



Módulo Profesional: Big Data Aplicado

Ingestión de datos con NiFi

JSON TO SQL → BASE DE DATOS

PASOS A REALIZAR

APACHE NiFi: PASO 1

Ejecutar en cmd modo administrador la sentencia docker:

```
docker run --name mysql_local --network nifi_default -p 3306:3306 -p 33060:33060 -e  
MYSQL_ROOT_PASSWORD=123456 -d mysql
```

```
Unable to find image 'mysql:latest' locally
Latest: Pulling from library/mysql
eba3c26198b7: Pull complete
97f7c8c33abe: Pull complete
aa23d877fa04: Pull complete
a143609ddd2d: Pull complete
78308a3437c4: Pull complete
c0880e4b3737: Pull complete
4bab267f9ce1: Pull complete
e575f6d9b17a: Pull complete
507f86c00053: Pull complete
cd68caa5febe: Pull complete
Digest: sha256:fd8d1b4e287c49e1e35eb5a103f337111947662130eb8a3e6c3e823813f47f7d
Status: Downloaded newer image for mysql:latest
26db2c93116f612d1c0222da9f34527d5f40954cbdd3ab70012b806f518ae80e
```

APACHE NiFi: PASO 2

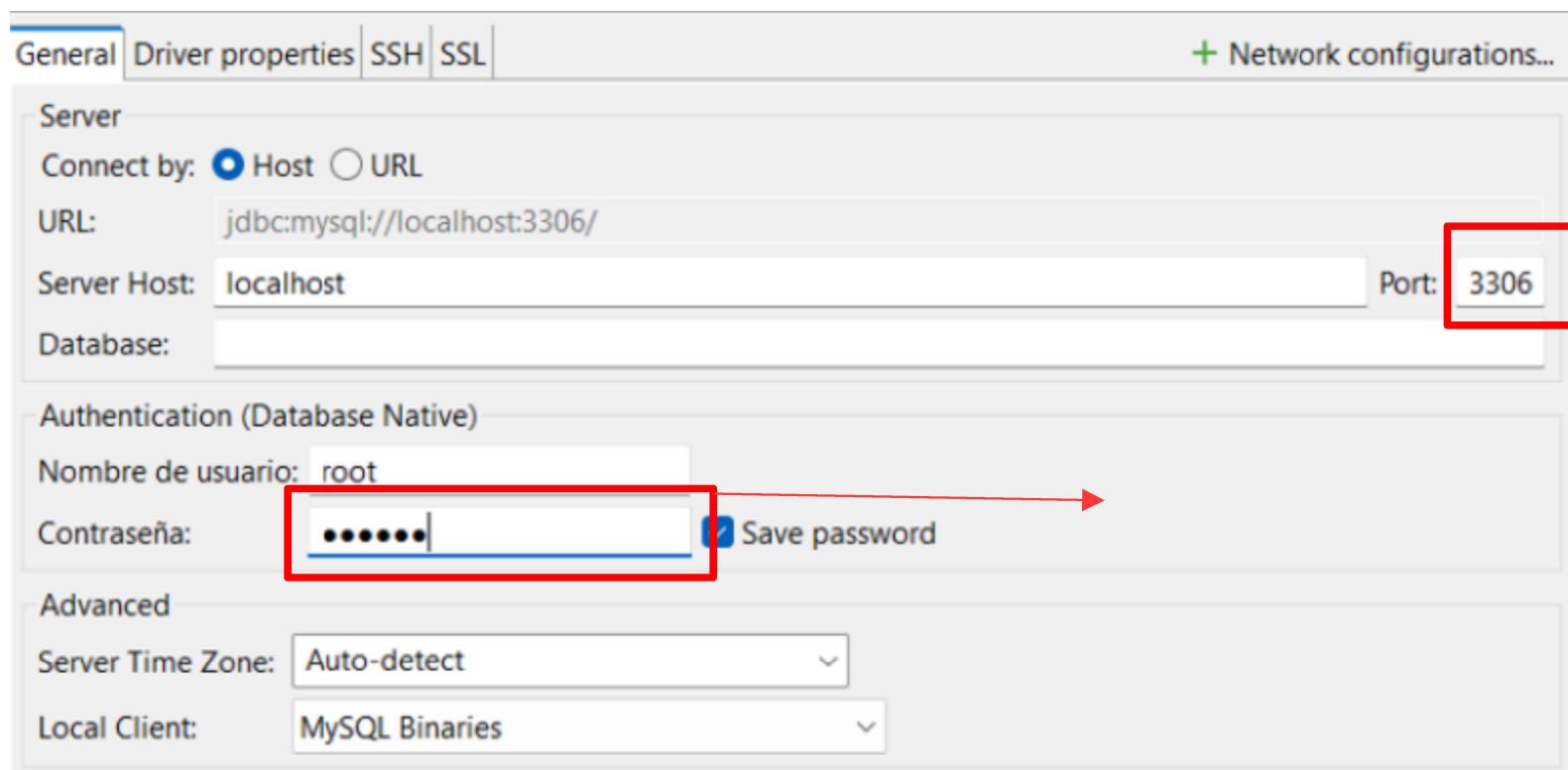
Ejecutar en cmd modo administrador la sentencia docker:

docker ps

CONTAINER ID	IMAGE	NAMES	COMMAND	CREATED	STATUS	PORTS
26db2c93116f	mysql	mysql_local	"docker-entrypoint.s..."	6 minutes ago	Up 6 minutes	3306/tcp, 33060/tcp
a38ff1541d54	apache/nifi-registry:latest	nifiregistry	"..../scripts/start.sh"	2 weeks ago	Up 15 minutes	0.0.0.0:18080->18080/tcp, 18443/tcp
8a4e9d01d347	apache/nifi:latest	nifi	"..../scripts/start.sh"	2 weeks ago	Up 15 minutes	8000/tcp, 8080/tcp, 10000/tcp, 0.0.0.0:8443->8443/tcp

APACHE NiFi: PASO 3

Descargar de Aules el fichero **dbeaver-ce-24.2.2-win32.win32.x86_64.zip**

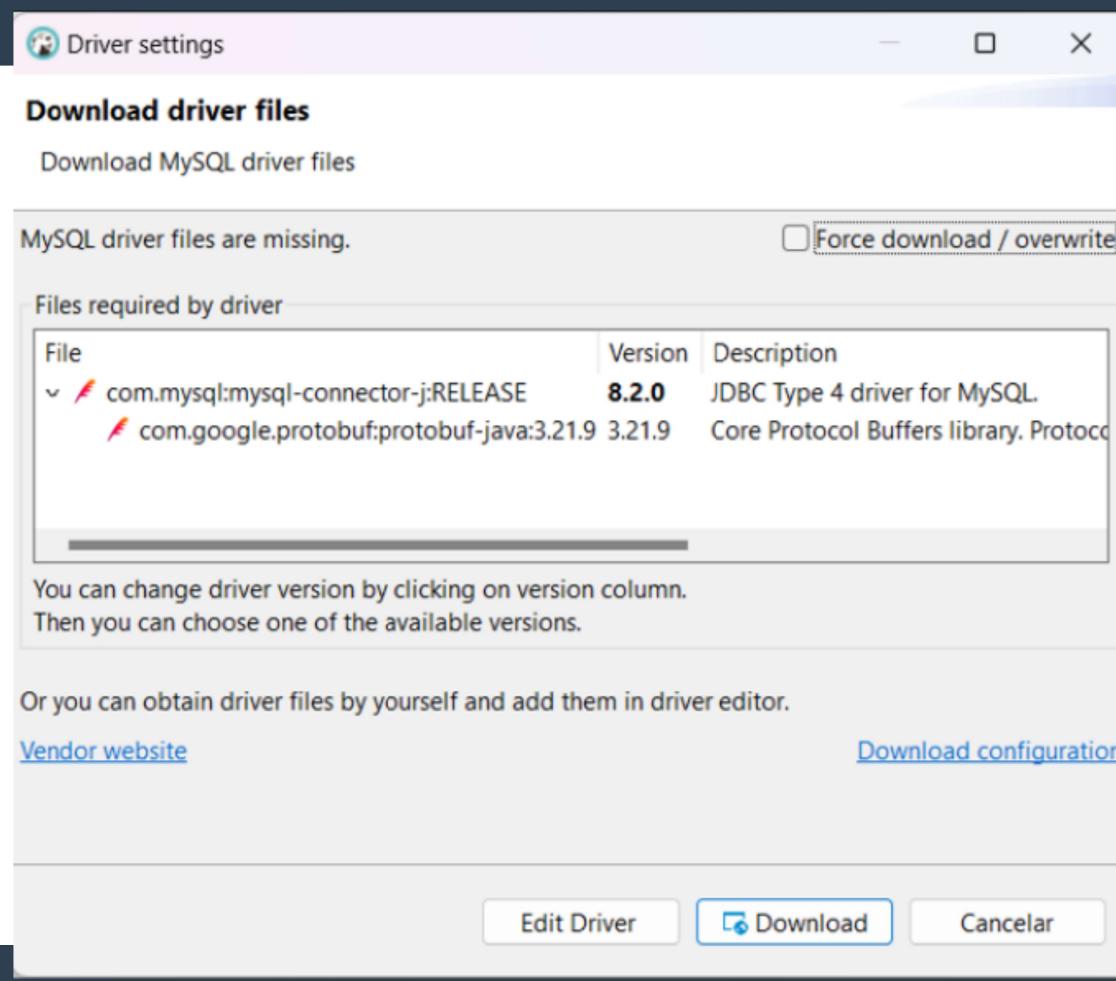


Puerto: 3306

Contraseña:
123456

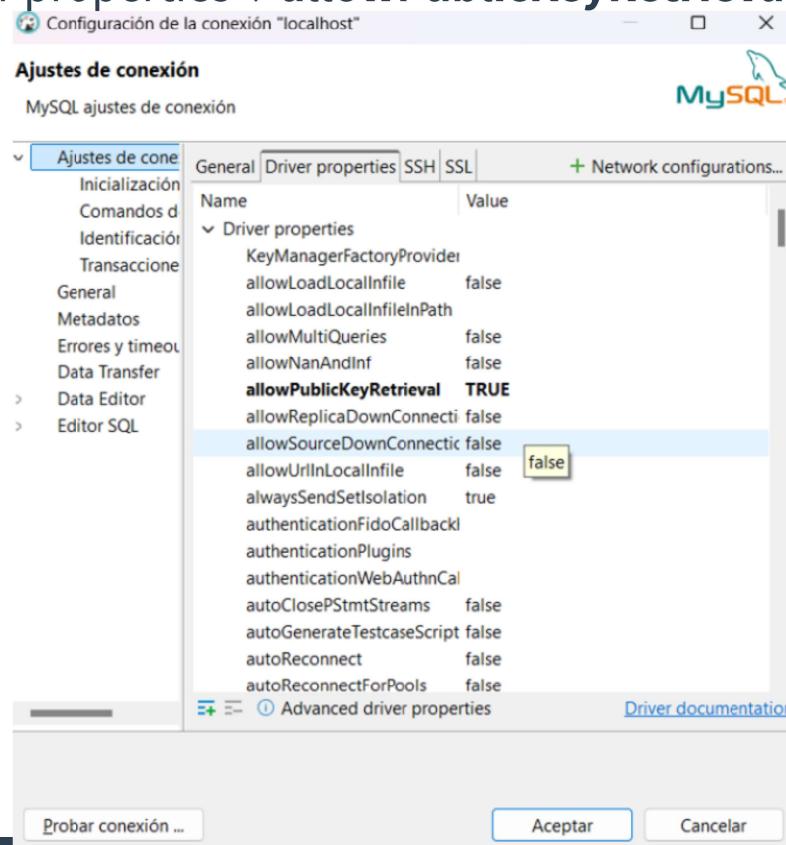
APACHE NiFi: PASO 4

Descargar driver



APACHE NiFi: PASO 5

Ajustes de conexión → Driver properties → **allowPublicKeyRetrieval** cambiar a TRUE



