

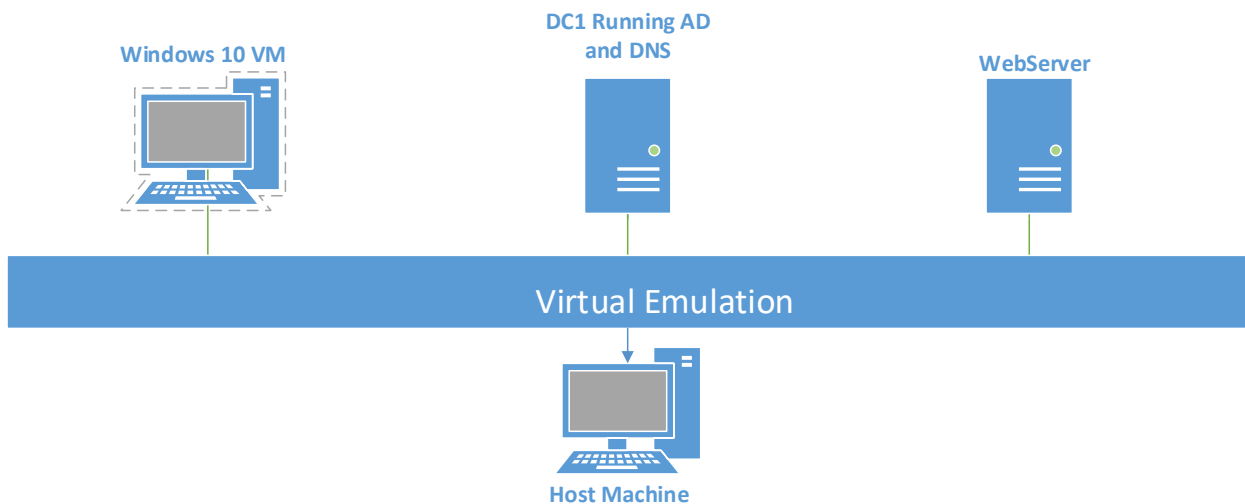
## Lab – Create an IIS Website on Windows Server 2016

### Overview

In this short lab, you will learn how to perform a basic website setup using Microsoft Internet Information Services (IIS), virtual directories, and changing ports. This lab is for installing and configuring IIS. We will not be discussing how to use HTML or build a web page.

### Lab Requirement

- One installation of Server Core 2012, 2016, or 2019.
  - Joined to the domain.
  - Configured with a static IP address and primary address of the DNS server.
- One installation of Windows 10 joined to the domain.
- One installation of Server 2012, 2016 or 2019 running as a DC hosting DNS



### Caveat!

I would not recommend installing IIS on a domain controller or any production machine because of the security risks involved but for this lab demonstration, installing IIS onto your DC is permissible.

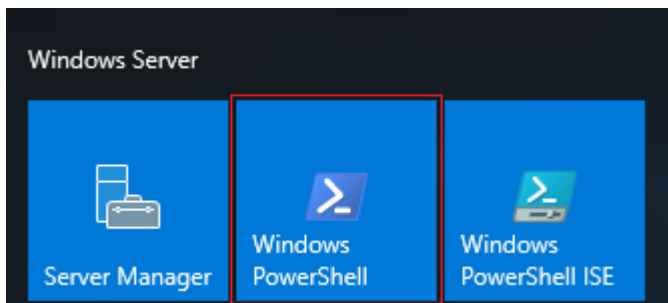
This lab will work using an installation of Server Core. Server Core must be joined to the domain. By adding the machine to the All Servers in Server Manager, you can install IIS using either the GUI method or using PowerShell.

## Installing IIS Using PowerShell

In this first part of the lab, you will install IIS using PowerShell on a full install of Windows Server.

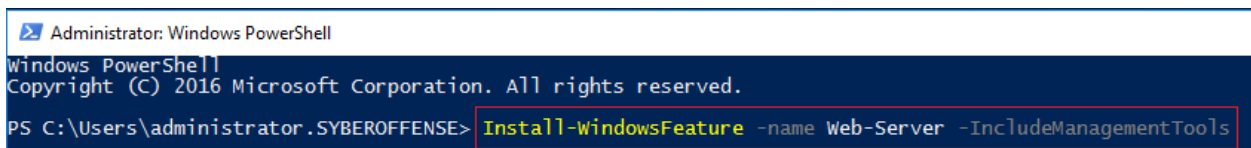
Installing IIS using PowerShell gives us the same default installation we achieve using the Server Manager Add Roles and Features Wizard, but it is much quicker.

To begin the installation of IIS using PowerShell, click on the start button and from the tiled menu select PowerShell.

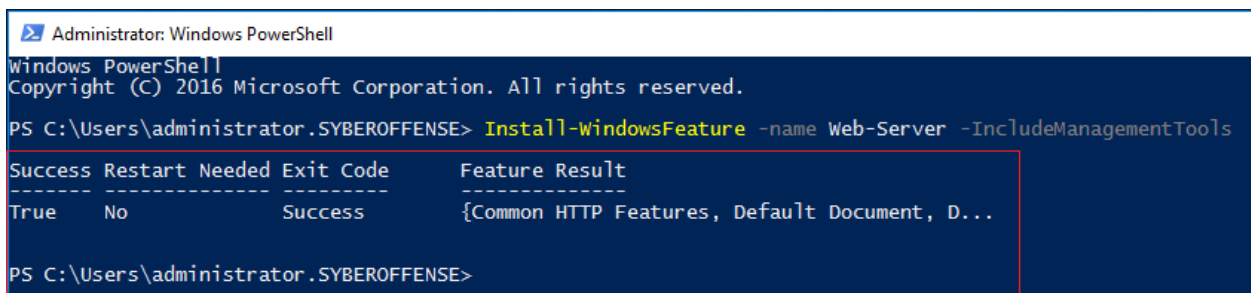


Once PowerShell is up and running, type or copy and paste the following command at the prompt.

```
Install-WindowsFeature -name Web-Server -IncludeManagementTools
```

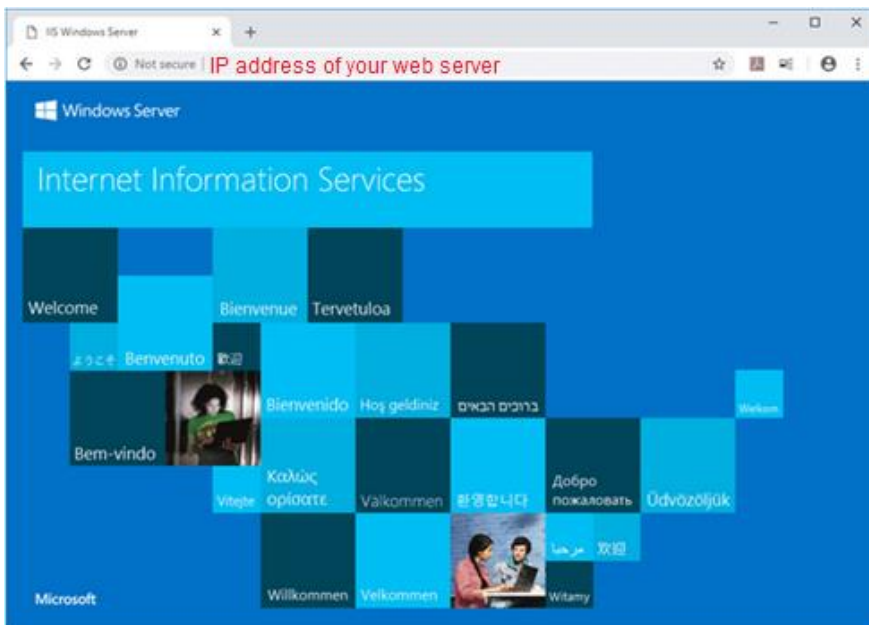


Once the installation is complete, you will be given a success message.

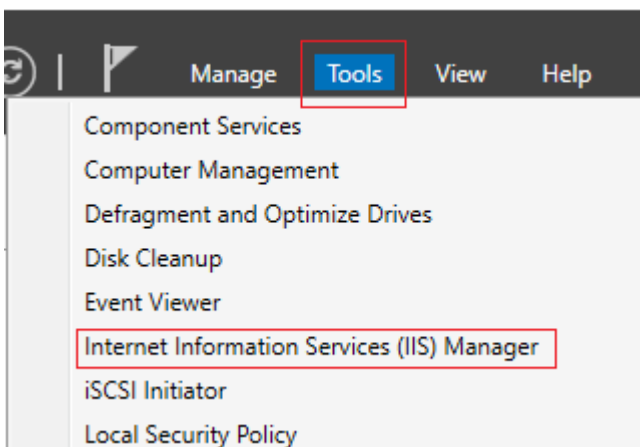


## Optional - Post Installation

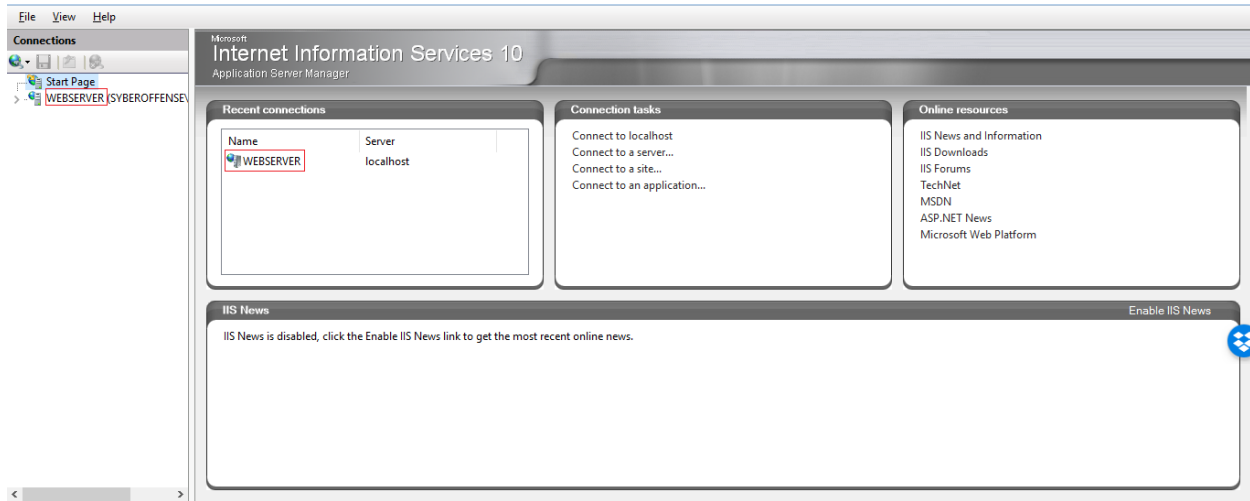
We can perform a simple test by opening a web browser and browsing to the server that we have installed IIS on. You should see the default IIS page.



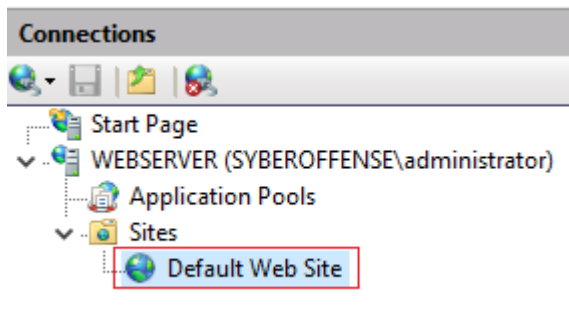
Open and Server Manager. From your Server Manager, go to tools and click on the Internet Information Services (IIS) Manager.



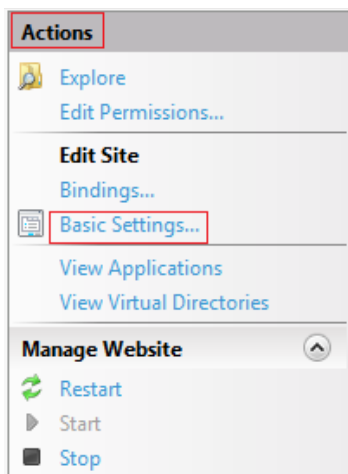
Inside the IIS management console on the left, we can see the name of our webserver.



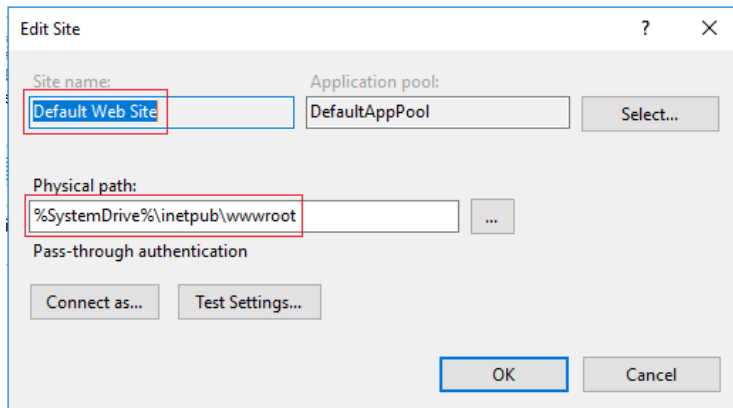
In the left-hand window pane, click on the name of your server to expand its contents. Expand the Sites container and click on the default site. At this point, there is nothing in our site. We need to add some content to see what our website might look like from another PC.



