



POLITECHNIKA  
LUBELSKA  
WYDZIAŁ ELEKTROTECHNIKI  
I INFORMATYKI



# Programowanie aplikacji w chmurze obliczeniowe

LABORATORIUM 8

INSTALACJA SYSTEMU HADOOP W KONTENERZE DOCKER.

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## Zadanie 8.1. Porównanie obrazów Hadoop

Proszę zainstalować dwa kontenery zawierające środowisko Hadoop. Pierwszy proszę zainstalować bazując na obrazie znajdującym się w repozytorium Docker Hub, drugi w sposób przedstawiony w treści tego laboratorium. Proszę porównać parametry obu kontenerów oraz wykorzystanie przez nich zasobów systemowych.

```
student@student-VirtualBox: ~/Pobrane/docker-hadoop-master
resourceManager at sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:62)
resourceManager at sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:43)
resourceManager at java.lang.reflect.Method.invoke(Method.java:498)
resourceManager at org.apache.hadoop.io.retry.RetryInvocationHandler.invokeMethod(RetryInvocationHandler.java:422)
resourceManager at org.apache.hadoop.io.retry.RetryInvocationHandler$Call.invokeMethod(RetryInvocationHandler.java:165)
resourceManager at org.apache.hadoop.io.retry.RetryInvocationHandler$Call.invoke(RetryInvocationHandler.java:157)
resourceManager at org.apache.hadoop.io.retry.RetryInvocationHandler$Call.invokeOnce(RetryInvocationHandler.java:95)
resourceManager at org.apache.hadoop.io.retry.RetryInvocationHandler.invoke(RetryInvocationHandler.java:359)
resourceManager at com.sun.proxy.$Proxy87.mkdirls(Unknown Source)
resourceManager at org.apache.hadoop.hdfs.DFSClient.primitiveMkdir(DFSClient.java:2425)
resourceManager ... 26 more
resourceManager 2022-05-18 22:51:08,637 INFO ipc.Server: Stopping IPC Server Responder
resourceManager 2022-05-18 22:51:08,637 INFO ipc.Server: Stopping IPC Server listener on 8033
resourceManager 2022-05-18 22:51:08,646 INFO resourceManager.ResourceManager: SHUTDOWN_MSG:
resourceManager /*****
resourceManager SHUTDOWN_MSG: Shutting down ResourceManager at Bcdf463e2d6b/172.23.0.4
resourceManager *****/
resourceManager exited with code 255
resourceManager - Setting hadoop.http.staticuser.user=root
resourceManager - Setting io.compression.codecs=org.apache.hadoop.io.compress.SnappyCodec
resourceManager - Setting hadoop.proxyuser.hue.groups=*
resourceManager Configuring hdfs
resourceManager - Setting dfs.namenode.datanode.registration.ip-hostname-check=false
resourceManager - Setting dfs.webhdfs.enabled=true
resourceManager - Setting dfs.permissions.enabled=false
resourceManager Configuring yarn
resourceManager - Setting yarn.timeline-service.enabled=true
resourceManager - Setting yarn.scheduler.capacity.root.default.maximum-allocation-vcores=4
resourceManager - Setting yarn.resourceManager.system-metrics-publisher.enabled=true
resourceManager - Setting yarn.resourceManager.store.class=org.apache.hadoop.yarn.server.resourceManager.recovery.FileSystemRMStateStore
resourceManager - Setting yarn.nodemanager.disk-health-checker.max-disk-utilization-per-disk-percentage=98.5
resourceManager - Setting yarn.log.server.url=http://historyserver:8188/applicationhistory/logs/
resourceManager - Setting yarn.resourceManager.fs.state.store.uri=/rnmstate
resourceManager - Setting yarn.timeline-service.generic-application-history.enabled=true
resourceManager - Setting yarn.log-aggregation-enabled=true
resourceManager - Setting yarn.resourceManager.hostname=resourceManager
resourceManager - Setting yarn.scheduler.capacity.root.default.maximum-allocation-mb=8192
resourceManager - Setting yarn.nodemanager.aux-services=mapreduce_shuffle
resourceManager - Setting yarn.resourceManager.resource_tracker.address=resourceManager:8031
resourceManager - Setting yarn.timeline-service.hostname=historyserver
resourceManager - Setting yarn.resourceManager.scheduler.address=resourceManager:8030
resourceManager - Setting yarn.resourceManager.address=resourceManager:8032
resourceManager - Setting mapred.map.output.compress.codec=org.apache.hadoop.io.compress.SnappyCodec
resourceManager - Setting yarn.nodemanager.remote-app-log-dir=/app-logs
resourceManager - Setting yarn.resourceManager.scheduler.class=org.apache.hadoop.yarn.server.resourceManager.scheduler.capacity.CapacityScheduler
resourceManager - Setting mapreduce.map.output.compress=true
resourceManager - Setting yarn.nodemanager.resource.memory-mb=16384
resourceManager - Setting yarn.resourceManager.recovery.enabled=true
resourceManager - Setting yarn.nodemanager.resource.cpu-vcores=8
resourceManager Configuring httpfs
resourceManager Configuring kms
resourceManager Configuring mapred
resourceManager - Setting mapreduce.map.java.opts=-Xmx3072m
resourceManager - Setting mapreduce.reduce.java.opts=-Xmx6144m
resourceManager - Setting mapreduce.reduce.memory-mb=8192
resourceManager - Setting yarn.app.mapreduce.am.env=HADOOP_MAPRED_HOME=/opt/hadoop-3.2.1/
resourceManager - Setting mapreduce.map.memory-mb=4096
resourceManager - Setting mapred.child.java.opts=-Xmx4096m
resourceManager - Setting mapreduce.reduce.env=HADOOP_MAPRED_HOME=/opt/hadoop-3.2.1/
resourceManager - Setting mapreduce.framework.name=yarn
resourceManager - Setting mapreduce.map.env=HADOOP_MAPRED_HOME=/opt/hadoop-3.2.1/
resourceManager Configuring for multihomed network
resourceManager [1/100] namenode:9000 is available.
resourceManager [1/100] namenode:9870 is available.
resourceManager [1/100] datanode:9864 is available.
```

