

# Deploying Azure protected Geo-Redundant Solution having path-based routing.

## DESCRIPTION

### Business Scenario

The Tyrell Crop wants to build a highly secured Globally distributed application. This application serves two types of content: images and dynamically rendered webpages. As their user base comes from across the globe this must be geographically redundant. The design demands that it should serve its users from the closest (lowest latency) location to them. For distinction, Tyrell Crop has decided that any URLs that match the pattern /images/\* are served from a dedicated pool of VMs that are different from the rest of the web farm.

Design the Load Balancing architecture for Tyrell Crop.

For this sample do it in East US region, then you can select any other region and add those Application gateways on created Traffic manager.

### Overview

The main tasks for this exercise are as follows:

1. Login to Azure Portal
2. Provision Application gateway
3. Add application gateways to the Traffic Manager endpoint.

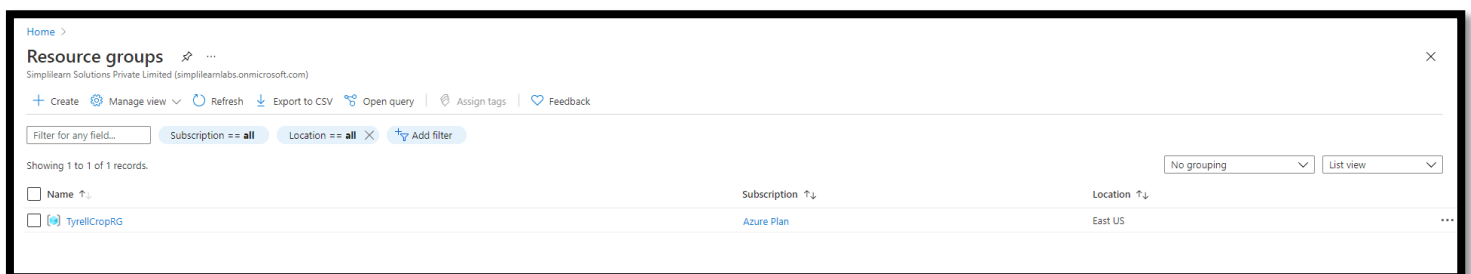
### Solution:

#### Step 1: Configure Traffic Manager

##### 1.1 Login to Azure portal

#### Creating a Resource Group

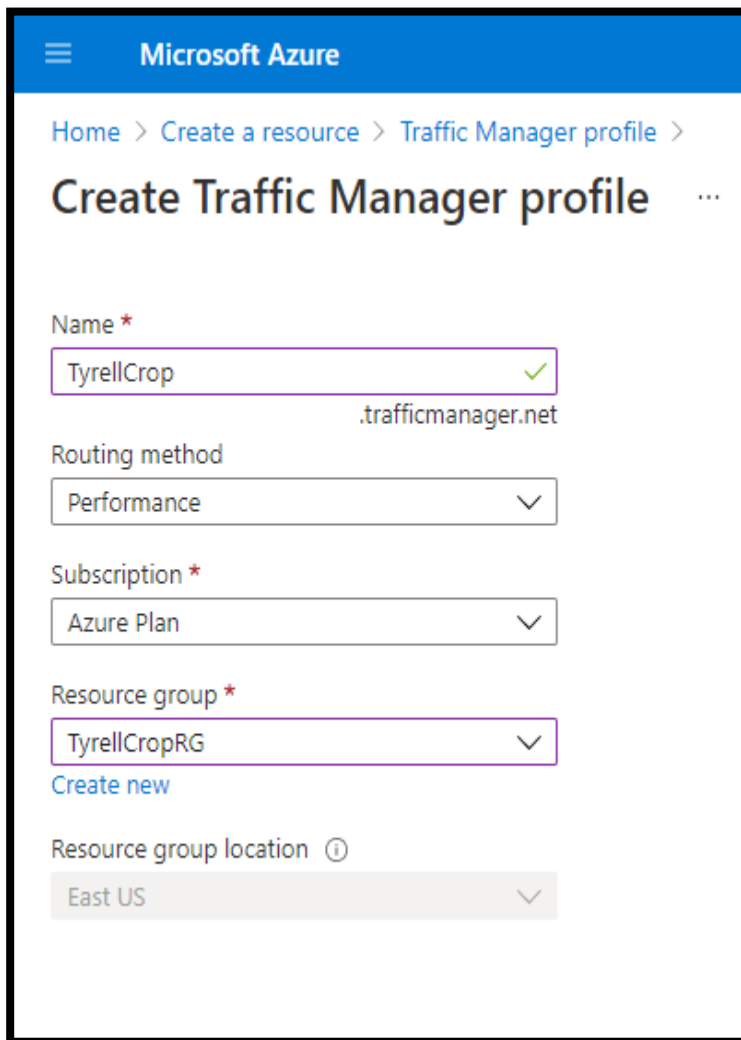
- Resource group name: TyrellCropRG
- Resource group location: East US



## Creating a Traffic Manager profile

In the “**Create Traffic Manager Profile**” below are the enteries:

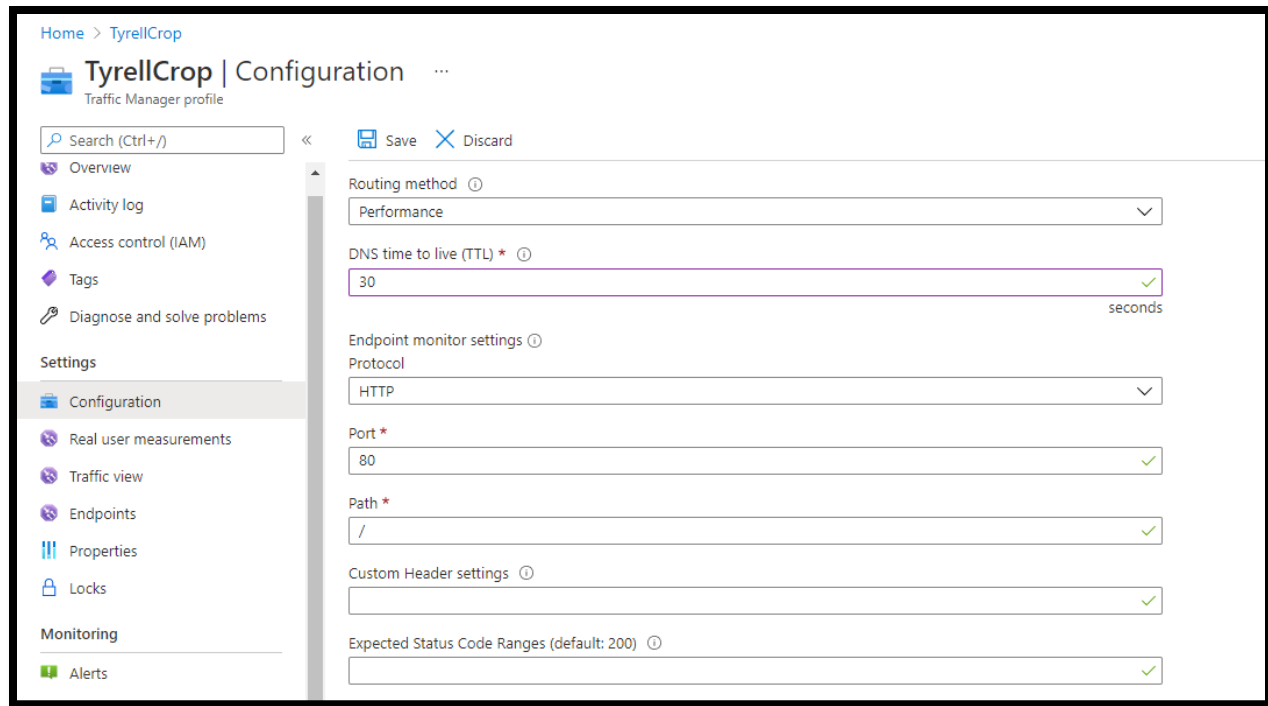
- Name: TyrellCrop
- Routing method: Performance
- Resource group: TyrellCropRG
- Resource group Location: EastUS