Over in the far-right Actions window pane, click on where it says, Basic Settings.



Here we can find the name of our Web Server and the default location for any web content.

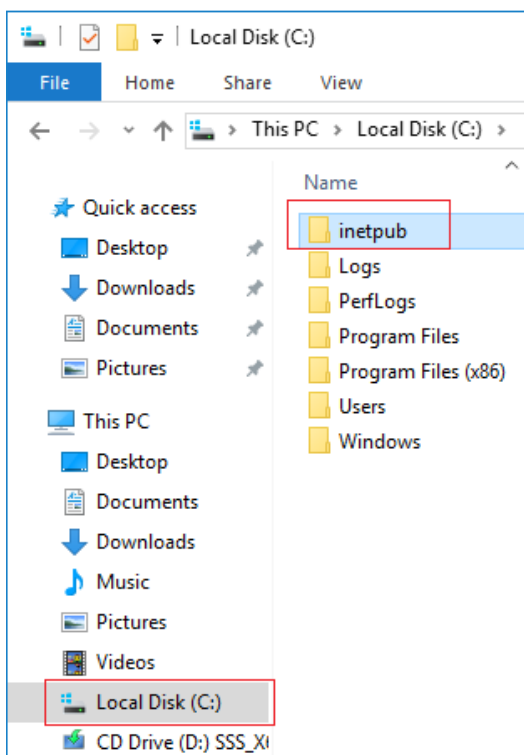


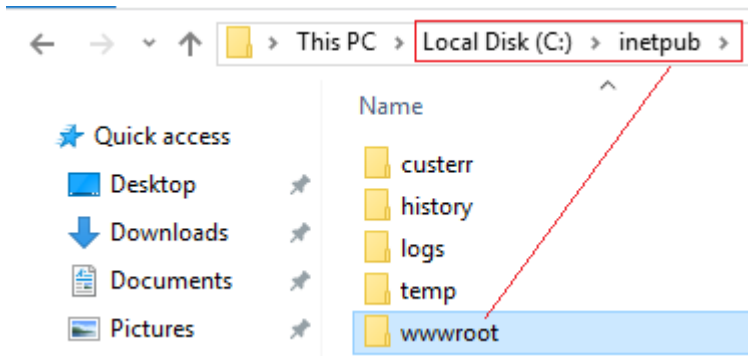
Under Physical path, we see that the default location is the root of C:\inetpub\wwwroot folder.

Open your File Explorer.



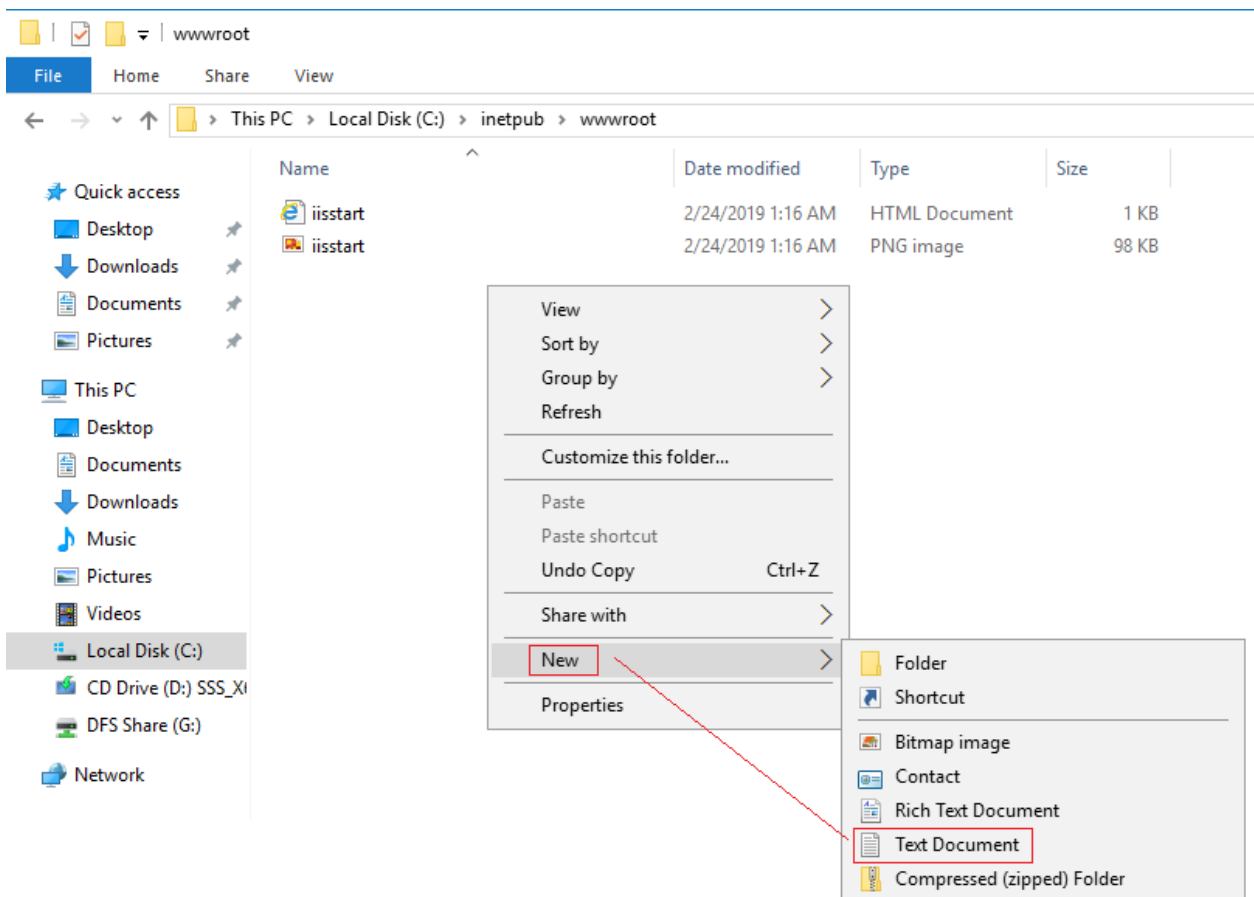
Browse to your Local Disk (C:). open the inetpub folder and then open the wwwroot folder.



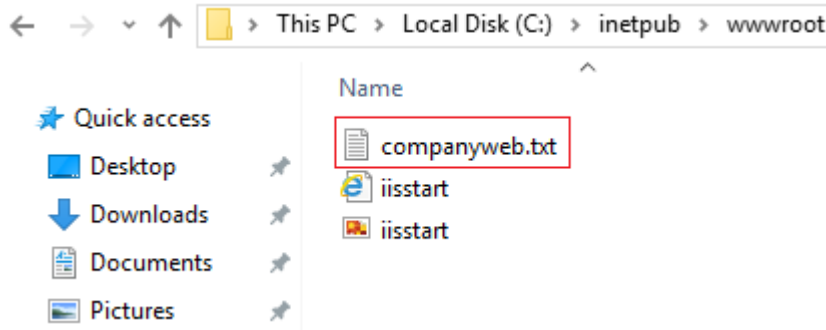


This is the default storage location for all our web content. This is the same location we see in the basic setting for our web server.

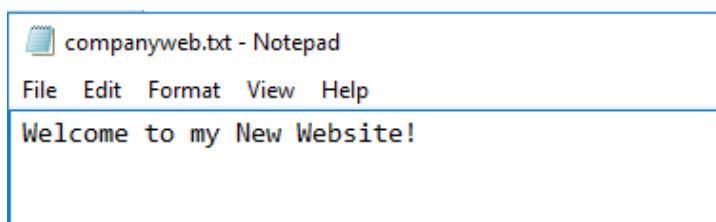
Inside the wwwroot folder, right click anywhere in the center window pane and create a new text file.



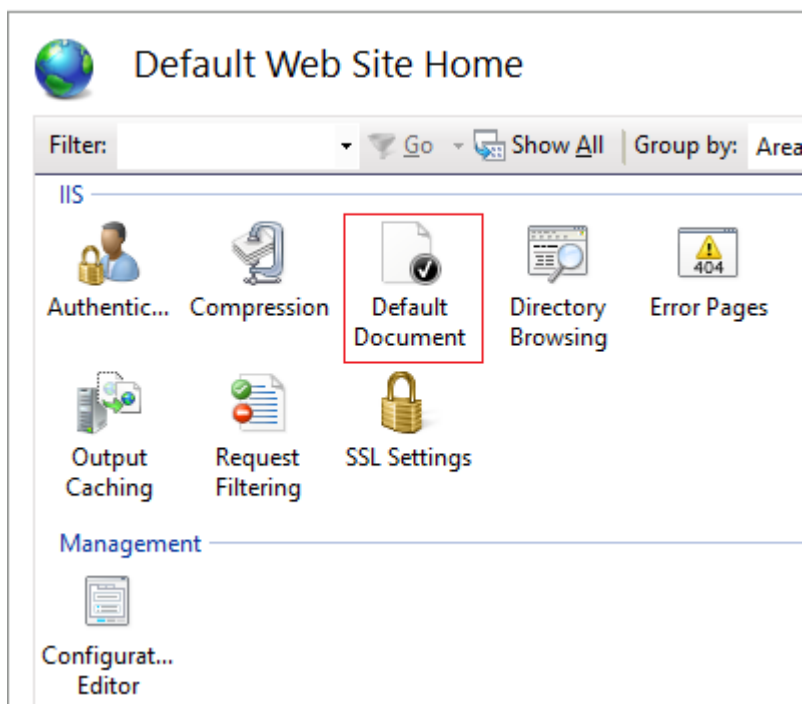
Name the new text document, companyweb.txt



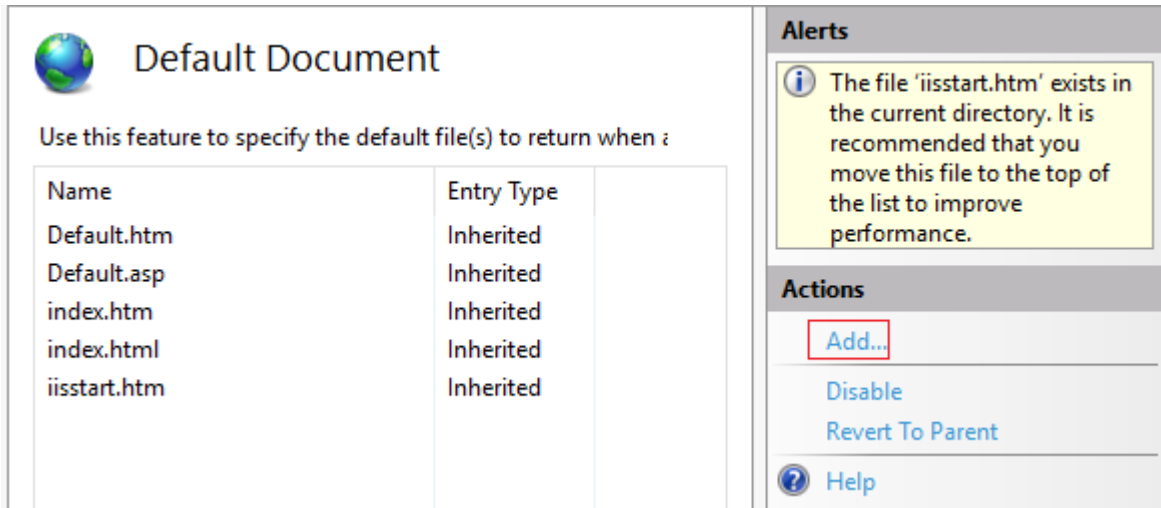
Open the new text document and type, “Welcome to My New Website!” without the quotes. Save the changes.



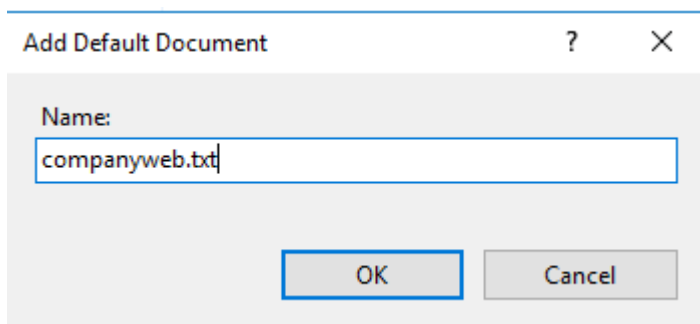
Return to your default website in the IIS management console. In the center window pane, click on the icon for Default Documents.



Inside the default documents container, go to the action's menu on the far right and click on Add.



