

The MySQL logo is centered within a large, wavy blue shape that resembles a stylized wave or a drop. The shape has a gradient from a darker blue in the center to a lighter blue at the edges. Three spheres are positioned around the shape: a large blue sphere on the left, a small green sphere on the right, and a medium blue sphere on the right. The text "MySQL" is written in a white, bold, sans-serif font with a slight shadow effect.

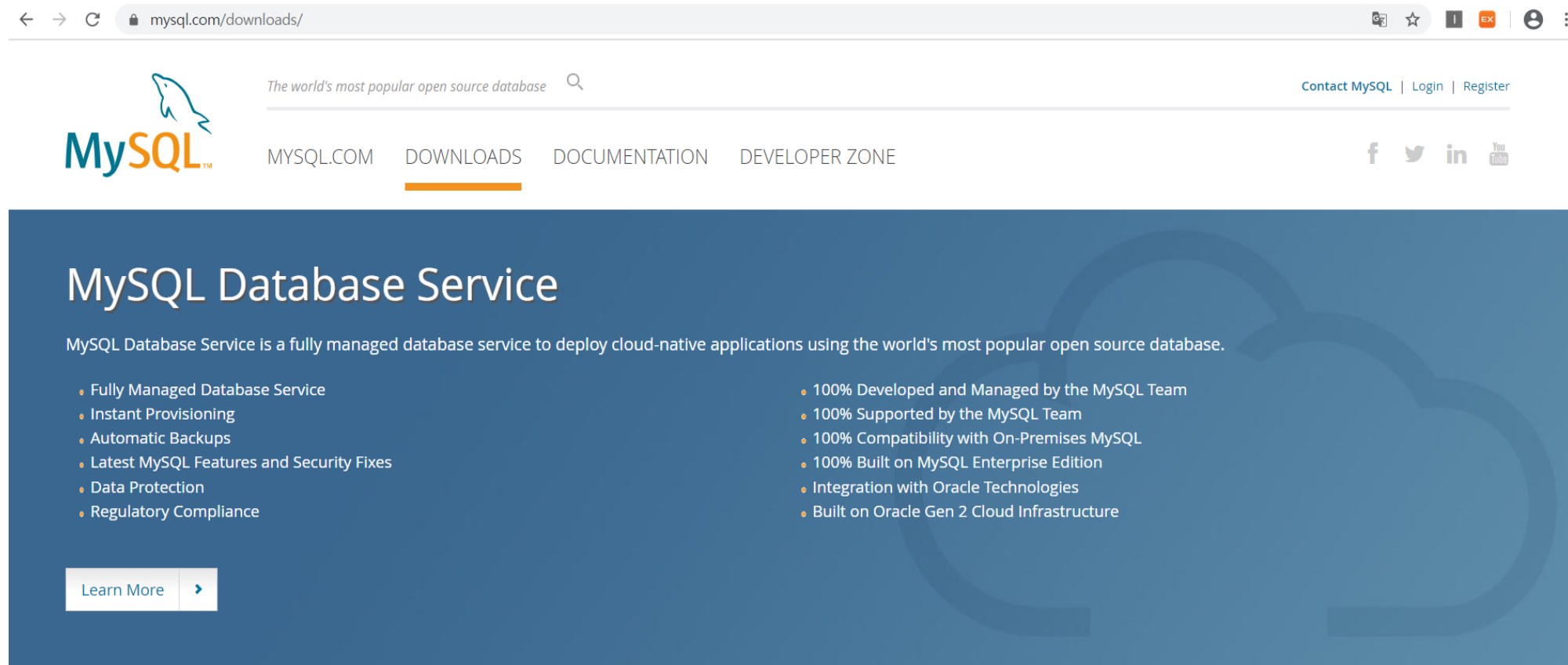
MySQL

안화수

MySQL Download



❖ MySQL 다운로드

<https://www.mysql.com/downloads/>



The screenshot shows the MySQL Downloads page. The browser address bar displays 'mysql.com/downloads/'. The page header includes the MySQL logo, the tagline 'The world's most popular open source database', and links for 'Contact MySQL', 'Login', and 'Register'. A navigation menu contains 'MYSQL.COM', 'DOWNLOADS' (which is underlined), 'DOCUMENTATION', and 'DEVELOPER ZONE'. Social media icons for Facebook, Twitter, LinkedIn, and YouTube are also present. The main content area features the heading 'MySQL Database Service' and a description: 'MySQL Database Service is a fully managed database service to deploy cloud-native applications using the world's most popular open source database.' Below this, there are two columns of bullet points listing service features. A 'Learn More' button with a right-pointing arrow is located at the bottom left of the content area.

← → ↻ mysql.com/downloads/

 The world's most popular open source database 

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MYSQL.COM DOWNLOADS DOCUMENTATION DEVELOPER ZONE

f t in YouTube

MySQL Database Service

MySQL Database Service is a fully managed database service to deploy cloud-native applications using the world's most popular open source database.

- Fully Managed Database Service
- Instant Provisioning
- Automatic Backups
- Latest MySQL Features and Security Fixes
- Data Protection
- Regulatory Compliance

- 100% Developed and Managed by the MySQL Team
- 100% Supported by the MySQL Team
- 100% Compatibility with On-Premises MySQL
- 100% Built on MySQL Enterprise Edition
- Integration with Oracle Technologies
- Built on Oracle Gen 2 Cloud Infrastructure

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❖ MySQL 다운로드

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MySQL
Database Service

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MySQL Cluster is a real-time open source transactional database designed for fast, always-on access to data under high throughput conditions.

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[MySQL Community \(GPL\) Downloads »](#)

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❖ MySQL 다운로드

← → ↻ dev.mysql.com/downloads/



⬇ MySQL Community Downloads

- MySQL Yum Repository
- MySQL APT Repository
- MySQL SUSE Repository
- MySQL Community Server
- MySQL Cluster
- MySQL Router
- MySQL Shell
- MySQL Workbench
- **MySQL Installer for Windows**
- MySQL for Excel
- MySQL for Visual Studio
- MySQL Notifier
- C API (libmysqlclient)
- Connector/C++
- Connector/J
- Connector/NET
- Connector/Node.js
- Connector/ODBC
- Connector/Python
- MySQL Native Driver for PHP
- MySQL Benchmark Tool
- Time zone description tables
- Download Archives

MySQL Download

❖ MySQL 다운로드

← → ↺ 🔒 dev.mysql.com/downloads/installer/

📌 MySQL Community Downloads

◀ MySQL Installer

General Availability (GA) Releases

Archives



MySQL Installer 8.0.20

Select Operating System:

Microsoft Windows ▼

[Looking for previous GA versions?](#)

Windows (x86, 32-bit), MSI Installer

8.0.20

24.4M

[Download](#)

(mysql-installer-web-community-8.0.20.0.msi)

MD5: 26ae47807122bf0052b99ebf893b0dac | [Signature](#)

Windows (x86, 32-bit), MSI Installer

8.0.20

420.6M

[Download](#)

(mysql-installer-community-8.0.20.0.msi)

MD5: a69c77fe737654d8931079b4623b9e1a | [Signature](#)



We suggest that you use the [MD5 checksums](#) and [GnuPG signatures](#) to verify the integrity of the packages you download.

MySQL 설치

MySQL Installer

MySQL® Installer Adding Community

Choosing a Setup Type

Installation

Installation Complete

Choosing a Setup Type

Please select the Setup Type that suits your use case.

☒ **Developer Default**

Installs all products needed for MySQL development purposes.

☐ **Server only**

Installs only the MySQL Server product.

☐ **Client only**

Installs only the MySQL Client products, without a server.

☐ **Full**

Installs all included MySQL products and features.

☐ **Custom**

Manually select the products that should be installed on the system.

Setup Type Description

Installs the MySQL Server and the tools required for MySQL application development. This is useful if you intend to develop applications for an existing server.

This Setup Type includes:

* MySQL Server

* MySQL Shell

The new MySQL client application to manage MySQL Servers and InnoDB cluster instances.

* MySQL Router

High availability router daemon for InnoDB cluster setups to be installed on application

Next >

Cancel

MySQL 설치

MySQL Installer

MySQL[®] Installer
Adding Community

License Agreement

Choosing a Setup Type

Check Requirements

Installation

Product Configuration

Installation Complete

Check Requirements

The following products have failing requirements. MySQL Installer will attempt to resolve some of this automatically. Requirements marked as manual cannot be resolved automatically. Click on those items to try and resolve them manually.

	For Product	Requirement	Status
<input type="radio"/>	MySQL Server 8.0.15	Microsoft Visual C++ 2015 Redistributable Package (x64)	
<input type="radio"/>	MySQL Workbench 8.0.15	Microsoft Visual C++ 2015 Redistributable Package (x64)	
<input type="radio"/>	MySQL for Visual Studio 1.2.8	Visual Studio version 2012, 2013, 2015	Manual
<input type="radio"/>	MySQL Shell 8.0.15	Microsoft Visual C++ 2015 Redistributable Package (x64)	
<input type="radio"/>	MySQL Router 8.0.15	Microsoft Visual C++ 2015 Redistributable Package (x64)	
<input type="radio"/>	Connector/ODBC 8.0.15	Microsoft Visual C++ 2015 Redistributable Package (x64)	
<input type="radio"/>	Connector/C++ 8.0.15	Microsoft Visual C++ 2015 Redistributable Package (x64)	

Requirement Details

MySQL Installer is trying to automatically resolve this requirement.
There is nothing you need to do.

