

Azure Deployment Guide Eli-v6.2.20

Bridgeworks

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2

1 Requirements for deployment on Azure

In order to deploy your PORTrockIT you will need the VHD file provided to you by Bridgeworks.

The VHD will be made available to you in ZIP format.

You will need to extract the contents of this ZIP file to an accessible location prior to following the rest of this guide.

2 Guide layout

This guide is divided into a series of ordered steps that should be followed through in order. If at any point you run into trouble with a step please refer to the Useful Links section at the end of this document.

It is recommended to print this list of steps out and check off each step as you complete them.

□ Step 1. Storage accounts

□ Step 2. Uploading a VHD

□ Step 3. Image creation

- □ Step 4. Virtual machine creation
- □ Step 5. Route tables
- □ Step 6. Network interface
- □ Step 7. Network security

3 Storage accounts

The following section will deal with the creation and configuration of a storage account. If you already have a configured General Purpose v1 storage account with a container that you wish to use then please proceed to Chapter 4: Uploading a VHD.

A storage account is used to contain any persistent storage.

In this guide, a storage account will be used to store the VHD from which an image will be created.

Microsoft offer multiple types of storage accounts:

Storage (general purpose v1)

This supports: blobs, Azure files, messages, queues, and in-managed disks.

Storage (general purpose v2)

All of general purpose v1, plus all 3 types of blob described below. This solution runs a different pricing model than the v1, and generally results in higher costs for the same resource access as the v1.

Blob storage

Hot Frequently accessed data.

Cool Infrequently accessed data.

Archive Rarely accessed data. Very low storage cost, high access cost. To read archived data it must be "rehydrated" to Hot or Cool storage; this can take up to 15 hours.

Bridgeworks recommends General Purpose v1 storage for the PORTrockIT. General Purpose v2 is more expensive, and the Blob specific storage does not allow storage of "Page Blobs", which is the default blob type used for virtual machines.

3.1 Creating a storage account

To create a storage account, first log in to your Azure account through the Azure portal.

Once logged in, the dashboard should be presented:



On the left panel, navigate to the *Storage accounts* section. This can be achieved by left clicking on *All Services*.

Find the *Storage accounts* section, or enter *Storage accounts* in the *Filter* bar located at the top of the page.

Microsoft Azure		
	All services storage accounts	
i≡ All services		
	Storage accounts	*
- X FAVORITES		



Note: You can add frequently used sections to the left pane of your Azure page by left clicking on the star to the right of your chosen section.

Left click the *Storage accounts*; this will bring up any accounts that are accessible to this Azure account.

Home > Storage accounts	
Storage accounts Bridgeworks R&D	
🕂 Add 📑 Edit columns 💍 Refresh 🛛 🔷 Assign tags 🛅 Delete	
Subscriptions: All 2 selected	
Filter by name All subscriptions	✓ All resource grou
4 items	
NAME TU	TYPE 🔨
bridgeworks	Storage account
bridgeworkspayguksouth	Storage account
csa0087678461a4x4c7exb71	Storage account

In this section, left click the + *Add* button at the top of the page. This will bring up a *Create storage account* section. In the image below, the values for this storage account have been filled out.

		sources, services, and docs			
Home > Storage accounts > Create storage accounts	unt				
Storage accounts « ☆ × Bridgeworks R&D	Create storage account				
+ Add EE Edit columns ···· More	Basics Advanced Tags Review	+ create			
bridgeworks	Azure Storage is a Microsoft-managed service providing cloud storage that is highly available, secure, durable, scalable, and redundant. Azure Storage includes Azure Blobs (objects), Azure Data Lake Storage Gen2, Azure Files, Azure Queues, and Azure Tables. The cost of your storage account depends on the usage and the options you choose below. Learn more				
bridgeworks	PROJECT DETAILS				
bridgeworkseastus	Select the subscription to manage deployed re resources.	esources and costs. Use resource groups like folders to organize and manage all your			
bridgeworkspayguksouth	* Subscription	Minner R. Darters Michael			
bridgeworkswesteurope	Subscription	Microsoft Partner Network	~		
	* Resource group	(New) example_deployment_group	\sim		
	INSTANCE DETAILS The default deployment model is Resource Manager, which supports the latest Azure features. You may choose to deploy using the classic deployment model instead. Choose classic deployment model				
	* Storage account name 🚯	exampledeploymentstorage	~		
	* Location	UK South	\sim		
	Performance 🚯	• Standard Premium			
	Account kind 🚯	Storage (general purpose v1)	\sim		
	Replication 🚯	Read-access geo-redundant storage (RA-GRS)	\sim		
	Review + create Previ	ous Next : Advanced >			



You can now left click the *Review* + *Create* button to create the storage account. Alternatively, you can configure the storage account further if required. When it has been set up, left click on the storage account to present its overview section.

Home > Storage accounts > exampledeploymentstorage	
Storage accounts	exampledeploymentstorage ^{Storage account}
Add 🗮 Edit columns 🚥 More	Search (Ctrl+/) ≪ 2 Open in Explorer → Move a Delete O Refresh
Filter by name	Coverview A Coverview Cover
NAME 🗘	Activity log Activity log Location
bridgeworks	Access control (IAM) UK South, UK West Subscription (change)
bridgeworkspayguksouth	Tags Microsoft Partner Network Subscription ID
csa0087678461a4x4c7exb71	Diagnose and solve problems
exampledeploymentstorage	Tags (change) Explorer (preview) Click here to add tags
	SETTINGS Services
	Access keys
	Configuration Blobs REST-based object storage for unstructured data
	Encryption Configure CORS rules Setup custom domain
	Shared access signature View metrics

3.2 Containers

To upload data to a storage account on Azure, a container must be added to the storage account in order to hold the data.

Navigate to the *Storage account* section and left click on your account. In the example, the storage container is labelled *exampledeploymentstorage*.

From the overview for your storage account, left click on the *Blobs* section in the *Blob Service* category.

Then, along the top of the container view, left click on the + *Container* button.

] «	← Container ひ Refresh	
Overview		New container	
Activity log		* Name	
Access control (IAM)		example-container	✓
🛹 Tags		Public access level 0	
X Diagnose and solve problems		Private (no anonymous access)	\sim
Storage Explorer (preview)		OK Cancel	

Enter the relevant information and left click OK.



Note: In this example the *Public access level* drop-down is set to *Private*; this is the preferred setting.

4 Uploading a VHD

The easiest way to deploy the PORTrockIT as a virtual machine is to upload the provided VHD to a container, create an image from that blob and then create a virtual machine from that image.

You will need to have access to the unzipped VHD file from the provided Bridgeworks ZIP file.



Note: When uploading the VHD, be aware of the region the VHD is being uploaded to. The easiest method is to upload it to the same region it will be deployed in.

Navigate to the container you intend to use. In the ongoing example the container is the *example-container* located in the *exampledeploymentstorage* storage account.

Currently the example container has no contents. Left click the *Upload* icon near the top of the page.

Microsoft Azure	
	Home > Storage accounts > exampledeploymentstorage - Containers > example-container
+ Create a resource	example-container _{Container}
i≡ All services	
	Overview
🔲 Dashboard	Access Control (IAM)
III resources	SETTINGS
🕅 Resource groups	Access policy No blobs found.
🧕 Virtual machines	Properties

On the right of the page an options menu will appear.

Ö	?	٢	BRIDGEWORKS R&D
Uploa	d blo	b	×
Files 🚯			
Select a	a file		
Authenti	cation ty	pe 🚯	
OAuth	(preview) SAS	
Over	rwrite if f	iles already exi	st
✓ Adva	nced		
Uplo	ad		

From here, left click on the folder icon to bring up your file explorer. Navigate to the folder containing the VHD file you extracted from the provided PORTrockIT ZIP file.

