

Microsoft

Implementing Microsoft Azure Infrastructure Solutions

Labs

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Lab 1 Azure Networking

In this lab, you will create 2 Azure VNets. One classic VNET using the Classic Portal and one ARM VNet using the ARM Portal. You will then use VNET Peering to connect the two VNets together. Finally, you will create a new Virtual Network Gateway and use it to create a Point-to-Site connection.

Exercise 1 Creating an ARM VNet

- 1. Using the <u>Http://Portal.Azure.Com</u> login to the ARM Portal.
- 2. Use the icon to search for and create a new Virtual Network, making sure you choose to create a Resource Manager Virtual Network

Micr	osoft Azure New > Marketpla	ice (Everything > Virtual network	
≡	* 🗆	×	↔ Virtual network	* 🗖 :
+			Create a logically isolated section in Microsoft Azu connect it to your on-premises datacenter or a sin	re with this networking service. You can securely gle client machine using an IPsec connection.
	×		Virtual Networks make it easy for you to take adva Azure while providing connectivity to data and app on Windows Server, mainframes, and UNIX.	antage of the scalable, on-demand infrastructure of plications on-premises, including systems running
*		~	Use Virtual Network to:	
Ŷ	∧ CATEGORY ∧		Extend your datacenter Build distributed applications	
Ţ	Networking		Remotely debug your applications	
<>	Networking			
añi	Networking		PUBLISHER Microsoft	
<>	Networking	~	Service overv	view
			Select a deployment model Resource Manager]
0	Service Bus Microsoft		Create	

3. Create a virtual network with the following settings:

Name: ARMVnet

Address Space: 192.168.X.0/24 (Where X is your student number provided by your instructor)

Subnet Name: Subnet1

Subnet Address Range: 192.168.X.0/28 (Where X is your student number provided by your instructor)

Resource Group: Create a new Resource group called AzureClass

Region: North Europe

Create virtual networ	k 🗖 🗙
* Name	
ARMVnet	× 1
* Address space 0	
192.168.1.0/24	~
192.168.1.0 - 192.168.1.	255 (256 addresses)
* Subnet name	
Subnet1	~
* Subnet address range 0	
192.168.1.0/28	v
192.168.1.0 - 192.168	.1.15 (16 addresses)
* Subscription	
MGBLEEDSAZURE	~
* Resource group	
Create new O Use exist	ing
AzureClass	<

Exercise 2 Creating a Peering between your two VNets

1. Go to the properties of your ARM VNet and select the

😪 Peerings

section

Search (Ctrl+/)		+ Add		
↔ Overview	^	NAME	PEERING STATUS	PEER
Activity log		2		
Access control (IAM)		No results.		
🗳 Tags				
ETTINGS				
Address space				
 Connected devices 				
<-> Subnets				
DNS servers				

2. Use the + Add

following settings: Name: ARMtoCLASSIC Peer Details: Classic Virtual network: ClassicVnet to create a new Peering with the



ARMVnet	D,
* Name	
ARMtoCLASSIC	 ✓
Peer details	
Virtual network deployment model 🛛	
Resource manager Classic	
* Subscription MGBLEEDSAZURE	~
Subscription MGBLEEDSAZURE Virtual network	v
* Subscription MGBLEEDSAZURE Virtual network ClassicVnet	~
* Subscription MGBLEEDSAZURE Virtual network ClassicVnet Configuration	~
Subscription MGBLEEDSAZURE Virtual network ClassicVnet Configuration Allow virtual network access	~

After a few minutes the Peering connection should show Status as Created and then shortly after it should show as connected.

Search peerings				
NAME	PEERING STATUS	PEER	GATEWAY TRANSIT	
RMtoCLASSIC	Connected	ClassicVnet	Disabled	
Add				

In a later exercise, you will deploy VMs to each of these VNets and they should be able to connect to each other.

Exercise 3 Creating a Virtual Network Gateway

1. Go to the properties of your ARM VNet and go to the Subnets section then using the

Gateway subnet option create a new Gateway Subnet with the default settings.

➢ Search subnet	5				
NAME	^	ADDRESS RANGE	AVAILABLE ADD ^	SECURITY GROUP	
Subnet1		192.168.1.0/28	11	•	
GatewaySubnet		192.168.1.16/28	11		

You will be deploying your new Virtual Network Gateway to this GatewaySubnet

2. Using the + create a new Virtual Network Gateway

+	× ^	Everything	^	T Filter	
*		Compute		Virutal NetworkGateway	
		Networking			
Ψ	$\left \right\rangle$	Storage		U results in the Everything category. Showing results for "virtual net	work gateway" in Everything.
<>	Ś	Web + Mobile			
âM		Databasas		Virtual network gateway	Microsoft

3. Use the following settings to create your new Virtual Network Gateway Name: ARMGateway Gateway Type: VPN **VPN Type:** Route-based SKU: Standard Virtual Network: ARMVnet Public IP Address: Create a new public IP Address with a name of ARMGATEWAYIP

Leave everything else at their defaults.

Create virtual network gate	e □ ×	 Public IP address (new) ARMGATEWAYIP 	>
* Name	,	* Subscription	
ARMGateway	×	MGBLEEDSAZURE	~
Gateway type 0		Resource group 0	
VPN ExpressRoute		AzureClass	
VPN type 🛛		* Location 0	
Route-based Policy-based		North Europe	~
SKU 🛛			
Standard	~	Pin to dashboard	
* Virtual network 🛛		Create Automation option	ns
ARMVnet	/	Provisioning a virtual network gateway ma	ay take up

Use the **Create** button to create your gateway, this process can take up t 45mins to complete. While your ARM Gateway is being created you can generate the certificates that will be needed to authenticate your Point-to-Site connection. You will be using

Makecert.exe to generate a root and client certificate locally, then once your Gateway is created you can upload the root certificate to Azure. Mkaecert.exe should have been installed in c:\makecert folders in the local host server in the classroom. If it is not installed there ask your instructor where it is.

4. Open the ISE as Administrator and the in the console pane navigate to the c:\makecert folder.

```
PS C:\Makecert>
PS C:\Makecert>
PS C:\Makecert>
```

5. Use the commands below to create the Root and client certificate that will be used in this lab (the line number in the screen shot below are irrelevant also be aware that there are 2 commands below, they are separated on to multiple lines using the `tick.)

```
2 #Make RootCert and Client Cert
3 .\makecert.exe -sky exchange -r -n "CN=ARMP2SRootCert" -pe -a shal `
4 -len 2048 -ss My "ARMP2SRootCert.cer" -b 01/02/2017
5 .\makecert.exe -n "CN=ARMP2SClientCert" -pe -sky exchange -m 96 -ss My `
7 -in "ARMP2SRootCert" -is my -a shal -b 01/02/2017
8
```

Now that your certificates are created you will need to wait for the gateway to be created before you continue. Your gateway is only fully created once it has been given a Public IP Address.



- 6. From the ISE use the Add-AzureRMAccount command to login to your account (If you have multiple subscriptions you might have to use the SelectAzureRMSubscription cmdlet to choose the correct subscription)
- 7. Once your gateway has been created you can use the commands below to complete your Point-to-Site configuration.

```
12
      #Convert Root Cert
13
14
      $RootCert = "ARMP2SRootCert.cer"
      $filePathForCert = "C:\Makecert\ARMP2SRootCert.cer"
$cert = new-object System.Security.Cryptography.X509Certificates.X509Certificate2($filePathForCert)
$CertBase64 = [system.convert]::ToBase64String($cert.RawData)
15
16
17
18
      $p2srootcert = New-AzureRmVpnClientRootCertificate -Name $RootCert -PublicCertData $CertBase64
#Get Gateway
$name = "ARMGateway"
$res = "AzureClass"
$Gateway = Get-AzureRmVirtualNetworkGateway -Name $name -ResourceGroupName $res
#Set Client addresspool and RootCert
Set-AzureRmVirtualNetworkGateway -VirtualNetworkGateway $Gateway 
-VpnClientAddressPool "192.170.111.0/24" -VpnClientRootCertificates $p2srootcert
```

The commands above are in three sections. Firstly, you will convert the root cert into a format that can be used by Azure. Secondly you will use variables to store information about the gateway you have created. Thirdly you will create the Point-to-Site configuration by assigning the certificate to the gateway and creating an Addresspool. NOTE. That the command Set-AzureRMVirtualNetworkGateway command is a single command on one line.

