Data

- Data is a collection of raw and unprocessed facts.
- Example

  Name of student
  Age of student
  Address of student
  Mobile No. of student

  Tushar, 20, Bhubaneswar, 909012309

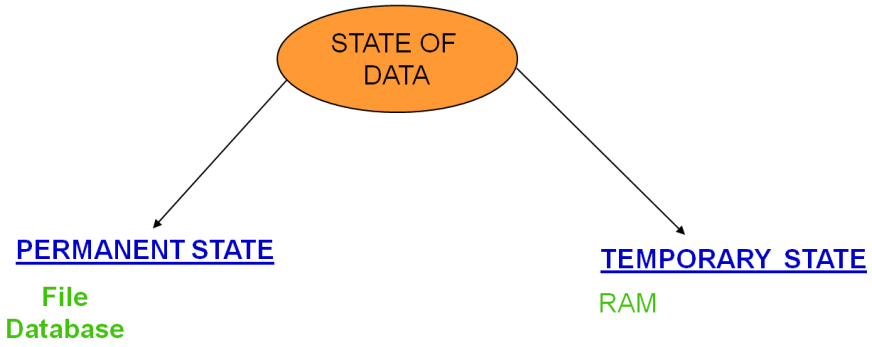
Information

- When we are processing data we will get meaningful results called Information.
- Example

  Tushar
  909012309
  Bhubaneswar
  Eligible for voting

Data Store

- It is a place where we can store data.



File

- File is a container used to store data permanently in the hard-disk.

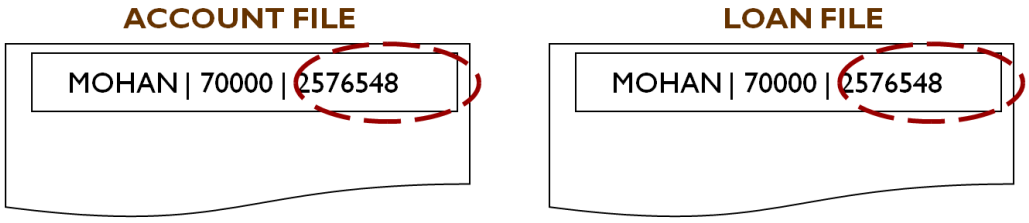
Disadvantages of File

- Data Redundancy
- Data Inconsistency
- Difficulty in Accessing Data

- Integrity Problem
- Atomicity Problems
- Data Indexing
- Concurrency

Data Redundancy

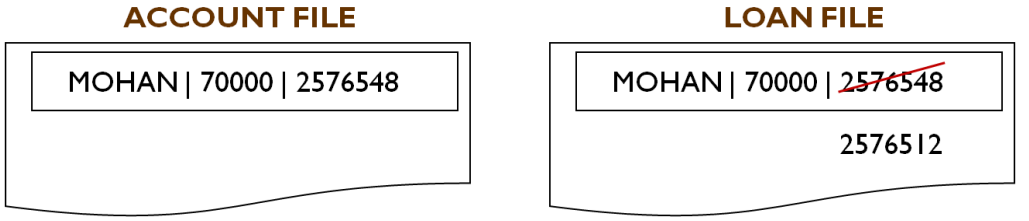
- Repeating certain information in different files is known as redundancy.
- Redundancy leads to higher storage.



Telephone No. is repeated

Data Inconsistency

- Redundancy may lead to inconsistency that is updation of the same data may not reflect to all the files.



Telephone No. is different
for the same customer

Difficult to access data

- If we want to retrieve data from files we have to develop one application program.

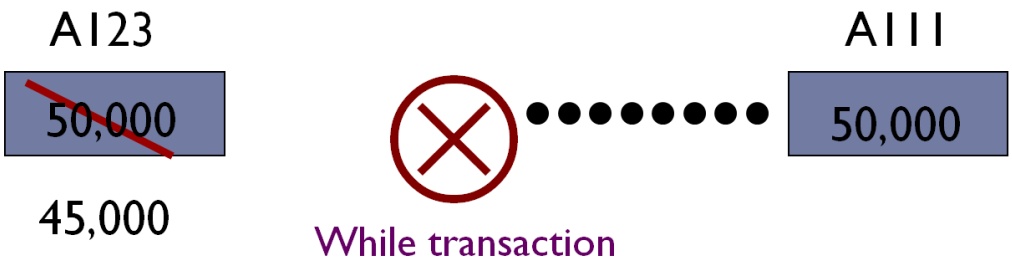
Integrity Problem

- The data stored in the File must satisfy certain types of constraints.
- e.g. , The balance of a bank account may never fall below 1000.
- File processing system do not offer us such types of restriction.

Atomicity problem

- Fund transfer must be atomic.
- For the fund transfer to be atomic both the debit and credit must occur and neither occurs.
- Files processing system do not ensure atomicity of data.

Rs. 5000/- is to be debited from account A123 and credited to account A111



While transaction
A system Failures Occurs
because of which Rs.5000/- was
credited from account *A123* but not debited to account *A111*

Data Indexing

- If we want to retrieve data very quickly, databases use indexing mechanism.

Concurrency

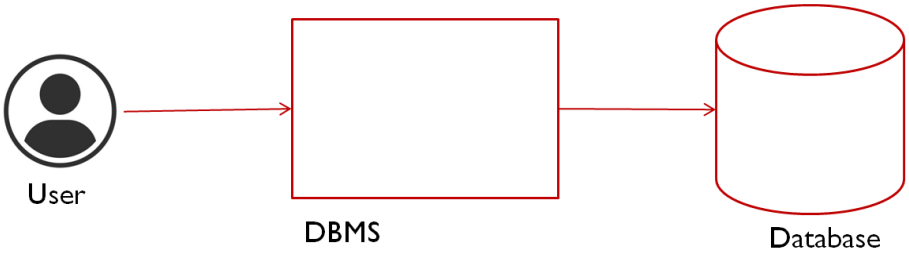
- File will not provide concurrent access by multiple users.

Database

- A database is the collection of data.
- Data is organized in the form of table i.e. rows and columns.

Database Management System

- A DBMS is an interface between an end-user and a database.
- It allows users to create, read, update, and delete data in the database.



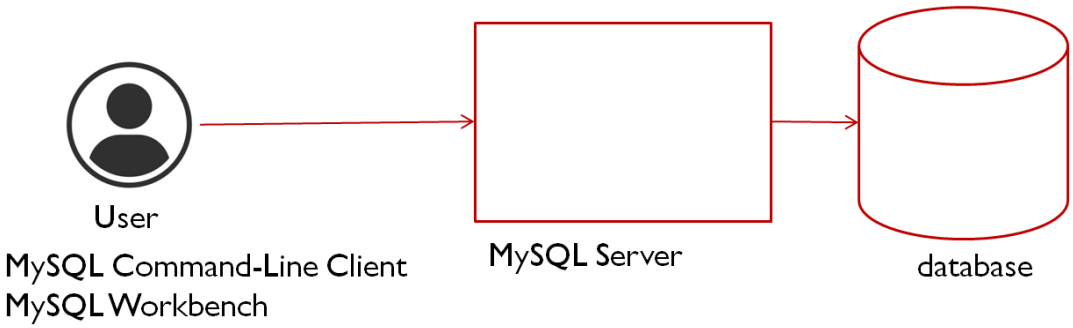
MySQL

- MySQL is an open-source relational database management system (RDBMS)
- It organizes data into tables with rows and columns.
- It supports relationships between tables

