MFG229048

SkyVault: The Quantum of Collaboration

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Autodesk Inc.

Learning Objectives

- Learn the challenges involved in a hosted deployment
- Learn from a customer's experience with a hosted deployment
- Learn how to use Microsoft Azure to host Vault software
- Learn how to use Amazon Cloud to host Vault software

Description

Are you investigating deploying your Vault Workgroup or Vault Professional Server software in a virtual cloud environment? Learn the tools necessary to spin up a hosted server instance to install the Vault Server software for your enterprise. Hear from an experienced customer about how they deployed their configuration in a hosted environment, and the lessons they learned along the way.

Speaker(s)

Irvin is a Product Manager on the Autodesk Vault team based in Novi, Michigan. He has worked at Autodesk for eleven years starting in product support and as a user experience designer. Irvin is a Microsoft® Certified Professional and has been working in the information technology field for more than 26 years. He helps partners, consulting, and sales develop Vault deployment plans in enterprise environments and system requirements. You can find multiple classes Irvin has presented at Autodesk University, on a wide range of Vault topics. Irvin is a technology geek and loves sharing with the community on Twitter (@ihayesjr).

Introductions

This class is a continuation of the following two classes I previously presented.

- Every Silver Lining Has a Vault in the Cloud
- Cloudy with a Chance of Vault

This class is intended to help those who are looking to deploy Vault Server in a cloud-hosted environment such as Amazon Web Services (AWS) and Microsoft Azure. The class will cover some examples of hosting configuration used as a guideline for deployment plans.

Recommendations

- When planning your deployment, involve a representative who has experience in the hosting environment you are planning to use.
- Discuss and plan for security, backup and recovery strategy, latency and bandwidth, connection to your company network and deploying in specific regions.

The Challenges

System Requirements

As Vault's system requirements are based on physical hardware and not cloud-hosted environments, it is best to select a server type that meets or exceeds recommended Vault system requirements. The nice thing about the cloud is if you have architected the environment correctly, you can add more resources when needed.

Licensing

Users who have purchased Vault Workgroup or Professional are allowed to virtualize the product under the following license types.

On November 9th, 2018 the licensing terms have been updated to reflect who are authorized to virtualize Autodesk software. The information is available online at https://www.autodesk.com/terms.

This information is also covered in the AU 2018 class: SD227281 – Best Practices for Virtualizing Your Autodesk Software.

Performance

Many factors play into having good performance with a Vault deployment in a hosted environment. Configuring the virtual images with a good amount of resources is important but so is having a good performing network, as high bandwidth and low latency maximizes the performance perceived by users. When file sizes or assemblies are large, a hosted deployment may require having the Autodesk Vault File Server (AVFS) installed close to the end users so that it does not delay their day to day work.

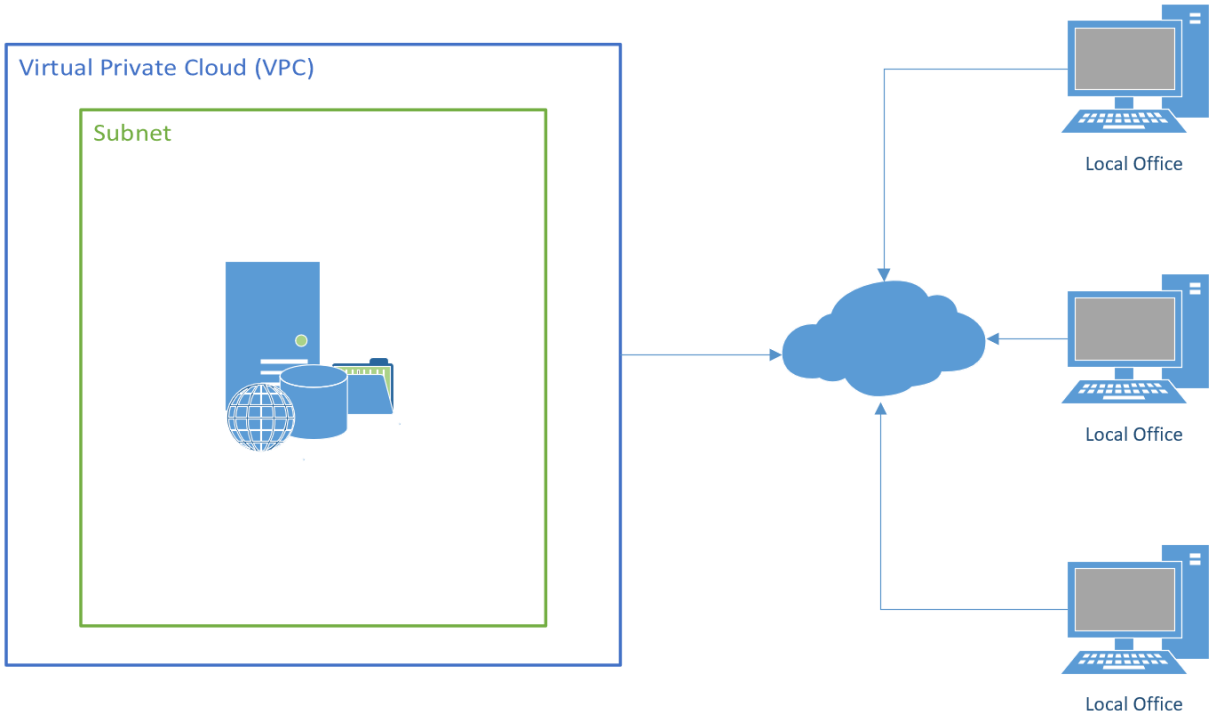
Regions

Microsoft Azure and Amazon Web Services (AWS) provide deployments in multiple regions around the world. You need to pick the closest region which offers the best network performance to your users. Try a few different locations and never rely on a single test before you make your final decision which region to deploy in.

