Edinburgh JAM

February 2018

Introductions

Organizers

- John Pikoulas - AutomatedITSolutions
 - j.pikoulas@gmail.com

- Lee Varga - HAYS
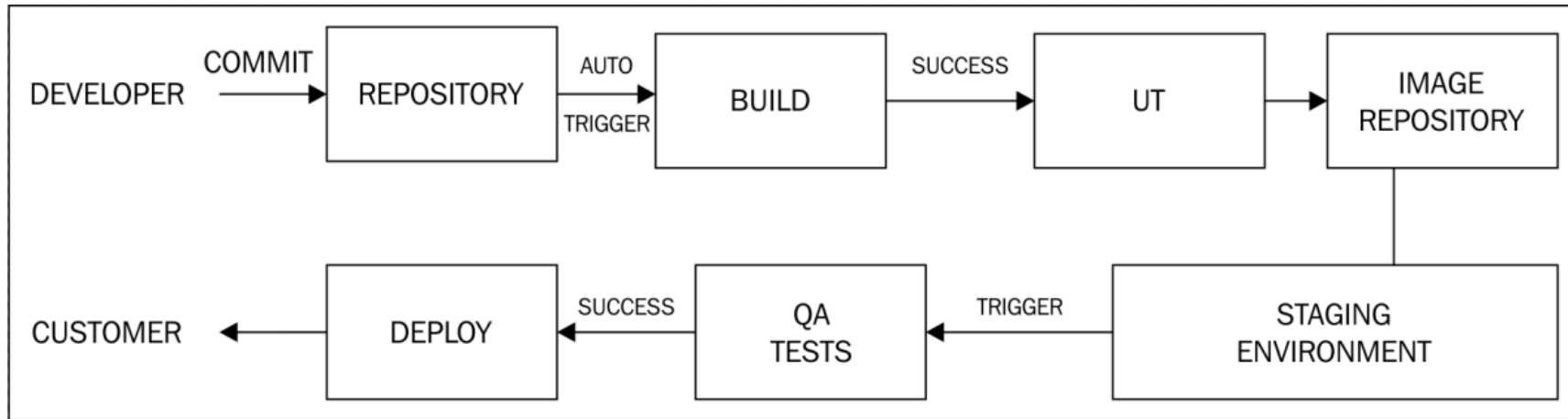 - lee.varga@hays.com

Jenkins Typical Use Cases

In this approach, performance testing is always included in the full testing process. While this might delay build time, as load tests might take a while to be completed compared to the other tests, the result is assured to be of very high quality.
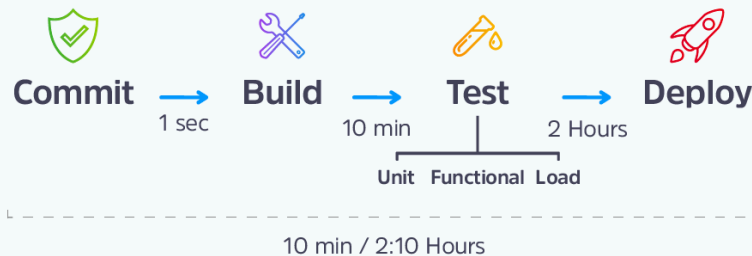
In this approach, load testing is performed as part of the downstream job, but without blocking the main CI job. The full, longer, test can be run once in a decided upon time (let's say once a week) instead of once a day. This enables you to use Jenkins without pausing your work for too long and waiting 1.5 - 2 hours each time.
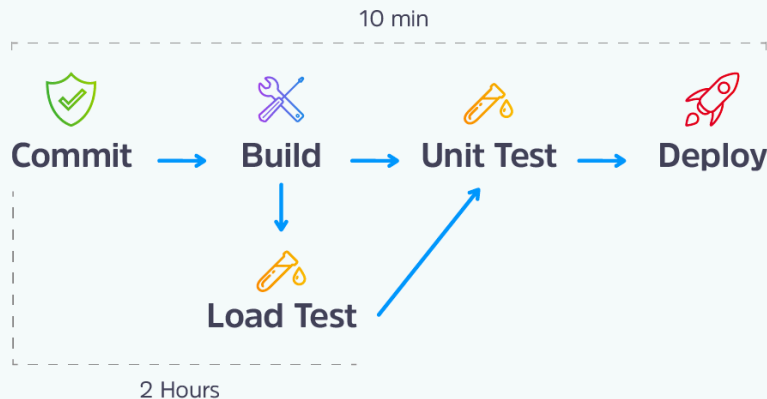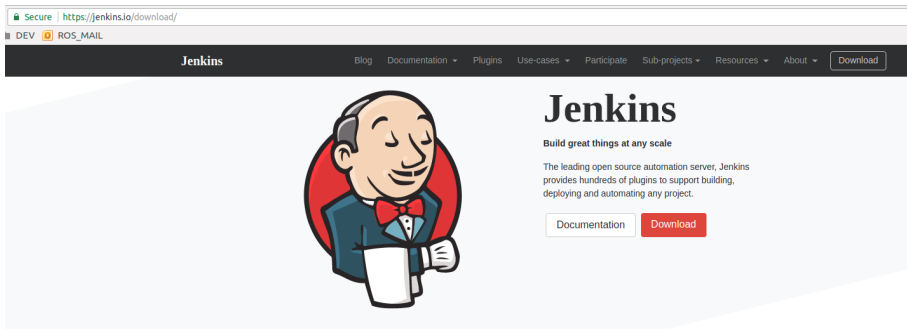
Jenkins Typical Use Cases

