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


Console Output

```
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 -----------------------BEGINING-----------------------------------
-------------------------BEGINING-----------------------------------
+ echo Die hard!
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==================================
==============================Finishing==================================
+ echo Build number: 6
Build number: 6
+ sleep 5
+ cat file-student.log                    File doesn't exist
cat: file-student.log: No such file or directory
Build step 'Execute shell' marked build as failure
Finished: FAILURE
```

2) Changing UI by installing new plugins – added Chuck Norris plugin:
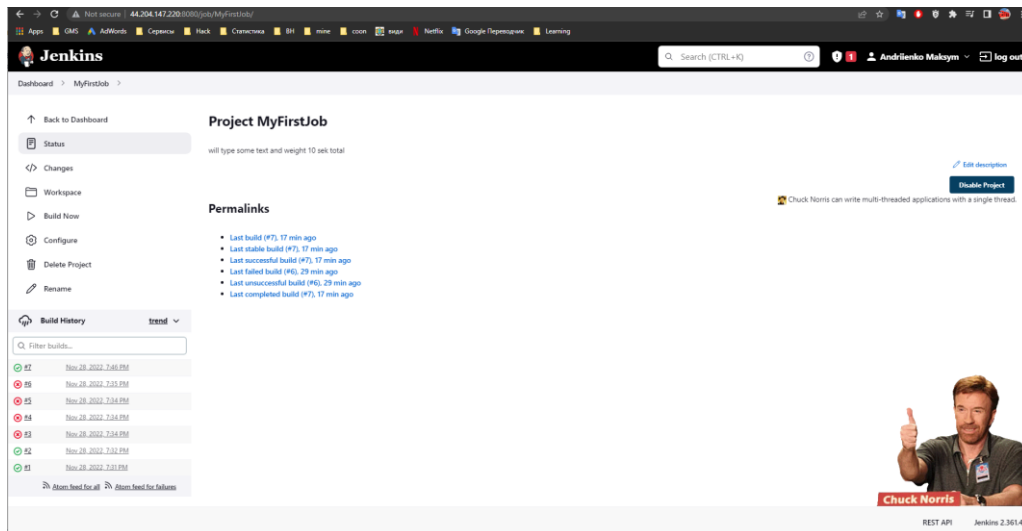
3) Changing saving builds quantity according to instructions:

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~~~~~~~~~~~~~~~"
```
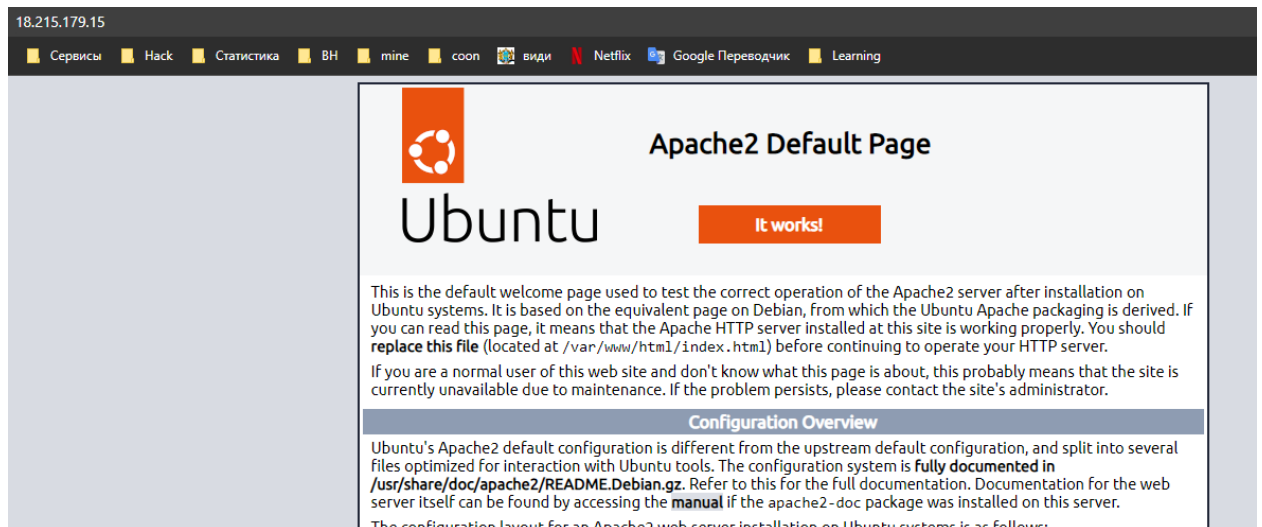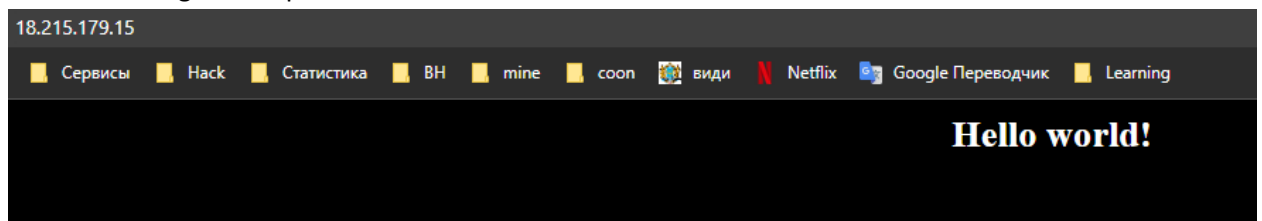
Advanced...

Add build step ▼

Post-build Actions

≡ Activate Chuck Norris

Before executing the script:

After executing the script:

Jenkins log:


```
Started by user Andriienko Maksym
Running as SYSTEM
Building remotely on L1_test_environment (test_environment ubuntu20 ubuntu) in workspace /home/ubuntu/jenkins/workspace/Deploy-to-test
[Deploy-to-test] $ /bin/sh -xe /tmp/jenkins18029556079984472160.sh
+ echo -------------------Build started--------------------
-------------------Build started--------------------
+ sleep 5
+ cd /var/www/html
+ sudo cat
[Deploy-to-test] $ /bin/sh -xe /tmp/jenkins7718631692604497797.sh
+ echo ====================Test started====================
====================Test started====================
+ sleep 5
+ wc -l
+ grep Hello index.html
+ result=1
+ echo 1
1
+ [ 1 = 1 ]
+ echo Test Passed
Test Passed
+ echo ====================Test ended====================
====================Test ended====================
[Deploy-to-test] $ /bin/sh -xe /tmp/jenkins11234029994946520212.sh
+ echo ~~~~~~~~~~~~~~~~~~~~Deployment started~~~~~~~~~~~~~~~~~~~~
~~~~~~~~~~~~~~~~~~~~Deployment started~~~~~~~~~~~~~~~~~~~~
+ ls -la
total 12
```

```
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
```
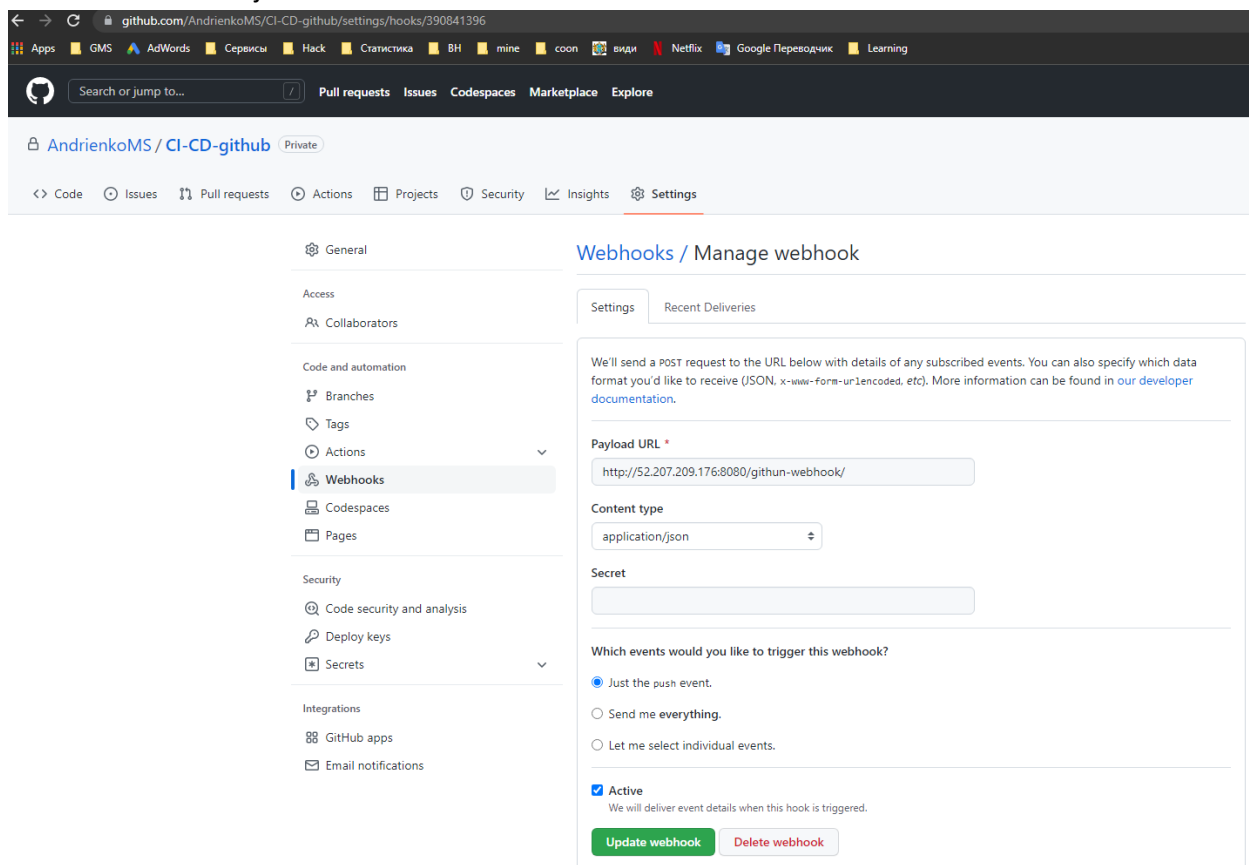
5) Launching from github:

Created repository and filled it with static html page:
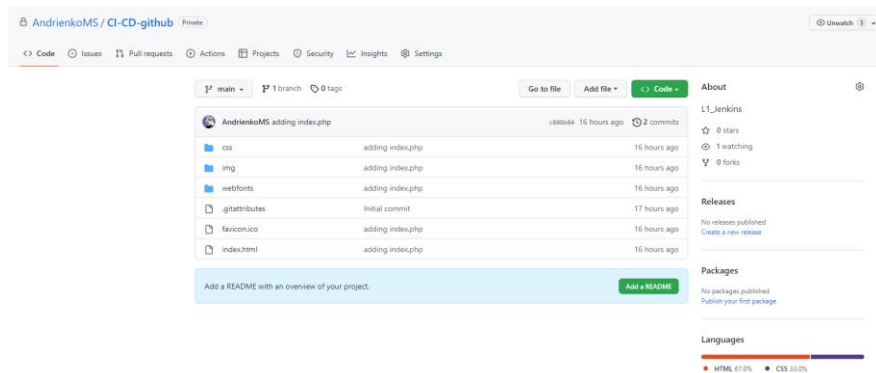
Added webhooks to jenkins:

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

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)

+ Add

The job started from github commit:

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
```

Search or jump to...   Pull requests   Issues   Codespaces   Marketplace   Explore

AndrienkoMS / CI-CD-github (Private)   Unwa

<> Code   ⊙ Issues   ⤵ Pull requests   ⊙ Actions   ⊞ Projects   🛡 Security   Insights   ⚙ Settings

General

Access

  Collaborators

Code and automation

  Branches

Webhooks   [Add webhook]

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)   Edit   Delete

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>

