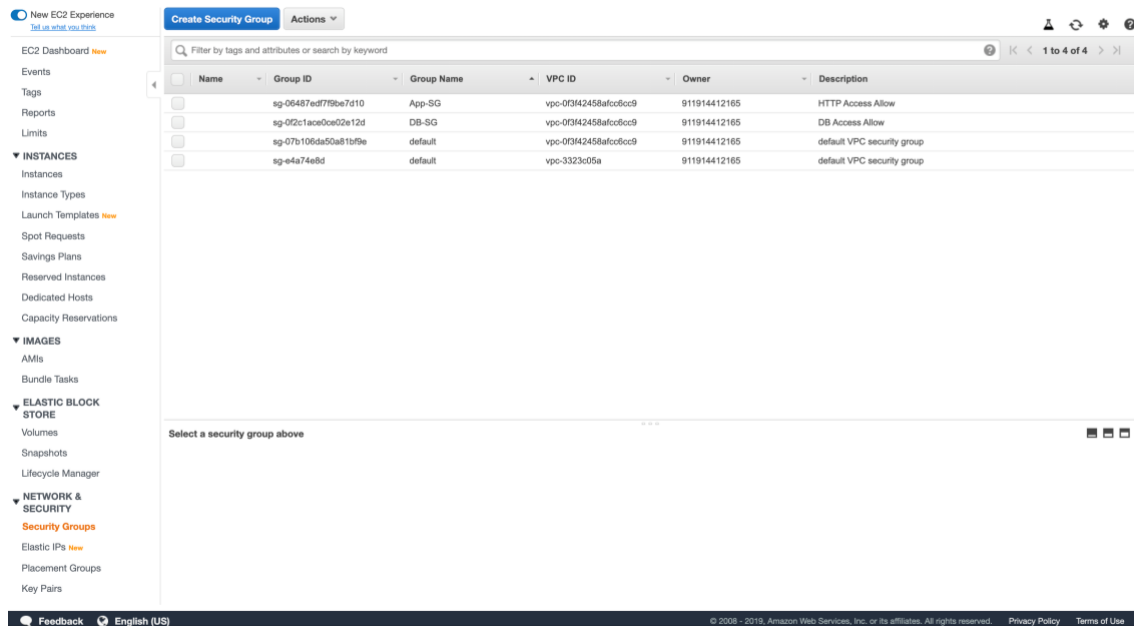


Security Group 간의 통신이 정상적으로 잘 되는지 확인해보자(RDS 는 Privacy Subnet, EC2 는 Public Subnet)

1. Security group 2 개 만들기

- App-Web-SG : HTTP(any), SSH(my PC)
- DB-SG : MySQL (App-Web-SG Group ID : sg-0c1f0a4a1ffa9aea9)



2. AWS RDS 만들기

- MySQL 로 RDS 만들어보기 (heonjin-inven : heonjin / test123123)

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.

Engine options

Engine type [Info](#)

☐ Amazon Aurora



☒ MySQL



☐ MariaDB



☐ PostgreSQL



☐ Oracle



☐ Microsoft SQL Server



Edition

☒ MySQL Community

Version [Info](#)

MySQL 5.7.26 ▼

Templates

Choose a sample template to meet your use case.



Production

Use defaults for high availability and fast, consistent performance.



Dev/Test

This instance is intended for development use outside of a production environment.



Free tier

Use RDS Free Tier to develop new applications, test existing applications, or gain hands-on experience with Amazon RDS. [Info](#)

Settings

DB instance identifier [Info](#)

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

The DB instance identifier is case-insensitive, but is stored as all lowercase (as in "mydbinstance"). Constraints: 1 to 60 alphanumeric characters or hyphens (1 to 15 for SQL Server). First character must be a letter. Can't contain two consecutive hyphens. Can't end with a hyphen.

▼ Credentials Settings

Master username [Info](#)

Type a login ID for the master user of your DB instance.

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

Master password [Info](#)

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

Confirm password [Info](#)

DB instance size

DB instance class [Info](#)

Choose a DB instance class that meets your processing power and memory requirements. The DB instance class options below are limited to those supported by the engine you selected above.

- ☐ Standard classes (includes m classes)
- ☐ Memory Optimized classes (includes r and x classes)
- ☒ Burstable classes (includes t classes)

db.t2.micro
1 vCPUs 1 GiB RAM Not EBS Optimized ▼

☐ Include previous generation classes

Storage


Storage type [Info](#)

General Purpose (SSD) ▼

Allocated storage

20 GiB

(Minimum: 20 GiB, Maximum: 16384 GiB) Higher allocated storage [may improve](#) IOPS performance.

