



**RAMNIRANJAN JHUNJHUNWALA COLLEGE
GHATKOPAR (W), MUMBAI - 400 086**

**DEPARTMENT OF INFORMATION TECHNOLOGY
2021 - 2022**

**M.Sc. (I.T.) SEM I
Cloud Computing**

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CERTIFICATE

This is to certify that Mr/Miss/Mrs Pavan Yadav with Seat No: 24 has successfully completed the necessary course of experiments in the subject of Cloud Computing during the academic year 2021 – 2022 complying with the requirements of RAMNIRANJAN JHUNJHUNWALA COLLEGE OF ARTS, SCIENCE AND COMMERCE, for the course of M.Sc. (IT) Semester -I.

27 th Nov 2021

Internal Examiner

Date

Head Of Department

College Seal

External Examiner

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Practical No. 1

Q. Write a client program to enter the number and server program to calculate the square, square root, cube and cube root of the entered number using TCP Communication

tcpClientOperations.java

```
import java.net.*;
import java.io.*;
class tcpClientOperations
{
    public static void main(String args[])
    {
        try
        {
            Socket cs = new Socket("LocalHost",8001);
            BufferedReader infu = new BufferedReader(new InputStreamReader(System.in));

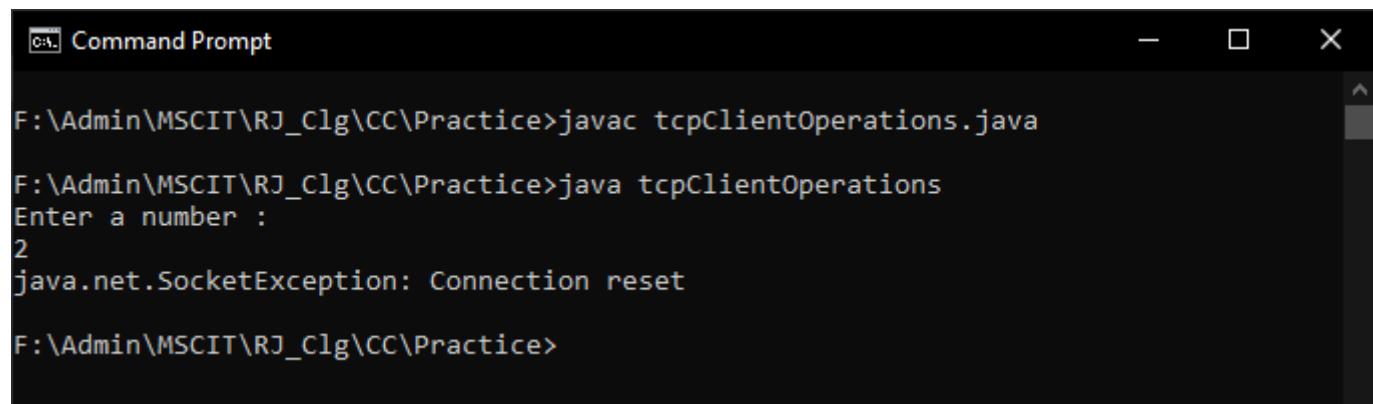
            System.out.println("Enter a number : ");
            int num = Integer.parseInt(infu.readLine());

            DataOutputStream out = new DataOutputStream(cs.getOutputStream());
            out.writeInt(num);

            DataInputStream in = new DataInputStream(cs.getInputStream());
            System.out.println(in.readUTF());

            cs.close();
        }
        catch(Exception e)
        {
            System.out.println(e.toString());
        }
    }
}
```

Output:



```
Command Prompt - F:\Admin\MSCIT\RJ_Clg\CC\Practice>javac tcpClientOperations.java
F:\Admin\MSCIT\RJ_Clg\CC\Practice>java tcpClientOperations
Enter a number :
2
java.net.SocketException: Connection reset
F:\Admin\MSCIT\RJ_Clg\CC\Practice>
```

tcpServerOperations.java

```
import java.net.*;
import java.io.*;
import java.util.*;
class tcpServerOperations
{
    public static void main(String args[])
    {
        try
        {
            ServerSocket ss = new ServerSocket(8001);
            System.out.println("Server Started.....");

            Socket s = ss.accept();
            DataInputStream in = new DataInputStream(s.getInputStream());

            int x= in.readInt();
            DataOutputStream otc = new DataOutputStream(s.getOutputStream());

            //Square
            System.out.println("Square of " + x + " is: " + Math.pow(x, 2));

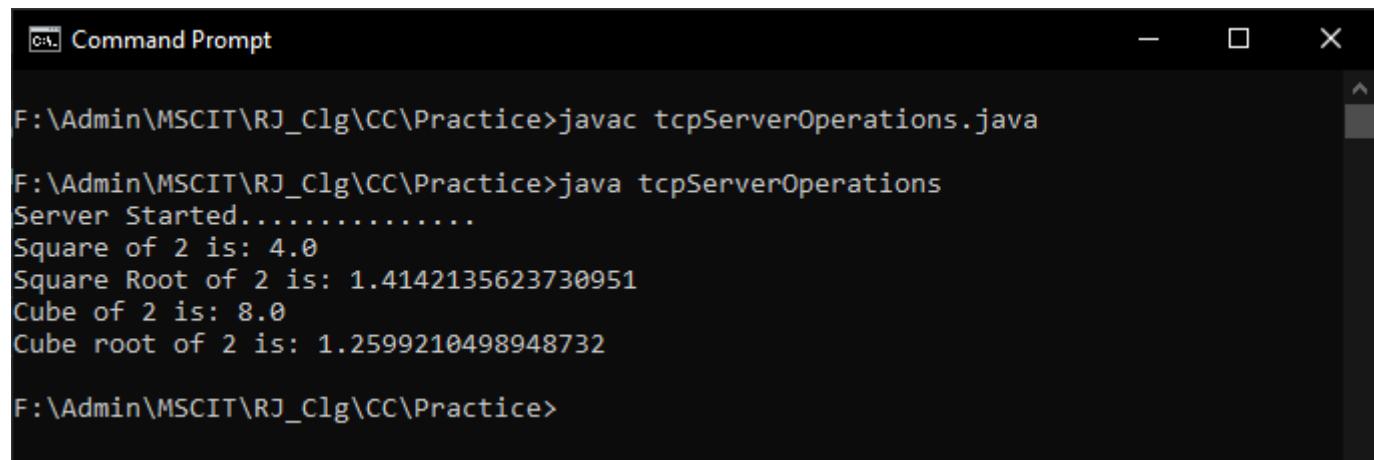
            //Square Root
            System.out.println("Square Root of " + x + " is: " + Math.sqrt(x));

            //Cube
            System.out.println("Cube of " + x + " is: " + Math.pow(x, 3));

            //Cube root
            System.out.println("Cube root of "+ x +" is: "+Math.cbrt(x));

        }
        catch(Exception e)
        {
            System.out.println(e.toString());
        }
    }
}
```

Output:



```
F:\Admin\MSCIT\RJ_Clg\CC\Practice>javac tcpServerOperations.java
F:\Admin\MSCIT\RJ_Clg\CC\Practice>java tcpServerOperations
Server Started.....
Square of 2 is: 4.0
Square Root of 2 is: 1.4142135623730951
Cube of 2 is: 8.0
Cube root of 2 is: 1.2599210498948732
F:\Admin\MSCIT\RJ_Clg\CC\Practice>
```

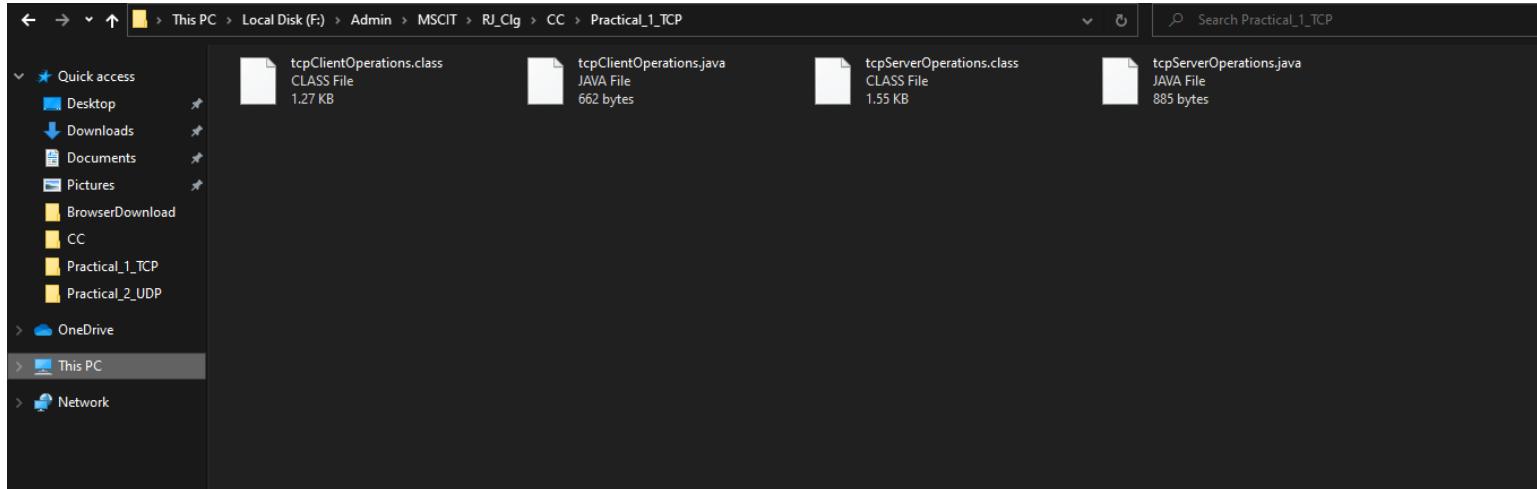
Final output of TCP:

The image shows two separate Command Prompt windows side-by-side. The left window, titled 'Command Prompt', shows the command `javac tcpClientOperations.java` being run, followed by the output of the client program which asks for a number and handles a connection reset. The right window, titled 'Select Command Prompt', shows the command `javac tcpServerOperations.java` being run, followed by the output of the server program which performs calculations on the number 2 (square, square root, cube, cube root).

```
F:\Admin\MSCIT\RJ_Clg\CC\Practice>javac tcpClientOperations.java
F:\Admin\MSCIT\RJ_Clg\CC\Practice>java tcpClientOperations
Enter a number :
2
java.net.SocketException: Connection reset
F:\Admin\MSCIT\RJ_Clg\CC\Practice>

F:\Admin\MSCIT\RJ_Clg\CC\Practice>javac tcpServerOperations.java
F:\Admin\MSCIT\RJ_Clg\CC\Practice>java tcpServerOperations
Server Started.....
Square of 2 is: 4.0
Square Root of 2 is: 1.4142135623730951
Cube of 2 is: 8.0
Cube root of 2 is: 1.2599210498948732
F:\Admin\MSCIT\RJ_Clg\CC\Practice>
```

File Structure



Practical No. 2

Q. Write a client server based program using UDP to find the factorial of the entered number.

udpClientFact.java

```
import java.io.*;
import java.net.*;

public class udpClientFact
{
    public static void main(String args[])
    {
        try
        {
            DatagramSocket ds = new DatagramSocket(1000);
            BufferedReader br = new BufferedReader(new InputStreamReader(System.in));

            System.out.println("Enter a number : ");
            String num = br.readLine();

            byte b[] = new byte[1024];
            b=num.getBytes();

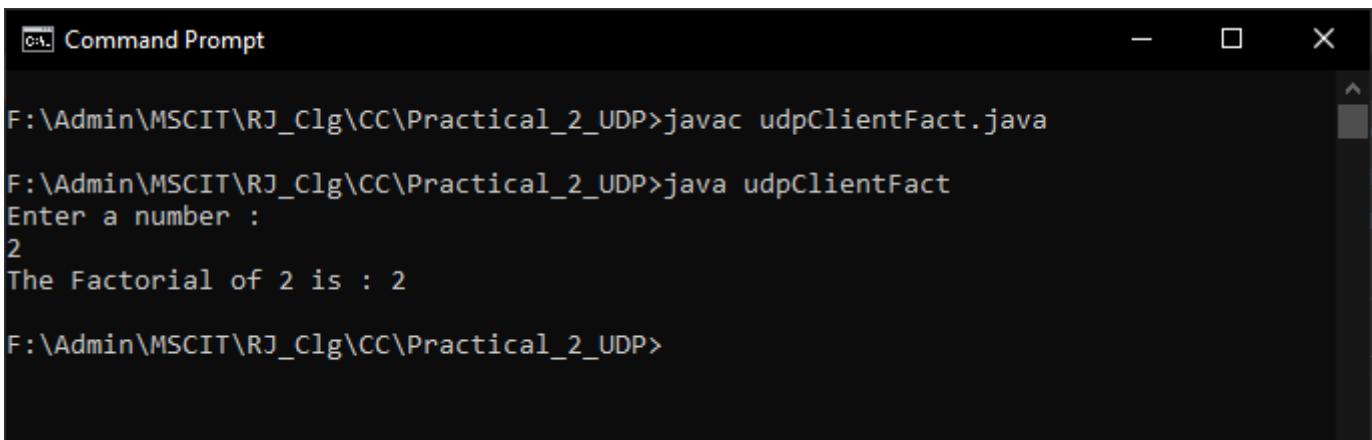
            DatagramPacket dp = new DatagramPacket(b,b.length,InetAddress.getLocalHost(),2000);
            ds.send(dp);

            byte b1[] = new byte[1024];

            DatagramPacket dp1 = new DatagramPacket(b1,b1.length);
            ds.receive(dp1);

            String str = new String(dp1.getData(),0,dp1.getLength());
            System.out.println(str);
        }
        catch(Exception e)
        {
            e.printStackTrace();
        }
    }
}
```

Output:



```
F:\Admin\MSCIT\RJ_Clg\CC\Practical_2_UDP>javac udpClientFact.java
F:\Admin\MSCIT\RJ_Clg\CC\Practical_2_UDP>java udpClientFact
Enter a number :
2
The Factorial of 2 is : 2
F:\Admin\MSCIT\RJ_Clg\CC\Practical_2_UDP>
```

udpServerFact.java

```
import java.io.*;
import java.net.*;
public class udpServerFact
{
    public static void main(String args[])
    {
        try
        {
            DatagramSocket ds = new DatagramSocket(2000);
            byte b[] = new byte[1024];

            DatagramPacket dp = new DatagramPacket(b,b.length);
            ds.receive(dp);

            String str = new String(dp.getData(),0,dp.getLength());
            System.out.println(str);

            int a= Integer.parseInt(str);
            int f = 1, i;

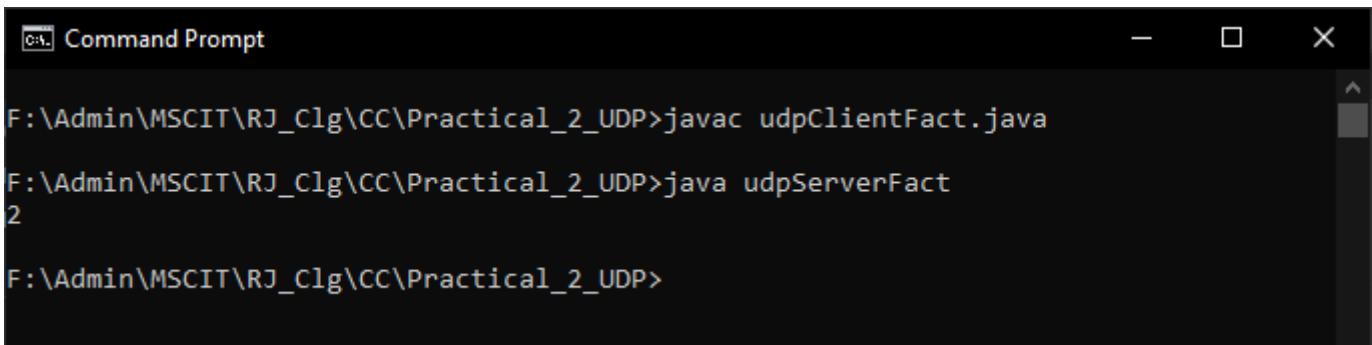
            String s= new String();
            for(i=1;i<=a;i++)
            {
                f=f*i;
            }
            s=Integer.toString(f);

            String str1 = "The Factorial of " + str + " is : " + f;

            byte b1[] = new byte[1024];
            b1 = str1.getBytes();

            DatagramPacket dp1 = new DatagramPacket(b1,b1.length,InetAddress.getLocalHost(),1000);
            ds.send(dp1);
        }
        catch(Exception e)
        {
            e.printStackTrace();
        }
    }
}
```

Output:



```
F:\Admin\MSCIT\RJ_Clg\CC\Practical_2_UDP>javac udpClientFact.java
F:\Admin\MSCIT\RJ_Clg\CC\Practical_2_UDP>java udpServerFact
2
F:\Admin\MSCIT\RJ_Clg\CC\Practical_2_UDP>
```

Final output of UDP:

The image shows two separate Command Prompt windows side-by-side. Both windows have a title bar labeled "Command Prompt".

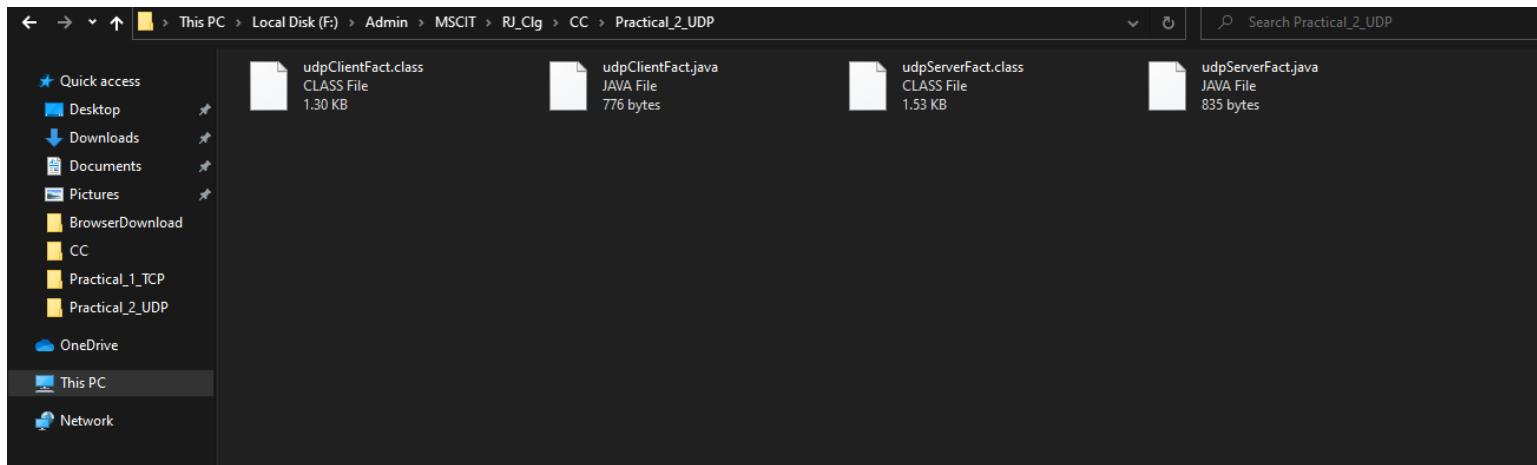
The left window's command history is as follows:

```
F:\Admin\MSCIT\RJ_Clg\CC\Practical_2_UDP>javac udpClientFact.java
F:\Admin\MSCIT\RJ_Clg\CC\Practical_2_UDP>java udpClientFact
Enter a number :
2
The Factorial of 2 is : 2
F:\Admin\MSCIT\RJ_Clg\CC\Practical_2_UDP>
```

The right window's command history is as follows:

```
F:\Admin\MSCIT\RJ_Clg\CC\Practical_2_UDP>javac udpServerFact.java
F:\Admin\MSCIT\RJ_Clg\CC\Practical_2_UDP>java udpServerFact
2
F:\Admin\MSCIT\RJ_Clg\CC\Practical_2_UDP>
```

File Structure

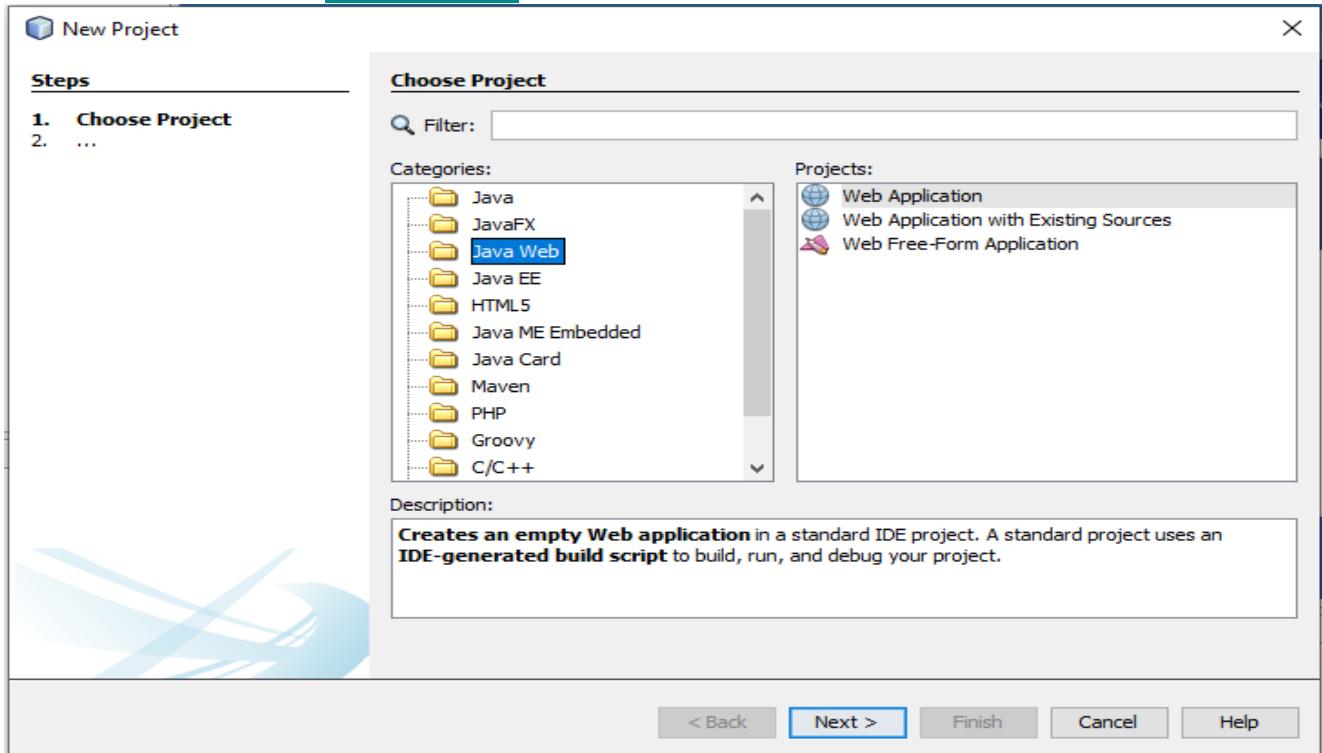


Practical No. 3

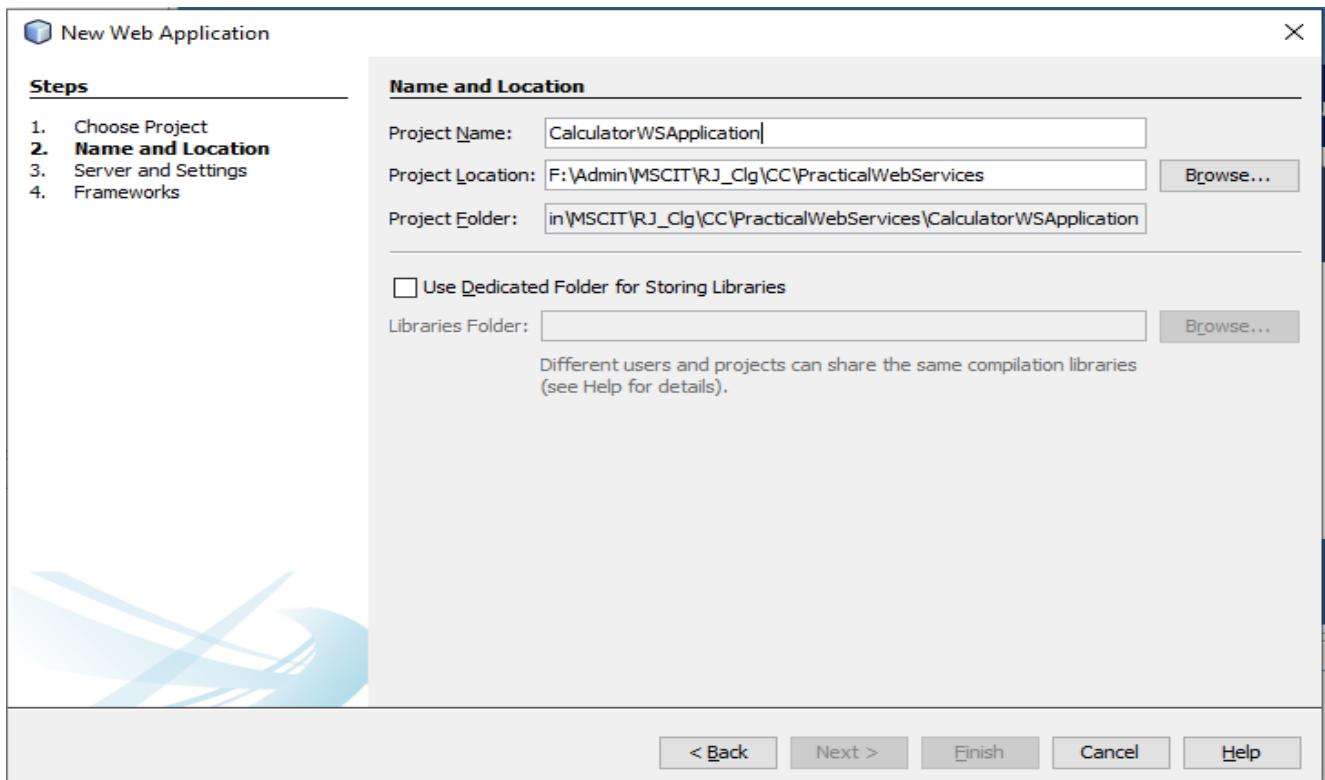
Q. Create A Webservice to do add and subtract operation.and Consume webservice in

A. Choosing a Container

1. Choose File > New Project (Ctrl + Shift + N). Select Web Application from the Java Web.



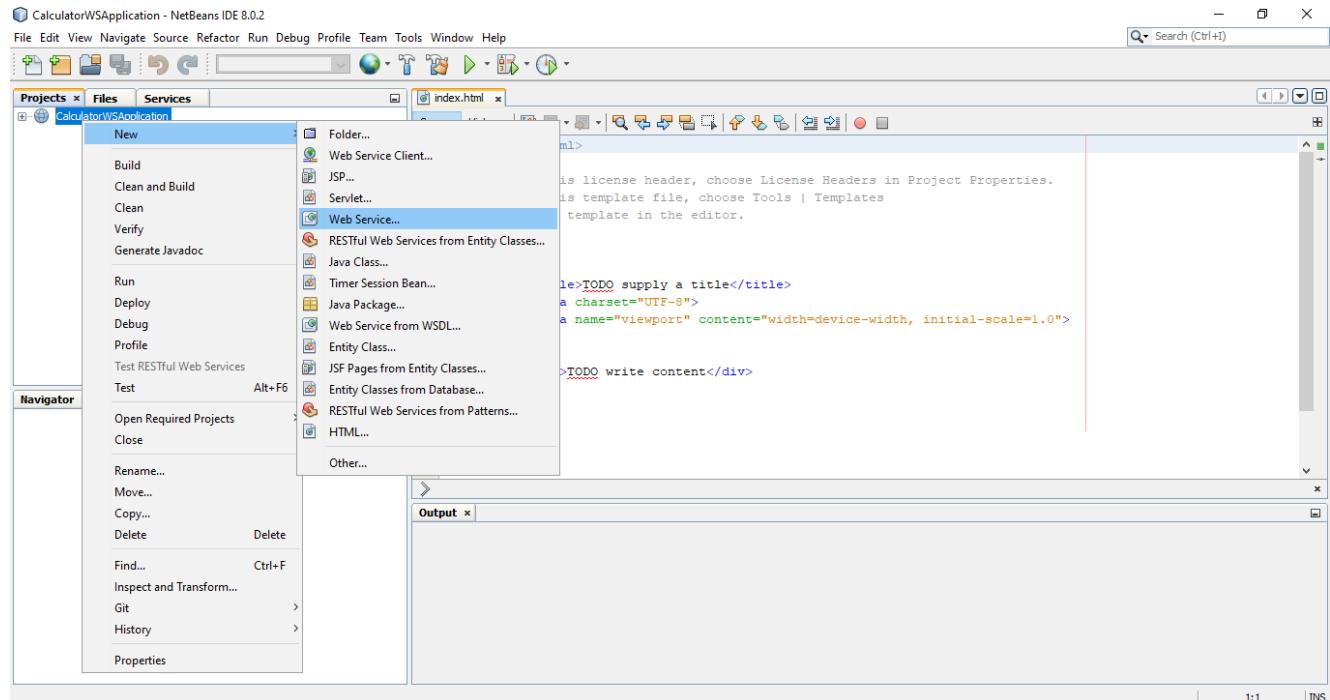
2. Name the project CalculatorWSApplication. Select a location for the project. Click Next.



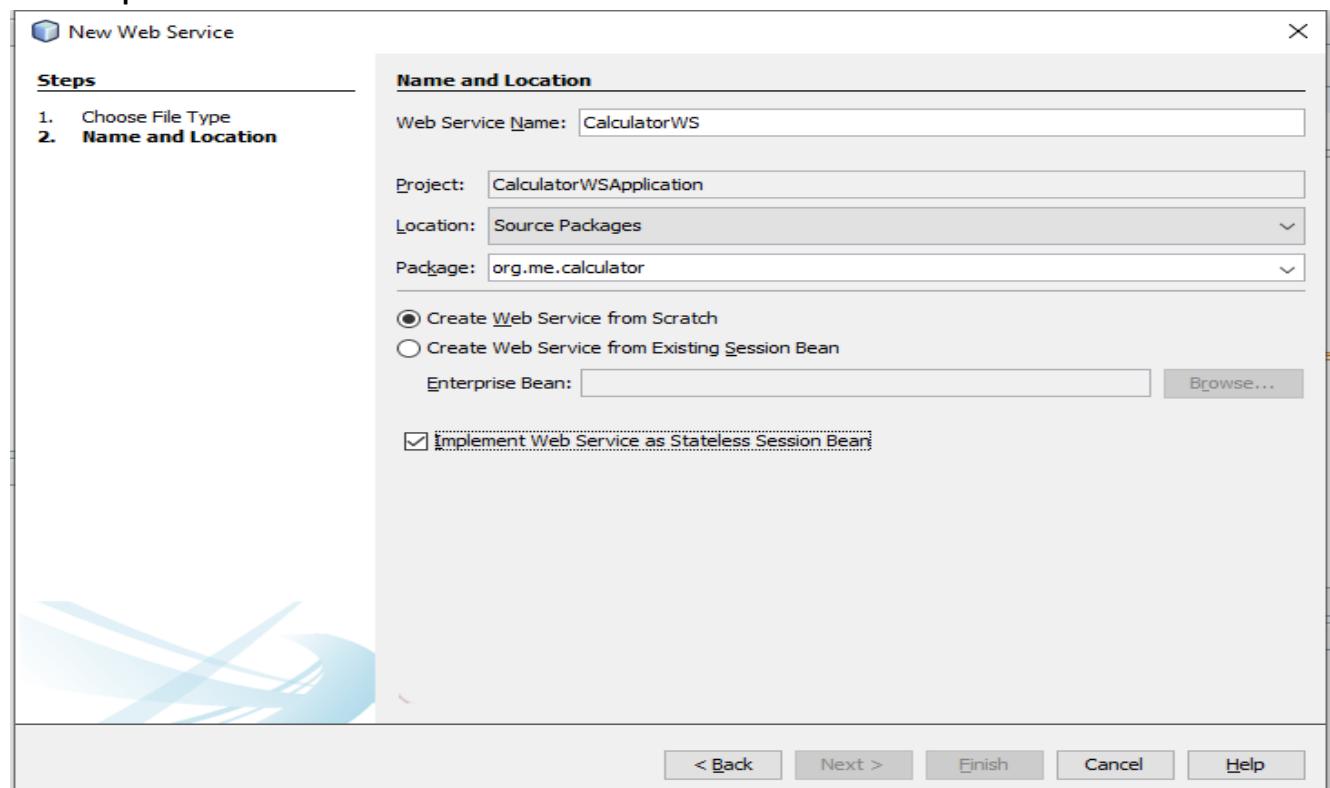
3. Select your server and Java EE version and click Finish.

B. Creating a Web Service from a Java Class

1. Right-click the CalculatorWSApplication node and choose New > Web Service



2. Name the web service **CalculatorWS** and type **org.me.calculator** in Package.
3. Leave Create Web Service from Scratch selected. If you are creating a Java EE 6 project on GlassFish,
4. Select Implement Web Service as a Stateless Session Bean.



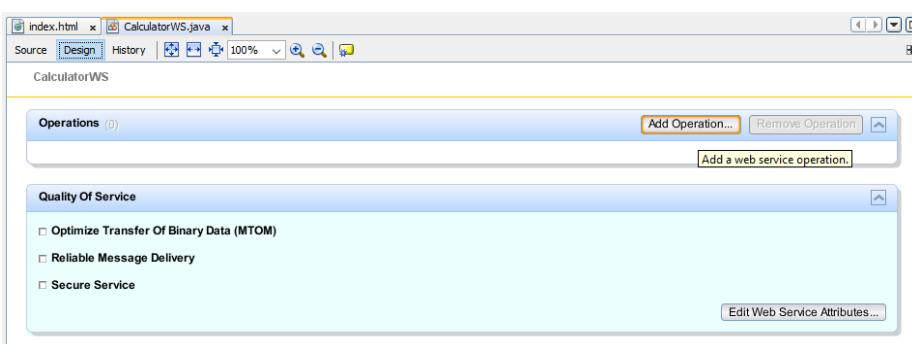
5. Click Finish. The Projects window displays the structure of the new web service and the source code is shown in the editor area.

C. Adding an Operation to the Web Service

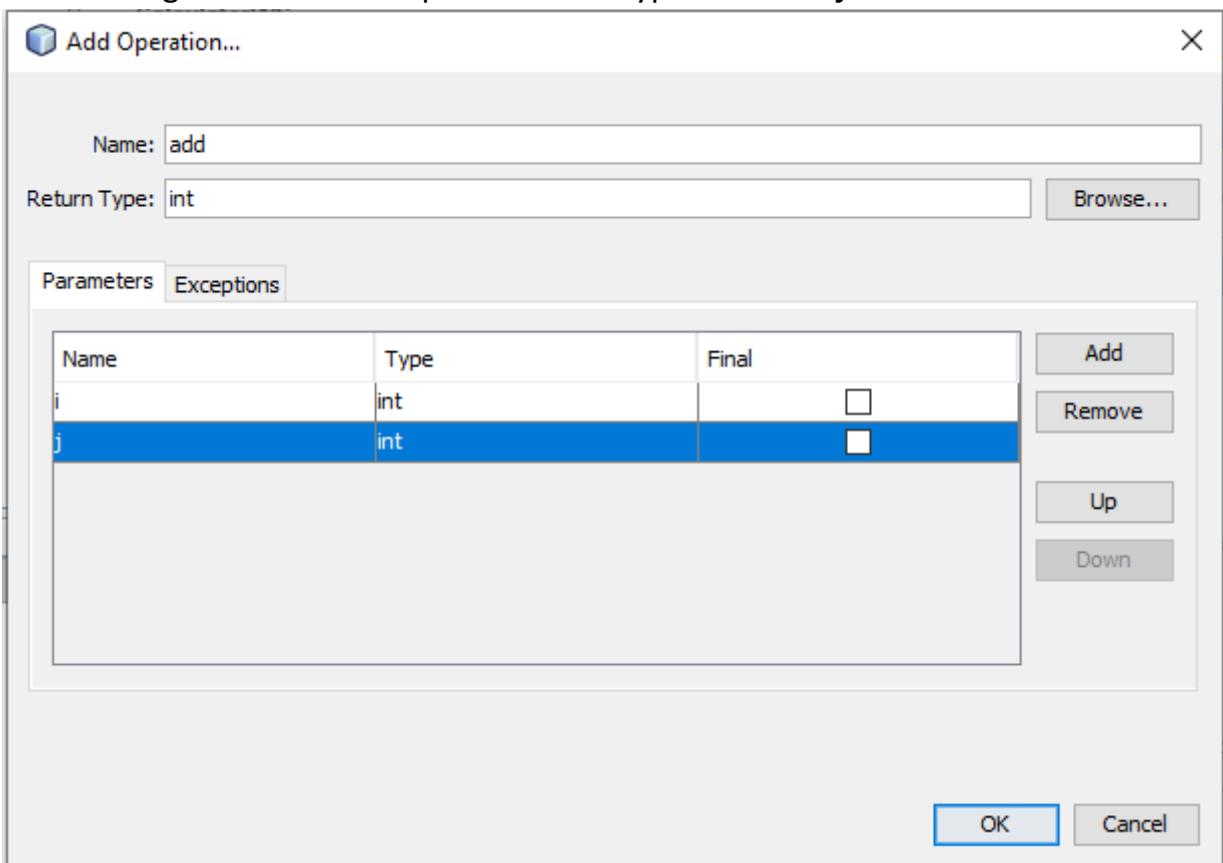
The goal of this exercise is to add to the web service an operation that adds two numbers received from a client. The NetBeans IDE provides a dialog for adding an operation to a web service. You can open this dialog either in the web service visual designer or in the web service context menu.

a) To add an operation to the web service:

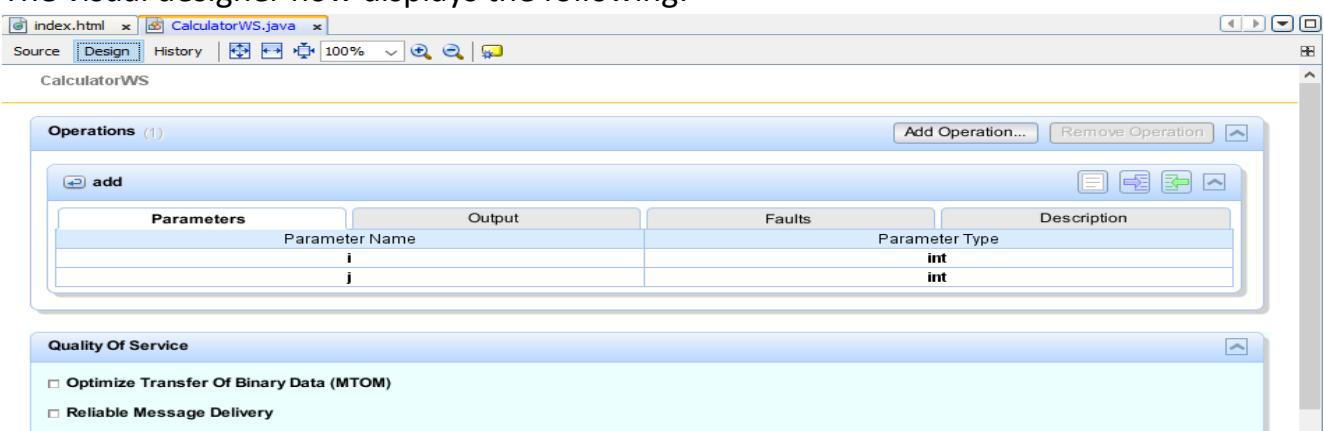
1. Change to the Design view in the editor.



2. Click **Add Operation** in either the visual designer or the context menu. The Add Operation dialog opens.
3. In the upper part of the Add Operation dialog box, type **add** in Name and type **int** in the Return Type drop-down list.
4. In the lower part of the Add Operation dialog box, click **Add** and *create a parameter of type int named i.*
5. Click Add again and create a parameter of type **int** called **j**. You now see the following:



6. Click OK at the bottom of the Add Operation dialog box. You return to the editor.
7. The visual designer now displays the following:

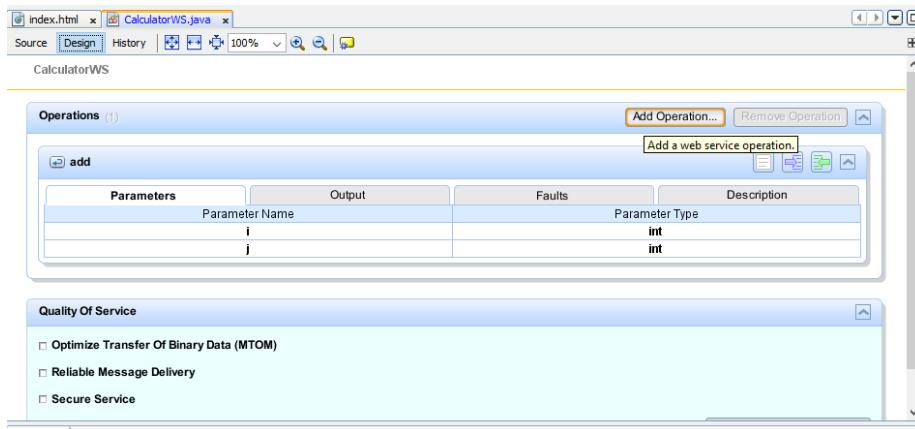


- Click Source. And code the following.

