

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

AWS experience	Beginner
Minimum time to complete	60 minutes
Cost to complete	Free Tier eligible
Services used	Amazon Lightsail
Last updated	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

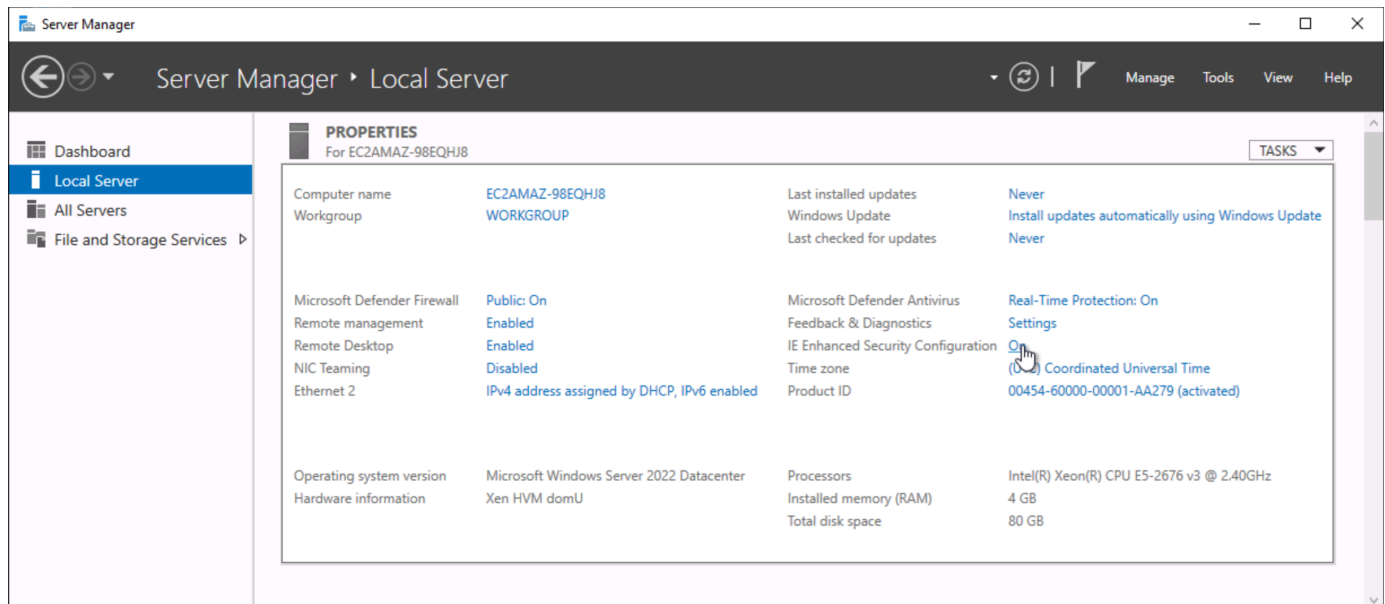
After the browser-based RDP client window opens, choose the Windows icon and open **Server Manager**.

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**).

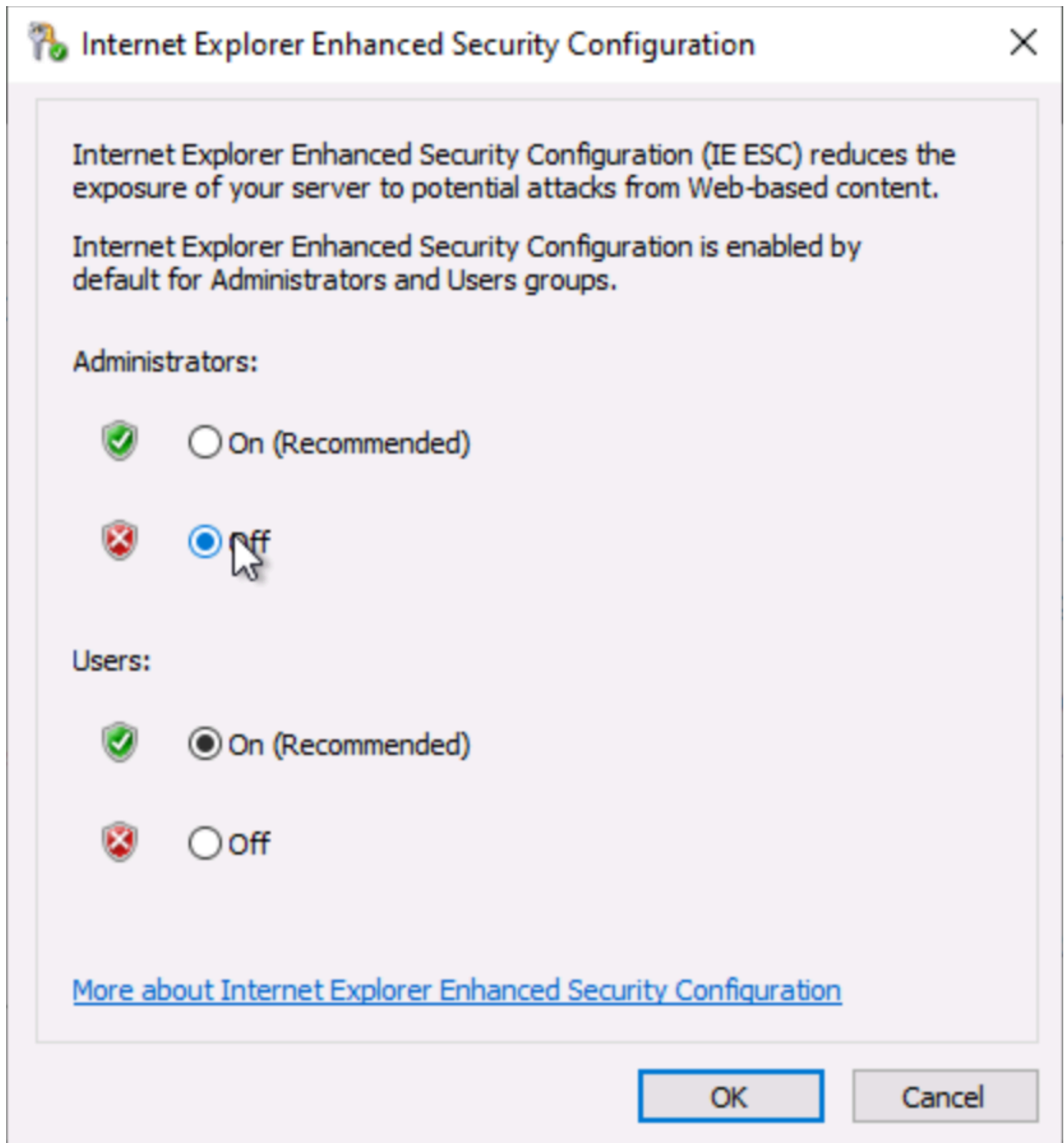
Note

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**.

The screenshot shows the AWS Server Manager Dashboard. The left sidebar contains navigation links: Dashboard, Local Server, All Servers, and File and Storage Services. The main content area is titled 'WELCOME TO SERVER MANAGER' and features a 'QUICK START' section with a numbered list of tasks:

- 1 Configure this local server
- 2 [Add roles and features](#)
- 3 Add other servers to manage
- 4 Create a server group
- 5 Connect this server to cloud services

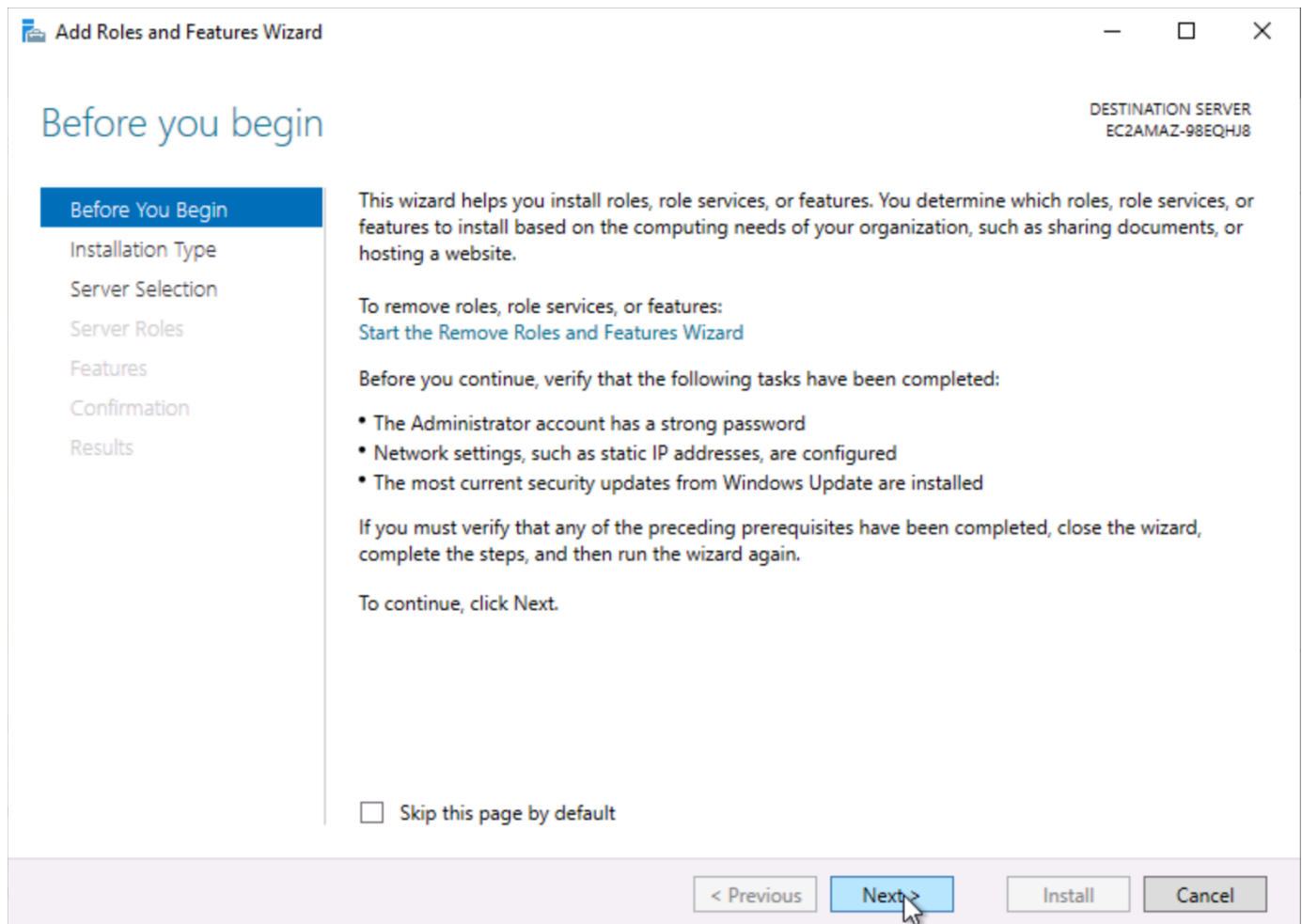
Below the 'QUICK START' section, there is a 'ROLES AND SERVER GROUPS' section. It displays a summary: 'Roles: 1 | Server groups: 1 | Servers total: 1'. The roles are listed in a table:

Role	Count
File and Storage Services	1

Each role entry includes a green upward arrow icon and the text 'Manageability' and 'Events'.

