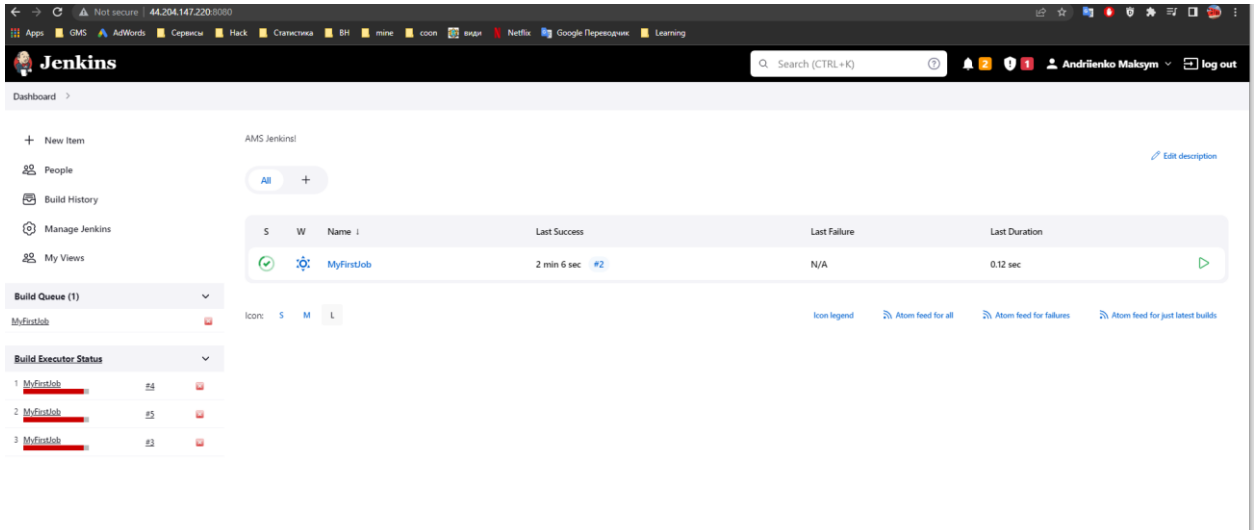
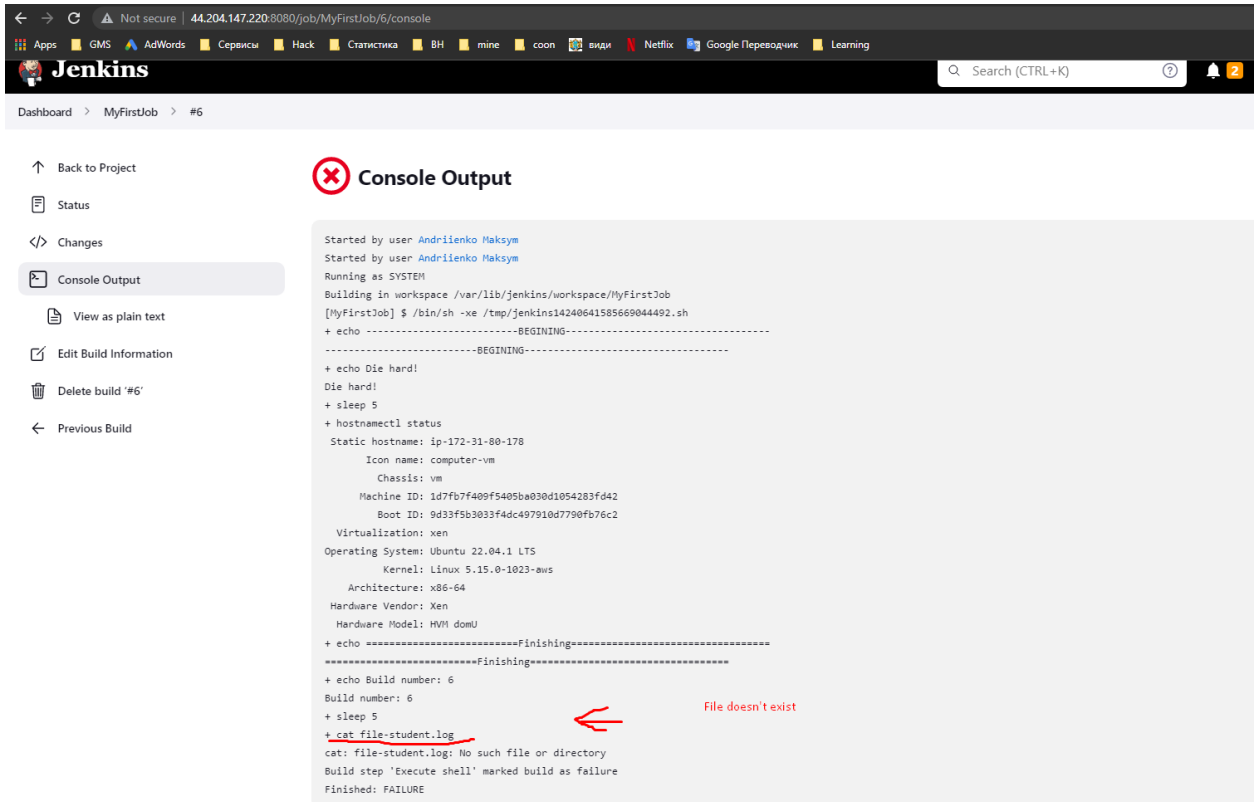


1) Created new job, add sleep timer and run it parallel at 3 agents:



The screenshot shows the Jenkins Dashboard. On the left, there's a sidebar with navigation links: New Item, People, Build History, Manage Jenkins, and My Views. The main area displays the 'AMS Jenkins!' job. A table shows the job's status: 'S' (Success), 'W' (Warning), 'Name' (MyFirstJob), 'Last Success' (2 min 6 sec), 'Last Failure' (N/A), and 'Last Duration' (0.12 sec). Below the table, there's a 'Build Queue (1)' section showing 'MyFirstJob' and a 'Build Executor Status' section showing three agents (1, 2, 3) all running 'MyFirstJob'.

