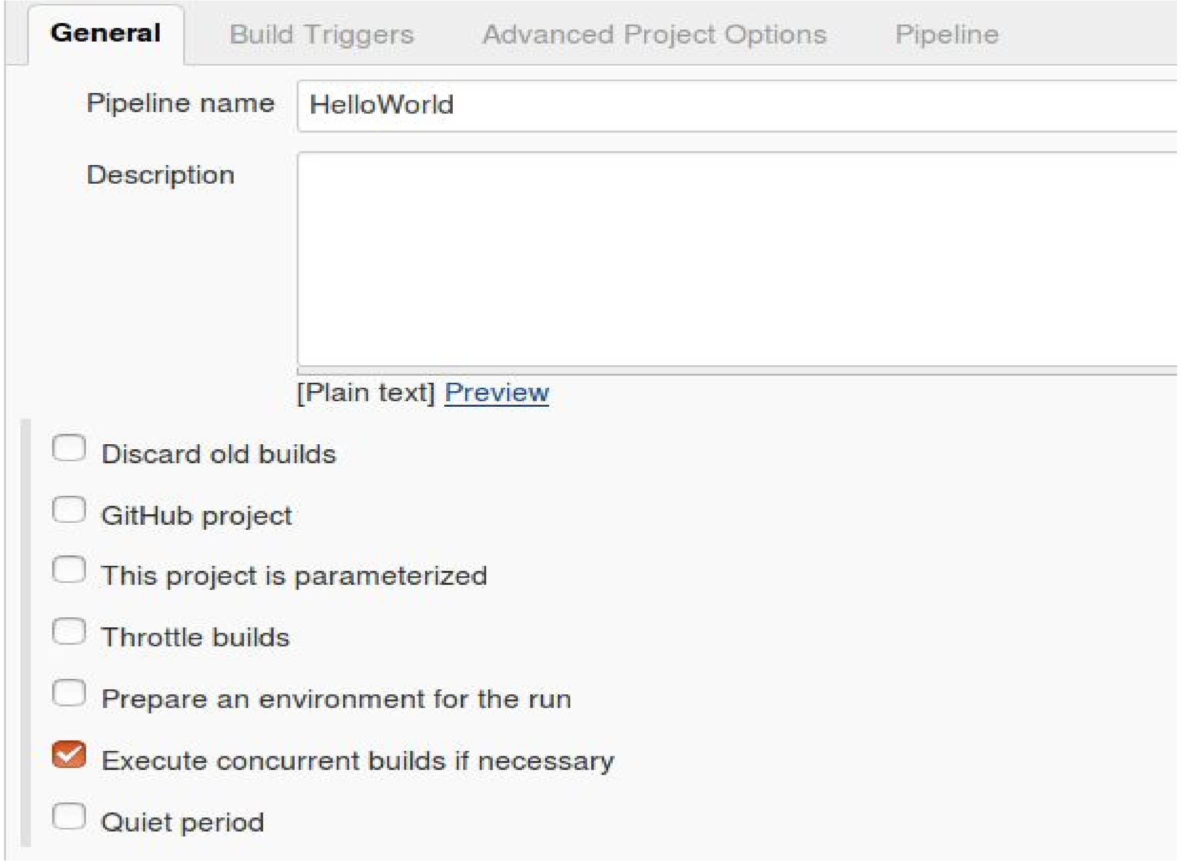
Multi-configuration project
Suitable for projects that need a large number of different configurations, such as testing on multiple e

Folder
Creates a container that stores nested items in it. Useful for grouping things together. Unlike view, whi
as long as they are in different folders.

GitHub Organization
Scans a GitHub organization (or user account) for all repositories matching some defined markers.

Multibranch Pipeline
Creates a set of Pipeline projects according to detected branches in one SCM repository.