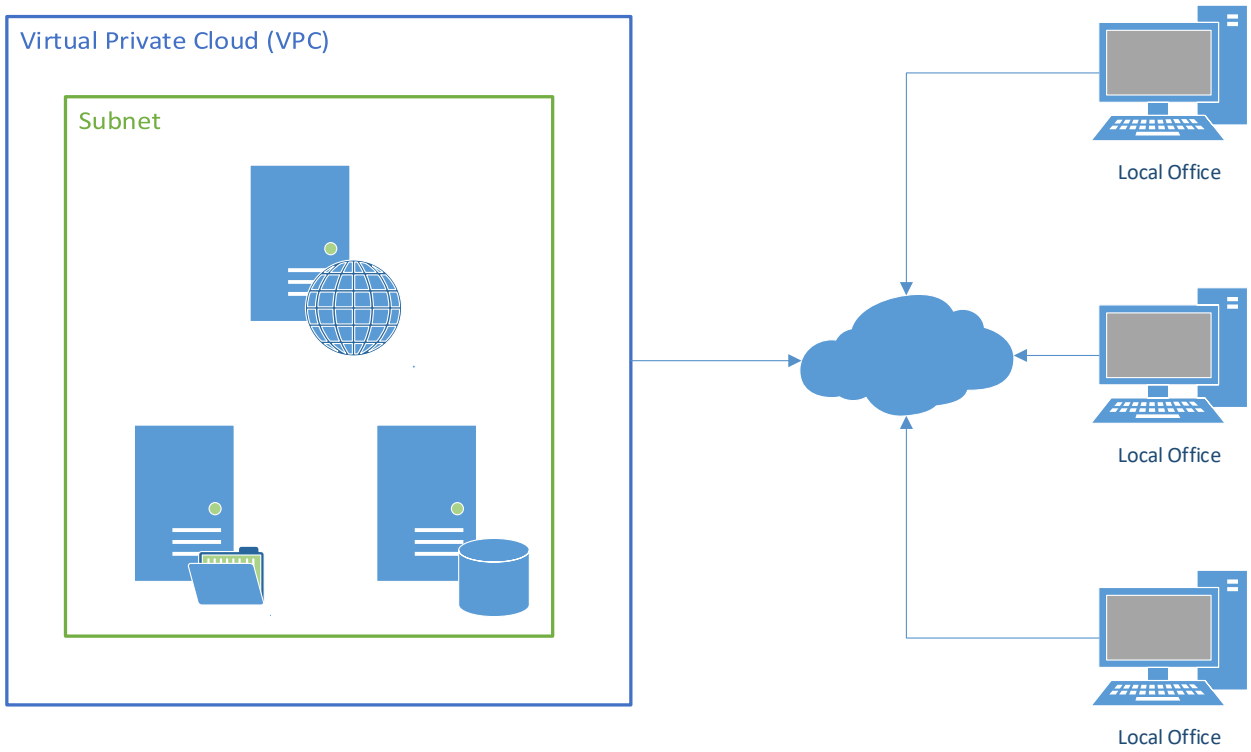
Deployment Examples

Single Site Deployment

A standard Vault installation has all of the Vault server components installed on the same virtual image. This configuration provides a simple and manageable Vault deployment.

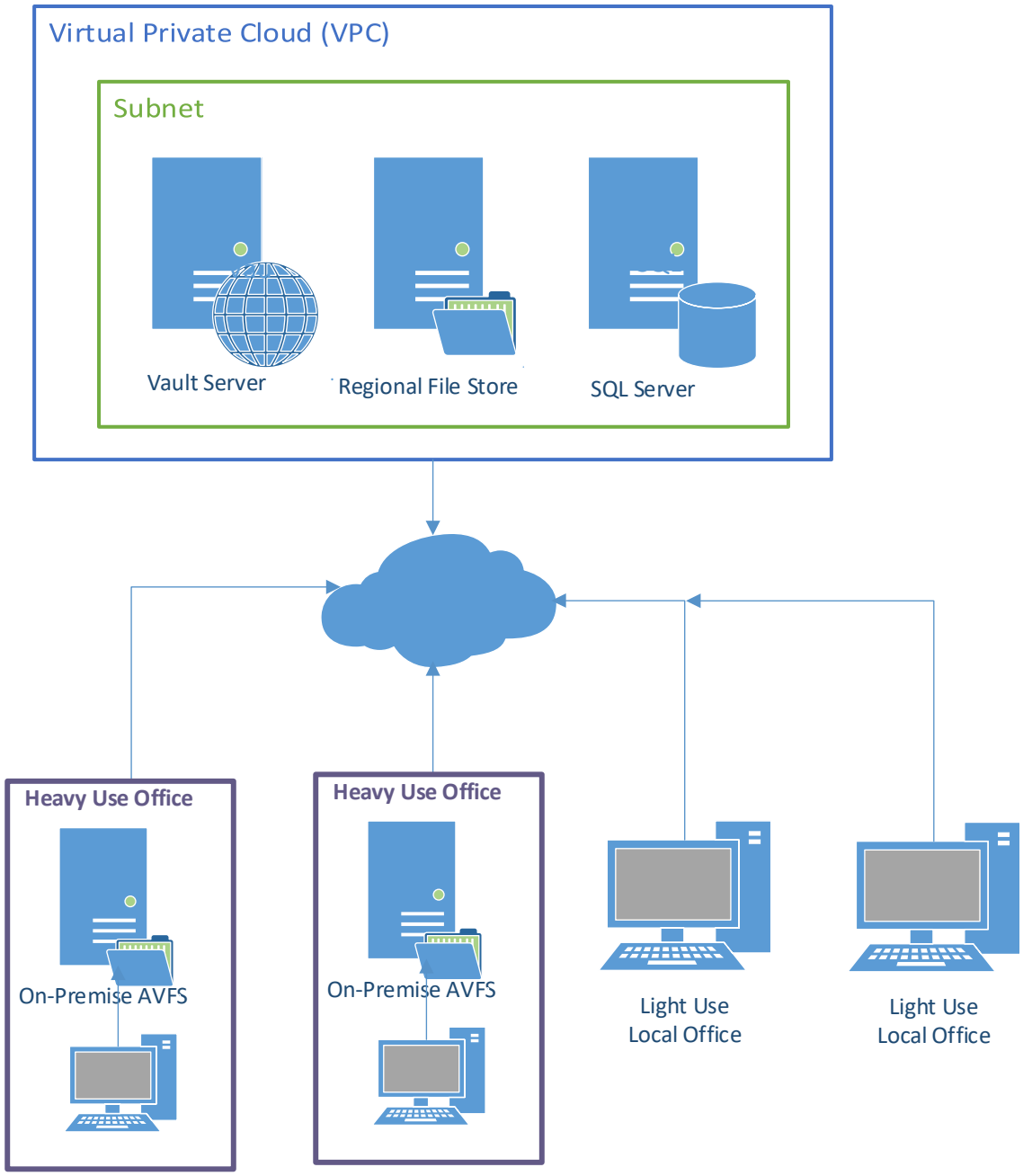


A distributed configuration is also possible for a single site deployment. This configuration separates the main components of Vault, the Vault Server, File Store, and SQL database onto different virtual machines which are sized based on the need of each component. Distributing the components on the separate machine can increase the performance overall for Vault.



