# Introduction

This tutorial is used to show how one can migrate a database from MySQL to Oracle.

## What is data migration?

“Data migration is the process of selecting, preparing, extracting, and transforming data and permanently transferring it from one computer storage system to another.” (Microsoft, n.d.)

Data migration is where one takes data from one database to another.

## Benefits

Reasons why migration is good:

1. Consistent: You backup the entire database without interfering with the internal logic e.g. the datatypes are always the same
2. Consolidation of data: maybe you have multiple databases? Migration can be used to migrate all of these to one database.
3. Mergers and acquisitions: similar to the above, this makes it easy to convert the database of the previous company and adapt it to the new one.
4. Data and government compliance: certain things, like accessibility and data privacy laws, can be complied to when migrating to ensure they are not overstepping any boundaries.
5. Data archiving: archive the entire database, retiring obsolete or redundant data.

## Other tools

Other tools mentioned in (Airbyte, 2024):

1. Airbyte: the site’s own product. Open source ETL (extract, transform, and load) tool.
2. Fivetran: automated ETL tool
3. Matillion: cloud-native data integration platform that facilitates ETL
4. IBM Informix: relational database management system (RDBMS)
5. CloudFuze: cloud content management platform. Can migrate and govern data across multiple cloud storage providers

## Observations

Data migration seems to usually fall under the assumption that one will be migrating to the cloud. The cloud can be useful to transport data over vast distances but not everyone needs that, especially for a warehouse backup.

ETL (extract, transform, and load) tools are used to transform data, data migration is simply copying the data without too many differences on the surface e.g. ETL is used for currency or converting units, migration is more for backing up archives.

SQL Developer is useful but requires 10+ GB of space for the entire Oracle database. This obviously means Oracle is more of a server DB than something one can run on one’s latop. You can, but it is cumbersome.

## Findings

If you are going to migrate a database you need the correct driver for Oracle. There is no way to easily convert a MySQL backup to an Oracle one without the driver.

The project has been uploaded to <https://github.com/Ungolianth12345/SQLDataMigration> alongside all history edits I have made.

# The tutorial

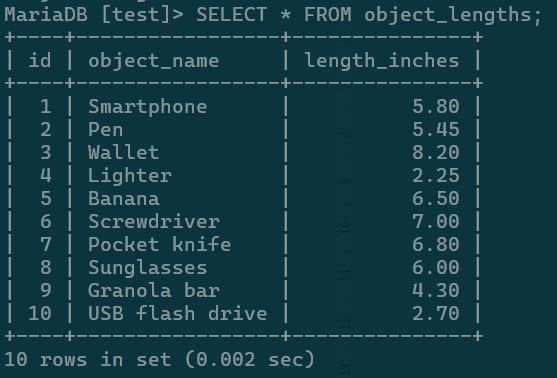


Table in question

I have modified the instructions from <https://www.oracle.com/database/technologies/getstarted-sql-developer-migrations.html> so that I may migrate the table.

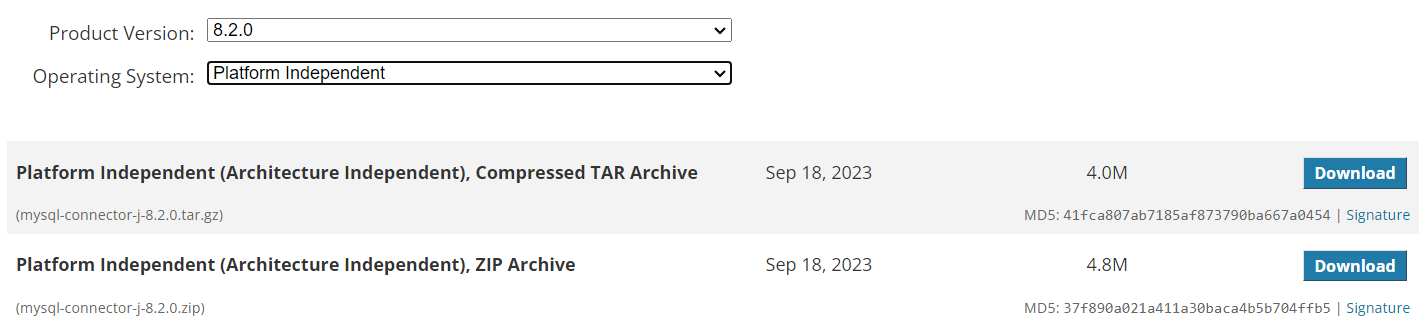
SQL Developer only works with an Oracle DB, which is c. 10GB, which I don’t have.