MySQL is free or paid

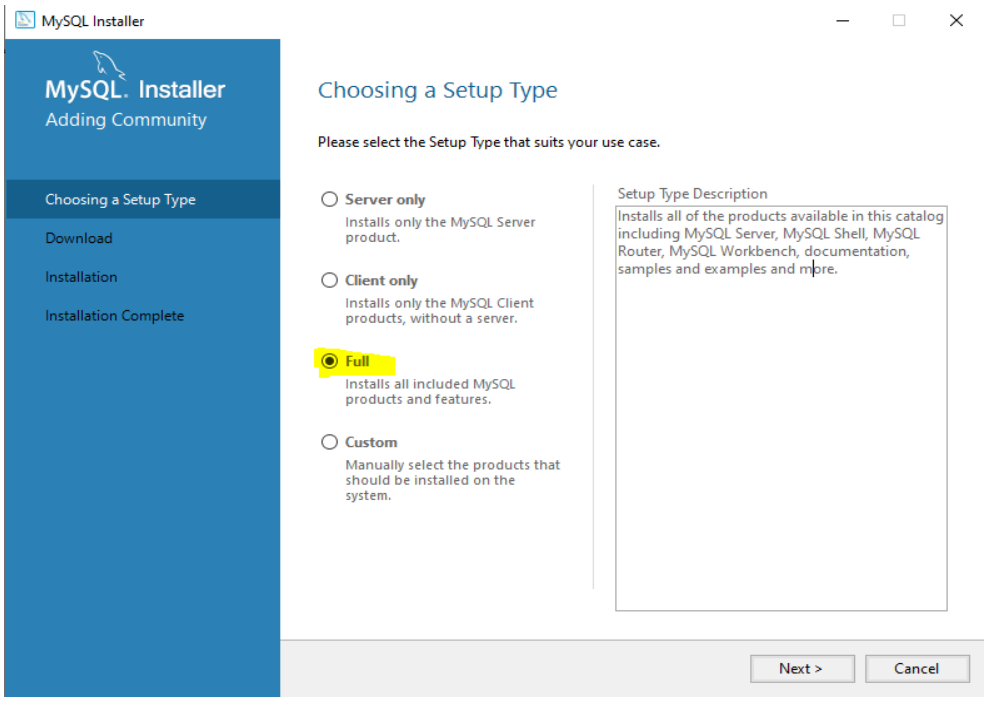
- MySQL was initially developed by Michael and David, who founded MySQL AB in 1995.
- Sun Microsystems acquired MySQL AB In January 2008.
- Oracle Corporation acquired Sun Microsystems in January 2010.