Once configured if you go back to your gateway on the portal you will see a configuration like the one below:

Search (Ctrl+/)	R Save X Discard Y Downloa	d VPN client
🙆 Overview	Connection health	
Activity log	Connections	0
Access control (IAM)	Ingress (bytes) Egress (bytes)	0 0
🛷 Tags	Address pool	
X Diagnose and solve problems	192.170.111.0/24	
SETTINGS	Root certificates	
Configuration	NAME	PUBLIC CERTIFICATE DATA
S Connections	ARMP2SRootCert.cer	MIIDAjCCAe6gAwlBAgIQNU8p7GYrk4dGAPC0eJ6XJzAJBgUrDgMCHQUAMBkxFz
↔ Point-to-site configuration		
Properties	2 <u>1</u>	

8. Use the ______ option to download and install the x64 VPN Client (The client can take a few minutes to be made available)

9. Once the VPN client is installed use it to connect to you Azure VNet.#

If the connection is established, you should see a PPP connection if you run Ipconfig from the cmd prompt



Lab 2 Deploying Azure Virtual Machines

In this Lab, you will deploy virtual machines to your newly created VNets.

Exercise 1 Creating an ARM and Classic Virtual Machines

1. From the portal use the + to create a new Virtual Machine selecting Compute and then choose to create a Windows Server 2012 R2 Datacentre Virtual Machine. Make sure you select to create an Resource Manager virtual machine.



2. Create a virtual machine with the following settings:

Name: VM1

VM Disk Type: HDD

Username: YourName

Password: Use a complex Password

Resource group: Use Existing named AzureClass

Location: NorthEurope

Size: D1_V2

Storage: Yes Use Managed Disks

Network: ARMVnet

Subnet: Subnet1

Leave all other settings at their default and click OK on the Summary screen.

3. Repeat step 2 this time choose to create a **Classic Virtual Machine** named **VM2** and place it on the classic VNet you created earlier. Choose **Standard** as the **Disk type** and accept the defaults for the storage account and cloud services but make sure you choose Virtual Network **ClassicVnet** and subnet **Subnet1** for the virtual networking section. Finally click OK on the summary screen to start the deployment of VM2.

Exercise 2 Customising your newly deployed Virtual Machines

In this exercise, you will connect to both virtual machines and disable the host based firewall and install IIS on the virtual machine.

1. Using the Portal navigate to the properties of VM1 and use the Connect button

to connect to the Virtual Machine using the username and password you entered when you created the Virtual Machine.



2. Once connected use Server Manager to disable the Windows Firewall

Server Manager ► Local Server					
Dashboard	For VM1				
Local Server	Computer name	V/M1			
All Servers	Workgroup	WORKGROUP			
File and Storage Services ▷	5 1				
	Windows Firewall	Private: On			
	Remote management	Enabled			
	Remote Desktop	Enabled			
	NIC Teaming	Disabled			
	Ethernet 2	IPv4 address assigned by DHCP, IPv6 enabled			

3. Using Server Manager select Manage and then Add Roles and Features

Server Ma	anager • Local S	Server	🗸 🍘 🚩 Manage
Dashboard	PROPERTIES For VM1		Add Roles and Features Remove Roles and Features
Local Server All Servers File and Storage Services ▷	Computer name Workgroup	VM1 WORKGROUP	Create Server Group Server Manager Properties Last checked for updates
	Windows Firewall	Private: Off	Windows Error Reporting

4. Follow the wizard through and add the Web Server (IIS) Role

Select server roles

Before You Begin	Select one or more roles to install on the selected server.	
Installation Type	Roles	Descriptio
Server Selection	/	Web Serv
Server Roles	Application Server	manageal
Features	DHCP Server	applicatio
Web Server Role (IIS)	DNS Server	
	Fax Server	
Role Services	File and Storage Services (1 of 12 installed)	
Confirmation	Hyper-V	
Results	Network Policy and Access Services	
	Print and Document Services	
	Remote Access	
	Remote Desktop Services	
	Volume Activation Services	
	Web Server (IIS)	
	Windows Deployment Services	
	Windows Server Essentials Experience	

- 5. Repeat steps 1 4 but using VM2
- 6. Once you have disabled the Firewall on both VM1 and VM2 you should be able to use the Command Prompt or PowerShell ISE to ping each other. Ping VM2's IP Address from VM1

Administrator: Windows PowerShell ISE	•
File Edit View Tools Debug Add-ons Help	
Untitled1.ps1* X	
1 ipconfig	
3 Ping 172.16.1.4	
(
Media State Media disconnected Connection-specific DNS Suffix . : nseozkmeovlejcbtxwmplcphxf.fx.internal.cloudapp.net	
Tunnel adapter Teredo Tunneling Pseudo-Interface:	
Connection-specific DNS Suffix .: IPv6 Address 2001:0:9d38:78cf:420:1844:f2b5:5454 Link-local IPv6 Address : fe80::420:1844:f2b5:5454%15 Default Gateway : ::	
PS C:\Users\Mike> Ping 172.16.1.4	
Pinging 172.16.1.4 with 32 bytes of data: Reply from 172.16.1.4: bytes=32 time=1ms TTL=128 Reply from 172.16.1.4: bytes=32 time=1ms TTL=128 Reply from 172.16.1.4: bytes=32 time<1ms TTL=128 Reply from 172.16.1.4: bytes=32 time<1ms TTL=128	
Ping statistics for 172.16.1.4: Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds: Minimum = Oms, Maximum = 1ms, Average = Oms	
P5 C:\Users\Mike>	

Both VMs are on different Virtual Networks but because we have configured VNet Peering both VMs can contact each other.

Lab 3 Deploying Web Apps

Exercise 1 Creating a Web App

In this exercise, you will create a web app

1. From the Portal navigate t your AzureClass resource group and then click $\underline{+}^{Add}$ 2. Using the filter search for Web App, then select Web App and click Create.

Everything		
T Filter		
🔎 Web App		

3. Create a Web App with the following settings

Name: YourName

Resource Group: AzureClass

App Service Plan/Location: Select it then select Create New

App Service Plan Name: AppServicePlanOne

Location: West Europe

Pricing Tier: S1 Standard

Application Insights: Off

Web App ^{Create}		□ ×		
* App name				
MikeBrown		~		
* Subscription	.azurewebsit	tes.net		
		×		
O Create new O Use AzureClass	existing	*		
* App Service plan/Locat AppServicePlanOne	ion (West Europe)	>		
Application Insights 0	On Off			

4. Click Create to Create your new Web APP

It will take a few minutes to create your new Web App and its associated App Service Plan. Once created both will appear in your AzureClass resource group.

	AppServicePlanOne	App Service plan	West Europe		
13	MikeBrown	App Service	West Europe	•••	

5. Click on your Web App to open it properties. The Overview page would be displayed. Here you should be able to find the URL assigned to your web app. If you double click it, it should open the holding page for your Web App.

URL
http://mikebrown.azurewebsites.net
App Service plan/pricing tier



Exercise 2 Populating your web App

In this exercise, you will populate your web app with custom content

- 1. From the properties of you web app select the Deployment credentials section and type in new username and a new password for this deployment. Click save to save your new password.
- 2. From the Overview page of your web app make a note of the FTP/deployment Username and the FTP Hostname

URL	
http://mikebrown.azurewebsites.net	
App Service plan/pricing tier	
AppServicePlanOne (Standard: 1 Small)	
FTP/deployment username	
MikeBrown\MgbleedsWEB2	
FTP hostname	
ftp://waws-prod-am2-093.ftp.azurewebsites.window	/s.net
FTPS hostname	
ftps://waws-prod-am2-093.ftp.azurewebsites.window	ws.net

We will new use FileZilla to upload new content for your Web App.

- 3. From your host Server, open FileZilla, from the File menu Select Site Manager and then New Site.
- 4. In the host name Section type (Copy / Paste) the FTP hostname recorded from the overview page of your Web App
- 5. In the Logon Type box select Normal
- 6. In the Username box type the FTP/Deployment username recorded from the overview page of your Web App
- 7. In the Password box type the password you create in step 1.



You should see a box like the one below:

elect Entry:		General Ad	dvanced	Transfer Settings	Charset
My Sites		Host: Protocol: Encryption:	ftp://wa FTP - Fil Use exp	aws-prod-am2-05 Port: e Transfer Protocol licit FTP over TLS if available	
		Logon Type:	Normal		
		User:	MikeBr	own\MgbleedsWE	B2
		Password:	•••••	•••	
		Background Comments:	color: N	one 🗸	
New Site	New Folder				^
New Bookmark	Rename				
Delete	Duplicate				~

8. Click Connect to connect to you Web App. If you are shown a server certificate screen click OK.

You should be connect to your web app.

