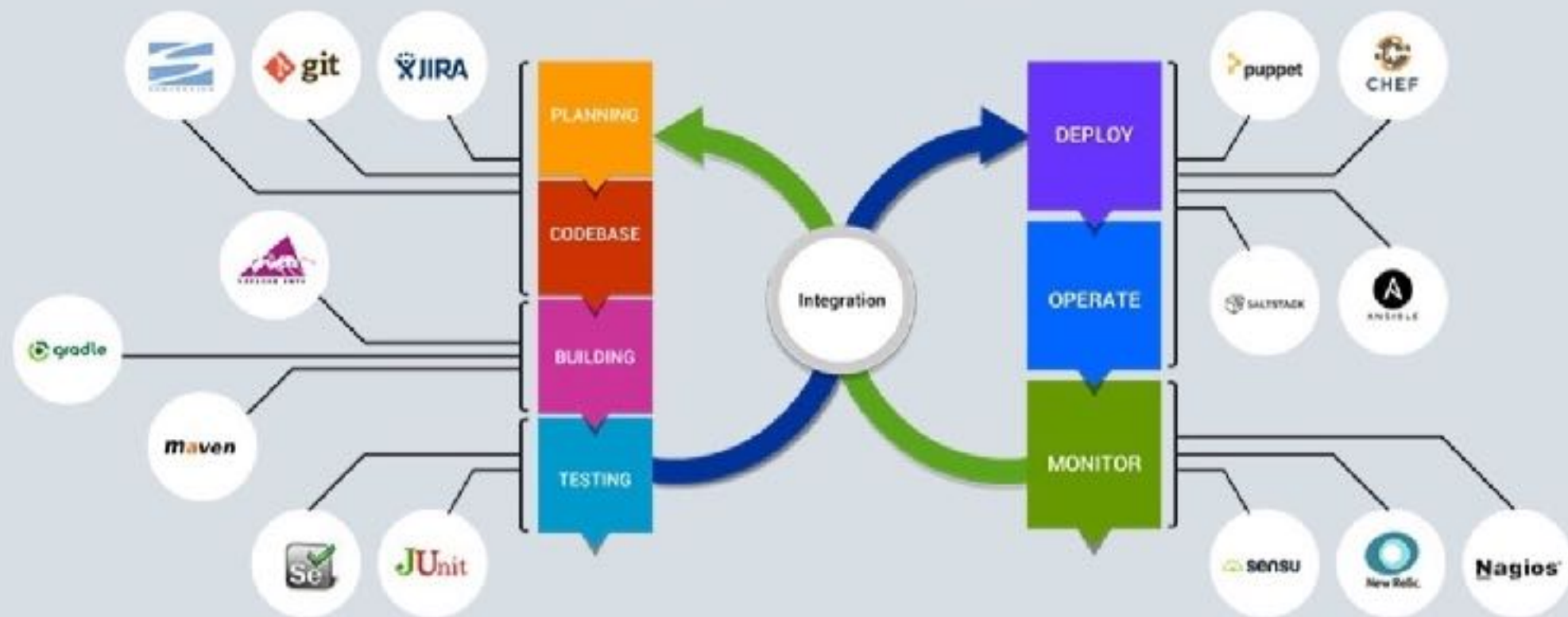


DEVOPS

KESHAV KUMMARI

Agile | Linux | AWS | DevOps | Python

Keshav Kumhari



INTRODUCTION

WHAT IS DEVOPS?

- DevOps is a new Philosophy that can help organisations innovate faster and be more productive and responsive to business needs.
- It promotes collaboration between developers and operations by automating infrastructure, automating workflows and continuously measuring application performance.

INTRODUCTION

DEVOPS GOALS AND BENEFITS

- Increase rate of software delivery.
- Improves company's time to market potentially from months and weeks to days and hours.
- Provide huge competitive advantage due to shorter release cycles.
- Help them automating the releases and their infrastructure so that they can focus on increasing business value
- Reduce manual processes leading to happier employees and customers.
- Lower failure rates of releases.
- Faster mean time to recovery
- Shortened lead time between fixes.

INTRODUCTION

DEVOPS ADOPTION INTEREST

- Use of Agile Development processes.
- Demand for frequent releases to production.
- Availability of cloud infrastructure and tools
- Increased usage of datacenter automation and configuration management tools.
- Increased focus on test automation and continuous integration methods
- A critical mass of publicly available best practices in the industry.

INTRODUCTION

DEVOPS TOOL CHAIN

- DevOps is a set of tool chain that will help organisations achieve their goals.
- The tools fit into several categories that are:
- Code : SCM, Workflow, Development, Review, and Merge.
- Build : Continuous integration and builds.
- Test : Continuous testing that provide feedback
- Package : Packaging code and release to Artifact repository
- Release : Release,Promotion and change management
- Configure : Automated infrastructure and configuration management
- Monitor : Application performance and log monitoring

INTRODUCTION

DEVOPS COURSE GOALS

- In this course we will cover the tool chain that will cover the code, build, test, package, part of release and part of application monitoring.
- The course will enforce the fundamentals around DevOps and help you understand in depth of how these tools fit together will help you transform your organisation and teams and also help you set expectations across the business and technology teams.

INTRODUCTION

DEVOPS AT END OF COURSE

- At the end of the course you will be able to understand the benefits of DevOps model and be able to setup and use the tools that will facilitate in source control management, continuous integration, testing, release management, efficient deployment workflows and application monitoring.
- We will be using some of the best open source tools available in the industry.
- In addition to learning the tools you will also have a complete DevOps environment setup on your computer that you can use for further learning and provide you options to explore further.

INTRODUCTION

DEVOPS ASSUMPTIONS

- Basic understanding of the SDLC lifecycle.
- Basic understanding of the source code management
- Ability to Download, Install & Configure tools as part of the Course
- Basic understanding of Java Programming language and build tools like Maven
- Ability to hands on development in Java using Spring Boot.
- Please note that though the focus here is using Java Programming the tool chain can be applied to any technology.

REQUIRED TOOLS AND SOFTWARE DOWNLOADS

COURSE PREREQUISITES

- Operating System Admin concepts :
- Windows / Unix / Linux or MacOs
- Admin rights on Desktop or Laptop
- Internet Access
- JDK 1.8.X version

DEVOPS

ACRONYMS

- SDLC : Software Development Lifecycle
- SCM : Software configuration management
- ELK : Elasticsearch, Logstash, Kibana
- GitFlow : Git Workflow
- SSH : Secure Shell Host
- Git : Version Control System
- CI : Continuous integration
- Repository : Place where Artifacts are stored

DEVOPS

REQUIRED TOOLS

- **GitHub Account**
- <https://github.com/join>
- **Install Git**
- <https://git-scm.com/downloads>
- **Install Atlassian Source Tree**
- <https://www.sourcetreeapp.com/>
- **Install Gitflow for executing via command line**
- <https://github.com/nvie/gitflow/wiki/installation>

GITHUB

CODE REPOSITORY AND VERSION CONTROL

- Login to GitHub

The screenshot shows the GitHub profile page for a user named 'DevOps Keshav' (username: devopskeshav). The browser address bar shows the URL 'https://github.com/devopskeshav'. The profile header includes the GitHub logo, a search bar, and navigation links for 'Pull requests', 'Issues', 'Marketplace', and 'Explore'. The user's profile picture is a cartoon illustration of a man with glasses and a beard, surrounded by tech-related icons like 'Python Full Stack', 'JavaScript', 'HTML/CSS', 'Python', and 'Web Server'. Below the profile picture, the name 'DevOps Keshav' and username 'devopskeshav' are displayed. The profile statistics show 'Overview', 'Repositories 1', 'Stars 0', 'Followers 7', and 'Following 0'. The 'Popular repositories' section lists 'MyFirstWebProject' with a 'Python' language tag. The 'Contributions' section shows '10 contributions in the last year' with a calendar view for the months of April through March.