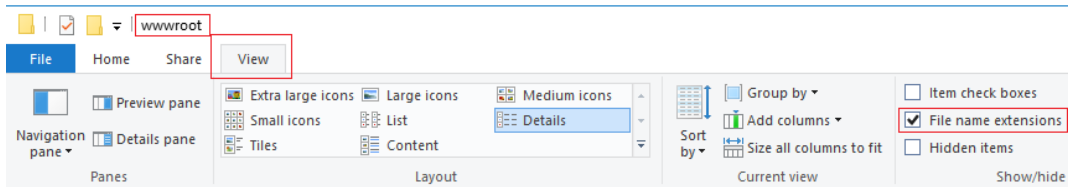
In the Add Default Document dialog box, type the name of your new default document we made inside the wwwroot folder. Click Ok.



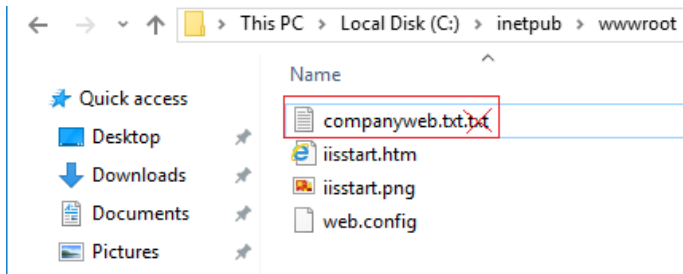
Our Default web site will now look for this document in the location we created it in. Be sure to check you new default document inside the wwwroot folder to ensure it only has one extension and not showing as **companyweb.txt.txt**

Back at the default location for our new default document, in the File Explorer task bar click on view and then check the box to show file extensions.

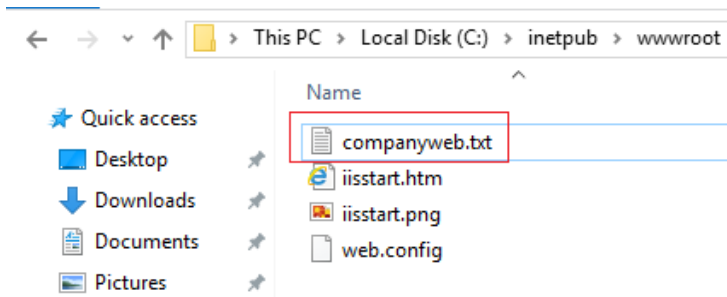




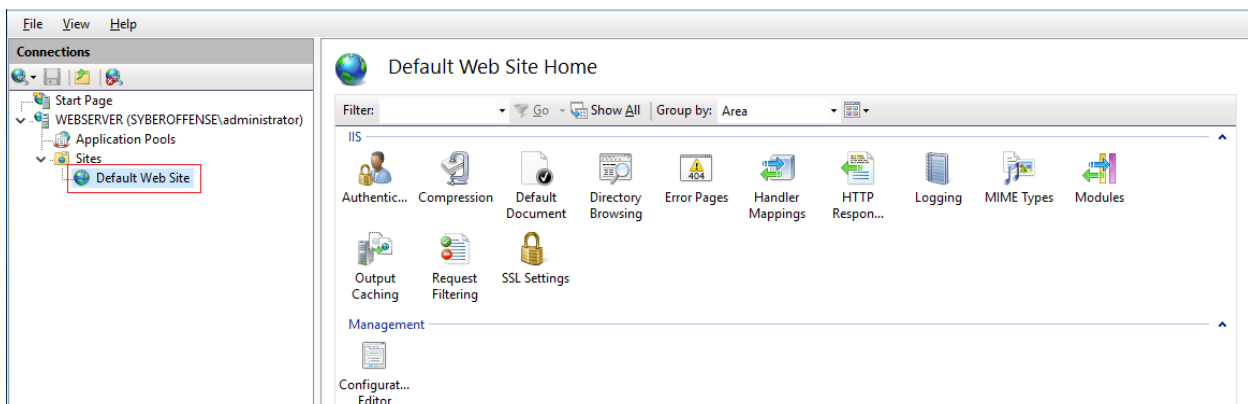
You can now see that the file contains an extra file extension of .txt. Remove the second extension.



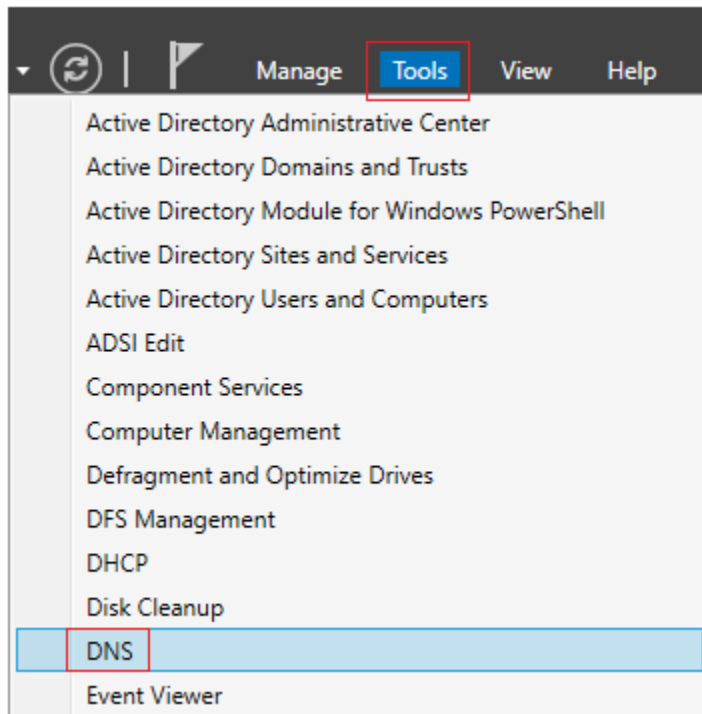
This is how you new default document should be named. Check to ensure the file opens correctly.



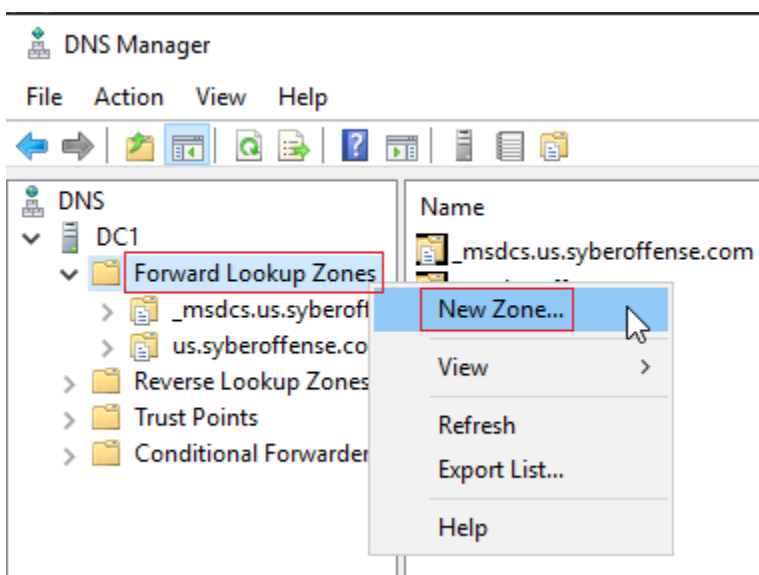
Return your IIS management console and close out any dialog boxes and under Sites, click on the Default Web site.



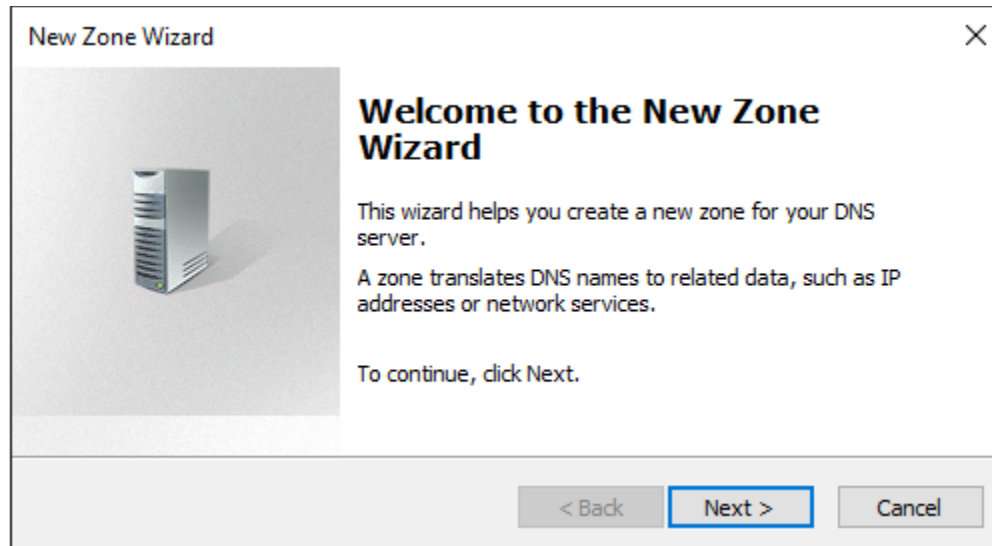
Leave the console open logon onto your Domain Controller. The Server Manager of your Domain controller, open Server Manager and from the Tools Menu, click on your DNS management console snap-in.



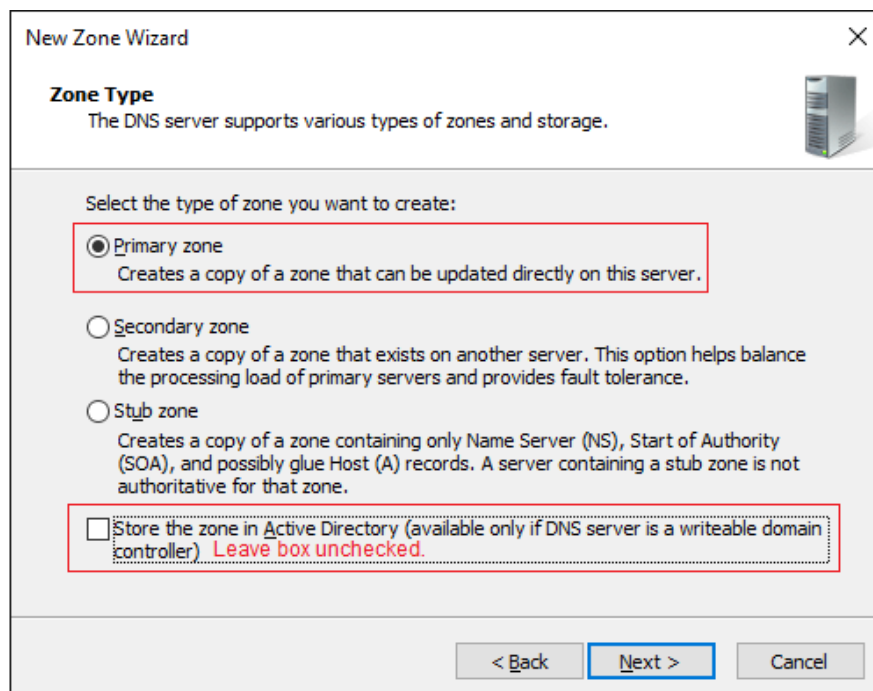
From the DNS management console, expand your Forward Lookup Zones, right click and from the context menu, select New Zone.



On the first page, click next.



On the next screen, accept the default for a primary zone but do not store in Active Directory by ensuring the box is unchecked.



Use the name of your domain or a portion of your domain name if you so choose. I have chosen to call this primary zone, syberoffense.com.

New Zone Wizard

**Zone Name**  
What is the name of the new zone?

The zone name specifies the portion of the DNS namespace for which this server is authoritative. It might be your organization's domain name (for example, microsoft.com) or a portion of the domain name (for example, newzone.microsoft.com). The zone name is not the name of the DNS server.

Zone name:

< Back   Next >   Cancel

On the remain screens, choose the defaults, and click finish.

New Zone Wizard

**Zone File**  
You can create a new zone file or use a file copied from another DNS server.

Do you want to create a new zone file or use an existing file that you have copied from another DNS server?