Requirement: Microsoft Visual C++ 2015 Redistributable Package (x64) is not installed

Status:

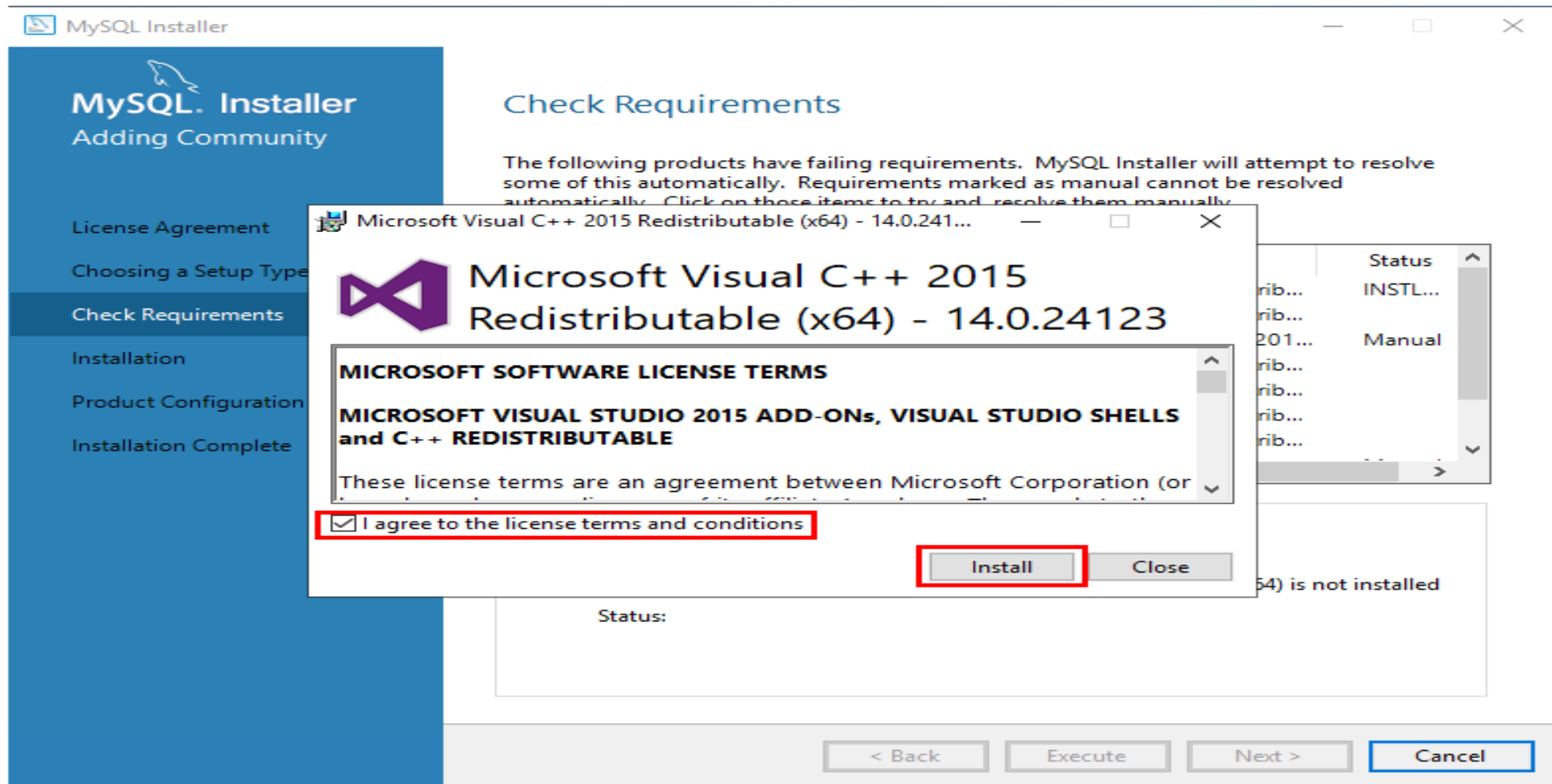
< Back

Execute

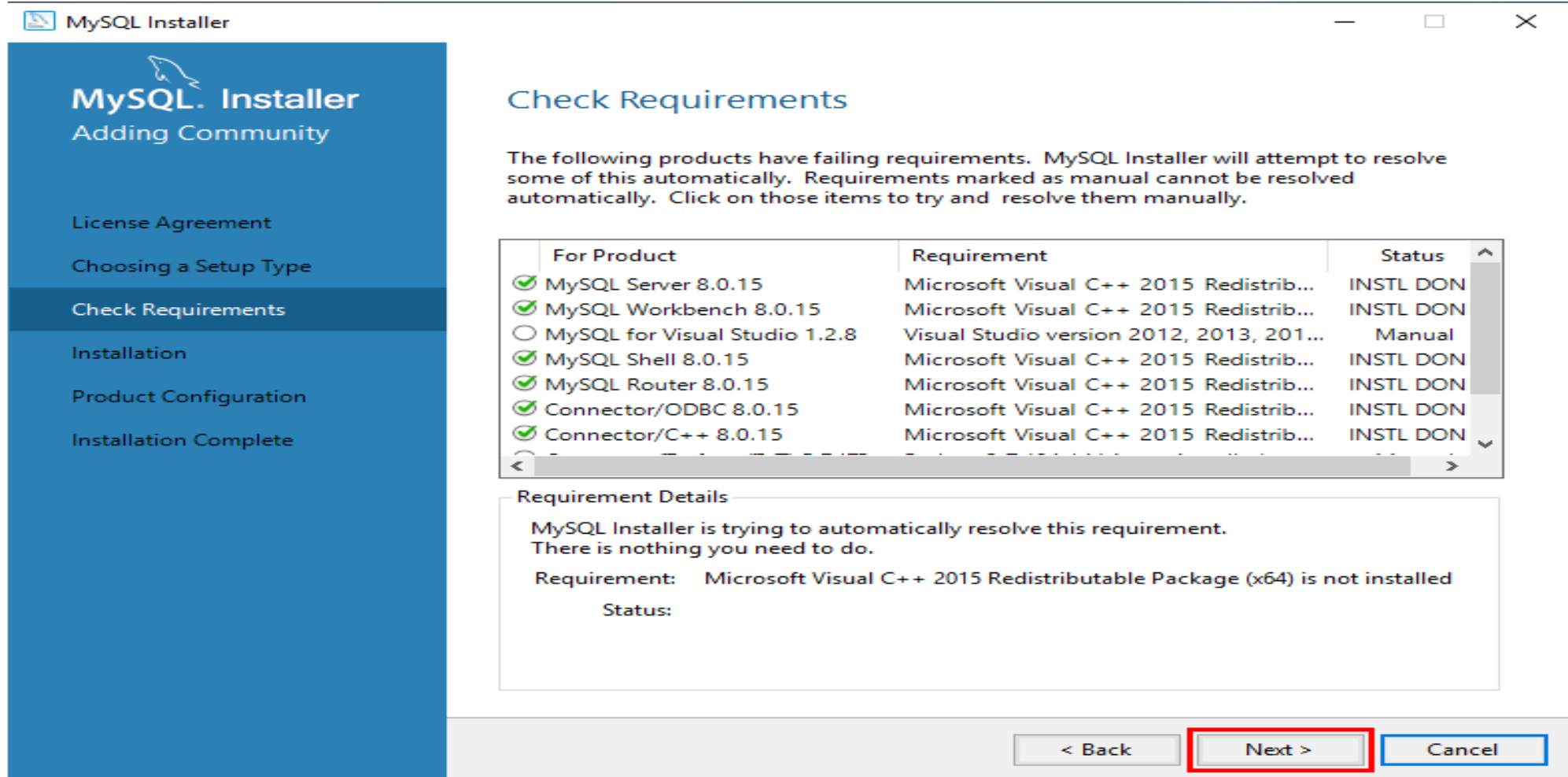
Next >

Cancel

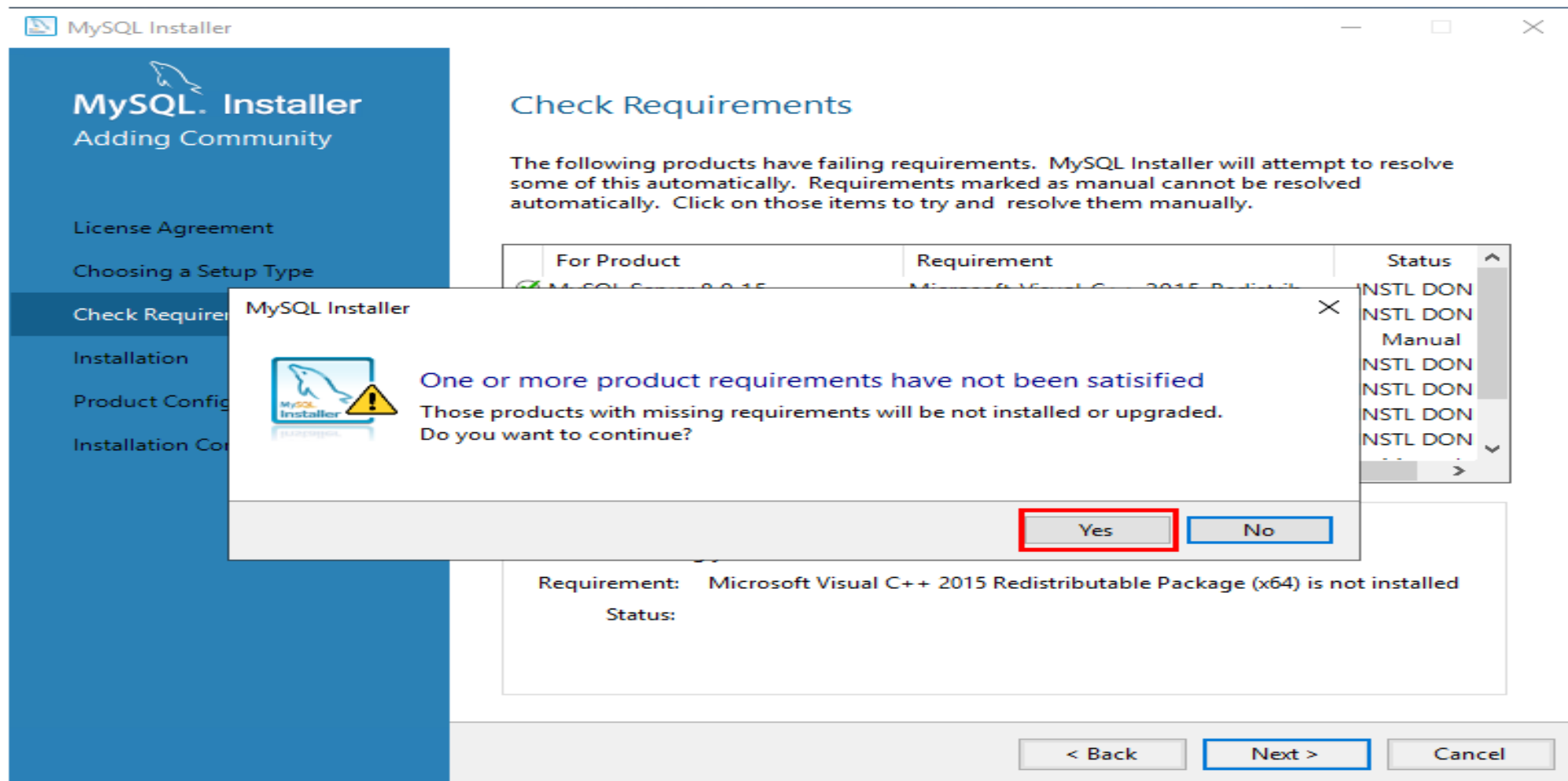
MySQL 설치



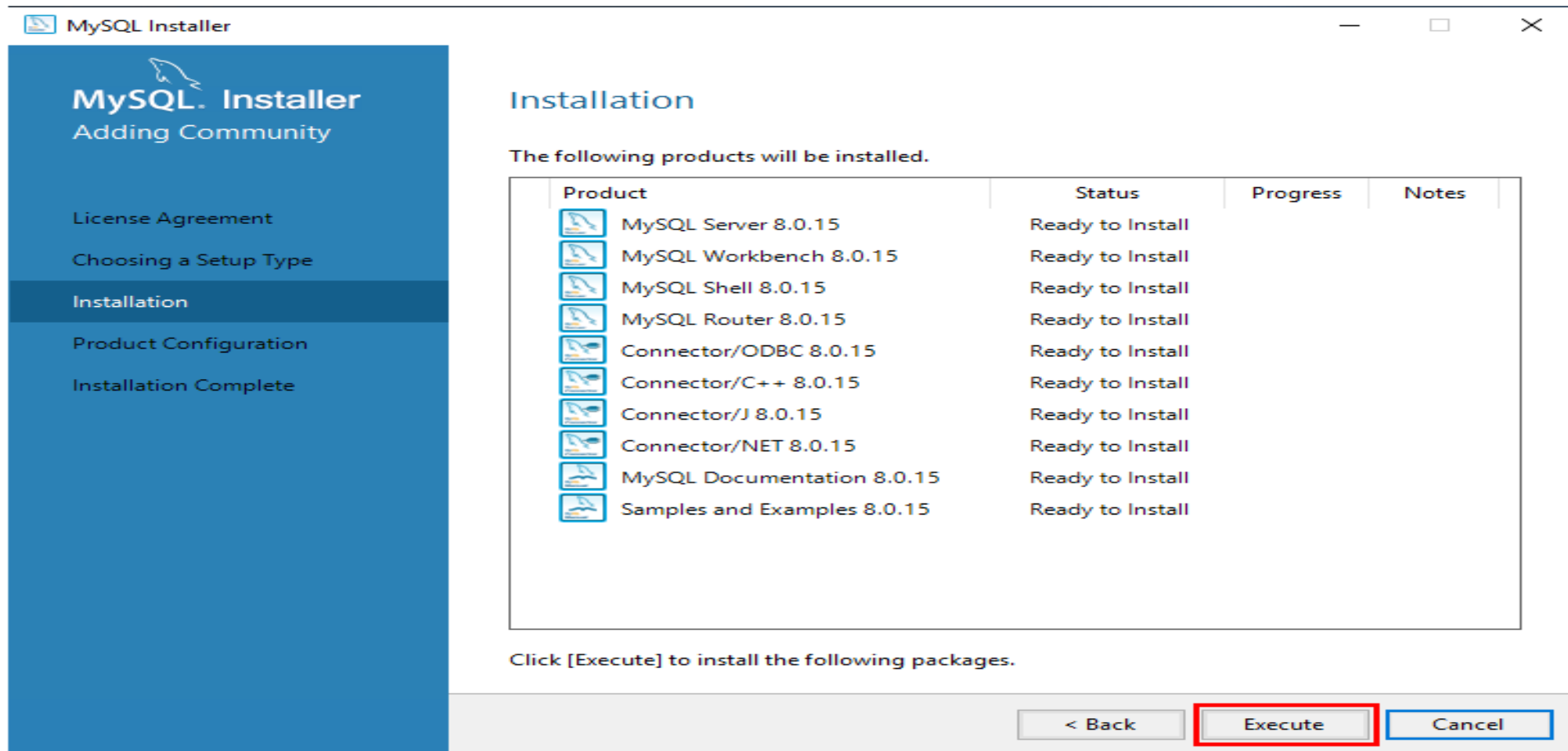
MySQL 설치



MySQL 설치



MySQL 설치



MySQL 설치

MySQL Installer

MySQL[®] Installer
MySQL Server 8.0.15

Group Replication

Type and Networking

Authentication Method

Accounts and Roles

Windows Service

Apply Configuration

Group Replication

☒ Standalone MySQL Server / Classic MySQL Replication

Choose this option if you want to run the MySQL Server either standalone with the opportunity to later configure classic MySQL Replication.

Using this option you can manually configure your replication setup and provide your own high availability solution if required.

☐ Sandbox InnoDB Cluster Setup (for testing only)

The [InnoDB cluster](#) technology provides an out-of-the-box HA (high availability) solution for MySQL using Group Replication technology.

This option allows you to test an InnoDB cluster setup on your local computer using several MySQL Server sandbox instances. Read more about this [here](#).

To setup a real-world production InnoDB cluster please choose the standard MySQL Server configuration instead on all desired hosts and use the MySQL Shell afterwards to create or expand the InnoDB cluster setup.



Next >

Cancel

MySQL 설치

MySQL Installer

MySQL Server 8.0.15

Group Replication

Type and Networking

Authentication Method

Accounts and Roles

Windows Service

Apply Configuration

Type and Networking

Server Configuration Type

Choose the correct server configuration type for this MySQL Server installation. This setting will define how much system resources are assigned to the MySQL Server instance.

Config Type: Development Computer

Connectivity

Use the following controls to select how you would like to connect to this server.

☒ TCP/IP

Port: 3306

X Protocol Port: 33060

☒ Open Windows Firewall ports for network access

☐ Named Pipe

Pipe Name: MYSQL

☐ Shared Memory

Memory Name: MYSQL

Advanced Configuration

Select the check box below to get additional configuration pages where you can set advanced and logging options for this server instance.

☐ Show Advanced and Logging Options

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Next >

Cancel

MySQL 설치

MySQL Installer


MySQL. Installer
MySQL Server 8.0.15

Group Replication

Type and Networking

Authentication Method

Accounts and Roles

Windows Service

Apply Configuration

Authentication Method

☒ **Use Strong Password Encryption for Authentication (RECOMMENDED)**