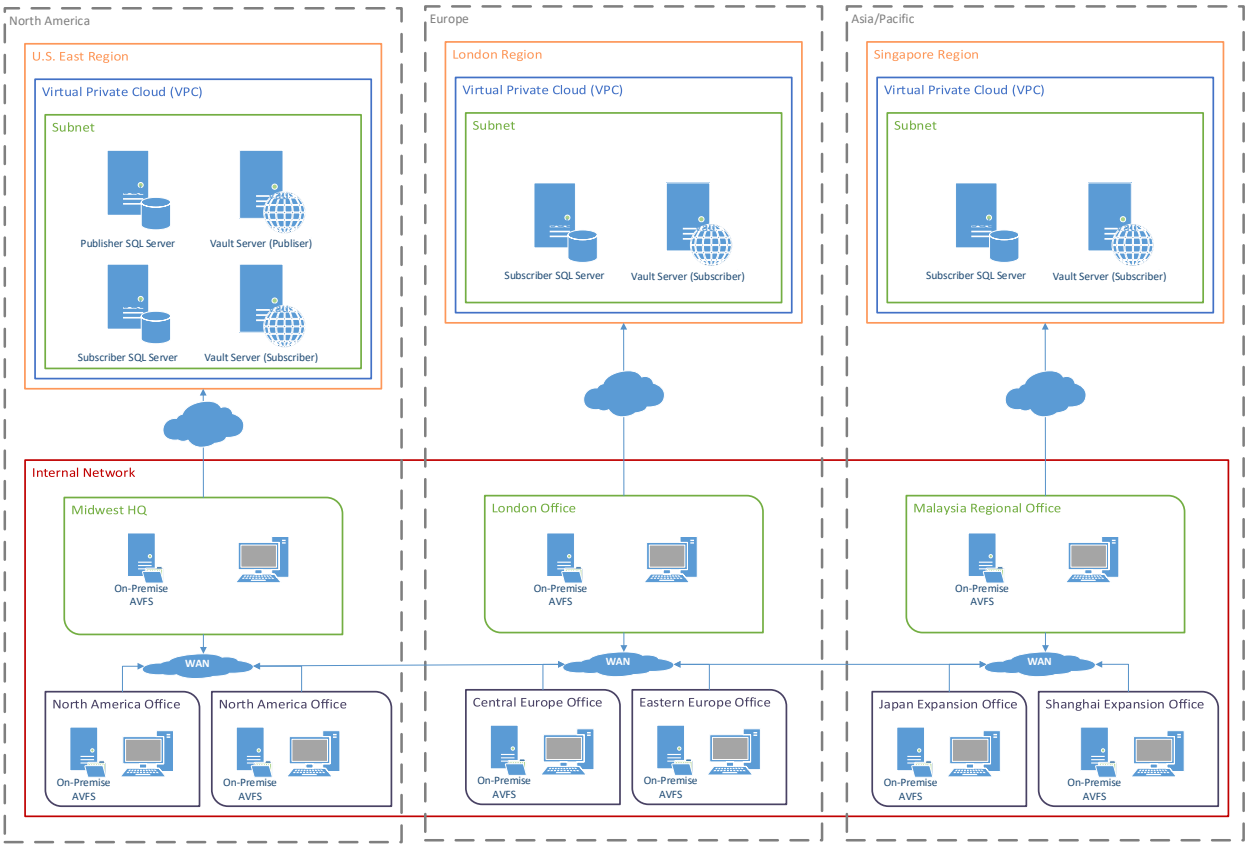
Multi-site Deployment

A multi-site deployment consists of deploying multiple Autodesk Vault File Servers local or on-premise close to the users, all connected to the main Vault Server hosted in the cloud environment.



Global Deployment

Global deployments are more complicated, as you can imagine, and takes much planning to get it right. The image below illustrates what might be possible for large enterprise environments needing to deploy Vault in the full replication configuration. A significant amount of testing and configuration adjustments are needed for this configuration to perform at its highest. Understanding the communication paths between servers in different regions is a key to a successful deployment.



Microsoft Azure

Microsoft Azure Services

Microsoft Azure offers many services in their hosted environment, but you only need a few with Autodesk Vault. These services include resource groups, virtual machines, storage, Active Directory, and virtual networks.

The resource group is a container that holds related resources for an Azure solution.

Virtual machines created from existing images where applications are installed.

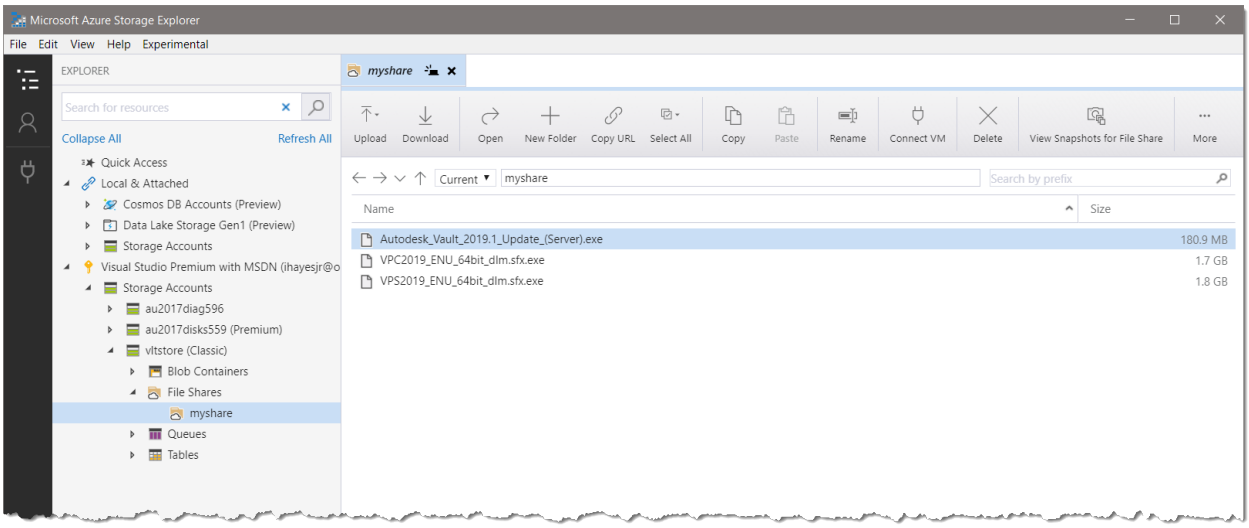
Storage is used by the images as virtual hard drives. Inside of a storage account, create a file share to transfer files from on-premise to an Azure share.

Virtual networks are created inside of Azure so that servers can communicate with each other and a company's local network.

Active Directory services can be used to connect to the corporate network.

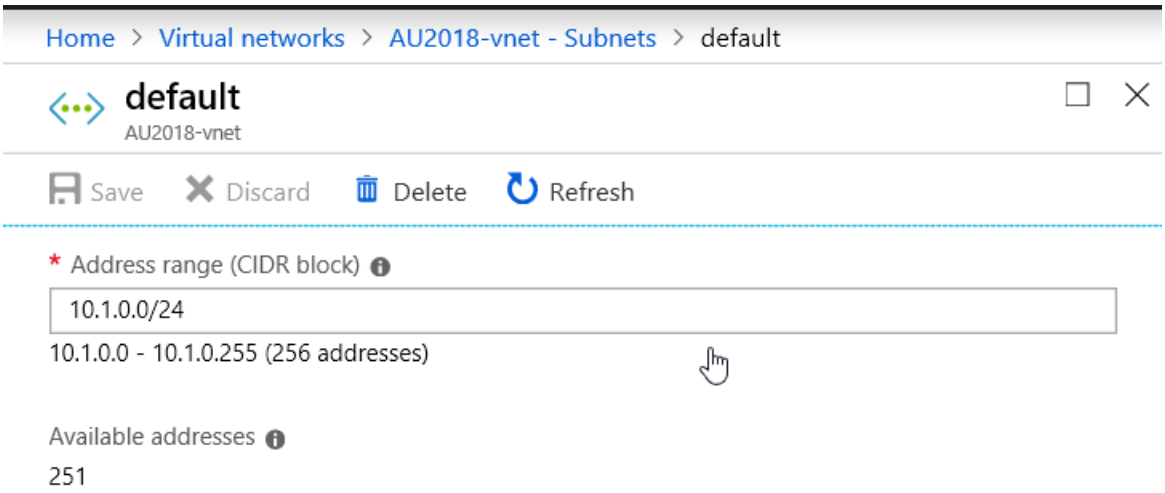
Create a Storage Account

To get started, create a storage account with a file share so that you can upload the files necessary to install the Vault server in the virtual machine. I recommend downloading and configuring an application called Storage Explorer. This application allows you to connect easily to the Azure storage and upload files. If you have a current support subscription to Vault, you can download a self-extracting installation file for Vault server and upload this compressed file to the Azure storage account.



