CONNECTING TO THE MYSQL SERVER

DS 203

Overview

- In the earlier steps you have created the VM in the cloud and connected to it
- The VM has the following software tools installed on it:
  - MySQL database server, Jupyter Notebook, SPARK
- This deck outlines the procedures and tools to connect to the MySQL server, and start working with the databases and tables contained therein.

In case of difficulties …

- Log your issues in the Moodle Forum **Queries and Discussions** and a member of the TA team will respond and guide you.

The MySQL Client

- You have to install a **client** program on your local computer and use it to make a connection to the MySQL server
- A number of free-to-use / open source clients are available
- **DBeaver** is one such client. It is available for Windows / Linux / Mac OS
- Download and install the software on your local computer as per the instructions at:
  - https://dbeaver.io/download/
- Once it is successfully installed start the program and follow the configuration instructions as outlined in the following slides.

Pre-requisites …

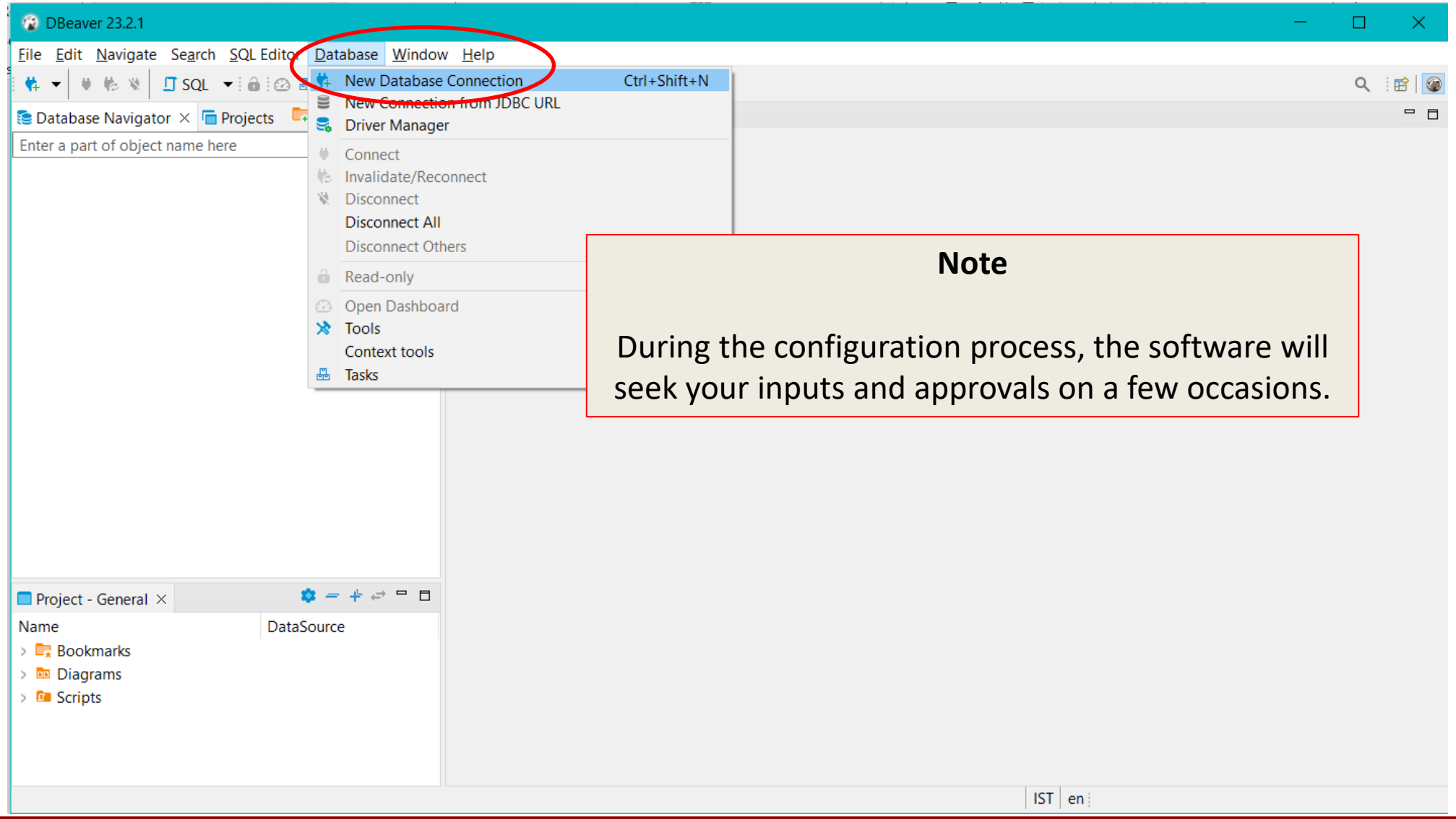
From here onwards this document assumes the following:

- That the VM is ‘up and running’
- That you know the public IP of the VM
- That you have downloaded the file ds203-azure-vm-rsa from Moodle

(Please refer to the document **03-Starting the VM** … in case the VM is not running)

