

Introduction

In this lab we will use AWS Launch Wizard to deploy SQL Server Always On. AWS Launch Wizard makes it easy for you to deploy Microsoft SQL Server. You need to input your application requirements, including performance, number of nodes, and connectivity on the service console, and AWS Launch Wizard identifies the right AWS resources to deploy and run SQL Server with Always On configuration.

Launch wizard will consider the inputs such as performance, memory, bandwidth, EBS volumes and other resources for the SQL Server Always On configuration. You can also modify the recommended default if it does not meet your exact needs.

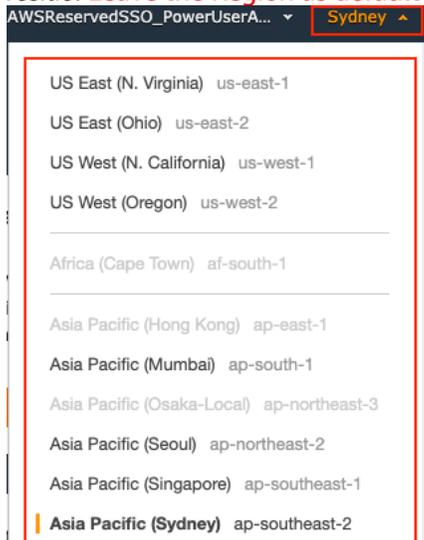
It also provides a cost estimation for each resource that form the complete deployment. The estimated cost is updated each time the user changes the default resource type. The cost estimation is based on On-Demand resources and the actual cost may be lower if you choose to go with Saving Plans or Reserved Instance.

Launch Wizard creates a CloudFormation stack that can be reused to replicate the infrastructure in multiple environment. The stack can also be customized to fit your need for individual environments.

User Instructions for the lab

Choose Application

1. **Sign In** to the AWS Management Console and open the Amazon Launch Wizard console at <https://console.aws.amazon.com/launchwizard/>
2. Choose the **Region** on the upper-right hand side, where the *SQL Server EC2 Instances should reside*. **Leave the Region as default in your case, it should be either North Virginia or Ohio.**



3.

4. Click on the **Create Deployment** button highlighted in the screenshot below.

AWS Launch Wizard
guided deployment of
enterprise applications

AWS Launch Wizard is a service that guides you through the sizing, configuration, and deployment of enterprise applications following AWS cloud application best practices.

Fast and easy deployments

AWS Launch Wizard supports
Microsoft SQL Server Always On
and SAP deployments.

Create deployment

5. From the **'Choose Application'** window select **'Microsoft SQL Server Always On'**

Choose application [Info](#)

Applications

Options
Choose the application to configure for deployment.

Microsoft SQL Server Always On
Microsoft®
SQL Server™

SAP
SAP®

6. Click on next to Configure Application Settings

Configure Application Settings

General Settings

1. Define a deployment name for the SQL Server as **'SQLHALab-'**
2. Click on **'Create new SNS topic'** to configure Simple Notification Service (SNS) for the deployment.

Configure application settings

General

Deployment name
Enter a unique name for this deployment.

SQLHALab

10 characters maximum. Only alphanumeric characters are allowed.

Simple Notification Service (SNS) topic ARN
Enter an SNS topic for AWS Launch Wizard to send notifications and alerts.

Choose an ARN

[Create new SNS topic](#)

CloudWatch application monitoring - optional [Info](#)
CloudWatch Application Insights monitors metrics and logs to detect and correlate anomalies and errors with your SQL application.

Set up monitors and automated insights for this deployment using CloudWatch Application Insights.

3. Define a topic name and display name. Leave all other options as default as shown in the screenshot below. Once done click on 'Create Topic'.

Create topic

Details

Name

SQL_LaunchWizard

Maximum 256 characters. Can include alphanumeric characters, hyphens (-) and underscores (_).

Display name - optional
To use this topic with SMS subscriptions, enter a display name. Only the first 10 characters are displayed in an SMS message. [Info](#)

SQL-LaunchWizard

Maximum 100 characters, including hyphens (-) and underscores (_).

► **Encryption - optional**
Amazon SNS provides in-transit encryption by default. Enabling server-side encryption adds at-rest encryption to your topic.

► **Access policy - optional**
This policy defines who can access your topic. By default, only the topic owner can publish or subscribe to the topic. [Info](#)

► **Delivery retry policy (HTTP/S) - optional**
The policy defines how Amazon SNS retries failed deliveries to HTTP/S endpoints. To modify the default settings, expand this section. [Info](#)

► **Delivery status logging - optional**
These settings configure the logging of message delivery status to CloudWatch Logs. [Info](#)

► **Tags - optional**
A tag is a metadata label that you can assign to an Amazon SNS topic. Each tag consists of a key and an optional value. You can use tags to search and filter your topics and track your costs. [Learn more](#)

Cancel **Create topic**

4. In the SNS console, click on **'Subscriptions'** on the left pane.
5. Click on **Create subscription** on top right corner
6. Under Topic ARN click on the blank space and select the topic you created in step 3 from the drop down.
7. Select **'Email'** under protocol and enter your email address under **'Endpoint'**.
8. Return to the Configure Application Setting page and select the SNS topic we created in Step 3 from the drop down.