MySQL 8 supports a new authentication based on improved stronger SHA256-based password methods. It is recommended that all new MySQL Server installations use this method going forward.



Attention: This new authentication plugin on the server side requires new versions of connectors and clients which add support for this new 8.0 default authentication (caching_sha2_password authentication).

Currently MySQL 8.0 Connectors and community drivers which use libmysqlclient 8.0 support this new method. If clients and applications cannot be updated to support this new authentication method, the MySQL 8.0 Server can be configured to use the legacy MySQL Authentication Method below.

☐ **Use Legacy Authentication Method (Retain MySQL 5.x Compatibility)**

Using the old MySQL 5.x legacy authentication method should only be considered in the following cases:

- If applications cannot be updated to use MySQL 8 enabled Connectors and drivers.
- For cases where re-compilation of an existing application is not feasible.
- An updated, language specific connector or driver is not yet available.

Security Guidance: When possible, we highly recommend taking needed steps towards upgrading your applications, libraries, and database servers to the new stronger authentication. This new method will significantly improve your security.

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Cancel

MySQL 설치

MySQL Installer

MySQL. Installer
MySQL Server 8.0.15

Group Replication

Type and Networking

Authentication Method

Accounts and Roles

Windows Service

Apply Configuration

Accounts and Roles

Root Account Password

Enter the password for the root account. Please remember to store this password in a secure place.

MySQL Root Password:

••••

Repeat Password:

••••

Password strength: **Weak**

MySQL User Accounts

Create MySQL user accounts for your users and applications. Assign a role to the user that consists of a set of privileges.

MySQL User Name	Host	User Role

Add User

Edit User

Delete

< Back

Next >

Cancel

MySQL 설치

MySQL Installer

MySQL Server 8.0.15

Group Replication

Type and Networking

Authentication Method

Accounts and Roles

Windows Service

Apply Configuration

Windows Service

☒ Configure MySQL Server as a Windows Service

Windows Service Details

Please specify a Windows Service name to be used for this MySQL Server instance. A unique name is required for each instance.

Windows Service Name:

☒ Start the MySQL Server at System Startup

Run Windows Service as ...

The MySQL Server needs to run under a given user account. Based on the security requirements of your system you need to pick one of the options below.

☒ Standard System Account
Recommended for most scenarios.