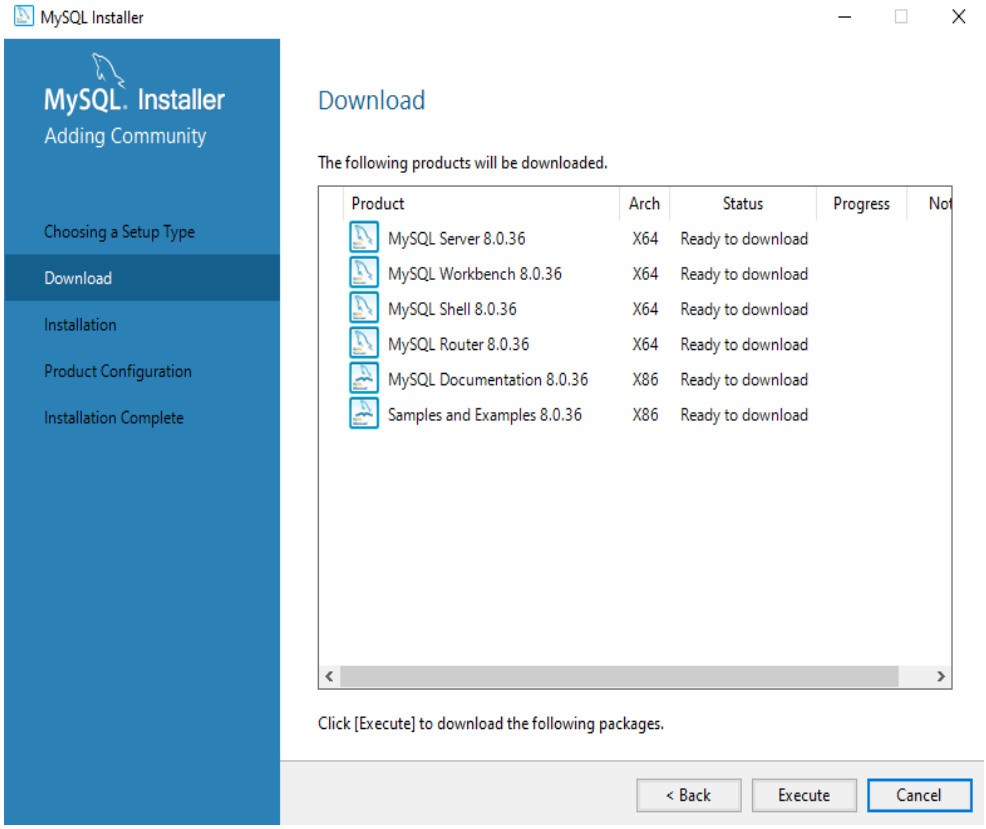
Communicating with MySQL

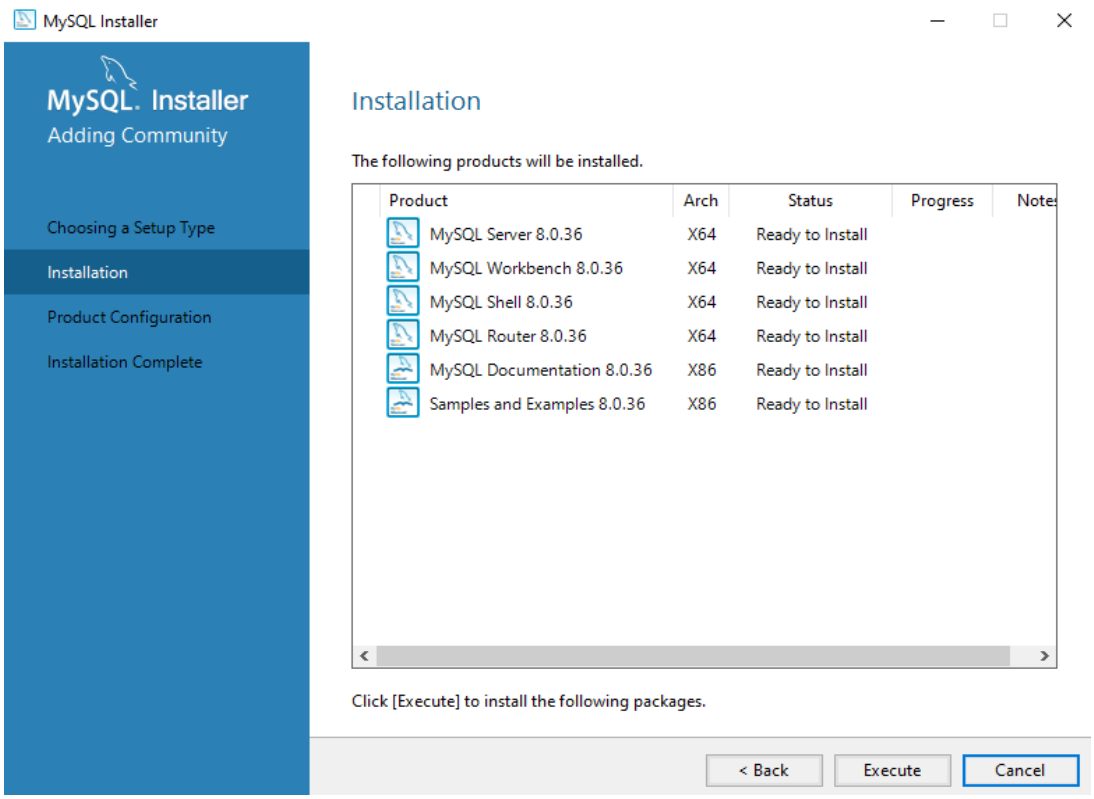


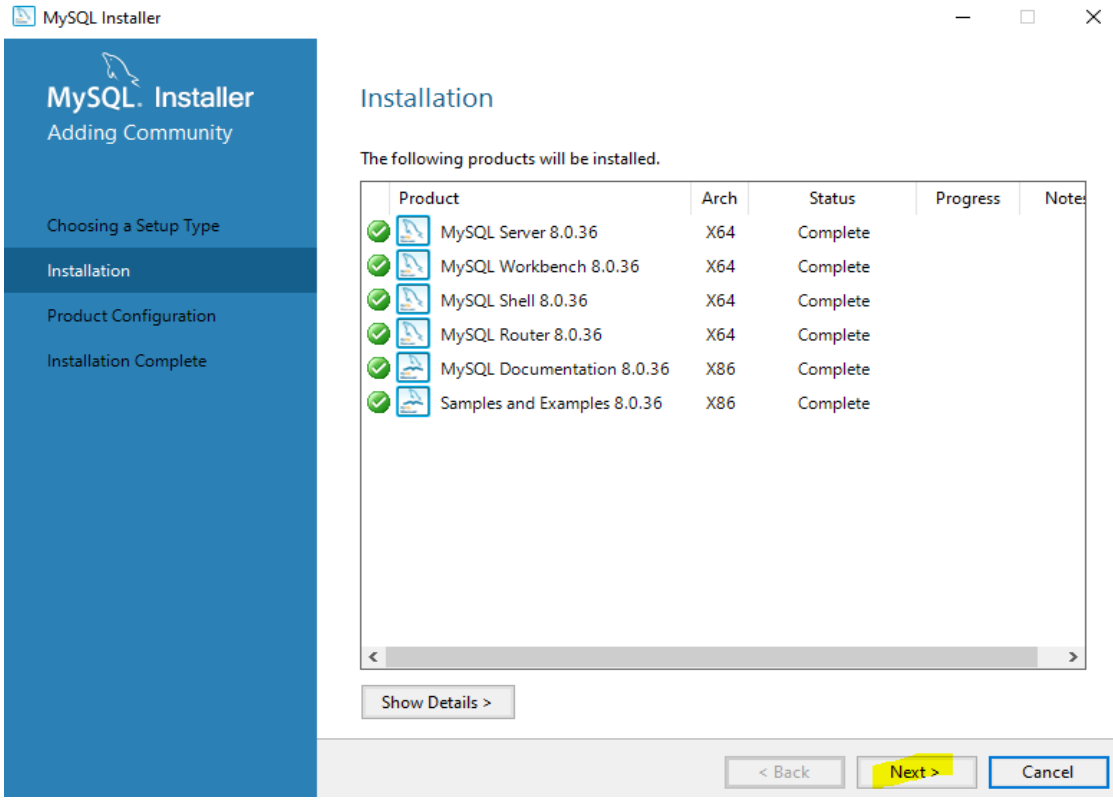
Download MySQL

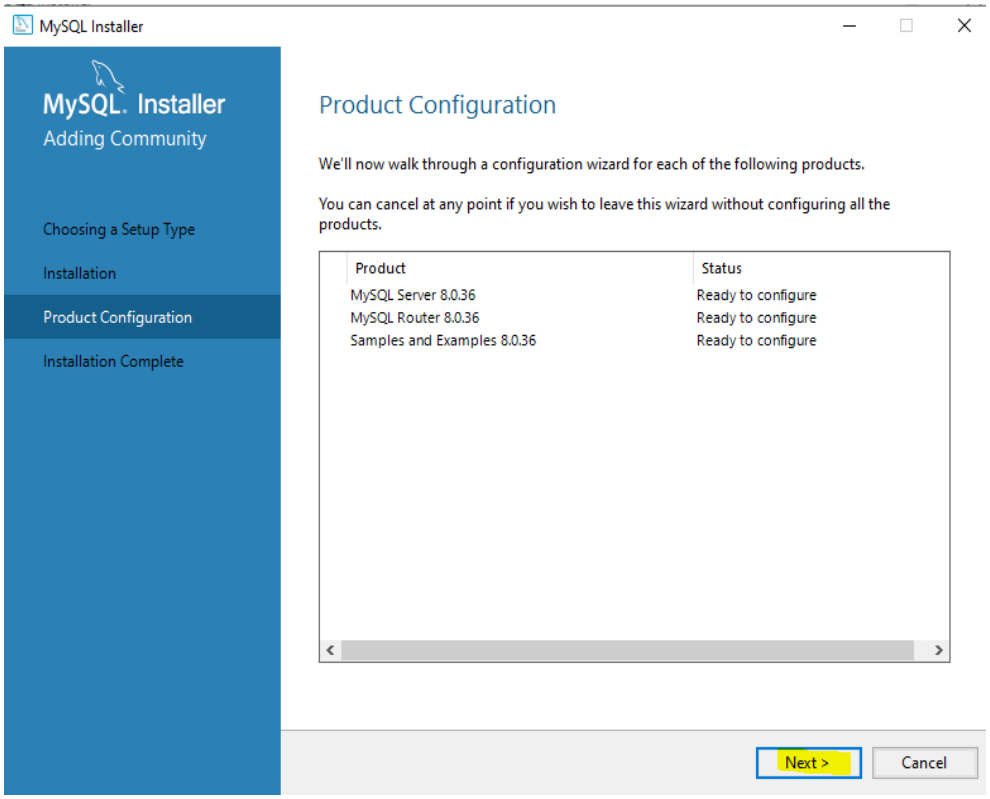
- https://www.mysql.com/downloads/
- https://dev.mysql.com/downloads/ [mysql community edition]
- https://dev.mysql.com/downloads/installer/ [mysql installer windows]
- mysql-installer-community-8.0.36.0.msi

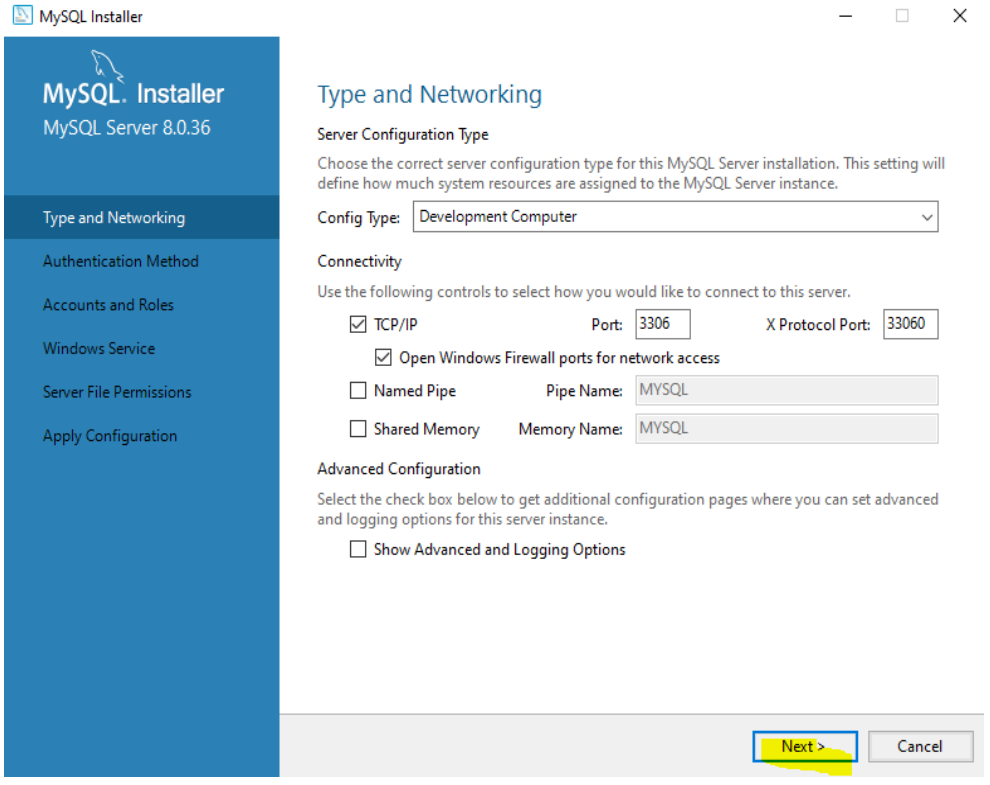

MySQL Installer
MySQL. Installer
Adding Community
Choosing a Setup Type
Download
Installation
Installation Complete
Choosing a Setup Type
Please select the Setup Type that suits your use case.
Server only
Installs only the MySQL Server product.
Client only
Installs only the MySQL Client products, without 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 all of the products available in this catalog including MySQL Server, MySQL Shell, MySQL Router, MySQL Workbench, documentation, samples and examples and more.
Next >
Cancel