 On the right hand side of the screen in the FileName section navigate to the Site > wwwroot folder

Remote site: /site/www	root	~
 / LogFiles site deploymen locks 	ts	
www.root		
Filename	Fil File Last Per Ow	
hostingstart.html	67, HT 01/0	

1 file Total size: 67 063 bytes

10. On the left hand side in the filename section navigate to the c:\jsite folder

Your faste	est way	to learn	. W	/hy	wait?
综 FI	RE	BR	A	N	D
	efault_files			~	
Filename		Filesi Filet	Last m.		
Default_files		File f	21/02		
Default.htm		42,701 HTM	09/02		
filelist.xml		305 XML	08/09		
🛋 image002.jpg		11,258 JPG	08/09		

11. Copy the content of the c:\jsite folder to the /site/wwwroot folder of your web app.

Filename	Filesi Filet Last m	Filename ^	Fil File Last Per Ow
		1.	
Default_files	File f 21/02	Default_files	File 01/0
Default.htm	42,701 HTM 09/02	Default.htm	42, HT 01/0
filelist.xml	305 XML 08/09	filelist.xml	305 XM 01/0
🛋 image002.jpg	11,258 JPG 08/09	e hostingstart.html	67, HT 01/0
		image002.jpg	11, JP 01/0

Now you have copied your new web site files to your web app use a browser to navigate to the URL of your Web APP.

Lab 4 Working with Azure Storage

Exercise 1 Working with BLOB storage

In this exercise, you will be working with Azure Blob Storage and Storage explorer.

- 1. Login to the Azure console
- 2. Navigate to your Resource Group called AzureClass and then click
- 3. In the search box type Storage Account and select Storage Account to create a new storage account:



4. In the Crate Storage Account blade create the storage account with the following details:

Name: xxxazureclass (Where xxx are your initials) Deployment Model: Resource Manager Account Kind: General Purpose Performance: Standard Replication: Locally redundant Storage (LRS) Storage Service Encryption: Disabled Add



Secure Transfer Required: Disabled Resource Group: AzureClass Location: North Europe Then click Create

It will take just a couple of minutes to create your new storage account.

5. Once your storage account has been created navigate to its properties and the Access Keys section. Notice the two Default Keys and copy Key1



6. Go to the Azure Website Azure.Microsoft.com and click Resources

Microso	oft Azur	e						SALES 0-800	-022-9265 🔻	MY ACCOUNT	
Why Azure?	Solutions	Products	Documentation	Pricing	Training	Partners	Blog	Resources	Support		
-											

7. From the resources page scroll towards the bottom of the page and click on the downloads section



8. From the download page scroll down and find Azure Storage Emulator, click Install and download and install Azure Storage Emulator

Azure Storage Emulator

Install

Documentation

9. Once Storage Emulator has installed in should launch, if it doesn't launch storage emulator and you should see a screen similar to the one below asking you to connect to Azure storage.

MICCO	osott Azure Storage Explorer		
Edit Vi	iew Help		
	Search for resources Collapse All 24 Quick Access C(Local and Attached) E Storage Accounts	Connect to Azure Storage How do you want to connect to your Storage Account or service? Add an Azure Account Azure environment: Azure Use a shared access signature (SAS) URI or connection string Use a storage account name and key	
	Actions Properties		
		Next Connect Cancel	

If the screen above doesn't appear, click on the icon that looks like a plug.

- 10. Choose the Use a Storage Account Name and Key radio button and then click Next
- 11. On the Attach, External Storage screen, in the Account Name type the name of the storage account you created earlier and in the Account Key section paste Key1 that you copied earlier. Then click Next and then Connect on the next screen.



Account name:				
mgbazureclass				
Account key:				
BzqjpgF9X/b50sptAvcu7ac0PKe5+bVsyA5	3IZISaaWNqCCm	BtUIQ3B5Yy3Mli	livFSkxmF4O04uł	nR2JYFxIIEw==
Storage endpoints domain:				
Microsoft Azure Default				
Microsoft Azure China				
Other (specify below)				
core.windows.net				
Use HTTP (Not recommended) Unline privacy statement				

You should now be connected to your newly created Storage Account.

- 12. In Azure Storage Explorer navigate to your storage account and then click Blob Containers.
- 13. Right Click Blob Containers and the select Create Blob Container

Þ	(SAS-Attached Services)	
	🗐 mgbazureclass (External)	
	- All and a second	
	Create Blob Container	
	Paste Blob Container	
	Configure CORS Settings	
Q	Search From Here	
U	Refresh	

14. Create a new Blob Container called data and a new Blob Container called vhds





15. Select the newly created data container and select upload and select to upload folder. Navigate to drive c:\ and select the jsite folder and select Upload

ded)	
ded)	,
ded)	2
ded)	
	Upload Canc

This will upload the jsite folder to your data container. If you navigate back to the Azure portal you should be able to see your newly created container and the jsite folder in the data container.

mgbazureclass - Containers Storage account	* ×	data _{Container}
Search (Ctrl+/)	+ Container O Refresh	♣ Upload ♥ Refresh Delete container
Properties	Essentials 🗸	Location: data
Locks	○ Search containers by prefix	
Automation script	NAME	NAME
BLOB SERVICE	data	isite
Containers	vhds	

Exercise 2 Working with File Storage

In this exercise you will work with Azure file storage to create a file share and connect to a file share from the local PC.

1. Connect to your Azure portal and navigate to your storage account and Files storage



- 2. From Files select to create a new file share.
- 3. Give your fileshare a name of xxxshare (where xxx is your initials) and then click OK to crate your file share.

Name	
mgbfileshare	~
)uota 🖲	
	GB

4. Select your file share and then click Connect,



5. You will be using the details in the Connecting from Windows section. Open a CMD prompt locally and use the NET USE command to connect to the fileshare. The Key



used to connect is Key1 that you copied earlier in exercise 1. Below is an example of how the command will look in the command prompt:

Administrator: Command Prompt - □ ×
C:\>
C:\>
C:\>
C:\>net use x: \\mgbazureclass.file.core.windows.net\mgbfileshare /u:AZURE\mgbazureclass Bzq
jpgF9X/b50sptAvcu7ac0PKe5+bVsyA53IZISaaWNqCCmBtUIQ3B5Yy3MlLivFSkxmF4004uhR2JYFxlIEw==
The command completed successfully.

C:\>

6. While still in the command prompt type X: to navigate to the newly mapped X Drive

C:\>X: X:\> X:\>

7. Then use the following to make a directory in your file share: MD TEST

```
X:\>
X:\>MD TEST
X:\>
X:\>
```

8. If you refresh your fileshare in the portal you should see the folder TEST

mgbfileshare ^{File share}
🇢 Connect 🔻 Upload 🕂 Add directory 🕐 Refresh 🗴 Delete share 🚊 Properties 🖍 Quota
Location: mgbfileshare
Search files by prefix
NAME TYPE SIZE
TEST Directory

9. From the command prompt use the following to remove the mapping to your fileshare: NET USE X: /DELETE.

```
C:\>
C:\>NET USE X: /DELETE
X: was deleted successfully.
C:\>
C:\>
```

Try navigating to X:, this should fail because you have removed your mapping.

Exercise 3 Granting Access to a Blob Container

In this Exercise, you will change the Access Policy of a Blob container to allow anonymous read access.

1. Navigate to your storage account, Blob service and select the data container you created earlier.

mgbazureclass - Containers	* ×	data Container
Search (Ctrl+/)	+ Container 👌 Refresh	T Upload ひ Refresh
Configuration	Essentials 🗸	Location: data
Shared access signature	⊘ Search containers by prefix	Search blobs by prefix (case-sensitive)
Properties	NAME	NAME
Locks	data	I JSITE
関 Automation script	vhds	
BLOB SERVICE		
Containers		
		1

- 2. With tour data container selected click Access policy from Private to Blob and then click Save (This will grant anonymous read access to the container)
- 3. Select the data container and then select the jsite folder. Inside there you should find a file called Default.htm. select it and take a copy of its URL
- 4. Using IE open an InPrivate Browsing session (or use chrome and open and InCognito) session
- 5. Past in the URL for the Default.htm document. You should be connected to the document.



Try changing the Access Policy back to Private, close the IE InPrivate Browsing session and reopen a new one and try to connect to the URL again. Now the connection should fail.