Installing Jenkins in a bare metal box

- Download from https://jenkins.io/

Installing Jenkins in a bare metal box

- Host installation - Command line

```
-rwxrwxr-x  1 pikoulj pikoulj  68M Aug 17 10:34 jenkins.war
drwxrwxr-x  2 pikoulj pikoulj 4.0K Oct 12 12:00 jenkins_data
drwxrwxr-x 30 pikoulj pikoulj 4.0K Feb 12 09:18 ..
drwxrwxr-x  3 pikoulj pikoulj 4.0K Feb 12 09:18 .
root@LP00555:/app/jenkins# java -jar jenkins.war --httpPort=9090
Running from: /app/jenkins/jenkins.war
```

- Initial Password

```
INFO:

*************************************************************
*************************************************************
*************************************************************

Jenkins initial setup is required. An admin user has been created and a password generated.
Please use the following password to proceed to installation:

4d540d4fe1da4b0aad200b3754334f1d

This may also be found at: /root/.jenkins/secrets/initialAdminPassword

*************************************************************
*************************************************************
*************************************************************
```

Installing Jenkins in a bare metal box

- Initial Admin Password

Unlock Jenkins

To ensure Jenkins is securely set up by the administrator, a password has been written to the log (not sure where to find it?) and this file on the server:

`/var/jenkins_home/secrets/initialAdminPassword`

Please copy the password from either location and paste it below.