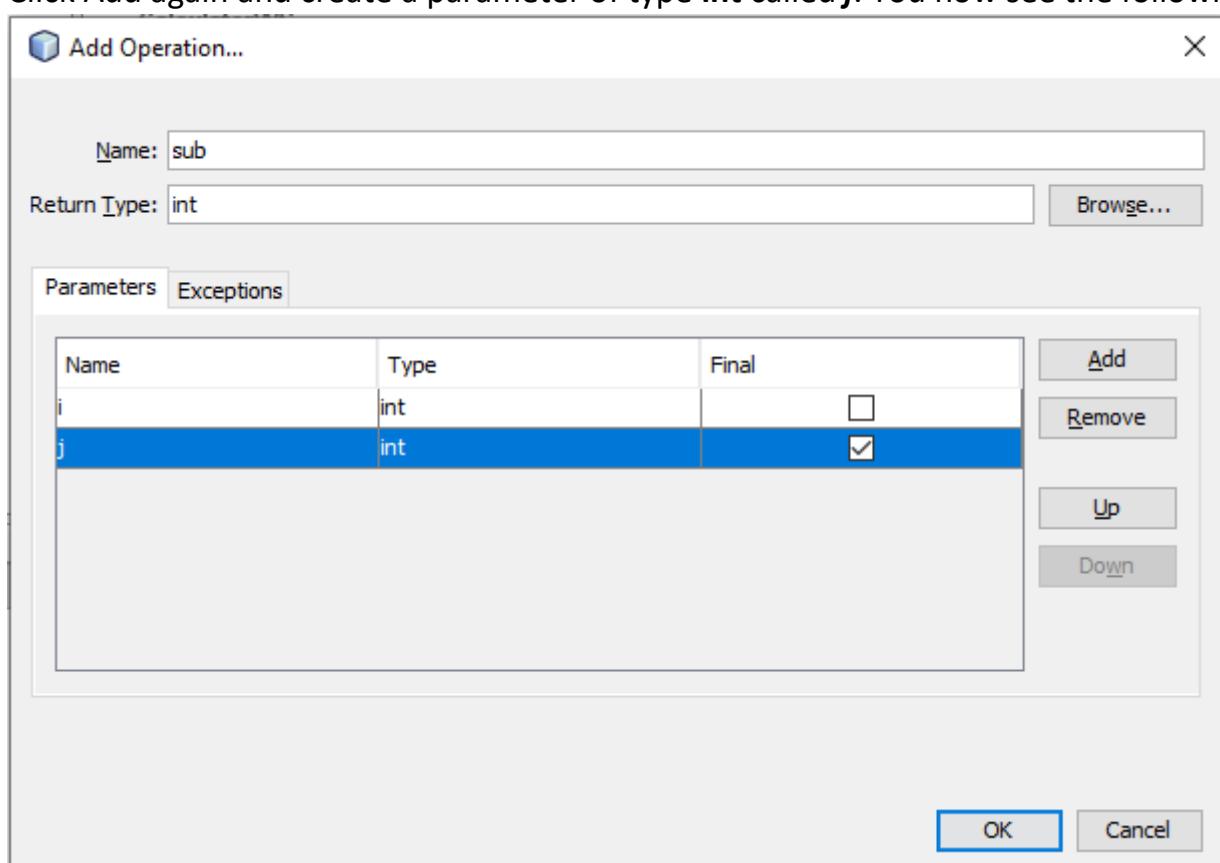
```
/***
 * Web service operation
 */
@WebMethod(operationName = "add")
public int add(@WebParam(name = "i") int i, @WebParam(name = "j") int j) {
    int k = i + j;
    return k;
}
```

b) To sub an operation to the web service:

- Change to the Design view in the editor.

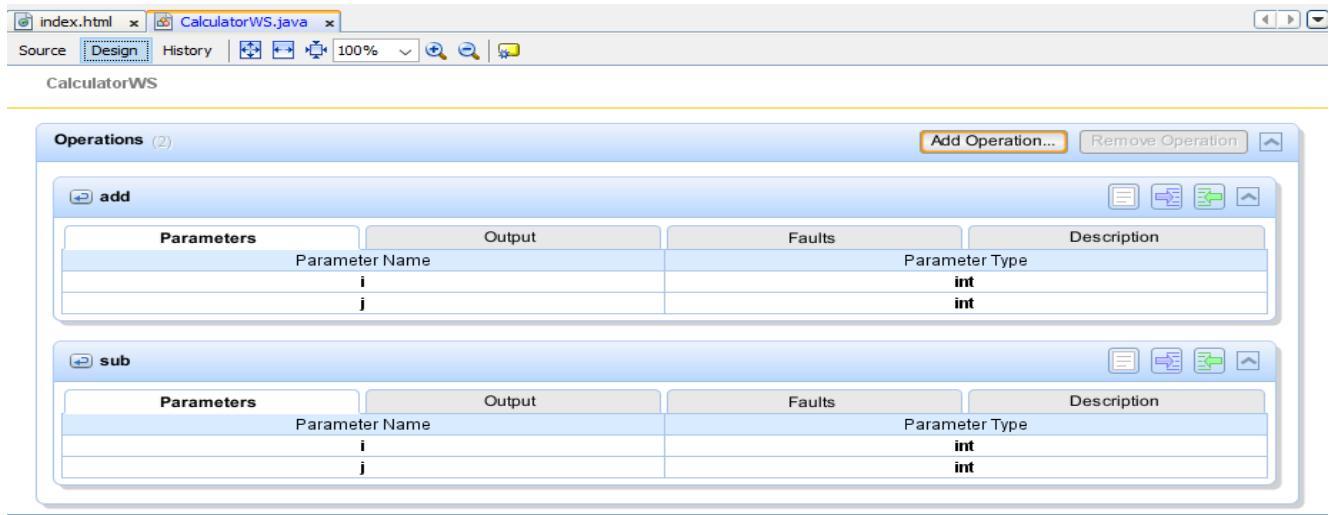


- Click **Add Operation** in either the visual designer or the context menu. The Add Operation dialog opens.
- In the upper part of the Add Operation dialog box, type **sub** in Name and type **int** in the Return Type drop-down list.
- In the lower part of the Add Operation dialog box, click **Add** and *create a parameter of type int named i.*
- Click Add again and create a parameter of type int called *j*. You now see the following:



6. Click OK at the bottom of the Add Operation dialog box. You return to the editor.

7. The visual designer now displays the following:



8. Click Source. And code the following.

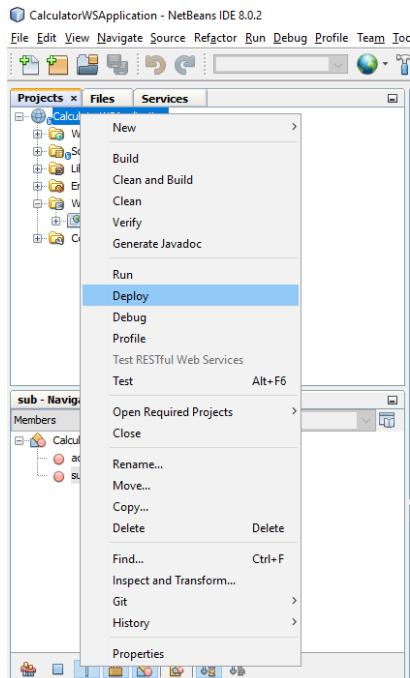
```
/**  
 * Web service operation  
 */  
@WebMethod(operationName = "sub")  
public int sub(@WebParam(name = "i") int i, @WebParam(name = "j") final int j) {  
    int k = i - j;  
    return k;  
}
```

D. Deploying and Testing the Web Service

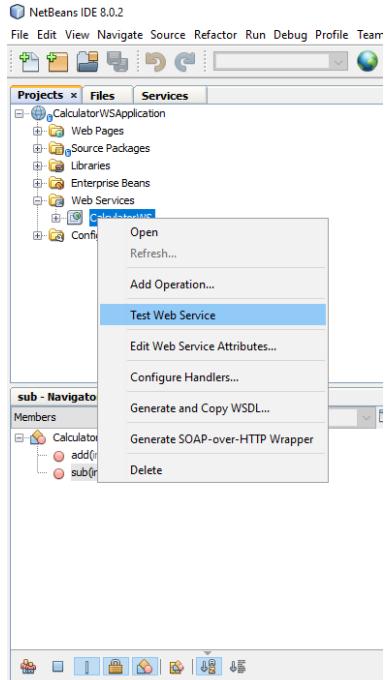
After you deploy a web service to a server, you can use the IDE to open the server's test client, if the server has a test client. The GlassFish servers provide test clients.

a. To test successful deployment to a GlassFish server:

1. Right-click the project and choose Deploy. The IDE starts the application server, builds the application, and deploys the application to the server



2. In the IDE's Projects tab, expand the Web Services node of the **CalculatorWSApplication** project. Right-click the **CalculatorWS** node, and choose Test Web Service



3. The IDE opens the tester page in your browser, if you deployed a web application to the GlassFish server.
4. If you deployed to the GlassFish server, type two numbers in the tester page, as shown below:



CalculatorWS Web Service Tester

This form will allow you to test your web service implementation ([WSDL File](#))

To invoke an operation, fill the method parameter(s) input boxes and click on the button labeled with the method name.

Methods :

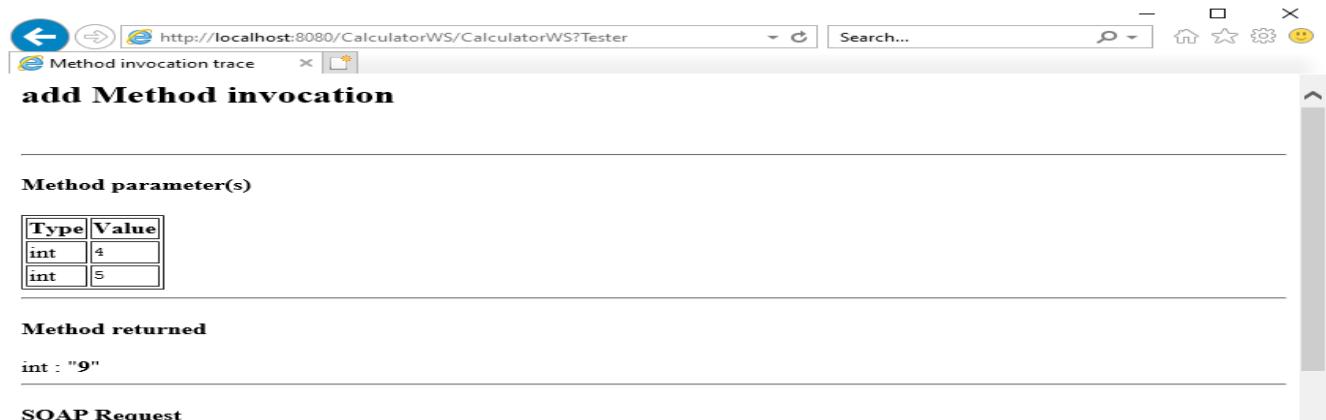
`public abstract int org.me.calculator.CalculatorWS.add(int,int)`

add	(<input type="text" value="4"/> , <input type="text" value="5"/>)	
------------	---	--

`public abstract int org.me.calculator.CalculatorWS.sub(int,int)`

sub	(<input type="text"/> , <input type="text"/>)	
------------	---	--

5. The sum of the two numbers is displayed:



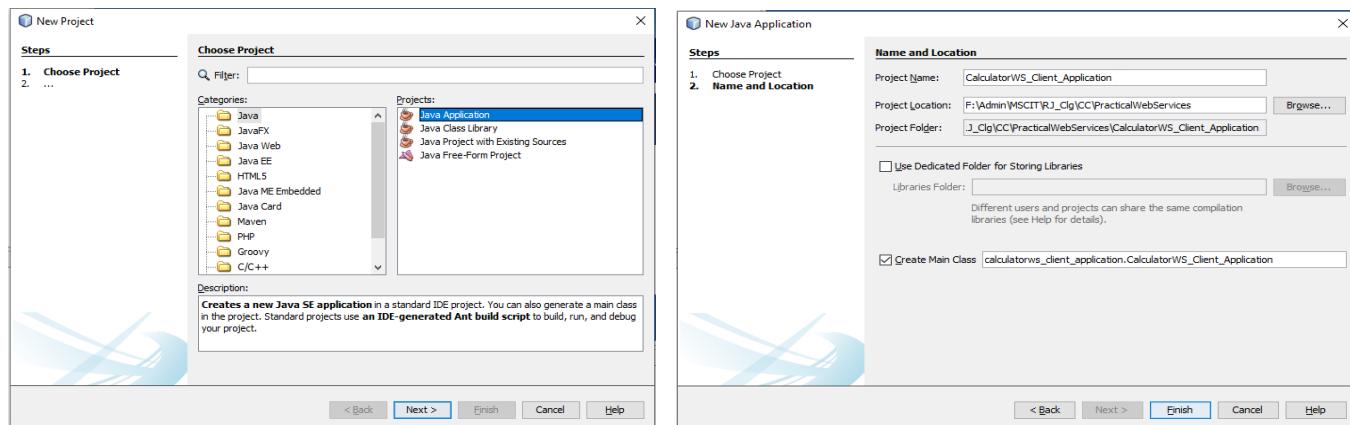
6. Same as for sub operation insert two integer value on input box then show the result.

Consuming the Web Service

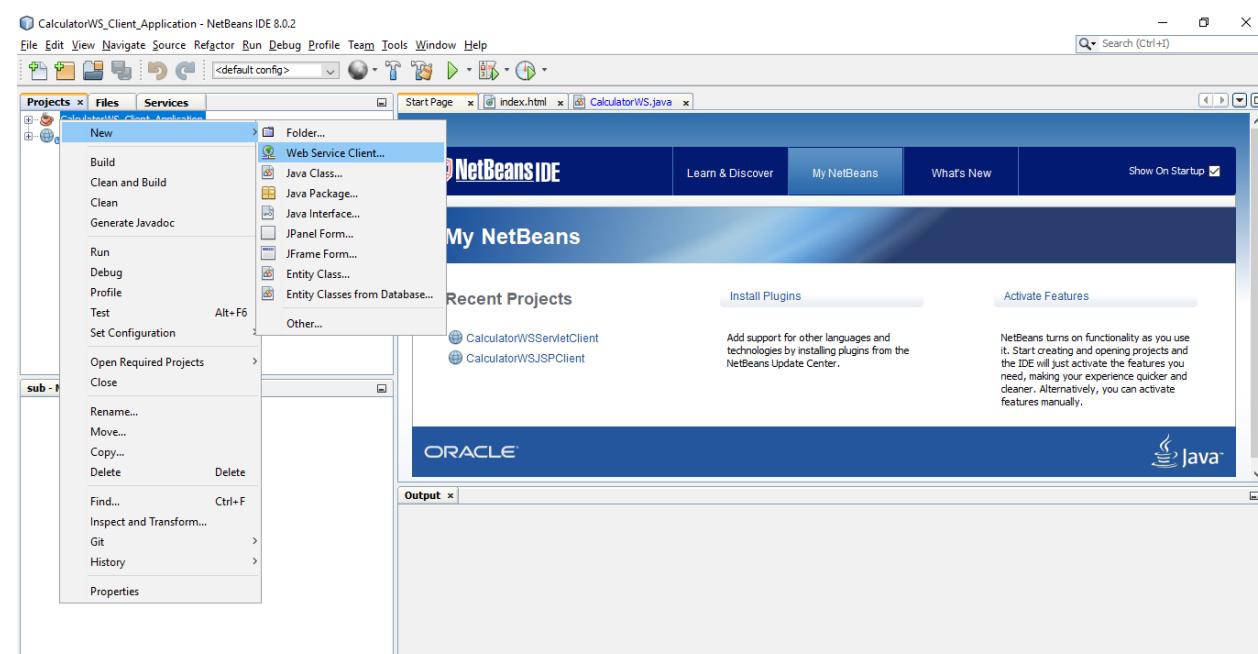
Now that you have deployed the web service, you need to create a client to make use of the web service's add method and sub method.

1. Client-1: Java Class in Java SE Application

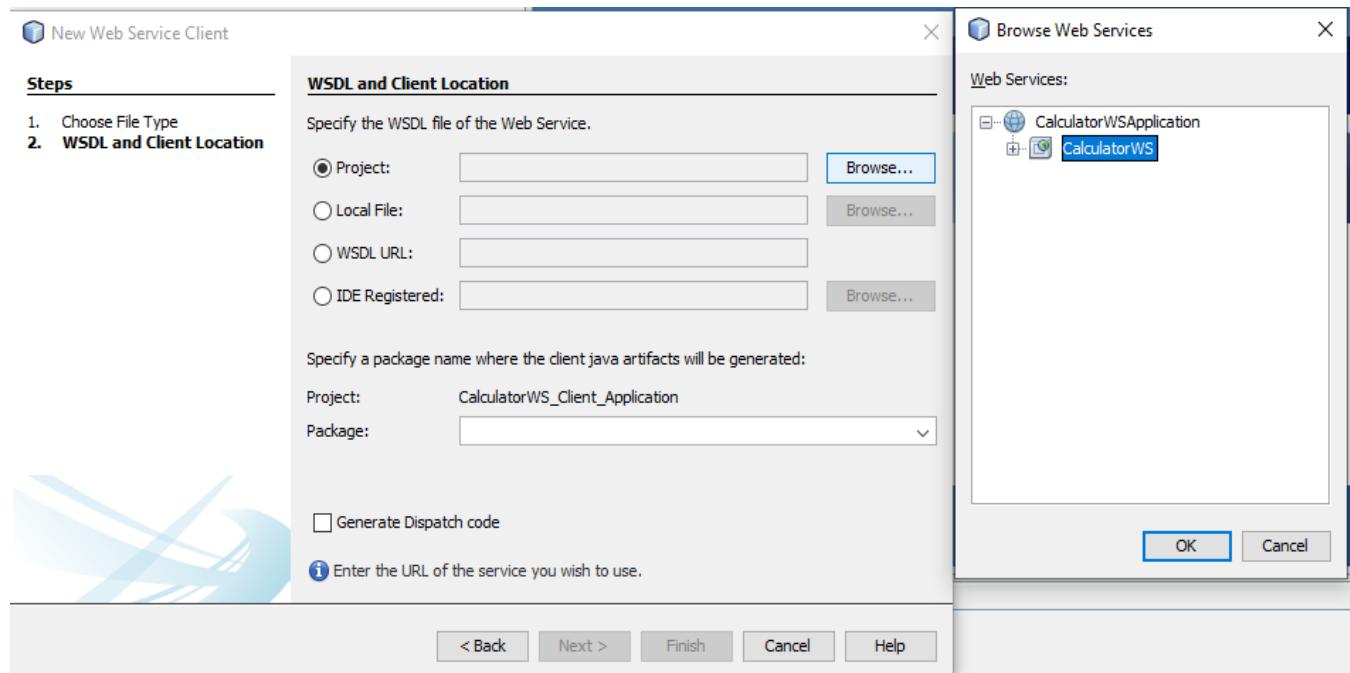
1. Choose File > New Project. Select Java Application from the Java category.
2. Name the project **CalculatorWS_Client_Application**.
3. Leave Create Main Class selected and accept all other default settings. Click Finish.



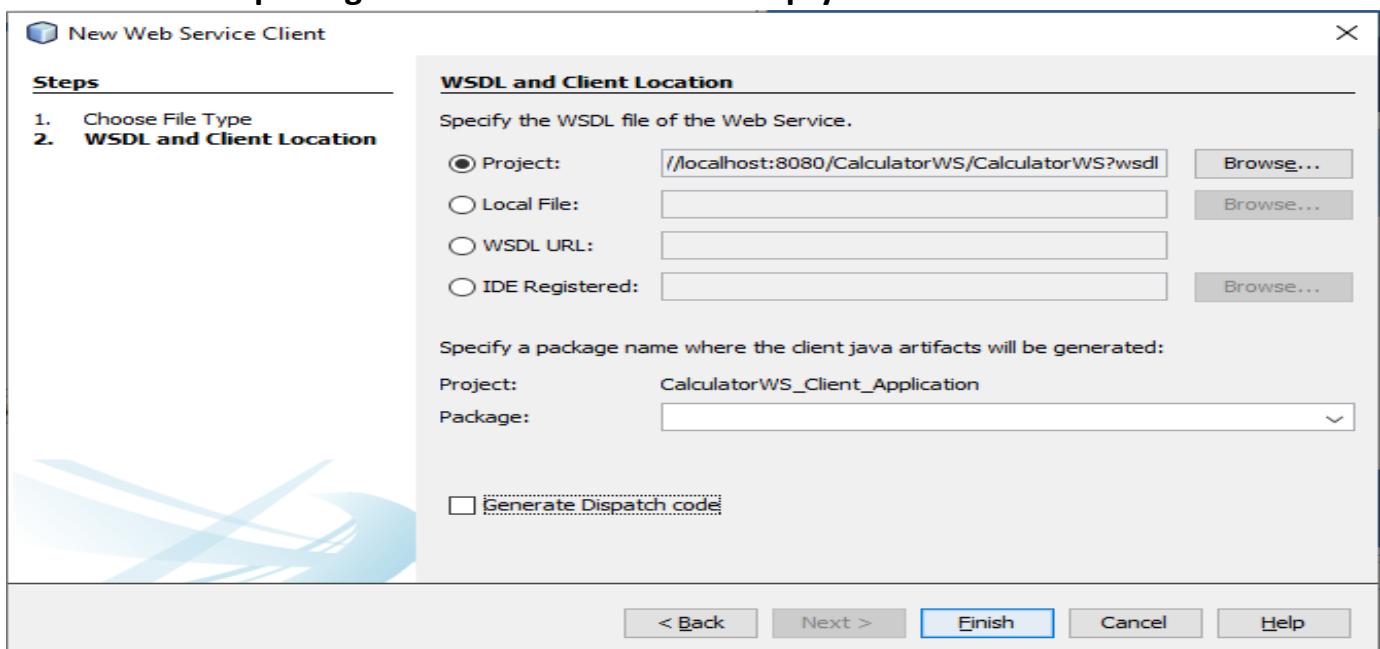
2. Right-click the **CalculatorWS_Client_Application** node and choose New > Web Service Client. The New Web Service Client wizard opens



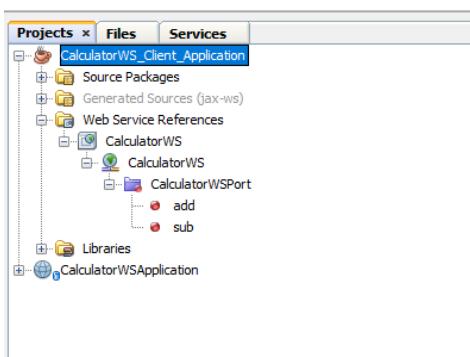
3. Select Project as the WSDL source. Click Browse. Browse to the CalculatorWS web service in the CalculatorWSApplication project. When you have selected the web service, click OK.



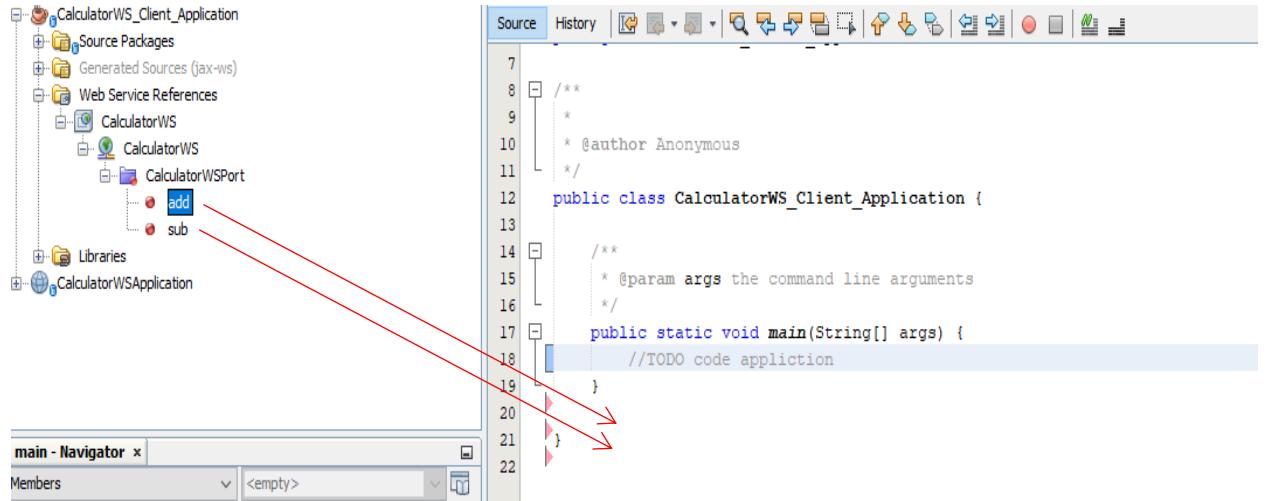
4. Do not select a package name. Leave this field empty.



5. Leave the other settings at default and click Finish. The Projects window displays the new web service client, with a node for the add method that you created:



- 6. Double-click your main class so that it opens in the Source Editor. Drag the add node below the main() method (or) you can right-click in the editor and then choose Insert Code > Call Web Service Operation.**



You now see the following code getting added on dragging:

```
/*
 * @param args the command line arguments
 */
public static void main(String[] args) {
    //TODO code application
}

private static int add(int i, int j) {
    org.me.calculator.CalculatorWS_Service service = new org.me.calculator.CalculatorWS_
Service();
    org.me.calculator.CalculatorWS port = service.getCalculatorWSPort();
    return port.add(i, j);
}

private static int sub(int i, int j) {
    org.me.calculator.CalculatorWS_Service service = new org.me.calculator.CalculatorWS_
Service();
    org.me.calculator.CalculatorWS port = service.getCalculatorWSPort();
    return port.sub(i, j);
}
```

- 7. In the main() method body, replace the TODO comment with code that initializes values for i and j, calls add() and sub(), and prints the result.**

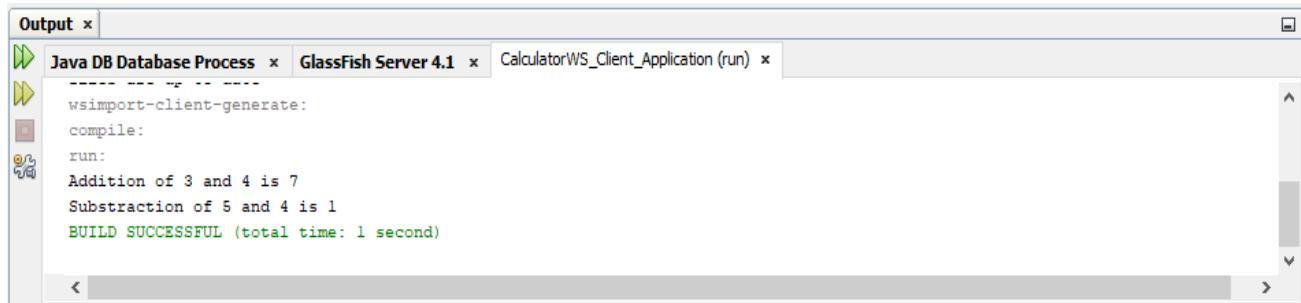
```
public static void main(String[] args) {
    try{
        // Addition
        int a1 = 3;
        int a2 = 4;
        int addResult = add(a1, a2);
        System.out.println("Addition of " + a1 + " and " + a2 + " is " + addResult);

        // Subtraction
        int s1 = 5;
        int s2 = 4;
        int subResult = sub(s1, s2);
        System.out.println("Subtraction of " + s1 + " and " + s2 + " is " + subResult);
```

```
        }catch(Exception ex) {
            System.out.println("Exception: " + ex);
        }
    }
```

8. Right-click the project node and choose Run.

The Output window now shows the sum:

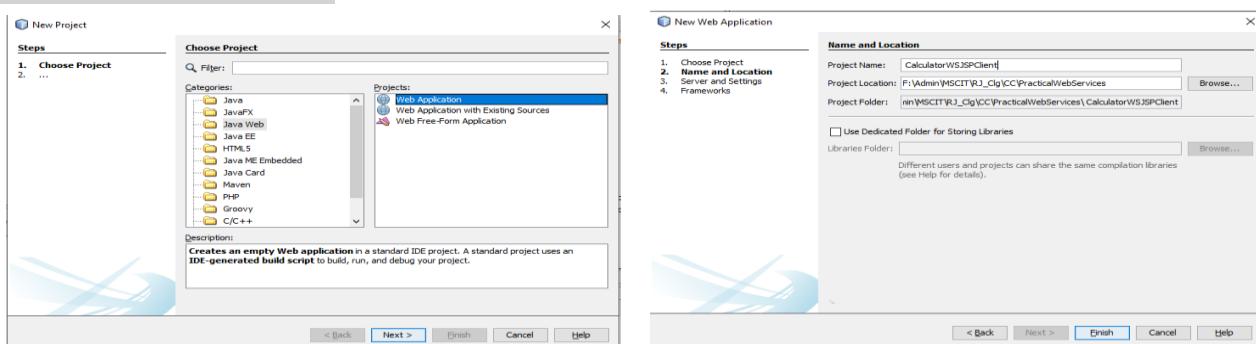


```
Output x
Java DB Database Process x GlassFish Server 4.1 x CalculatorWS_Client_Application (run) x
wsimport-client-generate:
compile:
run:
Addition of 3 and 4 is 7
Subtraction of 5 and 4 is 1
BUILD SUCCESSFUL (total time: 1 second)
```

1. Client-2: JSP Page in Web Application

1. Choose File > New Project .
2. Select Web Application from the Java Web category. Name the project

CalculatorWSJSPClient . Click Next and then click Finish.



3. Expand the Web Pages node under the project node and **delete** index.html .

4. Right-click the Web Pages node and choose New > JSP in the popup menu.

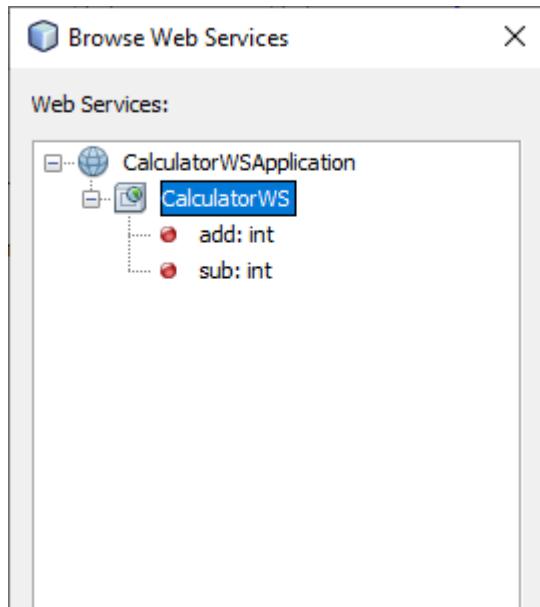
Note: If JSP is not available in the popup menu, choose New > Other and select JSP in the Web category of the New File wizard.

5. Type index for the name of the JSP file in the New File wizard. Click Finish.

6. Right-click the **CalculatorWSJSPClient** node and choose New > Web Service Client.

7. Select Project as the WSDL source.

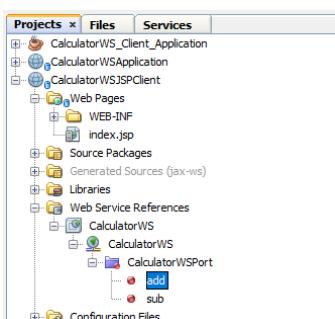
8. Click Browse. Browse to the **CalculatorWS** web service in the **CalculatorWSApplication** project. When you have selected the web service, click OK.



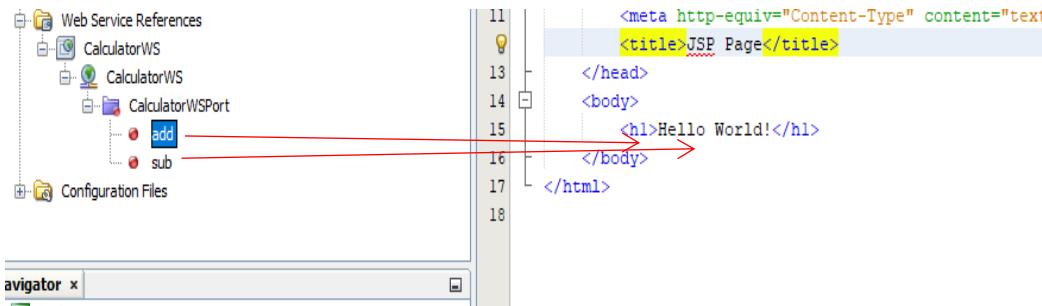
9. Do not select a package name. Leave this field empty.

10. Leave the other settings at default and click Finish.

The Projects window displays the new web service client, as shown below:



- In the Web Service References node, expand the node that represents the web service. The add operation, which you will invoke from the client, is now exposed.
- Drag the add operation to the client's index.jsp page, and drop it below the H1 tags.



- The code for invoking the service's operation is now generated in the index.jsp page, as you can see here:

```

<%-- start web service invocation --%><hr/>
<%
try {
    org.me.calculator.CalculatorWS_Service service = new org.me.calculator.CalculatorWS_
Service();
    org.me.calculator.CalculatorWS port = service.getCalculatorWSPort();
    // TODO initialize WS operation arguments here
    int i = 0;
    int j = 0;
    // TODO process result here
    int result = port.add(i, j);
    out.println("Result = "+result);
} catch (Exception ex) {
    // TODO handle custom exceptions here
}
%>
<%-- end web service invocation --%><hr/>
<%-- start web service invocation --%><hr/>
<%
try {
    org.me.calculator.CalculatorWS_Service service = new org.me.calculator.CalculatorWS_
Service();
    org.me.calculator.CalculatorWS port = service.getCalculatorWSPort();
    // TODO initialize WS operation arguments here
    int i = 0;
    int j = 0;
    // TODO process result here
    int result = port.sub(i, j);
    out.println("Result = "+result);
} catch (Exception ex) {
    // TODO handle custom exceptions here
}
%>
<%-- end web service invocation --%><hr/>

```

Make the Change the value for i and j from 0 to other integers, such as 3 and 4.
Replace the commented out TODO line in the catch block with
out.println("exception" + ex);

```

<%-- start web service invocation --%><hr/>
<%
try {
    org.me.calculator.CalculatorWS_Service service = new org.me.calculator.CalculatorWS_
Service();
    org.me.calculator.CalculatorWS port = service.getCalculatorWSPort();
    // TODO initialize WS operation arguments here
    int i = 3;
    int j = 4;
    // TODO process result here
    int result = port.add(i, j);
    out.println("Addition Result = "+result);
} catch (Exception ex) {
    // TODO handle custom exceptions here
}
%>
<%-- end web service invocation --%><hr/>

<%-- start web service invocation --%><hr/>
<%
try {
    org.me.calculator.CalculatorWS_Service service = new org.me.calculator.CalculatorWS_
Service();
    org.me.calculator.CalculatorWS port = service.getCalculatorWSPort();
    // TODO initialize WS operation arguments here
    int i = 5;
    int j = 4;
    // TODO process result here
    int result = port.sub(i, j);
    out.println("Subtraction Result = "+result);
} catch (Exception ex) {
    // TODO handle custom exceptions here
}
%>
<%-- end web service invocation --%><hr/>

```

14. Right-click the project node and choose Run.

The server starts, if it wasn't running already. The application is built and deployed, and the browser opens, displaying the calculation result:



Hello JSP!

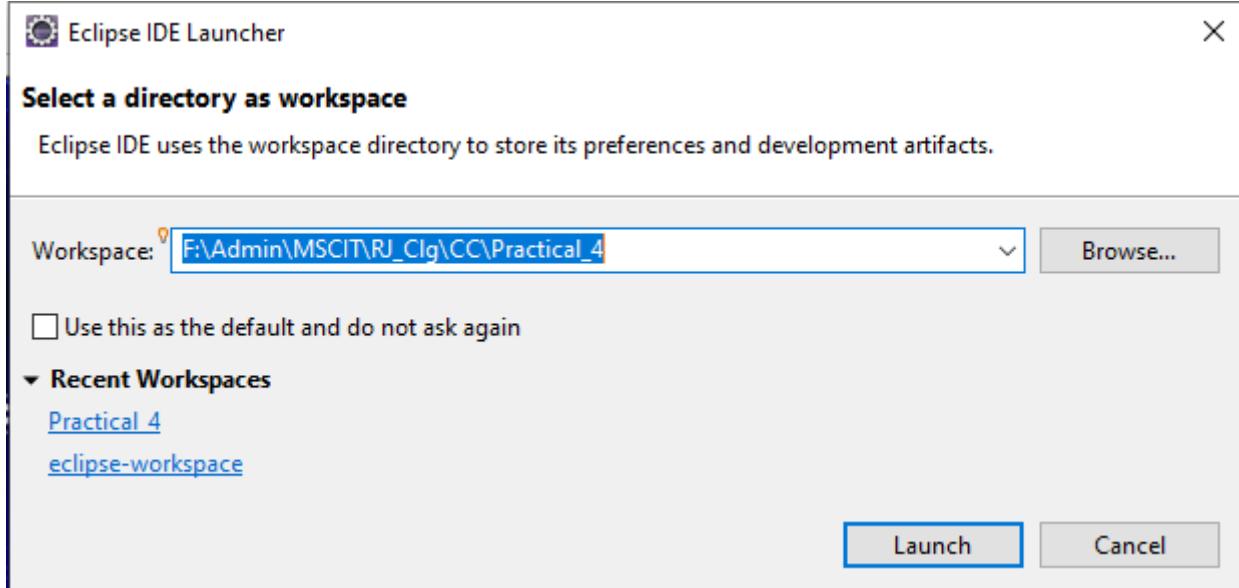
Addition Result = 7

Substraction Result = 1

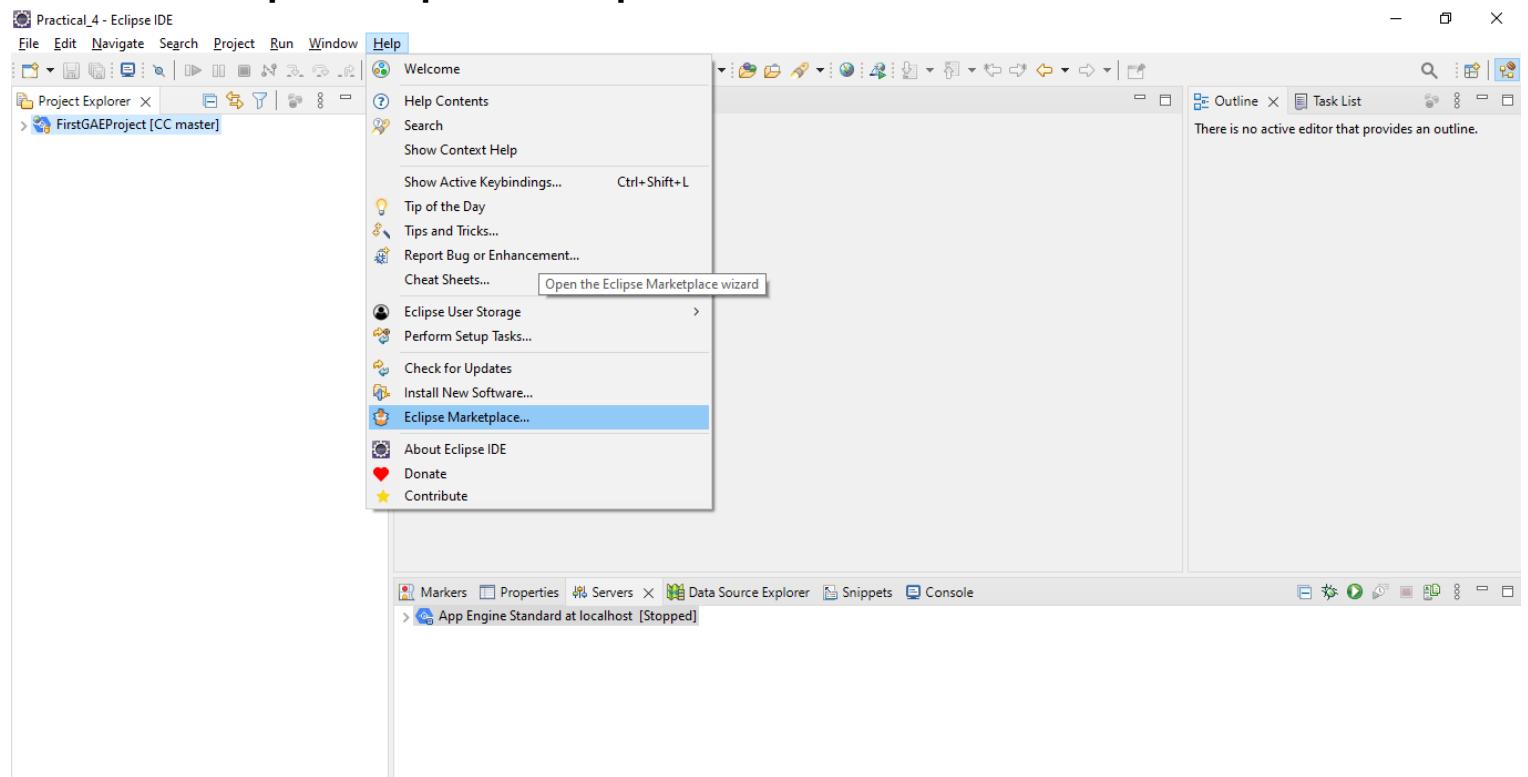
Implement Application with Google App Engine (GAE)

Before you begin

1. Install Eclipse IDE for Java EE Developers, version 4.8 or later:
<https://www.eclipse.org/downloads/packages/>
2. Install JDK 8 or JDK 11. Earlier and later versions of Java are not supported.



Click on >> Help >> Eclipse Marketplace



In **Find Search Box: Search for “Google cloud tools for eclipse”** and click on **Install** button. After complete installation of the plugin restart the Eclipse.

Eclipse Marketplace

Select solutions to install. Press Install Now to proceed with installation.
Press the "more info" link to learn more about a solution.



Search Recent Popular Favorites Installed Giving IoT an Edge

Find: All Markets All Categories Go

Google Cloud Tools for Eclipse 1.8.4

Cloud Tools for Eclipse is a Google-sponsored open source plugin that supports the Google Cloud Platform. Cloud Tools for Eclipse enables you to create, import,... [more info](#)

by Google LLC, Apache 2.0
Google Cloud Platform dataflow GCP app engine google

134 Installs: 98.3K (939 last month) Installed

Nasdanika Tool Suite 2020-06

Nasdanika Tool Suite provides tooling for model-driven development (MDD) and code generation. Currently the Tools Suite features Nasdanika Vinci - an Eclipse... [more info](#)

by Nasdanika LLC, EPL 2.0
nasdanika model-driven development Web Development MDD

0 Installs: 8 (0 last month) Install

Eclipse Tools for Cloud Foundry 1.2.0

Marketplaces

< Back Install Now > Finish Cancel

Click on ‘File’ menu and select >> New >> Other and search with “Google” keyword and select Google App Engine Standard Java Project under Google Cloud Platform and click on Next.

