B.I.R.O.

Best Information through Regional Outcomes

BIRO Architecture - part 1
BIRO local system

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Summary of BIRO Architecture – 1

- The first part of BIRO Achitecture shows what happens at the Local BIRO system:

  1. the **BIRO Adaptor** makes a connection to a local db and exports data as XML files

  2. the **BIRO Database Manager** reads the XML files and stores data into the local Postgresql BIRO Database

  3. **BIRO Statistical Engine** connects to local BIRO Database and runs statistical functions

  4. **BIRO Statistical Engine** uses LaTex features to produce local statistical reports

Summary of BIRO Architecture – 1

Local BIRO System
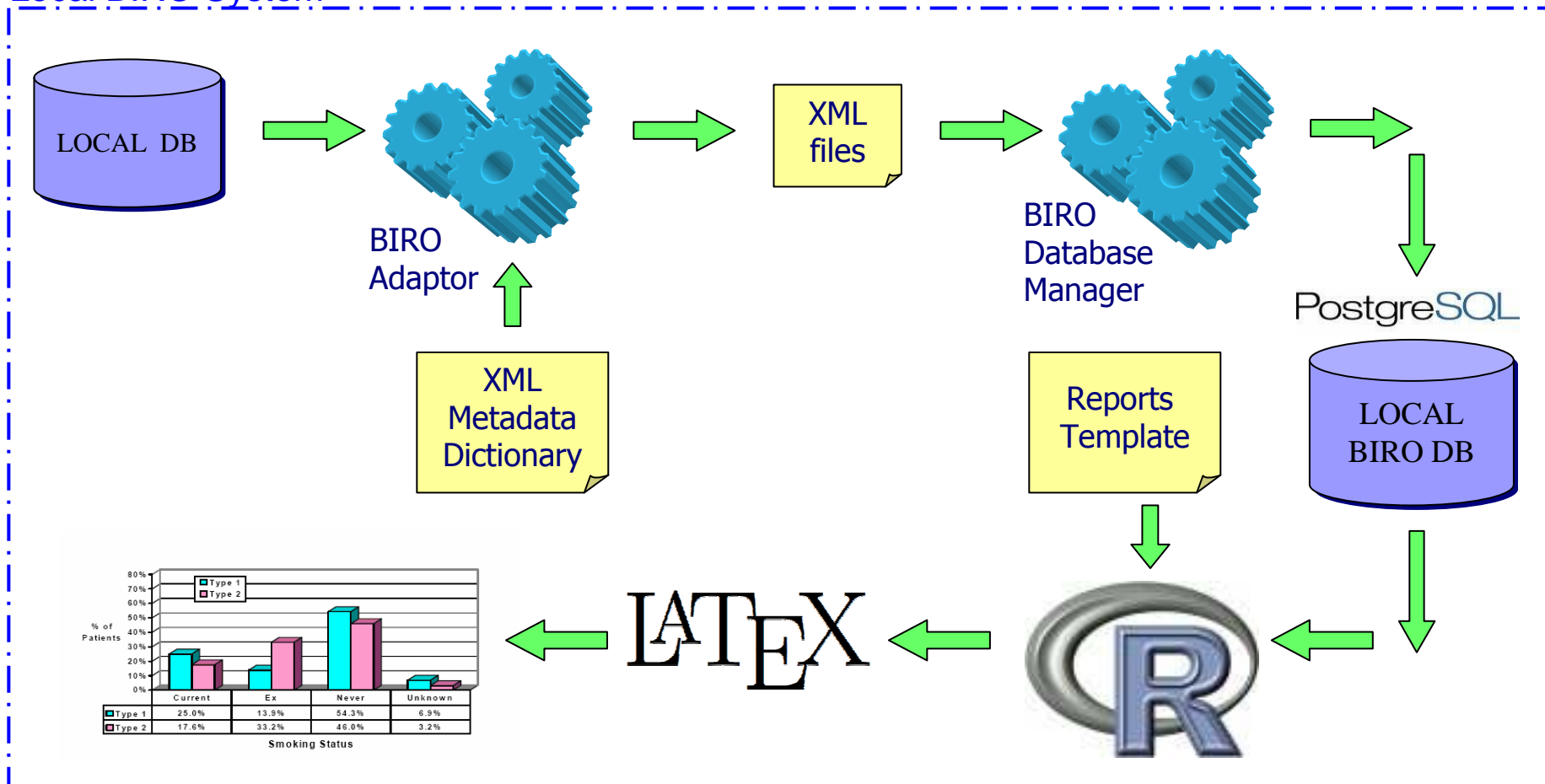
How to run BIRO Adaptor

- Step 1

- A simple Java standard property file is needed to configure the BIRO Adaptor

- The configuration is divided into different sections
  - □ **JDBC** → how to connect to local database
  - □ **MergeTable** → how to retrieve data from local database
  - □ **BIROFields** → how to match retrieved data with BIRO XML schema