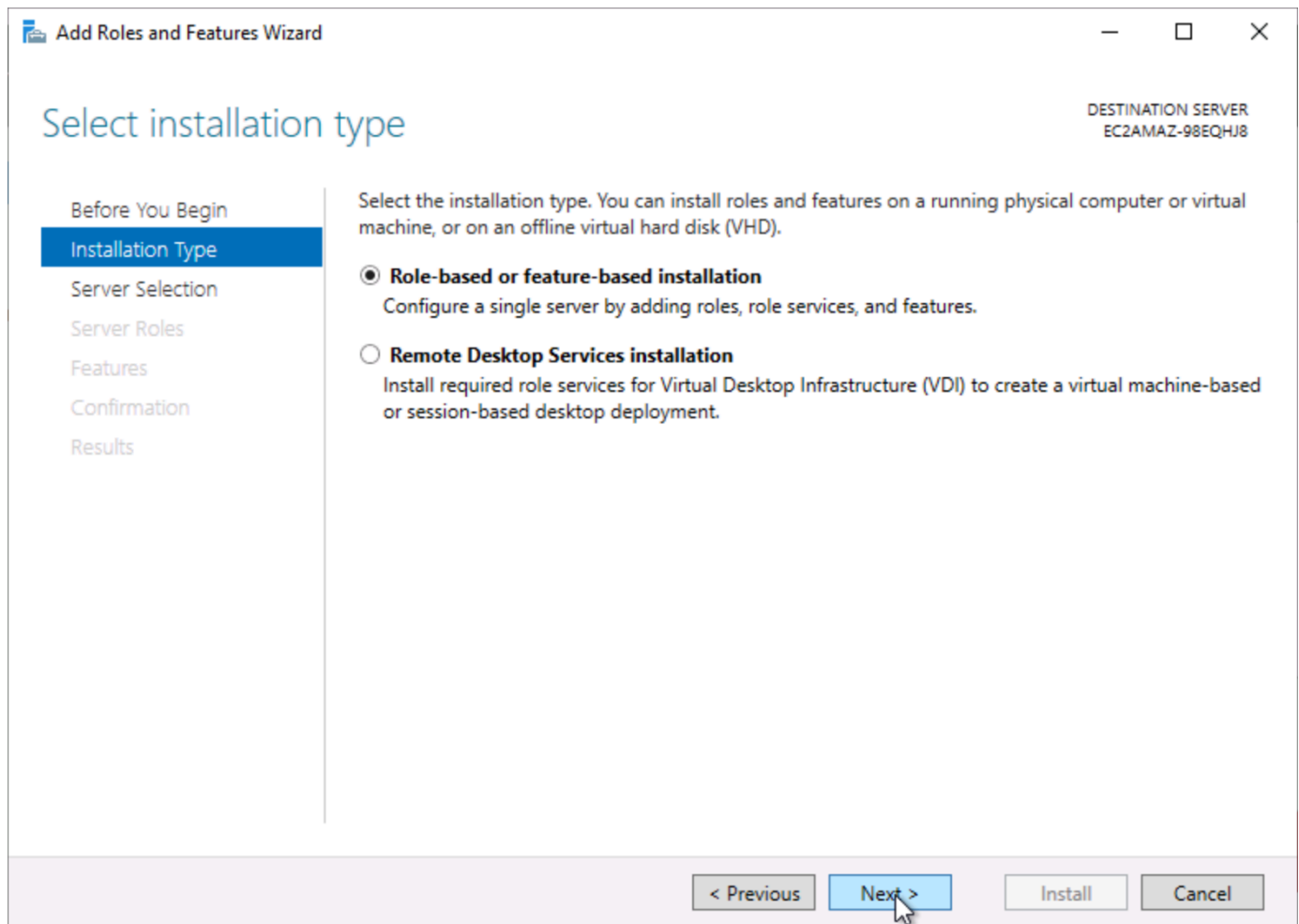
6. Continue through the wizard

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 says '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' (which is highlighted with a blue bar), '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' (which is selected) and 'Select a virtual hard disk'. Below the radio buttons is a section titled 'Server Pool'. It contains a 'Filter:' text box. Below the filter is a table with three columns: 'Name', 'IP Address', and 'Operating System'. The table has one row with the following data: 'EC2AMAZ-98EQHJ8', '172.26.0.184', and 'Microsoft Windows Server 2022 Datacenter'. Below the table, it says '1 Computer(s) found'. Below that is a paragraph: '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 >' (which is highlighted with a blue bar and has a mouse cursor over it), 'Install', and 'Cancel'.

DESTINATION SERVER
EC2AMAZ-98EQHJ8

Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results

Select a server or a virtual hard disk on which to install roles and features.

☒ Select a server from the server pool
☐ Select a virtual hard disk

Server Pool

Filter:

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

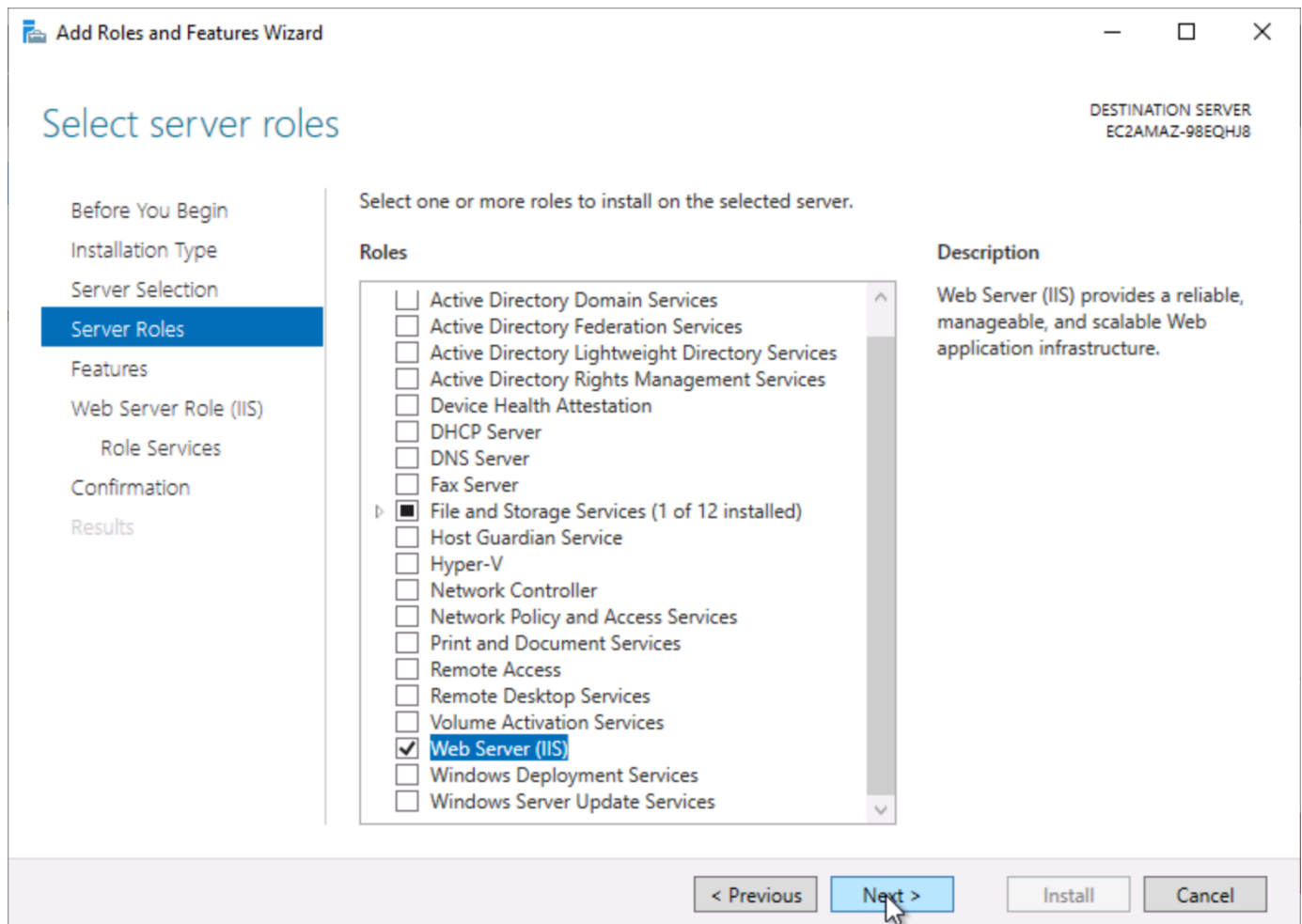
1 Computer(s) found

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.

< Previous **Next >** Install Cancel

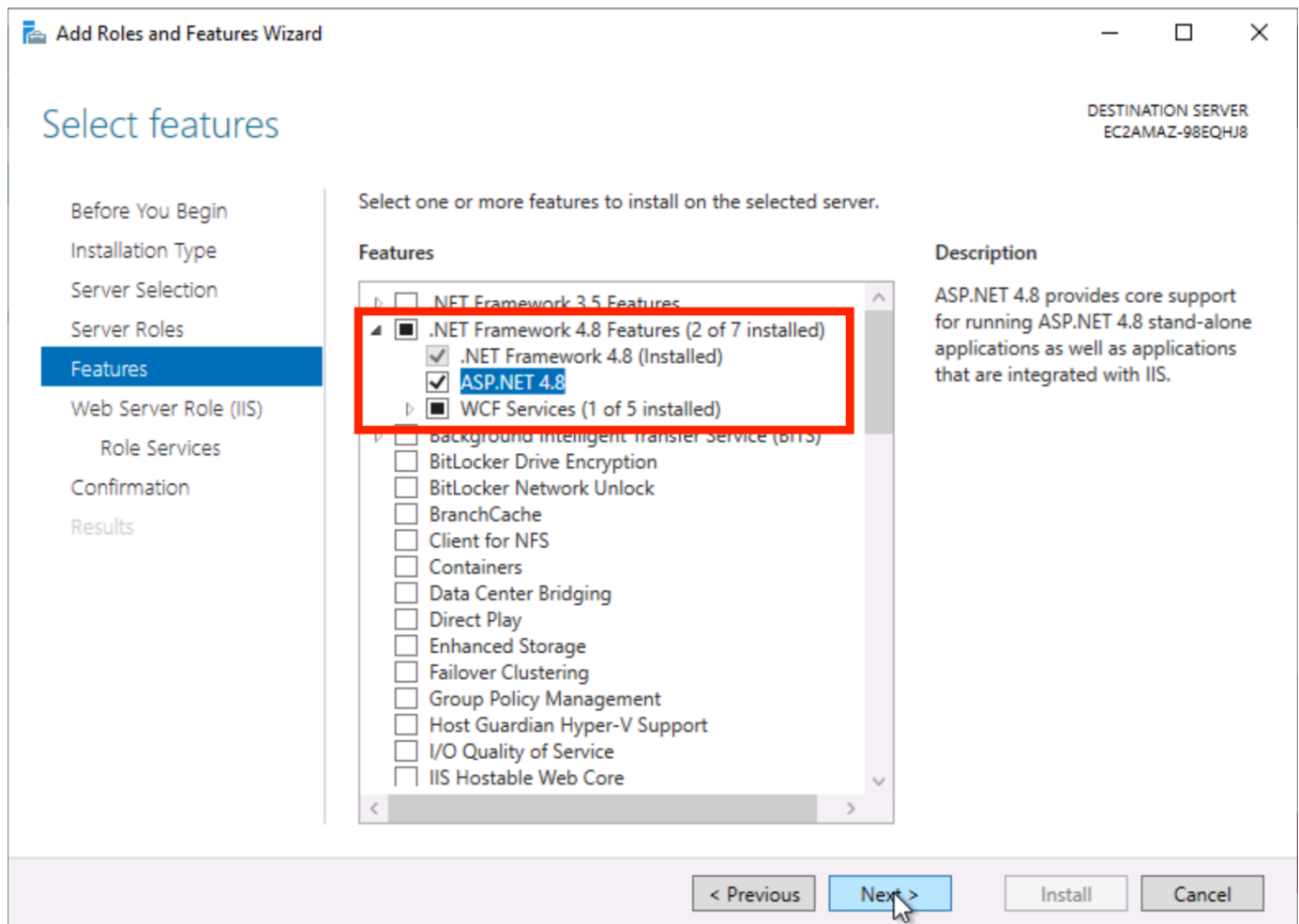
9. Select a server role

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**.