🖊 🛃 🚽 Down	loads			- 🗆	×
File Home Sh	nare View				~ 🕐
$\leftarrow \rightarrow \land \uparrow \checkmark$	This PC > Downloads >	~	Search Downlo	ads	Q
	^ Name	Date modified	Туре	Size	
 Quick access Desktop 		01/08/2018 17:24	File folder	0.007.450.KD	
Uownloads 🖈	FUSIONrockIT	01/08/2018 11:37	Hard Disk Image F Compressed (zipp	2,097,153 KB 213,807 KB	
🔮 Documents 🖈					
Pictures 🖈	¥				
4 items 🔰 State: 🎎 Sha	ared				

Select the .vhd file and left click Open, then click the Upload button.

	BRIDGEWORKS R&D
Upload blob	
iles 🚯	
Select a file	
Authentication type 🚯	
OAuth (preview) SAS	
Overwrite if files already ex	ist
lloh tupe 🙃	
Block blob Upload .vhd files as page b lock size	volobs (recommended)
Block blob V Upload .vhd files as page b Block size ① 4 MB	olobs (recommended)
Block blob Upload .vhd files as page b Block size ① 4 MB Jpload to folder	olobs (recommended)
Block blob Jock size 4 MB Jpload to folder	olobs (recommended)
Block blob Upload .vhd files as page b Block size 4 MB Upload to folder Upload	olobs (recommended)
Block blob Upload .vhd files as page b Block size A MB Jpload to folder Upload	olobs (recommended)
Block blob Upload .vhd files as page b lock size 4 MB Jpload to folder Upload Current uploads	olobs (recommended)
Block blob Upload .vhd files as page b Block size 4 MB Upload to folder Upload Current uploads	olobs (recommended)

The upload will begin in your current view.



Note: The screenshot above may show more menu entries than you have; these are found by left clicking on *Advanced*. For this example these settings were not changed from the default.

Leave the upload to complete.

Current uploads	
	Dismiss: Completed All
FUSIONrockIT.vhd	✓ 2 GiB / 2 GiB

At this stage you should see the newly added file. If not then you may need to refresh the view by left clicking the *Refresh* button.

Home > Storage accounts > exampledeple	oyments	storage - Containers 🔸 example-co	ontainer						
example-container _{Container}									* ×
Search (Ctrl+/)	🔎 Search (Ctrl+/) « 🕇 Upload 🕐 Refresh 📋 Delete 🦇 Acquire lease 🚸 Break lease 🔹 View snapshots 🗗 Create snapshot								
Overview		Location: example-container							
Access Control (IAM)		Search blobs by prefix (case-	-sensitive)				S	now deleted blobs	
SETTINGS		NAME		MODIFIED	BL	OB TYPE	SIZE	LEASE STATE	
Access policy		FUSIONrockIT.vhd		18/07/2018, 3:33:23 p	m Pa	ige blob	2 GiB	Available	
Properties									

5 Image creation

To deploy a PORTrockIT virtual machine you need to generate an *Image* using the provided VHD that should now be located in a container in a storage account that you have access to.

Navigate to the *Images* section. This can be achieved by finding the entry in the *All services* option on the left side of the page.

Microsoft Azure				s کر
Create a resource	All services images			
i≡ All services				
	Cognitive Services Keywords: image search	*	👰 Images	*
	Storage accounts Keywords: images	☆	VM images (classic)	*
📴 Dashboard				

In the *Images* section, you will be presented with any images available to your account. In this example several have been generated.

Home > Images		
Images Bridgeworks R&D		
🕂 Add 📑 Edit columns 🕐 Refresh 🛛 🔶 Assign tags		
Subscriptions: All 2 selected		
Filter by name All subscriptions		✓ All resource groups
4 items		
NAME 🗘	SOURCE VIRTUAL MACHINE	OS TYPE
Feature-Azure-48-image-20180710151943-eastus	-	Linux
Feature-Azure-48-image-20180710151943-uksouth	Feature-Azure-48	Linux
Feature-Azure-48-image-20180710151943-westus	-	Linux

From this view, left click the Add button. A new menu will appear.

Create image	□ ×
* Name	
* Subscription	
Microsoft Partner Network	~
* Resource group	
Select existing	~
Create new	
* Location	
UK South	~
Zone resiliency 🚯	
OS disk	
* OS type 🕕 Windows Linux	
* Storage blob	
· · · · · · · · · · · · · · · · · · ·	Browse
* Account type 🚯	
Standard HDD	~
* Host caching @	
Read/write	~
Data disks	
+ Add data disk	
Create Automation options	

Fill out the information. In this example the image is being attached to the *example_deployment_group* which was created while setting up a new storage account.



Create image

$\Box \ \times$

vample deployment image				~
ampic_deproyment_image	 			*
ubscription				
icrosoft Partner Network				\sim
esource group				
ample_deployment_group				\sim
ate new				
ocation				
K South				\sim
OS disk				
* OS type 🚯				
Windows Linux				
* Storage blob				
		1	Browse	
* Account type 🚯				
Standard HDD				\sim
* Host caching ()				
Read/write				\sim
ata disks				
	+ Add data disk			

Left click the *Browse* button for the *Storage blob* entry. The page will display the storage account section.

Left click on the storage account you placed the VHD file into.

Home > Images > Create image > Storage	accounts >	Containers
Storage accounts	« X	Containers exampledeploymentstorage
🕂 Storage account 🛛 Refresh		← Container
♀ Search storage accounts		♀ Search containers by prefix
NAME		NAME
bridgeworks		example-container
exampledeploymentstorage		
4	•	

Left click on the container that the VHD was placed into.

TYPE SIZE
blob 2 GiB

You are now presented with all the data in that container. Left click on the VHD file you uploaded from the provided ZIP file.

reate image	
Name	
example_deployment_image	 ✓
Subscription	
Microsoft Partner Network	\sim
Resource group	
example_deployment_group	\sim
eate new	
Location	
JK South	\sim
* Storage blob	
https://exampledeploymentstorage.blob.core.windows.net/example-container/FUSIONrockIT.vhd V Browse	
* Account type 🚯	
Standard HDD	\sim
* Host caching 🕜	\sim
* Host caching ① Read/write	
* Host caching 👔 Read/write	
* Host caching Read/write ata disks	
* Host caching Read/write ata disks	
 * Host caching Read/write ata disks + Add data disk +	

When the settings have been entered, left click the *Create* button at the bottom of the menu.



Note: The PORTrockIT does not require a high performance storage type. Therefore, *Standard HDD* can be selected.

At this stage a notification will appear.

Q	>_	ŝ	\odot	?	Ŗ	BRIDGEWORKS R&D
						* ×
		с	reating	image		16:54 ×
	-	Creati	ng imag	je 'exam	ple_dep	loyment_image'

This information can also be found by left clicking on the *Bell* icon at the top of the screen.



Wait for the operation to complete.



Now Refresh the page. Your newly added image should appear.

6 Virtual machine creation

Now that you've created a PORTrockIT image, you can create a virtual machine from it.

Navigate to the *Images* section, then left click on the PORTrockIT's image to get to the overview for that image. In this guide the image is called *example_deployment_image*.

Home > Images > example_deployment_image			
Images « 🖈 🗙 Bridgeworks R&D	example_deployment_image		
🕂 Add 📑 Edit columns 🛛 •••• More		Create VM 🗴 Delete	
Filter by name	Q Overview	NAME example_deployment_image	
example deployment image	Activity log	SOURCE VIRTUAL MACHINE	
Feature-Azure-48-image-201807101519	Tags	- OS DISK	
Feature-Azure-48-image-201807101519 Image-201807101519 Image-201807101519	SETTINGS	OS TYPE	SOURCE BLOB URI
	Locks	Linux	https://exampledeploymentstorage.blob.com
	Automation script	DATA DISKS This image doesn't contain an	y data disks.
	SUPPORT + TROUBLESHOOTING	RESOURCE GROUP	
	New support request	LOCATION	
		UK South	

6.1 Creation menu

6.1.1 1 - Basics

Near the top of the page left click the *Create VM* button. This will present you with options for the virtual machine creation. Fill out the options to your liking.