CONTAINER ID	IMAGE	NAMES	COMMAND	CREATED	STATUS	PORTS
Bcdf463e2d6b	bde262b/hadoop-resourceManager:2.0.0-hadoop3.2.1-java8	resourceManager	"/entrypoint.sh /run..."	51 minutes ago	Up 11 seconds (health: starting)	8088/tcp
e92917021dd5	bde262b/hadoop-historyserver:2.0.0-hadoop3.2.1-java8	historyserver	"/entrypoint.sh /run..."	51 minutes ago	Up 10 seconds (health: starting)	8188/tcp
c9d5b6225da3	bde262b/hadoop-datanode:2.0.0-hadoop3.2.1-java8	datanode	"/entrypoint.sh /run..."	51 minutes ago	Up 12 seconds (health: starting)	9864/tcp
487d9c3bcb20	bde262b/hadoop-namenode:2.0.0-hadoop3.2.1-java8	namenode	"/entrypoint.sh /run..."	51 minutes ago	Up 10 seconds (health: starting)	0.0.0.0:9000->9000/tcp, :::9000->9000/tcp
0.0.0.0:9870->9870/tcp, :::9870->9870/tcp	bde262b/hadoop-namenode:2.0.0-hadoop3.2.1-java8	namenode	"/entrypoint.sh /run..."	51 minutes ago	Up 10 seconds (health: starting)	8042/tcp
ce6785ec5714	bde262b/hadoop-namenode:2.0.0-hadoop3.2.1-java8	namenode	"/entrypoint.sh /run..."	51 minutes ago	Up 10 seconds (health: starting)	8042/tcp
3062e77793d	lamp_apache:latest	lamp_apache:latest	"docker-php-entrypoint..."	3 hours ago	Up 3 hours	80/tcp
78539034c53b	lamp_apache:latest	LAMP_webserver.2.5cng0dga7ps10nn3d7pno4wbp	"docker-php-entrypoint..."	3 hours ago	Up 3 hours	80/tcp
3120b114c590	lamp_mysql:latest	LAMP_webserver.1.xoal8d9p6jvgru2p9isxlig3m	"docker-entrypoint.sh..."	3 hours ago	Up 3 hours	3306/tcp, 33060/tcp
a134801a6008	lamp_php:latest	LAMP_db.1.5b0n7j2k517s14rtq3iy6w4z	"docker-entrypoint.sh..."	3 hours ago	Up 3 hours	80/tcp
9f7882551b69	lamp_mysql:latest	LAMP_phpmyadnln.1.yv02j5arzd3n18sr5f02u7w3x	"docker-entrypoint.sh..."	3 hours ago	Up 3 hours	3306/tcp, 33060/tcp
72511b2c87da	nginx:latest	LAMP_db.2.ktexvnxdbfg9xrotk9gbv884b	"docker-entrypoint.sh..."	3 hours ago	Up 3 hours	80/tcp
47714960eece	nginx:latest	ngweb.2.xplssyfnokm0zjnatf0y0y0l	"docker-entrypoint.sh..."	3 hours ago	Up 3 hours	80/tcp
d77310d77200	nginx:latest	ngweb.5.3b4web9piq5jnp81rzh0liczw	"docker-entrypoint.sh..."	3 hours ago	Up 3 hours	80/tcp
c13b1d22daa2	nginx:latest	ngweb.3.0dw2n18ky25d4isfasmtsd4	"docker-entrypoint.sh..."	3 hours ago	Up 3 hours	80/tcp
073b9377ea14	nginx:latest	ngweb.1.u8mp88ho0v9hdpus84ej7a	"docker-entrypoint.sh..."	3 hours ago	Up 3 hours	80/tcp
		ngweb.4.s06802vdlfxn0jgno9u34pqt4	"docker-entrypoint.sh..."	3 hours ago	Up 3 hours	80/tcp

```

student@student-VirtualBox:~$ java -version
openjdk version "16.0.1" 2021-04-20
OpenJDK Runtime Environment (build 16.0.1+9-Ubuntu-120.04)
OpenJDK 64-Bit Server VM (build 16.0.1+9-Ubuntu-120.04, mixed mode, sharing)
student@student-VirtualBox:~$ sudo addgroup hadoop_group
Dodawanie grupy "hadoop_group" (GID 1001)...
Gotowe.
student@student-VirtualBox:~$ sudo adduser --ingroup hadoop_group hduser1
Dodawanie użytkownika "hduser1"...
Dodawanie nowego użytkownika "hduser1" (1001) w grupie "hadoop_group"...
Tworzenie katalogu domowego "/home/hduser1"...
Kopiowanie plików z "/etc/skel" ...
Nowe hasło :
Proszę ponownie wpisać nowe hasło :
passwd: hasło zostało zmienione
Zmieniam informację o użytkowniku hduser1
Wpisz nową wartość lub wciśnij ENTER by przyjąć wartość domyślną
Imię i nazwisko []:
Numer pokoju []:
Telefon do pracy []:
Telefon domowy []:
Inne []:
Czy informacja jest poprawna? [T/n] T
student@student-VirtualBox:~$ sudo adduser hduser1 sudo
Dodawanie użytkownika "hduser1" do grupy "sudo"...
Dodaję nowego użytkownika hduser1 do grupy sudo
Gotowe.
student@student-VirtualBox:~$ ssh -version
Bad escape character 'rsion'.
student@student-VirtualBox:~$ openssh -version

Nie znaleziono polecenia 'openssh', czy chodziło o:

  polecenie 'openssn' z pakietu deb openssn (1.4-3build1)
  polecenie 'openssl' z pakietu deb openssl (1.1.1f-1ubuntu2.12)

Wypróbuj: sudo apt install <nazwa pakietu deb>

