

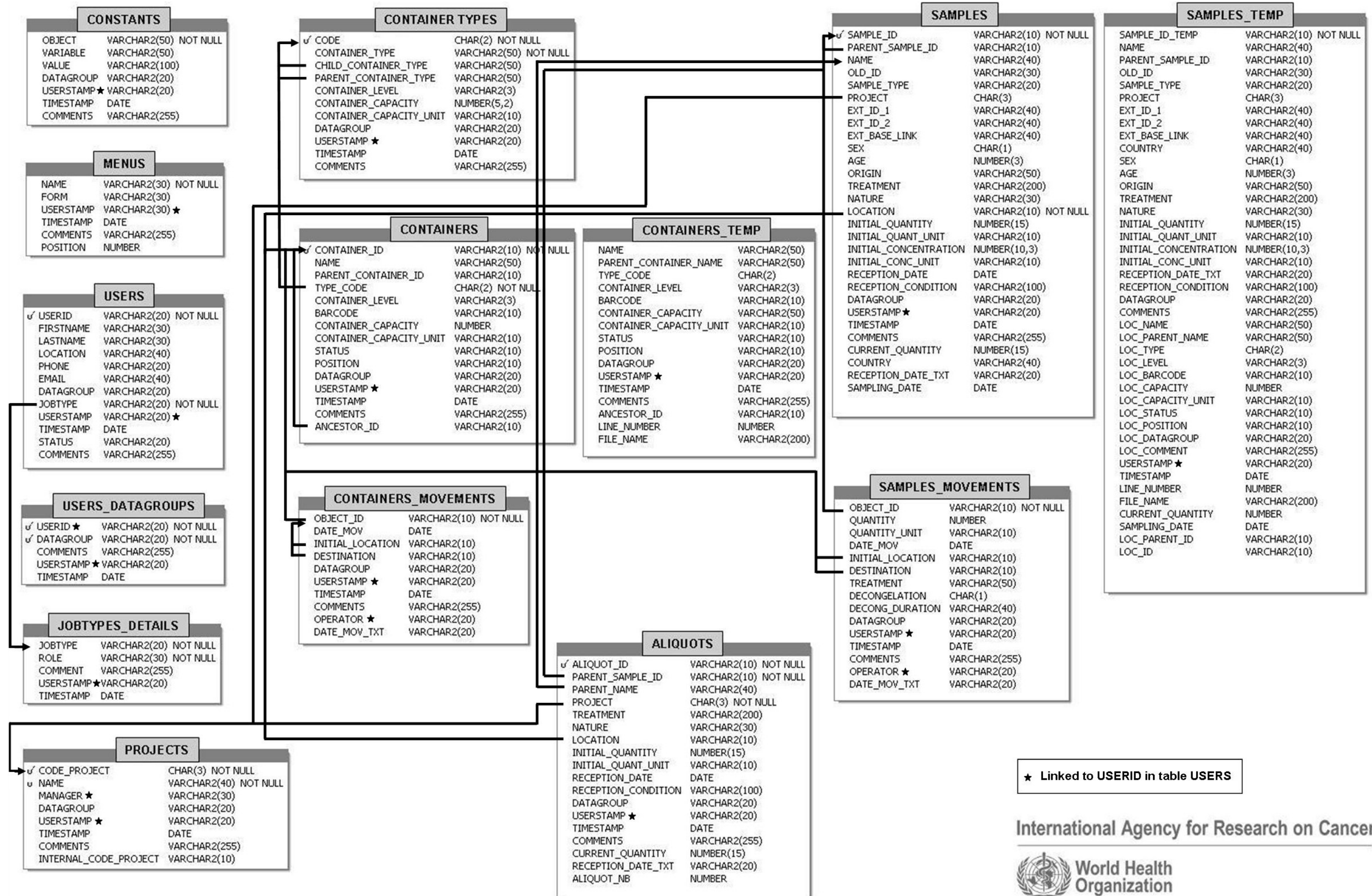
Database Model for the IARC Biobank

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This document presents the schema of the database model and describes the tables of the main user schema and the sys user tables.

Main user schema



Main user tables description

- “**Project**” table: each study is defined by a unique 3 letters code which enables to store 17576 studies.
- “**Samples**” table: each sample is labeled by a unique ID automatically generated with the study code and 5 alphanumeric characters excluding I and O to avoid misnaming with 1 and 0. This enables to store around 45 millions samples per study. The table also hosts information on other specific identifiers, some data on subjects such as sex, age, origin, data on quantities and most importantly information on the location within the biobank (container ID). Samples can also be linked through their unique identifiers to more complete and more complex epidemiological databases containing the full range of individual and pathological information available.
- “**Aliquots**” table: each aliquot derived from a sample is annotated with the same range of information as described in the “Samples” table.
- “**Container types**” table: each type of container is described with its capacity and is identified by a unique 2 letters code which allows to store 676 different container types (range from single plate to shelf, freezer, tank...)
- “**Containers**” table: each container is labeled by a unique ID automatically generated with the container type code plus 1 numeric character and 5 alphanumeric characters excluding I and O. This enables to store about 454 million containers for each container type – the table contains also important information on capacity and status (empty, partially filled or full)
- “**Sample Movements**” and “**Containers Movements**” tables: provide information on types of movements, dates and operators.
- “**Samples Temp**” and “**Containers Temp**” tables are used during the import-by-batches processes.
- “**Constants**” table: contains useful constants for the system (for example, the list of sample natures, the list of possible container status, ...)
- “**Menus**” table: contains the list of the application forms. In the GUI, this list is displayed in a menu on the left of the screens, and clicking on one entry opens the corresponding form.
- “**Users**” table: stores information on the SMS users.
- “**Users Datagroups**” table: contains the list of the datagroups associated with the users : one user can belong to one or more datagroups.
- “**Jobtypes details**” table lists the Oracle Roles granted to the different jobtypes. One user has one jobtype and this information can be retrieved in the Users table.

Sys user schema

SERVERS	
HOSTNAME	VARCHAR2(30) NOT NULL
IP	VARCHAR2(15) NOT NULL
TYPE	VARCHAR2(30) NOT NULL
USERSTAMP	VARCHAR2(30)
TIMESTAMP	DATE

USER_AUDIT	
SESSION_ID	NUMBER(8)
CLIENT_USERNAME	VARCHAR2(30)
CLIENT_HOSTNAME	VARCHAR2(30)
CLIENT_IP	VARCHAR2(15)
PROGRAM	VARCHAR2(40)
LOGON_TIME	DATE
LOGOFF_TIME	DATE
ACCESS_GRANTED	CHAR(1)
DB_USERNAME	VARCHAR2(20)

SYS_USER_AUDIT	
SESSION_ID	NUMBER(8)
CLIENT_USERNAME	VARCHAR2(30)
CLIENT_HOSTNAME	VARCHAR2(30)
CLIENT_IP	VARCHAR2(15)
PROGRAM	VARCHAR2(40)
LOGON_TIME	DATE
LOGOFF_TIME	DATE
ACCESS_GRANTED	CHAR(1)
DB_USERNAME	VARCHAR2(20)

Sys user tables description

- “**Servers**” : this table contains the information on the servers of the SMS platform, for the Oracle Application Server (Type=OAS) and the Oracle Database server (Type=DBserver). These data are required by the trigger controlling the access to the database.
- “**Sys User Audit**”: the data of this table are written by the trigger controlling the access to the database.
- “**User Audit**”: the data of this table are written by the trigger controlling the access to the database, and by the main form of the SMS Graphical User Interface.