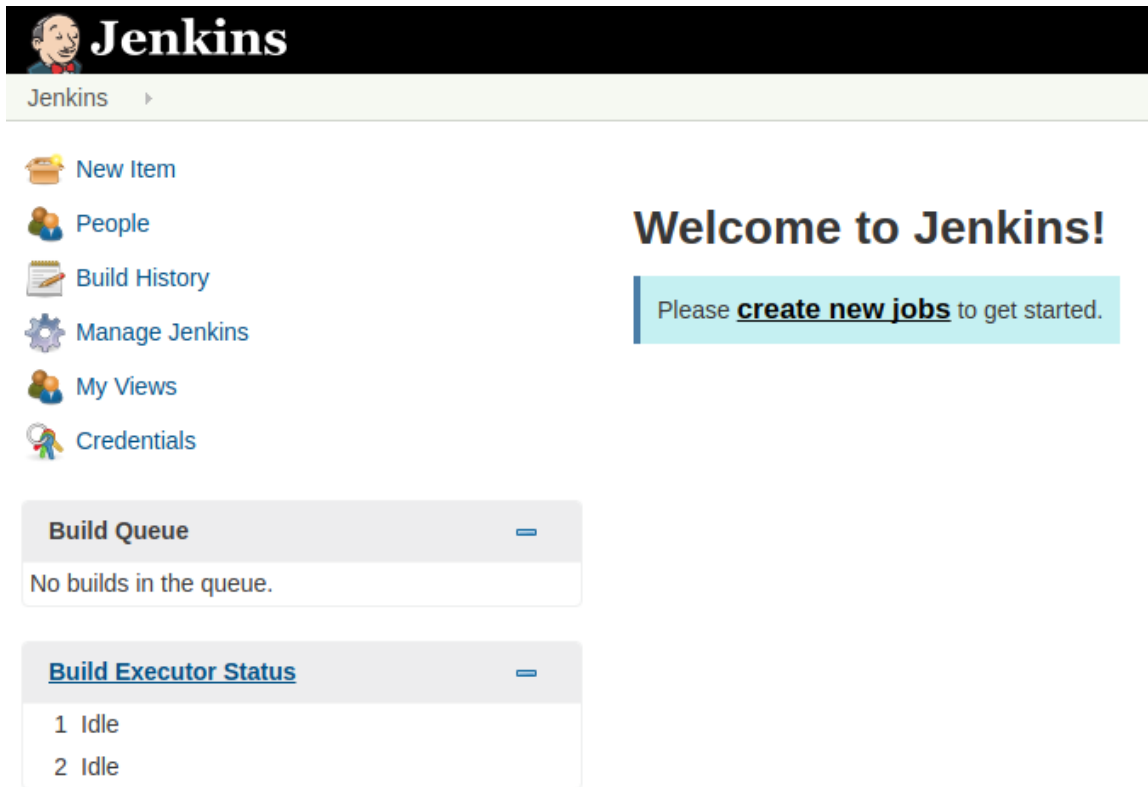**Administrator password**

Installing Jenkins in a bare metal box

- Jenkins Initialization

Installing Jenkins in a bare metal box

- Jenkins Ready to Use

Installing Jenkins in a bare metal box

- Jenkins Docker run

```
root@LP00555:/app/jenkins#
root@LP00555:/app/jenkins# docker run --name dokcerizedJenkins -p 9095:8080 -p 50000:50000 -v /app/jenkin/jenkins_data:/var/jenkins_home:Z jenkins
Unable to find image 'jenkins:latest' locally
latest: Pulling from library/jenkins
723254a2c089: Downloading [====================================>               ]  34.86MB/45.12MB
abe15a44e12f: Download complete
409a28e3cc3d: Download complete
503166935590: Downloading [====================================>               ]  37.08MB/50.02MB
043a12c29ea4: Download complete
303620452447: Download complete
c61f95baa024: Download complete
3f2018472a1f: Downloading [====>                                               ]  17.84MB/182.9MB
a25f8a69c882: Waiting
ef0799915650: Waiting
d9a52178f3f2: Waiting
21d8e85eda47: Waiting
d1a59d3cef17: Waiting
5736476dca56: Waiting
677d0ef908aa: Waiting
10d71ec5b7fd: Waiting
768022bc0860: Waiting
878faf994156: Pulling fs layer
0030f731e722: Waiting
13749a7f1512: Waiting
```

Installing Jenkins in a bare metal box

- Jenkins Docker Secret

```
INFO:

**************************************************************
**************************************************************
**************************************************************

Jenkins initial setup is required. An admin user has been created and a password generated.
Please use the following password to proceed to installation:

da9cf5e6e50f473cbdfc1e24cb37b0a3

This may also be found at: /var/jenkins_home/secrets/initialAdminPassword

**************************************************************
**************************************************************
**************************************************************
```

Installing Jenkins in a bare metal box

- Jenkins Docker Secret

Unlock Jenkins

To ensure Jenkins is securely set up by the administrator, a password has been written to the log (not sure where to find it?) and this file on the server:

`/var/jenkins_home/secrets/initialAdminPassword`

Please copy the password from either location and paste it below.

