# Deployment Plan - Online Appointment Management System

## 1. Introduction

### 1.1 Purpose

This document outlines the deployment strategy for the Online Restaurant Reservation Management System, ensuring a smooth transition from development to production while maintaining reliability, security, and scalability.

### 1.2 Scope

The deployment plan covers the release process, environments, CI/CD pipelines, rollback strategy, monitoring, and security measures.

### 1.3 Target Audience -

DevOps Engineers

- System Administrators
- Developers
- QA Engineers

## 2. Deployment Architecture

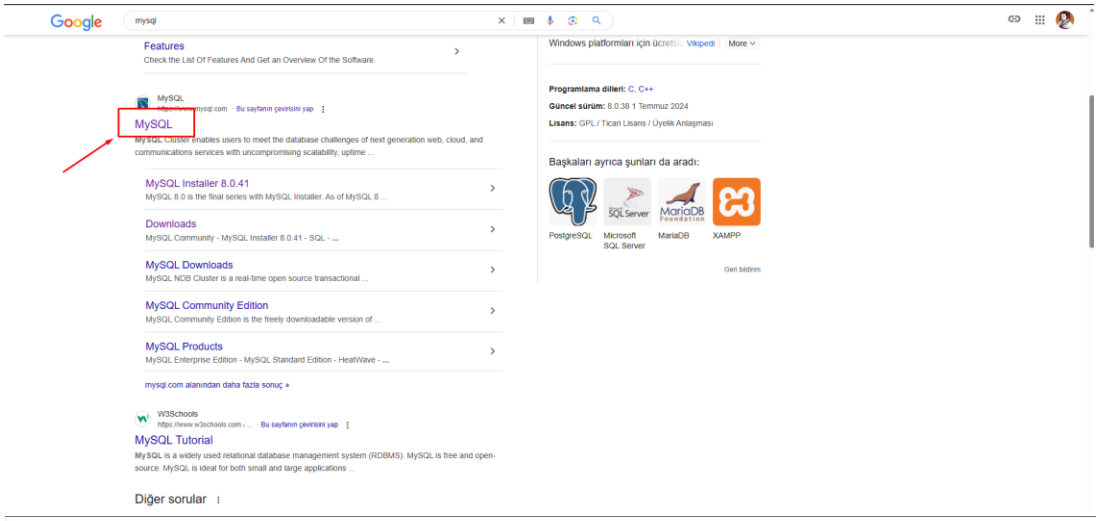
### 2.1 Infrastructure Overview

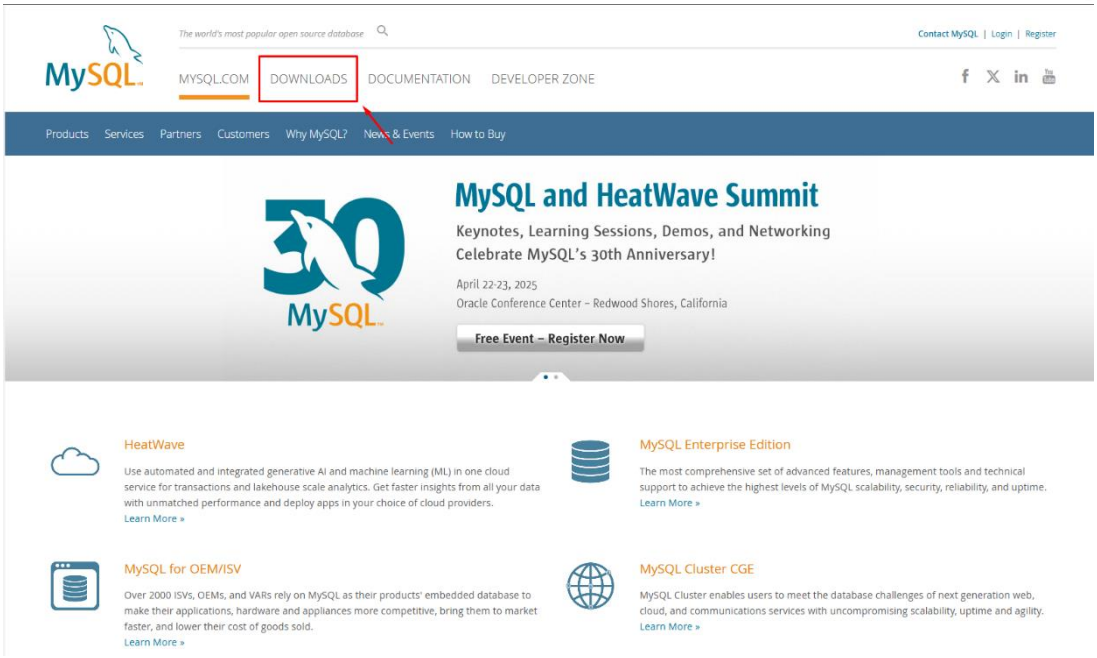
- **Cloud Provider**: AWS / Google Cloud / Azure
- **Compute Services**: EC2 / Kubernetes / Docker Containers
- **Database**: MySQL (Managed Service)
- **Storage**: S3 for static assets, EFS for persistent data
- **Caching**: Redis / Memcached
- **Load Balancing**: Elastic Load Balancer (ELB) / Nginx / Cloudflare
- **Monitoring & Logging**: Prometheus, Grafana, ELK Stack (Elasticsearch, Logstash, Kibana)

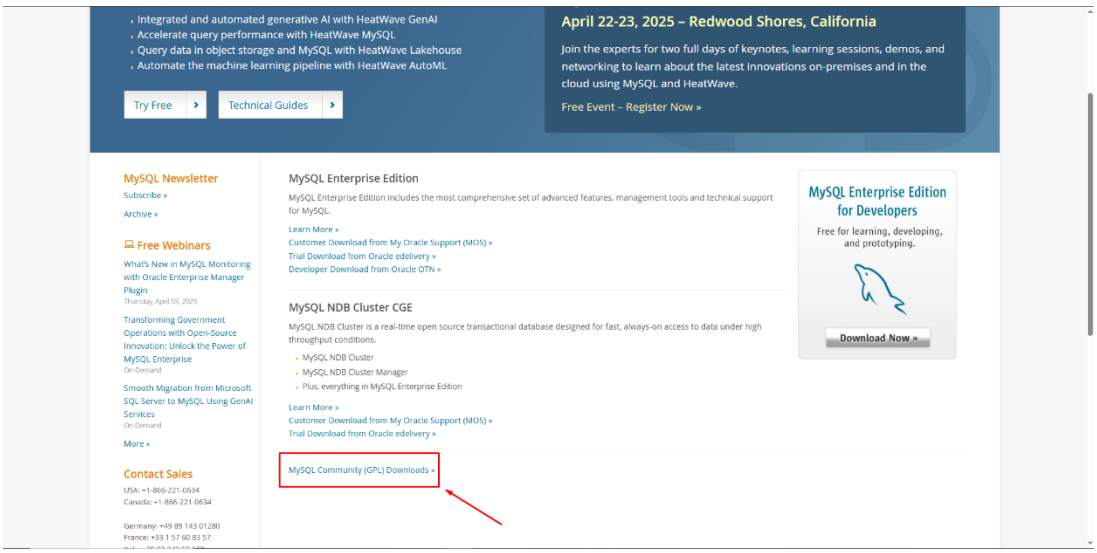
### 2.2 Deployment Environments

| Environment | Purpose | Hosting Platform |
|---|---|---|
| **Development** | Ongoing development/testing | Local / Cloud Dev Instance |
| **Staging** | Pre-production testing | Cloud Staging Instance |
| **Production** | Live system for end users | Cloud Production Instance |

