

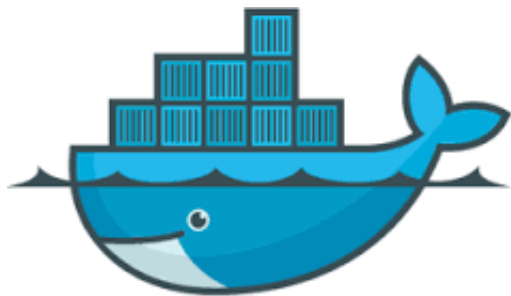
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# Containerised IIS Application to windows C

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🕒 July 11, 2017   Posted by: Loges   Category: Blog, Containers

(<https://www.assistanz.com/category/blog/containers/iis-application-to-windows-container/>)



docker

## Containerised IIS Application to Windows Container

In this blog, we will show you the steps to containerised IIS Application to Windows Container in Windows 20

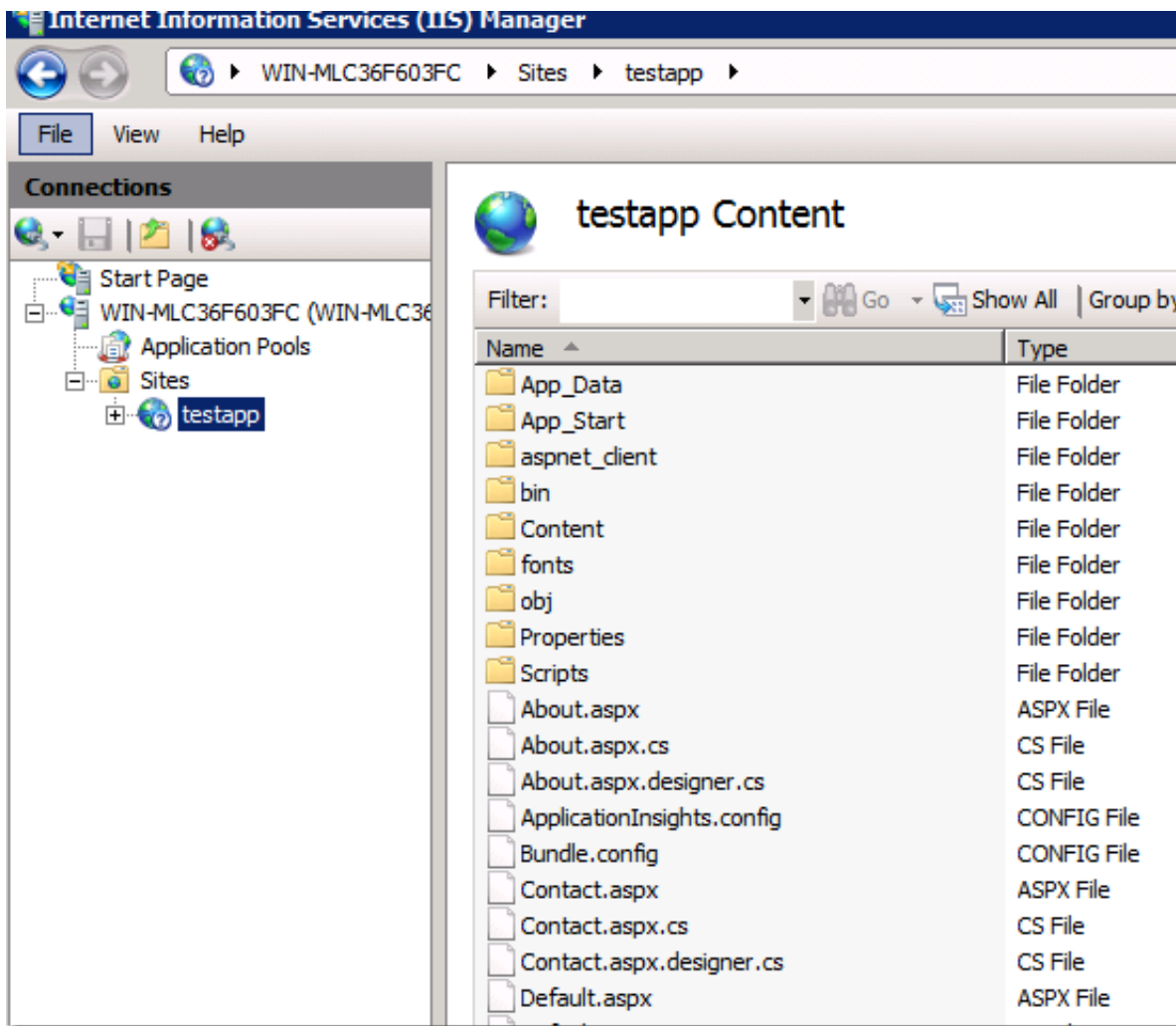
## REQUIREMENTS

- ◆ VHD (or) VHDX image with IIS role & ASP.NET application.
- ◆ Container host with Decker role installed.
- ◆ Any machine with Windows 2012, 2012 R2 (or) 2016 to run the image conversion tool.