The screenshot shows the Microsoft Azure portal interface for creating a Traffic Manager profile. The breadcrumb navigation at the top reads: Home > Create a resource > Traffic Manager profile >. The main heading is 'Create Traffic Manager profile' with a three-dot menu icon to its right. The form contains the following fields:

- Name \***: A text input field containing 'TyrellCrop' with a green checkmark icon to its right. Below the input field, the text '.trafficmanager.net' is displayed.
- Routing method**: A dropdown menu with 'Performance' selected and a downward arrow icon.
- Subscription \***: A dropdown menu with 'Azure Plan' selected and a downward arrow icon.
- Resource group \***: A dropdown menu with 'TyrellCropRG' selected and a downward arrow icon. Below this dropdown is a blue link labeled 'Create new'.
- Resource group location ⓘ**: A dropdown menu with 'East US' selected and a downward arrow icon.

- Then changing the Traffic Manager DNS TTL to 30 seconds (easier to validate a failover)



## Step 2: Creating the application gateway

- Create a resource > Networking > Application Gateway > Create
- In the Create Application Gateway blade basic values:
  - Name: TyrellCrop
  - SKU size: Performance
  - Instance count
  - Resource group: TyrellCropRG
  - Location: EastUS

[Home](#) > [Application gateways](#) >

## Create application gateway ...

**1 Basics**   2 Frontends   3 Backends   4 Configuration   5 Tags   6 Review + create

An application gateway is a web traffic load balancer that enables you to manage traffic to your web application. [Learn more about application gateway](#)

### Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription \* ⓘ

Resource group \* ⓘ  [Create new](#)

### Instance details

Application gateway name \*  ✓

Region \*  ▼

Tier ⓘ  ▼

Instance count \* ⓘ

SKU size ⓘ  ▼

HTTP2 ⓘ ☒ Disabled ☐ Enabled

### Configure virtual network

Virtual network \* ⓘ  [Create new](#)

[Previous](#)   [Next : Frontends >](#)

- On the **Settings** page, under **Subnet configuration, Creating virtual network**.
  - Name: TyrellCropVNet-USE
  - Address: 10.20.0.0/16
  - Subnet Name: Frontend
  - Subnet address range: 10.20.0.0/24

- On the **Settings** page, below are the value
  - IP Address Type: Public
  - Public IP address: create new->TyrellCropAG-USE-IP
  - DNS Name:TyrellCrop

### Create virtual network

The Microsoft Azure Virtual Network service enables Azure resources to securely communicate with each other in a virtual network which is a logical isolation of the Azure cloud dedicated to your subscription. You can connect virtual networks to other virtual networks, or your on-premises network. [Learn more](#)

Name \*  ✓

**ADDRESS SPACE**

The virtual network's address space, specified as one or more address prefixes in CIDR notation (e.g. 192.168.1.0/24).

<input type="checkbox"/> Address range	Addresses	Overlap	
<input type="checkbox"/> 10.20.0.0/16	10.20.0.0 - 10.20.255.255 (65536 addresses)	None	...
<input type="text"/>	(0 Addresses)	None	

**SUBNETS**

The subnet's address range in CIDR notation. It must be contained by the address space of the virtual network.

<input type="checkbox"/> Subnet name	Address range	Addresses	
<input type="checkbox"/> Frontend ✓	<input type="text" value="10.20.0.0/24"/> ✓	10.20.0.0 - 10.20.0.255 (256 addresses)	...
<input type="text"/>	<input type="text"/>	(0 Addresses)	

- On the **Settings** page
  - IP Address Type: Public
  - Public IP address: create new->TyrellCropAG-USE-IP
  - DNS Name:TyrellCrop



✓ Basics

2 Frontends

3 Backends

4 Configuration

5 Tags

6 Review + create

Traffic enters the application gateway via its frontend IP address(es). An application gateway can use a public IP address, private IP address, or one of each type.

Frontend IP address type 1 ☒ Public ☐ Private ☐ Both

Public IP address 

(New) TyrellCropAG-USE-IP ▼

[Add new](#)

### Backend Pool Values:

- From resource group- **TyrellCropRG**, went to the instance of the application gateway- **TyrellCropAG-USE**
- Then **Backend pools**. A default pool was automatically created with the application gateway- **appGatewayBackendPool**.
- Enter a name of **AGIMGBackendPool**

Create application gateway ...

✓ Basics

✓ Frontends

3 Backends

4 Configuration

5 Tags

6 Review + create

A backend pool is a collection of resources to which your application gateway can send traffic. A backend pool can contain virtual machines, virtual machine scale sets, app services, IP addresses, or fully qualified domain names (FQDN).

[Add a backend pool](#)

Backend pool	Targets	
<a href="#">AGIMGBackendPool</a>	0 targets	...

## Configuration details values entered:

### Create backend listener

- From resource group- **TyrellCropRG**, went to the instance of the application gateway- **TyrellCropAG-USE**
- Entered **AGImageListener** for the name, *IMGPort* for the name of the frontend port, and then *8080* as the port for the listener.

### Creating backend Pool

- From resource group- **TyrellCropRG**, went to the instance of the application gateway- **TyrellCropAG-USE**
- **Backend pools.** A default pool was automatically created with the application gateway- **appGatewayBackendPool**.
- Name **AGIMGBackendPool**

### Create a path-based routing rule

- Configure URL routing for application gateways
- From resource group- **TyrellCropRG**, went to the instance of the application gateway- **TyrellCropAG-USE**
- Under **Settings** of the application gateway, select **Rules**, and then the **Path based** button to add a rule.



## Add a routing rule

Configure a routing rule to send traffic from a given frontend IP address to one or more backend targets. A routing rule must contain a listener and at least one backend target.

Rule name \* AGImageListener ✓

\* Listener \* Backend targets

Choose a backend pool to which this routing rule will send traffic. You will also need to specify a set of HTTP settings that define the behavior of the routing rule.

