



Building Digital Library Using DSpace (A Windows Experience)

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Prologue

As an Open Source Software you can develop your digital library using DSpace in any Operating System you wish.

Here, I have tried to install DSpace in Windows 10 (64 bit) Operating System.

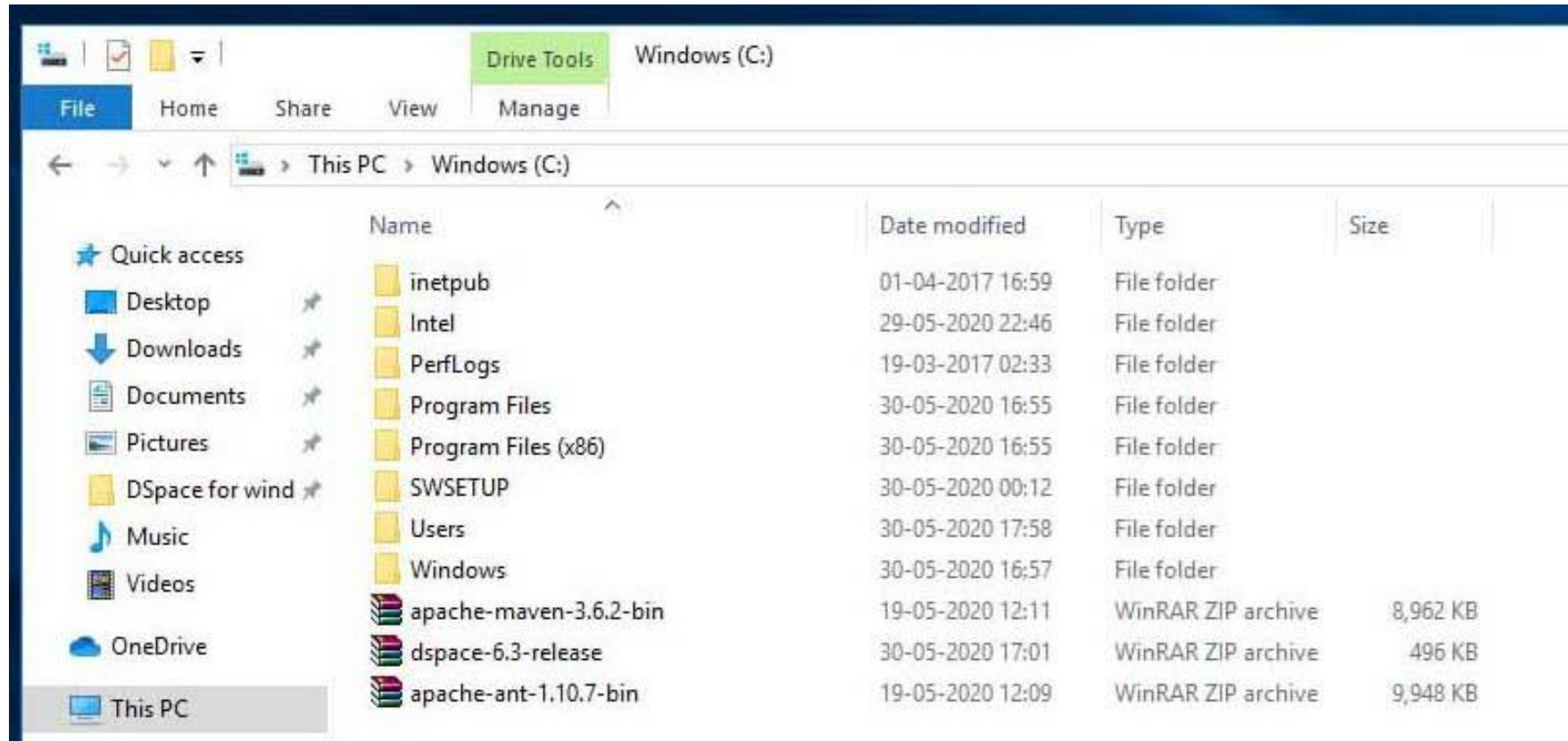
The installation of DSpace is documented in the DuraSpace Wiki, which is an official guide for installation. Hence, you can also visit the DuraSpace Wiki's DSpace installation document.

Also you can follow any guide from the internet (Blogs, YouTube videos, PPTs) for any reference. There are plenty of such guides in the internet.

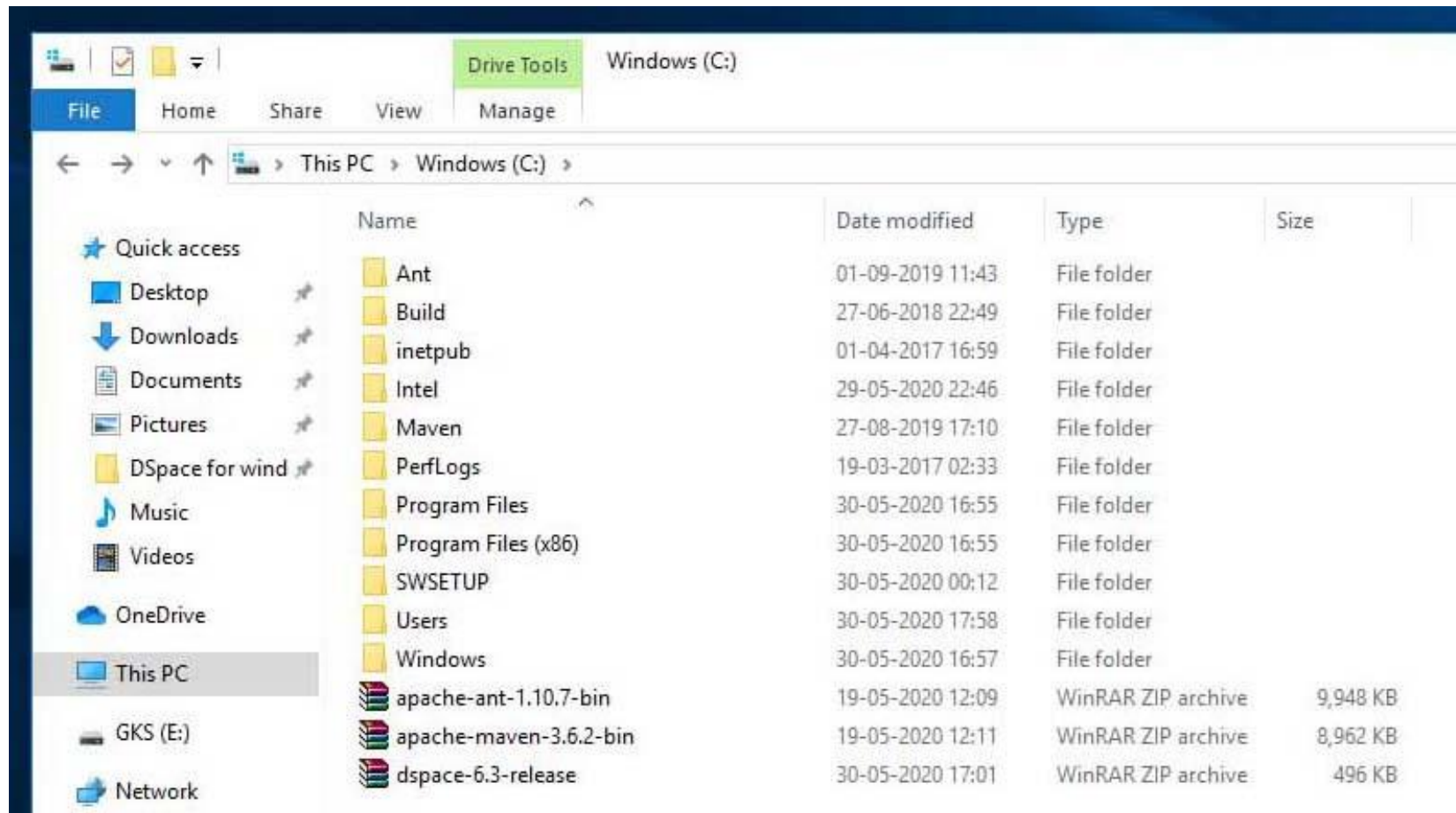
Pre-requisites for installing DSpace software

-  apache-ant-1.10.7-bin
-  apache-maven-3.6.2-bin
-  apache-tomcat-9.0.27
-  dspace-6.3-release
-  jdk-8u231-windows-x64
-  postgresql-12.2-1-windows-x64

Place the zipped files in C: drive of the Windows



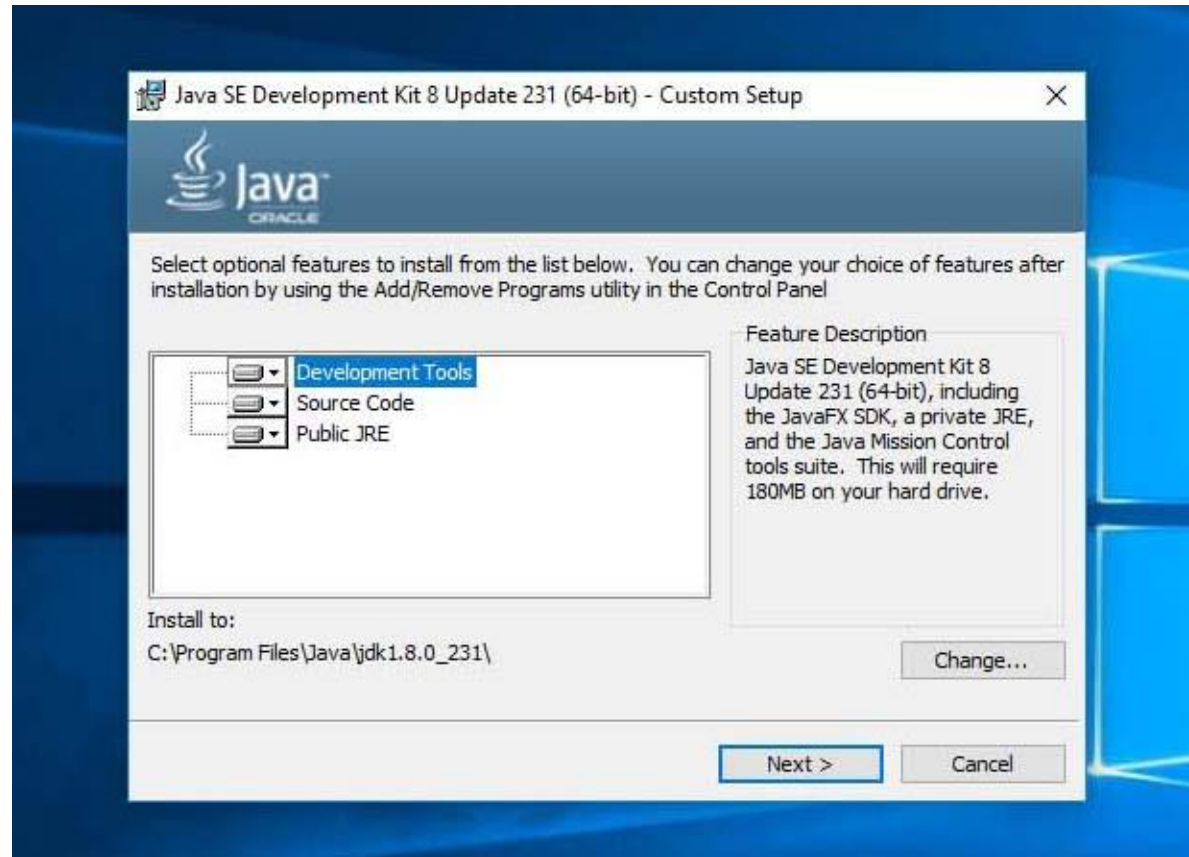
Extract all the zipped files and rename in C: drive



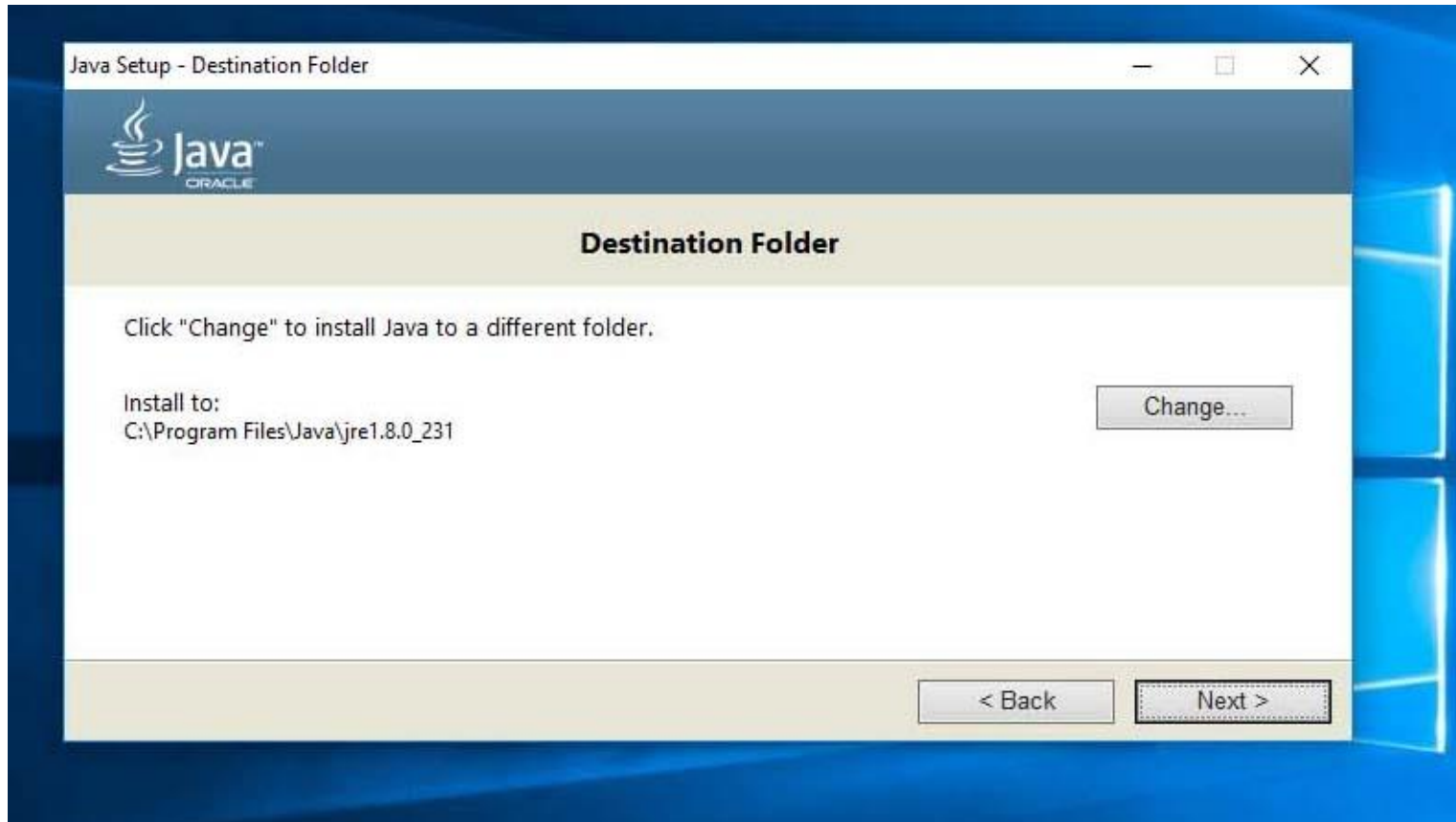
Java installation



Destination unchanged (click next)



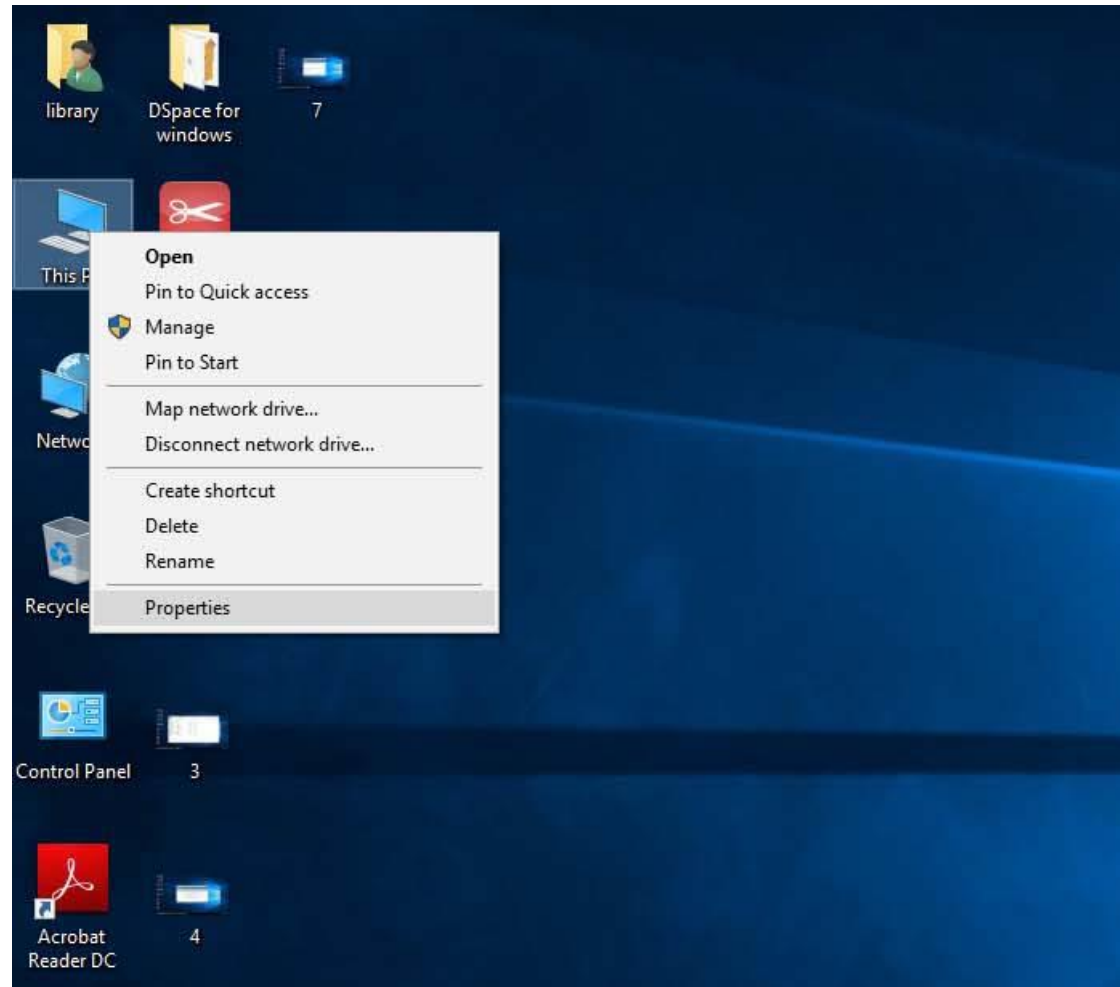
Destination unchanged for JRE (click next)



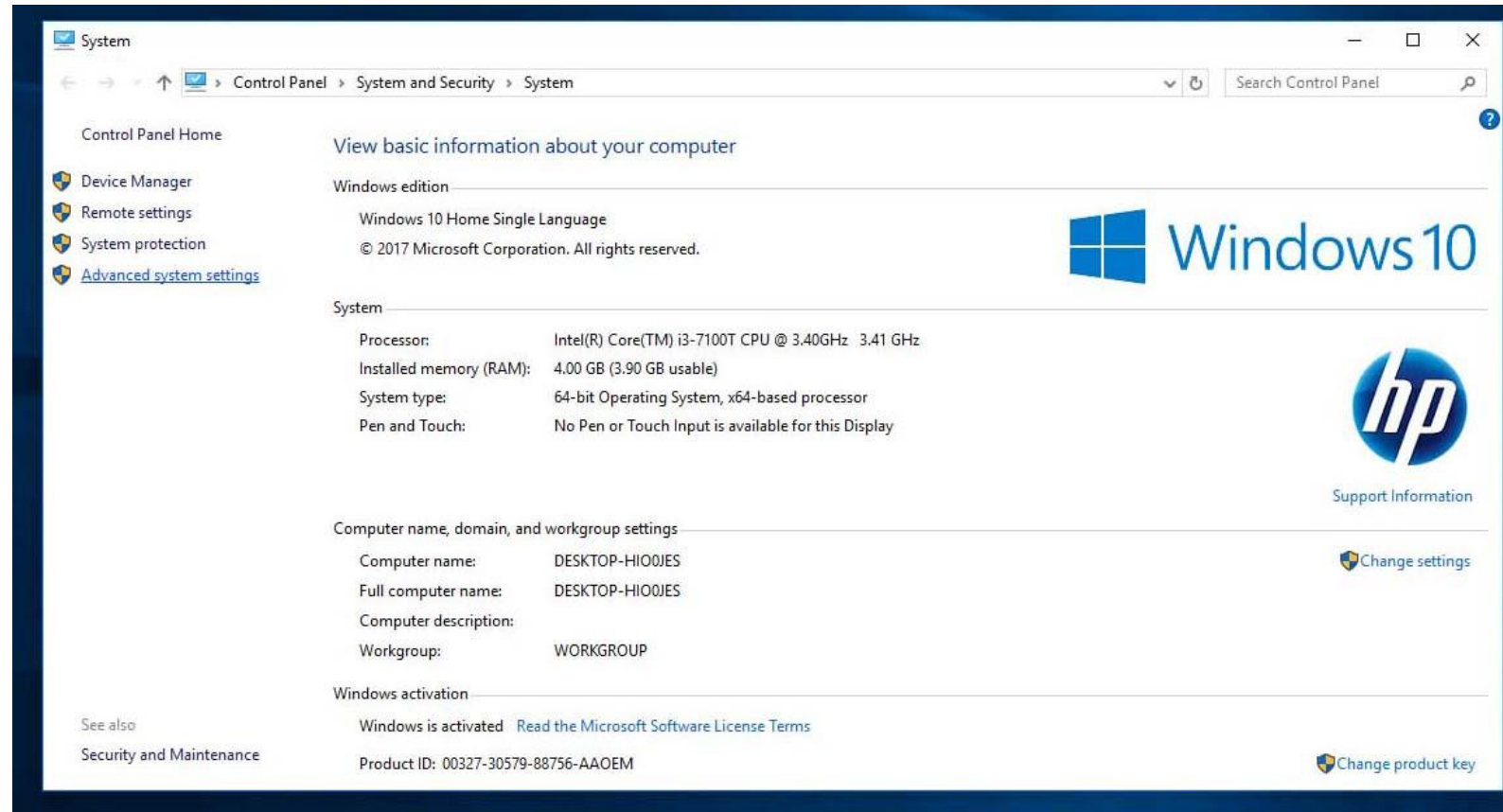
Java installation complete (close)