Create a Virtual Network

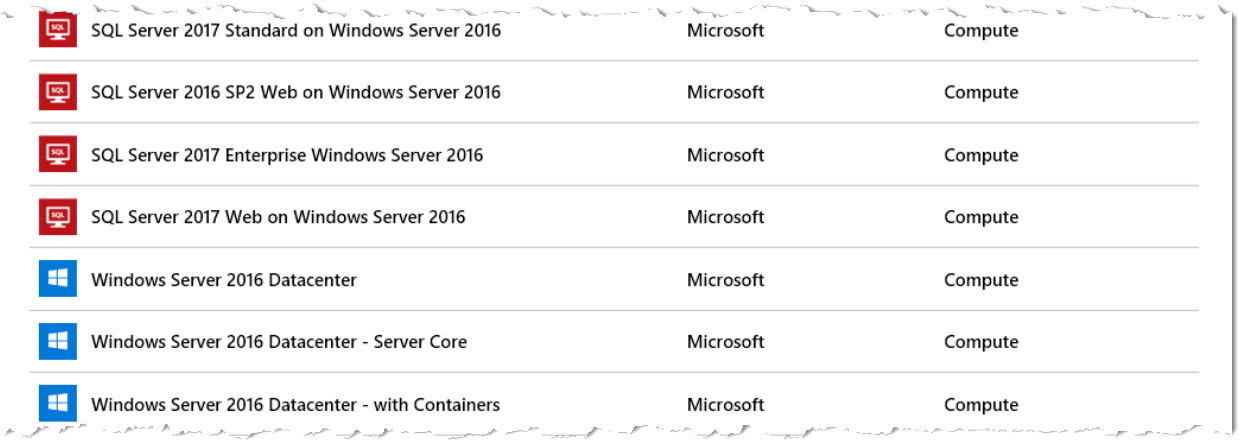
A virtual network inside of Azure would allow multiple virtual machines to access each other within the same virtual network without using the public Internet addresses. Virtual networks also allow you to expand the vault components to different virtual machines in the same virtual network to scale to fit your business needs.



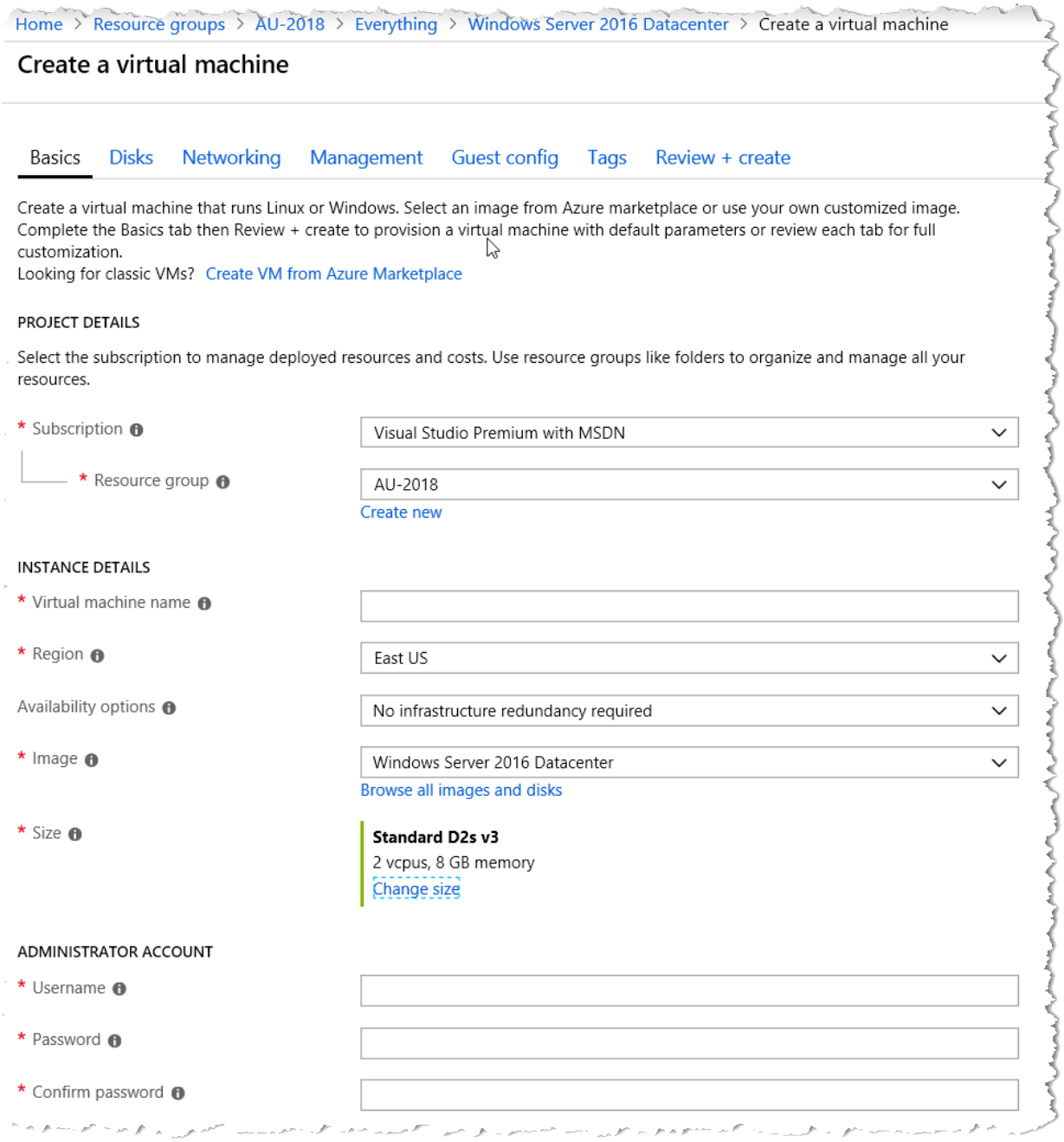
Creating a Virtual Machine

When you create your virtual machine from the gallery, be sure to choose a virtual machine that is a Vault supported operating system (Vault System Requirements).

