

Photon Unity Network Authentication

Arthur Pai

<https://github.com/ispan-umvr09/tank-server>

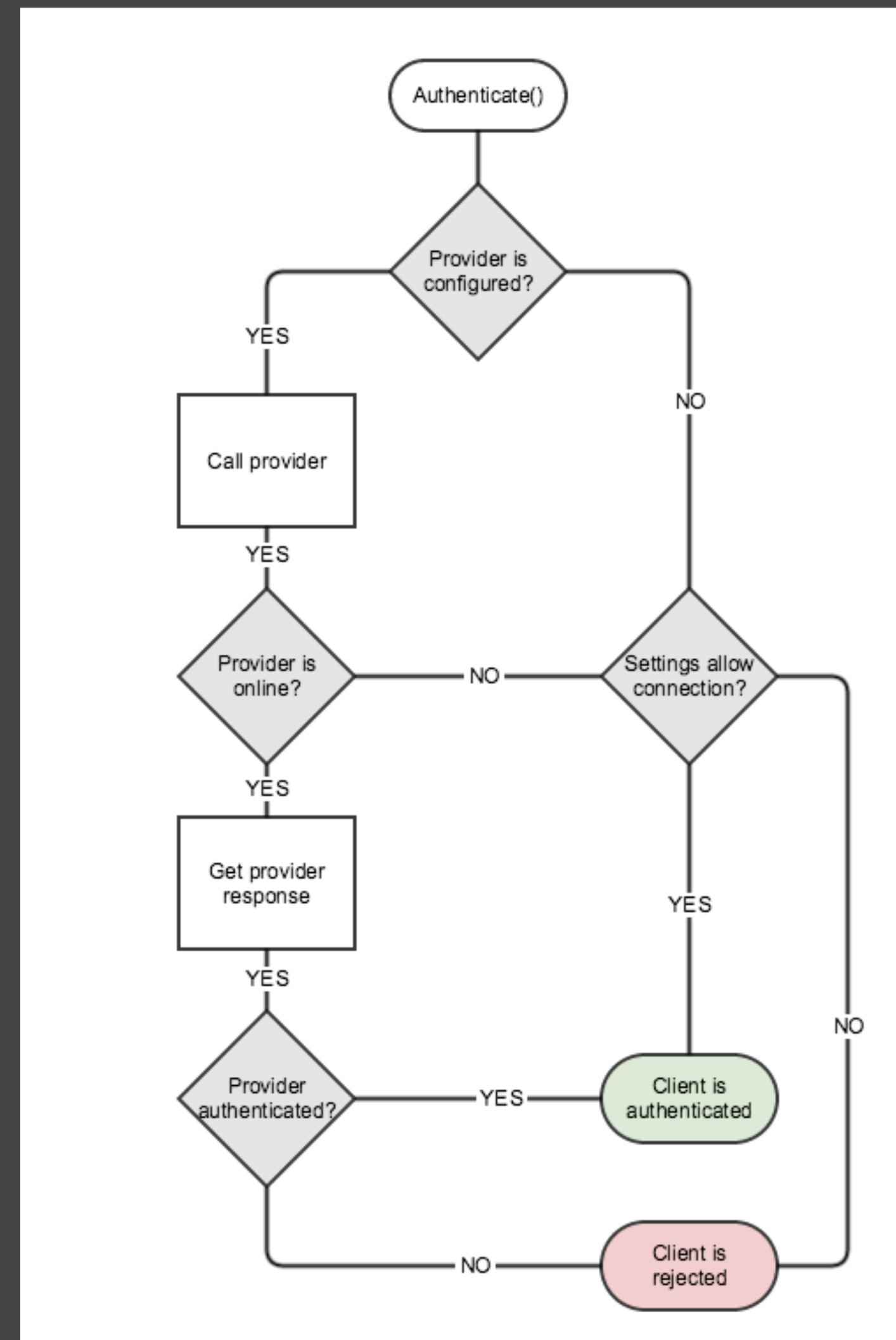
<https://github.com/ispan-umvr09/tanks>

登入機制

- Custom Authentication
- Facebook
- Steam : <https://partner.steamgames.com/steamdirect>
- VIVEPORT : <https://developer.viveport.com/console>
- Oculus : <https://developer.oculus.com/>

Photon

登入流程



Photon Applications' Dashboard

Manage Game

App ID: 1176c2e7...

Properties

Name	Concurrent Users
Game	Subscription 0 CCU
Url	One-Time 0 CCU
Description	Coupon 0 CCU
Details	Total 20 CCU CCU Burst is not allowed.

[EDIT PROPERTIES](#) or [Delete Application](#)

Authentication

We strongly recommend to add user authentication to your application. Otherwise your app id could be used by other applications without noticing. If your application uses different Photon products make sure all Photon apps are configured to use authentication.

Authenticate your players with known credentials, e.g. from Facebook. [Read more in the custom authentication doc.](#) Configuration is optional.

Add a new authentication provider for

[CUSTOM SERVER](#) [STEAM](#) [FACEBOOK](#) [FACEBOOK GAMING](#)

[OCULUS](#) [XBOX](#) [HTC VIVE](#) [EPIC](#)

Create a Custom Server Provider for Game

App ID: 1176c2e7...

Authentication URL *

https://

Optional Key/Value Pairs

[ADD NEW PAIR](#)

Reject all clients if not available.

It might take some minutes to propagate updated settings in the cloud.

[CREATE](#) the above configuration. [Cancel and go back.](#)

Authentication

We strongly recommend to add user authentication to your application. Otherwise your app id could be used by other applications without noticing. If your application uses different Photon products make sure all Photon apps are configured to use authentication.

Authenticate your players with known credentials, e.g. from Facebook. [Read more in the custom authentication doc.](#) Configuration is optional.

Add a new authentication provider for

[STEAM](#) [FACEBOOK](#) [FACEBOOK GAMING](#) [OCULUS](#) [HTC VIVE](#) [EPIC](#)

Custom Server Provider

Authentication URL

https://9024-59-127-47-160.ngrok.io/api/auth/login

Reject all clients if not available.

[EDIT](#) or [Delete](#)

Provider 參數

- Authentication URL
 - 後端登入伺服器的 URL
- Optional Key/Value Pairs
 - 要讓 Photon 傳給後端伺服器的敏感參數
 - 例如：API public key - 用來驗證呼叫後端登入API的伺服器是不是 Photon
- Reject all clients if not available
 - 如果登入後端伺服器離線時，是否要讓玩家無法登入(直接拒絕登入)
- Allow anonymous clients to connect, independently of configured providers.
 - 是否要讓匿名玩家連線

Client Side

- Unity Code
 - Server 端會收到 ?user={user}&pass={pass} 的 query string
 - pass 必須要經過處理，因為 query string 是明碼的形式
 - 例如使用 public key 作加密

```
var authValues = new AuthenticationValues();
authValues.AuthType = CustomAuthenticationType.Custom;
authValues.AddAuthParameter("user", userId);
authValues.AddAuthParameter("pass", pass);
PhotonNetwork.AuthValues = authValues;

PhotonNetwork.ConnectUsingSettings();
```

- 登入結果

```
public override void OnCustomAuthenticationFailed(string debugMessage)
{
    // The 'debugMessage' could be what the authentication provider returned.
}
```

Server Side

- Server 端收到後，應該去資料庫檢查是否有這個使用者以及驗證密碼正不正確，然後回傳下面格式
 - 登入成功 : { "ResultCode": 1, "UserId": <userId> }
 - 登入失敗 : { "ResultCode": 2, "Message": "Authentication failed. Wrong credentials." }
 - 參數錯誤 : { "ResultCode": 3, "Message": "Invalid parameters." }

練習

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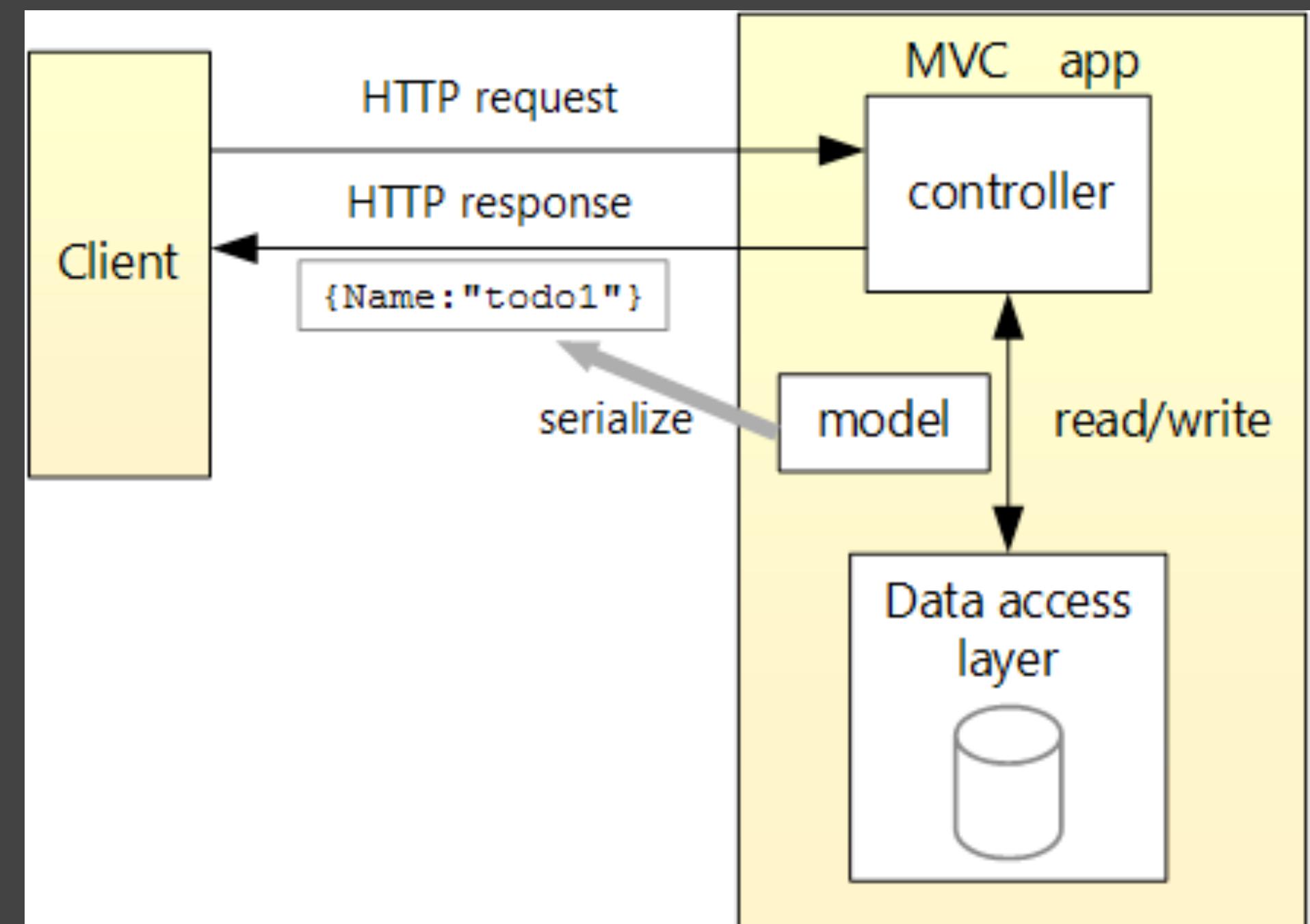
Login Example

Server Side

Login Example

ASP.NET Core Project

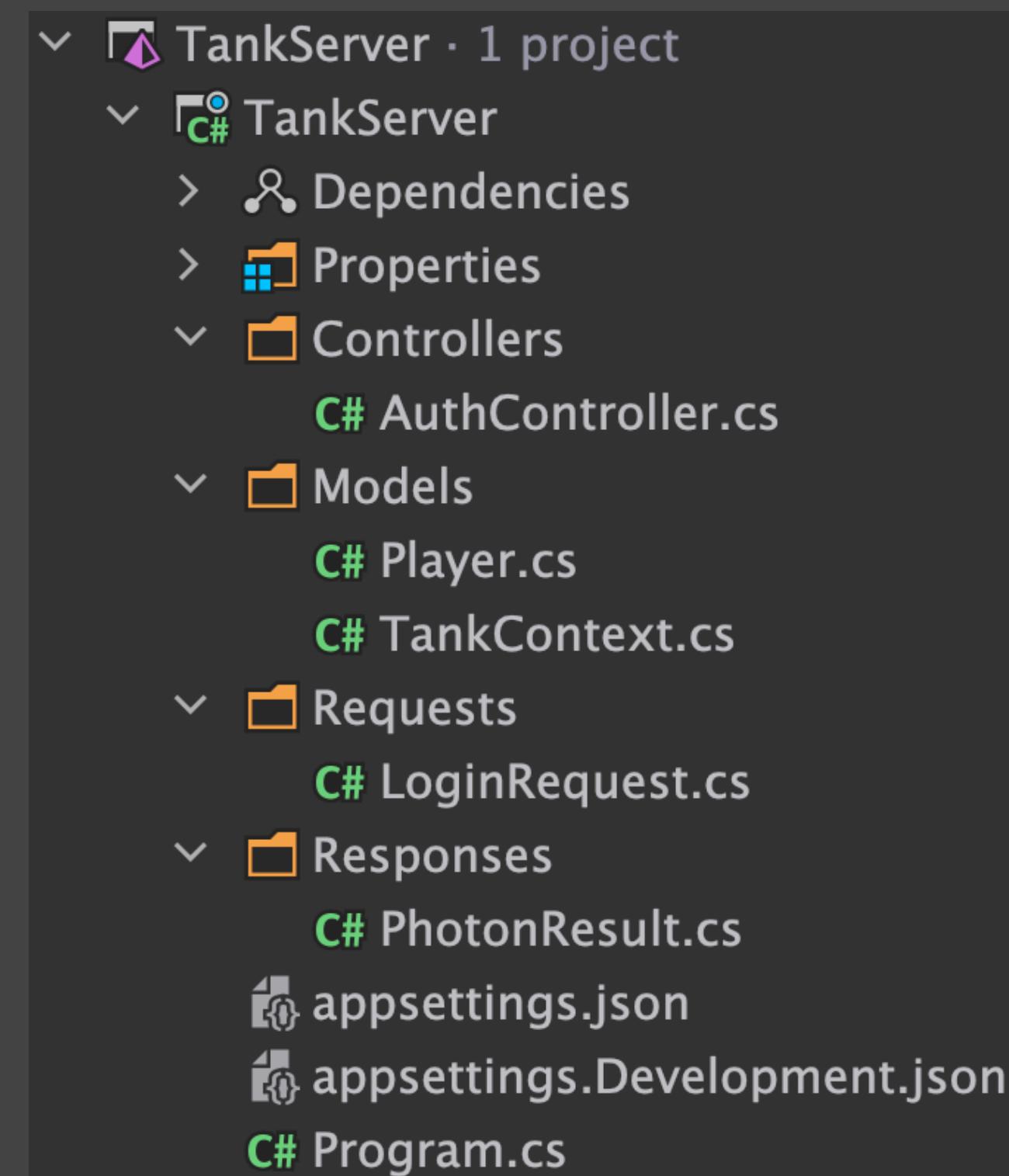
- 開啟 Visual Studio
- 從 [檔案] 功能表選取 [新增] >[專案] 。
- 在搜尋方塊中輸入 *Web API* 。
- 選取ASP.NET Core Web API範本，然後選取 [下一步] 。
- 在 [設定新專案] 對話方塊中，
將專案命名為 *TodoApi*，然後選取 [下一步] 。
- 在 [其他資訊] 對話方塊中：
 - 確認 Framework 為 .NET 6.0 (長期支援) 。
 - 確認核取 [使用控制器] 核取方塊，(取消核取以使用最少的 API) 。
- 選取 [建立] 。



Login Example

ASP.NET Core Project

- 安裝 NuGet package : Microsoft.EntityFrameworkCore.InMemory
 - 從 [工具] 功能表中，選取 [NuGet 套件管理員 > 管理方案的 NuGet 套件]。
 - 選取 [流覽] 索引標籤，然後在搜尋方塊中輸入 Microsoft.EntityFrameworkCore.InMemory 。
 - 選取 Microsoft.EntityFrameworkCore.InMemory 左窗格中的 。
 - 選取右窗格中的 [專案] 核取方塊，然後選取 [安裝] 。



練習

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Login Example

Player.cs

```
namespace TankServer.Models;

public class Player
{
    public long Id { get; set; }
    public string? Name { get; set; }
    public string? Password { get; set; }
    public int Score { get; set; }
}
```

Login Example

TankContext.cs

```
using Microsoft.EntityFrameworkCore;

namespace TankServer.Models;

public class TankContext : DbContext
{
    public TankContext(DbContextOptions<TankContext> options) : base(options)
    {

    }

    public DbSet<Player> Players { get; set; } = null!;
}
```

Login Example

Program.cs

```
using Microsoft.EntityFrameworkCore;
using TankServer.Models;

var builder = WebApplication.CreateBuilder(args);

// Add services to the container.

builder.Services.AddControllers();

builder.Services.AddDbContext<TankContext>(opt => opt.UseInMemoryDatabase("TankDB"));

// Learn more about configuring Swagger/OpenAPI at https://aka.ms/aspnetcore/swashbuckle
builder.Services.AddEndpointsApiExplorer();
builder.Services.AddSwaggerGen();

var app = builder.Build();

// Configure the HTTP request pipeline.
if (app.Environment.IsDevelopment())
{
    app.UseDeveloperExceptionPage();
    app.UseSwagger();
    app.UseSwaggerUI();
}

app.UseHttpsRedirection();

app.UseAuthorization();

app.MapControllers();

app.Run();
```

Login Example

PhotonResult.cs

```
namespace TankServer.Responses;

public class PhotonResult
{
    public int ResultCode { get; set; }

    public string? Message { get; set; }

    public long UserId { get; set; }
}
```

Login Example

Login API

```
namespace TankServer.Controllers;

[Route("api/[controller]")]
[ApiController]
public class AuthController : ControllerBase
{
    private readonly TankContext _context;

    public AuthController(TankContext context)
    {
        _context = context;
    }

    // Get: api/auth/login
    [HttpGet("login")]
    public async Task<PhotonResult> Login(string user, string pass)
    {
        // 判斷參數是否有值
        if (string.IsNullOrWhiteSpace(user) || string.IsNullOrWhiteSpace(pass))
        {
            return new PhotonResult
            {
                ResultCode = 3,
                Message = "Invalid parameters."
            };
        }
    }
}
```

Login Example

Login API

```
var player = await _context.Players.Where(p => p.Name == user).FirstOrDefaultAsync();  
  
// 產生 password 的 hash 值  
var passwordHash = GetSha256Hash(pass);  
  
if (player != null)  
{  
    // 判斷 hash 後的密碼是一致  
    if (player.Password != passwordHash)  
    {  
        return new PhotonResult  
        {  
            ResultCode = 2,  
            Message = "Credentials incorrect."  
        };  
    }  
  
    return new PhotonResult  
    {  
        ResultCode = 1,  
        UserId = player.Id  
    };  
}
```

Login Example

Login API

```
// 如果玩家不存在，則幫他註冊
player = new Player
{
    Name = user,
    Password = passwordHash
};
await _context.Players.AddAsync(player);

// 儲存到資料庫
await _context.SaveChangesAsync();

return new PhotonResult
{
    ResultCode = 1,
    UserId = player.Id
};
}
```

Login Example

Login API

```
[NonAction]
private static string GetSha256Hash(string? input)
{
    if (input == null)
        throw new ArgumentNullException(nameof(input));

    using var hashAlgorithm = SHA512.Create();
    var byteValue = Encoding.UTF8.GetBytes(input);
    var byteHash = hashAlgorithm.ComputeHash(byteValue);
    return Convert.ToBase64String(byteHash);
}
```

Login Example

Test API using Postman

The screenshot shows the Postman application interface. On the left, there's a sidebar with icons for Collections, APIs, Environments, Mock Servers, Monitors, Flows, and History. The main area displays a collection named "Personal" under "Tank Server". Inside the collection, there are two requests: "GET Login" and "POST Login". The "POST Login" request is selected. The request details show a GET method with the URL {{server}}/auth/login?user=arthur&pass=11111. The "Params" tab is active, showing query parameters: user (value: arthur) and pass (value: 11111). Below the table, the response status is 200 OK, 707 ms, 190 B. The response body is displayed in Pretty, Raw, Preview, and Visualize formats, showing JSON data: { "resultCode": 1, "message": null, "userId": 1 }. At the bottom, there are various navigation and settings icons.

<https://www.postman.com/>

練習

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Login Example

ngrok

- 安裝 Ngrok (<https://ngrok.com/>)
- 開啟 終端機 或 PowerShell
- 輸入 ngrok http 5000
- 獲得本機電腦的 對外IP

```
ngrok
Join us in the ngrok community @ https://ngrok.com/slack

Session Status          online
Account                 Arthur Pai (Plan: Free)
Update                  update available (version 3.1.0, Ctrl-U to update)
Version                 3.0.6
Region                  United States (us)
Latency                 -
Web Interface           http://127.0.0.1:4040
Forwarding              https://b7ac-61-221-104-13.ngrok.io -> http://localhost:5000

Connections             ttl     opn     rt1     rt5     p50     p90
                        0       0       0.00    0.00    0.00    0.00
```

Login Example

ngrok

The screenshot shows the Postman application interface. On the left, the sidebar includes sections for Personal, Collections, APIs, Environments, Mock Servers, Monitors, Flows, and History. The main workspace displays a collection named "Tank Server" containing two requests: "GET Login" and "POST Login". The "POST Login" request is selected. The request details show a GET method with the URL {{server}}/auth/login?user=arthur&pass=11111. The "Params" tab is active, showing query parameters: user (value: arthur) and pass (value: 11111). The response section shows a 200 OK status with a response body containing JSON data:

```
1 {  
2   "resultCode": 1,  
3   "message": null,  
4   "userId": 1  
5 }
```

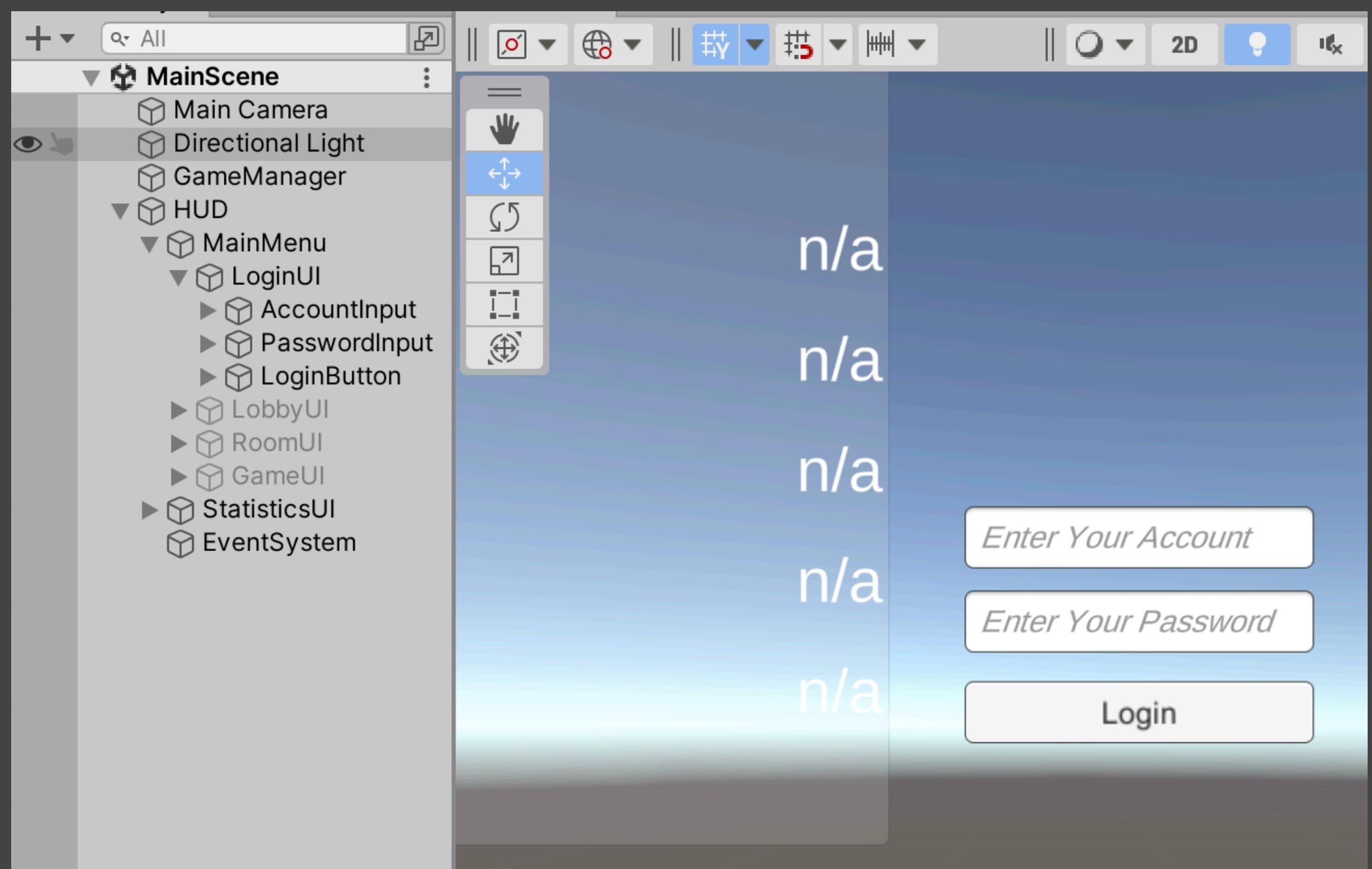
<https://www.postman.com/>

練習

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Client Side

Login Example



Login Example

MainMenu.cs

```
public class MainMenu : MonoBehaviourPunCallbacks
{
    public static MainMenu instance;

    private bool IsInitialed = false;

    private GameObject m_loginUI;
    private TMP_InputField m_accountInput;
    private TMP_InputField m_passwordInput;
    private Button m_loginButton;

    ...
    void Awake()
    {
        ...

        m_loginUI = transform.FindAnyChild<Transform>("LoginUI").gameObject;
        m_accountInput = transform.FindAnyChild<TMP_InputField>("AccountInput");
        m_passwordInput = transform.FindAnyChild<TMP_InputField>("PasswordInput");
        m_loginButton = transform.FindAnyChild<Button>("LoginButton");

        ...
    }

    private void ResetUI()
    {
        m_loginUI.SetActive(true);
        m_accountInput.interactable = true;
        m_passwordInput.interactable = true;
        m_loginButton.interactable = true;

        ...
    }
}
```

Login Example

MainMenu.cs

```
...
public void Login()
{
    if (string.IsNullOrEmpty(m_accountInput.text))
    {
        Debug.Log("Please input your account!!");
        return;
    }

    if (string.IsNullOrEmpty(m_passwordInput.text))
    {
        Debug.Log("Please input your password!!");
        return;
    }

    m_accountInput.interactable = false;
    m_passwordInput.interactable = false;
    m_loginButton.interactable = false;

    GameManager.instance.ConnectToServer(m_accountInput.text, m_passwordInput.text);
}

public void OnLoginSuccess()
{
    Debug.Log("Main Menu: Login success");

    m_loginUI.SetActive(false);
    m_lobbyUI.SetActive(true);
}

public void OnLoginFailed(string reason)
{
    Debug.Log("Main Menu: Login failed: " + reason);

    m_accountInput.interactable = true;
    m_passwordInput.interactable = true;
    m_loginButton.interactable = true;
}
...
```

Login Example

MainMenu.cs

```
public class GameManager : MonoBehaviourPunCallbacks
{
    ...
    public bool ConnectToServer(string account, string password)
    {
        PhotonNetwork.NickName = account;

        var authValues = new AuthenticationValues();
        authValues.AuthType = CustomAuthenticationType.Custom;
        authValues.AddAuthParameter("user", account);
        authValues.AddAuthParameter("pass", password);
        PhotonNetwork.AuthValues = authValues;

        return PhotonNetwork.ConnectUsingSettings();
    }

    public override void OnConnected()
    {
        Debug.Log("Game Manager: PUN Connected");
    }

    public override void OnDisconnected(DisconnectCause cause)
    {
        Debug.LogWarningFormat("PUN Disconnected was called by PUN with reason {0}", cause);
    }

    public override void OnCustomAuthenticationFailed(string debugMessage)
    {
        MainMenu.instance.OnLoginFailed(debugMessage);
    }

    public override void OnConnectedToMaster()
    {
        Debug.Log("Game Manager: PUN Connected to Master");
        MainMenu.instance.OnLoginSuccess();
    }
}
```

Login Example

Authentication

! We strongly recommend to add user authentication to your application. Otherwise your app id could be used by other applications without noticing.
If your application uses different Photon products make sure all Photon apps are configured to use authentication.

