Hands-on Lab: Create Tables using SQL Scripts and Load Data into Tables in MySQL using phpMyAdmin

Estimated time needed: 20 minutes

In this lab, you will learn how to create tables and load data in the MySQL database service using the phpMyAdmin graphical user interface (GUI) tool.

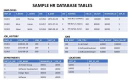
Software Used in this Lab

In this lab, you will use MySQL. MySQL is a Relational Database Management System (RDBMS) designed to efficiently store, manipulate, and retrieve data.

To complete this lab you will utilize MySQL relational database service available as part of IBM Skills Network Labs (SN Labs) Cloud IDE. SN Labs is a virtual lab environment used in this course.

Database Used in this Lab

The database used in this lab is an internal database. You will be working on a sample HR database. This HR database schema consists of 5 tables called **EMPLOYEES, JOB_HISTORY, JOBS, DEPARTMENTS** and **LOCATIONS**. Each table has a few rows of sample data. The following diagram shows the tables for the HR database:



SAMPLE HR DATABASE TABLES

EMPLOYEES

EMP_ID	F_NAME	L_NAME	SSN	B_DATE	SEX	ADDRESS	JOB_ID	SALARY	MANAGER_ID	DEP_ID
E1001	John	Thomas	123456	1976-01-09	M	5631 Rice, OakPark,IL	100	100000	30001	2
E1002	Alice	James	123457	1972-07-31	F	980 Berry ln, Elgin,IL	200	80000	30002	5
E1003	Steve	Wells	123458	1980-08-10	M	291 Springs, Gary,IL	300	50000	30002	5

JOB_HISTORY

EMPL_ID	START_DATE	JOBS_ID	DEPT_ID
E1001	2000-01-30	100	2
E1002	2010-08-16	200	5
E1003	2016-08-10	300	5

JOBS

JOB_IDENT	JOB_TITLE	MIN_SALARY	MAX_SALARY
100	Sr. Architect	60000	100000
200	Sr.SoftwareDeveloper	60000	80000
300	Jr.SoftwareDeveloper	40000	60000

DEPARTMENTS

DEPT_ID_DEP	DEP_NAME	MANAGER_ID	LOC_ID
2	Architect Group	30001	L0001
5	Software Development	30002	L0002
7	Design Team	30003	L0003
5	Software	30004	L0004

LOCATIONS

LOCT_ID	DEP_ID_LOC
L0001	2
L0002	5
L0003	7

Objectives

After completing this lab, you will be able to use phpMyAdmin with MySQL to:

- Create a database.
- Create tables using SQL scripts
- Load data into tables

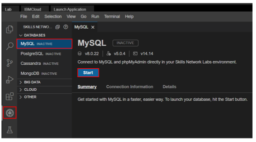
Exercise

In this exercise through different tasks, you will learn how to create tables and load data in the MySQL database service using the phpMyAdmin graphical user interface (GUI) tool.

Task A: Create a database

1. Click on **Skills Network Toolbox**. In **Database** section, click **MySQL**.

To start the MySQL click **Start**.

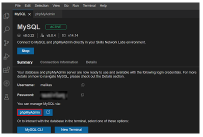


Lab
IBMCloud
Launch Application
File Edit Selection View Go Run Terminal Help
SKILLS NETWO...
MySQL
DATABASES
MySQL INACTIVE
PostgreSQL INACTIVE
Cassandra INACTIVE
MongoDB INACTIVE
BIG DATA
CLOUD
OTHER
MySQL INACTIVE
v8.0.22
v5.0.4
v14.14
Start
Summary
Connection Information
Details

Connect to MySQL and phpMyAdmin directly in your Skills Network Labs environment.

Get started with MySQL in a faster, easier way. To launch your database, hit the Start button.

2. Once **MySQL** has started, click on **phpMyAdmin button** to open **phpMyAdmin** in the same window.



File Edit Selection View Go Run Terminal Help
MySQL
phpMyAdmin
MySQL ACTIVE
v8.0.22
v5.0.4
v14.14
Stop
Summary
Connection Information
Details
phpMyAdmin
MySQL CLI
New Terminal

Connect to MySQL and phpMyAdmin directly in your Skills Network Labs environment.

Your database and phpMyAdmin server are now ready to use and available with the following login credentials. For more details on how to navigate MySQL, please check out the Details section.