GitHub, Inc. [US] | <https://github.com/devopskeshav>

Search GitHub

Pull requests Issues Marketplace Explore

Python Full Stack

JavaScript

HTML/CSS

PYTHON

WEB SERVER

Keshav Kummari

DevOps Keshav
devopskeshav

Overview Repositories 1 Stars 0 Followers 7 Following 0

Popular repositories

MyFirstWebProject

Python

10 contributions in the last year

Contribution settings

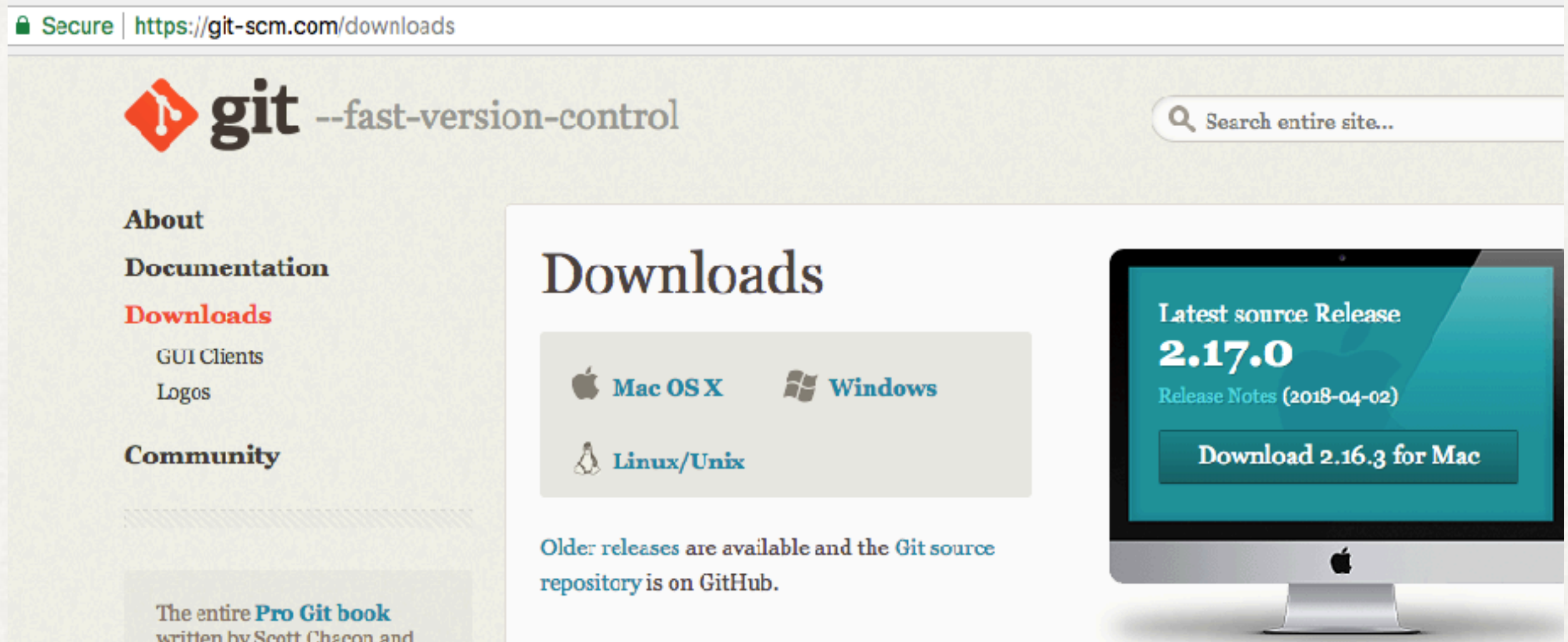
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar

<https://github.com/join>

DOWNLOAD , INSTALL & CONFIGURE

GIT BASH SOFTWARE

- Download & Install



<https://git-scm.com/downloads>

DOWNLOAD , INSTALL & CONFIGURE

ATLASSIAN SOURCE TREE

- Download and Install

The image shows the Sourcetree website and the application interface. The website header includes the Sourcetree logo and a 'Download free' button. The main content area features the text 'Simplicity and power in a beautiful Git GUI' and a 'Download for Mac OS X' button. Below this, it states 'Also available for Windows'. The application interface is shown on the right, displaying a commit history for the 'sourcetree-website (Git)' repository. The interface includes a sidebar with 'WORKSPACE' and 'History' sections, and a main panel showing a list of commits with columns for Commit, Author, Description, and Date.

Sourcetree [Download free](#)

Simplicity and power in a beautiful Git GUI

[Download for Mac OS X](#)

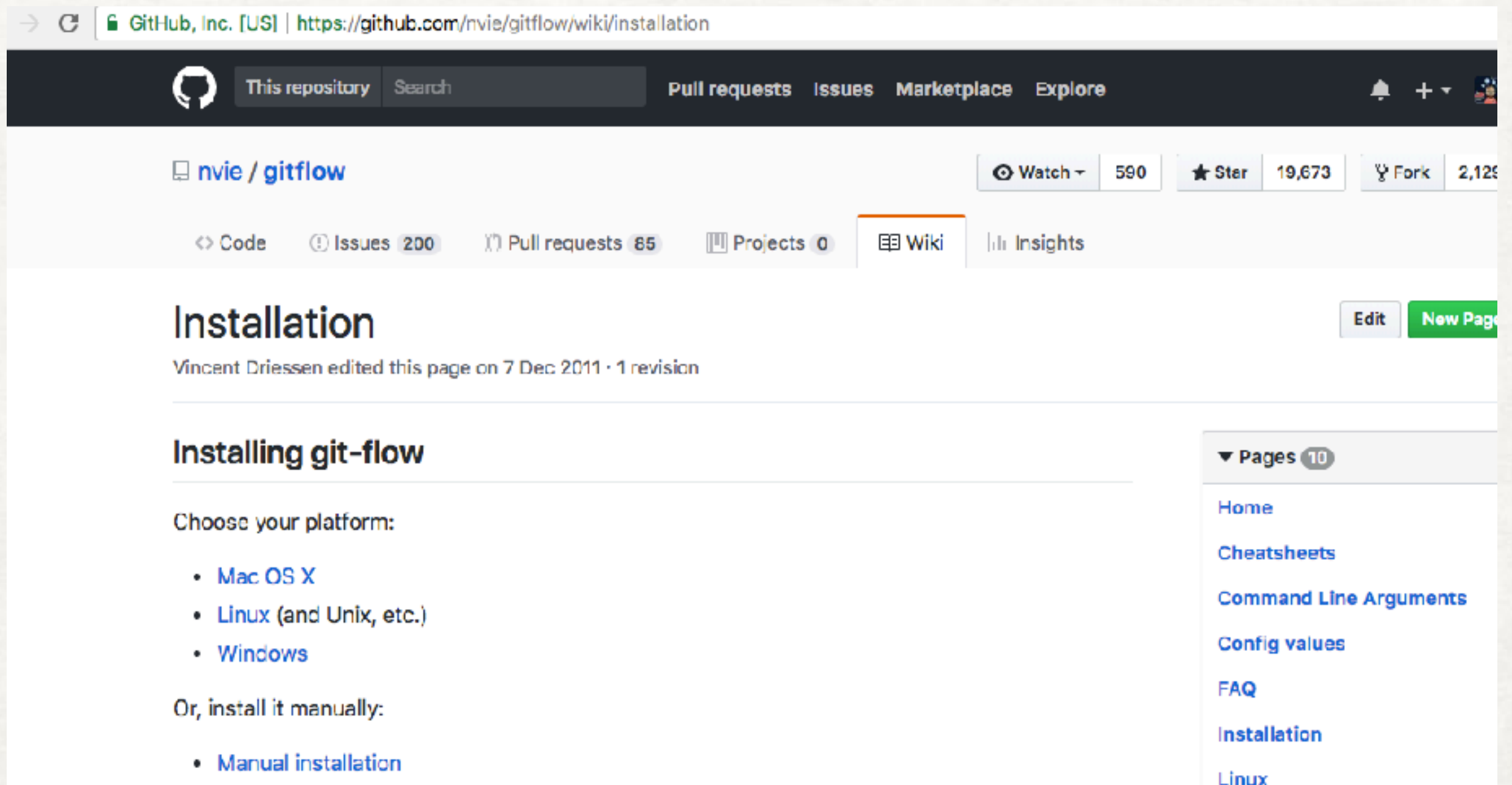
Also available for Windows

Commit History (sourcetree-website (Git))

Commit	Author	Description	Date
67358c7	Rahul Chhabra	Removing old...	Mar 3, 2016, 11:...
bdb8bef	Rahul Chhabra	Merged in update-google-verification (pull request #14)	Feb 16, 2016, 1:3...
efe87e4	Tyler Tadel	Update google verificati...	Feb 11, 2016, 2:2...
38e3230	Tyler Tadel	Replace outdated Atlassian logo in footer with base-64 en...	Feb 11, 2016, 2:1...
cba47f9	Tyler Tadel	Add gitter	Feb 11, 2016, 1:3...
f167b45	Mike Miens	Updated Mac min-spec to 10.10	Feb 15, 2016, 11:...
72d32a8	Michael Min...	Merged in hero_images (pull request #13)	Feb 15, 2016, 10:...
246a5f	Joel Unger	Used TinyPNG to c...	Feb 11, 2016, 3:3...
6d9436c	Joel Unger	Replacing hero images with new version of SourceTree	Feb 9, 2016, 2:58...
ce75b63	Michael Min...	Merged in bugupdate-https (pull request: #12)	Feb 15, 2016, 10:...
85387f8	Patrick Tho...	fixed date and https errors	Jan 7, 2016, 17:2...
4f8b5b7	Joel Unger	New favicon	Feb 8, 2016, 2:16...
384e8d5	Rahul Chhabra	search console google ver...	Feb 3, 2016, 2:09...
6fa47a9	Mike Miens	updated to more supported version to OSX 10.9+	Dec 15, 2015, 2:0...
#dd871b	Mike Miens	remove extra , when a line is skipped due to empty server	Nov 23, 2015, 2:2...
faa196a	Mike Miens	Skip records with empty server/user id as gas rejects them	Nov 23, 2015, 2:1...
Ced1e06	Mike Miens	corrected paths after merge	Nov 23, 2015, 2:0...
C51ab1b	Mike Miens	corrected column counting	Nov 23, 2015, 1:5...
a723bc2	Mike Miens	Merge branch 'au2ges'	Nov 23, 2015, 1:5...
654c540	Mike Miens	deal with invalid instanceids	Nov 23, 2015, 1:5...
500a802	Michael Min...	Merged in au2ges (pull request: #11)	Nov 23, 2015, 1:0...