Target type ☒ Backend pool ☐ Redirection

Backend target \* ① AGIMGBackendPool [Add new](#)

HTTP settings \* ① AppGatewayBackEndHttpSettings [Add new](#)

### Path-based routing

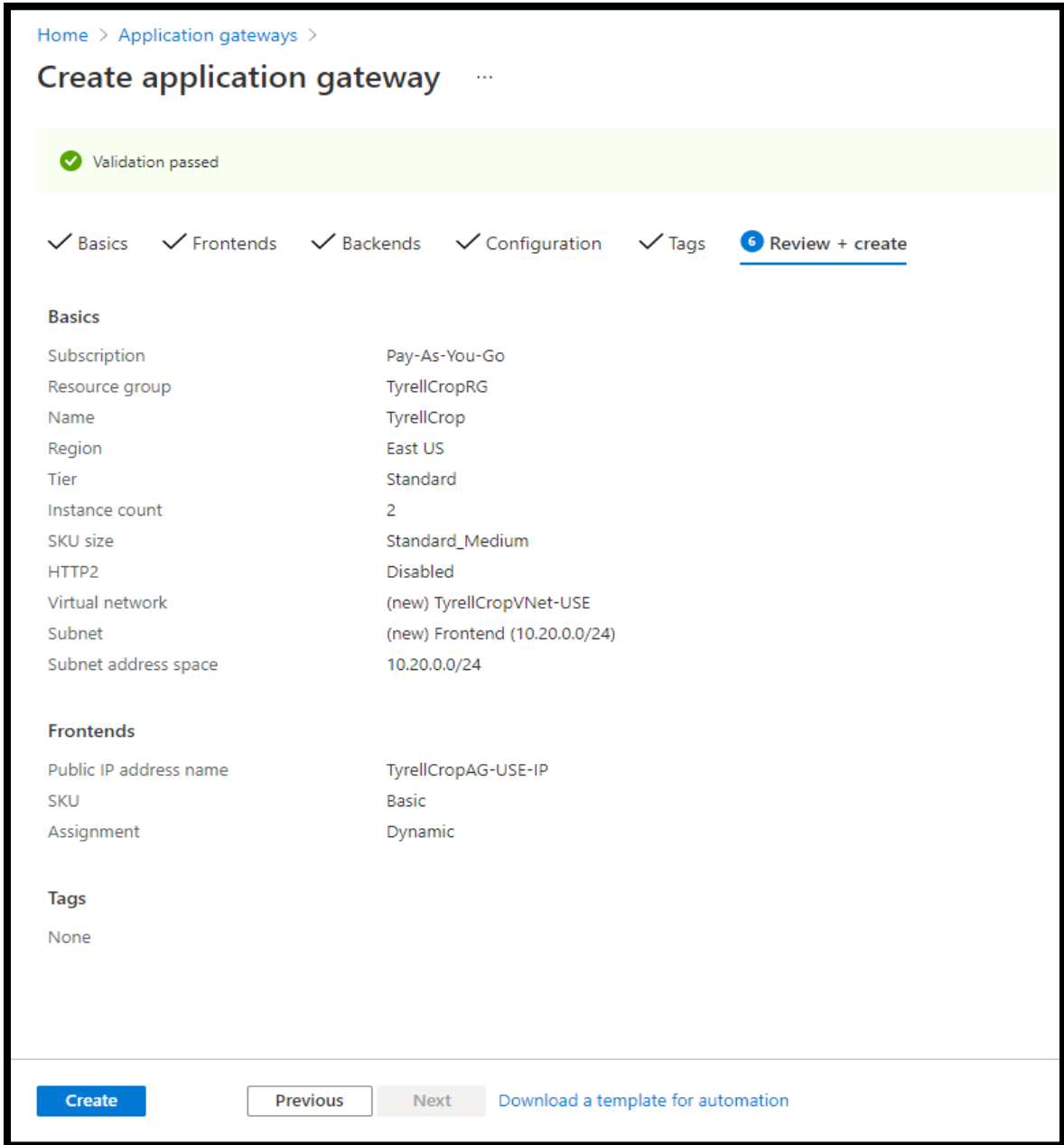
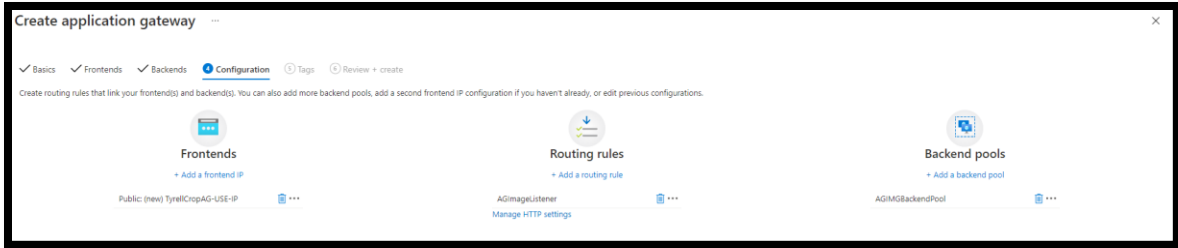
You can route traffic from this rule's listener to different backend targets based on the URL path of the request. You can also apply a different set of HTTP settings based on the URL path.

Path	Target name	HTTP setting name	Backend pool
/Image/*	IMG	AppGatewayBackEndHttpSet...	AGIMGBackendPool

[Add multiple targets to create a path-based rule](#)

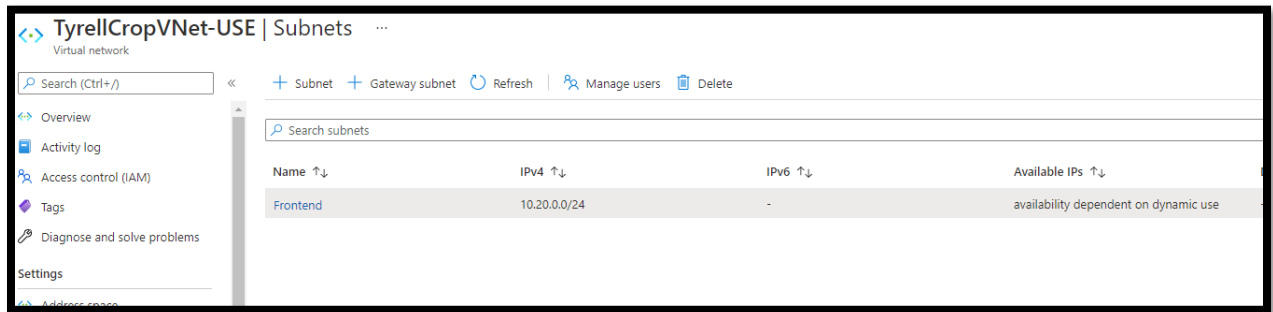
- Basic settings:
  - Name: AGIMGPR
  - Listener: AGImageListener
  - Default backend pool: AGIMGBackEndPool
  - Default HTTP settings: AppGatewayBackEndHttpSettings
- Path-based rules:
  - **Name:** IMG
  - **Paths:** /Image/\*
  - **Backend Pool:** AGIMGBackEndPool
  - **HTTP Setting:** AppGatewayBackEndHttpSettings