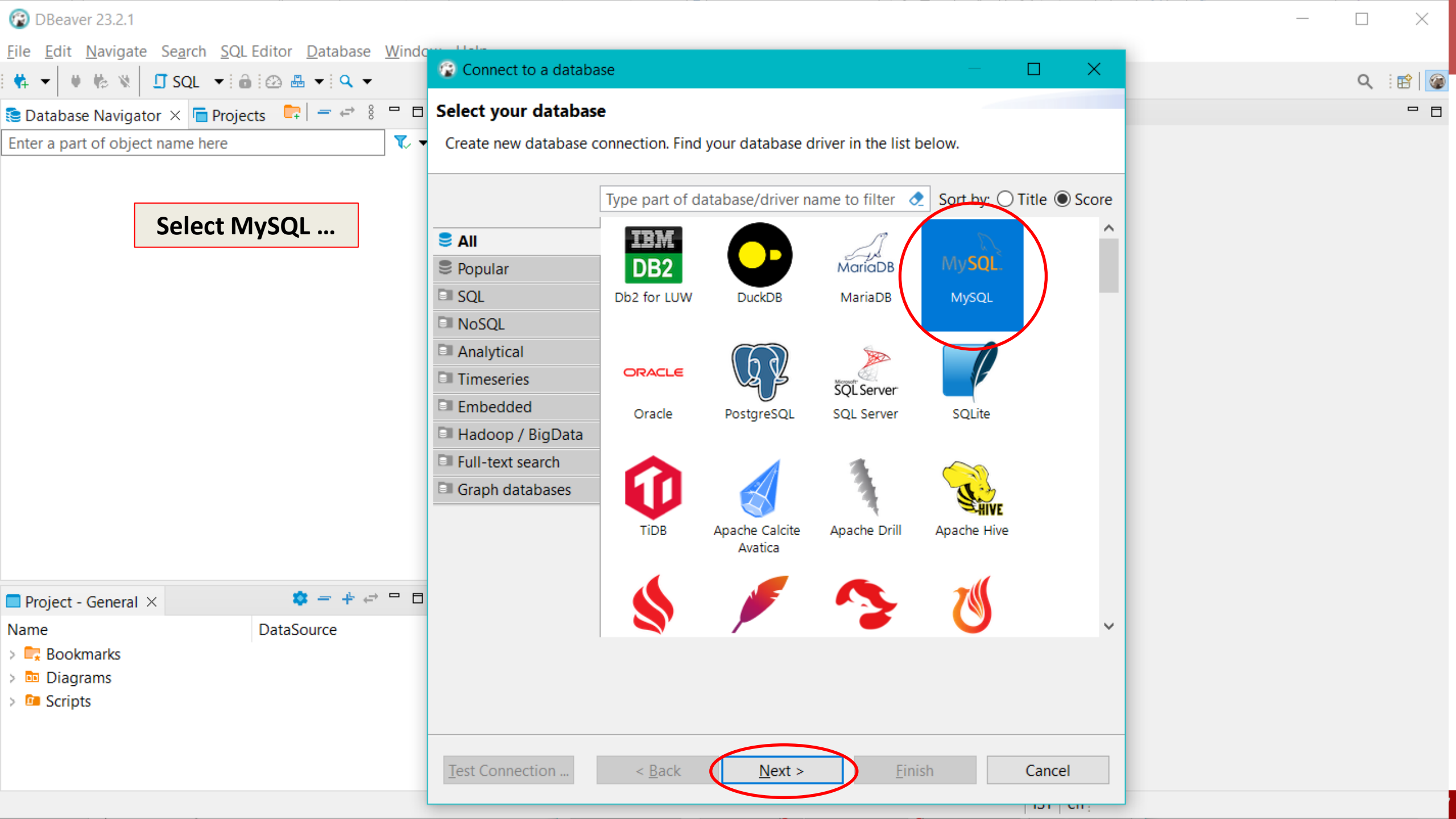
DBeaver Configuration

- Start Dbeaver and make a new database connection

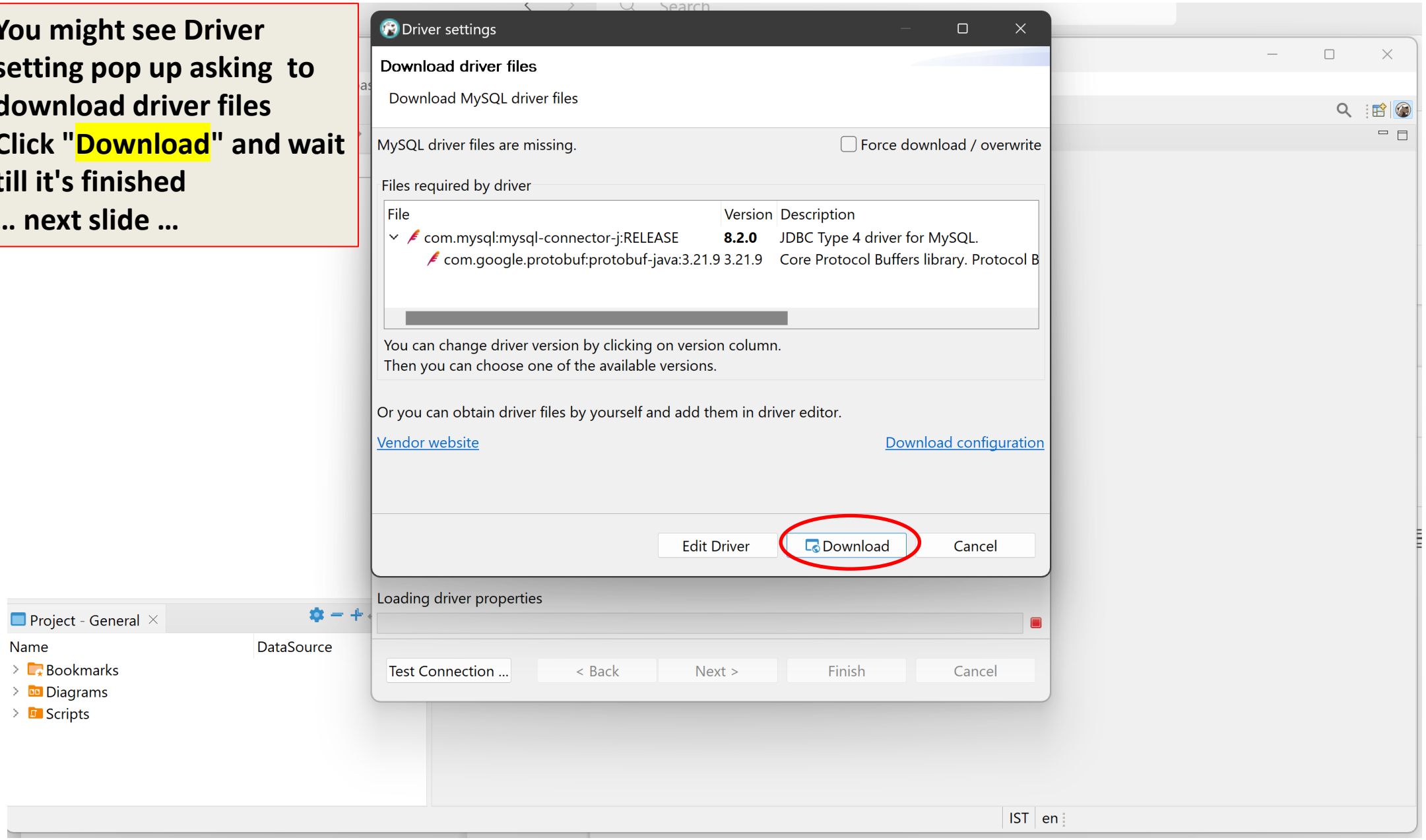


