

UNIT 3. TO KNOW MORE ACTIVITY

Web Applications Deployment
CFGS DAW

Important: the content of this activity is not for exam

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Nomenclature

During this unit we are going to use special symbols to distinct some important elements.

This symbols are:



Important



Attention



Interesting

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UT03. WEB SERVER ADMINISTRATION TO KNOW MORE ACTIVITY

1. INTRODUCTION

This is an extra activity just to know more about IIS (Internet Information Services). We are going to install and configure a web server in Windows and we will learn how to check the configuration of the web service.

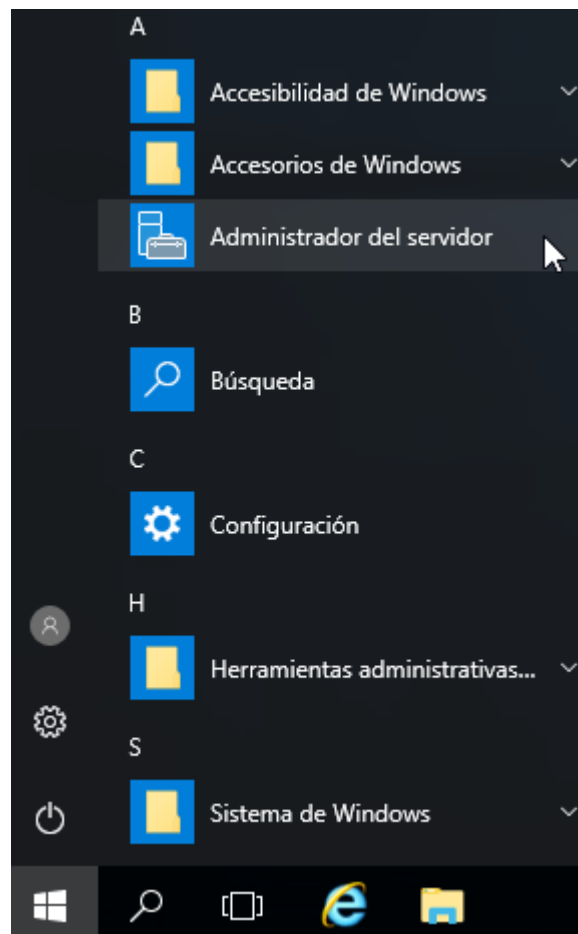
2. ADMINISTRATION SERVER IN WINDOWS

In this section we are going to install and configure the **IIS** (Internet Information Services) in our Windows Server 2016 virtual machine (*windowsserver*). Then we will check it using the client (*linuxclient*).

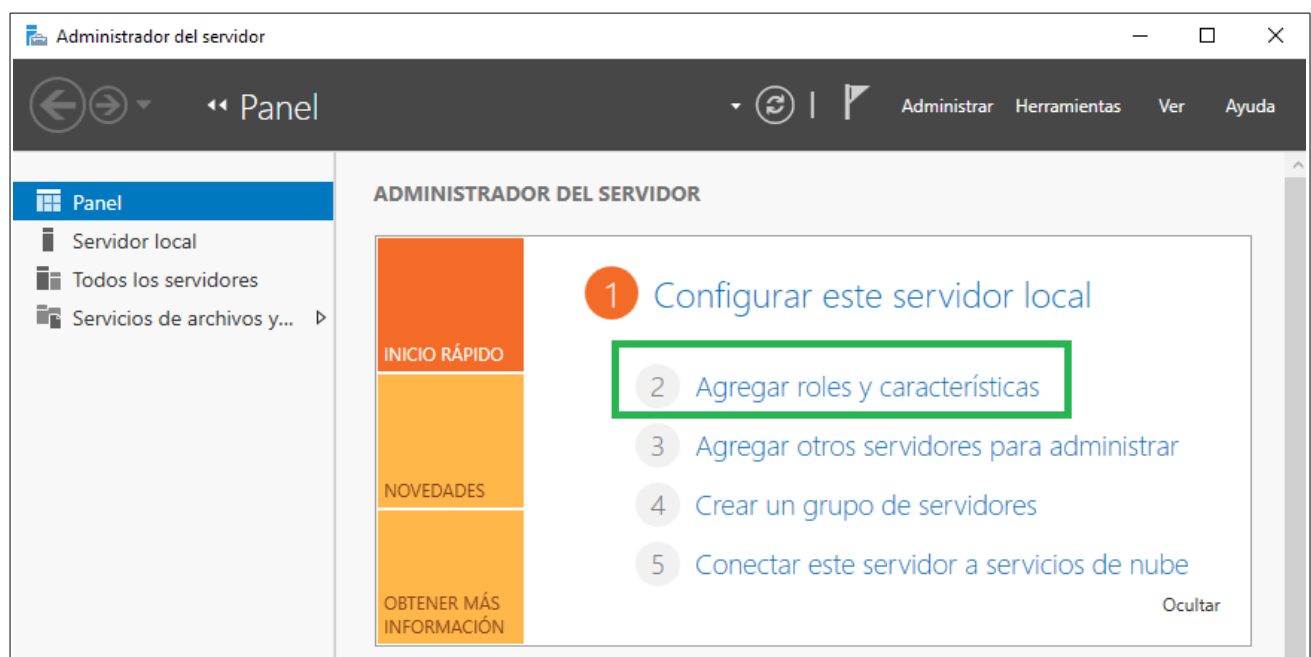
2.1 Installing IIS

To install the IIS in Windows Server 2016 you have to follow these steps:

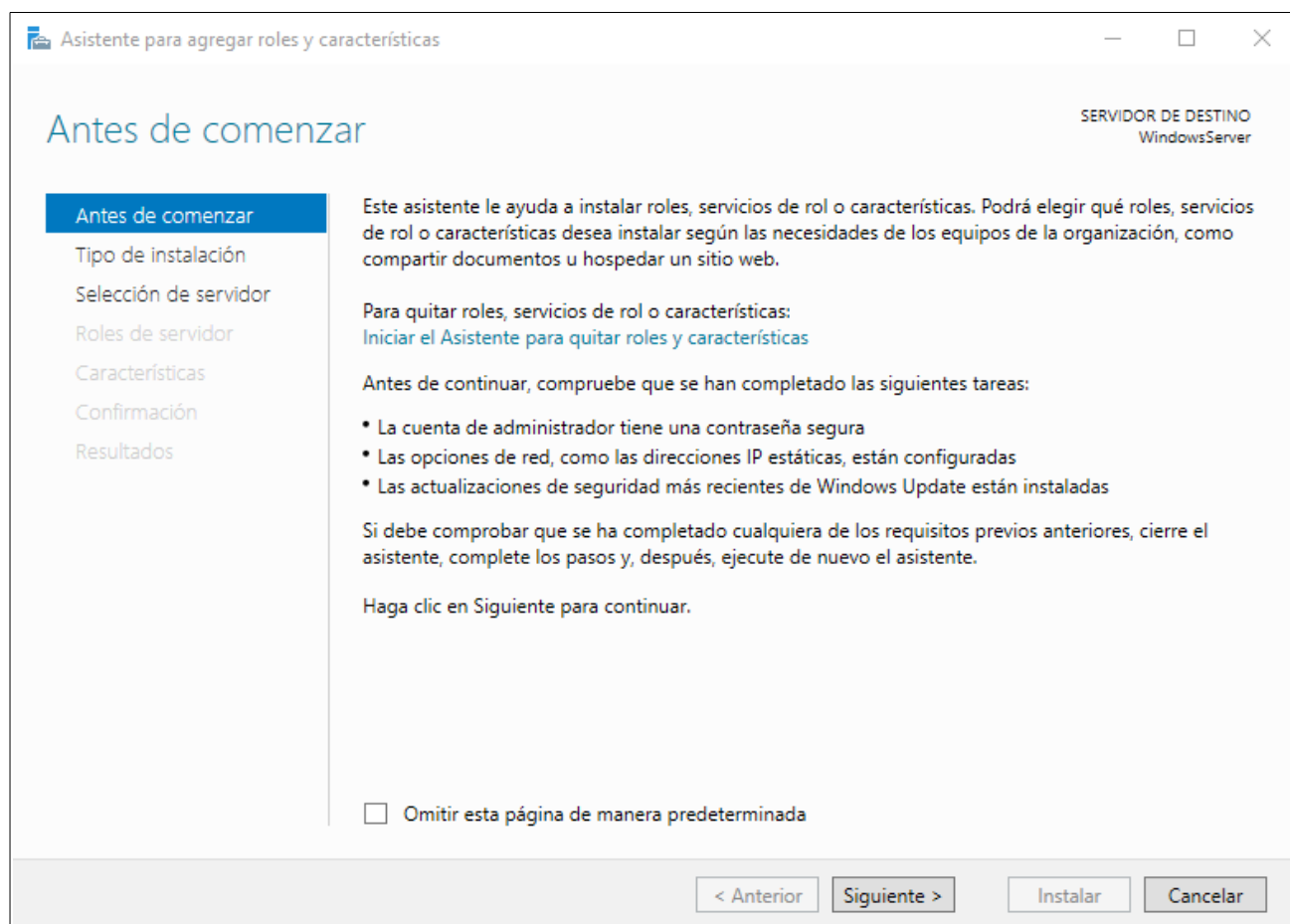
1. Click on **START MENU > SERVER MANAGER**



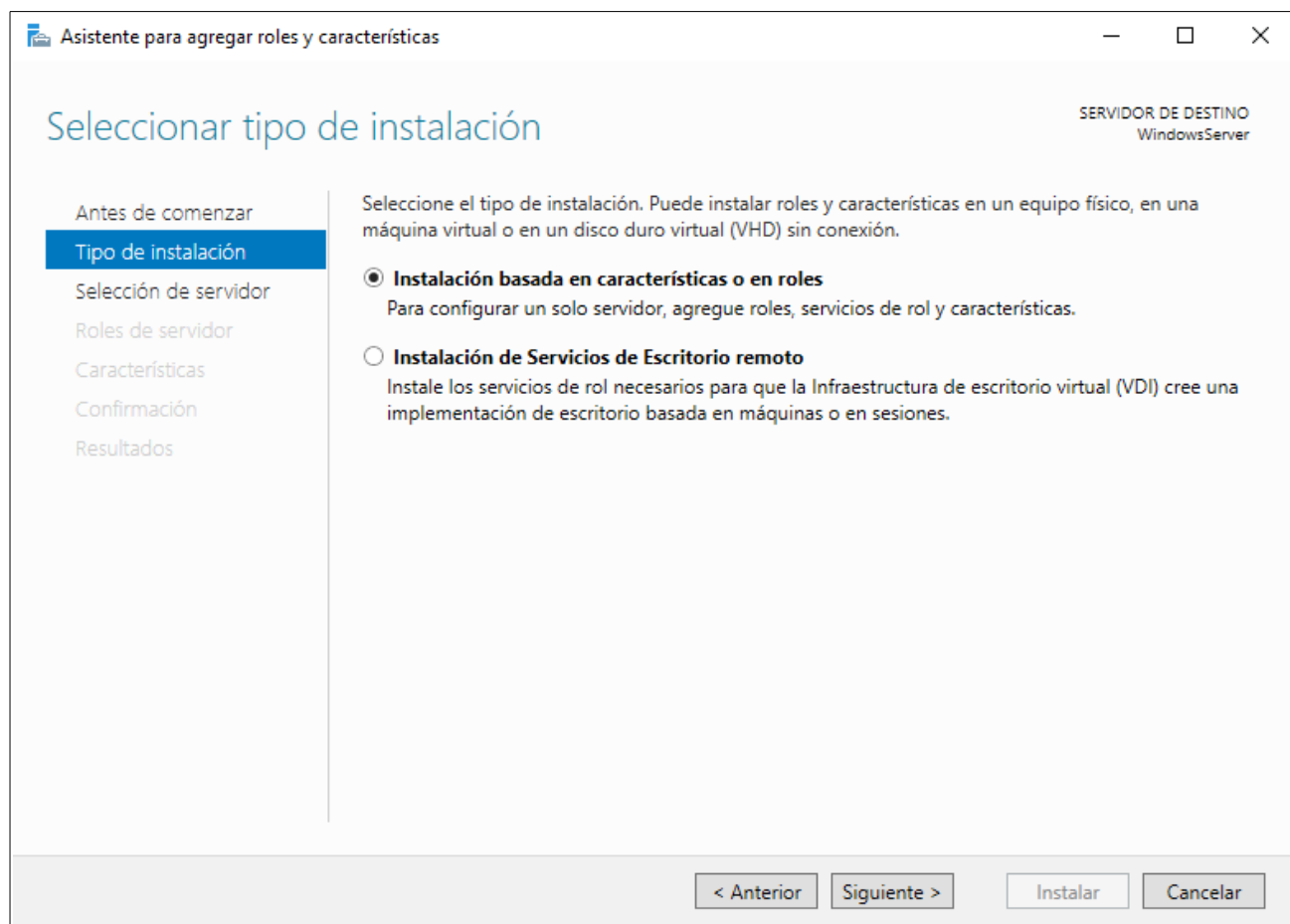
2. Click on **ADD ROLES AND FEATURES**



3. Read the information of the wizard and click on **NEXT**



4. Select the type of the installation (the first one)



5. Select the server (If you did the extra activity 2, the name will be *WindowsServer.daw.net* because the DNS server is configured)

Asistente para agregar roles y características

— □ ×

Seleccionar servidor de destino

SERVIDOR DE DESTINO
WindowsServer.daw.net

Antes de comenzar
Tipo de instalación
Selección de servidor
Roles de servidor
Características
Confirmación
Resultados

Seleccione un servidor o un disco duro virtual en el que se instalarán roles y características.

☒ Seleccionar un servidor del grupo de servidores
☐ Seleccionar un disco duro virtual

Grupo de servidores

Filtro:

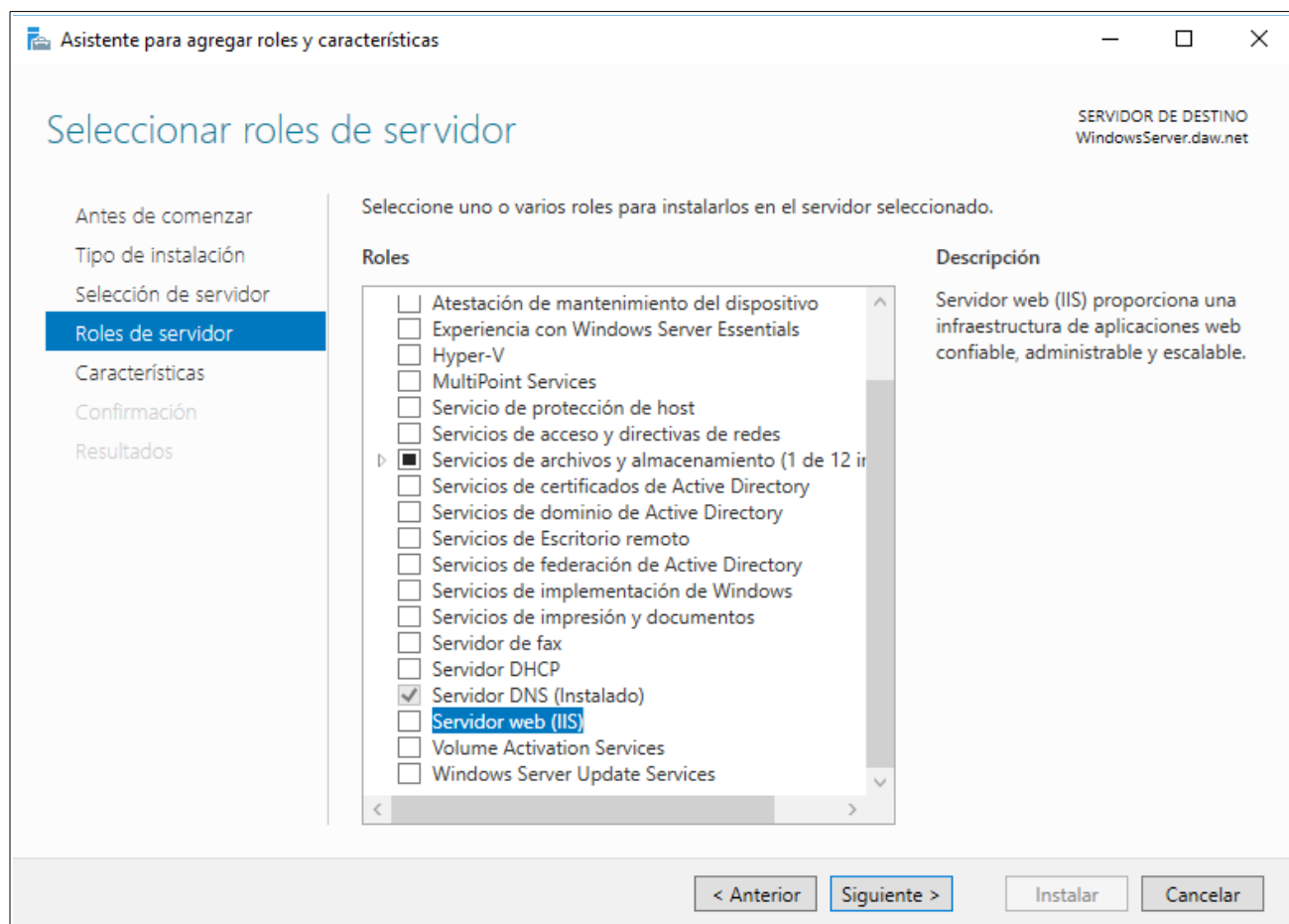
Nombre	Dirección IP	Sistema operativo
WindowsServer.daw.net	192.168.1.3	Microsoft Windows Server 2016 Standard Evaluation

1 equipo(s) encontrado(s)

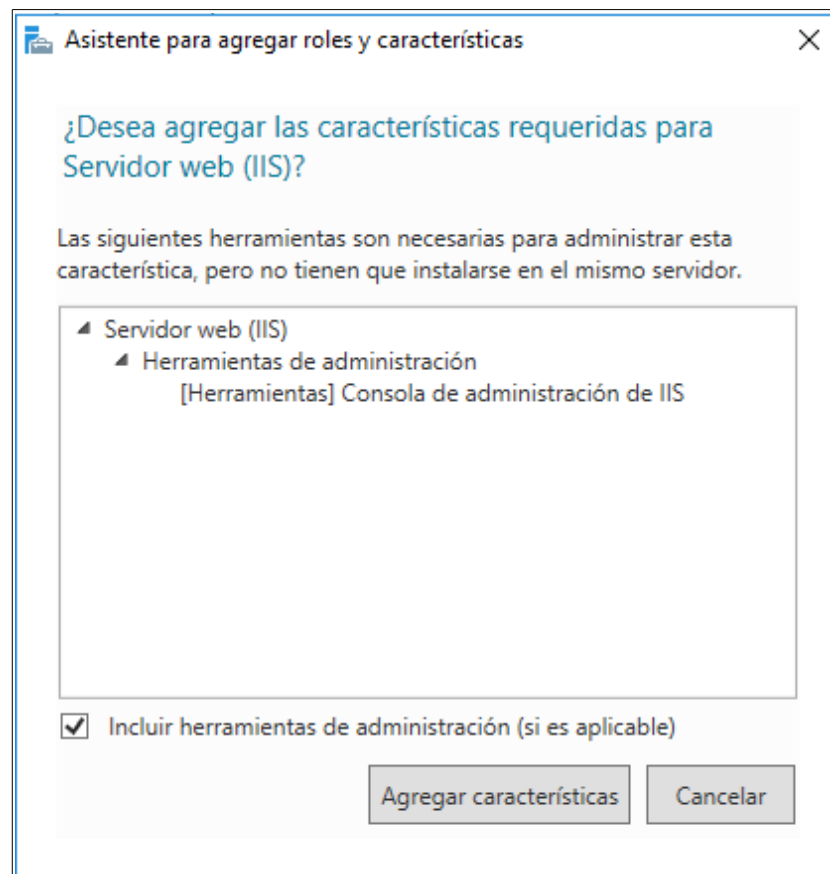
Esta página muestra los servidores que ejecutan Windows Server 2012 o una versión más reciente de Windows Server, y que se agregaron mediante el comando Agregar servidores del Administrador del servidor. No se muestran los servidores sin conexión ni los servidores recién agregados para los que la recopilación de datos aún está incompleta.

< Anterior Siguiente > Instalar Cancelar

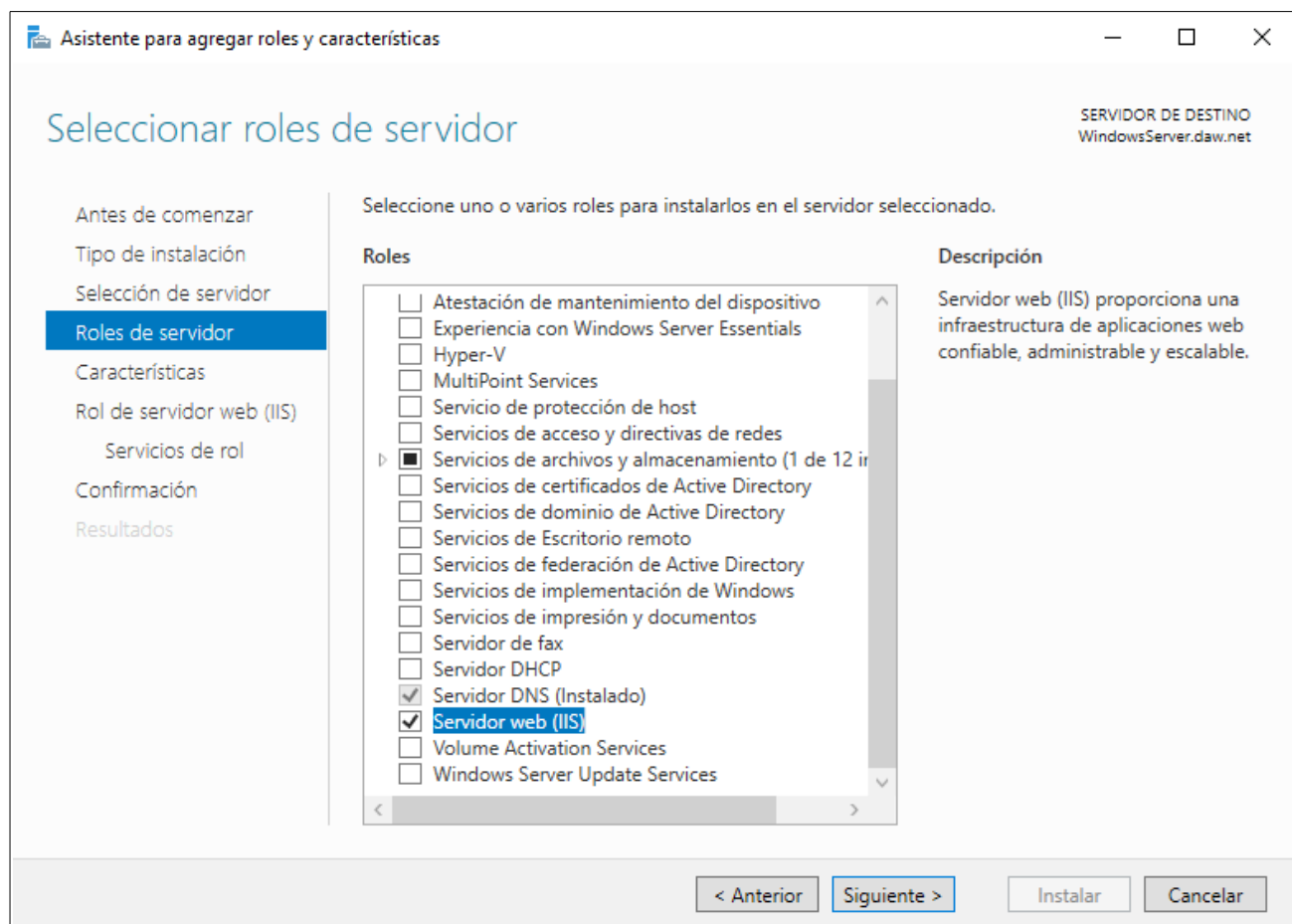
6. Check **WEB SERVER (IIS)**



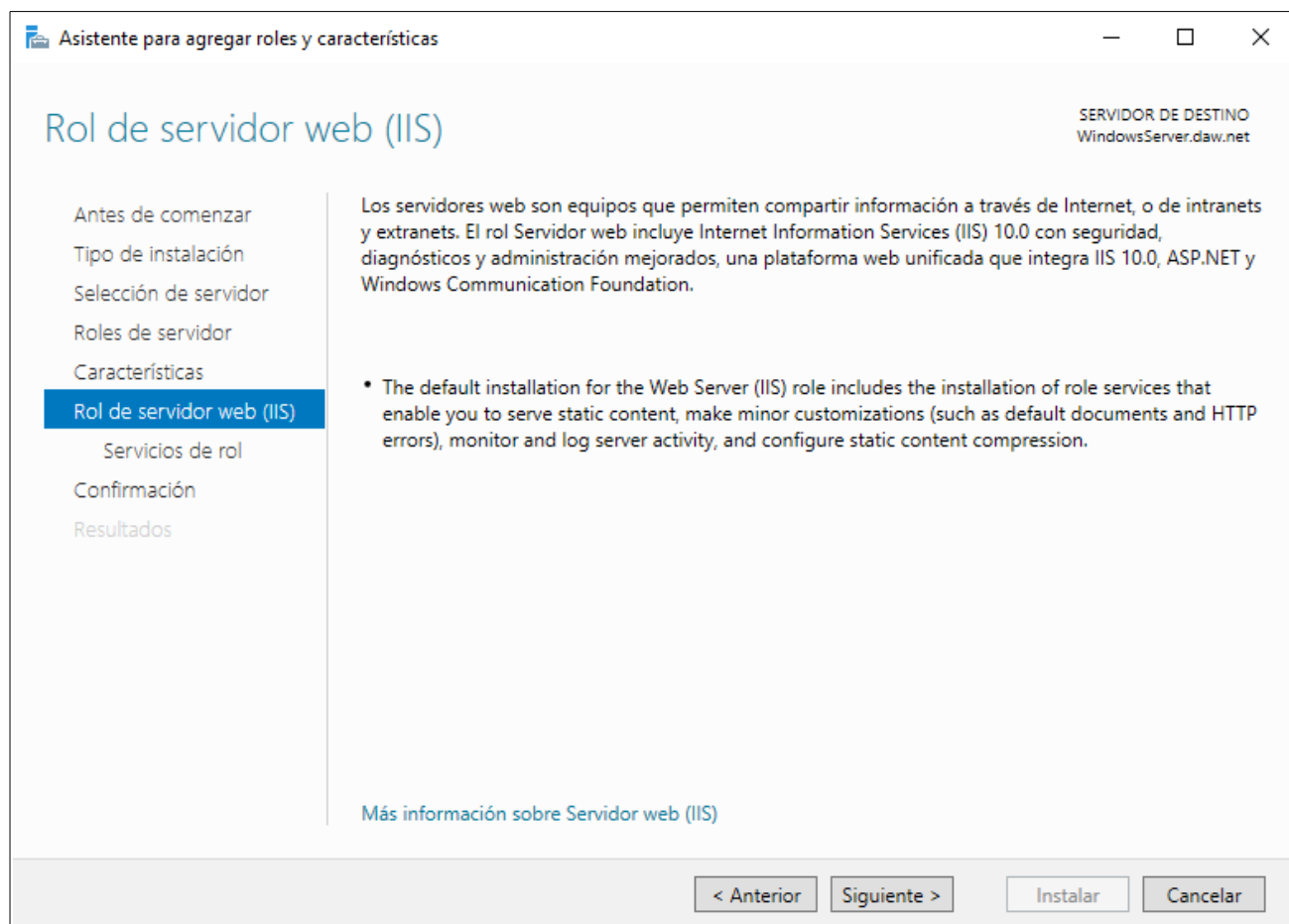
7. Click on **ADD REQUIRED FEATURES** in the new window