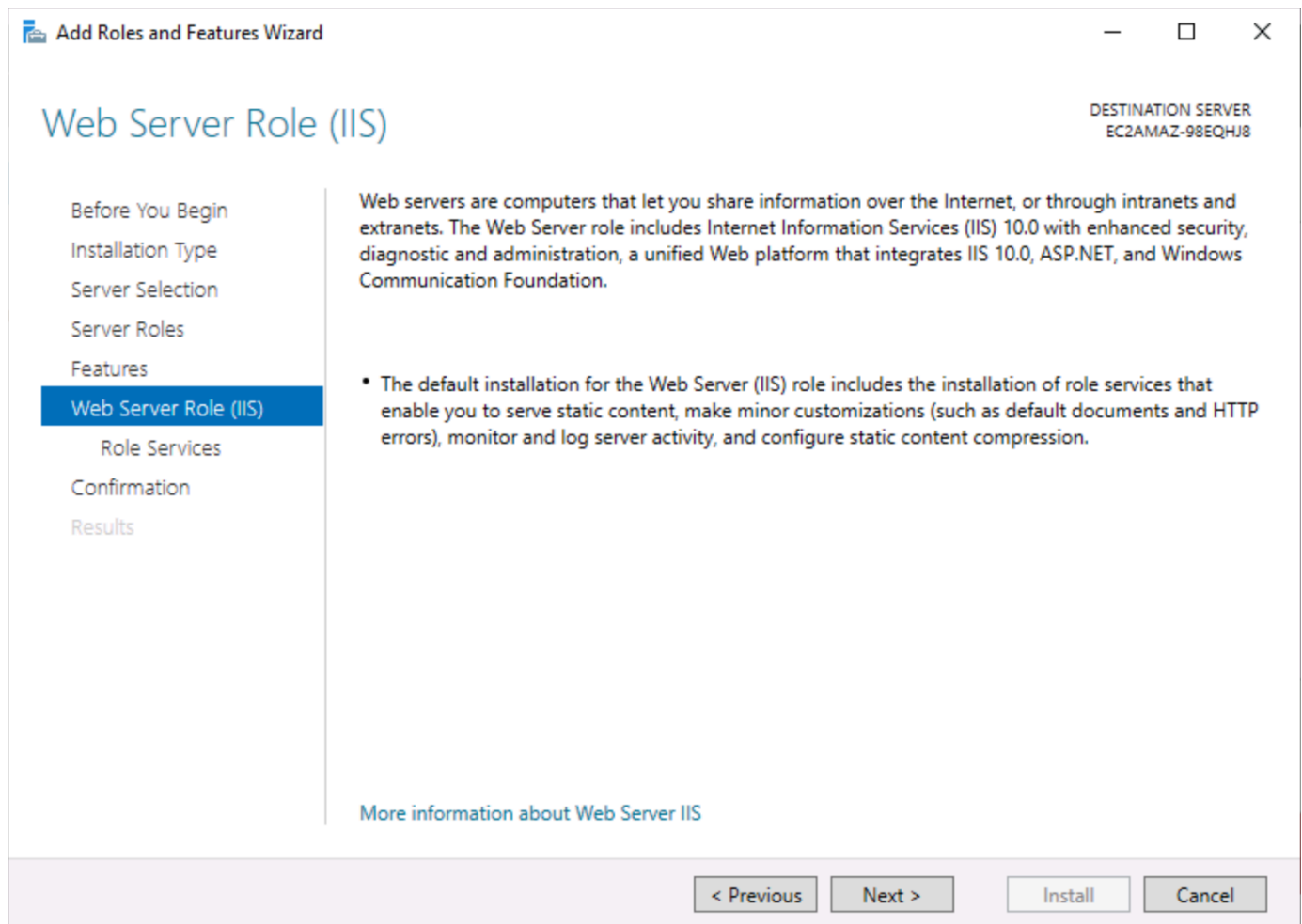
10. Select features

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



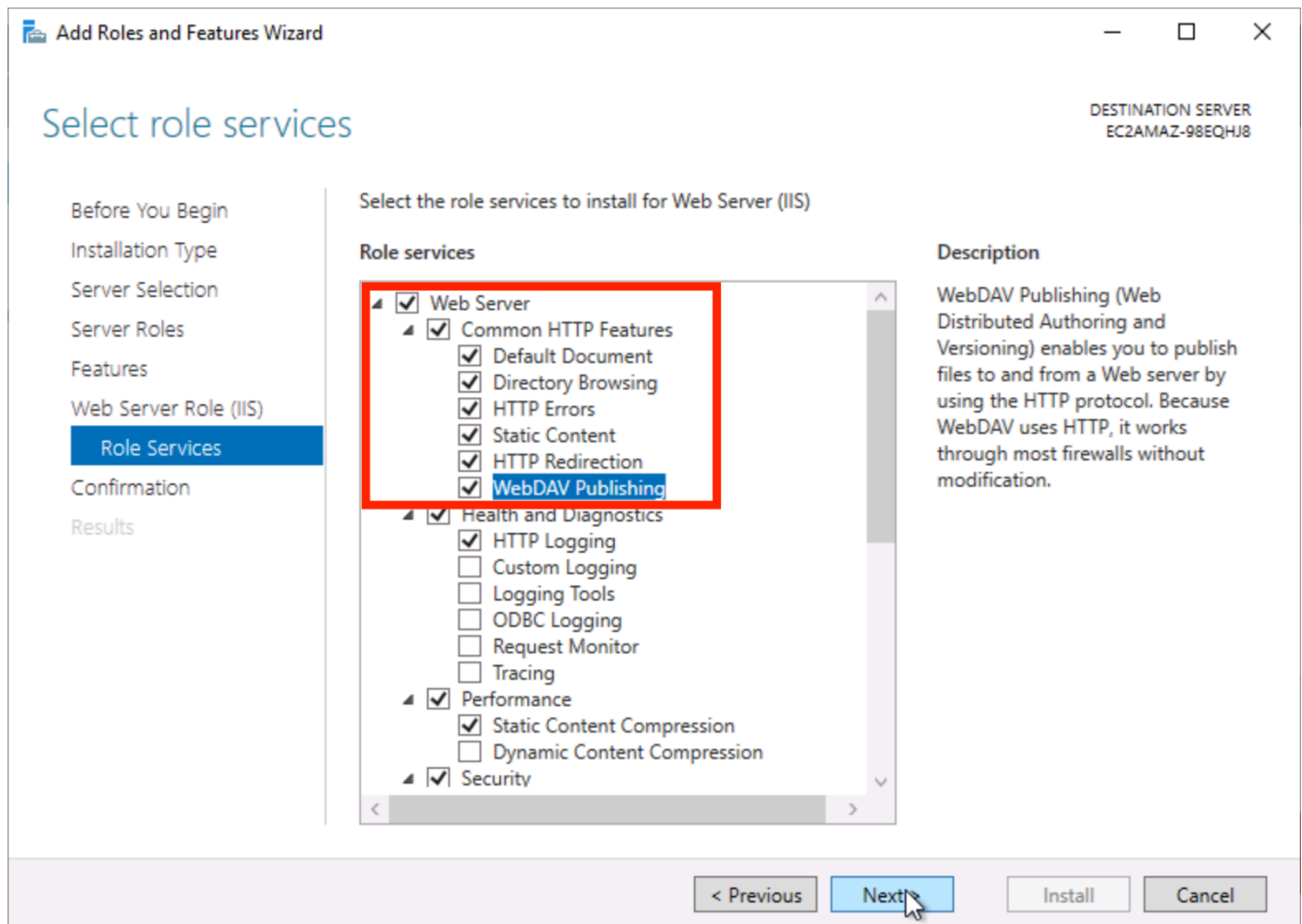
11. Review the information about web server roles

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



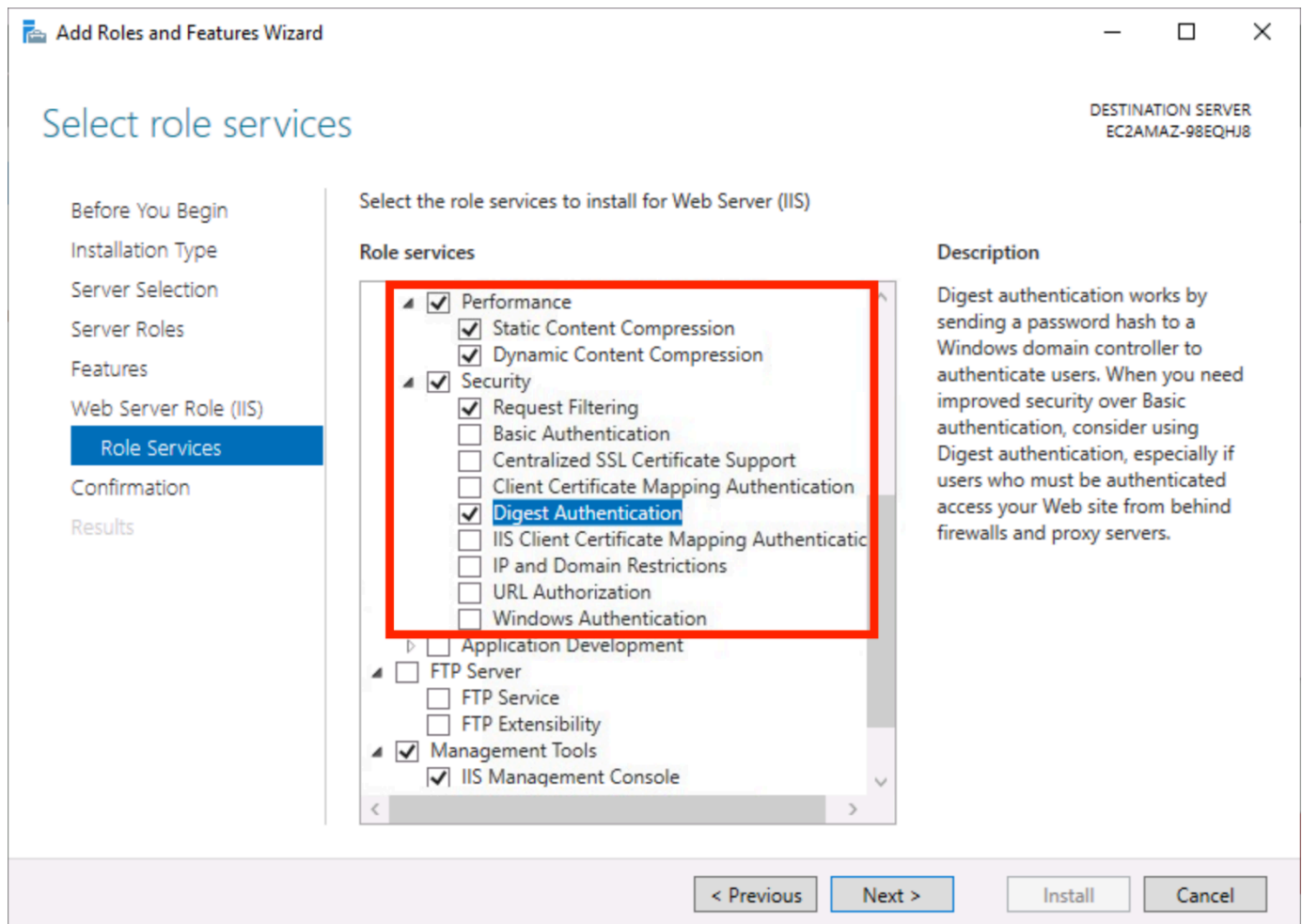
12. Select web server services

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



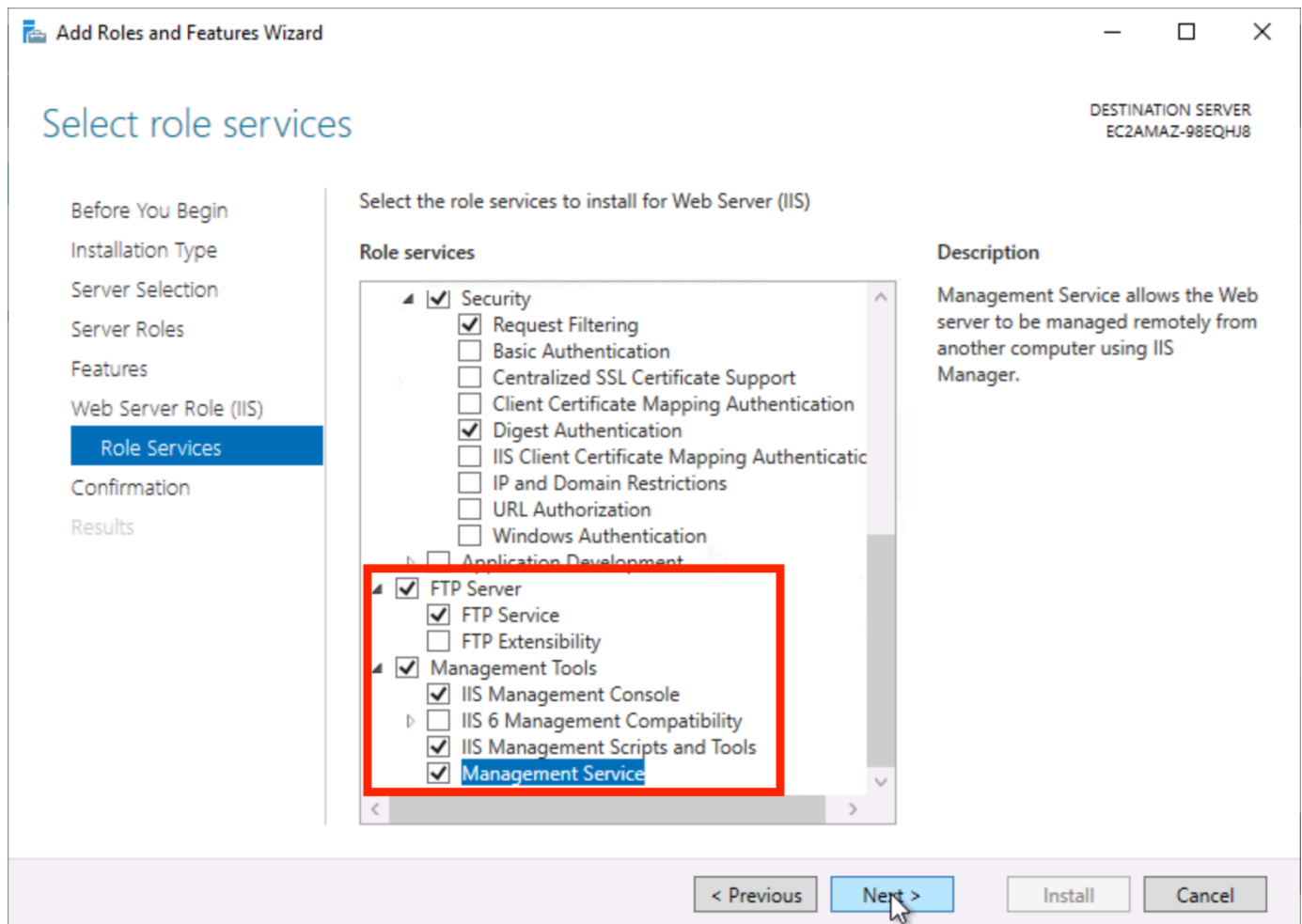
13. Select performance and security services

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



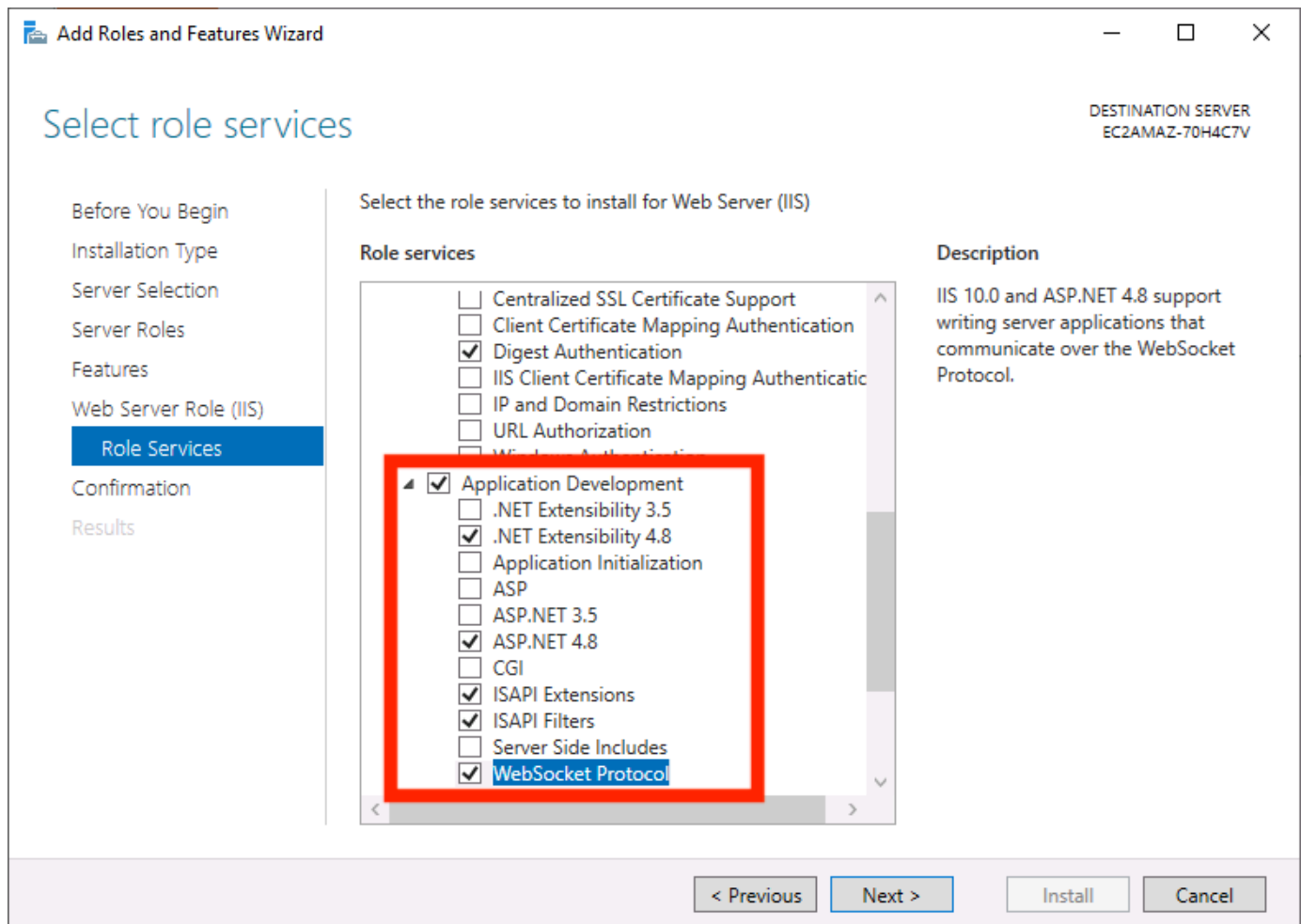
14. Select FTP server and management tools services

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.