<https://www.sourcetreeapp.com/>





DOWNLOAD , INSTALL & CONFIGURE GITFLOW









The screenshot shows the GitHub interface for the `nvie/gitflow` repository. The browser address bar displays the URL `https://github.com/nvie/gitflow/wiki/installation`. The repository header includes the GitHub logo, a search bar, and navigation links for Pull requests, Issues, Marketplace, and Explore. The repository name `nvie / gitflow` is shown, along with statistics: 590 Watchers, 19,673 Stars, and 2,129 Forks. Below the repository name are tabs for Code, Issues (200), Pull requests (85), Projects (0), Wiki (selected), and Insights. The main content area is titled "Installation" and notes that Vincent Driessen edited the page on 7 Dec 2011. The section "Installing git-flow" provides instructions to choose a platform (Mac OS X, Linux, or Windows) or install manually (Manual installation). A sidebar on the right lists the wiki pages, with "Installation" highlighted.



→ [GitHub, Inc. \[US\]](#) | <https://github.com/nvie/gitflow/wiki/installation>

 This repository Search Pull requests Issues Marketplace Explore

 **nvie / gitflow**  Watch 590  Star 19,673  Fork 2,129

 Code  Issues 200  Pull requests 85  Projects 0  Wiki  Insights

Installation

Vincent Driessen edited this page on 7 Dec 2011 · 1 revision  

Installing git-flow

Choose your platform:

- [Mac OS X](#)
- [Linux](#) (and Unix, etc.)
- [Windows](#)

Or, install it manually:

- [Manual installation](#)

▼ Pages 10

- [Home](#)
- [Cheatsheets](#)
- [Command Line Arguments](#)
- [Config values](#)
- [FAQ](#)
- [Installation](#)
- [Linux](#)

<https://github.com/nvie/gitflow/wiki/installation>

DOWNLOAD OF TOOLS

CI/CD TOOLS

- Download and Install IDE STS : <https://spring.io/tools/sts/all>
- Download and Install Text Editor ATOM : <https://atom.io/>
- Download and Install Maven : <http://maven.apache.org/>
- Download and Install Tomcat : <https://tomcat.apache.org/download-80.cgi>
- Download and Install Artifactory : <https://jfrog.com/open-source/>
- Download and Install Jenkins : <https://jenkins.io/download/>
- Download and Install ElasticSearch : <https://www.elastic.co/downloads/elasticsearch>
- Download and Install Logstash : <https://www.elastic.co/downloads/logstash>
- Download and Install Kibana : <https://www.elastic.co/downloads/kibana>

INSTALL OF TOOLS

CI/CD PIPELINE

1. Install Tomcat

- Download, Install & Configure
- Start the tomcat
- Validate the setup
- Port - 8080

2. Install Artifactory

- Download, Install & Configure
- Start the artifactory
- Validate the setup
- Port - 8081

3. Install Maven

- Download, Install & Configure
- Setup the Maven Home
- Validate the setup

4. Install Jenkins

- Download war, Deploy & Configure
- Validate the setup

5. Install ELK

- Download, Install & Configure
 - ElasticSearch
 - Logstash
 - Kibana
- Validate the setup

TOMCAT

DOWNLOAD, INSTALL & CONFIGURE

- Download Tomcat 8.5.30 tar.gz file

The screenshot shows the Apache Tomcat download page for version 8.5.30. The browser address bar shows the URL <https://tomcat.apache.org/download-80.cgi>. The page has a left sidebar with navigation links and a main content area with download options.

Left Sidebar:

- Tomcat Connectors
- Tomcat Native
- Wiki
- Migration Guide
- Presentations
- Problems?**
 - Security Reports
 - Find help
 - FAQ
 - Mailing Lists
 - Bug Database
 - IRC
- Get Involved**
 - Overview
 - Source code
 - Buildbot
 - Tools
- Media**
 - Twitter
 - YouTube
 - Blog
- Misc**
 - Who We Are
 - Heritage
 - Apache Home
 - Resources
 - Contact
 - Legal
 - Support Apache

Main Content Area:

Other mirrors: <http://www-eu.apache.org/dist/> [Change](#)

8.5.30

Please see the [README](#) file for packaging information. It explains what every distribution contains.

Binary Distributions

- Core:
 - [zip](#) ([pgp](#), [sha1](#), [sha512](#))
 - [tar.gz](#) ([pgp](#), [sha1](#), [sha512](#))
 - [32-bit Windows zip](#) ([pgp](#), [sha1](#), [sha512](#))
 - [64-bit Windows zip](#) ([pgp](#), [sha1](#), [sha512](#))
 - [32-bit/64-bit Windows Service Installer](#) ([pgp](#), [sha1](#), [sha512](#))
- Full documentation:
 - [tar.gz](#) ([pgp](#), [sha1](#), [sha512](#))
- Deployer:
 - [zip](#) ([pgp](#), [sha1](#), [sha512](#))
 - [tar.gz](#) ([pgp](#), [sha1](#), [sha512](#))
- Extras:
 - [JMX Remote jar](#) ([pgp](#), [sha1](#), [sha512](#))
 - [Web services jar](#) ([pgp](#), [sha1](#), [sha512](#))
- Embedded:
 - [tar.gz](#) ([pgp](#), [sha1](#), [sha512](#))
 - [zip](#) ([pgp](#), [sha1](#), [sha512](#))

Source Code Distributions

- [tar.gz](#) ([pgp](#), [sha1](#), [sha512](#))
- [zip](#) ([pgp](#), [sha1](#), [sha512](#))

8.0.50

<https://tomcat.apache.org/download-80.cgi>

TOMCAT

ADDING ROLE NAME, PASSWORD, & PORT

```
[sh-3.2# pwd
/devtools
[sh-3.2# ls -lrt apache-tomcat-8.5.30.tar.gz
-rw-r--r--@ 1 keshavkummari  staff  9541892 Apr 10 23:12 apache-tomcat-8.5.30.tar.gz
[sh-3.2#
[sh-3.2# # tar xvzf apache-tomcat-8.5.30.tar.gz
[sh-3.2# pwd
/devtools
[sh-3.2# ls -ld tomcat8/
drwxr-xr-x  13 root  wheel  442 Apr 10 23:19 tomcat8/
sh-3.2# █

/devtools/tomcat8/conf
[sh-3.2# ls
Catalina                context.xml              logging.properties      tomcat-users.xml_20180410
catalina.policy          jaspic-providers.xml    server.xml               tomcat-users.xsd
catalina.properties     jaspic-providers.xsd    tomcat-users.xml        web.xml
[sh-3.2# tail tomcat-users.xml
-->
<role rolename="tomcat"/>
<role rolename="manager-gui"/>
<role rolename="manager-script"/>
<role rolename="admin-gui"/>
<user username="tomcat" password="tomcat" roles="tomcat"/>
<user username="manager" password="tomcat" roles="tomcat,manager-gui"/>
<user username="jenkins" password="jenkins" roles="manager-script"/>
<user username="keshav" password="tomcat" roles="admin-gui"/>
</tomcat-users>
[sh-3.2#
[sh-3.2# grep 8181 server.xml
    <Connector port="8181" protocol="HTTP/1.1"
    _      port="8181" protocol="HTTP/1.1"
```