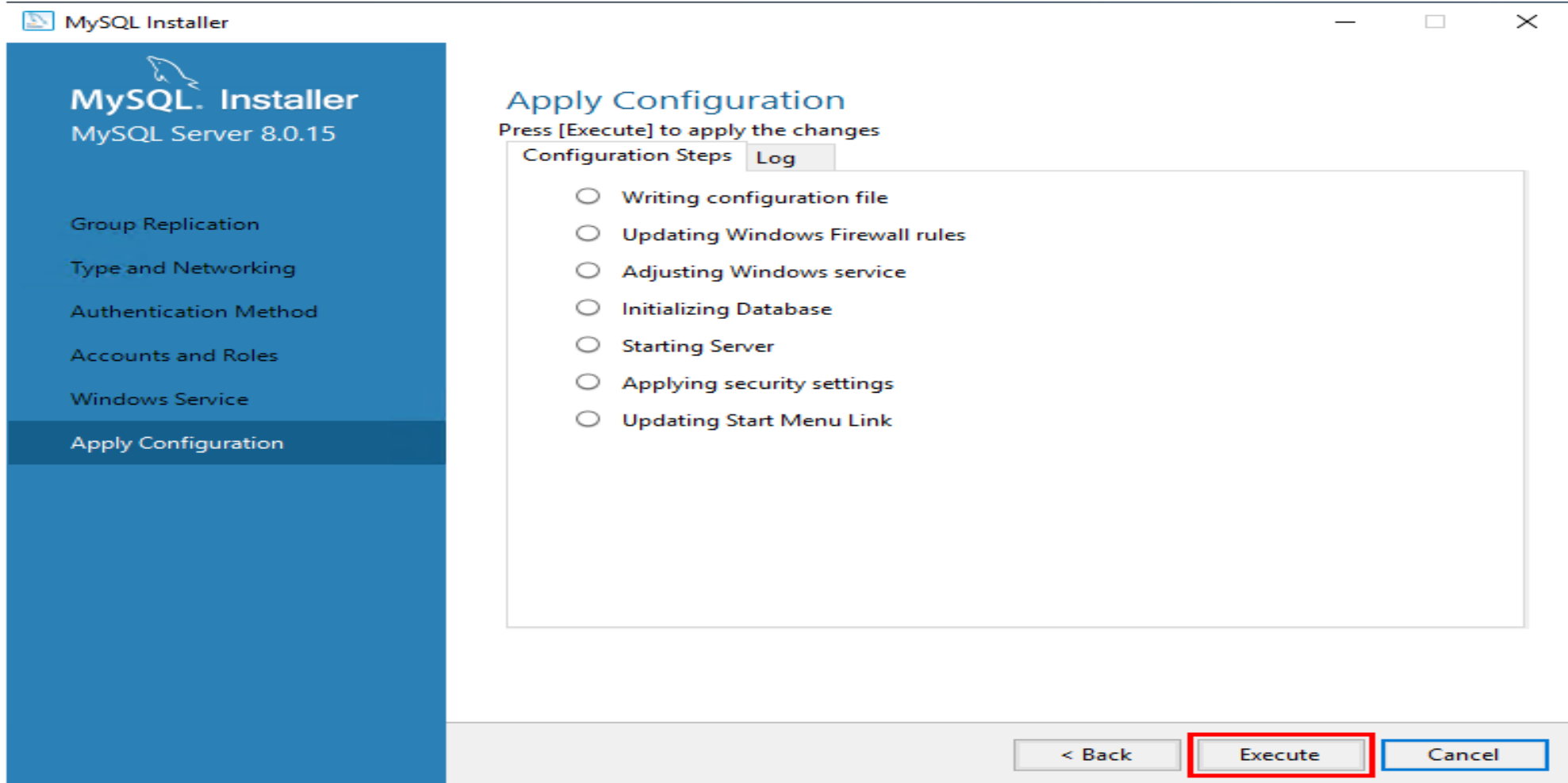
☐ Custom User
An existing user account can be selected for advanced scenarios.

< Back

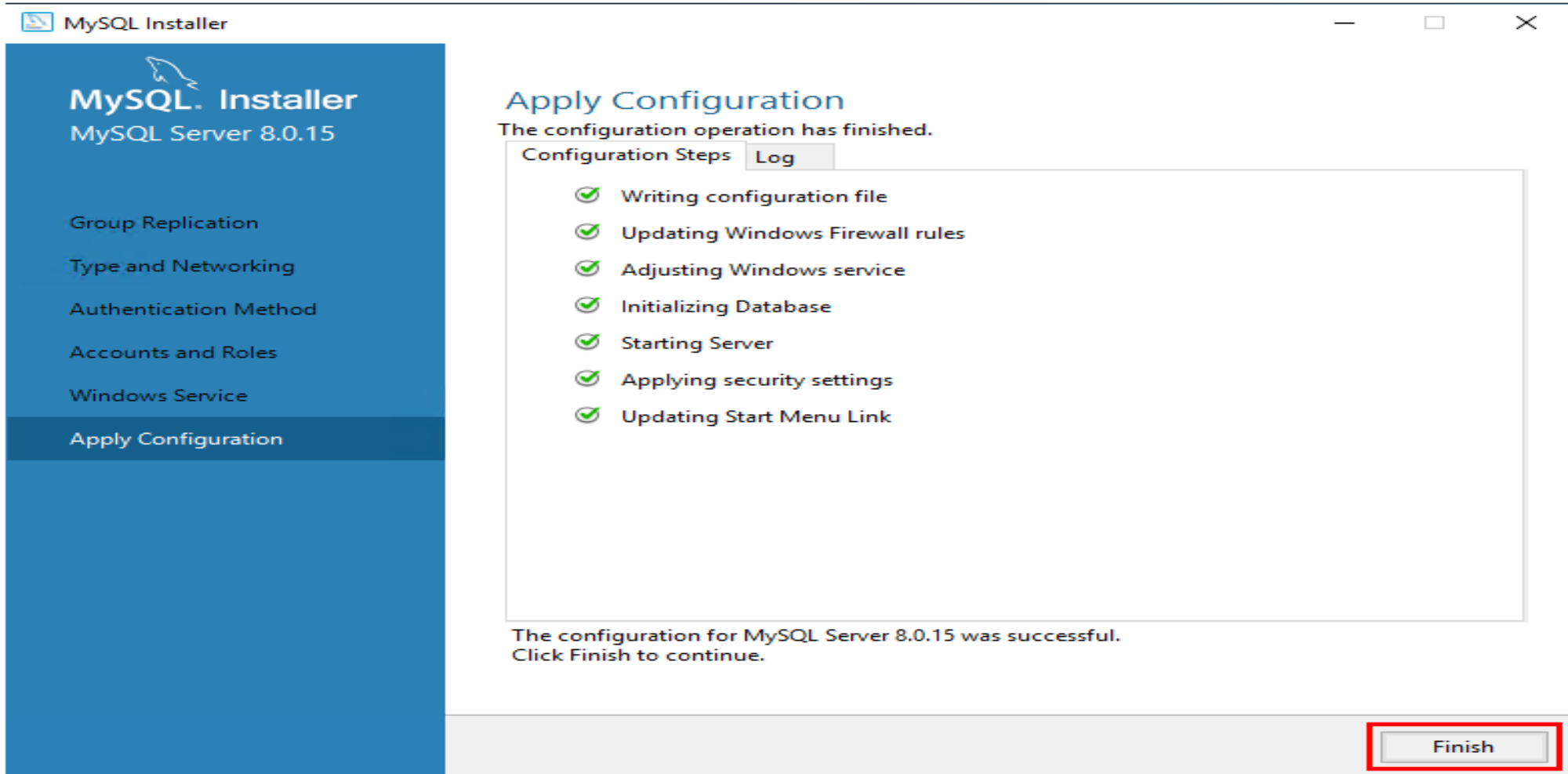
Next >

Cancel

MySQL 설치



MySQL 설치



MySQL 설치

MySQL Installer

MySQL. Installer
Samples and Examples

Connect To Server

Apply Configuration

Connect To Server

Here are the compatible MySQL Svrer instances installed in this computer.
Please select the ones where the sample schemas and data will be created.

☐ Show MySQL Server instances maybe running in read-only mode

	Server	Port	Arch...	Type	Status
<input checked="" type="checkbox"/>	MySQL Server 8.0.15	3306	X64	Stand-alone Server	Connection succeeded.

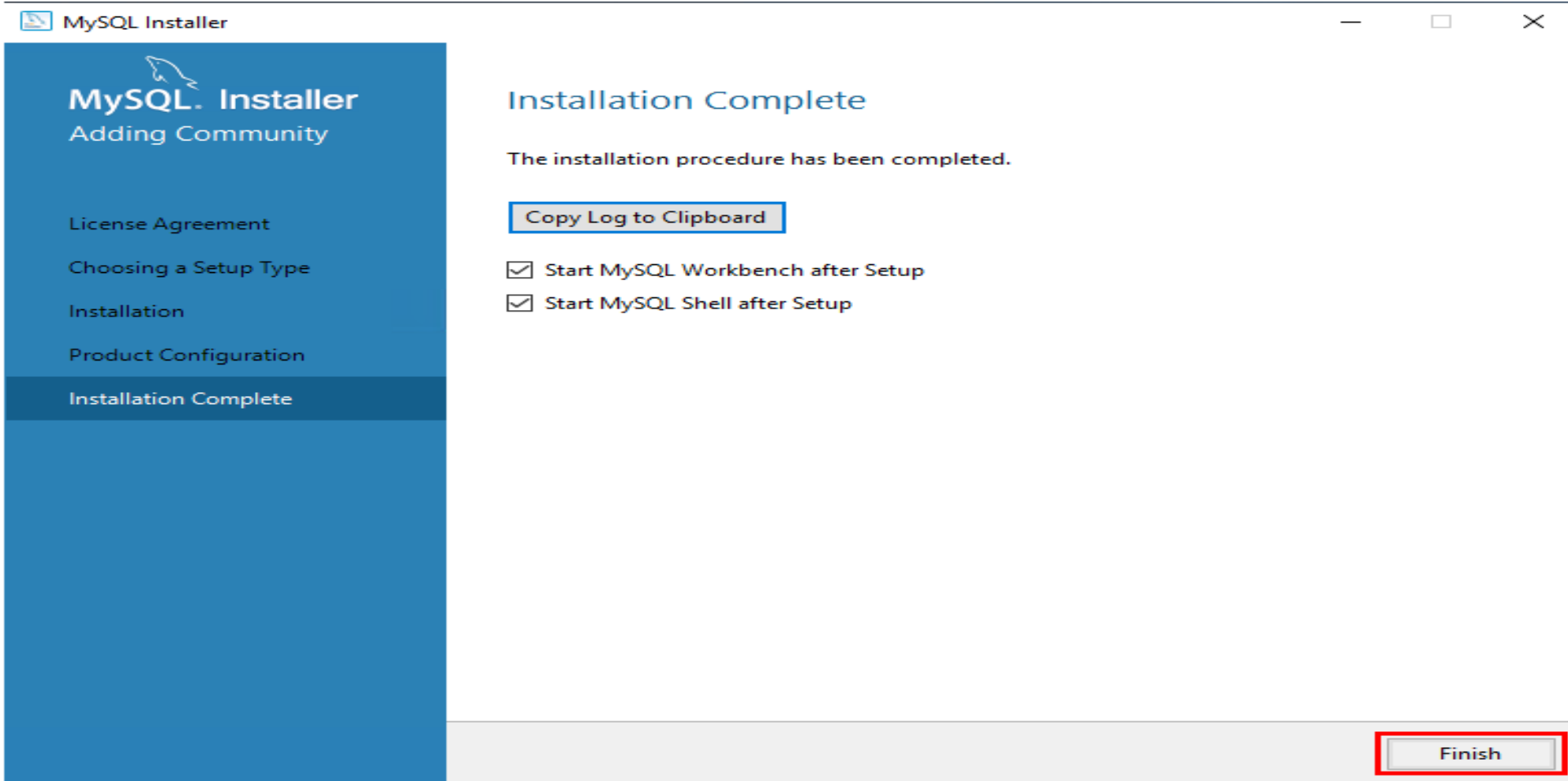
Now give us the credentials we should use (needs to have root privileges).
Click "Check" to make sure they work.

