

Web Server Management (Windows)

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Application Pool

To open *Application Pool Setting*, do the following steps:

1. Open Internet Information Service (IIS)
2. On Connections Panel at the left side, left-click on “**Application Pools**”

How to Add Application Pool

To add new application pool, do the following steps:

1. In *Application Pool Setting*, on **Actions** Panel at the right side, click “**Add Application Pool...**”
2. Name the application. E.g. “MainAppPool”
3. Choose .NET CLR Version **v4.0.x** to choose .NET version 4.x framework runtime.
4. Choose **Integrated** mode for Managed pipeline mode
5. Check the “Start application pool immediately”
6. Then click **Ok** button

Application Pool Basic Configuration Setting

To change basic application pool setting, do the following steps:

1. In *Application Pool setting*, choose an application
2. Right-click the application, and then choose “**Basic Settings...**”
3. Change **.NET CLR version** to change .NET framework version runtime. The valid options are:
 - a. **.NET CLR Version v4.0.xxx**, to choose .NET v4.xxx framework.
 - b. **.NET CLR Version v2.0.xxx**, to choose .NET v3 or below framework.
 - c. **No Managed code**, to tell that an application will not use CLR, typically we use this option if we only running a script language (ASP).
4. Change **managed pipeline mode**. The valid options are:
 - a. **Integrated**, where ASP.NET is integrated with IIS (since IIS7)
 - b. **Classic**, where ASP.NET is considered as external plugin to IIS (IIS6 and below)
5. Change “**Start application pool immediately**” to change how application will start.

Application Pool Advance Configuration Setting

To change advance application pool setting, do the following steps:

1. In *Application Pool Setting*, choose an application
2. Right-click the application, and then choose “**Advance Settings...**”
3. There are six categories, which are
 - a. (General)
 - i. **.NET CLR Version**, has the same setting in application pool basic settings
 - ii. **Enable 32-bit Applications**, has two options which are true or false.
Set to true, if we want to enable 32bit application running on 64bit machine.
 - iii. **Managed Pipeline Mode**, has the same setting in application pool basic settings.
 - iv. **Name**, the application name which cannot be changed.
 - v. **Queue Length**, is the maximum number of http request that can be queue in one application.
 - vi. **Start Mode**, has two options which are “**OnDemand**”, and “**AlwaysRunning**”.
 - b. CPU
 - i. **Limit (percent)**, is the maximum percentage of CPU usage that an application is allowed to consume. Set this value to 0 (zero) disables the limit.
 - ii. **Limit Action**, is an action that will be triggered when the limit is reached. It has several options which are:
 - **No Action**, there will be no action.
 - **KillW3wp**, application pool will be shut down for a duration that is set in reset timeout
 - **Throttle**, CPU usage will be limited to the value that has been set.
 - **ThrottleUnderLoad**, CPU usage will be limited to the limit value if there is CPU usage is under demand.
 - iii. **Limit Interval / Reset Timeout**, is an interval in minutes for CPU Monitoring to check the CPU usage or a timeout for KillW3wp action to restart the application.
 - iv. **Processor Affinity Enabled**, has two options which are true or false. Set the value to true will force an application running on a specific CPU.
 - v. **Processor Affinity Mask**
 - vi. **Processor Affinity Mask (64-bit option)**
 - c. Process Model
 - i. Generate Process Model Event Log Entry
 - ii. Identity
 - iii. **Idle Time-out (minutes)**, is a maximum time for an application in idle mode.
 - iv. **Idle Time-out Action**. After it reach the idle limit timeout, it will fire one of the following action:
Terminate, which will kill the application process
Suspend, which will suspend the application process
 - v. Load User Profile