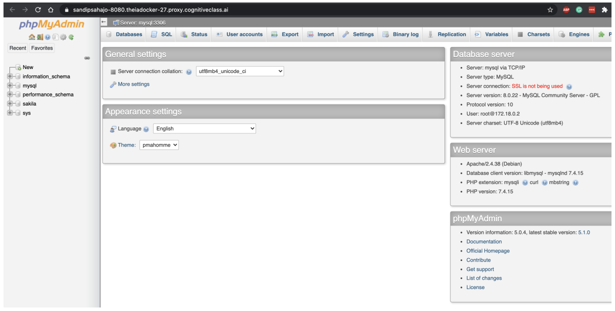
Username: mailkas

Password: [redacted]

You can manage MySQL via:

Or to interact with the database in the terminal, select one of these options:

3. You will see the phpMyAdmin GUI tool.



sandipsahajo-8080.theiadocker-27.proxy.cognitiveclass.ai

phpMyAdmin
Recent
Favorites
New
information_schema
mysql
performance_schema
sakila
sys
Server: mysql:3306
Databases
SQL
Status
User accounts
Export
Import
Settings
Binary log
Replication
Variables
Charsets
Engines

General settings

Server connection collation: utf8mb4_unicode_ci

More settings

Appearance settings

Language: English

Theme: pmahomme

Database server

- Server: mysql via TCP/IP
- Server type: MySQL
- Server connection: SSL is not being used
- Server version: 8.0.22 - MySQL Community Server - GPL
- Protocol version: 10
- User: root@172.18.0.2
- Server charset: UTF-8 Unicode (utf8mb4)

Web server

- Apache/2.4.38 (Debian)
- Database client version: libmysql - mysqlnd 7.4.15
- PHP extension: mysqli curl mbstring
- PHP version: 7.4.15

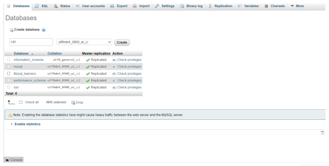
phpMyAdmin

- Version information: 5.0.4, latest stable version: 5.1.0
- Documentation
- Official Homepage
- Contribute
- Get support
- List of changes
- License

4. In the tree-view, click **New** to create a new empty database. Then enter **HR** as the name of the database and click **Create**.

The encoding will be left as **utf8mb4_0900_ai_ci**. UTF-8 is the most commonly used character encoding for content or data.

Proceed to Task B.



Databases
SQL
Status
User accounts
Export
Import
Settings
Binary log
Replication
Variables
Charsets
More
Create database
Create
Check all
With selected:
Drop
Enable statistics
Console

Databases

Create database: HR utf8mb4_0900_ai_ci

Database	Collation	Master replication	Action
information_schema	utf8_general_ci	Replicated	Check privileges
mysql	utf8mb4_0900_ai_ci	Replicated	Check privileges
Mysql_learners	utf8mb4_0900_ai_ci	Replicated	Check privileges
performance_schema	utf8mb4_0900_ai_ci	Replicated	Check privileges
sys	utf8mb4_0900_ai_ci	Replicated	Check privileges
Total: 5			

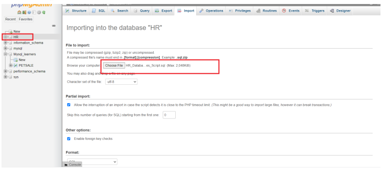
Note: Enabling the database statistics here might cause heavy traffic between the web server and the MySQL server.

Exercise 1: Create tables using SQL scripts

In this exercise, you will learn how to execute a script containing the CREATE TABLE commands for all the tables rather than create each table manually by typing the DDL commands in the SQL editor.

1. Download the script file to your computer:
   - HR_Database_Create_Tables_Script.sql

- Select the HR database. Later click on the Import tab.
- Click on **choose file**. Browse for the file and upload it .
- Later scroll down and click on **Go**.



phpMyAdmin
Recent
Favorites
New
HR
information_schema
mysql
Mysql_learners
New
PETSALE
performance_schema
sys
Structure
SQL
Search
Query
Export
Import
Operations
Privileges
Routines
Events
Triggers
Designer
Choose File
Console

Importing into the database "HR"

File to import:

File may be compressed (gzip, bzip2, zip) or uncompressed.
A compressed file's name must end in **.[format].[compression]**. Example: **.sql.zip**

Browse your computer: HR_Databa...es_Script.sql (Max: 2,048KiB)

You may also drag and drop a file on any page.

Character set of the file: utf-8

Partial import:

☑ Allow the interruption of an import in case the script detects it is close to the PHP timeout limit. *(This might be a good way to import large files, however it can break transactions.)*

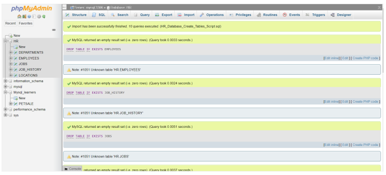
Skip this number of queries (for SQL) starting from the first one: 0

Other options:

☑ Enable foreign key checks

Format:

- The script then gets imported successfully.



