



# **Qualys Gateway Service Azure VM**

Deployment Guide  
Version 1.1

October 17, 2023

Copyright 2022-23 by Qualys, Inc. All Rights Reserved.

Qualys and the Qualys logo are registered trademarks of Qualys, Inc. All other trademarks are the property of their respective owners.

Qualys, Inc.  
919 E Hillsdale Blvd  
4th Floor  
Foster City, CA 94404  
1 (650) 801 6100



# Table of Contents

<b>About this Deployment Guide .....</b>	<b>4</b>
About Qualys .....	4
Qualys Support .....	4
<b>Overview .....</b>	<b>5</b>
Pre-requisites .....	5
How to Deploy VM From the Image .....	5
How to Create Public IP Address Prefixes .....	10
How to Create a Public IP Address and a VM Association .....	10
How to add an Inbound Port on the CAMS/QGS Azure Appliance .....	13
How to Access the CAMS/QGS Azure Appliance Using the Text UI .....	14
How to add a Secondary Hard Disk on the CAMS/QGS Azure Appliance .....	18
How to Collect the Diagnostics Reports on the Azure Appliance .....	19
Create VM Instance Using User Data .....	20

# About this Deployment Guide

This deployment guide contains the information for deploying, interacting, and configuring Centralized Appliance Management Service (CAMS) QGS Appliance on Microsoft Azure Cloud.

## About Qualys

Qualys, Inc. (NASDAQ: QLYS) is a pioneer and leading provider of cloud-based security and compliance solutions. The Qualys Cloud Platform and its integrated apps help businesses simplify security operations and lower the cost of compliance by delivering critical security intelligence on demand and automating the full spectrum of auditing, compliance and protection for IT systems and web applications.

Founded in 1999, Qualys has established strategic partnerships with leading managed service providers and consulting organizations including Accenture, BT, Cognizant Technology Solutions, Deutsche Telekom, Fujitsu, HCL, HP Enterprise, IBM, Infosys, NTT, Optiv, SecureWorks, Tata Communications, Verizon and Wipro. The company is also founding member of the [Cloud Security Alliance \(CSA\)](#). For more information, please visit [www.qualys.com](http://www.qualys.com)

## Qualys Support

Qualys is committed to providing you with the most thorough support. Through online documentation, telephone help, and direct email support, Qualys ensures that your questions will be answered in the fastest time possible. We support you 7 days a week, 24 hours a day. Access online support information at [www.qualys.com/support/](http://www.qualys.com/support/).

# Overview

The Qualys Gateway Service (QGS) is a packaged virtual appliance created by Qualys that provides proxy services for Qualys Cloud Agent deployments that require proxy connectivity in order to connect to the Qualys Cloud Platform.

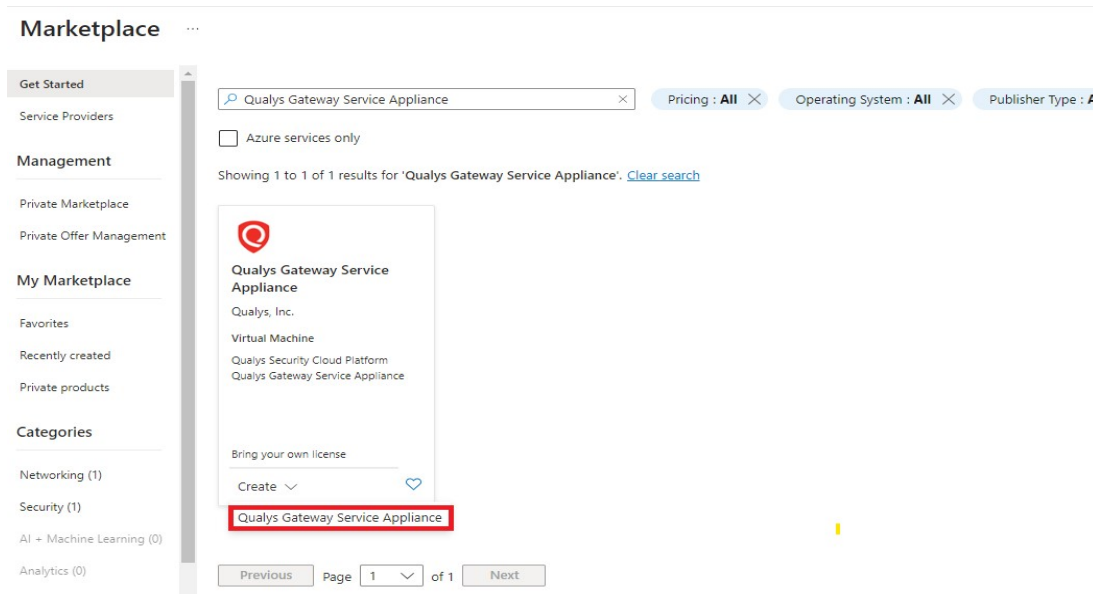
This document outlines the steps required to set up a Centralized Appliance Management Service (CAMS) Qualys Gateway Service (QGS) appliance on the Microsoft Azure Cloud Platform (Azure).

## Pre-requisites

- To set up the CAMS QGS appliance on Azure Cloud Platform, you need Microsoft Azure account.
- You must have CLI installed on your machine to use Azure CLI to launch and execute the command.
- To get the CAMS/QGS Azure VHD image, submit a service request to [Qualys support](#).

## How to Deploy VM From the Image

1. Go to the [Azure](#) marketplace. Search for **Qualys Gateway Service Appliance**. Click **Qualys Gateway Service Appliance** to launch the instance.