# 3. Deployment Process

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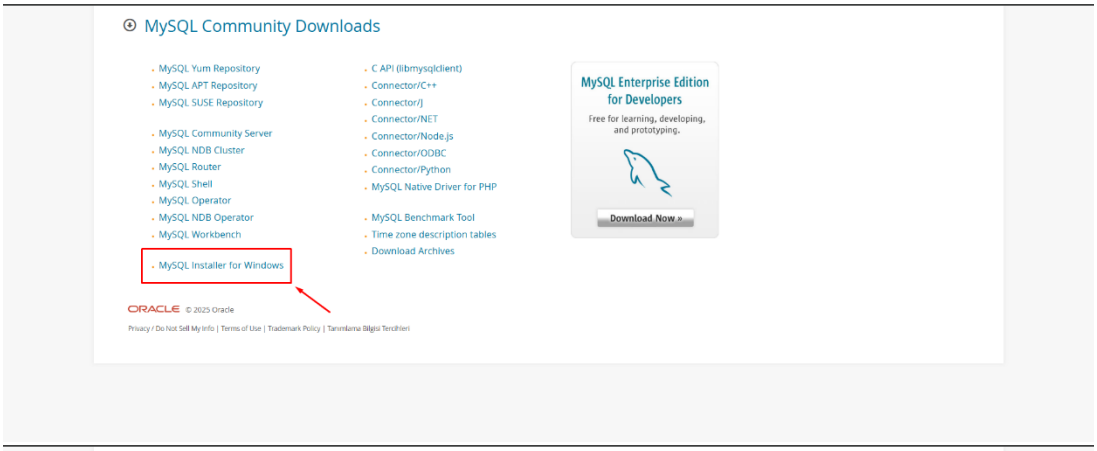
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MySQL APT Repository
MySQL SUSE Repository
MySQL Community Server
MySQL NDB Cluster
MySQL Router
MySQL Shell
MySQL Operator
MySQL NDB Operator
MySQL Workbench
MySQL Installer for Windows
C API (libmysqlclient)
Connector/C++
Connector/J
Connector/NET
Connector/Node.js
Connector/ODBC
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MySQL Native Driver for PHP
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Time zone description tables
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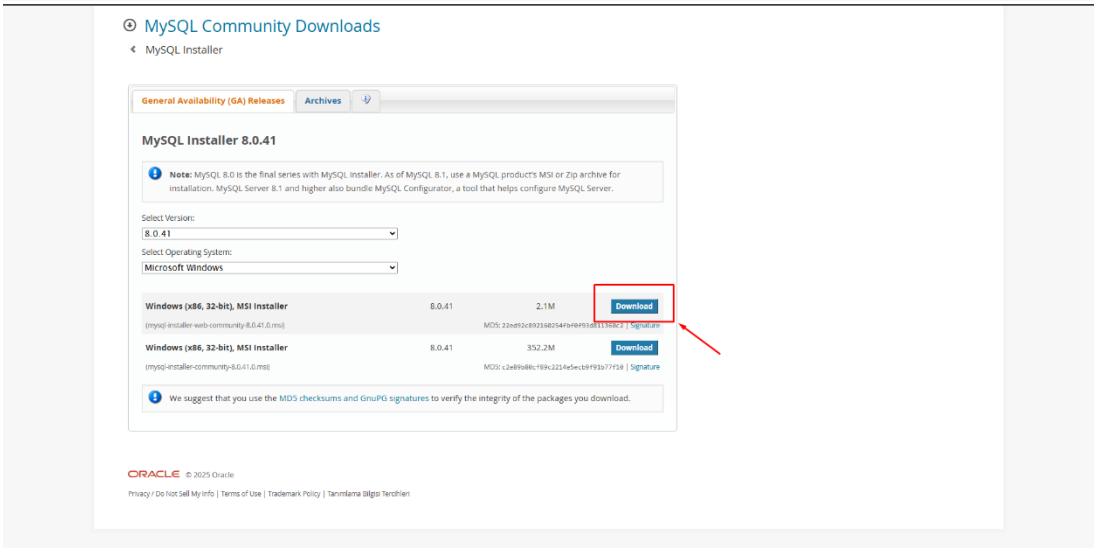
MySQL Community Downloads
MySQL Installer
General Availability (GA) Releases
Archives
MySQL Installer 8.0.41
Note: MySQL 8.0 is the final series with MySQL Installer. As of MySQL 8.1, use a MySQL product's MSI or Zip archive for installation. MySQL Server 8.1 and higher also bundle MySQL Configurator, a tool that helps configure MySQL Server.
Select Version:
8.0.41
Select Operating System:
Microsoft Windows
Windows (x86, 32-bit), MSI Installer
8.0.41
2.1M
Download
