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About this Deployment Guide

This deployment guide contains the information for deploying, interacting, and configuring Centralized Appliance Management Service (CAMS) QGS Appliance on AWS Cloud. Also, it outlines the details on launching the QGS instances using AWS Command Line Interface (CLI).

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

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/.
Overview

Qualys Gateway Service (QGS) is a packaged virtual appliance developed by Qualys that provides proxy services for Qualys Cloud Agent deployments requiring proxy connectivity to connect with 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 AWS cloud.

Pre-requisites

- To set up the CAMS QGS appliance on AWS Cloud, you need an AWS account.
- You must have CLI installed on your machine to use AWS CLI to launch and execute the command.
- To get the QGS AMI, submit a service request to Qualys support with your AWS account ID and AWS Region. Qualys support will share the QGS AMI in your AWS account.

Deploy and Configure CAMS QGS Appliance on AWS Cloud Using old User Interface

Follow these steps to deploy and configure a CAMS QGS appliance on the AWS Cloud using old user interface:

1. Log in to your AWS account.
2. Go to **Launch a virtual machine with EC2**.
3. On the EC2 experience page, go to **Images > AMIs** (Amazon Machine Images).

4. Select the QGS AMI and click **Launch Instances** to launch an EC2 instance.
5. Select the latest AMI image shared by Qualys support and SRE. Contact Qualys support to get the latest AMI image.

**Note:** You need not deploy a new instance if you already have one with an old AMI image that can be auto-upgraded.

- An AMI is a template that contains the software configuration required to launch your instance. You can select an AMI provided by AWS Marketplace, Community or your available AMIs.

6. Select a **t3.xlarge** size of the instance and click **Next: Configure Instance Details**.
7. If you want to assign a public IP to the QGS appliances, then configure the instance details by selecting the network and set the Auto-assign Public IP field to Enable.

- If you want to assign a private IP to the QGS appliances, then do not enable the Auto-assign Public IP option.

IMPORTANT: If configuring the instance using the latest image version 2.1.0-48, you can directly configure the POD suffix using the TextUI by selecting the options System Settings > POD Suffix without using the User Data option. To know more detailed steps to configure the POD suffix without using the User Data option, Refer to the Appendix section of the Qualys Gateway Service User Guide.

However, we recommend using the User Data option only when the instance is launched using the scripts while creating the instance.

8. On the same Instance Detail Configuration screen, scroll down to the User data section and add the following user data and click Next: Add Storage.

```yaml
#cloud-config
write_files:
- owner: root:root
  path: /opt/qualys/cloud.env
  permissions: '0644'
  content: |
    POD_SUFFIX=Add your QGS Platform URL here
```

Note: If the instance does not accept pod suffix without double quotes, then add the pod suffix between the double quotes, e.g., POD_SUFFIX="Add your QGS Platform URL here"
IMPORTANT:

Perform the following steps precisely to ensure a valid YAML configuration:

- As you know, 'MS Word' is used as an example of a popular word-processing application. You can use it but make sure you 'show formatting marks'.
- Use any web 'Browser' or 'PDF Viewer' to view/open Qualys AWS Deployment Guide.

1. Open MS Word and your Browser, side-by-side
2. In MS Word, enable Paragraph markers and choose font 'Courier New' (a monospaced font).
4. Select the text that begins '#cloud-config' and ends 'Add your corresponding POD suffix here.'
5. Paste this into MS Word; you should see the YAML config file, monospaced, with space and paragraph markers clearly visible.

6. Now in your Browser, scroll to the last page of the QGS AWS Deployment Guide and the table, 'POD Suffixes'.
7. Find your POD suffix from the 'Platform URL' column; paste this into MS Word, after the entry 'POD_SUFFIX=', do not use any quotation marks.
8. Scroll back to page 10, 'Example.' Verify that the YAML file configuration you have in MS Word matches exactly, including all the space marks '.' and paragraph markers '??', your POD_SUFFIX Platform URL value needs to match where your subscription is located.
9. Go to your Browser, open the website, 'www.yamllint.com'.
10. In MS Word, select all text and copy it with Ctrl-C or Command-C.

11. In your Browser, paste the text into the blank YAML window and click 'go'. You should see a green bar saying 'Valid YAML!'. Refer to the following screenshot.

12. It is now possible to copy that validated YAML from yamllint.com into your AWS Console.

Example:

```
#cloud-config
write_files:
  - owner: root:root
    path: /opt/qualys/cloud.env
    permissions: '0644'
    content: |
      POD SUFFIX=qg2.apps.qualys.com
```

Click here to know the POD suffixes for corresponding PODs. For example, for platform US2, you can use the platform URL qg2.apps.qualys.com to add your corresponding POD suffix. Similarly, for platform IN1, you can use the platform URL qg1.apps.qualys.in.
9. On the Add Storage page, you can attach additional EBS volumes and instance store volumes to your instance.