User name: Credentials provided in Server configuration

Password:

☒ All connections succeeded.

MySQL 설치



MySQL Server 구동

컴퓨터 관리

파일(F) 동작(A) 보기(V) 도움말(H)

컴퓨터 관리(로컬)

- 시스템 도구
 - 작업 스케줄러
 - 이벤트 뷰어
 - 공유 폴더
 - 성능
 - 장치 관리자
- 저장소
 - 디스크 관리
- 서비스 및 응용 프로그램
 - 서비스
 - WMI 컨트롤

서비스

설명이 필요한 항목을 선택하십시오.

이름	설명	상태	시작 유형	다음 사용자로 로그인
Microsoft Account Sign-in Assistant	사용...	실행 중	수동(트리...	Local System
Microsoft Defender Antivirus Network Inspe...	알려...	실행 중	수동	Local Service
Microsoft Defender Antivirus Service	말웨...	실행 중	자동	Local System
Microsoft Edge Elevation Service (MicrosoftEd...	Keep...		수동	Local System
Microsoft iSCSI Initiator Service	이 컴...		수동	Local System
Microsoft Passport	사용...		수동(트리...	Local System
Microsoft Passport Container	ID 공...		수동(트리...	Local Service
Microsoft SharePoint Workspace Audit Service			수동	Local Service
Microsoft Software Shadow Copy Provider	볼륨 ...		수동	Local System
Microsoft Storage Spaces SMP	Micr...		수동	Network Service
Microsoft Store 설치 서비스	Micr...	실행 중	수동	Local System
Microsoft Update Health Service	Main...		사용 안 함	Local System
Microsoft Windows SMS 라우터 서비스	적절...		수동(트리...	Local Service
Mozilla Maintenance Service	Mozil...		수동	Local System
MySQL80		실행 중	자동	Network Service
Naver Whale Elevation Service (NaverWhaleEI...			수동	Local System
NDriveSVC			수동	Local System
Net.Tcp Port Sharing Service	net.tc...		사용 안 함	Local Service
Netlogon	사용...		수동	Local System
Network Connected Devices Auto-Setup	네트...		수동(트리...	Local Service
Network Connection Broker	Wind...	실행 중	수동(트리...	Local System
Network Connections	네트...		수동	Local System
Network Connectivity Assistant	UI 구...		수동(트리...	Local System
Network List Service	컴퓨...	실행 중	수동	Local Service
Network Location Awareness	네트...	실행 중	자동	Network Service
Network Setup Service	네트...	실행 중	수동(트리...	Local System
Network Store Interface Service	이 서...	실행 중	자동	Local Service
nProtect Online Security(PFS)	nProt...	실행 중	자동	Local System

확장 표준

MySQL Server 접속

❖ path 설정

MySQL 설치 경로 까지 path 설정

C:\Program Files\MySQL\MySQL Server 8.0\bin

내PC – 오른마우스(속성) – 고급시스템 설정 – 고급Tab – 환경변수

환경 변수

giduc에 대한 사용자 변수(U)

변수	값
CLSID	{488E611F-083B-454D-29BE-911D2CB6EC5C}
DOCKER_TOOLBO...	C:\Program Files\Docker Toolbox
IntelliJ IDEA Comm...	C:\Program Files\JetBrains\IntelliJ IDEA Co...
OneDrive	C:\Users\giduc\OneDrive
OneDriveConsumer	C:\Users\giduc\OneDrive

새로 만들기(N)... 편집(E)... 삭제(D)

시스템 변수(S)

변수	값
OS	Windows_NT
Path	C:\ProgramData\Anaconda3;C:\ProgramDa...
PATHEXT	.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;...
PROCESSOR_ARCH...	AMD64
PROCESSOR_IDENT...	Intel64 Family 6 Model 142 Stepping 11, Gen...

새로 만들기(W)... 편집(I)... 삭제(L)

확인 취소

환경 변수 편집

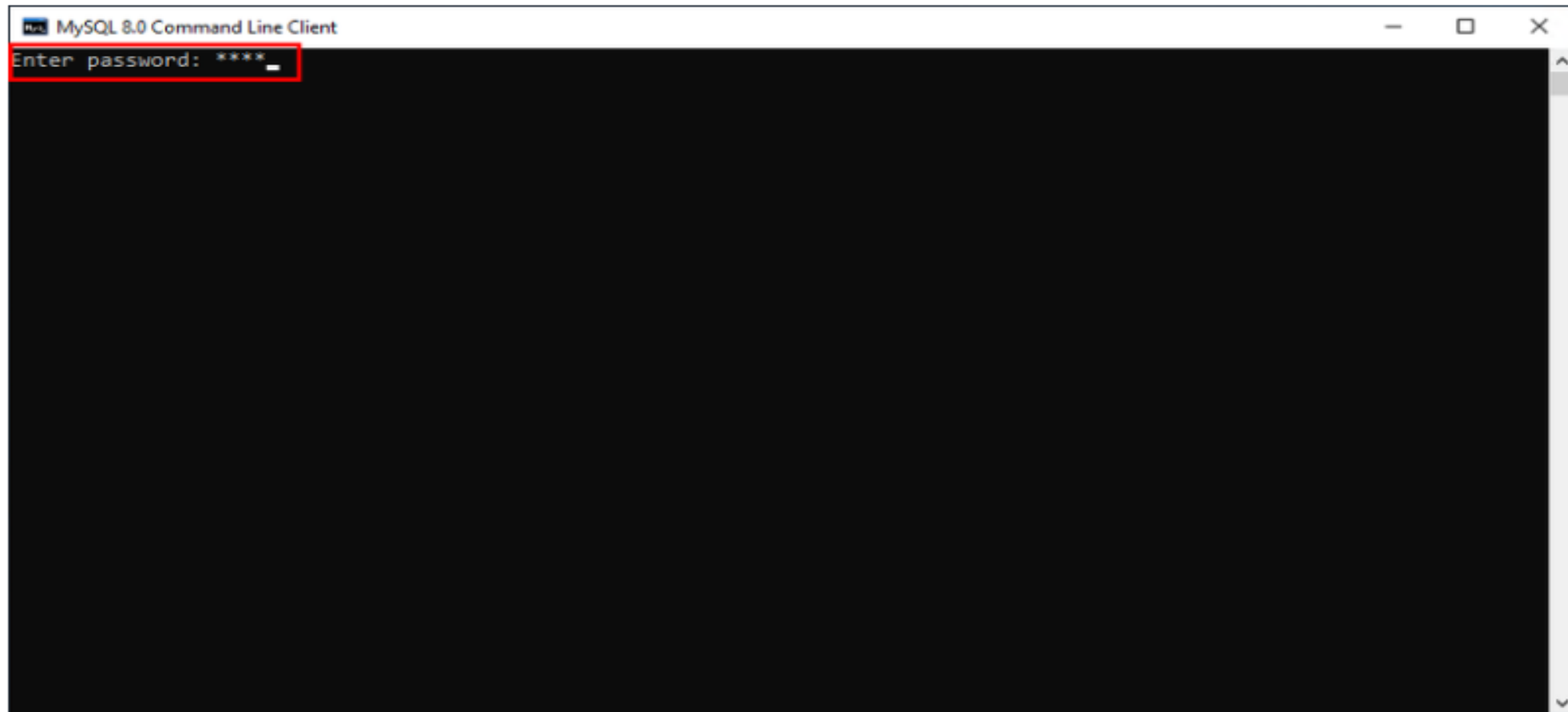
C:\Oracle\app\Oracle\product\11.2.0\server\bin
C:\Rtools\bin
C:\Program Files (x86)\Intel\Intel(R) Management Engine Compo...
C:\Program Files\Intel\Intel(R) Management Engine Components...
%SystemRoot%\system32
%SystemRoot%
%SystemRoot%\System32\Wbem
%SYSTEMROOT%\System32\WindowsPowerShell\v1.0\
%SYSTEMROOT%\System32\OpenSSH\
C:\Program Files (x86)\Intel\Intel(R) Management Engine Compo...
C:\Program Files\Intel\Intel(R) Management Engine Components...
C:\Program Files\Git\cmd
C:\APM_Setup\Server\Apache\bin
C:\APM_Setup\Server\MySQL5\bin
C:\APM_Setup\Server\PHP5
%JAVA_HOME%\bin
C:\Program Files\Docker\Docker\resources\bin
C:\ProgramData\DockerDesktop\version-bin
C:\ProgramData\chocolatey\bin
C:\Program Files\nodejs\
C:\Program Files\MySQL\MySQL Server 8.0\bin

새로 만들기(N) 편집(E) 찾아보기(B)... 삭제(D) 위로 이동(U) 아래로 이동(O) 텍스트 편집(T)...

확인 취소

MySQL Server 접속

- ❖ MySQL 8.0 Command Line Client 프로그램 실행후 root 계정의 비번 입력후 접속



MySQL Server 접속

- ❖ MySQL 8버전 부터는 MySQL 8.0 Command Line Client 프로그램으로만 접속할 수 있다.

c:\W> mysql -uroot -p1234 mysql
명령어 -u계정명 -p비밀번호 접속할DB명

```
mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sakila |
| sys |
| world |
+-----+
6 rows in set (0.00 sec)
```


MySQL Server 접속

❖ Table 목록 확인

```
mysql> show tables;
```

Tables_in_mysql
columns_priv
db
engine_cost
event
func
general_log
gtid_executed
help_category
help_keyword
help_relation
help_topic
innodb_index_stats
innodb_table_stats
ndb_binlog_index
plugin
proc
procs_priv
proxies_priv
server_cost
servers
slave_master_info
slave_relay_log_info
slave_worker_info
slow_log
tables_priv
time_zone
time_zone_leap_second
time_zone_name
time_zone_transition
time_zone_transition_type
user

```
31 rows in set (0.00 sec)
```

MySQL 계정 등록

❖ 일반 계정 등록

DB명: jsptest

user : jspid

password : jsppass

1. root 계정으로 접속

```
c:\W> mysql -uroot -p1234 mysql
```

2. 새로운 데이터베이스 생성(jsptest)

방법1. console 상태

```
c:\W> mysqladmin -u root -p create jsptest
```

방법2. 데이터베이스에 접속된 상태

```
mysql> create database jsptest;
```

MySQL 계정 등록

3. 계정 생성 및 권한 부여

- MySQL 5.7 까지

```
mysql> grant all privileges on jsptest.* to jspid@'%' identified by 'jsppass' with grant option;  
mysql> flush privileges;
```