Exercise 4 Working with Azure Backup

In this exercise, you will use Azure Backup to protect a VM running in Azure

- 1. From the AzureClass resource group click + Add and then in the search box type backup and choose Backup and Site Recovery (OMS) and then click create
- 2. On the Recovery Services Vault blade type a name of Recovery then click create

Recovery Services vault Recovery Services vault	
* Name	
Recovery	~
* Subscription	
MGBLEEDSAZURE	~
* Resource group	
○ Create new	
AzureClass	~
* Location	
North Europe	~

Pin to dash	board
Create	Automation options

Backup

It will take a few minutes to create your new recovery services vault

3. Once created navigate to your newly created recovery services vault and click

Micro	osoft Azure Resource groups >	AzureClass > Recovery	٦ م
	Recovery Recovery Services vault		
H:	Search (Ctrl+A	Backup + Replicate Delete	
	Overview	Essentials	Packup itoms
	Activity log	AzureClass	0
	Access control (IAM)	Status Active	Backup management servers 0

- 4. On the Backup Goal Blade Make Sure **Azure** is selected in *the where is your workload running?* Box and that **Virtual Machine** is selected in the *What do you want to back up?* Box. Then click OK
- 5. In the backup Policy bladed make sure *DefaultPolicy* is selected then click OK
- 6. On the Select Virtual Machine Blade choose VM1 then click OK
- 7. Finally with all three backup steps completed click Enable Backup

Backup)	
1	Backup goal Azure Backup (VM extension)	~
2	Backup policy DefaultPolicy	~
3	Items to backup Items selected : 1	*
Enab	le backup	

It will take a few minutes to enable protection on VM1. Once protected you can see the status of the protected VM by navigating to Backup items from the Protected items section of your backup vault. You should see that 1 item is protected.

Recovery - Backup item Recovery Services vault	is		* ×
Search (Ctrl+/)	U Refresh		
	A BACKUP MANAGEMENT TYPE	BACKUP ITEM COUNT	
POLICIES	Azure Virtual Machine	1	
Backup policies	Azure Backup Agent	0	
PROTECTED ITEMS	Azure Backup Server	0	
🔯 Backup items			
Replicated items			

If you click Azure Virtual Machine you should see VM1 is being protected.

Backup Iter	ms (Azure	e Virtual Machir	ne)					
C Refresh	Add	Filter						
1 Fetc	hing data fro	m service completed.						
<i>P</i> Filter items	·							
NAME	^	RESOURCE GROUP	^	BACKUP PRE-CHECK	^	LAST BACKUP STATUS	LATEST RESTORE POINT	^
vm1		AzureClass		Passed		🔺 Warning(Initial backu		

- 8. Go back to the overview page and click
- 9. This time in the *where is your workload running*? Box select On-Premises and the click Files and Folders in the What do you want to Backup? box

васки	p ol		Backup Goal 🛛 🗖 🗙
			Where is your workload running?
1	Backup goal	>	On-premises 🗸
-	Select		What do you want to backup?
			Files and folders 🗸
2	Backup policy	>	✓ Files and folders
-	Select		Hyper-V Virtual Machines
			VMware Virtual Machines
2	Items to backup	>	Microsoft SQL Server
5	Select		Microsoft SharePoint
			Microsoft Exchange
			System State
			Bare Metal Recovery

- 10. Next select the "click here to prepare your infrastructure for backup to Azure" box.
- 11. Download the Vault credentials, you will need them later
- 12. Download the Agent for windows server or client and install It locally
- 13. Once installed you must register the services with your backup vault. If the backup application doesn't open, open it and click on Register Server

🖀 Microsoft Azure Backup		- 0	×
File Action View Help			
Microsoft Azure Backup	^	Actions	
	1	Backup	-
Microsoft Azure Backup supports scheduled backups of files and folders to an online location		Register Server	
		Change Properties	
U Click on 'Kegister Server' in the Actions pane to register server using your Microsoft Azure Backup account.		View	•
rou can also conligure noulications iron viets brace to receive enant alers to backup lanures. <u>Learn note</u>		Help	

14. To register the backup application, you will need the Vault Credentials you download earlier. Click Next on the Proxy Configuration screen



🔁 Register Server Wizard

Proxy Configuration

Proxy Configuration Vault Identification Encryption Setting Server Registration	Microsoft Azure Recovery Services Agent can use the default settings configured for the server to connect to the internet or you can specify a different proxy server. Changing this proxy server setting only applies to Microsoft Azure Recovery Services Agent.
	Use a proxy server for Microsoft Azure Backup Address: Port: This proxy server requires authentication User ID: Password:
	< Previous Next > Register Cancel

15. On the vault identification page click browse and navigate to the vault credential file you downloaded earlier. It might take a few minutes to validate the credentials but once finished you should see a screen like the on below:

Register Server Wizard		×
Vault Ide	ntification	
Proxy Configuration /ault Identification	Select the vault credenti	als downloaded from the quick start page in the Microsoft Azure Backup Vault.
Yault Identification Encryption Setting Server Registration	Vault Credentials: Backup Vault: Region: Subscription Identifier:	C:\Users\Mike\Desktop\Recovery_Wed Jun 14 2017.VaultCredenti Recovery northeurope 4ef26c51-ba69-47a2-b4c2-7d6a374acbb6
		< Previous Next > Register Cancel

16. Click Next then click Generate a Passphrase on the Encryption Setting page, click browse to save the file locally. Then click Register.

It will take a few minutes to register the server.

- 17. Now you have registered the server with the Backup Vault you can use the Schedule Backup wizard to backup some files to Azure. Use it to backup c:\jsite
- 18. When ready go back to the Azure portal and the backup Items section, you should see that you have one backup agent registered and if you click on that you should see the name of the server protected.

Recovery Services vault Search (Ctrl+/)	C Refresh	
IONITORING AND REPORTS	BACKUP MANAGEMENT TYPE	BACKUP ITEM COUNT
🧮 Jobs	Azure Virtual Machine	1
Alerts and Events	Azure Backup Agent	1
DLICIES	Azure Backup Server	0
Backup policies		
ROTECTED ITEMS	1	
	(up Agent)	
ackup Items (Azure Bac	KUU AUEIIU	
ackup Items (Azure Bac	kup Agenty	

Lab 5 Identifying Elements of Azure PaaS Cloud Services

Azure provides several Services that fall under the PaaS heading, PaaS Cloud services are one of these. Today you are unlikely to deploy new services / applications using PaaS Cloud services instead you will probably use Web Apps and Web Jobs. Still you might come across PaaS cloud services in existing Azure Deployments or when migrating from Classic to ARM deployments. It is also important to be able to identify PaaS cloud elements for the 70-533 exam.

Exercise 1 Describing Cloud PaaS Elements

- 1. What elements would expect to find in the ServiceDefinition file?
- 2. What elements would you expect to find in the ServiceConfiguration file?
- 3. Describe what the Web and Worker roles do?

Exercise 2 Deploying a Pass Cloud Service

1. Open Visual studio and using Server explorer connect it to your Azure subscription. If you are unsure how to do this get your instructor to demonstrate how.

2. From the file menu choose New > Project

New Project							? ×
▷ Recent		.NET Fra	amework 4.5.1 • Sort by: Default	- 11	• E		Search Installed Templates (Ctrl+E)
 Installed 		EVB	Silverlight Application	Visual I	Basic		Type: Visual Basic
 Templates Visual C# Visual Pasic 	Î	VB	Silverlight Class Library	Visual I	Basic		A project for creating a scalable service that runs on Microsoft Azure.
 Visual basic Windows 			Class Library (Universal Windows)	Visual I	Basic		
Web Cloud			Windows Runtime Component (Universal Windows)	Visual I	Basic	I	
Extensibility Silverlight			WCF Service Application	Visual I	Basic		
Test WCF		Z,	Unit Test App (Universal Windows)	Visual I	Basic	-	
Workflow Visual F#		\bigcirc	Azure Cloud Service	Visual I	Basic		
▷ Visual C++	-	<u>ش</u>	Azure WebJob	Visual I	Basic	Ŧ	
▷ Online			Click here to go online and find templates.				
Name:	PassCloudService						
Location:	c:\users\mike\do	cuments	visual studio 2015\Projects		•		Browse
Solution name:	PassCloudService						Create directory for solution Add to Source Control
							OK Cancel

Select visual basic and Azure Cloud Services, give you project a name like PaaSCloudService and then click OK

3. On the next screen make sure you add both the ASP.NET Web Role and the Worker Role to your solution. Then click OK

New Microsoft Azure Cloud Service				?	×
.NET Framework 4.5 roles:		Microso	oft Azure Cloud Service solution:		
🔿 Visual Basic		A	WebRole1		
ASP.NET Web Role		50	ASP.NET Web Role		
WCF Service Web Role Web role for WCF services		2]	WorkerRole1 Worker Role		
Worker Role Background processing service	>				
Worker Role with Service Bus Queue Worker role processing messages from a Ser	<				
Visual C#					
			ОК	Cano	cel

4. On the New ASP.NET Application screen make sure the MVC template is selected then select Change Authentication and make sure No Authentication is selected. Click OK and then OK again. Your project will now be created.