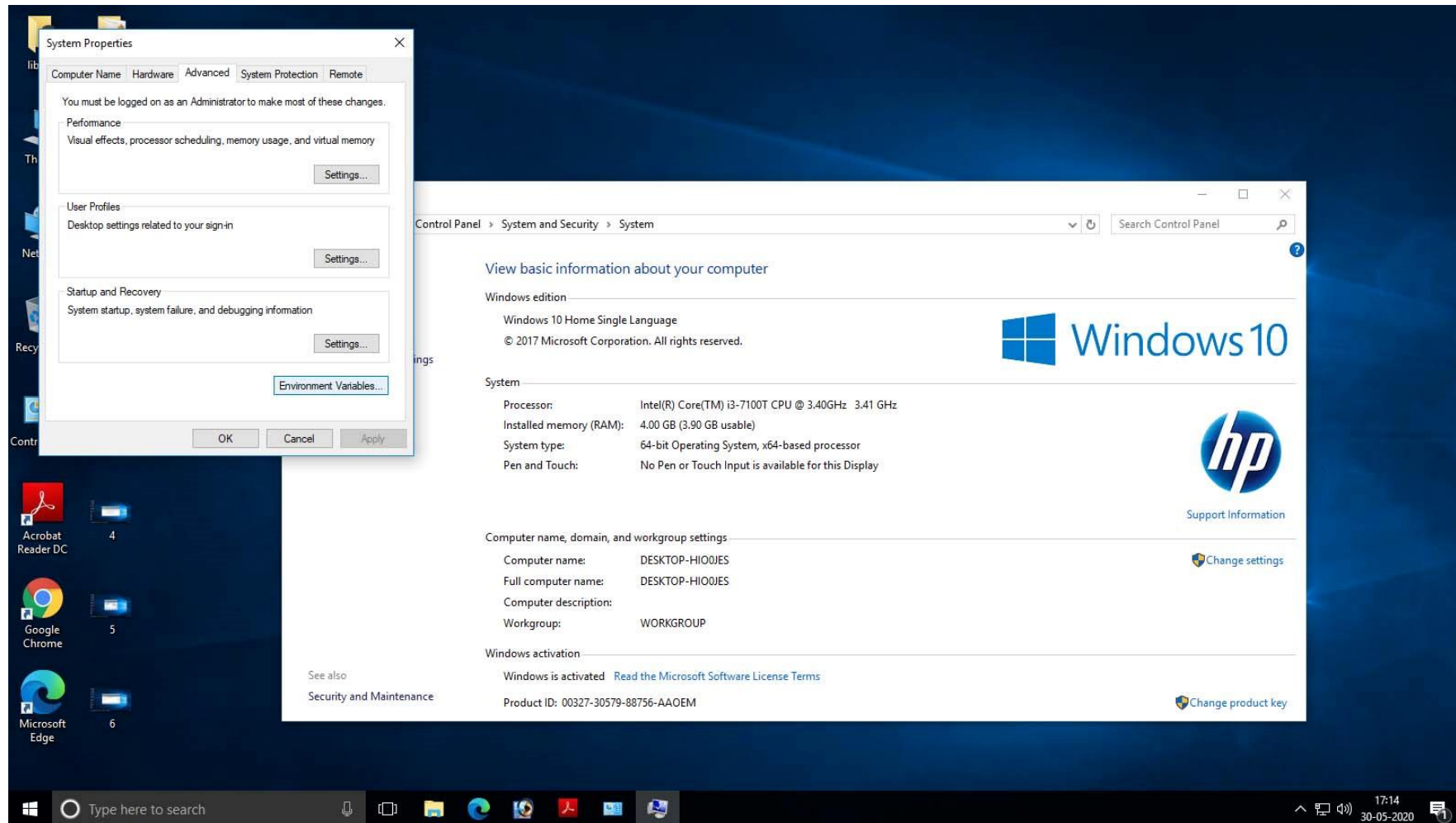
Set user and system variables (right click on *This PC* icon



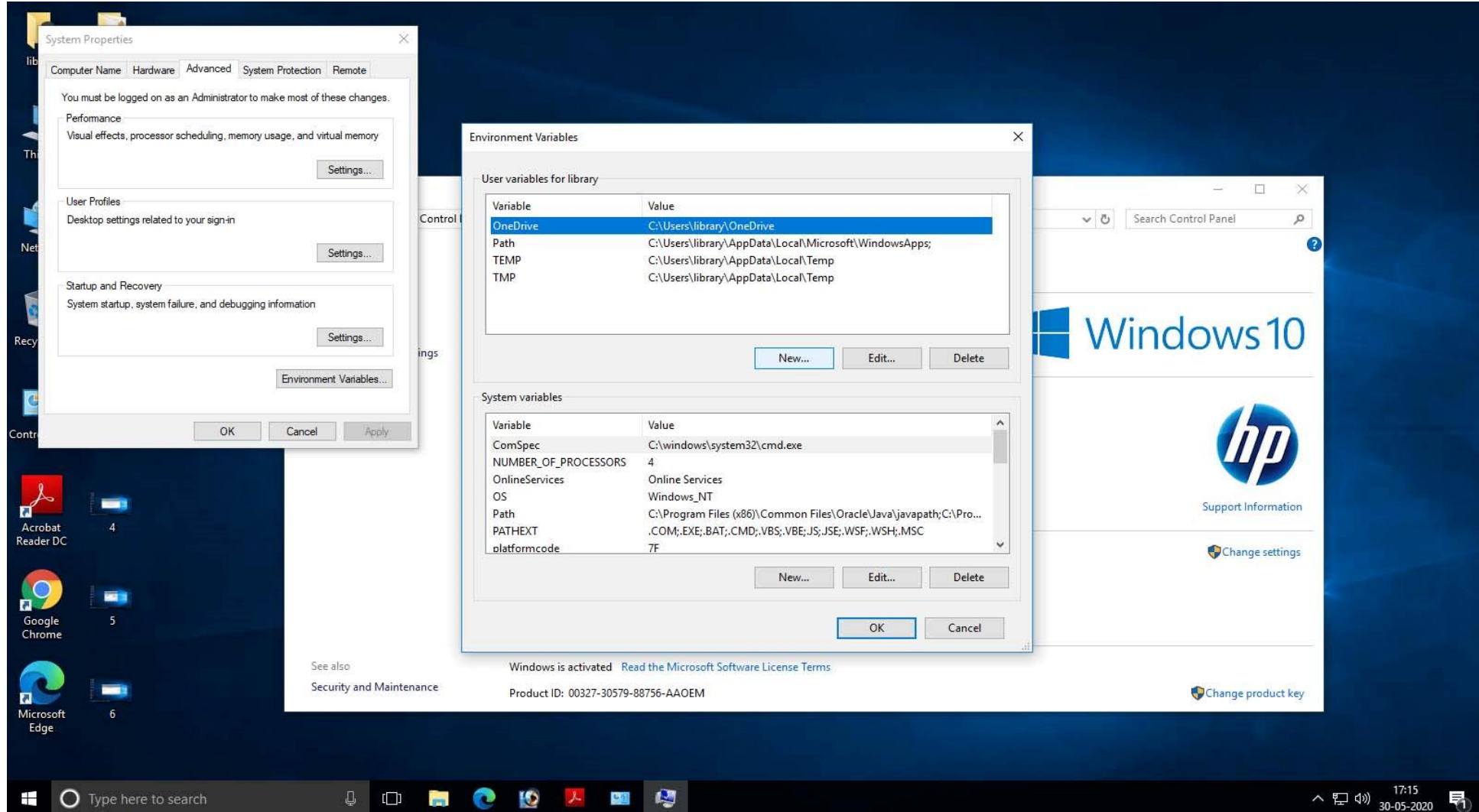
Click on *Advanced system setting*



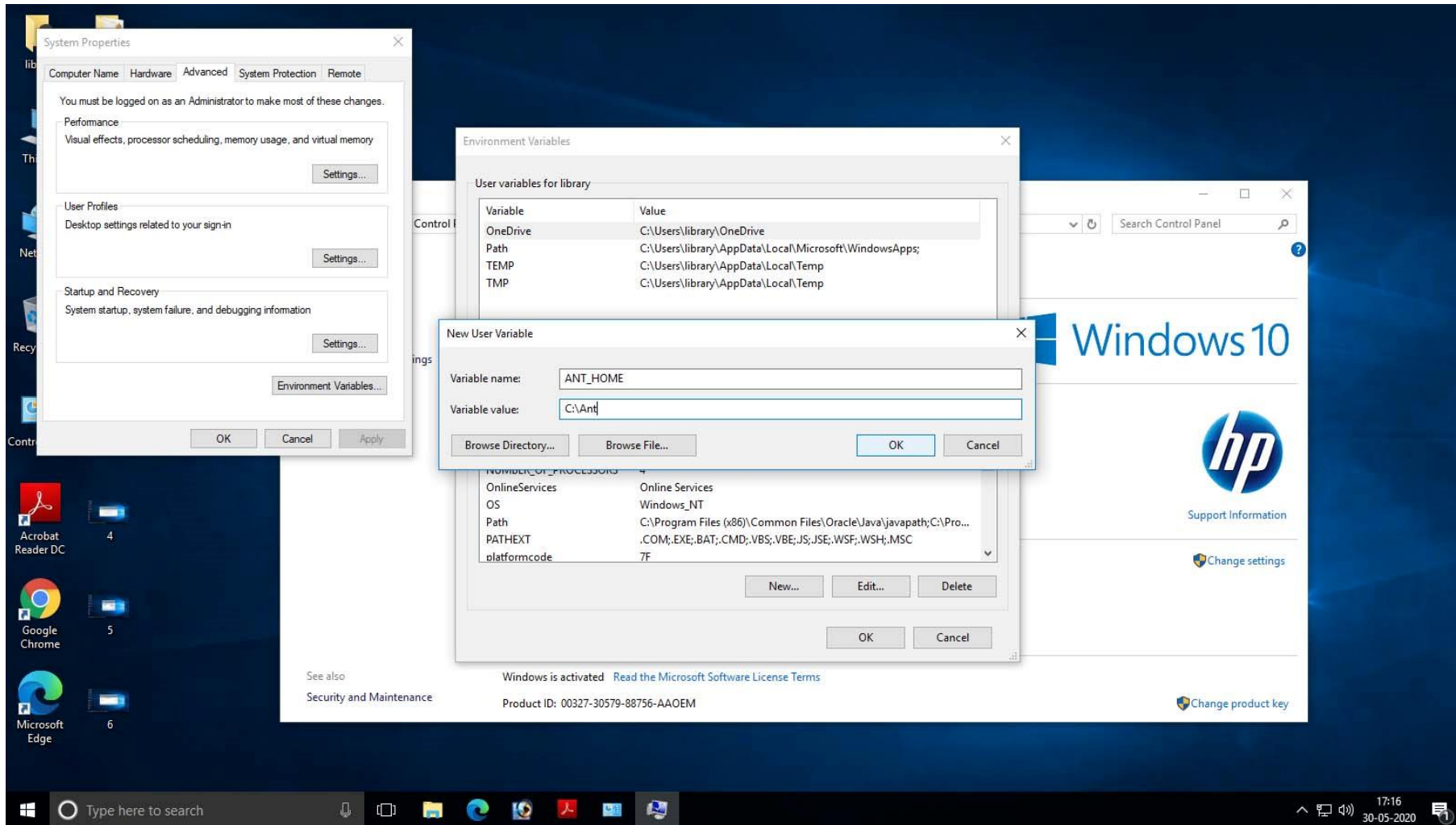
Click on *Environment Variables*



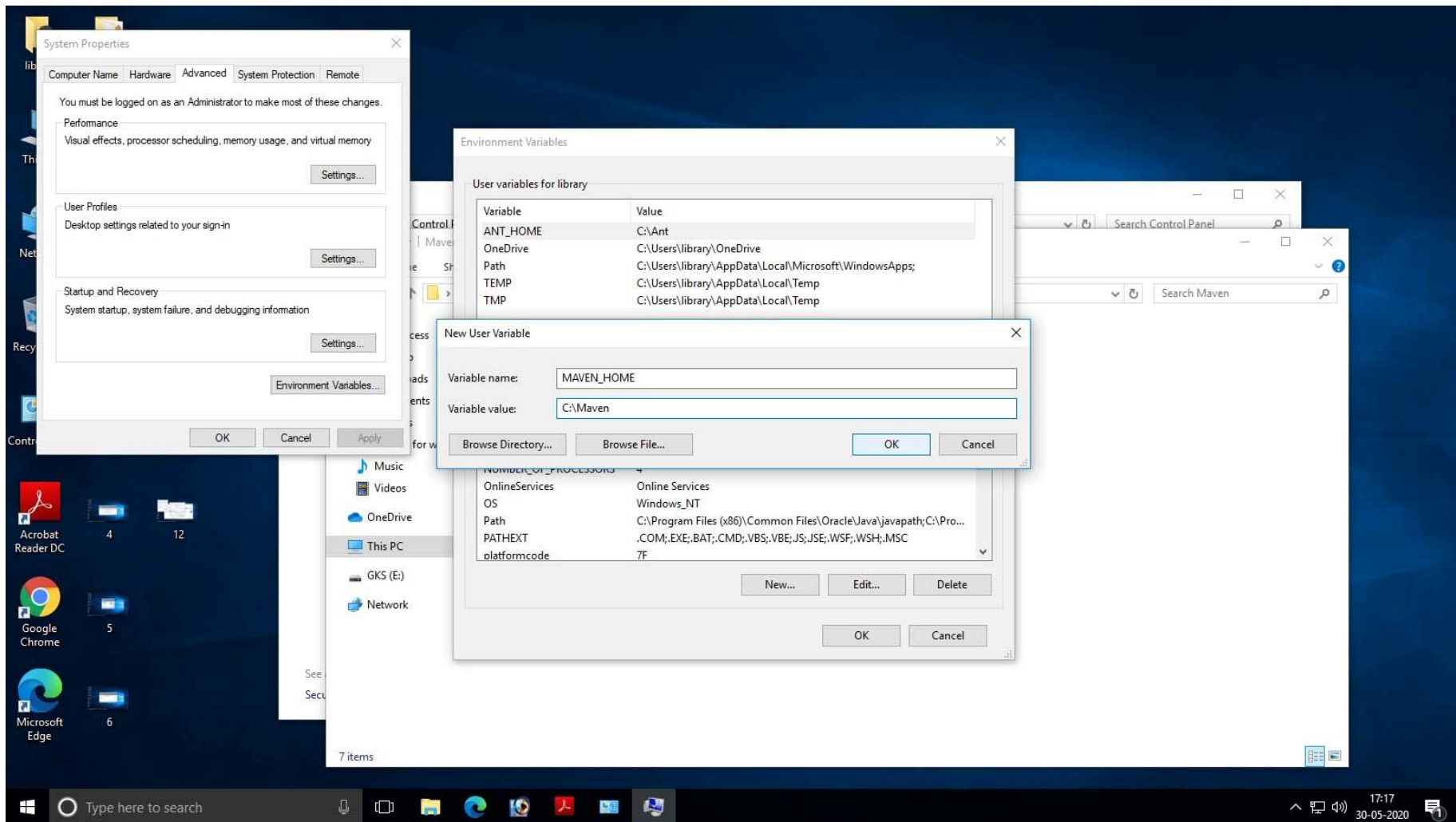
Click *New* on the section *User variables for library*



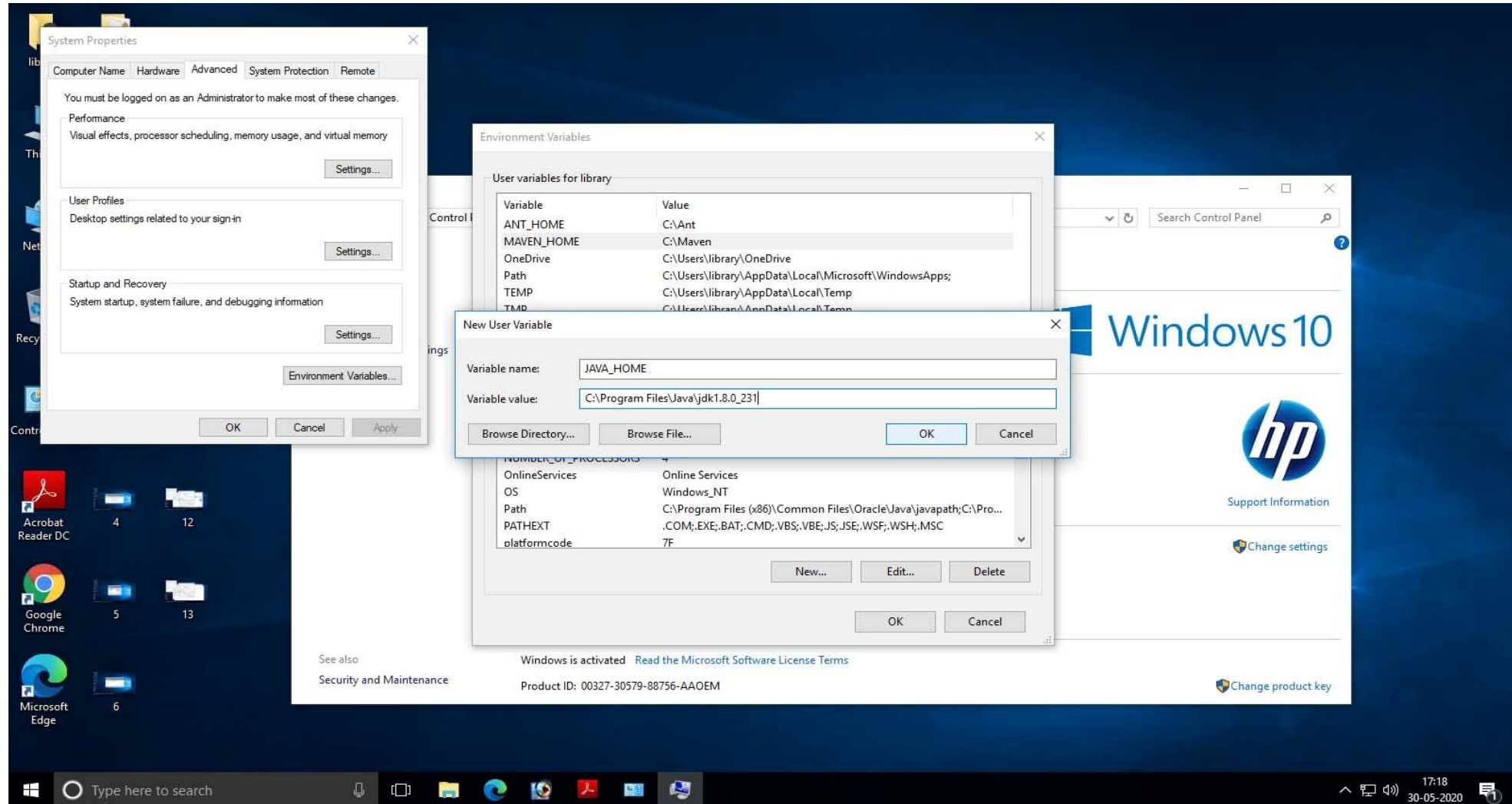
Put **ANT_HOME** in variable name and ant path in value (**C:\Ant**).