2. Under **Instance Details**, select the image you want to use from the list..

[Home](#) > [Marketplace](#) >

## Create a virtual machine ...

Subscription \* ⓘ

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

**Instance details**

Virtual machine name \* ⓘ

Region \* ⓘ

Availability options ⓘ

Security type ⓘ


Image \* ⓘ   
[See all images](#) | [Configure VM generation](#)

3. Ensure the VM minimum requirement is selected as mentioned in the [QGS User Guide](#).

VM architecture ⓘ

☐ Arm64

☒ x64

 Arm64 is not supported with the selected image.

Run with Azure Spot discount ⓘ ☐

Size \* ⓘ   
[See all sizes](#)

- Select any option for **Authentication type** under the Administrator account

**Note:** You can select any of the available options for authentication. As QGS is a hardening appliance, neither authentication method will be implemented on the virtual machine.

#### Administrator account

Authentication type ⓘ

- ☒ SSH public key  
☐ Password

**i** Azure now automatically generates an SSH key pair for you and allows you to store it for future use. It is a fast, simple, and secure way to connect to your virtual machine.

Username \* ⓘ

azureuser ✓

SSH public key source

Generate new key pair ✓

Key pair name \*

test ✓

- The public inbound ports should strictly be selected as **None**.

Home > Images > q... >

### Create a virtual machine ...

network access on the Networking tab.

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

Select inbound ports

**i** All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.

Licensing

**License type \***

4. From the **disk tab**, make sure to click the **Delete with VM** checkbox so as not to flood Azure with redundant disks.

Create a virtual machine ...

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

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

**VM disk encryption**

Azure disk storage encryption automatically encrypts your data stored on Azure managed disks (OS and data disks) at rest by default when persisting it to the cloud.

Encryption at host ☐

Encryption at host is not registered for the selected subscription. [Learn more about enabling this feature](#)

**OS disk**

OS disk type \* ☐ Premium SSD (locally-redundant storage)

Delete with VM ☒

Key management  Platform-managed key

Enable Ultra Disk compatibility ☐



5. You can also attach a secondary disk (required minimum disk size 250 GB), if required and then click the **Delete with VM** checkbox.

Data disks for PT-AzureTest

You can add and configure additional data disks for your virtual machine or attach existing disks. This VM also comes with a temporary disk.

LUN	Name	Size (GiB)	Disk type	Host caching	Delete with VM ⓘ	
0	PT-AzureTest_DataDis...	500	Premium SSD LRS	None ▾	<input checked="" type="checkbox"/>	 

[Create and attach a new disk](#)   [Attach an existing disk](#)

6. In **Networking** tab, select **None** as the public IP and **NIC network security group** as Basic.

Home > Images > [Create a new image from a VM](#) >

### Create a virtual machine

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

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

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

Virtual network \* ⓘ  [Create new](#)

**Subnet \*** ⓘ  [Manage subnet configuration](#)

**Public IP \*** ⓘ  [Create new](#)

- Make sure to select **Delete public IP** and **Delete NIC when VM is deleted** so you do not run out of NICs.

**Public inbound ports \*** ⓘ

☒ **None**  
☐ Allow selected ports

Select inbound ports

**Public inbound ports \*** ⓘ

☒ **Delete NIC when VM is deleted** ⓘ

☐ Enable accelerated networking ⓘ

The selected image does not support accelerated networking.

**Public inbound ports \*** ⓘ

☒ **Delete public IP** ⓘ

**Public inbound ports \*** ⓘ

☒ **Delete NIC when VM is deleted** ⓘ

☐ Enable accelerated networking ⓘ

The selected image does not support accelerated networking.

**Note:** Do not use any options on the **Management** and **Monitoring** tab..

The screenshot shows the 'Create a virtual machine' page with the 'Management' tab selected. The breadcrumb trail is 'Home > Images > q'. The tabs are 'Basics', 'Disks', 'Networking', 'Management' (highlighted with a red box), 'Monitoring', 'Advanced', 'Tags', and 'Review + create'. Below the tabs, it says 'Configure management options for your VM.' Under 'Microsoft Defender for Cloud', it states 'Your subscription is protected by Microsoft Defender for Cloud basic plan.' Under 'Identity', there is a checkbox for 'Enable system assigned managed identity' which is currently unchecked. At the bottom, 'Azure AD' is partially visible.

7. Add relevant tags as required and create a VM.

8. On **Review + create** tab, check for "Validation passed" and after reviewing details perform create operation.

The screenshot shows the 'Create a virtual machine' page with the 'Review + create' tab selected. A green banner at the top indicates 'Validation passed'. The breadcrumb trail is 'Home > Images > q'. The tabs are 'Basics', 'Disks', 'Networking', 'Management', 'Monitoring', 'Advanced', 'Tags', and 'Review + create' (highlighted with a yellow box). A blue information box states: 'Cost given below is an estimate and not the final price. Please use Pricing calculator for all your pricing needs.' Under 'Price', it lists 'Qualys Gateway Service Appliance by Qualys, Inc.' with a price of '0.0000 USD/hr' and '1 X Standard B4ms by Microsoft' with a price of '0.1790 USD/hr'. Below this, there is a 'TERMS' section with a disclaimer. At the bottom, there is a green 'Create' button, a '< Previous' button, a 'Next >' button, and a link to 'Download a template for automation'.