**Note:** If you want to use your appliance for **Patch caching** purposes, then you need to add another storage volume of at least 256 GB.

After adding the volumes to your instance, click **Next: Add Tags**.

10. On the Add Tags page, you can add Owner and Name tags details then click **Next: Configure Security Groups**.

11. On the Configure Security Group page, you can select an appropriate **Security Group** and click **Review and Launch**.
Note: A security group is a set of firewall rules that control the traffic for your instance. You can add rules to allow specific traffic to reach your instance.

12. Verify that all the settings are matching with the selected values and click Launch.

13. Choose to ‘Proceed without a key pair’ from the dropdown and acknowledge the check-box and click Launch Instances.
The following is the sample screenshot that shows the instance launch status.

How to Interact with the Appliance

To communicate with the QGS appliance, use the AWS EC2 Connect feature. This is a secure and straightforward method of connecting to your instances. It shortens the time required to boot and obtain new instances.

1. Go to your AWS account, select the running instance and click Connect.

2. Go to EC2 Instance Connect and change the User name to core and click Connect.

Note: Use the EC2 Instance Connect option to connect your instance if you’ve enabled the Auto-assign public IP while configuring the instance details to assign the public IP to your appliances.
Note: If you want to assign a private IP to your QGS appliances then use the **EC2 Serial Console** option to connect your instance.

3. Once you connect your instance, you are redirected to the appliance console.

Note: We would recommend you to keep trying to connect, in case it takes longer time to connect to your instance.

4. After you have launched your EC2 instance, verify from the **Info** tab that the **QAG Status** is shown as **Connected**.
5. Register the appliance with Qualys. For detailed steps on registration of the appliance, refer to Qualys Gateway Service User Guide.

**How to Launch QGS Instances Using AWS CLI**

The following script can be used to launch one or more QGS instances in the AWS cloud. You can use AWS CLI to launch the below command.

**Note:** You must have CLI installed on your machine to use AWS CLI to launch and execute the below command.

**Command to Launch QGS Instances in the AWS Cloud**

```bash
aws ec2 run-instances \
   --image-id ami-046a1afb413842c91 \
   --instance-type t3.large \
   --security-group-ids sg-0********** sg-0********** \
   --subnet-id subnet-0*************** \
   --user-data file://ec2-userdata.yml \
   --associate-public-ip-address \
   --count 1 \
   --block-device-mappings
   'DeviceName=/dev/sdb,Ebs={DeleteOnTermination=True,VolumeSize=256,
   Encrypted=False}' \
   --tag-specifications
   'ResourceType=instance,Tags=[{Key=Name,Value="QGS Appliance"}]'
```

Content of ec2-userdata.yml file used in previous command.

```yaml
#cloud-config
write_files:
- owner: root:root
  path: /opt/qualys/cloud.env
  permissions: '0644'
  content: |
    POD_SUFFIX=Refer last page to know which POD suffix to use
```
Deploy and Configure CAMS QGS Appliance on AWS Cloud Using new User Interface

Follow these steps to deploy and configure a CAMS QGS appliance on the AWS Cloud using new user interface:

1. Login to AWS account (aws-qualys-dev-qgsint) from qualys.okta.com.
2. Go to the EC2 service AMI section.
3. Launch an EC2 instance using the QGS AMI by selecting the image and clicking the Launch button.
4. Select a **t3.xlarge** size of the instance.
5. Click the Edit button on the Network setting and use the VPC as per the pod preference, and the subnet will be selected automatically based on your VPC settings. Refer to the following screenshot.
6. Select the static IP assignment as per the requirement of static IP.

7. Select "Select Existing security Group" as per the requirement.
8. Add a secondary disk to the appliance, select the Advanced option, and add the required disk size.

![Storage (volumes)](image)

Also, make sure to delete the disk on termination of your instance.

![Delete on termination](image)

9. Select the **Advanced Details** option to add the user-data. The user data should be in proper JSON format. Always use a tool to ensure the user-data is in the right format; otherwise, the appliance would show "Not connected" with incorrect/incomplete Qagpublic and camspublic URL.

**Note:** To ensure a valid YAML configuration, refer to the Important section on page 8 and perform the steps precisely.
10. Verify the summary and click **Launch Instance**.

11. To interact with the appliance, use the **AWS EC2 Connect** feature.
   i) Select the running instance and click **Connect**.
   
   ![AWS EC2 Connect](image)

   ii) On the next window, change the user to the **core** and click **connect**.

   ![AWS EC2 Connect](image)

**POD Suffixes**

To identify the Platform URL Suffix for your subscription, refer to the **Platform URL Suffix** section of the **Qualys Platform Identification**.