Your fas	test way to	learn.	Why wait?
New ASP.NET Web Applic	ation - WebRole1		? 🗙
Select a template:	tes MVC Web API	Single Page Application	A project template for creating ASP.NET MVC applications. ASP.NET MVC allows you to build applications using the Model-View-Controller architecture. ASP.NET MVC includes many features that enable fast, test-driven development for creating applications that use the latest standards.
	Change Authentication No Authentication Individual User Accounts Work And School Accounts	For application	is that don't require any user authentication.
Add folders and core re	 Windows Authentication 		OK Cancel
Add unit tests	/ebRole1.Tests		OK

- 5. Once your project is created, from the view menu choose Solution Explorer. This will open the solutions explorer pane.
- 6. Using Solution explorer under the roles section double click WebRole1. This should open a page where you can configure the WebRole.



7. Using the WebRole1 page change the instance count to 4 and the VM Size to Medium.

WebRole1 [Role]* +>	< WorkerRole.vb	Your ASP.NET application	
Configuration	Service Configuration:	All Configurations	
Endpoints	Instances		
Local Storage	Instance count: 4		
Certificates	When using th To test multiple Learn more ab	e express emulator, your applicatio e instances, switch to the full emula out switching to the full emulator.	n will run a single instance of this role. tor in your cloud service properties.
	VM size: M	ledium 👻 🕲	
	0	Learn about setting the VM size	

8. Click on the Endpoints section and review the endpoints

our fast	test	: way t	o lear	'n.	Wh	iy wa	it?	
			RD					
			DN					
Configuration	Servi	ce Configuration:	All Configurat	ions	~ i	9		
Settings								
	٩đ	Add Endpoint 🔀	Remove Endpoi	int				
Local Storage	Con	figure the endpo	ints for this role.	Selec	t the certif	icate to use f	or each HTTPS endpoint when the Microsoft	Azure Cloud
Certificates	Serv	ice project is dep	loyed to Microso	oft Azı	ure (not ap	plicable whe	n running on the local Microsoft Azure comp	oute emulator).
		Name	Туре		Protocol	Public Port	Private Port	SSL Certificate Na
		Endpoint1	Input	¢	http 🗡		Input value(s) like *, 8080, or/and 8000-8080). (not applicable)

What are the differences between Input endpoints, Internal Endpoints and Instance Endpoints?

6. From solutions explorer double click WorkerRole1. This will open the WorkerRole pane.



7. On the Worker role pane change the Instance Count to 2

WorkerRole1 [Role]* 🖷	X WebRole1 [Role]*	WorkerRole.vb	Your ASP.NET application
Configuration	Service Configuration:	All Configurations	- ib
Settings	3		
Endpoints	Instances		
Local Storage	Instance count: 2		
Certificates	VM size: Sr	nall Y	Ø
	0	Learn about setting the VM	1 size

We are now ready to deploy our PaaS cloud service.

8. Right click the name of your solution and select Publish. On the Microsoft Azure Public Sign In page make sure your subscription is selected then click next.

	? ×	
Azure Publish Sign In		
Microsoft account		
mgbleeds@hotmail.com		
Choose your subscription:		
MGBLEEDSAZURE	~	
Online privacy statement < Previous Next > Publish	Cancel	
	Azure Publish Sign In Microsoft account mgbleeds@hotmail.com Choose your subscription: MGBLEEDSAZURE Online privacy statement Previous Next > Publish	Azure Publish Sign In Microsoft account mgbleeds@hotmail.com Choose your subscription: MGBLEEDSAZURE Online privacy statement Yervious Next > Publish Cancel

9. On the Create Cloud Service and Storage Account page provide a name for your cloud service, choose **West Europe** for the region and **Locally Redundant** for the replication type. Then click create.

ublish Azure A	oplication	?
3 M	icrosoft Aruna Dublich Sattings	
ign in	Create Cloud Service and Storage Account X	
ettings Diagnostics	Microsoft account mgbleeds@hotmail.com	~
ummary	Subscription:	
	MGBLEEDSAZURE	~
	Name:	
	mgbcloudservice	~
	Region or Affinity Group:	
	West Europe Y	Ý
	Replication:	
	Locally Redundant	
	Read more about replication services and pricing details.	
	Create Close	
	Online privacy statement < Previous Next > Publish	Cancel

10. Once the cloud service is created click Publish

Your fast	test way to learn. Why wait?	
Publish Azure Applicat	soft Azure Publish Settings	?
Sign in	Common Settings Advanced Settings	
Settings	Cloud Service:	
Diagnostics	mgbcloudservice (West Europe)	~
Summary	Environment:	
	Production	~
	Build configuration:	
	Release	~
	Service configuration:	
	Cloud	~
	Enable Remote Desktop for all roles <u>Settings</u> Enable Web Deploy for all web roles (requires Remote Desktop)	

It will take some time to create your new Cloud Service. You can monitor the progress of the deployment through visual studio:

×

		 WorkerRole 	♥ Run	
1 💡 📮	Imports System			
2	Imports System.Colle	ctions.Generic		
3	Imports System.Diagno	ostics		
4	Imports System.Linq			
5	Imports System.Net			
6	Imports System. Thread	ding		
7	Imports System. Thread	ding.Tasks		
8	Imports Microsoft.Win	ndowsAzure		
9	Imports Microsoft.Wi	ndowsAzure.Diagnostics		
10	Imports Microsoft.Win	ndowsAzure.ServiceRuntime		
11	Imports Microsoft.Wi	ndowsAzure.Storage		
0% -				
Devileument		naventa 📗 🗐 Mintual Mashinan 📗 🙆 Euto	naiana 🛛 🗶 Damana all annualat	
Deployment Descripti	: Storage 🛛 🛃 Log R	equests 🛛 🛃 Virtual Machines 🛛 🔍 Exte	ensions Kemove all complete Status	ed Start Time
Deployment Descripti Deploying	t 🛛 🚅 Storage 🗌 🛃 Log R ion g to mgbcloudservice - Prod	equests 🛛 🗾 Virtual Machines 🛛 🔍 Exte	ensions 🛛 🞽 Remove all complete Status	ed Start Time 10/07/2017 11:56:01
Deployment Descripti Deploying Production	i Storage 🛛 🛃 Log R ion g to mgbcloudservice - Prod	equests I 🕼 Virtual Machines I 🔍 Extension	ensions 🛛 🛎 Remove all complete Status	ed Start Time 10/07/2017 11:56:01
Deployment Descripti Deploying Production	ion g to mgbcloudservice - Prod	equests I I Virtual Machines I Q Extension uction History [management.core.windows.net/'	ensions Kernove all complete Status	ed Start Time 10/07/2017 11:56:01
Deployment Descripti Deploying Production	ion g to mgbcloudservice - Prod Web app URL Pending	equests Virtual Machines Q Extension uction History management.core.windows.net/" 11:56:38 - Connecting	ensions Kernove all complete Status	ed Start Time 10/07/2017 11:56:01
Deployment Descripti	ion g to mgbcloudservice - Prod Web app URL Pending Deployment ID	equests Virtual Machines C. Extended to the second	ensions Kenove all complete Status	ed Start Time 10/07/2017 11:56:01
Deployment Descripti Deploying Production	ion g to mgbcloudservice - Prod Web app URL Pending Deployment ID	equests Virtual Machines C. Extended to the second	ensions Kenove all complete Status	ed Start Time 10/07/2017 11:56:01
Deployment Descripti Deploying Production	t Storage Log R ion g to mgbcloudservice - Prod Web app URL Pending Deployment ID Open in Server Explorer	equests Virtual Machines C. External uction History management.core.windows.net/' 11:56:38 - Connecting 11:56:38 - Verifying storage account 'm 11:55:39 - Uploading Package 11:57:20 - Creating	ensions Kernove all complete Status	ed Start Time 10/07/2017 11:56:01

11. Once your cloud service is deployed login in to the Azure portal. You should find that a new resource group has been created with the same name as the deployed Cloud Service. Navigate to it and then select your cloud services.