Configure the pipeline



Pipeline name: HelloWorld

Description:

[Plain text] Preview

☐ Discard old builds

☐ GitHub project

☐ This project is parameterized

☐ Throttle builds

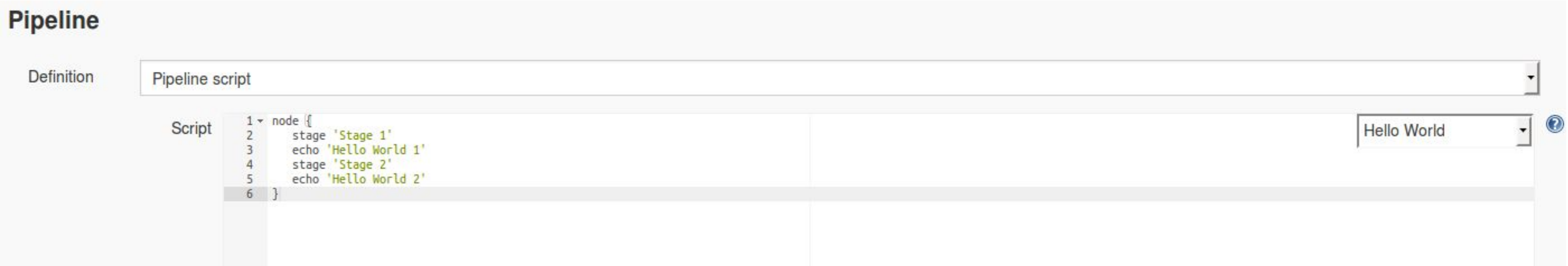
☐ Prepare an environment for the run

☑ Execute concurrent builds if necessary

☐ Quiet period

Configure the pipeline (contd)

There is a built-in Hello World sample Pipeline. Select this sample from the drop down and click save.



Definition: Pipeline script

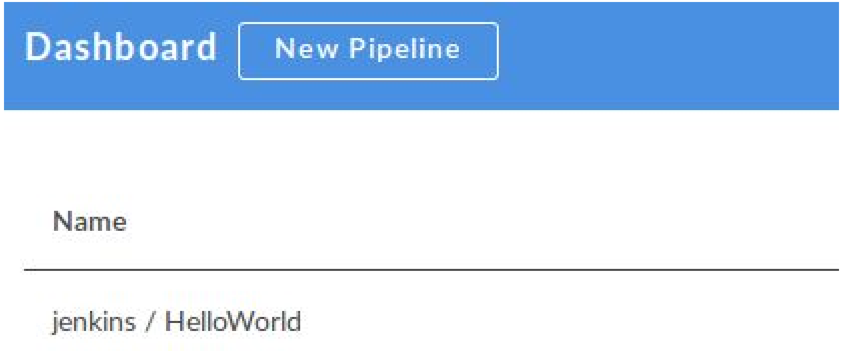
Script:

```
node {
   stage 'Stage 1'
   echo 'Hello World 1'
   stage 'Stage 2'
   echo 'Hello World 2'
}
```

Select pipeline from dashboard

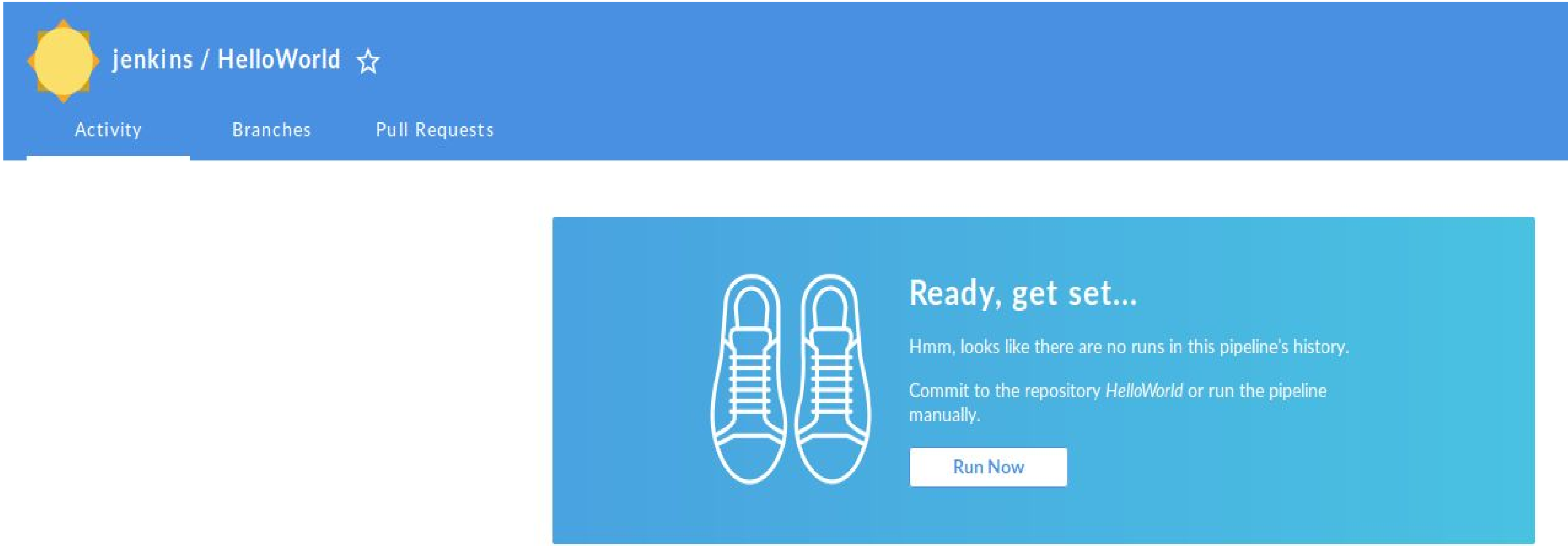
Start at : http://localhost/blue/pipelines

