# Democracy Suite® EMS Election Data Translator User Guide

Version: 5.13-A::1

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# Table of Contents

# CHAPTER 1: INTRODUCTION

## 1.1 Document Use

This document is intended for use with the Democracy Suite® 5.13 platform.

## 1.2 Relevant Disclaimers

This document may make reference to certain Democracy Suite® functionalities that are not part of the current 5.13-CO campaign and should be disregarded throughout the document.

For a full list of relevant disclaimers, please see the "Relevant Disclaimers" section in the *2.02 - Democracy Suite® System Overview* document.

## 1.3 User Guide Organization and Use

This document provides a wide variety of information about the Election Data Translator application, including background information on problem domain and procedures for executing functions in the application, images, and illustrations/diagrams.

Topics are grouped according to the intended functionality flow when processing election results. Most topics have sub-topics. These sub-topics are then further broken down into logical units.

## 1.4 Getting to Know Election Data Translator

Election Data Translator's main function is to import data into template election project database and prepare project definition data for your election.

Election Data Translator uses Microsoft Excel spreadsheets .xlsx (Excel 2007, Excel 2010 or newer) with a strong defined structure. If you use a version of an Excel file which supports .xlsx (Excel 2007, Excel 2010 or newer), then you are required to save the exported .xml file in .xslx format before you import it into template database. The Excel files can be prepared in the following ways:

1. Manually inputting the data into Excel

2. Exporting and modifying data from an existing EMS project through the use of the Election Data Translator's 'Export Mode'

3. Exporting data from another management system that follows the Election Data Translator format

4. Converting data from well known external formats, into an import file format (using Election Data Translator)

The Election Data Translator application extracts data from a source Excel file, transforms it, and combines it with base election information that is stored in the connected EMS template election project database. At the end of this process, data is imported into the EMS template election project database. Following this, the election project is ready for further processing in Election Event Designer.

In addition to this, the application also has the capability, via the 'Import Mapper' feature to convert well known election definition formats (usually from other systems/vendors) into the base import excel file format, ready to be imported into the EMS election database.

# CHAPTER 2: BASIC STEPS

## 2.1 Opening an Election Project

The application needs to know which election database project it needs to work with in order to import or export the necessary data.

1. Double click the EMS Election Data Translator icon to start the application. The main application window appears.

2. Click File and select Open Project menu item.

3. Depending on whether Network Settings were configured previously for the application, two scenarios are possible after clicking the Open Project menu item:

4. Case 1 - The Network settings have not been configured previously: The Network Settings dialog appears. Follow the instructions described in section Configuring Election Data Translator of this document (Configuration) in order to configure the network settings in EMS Election Data Translator. After network settings are properly configured, click OK in the Network Settings dialog, and the Open Project dialog appears.

5. Case 2 - The Network settings have already been configured: The Open Project dialog appears.

6. Select the desired election project from the list of available projects and click OK. The Login dialog appears.

7. Log in as an EMS User by entering your username and password credentials. Please note that password field is case-sensitive.

8. After successfully logging in and opening the election project, the name of the project is displayed in the title of the main application form. Each action performed in the application is logged and displayed in the Status area in the main form.

**NOTE:** It is not required to restart the application after every import and/or export process is completed. The application allows the user to perform multiple subsequent import and/or export actions into/ from various election projects.

## 2.2 Closing Election Project

To exit application, expand the File item from the main menu and click Exit.

## 2.3 Help

In the **Help** item in the main menu there are two options: **Help Documentation** and **About**.

1. To open Democracy Suite EMS Election Data Translator User Guide, click the **Help** item from the main menu and click **Help Documentation.**

2. To open the Democracy Suite EMS Election Data Translator application version information, click the **Help** item from the main menu and click **About**.

## 2.4 Updating the Import File Format

The Election Data Translator application has the ability to update the import file format with the Update Excel File Format feature. In case the format of the file to be imported into the EMS election project is out of date, the user is able update the structure of the file, and proceed with importing the data. The Update Excel File Format feature contains the following actions:

- **Add missing worksheets**. If the import file is missing one or more required worksheets, the Update Excel File Format feature will update the file by including the missing worksheet(s). The newly added worksheets will contain all the necessary columns according to the worksheet structure defined for the latest version of the EMS system. The order of the columns inside the newly added worksheets and the order of worksheets inside the updated Excel file follows the order defined in the latest version of the EMS input file structure specification. After the file is updated, all columns and fields in the new worksheets will be empty except the ones where default values are defined.

- **Add missing columns into the existing worksheet**. If one or more columns is missing from an existing worksheet of an import file, the Update Excel File Format feature will update the file by including the missing column(s). After updating the required worksheets, all cells inside the newly added columns will contain a pre-defined default value. If a default value does not exist for certain fields, those cells will remain empty. The order of the columns inside the updated worksheets will follow the order defined in the latest version of EMS input file structure specification.

- **Delete invalid columns**. If a worksheet contains any columns which are obsolete or invalid, those columns will be removed.

In order to update the structure of an input Excel file, perform the following:

1. Click **File/Update** Excel File Format in main application menu. The **File Selection** dialog appears, see Figure 2-1.
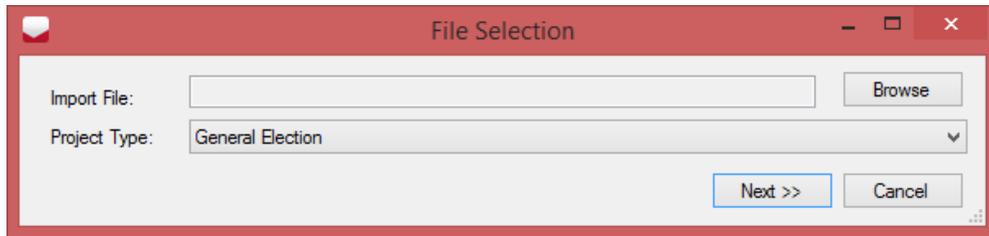


Figure 2-1: File Selection dialog

2. Click **Browse** (in the top right corner of the dialog) and navigate to the excel file which you want to update.

3. Click **Next** at the bottom of the **File Selection** dialog to continue the Update Excel File structure action.

4. The **Save As** dialog appears. Enter a name for the updated Excel file, browse to the location where the updated copy of the import Excel file should be saved and click **Save**. The updated version of import Excel file will be saved at the specified location.

5. The **Save As** dialog will close. The following message will appears in the **Status** part of the main application form.

6. The updated version of the selected import file has been saved to [Path of the Location].

**NOTE:** Before importing the updated import file, the user must populate the newly added worksheets and columns.

7. If the selected file is not up-to-date, messages will be displayed indicating what updates have been performed to the file. For example, see Figure 2-2, for messages indicating newly added worksheets and columns.



Figure 2-2: EMS Election Data Translator main screen
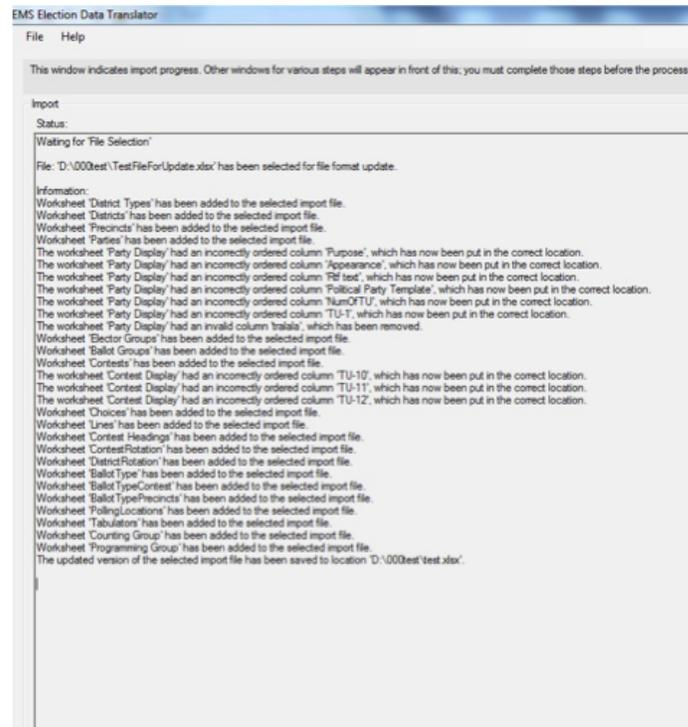
8. Open the updated Excel file and check which worksheets were updated. The worksheets where the structure has been updated are colored orange, while newly added worksheets are colored yellow. For example, see Figure 2-3, the 'Parties' worksheet was added while the 'Precincts', 'Ballot Groups', and 'Contests' worksheets were updated).
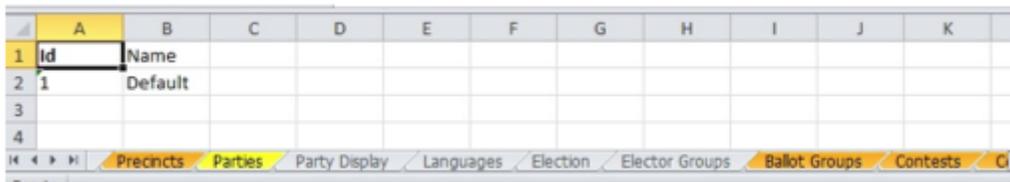


Figure 2-3: Updated Excel file

9. Newly added columns in the updated file are colored green, see Figure 2-4. Columns that have been renamed are colored blue. If a default value is defined for the newly added column, all cells in this column will be populated with this default value.



Figure 2-4: Updated Excel file

10. Each update of the import file will result in the update of the 'Version' worksheet. This worksheet tracks changes to the structure of the import file and contains two columns: Number and Creation Date. These columns track the version of the EMS Election Data Translator application which updated the file, and the exact time the file was updated, see Figure 2-5.



Figure 2-5: Updated Excel file

**NOTE:** The EMS Election Data Translator application cannot update input files which contain only translation data.

# CHAPTER 3: EXPORTING DATA

## 3.1 Creating Election Definition Exports

The Election Data Translator application provides the capability to export election definition data from the EMS election project database, into an XML schema which is equivalent to the input file format.

This capability may be useful when wanting to provide an election definition to another system, or to adjust definition data outside of the Election Event Designer application, directly in the raw input format. One of the additional benefits of this feature is to allow for election definition data to be translated outside of the system which is explained in section "*3.2 Exporting Data for Translation Activities*".

The following section outlines the export process.