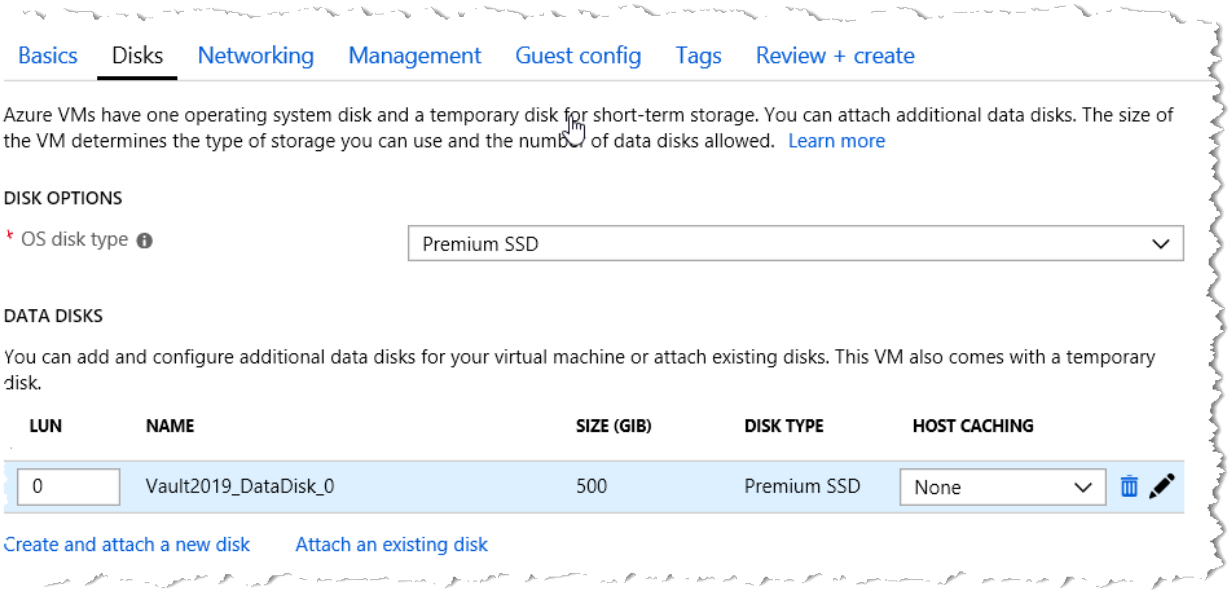
1. Select an image from the gallery



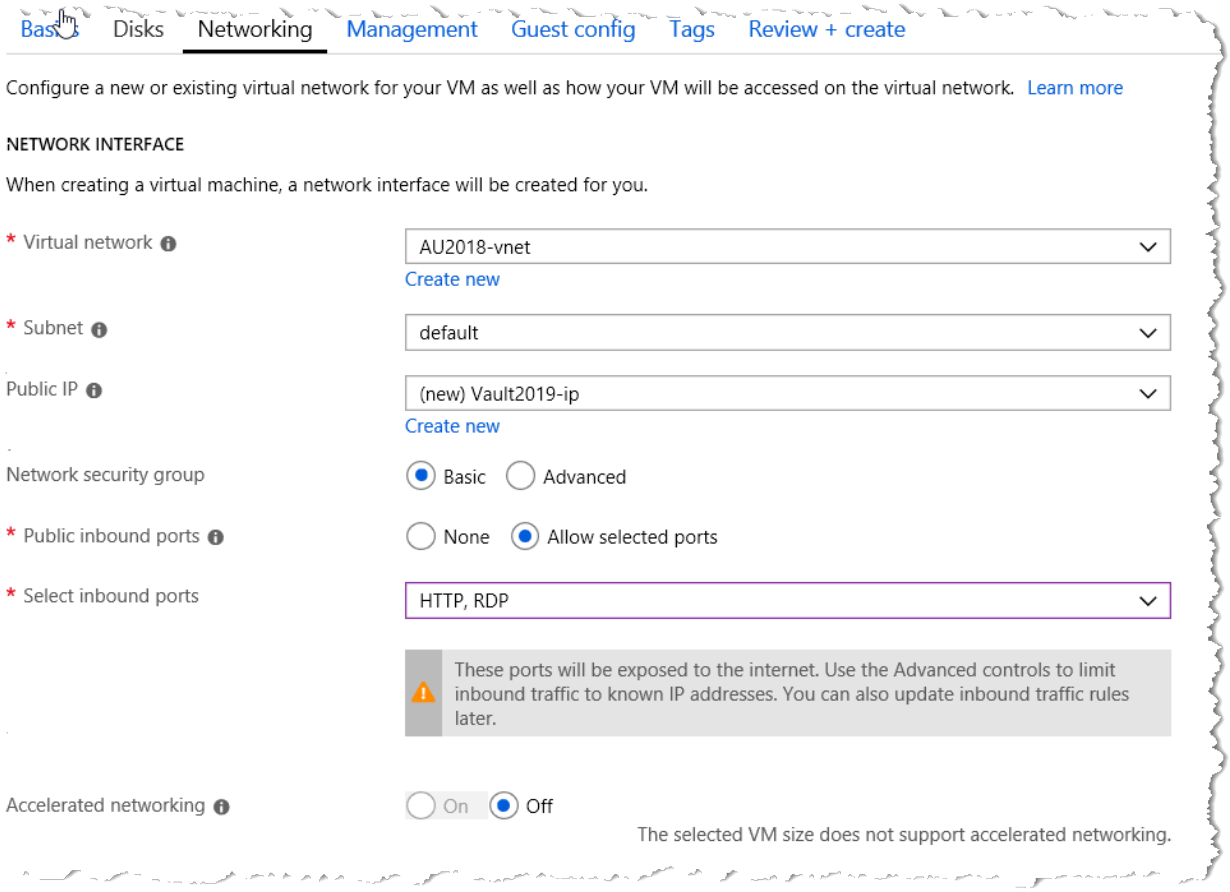
2. Configure the virtual machine by creating a name, selecting a size at minimum A3, and setting the username and password.



3. Create Virtual Disks



4. Configure the Networking settings



5. Configure any of the remaining settings then review and create the image.

Backup and Recovery

Azure offers a few backup solutions for its environment. You need to analyze the best backup method for your company and recovery process. Here are some options to consider:

- Use ADMS Server command line utility to backup to a folder on the virtual image. Use a PowerShell script to move that backup folder to a storage account for offline storage.
- Install the Azure Backup agent and use the Azure Recovery service to back up the folder where you stored the backups created by ADMS backup script.
- Use ADMS Server command line utility to backup to a remote virtual machine in the same virtual network.
- Back up the entire virtual machine in Azure.

Things to Know

Here are some additional things to keep in mind when using Microsoft Azure to host the Vault server.

- If you use a gallery image with SQL, you have to install an SQL instance named AutodeskVault on that server for Vault to connect to and use. The SQL Server installation media is located in a folder on the C drive. Run Setup.exe from that location to add the AutodeskVault instance. Decide if you want to keep the default instance of SQL. If you remove the default instance of SQL, you should uninstall the SQL Server IaaS Agent Extension as well.

Microsoft Azure Regions

Amazon Web Services

Amazon Web Services also offers multiple services in their hosted environment. Just like Azure, we only need to use a few of the services provided for Autodesk Vault. These services include Amazon Elastic Compute Cloud (Amazon EC2)™ which offers the virtual servers for deployment. Amazon Virtual Private Cloud (Amazon VPC)™ which provides a logically isolated network in the cloud, and Amazon Simple Storage Service (Amazon S3)™ which provides highly-scalable object storage that can be used for file transfer of our Vault backups.

Amazon Elastic Compute Cloud (EC2)

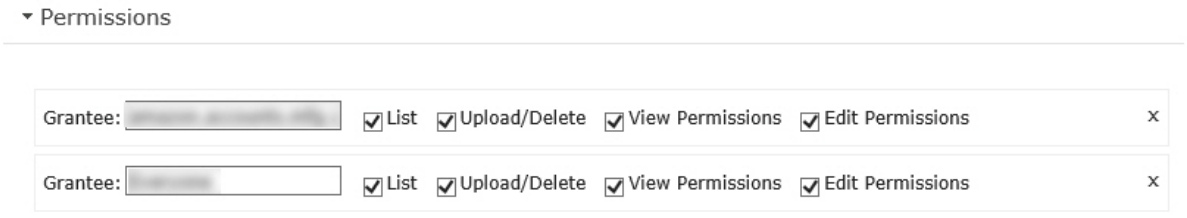
Amazon Virtual Private Cloud (VPC)

Amazon Simple Storage Services (S3)

Amazon Elastic Block Store (EBS)

Creating an S3 Bucket

To get started, create an S3 bucket by logging into the S3 Management Console. Once the storage bucket is complete, you should check the permissions on the bucket to verify that you have the necessary permissions to upload files to the bucket.