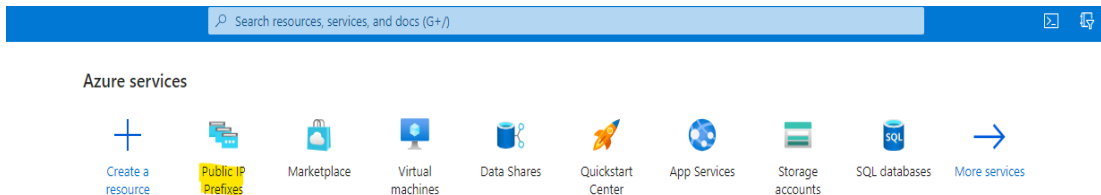
## How to Create Public IP Address Prefixes

To create public IP address prefixes, you need to visit the [Azure](#) portal. Follow all the steps mentioned in the Azure portal.

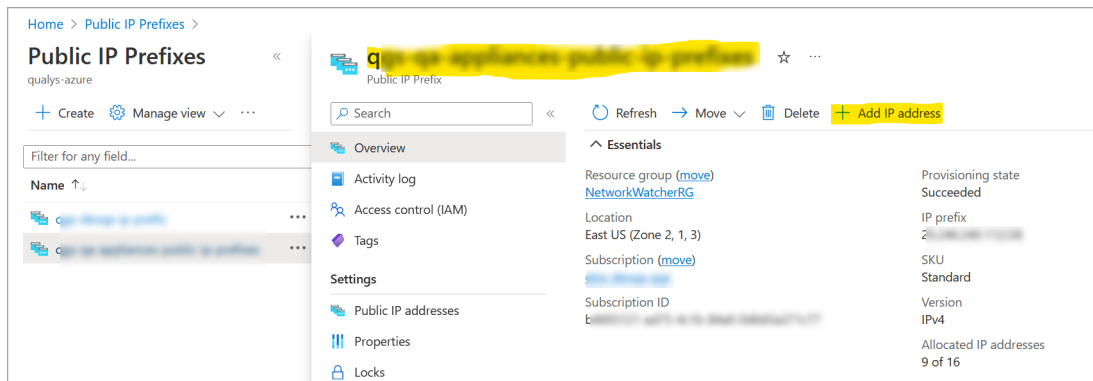
## How to Create a Public IP Address and a VM Association

Note the NIC of your VM using the following steps:

1. Log in to the [Azure](#) portal.
2. Navigate to Public IP Prefixes.



4. Under the Public IP Prefix section, click **Add IP Address** to add a new IP address.



**Note:** The prefixes should contain an IP range that is allowed on the customer network.

5. Now, go to the **Public IP addresses** tab and click on the IP you created.

Home > Public IP Prefixes > qgs-qa-appliances-public-ip-prefixes

### Public IP Prefixes

qualys-azure

+ Create Manage view

Filter for any field...

Name

- qgs-devqa-ip-prefix
- qgs-qa-appliances-public-ip-prefixes

### qgs-qa-appliances-public-ip-prefixes | Public IP addresses

Public IP Prefix

Search

Search public IP addresses

#### Public IP address

test

pt-test

#### Settings

- Public IP addresses
- Properties
- Locks

#### Monitoring

- Insights
- Alerts

#### Automation

- Tasks (preview)
- Export template

#### Support + troubleshooting

- New Support Request

6. Associate this IP with the NIC of your VM.

Home > Public IP Prefixes > qgs-qa-appliances-public-ip-prefixes | Public IP addresses

### pt-test

Public IP address

Search

Associate Dissociate Delete Move Refresh Open in mobile

#### Overview

#### Essentials

Resource group (link): networkwatchereng

Location (link): East US

Subscription (link): qlys-devqa-qgs

Subscription ID: b4693121-a075-4c1b-8440-d0b65a371c77

SKU: Standard

Tier: Regional

IP address: 20.246.240.126

DNS name: pt-test.eastus.cloudapp.azure.com

Associated to: -

Virtual machine: -

Routing preference: Microsoft network

Tags (link): Click here to add tags

#### Get Started

Properties Tutorials

#### Use public IP addresses for public connections to Azure resources

Associate and configure public IP addresses to various Azure resources [Learn more.](#)

- Associate to a resource**  
Associate your public IP address to an Azure resource such as an Azure Load Balancer or a network interface.  
[Associate IP](#)
- Configure a public IP address**  
Configure a DNS idle time, name, and alias record for your public IP address.  
[Configure](#)
- Protect IP**  
Choose the address.  
[Protect](#)

#### Associate public IP address

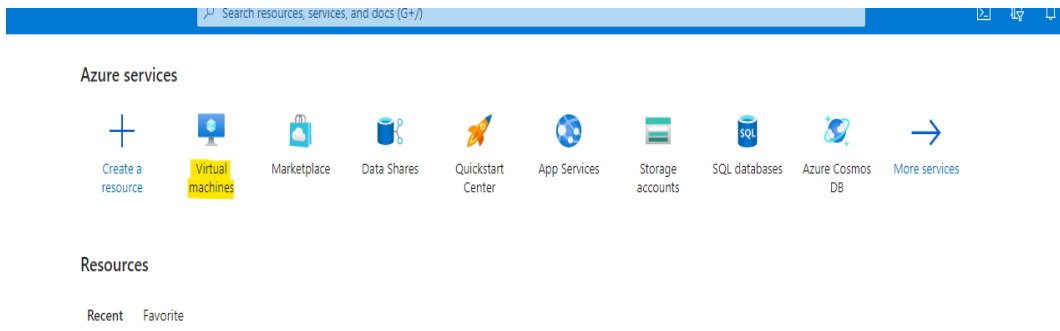
pt-test

Choose the resource to which you want to associate this public IP address.