Select “Hello World Pipeline”



Name
jenkins / HelloWorld

Running your first pipeline build



Ready, get set...

Hmm, looks like there are no runs in this pipeline's history.

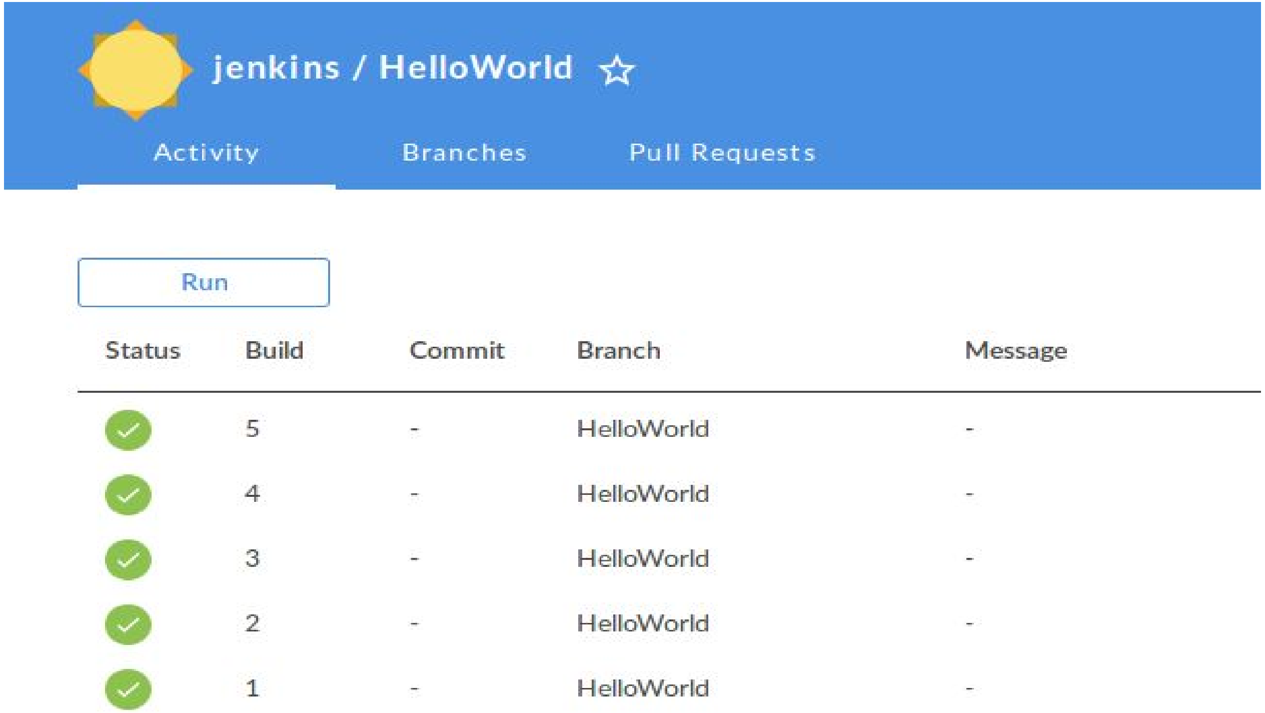
Commit to the repository *HelloWorld* or run the pipeline manually.