1. When starting the application, the user will be presented with a dialog asking to select the 'Importer mode', as seen in Figure 3-1. To begin, select Export data from database to excel file and click Done.
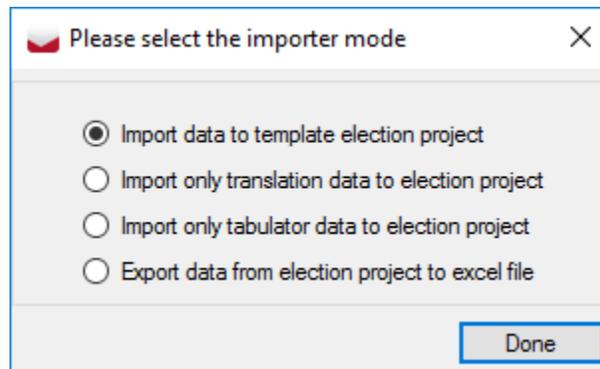


Figure 3-1: Select the importer mode dialog

The Export Data dialog, as seen in Figure 3-2, will appear. Select the All information option if you wish to export all possible election information from the project.

**NOTE:** If you only require to export content for translation activities, please skip immediately to section "*3.2 Exporting Data for Translation Activities*" and follow the remaining steps there.

2. Click **Browse** beside the **Target folder path** field, and navigate to the location where the exported data should be saved.

3. In the **Result File Name** field, enter the file name for the exported data.

4. Click **Export**.

5. The **Success** dialog will appear indicating a successful export. Click **OK** to finish.
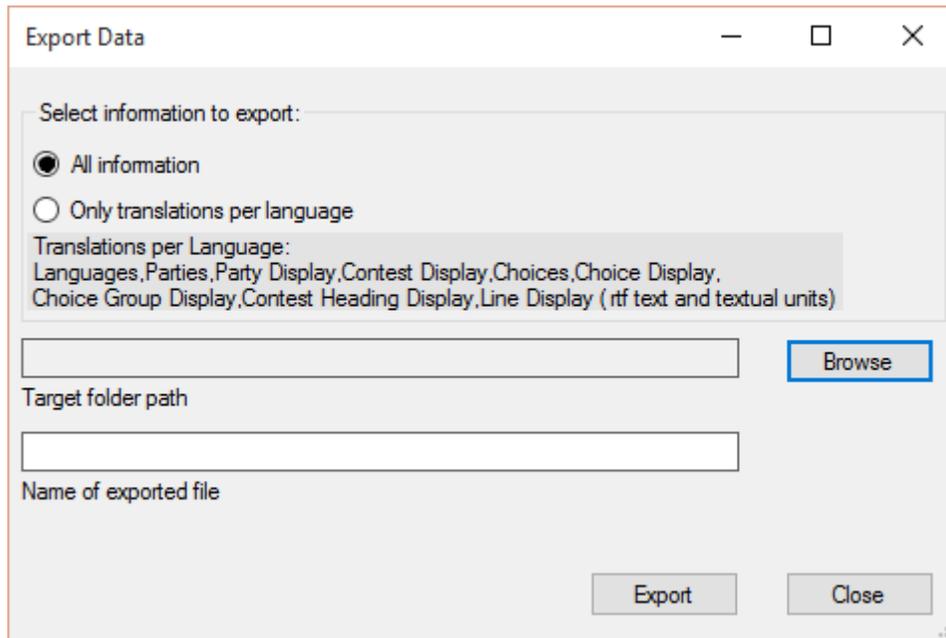


Figure 3-2: Export Data dialog

## 3.2 Exporting Data for Translation Activities

Aside from having the capability to export election definition data, the Election Data Translator application provides the capability to export only translations per language from the EMS election project database, into an Excel spreadsheet which is equivalent to the input file format.

This option allows the election definition data to be translated outside of the system, by exporting only the elements which require translations in other languages for that specific election project.

The following sections outline the export process.

When starting the application, the user will be presented with a dialog asking to select the 'Importer mode', as seen in Figure 3-3.

1. To begin, select **Export data from election project** to Excel file and click **Done**, see Figure 3-3.
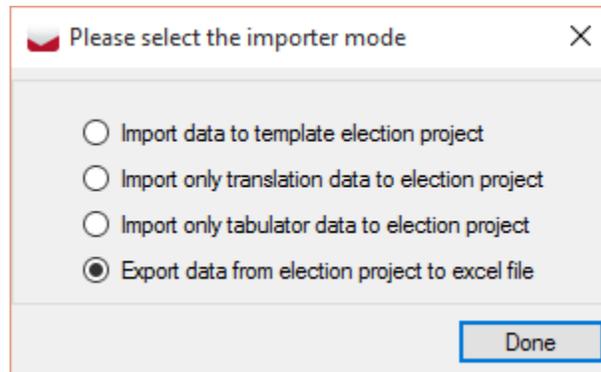
Figure 3-3: Select the importer mode dialog

2. The **Export Data** dialog, as seen in Figure 3-4, will appear.
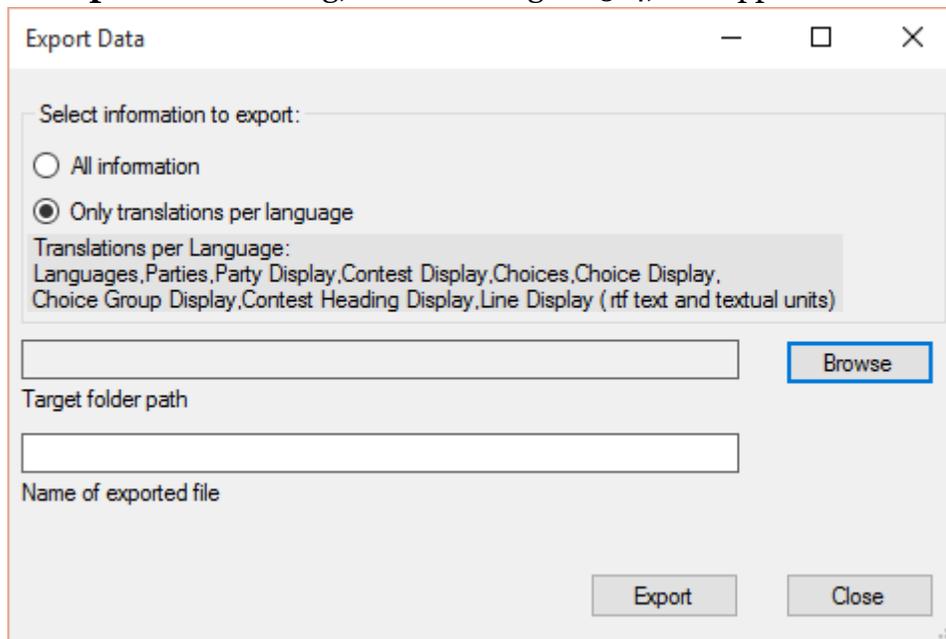


Figure 3-4: Export Data dialog

3. Select the **Only translations per language** option if you wish to export all possible election information from the project.

4. Click **Browse** beside the **Target folder path** field, and navigate to the location where the exported data should be saved.

5. In the **Result File Name** field, enter the file name for the exported data.

6. Click **Export**.

7. When the **Language Selection** screen appears (see Figure 3-5) choose all the languages you want to export - you can select them manually (one-by-one) or you can Select All by clicking the 'All' radio button.

**NOTE:** The purpose of the specific translation is listed next to the language profile, i.e. what operating mode the translation is for - Ballot Content, Screen Content, Print Content and Base/Audio content.

Example: "Spanish - Ballot Content" - the Spanish language translation for the content on a regular paper ballot.
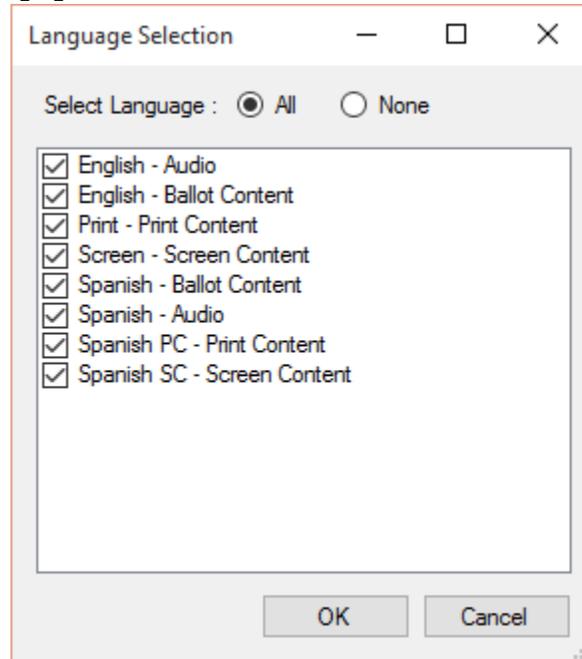


Figure 3-5: Language Selection

8. The **Success** dialog will appear indicating a successful export, see Figure 3-6. Click OK to finish.
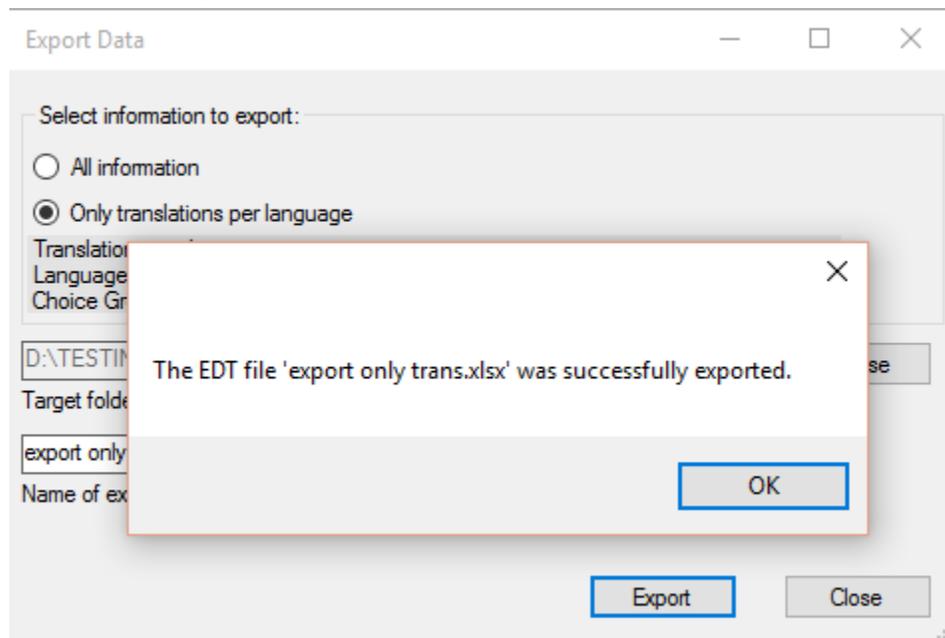


Figure 3-6: Export Data Success dialog

# CHAPTER 4: IMPORTING DATA

The Election Data Translator application provides the capability to bulk import election definition data into the EMS election project database, from an Excel input file format.