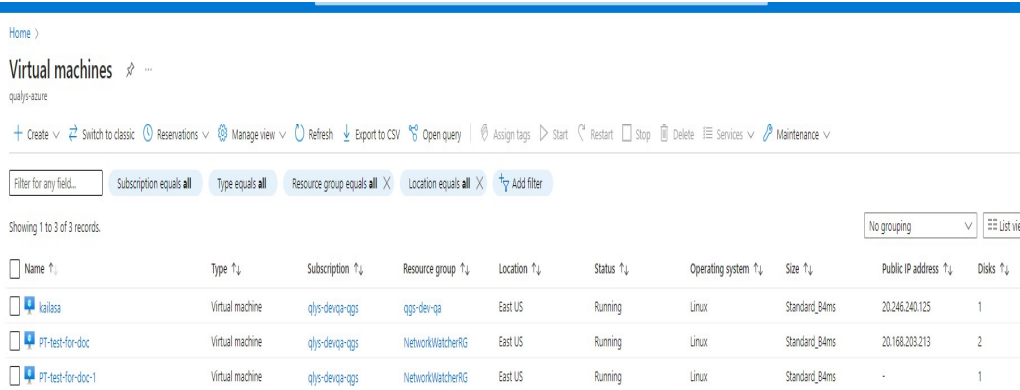
Resource type: Network interface

Network interface: pt-test-for-dhcp-1263  
resource group: NetworkWatcherRG

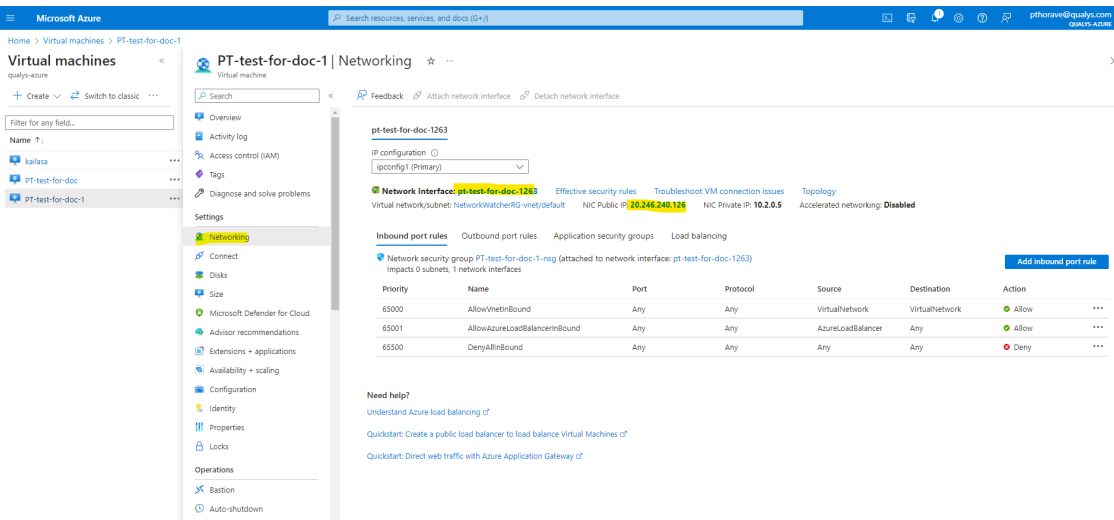
7. Next, select the **Virtual machines** options and select the appropriate virtual machine.



8. Go to the **CAMS/QGS azure VM** under the **Virtual machines** tab.



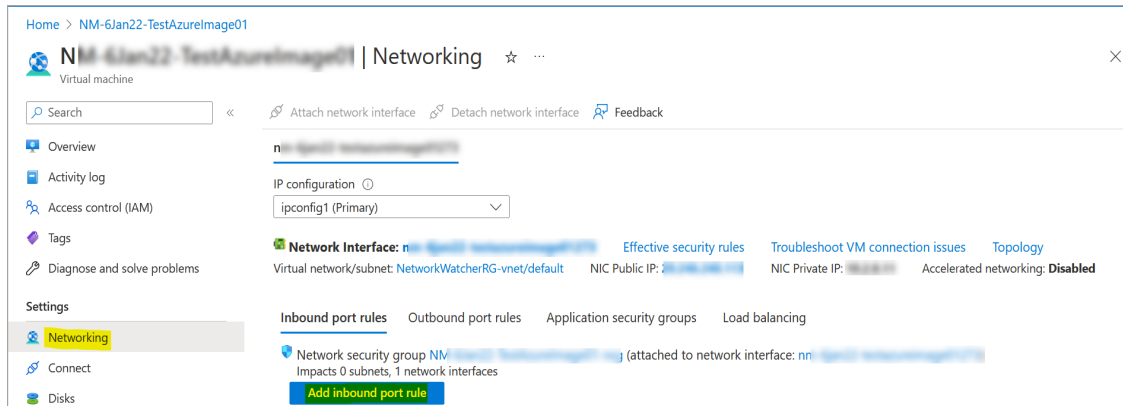
9. Go to **Networking** option under the **Setting** tab. You can view the associated public IP address.



## How to add an Inbound Port on the CAMS/QGS Azure Appliance

To use the tunnel, cache, or patch port on the appliance; you must to add the inbound port rule on the CAMS/QGS Azure appliance, as mentioned in the following section.

