Varnish on the AWS Cloud

Quick Start Reference Deployment

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Varnish Software Inc.
AWS Quick Start Team

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This Quick Start was created by Varnish Software Inc. in collaboration with Amazon Web Services (AWS).

Quick Starts are automated reference deployments that use AWS CloudFormation templates to deploy key technologies on AWS, following AWS best practices.

Quick Links

The links in this section are for your convenience. Before you launch the Quick Start, please review the architecture, security, and other considerations discussed in this guide.

- If you have an AWS account, and you’re already familiar with AWS services and Varnish software, you can launch the Quick Start to build the architecture shown in Figure 1 in a new or existing virtual private cloud (VPC). The deployment takes approximately 30 minutes. If you’re new to AWS or to Varnish software, please review the implementation details and follow the step-by-step instructions provided later in this guide.

- If you want to take a look under the covers, you can view the AWS CloudFormation templates that automate the deployment.

Overview

This Quick Start reference deployment guide provides step-by-step instructions for deploying Varnish Cache Plus (VCP) on the AWS Cloud.

This Quick Start is for users who want a reliable and automated way to install and configure VCP with other Varnish software components on AWS with high availability.
This Quick Start deploys VCP into a Multi-AZ configuration on AWS with asynchronous caching data replication between Availability Zones. You can choose to deploy VCP into a new or your existing environment. The Quick Start uses Ubuntu Linux as the operating system for the VCP instances.

**VCP on AWS**

VCP is the commercial enterprise version of the open-source HTTP engine and reverse HTTP proxy, Varnish Cache (VC). Both versions of Varnish speed up a website by caching (storing) a copy of a page served by your web server the first time a user visits your page. The next time the user requests the same page, the cache will serve the copy quickly, instead of requesting the page from the web server again. Varnish delivers your web content 300% to 1000% faster, with a reduction of backend server load of up to 89% while handling large numbers of simultaneous visitors, depending on your architecture.

VCP provides usability improvements and performance enhancements over VC. It also includes:

- **Massive Storage Engine (MSE)**, a file backend for large datasets designed specifically for the high-performance needs of video distribution, content delivery networks (CDNs), and large cache use cases. MSE provides persistence caching to ensure that your Varnish caching layer can handle multi-terabyte datasets and persist them across sessions so that in the event of an outage or restart, you can avoid the time-consuming wait for the data or content to repopulate.

- **Varnish High Availability (VHA)**, a high-performance content replicator that helps ensure that your content is available and accessible 24/7 across a global distribution of servers. VHA ensures uptime for business-critical websites and applications, and maximizes performance by helping to eliminate cache misses and protecting backend infrastructure from overload if the cache fails.

- **SSL/TLS support** on both the server and client. The Secure Sockets Layer / Transport Layer Security (SSL/TLS) proxy is tightly integrated with Varnish and helps improve website security by encrypting communications without relying on third-party solutions. SSL/TLS support is provided both as client-facing TLS and on the backend, to provide a minimalistic and fast TLS proxy.

**High Availability on AWS**

The AWS Cloud infrastructure is global, and is built around AWS Regions and Availability Zones. An AWS Region is a separate geographic area where you can place AWS instances and data. A map of the currently available AWS Regions is available on the [AWS website](https://aws.amazon.com/regions/).
When you launch this Quick Start, you can choose the AWS Region where you would like to deploy VCP.

Each AWS Region includes multiple Availability Zones, which are isolated locations with one or more discrete data centers—each with redundant power, networking and connectivity, housed in separate facilities. When you’re running VCP on AWS, you can benefit significantly from Availability Zones, because they are connected to one another with fast, private, fiber-optic networking, providing automatic failover without interruption.

VCP High Availability (VHA) on AWS relies on Availability Zones. Elastic Load Balancing automatically distributes incoming traffic to both VCP nodes in different Availability Zones. When the existing VCP nodes become busy, AWS Auto Scaling enables you to scale up the environment with additional VCP nodes.