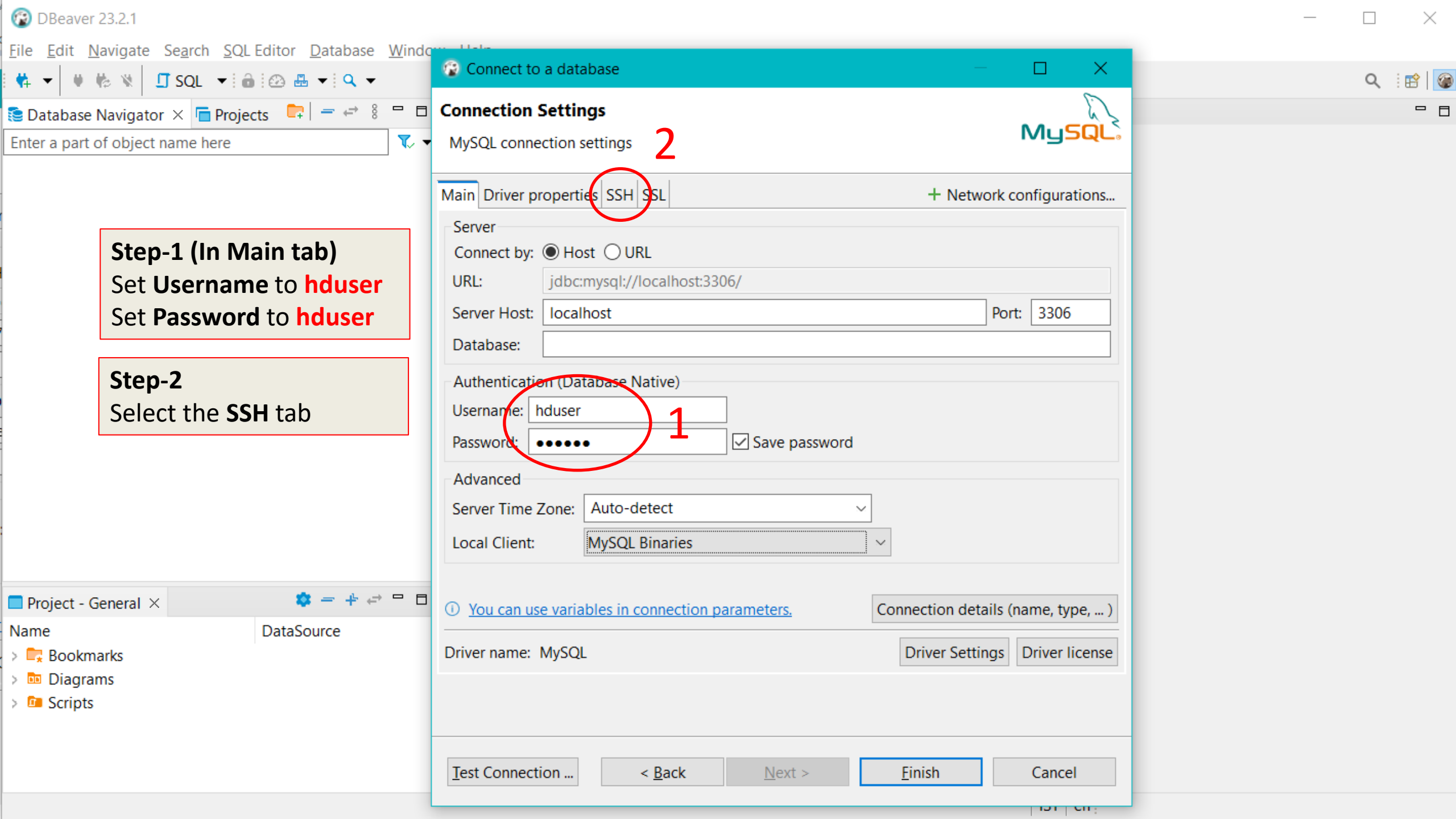
Note

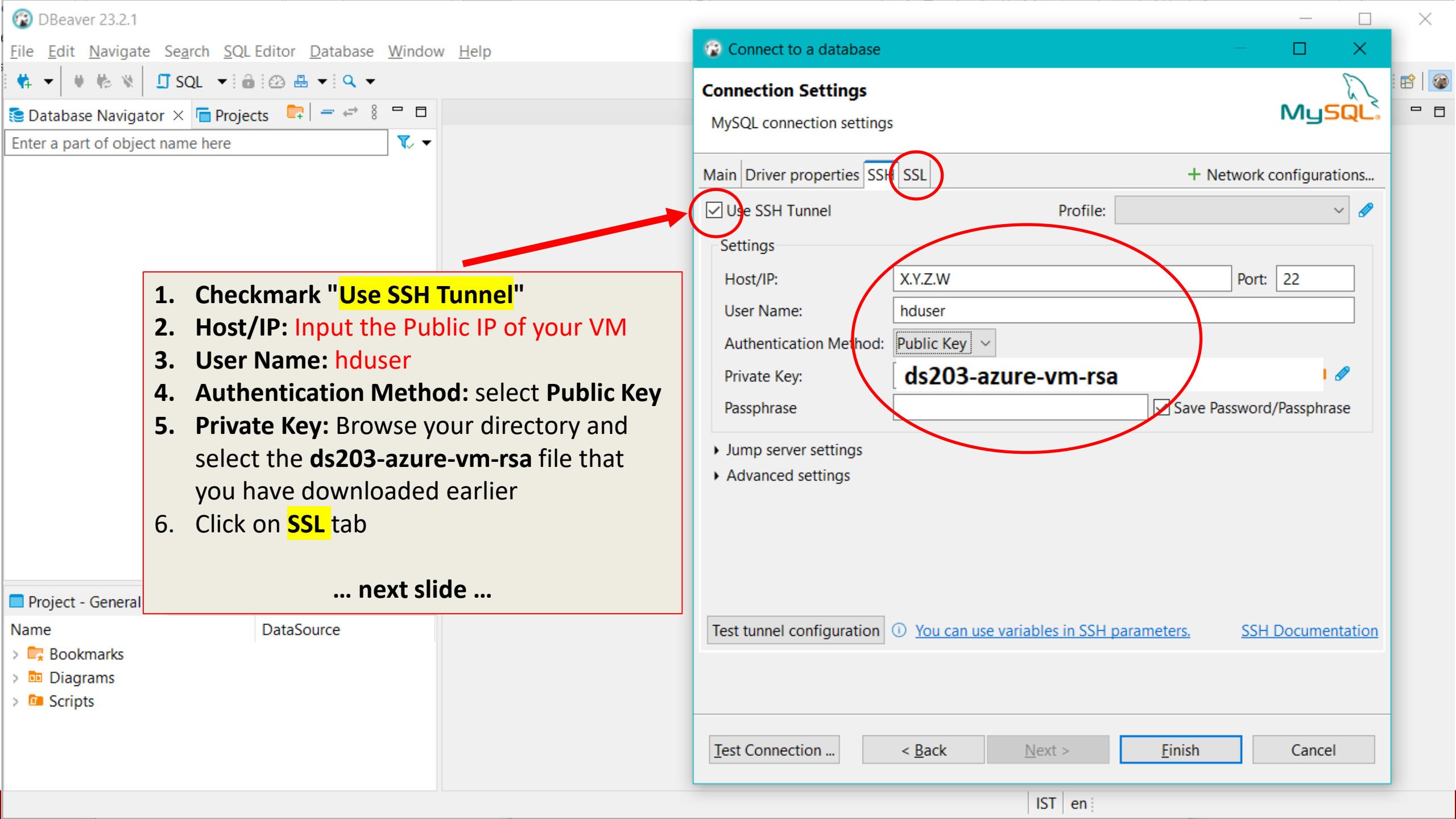
During the configuration process, the software will seek your inputs and approvals on a few occasions.


