

Hands-on tutorials

# Publish a .NET Application to a Windows Server 2022 Instance in Amazon Lightsail



# **Publish a .NET Application to a Windows Server 2022 Instance in Amazon Lightsail: Hands-on tutorials**

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# Publish a .NET Application to a Windows Server 2022 Instance in Amazon Lightsail

<b>AWS experience</b>	Beginner
<b>Minimum time to complete</b>	60 minutes
<b>Cost to complete</b>	<a href="#">Free Tier</a> eligible
<b>Services used</b>	<a href="#">Amazon Lightsail</a>
<b>Last updated</b>	April 28, 2023

## Overview

[Amazon Lightsail](#) is one of the easiest ways to get started with AWS. It includes everything you need to launch your project quickly for a low, predictable price.

This tutorial shows you how to publish a .NET application on a Windows Server 2022 instance in Amazon Lightsail.

[Get started with Lightsail for free](#)

## What you will accomplish

In this tutorial, you will:

- Install the required server roles and features
- Configure Visual Studio 2022 Community edition to connect to your instance
- Publish the ASP.NET core web application template to your instance

## Prerequisites

Before starting this tutorial, you will need:

- An AWS account: If you don't already have an account, follow the [Setting Up Your AWS Environment](#) guide for a quick overview.

## Implementation

### Step 1: Create an Amazon Lightsail account

- This tutorial is free tier eligible with [Amazon Lightsail](#), but costs may apply.

[Sign up for AWS](#)

Already have an account? [Sign in](#)

### Step 2: Create a Windows Server 2022 instance in Amazon Lightsail

- This tutorial requires that you create a Windows Server 2022 instance in Lightsail. To do so, follow the steps in the [Launch a Windows Virtual Machine with Amazon Lightsail](#) tutorial, but make sure to select **Windows Server 2022** when choosing the operating system-only instance image.

### Step 3: Install the required roles and features on your instance

You can connect to your Windows Server 2022 instance using the browser-based RDP client in the Lightsail console. After you're connected, you can install the required server roles and features that will allow you to connect to your instance through Visual Studio and run .NET applications.

1. Connect to your instance

On the **Instances** tab of the [Lightsail home page](#), choose the **RDP quick-connect icon** for your Windows Server 2022 instance.

2. Open Server Manager

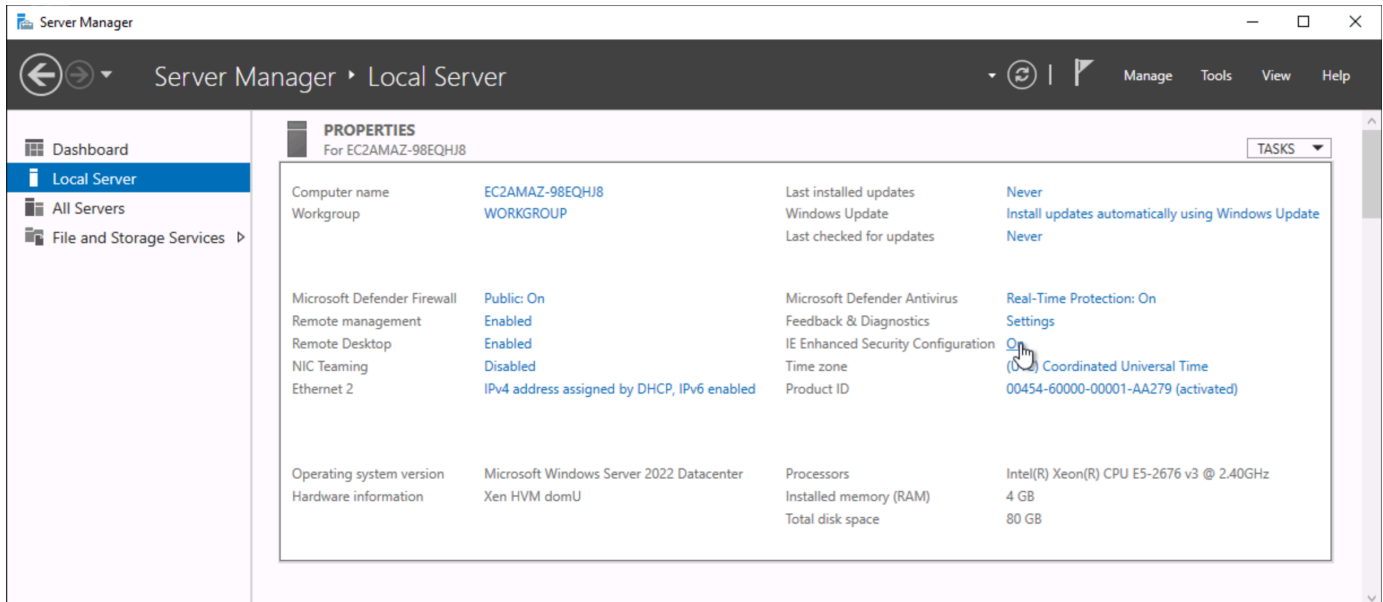
After the browser-based RDP client window opens, choose the Windows icon and open **Server Manager**.

3. Turn off IE Enhanced Security Configuration

Choose **Local Server** in the left navigation menu, then choose **On** next to **IE Enhanced Security Configuration** (choosing **On** turns it **Off**).

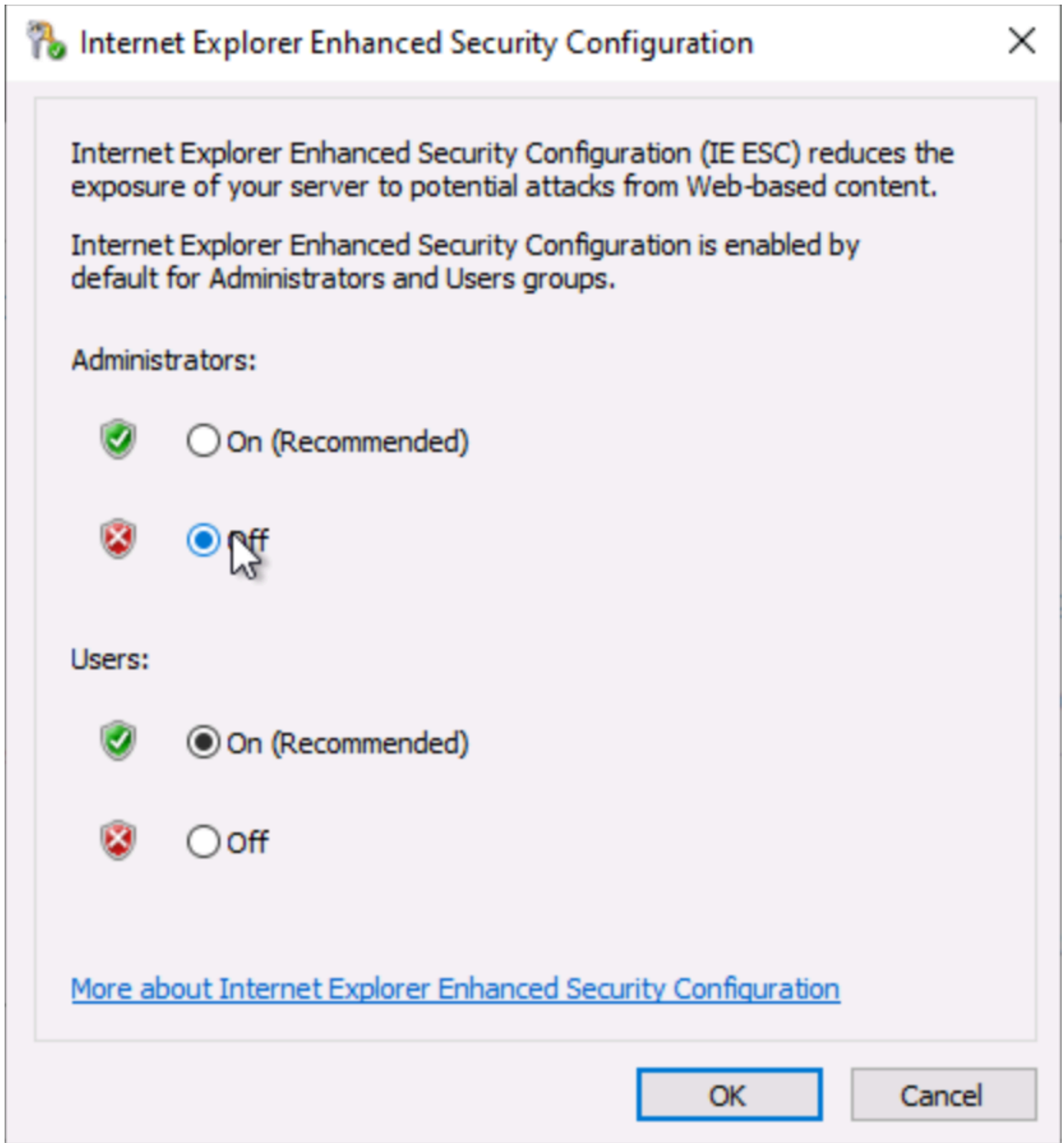
**Note**

Turning off IE Enhanced Security Configuration will allow you to download resources later in this tutorial.



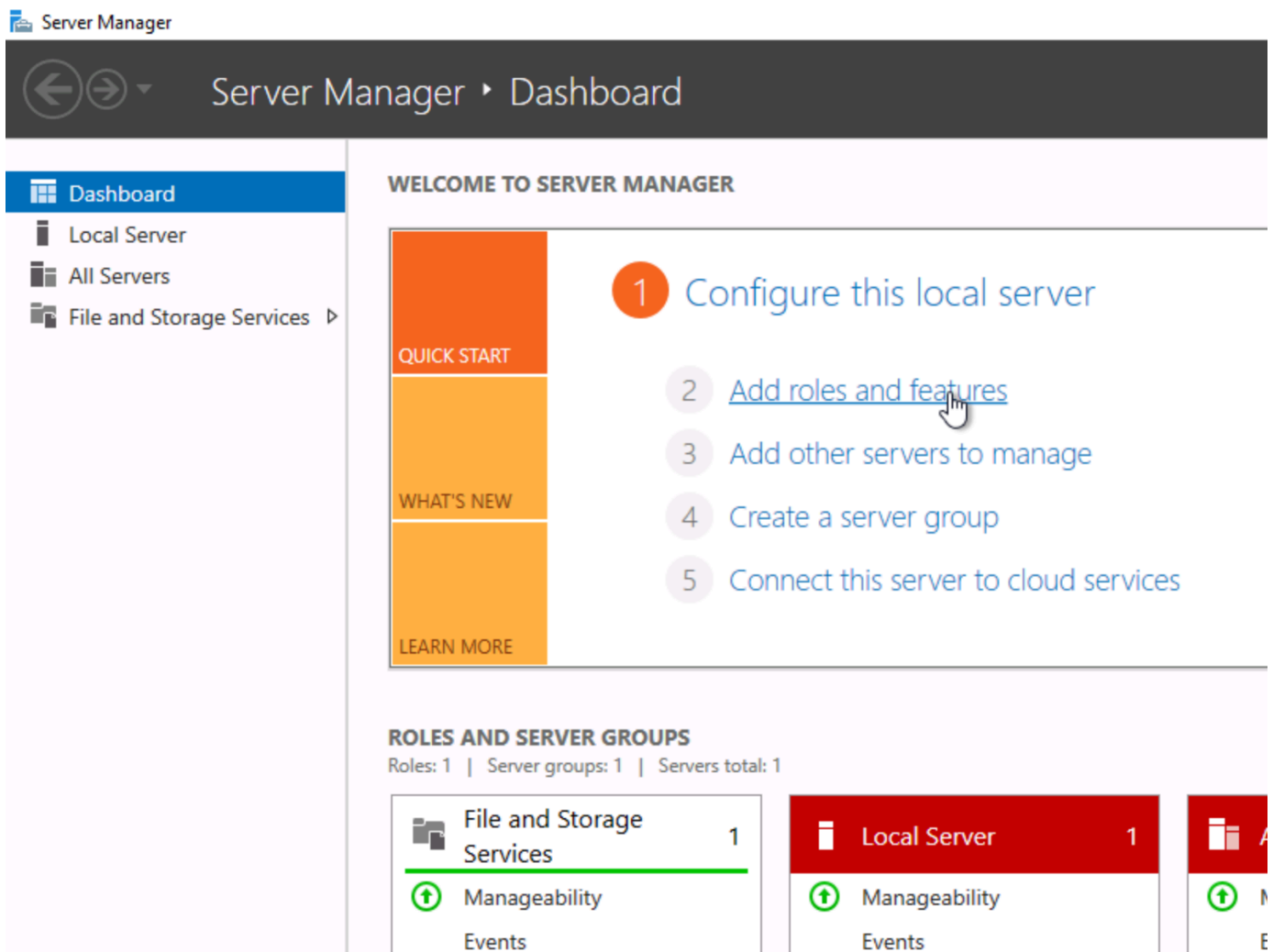
#### 4. Turn IE Enhanced Security Configuration off for administrators

In the configuration prompt, choose to turn off the feature only for administrators, and then choose **OK**.