Authenticate your players with known credentials, e.g. from Facebook. [Read more in the custom authentication doc.](#)
Configuration is optional.

Allow anonymous clients to connect, independently of configured providers.

Custom Server Provider

Authentication URL
`https://9024-59-127-47-160.ngrok.io/api/auth/login`

Reject all clients if not available.

[EDIT](#) or [Delete](#)

Add a new authentication provider for

[STEAM](#) [FACEBOOK](#) [FACEBOOK GAMING](#) [OCULUS](#) [HTC VIVE](#) [EPIC](#)

練習

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Returning Data To Client

resultCode	Description	UserId	Nickname	AuthCookie	Data
0	Authentication incomplete, only Data returned.*	✗	✗	✗	✓
1	Authentication successful.	✓ (optional)	✓ (optional)	✓ (optional)	✓ (optional)
2	Authentication failed. Wrong credentials.	✗	✗	✗	✗
3	Invalid parameters.	✗	✗	✗	✗

Returning Data To Client

```
{  
    "ResultCode": 1,                      // 成功  
    "UserId": "SomeUniqueStringId",        // 會覆蓋 PhotonNetwork.LocalPlayer.UserId  
    "Nickname": "SomeNiceDisplayName" // 會覆蓋 PhotonNetwork.NickName  
    "AuthCookie": {                        // Photon 後續跟 WebHook 溝通時的參數  
        "SecretKey": "SecretValue",  
        "Check": true,  
        "AnotherKey": 1000  
    },  
    "Data": {                            // 回給玩家的資訊  
        "Weapon": "Gun",  
        "Items": [ 1, -5, 9 ]  
    }  
}
```

Auth Result Callback

```
public override void  
OnCustomAuthenticationResponse(Dictionary<string, object> data)  
{  
    // here you can access the returned data  
}
```

Return Data Example

Return Data

Server Side: PhotonResult

```
namespace TankServer.Responses;

public class PhotonResult
{
    public int ResultCode { get; set; }

    public string? Message { get; set; }

    public long UserId { get; set; }

    public string? Nickname { get; set; }

    public Dictionary<string, object>? AuthCookie { get; set; }

    public Dictionary<string, object>? Data { get; set; }
}
```

Return Data

Server Side AuthController

```
return new PhotonResult
{
    ResultCode = 1,
    UserId = player.Id,
    Nickname = user,
    AuthCookie = new Dictionary<string, object>
    {
        { "SecretKey", "SecretValue" },
        { "Check", true },
        { "AnotherKey", 1000 },
    },
    Data = new Dictionary<string, object>
    {
        { "Weapon", "Gun" },
        { "Items", new List<int> { 1, -5, 9 } }
    }
};
```

Return Data

Client Side GameManager

```
public override void OnCustomAuthenticationResponse(Dictionary<string, object> data)
{
    foreach (var kvp in data)
    {
        if (kvp.Value.GetType().IsArray)
        {
            var list = (object[])kvp.Value;
            Debug.Log($"User Data: {kvp.Key} = [{string.Join(", ", list.Select(x => x.ToString()).ToArray())}]");
        }
        else
        {
            Debug.Log($"User Data: {kvp.Key} = {kvp.Value}");
        }
    }
}
```

練習

10分鐘

Sending Data To Server

- 如果 Client 要傳送大量額外資料給 Server 時，因為 query string 有字數的限制
 - 例如同時註冊跟登入，要額外傳送玩家暱稱、年齡等等資訊
 - 可以簡化 API 呼叫次數

```
var authValues = new AuthenticationValues();
authValues.AuthType = CustomAuthenticationType.Custom;
authValues.SetAuthpostData(new Dictionary<string, object>
{
    { "user", userId },
    { "pass", pass },
    { "nickname", "Arthur" },
    { "age", 18 },
    { "address", "台北" },
});
PhotonNetwork.AuthValues = authValues;
PhotonNetwork.ConnectUsingSettings();
```

HTTP method

AuthPostData	AuthGetParameters	HTTP method
null	*	GET
empty string	*	GET
string (not null, not empty)	*	POST
byte[] (not null, can be empty)	*	POST
Dictionary<string, object> (not null, can be empty)	*	POST (Content-Type="application/json")

Post More Auth Data Example

Server Side

Post More Auth Data

Server Side: LoginRequest

```
namespace TankServer.Requests;

public class LoginRequest
{
    public string? user { get; set; }
    public string? pass { get; set; }
    public string? nickname { get; set; }
    public int age { get; set; }
    public string? address { get; set; }
}
```

Post More Auth Data

Server Side: Player Model

```
namespace TankServer.Models;

public class Player
{
    public long Id { get; set; }
    public string? Name { get; set; }
    public string? Password { get; set; }
    public string? Nickname { get; set; }
    public int Age { get; set; }
    public string? Address { get; set; }
    public int Score { get; set; }
}
```

Post More Auth Data

Server Side: AuthController

```
// POST: api/auth/login
[HttpPost("login")]
public async Task<PhotonResult> Login([FromBody] LoginRequest request)
{
    // 判斷參數是否有值
    if (string.IsNullOrWhiteSpace(request.user) || string.IsNullOrWhiteSpace(request.pass))
    {
        return new PhotonResult
        {
            ResultCode = 3,
            Message = "Invalid parameters."
        };
    }

    var player = await _context.Players
        .Where(p => p.Name == request.user)
        .FirstOrDefaultAsync();

    // 產生 password 的 hash 值
    var passwordHash = GetSha256Hash(request.pass);
```

Post More Auth Data

Server Side: AuthController

```
if (player != null)
{
    // 判斷 hash 後的密碼是一致
    if (player.Password != passwordHash)
    {
        return new PhotonResult
        {
            ResultCode = 2,
            Message = "Credentials incorrect."
        };
    }
}

return new PhotonResult
{
    ResultCode = 1,
    UserId = player.Id,
    Nickname = player.Nickname,
    AuthCookie = new Dictionary<string, object>
    {
        { "SecretKey", "SecretValue" },
        { "Check", true },
        { "AnotherKey", 1000 },
    },
    Data = new Dictionary<string, object>
    {
        { "nickname", player.Nickname ?? player.Name ?? "" },
        { "Age", player.Age },
        { "Address", player.Address ?? "" },
        { "Weapon", "Gun" },
        { "Items", new List<int> { 1, -5, 9 } }
    }
};
```

Post More Auth Data

Server Side: AuthController

```
// 如果玩家不存在，則幫他註冊
player = new Player
{
    Name = request.user,
    Password = passwordHash,
    Nickname = request.nickname,
    Age = request.age,
    Address = request.address,
};

await _context.Players.AddAsync(player);

// 儲存到資料庫
await _context.SaveChangesAsync();

return new PhotonResult
{
    ResultCode = 1,
    UserId = player.Id,
    Nickname = player.Nickname,
    AuthCookie = new Dictionary<string, object>
    {
        { "SecretKey", "SecretValue" },
        { "Check", true },
        { "AnotherKey", 1000 },
    },
    Data = new Dictionary<string, object>
    {
        { "nickname", player.Nickname ?? player.Name ?? "" },
        { "Age", player.Age },
        { "Address", player.Address ?? "" },
        { "Weapon", "Gun" },
        { "Items", new List<int> { 1, -5, 9 } }
    }
};
```

Post More Auth Data

Postman

The screenshot shows the Postman application interface. On the left, the sidebar includes sections for Collections, APIs, Environments, Mock Servers, Monitors, Flows, and History. The main workspace displays a POST request to '{{server}}/auth/login' under the 'Tank Server / Login' collection. The 'Body' tab is selected, showing a JSON payload:

```
1 "user": "arthur",
2 "pass": "1111111",
3 "nickname": "ArthurPai",
4 "age": 18,
5 "address": "台灣"
```

Below the request, the response pane shows a 200 OK status with a response body:

```
1 "resultCode": 1,
2 "message": null,
3 "userId": 1,
4 "nickname": "ArthurPai",
5 "authCookie": {
6     "SecretKey": "SecretValue",
7     "Check": true,
8     "AnotherKey": 1000
9 },
10 "data": {
11     "nickname": "ArthurPai",
12     "Age": 18,
13     "Address": "台灣",
14     "Weapon": "Gun",
15     "Items": [
16         1,
17         -5,
18         9
19     ]
20 }
```

練習

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Client Side

Post More Auth Data

Client Side: Game Manager

```
public bool ConnectToServer(string account, string password)
{
    var authValues = new AuthenticationValues();
    authValues.AuthType = CustomAuthenticationType.Custom;
    authValues.SetAuthpostData(new Dictionary<string, object>
    {
        { "user", account },
        { "pass", password },
        { "nickname", account },
        { "age", 18 },
        { "address", "台北" },
    });
    PhotonNetwork.AuthValues = authValues;

    return PhotonNetwork.ConnectUsingSettings();
}
```

Post More Auth Data

Client Side: Game Manager

```
public override void OnCustomAuthenticationResponse(Dictionary<string, object> data)
{
    foreach (var kvp in data)
    {
        if (kvp.Value.GetType().IsArray)
        {
            var list = (object[])kvp.Value;
            Debug.Log($"User Data: {kvp.Key} = [{string.Join(", ", list.Select(x => x.ToString()).ToArray())}]");
        }
        else
        {
            if (kvp.Key == "nickname")
            {
                PhotonNetwork.NickName = (string)kvp.Value;
            }
        }
        Debug.Log($"User Data: {kvp.Key} = {kvp.Value}");
    }
}
```

練習

15分鐘

啟動 AWS EC2 伺服器

AWS

The screenshot shows the AWS CloudSearch interface. A red box highlights the search bar at the top containing the query 'ec2'. Another red box highlights the 'Services' section on the left sidebar. On the right, the search results for 'ec2' are displayed under the heading 'Search results for 'ec2''.

Services

- EC2** ☆ Virtual Servers in the Cloud
- EC2 Image Builder ☆ A managed service to automate build, customize and deploy OS images
- AWS Compute Optimizer ☆ Recommend optimal AWS Compute resources for your workloads
- AWS Firewall Manager ☆ Central management of firewall rules

账户属性

- 支援的平台 VPC
- 預設 VPC
- vpc-7fddb71a
- 設定
- EBS 加密
- 區域
- EC2 序列主控台
- 預設點數規格
- 主控台實驗

其他資訊

<https://console.aws.amazon.com/>

EC2

New EC2 Experience X

Tell us what you think

EC2 儀表板

- EC2 全域檢視
- 事件
- 標籤
- 限制

▼ **執行個體**

- 執行個體 New
- 執行個體類型

資源

您正在 亞太地區 (東京) 區域使用以下 Amazon EC2 資源：

執行個體 (執行中)	0	安全群組	2	快照	0
金鑰對	1	負載平衡器	0	配置群組	0
執行個體	0	專用主機	0	磁碟區	0
彈性 IP	0				

ⓘ 利用 AWS Launch Wizard for SQL Server，在 AWS 上輕鬆調整、設定及部署 Microsoft SQL Server Always On 可用性群組。進一步了解 X

啟動 Server

The screenshot shows the AWS EC2 console interface. The top navigation bar includes the AWS logo, Services dropdown, search bar (searching for 'ec2'), and user information (Arthur Pai). A sidebar on the left provides navigation links for New EC2 Experience, EC2 Dashboard, Region Selector, Events, Tags, Constraints, and sections for Launch Instances, Images, and Elastic Block Store.

The main content area is titled '執行個體 資訊' (Instance Information) and displays a search bar with the filter '執行個體狀態 = running'. The results table has columns: Name, 執行個體 ID, 執行個體狀態, 執行個體類型, 狀態檢查, 警示狀態, 可用區域, 公有 IPv4 DNS, 公有 IPv4 地址, and 彈性 IP. A message at the bottom states '找不到相符的執行個體' (No matching instances found).

A modal window titled '選取執行個體' (Select Instance) is open in the center. The top right of the modal has a close button (X) and a refresh icon. The modal content is currently empty.

At the top right of the main page, there is a red rectangular box highlighting the '啟動新執行個體' (Launch New Instance) button, which is orange with white text.

啟動執行個體 資訊

Amazon EC2 可讓您建立在 AWS 雲端上執行的虛擬機器或執行個體。請按下方的簡易步驟快速開始使用。

名稱和標籤 資訊

名稱

TankServer

[新增其他標籤](#)

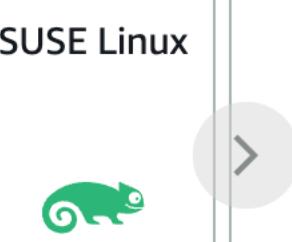
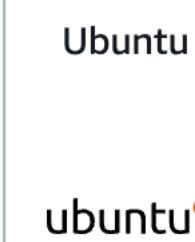
▼ 應用程式和作業系統映像 (Amazon Machine Image) 資訊

AMI 是一種範本，包含啟動執行個體所需的軟體組態 (作業系統、應用程式伺服器和應用程式)。如果在下面看不到所尋找的內容，請搜尋或瀏覽 AMI

搜尋我們的完整型錄，包括 1,000 個應用程式和作業系統映像

近期項目

快速入門



[瀏覽更多 AMI](#)

包括來自 AWS、
Marketplace 和社群的
AMI

Amazon Machine Image (AMI)

Microsoft Windows Server 2019 Base
ami-0d4e1dc285dc7f5e1 (64 位元 (x86))

虛擬化: hvm 已啟用 ENA: true 根裝置類型: ebs

符合免費方案資格

▼ 摘要

執行個體的數目 資訊

1

軟體映像 (AMI)

Microsoft Windows Server 2019 ...[閱讀其他資訊](#)

ami-0d4e1dc285dc7f5e1

虛擬伺服器類型 (執行個體類型)

t2.micro

防火牆 (安全群組)

新的安全群組

儲存 (磁碟區)

1 磁碟區 – 30 GiB



免費方案 : In your first year includes 750

hours of t2.micro (or t3.micro in the
Regions in which t2.micro is unavailable)
instance usage on free tier AMIs per
month, 30 GiB of EBS storage, 2 million
IOs, 1 GB of snapshots, and 100 GB of
bandwidth to the internet.

取消

[啟動執行個體](#)

aws ubuntu® Microsoft Red Hat SUSE 包括來自 AWS、Marketplace 和社群的 AMI

Amazon Machine Image (AMI)

Microsoft Windows Server 2019 Base 符合免費方案資格

ami-0d4e1dc285dc7f5e1 (64 位元 (x86))
虛擬化: hvm 已啟用 ENA: true 根裝置類型: ebs

描述
Microsoft Windows Server 2019 with Desktop Experience Locale English AMI provided by Amazon

架構 AMI ID
64 位元 (x86) ami-0d4e1dc285dc7f5e1

▼ 執行個體類型 資訊

執行個體類型

t2.micro 符合免費方案資格

系列: t2 1 vCPU 1 GiB 記憶體
隨需 Linux 定價: 0.0152 USD 每小時
隨需 Windows 定價: 0.0198 USD 每小時

比較執行個體類型

▼ 金鑰對 (登入) 資訊

您可以使用金鑰對安全地連線到您的執行個體。在啟動執行個體之前，請確定您有權存取所選取的金鑰對。

金鑰對名稱 - 必要

選取

C 建立新的金鑰對

如果是 Windows 執行個體，您可以使用金鑰對來解密管理員密碼，然後使用解密的密碼連線到您的執行個體。

▼ 摘要

執行個體的數目 資訊
1

軟體映像 (AMI)
Microsoft Windows Server 2019 ... 閱讀其他資訊
ami-0d4e1dc285dc7f5e1

虛擬伺服器類型 (執行個體類型)
t2.micro

防火牆 (安全群組)
新的安全群組

儲存 (磁碟區)
1 磁碟區 – 30 GiB

免費方案 : In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

取消 啟動執行個體

金鑰對

- 金鑰對(.pem)是之後要登入伺服器的 Key
- 之後會使用 Microsoft Remote Desktop 來登入伺服器



安全群組 (防火牆)

▼ 網路設定

編輯

網路
vpc-7fddb71a

子網路
沒有偏好 (任何可用區域中的預設子網路)

自動指派公開 IP
啟用

防火牆 (安全群組) 資訊

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

建立安全群組 選擇現有的安全群組

我們將建立名為 'launch-wizard-2' 的新安全群組，其中包含下列規則：

允許 RDP 流量，來自
協助連接至您的執行個體

隨處
0.0.0.0/0

允許來自網際網路的 HTTPS 流量
若要設定端點，例如建立 Web 啟服器時

允許來自網際網路的 HTTP 流量
若要設定端點，例如建立 Web 啟服器時

⚠ 來源為0.0.0.0/0的規則可讓所有 IP 地址存取您的執行個體。我們建議設定安全群組的規則，只允許從已知的 IP 地址存取。

▼ 設定儲存 資訊

進階

1x 30 GiB gp2

根磁碟區

▼ 摘要

執行個體的數目 [資訊](#)
1

軟體映像 (AMI)
Microsoft Windows Server 2019 ...[閱讀其他資訊](#)
ami-0d4e1dc285dc7f5e1

虛擬伺服器類型 (執行個體類型)
t2.micro

防火牆 (安全群組)
新的安全群組

儲存 (磁碟區)
1 磁碟區 – 30 GiB

ⓘ 免費方案：In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet. **X**

取消 **啟動執行個體**

我們將建立名為 'launch-wizard-2' 的新安全群組，其中包含下列規則：

允許 RDP 流量，來自
協助連接至您的執行個體

隨處
0.0.0.0/0

允許來自網際網路的 HTTPS 流量
若要設定端點，例如建立 Web 啟服器時

允許來自網際網路的 HTTP 流量
若要設定端點，例如建立 Web 啟服器時

⚠️ 來源為0.0.0.0/0的規則可讓所有 IP 地址存取您的執行個體。我們建議設定安全群組的規則，只允許從已知的 IP 地址存取。 X

▼ 設定儲存 資訊 進階

1x GiB gp2 ▼ 根磁碟區

i 符合免費方案資格的客戶可獲得最多 30 GB 的 EBS 一般用途 (SSD) 或磁性儲存空間 X

新增新磁碟區

選取的 AMI 包含比執行個體允許的數量更多的執行個體存放磁碟區。只有來自 AMI 的第一個 0 執行個體存放磁碟區才能從執行個體存取

0 x 檔案系統 編輯

► 進階詳細資訊 資訊

▼ 摘要

執行個體的數目 資訊
1

軟體映像 (AMI)
Microsoft Windows Server 2019 ...[閱讀其他資訊](#)
ami-0d4e1dc285dc7f5e1

虛擬伺服器類型 (執行個體類型)
t2.micro

防火牆 (安全群組)
新的安全群組

儲存 (磁碟區)
1 磁碟區 – 30 GiB

i 免費方案：In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet. X

取消 啟動執行個體

等待伺服器啟動

The screenshot shows the AWS EC2 Instances page. On the left sidebar, there are links for 'New EC2 Experience', 'EC2 儀表板', 'EC2 全域檢視', '事件', and '檔案'. The main content area has a title '執行個體 (1) 資訊' and a search bar. A red box highlights the '執行個體狀態' column header. Another red box highlights the '公有 IPv4 地址' column header, which shows '103.4.12.32' for the first instance. The instance details table includes columns for Name, 執行個體 ID, 執行個體狀態, 執行個體類型, 狀態檢查, 警示狀態, 可用區域, 公有 IPv4 DNS, and 公有 IPv4 地址.

Name	執行個體 ID	執行個體狀態	執行個體類型	狀態檢查	警報狀態	可用區域	公有 IPv4 DNS	公有 IPv4 地址
TankServer	i-0ca228acb9735613c	待處理	t2.micro	-	無警報	ap-northeast-1c	ec2-103-4-12-32.ap-no...	103.4.12.32

用Unity製作連線遊戲 :: 第 12 屆 | Photon Cloud 與 WebHooks 的 | Custom Authentication | Photon | Manage Game | Photon Engine | 教學課程：使用 ASP.NET Core | 執行個體 | EC2 Management Co

https://ap-northeast-1.console.aws.amazon.com/ec2/v2/home?region=ap-northeast-1#Instances:

New EC2 Experience Tell us what you think

EC2 儀表板

EC2 全域檢視

事件

標籤

限制

執行個體

執行個體 New

執行個體類型

啟動範本

Spot 請求

Savings Plans

預留執行個體 New

專用主機

容量預留

映像

AMI New

AMI 目錄

Elastic Block Store

磁碟區 New

Services ec2

動作 ▲ 啟動新執行個體 ▼

連線

執行個體狀態 ▾

搜尋

Name 執行個體 ID 執行個體狀態 執行個體類型 狀態檢查 警示狀態 可用區域 公有 IPv4 DNS

TankServer i-0ca228acb9735613c 執行中 t2.micro - 無警報 + ap-northeast-1c ec2-103-4-12-32.ap-no...

執行個體 : i-0ca228acb9735613c (TankServer)

詳細資訊 安全性 聯網 儲存 狀態檢查 監控 標籤

執行個體摘要 資訊

執行個體 ID: i-0ca228acb9735613c (TankServer)

IPV6 地址: -

主機名稱類型: IP 名稱 : ip-172-31-8-129.ap-northeast-1.compute.internal

回答私有資源 DNS 名稱: IPv4 (A)

自動指派的 IP 地址: 103.4.12.32 [公有 IP]

公有 IPv4 地址: 103.4.12.32 | 開啟地址

執行個體狀態: 執行中

私有 IP DNS 名稱 (僅限 IPv4): ip-172-31-8-129.ap-northeast-1.compute.internal

執行個體類型: t2.micro

VPC ID: vpc-7fddb71a

私有 IPv4 地址: 172.31.8.129

公有 IPv4 DNS: ec2-103-4-12-32.ap-northeast-1.compute.amazonaws.com | 開啟地址

彈性 IP 地址: -

AWS Compute Optimizer 發現項目: 選擇使用 AWS Compute Optimizer 獲得建議。 | 進一步了解

Feedback Looking for language selection? Find it in the new Unified Settings

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連線至執行個體 資訊

使用任何這些選項連線至執行個體 i-Oca228acb9735613c (TankServer)

Session Manager

RDP 用戶端

EC2 序列主控台

 您可能無法連線到此執行個體，因為可能需要開啟連接埠 3389 才能存取。目前關聯的安全群組並未開啟連接埠 3389。 

執行個體 ID

 i-Oca228acb9735613c (TankServer)

連線類型

使用 RDP 用戶端連線

下載檔案並搭配 RDP 用戶端使用，即可擷取您的密碼。

使用 Fleet Manager 連線

若要使用 Fleet Manager Remote Desktop 與執行個體連線，執行個體上必須先安裝及執行 SSM Agent。如需詳細資訊，請參閱 [使用 SSM Agent](#)

您可以自行選擇遠端桌面用戶端來連線 Windows 執行個體，也可以下載並執行下列 RDP 捷徑檔：

 下載遠端桌面檔

系統出現提示時，請使用下列詳細資訊來連線至執行個體：

Public DNS

 ec2-103-4-12-32.ap-northeast-1.compute.amazonaws.com

使用者名稱

 Administrator

密碼

 取得密碼

Windows 桌面用戶端

EC2 > 執行個體 > i-0ca228acb9735613c > 取得 Windows 密碼

取得 Windows 密碼 資訊

擷取和解密此執行個體的初始 Windows 管理員密碼。

若要解密密碼，您需要此執行個體的金鑰對。

與此執行個體關聯的金鑰對
tank-server

瀏覽至您的金鑰對：
Browse

或複製並貼上以下的金鑰對內容：

取消 **解密密碼**



EC2 > 執行個體 > i-0ca228acb9735613c > 連線至執行個體

連線至執行個體 資訊

使用任何這些選項連線至執行個體 i-0ca228acb9735613c (TankServer)

Session Manager **RDP 用戶端** EC2 序列主控台

⚠ 您可能無法連線到此執行個體，因為可能需要開啟連接埠 3389 才能存取。目前關聯的安全群組並未開啟連接埠 3389。 **X**

執行個體 ID
i-0ca228acb9735613c (TankServer)

連線類型
 使用 RDP 用戶端連線
下載檔案並搭配 RDP 用戶端使用，即可擷取您的密碼。

使用 Fleet Manager 連線
若要使用 Fleet Manager Remote Desktop 與執行個體連線，執行個體上必須先安裝及執行 SSM Agent。如需詳細資訊，請參閱 [使用 SSM Agent](#) **↗**