 Costs and Licenses

You are responsible for the cost of the AWS services used while running this Quick Start reference deployment. There is no additional cost for using the Quick Start.

The AWS CloudFormation templates for this Quick Start include configuration parameters that you can customize. Some of these settings, such as instance type, will affect the cost of deployment. For cost estimates, see the pricing pages for each AWS service you will be using. Prices are subject to change.

| Tip | After you deploy the Quick Start, we recommend that you enable the [AWS Cost and Usage Report](https://aws.amazon.com/costusage/) to track costs associated with the Quick Start. This report delivers billing metrics to an S3 bucket in your account. It provides cost estimates based on usage throughout each month, and finalizes the data at the end of the month. For more information about the report, see the [AWS documentation](https://aws.amazon.com/costusage/). |

This Quick Start requires a subscription to the [Amazon Machine Image (AMI) for VCP](https://aws.amazon.com/marketplace), which is available from AWS Marketplace. The AMI uses the Ubuntu Linux operating system and is provided with pay-as-you-go hourly billing, based on the instance type you select. You do not need to own any Varnish software product licenses. To estimate your costs, see [AWS Marketplace](https://aws.amazon.com/marketplace).
Architecture

Deploying this Quick Start for a new virtual private cloud (VPC) with default parameters builds the following VCP environment in the AWS Cloud.

The Quick Start sets up the following:

- A highly available architecture that spans two Availability Zones.*
- A VPC configured with public subnets according to AWS best practices, to provide you with your own virtual network on AWS.*
- An internet gateway to allow access to the internet. This gateway is used by the VCP nodes to send and receive direct traffic, mostly for inbound Secure Shell (SSH) access based on an IP range you provide when you launch the Quick Start.*
- An internet-facing Network Load Balancer to distribute HTTP or HTTPS traffic to VCP nodes.
- In the public subnets, a VCP host in an Auto Scaling group to allow inbound HTTP and HTTPS traffic via the Network Load Balancer.
• An Amazon Elastic File System (Amazon EFS) Network File System (NFS) share point. VHA agents use this mount point to synchronize VCP node information.

* The template that deploys the Quick Start into an existing VPC skips the tasks marked by asterisks and prompts you for your existing VPC configuration.

Prerequisites

Technical Requirements

The AWS Quick Start uses AMIs from AWS Marketplace. Before you launch the Quick Start, you must subscribe to the [Varnish Cache Plus 4.1 (Ubuntu) AMI](https://aws.amazon.com/marketplace/) from the AWS Marketplace. For instructions, see step 2 of the deployment steps.

Specialized Knowledge

Before you deploy this Quick Start, we recommend that you become familiar with the following AWS services. (If you are new to AWS, see [Getting Started with AWS](https:).)

• [Amazon CloudWatch Logs](https://aws.amazon.com/cloudwatch/)
• [Amazon EBS](https://aws.amazon.com/ebstools/)
• [Amazon EC2](https://aws.amazon.com/ec2/)
• [Amazon EC2 Auto Scaling](https://aws.amazon.com/ec2autoscaling/)
• [Amazon EFS](https://aws.amazon.com/efs/)
• [Amazon VPC](https://aws.amazon.com/vpc/)
• [AWS CloudFormation](https://aws.amazon.com/cloudformation/)
• [Elastic Load Balancing](https://aws.amazon.com/elasticloadbalancing/)

After you deploy the QuickStart, for optimal configuration, you should use the Varnish Configuration Language (VCL). For more information, see the [VCL documentation](https://docs.varnish-cache.org/).

Deployment Options

This Quick Start provides two deployment options:

• **Deploy VCP into a new VPC** (end-to-end deployment). This option builds a new AWS environment consisting of the VPC, subnets, security groups, and other infrastructure components, and then deploys VCP into this new VPC.