Practical_4 - Eclipse IDE

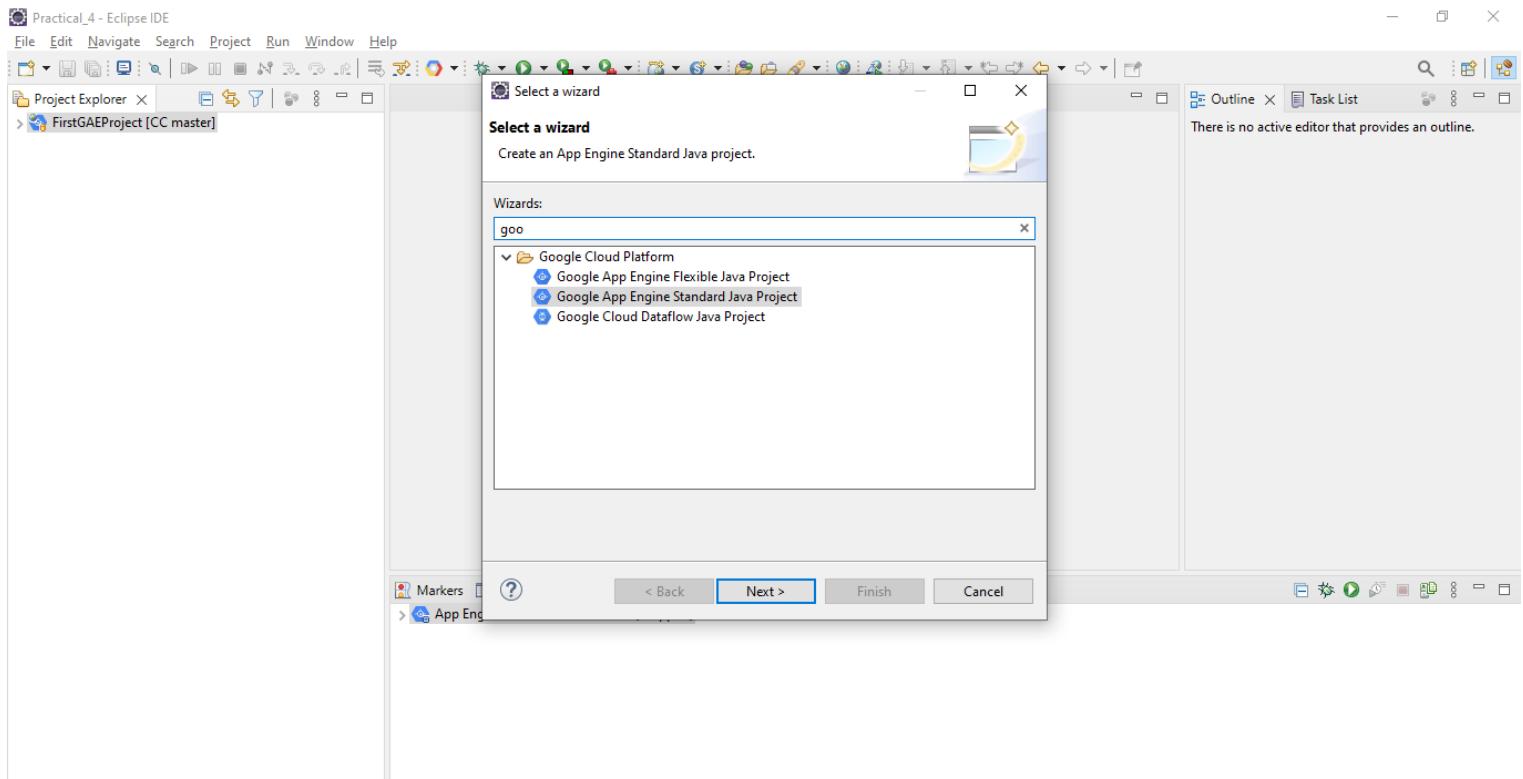
File Edit Navigate Search Project Run Window Help

New Alt+Shift+N >

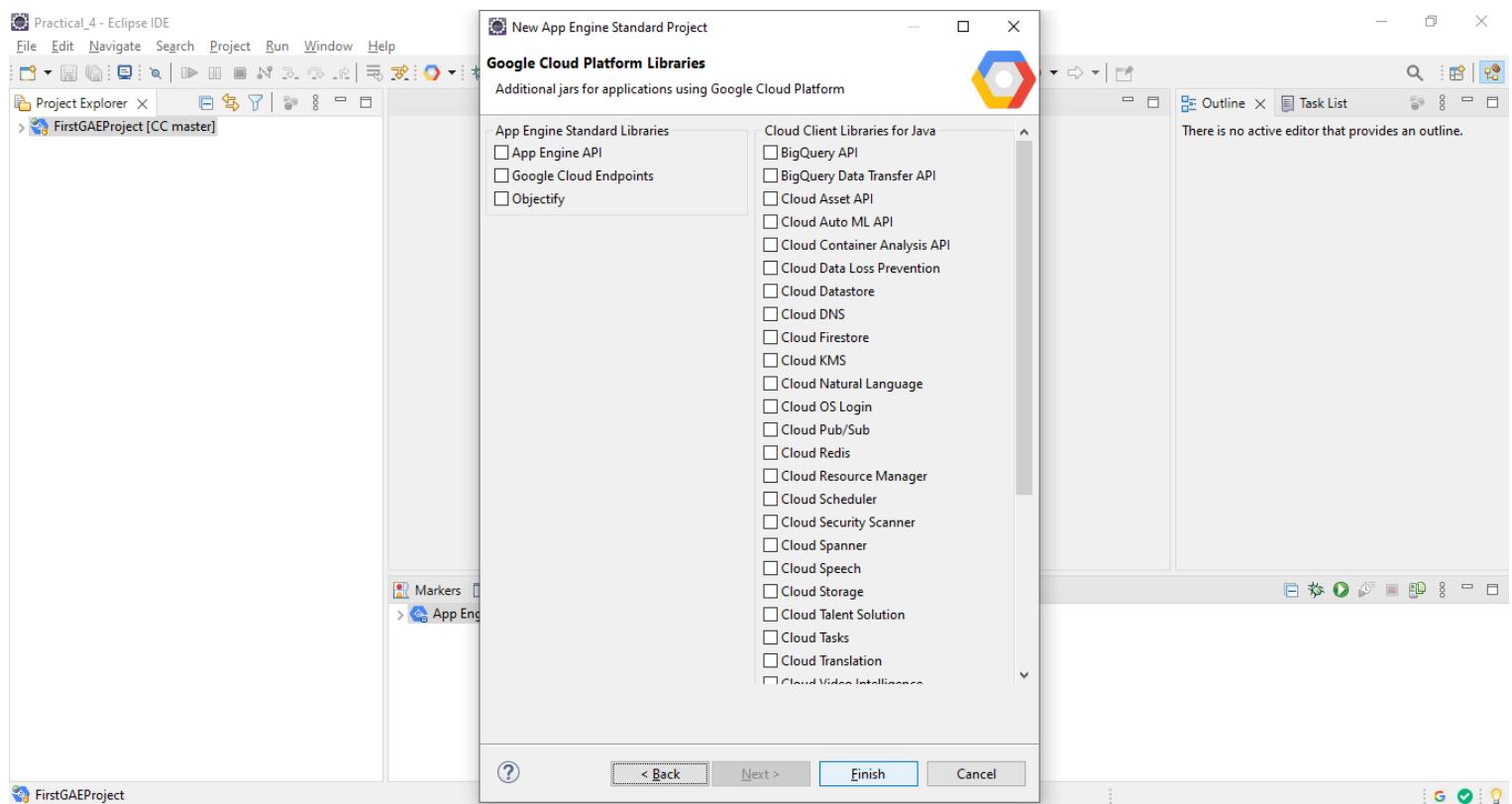
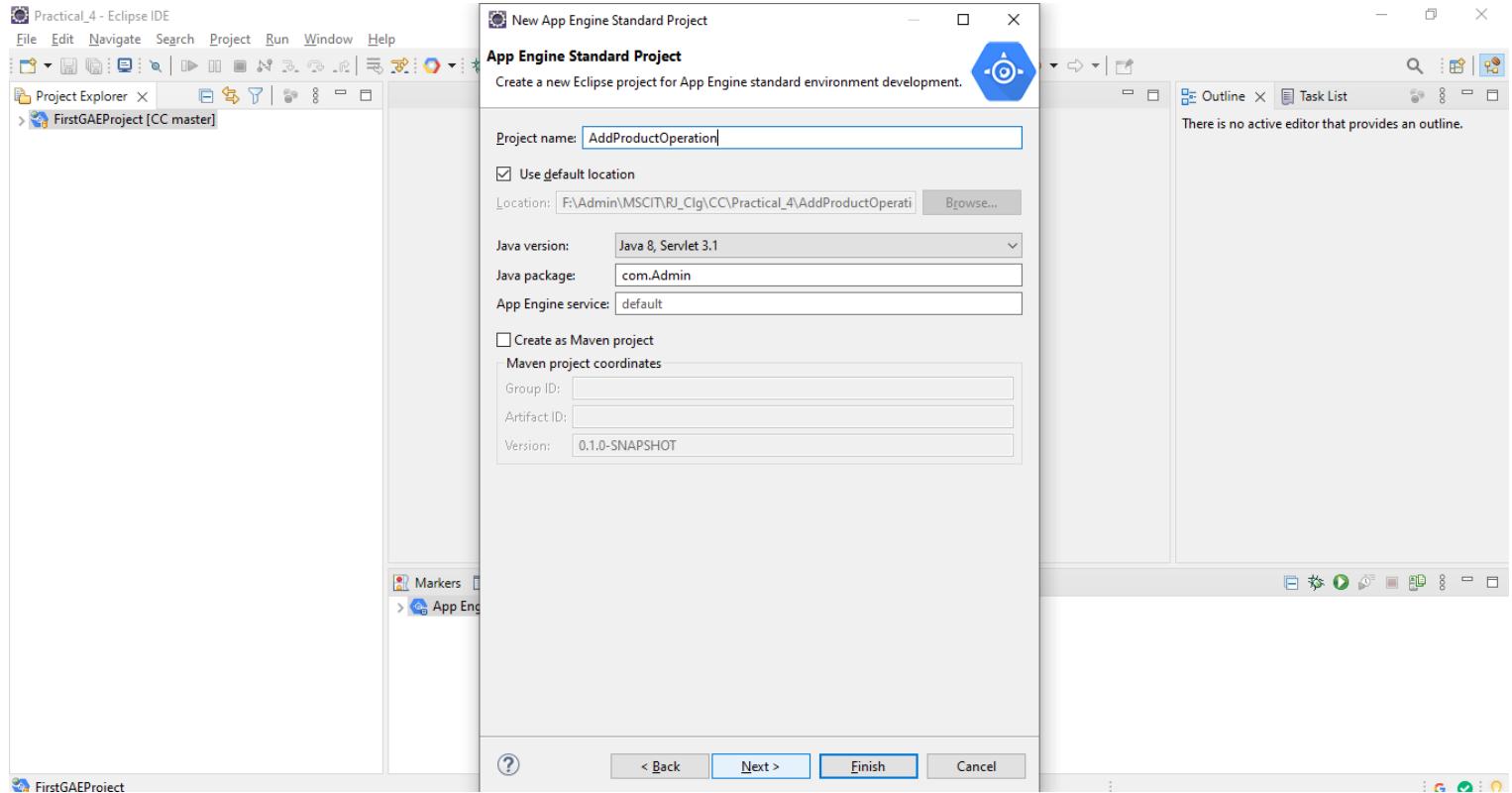
- Maven Project
- Enterprise Application Project
- Dynamic Web Project
- EJB Project
- Connector Project
- Application Client Project
- Static Web Project
- JPA Project
- Project...
- CSS File
- JavaScript File
- Servlet
- Session Bean (EJB 3.x)
- Message-Driven Bean (EJB 3.x)
- Web Service
- Folder
- File
- JSP File
- Example...
- Other... Ctrl+N

Markers Proper Servers Data Source Explorer Snippets Console

App Engine Standard at localhost [Stopped]



Enter Project Name “AddProductOperation” and Package Name “com.Admin” and then Click on >> Next >> Finish.



Open project hierarchy.

Edit the file as required (Unedited file too can be used. Here the editing is done to “what should be displayed” on the browser). Save the file.

HelloAppEngine.java

The screenshot shows the Eclipse IDE interface with the following details:

- Project Explorer:** Shows the project structure for "HelloAppEngine". It includes a Java package "com" with sub-packages "main" and "Admin", and a Java class "HelloAppEngine.java". Other files like "appengine-web.xml", "logging.properties", and "web.xml" are also listed.
- Editor:** Displays the content of "HelloAppEngine.java". The code defines an HTML page with a heading "Hello App Engine!" and a table with two rows. The first row has a colspan="2" cell containing "Available Servlets:". The second row contains a link to "/hello" labeled "The servlet".
- Outline View:** Shows the structure of the HTML document, including the DOCTYPE, head, body, table, tr, td, and a href element.
- Servers:** Shows an "App Engine Standard at localhost [Stopped]" entry.

index.html

The screenshot shows the Eclipse IDE interface with the following details:

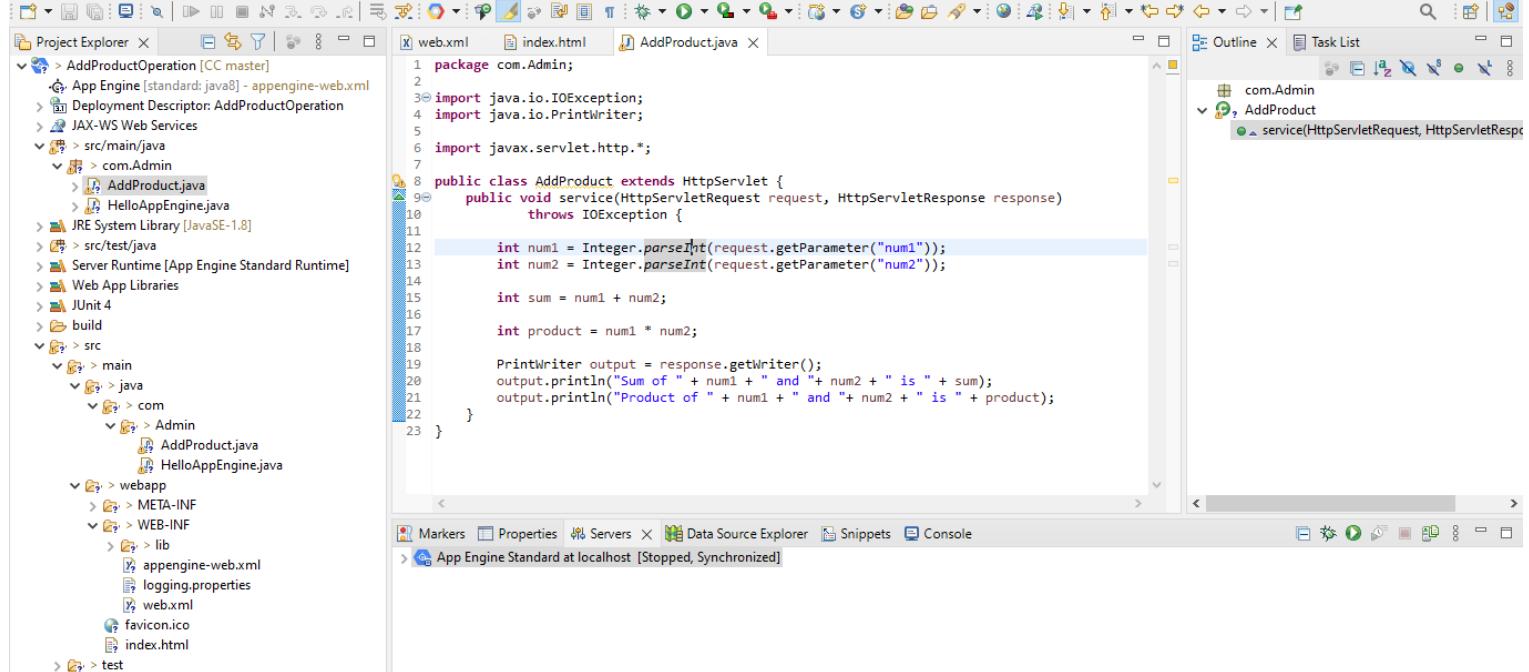
- Project Explorer:** Shows the project structure for "AddProductOperation". It includes a Java package "com" with sub-packages "Admin" and "main", and Java classes "AddProduct.java" and "HelloAppEngine.java". Other files like "appengine-web.xml", "logging.properties", and "web.xml" are also listed.
- Editor:** Displays the content of "index.html". The code defines an HTML form with two text input fields for "num1" and "num2", and a submit button named "calculate".
- Outline View:** Shows the structure of the HTML document, including the DOCTYPE, head, body, and form elements.
- Servers:** Shows an "App Engine Standard at localhost [Stopped, Synchronized]" entry.

```
<form action="add_product">
    <label>First number </label> <input type="text" name="num1" />
    <br /><br />
    <label>Second number </label> <input type="text" name="num2" />
    <br /><br />
    <button type="submit" name="calculate">Add and Product</button><br />
</form>
```

AddProduct.java

Practical_4 - AddProductOperation/src/main/java/com/Admin/AddProduct.java - Eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help



```
public void service(HttpServletRequest request, HttpServletResponse response)
    throws IOException {

    int num1 = Integer.parseInt(request.getParameter("num1"));
    int num2 = Integer.parseInt(request.getParameter("num2"));

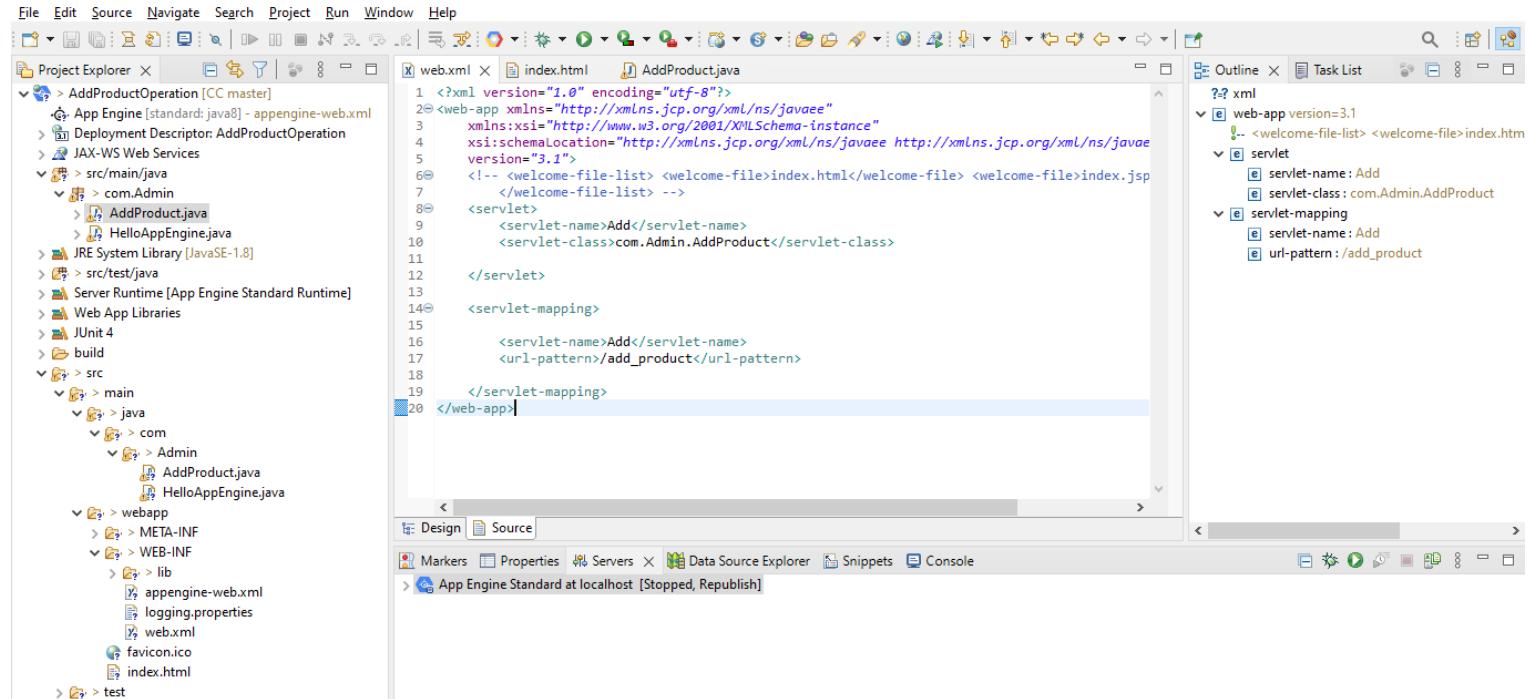
    int sum = num1 + num2;

    int product = num1 * num2;

    PrintWriter output = response.getWriter();
    output.println("Sum of " + num1 + " and " + num2 + " is " + sum);
    output.println("Product of " + num1 + " and " + num2 + " is " + product);
}
```

web.xml

Practical_4 - AddProductOperation/src/main/webapp/WEB-INF/web.xml - Eclipse IDE



```
<servlet>
    <servlet-name>Add</servlet-name>
    <servlet-class>com.Admin.AddProduct</servlet-class>

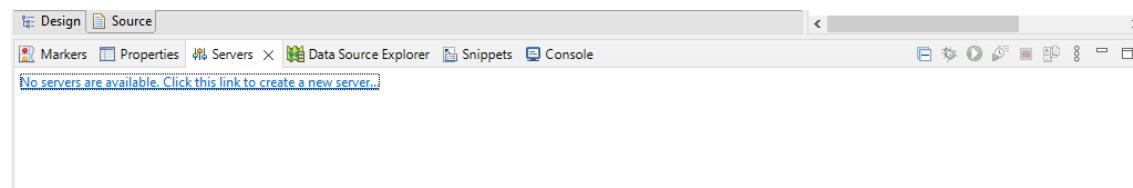
</servlet>

<servlet-mapping>

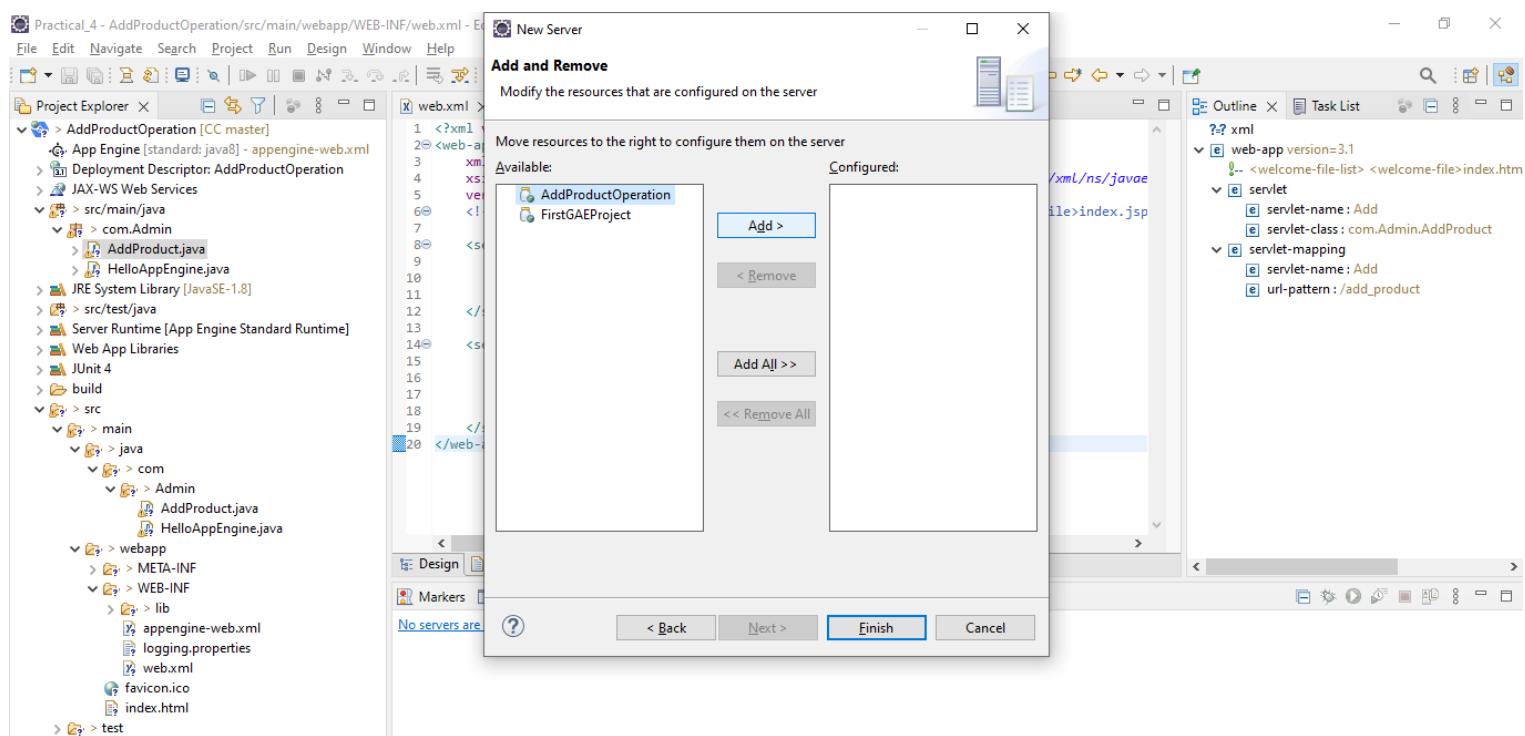
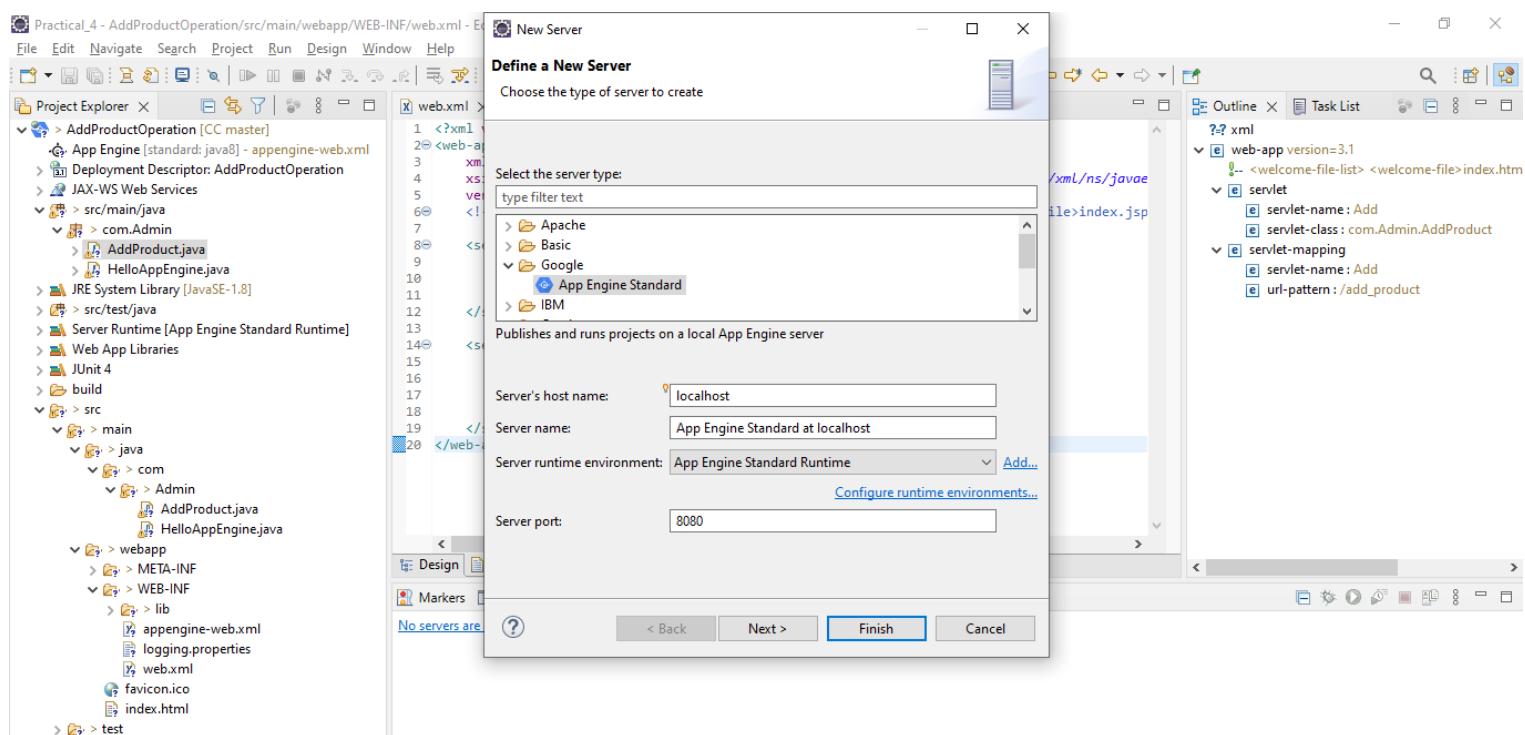
    <servlet-name>Add</servlet-name>
    <url-pattern>/add_product</url-pattern>

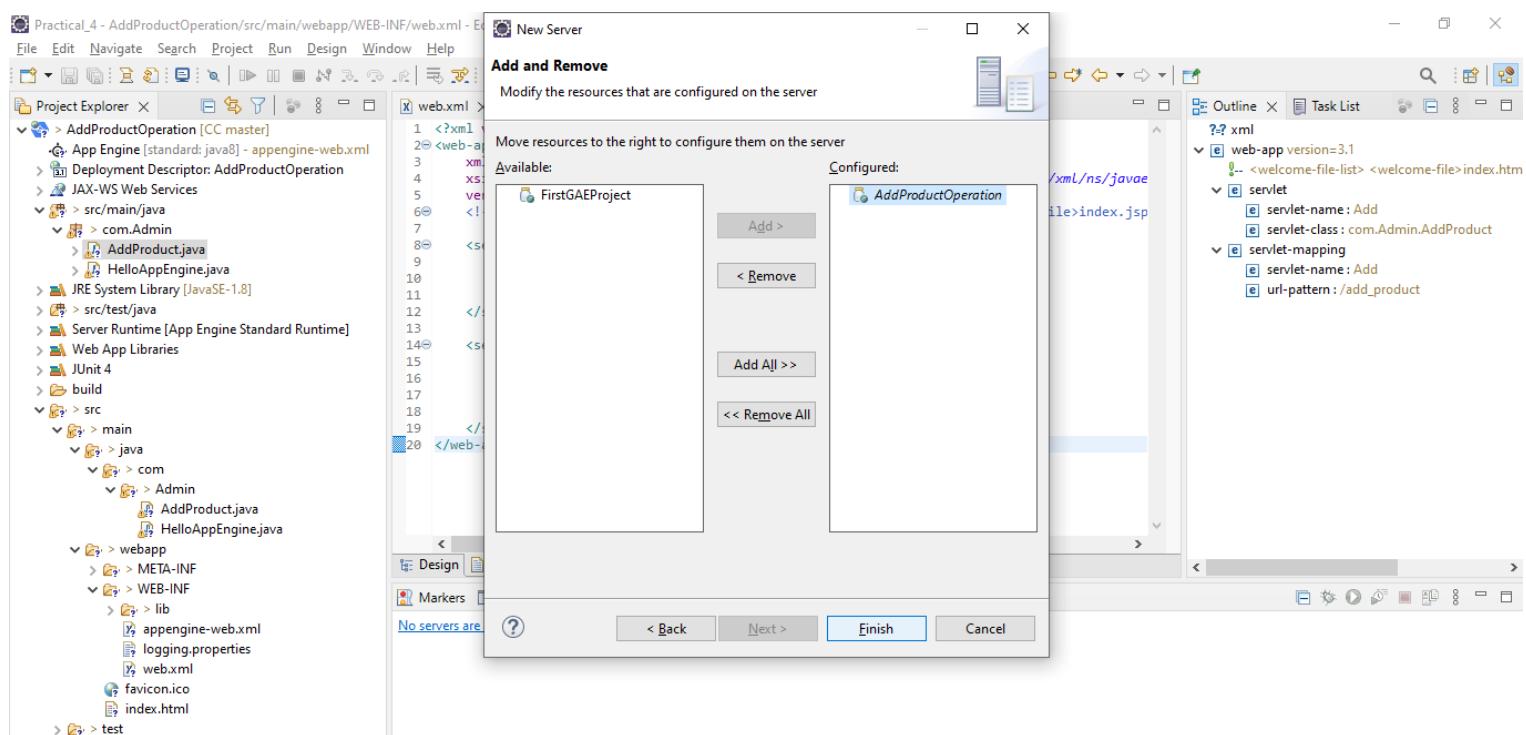
</servlet-mapping>
```

Configuring “App Engine Standard” Server. Click on the link to create a new server under **Server tab**.



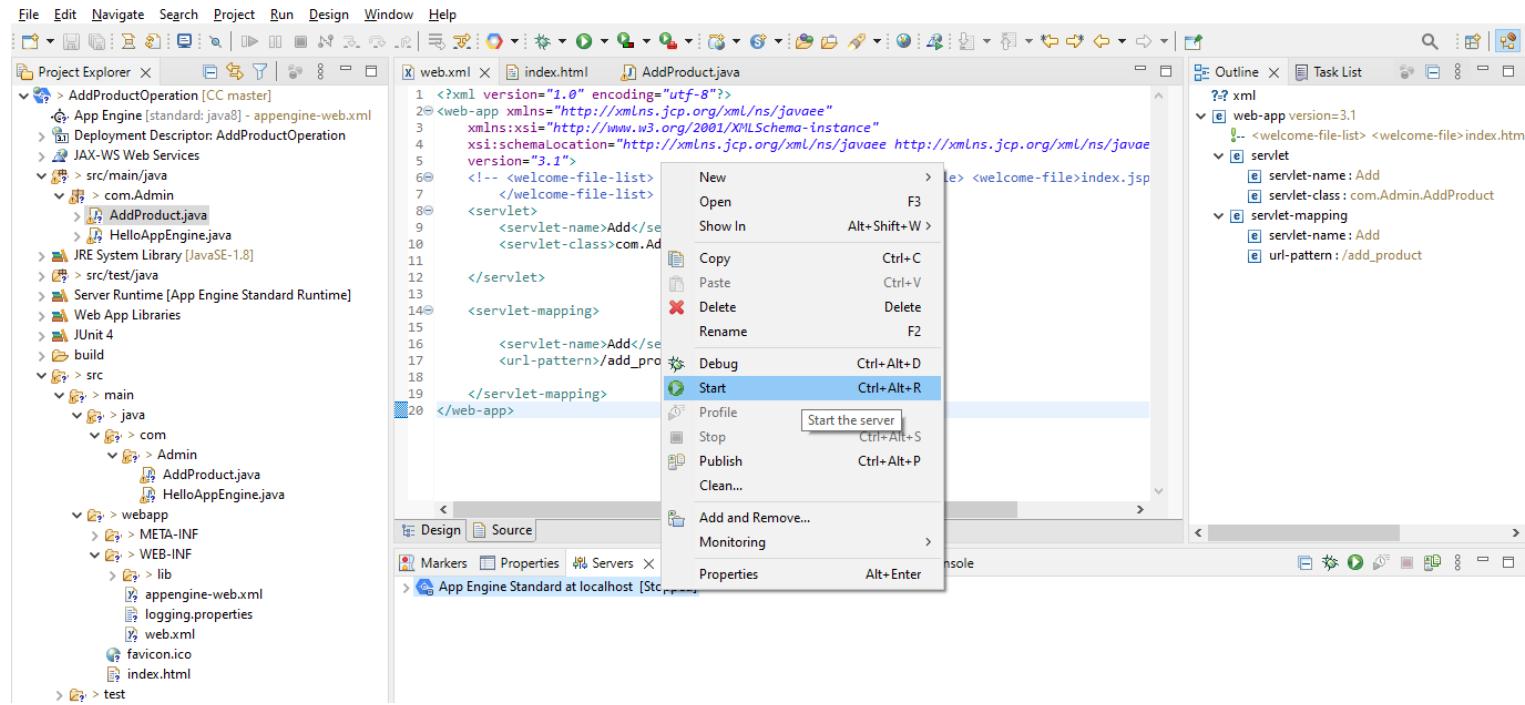
Click Next





Start the “App Engine Standard” server

Practical_4 - AddProductOperation/src/main/webapp/WEB-INF/web.xml - Eclipse IDE



In the browser (Here, Google Chrome) type the address as "localhost:8080" which is "Default" for http protocol

Output:

Practical_4 - App Engine Standard at localhost - Eclipse IDE

File Edit Navigate Search Project Run Window Help

Project Explorer X web.xml index.html AddProduct.java App Engine Standard at localhost X

First number 5

Second number 5

Add and Product

Markers Properties Servers Data Source Explorer Snippets Console X

App Engine Standard at localhost

```
INFO: Full scan of the web app in place every 1s.
Sep 21, 2021 9:09:56 AM com.google.appengine.tools.development.AbstractModule startup
INFO: Module instance default is running at http://localhost:8080/
Sep 21, 2021 9:09:56 AM com.google.appengine.tools.development.AbstractModule startup
INFO: The admin console is running at http://localhost:8080/_ah/admin
Sep 21, 2021 2:39:56 PM com.google.appengine.tools.development.DevAppServerImpl doStart
TINFO: Dev App Server is now running
```

Practical_4 - App Engine Standard at localhost - Eclipse IDE

File Edit Navigate Search Project Run Window Help

Project Explorer X web.xml index.html AddProduct.java App Engine Standard at localhost X

http://localhost:8080/add_product?num1=5&num2=5&calculate=

Sum of 5 and 5 is 10 Product of 5 and 5 is 25

Markers Properties Servers Data Source Explorer Snippets Console X

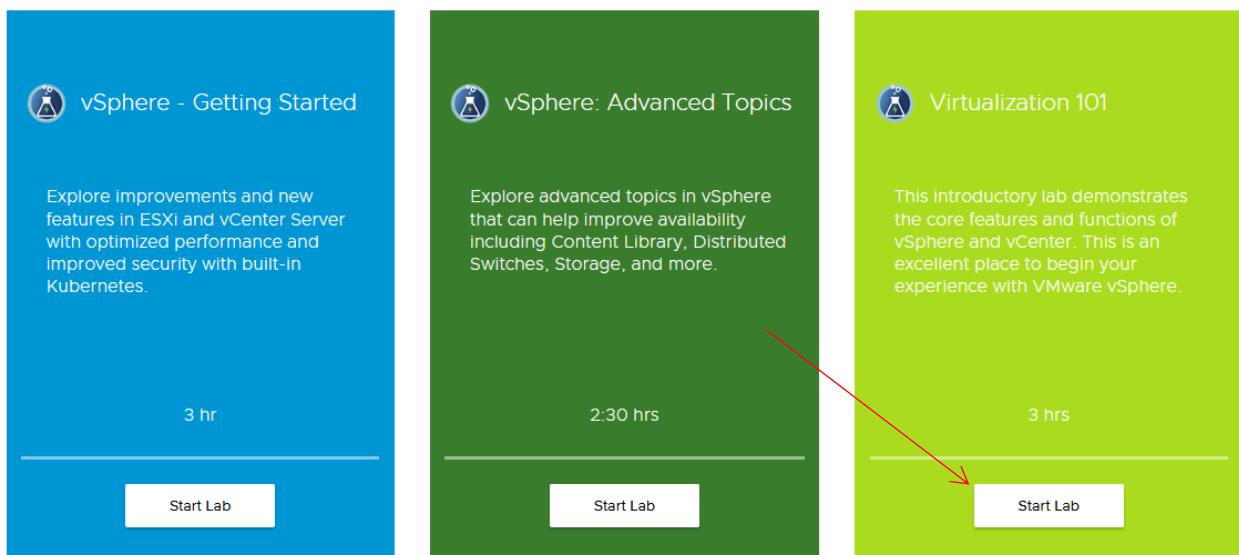
App Engine Standard at localhost

```
INFO: Full scan of the web app in place every 1s.
Sep 21, 2021 9:09:56 AM com.google.appengine.tools.development.AbstractModule startup
INFO: Module instance default is running at http://localhost:8080/
Sep 21, 2021 9:09:56 AM com.google.appengine.tools.development.AbstractModule startup
INFO: The admin console is running at http://localhost:8080/_ah/admin
Sep 21, 2021 2:39:56 PM com.google.appengine.tools.development.DevAppServerImpl doStart
TINFO: Dev App Server is now running
```

Practical No. 5

<https://www.vmware.com/try-vmware/try-hands-on-labs.html>

Compute



<https://customerconnect.vmware.com/en/web/vmware/evalcenter?p=virtualization-hol-gen-21>

Home / Evaluate VMware Products / VMware Virtualization 101 Hands-on Lab

VMware Virtualization 101 Hands-on Lab

Hands-on Labs are the fastest and easiest way to test-drive the full technical capabilities of VMware products. These evaluations are free, up and running on your browser in minutes, and require no installation.

I Have an Account [Create an Account](#)

Email Address or Customer Number: *

Password *

[Log in](#) [Forgot your password?](#)

Lab Console | VMware Learning Platform - Profile 1 - Microsoft Edge

https://labs.hol.vmware.com/console/?language=en&tid=70134000001K5ug

Checking status...

Powered by  VMware Learning

Waiting for core.learningplatform.vmware.com...



VMWARE HANDS-ON LABS

Welcome, Pavan Yadav

Lab: HOL-2210-01-SDC-MYVMW-HO...

TIME REMAINING: 01:29:44 **END**

CONSOLES

WELCOME TO THE CONSOLE INTERFACE!

We see that it's your first time here.

This tour will guide you through using the Console Options and Features. You can access this at anytime by selecting this link at the top left of your screen.

TAKE TOUR **NO THANKS**

HANDS-ON LABS

HOL-2210

Host Main Console
User Administrator
IP Address 192.168.110.10
Lab Status 09/20 08:22 READY

vmware

POWER RESET

CONSOLE

MANUAL

VMWARE HANDS-ON LABS

Welcome, Pavan Yadav

Lab: HOL-2210-01-SDC-MYVMW-HO...

CONSOLES

SEND TEXT **CTRL+ALT+DEL** **NOTES**

HOL-2210-01-SDC-MYVMW-HOL - VIRTUALIZ...

expand all

Lab Overview - HOL-2210-01-SDC - Virtualization 101: Int...