(mysql-installer-web-community-8.0.41.0.msi)
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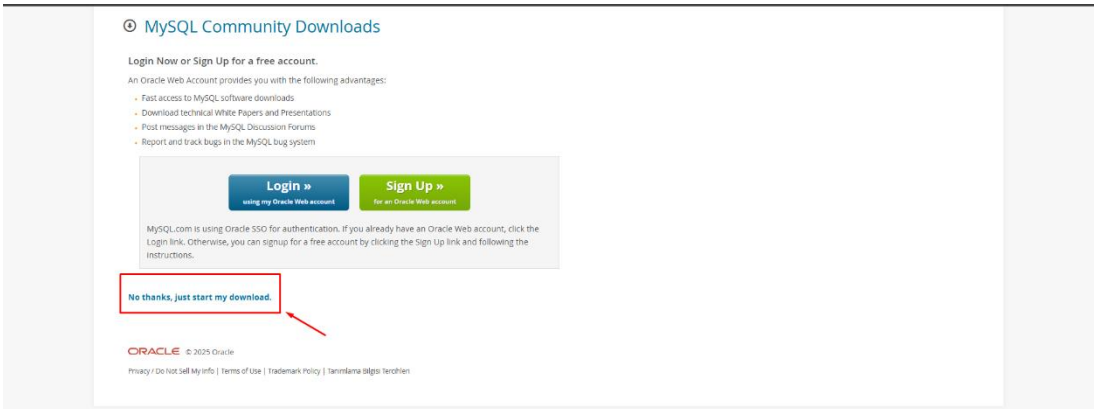
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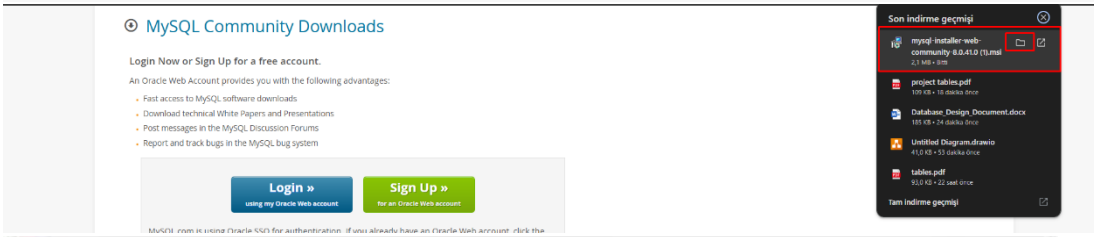
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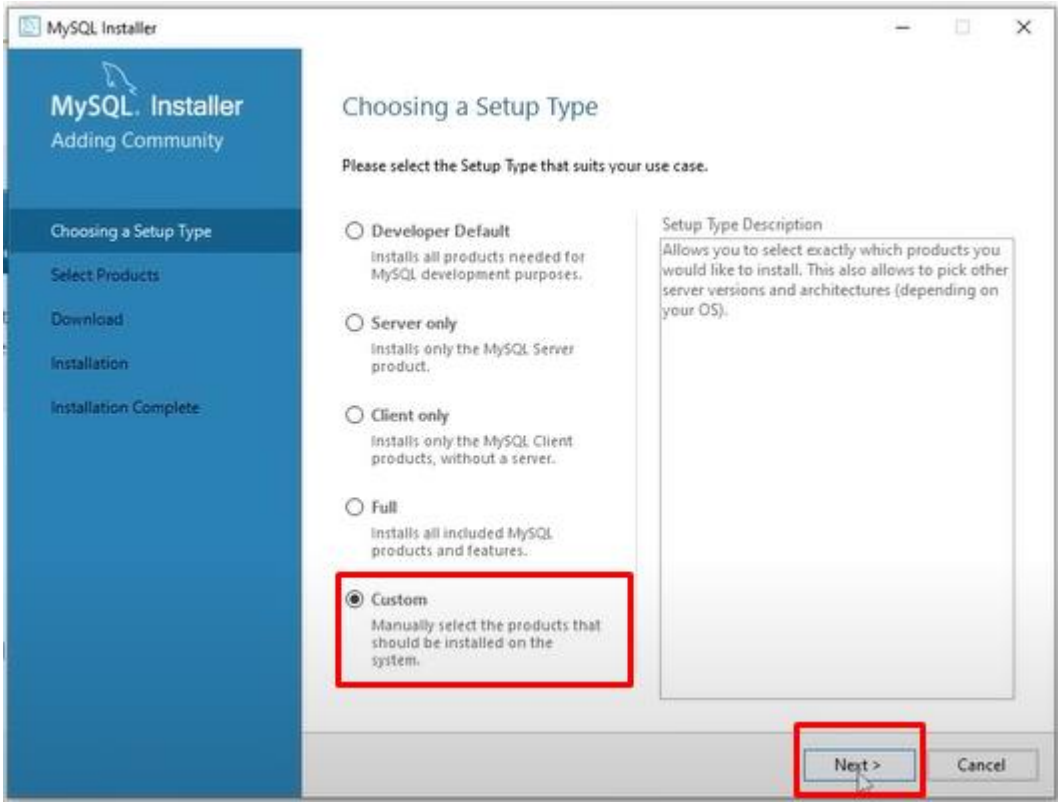
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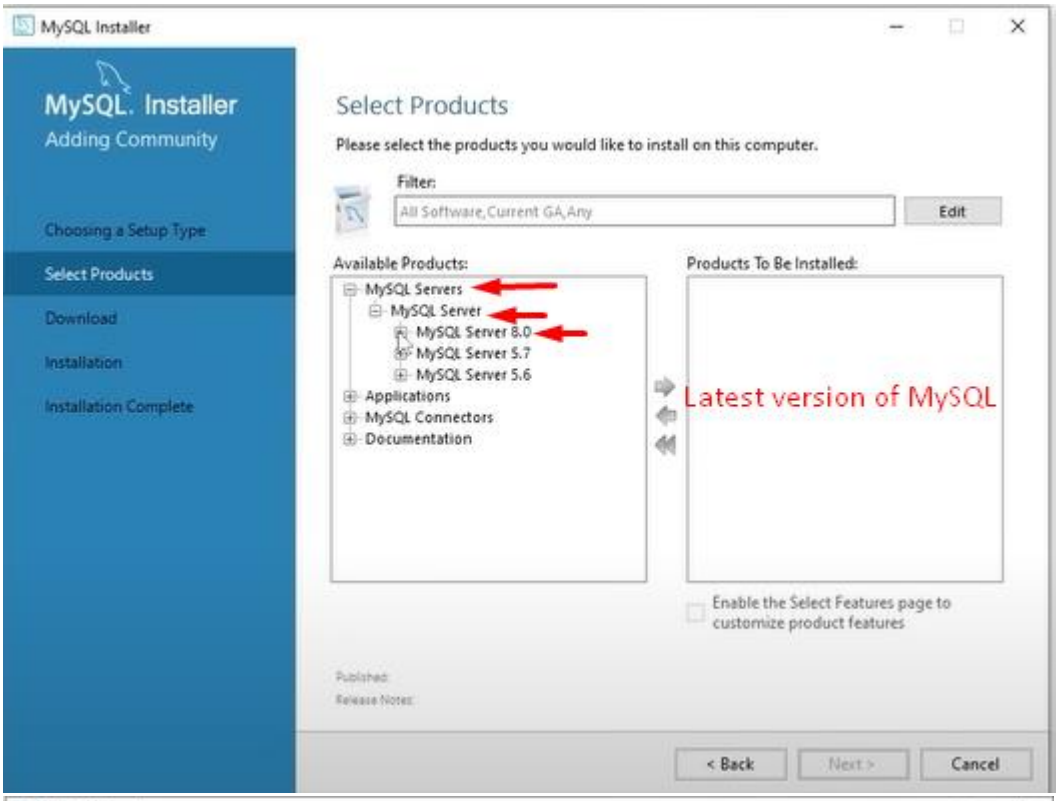
MySQL. Installer
Adding Community
Choosing a Setup Type
Select Products
Download
Installation
Installation Complete
Choosing a Setup Type
Please select the Setup Type that suits your use case.
Developer Default
Installs all products needed for MySQL development purposes.
Server only
Installs only the 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
Allows you to select exactly which products you would like to install. This also allows to pick other server versions and architectures (depending on your OS).
Next >
Cancel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Adding Community
Choosing a Setup Type
Select Products
Download
Installation
Installation Complete
Select Products
Please select the products you would like to install on this computer.