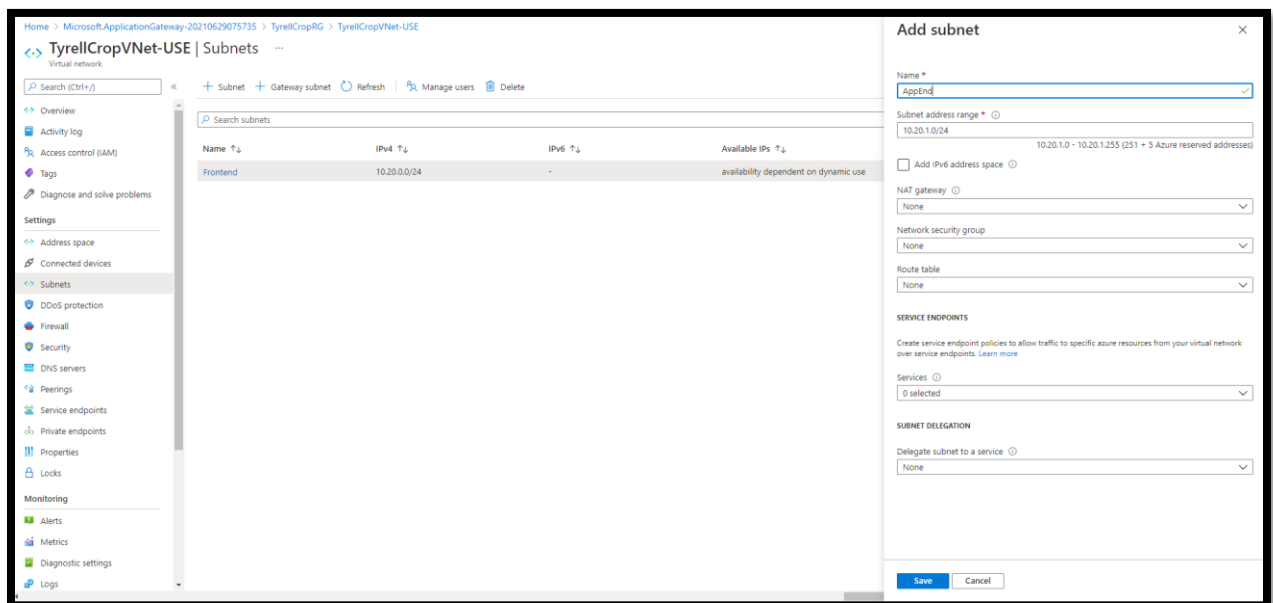
## Add a subnet

- From resource group- TyrellCropRG, go to the Virtual Network - TyrellCropVnet-USE
- Click Subnets, and then click Subnet

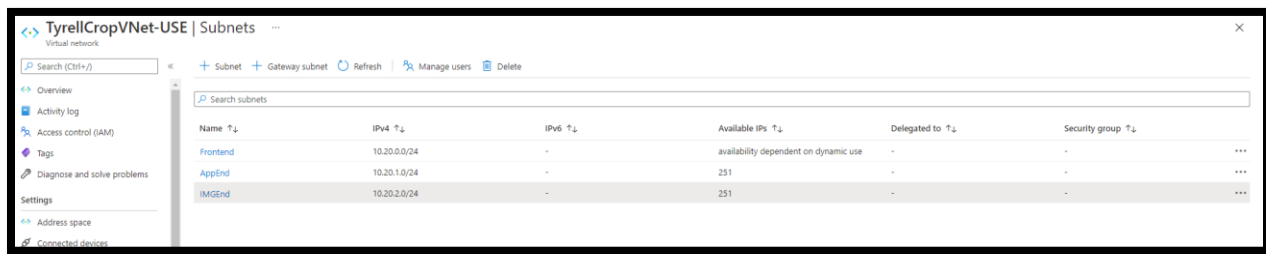
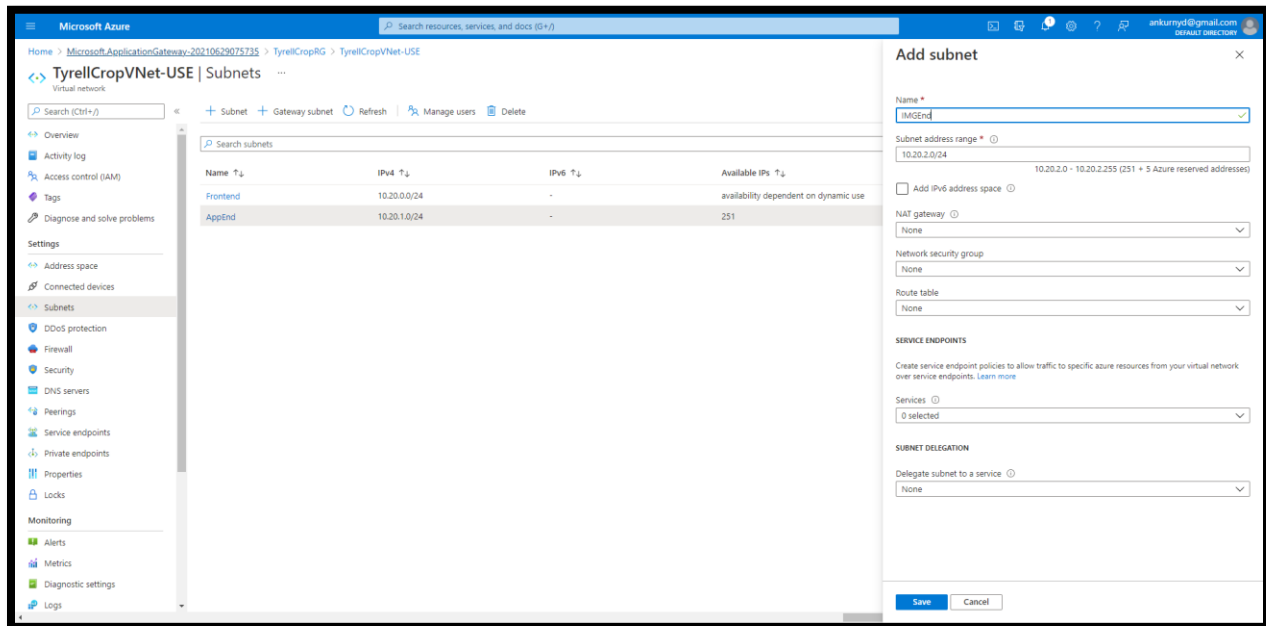


## Values Provided:

- Name: AppEnd
- Address Space: 10.20.1.0/24



- Provided this Value-
  - Name:IMGEnd
  - Address Space:10.20.2.0/24



## Created Availability Set

- From the Create a Resource blade, Searched for Availability Set and Create.
- Name: TyrellApp-AS
- Resource Group: TyrellCropRG
- Location:East US (\*with 2 fault domains and 5 update domains)



[Home](#) > [Availability sets](#) >

## Create availability set ...

**Basics**   Advanced   Tags   Review + create

An Availability Set is a logical grouping capability for isolating VM resources from each other when they're deployed. Azure makes sure that the VMs you place within an Availability Set run across multiple physical servers, compute racks, storage units, and network switches. If a hardware or software failure happens, only a subset of your VMs are impacted and your overall solution stays operational. Availability Sets are essential for building reliable cloud solutions.