Search (Ctrl+/)		✓ Production slot T Upda	te 📕 Stop 🖉	Swap 🔶 Mo	ve <u>व</u> De	lete		
0.00		Essentials A						
Overview 0	^	Resource group (change)			Site URL			
Activity log		mgbcloudservice			http://mgb	cloudser	vice.cloud	:lapp.net/
20 80 300 2003 100		Status Rupping			Public IP add	Iresses 174		
Access control (IAM)		Location			Deployment	name		
X Diagnose and solve problems		West Europe			ed8389626	9ec4be9a	a79df72al	bf11acb1
••		Subscription name (change)			Deployment	label		
SETTINGS		MGBLEEDSAZURE			PaaSCloud	Service -	10/07/20	17 11:55:28
Set THV55		4ef26c51-ba69-47a2-b4c2-7d	6a374acbb6		d9cc06e2a	5c249a0a	6d1d4b3	24a14ae8
🐞 Antimalware								
Cortificatos								
Certificates								
🚔 Configuration		Roles and instances						
. Futurniana	-							
Extensions		NAME	STATUS	SIZE	UPDATE	FAULT		
Roles and Instances								
Device Devices		▼ WebRole1					^	
v remote Desktop		WebRole1 IN 0	Running	Medium	0	0		
teral (2.)		ttebkoler_int_o	- nanning	mediam		~		

- 12. Find the Site URL and click on it to open your new website.
- 13. Back in the Azure portal what is the difference between the Production and Staging slots?



Spend some time looking at the different section of the Cloud service, when you have completed your investigation delete resource group that hosts this cloud service. By deleting the resource group, you also delete the cloud service.

Lab 6 Working with Azure AD

In this lab you will be working with Azure AD, you will be creating cloud only accounts and using RBAC to assign access to a recourse group. You will integrate an application with Azure AD and look at adding a custom domain.

Exercise 1 Working with Azure AD users

1. Login in to the Azure portal and access the Azure Active Directory section. You should see a screen similar to the one below.

🕽 Overview 🔨	🖸 Classic portal 🥜 Switch directory 🛅 Delete directory	ory
🚰 Quick start		
IANAGE	Users and groups	Quick tasks
g ^A Users and groups		Add a user
Enterprise applications	AW AW SS AD	Add a group
App registrations		Find a group
Application proxy		This an enterprise app
Licenses	Enterprise applications USERS SIGN-INS	Azure AD Connect
Azure AD Connect	8	Sync not enabled
Domain names		6
Dility (MDM and MAM)		
Password reset	11 Jun 18 Jun 25 Jun 2 Jul 9 Jul	
Company branding		
	Decommonded	Ann registrations

2. Click on the Users and Groups section and then click on All Users

Jsers and groups - A ngbleedsazure - Azure Active Direct	ll users			
Overview	~	New user New guest	t user ■■ Columns ☐ Multi-Factor Authentication ▼ Filter	
MANAGE				~
🔒 All users		NAME	USER NAME	
🔮 All groups		AD ADFS	ADFS@MGBLEEDSAZURE.COM	
Password reset		AD Admin	Admin@Mgbleeds.onmicrosoft.com	
Company branding	- 11	AD Admin	mgbleeds@hotmail.com	
User settings		AU Automation User	AutomationUser@Mgbleeds.onmicrosoft.com	

New user

- 3. In the All Users section select
- 4. Create a new user with the following details

Name: User1

User Name: User1@YOURDOMAINNAME.onmmicrosoft .com (example <u>user1@mgbleeds.onmicrosoft.com</u>)

Profile: Fill in some details

Properties, Groups and Directory roles leave as default

Password: check the show password box and copy and paste the auto-generated password to notepad.

- 5. Click Create
- Using either an IE InPrivate Browsing session or chrome Incognito session one a browser and go to: portal.azure.com and login as <u>User1@YourdomainName.onmicrosoft.com</u>. You will need the password you created earlier, you will be prompted to set a new password.
- 7. If prompted fill in the additional security information to sign in.
- 8. You will be logged in to the portal, navigate to resource group section.



Can you see the resource group? If not, why not?

- 9. Navigate back to the browser where you are logged in as an admin,
- 10. Navigate to the AzureClass resource group and then access the Accedes Control (IAM) section

Q		Add ≣≣ Columns	🛅 Delete	C Refres	h → Move
(*) Our-ini		Essentials 🔨			
(iii) Overview	^	Subscription name (change)		De	ployments
Activity log		MGBLEEDSAZURE		5 :	Succeeded
Access control (IAM)		4ef26c51-ba69-47a2-b4	4c2-7d6a374ack	ob6	
🛷 Tags		Filter by name	All types	~	All locations

- 11. In the Access Control (IAM) Section click
- 12. In the Add Permission pane choose Owner as the role and make sure User1 is added as a selected member and click Save.

Role			
Owner			~
Select 0			
Search b	y name or email address	~	
AD	AAD DC Administrators		
AD	ADFS ADFS@MGBLEEDSAZURE.COM		~
Selected m	nembers:		
US	User1 User1@Mgbleeds.Onmicrosoft.com	Remove	

- 13. Once the now role assignment has been saved, navigate back to the browser where User1 is logged in and sign out and sign back in. navigate to the resource group section. Can you see the AzureClass resource group now?
- 14. Log User1 out of the portal.

- 15. Switch back to the browser where you are logged in as an admin and navigate to the then Azure AD section and the select Enterprise applications.
- 16. On the Enterprise Applications section choose all applications and then click + Add

mgbleedsazure - Azure Active Directory	appications	
1 Overview	Add II Columns	
MANAGE	Show Applications status Enterprise Applications Any Any Apply	
All applications	> First 200 shown, to search all of your applications, enter a display name or the application ID.	
Application proxy	NAME A HOMEPAGE URL A OBJECT ID A APPLICATION ID A PUBLISHE	R ^
SECURITY	FP FastTrack Product http://fasttrack.microsoft d97f2e35-ffa5-489a-905 264fc698-9d94-486a-915 Valorem	Consulting Group
Conditional access	Kicrosoft Intune http://www.microsoft.co 63e0ed73-285b-4830-8f 0000000a-0000-c0 Microsoft	t Corporation
ACTIVITY	Microsoft Intune 1 2dbf921e-11ce-4981-87 d4ebce55-015a-49b5-a0 Microsoft	t Corporation
Sign-ins	Microsoft Teams 998ed509-8f8e-4e5d-9ca cc15fd57-2c6c-4117-a88 Microsoft	t Corporation
Audit logs	Microsoft Visual S https://www.visualstudio ad80360b-656f-48cc-880 499b84ac-1321-427f-aa1 Microsoft	t Corporation
	Office 365 Exchan http://office.microsoft.co bddafcc6-41c2-4158-88e 00000002-0000-0ff1-ce0 Microsoft	t Corporation
TROOBLESHOOTING & SUPPORT	02 Office 365 Manag 603a056f_0h20_4h67_s3 c5302580_f805_4401_05a Microsoft	t Corporation

17. On the Categories pane navigate to social and find the LinkedIn app and select it.18. Leave everything at their defaults and click Add.

MGBLEEDSAZURE	~
in Linkedin Add app	×
LinkedIn Corporation	
Use Microsoft Azure AD to enable user access to Linkedin. Requires an existing Linkedin subscription.	^
Name 🖲	
Linkedin	
URL @	
https://www.linkedin.com/	
Logo 🛛	I
in	~
Add	

Once added the LinkedIn - Quick Start page should open

19. Using the Assign a User for testing section of the quick start Assign user1 to the app.



- 20. Using the Configure single sign-on section of the Quick Start make sure Passwordbased Sign-on is selected then click Save.
- 21. Using either an IE InPrivate Browsing session or chrome Incognito session one a browser and go to: <u>http://myapps.microsoft.com</u>
- 22. Login as user1

You should see LinkedIn as an application available to you

;	InPrivate InPrivate Https://account.activedirectory.windowsazure.com/r#/applications	5 ≞ - Q	Access Panel Applications	× 📑 👻		1
	Microsoft			User1 MGBLEEDSAZURE	8	
	Apps			Search apps		
	Linkedin Store					

Exercise 2 Deploying a web app and integrating it with Azure AD

1. Start Visual studio and from the file menu choose new web site. Select Visual C# and then select ASP .NET Empty Web Site and click OK

