

AWS Relational Database Service (RDS): Lab 10

Creating an Amazon RDS Database Instance

Time: 2022/5/20 (Friday) 18:30-20:30

Place: 電資406室, 國立臺北大學 (NTPU)

<https://meet.google.com/efw-mxft-jav>



戴敏育 副教授

Min-Yuh Day, Ph.D, Associate Professor

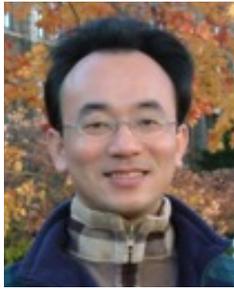
國立臺北大學 資訊管理研究所

Institute of Information Management, National Taipei University

<https://web.ntpu.edu.tw/~myday>

2022-05-20





戴敏育 博士

(Min-Yuh Day, Ph.D.)

aws educate | Cloud Ambassador

2020 Cohort

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中央研究院 資訊科學研究所 訪問學人
國立臺灣大學 資訊管理 博士

Publications Co-Chairs, IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2013-)

Program Co-Chair, IEEE International Workshop on Empirical Methods for Recognizing Inference in Text (IEEE EM-RITE 2012-)

Publications Chair, The IEEE International Conference on Information Reuse and Integration for Data Science (IEEE IRI)



Outline

- **AWS RDS: Lab 10**
Creating an Amazon RDS Database Instance
 - **AWS Academy Introduction to Cloud: Semester 1**
 - **Module 10: Databases**
 - **Lab 10 - RDS**
 - **Module 10 Lab: Creating an Amazon RDS Database Instance**



AWS Products and Services



Analytics



Application Integration



AR & VR



AWS Cost Management



Blockchain



Business Applications



Compute



Customer Engagement



Database



Developer Tools



End User Computing



Game Tech



Internet of Things



Machine Learning



Management & Governance



Media Services



Migration & Transfer



Mobile



Networking & Content Delivery



Quantum Technologies



Robotics



Satellite



Security, Identity & Compliance



Storage



AWS Database



Amazon Aurora

High Performance Managed Relational Database

Amazon DynamoDB

Managed NoSQL Database

Amazon DocumentDB (with MongoDB compatibility)

Fully managed document database

Amazon ElastiCache

In-memory Caching System

Amazon Managed Apache Cassandra Service

Managed Cassandra-compatible database

Amazon Neptune

Fully Managed Graph Database Service

Amazon Quantum Ledger Database (QLDB)

Fully managed ledger database

Amazon RDS

Managed Relational Database Service for MySQL, PostgreSQL, Oracle, SQL Server, and MariaDB

Amazon RDS on VMware

Automate on-premises database management

Amazon Redshift

Fast, Simple, Cost-effective Data Warehousing

Amazon Timestream

Fully managed time series database

AWS Database Migration Service

Migrate Databases with Minimal Downtime



AWS RDS: Lab 10

Creating an Amazon RDS Database Instance



AICv1Sem1EN-18745

- Home
- Modules
- Discussions
- Grades

AWS Academy Introduction to Cloud: Semester 1 [18745]



AWS Academy Introduction to Cloud: Semester 1 is an exploration of cloud computing. In this course, students explore cloud computing services, applications, and use cases. Students dive into cloud computing best practices and learn how cloud computing helps users develop a global infrastructure to support use cases at scale while also developing and inventing innovative technologies.

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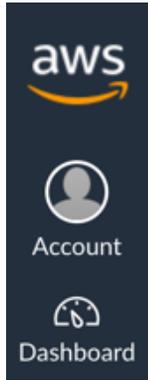
To Do
Nothing for now

Recent Feedback
Nothing for now

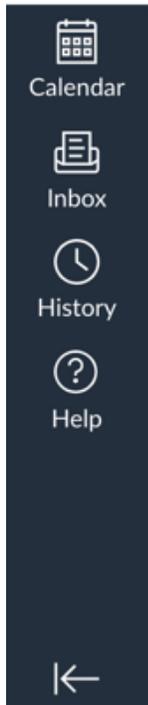
- Account
- Dashboard
- Courses
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- Inbox
- History
- Help

AWS Academy Introduction to Cloud: Semester 1 [18745]

Module 10 Databases: Lab 10 - RDS



- Home
- Modules
- Discussions
- Grades



▼ Module 10: Databases Complete All Items

	Student Guide	
	Lab 10 - RDS Viewed	<input checked="" type="checkbox"/>
	Module 10 Knowledge Check 100 pts Score at least 80.0	<input type="checkbox"/>

▼ Module 11 - Load Balancers and Caching Complete All Items

	Student Guide	
	Lab 11 - Load Balancing View	<input type="checkbox"/>
	Module 11 Knowledge Check 100 pts Score at least 80.0	<input type="checkbox"/>

▼ Module 12 - Elastic Beanstalk and CloudFormation Complete All Items

Amazon Databases

The screenshot shows the top navigation bar of the AWS website. On the left is the AWS logo. On the right are links for 'Contact Us', 'Support', 'English', and 'My Account', along with a 'Sign In to the Console' button. Below this is a secondary navigation bar with links for 'Products', 'Solutions', 'Pricing', 'Documentation', 'Learn', 'Partner Network', 'AWS Marketplace', 'Customer Enablement', 'Events', and 'Explore More'. A search icon is also present. The main content area features a blue banner with the text 'Amazon Aurora Serverless v2 is Now Available | Scale instantly to hundreds of thousands of transactions in seconds'. Below the banner is a dark blue section with the heading 'AWS Cloud Databases' and the sub-heading 'Modernize your data infrastructure with fully managed, purpose-built databases'. The background of this section features abstract, glowing blue and green lines.

Choose the right purpose-built engine

Build use case-driven, highly scalable, distributed applications suited to your specific needs. AWS offers 15+ purpose-built engines to support diverse data models, including relational, key-value, document, in-memory, graph, time series, wide column, and ledger databases.

Achieve performance at scale

Start small and scale as your applications grow with relational databases that are 3-5X faster than popular alternatives, or non-relational databases that give you microsecond to sub-millisecond latency. Match your

Run fully managed databases

Free your teams from time-consuming database tasks like server provisioning, patching, and backups. AWS fully managed database services provide continuous monitoring, self-healing storage, and automated scaling to help you focus on application development.

Rely on high availability and security

Support multi-region, multi-primary replication, and provide full data oversight with multiple levels of security, including network isolation and end-to-end encryption. AWS databases deliver the high availability, reliability, and

The video thumbnail features the AWS logo and the text 'aws databases' on the left. On the right, there is a play button icon and a graphic of glowing blue and green lines. Below the video frame, the text reads 'AWS Databases: Break Free to Save, Grow, and Innovate Faster (2:02)'.

<https://aws.amazon.com/products/databases/>

Amazon Databases

Database services

Database type	Use cases	AWS service
Relational	Traditional applications, enterprise resource planning (ERP), customer relationship management (CRM), ecommerce	 Amazon Aurora  Amazon RDS  Amazon Redshift
Key-value	High-traffic web applications, ecommerce systems, gaming applications	 Amazon DynamoDB
In-memory	Caching, session management, gaming leaderboards, geospatial applications	 Amazon ElastiCache  Amazon MemoryDB for Redis
Document	Content management, catalogs, user profiles	 Amazon DocumentDB (with MongoDB compatibility)
Wide column	High-scale industrial apps for equipment maintenance, fleet management, and route optimization	 Amazon Keyspaces
Graph	Fraud detection, social networking, recommendation engines	 Amazon Neptune
Time series	Internet of Things (IoT) applications, DevOps, industrial telemetry	 Amazon Timestream
Ledger	Systems of record, supply chain, registrations, banking transactions	 Amazon Ledger Database Services (QLDB)

Amazon Relational Database Service (RDS)

The screenshot shows the Amazon RDS website homepage. At the top left is the AWS logo. To the right are links for 'Contact Us', 'Support', 'English', and 'My Account', along with a 'Sign In to the Console' button. Below this is a navigation bar with links for 'Products', 'Solutions', 'Pricing', 'Documentation', 'Learn', 'Partner Network', 'AWS Marketplace', 'Customer Enablement', 'Events', and 'Explore More'. A search icon is also present. The main navigation bar includes 'Amazon RDS', 'Overview' (highlighted), 'Features', 'DB Engines', 'Pricing', 'Resources', 'FAQs', 'Customers', and 'Partners'. Below the navigation is a breadcrumb link '« Database'. The main heading is 'Amazon RDS' in large white text. Below it is the sub-heading 'Set up, operate, and scale a relational database in the cloud with just a few clicks.' To the right of this text is a call-to-action box that says 'Get started for free with the AWS Free Tier'. Below the main heading are two buttons: 'Get Started with Amazon RDS' (orange) and 'Connect with an Amazon RDS specialist' (white). At the bottom, there are four dark blue boxes, each containing a benefit of Amazon RDS and a right-pointing arrow:

- Remove inefficient and time-consuming database administrative tasks without needing to provision infrastructure or maintain software.
- Deploy and scale the relational database engines of your choice in the cloud or on-premises.
- Achieve high availability with Amazon RDS Multi-AZ deployments.
- Benefit from over a decade of proven operational expertise, security best practices, and innovation in databases born in the cloud.

<https://aws.amazon.com/rds/>

Amazon Relational Database Service (RDS)



Module 10: Databases

- In this module, you will learn about the **Amazon Relational Database Service (Amazon RDS), Amazon DynamoDB, and data warehousing with Amazon Redshift.**
- You will also compare **relational and nonrelational databases and online transaction processing (OLTP) and online analytic processing (OLAP).**

Module 10: Databases

Module description

- In this module, you will recommend a **relational** or **nonrelational** database depending on a given scenario.
- You will create an **RDS DB instance**.
- You will also learn about and discuss appropriate usage of **relational and nonrelational database systems**.

OLTP and OLAP

- Many different types of databases are available.
- To decide which type of database you need, it is important to know how the data will be processed.
- There are two types of data processing:
online transaction processing (OLTP) and
online analytic processing (OLAP).

AWS database services

- **Amazon RDS** is the **classic relational database** that uses **SQL, Oracle, Aurora**, or other similar database systems.
 - Think of this as a gradebook in which each student is a **row** and all students are attached to the same number of assignments (**columns**).
 - Businesses can use code to search for specific data based on the information in the **rows** and **columns**.
 - Amazon RDS is useful for companies that are storing a moderate amount of data that is uniform in structure, meaning each unique ID (such as student name) is attached to the same number of data points (grades).

Amazon Relational Database Service (Amazon RDS)

- **Amazon RDS** is primarily used for **OLTP** because it has better methods for maintaining the **integrity** and **consistency** of the database when processing data.

DynamoDB

- **DynamoDB** is a **nonrelational database**, meaning that you can't use traditional systems such as SQL or Aurora.
- Each item in the database is stored as a **key-value pair** or a **JavaScript Object Notation (JSON)** file.
- This means that each row can have a different number of columns.
- The entries do not all have to be matched in the same way.
- This permits flexibility in processing that works well for **blogging, gaming, and advertising**.

Aurora

- **Aurora** is a **relational database engine** that is specifically made to work with the AWS Cloud.
- Aurora is up to five times faster than standard **MySQL** databases and three times faster than standard **PostgreSQL** databases.
- It is designed to provide the **security, availability, and reliability** of commercial databases at one-tenth the cost.
- **Aurora** is **fully managed by Amazon RDS**, which automates time-consuming administrative tasks such as hardware provisioning, database setup, patching, and backups.

Amazon Redshift

- **Amazon Redshift** is a fast, fully managed data warehouse that makes it efficient and cost effective to **analyze** all your data using **standard SQL** and your existing **BI tools**.

AWS Academy Introduction to Cloud: Semester 1 [18745]

Module 10 Databases: Lab 10 - RDS

Module 10 Lab: Creating an Amazon RDS Database Instance

Lab overview

Follow these steps to create an Amazon Relational Database Service (Amazon RDS) database (DB) instance that maintains data used by a web application.

Duration

This lab requires approximately **20 minutes** to complete.

Module 10 Lab:

Creating an Amazon RDS Database Instance

- Access the AWS Management Console
- Task 1. **Set up** an **RDS DB instance**
- Task 2. Download and install **SQL Server Management Studio**
- Task 3. Make your database **publicly accessible**
- Task 4. Update your **VPC security group**
- Task 5. **Connect** to your **DB instance**
- Task 6. **Explore** the structure of the **relational database**
- Lab complete



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- Home
- Modules
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AWS Academy Introduction to Cloud: Semester 1 [18745]



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To Do

Nothing for now

Recent Feedback

Nothing for now

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Module 10 Databases: Lab 10 - RDS

- aws
- Account
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- Help
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- Home
- Modules
- Discussions
- Grades

▼ Module 10: Databases Complete All Items

- 🔗 Student Guide
- 🔗 Lab 10 - RDS
Viewed ✓
- 📄 Module 10 Knowledge Check
100 pts | Score at least 80.0 ○

▼ Module 11 - Load Balancers and Caching Complete All Items

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AWS Academy Introduction to Cloud: Semester 1 [18745]

Module 10 Databases: Lab 10 - RDS

<https://awsacademy.instructure.com/courses/18745/modules/items/1536201>

The screenshot displays the AWS Academy interface. On the left is a dark sidebar with navigation icons for Account, Dashboard, Courses, Calendar, Inbox, History, and Help. The main content area shows a breadcrumb trail: AICv1Sem1EN-... > Modules > Module 10: Dat... > Lab 10 - RDS. Below this is a menu with Home, Modules (selected), Discussions, and Grades. The central content area, highlighted with a red border, contains the lab details for 'Module 10 Lab: Creating an Amazon RDS Database Instance'. At the top of this area are controls for 'Start Lab', 'End Lab', 'AWS Details', and 'Readme'. The lab title is followed by a 'Lab overview' section with a description: 'Follow these steps to create an Amazon Relational Database Service (Amazon RDS) database (DB) instance that maintains data used by a web application.' Below this is the 'Duration' section, stating 'This lab requires approximately 20 minutes to complete.' The bottom of the lab content area shows the heading 'Access the AWS Management'. At the very bottom of the page are 'Previous' and 'Next' navigation buttons.

AWS Academy Introduction to Cloud: Semester 1 [18745]

Module 10 Databases: Lab 10 - RDS

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Access the AWS Management Console

1. To start the lab session, choose **Start Lab** in the upper-right corner of the page.

The lab session starts.

A timer displays in the upper-right corner of the page and shows the time remaining in the session.

Tip: To refresh the session length at any time, choose **Start Lab** again before the timer reaches 0:00.

Before continuing, wait until the lab environment is ready. The environment is ready when the lab details appear on the right side of the page and the circle icon next to the **AWS** link in the upper-left corner turns green.

2. To return to these instructions, choose the **Readme** link in the upper-right corner.

3. To connect to the AWS Management Console, choose the **AWS** link in the upper-left corner, above the terminal window.

A new browser tab opens and connects you to the AWS Management Console.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

☰ AICv1Sem1EN-... > Modules > Module 10: Dat... > Lab 10 - RDS

AWS ●

▶ Start Lab

■ End Lab

i AWS Details

i Readme



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Access the AWS Management Console

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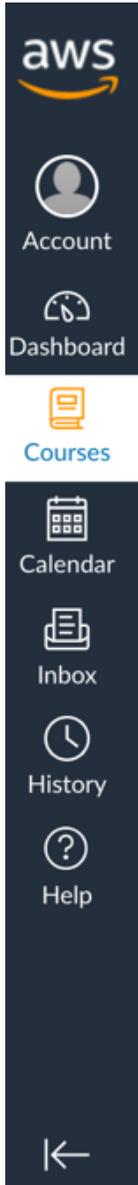
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◀ Previous

Next ▶

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS



The sidebar contains the following elements from top to bottom: the AWS logo, an 'Account' icon, a 'Dashboard' icon, a 'Courses' icon, a 'Calendar' icon, an 'Inbox' icon, a 'History' icon, a 'Help' icon, and a back arrow icon.

☰ AICv1Sem1EN-... > Modules > Module 10: Dat... > Lab 10 - RDS

AWS ●

01:59

⚙ Start Lab

■ End Lab

ℹ AWS Details

ℹ Readme



EN-US -

Access the AWS Management Console

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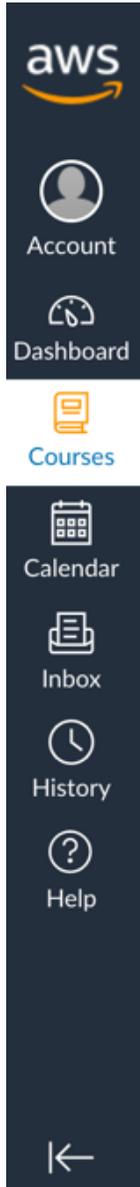
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◀ Previous

Next ▶

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS



☰ AICv1Sem1EN-... > Modules > Module 10: Dat... > Lab 10 - RDS

AWS ● 01:57 ▶ Start Lab ■ End Lab ⓘ AWS Details ⓘ **Readme** ✕

2. To return to these instructions, choose the **Readme** link in the upper-right corner.

Access the AWS Management Console

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◀ Previous

Next ▶

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS



UCv1Sem1EN... > Modules > Module 10: Dat... > Lab 10 - RDS

3

AWS

01:55

▶ Start Lab

■ End Lab

ⓘ AWS Details

ⓘ Readme

✕

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◀ Previous

Next ▶

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

us-east-1.console.aws.amazon.com/console/home?region=us-east-1#

Search for services, features, blogs, docs, and more [Option+S]

N. Virginia | voclabs/user1323818=Min-Yuh_Day @ 3119-0255-7606

The new AWS Console Home will replace your existing experience soon. Starting June 2022, the new AWS Console Home will replace your current experience. Switch now to customize your Console Home and view valuable insights. [Learn more](#) or [let us know what you think](#). [Switch now](#)

New AWS Console Home

See valuable insights for your account and services with the new customizable Console Home experience. [Learn more](#)

Maybe later **Switch to the new Console Home**

Region: us-east-1
Lab ID: arn:aws:cloudformation:us-east-1:547970237064:stack/c53687a86500112152087t1w547970237064/1eaf4fc0-d7de-11ec-90bd-0e4b09deb6f5
Creation Time: 2022-05-19T18:42:34-0700
Start session at: 2022-05-19T18:42:34-0700
Remaining session time: 02:00:00(120 minutes)

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AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

us-east-1.console.aws.amazon.com/console/home?region=us-east-1#

Services Search for services, features, blogs, docs, and more [Option+S] N. Virginia voclabs/user1323818=Min-Yuh_Day @ 3119-0255-7606

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AWS Management Console

AWS services

▼ Recently visited services

- CloudFront
- S3
- CloudShell
- EC2
- RDS

► All services

Build a solution

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Task 1. Set up an RDS DB instance

4. Choose the **Services** menu, locate the **Database** category, and then choose **RDS**.

5. Choose **Create database**.

6. In the **Choose a database creation method** section, choose **Easy create**.

7. In the **Configuration** section, configure:

For **Engine type**, choose **Microsoft SQL Server**.