Before proceeding, you must first create a template election project in the Election Event Designer application, and this project must be in the 'Election Project Definition' project phase. Follow the steps outlined in the Democracy Suite EMS Election Event Designer User Guide to set up basic information in your election project, such as:

- Election Type
- Ballot Style
- Language Profile
- Default Elector Group
- Default Elector Group Combination
- Templates related to headers, contests, and (optionally) candidates

The following sections outline the import process

## 4.1 Importing Data into Template Election Definition Project Database

When starting the application, the user will be presented with a dialog asking to select the 'Importer mode', as seen in Figure 4-1.

To begin, select Import data to template election project and click Done.
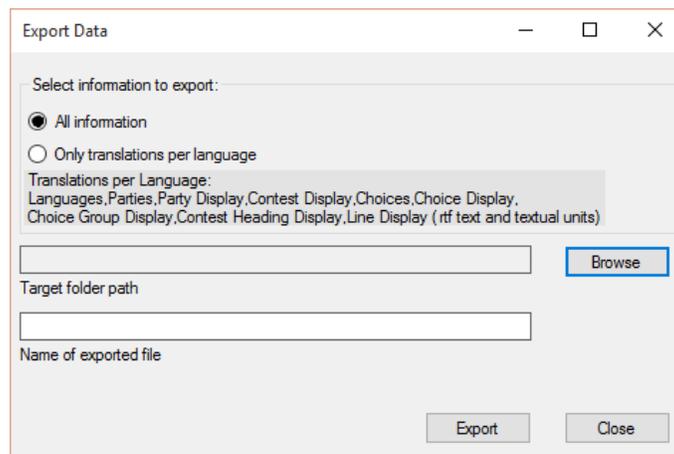


Figure 4-1: Export Data dialog

There are two possible use cases, depending on whether the template election project already contains election data:

## 4.1.1 Case 1: Importing when Election Project already contains data

If the user is importing data when the Election Project already contains data, an Information dialog appears as seen in Figure 4-2, informing the user that the project already contains data.

The user can:

- Either, click Continue to proceed with the import process. The process will delete existing election data before the import inserts new data from the input file. Following that, the File Selection dialog appears as seen in Figure 4-3. Skip ahead to section "*4.1.2 Case 2: Importing when Election Project does not contain data*".

- Or, click Exit, to cancel the import process. In that case, a Question message box will appear with the following text: Are you sure you want to cancel import? Clicking the Yes option will cancel the import process. Clicking No will return the user to the previously shown information dialog stating that the project already contains data.

## 4.1.2 Case 2: Importing when Election Project does not contain data

This section assumes that there is either no election definition data in the election project, or that the user has chosen to delete existing data and replace with a new data set.

1. The File Selection dialog appears.

2. Click Browse in the top-right corner and navigate to, and select the input file containing the data you wish to import. Click Open.

3. At this point, users have possibility to record all future steps during the import data process into a file (so called import pattern, with .ptrn extension), by selecting Create new import pattern, or to import already existing import pattern file by selecting Use the existing import pattern option. The purpose of the import patterns is to make quicker and easier for user the import of large number of election project files with the same settings of Ballot Types, Language Assignments and Language Font Selections.

4. Choose the Project Type from the drop down menu and click Next. The application will validate the consistency of the data contained in the Excel file. When validation is complete, the process will begin. NOTE: For more information related to validating the consistency of the data inside the Excel file see section "*4.4 Validation of Input Data*".

5. The import data process will continue.
   The Ballot Types dialog appears.

6. The user will be prompted to either ignore or use explicit ballot types. Selecting Ignore Explicit Ballot Types will allow the EMS Election Event Designer application to automatically generate the ballot type based on the election content. Note that Use Explicit Ballot Types should only be selected if the user manually programmed the ballot type into the input file.

7. Click Done.
   The Language Assignment dialog displays.

8. Assign language(s) from the 'Language' list on the right-hand side of the dialog to the existing Language Profiles in the election project (as displayed in the list on the left-hand side, by clicking the <-<- button. Remove languages from language profiles by clicking the ->-> button. User can also press the Auto button to automatically assign languages by name.

9. Click Done. The Language Font Selector dialog appears. Select your desired font and font size. Note that if your project contains more than one language, you will have the option to select font and font size for each language in your project.

10. Click Done. The import process will commence. All actions that are part of the process will be logged and displayed in the Status area of the main application form. At the end of the import process the user will receive a notification that the import process has finished (A message with the text: Finished will be displayed at the bottom of the Status field).

11. Close the application. You can now continue with modifying the election definition or styling the ballots in the EMS Election Event Designer application.

## 4.2 Importing Only Translation Data

This feature is normally used for importing translated election definition objects. The translations can be supplied from outside of the Election Management System and can be imported back into the project once they are complete. See section "*3.2 Exporting Data for Translation Activities*" for more info and steps related to providing the data set containing the basic objects which require translations.

**NOTE:** For importing only translation data into the election project, the user may use either the full input file format, containing all the worksheets (usually created by using the 'All information types' option during the export process), or an input file which contains only the worksheets required for importing translation data into the election project (usually created by using the 'Only translations per Language' option during the export process). No other forms of the input file may be used.

Worksheets which are used in this mode of the import are identified by a TRN next to their name in Appendix A "Input File Reference" on page 33.

1. When starting the application, the user will be presented with a dialog asking to select the Importer mode, see Figure 4-2. To begin, select Import only translation data to election project and click Done.



Figure 4-2: Select the importer mode dialog

2. The File Selection dialog appears.

3. Click Browse in the top-right corner and navigate to, and select the input file containing the translation data you wish to import. Click Open.

4. Select your Project Type from the drop down menu at the bottom of the *File Selection* dialog, and click Next, see Figure 4-3. The application will validate the consistency of the data from the Excel file. When validation is complete, the process will begin.



Figure 4-3: File Selection dialog

5. The Language Assignment dialog appears, see Figure 4-4.

6. Assign language(s) from the 'Language' list on the right-hand side of the dialog to the existing Language Profiles in the election project (as displayed in the list on the left-hand side, by clicking the left-arrow button. Remove languages from language profiles by clicking the right-arrow button. User can also press the Auto button to automatically assign languages by name.

7. Click Done.
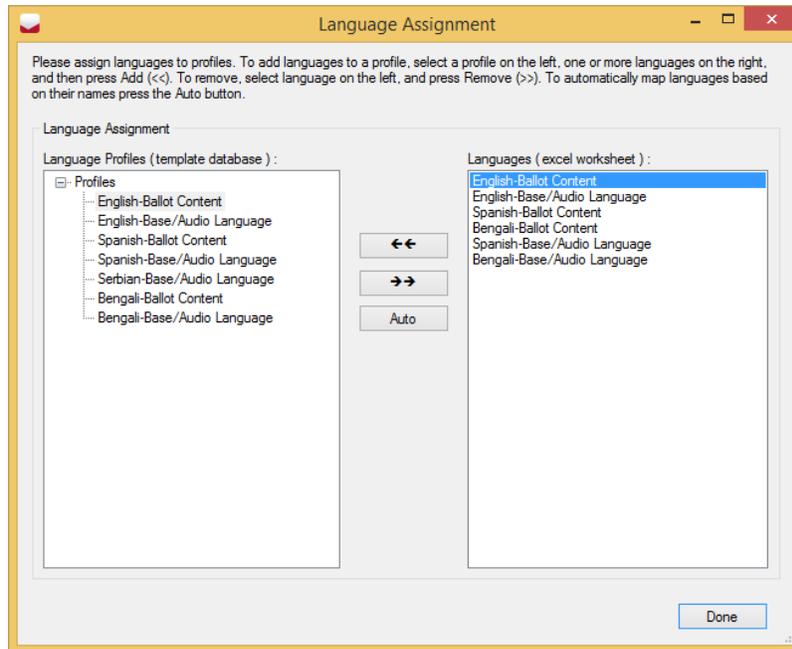


Figure 4-4: Language Assignment dialog

8. The Language Font Selector dialog appears, see Figure 4-5. Select your desired font and font size. The dialog also allows you to define the default margins that will be applied to the proposition text (the values are in points).

9. Note that if your project contains more than one language, you will have the option to select font and font size for each language in your project.

10. Click Done.
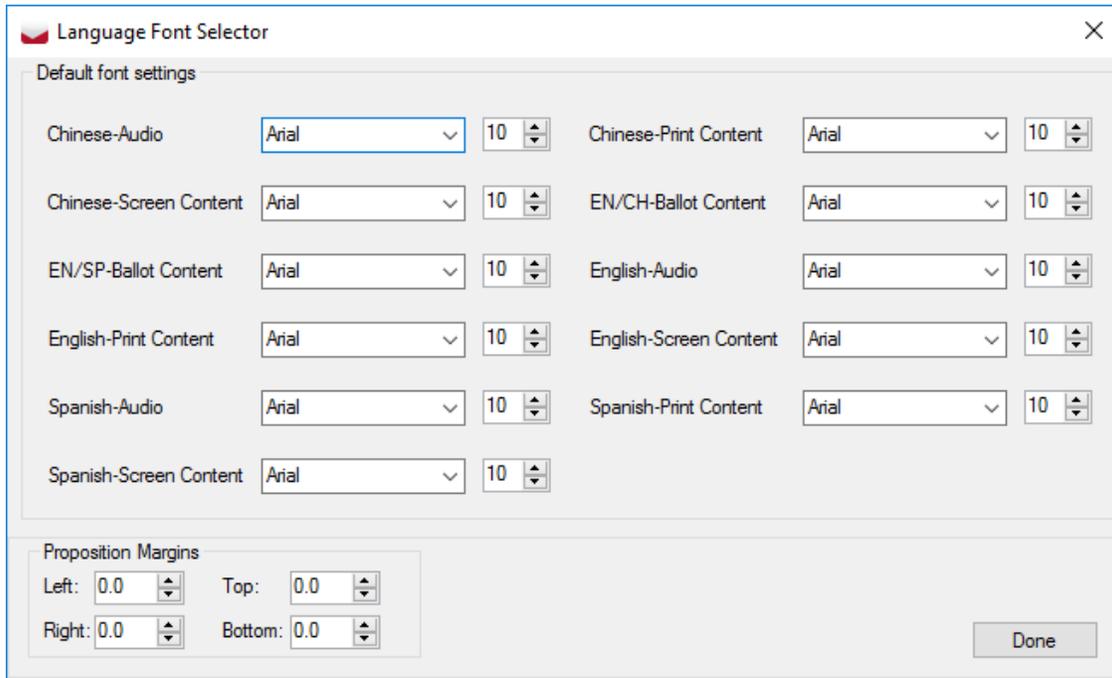


Figure 4-5: Language Font Selector

11. The import process will commence. All actions that are part of the process will be logged and displayed in the Status area of the main application form. At the end of the import process the user will receive a notification that the import process has finished (A message with the text: Finished will be displayed at the bottom of the Status field), see Figure 4-6.



Figure 4-6: Import Finished successfully

12. Close the application. You can now continue with modifying the election definition, or styling the ballots in the EMS Election Event Designer application.