- ▶ [Virtualization](#)
- ▶ [Lab Guidance](#)

Module 1 - Introduction to Management with vCenter Se...

- [Introduction](#)
- [Hands-on Labs Interactive Simulation: ESXi Installation a...](#)
- [ESXi Host Client](#)
- [vCenter 7 Overview](#)
- [vCenter Server and Creating a Virtual Machine](#)
- [Cloning Virtual Machines and Using Templates](#)
- [Using Tagging and Search to Find Objects Quickly](#)
- [Understanding vSphere Availability and Distributed Resource ...](#)
- [vSphere 7 Fault Tolerance Provides Continuous Availability](#)
- [Monitoring Events and Creating Alarms](#)
- [Configure Shares and Resources](#)
- [Migrating Virtual Machines with VMware vMotion](#)
- [vSphere Monitoring and Performance](#)
- [Introduction to vSphere with Tanzu](#)
- [ESXi Install and Configure](#)
- [Certification Path](#)

Module 2 - Introduction to vSphere Networking and Sec...

Module 3 - Introduction to vSphere Storage (60 Min)

Conclusion

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1 17 18 19 20 21 597 A- A+

HANDS-ON LABS

INTERACTIVE SIMULATION:

ESXI INSTALLATION AND CONFIGURATION

This part of the lab is presented as a Hands-on Labs Interactive Simulation. This will allow you to experience steps which are too time-consuming or resource intensive to do live in the lab environment. In this simulation, you can use the software interface as if you are interacting with a live environment.

1. Click here to open the interactive simulation. It will open in a new browser window or tab.
2. When finished, click the "Return to the lab" link to continue with this lab.

The lab continues to run in the background.

Guide

Lab: HOL-2210-01-SDC-MYVMW-HO...

TIME REMAINING: 01:13:16 EXTEND



CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET

VMWARE
HANDS-ON LABS**HOL-2210**
Host Main Console
User Administrator
IP Address 192.168.110.10
Lab Status 09/20 06:22 READY

vmware'

Power



VM

Learning

Platform

MANUAL

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CONFIGURATION

This part of the lab is presented as a **Hands-on Labs Interactive Simulation**. This will allow you to experience steps which are too time-consuming or resource intensive to do live in the lab environment. In this simulation, you can use the software interface as if you are interacting with a live environment.

1. Click here to open the interactive simulation. It will open in a new browser window or tab.
2. When finished, click the "Return to the lab" link to continue with this lab.

The lab continues to run in the background. If the lab goes into standby mode, you can resume it after completing the module.



Lab: HOL-2210-01-SDC-MYVMW-HO...

HELP | PRIVACY | MY PROFILE | ENGLISH



Guide

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET

V
H

HOL-2210-01-SDC-MYVMW-HOL - VIRTUALIZ... X

expand all

▶ [Lab Overview – HOL-2210-01-SDC – Virtualization 101: Int...](#)▼ [Module 1 – Introduction to Management with vCenter Se...](#)

- [Introduction](#)
- [Hands-on Labs Interactive Simulation: ESXi Installation a...](#)
- [ESXi Host Client](#)
- [vCenter 7 Overview](#)
- [vCenter Server and Creating a Virtual Machine](#)
 - [Launch Client](#)
 - [Go to step 40](#)
 - [Launch Client](#)
 - [Login to vCenter](#)
 - [vCenter Inventory](#)
 - [Child objects, Data Centers, and Hosts](#)
 - [Virtual Machine Summary](#)
 - [Edit the settings of a virtual machine.](#)
 - [Add a second network adapter](#)
 - [Configure the Second Network Card.](#)
 - [Recent Tasks List](#)
 - [Recent Tasks List](#)
 - [Create a Virtual Machine](#)
 - [Select and Expand Datacenter](#)
 - [Start the New Virtual Machine Wizard](#)
 - [Virtual Machine wizard](#)
 - [Name the Virtual Machine](#)

CONFIGURATION

This part of the lab is presented as a **Hands-on Labs Interactive Simulation**. This will allow you to experience steps which are too time-consuming or resource intensive to do live in the lab environment. In this simulation, you can use the software interface as if you are interacting with a live environment.

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The lab continues to run in the background. If the lab goes into standby mode, you can resume it after completing the module.



Guide

CONSOLES

TIME REMAINING: 01:10:46 EXTEND

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET

Login

vcsa-01a.corp.local/webss/SAML2/SSO/vsphere.local?SAMLRequest=zVRbb5swfH7t08%ZBjwYnpY1VUmXNq0q5vZN01cayhsQQ28zGQ%2FvsZkmsR1UV... HOL Admin vSphere Web Client esx-03a

VMware® vSphere

administrator@corp.local

Use Windows session authentication

Login - Google Chrome

Power VM Learning Platform

MANUAL

LAUNCH CHROME

If you are not already in Chrome, double click on Google Chrome on your desktop. If you are already in Google Chrome,

CONSOLES

TIME REMAINING: 01:00:16 EXTEND

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET

Login

vcsa-01a.corp.local/webss/SAML2/SSO/vsphere.local?SAMLRequest=zVRbb5swfH7t08%ZBjwYnpY1VUmXNq0q5vZN01cayhsQQ28zGQ%2FvsZkmsR1UV... HOL Admin vSphere Web Client esx-03a

VMware® vSphere

administrator@corp.local

Use Windows session authentication

LOGIN

Power VM Learning Platform

MANUAL

LAUNCH CHROME

If you are not already in Chrome, double click on Google Chrome on your desktop. If you are already in Google Chrome,

Guide

CONSOLES

SEND TEXT **CTRL+ALT+DEL** **NOTES** **POWER DOWN** **POWER RESET**

TIME REMAINING: 01:58:49 **END**

vSphere - esxi-01a.corp.local - VMs

vcasa-01a.corp.local/ui/app/hostnav=h:um/vmomi:HostSystem:host-1009b94976c2-a621-f950-a9e0-5db7b376abb6/vms/vms

HOL Admin vSphere Web Client esxi-01a

vm vSphere Client

Menu Search in all environments Administration

Permissions VMs Datastores Networks Updates

Hosts and Clusters VMs and Templates Storage Networking Content Libraries Workload Management Global Inventory Lists

Policies and Profiles Auto Deploy Hybrid Cloud Services Developer Center

Administration Tasks Events Tags & Custom Attributes Lifecycle Manager

vCloud Availability vRealize Operations

Powered On Status Filter

Initiator Queued For Start Time Completion Time Server

496.82 MB 371.82 MB 0 Hz 175 MB

Recent Tasks Alarms Task Name Target

javascipt[0] DNG 7:41 AM

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VCENTER INVENTORY

MANUAL

vSphere Client

1 42 43 44 45 46 597 A- A+

Search in all environments

Home Shortcuts

Hosts and Clusters VMs and Templates Storage Networking Content Libraries Workload Management Global Inventory Lists

Policies and Profiles Auto Deploy Hybrid Cloud Services Developer Center

Administration Tasks Events Tags & Custom Attributes Lifecycle Manager

vCloud Availability

Click to enlarge

By default, you are brought to a view

Guide

CONSOLES

SEND TEXT **CTRL+ALT+DEL** **NOTES** **POWER DOWN** **POWER RESET**

TIME REMAINING: 01:56:22 **END**

vSphere - vCenter Home

vcasa-01a.corp.local/ui/app/list/home

HOL Admin vSphere Web Client esxi-01a

vm vSphere Client

Menu Search in all environments Administration

Global Inventory Lists

vCenter Home Virtual Machines vApps VM Templates

Resources vCenter Servers Datacenters Hosts Clusters Resource Pools Datastores Datastore Clusters Networks Distributed Port Groups Distributed Switches Namespaces

vCenter

CPU Free: 8.15 GHz Used: 220 MHz Capacity: 8.38 GHz

Memory Free: 7.18 GB Used: 4.8 GB Capacity: 11.00 GB

Storage Free: 26.48 GB Used: 23.36 GB Capacity: 49.83 GB

Recent Tasks Alarms Task Name Target Status Details Initiator Queued For Start Time Completion Time Server

Check new Completed VMware vSphere 761 ms 09/20/2021, 7:43:32 09/20/2021, 7:43:32 vasa-01a.corp.local More Tasks

DNG 7:44 AM

TABLE OF CONTENTS **MORE OPTIONS**

CHILD OBJECTS, DATA CENTERS, AND HOSTS

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vSphere Client

1 43 44 45 46 47 597 A- A+

Search in all environments

vCenter Home

Virtual Machines vApps VM Templates

Resources vCenter Servers Datacenters Hosts Clusters Resource Pools Datastores Datastore Clusters Networks Distributed Port Groups Distributed Switches Namespaces

vCenter

Click to enlarge

1. Click the "Virtual Machines" inventory item. By selecting this inventory item, you are presented with a list of the VMs which are

Guide

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET

vSphere - Virtual Machines

Virtual Machines

Name	State	Status	Provisioned Space	Used Space	Host CPU	Host Mem
TinyLinux	Powered On	Normal	436.84 MB	371.84 MB	0 Hz	162 MB
TinyLinux2	Powered On	Normal	435.83 MB	371.83 MB	0 Hz	175 MB
Windows10	Powered On	Normal	27.08 GB	19.69 GB	83 MHz	2.04 GB

Recent Tasks Alarms

Task Name Target Status Details Initiator Queued For Start Time Completion Time Server

Check now vcsa-01a.corp. Completed VMware vsphere 761 ms 09/20/2021, 09:20:32 vcsa-01a.corp.local More Tasks

Power VM Leader Platform

TIME REMAINING: 01:55:51 END

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CHILD OBJECTS, DATA CENTERS, AND HOSTS

vCenter Home

- Virtual Machines
- vCenter Servers
- Datacenters
- Hosts
- Clusters
- Resource Pools
- Datastores
- Datastore Clusters
- Networks
- Distributed Port Groups
- Distributed Switches
- Namespaces

Click to enlarge

1. Click the "Virtual Machines" inventory item. By selecting this inventory item, you are presented with a list of the VMs which are

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET

vSphere - Windows10 - Summary

Virtual Machines

Windows10

Summary Monitor Configure Permissions Datastores Networks Snapshots Updates

Storage Usage 18.69 GB

VM Hardware

- CPU 1 CPU(s)
- Memory 2 GB, 0.44 GB memory active
- Hard disk 1 25 GB
- Network adapter 1 VM-RegionA01-vDS-COMP (connected)
- CD/DVD drive 1 Disconnected
- Video card 4 MB

Notes

Custom Attributes

Recent Tasks Alarms

Task Name Target Status Details Initiator Queued For Start Time Completion Time Server

Check now vcsa-01a.corp. Completed VMware vsphere 761 ms 09/20/2021, 09:20:32 vcsa-01a.corp.local More Tasks

Power VM Leader Platform

TIME REMAINING: 01:54:38 END

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MORE OPTIONS

EDIT THE SETTINGS OF A VIRTUAL MACHINE.

Windows10

Summary Monitor Configure Permissions Datastores Networks Snapshots Updates

VM Settings

- VM State (Connected)
- VM ID (414)
- VM Device (Device for the virtual machine to interact with the host system)
- Other (Additional settings)

Edit Settings

Custom Attributes

1. Review the VM Hardware for the windows10 virtual machine. Note that there is currently only one network adapter.
2. Use the scroll bar to move to the bottom of the VM Hardware section.
3. Click "Edit Settings" so a second network adapter can be added to the virtual machine.

Guide

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET

vSphere - Windows10 - Summary

HOL Admin vSphere Web Client esx-02a

Virtual Machines

- Tiny1.mnx
- Tiny1.mnx2
- Windows10

Windows10

VM Device

Summary Monitor Configure Permissions Datastores Networks Snapshots Updates

No items to display

Edit...

VM Storage Policies

Related Objects

- Cluster RegionA01-COMP01
- Host esx-02a.corp.local
- Networks VM-RegionA01-vDS-COMP
- Storage ds-iscsi01

Recent Tasks

Task Name	Target	Status	Details	Initiator	Queued For	Start Time	Completion Time	Server
Check new	vsts-01a.corp.local	Completed		VMware vsphere	761 ms	09/20/2021, 7:43:32	09/20/2021, 7:43:32	vsts-01a.corp.local

Power VM Leader Platform

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MANUAL

EDIT THE SETTINGS OF A VIRTUAL MACHINE.

Click to enlarge

1. Review the VM Hardware for the windows10 virtual machine. Note that there is currently only one network adapter.

2. Use the scroll bar to move to the bottom of the VM Hardware section.

3. Click "Edit Settings" so a second network adapter can be added to the virtual machine.

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET

vSphere - Windows10 - Summary

HOL Admin vSphere Web Client esx-02a

Virtual Machines

- Tiny1.mnx
- Tiny1.mnx2
- Windows10

Windows10

Edit Settings

Virtual Hardware VM Options

CPU: 1

Memory: 2 GB

Hard disk 1: 25 GB

SCSI controller 0: LSI Logic SAS

Network adapter 1: VM-RegionA01-vDS-COMP

CD/DVD drive 1: Client Device

Video card: Specify custom settings

VMCI device: AHO

SATA controller 0: AHO

Other: Additional Hardware

ADD NEW DEVICE

No items to display

Disks, Drives and Storage

- Hard Disk
- Existing Hard Disk
- RDM Disk
- Host USB Device
- CD/DVD Drive

Controllers

- NVMe Controller
- SATA Controller
- SCSI Controller
- USB Controller

Other Devices

- PCI Device
- Serial Port
- Network
- Network Adapter

CANCEL OK

Recent Tasks

Task Name	Target	Status	Details	Initiator	Queued For	Start Time	Completion Time	Server
Check new	vsts-01a.corp.local	Completed		VMware vsphere	761 ms	09/20/2021, 7:43:32	09/20/2021, 7:43:32	vsts-01a.corp.local

TIME REMAINING: 01:52:55 EXTEND

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MORE OPTIONS

MANUAL

ADD A SECOND NETWORK ADAPTER

Click to enlarge

Add another network adapter to the windows10 machine.

1. In the Edit Setting window, click the ADD NEW DEVICE button.

A Guide

CONSOLES

SEND TEXT **CTRL+ALT+DEL** **NOTES** **POWER DOWN** **POWER RESET**

vSphere - Windows10 - Summary

vcas-01a.corp.local/ui/app/vmomi/summary

HOL Admin vSphere Web Client esx-03a

Virtual Machines

- TinyLinux
- TinyLinux2
- Windows10

ACTIONS

- Home
- Shortcuts
- Hosts and Clusters
- VMS and Templates
- Storage
- Networking
- Content Libraries
- Workload Management
- Global Inventory Lists
- Policies and Profiles
- Auto Deploy
- Hybrid Cloud Services
- Developer Center
- Administration
- Tasks
- Events
- Tags & Custom Attributes
- Lifecycle Manager
- vCloud Availability
- Virtualize Operations

VM Storage Policies

Recent Tasks

Power VMs Leave Platform

Task Name Target Status Details Initiator Queued For Start Time Completion Time Server

Reconfigure virtual Reconfiguring 09/20/2021, 7:51:50 09/20/2021, 7:51:52 ING 7:52 AM

TIME REMAINING: 01:48:12 **END**

MANUAL

TABLE OF CONTENTS

MORE OPTIONS

CREATE A VIRTUAL MACHINE

Click to enlarge

1. To return to the VMs and Templates view, click on **Menu**.

2. Select **VMs and Templates**.

A Guide

SEND TEXT **CTRL+ALT+DEL** **NOTES** **POWER DOWN** **POWER RESET**

vSphere - RegionA01 - Summary

vcas-01a.corp.local/ui/app/datacenter/nav=v/umvomomi/DatacenterId=datacenter-1001b94976c2-a621-4950-a9e0-5db7b376abb6/summary

HOL Admin vSphere Web Client esx-03a

RegionA01

Summary Monitor Configure Permissions Hosts & Clusters VMs Datastores Networks Updates

Hosts:	2	CPU	Free: 8.06 GHz Used: 319 MHz Capacity: 8.58 GHz Free: 7.18 GB
Virtual Machines:	3	Memory	Free: 4.81 GB Used: 4.81 GB Capacity: 11.69 GB Free: 26.43 GB Used: 33.08 GB Capacity: 49.63 GB
Clusters:	1	Storage	
Networks:	6		
Datastores:	2		

Custom Attributes

Tags

Recent Tasks

Power VMs Leave Platform

Task Name Target Status Details Initiator Queued For Start Time Completion Time Server

Reconfigure virtual Reconfiguring 09/20/2021, 7:51:50 09/20/2021, 7:51:52 ING 7:52 AM

TIME REMAINING: 01:47:20 **END**

MANUAL

TABLE OF CONTENTS

MORE OPTIONS

SELECT AND EXPAND DATACENTER

Click to enlarge

1. Click on **RegionA01 Datacenter**.

2. Expand **RegionA01 Datacenter** so the virtual machines under it can be seen.

Guide**CONSOLES**

vSphere - RegionA01 - Summary

vmware-client

RegionA01

Hosts: Virtual Machines: Clusters: Networks: Datastores:

ACTIONS ▾

- Add Host...
- New Cluster...
- New Folder...
- Distributed Switch
- New Virtual Machine...**
- Deploy OVF Template...
- Storage
- Edit Default VM Compatibility...
- Migrate VMs to Another Network...
- Move To...
- Rename...
- Tags & Custom Attributes
- Add Permission...
- Alarms
- Delete

Recent Tasks Alarms

Task Name Target Status Due Date

Reconfigure virtual machine All

Power VM Leader Platform

TIME REMAINING: 01:46:17 EXTEND

TABLE OF CONTENTS

1 52 53 54 55 56 597 A- A+

START THE NEW VIRTUAL MACHINE WIZARD

vSphere Client

RegionA01

ACTIONS ▾

- Add Host...
- New Virtual Machine...**
- Deploy OVF Template...
- Storage
- Edit Default VM Compatibility...

Click to enlarge

- Right-click on RegionA01 Datacenter.
- Click New Virtual Machine to start the new virtual machine wizard.

This wizard is used to create a new Virtual Machine and place it in the vSphere inventory.

CONSOLES

vSphere - RegionA01 - Summary

vmware-client

RegionA01

1 Select a creation type

2 Select a name and folder

3 Select a compute resource

4 Select storage

5 Select compatibility

6 Select a guest OS

7 Customize hardware

8 Ready to complete

Select a creation type

How would you like to create a virtual machine?

- Create a new virtual machine
- Deploy from template
- Clone an existing virtual machine
- Clone virtual machine to template
- Clone template to template
- Convert template to virtual machine

This option guides you through creating a new virtual machine. You will be able to customize processors, memory, network connections, and storage. You will need to install a guest operating system after creation.

TIME REMAINING: 01:45:35 EXTEND

TABLE OF CONTENTS

1 53 54 55 56 57 597 A- A+

VIRTUAL MACHINE WIZARD

New Virtual Machine

1 Select a creation type

2 Select a name and folder

3 Select a compute resource

4 Select storage

5 Select compatibility

6 Select a guest OS

7 Customize hardware

8 Ready to complete

Select a creation type

How would you like to create a virtual machine?

- Create a new virtual machine
- Deploy from template
- Clone an existing virtual machine
- Clone virtual machine to template
- Clone template to template
- Convert template to virtual machine

This option guides you through creating a new virtual machine. You will be able to customize processors, memory, network connections, and storage. You will need to install a guest operating system after creation.

CANCEL NEXT

Click to enlarge

- Since the Create a new virtual machine wizard is highlighted, just click Next.

Guide

TIME REMAINING: 01:43:55 EXTEND

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET

vSphere - RegionA01 - Summary

HOL Admin vSphere Web Client esx-03a

VM

1 Select a creation type
2 Select a name and folder
3 Select a compute resource
4 Select storage
5 Select compatibility
6 Select a guest OS
7 Customize hardware
8 Ready to complete

Select a name and folder
Specify a unique name and target location
Virtual machine name: web-serv01

Select a location for the virtual machine
vcsa-01a.corp.local > RegionA01

Click to enlarge

NAME THE VIRTUAL MACHINE

New Virtual Machine

Select a name and folder

Virtual machine name: web-serv01

Select a location for the virtual machine

RegionA01

1. Enter **web-serv01** for the name of the new virtual machine.
2. Click Next.

Settings

MANUAL

TABLE OF CONTENTS
MORE OPTIONS

A A+

NAME THE VIRTUAL MACHINE

New Virtual Machine

Select a name and folder

Virtual machine name: web-serv01

Select a location for the virtual machine

RegionA01

Click to enlarge

1. Enter **web-serv01** for the name of the new virtual machine.
2. Click Next.



TIME REMAINING: 01:43:01 EXTEND

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET

vSphere - RegionA01 - Summary

HOL Admin vSphere Web Client esx-03a

VM

1 Select a creation type
2 Select a name and folder
3 Select a compute resource
4 Select storage
5 Select compatibility
6 Select a guest OS
7 Customize hardware
8 Ready to complete

Select a compute resource
Select the destination compute resource for this operation

RegionA01
RegionA01-COMP01
esx-01a.corp.local
esx-02a.corp.local

Compatibility

Click to enlarge

PLACEMENT

New Virtual Machine

Select a compute resource

RegionA01-COMP01

Because Distributed Resource Scheduler (DRS) is not enabled, you just have to select a host to use for the VM. More details on DRS will be covered later in this module.

1. Click **esx-01a.corp.local**.
2. Click Next.

Settings



Guide

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET

vSphere - RegionA01 - Summary

HOL Admin vSphere Web Client esx-03a

1 Select a creation type
2 Select a name and folder
3 Select a compute resource
4 Select storage
5 Select compatibility
6 Select a guest OS
7 Customize hardware
8 Ready to complete

Select storage
Select the storage for the configuration and disk files
 Encrypt this virtual machine (Requires Key Management Server)

VM Storage Policy: Datastore Default

Name	Capacity	Provisioned	Free	Type	Cluster
ds-iscsi01	4375 GB	3157 GB	2069 GB	VMFS 6	
ds-nfs01	578 GB	96 KB	578 GB	NFS v3	

Compatibility

TABLE OF CONTENTS
MORE OPTIONS

MANUAL

SELECT STORAGE

New Virtual Machine

1 Ensure the ds-iscsi01 datastore is selected.
2 Click Next.

Click to enlarge

1. Ensure the ds-iscsi01 datastore is selected.
2. Click Next.

Guide

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET

vSphere - RegionA01 - Summary

HOL Admin vSphere Web Client esx-03a

1 Select a creation type
2 Select a name and folder
3 Select a compute resource
4 Select storage
5 Select compatibility
6 Select a guest OS
7 Customize hardware
8 Ready to complete

Select compatibility
Select compatibility for this virtual machine depending on the hosts in your environment

The host or cluster supports more than one VMware virtual machine version. Select a compatibility for the virtual machine.

Compatible with: VmHardware.HWVersion.shortvmx-18

SelectVmVersion: ESXi/ESXi 3.5 and later
ESXi/ESXi 4.0 and later
ESXi 5.0 and later
ESXi 5.1 and later
ESXi 5.5 and later
ESXi 6.0 and later
Workstation 12 and later
ESXi 5.5 and later
ESXi 6.7 Update 2 and later
Workstation 15 and later
ESXi 7.0 and later
VmHardware.HWVersion.shortvmx-10

TABLE OF CONTENTS
MORE OPTIONS

MANUAL

COMPATIBILITY

New Virtual Machine

1. Select ESXi 7.0 and later.
2. Click Next to accept.

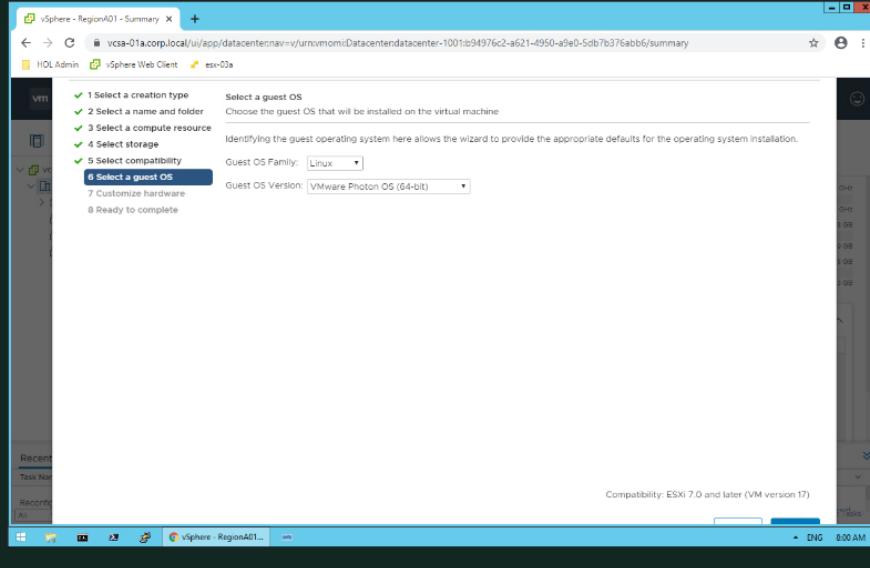
Click to enlarge

1. Select ESXi 7.0 and later.
2. Click Next to accept.

Guide

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET



MANUAL

TABLE OF CONTENTS
MORE OPTIONS

1 58 59 60 61 62 597

Click to enlarge

In this step, we will be selecting what operating system we will be installing.

When we select the operating system, the supported virtual hardware and recommended configuration is used to create the virtual machine. Keep in mind this does not create a virtual machine with the operating system installed, but rather creates a virtual machine that is tuned appropriately for the operating system you have selected.

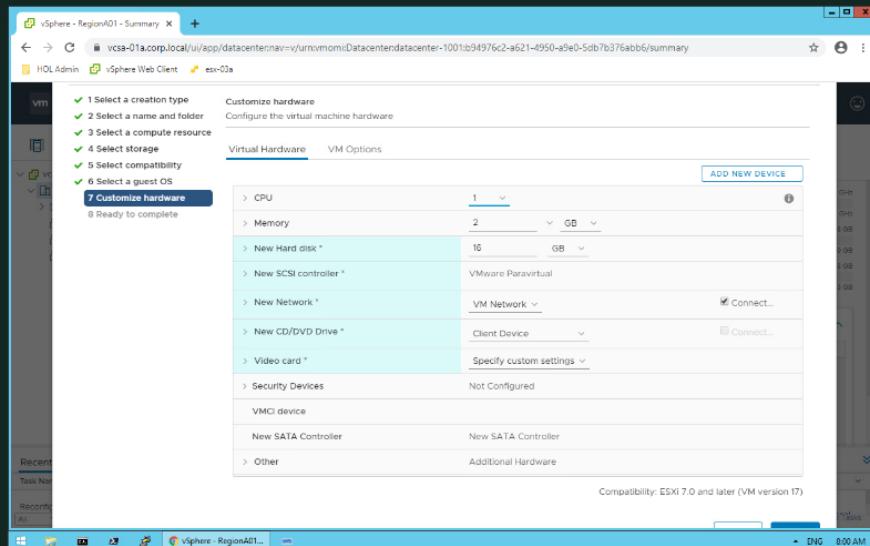
1. For the Guest OS Family, select Linux from the drop-down menu.
2. For the Guest OS Version, select VMware Photon OS (64-bit).
3. Click Next to continue.

Settings

Guide

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET



MANUAL

TABLE OF CONTENTS
MORE OPTIONS

1 59 60 61 62 63 597

Click to enlarge

CHANGE VIRTUAL DISK SIZE.

New Virtual Machine

Customize hardware
Configure the virtual machine hardware

Virtual Hardware VM Options

CPU: 1
Memory: 2 GB
New Hard disk: 16 GB
New SCSI controller: VMware Paravirtual
New Network: VM Network
New CD/DVD Drive: Client Device

Compatibility: ESXi 7.0 and later (VM version 17)

CANCEL NEXT

The recommended virtual hardware settings are shown as the default. These can be modified if needed.

1. Leave the default settings and click Next.

Settings

Guide

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET

vSphere - RegionA01 - Summary

Ready to complete

Click Finish to start creation.

Virtual machine name: web-serv01

Folder: RegionA01

Host: esx-01a.corp.local

Datastore: ds-iscsi01

Guest OS name: VMware Photon OS (64-bit)

Virtualization Based Security: Disabled

CPU: 1

Memory: 2 GB

NICs: 1

NIC 1 network: VM Network

NIC 1 type: VMXNET3

SCSI controller 1: VMware Paravirtual

Create hard disk 1: New virtual disk

Capacity: 16 GB

Datastore: ds-iscsi01

MANUAL

TABLE OF CONTENTS
MORE OPTIONS

READY TO COMPLETE

New Virtual Machine

1 Select a creation type Ready to complete

2 Select a name and folder Click Finish to start creation

3 Select a compute resource

4 Select storage

5 Select compatibility

6 Select a guest OS

7 Customize hardware

8 Ready to complete

Click to enlarge

The settings for the virtual machine can be verified prior to it being created.

1. Click Finish to create the virtual machine.

Power
VM
Leave
Platform

Guide

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET

vSphere - RegionA01 - Summary

RegionA01 | ACTIONS ▾

VM vSphere Client

Search in all environments

Administrator@CORP.LOCAL

Custom Attributes

Tags

Recent Tasks Alarms

Task Name Target Status Details Initiator Queued For Start Time Completion Time Server

Create virtual... FB Downlaod... Completed 09/20/2021, 8:01:54 09/20/2021, 8:01:56

RegionA01

Hosts: 2

Virtual Machines: 3

Clusters: 1

Networks: 6

Datastores: 2

CPU: Free: 8.1 GHz
Used: 280 MHz Capacity: 8.58 GHz Free: T 18.08

Memory: Used: 4.81 GB Capacity: 11.69 GB Free: 26.48 GB Used: 23.08 GB Capacity: 49.03 GB

Custom Attributes

Tags

Recent Tasks Alarms

Task Name Target Status Details Initiator Queued For Start Time Completion Time Server

Create virtual... FB Downlaod... Completed 09/20/2021, 8:01:54 09/20/2021, 8:01:56

MANUAL

TABLE OF CONTENTS
MORE OPTIONS

NEWLY CREATED VIRTUAL MACHINE

vSphere Client

RegionA01

web-serv01

PoweredOff

VMware Photon OS (64-bit) 8.0.0 and later (CRH version 0.7) Not running, not installed

DNS Name: IP Address: Host: esx-01a.corp.local

Launch Web Console

Launch Remote Console

Click to enlarge

Congratulations on creating your first virtual machine **web-serv01**!

In the next steps, Photon OS will be installed on the virtual machine.

Power
VM
Leave
Platform

VMWARE HANDS-ON LABS

Welcome, Pavan Yadav

CONSOLES

Guide

SEND TEXT **CTRL+ALT+DEL** **NOTES** **POWER DOWN** **POWER RESET**

TIME REMAINING: 01:37:00 **END**

Settings **gear icon**

vSphere - web-serv01 - Summary

HOL Admin vSphere Web Client esx-03a

vm vSphere Client

Search in all environments

Administrator@CORP.LOCAL

ACTIONS

Summary Monitor Configure Permissions

Guest OS: VMware Compatibility: EDX 7.6
Guest OS: VMware Tools: Not runn.
DNS Name: IP Addresses: Host: esx-03a

Open Remote Console

Power Snapshots Updates

CPU USAGE 0 Hz MEMORY USAGE 0 B STORAGE USAGE 16 GB

Switch to New View

Launch Web Console Launch Remote Console

VM Hardware

CPU 1 CPU(s) Memory 2 GB, 0 GB memory

Recent Tasks Alarms

Task Name Target Status Details Initiator

Create virtual All

Copying Virtual

Power VM Library Platform

ATTACHING AN ISO TO A VIRTUAL MACHINE

MANUAL

1 62 63 64 65 66 597 A- A+

To make it easier to install operating systems on virtual machines, ISO images can be used. These can be

VMWARE HANDS-ON LABS

Welcome, Pavan Yadav

CONSOLES

Guide

SEND TEXT **CTRL+ALT+DEL** **NOTES** **POWER DOWN** **POWER RESET**

TIME REMAINING: 01:35:27 **END**

Settings **gear icon**

vSphere - web-serv01 - Summary

HOL Admin vSphere Web Client esx-03a

vm vSphere Client

Edit Settings | web-serv01

Virtual Hardware **VM Options**

ADD NEW DEVICE

CORP.LOCAL

CPU: 1 Memory: 2 GB Hard disk 1: 16 GB SCSI controller 0: VMware Paravirtual Network adapter 1: VM Network CD/DVD drive 1: Client Device Video card Security Devices VMCI device SATA controller 0: AHCI

CONNECT... CANCEL OK

CONTENT LIBRARY ISO FILE

MANUAL

1 63 64 65 66 67 597 A- A+

1. From the CD/DVD drive 1 drop-down menu, select Content Library ISO File.

This will open a file explorer to select that file.

Guide

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET

vSphere - web-serv01 - Summary

Edit Settings | web-serv01

Choose an ISO image to mount

Name	Content Library	Description	Size	Last Modified Date
photon-2.0-304b817	HOL Library	VMware PhotonOS 2.0 GA	2.21 GB	Nov 25, 2020 8:41 PM

CANCEL OK

vm vSphere Client

vcsa-01a.corp.local RegionA01 Discovered virtual machines TinyLinux tiny-linx.x2 web-serv01 Windows10

Recent Tasks Alarms Task Name Target Fetch Content of a photon

Power VM Library Platform

MANUAL

SELECT PHOTON

Choose an ISO image to mount

Name	Content Library	Description	Size	Last Modified Date
photon-2.0-304b817	HOL Library	VMware PhotonOS 2.0 GA	2.21 GB	Nov 25, 2020 8:41 PM

CANCEL OK

Click to enlarge

1. Click the radio button next to **photon-2.0-304b817**.
2. Click **OK**.

Guide

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET

vSphere - web-serv01 - Summary

Edit Settings | web-serv01

Virtual Hardware VM Options

ADD NEW DEVICE

CPU	1
Memory	2 GB
Hard disk 1	16 GB
SCSI controller 0	VMware Paravirtual
Network adapter 1	VM Network
CD/DVD drive 1*	Content Library ISO File
Video card	Specify custom settings
Security Devices	Not Configured
VMCI device	
SATA controller 0	AHCI

CANCEL OK

vm vSphere Client

vcsa-01a.corp.local RegionA01 Discovered virtual machines TinyLinux tiny-linx.x2 web-serv01 Windows10

Recent Tasks Alarms Task Name Target Fetch Content of a photon

Power VM Library Platform

MANUAL

CONNECT THE DRIVE

Hard disk 1

SCSI controller 0

Network adapter 1

CD/DVD drive 1*

Video card

VMCI device

Connected

VM Network

Content Library ISO File

Specify custom settings

Click to enlarge

1. Click the **Connected** check box next to **CD/DVD drive 1**.
2. Click **OK**.

VMWARE HANDS-ON LABS

Welcome, Pavan Yadav

CONSOLES

Guide

SEND TEXT **CTRL+ALT+DEL** **NOTES** **POWER DOWN** **POWER RESET**

TIME REMAINING: 01:32:58 **END**

Settings **gear icon**

vSphere Client

web-serv01

Summary **Monitor** **Configure** **Permissions** **Datastores** **Networks** **Snapshots** **Updates**

ACTIONS

Power On **Power Off** **Revert** **Clone** **Snapshot** **Deploy** **Convert** **Move** **Remove** **Share** **Unshare** **Mount** **Unmount** **Reconfigure** **Revert** **Clone** **Snapshot** **Deploy** **Convert** **Move** **Remove** **Share** **Unshare** **Mount** **Unmount**

Powered Off

Guest OS: VMware Photon OS (64-bit)
Compatibility: ESXi 7.0 and later (VM version 17)
VMware Tools: Not running, not installed
DNS Name: IP Addresses:
Host: esx-01a.corp.local

VM Hardware

CPU: 1 CPU(s)
Memory: 2 GB, 0 GB memory active

Notes

Custom Attributes

Attribute **Value**

Recent Tasks

Alarms

Task Name **Target** **Status** **Details** **Initiator** **Queued For** **Start Time** **Completion Time** **Server**

Reconfigure virtual **web-serv01** **Completed** CORPAdministrator 12 ms 09/20/2021, 8:07 AM 09/20/2021, 8:07 AM esx-01a.corp.local More Tasks

Power **Leads** **Platform**

VMware Web Client

web-serv01

Summary **Monitor** **Configure** **Permissions** **Datastores** **Networks**

ACTIONS

Power On **Power Off** **Revert** **Clone** **Snapshot** **Deploy** **Convert** **Move** **Remove** **Share** **Unshare** **Mount** **Unmount**

Powered Off

Guest OS: VMware Photon OS (64-bit)
Compatibility: ESXi 7.0 and later (VM version 17)
VMware Tools: Not running, not installed
DNS Name: IP Addresses:
Host: esx-01a.corp.local

Launch Web Console **Launch Remote Console**

Click to enlarge

POWER ON WEB-SERV01

web-serv01

Summary **Monitor** **Configure** **Permissions** **Datastores** **Networks**

ACTIONS

Power On **Power Off** **Revert** **Clone** **Snapshot** **Deploy** **Convert** **Move** **Remove** **Share** **Unshare** **Mount** **Unmount**

Powered Off

Guest OS: VMware Photon OS (64-bit)
Compatibility: ESXi 7.0 and later (VM version 17)
VMware Tools: Not running, not installed
DNS Name: IP Addresses:
Host: esx-01a.corp.local

Launch Web Console **Launch Remote Console**

Click to enlarge

1. Click the green play button to power on the virtual machine and start the installation.

VMWARE HANDS-ON LABS

Welcome, Pavan Yadav

CONSOLES

Guide

SEND TEXT **CTRL+ALT+DEL** **NOTES** **POWER DOWN** **POWER RESET**

TIME REMAINING: 01:31:24 **END**

Settings **gear icon**

vSphere Client

web-serv01

Summary **Monitor** **Configure** **Permissions** **Datastores** **Networks** **Snapshots** **Updates**

ACTIONS

Power On **Power Off** **Revert** **Clone** **Snapshot** **Deploy** **Convert** **Move** **Remove** **Share** **Unshare** **Mount** **Unmount**

Powered Off

Guest OS: VMware Photon OS (64-bit)
Compatibility: ESXi 7.0 and later (VM version 17)
VMware Tools: Not running, not installed
DNS Name: IP Addresses:
Host: esx-01a.corp.local

VMware Tools is not installed on this virtual machine.

Install VMware Tools...

VM Hardware

CPU: 1 CPU(s)

Notes

Custom Attributes

Recent Tasks

Alarms

Task Name **Target** **Status** **Details** **Initiator** **Queued For** **Start Time** **Completion Time** **Server**

Fetch Content of a photon-2-0-304b8f7 **Completed** vSphere Local User... 91 ms 09/20/2021, 8:09 AM 09/20/2021, 8:09 AM esx-01a.corp.local More Tasks

Power **Leads** **Platform**

VMware Web Client

web-serv01

Summary **Monitor** **Configure** **Permissions** **Datastores** **Networks**

ACTIONS

Power On **Power Off** **Revert** **Clone** **Snapshot** **Deploy** **Convert** **Move** **Remove** **Share** **Unshare** **Mount** **Unmount**

Powered Off

Guest OS: VMware Photon OS (64-bit)
Compatibility: ESXi 7.0 and later (VM version 17)
VMware Tools: Not running, not installed
DNS Name: IP Addresses:
Host: esx-01a.corp.local

Launch Web Console **Launch Remote Console**

Click to enlarge

LAUNCH CONSOLE

web-serv01

Summary **Monitor** **Configure** **Permissions** **Datastores** **Networks**

ACTIONS

Power On **Power Off** **Revert** **Clone** **Snapshot** **Deploy** **Convert** **Move** **Remove** **Share** **Unshare** **Mount** **Unmount**

Powered Off

Guest OS: VMware Photon OS (64-bit)
Compatibility: ESXi 7.0 and later (VM version 17)
VMware Tools: Not running, not installed
DNS Name: IP Addresses:
Host: esx-01a.corp.local

Launch Web Console **Launch Remote Console**

Click to enlarge

1. To launch the console window, click anywhere in the console window screen.

VMWARE HANDS-ON LABS

Welcome, Pavan Yadav

CONSOLES

Guide

SEND TEXT **CTRL+ALT+DEL** **NOTES** **POWER DOWN** **POWER RESET**

TIME REMAINING: 01:31:24 **END**

Settings **gear icon**

vSphere Client

web-serv01

Summary **Monitor** **Configure** **Permissions** **Datastores** **Networks** **Snapshots** **Updates**

ACTIONS

Power On **Power Off** **Revert** **Clone** **Snapshot** **Deploy** **Convert** **Move** **Remove** **Share** **Unshare** **Mount** **Unmount**

Powered Off

Guest OS: VMware Photon OS (64-bit)
Compatibility: ESXi 7.0 and later (VM version 17)
VMware Tools: Not running, not installed
DNS Name: IP Addresses:
Host: esx-01a.corp.local

VMware Tools is not installed on this virtual machine.

Install VMware Tools...