Disclaimer :

- The Blue Ocean plugin is currently in Alpha. Some of the steps performed in the Blue Ocean UI may not work as expected

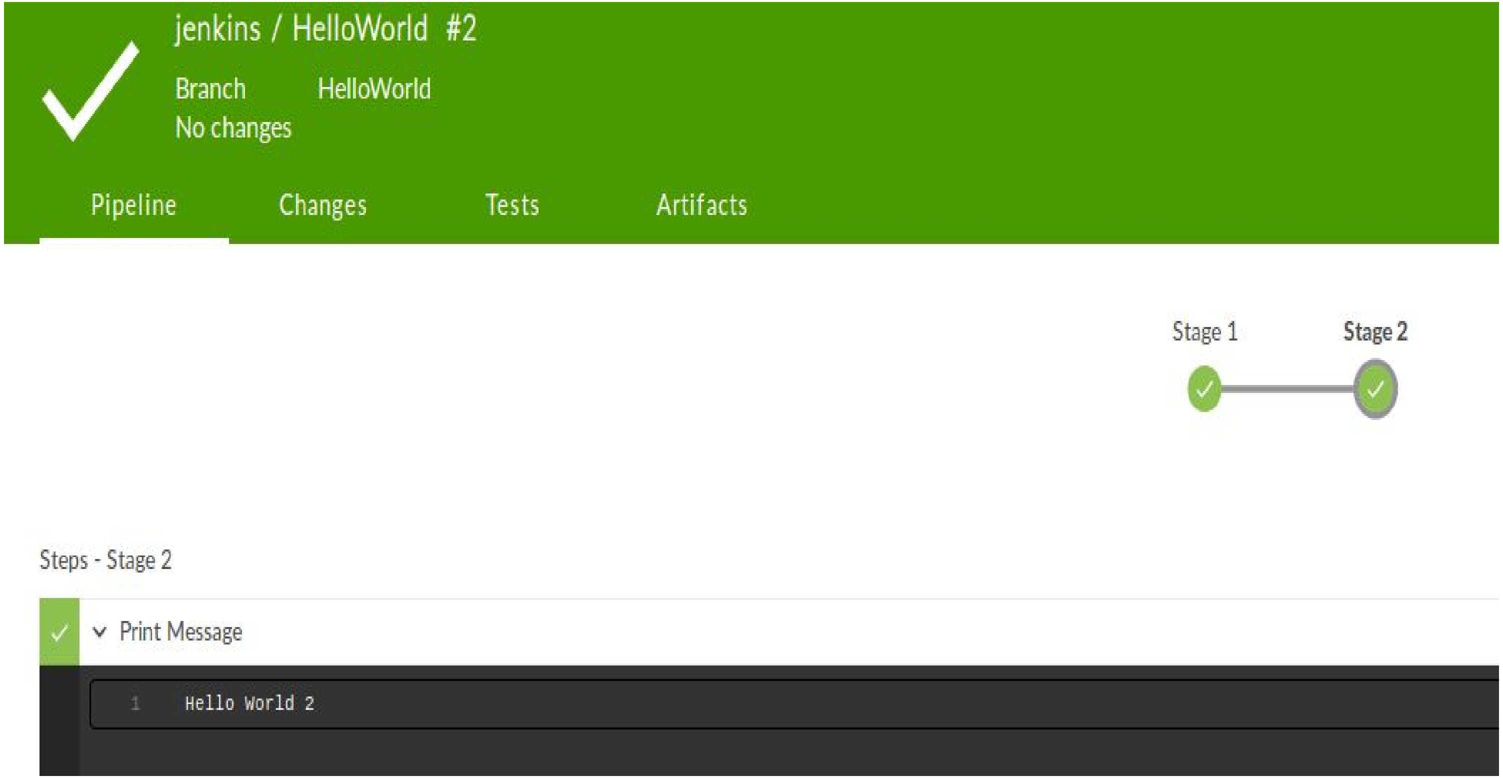
- If a step is not working then you can fall back to the old UI at : http://localhost

Pipeline dashboard



Status	Build	Commit	Branch	Message
✓	5	-	HelloWorld	-
✓	4	-	HelloWorld	-
✓	3	-	HelloWorld	-
✓	2	-	HelloWorld	-
✓	1	-	HelloWorld	-

Individual Build Status



jenkins / HelloWorld #2

Branch HelloWorld

No changes

Steps - Stage 2

✓ Print Message

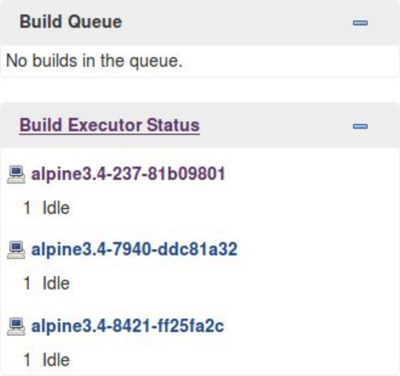
```
Hello World 2
```

Creating a more complex pipeline

Firstly we want to add more slaves so we can run parallel tasks. If you are using the code in jenkins2ci then you can simply run :

```
docker-compose scale jenkinslave=3
```

After a few seconds you will now have 3 Jenkins Slaves available, all labelled "alpine"



Build Queue

No builds in the queue.