```

```

student@student-VirtualBox:~$ openssh -version

Nie znaleziono polecenia 'openssh', czy chodziło o:

  polecenie 'openssn' z pakietu deb openssn (1.4-3build1)
  polecenie 'openssl' z pakietu deb openssl (1.1.1f-1ubuntu2.12)

Wypróbuj: sudo apt install <nazwa pakietu deb>

student@student-VirtualBox:~$ sudo apt-get install openssh-server
Czytanie list pakietów... Gotowe
Budowanie drzewa zależności
Odczyt informacji o stanie... Gotowe
The following additional packages will be installed:
  ncurses-term openssh-sftp-server ssh-import-id
Sugerowane pakiety:
  molly-guard monkeysphere ssh-askpass
Zostaną zainstalowane następujące NOWE pakiety:
  ncurses-term openssh-server openssh-sftp-server ssh-import-id
0 aktualizowanych, 4 nowo instalowanych, 0 usuwanych i 47 nieaktualizowanych.
Konieczne pobranie 688 kB archiwów.
Po tej operacji zostanie dodatkowo użyte 6 010 kB miejsca na dysku.
Kontynuować? [T/n] T
Pobieranie:1 http://pl.archive.ubuntu.com/ubuntu focal/main amd64 ncurses-term all 6.2-0ubuntu2 [249 kB]
Pobieranie:2 http://pl.archive.ubuntu.com/ubuntu focal-updates/main amd64 openssh-sftp-server amd64 1:8.2p1-4ubuntu0.4 [51,5 kB]
Pobieranie:3 http://pl.archive.ubuntu.com/ubuntu focal-updates/main amd64 openssh-server amd64 1:8.2p1-4ubuntu0.4 [377 kB]
Pobieranie:4 http://pl.archive.ubuntu.com/ubuntu focal/main amd64 ssh-import-id all 5.10-0ubuntu1 [10,0 kB]
Pobrano 688 kB w 2s (454 kB/s)
Prekonfiguracja pakietów ...
Wybieranie wcześniej niewybranego pakietu ncurses-term.
(Odczytywanie bazy danych ... 185442 pliki i katalogi obecnie zainstalowane.)
Przygotowywanie do rozpakowania pakietu .../ncurses-term_6.2-0ubuntu2_all.deb ...
Rozpakowywanie pakietu ncurses-term (6.2-0ubuntu2) ...
Wybieranie wcześniej niewybranego pakietu openssh-sftp-server.
Przygotowywanie do rozpakowania pakietu .../openssh-sftp-server_1%3a8.2p1-4ubuntu0.4_amd64.deb ...
Rozpakowywanie pakietu openssh-sftp-server (1:8.2p1-4ubuntu0.4) ...