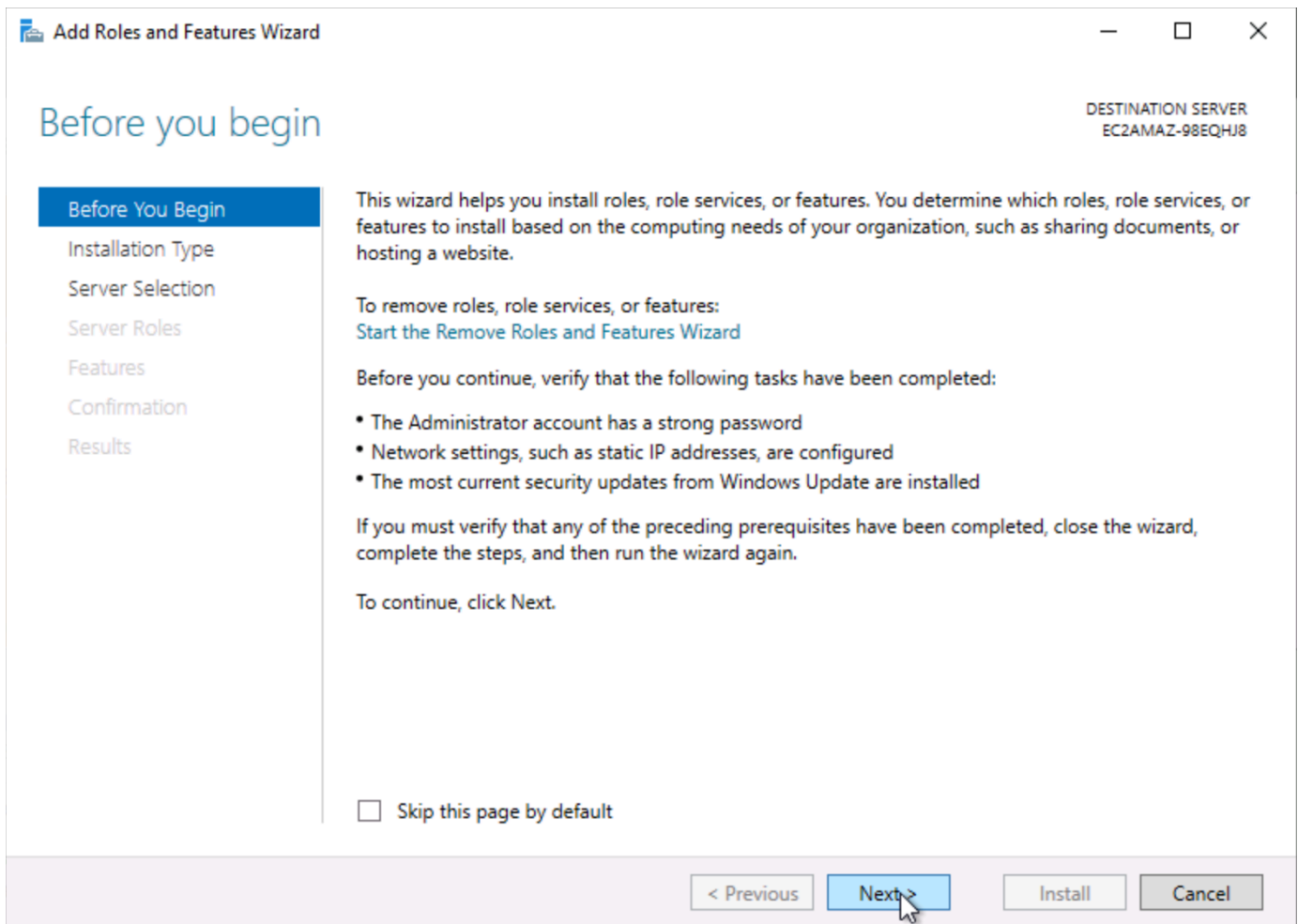
5. Add roles and features

In **Server Manager**, choose **Dashboard** in the left navigation menu, then choose **Add roles and features**.



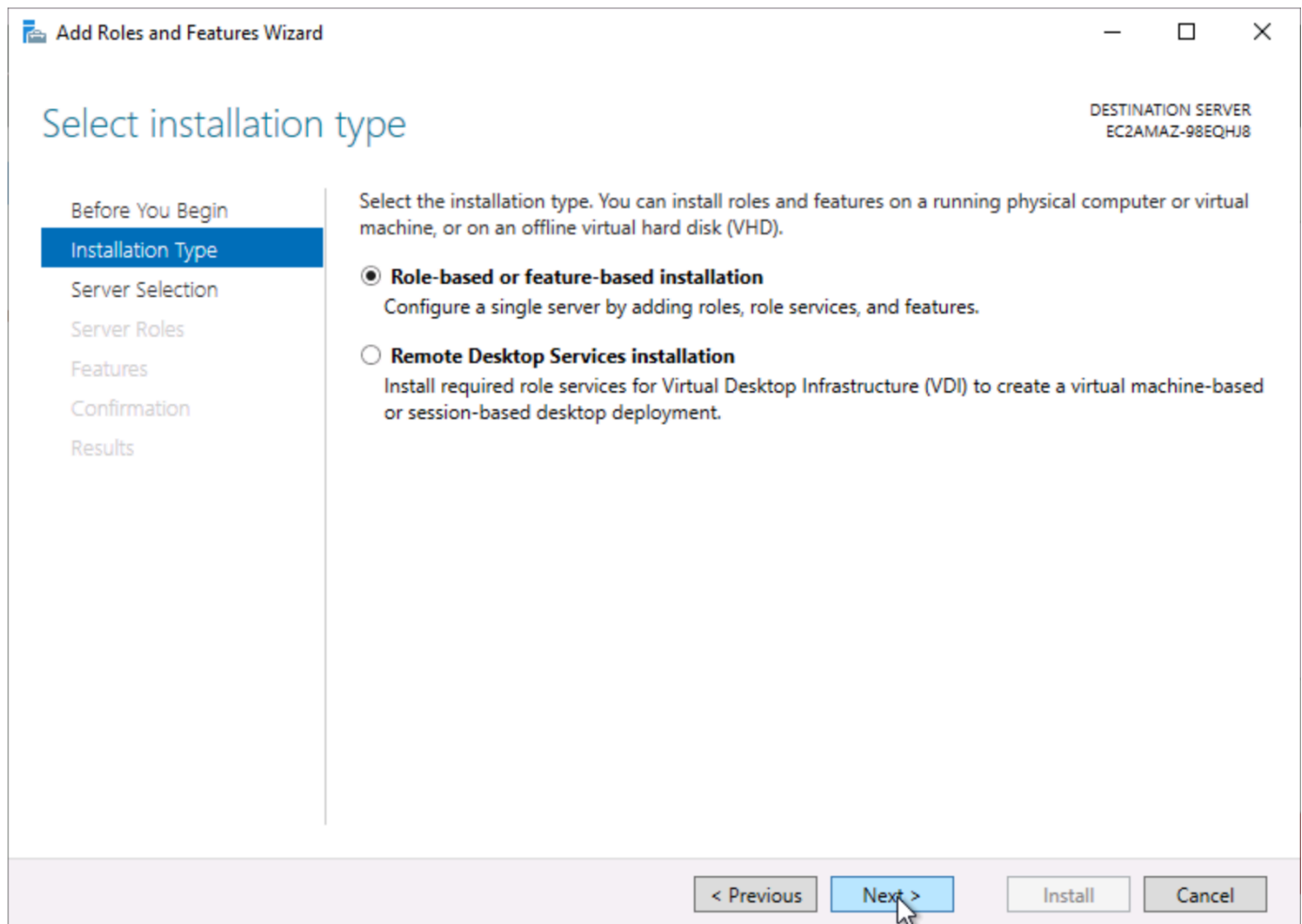
6. Continue through the wizard

Choose **Next** in the **Add Roles and Features Wizard**.



## 7. Choose an installation type

Choose **Role-based or feature-based installation** in the **Select installation type** screen, and choose **Next**.



## 8. Select a destination server

Choose **Next** in the **Select destination server** screen.

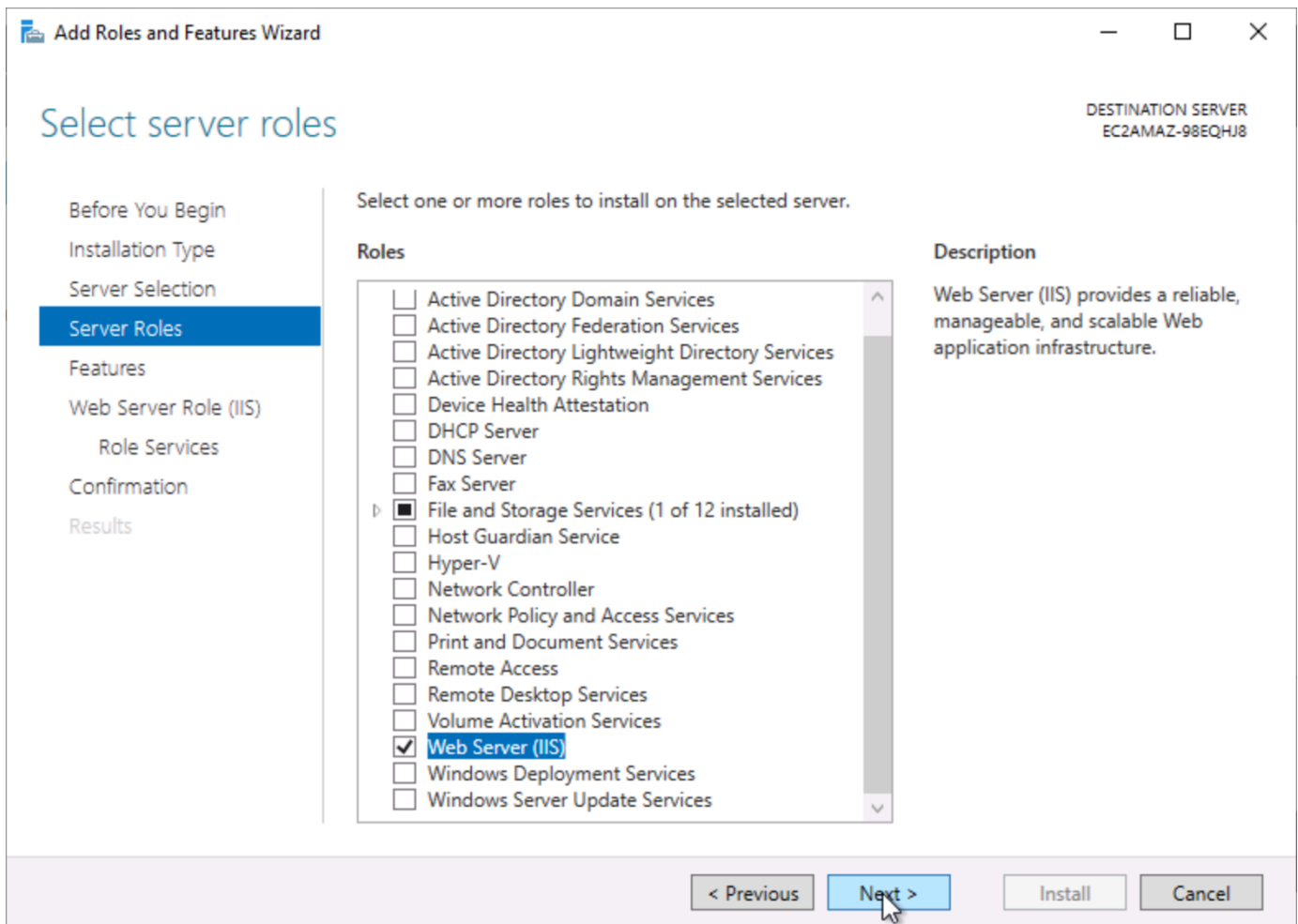
The screenshot shows the 'Add Roles and Features Wizard' window. The title bar reads 'Add Roles and Features Wizard'. The main heading is 'Select destination server'. In the top right corner, it says 'DESTINATION SERVER EC2AMAZ-98EQHJ8'. On the left, there is a navigation pane with the following items: 'Before You Begin', 'Installation Type', 'Server Selection' (highlighted in blue), 'Server Roles', 'Features', 'Confirmation', and 'Results'. The main area contains the following text: 'Select a server or a virtual hard disk on which to install roles and features.' Below this are two radio buttons: 'Select a server from the server pool' (selected) and 'Select a virtual hard disk'. Underneath is a 'Server Pool' section with a 'Filter:' input field. Below the filter is a table with the following data:

Name	IP Address	Operating System
EC2AMAZ-98EQHJ8	172.26.0.184	Microsoft Windows Server 2022 Datacenter

Below the table, it says '1 Computer(s) found'. A note below that reads: 'This page shows servers that are running Windows Server 2012 or a newer release of Windows Server, and that have been added by using the Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown.' At the bottom of the window, there are four buttons: '< Previous', 'Next >' (highlighted in blue), 'Install', and 'Cancel'.

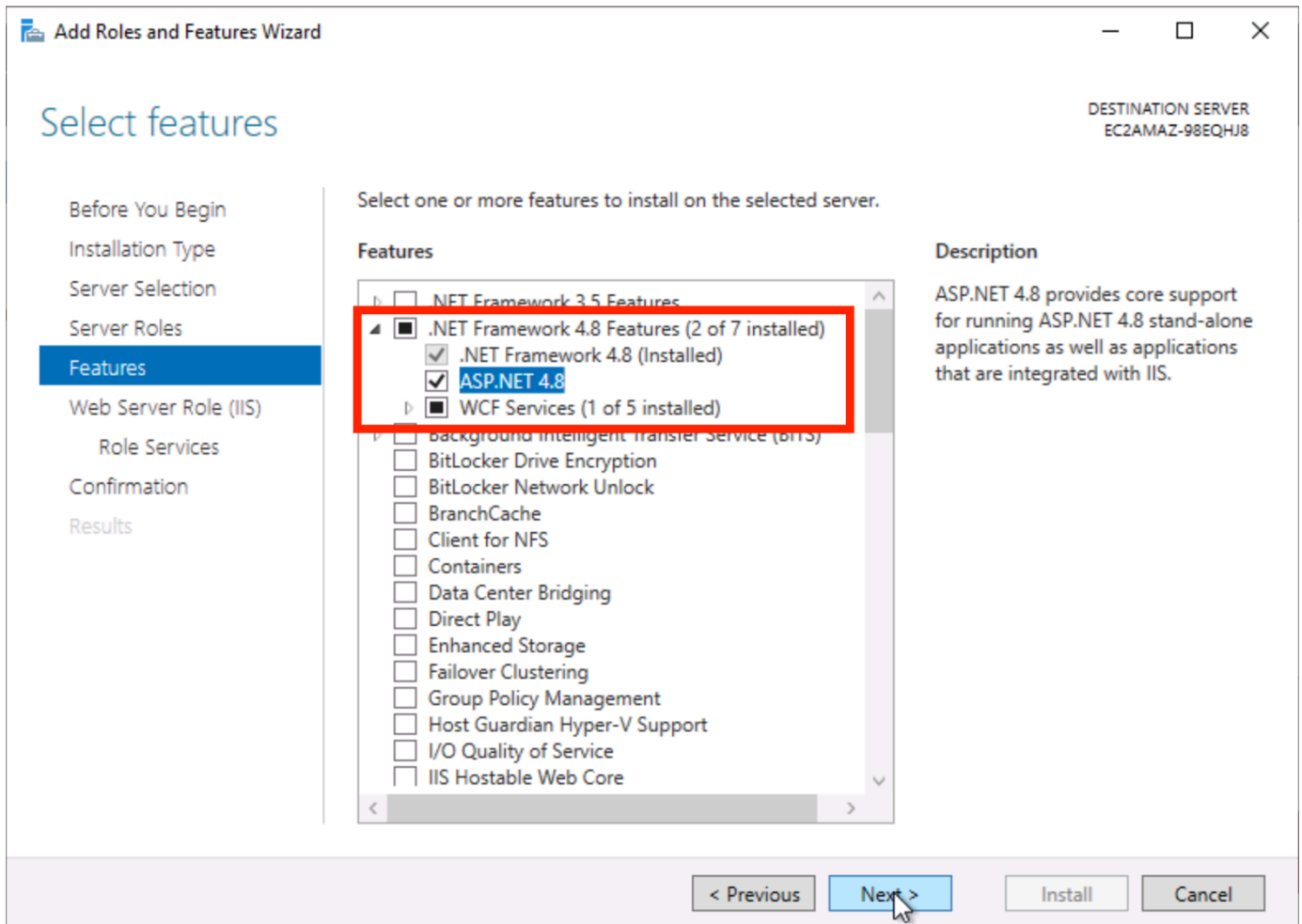
## 9. Select a server role

Choose **Web Server (IIS)** in the **Select server roles** screen. Choose **Add features** when you are asked if you would like to add the required features. Choose **Next**.