VM Hardware

CPU: 1 CPU(s)

Notes

Custom Attributes

Recent Tasks

Alarms

Task Name **Target** **Status** **Details** **Initiator** **Queued For** **Start Time** **Completion Time** **Server**

Fetch Content of a photon-2-0-304b8f7 **Completed** vSphere Local User... 91 ms 09/20/2021, 8:09 AM 09/20/2021, 8:09 AM esx-01a.corp.local More Tasks

Power **Leads** **Platform**

VMware Web Client

web-serv01

Summary **Monitor** **Configure** **Permissions** **Datastores** **Networks**

ACTIONS

Power On **Power Off** **Revert** **Clone** **Snapshot** **Deploy** **Convert** **Move** **Remove** **Share** **Unshare** **Mount** **Unmount**

Powered Off

Guest OS: VMware Photon OS (64-bit)
Compatibility: ESXi 7.0 and later (VM version 17)
VMware Tools: Not running, not installed
DNS Name: IP Addresses:
Host: esx-01a.corp.local

Launch Web Console **Launch Remote Console**

Click to enlarge

LAUNCH CONSOLE

web-serv01

Summary **Monitor** **Configure** **Permissions** **Datastores** **Networks**

ACTIONS

Power On **Power Off** **Revert** **Clone** **Snapshot** **Deploy** **Convert** **Move** **Remove** **Share** **Unshare** **Mount** **Unmount**

Powered Off

Guest OS: VMware Photon OS (64-bit)
Compatibility: ESXi 7.0 and later (VM version 17)
VMware Tools: Not running, not installed
DNS Name: IP Addresses:
Host: esx-01a.corp.local

Launch Web Console **Launch Remote Console**

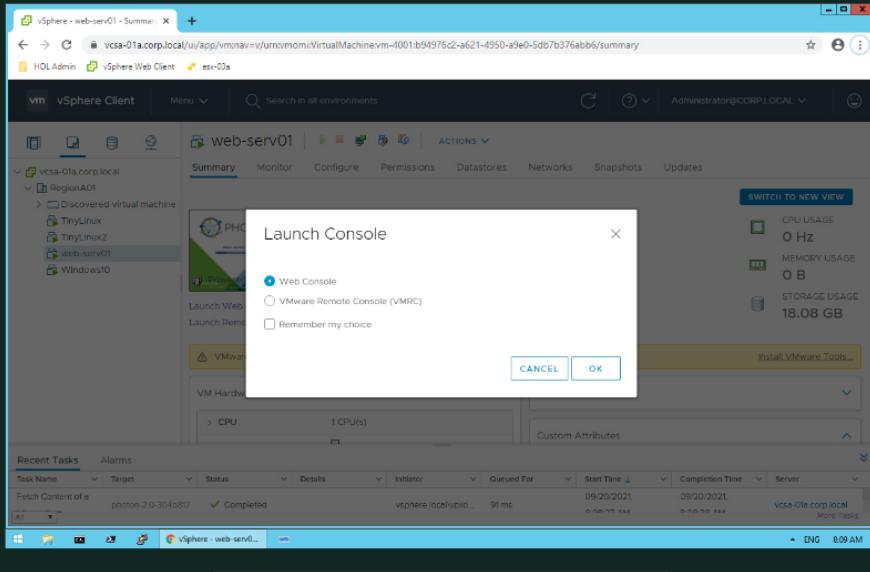
Click to enlarge

1. To launch the console window, click anywhere in the console window screen.

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CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET



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WEB CONSOLE

Launch Console

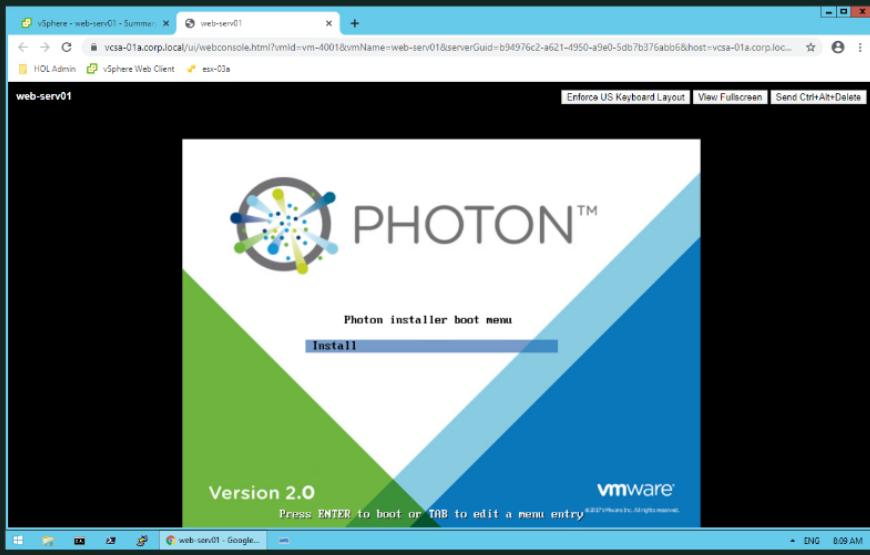
1. Select the **Web Console**.
2. Click **OK**.

Note you also have the option of using the VMware Remote Console (VMRC). This is console is a separate application that needs to be installed on your local device as opposed to the Web Console which will launch in a new browser tab. The VMRC can be useful in certain situations when you

Guide

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET



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PHOTON BOOT SCREEN

Photon installer boot menu

Version 2.0

vmware

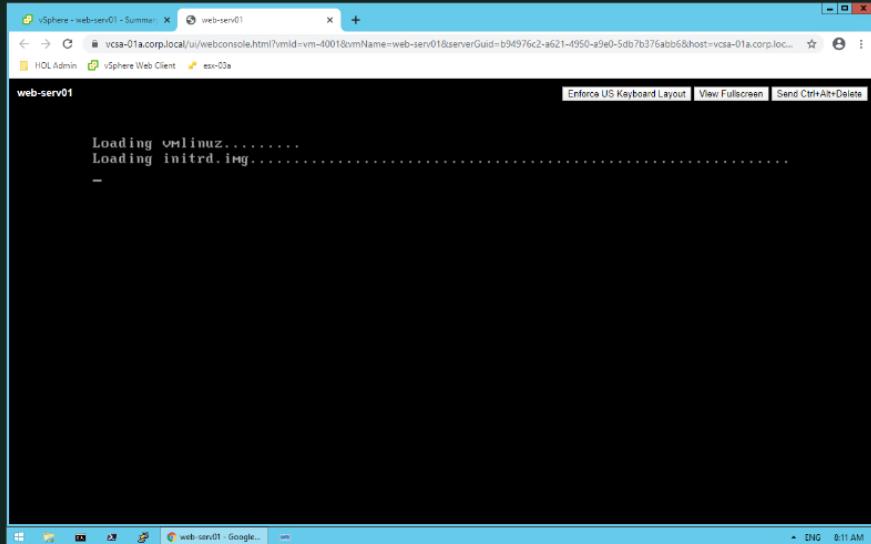
A new tab will open and you will be presented with the Photon OS boot screen.

1. Press the **Enter** key to start the installation process.

A Guide

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET



TIME REMAINING: 01:29:22 EXTEND

END

Settings

MANUAL

PHOTON BOOT SCREEN

A new tab will open and you will be presented with the Photon OS boot screen.

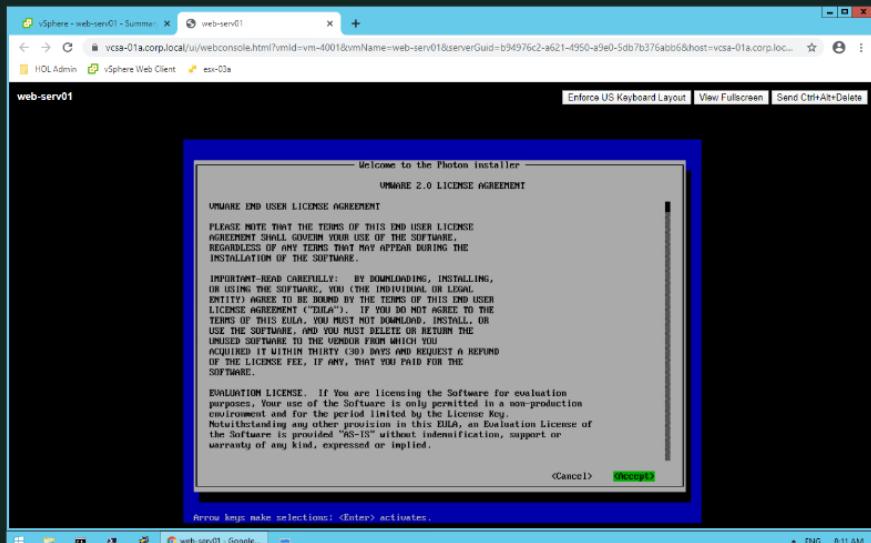
1. Press the **Enter** key to start the installation process.

Power
VM
Leave
Platform

A Guide

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET



TIME REMAINING: 01:28:43 EXTEND

END

Settings

MANUAL

LICENSE AGREEMENT

Welcome to the Photon installer

VMWARE 2.0 LICENSE AGREEMENT

Please note that the terms of this End User License Agreement shall govern your use of the software, regardless of any terms that may appear during the installation of the software.

IMPORTANT: READ CAREFULLY: BY DOWNLOADING, INSTALLING, OR USING THE SOFTWARE ("THE SOFTWARE"), YOU AGREE TO BE BOUND BY THE TERMS OF THIS END USER LICENSE AGREEMENT ("EULA"). IF YOU DO NOT AGREE TO THE TERMS OF THIS EULA, YOU MUST NOT DOWNLOAD, INSTALL, OR USE THE SOFTWARE, AND YOU MUST REMOVE OR RETURN THE SOFTWARE IMMEDIATELY. IF YOU HAVE PURCHASED THE SOFTWARE, ACQUIRED IT WITHIN THIRTY (30) DAYS AND REQUEST A REFUND OF THE LICENSE FEE, IF ANY, THAT YOU PAID FOR THE SOFTWARE.

EVALUATION LICENSE: If You are licensing the Software for evaluation purposes, Your use of the Software is only permitted in a non-production environment for a period limited to the term of the license. Notwithstanding any other provision in this Eula, an Evaluation License of the Software is provided "AS-IS" without indemnification, support or warranty of any kind, expressed or implied.

<Cancel> <Accept>

Arrow keys make selections; <Enter> activates.

After the boot process is complete, you will be presented with a license agreement.

1. Press **Enter** to accept.

Power
VM
Leave
Platform

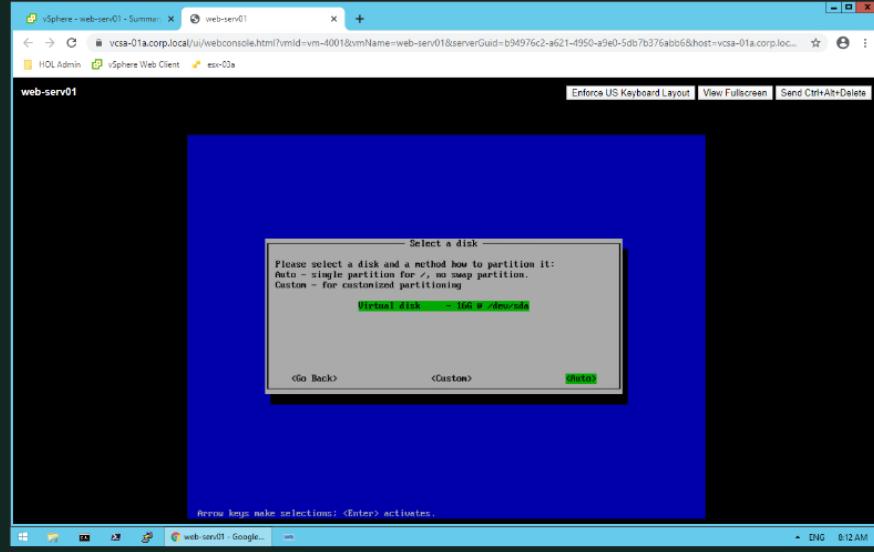
Guide

END

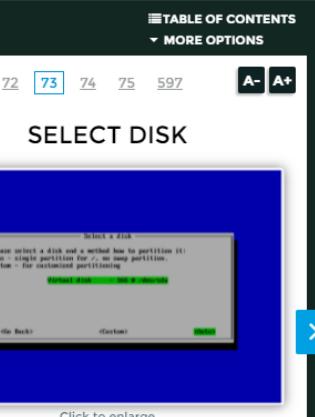
Settings

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET



MANUAL



Click to enlarge

1. Press Enter to accept the selected disk and use the auto partitioning option.

Power
VM
Lea
Platform

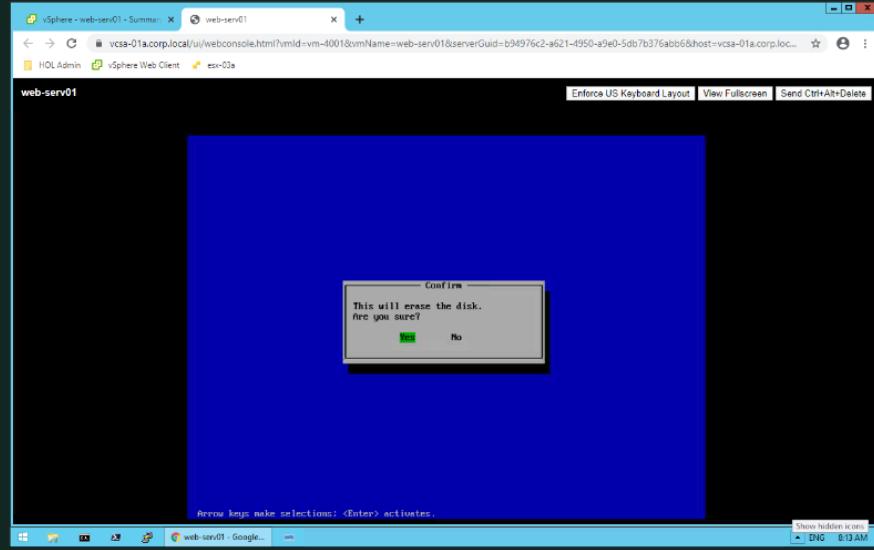
Guide

END

Settings

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET



MANUAL



Click to enlarge

1. Press Enter confirm the disk should be erased.

Power
VM
Lea
Platform

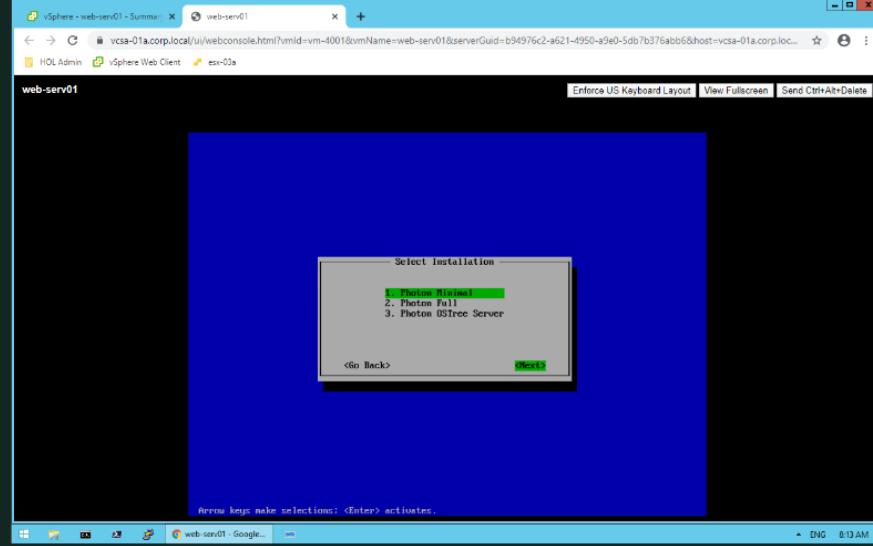
Guide

END

Settings

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET



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MORE OPTIONS

SELECT INSTALLATION

Select Installation

- 1. Photon Minimal
- 2. Photon Full
- 3. Photon OSTree Server

<Go Back> <Next>

Click to enlarge

- At the Select Installation screen, make sure the default option of 1. **Photon Minimal** is selected.
- Press the **Enter** key.

Power
VM
Lea
Platform

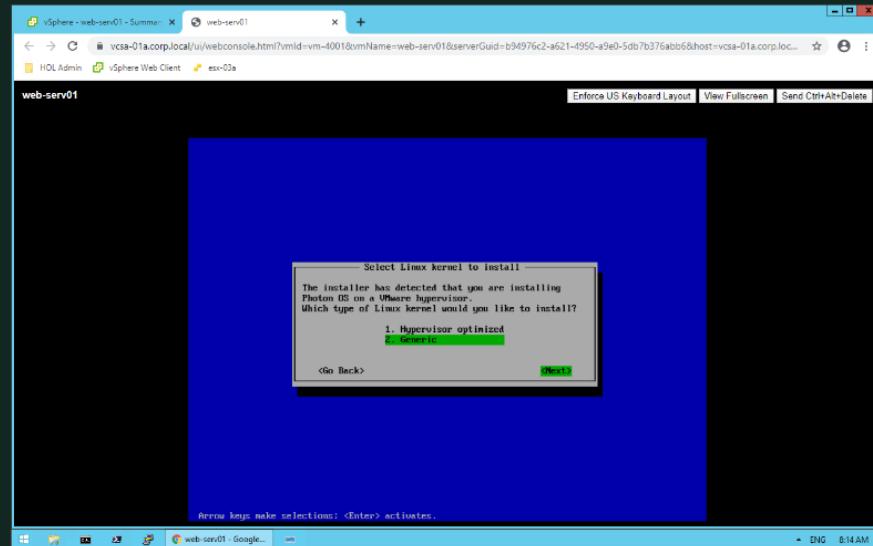
Guide

END

Settings

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET



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MORE OPTIONS

LINUX KERNEL

Select Linux kernel to install

The installer has detected that you are installing Photon OS on a VMware hypervisor. Which type of Linux kernel would you like to install?

- 1. Hypervisor optimized
- 2. Generic

<Go Back> <Next>

Click to enlarge

- Use the arrow key to select 2. **Generic**.
- Press the **Enter** key.

NOTE: If 1. Hypervisor optimized is selected, the virtual machine will not boot. This is due to the unique environment the Hands-on Labs are running in.

Power
VM
Lea
Platform

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CONSOLES

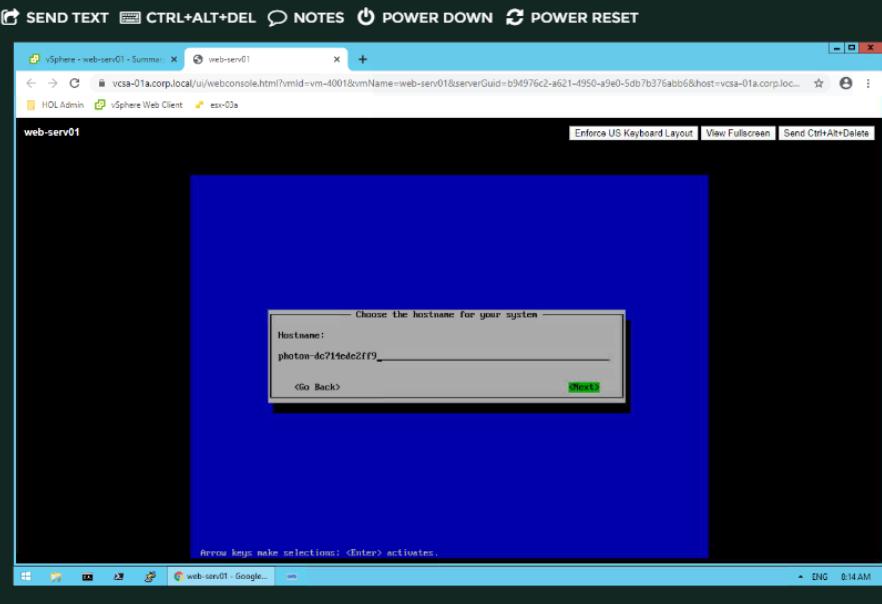


TABLE OF CONTENTS
MORE OPTIONS

RENAME HOST

Choose the hostname for your system

Hostname: web-serv01_

(Go Back) Next >

Click to enlarge

1. Use the Backspace key to remove the default hostname.
2. Type web-serv01.
3. Press the Enter key.

Guide

CONSOLES

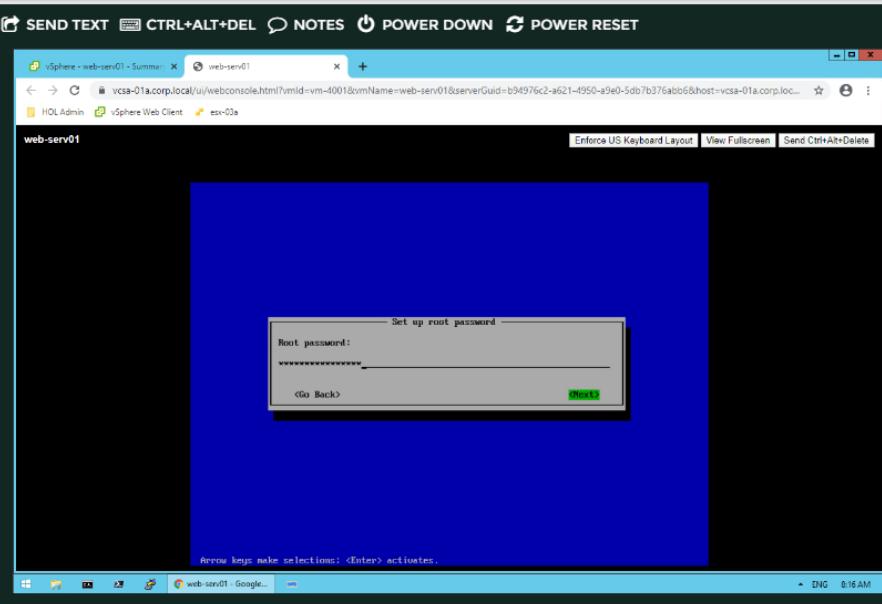


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PASSWORD

Set up root password

Root password: Vmware!VMware!

(Go Back) Next >

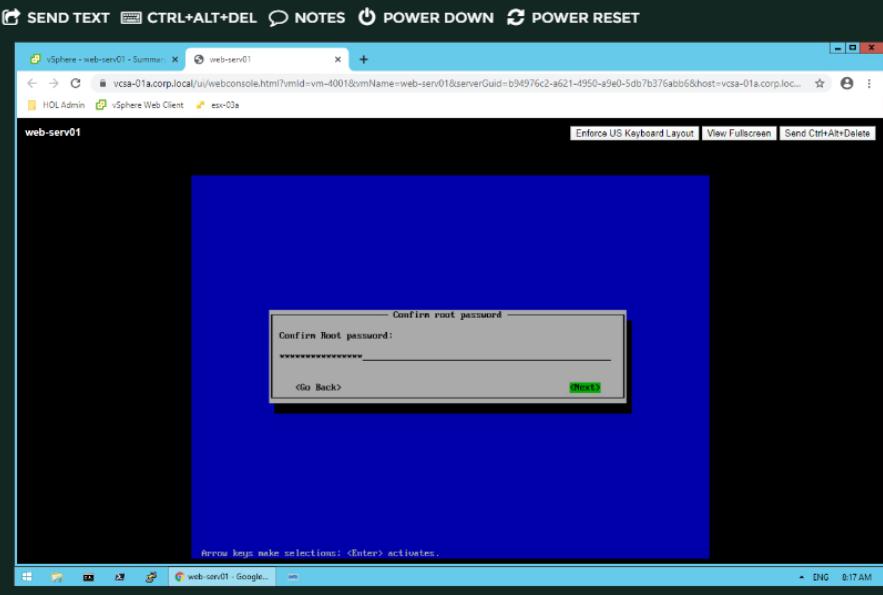
Click to enlarge

1. For the password, use Vmware!VMware!

Note that Photon requires a complex, non-dictionary password, which is why the typical password is being repeated.

A Guide

CONSOLES



TIME REMAINING: 01:23:12 EXTEND

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MORE OPTIONS

CONFIRM PASSWORD

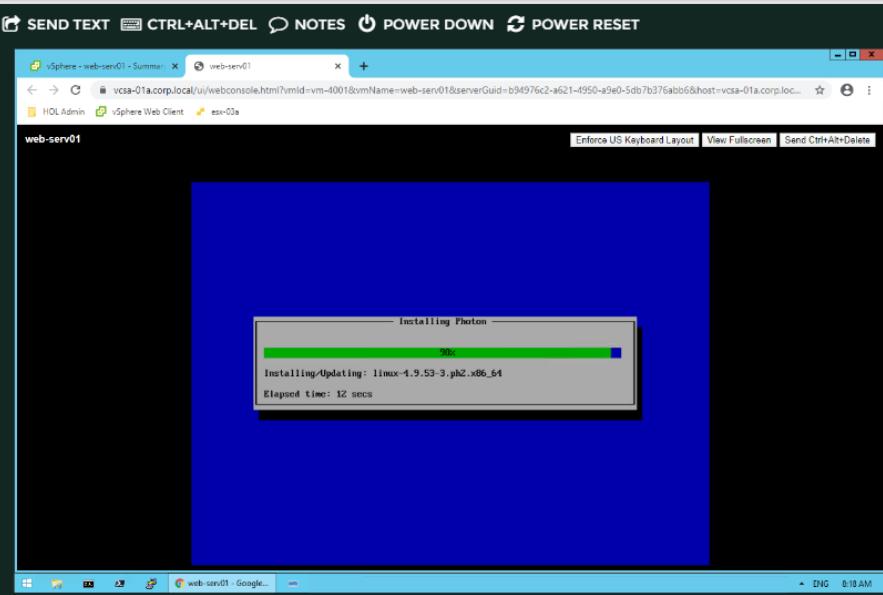
Click to enlarge

1. Type **VMware1!VMware1!** again to confirm the password.
2. Press the **Enter** key.

Power
VM
Lea
Platform

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CONSOLES



TIME REMAINING: 01:22:24 EXTEND

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MORE OPTIONS

INSTALLATION COMPLETE

Click to enlarge

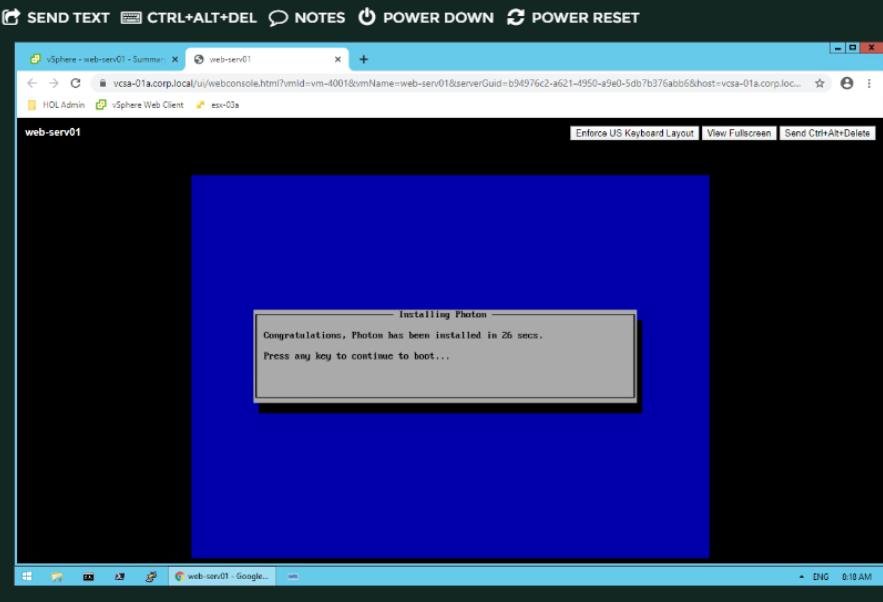
After a minute or two, the installation will be complete.

Press a key to reboot the virtual machine. After a minute or two, the system should boot the login prompt.

Power
VM
Lea
Platform

Guide

CONSOLES



TIME REMAINING: 01:22:02 EXTEND

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MORE OPTIONS

INSTALLATION COMPLETE

Installing Photon
Congratulations, Photon has been installed in 21 secs.
Press any key to continue to boot...

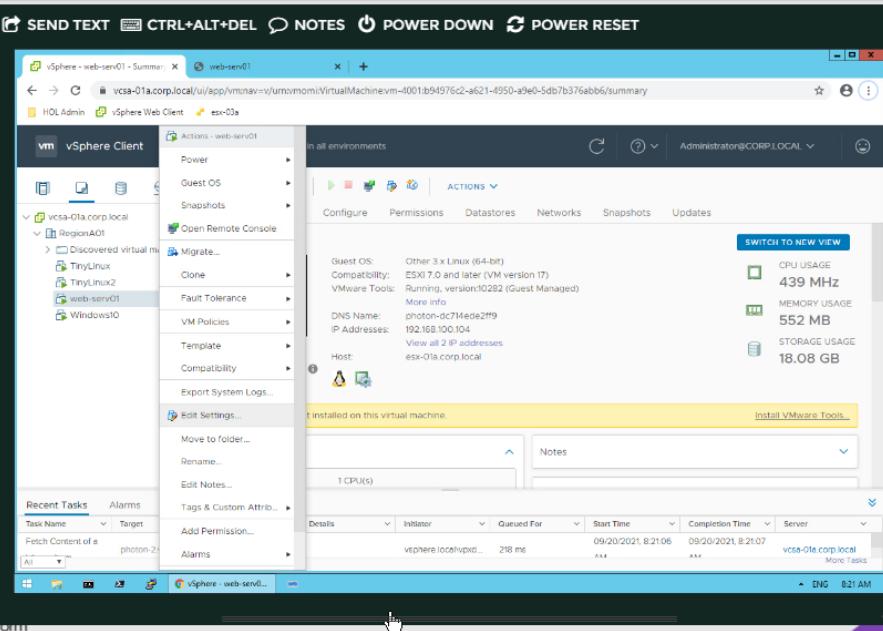
Click to enlarge

After a minute or two, the installation will be complete.

Press a key to reboot the virtual machine. After a minute or two, the system should boot the login prompt.

Guide

CONSOLES



TIME REMAINING: 01:18:41 EXTEND

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TABLE OF CONTENTS
MORE OPTIONS

INSTALLATION COMPLETE

Installing Photon
Congratulations, Photon has been installed in 21 secs.
Press any key to continue to boot...

Click to enlarge

After a minute or two, the installation will be complete.

Press a key to reboot the virtual machine. After a minute or two, the system should boot the login prompt.

Guide**Lab: HOL-2210-01-SDC-MYVMW-HO...**

You network connection is degraded.
Console experience may slow.

END

Settings

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET

vSphere - web-serv01 - Summary x web-serv01 x +

vcsa-01a.corp.local/ui/app/vmnav/v/unvmoromiVirtualMachine?vm=4001b94976c2-a621-4950-a9e0-5db7b376abb6/summary

HOL Admin vSphere Web Client esx-03a

vm web-serv01 Edit Settings | web-serv01

Virtual Hardware VM Options

CPU: 1 Memory: 2 GB Hard disk 1: 16 GB SCS controller 0: VMware Paravirtual Network adapter 1: VM Network Connected CD/DVD drive 1: Content Library ISO File Connected Video card: Specify custom settings Number of displays: 1 Total video memory: 4 MB SD Graphics

ADD NEW DEVICE CANCEL OK

SWITCH TO NEW VIEW CPU USAGE: 439 MHz MEMORY USAGE: 552 MB STORAGE USAGE: 18.08 GB

Install VMware Tools

Recent Tasks Alarm Task Name Target Patch Content of a pmon

Power VMs Leave Platform

EN 022 AM

TABLE OF CONTENTS MORE OPTIONS

DISCONNECT CD/DVD

Virtual Hardware VM Options

CD/DVD drive 1: Content Library ISO File Connected

VM Network: Connected

VMware Paravirtual

VMware Tools: Specified

USB Controller: USB Controller

Video card: VM Graphics

VMnet device: VMnet8

VMnet8 adapter 1: VMnet8 Adapter

Device on the virtual interface PCI bus that provides support for the virtual machine communication interface

CANCEL OK

Click to enlarge

- Uncheck the **Connected** box next to **CD/DVD drive 1**.

Guide**Lab: HOL-2210-01-SDC-MYVMW-HO...**

TIME REMAINING: 01:16:06 EXTEND

Settings

CONSOLES

SEND TEXT CTRL+ALT+DEL NOTES POWER DOWN POWER RESET

vSphere - web-serv01 - Summary x web-serv01 x +

vcsa-01a.corp.local/ui/webconsole.html?vmid=vm-4001&vmName=web-serv01&serverGuid=b94976c2-a621-4950-a9e0-5db7b376abb6&host=vcsa-01a.corp.local

HOL Admin vSphere Web Client esx-03a

web-serv01

Welcome to Photon 2.0 (x86_64) - Kernel 4.9.53-3-ph2 (ttyl)

Enforce US Keyboard Layout View Fullscreen Send Ctrl+Alt+Delete

photon-4c714ede2f9 login:

EN 024 AM

TABLE OF CONTENTS MORE OPTIONS

CLONING VIRTUAL MACHINES AND USING TEMPLATES

VMware provides several ways to provision vSphere virtual machines. In the last lesson, you saw how to create a virtual machine and manually install the operating system.

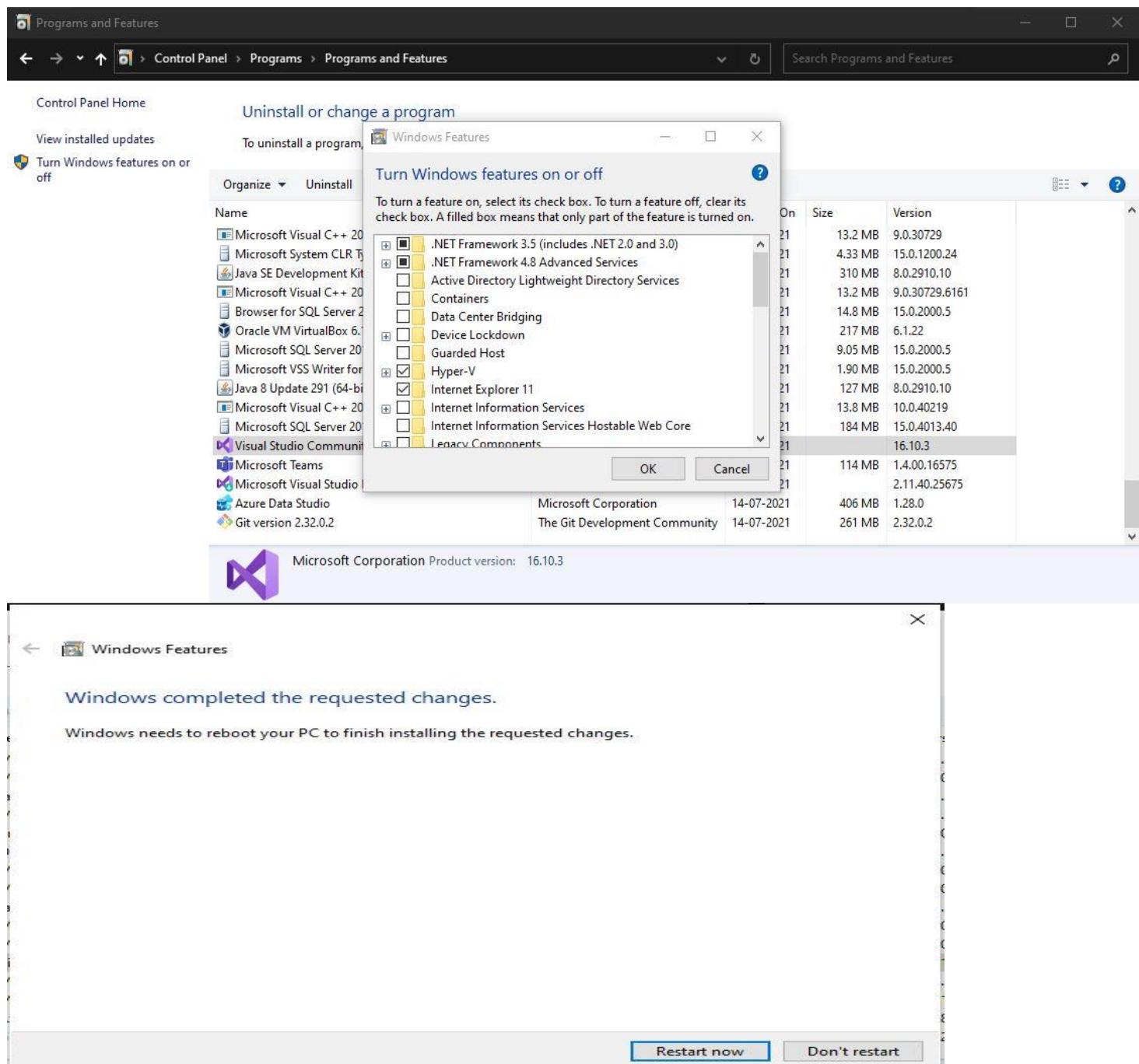
The virtual machine that was created can then be used as a base image from which to clone other virtual machines. Cloning a virtual machine can save time if you are deploying many similar virtual machines. You can create, configure, and install software on a single virtual machine. You can then clone it multiple times, rather than creating and configuring each virtual

Practical No. 6

NATIVE VIRTUALIZATION USING Hyper-V

First we have to uninstall VMWare software if already installed on computer because the VMware Workstation installer does not support running on a Hyper-V virtual machine.

