HLA SqlServer Database 12-Dec-2015

# Narrative description of the tables

This document describes the HLA SQLServer database used by the HLA lab at the ARC lab in Dedham, MA. This database started at an Oracle database in 2002, with data converted from an earlier MUMPS database. In 2012, the Oracle data was converted to MS SqlServer 2008 R2. The data converted from MUMPS dates to the mid 1980’s.

## Permanent tables

* Patient/donor demographics. The name, identifier and classification codes of patients or donors or family members of patients tested for crossmatch. There are three main identifiers: the system-assigned id used to link tables; the R# used in the business, and the donor reference number (DRN) that holds a number assigned by the NMDP. The classification codes include registration category, donor type, donor-center code, and others. Users add records to this table through manual, templated login, or through batch login of donor files sent from the outside.
* Specimen. The accessioned specimen. The table also has a system-assigned ID. The unique business ID is R#-<n>. So the first specimen collected for R# 123456 would be 123456-1, the second is 123456-2, and so on. The specimen has an accession date, a bleed date, a specimen type, hospital, and some grouping codes. Patient/Donor has a 0-to-n relationship to specimen.
* Test. An ordered test on a specimen. Each test requires a specimen record, and as each test is added it get a sequence number within that specimen. A test has a test code (from the Codes table), a date entered, and a result date. Via its test code, a test is related to an HLA locus such as A, B, DRB1 and so on.
* HLA Type. The antigen values for the patient. For each locus there are two fields, for two values. The unique value is patient-id plus a sequence number. However, only early values, from 2000-2203 used a sequence# greater than one. After that, each change in an HLA type overwrote the value at seq #1, but the old value is in the audit table.
* HLA Codes. A master table of codes, such as hospitals, test codes, donor types. The table has a system-assigned identifier, and a code type used to show the values in drop down lists. The column values in columns named ‘cd…’ are links to this table. For example, the value hla\_person.cdDonorType will point to the donor type name. There is also an ‘extra-values’ table for codes where the user can attach values. For example, the list of test codes has an extra value ‘Locus’ to link the test code to a locus. These are a type of user-defined field
* Inventory. There is a table hla\_box of inventory locations, and a table hla\_inventory that holds the inventory location of specimens. The box has data like name, location, contents description. The inventory has a link to the specimen ID.
* Antigens. This table holds the alternate names of antigen values, for example: its ambiguity string, its name after the 2010 NMDP code renaming. There is also table with the history of the ambiguity string values used by an antigen, with effective date.
* Patient Reports. This is a set of three tables - report header, report item, and report comments – that hold the data for a patient hla and the HLA values of family members tested for a match to the patient. Note that patient reports can be established before a patient record is created, so the report header is not tied to a particular patient. But, the first report item will be the typing for the patient, and it is tied to the patient table.
* Audit table. Holds all changes to patient, specimen, test and type since 2002. Other tables do not have audit records. This table has never been purged – the full history is there. Note that changes to memo-type fields can be hard to show, so this audit table shows just the portion changed – it is approximate.

## Workflow tables and lists

Many other tables hold lists of imports and exports, or preliminary results, login batch records, worksheet groupings, and other tables where the specimens are tracked during login, testing and result entry. They are not permanent data. Other tables are used for templated data entry, to route specimens of certain types to a work sheet, to show recent items, to implement security locks on some functions, or other application needs. These tables are related to the functionality of the product, not to any specific data for a patient or donor. Therefore, these tables are not listed in the detailed table listings.

## General notes about tables

* The patient, specimen, test, typing and code tables have a ‘flgDeleted’ column, with a value of ‘1’ for a row the user marked as deleted. In other words, the application marks rows as deleted; it does not actually delete rows in this table. These rows are not visible in the application, except in the Audit Report window.
* The application defines the integrity of primary and foreign key relationships. They are not defined as database constraints.
* Columns defined with datatype ‘text’ are often valued in data entry by a data entry template with a default values. So, the ‘free text’ is usually well-behaved. There are not lots of variations of spelling and things of that sort.
* Users can change values in all of the tables. They can add new antigens, new codes, new box locations
* The main tables have a date-created value and a date-modified value
* All tables are named with the ‘hla’ prefix, except the error-message list and sys values.