×	Start Page - Microsoft Visua	al Studio				7 8	Quick Launch (Ctrl+Q)	ρ.	- 0
File	Edit View Debug	Team Tools Test	Analyze Wind	ow H	lelp			Mike	Brown
	○ - ○ 🎦 - 🎑 🗎 💾	New Web Site						?	×
Server	Start Page 👍 🗙	▶ Recent		.NET F	ramework 4.5.1 • Sort by: Default	- 1	Search Installed Temp	ates (Ctrl+	ερ-
Explo	Viewal Ctud	 Installed 		₹	ASP.NET Empty Web Site	Visual C#	Type: Visual C#		
rer Tool	Visual Studi	 Templates Visual C# 			ASP.NET Web Forms Site	Visual C#	An empty Web site		
box	Start	Visual Basic Samples		0	ASP.NET Web Site (Razor v3)	Visual C#			
	New Project Open Project	▷ Online		₩°	ASP.NET Dynamic Data Entities Web Site	Visual C#			
	Open from Source Con			Q.	WCF Service	Visual C#			
	Web Publish Activity								
	Publish:								
	Overall status								
	View Details								
					Click here to go online and find templ	ates.			
		Web location:	File System	- (:\Users\Mike\Documents\Visual Studio 2015	\WebSites\W€ ▼	Browse		
							ОК	Canr	cel

2. Once created right click the name of your web site name and choose add and then Add new Item and choose HTML Page, in the name box change the page name to Default.html then click ADD

You	ur fast	est wa	ıy	to learn. Why	v wait	t?		
	Add New Item - Wel	bSite4					?	×
	Installed	So	rt by:	Default 🔹 🏭 🔚		*	Search Installed Templates (Ctrl+E)	ρ.
	Visual C#		"]	HTML Page	Visual C#		An HTML page that can include client-s	ide
	▷ Online		Ĵ	JavaScript File	Visual C#	ł	code	
		[Style Sheet	Visual C#			
		(€	Web Form	Visual C#			
		[• C *	Content Page (Razor v3)	Visual C#			
		[- C *	Empty Page (Razor v3)	Visual C#			
		[-C*	Helper (Razor v3)	Visual C#			
		[0	Layout Page (Razor v3)	Visual C#			
		I	• C *	Web Page (Razor v3)	Visual C#	*		
		-		Click here to go online and find templat	es.			
	Name:	Default.html					Place code in separate file	
							Select master page	_
							Add Cancel	

3. Add some text between <body> </body> for example:

<h1> Learning Azure </h1>

Default.html*	<mark>⊕ X</mark>
1	html
2	□ <html></html>
3	⊨ <head></head>
4	<title></title>
5	<meta charset="utf-8"/>
6	
7	i⊑ <body></body>
8	⊢ <h1></h1>
9	Learning Azure
10	
11	
12	<pre>/html></pre>
100 %	

4. Click Save to save the changes to your page

Next, we will publish the site to Azure and integrate it with Azure AD

- 5. In solutions Explorer right click the name of your site and select Publish Web APP
- 6. On the Publish page select Microsoft Azure App Service as the public target
- 7. On the next page choose your subscription and choose the AzureClass Resource group then click NEW

our fastest way to learn. W	/hy wait?
涂FIREBRA	ND
App Service Host your web and mobile applications, REST APIs, and more in Azure	Microsoft account mgbleeds@hotmail.com
Subscription	
MGBLEEDSAZURE	~
View	
Resource Group	~
Search	
AzureClass	
	New

 Create the new app service with the following settings: Web App Name: *yourinitals*WebAPP (for example mgbwebapp) Resource Group: AzureClass

App Service Plan: Click New and create an App Service Plane with the following settings:

App Service Plan: AppPlanOne Location: North Europe Size: S1 (1core 1.75 GB RAM)

9. Once you have entered all the details click create

No. 12		
mgbwebapp]
Subscription		of.
MGBLEEDSAZURE	v]
Resource Group		
AzureClass	~	New
App Service Plan		
AppPlanOne*	v	New
Clicking the Create button will create the following Aze Explore additional Azure services App Service - mgbwebapp	ure resources	
App Service Plan - AppPlanOne		
	Subscription MGBLEEDSAZURE Resource Group AzureClass App Service Plan AppPlanOne* Clicking the Create button will create the following Az Explore additional Azure services App Service - mgbwebapp App Service Plan - AppPlanOne	Subscription MGBLEEDSAZURE Resource Group AzureClass App Service Plan Clicking the Create button will create the following Azure resources Explore additional Azure services App Service - mgbwebapp App Service Plan - AppPlanOne

- 10. On the Publish page select Next, the next again then publish.
- 11. Once published navigate to the portal and go to the AzureClass resource group and select your newly created Web App.



12. On the properties of your web app navigate to the Authentication / Authorization section and select ON

Micro	osoft Azure Resource groups > Azu	reClass > mgbwebapp - Authentication / Authorization
=	orgbwebapp - Authentication	on / Authorization
+	Search (Ctrl+/)	R Save X Discard
	Deployment credentials	Authentication / Authorization
	🚊 Deployment slots	Anonymous access is enabled on the Ann Service and
	Deployment options	
0	Continuous Delivery (Preview)	App Service Authentication Off On
٩	SETTINGS	
0	Application settings	
Q	? Authentication / Authorization	
	Backups	

13. once authentication is turned on select Azure Active Directory Not Configured



14. On the Azure Active Directory Settings screen change the management mode to Express, set the Grant Graph Permissions to **ON** then click *OK*. Then click **Save**.

These se	re Active Directory Settings ttings allow users to sign in with Azure Active Directory. Click here to lear	n
more. Le	arn more	
Managem	ent mode O Off Express Advanced	
I	Express mode allows user to create an AD Application or select an existing AD application in your current Active Directory.	
Current A	ctive Directory	
mgblee	lsazure	
Managem	ent mode Create New AD App Select Existing AD App	
mabwel	dab.	
Grant Gra	ph Permissions On Off	
Crant Con	nmon Data Services Permissions On Off	

15. On the Authentication / Authorization page make sure you select <u>Login in with</u> <u>Azure Active Directory</u> in the Action to take when request is not authenticated drop down box. Then click **Save**

`		
Micro	DSOft Azure Resource groups > Azu	ureClass > mgbwebapp - Authentication / Authorization $ ho$ 🗘 $ ho$ $ ho$ $ ho$ $ ho$ $ ho$ $ ho$ mgbleeds@hotmail.c MGBLEEDSAZURE
	mgbwebapp - Authenticatio	on / Authorization *
+	Search (Ctrl+/)	R Save X Discard
	-	Authentication / Authorization
	📣 Quickstart	To enable Authentication / Authorization please ensure all your custom domains have corresponding SSL bindings .net version
	Deployment credentials	is configured to "4.5" and manage pipeline mode is set to "Integrated"
50	Deployment slots	App Service Authentication
	Deployment options	Off On Action to take when request is not authenticated
	Continuous Delivery (Preview)	Log in with Azure Active Directory
	SETTINGS	
£	Application settings	Configured (Express : Existing App)
		_

16. Scroll up to the overview section of your web app and copy the URL into Notepad. You will us this later.

Mgbwebapp App Service		* ×
	🖾 Browse 🔳 Stop 🦌 Swap 🕐 Restart 💼 Delete 👱 Get publish profile 🔇 Reset publish profile	
S Overview	Essentials ^	~
Activity log	Resource group (change) URL AzureClass http://mgbwebapp.azurewebsites.net Status App Service plan/ording for	

17. Go to the Azure AD section in the portal and go to the Enterprise Application section and then all applications. Your web app should be listed:

Application provy							
Application proxy	NAME	^	HOMEPAGE URL	OBJECT ID	APPLICATION ID	PUBLISHER	
CURITY	FP	FastTrack Productio	http://fasttrack.microsoft.c	d97f2e35-ffa5-489a-905d	264fc698-9d94-486a-9159	Valorem Consulting Group	
3 Conditional access	in	Linkedin	https://www.linkedin.com/	49924dea-eecf-454e-86d9	57f3cc39-6ce5-4a28-aa0f	MgbleedsAzure	
стіуіту	MG	mgbwebapp	https://mgbwebapp.azure	25ba8ea3-0994-459d-8e93	919d0574-23f5-4cb3-954c	MgbleedsAzure	

- 18. Select you web app and in the users and group section select
- 19. Add user1 as a user for the app and click Assign

You have now given user1 access to your application.

20. Using IE inPrivate Browsing or Chrome Incognito type the URL of your application. You will be asked to login, notice the name of your integrated application. Type in <u>User1@yourdomainname.onmicrosoft.com</u> as the username and type in the password. You will be asked to consent so the application to access your details. This is an example of integrating with the Graph API



Lab 7 Working with Azure Automation

In this lab, you will be working with virtual machines you created in an earlier exercise. You will use Azure Automation to install IIS and Windows Backup on the virtual machines and to create a run book that takes actions against the Virtual machines.