GO TO TOMCAT-USERS.XML FILE & ADD BELOW ROLE NAME ,USERNAME & PASSWORD

- FileName : tomcat-users.xml file

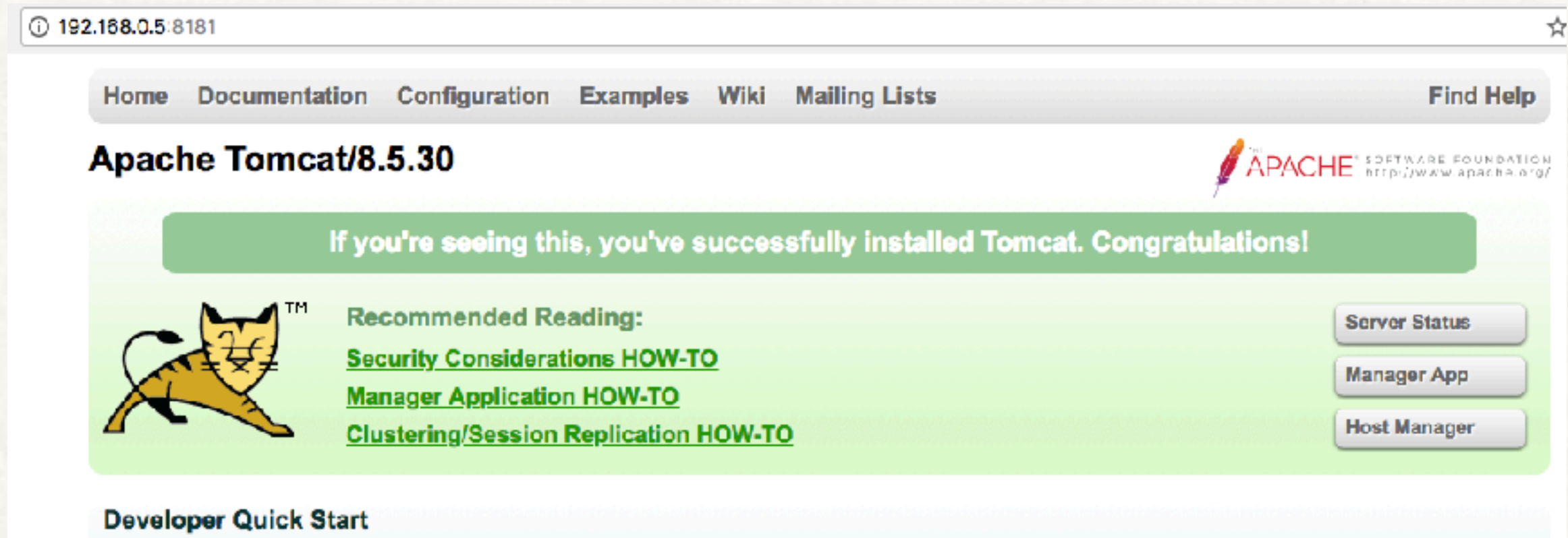
```
$ pwd
/Users/keshavkummari/devtools/tomcat8/conf
$ ls -lrt
total 464
-rw-----@ 1 root  wheel  169322 Apr  4 01:37 web.xml
-rw-----@ 1 root  wheel    2633 Apr  4 01:37 tomcat-users.xsd
-rw-----@ 1 root  wheel    2164 Apr  4 01:37 tomcat-users.xml_20180410
-rw-----@ 1 root  wheel    3622 Apr  4 01:37 logging.properties
-rw-----@ 1 root  wheel    2313 Apr  4 01:37 jaspic-providers.xsd
-rw-----@ 1 root  wheel    1149 Apr  4 01:37 jaspic-providers.xml
-rw-----@ 1 root  wheel    1338 Apr  4 01:37 context.xml
-rw-----@ 1 root  wheel    7376 Apr  4 01:37 catalina.properties
-rw-----@ 1 root  wheel   13824 Apr  4 01:37 catalina.policy
drwxr-x---  3 root  wheel     102 Apr 10 23:22 Catalina
-rw-----@ 1 root  wheel    7511 Apr 11 15:48 server.xml
-rw-----@ 1 root  wheel    2288 May  1 11:06 tomcat-users.xml_20180501
-rw-----@ 1 root  wheel    2033 May  1 11:12 tomcat-users.xml
$
$ tail tomcat-users.xml
  when reading this file. If you wish to configure these users for use with the
  examples web application, do not forget to remove the <!-- .. --> that surrounds
  them. You will also need to set the passwords to something appropriate.
-->
<!--
-->
  <role rolename="admin-gui"/>
  <role rolename="manager-gui"/>
  <user username="admin" password="tomcat" roles="admin-gui,manager-gui"/>
</tomcat-users>
$
```

Then, Stop the tomcat & Start & Check in the Browser

TOMCAT

CHECK ON BROWSER

- User Name : admin
- Password : tomcat



Click on Manager App or Host Manager & provide the Username & Password

ARTIFACTORY

DOWNLOAD, UNTAR & START THE JFROG



```
sh-3.2# pwd
/devtools
sh-3.2# ls -lrt jfrog-artifactory-oss-5.10.1.zip
-rw-r--r-- 1 kashavkumari staff 96586758 Apr 18 23:43 jfrog-artifactory-oss-5.10.1.zip
sh-3.2# unzip jfrog-artifactory-oss-5.10.1.zip
sh-3.2#
sh-3.2# ls -ld artifactory/
drwxr-xr-x 17 root wheel 578 Apr 11 15:22 artifactory/
sh-3.2# cd artifactory/bin/
sh-3.2# pwd
/devtools/artifactory/bin
sh-3.2# # ./artifactory.sh
sh-3.2#
```

JFROG ARTIFACTORY

PORT - 8081

→ Not Secure | 192.168.0.5:8081/artifactory/webapp/#/home

JFrog Artifactory

Welcome, admin

Home

Artifacts

Packages

Search

Builds

Admin

Artifactory is happily serving 0 artifacts

Artifactory Version 5.10.1 (Uptime is 0d 0h 4m 13s)
Latest Release: [5.10.1](#)

Quick Search

User Guide

Webinar Signup

Support Portal

Stackoverflow

Blog

Rest API

Set Me Up

Filter by Repository Key

example-repo-local

Last Deployed Builds

 (11/04/18 18:57)

No builds to display.
[Learn how to](#) integrate your build with Artifactory.

Most Downloaded Artifacts

 (11/04/18)

No artifacts to display.
[Learn how to](#) deploy your artifacts Artifactory.

JFROG ARTIFACTORY

WHILE SETTING UP JFROG ADD MAVEN PLUGIN

The screenshot shows the JFrog Artifactory web application interface. The browser address bar indicates the URL is `192.168.0.5:8081/artifactory/webapp/#/home`. The page features a green header with the JFrog Artifactory logo and a search icon. A dark sidebar on the left contains navigation links: Home, Artifacts, Packages (highlighted with a blue star), Search, Builds, and Admin. The main content area has a grey banner stating "Artifactory is happily serving 0 artifacts". A large white modal window is centered on the screen, titled "Artifactory on-boarding complete!". The modal text reads: "Congrats! These are the default repositories we created for you. You're now ready to speed up your software releases! Want to configure your client(s) and get started? Click the [Set Me Up](#) button for each repository. Want to learn more about different repository types? Consult the [JFrog Artifactory User Guide](#)." Below the text, a row of repository icons is displayed: Maven, libs-snapshot-local, libs-release-local, jcenter, libs-snapshot, and libs-release. At the bottom of the modal, there are five small circular progress indicators, with the last one being filled, and a "Finish" button on the right.

Add Maven and continue

MAVEN

DOWNLOAD, INSTALL & CONFIGURE

maven.apache.org/download.cgi			
How to Contribute Getting Help Issue Tracking Getting Maven Source The Maven Team PROJECT DOCUMENTATION Project Information MAVEN PROJECTS Archetype Artifact Resolver			
	Link	Checksums	Signature
Binary tar.gz archive	apache-maven-3.5.3-bin.tar.gz	<ul style="list-style-type: none">■ apache-maven-3.5.3-bin.tar.gz.sha1■ apache-maven-3.5.3-bin.tar.gz.sha256	apache-maven-3.5.3-bin.tar.gz.asc
Binary zip archive	apache-maven-3.5.3-bin.zip	<ul style="list-style-type: none">■ apache-maven-3.5.3-bin.zip.sha1■ apache-maven-3.5.3-bin.zip.sha256	apache-maven-3.5.3-bin.zip.asc
Source tar.gz archive	apache-maven-3.5.3-src.tar.gz	<ul style="list-style-type: none">■ apache-maven-3.5.3-src.tar.gz.sha1■ apache-maven-3.5.3-src.tar.gz.sha256	apache-maven-3.5.3-src.tar.gz.asc
Source zip archive	apache-maven-3.5.3-src.zip	<ul style="list-style-type: none">■ apache-maven-3.5.3-src.zip.sha1■ apache-maven-3.5.3-src.zip.sha256	apache-maven-3.5.3-src.zip.asc

```
[sh-3.2# pwd
/devtools
[sh-3.2# ls -lrt apache-maven-3.5.3-bin.tar.gz
-rw-r--r--@ 1 keshavkummari  staff  8799579 Apr 11 09:38 apache-maven-3.5.3-bin.tar.gz
[sh-3.2# # tar -xvzf apache-maven-3.5.3-bin.tar.gz
[sh-3.2#
[sh-3.2# ls -ld maven/
drwxr-xr-x  9 root  wheel  306 Apr 11 09:39 maven/
[sh-3.2#
```

MAVEN

BEFORE MODIFY THE .BASH_PROFILE FILE

- Go to user home dir and check the .bash_profile file

```
sh-3.2# pwd
/Users/keshavkummari
sh-3.2# ls -lrt .bash_profile
-rw-r--r--  1 keshavkummari  staff  260 Apr  2  2017 .bash_profile
sh-3.2#
sh-3.2# wc .bash_profile
      8      25     260 .bash_profile
sh-3.2# cat .bash_profile

# added by Anaconda3 4.3.1 installer
export PATH="/Users/keshavkummari/anaconda/bin:$PATH"

# Setting PATH for Python 3.6
# The original version is saved in .bash_profile.pysave
PATH="/Library/Frameworks/Python.framework/Versions/3.6/bin:${PATH}"
export PATH
sh-3.2# █
```