• **Deploy VCP into an existing VPC**. This option provisions VCP in your existing AWS infrastructure.
The Quick Start provides separate templates for these options. It also lets you configure CIDR blocks, instance types, and VCP settings, as discussed later in this guide.

**Deployment Steps**

**Step 1. Prepare Your AWS Account**

1. If you don’t already have an AWS account, create one at [https://aws.amazon.com](https://aws.amazon.com) by following the on-screen instructions.

2. Use the region selector in the navigation bar to choose the AWS Region where you want to deploy VCP on AWS.

   **Note** This deployment includes Amazon EFS, which isn’t currently supported in all AWS Regions. For a current list of supported regions, see the [AWS Regions and Endpoints webpage](https://aws.amazon.com/about-aws/global-infrastructure/regions-endpoints/).

3. Create a **key pair** in your preferred region.

4. If necessary, request a **service limit increase** for the Amazon EC2 **m4.xlarge** instance type. You might need to do this if you already have an existing deployment that uses this instance type, and you think you might exceed the **default limit** with this deployment.

**Step 2. Subscribe to the Varnish Cache Plus 4.1 (Ubuntu) AMI**

This Quick Start uses AWS Marketplace software from Varnish and requires that you accept the terms within the AWS account where the Quick Start will be deployed.

1. Log in to your AWS account.

2. Open the page for the **Varnish Cache Plus 4.1 (Ubuntu) AMI** in AWS Marketplace, and then choose **Continue to Subscribe**.
3. Review the terms and conditions for software usage, and then choose **Accept Terms**.
4. You will get a confirmation page confirming your subscription, and an email confirmation will be sent to the account owner. For more detailed instructions, see the AWS Marketplace documentation.

5. When the subscription process is complete, exit out of AWS Marketplace without further action. **Do not** provision the software from AWS Marketplace—the Quick Start will deploy the AMI for you.

**Step 3. Launch the Quick Start**

**Note**  You are responsible for the cost of the AWS services used while running this Quick Start reference deployment. There is no additional cost for using this Quick Start. For full details, see the pricing pages for each AWS service you will be using in this Quick Start. Prices are subject to change.
1. Choose one of the following options to launch the AWS CloudFormation template into your AWS account. For help choosing an option, see deployment options earlier in this guide.

<table>
<thead>
<tr>
<th>Option 1</th>
<th>Option 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deploy VCP into a new VPC on AWS</td>
<td>Deploy VCP into an existing VPC on AWS</td>
</tr>
</tbody>
</table>

**Important** If you’re deploying VCP into an existing VPC, make sure that your VPC has two public subnets in different Availability Zones for the VCP instances, and that the subnets are not shared. This Quick Start doesn’t support shared subnets. You will also need the domain name option configured in the DHCP options as explained in the Amazon VPC documentation. You will be prompted for your VPC settings when you launch the Quick Start.

Each deployment takes about 30 minutes to complete.

2. Check the region that’s displayed in the upper-right corner of the navigation bar, and change it if necessary. This is where the network infrastructure for VCP will be built. The template is launched in the US East (Ohio) Region by default.

**Note** This deployment includes Amazon EFS, which isn’t currently supported in all AWS Regions. For a current list of supported regions, see the AWS Regions and Endpoints webpage.

3. On the Select Template page, keep the default setting for the template URL, and then choose Next.

4. On the Specify Details page, change the stack name if needed. Review the parameters for the template. Provide values for the parameters that require input. For all other parameters, review the default settings and customize them as necessary. When you finish reviewing and customizing the parameters, choose Next.