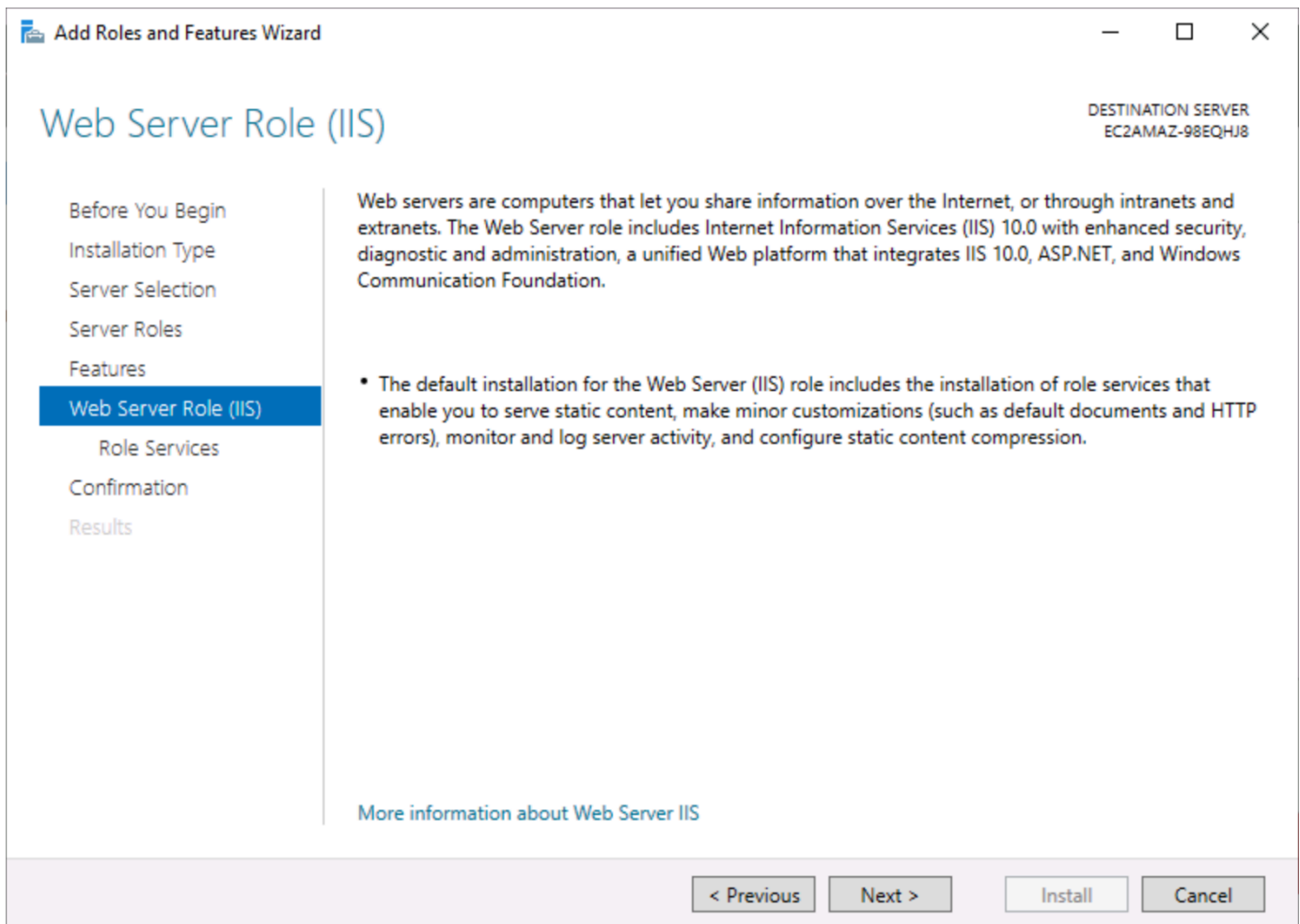
## 10. Select features

Choose the features highlighted in this screenshot in the **Select features** screen, and then choose **Next**.



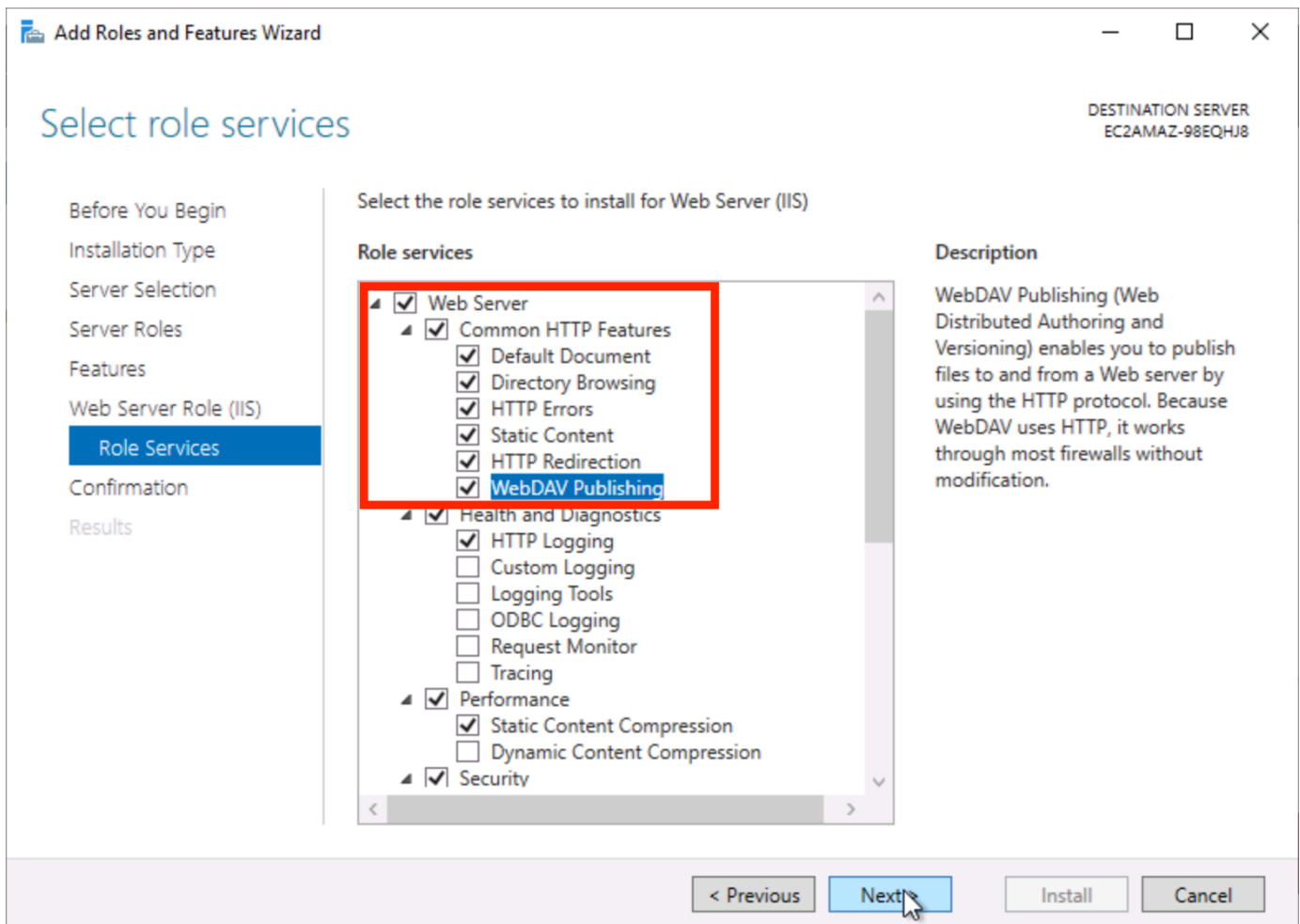
11. Review the information about web server roles

Choose **Next** in the **Web Server Role (IIS)** screen.



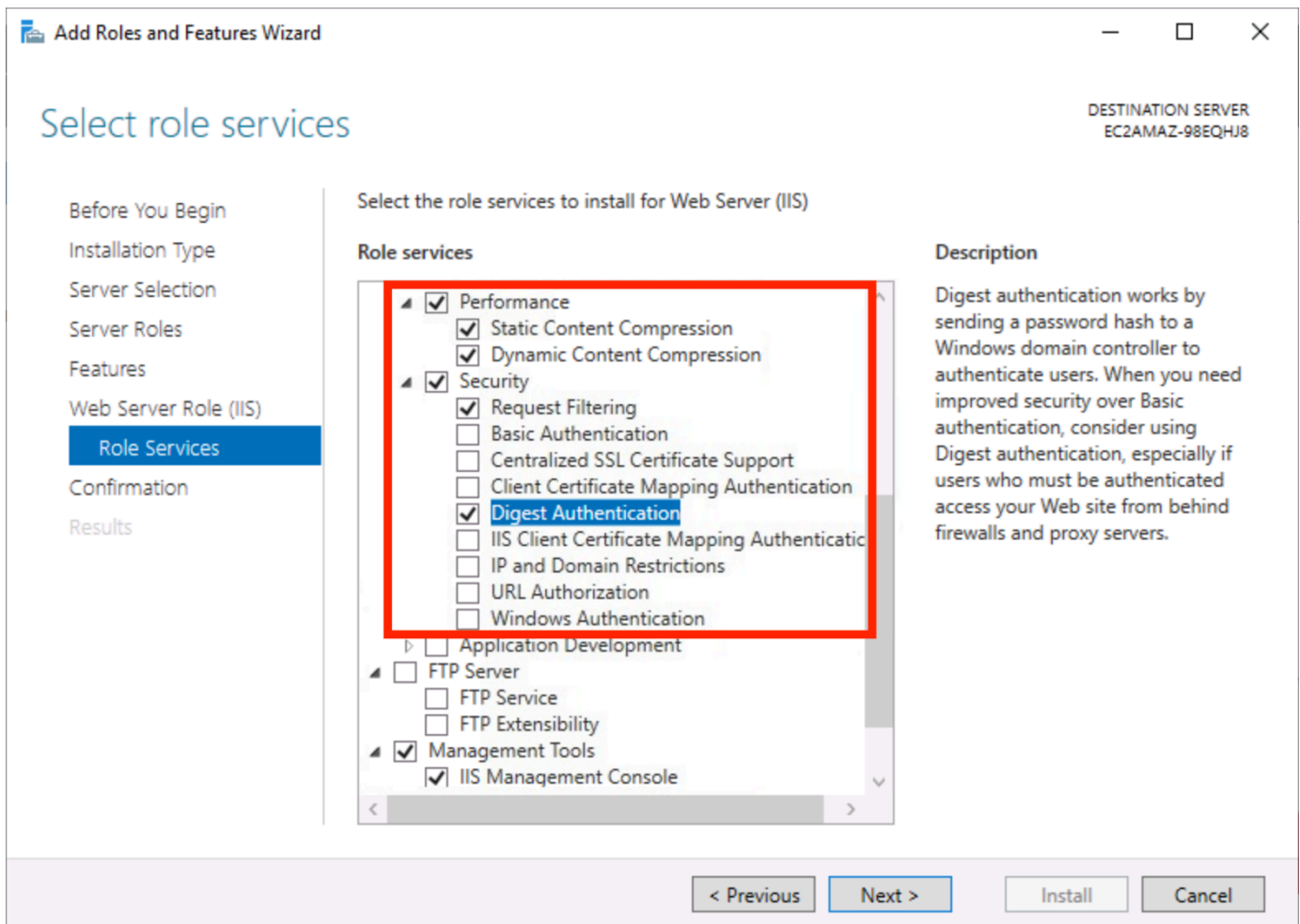
## 12. Select web server services

Choose the role services highlighted in this screenshot under the **Web Server** service.