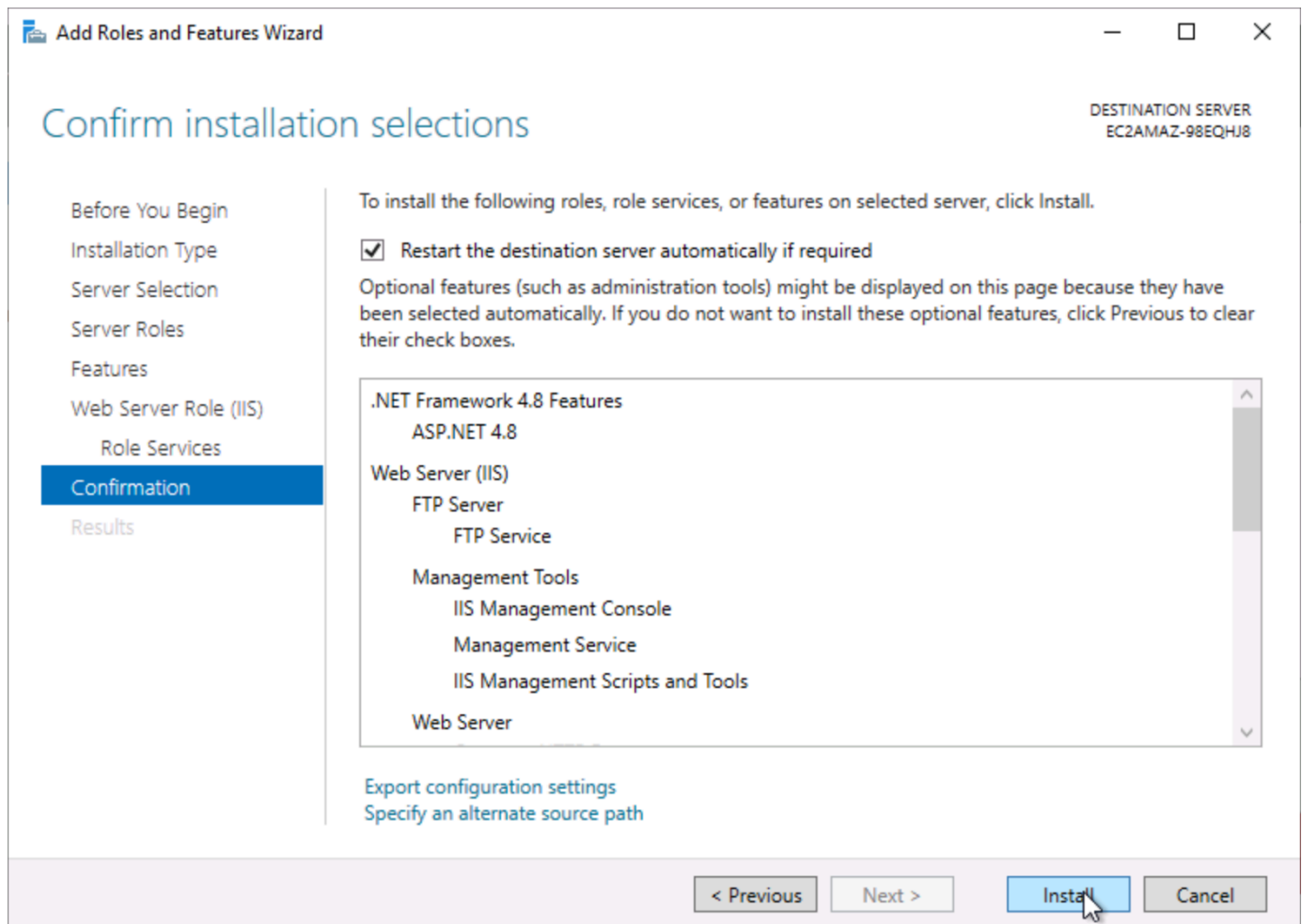
16. Confirm selections

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

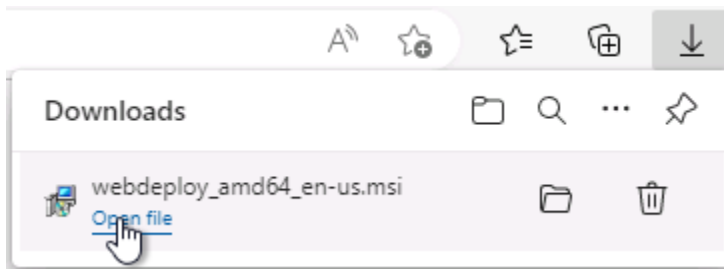
You must install the Web Deploy 4.0 extension on your Windows Server 2022 instance to enable deployment of web applications and websites to your server.