Build Executor Status

alpine3.4-237-81b09801

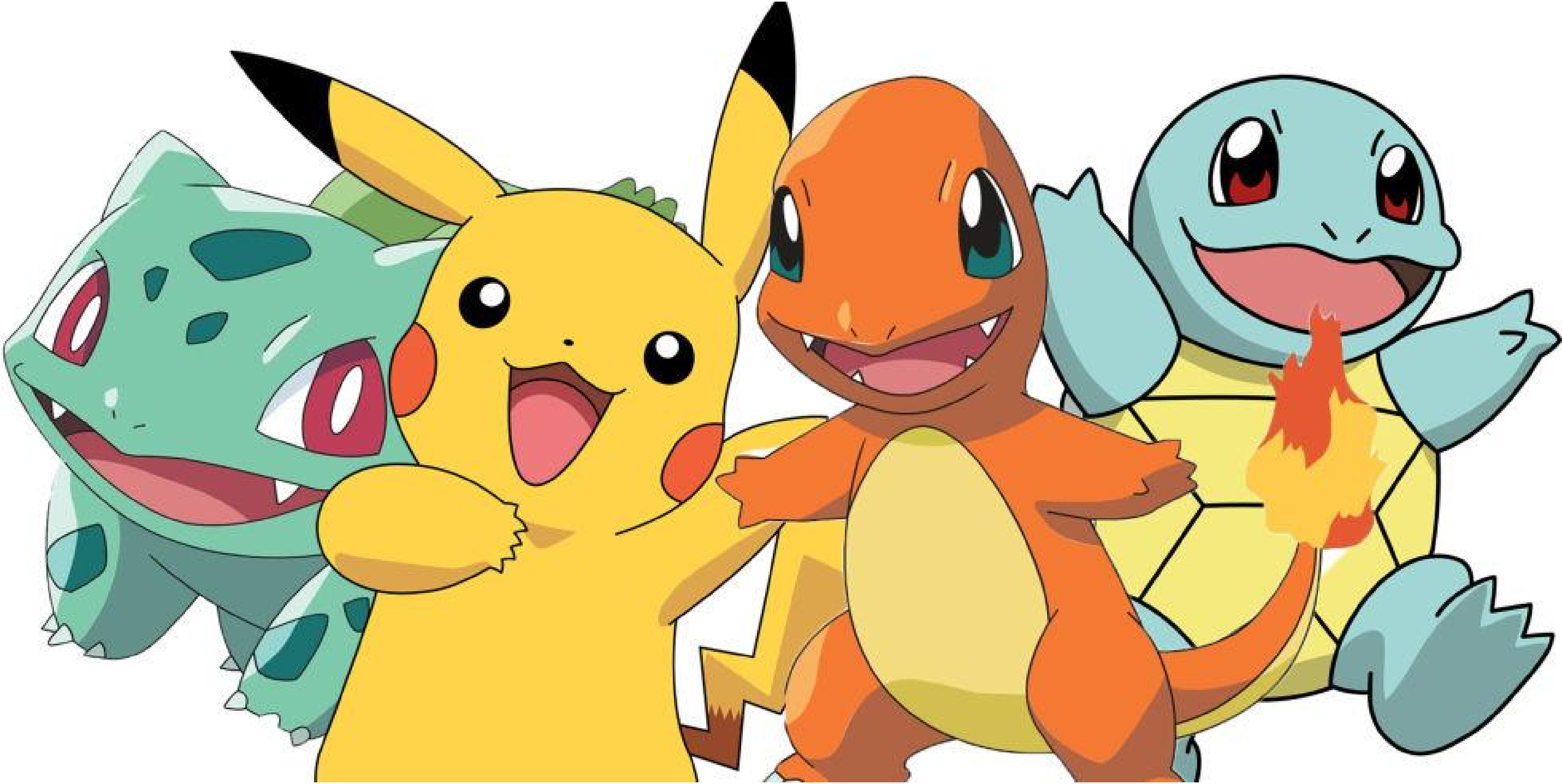
1 Idle

alpine3.4-7940-ddc81a32

1 Idle

alpine3.4-8421-ff25fa2c

1 Idle



Creating a more complex pipeline

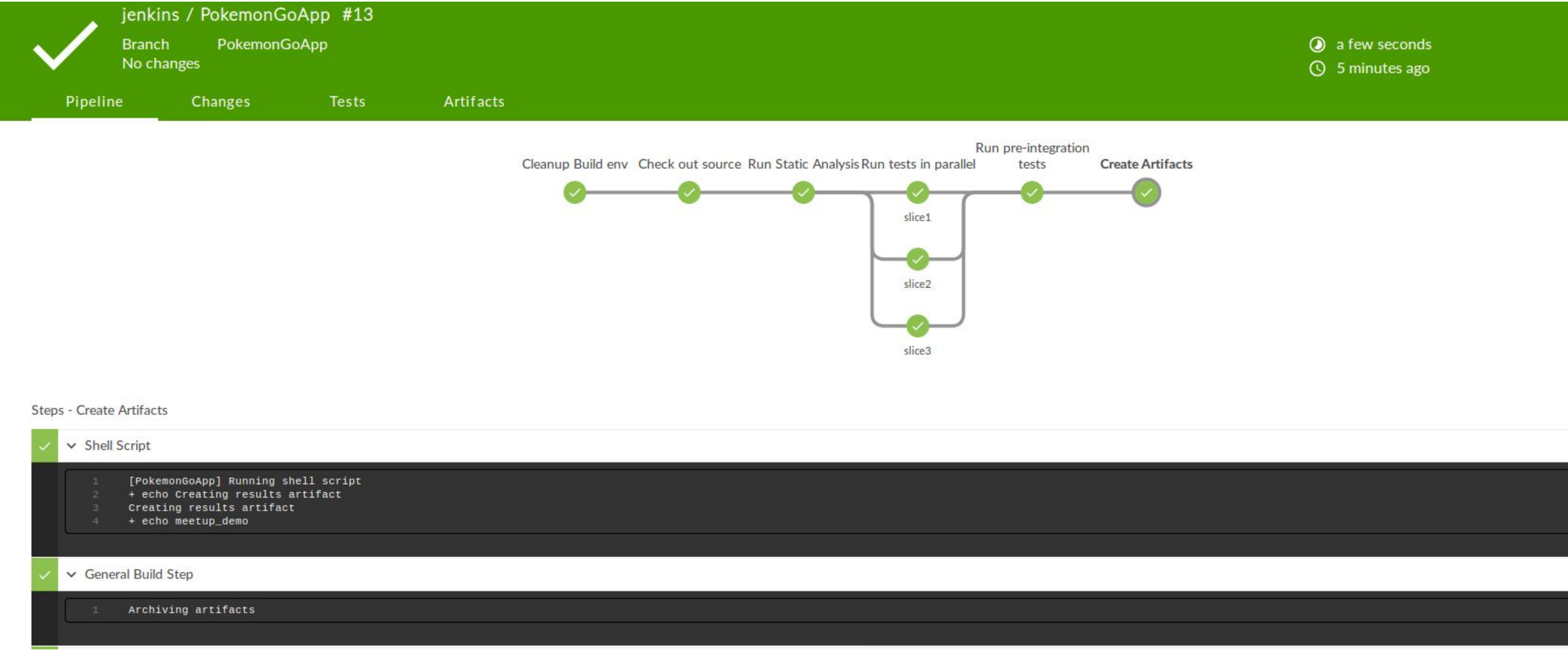
Create a pipeline called “PokemonGoApp” by following the same steps as the “HelloWorld” pipeline

Instead of selecting a sample groovy snippet we will copy the contents of :

https://github.com/tomwillfixit/jenkins2ci/blob/master/meetup/PokemonGoApp.pipeline

into the script window.

Click Save and start a build.