## PREPARING VHD (or) VHDX IMAGE

***Note: In this demo, we are using windows 2008 VM along with .NET 4.5.2 and IIS service installed.***

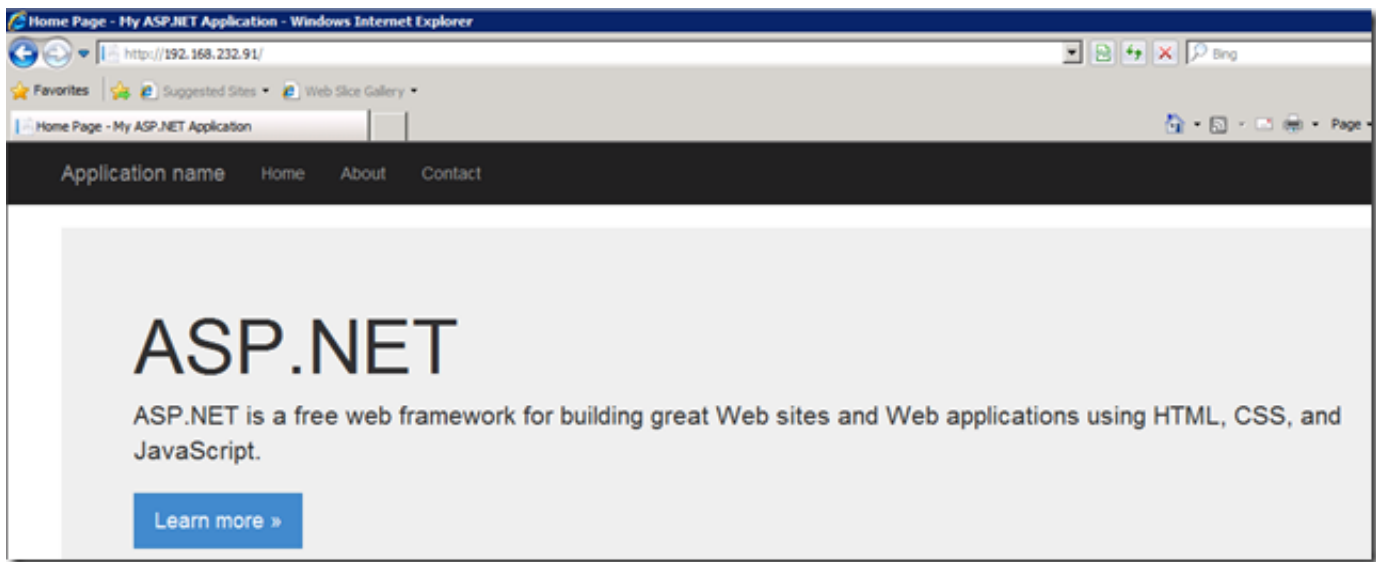
- ◆ We have installed IIS service and hosted a Test ASP.NET Application.



(<https://www.assistan:>

content/uploads/2017/07/image.png)

- ◆ We are able to access the test application using the server IP without any problem.