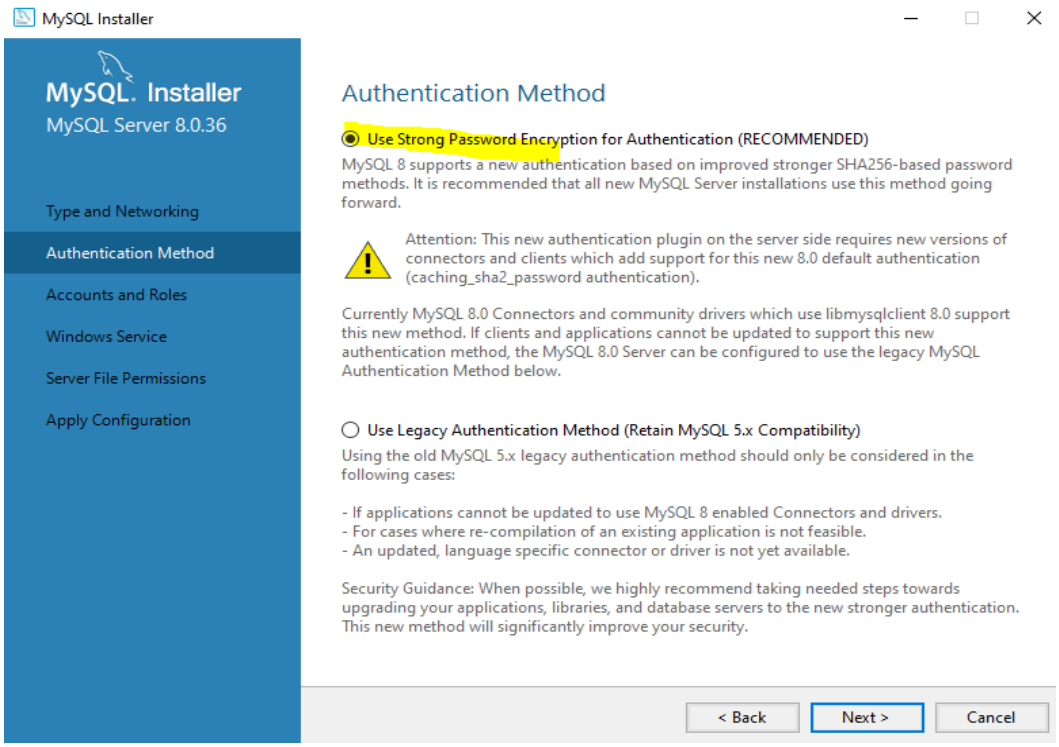

MySQL Installer
MySQL. Installer
Adding Community
Choosing a Setup Type
Download
Installation
Product Configuration
Installation Complete
Download
The following products will be downloaded.
Product
Arch
Status
Progress
Not
MySQL Server 8.0.36
X64
Ready to download
MySQL Workbench 8.0.36
X64
Ready to download
MySQL Shell 8.0.36
X64
Ready to download
MySQL Router 8.0.36
X64
Ready to download
MySQL Documentation 8.0.36
X86
Ready to download
Samples and Examples 8.0.36
X86
Ready to download
Click [Execute] to download the following packages.
< Back
Execute
Cancel

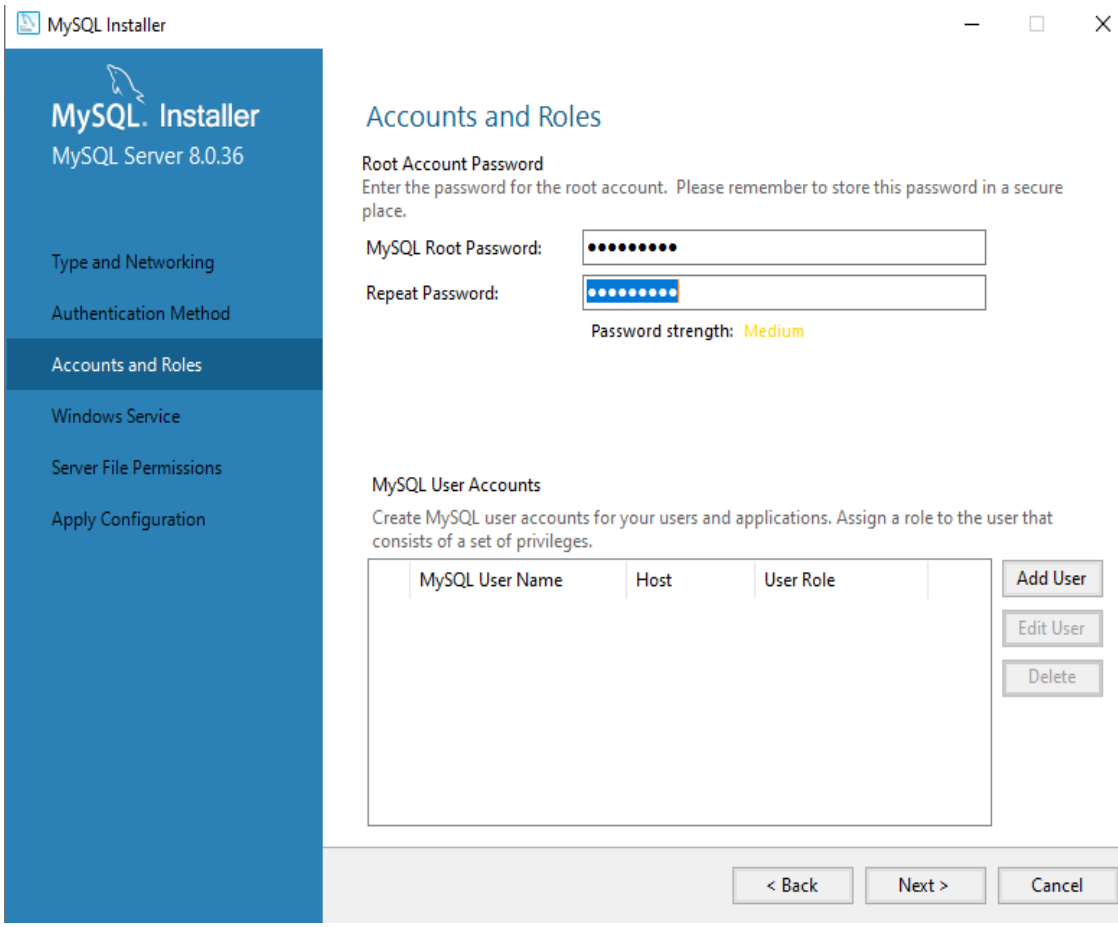

MySQL Installer
MySQL. Installer
Adding Community
Choosing a Setup Type
Installation
Product Configuration
Installation Complete
Installation
The following products will be installed.
Product
Arch
Status
Progress
Note
MySQL Server 8.0.36
X64
Ready to Install
MySQL Workbench 8.0.36
X64
Ready to Install
MySQL Shell 8.0.36
X64
Ready to Install
MySQL Router 8.0.36
X64
Ready to Install
MySQL Documentation 8.0.36
X86
Ready to Install
Samples and Examples 8.0.36
X86
Ready to Install
Click [Execute] to install the following packages.
< Back
Execute
Cancel

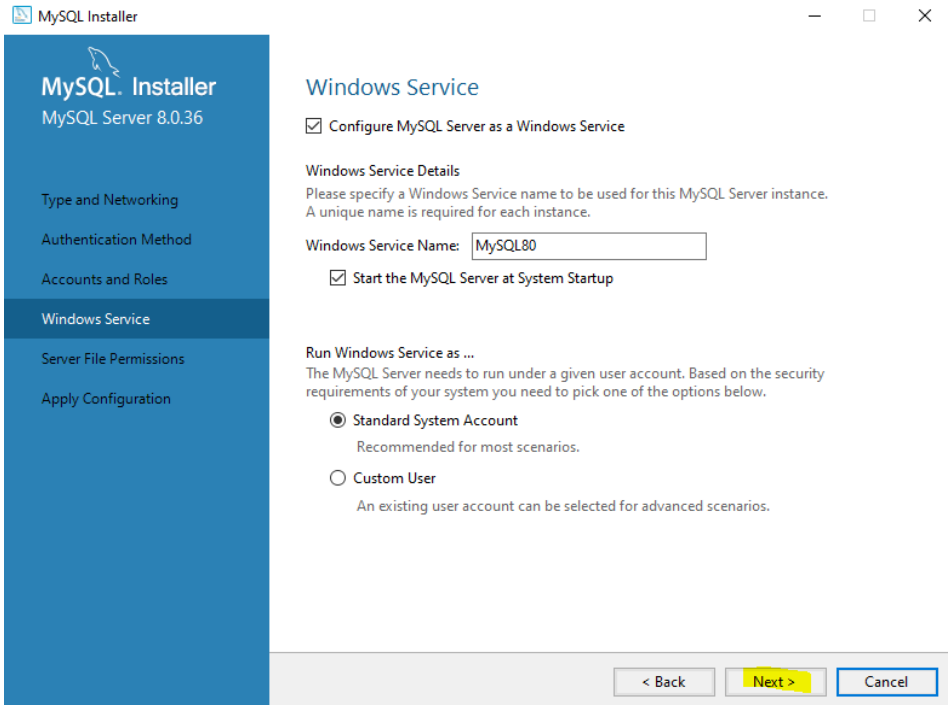

MySQL Installer
MySQL. Installer
Adding Community
Choosing a Setup Type
Installation
Product Configuration
Installation Complete
Installation
The following products will be installed.
Product
Arch
Status
Progress
Note
MySQL Server 8.0.36
X64
Complete
MySQL Workbench 8.0.36
X64
Complete
MySQL Shell 8.0.36
X64
Complete
MySQL Router 8.0.36
X64
Complete
MySQL Documentation 8.0.36
X86
Complete
Samples and Examples 8.0.36
X86
Complete
Show Details >
< Back
Next >
Cancel

