



JENKINS

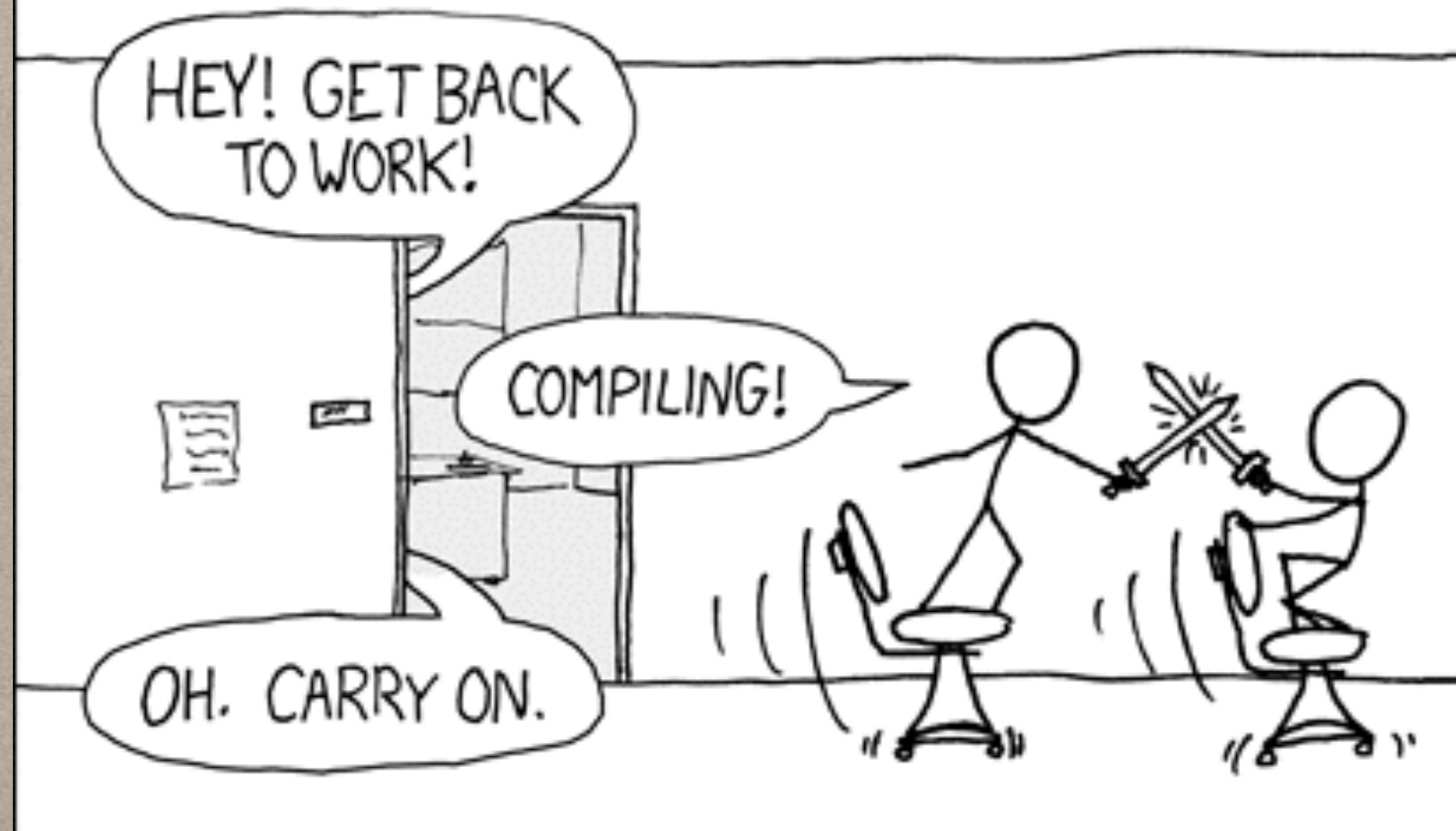
HOW WE USE IT

AYBARS BADUR

aybars@hipo.biz

twitter.com/aybarsbadur

THE #1 PROGRAMMER EXCUSE
FOR LEGITIMATELY SLACKING OFF:
"MY CODE'S COMPILING."