For **DB instance size**, choose **Free tier**.

Check the box next to **Auto generate a password**.

8. Choose **Create database**.

Your new database displays in the list of databases. The status is *Creating*.

9. In the banner at the top of the page, choose **View credential details**.

Your login credentials display.

10. Save the credential information to a text editor to use later in this lab.

11. To close the pop-up window, choose **Close**.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

4

us-east-1.console.aws.amazon.com/console/home?region=us-east-1#

Services Search for services, features, blogs, docs, and more [Option+S]

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Database

- Amazon DocumentDB
Fully-managed MongoDB-compatible database service
- DynamoDB
Managed NoSQL Database
- ElastiCache
In-Memory Cache
- Amazon Keyspaces
Serverless Cassandra-compatible database
- Amazon MemoryDB for Redis
Fully managed, Redis-compatible, in-memory database service
- Neptune
Fast, reliable graph database built for the cloud
- Amazon QLDB
Fully managed ledger database
- ★ **RDS**
Managed Relational Database Service

Recently visited

Favorites

All services

- Analytics
- Application Integration
- AR & VR
- AWS Cost Management
- Blockchain
- Business Applications
- Compute
- Containers
- Customer Enablement
- Database**
- Developer Tools
- End User Computing
- Front-end Web & Mobile

Task 1. Set up an RDS DB instance

4. Choose the **Services** menu, locate the **Database** category, and then choose **RDS**.

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AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

The screenshot shows the AWS Management Console for Amazon RDS. The top navigation bar includes the AWS logo, 'Services', a search bar, and account information. The left sidebar lists navigation options: Dashboard, Databases, Query Editor, Performance insights, Snapshots, Automated backups, Reserved instances, Proxies, Subnet groups, Parameter groups, Option groups, Custom engine versions, Events, and Event subscriptions. The main content area features a notification banner about Multi-AZ deployment, a 'Create database' button highlighted with a red circle and the number '5', and a yellow box with the text '5. Choose Create database.' Below this, there are sections for 'Resources' (DB Instances, DB Clusters, Snapshots, etc.) and 'Recommended for you' (Test Your DR Strategy, Build RDS Operational Tasks, Migrate SSRS).

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

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RDS > Create database

Create database

Choose a database creation method [Info](#)

Standard create
You set all of the configuration options, including ones for availability, security, backups, and maintenance.

Easy create
Use recommended best-practice configurations. Some configuration options can be changed after the database is created.

Configuration

Engine type [Info](#)

Amazon Aurora 

MySQL 

MariaDB 

PostgreSQL 

Oracle 

Microsoft SQL Server 

6. In the **Choose a database creation method** section, choose **Easy create**.

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AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

Configuration

Engine type [Info](#)

- Amazon Aurora
- MySQL
- MariaDB
- PostgreSQL
- Oracle
- Microsoft SQL Server

DB instance size

- Production
 - db.r5.xlarge
 - 4 vCPUs
 - 32 GiB RAM
 - 500 GiB
 - 3.198 USD/hour
- Dev/Test
 - db.m5.large
 - 2 vCPUs
 - 8 GiB RAM
 - 100 GiB
 - 0.993 USD/hour
- Free tier
 - db.t2.micro
 - 1 vCPUs
 - 1 GiB RAM
 - 20 GiB
 - 0.025 USD/hour

DB instance identifier

Type a name for your DB instance. The name must be unique across all DB instances owned by your AWS account in the current AWS Region.

7. In the **Configuration** section, configure:

For **Engine type**, choose **Microsoft SQL Server**.

For **DB instance size**, choose **Free tier**.

Check the box next to **Auto generate a password**.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

The screenshot shows the AWS Management Console for configuring a new Amazon RDS instance. The interface includes a top navigation bar with the AWS logo, a search bar, and user information. The main content area is divided into sections for engine selection, instance size, instance identifier, master username, and password generation. Red circles with the number '7' highlight the following elements:

- Engine type:** Microsoft SQL Server (selected).
- DB instance size:** Free tier (selected).
- DB instance identifier:** database-1.
- Master username:** admin.
- Auto generate a password:** Checked.

DB instance size options:

Instance Size	Configuration	Price
Production	db.r5.xlarge 4 vCPUs 32 GiB RAM 500 GiB 3.198 USD/hour	
Dev/Test	db.m5.large 2 vCPUs 8 GiB RAM 100 GiB 0.993 USD/hour	
Free tier	db.t2.micro 1 vCPUs 1 GiB RAM 20 GiB 0.025 USD/hour	

7. In the **Configuration** section, configure:

For **Engine type**, choose **Microsoft SQL Server**.

For **DB instance size**, choose **Free tier**.

Check the box next to **Auto generate a password**.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

aws Services Search for services, features, blogs, docs, and more [Option+S] N. Virginia voclabs/user1323818=Min-Yuh_Day @ 3119-0255-7606

DB instance identifier
Type a name for your DB instance. The name must be unique across all DB instances owned by your AWS account in the current AWS Region.

database-1

The DB instance identifier is case-insensitive, but is stored as all lowercase (as in "mydbinstance"). Constraints: 1 to 60 alphanumeric characters or hyphens. First character must be a letter. Can't contain two consecutive hyphens. Can't end with a hyphen.

Master username [Info](#)
Type a login ID for the master user of your DB instance.

admin

1 to 16 alphanumeric characters. First character must be a letter.

Auto generate a password
Amazon RDS can generate a password for you, or you can specify your own password.

► **View default settings for Easy create**
Easy create sets the following configurations to their default values, some of which can be changed later. If you want to change any of these settings now, use [Standard Create](#).

i You are responsible for ensuring that you have all of the necessary rights for any third-party products or services that you use with AWS services.

Cancel **Create database**

Feedback Looking for language selection? Find it in the new [Unified Settings](#) © 2022, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

8. Choose **Create database**. Your new database displays in the list of databases. The status is *Creating*.

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Module 10 Databases: Lab 10 - RDS

9 [View credential details](#)

Creating database database-1
Your database might take a few minutes to launch. We have generated your database master password during the database creation and it will be displayed in the credential details. This is the only time you will be able to view this password. However you can modify your database to create a new password at any time.

RDS > Databases

Databases Group resources

< 1 >

<input type="checkbox"/>	DB identifier	Role	Engine	Region & AZ
<input type="radio"/>	database-1	Instance	SQL Server Express Edition	us-east-1f

9. In the banner at the top of the page, choose **View credential details**. Your login credentials display.

Feedback Looking for language selection? Find it in the new [Unified Settings](#)

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AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

The screenshot shows the AWS Management Console interface. At the top, there is a navigation bar with the AWS logo, 'Services', a search bar, and a user profile. Below this, a blue banner indicates 'Creating database database-1' and provides instructions to view credential details. A red circle with the number '9' highlights the 'View credential details' button. A modal dialog box titled 'Password for your database database-1' is open, displaying the master username 'admin' and the master password '9Uhbt2Psi0oLT6fclzl3' with a 'Copy' button. The dialog also includes a 'Close' button. In the background, the 'Create database' button is visible.

9. In the banner at the top of the page, choose **View credential details**. Your login credentials display.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

Amazon RDS

Creating database database-1

View credential details

Password for your database database-1

This is the only time you will be able to view this password. Copy and save the password for your reference, otherwise you will need to modify the database to change it.

Master username
admin

Master password
9Uhbt2Psi0oLT6fclzl3

Copy

Close

10. Save the credential information to a text editor to use later in this lab.

11. To close the pop-up window, choose **Close**.

Password for your database database-1

This is the only time you will be able to view this password. Copy and save the password for your reference, otherwise you will need to modify the database to change it.

Master username
admin

Master password
9Uhbt2Psi0oLT6fclzl3

Feedback Looking for language selection? Find it in the new Unified Settings

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12

13

14

Task 2. Download and install SQL Server Management Studio

To connect to your RDS DB instance, you will need to download and install SQL Server Management Studio.

12. In a new browser tab or window, go to <https://aka.ms/ssmsfullsetup>.

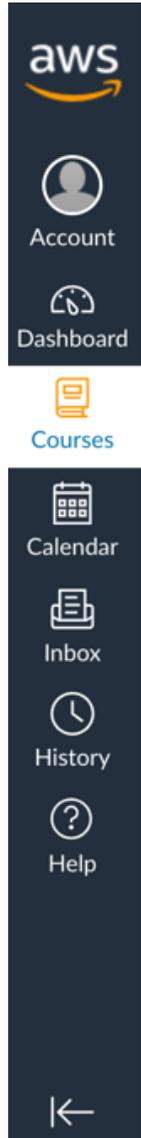
13. Download the installation package to your computer.

14. When the download completes, open and run the installation program.

Note: If you are unable to install new software on your local machine, follow [the instructions](#) to use the Amazon Elastic Compute Cloud (Amazon EC2) instance that was launched in this lab environment.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS



← → ↻ aws-tc-largeobjects.s3-us-west-2.amazonaws.com/CUR-TF-100-ACCAIC-1/lab-06-RDS/readme_windows_ec2.html 🔒 ☆ ⚙️ □ 🔍

AWS Windows Workstation Configuration with SQL Server Management Studio

If you are not allowed to install software on your local machine, you can use the Windows workstation that has been deployed to your lab environment.

Before using this guide, follow the assignment instructions under **Accessing the AWS Management Console**.

Steps:

- Locate the IP address for your workstation
- Use Remote Desktop to connect to your workstation
- Configure the workstation browser to allow downloads
- Install the required software on your workstation
- Identify your workstation's Public IP address

Locate the IP address

1. Return to the window you used to start the lab.
2. At the top of the page, choose the AWS Details dropdown menu.
3. In the pop-up window, locate **WindowsWorkstation**.
4. Save the IP address for the workstation.

Note: You will use this IP address in the lab when configuring your Security Group Rule.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

https://aws-tc-largeobjects.s3-us-west-2.amazonaws.com/CUR-TF-100-ACCAIC-1/lab-06-RDS/readme_windows_ec2.html

← → ↻ 🔒 aws-tc-largeobjects.s3-us-west-2.amazonaws.com/CUR-TF-100-ACCAIC-1/lab-06-RDS/readme_windows_ec2.html 📄 ☆ ⚙️ 🗄️ 🔄

AWS Windows Workstation Configuration with SQL Server Management Studio

If you are not allowed to install software on your local machine, you can use the Windows workstation that has been deployed to your lab environment.

Before using this guide, follow the assignment instructions under **Accessing the AWS Management Console**.

Steps:

- Locate the IP address for your workstation
- Use Remote Desktop to connect to your workstation
- Configure the workstation browser to allow downloads
- Install the required software on your workstation
- Identify your workstation's Public IP address

Locate the IP address

1. Return to the window you used to start the lab.
2. At the top of the page, choose the AWS Details dropdown menu.
3. In the pop-up window, locate **WindowsWorkstation**.
4. Save the IP address for the workstation.

Note: You will use this IP address in the lab when configuring your Security Group Rule.

AWS Windows Workstation Configuration with SQL Server Management Studio (SSMS)

If you are not allowed to install software on your local machine, you can use the Windows workstation that has been deployed to your lab environment.

Before using this guide, follow the assignment instructions under **Accessing the AWS Management Console**.

Steps:

- Locate the IP address for your workstation
- Use Remote Desktop to connect to your workstation
- Configure the workstation browser to allow downloads
- Install the required software on your workstation
- Identify your workstation's Public IP address

AWS Windows Workstation Configuration with SQL Server Management Studio (SSMS)

- **Step 1. Locate the IP address**
- **Step 2. Connect to the workstation**
- **Step 3. Configure the browser**
- **Step 4. Download SQL Server Management Studio**
- **Step 5. Install the software**
- **Step 6. Return to the instructions for the lab assignment.**

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

Locate the IP address

1. Return to the window you used to start the lab.
2. At the top of the page, choose the AWS Details dropdown menu.
3. In the pop-up window, locate **WindowsWorkstation**.
4. Save the IP address for the workstation.

Note: You will use this IP address in the lab when configuring your Security Group Rule.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS



A vertical sidebar on the left side of the page. At the top is the AWS logo. Below it are icons and labels for 'Account', 'Dashboard', 'Courses', 'Calendar', 'Inbox', 'History', and 'Help'. At the bottom is a back arrow icon.

☰ AICv1Sem1EN-... > Modules > Module 10: Dat... > Lab 10 - RDS

1

2

AWS

01:55

▶ Start Lab

■ End Lab

⌵ AWS Details

⌵ Readme

✕

Access the AWS Management Console

1. To start the lab session, choose ▶ **Start Lab** in the upper-right corner of the page.

- The lab session starts.
- A timer displays in the upper-right

Tip: To refresh the session length:
0:00.

Before continuing, wait until the lab en
details appear on the right side of the
corner turns green.

2. To return to these instructions, choose

3. To connect to the AWS Management Console, choose the **AWS** link in the upper-left corner, above the terminal window.

A new browser tab opens and connects you to the AWS Management Console.

Locate the IP address

1. Return to the window you used to start the lab.

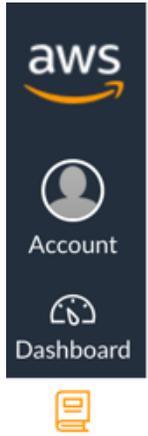
2. At the top of the page, choose the AWS Details dropdown menu.

◀ Previous

Next ▶

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS



AICv1Sem1EN... > Modules > Module 10: Dat... > Lab 10 - RDS

AWS

01:41

▶ Start Lab

■ End Lab

i AWS Details

i Readme

✕

Cloud Access

AWS CLI:

Cloud Labs

Remaining session time: 01:40:44(101 minutes)

Session started at: 2022-05-19T18:42:34-0700

Session to end at: 2022-05-19T20:42:34-0700

Accumulated lab time: 04:19:26 (260 minutes)

ips -- public:54.196.8.114, private:10.0.1.157

SSH key

AWS SSO

AWSAccountId 547970237064

WindowsWorkstation **54.196.8.114**

Region us-east-1

3. In the pop-up window, locate **WindowsWorkstation**.

4. Save the IP address for the workstation.

Note: You will use this IP address in the lab when configuring your Security Group Rule.