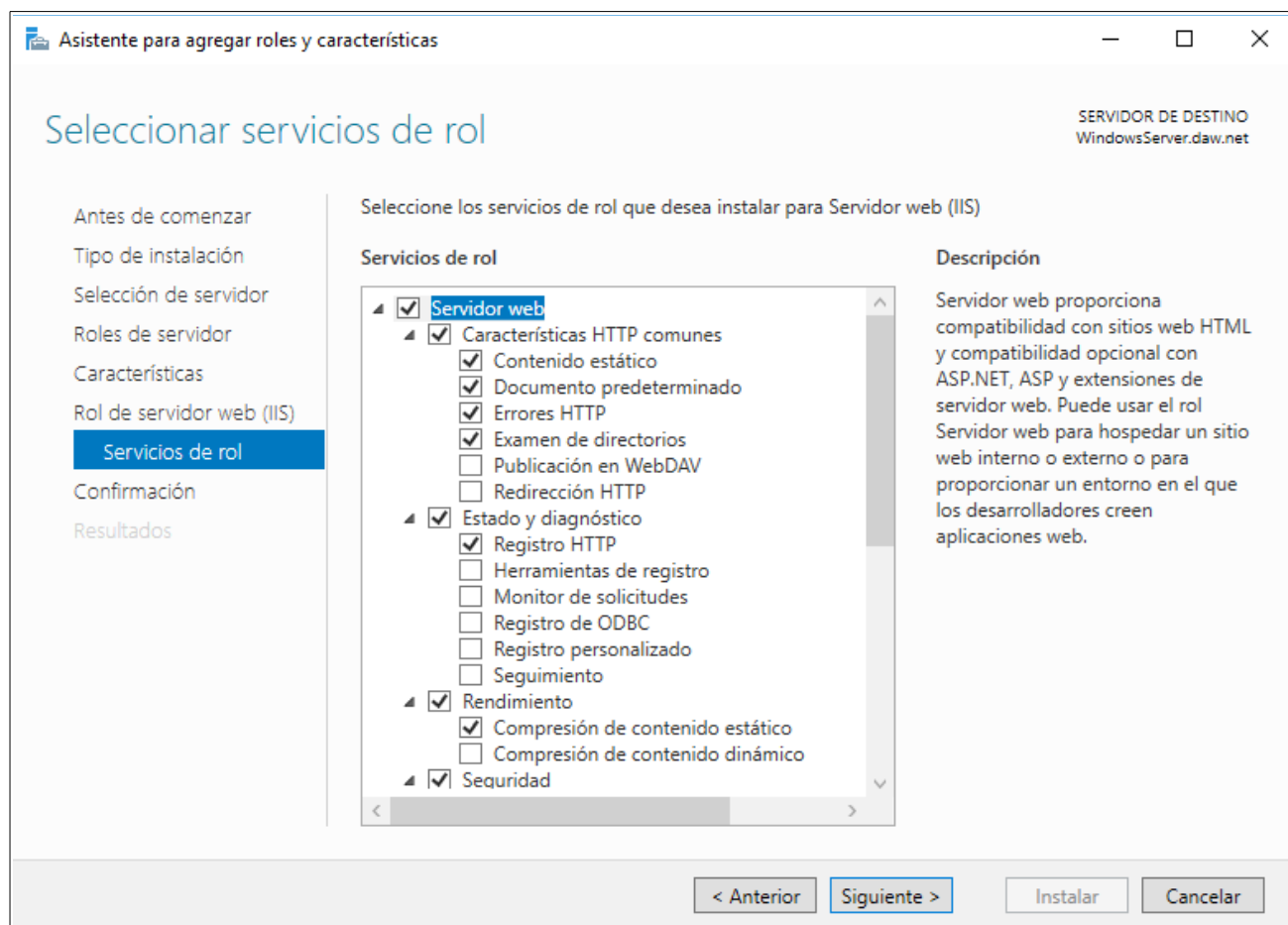
8. Click on **NEXT**



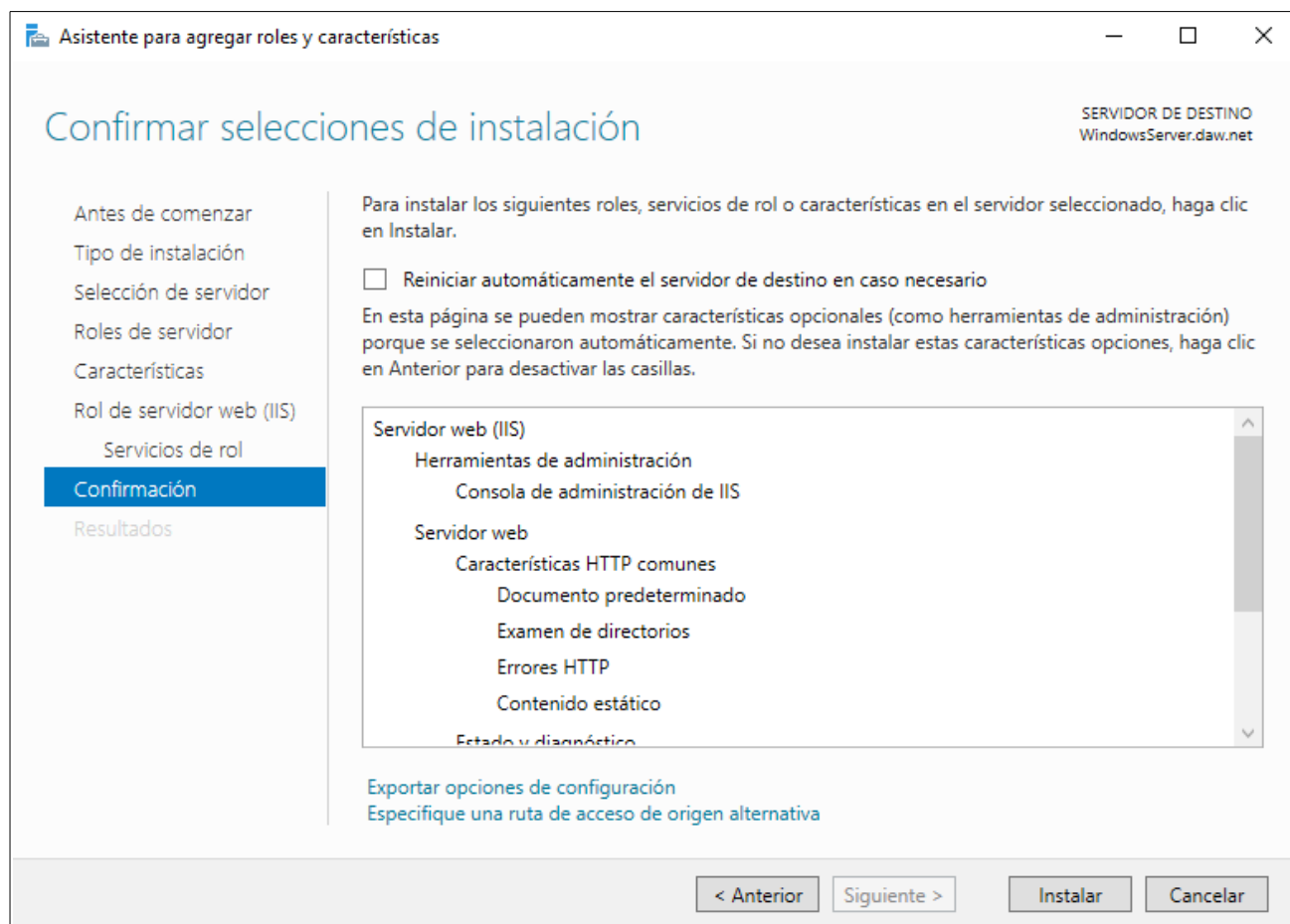
9. Read the information and click on **NEXT**



10. Read all the possible services (we choose the default checked) and click on **NEXT**



11. Confirm the installation and click on **INSTALL**



Asistente para agregar roles y características

SERVIDOR DE DESTINO
WindowsServer.daw.net

Confirmar selecciones de instalación

Antes de comenzar
Tipo de instalación
Selección de servidor
Roles de servidor
Características
Rol de servidor web (IIS)
Servicios de rol
Confirmación
Resultados

Para instalar los siguientes roles, servicios de rol o características en el servidor seleccionado, haga clic en Instalar.

☐ Reiniciar automáticamente el servidor de destino en caso necesario

En esta página se pueden mostrar características opcionales (como herramientas de administración) porque se seleccionaron automáticamente. Si no desea instalar estas características opcionales, haga clic en Anterior para desactivar las casillas.

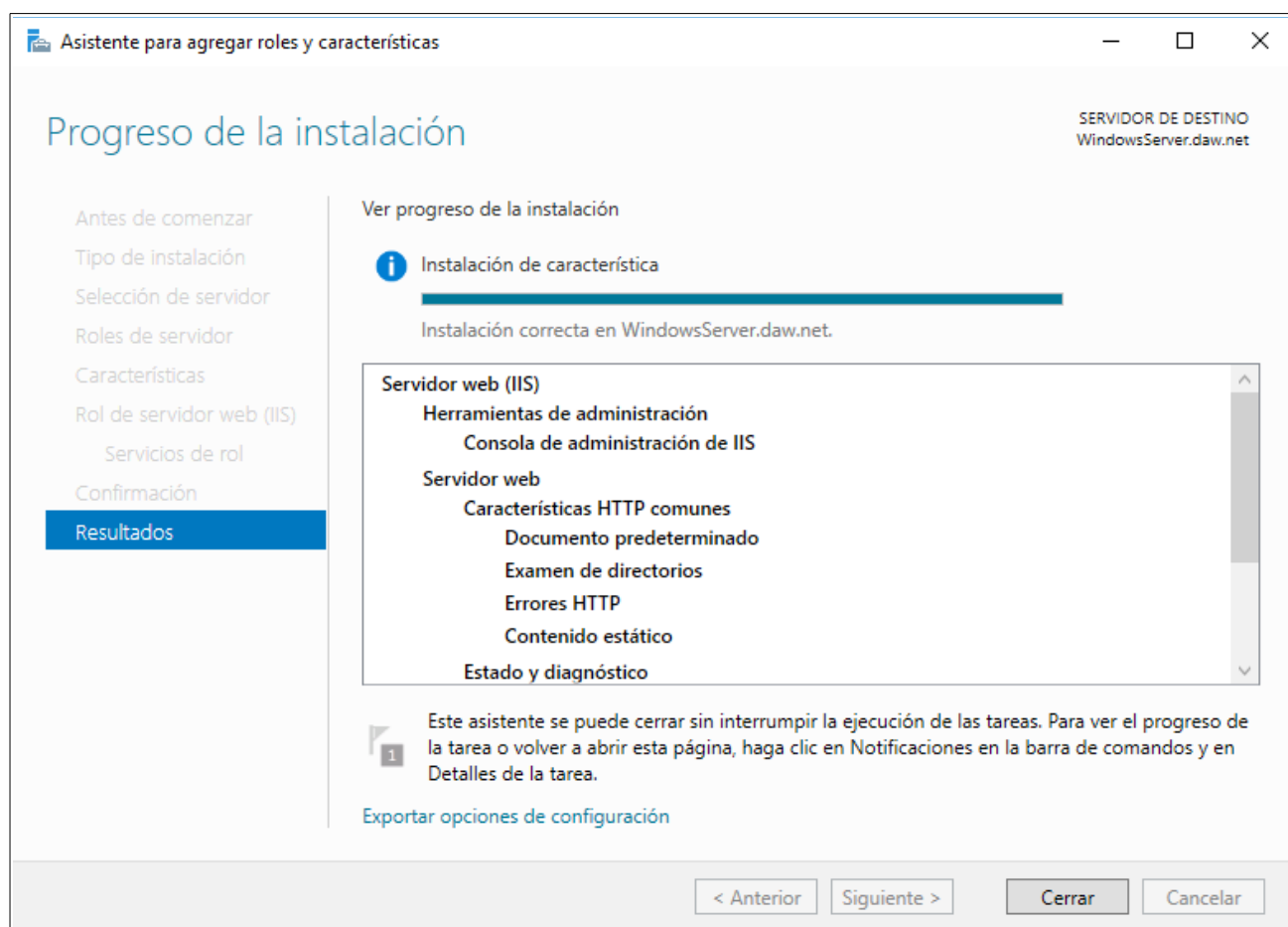
Servidor web (IIS)

- Herramientas de administración
 - Consola de administración de IIS
- Servidor web
 - Características HTTP comunes
 - Documento predeterminado
 - Examen de directorios
 - Errores HTTP
 - Contenido estático
 - Estado y diagnóstico

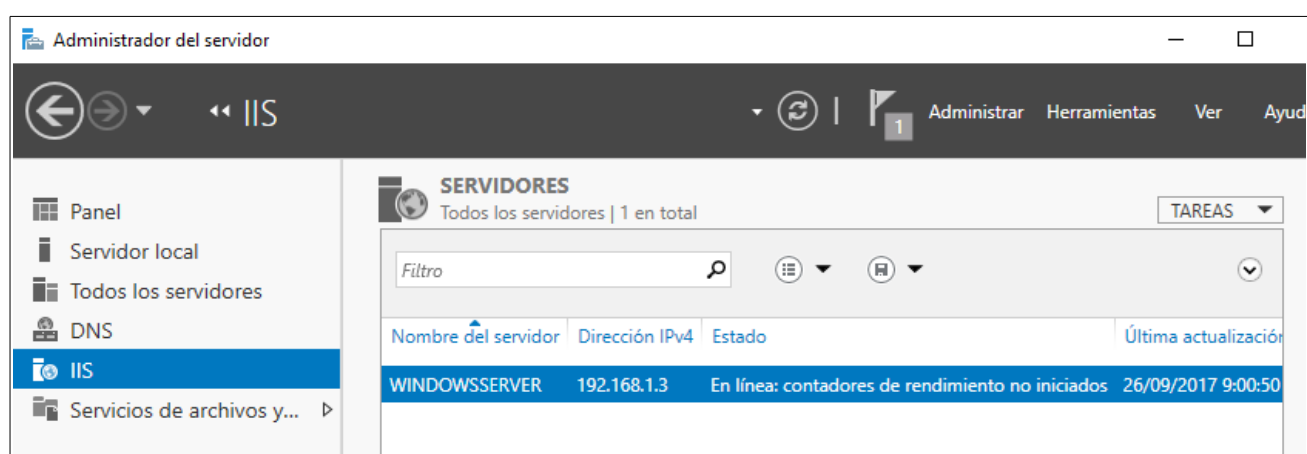
[Exportar opciones de configuración](#)
[Especifique una ruta de acceso de origen alternativa](#)

< Anterior Siguiente > Instalar Cancelar

12. And the installation will be completed



13. We can see a summary if we click on **IIS** on the left panel



Once installed, we can check if the server is listening in port 80/TCP. We have to write

netstat -ap TCP

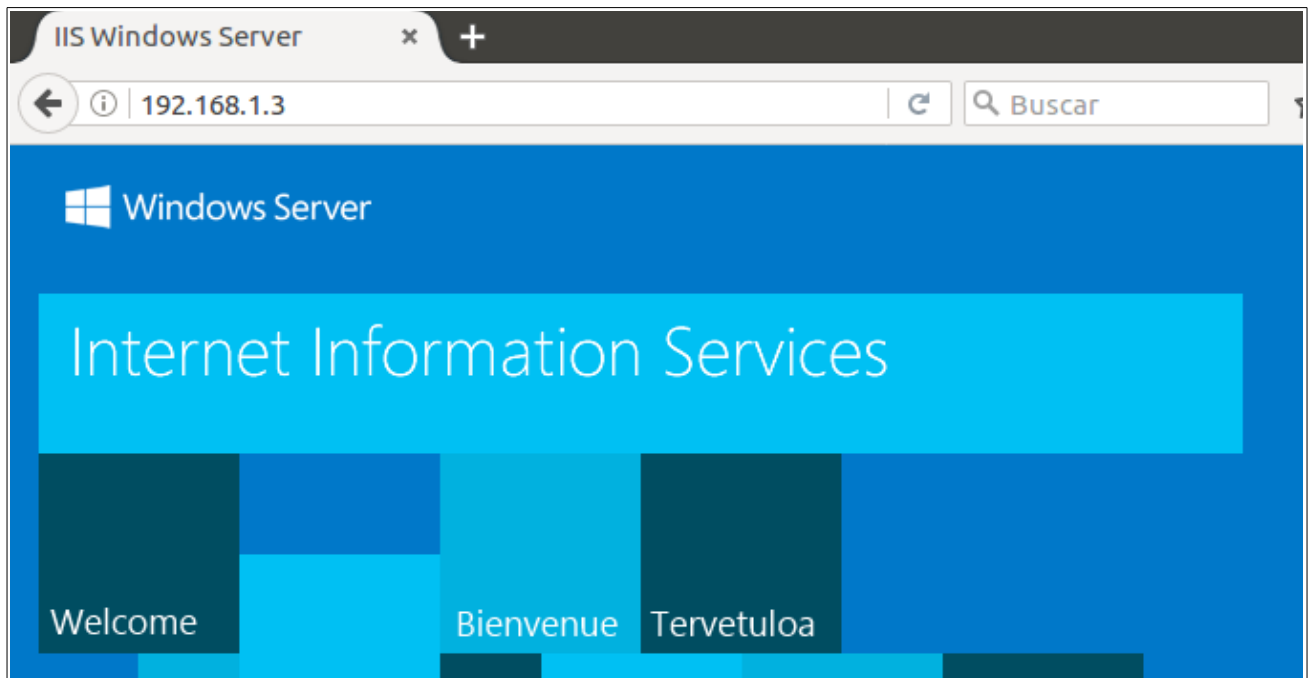
```
C:\Windows\system32>netstat -ap TCP

Conexiones activas

Proto  Dirección local      Dirección remota      Estado
TCP    0.0.0.0:80            WindowsServer:0       LISTENING
TCP    0.0.0.0:135           WindowsServer:0       LISTENING
TCP    0.0.0.0:445           WindowsServer:0       LISTENING
TCP    0.0.0.0:5985          WindowsServer:0       LISTENING
TCP    0.0.0.0:47001         WindowsServer:0       LISTENING
TCP    0.0.0.0:49664         WindowsServer:0       LISTENING
TCP    0.0.0.0:49665         WindowsServer:0       LISTENING
TCP    0.0.0.0:49666         WindowsServer:0       LISTENING
TCP    0.0.0.0:49667         WindowsServer:0       LISTENING
TCP    0.0.0.0:49668         WindowsServer:0       LISTENING
TCP    0.0.0.0:49669         WindowsServer:0       LISTENING
TCP    0.0.0.0:49670         WindowsServer:0       LISTENING
TCP    127.0.0.1:53          WindowsServer:0       LISTENING
TCP    192.168.1.3:53        WindowsServer:0       LISTENING
TCP    192.168.1.3:139       WindowsServer:0       LISTENING
TCP    192.168.1.3:49682     db5sch101100128:https ESTABLISHED
TCP    192.168.1.3:49688     db5sch101101640:https ESTABLISHED
TCP    192.168.1.3:49695     db5sch101110527:https ESTABLISHED
TCP    192.168.1.3:49698     db5sch101110634:https ESTABLISHED
TCP    192.168.1.3:49730     134.170.51.190:https TIME_WAIT
TCP    192.168.1.3:49731     134.170.51.190:https TIME_WAIT
TCP    192.168.1.3:49732     40.77.226.250:https  TIME_WAIT
TCP    192.168.1.3:49733     134.170.51.190:https TIME_WAIT
```

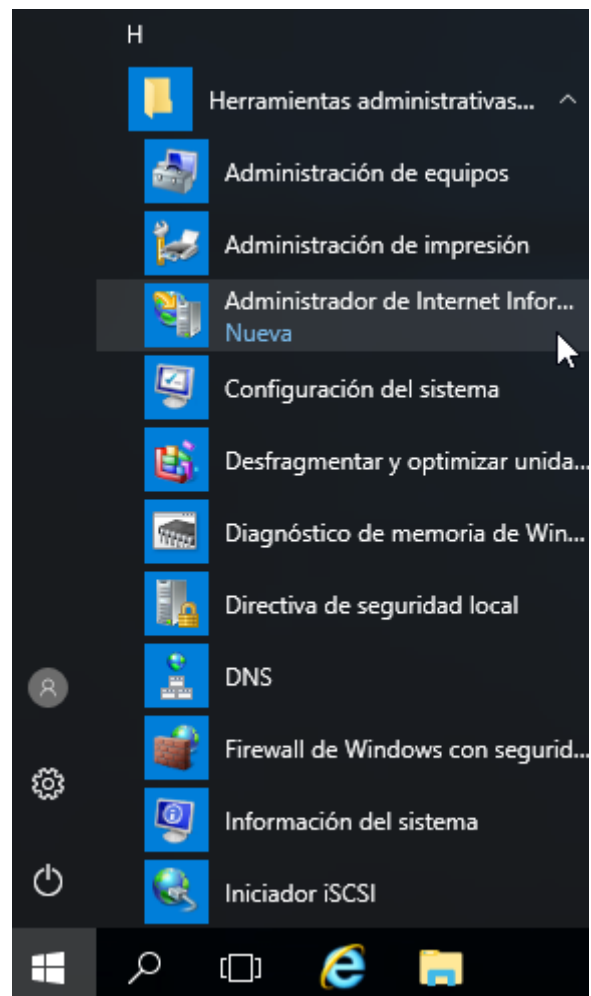
2.2 Checking the first configuration

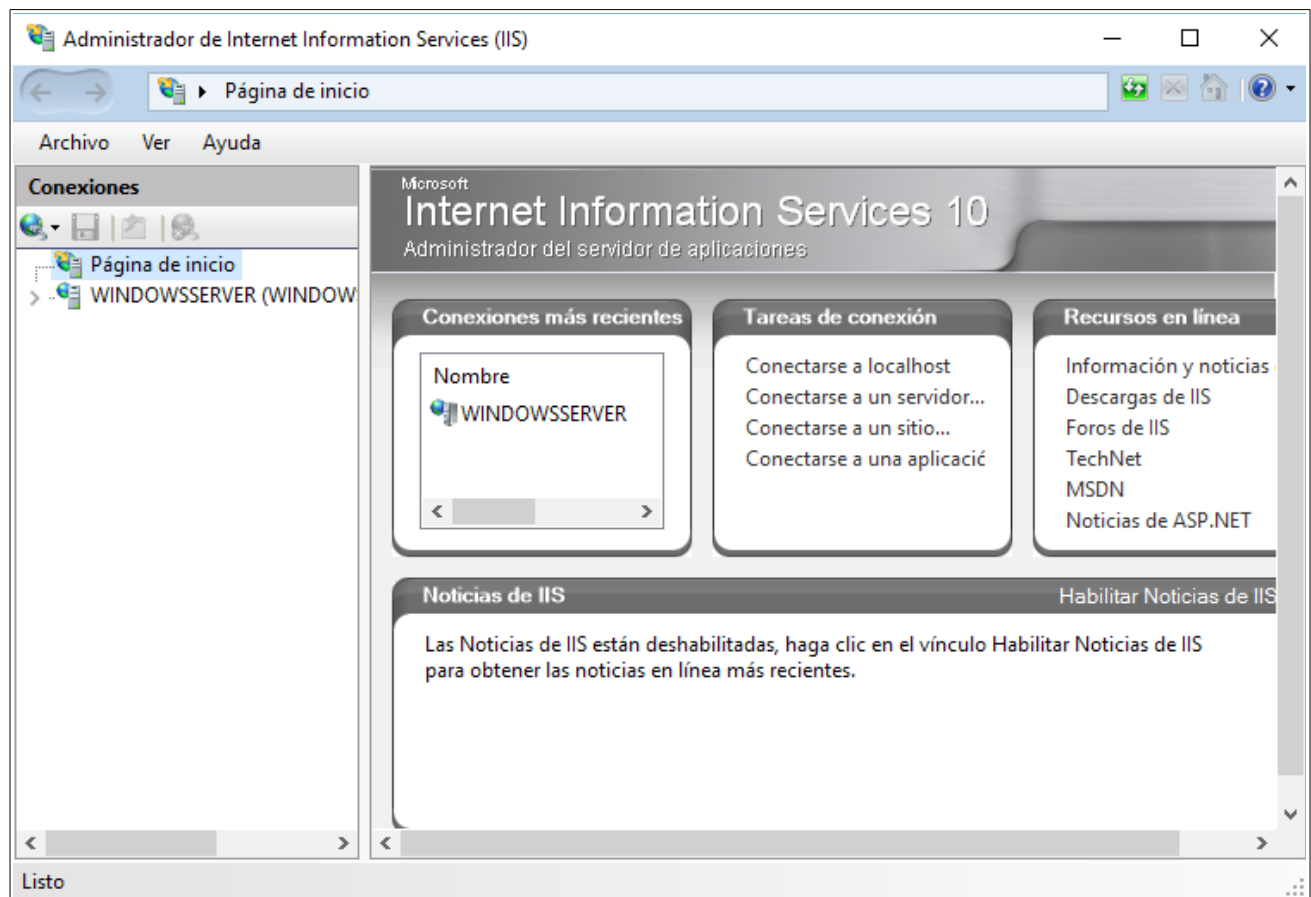
To check the configuration we are going to start the client, open the browser and write the IP address of the *linuxserver*: 192.168.1.3 (Remember that you can have other IP address)