1. Click the **Networking** tab of the appliance to which the inbound port rules need to be added.



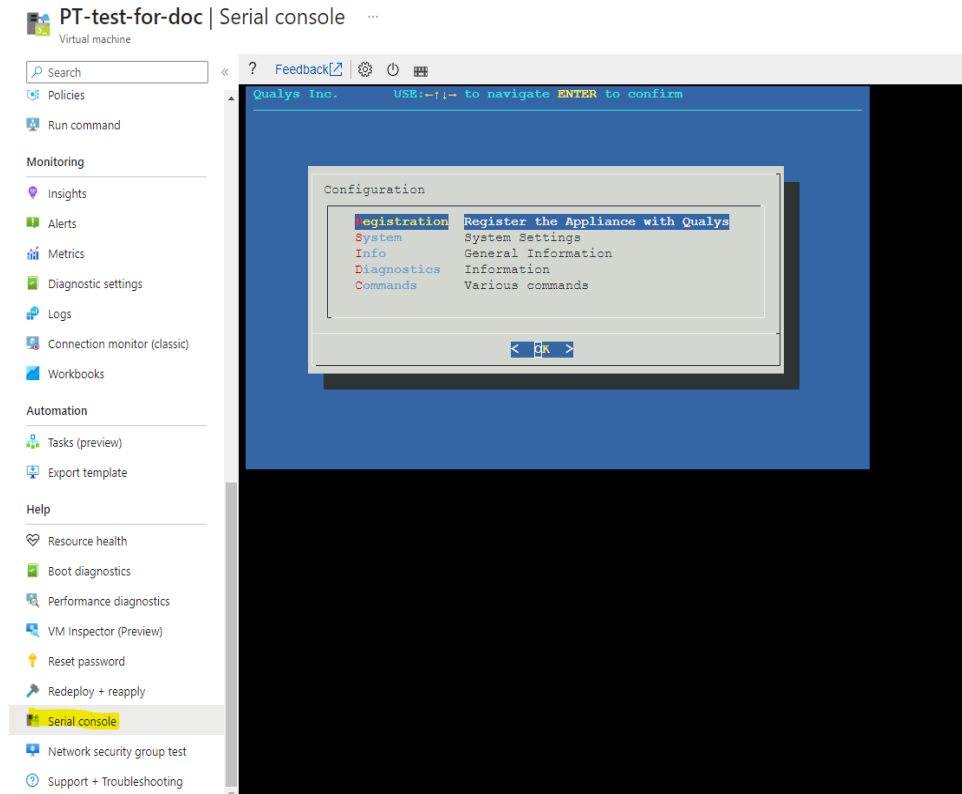
2. Add the inbound port rule as per your network standards. Make sure to use the correct port; here, in the example cache port is 8080, and the selected protocol is TCP. Save the rule, and it can be added to the VM.

A screenshot of the 'Add inbound security rule' dialog box in the Azure portal. The dialog box is titled 'Add inbound security rule' and shows the configuration for a new inbound security rule. The fields are: Source (Any), Source port ranges (\*), Destination (Any), Service (Custom), and Destination port ranges (8080). The Protocol is set to TCP. The 'Add' button is highlighted in blue, and the 'Cancel' button is in white. A 'Give feedback' link is at the bottom right.

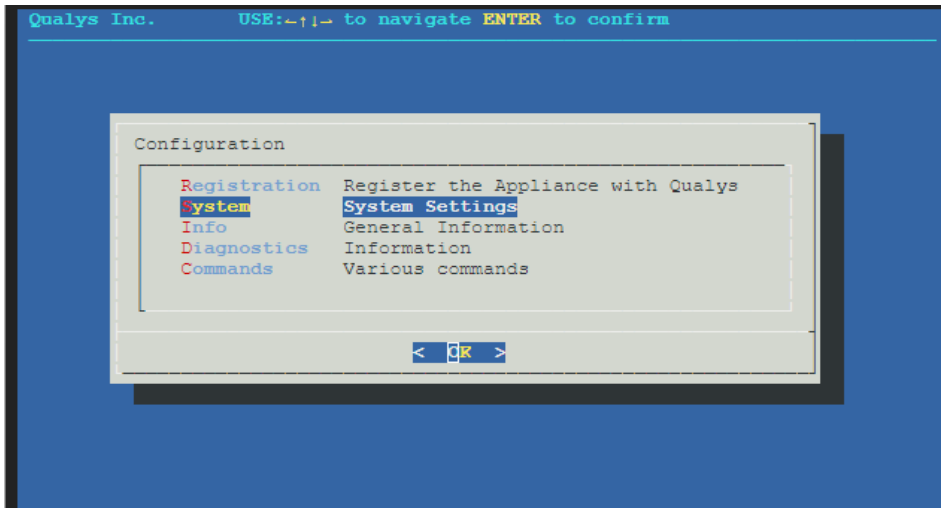
## How to Access the CAMS/QGS Azure Appliance Using the Text UI

The following are the steps given for accessing the CAMS/QGS Azure appliance using the text UI.