- vi. Maximum Worker Processes
 - vii. **Ping Enabled**, is set to true to enable IIS ping the application periodically to ensure the application is still running.
 - viii. **Ping Maximum Response Time (seconds)**, is the maximum response time to state the application is running accordingly. If not, the process will be terminated.
 - ix. **Ping Period (seconds)**, is interval for IIS to ping the application.
 - x. **Shutdown Time Limit (seconds)**, is a maximum time given for an application to shut down. If the timeout reach, the process will be terminated.
 - xi. **Startup Time Limit (seconds)**, is a maximum time given to start an application. If the timeout reach, the process will be terminated.
- d. Processing Orphaning
 - e. Rapid-Fail Protection
 - i. **“Service Unavailable” Response Type**, has two options which are ‘httpLevel’, or ‘tcpLevel’
 - ii. **Enabled**, has two options which are true or false. Set this value to true will enable rapid fail protection, where an application will be shut down if the number of failures in a specified time interval reach the limit
 - iii. **Failure Interval (minutes)**, specify the interval for rapid-fail protection feature
 - iv. **Maximum Failure**, set the maximum value of application failure before application is shut down.
 - v. **Shutdown Executable**, is location of an executable file that will be executed if the failure reach the limit.
 - vi. **Shutdown Executable Parameters**, is the parameter for shutdown executable.
 - f. Recycling

Sites

To see *Sites Setting* in Internet Information Service (IIS), do the following steps:

1. Open Internet Information Service (IIS)
2. On **Connections** Panel at the left side, left-click **Sites** folder

How to Add New Sites

To add new default site, do the following steps:

1. In *Sites Setting*, right-click on “**Default Web Site**” under Sites folder
2. Choose Add Application
3. Name the application in **Alias field**. E.g. “GettingStarted”
4. To locate the application location, click “...” **button** in **Physical path** field
5. Then click **Ok** button

To access our site in a browser, do the following steps:

1. In *Sites Setting*, Expand **Default Web Site** in Connection Panel
2. Choose a site you want to access. E.g. “GettingStarted”
3. On **Actions** Panel at the right side, in **Manage Application** section click “**Browse *:80 (http)**”

How to Add Virtual Directory

To add new virtual directory in a sites, do the following steps:

1. Open Internet Information Service (IIS)
2. On **Connections** Panel at the left side, expand Sites folder
3. Choose a site that you want to add the virtual directory. E.g. **GettingStarted** application
4. Right-click the site, and choose “**Add Virtual Directory...**”
5. Name the virtual directory in **Alias field**. E.g. images
6. To locate the virtual directory physical path, click “...” **button** in Physical path field
7. Then click **Ok** Button

Log Configuration

To change log configuration for a site, do the following steps:

1. In *Sites Setting*, choose a site you want to configure. E.g. Default Web Site
2. Choose **Logging** Module by double click the icon.
3. There are three configurations, which are:

- a. Log File

In this configuration, we can configure the log format, and log file directory. There are four log format, which are **IIS**, **NCSA**, **W3C**, and **Custom**. For each format, we can select field(s) that we want to log.

To change a log directory, we can click **Browse Button**, and choose the folder location.

- b. Log Event Destination

There are three destinations for a log to be saved, which are:

- i. **Log file only**, which is specified in Log Directory
- ii. **ETW event only**, which support a real time logging which can be viewed from “Microsoft-Windows-IIS-Logging” provider such as “EventLog Analyzer”
- iii. **Both log file and ETW event**

- c. Log File Rollover

We can specify how a log file is created by the following options:

- i. **Schedule**. which are hourly, daily, weekly, or monthly
- ii. **Maximum file size (in bytes)**. After a log file size has reached the limit, it will create a new one.
- iii. **Do not create new log files**. Using this option, a site only has on log file.

IP Address and Domain Restriction

IP Address and Domain Restriction is a module to add access control list to a site. This access control can allow or deny incoming request IP address to a secure resource which are a site or a specific folder inside a site.

To enable IP Address and Domain Restriction module in Windows server, do the following steps:

1. Open **Server Manager**
2. In Summary dashboard, click “**Add Roles and Features**”
3. Click Next
4. Choose “**Role-based or featured-based installation**”, then click Next
5. Choose “**select a server from the server pool**”
6. Choose a server you want to configure in server pool, and then click Next
7. Expand **Web Server (IIS) > Web Server > Security**

8. Ensure "**IP Address and Domain Restriction**" is checked
9. Click **Next** and then click **Finish**

To enable IP Address and Domain Restriction module in Windows 10, do the following steps:

1. Open **Control Panel**
2. Choose Programs and Features and then click "**Turn Windows features on or off**"
3. Expand "**Internet Information Services**" > "**World Wide Web Services**" > "**Security**"
4. Ensure **IP Security** Module is checked, and then click **Ok**

To **allow only specific IP address** to access the site, do the following steps:

1. In *Site Setting*, choose a **site/folder inside the site** you want to configure
2. Choose "**IP Address and Domain Restriction**" Module
3. In **Action** Panel located at the right side, choose "**Edit Feature Settings...**"
4. Choose **Deny** in Access for unspecified client setting, and then click Ok
5. In **Action** Panel located at the right side, choose "**Add Allow Entry...**"
6. Choose **Specific IP address** type, and then specified the IP Address
7. Or choose **IP address range** type, and then specified the IP address along with the Mask or Prefix.
E.g. IP address: 192.168.1.0 with Mask: 255.255.255.0

To deny only specific IP address to access the site, do the following steps:

1. In Site Setting, choose a **site/folder inside the site** you want to configure
2. Choose "**IP Address and Domain Restriction**" Module
3. In **Action** Panel located at the right side, choose "**Edit Feature Settings...**"
4. Choose **Allow** in Access for unspecified client setting, and then click Ok.
5. In **Action** Panel located at the right side, choose "**Add Deny Entry...**"
6. Choose Specific IP address type, and then specified the IP Address
7. Or choose **IP address range** type, and the specified the IP address along with the Mask or Prefix.
E.g. IP address: 192.168.1.0 with Mask: 255.255.255.0

How to Use PHP Fast CGI

To enable CGI Module in Windows Server, do the following steps:

1. Open **Server Manager**
2. In summary dashboard, click "**Add Roles and Features**"
3. Click Next
4. Choose "**Role-based or featured-based installation**", then click Next

5. Choose “**select a server from the server pool**”
6. Choose a server you want to configure in server pool, and then click Next
7. Expand **Web Server (IIS) > Web Server > Application Development**
8. Ensure **CGI** module is checked
9. Click **Next** and then click **Finish**

To enable CGI Module in Windows 10, do the following steps:

1. Open **Control Panel**
2. Choose Programs and Features and then click “**Turn Windows features on or off**”
3. Expand “**Internet Information Services**” > “**World Wide Web Services**” > “**Application Development Features**”
4. Ensure **CGI** Module is checked, and then click **Ok**

To use PHP fast CGI on Internet Information Service (IIS), do the following steps:

1. Download the latest version of non-thread safe PHP in the following sites:
<http://windows.php.net/download>
e.g. PHP 7.0 (7.0.8) VC14 x86 Non Thread Safe (2016-Jun-22 19:17:00)
2. Unzip the files, and then rename **php.ini-production** file to **php.ini**
3. Open php.ini, find the following lines and uncomment it by removing the first ‘;’ character

```
;fastcgi.impersonate = 1  
;cgi.fix_pathinfo=1  
;cgi.force_redirect = 1  
; extension_dir = "ext"
```

4. Open php.ini, find the following line, uncomment it and set the value to a folder path containing php website.

```
;open_basedir =
```

e.g.

```
open_basedir = C:\inetpub\wwwroot
```

5. Open Internet Information Service (IIS)
6. On **Connections** Panel at the left side, expand Sites folder
7. Choose a site to configure. E.g. “Default Web Site”
8. Double left-click **Handler Mappings**
9. In **Action** Panel at the right side, click “**Add Module Mapping...**”

10. Fill the following fields:

Request Path	*.php
Module	FastCgiModule
Executable	(php-cgi.exe location)
Name	PHP Fast CGI

11. Click Ok

To test the PHP Fast CGI configuration is working, create a new file under C:\inetpub\wwwroot named **it phpinfo.php**. Inside that file write the following code

```
<?php phpinfo ?>
```

Open browser with the following url:

<http://localhost/phpinfo.php>

Deploying an Application

To deploy an application, we need to configure sites in IIS first. After that, we can publish an application and deploy it in location for the site. To publish an application, do the following steps:

1. In Visual Studio, choose **File > Open > Open Project/Solution**
2. Choose a solution to be published
3. In **Solution Explorer** panel, right-click on a project choose **"Publish..."**
4. If there is no existing profile, in **Profile** tab choose **<New Custom Profile>**, and name the profile.
5. In **Connection** tab, choose File System for Publish method, and change the target location to the location of the site in site configuration.
6. In **Settings** tab, choose release configuration
7. Click publish button

To **redeploy an application**, which will also clear all the cache that is created from it, simply **update web.config** file.

To update a configuration file without giving any impact, **simply add new space save it then remove the space and then save it again.**