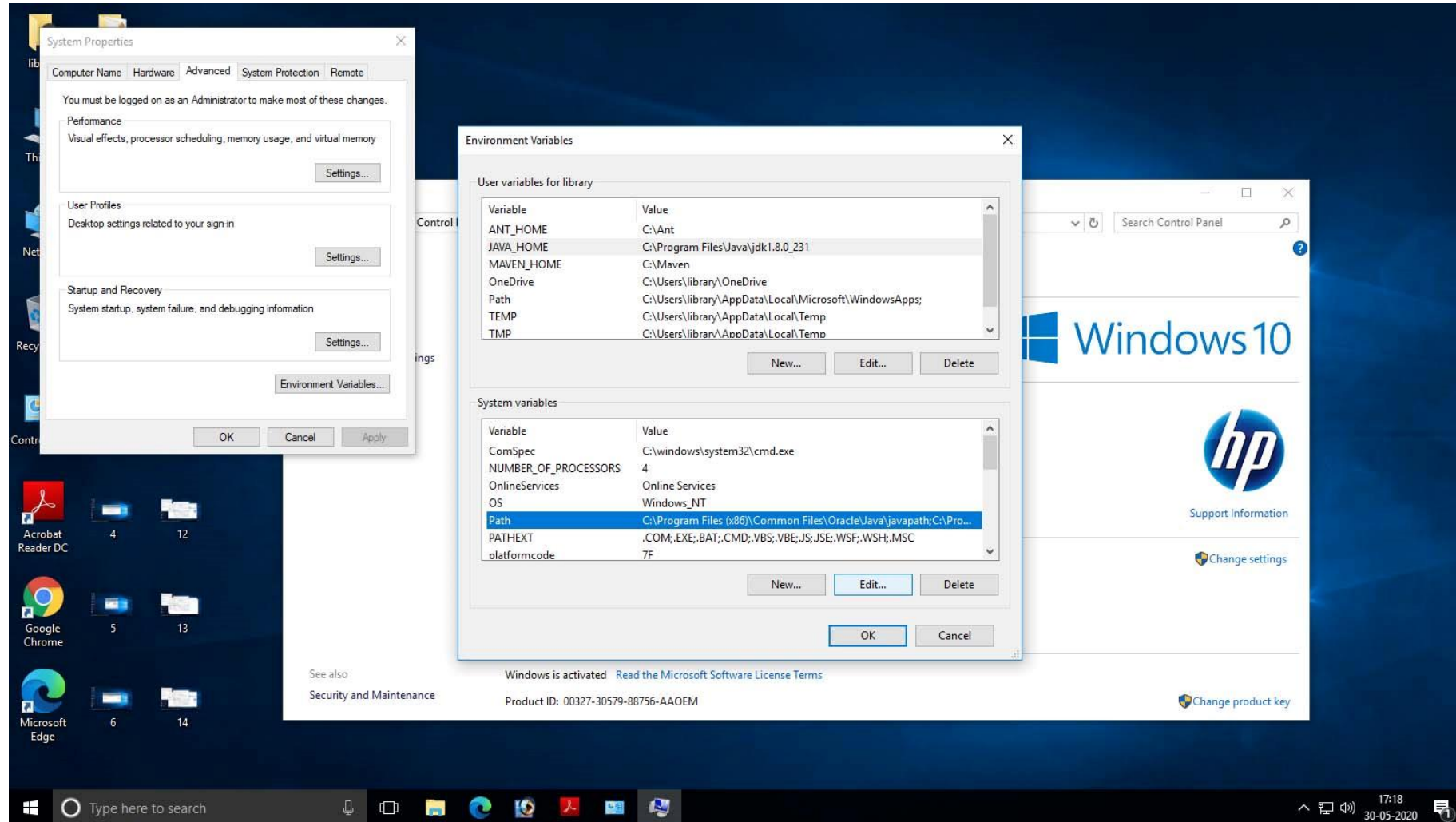
Put **MAVEN_HOME** in variable name and maven path in value (**C:\Maven**).



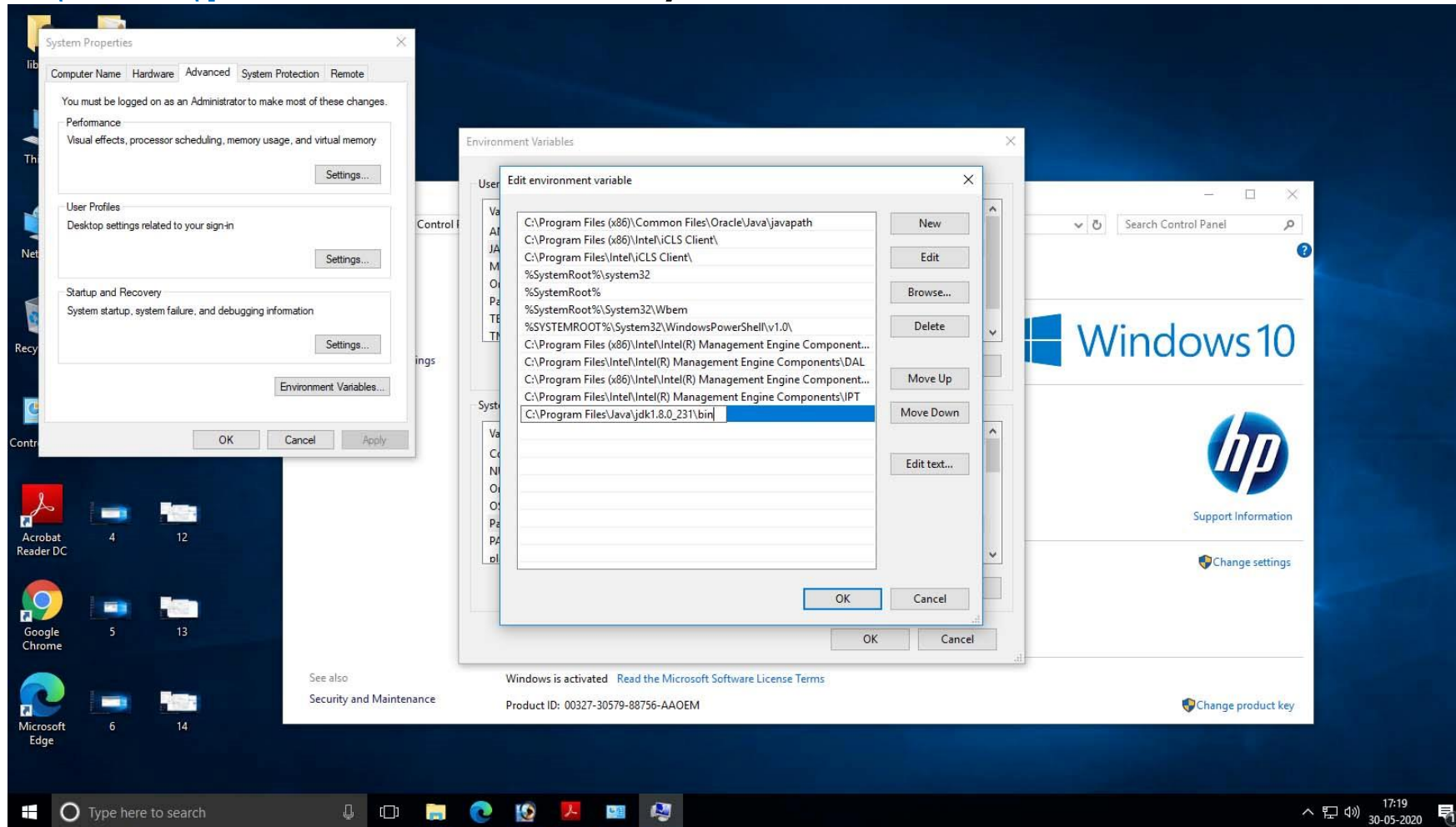
Put **JAVA_HOME** in variable name and java path in value (**C:\Program Files\Java\jdk1.8.0_231**).



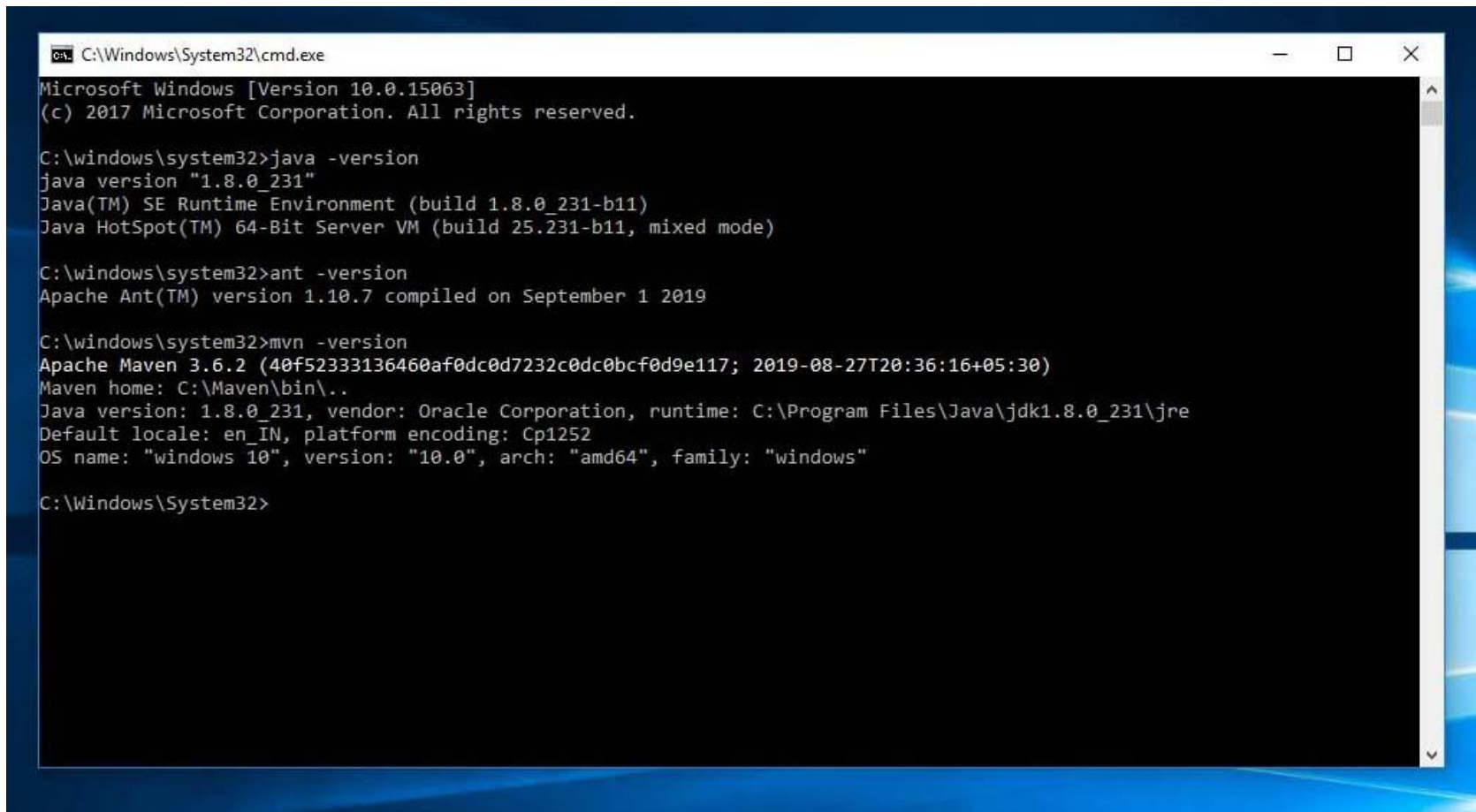
On the same screen click *Path* under the section *System variables* and click *New*



Add `C:\Ant\bin`, `C:\Maven\bin`, `C:\Program Files\Java\jdk1.8.0_231\bin` and `C:\Program Files\Java\jre1.8.0_231` as System variable and click *OK*



Check whether Java, Ant and Maven are properly installed or not



```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.15063]
(c) 2017 Microsoft Corporation. All rights reserved.

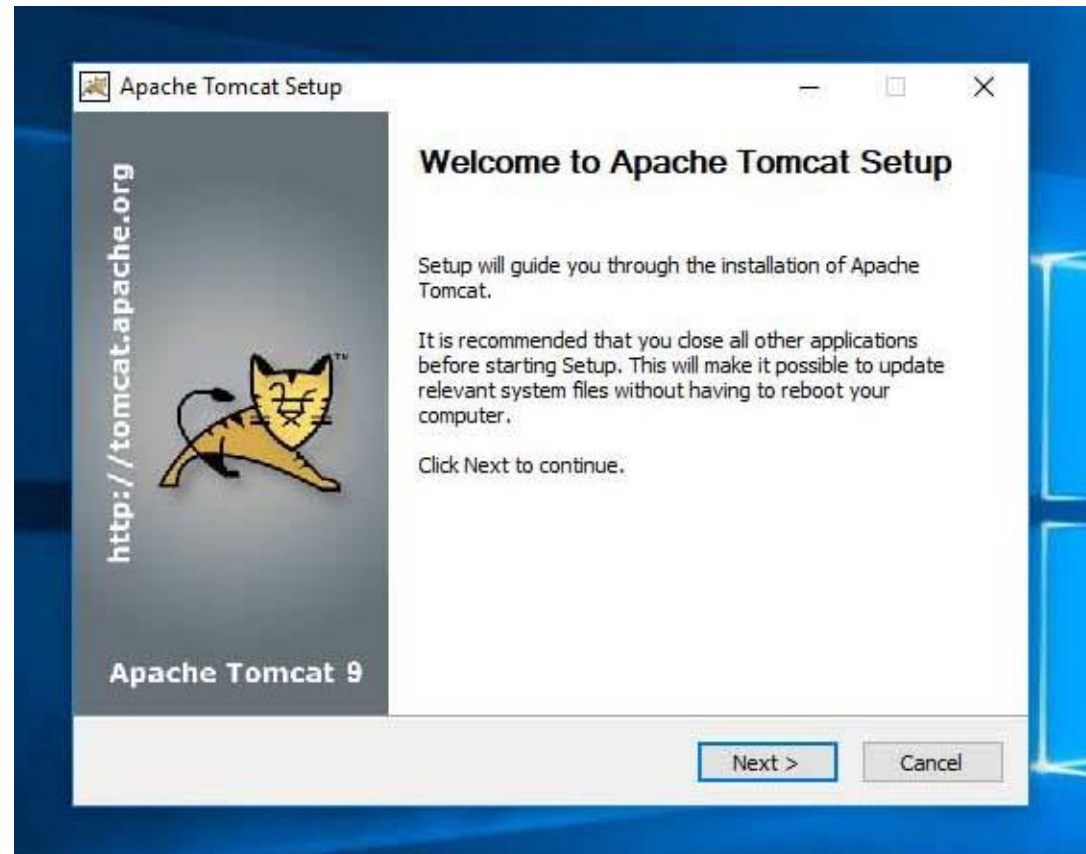
C:\windows\system32>java -version
java version "1.8.0_231"
Java(TM) SE Runtime Environment (build 1.8.0_231-b11)
Java HotSpot(TM) 64-Bit Server VM (build 25.231-b11, mixed mode)

C:\windows\system32>ant -version
Apache Ant(TM) version 1.10.7 compiled on September 1 2019

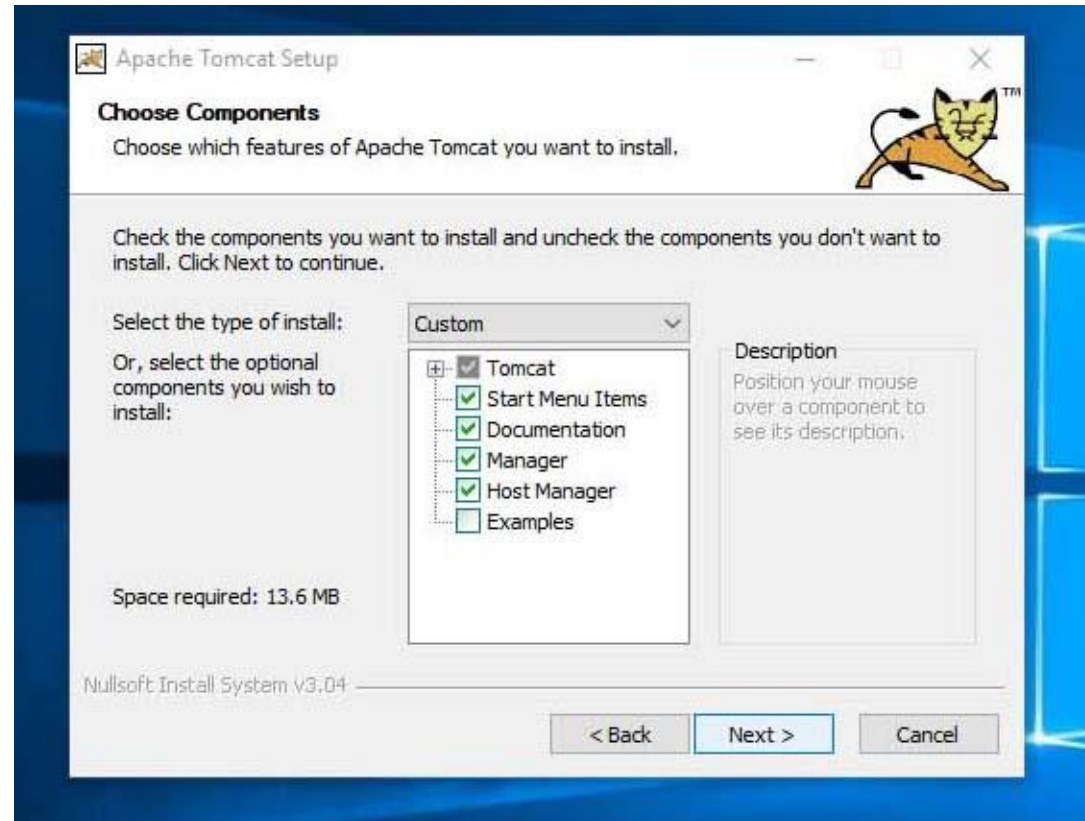
C:\windows\system32>mvn -version
Apache Maven 3.6.2 (40f52333136460af0dc0d7232c0dc0bcf0d9e117; 2019-08-27T20:36:16+05:30)
Maven home: C:\Maven\bin\..
Java version: 1.8.0_231, vendor: Oracle Corporation, runtime: C:\Program Files\Java\jdk1.8.0_231\jre
Default locale: en_IN, platform encoding: Cp1252
OS name: "windows 10", version: "10.0", arch: "amd64", family: "windows"

C:\Windows\System32>
```

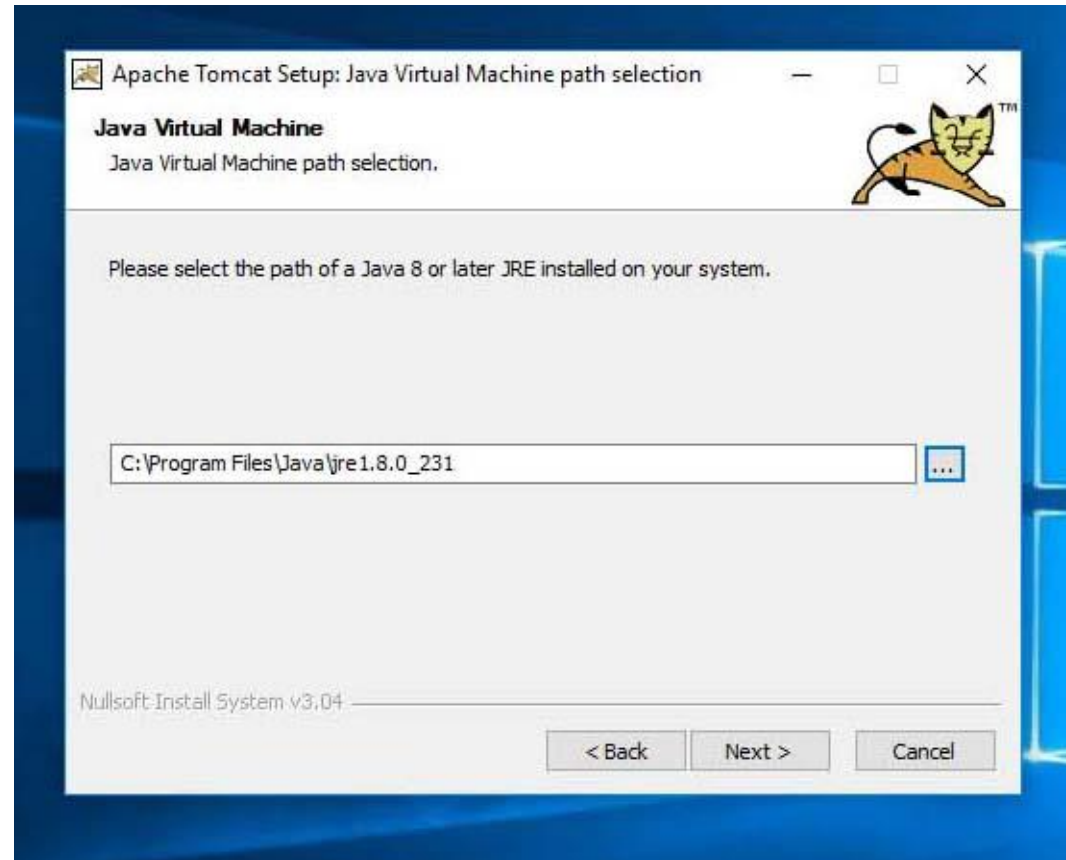
Install Tomcat (click next)