1. Download Web Deploy

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

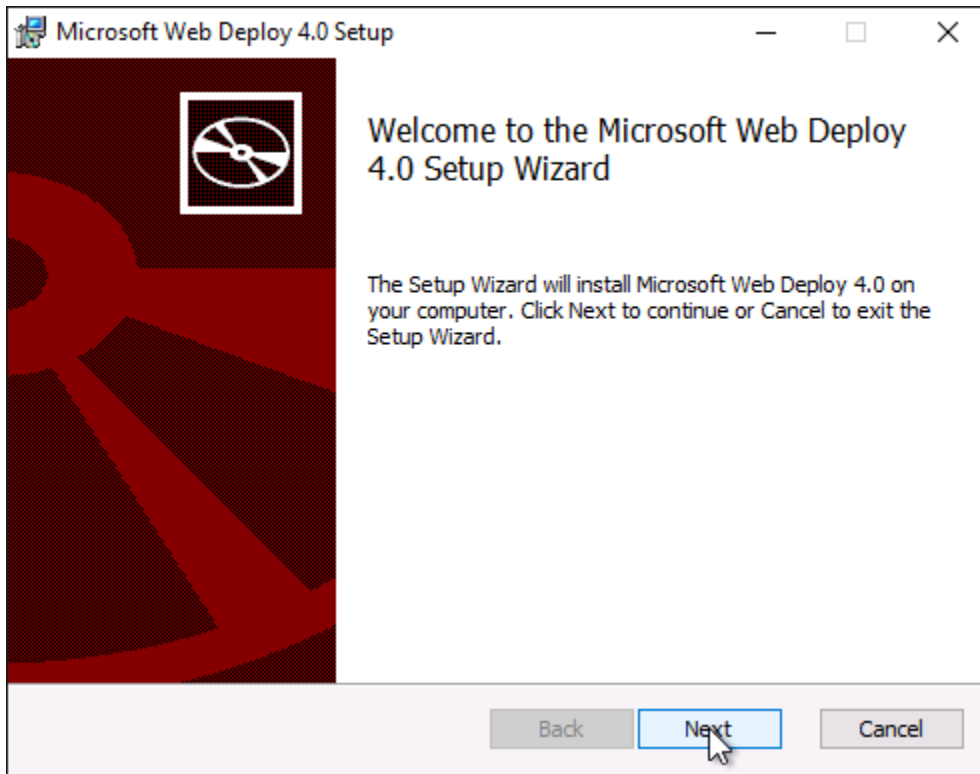
2. Open the file

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



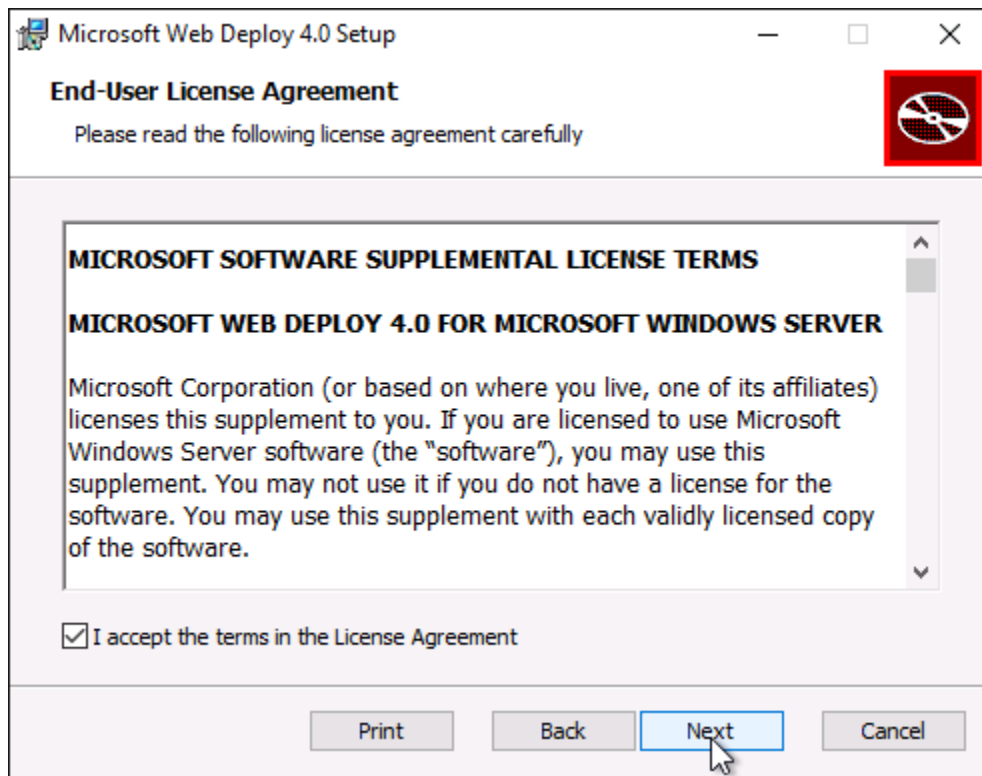
3. Start installation

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



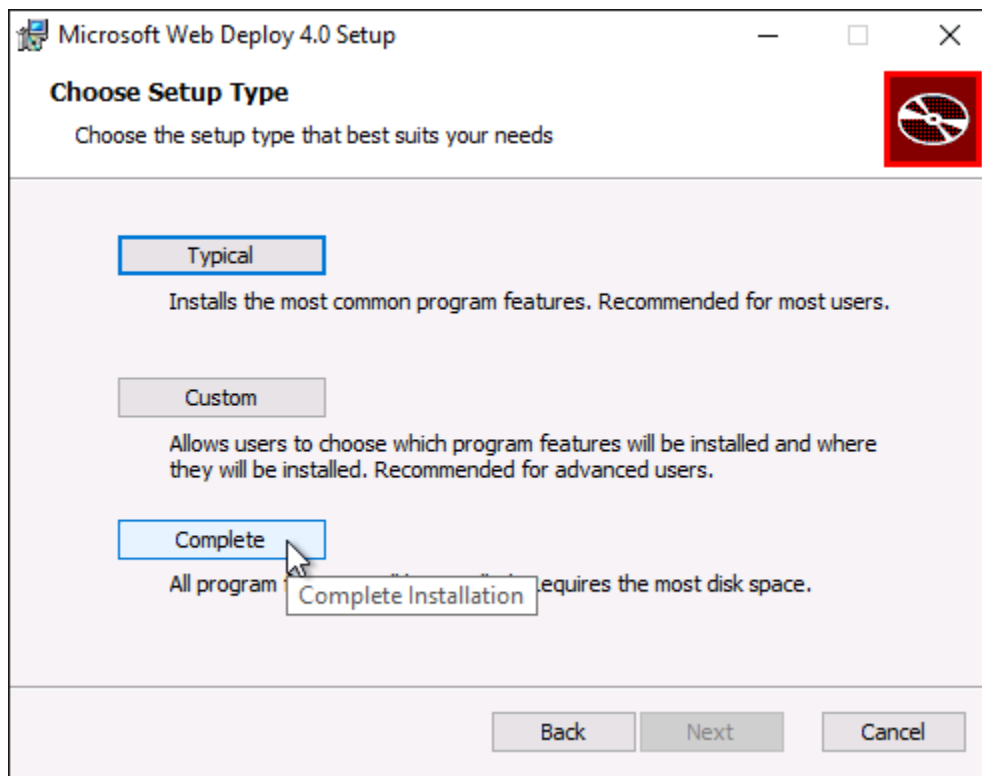
4. Accept terms

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



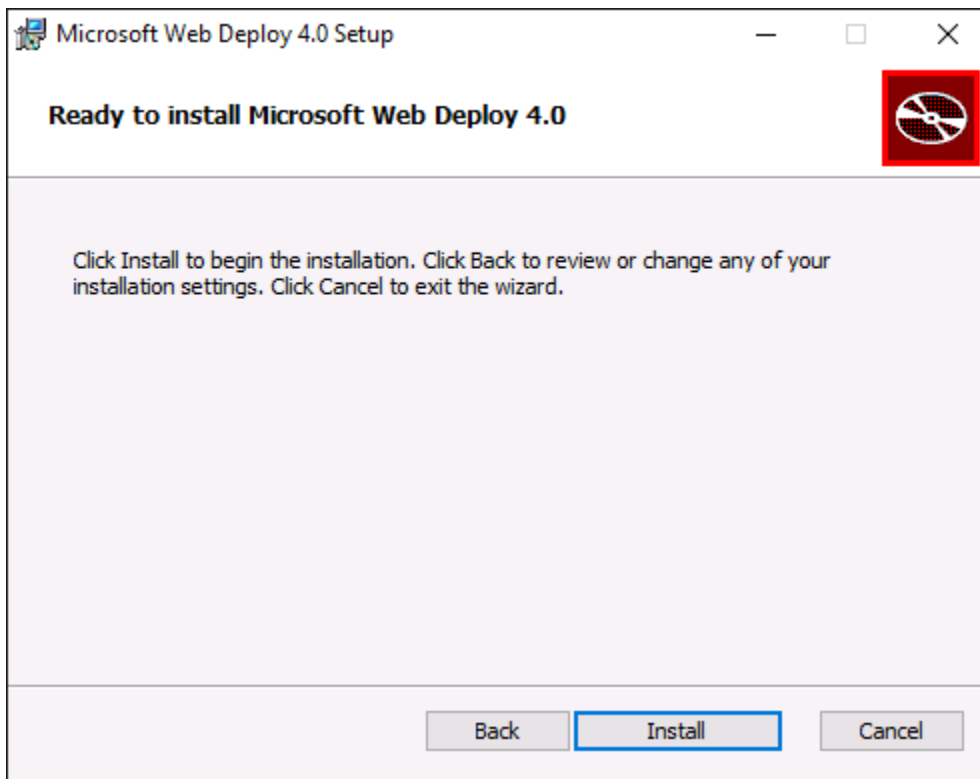
5. Choose a setup type

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.**

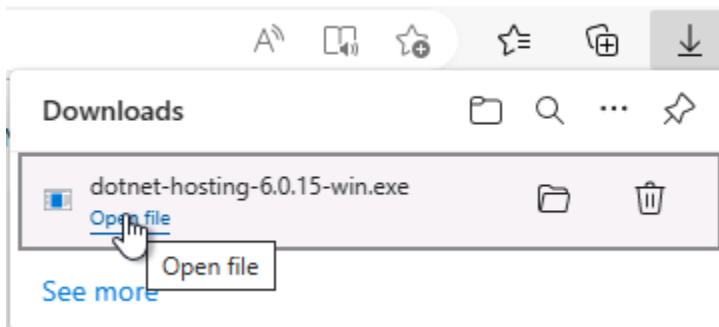
IIS runtime support (ASP.NET Core Module v2)

16.0.23055.15

OS	Installers	Binaries
Linux	Package manager instructions	Arm32 Arm32 Alpine Arm64 Arm64 Alpine x64 x64 Alpine
macOS		Arm64 x64
Windows	Hosting Bundle x64 x86 winget instructions	Arm64 x64 x86

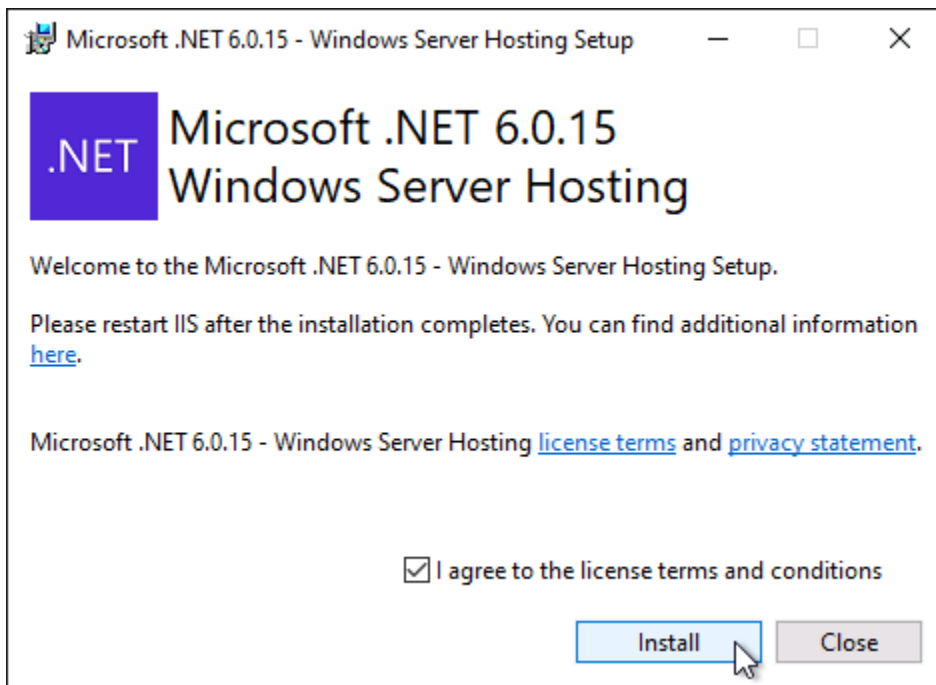
2. Open the file

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



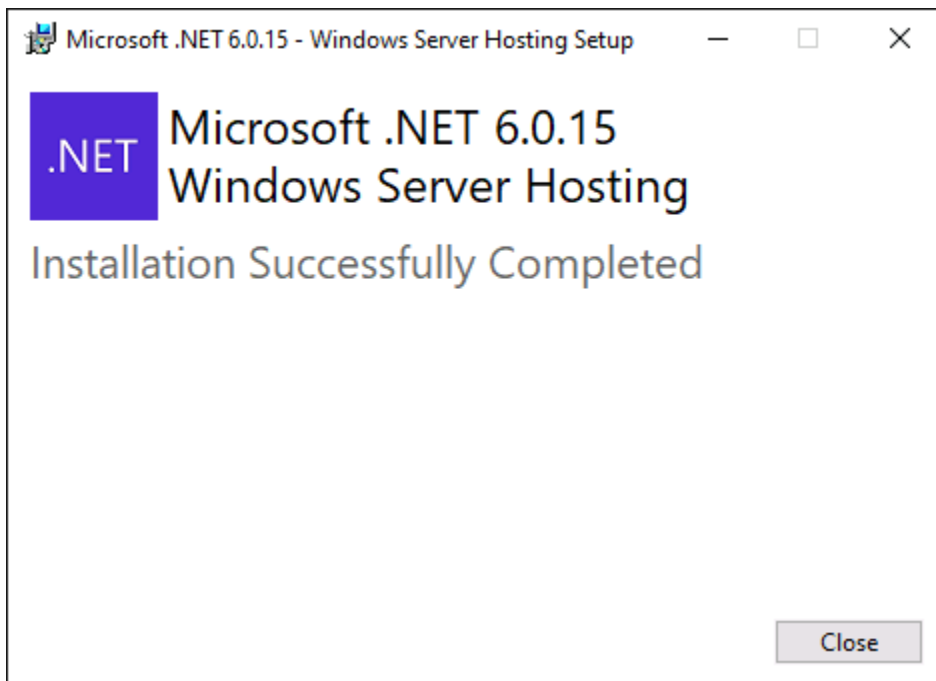
3. Accept the terms

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

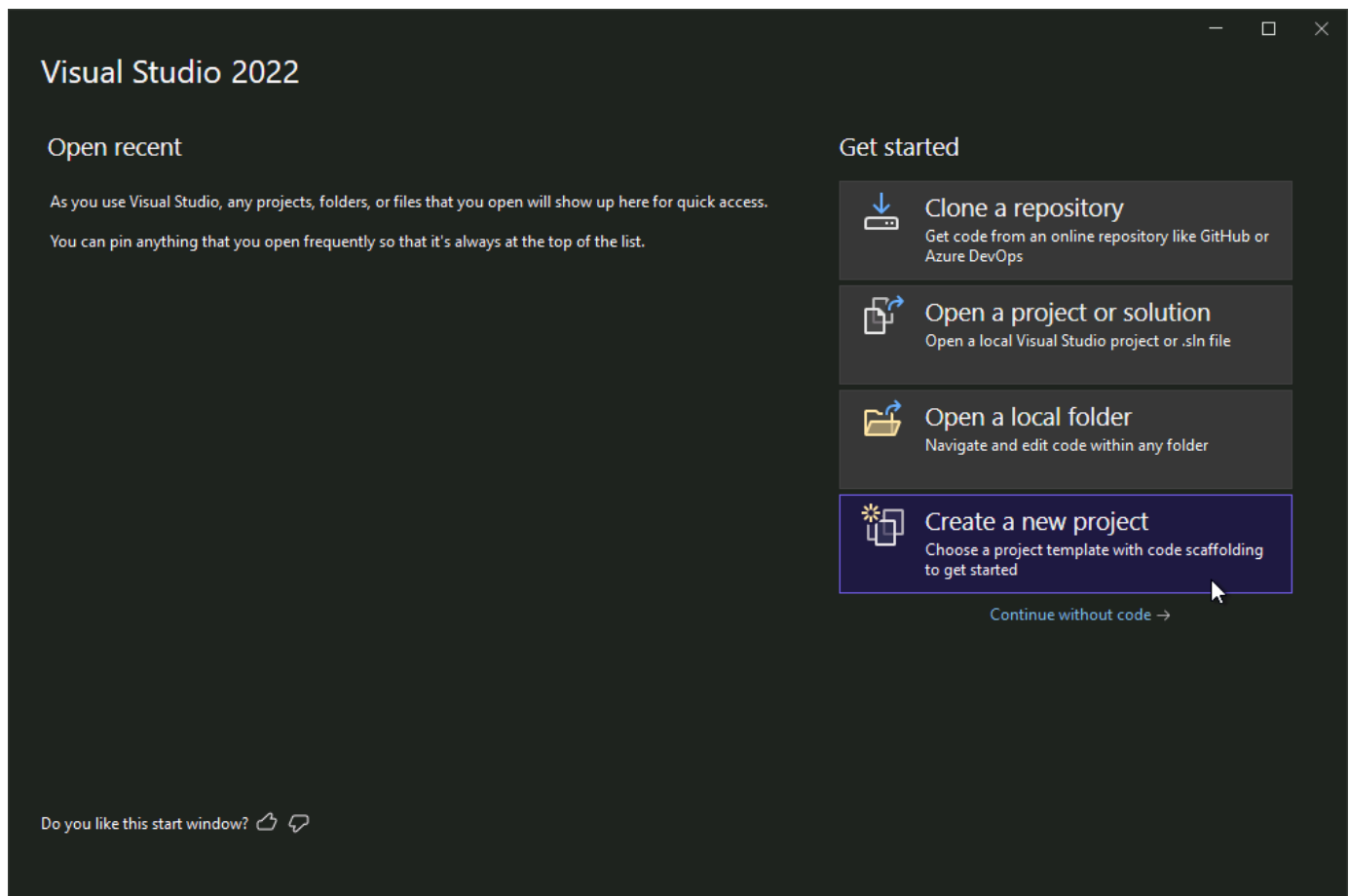
In these steps, you will create an application using the ASP.NET Core Web App template in Visual Studio 2022 Community edition. To download and install Visual Studio 2022 Community edition, see the [Visual Studio](#) website.