# Detailed table listings

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Table name | Column name | Data type | Max  length | Allow  null | comment |
| hla\_antigen | pkantigenname | varchar | 50 | 0 | PK, not system-assigned. For example, ‘B17’ |
| hla\_antigen | flgdeleted | int | 4 | 0 | 1 if deleted |
| hla\_antigen | dtrecordcreated | datetime | 8 | 1 |  |
| hla\_antigen | dtrecorddeleted | datetime | 8 | 1 |  |
| hla\_antigen | flghighresantigen | int | 4 | 1 | 1 if high resolution antigen |
| hla\_antigen | strseroequivalent | varchar | 50 | 1 |  |
| hla\_antigen | strambiguitystring | varchar | 100 | 1 |  |
| hla\_antigen | strcrantigens | varchar | 100 | 1 |  |
| hla\_antigen | strname2010 | varchar | 50 | 1 |  |
| hla\_antigen\_ambiguity | pkantigenname | varchar | 50 | 0 | Links to antigen table |
| hla\_antigen\_ambiguity | pkeffectivedate | datetime | 8 | 0 |  |
| hla\_antigen\_ambiguity | strambiguitystring | varchar | 100 | 0 |  |
| hla\_antigen\_ambiguity | strcodedambiguity | varchar | 50 | 1 |  |
|  |  |  |  |  |  |
| hla\_audit | pkauditseq | numeric | 5 | 0 | pk |
| hla\_audit | strrefnum | varchar | 50 | 1 |  |
| hla\_audit | strauditactivity | varchar | 50 | 1 | Add/Update/Delete |
| hla\_audit | strtablename | varchar | 50 | 1 | Person, Specimen, etc |
| hla\_audit | strrecordidentifier | varchar | 50 | 1 |  |
| hla\_audit | strfieldname | varchar | 50 | 1 |  |
| hla\_audit | stroldvalue | varchar | 250 | 1 |  |
| hla\_audit | strnewvalue | varchar | 250 | 1 |  |
| hla\_audit | strwhomadechange | varchar | 50 | 1 |  |
| hla\_audit | dtchanged | datetime | 8 | 1 |  |
|  |  |  |  |  |  |
| hla\_box | pkbox | numeric | 5 | 0 | pk |
| hla\_box | strboxname | varchar | 50 | 0 |  |
| hla\_box | nbrstack | numeric | 5 | 0 |  |
| hla\_box | strlabelinstack | varchar | 50 | 0 |  |
| hla\_box | nbrmaxitems | numeric | 5 | 0 |  |
| hla\_box | strcontentsofbox | varchar | 50 | 1 |  |
| hla\_box | strdescription | varchar | 200 | 1 |  |
| hla\_box | strlocation | varchar | 100 | 1 |  |
| hla\_box | dtrecordcreated | datetime | 8 | 1 |  |
| hla\_box | dtrecordmodified | datetime | 8 | 1 |  |
| hla\_box | flgdeleted | numeric | 5 | 1 | 1 if deleted |
|  |  |  |  |  |  |
| hla\_code | pkcodetype | varchar | 50 | 0 | Not a real PK; used to filter drop-down lists |
| hla\_code | pkcodenumber | numeric | 5 | 0 | pk |
| hla\_code | strcodename | varchar | 100 | 0 |  |
| hla\_code | strcodeshortname | varchar | 50 | 1 |  |
| hla\_code | flgdeleted | numeric | 5 | 1 | 1 if deleted |
| hla\_code | dtrecordcreated | datetime | 8 | 1 |  |
| hla\_code | dtrecordmodified | datetime | 8 | 1 |  |
| hla\_code\_extras | pkcodetype | varchar | 50 | 0 |  |
| hla\_code\_extras | pkcodenumber | numeric | 5 | 0 | Same PK as hla\_code |
| hla\_code\_extras | pkname | varchar | 50 | 0 |  |
| hla\_code\_extras | pkvalueseq | numeric | 5 | 0 |  |
| hla\_code\_extras | strvaluename | varchar | 100 | 1 |  |
| hla\_code\_extras | dtrecordcreated | datetime | 8 | 1 |  |
| hla\_code\_extras | dtrecordmodified | datetime | 8 | 1 |  |