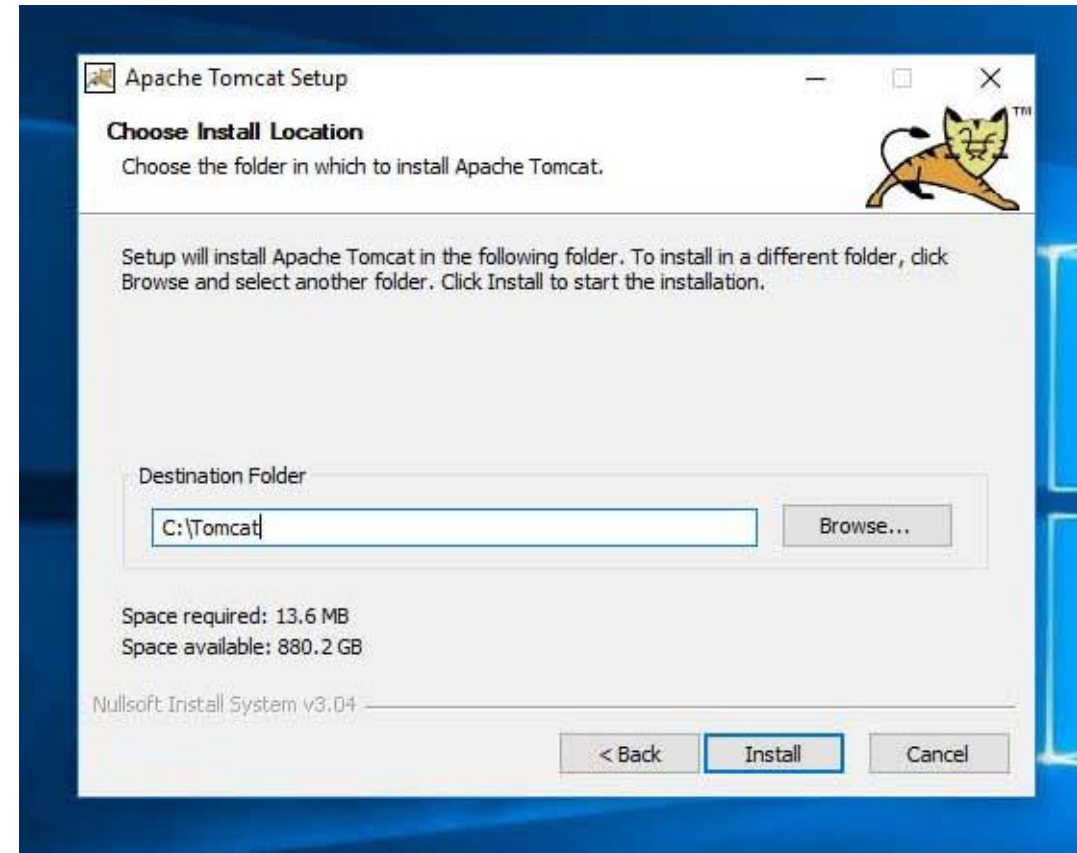
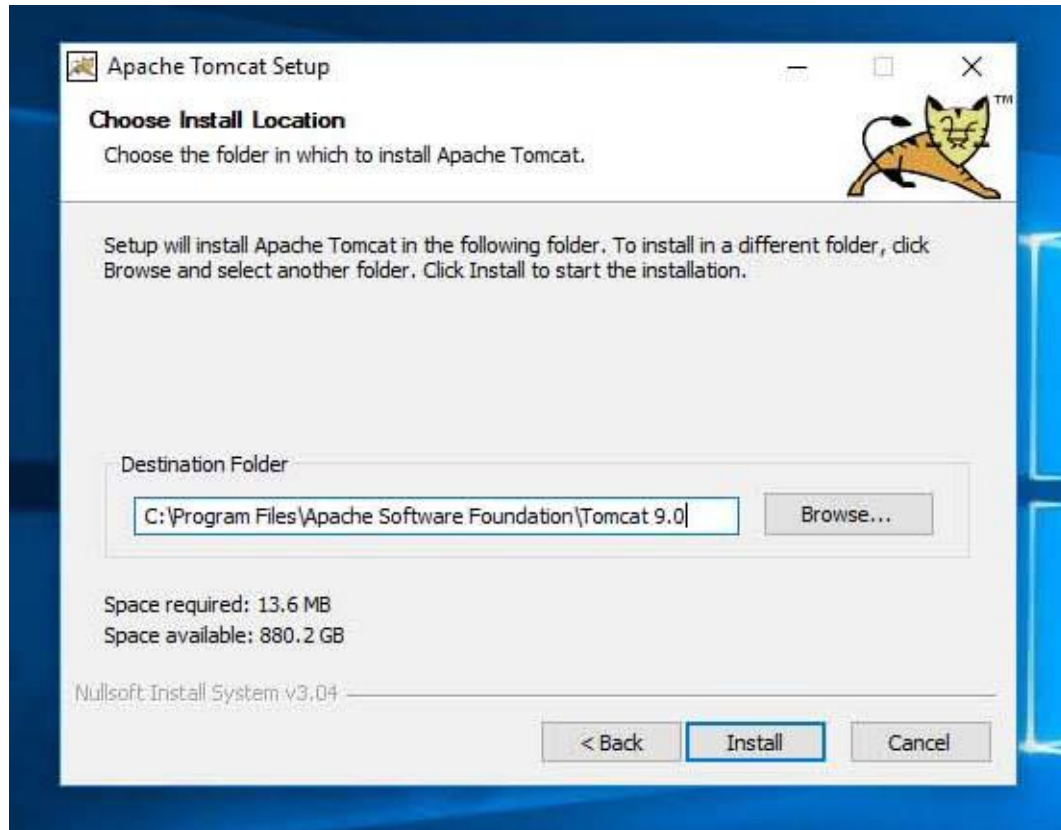
Select all (click next)



Destination unchanged (click next)



Change the destination to C:\Tomcat



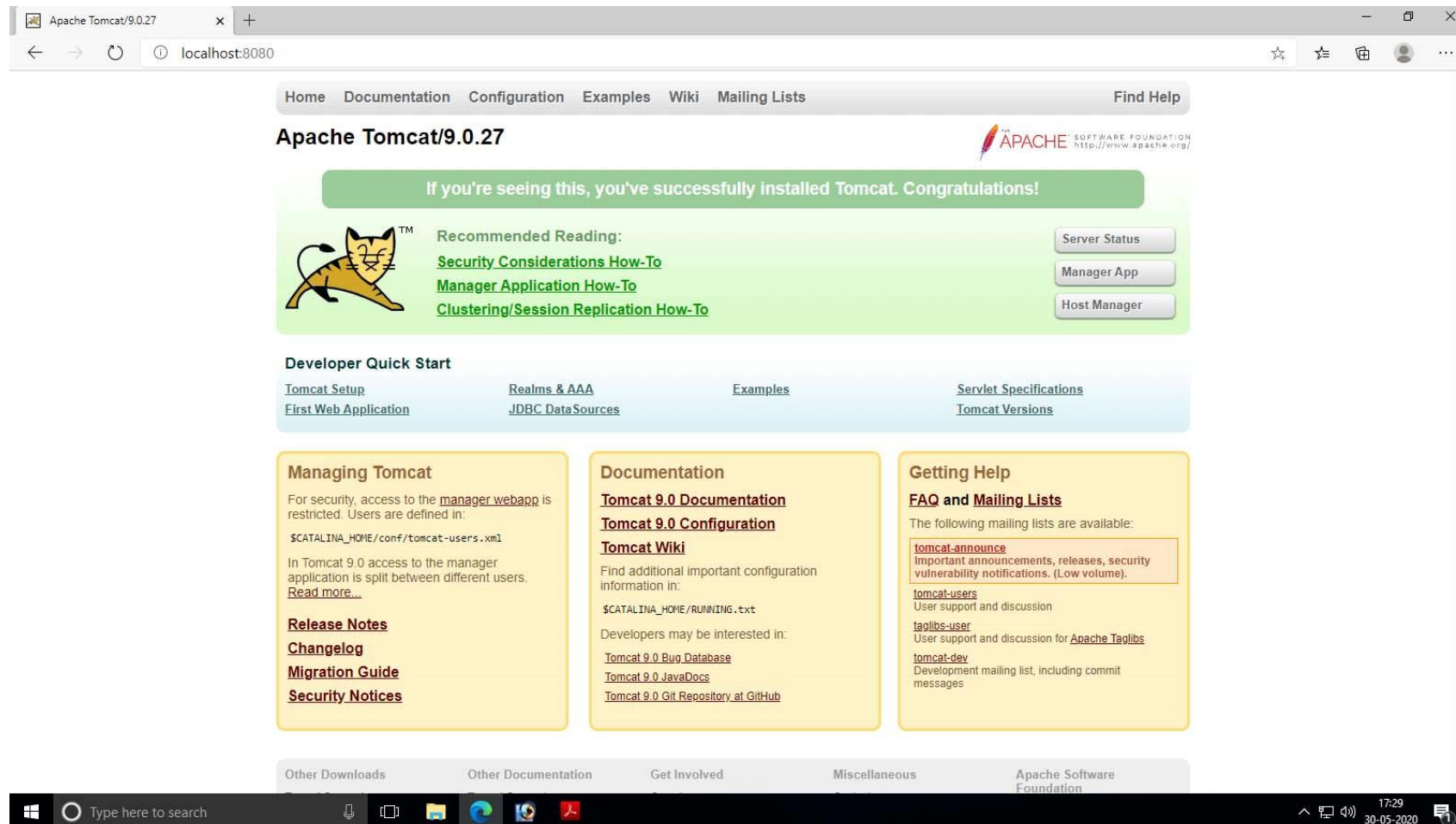
Click on *Run Apache Tomcat* and *Finish*



Make sure whether your Tomcat is running or not in the Task Bar of the machine



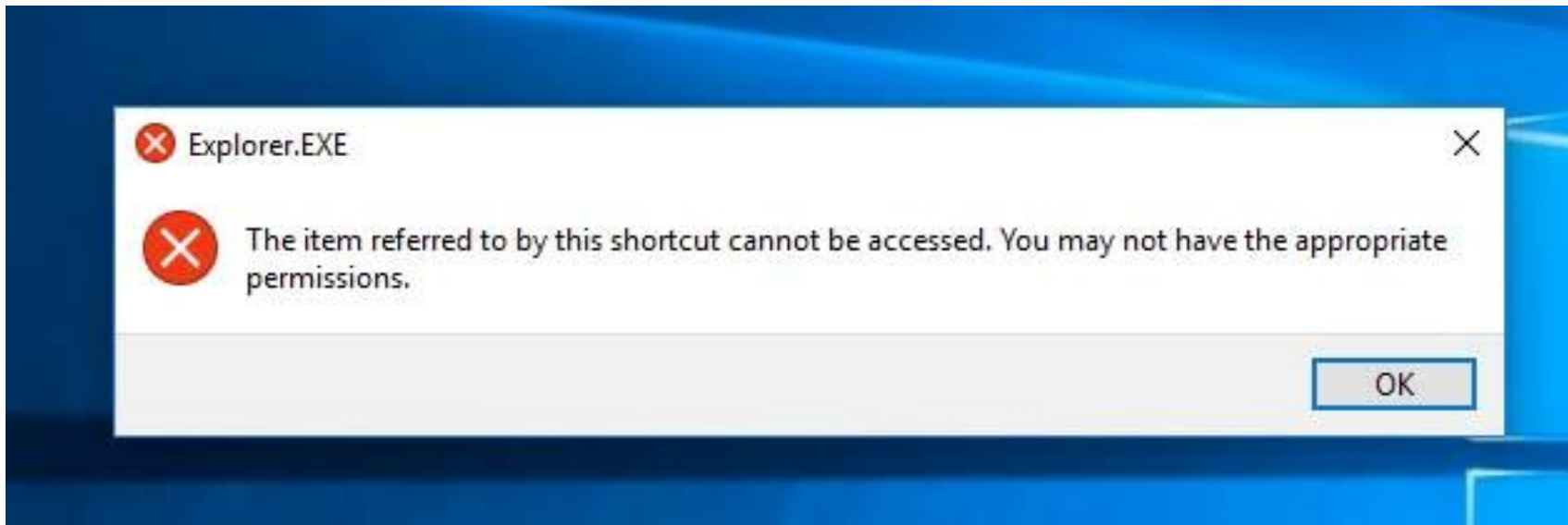
Also check in any web browser by typing *localhost:8080*
If you see the following screen, then your Tomcat is properly installed.



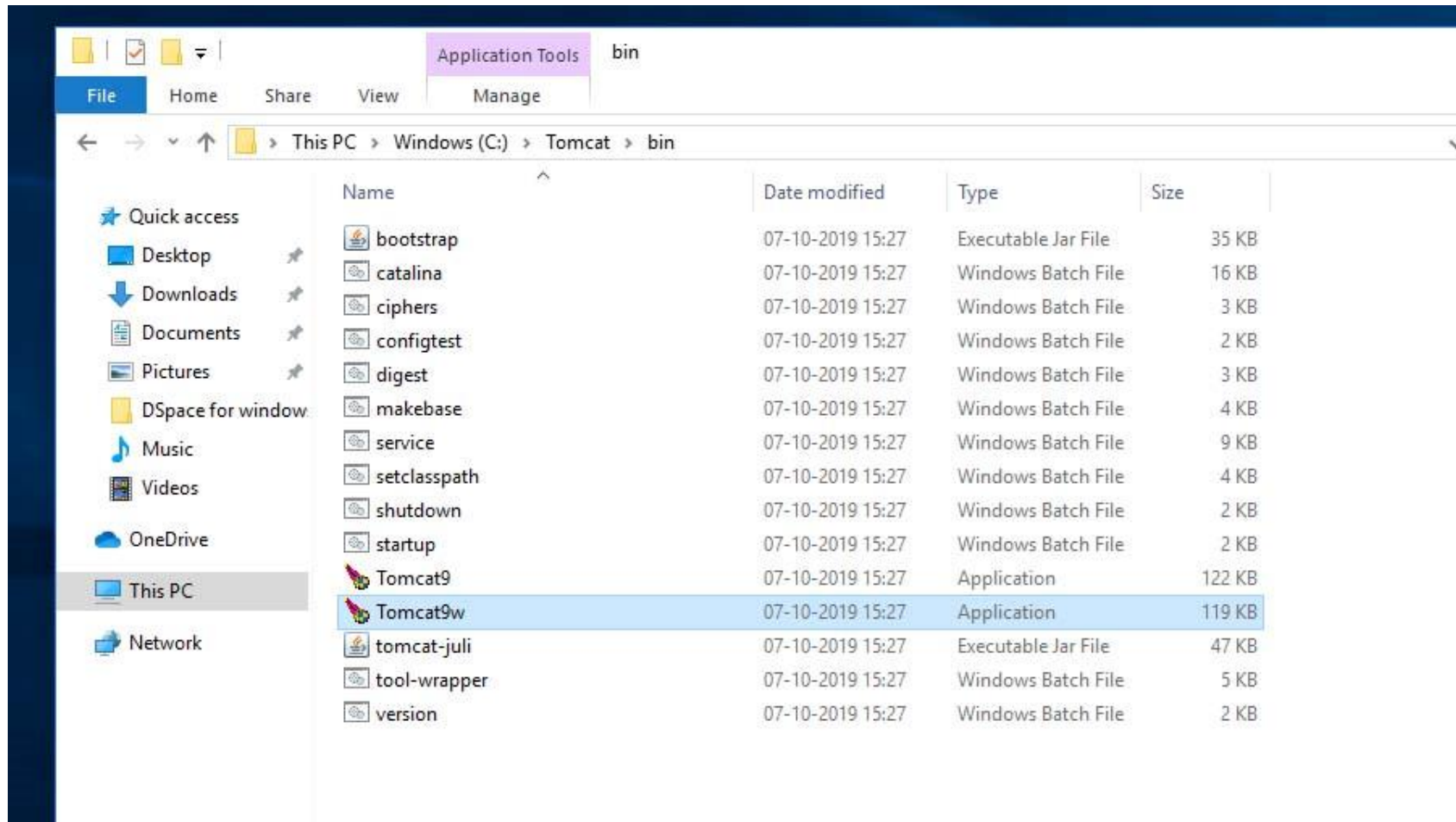
In the next boot of the machine you have to click on the *Monitor Tomcat* button by clicking on the *Start* button of your Windows



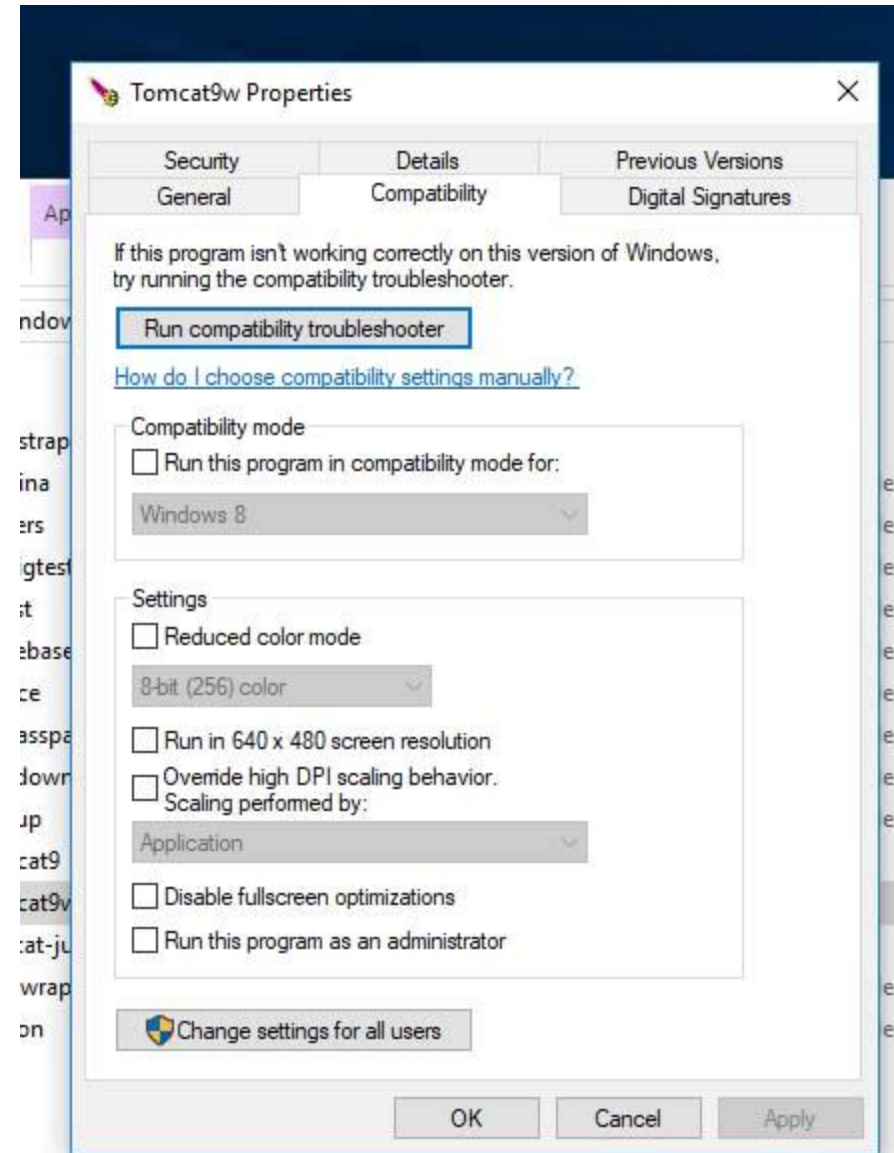
Such a message may appear. Its an authentication problem. Don't worry. We have solutions.