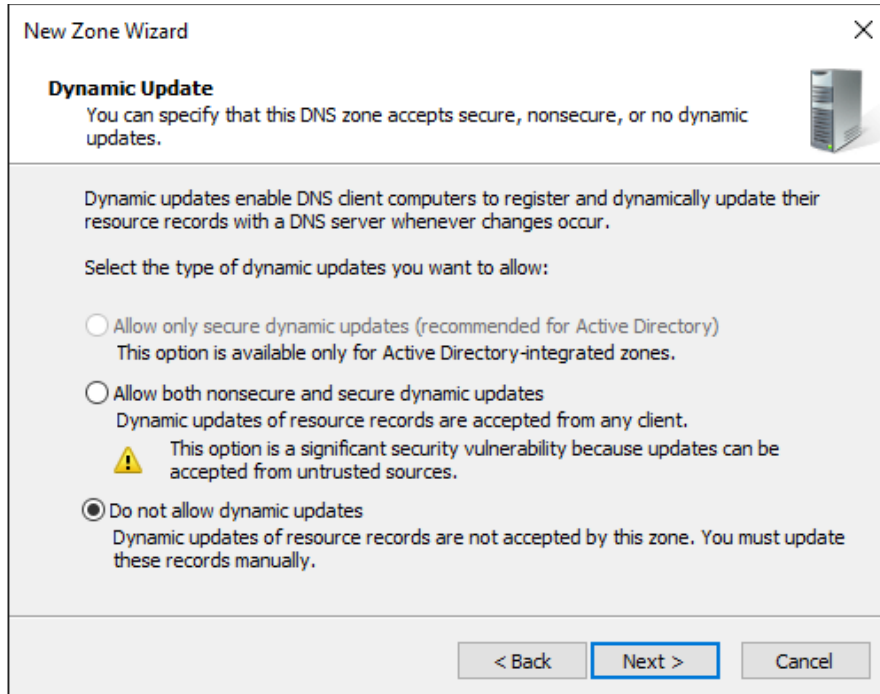
☒ Create a new file with this file name:

☐ Use this existing file:

To use this existing file, ensure that it has been copied to the folder %SystemRoot%\system32\dns on this server, and then click Next.

< Back   Next >   Cancel

Click Next.




New Zone Wizard

**Dynamic Update**

You can specify that this DNS zone accepts secure, nonsecure, or no dynamic updates.

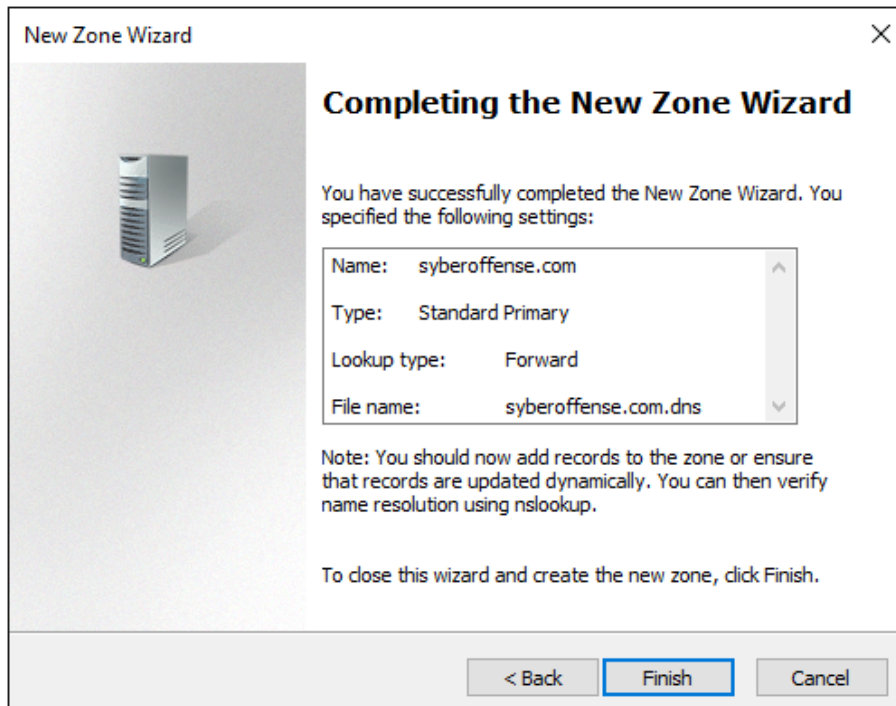
Dynamic updates enable DNS client computers to register and dynamically update their resource records with a DNS server whenever changes occur.

Select the type of dynamic updates you want to allow:

- ☐ Allow only secure dynamic updates (recommended for Active Directory)  
This option is available only for Active Directory-integrated zones.
- ☐ Allow both nonsecure and secure dynamic updates  
Dynamic updates of resource records are accepted from any client.  
 This option is a significant security vulnerability because updates can be accepted from untrusted sources.
- ☒ Do not allow dynamic updates  
Dynamic updates of resource records are not accepted by this zone. You must update these records manually.

< Back   Next >   Cancel

Click Finish



New Zone Wizard

**Completing the New Zone Wizard**

You have successfully completed the New Zone Wizard. You specified the following settings:

Name:	syberoffense.com
Type:	Standard Primary
Lookup type:	Forward
File name:	syberoffense.com.dns

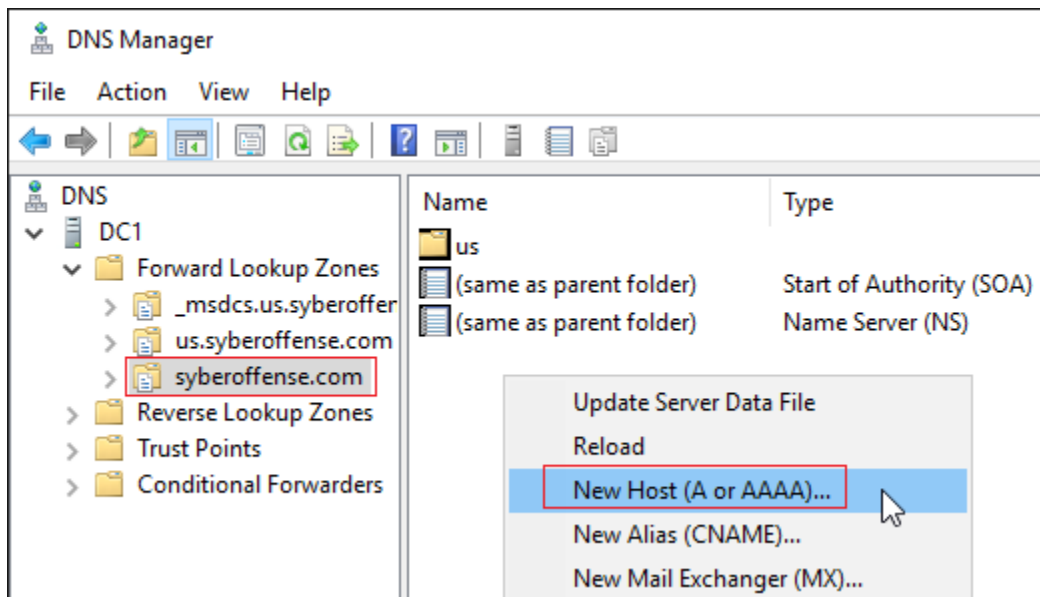
Note: You should now add records to the zone or ensure that records are updated dynamically. You can then verify name resolution using nslookup.

To close this wizard and create the new zone, click Finish.

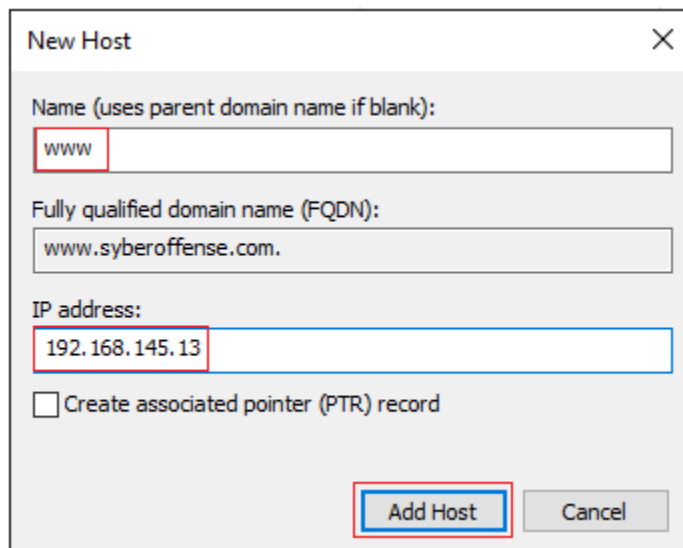
< Back   Finish   Cancel

## Create a new host record

From the left window pane of your DNS console window, click on the name of your new primary zone. Right click in the white area of your center window pane and from the context menu, select **New Host (A or AAAA) ...** Record.

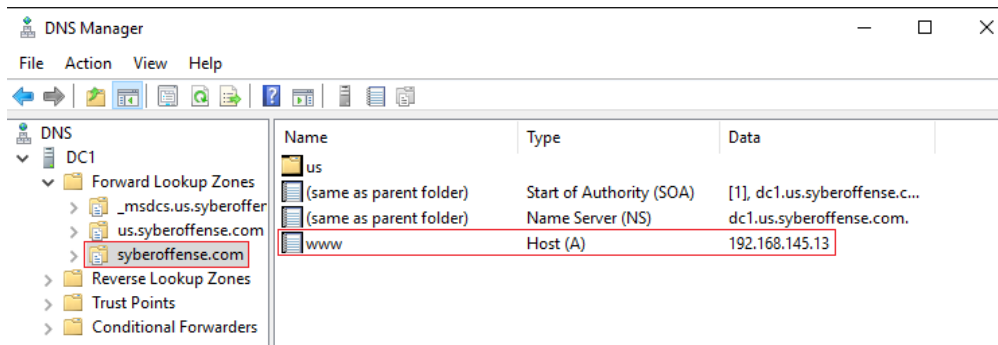
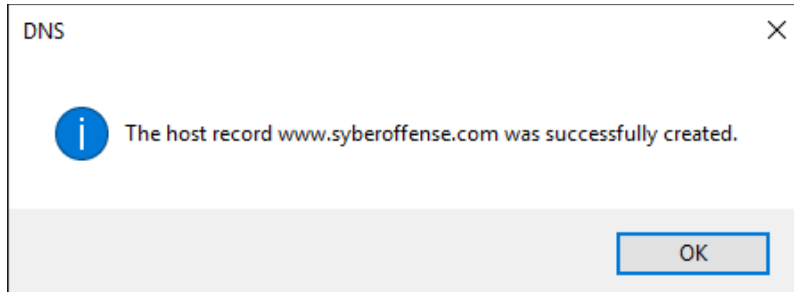


Give the new host record the name of www and in the box for the IP address, type in the IP address for your new web server. Click the add host button.

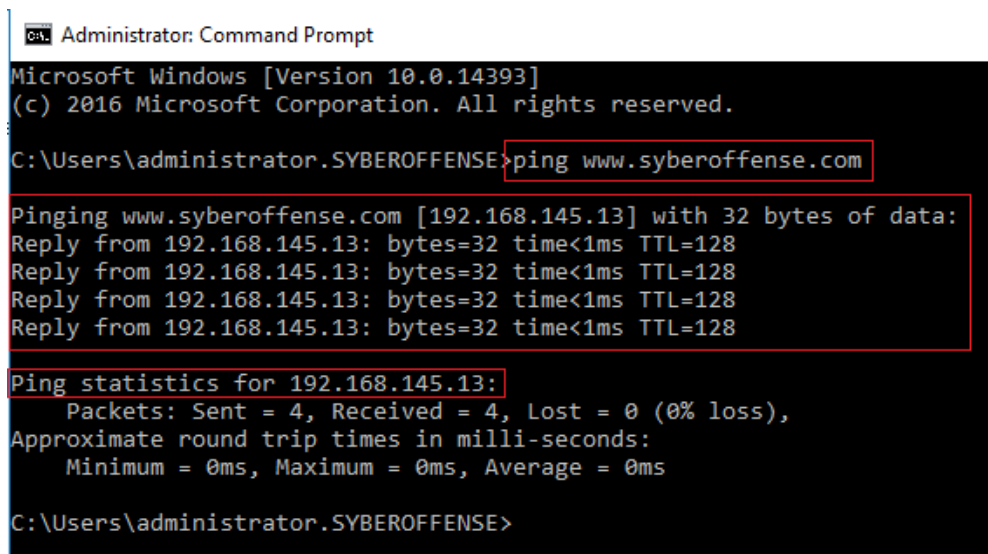




Click OK.

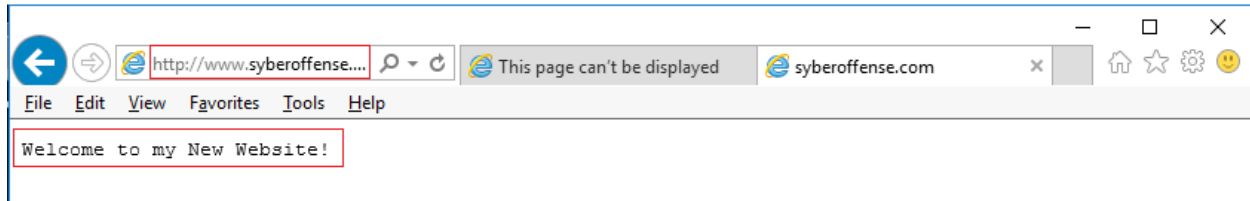


Back at your web server, open a command prompt and attempt to ping your new web server using the new host name.