 Provisioning less than 100 GiB of General Purpose (SSD) storage for high throughput workloads could result in higher latencies upon exhaustion of the initial General Purpose (SSD) IO credit balance. [external link for more details.](#)

Storage autoscaling [Info](#)

Provides dynamic scaling support for your database's storage based on your application's needs.

- ☒ **Enable storage autoscaling**
Enabling this feature will allow the storage to increase once the specified threshold is exceeded.

Maximum storage threshold [Info](#)

Charges will apply when your database autoscales to the specified threshold

GiB

Minimum: 21 GiB, Maximum: 16384 GiB

Availability & durability

Multi-AZ deployment [Info](#)

- ☐ **Create a standby instance (recommended for production usage)**
Creates a standby in a different Availability Zone (AZ) to provide data redundancy, eliminate I/O freezes, and minimize latency spikes during system backups.
- ☒ **Do not create a standby instance**

Connectivity



Virtual Private Cloud (VPC) [Info](#)

VPC that defines the virtual networking environment for this DB instance.

Only VPCs with a corresponding DB subnet group are listed.

After a database is created, you can't change the VPC selection.

▼ **Additional connectivity configuration**

Subnet group [Info](#)

DB subnet group that defines which subnets and IP ranges the DB instance can use in the VPC you selected.

Publicly accessible [Info](#)

- ☐ **Yes**
Amazon EC2 instances and devices outside the VPC can connect to your database. Choose one or more VPC security groups that specify which EC2 instances and devices inside the VPC can connect to the database.

Publicly accessible [Info](#)

☐ Yes

Amazon EC2 instances and devices outside the VPC can connect to your database. Choose one or more VPC security groups that specify which EC2 instances and devices inside the VPC can connect to the database.

☒ No

RDS will not assign a public IP address to the database. Only Amazon EC2 instances and devices inside the VPC can connect to your database.

VPC security group

Choose one or more RDS security groups to allow access to your database. Ensure that the security group rules allow incoming traffic from EC2 instances and devices outside your VPC. (Security groups are required for publicly accessible databases.)

☒ Choose existing

Choose existing VPC security groups

☐ Create new

Create new VPC security group

Existing VPC security groups

Choose VPC security groups

DB-SG X

Availability zone [Info](#)

No preference

Database port [Info](#)

TCP/IP port the database will use for application connections.

3306

Database authentication

Database authentication options [Info](#)

☒ Password authentication

Authenticates using database passwords.

☐ Password and IAM database authentication

Authenticates using the database password and user credentials through AWS IAM users and roles.

▼ Additional configuration

Database options, backup enabled, backtrack disabled, Enhanced Monitoring disabled, maintenance, CloudWatch Logs, delete protection disabled

Database options

Initial database name [Info](#)

If you do not specify a database name, Amazon RDS does not create a database.

DB parameter group [Info](#)

Option group [Info](#)

Backup

Creates a point in time snapshot of your database

☒ **Enable automatic backups**

Enabling backups will automatically create backups of your database during a certain time window.



Please note that automated backups are currently supported for InnoDB storage engine only. If you are using MyISAM, refer to details [here](#).

Backup retention period [Info](#)

Choose the number of days that RDS should retain automatic backups for this instance.

Backup window [Info](#)

Select the period you want automated backups of the database to be created by Amazon RDS.

☐ Select window

☒ No preference

☒ Copy tags to snapshots

Monitoring

- ☐ **Enable Enhanced monitoring**
Enabling Enhanced monitoring metrics are useful when you want to see how different processes or threads use the CPU

Log exports

Select the log types to publish to Amazon CloudWatch Logs

- ☒ **Audit log**
☒ **Error log**
☒ **General log**
☒ **Slow query log**

IAM role

The following service-linked role is used for publishing logs to CloudWatch Logs.

RDS Service Linked Role

-  Ensure that General, Slow Query, and Audit Logs are turned on. Error logs are enabled by default. [Learn more](#)

Maintenance

Auto minor version upgrade [Info](#)

- ☒ **Enable auto minor version upgrade**
Enabling auto minor version upgrade will automatically upgrade to new minor versions as they are released. The automatic upgrades occur during the maintenance window for the database.

Maintenance window [Info](#)

Select the period you want pending modifications or maintenance applied to the database by Amazon RDS.

- ☐ **Select window**
☒ **No preference**

Deletion protection

- ☐ **Enable deletion protection**
Protects the database from being deleted accidentally. While this option is enabled, you can't delete the database.