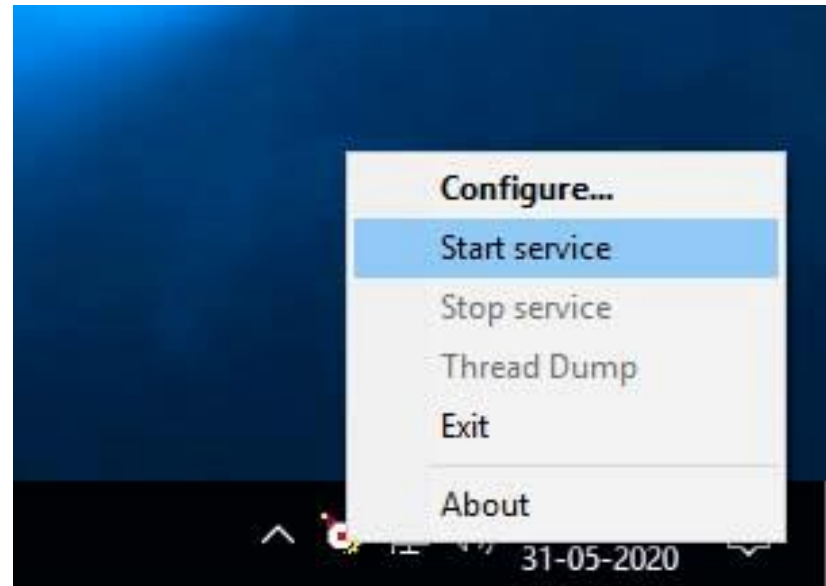
Go to the location **C:\Tomcat\bin** and right click on *Tomcat9w* icon



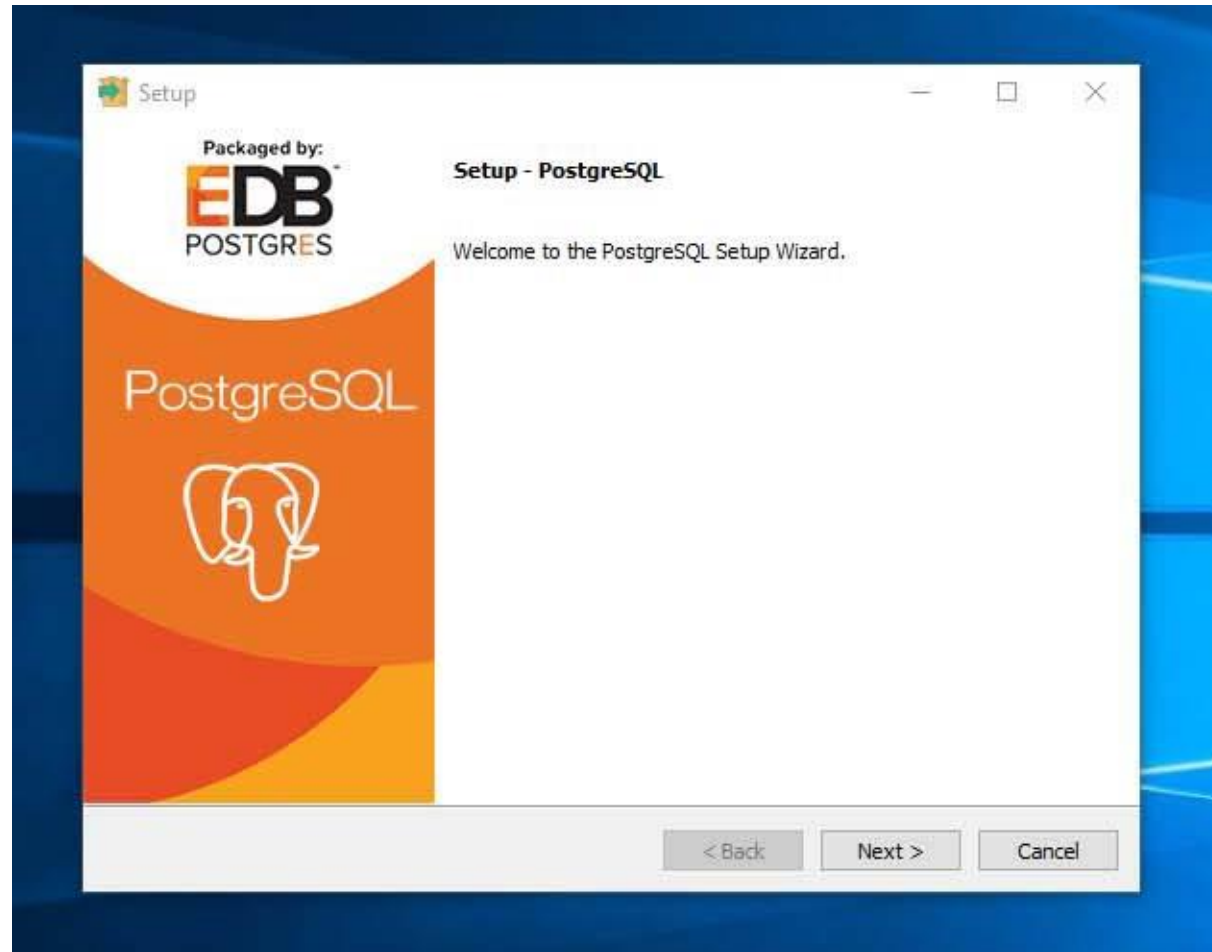
When this screen appears, go to *Compatibility* section and check the option *Run this program as an administrator*. Click *Apply* and *OK*.



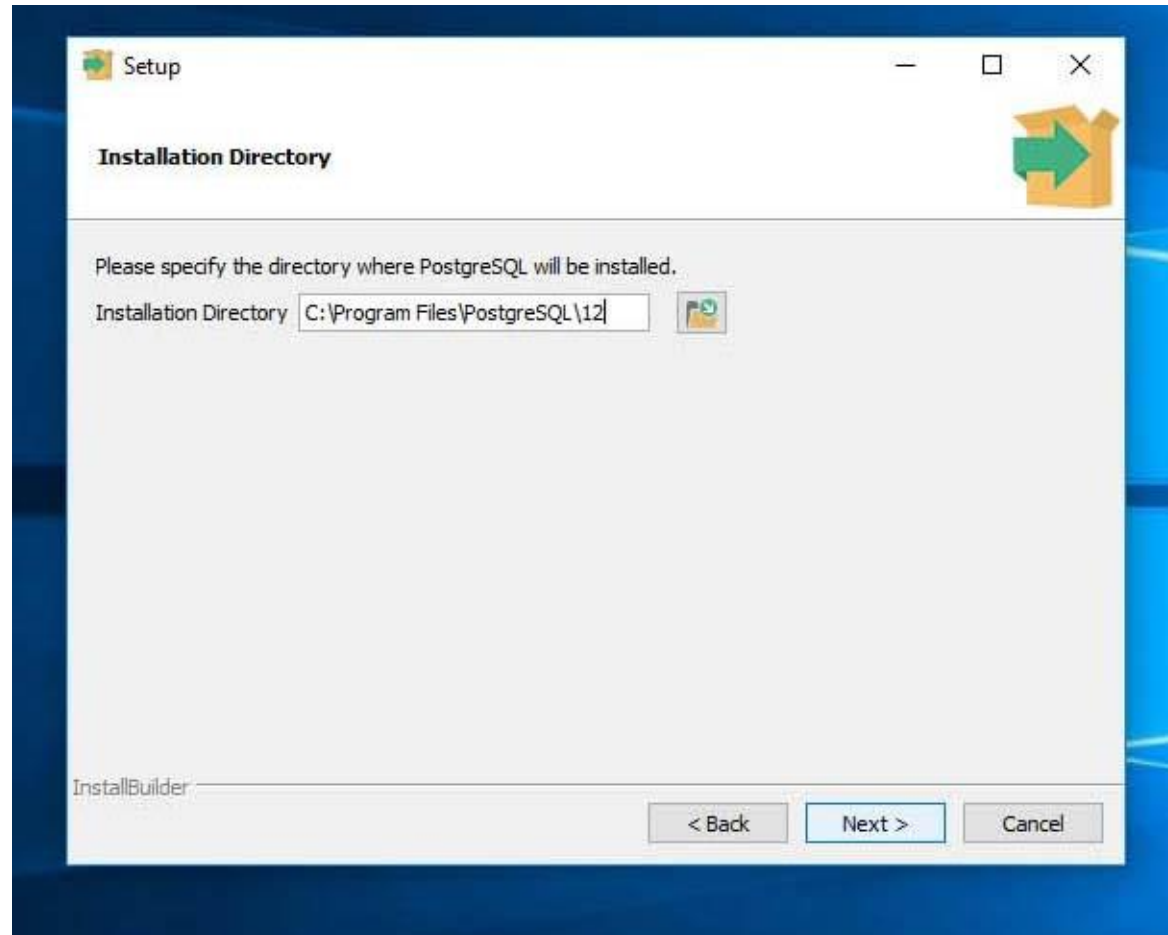
Now go to the Tomcat icon on the Task Bar of your machine and right click, then *Start the service*.



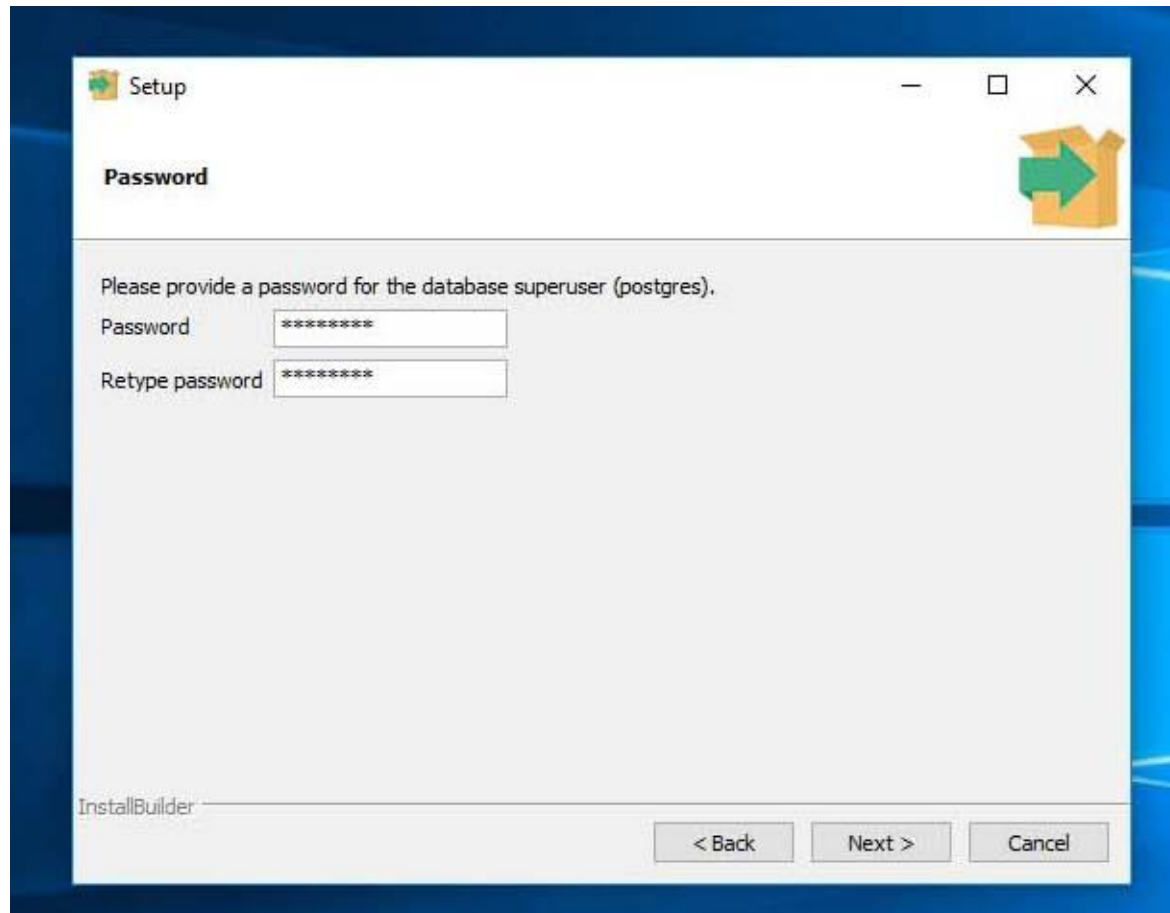
Install Postgresql (click next)



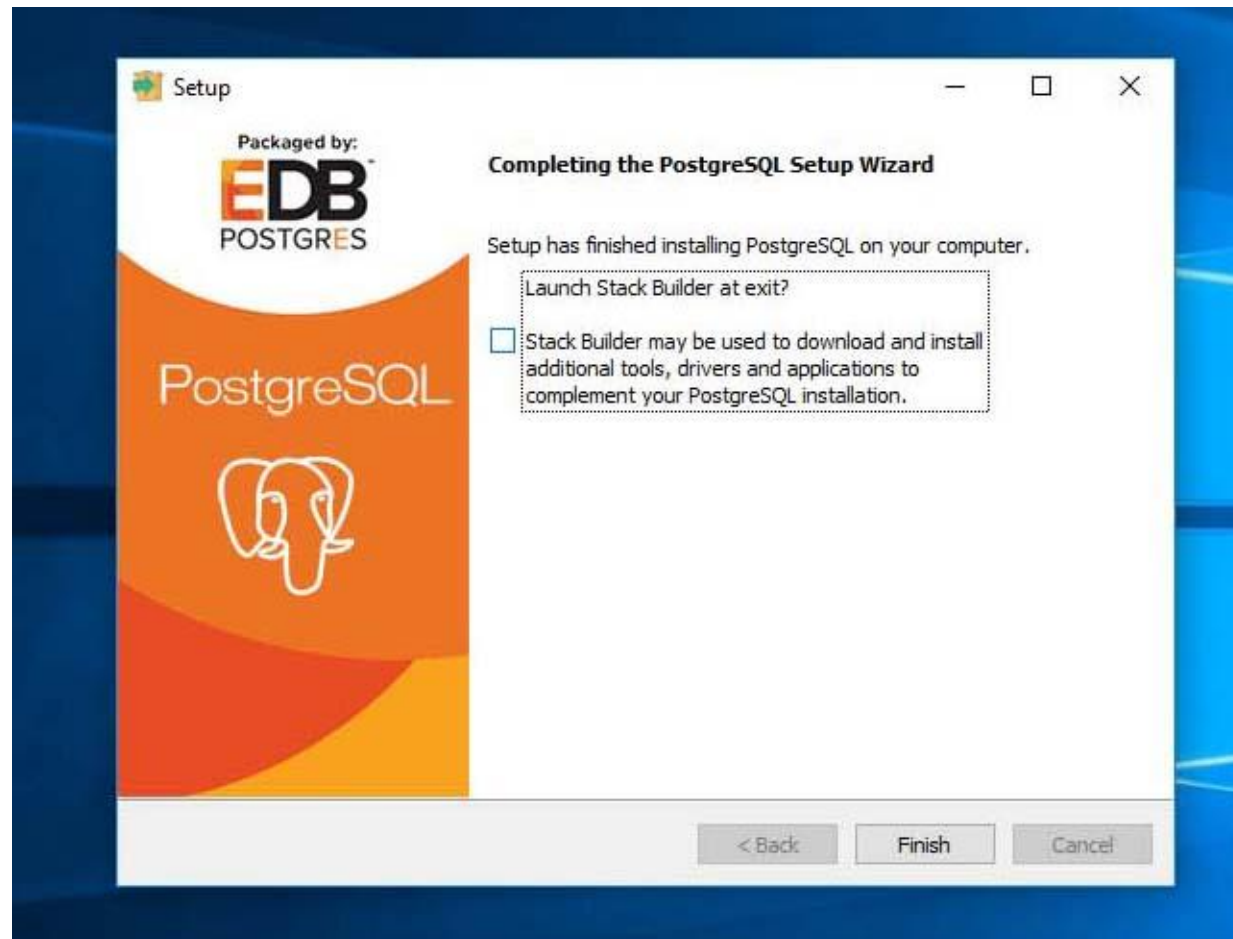
Destination unchanged (click next)



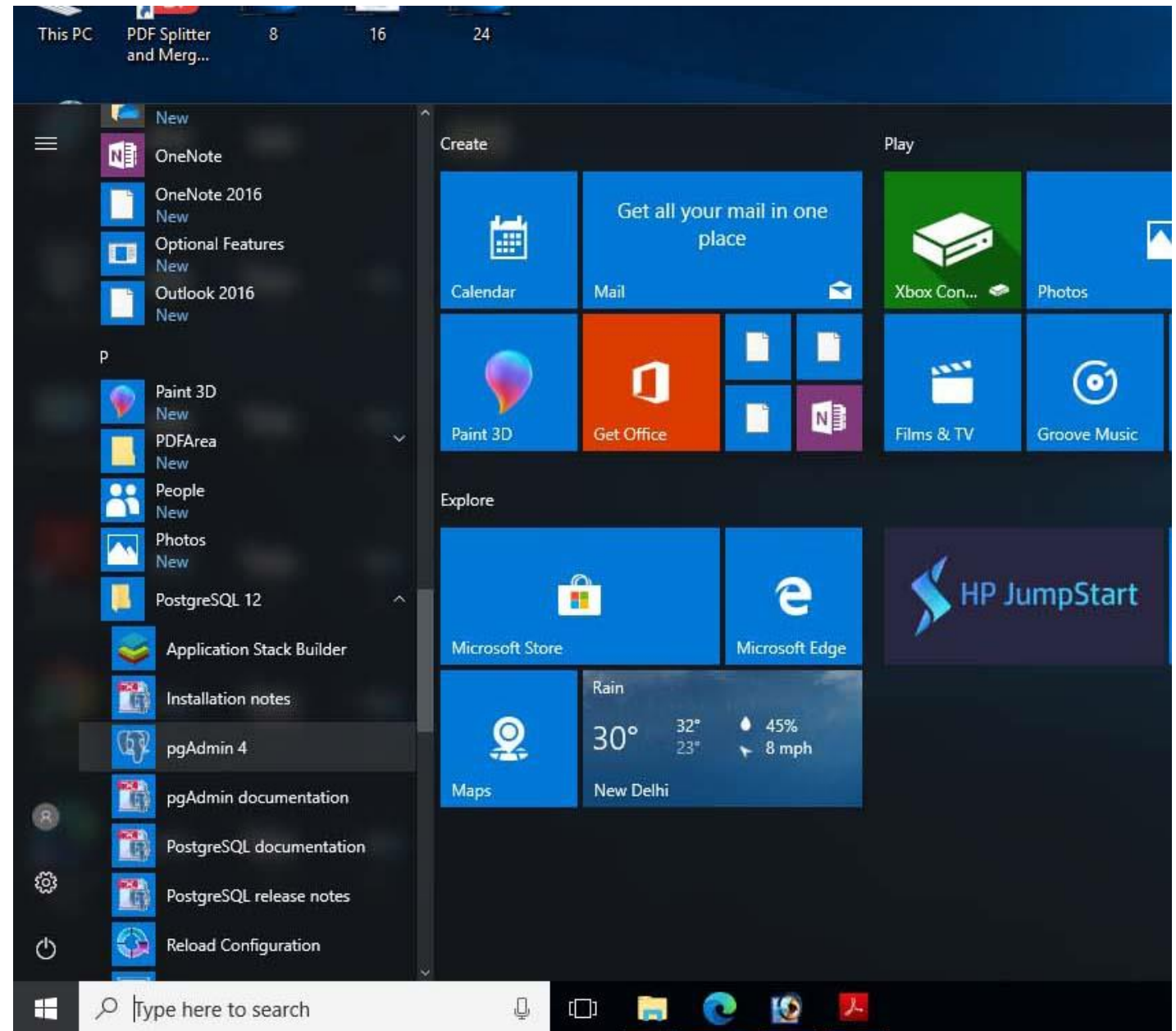
Type *postgres* as password



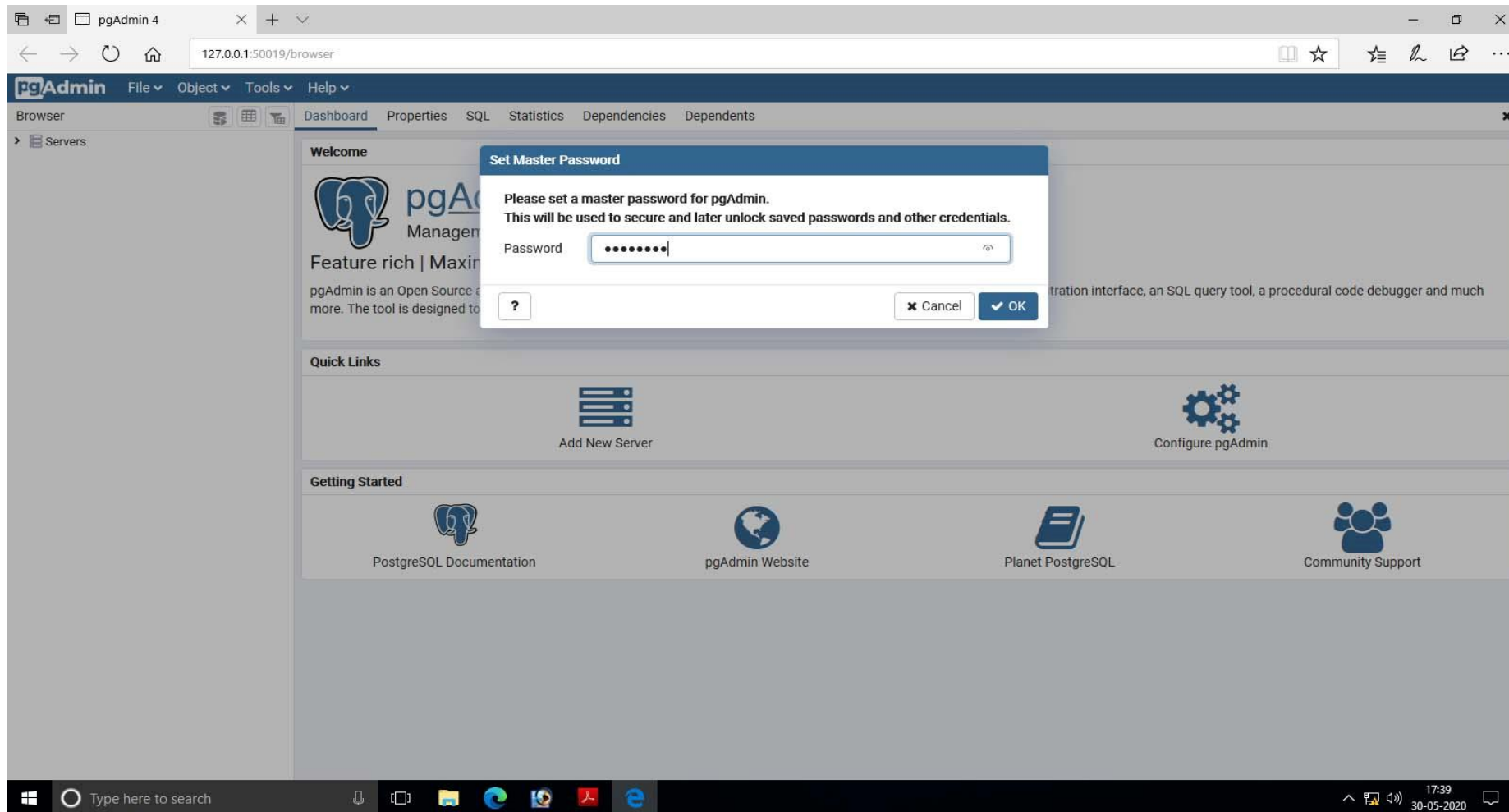
Uncheck the *Stack Builder* and click on *Finish*