1. Open Visual Studio

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

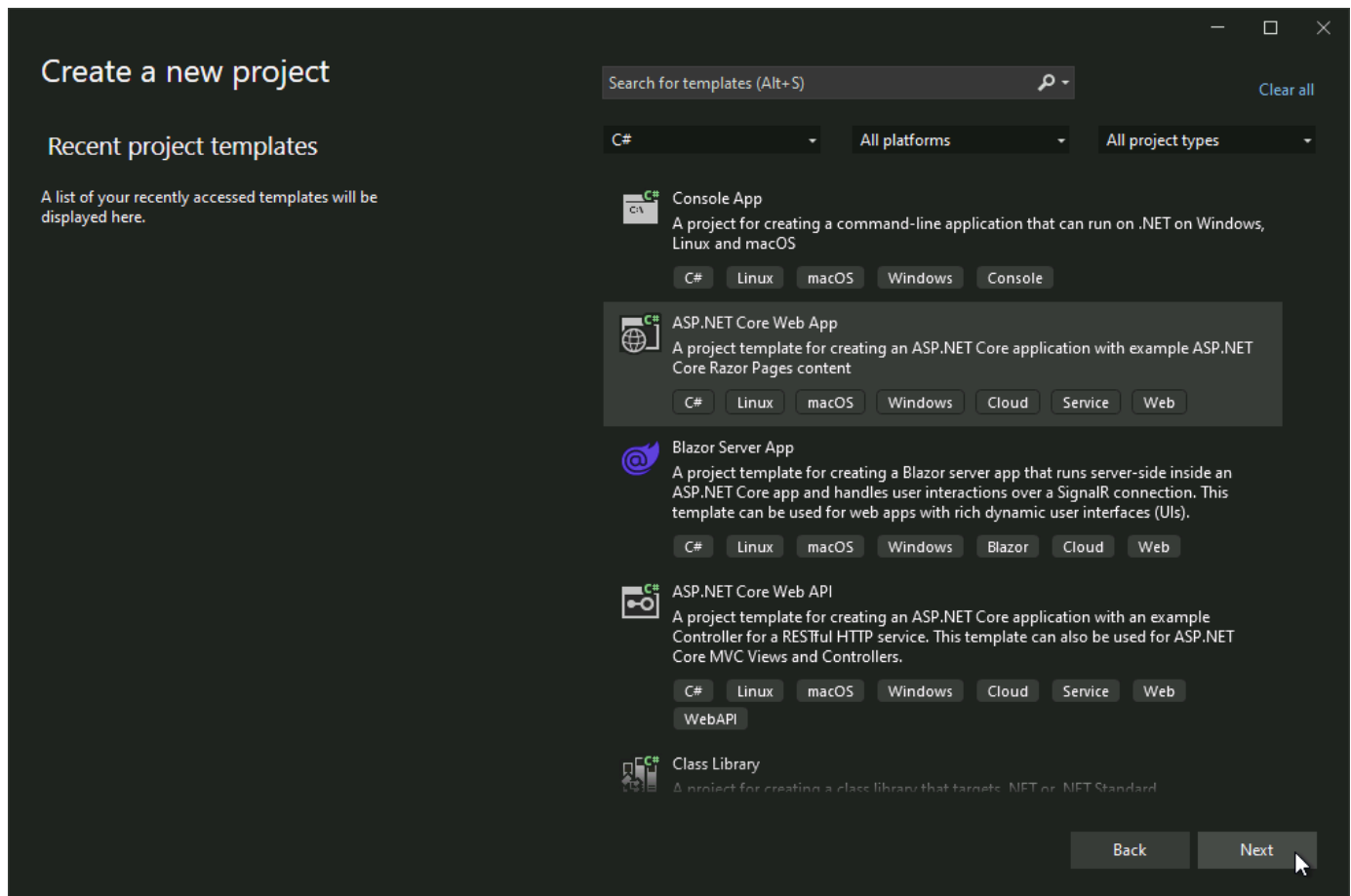
2. Create a project

Choose **Create a new project**.



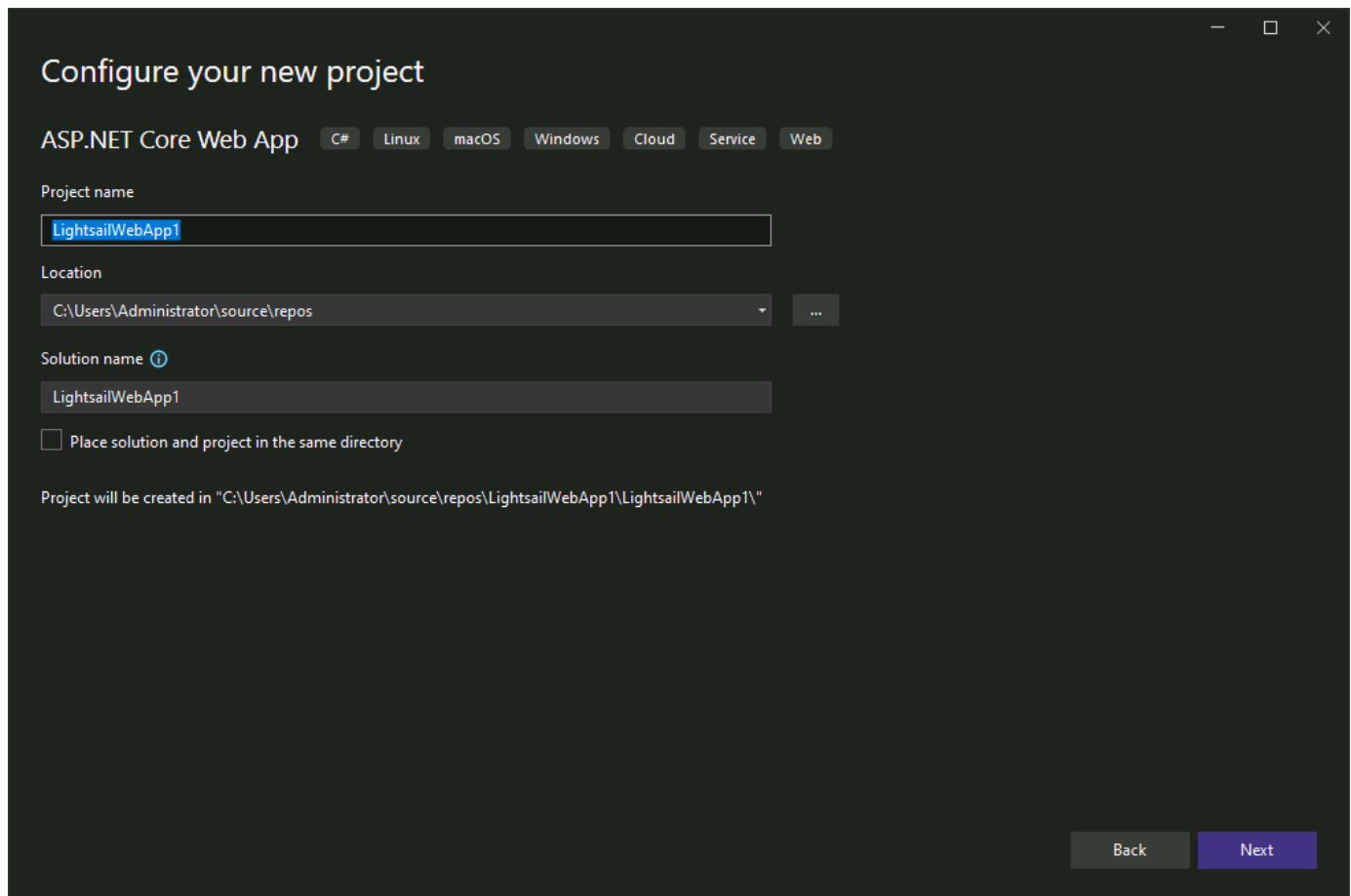
3. Choose a language

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**.



Configure your new project

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

Project name
LightsailWebApp1

Location
C:\Users\Administrator\source\repos

Solution name ⓘ
LightsailWebApp1

☐ Place solution and project in the same directory

Project will be created in "C:\Users\Administrator\source\repos\LightsailWebApp1\LightsailWebApp1\"