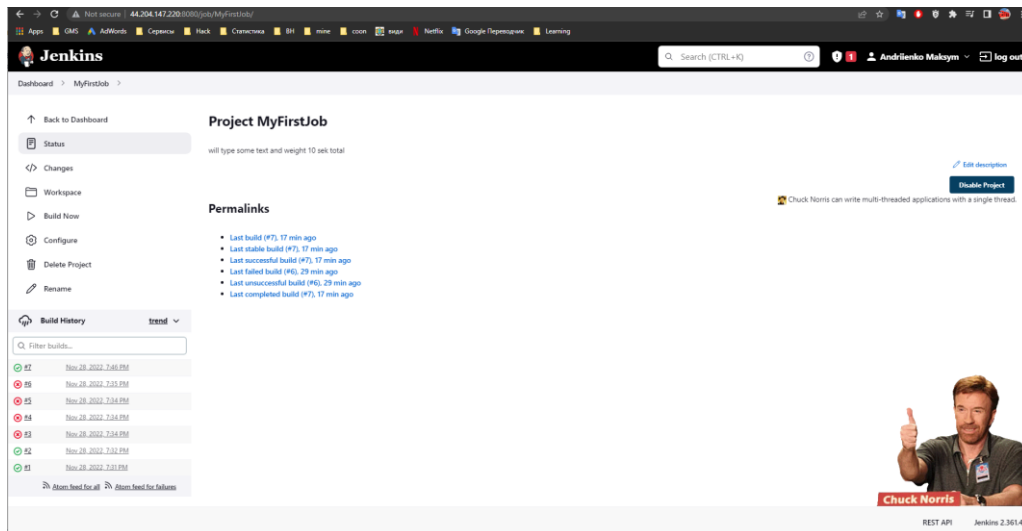


The screenshot shows the Jenkins Console Output for the 'MyFirstJob' build #6. The output text is as follows:

```
Started by user Andriienko Maksym
Started by user Andriienko Maksym
Running as SYSTEM
Building in workspace /var/lib/jenkins/workspace/MyFirstJob
[MyFirstJob] $ /bin/sh -xe /tmp/jenkins14240641585669044492.sh
+ echo -----BEGINNING-----
+ echo Die hard!
+ sleep 5
+ hostnamectl status
Static hostname: ip-172-31-80-178
Icon name: computer-vm
Chassis: vm
Machine ID: 1d7fb7f409f5405ba030d1054283fd42
Boot ID: 9d33f5b3033f4dc497910d7790fb76c2
Virtualization: xen
Operating System: Ubuntu 22.04.1 LTS
Kernel: Linux 5.15.0-1023-aws
Architecture: x86_64
Hardware Vendor: Xen
Hardware Model: HVM domU
+ echo =====Finishing=====
+ echo Build number: 6
Build number: 6
+ sleep 5
+ cat file-student.log
cat: file-student.log: No such file or directory
Build step 'Execute shell' marked build as failure
Finished: FAILURE
```

A red arrow points to the line `+ cat file-student.log` with the text "File doesn't exist" next to it.

2) Changing UI by installing new plugins – added Chuck Norris plugin:



3) Changing saving builds quantity according to instructions:

Before changing:

```
ubuntu@ip-172-31-80-178:/var/lib/jenkins/jobs/MyFirstJob/builds$ ls
1 10 11 2 3 4 5 6 7 8 9 legacyIds permalinks
```

After changes:

```
ubuntu@ip-172-31-80-178:/var/lib/jenkins/jobs/MyFirstJob/builds$ ls
10 11 12 9 legacyIds permalinks
```

4) Simple job example in Jenkins with deploy

Execute shell ?

Command

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

```
echo "-----Build started-----"
sleep 5
cd /var/www/html
sudo cat <<EOF > index.html
<html>
<body bgcolor=black>
<center><h2><font color = "white">Hello world!</font></h2></center>
</body>
</html>
echo "-----Build ended-----"
```

Advanced...

Execute shell ?

Command

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

```
echo "=====Test started===== "
sleep 5
result=`grep "Hello" index.html | wc -l`
echo $result
if [ "$result" = "1" ]
then
echo "Test Passed"
else
echo "Test Failed"
exit 1
fi
echo "=====Test ended===== "
```

Execute shell ?