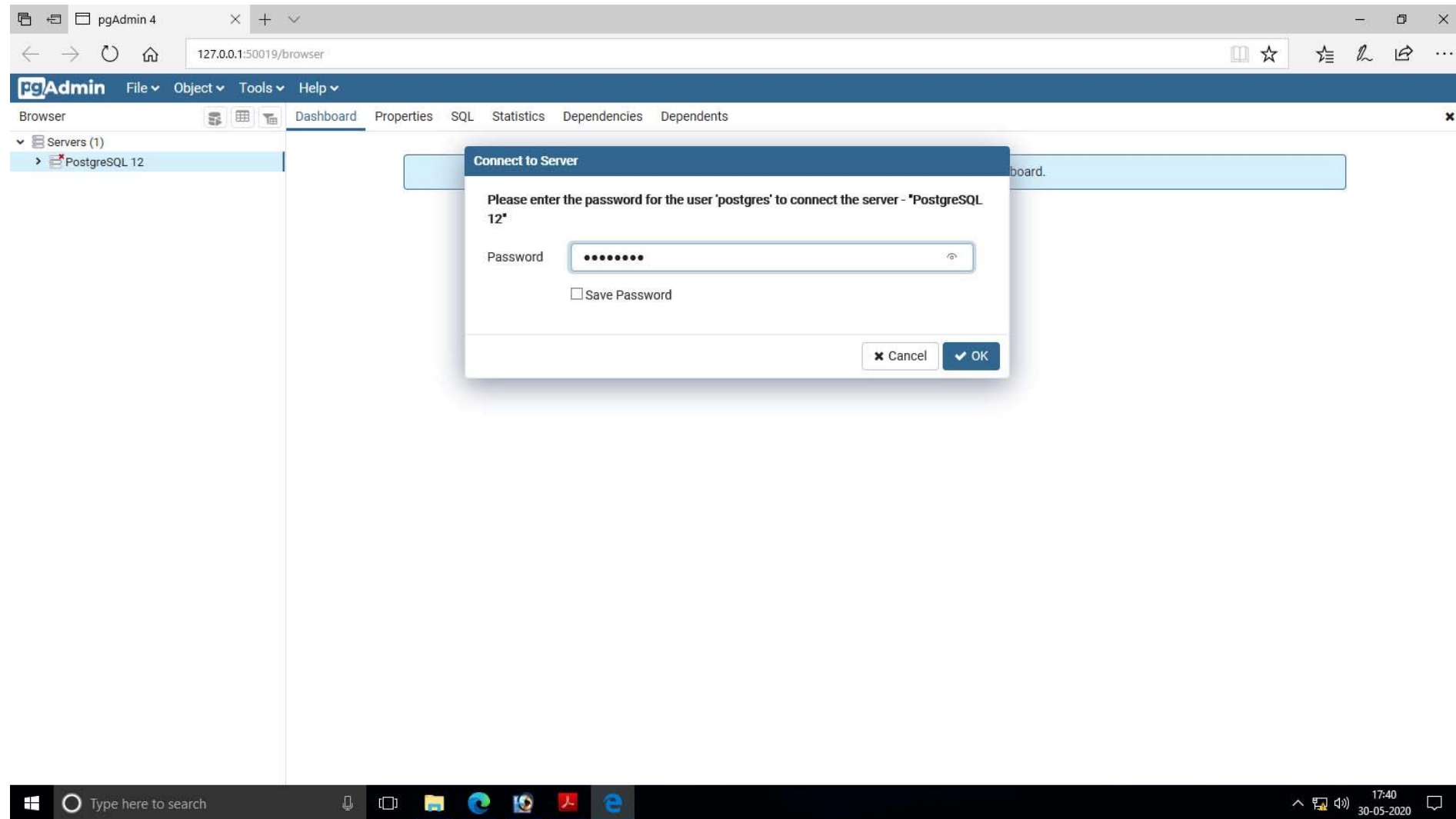
Now create a database and login role.
Chose *pgAdmin 4* from the start button.



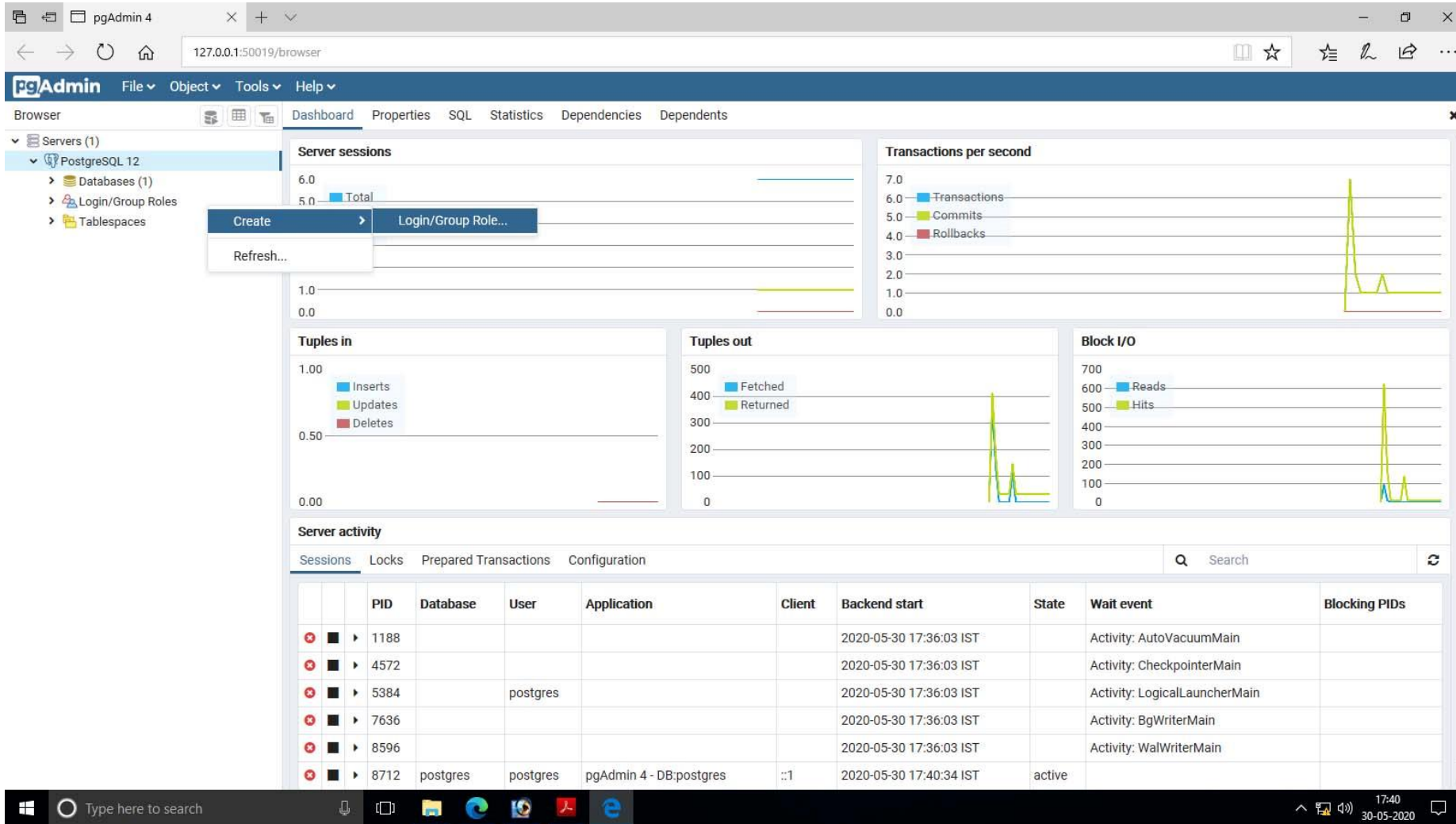
The screen will appear in a web browser. Type the password. We gave *postgres* as password.



Again password is *postgres*.



First create the login role for our database

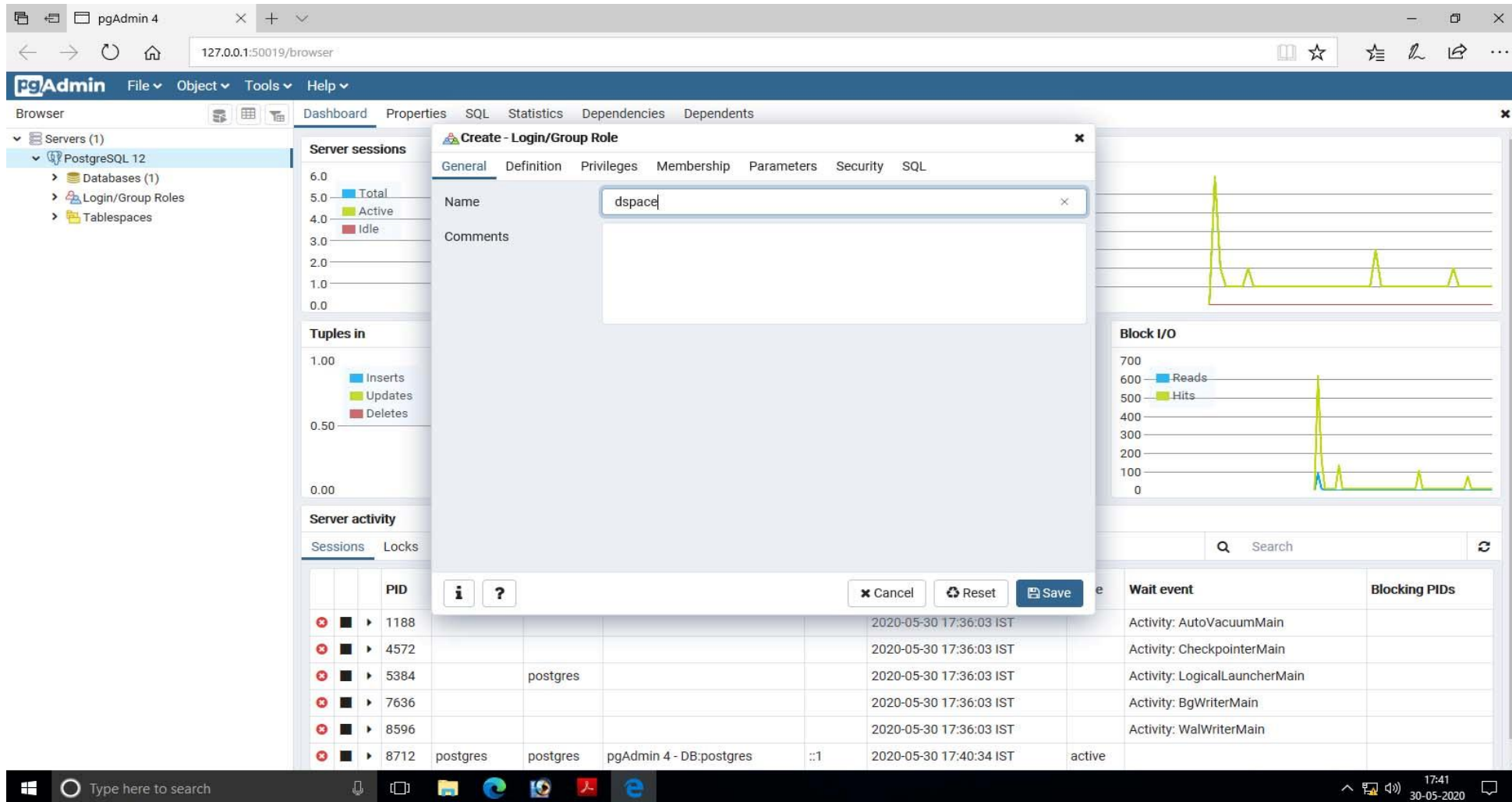


The screenshot displays the pgAdmin 4 web interface in a browser window. The left sidebar shows the 'Servers (1)' tree with 'PostgreSQL 12' expanded, showing 'Databases (1)', 'Login/Group Roles', and 'Tablespaces'. The main panel is divided into several sections:

- Server sessions:** A line chart showing 'Total' sessions over time, with a peak around 6.0.
- Transactions per second:** A line chart showing 'Transactions', 'Commits', and 'Rollbacks' over time, with a peak around 7.0.
- Tuples in:** A line chart showing 'Inserts', 'Updates', and 'Deletes' over time, with a peak around 1.00.
- Tuples out:** A line chart showing 'Fetched' and 'Returned' tuples over time, with a peak around 500.
- Block I/O:** A line chart showing 'Reads' and 'Hits' over time, with a peak around 700.
- Server activity:** A table showing active sessions.

The 'Create' menu is open for 'Login/Group Role...', and the 'Refresh...' button is visible. The 'Server activity' table is shown below the charts.

	PID	Database	User	Application	Client	Backend start	State	Wait event	Blocking PIDs
✖	1188					2020-05-30 17:36:03 IST		Activity: AutoVacuumMain	
✖	4572					2020-05-30 17:36:03 IST		Activity: CheckpointerMain	
✖	5384		postgres			2020-05-30 17:36:03 IST		Activity: LogicalLauncherMain	
✖	7636					2020-05-30 17:36:03 IST		Activity: BgWriterMain	
✖	8596					2020-05-30 17:36:03 IST		Activity: WalWriterMain	
✖	8712	postgres	postgres	pgAdmin 4 - DB:postgres	::1	2020-05-30 17:40:34 IST	active		



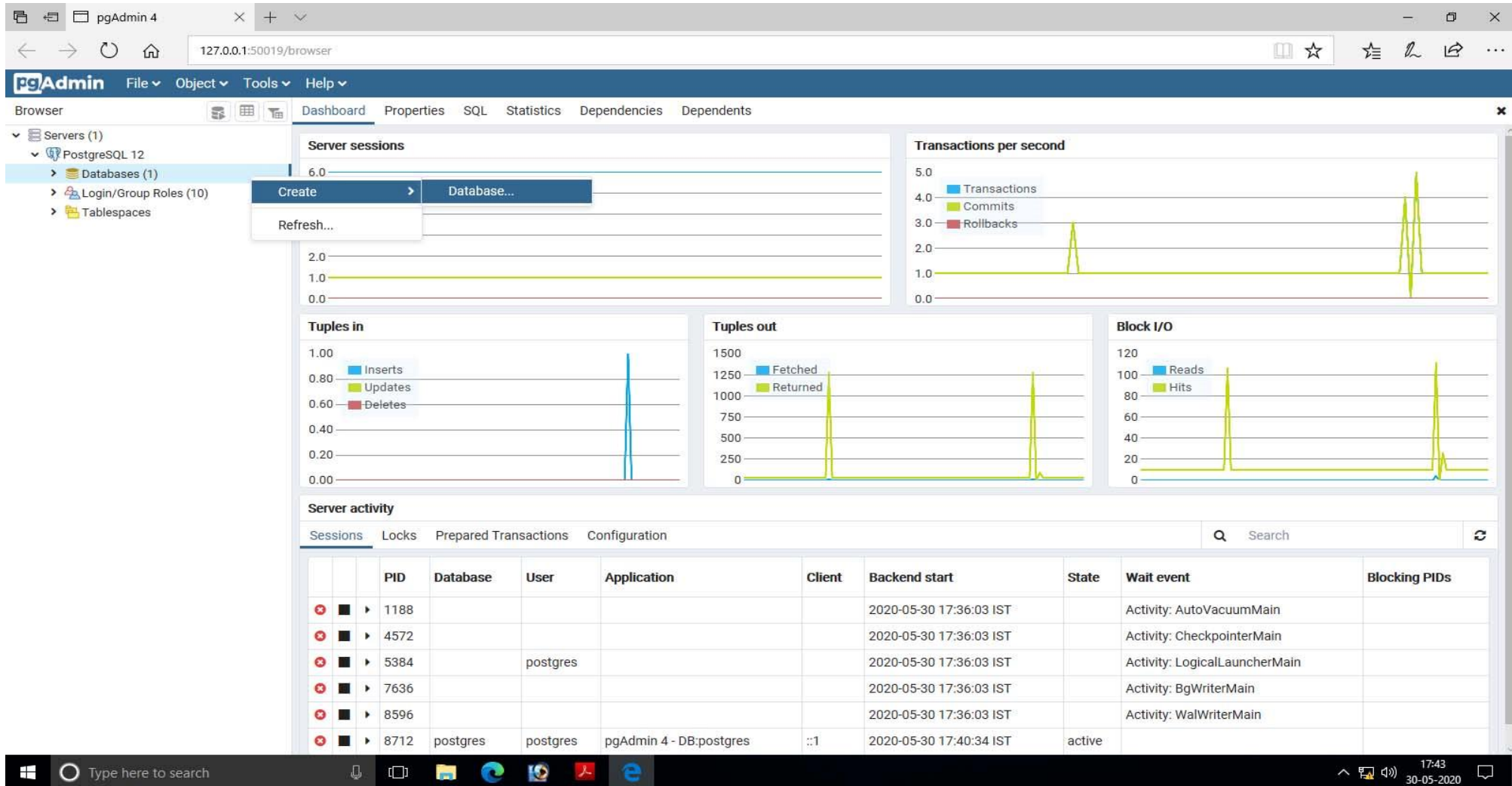
Password as *dspace*. You can give your own.

The screenshot displays the pgAdmin 4 web interface in a browser window. The main menu includes File, Object, Tools, and Help. The left sidebar shows a tree view of the database structure: Servers (1) > PostgreSQL 12 > Databases (1) > Login/Group Roles. The central pane is divided into several sections: 'Server sessions' with a line graph showing Total, Active, and Idle sessions; 'Tuples in' with a line graph showing Inserts, Updates, and Deletes; and 'Server activity' with a table of active sessions. A modal dialog titled 'Create - Login/Group Role' is open, showing the 'Definition' tab. The 'Password' field is set to 'dspace', and the 'Account expires' field is set to 'YYYY-MM-DD HH:mm:ss Z'. The 'Connection limit' is set to '-1'. The background also shows a 'Block I/O' graph and a table of wait events.

PID	Activity	Blocking PIDs
1188	Activity: AutoVacuumMain	
4572	Activity: CheckpointerMain	
5384	Activity: LogicalLauncherMain	
7636	Activity: BgWriterMain	
8596	Activity: WalWriterMain	
8712	Activity: pgAdmin 4 - DB:postgres	



Now we have to create our database



The screenshot shows the pgAdmin 4 web interface in a browser window. The left sidebar shows the 'Servers (1)' tree with 'PostgreSQL 12' expanded, showing 'Databases (1)', 'Login/Group Roles (10)', and 'Tablespaces'. The 'Create' button is highlighted, and a dropdown menu is open with 'Database...' selected. The main panel displays several performance graphs: 'Server sessions' (a line graph showing a peak at 6.0), 'Transactions per second' (a line graph showing peaks at 3.0 and 4.0), 'Tuples in' (a line graph showing a peak at 1.00), 'Tuples out' (a line graph showing peaks at 1250 and 1000), and 'Block I/O' (a line graph showing peaks at 100 and 120). Below the graphs is the 'Server activity' section, which includes tabs for 'Sessions', 'Locks', 'Prepared Transactions', and 'Configuration'. The 'Sessions' tab is active, showing a table of server activity.

	PID	Database	User	Application	Client	Backend start	State	Wait event	Blocking PIDs
✖	1188					2020-05-30 17:36:03 IST		Activity: AutoVacuumMain	
✖	4572					2020-05-30 17:36:03 IST		Activity: CheckpointerMain	
✖	5384		postgres			2020-05-30 17:36:03 IST		Activity: LogicalLauncherMain	
✖	7636					2020-05-30 17:36:03 IST		Activity: BgWriterMain	
✖	8596					2020-05-30 17:36:03 IST		Activity: WalWriterMain	
✖	8712	postgres	postgres	pgAdmin 4 - DB:postgres	::1	2020-05-30 17:40:34 IST	active		

Database name *dspace*. You can give your own.
Owner as *dspace*.

The screenshot displays the pgAdmin 4 web interface. A 'Create - Database' dialog box is open in the center, with the 'General' tab selected. The 'Database' field contains 'dspace' and the 'Owner' dropdown is set to 'dspace'. The background shows the pgAdmin 4 dashboard with various monitoring charts and a table of server activity.

Server sessions

6.0
5.0
4.0
3.0
2.0
1.0
0.0

Total
Active
Idle

Tuples in

1.00
0.80
0.60
0.40
0.20
0.00

Inserts
Updates
Deletes

Server activity

Sessions Locks Prepared Trans

	PID	Database	State	Wait event	Blocking PIDs
1188				Activity: AutoVacuumMain	
4572				Activity: CheckpointerMain	
5384		postgres		Activity: LogicalLauncherMain	
7636				Activity: BgWriterMain	
8596		postgres		Activity: WalWriterMain	
8712	postgres	postgres	pgAdmin 4 - DB:postgres	active	

Choose *UTF8* encoding and *Save*

The screenshot shows the pgAdmin 4 web interface. The 'Create - Database' dialog box is open, displaying the 'Definition' tab. The 'Encoding' dropdown is set to 'UTF8'. The 'Save' button is highlighted in blue. The background shows the 'Server sessions' and 'Server activity' sections, along with performance graphs for 'per second' and 'Block I/O'.