Back 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
Custom 	TCP 	8172	

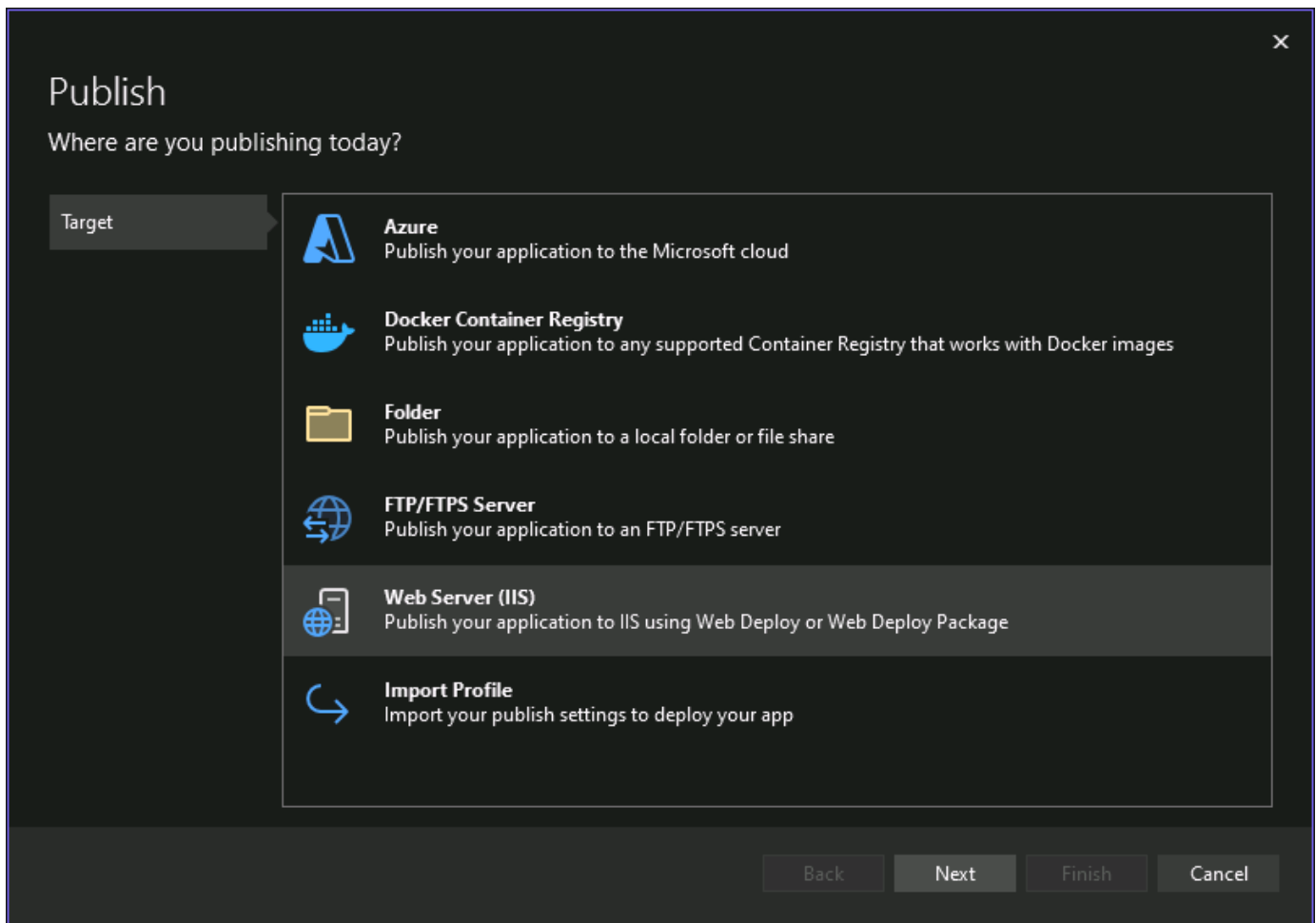
Cancel  Create 

Duplicate rule for IPv6 ☒

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

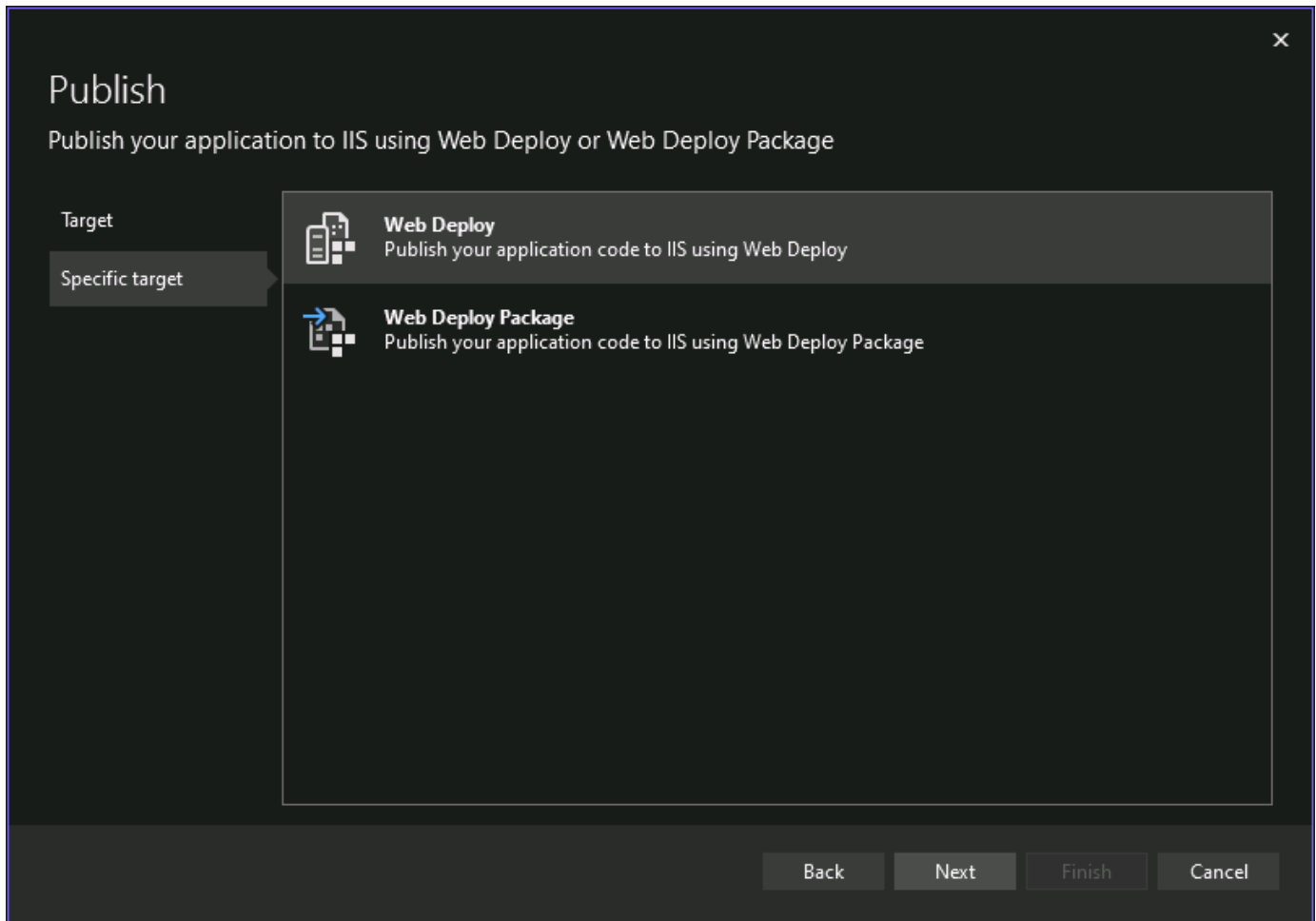
2. Choose a publishing target

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



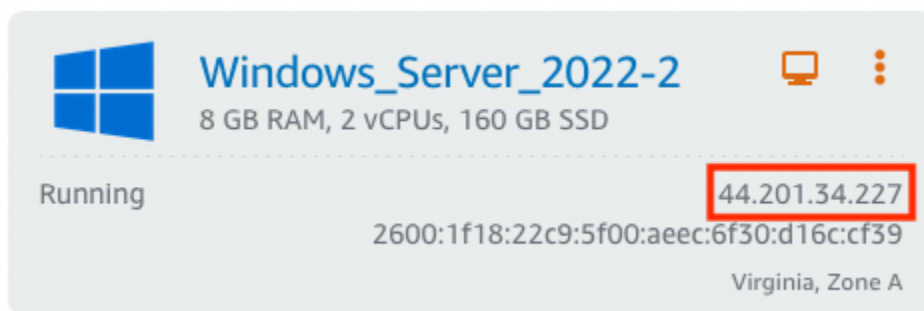
3. Choose Web Deploy

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



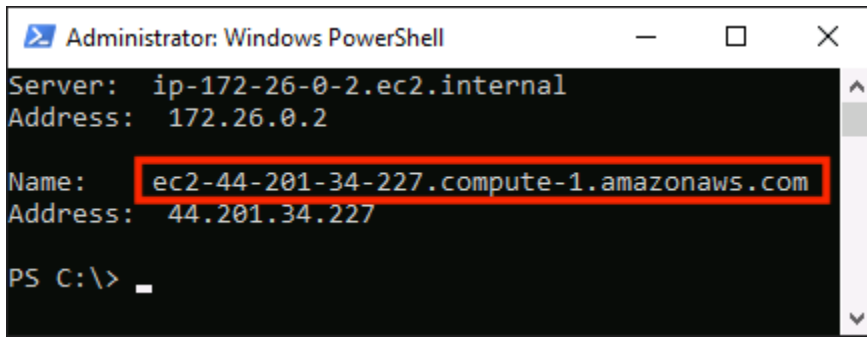
4. Get the public IP

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

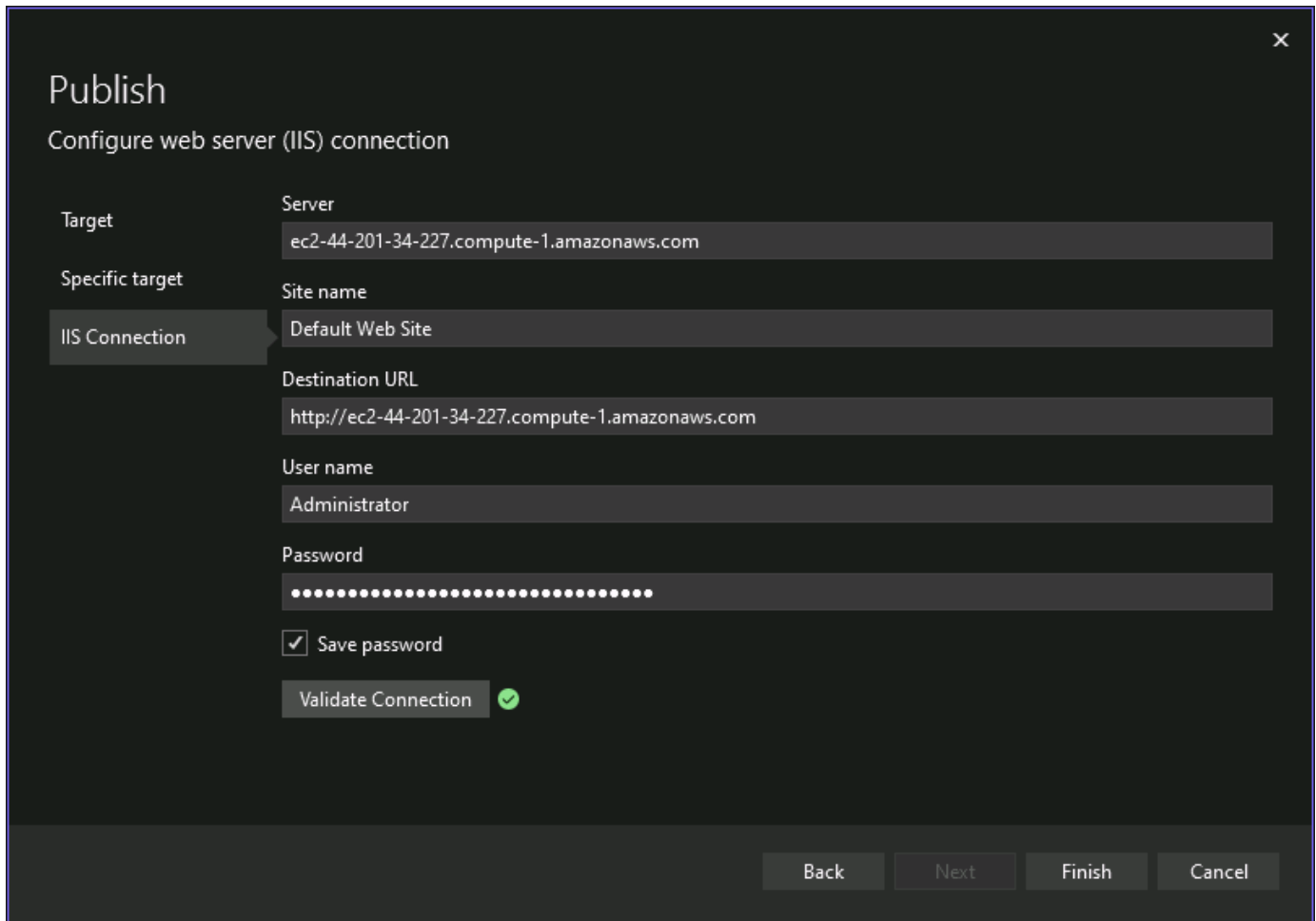
On the next screen, enter the following information:

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.



The screenshot shows a 'Publish' dialog box with the title 'Configure web server (IIS) connection'. On the left, there is a sidebar with 'IIS Connection' selected. The main area contains the following fields and controls:

- Target:** A dropdown menu showing 'Server'.
- Specific target:** A text box containing 'ec2-44-201-34-227.compute-1.amazonaws.com'.
- Site name:** A text box containing 'Default Web Site'.
- Destination URL:** A text box containing 'http://ec2-44-201-34-227.compute-1.amazonaws.com'.
- User name:** A text box containing 'Administrator'.
- Password:** A text box filled with dots.
- Save password:** A checked checkbox.
- Validate Connection:** A button with a green checkmark icon.

At the bottom right, there are four buttons: 'Back', 'Next', 'Finish', and '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

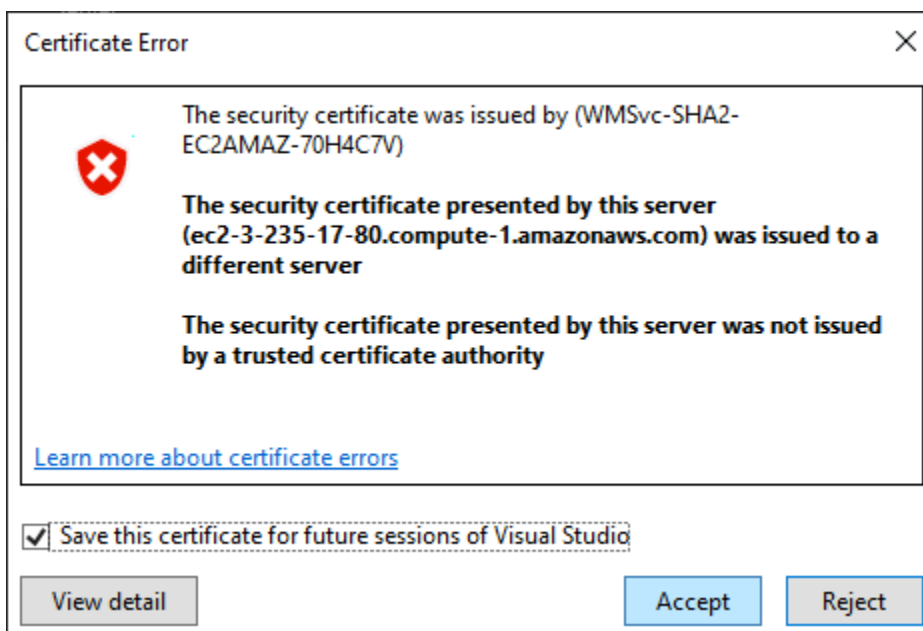
If you change the password for your instance, this password no longer works.
You are prompted to enter the new password every time you use the in-browser
connection window.

Okay, got it!

8. Validate the connection

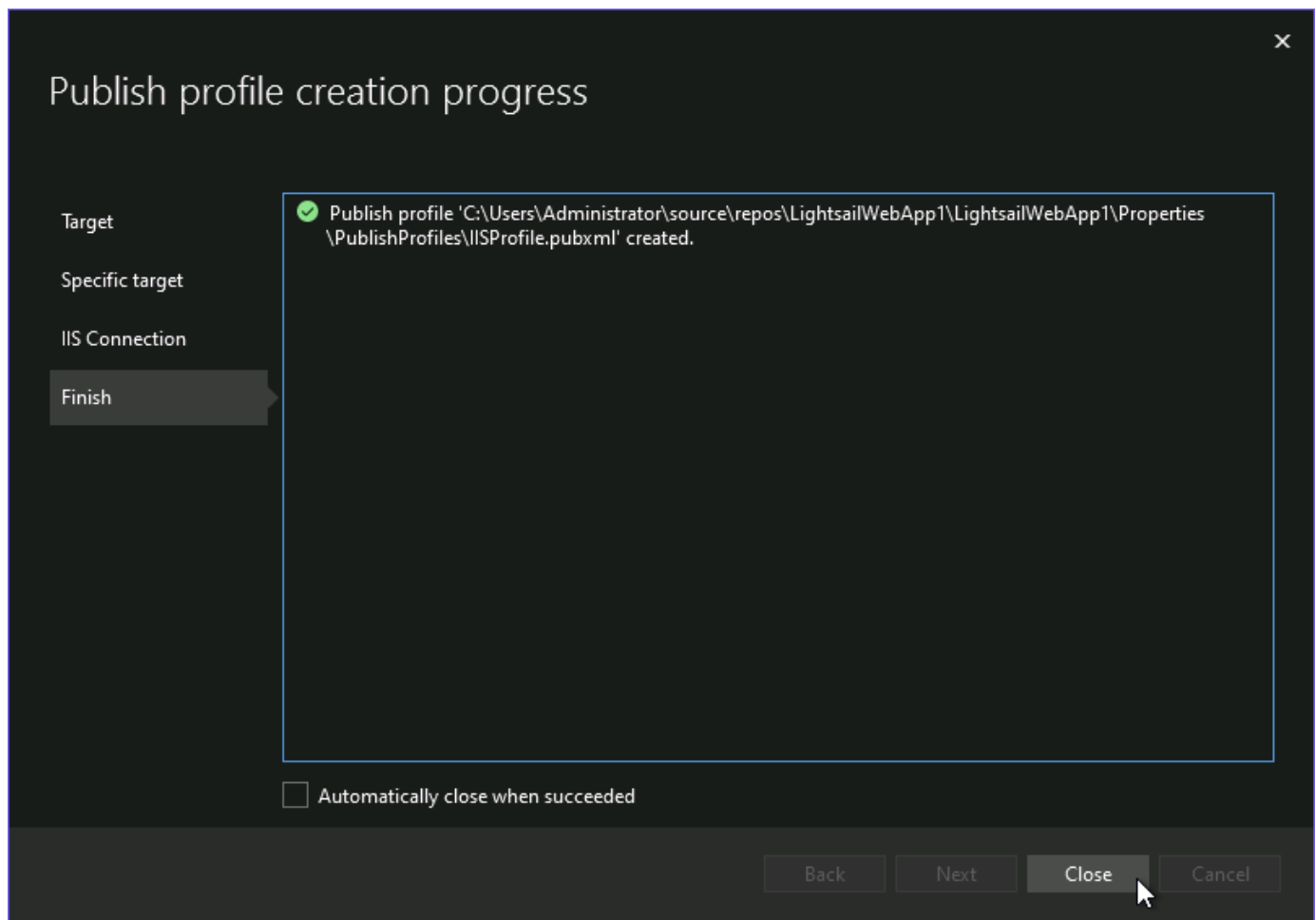
Choose **Validate Connection** to test the connection. You might get a certificate error like the one in the screenshot when connecting the first time. This is because the server uses a default certificate and you can safely accept it if the hostname displayed matches the one you intended to connect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