Estimated monthly costs

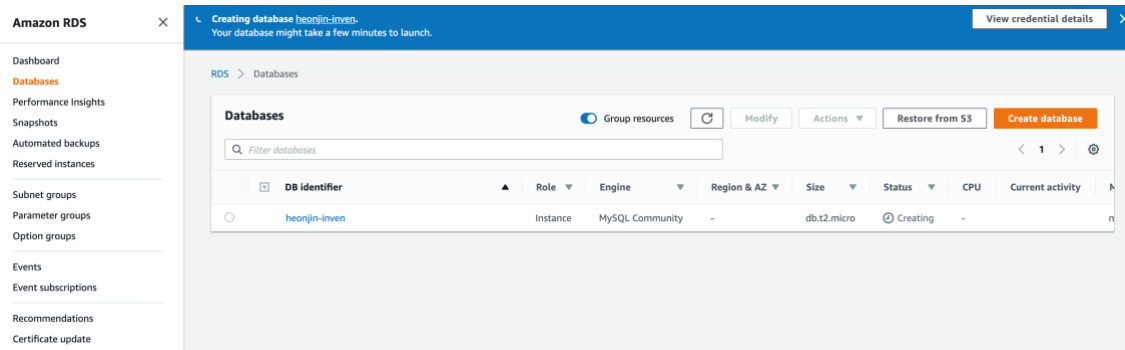
DB instance	18.98 USD
Storage	2.62 USD
Total	21.60 USD

This billing estimate is based on on-demand usage as described in [Amazon RDS Pricing](#). Estimate does not include costs for backup storage, IOs (if applicable), or data transfer.

Estimate your monthly costs for the DB Instance using the [AWS Simple Monthly Calculator](#).

Cancel

Create database



3. EC2 인스턴스 만들기

1. Choose AMI
2. Choose Instance Type
3. Configure Instance Details
4. Add Storage
5. Add Tags
6. Configure Security Group
7. Review

Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances
1
Launch into Auto Scaling Group

Purchasing option
Request Spot instances

Network
vpc-0f342458afcc6cc9 | Lab VPC
Create new VPC

Subnet
subnet-08074c74ca937c298 | Public Subnet 1 | ap-1
Create new subnet
251 IP Addresses available

Auto-assign Public IP
Use subnet setting (Enable)

Placement group
Add instance to placement group

Capacity Reservation
Open
Create new Capacity Reservation

IAM role
Inventory-App-Role
Create new IAM role

Shutdown behavior
Stop

Enable termination protection
Protect against accidental termination

Monitoring
Enable CloudWatch detailed monitoring
Additional charges apply.

Tenancy
Shared - Run a shared hardware instance
Additional charges will apply for dedicated tenancy.

Elastic Inference
Add an Elastic Inference accelerator
Additional charges apply.

T2/T3 Unlimited
Enable
Additional charges may apply

File systems
Add file system
Add to user data
Create new file system

Cancel
Previous
Review and Launch
Next: Add Storage

Network interfaces

Device	Network Interface	Subnet	Primary IP	Secondary IP addresses	IPv6 IPs
eth0	New network interface	subnet-08074c74	Auto-assign	Add IP	Add IP

Add Device

Advanced Details

User data
As text
As file
Input is already base64 encoded

```

#!/bin/bash
yum install -y httpd mysql
amazon-linux-extras install -y php7.2
wget https://us-west-2-icprod.s3.amazonaws.com/courses/ILT-TF-100-ARCHIT/v6.5.3/lab-2-webapp/scripts/inventory-app.zip
unzip inventory-app.zip -d /var/www/html/

```

Cancel
Previous
Review and Launch
Next: Add Storage

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. [Learn more](#) about Amazon EC2 security groups.

Assign a security group: ☒ Create a new security group ☐ Select an existing security group

Security group name:

Description:

Type ¹	Protocol ¹	Port Range ¹	Source ¹	Description ¹	
HTTP ²	TCP	80	Anywhere ³ 0.0.0.0/0, ::/0	e.g. SSH for Admin Desktop	✕
SSH ²	TCP	22	My IP ³ 125.141.120.103/32	e.g. SSH for Admin Desktop	✕

Add Rule


Cancel Previous **Review and Launch**

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

▼ AMI Details [Edit AMI](#)

 **Amazon Linux 2 AMI (HVM), SSD Volume Type - ami-0d59dd1f55cdda6e21**

Amazon Linux 2 comes with five years support. It provides Linux kernel 4.14 tuned for optimal performance on Amazon EC2, systemd 219, GCC 7.3, Glibc 2.26, Binutils 2.29.1, and the latest software packages through extras.
Root Device Type: ebs Virtualization type: hvm

▼ Instance Type [Edit instance type](#)

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	Variable	1	1	EBS only	-	Low to Moderate

▼ Security Groups [Edit security groups](#)

Security group name: App-Web-SG
Description: Web Access Allow

Type ¹	Protocol ¹	Port Range ¹	Source ¹	Description ¹
HTTP	TCP	80	0.0.0.0/0	
HTTP	TCP	80	::/0	
SSH	TCP	22	125.141.120.103/32	