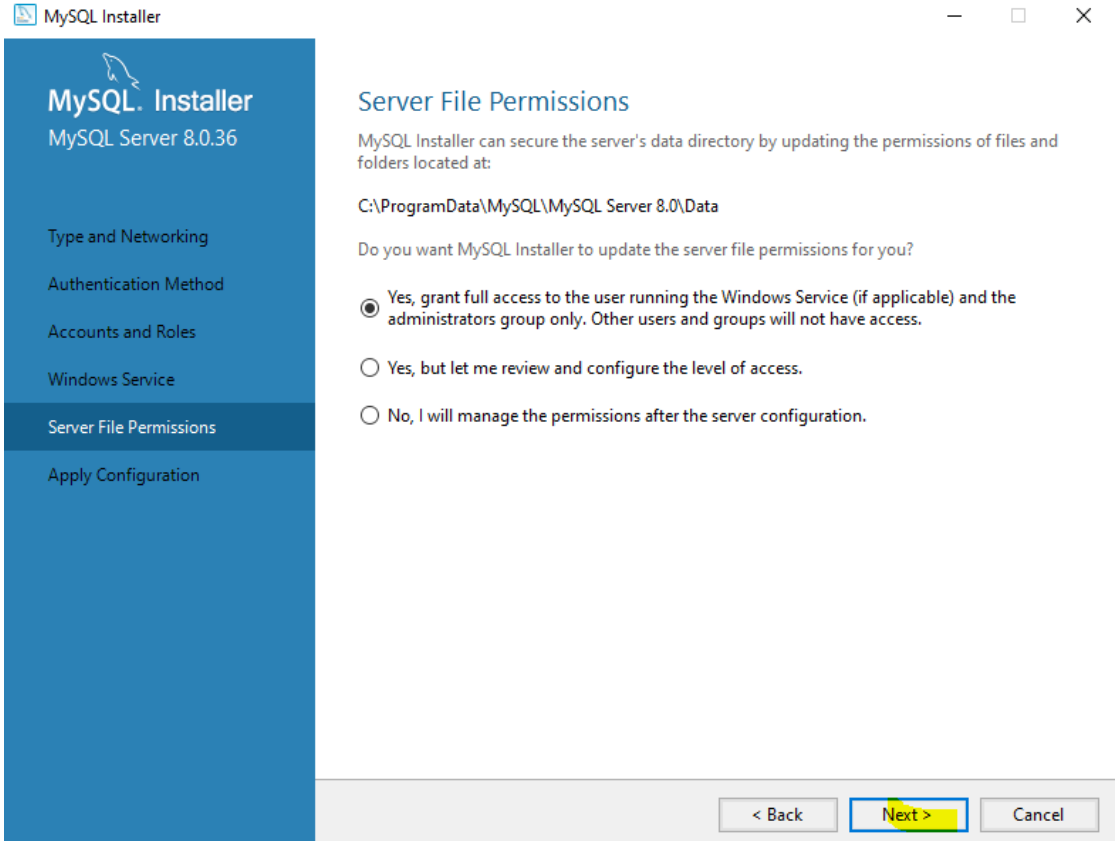

MySQL Installer
MySQL. Installer
Adding Community
Choosing a Setup Type
Installation
Product Configuration
Installation Complete
Product Configuration
We'll now walk through a configuration wizard for each of the following products.
You can cancel at any point if you wish to leave this wizard without configuring all the products.
Product
Status
MySQL Server 8.0.36
Ready to configure
MySQL Router 8.0.36
Ready to configure
Samples and Examples 8.0.36
Ready to configure
Next >
Cancel

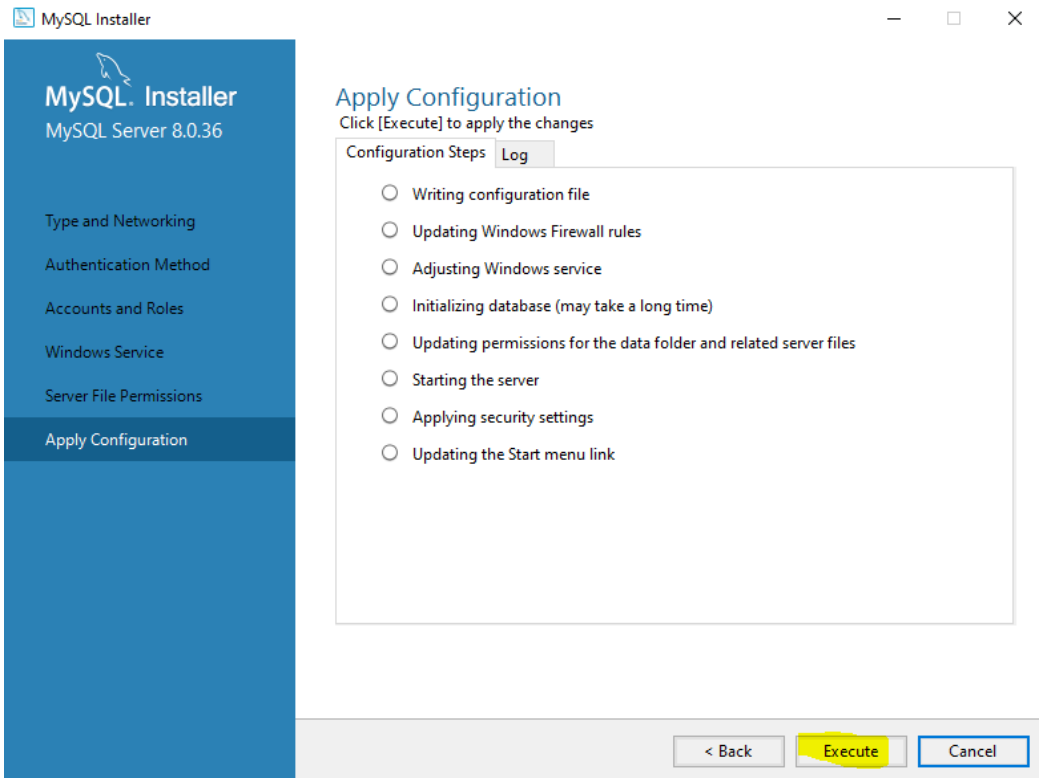

MySQL Installer
MySQL. Installer
MySQL Server 8.0.36
Type and Networking
Authentication Method
Accounts and Roles
Windows Service
Server File Permissions
Apply Configuration
Type and Networking
Server Configuration Type
Choose the correct server configuration type for this MySQL Server installation. 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
Next >
Cancel