[Learn more about availability sets.](#)

### Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription \* ⓘ

Pay-As-You-Go



Resource group \* ⓘ

TyrellCropRG

[Create new](#)

### Instance details

Name \* ⓘ

TyrellApp-AS ✓

Region \* ⓘ

(US) East US

Fault domains ⓘ

2

Update domains ⓘ

5

Use managed disks ⓘ

No (Classic)   **Yes (Aligned)**

**Review + create**

< Previous

Next : Advanced >



[Home](#) > [Availability sets](#) >

# Create availability set ...

Validation passed

[Basics](#)   [Advanced](#)   [Tags](#)   [Review + create](#)

## Basics

Subscription	Pay-As-You-Go
Resource group	TyrellCropRG
Region	East US
Name	TyrellApp-AS
Fault domain count	2
Update domain count	5
Use managed disks	Yes (Aligned)

## Advanced


Proximity placement group	None
---------------------------	------

## Tags

(none)


[Create](#)[< Previous](#)[Next >](#)[Download a template for automation](#)

- From the Create a Resource blade, Searched for Availability Set and Created another Availability Set.
- Name: TyrellIMG-AS
- Resource Group: TyrellCropRG
- Location:East US (\*with **2** fault domains and **5** update domains)

 Microsoft Azure

[Home](#) > [Availability sets](#) >

## Create availability set ...

 Validation passed

[Basics](#) [Advanced](#) [Tags](#) [Review + create](#)

### Basics

Subscription	Pay-As-You-Go
Resource group	TyrellCropRG
Region	East US
Name	TyrellIMG-AS
Fault domain count	2
Update domain count	5
Use managed disks	Yes (Aligned)

### Advanced

Proximity placement group	None
---------------------------	------

### Tags

(none)


## Add VM's – For Application

- From the **Create a Resource** blade, On Compute and selected **Windows Server 2016 Datacenter**.

### Basic:

- Resource group: TyrellCropRG
- Virtual machine name: TYrellAppVM01
- Region: east us
- Availability options: Availability set ->TyrellApp-AS
- Image: Windows Server 2016 Datacenter
- Size: Standard DS1 v2
- Username: sysadmin
- Password: Wow01qwerty!
- Public inbound ports: Allow Selected Ports
- Selected Inbound ports:http,rdp
- Already have a Windows license? No

### Create a virtual machine ...

 Changing Basic options may reset selections you have made. Review all options prior to creating the virtual machine.

**Basics**   Disks   Networking   Management   Advanced   Tags   Review + create

Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or use your own customized image. Complete the Basics tab then Review + create to provision a virtual machine with default parameters or review each tab for full customization. [Learn more](#)

**Project details**

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription \* ⓘ Pay-As-You-Go


Resource group \* ⓘ TyrellCropRG  
[Create new](#)

**Instance details**

Virtual machine name \* ⓘ TyrellAppVM01

Region \* ⓘ (US) East US


Availability options ⓘ No infrastructure redundancy required

Image \* ⓘ  Windows Server 2016 Datacenter - Gen1  
[See all images](#)

Azure Spot instance ⓘ ☐

Size \* ⓘ Standard\_DS1\_v2 - 1 vcpu, 3.5 GiB memory (₹6,626.72/month)  
[See all sizes](#)

## Create a virtual machine ...

 Changing Basic options may reset selections you have made. Review all options prior to creating the virtual machine.

[See all sizes](#)

### Administrator account

Username \* ⓘ  ✓

Password \* ⓘ  ✓


Confirm password \* ⓘ  ✓

### Inbound port rules


Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports \* ⓘ ☐ None ☒ Allow selected ports

Select inbound ports \*  ✓

 This will allow all IP addresses to access your virtual machine. This is only recommended for testing. Use the Advanced controls in the Networking tab to create rules to limit inbound traffic to known IP addresses.

### Licensing

Save up to 49% with a license you already own using Azure Hybrid Benefit. [Learn more](#) 

Would you like to use an existing Windows Server license? \* ⓘ ☐

[Review Azure hybrid benefit compliance](#)


[Review + create](#) [< Previous](#) [Next : Disks >](#)

## Disk:

- OS disk type: **Standard HDD**

## Create a virtual machine ...

Basics Disks Networking Management Advanced Tags Review + create

Azure VMs have one operating system disk and a temporary disk for short-term storage. You can attach additional data disks. The size of the VM determines the type of storage you can use and the number of data disks allowed. [Learn more](#) 

### Disk options

OS disk type \* ⓘ  ✓

The selected VM size supports premium disks. We recommend Premium SSD for high IOPS workloads. Virtual machines with Premium SSD disks qualify for the 99.9% connectivity SLA.

Encryption type \*  ✓

Enable Ultra Disk compatibility ⓘ ☐

Ultra disk is available only for Availability Zones in eastus.



## Networking:

- Virtual network: TyrellCropVNet-USE
- Subnet name: **AppEnd**
- Public IP: **TYrellAppVM01-ip**
- NIC Network security group: **Basic**
- Public inbound ports: **Allow Selected Ports**
- Selected Inbound ports: **http,rdp**
- Accelerated networking: **Off**
- **Load balancing: No**

[Basics](#) [Disks](#) [Networking](#) [Management](#) [Advanced](#) [Tags](#) [Review + create](#)

Define network connectivity for your virtual machine by configuring network interface card (NIC) settings. You can control ports, inbound and outbound connectivity with security group rules, or place behind an existing load balancing solution. [Learn more](#)

### Network interface

When creating a virtual machine, a network interface will be created for you.

Virtual network *	<div>TyrellCropVNet-USE</div> <div>Create new</div>
Subnet *	<div>AppEnd (10.20.1.0/24)</div> <div>Manage subnet configuration</div>
Public IP	<div>(new) TYrellAppVM01-ip</div> <div>Create new</div>
NIC network security group	<div><input type="radio"/> None</div> <div><input checked="" type="radio"/> Basic</div> <div><input type="radio"/> Advanced</div>
Public inbound ports *	<div><input type="radio"/> None</div> <div><input checked="" type="radio"/> Allow selected ports</div>
Select inbound ports *	<div>HTTP (80), RDP (3389)</div>

**⚠ This will allow all IP addresses to access your virtual machine.** This is only recommended for testing. Use the Advanced controls in the Networking tab to create rules to limit inbound traffic to known IP addresses.