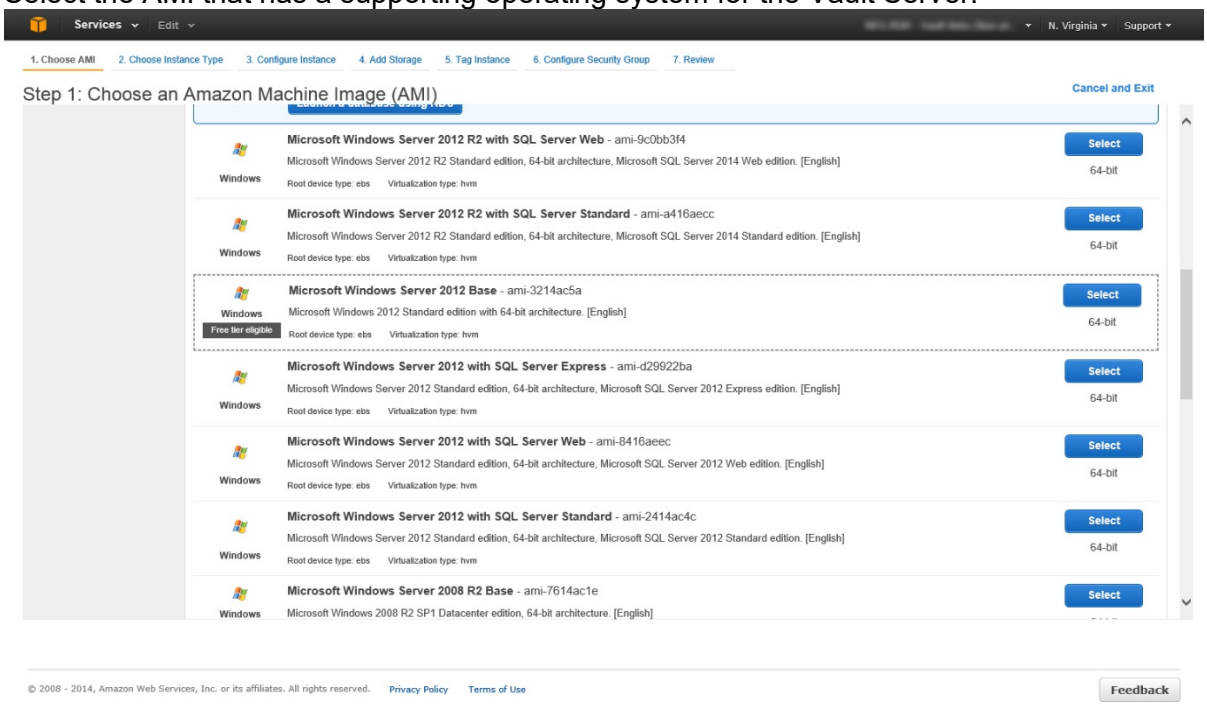
Select the bucket you have just created and click the Upload button at the top of the page. Upload the Vault Server installation self-extracting file you downloaded from the Autodesk Subscription Center.

Creating a Virtual Private Cloud

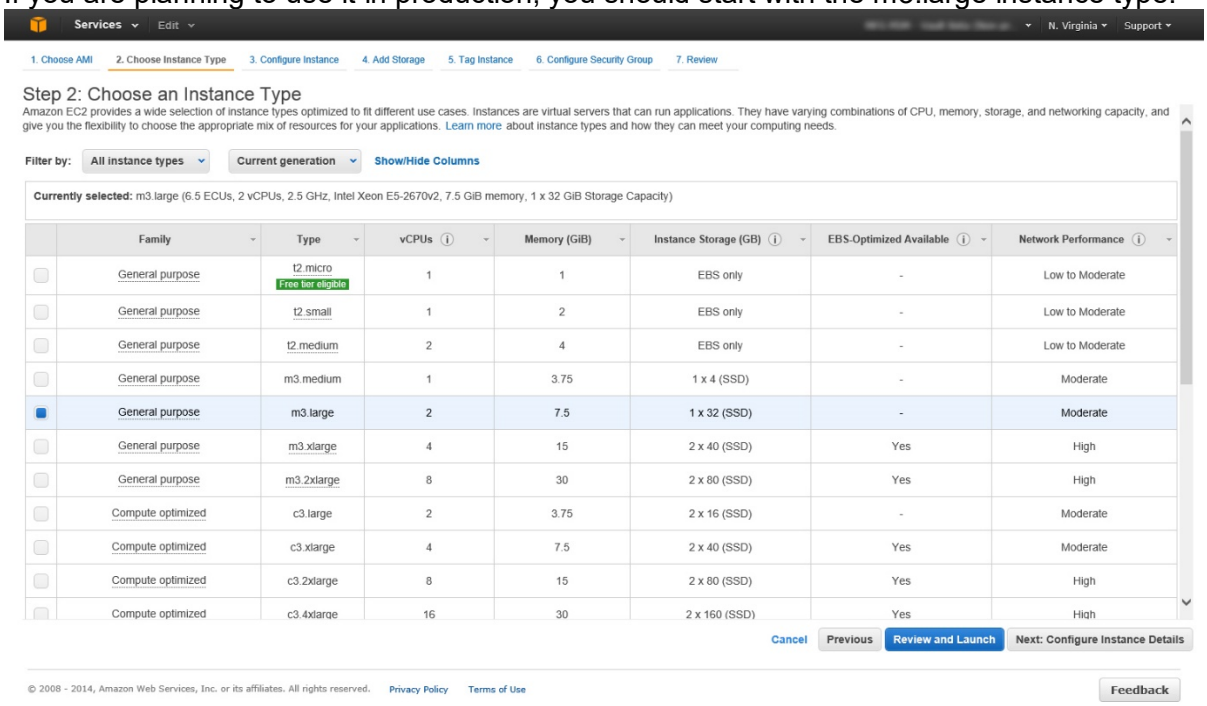
The virtual private cloud (VPC) provides a logical internal cloud network inside of Amazon services. A VPC can have a public subnet for EC2 instances that need to be accessed from the public Internet. A VPC can also have a private subnet for EC2 instances that communicate with each other but not accessed from the Internet. Depending on when you have joined Amazon, your account should have a VPC already setup.

The VPC requires other components configured for it to work. You need to create Route Tables, Subnets, an Internet Gateway, DHCP Options, Security Groups, and Network ACLs. This documentation does not cover how these are set up.

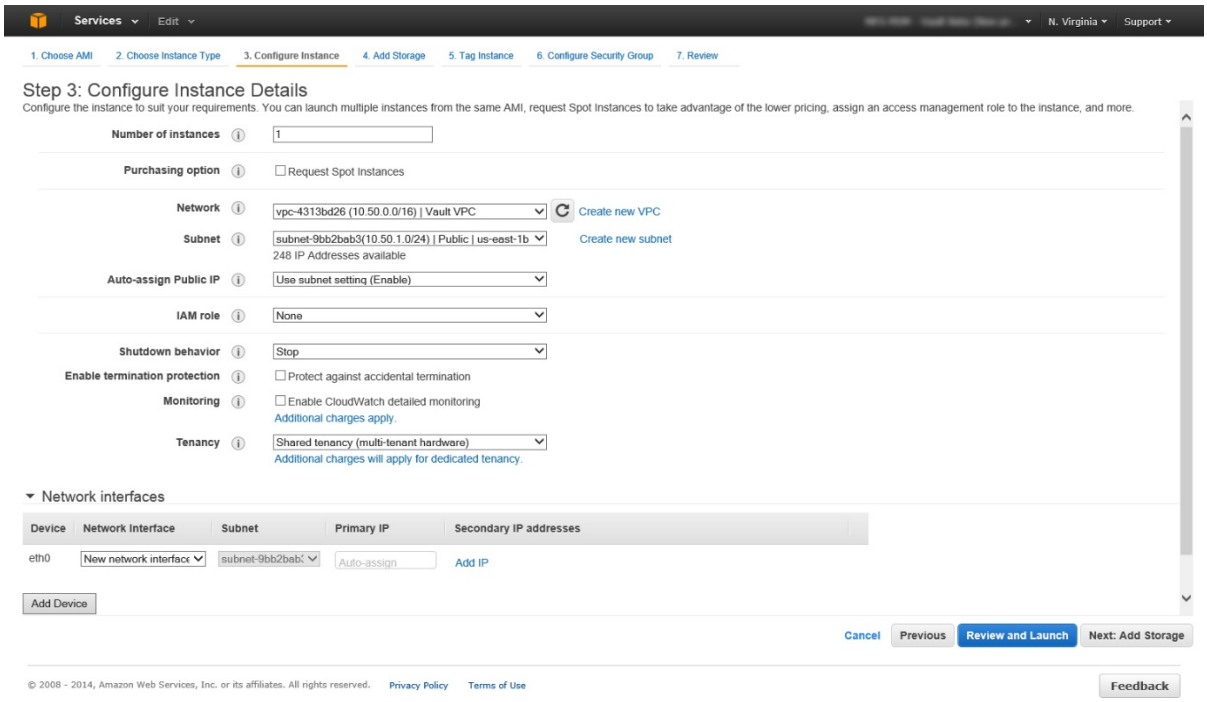
1. Select the AMI that has a supporting operating system for the Vault Server.