Steps - Create Artifacts

Shell Script

```
[PokemonGoApp] Running shell script
+ echo Creating results artifact
Creating results artifact
+ echo meetup_demo
```

General Build Step

```
Archiving artifacts
```

Pipeline in depth

```
node { // no label specified, will run on first node found without a label, it this case it’s the jenkins master

stage "Cleanup Build env" // define a stage

   sh "rm -rf jenkins2ci" // create a shell script task

stage "Check out source"
   sh "git clone https://github.com/tomwillfixit/jenkins2ci.git"

stage "Run Static Analysis"
   sh "echo Running static analysis;sleep 2"

stage "Run tests in parallel"
            parallel (
                        slice1: { node('alpine') { //provide a node label to ensure tests run on the correct slaves
                                    sh "echo running tests in slice1 ; sleep 3"
                        }},
                        slice2: { node('alpine') {
                                    sh "echo running tests in slice2 ; sleep 4"
                        }},
                        slice3: { node('alpine') {
                                    sh "echo running tests in slice3 ; sleep 5"
                        }}
                        )

stage "Create Artifacts"
   sh "echo Creating results artifact; echo meetup_demo > ${env.BUILD_NUMBER}.results" // Using build environment variable
   step([$class: 'ArtifactArchiver', artifacts: '*.results', fingerprint: false])
}
```

Pipeline examples

https://github.com/jenkinsci/pipeline-examples

What is a seed file?

“A seed aims to help automating the generation and management of pipelines for branches of a project in Jenkins.”

It’s all groovy.

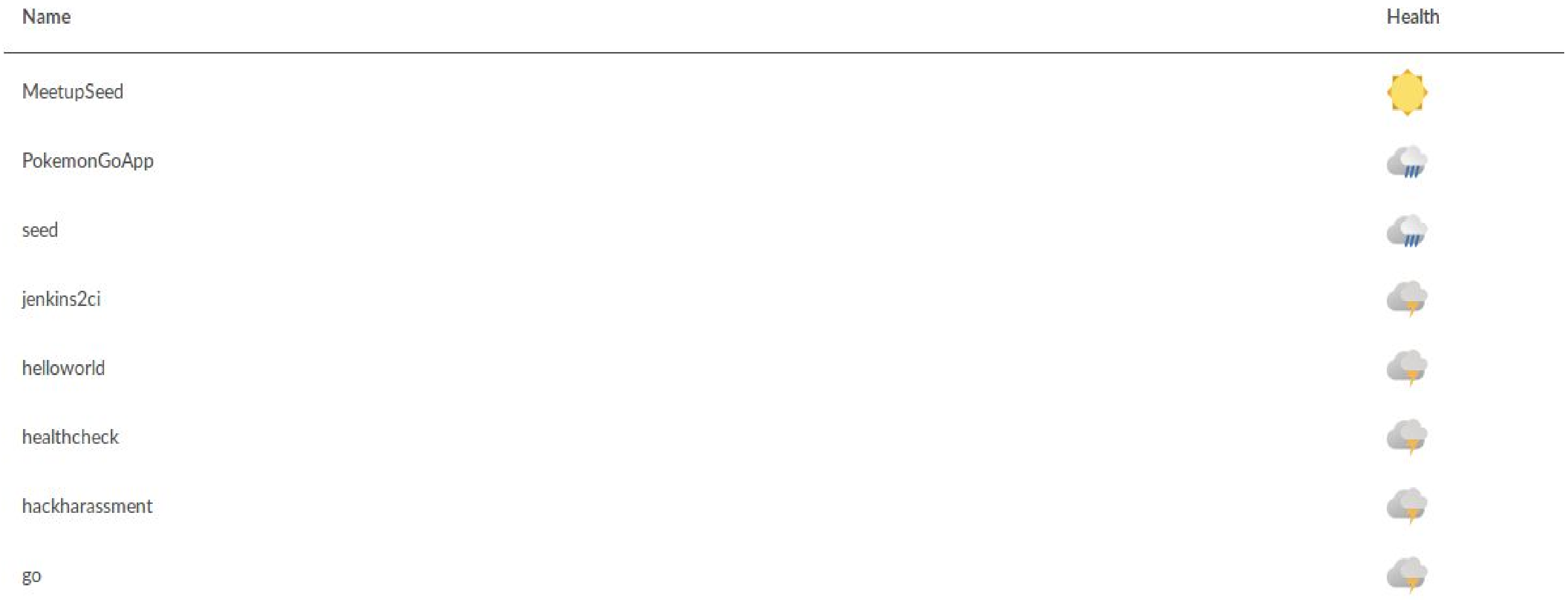
Example can be found here :
https://github.com/tomwillfixit/jenkins2ci/blob/master/meetup/seed.groovy

How to use a seed file ?