In the following tables, parameters are listed by category and described separately for the two deployment options:
- Parameters for deploying VCP into a new VPC
- Parameters for deploying VCP into an existing VPC

**Option 1: Parameters for deploying VCP into a new VPC**

View template

**VPC network configuration:**

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability Zones</td>
<td>Requires input</td>
<td>The list of Availability Zones to use for the subnets in the VPC. The Quick Start uses two Availability Zones from your list and preserves the logical order you specify.</td>
</tr>
<tr>
<td>VPC CIDR</td>
<td>10.0.0.0/16</td>
<td>The CIDR block for the VPC.</td>
</tr>
<tr>
<td>Public subnet 1 CIDR</td>
<td>10.0.128.0/20</td>
<td>The CIDR block for the public (DMZ) subnet located in Availability Zone 1.</td>
</tr>
<tr>
<td>Public subnet 2 CIDR</td>
<td>10.0.144.0/20</td>
<td>The CIDR block for the public (DMZ) subnet located in Availability Zone 2.</td>
</tr>
</tbody>
</table>

**Amazon EC2 configuration:**

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key pair name</td>
<td>Requires input</td>
<td>A public/private key pair, which allows you to connect securely to your instance after it launches. When you created an AWS account, this is the key pair you created in your preferred region.</td>
</tr>
<tr>
<td>Workload servers</td>
<td>m4.xlarge</td>
<td>The EC2 instance type for the VCP nodes.</td>
</tr>
<tr>
<td>instance type</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Amazon EFS configuration:**

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFS volume name</td>
<td>myEFSvolume</td>
<td>The name to be used for the Amazon EFS volume.</td>
</tr>
<tr>
<td>Linux mount point</td>
<td>myEFSvolume</td>
<td>The Linux mount point for workload nodes to mount the Amazon EFS volume.</td>
</tr>
</tbody>
</table>
### VCP workload nodes configuration:

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secrets Manager key of SSL certificate (VarnishSSLCertificateSecretsManagerKey)</td>
<td>AWS::NoValue</td>
<td>The AWS Secrets Manager key of an existing SSL certificate to install within Varnish.</td>
</tr>
<tr>
<td>CIDR range used to access the VCP nodes (WorkloadNodesSSH CIDR)</td>
<td>0.0.0.0/0</td>
<td>The CIDR IP range for SSH access to VCP nodes. We recommend that you set this value to a trusted IP range. For example, you might want to grant only your corporate network access to the software.</td>
</tr>
<tr>
<td>Workload nodes minimum size (WorkloadNodesMinSize)</td>
<td>2</td>
<td>The minimum number of nodes in the VCP Auto Scaling group.</td>
</tr>
<tr>
<td>Workload nodes maximum size (WorkloadNodesMinSize)</td>
<td>4</td>
<td>The maximum number of nodes in the VCP Auto Scaling group.</td>
</tr>
<tr>
<td>Workload nodes desired capacity (WorkloadNodesDesired Capacity)</td>
<td>2</td>
<td>The desired number of nodes in the VCP Auto Scaling group.</td>
</tr>
<tr>
<td>Operator email (OperatorEmail)</td>
<td>Requires input</td>
<td>The email address that notifications of any scaling operations will be sent to.</td>
</tr>
</tbody>
</table>

### Varnish Software configuration:

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varnish backend address (VarnishBackendAddress)</td>
<td>127.0.0.1</td>
<td>The web server backend IP/hostname address. You can add a customized port or TCP after a colon; for example, 127.0.0.1:80.</td>
</tr>
<tr>
<td>Varnish backend protocol (VarnishBackendProtocol)</td>
<td>http</td>
<td>The internet protocol to use: either HTTP or HTTPS.</td>
</tr>
<tr>
<td>VHA token string (VHAToken)</td>
<td>MYTOKEN</td>
<td>The Varnish High Availability (VHA) token. This string can include numbers, lowercase letters, uppercase letters, hyphens (-), underscores (_), equal signs (=), and forward slashes (/).</td>
</tr>
</tbody>
</table>
**AWS Quick Start configuration:**