## 4.3 Importing Only Tabulator Data

This feature is normally used for importing tabulator related objects. The tabulator definitions can be supplied from outside of the Election Management System, and can be imported back into the project once they are complete.

**NOTE:** For importing only tabulator data into the election project, the user may use the full input file format, containing all the worksheets (usually created by using the 'All information types' option during the export process), the only sheets that will be used during import however are identified by a 'TAB' next to their name in the Appendix A "Input File Specification" on page 33 of this document.

1. When starting the application, the user will be presented with a dialog asking to select the Importer mode, see Figure 4-7. To begin, select Import only tabulator data to election project and click Done.
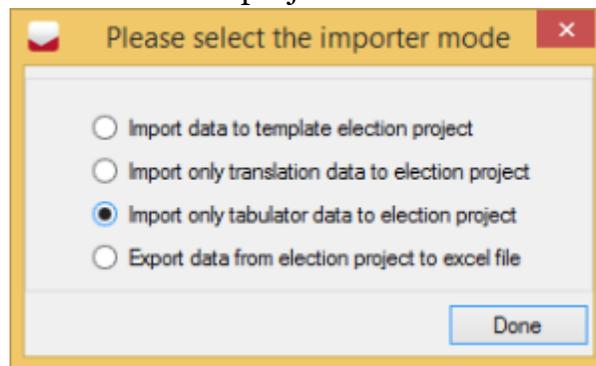


Figure 4-7: Select the importer mode dialog

2. An Information dialog will appear informing the user that the project already contains data, see Figure 4-8. The user can:

   • Either, click Continue to proceed with the import process. The process will delete existing election data before the import inserts new data from the input file.

   • Or, click Exit, to cancel the import process. In that case, a Question message box will appear with the following text: Are you sure you want to cancel import? Clicking the Yes option will cancel the import process. Clicking No will return the user to the previously shown information dialog stating that the project already contains data.
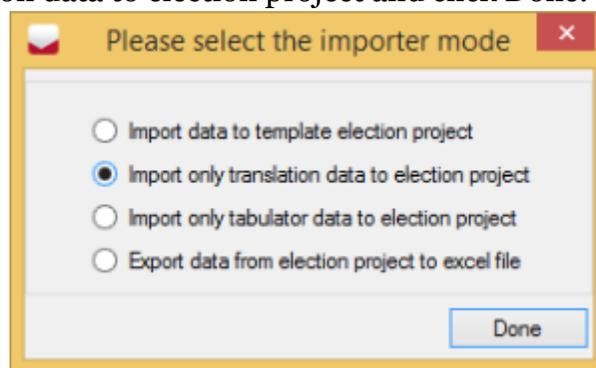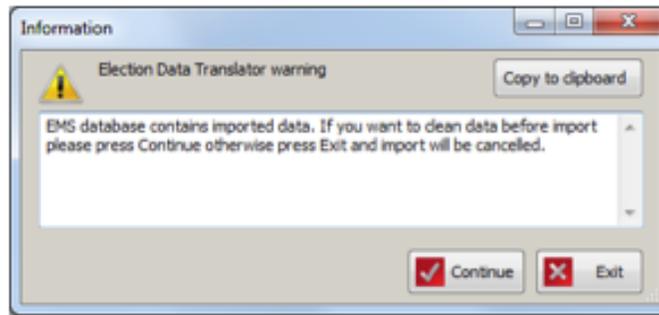
Figure 4-8: Select the importer mode dialog

3. The File Selection dialog appears.

4. Click Browse in the top-right corner and navigate to, and select the input file containing the translation data data you wish to import. Click Open.

5. Select your Project Type from the drop down menu at the bottom of the File Selection dialog, and click Next, see Figure 4-9. The application will validate the consistency of the data from the Excel file. When validation is complete, the process will begin.
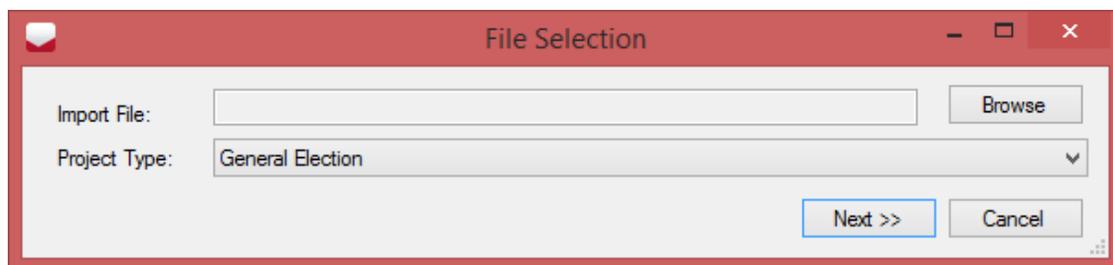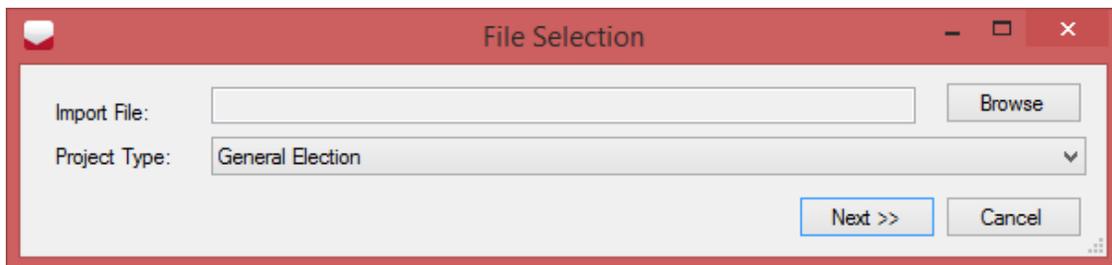


Figure 4-9: File Selection dialog

**NOTE:** For more information related to validating the consistency of the data inside the Excel file see section "*4.4 Validation of Input Data*".

6. The import process will commence. All actions that are part of the process will be logged and displayed in the Status area of the main application form. At the end of the import process the user will receive a notification that the import process has finished (A message with the text: Finished will be displayed at the bottom of the Status field), see Figure 4-10.
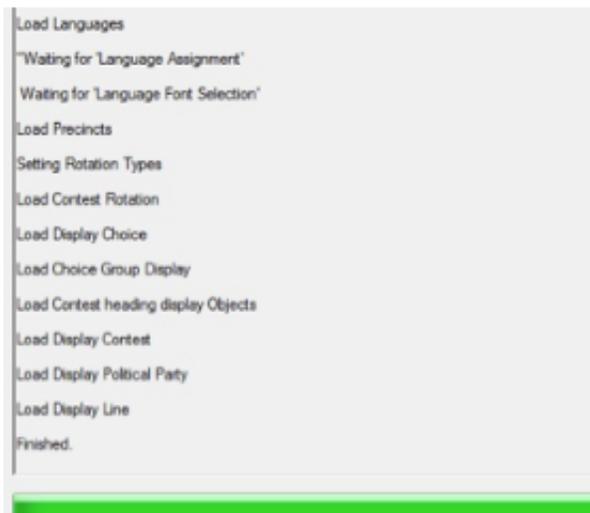
7. Close the application. You can now continue using EMS Election Event Designer application.
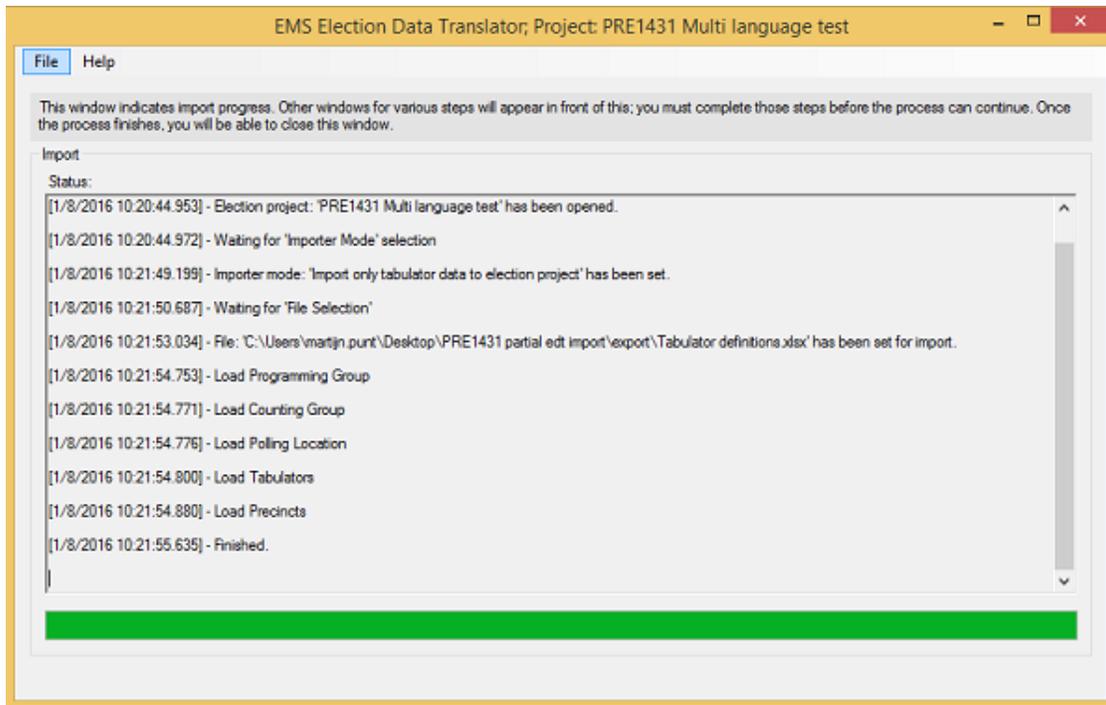
Figure 4-10: Import Finished successfully

# 4.4 Validation of Input Data

Before the application begins to import the data from the input file, it must validate the content within it, to ensure consistency of the election definition before it is imported into the election project database.

If the validation process finds that the content of a particular column or worksheet in the file does not match the validation criteria (as per input file specification), the application will report an error and will prevent the data from being imported into the election project database. All errors must be manually resolved by the user, directly in the input file, before retrying to import the data.

The validations, which are executed before the data import, are listed below:

- Allow empty value: This type of validation checks whether an empty value is allowed for a given column. If it is not allowed and a cell inside the given column contains an empty value, the application will report an error at the end of the validation process. The following text is be displayed in the Status area of the main window if the Allow Empty Value validation error occurs:
  If the 'Allow Empty Value' validation error occurs, The following text is displayed in the Status area of the main window:
  "The worksheet Worksheet name contains one or more empty values in the column Column Name."

- Unique value: This type validation checks whether a column contains non-unique values. If the 'Unique Value' validation error occurs, The following text is displayed in the Status area of the main window:
  "The worksheet Worksheet name contains non-unique values in the column Column Name."