Exercise 1 Creating an automation account and editing a Runbook

1. In the Azure portal navigate to your AzureClass resource group and click + Add 2. Search for and create an Automation Account:



3. Provide a name for your automation account and then leaving everything else at their default settings click **create**

It will only take a minute to create your new Automation account. Once created access your automation account. You will be working with a sample Runbook in this exercise.

4. From the AzureClass automation account select RunBooks from the process automation section

X Diagnose and solve problems	Resources					
PROCESS AUTOMATION	Solutions	Runbooks	4 🚠	I obs	19 🚔	Hybrid Worker Groups 0 🖏
🗉 Jobs	DSC Configurations	DSC Nodes				
a Runbooks Gallery	0 🛅		0 👰			

5. From the Runbooks section select **AzureAutomationTutorial** (it should be top of the list)



6. Next select edit

The Edit Graphical Runbook pages should open up and you will see a screen like the one below. In this example, the runbook will use the Run AS account to login to your Azure

account a get a list of objects from a resource group. We must tell it which resource group to work with.



7. Double click the Get Azure Resource Groups step then click Configure parameters

		Parameter sets					
	Name Get-AzureRmResourceGroup	Parameter set 6 > Lists the resource group based in the					
ection	* Label ①	Parameters LOCATION North Europe (Constant value)					
	Comment						
	Get the Azure resource groups in the subscription	AzureClass (Constant value)					
	Convert exceptions to errors 0 Yes No						
	Parameters Configure parameters	>					
	Optional additional parameters Configure parameters						
	Retry behavior	>					

8. Next click the parameter set section and make sure that List the resource group base in the name is selected



9. In the Location Parameters section choose **Constant Value** as the data source and type **North Europe** as the value

Activity Parameter Configur 🗖 💈	Y Parameter Value	□ ×
Parameter sets	Data source Constant value	~
Lists the resource group based in the	North Europe	
Parameters		
LOCATION O North Europe (Constant value)	>	
NAME • AzureClass (Constant value)	> -	

10. In the Name Parameter section choose **Constant Value** as the Data source and then type **AzureClass** as the value.

Activity Parameter Configur 🗖	×	Parameter Value	
Parameter sets		Data source	
Parameter set O Lists the resource group based in the	>	Constant value AzureClass	~
Parameters			
LOCATION	>		
NAME AzureClass (Constant value)	>		

- 11. Click OK to confirm the value then click save to save your changes.
- 12. Next click Test Pane and from the test pane click start to run your RunBook.

In this exercise, we have edited and run a runbook.

Exercise 2 Using DSC to manage Virtual Machines.

In this exercise, you will use Desired State Configuration to add roles to VM1 and VM2 that you created earlier.

1. From your local server, open Windows PowerShell ISE 2. Type in the following DSC code:



3. Save the file locally with the name DSCExample.ps1 4. Go back to the Azure portal and your automation account. 5. From the Overview page select DSC Configurations

) Search (Ctrl+/)	💼 Delete Hove 🖤 I	Feedbac
<u>^</u>	Essentials 🔨	
2 Overview	Resource group (change)	
Activity log	AzureClass	
Access control (IAM)	North Europe	
🛷 Tags	MGBLEEDSAZURE	
X Diagnose and solve problems	Resources	
PROCESS AUTOMATION	Solutions	Ru
📩 Runbooks		
E Jobs	DSC Configurations	DS
Runbooks Gallery	0 🖾	
	0	

6. In the DSC Configuration screen select



- Next in the configuration file box browse for and select the file you created in step
 Then click OK
- 8. Next on the DSC Configuration page choose your newly uploaded file and then

select Compile

Your fastest way to learn. Why wait? R R WEBServer DSC Configurations * 🗆 × ➡ Add a configuration 🛛 Learn more 💍 Refresh 🚹 Export 🛛 🗙 Delete ↔ Compile Essentials ^ AUTHORING STATUS LAST MODIFIED NAME Resource group Account WEBServer 12/07/2017 14:36 AzureClass AzureClass Published Location ubscription name northeurope MGBLEEDSAZURE Subscription ID Status 4ef26c51-ba69-47a2-b4c2-7d6a374acbb6 Published Configuration source View configuration source Last published 12/07/2017 14:36 Deployments to Pull Server Compilation jobs STATUS CREATED LAST UPDATED No compilation jobs found.

It will take a few minutes to compile your file.

9. Once your file is compiled go back to the AzureClass automation account Overview page and select DSC Nodes.

DSC Nodes	
	0 💟

- 🕂 Add Azure VM
- 10. On the DSC Nodes pane select
- 11. On the Add Azure VMs pane, select the Select Virtual machines to onboard section and choose VM1 and VM2
- 12. Next Select the Registration section, in there make sure **WEBServer.Localhost** is selected as the Node Configuration name and that **ApplyAndAutoCorrect** is selected as the configuration mode.

Your fastest way to	o learn. Why wait?
Add Azure VMs	🗖 🗙 📊 Registration 🗖 🗄
Virtual Machines 2 virtual machine(s) selected	* Registration key Primary key Secondary key
Registration Configure registration data	Node Configuration Name Ket Vet Vet Vet Vet Vet Vet Vet Vet Vet V
	Refresh Frequency ① 30
	Configuration Mode Frequency 0
	Configuration Mode 0
	ApplyAndAutoCorrect
	Reboot Node if Needed 0
	Action after Reboot
Create	OK

13. Next click OK and then click Create.

The DSC VM Extensions will now be enabled on VM1 and VM2. Once the DSC VM extension is registered your VMs will show up and DSC Nodes and the DSC configuration will be applied. If you go to the properties of one of your VMs can monitor the progress.

Search (Ctrl+/)	Add						
	Search to filter items						
Verview Overview	NAME	^ тү	PE	^	VERSION ^	STATUS	^
Activity log	Microsoft Powershell DSC	м	crosoft Powershell DSC		2*	Transitioning	
🔒 Access control (IAM)	Wiclosoft, Fowersteil, DSC	IVI	crosoft.rowersnen.b3c		2.	Transitioning	
🛷 Tags							
X Diagnose and solve prob	olems						
SETTINGS	_						
Availability set							
😂 Disks							
Extensions							
Network interfaces							
Size							
2 0120							
Backup							
					_		
Microsoft.Powershell.	.DSC			owershe	II.DS		
💼 Uninstall			exec	ution sta	tus		
			HKLM	:\\SOFTWA	RE\\		
TYPE	Microsoft.Powershell.DSC		'tra	nsitionin	g'		
VERSION	2.26.0.0		(C:\ 0\\S	\Packages	\\P1 stat		
STATUS	Transitioning		Inst	all Statu	s: N		
STATUS I EVEL	Info		Inst	alling the	e DS 11 s		
			(HKL	M:\\SOFTW	ARE		
STATUS MESSAGE	Rebooting VM to complete installat	ion.	stat	us to 'tr	ansi		
DETAILED STATUS	View detailed status		(C:\	\Packages	\\P1		
HANDLER STATUS	Ready		5PP	is instal	led		
HANDLER STATUS LEVEL	Info		Ret	rieving W 5.0PP-Wi	MF d ndow		
	into		Retr	ieving WM	F do		
			\ is i	r\n[2017- nstalled.	07-1 \r		
			exec	ution sta	tus		
			HKLM	:\\SOFTWA	RE\\		
				r\n[2017-	07-1		
				A COLUMN TO A COLUMN			

It will take a few minutes to complete, once it has completed IIS and window backup should be deployed. To test the configuration, login to VM1 and remove the IIS role manually. Because we have chosen **ApplyAndAutoCorrect** we should find that the configuration will be reapplied after a short period and IIS will be re-installed.

Once the DSC configuration has been applied you should see both VMs as compliant.

₽ €	🔷 DSC Nodes - Mic	rosoft \times + \vee			
\leftarrow -	\rightarrow O $ $ B	portal. azure.com /#resource/subscript	tions/4ef26c51-ba69-47a2-b4c2-7d6	a374acbb6/resourceGroups/Azu	reClass/provid
Micro	osoft Azure Azure	eClass > AzureClass > DSC Node	s	: ׆ <	>_ 🐯 🤅
=	DSC Nodes				* 🗆 ×
+	📥 Add Azure VM	♣ Add on-prem VM Learn more	Ů Refresh ☑ Enable Log Search		
	DSC nodes		Status	Node Configuration Name	
	Search nodes		7 selected	✓ 2 selected	~
	NAME	^ STATUS	^ NODE CONFIGURATION	^ LAST SEEN	~
	VM1	🗸 Compliant	WEBServer.Localhost	12/07/2017 15:23	
	VM2	🗸 Compliant	WEBServer.Localhost	12/07/2017 15:18	
•					
8					
<u>2</u>					