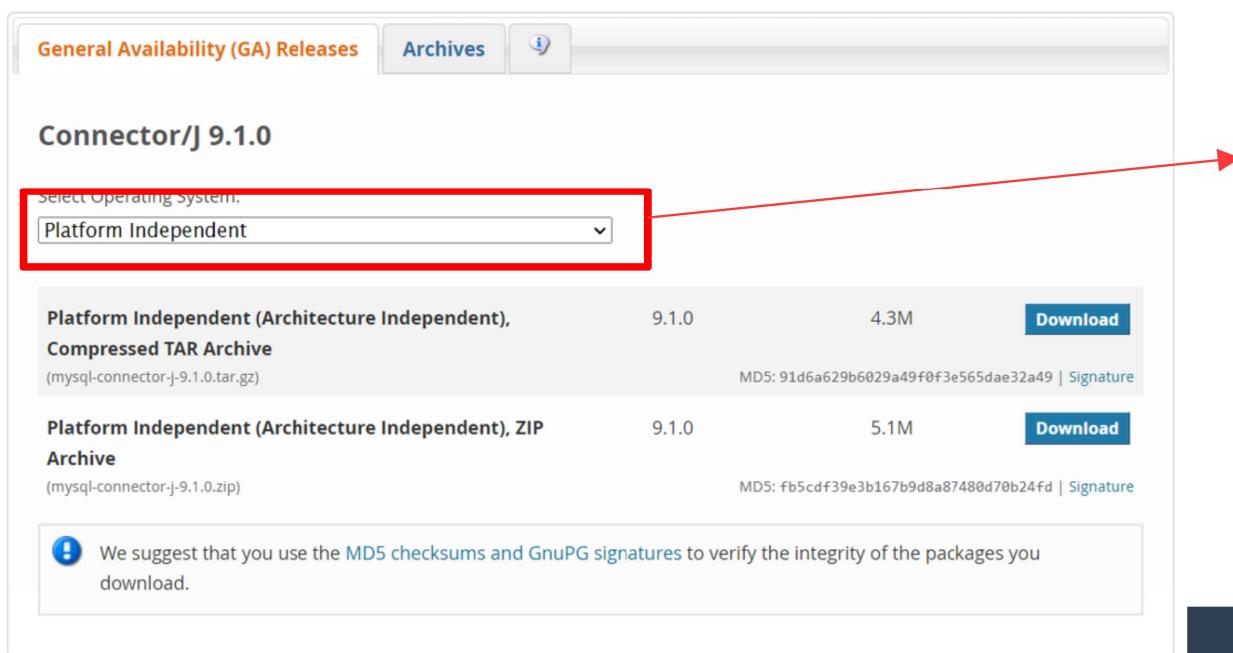
APACHE NiFi: PASO 6

Descargar el conector JDBC de MySQL desde el siguiente enlace:

MySQL Connector/J - Downloads <https://dev.mysql.com/downloads/connector/j/>

MySQL Community Downloads

Connector/J



The screenshot shows the MySQL Connector/J download page. At the top, there are tabs for "General Availability (GA) Releases" (selected), "Archives", and a help icon. Below the tabs, it says "Connector/J 9.1.0". A red box highlights the "Select Operating System" dropdown menu, which is set to "Platform Independent". An arrow points from this red box to the text "Seleccionar: Platform Independent" located on the right side of the slide. The page lists two download options: "Platform Independent (Architecture Independent), Compressed TAR Archive" (mysql-connector-j-9.1.0.tar.gz) and "Platform Independent (Architecture Independent), ZIP Archive" (mysql-connector-j-9.1.0.zip). Both files are version 9.1.0, with sizes 4.3M and 5.1M respectively. Each file has a "Download" button and links for MD5 checksums and GnuPG signatures. At the bottom, a note suggests using MD5 checksums and GnuPG signatures for package integrity verification.

General Availability (GA) Releases Archives

Connector/J 9.1.0

Select Operating System.

Platform Independent

Platform Independent (Architecture Independent), Compressed TAR Archive (mysql-connector-j-9.1.0.tar.gz)

Platform Independent (Architecture Independent), ZIP Archive (mysql-connector-j-9.1.0.zip)

MD5: 91d6a629b6029a49f0f3e565dae32a49 | Signature

MD5: fb5cdf39e3b167b9d8a87480d70b24fd | Signature

We suggest that you use the MD5 checksums and GnuPG signatures to verify the integrity of the packages you download.

Seleccionar:
Platform Independent

APACHE NiFi: PASO 7

Coloca el archivo JAR del conector en la carpeta de librería de NiFi.