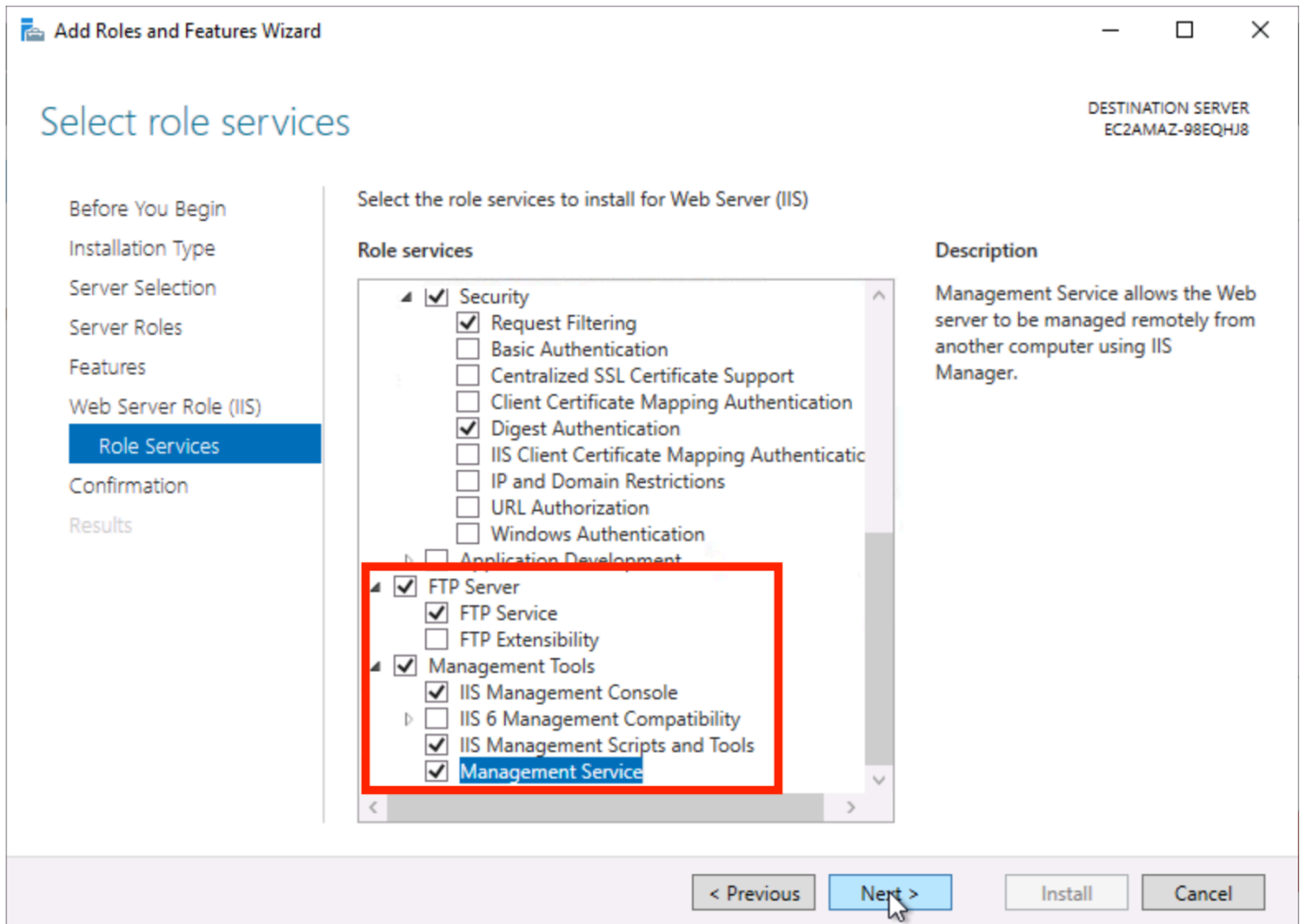
### 13. Select performance and security services

Choose the role services highlighted in this screenshot under the **Performance** and **Security** services.



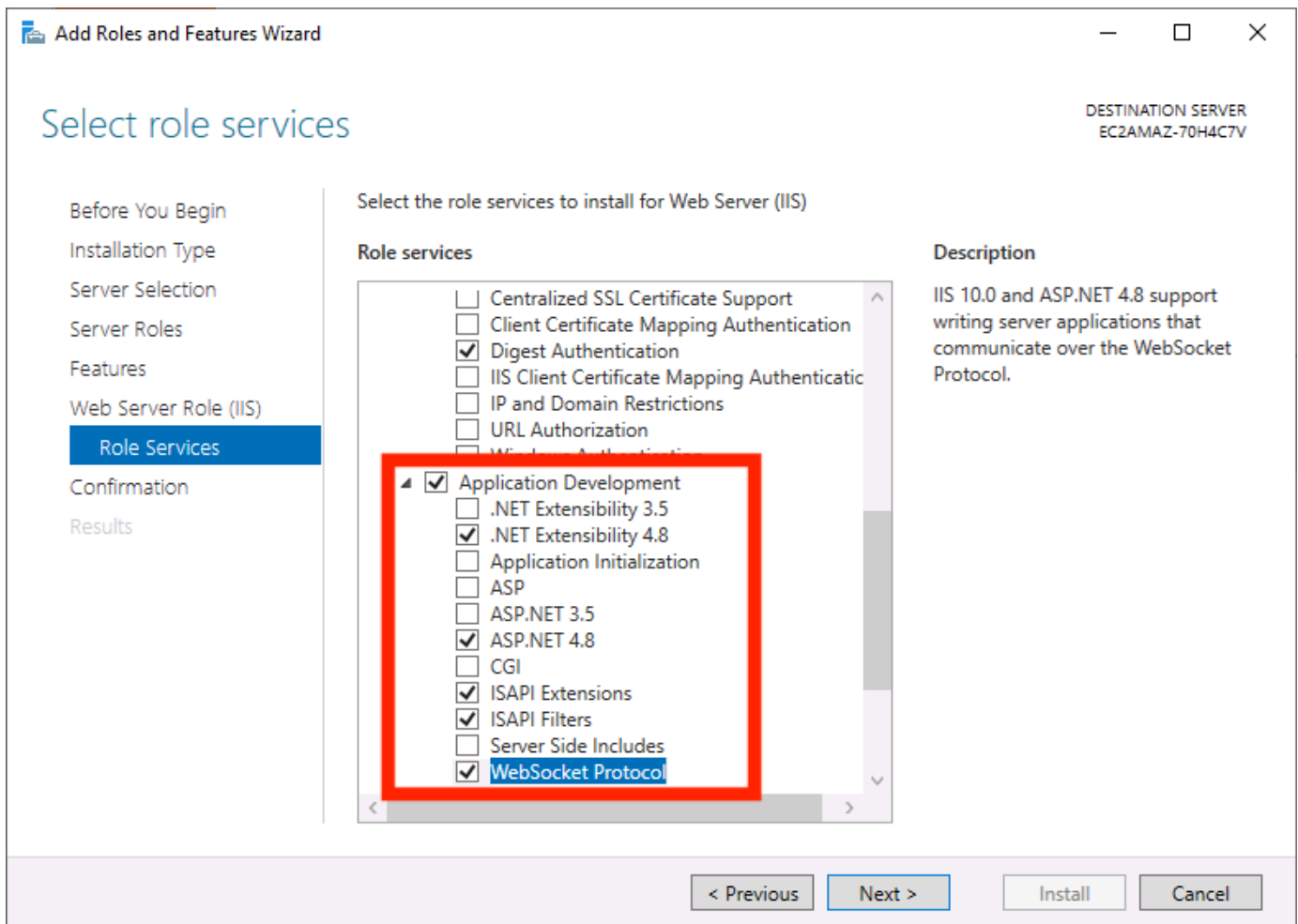
#### 14. Select FTP server and management tools services

Choose the role services highlighted in this screenshot under the **FTP Server** and **Management Tools** services.



### 15. Select application development services

Choose the role services highlighted in this screenshot under the **Application Development** service.



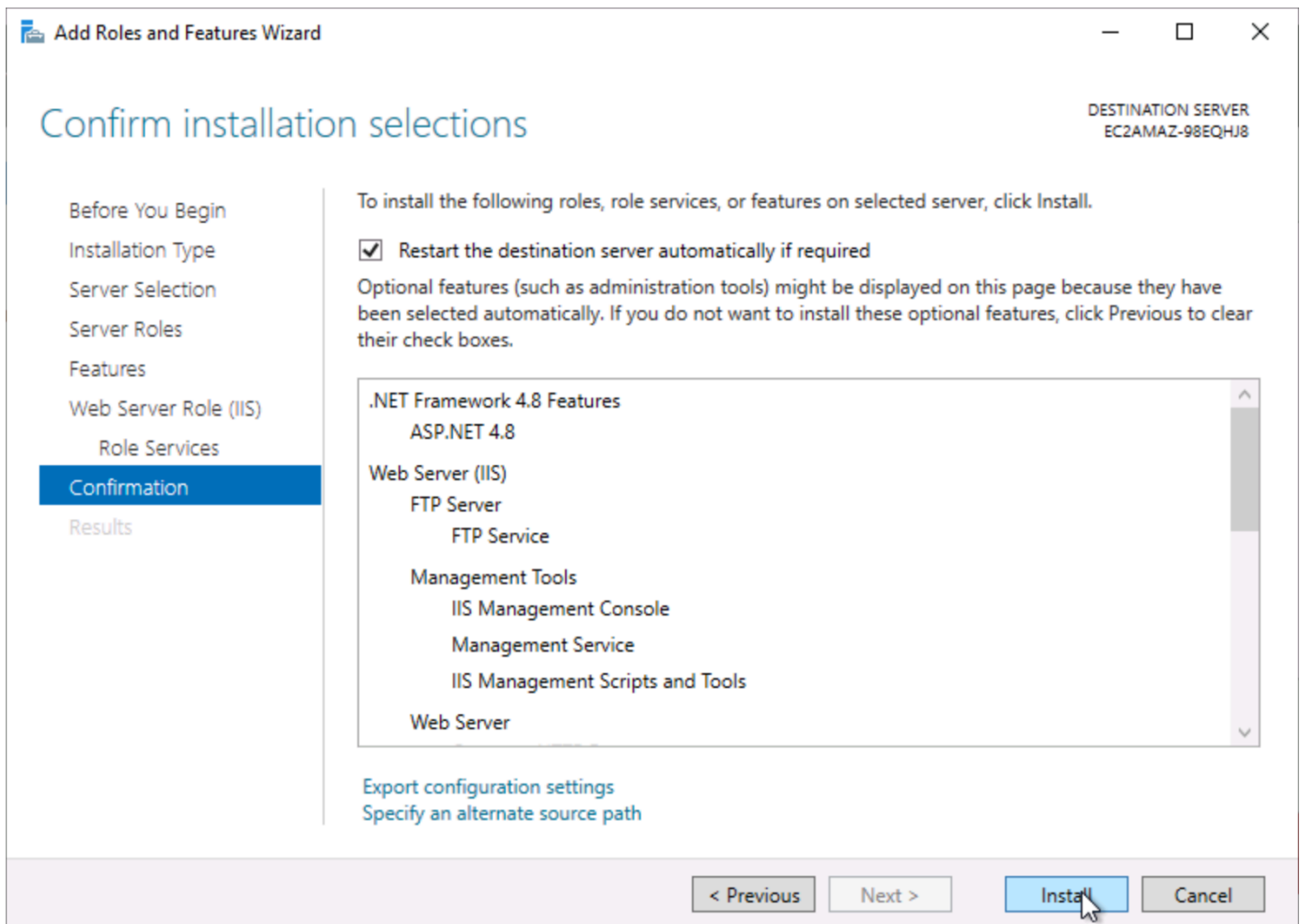
## 16. Confirm selections

Choose **Next** after you confirm that you selected all of the correct role services highlighted in the previous steps.

## 17. Restart the destination server

Choose **Restart the destination server automatically if required**, and then choose **Install** in the **Confirm installation selections** screen.

The roles and features will require a few minutes to download and install.



## Step 4: Install Web Deploy on your instance

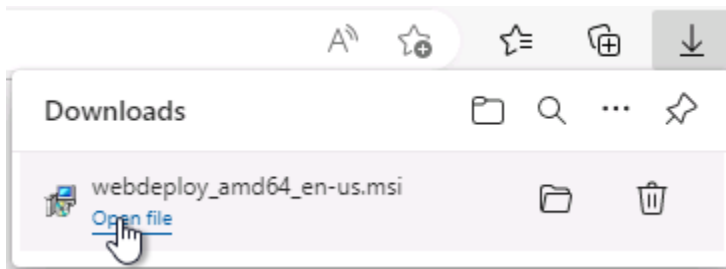
You must install the Web Deploy 4.0 extension on your Windows Server 2022 instance to enable deployment of web applications and websites to your server.

1. Download Web Deploy

On your Windows Server 2022 instance, open Internet Explorer and [download Web Deploy 4.0](#).

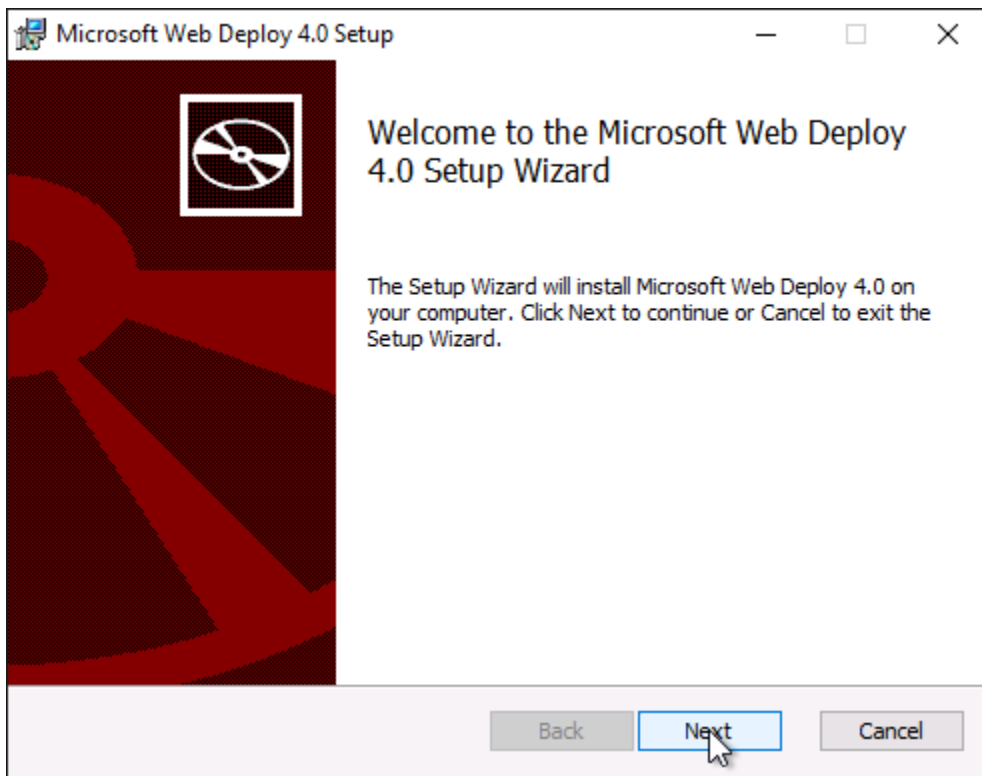
2. Open the file

After the download completes, choose Open file to start the installer.