Open a browser and go to : http://localhost:80

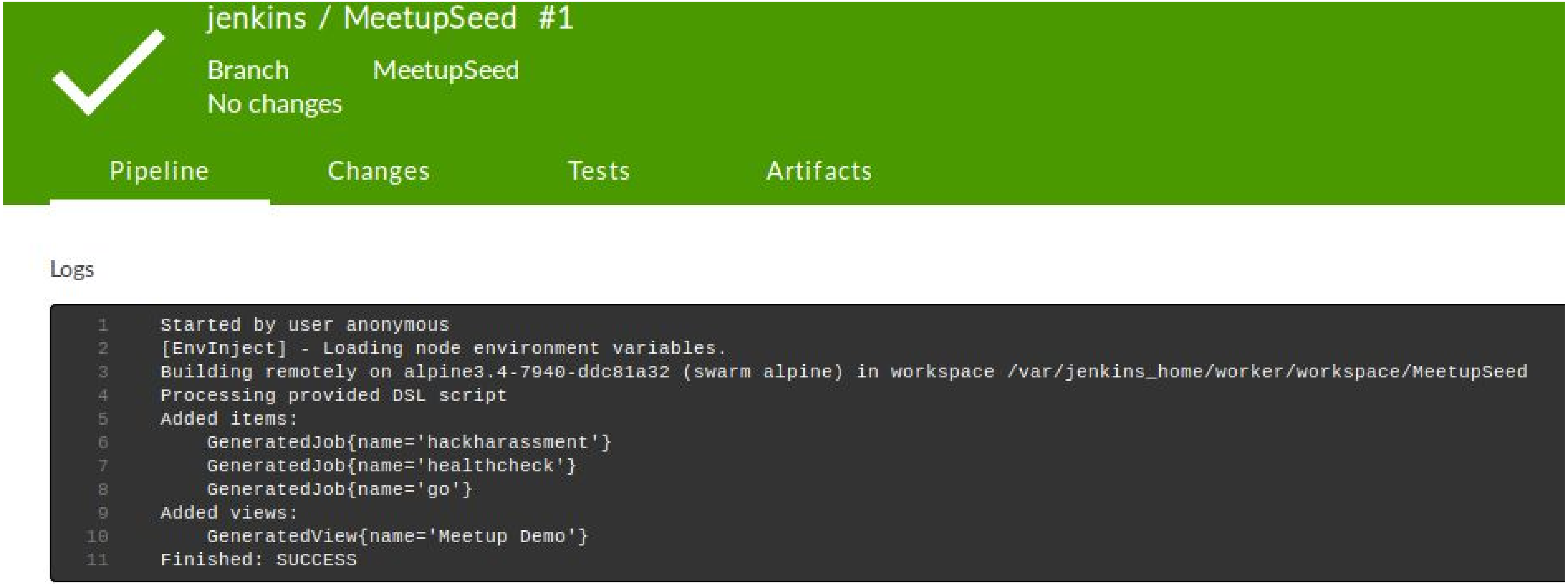
1. New Item → Freestyle Project → Enter Project name : MeetupSeed
2. On the configuration screen scroll down to the “Build” section
3. Select Process Job DSL and tick Use the provided DSL script
4. Paste the contents of https://github.com/tomwillfixit/jenkins2ci/blob/master/meetup/seed.groovy into the script window
5. Click Save.
6. Click “Build Now” from Dashboard

What just happened ?



Name	Health
MeetupSeed	☀
PokemonGoApp	🌧
seed	🌧
jenkins2ci	⛈
helloworld	⛈
healthcheck	⛈
hackharassment	⛈
go	⛈

What just happened ?



jenkins / MeetupSeed #1

Branch MeetupSeed

No changes

Logs

```
Started by user anonymous
[EnvInject] - Loading node environment variables.
Building remotely on alpine3.4-7940-ddc81a32 (swarm alpine) in workspace /var/jenkins_home/worker/workspace/MeetupSeed
Processing provided DSL script
Added items:
    GeneratedJob{name='hackharassment'}
    GeneratedJob{name='healthcheck'}
    GeneratedJob{name='go'}
Added views:
    GeneratedView{name='Meetup Demo'}
Finished: SUCCESS
```

Why are seed files useful ?

- When a pipeline is defined in code, the number of pipelines will increase
- Managing all projects from a single seed file makes addition/removal of projects simple
- Redundancy.
- Less clicking (Yes, that’s directed at you Bamboo)

We are hiring !!

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Questions ?