3 AWSAccountId 547970237064

4 WindowsWorkstation 54.196.8.114

Region us-east-1



◀ Previous

Next ▶

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Module 10 Databases: Lab 10 - RDS

Connect to the workstation

Depending on your Operating System, you will start one of the following applications:

Operating System	Application
Windows	Remote Desktop Connection
Chrome	Chrome Remote Desktop
Mac	Microsoft Remote Desktop

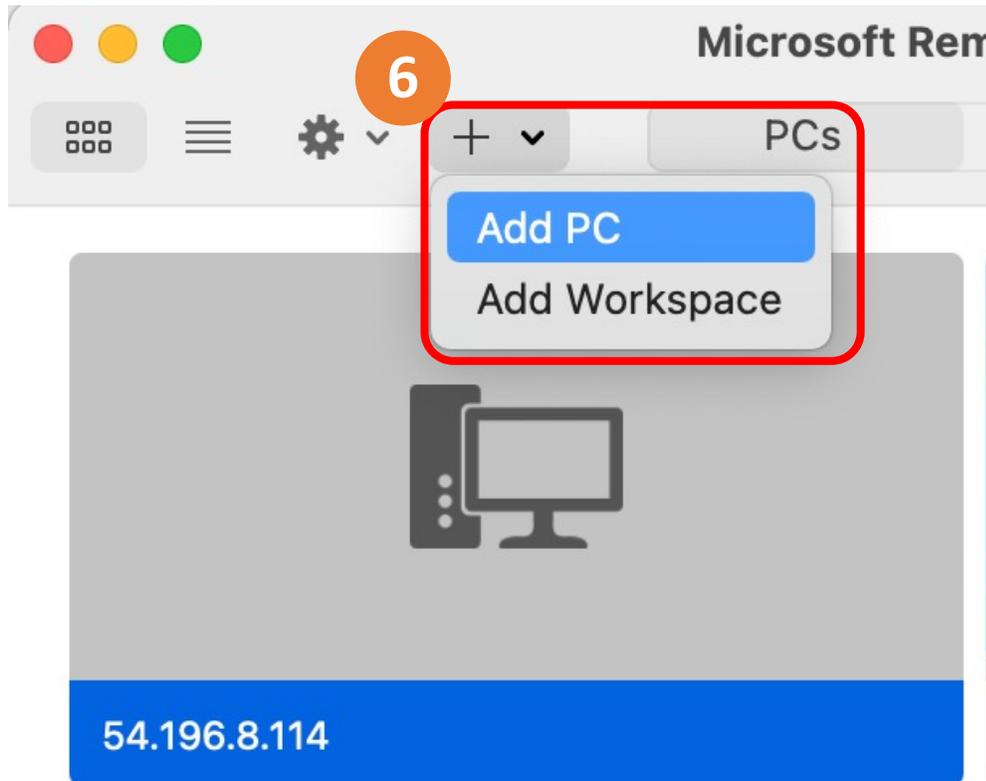
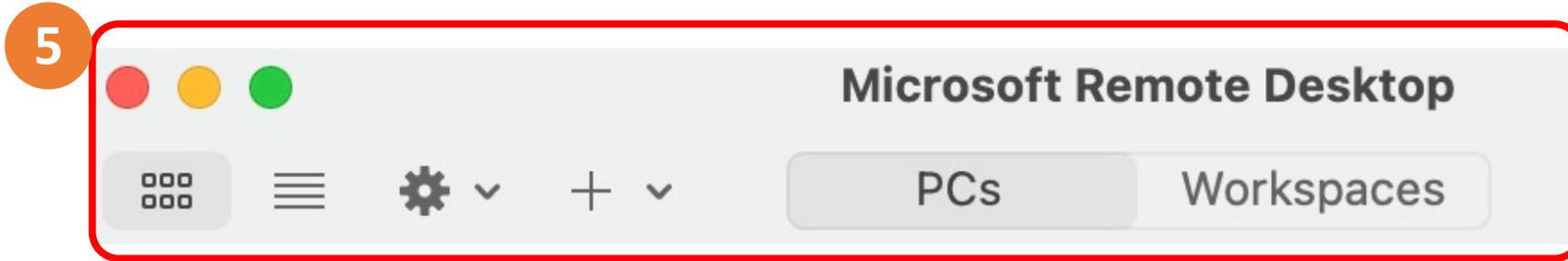
AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

5. Start the remote desktop application.
6. Use the plus symbol to add a new connection.
Note: Do not choose the Workspace option.
7. When prompted, enter the **WindowsWorkstation** IP address, and choose **Add**.
8. Doubleclick on the connection you just created.
9. When prompted, enter the following values:
Username: Administrator
Password: Welcome1
10. Choose **Continue**.

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Module 10 Databases: Lab 10 - RDS



5. Start the remote desktop application.
6. Use the plus symbol to add a new connection.

Note: Do not choose the Workspace option.

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Module 10 Databases: Lab 10 - RDS

7

7 Add PC

PC name:

User account:

General | Display | Devices & Audio | Folders

Friendly name:

Group:

Gateway:

Bypass for local addresses

Reconnect if the connection is dropped

Connect to an admin session

Swap mouse buttons

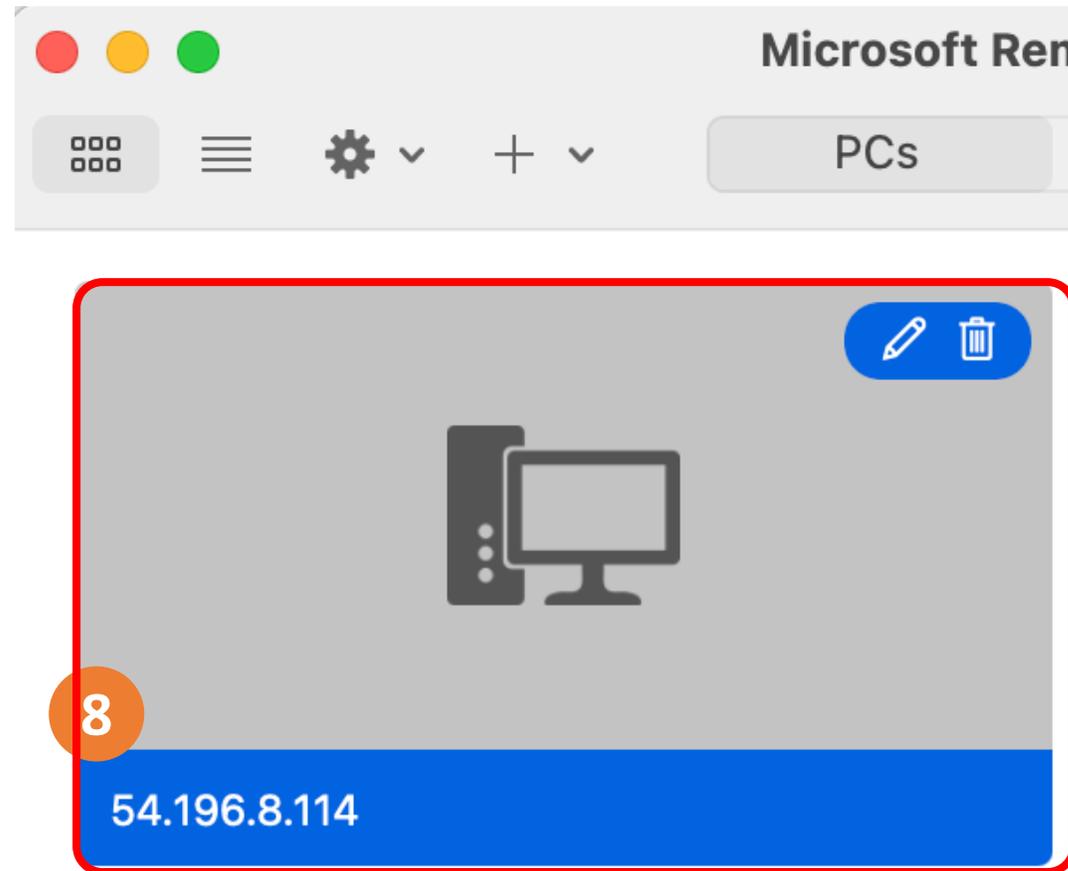
7. When prompted, enter the **WindowsWorkstation** IP address, and choose **Add**.

AWSAccountId	547970237064
WindowsWorkstation	54.196.8.114
Region	us-east-1

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

8. Doubleclick on the connection you just created.



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Module 10 Databases: Lab 10 - RDS

Enter Your User Account

This user account will be used to connect to 54.196.8.114 (remote PC).

9

Username: Administrator

Password: Welcome1

Show password

Cancel

10

Continue

9. When prompted, enter the following values:

Username: Administrator

Password: Welcome1

10. Choose **Continue**.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS



You are connecting to the RDP host "54.196.8.114". The certificate couldn't be verified back to a root certificate. Your connection may not be secure. Do you want to continue?

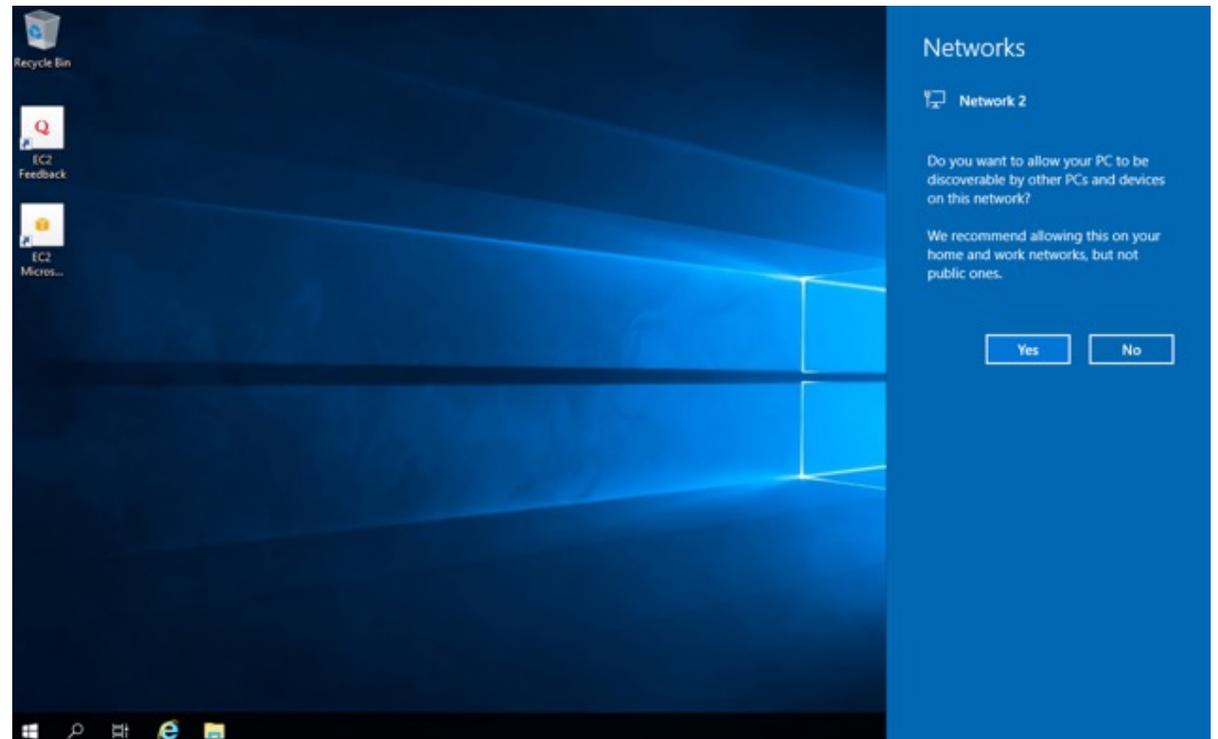


Show Certificate

10

Cancel

Continue



AWS Academy Introduction to Cloud: Semester 1

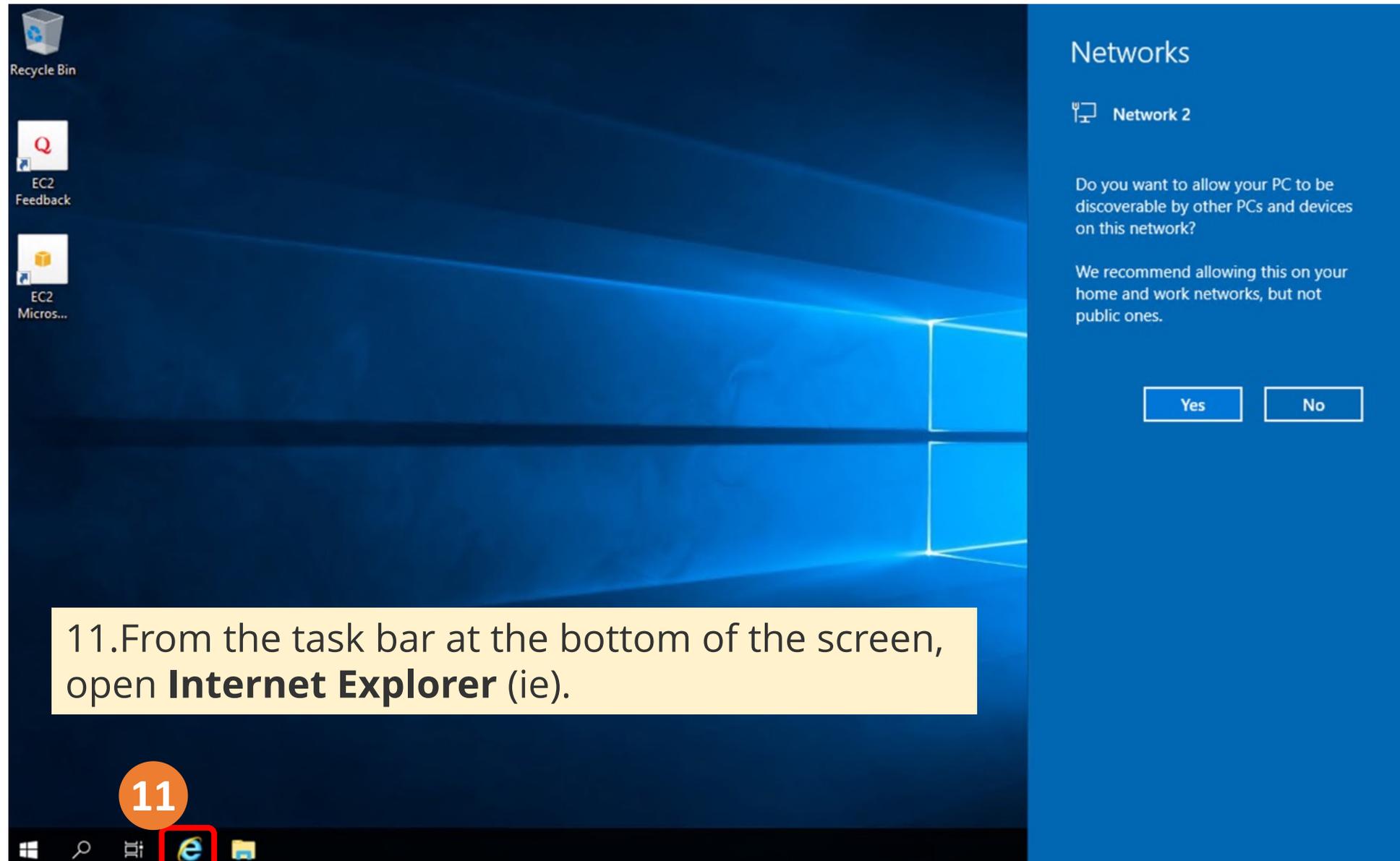
Module 10 Databases: Lab 10 - RDS

Configure the browser

11. From the task bar at the bottom of the screen, open **Internet Explorer** (ie).
12. In the **Setup Internet Explorer** pop-up window, choose **OK**.
13. In the top right corner of the ie window, choose the small gear-shaped icon.
14. From the drop down menu, select **Internet Options**.
15. Select the **Security** tab.
16. In the box labeled "Select a zone to view or change security settings", select **Trusted Sites** .
17. Choose the **Sites** button.
18. In the text box labeled, "Add this website to the zone", enter https://*.microsoft.com.
19. Choose **Add**.
20. In the same text box, enter https://*.azure.com.
21. Choose **Add**.
22. Choose **Close**
23. Choose **Ok**.

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Module 10 Databases: Lab 10 - RDS



AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

Internet Explorer Enhanced Security Configuration is enabled

Internet Explorer 11

Set up Internet Explorer 11

Use recommended security, privacy, and compatibility settings
Windows Defender SmartScreen helps protect you from malicious websites and software by sending some web addresses to Microsoft to be checked. Compatibility lists are downloaded to make Internet Explorer 11 features work better with changing websites and older PC hardware. Read the [Internet Explorer privacy statement](#) online.

Don't use recommended settings

Send Do Not Track requests to tell sites you prefer not to be tracked

OK Ask me later

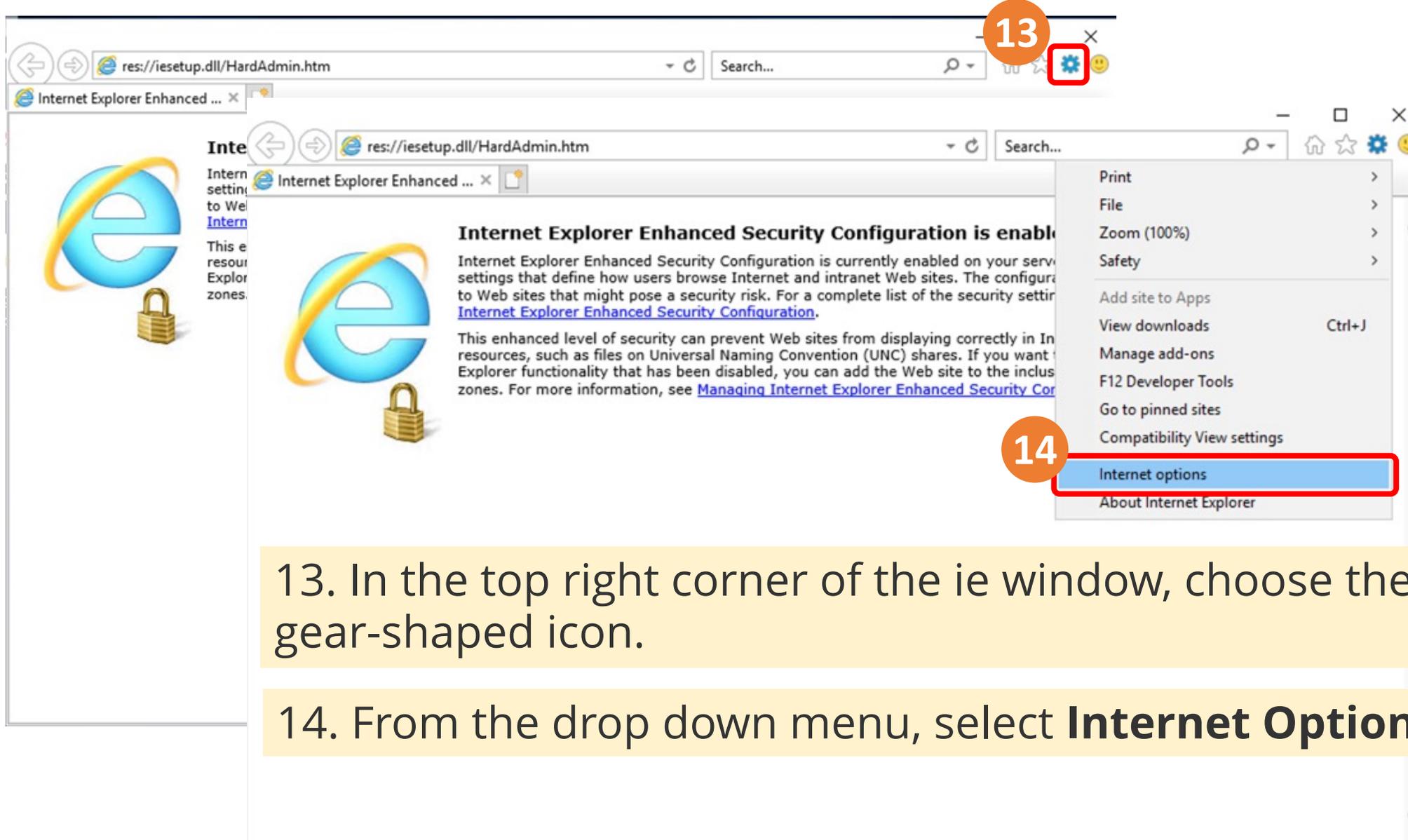
Hostname: EC2AMAZ-NLON31A
Instance ID: i-09b8b1cba75427ad6
Public IPv4 Address: 54.196.8.114
Private IPv4 Address: 10.0.1.157
Instance Size: t2.micro
Availability Zone: us-east-1a
Architecture: AMD64
Total Memory: 1024 MB
Network Performance: Low to Moderate