DBeaver 23.2.1
File Edit Navigate Search SQL Editor Database Window Help
SQL
Database Navigator
Projects
Enter a part of object name here
Select MySQL ...
Project - General
Name
DataSource
Bookmarks
Diagrams
Scripts
Connect to a database
Select your database
Create new database connection. Find your database driver in the list below.
Type part of database/driver name to filter
Sort by: Title Score
All
Popular
SQL
NoSQL
Analytical
Timeseries
Embedded
Hadoop / BigData
Full-text search
Graph databases
Db2 for LUW
DuckDB
MariaDB
MySQL
Oracle
PostgreSQL
SQL Server
SQLite
TiDB
Apache Calcite Avatica
Apache Drill
Apache Hive
Test Connection ...
< Back
Next >
Finish
Cancel

1. You might see Driver setting pop up asking to download driver files
2. Click "Download" and wait till it's finished
3. … next slide …




DBeaver 23.2.1
File Edit Navigate Search SQL Editor Database Window Help
SQL
Database Navigator
Projects
Enter a part of object name here
Step-1 (In Main tab)
Set Username to hduser
Set Password to hduser
Step-2
Select the SSH tab
Project - General
Name
DataSource
Bookmarks
Diagrams
Scripts
Connect to a database
Connection Settings
MySQL connection settings
2
MySQL
Main
Driver properties
SSH
SSL
Network configurations...
Server
Connect by: Host URL
URL: jdbc:mysql://localhost:3306/
Server Host: localhost
Port: 3306
Database:
Authentication (Database Native)
Username: hduser
Password: ••••••
1
Save password
Advanced
Server Time Zone: Auto-detect
Local Client: MySQL Binaries
You can use variables in connection parameters.
Connection details (name, type, ...)
Driver name: MySQL
Driver Settings
Driver license
Test Connection ...
< Back
Next >
Finish
Cancel



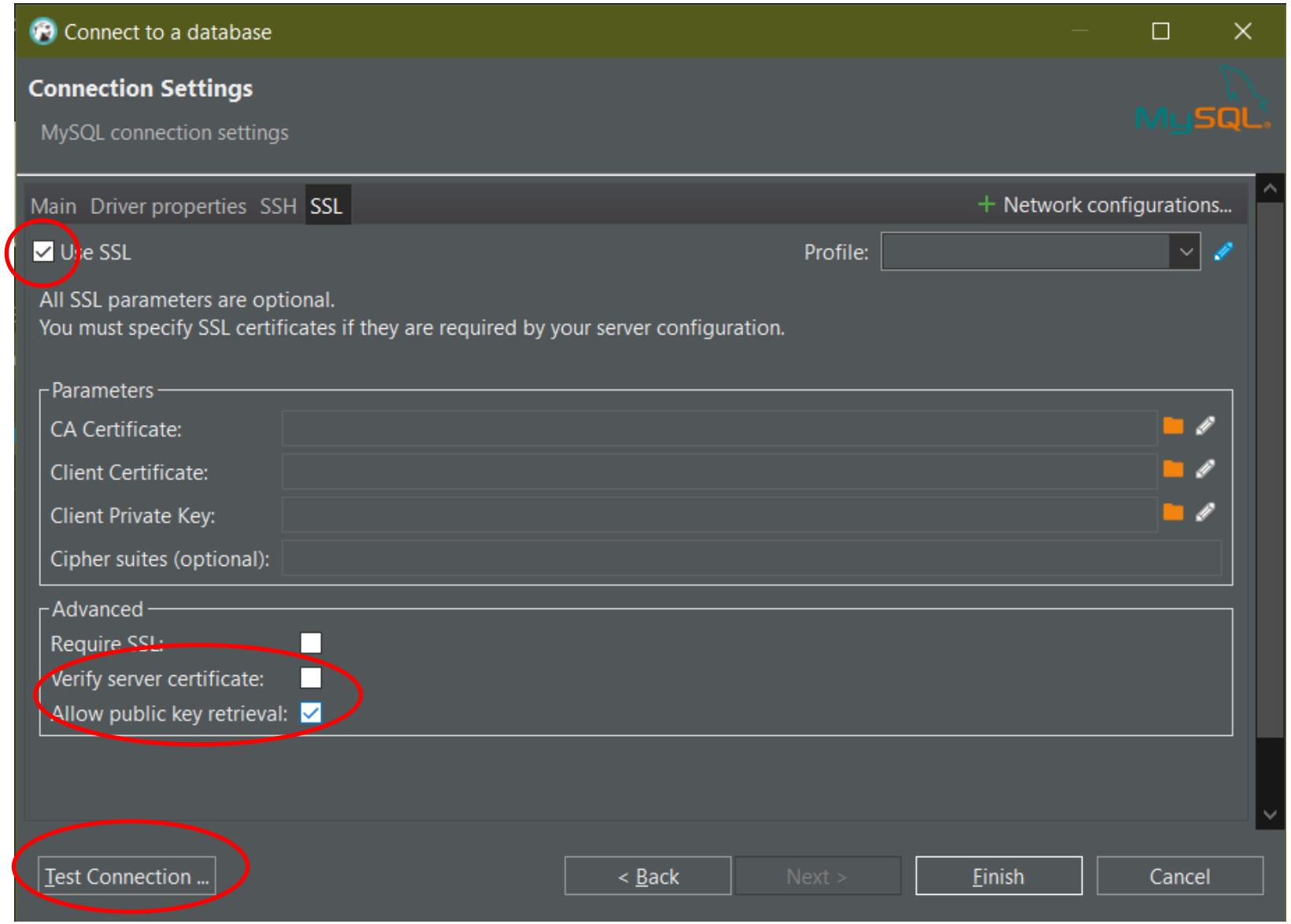
1. **Checkmark "Use SSH Tunnel"**
2. **Host/IP:** Input the Public IP of your VM
3. **User Name:** hduser
4. **Authentication Method:** select **Public Key**
5. **Private Key:** Browse your directory and select the **ds203-azure-vm-rsa** file that you have downloaded earlier
6. Click on **SSL** tab