Command

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

```
echo "-----Deployment started-----"
ls -la
ip address
hostname
echo "-----Deployment ended-----"
```

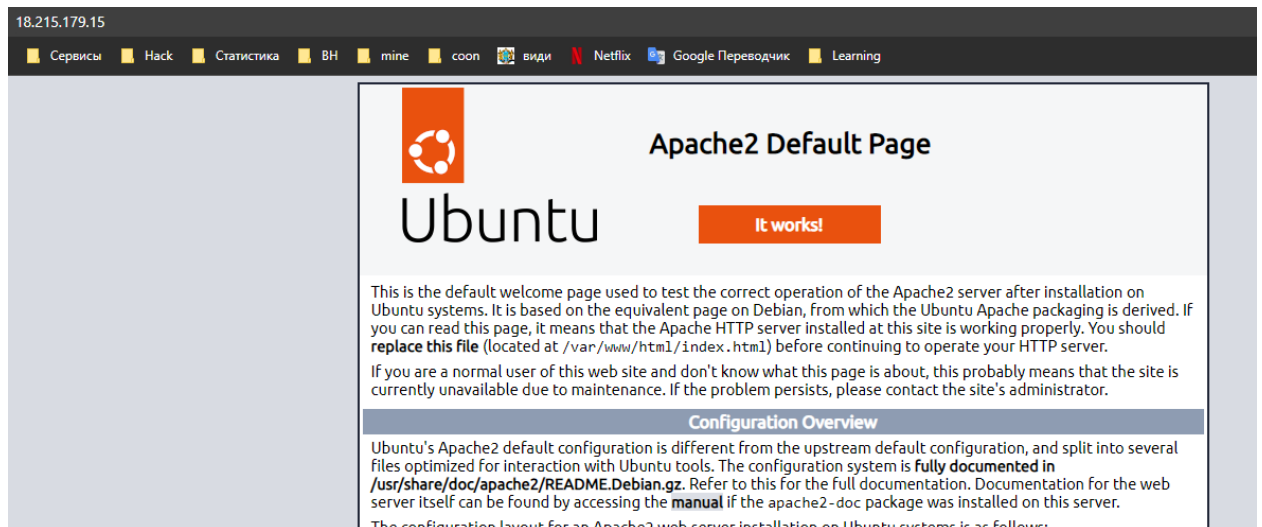
Advanced...

Add build step ▾

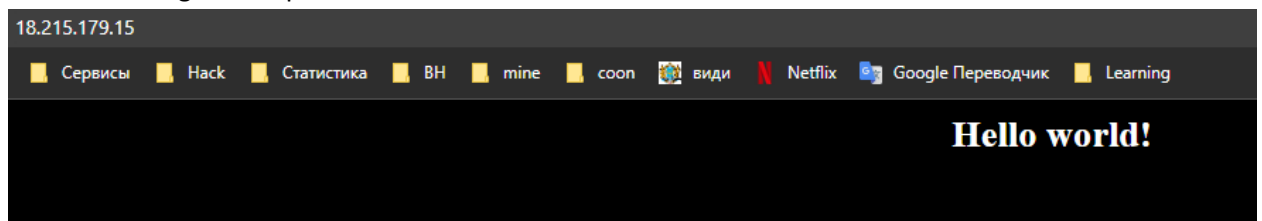
Post-build Actions

Activate Chuck Norris

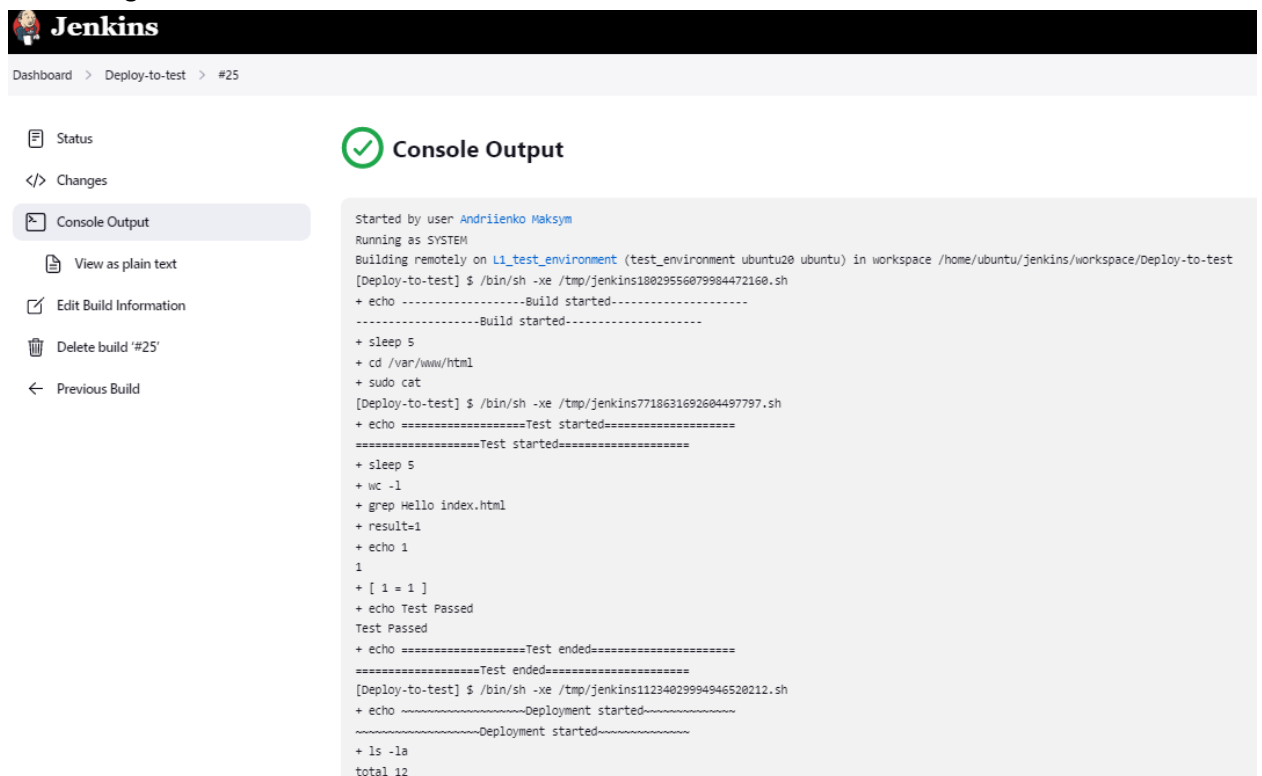
Before executing the script:



After executing the script:



Jenkins log:



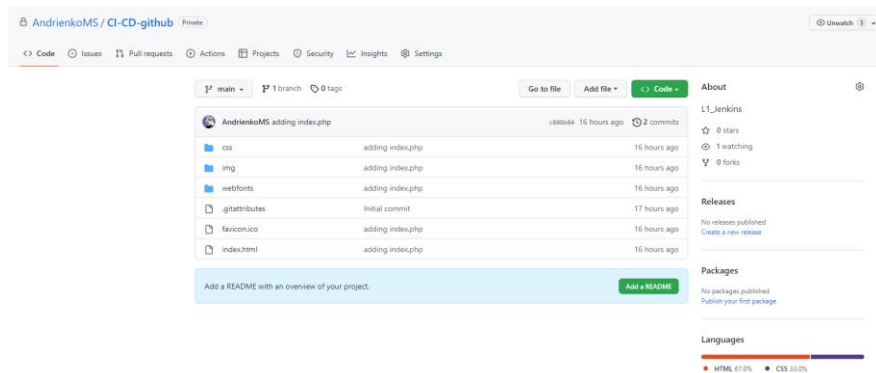
```

drwxrwxr-x 2 ubuntu ubuntu 4096 Nov 30 17:14 .
drwxrwxr-x 5 ubuntu ubuntu 4096 Nov 30 17:14 ..
-rw-rw-r-- 1 ubuntu ubuntu 141 Nov 30 17:33 index.html
+ ip address
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 9001 qdisc fq_codel state UP group default qlen 1000
    link/ether 0a:4e:82:a2:76:5f brd ff:ff:ff:ff:ff:ff
    inet 172.31.22.191/20 metric 100 brd 172.31.31.255 scope global dynamic eth0
        valid_lft 2822sec preferred_lft 2822sec
    inet6 fe80::84e:82ff:fea2:765f/64 scope link
        valid_lft forever preferred_lft forever
+ hostname
ip-172-31-22-191
+ echo ~~~~~Deployment ended~~~~~
~~~~~Deployment ended~~~~~
Finished: SUCCESS

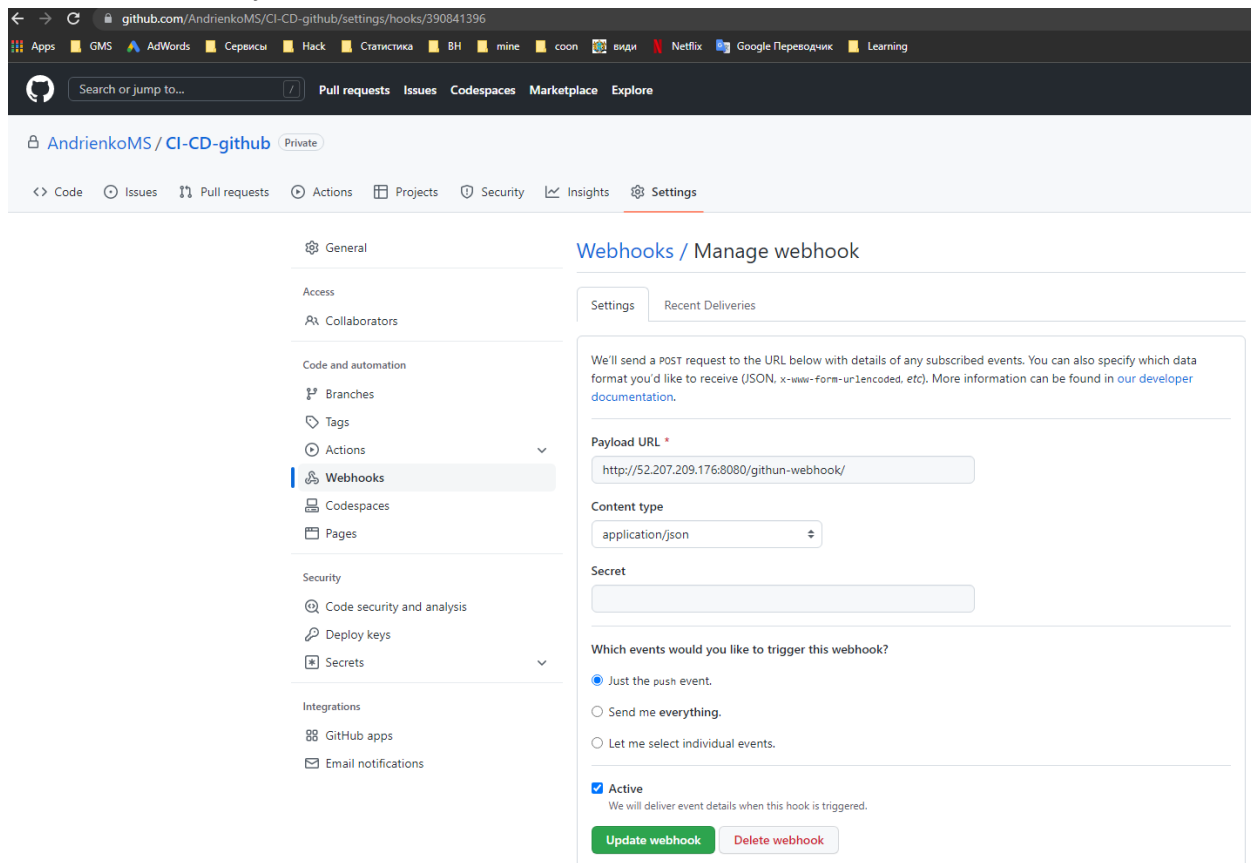
```

5) Launching from github:

Created repository and filled it with static html page:



Added webhooks to jenkins:



Installed git plugin to Jenkins, adding ssh connection to git as credentials, adjusting Jenkins job:

← → ↻ ⚠ Not secure | 52.207.209.176:8080/job/Deploy-from-git-to-test/configure

Apps | GMS | AdWords | Сервисы | Hack | Статистика | ВН | mine | coon | види | Netflix | Go

Dashboard > Deploy-from-git-to-test > Configuration

Configure

- General
- Source Code Management**
- Build Triggers
- Build Environment
- Build Steps
- Post-build Actions

Source Code Management

☐ None

☒ **Git** ?

Repositories ?

Repository URL ?

git@github.com:AndrienkoMS/CI-CD-github.git

Credentials ?

andrienkoms (Jenkins-to-github-key)

The job started from github commit:

← → ↻ ⚠ Not secure | 52.207.209.176:8080/job/Deploy-from-git-to-test/11/console

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Jenkins

Dashboard > Deploy-from-git-to-test > #11

- Status
- Changes
- Console Output**
- View as plain text
- Edit Build Information
- Delete build '#11'

Console Output