```



```

Creating config file /etc/ssh/sshd_config with new version
Creating SSH2 RSA key; this may take some time ...
3072 SHA256:n732FczzQ5/Wtor6/6psLPkPxlVJ+drf++r/6ar7YU root@student-VirtualBox (RSA)
Creating SSH2 ECDSA key; this may take some time ...
256 SHA256:lasaduIFaZ49l5C7YR8ZzH1MjnkVqjErOaU0SyY4wg root@student-VirtualBox (ECDSA)
Creating SSH2 ED25519 key; this may take some time ...
256 SHA256:zt+HrzlvR5xCEIEcPRY9jYBFgJPjPt+B/nNc8kUaWr0 root@student-VirtualBox (ED25519)
Created symlink /etc/systemd/system/ssh.service → /lib/systemd/system/ssh.service.
Created symlink /etc/systemd/system/multi-user.target.wants/ssh.service → /lib/systemd/system/ssh.service.
rescue-ssh.target is a disabled or a static unit, not starting it.
Konfigurowanie pakietu ssh-import-id (5.10-0ubuntu1) ...
Attempting to convert /etc/ssh/ssh_import_id
Konfigurowanie pakietu ncurses-term (6.2-0ubuntu2) ...
Przetwarzanie wyzwalaczy pakietu systemd (245.4-4ubuntu3.15)...
Przetwarzanie wyzwalaczy pakietu man-db (2.9.1-1)...
Przetwarzanie wyzwalaczy pakietu ufw (0.36-6ubuntu1)...
student@student-VirtualBox:~$ sudo cp /etc/ssh/sshd_config /etc/ssh/sshd_config.factory-defaults
student@student-VirtualBox:~$ sudo ls /etc/ssh/
ls: nie ma dostępu do '/etc/ssh/': Nie ma takiego pliku ani katalogu
student@student-VirtualBox:~$ sudo ls /etc/ssh
ls: nie ma dostępu do '/etc/ssh': Nie ma takiego pliku ani katalogu
student@student-VirtualBox:~$ sudo ls /etc/ssh
moduli      sshd_config      ssh_host_ecdsa_key  ssh_host_ed25519_key.pub  ssh_import_id
ssh_config  sshd_config.d    ssh_host_ecdsa_key.pub  ssh_host_rsa_key
ssh_config.d  sshd_config.factory-defaults  ssh_host_ed25519_key  ssh_host_rsa_key.pub
student@student-VirtualBox:~$ su - hduser1
su: użytkownik - nie istnieje.
student@student-VirtualBox:~$ su -hduser1
su: użytkownik -hduser1 nie istnieje.
student@student-VirtualBox:~$ su hduser1
Hasło:
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

hduser1@student-VirtualBox:~/home/student$ sudo hduser1
[sudo] hasło użytkownika hduser1:
sudo: hduser1: nie znaleziono polecenia
hduser1@student-VirtualBox:~/home/student$ su hduser1
Hasło:

```

```

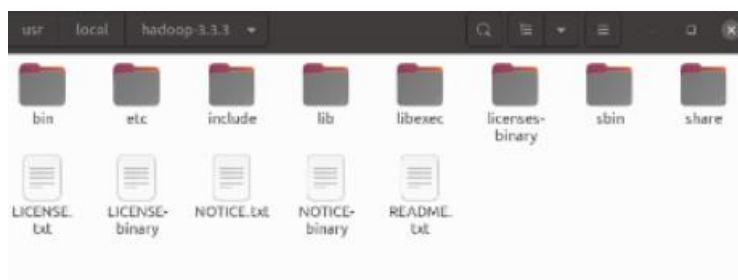
hduser1@student-VirtualBox:~/home/student$ ssh-keygen -t rsa -P ""
Generating public/private rsa key pair.
Enter file in which to save the key (/home/hduser1/.ssh/id_rsa):
Created directory '/home/hduser1/.ssh'.
Your identification has been saved in /home/hduser1/.ssh/id_rsa
Your public key has been saved in /home/hduser1/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:jEko8bBJawfXk2LerST1UoyW1Eqt/shnuZUV34Fobms hduser1@student-VirtualBox
The key's randomart image is:
+---[RSA 3072]-----+
|  +XO. |
| .oB%o |
| =X+O . |
| O+= o + |
| . o 5 |
| . o . |
| . o . . |
| o . = E . . |
| O+=o . . |
+---[SHA256]-----+
hduser1@student-VirtualBox:~/home/student$ cat $HOME/.ssh/id_rsa.pub >> $HOME/.ssh/authorized_keys
hduser1@student-VirtualBox:~/home/student$ cat $HOME/.ssh/authorized_keys
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQGDRC7FaA8LTnJuwObelINZnAD+M1XN+qRuaJPwBbP8faCX1a+c/4tWwWGFxSEnfV70+xqKQbWGVkf1InsfJNT/uNLeN/XkQh0jof
82zJTQ+JLXnpGTQVt1c1c1c2EAAADAQABAAQGDRC7FaA8LTnJuwObelINZnAD+M1XN+qRuaJPwBbP8faCX1a+c/4tWwWGFxSEnfV70+xqKQbWGVkf1InsfJNT/uNLeN/XkQh0jof
0WMMXuG+Nu2PG3tln7IIR71pJARNuWc6+8KLYF749acghJUn2nJ+vM49yE6K9eZddSRPCVLGEb5MFhOK4aUATs7NKnKER3iOkGTzLZCj7YKsms95tAbR5unzufbCDCEaZLexOQ
0UoCVHePGjA5eNMBfbokk/xweXNCuHL1oJCS5Shk2AzIYQe2BEZPcd4ISXk80LETMsqPU4HmPDnRZNP2cySmE6ENNPm0JGSRmNQ43BGh46Jw3AW72TxqX7wMTtrvx6aXgDnjE= hc
ser1@student-VirtualBox
hduser1@student-VirtualBox:~/home/student$

```

```

hadoop-3.3.3/share/doc/hadoop/hadoop-archives/images/logos/build-by-maven-black.png
hadoop-3.3.3/share/doc/hadoop/hadoop-archives/images/logos/maven-feather.png
hadoop-3.3.3/share/doc/hadoop/hadoop-archives/images/logos/build-by-maven-white.png
hadoop-3.3.3/share/doc/hadoop/hadoop-archives/images/banner.jpg
hadoop-3.3.3/share/doc/hadoop/hadoop-archives/images/h5.jpg
hadoop-3.3.3/share/doc/hadoop/hadoop-archives/images/icon_error_sml.gif
hadoop-3.3.3/share/doc/hadoop/hadoop-archives/images/icon_success_sml.gif
hadoop-3.3.3/share/doc/hadoop/hadoop-archives/images/expanded.gif
hadoop-3.3.3/share/doc/hadoop/hadoop-archives/images/external.png
hadoop-3.3.3/share/doc/hadoop/hadoop-archives/images/icon_info_sml.gif
hadoop-3.3.3/share/doc/hadoop/hadoop-archives/images/logo_apache.jpg
hadoop-3.3.3/share/doc/hadoop/hadoop-archives/images/bg.jpg
hadoop-3.3.3/share/doc/hadoop/hadoop-archives/images/newwindow.png
hadoop-3.3.3/share/doc/hadoop/hadoop-archives/images/h3.jpg
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/project-reports.html
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/dependency-analysis.html
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/css/
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/css/maven-base.css
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/css/print.css
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/css/maven-theme.css
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/css/site.css
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/breadcrumbs.jpg
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/apache-maven-project-2.png
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/maven-logo-2.gif
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/collapsed.gif
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/logo_maven.jpg
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/icon_warning_sml.gif
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/logos/
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/logos/build-by-maven-black.png
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/logos/maven-feather.png
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/logos/build-by-maven-white.png
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/banner.jpg
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/h5.jpg
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/icon_error_sml.gif
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/icon_success_sml.gif
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/expanded.gif
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/external.png
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/icon_info_sml.gif
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/logo_apache.jpg
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/bg.jpg
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/newwindow.png
hadoop-3.3.3/share/doc/hadoop/hadoop-hdfs-nfs/images/h3.jpg
student@student-VirtualBox: /usr/local$