2:18 AM
5/20/2022

12. In the **Setup Internet Explorer** pop-up window, choose **OK**.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

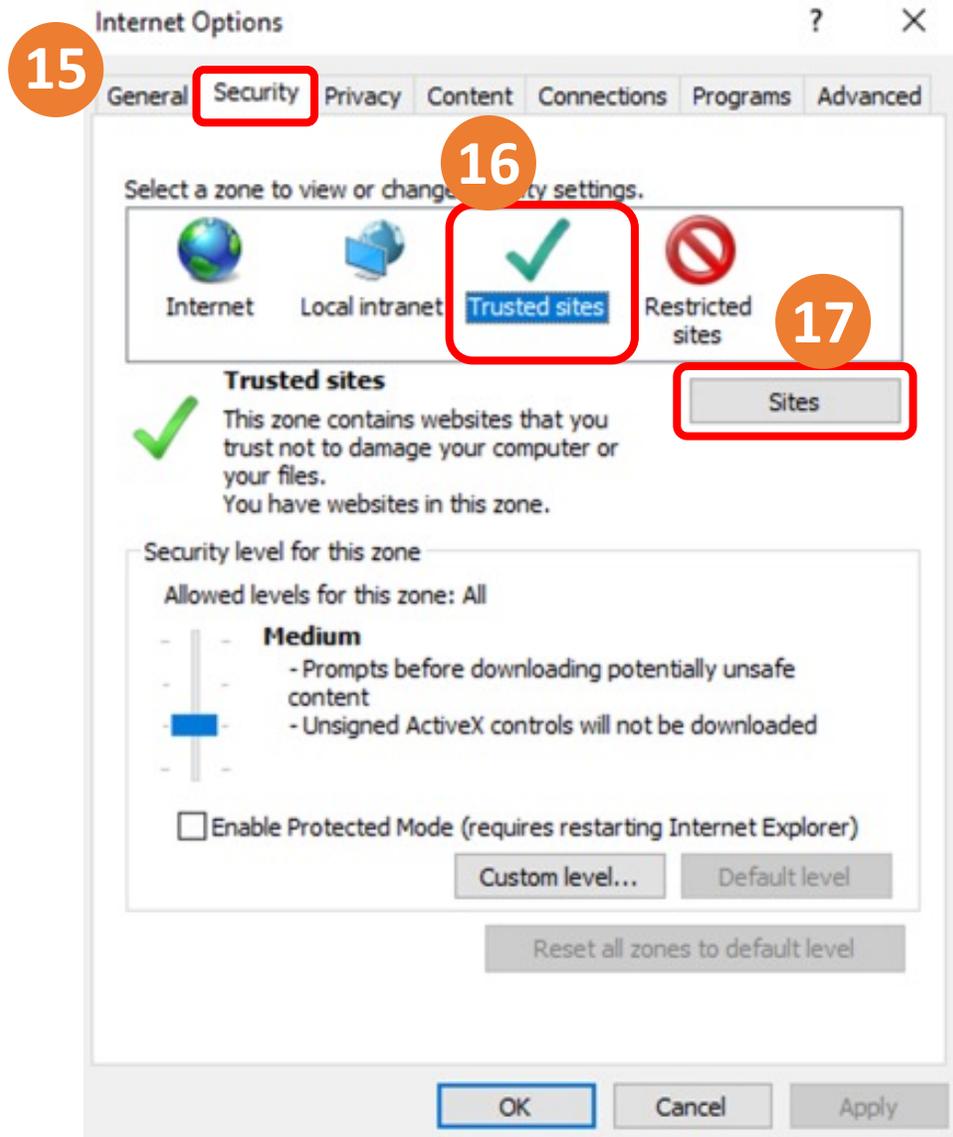


13. In the top right corner of the ie window, choose the small gear-shaped icon.

14. From the drop down menu, select **Internet Options**.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS



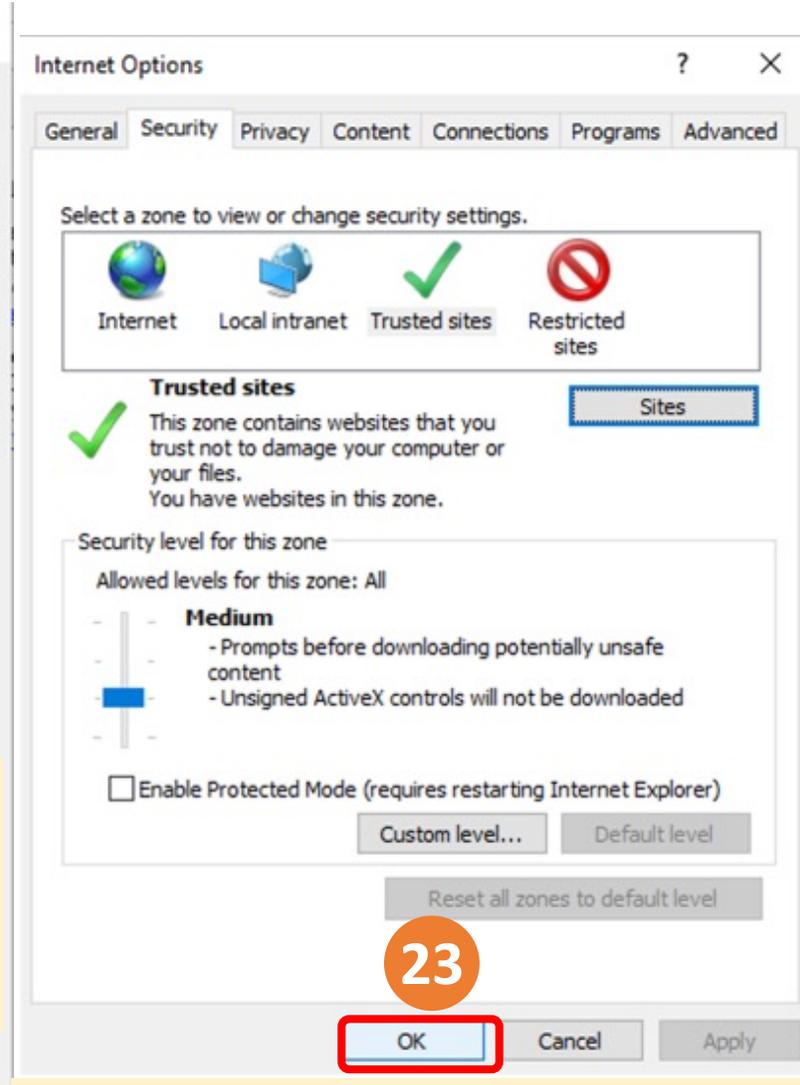
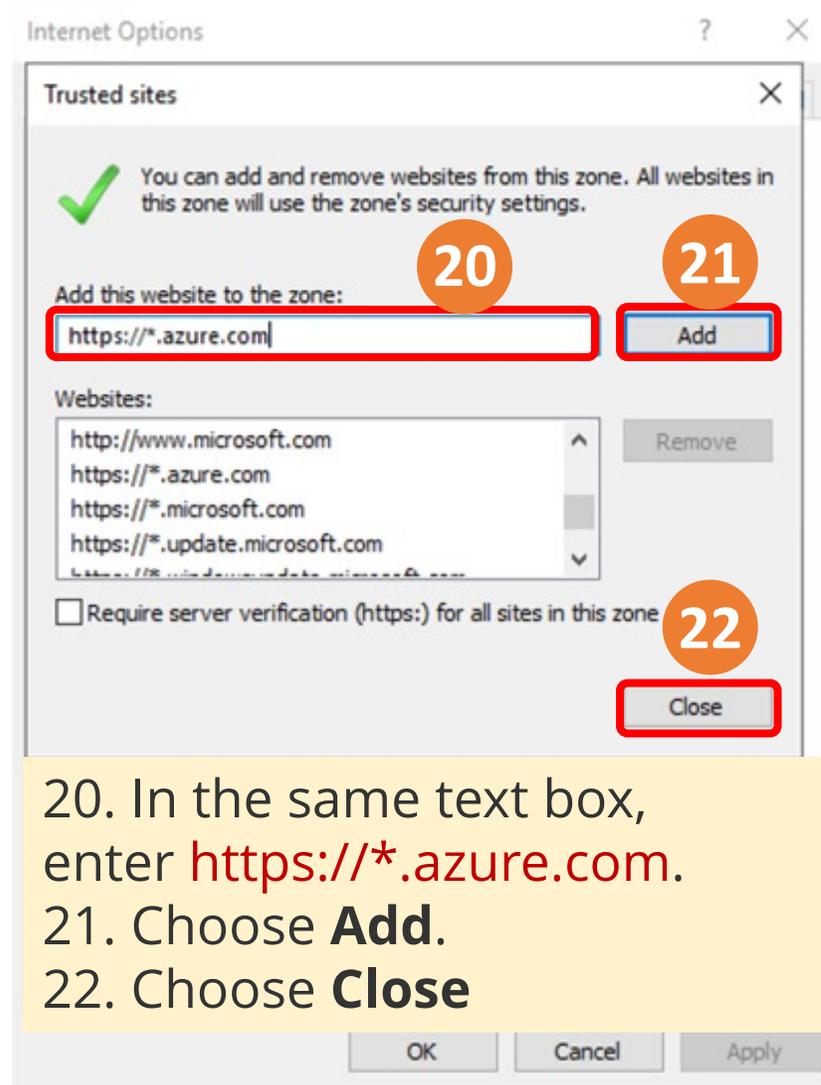
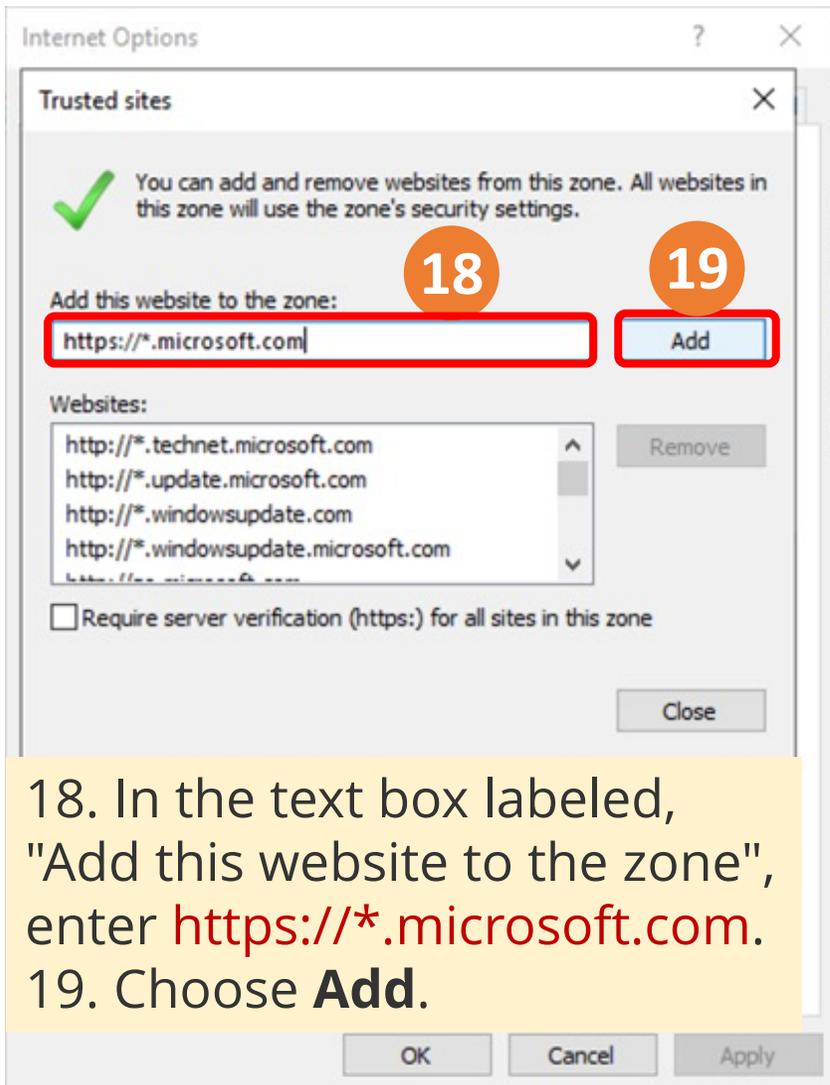
15. Select the **Security** tab.

16. In the box labeled "Select a zone to view or change security settings", select **Trusted Sites** .

17. Choose the **Sites** button.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS



AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

Download SQL Server Management Studio

24. In the IE window, enter the following URL: <https://aka.ms/ssmsfullsetup> and press enter.

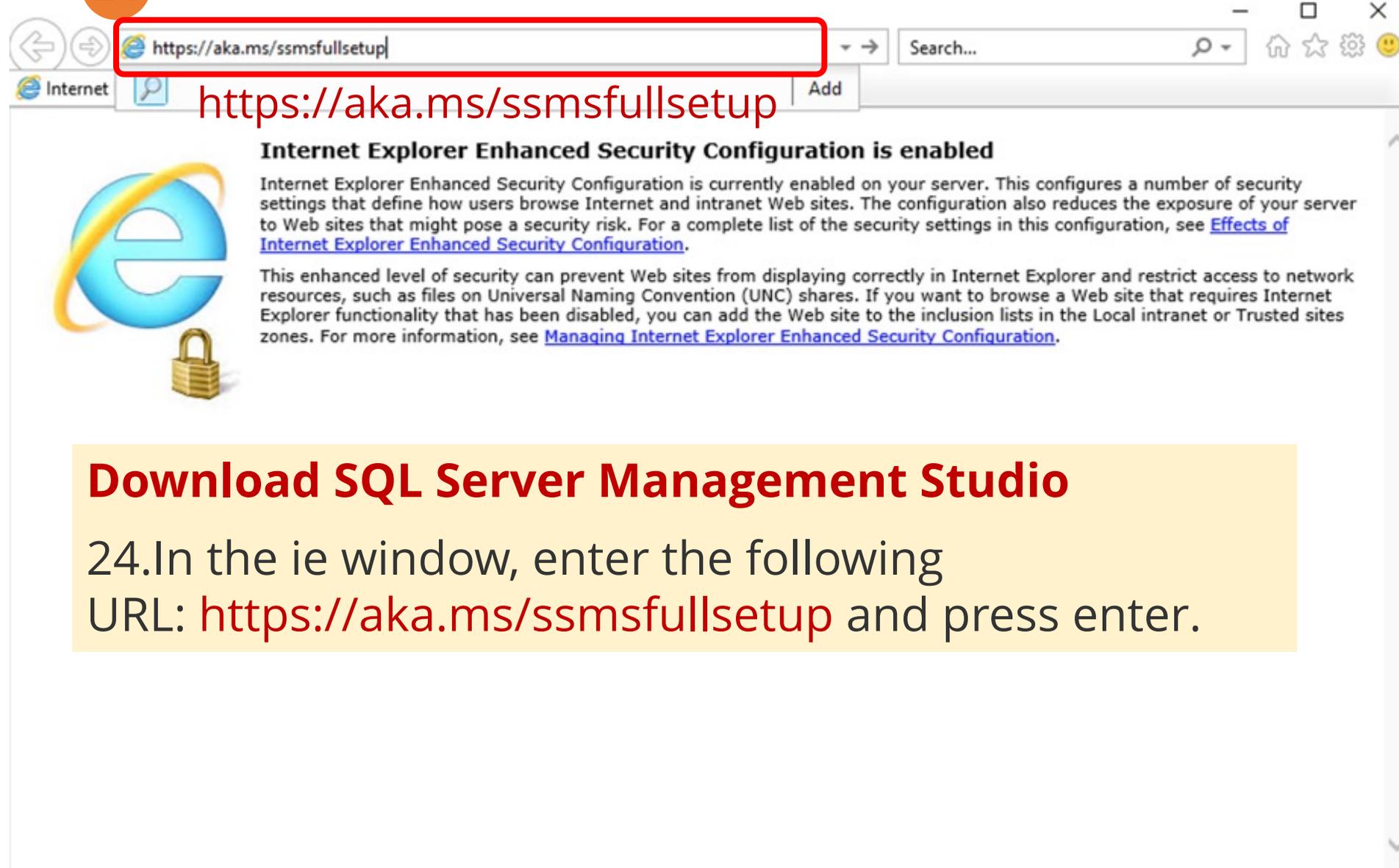
25. If you are prompted with pop-up windows, choose accept and close the windows.