|  |  |  |  |  |  |
| hla\_inventory | pkinventory | numeric | 5 | 0 | PK |
| hla\_inventory | fksid | numeric | 5 | 0 | fk |
| hla\_inventory | fkpid | numeric | 5 | 0 | fk |
| hla\_inventory | fkbox | numeric | 5 | 0 | fk |
| hla\_inventory | nbritemsstored | numeric | 5 | 0 |  |
| hla\_inventory | nbritemspendingadd | numeric | 5 | 0 |  |
| hla\_inventory | strcontents | varchar | 50 | 0 |  |
| hla\_inventory | ynsterile | char | 1 | 1 |  |
| hla\_inventory | strinventorycomment | varchar | 250 | 1 |  |
| hla\_inventory | dtrecordcreated | datetime | 8 | 1 |  |
| hla\_inventory | dtrecordmodified | datetime | 8 | 1 |  |
|  |  |  |  |  |  |
| hla\_person | pkpid | numeric | 5 | 0 | PK |
| hla\_person | strlastname | varchar | 50 | 0 |  |
| hla\_person | strfirstname | varchar | 50 | 0 |  |
| hla\_person | strrefnum | varchar | 50 | 0 | Includes NMDP check digit |
| hla\_person | strpatientdonor | varchar | 50 | 1 | PATIENT or DONOR |
| hla\_person | strcbuid | varchar | 50 | 1 | Cord blood ID |
| hla\_person | strnmdpid | varchar | 50 | 1 | NMDP ID |
| hla\_person | strmrn | varchar | 50 | 1 | Medical Rec # |
| hla\_person | cdregcat | numeric | 5 | 1 | Fk |
| hla\_person | cddonortype | numeric | 5 | 1 | Fk |
| hla\_person | cdavailability | numeric | 5 | 1 | Fk |
| hla\_person | cddonorlocation | numeric | 5 | 1 | Fk |
| hla\_person | cddonorcenter | numeric | 5 | 1 | Fk |
| hla\_person | cdwhoentered | numeric | 5 | 1 | Fk |
| hla\_person | flgdeleted | numeric | 5 | 1 | 1 if deleted |
| hla\_person | dtrecordcreated | datetime | 8 | 1 |  |
| hla\_person | dtrecordmodified | datetime | 8 | 1 |  |
| hla\_person | strcomment | varchar | 2000 | 1 |  |
| hla\_person | strfamrelation | varchar | 250 | 1 |  |
| hla\_person | dtdob | datetime | 8 | 1 |  |
| hla\_person | strssn | varchar | 50 | 1 | Soc Sec Nbr |
|  |  |  |  |  |  |
| hla\_report\_comment | pkreportid | numeric | 5 | 0 | Same as report header |
| hla\_report\_comment | pkreportseq | numeric | 5 | 0 |  |
| hla\_report\_comment | pkdaterecordadded | datetime | 8 | 0 |  |
| hla\_report\_comment | nbrcommentseq | numeric | 5 | 0 |  |
| hla\_report\_comment | dtcommentdate | datetime | 8 | 0 |  |
| hla\_report\_comment | strcommenttext | varchar | 1000 | 0 |  |
| hla\_report\_comment | ynnewitem | char | 1 | 1 |  |
| hla\_report\_comment | strwhoadded | varchar | 50 | 1 |  |
| hla\_report\_comment | fksid | numeric | 5 | 1 |  |
| hla\_report\_hdr | pkreportid | numeric | 5 | 0 |  |
| hla\_report\_hdr | pkreportseq | numeric | 5 | 0 |  |
| hla\_report\_hdr | strreportname | varchar | 60 | 0 |  |
| hla\_report\_hdr | strreportvariety | varchar | 50 | 1 |  |
| hla\_report\_hdr | dtoriginaldate | datetime | 8 | 1 |  |
| hla\_report\_hdr | dtupdateddate | datetime | 8 | 1 |  |
| hla\_report\_hdr | strprovidername | varchar | 50 | 1 |  |
| hla\_report\_hdr | strhospitalname | varchar | 70 | 1 |  |
| hla\_report\_hdr | ynsenttoprovider | char | 1 | 1 |  |
| hla\_report\_hdr | strwhoadded | varchar | 50 | 1 |  |
