



TIRANA
CONFERENCE **2018**



BaseDocumenter

26th - 28th september 2018

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What ?

- **BaseDocumenter**

- Extension published on 1st-aug-2018
- Requires LibreOffice \geq 6.0 (6.1 recommended)

or LibreOffice xx + Access2Base 1.8.0/1.9.0 not supported !
or OpenOffice xx + id. id.

- <http://www.access2base.com/basedocumenter>
<http://www.access2base.com/basedocumenter/examples/TOC.html>
- GPLv3
- Basic library (+ Python)

Scans an existing Base application

Stores observations in a repository

- Items
- Links between items

Produces a readable report

Repository

BaseDocumenter process

*XXX.odt must be open
Macros NOT activated*

No constraint, even headless mode OK

... erre/Documents/BaseDocumenter/Hsqldb 1.8/Hobby...

Scanning tables
2/7

Table [SOCIETE]
10/15

```
2017-12-28 16:41:30 => Start of scan ...
Scanning database file ... (0.5 sec)
Preparing tables scan ... (0.1 sec)
Scanning table AllTypes ... (3.4 sec)
Scanning table ARTICLE ... (3.6 sec)
Scanning table CATEGORIE ... (0.4 sec)
Scanning table DEFAULTVALUES ... (0.1 sec)
Scanning table DEPENSE ... (1.2 sec)
Scanning table FACTURE ... (1.7 sec)
Scanning table INVENTAIRE ... (0.6 sec)
Scanning table LIGNE FACTURE ... (1.9 sec)
Scanning table NoKey ... (0.1 sec)
Scanning table SOCIETE ...
```

1

Repo

HOBBY

Documenting tables
5/11

Generating 'Table data (sample)'
6/6

```
2017-12-28 17:03:37 => Start of documentation generation ...
Loading repository data ... (15.2 sec)
Preparing template File ... (0.6 sec)
Preparing the output directory ... (0.1 sec)
Documenting database generalities ... (0.2 sec)
Documenting tables ...
```

2

Set of static HTML pages where relations are represented by hyperlinks

A query « uses » a table
A table is « used by » a query

Relations



	Dialog	Form	Control	Database	Gridcontrol	Table	View	Query	Field	Module	Procedure	ToolBarControl	SubForm
Dialog			Child								Event		
Form			Child		Child	Source	Source	Source			Event		Child
Control					Child	Source	Source	Source	Source		Event		
Database											Event		
Gridcontrol			Child										
Table						Relations	Relations		Child				
View						SQL	Relations						
Query						SQL	SQL	SQL	Child				
Field									SourceField				
Module											Child		
Procedure	OpenDialog	OpenForm				OpenTable	OpenTable	OpenQuery			Call		
ToolBarControl											Event		
SubForm			Child		Child	Source	Source	Source			Event		Child


Dependencies between items are identified when :

- ✓ a table or a query name is used as a literal in a Basic procedure
- ✓ a table or a query is the record source of a form or a subform
- ✓ a table or a query is the data source of a list- or combobox
- ✓ a table or a query is referenced in a SQL statement
- ✓ a table is related to a table via referential rules
- ✓ a form name is used as a literal in a Basic procedure
- ✓ a dialog name is used as a literal in a Basic procedure
- ✓ a procedure is referenced in a document event
- ✓ a procedure is referenced in a form event
- ✓ a procedure is referenced in a dialog event
- ✓ a procedure is referenced in a (form or dialog) control event
- ✓ a procedure is referenced by a toolbar button
- ✓ a procedure is called by another procedure

Repository – 2 tables

Usual HSQLEDB embedded database

– DATABASE

	Field Name	Field Type	Description
	ID	Integer [INTEGER]	Database unique ID
	NAME	Text [VARCHAR]	Database short name
	LOCATION	Text [VARCHAR]	Database file physical location
	VERSION	Text [VARCHAR]	BaseDocumenter version used to scan the databadse
	SCANSTATUS	Integer [INTEGER]	1 = Not started, 2 = Ongoing, 3 = Done, 4 = Stopped by user
	SCANLOG	Memo [LONGVARCHAR]	Scan execution report
	DOCSTATUS	Integer [INTEGER]	1 = Not started, 2 = Ongoing, 3 = Done, 4 = Stopped by user
	DOCLOG	Memo [LONGVARCHAR]	Documentation generation execution report
	TOC	Yes/No [BOOLEAN]	True if database to be listed in tabular table of content
	SETTINGS	Memo [LONGVARCHAR]	Settings used to scan the database (JSON)
	PROPERTIES	Memo [LONGVARCHAR]	Scan results (JSON)