When choosing the size for the virtual machine you will be presented with a large list of available virtual machine sizes. In this example $F8s_v2$ is used.

Find the correct size for your PORTrockIT using the tiering table below, and left click to select it.

PORTrockIT tier	Azure machine size
PORTrockIT 100 Series	Standard_F4s_v2
PORTrockIT 200 Series	Standard_F8s_v2
PORTrockIT 400 Series	Standard_F32s_v2

Create a virtual machine

Basics Disks Networking Management Guest config 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.

Looking for classic VMs? Create VM from Azure Marketplace

PROJECT DETAILS

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

* Subscription 🚯	Microsoft Partner Network	\sim
* Resource group 🕦	example deployment group	\sim
	Create new	
INSTANCE DETAILS		
* Vittal making some O		
* Virtuai machine name 🕕	example-deployment-vm	~
* Region 🚯	UK South	\sim
Availability options ()	No infrastructure redundancy required	\sim
* Image 🚯	example_deployment_image	\sim
	Browse all images and disks	
* Size 🚯	Standard F8s v2	
	8 vcpus, 16 GB memory	
	Change size	
ADMINISTRATOR ACCOUNT		
Authentication type 🚯	Password SSH public key	
* Username 🕦	example-username	~
* SSH public key 🕕	HyVBli1/UMyUQU2PXuZzeBop7y3A8K5N3zHZKszov3zZiw1NH/GVRhl0ZA9NQtZ9 rNP3ccXj3d/UscJ6Ln248Gk+Nc0O4LN7VRaXz7eH4PhsSQ/WWD/DdPqXXdXmYqR 8iv8r+LAda8MDGymGCu726oTrbkaRkLSnDu1FFErCjxm1Jljbccqv	• • •
INBOUND PORT RULES		
Select which virtual machine network ports are access on the Networking tab.	accessible from the public internet. You can specify more limited or granular network	
* Public inbound ports 🌒	None Allow selected ports	
Select inbound ports	Select one or more ports	\sim
	All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.	5

Next : Disks >

Previous

Review + create



Note: In this instance the PORTrockIT is being set up using an SSH key for access as this is the more secure method. You are able to use a password if preferred. The username entered here will be used when logging into your PORTrockIT.



Note: Brief guides on generating an SSH key in Linux and Windows are located at the end of this chapter. See Section 6.1.4: SSH key generation (Optional).

Left click Next to proceed.

6.1.2 2 - Disks

Select *Standard HDD* for the Disk Type. You do not need to configure additional data disks to deploy your PORTrockIT.

Basics Dis	sks	Networking	Management	Guest config	Tags	Review + c	reate	
Azure VMs have the VM determi	e one c ines th	operating system e type of storage	i disk and a tempo e you can use and t	ary disk for short-te he number of data (rm storage lisks allow	e. You can att ed. Learn mo	ach additional data disks. ore	The size of
DISK OPTIONS								
* OS disk type	0		Standar	d HDD				~
			The select IOPS work connectiv	ted VM size support: kloads. Virtual machi ity SLA.	premium nes with P	disks. We ree remium SSD	commend Premium SSD fo disks qualify for the 99.9%	or high
DATA DISKS			The select IOPS worl connectiv	ted VM size support cloads. Virtual mach ity SLA.	; premium nes with P	disks. We ree remium SSD	commend Premium SSD fo disks qualify for the 99.9%	or high
DATA DISKS You can add an disk.	ıd confi	igure additional	The select IOPS worl connectiv data disks for your	ted VM size support cloads. Virtual machi ity SLA. virtual machine or a	: premium nes with P ttach exist	disks. We ree remium SSD ing disks. Thi	commend Premium SSD fo disks qualify for the 99.9% s VM also comes with a te	mporary
DATA DISKS You can add an disk. LUN	id confi	igure additional	The select IOPS worl connectiv data disks for your	ted VM size support cloads. Virtual machi ity SLA. virtual machine or a SIZE (GIB)	: premium nes with P ttach exist	disks. We rea remium SSD ing disks. Thi DISK TYPE	commend Premium SSD fo disks qualify for the 99.9% s VM also comes with a te HOST CACHING	n high , mporary
DATA DISKS You can add an disk. LUN Create and attac	nd confi NAME	igure additional : ew disk Atta	The select IOPS worl connectiv data disks for your	ted VM size support kloads. Virtual machi ity SLA. virtual machine or a SIZE (GIB)	: premium nes with P ttach exist	disks. We rea remium SSD ing disks. Thi	commend Premium SSD fo disks qualify for the 99.9% s VM also comes with a te HOST CACHING	mporary

Left click *Next* to proceed.

6.1.2.1 3 - Networking

Create a virtual machine

Configure a new o	r existing virtual net	ork for your VM as well as how your VM will be accessed on the virtual network. Learn more
NETWORK INTERFA	CE	
When creating a vi	irtual machine, a net	vork interface will be created for you.
Virtual network	0	(new) example_deployment_group-vnet
		Create new
Subnet 🚯		default
Public IP 🚯		(new) example-deployment-vm-ip
Network security g	Iroup	Create new
Configure network	security group	(new) example-deployment-vm-nsg
Accelerated netwo	rking 🚯	On Off The selected image does not support accelerated network

In this example a new virtual network is being generated. If you have an existing virtual network containing the endpoints you wish to accelerate then use that one instead. To edit settings for this new virtual network, left click on the *Create new* link beneath the *Virtual network* input box.

example	e_deployment_group-vnet	
Address	space	
10.0.10.0	0/24	~
	10.0.10.0 - 10.0.10.255 (256 ad	dresses
Subnet	name	
default		
Subnet	address range 🚯	
10.0.10.0	0/24	~
	10.0.10.0 - 10.0.10.255 (256 ad	(dresses)

X

Create virtual network

In the *Create virtual network* section on the right, fill in the values as required then left click on the *OK* button to continue.



Note: The subnet entry will automatically change when you add the new settings for the new virtual network. If you have attached an existing virtual network then you may need to adjust the subnet manually.

6.1.2.2 Public IP address

A new public IP address is set to be created by default. To change the IP address settings, left click on the *Create new* link beneath the *IP address* input box.

In this example the *Assignment* setting has been changed. This means that the external IP address of the PORTrockIT won't change like it would with the *Dynamic* setting.

Create public IP address	×
* Name	1
example-deployment-vm-ip	
SKU 🚯 Standard	
Assignment Oynamic OStatic	
ок	



Note: Setting a *Static* IP address in the *Assignment* is advisable, though there is additional billing with Azure to do so. A dynamic IP address is likely to change every time a deallocated virtual machine is started back up. This would then result in needing to reconnect Nodes, and possibly adjusting firewalls to allow the new public IP address to connect.

If you have adjusted the settings in the *Create public IP address* panel then left click on the *OK* button in that section.

6.1.2.3 Network Security Group

The PORTrockIT will require that the *Network Security Group* is set to *Advanced*. This is to allow custom inbound rules for later set up of connections to external Bridgeworks Nodes.

A new network security group will be created by default. If you have an existing group to use, then attach that instead. To edit the settings for the new network security group, left click on the *Create new* link beneath the *Network security group* input box.

In this example setup the connections into the PORTrockIT are going to be restricted to only allow connections from your current IP address.