## Create a virtual machine ...

✓ Validation passed

### Basics

Subscription	Pay-As-You-Go
Resource group	TyrellCropRG
Virtual machine name	TYrellAppVM01
Region	East US
Availability options	No infrastructure redundancy required
Image	Windows Server 2016 Datacenter - Gen1
Size	Standard DS1 v2 (1 vcpu, 3.5 GiB memory)
Username	sysadmin
Public inbound ports	RDP, HTTP
Already have a Windows license?	No
Azure Spot	No

### Disks

OS disk type	Standard SSD LRS
Use managed disks	Yes
Ephemeral OS disk	No

### Networking

Virtual network	TyrellCropVNet-USE
Subnet	AppEnd (10.20.1.0/24)
Public IP	(new) TYrellAppVM01-ip
Accelerated networking	Off
Place this virtual machine behind an existing load balancing solution?	No

### Management

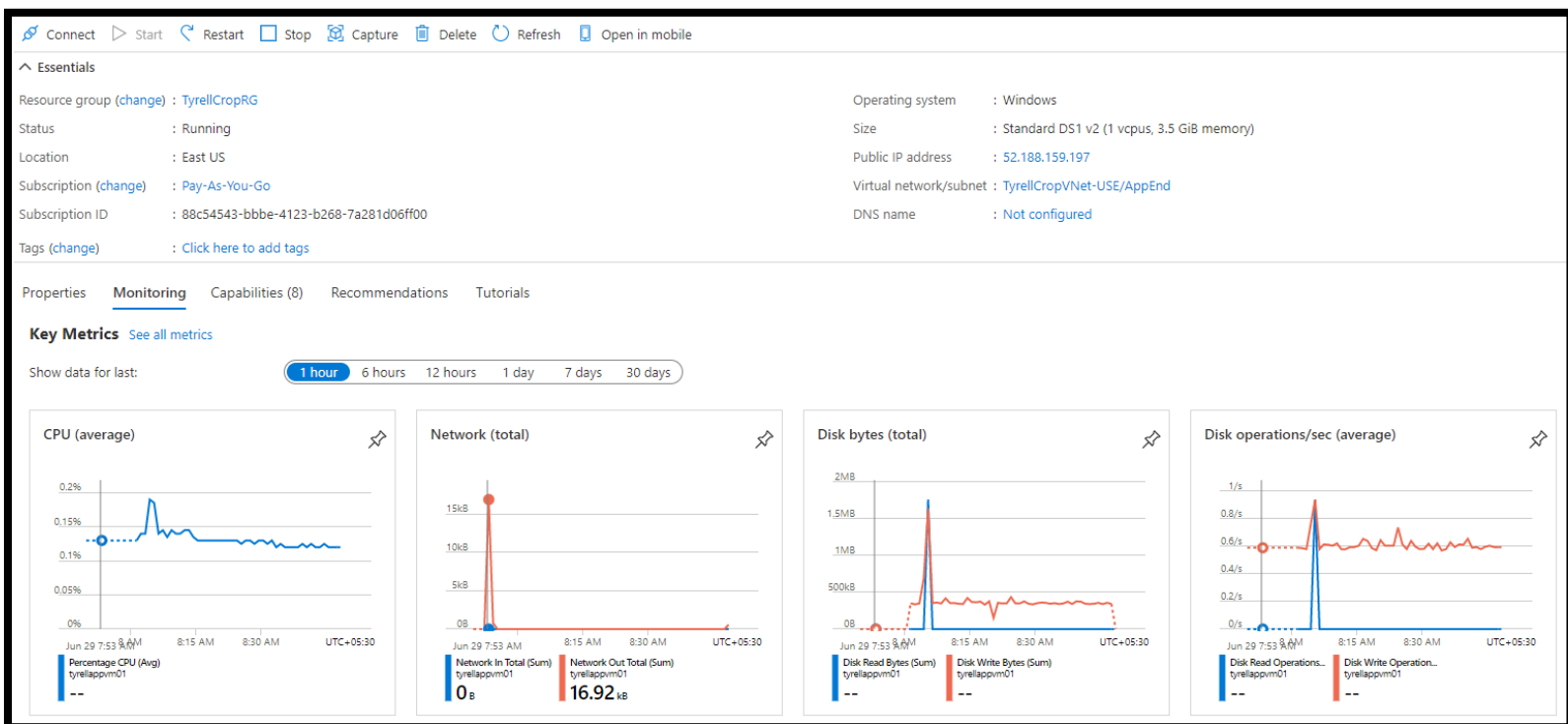
Create

< Previous

Next >

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## Add VM's – For Images

- From the **Create a Resource** blade, click on Compute and select **Windows Server 2016 Datacenter**.
- Use the **Create a virtual machine** blade to deploy a virtual machine with the following settings:

### Basic:

- Resource group: TyrellCropRG
- Virtual machine name: TyrellIMGVM01
- Region: east us
- Availability options: Availability set ->TyrellIMG-AS
- Image: Windows Server 2016 Datacenter
- Size: Standard DS1 v2
- Username: sysadmin
- Password: Pa55w.rd!234
- Public inbound ports: Allow Selected Ports
- Selected Inbound ports: http,rdp
- Already have a Windows license? No

# Create a virtual machine ...

 Changing Basic options may reset selections you have made. Review all options prior to creating the virtual machine.

**Basics**   Disks   Networking   Management   Advanced   Tags   Review + create

Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or use your own customized image. Complete the Basics tab then Review + create to provision a virtual machine with default parameters or review each tab for full customization. [Learn more](#)

## Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription \* ⓘ

Pay-As-You-Go (88c54543-bbbe-4123-b268-7a281d06ff00) ▼

Resource group \* ⓘ

TyrellCropRG ▼

[Create new](#)

## Instance details

Virtual machine name \* ⓘ

TyrellIMGVM01 ✓


Region \* ⓘ

(US) East US ▼

Availability options ⓘ

No infrastructure redundancy required ▼

Image \* ⓘ

 Windows Server 2016 Datacenter - Gen1 ▼

[See all images](#)

Azure Spot instance ⓘ

☐

Size \* ⓘ

Standard\_DS1\_v2 - 1 vcpu, 3.5 GiB memory (₹6,626.72/month) ▼

[See all sizes](#)

[Home](#) > [Create a resource](#) >

## Create a virtual machine ...

Changing Basic options may reset selections you have made. Review all options prior to creating the virtual machine.

[See all sizes](#)

### Administrator account

Username \*

sysadmin

Password \*

.....

Confirm password \*

.....

### Inbound port rules

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports \*



None



Allow selected ports

Select inbound ports \*

HTTP (80), RDP (3389)



**This will allow all IP addresses to access your virtual machine.** This is only recommended for testing. Use the Advanced controls in the Networking tab to create rules to limit inbound traffic to known IP addresses.

### Licensing

Save up to 49% with a license you already own using Azure Hybrid Benefit. [Learn more](#)

Would you like to use an existing  
Windows Server license? \*

[Review Azure hybrid benefit compliance](#)[Review + create](#)

&lt; Previous

Next : Disks &gt;

## Disk:

- a. OS disk type: **Standard HDD**

The screenshot shows the 'Create a virtual machine' page in the Microsoft Azure portal, specifically the 'Disks' tab. The page has a blue header with the Microsoft Azure logo and a search bar. Below the header, there's a breadcrumb trail: 'Home > Create a resource >'. The main heading is 'Create a virtual machine ...'. Below this, there are tabs for 'Basics', 'Disks' (which is selected), 'Networking', 'Management', 'Advanced', 'Tags', and 'Review + create'. A paragraph explains that Azure VMs have one operating system disk and a temporary disk for short-term storage, and that the size of the VM determines the type of storage you can use and the number of data disks allowed. A link 'Learn more' is provided. Under the 'Disk options' section, there are three settings: 1. 'OS disk type' with a dropdown menu showing 'Standard SSD (locally-redundant storage)'. A note below this dropdown states: 'The selected VM size supports premium disks. We recommend Premium SSD for high IOPS workloads. Virtual machines with Premium SSD disks qualify for the 99.9% connectivity SLA.' 2. 'Encryption type' with a dropdown menu showing '(Default) Encryption at-rest with a platform-managed key'. 3. 'Enable Ultra Disk compatibility' with an unchecked checkbox. A note below this checkbox states: 'Ultra disk is available only for Availability Zones in eastus.'