Go to your Windows 10 machine, ensure you are logged onto your domain, open a browser and attempt to open the website using the new host name.

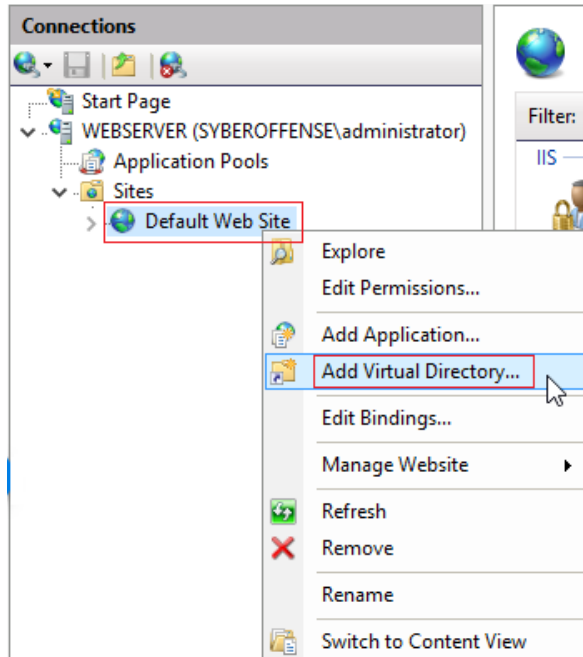
If your Windows 10 machine can see the domain and its DNS settings are configured properly, you should be able to type in the name of your web server and see the default document we created earlier.



## Creating a Virtual Directory

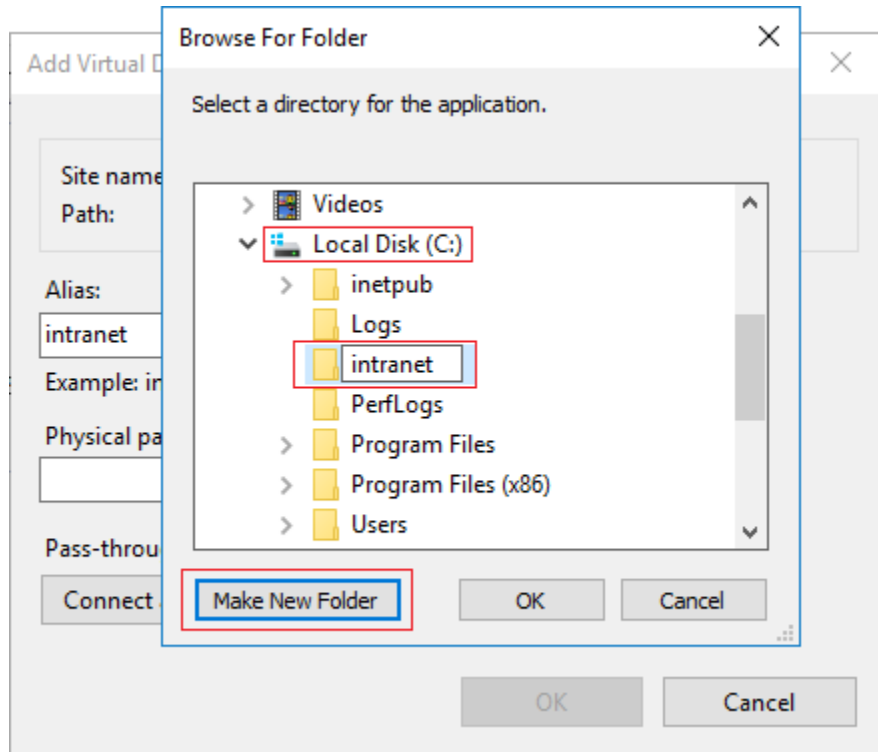
Return to the IIS management console of your web server.

From the left Window pane, right click on your Default Web site and from the context menu, select, **Add Virtual Directory**.



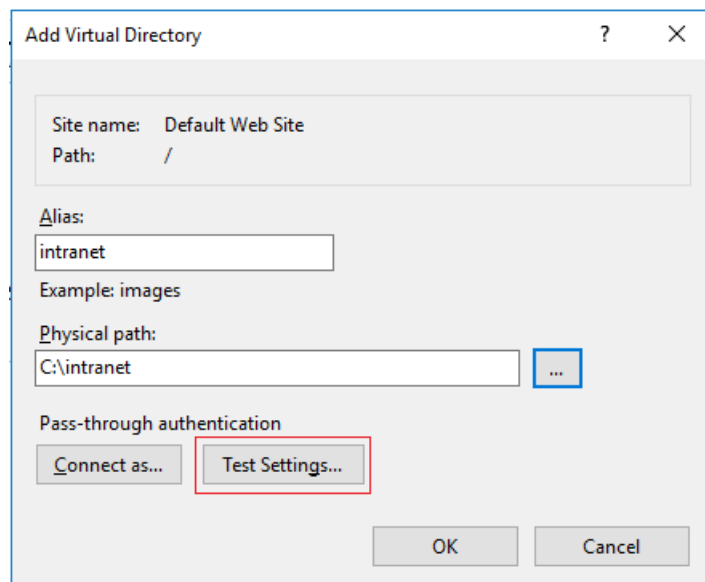
For the Alias name, call the directory intranet. On the physical path, click on browse and open the C: drive. Click the button to Make a New folder at the root of your C drive. Call the new folder, intranet.

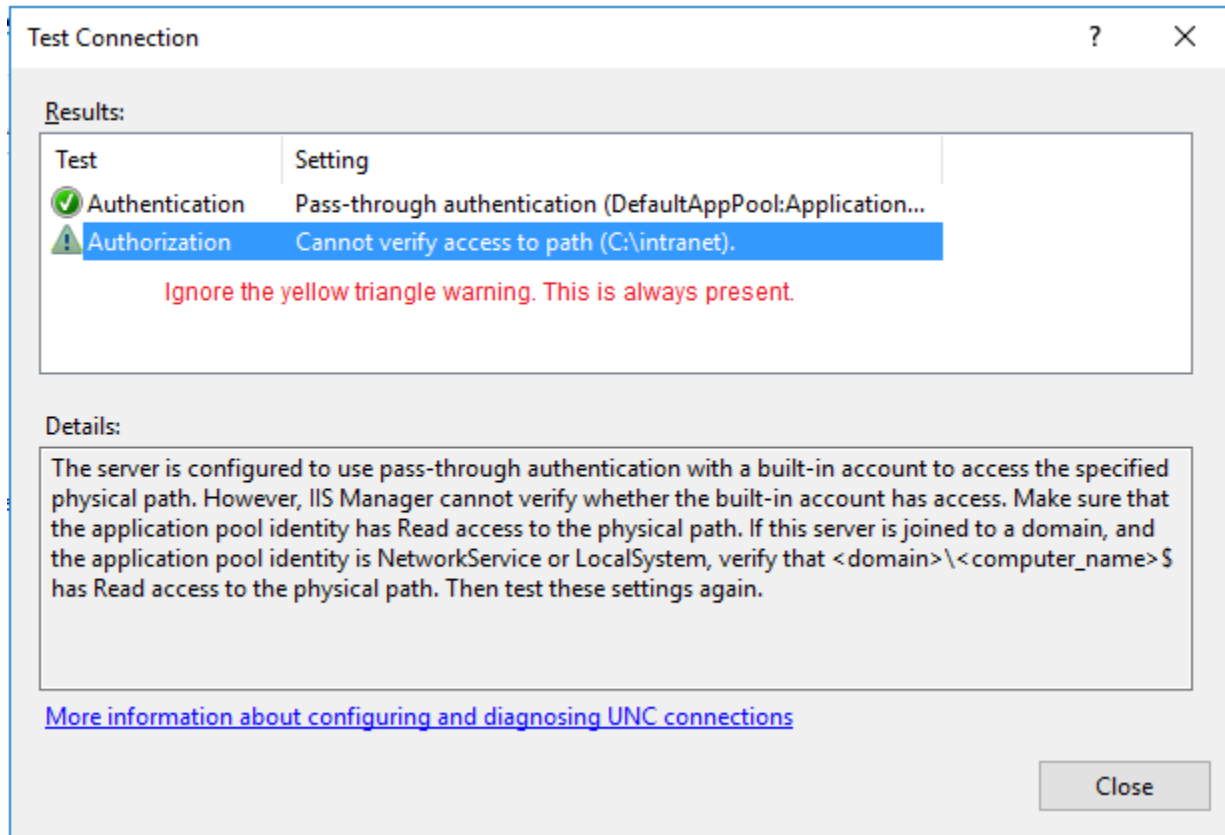




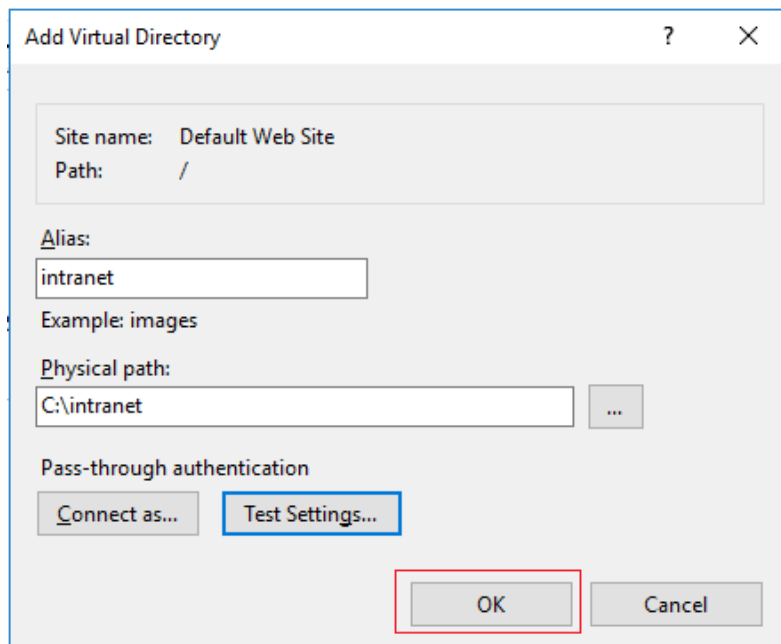
Click OK.

Click on, Test Settings to ensure it is working OK.





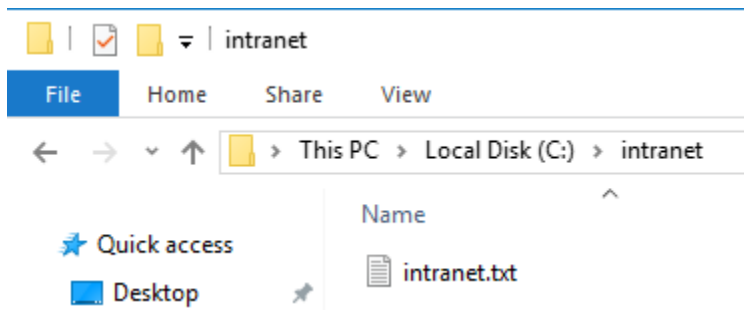
And click OK to Add the New Virtual Directory.



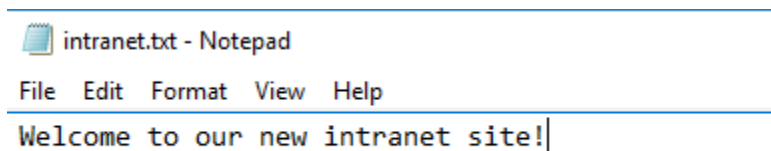


From your web server, open file explorer. Go your C: drive and open the new intranet folder we just created.

Right in the window pane and create a new text document. Name the new text document intranet.txt. Ensure the file name only has one extension appended to it.



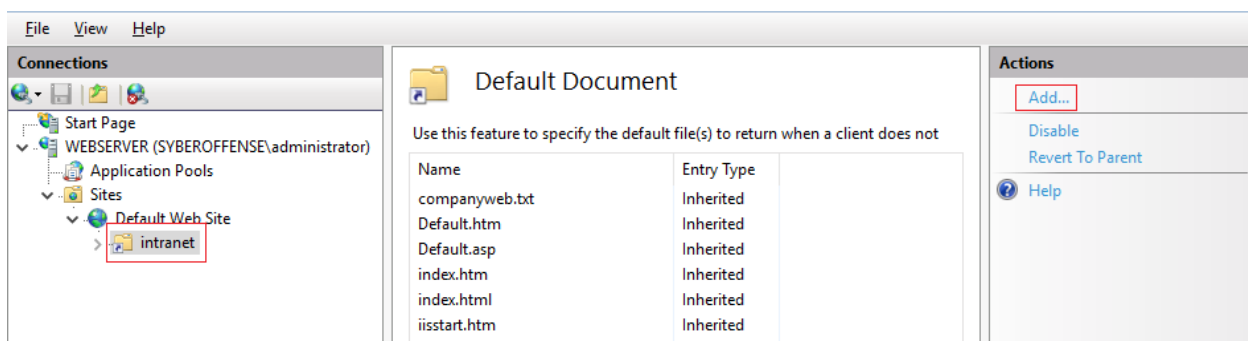
Open the new intranet.txt file and type, “Welcome to our new intranet site!” without the quotes.