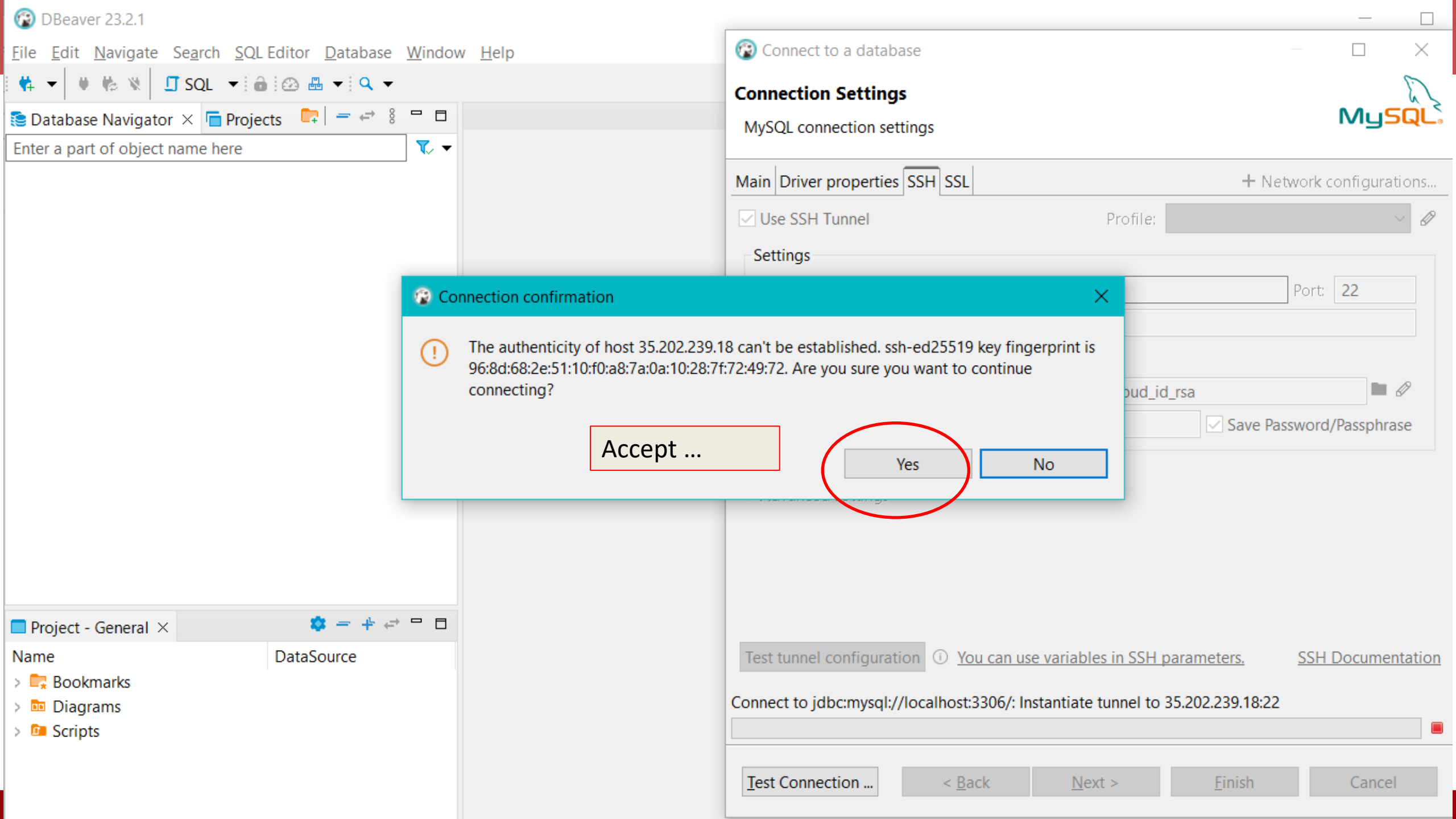
... next slide ...