Microsoft Azure

Search resources, services, and docs (G+)

Home > Create a resource >

### Create a virtual machine ...

Basics **Disks** Networking Management Advanced Tags Review + create

Azure VMs have one operating system disk and a temporary disk for short-term storage. You can attach additional data disks. The size of the VM determines the type of storage you can use and the number of data disks allowed. [Learn more](#)

#### Disk options

OS disk type \* ⓘ Standard SSD (locally-redundant storage) ▼

The selected VM size supports premium disks. We recommend Premium SSD for high IOPS workloads. Virtual machines with Premium SSD disks qualify for the 99.9% connectivity SLA.

Encryption type \* (Default) Encryption at-rest with a platform-managed key ▼

Enable Ultra Disk compatibility ⓘ ☐

Ultra disk is available only for Availability Zones in eastus.

## Networking:

- Virtual network: TyrellCropVNet-USE
- Subnet name: IMGNet
- Public IP: TYrellIMGVM01-ip
- NIC Network security group: Basic
- Public inbound ports: Allow Selected Ports
- Selected Inbound ports:http,rdp
- Accelerated networking: Off
- Load balancing: No

Microsoft Azure

Search resources, services, and docs (G+ /)

[Home](#) > [Create a resource](#) >

## Create a virtual machine ...

Virtual network \* ⓘ

TyrellCropVNet-USE

Create new

Subnet \* ⓘ

IMGEnd (10.20.2.0/24)

Manage subnet configuration

Public IP ⓘ

(new) TyrellIMGVM01-ip

Create new

NIC network security group ⓘ

☐ None

☒ Basic

☐ Advanced


Public inbound ports \* ⓘ

☐ None

☒ Allow selected ports

Select inbound ports \*

HTTP (80), RDP (3389)

 **This will allow all IP addresses to access your virtual machine.** This is only recommended for testing. Use the Advanced controls in the Networking tab to create rules to limit inbound traffic to known IP addresses.

### Management:


- Boot diagnostics: Off
- OS guest diagnostics: Off
- System assigned managed identity: Off
- Enable auto-shutdown: Off
- Enable Backup: Off


# Create a virtual machine ...

Basics   Disks   Networking   Management   Advanced   Tags   Review + create


Configure monitoring and management options for your VM.


## Azure Security Center

Azure Security Center provides unified security management and advanced threat protection across hybrid cloud workloads. [Learn more](#) 


 Your subscription is protected by Azure Security Center basic plan.

## Monitoring

Boot diagnostics  ☒ Enable with managed storage account (recommended)  
☐ Enable with custom storage account  
☐ Disable


Enable OS guest diagnostics  ☐

## Identity

System assigned managed identity  ☐

## Azure AD

Login with Azure AD  ☐

 This image does not support Login with Azure AD.



[Home](#) > [Create a resource](#) >

# Create a virtual machine ...



Validation passed

## Basics

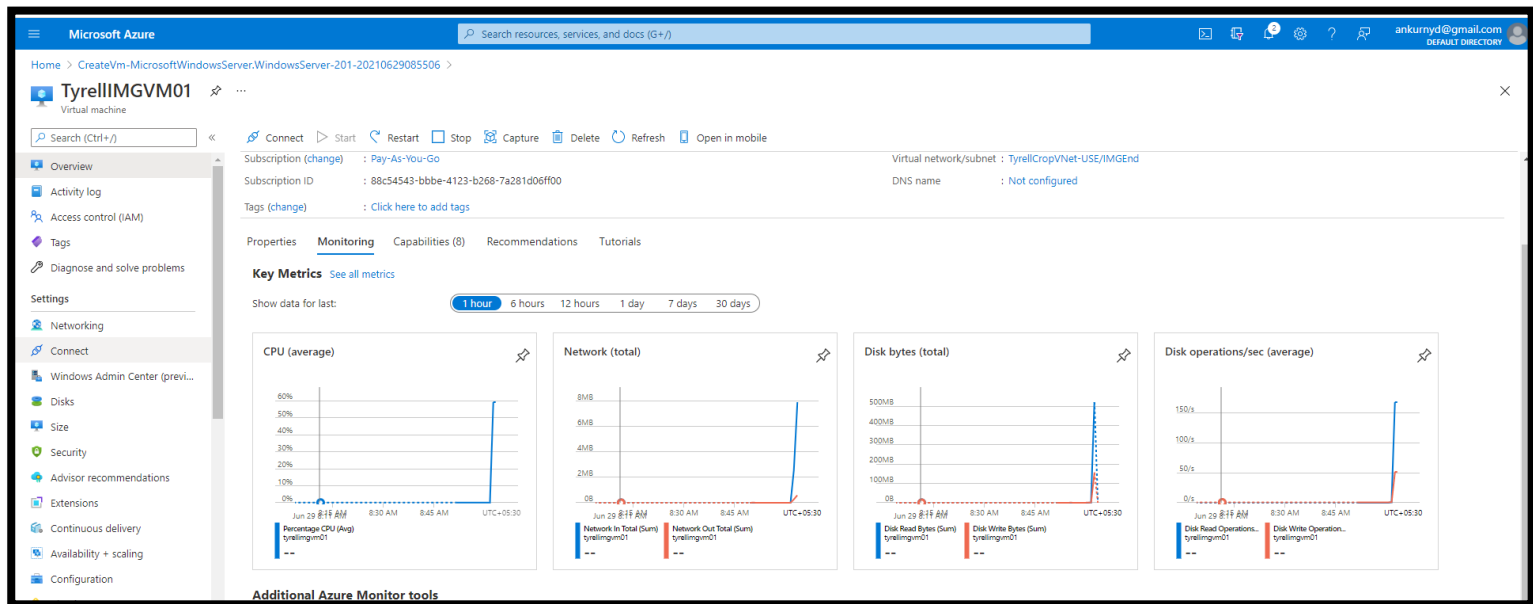
Subscription	Pay-As-You-Go
Resource group	TyrellCropRG
Virtual machine name	TyrellIMGVM01
Region	East US
Availability options	No infrastructure redundancy required
Image	Windows Server 2016 Datacenter - Gen1
Size	Standard_DS1_v2 (1 vcpu, 3.5 GiB memory)
Username	sysadmin
Public inbound ports	RDP, HTTP
Already have a Windows license?	No
Azure Spot	No

## Disks

OS disk type	Standard SSD LRS
Use managed disks	Yes
Ephemeral OS disk	No

## Networking

Virtual network	TyrellCropVNet-USE
Subnet	IMGEnd (10.20.2.0/24)
Public IP	(new) TyrellIMGVM01-ip
Accelerated networking	Off
Place this virtual machine behind an existing load balancing solution?	No



## Adding IIS role to the Windows Servers.

- After each virtual machine is provisioned logged in using remote desktop by clicking the Connect button on the virtual machine configuration blade and logging in with the administrative credentials.
- Once inside the VM, opened the PowerShell.
- In the PowerShell console executed this command: **Add-WindowsFeature -Name "Web-Server"**
- Once IIS has completed installation opened the file at C:\inetPub\wwwroot\iisstart.htm in notepad on each server.
- Inside the <body> tag insert-
  - <b>This content comes from App server !!</b> (on TYrellAppVM01)
  - <b>This content comes from IMG server !!</b> (on TYrellIMGVM01)
- Repeated the steps in both virtual machines to install IIS.