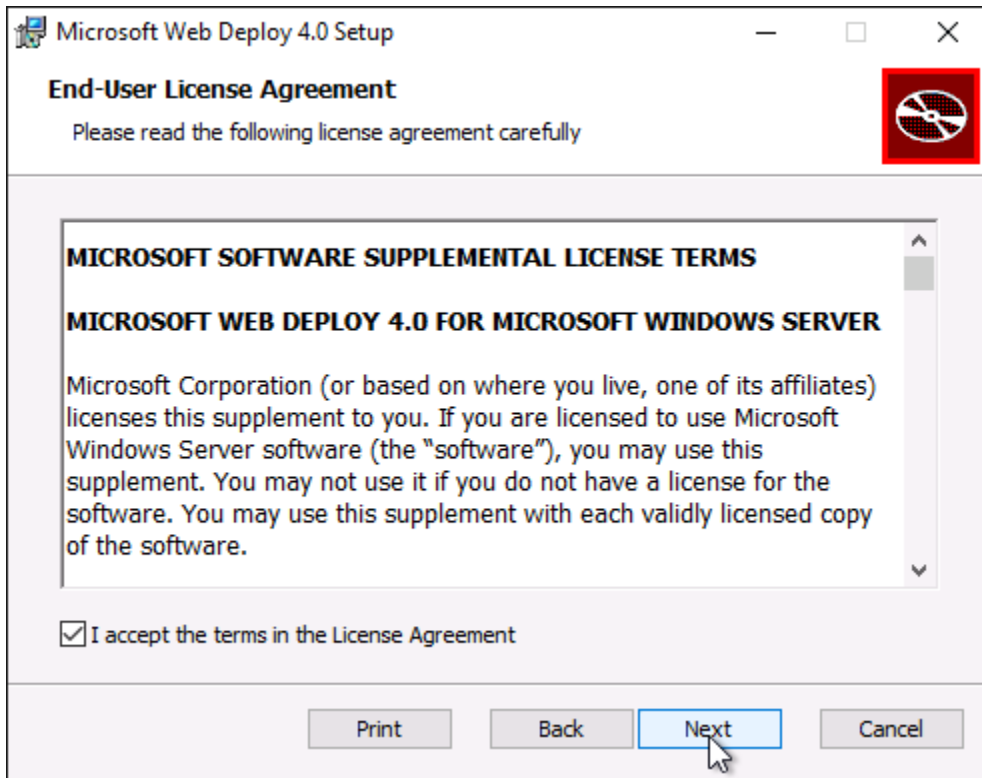
### 3. Start installation

Choose **Next** on the initial Setup Wizard screen.



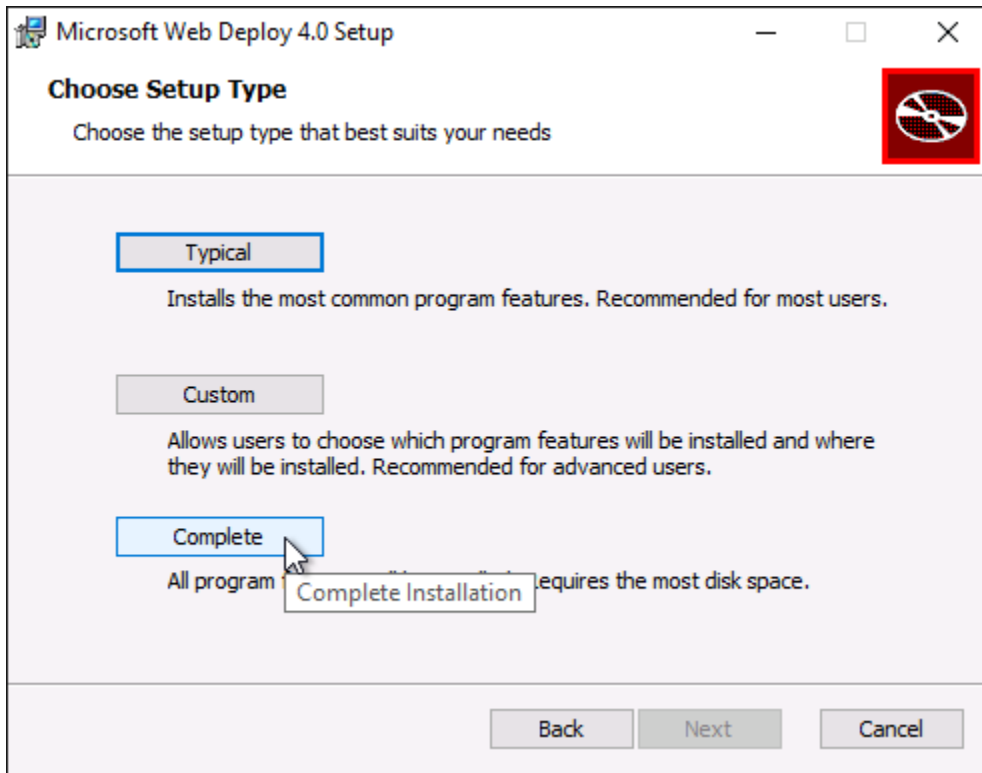
### 4. Accept terms

Accept the terms in the license agreement, and choose **Next** in the **Microsoft Web Deploy 4.0 Setup** screen.



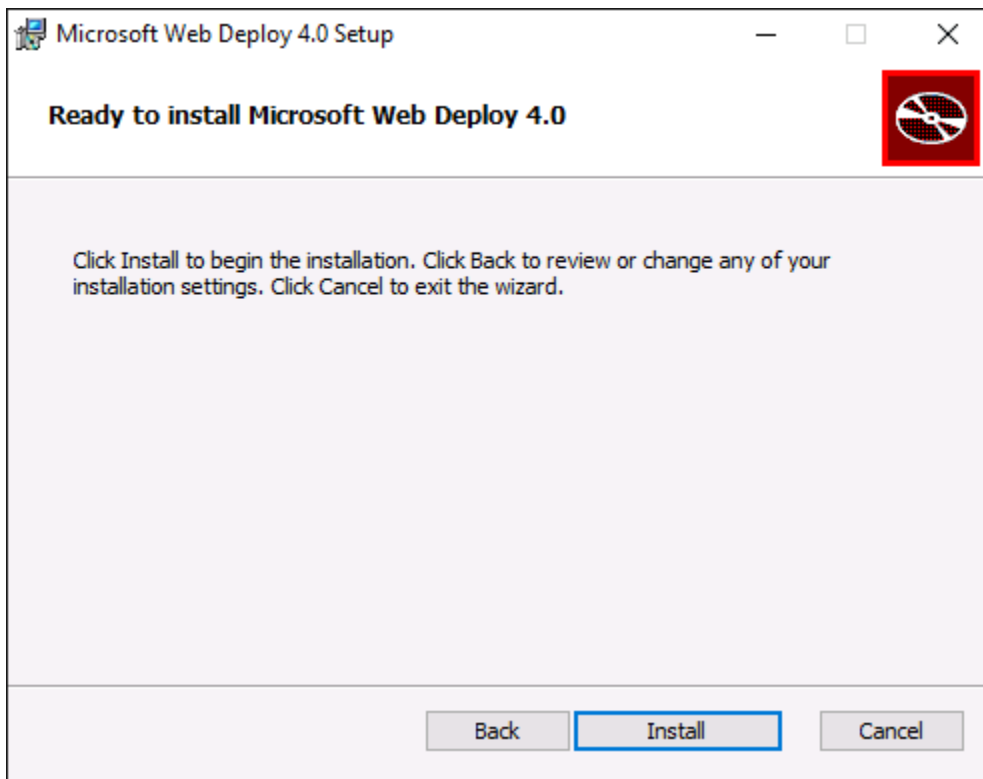
5. Choose a setup type

Choose **Complete** on the **Choose Setup Type** screen.



## 6. Install Web Deploy

Choose **Install** to start the installation, then choose **Finish** to close the installer when the installation is complete.



### Step 5: Install ASP.NET Core 6.0 Hosting Bundle

Because we're going to publish an ASP.NET Core Web App to the Windows Server 2022 instance, you need to install the ASP.NET Core 6.0 Hosting Bundle.

#### 1. Download Hosting Bundle

On your Windows Server 2022 instance, open Internet Explorer and [download ASP.NET Core 6.0 Hosting Bundle](#).

## Run apps - Runtime ⓘ

# ASP.NET Core Runtime 6.0.15

The ASP.NET Core Runtime enables you to run existing web/server applications. **On Windows, we recommend installing the Hosting Bundle, which includes the .NET Runtime and IIS support.**

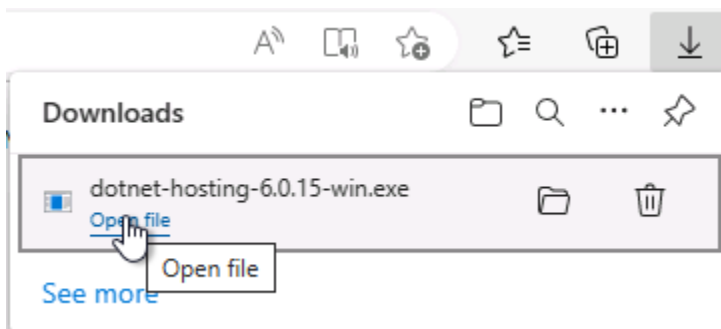
### IIS runtime support (ASP.NET Core Module v2)

16.0.23055.15

OS	Installers	Binaries
Linux	<a href="#">Package manager instructions</a>	<a href="#">Arm32</a>   <a href="#">Arm32 Alpine</a>   <a href="#">Arm64</a>   <a href="#">Arm64 Alpine</a>   <a href="#">x64</a>   <a href="#">x64 Alpine</a>
macOS		<a href="#">Arm64</a>   <a href="#">x64</a>
Windows	<a href="#">Hosting Bundle</a>   <a href="#">x64</a>   <a href="#">x86</a>   <a href="#">winget instructions</a>	<a href="#">Arm64</a>   <a href="#">x64</a>   <a href="#">x86</a>

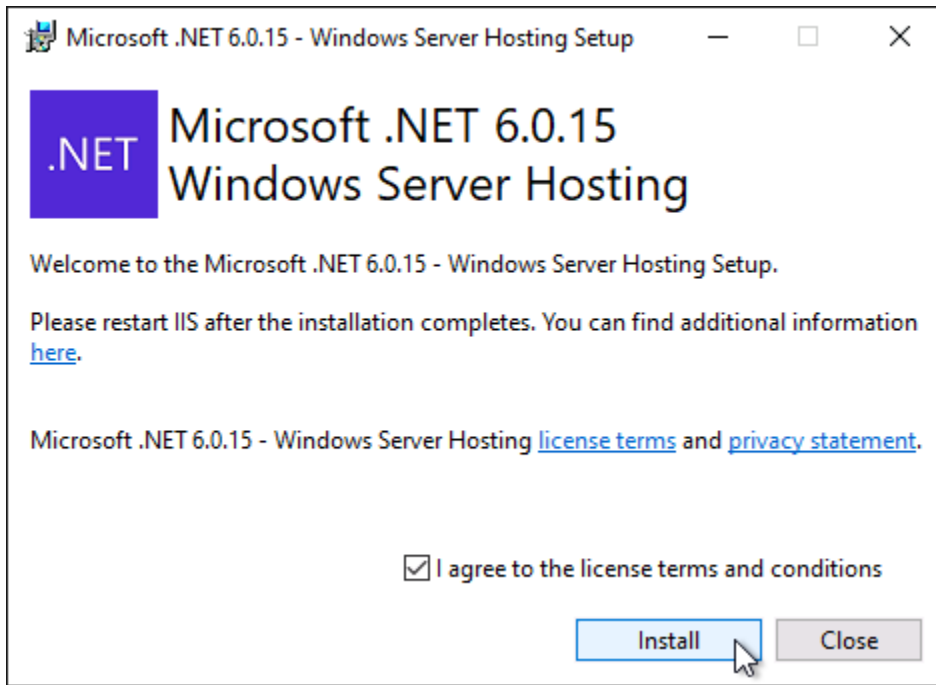
## 2. Open the file

After the download completes, choose **Open file**.



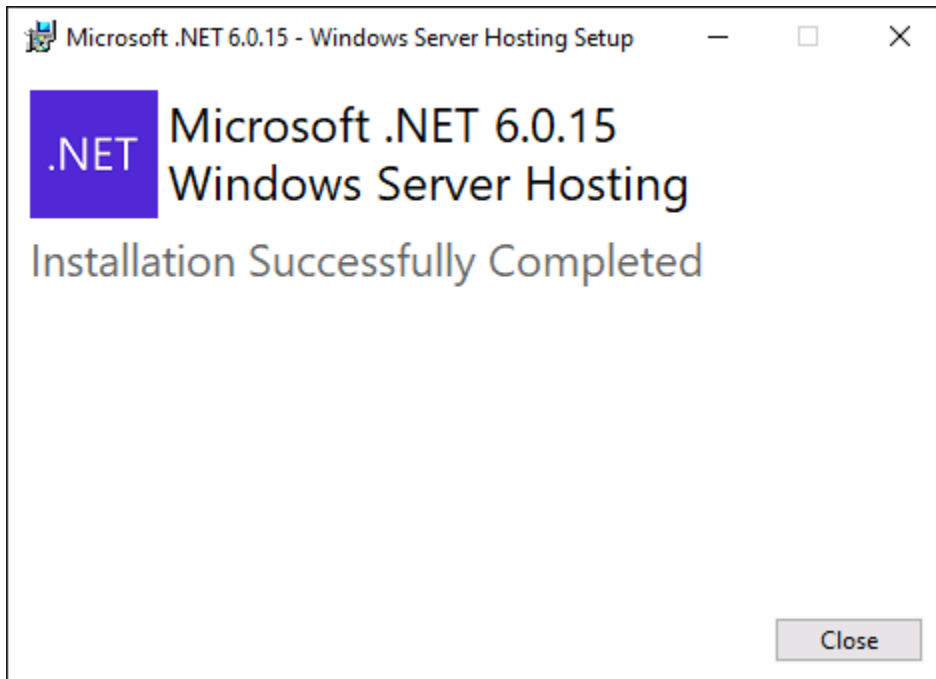
## 3. Accept the terms

Accept the terms in the license agreement, and choose **Install** in the **Windows Server Hosting Setup** screen.



#### 4. Verify installation

After the installation completes, choose **Close**.