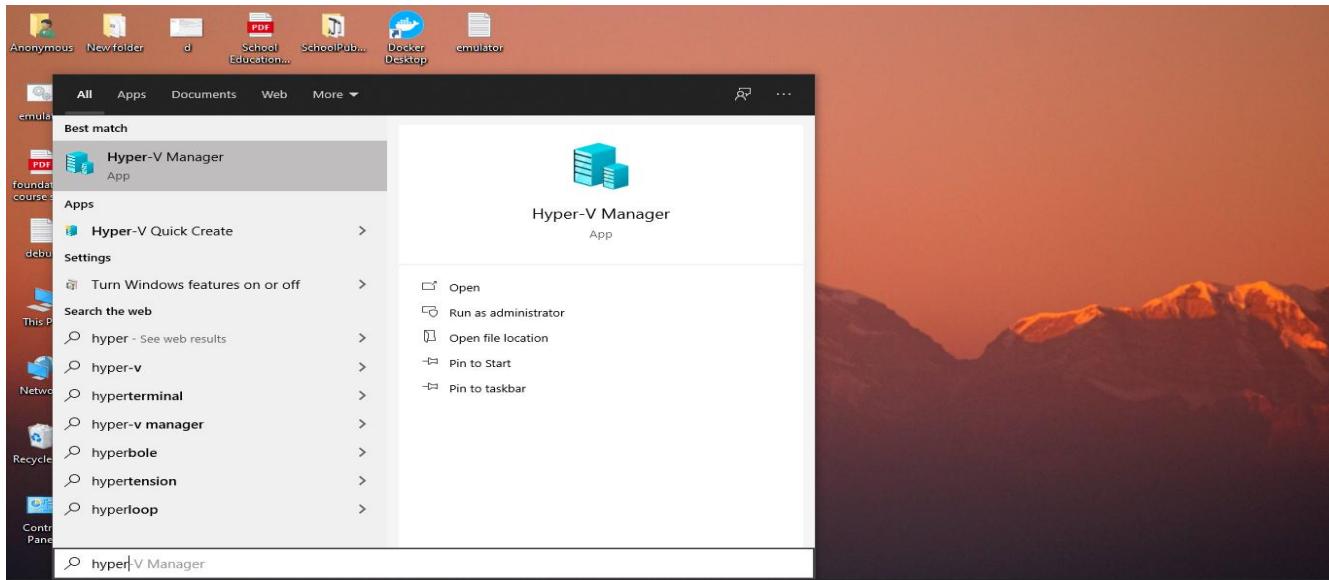
After uninstalling VMware, we can proceed to next step - go to control panel and click on uninstall a program



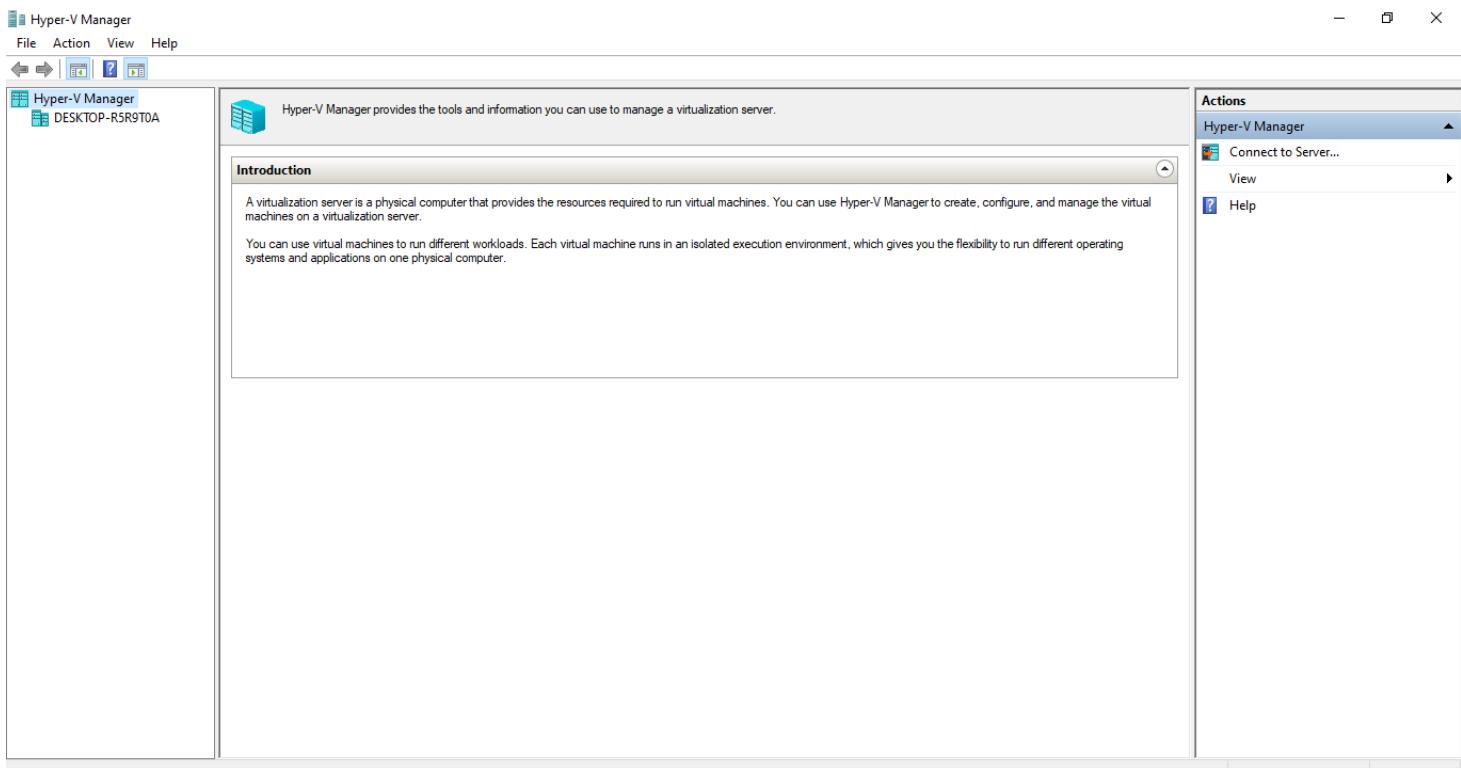
If Hyper V is not installed and if you couldn't find it then follow the link to do installation

<https://www.how2shout.com/how-to/how-to-download-and-install-hyper-v-on-windows-11-home.html>

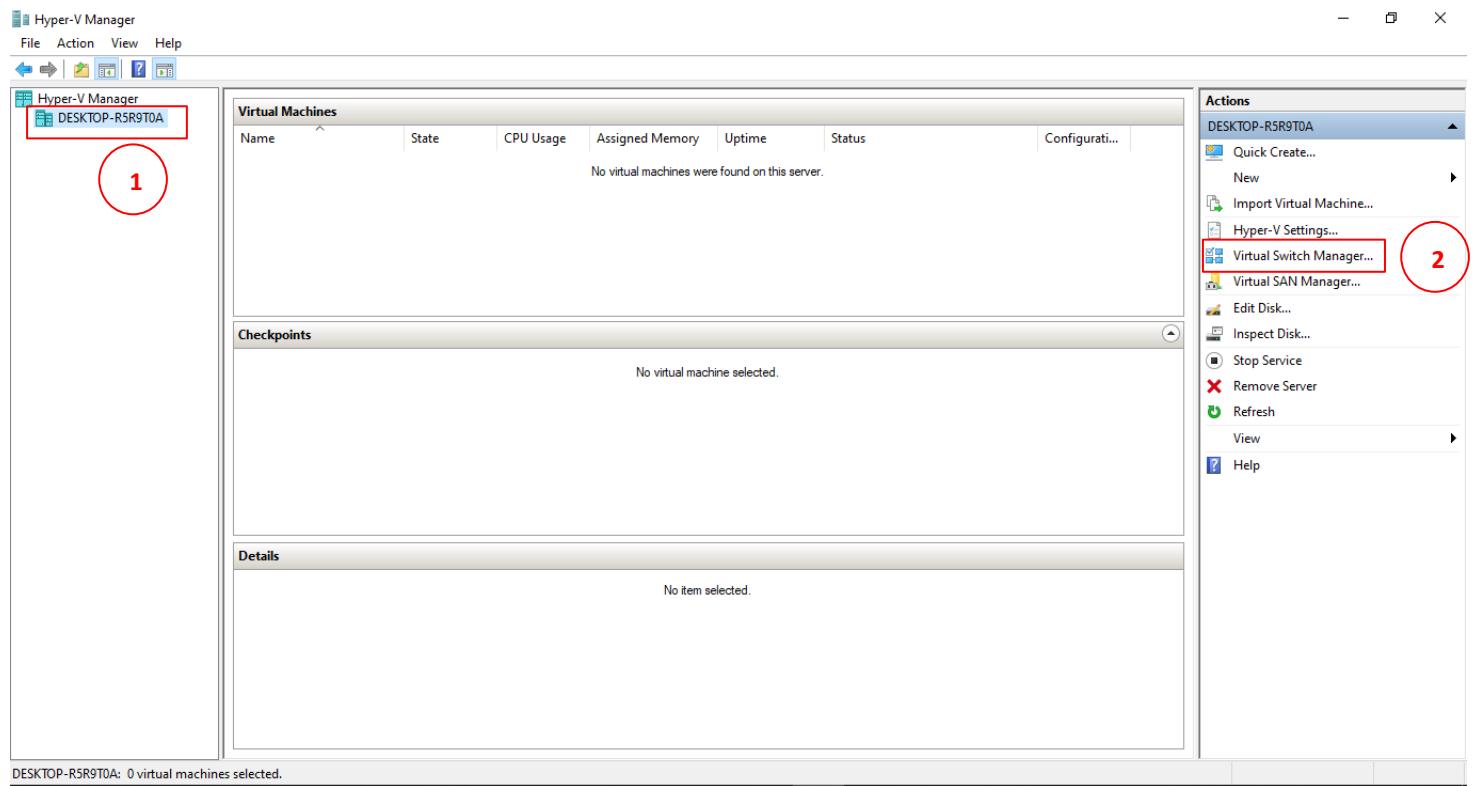
After Restart Search for hyper-v manager in search box and click on that



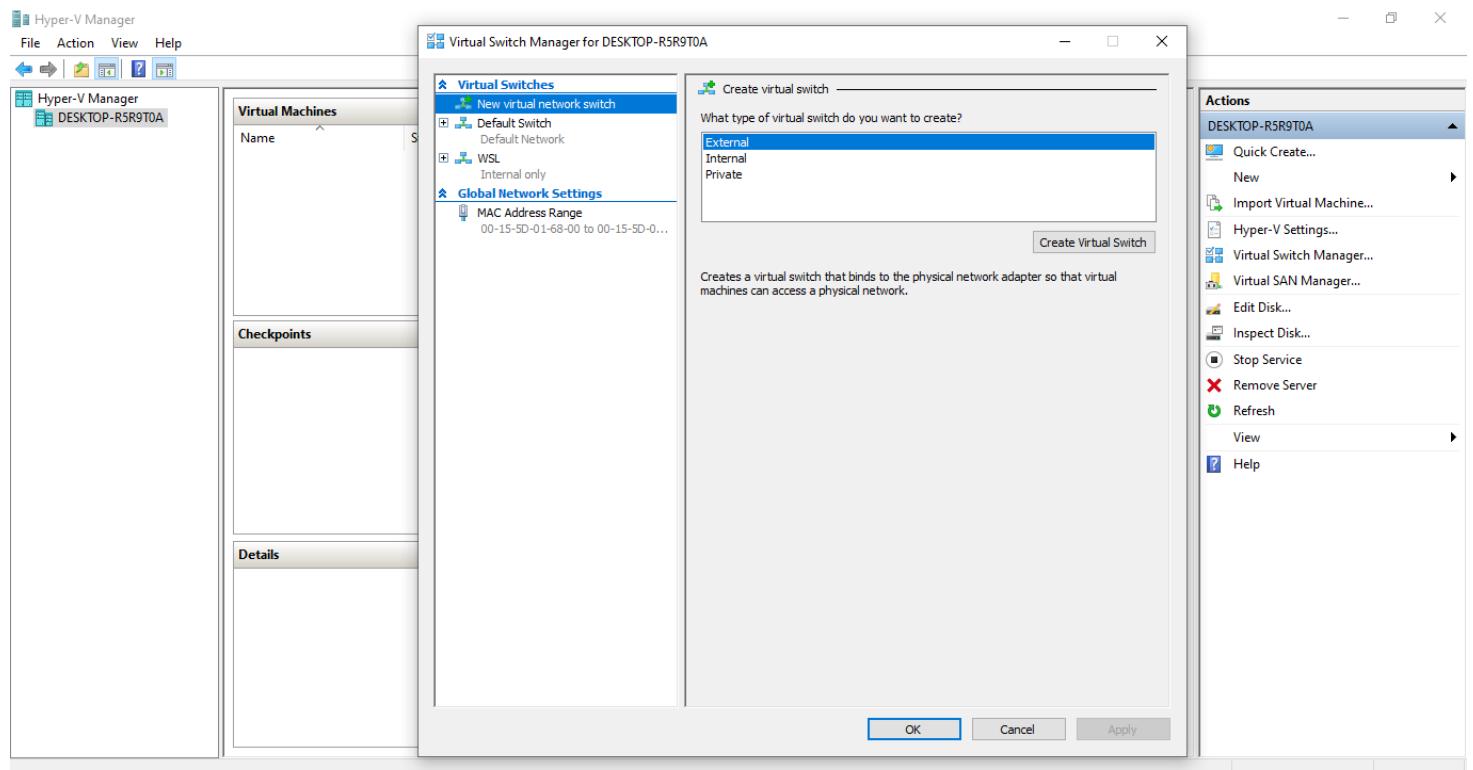
for creating virtual machine, first we have to create virtual switch
click on virtual switch manager option



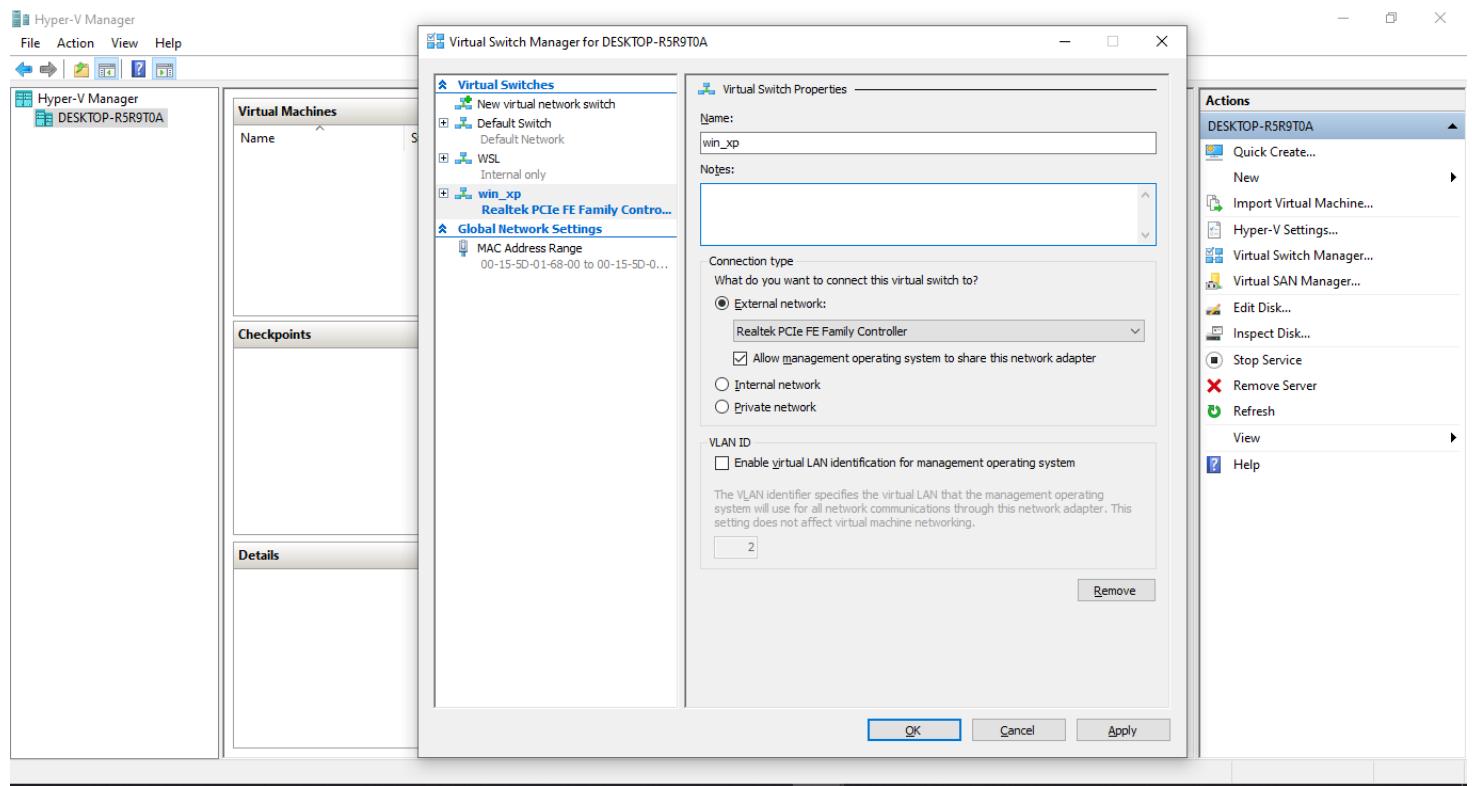
1. Select your Server



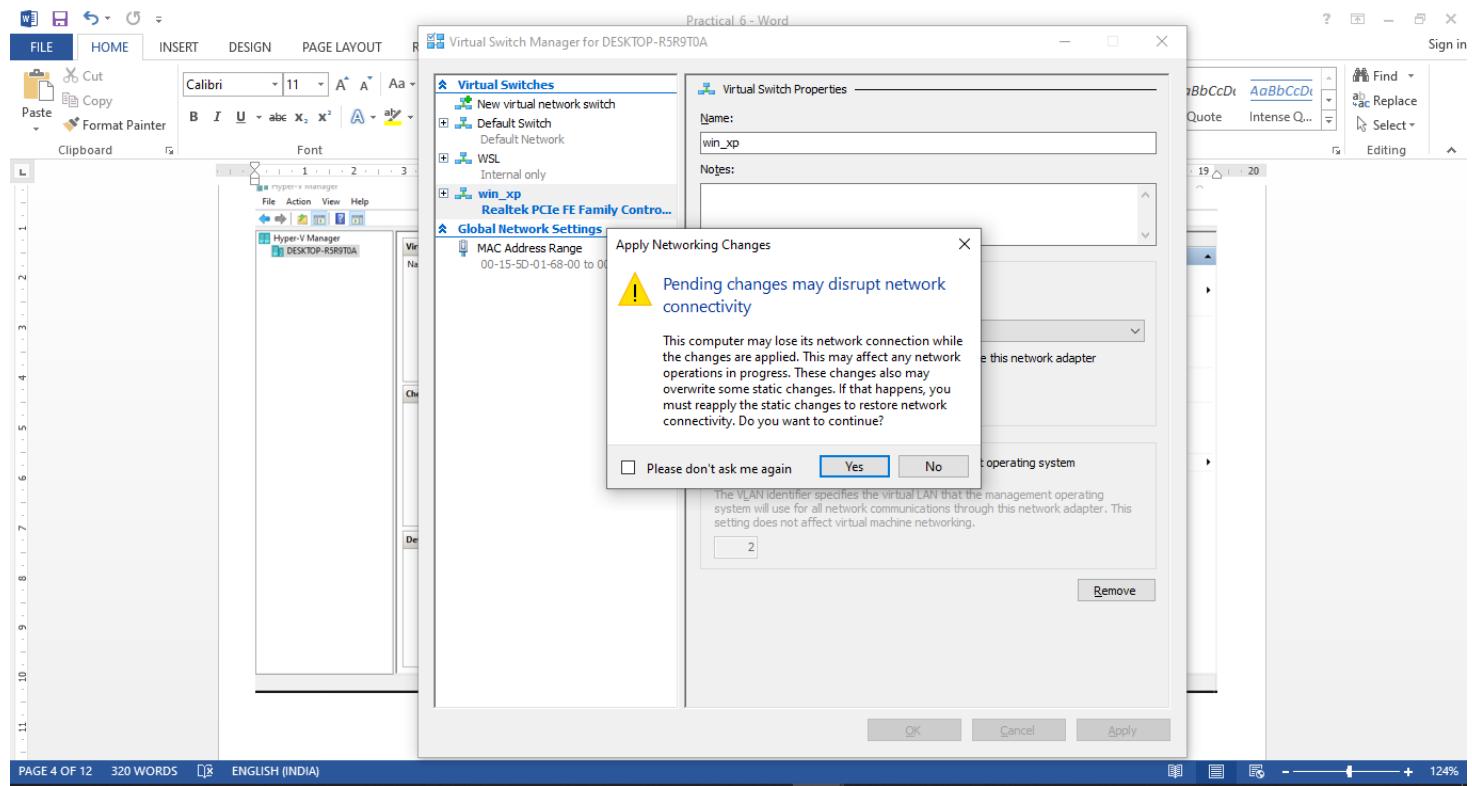
2. Select External as a connection type and then click on **create virtual switch**



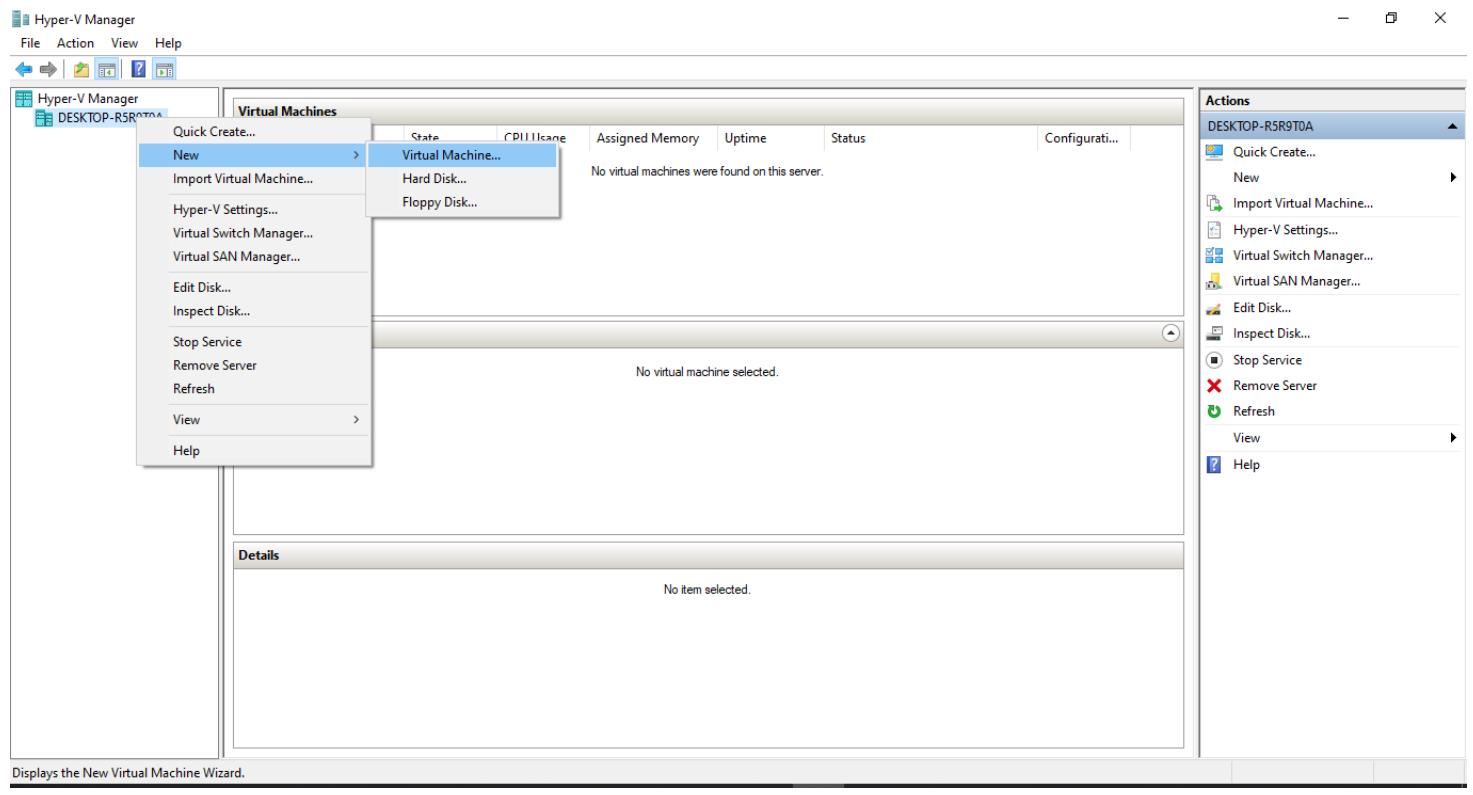
Give name to your virtual switch then click on **apply button**



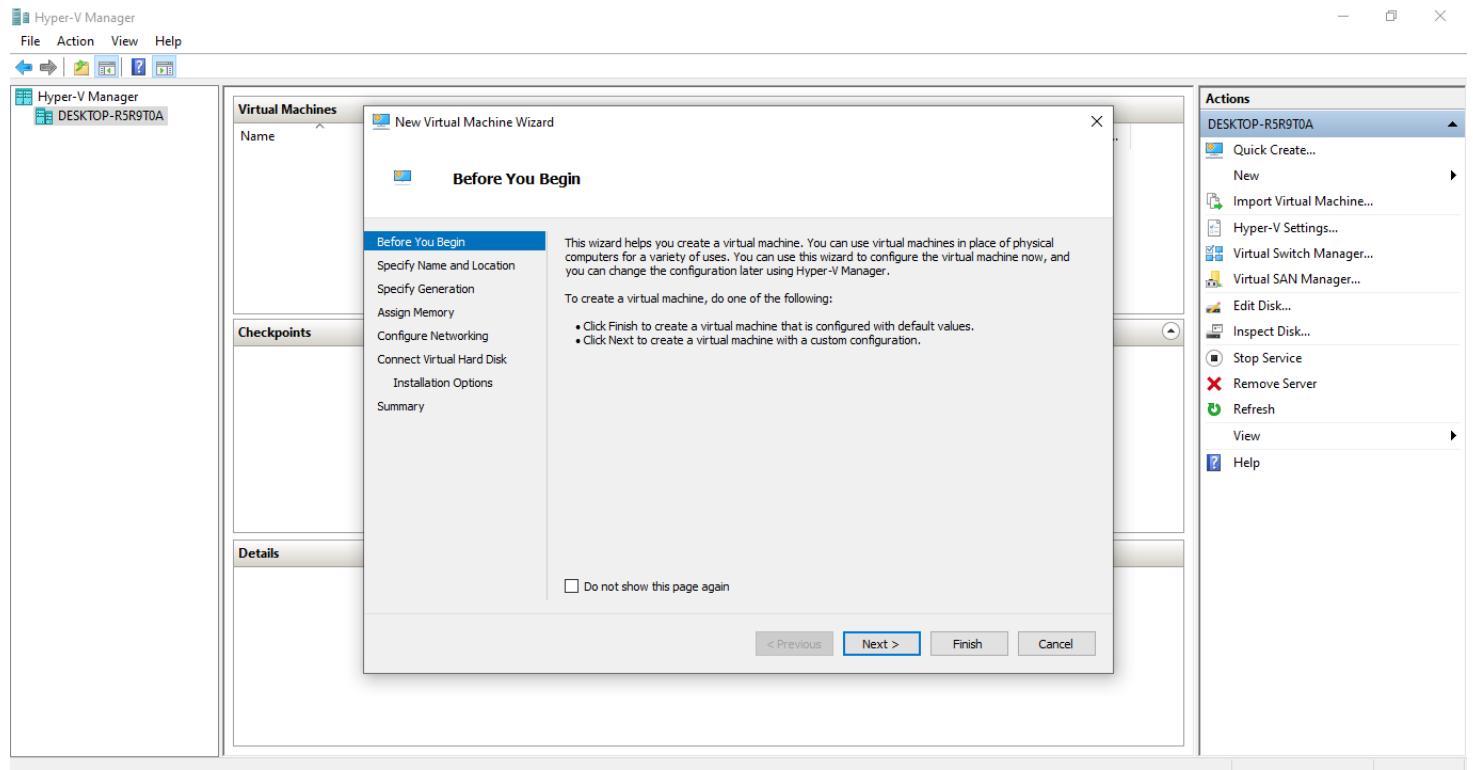
After click on Apply button it will show warning about our connection click on yes



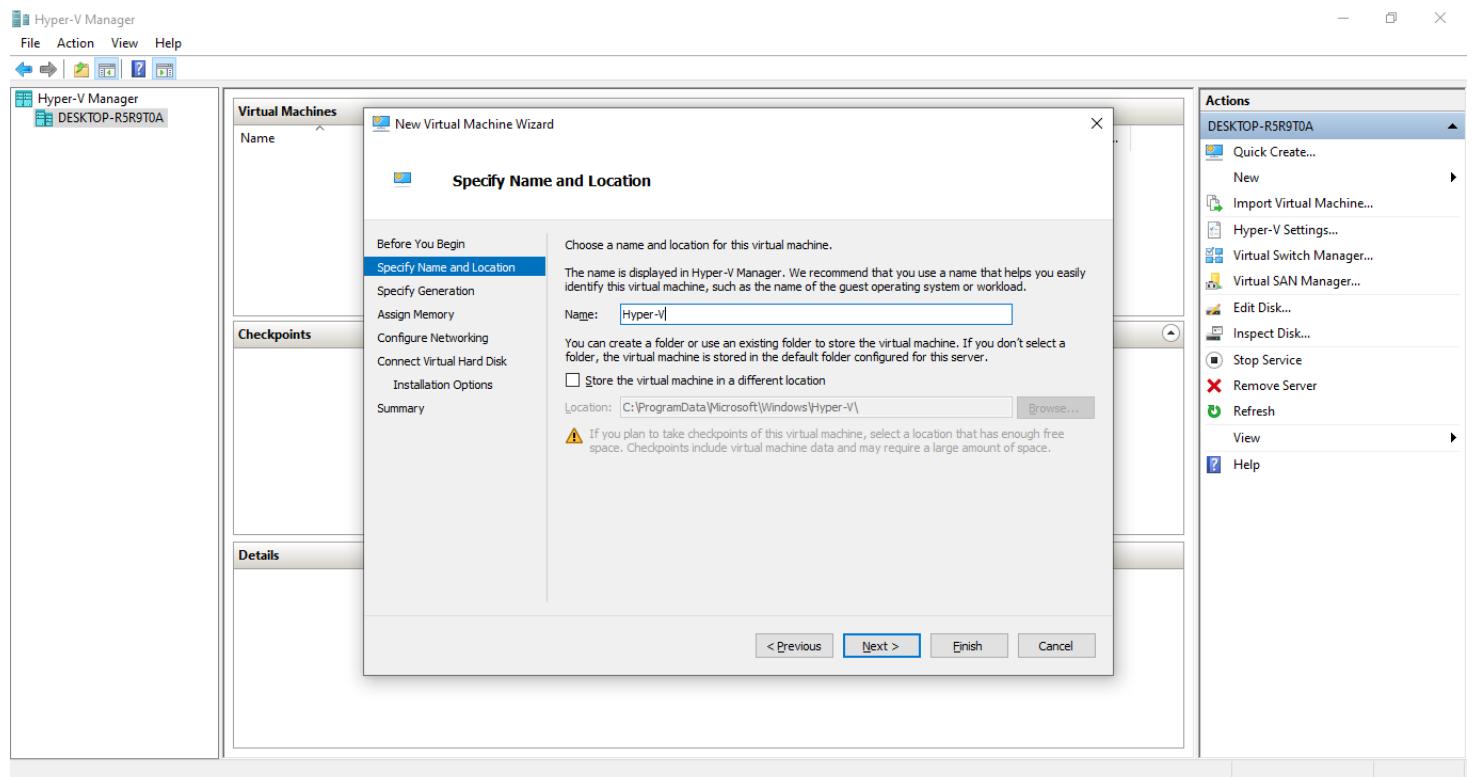
Now right click on server and select new virtual machine



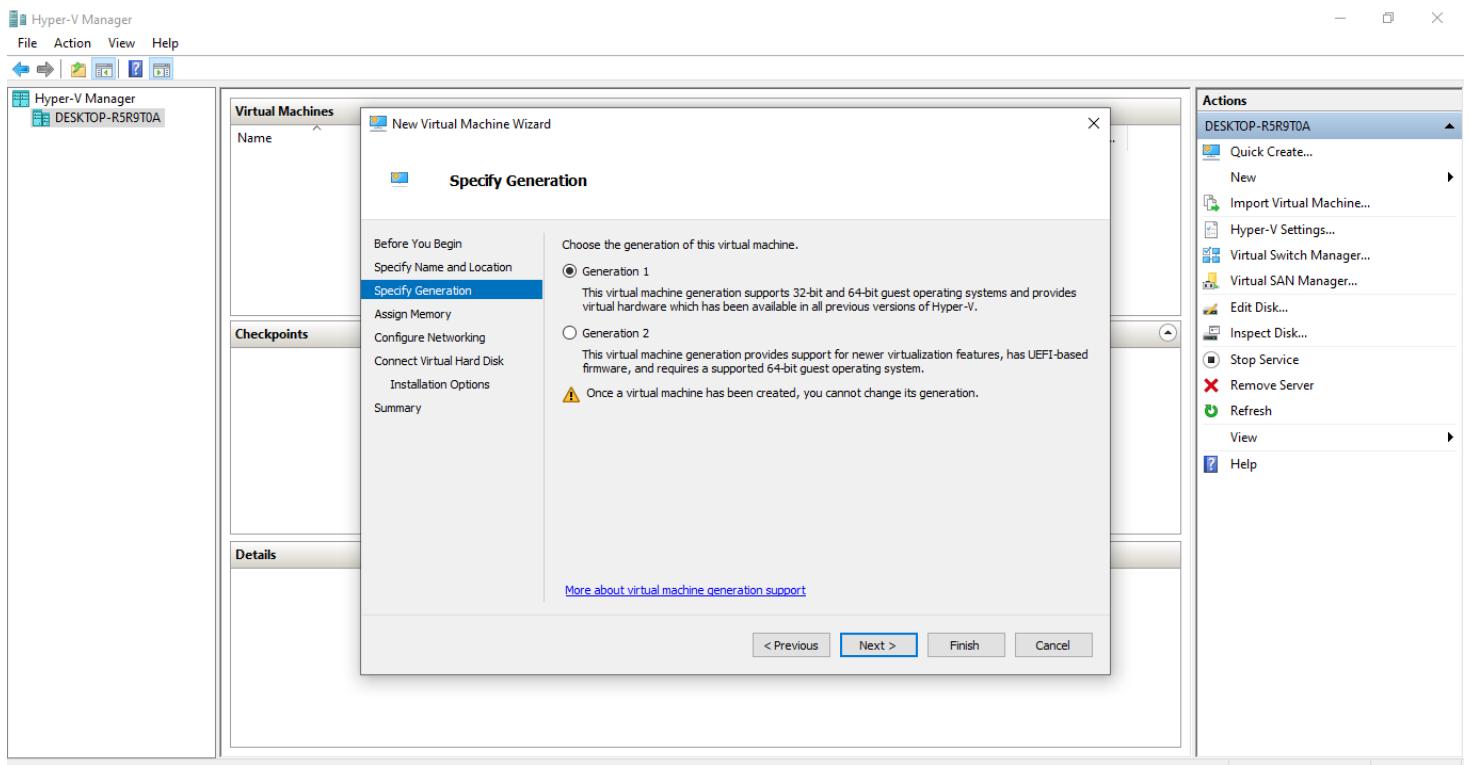
Click on next button



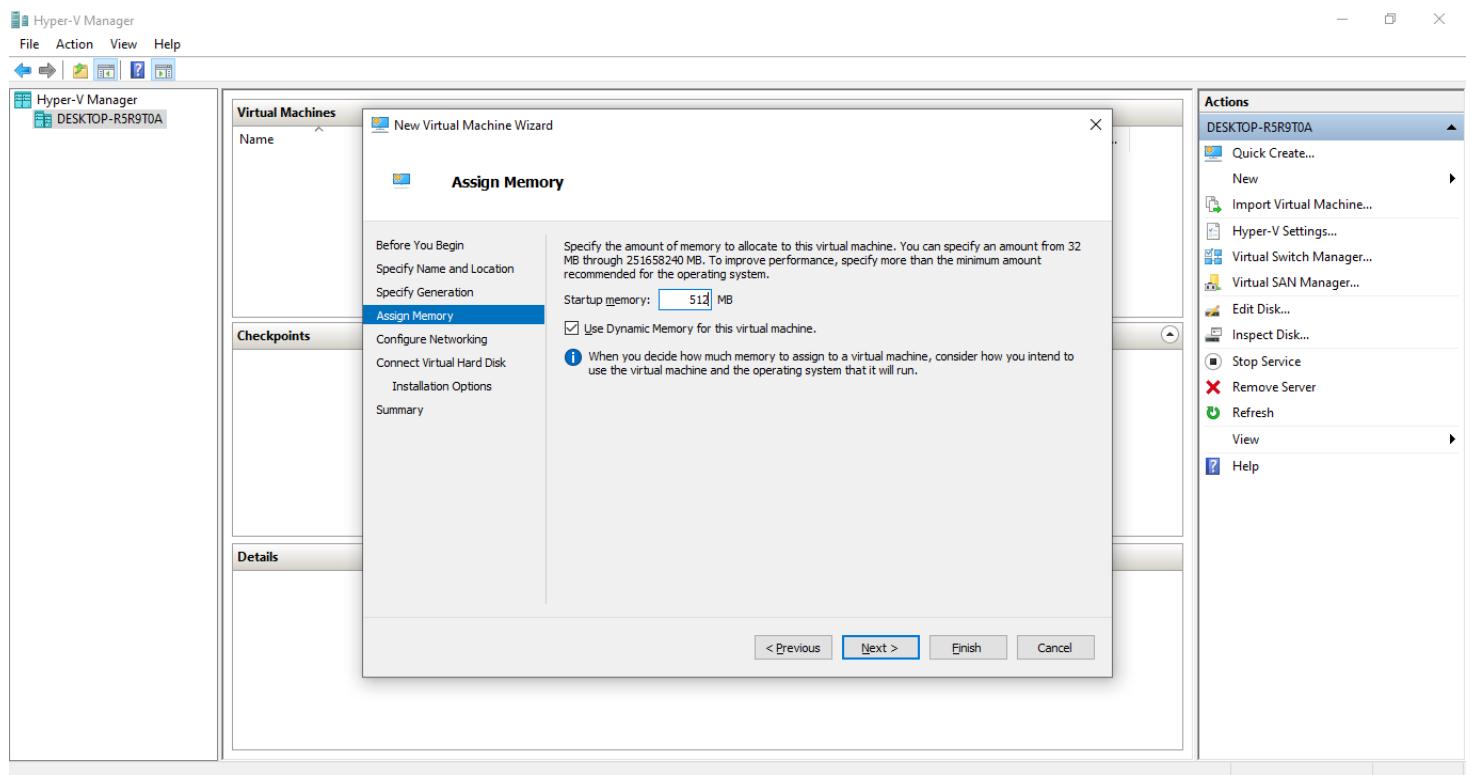
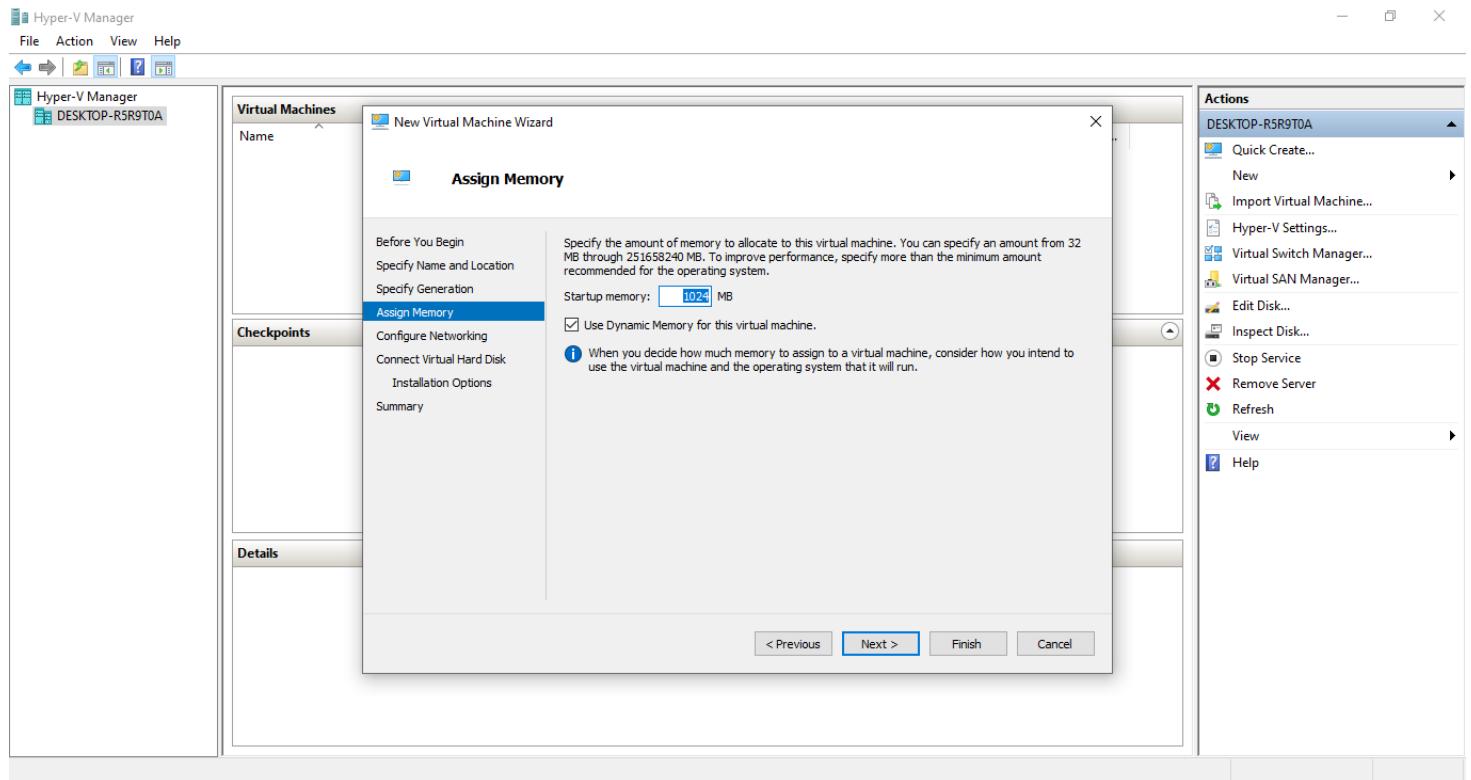
Provide name to virtual machine then click on Next button



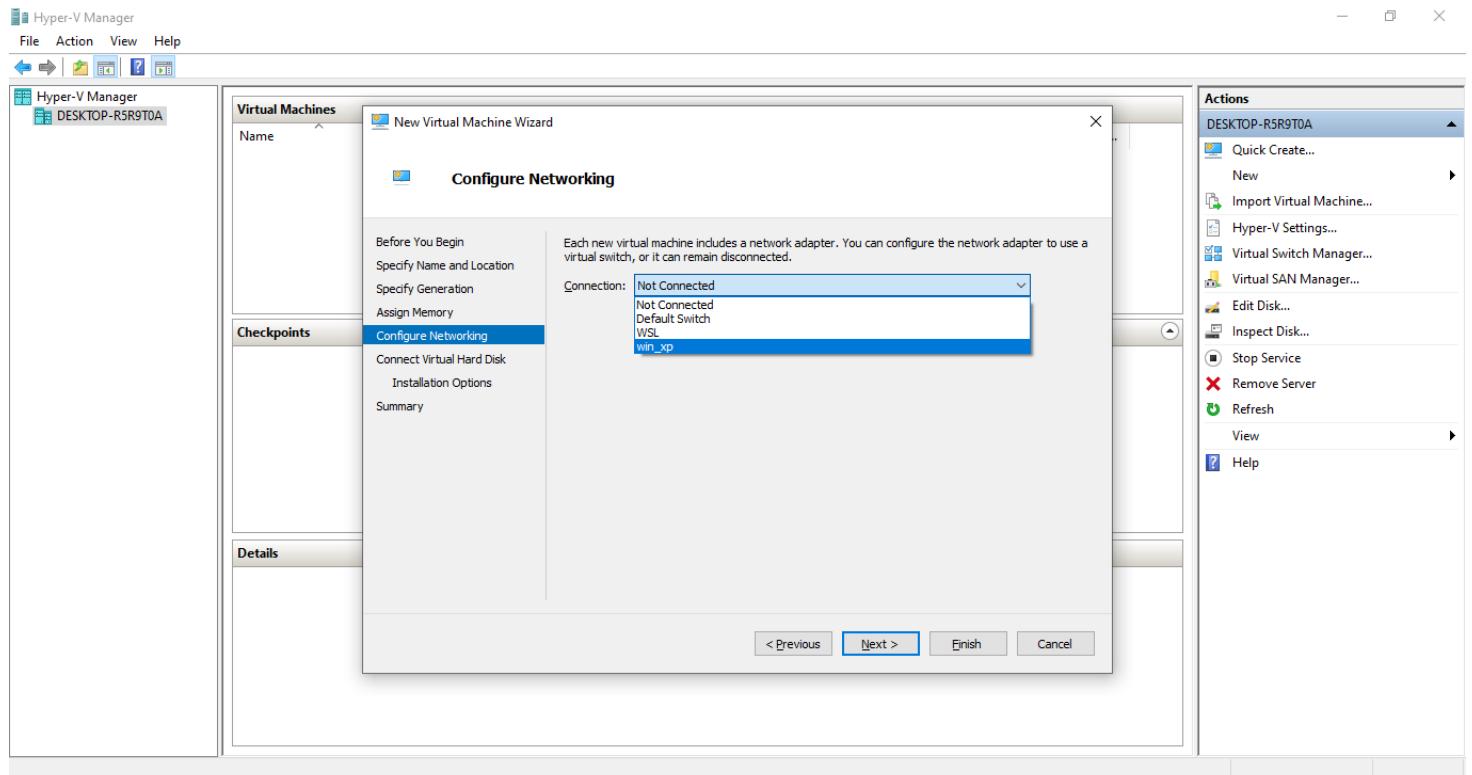
Specify generation: generation 1



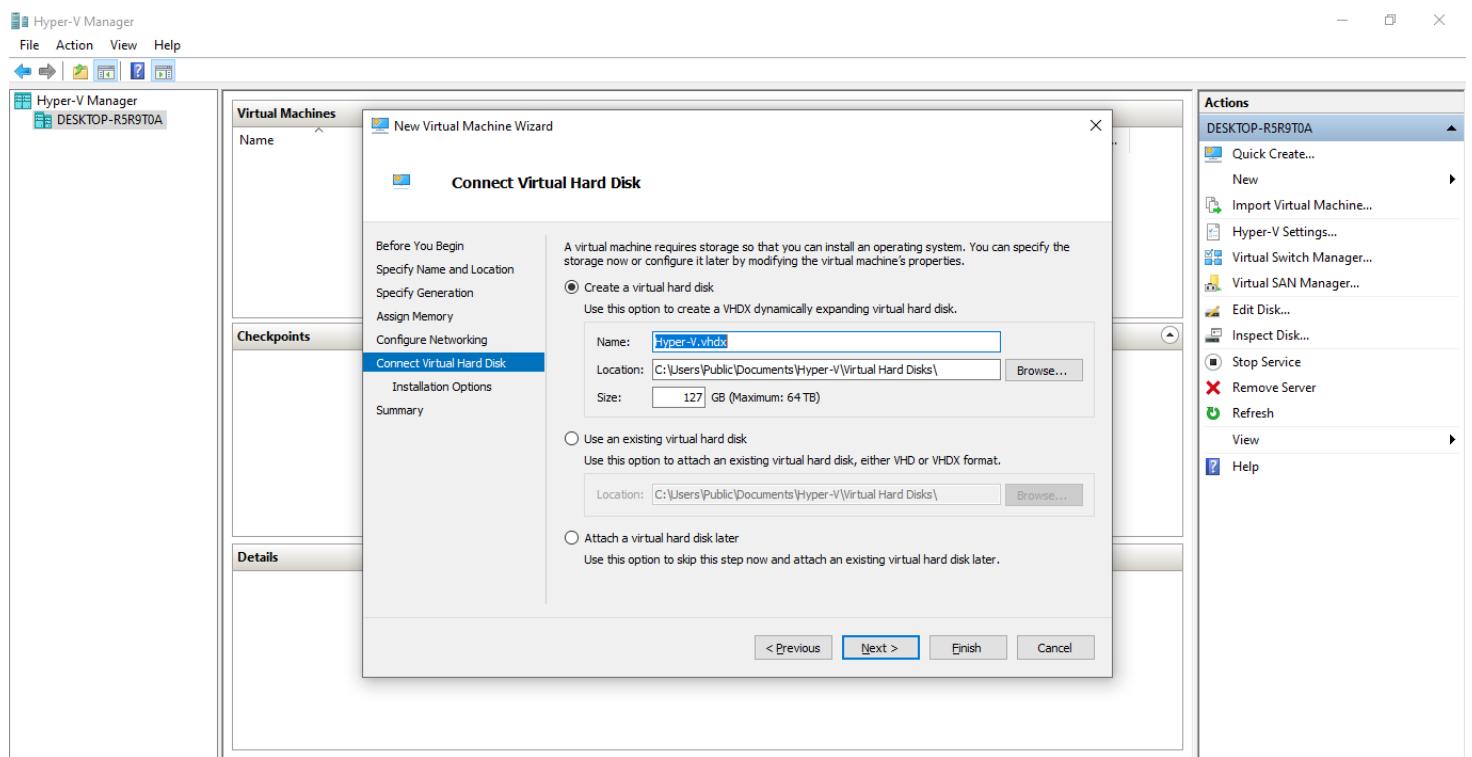
tick on use **dynamic memory for this virtual machine**