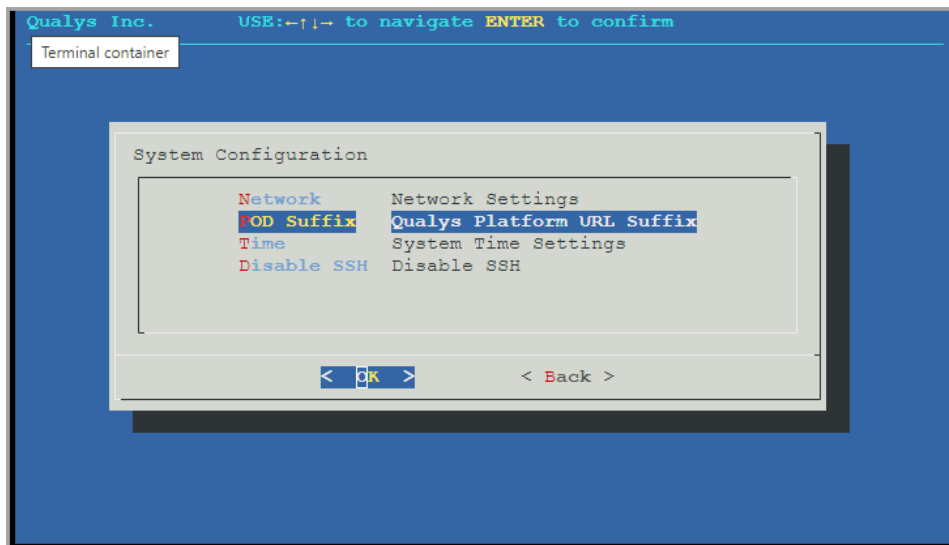
1. Click the **CAMS/QGS Azure VM**.
2. Go to **Serial console** under Help in the left panel.
3. The appliance Text UI displays as shown below.



4. Click **System** to access the **System Settings** configuration.



5. On **System Configuration**, click **POD Suffix**.



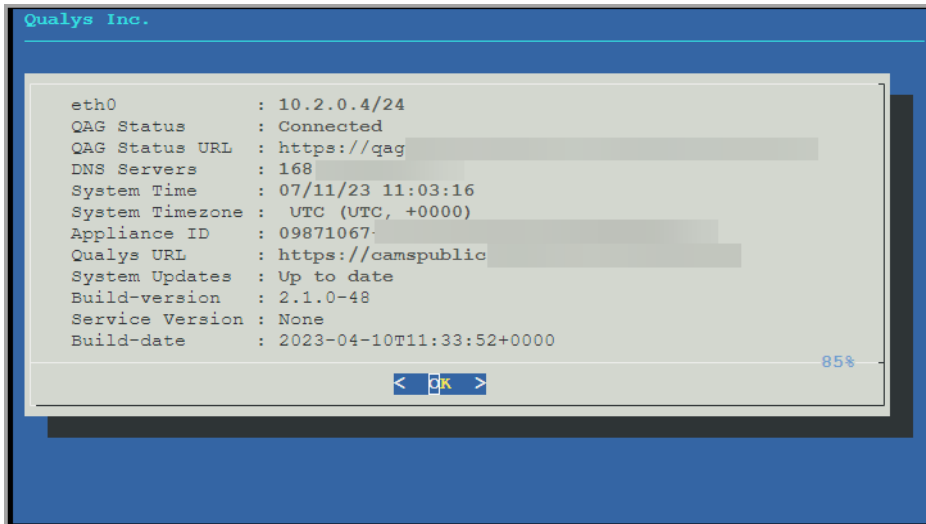
An input field is displayed to provide the Platform URL Suffix (POD Suffix).



6. Enter the Qualys Platform URL Suffix corresponding to the platform where your subscription is hosted. To identify the Platform URL Suffix for your subscription, refer to [Qualys Platform Identification](#).



Once the POD Suffix is successfully updated and network settings are configured, the appliance should display as below. Verify that the QAG Status shows Connected to ensure your appliance runs successfully.

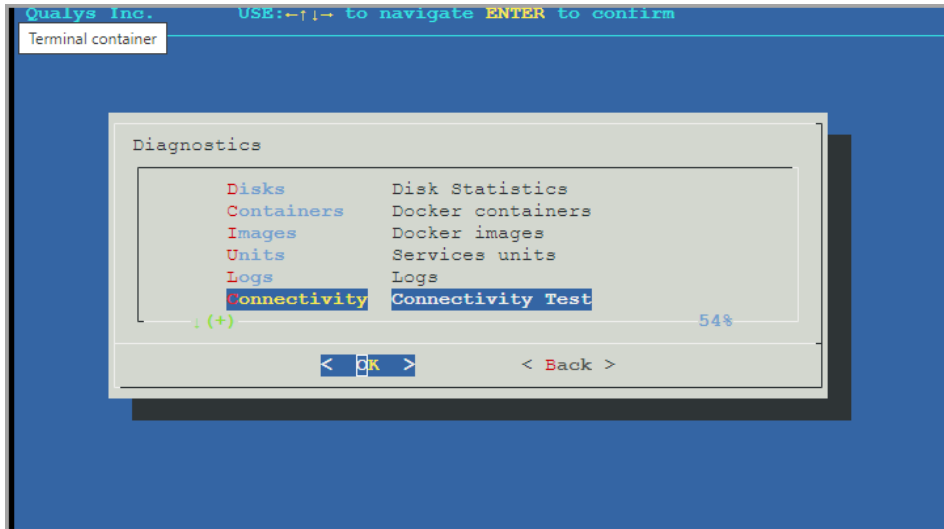


7. We recommend running a connectivity test to ensure all Qualys backend services are reachable.

To run a connectivity test, follow these steps.