## Step 6: Create an ASP.NET Core Web Application in Visual Studio 2022

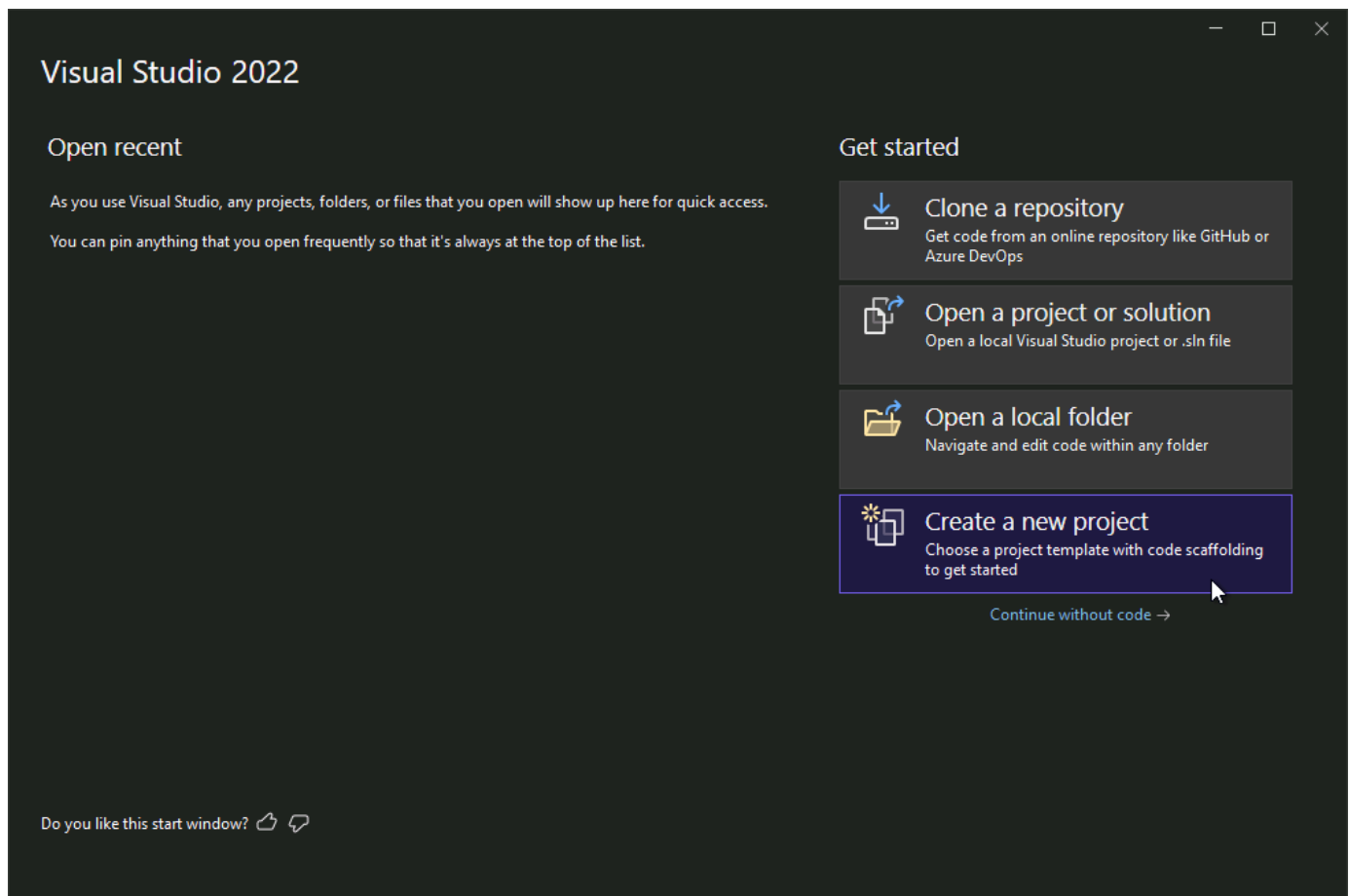
In these steps, you will create an application using the ASP.NET Core Web App template in Visual Studio 2022 Community edition. To download and install Visual Studio 2022 Community edition, see the [Visual Studio](#) website.

### 1. Open Visual Studio

Open Visual Studio 2022 Community edition on your local computer (not the Windows Server 2022 instance).

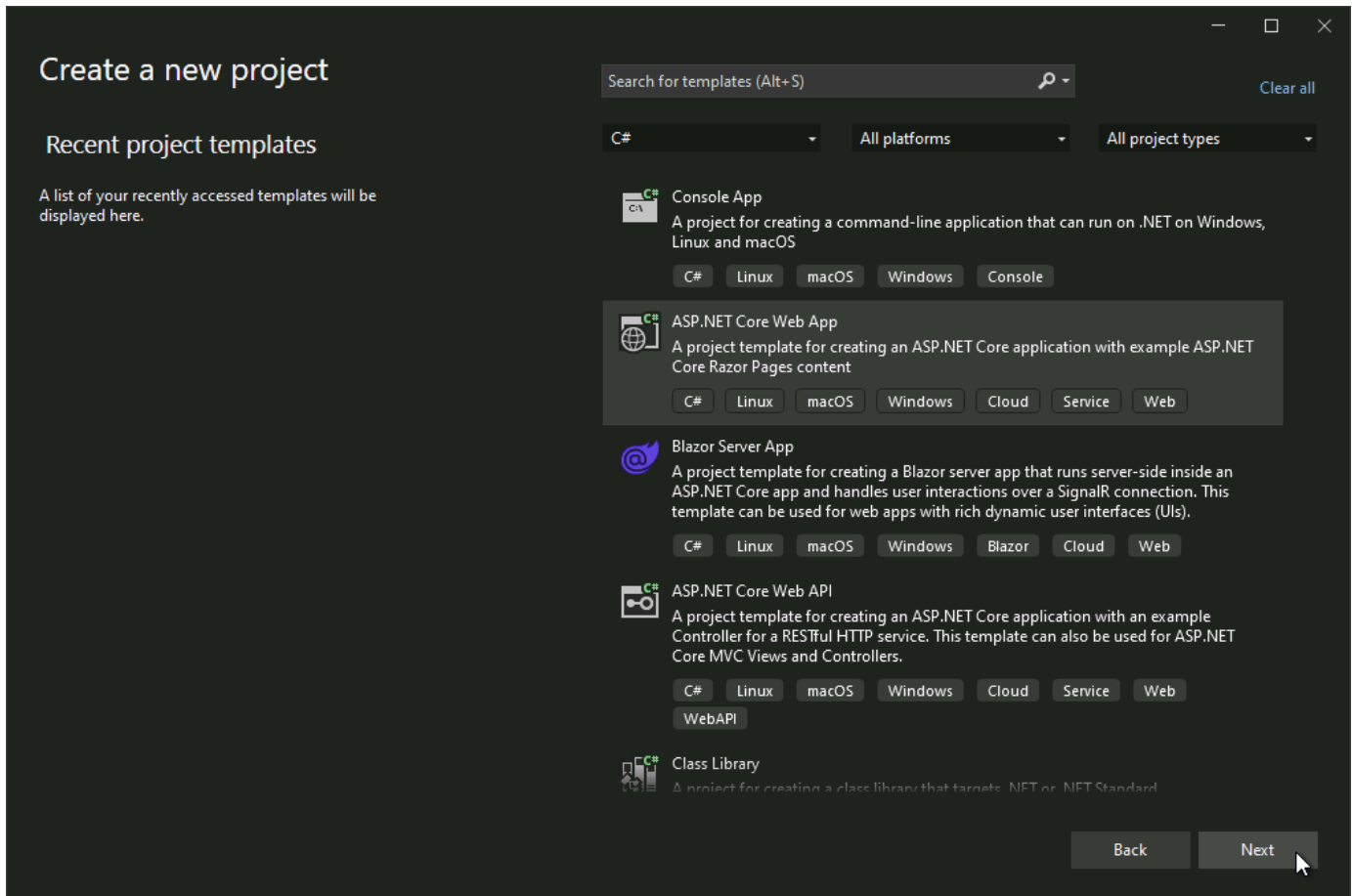
### 2. Create a project

Choose **Create a new project**.



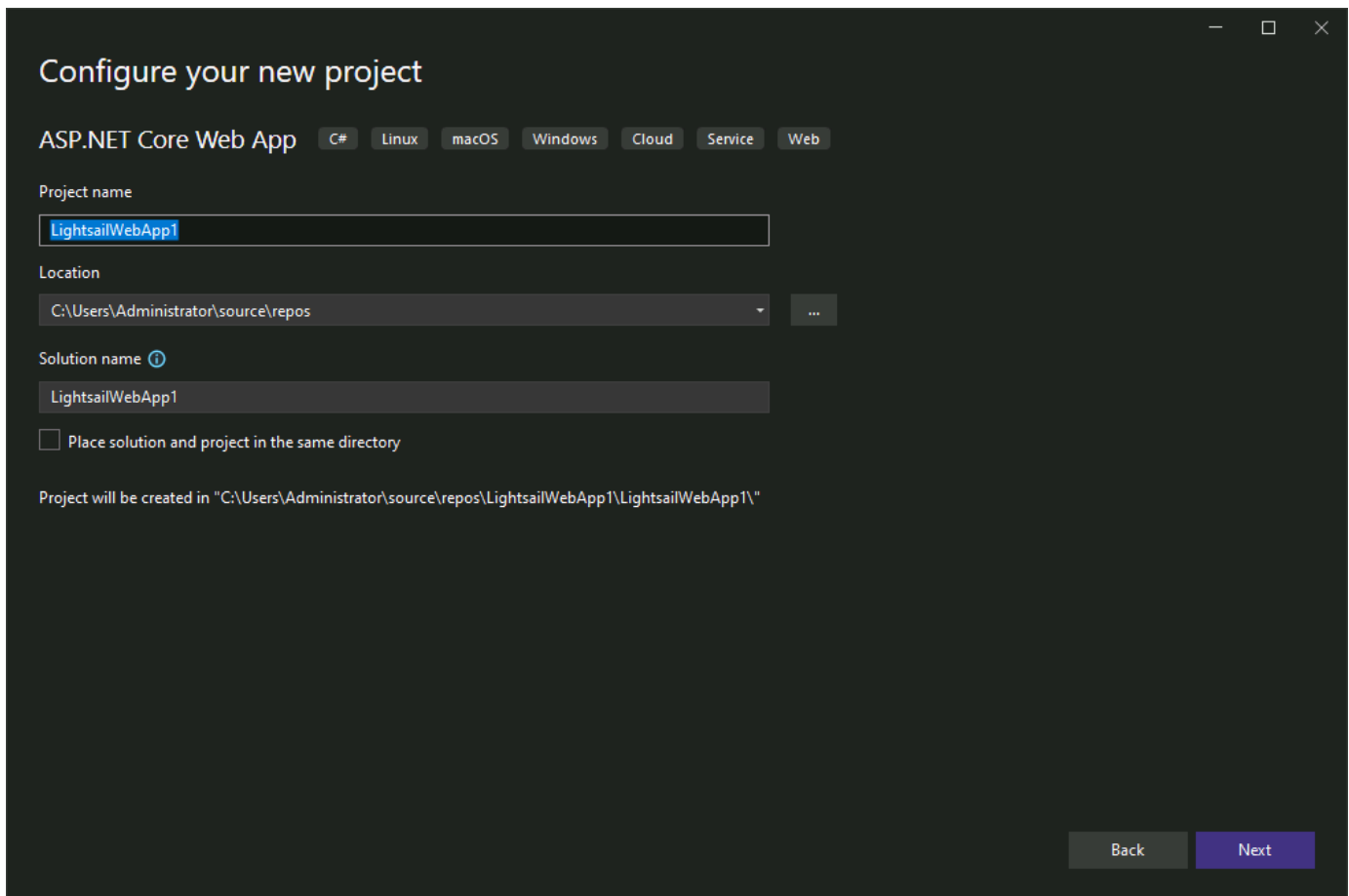
### 3. Choose a language

Choose **C#** in the language dropdown menu. Choose **ASP.NET Core Web App** in the list of available projects, and choose **Next**.



#### 4. Configure project

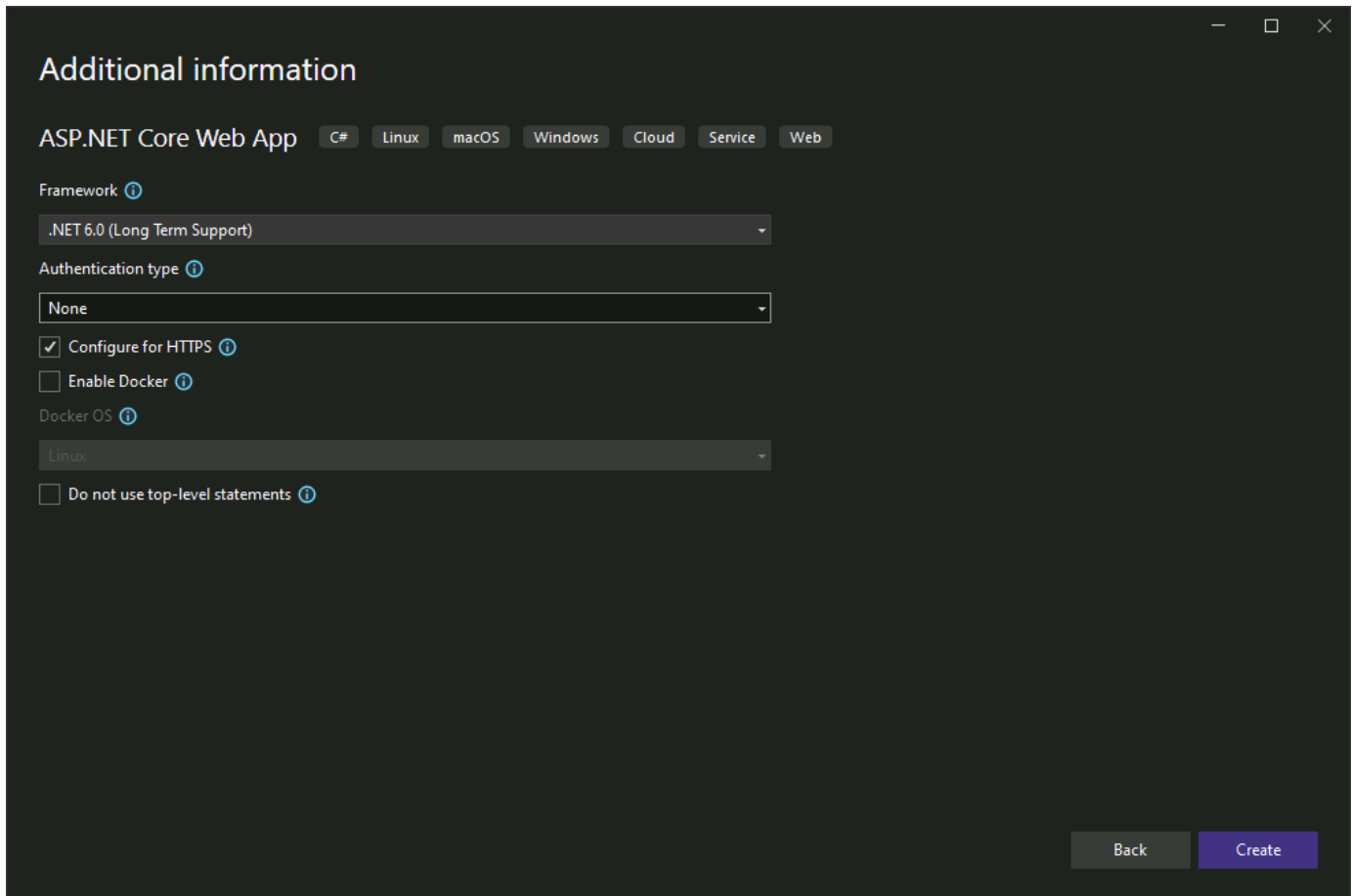
Choose a **Project name**, and choose **Next**.