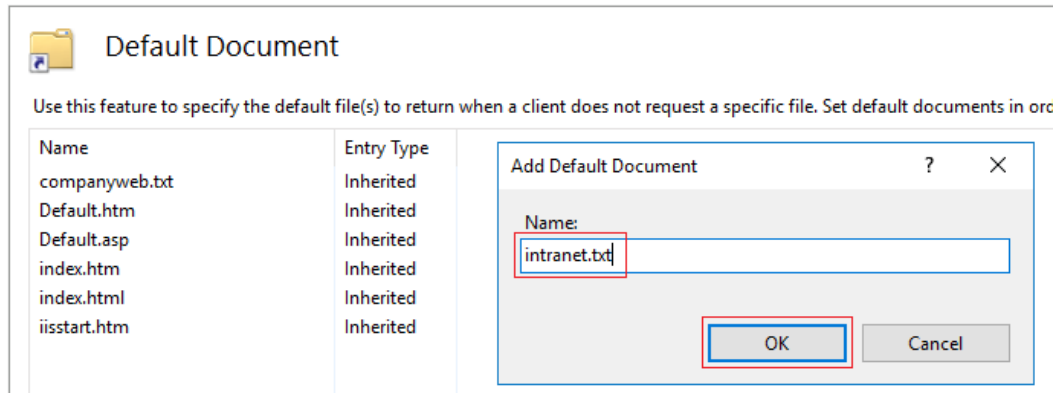
Save the changes and confirm you have spelled the name of the file correctly and there is only one file extension. Return to the IIS management console.

Just as we created a new default document for our default web site, we need to do the same for this new intranet virtual directory.

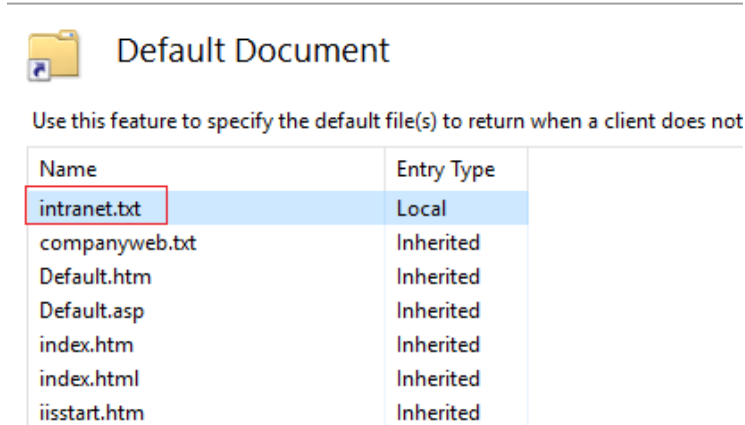
Click on the name of your new virtual directory and from the center console window x2 click the icon for default documents. From the right window Action pane, click on. Add.



For the name, type intranet.txt.



Make sure the new default document is at the top.



If you go back to your default web site and look the default document assigned to it, you'll note it is different. Both of this web sites are being treated as different from each other.

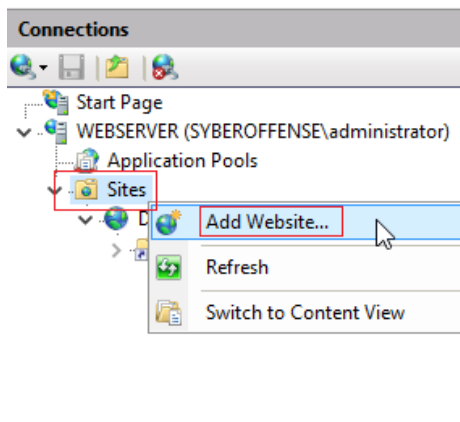
We can now return to our Windows 10 client and using a browser, we can see if the virtual directory is working.

To access the new virtual directory, we need to append **/intranet** to the front of [www.syberoffense.com](http://www.syberoffense.com) or what ever the name of your default web site may be.

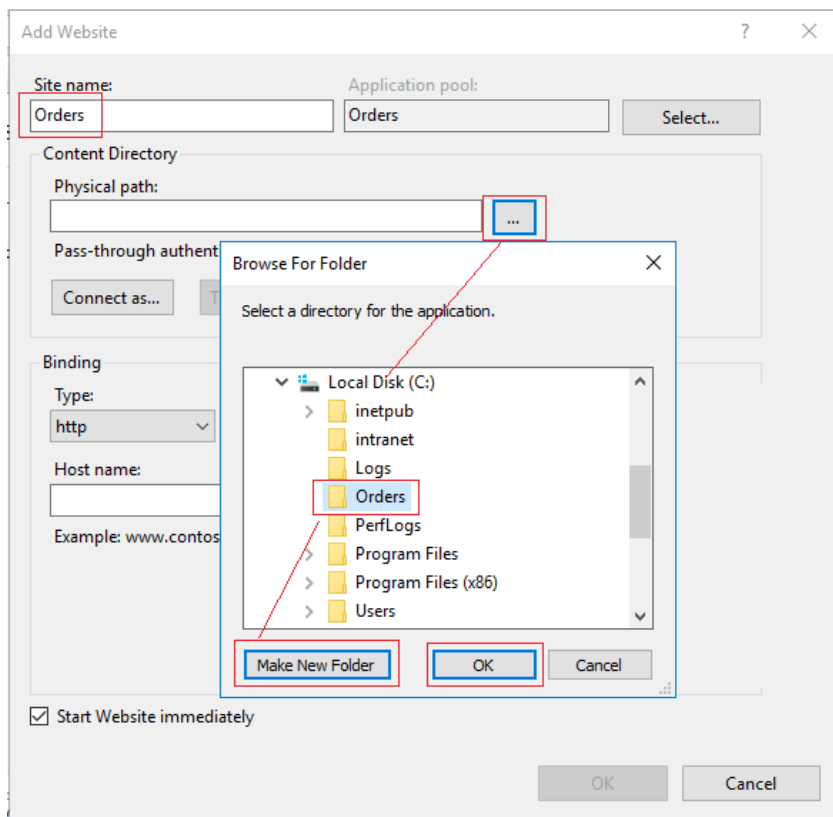


## Add a new web site using different port

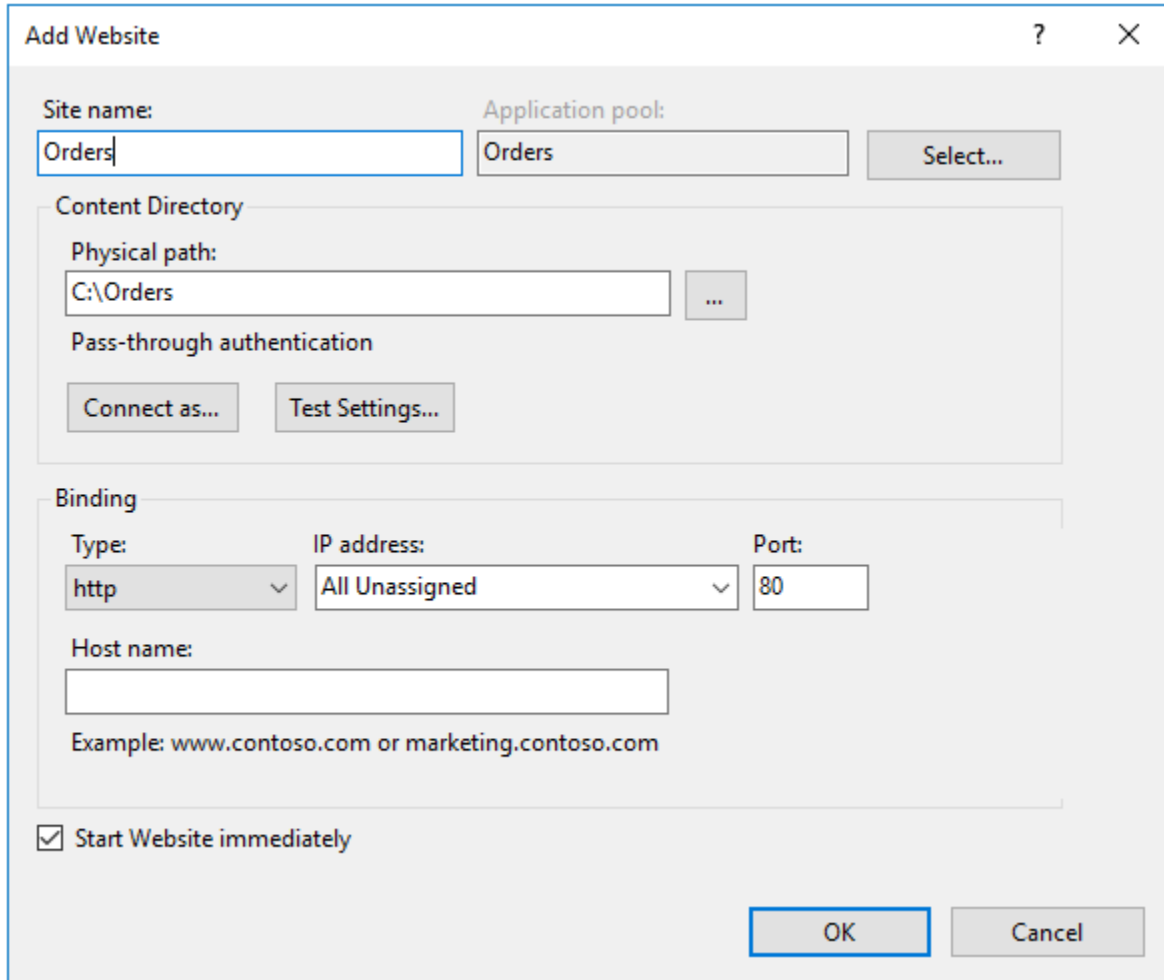
From your IIS management console, from your left window pane, right click on the Sites container and from the context menu, select Add Website.



Give the website the name of, Orders. Again, for the physical path, browse to your C: Drive and at the root of the C: Drive, create a new folder naming it, Orders.



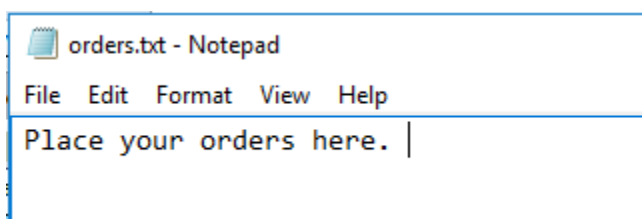
Do not click Ok. We will return to this window in a moment.



The "Add Website" dialog box is shown with the following fields and options:

- Site name:** Orders
- Application pool:** Orders (with a "Select..." button)
- Content Directory:**
  - Physical path:** C:\Orders (with a browse button "...")
  - Pass-through authentication:** (with "Connect as..." and "Test Settings..." buttons)
- Binding:**
  - Type:** http
  - IP address:** All Unassigned
  - Port:** 80
  - Host name:** (empty field)
  - Example: www.contoso.com or marketing.contoso.com
- ☒ **Start Website immediately**
- Buttons:** OK, Cancel

Open you File Explorer and open the new orders folder you created at the root of your C: Drive. Inside the orders folder, create a new text document called orders. Open the new text document and type, "Place your orders here!" with out the quotation marks. Close the documents and save your changes.





Return to you open dialog box in your IIS management console. In the Add Website dialog box, for the host name, type in **orders.syberoffense.com** or append the word orders to the back of your previous name for your default web site.

Change the default to port from 80 to port 81. This will allow both websites to run at the same time. If we leave it at port 80, only one website will be able to start. If this were a secure site, under type, you could select HTTPS.