```
Started by GitHub push by AndrienkoMS
Running as SYSTEM
Building remotely on l1_test_environment (test_environment ubuntu20 ubu
The recommended git tool is: NONE
using credential SSH-key-jenkins
> git rev-parse --resolve-git-dir /home/ubuntu/jenkins/workspace/Deplo
Fetching changes from the remote Git repository
> git config remote.origin.url git@github.com:AndrienkoMS/CI-CD-github
```

github.com/AndrienkoMS/CI-CD-github/settings/hooks

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Webhooks

Webhooks allow external services to be notified when certain events happen. When the specified events happen, we'll send a POST request to each of the URLs you provide. Learn more in our [Webhooks Guide](#).

✓ http://52.207.209.176:8080/github-... (push)

Files are delivered to server:

```
ubuntu@ip-172-31-22-191:~/jenkins/workspace/Deploy-from-git-to-test$ ls
css  favicon.ico  img  index.html  test.txt  webfonts
```

```
GNU nano 4.8 svzax-custom.conf
<VirtualHost *:80>
    <Directory /home/svzax/public_html/>
        Options Indexes FollowSymLinks
        AllowOverride None
        Require all granted
    </Directory>
    DocumentRoot /home/svzax/public_html/
</VirtualHost>
```

cd /etc/apache2/sites-available

sudo a2dissite *

sudo a2ensite custom.conf

sudo service apache2 restart

=====

sudo vim /etc/apache2/apache2.conf

<Directory /home/ubuntu/jenkins/workspace/Deploy-from-git-to-test/>

Options Indexes FollowSymLinks

AllowOverride None

Require all granted

</Directory>

```
aws Services Search [Alt+S]
EC2
<VirtualHost *:80>
    # The ServerName directive sets the request scheme, hostname and port that
    # the server uses to identify itself. This is used when creating
    # redirection URLs. In the context of virtual hosts, the ServerName
    # specifies what hostname must appear in the request's Host: header to
    # match this virtual host. For the default virtual host (this file) this
    # value is not decisive as it is used as a last resort host regardless.
    # However, you must set it for any further virtual host explicitly.
    #ServerName www.example.com

    ServerAdmin webmaster@localhost
    #DocumentRoot /var/www/html
    DocumentRoot /home/ubuntu/jenkins/workspace/Deploy-from-git-to-test

    # Available loglevels: trace8, ..., trace1, debug, info, notice, warn,
    # error, crit, alert, emerg.
    # It is also possible to configure the loglevel for particular
    # modules, e.g.
    #LogLevel info ssl:warn

    ErrorLog ${APACHE_LOG_DIR}/error.log
    CustomLog ${APACHE_LOG_DIR}/access.log combined