Esta carpeta suele estar en el directorio de NiFi → /opt/nifi/nifi-current/lib

Ejemplo de ejecución:

```
C:\CLASES\1 clases 2024-2025\BigData\Material_Clase_Big Data\Ejemplos de nifi\Mysql\  
mysql-connector-j-9.1.0>docker cp mysql-connector-j-9.1.0.jar nifi:/opt/nifi/nifi-current/lib
```

APACHE NiFi: PASO 7

Comprobar:

```
C:\Windows\System32>docker exec -ti nifi /bin/bash
nifi@8a4e9d01d347:/opt/nifi/nifi-current$ cd lib
```

```
nifi@8a4e9d01d347:/opt/nifi/nifi-current/lib$ ls -l mysq*
-rwxr-xr-x 1 root root 2597591 Sep 30 12:25 mysql-connector-j-9.1.0.jar
```

Está copiado el JAR.

APACHE NiFi: PASO 8

Reinicia NiFi para que cargue el driver JDBC.

Comprobar el proceso de NiFi que está corriendo para ello ejecutar la siguiente sentencia:

ps -ef | grep nifi

./nifi.sh stop

```
nifi@8a4e9d01d347:/opt/nifi/nifi-current/bin$  
nifi@8a4e9d01d347:/opt/nifi/nifi-current/bin$  
nifi@8a4e9d01d347:/opt/nifi/nifi-current/bin$  
nifi@8a4e9d01d347:/opt/nifi/nifi-current/bin$  
nifi@8a4e9d01d347:/opt/nifi/nifi-current/bin$  
nifi@8a4e9d01d347:/opt/nifi/nifi-current/bin$  
nifi@8a4e9d01d347:/opt/nifi/nifi-current/bin$  
nifi@8a4e9d01d347:/opt/nifi/nifi-current/bin$ ./nifi.sh stop  
  
Java home: /opt/java/openjdk  
NiFi home: /opt/nifi/nifi-current  
  
Bootstrap Config File: /opt/nifi/nifi-current/conf/bootstrap.conf  
  
2024-10-20 11:06:44,187 INFO [main] org.apache.nifi.bootstrap.Command Apache NiFi has accepted the Shutdown Command and  
is shutting down now  
2024-10-20 11:06:44,275 INFO [main] org.apache.nifi.bootstrap.Command NiFi PID [77] shutdown in progress...  
2024-10-20 11:06:46,281 INFO [main] org.apache.nifi.bootstrap.Command NiFi PID [77] shutdown in progress...  
  
What's next:  
Try Docker Debug for seamless, persistent debugging tools in any container or image → docker debug nifi
```