MAVEN

SET JAVA HOME PATH IN .BASH_PROFILE FILE

- Set the java home path and cross check

```
sh-3.2# ls -lrt /usr/libexec/java_home
lrwxr-xr-x 1 root wheel 79 Dec 1 01:28 /usr/libexec/java_home -> /System/Library/Frameworks/JavaVM.framework/Versions/Current/Commands/java_home
sh-3.2# vi .bash_profile
sh-3.2#
sh-3.2# source .bash_profile
sh-3.2#
sh-3.2# cat .bash_profile

# added by Anaconda3 4.3.1 installer
export PATH="/Users/keshavkumari/anaconda/bin:$PATH"

# Setting PATH for Python 3.6
# The original version is saved in .bash_profile.pysave
PATH="/Library/Frameworks/Python.framework/Versions/3.6/bin:${PATH}"
export PATH

# set java
export JAVA_HOME=$(/usr/libexec/java_home)

# maven settings
export M2_HOME=/devtools/maven
export M2=$M2_HOME/bin/
export PATH=$M2:$PATH

sh-3.2# mvn -version
Apache Maven 3.5.3 (3383c37e1f9e9b3bc3df5050c29c8aff9f295297; 2018-02-25T01:19:05+05:30)
Maven home: /devtools/maven
Java version: 1.8.0_161, vendor: Oracle Corporation
Java home: /Library/Java/JavaVirtualMachines/jdk1.8.0_161.jdk/Contents/Home/jre
Default locale: en_US, platform encoding: UTF-8
OS name: "mac os x", version: "10.13.3", arch: "x86_64", family: "mac"
sh-3.2#
```

And execute source .bash_profile

HOW TO INSTALL MAVEN ON WINDOWS

- To install Apache Maven on Windows, you just need to download the Maven's zip file, and Unzip it to the directory you wish to install, and configure the Windows environment variables.

- Tools Used :

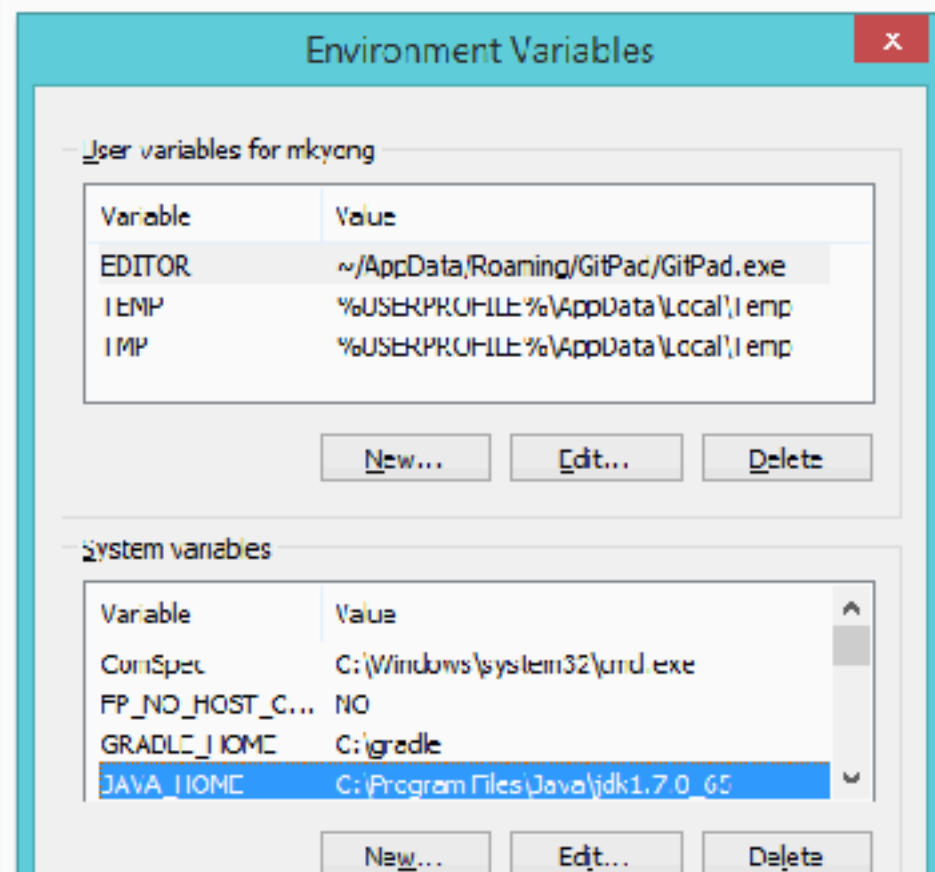
- JDK 1.7

- Maven 3.2.2

- Windows 8

1. JDK and JAVA_HOME








Make sure JDK is installed, and "JAVA_HOME" variable is added as Windows environment variable.



DOWNLOAD APACHE MAVEN

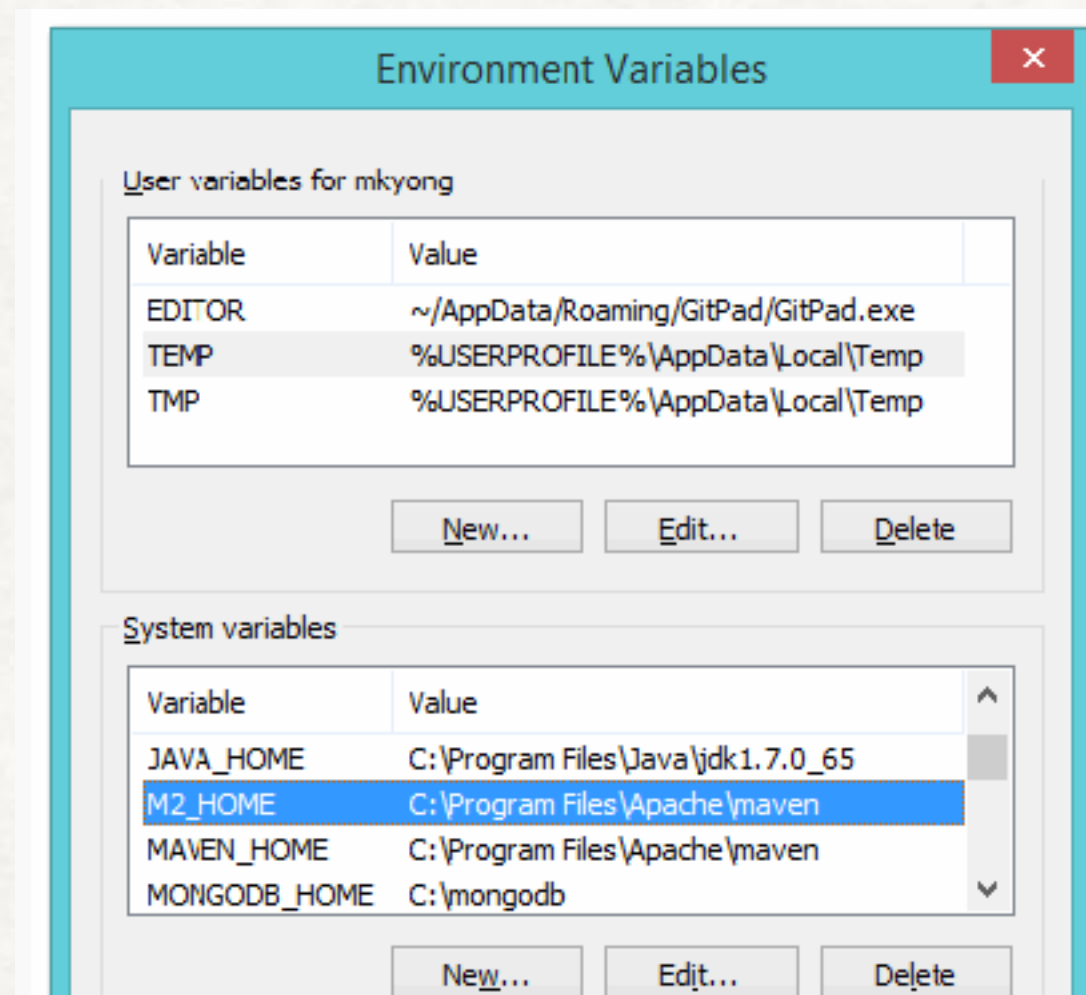
- Visit Maven official website, download the Maven zip file, for example : apache-maven-3.2.2-bin.zip. Unzip it to the folder you want to install Maven.
- Assume you unzip to this folder – C:\Program Files\Apache\maven

(C:) ▸ Program Files ▸ Apache ▸ maven

Name	Date modified	Type	Size
 bin	7/24/2014 6:03 PM	File folder	
 boot	7/24/2014 6:03 PM	File folder	
 conf	7/24/2014 6:11 PM	File folder	
 lib	7/24/2014 6:03 PM	File folder	
 LICENSE	6/17/2014 9:53 PM	File	18 KB
 NOTICE	6/17/2014 9:53 PM	File	1 KB
 README.txt	6/17/2014 9:50 PM	Text Document	3 KB