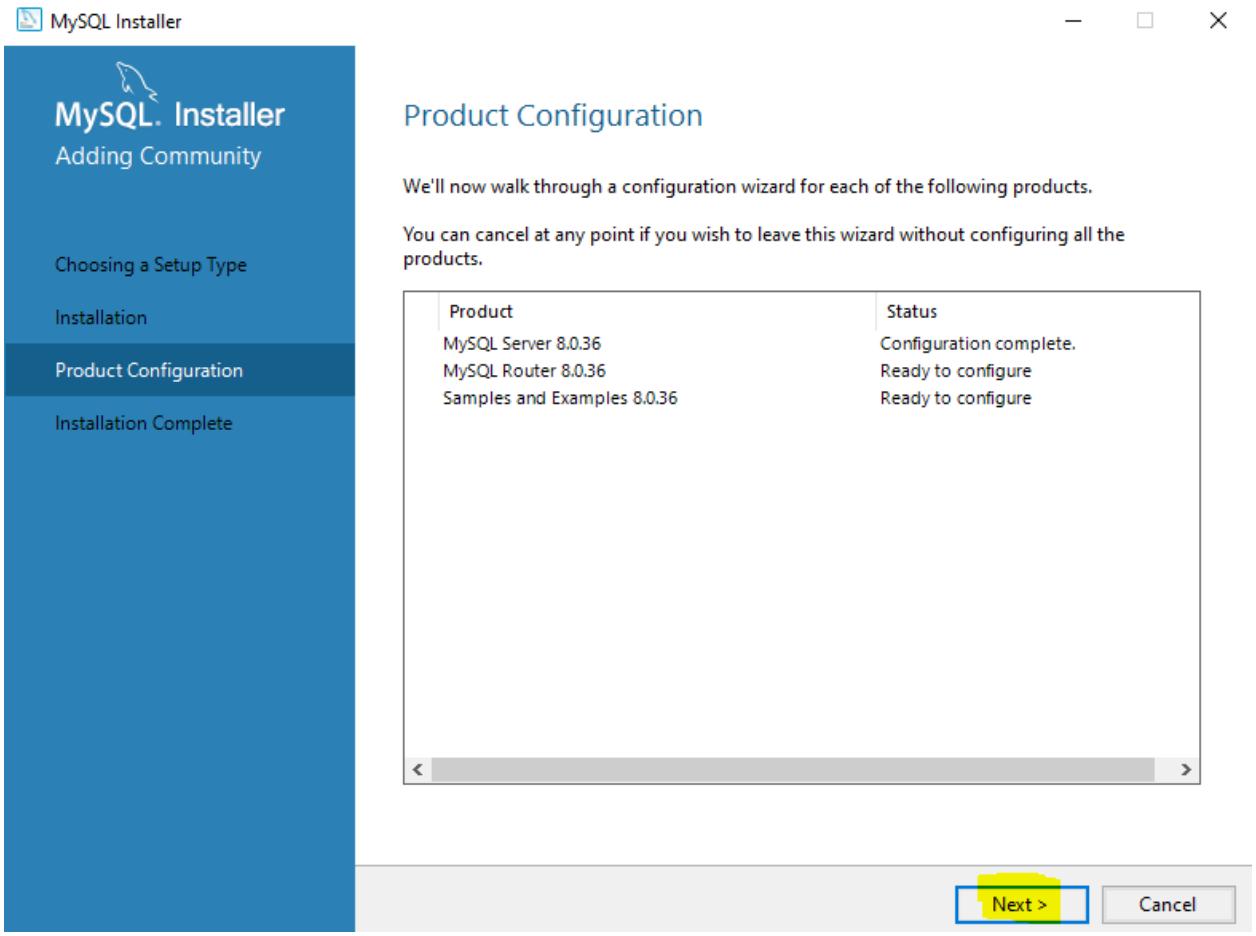

MySQL Installer
MySQL. Installer
MySQL Server 8.0.36
Type and Networking
Authentication Method
Accounts and Roles
Windows Service
Server File Permissions
Apply Configuration
Authentication Method
Use Strong Password Encryption for Authentication (RECOMMENDED)
MySQL 8 supports a new authentication based 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.
< Back
Next >
Cancel

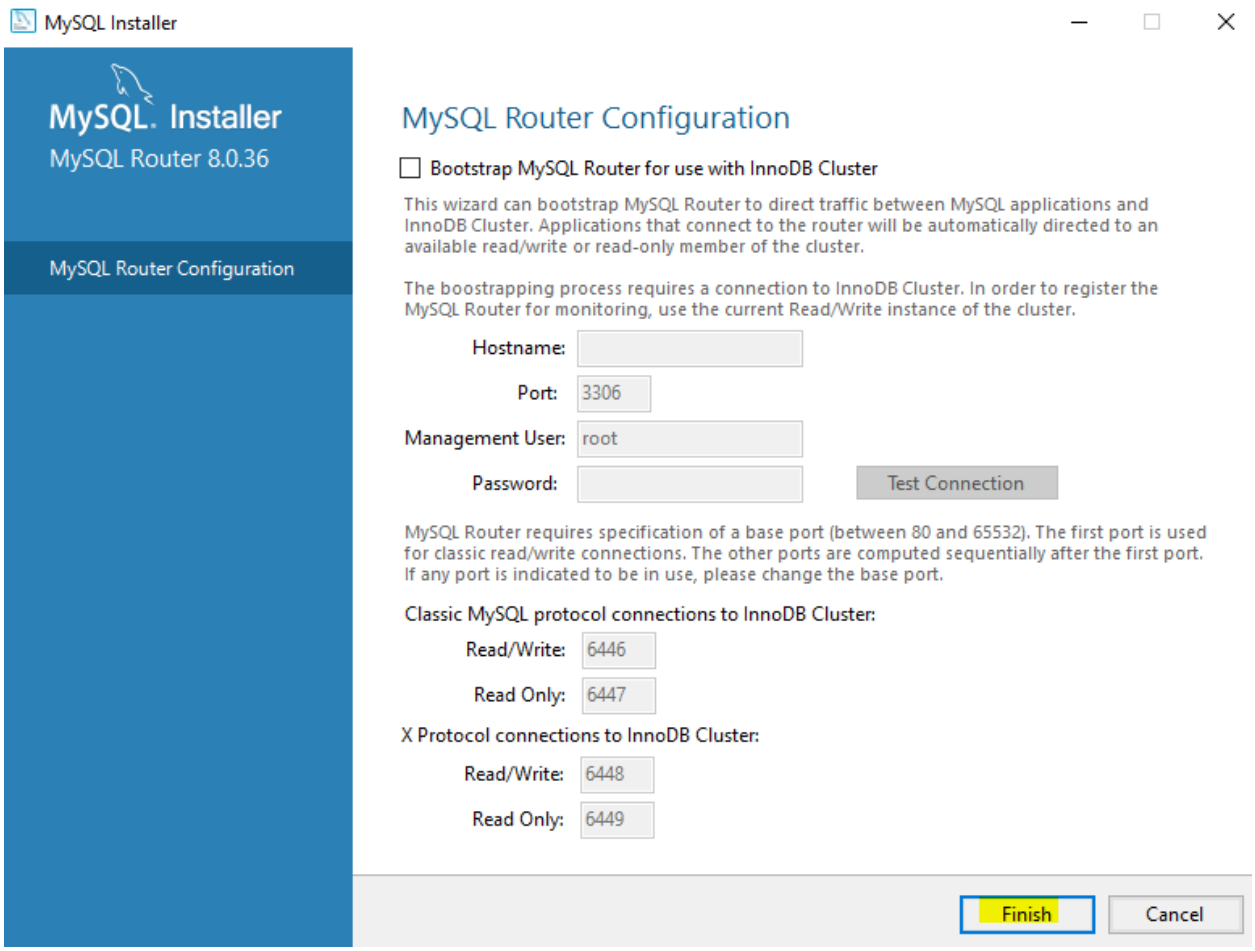

MySQL Installer
MySQL. Installer
MySQL Server 8.0.36
Type and Networking
Authentication Method
Accounts and Roles
Windows Service
Server File Permissions
Apply Configuration
Accounts and Roles
Root Account Password
Enter the password for the root account. Please remember to store this password in a secure place.
MySQL Root Password:
Repeat Password:
Password strength: Medium
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