Administrator password

Installing Jenkins in a bare metal box

● Jenkins Docker Check

```
root@LP00555:/app/jenkins# docker ps
CONTAINER ID      IMAGE         COMMAND              CREATED           STATUS          PORTS                                              NAMES
4df60db6425f      jenkins       "/bin/tini -- /usr/l…"   15 seconds ago    Up 15 seconds   0.0.0.0:50000->50000/tcp, 0.0.0.0:9095->8080/tcp   dokcerizedJenkins
root@LP00555:/app/jenkins#
```

● Jenkins Initial User

Create First Admin User
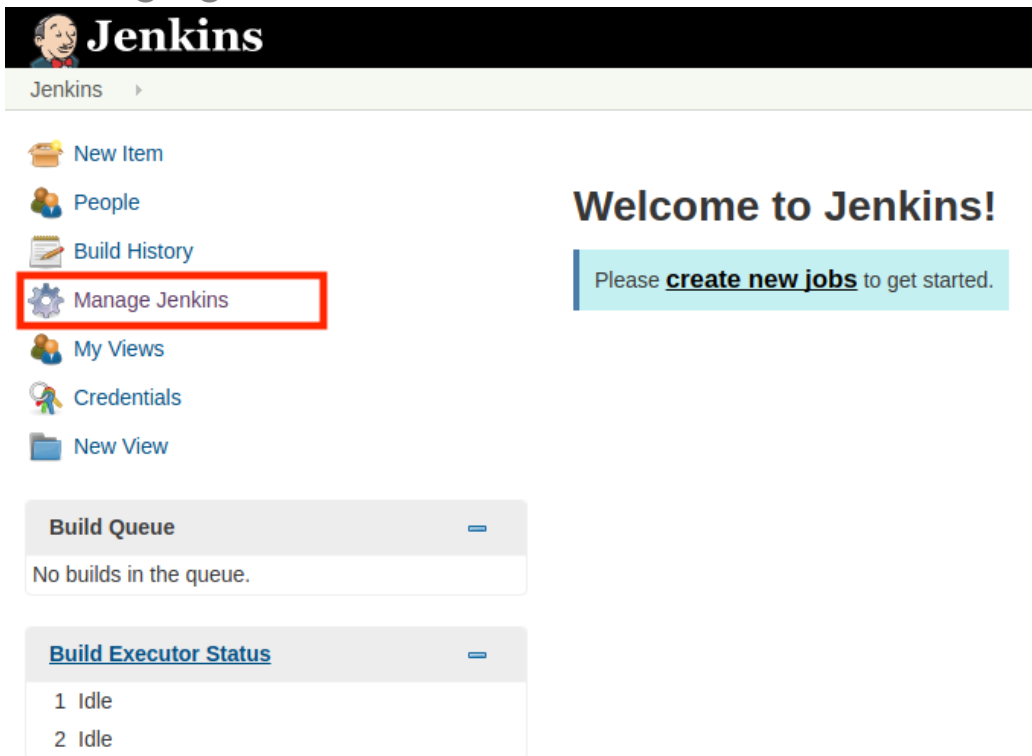
Username:	test_user
Password:	••••••
Confirm password:	••••••
Full name:	test user
E-mail address:	test_user@not.real.email

Administration and Authorization users in Jenkins

- Managing Jenkins

Administration and Authorization users in Jenkins

- Managing Jenkins - Configure Global security

Configure System
Configure global settings and paths.

Configure Global Security
Secure Jenkins; define who is allowed to access/use the system.

Configure Credentials
Configure the credential providers and types

Global Tool Configuration
Configure tools, their locations and automatic installers.

Reload Configuration from Disk
Discard all the loaded data in memory and reload everything from file system. Useful when you modified config files directly on disk.

Manage Plugins
Add, remove, disable or enable plugins that can extend the functionality of Jenkins.

System Information
Displays various environmental information to assist trouble-shooting.

System Log
System log captures output from `java.util.logging` output related to Jenkins.

Load Statistics
Check your resource utilization and see if you need more computers for your builds.

Jenkins CLI
Access/manage Jenkins from your shell, or from your script.

Script Console
Executes arbitrary script for administration/trouble-shooting/diagnostics.

Manage Nodes
Add, remove, control and monitor the various nodes that Jenkins runs jobs on.

About Jenkins
See the version and license information.