| hla\_report\_hdr | dtrecordadded | datetime | 8 | 1 |  |
| hla\_report\_hdr | yngenotyped | varchar | 50 | 1 |  |
| hla\_report\_hdr | ynreportable | varchar | 50 | 1 |  |
| hla\_report\_hdr | delflag | numeric | 5 | 1 | 1 if deleted |
| hla\_report\_item | pkreportid | numeric | 5 | 0 | Same as report header |
| hla\_report\_item | pkreportseq | numeric | 5 | 0 |  |
| hla\_report\_item | pkdaterecordadded | datetime | 8 | 0 |  |
| hla\_report\_item | nbritemseq | numeric | 5 | 0 |  |
| hla\_report\_item | strpersonname | varchar | 60 | 0 |  |
| hla\_report\_item | strrelationtopt | varchar | 50 | 1 |  |
| hla\_report\_item | strrefnum | varchar | 50 | 1 | R# |
| hla\_report\_item | dtaccessiondate | datetime | 8 | 1 |  |
| hla\_report\_item | fkitempid | numeric | 5 | 1 | fk |
| hla\_report\_item | fkitemsid | numeric | 5 | 1 | fk |
| hla\_report\_item | ynnewitem | char | 1 | 1 | Set to ‘y’ when changed, until value saved to DB |
| hla\_report\_item | stra1 | varchar | 50 | 1 |  |
| hla\_report\_item | stra2 | varchar | 50 | 1 |  |
| hla\_report\_item | strb1 | varchar | 50 | 1 |  |
| hla\_report\_item | strb2 | varchar | 50 | 1 |  |
| hla\_report\_item | strbw1 | varchar | 50 | 1 |  |
| hla\_report\_item | strbw2 | varchar | 50 | 1 |  |
| hla\_report\_item | strcw1 | varchar | 50 | 1 |  |
| hla\_report\_item | strcw2 | varchar | 50 | 1 |  |
| hla\_report\_item | strdrb11 | varchar | 50 | 1 |  |
| hla\_report\_item | strdrb12 | varchar | 50 | 1 |  |
| hla\_report\_item | strdrb3451 | varchar | 50 | 1 |  |
| hla\_report\_item | strdrb3452 | varchar | 50 | 1 |  |
| hla\_report\_item | strdqb11 | varchar | 50 | 1 |  |
| hla\_report\_item | strdqb12 | varchar | 50 | 1 |  |
| hla\_report\_item | strnewlocuslist | varchar | 200 | 1 |  |
| hla\_report\_item | strwhoadded | varchar | 50 | 1 |  |
| hla\_report\_item | strhaplotype1 | varchar | 50 | 1 |  |
| hla\_report\_item | strhaplotype2 | varchar | 50 | 1 |  |
| hla\_report\_item | strdqa11 | varchar | 50 | 1 |  |
| hla\_report\_item | strdqa12 | varchar | 50 | 1 |  |
| hla\_report\_item | strdpa11 | varchar | 50 | 1 |  |
| hla\_report\_item | strdpa12 | varchar | 50 | 1 |  |
| hla\_report\_item | strdpb11 | varchar | 50 | 1 |  |
| hla\_report\_item | strdpb12 | varchar | 50 | 1 |  |
| hla\_specimen | pksid | numeric | 5 | 0 |  |
| hla\_specimen | fkpid | numeric | 5 | 0 |  |
| hla\_specimen | strspecimennum | varchar | 50 | 0 |  |
| hla\_specimen | dtaccessiondate | datetime | 8 | 1 |  |
| hla\_specimen | dtbleeddate | datetime | 8 | 1 |  |
| hla\_specimen | strspecimentype | varchar | 150 | 1 |  |
| hla\_specimen | cdhospital | numeric | 5 | 1 |  |
| hla\_specimen | strcomment | varchar | 2000 | 1 |  |
| hla\_specimen | cdwhoentered | numeric | 5 | 1 |  |
| hla\_specimen | flgdeleted | numeric | 5 | 1 | 1 if deleted |
| hla\_specimen | dtrecordcreated | datetime | 8 | 1 |  |
| hla\_specimen | dtrecordmodified | datetime | 8 | 1 |  |
| hla\_specimen | cdnmdpcontract | numeric | 5 | 1 |  |
| hla\_specimen | strmrn | varchar | 50 | 1 |  |
|  |  |  |  |  |  |