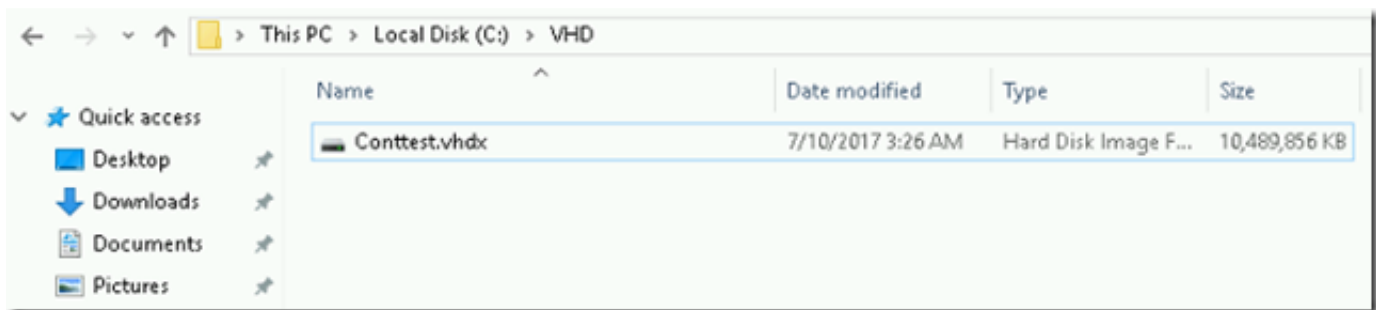


(<https://www.assistanz.com/wp-content/uploads/2017/07/image-1.png>)

- ◆ Copy the server VHD file to a separate location for the conversion process.

***Note : For this demo, we are using windows 2016 machine to run the image conversion process. You can also using windows 2012 with powershell version 5.0.***

- ◆ We create a folder named VHD in C:\ drive and copy the VHD files into that folder.



(<https://www.assistanz.com/wp-content/uploads/2017/07/image-2.png>)

## INSTALLING IMAGE CONVERSION TOOL

- ◆ Open the PowerShell window and execute the below command.

**Install-Module -Name Image2Docker**

```
PS C:\> Install-Module -Name Image2Docker
PS C:\> _
```

([https://www.assistanz.com/wp-](https://www.assistanz.com/wp-content/uploads/2017/07/image-3.png)

[content/uploads/2017/07/image-3.png](https://www.assistanz.com/wp-content/uploads/2017/07/image-3.png))

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***Note : This tool is still under development. You can find the latest version of this to this URL : <https://www.powershellgallery.com/packages/Image2Docker/1.8.2> (<https://www.powershellgallery.com/packages/Image2Docker/1.8.2>).***

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## CUSTOMIZE THE IMAGE2DOCKER MODULE

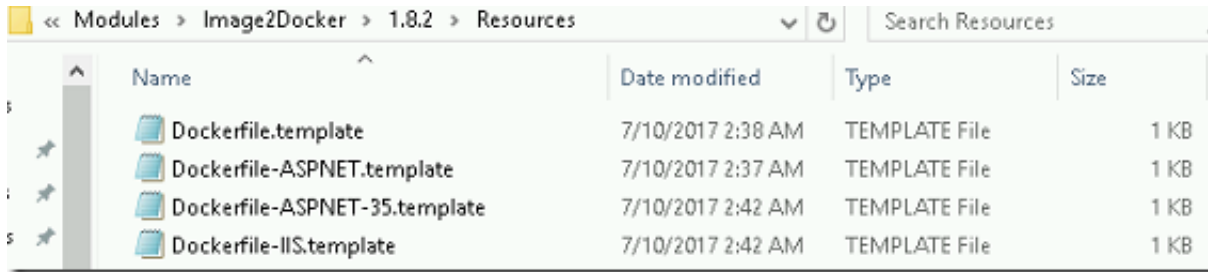
- ◆ We need to make minor changes in the image2docker template file to make the ASP.NET application workable.
- ◆ To Find the installed path of image2docker module, execute the below command from the PowerShell window.

**(\$PSModPath=gmo -l).path**

```
PS C:\> ($PSModPath=gmo -1).path
C:\Program Files\WindowsPowerShell\Modules\Image2Docker\1.8.2\Image2Docker.psd1
C:\Program Files\WindowsPowerShell\Modules\Microsoft.PowerShell.Operation.Validation\1.0.1\Microsoft.PowerShell.Operation.Validation.psd1
C:\Program Files\WindowsPowerShell\Modules\PackageManagement\1.0.0.1\PackageManagement.psd1
C:\Program Files\WindowsPowerShell\Modules\Pester\3.4.0\Pester.psd1
C:\Program Files\WindowsPowerShell\Modules\PowerShellGet\1.0.0.1\PowerShellGet.psd1
C:\Program Files\WindowsPowerShell\Modules\PSReadline\1.2\PSReadline.psd1
```

(<https://www.assistanz.com/wp-content/uploads/2017/07/image-4.png>)

- ◆ Go to **C:\Program Files\WindowsPowerShell\Modules\Image2Docker\1.8.2\Resources** folder.



(<https://www.assista>

content/uploads/2017/07/image-5.png)

- ◆ Double click on **Dockerfile-ASPNET-35.template** file and add the below lines.