您可以自行選擇遠端桌面用戶端來連線 Windows 執行個體，也可以下載並執行下列 RDP 捷徑檔：
下載遠端桌面檔

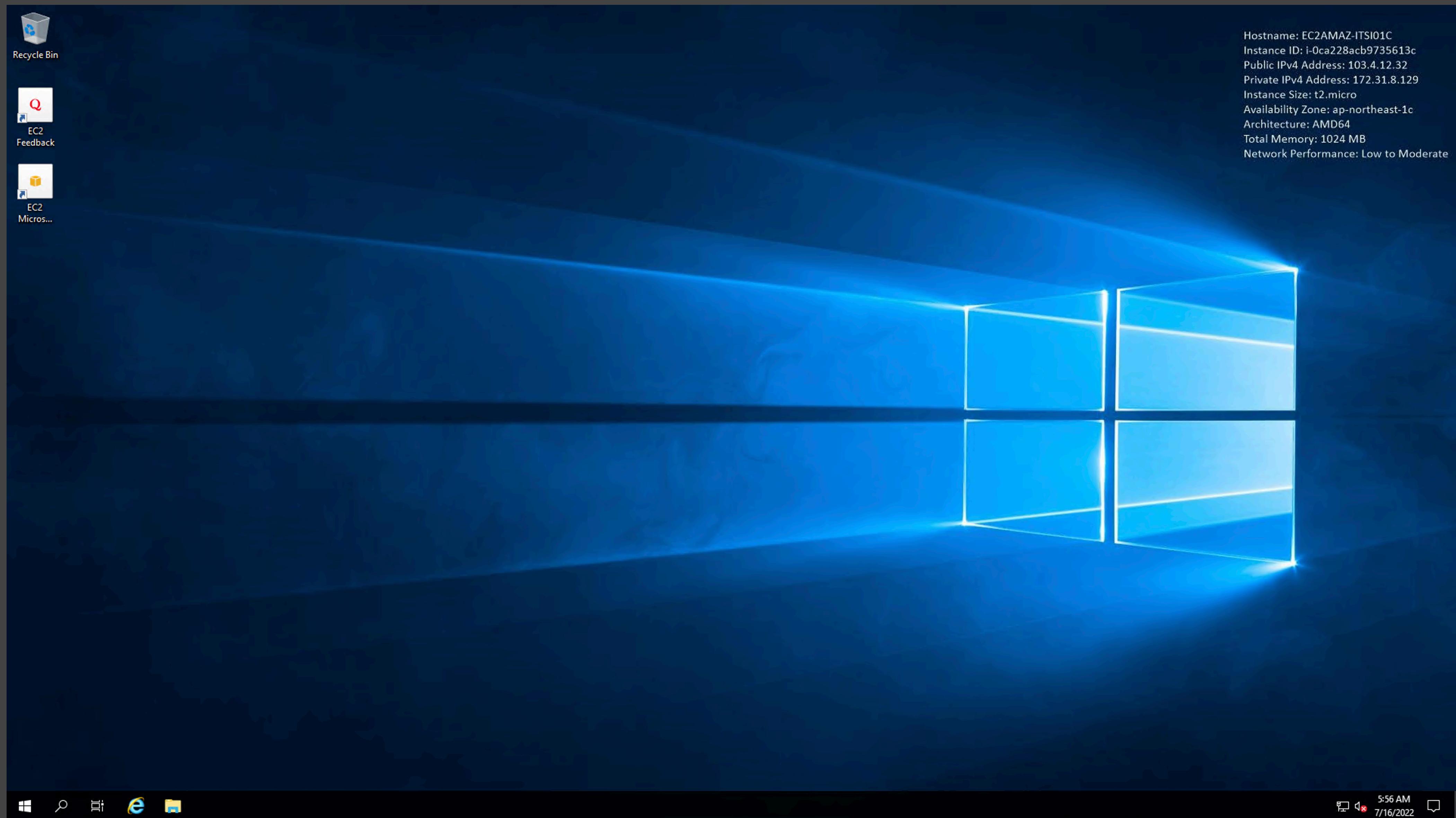
系統出現提示時，請使用下列詳細資訊來連線至執行個體：

Public DNS
ec2-103-4-12-32.ap-northeast-1.compute.amazonaws.com

使用者名稱
Administrator

密碼
tRyW(t(do4lnjU9c8oOwp-&Goew?aPe6)





查看已使用的功能

New EC2 Experience X

Tell us what you think

EC2 儀表板

EC2 全域檢視

事件

標籤

限制

▼ 執行個體

執行個體 New

執行個體類型

資源

您正在 亞太地區 (東京) 區域使用以下 Amazon EC2 資源：

執行個體 (執行中)	1	安全群組	3	快照	0
金鑰對	2	負載平衡器	0	配置群組	0
執行個體	1	專用主機	0	磁碟區	1
彈性 IP	0				

利用 AWS Launch Wizard for SQL Server，在 AWS 上輕鬆調整、設定及部署 Microsoft SQL Server Always On 可用性群組。進一步了解 X

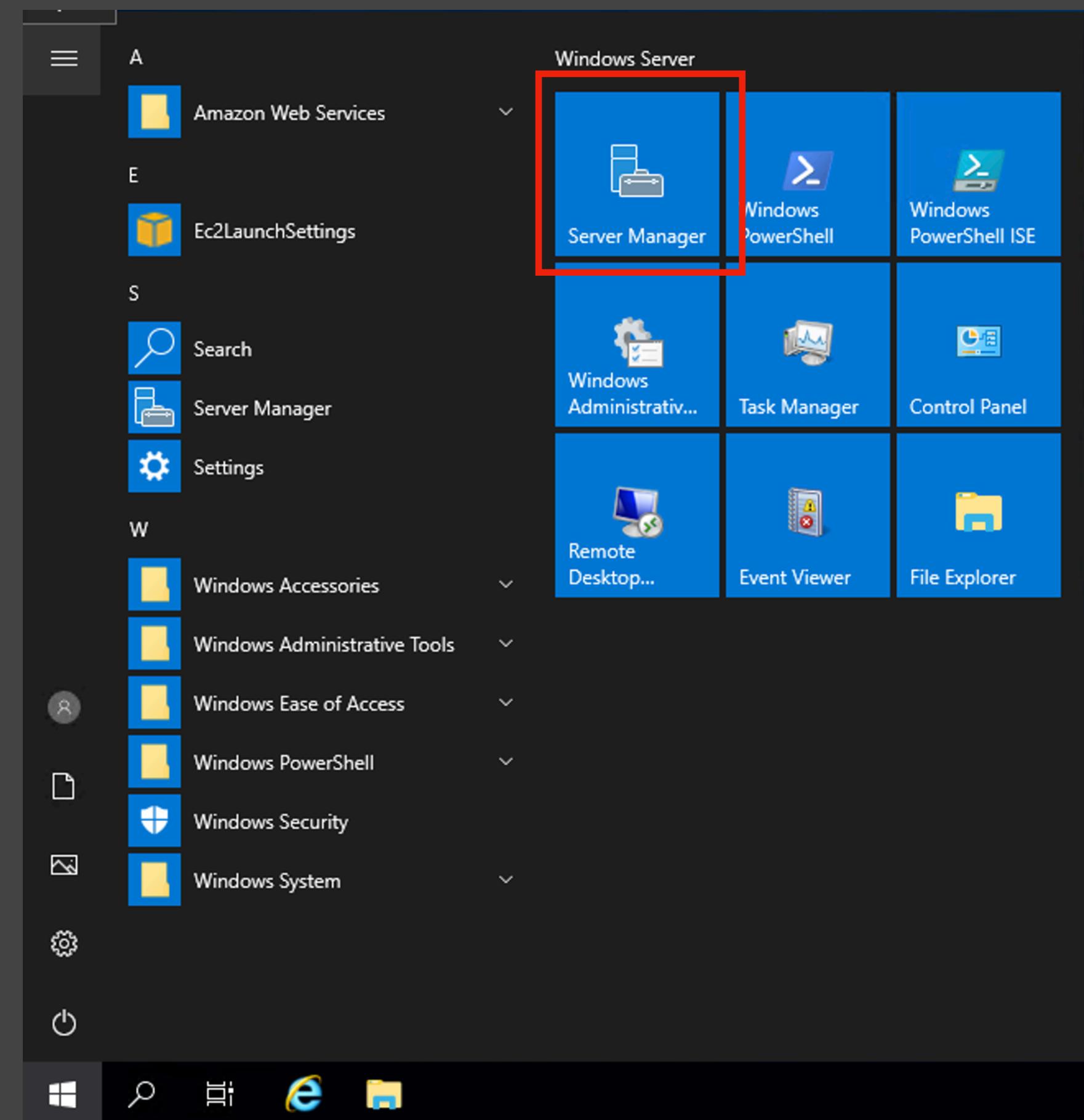
練習

15分鐘

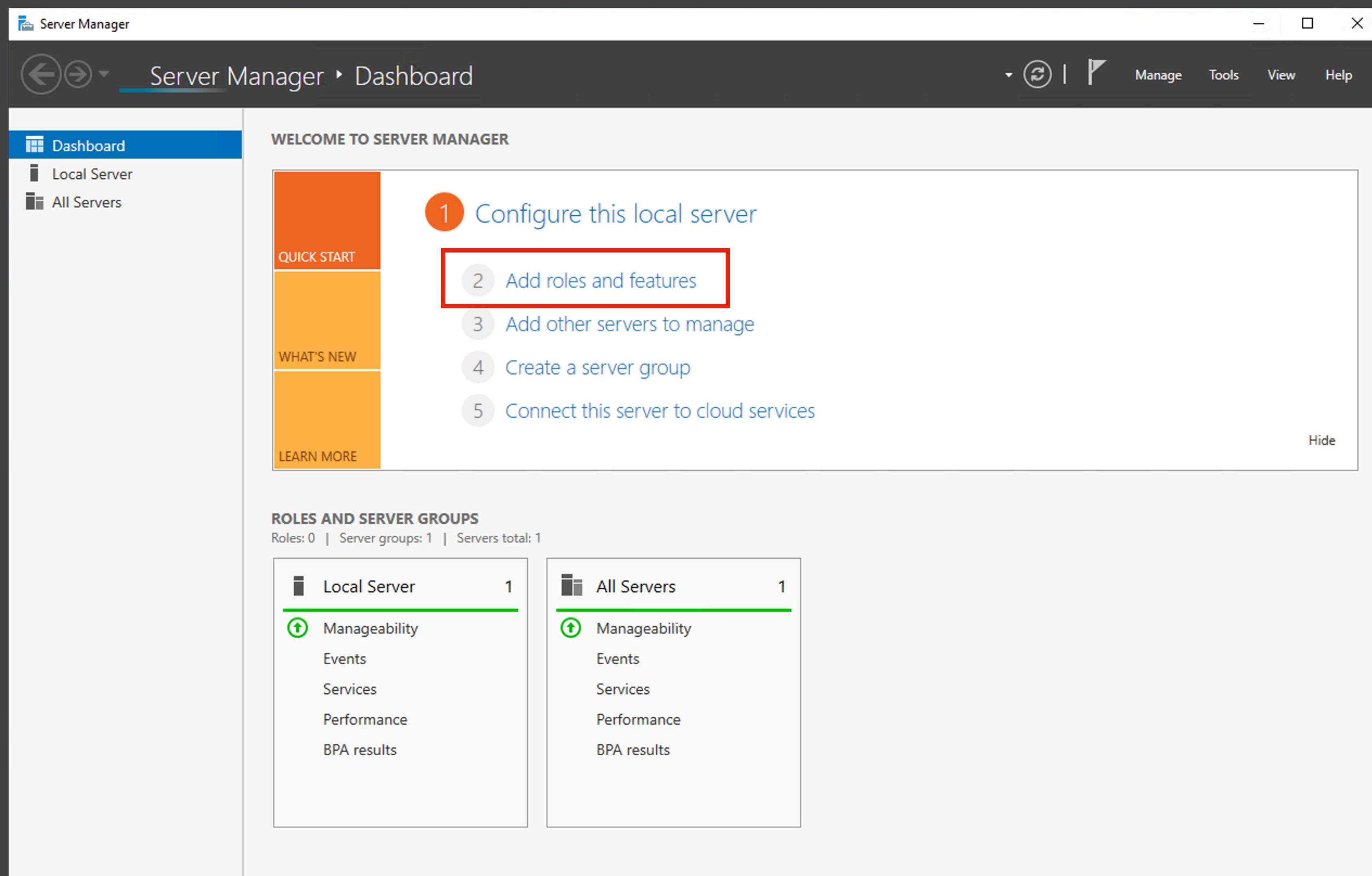
安裝 IIS

<https://blog.hungwin.com.tw/windows-server-iis-install/>

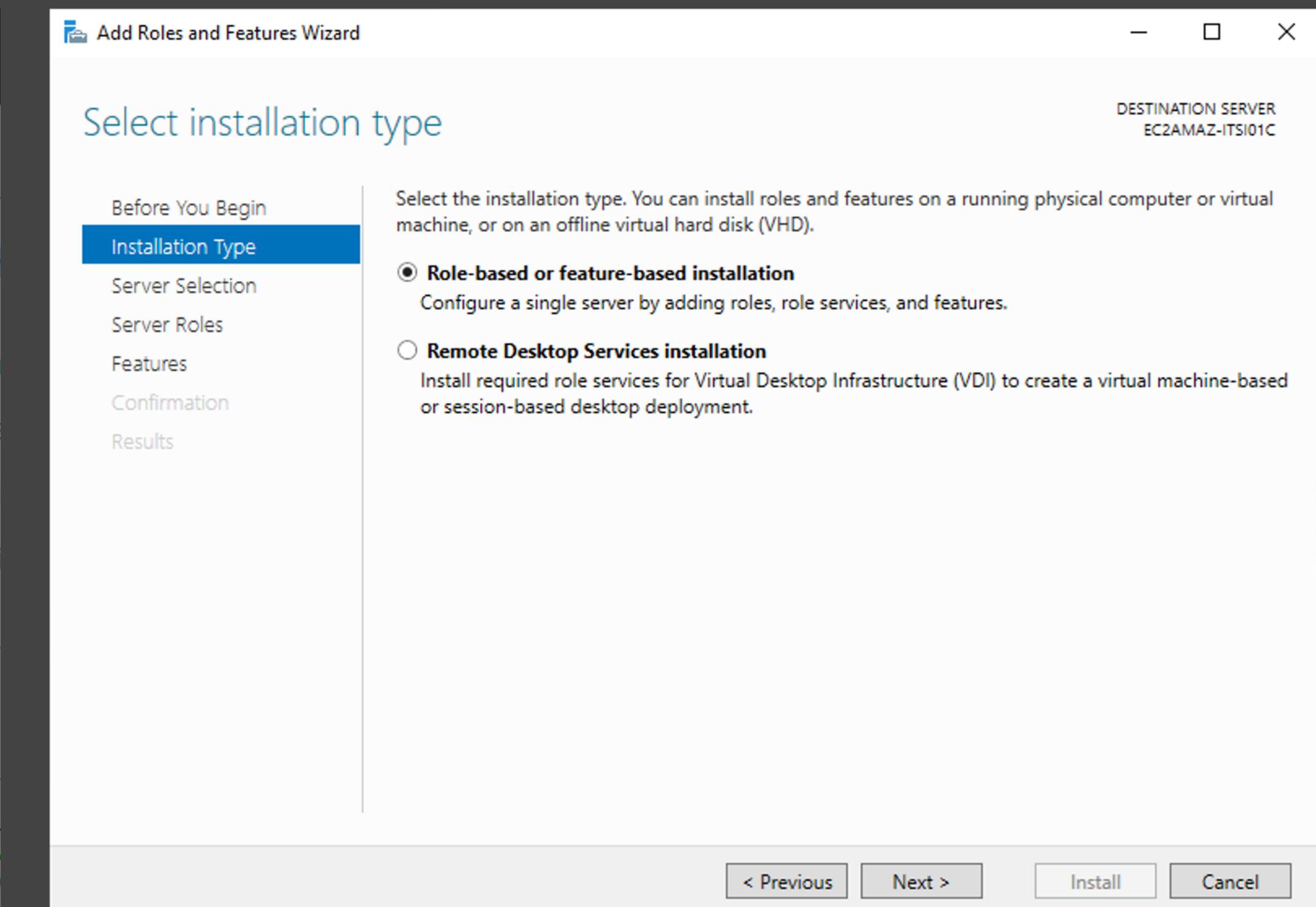
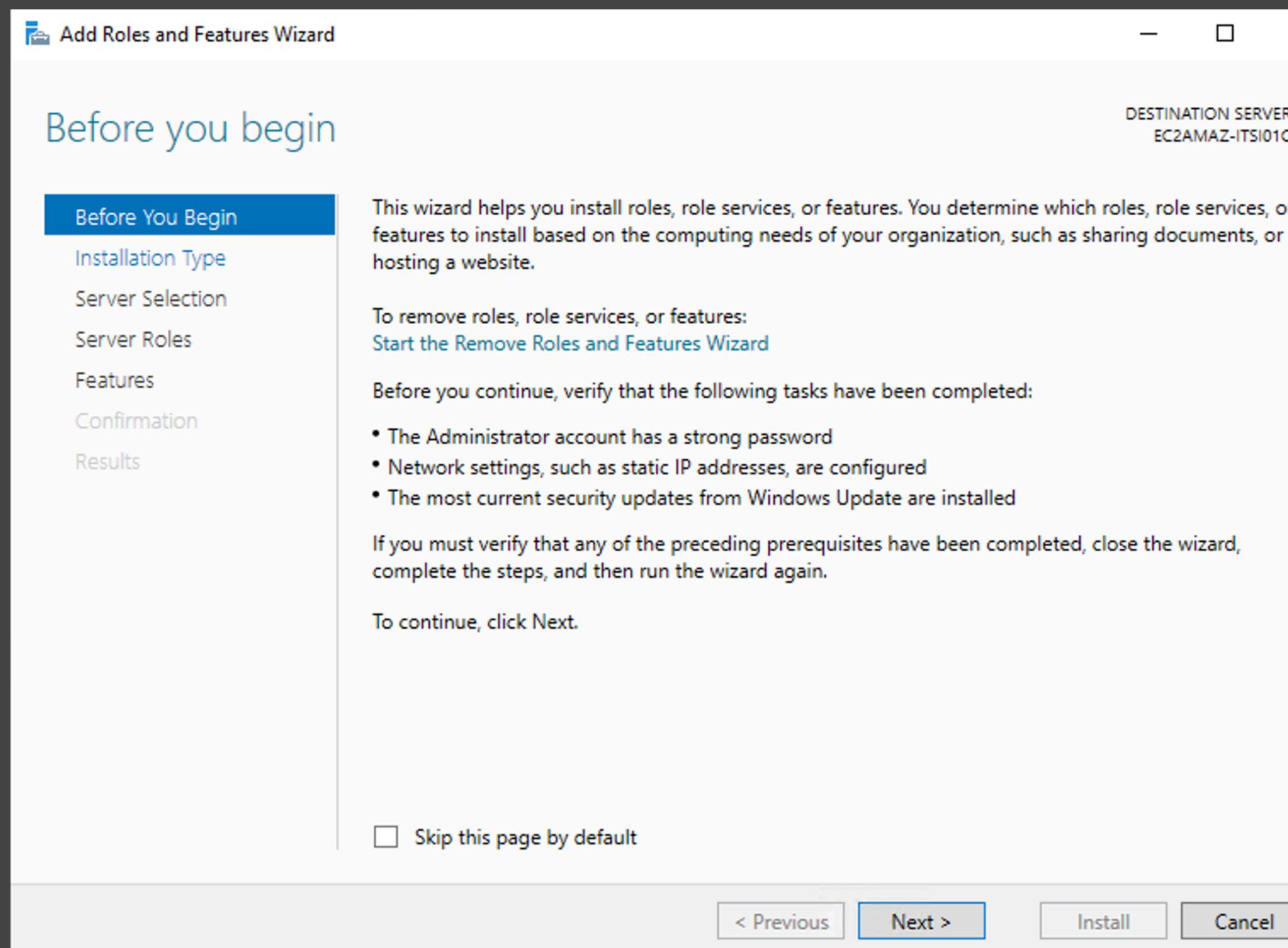
開啟 Server Manager