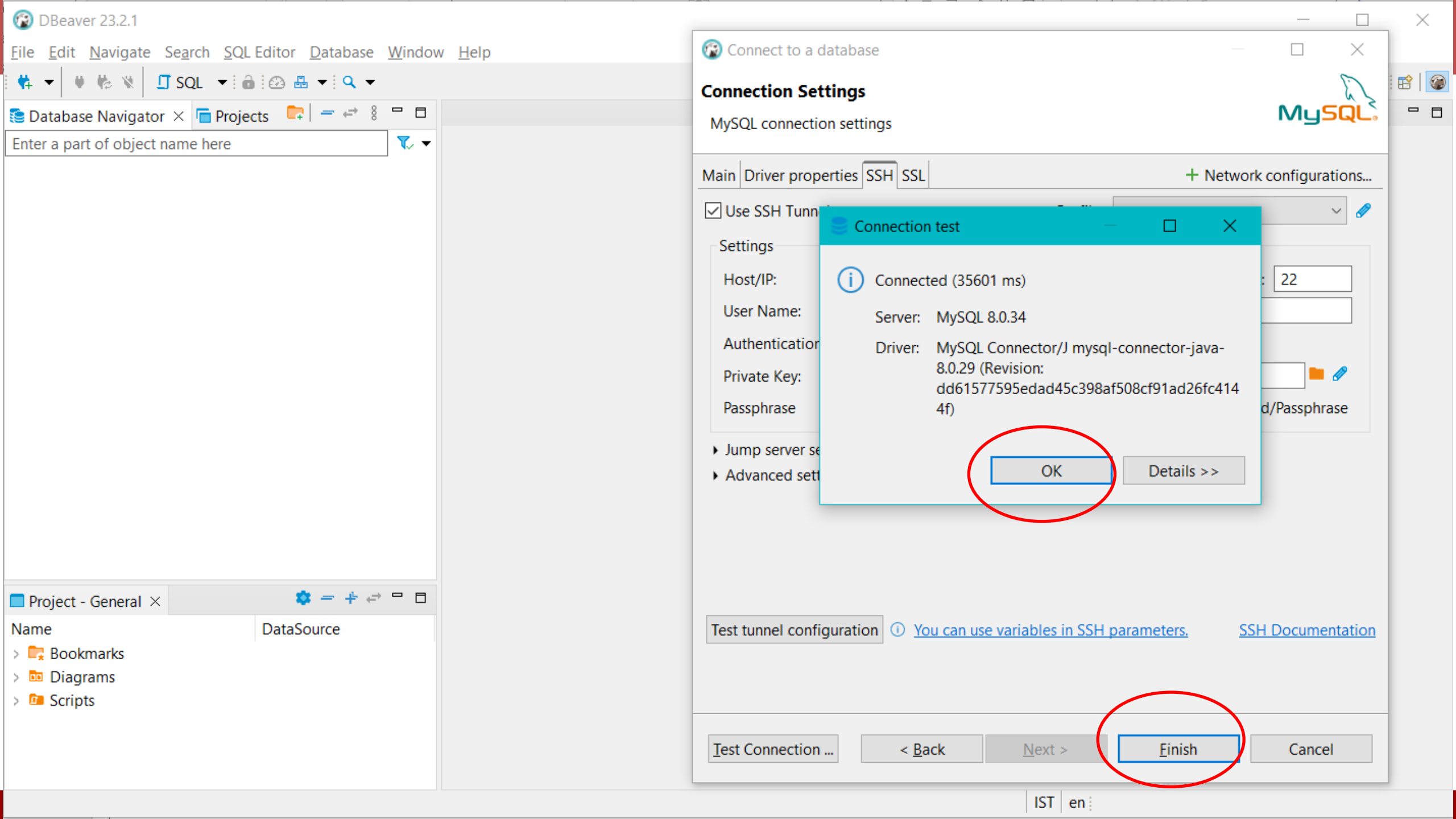
SSL tab

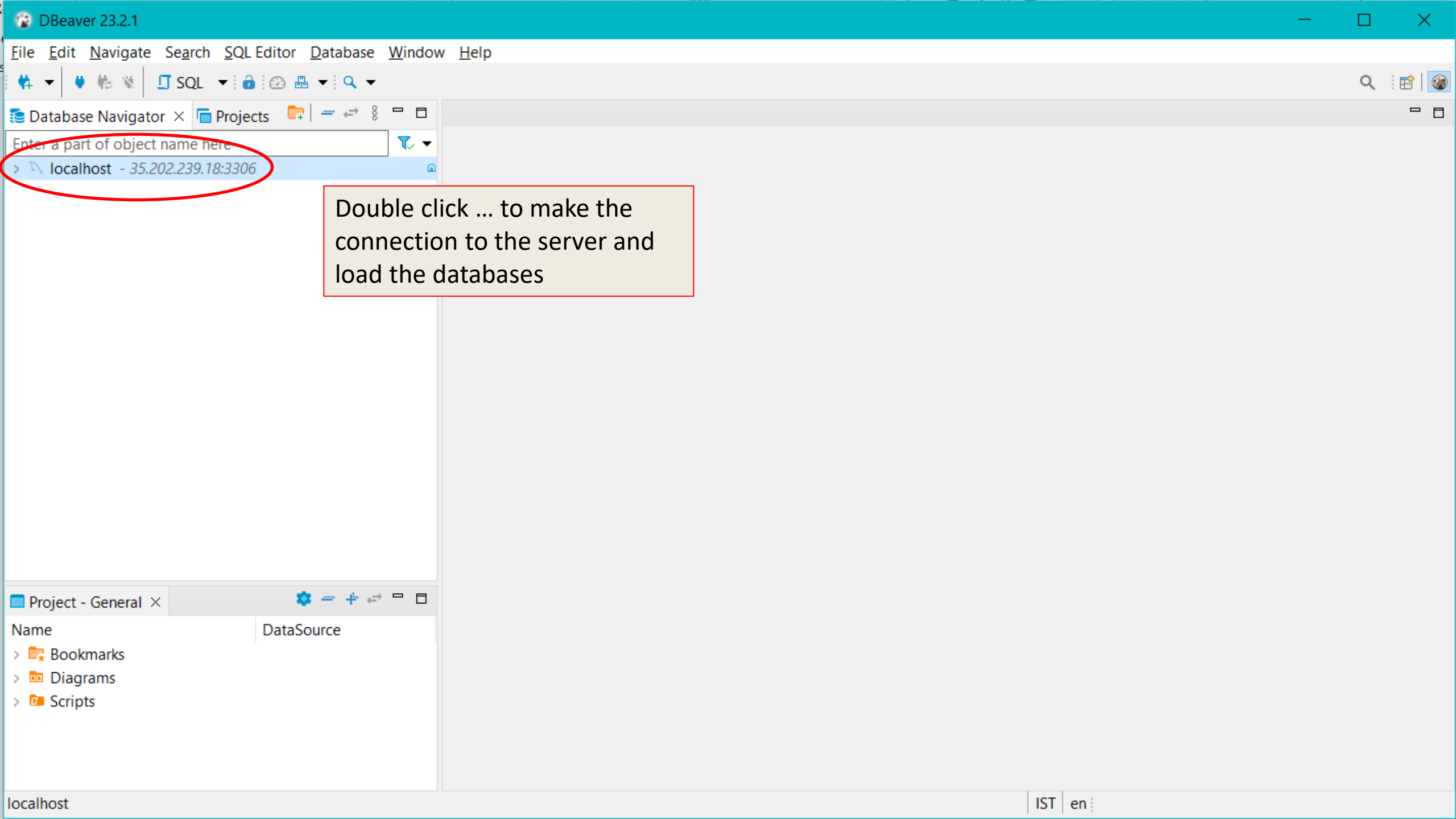
1. Click **Use SSL**
2. In Advanced section,
3. Uncheck "**Verify server certificate**" option
4. Checkmark "**Allow public key retrieval**" option
5. Click on "**Test Connection**" at bottom left corner
6. If there is a prompt to **update drivers**, then just download and let it run.