phpMyAdmin
Recent
Favorites
New
HR
New
DEPARTMENTS
EMPLOYEES
JOBS
JOB_HISTORY
LOCATIONS
information_schema
mysql
Mysql_learners
New
PETSALE
performance_schema
sys
Server: mysql:3306 » Database: HR
Structure
SQL
Search
Query
Export
Import
Operations
Privileges
Routines
Events
Triggers
Designer
[Edit inline] [Edit] [Create PHP code]
Console

Import has been successfully finished, 10 queries executed. (HR_Database_Create_Tables_Script.sql)

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0033 seconds.)

```
DROP TABLE IF EXISTS EMPLOYEES
```

Note: #1051 Unknown table 'HR.EMPLOYEES'

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0024 seconds.)

```
DROP TABLE IF EXISTS JOB_HISTORY
```

Note: #1051 Unknown table 'HR.JOB_HISTORY'

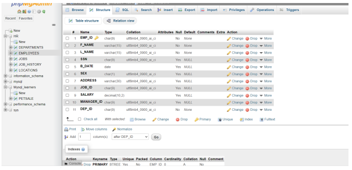
MySQL returned an empty result set (i.e. zero rows). (Query took 0.0051 seconds.)

```
DROP TABLE IF EXISTS JOBS
```

Note: #1051 Unknown table 'HR.JOBS'

returned an empty result set (i.e. zero rows). (Query took 0.0037 seconds.)

- Click on any of the tables and you will see its Table Definition (that is, its list of columns, data types, etc).



phpMyAdmin
Recent
Favorites
New
HR
New
DEPARTMENTS
EMPLOYEES
JOBS
JOB_HISTORY
LOCATIONS
information_schema
mysql
Mysql_learners
New
PETSALE
performance_schema
sys
Browse
Structure
SQL
Search
Insert
Export
Import
Privileges
Operations
Triggers
Table structure
Relation view
Check all
With selected:
Browse
Change
Drop
Primary
Unique
Index
Fulltext
Print
Move columns
Normalize
Add 1 column(s) after DEP_ID
Go
Indexes
Console

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	EMP_ID	char(9)	utf8mb4_0900_ai_ci		No	None			Change Drop More
2	F_NAME	varchar(15)	utf8mb4_0900_ai_ci		No	None			Change Drop More
3	L_NAME	varchar(15)	utf8mb4_0900_ai_ci		No	None			Change Drop More
4	SSN	char(9)	utf8mb4_0900_ai_ci		Yes	NULL			Change Drop More
5	B_DATE	date			Yes	NULL			Change Drop More
6	SEX	char(1)	utf8mb4_0900_ai_ci		Yes	NULL			Change Drop More
7	ADDRESS	varchar(30)	utf8mb4_0900_ai_ci		Yes	NULL			Change Drop More
8	JOB_ID	char(9)	utf8mb4_0900_ai_ci		Yes	NULL			Change Drop More
9	SALARY	decimal(10,2)			Yes	NULL			Change Drop More
10	MANAGER_ID	char(9)	utf8mb4_0900_ai_ci		Yes	NULL			Change Drop More
11	DEP_ID	char(9)	utf8mb4_0900_ai_ci		No	None			Change Drop More

Action	Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
Drop	PRIMARY	BTREE	Yes	No	EMP_ID	0	A	No	

Exercise 2: Load data into tables

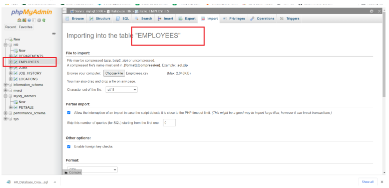
In this exercise, you will learn how data can be loaded into MySQL. You could manually insert each row into the table one by one, but that would take a long time. Instead, MySQL (and almost every other database) allows you to load data from .CSV files.

The steps below explain the process of loading data into the tables you created earlier in exercise 1.

1. Download the 5 .csv files below to your local computer:
   - Departments.csv
   - Employees.csv
   - Jobs.csv
   - Locations.csv
   - JobsHistory.csv

To load each table do the following steps.

- Select each table .
- Click on Import tab.
- Select the **csv** file and click on **Go** to load the csv file.



phpMyAdmin
Recent
Favorites
New
HR
New
DEPARTMENTS
EMPLOYEES
JOBS
JOB_HISTORY
LOCATIONS
information_schema
mysql
Mysql_learners
New
PETSALE
performance_schema
sys
Server: mysql:3306 » Database: HR » Table: EMPLOYEES
Browse
Structure
SQL
Search
Insert
Export
Import
Privileges
Operations
Triggers
Choose File
Console
HR_Database_Crea....sql
Show all

Importing into the table "EMPLOYEES"

File to import:

File may be compressed (gzip, bzip2, zip) or uncompressed.
A compressed file's name must end in **.[format].[compression]**. Example: **.sql.zip**

Browse your computer: Employees.csv (Max: 2,048KiB)

You may also drag and drop a file on any page.