### # Install Web Server Components

**RUN Install-WindowsFeature -name web-app-dev -IncludeAllSubFeature**



(<https://www.assistanz.com/wp-content/uploads/2017/07/image-6.png>)

- ◆ Save the file and close it.

## EXECUTING IMAGE2DOCKER

- ◆ Once you installed and customize the image2docker module, open the PowerShell window and execute the below command to extract all the website from IIS and its configuration.

**SYNTAX:** ConvertTo-Dockerfile -ImagePath <VHD path> -OutputPath <path to save the IIS configuration> -ArtifactPath <path to save the artifacts>

**COMMAND :** ConvertTo-Dockerfile -ImagePath C:\VHD\Conttest.vhdx -OutputPath C:\VHD\conttest -ArtifactPath C:\VHD\artifacts

```
PS C:\> ConvertTo-Dockerfile -ImagePath C:\VHD\Conttest.vhdx -OutputPath C:\VHD\conttest -ArtifactPath C:\VHD\artifacts
VERBOSE: Reading image file: C:\VHD\Conttest.vhdx
VERBOSE: Image file appears to be a valid WIM or VHDX file.
VERBOSE: Image file C:\VHD\Conttest.vhdx contains 1 images
VERBOSE: This image appears to be a valid Virtual Hard Drive (VHDX) file.
VERBOSE: Image type is: VHDX
VERBOSE: User didn't specify a mount path. Using:
C:\Users\ADMINI~1\AppData\Local\Temp\2\7875684d-bf8e-4d1e-b3b3-bfa8fc8ba922-mount
VERBOSE: Finished mounting image C:\VHD\Conttest.vhdx at mount point
C:\Users\ADMINI~1\AppData\Local\Temp\2\7875684d-bf8e-4d1e-b3b3-bfa8fc8ba922-mount
VERBOSE: Finished mounting image to:
C:\Users\ADMINI~1\AppData\Local\Temp\2\7875684d-bf8e-4d1e-b3b3-bfa8fc8ba922-mount
VERBOSE: Starting conversion process
VERBOSE: Started discovering IIS artifact
VERBOSE: Checking IIS ApplicationHost config for Windows Version: 6.1
VERBOSE: IIS service is present on the system
VERBOSE: ASP.NET is present on the system
VERBOSE: .NET 3.5 is present on the system
VERBOSE: Finished discovering IIS artifact
VERBOSE: Generating Dockerfile based on discovered artifacts in
:C:\Users\ADMINI~1\AppData\Local\Temp\2\7875684d-bf8e-4d1e-b3b3-bfa8fc8ba922-mount
VERBOSE: Generating result for IIS component
VERBOSE: Copying IIS configuration files
VERBOSE: Writing instruction to create site testapp
VERBOSE: Processing source directory: c:\inetpub\wwwroot\TestApp
VERBOSE: Writing instruction to expose port for site testapp
VERBOSE: Finished generating the Dockerfile
VERBOSE: Finished dismounting the Windows image from
C:\Users\ADMINI~1\AppData\Local\Temp\2\7875684d-bf8e-4d1e-b3b3-bfa8fc8ba922-mount
PS C:\> _
```

(<https://www.assistanz.com/wp-content/uploads/2017/07/image-7.png>)

- ◆ Open C:\VHD\conttest folder and verify the website configuration files.

> This PC > Local Disk (C:) > VHD > contest >

	Name	Date modified	Type	Size
	config	7/10/2017 9:48 PM	File folder	
	TestApp	7/10/2017 9:48 PM	File folder	
	Dockerfile	7/10/2017 9:48 PM	File	2 KB
	IIS.json	7/10/2017 9:48 PM	JSON File	4 KB

(<https://www.assistar.com>)

content/uploads/2017/07/image-8.png)

- ◆ Open the **dockerfile** and verify our customize entry was added in the docker file.

```

Dockerfile - Notepad
File Edit Format View Help

# escape=`
FROM microsoft/aspnet:3.5-windowsservercore-10.0.14393.1066
SHELL ["powershell", "-Command", "$ErrorActionPreference = 'Stop'; $ProgressPreference = 'SilentlyCon

#Install Web Server Components
RUN Install-WindowsFeature -name web-app-dev -IncludeAllSubFeature

# disable DNS cache so container addresses always fetched from Docker
RUN Set-ItemProperty -path 'HKLM:\SYSTEM\CurrentControlSet\Services\Dnscache\Parameters' -Name Server

RUN Remove-Website 'Default Web Site';

# Set up website: testapp
RUN New-Item -Path 'C:\inetpub\wwwroot\TestApp' -Type Directory -Force;

RUN New-Website -Name 'testapp' -PhysicalPath 'C:\inetpub\wwwroot\TestApp' -Port 80 -Force;

EXPOSE 80

COPY ["TestApp", "/inetpub/wwwroot/TestApp"]

RUN $path='C:\inetpub\wwwroot\TestApp'; `
    $acl = Get-Acl $path; `
    $newOwner = [System.Security.Principal.NTAccount]('BUILTIN\IIS_IUSRS'); `
    $acl.SetOwner($newOwner); `
    dir -r $path | Set-Acl -aclobject $acl