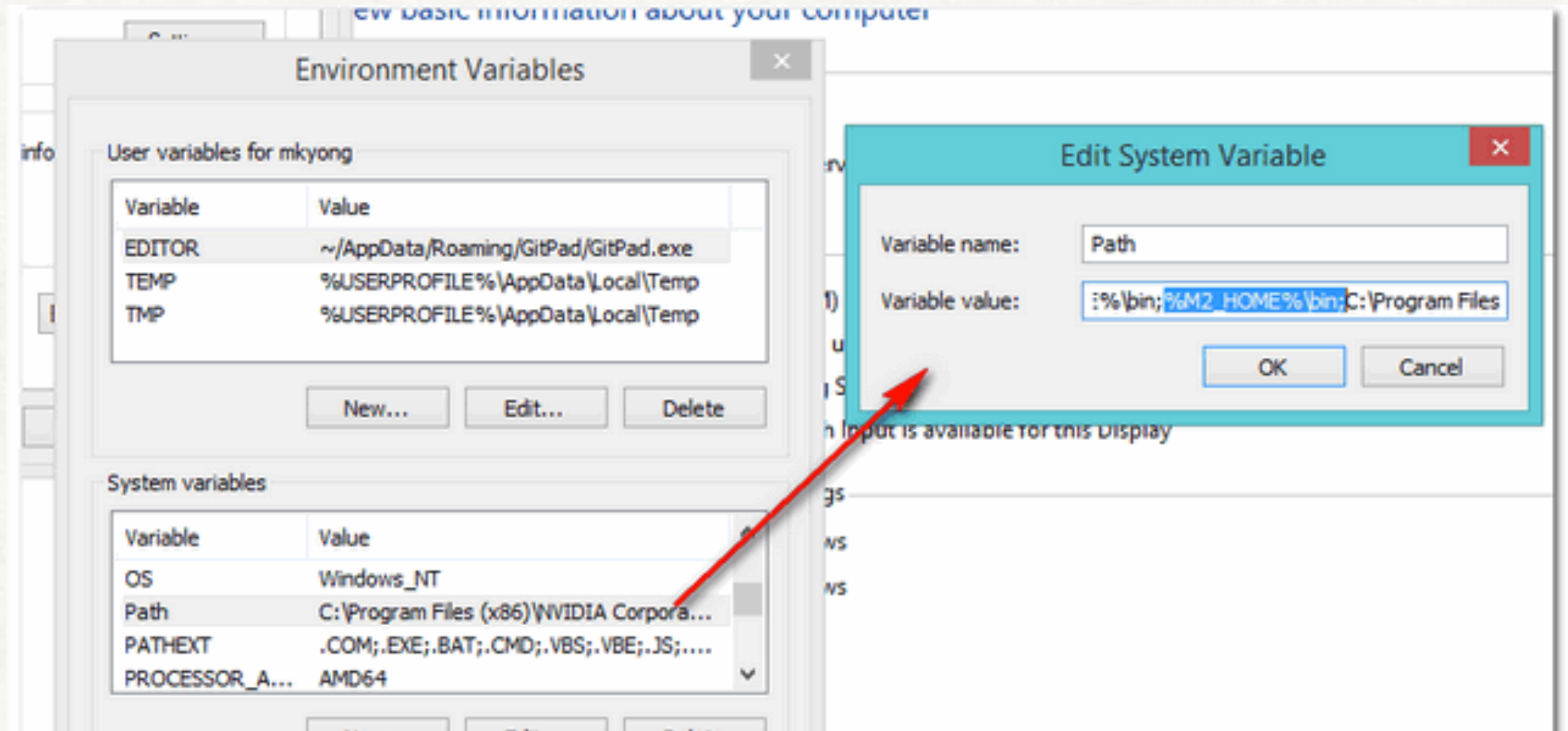
ADD M2_HOME AND MAVEN_HOME

- Add both M2_HOME and MAVEN_HOME variables in the Windows environment, and point it to your Maven folder.
- M2_HOME or MAVEN_HOME : Maven document said add M2_HOME only, but some programs still reference Maven folder with MAVEN_HOME, so, it's safer to add both.



ADD TO PATH

- Update PATH variable, append Maven bin folder – %M2_HOME%\bin, so that you can run the Maven's command everywhere.



VERIFICATION

- To verify it, run mvn -version in the command prompt.

```
C:\Users\kummari>mvn -version
```

```
Apache Maven 3.2.2 (45f7c06d68e745d05611f7fd14efb6594181933e;  
2014-06-17T21:51:42+08:00)
```

```
Maven home: C:\Program Files\Apache\maven
```

```
Java version: 1.7.0_65, vendor: Oracle Corporation
```

```
Java home: C:\Program Files\Java\jdk1.7.0_65\jre
```

```
Default locale: en_US, platform encoding: Cp1252
```

```
OS name: "windows 8.1 ", version: "6.3", arch: "amd64", family: "windows"
```

```
C:\Users\kummari>
```


JENKINS

DOWNLOAD, INSTALL & CONFIGURE

Secure | <https://jenkins.io/download/>

Jenkins Blog Documentation ▾ Plugins Use-cases ▾ Participate Sub-projects ▾ Resource



Jenkins

Build great things at any scale

The leading open source automation server, Jenkins provides hundreds of plugins to support building, deploying and automating any project.

[Documentation](#) [Download](#)

<https://jenkins.io/download/>

JENKINS

CONFIGURE

- Download and install by double clicking the Jenkins file.
- By default Jenkins listen on Port-8080 and even tomcat, hence we need to stop the tomcat and install Jenkins.
- Go to tomcat configuration and modify the tomcat default port to 8181 or 80

```
[sh-3.2# grep -H -n 8181 tomcat8/conf/server.xml
tomcat8/conf/server.xml:69:      <Connector port="8181" protocol="HTTP/1.1"
tomcat8/conf/server.xml:75:                  port="8181" protocol="HTTP/1.1"
sh-3.2#
```

Now, start the tomcat and cross check with new port

```
[sh-3.2# pwd
/devtools
[sh-3.2# ls -lrt jenkins-2.115.pkg
-rw-r--r--@ 1 keshavkummari  staff  74468938 Apr 11 09:57 jenkins-2.115.pkg
```

Go to Download path and check the jenkins software

JENKINS

UNLOCK AND INSTALL PLUGINS

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:

```
/root/.jenkins/secrets/initialAdminPassword
```

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

Administrator password

Copy the below password and paste in the above page

```
[root@Jenkins secrets]#  
[root@Jenkins secrets]# cat /root/.jenkins/secrets/initialAdminPassword  
9b49e365cd464fa09cd5985d3a0e313d  
[root@Jenkins secrets]#
```

Customize Jenkins

Plugins extend Jenkins with additional features to support many different needs.

Install suggested plugins

Install plugins the Jenkins community finds most useful.