26. You will see a warning at the bottom of the browser window similar to - *This type of file could harm your computer*. Choose **Save** to download the file.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

24

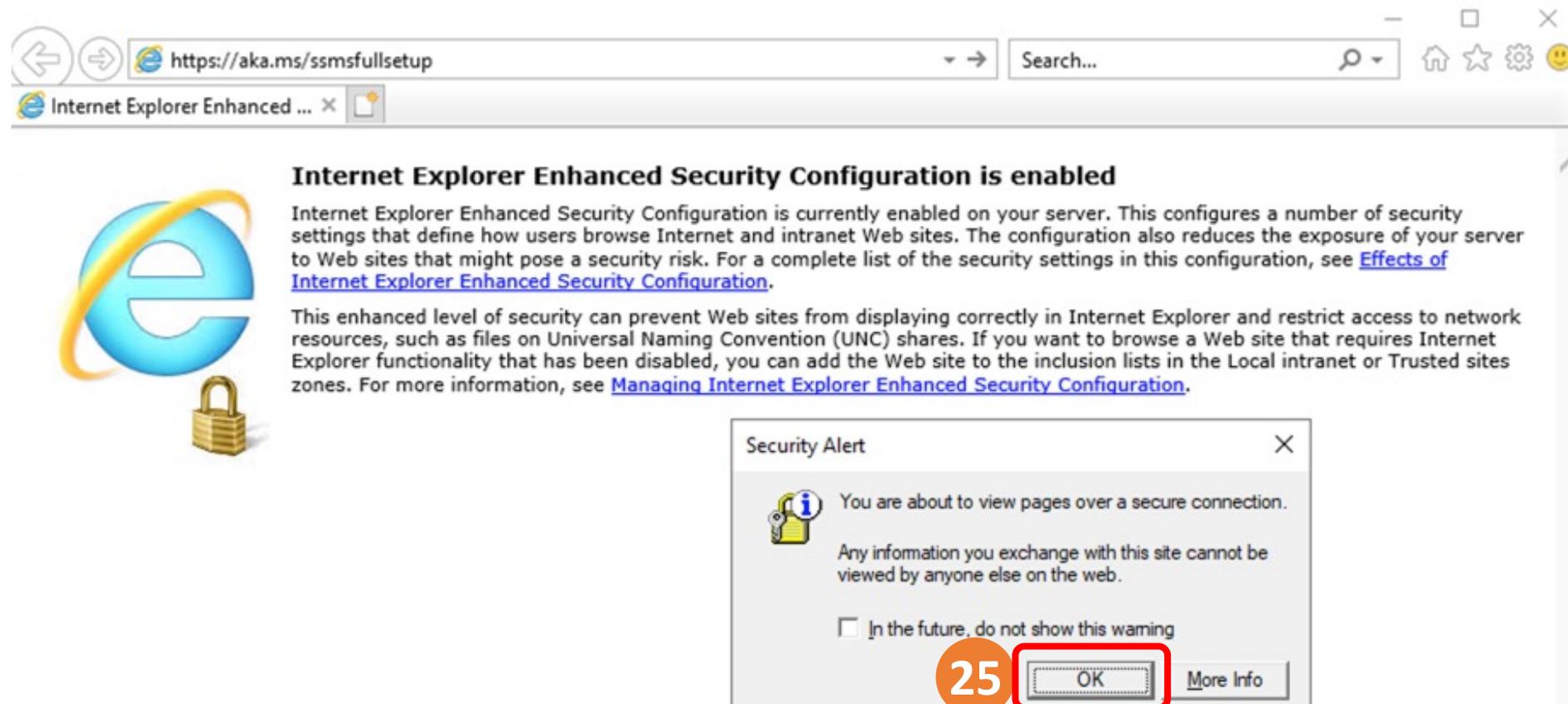


Download SQL Server Management Studio

24. In the ie window, enter the following URL: `https://aka.ms/ssmsfullsetup` and press enter.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS



The screenshot shows the Internet Explorer Enhanced Security Configuration page. The address bar displays <https://aka.ms/ssmsfullsetup>. The page title is "Internet Explorer Enhanced Security Configuration is enabled". The main content area contains the following text:

Internet Explorer Enhanced Security Configuration is enabled

Internet Explorer Enhanced Security Configuration is currently enabled on your server. This configures a number of security settings that define how users browse Internet and intranet Web sites. The configuration also reduces the exposure of your server to Web sites that might pose a security risk. For a complete list of the security settings in this configuration, see [Effects of Internet Explorer Enhanced Security Configuration](#).

This enhanced level of security can prevent Web sites from displaying correctly in Internet Explorer and restrict access to network resources, such as files on Universal Naming Convention (UNC) shares. If you want to browse a Web site that requires Internet Explorer functionality that has been disabled, you can add the Web site to the inclusion lists in the Local intranet or Trusted sites zones. For more information, see [Managing Internet Explorer Enhanced Security Configuration](#).

A "Security Alert" dialog box is overlaid on the page. The dialog box contains the following text:

Security Alert

You are about to view pages over a secure connection.

Any information you exchange with this site cannot be viewed by anyone else on the web.

In the future, do not show this warning

Buttons: OK, More Info

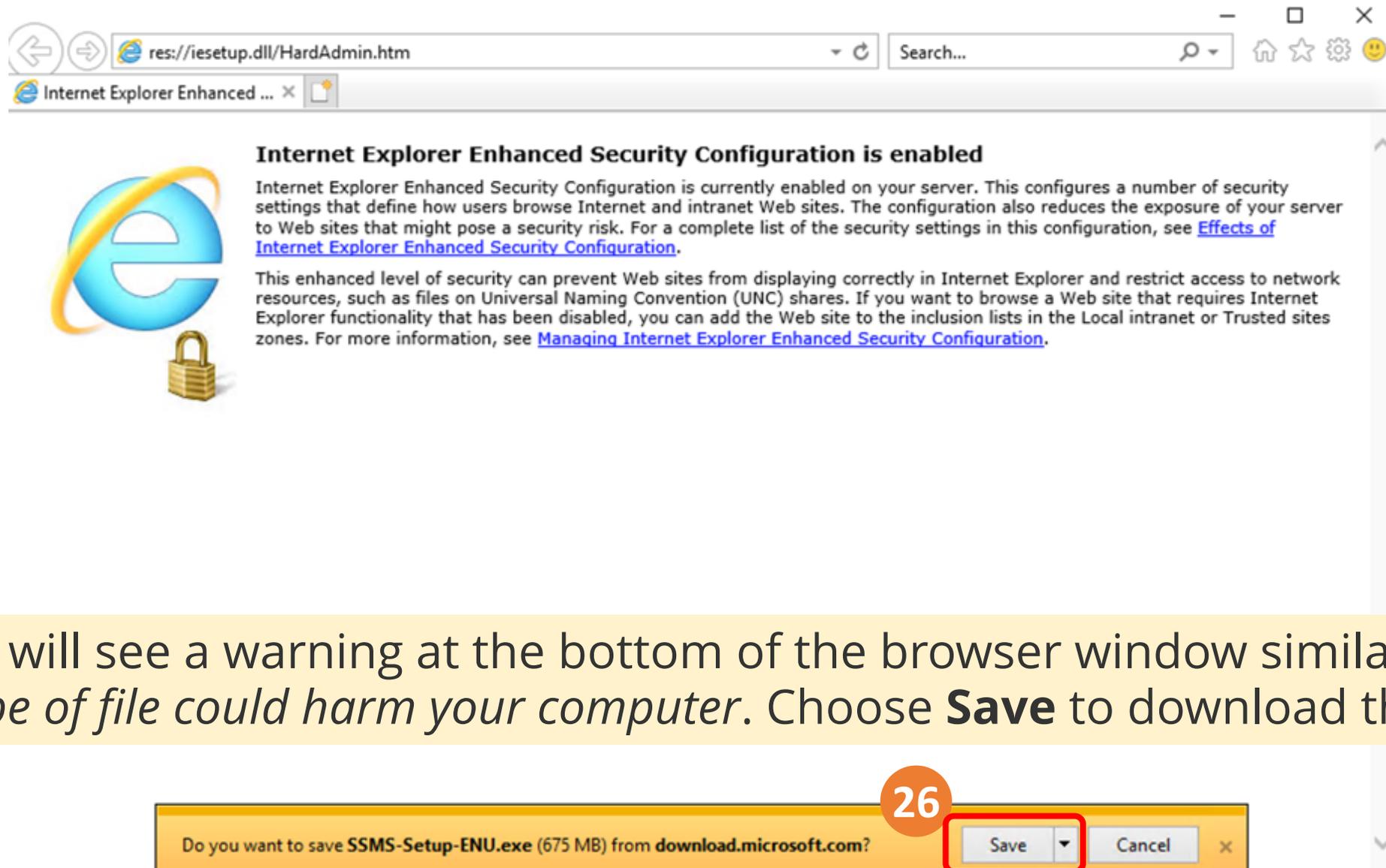
The number "25" is circled in orange, and the "OK" button is highlighted with a red dashed border.

25. If you are prompted with pop-up windows, choose accept and close the windows.

26. You will see a warning at the bottom of the browser window similar to - *This type of file could harm your computer*. Choose **Save** to download the file.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS



The screenshot shows an Internet Explorer browser window with the address bar displaying `res://iesetup.dll/HardAdmin.htm`. The main content area displays a security warning titled "Internet Explorer Enhanced Security Configuration is enabled". The warning text explains that this configuration restricts access to network resources and may prevent some websites from displaying correctly. It includes links for "Effects of Internet Explorer Enhanced Security Configuration" and "Managing Internet Explorer Enhanced Security Configuration".

At the bottom of the browser window, a yellow warning bar is visible. The text in the bar reads: "Do you want to save SSMS-Setup-ENU.exe (675 MB) from download.microsoft.com?". The "Save" button is highlighted with a red box, and a red circle with the number "26" is placed over it.

26. You will see a warning at the bottom of the browser window similar to - *This type of file could harm your computer.* Choose **Save** to download the file.

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Module 10 Databases: Lab 10 - RDS

Install the software

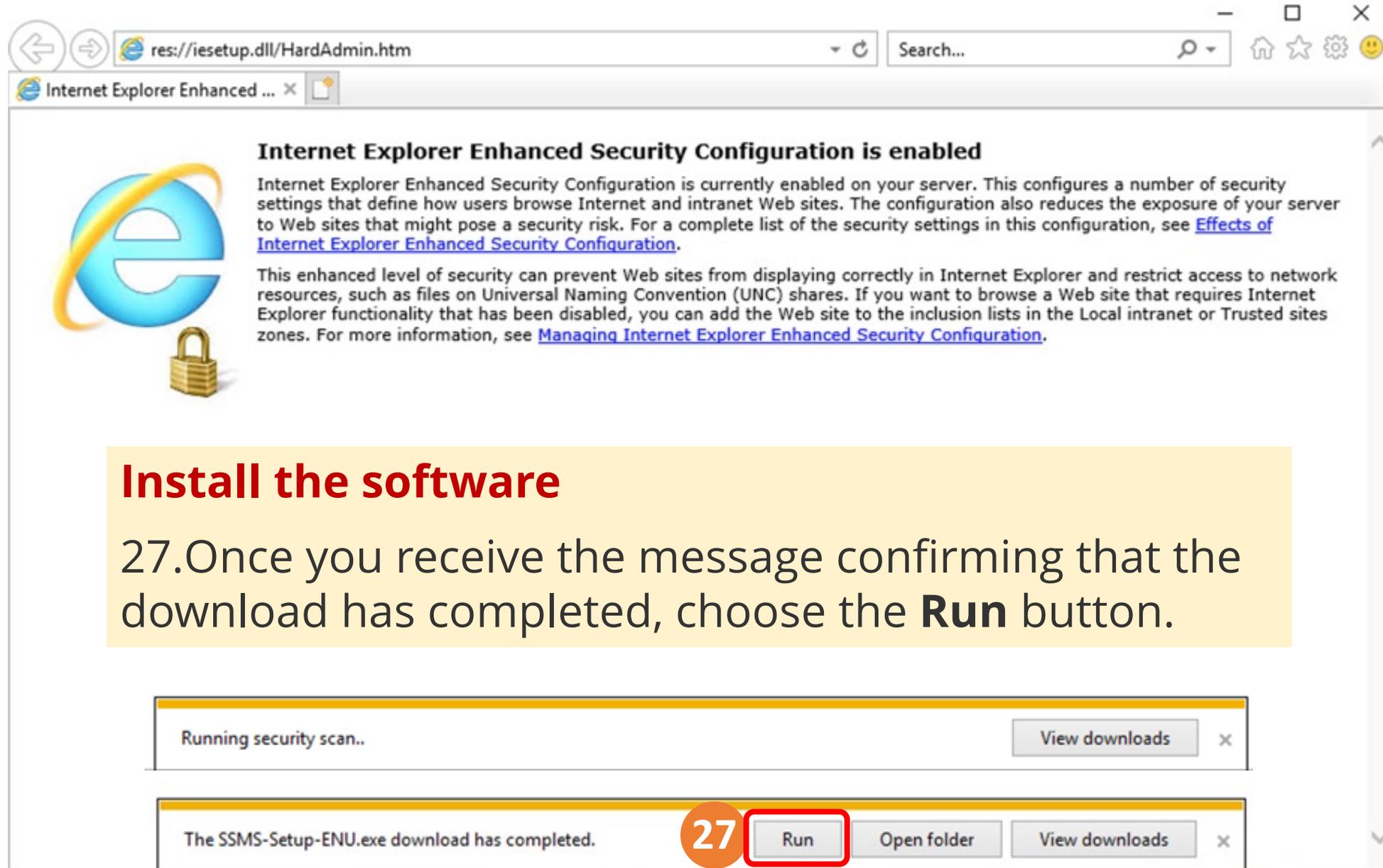
27. Once you receive the message confirming that the download has completed, choose the **Run** button.

28. You will be prompted to *Click "install" to begin*. Choose the **Install** button.

29. Once the installation has completed, choose **Close**.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Database: Lab 10 - RDS



The screenshot shows an Internet Explorer browser window with the address bar displaying 'res://iesetup.dll/HardAdmin.htm'. The main content area features a message titled 'Internet Explorer Enhanced Security Configuration is enabled'. To the left of the text is the Internet Explorer logo with a padlock icon below it. The message text explains that security settings are enabled to reduce exposure to security risks and provides links for more information. Below the message, a yellow callout box contains the instruction: 'Install the software' followed by '27. Once you receive the message confirming that the download has completed, choose the **Run** button.' At the bottom of the browser window, a download bar shows two items: 'Running security scan..' and 'The SSMS-Setup-ENU.exe download has completed.'. The 'Run' button for the second item is highlighted with a red box, and the number '27' is overlaid on the download bar.

Internet Explorer Enhanced Security Configuration is enabled

Internet Explorer Enhanced Security Configuration is currently enabled on your server. This configures a number of security settings that define how users browse Internet and intranet Web sites. The configuration also reduces the exposure of your server to Web sites that might pose a security risk. For a complete list of the security settings in this configuration, see [Effects of Internet Explorer Enhanced Security Configuration](#).

This enhanced level of security can prevent Web sites from displaying correctly in Internet Explorer and restrict access to network resources, such as files on Universal Naming Convention (UNC) shares. If you want to browse a Web site that requires Internet Explorer functionality that has been disabled, you can add the Web site to the inclusion lists in the Local intranet or Trusted sites zones. For more information, see [Managing Internet Explorer Enhanced Security Configuration](#).