Filter:
All Software,Current GA,Any
Edit
Available Products:
MySQL Servers
MySQL Server
MySQL Server 8.0
MySQL Server 5.7
MySQL Server 5.6
Applications
MySQL Connectors
Documentation
Products To Be Installed:
Latest version of MySQL
Enable the Select Features page to customize product features
Published:
Release Notes:
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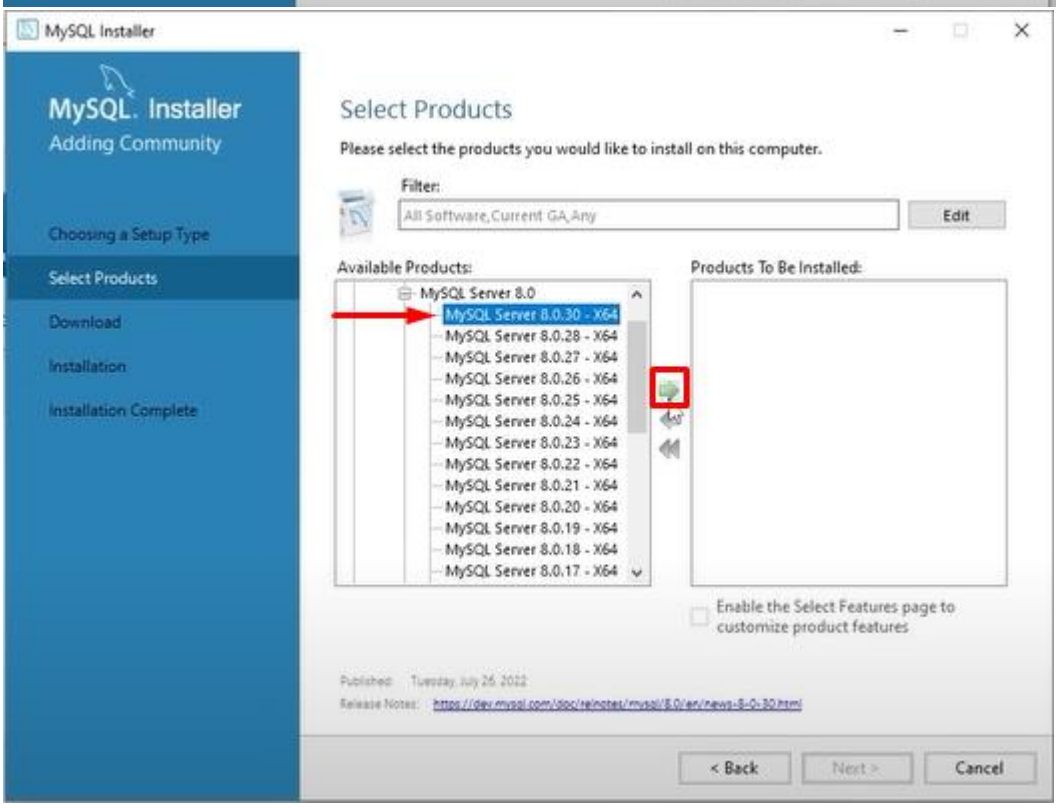
MySQL Installer
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Choosing a Setup Type
Select Products
Download
Installation
Installation Complete
Select Products
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Filter:
All Software,Current GA,Any
Edit
Available Products:
MySQL Server 8.0
MySQL Server 8.0.30 - X64
MySQL Server 8.0.28 - X64
MySQL Server 8.0.27 - X64
MySQL Server 8.0.26 - X64
MySQL Server 8.0.25 - X64
MySQL Server 8.0.24 - X64
MySQL Server 8.0.23 - X64
MySQL Server 8.0.22 - X64
MySQL Server 8.0.21 - X64
MySQL Server 8.0.20 - X64
MySQL Server 8.0.19 - X64
MySQL Server 8.0.18 - X64
MySQL Server 8.0.17 - X64
Products To Be Installed:
Enable the Select Features page to customize product features
Published: Tuesday, July 26, 2022