Create network security g \Box	\times
* Name	
example-deployment-vm-nsg	
Inbound rules 🕕	
1000: default-allow-ssh Any ✓ … SSH (TCP/22)	
+ Add an inbound rule	
Outbound rules 🚯	
No results	
+ Add an outbound rule	
ок	

Left click on Add an inbound rule in the Create network security group section.

In the right hand menu section enter the information to allow external access from your local machine.

Add inbo example-deplo	ound sec	curity rule ₃		×
📌 Basic				
* Source 🛙				
IP Address	es		\sim	
* Source IP a	addresses/0	IDR ranges 🛙		
203.0.113.0)/32		~	
* Source po	rt ranges 6	•		
*				
* Destinatio	. 8			
Any			~	
*		•		
* Destination	n port rang	es 🛛	~	[
			•	
* Protocol				
Any	ТСР	UDP		
* Action				
Allow	Deny			
* Priority 0				
100				
* Name				
My_Source	_IP		~	
Description				
Add				
Add				

In this example the *Source* drop-down is set to the *IP Addresses* option. The external facing IP address being used to access Azure is entered. The /32 prefix length means only this exact IP address is allowed to connect to this virtual machine.

The *Destination port ranges* entry is also changed. The initial value of *8080* has been removed. Entries have been added for all the entries in the following table. These are the minimum required

to access the PORTrockIT and to allow it to connect to an external Node.



Important: These settings only need to be applied to the *Destination port ranges* entry. The *Source port ranges* entry can be left as "*", which allows the source port to be any number.

Protocol/Port	Description	Recommended Source
TCP 22	SSH, used for accessing the Command Line Interface (CLI).	"My IP"
TCP 80	HTTP, used for accessing the web interface (unencrypted).	"My IP"
TCP 443	HTTPS, used for accessing the web interface (encrypted).	"My IP"
TCP 16665	PORTrockIT main transfer port.	Public facing IP address of the WAN interface of your partner PORTrockIT Node.
UDP 4500	IPsec, used for encrypting PORTrockIT traffic.	Public facing IP address of the WAN interface of your partner PORTrockIT Node.
UDP 500	IPsec used for encrypting PORTrockIT traffic.	Public facing IP address of the WAN interface of your partner PORTrockIT Node.



Note: The "*" character can be used to specify that all ports will be available. Use with caution.

All other settings are left in their default state.

Left click on Add when you have completed your inbound rule.

Once the rules to allow access to the PORTrockIT have been added the default rule to allow access to TCP port 22 from any IP address can be removed.

Left click on the three dots next to the entry for the rule you wish to remove, then left click on *Remove*.

* N	ame
ex	ample-deployment-vm-nsg
Inbo	ound rules 🕕
_	1000: default-allow-ssh Any ✓ … SSH (TCP/22)
	Remove
	+ Add an inbound rule
Out	bound rules 🚯
	No results
	+ Add an outbound rule



Note: The inbound rules will need to be updated if any other IP address will need to access this virtual machine. Inbound rules can be updated in real-time through the Azure platform.

Left click on the OK button in the Create network security group section once all your inbound rules have been set.

If you do not know the IP address of the partner PORTrockIT Node at this stage, please use Appendix A: Network security to guide you on how to add the security group rules at a later point.

6.1.2.4 Diagnostics

By default the virtual machine creation will create a new storage account just to store the diagnostics blob for this machine.

In this example the setting has been changed to use the example storage account created earlier. The diagnostics will still create a new container inside that storage account, so it will be distinguishable from the existing data.

Create	a virtu	al machine					
Basics	Disks	Networking	Management	Guest config	Tags	Review + create	
Configure	monitorin	g and manageme	nt options for your	VM.			
MONITORI	NG						
Boot diagr	nostics		💽 On	Off			
OS guest o	diagnostics	5 0	On	off			
* Diagnos	tics storag	e account 🚯	examp Create new	ledeploymentstor v	age		~
IDENTITY							
System as:	signed ma	naged identity 🚯	On	off off			
AUTO-SHU	TDOWN						
Enable aut	o-shutdov	vn 🚯	On	off off			

All settings should have been set.

Left click *OK* at the bottom of the *Settings* section to proceed.

6.1.3 4 - Summary

The Azure platform will validate the settings for the virtual machine.

Once this has occurred, left click on *OK* at the bottom to deploy the virtual machine.

Create a virtual machine				
Validation passed				
Basics Disks Networking	Management Guest config Tags Review + create			
example_deployment_image	Standard F8s_v2 8 vcpus, 16 GB memory			
BASICS				
Subscription	Microsoft Partner Network			
Resource group	example_deployment_group			
Virtual machine name	example-deployment-vm			
Region	UK South			
Availability options	No infrastructure redundancy required			
Authentication type	SSH public key			
Username	example-username			
DISKS				
OS disk type	Standard HDD			
Use managed disks	Yes			
NETWORKING				
Virtual network	(new) example deployment group-vnet			
Subnet	default			
Public IP	(new) example-deployment-vm-ip			
Network security group	(new) example-deployment-vm-nsg			
Accelerated networking	Off			
MANAGEMENT				
Boot diagnostics	On			
OS guest diagnostics	Off			

A notification will appear.







Note: When this operation completes the virtual machine will be deployed in a running state. If you do not intend to set up the system then it is advisable to power off the virtual machine.

6.1.4 SSH key generation (Optional)

6.1.4.1 Linux

"ssh-keygen" was used to generate the SSH key pair for this guide. This utility is available on any Linux system that has the OpenSSH client installed.

```
$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/h/user/.ssh/id_rsa): /h/user/.ssh/example_rsa
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /h/user/.ssh/example_rsa.
Your public key has been saved in /h/user/.ssh/example_rsa.pub.
The key fingerprint is:
SHA256:KPou1E8YZLQkp5uNbzWxtG2u+FWNpMQhMH1Y0FbmyU4 user@ubuntu
The key's randomart image is:
+---[RSA 2048]----+
| ..BBo.+
    ==0+* 0
L
  .o.oo E .
   =.. X o o
  +.oo* S o .
  .000.+ .
1.. oo o
  .0 ..0
   0+.0
+----[SHA256]----+
$ cat ~/.ssh/example_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQCyx1TY1B7YrikUmuC31ye94tLEGS+jNgi/MGS1N7X9
38u2t0TirIbhaMfP5iewB9S4aBMForAqcIRB9210+2dU0jLeuMg/vtMi8arDTdgiv5qUSdUZ1W6IXU+B
```

HiOYnsUL/zmcAuk1RJNtqS3qfFx1oWhXDOLmEGkzdvX4I58/pujeNgOyHTS+3ddwFVmHQzwKYUucuHbA toGgF+em/Nb49Y3gWgmg2rOsInRAxRUGiABQIDE/yZFk+YyYVTCauW5TOGHXAAHC/k1NVRcQHtQQ8Y1Y c9VtCNBKWXIiHbNfWutqllbkhrD7qvh/VNq5Wgv9/zqtNXmhFUGxOhLFXagR user@ubuntu

Copy the public key into the SSH public key box.





Note: You may have noticed that your public key contains your local username at the end. This is a comment, which is not part of the key.

6.1.4.2 Windows

The easiest method to generate an SSH RSA key in Windows is using the *puttygen* utility.

Download the *puttygen* utility from https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html.



Note: The putty installer will include puttygen. You can download the ZIP file and extract the contents if installation is not possible on your machine.

Run puttygen. A GUI will be presented.

Left click on Generate and follow the on-screen instructions.

