

A Tutorial On VBA Macros - Interoperability

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*OpenOffice.org Project Day @ foss.in
5th Dec 2007*

Introduction

- What are vba macros?
- Other kinds of macros in different office suites.
- Support in OpenOffice.org(OOo)
 - OOBasic Engine
 - **Option VBASupport 1** (Temporary Solution)
 - Document level vba compatibility switch
 - oovbaapi by Novell
 - helperapi from Sun
- **A Sample Macro.**

helperapi

- Implemented in java.
- Supporting word and excel macros in Star Basic
- Difficult to trace memory & performance issues.
- Proprietary earlier but now made open.
- Main directories of basic structure are basic, com (IDL files), impl (java files), test_documents(test cases), util_constants.
- Objects are part of the sub modules(packages) of `com.sun.star.helper` like `calc`, `vba`, `writer` etc.
- VBA Support is an optional plugin in Star Office which can be enabled & disabled explicitly.

oovbaapi

- Implemented in C++
- Project being led by Noel Power.
- Currently supporting excel macros only in OOo.
- Easier to track memory & performance problems.
- Objects are implemented in sub modules(namespaces) of `org::openoffice` module like `excel`, `vba` etc.
- Features & Test cases are under heavy development by Novell and others.
- vba support is enabled on by default.

New Solution

- Sun has donated its compatibility helperapi, which became a part of open source now. So Novell's effort of oovbaapi is accelerated.
- Migration of java apis to c++ api , which is a manual effort, i.e. understand java code and implement in c++ for missing bits.
- vba api are designed as separate module now in order to make it optional in future. cws npower6 and later versions support this.
- Some changes in OOo directory structure for collective effort are
 - IDL files are moved from offapi to new module oovbaapi
 - hpp and hdl files are placed in sc itself instead of offuh, so it is enough to build oovbaapi & sc now.
 - The objective all these efforts are to provide vba support as an optional plugin in near future just like in star office.

vba & ooo-build

- ooo-build is a wrapper for sun's core maintained by Novell
- Unmerged idl,hxx,cxx files exist in ooo-build as follows.
 - idl files
 - In `ooo-build/sratch/offapi-vba/org/openoffice/`*
 - impl files (hxx,cxx)
 - In `ooo-build/scratch/sc-vba`
 - patches
 - In `ooo-build/patches/vba`
- No.of patches reduce substantially as getting merged with upstream.
- cws npower6 & npower7 are already integrated into core and npower8 is near to completion.(data as on 02-Dec-2007)

IDL Files

- Language independent interface for the object.
- Stored in [oovbaapi/org/openoffice/](#)*
- Contains attributes and methods.
- Readonly attributes
- get, set methods
- Data types – basic, generic (keyword [any](#)), userdefined
- Module hierarchy
- [A sample IDL file](#)

Implementation

- Header files(hxx), Source files(cxx) which are stored
In `sc/source/ui/vba`
- IDL compilation generates hpp,hdl files which are stored
In `sc/unxlngi6.pro/inc/vbaobj/org/openoffice/*`
- hdl file provides equivalent c++ code for interface written in language independent idl file.
- A good idea is to copy the prototype from hdl file for hxx,cxx files.
- The following mappings should be considered between vba objects and uno objects while defining attributes & methods.
 - data types, constants, modules etc.

Implementing New Properties

- Make a detail study of the property.
- Add the method/attribute to interface in idl file.
- Add prototype of corresponding method or get,set methods(in case of attributes) to hxx file.
- Add the definition of same to cxx file.
- build and deliver in both the modules oovbaapi & sc.
- **Sample properties.**

Implementing New Objects

- Make a thorough study of the object.
- Create IDL file in [oovbaapi/org/openoffice/](#)* and add the entry to makefile.mk
- Link this object to existing objects if needed in IDL files which needs adding to respective hxx,cxx files also.
- Create hxx file in sc/source/ui/vba with suitable prototypes.
- Create cxx file in sc/source/ui/vba with respective definitions for prototypes in hxx file and add the entry to makefile.mk
- build and deliver in both the modules oovbaapi & sc.
- **A Sample Object**

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Migration

- Find out a missing feature in oovbaapi , which is implemented in helperapi.
- Understand java idl & source files.
- Rewrite IDL file, hxx,cxx files to fit in oovbaapi.
- Follow mapping rules while doing above such as
 - data types
 - packages -> namespaces
 - helperapi constants -> uno constants etc.
- Follow the build sequence, run and test.
- **Sample IDL file & java implementation files** in helper api
- **Converted IDL file, hxx,cxx files** to fit in oovba api.

Testing

- Implemented Features (Properties or Objects) needs rigorous testing.
- Several documents are provided in [ooo-build/test/macro](#)
- Some are test sheets (.xls files prepared in MS Excel originally).
- After implementing a feature it has to be run with right test case.
- One can prepare own sheets also for testing.
- Better solution is design test cases as original excel macros and then import .xls files in OOo to ensure interoperability.

Wanna Contribute?

How To Start: -

1. Download sources, build and install
2. Try out some tutorials
3. Get a real task and work on.

The scope of work is mainly divided into two

- implementing missing properties & objects, existing helperapi bits may be of great use to accelerate.
- preparing test cases for implemented features.

[ooo-build/test/macro/missing_vbafeatures.ods](#) of latest trunk points to available tasks, pick one from this to work on or contact maintainers.

Ping

For any queries and assistance feel free to contact us.

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For task assignment and further assistance -

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and always OOo maintainers Team

Web Sites :- www.openoffice.org

www.go-oo.org

<http://wiki.services.openoffice.org/wiki/vba>

IRC Channels :- [#go-oo](#) , [#dev.openoffice.org](#) on [freenode](#) server.

Thanks To

- Noel Power

 - Project Lead, Ireland (Novell)

- Krishnaraj PM

 - Lecturer, Info Sc Dept, MSRIT, Bangalore

- NOSIP Mentors – Shreyas Srinivasan & Srinivas Raghavan

- Muthu Subramanian

 - Software Engineer, Mind Tree , Bangalore.

Thank You

Q & A

<http://wiki.services.openoffice.org/wiki/vba>