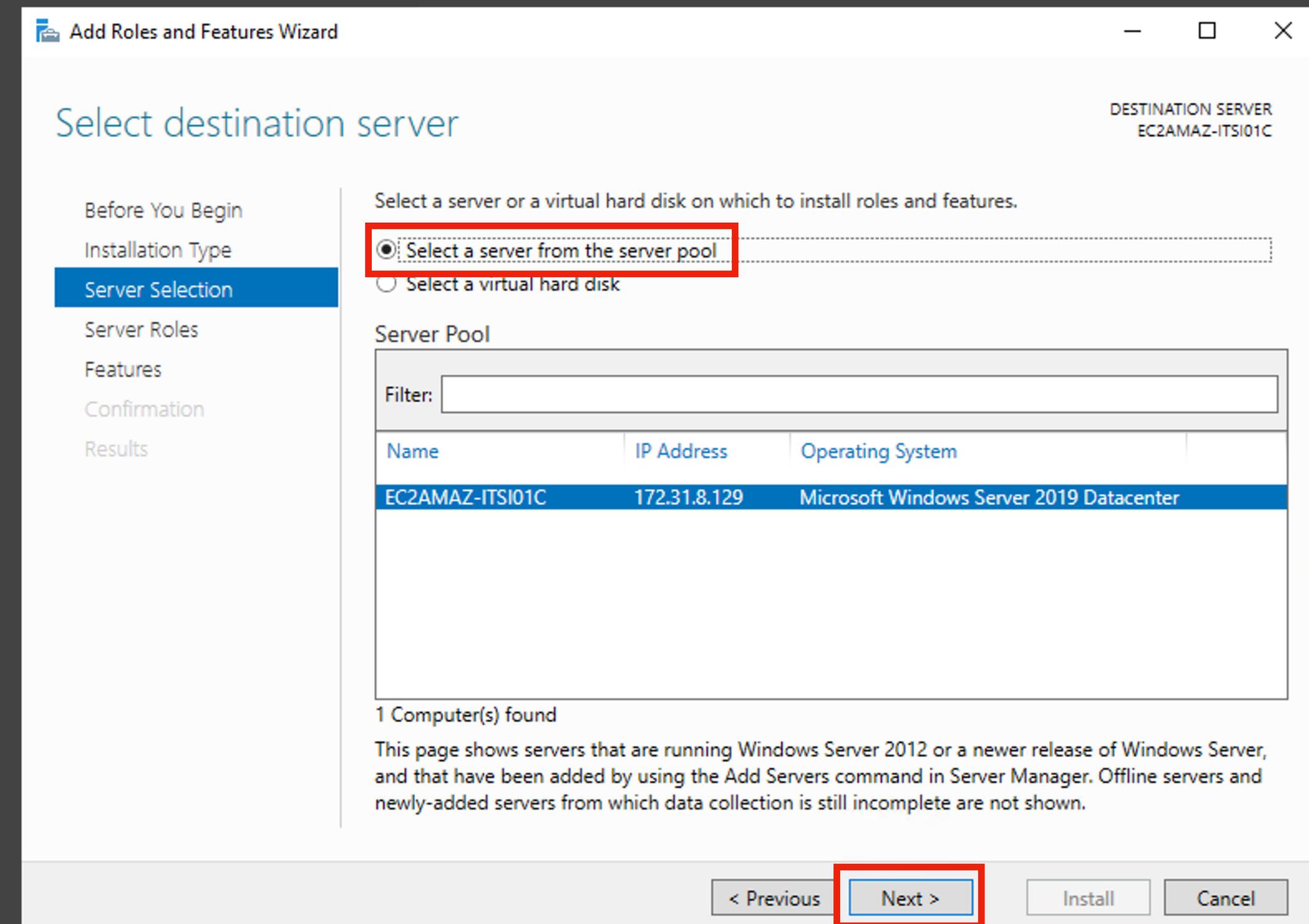
安裝 IIS



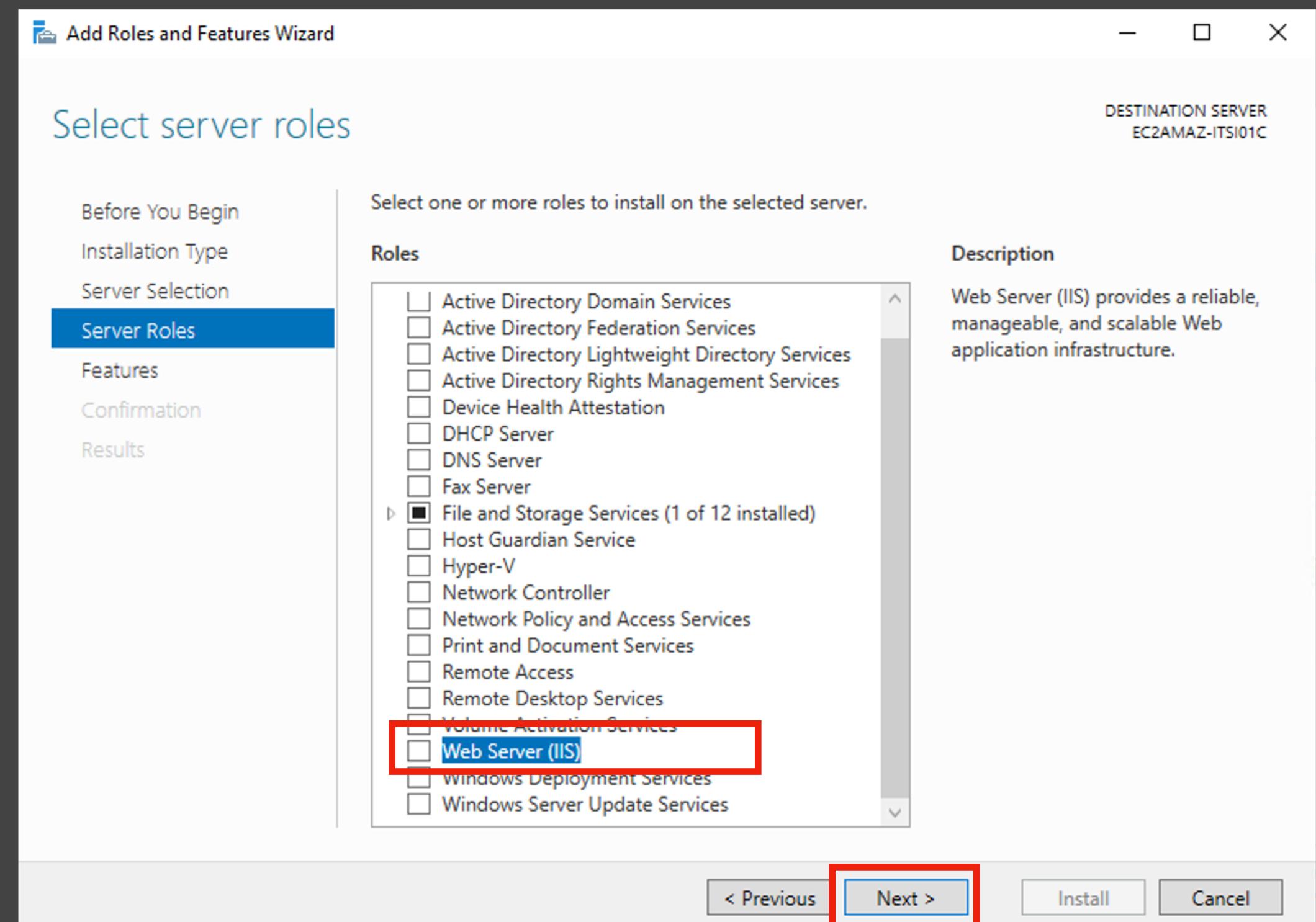
安裝 IIS



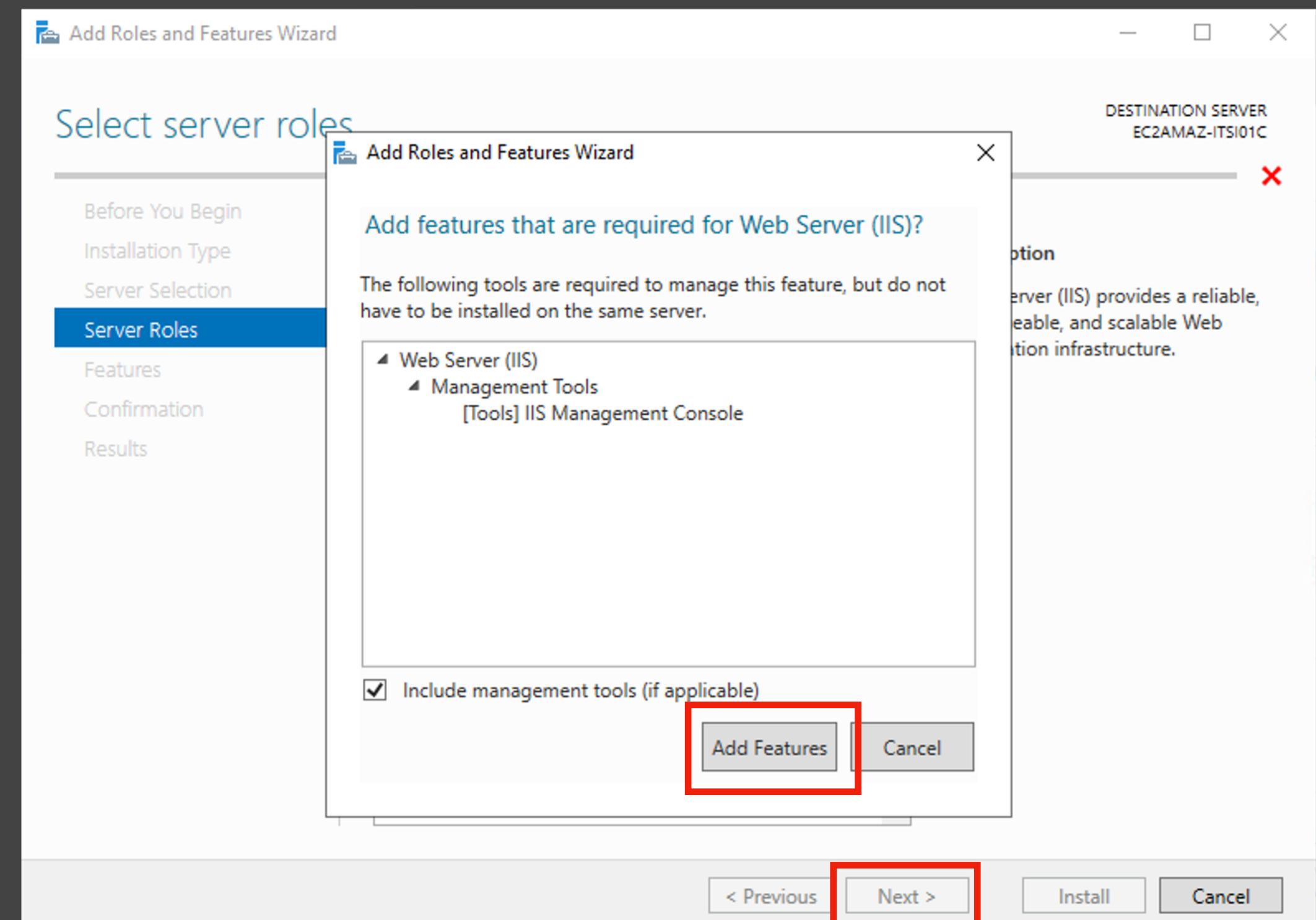
安裝 IIS



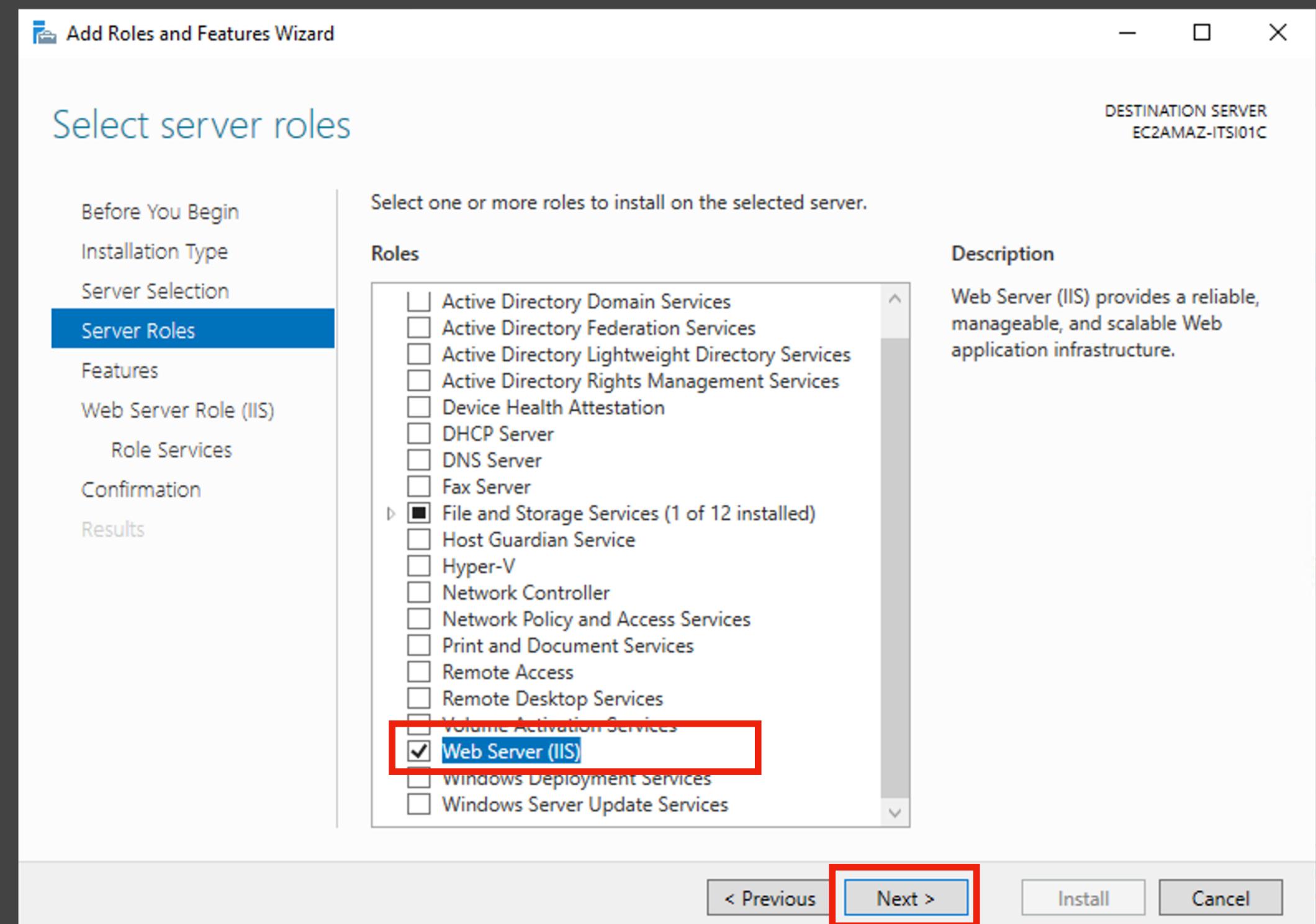
安裝 IIS



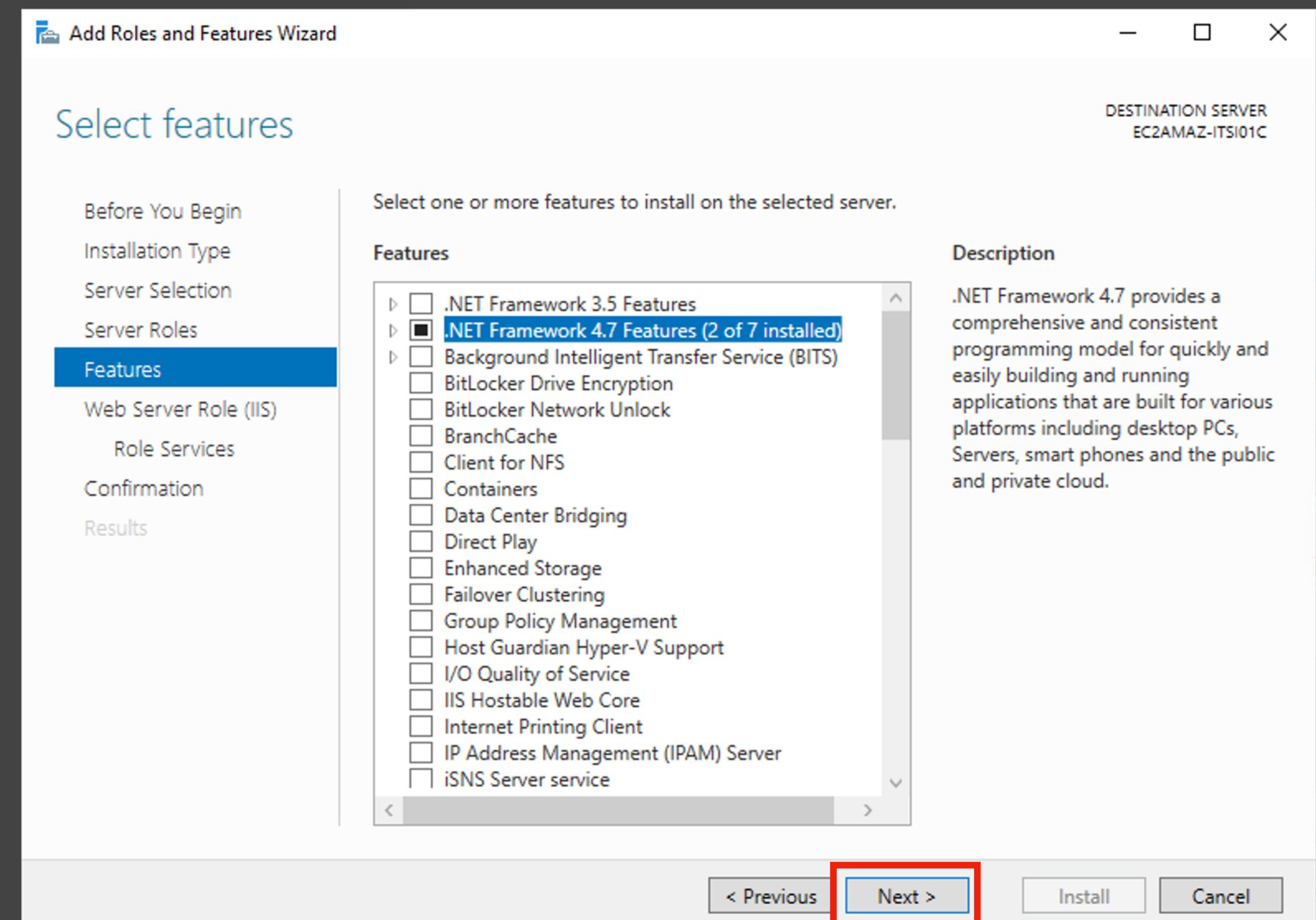
安裝 IIS



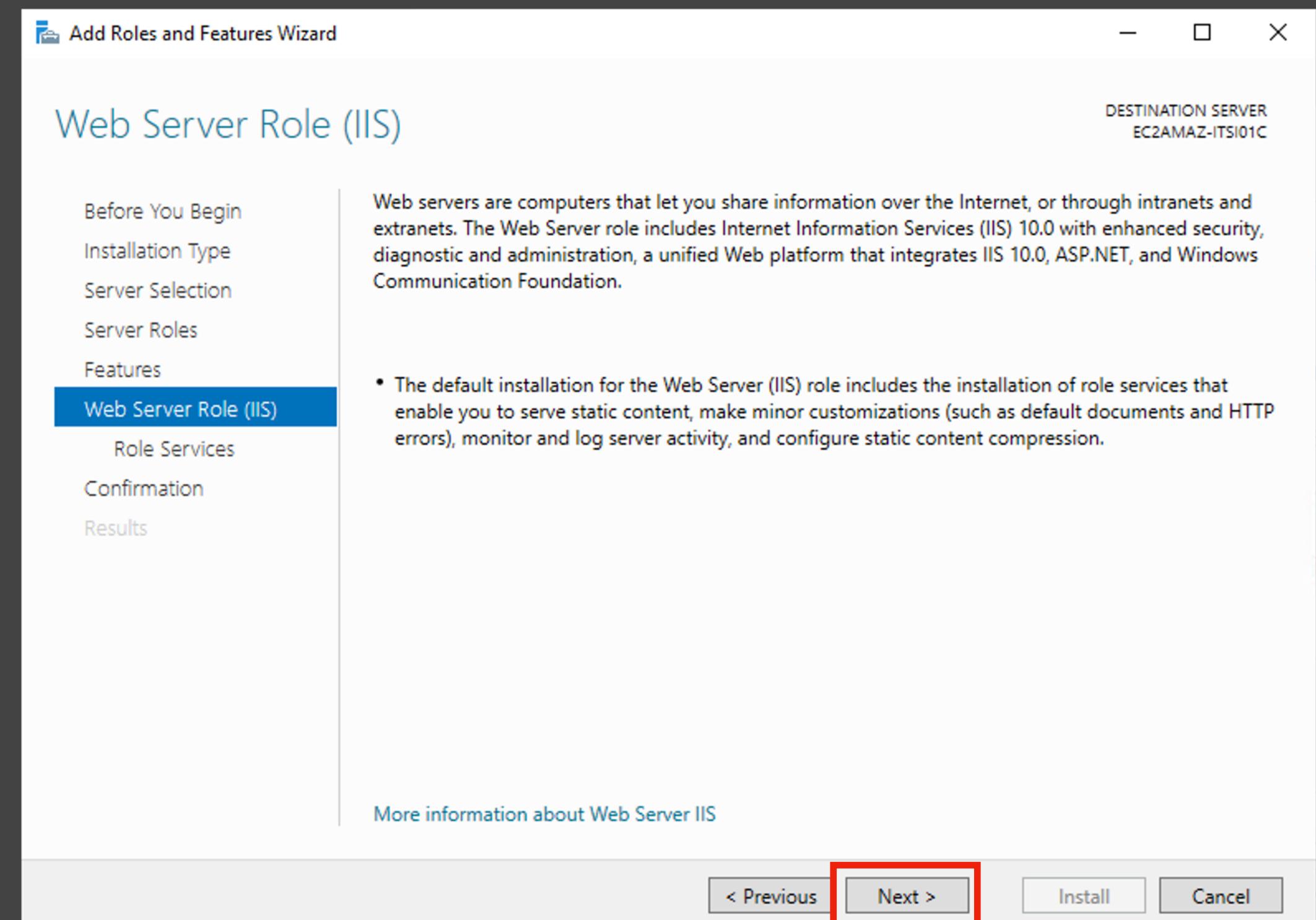
安裝 IIS



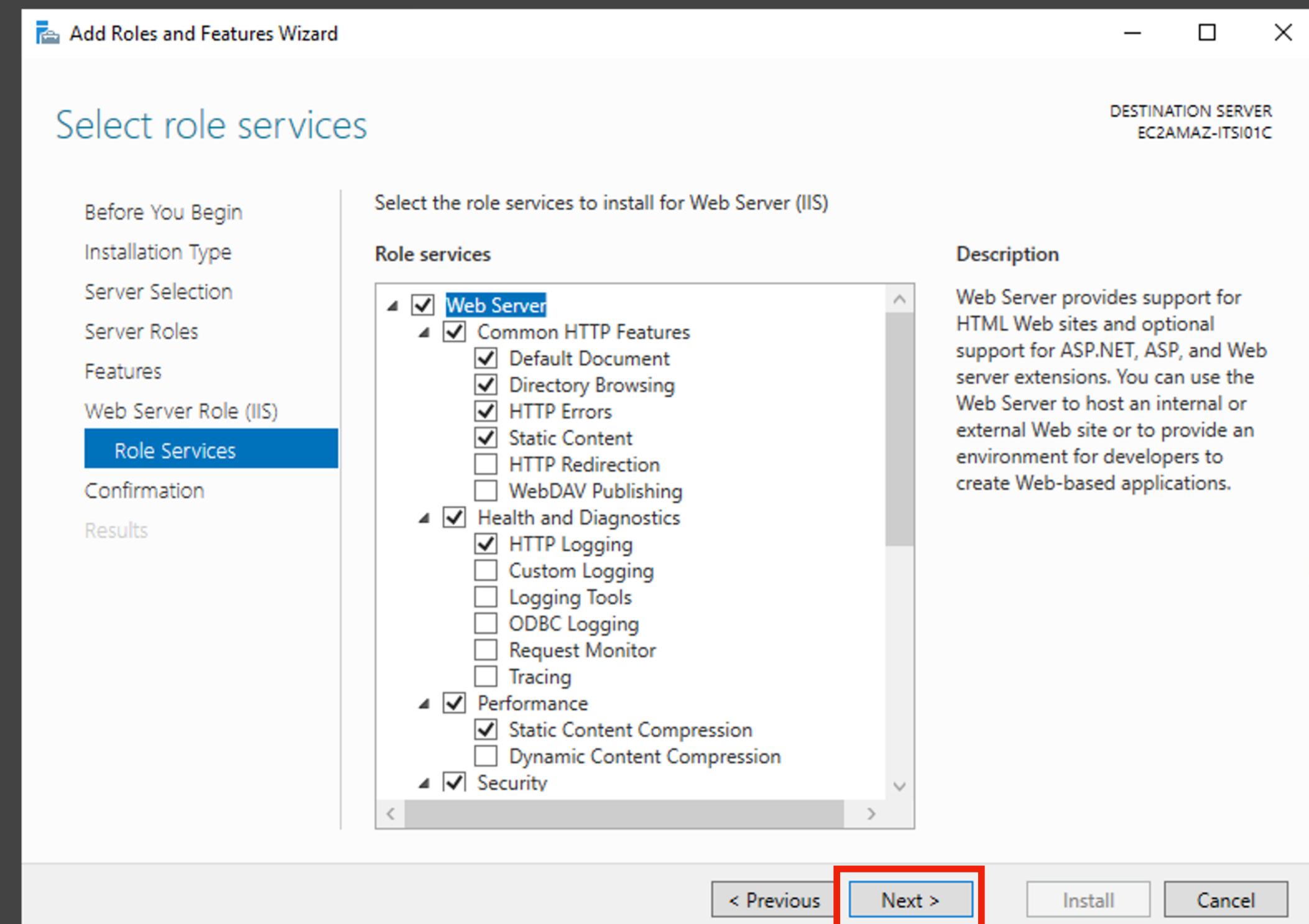
安裝 IIS



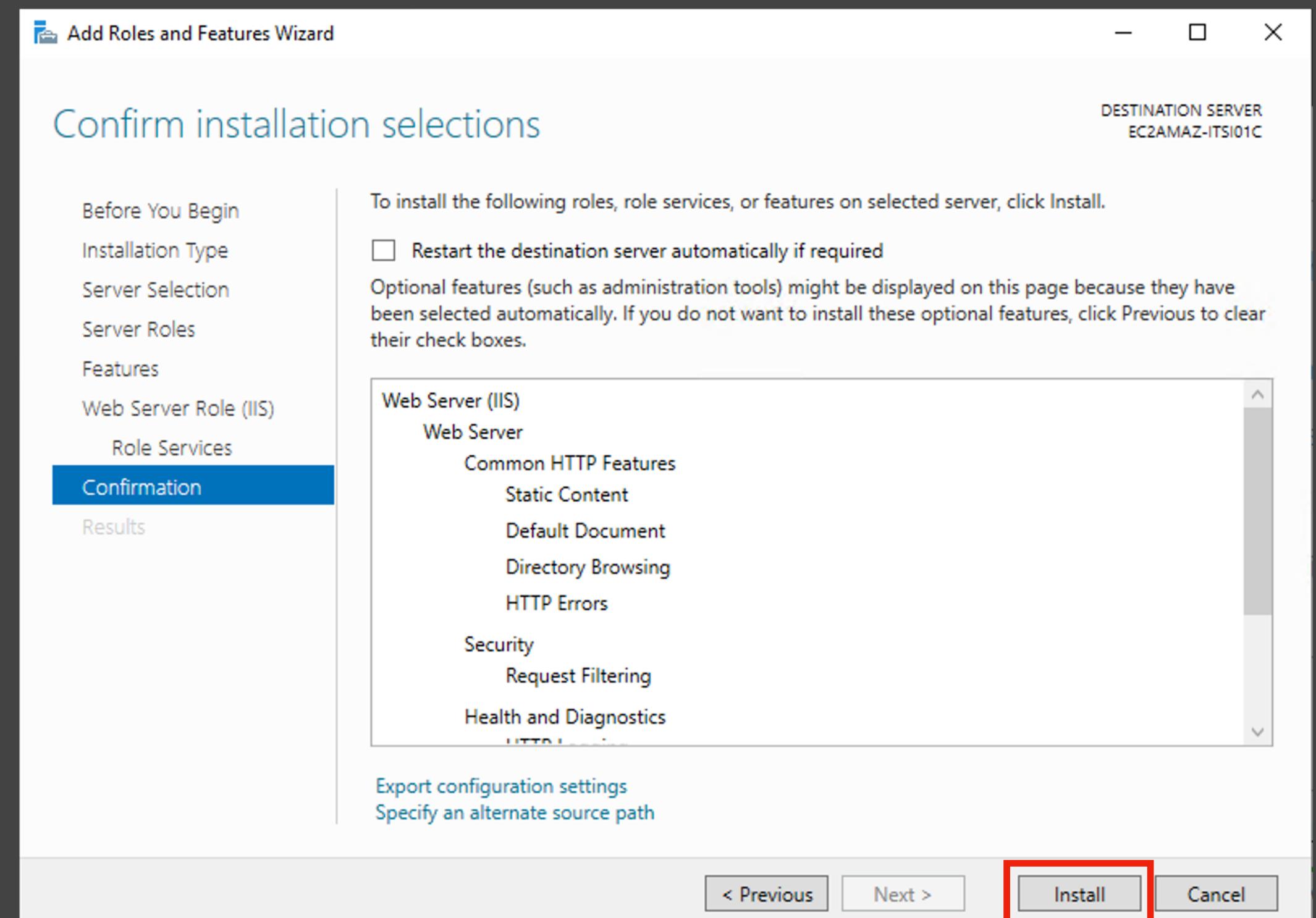
安裝 IIS



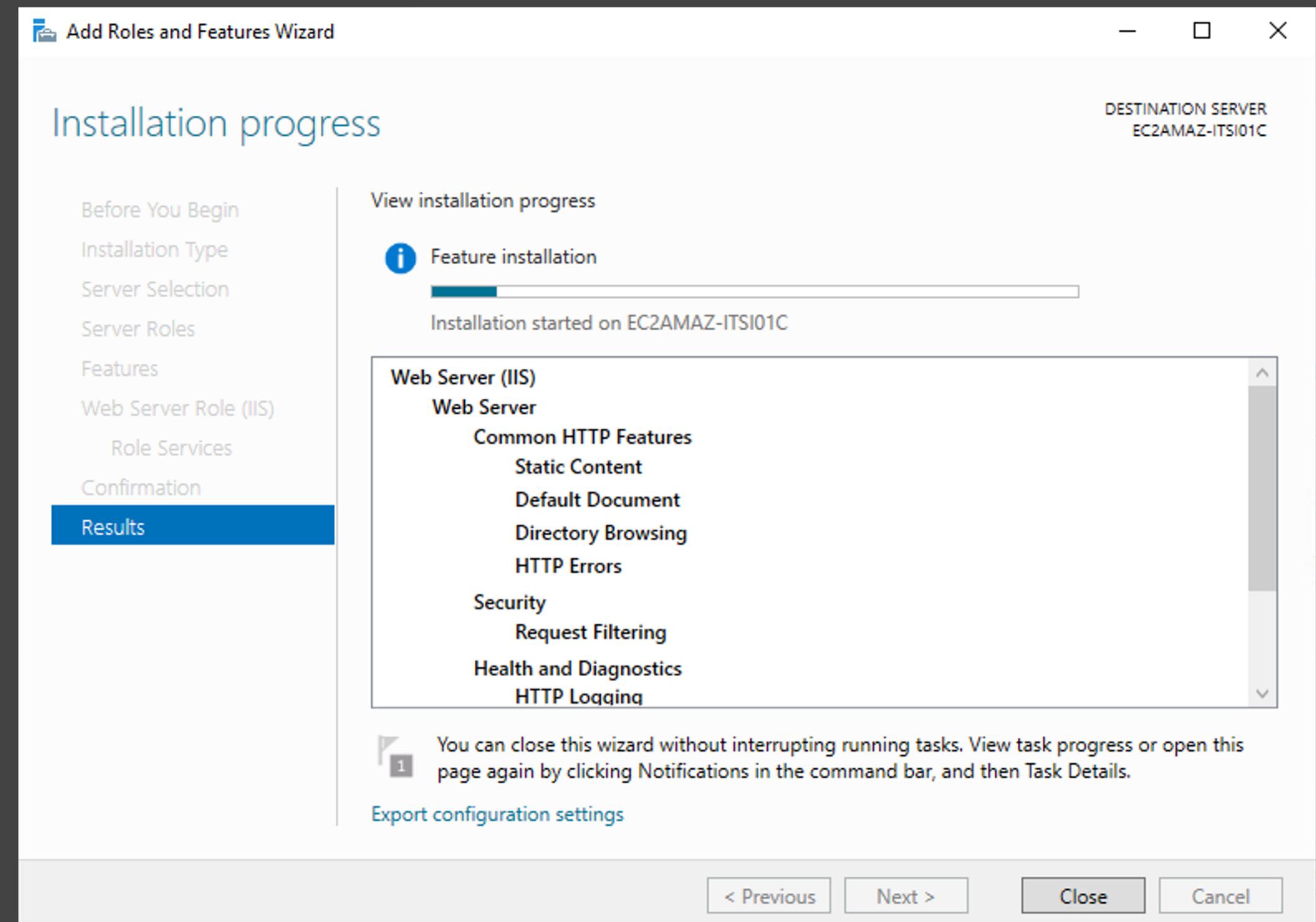
安裝 IIS



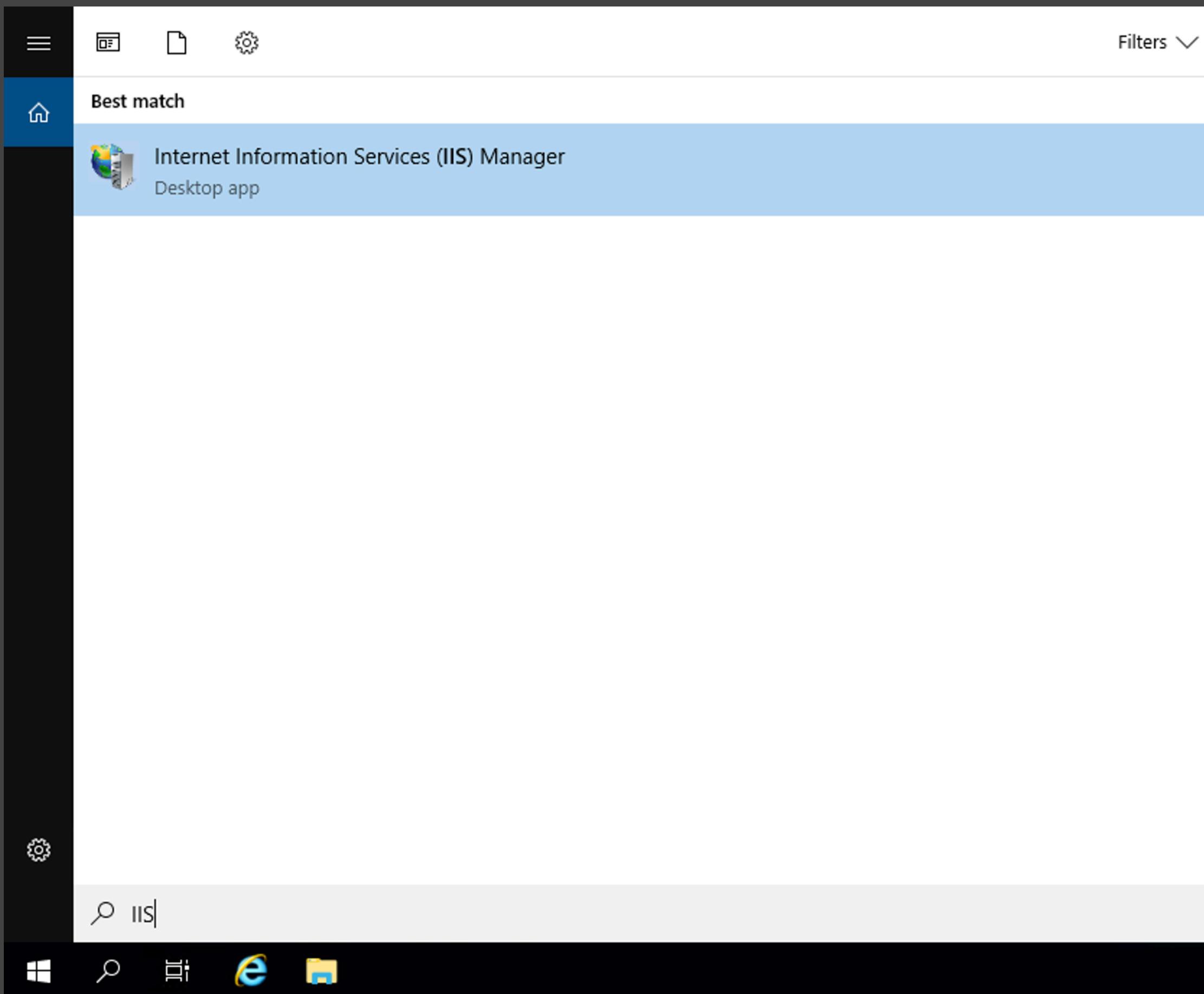
安裝 IIS



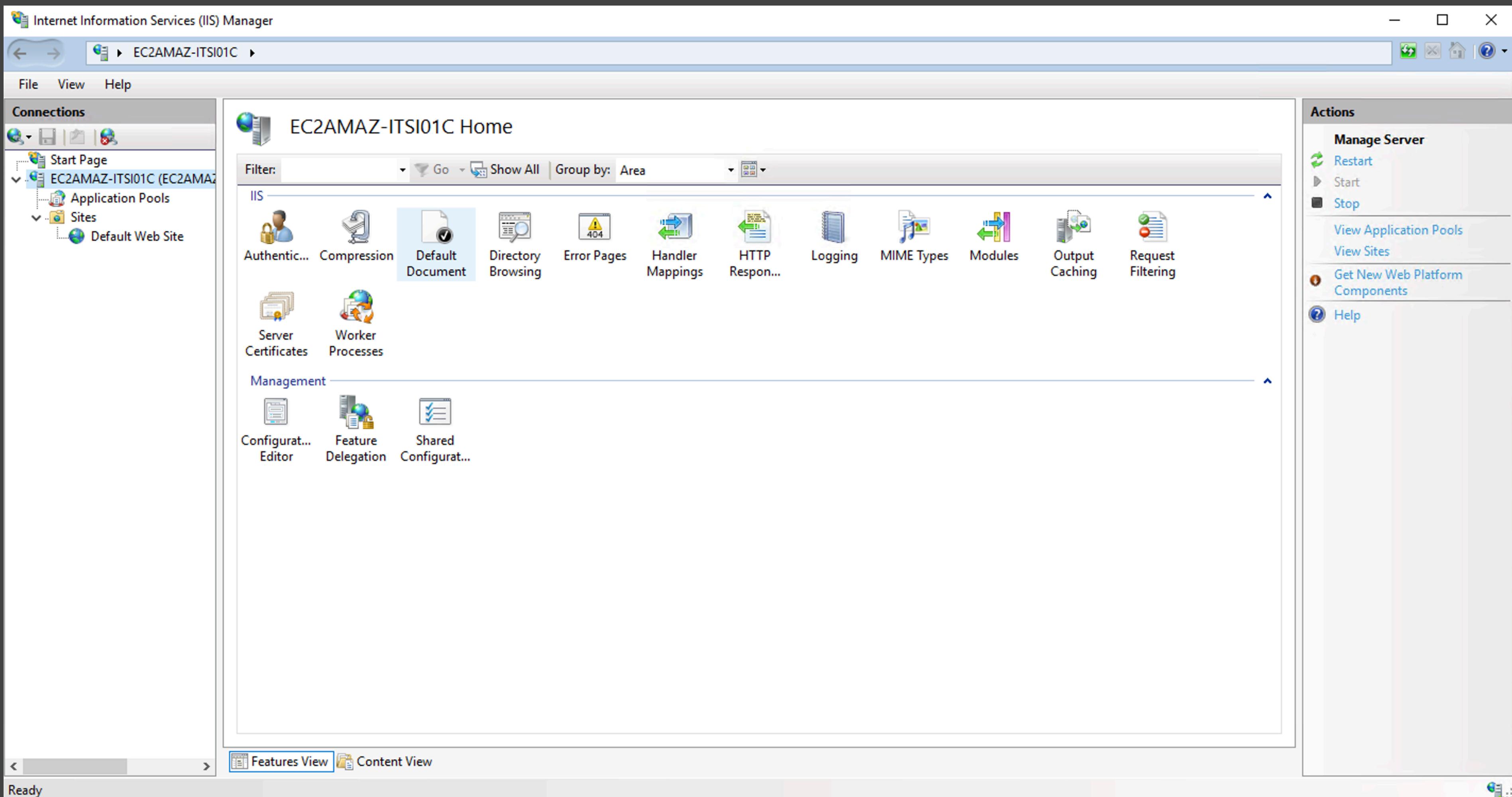
安裝 IIS



啟動 IIS

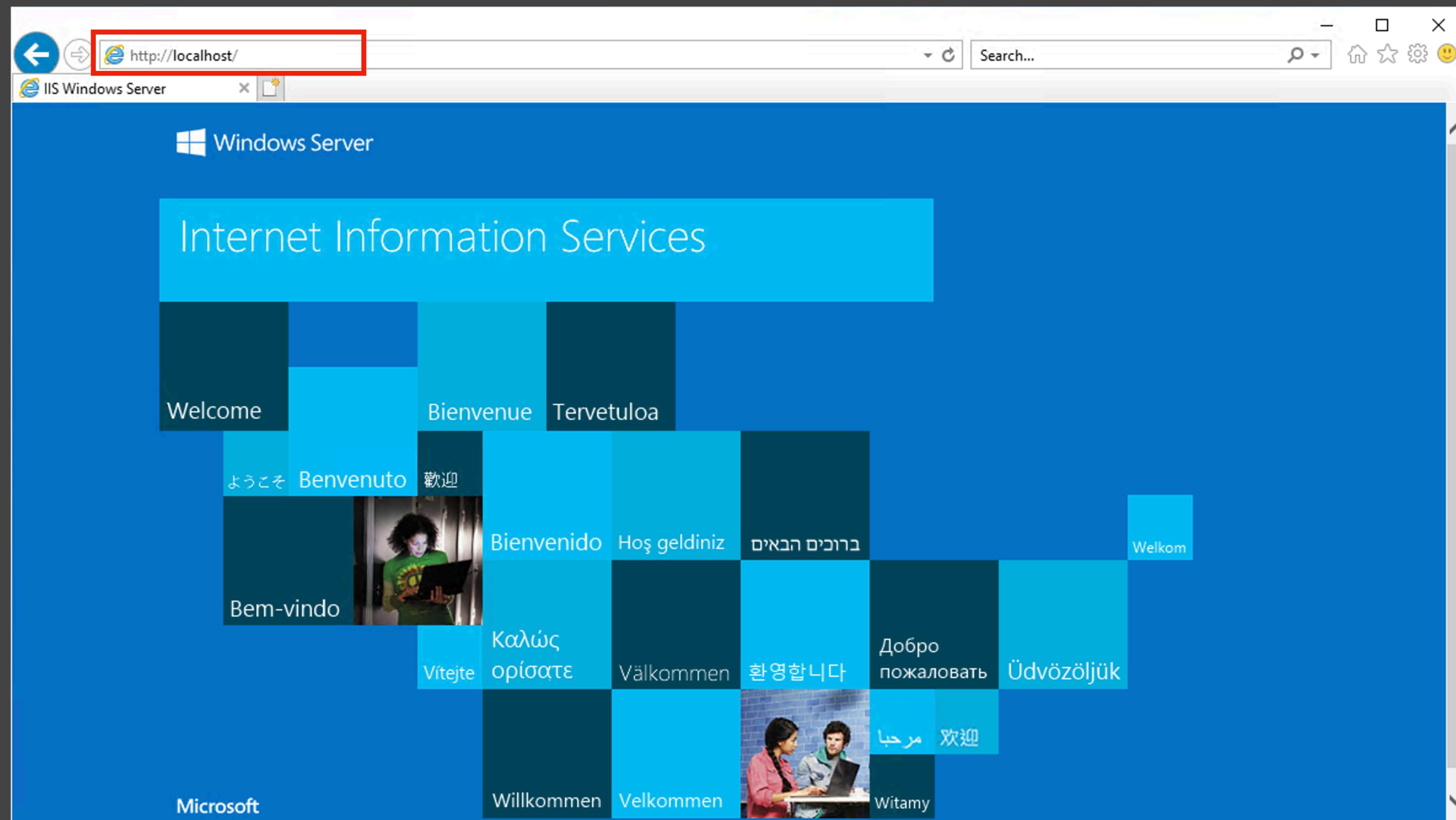


啟動 IIS



開啟網站

在Server上開啟瀏覽器，網址輸入 localhost



練習

10分鐘

設定遠端開啟網站

取得網址

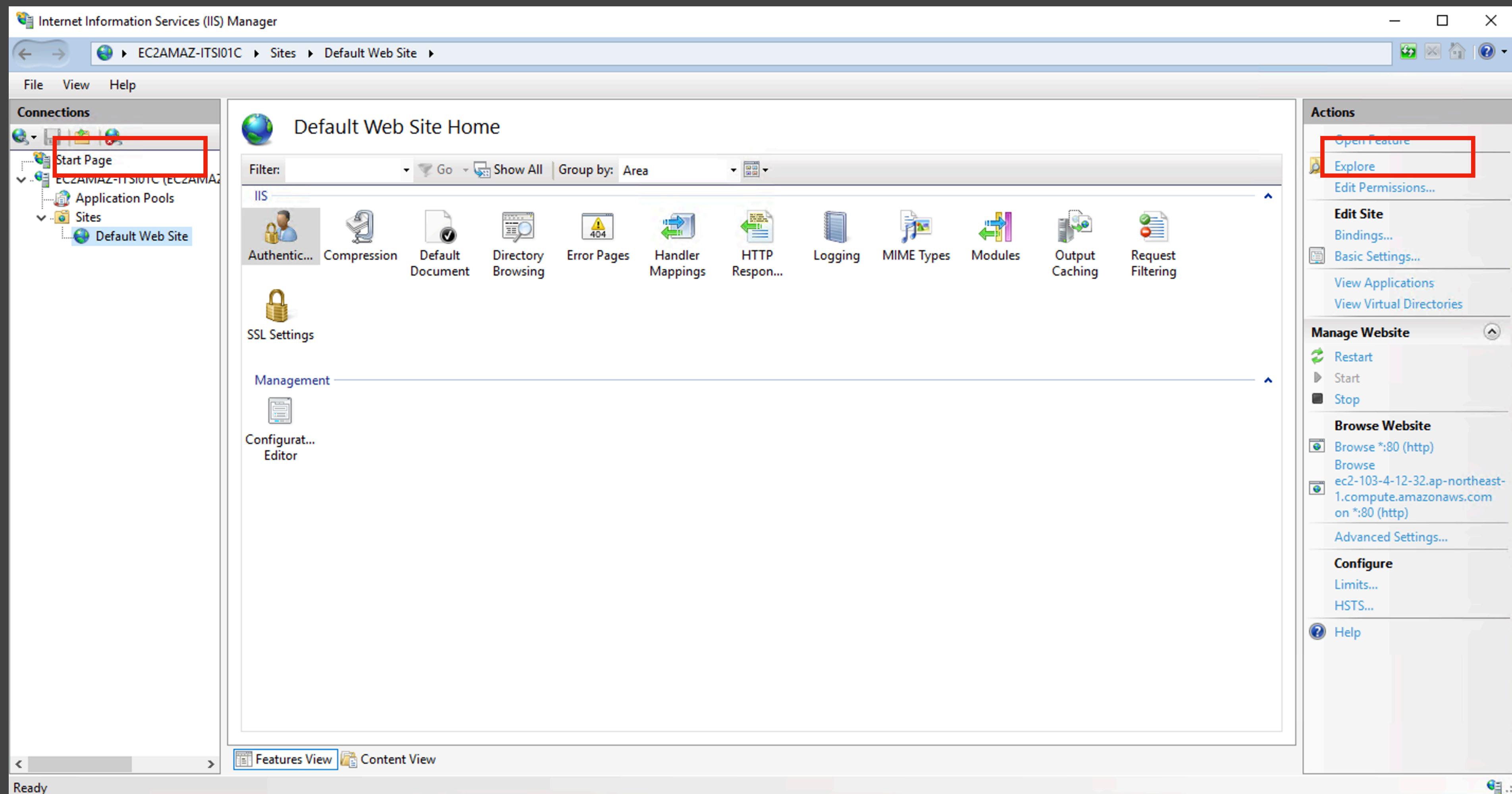
The screenshot shows the AWS EC2 Lambda console. On the left, a sidebar lists various services and features like New EC2 Experience, EC2 Metrics, Events, Tags, Limits, Lambda, Spot Requests, Savings Plans, Reserved Instances, and Elastic Block Store. The main area displays the Lambda execution details for a function named 'TankServer'. The table shows the following information:

Name	執行個體 ID	執行個體狀態	執行個體類型	狀態檢查	警報狀態	可用區域	公有 IPv4 DNS	公有 IPv4 地址	彈性 IP
TankServer	i-0ca228acb9735613c	執行中	t2.micro	2/2 項檢查通過	無警報	ap-northeast-1c	ec2-103-4-12-32.ap-no...	103.4.12.32	-

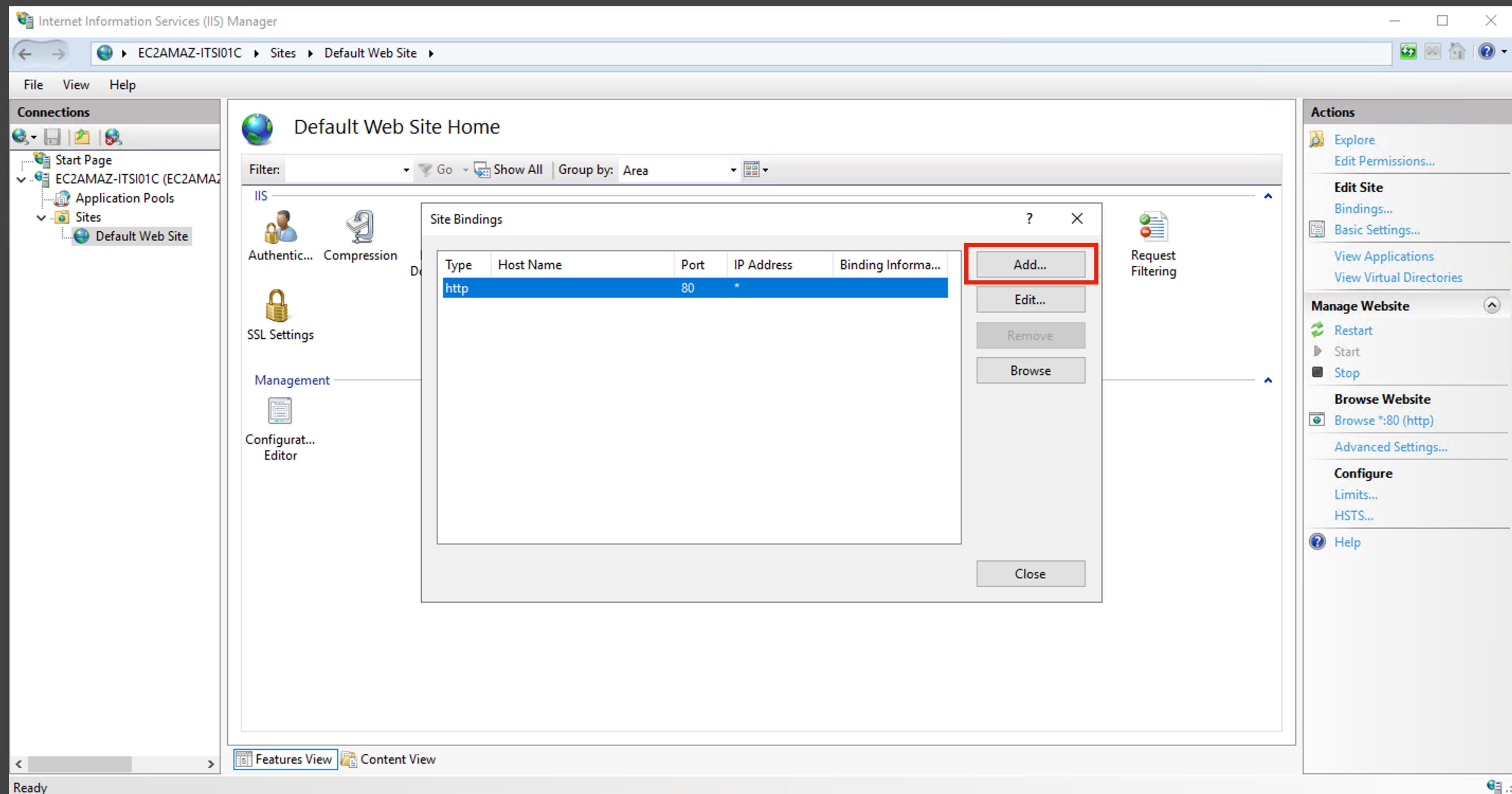
Below the table, the detailed view for the function 'i-0ca228acb9735613c (TankServer)' is shown. The 'Detailed Information' tab is selected. Key details include:

- 執行個體 ID: i-0ca228acb9735613c (TankServer)
- 公有 IPv4 地址: 103.4.12.32 | 開啟地址
- 私有 IPv4 地址: 172.31.8.129
- 公有 IPv4 DNS: ec2-103-4-12-32.ap-northeast-1.compute.amazonaws.com | 開啟地址 (This field is highlighted with a red box)
- 執行個體狀態: 執行中
- 私有 IP DNS 名稱 (僅限 IPv4): ip-172-31-8-129.ap-northeast-1.compute.internal
- 執行個體類型: t2.micro
- VPC ID: vpc-7fdbdb71a
- 彈性 IP 地址: -
- AWS Compute Optimizer 發現項目: 選擇使用 AWS Compute Optimizer 獲得建議。 | 進一步了解