😴 P	uTTY Key Genera	tor					?	×
File	Key Conversio	ns Help						
Plea	ase generate some	randomness	by moving t	the mous	se over the blan	ık area.		
Acti	ons							
Ger	nerate a public/priv	ate key pair				Gen	erate	
Loa	d an existing privat	e key file				Lo	ad	
Sav	e the generated ke	ey		Save	public key	Save pri	vate key	r
Para	ameters							
Тур	e of key to generat RSA	e: DSA	⊖ ECDS	A	O ED25519	⊖ ss	H-1 (RS/	A)
Nur	nber of bits in a ger	nerated key:				2048		

Puttygen will show the public key once it has been generated.

You can safely left click on *Save public key* and save the file somewhere on your system.

😰 PuTTY Key Generat	or		? ×			
File Key Conversion	is Help					
Kev						
Public key for pasting in	to OpenSSH authorize	d keys file:				
ssh-rsa AAAAB3NzaC1yc2EAAAABJQAAAQEAjwtUP8ZimeXE6RGuUV0AnMu/4NZ5rNuDnO M1uJRR						
JOVLTLh4z0ReOmo8	1G1LbyJhw4mUmIW1	1W6ZQOrctsGymRzDb	TF8tNXE4nbDg6 ∨			
Key fingerprint:	ssh-rsa 2048 c0:bc:6e	:bd:b3:28:2e:db:12:bc:2	d:3a:74:8b:4d:ee			
Key comment:	rsa-key-20180801					
Key passphrase:						
Confirm passphrase:						
Actions						
Generate a public/priva	ate key pair		Generate			
Load an existing private	e key file		Load			
Save the generated ke	у	Save public key	Save private key			
Parameters						
Type of key to generate	e: ISA OECD:	SA () ED25519	O SSH-1 (RSA)			
Number of bits in a gen	erated key:	-	2048			

You have to save the private key.

It is recommended that you populate the *Key passphrase* entries to password protect the private key file.

😴 PuTTY Key Generator	? ×					
File Key Conversions Help						
Kev						
Public key for pasting into OpenSSH authorized keys file:						
ssh-rsa AAAAB3NzaC1yc2EAAAABJQAAAQEAjwtUP8ZimeXE6RGuUV0AnMu/4NZ5rNuDnO M1uJRR +Y8zPd1VnK8pTF4yEZ07NL3w2XVyy2uJsLIYu3OU6b4wvGbDFm7YOOMEshHifn8hlu JOVLTLh4z0ReOmo8s1G1LbyJhw4mUmIWT1W6ZQOrctsGymRzDbTF8tNXE4nbDg6						
Key fingerprint: ssh-rsa 2048 c0:bc:6e:bd:b3:28:2e:c	lb:12:bc:2d:3a:74:8b:4d:ee					
Key comment: rsa-key-20180801						
Key passphrase:						
Confirm passphrase:						
Actions						
Generate a public/private key pair	Generate					
Load an existing private key file	Load					
Save the generated key Save public key Save private key						
Parameters						
Type of key to generate: ● RSA ○ DSA ○ ECDSA ○ E	:D25519 🔿 SSH-1 (RSA)					
Number of bits in a generated key:	2048					

Open the public key with your text editor of choice.

From here you can copy the public key section over to Azure.

Name	📄 example_rsa.pub - Notepad	_		х
 example_rsa.ppk example_rsa.pub PAGEANT PLINK PSCP PSFTP PUTTY PUTTY.CNT PUTTY PUTTY PUTTY PUTTY PUTTY PUTTY 	<u>File Edit Format View H</u> elp BEGIN SSH2 PUBLIC KEY Comment: "rsa-key-20180801" AAAAB3NzaC1yc2EAAAABJQAAAQEAjwtUP8ZimeXE6RGuUV0AnMu/4 uJRR+Y8zPd1VnK8pTF4yEZ07NL3w2XVyy2uJsL1Yu30U6b4wvGbDf fn8h1uJ0VLTLh4z0ReOmo8s1G1LbyJhw4mUmIWT1W6ZQOrctsGymF nbDg6JYCHFJ2R7tGvdLyLiPvvStFLDpp8peXGMofCcvnQc772Y3tW nyttnS+6QrcF9MWIf3/X0/6zbk1K1F/TYJL0cG7945aTJ7cOcWpCa KSxfLPR5LriHS4ek/hstr0IuAD1fWAwUXvGD7oMzSdfSMprIhw== END SSH2 PUBLIC KEY	NZ5rN m7Y00 zDbTF WQQs VTk5Q	luDnOM1 MEshHi 8tNXE4 M0+9dT 5sikB0	^



Note: In this example, the public key is the line after the *Comment* double quoted line, up to the ---- *END SSH2 PUBLIC KEY* ---- line. In this example the public key starts with "AAAAB3Nza" and ends with "MprIhw=="

7 Route tables

If you are deploying your PORTrockIT Node and require to run in the "Logical-In-Path" mode, then please follow this section to allow traffic to be passed to the PORTrockIT for acceleration. If you are configuring the PORTrockIT to be used in "Out-of-Path" mode then please proceed to Chapter 8: Accessing the GUI. For help with deciding on modes of operation please consult the Bridgeworks "PORTrockIT Topology Overview" document.

Navigate to the *Route tables* section. This can be achieved by navigating to *All services* on the left side of the page; either look for the *Route tables* link, or type it into the filter.



In the *Route tables* section you will be presented with all the route tables that are accessible from this Azure account. Left click the *Add* button near the top of the page.

Route tables Bridgeworks R&D				
➡ Add 📑 Edit columns 💍 Refresh	Assign tags			
Subscriptions: All 2 selected				
Filter by name	All subscriptions	✓ All resource groups	~	All locations
5 items				
NAME 🔍		RESOURCE GROUP		LOCATION
				Lux Cauda

A *Create route table* section will appear. Fill out the sections with your desired names and location. In this example the route table is set to use the existing resource group created earlier in this guide, and will be in *UK South* as all other resources used in this example are in that region.

Route Bridgeworks	tables R&D	× & ×	Create route table You can add routes to this table after it's created.	
- Add	Edit columns	••• More	* Name	
Filter by	name		example-deployment-routes	~
			* Subscription	
NAME	Ψ.		Microsoft Partner Network	\sim
us د	ecase-test-route-table		* Resource group	
			example_deployment_group	\sim
			Create new	
			* Location	
			UK South	\sim
			BGP route propagation	
			Disabled Enabled	

Left click on OK. At this stage a notification will appear. Wait for the success notification to follow.



Refresh the *Route tables* section to see your newly added route table.

Left click on the route table to see the overview for it.

Home > Route tables > example-deployment-routes	
Route tables « 🖈 🗙 Bridgeworks R&D	example-deployment-routes
Add 📑 Edit columns 🚥 More	Search (Ctrl+/) ≪ → Move
Filter by name	Overview Resource group (change) example_deployment_group Location
NAME 14	Activity log Subscription (change)
example-deployment-routes	Access control (IAM) Microsoft Partner Network
usecase-test-route-table	Tags 00876784-61a4-4c7e-b717-0c70d57233da
	X Diagnose and solve problems Click here to add tags
	settings Routes
	Configuration
	Routes NAME ADDRESS PREF
	Subnets No results.
	Properties Subnets
	Locks
	Image: Automation script NAME ADDRESS RANGE
	SUPPORT + TROUBLESHOOTING

First you must associate a subnet to this route table. Left click the *Subnets* option in the *Settings* category.

Home > Route tables > example-deployment-routes - Su Route tables		outes -	- Subnets
Add 📑 Edit columns •••• More	Search (Ctrl+/)		Associate
Filter by name	🗳 Overview		Search subnets
NAME 🔨	Activity log		
example-deployment-routes	Access control (IAM)		No results.
usecase-test-route-table	🛷 Tags		
	X Diagnose and solve problems	_	
	SETTINGS		
	🚔 Configuration	_	
	🗳 Routes	_	
	<-> Subnets		
	Properties	_	
	Locks	_	
	Automation script	_	

Left click the Associate button along the top of the Subnets section.