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quick Start S3 bucket name</td>
<td>aws-quickstart</td>
<td>The S3 bucket you have created for your copy of Quick Start assets, if you decide to customize or extend the Quick Start for your own use. The bucket name can include numbers, lowercase letters, uppercase letters, and hyphens, but should not start or end with a hyphen.</td>
</tr>
<tr>
<td>Quick Start S3 key prefix</td>
<td>quickstart-varnish-enterprise/</td>
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- **Option 2: Parameters for deploying VCP into an existing VPC**

  **View template**

**Network configuration:**

<table>
<thead>
<tr>
<th>Parameter label (name)</th>
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<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VPC ID (VPCID)</td>
<td>Requires input</td>
<td>The ID of your existing VPC (e.g., vpc-0343606e).</td>
</tr>
<tr>
<td>Public subnet 1 ID (PublicSubnet1ID)</td>
<td>Requires input</td>
<td>The ID of the public subnet in Availability Zone 1 in your existing VPC (e.g., subnet-a0246dcd).</td>
</tr>
<tr>
<td>Public subnet 2 ID (PublicSubnet2ID)</td>
<td>Requires input</td>
<td>The ID of the public subnet in Availability Zone 2 in your existing VPC (e.g., subnet-b58c3d67).</td>
</tr>
</tbody>
</table>

**Amazon EC2 configuration:**

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<thead>
<tr>
<th>Parameter label (name)</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSH key name (KeyPairName)</td>
<td>Requires input</td>
<td>A public/private key pair, which allows you to connect securely to your instance after it launches. When you created an AWS account, this is the key pair you created in your preferred region.</td>
</tr>
<tr>
<td>Workload servers instance type (WorkloadInstanceType)</td>
<td>m4.xlarge</td>
<td>The EC2 instance type for the VCP nodes.</td>
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</thead>
<tbody>
<tr>
<td>EFS volume name (VolumeName)</td>
<td>myEFSvolume</td>
<td>The name to be used for the Amazon EFS volume.</td>
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<td>Linux mount point (MountPoint)</td>
<td>myEFSvolume</td>
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Amazon Web Services – Varnish on the AWS Cloud

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5. On the **Options** page, you can specify tags (key-value pairs) for resources in your stack and set advanced options. When you're done, choose **Next**.

6. On the **Review** page, review and confirm the template settings. Under **Capabilities**, select the check box to acknowledge that the template will create IAM resources.

7. Choose **Create** to deploy the stack.

8. Monitor the status of the stack. When the status is **CREATE_COMPLETE**, the VCP cluster is ready.

9. Use the URLs displayed in the **Outputs** tab for the stack to view the resources that were created.

The VCP home directory is **/etc/varnish**. Important files are located in **/etc/varnish/cfn-scripts**. Please do not remove any of these files as that might lead to an application malfunction. Files exchanged between VCP nodes are placed in an NFS **/myEFSvolume** file system.

```
$ df -h | grep aws
fs-f0d59239.efs.eu-west-1.amazonaws.com:/  8.0E  0 8.0E  0% /myEFSvolume

$ $ tree /etc/varnish/
/etc/varnish/
```
Step 4. Test the Deployment

1. Open the AWS CloudFormation console at https://console.aws.amazon.com/cloudformation/, and then choose the WLStack (workload) stack.