2. If you are planning to use it in production, you should start with the m3.large instance type.

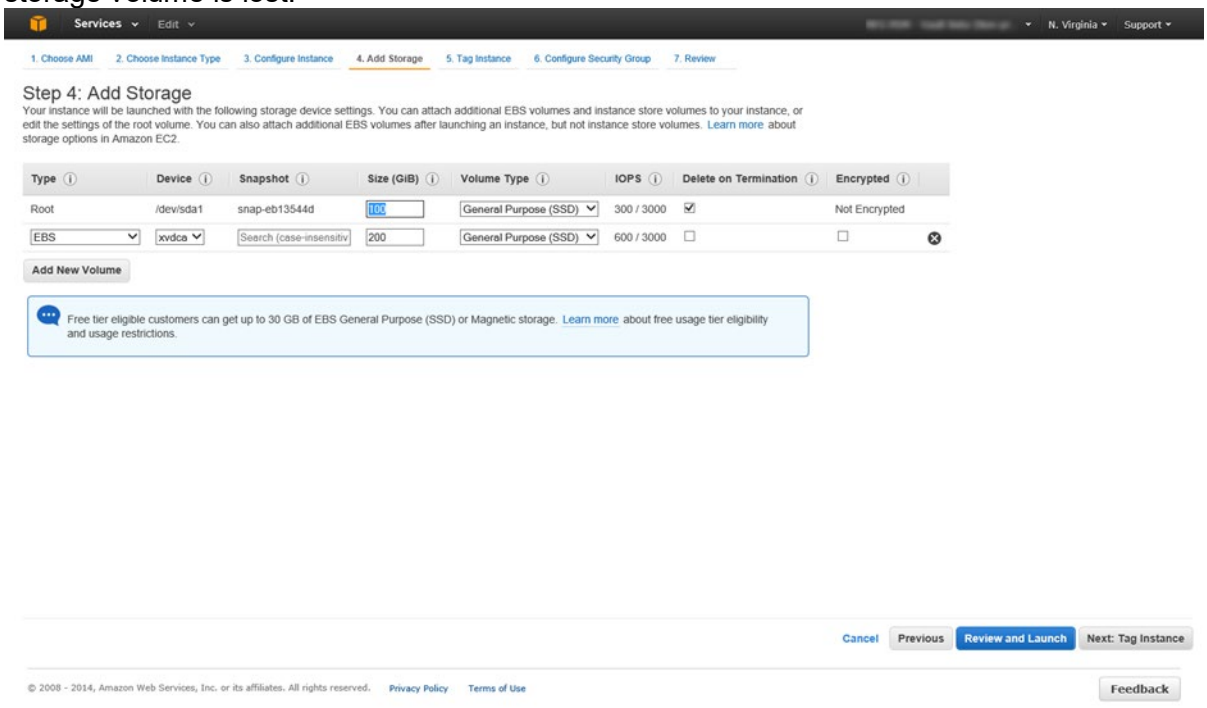


3. Make sure you are selecting the VPC that was created and place it into the public subnet.

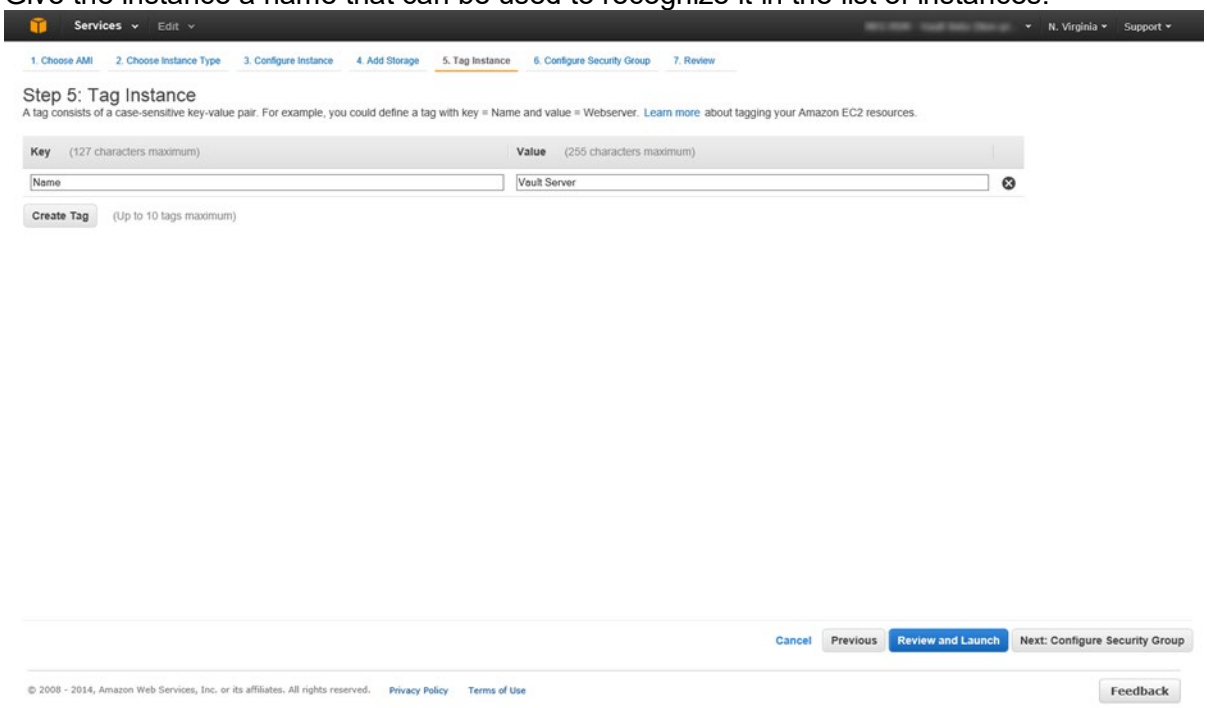


4. Increase the size of the instance and keep in mind the amount of data being uploaded. You can also add storage to the instance by clicking the Add New Volume button. You should