- Referenced Table: This type of validation checks whether values in each cell of a column referencing a column in another worksheet exist in the specified column of the referenced table (The references are specified in an XML specification of the input file). If the 'Referenced Table' validation error occurs, the following text is displayed in the Status area of the main window: "The worksheet name worksheet contains a value value¿, in the column name column, row number of the row." "This value does not exist in the referenced Referenced worksheet name worksheet, in the referenced column name column."

# CHAPTER 5: MAPPING EXTERNAL DATA

The application has the ability to cover well-known and well-defined data formats from other election systems, into a standard native Election Data Translator input file format. The data can then be imported into the election project database by the regular import method (see section "*4.1 Importing Data into Template Election Definition Project Database*").

Currently supported formats include:

- GEMS Import Format 1.x (currently handles versions 1.3 and 1.5)
- WinEDS Format

## 5.1 GEMS Import Format Mapping

1. In the File menu of the application, select the Map External Format menu item, see Figure 5-1.
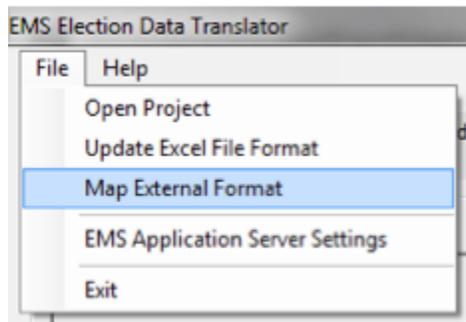


Figure 5-1: Map External Format

2. The Data Mapper Selection dialog will appear, please select the GEMS data mapper and click OK, see Figure 5-2.
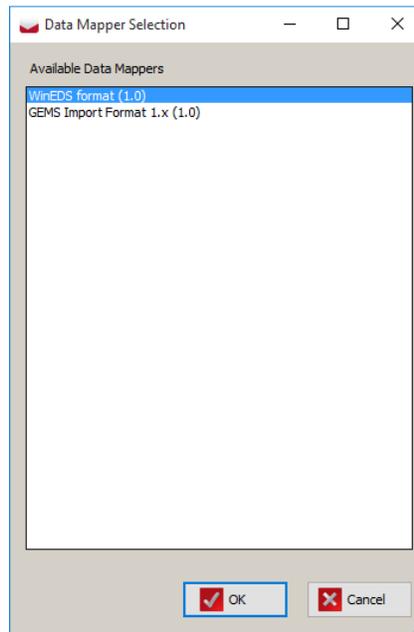
Figure 5-2: Data Mapper Selection

3. A file selection dialog will appear that will allow the user to select the GEMS import format text file, see Figure 5-3. After pressing Open button the mapping process will start.
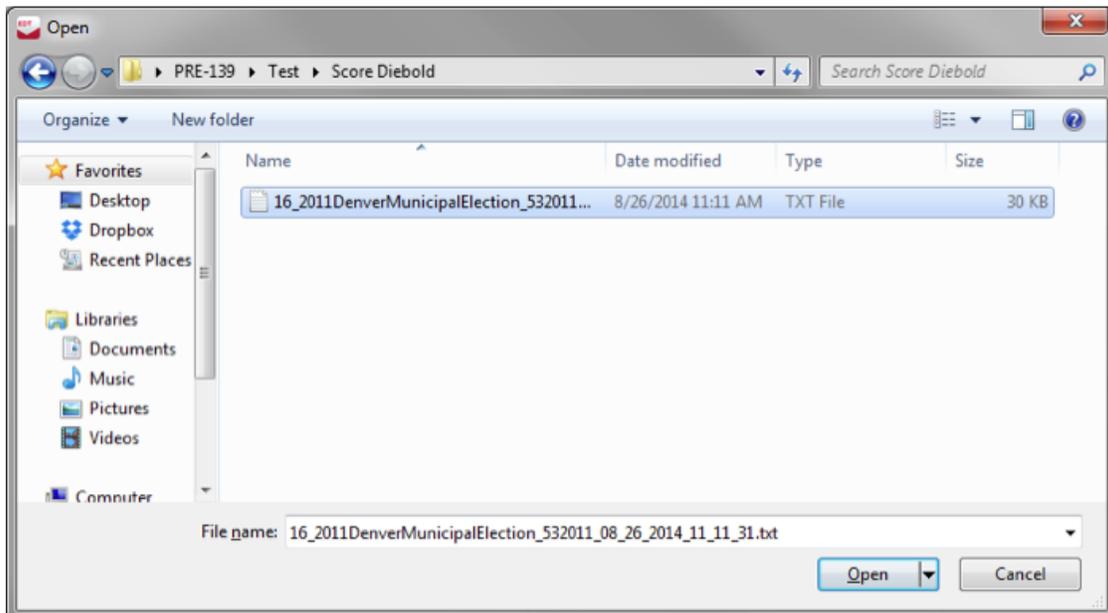


Figure 5-3: File Selection dialog

4. The user will then be presented with the *Select Tabulator Type(s)* dialog that allows the user to select one or more tabulator types, see Figure 5-4. For each selected tabulator type a single tabulator of that type will be created per voting location and linked to the appropriate precincts.
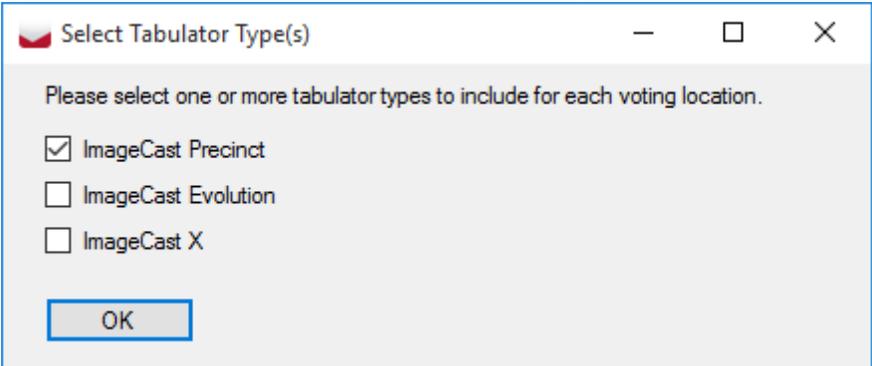


Figure 5-4: Select Tabulator Type

5. If the source data set is for a primary the *Select Primary Type* dialog will appear that allows the user to choose whether the primary is open or closed, see Figure 5-5.



Figure 5-5: Select Primary Type

6.  If no issues occur during the data conversion, the *Save As* dialog will appear where the user can choose the location where the produced input file will be stored, see Figure 5-6. By default the file name will be the same as the source file but with the '.xlsx' file extension.
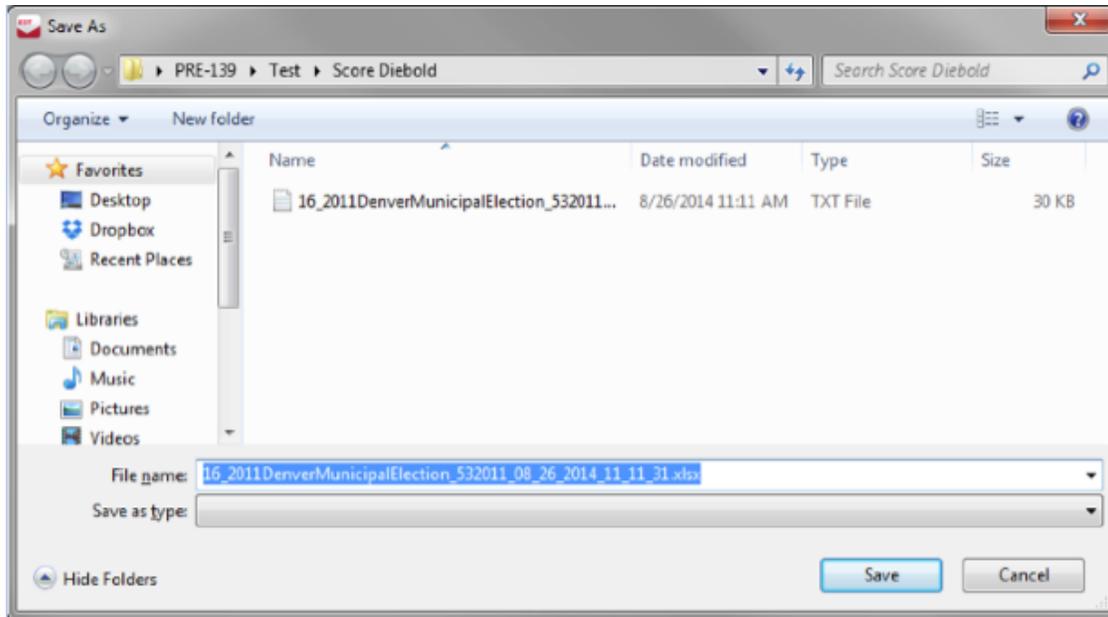


Figure 5-6: Save As dialog

## 5.2 WinEDS Import Format Mapping

1.  In the File menu of the application, select the Map External Format menu item, see Figure 5-7.
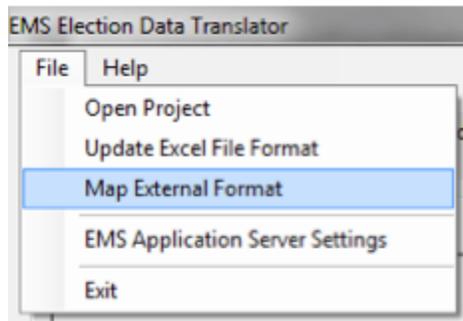


Figure 5-7: Map External Format

2. The Data Mapper Selection dialog will appear, please select the WinEDS data mapper and click OK, see Figure 5-8.
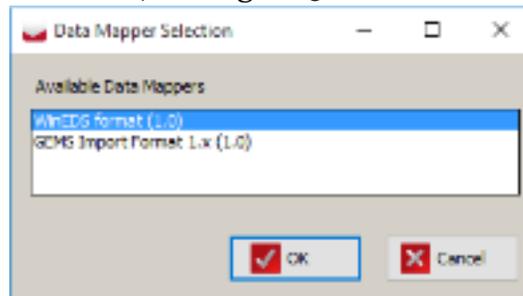