Configuration file - jdbc

- You need to explain to BIRO Adaptor how to connect to the local db (JDBC driver, URL, username, password)

```
# JDBC Connection properties, starting section
[JDBC]

# JDBC Driver to use, specify the full name of the Java class
Driver=org.postgresql.Driver
# JDBC url to connect to, specify the full jdbc url
Url=jdbc:postgresql:rrdm
# JDBC User name, specify the database username
Username=postgres
# JDBC Password, specify [optional] the password for the database
# If this field is empty it will be asked on input console
# for more security
Password=
```

Configuration file – mergeTable

- You need to explain to BIRO Adaptor how to retrieve data from local db by writing queries in SQL language

```
# MergeTable information
[MergeTable]

# Specify the sql query to execute to retrieve all data
# to export in one table
SourceQuery=SELECT * FROM "MergeTable" ORDER BY "ID_CND", "EPIDATE"
;
# Specify the sql query to count rows to export
# (first column MUST be the one with the count)
CountQuery=SELECT COUNT(*) FROM (SELECT * FROM "MergeTable") AS N ;
# Specify date format of the date fields
DateFormat=dd/MM/yyyy
```

Configuration file – mergeTable

- Two possible ways of working:

- Pre-processing : create a MergeTable in your database (as we did in Perugia) → the query retrieves data from this table
  - Simple query definition, fast execution

- Post-processing : use a complex query to retrieve a view of different tables → must use JOINS, VIEWS
  - Complex query definition, execution can be slow

Configuration file – BIROfields

■ Static BIRO fields (SourceProfile) are simply stored in the configuration file as follows

◻ \<BIROFieldName\>=\<value\>

```
# Static Fields
[SiteHeader]

DS_ID=2
DS_ADDRESS_1=Via E. Dal Pozzo
DS_ADDRESS_2=06126 Perugia, ITALY
DS_POST_CODE=06126
DS_COUNTRY=IT
DS_C_CONTACT=Massimo Massi Benedetti
DS_C_EMAIL=massi@unipg.it
DS_T_CONTACT=Pietro Palladino
DS_T_EMAIL=pietro.palladino@diei.unipg.it
```

Configuration file – BIROfileds

- The BIRO fields mapping is done writing for each pair BIROField, ColumnName
  - <BIROFieldName>=<ColumnName>

```
# Profile Fields
[Profile]
PAT_ID=id_CND
TYPE_DM=TIPODIAB
SEX=SESSO
DOB=NASCITA
DT_DIAG=DATADIAG

# Episode Fields
[Episode]
EPI_DATE=EPIDATE
WEIGHT=WEIGHT
HEIGHT=HEIGHT
```

How to run BIRO Adaptor

- Step 2
- BIRO Adaptor can be executed writing this command in the console:

```
java -Xmx1024m -cp BIROAdaptor.jar:<jdbcdriver>
eu.biro.adaptor.BIROAdaptorMain <AdaptorConfig.conf>
                        <Export>
```

- java   is the Java Virtual Machine launcher
- -Xmx1024m is an option to allow the virtual machine to increase the memory
- -cp specify the class-path of the process
- BIROAdaptor.jar is the Adaptor jar file containing the main class
- <jdbcdriver> is the jar file containing the JDBC driver class, depends on the chosen DBMS
- eu.biro.[...].BIROAdaptorMain is the fully qualified name of the main class that starts the process
- <AdaptorConfig.conf> is the path of the configuration file to load
- <Export> is the export directory where the XML files will be stored

How to run BIRO Database Manager

- Step 1

- A simple Java standard property file is needed to configure the JDBC connection BIRO local database

```
#JDBC Driver to use, specify the full name of the Java class
hibernate.connection.driver_class = org.postgresql.Driver

#Hibernate Dialect
hibernate.dialect = org.hibernate.dialect.PostgreSQLDialect

#JDBC url to connect to, specify the full jdbc url
hibernate.connection.url = jdbc:postgresql://localhost/BIROdatabase

# JDBC User name, specify the database username
hibernate.connection.username = myuser

# JDBC Password for the database
hibernate.connection.password = secret
```

How to run BIRO Database Manager

- Step 2
- BIRO Database Manager can be executed writing this command in the console:

```
java -Xmx1024m -cp BIRODatabaseManager.jar:<jdbcdriver>
              test.BIRODatabaseManagerMain
      <BIRODatabaseManagerConfig.conf> <Import>
```

- java is the Java Virtual Machine launcher
- -Xmx1024m is an option to allow the virtual machine to increase memory
- -cp specify the class-path of the process
- BIRODatabaseManager.jar is the BIRO Database Manager jar file containing the main class
- <jdbcdriver> is the jar file containing the JDBC driver class, depends on the chosen DBMS
- test.BIRODatabaseManagerMain is the fully qualified name of the main class that starts the process
- <BIRODatabaseManagerConfig.conf> is the path of the configuration file to load
- <Import> is the export directory where the BIRO Export XML files have been stored