CONTINUOUS INTEGRATION

*automated builds, continuous delivery, continuous deploy,
continuous...*



BUT ITS NOT ROCKET SCIENCE

JENKINS AND HOW WE USE IT

- there are a million ways to use jenkins
- this is not about how you should use it, but how we use it.

JENKINS IS AN OPEN SOURCE CONTINUOUS INTEGRATION TOOL

ALSO CAN DO CONTINUOUS DEPLOYMENT, BUILD
ARTIFACTS, SERVE AS CENTRAL CRON, MAKE
COFFEE.....

DE-FACTO AUTOMATION PLATFORM

- Github
- Netflix
- NASA
- Sony
- Tumblr
- Apache
- LinkedIn
- and millions of others...

WHAT ELSE IS THERE

- buildbot
- TeamCity
- Bamboo
- Go.cd
- Lots of hosted solutions:
 - [ship.io](#)
 - TravisCI

WHY JENKINS

- Super easy to install
- Super easy to configure
- One click upgrades
- Gazillion of plugins
- Ton of documentation, howtos, tutorials
- Doesn't get into your way. No dictations about how to use it.

INSTALLATION

java -jar jenkins.war
or
apt-get install jenkins

[1] <https://wiki.jenkins-ci.org/display/JENKINS/Installing+Jenkins+on+Ubuntu>



AFTER INSTALL

*switch to jenkins user
create ssh key
and connect to github*

```
jenkins@ip-172-31-19-34:~$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/var/lib/jenkins/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /var/lib/jenkins/.ssh/id_rsa
Your public key has been saved in /var/lib/jenkins/.ssh/id_rsa.pub
The key fingerprint is:
76:97:25:16:21:04:4f:a8:9b:c7:fb:25:01:07:9e:1c jenkins@ip-172-31-19-34
The key's randomart image is:
+---[ RSA 2048]-----+
|      E++ o.      |
|      o.* . .     |
|      .= o o .    |
|      . o . +     |
|      +S o o      |
|      o.o. o      |
|      . . . .     |
|      . o         |
|      ..         |
+-----+
jenkins@ip-172-31-19-34:~$ cat .ssh/id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQDKUp6w3uzI7/lf
sAMl14R8YZwPFN0/mjpuCquyx3XKYHY3pPBQa7e2+63y8yHNibYr
ns@ip-172-31-19-34
jenkins@ip-172-31-19-34:~$ git -c core.askpass=true
The authenticity of host 'github.com (192.30.252.129)' can't be
RSA key fingerprint is 16:27:ac:a5:76:28:2d:36:63:1b:64:2b:7d:
Are you sure you want to continue connecting (yes/no)
```


[Jenkins](#)

[People](#)
[Build History](#)
[Project Relationship](#)
[Check File Fingerprint](#)
[Leader board](#)
[Dependency Graph](#)

THE

APACHE

SOFTWARE FOUNDATION

<http://www.apache.org/>

This is a public build and test server for [projects](#) of the [Apache Software Foundation](#). All times on this server are UTC.

See the [Jenkins wiki page](#) for more information about this service.

All

Brooklyn

Groovy

Incubator Projects

Most Recent Builds

Olingo

POI

PreCommit Builds

Tika

XMLGraphics

S	Name ↓	Last Success	Last Failure	Last Duration
	Ambari-branch-2.0.0	11 mo - #100	N/A	53 min
	Commons Math	25 days - #463	N/A	8 min 1 sec
	HBase-1.1-JDK7	1 day 8 hr - #1677	1 day 0 hr - #1678	2 hr 30 min
	HBase-1.1-JDK8	4 days 0 hr - #1761	1 day 0 hr - #1764	2 hr 29 min
	httpcomponents-asyncclient-trunk	1 mo 14 days - #2	N/A	1 min 18 sec
	incubator-taverna-commandline	5 days 5 hr - #88	N/A	6 min 55 sec
	incubator-taverna-common-activities	5 days 5 hr - #140	18 days - #133	5 min 39 sec
	incubator-taverna-engine	5 days 5 hr - #255	18 days - #247	10 min
	incubator-taverna-language	5 days 5 hr - #317	16 days - #311	9 min 6 sec

Build Queue (17)

[Mesos](#)
[ActiveMQ-Java7](#)
[Lucene-Solr-Tests-master](#)
[Lucene-Solr-NightlyTests-master](#)
[Lucene-Solr-SmokeRelease-6.x](#)
[Lucene-Solr-Tests-6.x](#)
[SpamAssassin-trunk-FreeBSD](#)
[Lucene-Artifacts-master](#)
[Lucene-Solr-Maven-6.x](#)
[Lucene-Solr-NightlyTests-6.x](#)
[Lucene-Solr-Maven-master](#)
[Lucene-Tests-MMAP-master](#)
[UIMA-AS](#)
[Lucene-Artifacts-6.x](#)
[bookkeeper-master-find-patches-available](#)

THE FAMOUS UI

Item name

☐ **Freestyle project**

This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.