Release Notes: https://dev.mysql.com/doc/relnotes/mysql/8.0/en/news-8-0-30.html
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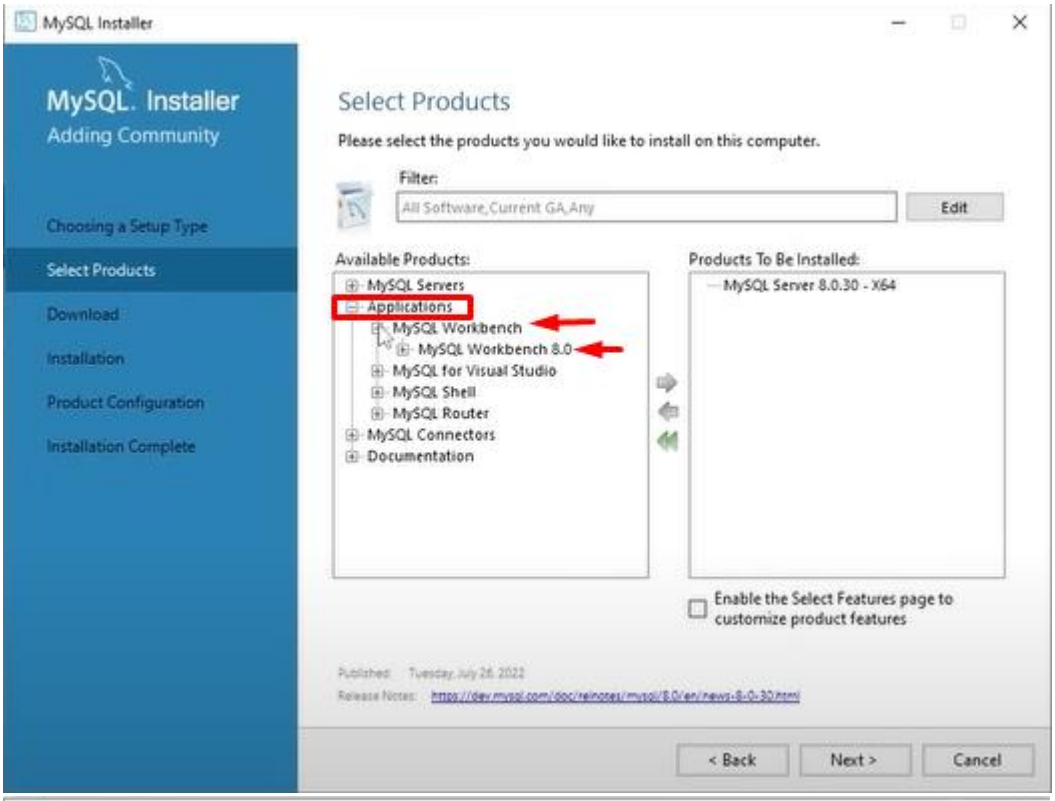
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Adding Community
Choosing a Setup Type
Select Products
Download
Installation
Product Configuration
Installation Complete
Select Products
Please select the products you would like to install on this computer.
Filter:
All Software,Current GA,Any
Edit
Available Products:
MySQL Servers
Applications
MySQL Workbench
MySQL Workbench 8.0
MySQL for Visual Studio
MySQL Shell
MySQL Router
MySQL Connectors
Documentation
Products To Be Installed:
MySQL Server 8.0.30 - X64
Enable the Select Features page to customize product features
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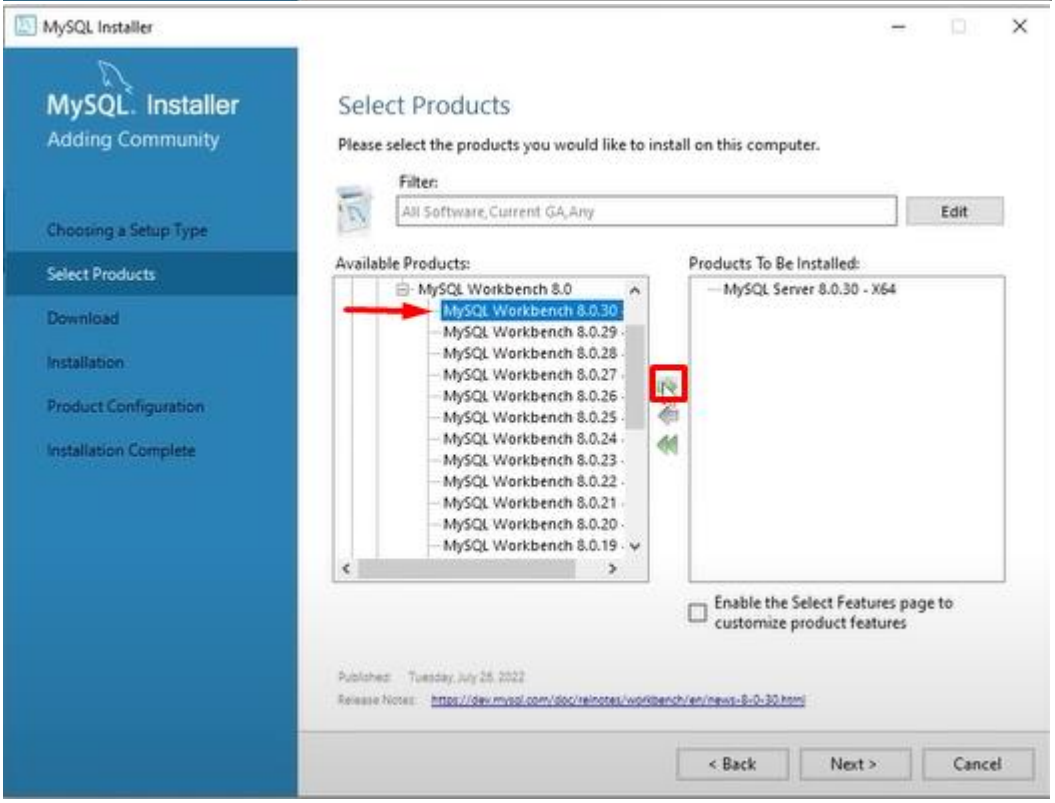
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Product Configuration
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Edit
Available Products:
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MySQL Workbench 8.0.29
MySQL Workbench 8.0.28
MySQL Workbench 8.0.27
MySQL Workbench 8.0.26
MySQL Workbench 8.0.25
MySQL Workbench 8.0.24