Server sessions

Session	Total	Active	Idle
1188	0.00	0.00	0.00
4572	0.00	0.00	0.00
5384	0.00	0.00	0.00
7636	0.00	0.00	0.00
8596	0.00	0.00	0.00
8712	0.00	0.00	0.00

Tuples in

Tuple	Inserts	Updates	Deletes
1188	0.00	0.00	0.00
4572	0.00	0.00	0.00
5384	0.00	0.00	0.00
7636	0.00	0.00	0.00
8596	0.00	0.00	0.00
8712	0.00	0.00	0.00

Server activity

Session	Locks	Prepared Trans
1188		
4572		
5384		
7636		
8596		
8712		

Block I/O

Block I/O	Reads	Hits
1188	0.00	0.00
4572	0.00	0.00
5384	0.00	0.00
7636	0.00	0.00
8596	0.00	0.00
8712	0.00	0.00

Server activity table

PID	Database	State	Wait event	Blocking PIDs
1188			Activity: AutoVacuumMain	
4572			Activity: CheckpointerMain	
5384	postgres		Activity: LogicalLauncherMain	
7636			Activity: BgWriterMain	
8596			Activity: WalWriterMain	
8712	postgres	active		

Now, we have to create the Extension.

The screenshot shows the pgAdmin 4 web interface. On the left, the 'Servers' tree is expanded to 'PostgreSQL 12' > 'Databases (2)' > 'dspace'. The 'Create' menu is open, and 'Extension...' is selected. The main panel displays several performance graphs:

- Database sessions:** A line graph showing 'Total' (blue), 'Active' (green), and 'Idle' (red) sessions over time. The y-axis ranges from 0.00 to 1.00.
- Transactions per second:** A line graph showing 'Transactions' (blue), 'Commits' (green), and 'Rollbacks' (red) over time. The y-axis ranges from 0.0 to 10.0.
- Tuples out:** A line graph showing 'Fetched' (blue) and 'Returned' (green) tuples over time. The y-axis ranges from 0 to 20000.
- Block I/O:** A line graph showing 'Reads' (blue) and 'Hits' (green) over time. The y-axis ranges from 0 to 2500.

At the bottom, the 'Server activity' section shows a table of active sessions:

	PID	User	Application	Client	Backend start	State	Wait event	Blocking PIDs
✖	4948	postgres	pgAdmin 4 - DB:dspace	::1	2020-05-30 17:45:19 IST	active		

The Windows taskbar at the bottom shows the time as 17:45 on 30-05-2020.

Select *pgcrypto* from the dropdown menu and *Save*.

The screenshot displays the pgAdmin 4 web interface. On the left, the 'Browser' pane shows a tree view of the database structure, with 'dSPACE' selected under 'Databases (2)'. The main panel shows the 'Database sessions' tab, which includes line graphs for 'Total', 'Active', and 'Idle' sessions, and a 'Server activity' table. A 'Create - Extension' dialog box is open in the center, with the 'Name' field set to 'pgcrypto'. The 'Comment' field is empty. The 'Server activity' table at the bottom shows a single entry for PID 4948, User postgres, with a timestamp of 2020-05-30 17:45:19 IST. The Windows taskbar at the bottom shows the system clock as 17:46 on 30-05-2020.

pgAdmin 4

127.0.0.1:50019/browser

pgAdmin File Object Tools Help

Browser

- Servers (1)
 - PostgreSQL 12
 - Databases (2)
 - dSPACE
 - Casts
 - Catalogs
 - Event Triggers
 - Extensions
 - Foreign Data Wrappers
 - Languages
 - Schemas
 - postgres
 - Login/Group Roles (10)
 - Tablespaces

Database sessions

1.00
0.80
0.60
0.40
0.20
0.00

Total
Active
Idle

Tuples in

1.00
0.50
0.00

Inserts
Updates
Deletes

Server activity

Sessions Locks Prepared Trans

	PID	User	State	Wait event	Blocking PIDs
✖	4948	postgres	active		

pgAdmin 4 - DB:dSPACE

2020-05-30 17:45:19 IST

Cancel Reset Save

Block I/O

2500
2000
1500
1000
500
0

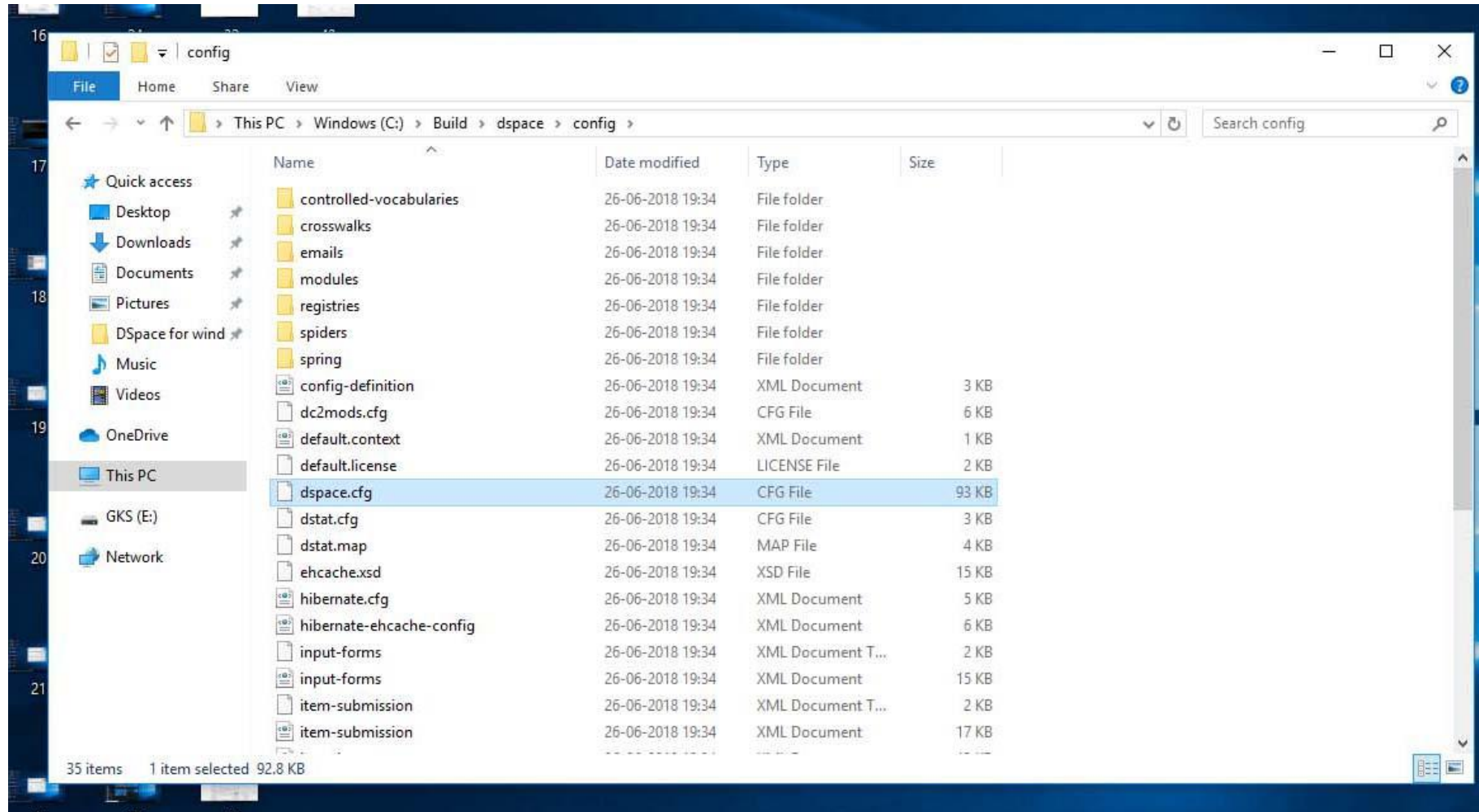
Reads
Hits

Search

Type here to search

17:46
30-05-2020

In this step we will configure our DSpace application.
Navigate to **C:\Build\dspace\config\dspace.cfg** file



Open the *dspace.cfg* file and set the installation directory as **C:/dspace**

Also, we have changed our DSpace site name as *DSpace at KKHSOU*. You can give your own.

```
##### Basic information #####

# DSpace installation directory
# Windows note: Please remember to use forward slashes for all
paths (e.g. C:/dspace)
dspace.dir = C:/dspace

# DSpace host name - should match base URL. Do not include
port number.
dspace.hostname = localhost

# DSpace base host URL. Include port number etc.
dspace.baseUrl = http://localhost:8080

# The user interface you will be using for DSpace. Common
usage is either xmlui or jspui
dspace.ui = xmlui

# Full link your end users will use to access DSpace. In most
cases, this will be the baseUrl followed by
# the context path to the UI you are using.
#
# Alternatively, you can use a url redirect or deploy the web
application under the servlet container root.
# In this case, make sure to remove the /${dspace.ui} from the
dspace.url property.
dspace.url = ${dspace.baseUrl}/${dspace.ui}

# Optional: DSpace URL for mobile access
# This
dspace.mobileUrl = http://mobile.example.com

# Name of the site
dspace.name = DSpace at KKHSOU
```

We have given database user name and password as *dspace*. If you have given your own change the value here.

```
# Database username and password
db.username = dspace
db.password = dspace
```

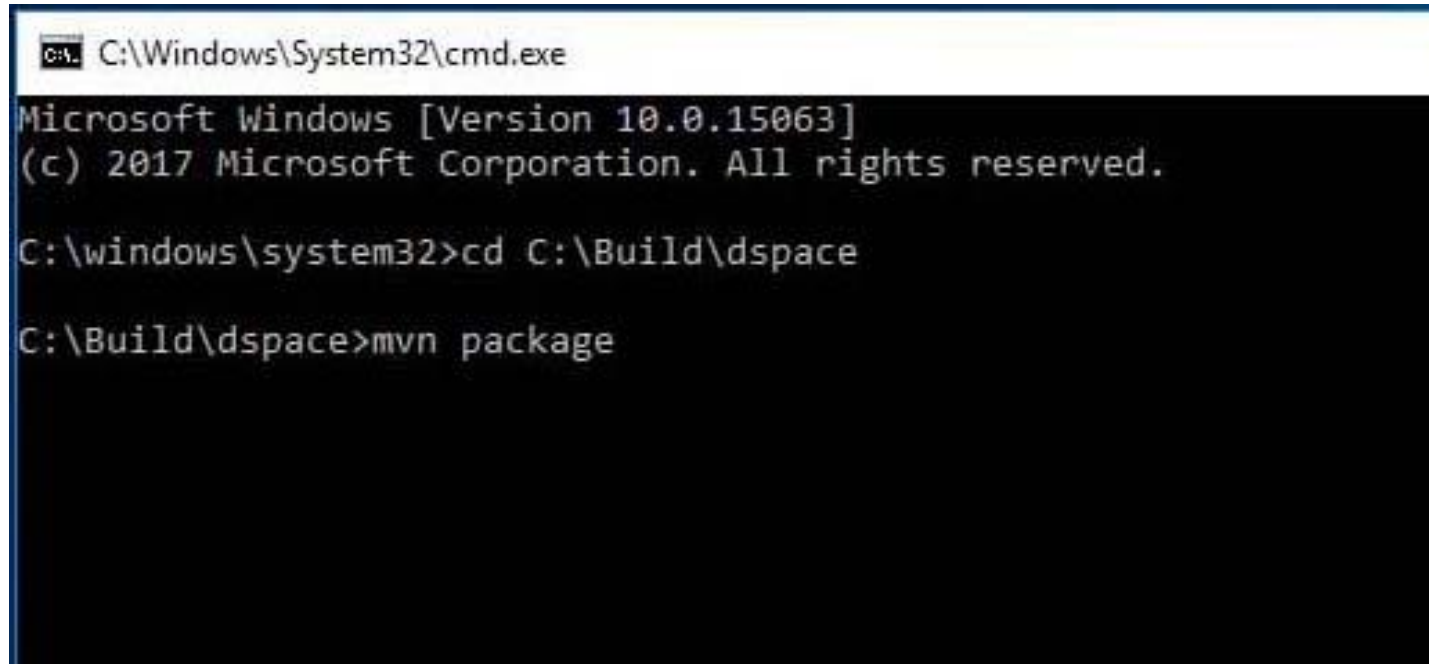
You can set your mail server here.

```
##### Email settings #####

# SMTP mail server (allows DSpace to send email notifications)
mail.server = smtp.example.com

# SMTP mail server authentication username and password (if
required)
mail.server.username =
mail.server.password =
```


Its time to execute Maven. In this step we need internet connectivity. Go to the location *C:\Build\dspace* and type *mvn package* in command prompt.



```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.15063]
(c) 2017 Microsoft Corporation. All rights reserved.

C:\windows\system32>cd C:\Build\dspace

C:\Build\dspace>mvn package
```

Maven will continue building process and should end with *BUILD SUCCESS* as shown. It will take several minutes.

```
C:\Windows\System32\cmd.exe

[WARNING] The following patterns were never triggered in this artifact exclusion filter:
o 'org.dspace.modules:xmlui-mirage2:war:*'

[WARNING] The following patterns were never triggered in this artifact exclusion filter:
o 'org.glassfish.hk2.external:bean-validator:jar:*'

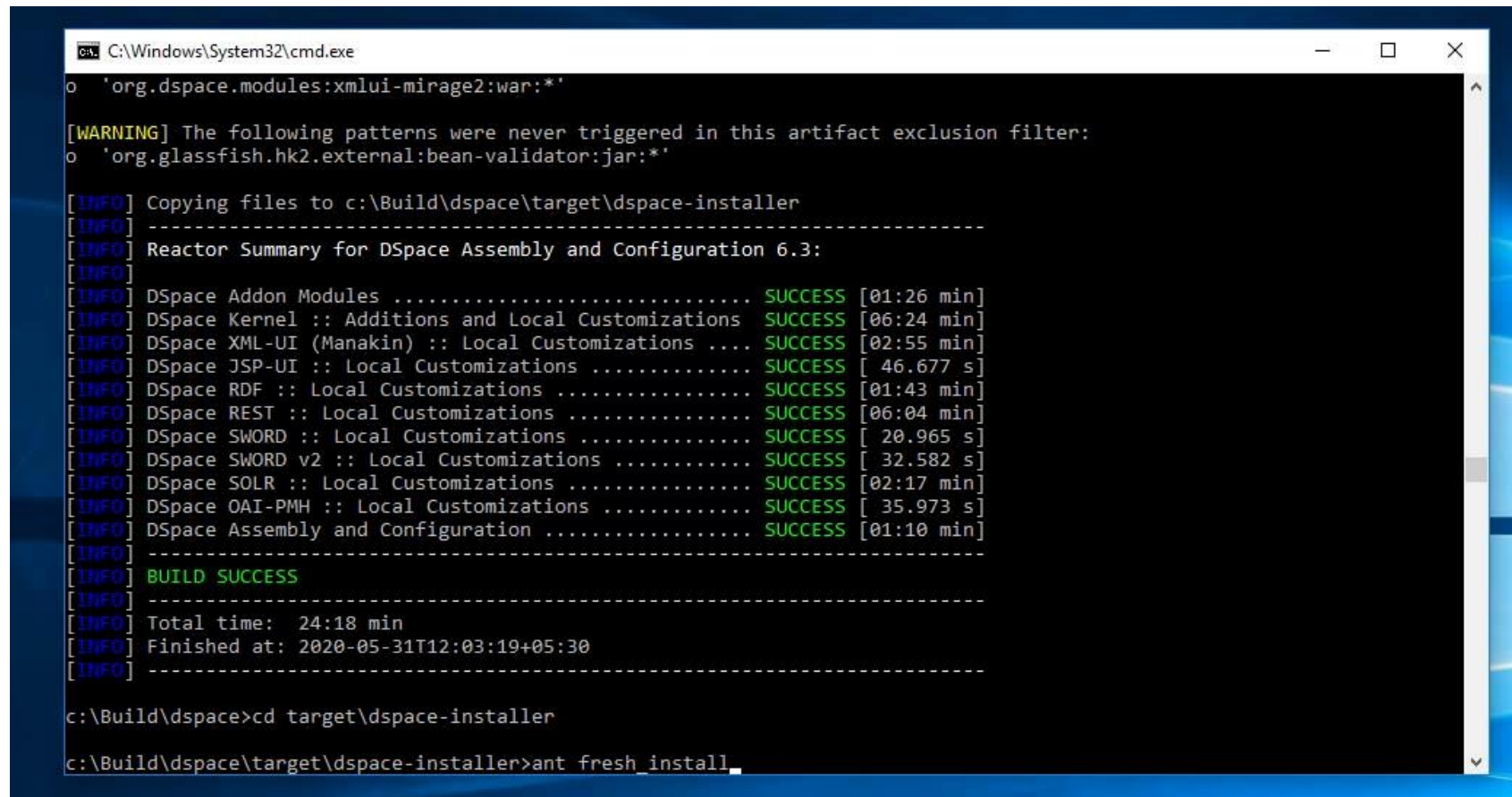
[INFO] Copying files to c:\Build\dspace\target\dspace-installer
[INFO] -----
[INFO] Reactor Summary for DSpace Assembly and Configuration 6.3:
[INFO]
[INFO] DSpace Addon Modules ..... SUCCESS [01:26 min]
[INFO] DSpace Kernel :: Additions and Local Customizations SUCCESS [06:24 min]
[INFO] DSpace XML-UI (Manakin) :: Local Customizations .... SUCCESS [02:55 min]
[INFO] DSpace JSP-UI :: Local Customizations ..... SUCCESS [ 46.677 s]
[INFO] DSpace RDF :: Local Customizations ..... SUCCESS [01:43 min]
[INFO] DSpace REST :: Local Customizations ..... SUCCESS [06:04 min]
[INFO] DSpace SWORD :: Local Customizations ..... SUCCESS [ 20.965 s]
[INFO] DSpace SWORD v2 :: Local Customizations ..... SUCCESS [ 32.582 s]
[INFO] DSpace SOLR :: Local Customizations ..... SUCCESS [02:17 min]
[INFO] DSpace OAI-PMH :: Local Customizations ..... SUCCESS [ 35.973 s]
[INFO] DSpace Assembly and Configuration ..... SUCCESS [01:10 min]
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 24:18 min
[INFO] Finished at: 2020-05-31T12:03:19+05:30
[INFO] -----

c:\Build\dspace>
```

If your internet connection is running in a proxy, you have to configure Maven's *settings.xml* file in the location **C:\Maven\conf**
Change the value according to your setting.

```
<proxies>
  <!-- proxy
    | Specification for one proxy, to be used in connecting to
the network.
    |
    <proxy>
      <id>optional</id>
      <active>true</active>
      <protocol>http</protocol>
      <username>proxyuser</username>
      <password>proxypass</password>
      <host>proxy.host.net</host>
      <port>80</port>
      <nonProxyHosts>local.net|some.host.com</nonProxyHosts>
    </proxy>
  -->
</proxies>
```