– OBJECTS



	Field Name	Field Type	Description
	DATABASEID	Integer [INTEGER]	Database unique ID
	INDEX	Integer [INTEGER]	Item unique ID
	TYPE	Integer [INTEGER]	Item type (table, query, field, procedure, ...)
	NAME	Text [VARCHAR]	Item full name
	SHORTNAME	Text [VARCHAR]	Item short name (last component only)
	PARENTTYPE	Integer [INTEGER]	Parent item type (table, query, ...)
	PARENTINDEX	Integer [INTEGER]	Parent unique ID
	MISSING	Yes/No [BOOLEAN]	True if item used somewhere but not found
	USES	Text [VARCHAR]	List of items used by the current item
	USED BY	Text [VARCHAR]	List of items using the current item
	PROPERTIES	Memo [LONGVARCHAR]	Scan results (JSON)

Table of contents

Table of contents

Database name	File location	Scanning done on	Tables	Queries	Forms	Modules	Dialogs	Toolbars	Missing Items	Index
Access2Base	... Documents/BaseDocumenter/www/databases/Basic/Access2Base.odb	08/07/2018 14:33:10				(31)				(898)
Basic Primitives	... ents/BaseDocumenter/www/databases/Basic/Basic Primitives.odb	07/07/2018 12:37:19				(35)				(327)
Example_Autotext_Searchmark_Spelling	... www/databases/LODoc/Example_Autotext_Searchmark_Spelling.odb	26/06/2018 17:05:22	(2)	(6)	(4)	(1)				(74)
Example_Combobox_Listfield	... ocumenter/www/databases/LODoc/Example_Combobox_Listfield.odb	26/06/2018 17:07:59	(4)	(1)	(4)	(1)				(71)
Example_Dialogs	... ments/BaseDocumenter/www/databases/LODoc/Example_Dialogs.odb	27/06/2018 10:53:34	(1)			(1)	(3)			(50)
Example_direct_Calculation_Form	... nter/www/databases/LODoc/Example_direct_Calculation_Form.odb	27/06/2018 11:14:34	(1)	(1)	(1)	(1)				(33)
Example_Documents_Import_Export	... nter/www/databases/LODoc/Example_Documents_Import_Export.odb	27/06/2018 12:16:30	(1)		(1)	(1)				(23)
Example_jump_Cursor_Subform_Mainform	... www/databases/LODoc/Example_jump_Cursor_Subform_Mainform.odb	27/06/2018 12:25:12	(2)		(1)	(1)				(21)
Example_Mail_File_activate	... ocumenter/www/databases/LODoc/Example_Mail_File_activate.odb	27/06/2018 12:30:11			(4)	(1)				(24)
Example_Search_and_Filter	... Documenter/www/databases/LODoc/Example_Search_and_Filter.odb	27/06/2018 13:46:59	(5)	(9)	(8)	(1)				(207)
Example_serial_Number_Year	... ocumenter/www/databases/LODoc/Example_serial_Number_Year.odb	27/06/2018 14:01:29	(1)	(1)	(1)	(1)				(22)
Example_Sport	... cuments/BaseDocumenter/www/databases/LODoc/Example_Sport.odb	27/06/2018 14:06:53	(3)	(5)	(1)				(1)	(54)
GenoBase	... /BaseDocumenter/www/databases/GenoBase/GENOBASEv40x_LEER.odb	08/07/2018 15:29:21	(57)	(117)	(27)	(10)			(1)	(2208)
Invoice Forms	... s/BaseDocumenter/www/databases/Invoices/Invoice_Forms_v2.odb	12/07/2018 16:33:07	(8)	(9)	(4)					(263)
Media_with_Macros	... nts/BaseDocumenter/www/databases/LODoc/Media_with_Macros.odb	27/06/2018 14:13:12	(33)	(12)	(6)	(7)	(1)		(1)	(604)
NorthWind	... ents/BaseDocumenter/www/databases/NorthWind/TT NorthWind.odb	29/07/2018 18:10:22	(8)	(5)	(17)	(24)	(1)			(483)
Relations2Listboxes	... BaseDocumenter/www/databases/ListBox/relation2listboxes.odb	12/07/2018 12:47:11	(4)	(2)	(4)					(75)
WorldCup	... Documents/BaseDocumenter/www/databases/WorldCup/WorldCup.odb	26/07/2018 15:52:07	(17)	(14)	(5)					(587)
XRay	... pierre/Documents/BaseDocumenter/www/databases/Basic/XRay.odb	16/07/2018 18:35:44				(8)	(5)			(242)

Tables

List of tables

Table name	Used by	Number of records	List of fields	Table data (sample)
Categories	Categories (Form) ImportImages (Procedure) ExportImages (Procedure)	8	Details	Data
Customers	Customers union All (Query) Query1 (Query) Customers_NewRec (Form) Customers_Sync_Orders (Form) Products_ListBoxFilter ListBox-All (Control) Products_ListBoxFilter CustomersAll-SQL (Control) SyncForms (Procedure)	91	Details	Data
Employees	CrossTab (Query) EmployeesList (Query) Employees_Sync_Orders (Form) Orders_2Combos EmployeeName (Control) Orders_2Combos EmployeeCity (Control) SyncForms (Procedure) TestGetTable (Procedure)	9	Details	Data