MySQL Workbench 8.0.23
MySQL Workbench 8.0.22
MySQL Workbench 8.0.21
MySQL Workbench 8.0.20
MySQL Workbench 8.0.19
Products To Be Installed:
MySQL Server 8.0.30 - X64
Enable the Select Features page to customize product features
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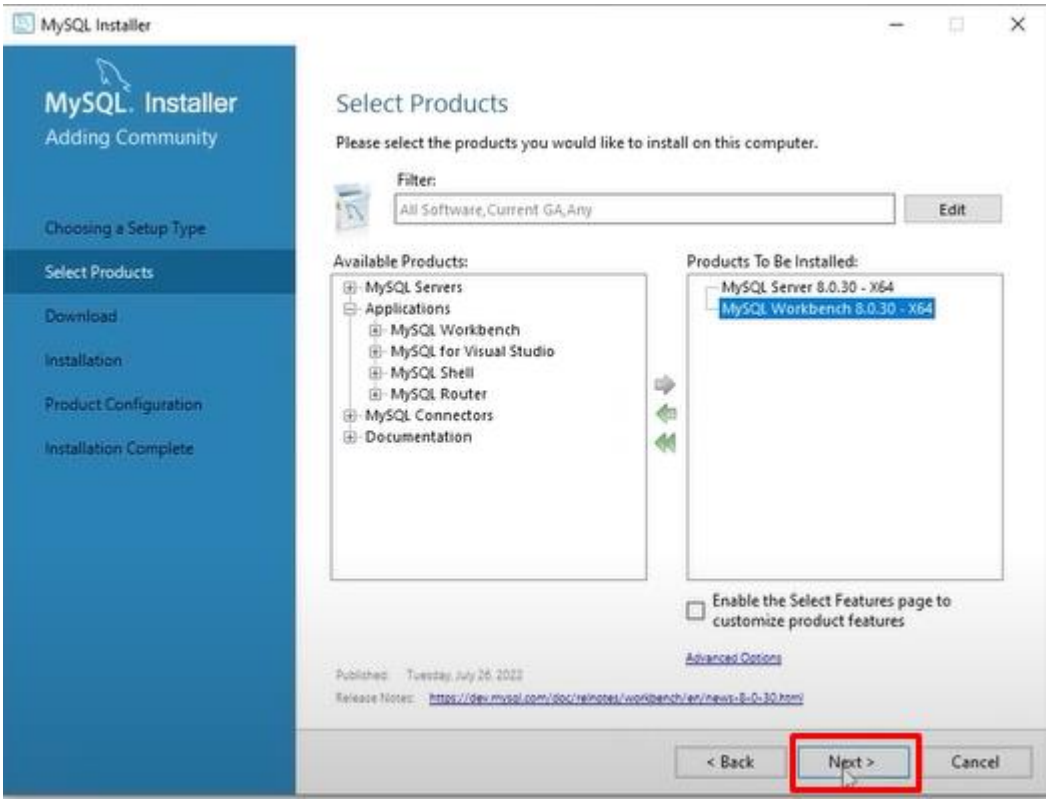
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Product Configuration
Installation Complete
Select Products
Please select the products you would like to install on this computer.
Filter:
All Software,Current GA,Any
Edit
Available Products:
MySQL Servers
Applications
MySQL Workbench
MySQL for Visual Studio
MySQL Shell
MySQL Router
MySQL Connectors
Documentation
Products To Be Installed:
MySQL Server 8.0.30 - X64
MySQL Workbench 8.0.30 - X64
Enable the Select Features page to customize product features
Advanced Options
Published: Tuesday, July 26, 2022
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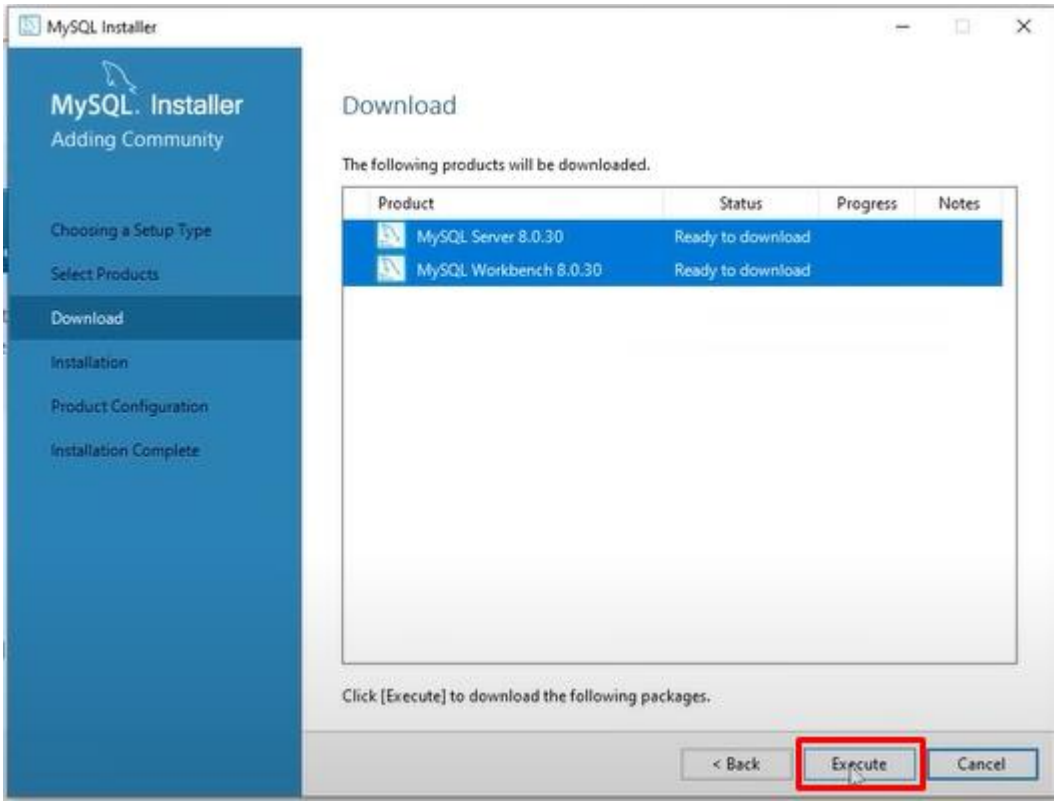
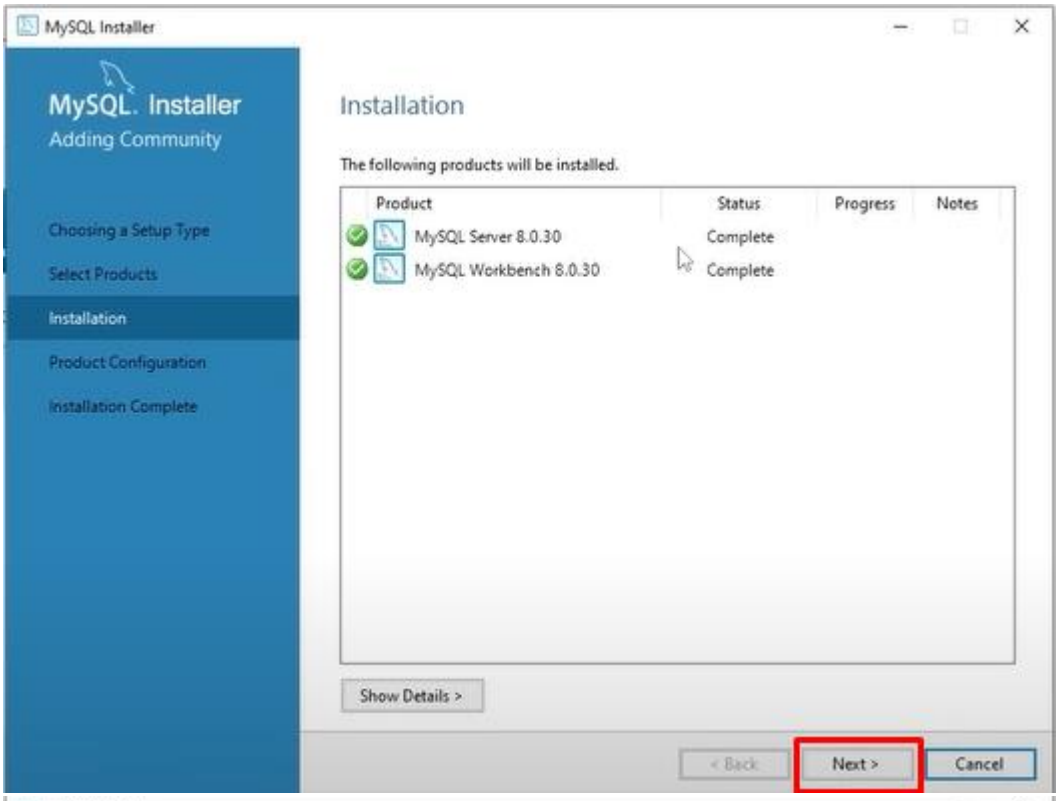
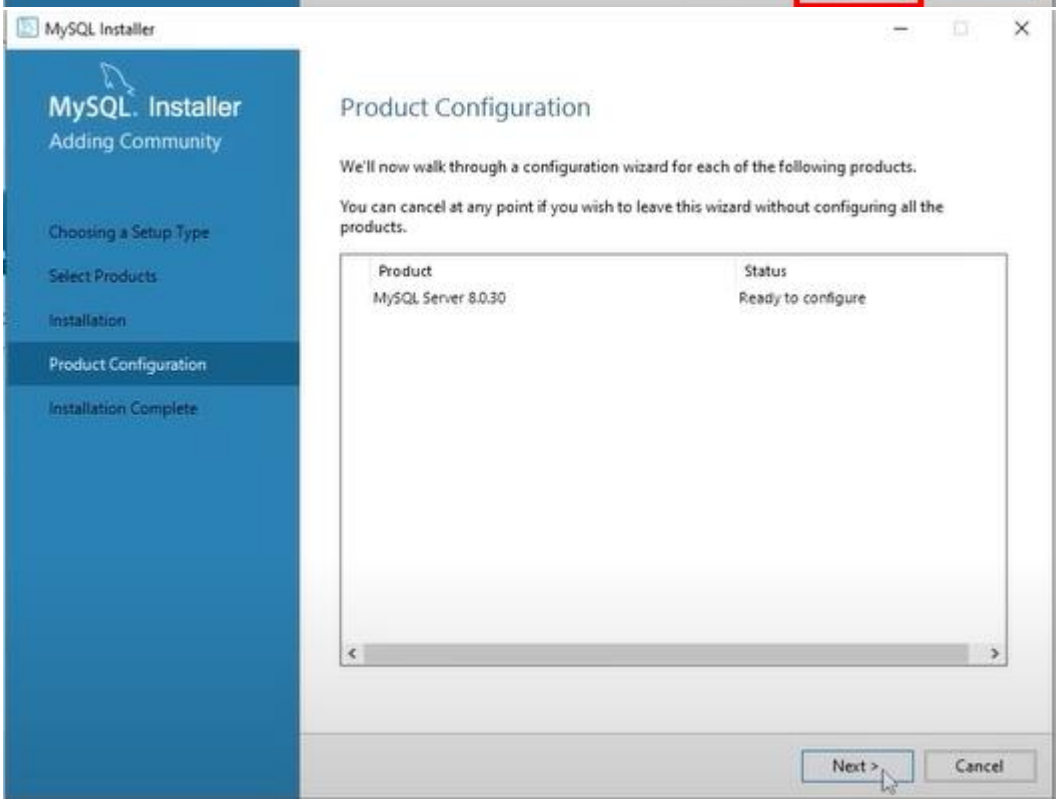
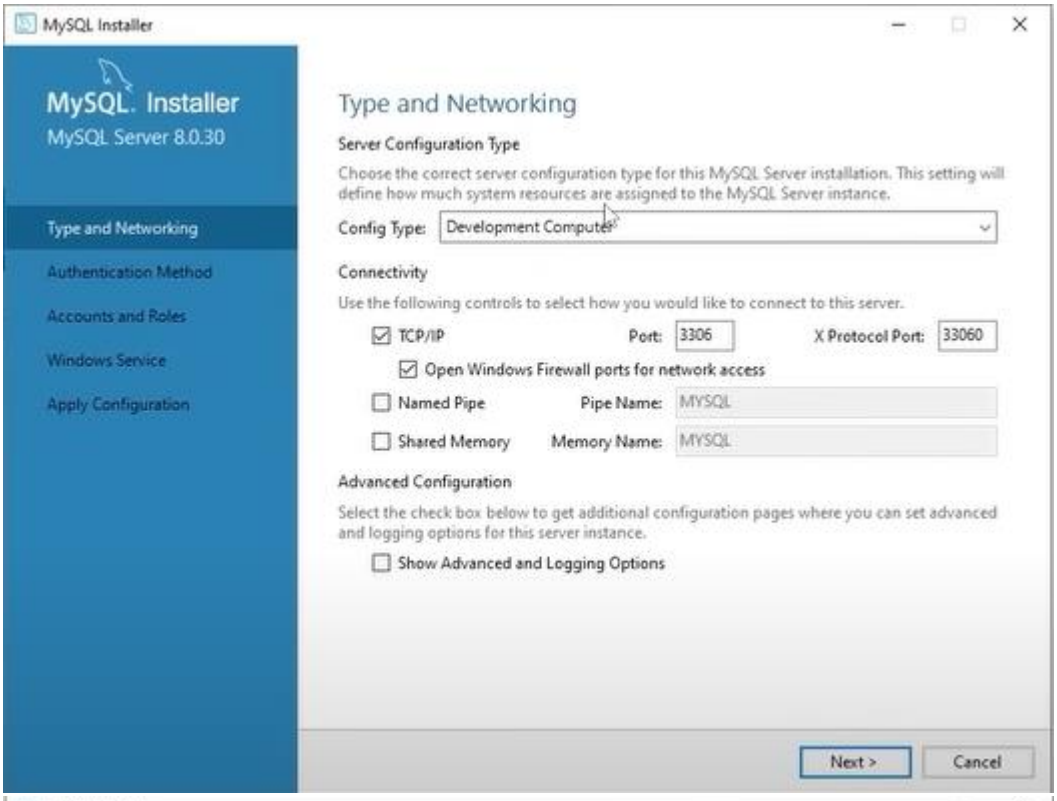
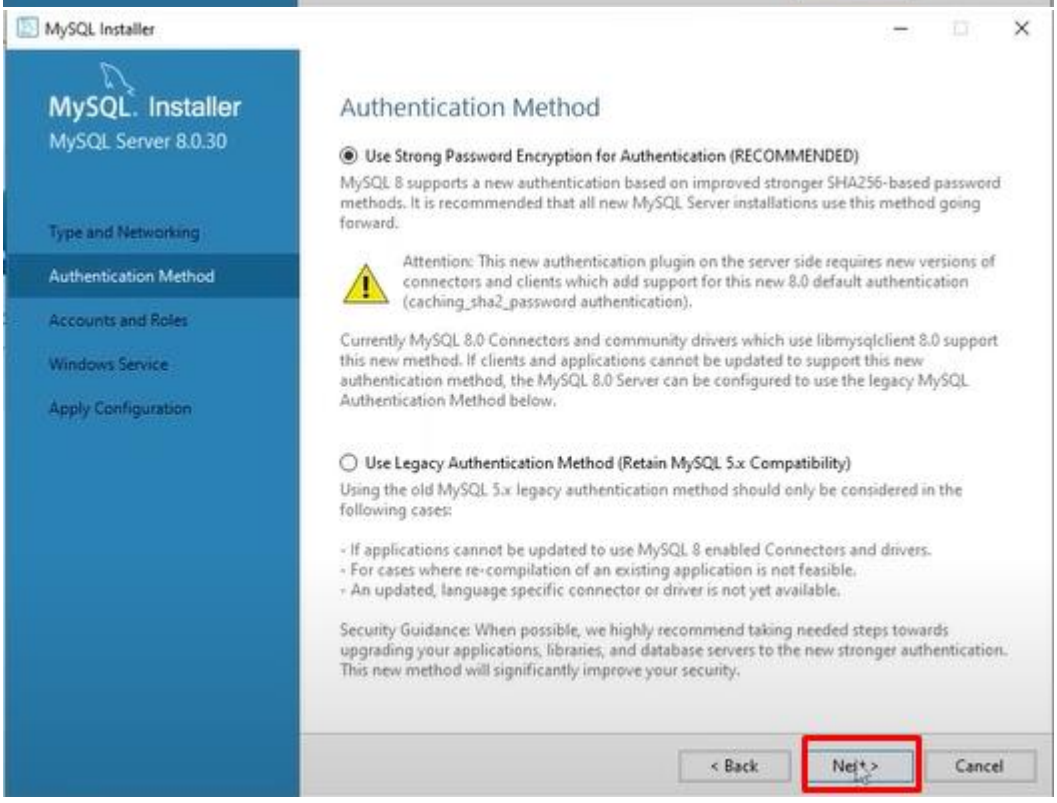
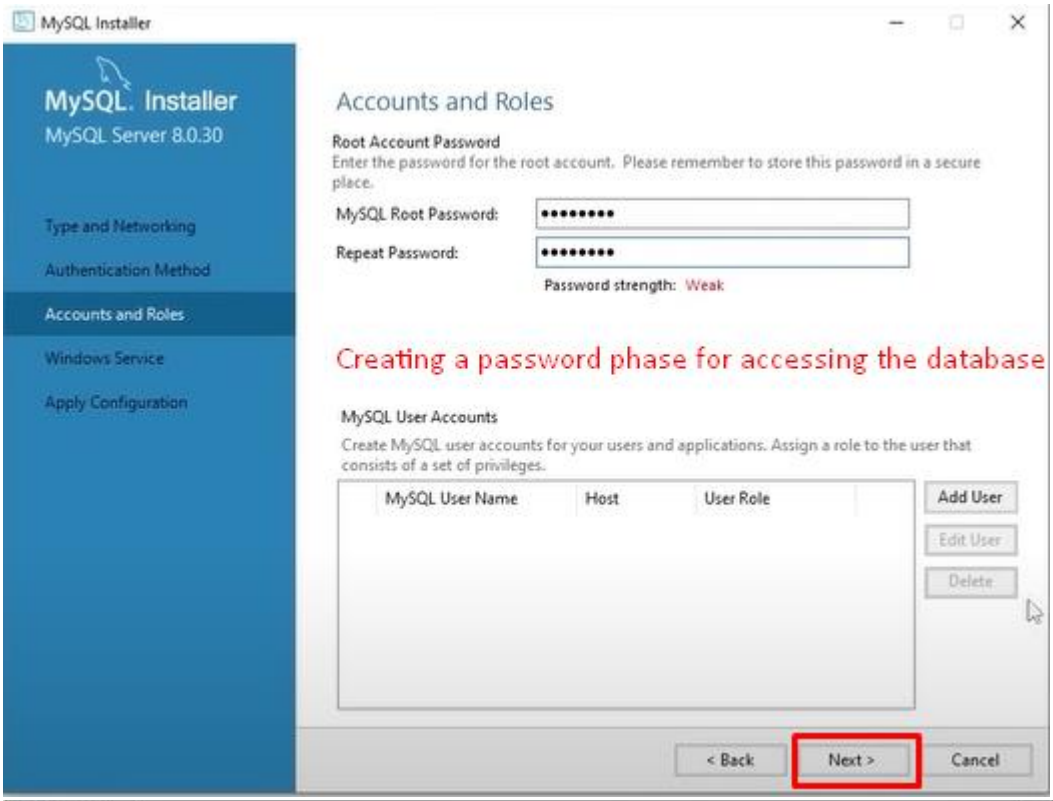