APACHE NiFi: PASO 9

Ejecutar: **docker exec -ti nifi bash**

Ejecutar para comprobar que se ha parado y no hay nada corriendo en NiFi: **ps -ef | grep nifi**

Reiniciar NiFi: **./nifi.sh start**

```
nifi@8a4e9d01d347:/opt/nifi/nifi-current/bin$ ./nifi.sh start  
Java home: /opt/java/openjdk  
NiFi home: /opt/nifi/nifi-current  
Bootstrap Config File: /opt/nifi/nifi-current/conf/bootstrap.conf  
  
nifi@8a4e9d01d347:/opt/nifi/nifi-current/bin$ |
```

APACHE NiFi: PASO 10

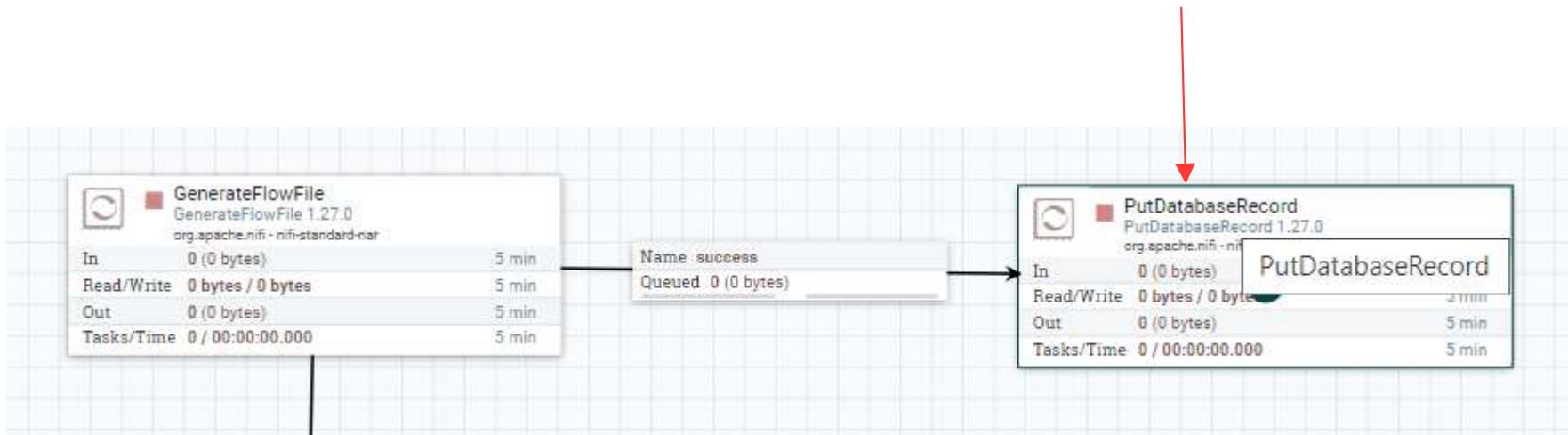
- Base de datos llamada Nifi
- Tabla denominada Cliente que contendrá los siguientes campos: **idcliente (bigint)**, **nombre (varchar 100)**, **apellido1 (varchar 100)**, **apellido2 (varchar 100)**

The screenshot shows the MySQL Workbench interface. On the left, the database structure is visible, with a red box highlighting the 'localhost' connection and the 'Nifi' database. Inside 'Nifi', a red box highlights the 'Tables' folder, which contains a table named 'cliente'. The main panel shows the 'cliente' table configuration. The 'Table Name' is set to 'cliente', 'Engine' is 'InnoDB', 'Auto Increment' is '0', 'Charset' is 'utf8mb4', and 'Collation' is 'utf8mb4_0900_ai_ci'. Below this, a red box highlights the 'Columns' section of the table editor, showing four columns: 'idcliente' (bigint), 'nombre' (varchar(100)), 'apellido1' (varchar(100)), and 'apellido2' (varchar(100)).