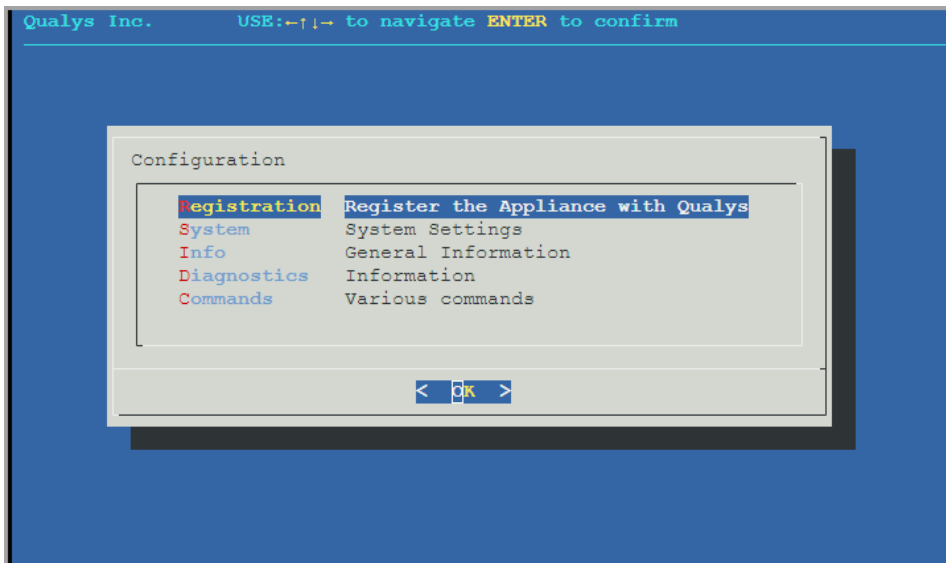
a) Navigate back to the **Configuration** screen.

b) Click **Diagnostics > Connectivity Test**



**Note:** If the VM Instance is configured on a private IP network, configure your upstream proxy network before appliance registration. Refer to the *Proxy Servers* section of the [Qualys User Guide](#) to learn more..

8. Click **Registration** to register the appliance.



Follow the steps instructed in the *Registration* section of the [QGS User Guide](#) to complete the appliance registration.


## How to add a Secondary Hard Disk on the CAMS/QGS Azure Appliance


The following are steps for adding the secondary hard disk while deploying the Azure VM.


1. Go to the **Disks** tab and select **Create and attach a new disk**.

Home > Images > q > Windows 10 Home > >

Create a virtual machine ...

key management 





Platform-managed key 

Enable Ultra Disk compatibility 

☐  
Ultra disk is supported in Availability Zone(s) 1,2,3 for the selected VM size Standard\_B4ms.


Data disks for NM-10Jan23-TestAzureImageOnProd

You can add and configure additional data disks for your virtual machine or attach existing disks. This VM also comes with a temporary disk.

LUN	Name	Size (GiB)	Disk type	Host caching	Delete with VM 
<input type="text" value="0"/>	NM-10Jan23-TestAzur...	256	Premium SSD LRS	<div>None </div>	<div><input checked="" type="checkbox"/>  </div>

Create and attach a new disk

Attach an existing disk

 Advanced

2. Add a required size (more than 250GB in case of patch mode), Name, select the Source type, etc, and click **OK**.

[Home](#) > [Images](#) > [q](#) > [Create a virtual machine](#) >

## Create a new disk ...

Create a new disk to store applications and data on your VM. Disk pricing varies based on factors including disk size, storage type, and number of transactions. [Learn more](#)

Name \*

NM-10Jan23-TestAzureImageOnProd\_DataDisk\_1

Source type \* ⓘ

None (empty disk) ▾

Size \* ⓘ

256 GiB

Premium SSD LRS

[Change size](#)