Figure 5-8: Data Mapper Selection

3. A folder selection dialog will appear that will allow the user to select a folder containing the WinEDS XML files, see Figure 5-9. After pressing the Open button the mapping process will start.
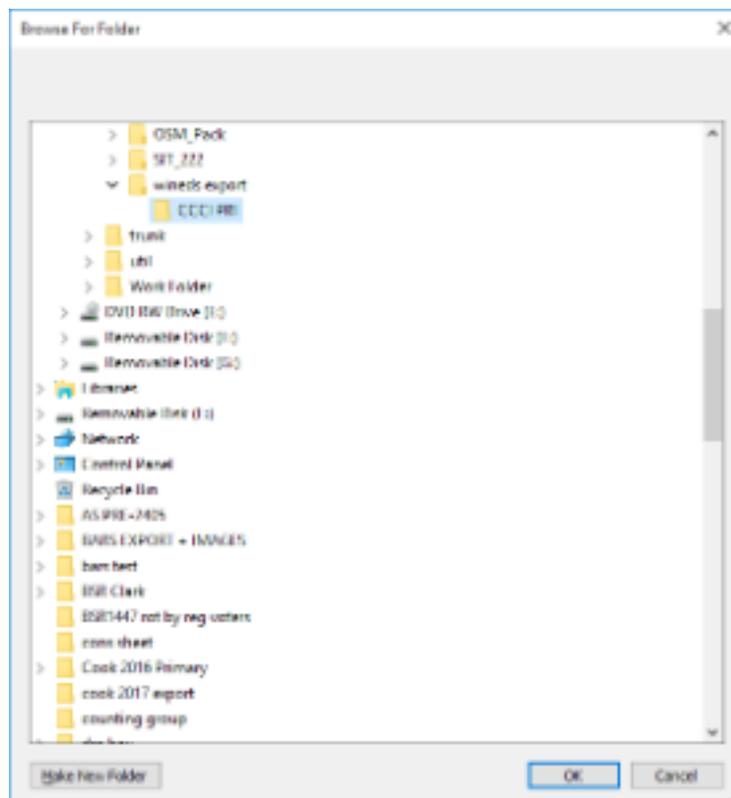


Figure 5-9: Browse for Folder

4. The user will first be presented with the *Ballot Content Languages* dialog, see Figure 5-10. This dialog lists the languages defined in the WinEDS XML. In the dialog the user can select in which way ballot content language profiles will be created in the EDT sheet. By selecting Single language used on ballots option the mapper will create one ballot content language per WinEDS language, and by selecting the Multiple languages used on ballots

option the user can create his/her own set of ballot content languages by entering the name of the language and pressing Add button. User can correct mistakes by selecting the incorrect language from the list and press the Delete button.
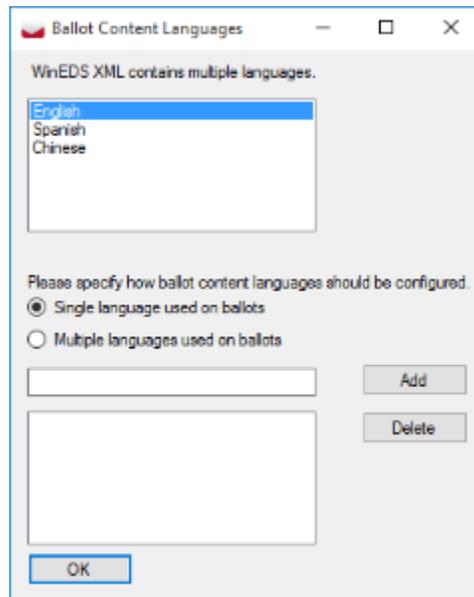


Figure 5-10: Ballot Content Languages

5.  After languages have been defined the user will be presented with the *Other Settings* dialog that allows the user to define the number of ballot markers to be used for regular contests and propositions, see Figure 5-11. Also the user can choose whether the EDT sheet should contain a single counting group, or whether the counting groups should be created based on WinEDS data.
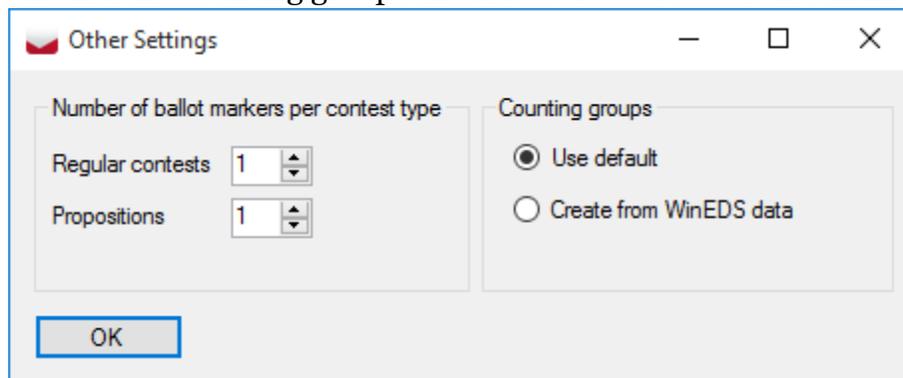


Figure 5-11: Other Settings dialog

6. The *Ballot Groups* dialog will appear afterwards and this will list all of the Ballot Types defined in the WinEDS XML files, see Figure 5-12. The user must first create the required amount of Ballot groups on the right hand side of the dialog, by entering the name of a ballot group and pressing Add button. Any mistakes can be corrected by selecting the incorrect ballot group and pressing Delete button.
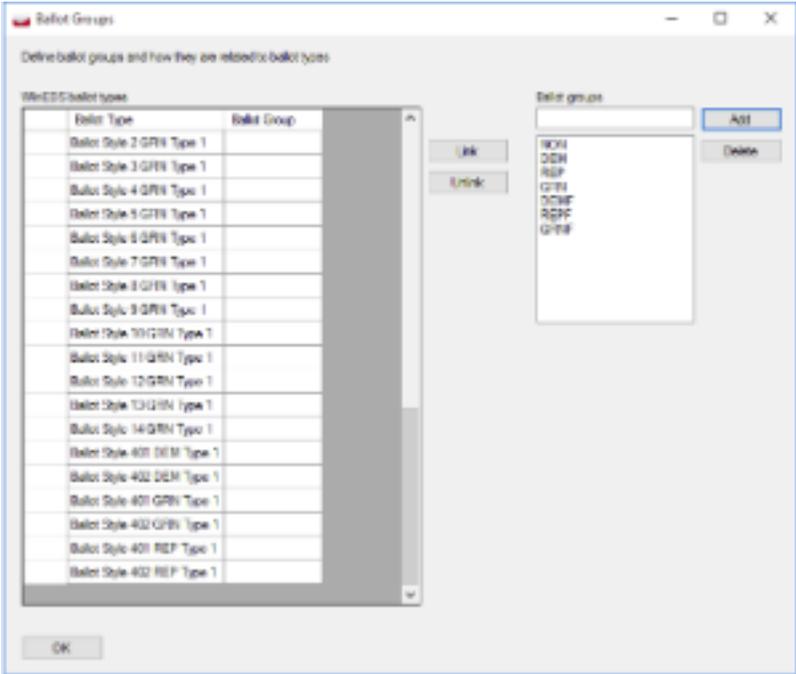


Figure 5-12: Ballot Groups

7. Each ballot type listed on the left hand side of the screen must be assigned to the appropriate ballot group created on the right hand side of the screen. The user can assign a ballot group to a ballot type, by selecting one or more ballot types on the left side, and selecting a single ballot group on the right side and press the Link button in between. Incorrect assignments can also be corrected by using the Unlink button, see Figure 5-13.
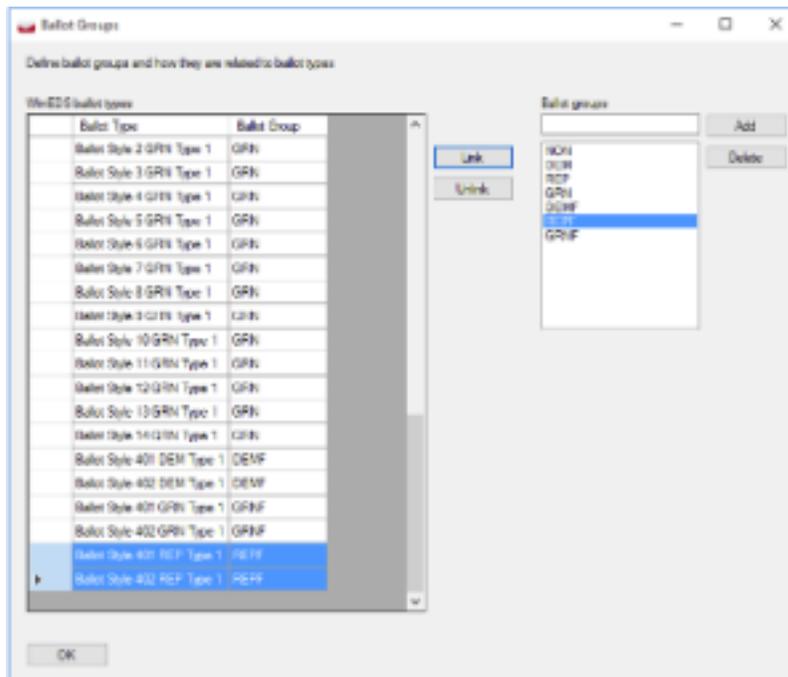


Figure 5-13: Ballot Groups

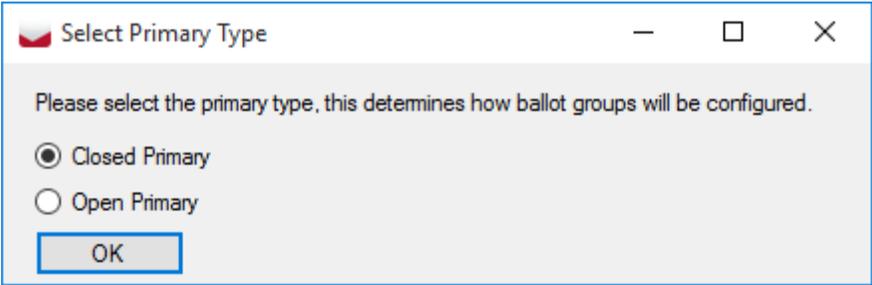8. If no issues occur during the data conversion, the *Save As* dialog will appear where the user can choose the location where the produced input file will be stored, see Figure 5-14. By default the file name will be "WinEDS output_output.xlsx".
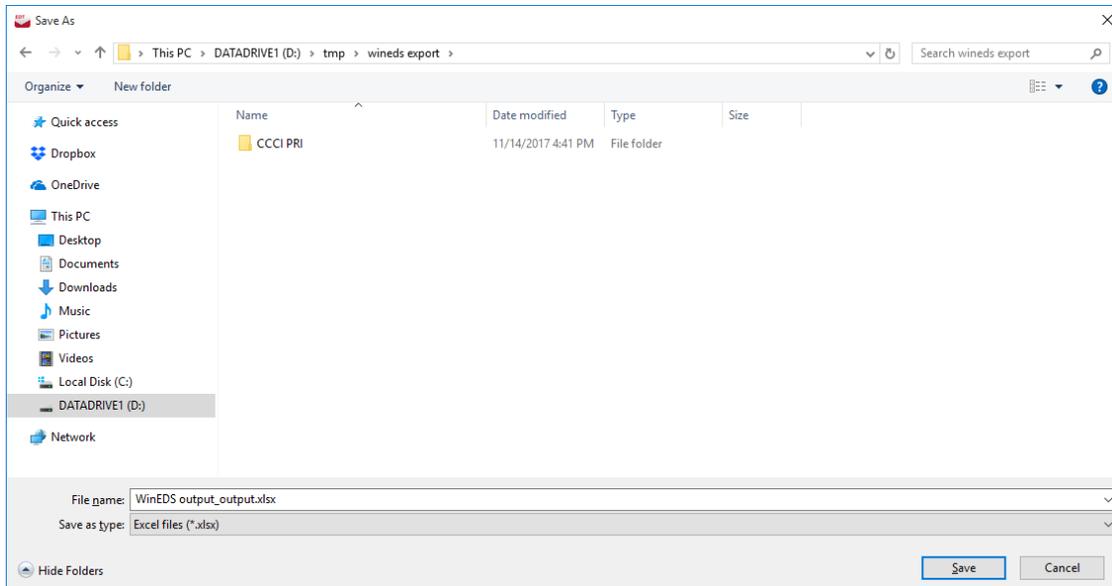