## TyrellAppVM01 – Adding IIS role

TyrellAppVM01 - 52.188.159.197:3389 - Remote Desktop Connection

Administrator: Windows PowerShell

Windows PowerShell  
Copyright (C) 2016 Microsoft Corporation. All rights reserved.

PS C:\Users\systadmin> Add-WindowsFeature -Name "Web-Server"

Success	Restart Needed	Exit Code	Feature Result
True	No	Success	{Common HTTP Features, Default Document, D...

TyrellAppVM01 - 52.188.159.197:3389 - Remote Desktop Connection

iisstart - Notepad

File Edit Format View Help

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1
<title>IIS Windows Server</title>
<style type="text/css">
<!--
body {
    color:#000000;
    background-color:#0072C6;
    margin:0;
}

#container {
    margin-left:auto;
    margin-right:auto;
    text-align:center;
}

a img {
    border:none;
}

-->
</style>
</head>
<body>
```

**This content comes from App server !! (on TYrellAppVM01)**

```
<div id="container">
<a href="http://go.microsoft.com/fwlink/?linkid=66138&clcid=0x409"
</div>
</body>
</html>
```

## TYrellIMGVM01 – Adding IIS Role

```
TyrellIMGVM01 - 52.170.26.100:3389 - Remote Desktop Connection
Administrator: Windows PowerShell
Windows PowerShell
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PS C:\Users\sadmin> Add-WindowsFeature -Name "Web-Server"

Success Restart Needed Exit Code      Feature Result
-----
True      No                Success      {Common HTTP Features, Default Document, D...
```

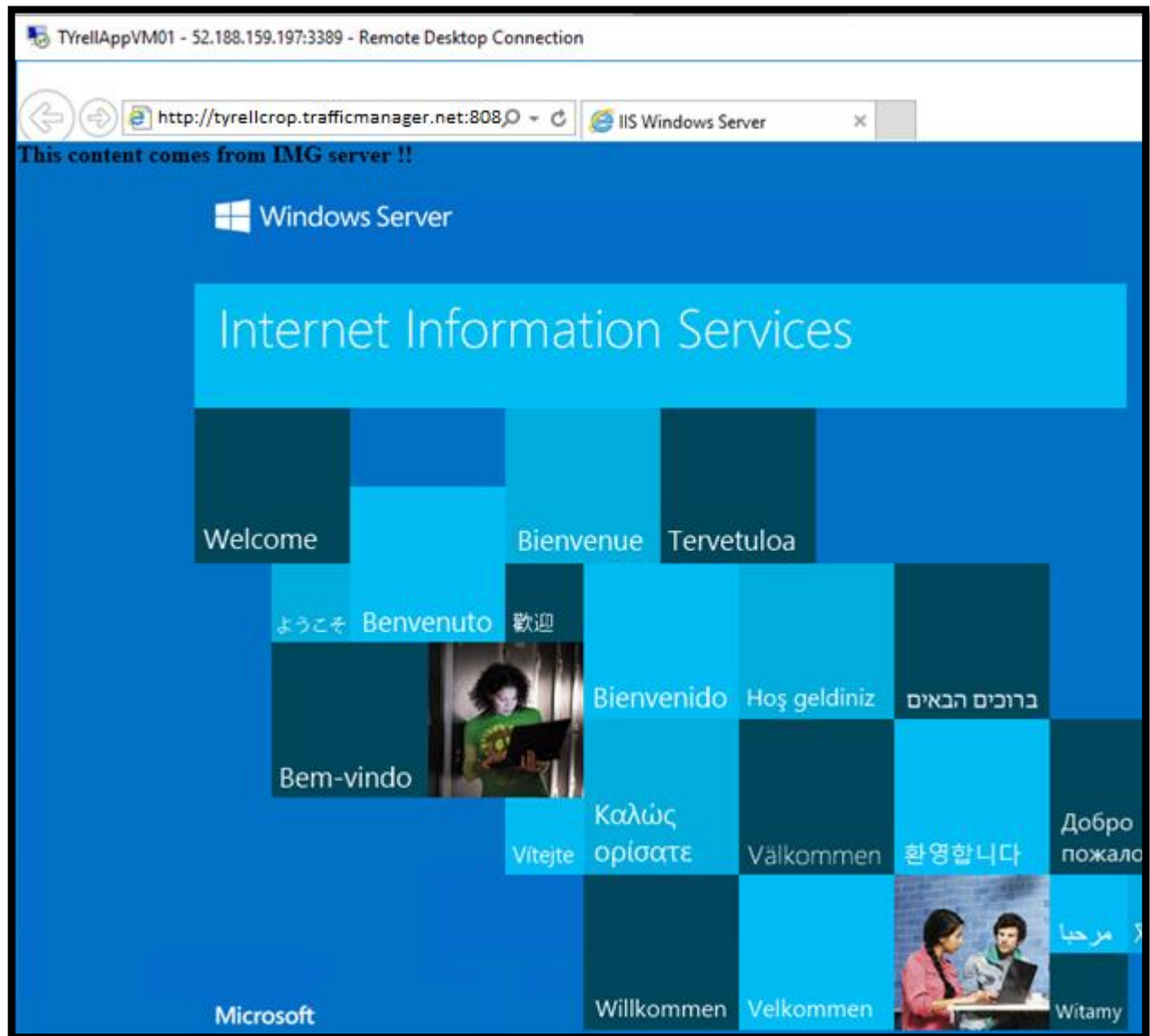
```
iisstart - Notepad
File Edit Format View Help
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
<title>IIS Windows Server</title>
<style type="text/css">
<!--
body {
    color:#000000;
    background-color:#0072C6;
    margin:0;
}

#container {
    margin-left:auto;
    margin-right:auto;
    text-align:center;
}

a img {
    border:none;
}

-->
</style>
</head>
<body>
<b>This content comes from IMG server !!</b> (on TYrellIMGVM01)
<div id="container">
<a href="http://go.microsoft.com/fwlink/?linkid=66138&clcid=0x409">
</body>
</html>
```

Test Successful at VM01



Test Successful at IMG01