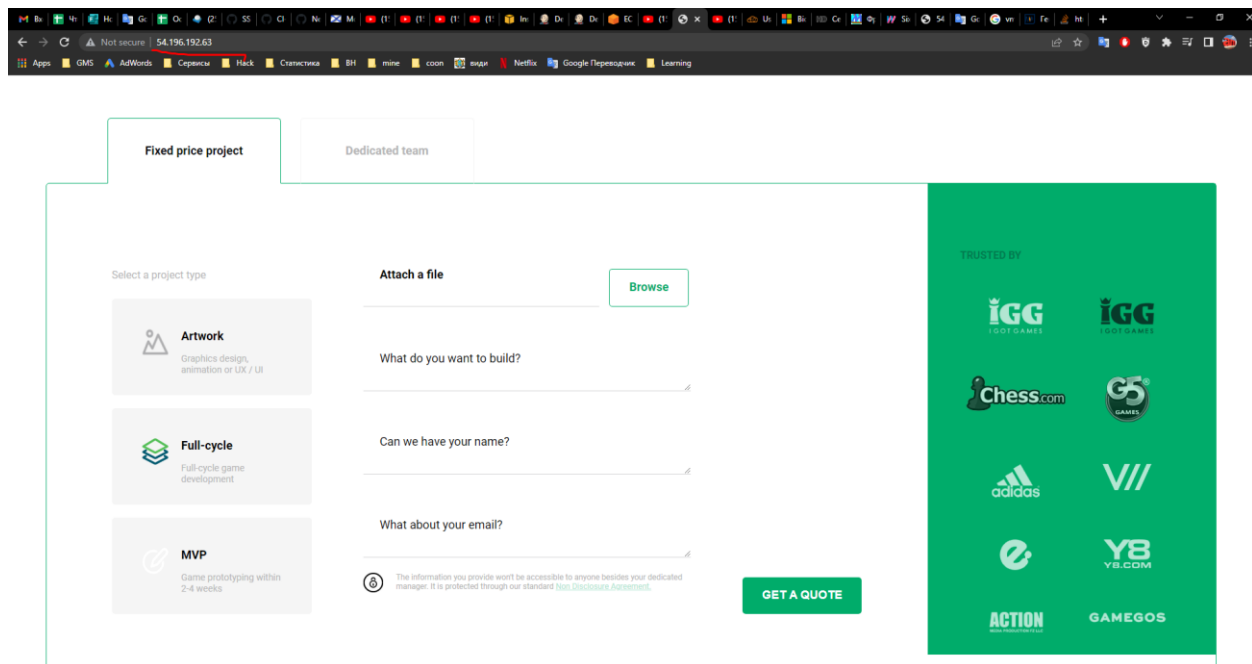
    # For most configuration files from conf-available/, which are
    # enabled or disabled at a global level, it is possible to
    # include a line for only one particular virtual host. For example the
    # following line enables the CGI configuration for this host only
    # after it has been globally disabled with "a2disconf".
    #include conf-available/serve-cgi-bin.conf
</VirtualHost>

vim: syntax=apache ts=4 sw=4 sts=4 sr noet

-- INSERT -- W10: Warning: Changing a readonly file

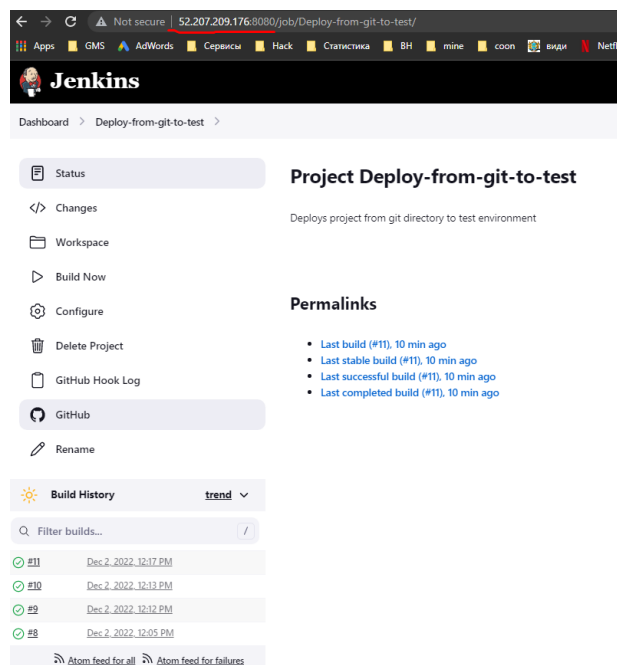
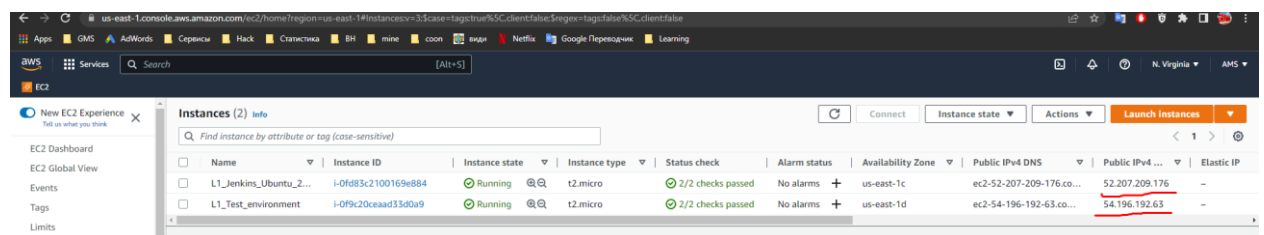
i-Of9c20cead33d0a9 (L1_Test_environment)
```

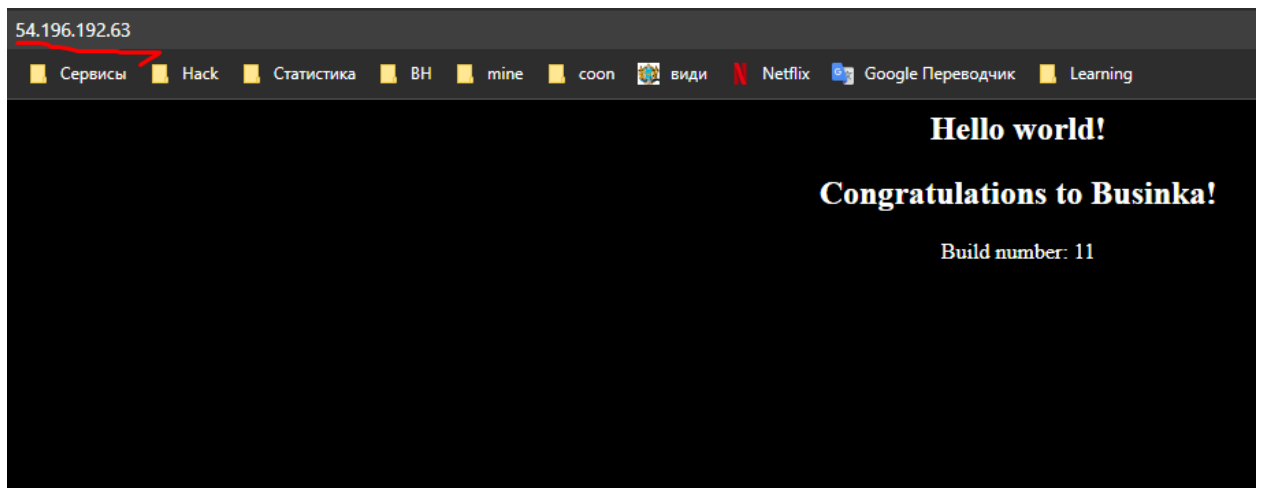
sudo chmod 777 /home/ubuntu/jenkins/workspace/Deploy-from-git-to-test -R



6) Simple CI/CD pipeline example using AWS

All screens was made in AWS instances:





7) Jenkins CLI client

From host, ubuntu:

```
wget localhost:8080/jnlpJars/jenkins-cli.jar
```

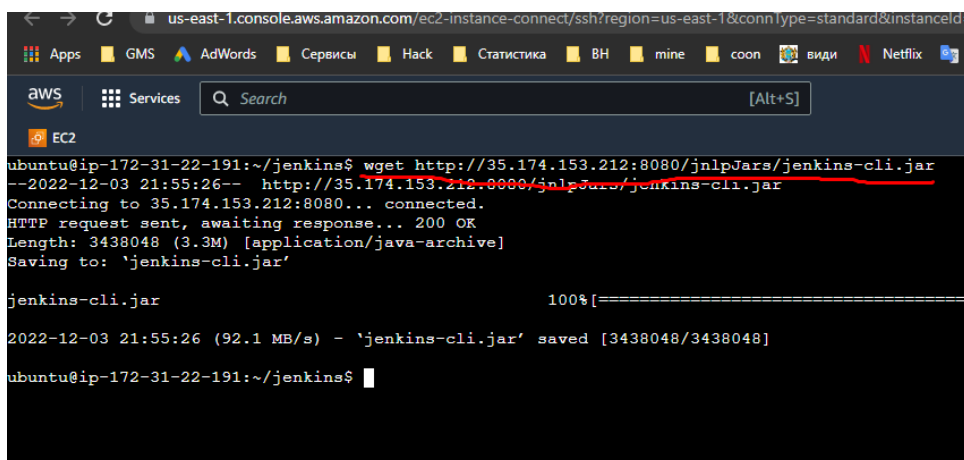
```
sudo java -jar jenkins-cli.jar -auth ams:11d330eccc7b55ef974d6c339a6b2f59ef -s
```

```
http://localhost:8080 who-am-i
```

```
ubuntu@ip-172-31-80-178:~$ sudo java -jar jenkins-cli.jar -auth ams:11d330eccc7b55ef974d6c339a6b2f59ef -s http://localhost:8080 who-am-i
Authenticated as: ams
Authorities:
authenticated
```

8) From remote linux:

```
wget http://35.174.153.212:8080/jnlpJars/jenkins-cli.jar
```



```
java -jar jenkins-cli.jar -auth ams:11d330eccc7b55ef974d6c339a6b2f59ef -s http://
35.174.153.212:8080 who-am-i
```

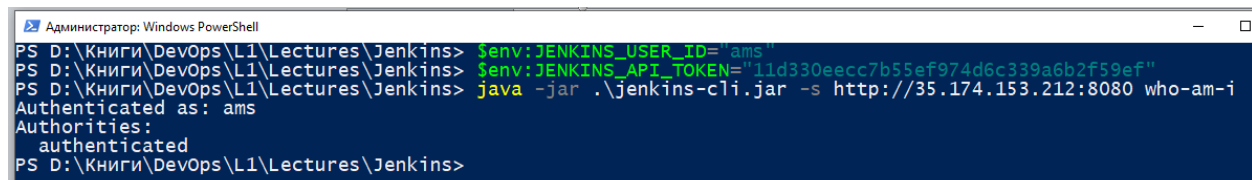
```
ubuntu@ip-172-31-22-191:~/jenkins$ java -jar jenkins-cli.jar -auth ams:11d330eccc7b55ef974d6c339a6b2f59ef -s http://35.174.153.212:8080 who-am-i
Authenticated as: ams
Authorities:
authenticated
ubuntu@ip-172-31-22-191:~/jenkins$
```

9) From windows (powershell):