Sample of data stored in table [Employees](#)

Address	BirthDate	City	Country	Extension	FirstName	HireDate	Home
507 - 20th Ave. E. Apt. 2A	08/12/1968	Seattle	USA	5467	Nancy	01/05/1992	(206) 555-98

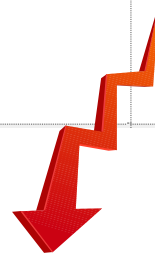


Table name	Field name	Field type	Primary key	% not Null	Average	Most positive	Oldest date	Newest date	Longest string
Employees	Address	VARCHAR		100					30
	BirthDate	TIMESTAMP		100			19/02/1952	02/07/1969	
	City	VARCHAR		100					8
	Country	VARCHAR		100					3
	EmployeeID	BIGINT	✓	100					
	Extension	INTEGER		100		5467			
	FirstName	VARCHAR		100					8
	HireDate	TIMESTAMP		100			01/04/1992	15/11/1994	

Queries

Query name	Used by	Query type	Direct SQL	List of fields	SQL
EmployeesList	Main (Procedure)	SELECT		Details	<pre> "CompanyName"; SELECT '' "Employees"."LastName" ' AS "Last name", "Employees"."FirstName" AS "First name", "Employees"."BirthDate" AS "Birth", "Employees"."Extension" AS "Phone", "Employees"."HomePhone" AS "Home phone", "Employees"."Title", '' "ReportingTo"."LastName" ' AS "Manager" FROM { OJ "Employees" AS "ReportingTo" RIGHT OUTER JOIN "Employees" ON "ReportingTo"."EmployeeID" = "Employees"."ReportsTo" } </pre>


SQL beautifier

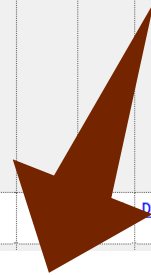


Query name	Field name	Field type	Source table	Source field
	All	BIGINT		All
	Country	LONGVARCHAR		Country
	Name	LONGVARCHAR		Name
Customers union All	CompanyName	VARCHAR	Customers (Table)	CompanyName
EmployeesList	Birth	TIMESTAMP	Employees (Table)	BirthDate
	First name	VARCHAR	Employees (Table)	FirstName
	Home phone	VARCHAR	Employees (Table)	HomePhone
	Last name			'' "Employees"."LastName" ''
	Manager			'' "ReportingTo"."LastName" ''
	Phone	INTEGER	Employees (Table)	Extension
	Title	VARCHAR	Employees (Table)	Title

Forms & Dialogs

List of forms

Form name	Used by	Root form(s)	Data source(s)	Height	Width	Controls by form	Form events
Calculator		Calculator		1024	1846	Details	
Categories		MainForm	Categories (Table)	1024	1846	Details	CategoryName <input type="text" value="Beverages"/> Description <input type="text" value="Soft drinks, coffees, teas, beers, and ales"/> Picture  CategoryID <input type="text" value="1"/>
Customers_NewRec		MainForm	Customers (Table)			Details	OnApproveRowChange OnCursorMoved



Form name	Control name	Control type	Caption	X,Y	Width,Height	Root form	Data source	Master fields	Child fields	Events by control	Required	Format
	txtLastName	Text		122,72	283,28	MainForm	LastName				✓	
Orders_2Combos	EmployeeCity	Combo box		30,88	190,20	MainForm	<pre>SELECT DISTINCT "City" FROM "Employees"</pre>			OnTextChanged	✓	
	EmployeeName	Combo box		30,157	190,20	MainForm	<pre>SELECT DISTINCT "LastName" FROM "Employees" WHERE "Employees"."City" = 'Kirkland'</pre>			OnTextChanged	✓	
	MainForm_Grid	Gridcontrol		245,31	637,441	MainForm						
	... CustomerID	Text	CustomerID			MainForm	CustomerID				✓	
	... EmployeeID	Formatted	EmployeeID			MainForm	EmployeeID				✓	Standard
	... OrderDate	Time	OrderDate (Time)			MainForm	OrderDate				✓	24h short
	... OrderDate	Time	OrderDate (Time)			MainForm	OrderDate				✓	24h short
	... ShipAddress	Text	ShipAddress			MainForm	ShipAddress				✓	
	... ShipCity	Text	ShipCity			MainForm	ShipCity				✓	