MySQL Installer
MySQL. Installer
Adding Community
Choosing a Setup Type
Select Products
Download
Installation
Product Configuration
Installation Complete
Download
The following products will be downloaded.
Product
Status
Progress
Notes
MySQL Server 8.0.30
Ready to download
MySQL Workbench 8.0.30
Ready to download
Click [Execute] to download the following packages.
< Back
Execute
Cancel

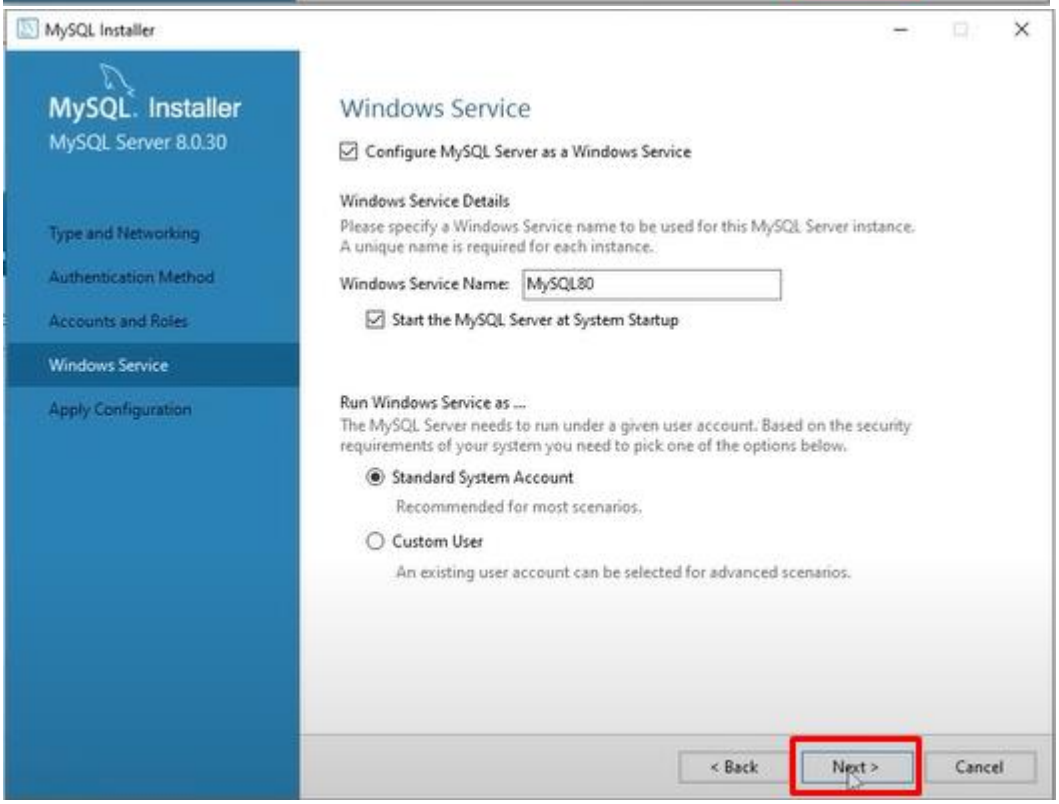

MySQL Installer
MySQL. Installer
Adding Community
Choosing a Setup Type
Select Products
Installation
Product Configuration
Installation Complete
Installation
The following products will be installed.
Product
Status
Progress
Notes
MySQL Server 8.0.30
Complete
MySQL Workbench 8.0.30
Complete
Show Details >
< Back
Next >
Cancel

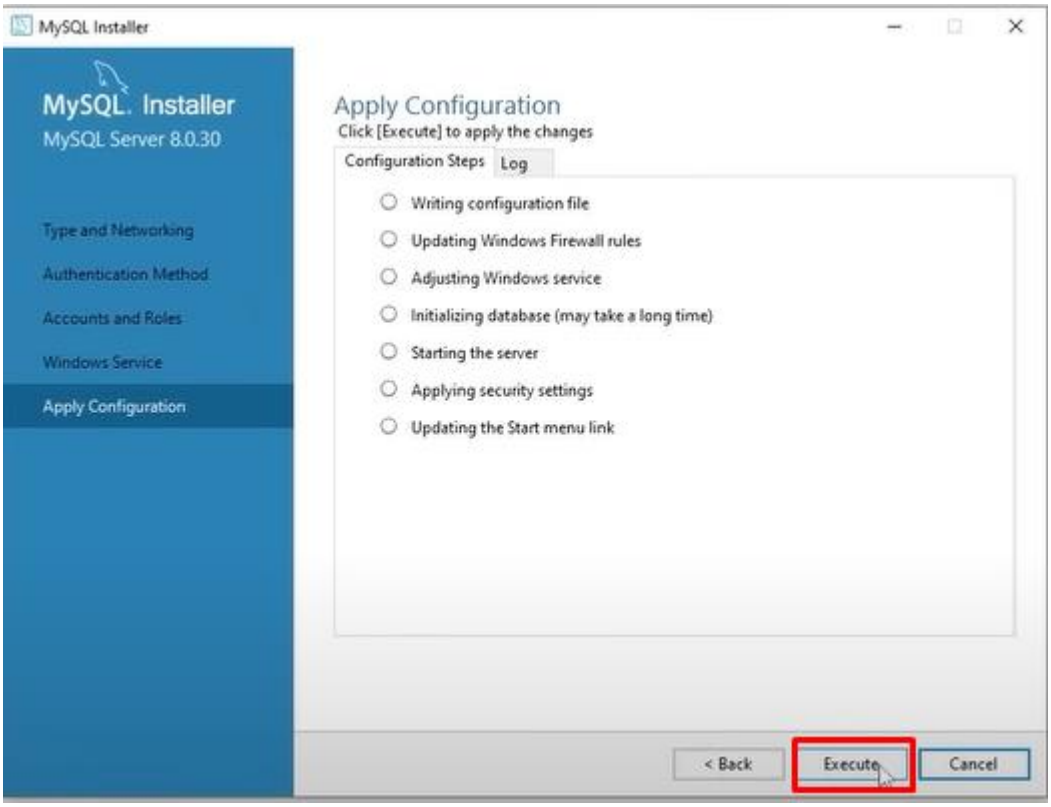

MySQL Installer
MySQL. Installer
Adding Community
Choosing a Setup Type
Select Products
Installation
Product Configuration
Installation Complete
Product Configuration
We'll now walk through a configuration wizard for each of the following products.
You can cancel at any point if you wish to leave this wizard without configuring all the products.
Product
Status
MySQL Server 8.0.30
Ready to configure
Next >
Cancel