Key management ⓘ

Platform-managed key ▾

Enable shared disk

☐ Yes ☒ No

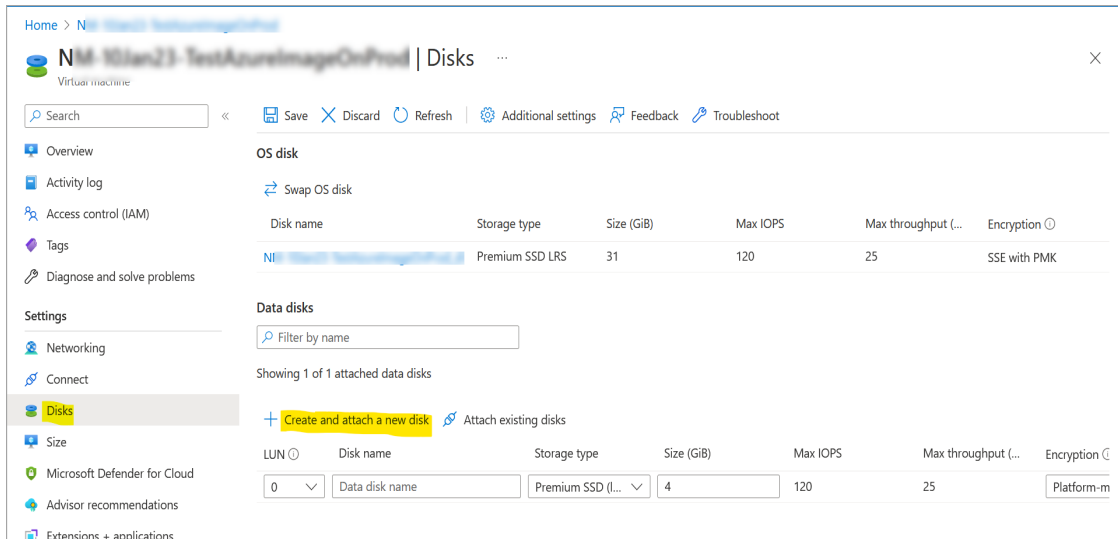
Delete disk with VM

☒

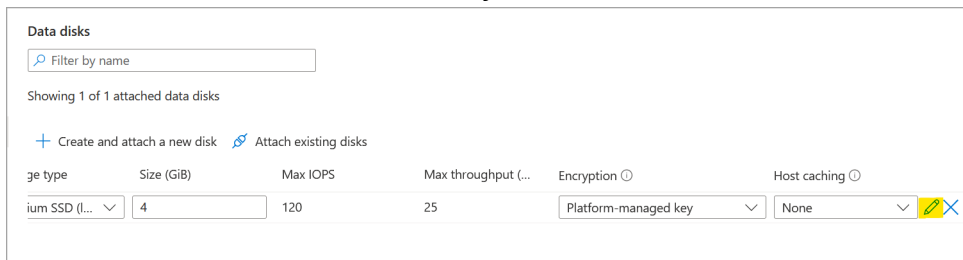
OK

- Another method for adding the secondary disk to the appliance is to use the **Disks** option on the left-hand pane of a deployed Azure VM.

- Click **Create and attach a new disk** option.



- Click the **Edit** icon, add the secondary disk details and click **Save**.



## How to Collect the Diagnostics Reports on the Azure Appliance

To collect the diagnostics report, you must add an inbound port rule on port 22. Otherwise, you cannot SCP on the port to collect the diagnostics report.

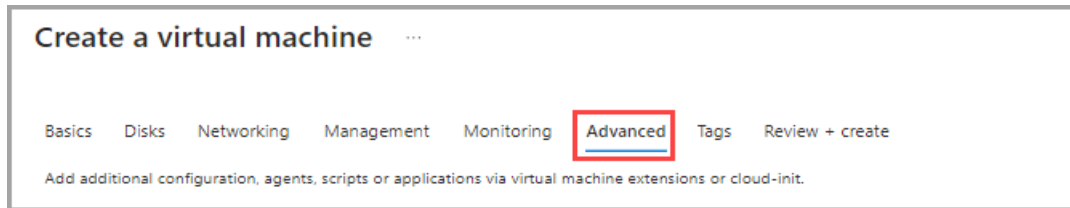
**Note:** Disable the rule after collecting the report if the rule is no longer in use.

## Create VM Instance Using User Data

You can also configure a Azure VM Instances using the User Data setting. We recommend using the User Data option only when the VM Instance is launched using scripts.

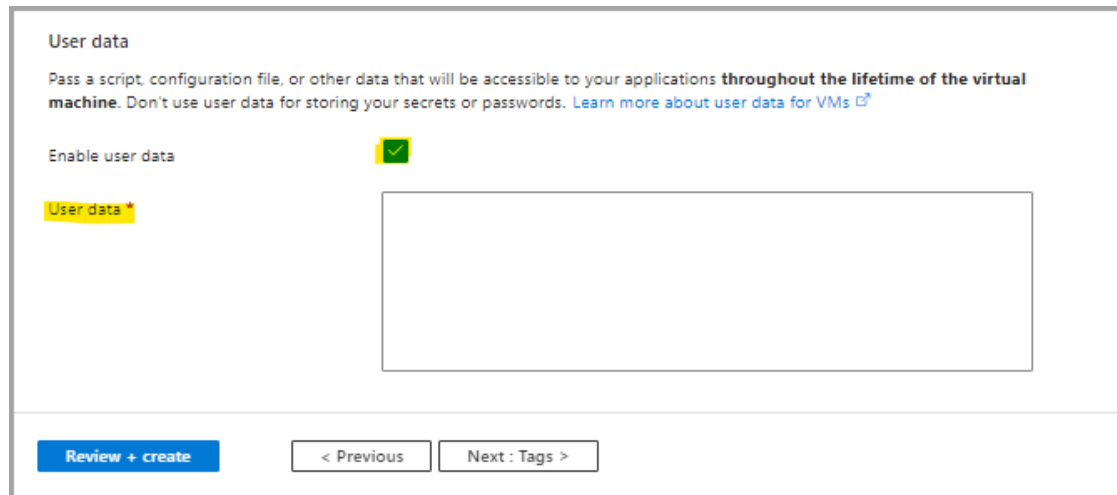
Follow the steps below to create a VM using User Data.

1. Navigate to the **Advanced** options on the VM deployment page during the [Azure VM Instance creation](#).



In the Advanced tab, select **Enable user data** and Add the following details as user data.

```
#cloud-config
write_files:
  - owner: root:root
    path: /opt/qualys/cloud.env
    permissions: '0644'
    content: |
      POD_SUFFIX="Add your corresponding POD suffix here"
```

A screenshot of the 'User data' section in the Azure VM deployment page. The section has a title 'User data' and a description: 'Pass a script, configuration file, or other data that will be accessible to your applications throughout the lifetime of the virtual machine. Don't use user data for storing your secrets or passwords. Learn more about user data for VMs'. Below the description is a checkbox labeled 'Enable user data' which is checked, indicated by a green checkmark icon. Below the checkbox is a text input field labeled 'User data \*'. At the bottom of the section are three buttons: 'Review + create' (blue), '< Previous' (white), and 'Next : Tags >' (white).

To identify the Platform URL Suffix for your subscription, refer to the *Platform URL Suffix* section of the [Qualys Platform Identification](#).

**Important:**

- While copying the user data, avoid the spaces or blank lines after the last sentence of the user data.
- Use any Online YAML validator to ensure the indentation in the user data is correct. Every dot represents one space.

**Note:** To ensure a valid YAML configuration, follow the steps laid out in the Important section on page 8 of the [Qualys Gateway Service AWS Deployment Guide](#).