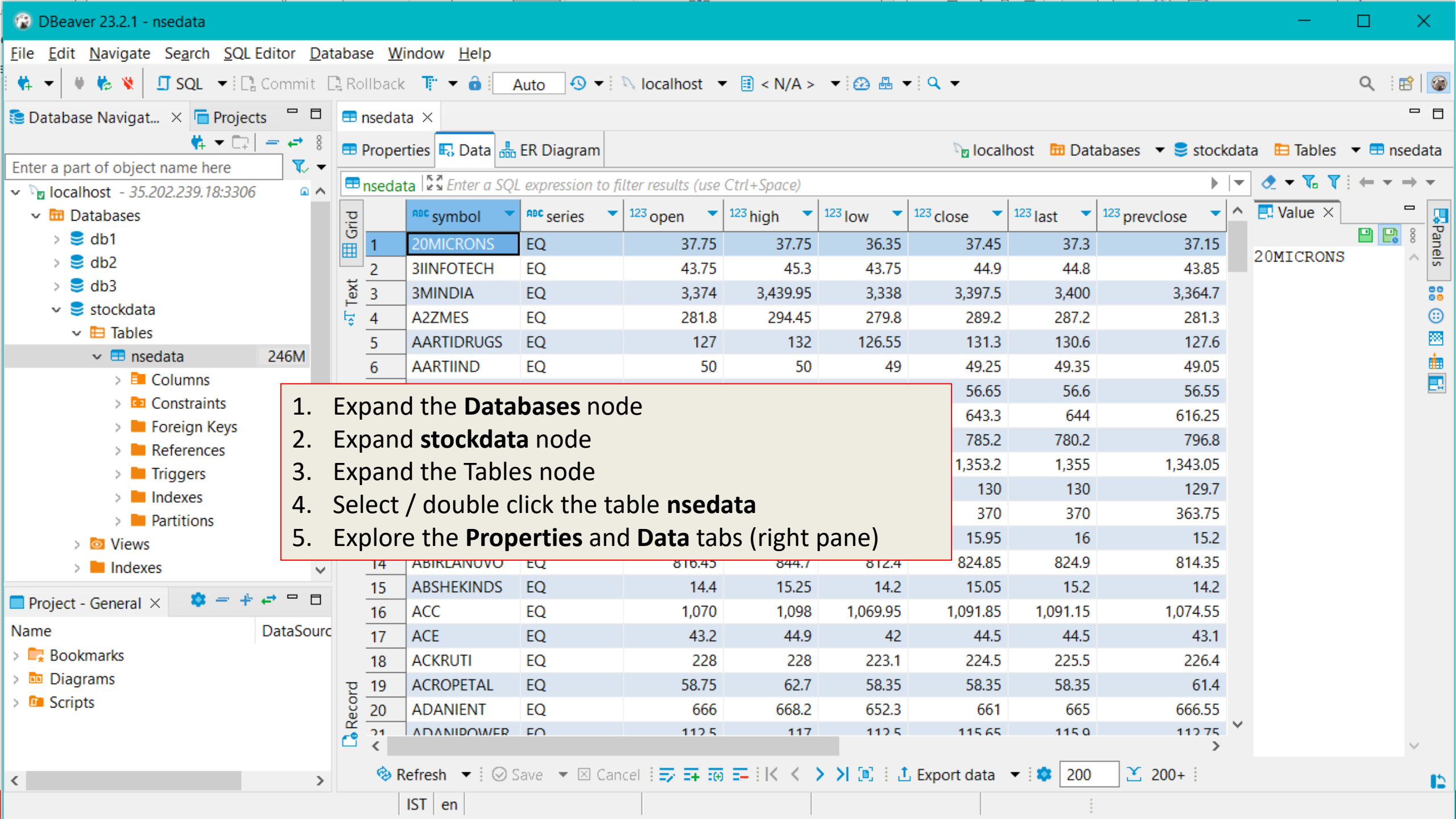
… next slide …

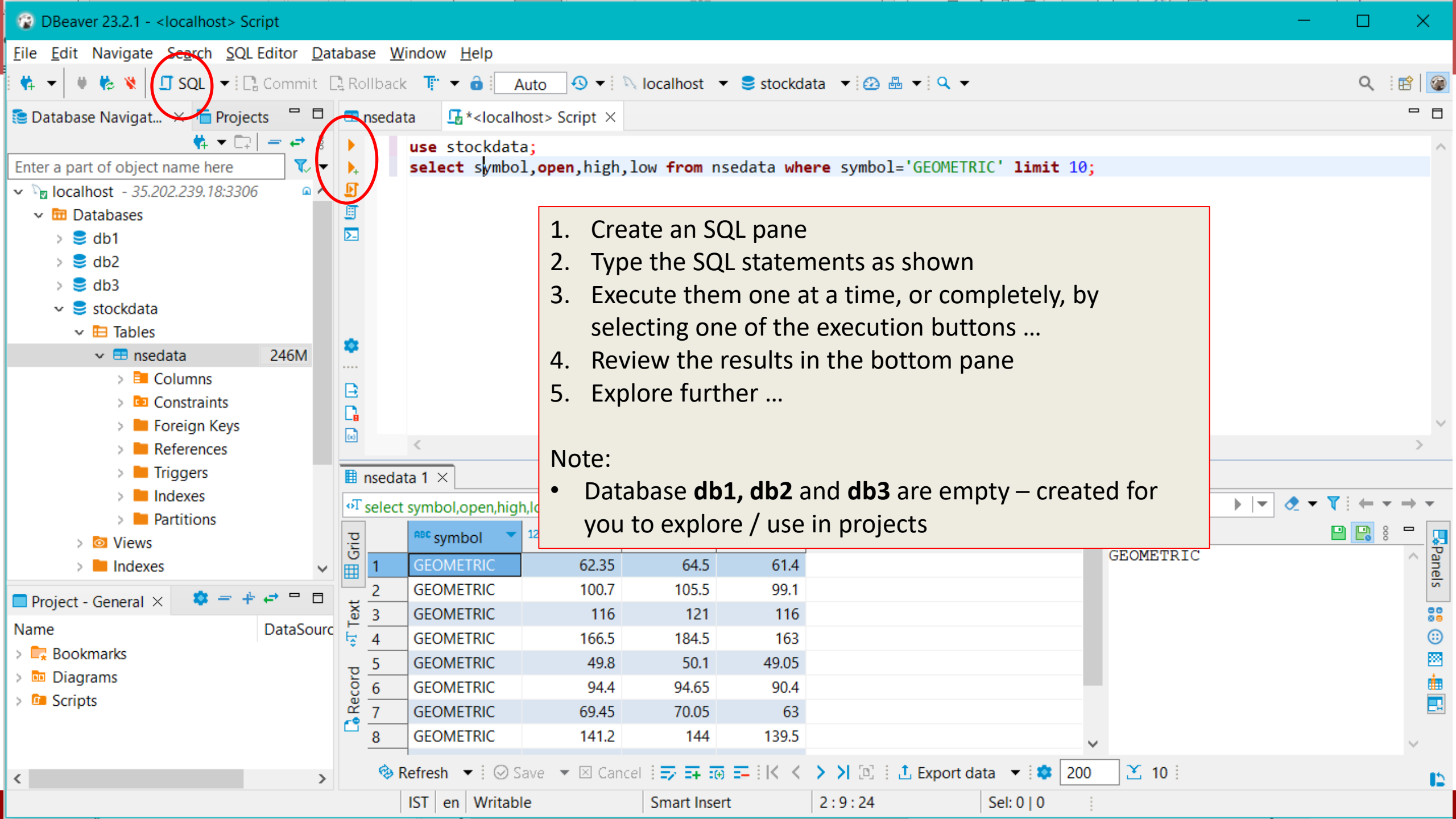



DBeaver 23.2.1
File Edit Navigate Search SQL Editor Database Window Help
SQL
Database Navigator
Projects
Enter a part of object name here
Project - General
Name
DataSource
Bookmarks
Diagrams
Scripts
Connect to a database
Connection Settings
MySQL connection settings
MySQL
Main Driver properties SSH SSL
Network configurations...
Use SSH Tunnel
Profile:
Settings
Port: 22
Save Password/Passphrase
Test tunnel configuration
You can use variables in SSH parameters.
SSH Documentation
Connect to jdbc:mysql://localhost:3306/: Instantiate tunnel to 35.202.239.18:22
Test Connection ...
< Back
Next >
Finish
Cancel
Connection confirmation
The authenticity of host 35.202.239.18 can't be established. ssh-ed25519 key fingerprint is 96:8d:68:2e:51:10:f0:a8:7a:0a:10:28:7f:72:49:72. Are you sure you want to continue connecting?
Accept ...
Yes
No


DBeaver 23.2.1
File Edit Navigate Search SQL Editor Database Window Help
SQL
Database Navigator
Projects
Enter a part of object name here
Project - General
Name
DataSource
Bookmarks
Diagrams
Scripts
Connect to a database
Connection Settings
MySQL connection settings
MySQL
Main
Driver properties
SSH
SSL
Network configurations...
Use SSH Tunn
Settings
Host/IP:
User Name:
Authentication
Private Key:
Passphrase
22
d/Passphrase
Jump server se
Advanced sett
Connection test
Connected (35601 ms)
Server: MySQL 8.0.34
Driver: MySQL Connector/J mysql-connector-java-8.0.29 (Revision: dd61577595edad45c398af508cf91ad26fc4144f)
OK
Details >>
Test tunnel configuration
You can use variables in SSH parameters.
SSH Documentation
Test Connection ...
< Back
Next >
Finish
Cancel
IST
en