▶ Instance Details [Edit instance details](#)

▶ Storage [Edit storage](#)

▶ Tags [Edit tags](#)

Cancel Previous **Launch**

EC2 Dashboard

Launch Instance | Connect | Actions

Filter by tags and attributes or search by keyword

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP	IPv6 IPs	Key Name
App-server	i-0268747dfb2a65f88	t2.micro	ap-northeast-2a	running	Initializing	None	ec2-13-125-121-200.ap-northeast-2.compute.amazonaws.com	13.125.121.200	-	-

Instance: i-0268747dfb2a65f88 (App-server) Public DNS: ec2-13-125-121-200.ap-northeast-2.compute.amazonaws.com

Description | Status Checks | Monitoring | Tags

Property	Value
Instance ID	i-0268747dfb2a65f88
Instance state	running
Instance type	t2.micro
Elastic IPs	-
Availability zone	ap-northeast-2a
Security groups	App-Web-SG, view inbound rules, view outbound rules
Scheduled events	No scheduled events
AMI ID	ami-0a2c-ami-hvm-2.0.20191116.0-x86_64-gp2 (ami-0d59dd5f5c0da9e21)
Platform	-
IAM role	Inventory-App-Role
Key pair name	-
Owner	911914412165
Launch time	December 21, 2019 at 1:58:55 PM UTC+9 (less than one hour)
Termination protection	False
Lifecycle	normal
Monitoring	basic
Alarm status	None
Kernel ID	-
RAM disk ID	-
Placement group	-
Partition number	-
Virtualization	hvm
Reservation	r-0ca3e5e54634eb9d96
Public DNS (IPv4)	ec2-13-125-121-200.ap-northeast-2.compute.amazonaws.com
IPv4 Public IP	13.125.121.200
IPv6 IPs	-
Private DNS	ip-10-0-0-182.ap-northeast-2.compute.internal
Private IPs	10.0.0.182
Secondary private IPs	-
VPC ID	vpc-09342458afcc6cc9 (Lab VPC)
Subnet ID	subnet-08074c74ca937c298 (Public Subnet 1)
Network interfaces	eth0
Source/dest. check	True
T2/T3 Unlimited	Disabled
EBS-optimized	False
Root device type	ebs
Root device	/dev/xrda
Block devices	/dev/xrda
Elastic Inference accelerator ID	-
Capacity Reservation	-
Capacity Reservation Settings	Open
Outpost Arm	-

4. 연결이 되어 있지 않은 DB 를 연동해서 연결이 되면 제대로 Security Group 간의 통신이 이뤄지고 있는 것임

13.125.121.200

Inventory Settings

Please configure Settings to connect to database

This page was generated by instance i-0268747dfb2a65f88 in Availability Zone ap-northeast-2a.

- 현재 연결되어 있지 않음

Amazon RDS

RDS > Databases > heonjin-inven

heonjin-inven

Modify Actions

Summary

Property	Value
DB identifier	heonjin-inven
CPU	3.33%
Info	Available
Class	db.t2.micro
Role	-
Current activity	-
Engine	MySQL Community
Region & AZ	ap-northeast-2a
Instance	-
Connections	0 Connections



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

Connectivity & security

Property	Value
Endpoint & port	Endpoint: heonjin-inven.cmhjrtvrlaf.ap-northeast-2.rds.amazonaws.com Port: 3306
Networking	Availability zone: ap-northeast-2a VPC: Lab VPC (vpc-0f3f42458afcc6cc9) Subnet group: lab-db-subnet-group Subnets: subnet-0e60ff8b10617417b, subnet-095efb039e7d8c802
Security	VPC security groups: DB-SG (sg-0f2c1ace0ce02e12d) (active) Public accessibility: No Certificate authority: rds-ca-2015 Certificate authority date: Mar 5th, 2020

- 연결을 위해 RDS 에서 Endpoint 주소를 가져온다.

13.125.121.200/settings.php

 Inventory
  Settings

Endpoint

heonjin-inven.cmhjrtvrlaf.ap-northeast-2.rds.amazonaws.com

Database

heonjin-inven



Username









heonjin

Password

test123123

Save

 Inventory
  Settings

	Store	Item	Quantity
 	Puerto Rico	Amazon Echo	12
 	Paris	Amazon Dot	3
 	Detroit	Amazon Tap	5
 	tew	amazon	12

+ Add Inventory

This page was generated by instance i-048f83c86dc89b67d in Availability Zone ap-northeast-2a.

-> DB 의 값이 알맞게 들어가있으면 다음과 같이 DB 의 내용이 보이게 된다.