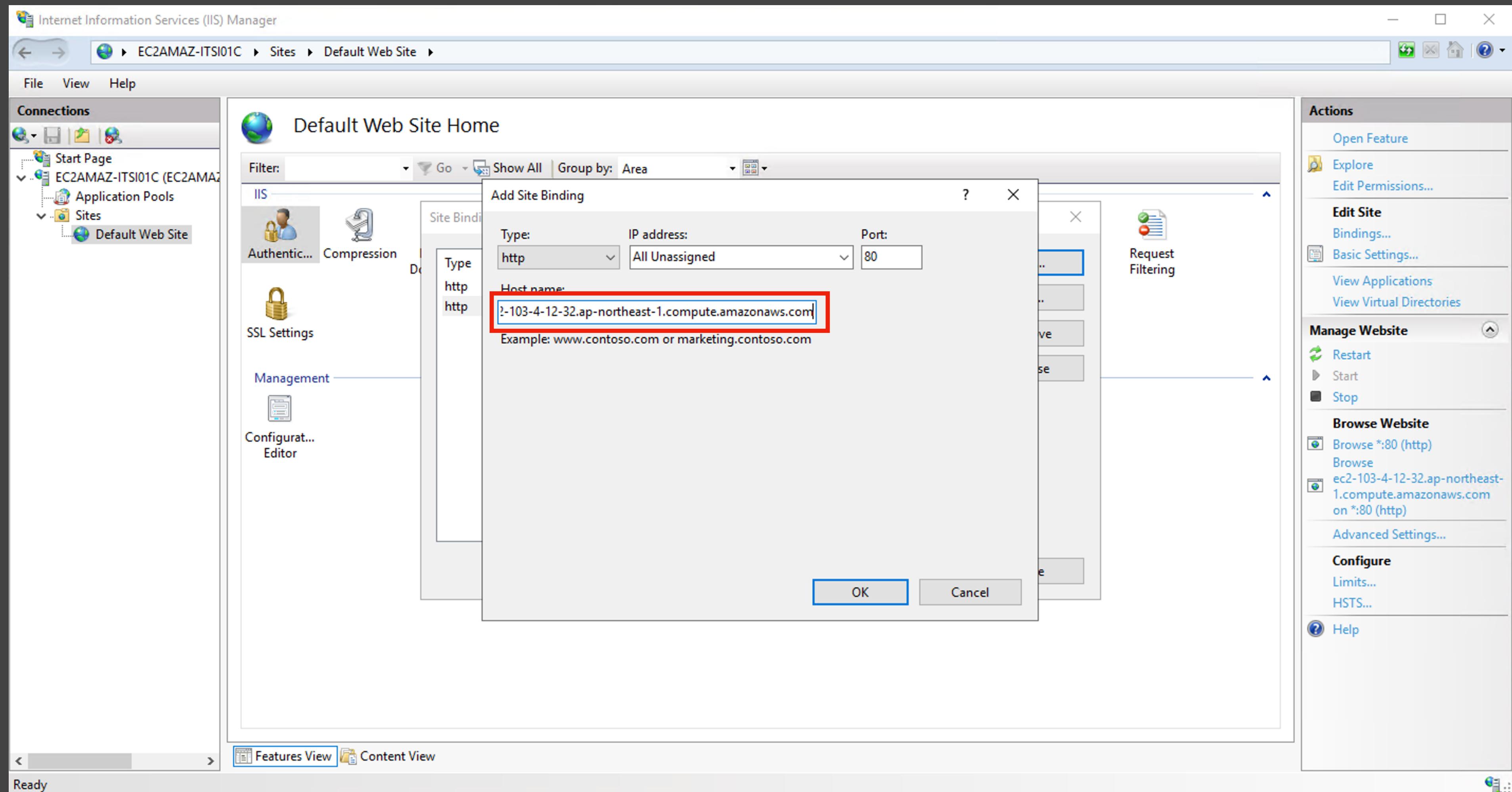
設定網址



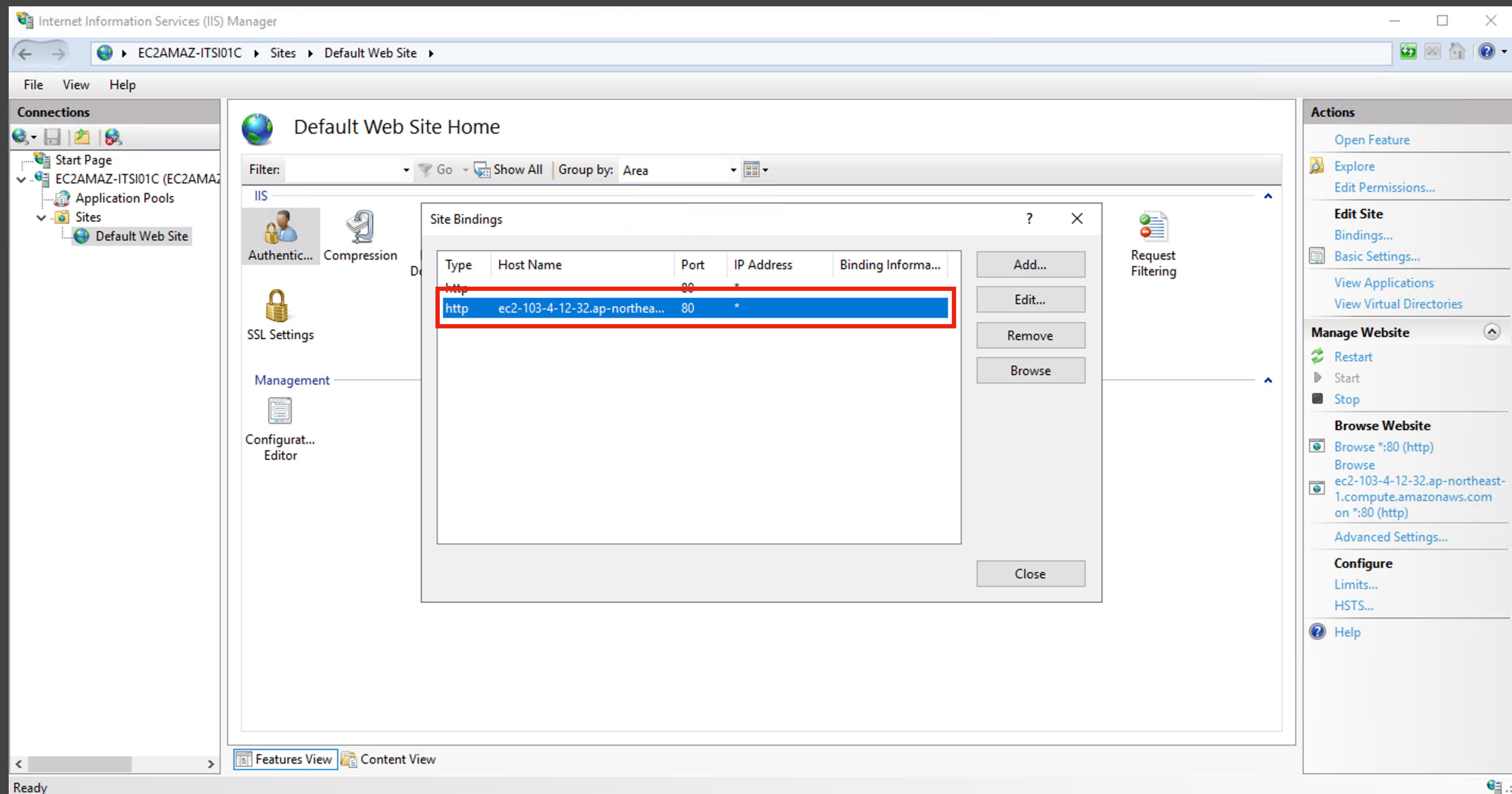
設定網址



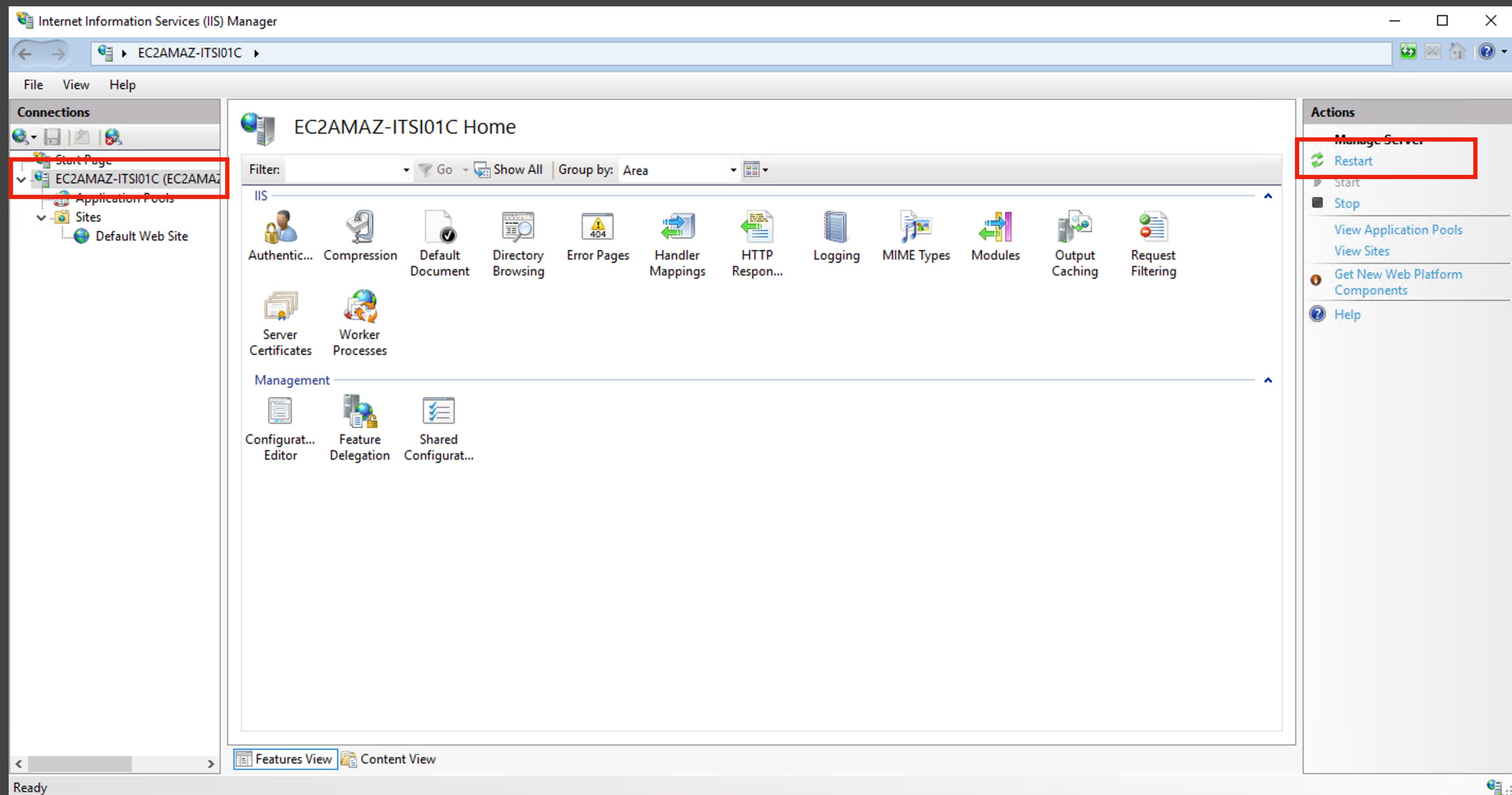
設定網址



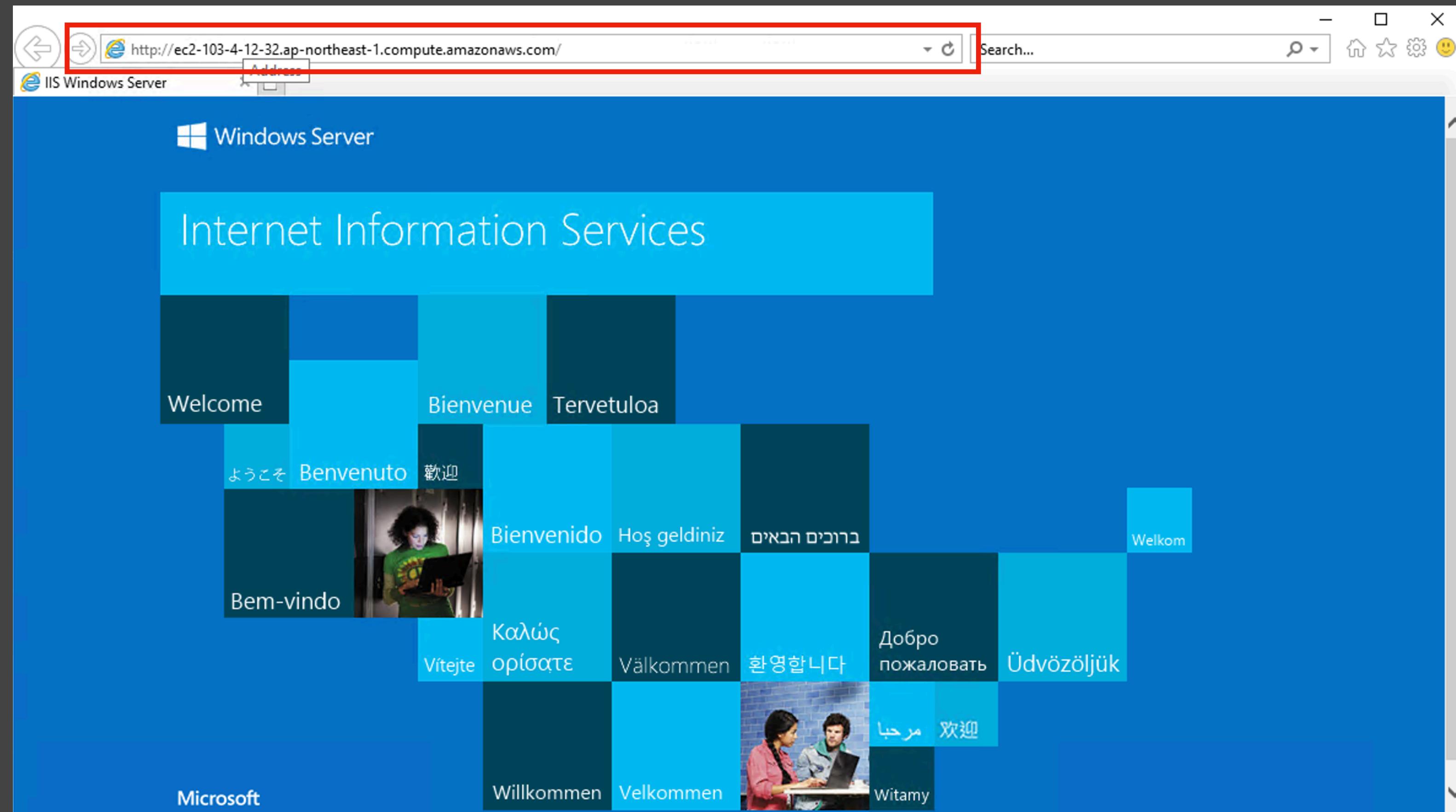
設定網址



重啟網站



開啟網站



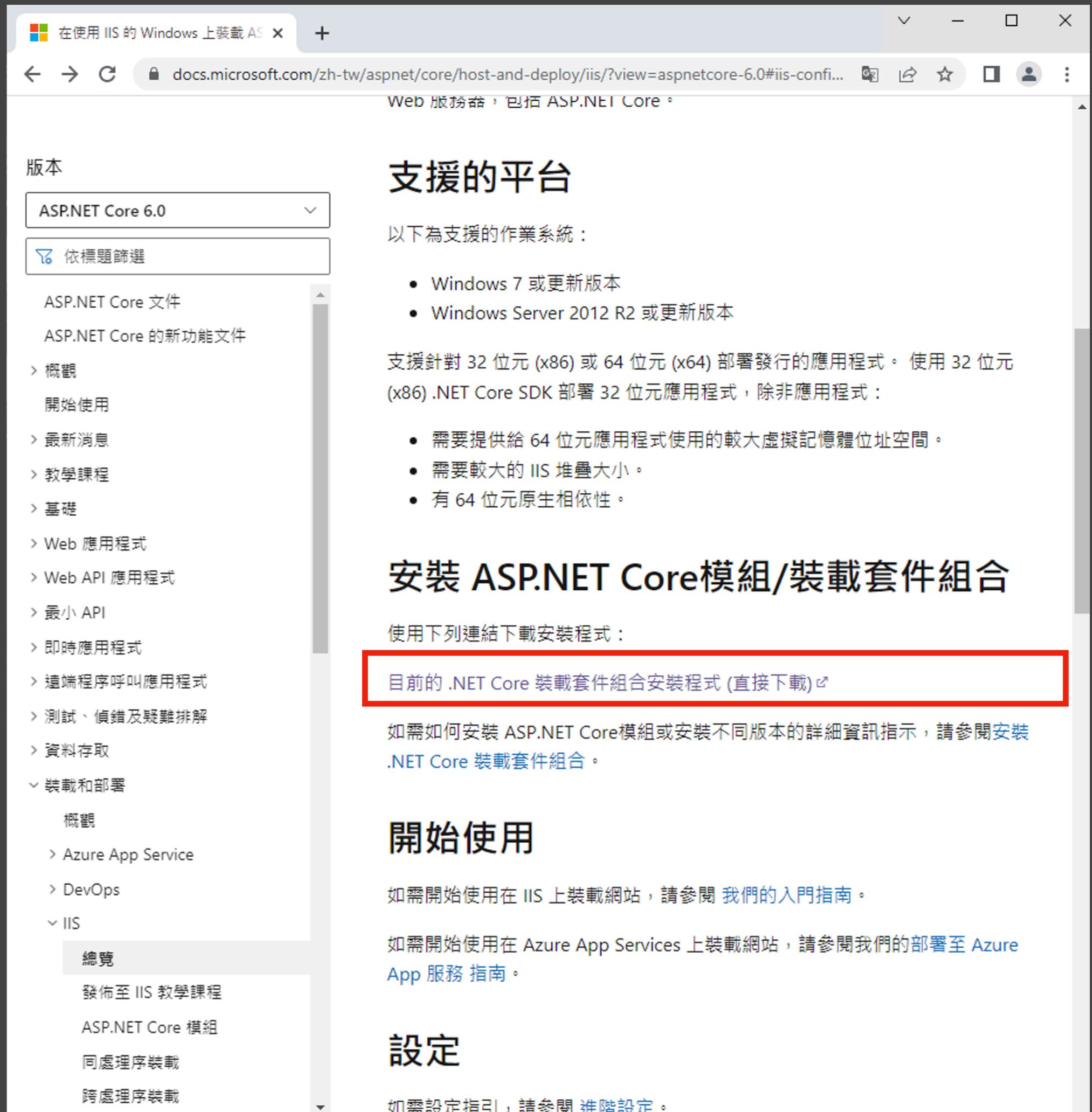
練習

10分鐘

安裝 .NET Core

安裝 .NET Core

- 建議安裝 Chrome
- 在Server上，下載 .NET Core 裝載套件組合安裝程式



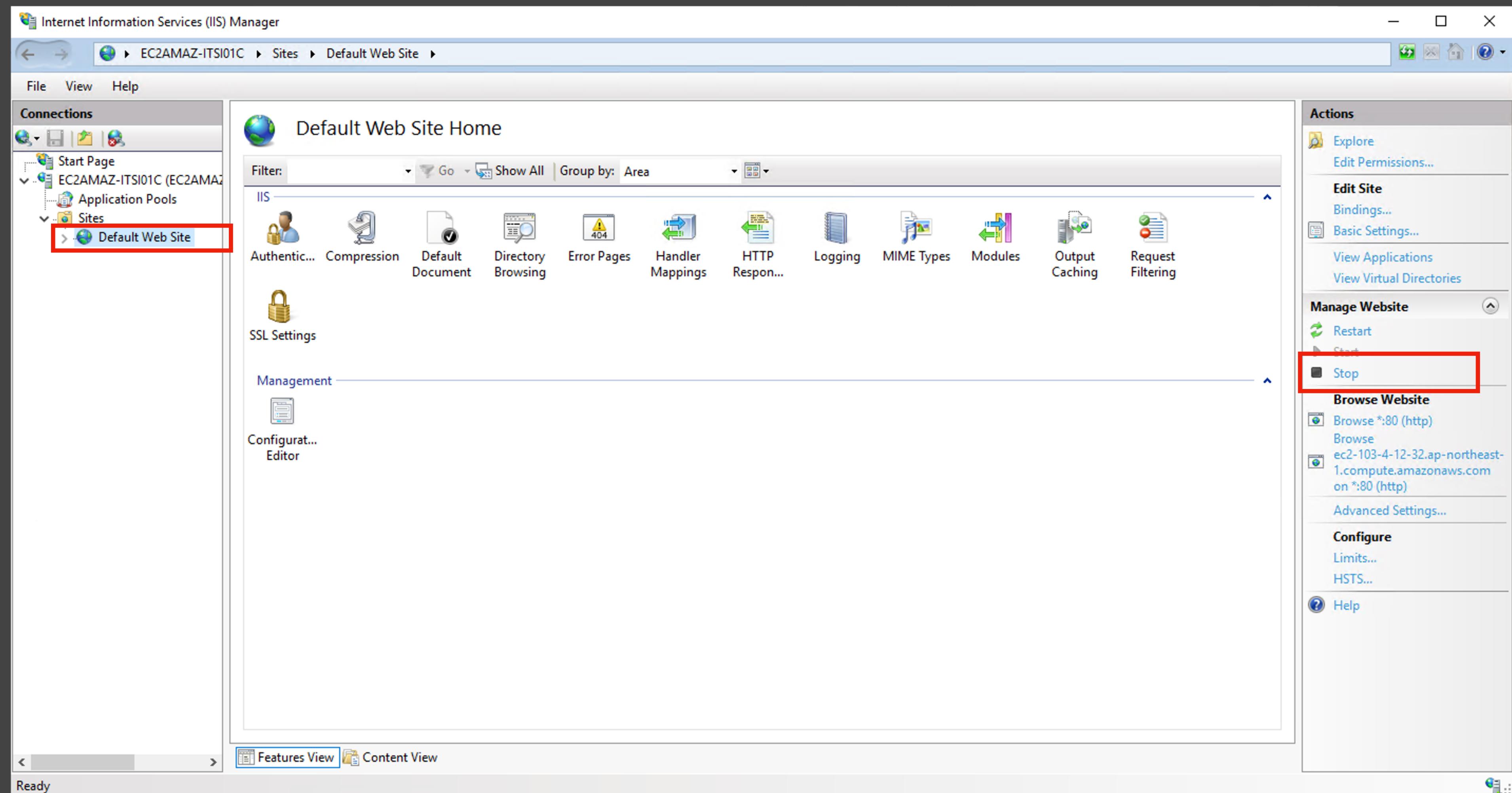
<https://docs.microsoft.com/zh-tw/aspnet/core/host-and-deploy/iis/?view=aspnetcore-6.0#iis-configuration>