Modules

Location	Library	Module name	Module type	Number of code lines	Procedures by module	Declaratives
Document	Standard	_Init	Standard	25	DBOpen	Option Explicit REM ===== ' LICENSE INFO ' The attached code is distributed in the hope that it will be useful, ' but WITHOUT ANY WARRANTY; without even the implied warranty of ' MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
Document	Standard	Browse	Standard	34	BrowseThruControls Main StartBrowseThruControls	Option Explicit
Document	Standard	CalculatedField	Standard	42	ComputeOrderTotal ComputeOrderTotalGrid	Option Explicit



Library	Module name	Procedure name	Language	Used by	Number of code lines	Procedure code
						End Function
Standard	Records	Main	Basic		4	Sub Main 'MsgBox DMedian("UnitPrice", "Products") MsgBox DPercentile(0.25, "UnitPrice", "Products") End Sub
Standard	Snippets	Example1	Basic	Main (Procedure)	3	Sub Example1() MsgBox CurrentDb.MetaData.IdentifierQuoteString End Sub
Standard	Snippets	Example2	Basic		5	Sub Example2() ' Form presumed open Dim ofForm As Object Set ofForm = Forms("Orders_Browse") MsgBox getUNOTypeName(ofForm.DatabaseForm) End Sub
Standard	Snippets	Example3	Basic		5	Sub Example3() ' Form presumed open Dim ocControl As Object Set ocControl = Forms("Orders_Browse").Controls("txtCustomerID") ocControl.ControlModel.FontStrikeout = com.sun.star.awt.FontStrikeout.DOUBLE End Sub

Basic parser

Missing items

Missing items

Name	Type	Used by
DatasetActionGenerate	Procedure	Media comMed (Control) Media Author comAdd (Control) Media Author comAut (Control) Media comCat (Control) Media comTow (Control) Media comPub (Control) Reader_Admission Form Adress comPosTow (Control) Reader_Admission Form Adress comStr (Control)

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Modules

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- Folders
- Functions
- Globals
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- Log
- Math
- Module1
- OS
- RangeCell
- Sheet
- SpecialFiles
- Spreadsheet
- Streams
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- Styles
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Name	Type	Parent name	Parent type	Used by	Uses
_AddLibrary	Procedure	Document.Standard.Install	Module	AddBasicLibrary (Procedure)	
_AverageTest	Procedure	Document.MathPrim.Math	Module		Average (Procedure)
_CalcFuncRange	Procedure	Document.CalcPrim.Functions	Module	CalcFunc_CountIf (Procedure) CalcFunc_Match (Procedure) CalcFunc_VLookup (Procedure)	
_CheckLibrary	Procedure	Document.Standard.Install	Module	AddBasicLibrary (Procedure)	
_ConcatVectorsTest	Procedure	Document.ArrayPrim.Arrays	Module		ConcatVectors (Procedure)
_CreateCustomProperty_Test	Procedure	Document.LibOPrim.CustomProperties	Module		CreateCustomProperty (Procedure)
_CreateHiddenDocument	Procedure	Document.WriterPrim.Autotexts	Module	AddAutoTexts (Procedure)	
_CustomPropertiesToArray_Test	Procedure	Document.LibOPrim.CustomProperties	Module		CustomPropertiesToArray (Procedure)
_CustomPropertyExists_Test	Procedure	Document.LibOPrim.CustomProperties	Module		CustomPropertyExists (Procedure)
_CustomPropertyType_Test	Procedure	Document.LibOPrim.CustomProperties	Module		
_DeleteAllCustomProperties_Test	Procedure	Document.LibOPrim.CustomProperties	Module		
_DeleteCustomProperty_Test	Procedure	Document.LibOPrim.CustomProperties	Module		
_GetCustomProperty_Test	Procedure	Document.LibOPrim.CustomProperties	Module		GetCustomProperty (Procedure)
_GetCustomPropertyValue_Test	Procedure	Document.LibOPrim.CustomProperties	Module		GetCustomPropertyValue (Procedure)
_GetPropertyValueByName	Procedure	Document.LibOPrim.Toolbars	Module	GetToolbarResName (Procedure)	
_GetPropertyValueByName	Procedure	Document.LibOPrim.App	Module		
_SetCustomPropertyValue_Test	Procedure	Document.LibOPrim.CustomProperties	Module		SetCustomPropertyValue (Procedure)
_TestVectorFromStringNums	Procedure	Document.ArrayPrim.Arrays	Module		VectorFromStringNums (Procedure)
_ToolbarCommand	Procedure	Document.LibOPrim.Toolbars	Module	DeleteToolbar (Procedure) DisplayToolbar (Procedure) HideToolbar (Procedure) ToolbarVisible (Procedure)	GetToolbarResName (Procedure)