Figure 5-14: Save As dialog

# 5.3 Post Data Mapping

- After conversion the application will show various information in the form of info messages, warnings, and/ or errors. This information is useful for the user to determine whether the resulting EDT sheet requires additional manual modifications to ensure that the EDT sheet can be imported into EMS, see Figure 5-15.
  The same messages are also stored in a log file that is created each time an import format is mapped, see Figure 5-16.
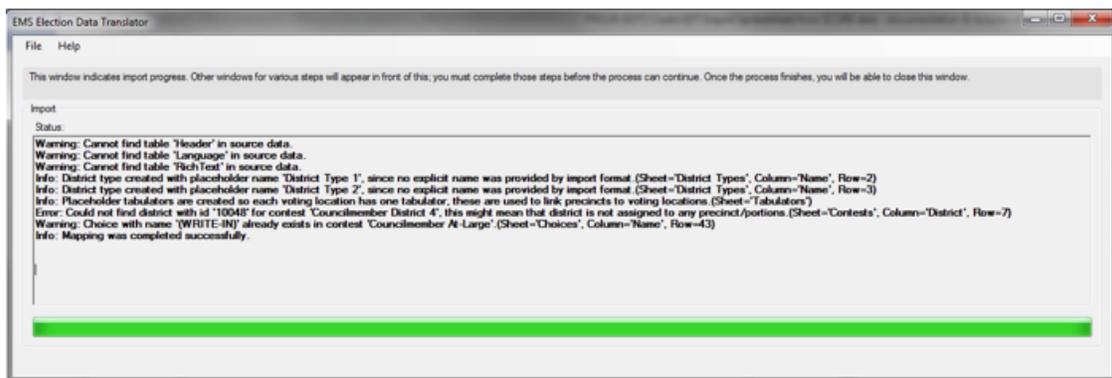


Figure 5-15: Status screen
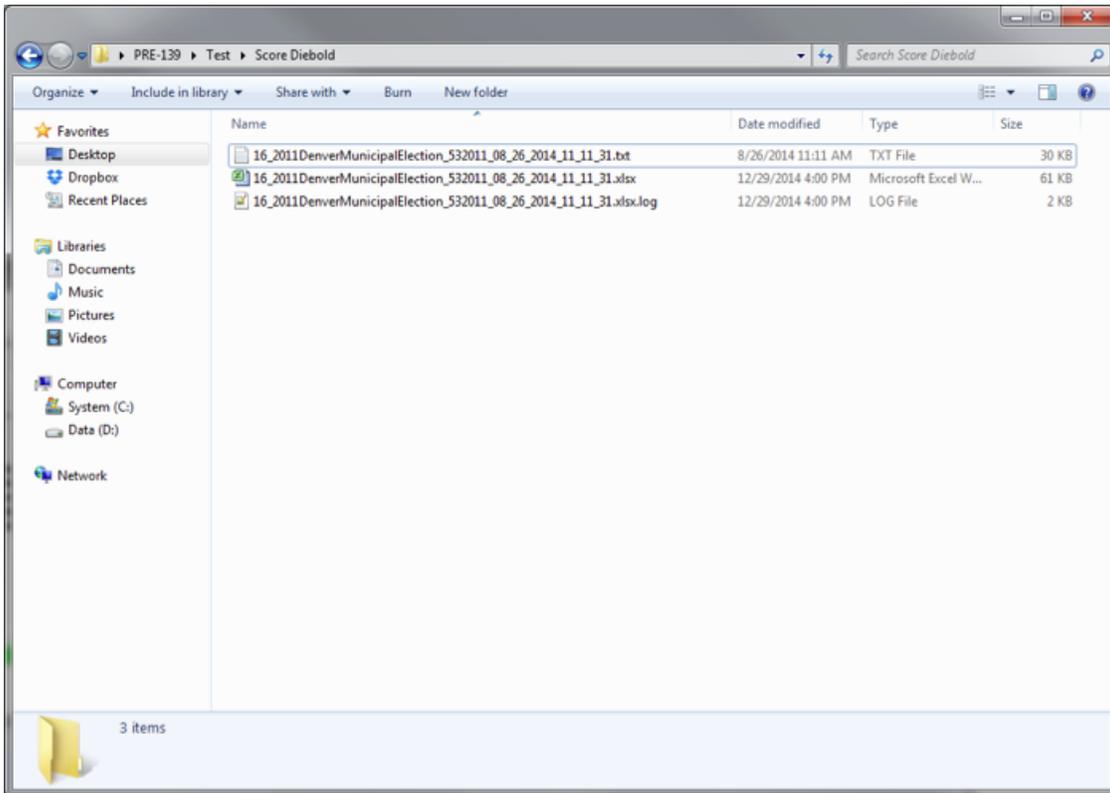
Figure 5-16: Log File screen

- The resulting spreadsheet itself will also contain annotations using coloring of tabs, rows, columns and/or cells that indicate missing information or issues that the user should be aware of, see Figure 5-17 and Figure 5-18.
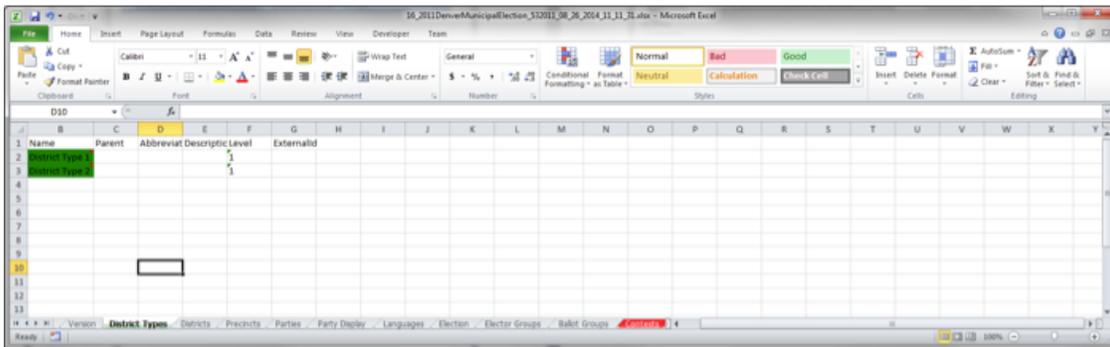


Figure 5-17: Spreadsheet

Figure 5-18: Worksheet

- After successfully mapping an import format and making manual modifications if necessary the EDT sheet can be imported. See chapter Importing Data for more details.

# APPENDIX A: INPUT FILE REFERENCE

The Election Data Translator input file is comprised of worksheets (tabs), each containing specific information relating to the election import. This file can be exported from a pre-exiting election database, adjusted or updated, and re-imported back into Election Event Designer for election programming.

This appendix lists all worksheets and their modifiable content.

**NOTE:** Worksheets which are used in the 'Translations Only' mode of the import are identified as Work- sheet Name (TRN) - 'TRN' denotes a worksheet used in the import/export of translations. Worksheets which are used in the 'Tabulators Only' mode of the import are identified as Work-sheet Name (TAB) - 'TAB' denotes a worksheet used in the import of tabulators.

# A.1 Input File Specification

## A.1.1 Version (TRN)

The Version worksheet, in Table A-1, contains information about the excel version. (This information is not part of import process).

| Version | | |
|---|---|---|
| Attribute | Type | Description |
| Number | Integer | The version of the input file. |
| Creation Date | Data (Time) | Refers to the date of creation of this version of the input file. |

Table A-1: Version Worksheet

## A.1.2 District Types

The District Types worksheet, in Table A-2, lists all district types for the election except the top-level district type that is part of the template database itself.

| District Types | | |
|---|---|---|
| Attribute | Type | Description |
| Id | Integer | Uniquely identifies the district type. |
| Name | String | Name of the district type. Name must be unique. |

Table A-2: District Types Worksheet

| District Types | | |
|---|---|---|
| **Attribute** | **Type** | **Description** |
| Parent | String | Refers to the parent district type of the current district type. If left empty, the parent district type will be the default district type. Optional |
| Abbreviation | String | Abbreviation of the district type. Optional |
| Description | String | Description of the district type. Optional |
| Level | Integer | This number helps to group district types together. Default level is 1. |
| External Id | String | The External Id. Optional |
| Force Split | Bool-ean | Indicates if ballots should be generated in such a way that they do not cross any district boundary, even if ballot content between two districts is equivalent. |
| IsMainFor-Reporting | Bool-ean | Indicates if district names of this district type will be included on result tape printed on the tabulator. |

Table A-2: District Types Worksheet (Continued)

## A.1.3 Districts

The Districts worksheet, in Table A-3, contains a list of all districts for the election, except the top-level district that is part of the template database itself.

| Districts | | |
|---|---|---|
| **Attribute** | **Type** | **Description** |
| Id | Integer | Uniquely identifies the district. |
| Name | String | Name of the district - does not have to be unique. |
| Type | String | Specifies the district type for this district. (see section "*A.1.2 District Types*") |
| Parent | String | Refers to the parent district of the current district. If left empty, the parent district will be the default district. Optional |

Table A-3: District Worksheet

| Districts | | |
|---|---|---|
| **Attribute** | **Type** | **Description** |
| Combination | String | This string determines how other worksheets refer to a district (precinct and contest), as the name of the district is not necessarily unique. The combination field should be unique and is typically populated consisting of parent district and district name combined into a single unique string. |
| Abbreviation | String | Abbreviation of the district. Optional |
| Description | String | Description of the district. Optional |
| External Id | String | External ID of the district. Optional. |

Table A-3: District Worksheet (Continued)

## A.1.4 Precincts (TAB)

The Precincts worksheet, in Table A-4, lists all precincts in the election.