Home > Route tables > example-deployment-routes - Subnets >	Associate subn	et > Resource	
Associate subnet example-deployment-routes	× Re	esource	□ ×
1 Virtual network > example_deployment_group-vnet		Default-Storage-WestEurope-vnet uksouth example deployment group-vnet	
2 Subnet > Choose a subnet		uksouth Images-UKSouth-vnet uksouth	
	<	use-case-test-vnet uksouth	
ОК			
4			

Left click on the *Virtual network* section, and then on the right select the virtual network you are using for your PORTrockIT.

Home > Route tables > example-deployment-rout Associate subnet example-deployment-routes	es - Subnets	> Associate subnet > Choose subnet Choose subnet
Virtual network example_deployment_group-vnet	~	<-> default example_deployment
2 Subnet Choose a subnet	>	
		_
ок		

Left click on the Subnet section and select the subnet your PORTrockIT is using.

Left click on *OK* at the bottom to proceed.

Note: If you created a new virtual network during the virtual machine creation then there should only be the one subnet. Otherwise you will need to navigate to your virtual machine to find the virtual network and subnet that are being used.

Wait for the notification that the route table has been successfully saved.



The next step is to add a routing rule for this subnet that will take all traffic destined for the other Node and pass it to the PORTrockIT virtual machine.

To complete this step you need to know the private IP address of the PORTrockIT.

Navigate to the PORTrockIT virtual machine through the *Virtual machines* section, which is accessible from the *All services* section.

Left click on the PORTrockIT, and then left click the *Networking* section in the *Settings* category.

Home > Virtual machines > example- Virtual machines Bridgeworks R&D	deployment-vm - N « 🖈 🗙	letworking example-deployment-vm - N Virtual machine
Add EE Edit columns	••• More	Search (Ctrl+/) «
Filter by name		Overview
NAME 🔍		Activity log
example-deployment-vm		Access control (IAM)
		Tags
		✗ Diagnose and solve problems
		SETTINGS
		🧟 Networking
		🐸 Disks

From this view you can see the *Private IP* entry located near the top right of the page.

vorking							*
Attach networ	rk interface 🥢 Detach network interface						
🖥 Network Int	terface: example-deployment-v394	Effective securi	ity rules Topology 🛛				
Virtual network/su	ubnet: example_deployment_group-vnet/defaul	t Public IP: exa	ample-deployment-vm-ip	Private IP: 10.0.10.4	Accelerated networki	ng: Disabled	
APPLICATION SE							
🖍 Configure	the application security groups						
INBOUND PORT	RULES 🕕						
Network sec Impacts 0 subr	urity group example-deployment-vm-ns nets, 1 network interfaces	g (attached to ne	twork interface: example-	deployment-v394)		Add inbound	port rule
PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION	
100	My_Source_IP	Any	Any	203.0.113.0/32	Any	Allow	
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	S Allow	
65001	AllowAzureLoadBalancerInBound	Any	Any	AzureLoadBalancer	Any	S Allow	
65500	DenyAllInBound	Any	Any	Any	Any	🕴 Deny	
Impacts 0 subr	nets, 1 network interfaces					Add oddbound	portruic
PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION	
65000	AllowVnetOutBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow	
65001	AllowInternetOutBound	Any	Any	Any	Internet	Allow	

In this example the private IP of your PORTrockIT virtual machine is *10.0.10.4*; this is the value you need for the route.

In the *Route tables* section, left click the route table you have been setting up, then left click *Routes* in the *Settings* category.

Click *Add* near the top of the *Routes* section. This will clear the screen and present just the *Add route* options.

Home > All resources > 6	example-deployment-routes - Routes > Add route	
Add route		
example-deployment-routes		
* Route name		
route_to_other_bridgev	vorks_node	~
* Address prefix 🚯		
10.0.11.0/24		~
Next hop type 🚯		
Virtual appliance		\sim
* Next hop address 🕦		
10.0.10.4		~
navigating to the re	espective network interface's IP address settings.	
ок		
ОК		

Enter the information needed to pass network traffic destined for the remote side through the PORTrockIT virtual machine.

In this example:

Address prefix The LAN side of the remote Node. This is the address range for the endpoints you want to be able to connect to through the PORTrockIT connection.

Next hop type You want to use the virtual machine in Azure. The Virtual Appliance selection

results in the Next hop address field appearing.

Next hop address The private IP of the PORTrockIT. This is the equivalent of the LAN port on a Node. All network traffic destined for the *Address prefix* IP range will get routed through this IP.

Once all options have been correctly set, left click *OK* to add the route. Wait for the success notification to appear.



The overview section for your newly set up route table should now show the route to the network address range of the other Node, and the subnet that this routing applies to. In this example the subnet range covers the private IP of the PORTrockIT virtual machine.





Note: The route here will take any network traffic trying to get to any IP on the 10.0.11.0/24 range, and pass it to 10.0.10.4, which is your PORTrockIT. The PORTrockIT will in turn connect to another Node which has a LAN side network running the 10.0.11.0/24 IP range.



Note: The routing rules must cover all the private IP ranges that the PORTrockIT will connect to. In this example if another Node is connected that has an endpoint behind it running an IP of 192.0.2.10, then a new route would need to be added that takes 192.0.2.10/32 (or 192.0.2.0/24 etc.) and passes that through a *Virtual appliance* with a *Next hop address* of 10.0.10.4.

7.1 Network interface

Before this route will work, the network interface on the PORTrockIT Node needs to allow IP forwarding.

When the PORTrockIT virtual machine was deployed, the Azure platform created a network interface for your network connection. See Chapter 6: Virtual machine creation.

Once you have added a route table and populated it with the route for your Node connection, a dialog box pointed out that you should enable IP forwarding. See Chapter 7: Route tables.

To enable IP forwarding you need to modify settings on the network interface that your PORTrockIT is using.

All resources orks R&D Add EE Edit columns C Refresh Assign tags **D**elete Subscriptions: All 2 selected Filter by name All subscriptions \sim All resource groups All types \sim 98 items Show hidden types 🚯 NAME TYPE 🗅 RESOURCE GROUP bridgeworks Storage account Default-Storage-WestEurope bridgeworkspayguksouth Storage account Default

Navigate to *All resources*.

Filter the output to your resource group.

Home > All resources		
All resources Bridgeworks R&D		
+ Add ■■ Edit columns ひ Refresh ◆ Assign tags 💼 D	elete	
Subscriptions: All 2 selected		
Filter by name All subscriptions	<pre>example_deployment_group</pre>	All types 🗸 🗸
98 items Show hidden types 6	Filter items	
	 Select all Default-Networking 	RESOURCE GROUP 🛝
bridgeworks	Default-Storage-EastUS	Default-Storage-WestEurope
bridgeworkspayguksouth	Default-Storage-NorthEurope	Default

Left click on *Network interface*. In this example it is the only network interface in the resource group and is named *example-deployment-v394*.

Home > All resources		
All resources Bridgeworks R&D		
🕂 Add 📑 Edit columns 💍 Refresh 🛛 🚸 Assign tags 💼 Delete		
Subscriptions: All 2 selected		
Filter by name All subscriptions v example.	_deployment_group 🗸 🛛 All ty	pes 🗸 All loca
8 items Show hidden types 6		
NAME 14	TYPE 🔨	RESOURCE GROUP $\land \downarrow \downarrow$
<pre> <••> example_deployment_group-vnet</pre>	Virtual network	example_deployment_group
example_deployment_image	Image	example_deployment_group
exampledeploymentstorage	Storage account	example_deployment_group
example-deployment-v394	Network interface	example_deployment_group
example-deployment-vm	Virtual machine	example_deployment_group
example-deployment-vm_disk1_1cfba9b4496c44cf86a8a977423f29e1	Disk	EXAMPLE_DEPLOYMENT_GROUP
example-deployment-vm-ip	Public IP address	example_deployment_group
example-deployment-vm-nsg	Network security group	example_deployment_group

Additionally, you can also filter the results to show only the network interfaces:

- Select the drop-down labelled All Types.
- Deselect the Select all box.
- Select the *filter items* bar at the top of the list.
- Type Network interfaces.
- Left click the box labelled Network interfaces.
- Click out of the drop-down to apply the setting.

