

Curso Data Engineer: Creando un pipeline de datos

MÓDULO A - Clase 4

A decorative graphic on the left side of the slide, consisting of a grid of small, light blue circles arranged in a pattern that tapers towards the right, creating a sense of depth and movement. The circles are set against a solid blue background.

Ingest

Ingest con WGET



S3



Ingest con WGET



S3



Ingest mediante scripts



Podemos utilizar algunos comandos de linux para hacer ingest de archivos.

Obtenemos los archivos con WGET:

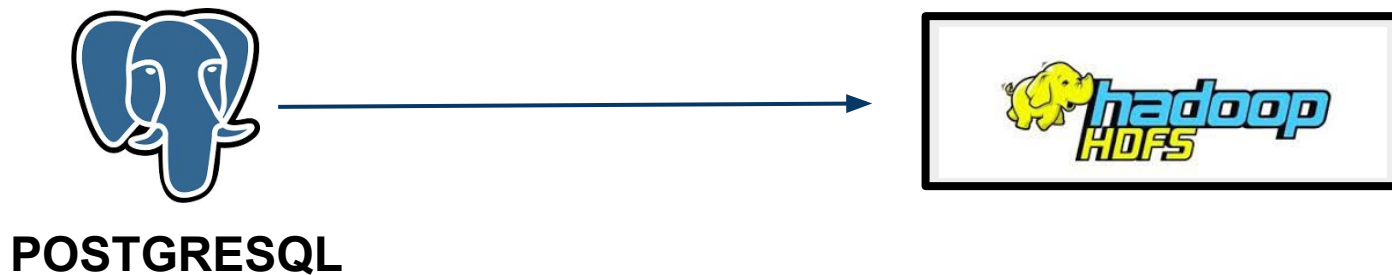
- **wget -P /home/hadoop/landing**

https://data-engineer-edvai.s3.amazonaws.com/yellow_tripdata_2021-01.csv

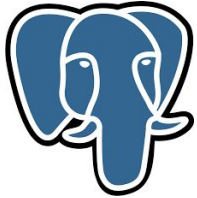
Movemos los archivos a HDFS:

```
hadoop fs -cp /home/hadoop/landing/* /hadoop/hdfs/
```

Ingest con SQOOP



Ingest con SQOOP



POSTGRES SQL



Ingest mediante sqoop



Verificar funcionamiento y versión:

- **sqoop-version**

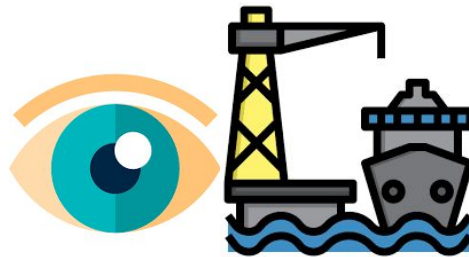
```
hadoop@5dc251dd43fb:~$ sqoop-version
Warning: /usr/lib/sqoop/../../hbase does not exist! HBase imports will fail.
Please set $HBASE_HOME to the root of your HBase installation.
Warning: /usr/lib/sqoop/../../hcatalog does not exist! HCatalog jobs will fail.
Please set $HCAT_HOME to the root of your HCatalog installation.
Warning: /usr/lib/sqoop/../../accumulo does not exist! Accumulo imports will fail.
Please set $ACCUMULO_HOME to the root of your Accumulo installation.
Warning: /usr/lib/sqoop/../../zookeeper does not exist! Accumulo imports will fail.
Please set $ZOOKEEPER_HOME to the root of your Zookeeper installation.
2023-03-16 19:02:28,767 INFO sqoop.Sqoop: Running Sqoop version: 1.4.7
Sqoop 1.4.7
git commit id 2328971411f57f0cb683dfb79d19d4d19d185dd8
Compiled by maugli on Thu Dec 21 15:59:58 STD 2017
hadoop@5dc251dd43fb:~$
```


Ingest mediante sqoop



Listar databases:

```
sqoop list-databases \  
-connect jdbc:postgresql://172.17.0.3:5432/northwind \  
-username postgres -P
```



```
2023-03-16 20:36:39,489 INFO sqoop.Sqoop: Running Sqoop version: 1.4.7  
Enter password:  
2023-03-16 20:36:42,458 INFO manager.SqlManager: Using default fetchSize of 1000  
postgres  
northwind  
template1  
template0  
hadoop@5dc251dd443fb: /$
```

Ingest mediante sqoop



Importar tablas:

**sqoop import **

**–connect jdbc:postgresql://172.17.0.3:5432/northwind **

**–username postgres **

**–table region **

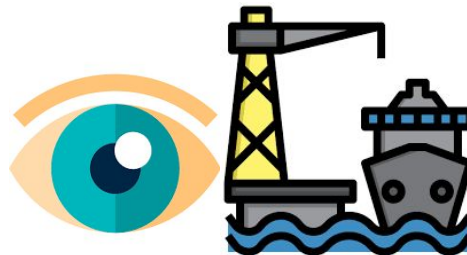
**–m 1 **

**–P **

**–target-dir /sqoop/ingest **

**–as-parquetfile **

–delete-target-dir



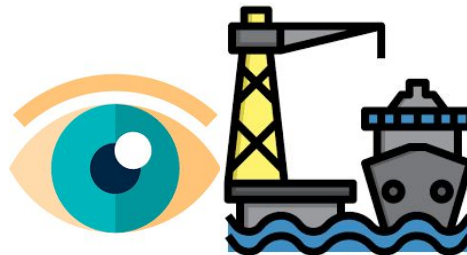
```
Total time spent by all maps in occupied slots (ms)=8675
Total time spent by all reduces in occupied slots (ms)=0
Total time spent by all map tasks (ms)=8675
Total vcore-milliseconds taken by all map tasks=8675
Total megabyte-milliseconds taken by all map tasks=13324800
Map-Reduce Framework
  Map input records=4
  Map output records=4
  Input split bytes=87
  Spilled Records=0
  Failed Shuffles=0
  Merged Map outputs=0
  GC time elapsed (ms)=66
  CPU time spent (ms)=4570
  Physical memory (bytes) snapshot=275968000
  Virtual memory (bytes) snapshot=2981875712
  Total committed heap usage (bytes)=180355072
  Peak Map Physical memory (bytes)=275968000
  Peak Map Virtual memory (bytes)=2981875712
File Input Format Counters
  Bytes Read=0
File Output Format Counters
  Bytes Written=0
2023-03-16 20:06:32,380 INFO mapreduce.ImportJobBase: Transferred 1.8496 KB in 38.8773 seconds (48.7174 bytes/sec)
2023-03-16 20:06:32,391 INFO mapreduce.ImportJobBase: Retrieved 4 records.
```

Ingest mediante sqoop



Importar tablas con filtro:

```
sqoop import \  
-connect jdbc:postgresql://172.17.0.3:5432/northwind \  
-username postgres\  
-table region\  
-m 1 \  
-P \  
-target-dir /sqoop/ingest/southern \  
-as-parquetfile \  
-where "region_description = 'Southern'" \  
-delete-target-dir
```



```
HDFS: Number of large read operations=0  
HDFS: Number of write operations=10  
HDFS: Number of bytes read erasure-coded=0  
Job Counters  
  Launched map tasks=1  
  Other local map tasks=1  
  Total time spent by all maps in occupied slots (ms)=8319  
  Total time spent by all reduces in occupied slots (ms)=0  
  Total time spent by all map tasks (ms)=8319  
  Total vcore-milliseconds taken by all map tasks=8319  
  Total megabyte-milliseconds taken by all map tasks=12777984  
Map-Reduce Framework  
  Map input records=1  
  Map output records=1  
  Input split bytes=87  
  Spilled Records=0  
  Failed Shuffles=0  
  Merged Map outputs=0  
  GC time elapsed (ms)=74  
  CPU time spent (ms)=4060  
  Physical memory (bytes) snapshot=254566400  
  Virtual memory (bytes) snapshot=2971721728  
  Total committed heap usage (bytes)=181403648  
  Peak Map Physical memory (bytes)=254566400  
  Peak Map Virtual memory (bytes)=2971721728  
File Input Format Counters  
  Bytes Read=0  
File Output Format Counters  
  Bytes Written=0
```

```
2023-03-16 20:20:21,436 INFO mapreduce.ImportJobBase: Transferred 1.8115 KB in 30.653 seconds (60.5161 bytes/sec)  
2023-03-16 20:20:21,447 INFO mapreduce.ImportJobBase: Retrieved 1 records.
```

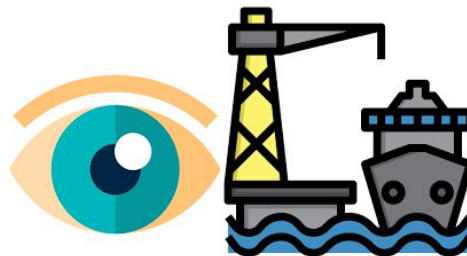
Ingest mediante sqoop



Importar tablas desde una query:

**sqoop import **

- connect jdbc:postgresql://172.17.0.3:5432/northwind **
- username postgres **
- query "select * from region where region_id = 3 AND \\${CONDITIONS}" **
- m 1 **
- P **
- target-dir /sqoop/ingest **
- as-parquetfile **
- delete-target-dir**



```
HDFS: Number of large read operations=0
HDFS: Number of write operations=10
HDFS: Number of bytes read erasure-coded=0
Job Counters
  Launched map tasks=1
  Other local map tasks=1
  Total time spent by all maps in occupied slots (ms)=8319
  Total time spent by all reduces in occupied slots (ms)=0
  Total time spent by all map tasks (ms)=8319
  Total vcore-milliseconds taken by all map tasks=8319
  Total megabyte-milliseconds taken by all map tasks=12777984
Map-Reduce Framework
  Map input records=1
  Map output records=1
  Input split bytes=87
  Spilled Records=0
  Failed Shuffles=0
  Merged Map outputs=0
  GC time elapsed (ms)=74
  CPU time spent (ms)=4060
  Physical memory (bytes) snapshot=254566400
  Virtual memory (bytes) snapshot=2971721728
  Total committed heap usage (bytes)=181403648
  Peak Map Physical memory (bytes)=254566400
  Peak Map Virtual memory (bytes)=2971721728
File Input Format Counters
  Bytes Read=0
File Output Format Counters
  Bytes Written=0
2023-03-16 20:20:21,436 INFO mapreduce.ImportJobBase: Transferred 1.8115 KB in 30.653 seconds (60.5161 bytes/sec)
2023-03-16 20:20:21,447 INFO mapreduce.ImportJobBase: Retrieved 1 records.
```