- MySQL 8 에서는 계정 생성과 DB권한 부여를 각각 수행해야 한다.

```
mysql> create user jspid@'%' identified by 'jsppass' ;  
mysql> grant all privileges on jsptest.* to jspid@'%' with grant option ;  
mysql> flush privileges ;
```

4. 종료

```
mysql> quit;
```

MySQL 계정 등록

5. 생성된 데이터베이스에 접속

```
c:\W> mysql -ujspid -pjsppass jsptest
```

6. 테이블 생성

```
mysql> create table member(  
    id varchar(20),  
    name varchar(20),  
    email varchar(20),  
    address varchar(100));
```

MySQL 자료형

1. 숫자형

int

auto_increment : 자동으로 번호를 1씩 증가시켜 주는 역할

2. 문자형

char

varchar

text

3. 날짜, 시간형

date

time

datetime

timestamp

sysdate(), now() : 시스템의 날짜, 시간 정보를 구해주는 함수

MySQL 예제

❖ 테이블 생성

```
create table boardtest(  
    no int auto_increment primary key,  
    writer varchar(20),  
    subject varchar(100),  
    content varchar(1000),  
    register date );
```

❖ 데이터 입력

```
insert into boardtest( writer, subject, content, register )  
    values( '홍길동' , '게시판 연습' , '게시판 내용입니다.' , sysdate() );
```

no 컬럼은 1부터 1씩 증가된 값이 자동으로 입력됨

MySQL 예제

- ❖ 데이터 검색

```
select * from boardtests ;
```

- ❖ 데이터 정렬

order by 컬럼명 정렬형식
오름차순(asc) or 내림차순(desc)

```
select * from boardtest order by no desc;
```

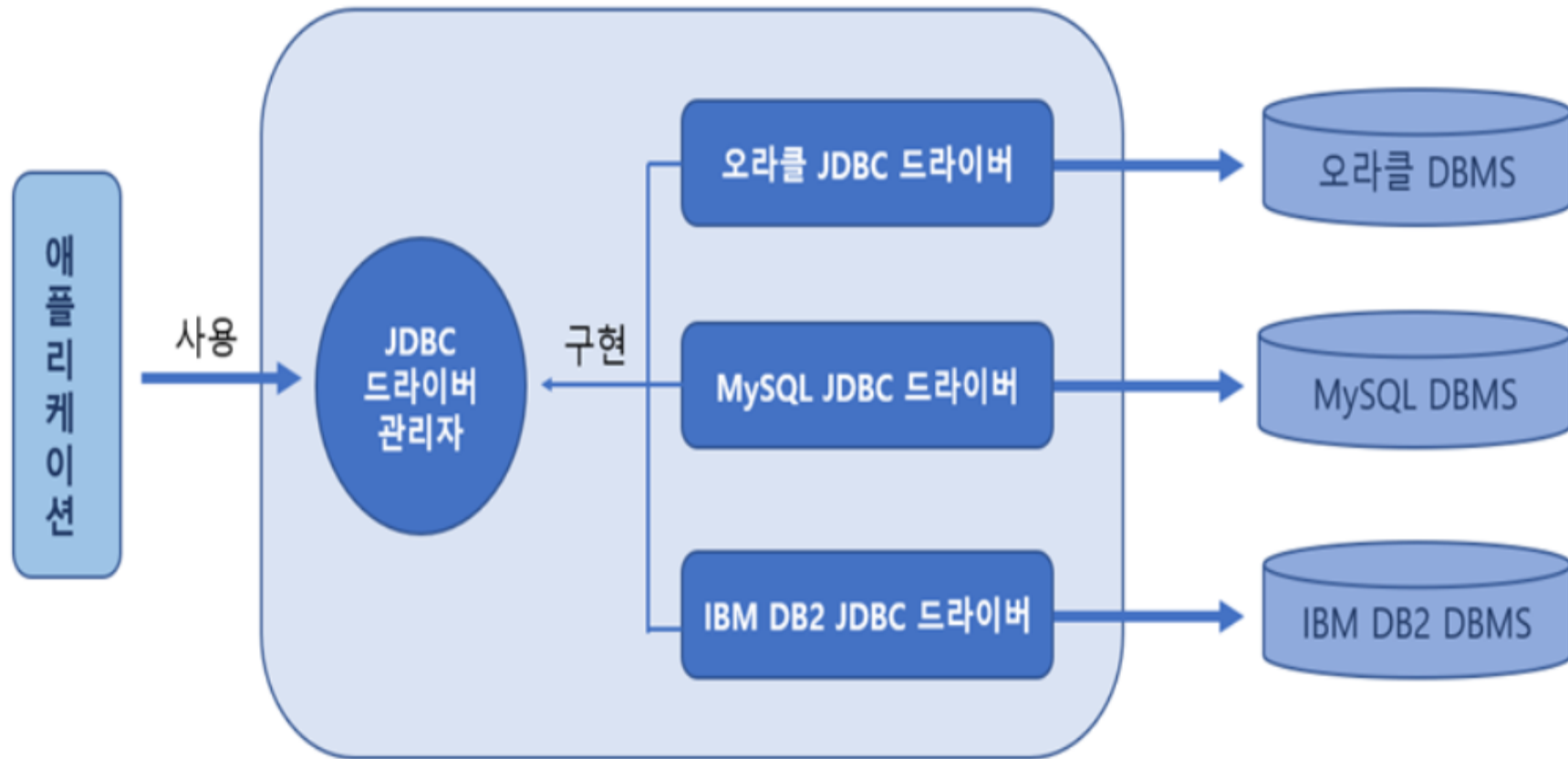
- ❖ 최근글 5개 검색

limit 추출할데이터의 인덱스번호 , 추출할 데이터 갯수

```
select * from boardtest order by no desc limit 0, 5 ;
```

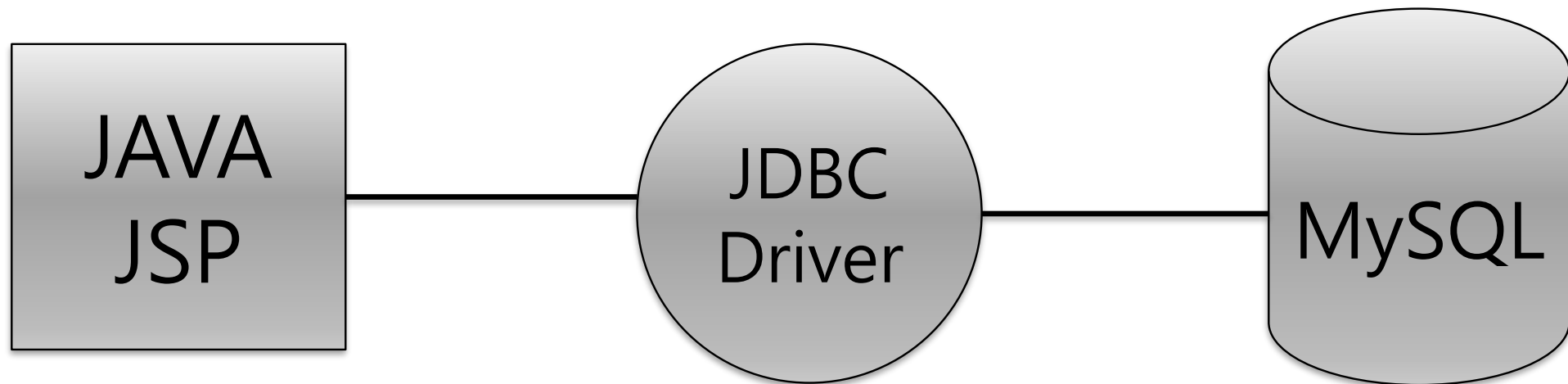
JDBC

❖ JDBC(Java DataBase Connectivity)



JDBC

❖ JDBC Driver



JDBC

❖ JDBC(Java Database Connectivity)

- JDBC는 자바 애플리케이션에서 표준화된 방법으로 다양한 데이터베이스에 접속할 수 있도록 설계된 인터페이스
- JDBC 스펙에 따라 데이터베이스 개발 회사는 자사 제품에 접속할 수 있는 JDBC 드라이버를 제공

JDBC Driver

❖ JDBC Driver download

<https://dev.mysql.com/downloads/connector/j/>

MySQL Community Downloads

← Connector/J

General Availability (GA) Releases Archives ⓘ

Connector/J 5.1.49

Select Operating System:
Platform Independent ▼


Looking for the latest GA version?

Recommended Windows Download:

MySQL Installer for Windows

All MySQL Products. For All Windows Platforms. In One Package.

Starting with MySQL 5.6 the MySQL Installer package replaces the standalone MSI packages.



Windows (x86, 32 & 64-bit), MySQL Installer MSI [Go to Download Page >](#)

Platform Independent (Architecture Independent), Compressed TAR Archive (mysql-connector-java-5.1.49.tar.gz)	5.1.49	3.2M	Download
MD5: e7bc11a55398bad0ea8548163deabaa8 Signature			
Platform Independent (Architecture Independent), ZIP Archive (mysql-connector-java-5.1.49.zip)	5.1.49	3.5M	Download
MD5: 5ecd588e13f14de07faa5c67f5caf3f1 Signature			

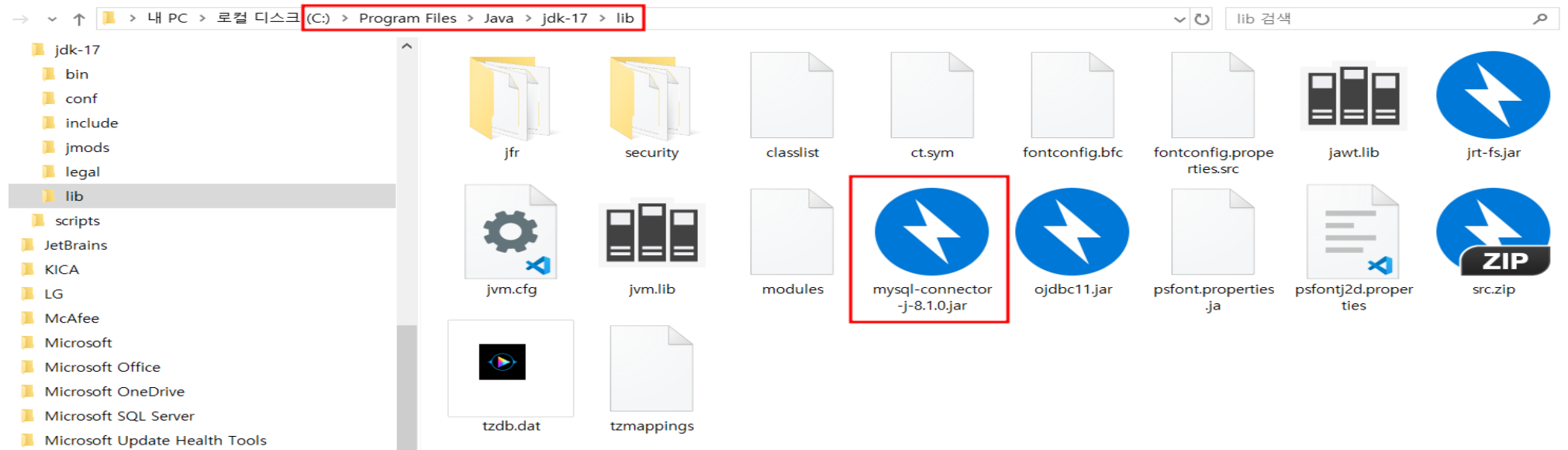
JDBC Driver

❖ JDBC(Java Database Connectivity) 드라이버

■ JDBC 드라이버 저장하기

다운로드 받은 JDBC 드라이버는 아무 곳이나 저장해도 되지만, 우리는 **자바가 설치된 곳에** 저장하도록 하자.