☐ **Maven project**

Build a maven project. Jenkins takes advantage of your POM files and drastically reduces the configuration.

☐ **External Job**

This type of job allows you to record the execution of a process run outside Jenkins, even on a remote machine. This is designed so that you can use Jenkins as a dashboard of your existing automation system. 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 environments, platform-specific builds, etc.


☒ **Copy existing Item**

Copy from

- deploy bkm micro
- deploy blogto documentation
- deploy blogto production**
- deploy blogto staging
- deploy chroma preproduction
- deploy chroma production
- deploy chroma staging
- deploy chroma webtests
- deploy famelog documentations
- deploy famelog hipochat staging

OK

CREATE A JOB

 [Back to Dashboard](#)

 [Status](#)

 [Changes](#)

 [Workspace](#)


 [Delete Project](#)

 **Configure**

 [GitHub](#)

 [GitHub Hook Log](#)

 [Git Polling Log](#)

 **Build History**

[trend](#) 

find

x

 [RSS for all](#)  [RSS for failures](#)

Project name

deploy jenkins talk

Description

[Plain text] [Preview](#)

☐ Discard Old Builds

GitHub project

<https://github.com/Hipo/chroma-backend/>

Slack Notifications

Notify Build Start



Notify Aborted



Notify Failure



Notify Not Built



Notify Success



Notify Unstable



Notify Back To Normal



☐ This build is parameterized

☐ Disable Build (No new builds will be executed until the project is re-enabled.)

CONFIGURE

ma > deploy jenkins talk > configuration

Full SCM

Schedule

@yearly

Would last have run at Friday, January 1, 2016 12:00:31 AM UTC; would next run at Sunday, January 1, 2017 12:00:31 AM UTC.

Ignore post-commit hooks ☐

Build

Execute shell

Command

```
/opt/env/bin/fab -H jenkins-talk.pindown.io --fabfile=/opt/hipo/hipotools/jenkins/fabfile.py deploy_jenkins_talk
```

See [the list of available environment variables](#)

Add build step

- Execute Windows batch command
- Execute shell
- Invoke Ant
- Invoke top-level Maven targets
- Set build status to "pending" on GitHub commit

Delete

Delete

CONFIGURE

FABRIC

- we use fabric
- because its easy
- because its powerful
- alternatives
 - salt
 - ansible
 - ssh

```
644 def deploy_tryouts(branch='staging'):
645     env.directory = '/tryouts'
646     env.activate = 'source ./env/bin/activate'
647
648     install_requirements(branch)
649
650     with virtualenv():
651         run('git reset --hard')
652         run('git checkout %s' % branch)
653         run('git pull origin %s' % branch)
654         with settings(warn_only=True):
655             run('cd /tryouts && find . -name "*.pyc"')
656
657         # Restart everything except celery_beat
658         run("sudo supervisorctl -c /etc/supervisor/su
659
660     with virtualenv():
661         run('python manage.py collectstatic --noinput')
662         run('python manage.py migrate')
663
664         # allow to warm up for uwsgi
665         time.sleep(5)
666         print "now doing some smoke tests"
667
668     try:
669         if 'db.' in env.host:
670             print "skipping smoke tests on db", e
671         else:
672             if branch=='staging':
673                 run('/tryouts/env/bin/http-checks
674             else:
675                 run('/tryouts/env/bin/http-checks
676
677     except:
678         sudo('supervisorctl -c /etc/supervisor/su
```