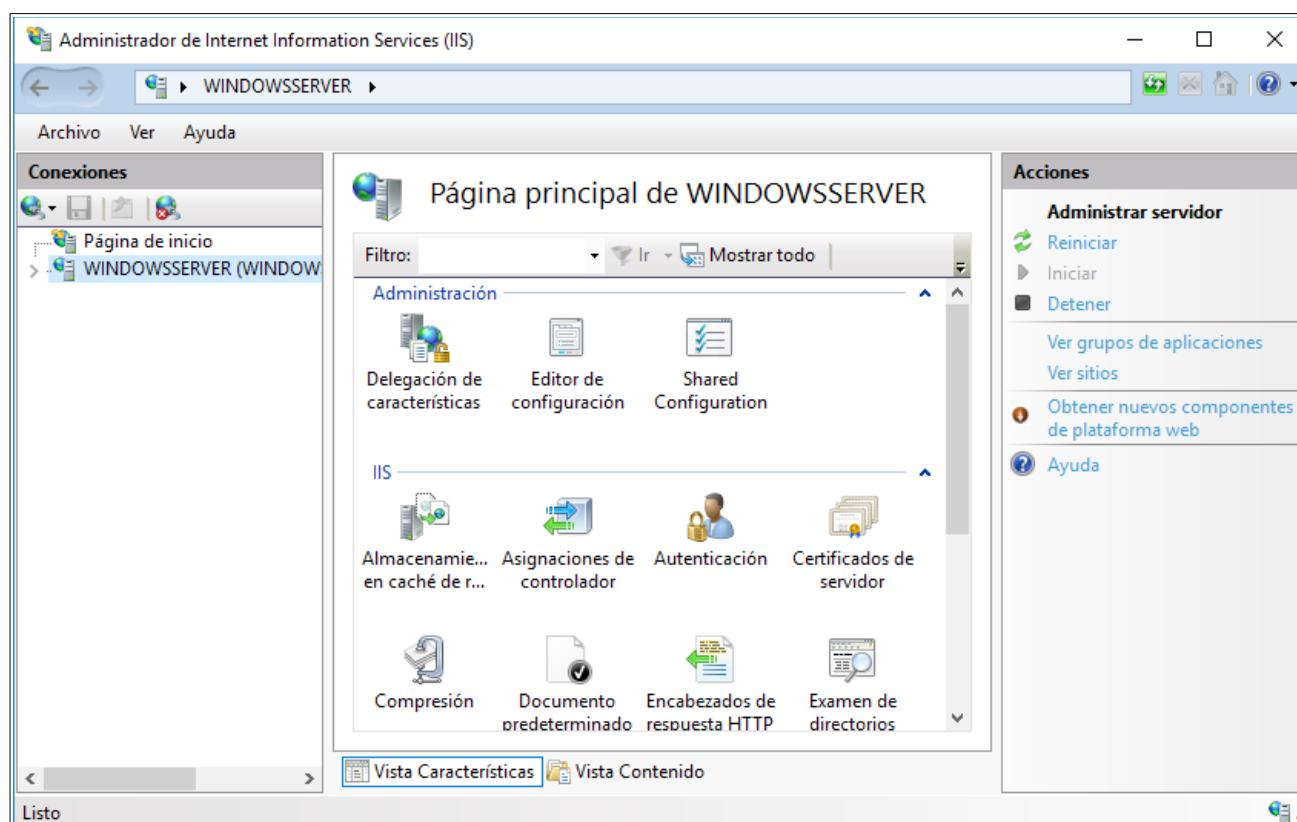
2.3 Basic configuration

Now we are going to do some configuration tests over the web server IIS. To access to the IIS we have to go to **START MENU > ADMINISTRATIVE TOOLS > IIS MANAGER**





If we click on **WINDOWSSERVER** we could see the main window

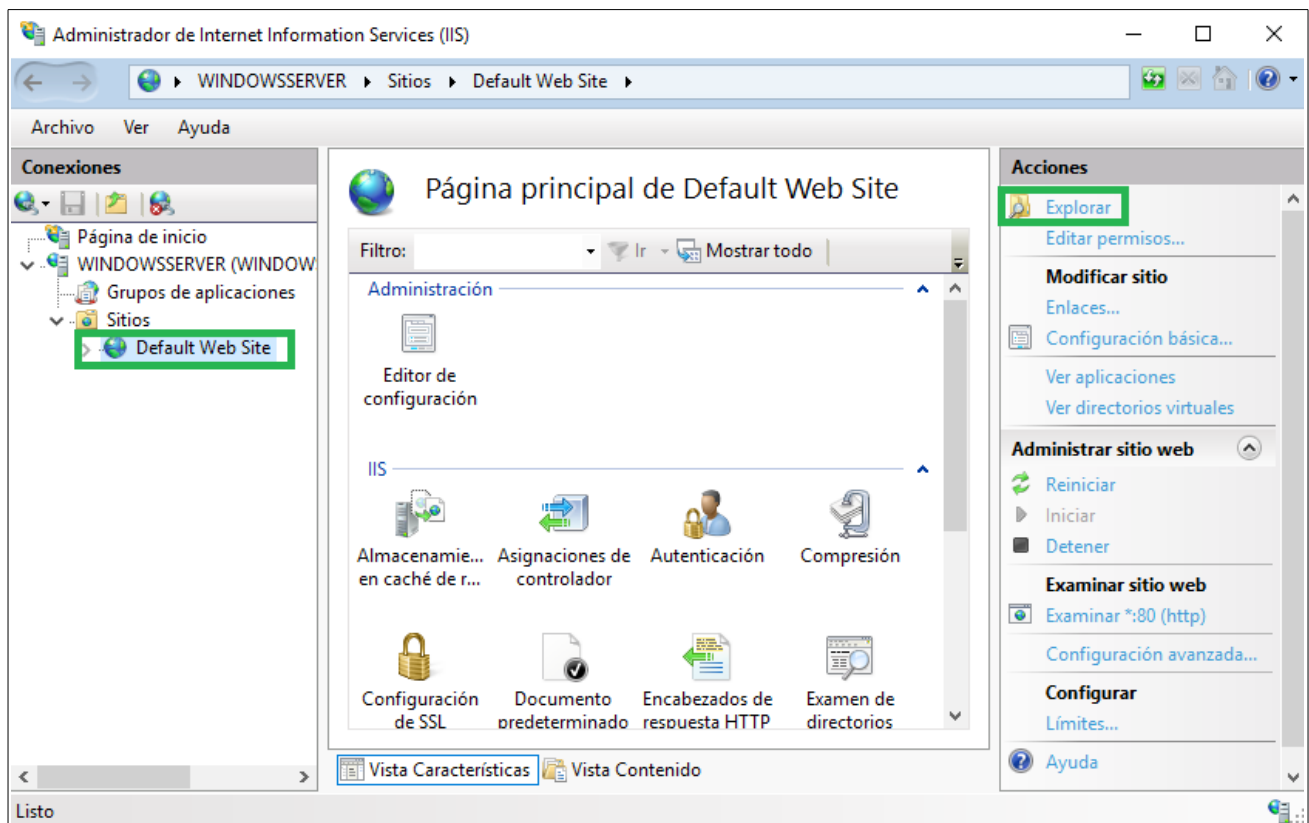


2.3.1 Test files and directories

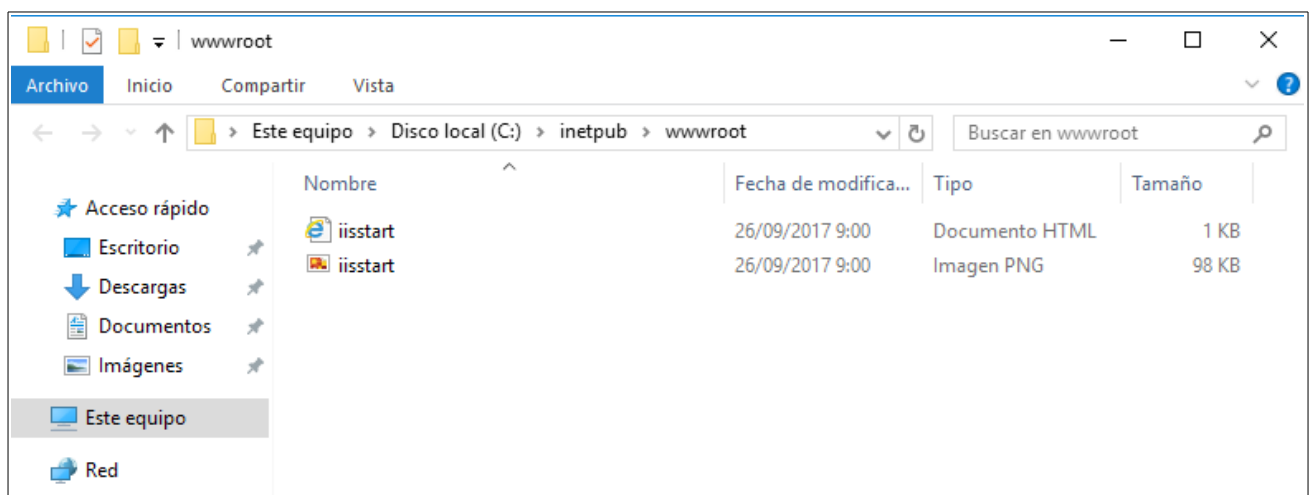
First of all we are going to create the following files and directories:

- *daw.htm* (*.htm* is the extension uses by Windows for web pages. It is the same that *.html*)
- *ceedcv.htm*
- */alum/class.htm*

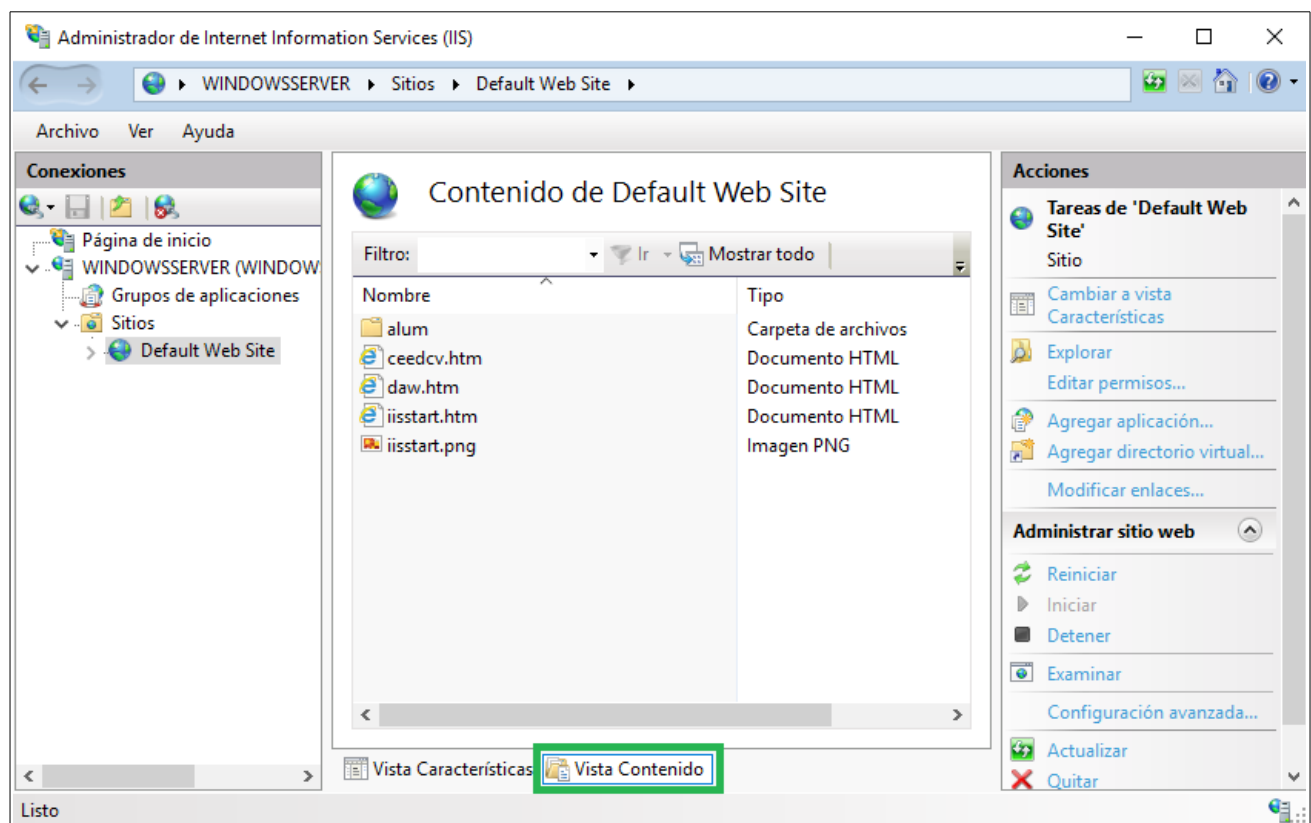
For that, we have to choose **Default Web Site** and click on **Explore**:



and we can see the content of the directory `C:\inetpub\wwwroot` where the web pages of the server are. For now, the web page by default (`iisstart.htm` and the image `welcome.png`)

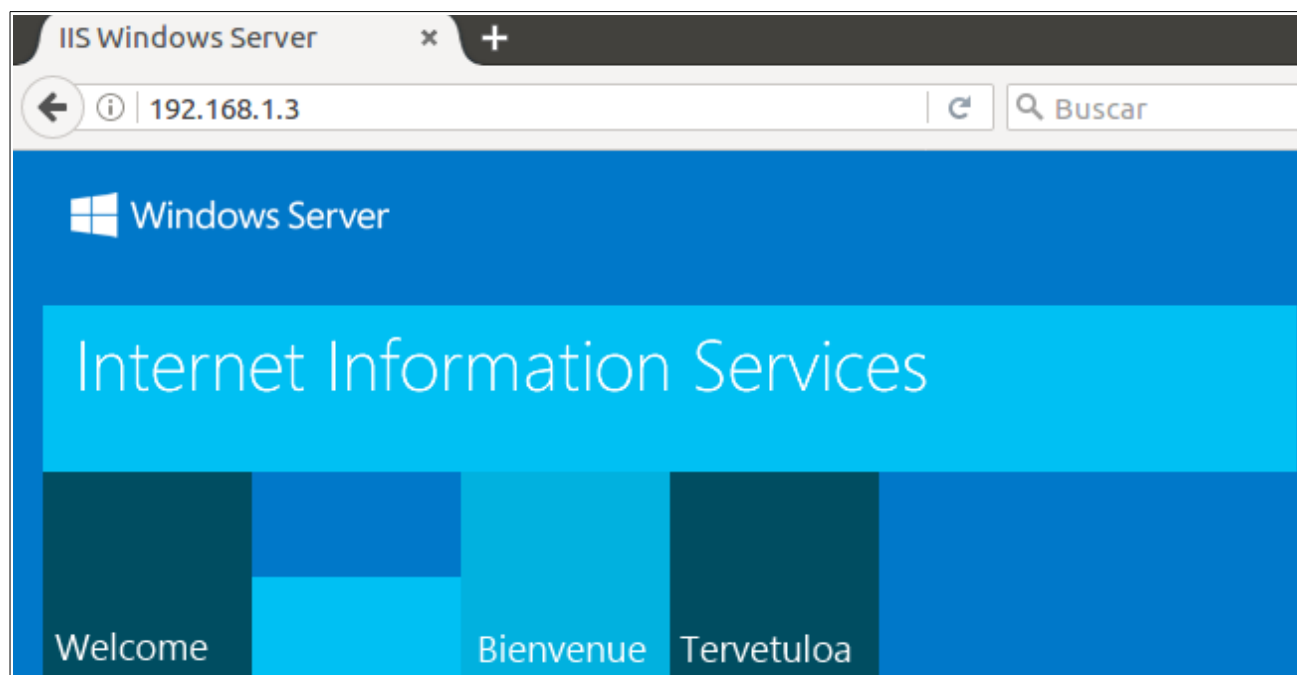


So, in this directory we are going to create the files with the same content as in the section 2.4.1. Once created, we have to update the web server, for that we have to click on **CONTENT VIEW**, click with the right button and then **UPDATE**.



Once created all the files, open the *linuxclient* virtual machine and do the following connections using the browser:

- 192.168.1.3



- 192.168.1.3/daw.htm



- 192.168.1.3/ceedcv.htm



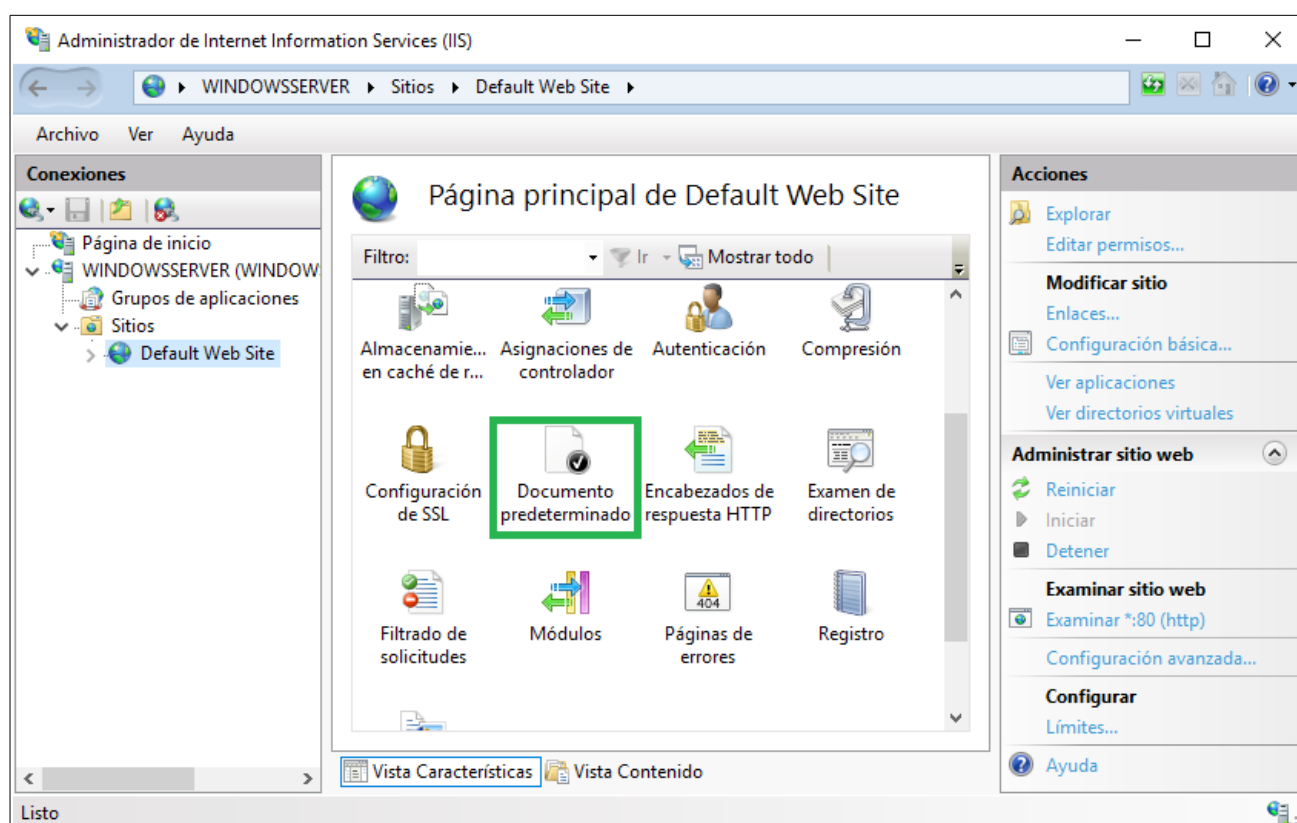
- 192.168.1.3/alum/class.htm



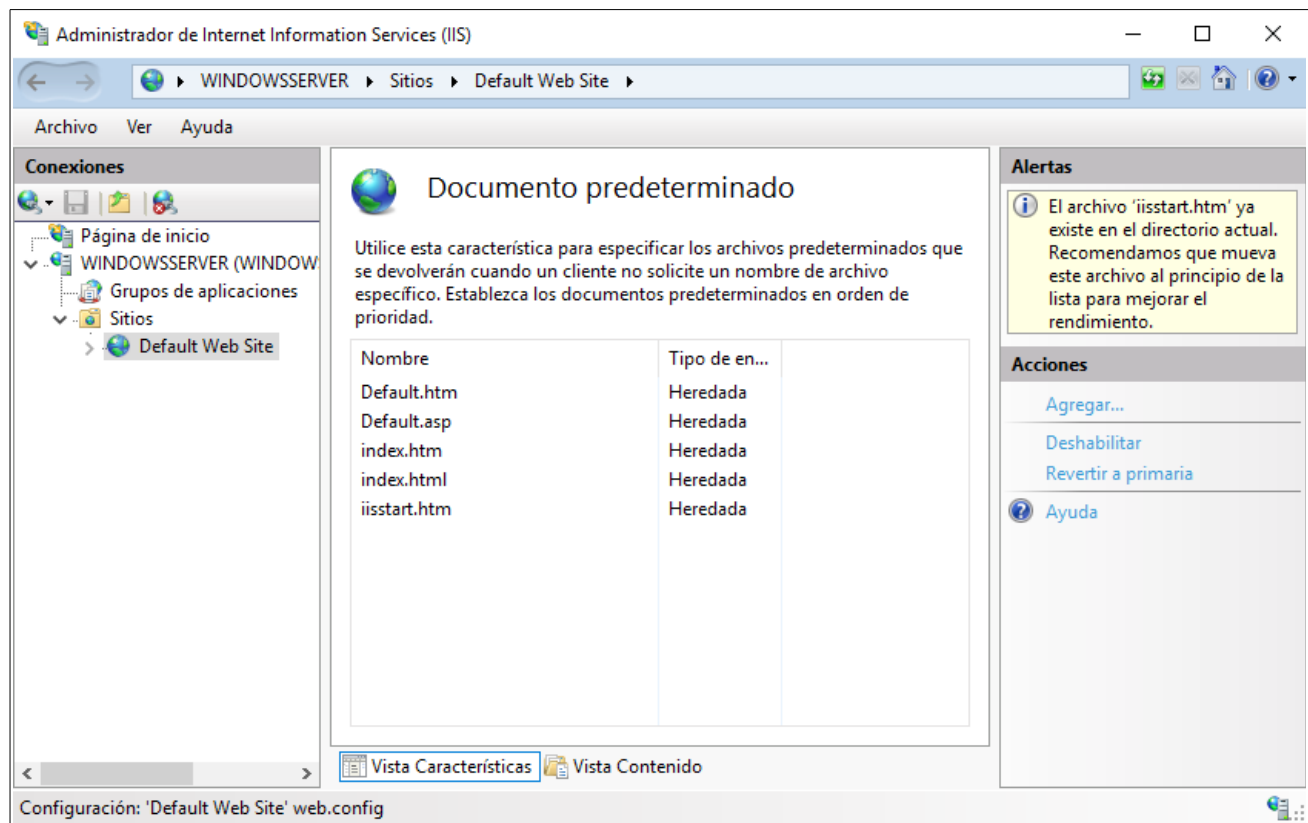
2.3.2 Web page by default

When we do a we connection from *linuxclient* to 192.168.1.3 (*windowsserver*) the server sends the file *iisstart.htm* by default. Now we are going to do tests using this feature.