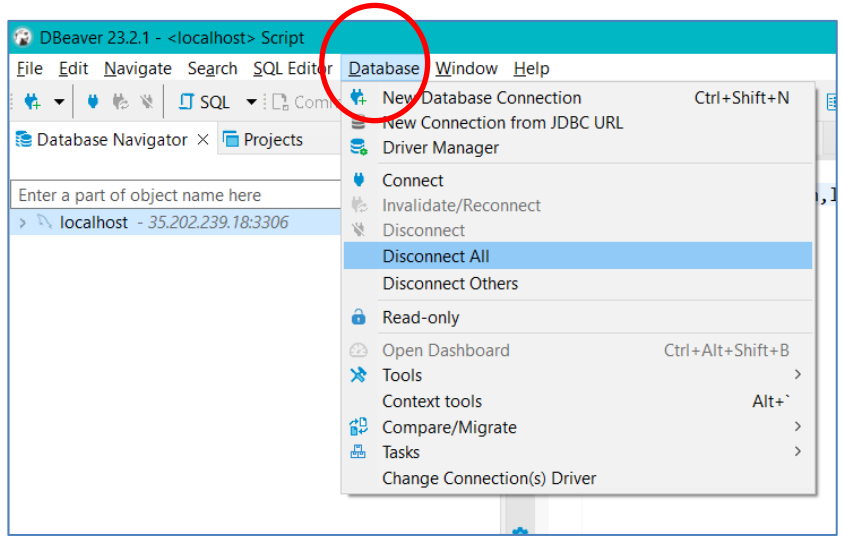

DBeaver 23.2.1
File Edit Navigate Search SQL Editor Database Window Help
SQL
Database Navigator
Projects
Enter a part of object name here
localhost - 35.202.239.18:3306
Double click … to make the connection to the server and load the databases
Project - General
Name
DataSource
Bookmarks
Diagrams
Scripts
localhost
IST
en


DBeaver 23.2.1 - nsedata
File Edit Navigate Search SQL Editor Database Window Help
Database Navigat... Projects
Enter a part of object name here
localhost - 35.202.239.18:3306
Databases
db1
db2
db3
stockdata
Tables
nsedata 246M
Columns
Constraints
Foreign Keys
References
Triggers
Indexes
Partitions
Views
Indexes
Project - General
Name
Bookmarks
Diagrams
Scripts
nsedata
Properties Data ER Diagram
localhost Databases stockdata Tables nsedata
Enter a SQL expression to filter results (use Ctrl+Space)
Grid
Text
Record
symbol series open high low close last prevclose
1 20MICRONS EQ 37.75 37.75 36.35 37.45 37.3 37.15
2 3IINFOTECH EQ 43.75 45.3 43.75 44.9 44.8 43.85
3 3MINDIA EQ 3,374 3,439.95 3,338 3,397.5 3,400 3,364.7
4 A2ZMES EQ 281.8 294.45 279.8 289.2 287.2 281.3
5 AARTIDRUGS EQ 127 132 126.55 131.3 130.6 127.6
6 AARTIIND EQ 50 50 49 49.25 49.35 49.05
15 ABSHEKINDS EQ 14.4 15.25 14.2 15.05 15.2 14.2
16 ACC EQ 1,070 1,098 1,069.95 1,091.85 1,091.15 1,074.55
17 ACE EQ 43.2 44.9 42 44.5 44.5 43.1
18 ACKRUTI EQ 228 228 223.1 224.5 225.5 226.4
19 ACROPETAL EQ 58.75 62.7 58.35 58.35 58.35 61.4
20 ADANIENT EQ 666 668.2 652.3 661 665 666.55
1. Expand the Databases node
2. Expand stockdata node
3. Expand the Tables node
4. Select / double click the table nsedata
5. Explore the Properties and Data tabs (right pane)
Value
20MICRONS
Panels
Refresh Save Cancel Export data 200 200+
IST en

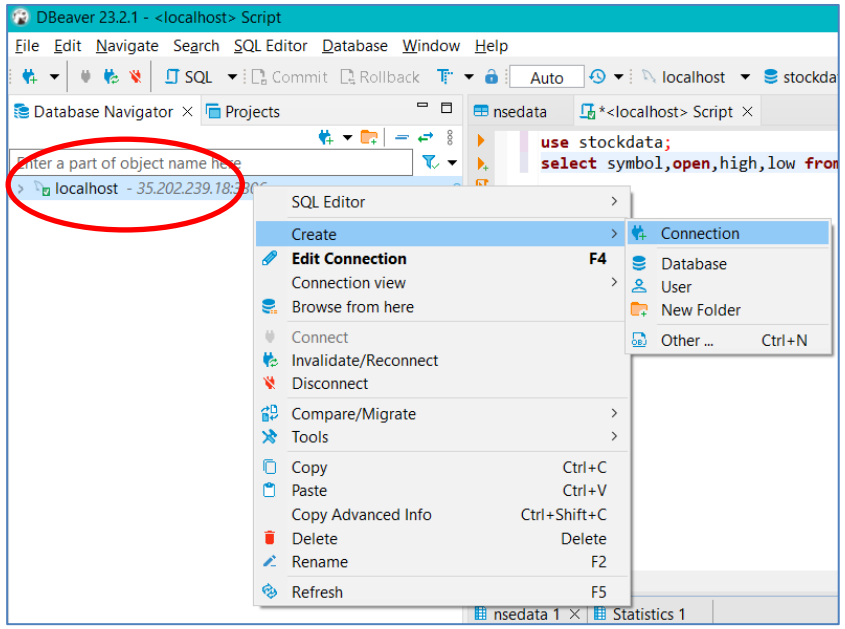

DBeaver 23.2.1 - <localhost> Script
File Edit Navigate Search SQL Editor Database Window Help
SQL
Commit
Rollback
Auto
localhost
stockdata
Database Navigat...
Projects
Enter a part of object name here
localhost - 35.202.239.18:3306
Databases
db1
db2
db3
stockdata
Tables
nsedata 246M
Columns
Constraints
Foreign Keys
References
Triggers
Indexes
Partitions
Views
Indexes
Project - General
Name
DataSourc
Bookmarks
Diagrams
Scripts
nsedata
*<localhost> Script
use stockdata;
select symbol,open,high,low from nsedata where symbol='GEOMETRIC' limit 10;
1. Create an SQL pane
2. Type the SQL statements as shown
3. Execute them one at a time, or completely, by selecting one of the execution buttons …
4. Review the results in the bottom pane
5. Explore further …
Note:
• Database db1, db2 and db3 are empty – created for you to explore / use in projects
nsedata 1
select symbol,open,high,lo
Grid
Text
Record
symbol
1 GEOMETRIC 62.35 64.5 61.4
2 GEOMETRIC 100.7 105.5 99.1
3 GEOMETRIC 116 121 116
4 GEOMETRIC 166.5 184.5 163
5 GEOMETRIC 49.8 50.1 49.05
6 GEOMETRIC 94.4 94.65 90.4
7 GEOMETRIC 69.45 70.05 63
8 GEOMETRIC 141.2 144 139.5
GEOMETRIC
Panels
Refresh
Save
Cancel
Export data
200
10
IST en Writable Smart Insert 2 : 9 : 24 Sel: 0 | 0

Disconnecting from the server … and re-connecting

- Be sure to disconnect from the server once your work is done!
- This can be done by selecting one of the following:
  - Database / Disconnect
  - Database / Disconnect All



- Connection can be re-established by
- right-clicking the **localhost** entry



- Remember: Every time the VM re-STARTs, it's public IP **might** change. DBeaver connection properties have to be updated accordingly (by 'Edit'ing the connection.

Explore – and get ready for the assignments ☺

… and do not forget to SHUT the VM when you do not need it …
… remember that your billing metre is ON when the VM is running …

IMPORTANT ** IMPORTANT ** IMPORTANT

- Once you are through with your work on / with the VM, be sure to **STOP** it to pause the Billing for this resource!