Now its time to execute Ant. Go to the destination-
C:\Build\dspace\target\dspace-installer
Type *ant fresh_install* and press enter.



```
C:\Windows\System32\cmd.exe
o 'org.dspace.modules:xmlui-mirage2:war:*'

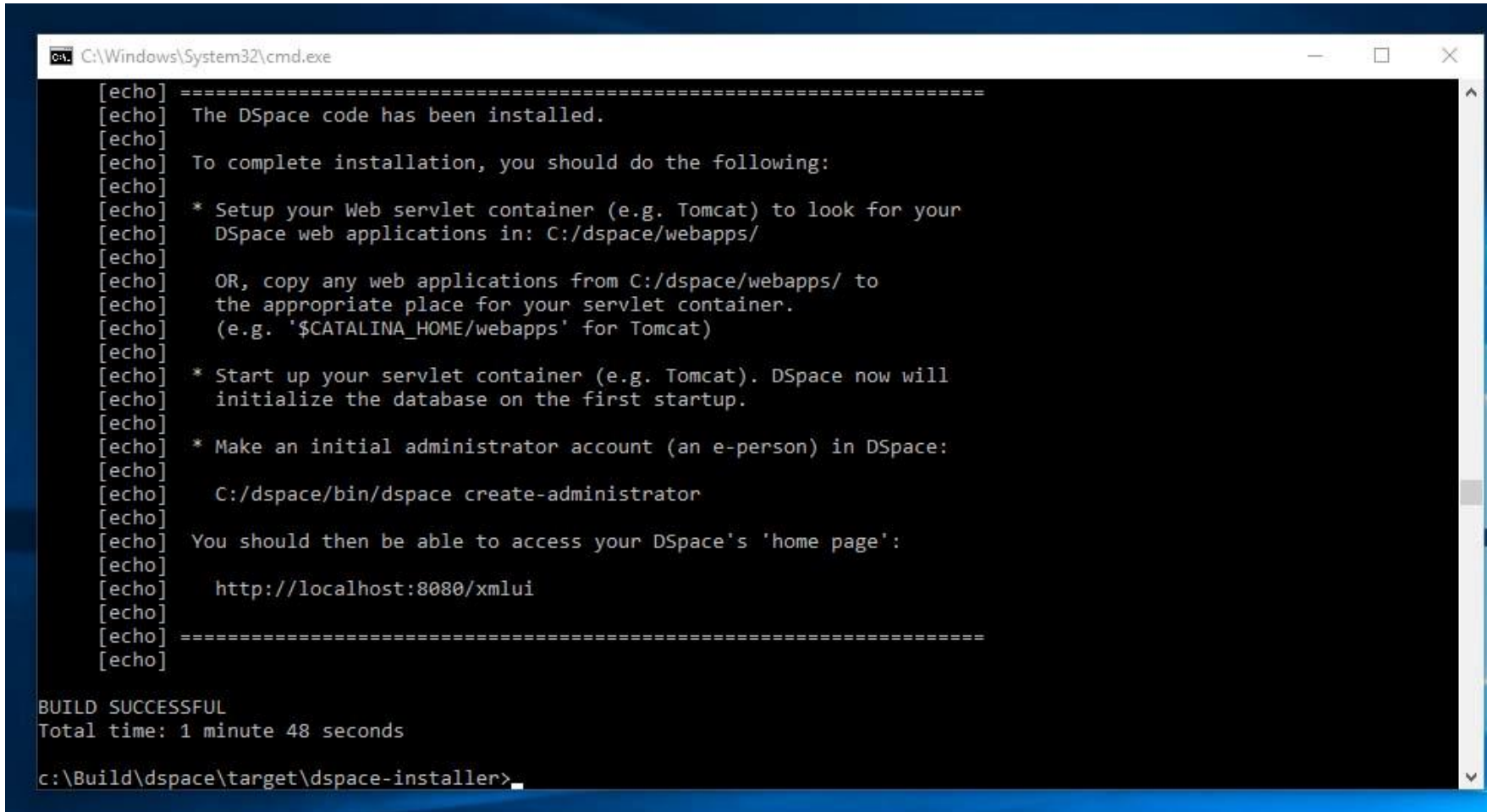
[WARNING] The following patterns were never triggered in this artifact exclusion filter:
o 'org.glassfish.hk2.external:bean-validator:jar:*'

[INFO] Copying files to c:\Build\dspace\target\dspace-installer
[INFO] -----
[INFO] Reactor Summary for DSpace Assembly and Configuration 6.3:
[INFO]
[INFO] DSpace Addon Modules ..... SUCCESS [01:26 min]
[INFO] DSpace Kernel :: Additions and Local Customizations SUCCESS [06:24 min]
[INFO] DSpace XML-UI (Manakin) :: Local Customizations .... SUCCESS [02:55 min]
[INFO] DSpace JSP-UI :: Local Customizations ..... SUCCESS [ 46.677 s]
[INFO] DSpace RDF :: Local Customizations ..... SUCCESS [01:43 min]
[INFO] DSpace REST :: Local Customizations ..... SUCCESS [06:04 min]
[INFO] DSpace SWORD :: Local Customizations ..... SUCCESS [ 20.965 s]
[INFO] DSpace SWORD v2 :: Local Customizations ..... SUCCESS [ 32.582 s]
[INFO] DSpace SOLR :: Local Customizations ..... SUCCESS [02:17 min]
[INFO] DSpace OAI-PMH :: Local Customizations ..... SUCCESS [ 35.973 s]
[INFO] DSpace Assembly and Configuration ..... SUCCESS [01:10 min]
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 24:18 min
[INFO] Finished at: 2020-05-31T12:03:19+05:30
[INFO] -----

c:\Build\dspace>cd target\dspace-installer

c:\Build\dspace\target\dspace-installer>ant fresh_install
```

Ant will continue its work and should end as ***BUILD SUCCESSFUL*** as shown below.



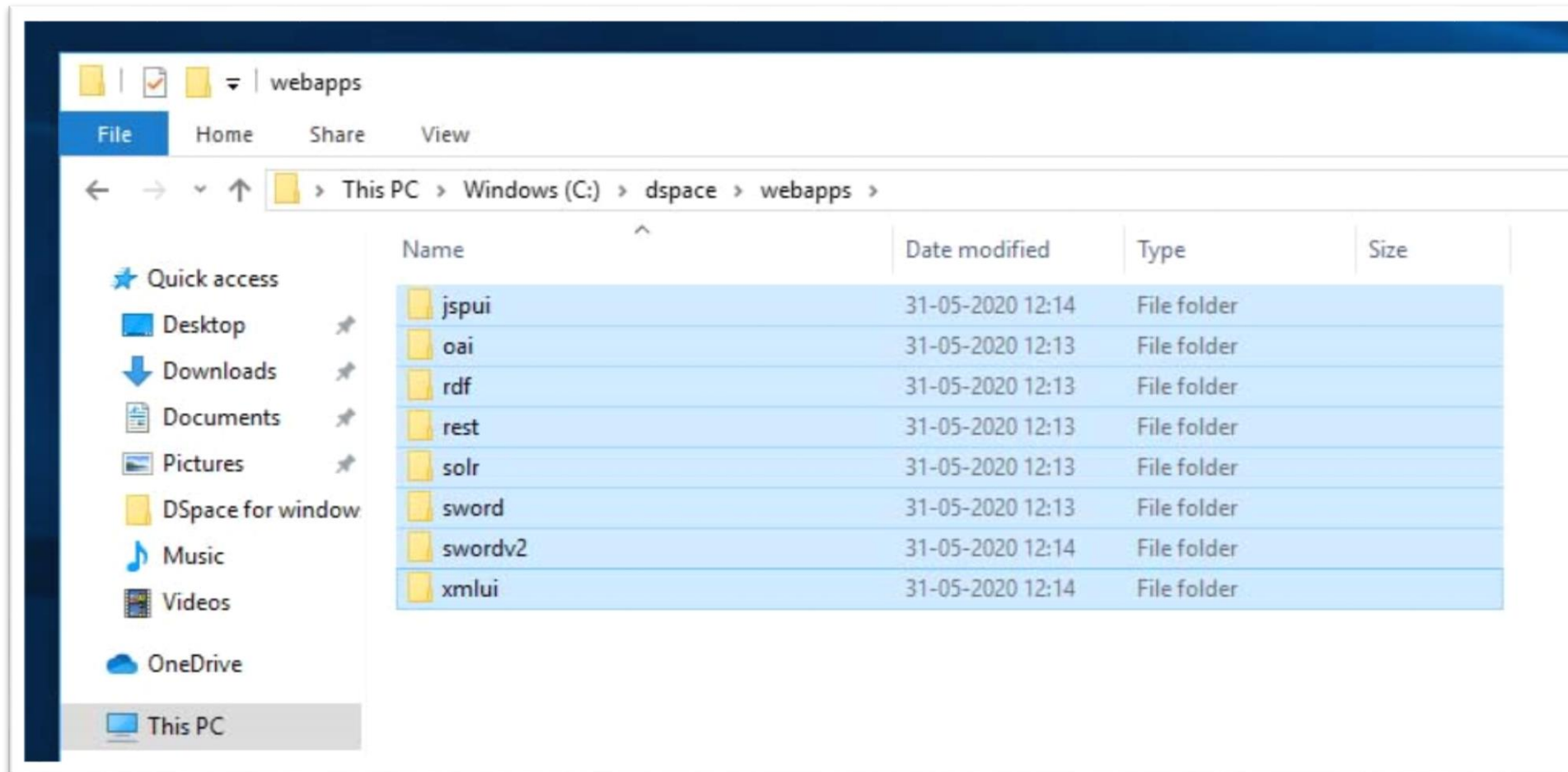
```
C:\Windows\System32\cmd.exe

[echo] =====
[echo] The DSpace code has been installed.
[echo]
[echo] To complete installation, you should do the following:
[echo]
[echo] * Setup your Web servlet container (e.g. Tomcat) to look for your
[echo]   DSpace web applications in: C:/dSPACE/webapps/
[echo]
[echo]   OR, copy any web applications from C:/dSPACE/webapps/ to
[echo]   the appropriate place for your servlet container.
[echo]   (e.g. '%CATALINA_HOME/webapps' for Tomcat)
[echo]
[echo] * Start up your servlet container (e.g. Tomcat). DSpace now will
[echo]   initialize the database on the first startup.
[echo]
[echo] * Make an initial administrator account (an e-person) in DSpace:
[echo]
[echo]   C:/dSPACE/bin/dSPACE create-administrator
[echo]
[echo] You should then be able to access your DSpace's 'home page':
[echo]
[echo]   http://localhost:8080/xmlui
[echo]
[echo] =====
[echo]

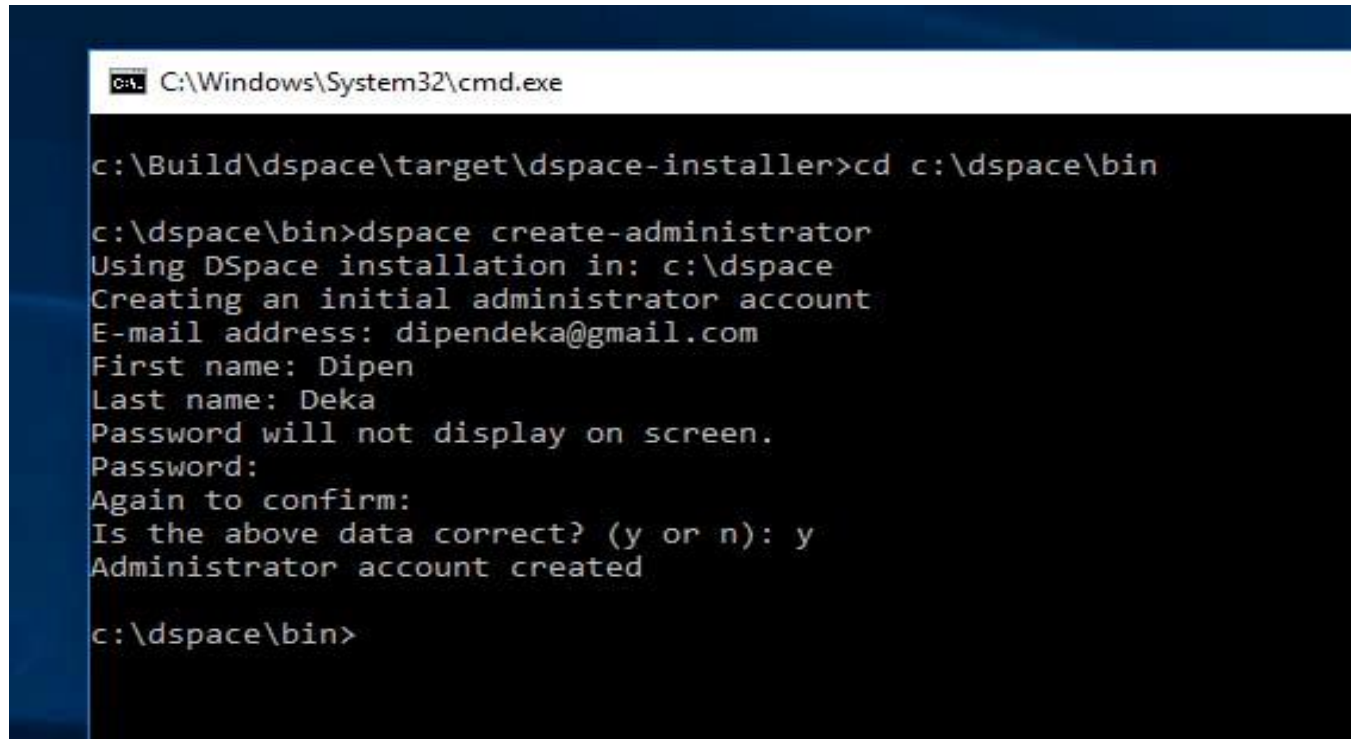
BUILD SUCCESSFUL
Total time: 1 minute 48 seconds

c:\Build\dSPACE\target\dSPACE-installer>
```


Copy desired interface folders from
C:\dsapce\webapps to **C:\Tomcat\webapps**



Now, we have to create the DSpace administrator. Go to `C:\dspace\bin` and type *`dspace create-administrator`*. Press enter. Give the necessary information.



```
C:\Windows\System32\cmd.exe

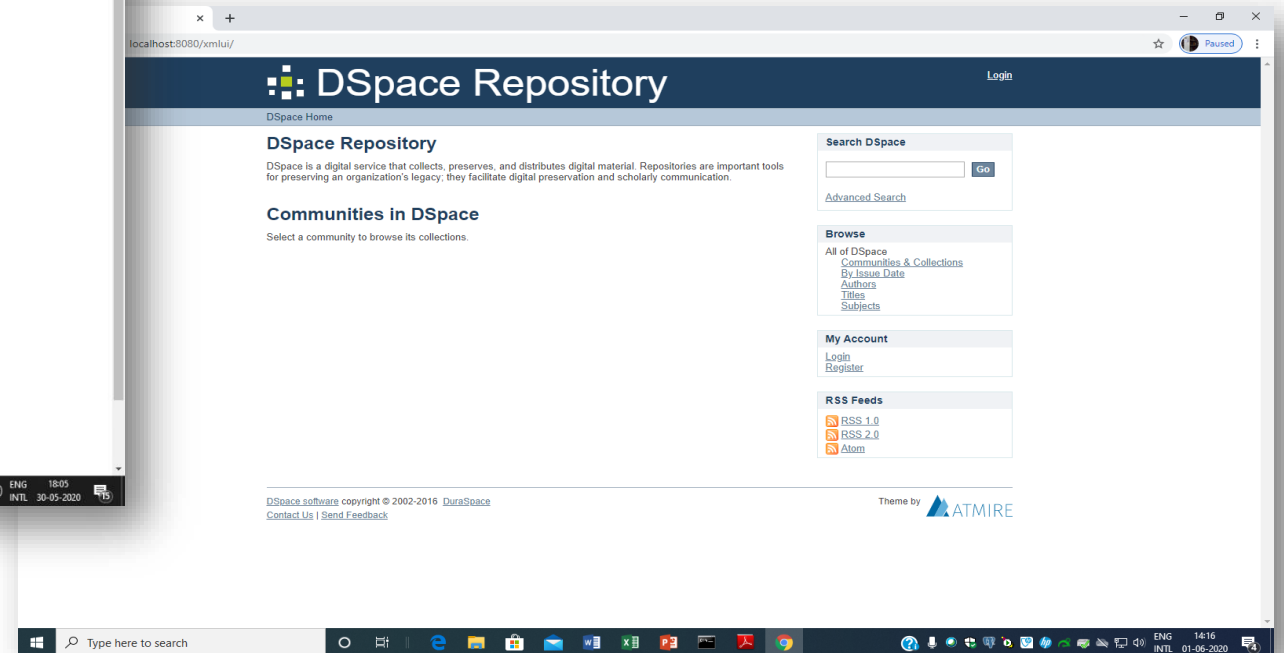
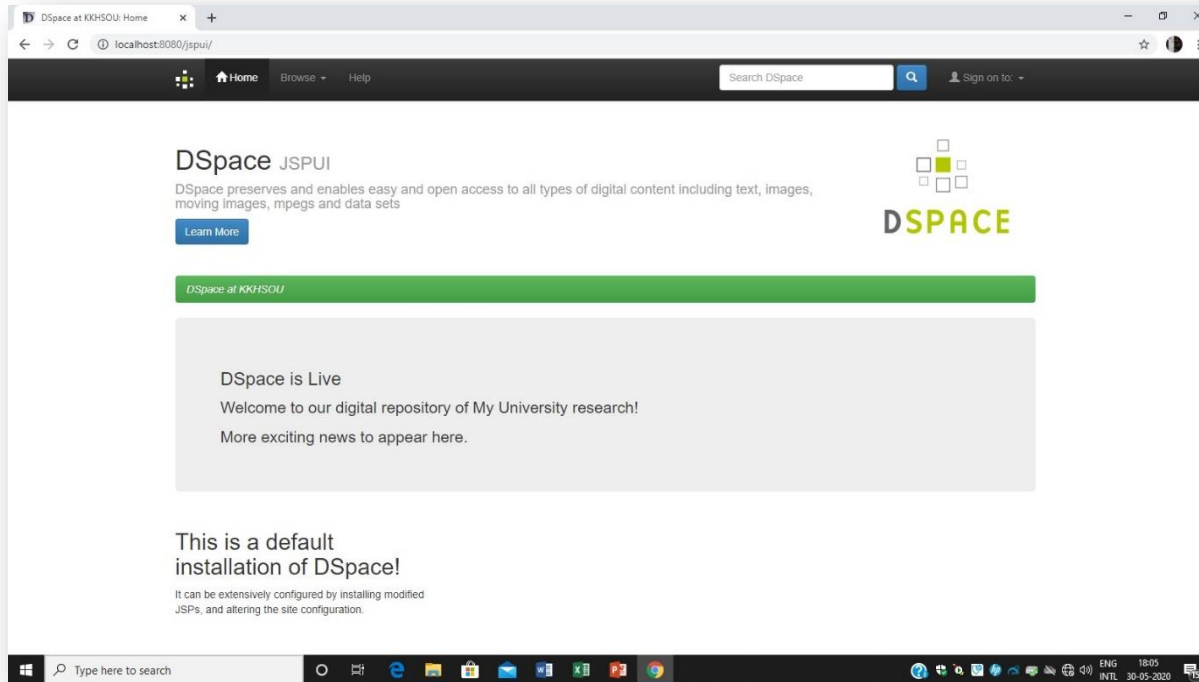
c:\Build\dspace\target\dspace-installer>cd c:\dspace\bin

c:\dspace\bin>dspace create-administrator
Using DSpace installation in: c:\dspace
Creating an initial administrator account
E-mail address: dipendeka@gmail.com
First name: Dipen
Last name: Deka
Password will not display on screen.
Password:
Again to confirm:
Is the above data correct? (y or n): y
Administrator account created

c:\dspace\bin>
```


Open any web browser and type *localhost:8080/jspui* in the address bar.

This is the result of our “KARMA”. You can type *localhost:8080/xmlui* to get the other interface (xml interface)



Customization of different files (jspui)

File	Source	Effect
dspace.cfg	C:\dspace\config	Restart Tomcat
news-top.html	C:\dspace\config	Refresh web browser
news-side.html	C:\dspace\config	Refresh web browser
input-forms.xml	C:\dspace\config	Refresh web browser
Insert image, logo	C:\Tomcat\webapps\jspui\image	Refresh web browser
header-default.jsp	C:\Tomcat\webapps\jspui\layout	Refresh web browser
footer-default.jsp	C:\Tomcat\webapps\jspui\layout	Refresh web browser
navbar-default.jsp	C:\Tomcat\webapps\jspui\layout	Refresh web browser
favicon.ico change	C:\Tomcat\webapps\jspui\	Refresh web browser

Enable OAI-PMH (Open Archives Initiative- Protocol for Metadata Harvesting) in our DSpace site

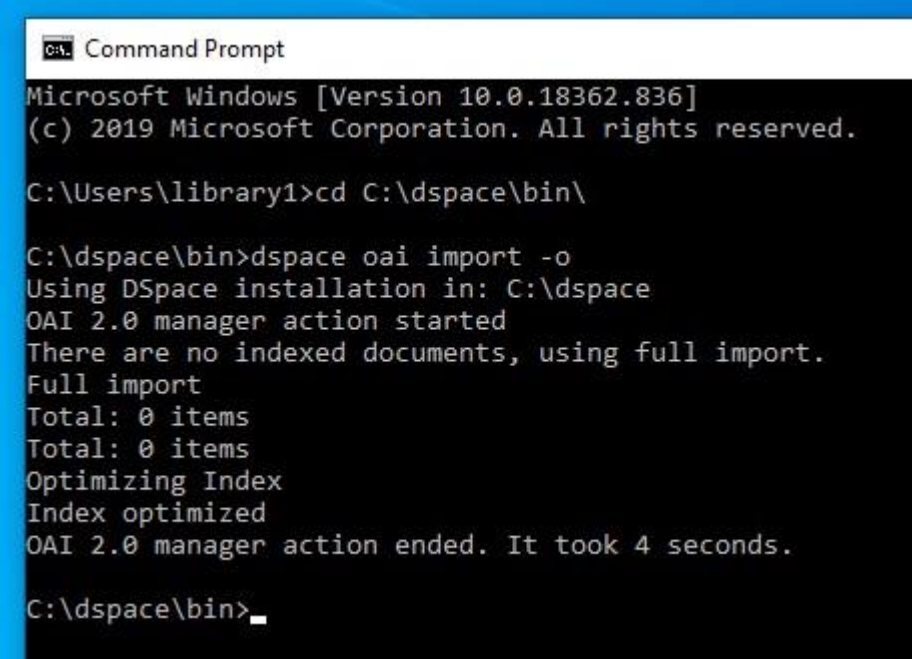
To enable DSpace's OAI-PMH server, just make sure the C:**Tomcat\webapps\oai** web application is available from your Servlet Container (Tomcat).

You can test that it is working by sending a request to:

<http://localhost:8080/oai/request?verb=Identify>

Update the OAI-PMH index with the newest content (and re-optimize that index) at every day with this command in Command Prompt-

C:\dspace\bin\dspace oai import -o



```
CA: Command Prompt
Microsoft Windows [Version 10.0.18362.836]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\library1>cd C:\dspace\bin\

C:\dspace\bin>dspace oai import -o
Using DSpace installation in: C:\dspace
OAI 2.0 manager action started
There are no indexed documents, using full import.
Full import
Total: 0 items
Total: 0 items
Optimizing Index
Index optimized
OAI 2.0 manager action ended. It took 4 seconds.

C:\dspace\bin>
```



**Thank
You!**

A blue, stylized graphic with the words "Thank You!" in a bold, white, sans-serif font. The graphic has a thick blue outline and a slight 3D effect with a shadow. A black pushpin is pinned to the top center of the graphic.