Administration and Authorization users in Jenkins

- Managing Jenkins - Users

🔒 Configure Global Security

☑ Enable security

Disable remember me ☐

Access Control

Security Realm

○ Delegate to servlet container

◉ Jenkins' own user database

  ☐ Allow users to sign up

○ LDAP

○ Unix user/group database

Authorization

○ Anyone can do anything

○ Legacy mode

◉ Logged-in users can do anything

  ☐ Allow anonymous read access

○ Matrix-based security

○ Project-based Matrix Authorization Strategy

Administration and Authorization users in Jenkins

- Managing Jenkins - Create User

Manage Users
Create/delete/modify users that can log in to this Jenkins

Back to Dashboard

Manage Jenkins

Create User

Users

These users can log into Jenkins. This i

test_user1

Administration and Authorization users in Jenkins

- Managing Jenkins - Create User

Administration and Authorization users in Jenkins

- Managing Jenkins - Create User

Back to Dashboard

Manage Jenkins

Create User

Users

These users can log into Jenkins. This is a sub set of this list

test_user1

test_user_2

Administration and Authorization users in Jenkins

- Managing Jenkins - LDAP

LDAP

    Server

Server   `ldap://em-vwp-adcm01.ros.local:389`

root DN   `dc=ros,dc=local`

☐ Allow blank rootDN

User search base   `ou=Accounts`

User search filter   `samAccountName={0}`

Group search base   `ou=Security Groups`

Group search filter   `member={1}`

Group membership
    ◯ Parse user attribute for list of LDAP groups
    ⦿ Search for LDAP groups containing user
      Group membership filter

Manager DN   `CN=svc_JenkinsCont_auth,OU=Service Accounts,OU=Accounts,DC=ros,DC=local`

Manager Password   ●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●

Display Name LDAP attribute   `displayname`

Email Address LDAP attribute   `mail`

# Administration and Authorization users in Jenkins

- Managing Jenkins - Matrix based Authorization

Administration and Authorization users in Jenkins

- Managing Jenkins - Project based Matrix Authorization

Administration and Authorization users in Jenkins

- Managing Jenkins - Managing Nodes

Configure System
Configure global settings and paths.

Configure Global Security
Secure Jenkins; define who is allowed to access/use the system.

Configure Credentials
Configure the credential providers and types

Global Tool Configuration
Configure tools, their locations and automatic installers.

Reload Configuration from Disk
Discard all the loaded data in memory and reload everything from file system. Useful when you modified config files directly on disk.

Manage Plugins
Add, remove, disable or enable plugins that can extend the functionality of Jenkins.

System Information
Displays various environmental information to assist trouble-shooting.

System Log
System log captures output from `java.util.logging` output related to Jenkins.

Load Statistics
Check your resource utilization and see if you need more computers for your builds.

Jenkins CLI
Access/manage Jenkins from your shell, or from your script.

Script Console
Executes arbitrary script for administration/trouble-shooting/diagnostics.

Manage Nodes
Add, remove, control and monitor the various nodes that Jenkins runs jobs on.

About Jenkins
See the version and license information.

Administration and Authorization users in Jenkins

- Managing Jenkins - Manage Nodes

- Back to Dashboard
- Manage Jenkins
- New Node
- Configure

S	Name ↓	Architecture	Clock Difference	Free Disk Space	Free Swap Space	Free Temp Space	Response Time
🖥	master	Linux (amd64)	In sync	127.91 GB	3.68 GB	127.91 GB	0ms	⚙
	last checked	21 min	21 min	21 min	21 min	21 min	21 min

Refresh status

- Create a new Node

- Back to Dashboard
- Manage Jenkins
- New Node
- Configure

Node name   node_1

🔘 **Permanent Agent**

Adds a plain, permanent agent to Jenkins. This is called "permanent" because Jenkins doesn't provide higher level of integration with these agents, such as dynamic provisioning. Select this type if no other agent types apply — for example such as when you are adding a physical computer, virtual machines managed outside Jenkins, etc.

OK

Build Queue ⚊

No builds in the queue.

Administration and Authorization users in Jenkins

- Managing Jenkins - Managing Nodes

Name	node_1
Description	node one test
# of executors	2
Remote root directory	/app/jenkins/jenkins_data/node_1
Labels	sit_test
Usage	Only build jobs with label expressions matching this node ▼
Launch method	Launch slave agents via SSH ▼

	Host	localhost
	Credentials	pikoulj/****** ▼ 🔑 Add ▾
	Host Key Verification Strategy	Non verifying Verification Strategy ▼

Advanced...

Availability	Keep this agent online as much as possible ▼

Node Properties

- ☐ Environment variables
- ☐ Tool Locations

Save

Administration and Authorization users in Jenkins

- Managing Jenkins - Managing Nodes

Administration Global Variables

- Managing Jenkins - Global Variables

Configure System
Configure global settings and paths.