Column Name	#	Data Type	Not Null	Auto Increment	Key	Default	Extra
123 idcliente	1	bigint	[]	[]			
AZ nombre	2	varchar(100)	[]	[]			
AZ apellido1	3	varchar(100)	[]	[]			
AZ apellido2	4	varchar(100)	[]	[]			

APACHE NiFi: PASO 11

NiFi, procesador PutDataBaseRecord
Crear el DBCPConnectionPool



APACHE NiFi: PASO 12

Configure Processor | PutDatabaseRecord 1.27.0

Stopped

SETTINGS SCHEDULING PROPERTIES RELATIONSHIPS COMMENTS

Required field

Property	Value
Record Reader	JsonTreeReader
Database Type	MySQL
Statement Type	INSERT
Data Record Path	No value set
Database Connection Pooling Service	DBCPConnectionPool
Catalog Name	No value set
Schema Name	No value set
Table Name	cliente
Binary String Format	UTF-8
Translate Field Names	true
Unmatched Field Behavior	Ignore Unmatched Fields
Unmatched Column Behavior	Fail on Unmatched Columns

CANCEL APPLY



APACHE NiFi: PASO 13

Controller Service Details | DBCPConnectionPool 1.27.0

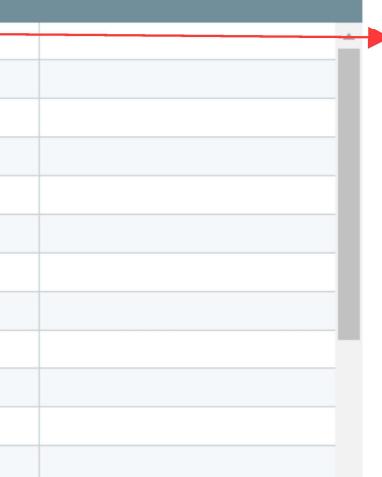
► ENABLED

SETTINGS PROPERTIES COMMENTS

Required field

Property	Value
Database Connection URL	jdbc:mysql://mysql_local:3306/Nifi
Database Driver Class Name	com.mysql.cj.jdbc.Driver
Database Driver Location(s)	No value set
Kerberos User Service	No value set
Kerberos Credentials Service	No value set
Kerberos Principal	No value set
Kerberos Password	No value set
Database User	root
Password	Sensitive value set
Max Wait Time	500 millis
Max Total Connections	8
Validation query	SELECT 1;

OK



Database Connection URL:

Introducimos la URL de conexión a la Base de Datos.

`dbc:mysql://<host>:<puerto>/<nombre_base_de_datos>`

En nuestro caso se pone el nombre del contenedor en lugar de localhost o de la ruta al servidor porque estamos en Docker