| hla\_test | pksid | numeric | 5 | 0 | Pk |
| hla\_test | pktestseq | numeric | 5 | 0 | pk |
| hla\_test | fkpid | numeric | 5 | 0 | fk |
| hla\_test | cdtestcode | numeric | 5 | 1 | fk |
| hla\_test | cdtesttype | numeric | 5 | 1 | fk |
| hla\_test | dtorderdate | datetime | 8 | 1 |  |
| hla\_test | dtresultdate | datetime | 8 | 1 |  |
| hla\_test | cdwhoresulted | numeric | 5 | 1 |  |
| hla\_test | cdresultcode | numeric | 5 | 1 |  |
| hla\_test | strresulttext | varchar | 2000 | 1 | Free text result |
| hla\_test | strcomment | varchar | 2000 | 1 |  |
| hla\_test | flgdeleted | numeric | 5 | 1 | 1 if deleted |
| hla\_test | dtrecordcreated | datetime | 8 | 1 |  |
| hla\_test | dtrecordmodified | datetime | 8 | 1 |  |
| hla\_test | ynhlafinal | varchar | 50 | 1 | Y or N |
| hla\_test | nbrturnarounddays | numeric | 5 | 1 |  |
|  |  |  |  |  |  |
| hla\_type | pkpid | numeric | 5 | 0 | Pk |
| hla\_type | pktypeseq | numeric | 5 | 0 | pk |
| hla\_type | ynreportable | char | 1 | 1 | Y or N |
| hla\_type | dttypingdate | datetime | 8 | 1 |  |
| hla\_type | stra1 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | stra2 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strb1 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strb2 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strbw1 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strbw2 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strcw1 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strcw2 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strdrb11 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strdrb12 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strdrb31 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strdrb32 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strdrb41 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strdrb42 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strdrb51 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strdrb52 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strdqa11 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strdqa12 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strdqb11 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strdqb12 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strdpa11 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strdpa12 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strdpb11 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strdpb12 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strtypingmethod | varchar | 100 | 1 |  |
| hla\_type | cdwhoentered | numeric | 5 | 1 |  |
| hla\_type | flgdeleted | numeric | 5 | 1 | 1 if deleted |
| hla\_type | dtrecordcreated | datetime | 8 | 1 |  |
| hla\_type | dtrecordmodified | datetime | 8 | 1 |  |
| hla\_type | strdr1 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strdr2 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strdq1 | varchar | 50 | 1 | Matches antigen PK |
| hla\_type | strdq2 | varchar | 50 | 1 | Matches antigen PK |