```



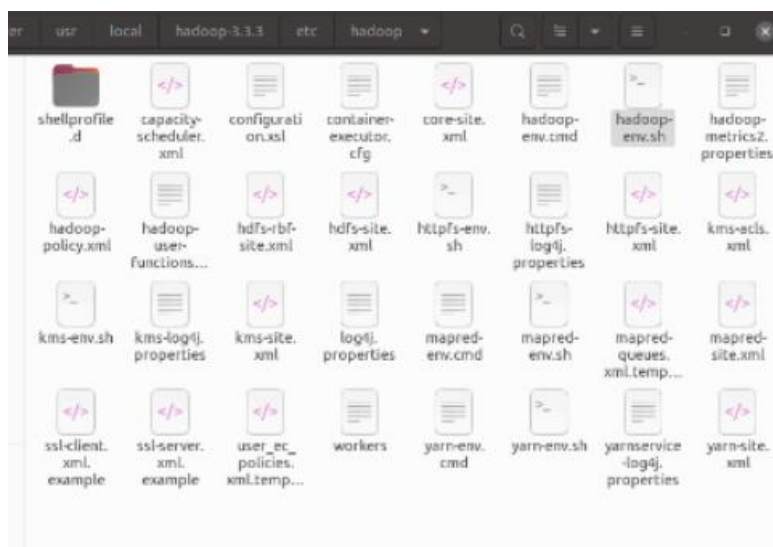


```
# enable programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
if ! shopt -oq posix; then
  if [ -f /usr/share/bash-completion/bash_completion ]; then
    . /usr/share/bash-completion/bash_completion
  elif [ -f /etc/bash_completion ]; then
    . /etc/bash_completion
  fi
fi

export HADOOP_HOME=/usr/local/hadoop-3.3.3
export PATH=$PATH:$HADOOP_HOME/bin
```

```
# Technically, the only required environment variable is JAVA_HOME.
# All others are optional. However, the defaults are probably not
# preferred. Many sites configure these options outside of Hadoop,
# such as in /etc/profile.d

# The java implementation to use. By default, this environment
# variable is REQUIRED on ALL platforms except OS X!
# export JAVA_HOME=/usr/lib/jvm/java-16-openjdk-amd64
```



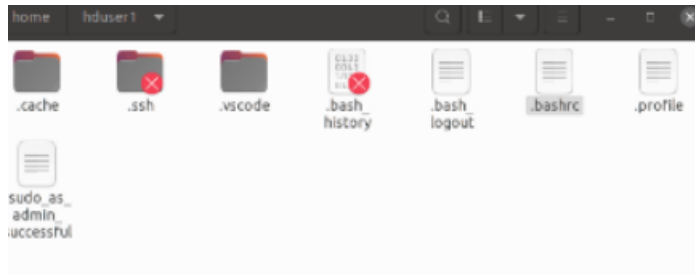
```
hduser1@student-VirtualBox:~$ /usr/local/hadoop-3.3.3/start-build-env.sh
bash: /usr/local/hadoop-3.3.3/start-build-env.sh: Nie ma takiego pliku ani katalogu
hduser1@student-VirtualBox:~$ /usr/local/hadoop-3.3.3/start-build-env.sh
bash: /usr/local/hadoop-3.3.3/start-build-env.sh: Brak dostępu
hduser1@student-VirtualBox:~$ sudo /usr/local/hadoop-3.3.3/start-build-env.sh
[sudo] hasło użytkownika hduser1:
sudo: /usr/local/hadoop-3.3.3/start-build-env.sh: nie znaleziono polecenia
hduser1@student-VirtualBox:~$ cd /usr/local/hadoop-3.3.3/
hduser1@student-VirtualBox:~$ /usr/local/hadoop-3.3.3$ ls
bin  include  libexec  licenses-binary  NOTICE-binary  README.txt  share
etc  lib  LICENSE.txt  NOTICE.txt  sbin  start-build-env.sh
hduser1@student-VirtualBox:~$ /usr/local/hadoop-3.3.3$ chmod +x start-build-env.sh
chmod: nie można zmienić uprawnień do 'start-build-env.sh': Operacja niedozwolona
hduser1@student-VirtualBox:~$ /usr/local/hadoop-3.3.3$ sudo chmod +x start-build-env.sh
hduser1@student-VirtualBox:~$ /usr/local/hadoop-3.3.3$ sudo ./ start-build-env.sh
sudo: ./: nie znaleziono polecenia
hduser1@student-VirtualBox:~$ /usr/local/hadoop-3.3.3$ ./start-build-env.sh
unable to prepare context: path "dev-support/docker" not found
hduser1@student-VirtualBox:~$ /usr/local/hadoop-3.3.3$
```

```

. /usr/share/bash-completion/bash_completion
elif [ -f /etc/bash_completion ]; then
. /etc/bash_completion
fi
fi

export HADOOP_HOME=/usr/local/hadoop-3.3.3-src
export PATH=$PATH:$HADOOP_HOME/dev-support/bin