Install the software

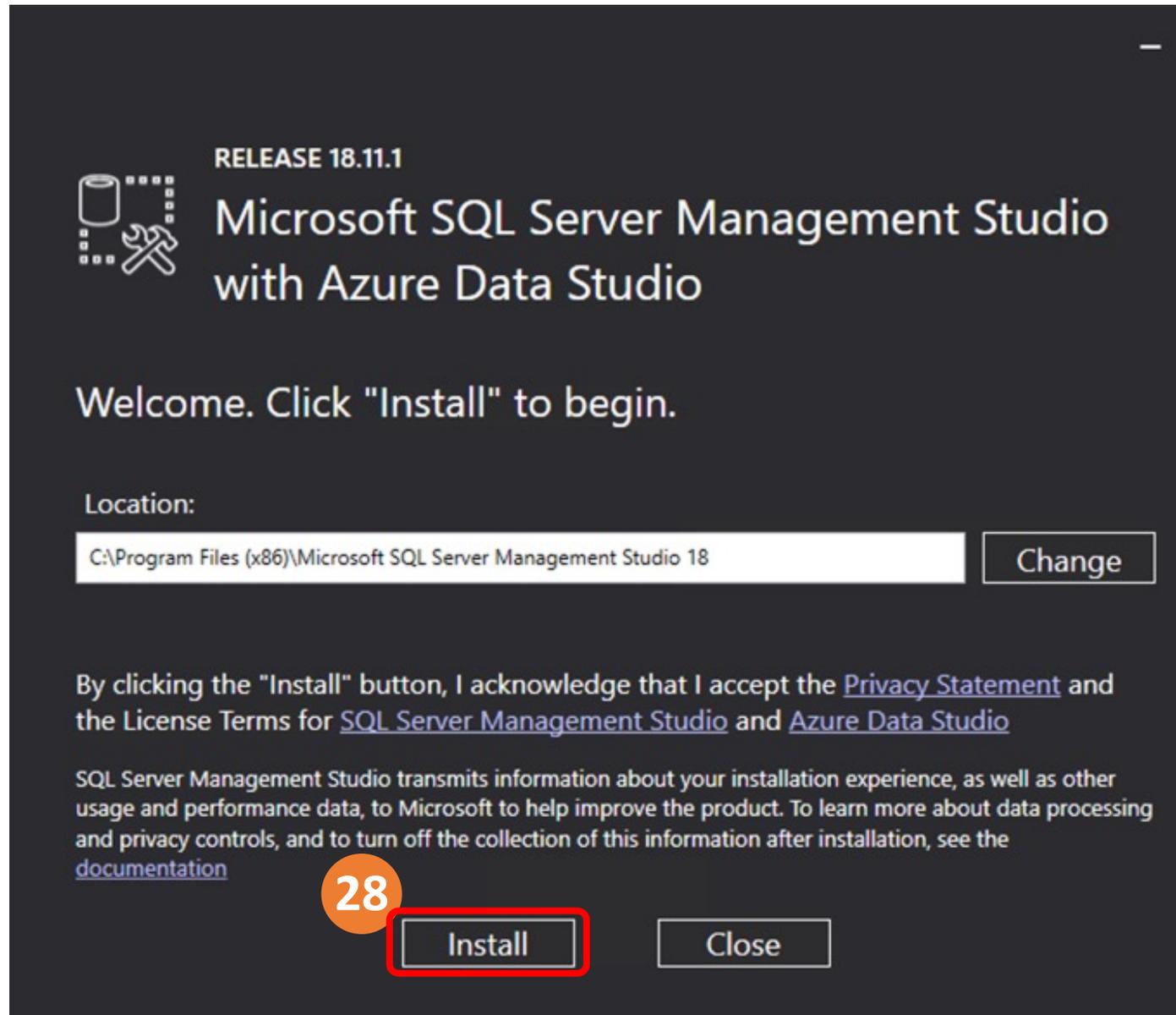
27. Once you receive the message confirming that the download has completed, choose the **Run** button.

Running security scan.. View downloads x

The SSMS-Setup-ENU.exe download has completed. 27 Run Open folder View downloads x

AWS Academy Introduction to Cloud: Semester 1

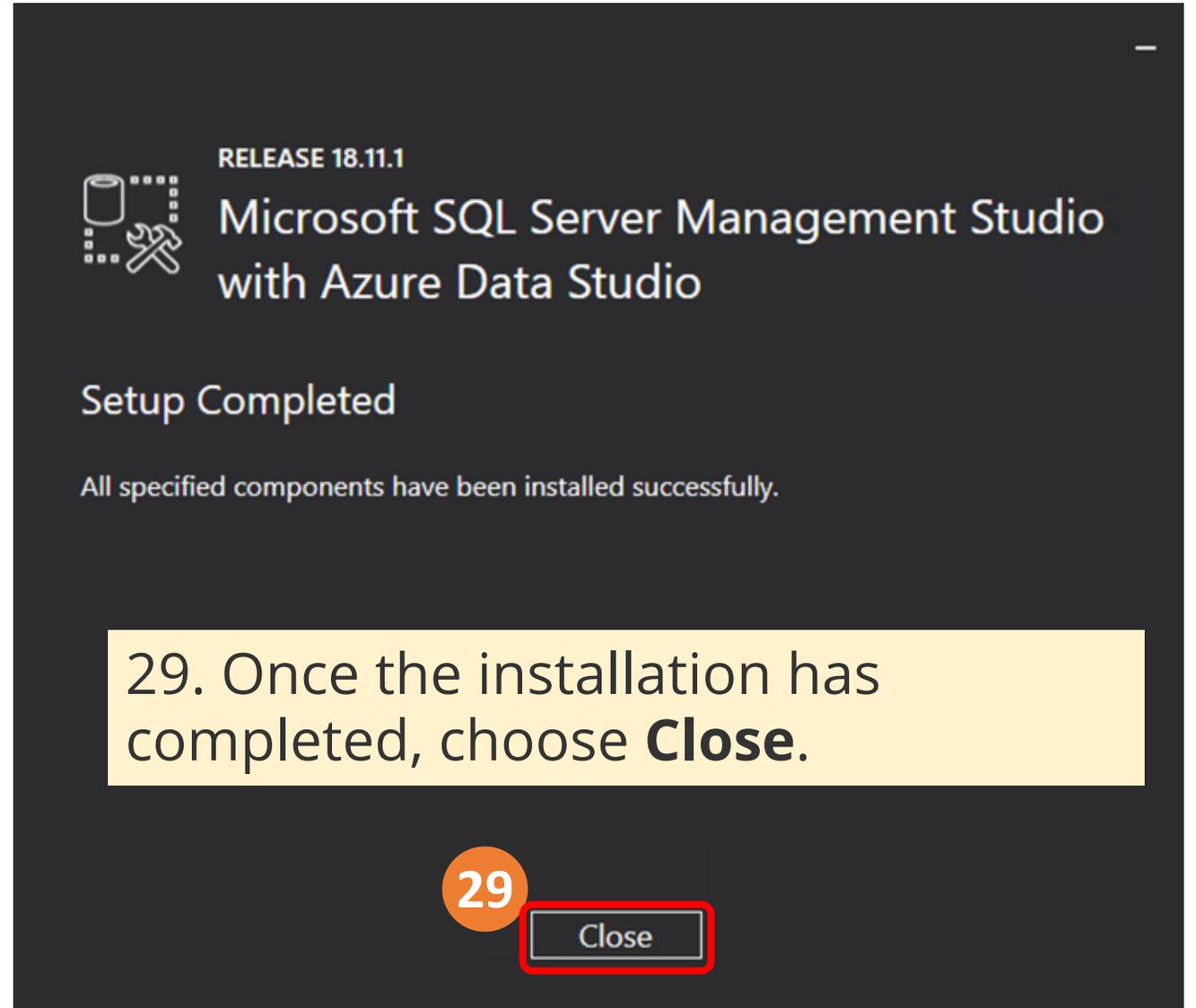
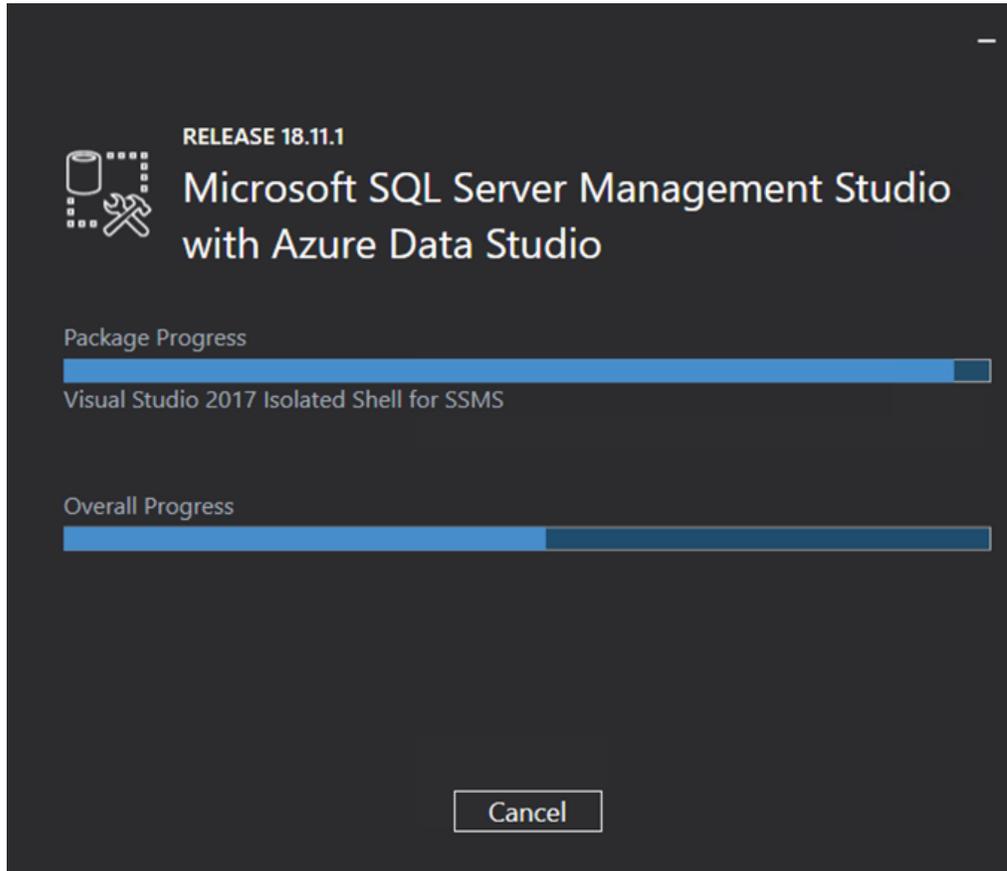
Module 10 Databases: Lab 10 - RDS



28. You will be prompted to *Click "install" to begin*. Choose the **Install** button.

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Module 10 Databases: Lab 10 - RDS



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Module 10 Databases: Lab 10 - RDS

Return to the instructions for the lab assignment.

When you are instructed to perform tasks on your local machine, you can now use the AWS workstation instead.

AWS Windows Workstation Configuration with SQL Server Management Studio (SSMS)

- **Step 1. Locate the IP address**
- **Step 2. Connect to the workstation**
- **Step 3. Configure the browser**
- **Step 4. Download SQL Server Management Studio**
- **Step 5. Install the software**
- **Step 6. Return to the instructions for the lab assignment.**

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

Task 3. Make your database publicly accessible

15. In the Amazon RDS console, choose the name of the SQL Server database that you created.

In the **Connectivity & security** section, for **Security**, notice that **Public accessibility** is currently set to **No**.

16. To change this setting, choose **Modify** at the top of the page.

17. Scroll down to the **Connectivity** section, and expand **Additional configuration**.

18. For **Public access**, choose **Publicly accessible**.

19. Scroll to the bottom of the page, and choose **Continue**.

20. In the **Scheduling of modifications** section, for **When to apply modifications**, choose **Apply immediately**.

21. Choose **Modify DB Instance**.

After about 30 seconds, the **Status** for the database changes to *Modifying*. Before continuing, wait until the status changes to *Available*.

Tip: You might need to refresh the database information. To refresh, choose the refresh icon.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

The screenshot displays the AWS Management Console interface for Amazon RDS. The left-hand navigation pane shows the 'Amazon RDS' menu item highlighted with a red box, and the 'Databases' sub-menu item also highlighted with a red box. The main content area shows the 'Databases' page with a search bar and a table of database instances. A red circle with the number '15' is overlaid on the first row of the table, which is also highlighted with a red box. The table contains the following data:

DB identifier	Role	Engine	Region & AZ
database-1	Instance	SQL Server Express Edition	us-east-1f

Size	Status	CPU	Current activity	Maintenance	VPC
db.t2.micro	Backing-up	39.48%	0 Connections	none	vpc-058750b8b6dd45bd6

Status	CPU	Current activity	Maintenance	VPC	Multi-AZ
Backing-up	39.48%	0 Connections	none	vpc-058750b8b6dd45bd6	N/A

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

The screenshot shows the AWS Management Console interface for Amazon RDS. The left-hand navigation pane has 'Amazon RDS' and 'Databases' highlighted with red boxes. The main content area shows the 'Databases' page with a table of instances. A red circle with the number '15' is overlaid on the first instance, 'database-1', which is also highlighted with a red box. The table columns are 'DB identifier', 'Role', 'Engine', and 'Region & AZ'. The instance 'database-1' has a role of 'Instance', engine of 'SQL Server Express Edition', and is located in the 'us-east-1f' region.

DB identifier	Role	Engine	Region & AZ
database-1	Instance	SQL Server Express Edition	us-east-1f

Task 3. Make your database publicly accessible

15. In the Amazon RDS console, choose the name of the SQL Server database that you created.

In the **Connectivity & security** section, for **Security**, notice that **Public accessibility** is currently set to **No**.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

Task 3. Make your database publicly accessible

15. In the Amazon RDS console, choose the name of the SQL Server database that you created.

In the **Connectivity & security** section, for **Security**, notice that **Public accessibility** is currently set to **No**.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

16 **Modify** Actions

16. To change this setting, choose **Modify** at the top of the page.

Summary

DB identifier database-1	CPU 38.98%	Status Available	Class db.t2.micro
Role Instance	Current activity 0 Connections	Engine SQL Server Express Edition	Region & AZ us-east-1f

Connectivity & security | Monitoring | Logs & events | Configuration | Maintenance & backups | Tags

Connectivity & security

Endpoint & port	Networking	Security
Endpoint database-1.csstehym9d6x.us-east-1.rds.amazonaws.com	Availability Zone us-east-1f	VPC security groups default (sg-0f4f1f84621b3ea35) Active
Port 1433	VPC vpc-058750b8b6dd45bd6	Publicly accessible No
	Subnet group	Certificate authority

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Module 10 Databases: Lab 10 - RDS

aws Services Search for services, features, blogs, docs, and more [Option+S] N. Virginia voclabs/user1323818=Min-Yuh_Day @ 5479-7023-7064

Amazon RDS

Dashboard

Databases

Query Editor

Performance insights

Snapshots

Automated backups

Reserved instances

Proxies

Subnet groups

Parameter groups

Option groups

Custom engine versions

Events

Event subscriptions

RDS > Databases > Modify DB instance: database-1

Modify DB instance: database-1

Settings

License model
License type associated with the database engine

license-included

DB engine version
Version number of the database engine to be used for this database

14.00.3421.10.v1

DB instance identifier [Info](#)
Type a name for your DB instance. The name must be unique across all DB instances owned by your AWS account in the current AWS Region.

database-1

The DB instance identifier is case-insensitive, but is stored as all lowercase (as in "mydbinstance"). Constraints: 1 to 60 alphanumeric characters or hyphens. First character must be a letter. Can't contain two consecutive hyphens. Can't end with a hyphen.

New master password [Info](#)

Constraints: At least 8 printable ASCII characters. Can't contain any of the following: / (slash), '(single quote), "(double quote) and @ (at sign).

17. Scroll down to the **Connectivity** section, and expand **Additional configuration.**

17

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AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

Connectivity

Subnet group
default-vpc-058750b8b6dd45bd6

Security group
List of DB security groups to associate with this DB instance.
Choose security groups
default X

Certificate authority
rds-ca-2019

17

▼ **Additional configuration**

Public access

Publicly accessible
EC2 instances and devices outside the VPC can connect to the instance. You define the security groups for supported devices and instances.

Not publicly accessible
No IP address is assigned to the DB instance. EC2 instances and devices outside the VPC can't connect.

Database port
Specify the TCP/IP port that the DB instance will use for application connections. The application connection string must specify the port number. The DB security group and your firewall must allow connections to the port. [Learn more](#)

1433

17. Scroll down to the **Connectivity** section, and expand **Additional configuration**.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

The screenshot shows the AWS Management Console interface for configuring an Amazon RDS instance. The left sidebar contains navigation options like Dashboard, Databases, Query Editor, etc. The main content area is titled 'Connectivity' and includes fields for Subnet group, Security group, and Certificate authority. Below these is the 'Additional configuration' section, where the 'Public access' options are visible. The 'Publicly accessible' option is selected, and this section is highlighted with a red box. A yellow callout box with the text '18. For Public access, choose Publicly accessible.' is overlaid on the right side of the console. A red circle with the number '18' is positioned to the left of the 'Public access' section.

18. For **Public access**,
choose **Publicly accessible**.

18

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

The screenshot shows the AWS Management Console interface for Amazon RDS. The left sidebar contains navigation options: Amazon RDS, Dashboard, Databases, Query Editor, Performance insights, Snapshots, Automated backups, Reserved instances, Proxies, Subnet groups, Parameter groups, Option groups, Custom engine versions, Events, and Event subscriptions. The main content area is titled 'IAM role' and includes sections for Performance Insights, Maintenance, DB instance maintenance window, and Deletion protection. A red arrow points to the bottom of the page, and a red circle with the number 19 highlights the 'Continue' button.

19. Scroll to the bottom of the page, and choose **Continue**.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

20. In the **Scheduling of modifications** section, for **When to apply modifications**, choose **Apply immediately**.

21. Choose **Modify DB Instance**.

After about 30 seconds, the **Status** for the database changes to *Modifying*. Before continuing, wait until the status changes to *Available*.

Tip: You might need to refresh the database information. To refresh, choose the refresh icon.

20

When to apply modifications

Apply during the next scheduled maintenance window
Current maintenance window: May 21, 2022 17:39 - 18:09 UTC+8

Apply immediately
The modifications in this request and any pending modifications will be asynchronously applied as soon as possible, regardless of the maintenance window setting for this database instance.

21

Cancel Back **Modify DB instance**

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

The screenshot shows the AWS Management Console interface for Amazon RDS. At the top, there is a navigation bar with the AWS logo, 'Services', a search bar, and user information. A green notification banner at the top of the console area reads 'Successfully modified instance database-1'. Below this, the 'Databases' section is visible, featuring a toolbar with a refresh icon (circled in red), 'Modify', 'Actions', 'Restore from S3', and 'Create database' buttons. A search bar for filtering databases is also present. Below the toolbar is a table with the following data:

DB identifier	Role	Engine	Region & AZ
database-1	Instance	SQL Server Express Edition	us-east-1f

After about 30 seconds, the **Status** for the database changes to *Modifying*. Before continuing, wait until the status changes to *Available*.
Tip: You might need to refresh the database information. To refresh, choose the refresh icon.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

Task 4. Update your VPC security group

By default, the virtual private cloud (VPC) default security group does not permit inbound SQL Server traffic from external sources. In this task, you will turn on inbound SQL Server connections from your IP address.