## 5. Create the project

On the **Additional information** screen, make sure the **Framework** selected is **.NET 6.0**, and choose **Create**.

After this step, you will have an ASP.NET core website project template that you can edit in Visual Studio. When you are done editing your project, continue to the next section to publish your project to your Windows Server 2022 instance.



**Additional information**

ASP.NET Core Web App C# Linux macOS Windows Cloud Service Web

Framework ⓘ  
 .NET 6.0 (Long Term Support)

Authentication type ⓘ  
 None

Configure for HTTPS ⓘ  
 Enable Docker ⓘ

Docker OS ⓘ  
 Linux

Do not use top-level statements ⓘ

Back Create

## Step 7: Publish your .NET application to your Windows Server 2022 instance

In these steps, you will configure Visual Studio to connect to your Windows Server 2022 instance so that you can publish your .NET core project to your server.

### 1. Add a firewall rule

For publishing to work from a remote network, you need to add a firewall rule to your Windows Server 2022 instance. Open your [Lightsail console](#) and open the **Networking** tab of your instance. Choose **+ Add rule** and enter **8172** as the port, then choose **Create**.

## IPv4 Firewall ?



Create rules to open ports to the internet, or to a specific IPv4 address or range.

[Learn more about firewall rules](#) 

### + Add rule

Specify a port and protocol to open. Specify a port range using a dash, such as 0 - 65535.

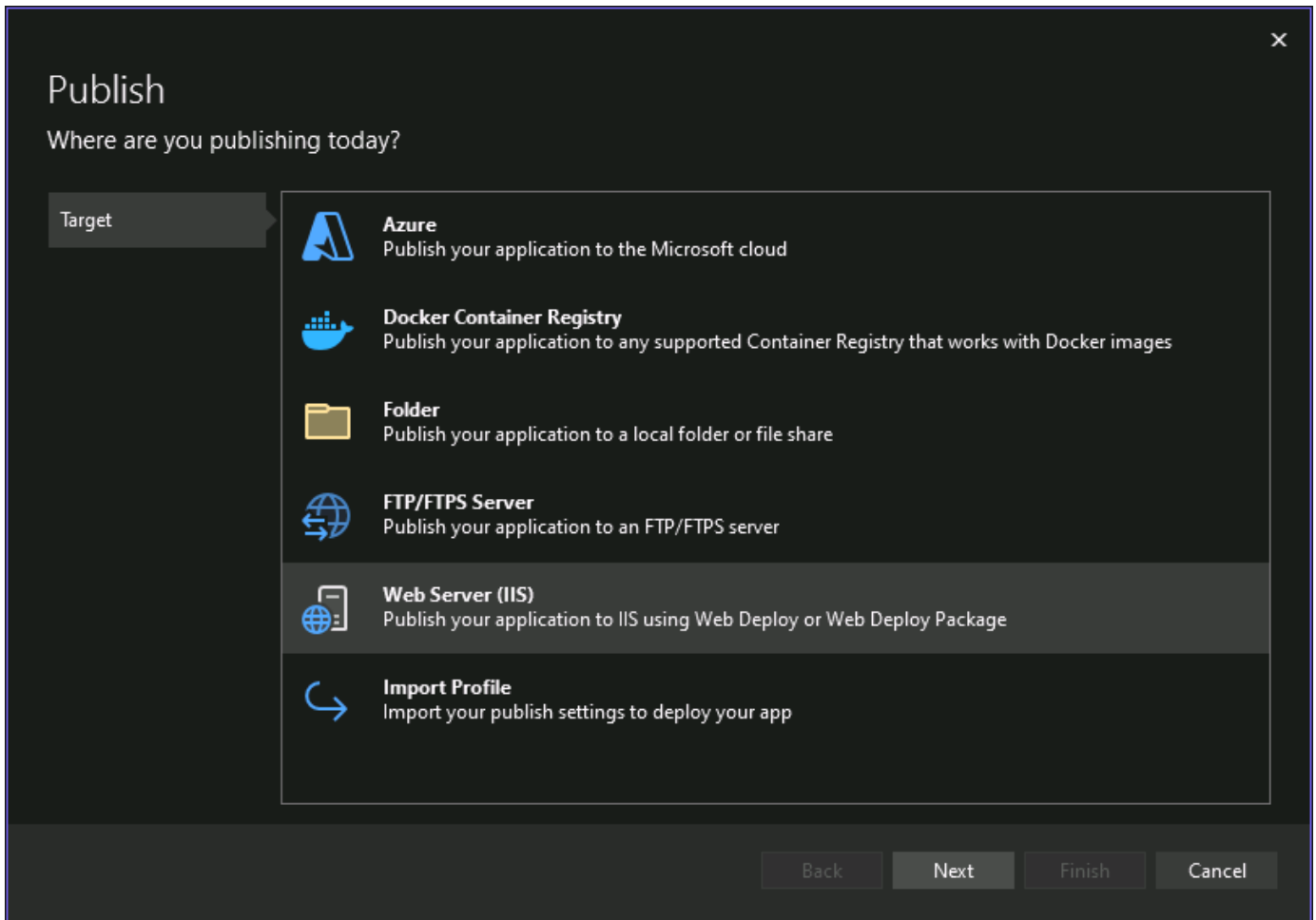
Application:  Protocol:  Port or range:   Restrict to IP address

Cancel  Create   
Duplicate rule for IPv6

Application	Protocol	Port or range / Code	Restricted to	
SSH	TCP	22	Any IPv4 address Lightsail browser SSH/RDP <span>?</span>	 
HTTP	TCP	80	Any IPv4 address	 
RDP	TCP	3389	Any IPv4 address Lightsail browser SSH/RDP <span>?</span>	 

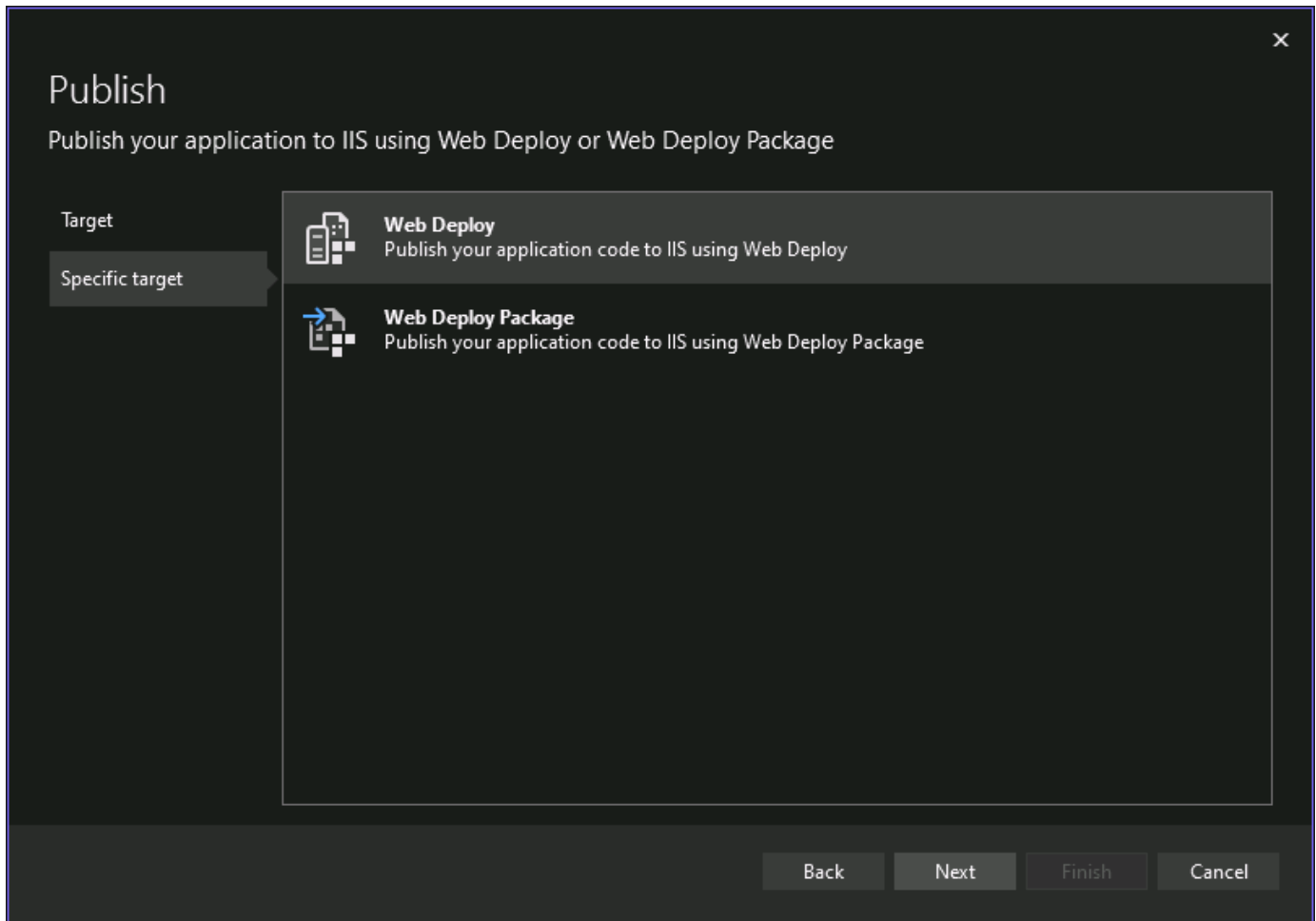
## 2. Choose a publishing target

Choose **Web Server (IIS)** and choose **Next** in the **Publish** screen.



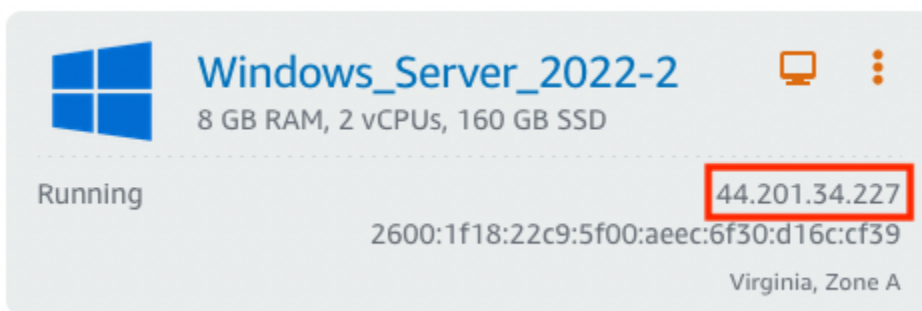
### 3. Choose Web Deploy

Select **Web Deploy** and choose **Next**.



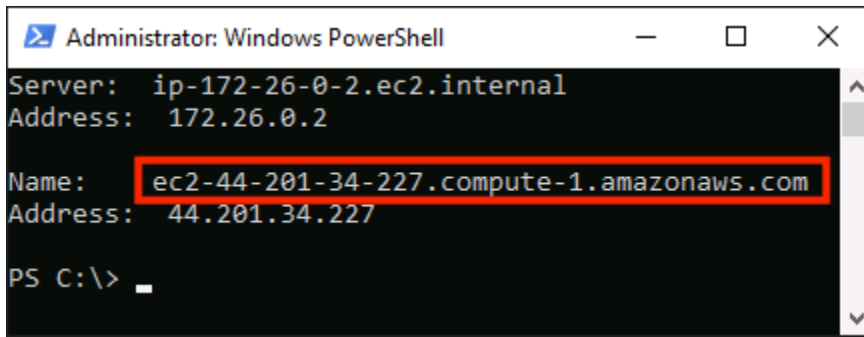
#### 4. Get the public IP

Get the public IP address of your Windows Server 2022 instance from the [Lightsail console](#).



#### 5. Get the public DNS name

Perform a reverse DNS lookup by running `nslookup PublicIpAddress` in PowerShell to get the public DNS name for your Windows Server 2022 instance's IP address; this **PublicHostname** will be used in the next step as the server name.



```
Administrator: Windows PowerShell
Server: ip-172-26-0-2.ec2.internal
Address: 172.26.0.2
Name: ec2-44-201-34-227.compute-1.amazonaws.com
Address: 44.201.34.227
PS C:\> _
```

## 6. Configure web server connection

On the next screen, enter the following information:

Enter **PublicHostname** in the **Server** text box. Replace **PublicHostname** with the public DNS name of your Windows Server 2022 instance retrieved in the previous step.

Enter **Default Web Site** in the **Site name** text box.

- This is name of the default website automatically configured when you installed Internet Information Services (IIS) on your Windows Server 2022 instance.

Enter **http://PublicHostname** in the **Destination URL** text box. Replace **PublicHostname** with the public DNS name of your Windows Server 2022 instance retrieved in the previous step.

**Publish**

Configure web server (IIS) connection

Target Server  
ec2-44-201-34-227.compute-1.amazonaws.com

Specific target Site name  
Default Web Site

IIS Connection Destination URL  
http://ec2-44-201-34-227.compute-1.amazonaws.com

User name  
Administrator

Password  
.....

Save password

Validate Connection

Back Next Finish Cancel

## 7. Enter credentials

Enter **Administrator** in the **User name** text box. This is the default administrator user name for your Windows Server 2022 instance.

Enter the administrator password in the **Password** text box.

You can get the administrator password by going to the instance's management page in the Lightsail console, and choosing **Retrieve default password** under the **Connect** tab.

