ODABA Releases TODBMS and Tools 14.1.0

ODABA is a Terminology-Oriented Database Management System (TODBMS) based on standards for object-oriented databases (ODMG 2003). In contrast to other databases that are focused on big data processing, ODABA stands for smart data processing, i.e. it is intended to be used for complex problems and complex data structures in combination with complex processing rules.

The latest version of ODABA has been released on Saturday, December 31st, 2016. With ODABA 14.1.0 extended support for XML and support for defining views has been provided. Moreover, external file support has been extended by supporting definitions of hierarchical data exchange schemata.

Tools for creating and checking view definitions in **ClassEditor** have been improved as well as debugging features. Few extensions have been made in ODABA API. Finally, some bugs have been detected and removed.

More details are described in change logs and in notices delivered with the development databases (ODE tools: **Object/Notices**). Notices delivered with the databases also contain a list of open topics planned for next releases. Notices are stored separately for basic functions (**sos.dev**), database kernel (**opa.dev**), GUI framework (**gui.dev**) and ODE tools (**ode.dev**).

Detailed changes (ODABA)

Some improvements for checking and running database views have been made. External file support has been extended by supporting data exchange schemata in the database schema (data type definitions) including hierarchical data structures as XML or OIF (object interchange format). The system model has been changed slightly, but no database upgrade is required for resource databases.

Besides, several bugs have been removed, which are reported in the change log.

ODABA Database kernel (base)

In addition, this version provides several improvements and extensions for the kernel functionality:

- Statistic object

    With **SDB_Statistic** a built-in data type has been provided, which is mainly intended for being used in the aggregation model. Since is is returned by the **Property**::statistic() function.

- Data conversion for CSV strings

    Data conversion for CSV strings has been optimized, which improved key access essentially.

- Support views as class methods

    Views may no be defined as methods in a class definition by supporting view definitions as name space elements.

- Optimizing key access

    Key conversion on ODABA API has been reduced to required minimum, which also improved key access performance.

- XML property handles

XML property handles are supported by means of a special access module (OXML), which supports reading, writing and updating XML content via property handles.

- Delete extents

When deleting extents, extent references are not deleted implicitly, anymore. Those have to be deleted explicitly by calling eraseExtentReference.

- Reusing names for temporary extents

After closing a temporary extent (e.g. for an external file), it may be opened with the same extent name, again.

- Access keys for single references/relationships

Access by key is now supported also for single references/relationships..

- Support for scoped names

Support for scoped type and extent names has been improved

ODABA Application Program Interface (base/opa)

Some minor changes have been made on API functionality.

- Statistic function

  The statistic function may be applied on numeric attributes in order to provide aggregation values (count, sum and square sum) for the attribute. The function returns a value of type **SDB_Statistic**.

- Instance LOID

  Getting an instance LOID passing a key value will return 0, when no instance with the passed key value exists (so far, an exception was thrown). Thus the function allows checking a key value without changing the property handle state (selected, located, positioned).

- Delete extents (`eraseExtent`)

When deleting extents, extent references are not deleted implicitly, anymore. Those have to be deleted explicitly by calling `eraseExtentReference`.

- Sensitive attributes (key component attributes)

In order to avoid overwriting key attributes, `copyData` got a new parameter.

- Support inheritance for synonyms

Now, several elementary types inherit, too (e.g. **Date** inherits **DATE**, **bool** inherits **LOGICAL** and reverse).

- Assigning values to invalid value handles

Now, one may assign values to invalid (not opened) value handles, in which case the target value handle is opened implicitly according to source definition.

Interface changes(extensions:

Interface extensions mainly refer to statistical and mathematical functions supported in order to support sophisticates analysis also by means of OSI functions.

- **ObjectSpace**
- eraseExtent (changed)
- **Property**
  - copyData (changed)
  - instanceLoid (changed)
  - statistic (new)
- **TypeDefinition**
  - inherits (changed)

More details are described in ODABA online documentation: **Reference documentation/ODABA Application Program Interface.**

ODABA Script Interface OSI

Several options for OSI environment have been changed from global options to OSI section options. Global options as OSI_RUN, OSI_DEBUG, OSI_RELOAD etc are now defined in an OSI section (or as sub options for OSI in the XML configuration file:

- [OSI]
- run=...
- debug=...
- reload=...
- ...

OSI functions `fromFile()` and `toFile()` got additional parameters:

- `PathOption` - option name for file location (instead of path)
- `Source` - name of property source to be used for export/import

Moreover, the jump command in the OSI debugger has been improved, i.e. it continues processing at jump position.

Detailed changes (ODE and GUI framework)

Some smaller changes/extensions have been for ODE tools and GUI frame work.

Besides, several bugs have been removed, which are reported in the change log.

GUI Framework (gui)

Radio button control has been extended in order to allow displaying collections in addition to enumerations. For displaying collections, columns to be displayed from instances may be defined (column data source).

CSV export feature for lists and trees has been improved slightly. When calling action `CSVExport`, the selected file path is returned in `LAST_CSV_FILE` option. Start directory may be passed in global `CSV_FOLDER` option.

ODE tools (ode)

ClassEditor has been extended. Most important extensions are:

- View definitions in classes

  Besides supporting view definitions as class methods, check functionality for checking consistency of view definitions has been provided.

- Multiple source definitions for properties

In order to define source definitions for different purposes, one may define any number of sources for a property (data type member).

ODABA GUI Application Program Interface (gui/ode)

Additional functions in GUI context interface have been provided

- Support for region property handle

A function for obtaining region's property handle has been provided.

- **Region**
  - property (new).

ODABA Documentation

Documentation has been updated. Documentation for new features has been provided.

Installing ODABA

ODABA, including applications and libraries, is available for free under Open Source licenses (GPL). ODABA runs on various hardware configurations, operating systems and works on many desktop environments. ODABA can be obtained as source code distribution and in various binary formats from http://sourceforge.net/downloads/odaba/.

Several features require third party components, which have to be installed before installing ODABA. When the corresponding libraries are not available, one may install ODABA, but the features referenced below will not work.

- libzip - required for LibreOffice document generation
- zlib - required for data compression and database backup and restore)
- curl - required for enhanced email support)
- hunspell - required for spell check in ODE tools, like terminus

Previous Releases

With the release of ODABA 14.1.0 we declare the end of live for all previous released ODABA versions less than version 14.0.0. Bug fixes on 13.2.x version are provided on demand.

System model has been changed (extended), but no version upgrade is required. However, development tools do not run with old resource database (ode.dev).
Changes affect view definitions. Views have been moved from functional model (ODC_View) to database model and data type had been renamed to SDB_View. When views have already been stored in a resource database, the resource database has to be updated:

- exporting view definitions to an XML file (using old **ode.dev** database)
- rename ODC_ to SDB_ in xml file
- import updated XML file (using new **ode.dev**)

System Requirements

In order to get the most out of this release, we recommend to use a recent computer with at least 1 GB of memory and 2 GHz CPU or better. In order to install the binaries, about 100 MB are required. Installing sources requires about 50 MB. 80 MB are required in addition, when installing the documentation locally.

About RUN-Software

RUN-Software develops database management system ODABA and tools since 1994. Besides general and particular software solutions, RUN-Software publishes theoretical works about database theory and terminology in connection with data modeling.

See also: www.run-software.com