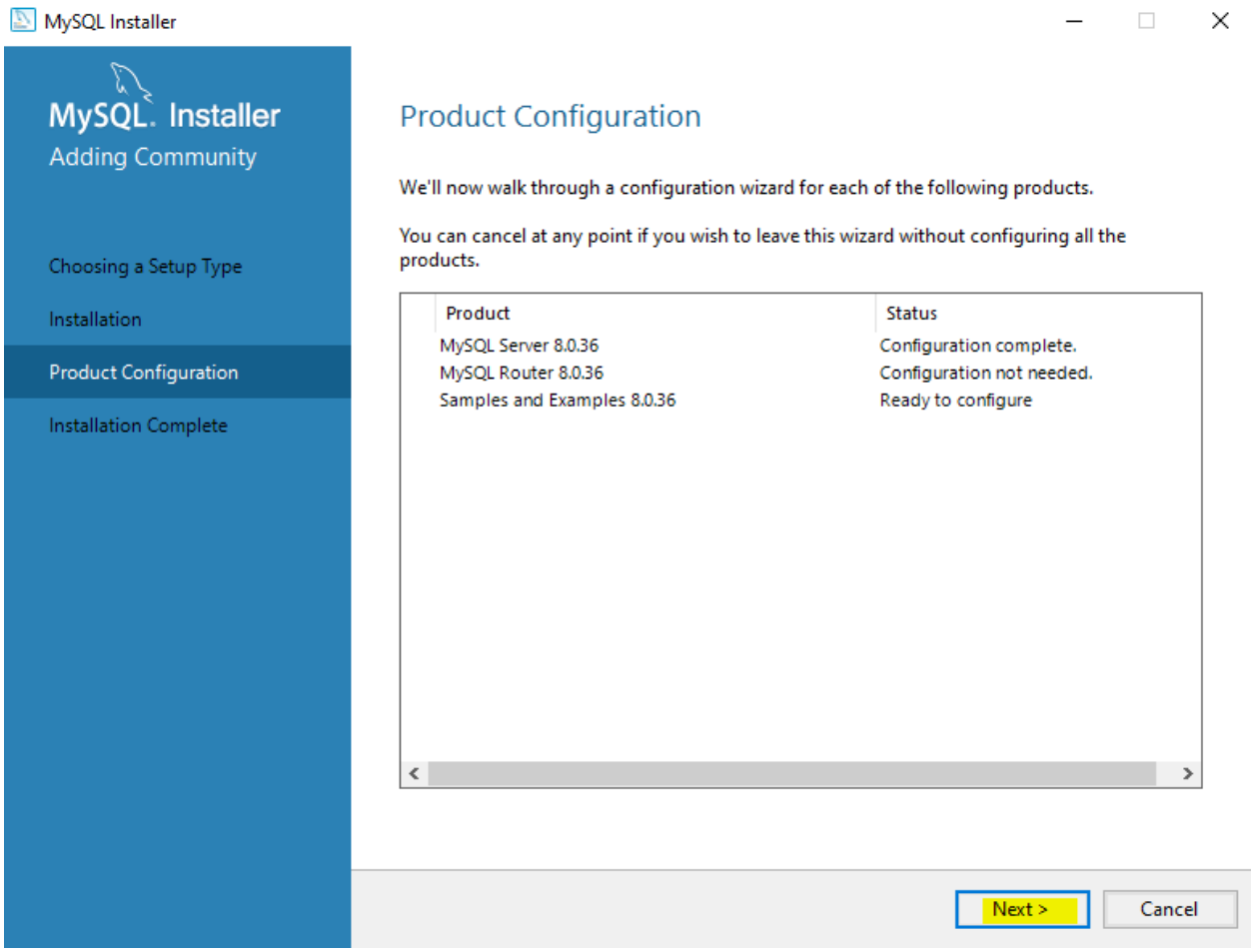

MySQL Installer
MySQL. Installer
MySQL Server 8.0.36
Type and Networking
Authentication Method
Accounts and Roles
Windows Service
Server File Permissions
Apply Configuration
Windows Service
Configure MySQL Server as a Windows Service
Windows Service Details
Please specify a Windows Service name to be used for this MySQL Server instance.
A unique name is required for each instance.
Windows Service Name: MySQL80
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

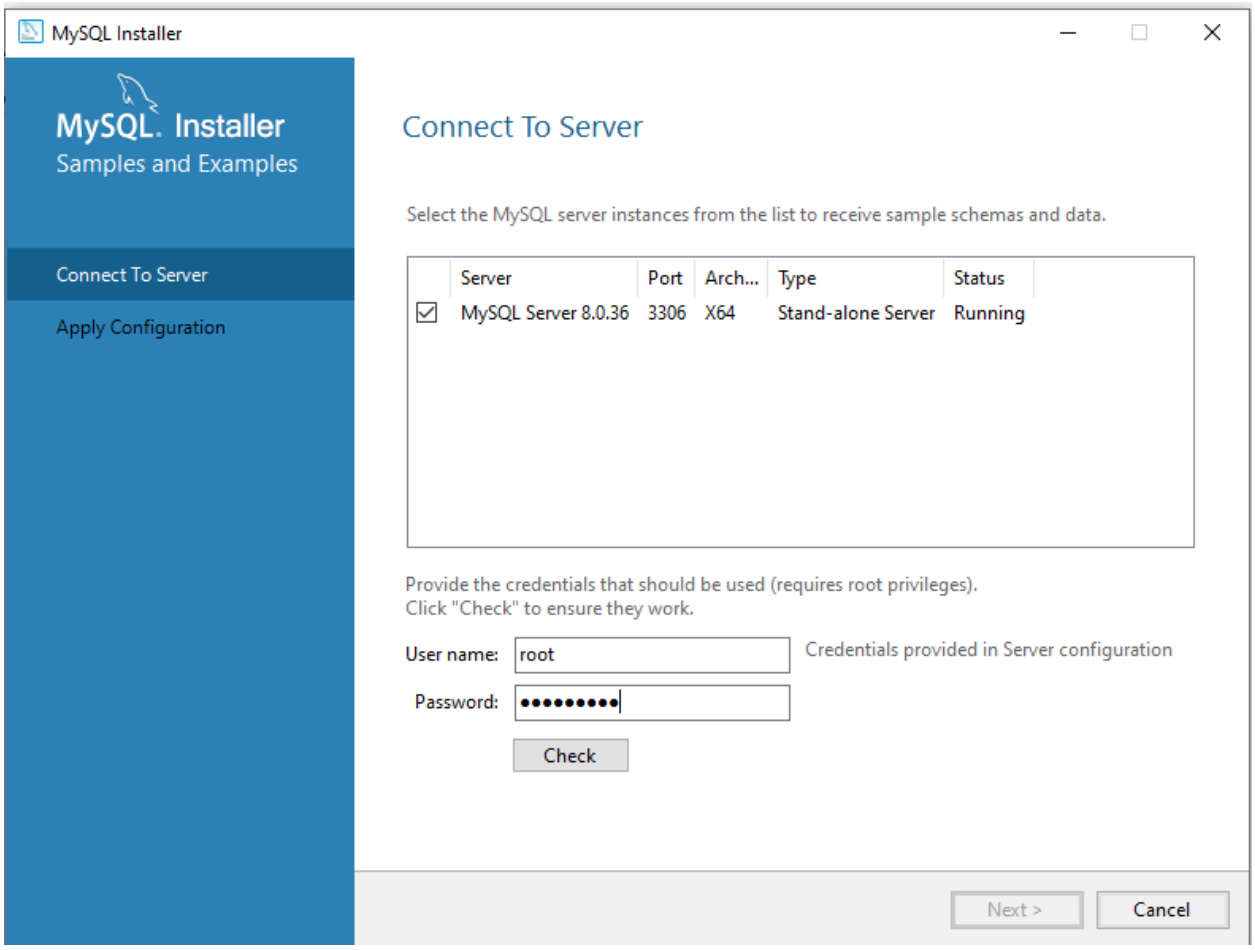

MySQL Installer
MySQL. Installer
MySQL Server 8.0.36
Type and Networking
Authentication Method
Accounts and Roles
Windows Service
Server File Permissions
Apply Configuration
Server File Permissions
MySQL Installer can secure the server's data directory by updating the permissions of files and folders located at:
C:\ProgramData\MySQL\MySQL Server 8.0\Data
Do you want MySQL Installer to update the server file permissions for you?
Yes, grant full access to the user running the Windows Service (if applicable) and the administrators group only. Other users and groups will not have access.
Yes, but let me review and configure the level of access.
No, I will manage the permissions after the server configuration.
< Back
Next >
Cancel