```

(<https://www.assistanz.com/wp-content/uploads/2017/07/image-9.png>)

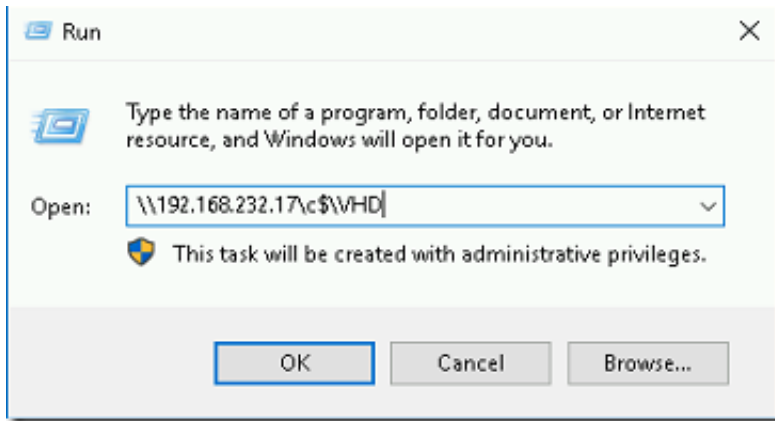
## IMPORT IIS FILES TO CONTAINER HOST

- ◆ Login into container host machine and access the **contest** folder through a network share.



\\192.168.232.17\c\$\VHD (file:///\\192.168.232.17\c\$\VHD)

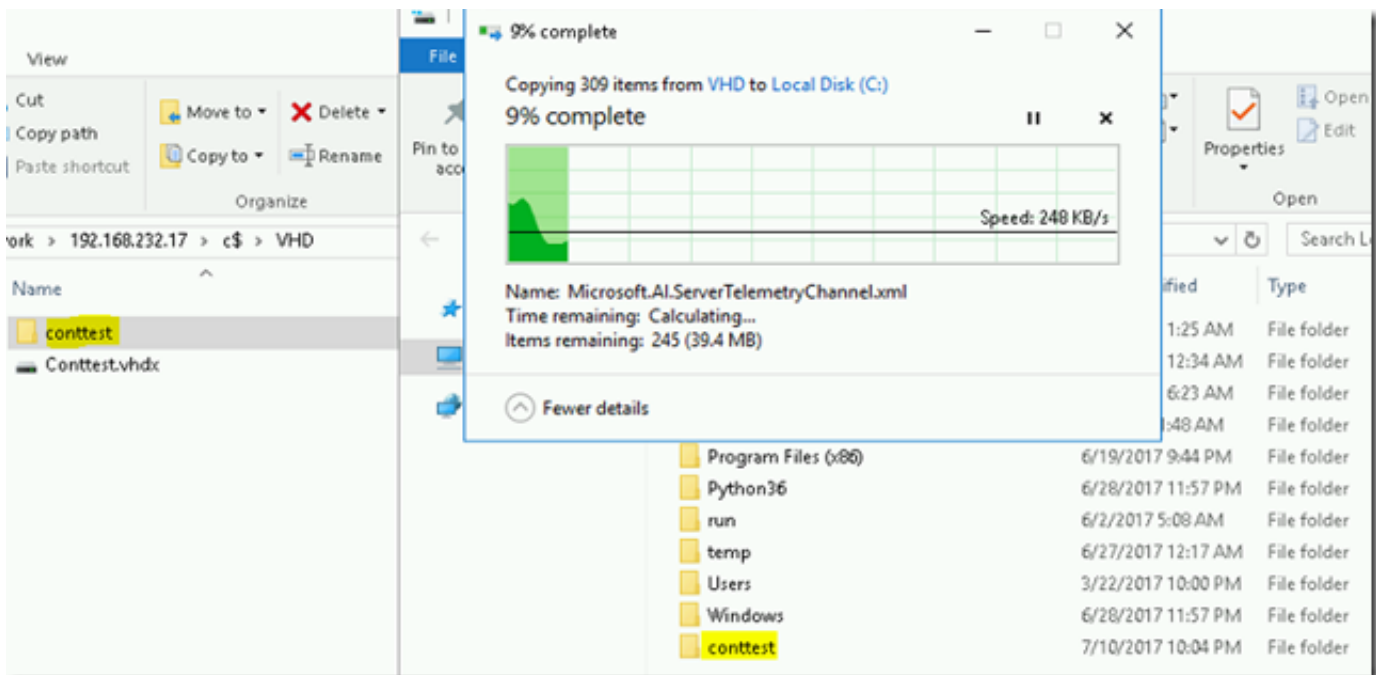
*Note : This is our lab setup. So the IP might vary based on your environment*