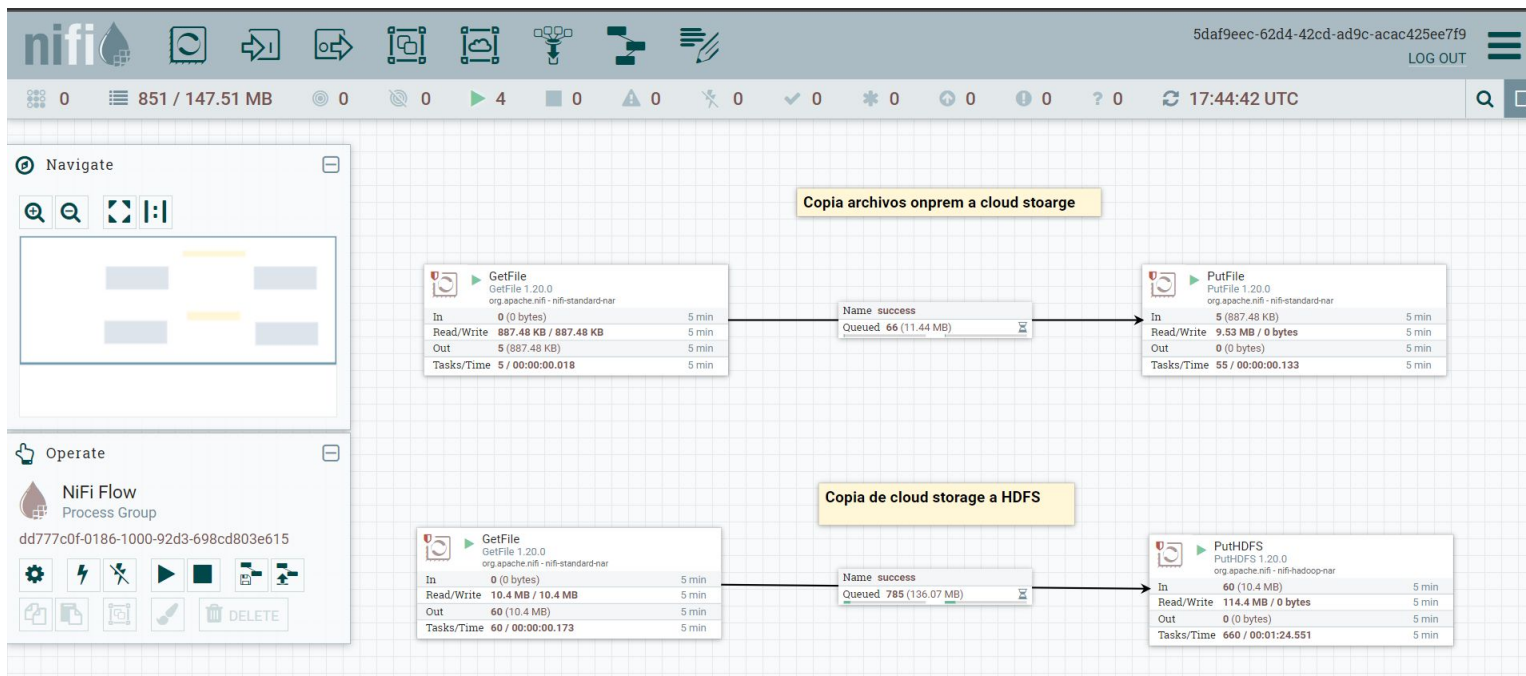
APACHE nifi



Ingest con APACHE nifi



APACHE nifi



APACHE nifi



GetFile

Processor Details

▶ Running

⚙ STOP & CONFIGURE

SETTINGS

SCHEDULING

PROPERTIES

RELATIONSHIPS

COMMENTS

Required field

Property	Value
Input Directory	🔍 /home/nifi/ingest
File Filter	🔍 starwars.csv
Path Filter	🔍 No value set
Batch Size	🔍 10
Keep Source File	🔍 true
Recurse Subdirectories	🔍 true
Polling Interval	🔍 0 sec
Ignore Hidden Files	🔍 true
Minimum File Age	🔍 0 sec
Maximum File Age	🔍 No value set
Minimum File Size	🔍 0 B
Maximum File Size	🔍 No value set



PutFile

Processor Details

▶ Running

⚙ STOP & CONFIGURE

SETTINGS

SCHEDULING

PROPERTIES

RELATIONSHIPS

COMMENTS

Required field

Property	Value	
Directory	/home/nifi/bucket	
Conflict Resolution Strategy	replace	
Create Missing Directories	true	
Maximum File Count	No value set	
Last Modified Time	No value set	
Permissions	No value set	
Owner	No value set	
Group	No value set	

APACHE nifi



PutHDFS

Processor Details

▶ Running (1)⚙ STOP & CONFIGURE

SETTINGS

SCHEDULING

PROPERTIES

RELATIONSHIPS

COMMENTS

Required field

Property		Value	
Hadoop Configuration Resources	?	/home/nifi/hadoop/core-site.xml, /home/nifi/hadoop...	
Kerberos Credentials Service	?	No value set	
Kerberos User Service	?	No value set	
Kerberos Principal	?	No value set	
Kerberos Keytab	?	No value set	
Kerberos Password	?	No value set	
Kerberos Rlogin Period	?	4 hours	
Additional Classpath Resources	?	No value set	
Directory	?	/nifi	
Conflict Resolution Strategy	?	replace	
Writing Strategy	?	Write and rename	
Block Size	?	No value set	

APACHE nifi



- **Instalación:**
 - Instalado en la VM
 - instalar desde docker (docker pull apache/nifi)
- **Usr y contraseña:**
 - Usr: d30eb1a2-3bfe-4c85-9ea4-9562915a70e6
 - Pass: NvxFSKesWliU1K4XL1AQJwovv9z7TW4h
 - /opt/nifi/nifi-current/bin nifi.sh set-single-user-credentials nifi <password>
 - En caso que lo instalen desde docker buscar el usr y pass en docker logs nifi
- **Archivos de configuración Hadoop:**
 - core-site.xml:
<https://github.com/fpineyro/homework-0/blob/2767f00cf9c16774dbb10fc2d7b8d17f11114750/core-site.xml>
 - hdfs-site.xml:
<https://github.com/fpineyro/homework-0/blob/2767f00cf9c16774dbb10fc2d7b8d17f11114750/hdfs-site.xml>



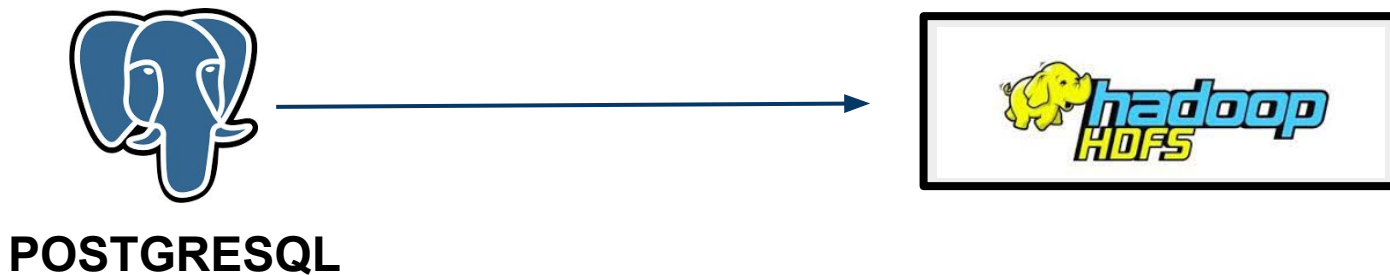
Ejercicio

Ejercicios



- Ingest
 - **WGET**
 - **HDFS DFS -PUT**
 - **SQOOP**
 - **NIFI**

Ingest con SQOOP



Ingest con APACHE nifi