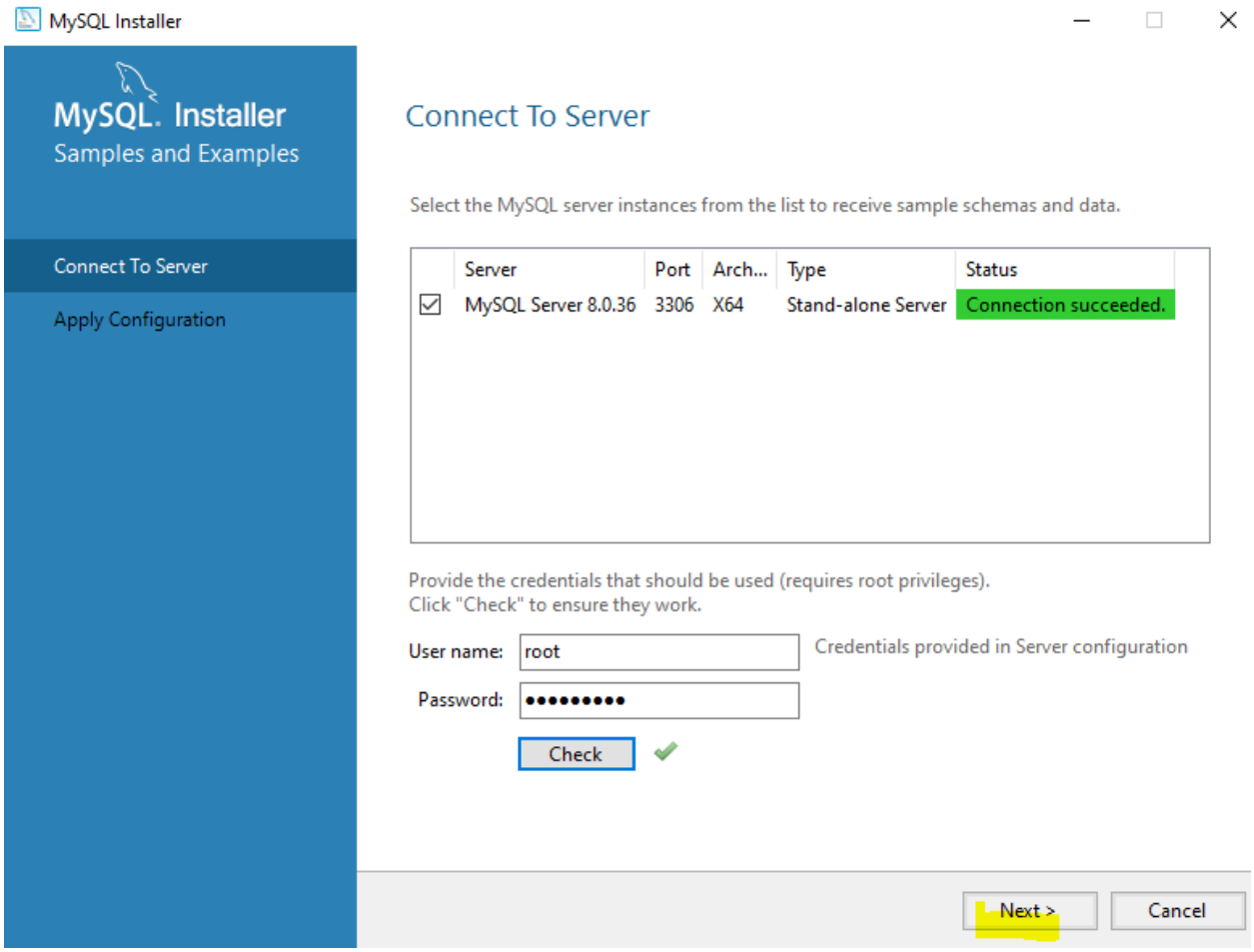

MySQL Installer
MySQL. Installer
MySQL Server 8.0.36
Type and Networking
Authentication Method
Accounts and Roles
Windows Service
Server File Permissions
Apply Configuration
Apply Configuration
Click [Execute] to apply the changes
Configuration Steps
Log
Writing configuration file
Updating Windows Firewall rules
Adjusting Windows service
Initializing database (may take a long time)
Updating permissions for the data folder and related server files
Starting the server
Applying security settings
Updating the Start menu link
< Back
Execute
Cancel

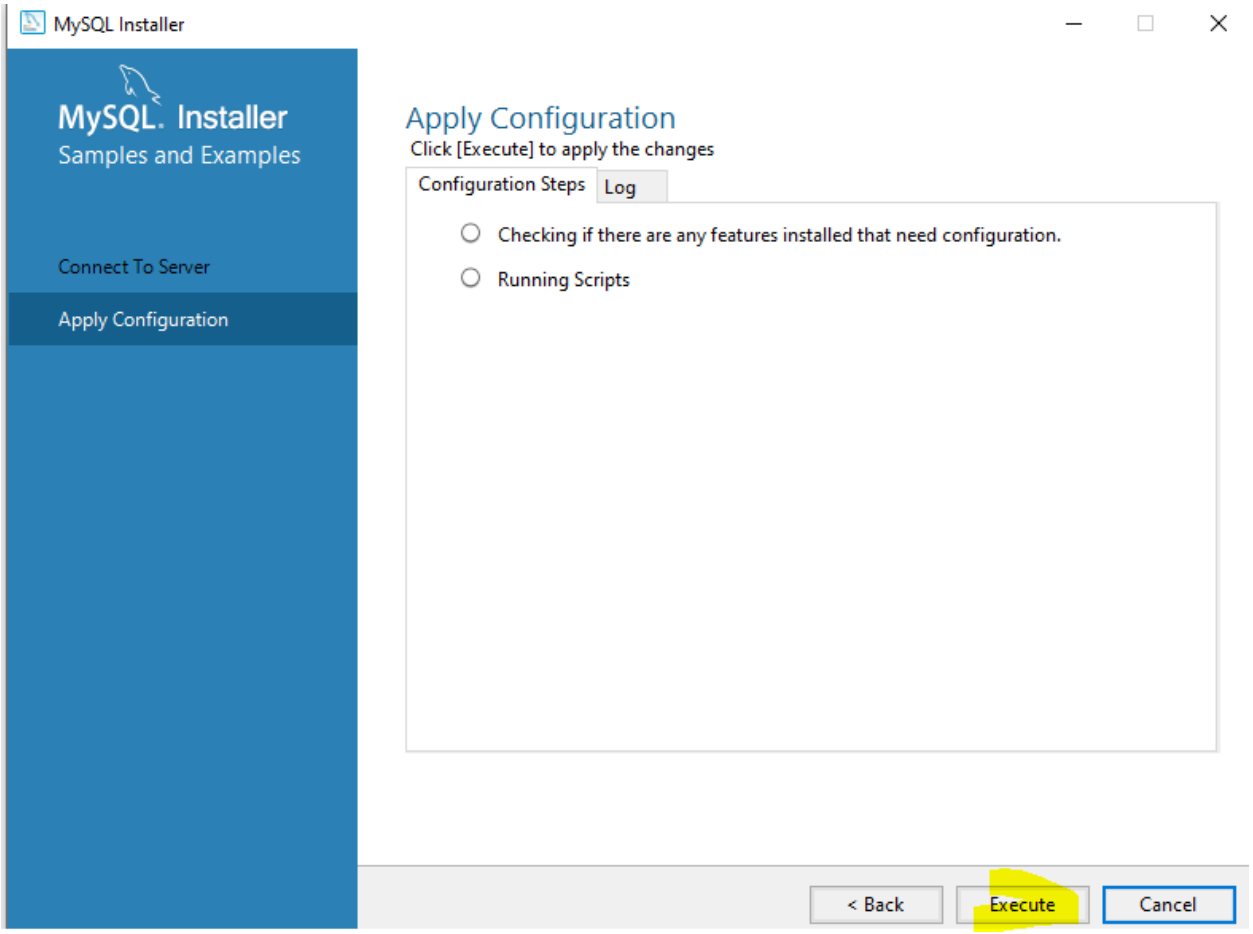

MySQL Installer
MySQL. Installer
Adding Community
Choosing a Setup Type
Installation
Product Configuration
Installation Complete
Product Configuration
We'll now walk through a configuration wizard for each of the following products.
You can cancel at any point if you wish to leave this wizard without configuring all the products.
Product
Status
MySQL Server 8.0.36
Configuration complete.
MySQL Router 8.0.36
Ready to configure
Samples and Examples 8.0.36
Ready to configure
Next >
Cancel


MySQL Installer
MySQL. Installer
MySQL Router 8.0.36
MySQL Router Configuration
MySQL Router Configuration
Bootstrap MySQL Router for use with InnoDB Cluster
This wizard can bootstrap MySQL Router to direct traffic between MySQL applications and InnoDB Cluster. Applications that connect to the router will be automatically directed to an available read/write or read-only member of the cluster.
The boostrapping process requires a connection to InnoDB Cluster. In order to register the MySQL Router for monitoring, use the current Read/Write instance of the cluster.
Hostname:
Port:
3306
Management User:
root
Password:
Test Connection
MySQL Router requires specification of a base port (between 80 and 65532). The first port is used for classic read/write connections. The other ports are computed sequentially after the first port. If any port is indicated to be in use, please change the base port.
Classic MySQL protocol connections to InnoDB Cluster:
Read/Write:
6446
Read Only:
6447
X Protocol connections to InnoDB Cluster:
Read/Write:
6448
Read Only:
6449
Finish
Cancel


MySQL Installer
MySQL. Installer
Adding Community
Choosing a Setup Type
Installation
Product Configuration
Installation Complete
Product Configuration
We'll now walk through a configuration wizard for each of the following products.
You can cancel at any point if you wish to leave this wizard without configuring all the products.
Product
Status
MySQL Server 8.0.36
Configuration complete.
MySQL Router 8.0.36
Configuration not needed.
Samples and Examples 8.0.36
Ready to configure
Next >
Cancel


MySQL Installer
MySQL. Installer
Samples and Examples
Connect To Server
Apply Configuration
Connect To Server
Select the MySQL server instances from the list to receive sample schemas and data.
Server
Port
Arch...
Type
Status
MySQL Server 8.0.36
3306
X64
Stand-alone Server
Running
Provide the credentials that should be used (requires root privileges).
Click "Check" to ensure they work.
User name:
root
Credentials provided in Server configuration
Password:
Check
Next >
Cancel


MySQL Installer
MySQL. Installer
Samples and Examples
Connect To Server
Apply Configuration
Connect To Server
Select the MySQL server instances from the list to receive sample schemas and data.
Server
Port
Arch...
Type
Status
MySQL Server 8.0.36
3306
X64
Stand-alone Server
Connection succeeded.
Provide the credentials that should be used (requires root privileges).
Click "Check" to ensure they work.
User name:
root
Credentials provided in Server configuration
Password:
Check
Next >
Cancel



MySQL Command-Line Client

Step1: Set PATH Environmrnt Vartiable

-> Edit System Environment Variable

-> Click on Environment Variable

-> Goto System Variable

-> Select Path Variable and click on edit button

-> Click on new button

-> paste the path (C:\Program Files\MySQL\MySQL Server 8.0\bin)

open command prompt

mysql -u root -p