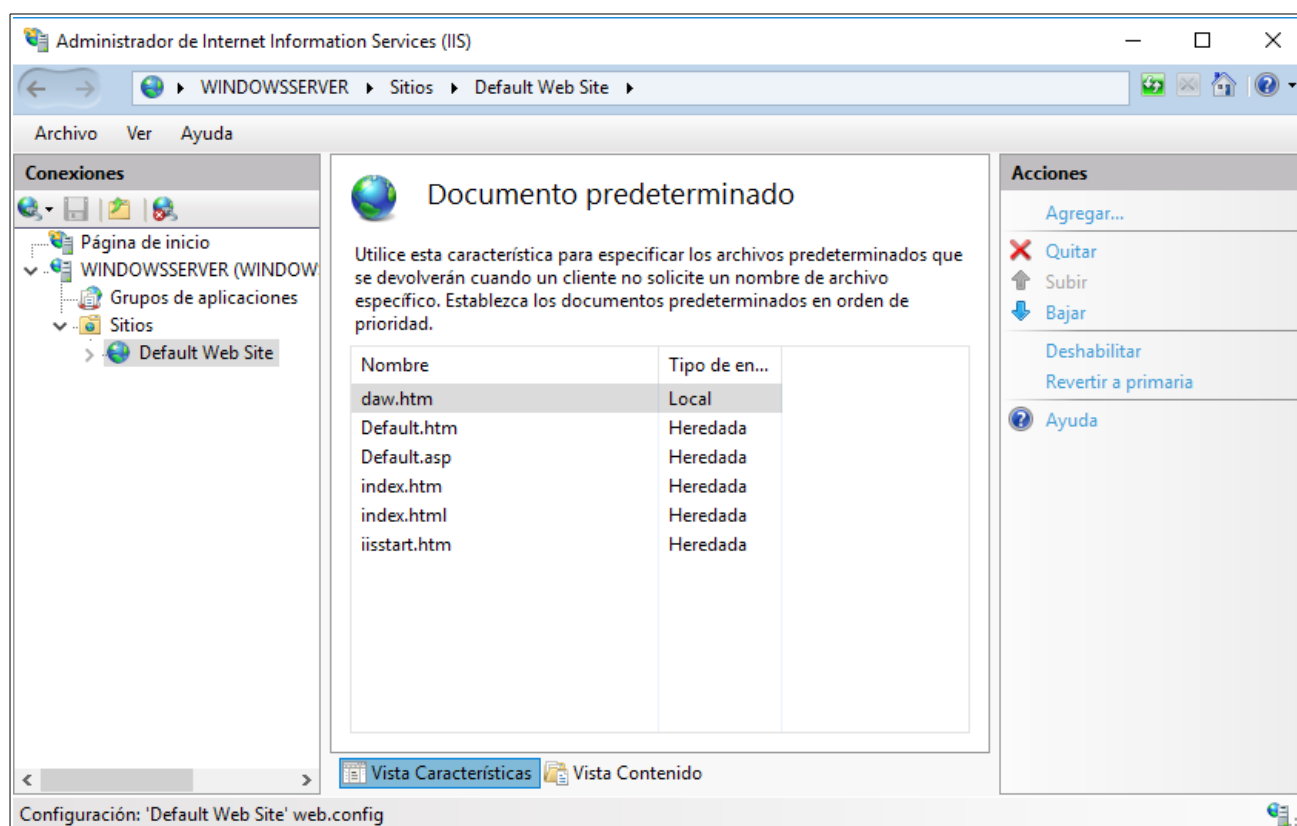
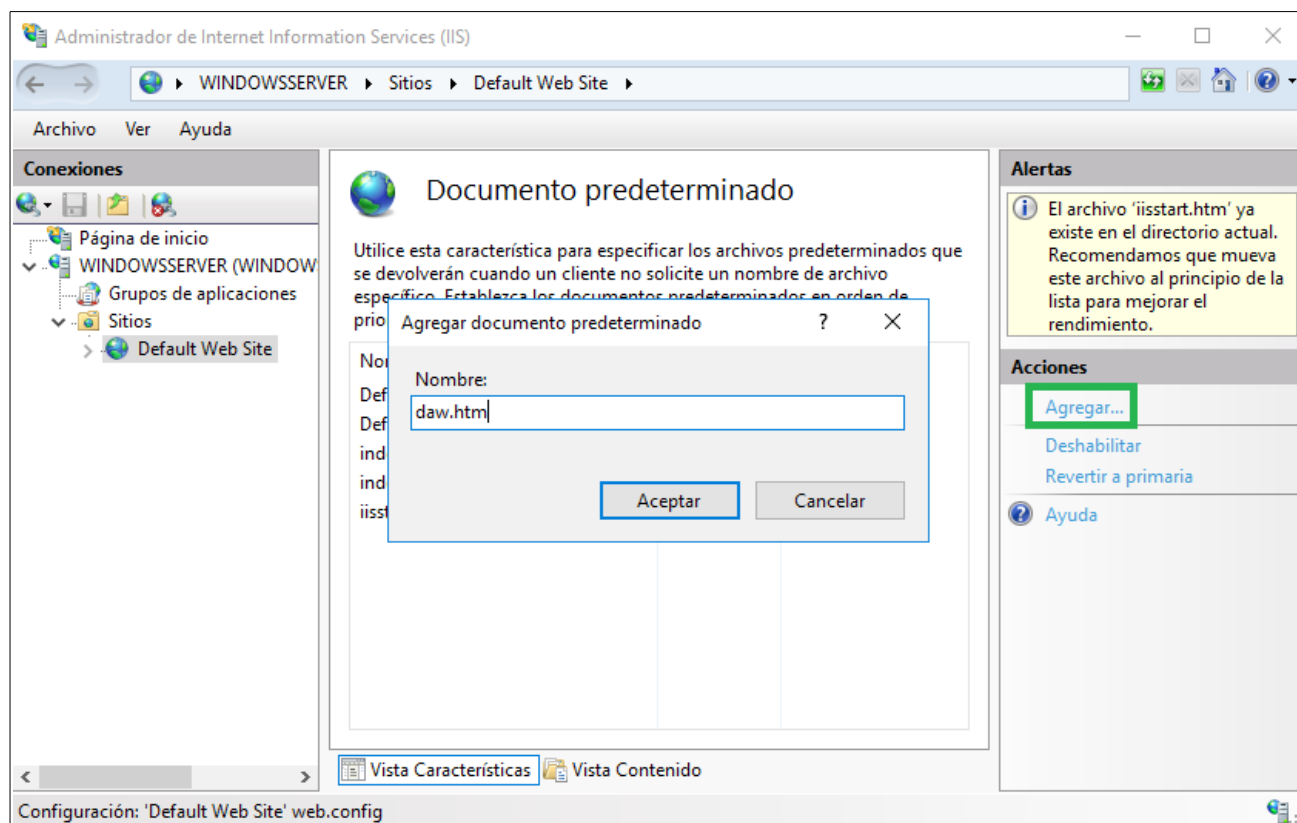
First of all, we are going to click on the **DEFAULT DOCUMENT** icon



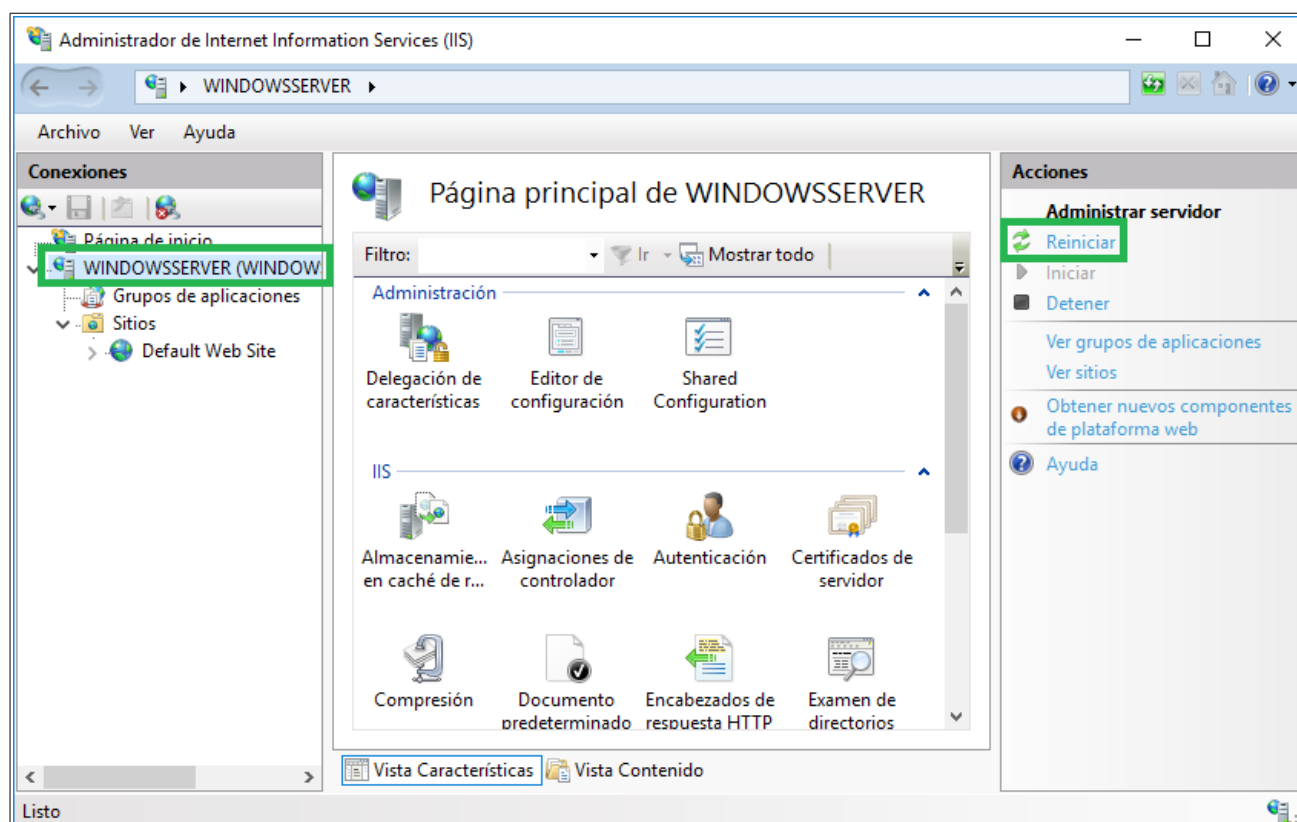
and then we can see the list of the default documents in order of priority



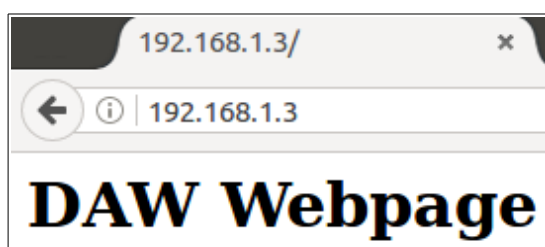
then we are going to click on **ADD** and add a new default document (*daw.htm*) and it will be in the first position



Now, to see the changes we are going to click on **WINDOWSSERVER** (on the left) and click on **RESTART** (on the right).



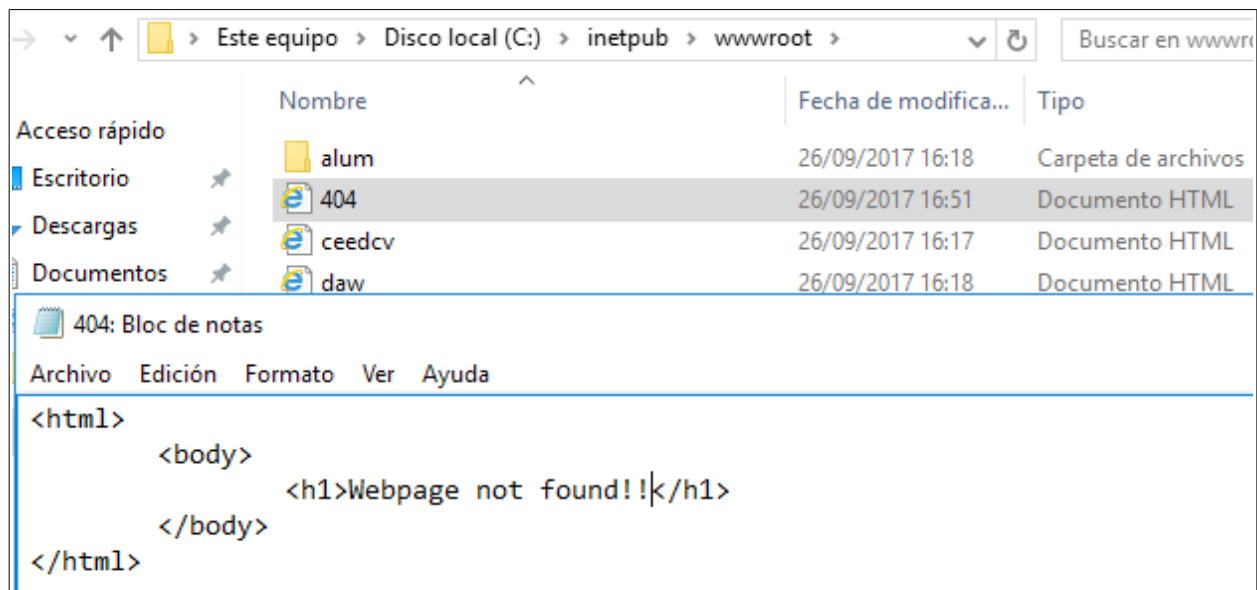
Finally, we do a connection from **linuxclient** to 192.168.1.3



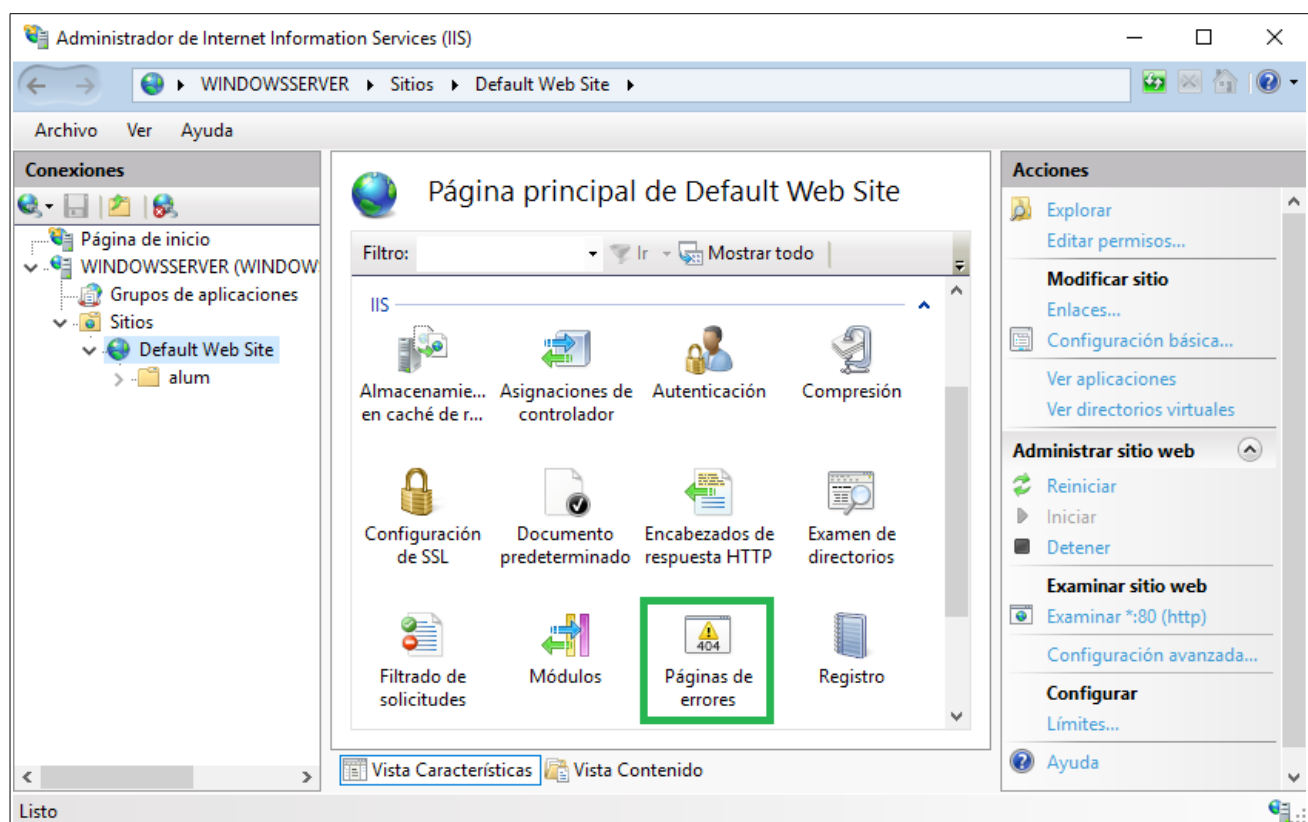
We can see the file by default has changed.

2.3.3 Error codes

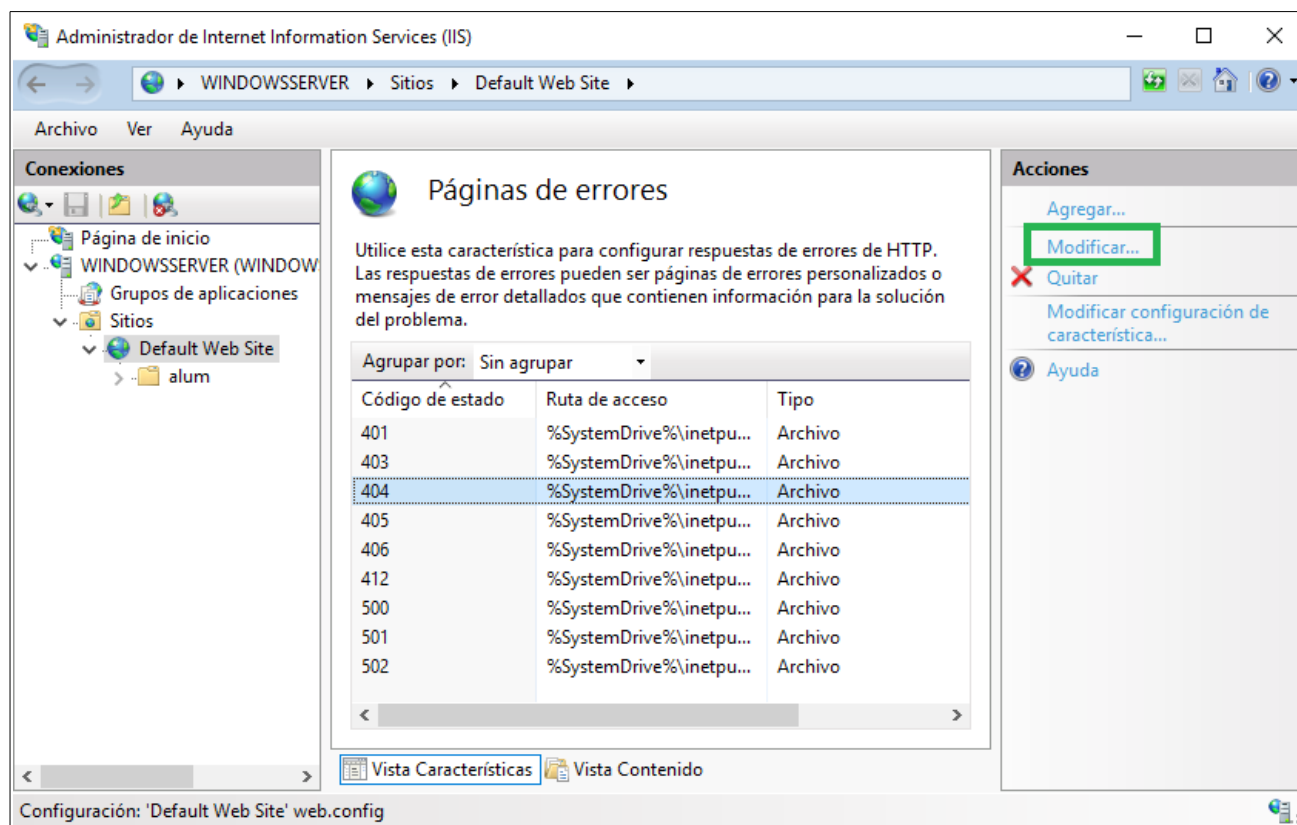
Now, we are going to configure the server for the case when the file is not found (code **404**), now it will return a web page. For that, first we are going to create a new file call **404.htm**



Then, we are going to click on **ERROR PAGES** icon



and choose the **404** error and click on **MODIFY**



Now, we have to write our error web page(/404.htm) on **EXECUTE A URL ON THIS SITE** and click on **ACCEPT**

Modificar página de errores personalizados ? X

Código de estado:
404
Ejemplo: 404 o 404.2

Acción de respuesta

☐ Insertar contenido del archivo estático en respuesta de error

Ruta de acceso del archivo:

Establecer...

☒ Pruebe a devolver el archivo de error en el lenguaje del cliente

☒ Ejecutar una dirección URL en este sitio

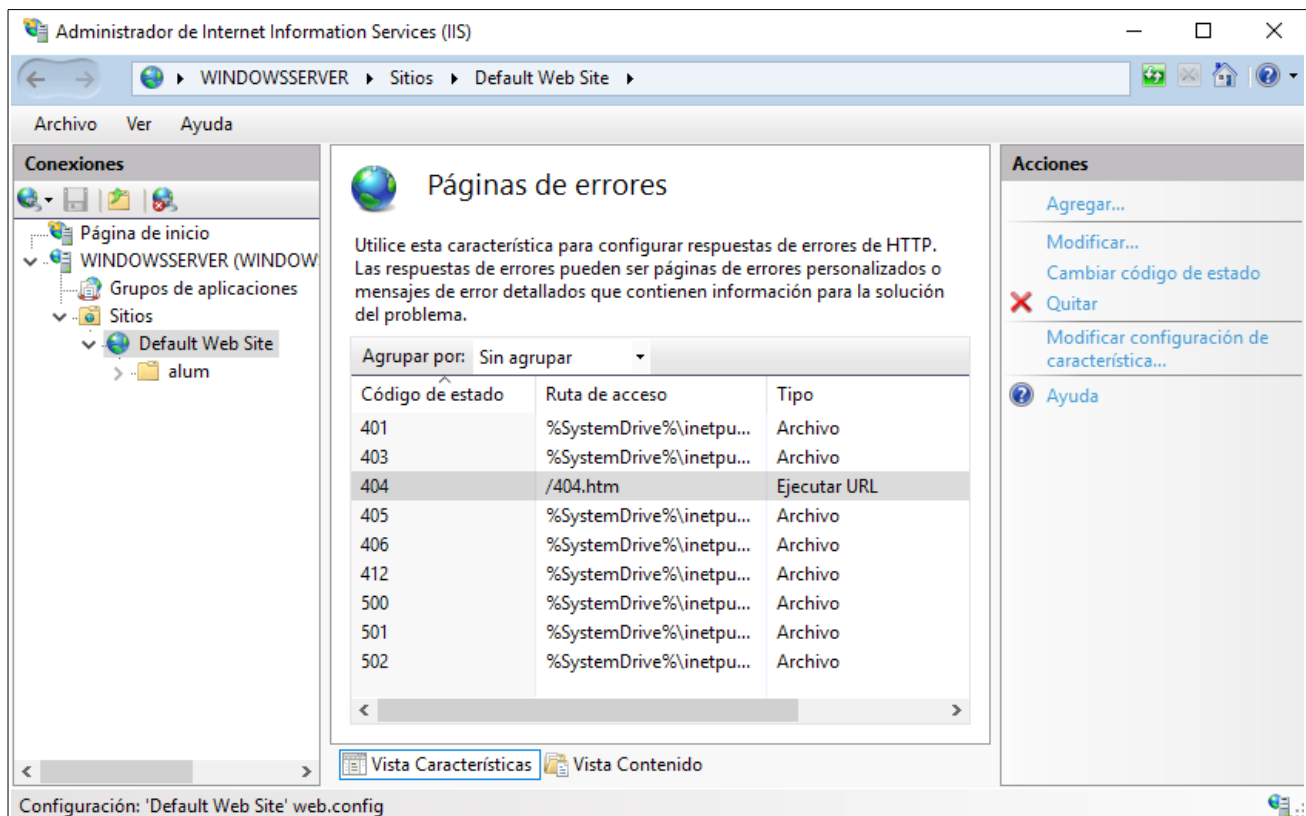
Dirección URL (relativa a la raíz del sitio):
/404.htm
Ejemplo: /ErrorPages/404.aspx

☐ Responder con una redirección 302

Dirección URL absoluta:

Ejemplo: http://www.contoso.com/404.aspx

Aceptar Cancelar

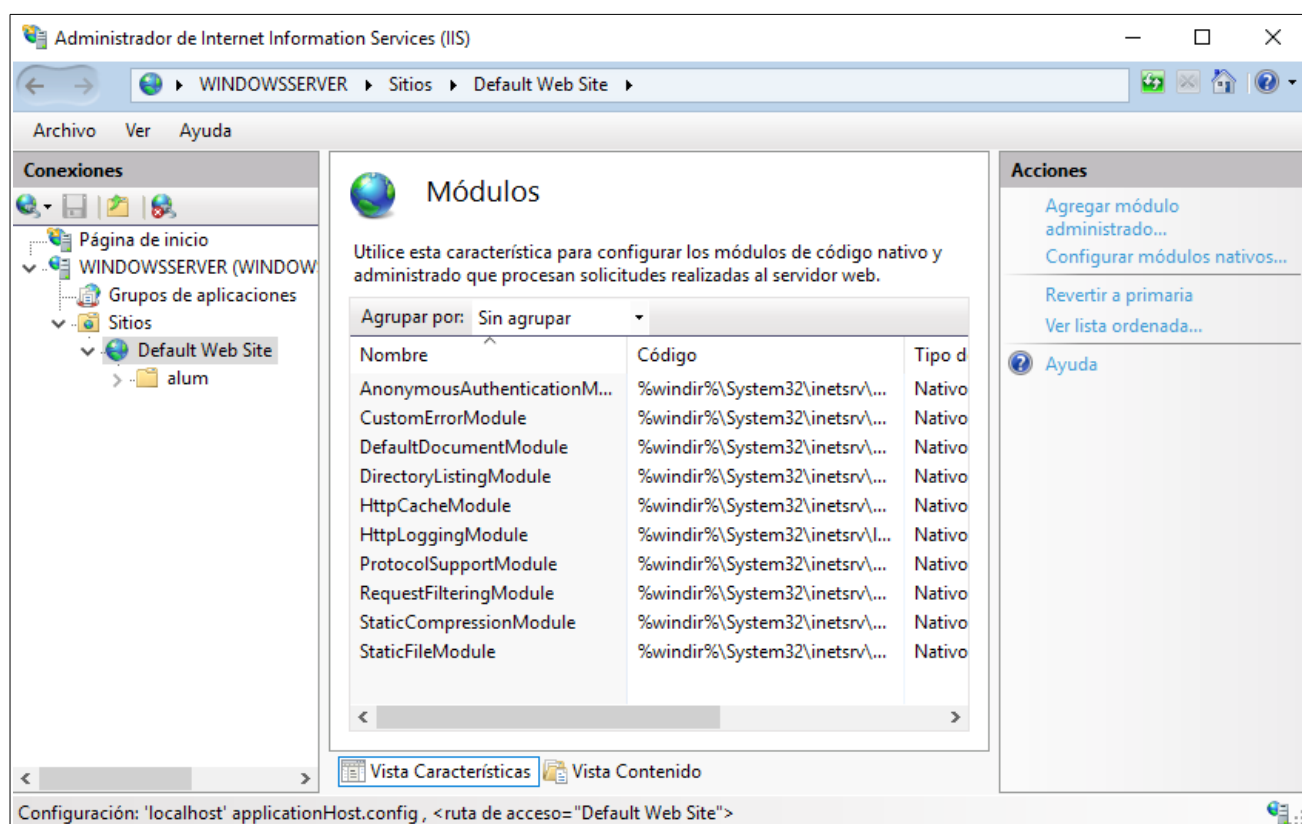
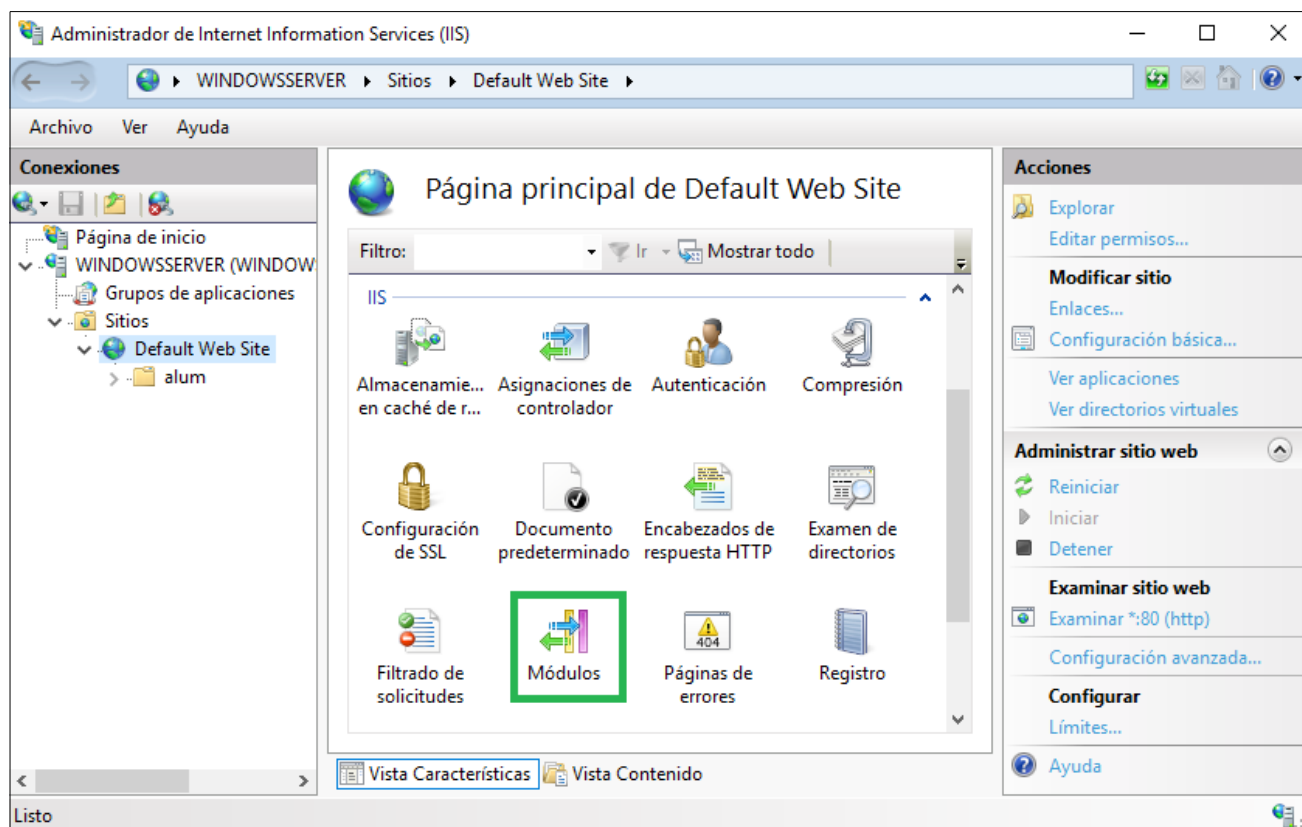


And finally, we can check it with *linuxclient*



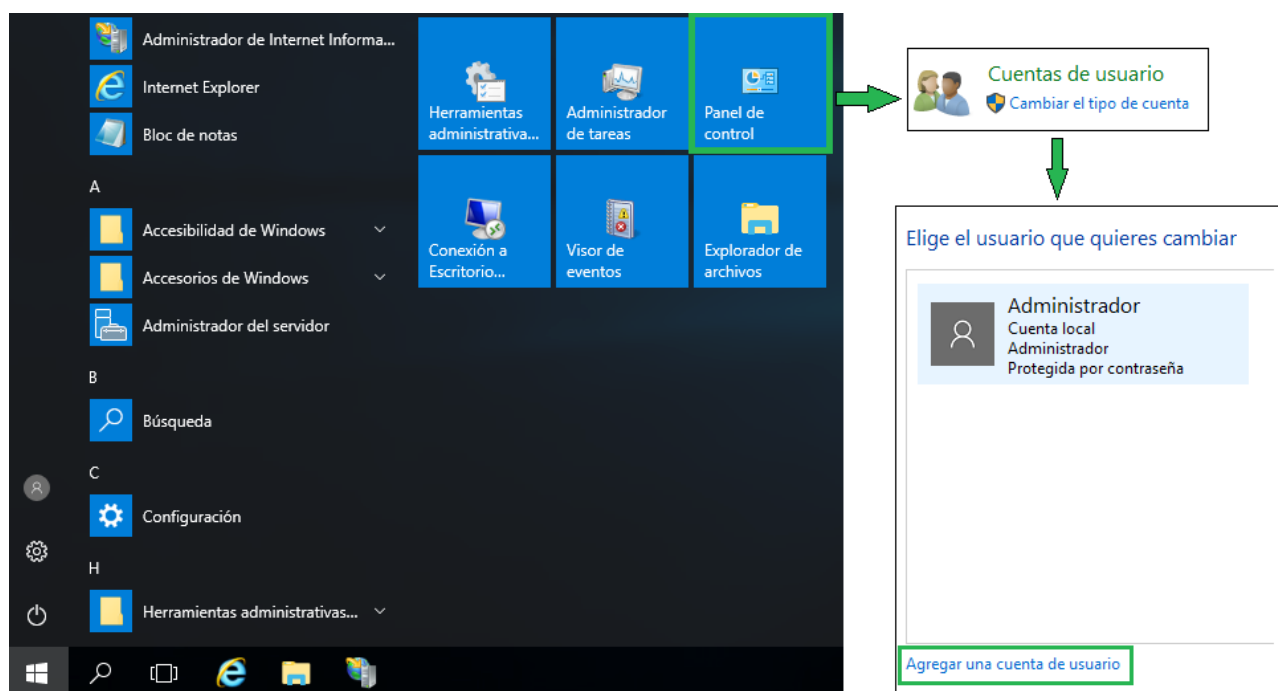
2.4 Modules

About the modules in IIS we are going to learn just how to check the modules that are loaded. For that we have to click on **MODULES** and you can take a look at them



2.5 Authentication and authorization

First of all we are going to create a users (teacher1 and teacher2) that will be authorized. For that we have to click on **START MENU > CONTROL PANEL > USER ACCOUNTS (CHANGE THE ACCOUNT TYPE) > ADD A USER ACCOUNT**



We have to fill the fields and click on **NEXT**

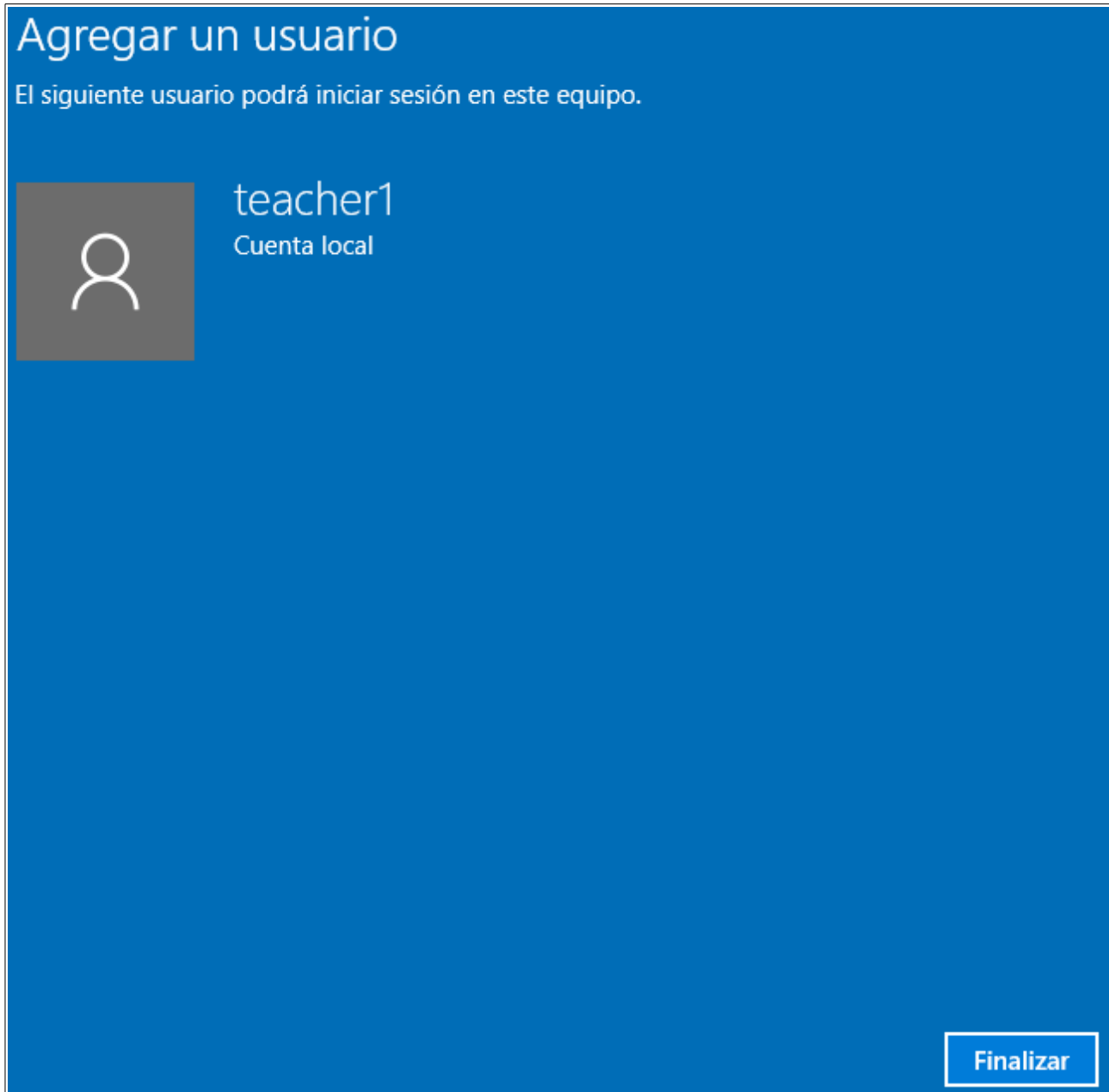
Agregar un usuario

Elige una contraseña que sea fácil de recordar para ti pero difícil de adivinar para otros. Si la olvidas, te mostraremos el indicio.

Windows no se puede conectar a Internet en estos momentos. Comprueba la conexión a Internet y vuelve a intentarlo más tarde si quieres agregar una cuenta Microsoft.

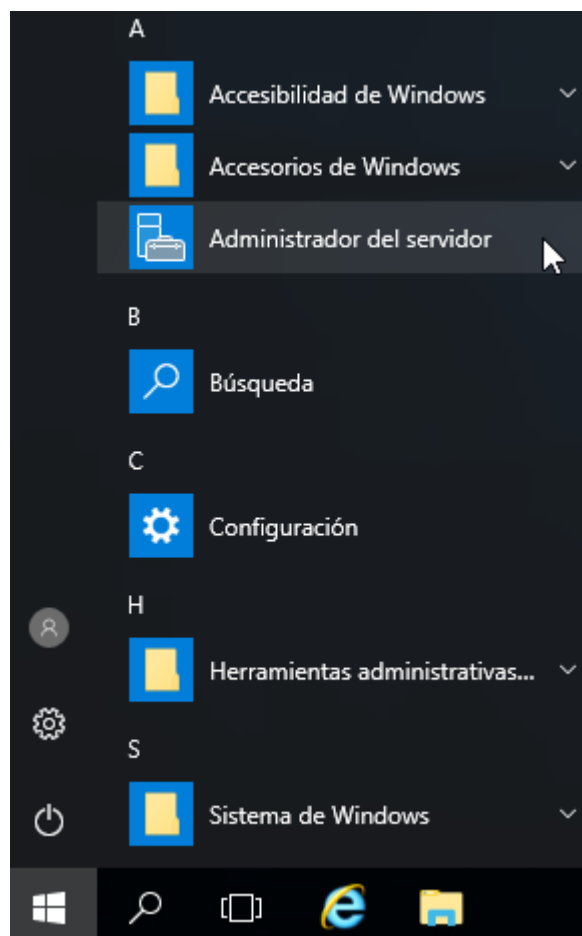
Nombre de usuario	<input type="text" value="teacher1"/>
Contraseña	<input type="password" value="••••••••"/>
Vuelve a escribir la contraseña	<input type="password" value="••••••••"/>
Indicio de contraseña	<input type="text"/>

And finally click on **FINISH**



Once the user is created (do it the same for the other user) we are going to configure the authentication. For that we are going to follow these steps:

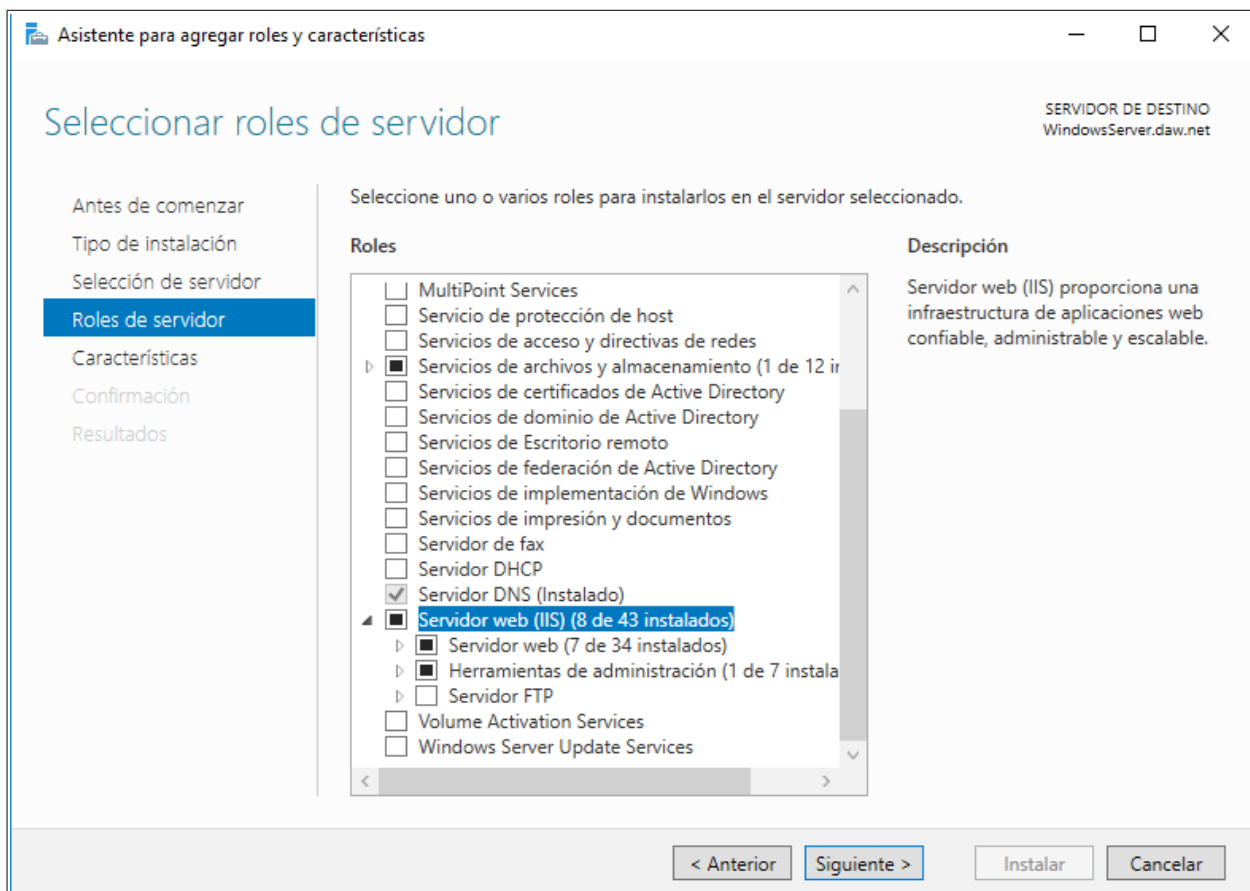
1. Click on **START MENU > SERVER MANAGER**



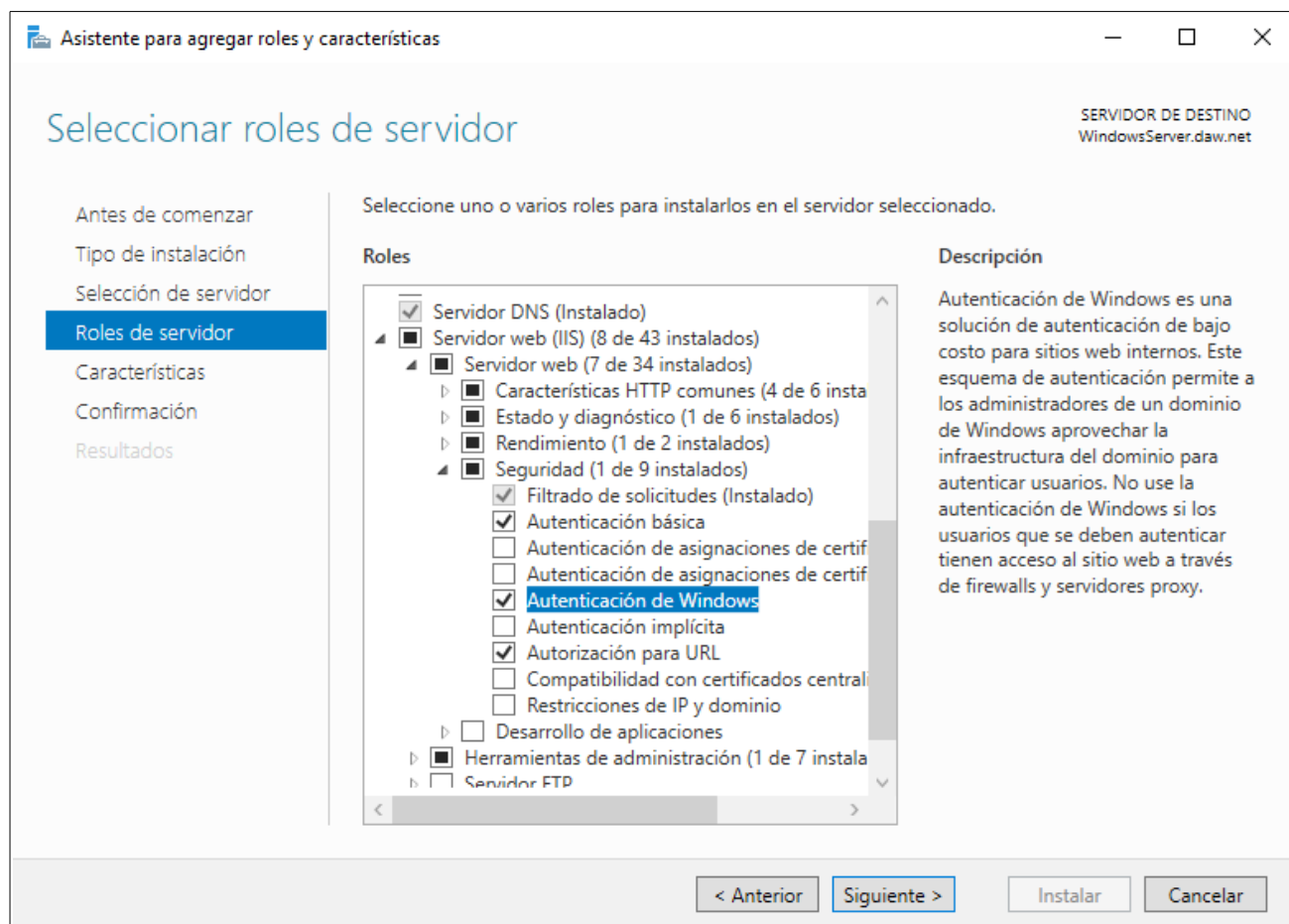
2. Click on **ADD ROLES AND FEATURES**



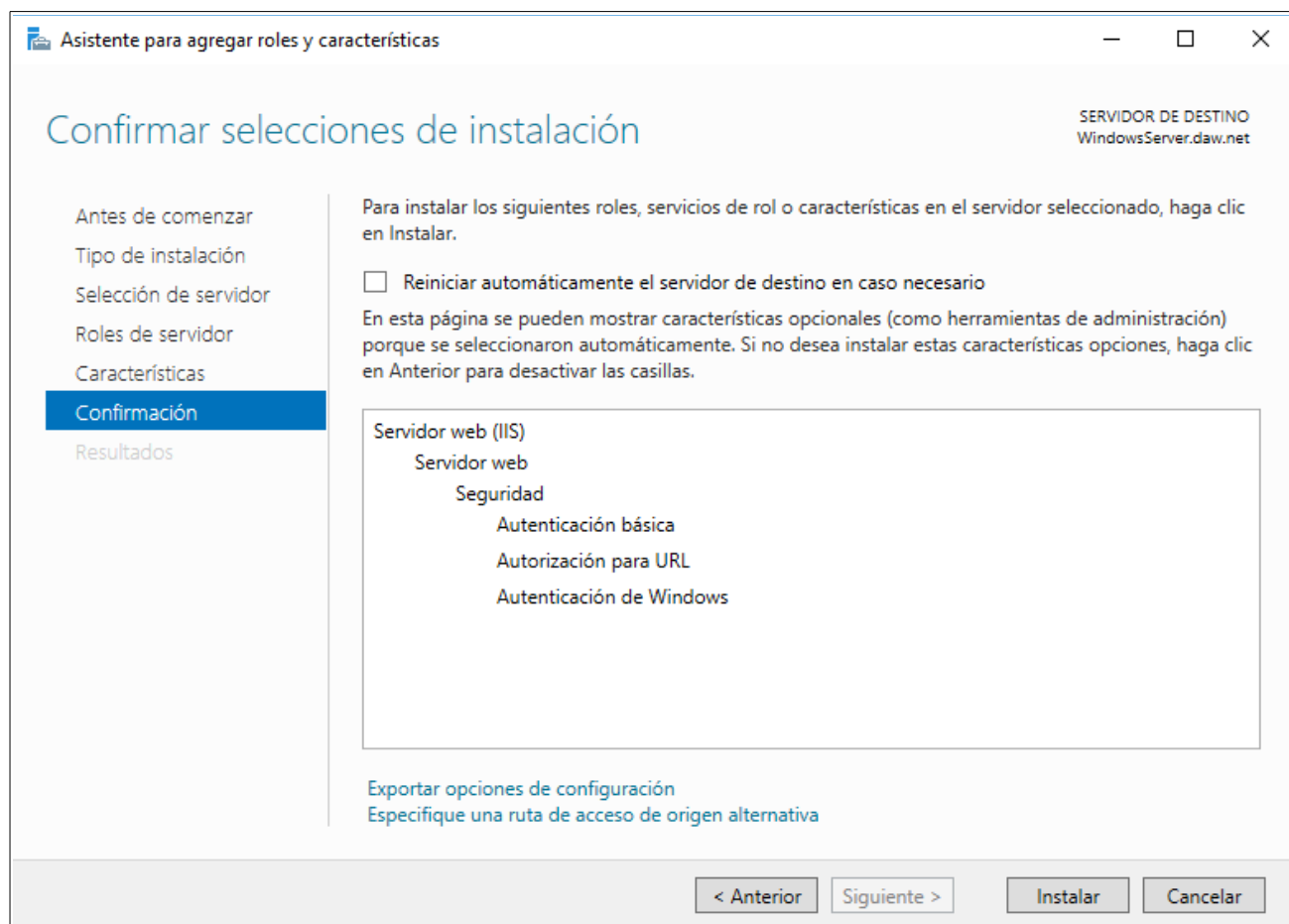
3. Click on **NEXT** until the **ROLES SERVER** section and select **WEB SERVER (IIS)**



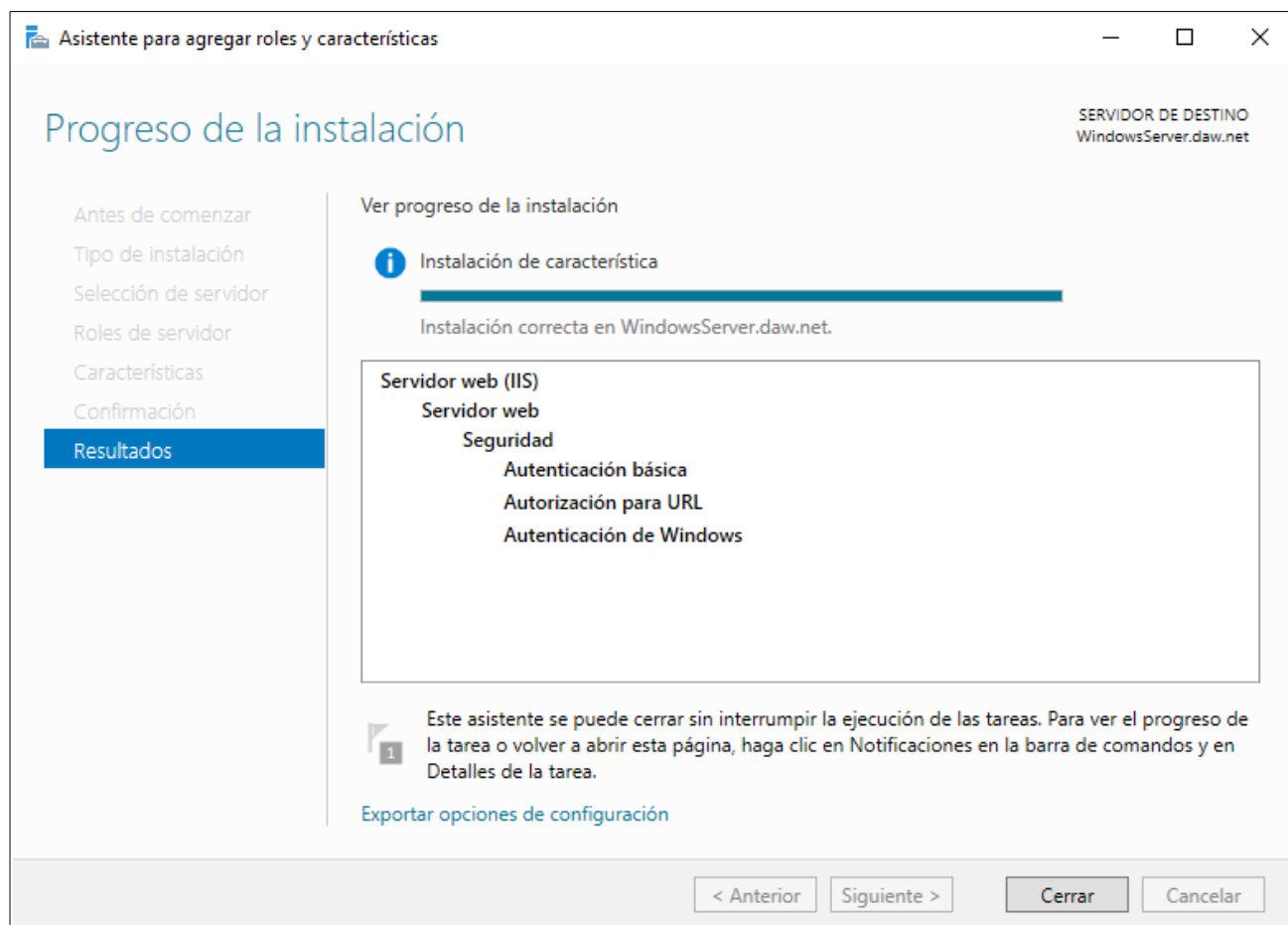
4. Select **WEB SERVER > SECURITY** and choose the different authentications: Basic, Windows and URL (we will only use the basic one) and click on **NEXT**.