```



```

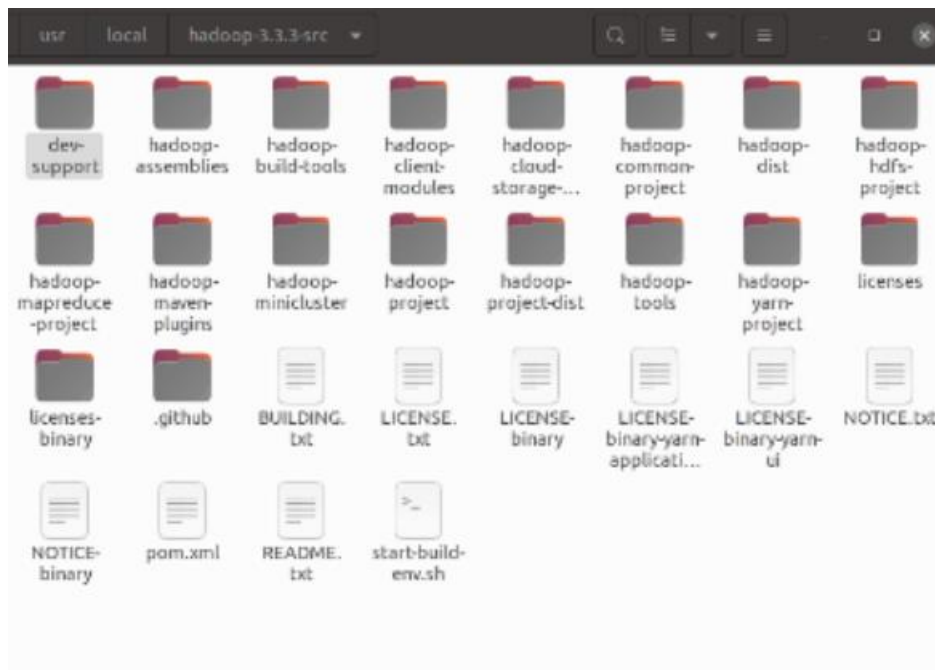
hadoop-3.3.3-src/hadoop-assemblies/src/main/resources/assemblies/hadoop-https-dist.xml
hadoop-3.3.3-src/hadoop-assemblies/src/main/resources/assemblies/hadoop-mapreduce-dist.xml
hadoop-3.3.3-src/hadoop-assemblies/src/main/resources/assemblies/hadoop-dynamometer.xml
hadoop-3.3.3-src/hadoop-assemblies/src/main/resources/assemblies/hadoop-dynamometer-workload.xml
hadoop-3.3.3-src/hadoop-assemblies/src/main/resources/assemblies/hadoop-dist.xml
hadoop-3.3.3-src/hadoop-assemblies/src/main/resources/assemblies/hadoop-sls.xml
hadoop-3.3.3-src/hadoop-assemblies/src/main/resources/assemblies/hadoop-dynamometer-blockgen.xml
hadoop-3.3.3-src/hadoop-assemblies/src/main/resources/assemblies/hadoop-tools.xml
hadoop-3.3.3-src/.github/pull_request_template.md
student@student-VirtualBox: /usr/local$ cd
student@student-VirtualBox: ~$ su hduser1
Haslo:
hduser1@student-VirtualBox: /home/student$ cd
hduser1@student-VirtualBox: ~$