**Add Website**

Site name:  Application pool:

**Content Directory**

Physical path:

Pass-through authentication

**Binding**

Type:  IP address:  Port:

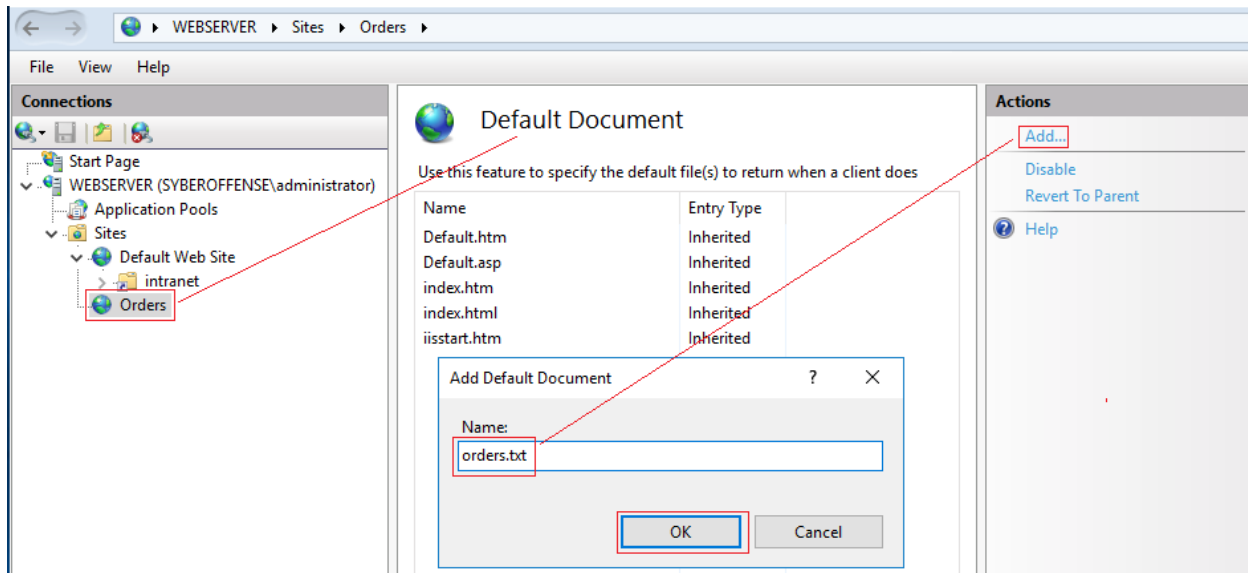
Host name:

Example: www.contoso.com or marketing.contoso.com

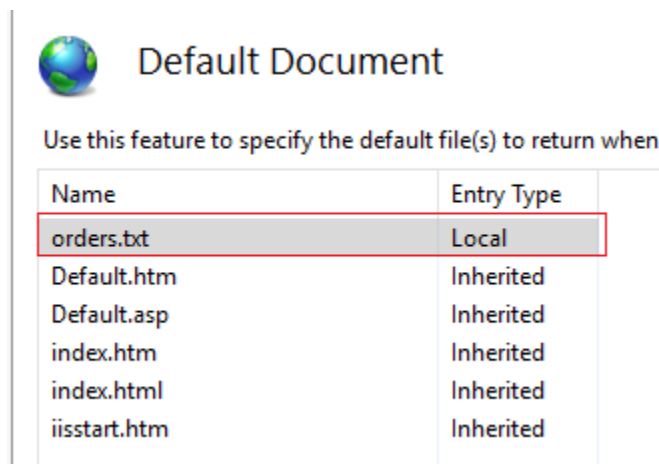
☒ Start Website immediately

Click OK.

Click on the new Orders site and once again, x2 click on Default Documents and in the right window pane under Actions, click on Add. In the name dialog box, type the name of your orders.txt file.

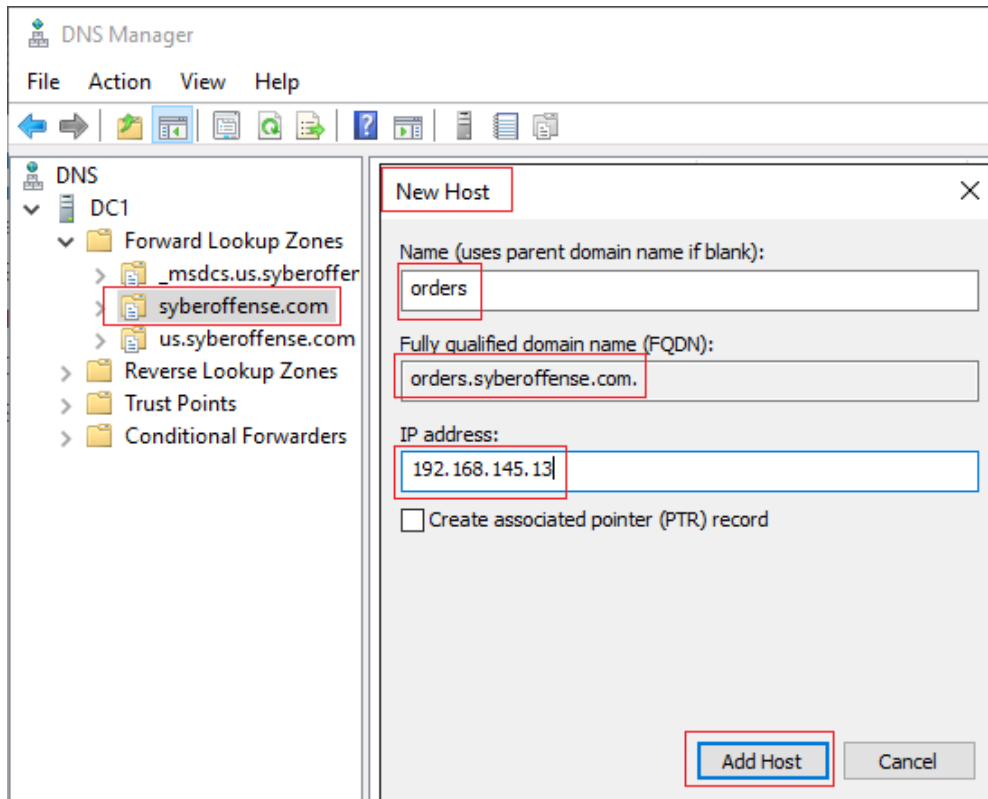


Ensure the file is at the top of your Default Documents.



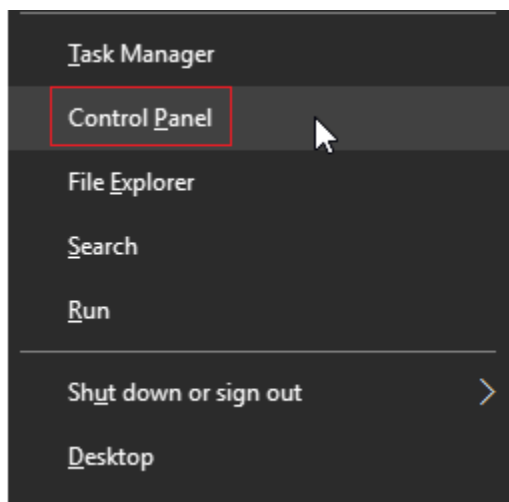
We next need to go back to our Domain controller, open our DNS management console and inside the new forward lookup zone we created earlier, create a new host record for our new website.





We next need to make a change to our firewall on the web server.

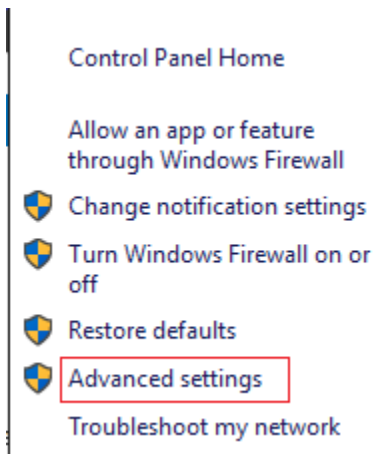
Go into your control panel. (Windows Key+X).



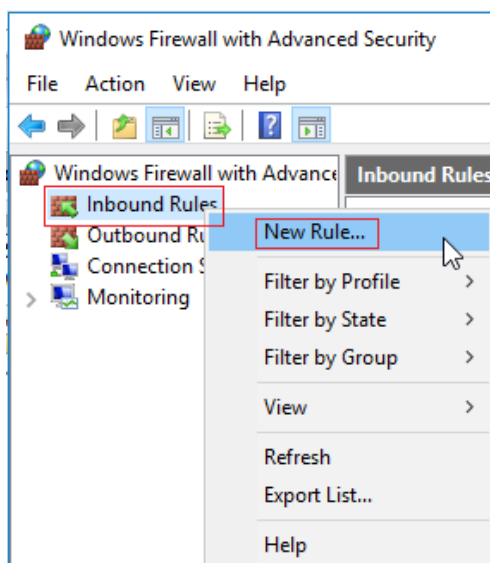
Open the Firewall.



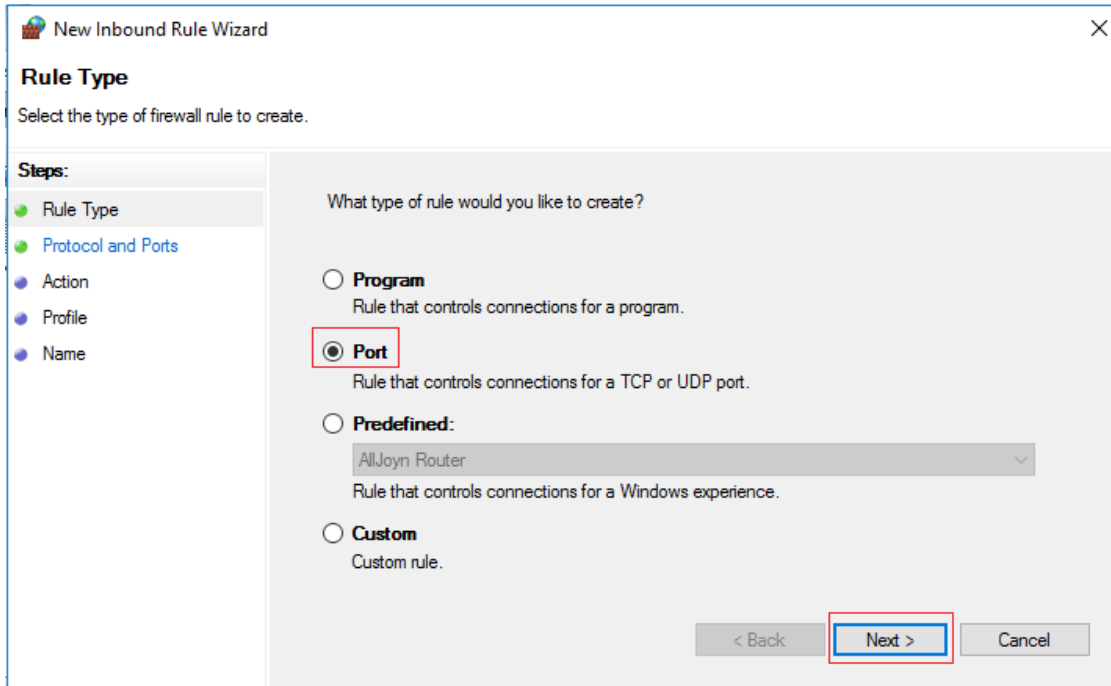
In the menu on the left, click on Advanced settings.



On the next screen, from the window pane on the left, right click on Inbound rule and from the context menu, select New Rule.

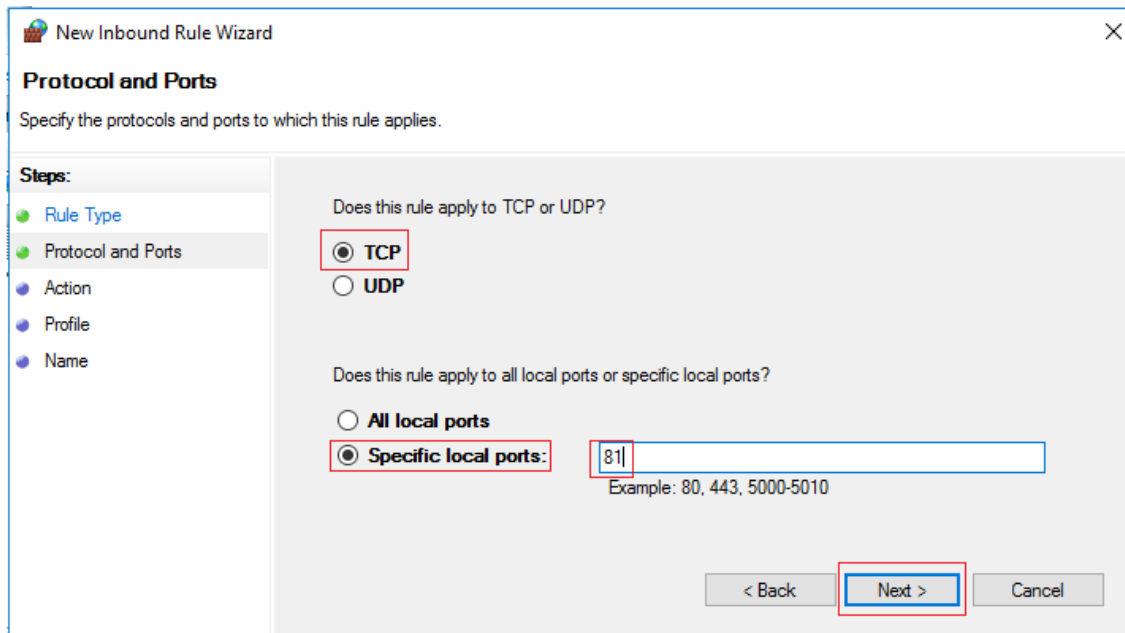


On the next screen, select Port and click next.