(<https://www.assistanz.com/wp-content/uploads/2017/07/image-10.png>)

10.png)

- ◆ Copy the **conttest** folder from the shared location to the container host local drive.



(<https://www.assistanz.com/wp-content/uploads/2017/07/image-11.png>)

## BUILDING THE CONTAINER

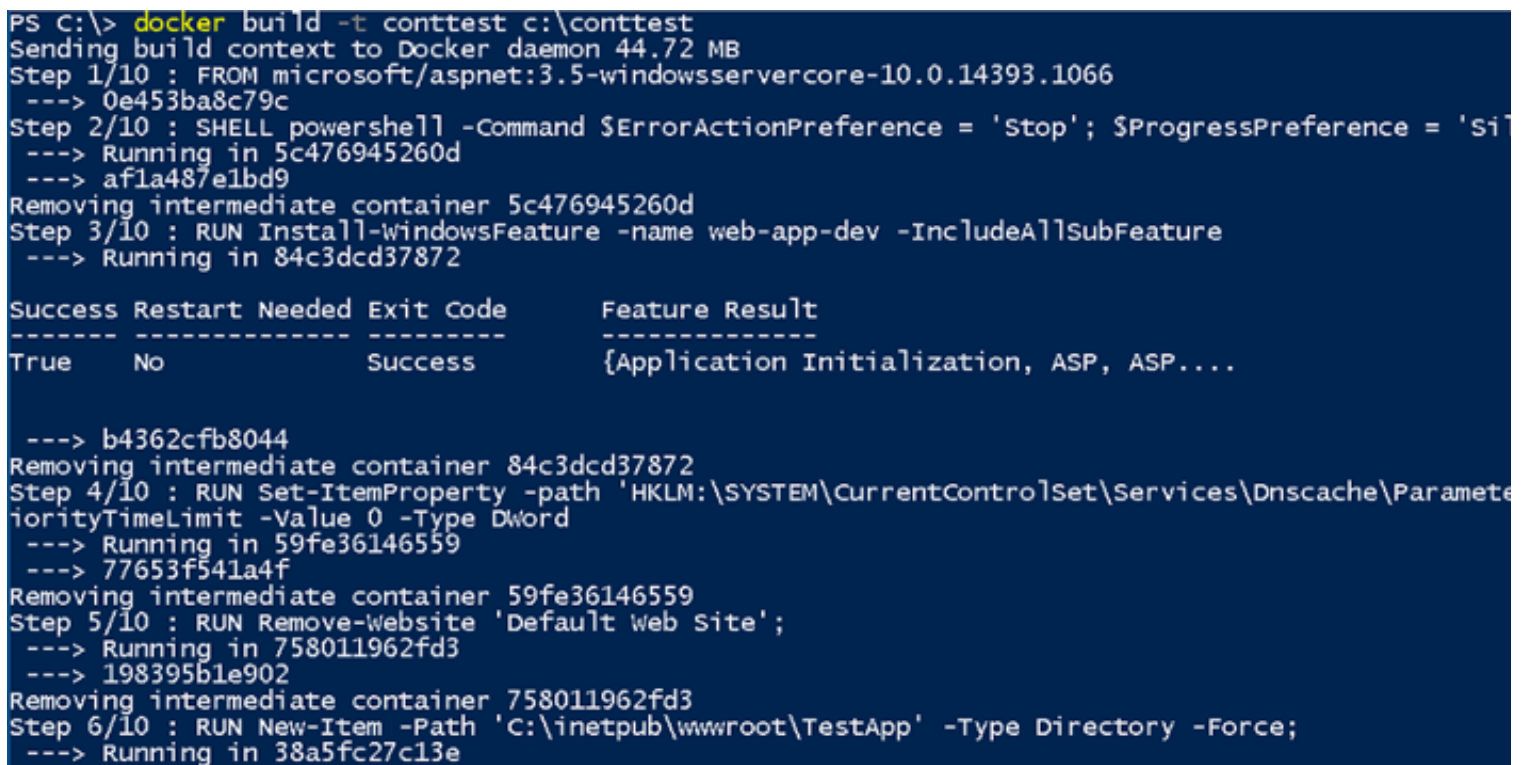
- ◆ Open the PowerShell window and execute the below command to build a container.