```
$env:JENKINS_USER_ID="ams"
```

```
$env:JENKINS_API_TOKEN="11d330eccc7b55ef974d6c339a6b2f59ef"
```

```
java -jar .\jenkins-cli.jar -s http://35.174.153.212:8080 who-am-i
```



10) Pipeline

← → ↺

Not secure | 35.174.153.212:8080/job/Pipeline_job/

🔍 🔗 ☆

📧 🔴 🛡️ ⚙️ ☰ 🖼️

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Jenkins

🔍 Search (CTRL+K) ?

👤 Andriienko Maksym ↕ log out

Dashboard > Pipeline_job >

📄 Status

</> Changes

▶ Build Now

⚙️ Configure

🗑️ Delete Pipeline

🔍 Full Stage View

✎ Rename

❓ Pipeline Syntax

🔆 Build History trend ▾

🔍 Filter builds... /

✅ #1

| Dec 3, 2022, 11:01 PM

📡 Atom feed for all 📡 Atom feed for failures

Pipeline Pipeline_job

My first pipeline in Jenkins

Edit description

Disable Project

Stage View

	Build	Test	Deploy
Average stage times: (Average full run time: ~5s)	290ms	139ms	127ms
#1 Dec 03 23:01 No Changes	290ms	139ms	127ms

Permalinks

✓ Console Output

```
Started by user Andriienko Maksym
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /var/lib/jenkins/workspace/Pipeline_job
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Build)
[Pipeline] echo
Building
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Test)
[Pipeline] echo
Testing
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Deploy)
[Pipeline] echo
Deploying
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

11) Maven

← → ↻ ⚠ Not secure | 35.174.153.212:8080/job/Maven-job/configure

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Dashboard > Maven-job > Configuration

Configure

- General
- Source Code Management
- Build Triggers
- Build Environment**
- Pre Steps**
- Build
- Post Steps
- Build Settings
- Post-build Actions

Pre Steps

Add pre-build step ▾

Build

Root POM ?

pom.xml

Goals and options ?

clean compile test

Advanced...

← → ↻ ⚠ Not secure | 35.174.153.212:8080/job/Maven-job/1/console

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Jenkins 🔍 Search (CTRL+K)

Dashboard > Maven-job > #1

- Status
- Changes
- Console Output**
- View as plain text
- Edit Build Information
- Delete build '#1'
- Git Build Data

Console Output

```
Started by user Andriienko Maksym
Running as SYSTEM
Building on the built-in node in workspace /var/lib/jenkins/workspace/Maven-job
Unpacking https://repo.maven.apache.org/maven2/org/apache/maven/apache-maven/3.8.6/apache-maven-3.8.6-bin.zip to /var/lib/jenkins/tools/hudson.tasks.Maven.MavenInstallation/Maven3 on Jenkins
The recommended git tool is: NONE
No credentials specified
Cloning the remote Git repository
Cloning repository https://github.com/anujdevopslearn/MavenBuild
> git init /var/lib/jenkins/workspace/Maven-job # timeout=10
Fetching https://github.com/anujdevopslearn/MavenBuild
[INFO] Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-junit4/2.12.4/surefire-junit4-2.12.4.jar
[INFO] Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/surefire/surefire-junit4/2.12.4/surefire-junit4-2.12.4.jar (37 kB at 4.6 MB/s)
.....
T E S T S
.....
Running com.geekcap.vmturbo.ThingTest
Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.213 sec

Results :

Tests run: 1, Failures: 0, Errors: 0, Skipped: 0

[JENKINS] Recording test results
[INFO] .....
[INFO] BUILD SUCCESS
[INFO] .....
[INFO] Total time: 12.298 s
[INFO] Finished at: 2022-12-04T15:31:39Z
[INFO] .....
Waiting for Jenkins to finish collecting data
[JENKINS] Archiving /var/lib/jenkins/workspace/Maven-job/pom.xml to com.java.example/java-example/1.0-SNAPSHOT/java-example-1.0-SNAPSHOT.pom
channel stopped
Finished: SUCCESS
```

```
Last login: Sat Dec  3 21:25:16 2022 from 18.206.107.27
ubuntu@ip-172-31-80-178:~$ cd /var/lib/jenkins/workspace/Maven-job
ubuntu@ip-172-31-80-178:/var/lib/jenkins/workspace/Maven-job$ ls -la
total 44
drwxr-xr-x  5 jenkins jenkins 4096 Dec  4 15:31 .
drwxr-xr-x 12 jenkins jenkins 4096 Dec  4 15:31 ..
drwxr-xr-x  8 jenkins jenkins 4096 Dec  4 15:31 .git
-rw-r--r--  1 jenkins jenkins  117 Dec  4 15:31 Dockerfile
-rw-r--r--  1 jenkins jenkins   800 Dec  4 15:31 Jenkinsfile
-rw-r--r--  1 jenkins jenkins   370 Dec  4 15:31 README.md
-rw-r--r--  1 jenkins jenkins   266 Dec  4 15:31 deploy.yml
-rw-r--r--  1 jenkins jenkins  2222 Dec  4 15:31 pom.xml
-rw-r--r--  1 jenkins jenkins   263 Dec  4 15:31 sonar-project.properties
drwxr-xr-x  4 jenkins jenkins 4096 Dec  4 15:31 src
drwxr-xr-x  5 jenkins jenkins 4096 Dec  4 15:31 target
ubuntu@ip-172-31-80-178:/var/lib/jenkins/workspace/Maven-job$
```