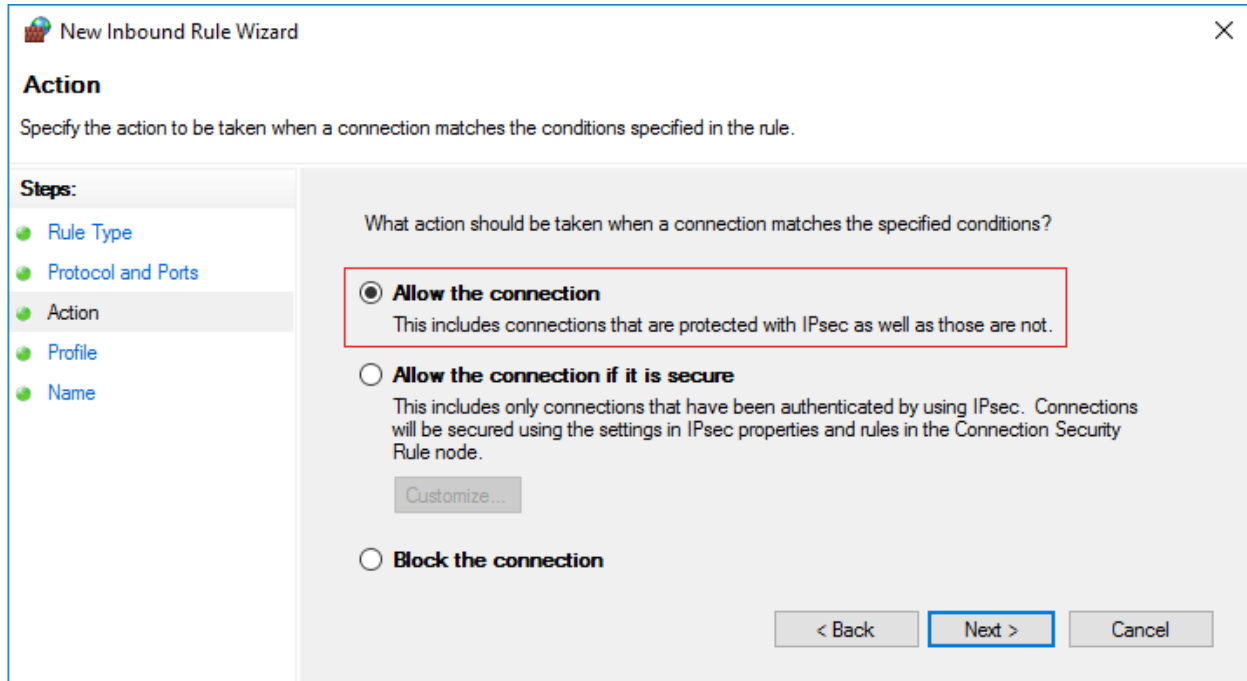
The screenshot shows the 'New Inbound Rule Wizard' window, specifically the 'Rule Type' step. The left sidebar lists the steps: Rule Type (selected), Protocol and Ports, Action, Profile, and Name. The main area asks 'What type of rule would you like to create?'. There are four radio button options: 'Program' (Rule that controls connections for a program.), 'Port' (Rule that controls connections for a TCP or UDP port.), 'Predefined:' (with a dropdown menu showing 'AllJoyn Router' and the description 'Rule that controls connections for a Windows experience.'), and 'Custom' (Custom rule.). The 'Port' option is selected and highlighted with a red box. At the bottom right, there are three buttons: '< Back', 'Next >' (highlighted with a red box), and 'Cancel'.

On the next screen, select TCP as the port type and specify the port as 81. Click next.



The screenshot shows the 'New Inbound Rule Wizard' window, specifically the 'Protocol and Ports' step. The left sidebar lists the steps: Rule Type, Protocol and Ports (selected), Action, Profile, and Name. The main area asks 'Specify the protocols and ports to which this rule applies.'. There are two questions. The first is 'Does this rule apply to TCP or UDP?' with radio button options for 'TCP' (selected and highlighted with a red box) and 'UDP'. The second is 'Does this rule apply to all local ports or specific local ports?' with radio button options for 'All local ports' and 'Specific local ports:' (selected and highlighted with a red box). Below the 'Specific local ports:' option is a text input field containing '81', which is also highlighted with a red box. Below the input field is the text 'Example: 80, 443, 5000-5010'. At the bottom right, there are three buttons: '< Back', 'Next >' (highlighted with a red box), and 'Cancel'.

On the next screen, select to allow the connection.



**New Inbound Rule Wizard**

**Action**

Specify the action to be taken when a connection matches the conditions specified in the rule.

**Steps:**

- Rule Type
- Protocol and Ports
- Action**
- Profile
- Name

What action should be taken when a connection matches the specified conditions?

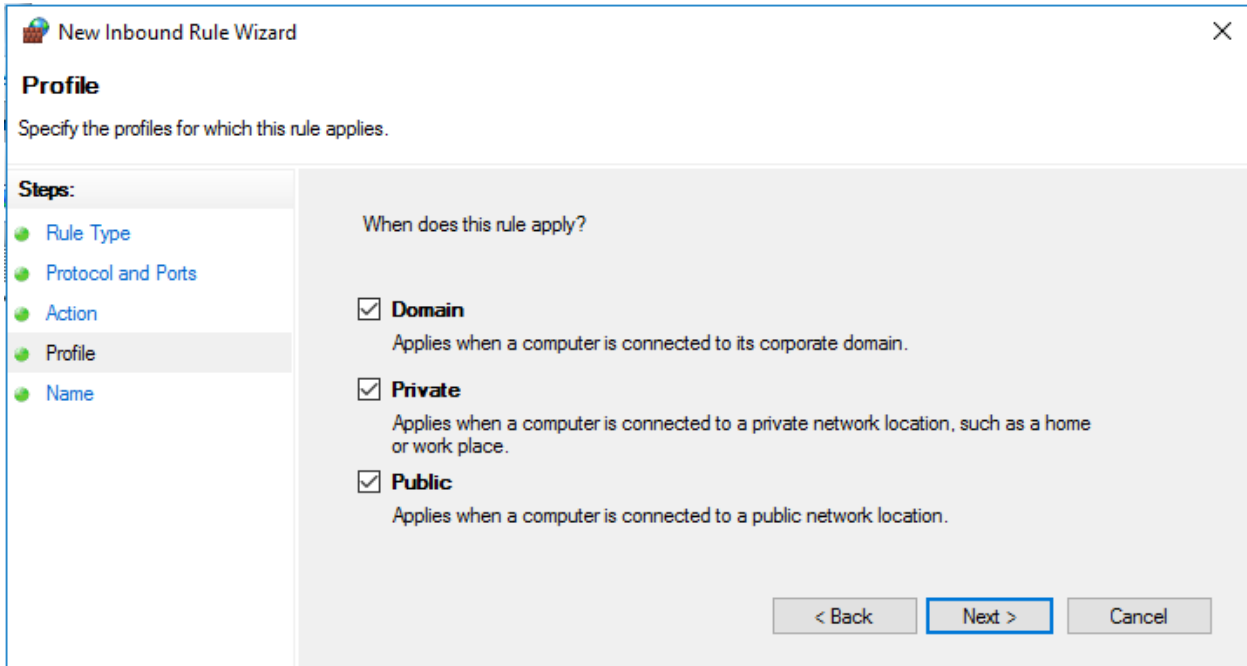
☒ **Allow the connection**  
This includes connections that are protected with IPsec as well as those are not.

☐ **Allow the connection if it is secure**  
This includes only connections that have been authenticated by using IPsec. Connections will be secured using the settings in IPsec properties and rules in the Connection Security Rule node.  
[Customize...](#)

☐ **Block the connection**

< Back   **Next >**   Cancel

On the next page, accept the defaults and click next.



**New Inbound Rule Wizard**

**Profile**

Specify the profiles for which this rule applies.

**Steps:**

- Rule Type
- Protocol and Ports
- Action
- Profile**
- Name

When does this rule apply?

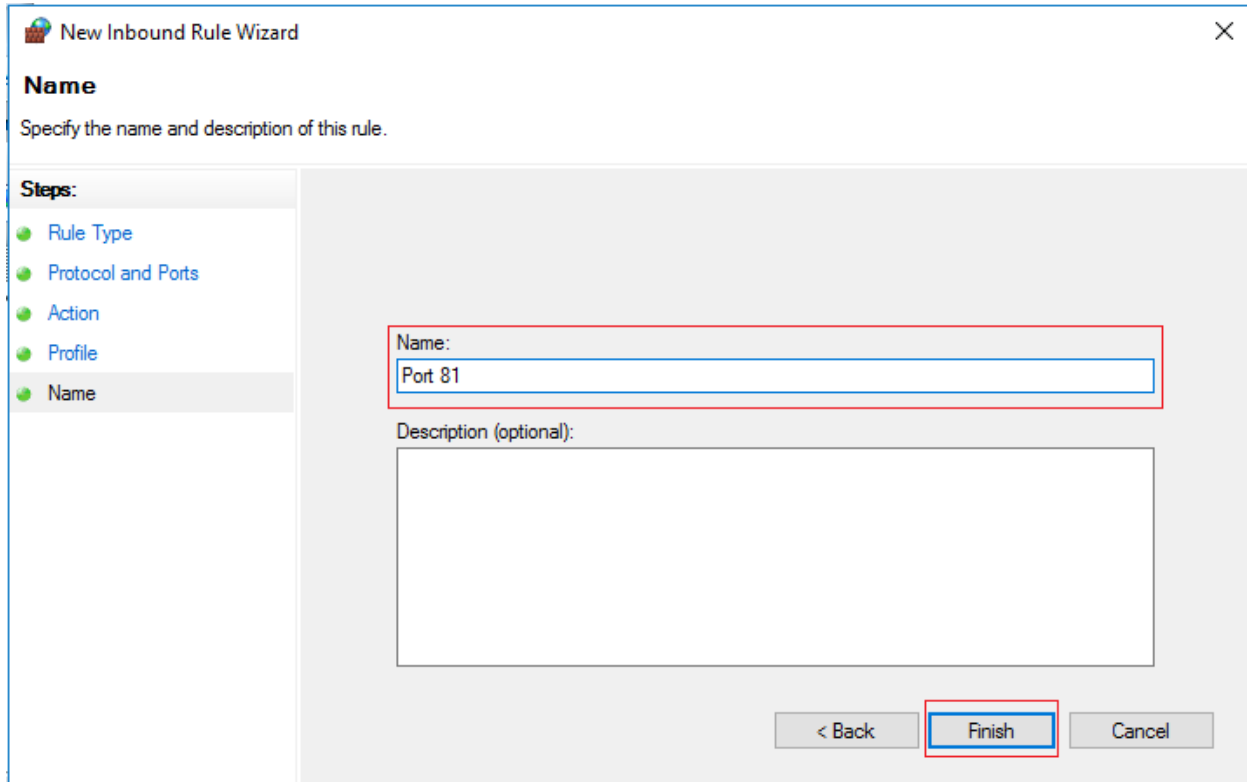
☒ **Domain**  
Applies when a computer is connected to its corporate domain.

☒ **Private**  
Applies when a computer is connected to a private network location, such as a home or work place.

☒ **Public**  
Applies when a computer is connected to a public network location.

< Back   **Next >**   Cancel

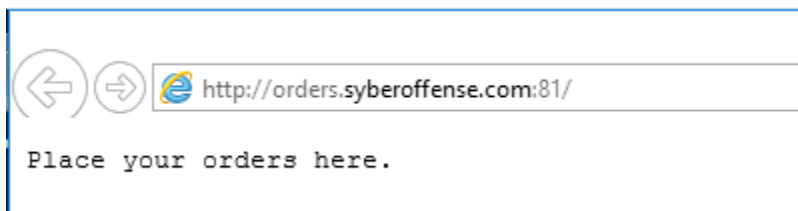
On the next page, give the new inbound rule a name. Click Finish.



The image shows a Windows Firewall 'New Inbound Rule Wizard' dialog box. The title bar reads 'New Inbound Rule Wizard'. The 'Name' step is selected in the left-hand 'Steps' pane. The main area has the heading 'Name' and the instruction 'Specify the name and description of this rule.' Below this, there is a 'Name:' label followed by a text box containing 'Port 81'. Underneath is a 'Description (optional):' label followed by a larger empty text box. At the bottom right, there are three buttons: '< Back', 'Finish' (which is highlighted with a red box), and 'Cancel'.

From your Windows 10 client, open a web browser and in the address bar type, **orders.syberoffense.com:81**

**Success!**



The image shows a web browser's address bar. It contains the text 'http://orders.syberoffense.com:81/'. Below the address bar, the text 'Place your orders here.' is displayed.



## **Summary**

In this lab, you learned how to install IIS using either PowerShell or the Server Manager. You also learned how use and modify the default web site. You also learned how to create a default document and to how to create a new primary look up zone and add new host records to resolve the names of your websites and virtual directories to an IP address. You also learned how to create a virtual directory for internal site and how to create a new website and assign it a different port number. Finally, you learned how to create an inbound rule using the advanced settings of the firewall.