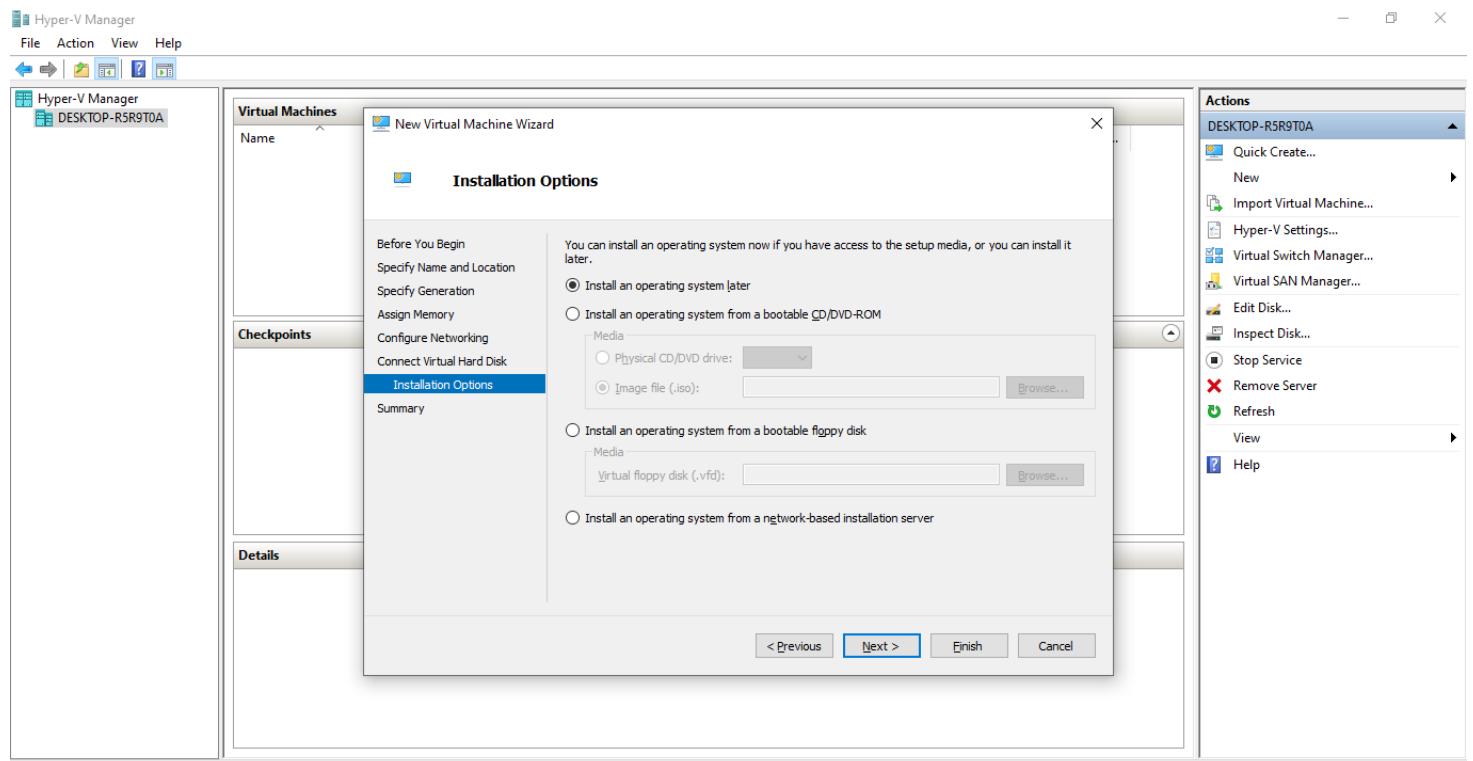
Select switch which we **created earlier for our virtual machine** from drop-down list and then click on next



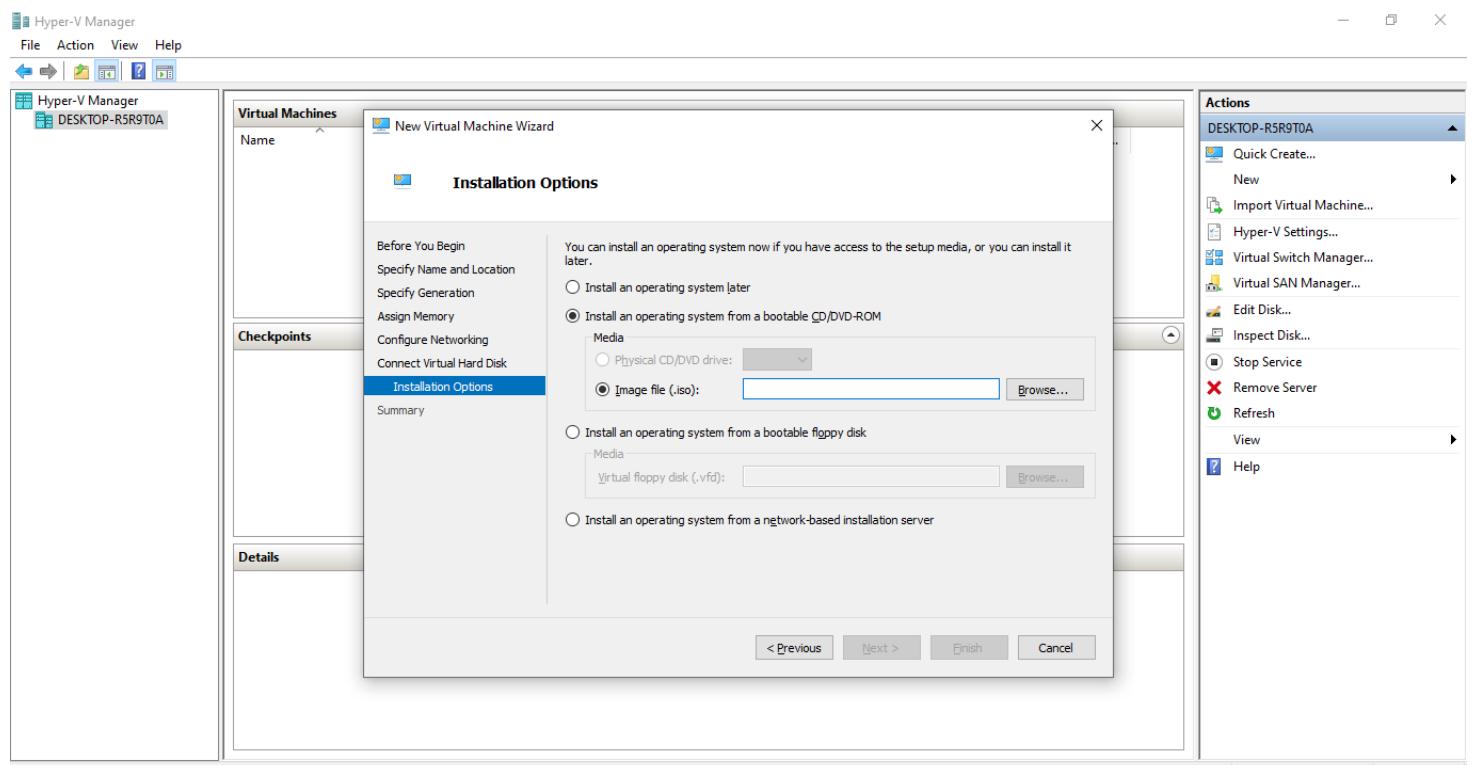
Description of virtual machine and location where it will store virtual machine related files and size require for this machine click on next

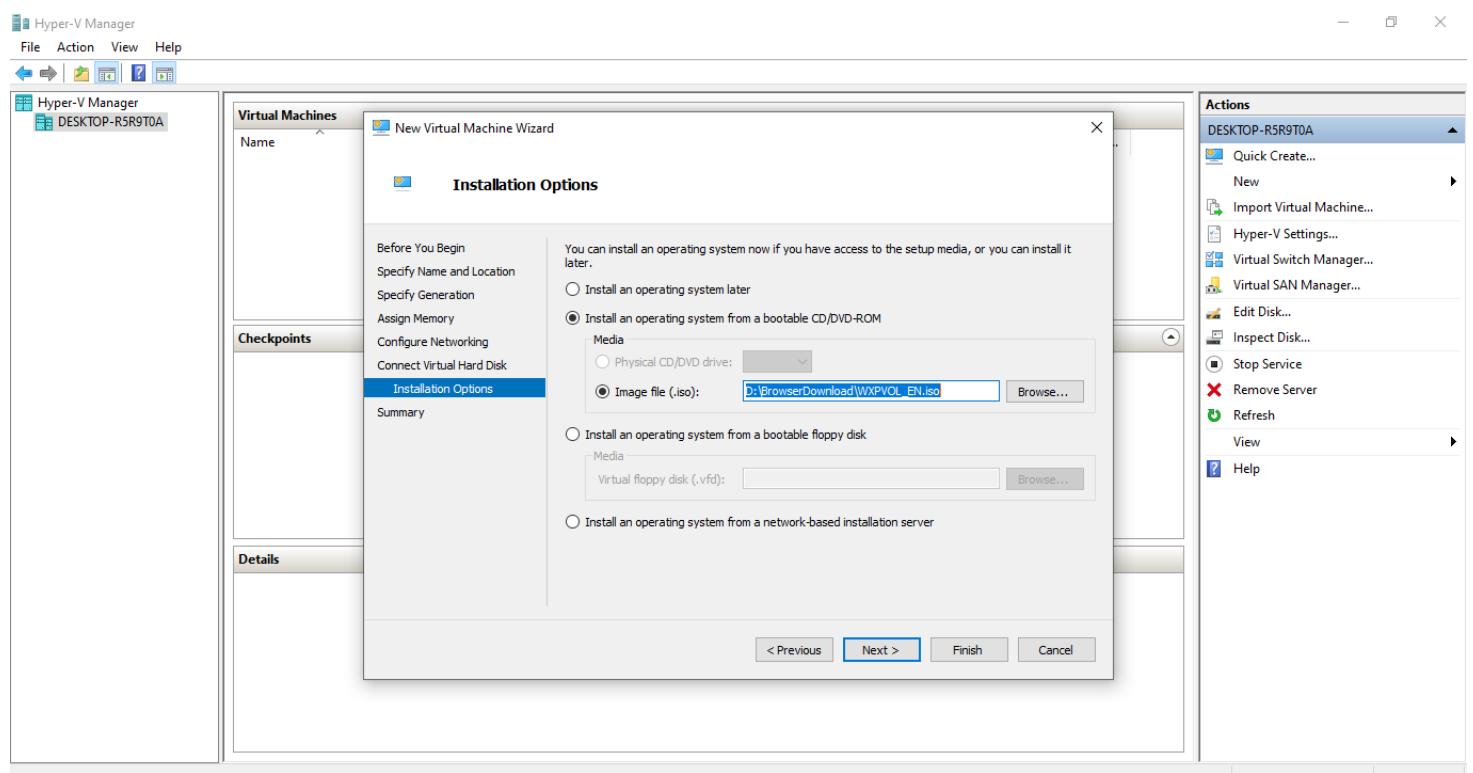
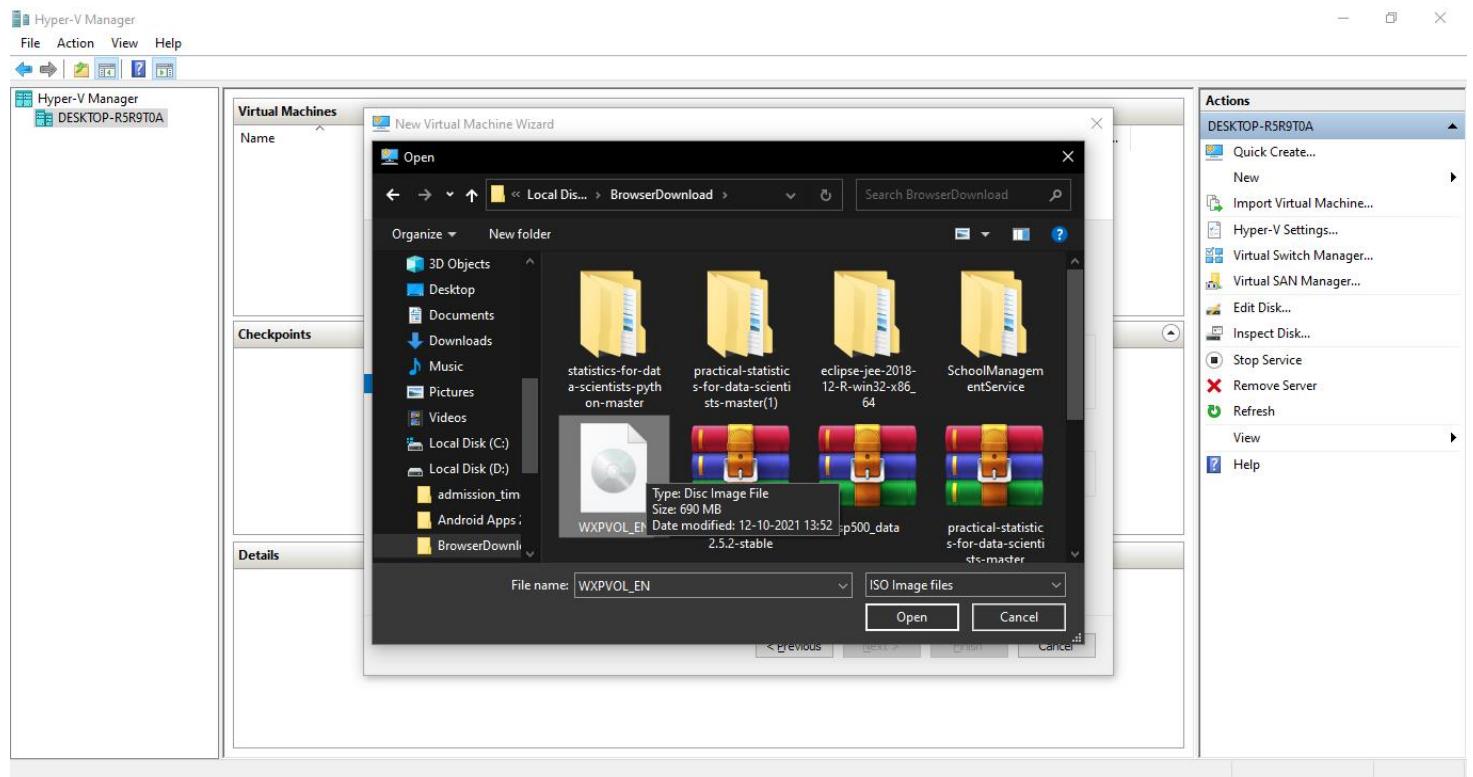


New virtual machine wizard panel will appear, where we will choose operating system which we want to install on virtual machine

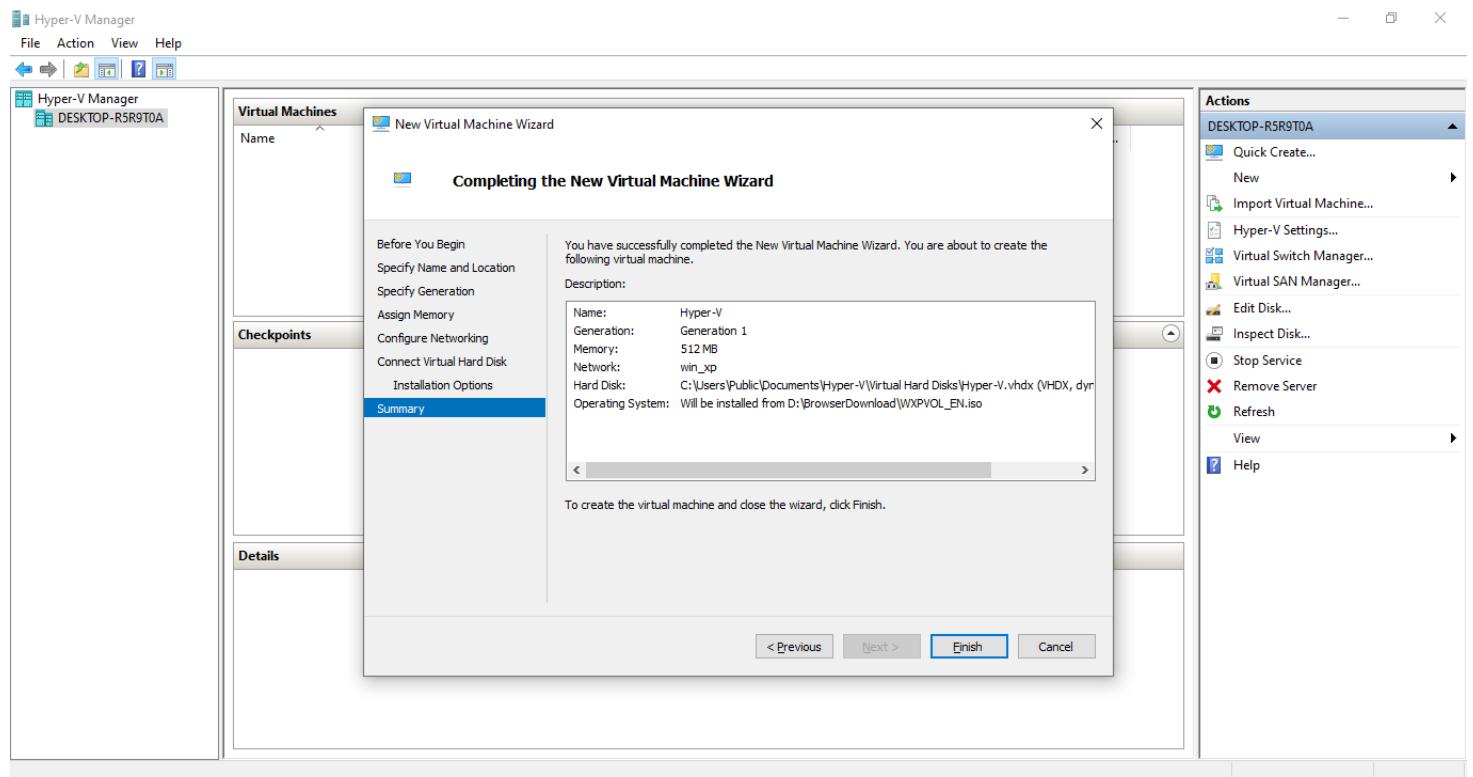


select install an operating system from boot CD/DVD-ROM and then select Image file(.iso) and browse your OS iso file then click on next button

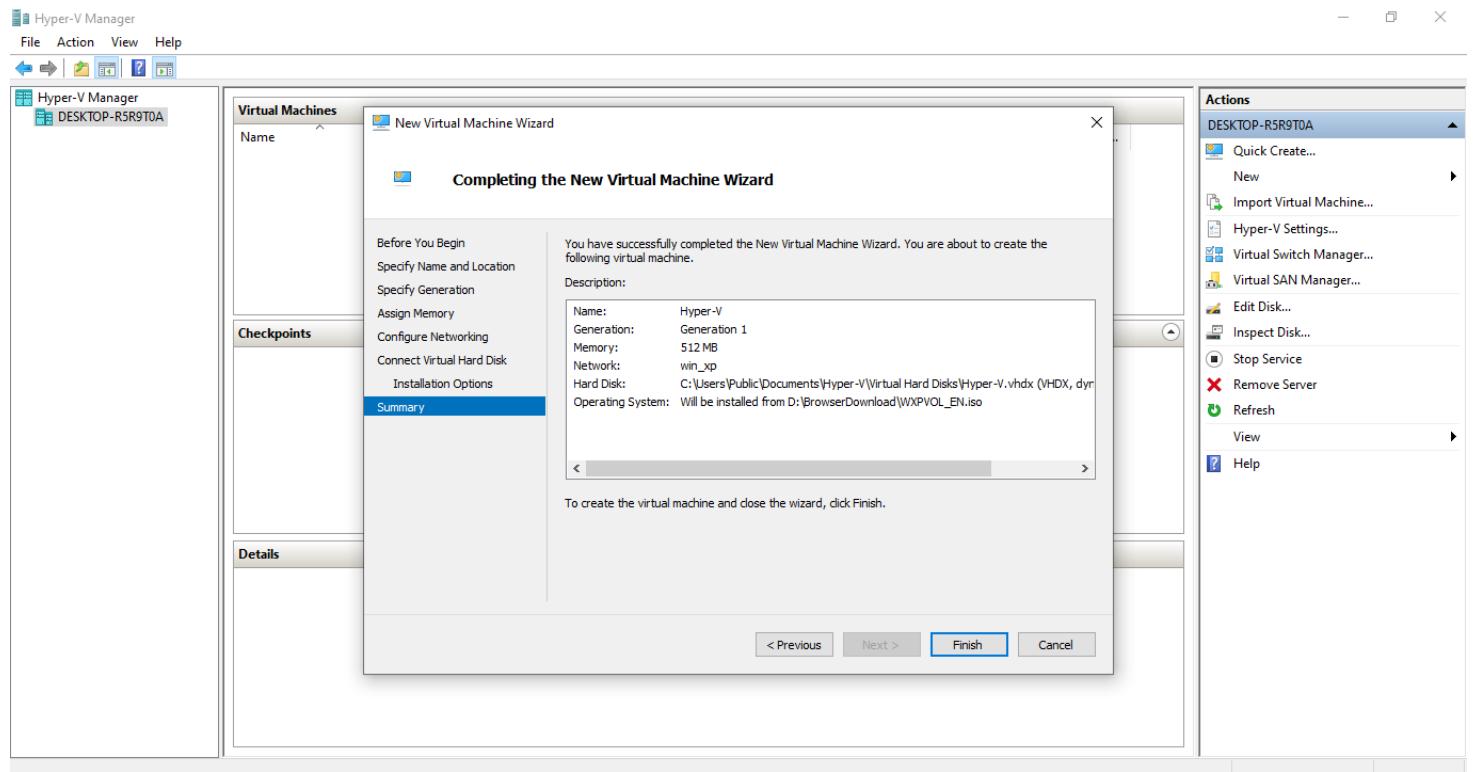




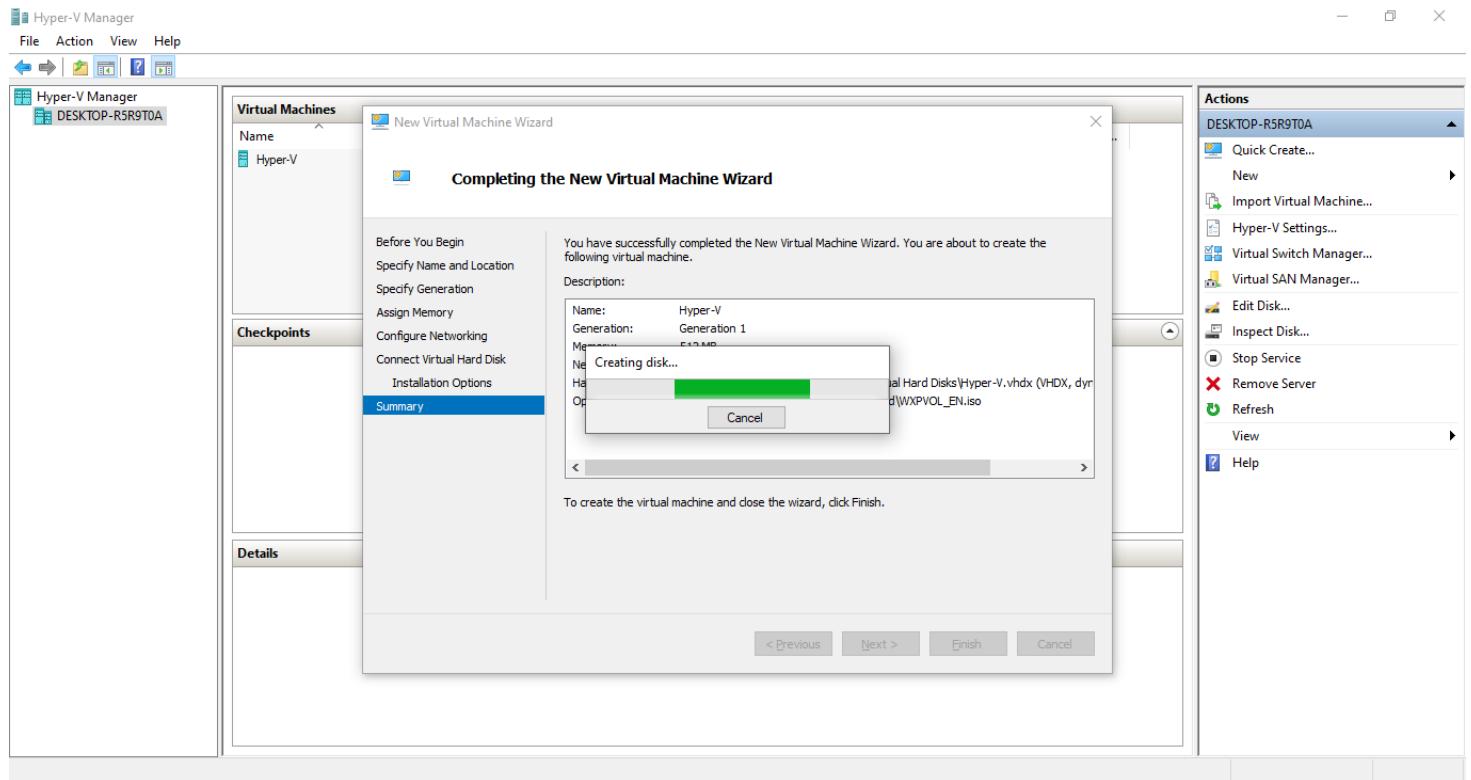
Click Next



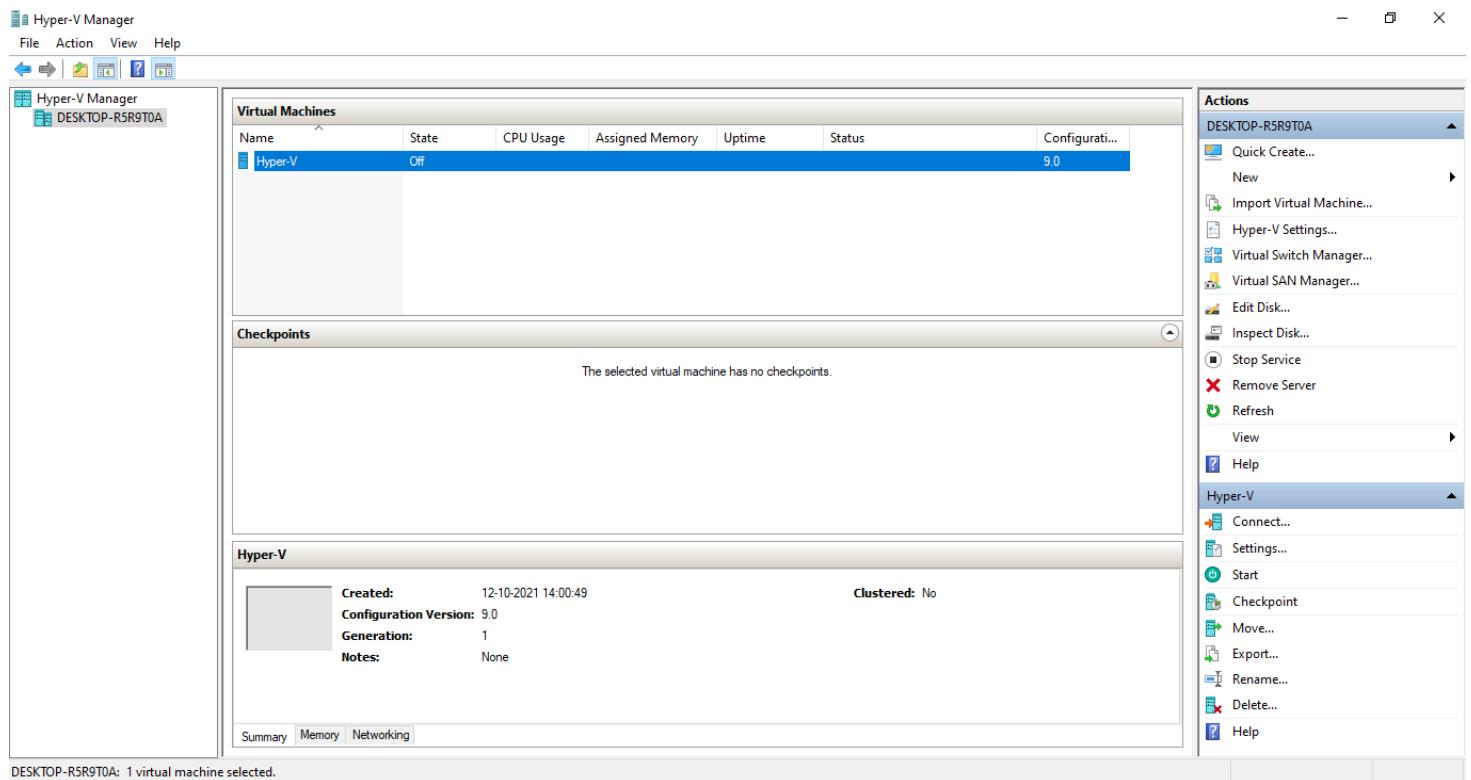
Summary report will be generated about virtual machine then click on Finish button



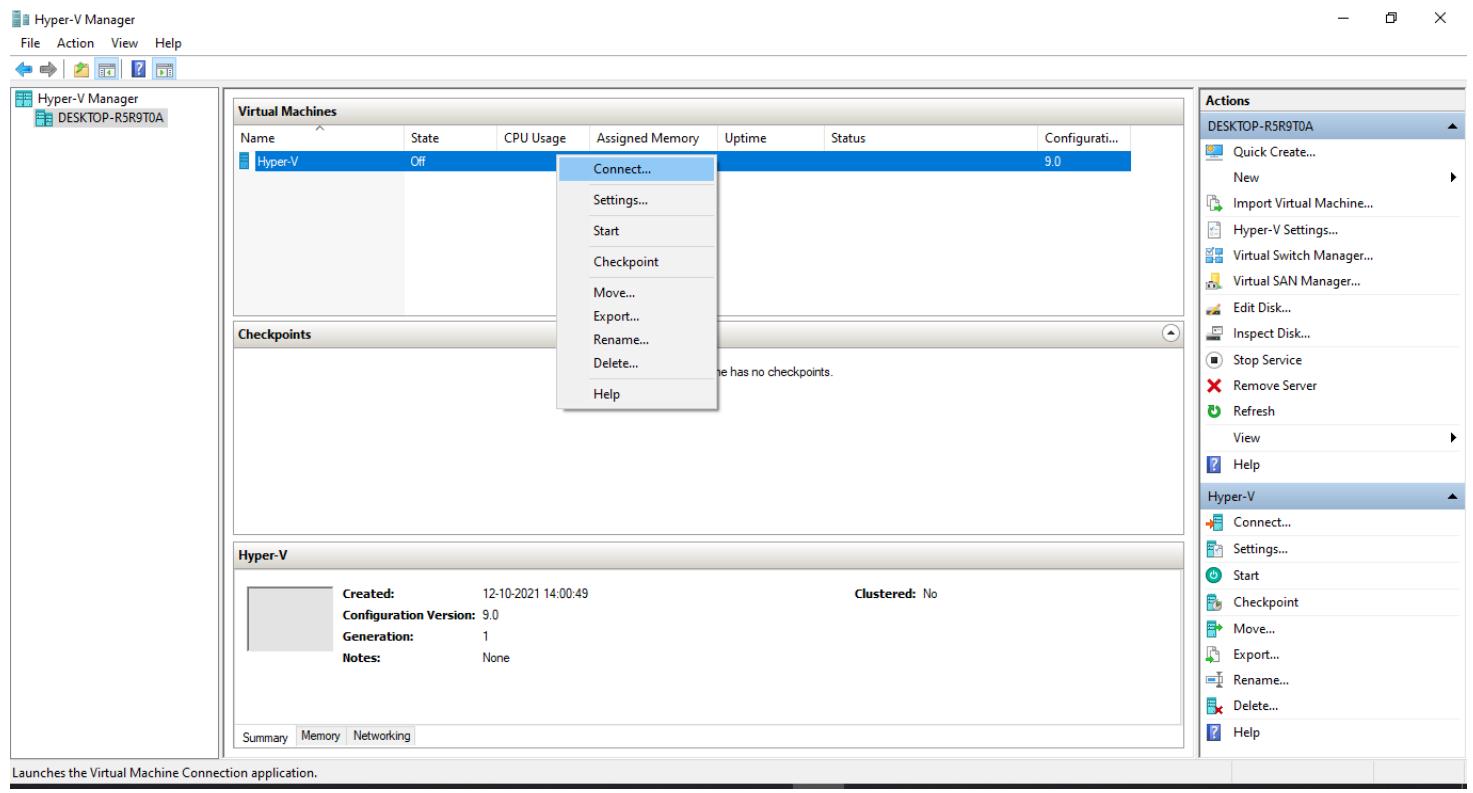
Click finish



In virtual machine panel your virtual machine will appear which has off state

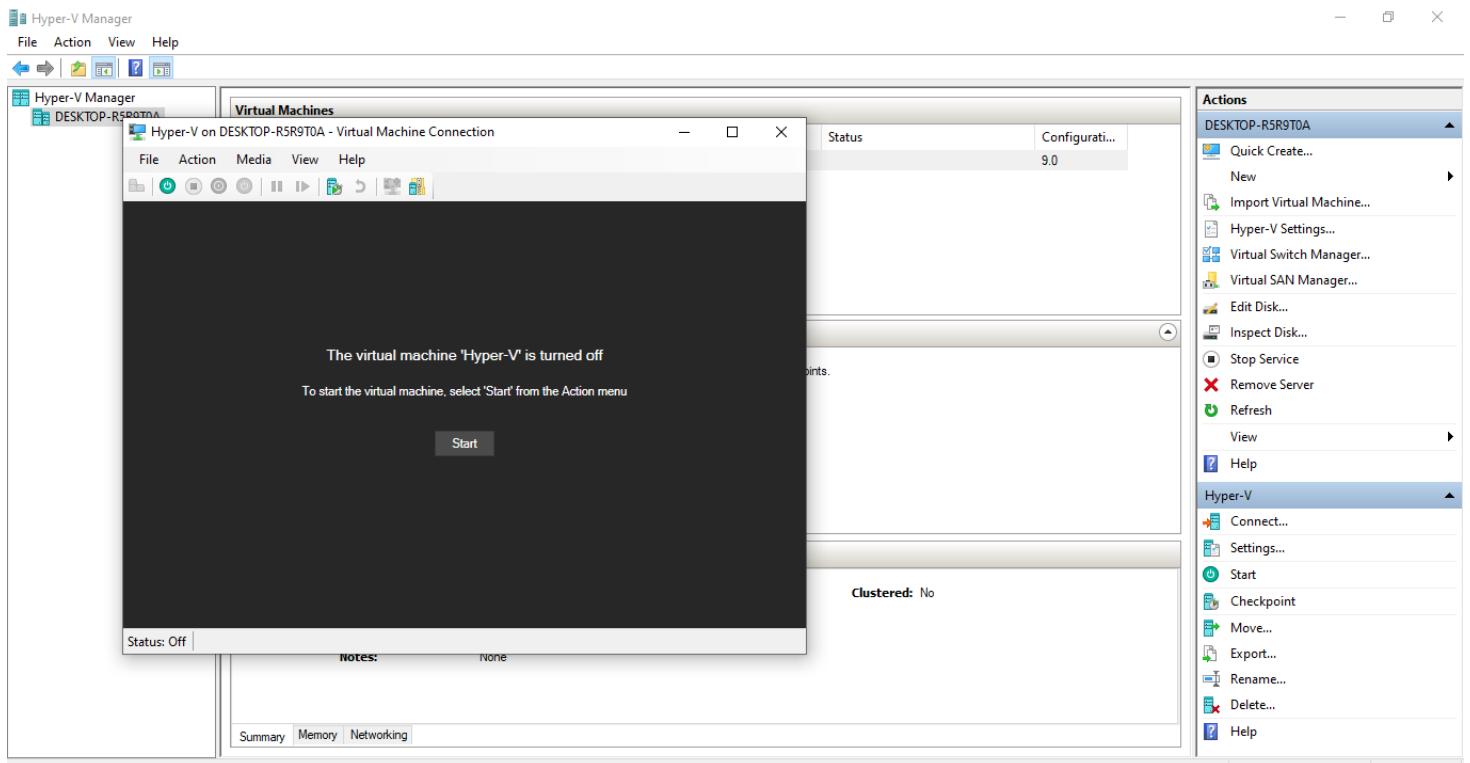


Right click on virtual machine and click on connect option



Launches the Virtual Machine Connection application.

Now turn on virtual machine



Click Start

Virtual machine will start with below screen

The screenshot shows the Microsoft Hyper-V Manager interface. On the left, there's a navigation pane with icons for Home, Virtual Machines, and Settings. The main area displays a list of virtual machines under the heading "Virtual Machines". One virtual machine, "DESKTOP-R5R9T0A", is selected and shown in detail. The status bar indicates "Status: Running". A "Notes" field contains "None". Below the notes, there are tabs for "Summary", "Memory", and "Networking". To the right of the main window is an "Actions" pane, which lists various management options for the selected virtual machine. The "Hyper-V" section of the actions pane is currently active.

Actions

DESKTOP-R5R9T0A

- Quick Create...
- New
- Import Virtual Machine...
- Hyper-V Settings...
- Virtual Switch Manager...
- Virtual SAN Manager...
- Edit Disk...
- Inspect Disk...
- Stop Service
- Remove Server
- Refresh

View

Help

Hyper-V

- Connect...
- Settings...
- Turn Off...
- Shut Down...
- Save
- Pause
- Reset
- Checkpoint
- Revert...
- More...

DESKTOP-R5R9T0A - Virtual Machine Connection

File Action Media Clipboard View Help

Windows XP Professional Setup

Welcome to Setup.

This portion of the Setup program prepares Microsoft(R) Windows(R) XP to run on your computer.

- To set up Windows XP now, press ENTER.
- To repair a Windows XP installation using Recovery Console, press R.
- To quit Setup without installing Windows XP, press F3.

ENTER=Continue R=Repair F3=Quit

Status: Running | Notes: None

Summary Memory Networking

Clustered: No
Heartbeat: No Contact

Practical No. 7

Virtual Machine USING AZURE

<https://docs.microsoft.com/en-us/learn/modules/create-windows-virtual-machine-in-azure/2-create-a-windows-virtual-machine>

Before Installation of VM on Azure first to activate sandbox

Activate sandbox

<https://docs.microsoft.com/en-us/learn/modules/create-windows-virtual-machine-in-azure/3-exercise-create-a-vm>

This module requires a sandbox to complete. A **sandbox** gives you access to free resources. Your personal subscription will not be charged. The sandbox may only be used to complete training on Microsoft Learn. Use for any other reason is prohibited, and may result in permanent loss of access to the sandbox.

Activate sandbox

Your company processes video content on Windows VMs. A new city has contracted with your company to process their traffic cameras, but it's a model you haven't worked with before. You need to create a new Windows VM and install some proprietary codecs in order to process and analyze the new video content.

Creating resource group...

Your company processes video content on Windows VMs. A new city has contracted with your company to process their traffic cameras, but it's a model you haven't worked with before. You need to create a new Windows VM and install some proprietary codecs in order to process and analyze the new video content.

Create a new Windows virtual machine

You can create Windows VMs with the Azure portal, Azure CLI, or Azure PowerShell. The best approach is to use the portal

< Previous

Unit 3 of 7

Next >

Exercise - Create a Windows virtual machine

10 minutes

100 XP

Sandbox activated! Time remaining: 1 hr

You have used 1 of 10 sandboxes for today. More sandboxes will be available tomorrow.

Your company processes video content on Windows VMs. A new city has contracted with your company to process their traffic cameras, but it's a model you haven't worked with before. You need to create a new Windows VM and install some proprietary codecs in order to process and analyze the new video content.

Create a new Windows virtual machine

https://docs.microsoft.com/en-us/learn/modules/create-windows-virtual-machine-in-azure/3-exercise-create-a-vm

traffic cameras, but it's a model you haven't worked with before. You need to create a new Windows VM and install some proprietary codecs in order to process and analyze the new video content.

Create a new Windows virtual machine

You can create Windows VMs with the Azure portal, Azure CLI, or Azure PowerShell. The best approach is to use the portal because the **Create a virtual machine** wizard collects all the required information and provides hints and validation messages throughout the process.