Note: If you are using the EC2 instance, you will use the **WindowsWorkstation** IP address that you saved earlier. In this case, skip the next few steps to get your IP address.

First, get your IP address.

22. In a new browser tab or window, go to <https://whatismyipaddress.com/>.

23. Copy the **IPv4** value to a text editor to use later in this lab.

Now, modify the security group to permit inbound SQL Server connections from your computer or the WindowsWorkstation instance.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

Task 4. Update your VPC security group

24. Return to the browser tab that is open to the AWS console. Ensure that you are on the **RDS > Databases** page.

25. Choose the name of the database you created.

26. In the **Connectivity & security** section, under **VPC security groups**, choose the name of the security group.

The security group name looks similar to the following: **default (sg-a12345b6)**

27. On the **Security Groups** page, choose the **Inbound rules** tab.

28. Choose **Edit inbound rules**, and choose **Add rule**.

29. For **Type**, choose **MSSQL**.

30. For **Source**, choose **Custom**, and enter your IP address or the IP address of the WindowsWorkstation instance in the text box.

31. Add /32 at the end of the IP address. The full text should look similar to the following: **123.12.123.23/32**

32. Choose **Save rules**.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

The screenshot shows a Windows desktop environment. On the left, there is a taskbar with icons for Recycle Bin, EC2 Feedback, and EC2 Micros... The main area is dominated by a browser window titled 'What Is My IP | Whats My I...' with the URL 'https://www.whatismyip.net/'. The browser shows the website's header and a large green box containing the IP address '54.196.8.114'. Below this, a section titled 'Your Information' contains a table with the following data:

IP Address:	54.196.8.114	IPV4
Local IP:	Can't Resolve Private IP	PRIVATE IP
Hostname:	ec2-54-196-8-114.compute-1.amazonaws.com	
ISP:	Amazon.com, Inc.	

To the right of the browser window, a terminal window displays instance details:

```
Hostname: EC2AMAZ-NLON31A
Instance ID: i-09b8b1cba75427ad6
Public IPv4 Address: 54.196.8.114
Private IPv4 Address: 10.0.1.157
Instance Size: t2.micro
Availability Zone: us-east-1a
Architecture: AMD64
Total Memory: 1024 MB
Network Performance: Low to Moderate
```

Two red circles with the number '22' are overlaid on the image. One circle is positioned over the browser's address bar, and the other is over the 'IP Address' field in the 'Your Information' section.

22. In a new browser tab or window, go to <https://whatismyipaddress.com/>.

23. Copy the **IPv4** value to a text editor to use later in this lab.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

24

Amazon RDS

Dashboard

Databases

Query Editor

Performance insights

Snapshots

Automated backups

Reserved instances

Proxies

Subnet groups

Parameter groups

Option groups

Custom engine versions

Events

Event subscriptions

Successfully modified instance database-1

RDS > Databases

Databases Group resources

Filter by databases < 1 > ⚙️

<input type="checkbox"/>	DB identifier	Role	Engine	Region & AZ
<input checked="" type="checkbox"/>	database-1	Instance	SQL Server Express Edition	us-east-1f

25

24. Return to the browser tab that is open to the AWS console.

Ensure that you are on the **RDS > Databases** page.

25. Choose the name of the database you created.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

The screenshot shows the AWS Management Console interface for an Amazon RDS instance named 'database-1'. The left sidebar contains navigation options like 'Dashboard', 'Databases', 'Query Editor', etc. The main content area shows the instance details under the 'Connectivity & security' tab. A red box highlights the 'Connectivity & security' tab, and another red box highlights the 'Security' section, which lists the VPC security groups. A red circle with the number '26' is placed over the 'VPC security groups' section. The security group 'default (sg-0f4f1f84621b3ea35)' is listed as active.

26. In the **Connectivity & security** section, under **VPC security groups**, choose the name of the security group. The security group name looks similar to the following: **default (sg-a12345b6)**

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

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New EC2 Experience Learn more

Security Groups (1/1) Info

Filter security groups

search: sg-0f4f1f84621b3ea35 Clear filters

<input checked="" type="checkbox"/>	Name	Security group ID	Security group name	VPC ID	Description
<input checked="" type="checkbox"/>	-	sg-0f4f1f84621b3ea35	default	vpc-058750b8b6dd45bd6 ...	default VPC

sg-0f4f1f84621b3ea35 - default

Details **Inbound rules** Outbound rules Tags

27 You can now check network connectivity with Reachability Analyzer Run Reachability Analyzer

Details

Security group name	Security group ID	Description	VPC ID
default	sg-0f4f1f84621b3ea35	default VPC security group	vpc-058750b8b6dd45bd6

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AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

27. On the **Security Groups** page, choose the **Inbound rules** tab.

28. Choose **Edit inbound rules**, and choose **Add rule**.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

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EC2 > Security Groups > sg-0f4f1f84621b3ea35 - default > Edit inbound rules

Edit inbound rules Info

Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules Info

Security group rule ID	Type <small>Info</small>	Protocol <small>Info</small>	Port range <small>Info</small>	Source <small>Info</small>	Description - optional <small>Info</small>	
sg-046940b821793ddd3	All traffic	All	All	Custom		<input type="button" value="Delete"/>

sg-0f4f1f84621b3ea35

28. Choose **Edit inbound rules**, and choose **Add rule**.

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Module 10 Databases: Lab 10 - RDS

aws Services Search for services, features, blogs, docs, and more [Option+S] N. Virginia voclabs/user1323818=Min-Yuh_Day @ 5479-7023-7064

RDS

EC2 > Security Groups > sg-0f4f1f84621b3ea35 - default > Edit inbound rules

Edit inbound rules [Info](#)

Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules [Info](#)

Security group rule ID	Type Info	Protocol Info	Port range Info	Source Info	Description - optional Info	
sg-046940b821793ddd3	All traffic	All	All	Custom		Delete
-	MSSQL	TCP	1433	Custom		Delete

29

29. For Type, choose MSSQL.

Add rule

Cancel Preview changes Save rules

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AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

Edit inbound rules Info

Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules Info

Security group rule ID	Type Info	Protocol Info	Port range Info	Source Info	Description - optional Info
sg-046940b821793ddd3	All traffic ▼	All	All	Custom ▼ <input type="text"/>	<input type="text"/> <input type="button" value="Delete"/>
-	MSSQL ▼	TCP	1433	Custom ▼ <input type="text"/>	<input type="text"/> <input type="button" value="Delete"/>

30. For **Source**, choose **Custom**, and enter your IP address or the IP address of the WindowsWorkstation instance in the text box.

31. Add /32 at the end of the IP address. The full text should look similar to the following: **123.12.123.23/32**

32. Choose **Save rules**.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

The screenshot displays the AWS Management Console interface. At the top, the navigation bar includes the AWS logo, 'Services', a search bar, and the user's profile 'voclabs/user1323818=Min-Yuh_Day @ 5479-7023-7064'. The left-hand navigation pane shows various AWS services, with 'Instances' and 'Images' expanded. The main content area is titled 'Security Groups (1/3)' and features a green notification banner at the top: 'Inbound security group rules successfully modified on security group (sg-0f4f1f84621b3ea35 | default)'. Below the notification, there are buttons for 'Refresh', 'Actions', 'Export security groups to CSV', and 'Create security group'. A search bar for 'Filter security groups' is present. The main table lists security groups, with one entry 'Bastion-SG' (sg-0bd8f110b1349573b) visible. Below this, a section titled 'Inbound rules (2)' contains a table of rules. The second rule in this table is highlighted with a red box:

Name	Security group rule...	IP version	Type	Protocol
-	sgr-046940b821793d...	-	All traffic	All
-	sgr-09bcb0015ba8974...	IPv4	MSSQL	TCP

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

Task 5. Connect to your DB instance

First, you will need to find the Domain Name System (DNS) endpoint and port number for your DB instance.

33. Return to the **RDS > Databases** page.

34. Choose the name of the database you created.

35. On the **Connectivity & security** tab, copy the **Endpoint** value to a text editor.

The endpoint looks similar to the following: **sample-instance.abc2defghije.us-west-2.rds.amazonaws.com**

36. Notice the **Port** number.

The default port for SQL Server is 1433.

If your port number is different, copy that value to your text editor.

37. Open the Microsoft SQL Server Management Studio application.

Note: If you are using the EC2 instance, start the Microsoft SQL Server Management Studio application in your remote desktop window.

The **Connect to Server** dialog box appears.

38. For **Server type**, choose **Database Engine**.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

Task 5. Connect to your DB instance

39. For **Server name**, enter the database endpoint value that you copied.

40. At the end of the endpoint value, add a comma (,) and the port number (the default port number is **1433**).

For example, your server name should look similar to the following: **database.abc2defghije.us-west-2.rds.amazonaws.com,1433**

41. For **Authentication**, choose **SQL Server Authentication**.

42. For **Login**, enter the username for your DB instance.

This is also known as the administrator username. The default is **admin**.

43. For **Password**, enter the password that you copied for your DB instance.

This is also known as the administrator user password.

44. Choose **Connect**.

After a few moments, you are connected to your database.

If the connection does not succeed, repeat Task 4 to update the default security group.

When you add the inbound rule, for **Source**, choose **Anywhere** instead of **My IP**.

(Note: Only select **Anywhere for the purpose of this lab. This selection presents a security risk in the real world.)**

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

- aws
- Account
- Dashboard
- Courses
- Calendar
- Inbox
- History
- Help

AICv1Sem1EN-... > Modules > Module 10: Dat... > Lab 10 - RDS

AWS

02:00

▶ Start Lab

■ End Lab

i AWS Details

i Readme



Launch Term

Cloud Access

AWS CLI:

Cloud Labs

Remaining session time: 01:59:39(120 minutes)

Session started at: 2022-05-19T18:42:34-0700

Session to end at: 2022-05-19T22:39:03-0700

Accumulated lab time: 05:57:00 (357 minutes)

ips -- public:54.196.8.114, private:10.0.1.157

SSH key

AWS SSO

AWSAccountId	547970237064
WindowsWorkstation	54.196.8.114
Region	us-east-1

AWSAccountId	547970237064
WindowsWorkstation	54.196.8.114
Region	us-east-1

◀ Previous

Next ▶

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

Task 5. Connect to your DB instance

First, you will need to find the Domain Name System (DNS) endpoint and port number for your DB instance.

33. Return to the **RDS > Databases** page.

34. Choose the name of the database you created.

35. On the **Connectivity & security** tab, copy the **Endpoint** value to a text editor.

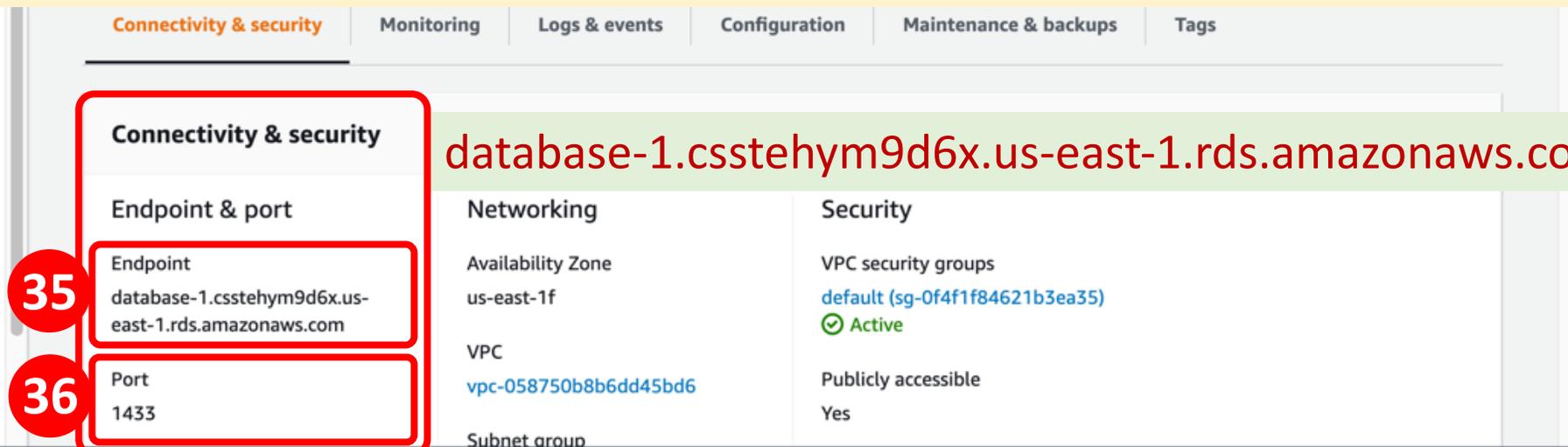
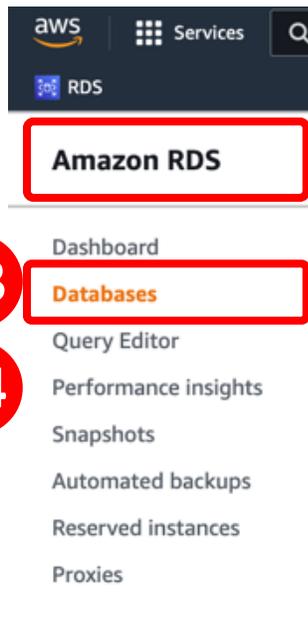
The endpoint looks similar to the following:

sample-instance.abc2defghije.us-west-2.rds.amazonaws.com

36. Notice the **Port** number.

The default port for SQL Server is 1433.

If your port number is different, copy that value to your text editor.



database-1.csstehym9d6x.us-east-1.rds.amazonaws.com

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

Recycle Bin

Recently added

- Azure Data Studio
- SQL Server Profiler 18
- Microsoft SQL Server Management...

Expand ▾

A

- Amazon Web Services ▾
- Azure Data Studio New ▾

E

- Ec2LaunchSettings

M

- 37** Microsoft SQL Server Tools 18 New

S

- Search
- Server Manager
- Settings

W

- Windows Accessories ▾

Windows Server

- Server Manager
- Windows PowerShell
- Windows PowerShell ISE
- Windows Administrativ...
- Task Manager
- Control Panel

Hostname: EC2AMAZ-NLON31A
Instance ID: i-09b8b1cba75427ad6
Public IPv4 Address: 54.196.8.114
Private IPv4 Address: 10.0.1.157
Instance Size: t2.micro
Availability Zone: us-east-1a
Architecture: AMD64
Total Memory: 1024 MB
Network Performance: Low to Moderate

37. Open the Microsoft SQL Server Management Studio application.

Note: If you are using the EC2 instance, start the Microsoft SQL Server Management Studio application in your remote desktop window. The **Connect to Server** dialog box appears.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

Connect to Server

SQL Server

38. For **Server type**, choose **Database Engine**.

38 Server type: Database Engine

39 Server name: database-1.csstehym9d6x.us-east-1.rds.amazonaws.com,1433 40

39. For **Server name**, enter the database endpoint value that you copied.
40. At the end of the endpoint value, add a comma (,) and the port number (the default port number is **1433**).