Character set of the file: utf-8

Partial import:

☑ Allow the interruption of an import in case the script detects it is close to the PHP timeout limit. *(This might be a good way to import large files, however it can break transactions.)*

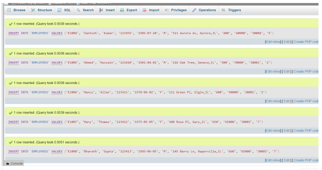
Skip this number of queries (for SQL) starting from the first one: 0

Other options:

☑ Enable foreign key checks

Format:

Once the tables are loaded , you will get a message that the records are inserted successfully.



Browse
Structure
SQL
Search
Insert
Export
Import
Privileges
Operations
Triggers
[Edit inline] [Edit] [Create PHP code]
Console

1 row inserted. (Query took 0.0038 seconds.)

```
INSERT INTO `EMPLOYEES` VALUES ('E1004', 'Santosh', 'Kumar', '123459', '1985-07-20', 'M', '511 Aurora Av, Aurora,IL', '400', '60000', '30004', '5')
```

1 row inserted. (Query took 0.0036 seconds.)

```
INSERT INTO `EMPLOYEES` VALUES ('E1005', 'Ahmed', 'Hussain', '123410', '1981-04-01', 'M', '216 Oak Tree, Geneva,IL', '500', '70000', '30001', '2')
```

1 row inserted. (Query took 0.0038 seconds.)

```
INSERT INTO `EMPLOYEES` VALUES ('E1006', 'Nancy', 'Allen', '123411', '1978-06-02', 'F', '111 Green Pl, Elgin,IL', '600', '90000', '30001', '2')
```

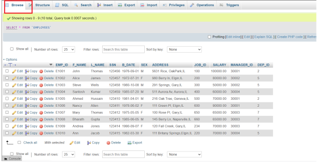
1 row inserted. (Query took 0.0039 seconds.)

```
INSERT INTO `EMPLOYEES` VALUES ('E1007', 'Mary', 'Thomas', '123412', '1975-05-05', 'F', '100 Rose Pl, Gary,IL', '650', '65000', '30003', '7')
```

1 row inserted. (Query took 0.0051 seconds.)

```
INSERT INTO `EMPLOYEES` VALUES ('E1008', 'Bharath', 'Gupta', '123413', '1985-06-05', 'M', '145 Berry Ln, Naperville,IL', '660', '65000', '30003', '7')
```

Further you can click on browse and view the data of each table.


Browse
Structure
SQL
Search
Insert
Export
Import
Privileges
Operations
Triggers
Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refres
Show all
Number of rows: 25
Filter rows: Search this table
Sort by key: None
+ Options
Edit
Copy
Delete
Check all
With selected:
Console

Showing rows 0 - 9 (10 total, Query took 0.0007 seconds.)

```
SELECT * FROM `EMPLOYEES`
```

EMP_ID	F_NAME	L_NAME	SSN	B_DATE	SEX	ADDRESS	JOB_ID	SALARY	MANAGER_ID	DEP_ID
E1001	John	Thomas	123456	1976-09-01	M	5631 Rice, OakPark,IL	100	100000.00	30001	2
E1002	Alice	James	123457	1972-07-31	F	980 Berry ln, Elgin,IL	200	80000.00	30002	5
E1003	Steve	Wells	123458	1980-10-08	M	291 Springs, Gary,IL	300	50000.00	30002	5
E1004	Santosh	Kumar	123459	1985-07-20	M	511 Aurora Av, Aurora,IL	400	60000.00	30004	5
E1005	Ahmed	Hussain	123410	1981-04-01	M	216 Oak Tree, Geneva,IL	500	70000.00	30001	2
E1006	Nancy	Allen	123411	1978-06-02	F	111 Green Pl, Elgin,IL	600	90000.00	30001	2
E1007	Mary	Thomas	123412	1975-05-05	F	100 Rose Pl, Gary,IL	650	65000.00	30003	7
E1008	Bharath	Gupta	123413	1985-06-05	M	145 Berry Ln, Naperville,IL	660	65000.00	30003	7
E1009	Andrea	Jones	123414	1990-09-07	F	120 Fall Creek, Gary,IL	234	70000.00	30003	7
E1010	Ann	Jacob	123415	1982-03-30	F	111 Britany Springs,Elgin,IL	220	70000.00	30004	5

Congratulations! You have completed this lab, and you are ready for the next topic.

Author(s)

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Malika Singla

Changelog

Date	Version	Changed by	Change Description
2023-05-05	0.5	Benny Li	Updated and Re-Published
2022-08-03	0.4	Sathya Priya	Updated CSV Links
2022-07-27	0.3	Lakshmi Holla	Updated HTML tag
2022-04-07	0.2	Malika Singla	Updated screenshot
2021-11-01	0.1	Lakshmi Holla, Malika Singla	Initial Version

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