**docker build -t contest c:\contest**

 (https://www.assistanz.com/wp-

content/uploads/2017/07/image-12.png)

- ◆ It will take few minutes to complete the container building process.



```
PS C:\> docker build -t contest c:\contest
Sending build context to Docker daemon 44.72 MB
Step 1/10 : FROM microsoft/aspnet:3.5-windowsservercore-10.0.14393.1066
--> 0e453ba8c79c
Step 2/10 : SHELL powershell -Command $ErrorActionPreference = 'Stop'; $ProgressPreference = 'SilentlyContinue'
--> Running in 5c476945260d
--> af1a487e1bd9
Removing intermediate container 5c476945260d
Step 3/10 : RUN Install-WindowsFeature -name web-app-dev -IncludeAllSubFeature
--> Running in 84c3dcd37872

Success Restart Needed Exit Code      Feature Result
-----
True      No                Success      {Application Initialization, ASP, ASP....

--> b4362cfb8044
Removing intermediate container 84c3dcd37872
Step 4/10 : RUN Set-ItemProperty -path 'HKLM:\SYSTEM\CurrentControlSet\Services\Dnscache\Parameters' -name PriorityTimeLimit -Value 0 -Type Dword
--> Running in 59fe36146559
--> 77653f541a4f
Removing intermediate container 59fe36146559
Step 5/10 : RUN Remove-Website 'Default Web Site';
--> Running in 758011962fd3
--> 198395b1e902
Removing intermediate container 758011962fd3
Step 6/10 : RUN New-Item -Path 'C:\inetpub\wwwroot\TestApp' -Type Directory -Force;
--> Running in 38a5fc27c13e
```

(https://www.assistanz.com/wp-content/uploads/2017/07/image-13.png)

- ◆ Once the build completed successfully. Type **docker images** command to verify the image.

```
PS C:\> docker images
REPOSITORY              TAG                IMAGE ID           CREATED
conttest                 latest            4b68d3e3a9a4      21 minutes ago
GB
microsoft/nanoserver    latest           6c367cf4cb98      2 months ago
GB
assistanz247/nanoserver-iis latest           02fa91a462a0      2 months ago
GB
nanoserver/iis          latest           4b0af9b7f036      2 months ago
GB
microsoft/aspnet        3.5-windowsservercore-10.0.14393.1066 0e453ba8c79c      3 months ago
GB
microsoft/windowsservercore latest           b4713e4d8bab      4 months ago
GB
PS C:\> _
```

(<https://www.assistanz.com/wp-content/uploads/2017/07/image-14.png>)

## VERIFYING THE CONTAINER



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```
PS C:\> docker run -d conttest
d4a49f532f746b52eccfe32d606e5d440859d1181792410bd207f6b5f21e1861
PS C:\> _
```

(<https://www.assistanz.com/wp-content/uploads/2017/07/image-15.png>)

- ◆ Type **docker ps** to verify the container name