Templates

```

<!DOCTYPE html>
<html>
<head>
<title><!--Template_Title--></title>
<meta charset="UTF-8">
<link rel="stylesheet" type="text/css" href=" ../BD_Stylesheet.css">
</head>
<body>
<table>
<caption></caption>
<tbody>
<tr>
<td>
%DBTOCTABLE%
</td>
<td>
<table class="templateheader">
<caption></caption>
<thead>
</thead>
<tfoot>
</tfoot>
<tbody>
<tr><td>Name of database</td><td>%DBNAME%</td></tr>
<tr><td>RDBMS</td><td>%DBVERSION%</td></tr>
<tr><td>Database file</td><td>%DBLOCATION%</td></tr>
<tr><td>File actual save date</td><td>%DBFILEDATE%</td></tr>
<tr><td>Administered by</td><td>%USER%</td></tr>
<tr><td>Scanning done on</td><td>%SCANTIME%</td></tr>
<tr><td>Documentation generated on</td><td>%NOW%</td></tr>
</tbody>
</table>
</td>
</tr>
</tbody>
</table>
<div class="grid-container">
<div class="grid-item">
%DBTOCTREE%
</div>
<div class="grid-item">
%DBDATATABLE%
</div>
</div>
</body>
</html>

```

HOBBY Tables (15) Queries (10) Forms (11) Modules (15) Dialogs (1) Toolbars (4) Missing items (8) Index (791)

Name of database	HOBBY
RDBMS	HSQL Database Engine 1.8.0
Database file	/home/jean-pierre/Documents/BaseDocument
File actual save date	2017-12-29 15:52:18
Administered by	jean-pierre
Scanning done on	2017-12-29 15:51:30
Documentation generated on	2017-12-29 15:52:36

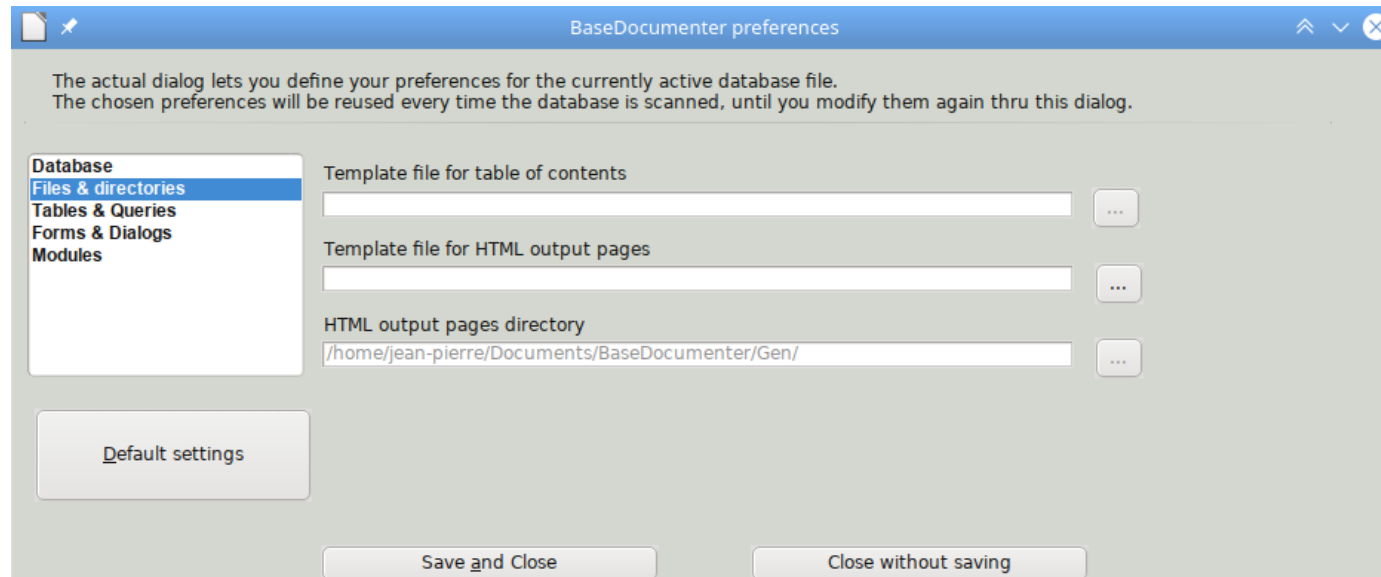
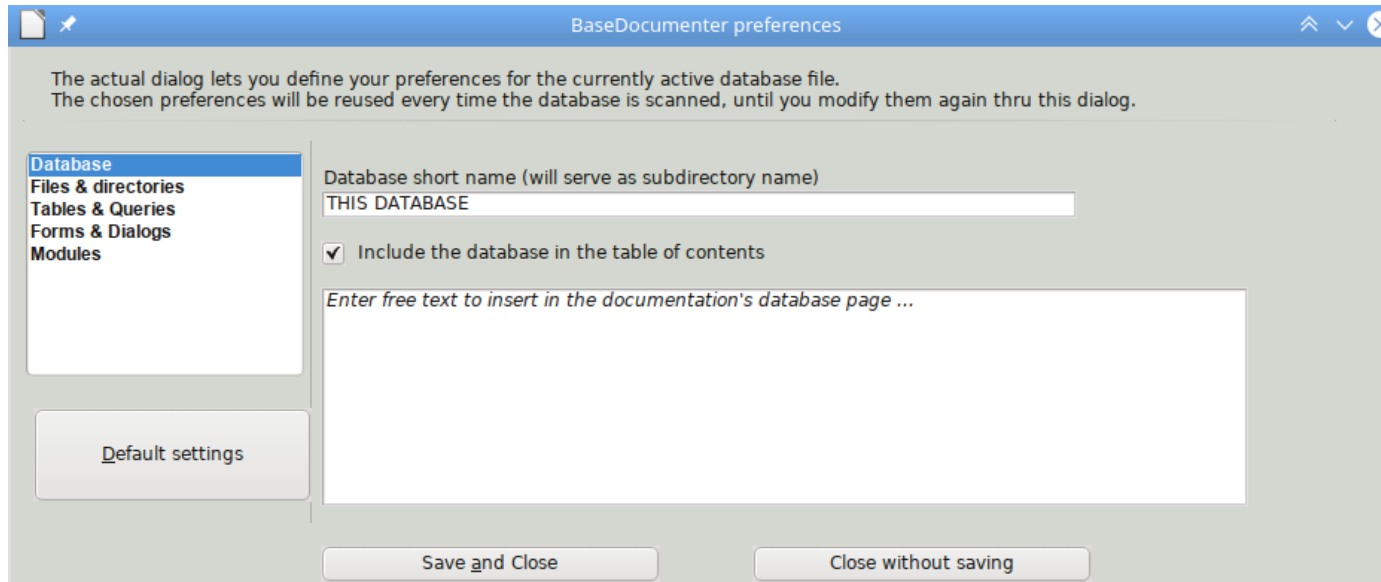
HOBBY