Connectivity Settings

1. Create a new key pair by clicking on **Create new key pair name** . There is an option to select an existing key pair from the drop-down menu in your dev/prod environment, however, for this lab we will create a new key pair.
2. A new tab will open up to create the key pair. Click on **Create key pair** on the top right corner.
3. Enter a key pair name and select the file format. For Windows select **'ppk'** to use with **'PuTTY'**.
4. Return to **'Configure Application Settings'** window and select the key pair we just created.
5. Create a new VPC for the lab deployment. Alternatively, you can select an existing VPC in your dev or prod environments, however, for this lab we will create a new VPC.
6. Select **'MyIP'** under **'Remote Desktop Gateway access'**. This will create a rule in Security Group to allow your computer inbound access.

Connectivity

Key pair name Info
Choose a key pair, which allows you to securely connect to your instance.

Lab-01-NewKeypair
▼
↻

[Create new key pair name](#)

Virtual Private Cloud (VPC) Info
Provision a logically isolated section of the AWS cloud to launch AWS resources. The VPC in which SQL Server Always Available is deployed.

Select Virtual Private Cloud (VPC)

Create new Virtual Private Cloud (VPC)

VPC name tag - Optional

SQL-LabVPC

Remote Desktop Gateway access - Optional
Define access type by selecting an IP.

My IP
▼

54.240.193.129/32

Active Directory Settings

1. Next step is to define Active Directory for users to authenticate with the SQL Server. Windows Server Failover Cluster requires that all servers be domain joined to the same AD domain.
2. Click on **Create and connect to new AWS Managed Microsoft AD** to create a new Managed Microsoft AD

3. Specify the admin user password as '*Student@12345*'. Please note the password should meet complexity requirement and should not contain the name '*admin*'
4. Define a FQDN for the forest root domain as '*sqliab.com*'

Active Directory

The directory in which you want to allow authorized users to authenticate with this SQL Server instance using V Windows Server Failover Cluster requires that all servers be joined to the same Active Directory domain.

Connect to existing Active Directory

Create and connect to new AWS Managed Microsoft AD

Domain username
admin

Password
The password for the default administrative user.

.....

.....

Passwords must be between 8 and 64 characters, not contain the word "admin", and include three of these four categories: lowercase, uppercase, numeric, and special characters.

Domain DNS name
Enter the Fully Qualified Domain Name (FQDN) of the forest root domain used for the Active Directory.

sqliab.com

SQL Server Settings

Create new SQL Server service account

1. Create a new SQL Service account
2. Specify the username for SQL service account e.g. '*sqlia*'
3. Enter the password as '*Student@12345*'. Please note the password must be 8 to 64 character and should not contain the word '*admin*'.
4. Select '**Use license-included AMI**' for the lab setup. You can also BYOL by creating custom AMI for dev or prod deployments.
5. Select the license included AMI. For the lab we will select Windows Server 2016 with SQL 2017
6. Leave the additional settings as default.

SQL Server

Choose your SQL Server service account preference

Use existing SQL Server service account

Create new SQL Server service account

Username

Create a username for the SQL Server service account. This username will be added to the local admin group and role on each node.

sqlsa

5 characters minimum. Only alphanumeric characters allowed and should not use the word "admin".

Password

Create a password for the SQL Server service account.

.....

.....

Note: Passwords must be between 8 and 64 characters, not contain the word "admin", and include three of these four categories: lowercase, uppercase, numeric, and special characters.

SQL Server install type

Choose the license-included AMI or deploy a custom AMI.

Use license-included AMI
An AWS-provided license-included AMI with Windows and SQL Server installed.

Use custom AMI [Info](#)
You can bring your own SQL licenses (BYOL) through your custom AMI or use license included custom AMI. If you use a custom AMI, ensure that it meets all required install parameters.

Choose license-included AMI

ami-007b5e4c976f297d3 | Windows_Server-2016-English-Full-SQL_2017_En... ▼

Define Infrastructure Requirements

Storage and Compute

1. We can define the infrastructure requirements in two ways to setup the SQL Server, i.e. *AWS recommended resources* or *custom instance type*.
2. Select Use AWS recommended resources for the lab and change the storage drive to HDD from SDD since we don't need high performing drives for lab. Leave all other settings as default.

Storage and Compute [Info](#)

Define infrastructure requirements

Use AWS recommended resources

Choose your instance

Define Requirements

Instances

Cores	Network performance	Memory (GiB)
4	Up to 10 Gbps	4 Gb

Storage and performance

Type of storage drive	SQL Server throughput
Hard Disk Drive (H...)	Up to 250 MiB/s

Recommended resources

Instance type	Volume type
c5a.xlarge	st1

3. Leave the tags for the lab as it is optional. It is highly recommended to tag your resources for better manageability.
4. The next section gives you an estimate cost to deploy the SQL Server. Please review it before you hit the 'Next' button.
5. A summary will be provided in the next screen for you to review before deploying the SQL Server.
6. Hit the **Deploy** button to initiate the SQL Server Always On deployment. You will be shown a progress screen which shows the provisioning status as shown below:

Deployment SQLHALabd is in progress
It may take up to 2 hours. The status can be viewed in the deployment details page. [Cancel deployment](#)

AWS Launch Wizard > Deployments - SQL

SQL

Deployments [Info](#) [Delete](#) [Actions](#) [Create deployment](#)

Find deployments

Application name	Date created	Database	Resource group	Provisioning status
SQLHALabd	6/23/2020, 3:01:41 PM	SQLHALabd	LaunchWizard-SQLHAAlwaysOn-SQLHALabd	In Progress