Configure Global Security
Secure Jenkins; define who is allowed to access/use the system.

Configure Credentials
Configure the credential providers and types

Global Tool Configuration
Configure tools, their locations and automatic installers.

Reload Configuration from Disk
Discard all the loaded data in memory and reload everything from file system. Useful when you modified config files directly on disk.

Manage Plugins
Add, remove, disable or enable plugins that can extend the functionality of Jenkins.

System Information
Displays various environmental information to assist trouble-shooting.

System Log
System log captures output from `java.util.logging` output related to Jenkins.

Load Statistics
Check your resource utilization and see if you need more computers for your builds.

Jenkins CLI
Access/manage Jenkins from your shell, or from your script.

Script Console
Executes arbitrary script for administration/trouble-shooting/diagnostics.

Manage Nodes
Add, remove, control and monitor the various nodes that Jenkins runs jobs on.

About Jenkins
See the version and license information.

Administration Global Variables

- Managing Jenkins - Global Variables

Global properties

☐ Environment variables

☐ Tool Locations

- Add a new Global Variable

Global properties

☑ Environment variables

List of variables

Name SIT_VM_NAME

Value ez-app-test01.sit.co.uk

Delete

Add

Administration Global Variables

- Managing Jenkins - Global Passwords

Mask Passwords - Parameters to automatically mask

List Subversion tags (and more)	☐
Multi-line String Parameter	☐
Choice Parameter	☐
Credentials Parameter	☐
Boolean Parameter	☐
File Parameter	☐
Non-Stored Password Parameter	☑
String Parameter	☐
Password Parameter	☑
Run Parameter	☐

Mask Passwords - Global name/password pairs

Name SIT_ROOT_USER   Password •••••••   Delete

Add

Administration - Email

- Managing Jenkins – Setting up Email

E-mail Notification

SMTP server	smtp.ros.local
Default user e-mail suffix	@ros.gov.uk
Default Subject	$PROJECT_NAME - Build # $BUILD_NUMBER - $BUILD_STATUS!
Maximum Attachment Size	
Default Content	$PROJECT_NAME - Build # $BUILD_NUMBER - $BUILD_STATUS: Check console output at $BUILD_URL to view the results.

Future Presentations!

www.automateditsolutions.com

Automated IT Solutions are planning a number of free workshops and community discussions on DevOps-related tools and practices.

Proposed topics include:
- Terraform and AWS – automating and managing AWS infrastructure using Terraform by HashiCorp
- Docker – introduction to Containerization and best practices
- Ansible – introduction and workshop
- Jenkins – automating and managing pipelines
- Adding Test automation to Docker and Jenkins pipelines

If you would like to Register Interest for these sessions – or suggest additional ones – let us know here: www.automateditsolutions.com/register/ and we will keep you updated!

(Communi)Tea Time

Auto-Convert Freestyle to Pipeline

- Convert To Pipeline Plugin v1.0 (plugins.jenkins.io/convert-to-pipeline)
- Key features:
  - Convert single freestyle job to pipeline
  - Convert chain of freestyle jobs to single pipeline
  - Works with both Jenkins and CloudBees Jenkins Enterprise
  - Direct migration of Parameters and Agents to newly created Pipelines.
  - Environment properties: JDK, NodeJS
  - Supports Git SCM
  - Build steps: Maven, Ant, Shell, Batch, and Ansible Playbook
  - Post build actions: artifact archiver, simple mailer, TestNG reports, JUnit reports, checkstyle publisher

Auto-Convert Freestyle to Pipeline

Jenkins ▸ My-Freestyle-Job ▸

Back to Dashboard

Status

Changes

Workspace

Build Now

Delete Project

Configure

Favorite

Convert This Job To Pipeline

Open Blue Ocean

Auto-Convert Freestyle to Pipeline

Convert This Job To Pipeline

Job Conversion Parameters

Job name (optional)

Recursively convert downstream jobs if any? ☑

Jenkinsfile Options

Commit Jenkinsfile? ☐

Commit message

Auto created Jenkinsfile from auto conversion

Convert

infostretch

Thanks!