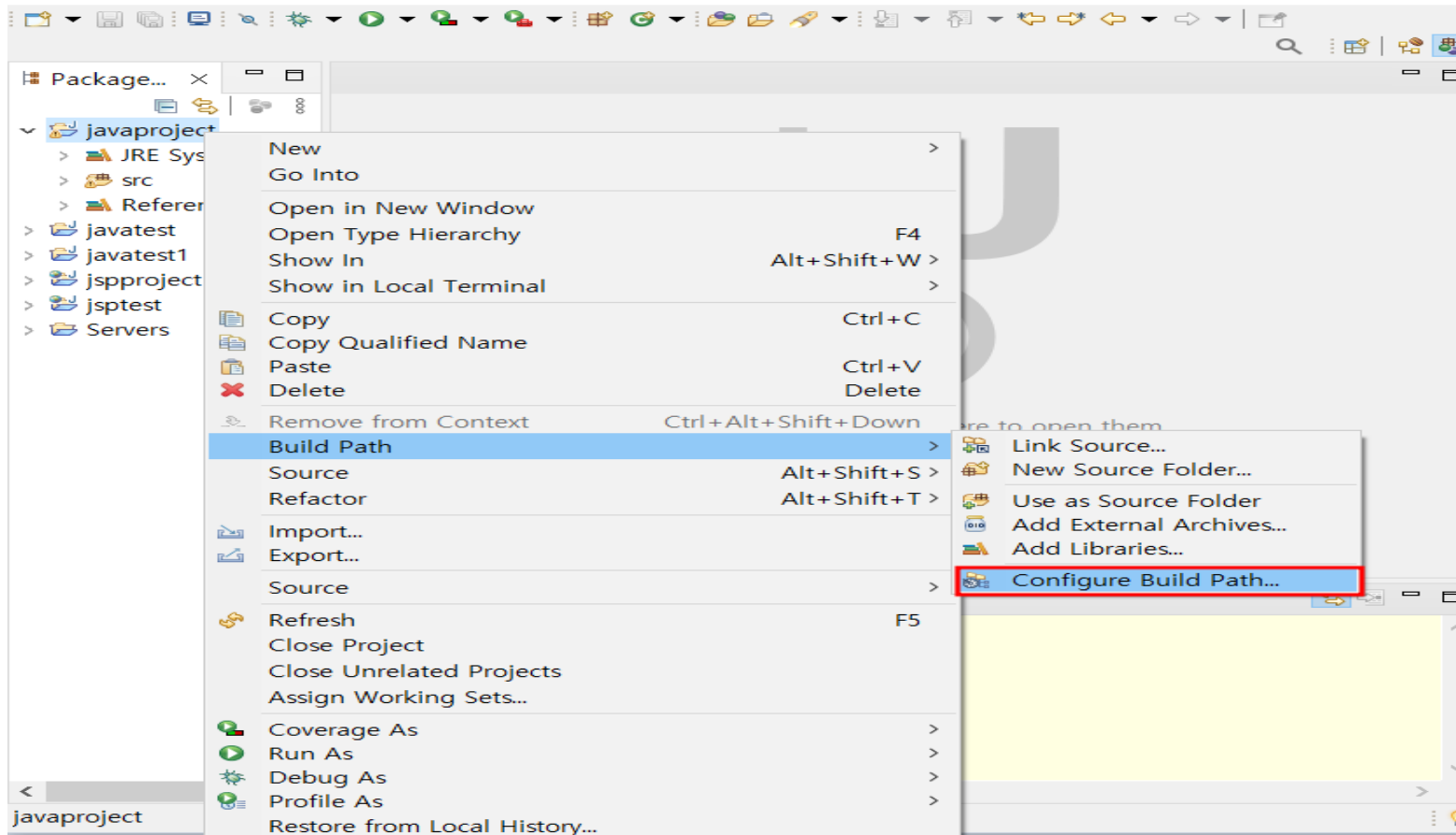
C:\Program Files\Java\jdk-17\lib



JDBC Driver

❖ JDBC 드라이버 path 설정

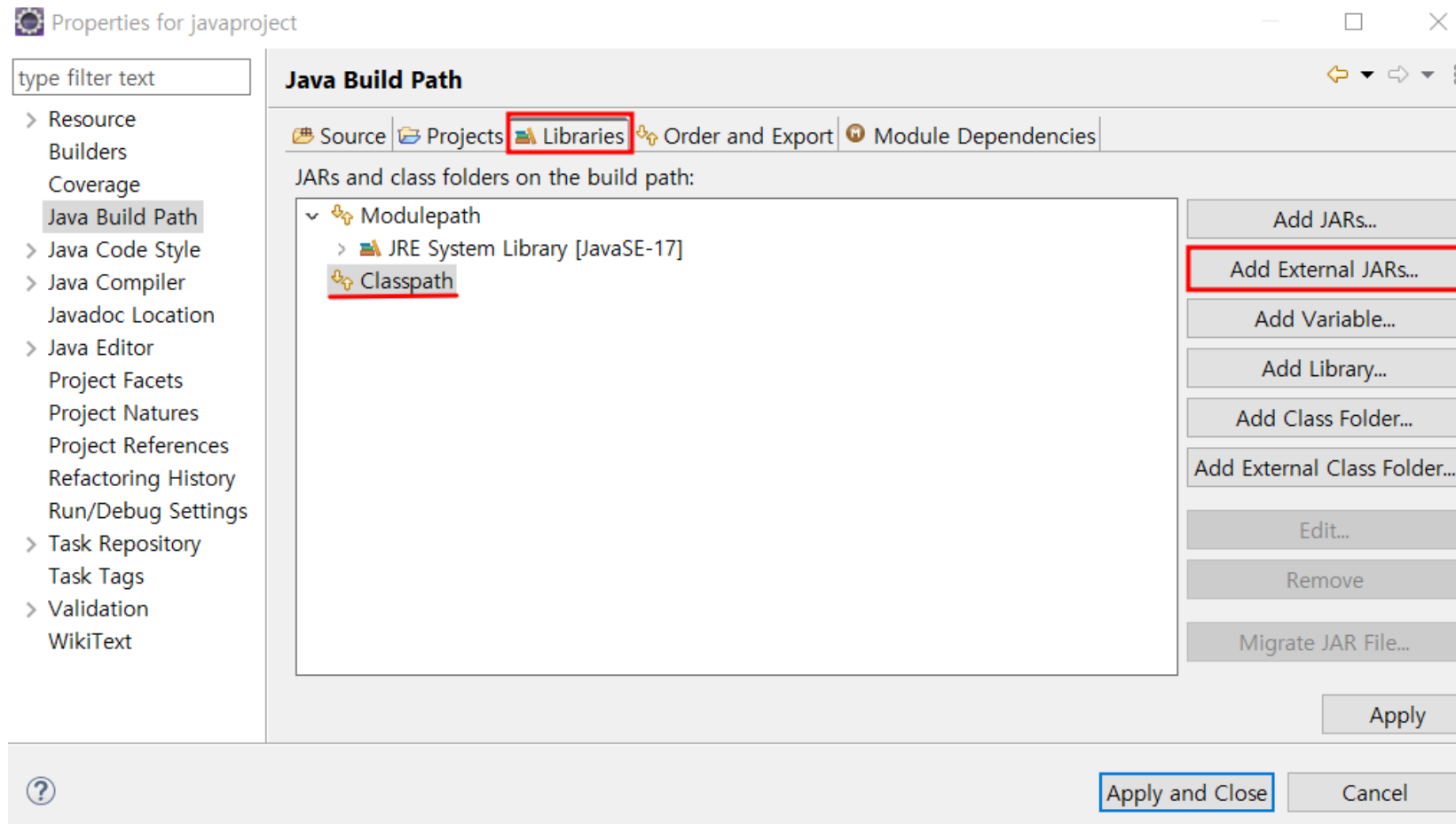
1. javaproject –Build Path – Configure Build Path... 클릭