- Tables
 - AllTypes
 - ARTICLE
 - CATEGORIE
 - DEFAULTVALUES
 - DEPENSE
 - FACTURE
 - INVENTAIRE
 - LIGNE FACTURE
 - NoKey
 - SOCIETE
 - SOCIETE_BACKUP
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 - ARTICLEsBis
 - ControlsForm

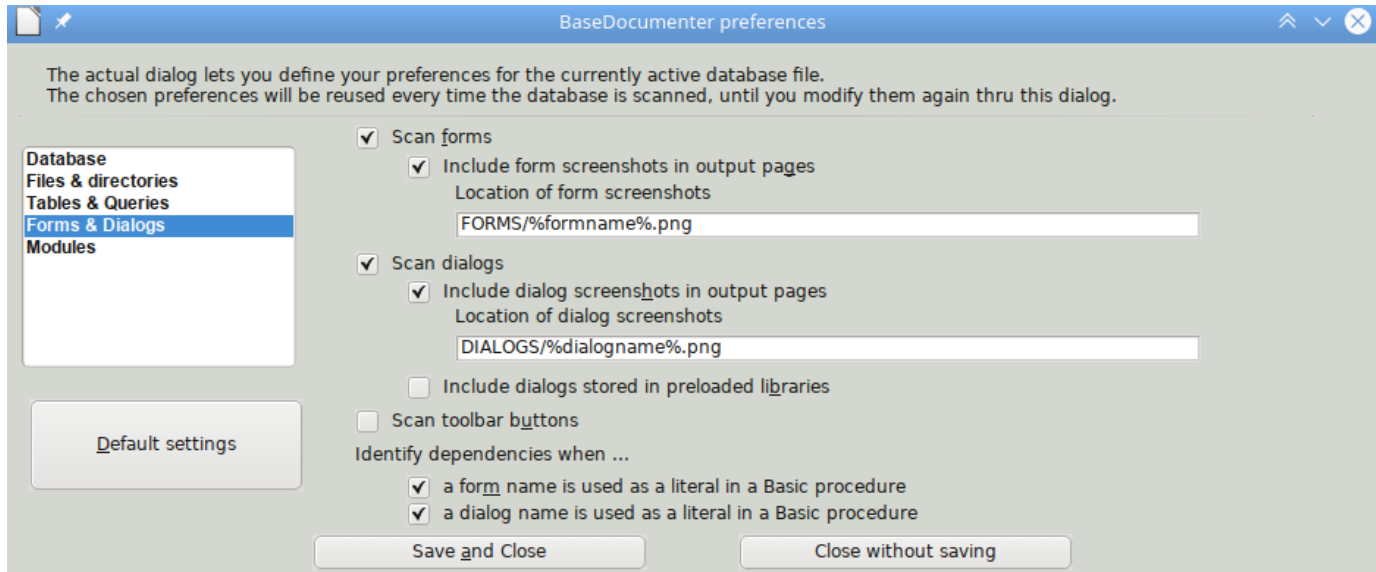
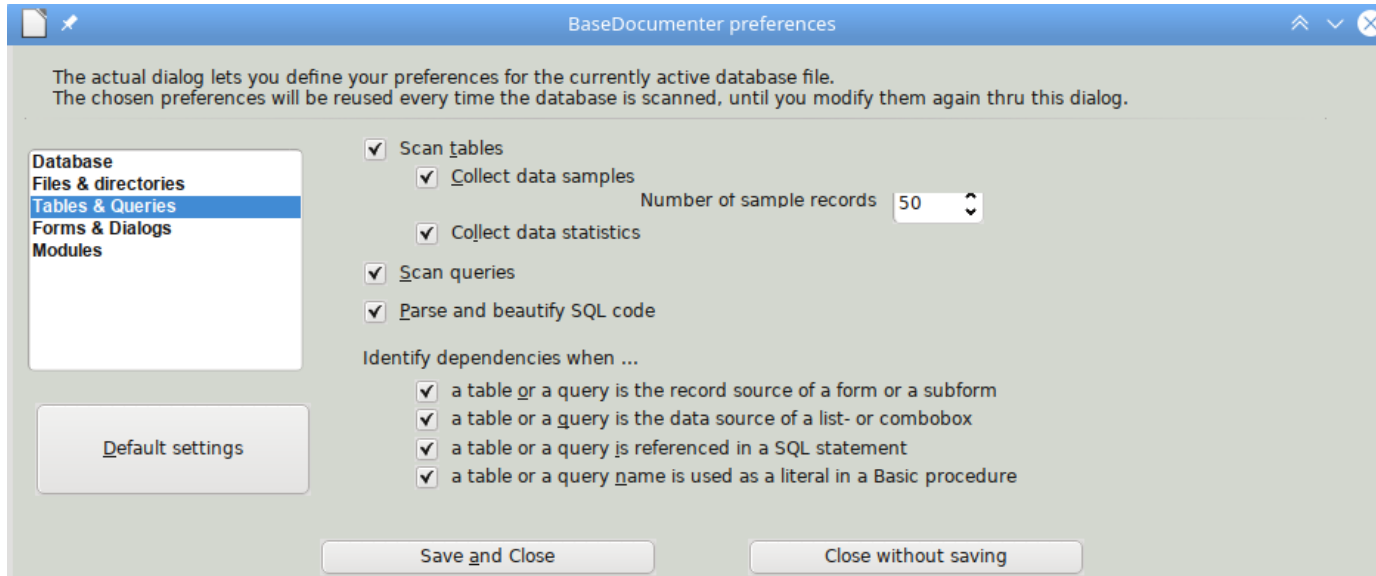
Styles (CSS)

- dbdatatable
 - null, numeric, char, bool, negative
 - firstrow, lastrow, firstcol, lastcol
 - scriptidentifier, scriptkeyword, scriptfunction, scriptcomment, scriptvardef, scriptstring, scriptnumber, scriptconstant, scriptoperator, scripttablename, scriptqueryname, scriptformname, scriptdialogname, scriptprocname
 - sqlquote, sqltablename, sqlqueryname, sqlkeyword, sqlfunction, sqlnumber, sqlword, sqlerror, sqlcomment, sqlvariable
- fulltoctable
- dbtoctree, dbtoctreeheader
- dbtoctable