```
<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
```
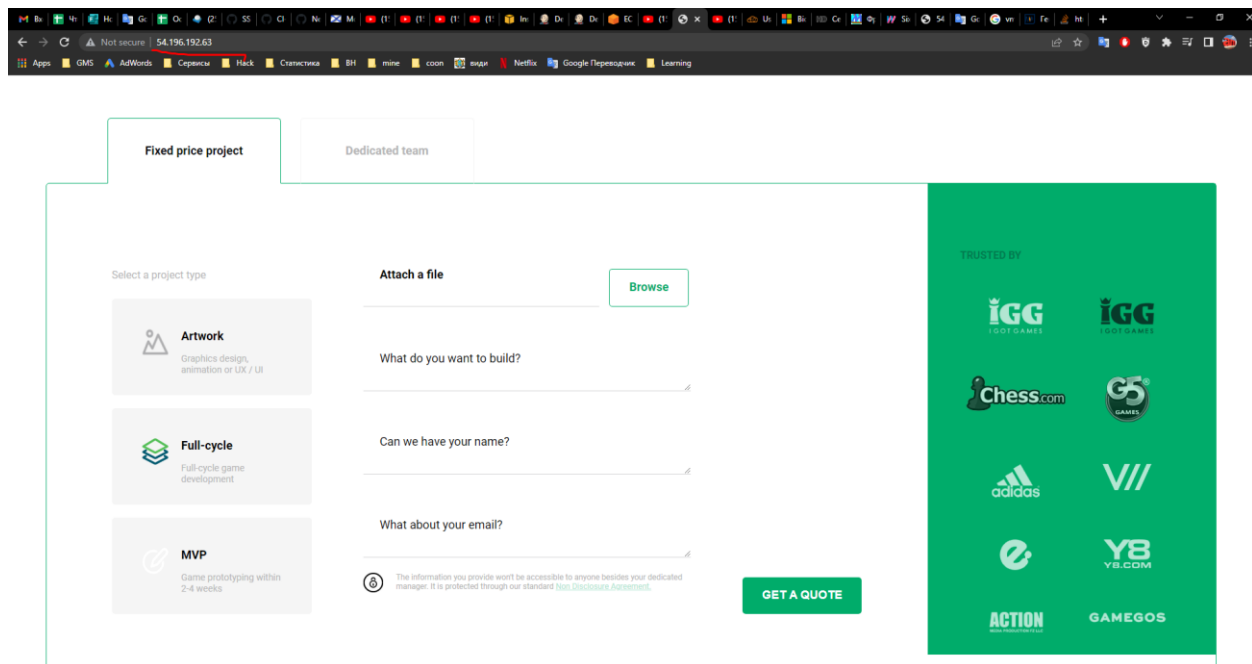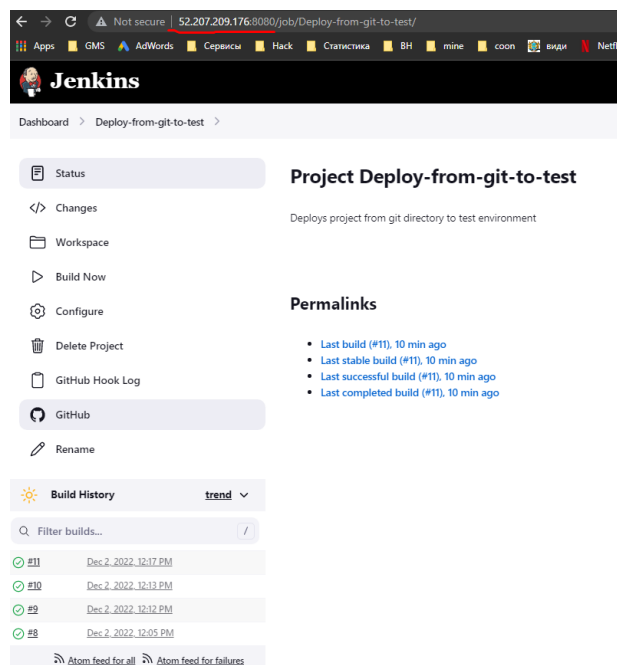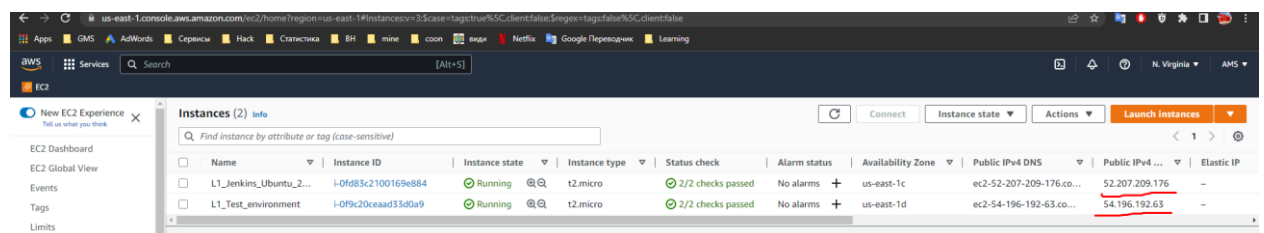
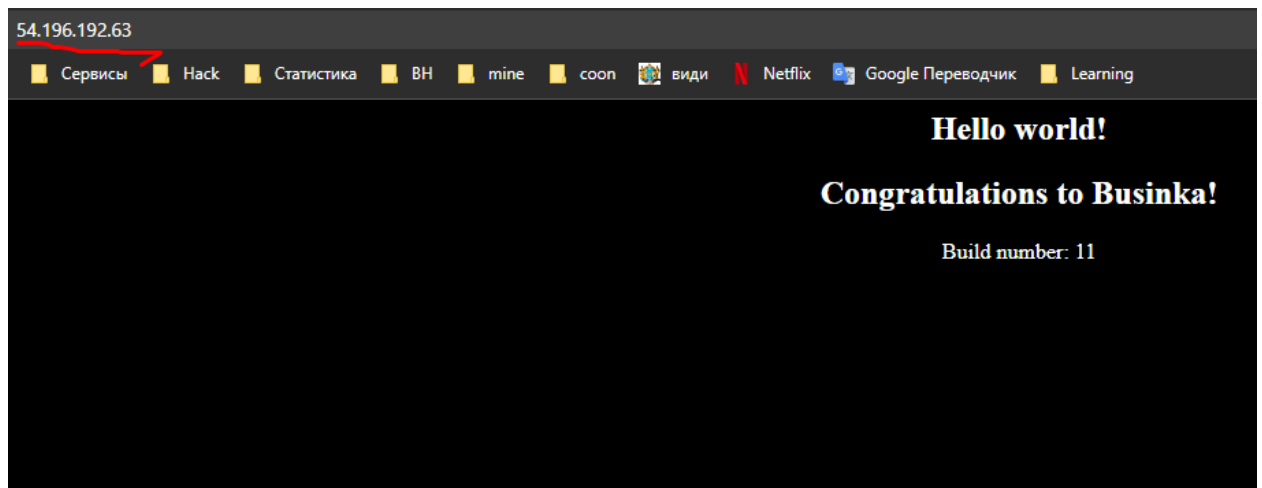i-0f9c20ceaad33d0a9 (L1_Test_environment)

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 (command line):

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

sudo java -jar jenkins-cli.jar -auth ams:11d330eecc7b55ef974d6c339a6b2f59ef -s

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

$env:JENKINS_USER_ID="ams"

$env:JENKINS_API_TOKEN="11d330eecc7b55ef974d6c339a6b2f59ef"

java -jar .\jenkins-cli.jar -s http://52.207.209.176:8080 who-am-i