2. Choose the Outputs tab, and then copy the DNS value for NLBDNSNAME for WLStack. This is the public DNS name that you can use to test that VCP load balancing instances are up and running in an Auto Scaling group after deployment.
3. The VCP instances are in an Auto Scaling group behind Elastic Load Balancing. To verify that they are in service, open the Amazon EC2 console at https://console.aws.amazon.com/ec2/ and choose **Load Balancers**. It will take a few minutes for the instances to go into service, because they have to pass the healthy threshold for health checks.
4. After you have verified that VCP instances are in service, you can check that the load balancer can contact the instances by running a `curl` command from anywhere outside or inside Amazon EC2 to the DNS name of your Network Load Balancer.

```
$ curl -I http://NP-WLStack-3EA6G6K595E4-nlb-8877f0ffa221eba5.elb.eu-west-1.amazonaws.com
HTTP/1.1 200 OK
Date: Tue, 15 May 2018 09:26:22 GMT
Content-Type: text/html; charset=UTF-8
Link: <https://www.varnish-software.com/wp-json/>; rel=https://api.w.org/
    Link: <https://www.varnish-software.com/>; rel=shortlink
WPE-Backend: apache
X-Cacheable: SHORT
Cache-Control: max-age=600, must-revalidate
X-Pass-Why:
X-Cache-Group: normal
X-Type: default
Vary: Accept-Encoding,Cookie,X-Cache-Group
X-Varnish: 4185135 4900151
Via: 1.1 varnish-v4
Grace: none
Strict-Transport-Security: max-age=31536000; includeSubDomains
X-Varnish: 13207 165105
Age: 7413
Via: 1.1 varnish-v4
```
Or, you can use your browser to browse the public DNS.

5. You can access the VCP instances with SSH (port 22) from the SSH CIDR range you defined when you launched the Quick Start. Use the user name **ubuntu** with the key pair name you defined. To obtain the instances’ IP addresses or hostnames, choose **Instances** from the **Amazon EC2 console**.

```
$ ssh ubuntu@35.158.23.124 -i ./varnish-software-qs.pem
Welcome to Ubuntu 14.04.5 LTS (GNU/Linux 3.13.0-141-generic x86_64)

* Documentation:  https://help.ubuntu.com/

System information as of Tue May 15 09:48:02 UTC 2018
System load: 0.0 Processes: 112
Usage of /: 15.3% of 7.74GB Users logged in: 0
Memory usage: 5% IP address for eth0: 10.0.145.85
Swap usage: 0%

Graph this data and manage this system at:
https://landscape.canonical.com/

Get cloud support with Ubuntu Advantage Cloud Guest:
http://www.ubuntu.com/business/services/cloud

New release '16.04.4 LTS' available.
Run 'do-release-upgrade' to upgrade to it.
```

# Varnish Cache Plus (VCP)  #
#  #
# Email support is available from 9 am to 5 pm CET, 5-days-per-week.  #
# This support is essentially bug-fix and patch managment.  #
#  #
# Please contact "sales@varnish-software.com" about BYOL options  #
# for extended support hours and shorter SLAs, and Professional Service  #
# packages to assist with design, implementation, configuration validation,  #
# high availability setup and performance optimisation.  #
# [ https://www.varnish-software.com/plus/support ]  #
#  #
# Please register for Support and Software Updates at:  #
# [ https://info.varnish-software.com/varnish-plus-cloud-support ]  #
#  #
# Your support and software update subscriptions will be retained as long as  #
# an instance running VCP is active.  #
#  #
# Abusing the support system without any running instances will lead to  #
To verify that your environment has been set up properly and is running as expected, run the `ps` command inside the VCP instance. You should expect to see the hitch, varnishd, and vha-agent processes running.

```bash
ubuntu@ip-10-0-145-85:~$ ps -ef | grep -v grep | grep -e varnish -e hitch
root  2663  1  0 09:23 ? 00:00:00 /usr/sbin/hitch --
       pidfile=/var/run/hitch.pid --config=/etc/hitch/hitch.conf
hitch 2666 2663  0 09:23 ? 00:00:13 /usr/sbin/hitch --
       pidfile=/var/run/hitch.pid --config=/etc/hitch/hitch.conf
hitch 2667 2663  0 09:23 ? 00:00:13 /usr/sbin/hitch --
       pidfile=/var/run/hitch.pid --config=/etc/hitch/hitch.conf
hitch 2668 2663  0 09:23 ? 00:00:13 /usr/sbin/hitch --
       pidfile=/var/run/hitch.pid --config=/etc/hitch/hitch.conf
hitch 2669 2663  0 09:23 ? 00:00:13 /usr/sbin/hitch --
       pidfile=/var/run/hitch.pid --config=/etc/hitch/hitch.conf
hitch 2670 2663  0 09:23 ? 00:00:00 /usr/sbin/hitch --
       pidfile=/var/run/hitch.pid --config=/etc/hitch/hitch.conf
varnish 2690  1  0 09:23 ? 00:00:00 /usr/sbin/varnishd -P
       /var/run/varnishd.pid -a :80 -a 127.0.0.1:8443,PROXY -T localhost:6082 -f
       /etc/varnish/default.vcl -S /etc/varnish/secret -s malloc,1332m -p
       vsl_reclen=4084
varnish 2693 2690  0 09:23 ? 00:00:18 /usr/sbin/varnishd -P
       /var/run/varnishd.pid -a :80 -a 127.0.0.1:8443,PROXY -T localhost:6082 -f
       /etc/varnish/default.vcl -S /etc/varnish/secret -s malloc,1332m -p
       vsl_reclen=4084
varnish 2933  1  0 09:23 ? 00:00:13 /usr/bin/vha-agent -P
       /var/run/vha-agent/vha-agent.pid -D -N /etc/varnish/nodes.conf -m i-09a04bf7ba2dedb42 -s /var/lib/vha-agent/vha-status -T MYTOKEN-12345
```