練習

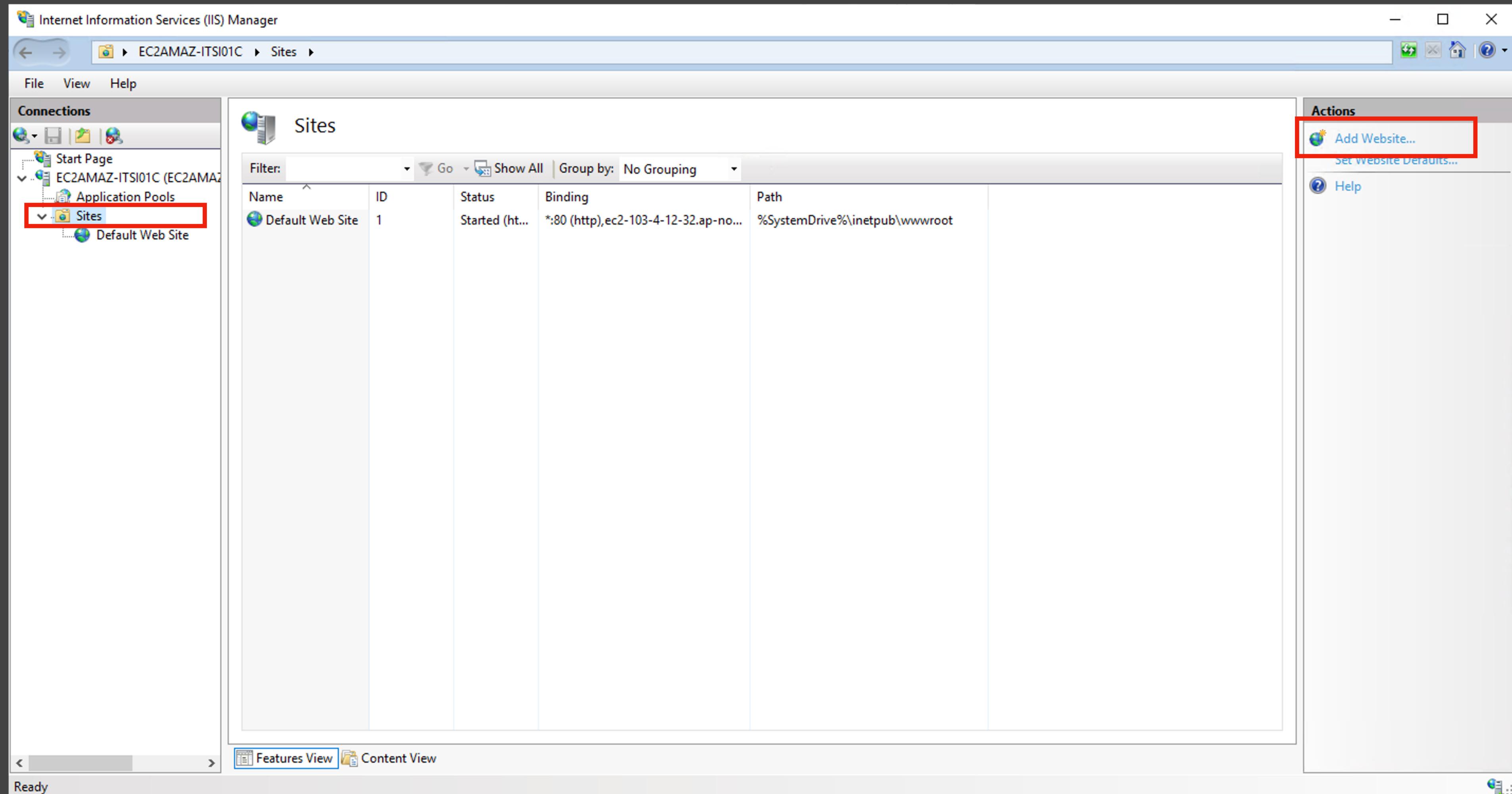
5分鐘

新增網站

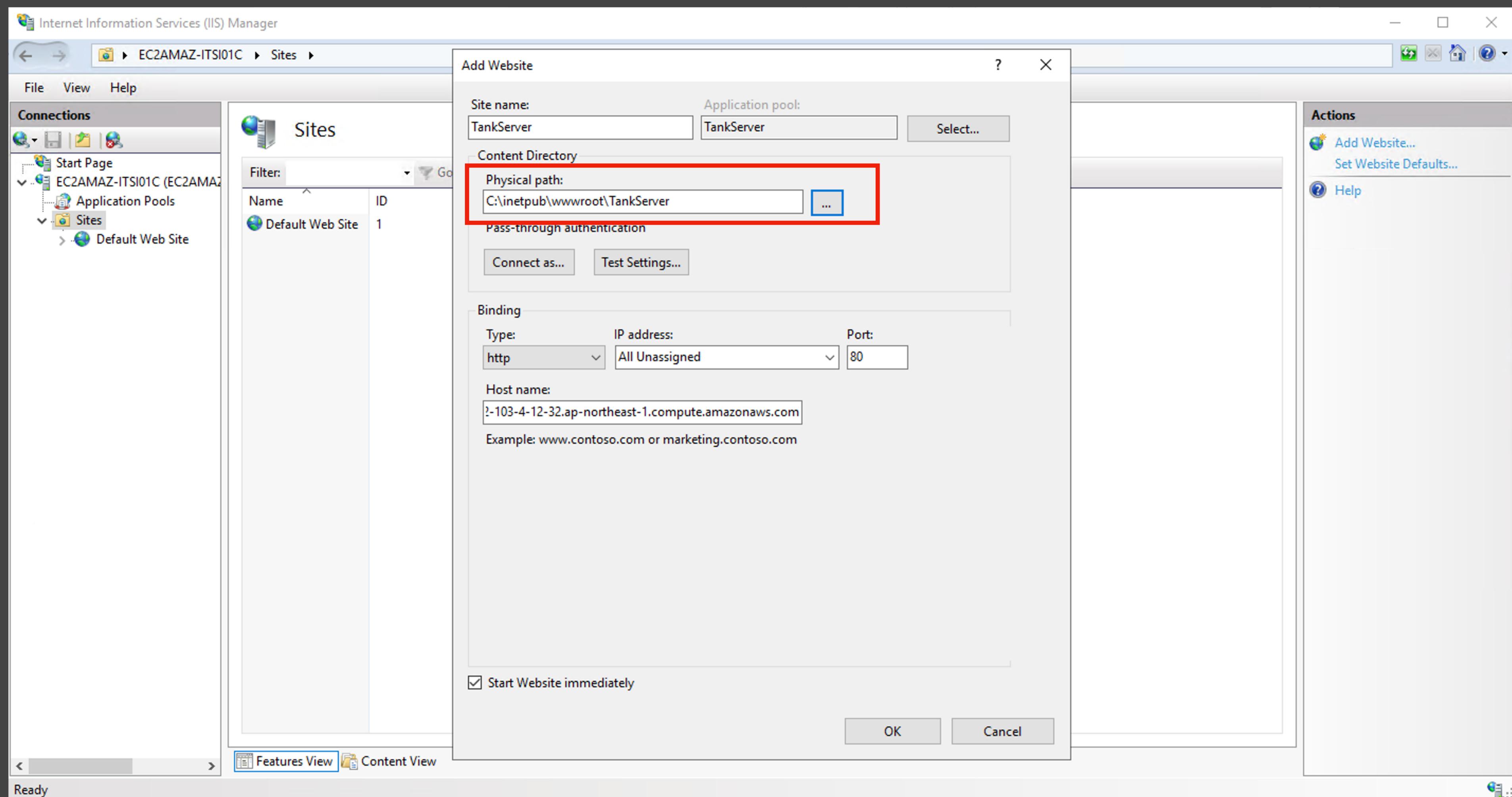
關閉預設網站



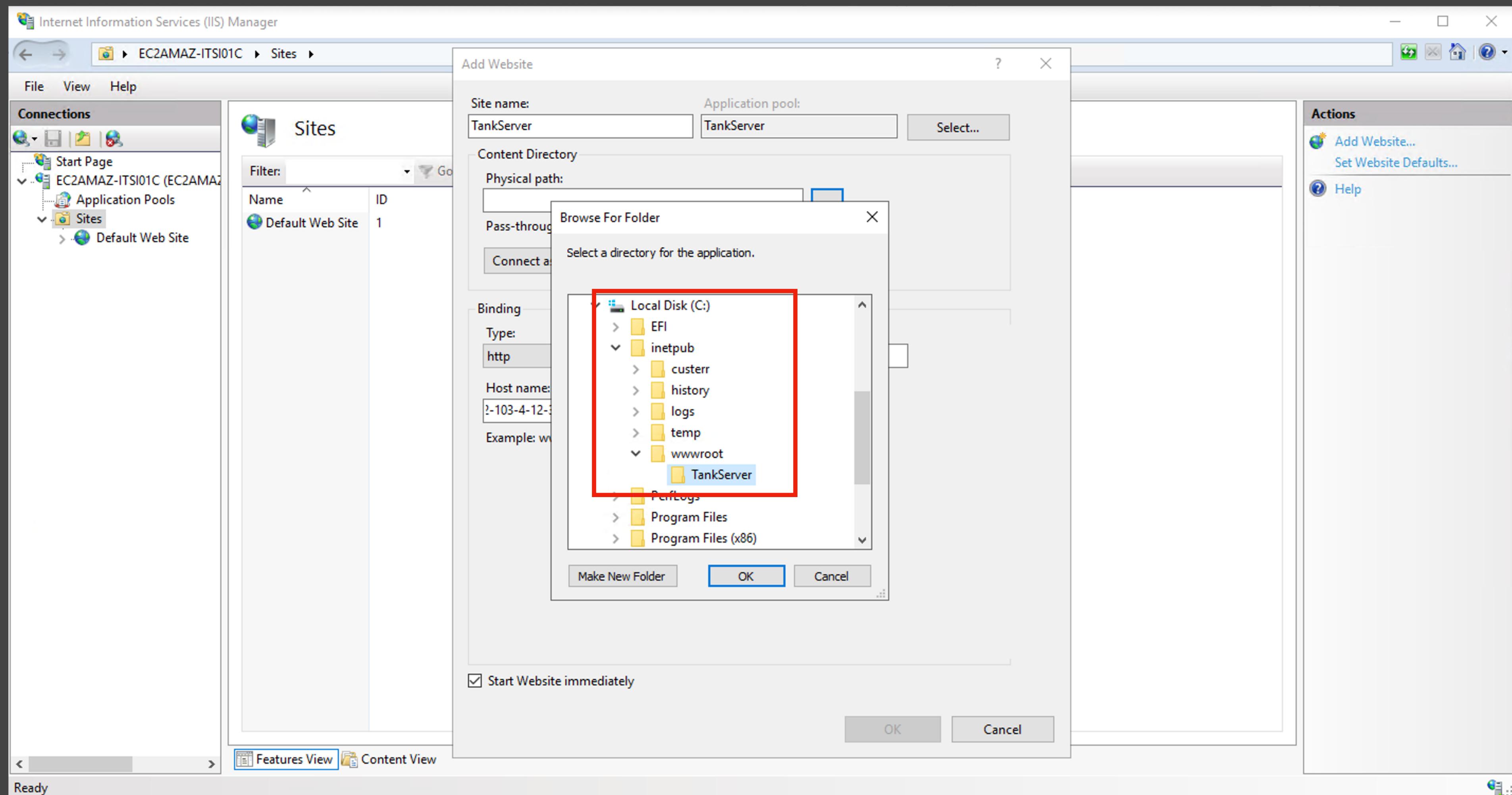
新增 Tank 網站



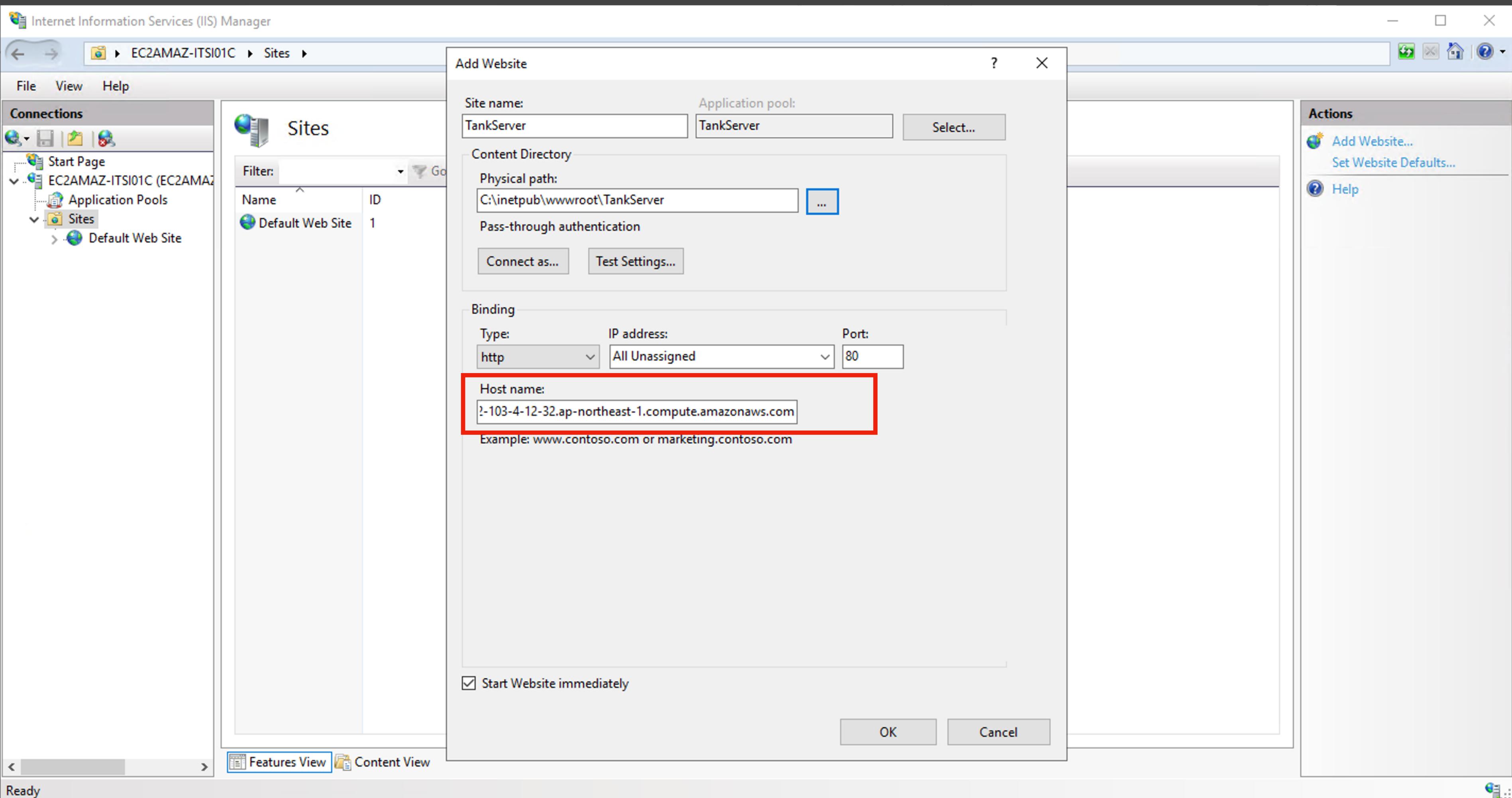
指定網站程式位置



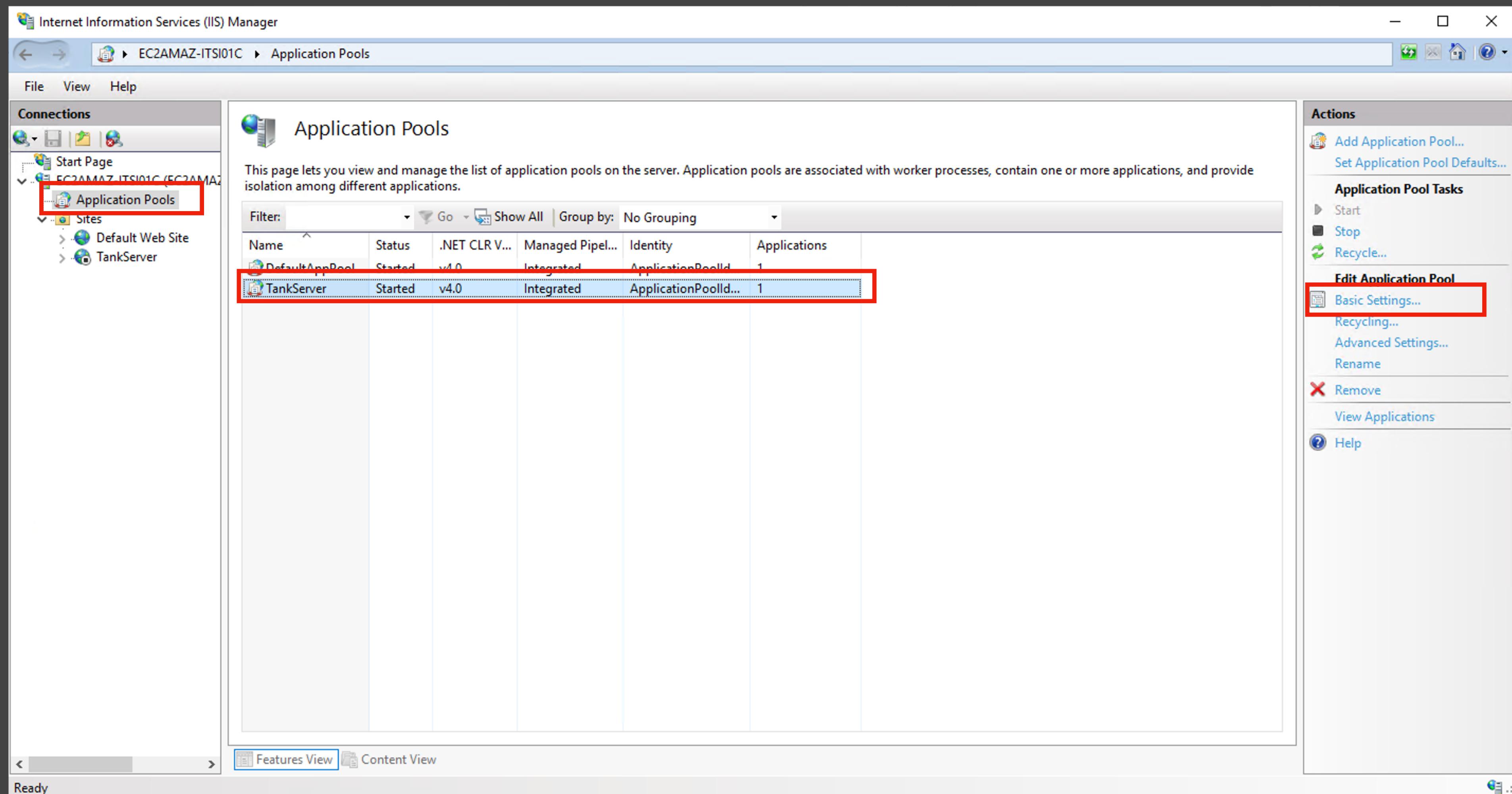
指定網站程式位置



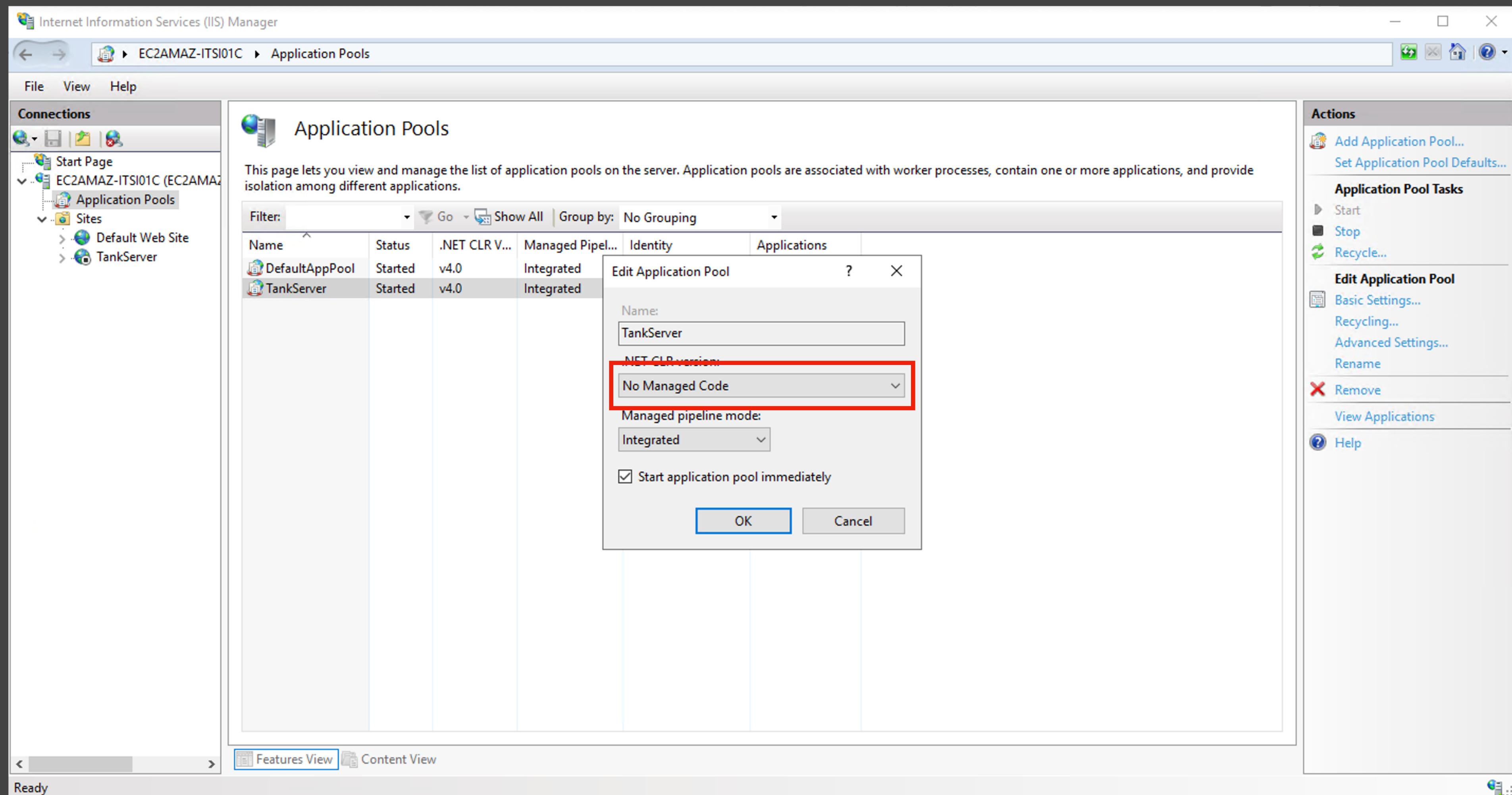
設定網址



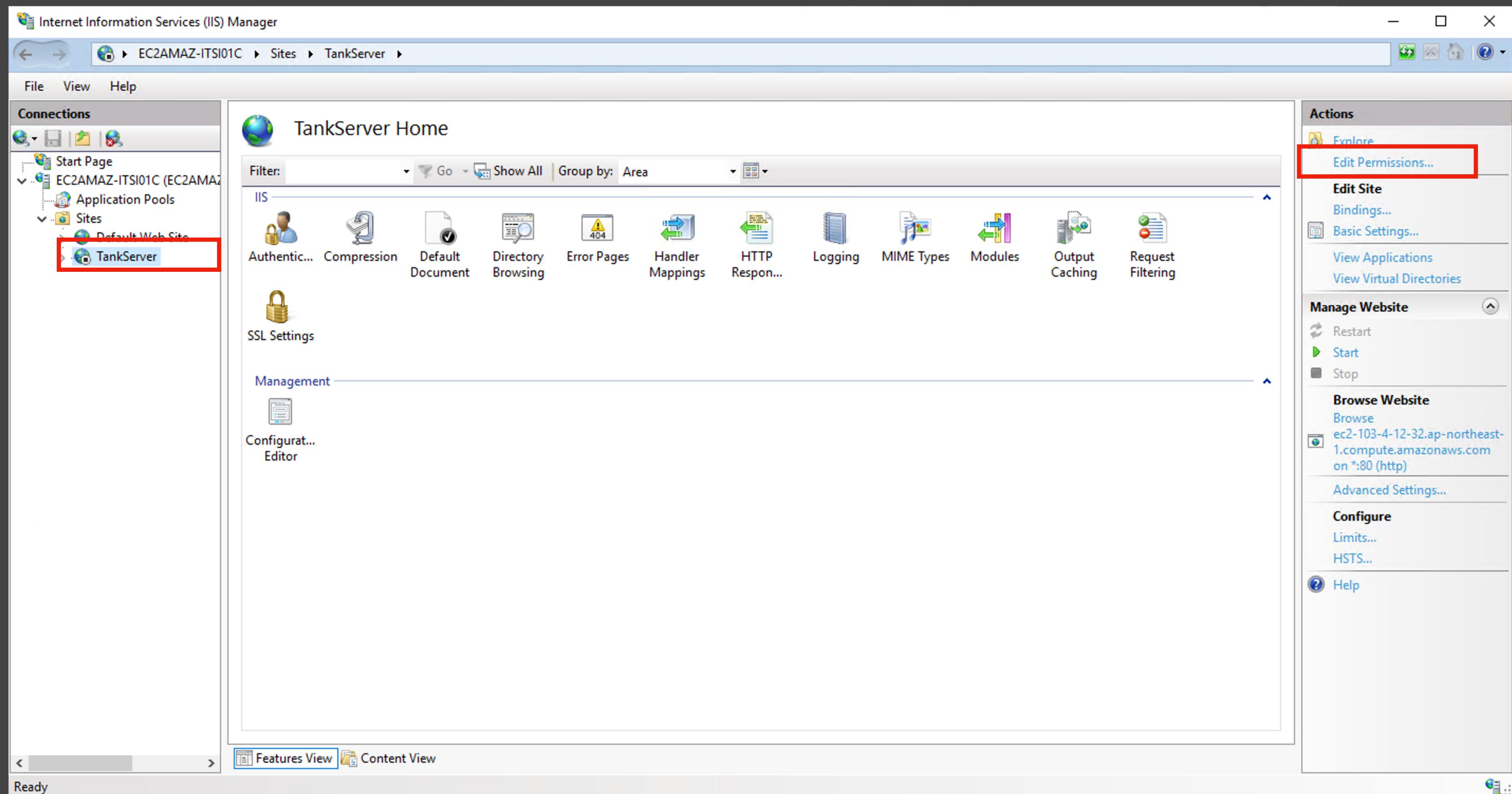
設定網站



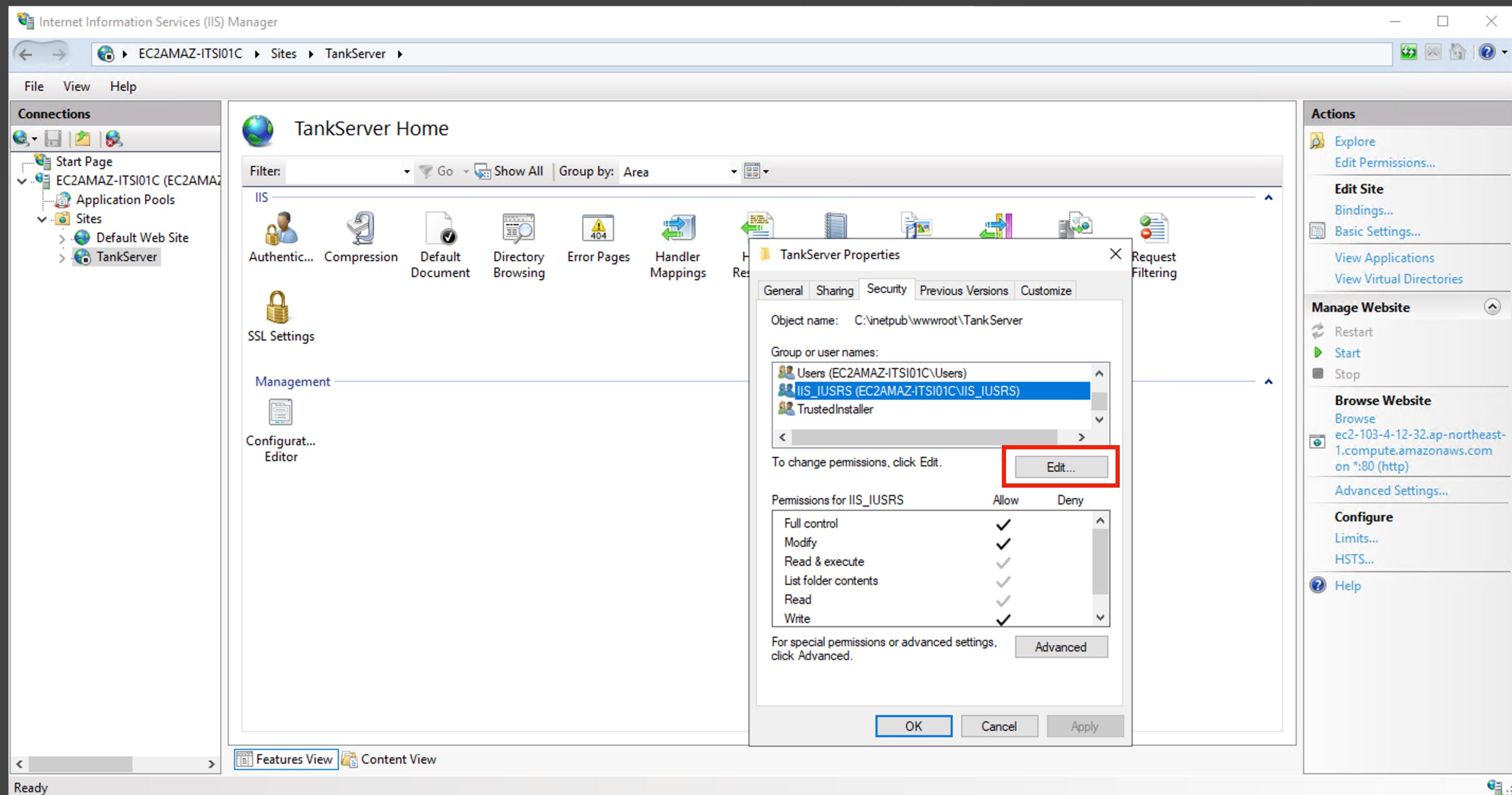
設定網站



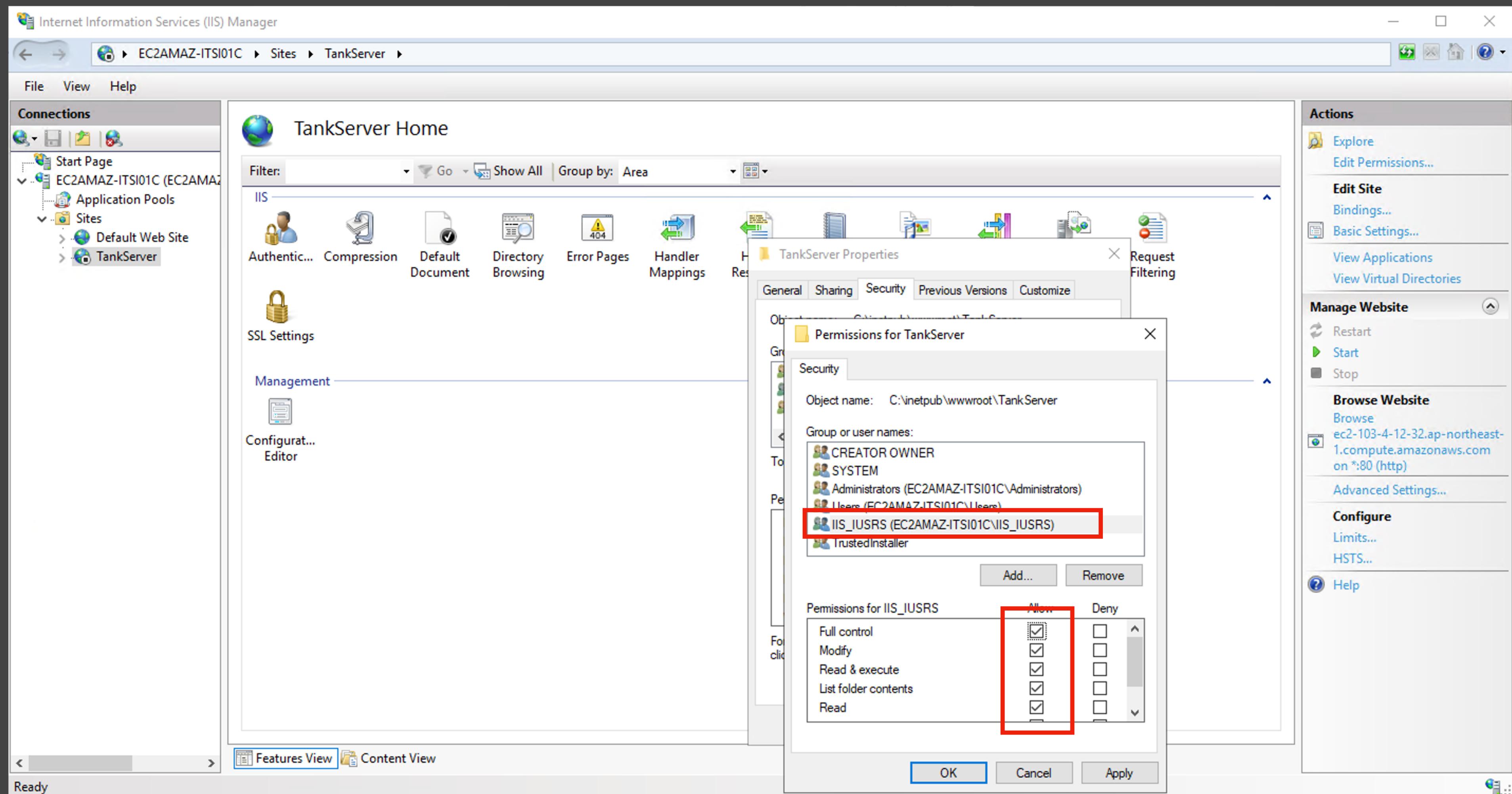
設定網站



設定目錄權限



設定目錄權限



練習

10分鐘

部署 Tank Server

關閉強制導向 https

```
using Microsoft.EntityFrameworkCore;
using TankServer.Models;

var builder = WebApplication.CreateBuilder(args);

// Add services to the container.

builder.Services.AddControllers();

builder.Services.AddDbContext<TankContext>(opt =>
    opt.UseInMemoryDatabase("TankDB"));

// Learn more about configuring Swagger/OpenAPI at https://aka.ms/aspnetcore/swashbuckle
builder.Services.AddEndpointsApiExplorer();
builder.Services.AddSwaggerGen();

var app = builder.Build();

// Configure the HTTP request pipeline.
if (app.Environment.IsDevelopment())
{
    app.UseDeveloperExceptionPage();
    app.UseSwagger();