## Driver installation

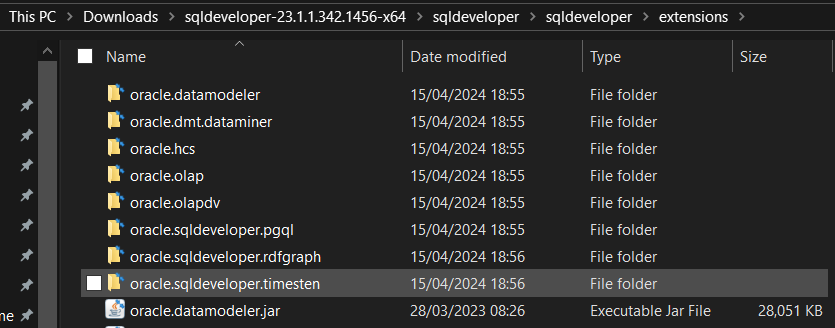
In order for this to work i.e. have MySQL/MariaDB recognized by SQL Developer, you need to download a driver to get it to work.

Had some difficulty until I used this: <https://stackoverflow.com/questions/29436886/how-to-connect-sql-developer-to-xampp-mysql-server>

Head over to <https://downloads.mysql.com/archives/c-j/> and pick “Platform Independent” to list the drivers:



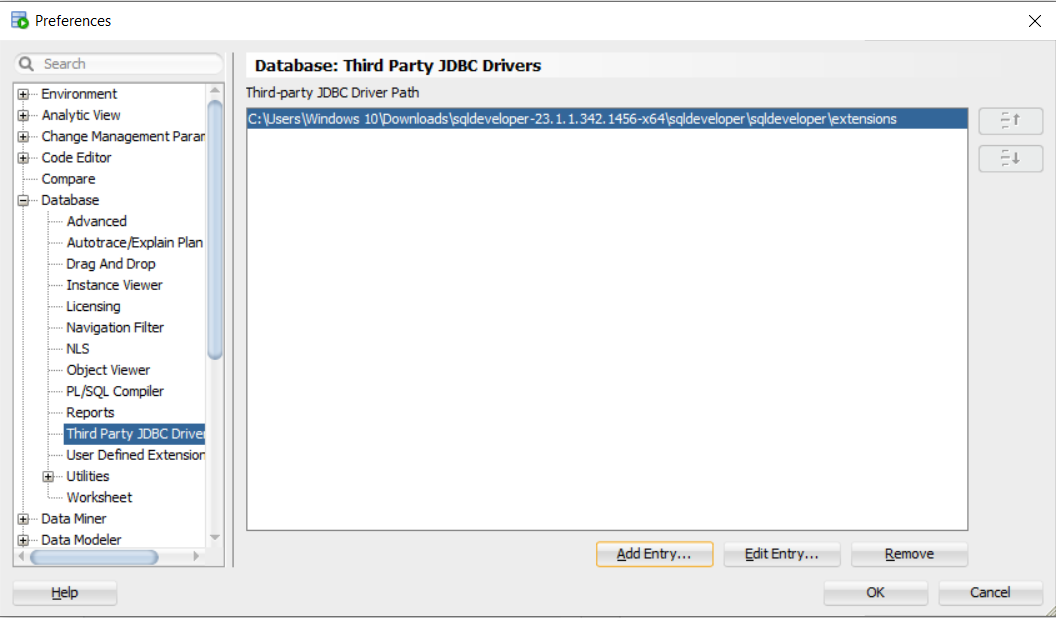
According to <https://stackoverflow.com/questions/29436886/how-to-connect-sql-developer-to-xampp-mysql-server> you can download the bin.jar file and put it in “<Path to SQL Developer>\sqldeveloper\extensions”, in other words go to where the sqldev exe file is, THEN go into the folder sqldeveloper, then go into extensions (this was rather confusing).



example

Now you need to add it to the third party driver list.

Go Tools -> Preferences then Database -> Third Party JDBC Drivers, then Add Entry. Add the extensions folder to it.

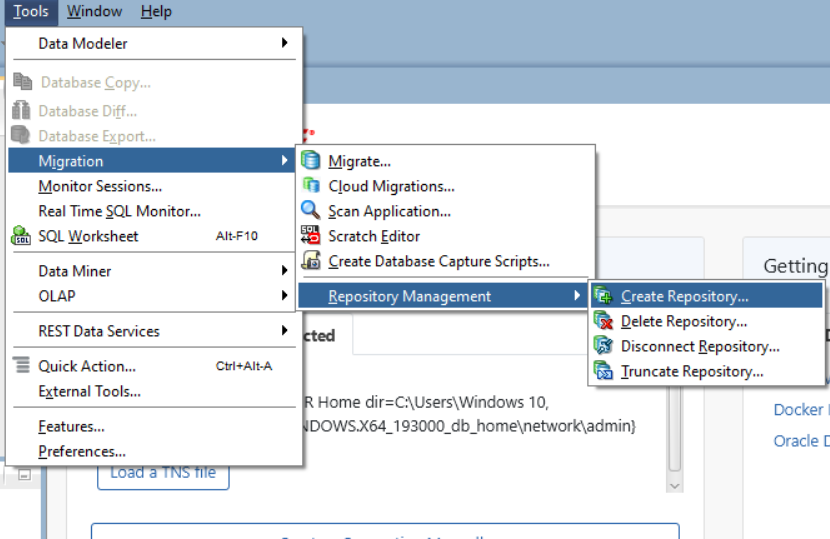


Restart and it should be available.