1. Sign in to the [Azure portal](#) using the same account you used to activate the sandbox.
2. On the Azure portal, under **Azure services**, select **Create a resource**. The **Create a resource** pane appears.
3. In **Search services and marketplace** search box, search for and select **Windows Server**, and press **Enter**. The **Windows Server** pane appears.
4. There are several Windows Server options to choose from to create your VM. In the **Plan** dropdown list, scroll down, and select **[smalldisk] Windows Server 2019 Datacenter**.
5. Select **Create**. The **Create a virtual machine** pane appears.

Configure the VM settings

Azure presents a *wizard* as a series of tabs to walk you through all the configuration details for creating the VM. The first tab is **Basics**. You can select **Next** or **Previous** to move from one tab to another, or you can select any tab in the horizontal

<https://portal.azure.com/learn/docs.microsoft.com/> to move to a customizable configuration section.

<https://portal.azure.com/#home>

Exercise - Create a Windows virt X Home - Microsoft Azure https://portal.azure.com/#home Microsoft Azure Search resources, services, and docs (G+) pavan.yadav0723@gmail.com MICROSOFT LEARN SANDBOX

Azure services

Create a resource Quickstart Center Virtual machines App Services Storage accounts SQL databases Azure Cosmos DB Kubernetes services Function App More services

Navigate

Subscriptions Resource groups All resources Dashboard

Tools

Microsoft Learn Azure Monitor Security Center Cost Management

Learn Azure with free online training from Microsoft Monitor your apps and infrastructure Secure your apps and infrastructure Analyze and optimize your cloud spend for free

Useful links

Technical Documentation Azure Services Recent Azure Updates

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Exercise - Create a Windows virt X Home - Microsoft Azure https://portal.azure.com/#home Microsoft Azure Search resources, services, and docs (G+) pavan.yadav0723@gmail.com MICROSOFT LEARN SANDBOX

Azure services

Create a resource Quickstart Center Virtual machines + Create View

Navigate

Subscriptions Resource groups All resources Dashboard

Tools

Microsoft Learn Azure Monitor Security Center Cost Management

Learn Azure with free online training from Microsoft Monitor your apps and infrastructure Secure your apps and infrastructure Analyze and optimize your cloud spend for free

Useful links

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Home > Create a virtual machine ...

Basics Disks Networking Management Advanced Tags Review + create

Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or use your own customized image. Complete the Basics tab then Review + create to provision a virtual machine with default parameters or review each tab for full customization. [Learn more](#)

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * Concierge Subscription
Resource group * (New) Resource group Create new

Instance details

Virtual machine name * PracticeWindowsOS
Region * (US) East US

Review + create < Previous Next : Disks >

VM Name : PracticeWindowsOS

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Home > Create a virtual machine ...

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * Concierge Subscription
Resource group * learn-a5c1d285-7cbc-4154-be5b-0618ab942988 Create new

Instance details

Virtual machine name * PracticeWindowsOS
Region * (US) West US
Availability options * No infrastructure redundancy required
Image * Ubuntu Server 20.04 LTS - Gen2 See all images | Configure VM generation
Azure Spot instance
Size * Standard_D2s_v3 - 2 vcpus, 8 GiB memory (\$85.41/month)

Review + create < Previous Next : Disks >

Select Image: Windows 10 Pro

Microsoft Azure Search resources, services, and docs (G+)

Home > Create a virtual machine

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * Ubuntu Server 18.04 LTS - Gen2

Resource group * Resource group

Instance details

Virtual machine name * Virtual machine name

Region * Region

Availability options Availability options

Image * Windows 10 Pro, Version 20H2 - Gen2

Azure Spot instance

Size * Standard_D2s_v3 - 2 vcpus, 8 GiB memory (\$85.41/month)

[Review + create](#) [< Previous](#) [Next : Disks >](#)

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Microsoft Azure Search resources, services, and docs (G+)

Home > Create a virtual machine

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * Concierge Subscription

Resource group * learn-a5c1d285-7cbc-4154-be5b-0618ab942988

Create new

Instance details

Virtual machine name * PracticeWindowsOS

Region * (US) West US

Availability options No infrastructure redundancy required

Image * Windows 10 Pro, Version 20H2 - Gen2

Azure Spot instance

Size * Standard_D2s_v3 - 2 vcpus, 8 GiB memory (Loading price...)

[Review + create](#) [< Previous](#) [Next : Disks >](#)

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Create a Username & Password:

I was created my

Username : pavanK0723 and

Password: P@v@nK***** (The value must be between 12 and 123 characters long.)

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Azure Spot instance

Size *

Administrator account

Username * ✓

Password * ✓

Confirm password * ✓

Inbound port rules

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports * None Allow selected ports

Select inbound ports *

Review + create < Previous Next : Disks >

Microsoft Azure Search resources, services, and docs (G+) Home > Create a virtual machine

Inbound port rules

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports * None Allow selected ports

Select inbound ports *

⚠ This will allow all IP addresses to access your virtual machine. This is only recommended for testing. Use the Advanced controls in the Networking tab to create rules to limit inbound traffic to known IP addresses.

Licensing

I confirm I have an eligible Windows 10 license with multi-tenant hosting rights. *

Review multi-tenant hosting rights for Windows 10 compliance

Review + create < Previous Next : Disks >



Microsoft Azure Home > Create a virtual machine ...

Basics Disks Networking Management Advanced Tags Review + create

Azure VMs have one operating system disk and a temporary disk for short-term storage. You can attach additional data disks. The size of the VM determines the type of storage you can use and the number of data disks allowed. [Learn more](#)

Disk options

OS disk type *

Encryption type *

Enable Ultra Disk compatibility

Data disks

You can add and configure additional data disks for your virtual machine or attach existing disks. This VM also comes with a temporary disk.

LUN	Name	Size (GiB)	Disk type	Host caching

[Create and attach a new disk](#) [Attach an existing disk](#)

[Review + create](#) [< Previous](#) [Next : Networking >](#)

Microsoft Azure Home > Create a virtual machine > Create a new disk ...

Create a new disk to store applications and data on your VM. Disk pricing varies based on factors including disk size, storage type, and number of transactions. [Learn more](#)

Name *

Source type *

Size *
Premium SSD LRS
[Change size](#)

Encryption type *

Enable shared disk Yes No

[OK](#)

go.microsoft.com/fwlink/?LinkId=2061668

Microsoft Azure Search resources, services, and docs (G+)

Home > Create a virtual machine

Disk options

OS disk type * Premium SSD (locally-redundant storage)

Encryption type * (Default) Encryption at-rest with a platform-managed key

Enable Ultra Disk compatibility

Data disks

You can add and configure additional data disks for your virtual machine or attach existing disks. This VM also comes with a temporary disk.

LUN	Name	Size (GiB)	Disk type	Host caching
0	PracticeWindowsOS...	1024	Premium SSD LRS	None <input type="button" value="Edit"/> <input type="button" value="Delete"/>

Create and attach a new disk Attach an existing disk

Advanced

Review + create < Previous Next : Networking >

Microsoft Azure Search resources, services, and docs (G+)

Home > Create a virtual machine

Networking

Management Advanced Tags Review + create

Define network connectivity for your virtual machine by configuring network interface card (NIC) settings. You can control ports, inbound and outbound connectivity with security group rules, or place behind an existing load balancing solution.

Learn more

Network interface

When creating a virtual machine, a network interface will be created for you.

Virtual network * (new) learn-a5c1d285-7cbc-4154-be5b-0618ab942988-vnet

Subnet * (new) default (10.0.0.0/24)

Public IP * (new) PracticeWindowsOS-ip

NIC network security group None Basic Advanced

Review + create < Previous Next : Management >

Microsoft Azure Search resources, services, and docs (G+) Home > Create a virtual machine ...

Basics Disks Networking Management Advanced Tags Review + create

Configure monitoring and management options for your VM.

Azure Security Center

Azure Security Center provides unified security management and advanced threat protection across hybrid cloud workloads. [Learn more](#)

Your subscription is protected by Azure Security Center basic plan.

Monitoring

Boot diagnostics Enable with managed storage account (recommended) Enable with custom storage account Disable

Enable OS guest diagnostics

Identity

[Review + create](#) [< Previous](#) [Next : Advanced >](#)



Microsoft Azure Search resources, services, and docs (G+) Home > Create a virtual machine ...

Basics Disks Networking Management Advanced Tags Review + create

Add additional configuration, agents, scripts or applications via virtual machine extensions or cloud-init.

Extensions

Extensions provide post-deployment configuration and automation.

Extensions [Select an extension to install](#)

Custom data

Pass a script, configuration file, or other data into the virtual machine **while it is being provisioned**. The data will be saved on the VM in a known location. [Learn more about custom data for VMs](#)

Custom data

[Review + create](#) [< Previous](#) [Next : Tags >](#)



Microsoft Azure Search resources, services, and docs (G+) Home > Create a virtual machine ... X

Basics Disks Networking Management Advanced **Tags** Review + create

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more about tags](#)

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name ⓘ	Value ⓘ	Resource
<input type="text"/>	:	<input type="text"/> 12 selected ▼

Review + create < Previous Next : Review + create >



Microsoft Azure Search resources, services, and docs (G+) Home > Create a virtual machine ... X

Running final validation...

Basics Disks Networking Management Advanced Tags **Review + create**

⚠️ You have set RDP port(s) open to the internet. This is only recommended for testing. If you want to change this setting, go back to Basics tab.

Basics

Subscription	Concierge Subscription
Resource group	learn-a5c1d285-7cbc-4154-be5b-0618ab942988
Virtual machine name	PracticeWindowsOS
Region	West US
Availability options	No infrastructure redundancy required
Image	Windows 10 Pro, Version 20H2 - Gen2

Create < Previous Next > [Download a template for automation](#)

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Create a virtual machine

Validation passed

Basics Disks Networking Management Advanced Tags **Review + create**

PRODUCT DETAILS

Standard D2s v3 by Microsoft Subscription credits apply ⓘ 0.1170 USD/hr Pricing for other VM sizes

TERMS

By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. See the [Azure Marketplace Terms](#) for additional details.

Create < Previous Next > Download a template for automation

Microsoft Azure Search resources, services, and docs (G+)

Home > Create a virtual machine

Basics Disks Networking Management Advanced Tags Review + create

PRODUCT DETAILS

Standard D2s v3 by Microsoft

Subscription credits apply ⓘ
0.1170 USD/hr
[Pricing for other VM sizes](#)

TERMS

By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. See the [Azure Marketplace Terms](#) for additional details.

⚠️ You have set RDP port(s) open to the internet. This is only recommended for testing. If you want to change this setting, go back to Basics tab.

Create < Previous Next > Download a template for automation

... Initializing deployment...
Initializing template deployment to resource group 'learn-a5c1d285-7cbc-4154-be5b-0618ab942988';

Microsoft Azure Search resources, services, and docs (G+)

Home > Create a virtual machine

PRODUCT DETAILS

Standard D2s v3 by Microsoft Subscription credits apply ⓘ 0.1170 USD/hr Pricing for other VM sizes

TERMS

By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. See the [Azure Marketplace Terms](#) for additional details.

⚠ You have set RDP port(s) open to the internet. This is only recommended for testing. If you want to change this setting, go back to Basics tab.

Create < Previous Next > Download a template for automation

Microsoft Azure Search resources, services, and docs (G+)

Home > CreateVm-MicrosoftWindowsDesktop.Windows-10-20h2--20211016200031 | Overview

Deployment

Search (Ctrl+/) Delete Cancel Redeploy Refresh

We'd love your feedback! →

Deployment is in progress

Deployment details (Download)

Resource	Type	Status	Operation details
No results.			

Microsoft Azure Search resources, services, and docs (G+)

Home > CreateVm-MicrosoftWindowsDesktop.Windows-10-20h2--20211016200031 | Overview

Deployment

Search (Ctrl+ /) Delete Cancel Redeploy Refresh

We'd love your feedback! →

Deployment is in progress

Deployment name: CreateVm-MicrosoftWindowsDesktop.Windows... Start time: 10/16/2021, 8:15:39 PM
Subscription: Concierge Subscription Correlation ID: 0f5983ba-b0c1-4934-b0db-6818fb7a589d
Resource group: learn-a5c1d285-7cbc-4154-be5b-0618ab942988

Deployment details (Download)

Resource	Type	Status	Operation details
No results.			

Microsoft Azure Search resources, services, and docs (G+)

Home > CreateVm-MicrosoftWindowsDesktop.Windows-10-20h2--20211016200031 | Overview

Deployment

Search (Ctrl+ /) Delete Cancel Redeploy Refresh

We'd love your feedback! →

Your deployment is complete

Deployment name: CreateVm-MicrosoftWindowsDesktop.Windows... Start time: 10/16/2021, 8:15:39 PM
Subscription: Concierge Subscription Correlation ID: 0f5983ba-b0c1-4934-b0db-6818fb7a589d
Resource group: learn-a5c1d285-7cbc-4154-be5b-0618ab942988

Deployment details (Download)

Next steps

Setup auto-shutdown Recommended
Monitor VM health, performance and network dependencies Recommended
Run a script inside the virtual machine Recommended

Go to resource Create another VM

Security Center Secure your apps and infrastructure Go to Azure security center >

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Home > CreateVm-MicrosoftWindowsDesktop.Windows-10-20h2--20211016200031 >

PracticeWindowsOS Virtual machine

Search (Ctrl+ /) Connect Start Restart Stop Capture Delete Refresh Open in mobile Feedback

⚠ PracticeWindowsOS virtual machine agent status is not ready. Troubleshoot the issue →

Essentials

Resource group (change) : learn-a5c1d285-7cbc-4154-be5b-0618ab942988
Status : Running
Location : West US
Subscription (change) : Concierge Subscription
Subscription ID : fec12bf7-44d5-422e-806d-6e4e1d535050
Tags (change) : Click here to add tags

Operating system : Windows
Size : Standard D2s v3 (2 vcpus, 8 GiB memory)
Public IP address : 13.91.71.100
Virtual network/subnet : learn-a5c1d285-7cbc-4154-be5b-0618ab942988-vnet/d...
DNS name : Not configured

Properties Monitoring Capabilities (7) Recommendations Tutorials

Virtual machine

Computer name	PracticeWindows
Health state	-
Operating system	Windows
Publisher	MicrosoftWindowsDesktop

Networking

Public IP address	13.91.71.100
Public IP address (IPv6)	-
Private IP address	10.0.0.4
Private IP address (IPv6)	-

JSON View

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Home > CreateVm-MicrosoftWindowsDesktop.Windows-10-20h2--20211016200031 >

PracticeWindowsOS Virtual machine

Search (Ctrl+ /) Connect Start Restart Stop Capture Delete Refresh Open in mobile Feedback

⚠ PracticeWindowsOS virtual machine agent status is not ready. Troubleshoot the issue →

RDP

SSH RDP

Bastion

Resource group (change) : learn-a5c1d285-7cbc-4154-be5b-0618ab942988
Status : Running
Location : West US
Subscription (change) : Concierge Subscription
Subscription ID : fec12bf7-44d5-422e-806d-6e4e1d535050
Tags (change) : Click here to add tags

Operating system : Windows
Size : Standard D2s v3 (2 vcpus, 8 GiB memory)
Public IP address : 13.91.71.100
Virtual network/subnet : learn-a5c1d285-7cbc-4154-be5b-0618ab942988-vnet/d...
DNS name : Not configured

Properties Monitoring Capabilities (7) Recommendations Tutorials

Virtual machine

Computer name	PracticeWindows
Health state	-
Operating system	Windows
Publisher	MicrosoftWindowsDesktop

Networking

Public IP address	13.91.71.100
Public IP address (IPv6)	-
Private IP address	10.0.0.4
Private IP address (IPv6)	-

JSON View

Microsoft Azure Search resources, services, and docs (G+) ...

Home > CreateVm-MicrosoftWindowsDesktop.Windows-10-20h2--20211016200031 > PracticeWindowsOS

🔗 PracticeWindowsOS | Connect ...

Virtual machine

Search (Ctrl+ /) « »

To improve security, enable just-in-time access on this VM. →

RDP SSH BASTION

Connect with RDP

To connect to your virtual machine via RDP, select an IP address, optionally change the port number, and download the RDP file.

IP address * Public IP address (13.91.71.100)

Port number * 3389

Download RDP File Download RDP File

Can't connect? Test your connection Troubleshoot RDP connectivity issues

Feedback on connections Tell us about your RDP experience

Settings Networking Connect Disks Size Security Advisor recommendations Extensions Continuous delivery

Microsoft Azure Search resources, services, and docs (G+) ...

Home > CreateVm-MicrosoftWindowsDesktop.Windows-10-20h2--20211016200031 > PracticeWindowsOS

🔗 PracticeWindowsOS | Connect ...

Virtual machine

Search (Ctrl+ /) « »

To improve security, enable just-in-time access on this VM. →

RDP SSH BASTION

Connect with RDP

To connect to your virtual machine via RDP, select an IP address, optionally change the port number, and download the RDP file.

IP address * Public IP address (13.91.71.100)

Port number * 3389

Download RDP File

Opening PracticeWindowsOS.rdp X

You have chosen to open:
PracticeWindowsOS.rdp
which is: Remote Desktop Connection (86 bytes)
from: blob:

What should Firefox do with this file?
 Open with Remote Desktop Connection (default) Save File Do this automatically for files like this from now on.

OK Cancel

Can't connect? Test your connection Troubleshoot RDP connectivity issues

Feedback on connections Tell us about your RDP experience

Settings Networking Connect Disks Size Security Advisor recommendations Extensions Continuous delivery

Microsoft Azure Search resources, services, and docs (G+)

Home > CreateVm-MicrosoftWindowsDesktop.Windows-10-20h2--20211016200031 > PracticeWindowsOS

PracticeWindowsOS | Connect Virtual machine

To improve security, enable just-in-time access on this VM.

RDP SSH BASTION

Connect with RDP

To connect to your virtual machine via RDP, select an IP address, optionally change the port number, and download the RDP file.

IP address * Public IP address (13.91.71.100)

Port number * 3389

Download RDP File

Can't connect? [Test your connection](#) [Troubleshoot RDP connectivity issues](#)

Feedback on connections [Tell us about your RDP experience](#)

Microsoft Azure Search resources, services, and docs (G+)

Home > CreateVm-MicrosoftWindowsDesktop.Windows-10-20h2--20211016200031 > PracticeWindowsOS

PracticeWindowsOS | Connect Virtual machine

The publisher of this remote connection can't be identified. Do you want to connect anyway?

This remote connection could harm your local or remote computer. Do not connect unless you know where this connection came from or have used it before.

Publisher: Unknown publisher
Type: Remote Desktop Connection
Remote computer: 13.91.71.100

Don't ask me again for connections to this computer

Connect **Cancel**

Can't connect? [Test your connection](#) [Troubleshoot RDP connectivity issues](#)

Feedback on connections [Tell us about your RDP experience](#)

Microsoft Azure Search resources, services, and docs (G+)

Home > CreateVm-MicrosoftWindowsDesktop.Windows-10-20h2--20211016200031 > PracticeWindowsOS

PracticeWindowsOS | Connect

Virtual machine

Search (Ctrl+ /) To improve security

RDP SSH BASTION

Connect with RDP

To connect to your virtual machine via RDP, select an IP address, optionally change the port number, and download the RDP file.

IP address *

Port number *

Don't ask me again for connections to this computer Show Details Connect Cancel

Download RDP File

Can't connect? Test your connection Troubleshoot RDP connectivity issues

Feedback on connections Tell us about your RDP experience

Settings

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems

Networking

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Continuous delivery

Microsoft Azure Search resources, services, and docs (G+)

Home > CreateVm-MicrosoftWindowsDesktop.Windows-10-20h2--20211016200031 > PracticeWindowsOS

PracticeWindowsOS | Connect

Virtual machine

Search (Ctrl+ /) To improve security, enable just-in-time access on this VM. →

RDP SSH BASTION

Connect with RDP

To connect to your virtual machine via RDP, select an IP address, optionally change the port number, and download the RDP file.

IP address *

Port number *

Download RDP File

Can't connect? Test your connection Troubleshoot RDP connectivity issues

Feedback on connections Tell us about your RDP experience

Settings

- Overview
- Activity log
- Access control (IAM)
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- Diagnose and solve problems

Networking

Connect

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Microsoft Azure Search resources, services, and docs (G+)

Home > CreateVm-MicrosoftWindowsDesktop.Windows-10-20h2--20211016200031 > PracticeWindowsOS

🔗 PracticeWindowsOS | Connect

Virtual machine

Search (Ctrl+/)

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Settings
 - Networking
 - Connect
 - Disks
 - Size
 - Security
 - Advisor recommendations
 - Extensions
 - Continuous delivery

To improve security, enable multi-factor authentication.

RDP SSH BASTION

Connect with RDP

To connect to your virtual machine, click the link in the RDP file.

IP address * Public IP address (13.91.71.100)

Port number * 3389

Download RDP File

Enter your credentials

These credentials will be used to connect to 13.91.71.100.

User name

Password

Remember me

OK Cancel

Can't connect?
[Test your connection](#) [Troubleshoot RDP connectivity issues](#)

Feedback on connections
[Tell us about your RDP experience](#)

Microsoft Azure Search resources, services, and docs (G+)

Home > CreateVm-MicrosoftWindowsDesktop.Windows-10-20h2--20211016200031 > PracticeWindowsOS

🔗 PracticeWindowsOS | Connect

Virtual machine

Search (Ctrl+/)

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Settings
 - Networking
 - Connect
 - Disks
 - Size
 - Security
 - Advisor recommendations
 - Extensions
 - Continuous delivery

To improve security, enable multi-factor authentication.

RDP SSH BASTION

Connect with RDP

To connect to your virtual machine, click the link in the RDP file.

IP address * Public IP address (13.91.71.100)

Port number * 3389

Download RDP File

Enter your credentials

These credentials will be used to connect to 13.91.71.100.

User name pavanK0723

Password

Remember me

OK Cancel

Can't connect?
[Test your connection](#) [Troubleshoot RDP connectivity issues](#)

Feedback on connections
[Tell us about your RDP experience](#)

Microsoft Azure Search resources, services, and docs (G+)

Home > CreateVm-MicrosoftWindowsDesktop.Windows-10-20h2--20211016200031 > PracticeWindowsOS

PracticeWindowsOS | Connect

Virtual machine

To improve security, enable just-in-time access on this VM. →

RDP SSH BASTION

Connect with RDP

To connect to your virtual machine, select the RDP file.

IP address * Public IP address (13.91.71.100)

Port number * 3389

Download RDP File

Can't connect?

- Test your connection
- Troubleshoot RDP connectivity issues

Feedback on connections

Tell us about your RDP experience

This screenshot shows the Microsoft Azure portal interface for connecting to a virtual machine named 'PracticeWindowsOS'. The main window displays a warning about enabling just-in-time access. Below it, there are tabs for RDP, SSH, and BASTION, with RDP selected. A modal window titled 'Remote Desktop Connection' is open, showing the connection details: 'Connecting to: 13.91.71.100:3389'. The 'IP address' field is set to 'Public IP address (13.91.71.100)' and the 'Port number' is '3389'. A 'Download RDP File' button is visible. Below the modal, there's a section for troubleshooting RDP connectivity issues and a feedback link.

Microsoft Azure Search resources, services, and docs (G+)

Home > CreateVm-MicrosoftWindowsDesktop.Windows-10-20h2--20211016200031 > PracticeWindowsOS

PracticeWindowsOS | Connect

Virtual machine

To improve security, enable just-in-time access on this VM. →

RDP SSH BASTION

Connect with RDP

To connect to your virtual machine, select the RDP file.

IP address * Public IP address (13.91.71.100)

Port number * 3389

Download RDP File

The identity of the remote computer cannot be verified. Do you want to connect anyway?

The remote computer could not be authenticated due to problems with its security certificate. It may be unsafe to proceed.

Certificate name

Name in the certificate from the remote computer:
PracticeWindows

Certificate errors

The following errors were encountered while validating the remote computer's certificate:

The certificate is not from a trusted certifying authority.

Do you want to connect despite these certificate errors?

Don't ask me again for connections to this computer

[View certificate...](#) Yes No

Can't connect?

- Test your connection
- Troubleshoot RDP connectivity issues

Feedback on connections

Tell us about your RDP experience

This screenshot shows the same Azure portal interface as the first one, but with a different modal window. The modal is titled 'The identity of the remote computer cannot be verified. Do you want to connect anyway?'. It explains that the remote computer could not be authenticated due to a security certificate issue. It shows the certificate name 'PracticeWindows' and a warning about the certificate being from an untrusted authority. At the bottom, there are 'Yes' and 'No' buttons, with 'View certificate...' and a checkbox for future connections between them.

Microsoft Azure Search resources, services, and docs (G+)

Home > CreateVm-MicrosoftWindowsDesktop.Windows-10-20h2--20211016200031 > PracticeWindowsOS

PracticeWindowsOS | Connect

Virtual machine

Search (Ctrl+/)

To improve security, enable just-in-time access on this VM.

RDP SSH BASTION

Connect with RDP

To connect to your virtual machine the RDP file.

IP address * Public IP address (13.91.71.100)

Port number * 3389

Download RDP File

Can't connect? [Test your connection](#) [Troubleshoot RDP connectivity issues](#)

Feedback on connections [Tell us about your RDP experience](#)

The identity of the remote computer cannot be verified. Do you want to connect anyway?

The remote computer could not be authenticated due to problems with its security certificate. It may be unsafe to proceed.

Certificate name: PracticeWindows

Certificate errors: The following errors were encountered while validating the remote computer's certificate.

The certificate is not from a trusted certifying authority.

Do you want to connect despite these certificate errors?

Don't ask me again for connections to this computer

[View certificate...](#) [Yes](#) [No](#)

and download

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Microsoft Azure Search resources, services, and docs (G+)

Home > CreateVm-MicrosoftWindowsDesktop.Windows-10-20h2--20211016200031 > PracticeWindowsOS

PracticeWindowsOS | Connect

Virtual machine

Search (Ctrl+/)

To improve security, enable just-in-time access on this VM. →

RDP SSH BASTION

Connect with RDP

To connect to your virtual machine the RDP file.

IP address * Public IP address (13.91.71.100)

Port number * 3389

Download RDP File

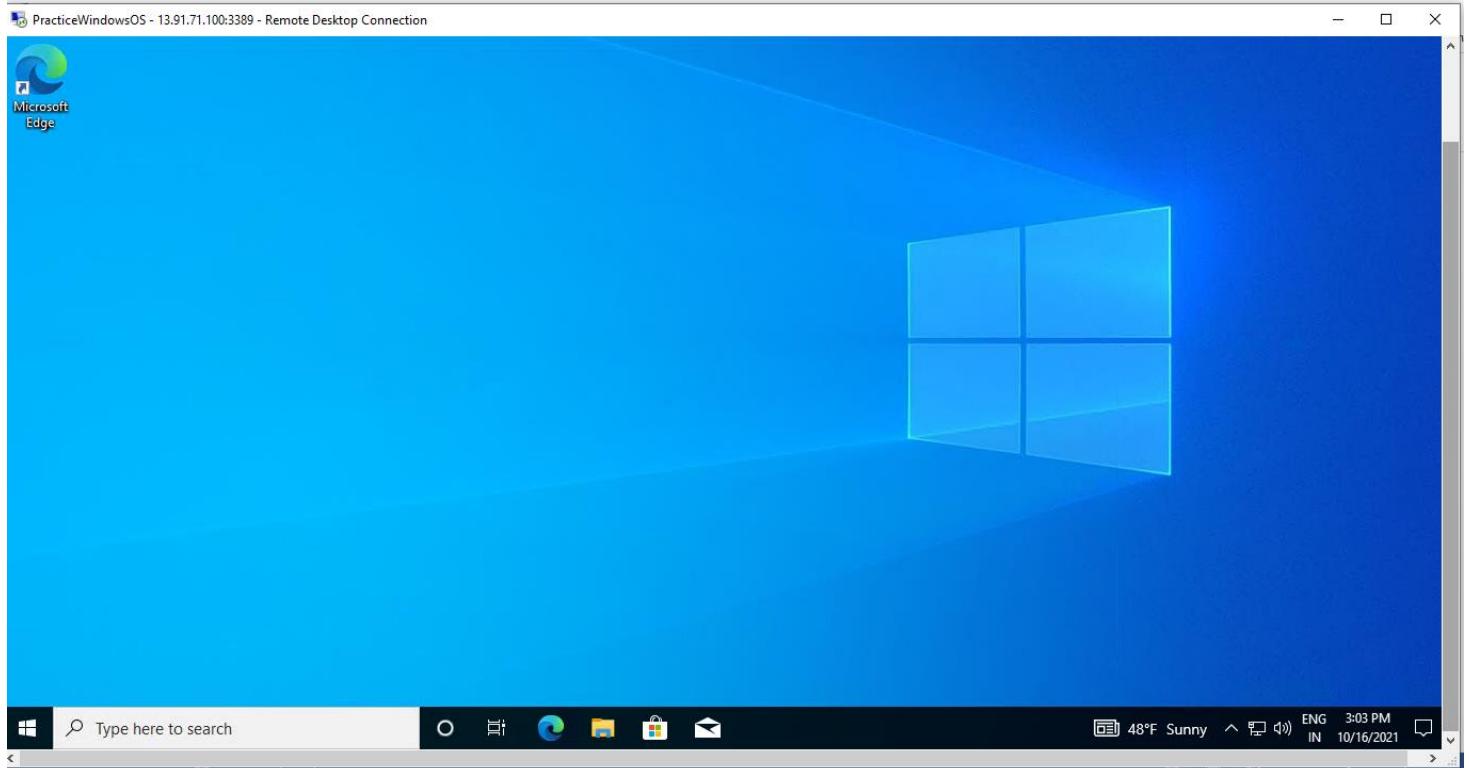
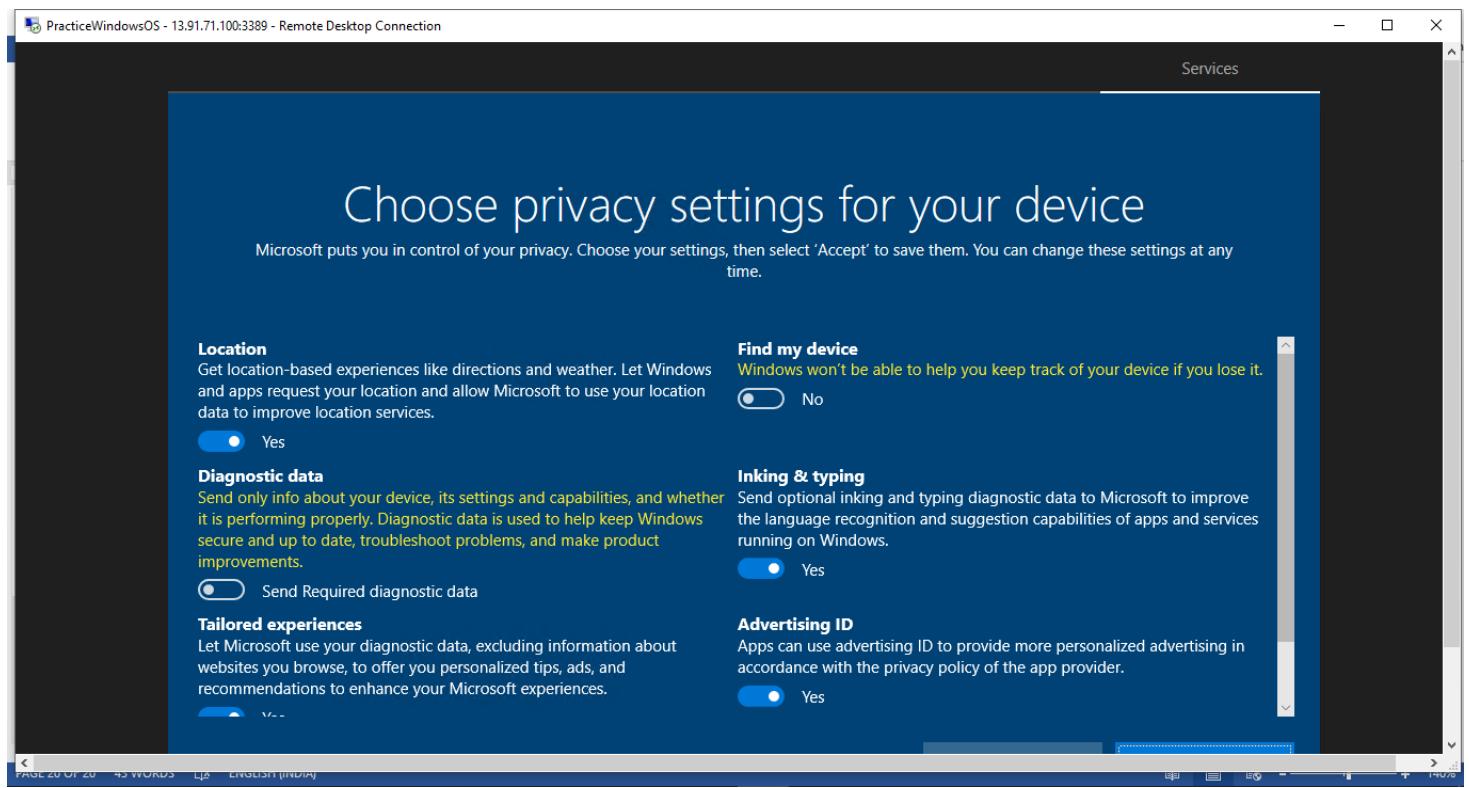
Can't connect? [Test your connection](#) [Troubleshoot RDP connectivity issues](#)

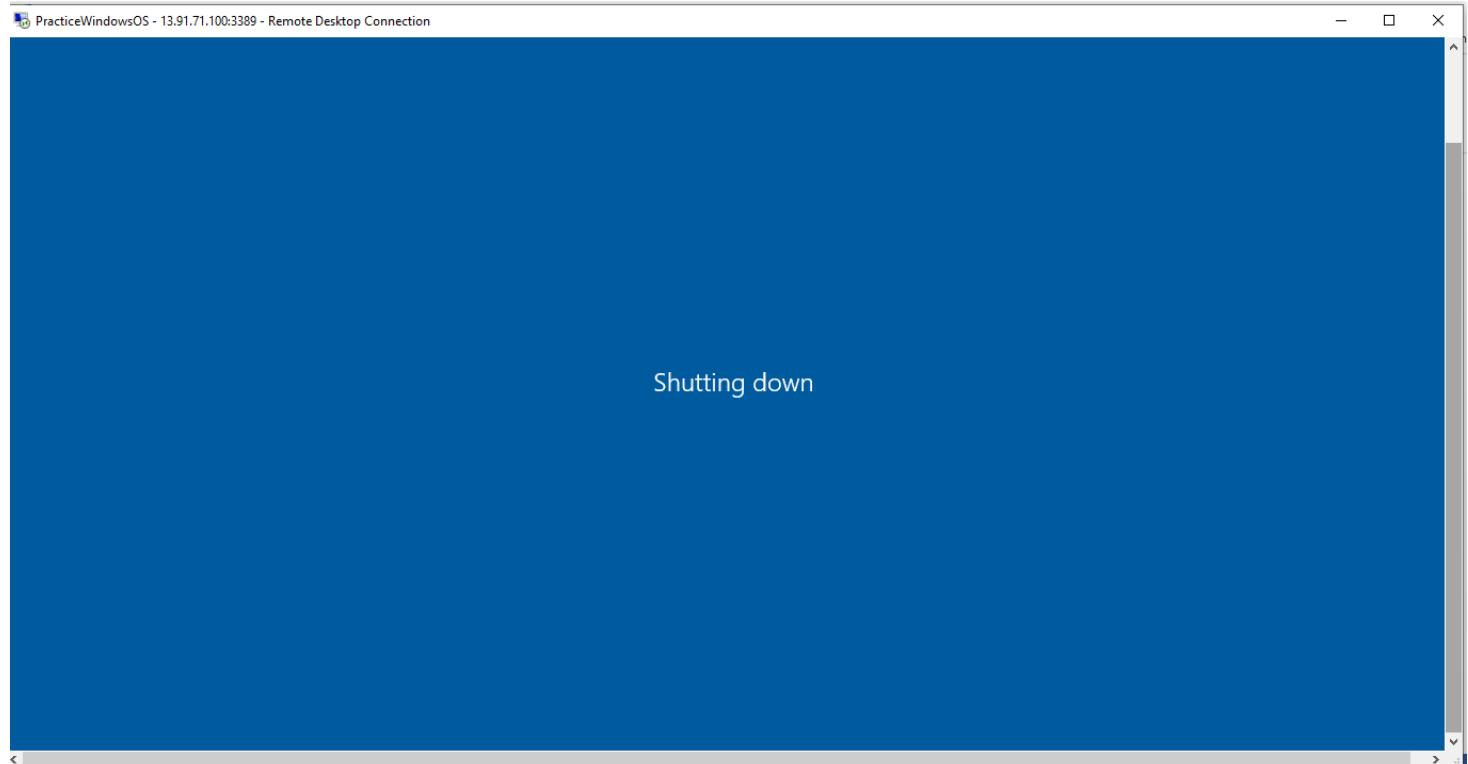
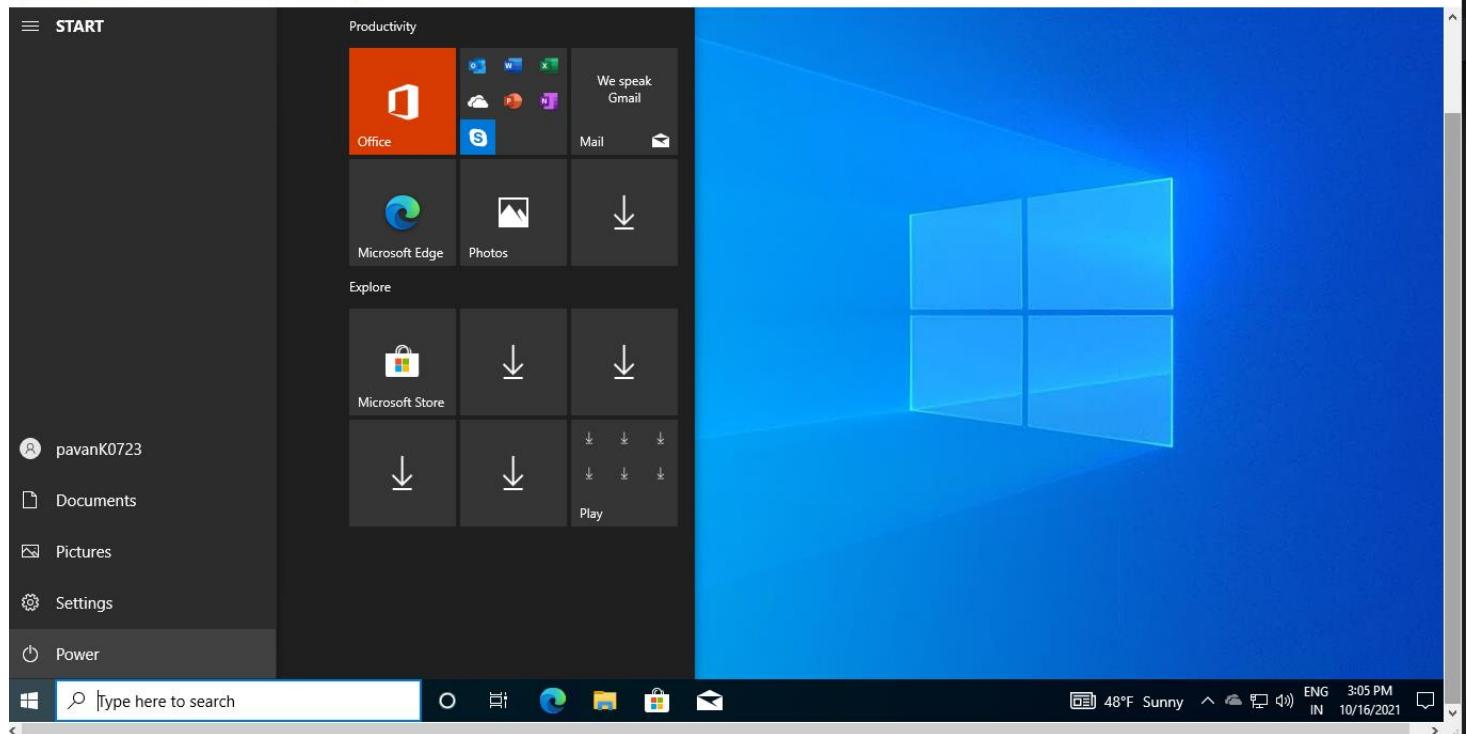
Feedback on connections [Tell us about your RDP experience](#)

Connecting to: 13.91.71.100:3389

Securing remote connection...

pavan.yadav0723@gmail.com MICROSOFT LEARN SANDBOX





Exercise - Create a Windows virt X PracticeWindowsOS - Microsoft Azure New Tab https://portal.azure.com/#@learn.docs.microsoft.com/resource/subscriptions/fec12bf7-44d5-422e-806d-c...

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Home > PracticeWindowsOS Virtual machine

Search (Ctrl+ /) Connect Start Restart Stop Capture Delete Refresh Open in mobile Feedback

Overview Essentials JSON View

Resource group (change) : learn-a5c1d285-7cbc-4154-be5b-0618ab942988 Operating system : Windows

Status : Starting Size : Standard D2s v3 (2 vcpus, 8 GiB memory)

Location : West US Public IP address : 13.91.71.100

Subscription (change) : Concierge Subscription Virtual network/subnet : learn-a5c1d285-7cbc-4154-be5b-0618ab942988-vnet/d..

Subscription ID : fec12bf7-44d5-422e-806d-6e4e1d535050 DNS name : Not configured

Tags (change) : Click here to add tags

Properties Monitoring Capabilities (7) Recommendations Tutorials

Virtual machine Networking

Computer name	PracticeWindows	Public IP address	13.91.71.100
Health state	-	Public IP address (IPv6)	-
Operating system	Windows	Private IP address	10.0.0.4
Publisher	MicrosoftWindowsDesktop	Private IP address (IPv6)	-
Offer	Windows-10	Virtual network/subnet	learn-a5c1d285-7cbc-4154-be5b-0618ab942988-vnet/default
Plan	20h2-pro-g2	DNS name	Configure
VM generation	V2	U:	0.00 kbit/s
		D:	0.00 kbit/s

Networking

Configure

0.00 kbit/s 13.91.71.100 10.0.0.4 20h2-pro-g2 20:38 16-10-2021 ENG