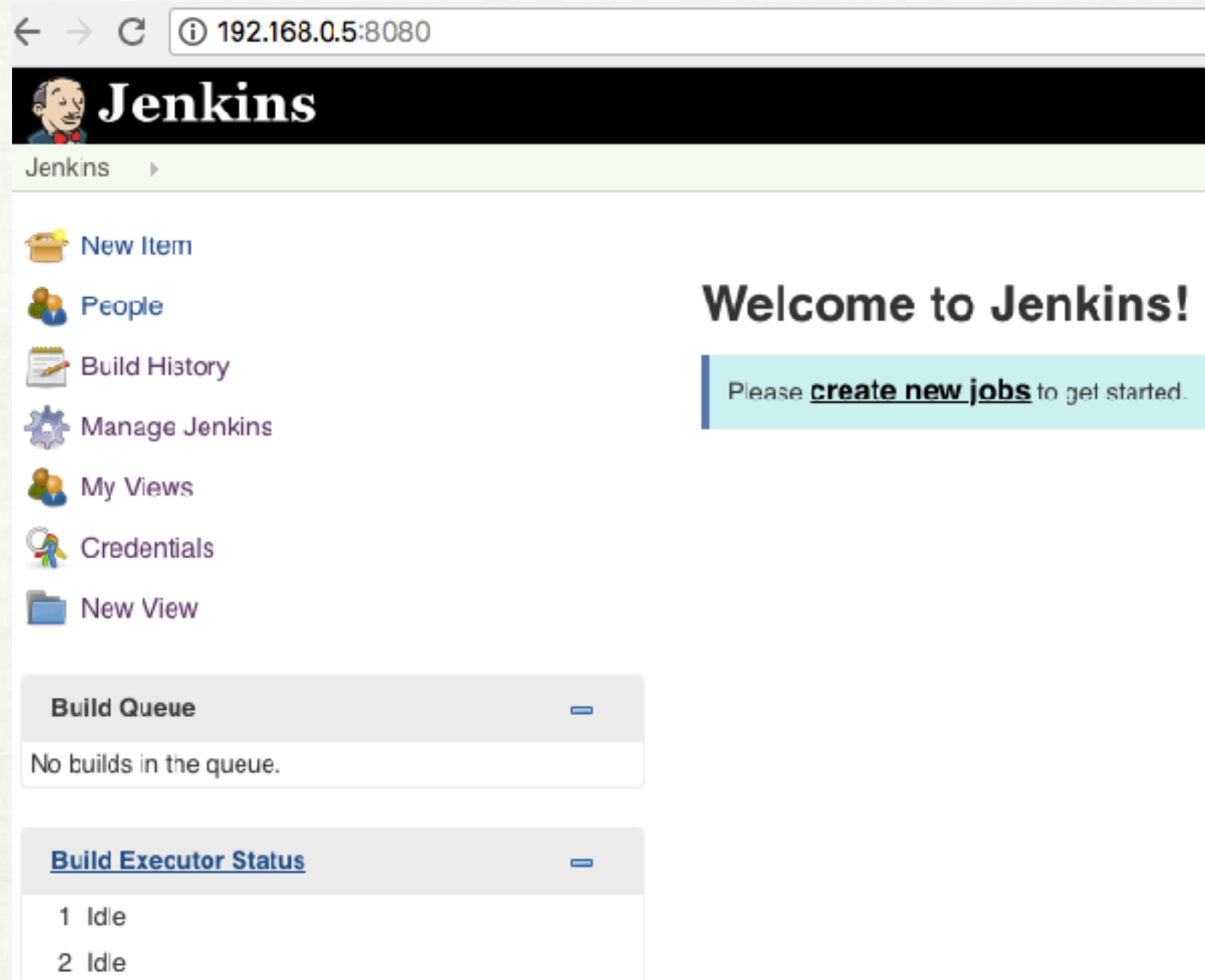
Select plugins to install

Select and install plugins most suitable for your needs.

JENKINS


JENKINS HOME PAGE

Jenkins










The screenshot shows the Jenkins web interface in a browser. The address bar displays '192.168.0.5:8080'. The Jenkins logo and name are at the top. A left sidebar contains links: 'New Item', 'People', 'Build History', 'Manage Jenkins', 'My Views', 'Credentials', and 'New View'. The main area features a 'Welcome to Jenkins!' message with a prompt to 'create new jobs'. Below this, there are two expandable sections: 'Build Queue' (showing 'No builds in the queue.') and 'Build Executor Status' (showing two idle executors).

← → ↻ ⓘ 192.168.0.5:8080


 **Jenkins**

Jenkins ▶


-  [New Item](#)
-  [People](#)
-  [Build History](#)
-  [Manage Jenkins](#)
-  [My Views](#)
-  [Credentials](#)
-  [New View](#)

Welcome to Jenkins!

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

Build Queue 

No builds in the queue.

Build Executor Status 

- 1 Idle
- 2 Idle

Jenkins Home Page

SECTION-1

WHAT WE HAVE DONE SO FAR

- Tomcat, Artifactory, Jenkins are completed and now Maven

1. Setup Artifactory:
 - a. Startup Artifactory
 - b. Setup Admin account.
 - c. Port: 8081
2. Setup Tomcat:
 - a. Startup tomcat.
 - b. Update tomcat-users.xml.
 - c. Port: 8080
3. Setup Jenkins:
 - a. Setup Jenkins.
 - b. Port: 8090
4. Setup Maven:
 - a. Startup maven home.
 - b. Generate maven security.xml and settings-security.xml.

Now, we have to execute step-4

MAVEN SECURITY SETUP

REPOSITORY DETAILS

- We can see 5 different repositories

The screenshot shows the JFrog Artifactory web application interface. The browser address bar indicates the URL is `192.168.0.5:8081/artifactory/webapp/#/home`. The page features a green header with the JFrog Artifactory logo and a search bar. A dark sidebar on the left contains navigation links: Home, Artifacts, Packages (highlighted with a blue star), Search, Builds, and Admin. The main content area displays the message "Artifactory is happily serving 0 artifacts" and "Artifactory Version 5.10.1 (Uptime is 0d 1h 25m 11s)". Below this, there is a "Quick Search" bar and a grid of links including User Guide, Webinar Signup, Support Portal, Stackoverflow, Blog, and Rest API. A "Set Me Up" section lists five repositories: `m libs-release`, `m libs-snapshot`, `m libs-release-local`, `m libs-snapshot-local`, and `m jcenter`. On the right, two panels show "Last Deployed Builds" and "Most Downloaded Artifacts", both indicating no data is currently displayed.

Not Secure | 192.168.0.5:8081/artifactory/webapp/#/home

JFrog Artifactory

Welcome, admin

Home Artifacts Packages Search Builds Admin

Artifactory is happily serving 0 artifacts

Artifactory Version 5.10.1 (Uptime is 0d 1h 25m 11s)
Latest Release: 5.10.1

Quick Search

User Guide Webinar Signup Support Portal

Stackoverflow Blog Rest API

Set Me Up

Filter by Repository Key

- `m libs-release`
- `m libs-snapshot`
- `m libs-release-local`
- `m libs-snapshot-local`
- `m jcenter`

Last Deployed Builds (11/04/18 20:16:02)

No builds to display.
[Learn how to](#) integrate your build into Artifactory.

Most Downloaded Artifacts (11/01/18 20:16:02)

No artifacts to display.
[Learn how to](#) deploy your artifacts to Artifactory.

Maven Repositories

GENERATE MAVEN SETTINGS

CLICK ON LIBS-RELEASE-LOCAL

The screenshot shows the JFrog Artifactory web interface. The browser address bar indicates the URL `192.168.0.5:8081/artifactory/webapp/#/home`. The left sidebar contains navigation links: Home, Artifacts, Packages (highlighted with a blue star), Search, Builds, and Admin. The main content area displays a message: "Artifactory is happily serving 0 artifacts". Below this is a "Set Me Up" dialog box. In the dialog, the "Tool" is set to "Maven" and the "Repository" is set to "libs-release-local". A green button labeled "Generate Maven Settings" is visible. To the right of the dialog, there is a password input field with a label "Type password to insert your credentials to the code snippets" and a submit button with a right arrow. Below the dialog, there is a "General" section with a note: "Click on 'Generate Maven Settings' in order to resolve artifacts through Virtual or Remote repositories." and a "Deploy" section with a note: "To deploy build artifacts through Artifactory you need to add a deployment element with the URL of a target local repository to which you want to deploy your artifacts. For example:". At the bottom, there is a code snippet for a Maven `<distributionManagement>` configuration.

Not Secure | 192.168.0.5:8081/artifactory/webapp/#/home

JFrog Artifactory

Home

Artifacts

Packages

Search

Builds

Admin

Artifactory is happily serving 0 artifacts

Set Me Up

Tool

Maven

Generate Maven Settings

Repository

libs-release-local

Type password to insert your credentials to the code snippets

Type Password

General

Click on "Generate Maven Settings" in order to resolve artifacts through Virtual or Remote repositories.

Deploy

To deploy build artifacts through Artifactory you need to add a deployment element with the URL of a target local repository to which you want to deploy your artifacts. For example:



```
1 <distributionManagement>
2   <repository>
3     <id>central</id>
```


Generate Maven Settings


LIBS-RELEASE-LOCAL - GENERATE


CLICK ON GENERATE SETTINGS


← → ↻ ⓘ Not Secure | 192.168.0.5:8081/artifactory/webapp/#/home


 **JFrog Artifactory**  Welco


 Home

 Artifacts

 Packages ★

 Search

 Builds


 Admin

Artifactory is happily serving 0 artifacts

Set Me Up


×

Tool

 Maven ▼

[Back to Set Me Up](#)

Type password to Insert your credentials to the code snippets

Type Password 

Releases ⓘ

lib-release ▼

Snapshots ⓘ

lib-snapshot ▼

☐ Mirror Any ⓘ

lib-snapshot ▼

Plugin Releases ⓘ

lib-release ▼

Plugin Snapshots ⓘ

lib-snapshot ▼

Generate Settings

Click on Generate settings and you will see xml configuration file.