    app.UseSwaggerUI();
}

// app.UseHttpsRedirection(); // This line is highlighted with a red border.

app.UseAuthorization();

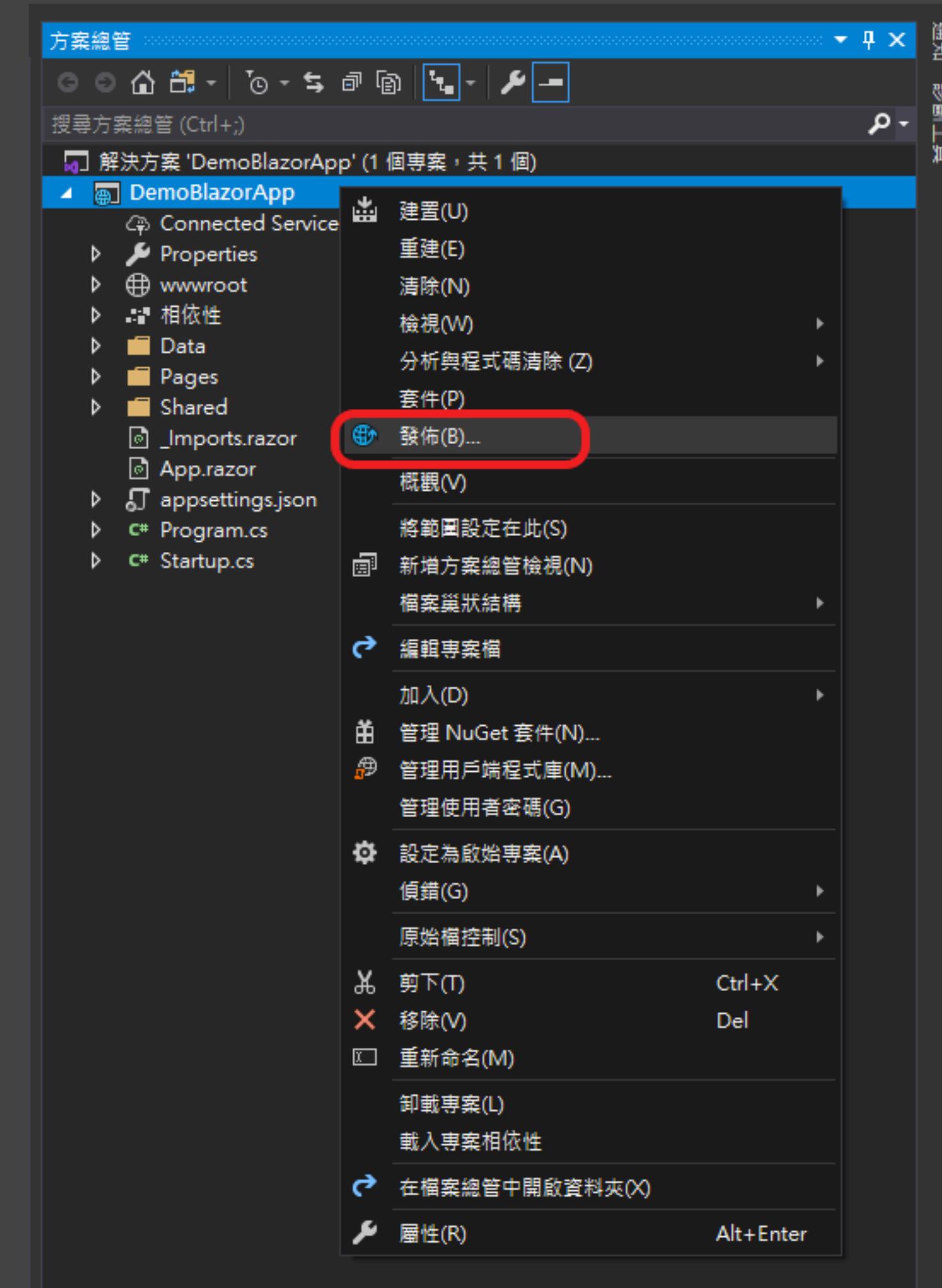
app.MapControllers();

app.Run();

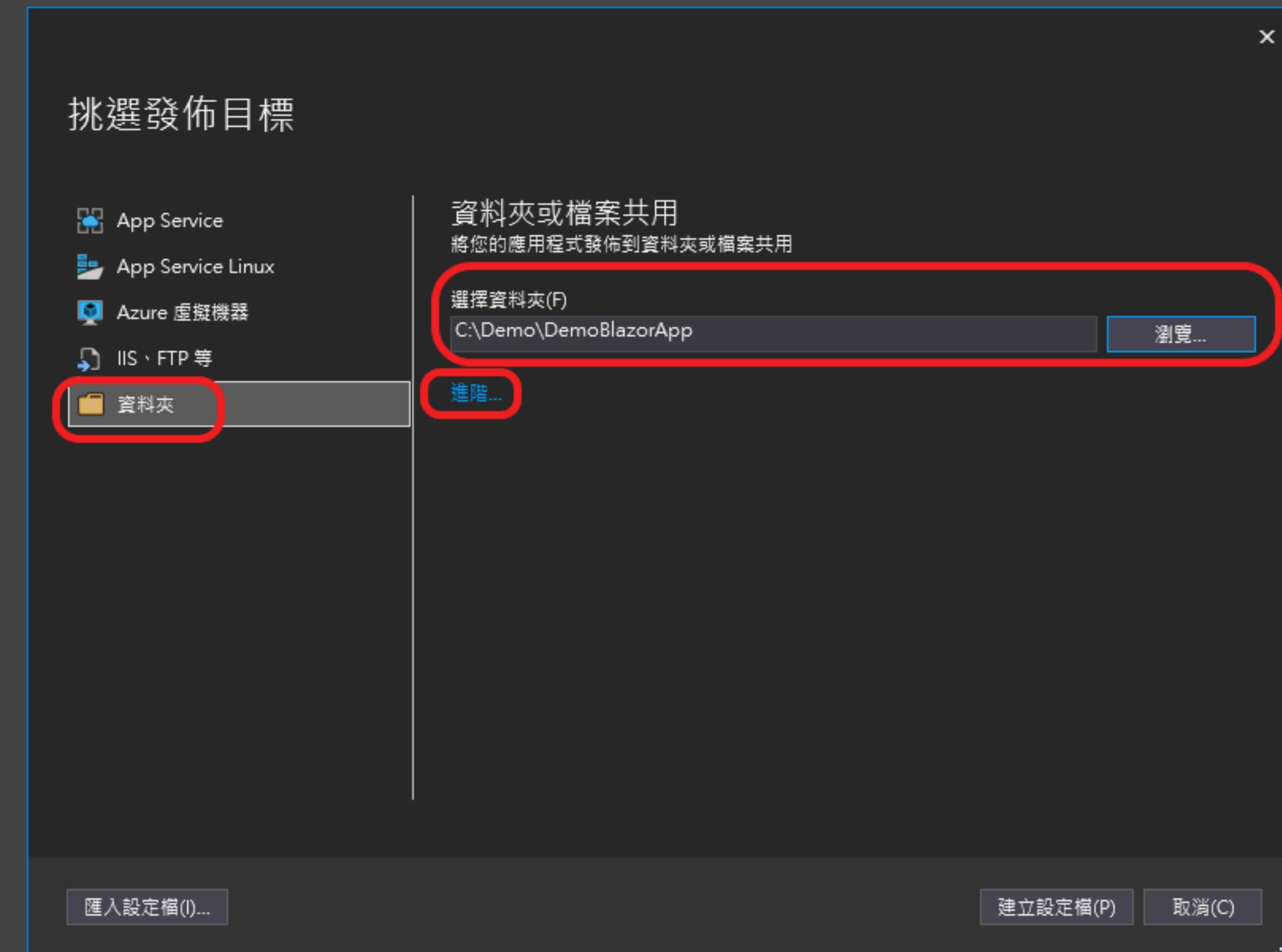
...
```

打包 Server 程式

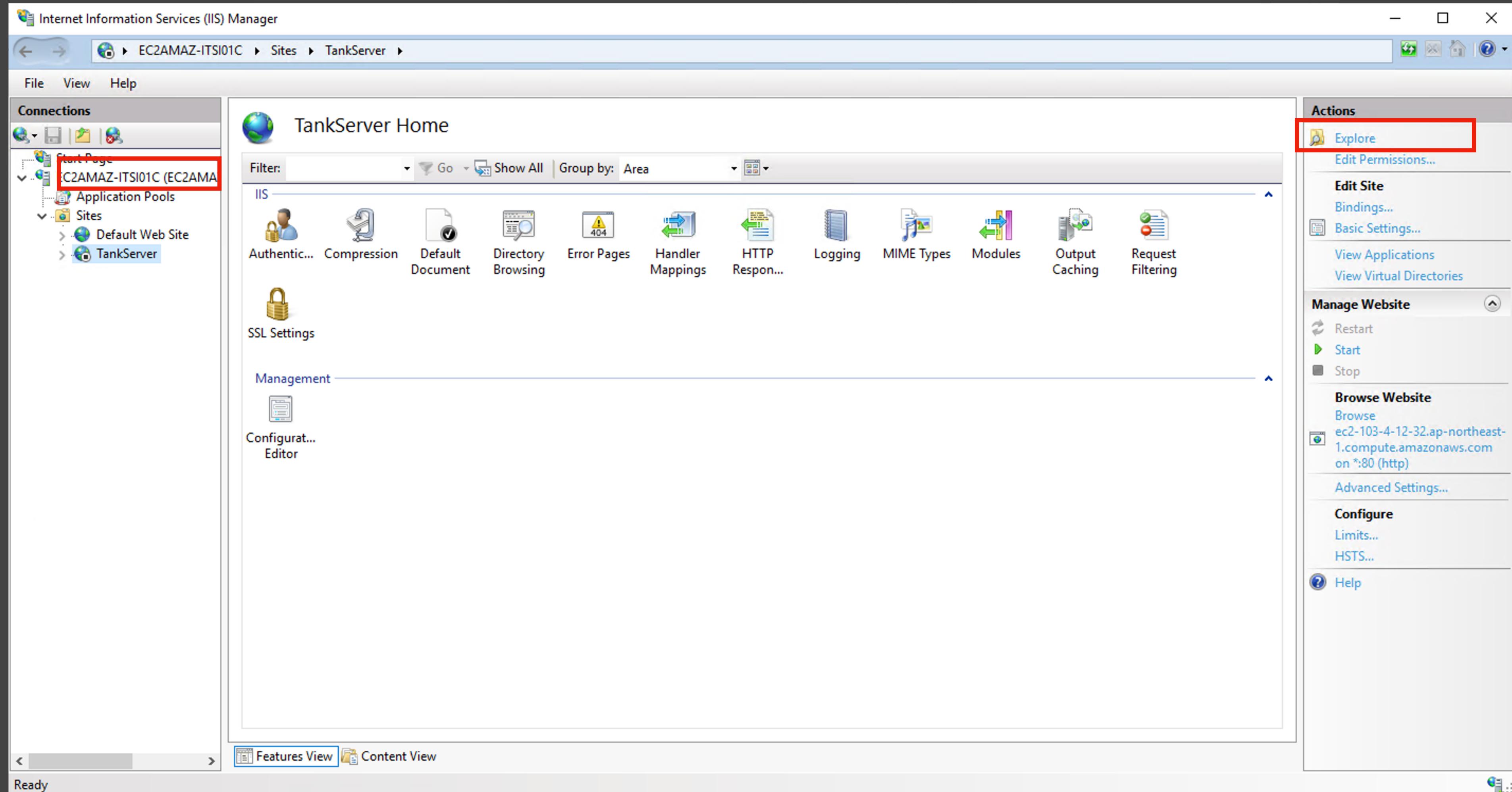
- 以滑鼠右鍵按一下 [方案總管] 中的專案，再選取 [發佈]
- 在 [挑選發佈目標] 對話方塊中，選取 [資料夾] 發佈選項
- 設定 [資料夾或檔案共用] 路徑
- 選取 [發佈] 按鈕
- 加發佈後的資料夾壓縮
- 並且拷貝到Server上



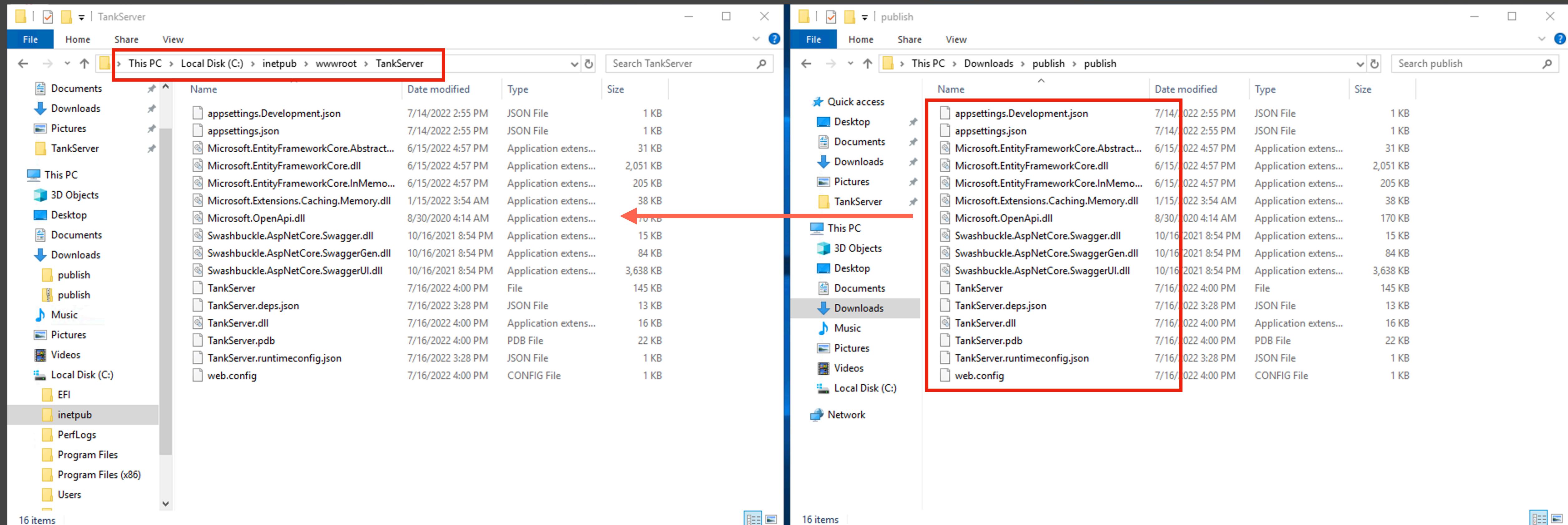
打包Server程式



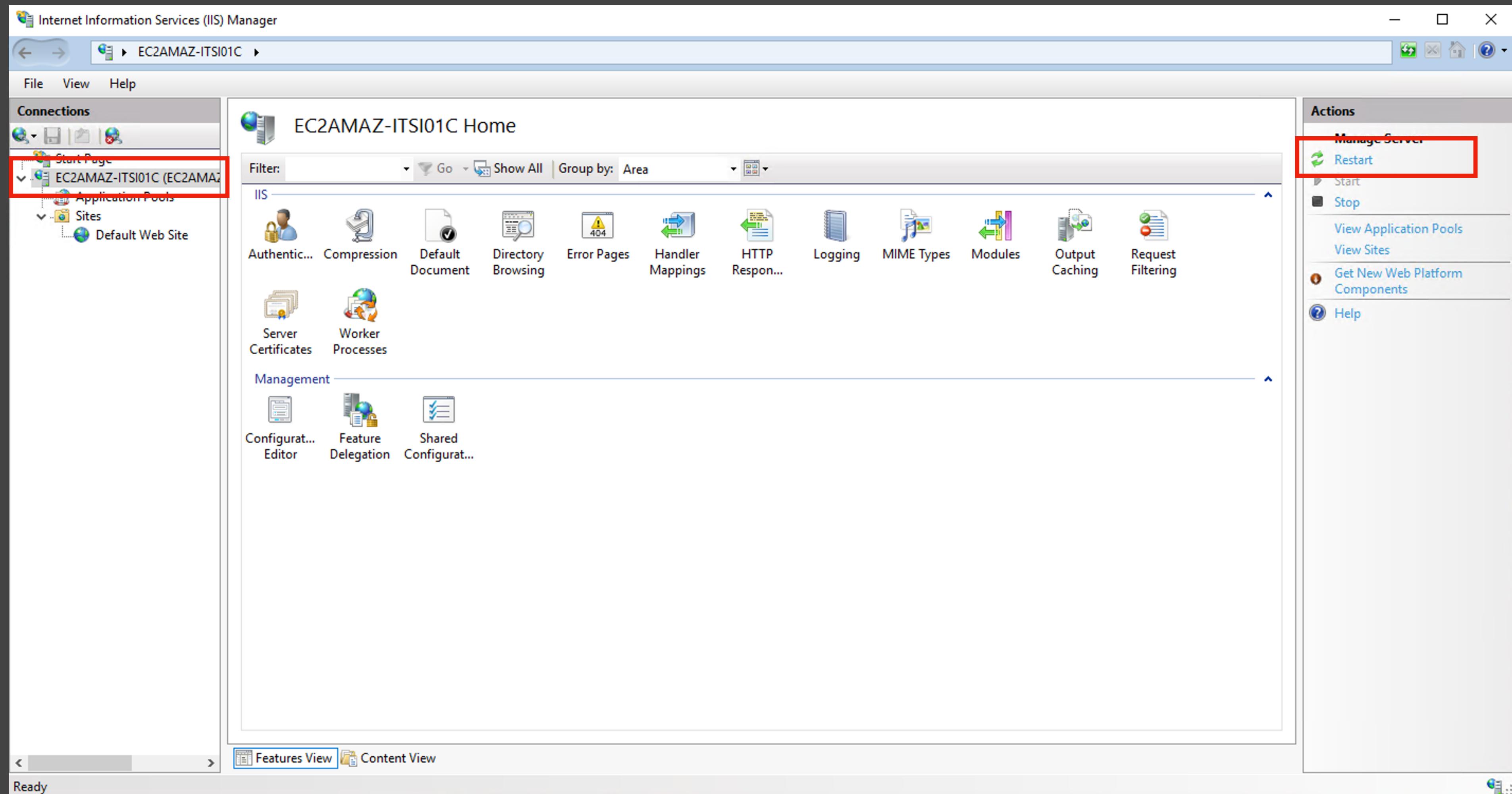
開啟網站程式目錄



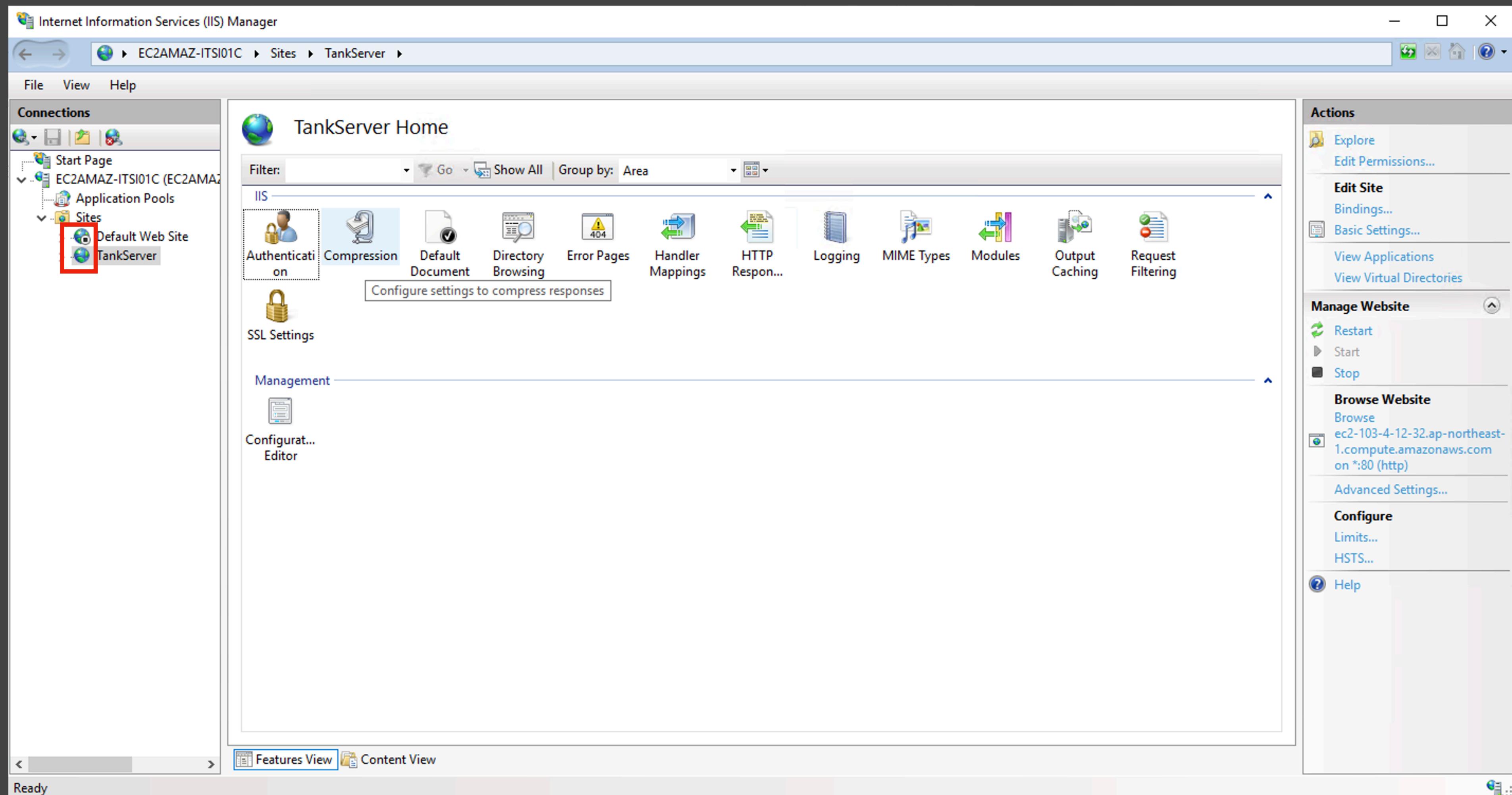
拷貝網站程式碼到伺服器上 並解壓縮到網站目錄裡



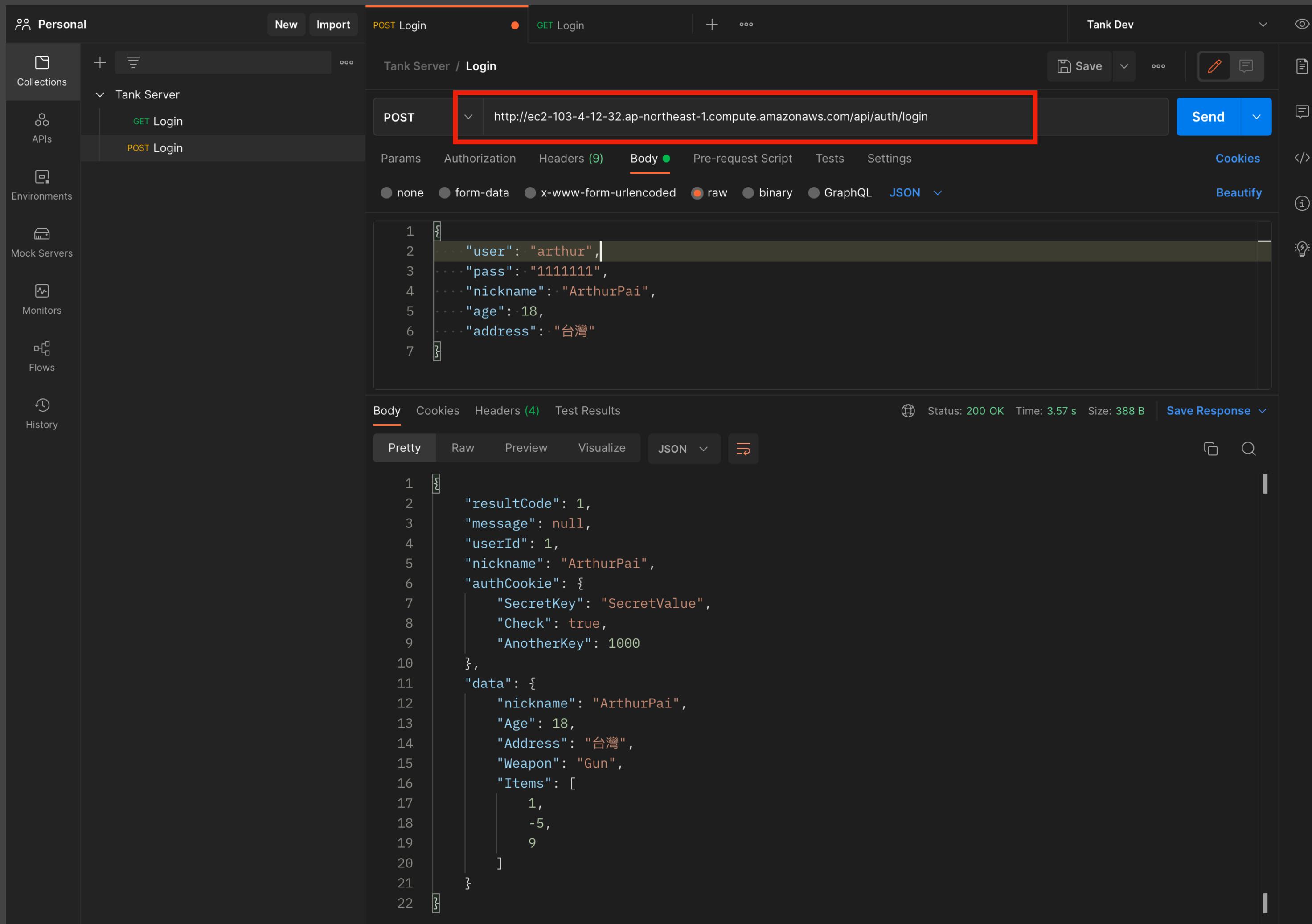
重新啟動 Servers



確認伺服器狀態



測試伺服器是否正常



練習

10分鐘

設定 Photon 的登入伺服器

Edit Custom Server Provider for Game

App ID: 1176c2e7-...

Authentication URL *

http://ec2-103-4-12-32.ap-northeast-1.compute.amazonaws.com/api/auth/login

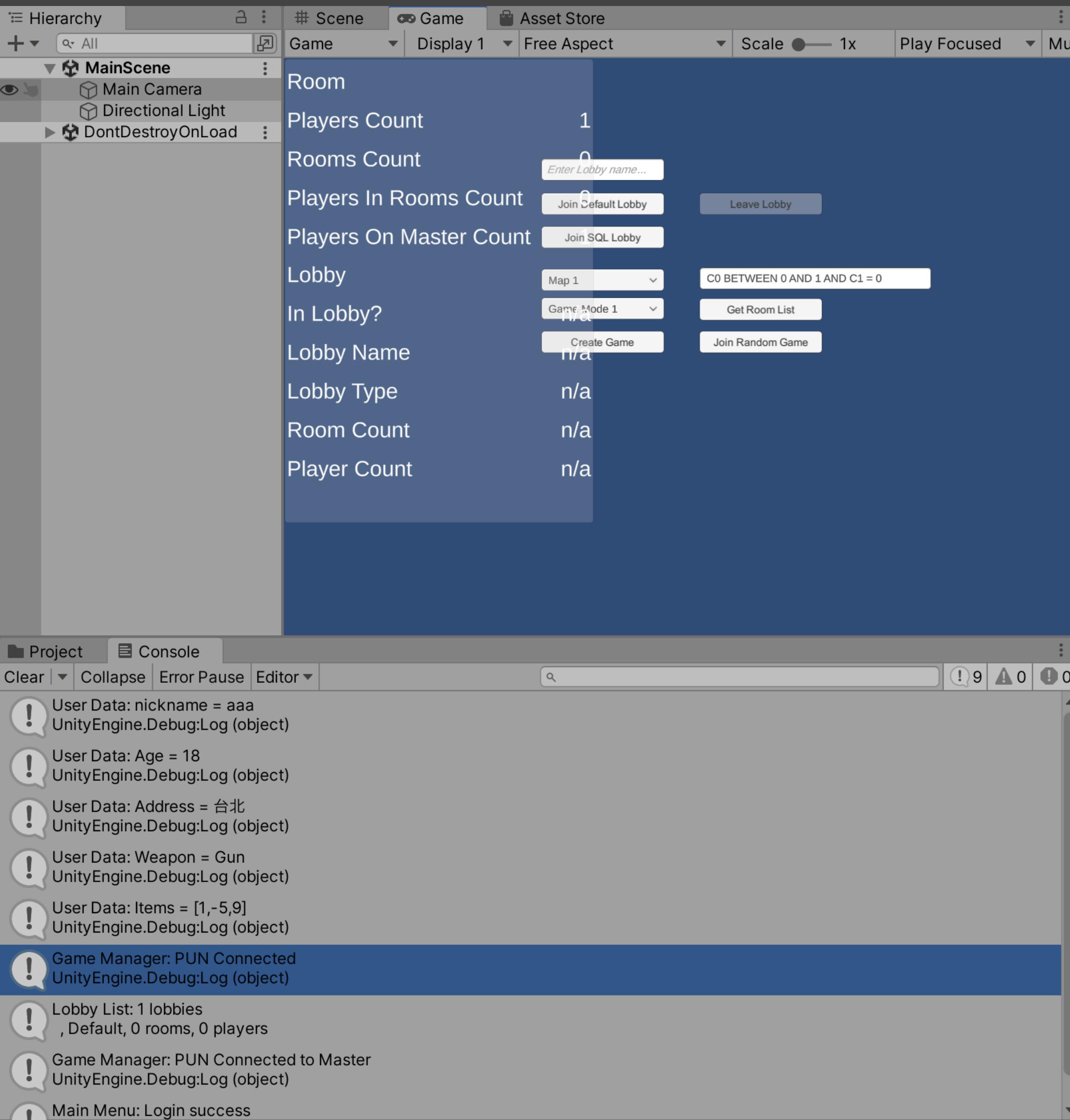
Optional Key/Value Pairs

Reject all clients if not available.

It might take some minutes to propagate updated settings in the cloud.

the above configuration. [Cancel](#) and go back.

測試 Unity Tank Client 登入



練習

10分鐘