FABRIC

- rolling deploy
- deploy to first server
- run some smoke tests
- if we fail
 - crash, stop everything
 - load balancer does the rest
- else
 - deploy to others

```
644 def deploy_tryouts(branch='staging'):
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647
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674             else:
675                 run('/tryouts/env/bin/http-checks
676
677     except:
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```


TRIGGER BY GIT PUSH ORIGIN PRODUCTION

GitHub, Inc. [US] <https://github.com/ybrs/jenkins-talk/settings/hooks/new>

[Options](#)
[Collaborators](#)
Webhooks & services
[Deploy keys](#)

Webhooks / Add webhook

We'll send a POST request to the URL below with details of you'd like to receive (JSON, x-www-form-urlencoded, etc [documentation](#)).

Payload URL *

Content type

Secret

Which events would you like to trigger this webhook?

☒ Just the push event.

☐ Send me everything.

☐ Let me select individual events.

☒ **Active**
We will deliver event details when this hook is triggered.

Add webhook

NOTIFY BY SLACK

| deploy famelog staging - #147 Success after 2 min 13 s



jenkins BOT 7:37 PM

| deploy chroma staging - #1812 Started by changes from

| deploy chroma staging - #1812 Success after 4 min 35 s

| deploy chroma production - #689 Started by changes from

| deploy chroma staging - #1813 Started by changes from

| deploy chroma preproduction - #501 Started by changes from

| deploy chroma preproduction - #501 Success after 2 min 13 s

| deploy chroma webtests - #222 Started by upstream project
([Open](#))

| deploy chroma webtests - #222 Starting... after 0.33 seconds

| deploy chroma production - #689 Success after 4 min 13 s

| deploy chroma staging - #1813 Success after 4 min 59 s



jenkins BOT 8:08 PM

| deploy chroma staging - #1814 Started by changes from

| deploy chroma staging - #1814 Success after 4 min 43 s

NOT ONLY FOR DEPLOYS

- for backups

Build Triggers

- ☐ Build after other projects are built
- ☒ Build periodically

Schedule

H*/1***

Would last h

- ☐ Build when a change is pushed to Gi
- ☐ Poll SCM

FOR CHECKS

<https://github.com/hipo/http-checks>

[chroma.production.subdomain.api] FAILED check - [http://chroma.production.subdomain.api/access_token=7ae3b275cb9541cb9e1487ea7d13947c/figures](#) - check_response



jenkins BOT 6:00 PM

check urls - #475806 Failure after 12 sec ([Open](#))

check urls - #475807 Back to normal after 4.9 sec ([Open](#))



alertus BOT 6:06 PM

[moment.production.celerybeat] FAILED check - [http://moment.production.celerybeat](#)



jenkins BOT 6:06 PM

check urls - #475809 Failure after 6.5 sec ([Open](#))

check urls - #475810 Back to normal after 8.4 sec ([Open](#))



alertus BOT 8:56 PM

summarize(servers.blogto.app3.loadavg.01, "5min", "avg")



alertus BOT 9:02 PM

summarize(servers.blogto.app3.loadavg.01, "5min", "avg")



alertus BOT 10:04 PM

[chroma.production.subdomain.api] FAILED check - [http://chroma.production.subdomain.api/access_token=7ae3b275cb9541cb9e1487ea7d13947c/figures](#) - check_response



jenkins BOT 10:04 PM

check urls - #475928 Failure after 6.3 sec ([Open](#))

check urls - #475929 Back to normal after 5.2 sec ([Open](#))

PIPELINE

- WEB TESTS

Build Triggers

☒ Build after other projects are built

Projects to watch

deploy chroma preproduction

- ☒ Trigger only if build is stable
- ☐ Trigger even if the build is unstable
- ☐ Trigger even if the build fails

☐ Build periodically

PROVISION

CURL TO TRIGGER A
JOB

3: Configure Instance Details

Auto-assign Public IP ⓘ

Use subnet setting

IAM role ⓘ

None

Shutdown behavior ⓘ

Stop

Enable termination protection ⓘ

☐ Protect against

Monitoring ⓘ

☐ Enable CloudV

Additional charge

Tenancy ⓘ

Shared - Run a sha

Additional charge

Advanced Details

User data ⓘ

☒ As text ☐ As f

curl http://jenkins

BUILD IOS APP

- Jenkins on a mac-mini at the office
- trigger by github push
- grok
- jenkins, build with Xcode
- upload to tryouts.io (our test distribution project)
- ...



WHAT ELSE ??

- Jenkins Master Slave
- Jenkins pushes builds to his slaves.
- Jenkins slave swarm plugin - you can create an army



DEMO TIME