DOWNLOAD THE LIBS-RELEASE-LOCAL

CLICK ON DOWNLOAD SNIPPET

The screenshot shows the JFrog Artifactory web interface. The browser address bar indicates the URL `192.168.0.5:8081/artifactory/webapp/#/home`. The left sidebar contains navigation links: Home, Artifacts, Packages (highlighted with a blue star), Search, Builds, and Admin. The main content area displays the message "Artifactory is happily serving 0 artifacts". A "Set Me Up" dialog box is open, featuring two dropdown menus: "Plugin Releases" set to "libs-release" and "Plugin Snapshots" set to "libs-snapshot". Below these are two buttons: "Generate Settings" and "Download Snippet" (with a download icon). To the right of the "Download Snippet" button is a "Deploy Settings" button (with an upload icon). The "Download Snippet" button is active, showing a preview of the generated XML configuration snippet:

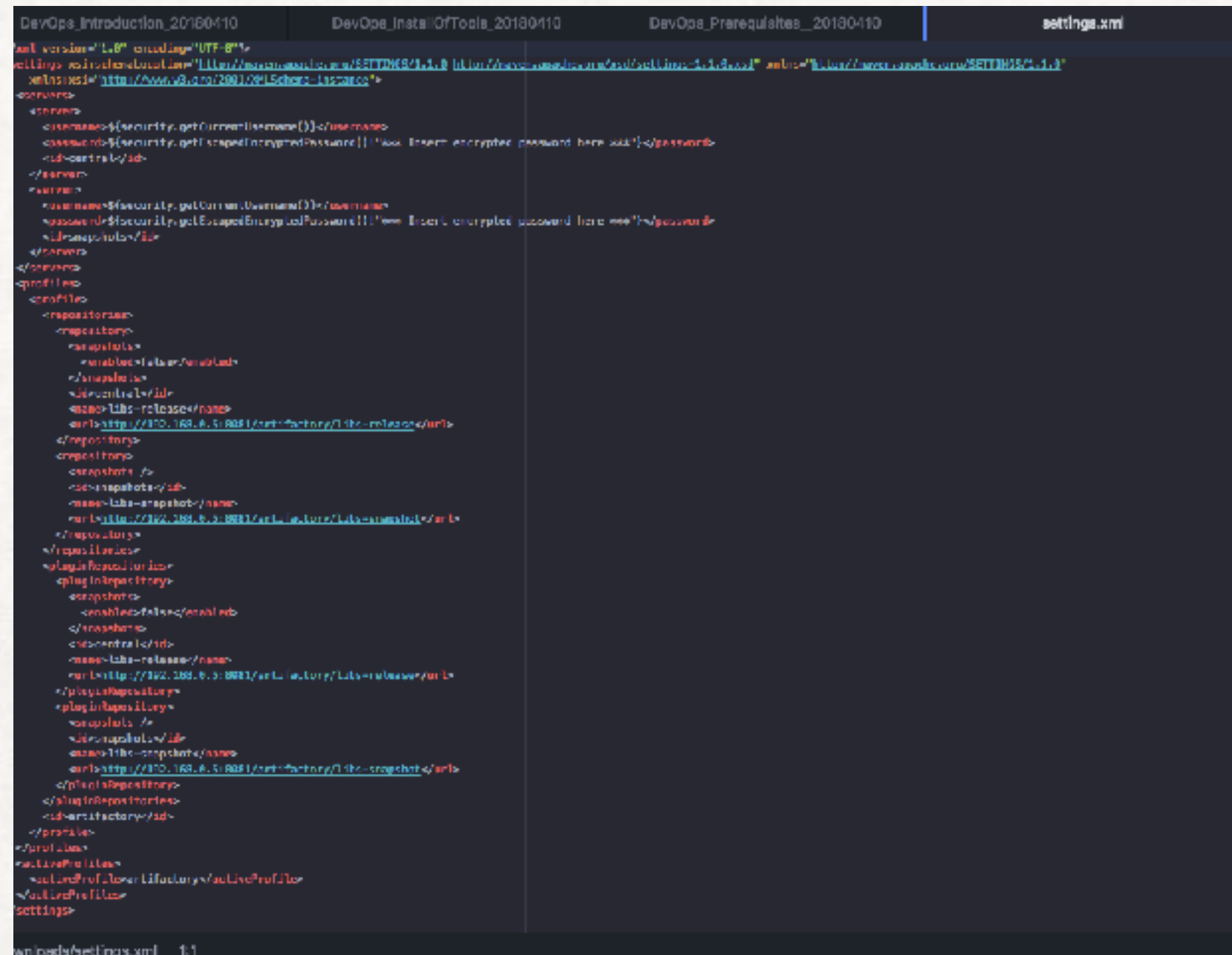
```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <settings xsi:schemaLocation="http://maven.apache.org/SETTINGS/1.1.0
  http://maven.apache.org/xsd/settings-1.1.0.xsd" xmlns="http://maven.apache.org/SETTINGS/1.1.0"
3   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
4   <servers>
5     <server>
6       <username>${security.getCurrentUsername()}</username>
7       <password>${security.getEscapedEncryptedPassword('!*** Insert encrypted password here ***')}
      </password>
```

Open the file with ATOM editor

SETTINGS.XML FILE

EDIT THE SETTINGS.XML FILE

- Open with ATOM editor



```
<?xml version="1.0" encoding="UTF-8"?>
<settings xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.jenkins.org/SETTINGS/1.0" >
  <servers>
    <server>
      <username>${security.getCurrentUsername()}</username>
      <password>${security.getEscapedEncryptedPassword[""]} <!-- Insert encrypted password here --></password>
      <id>central/</id>
    </server>
    <server>
      <username>${security.getCurrentUsername()}</username>
      <password>${security.getEscapedEncryptedPassword[""]} <!-- Insert encrypted password here --></password>
      <id>central/</id>
    </server>
  </servers>
  <profiles>
    <profile>
      <repositories>
        <repository>
          <name>central</name>
          <url>http://192.168.0.1:8081/artifactory/lib-release/</url>
        </repository>
        <repository>
          <name>central</name>
          <url>http://192.168.0.1:8081/artifactory/lib-release/</url>
        </repository>
      </repositories>
      <plugins>
        <plugin>
          <name>central</name>
          <url>http://192.168.0.1:8081/artifactory/lib-release/</url>
        </plugin>
      </plugins>
    </profile>
  </profiles>
  <activeProfile>
    <name>central</name>
  </activeProfile>
</settings>
```

server.xml file

CREATE A FOLDER I.E. .M2

COPY SETTINGS.XML & SETTINGS-SECURITY.XML FILES IN .M2

```
[sh-3.2# mkdir .m2
[sh-3.2# pwd
/
[sh-3.2# ls -lda .m2/
drwxr-xr-x  2 root  wheel   68 Apr 11 22:11 .m2/
[sh-3.2#
[sh-3.2# ls -lrta .m2/
total 0
drwxr-xr-x  34 root  wheel  1224 Apr 11 22:11 ..
drwxr-xr-x   2 root  wheel    68 Apr 11 22:11 .
sh-3.2#
```

```
[sh-3.2# pwd
/.m2
[sh-3.2# ls -lrta
total 16
-rw-r--r--@  1 keshavkummari  staff  1956 Apr 11 20:27 settings.xml
-rw-r--r--@  1 keshavkummari  staff   128 Apr 11 21:50 settings-security.xml
drwxr-xr-x  34 root           wheel  1224 Apr 11 22:11 ..
drwxr-xr-x   4 root           wheel   136 Apr 11 22:14 .
sh-3.2#
```

Now, we can see both files under .m2 directory

GITHUB

```
$ pwd
/devtools
$ ls -lrt
total 492624
drwxr-xr-x@ 3 root      wheel      102 Feb 16 20:34 Sourcetree.app
-rw-r--r--@ 1 keshavkummari staff    9541892 Apr 10 23:12 apache-tomcat-8.5.30.tar.gz
drwxr-xr-x 13 root      wheel      442 Apr 10 23:19 tomcat8
-rw-r--r--@ 1 keshavkummari staff   96686768 Apr 10 23:43 jfrog-artifactory-oss-5.10.1.zip
-rw-r--r--@ 1 keshavkummari staff    8799579 Apr 11 09:38 apache-maven-3.5.3-bin.tar.gz
drwxr-xr-x  9 root      wheel      306 Apr 11 09:39 maven
-rw-r--r--@ 1 keshavkummari staff   74468938 Apr 11 09:57 jenkins-2.115.pkg
-rw-r--r--@ 1 keshavkummari staff   62711230 Apr 11 21:53 Sourcetree_2.7.1d.zip
-rw-r--r--  1 root      wheel      683 Apr 13 08:58 mvn-password
drwxr-xr-x@ 17 root      wheel      578 Apr 15 14:40 artifactory-oss-5.10.1
$
$ mkdir github
$
$ cd github/
$
$ ls -lrt
$
$ mkdir devops
$
$ ls -lrt
total 0
drwxr-xr-x  2 root  wheel   68 Apr 23 22:06 devops
$
$ echo "# devops" >> README.md
$ ls -lrt
total 8
drwxr-xr-x  2 root  wheel   68 Apr 23 22:06 devops
-rw-r--r--  1 root  wheel    9 Apr 23 22:06 README.md
$
```

Git Repo

CLONE

Initial commit

Untracked files:

README.md

nothing added to commit but untracked files present

```
$ git remote add origin https://github.com/devopskeshav/devops.git
```

```
$ git push -u origin master
```

error: src refspec master does not match any.

error: failed to push some refs to 'https://github.com/devopskeshav/devops.git'

```
$
```

```
$ git remote add origin git@github.com:devopskeshav/devops.git
```

fatal: remote origin already exists.

```
$
```

```
$ git push -u origin master
```

error: src refspec master does not match any.

error: failed to push some refs to 'https://github.com/devopskeshav/devops.git'

```
$
```

```
$ git config --global user.name "devops.keshav"
```

```
$
```

```
$ git config --global user.email "devops.keshav@gmail.com"
```

```
$
```

Check now

INTRODUCTION