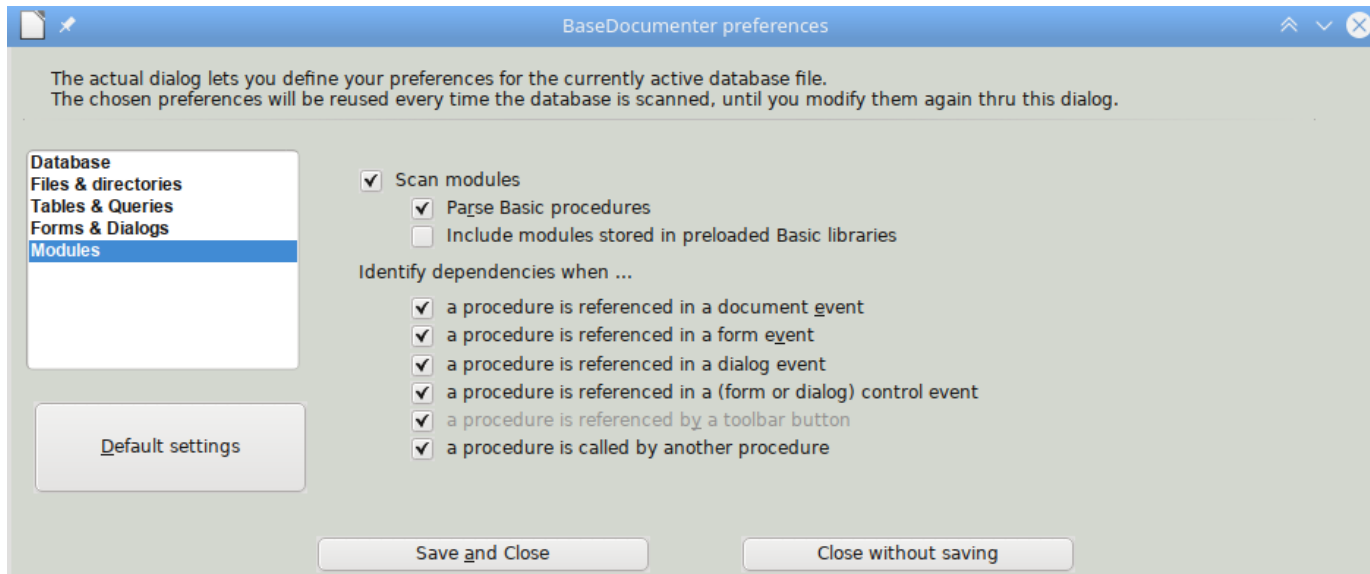
Settings



Settings



Settings



Function	Function Description	Argument(s)	Optional	Type	Default value	Argument(s) Description
BD_OpenRepository	Open the repository. It will remain open until it is closed explicitly.	Repository	Y	String	"BaseDocumenter"	Registered name or complete filepath.
		User	Y	String		
		Password	Y	String		
BD_CloseRepository	Close the actually open repository,	Compact	Y	Boolean	False	If True, execute "CHECKPOINT DEFRAG" SQL statement before closing.
BD_CreateRepository	Create a new repository,	Filename	N	String		Complete filepath. Use either the URL or the OS-specific (e.g. C:\...) syntax.
		Register	Y	Boolean	True	
		Registername	Y	String	"BaseDocumenter"	
BD_SetOptions	Open the Preferences dialog box to define or update the general options/preferences.					
BD_ScanThisDatabase	Launch scanning phase of the currently active database file. To generate the documentation, use <i>BD_DocumentDatabase</i> .					
BD_ScanAndDocThisDatabase	Launch both scanning and documentation generation phases of the currently active database file.					
BD_DocumentDatabase	Launch documentation generation phase of the concerned database file. The database file is presumed already scanned.	Database	Y	String	Empty string	Database short name. If empty string, (re)document all databases present in the repository.
BD_ForgetDatabase	Erase completely the mentioned database from the repository. Eventual previously generated HTML pages are not erased.	Database	N	String		Database short name.
BD_WithUI	Execute next commands with or without user interface.	Option	Y	Boolean	True	If False, no user interface.

Performance

Database: **GenoBase**

Tables: 57
Table fields: 283
Queries: 117
Query fields: 824
Forms: 27
Form controls: 782
Dialogs: 0
Dialog controls: 0
Modules: 10
Procedures: 107
Lines of code: 4958
Toolbar controls: 0
Relations: 960
Scan duration: 3'44"
Doc duration: 2'53"

Database: **Access2Base**

Tables: 0
Table fields: 0
Queries: 0
Query fields: 0
Forms: 0
Form controls: 0
Dialogs: 0
Dialog controls: 0
Modules: 31
Procedures: 866
Lines of code: 22499
Toolbar controls: 0
Relations: 2488
Scan duration: 4'34"
Doc duration: 4'30"

Database: **WorldCup**

Tables: 17
Table fields: 102
Queries: 14
Query fields: 75
Forms: 5
Form controls: 373
Dialogs: 0
Dialog controls: 0
Modules: 0
Procedures: 0
Toolbar controls: 0
Relations: 215
Scan duration: 0'57"
Doc duration: 0'39"

Database: **Invoice Forms**

Tables: 8
Table fields: 44
Queries: 9
Query fields: 28
Forms: 4
Form controls: 169
Dialogs: 0
Dialog controls: 0
Modules: 0
Procedures: 0
Toolbar controls: 0
Relations: 74
Scan duration: 0'17"
Doc duration: 0'22"

« Basic is slowww ! » (M. Meeks)

Limitations

- **RDBMS**
 - Most tests with HSQLDB 1.8 and 2.x
 - Some tests with MSAccess 2003/2007, Postgres, Sqlite
 - Not ready for Firebird 3.0
- **Not documented yet**
 - Dependencies between fields and controls
 - Reports
- **Known errors**
 - Multiple datasources in forms if LO < 6.1
 - Hierarchical form names if LO < 6.2
- **Perspectives**
 - Automatic screenshots
 - Rewrite parsers in Python



LibreOffice[®]