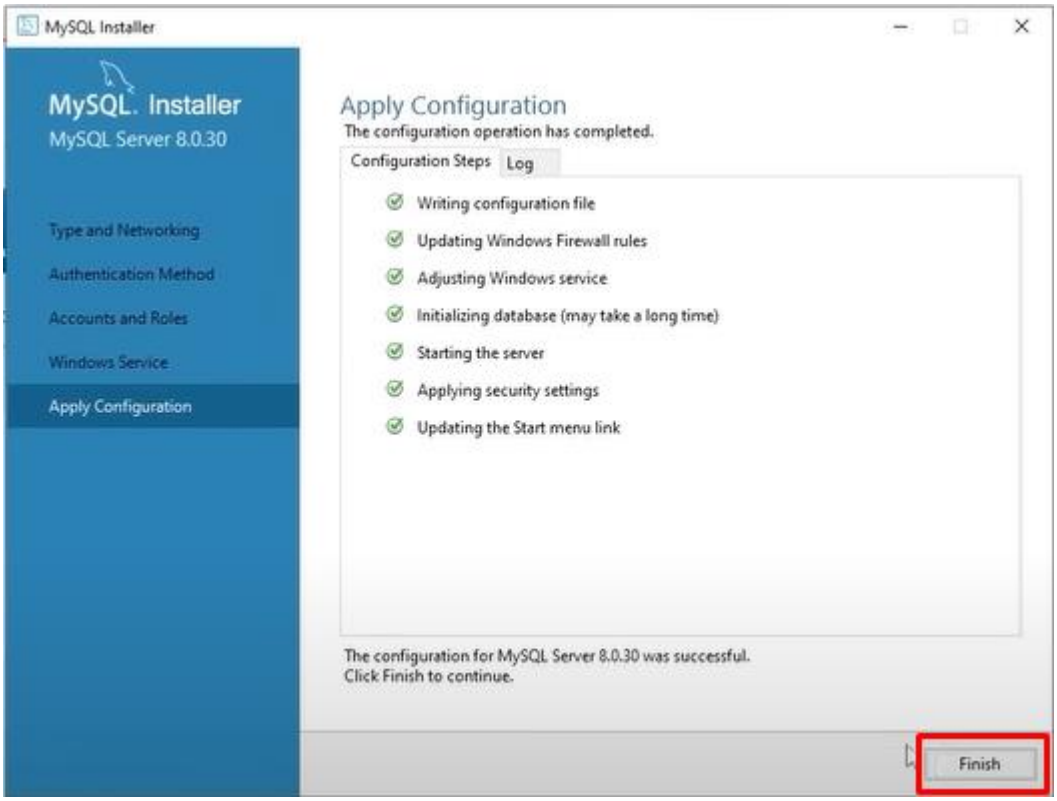

MySQL Installer
MySQL. Installer
MySQL Server 8.0.30
Type and Networking
Authentication Method
Accounts and Roles
Windows Service
Apply Configuration
Type and Networking
Server Configuration Type
Choose the correct server configuration type for this MySQL Server installation. This setting will define 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
Next >
Cancel

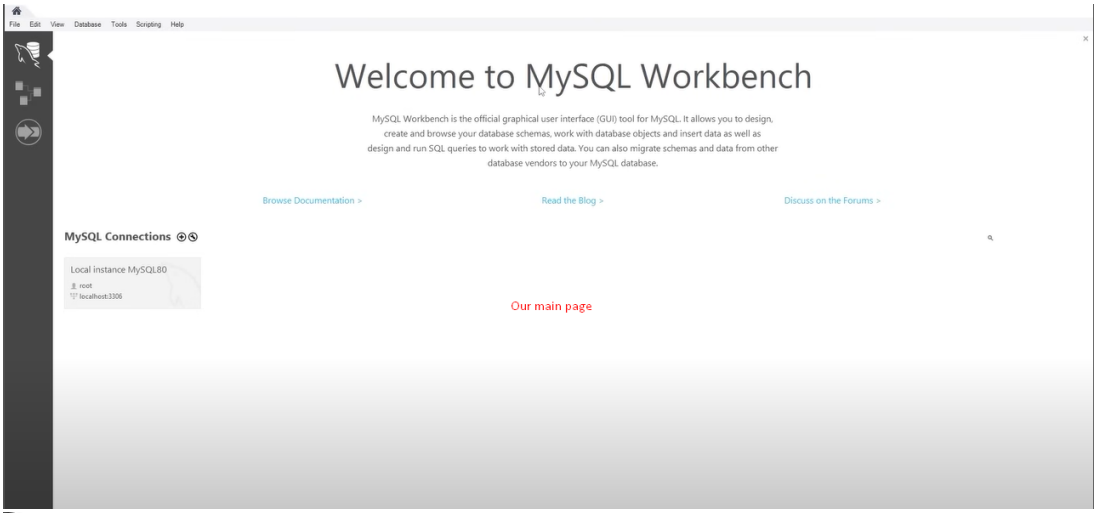

MySQL Installer
MySQL. Installer
MySQL Server 8.0.30
Type and Networking
Authentication Method
Accounts and Roles
Windows Service
Apply Configuration
Authentication Method
Use Strong Password Encryption for Authentication (RECOMMENDED)
MySQL 8 supports a new authentication based on improved stronger 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.
< Back
Next >
Cancel

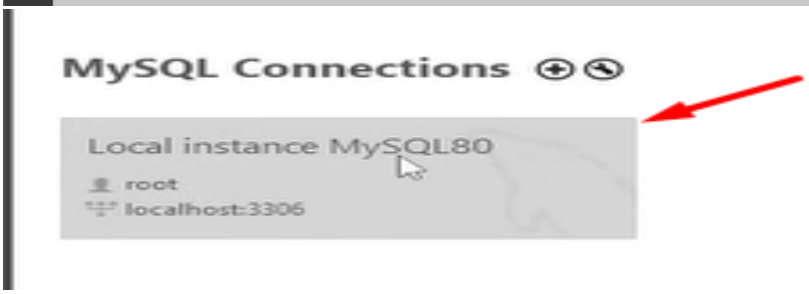

MySQL Installer
MySQL. Installer
MySQL Server 8.0.30
Type and Networking
Authentication Method
Accounts and Roles
Windows Service
Apply Configuration
Accounts and Roles
Root Account Password
Enter the password for the root account. Please remember to store this password in a secure place.
MySQL Root Password:
Repeat Password:
Password strength: Weak
Creating a password phase for accessing the database
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 8.0.30
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:
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 8.0.30
Type and Networking
Authentication Method
Accounts and Roles
Windows Service
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)
Starting the server
Applying security settings
Updating the Start menu link
< Back
Execute
Cancel


MySQL Installer
MySQL. Installer
MySQL Server 8.0.30
Type and Networking
Authentication Method
Accounts and Roles
Windows Service
Apply Configuration
Apply Configuration
The configuration operation has completed.
Configuration Steps
Log
Writing configuration file
Updating Windows Firewall rules
Adjusting Windows service
Initializing database (may take a long time)
Starting the server
Applying security settings
Updating the Start menu link
The configuration for MySQL Server 8.0.30 was successful.
Click Finish to continue.
Finish




### 3.1 Continuous Integration & Deployment (CI/CD)

**Tools Used**: GitHub Actions / Jenkins / GitLab CI **Steps**:

1. Code is pushed to repository (GitHub / GitLab / Bitbucket).
2. Automated tests are executed.
3. Code is built into Docker images.
4. Artifacts are stored in container registry.
5. Deployment to staging environment for final verification.
6. Manual or automated approval for production release.
7. Deployment to production using blue-green or rolling update strategy.

### 3.2 Deployment Strategies

| Strategy | Description |
|---|---|
| **Blue-Green** | Two identical environments; traffic is switched to the new version after verification. |
| **Rolling Update** | Gradually deploys new versions, ensuring zero downtime. |
| **Canary Release** | Deploys to a small percentage of users first before full rollout. |

### 3.3 Rollback Strategy

- **Database Backups**: Automatic backups before deployment.
- **Feature Flags**: Toggle features off if a failure occurs.
- **Versioned Deployments**: Ability to revert to the last stable version.

- **Monitoring Alerts**: Immediate alerts in case of failure.

## 4. Monitoring & Logging

### 4.1 Monitoring Tools

- **Application Performance**: New Relic / Datadog
- **Infrastructure Monitoring**: Prometheus / Grafana
- **Error Tracking**: Sentry / ELK Stack

### 4.2 Logging Framework

- **Centralized Logging**: Logstash & Kibana for log aggregation.
- **Retention Policy**: Logs retained for 90 days.

## 5. Security Considerations

### 5.1 Authentication & Authorization

- JWT-based authentication.
- Role-based access control (RBAC).

### 5.2 Data Protection

- Encrypted data at rest and in transit (AES-256, TLS 1.2+).
- Regular security audits and vulnerability scanning.

### 5.3 DDoS Protection

- Cloudflare / AWS Shield for mitigation.
- Rate limiting on API endpoints.

## 6. Backup & Disaster Recovery Plan

### 6.1 Backup Strategy

- Database Backups: Daily full backups, hourly incremental backups.
- File Storage Backups: Version-controlled backups of static assets.

### 6.2 Disaster Recovery Plan

- Failover Strategy: Multi-region deployment for high availability.
- Recovery Time Objective (RTO): Less than 15 minutes.
- Recovery Point Objective (RPO): Less than 5 minutes.

## 7. Conclusion

This deployment plan provides a structured approach for ensuring the secure, reliable, and scalable deployment of the Restaurant Reservation Management System. The plan ensures zero downtime, robust monitoring, and a well-defined rollback strategy for maintaining system integrity.