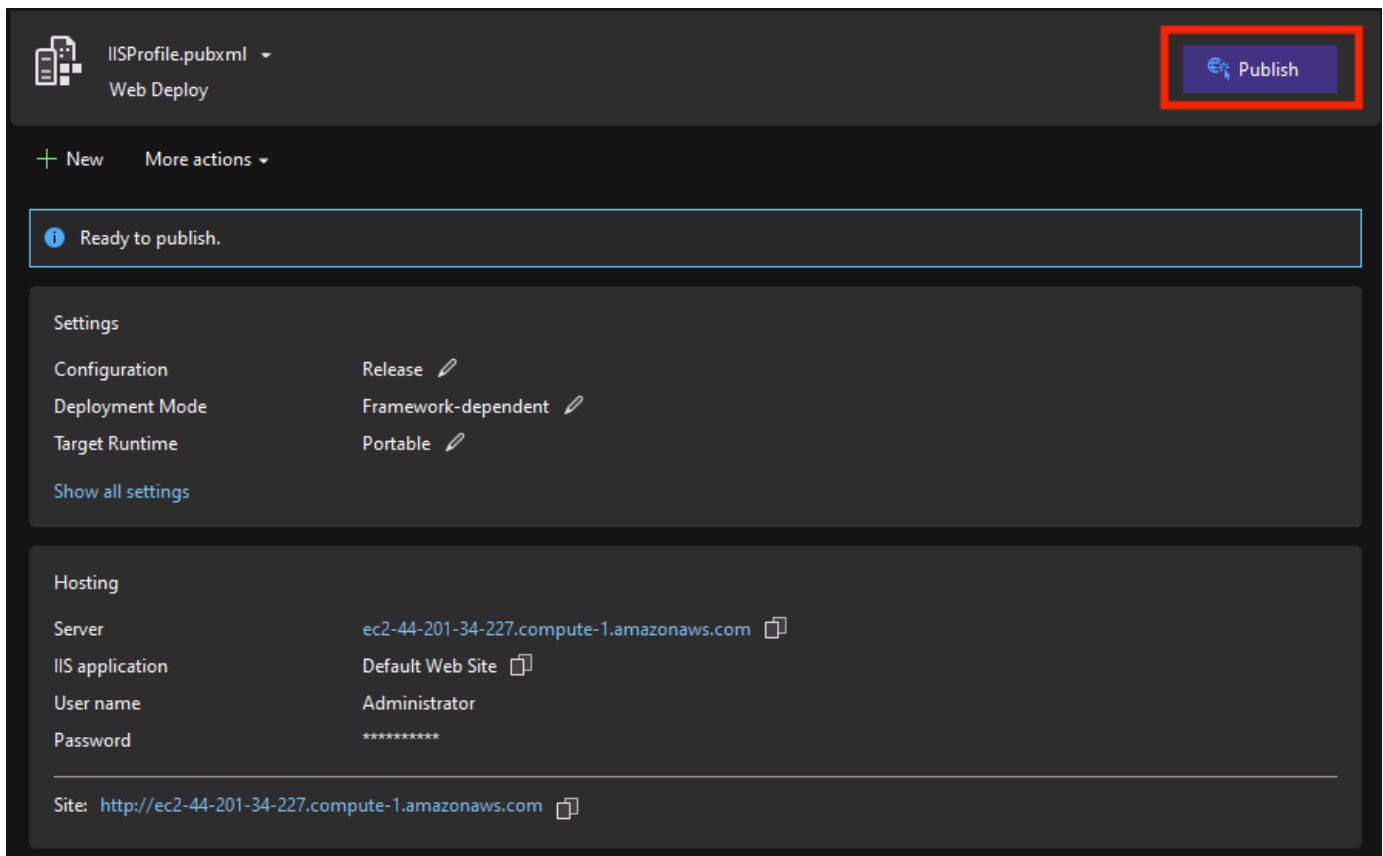
9. Monitor profile creation

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

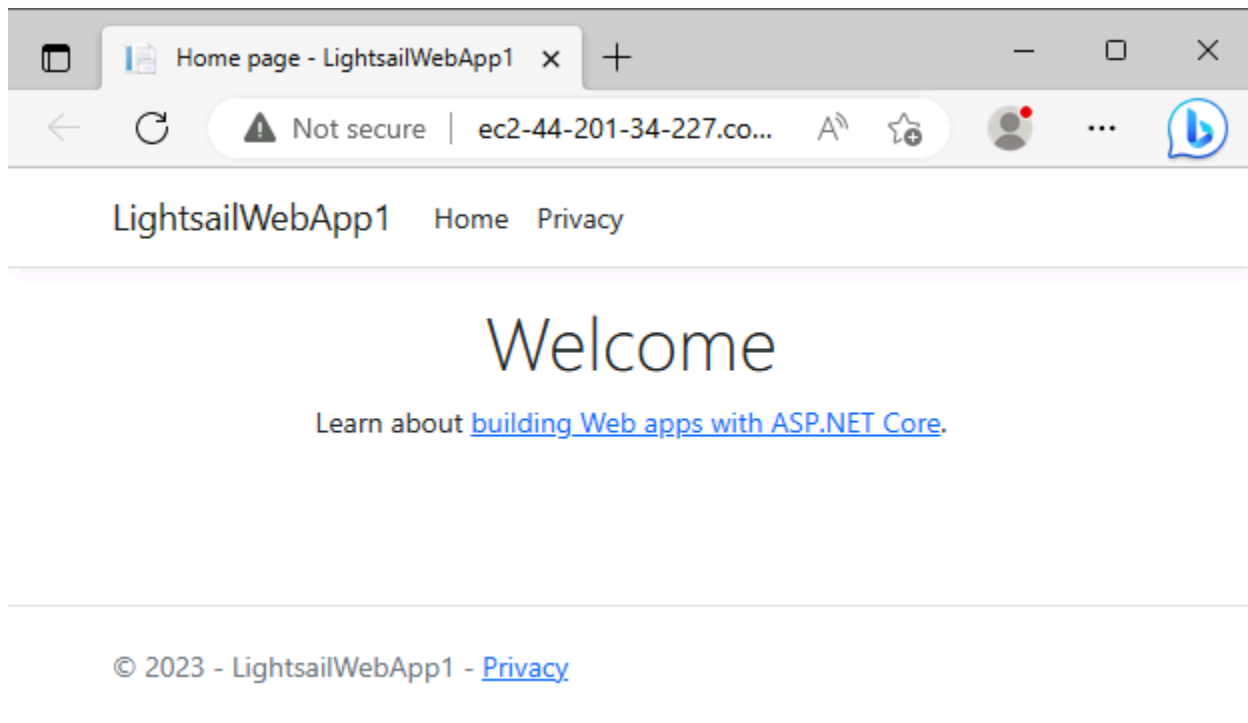
The **Output** in Visual Studio will show a successful message if your project was successfully published to your server.

```
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.

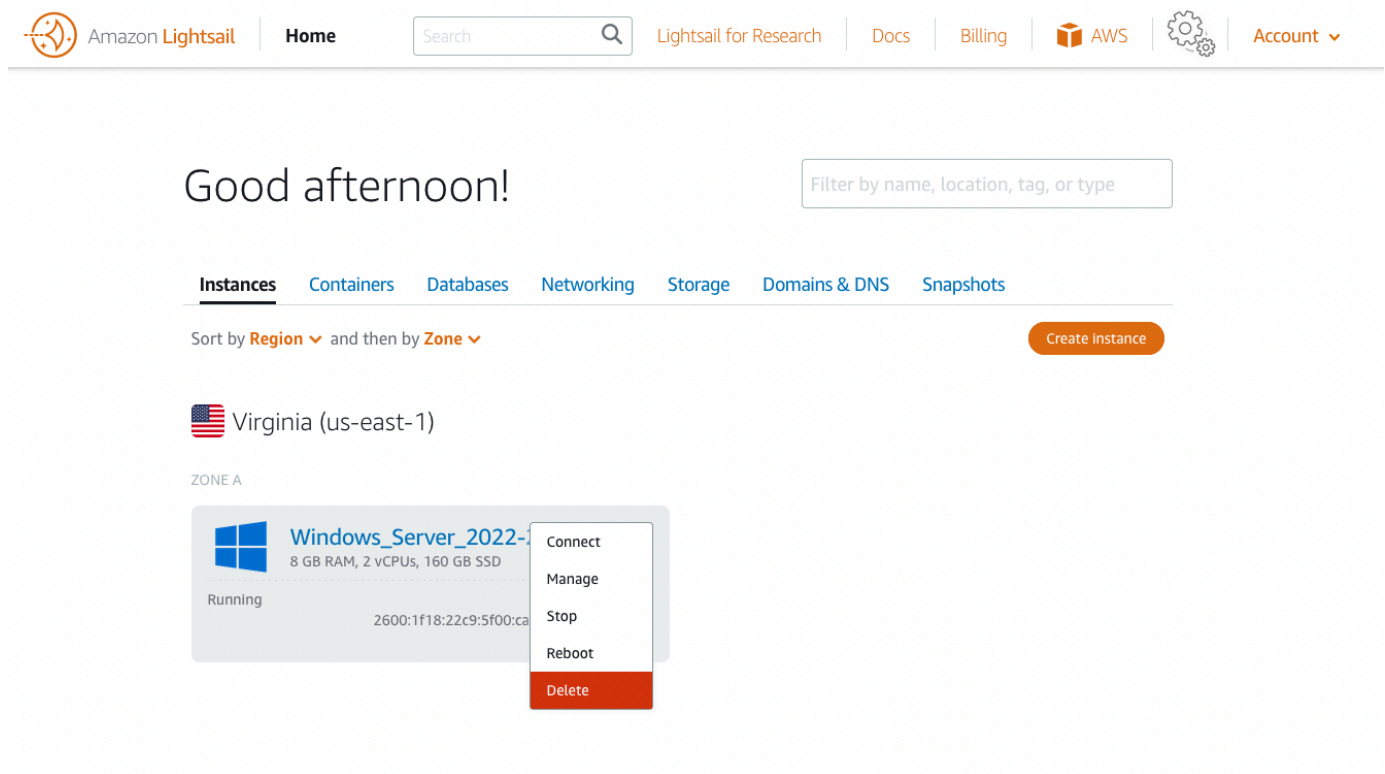


Clean up resources

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)

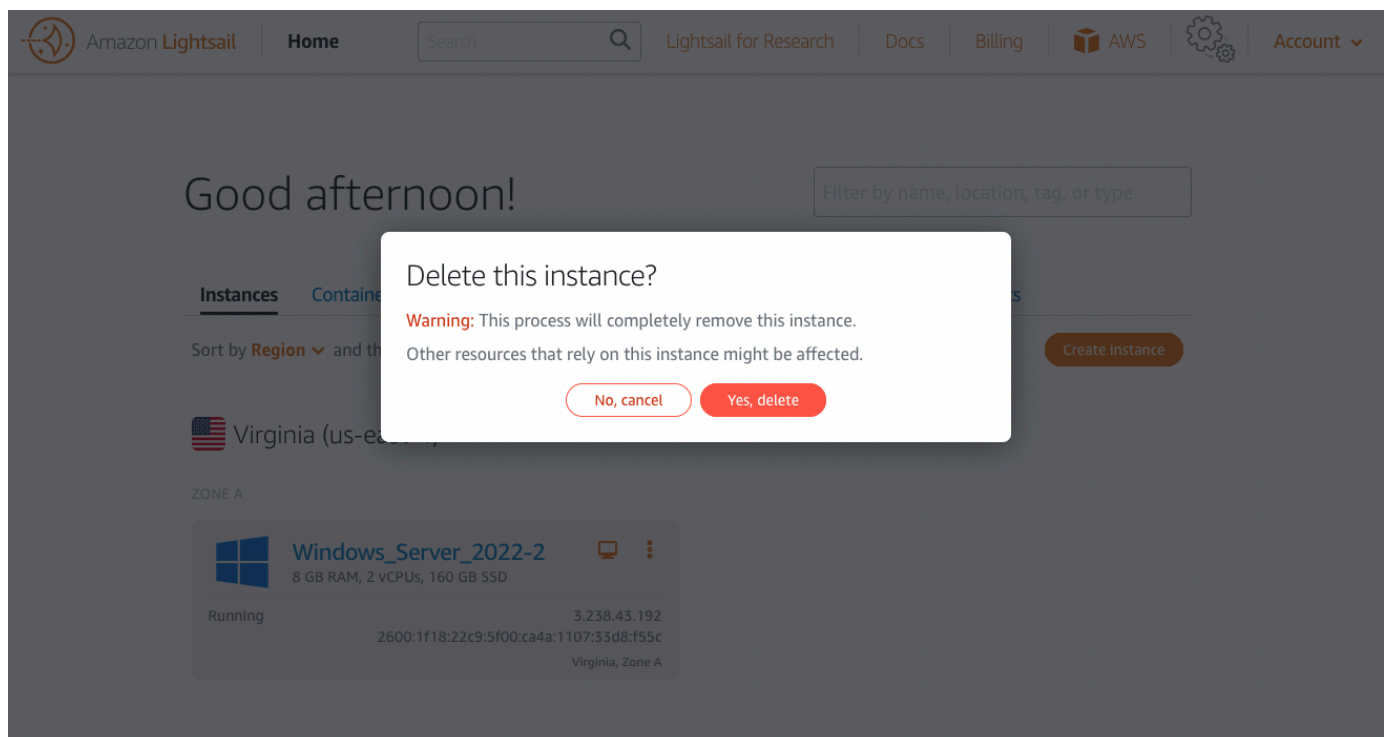
ZONE A

Windows_Server_2022-2
8 GB RAM, 2 vCPUs, 160 GB SSD
Running
2600:1f18:22c9:5f00:ca4a:1107:33d8:f55c
Virginia, Zone A

Connect
Manage
Stop
Reboot
Delete

2. Confirm deletion

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



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
3.238.43.192
2600:1f18:22c9:5f00:ca4a:1107:33d8:f55c
Virginia, Zone A

Delete this instance?

Warning: This process will completely remove this instance.
Other resources that rely on this instance might be affected.

No, cancel Yes, delete

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.