APACHE NiFi: PASO 14

Controller Service Details | DBCPConnectionPool 1.27.0

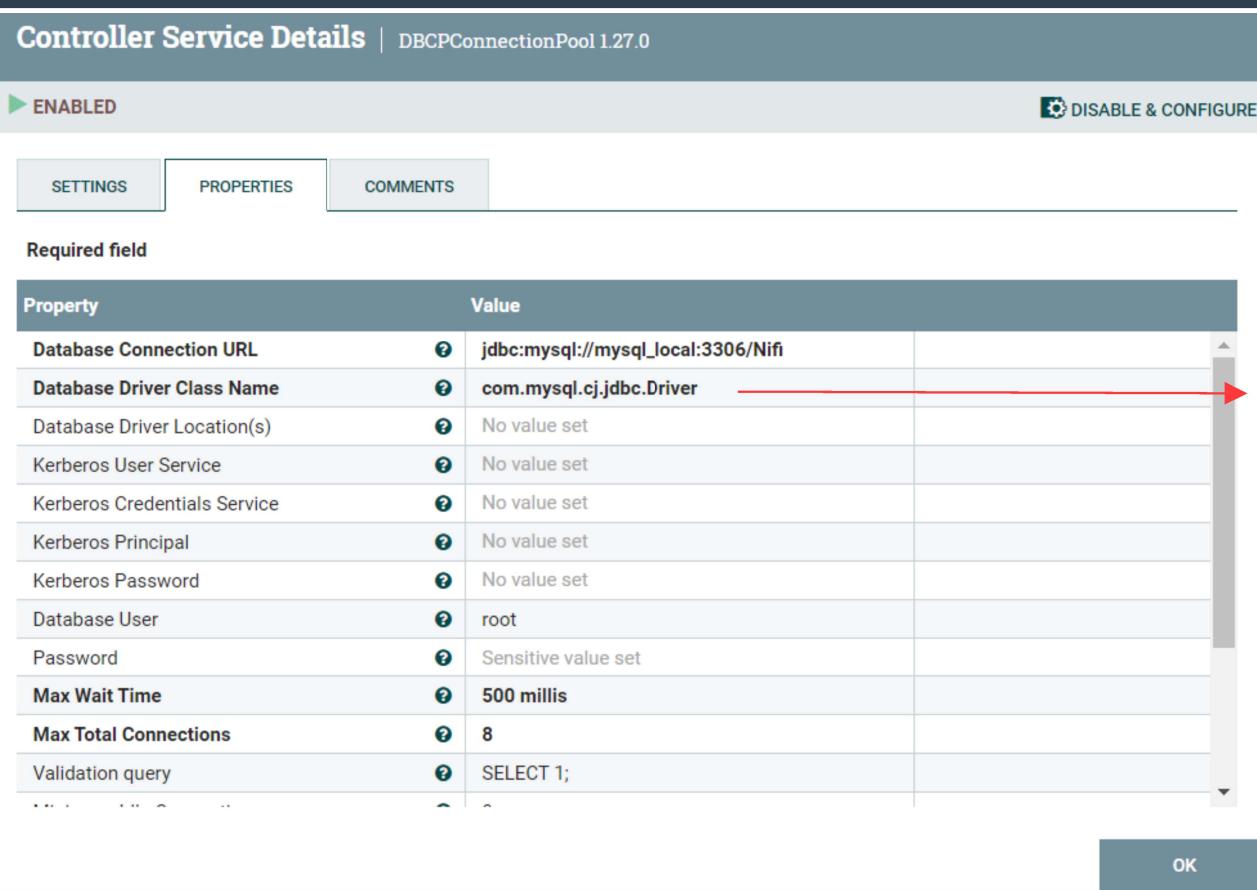
► ENABLED DISABLE & CONFIGURE

SETTINGS PROPERTIES COMMENTS

Required field

Property	Value
Database Connection URL	jdbc:mysql://mysql_local:3306/Nifi
Database Driver Class Name	com.mysql.cj.jdbc.Driver →
Database Driver Location(s)	No value set
Kerberos User Service	No value set
Kerberos Credentials Service	No value set
Kerberos Principal	No value set
Kerberos Password	No value set
Database User	root
Password	Sensitive value set
Max Wait Time	500 millis
Max Total Connections	8
Validation query	SELECT 1;

OK



Database Driver Class Name:

En este campo debes especificar el nombre del driver JDBC de MySQL. Para MySQL, el driver es:
com.mysql.cj.jdbc.Driver

APACHE NiFi: PASO 15

Controller Service Details | DBCPConnectionPool 1.27.0

► ENABLED DISABLE & CONFIGURE

SETTINGS PROPERTIES COMMENTS

Required field

Property	Value
Database Connection URL	jdbc:mysql://mysql_local:3306/Nifi
Database Driver Class Name	com.mysql.cj.jdbc.Driver
Database Driver Location(s)	No value set
Kerberos User Service	No value set
Kerberos Credentials Service	No value set
Kerberos Principal	No value set
Kerberos Password	No value set
Database User	root
Password	Sensitive value set
Max Wait Time	500 millis
Max Total Connections	8
Validation query	SELECT 1;

OK



Data Driver Location:

Si descargaste y colocaste el JAR de MySQL en el directorio /usr/lib/nifi/lib, entonces deberías dejar este campo vacío. Pero si el driver JDBC está en una ubicación distinta, debes especificar la ruta al archivo .jar. Ejemplo: /usr/lib/nifi/lib/mysql-connector-java-8.0.XX.jar

APACHE NiFi: PASO 16

Controller Service Details | DBCPConnectionPool 1.27.0

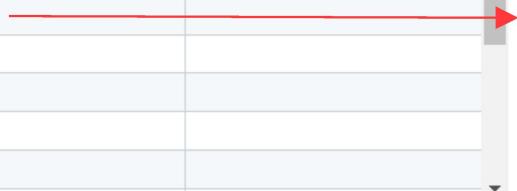
► ENABLED DISABLE & CONFIGURE

SETTINGS PROPERTIES COMMENTS

Required field

Property	Value
Database Connection URL	jdbc:mysql://mysql_local:3306/Nifi
Database Driver Class Name	com.mysql.cj.jdbc.Driver
Database Driver Location(s)	No value set
Kerberos User Service	No value set
Kerberos Credentials Service	No value set
Kerberos Principal	No value set
Kerberos Password	No value set
Database User	root
Password	Sensitive value set
Max Wait Time	500 millis
Max Total Connections	8
Validation query	SELECT 1;

OK



Database User:

El nombre de usuario de tu base de datos MySQL.