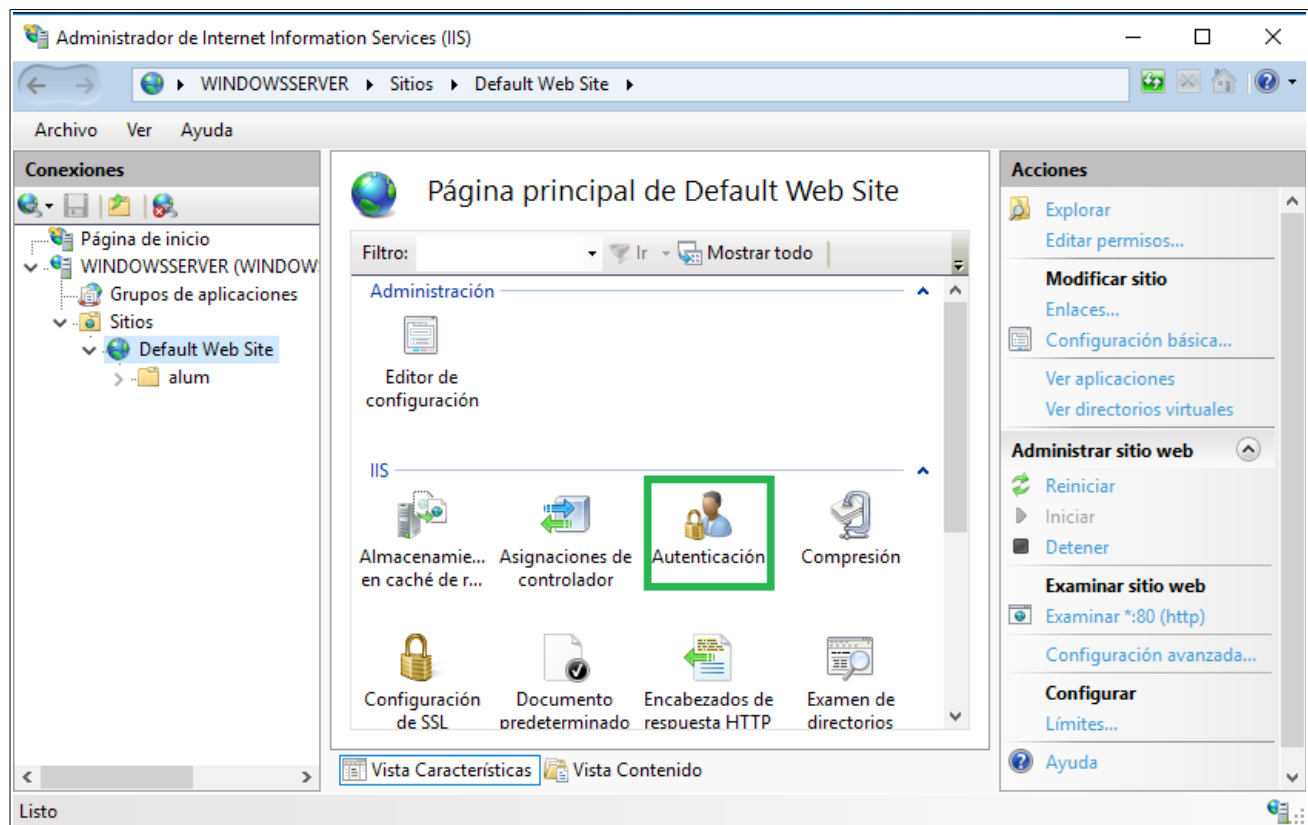
5. Click on **NEXT** and finally click on **INSTALL**



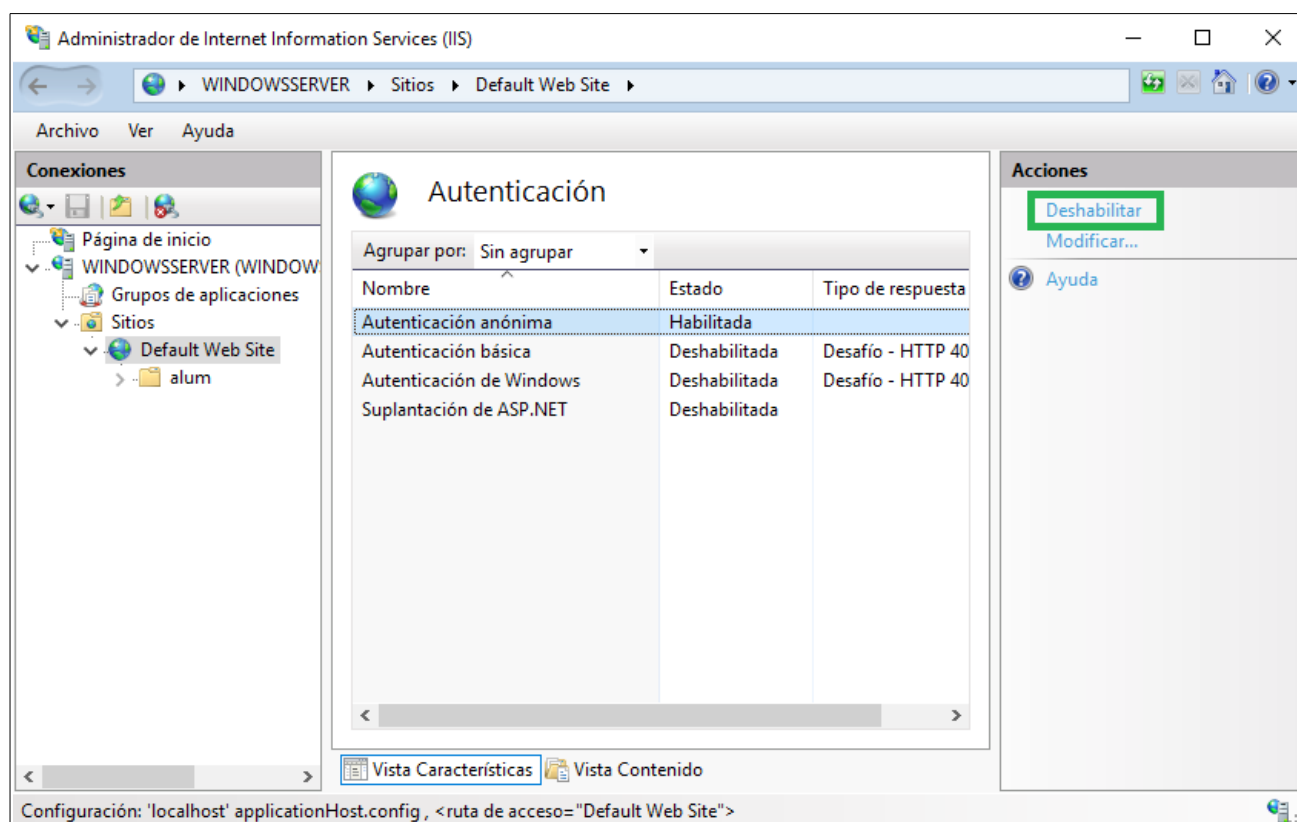
6. Read the results of the installation and click on **CLOSE**



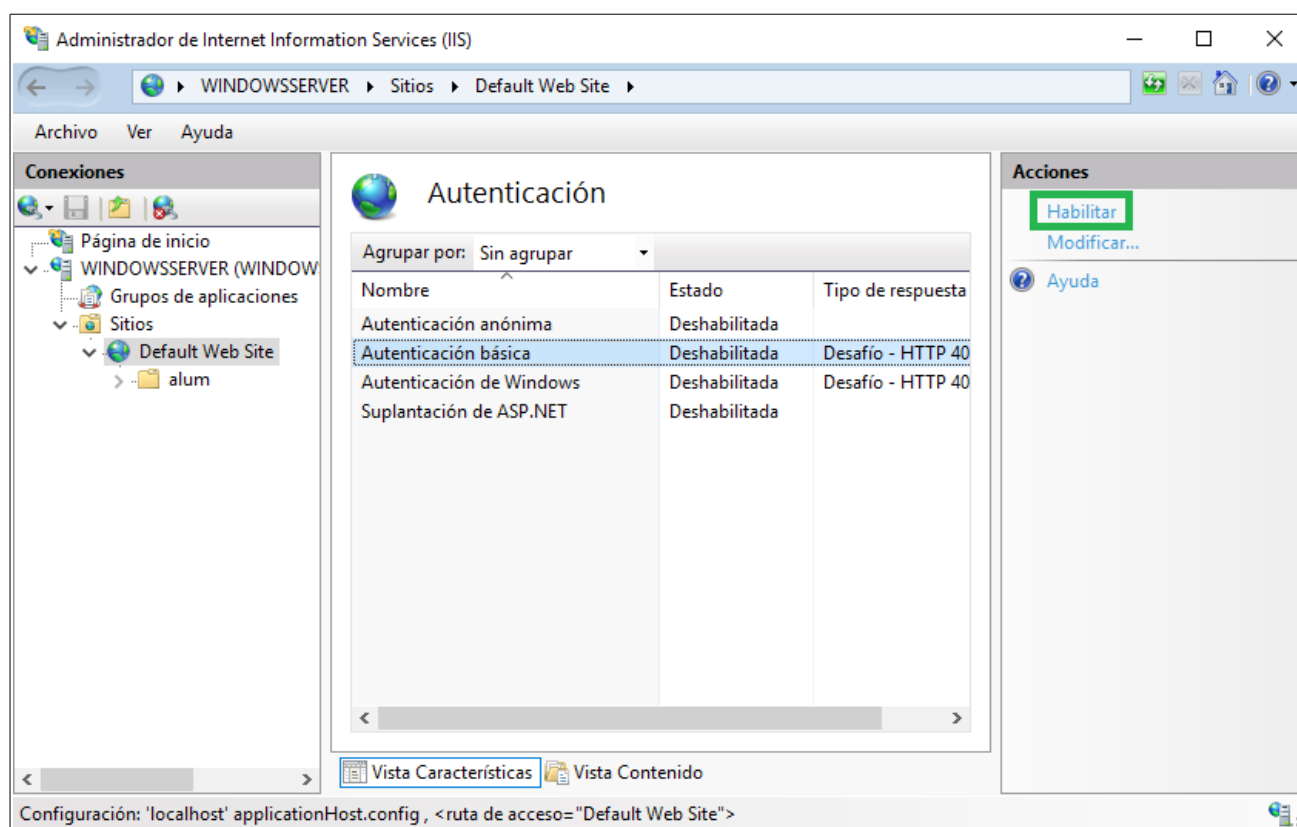
7. Once the services installed, we are going to the **IIS MANAGER** and click twice on **AUTHENTICATION**

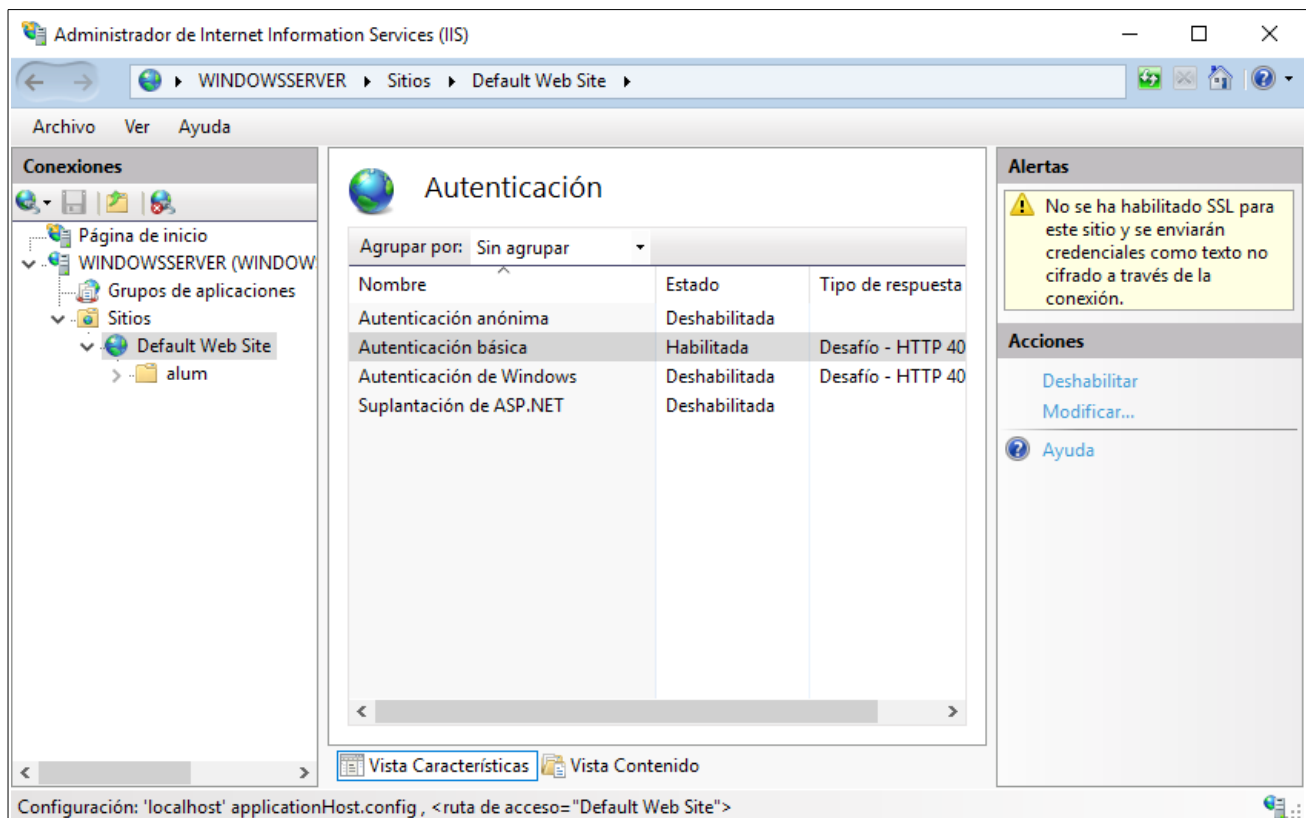


8. We choose **ANONYMOUS AUTHENTICATION** and click on **DISABLE**

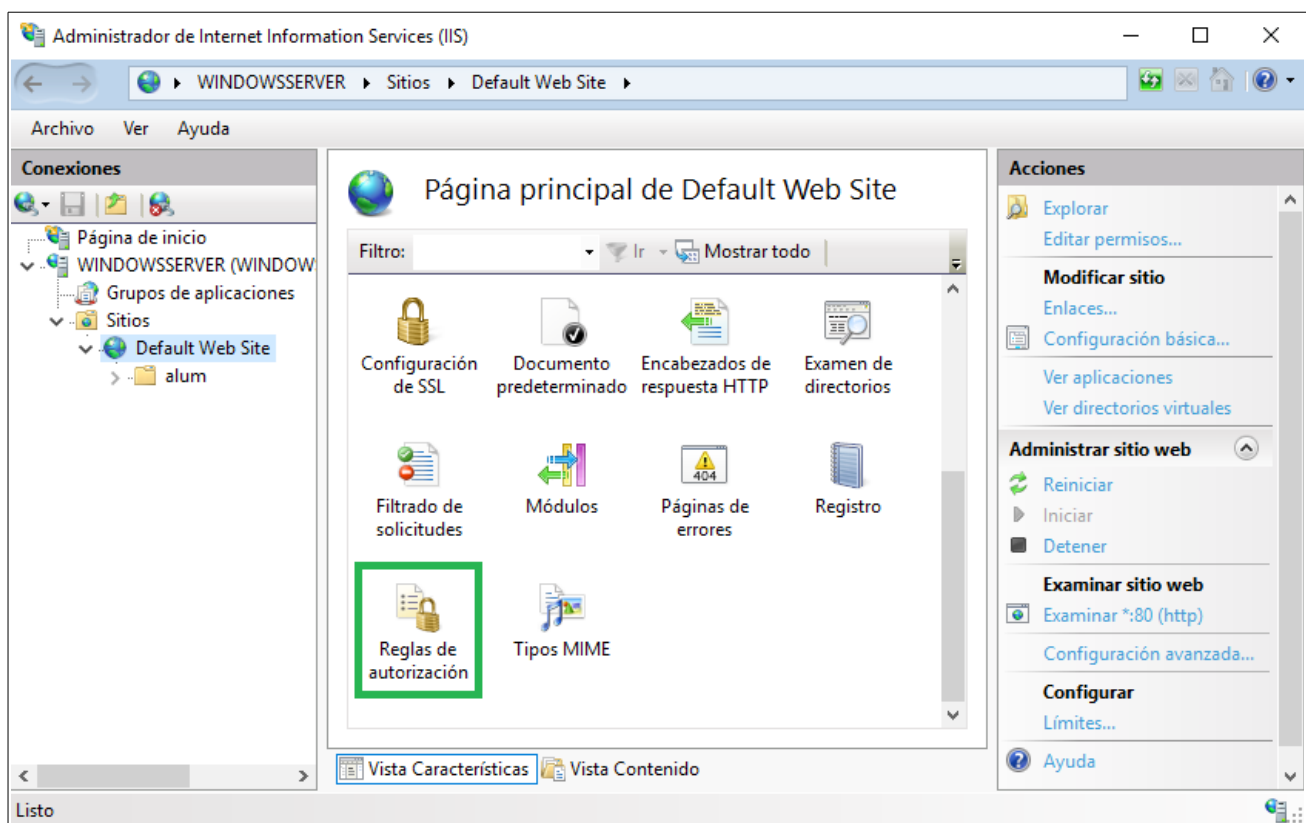


9. Now click on **BASIC AUTHENTICATION** and **ENABLE**

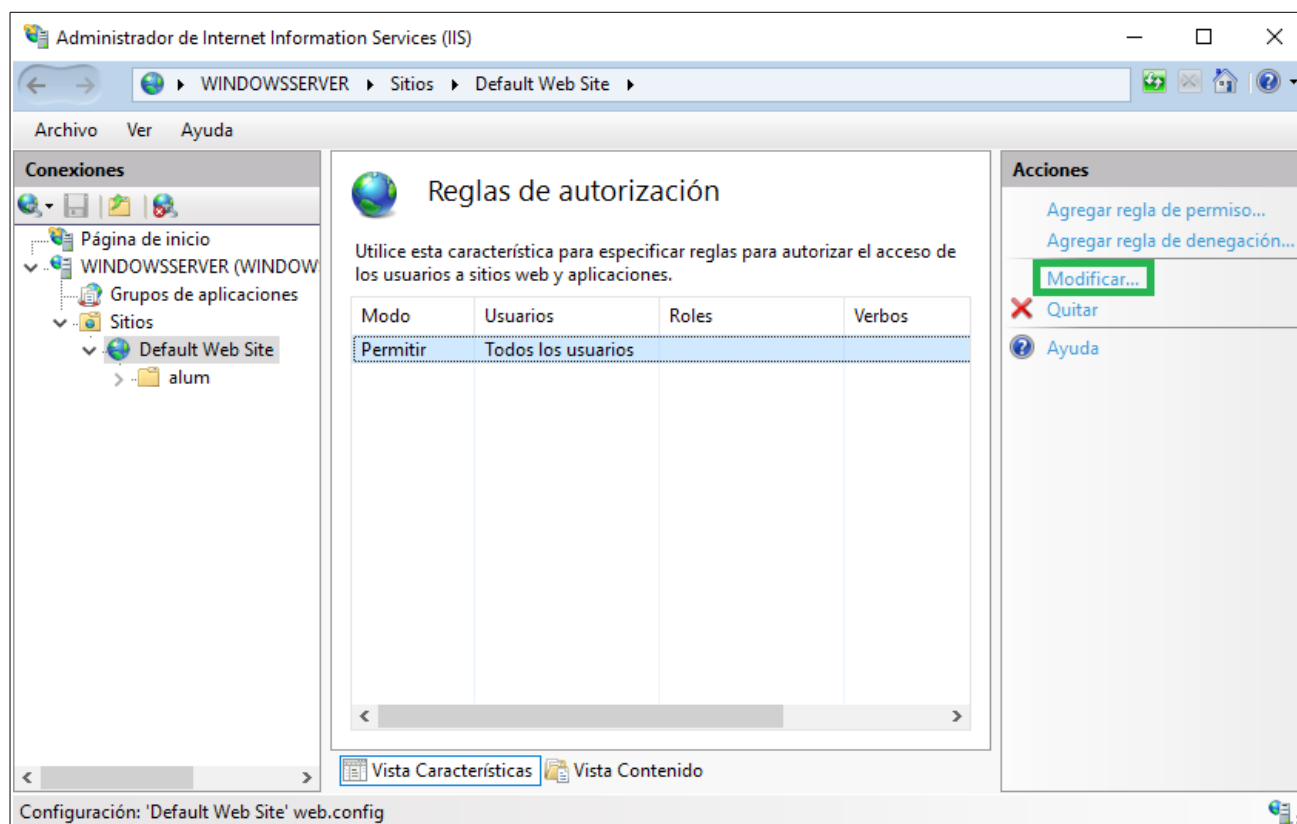




10. Now go to the Default site and click twice on **AUTHENTICATION RULES**



11. Select the rule and click on **MODIFY**



12. Fill the **SPECIFIC USERS** field and click on **ACCEPT**

Modificar regla de autorización de permiso

Permitir el acceso a este contenido web a:

☐ Todos los usuarios

☐ Todos los usuarios anónimos

☐ Roles o grupos de usuarios especificados:

Ejemplo: Administrators

☒ Usuarios especificados:

Ejemplo: User1, User2

☐ Aplicar esta regla a verbos específicos:

Ejemplo: GET, POST

Aceptar Cancelar

13. And now, try to connect to 192.168.1.3 from *linuxclient*

Página de inicio de Ubuntu

192.168.1.3/

Buscar

Identificación requerida

http://192.168.1.3 solicita su nombre de usuario y contraseña. El sitio dice: "192.168.1.3"

Nombre de usuario:

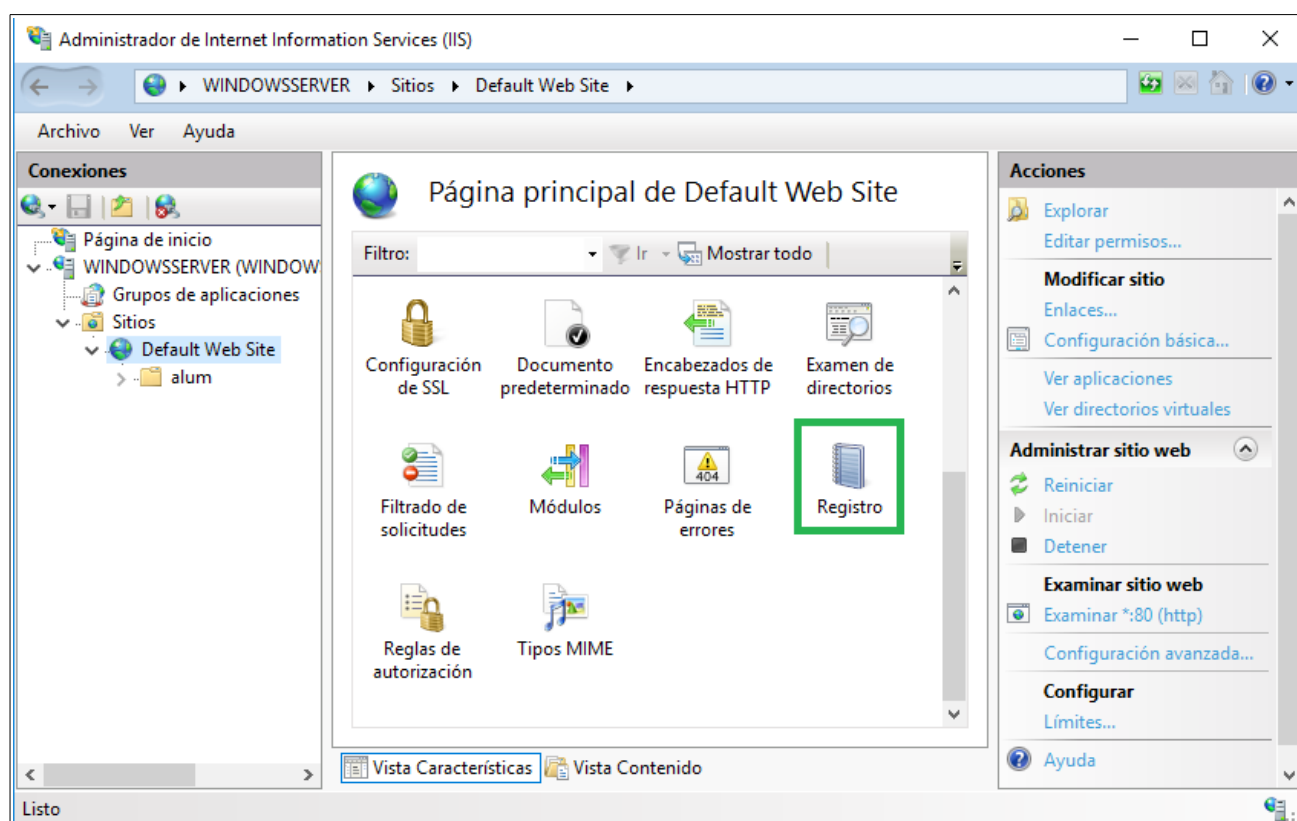
Contraseña:

Cancelar Aceptar

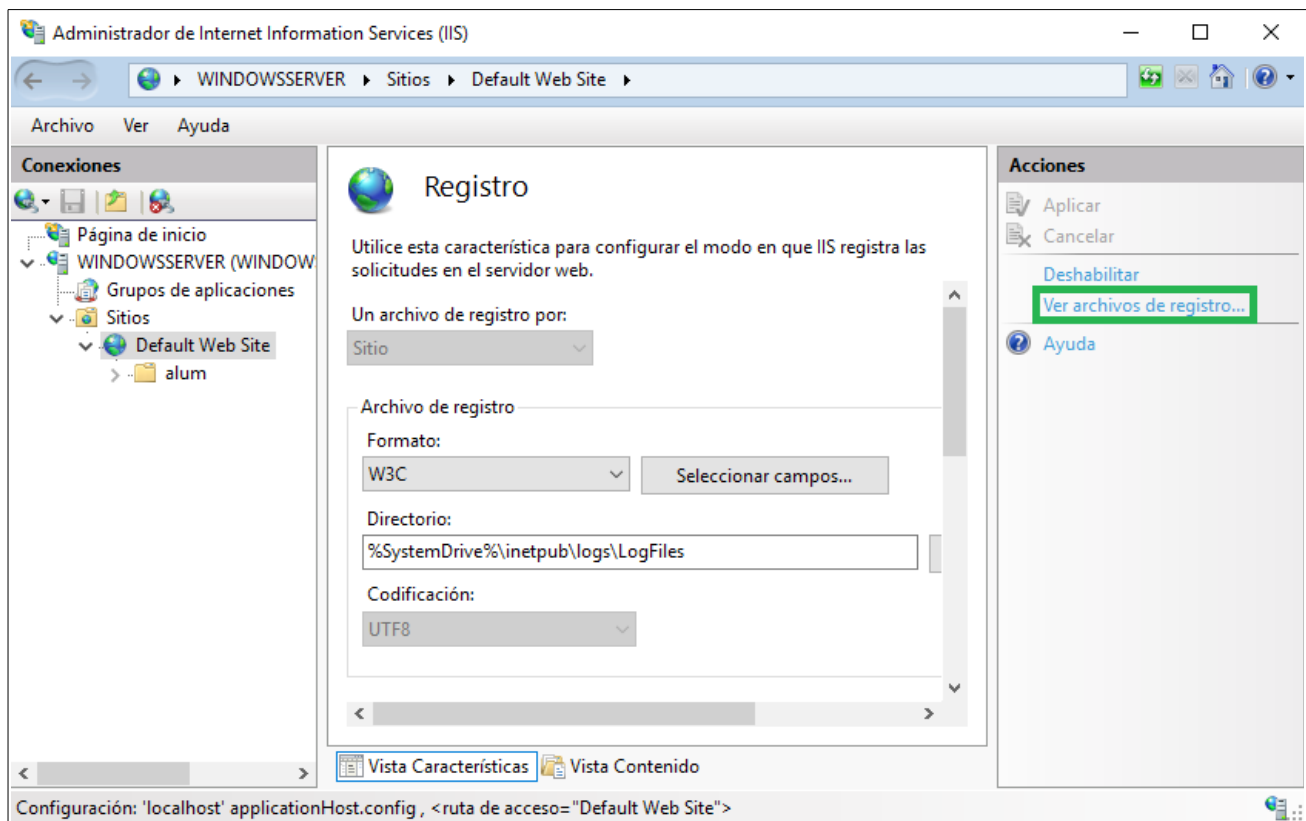


2.6 Registry files (logs)

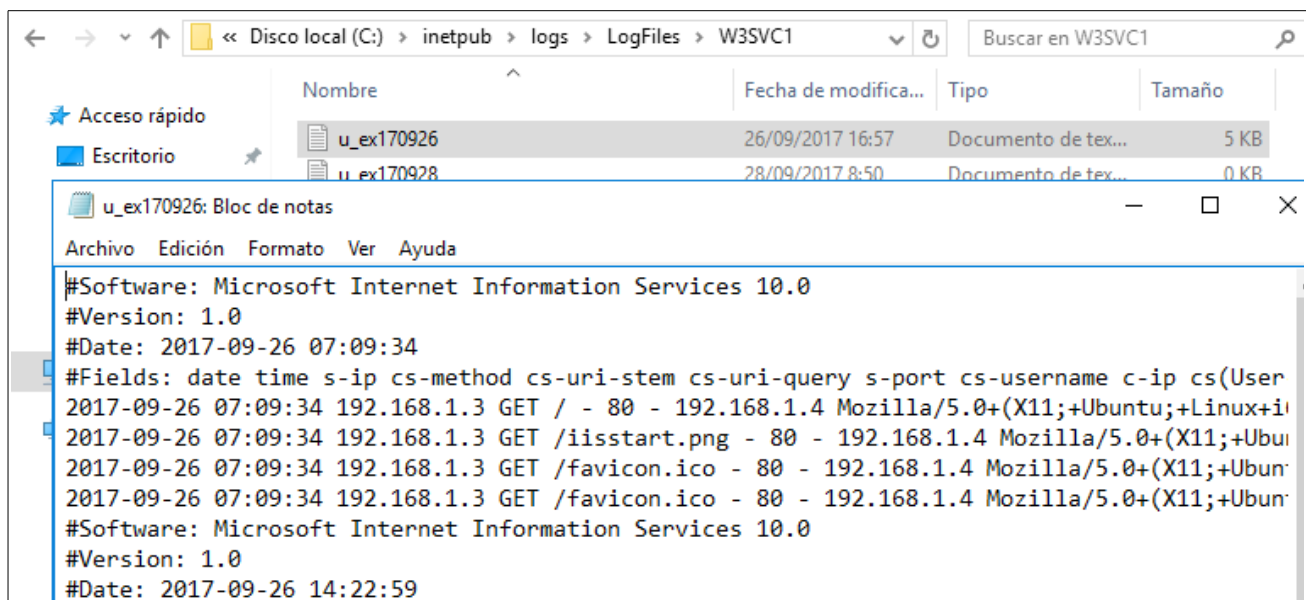
To see the registry files of the web server we have to click twice on **LOGGING**



and we could see where the server store this files if we click on **SEE LOG FILES**



We can take a look to the content of these files



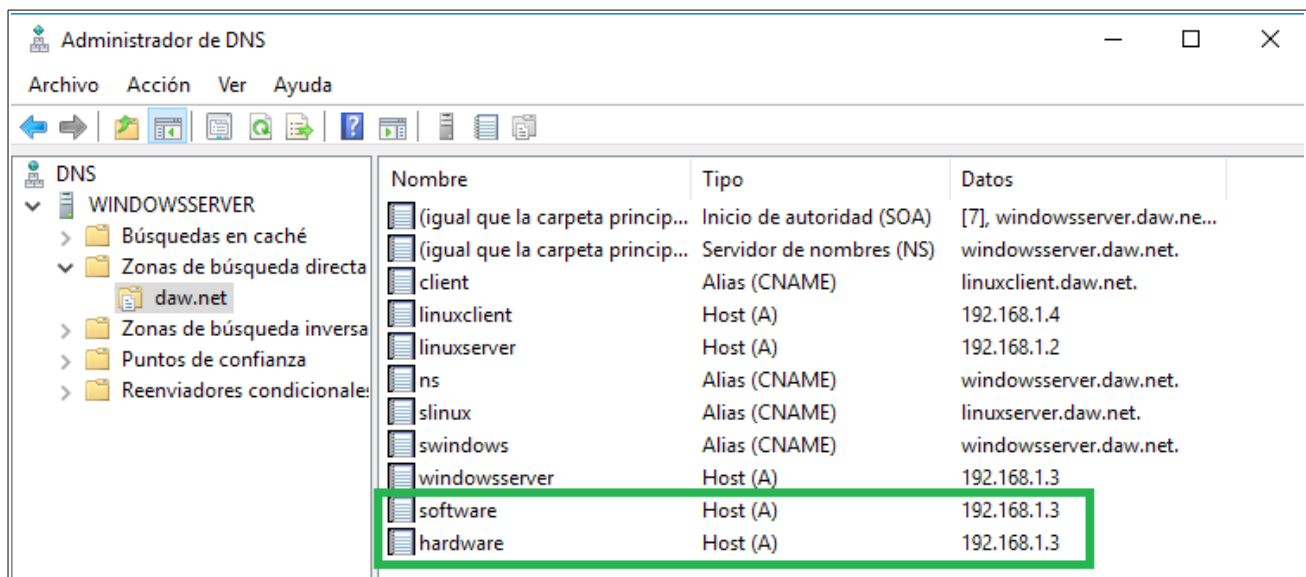
2.7 Virtual hosts

Before this section and 3.8, you have to configure the DNS server. For that, follow the

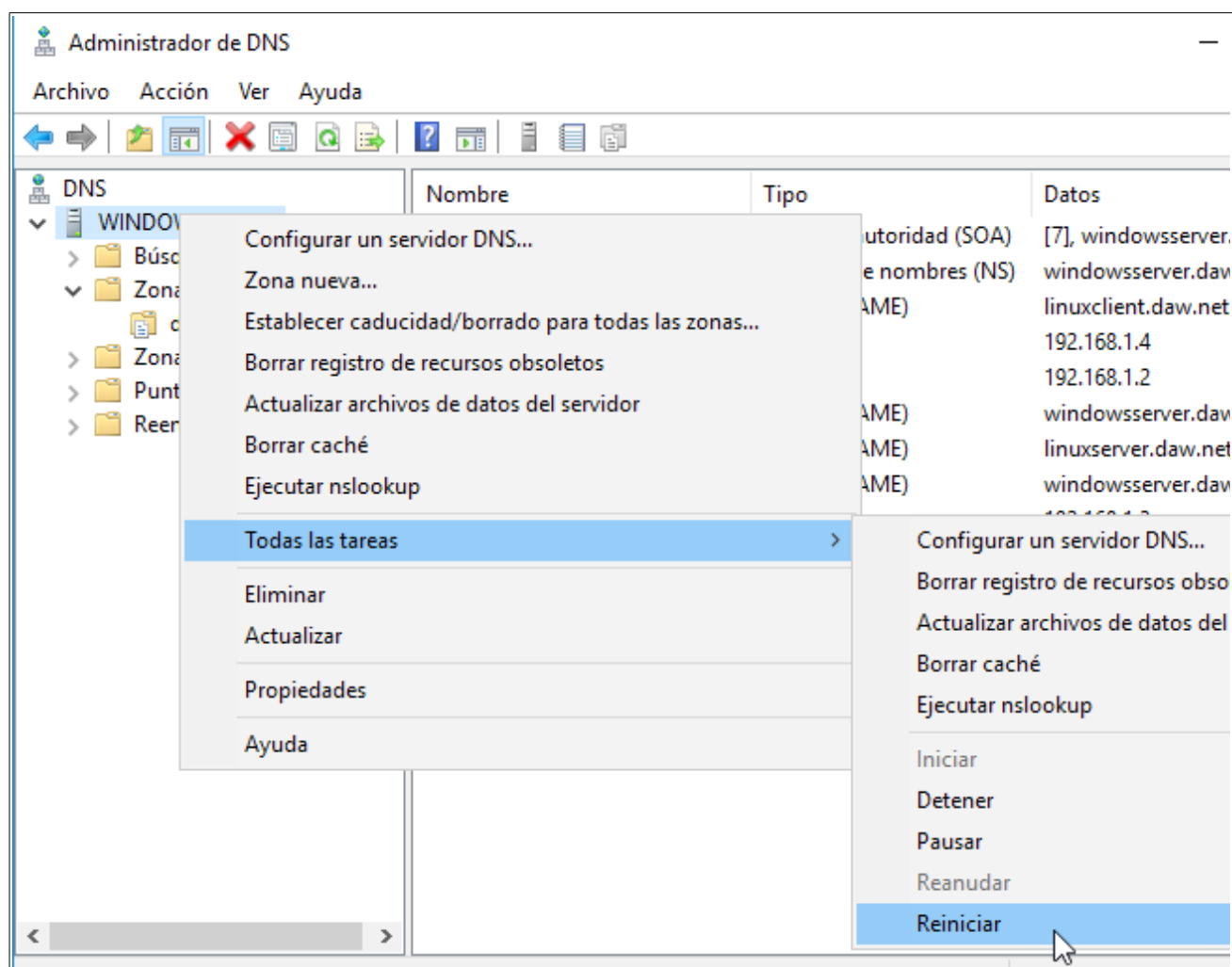
instructions in EXTRA ACTIVITY 2 (Section 2.1 and 2.2).

Now, as we did in Apache, we are going to create two virtual hosts: *software.daw.net* and *hardware.daw.net*.

For that and first of all, we have to configure our DNS server to resolve both names: software and hardware (with the server IP address: 192.168.1.3) in the domain *daw.net*. So, we are going to insert two new **A** records (software and hardware)

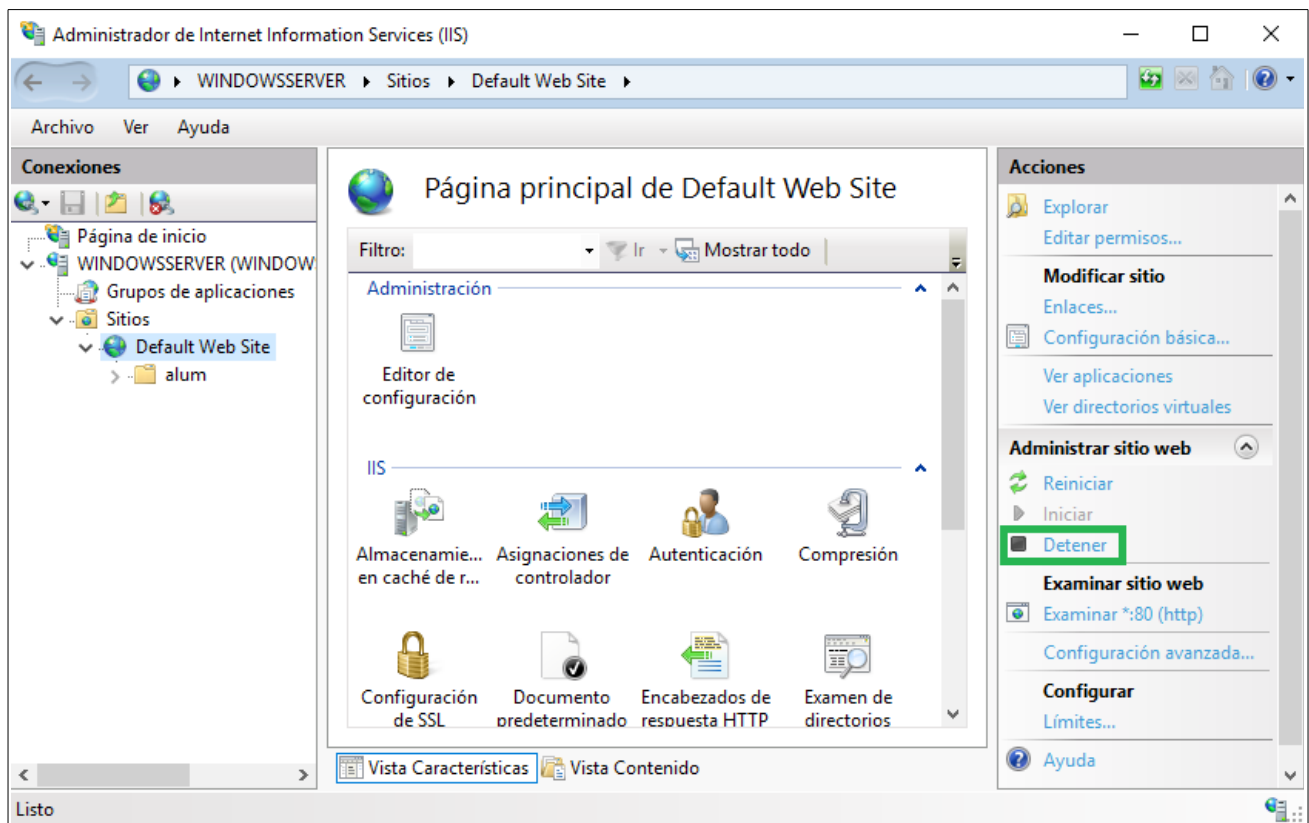


and restart the DNS server

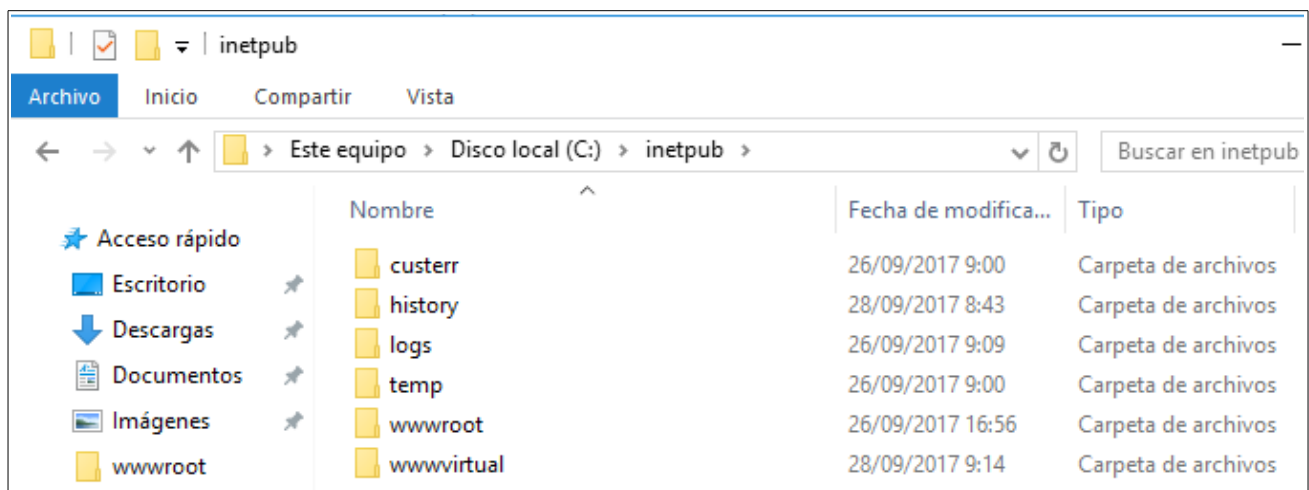


Once modify the configuration of the DNS server, we are going to configure the two virtual hosts. For that, we have to follow these steps:

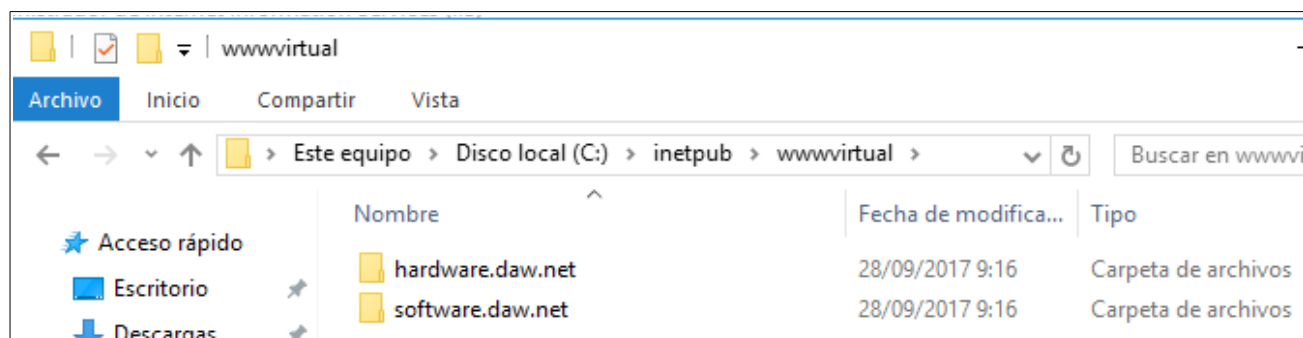
1. First of all, we are going to stop the default site web. Choose it and click on **STOP**



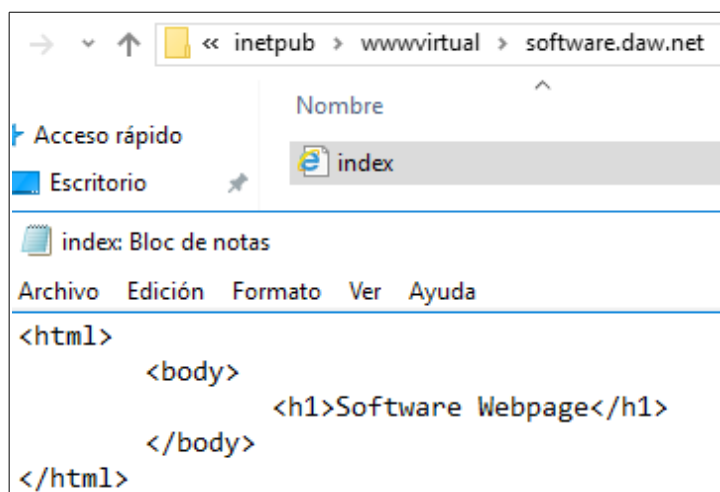
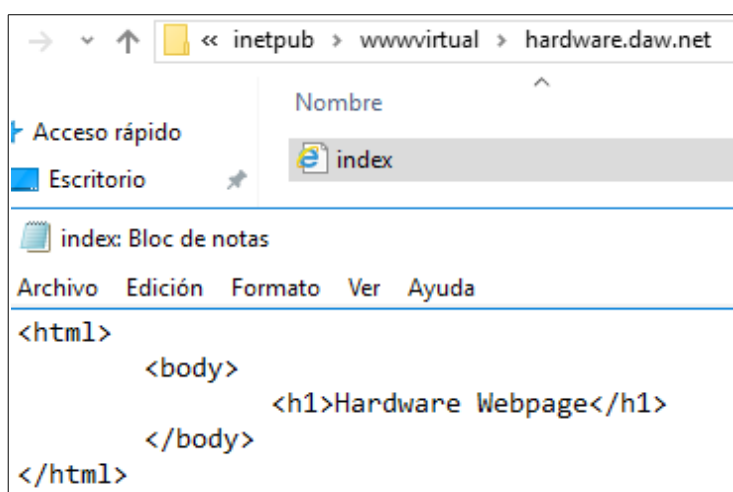
2. Create a new directory *wwwvirtual* in *C:\inetpub*



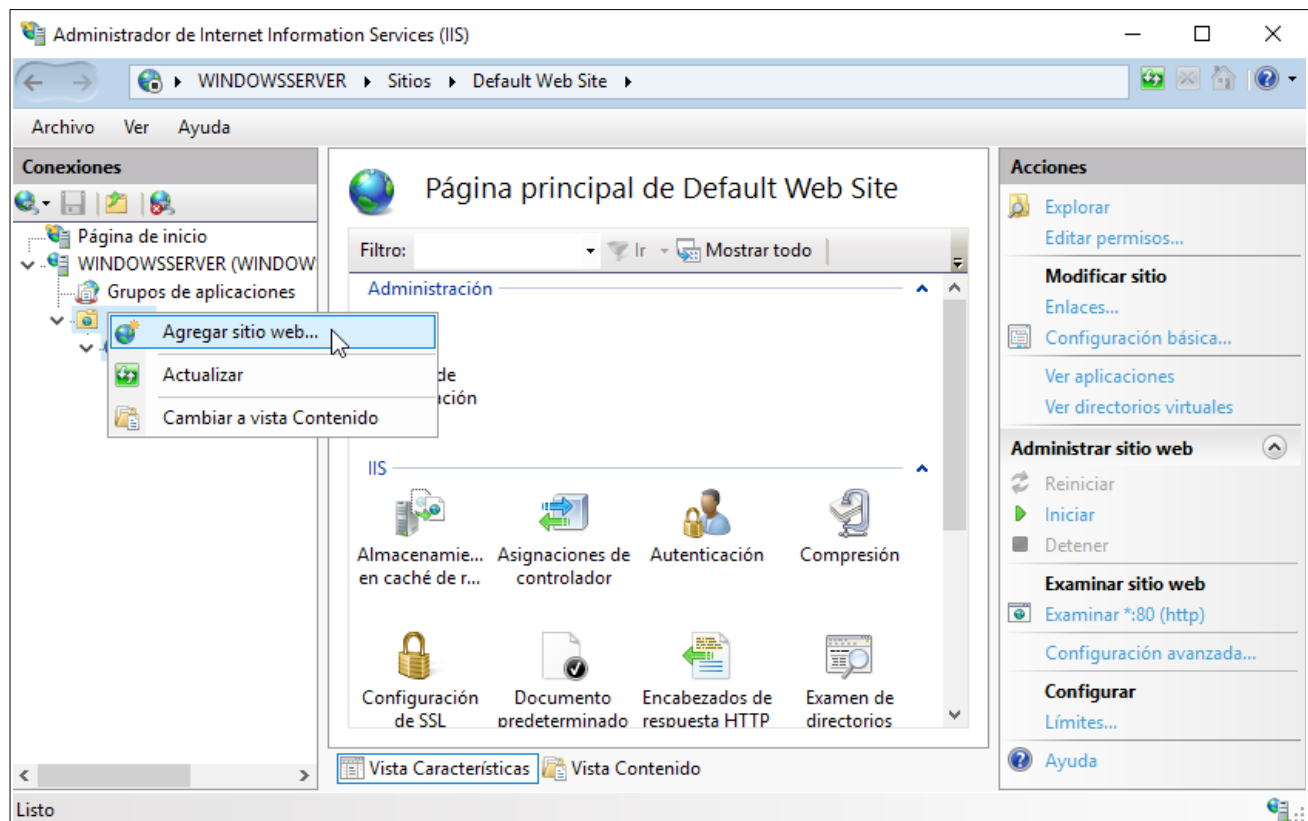
3. Inside *wwwvirtual* create two new directories: *software.daw.net* and *hardware.daw.net* (one for each virtual host)



4. Create a file *index.html* in each directory



5. Now we are going to add a new web site. For that we have to click with the right button on **SITES** and choose **ADD WEB SITE**



6. Write the site name, the directory and the host name for *software.daw.net*. Do it the same for *hardware.daw.net*.

Agregar sitio web ? X

Nombre del sitio: Grupo de aplicaciones:

Directorio de contenido

Ruta de acceso física:

Autenticación de paso a través

Enlace

Tipo: Dirección IP: Puerto:

Nombre de host:

Ejemplo: www.contoso.com o marketing.contoso.com

☒ Iniciar sitio web inmediatamente

Agregar sitio web ? X

Nombre del sitio: hardware.daw.net Grupo de aplicaciones: hardware.daw.net [Seleccionar...](#)

Directorio de contenido

Ruta de acceso física: C:\inetpub\wwwvirtual\hardware.daw.net ...