All resources Bridgeworks R&D			
🕈 Add 🛛 🇮 Edit columns 💍 Refresh	🔷 🔶 Assign tags 🧵	Delete	
Subscription filtering behavior h	as now changed. To learn n	nore click here.	
Subscription filtering behavior h	as now changed. To learn n	nore click here.	
Subscription filtering behavior h	as now changed. To learn n	nore click here.	
Subscription filtering behavior h Subscriptions: All 2 selected Filter by name	as now changed. To learn n	example deployment g	roup 🗸 Network interfaces 🗸
Subscription filtering behavior h Subscriptions: All 2 selected Filter by name	All subscriptions V	example_deployment_g	roup 🗸 Network interfaces 🗸
Subscription filtering behavior h Subscriptions: All 2 selected Filter by name 1 items Show hidden types 1	aas now changed. To learn n	example_deployment_g	roup 🗸 Network interfaces 🥆
Subscription filtering behavior h Subscriptions: All 2 selected Filter by name 1 items Show hidden types NAME \$	All subscriptions V	example_deployment_g	roup ✓ Network interfaces ✓ RESOURCE GROUP ↑↓



Note: If your group has multiple interfaces then you need to establish which one is connected to your PORTrockIT virtual machine. Left click each network interface and check the overview section; there will be an entry titled *Attached to* from which you can find the network interface attached to your PORTrockIT virtual machine.

Home > All resources > example-deployment-v394			
All resources « 🖈 🗙 Bridgeworks R&D	example-deployment-v394		
Add 📑 Edit columns 🚥 More		→ Move 💼 Delete	
Subscription filtering behavior × has now changed. To learn more	Overview	Resource group (change) example_deployment_group Location UK South	Private IP address 10.0.10.4 Virtual network/subnet example_deployment_group-ypet/default
click here.	Activity log	Subscription (change) Microsoft Partner Network	Public IP address example-deployment-ym-ip
Filter by name	Access control (IAM)	Subscription ID 00876784-61a4-4c7e-b717-0c70d57233da	Network security group
NAME AL	I Tags		Attached to example-deployment-ym
	SETTINGS	Tags (change)	
example_deployment_group-vnet example_deployment_image	IP configurations	Click here to add tags	*
exampledeploymentstorage	DNS servers		
example-deployment-v394	Network security group		
example-deployment-vm	Properties		
📚 example-deployment-vm_disk1_1cfba9…	Locks		
example-deployment-vm-ip	Automation script		
example-deployment-vm-nsg	- ·		

In the overview section, left click on the *IP configurations* section in the *Settings* category.

Home > All resources > example-deployment-v394 -	IP configurations						
All resources « 🖈 : Bridgeworks R&D	 example-deployment-v394 Network interface 	- IP configurations					* ×
🖶 Add 📑 Edit columns 🛛 •••• More		🕇 Add 🛛 📘 Save	🗙 Discard				
Subscription filtering behavior × has now changed. To learn more click here.	 Overview Activity log 	IP forwarding setti	ings		Disabled	Enabled	
Filter by name	Access control (IAM)	Virtual network			example_dep	loyment_group-vnet	
NAME 14	SETTINGS	* Subnet			default (10.	0.10.0/24)	\checkmark
example_deployment_group-vnet	IP configurations		urations				
exampledeploymentstorage	DNS servers	NAME	IP VERSION	TYPE	PRIVATE IP ADDRESS	PUBLIC IP ADDRESS	
example-deployment-v394	Network security group	ipconfig1	IPv4	Primary	10.0.10.4 (Dynamic)	Unassigned (example-deployment-vm-ip)	
example-deployment-vm	Properties						
example-deployment-vm_disk1_1cfba9	Locks						
example-deployment-vm-ip	Automation script						

From this view, left click *enabled* on the toggle for *IP forwarding*.



Left click on Save when you are ready to proceed.

Wait for the success notification.



8 Accessing the GUI

With a PORTrockIT virtual machine running there is now a web GUI available.

To access the GUI you need to know the public IP address for your virtual machine.

Navigate to the virtual machines section. This can be achieved by navigating to *All services* on the left side of the page. In this view either look for *Virtual machines*, or type it into the filter.

Microsoft Azure		
	All services virtual machines	
i≡ All services	_	
	🖳 Virtual machines	*

All deployed virtual machines in the account will be displayed in the Virtual machines section.

Home > Virtual machines Virtual machines Bridgeworks R&D				
➡ Add 📰 Edit columns 💍 Refresh	Assign tags	▶ Start 🛛 🤇 Restar	t 🔳 Stop 🟛 Delete 🎽 S	ervices
Subscriptions: All 2 selected Filter by name All subscriptions	✓ All re	source groups 🗸	All types 🗸 🗸	All locations
10 items	TYPE 🔨	STATUS	RESOURCE GROUP 1	location 🛝
example-deployment-vm	Virtual machine	Running	example_deployment_group	UK South

To reduce the list to your intended machine you can use filters. At the top of this list there are drop-down bars to filter the list. In this example the *All resource groups* drop-down will be changed:

- Left click on All resource groups to show the drop-down.
- Left click the ticked Select all box to deselect everything.
- Left click on the desired resource group, in this example it is the *example_deployment_group*.
- Left click out from the drop-down to cause the filter to load.

example_deployment_group					
Filter items					
Select all					
cloud-shell-storage-northeurope					
Default-Networking					
Default-Storage-EastUS					
Default-Storage-NorthEurope					
Default-Storage-WestEurope					
 example_deployment_group 					
Group					
Images-EastUS					
Images-UKSouth					
Images-WestUS					
Default					

The result will be a filtered list of virtual machines attached to that group.

Home > Virtual machines Virtual machines Bridgeworks R&D				
+ Add 📰 Edit columns ひ	Refresh 📔 🌒 Assign tags	Start 🤇 R	estart 🔳 Stop 🛅 Delete 🎽	Services
Subscriptions: All 2 selected Filter by name All substantiation 1 items 1	scriptions V exam	nple_deployment_gro	up V All types V	All locations
NAME ↑↓	TYPE 🔨	STATUS	RESOURCE GROUP	
example-deployment-v	m Virtual machine	Running	example_deployment_group	UK South

Left click on the virtual machine you wish to access. The overview for that virtual machine will be shown. On the right there should be a *Public IP address*. Note or copy that address.



Note: Azure has a quick copy. Left click on the copy symbol that appears when hovering the mouse over the entry.



Open a new tab in your browser and enter the IP address taken from the virtual machine overview to access your PORTrockIT.

You will now be presented with the password prompt page.

Follow the on-screen prompts to set the password and log in.

For further guidance on setting up data acceleration and routing, see the *Policy Routed* guide.

9 Troubleshooting

9.1 Deployment Problems

If a virtual machine has problems deploying, there may be communication issues between the Microsoft Azure Linux Agent (WAAgent) and the Azure Fabric Controller (Microsoft Azure Service), causing the PORTrockIT to have a provisioning failure. If this occurs, the virtual machine's state will be unable to progress from *Creating* in the Azure portal. You will also be unable to log into the GUI with the credentials set up during deployment.