Por ejemplo:
root

APACHE NiFi: PASO 17

Controller Service Details | DBCPConnectionPool 1.27.0

► ENABLED DISABLE & CONFIGURE

SETTINGS PROPERTIES COMMENTS

Required field

Property	Value
Database Connection URL	? jdbc:mysql://mysql_local:3306/Nifi
Database Driver Class Name	? com.mysql.cj.jdbc.Driver
Database Driver Location(s)	? No value set
Kerberos User Service	? No value set
Kerberos Credentials Service	? No value set
Kerberos Principal	? No value set
Kerberos Password	? No value set
Database User	? root
Password	? Sensitive value set 
Max Wait Time	? 500 millis
Max Total Connections	? 8
Validation query	? SELECT 1;
...	

OK

Password:

La contraseña del usuario de la base de datos.

En nuestro caso, 123456

APACHE NiFi: PASO 18

Controller Service Details | DBCPConnectionPool 1.27.0

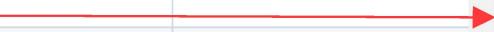
► ENABLED DISABLE & CONFIGURE

SETTINGS PROPERTIES COMMENTS

Required field

Property	Value
Database Connection URL	jdbc:mysql://mysql_local:3306/Nifi
Database Driver Class Name	com.mysql.cj.jdbc.Driver
Database Driver Location(s)	No value set
Kerberos User Service	No value set
Kerberos Credentials Service	No value set
Kerberos Principal	No value set
Kerberos Password	No value set
Database User	root
Password	Sensitive value set
Max Wait Time	500 millis
Max Total Connections	8
Validation query	SELECT 1;

OK



Max Total Connections:

Define el número máximo de conexiones que deseas en el pool de conexiones.

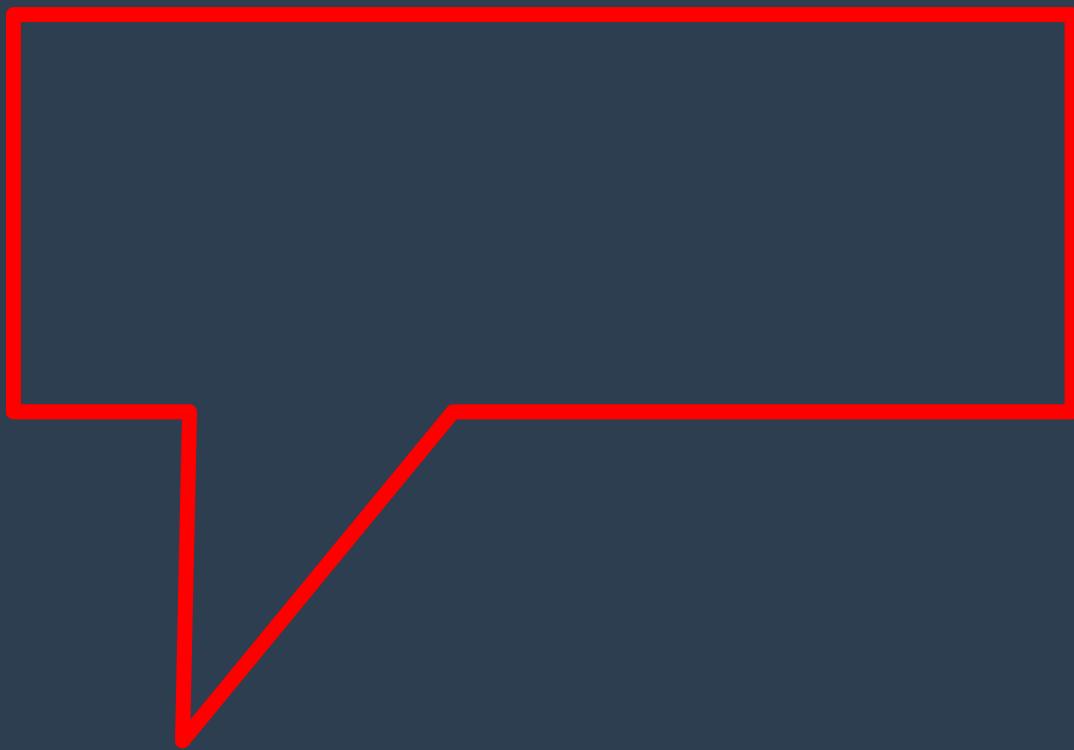
Validation Query:

Opcionalmente, puedes especificar una consulta para validar las conexiones del pool. Una consulta simple sería:
SELECT 1;

APACHE NiFi: PASO 19

El insert sería algo parecido a:

```
INSERT INTO cliente (idcliente, nombre, apellido1, apellido2) VALUES (?, ?, ?, ?)  
{"idcliente": 1, "nombre": "Carmelo", "apellido1": "Coton", "apellido2": "Amarillo" }
```



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