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T E C H N O L O G I E S

CODE REVIEW

OF

IES BUILD 0132

Election Setup & Maintenance

FOR

**THE DEPARTMENT OF THE ENVIRONMENT,
HERITAGE AND LOCAL GOVERNMENT**



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1.0 INTRODUCTION

This document details the results of our review carried out on source code units supplied for IES build 0132 (April 2004).

2.0 SOURCE CODE UNITS EXAMINED

The following table list the units supplied for examination during this review.

Unit Name
Basis_Election.dfm
Basis_Election.pas
Basis_General.dfm
Basis_General.PAS
Candidates_1.dfm
Candidates_1.pas
Candidates_Edit_2.dfm
Candidates_Edit_2.pas
CdCode.pas
Child.dfm
Child.pas
Clipper.pas
Confirmation_1.dfm
Confirmation_1.pas
Confirmation_Print.dfm
Confirmation_Print.pas
Diakriet.dfm
Diakriet.PAS
Districts_1.dfm
Districts_1.pas
Districts_2.dfm
Districts_2.pas
Districts_Import_Xml_1.dfm
Districts_Import_Xml_1.pas
Districts_Import_Xml_2.pas
Districts_Print_1.dfm
Districts_Print_1.pas
Districts_Select.dfm
Districts_Select.pas
dmOcc.dfm
dmOcc.pas
Documentation_Databases.dfm
Documentation_Databases.pas
Election_Active.dfm
Election_Active.pas
Election_Copy.dfm
Election_Copy.pas
Election_Delete.dfm
Election_Delete.pas
Election_New_Ireland.dfm
Election_New_Ireland.pas



Unit Name
Election_Open.dfm
Election_Open.pas
Election_Profiles_1.dfm
Election_Profiles_1.pas
Election_Profiles_2.dfm
Election_Profiles_2.pas
Err_form.dfm
Err_form.pas
Err_Hand.pas
ES_Erase_Memory.dfm
ES_Erase_Memory.pas
ES_Service_Voorzieningen.dfm
ES_Service_Voorzieningen.pas
ES_Status_Geheugens.dfm
ES_Status_Geheugens.pas
ES_Status_Uitleeseenheid.dfm
ES_Status_Uitleeseenheid.pas
Export_RTE_1.pas
Export_Stringgrids.pas
FillType.pas
Forms_Edit.dfm
Forms_Edit.pas
Forms_Main.dfm
Forms_Main.pas
Forms_Make_Mergefile.pas
Forms_Make_Tables_Ireland.pas
Forms_Select.dfm
Forms_Select.pas
Gauge.dfm
Gauge.pas
Gen_Districts_1.dfm
Gen_Districts_1.pas
Gen_Districts_2.dfm
Gen_Districts_2.pas
General.pas
Handle_Jpeg_Fields.pas
Ies.dpr
Ies_hlp.pas
Infobox.dfm
Infobox.pas
Input_Ballot_1.dfm
Input_Ballot_1.pas
Input_BlowUp_1.dfm
Input_BlowUp_1.pas
Input_Electorate_1.dfm
Input_Electorate_1.pas
Input_Electorate_Print_1.dfm
Input_Electorate_Print_1.pas
Input_Import_Ireland.pas



Unit Name
Input_Random_1.dfm
Input_Random_1.pas
Input_Votes_1.dfm
Input_Votes_1.pas
Input_Votes_3.dfm
Input_Votes_3.pas
Input_Votes_4.dfm
Input_Votes_4.pas
Input_Votes_Scan_Ireland_1.dfm
Input_Votes_Scan_Ireland_1.pas
Input_Votes_Scan_Ireland_Print.dfm
Input_Votes_Scan_Ireland_Print.pas
Janson.pas
Layout_Name.pas
Login.dfm
Login.pas
Main.dfm
Main.pas
Maintenance_Backup.dfm
Maintenance_Backup.pas
Maintenance_Delete_Data.dfm
Maintenance_Delete_Data.pas
Maintenance_Directories.dfm
Maintenance_Directories.pas
Maintenance_Directories_2.dfm
Maintenance_Directories_2.pas
Maintenance_Page_Selection.dfm
Maintenance_Page_Selection.pas
Maintenance_Papersize.dfm
Maintenance_Papersize.pas
Maintenance_Password.dfm
Maintenance_Password.pas
Maintenance_Restore.dfm
Maintenance_Restore.pas
Maintenance_Schone_Lei.dfm
Maintenance_Schone_Lei.pas
Maintenance_Update.pas
Maintenance_Users.dfm
Maintenance_Users.pas
Maintenance_Users_Edit.dfm
Maintenance_Users_Edit.pas
Maintenance_Users_Password.dfm
Maintenance_Users_Password.pas
Maintenance_Virusscanner.dfm
Maintenance_Virusscanner.pas
Memories_Free_2.pas
Participants_2.dfm
Participants_2.pas
Participants_Edit_2.dfm