The PORTrockIT needs to be rebooted in order for provisioning to be retried. You can do this by either stopping and restarting the Virtual Machine on the Azure portal or by logging into the GUI and rebooting the node.

To access the GUI, follow the on screen prompt to set a temporary password and log in with the username *admin*. You will then have access to the GUI and can reboot the PORTrockIT from the left hand menu.

Once provisioning succeeds, you will be able to access the PORTrockIT using the credentials set up during creation of the virtual machine. If username and password authentication was used when creating the virtual machine, log in with that username and password. If SSH authentication was used, you will need to set a new password using the on screen prompts and log in using the username chosen during creation.

10 Useful Links

The following section contains links to other guides and FAQs. Support is available through our website: https://support.4bridgeworks.com/

The following resources are available online:

- User Manuals
- Installation Guides
- General FAQ
- AWS FAQ

If your question is not answered in our documentation, please submit a ticket through our website.

A Network security

During virtual machine creation a network security group was created. In this example this group was modified to only allow access from the IP address you are currently connecting to Azure from. See Section 6.1.2.3: Network Security Group for the initial network security group setup.

In order to start using a Node connection you need to add another inbound rule to allow the other Node's public IP address.

Navigate to the *Network security group* used by your PORTrockIT virtual machine that has been set up.

This can be achieved by left clicking All services on the left of the page and then finding All resources.

Home > All resources		
All resources Bridgeworks R&D		
+ Add	gs 👼 Delete	
Subscriptions: All 2 selected		
Filter by name All subscription	s V All resource groups V All types	~
98 items Show hidden types 1		
NAME 🗘	TYPE 🗅	
bridgeworks	Storage account	Default-Storage-WestEurope
bridgeworkspayguksouth	Storage account	Default

Then filter the *All resource groups* to use the your group.

Home > All resources		
All resources Bridgeworks R&D		
▲ Add ■ Edit columns ♥ Refresh ● Assign tags ■ Delete	2	
Subscriptions: All 2 selected		
Filter by name All subscriptions V	example_deployment_group	All types 🗸 🗸
98 items Show hidden types	Filter items	
	 Select all Default-Networking 	RESOURCE GROUP
bridgeworks	Default-Storage-EastUS	Default-Storage-WestEurope
hridreworkspayruksouth	Default-Storage-NorthEurope	Default
	 example_deployment_group 	Delault

Once in your resource group look for the *Network security group*. In this example it is named *example-deployment-vm-nsg*. Left click on the *Network security group*.





The only custom rule is My_Source_IP. This allows your connection to the PORTrockIT.

example-deployment-vn	n-nsg								* >
	«	→ Move	菌 Delete 🛛 Refresh						
Overview		Resource gro example_depl Location	up (change) loyment_group		Securi 1 inbo Assoc	ty rules und, 0 outbound iated with			
Activity log		UK South Subscription	(change)		0 subi	nets, 1 network interfaces			
Access control (IAM)	_	Microsoft Par	tner Network						
🛷 Tags		00876784-61	a4-4c7e-b717-0c70d57233da						
X Diagnose and solve problems	_	Tags (change) Click here to a	add tags						
SETTINGS					~				
Inbound security rules	-		NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION	
Outbound security rules	-	100	My Source IP	Any	Any	203.0.113.0/32	Any		
Network interfaces	-	65000	AllowVnetInBound	Anv	Any	VirtualNetwork	VirtualNetwork	Allow	
<-> Subnets	-	65001	AllowAzureLoadBalancerinBound	Anv	Any	AzureLoadBalancer	Anv	S Allow	
Properties	-	65500	DenyAllInBound	Any	Any	Any	Any	Ø Deny	
Locks	-								
4 Automation script	_	Outbound	security rules						
	-	PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION	
MONITORING	_	65000	AllowVnetOutBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow	
Diagnostics logs	_	65001	AllowInternetOutBound	Any	Any	Any	Internet	Allow	
SUPPORT + TROUBLESHOOTING		65500	DenyAllOutBound	Any	Any	Any	Any	🕴 Deny	
s [↓] Effective security rules	-								

Left click on the Inbound security rules in the Settings category.

ibound security rules											
✓ example-deployment-vm-nsg - Inbound security rules ★ ×								×			
P	Search (Ctrl+/)	«	🕇 Add 🏼 🕯	₽ Default rules							
•	Overview		PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION		
	Activity log		100	My_Source_IP	Any	Any	203.0.113.0/32	Any	Allow		
	Access control (IAM)		65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow		
	Tags		65001	AllowAzureLoadBalancerInBound	Any	Any	AzureLoadBalancer	Any	Allow		
*	Diagnose and solve problems		65500	DenyAllInBound	Any	Any	Any	Any	😣 Deny		
SET	TINGS										
3 4	Inbound security rules										
*	Outbound security rules										
	Network interfaces										
<.>	Subnets										
ł.	Properties										
	Locks										
2	Automation script										

Left click on Add.

)	?	Ŗ	BRIDGEWORKS R&D	
	Add i example	inbou -deployr	nd security rule	×
	📌 Bas	ic		
	* Sourc	e		
	IP Ad	dresses		\sim
	* Sourc	e IP ad	dresses/CIDR ranges 🚯	
	203.0	.113.100	0/32	~
	* Sourc	e port i	ranges 🚯	
	*			
	* Desti	nation (0	
	Any			\sim
	* Desti	nation p	port ranges 🚯	
	*		5 0	~
	* Proto	col		
	Any	y -	TCP UDP	
	* Actio	n		
	Allo	w	Deny	
	* Priori	ty 🔒		
	110	,.		~
	* Name	P.		
	exam	- ple_exte	ernal_bridgeworks_node	~
	Descrip	tion		
	This is traffic	s the ot	her Bridgeworks Node. All n the 10.0.11.0/24 route will	~
	actua	lly come	e through here.	
	- A	Add		

Fill out the settings to allow the other Node to connect to this PORTrockIT virtual machine.

In this example, another Bridgeworks PORTrockIT is set up with a public IP address of 203.0.113.100. The external Node is the only IP address in that range that should be allowed to connect to the Azure one being set up, so a 32 prefix length is used.

The *Destination port ranges* entry is set according to the table found in Section 6.1.2.3: Network Security Group. This adds the minimum functionality to access the PORTrockIT and connect it to the external Node.



Note: Other services will need their relevant ports added to the list.

This connection will be the target when your PORTrockIT virtual machine routes network traffic destined for the 10.0.11.0/24 IP address range seen previously in this guide.

Left click Add when you are ready to proceed.

Wait for the success notification to occur.

Creating security rule	10:09	<
Creating security rule 'example_external_brid	lgeworks_node'.	t
	~	٦
		_
 Created security rule 	× 10:09	<

*	y example-deployment-vm-nsg - Inbound security rules Network security group										
, C	Search (Ctrl+/)	«	🕇 Add	፟ፙ Default rules							
	Overview		PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION		
	Activity log		100	My_Source_IP	Any	Any	203.0.113.0/32	Any	Allow		
4	Access control (IAM)		110	example_external_bridgeworks_node	Any	Any	203.0.113.100/32	Any	Allow		
	Tags		65000	AllowVnetinBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow		
*	Diagnose and solve problems		65001	AllowAzureLoadBalancerInBound	Any	Any	AzureLoadBalancer	Any	Allow		
SET	TTINGS		65500	DenyAllInBound	Any	Any	Any	Any	😣 Deny		
3	Inbound security rules										
*	Outbound security rules										

You now have two custom rules; *My_Source_IP* allows you to access the PORTrockIT GUI and connect to it via SSH from your current connection, and *example_external_bridgeworks_node* allows incoming network traffic from an external Node.