## Default password

The default password for **this instance only** is:

**9Ieyg.ENk\$b.AXF;kY-02@z(6bBapMF7**

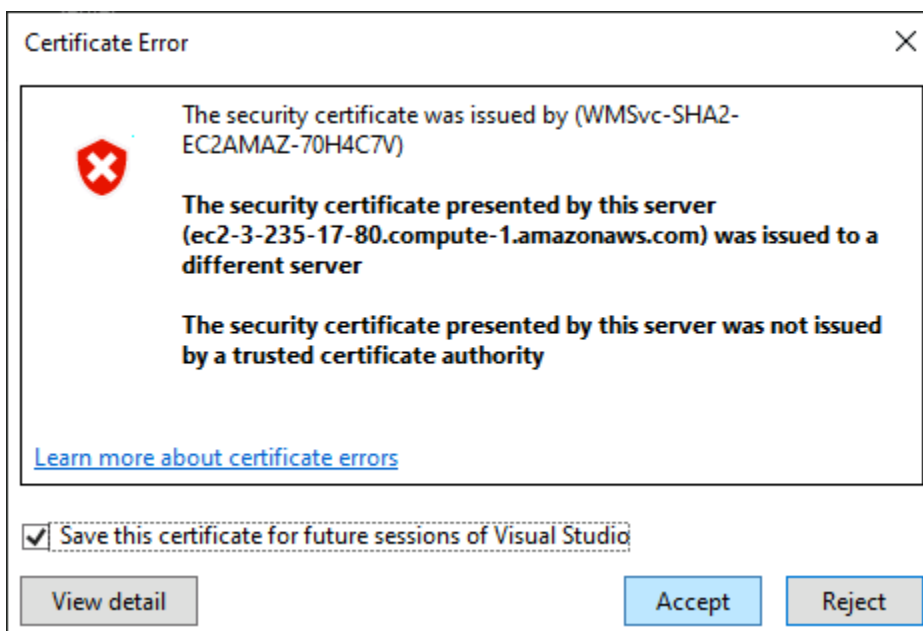
If you change the password for your instance, this password no longer works. You are prompted to enter the new password every time you use the in-browser connection window.

Okay, got it!

### 8. Validate the connection

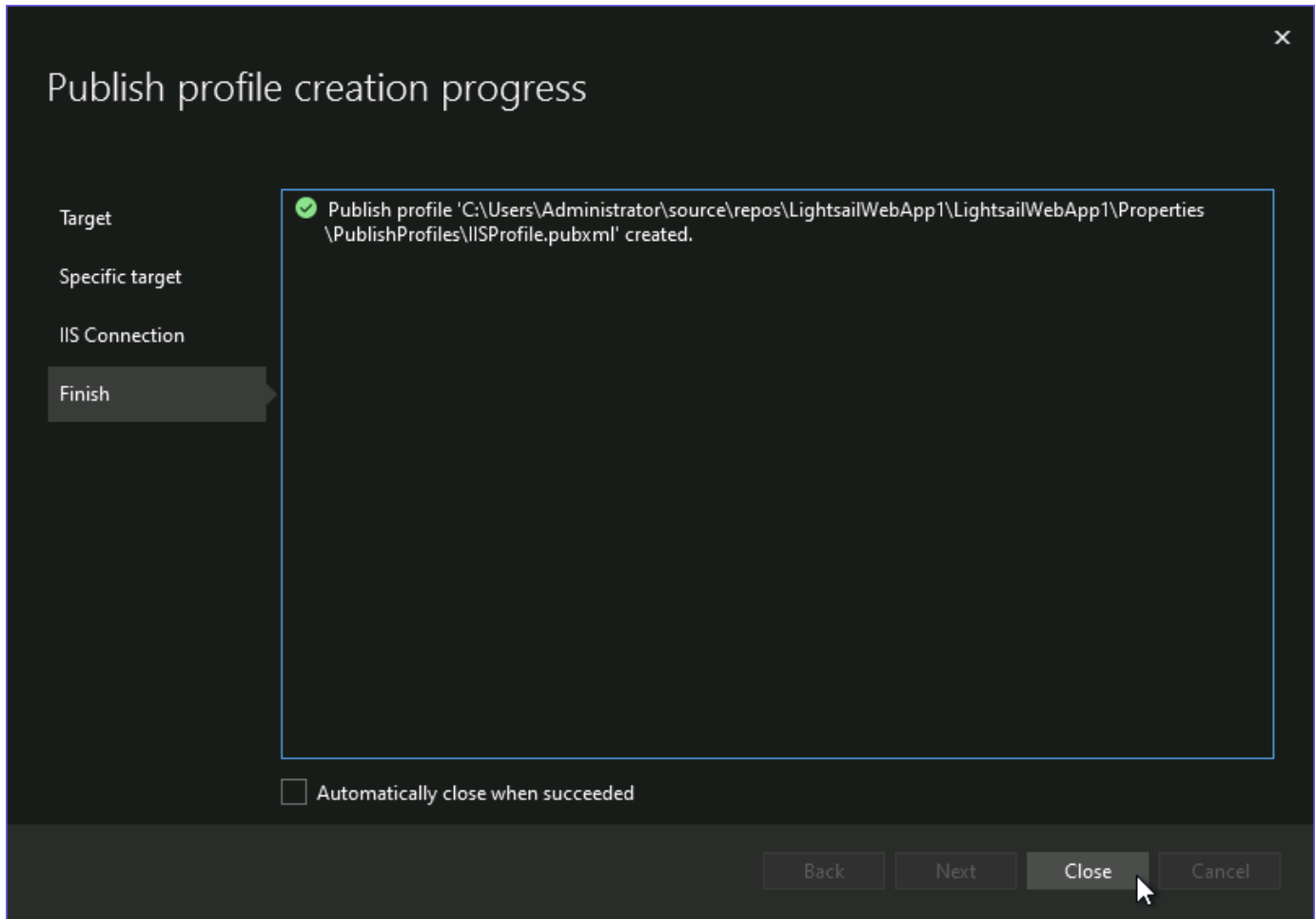
Choose **Validate Connection** to test the connection. You might get a certificate error like the one in the screenshot when connecting the first time. This is because the server uses a default certificate and you can safely accept it if the hostname displayed matches the one you intended to connect to.

A checkmark icon will appear if the validation is successful. If the validation is unsuccessful, confirm that you entered the correct information into the form (confirm the administrator password and the IP address).



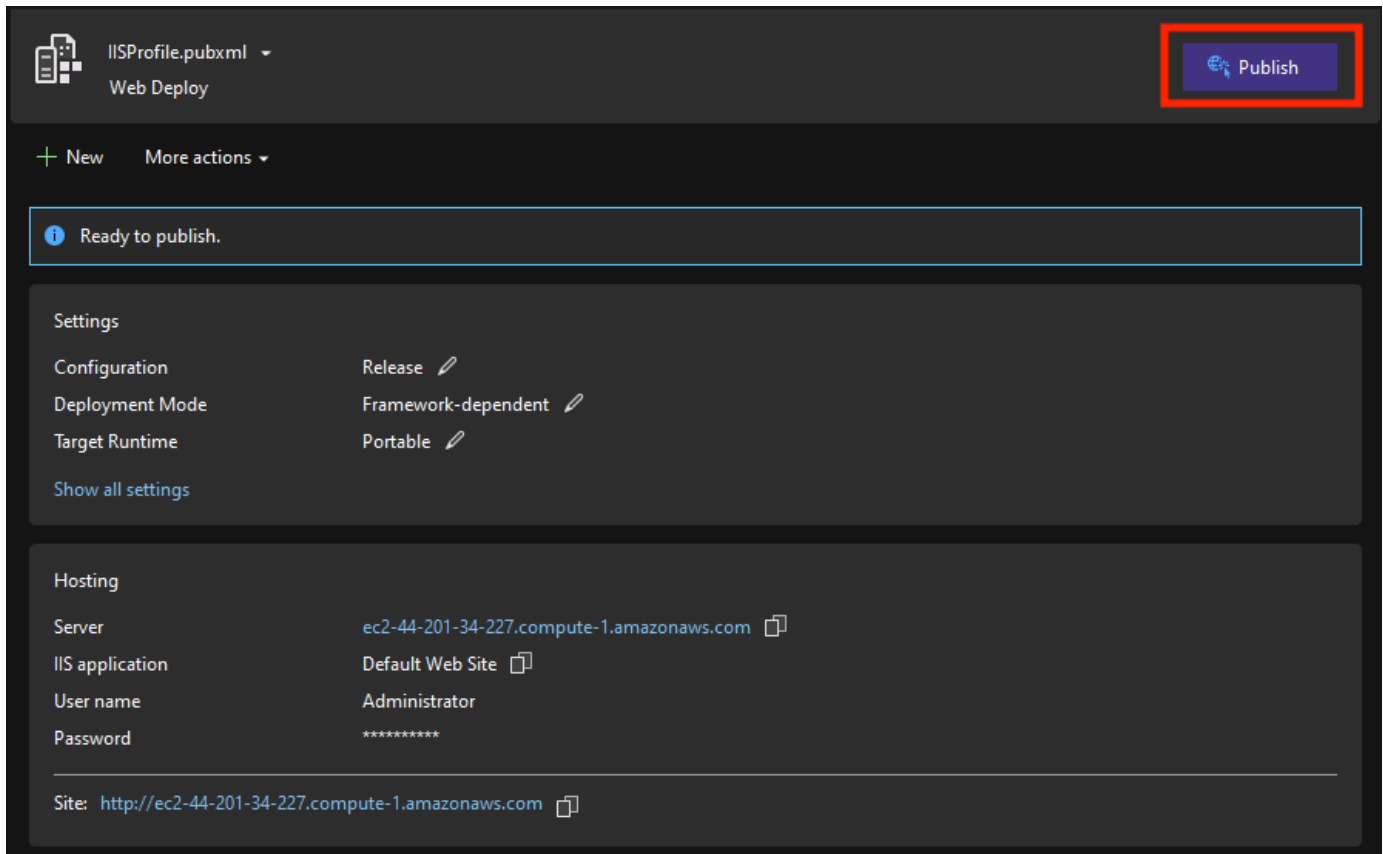
### 9. Monitor profile creation

Choose **Finish**, then choose **Close** when the **Publish profile creation progress** completes successfully.



## 10. Publish your project

Choose **Publish** in Visual Studio when you are ready to publish your project to your server.



## 11. Check the output

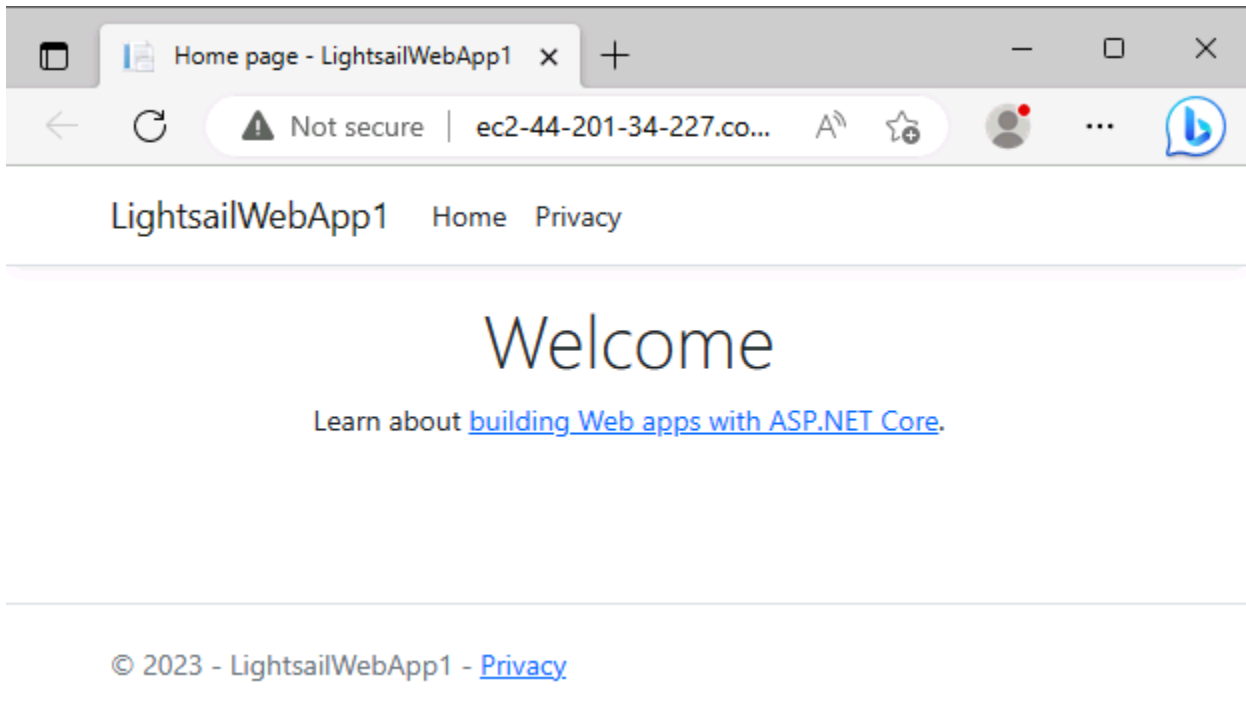
The **Output** in Visual Studio will show a successful message if your project was successfully published to your server.

```
Publish Succeeded.  
Web App was published successfully http://ec2-44-201-34-227.compute-1.amazonaws.com/  
===== Build: 1 succeeded, 0 failed, 0 up-to-date, 0 skipped =====  
===== Build started at 2:03 PM and took 10.188 seconds =====  
===== Publish: 1 succeeded, 0 failed, 0 skipped =====  
===== Publish started at 2:03 PM and took 10.188 seconds =====
```

## 12. Confirm the project creation

Browse to the **PublicHostname** of your Windows Server 2022 instance to confirm that the project was successfully published.

Your project was successfully published if you see a page similar to the following screenshot.



## Clean up resources

In the following steps, you clean up the resources you created in this tutorial. It is a best practice to delete instances and resources that you are no longer using so that you are not continually charged for them.

1. Delete the instance

On the **Instances** tab of the [Lightsail home page](#), choose the ellipsis (:) icon next to the Windows Server instance you just created and choose **Delete**.

Good afternoon!

Filter by name, location, tag, or type

Instances Containers Databases Networking Storage Domains & DNS Snapshots

Sort by Region and then by Zone

Create instance

Virginia (us-east-1)

ZONE A

Windows\_Server\_2022-2  
8 GB RAM, 2 vCPUs, 160 GB SSD  
Running  
2600:1f18:22c9:5f00:ca4a:1107:33d8:f55c

- Connect
- Manage
- Stop
- Reboot
- Delete

## 2. Confirm deletion

Choose **Yes, delete** from the prompt.

The screenshot shows the Amazon Lightsail console with a modal dialog box open. The dialog box has the title "Delete this instance?" and contains the following text: "Warning: This process will completely remove this instance. Other resources that rely on this instance might be affected." At the bottom of the dialog, there are two buttons: "No, cancel" and "Yes, delete". The background of the console is dimmed, showing the same instance details as in the previous screenshot.

## Conclusion

Congratulations! You have published a .NET core web application to your Windows Server 2022 instance in Amazon Lightsail.

Amazon Lightsail is a great choice to develop, build, and deploy a variety of applications like content management systems, websites, and other platforms.