Next Steps

Now that you have VCP up and running on AWS, you can use the following resources on the Varnish Software website to learn more about VCP and to extend and customize your VCP configuration:

- [Get Started VCP 4.1 (Ubuntu) Tutorial](#)
- [User Guide for Varnish Configuration Language (VCL)](#)
- [VCP Overview](#)
Troubleshooting

Q. I encountered a CREATE_FAILED error when I launched the Quick Start.

A. If AWS CloudFormation fails to create the stack, we recommend that you relaunch the template with **Rollback on failure** set to **No**. (This setting is under **Advanced** in the AWS CloudFormation console, **Options** page.) With this setting, the stack’s state will be retained and the instance will be left running, so you can troubleshoot the issue. (For Windows, look at the log files in %ProgramFiles%\Amazon\EC2ConfigService and C:\cfn\log.)

| Important | When you set **Rollback on failure** to **No**, you will continue to incur AWS charges for this stack. Please make sure to delete the stack when you finish troubleshooting. |

For additional information, see [Troubleshooting AWS CloudFormation](https://aws.amazon.com) on the AWS website.

Q. I encountered a size limitation error when I deployed the AWS CloudFormation templates.

A. We recommend that you launch the Quick Start templates from the links in this guide or from another S3 bucket. If you deploy the templates from a local copy on your computer or from a non-S3 location, you might encounter template size limitations when you create the stack. For more information about AWS CloudFormation limits, see the [AWS documentation](https://aws.amazon.com).

GitHub Repository

You can visit our [GitHub repository](https://aws.amazon.com) to download the templates and scripts for this Quick Start, to post your comments, and to share your customizations with others.
Additional Resources

AWS services

- Amazon EBS

- Amazon EC2
  https://docs.aws.amazon.com/ec2/

- Amazon EFS
  https://docs.aws.amazon.com/efs/

- Elastic Load Balancing
  https://docs.aws.amazon.com/elasticloadbalancing/

- Amazon VPC
  https://docs.aws.amazon.com/vpc/

- AWS CloudFormation
  https://docs.aws.amazon.com/cloudformation/

Varnish Software

- Varnish Cache Plus (VCP) reference documentation
  https://docs.varnish-software.com/varnish-cache-plus/

- VMOD documentation
  https://docs.varnish-software.com/varnish-cache-plus/vmods/

- Varnish wiki
  https://www.varnish-software.com/wiki/

Quick Start reference deployments

- AWS Quick Start home page
  https://aws.amazon.com/quickstart/

Document Revisions

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