Unit Name
Participants_Edit_2.pas
Participants_Import_Ireland.pas
Parties_1.dfm
Parties_1.pas
Parties_Edit_1.dfm
Parties_Edit_1.pas
Parties_Print_1.dfm
Parties_Print_1.pas
Prepare_Election_Ireland.pas
Prepare_Files_1.pas
Prepare_Files_2.pas
Prepare_Files_3.pas
Prepare_Referendum_Ireland.pas
Presentation_Count_Export_Screen_Rte.pas
Print_Stringgrids_1.dfm
Print_Stringgrids_1.pas
Regions_1.dfm
Regions_1.pas
Regions_2.dfm
Regions_2.pas
Regions_Edit_1.dfm
Regions_Edit_1.pas
Regions_Edit_2.dfm
Regions_Edit_2.pas
Regions_Import_Ireland.pas
Splash.dfm
Splash.PAS
Start_PrVotes.dfm
Start_PrVotes.pas
Tables_Cities.dfm
Tables_Cities.pas
Transfer_Result_Files.pas
Transfer_Result_Files_Ireland.pas
VerkType.pas
WordMerge.pas
xml_generator.pas

2.1 Outstanding Units

There are no outstanding units required to complete the review.



3.0 SUMMARY OF ISSUES

The following points were noted on completion of the review.

3.1 Standard of Coding Practice

The source code demonstrated adherence to the best practice requirements set out by previous reviews.

3.2 Issues Raised During Previous Reviews

3.2.1 Issues Relating To Best Practice

In summary 17 issues were raised during previous reviews, broken down as follows:

Type	Instances
Bookmark not freed	25
Control Names not meaningful	6
Database no try except	52
DisableControls/EnableControls	15
Event to nil, not reset	1
Function With No Result	2
Hard-coded settings	2
Incorrect Error Handling	12
I/O no error handling	8
Locate not checked	20
No Database Transaction	41
Oversized methods	29
Redundant Code	66
Repeated Code	5
Screen Cursor not reset	19
Suppressing Errors in Update Loop	7
Unclear With Statements	24



The developer's responses, detailed in the code review sheets, can be summarised as follows:

Bookmark not freed	Will be addressed immediately.
Control Names not meaningful	Will be addressed immediately.
Database no try except	Use of EurekaLog eliminates the requirements for Try/Exception handling.
DisableControls/EnableControls	Will be addressed immediately.
Event to nil, not reset	Will be addressed immediately.
Function With No Result	Will be addressed immediately.
Hard-coded settings	No requirement for change.
Incorrect Error Handling	Will be addressed immediately.
I/O no error handling	Use of EurekaLog eliminates the requirements for Try/Exception handling.
Locate not checked (17no)	Will be addressed immediately.
Locate not checked (3no)	Will be addressed immediately (moved to Section V – VoteReader).
No Database Transaction	Postponed to post-June 2004.
Oversized methods	Postponed to post-June 2004.
Redundant Code	Will be addressed immediately.
Repeated Code	Will be addressed immediately.
Screen Cursor not reset	Will be addressed immediately.
Suppressing Errors in Update Loop	Will be addressed immediately.
Unclear With Statements	Postponed to post-June 2004.

The reviewer's responses can be summarised as follows:

- (a) Issues relating to best practice, and listed above as 'Will be addressed immediately' by the developer, have been addressed to our satisfaction in build 0132 and are closed.
- (b) Where postponement is proposed: the Department must decide whether or not the developer should be required to make changes to the source code in these areas of best practice prior to June 2004.
- (c) Where EurekaLog is referred to: EurekaLog is a library which when included in the project, provides low-level tracking and alerting of exceptions to the user. Our preference is to include exception handling code in each module, where such handling is required to carry out two functions at a minimum: (1) to alert the user to the error and (2) to implement meaningful business logic which 'handles' the exception. Use of EurekaLog achieves (1) only. Given that the developer has stated a helpdesk will be provided, instructing any user who encounters a EurekaLog error as to the correct resolution of that error, the developer maintains that (2) is fulfilled.



3.2.2 Issues Relating to Functionality

In summary 8 issues were outstanding from previous reviews, broken down as follows:

- Flag Set by double-clicking on labels (Confirmation_1)
- ItemIndex Error (Districts_Selectie_Kodering)
- No check for Excel (Export_Stringgrids)
- Flag not initialised prior to checking (Input_Votes_4)
- Incorrect check for empty user name and password (Maintenance_Users_Edit)
- Delete/Insert buttons disabled actions possible through keys (Participants_2)
- Button labelled incorrectly (Regions_1)
- Assigning a value to a constant (Verktype)

The developer's responses, detailed in the code review sheets, can be summarised as follows:

Flag Set by double-clicking on labels	No requirement for change.
ItemIndex Error	Unit is no longer in the project.
No check for Excel	No requirement for change.
Flag not initialised prior to checking	Will be addressed immediately.
Incorrect check for empty user name and password	Will be addressed immediately.
Delete/Insert buttons disabled actions possible through keys	Will be addressed immediately.
Button labelled incorrectly	Will be addressed immediately.
Assigning a value to a constant	No requirement for change.

The above issues were addressed to our satisfaction in build 0132 and are closed.

3.3 Issues Found During This Review

No new issues were found during this review.