Autenticación de paso a través

[Conectar como...](#) [Probar configuración...](#)

Enlace

Tipo: http Dirección IP: Todas las no asignadas Puerto: 80

Nombre de host: hardware.daw.net

Ejemplo: www.contoso.com o marketing.contoso.com

☒ Iniciar sitio web inmediatamente

[Aceptar](#) [Cancelar](#)

7. We will have this configuration

Administrador de Internet Information Services (IIS)

← → WINDOSSERVER Sitios

Archivo Ver Ayuda

Conexiones

- Página de inicio
- WINDOSSERVER (WINDOWSSERVER)
 - Grupos de aplicaciones
 - Sitios
 - Default Web Site
 - software.daw.net
 - hardware.daw.net

Sitios

Filtro: Ir Mostrar todo

Nombre	Id.	Estado	Enlace
Default Web Site	1	Detenido (...)	*:80 (http)
hardware.daw.net	3	Iniciado (h...)	hardware.daw.net on *
software.daw.net	2	Iniciado (h...)	software.daw.net on *

Acciones

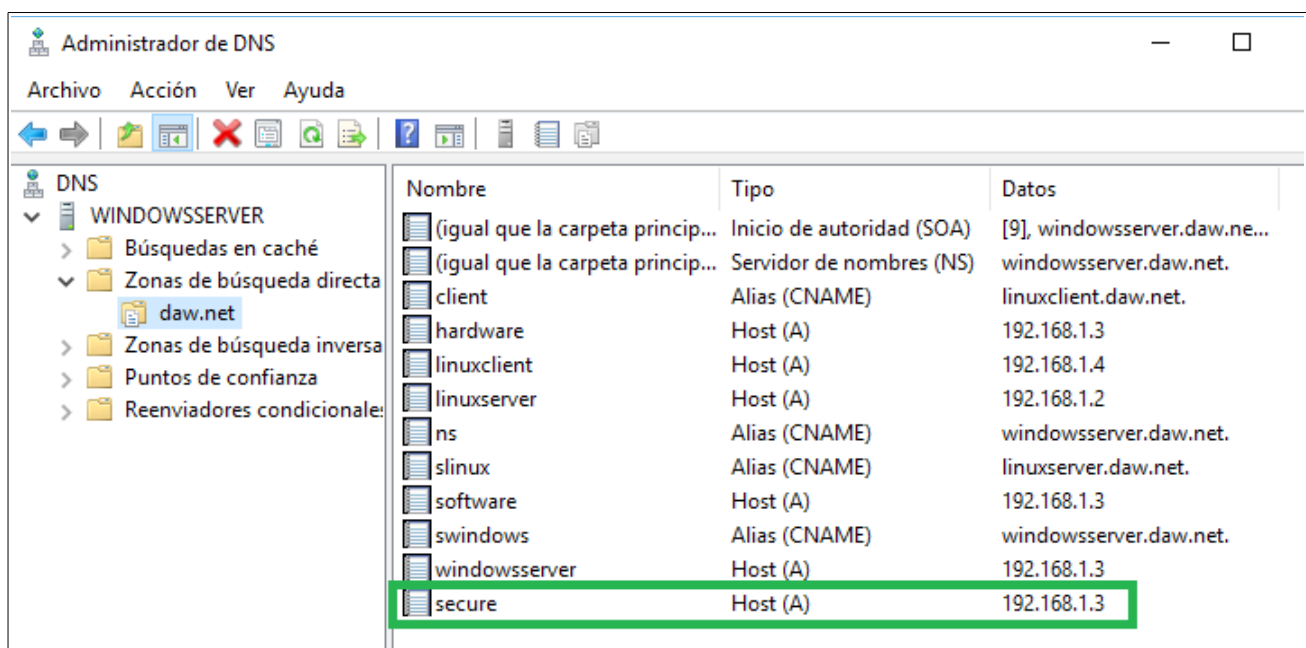
- [Agregar sitio web...](#)
- [Establecer valores predeterminados de sitios web...](#)
- [Ayuda](#)

8. Finally, we are going to try to connect to *software.daw.net* and *hardware.daw.net* from *linuxclient* (remember that you have to change the *dns-nameserver* to 192.168.1.3)



2.8 HTTPS configuration

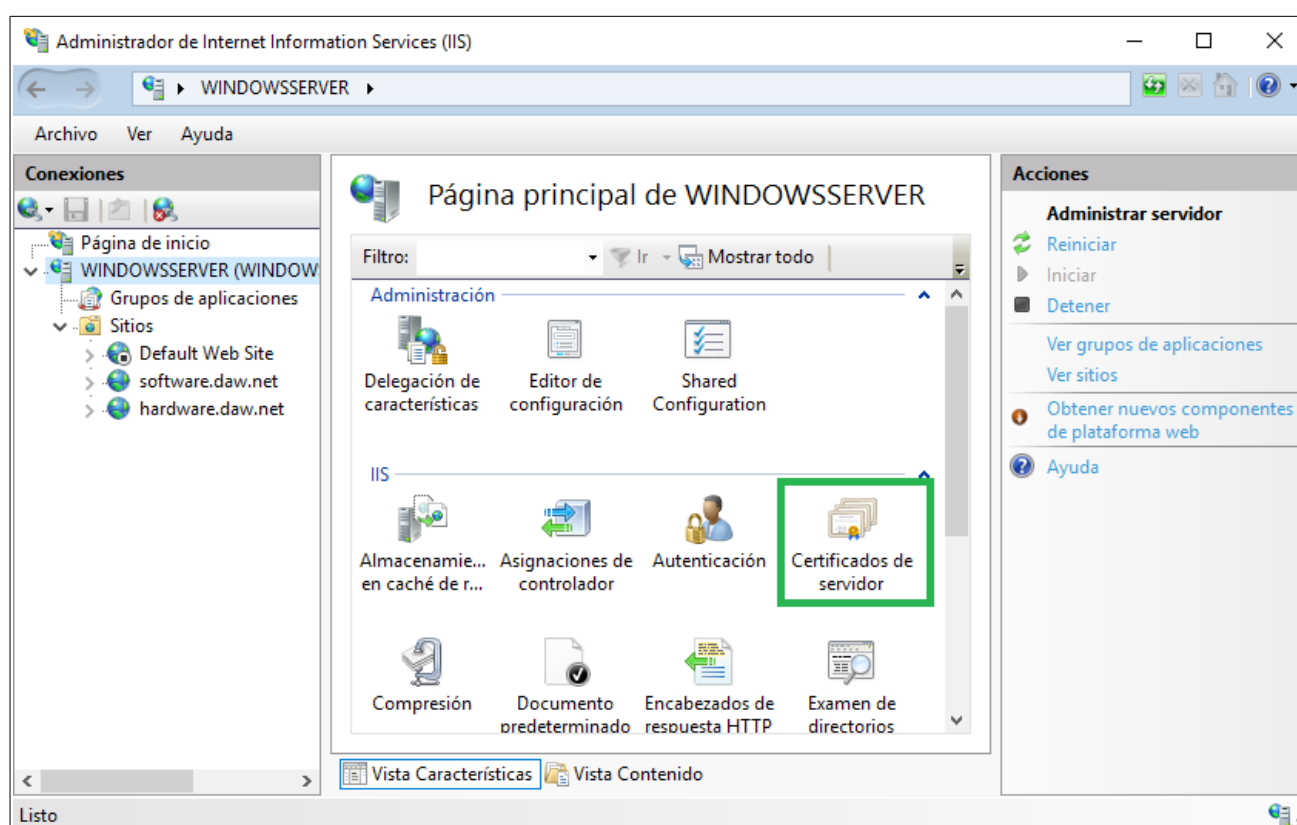
We are going to create a new HTTPS virtual host, for that and first of all we have to configure our DNS server to resolve a new domain called *secure.daw.net*. So, we are going to insert a new **A** record



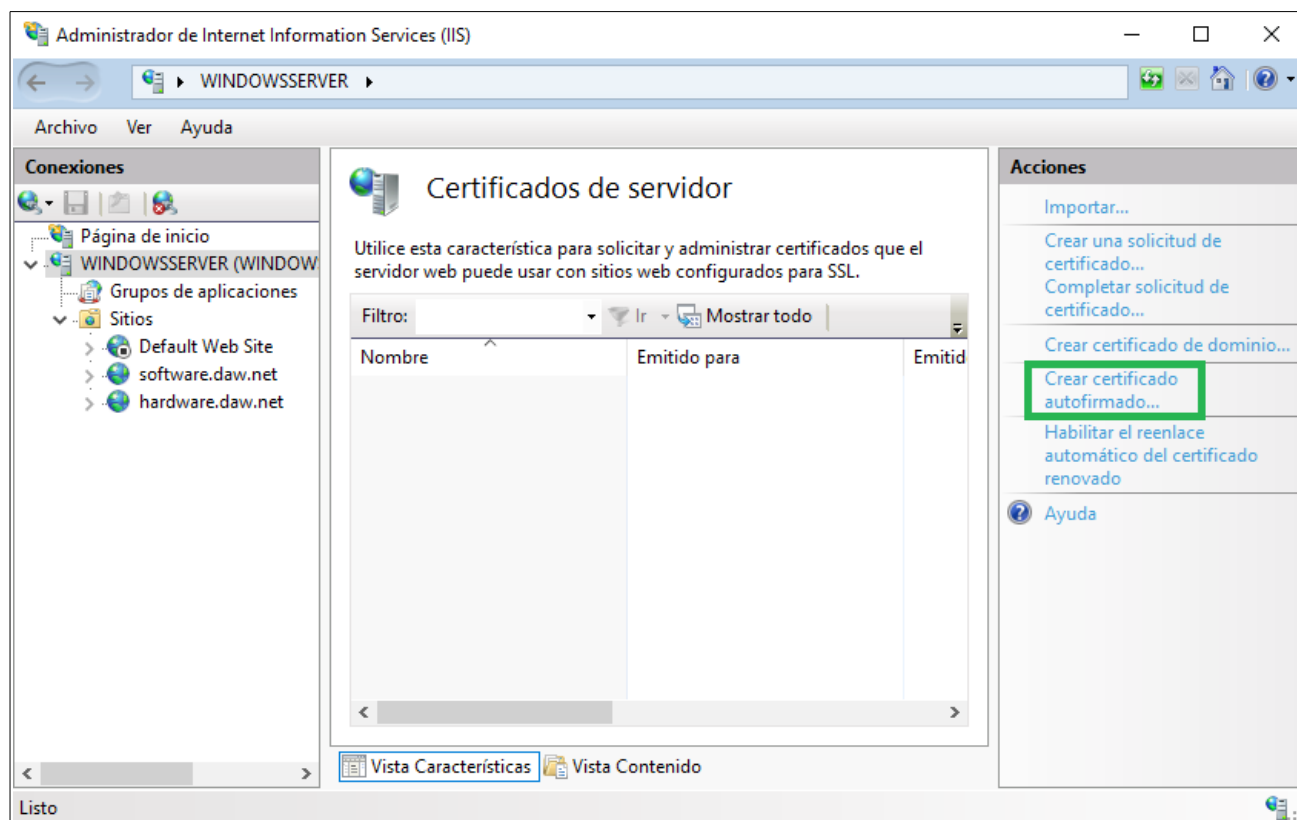
and restart the server.

Once modify the configuration of the DNS server, we are going to configure the HTTPS virtual host. For that, we have to follow these steps:

1. First of all, we are going to create our self-signed certificate. For that we have to click on the left on **WINDOWSSERVER** and choose **SERVER CERTIFICATES**




2. Click on **CREATE A SELF-SIGNED CERTIFICATE**



3. Write the name

Crear certificado autofirmado ? X

 **Especificar nombre descriptivo**

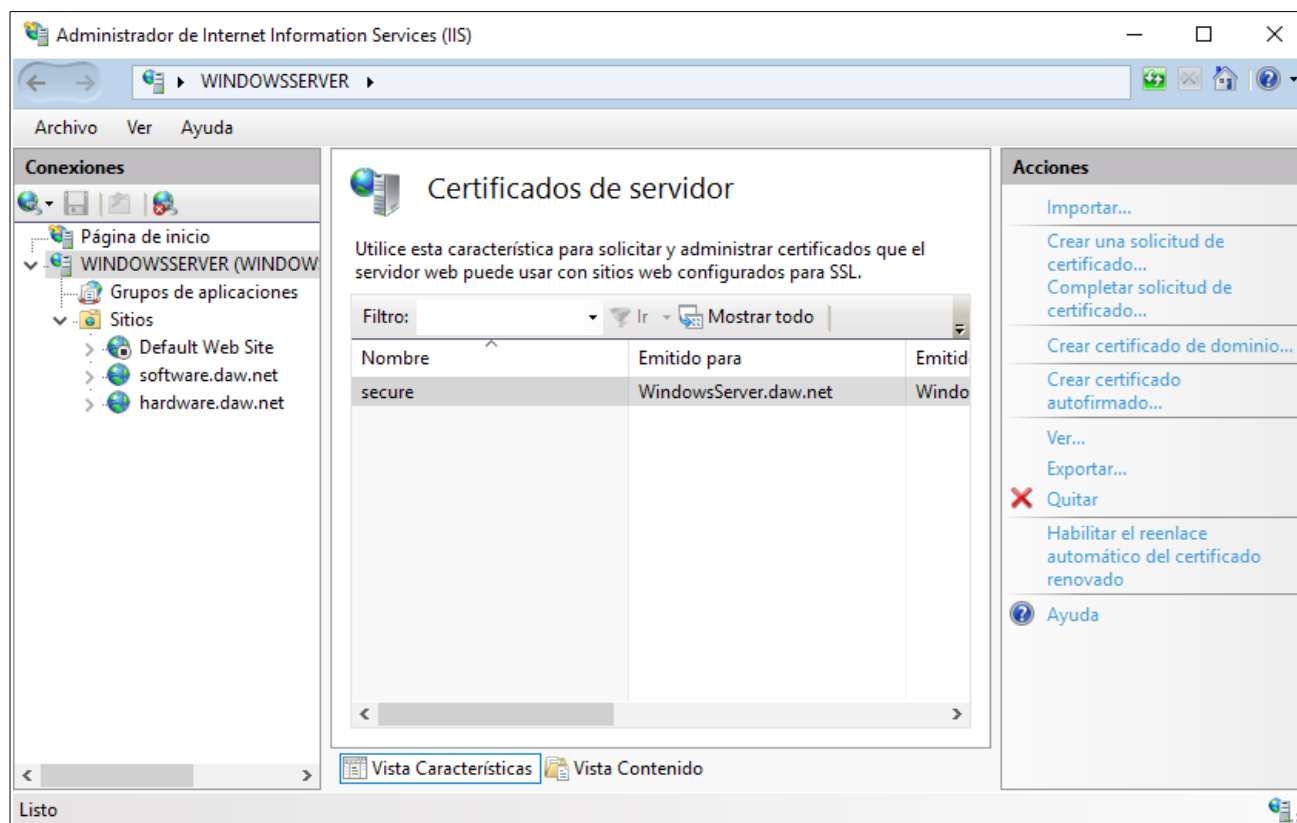
Especifique un nombre de archivo para la solicitud de certificado. Esta información se puede enviar a una entidad de certificación para que la firme:

Especifique un nombre descriptivo para el certificado:

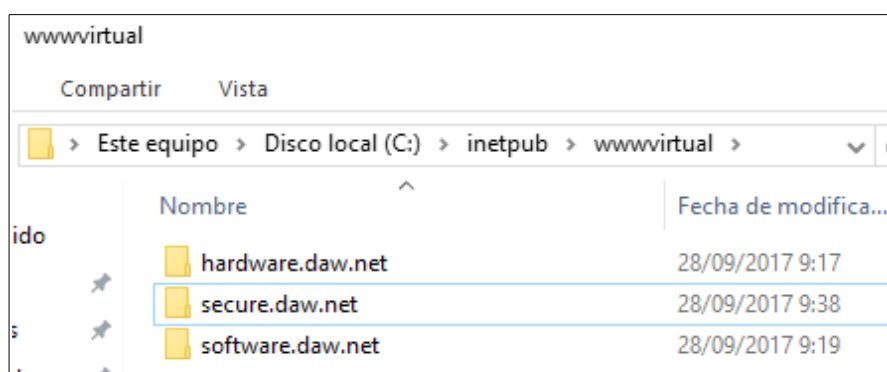
Seleccione un almacén de certificados para el nuevo certificado:

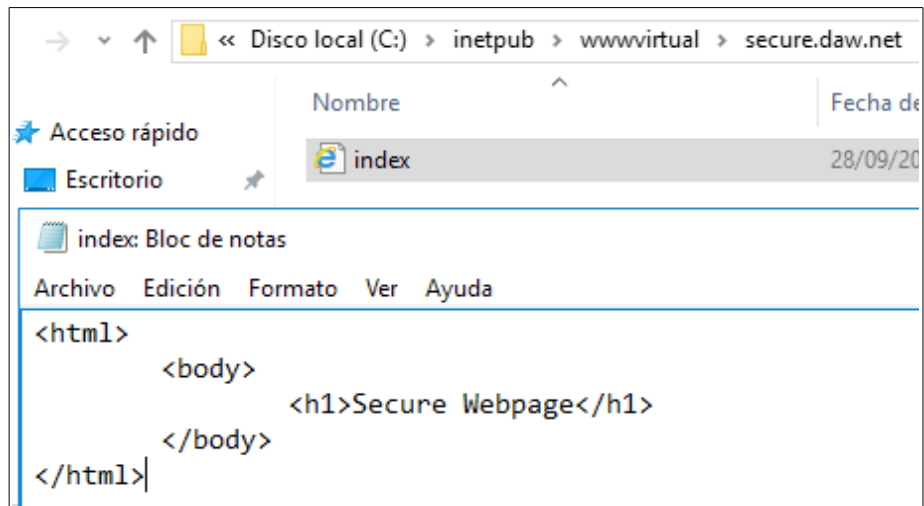
Aceptar Cancelar

4. And we have our certificate



5. Now, we have to create the directory `C:\inetpub\wwwvirtual\secure.daw.net` and inside it the file `index.html`





6. Now we are going to create a new site web with this information (In this case we choose our self-signed certificate)

Agregar sitio web

Nombre del sitio: Grupo de aplicaciones:

Directorio de contenido

Ruta de acceso física:

Autenticación de paso a través

Enlace

Tipo: Dirección IP: Puerto:

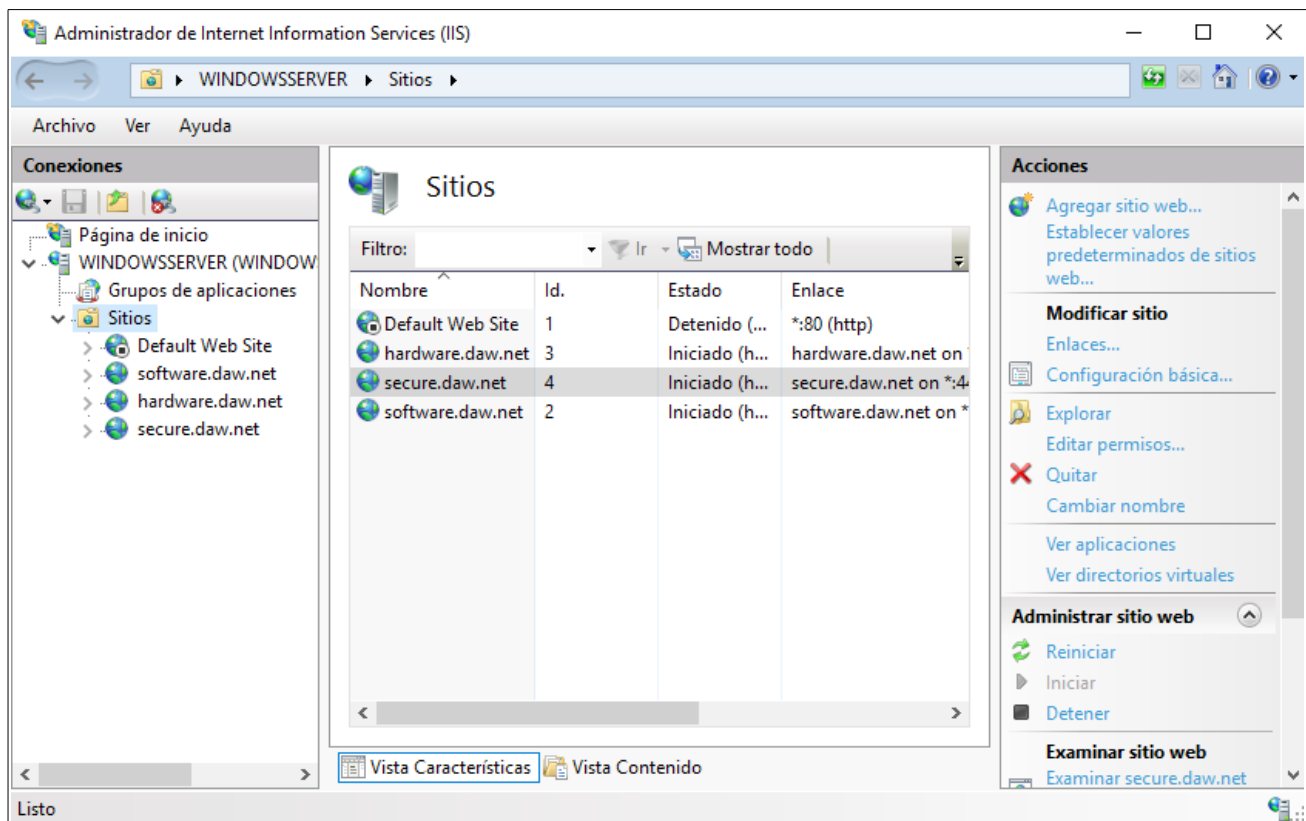
Nombre de host:

☐ Requerir indicación del nombre de servidor

Certificado SSL:

☒ Iniciar sitio web inmediatamente

7. We will have this configuration



8. Now we try to connect to <https://secure.daw.net> from *linuxclient*. The browser alerts that the certificate is invalid because is not signed by a certification authority