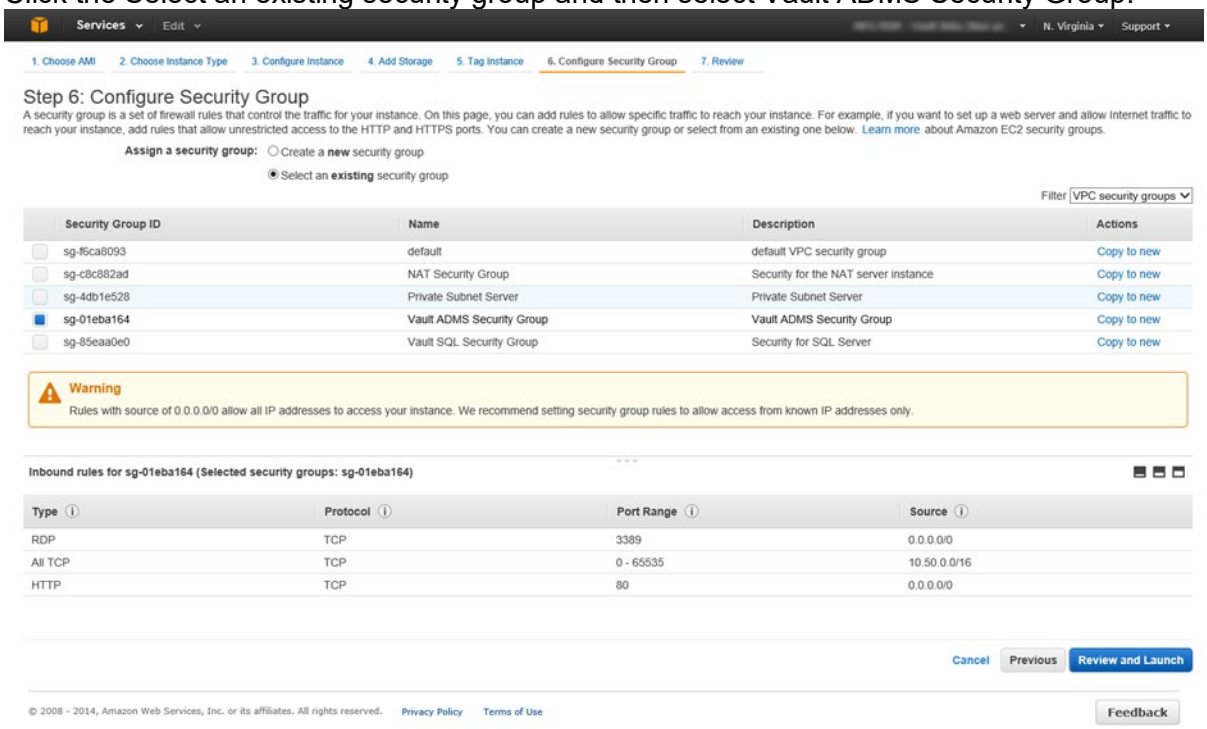
use an Elastic Block Storage (EBS) type when you add a new volume. The Instance Store type is temporary storage and if the instance is stopped or terminate anything stored in this storage volume is lost.



5. Give the instance a name that can be used to recognize it in the list of instances.

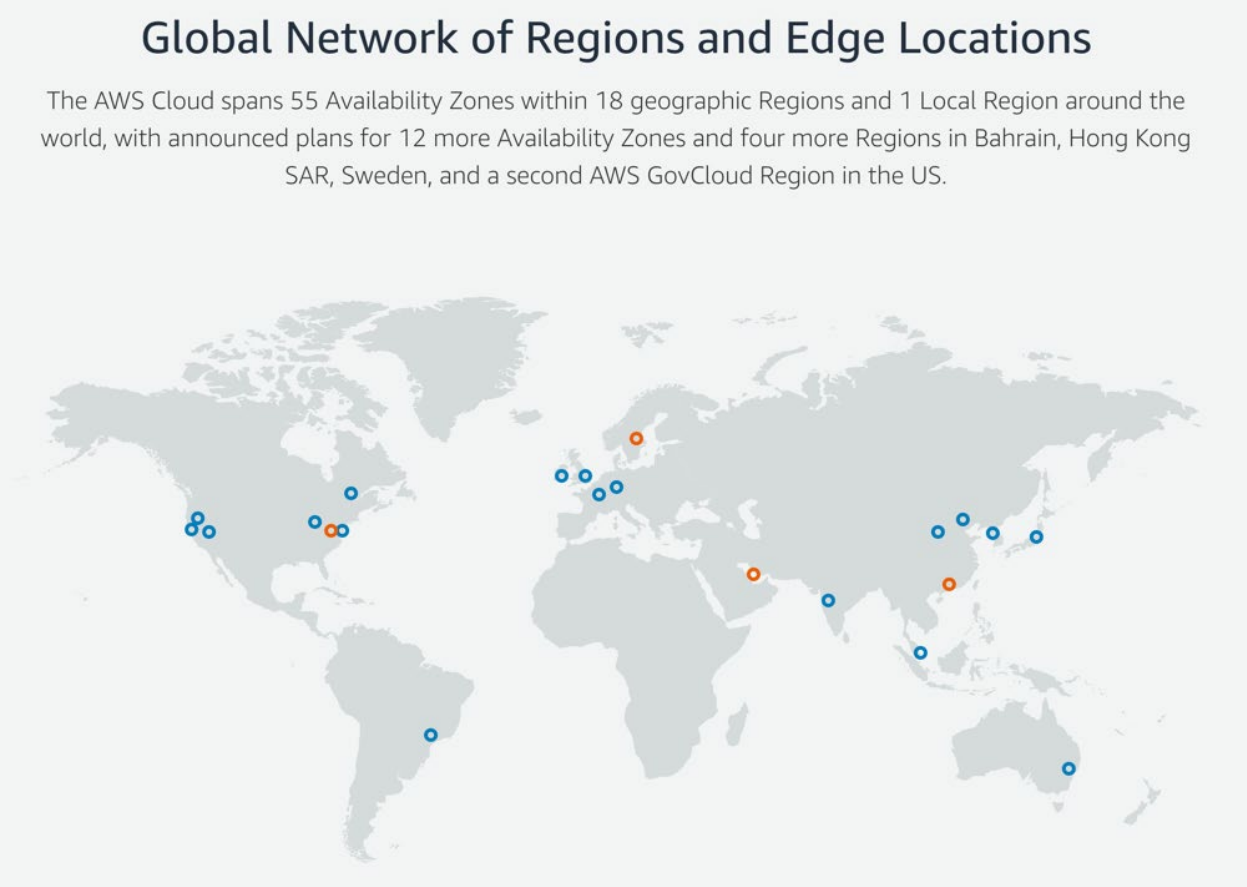


6. Click the Select an existing security group and then select Vault ADMS Security Group.



7. Review the configuration and launch the instance when you are ready.

Amazon Regions



Backup and Recovery

AWS offers a few backup solutions for its environment. You need to analyze the best backup method for your company and recovery process. Here are some options to consider:

- Use S3 buckets to store the backups created by the Vault Server command line utility. An example script could look like this: “Aws s3 cp d:\backup\ s3://Vault_Backups --recursive”
- Use Amazon Glacier to archive backups for longer periods.
- Use instance snapshots to backup an entire instance.
- Place the file store on an EBS volume which can be attached to another instance if the original instance fails.
- Place backups on an EBS volume and snapshot the volume.
- Use CloudWatch™ to monitor the instance for issues.

Things to Know

Here are some additional things to keep in mind when using AWS to host the Vault server.

- If you use an image with SQL, you need to install a SQL instance named AutodeskVault on that server for Vault to connect to and use.

Appendix

Things to Keep in Mind

- Regions/Geography
- Billing/Per hour costs
- Security
- Disaster Recovery
- Best Practices for the host provider
- Distribute services between availability zones (AWS)
- Configuring Full Qualified Domain Name (FQDN)
- Private network connections to the on-premise site

Useful Links

Microsoft Azure

- What is Azure?
- Virtual Network Documentation
- Storage Account
- Storage Explorer
- Azure Backup Documentation

Amazon Web Services(AWS)

- Amazon Elastic Compute Cloud (Amazon EC2)
- Amazon S3
- Amazon Virtual Private Cloud (Amazon VPC)
- Regions and Endpoints
- Storage