## Migration repository

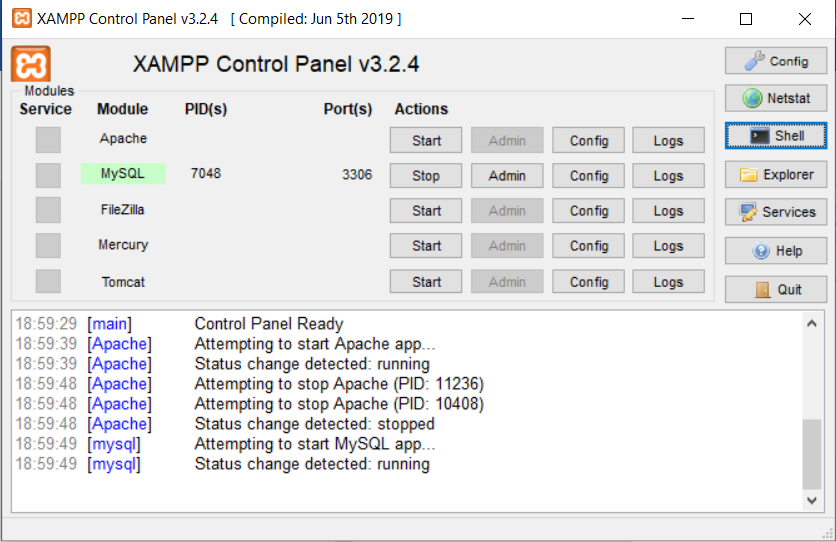
In order for this to actually run, you need to setup a repository for the migration

select Tools > Migration > Repository management > Create Repository...



## Export SQL

You will need to export the database. This is achieved by using mysqldump. I’m using XAMPP as it has everything you need to get things working. Click on Shell on the right:



…to open a shell that can interact with MySQL.

According to <https://hevodata.com/learn/mysqldump-export-databases-and-tables/> this code can be used to dump the DB/table:

mysqldump [options] your\_db\_name [tbl\_name ...]

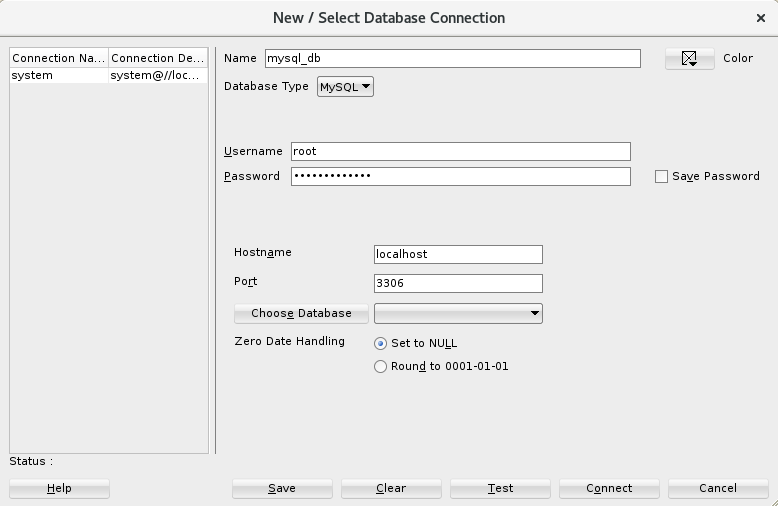
I exported it by using:

# mysqldump.exe -u root -p test object\_lengths > object\_lengths.sql

To dump a SQL file into the XAMPP directory.

## Migrate

Now you just need to connect to an MySQL DB, open the file as a worksheet, then execute.



Now, in order to convert the inches to centimeters, execute the following code:

ALTER TABLE object\_lengths

ADD length\_cm DECIMAL(5,2);

UPDATE object\_lengths

SET length\_cm = length\_inches \* 2.54;

This will create a new column that converts the inches. Any extra numbers will be truncated.

# Bibliography

Airbyte, 2024. Top 10 Data Migration Tools to follow in 2024 | Airbyte. [online] airbyte.com. Available at: <https://airbyte.com/top-etl-tools-for-sources/top-data-migration-tools> [Accessed 18 April 2024].

Microsoft, n.d. What is Data Migration? | Microsoft Azure. [online] azure.microsoft.com. Available at: <https://azure.microsoft.com/en-us/resources/cloud-computing-dictionary/what-is-data-migration>.