For example, your server name should look similar to the following: **database.abc2defghije.us-west-2.rds.amazonaws.com,1433**

database-1.csstehym9d6x.us-east-1.rds.amazonaws.com,1433

Connect Cancel Help Options >>

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

Connect to Server

SQL Server

Server type: Database Engine

Server name: database-1.csstehym9d6x.us-east-1.rds.amazonaws.com,

41 Authentication: SQL Server Authentication

Login:

Password:

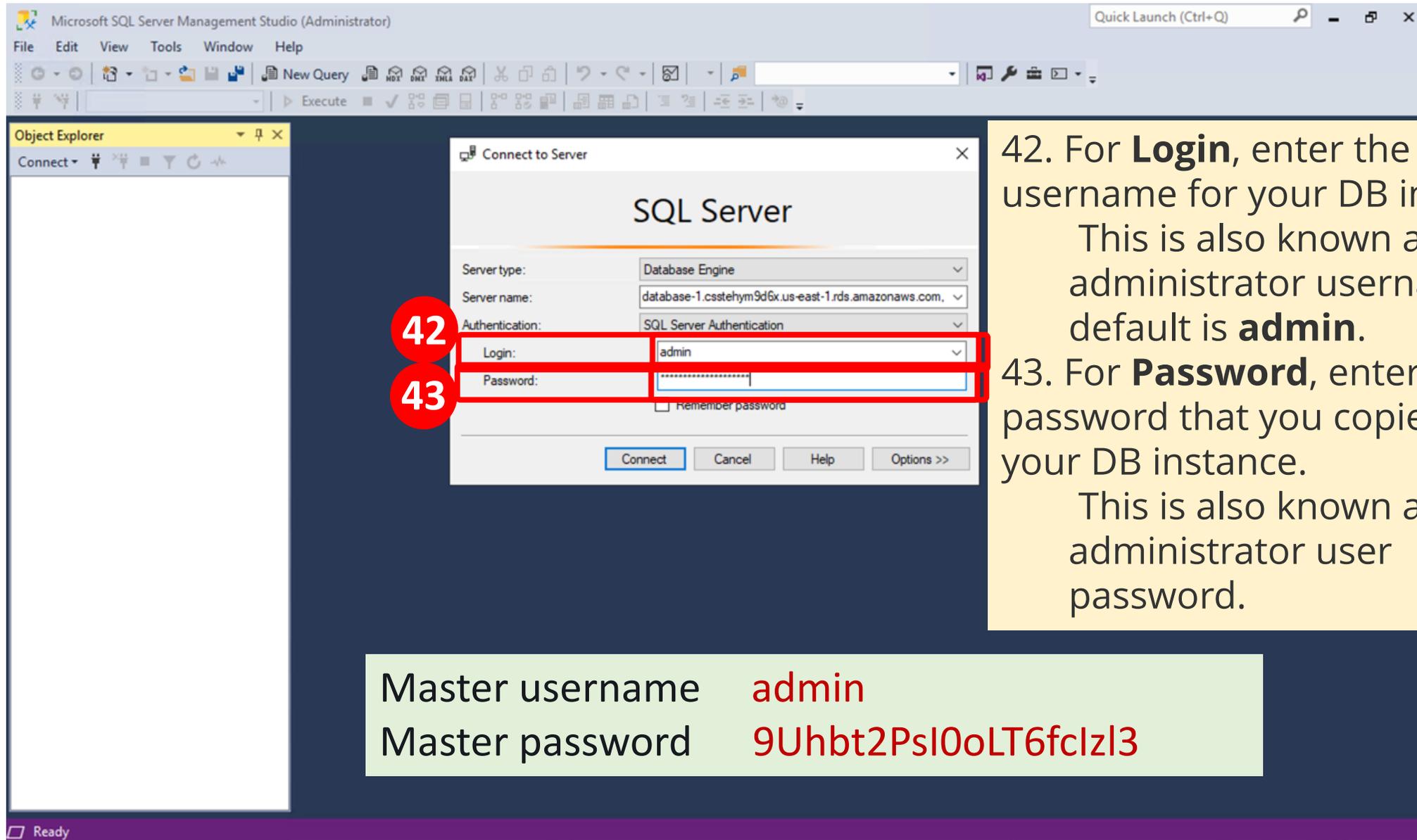
Remember password

Connect Cancel Help Options >>

41.
For **Authentication**,
choose **SQL Server
Authentication**.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS



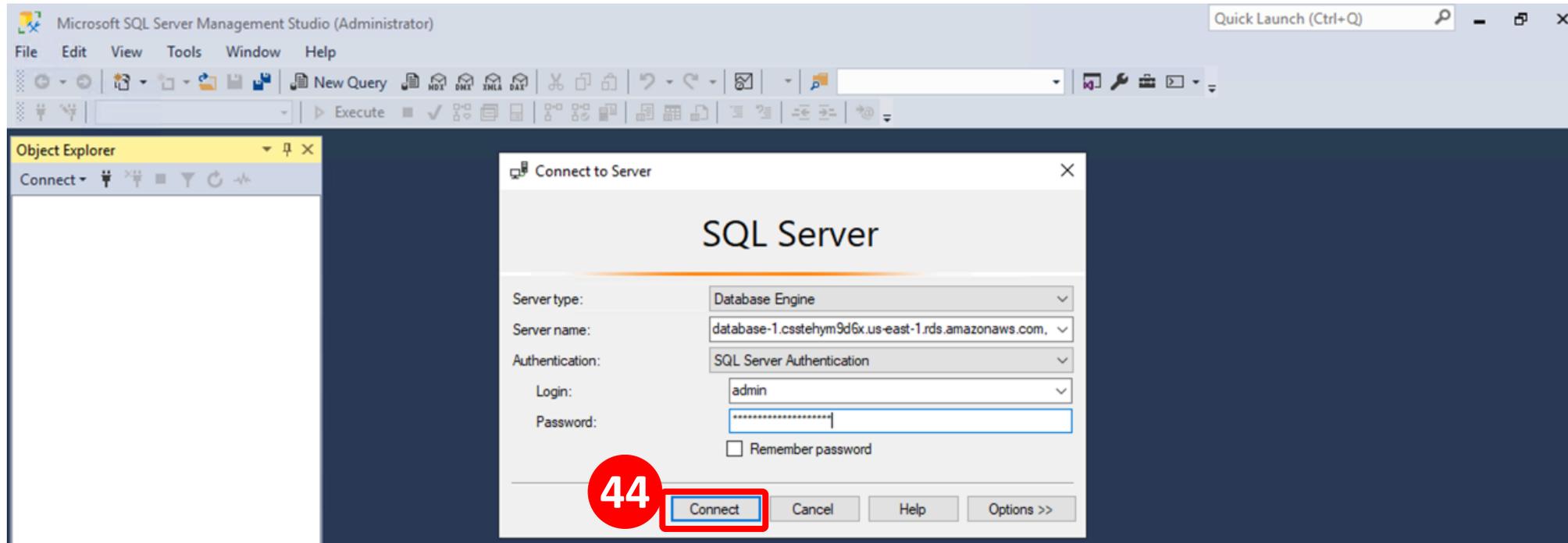
42. For **Login**, enter the username for your DB instance. This is also known as the administrator username. The default is **admin**.

43. For **Password**, enter the password that you copied for your DB instance. This is also known as the administrator user password.

Master username	admin
Master password	9Uhbt2Psi0oLT6fclzl3

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS



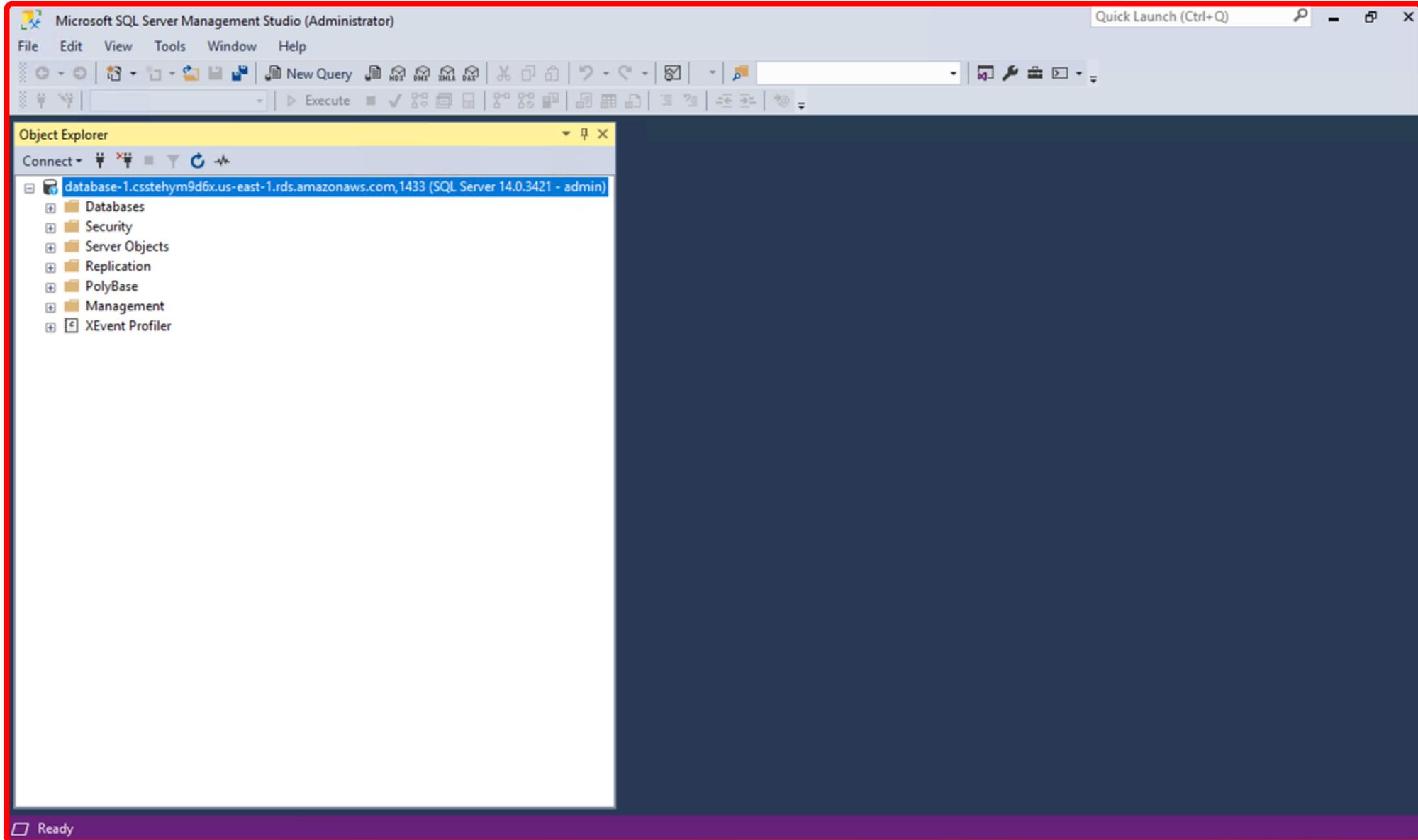
44. Choose **Connect**.

After a few moments, you are connected to your database.

If the connection does not succeed, repeat Task 4 to update the default security group. When you add the inbound rule, for **Source**, choose **Anywhere** instead of **My IP**. (**Note:** Only select **Anywhere** for the purpose of this lab. This selection presents a security risk in the real world.)

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS



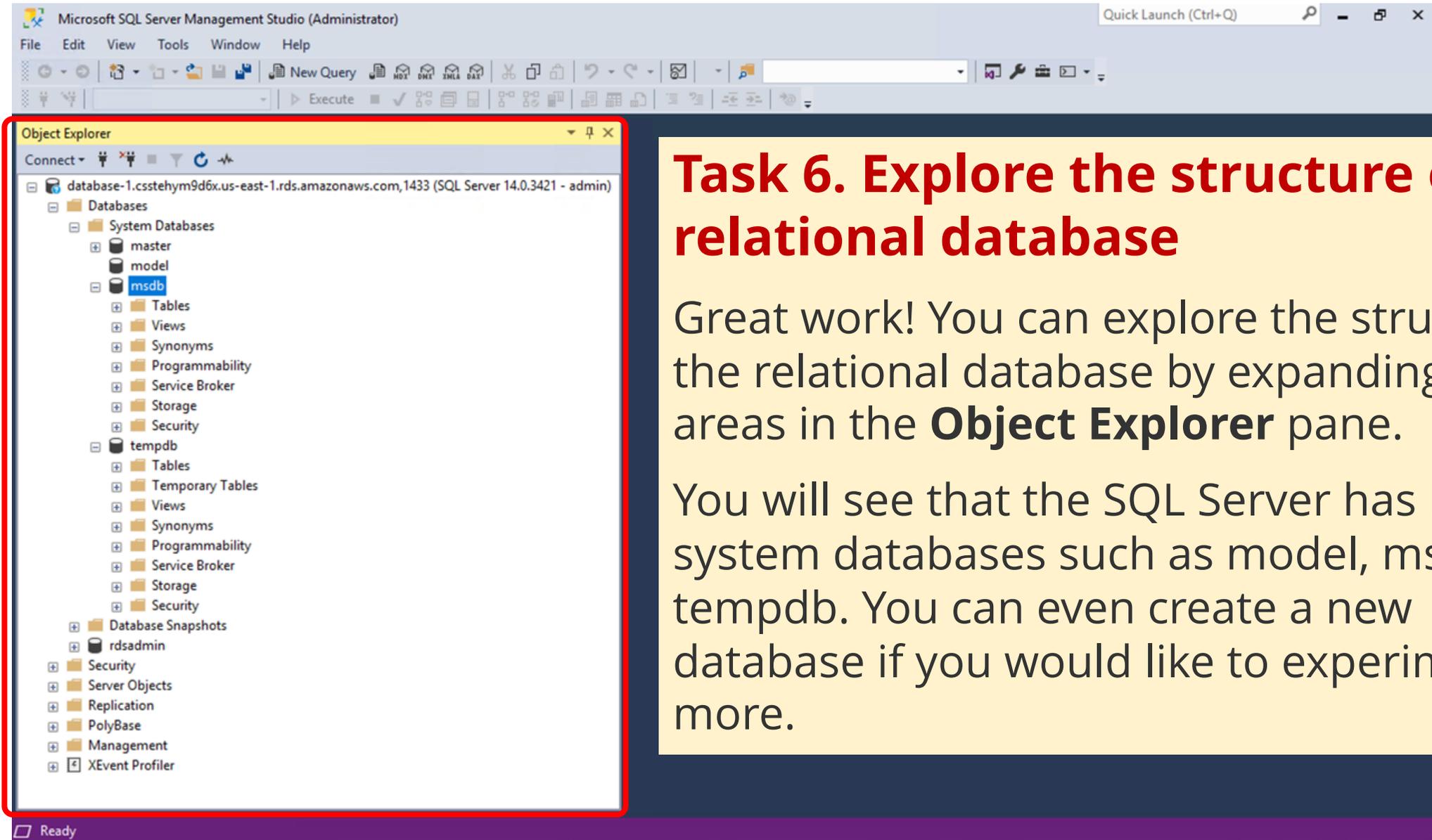
Task 6. Explore the structure of the relational database

Great work! You can explore the structure of the relational database by expanding the areas in the **Object Explorer** pane.

You will see that the SQL Server has built-in system databases such as model, msdb, and tempdb. You can even create a new database if you would like to experiment more.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS



Task 6. Explore the structure of the relational database

Great work! You can explore the structure of the relational database by expanding the areas in the **Object Explorer** pane.

You will see that the SQL Server has built-in system databases such as model, msdb, and tempdb. You can even create a new database if you would like to experiment more.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

Lab complete

Congratulations! You have completed the lab.

45. Log out of the AWS Management Console.

In the upper-right corner of the page, choose your user name. Your user name begins with **voclabs/user**.

Choose **Sign Out**.

46. Choose **End Lab** at the top of this page, and then select **Yes** to confirm that you want to end the lab.

AWS Academy Introduction to Cloud: Semester 1

Module 10 Databases: Lab 10 - RDS

The screenshot displays the AWS Management Console interface for an Amazon RDS database instance. The top navigation bar includes the AWS logo, a search bar, and the current region (N. Virginia) and user information. The left sidebar shows the navigation menu with 'Amazon RDS' selected. The main content area shows the 'database-1' instance details, including a summary table and a configuration section.

Summary

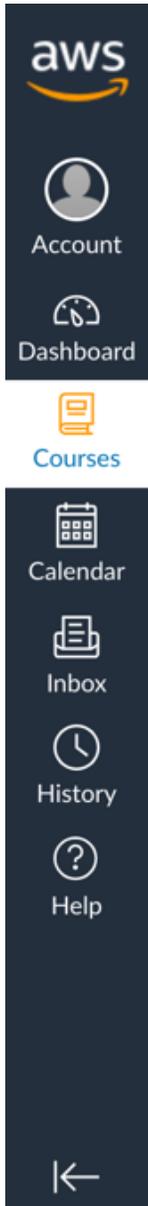
DB identifier database-1	CPU 44.50%	Status Available	Class db.t2.micro
Role Instance	Current activity 0 Connections	Engine SQL Server Express Edition	Region & AZ us-east-1f

Configuration

Configuration DB instance ID database-1 Engine version 14.00.3421.10.v1	Instance class Instance class db.t2.micro vCPU 1	Storage Encryption Not enabled Storage type General Purpose SSD (gp2)
--	---	--

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Module 10 Databases: Lab 10 - RDS



☰ AICv1Sem1EN-... > Modules > Module 10: Dat... > Lab 10 - RDS

AWS ●

00:00

▶ Start Lab

■ End Lab

ℹ AWS Details

ℹ Readme



Launch Term

You will see that the SQL Server has built-in system databases such as model, msdb, and tempdb. You can even create a new database if you would like to experiment more.

Lab complete

Congratulations! You have completed the lab.

45. Log out of the AWS Management Console.

- In the upper-right corner of the page, choose your user name. Your user name begins with **voclabs/user**.
- Choose **Sign Out**.

46. Choose **End Lab** at the top of this page, and then select **Yes** to confirm that you want to end the lab.

◀ Previous

Next ▶

Module 10 Lab:

Creating an Amazon RDS Database Instance

- Access the AWS Management Console
- Task 1. **Set up** an **RDS DB instance**
- Task 2. Download and install **SQL Server Management Studio**
- Task 3. Make your database **publicly accessible**
- Task 4. Update your **VPC security group**
- Task 5. **Connect** to your **DB instance**
- Task 6. **Explore** the structure of the **relational database**
- Lab complete

Summary

- **AWS RDS: Lab 10**

- **Creating an Amazon RDS Database Instance**

- **AWS Academy Introduction to Cloud: Semester 1**

- **Module 10: Databases**

- **Lab 10 - RDS**

- **Module 10 Lab: Creating an Amazon RDS Database Instance**

References

- <https://aws.amazon.com/certification/>
- <https://www.aws.training/>
- <https://aws.amazon.com/training/awsacademy/>
- <https://aws.amazon.com/education/awseducate/>
- **AWS Academy Introduction to Cloud: Semester 1**
 - <https://awsacademy.instructure.com/courses/18745>
- **AWS Certified Cloud Practitioner**
 - <https://aws.amazon.com/certification/certified-cloud-practitioner/>
- **AWS Certified Solutions Architect – Associate**
 - <https://aws.amazon.com/certification/certified-solutions-architect-associate/>
- **AWS Cloud Practitioner Essentials (Second Edition)**
 - <https://aws.amazon.com/training/course-descriptions/cloud-practitioner-essentials/>
- **Architecting on AWS**
 - <https://aws.amazon.com/training/course-descriptions/architect/>

Q & A

AWS Relational Database Service (RDS): Lab 10

Creating an Amazon RDS Database Instance

Time: 2022/5/20 (Friday) 18:30-20:30

Place: 電資406室, 國立臺北大學 (NTPU)

<https://meet.google.com/efw-mxft-jav>

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aws certified
Solutions Architect Associate

戴敏育 副教授

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2022-05-20