```

```

=> build-essential: dial unix /var/run/docker.sock: connect: permission denied
hduser1@student-VirtualBox: ~$ sudo /usr/local/hadoop-3.3.3-src/start-build-env.sh
Sending build context to Docker daemon 17.92kB
Step 1/31 : FROM ubuntu:bionic
bionic: Pulling from library/ubuntu
40dd5be53814: Pull complete
Digest: sha256:d21b6ba9e19feffa328cb3864316e6918e30acf55e285b5d3df1d8ca3c7fd3f
Status: Downloaded newer image for ubuntu:bionic
--> c6ad7e71ba7d
Step 2/31 : WORKDIR /root
--> Running in a42ed8129a03
Removing intermediate container a42ed8129a03
--> 3cee001ef1e5
Step 3/31 : SHELL ["/bin/bash", "-o", "pipefail", "-c"]
--> Running in fc8a583f0e55
Removing intermediate container fc8a583f0e55
--> c975fdb2bdf
Step 4/31 : RUN echo APT::Install-Recommends "0"; > /etc/apt/apt.conf.d/10disableextras
--> Running in 5f480f981374
Removing intermediate container 5f480f981374
--> 8935922b623d
Step 5/31 : RUN echo APT::Install-Suggests "0"; >> /etc/apt/apt.conf.d/10disableextras
--> Running in 4a0c94c5fae6
Removing intermediate container 4a0c94c5fae6
--> fb586affb1ce
Step 6/31 : ENV DEBIAN_FRONTEND nonInteractive
--> Running in 004184f519f2
Removing intermediate container 004184f519f2
--> 47a91c34dd85
Step 7/31 : ENV DEBCONF_TERSE true
--> Running in 64b7d5b7fbd4
Removing intermediate container 64b7d5b7fbd4
--> 525f1a7735bc
Step 8/31 : RUN apt-get -q update && apt-get -q install -y --no-install-recommends apt-utils bats
build-essential bzip2 clang cmake curl doxygen fuse g++ gcc
git gnupg-agent libbz2-dev libcurl4-openssl-dev libfuse-dev libprotobuf-dev
libprotoc-dev libsass1-dev libsnappy-dev libssl-dev libsnappy-dev libtool
libstdc++6-dev locales make pinentry-curses pkg-config python3 python3-pip
python3-pkg-resources python3-setuptools python3-wheel rsync shellcheck softw
are-properties-common sudo valgrind zlib1g-dev && apt-get clean && rm -rf /var/lib/apt/lists/
*

```



```

---> Running in ac45a6eb2dfa
Removing intermediate container ac45a6eb2dfa
---> e653ab262f48
Successfully built e653ab262f48
Successfully tagged hadoop-build:latest
Sending build context to Docker daemon 2.048kB
Step 1/6 : FROM hadoop-build
---> e653ab262f48
Step 2/6 : RUN rm -f /var/log/faillog /var/log/lastlog
---> Running in d0aaec04737
Removing intermediate container d0aaec04737
---> e9ab8e7191ce
Step 3/6 : RUN groupadd --non-unique -g 1001 hduser1
---> Running in 8db98839f41f
Removing intermediate container 8db98839f41f
---> 81e00289a6ad
Step 4/6 : RUN useradd -g 1001 -u 1001 -k /root -m hduser1 -d "/home/hduser1"
---> Running in 7b9af4ac4112
Removing intermediate container 7b9af4ac4112
---> 9742321f73ec
Step 5/6 : RUN echo "hduser1 ALL=NOPASSWD: ALL" > "/etc/sudoers.d/hadoop-build-1001"
---> Running in 171e7b628476
Removing intermediate container 171e7b628476
---> f072a288b6ea
Step 6/6 : ENV HOME "/home/hduser1"
---> Running in 534f66eed68d
Removing intermediate container 534f66eed68d
---> 57c79e0e8367
Successfully built 57c79e0e8367
Successfully tagged hadoop-build-1001:latest

```

Hadoop Dev

This is the standard Hadoop Developer build environment.  
This has all the right tools installed required to build  
Hadoop from source.

hduser1@bd73d2ad4f02:~/hadoop\$



## **Wnioski**

W przypadku uruchamiania usługi Hadoop pozyskanej z repozytorium Github, w rzeczywistości nie korzystamy z rozwiązania jednostanowiskowego, ale z kilku kontenerów Dockera, które umożliwią pracę. Instalacja Hadoop, pobranego jako pliki binarne - tak jak było to opisane w instrukcji do laboratoriów - nie powiodła się. Próba instalacji przy użyciu plików źródłowych zakończyła się sukcesem.