```
PS C:\> docker ps
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS
d4a49f532f74   conttest   "C:\\ServiceMonitor..." 2 minutes ago  Up 2 minutes
quirky_raman
```

(<https://www.assistanz.com/wp-content/uploads/2017/07/image-16.png>)

- ◆ To find the IP address of the container uses the below command.

**SYNTAX:** docker inspect <container ID>

**COMMAND:** docker inspect d4

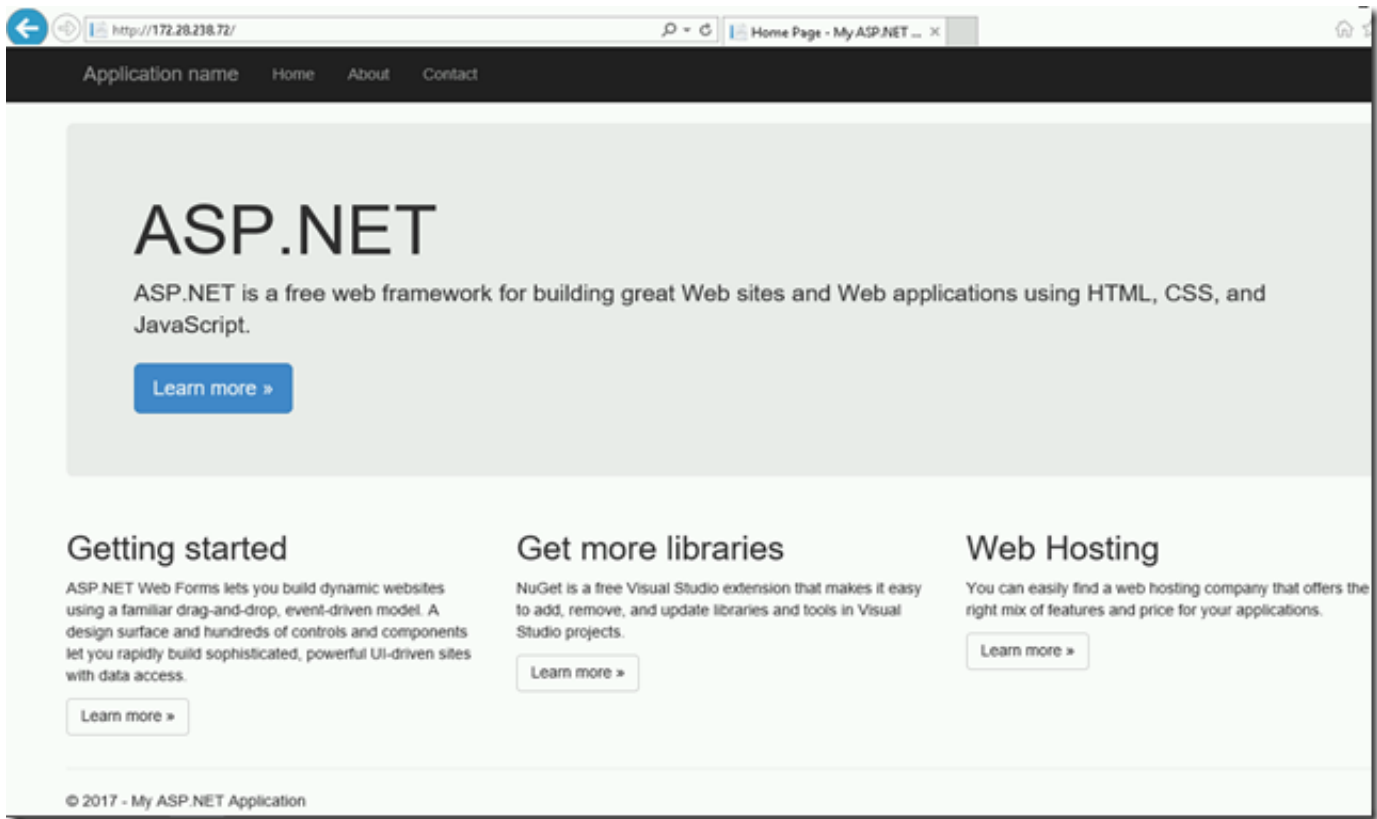
```
PS C:\> docker inspect d4_
```

(<https://www.assistanz.com/wp-content/uploads/2017/07/image-17.png>)

```
    "nat": {
      "IPAMConfig": null,
      "Links": null,
      "Aliases": null,
      "NetworkID": "e613ceacc95deea5050316740960ec384df1db120c6d955fc6d9f",
      "EndpointID": "3cdcf39b7b36c0fb6ac776390417de0ab19fa0728b4eaccb313a",
      "Gateway": "172.28.224.1",
      "IPAddress": "172.28.238.72",
      "IPPrefixLen": 16,
      "IPv6Gateway": "",
      "GlobalIPv6Address": "",
      "GlobalIPv6PrefixLen": 0,
      "MacAddress": "00:15:5d:32:b9:a5"
    }
  }
}
]
PS C:\>
```

(<https://www.assistanz.com/wp-content/uploads/2017/07/image-18.png>)

- ◆ Browse the IP 172.28.238.72 from the **container host** and verify the ASP.NET application.



(https://www.assistanz.com/wp-content/uploads/2017/07/image-19.png)

## VIDEO

## Containerised IIS application to windows container



**Thanks for reading this blog. We hope it was useful for you to learn how to convert the IIS application container.**

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