JDBC Driver

❖ JDBC 드라이버 path 설정

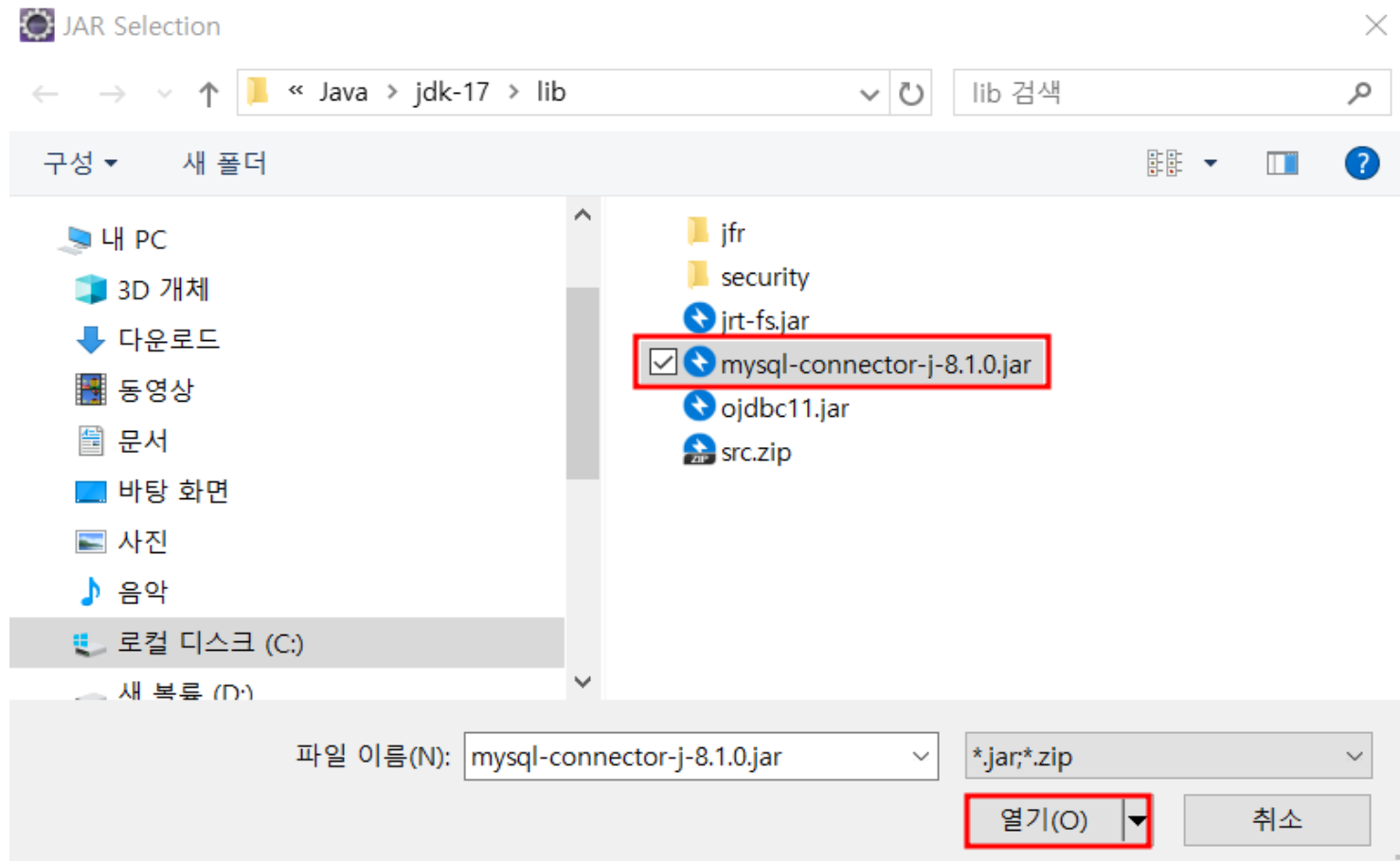
2. Library 탭 – Classpath 클릭 – Add External JARs... 클릭



JDBC Driver

JDBC 드라이버 path 설정

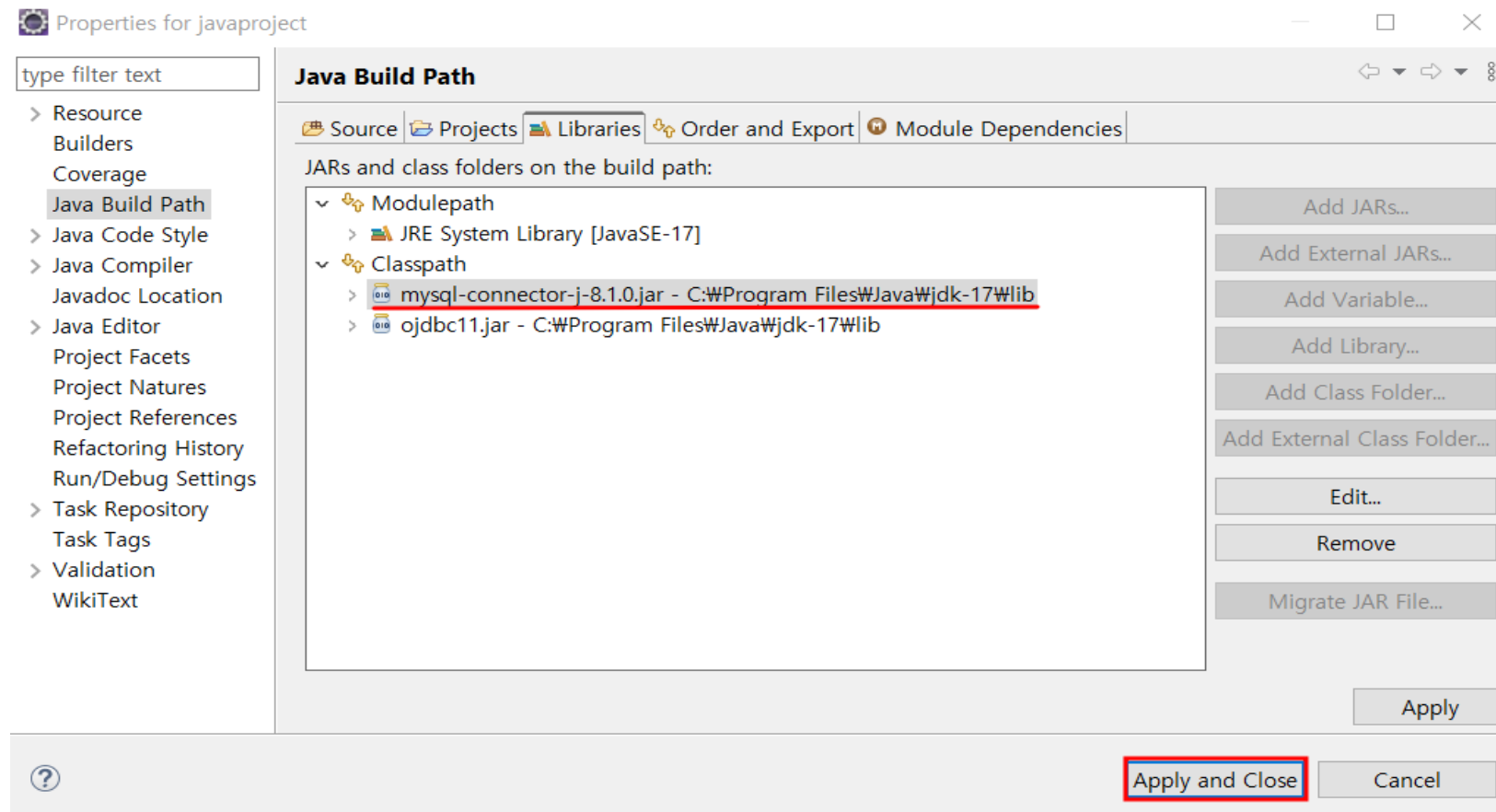
3. JDBC 드라이버 저장 위치에서 mysql-connector-j-8.1.0.jar 선택 후 열기버튼 클릭



JDBC Driver

❖ JDBC 드라이버 path 설정

4. Classpath – mysql-connector-j-8.1.0.jar 추가되면 성공~!!



JAVA – MySQL 연동

❖ Java – MySQL 연동 (공통 코드)

```
String driver = "com.mysql.jdbc.Driver";           // driver 5.x
```

```
String driver = "com.mysql.cj.jdbc.Driver";        // driver 8.x
```

```
String url = "jdbc:mysql://localhost:3306/jsptest;
```

```
Class.forName(driver);
```

```
Connection con=DriverManager.getConnection(url, "jspid" , "jsppass" );
```

JAVA – MySQL 연동

```
public class JDBC_Connect2{

    public static void main(String[] args) {
        String driver ="com.mysql.cj.jdbc.Driver";
        String url = "jdbc:mysql://localhost:3306/jsptest?serverTimezone=UTC";
        Connection con = null;

        try{
            Class.forName(driver);
            con = DriverManager.getConnection(url, "jspid", "jsppass" );

            System.out.println("데이터베이스 연결 성공~!!");
        } catch(Exception e){
            System.out.println("데이터베이스 연결 실패~!!");
            e.printStackTrace();
        } finally{
            try{
                if( con != null ) con.close();
            } catch(Exception e){ e.printStackTrace(); }
        }
    }
}
```

JSP – MySQL 연동

JDBC.jsp

```
<%@ page contentType="text/html; charset=utf-8" %>
<%@ page import="java.sql.*" %>

<%
    Connection con=null;

    try{
        String driver = "com.mysql.cj.jdbc.Driver";
        String url = "jdbc:mysql://localhost:3306/jsptest?serverTimezone=UTC";

        Class.forName(driver);
        con=DriverManager.getConnection(url, "jspid" , "jsppass" );

        out.println("제대로 연결되었습니다.");

    }catch(Exception e){
        e.printStackTrace();
    }
%>
```

MySQL URL 설정

❖ MySQL URL 설정

- MySQL URL 형식

`jdbc:mysql://ip주소 : port번호/DB스키마명?characterEncoding=UTF-8&serverTimezone=UTC`

`jdbc:mysql://localhost:3306/jsptest?characterEncoding=UTF-8&serverTimezone=UTC`

만약, The reference to entity "serverTimezone" must end with the ';' delimiter. 에러가 발생할 경우 & 대신에 & 사용한다.

- MySQL URL 형식(에러수정)

`jdbc:mysql://ip:port/TestDB?characterEncoding=UTF-8&serverTimezone=UTC`

`jdbc:mysql://localhost:3306/jsptest?characterEncoding=UTF-8&serverTimezone=UTC`

❖ Table 생성

```
create table customer( no int(4) auto_increment primary key,  
                        name varchar(20),  
                        email varchar(20),  
                        tel varchar(20),  
                        address varchar(50),  
                        reg_date timestamp );
```

❖ 테이블 목록 확인

```
show tables;
```

실습

- ❖ 자바 프로그램 작성
PreparedStatement로 실행
- JDBC_Insert02.java
- JDBC_Select02.java
- JDBC_Update02.java
- JDBC_Delete02.java

❖ 게시판 작성

```
create table board(  
    no int auto_increment primary key,  
    writer varchar(20) not null,  
    passwd varchar(20) not null,  
    subject varchar(100) not null,  
    content varchar(1000) not null,  
    reg_date timestamp );
```

실습

❖ 게시판 작성

- 글작성 : InsertBoard.java
- 글목록 : SelectBoard.java
- 글수정 : UpdateBoard.java
- 글삭제 : DeleteBoard.java