| Precincts Columns | | |
|---|---|---|
| **Attribute** | **Type** | **Description** |
| Id | Integer | Uniquely identifies each precinct. |
| Name | String | Name of the precinct. |
| Parent Id | String | Id of the parent precinct. Optional. |
| Eligible Voters | Integer | Number of eligible voters in the precinct. |
| Abbreviation | String | Abbreviation of the precinct. Optional. |
| Description | String | Description of the precinct. Optional. |
| Key-in ID | Integer | This is used to indicate the poll matrix value and/or the central scanning Key in value for the precinct. Optional. |
| External Id | String | External ID of the precinct, for example, the identifier of the precinct in an external system. Optional. |
| EC-[NAME] | String | The column title [NAME] section refers to the name of the elector group; the cell values contain the elector count for that elector group in this precinct (portion). Optional |

Table A-4: Columns for the Precincts Worksheet

| Precincts Columns | | |
|---|---|---|
| Attribute | Type | Description |
| DT-[NAME] | String | District type NAME column. The user can make references to districts of a specific type (see section "*A.1.3 Districts*") by adding columns with a "DT-" prefix and the name of the district type (see section "*A.1.2 District Types*"). The column can then contain name references to districts of that particular type to indicate that this precinct (portion) falls within that district. Optional. |
| TAB-* | String | Tabulator references columns. The user can indicate that a precinct is handled by a tabulator, by filling in the name of the tabulator in this column. Since a single precinct can be handled by many tabulators, the user can add as many columns as required as long as they have the prefix "TAB-" and are uniquely named. Optional. |
| LP-* | String | Refers to the language name. Optional. |

Table A-4: Columns for the Precincts Worksheet (Continued)

## A.1.5 Parties (TRN)

The Parties worksheet, in Table A-5, defines all the political parties in the election.

| Parties Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Id | Integer | Uniquely identifies the political party. |
| Name | String | Name of the party (has to be unique). |
| Abbreviation | String | Abbreviation of the party. |
| Description | String | Description of the party. Optional. |
| ImageName | String | Refers to the party logo file that must be placed in the same directory as the spreadsheet. Optional. |
| Composite | Boolean | Indicates that party is composite. Optional. |
| Independent | Boolean | Indicates that party is for independent candidates. Optional. |
| External Id | String | External ID of the parties Optional. |

Table A-5: Columns for the Parties Worksheet

| Parties Columns | | |
|---|---|---|
| Attribute | Type | Description |
| LINE-[*] | String | Line references columns. The user can indicate that a political party should be placed in certain line(s) by adding a reference to the name of an existing line (see section "*A.1.16 Lines*"). Since a party can be assigned to multiple lines, the user can add as many columns as required as long as they have the prefix LINE- and are uniquely named. Optional. |
| PARTY-[*] | String | Party references columns. The user can define political parties associated to composite party. Each composite party needs to have at least two associated political parties. Furthermore, each composite party needs to have unique combination of associated parties. Since a composite party have more associated parties, the user can add as many columns as required as long as they have the prefix PARTY- and are uniquely named. Required only for composite parties. |

Table A-5: Columns for the Parties Worksheet (Continued)

## A.1.6 Party Display (TRN)

The Party Display (TRN) worksheet, in Table A-6, contains all styling-related information for political parties.

| Party Display Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Id | Integer | Uniquely identifies the party item. |
| Party Name | String | Refers to the party (see section "*A.1.5 Parties (TRN)*"). |
| Language | String | Refers to the language name (see section "*A.1.7 Languages (TRN)*"). |
| Purpose | Enumeration: Ballot Content and Audio | Refers to the Ballot Content or Audio party display purpose. |

Table A-6: Columns for the Party Display Worksheet

| Party Display Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Appearance | Enumeration: Name, Rtf, Unit | For ballot type content or object name, rtf text, units and templates, ballot text for audio content appearance. |
| Rtf text | String | Text to be added to RTF of the political party. |
| Audio File | String | Represents full audio file path (including extension) or relative path based on imported excel file for party name. Optional. |
| Political Party Template | String | Refers to the Political Party template name |
| NumOfTU | String | The Number of Textual Units. Default value is (0). |
| TU-[*] | Integer | Textual unit. The user can add as many columns as required. The columns must be uniquely named and prefixed by TU-. |

Table A-6: Columns for the Party Display Worksheet (Continued)

## A.1.7 Languages (TRN)

The "Languages" worksheet, in Table A-7, lists all languages that are referred to in the display worksheets (see sections *"A.1.12 Contest Display (TRN)"*, *"A.1.14 Choice Display (TRN)"*, *"A.1.6 Party Display (TRN)"*, *"A.1.15 Choice Group Display (TRN)"*). These languages can be mapped to actual ballot content language profiles defined in the database in any way the user requires.

| Languages Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Id | Integer | Uniquely identifies the language |
| Name | String | Name of the language. Must be unique. |
| Purpose | Enumeration: Ballot Content and Audio | Refers to the Ballot Content or Audio language purpose. |

Table A-7: Columns for the Languages

## A.1.8 Election (TRN)

The Election worksheet, in Table A-8, is not imported into the database, but is strictly intended to document for which jurisdiction and election the sheet contains data.

| Election Columns | | |
|---|---|---|
| **Attribute** | **Type** | **Description** |
| Description | String | Describes the election. Optional |
| Jurisdiction | String | The name of the jurisdiction. If value is empty the jurisdiction name will not be updated after import is finished. Optional |
| Date | Date | The date of the election. The value in this filed must be entered in the valid date format (i.e. 2/6/2017 12:00:00 AM). If value is empty the election project date will not be updated after import is finished. Optional |
| Type | Enumeration: Closed Primary, General Election, Open Primary | The type of the election. Enumeration: Closed Primary, General Election, Open Primary. If value is empty the election project type will not be updated after import is finished. Optional |
| Audio Ballot Type | Enumeration: None, Full Audio Ballot | Audio Ballot Type, Enumeration: None, Full Audio Ballot. The audio ballot type of the election. If value is empty the audio ballot type will not be updated after import is finished. Optional |

Table A-8: Columns for the Election Worksheet

## A.1.9 Elector Groups

The Elector Groups worksheet, in Table A-9, contains all the elector groups for the election.

| Elector Groups Columns | | |
|---|---|---|
| **Attribute** | **Type** | **Description** |
| Id | Integer | Uniquely identifies the elector group. |
| Name | String | Name of the elector group. |

Table A-9: Columns for the Elector Groups Worksheet

| Elector Groups Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Abbreviation | String | Abbreviation of the elector group. Optional. |
| Description | String | The description of the elector group. |
| ExternalId | String | The external ID. Optional. |
| Party | String | Refers to the party name that this elector group represents. If value is entered, this elector group is considered partisan (see section "*A.1.5 Parties (TRN)*"). |
| IsTop | Integer | 0 - non default and 1 - default elector group. |
| ApplyCross overRule | Integer | Value (0) will ignore crossover rule. Value (1) will apply crossover rule. |
| Column Index | String | Force drawing in same column all the contests that belong to the same electoral group. Value can be 1,2,3,4 and the default value None. |

Table A-9: Columns for the Elector Groups Worksheet (Continued)

## A.1.10 Ballot Groups

The Ballot Groups worksheet, in Table A-10, contains all ballot groups in the election (in EMS, this maps to Elector Group Combination). Keep in mind that the user might have to manually delete the Default elector group combination from the template project before importing.

| Ballot Groups Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Id | Integer | Uniquely identifies the ballot group. |
| Name | String | Name of the ballot group. |
| External Id | String | External ID of the ballot group. Optional. |
| Ignore Rotation | Boolean | If it is set to 1, then rotation will be ignored. If it is set to 0, rotations will be applied. Default value is 0 |
| Abbr | String | Abbreviation of the ballot groups. Optional. |
| Consolidate | Boolean | 0 - do not force consolidation for ballots created for this group; 1 – consolidate ballots created for this group |

Table A-10: Columns for the Ballot Groups Worksheet

| Ballot Groups Columns | | |
|---|---|---|
| Attribute | Type | Description |
| EG-[*] | String | Refers to an elector group. Since multiple elector groups can belong to any ballot group, the user can add as many columns as required. The columns must be uniquely named and prefixed by EG. |

Table A-10: Columns for the Ballot Groups Worksheet (Continued)

## A.1.11 Contests

The Contests worksheet, in Table A-11, lists all the contests in the election.

| Contests Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Id | Integer | Uniquely identifies the contest. |
| Name | String | Name of the contest, has to be unique. |
| District | String | Name of the district that this contest applies to (see section A.1.3 "Districts"), empty cell means that the district will be the default district. Optional. |
| District Type | String | Name of the district type, helps to filter the drop-down list for District column, empty cell means that the type will be the default district type. Optional. |
| Description | String | Describes the contest. If Type is "Measure" this field will be interpreted as the question text. Optional. |
| Row | Integer | In ballot styles supporting CF200 (e.g. Canadian styles) it is important to fixate row position for a contest so it appears on same location on any ballot. This sets the row discriminator in EMS. Optional. |
| External Id | String | External Id of the contest. Optional |
| Rendering Type | Enumeration: Normal, Reduced, Cascade | Defines how proposition or measure will be rendered on ballot |

Table A-11: Columns for the Contests Worksheet

| Contests Columns | | |
|---|---|---|
| **Attribute** | **Type** | **Description** |
| Office | String | If this field is populated, the contest will be assigned to an office of the same name. If left blank, the importer will create one office per contest. |
| Vote For | Integer | Number of positions for this office/contest. |
| Override Vote For | Integer | Value (0) ignores override, value (1) applies value for override and use contest Vote For. |
| Office Vote For | Integer | Number of positions for this office. |
| Writeins | Integer | Number of write-ins for this contest. Optional. |
| Override Writeins | Integer | Value (0) ignores override. Value (1) applies value for override and use contest vote for (see Write-in value). |
| Office Writeins | Integer | Number of write-ins for the office level. Optional. |
| Ballot Markers | Integer | Number of markers for this contest. Optional. |
| Override Ballot Markers | Integer | Value (0) ignores override. Value (1) applies value for override. |
| Office Ballot Markers | Integer | Number of markers for this office. Optional. |
| Paper Index | Integer | The paper index (starting at 1) for this single contest. Optional. |
| Override Paper Index | Integer | Value (0) ignores override. Value (1) applies value for override. Optional. |
| Office Paper Index | Integer | The paper index (starting at 1) for this office. Optional. |

Table A-11: Columns for the Contests Worksheet (Continued)

| Contests Columns | | |
|---|---|---|
| **Attribute** | **Type** | **Description** |
| Type | Enumeration: Candidacy, Measure, Straight Party, Instructional, Off Ballot | Refers to type of contest. Optional. |
| Major | Boolean | 1 - The office will be marked as "major". |
| Term Length | Integer | Indicates the term length for this office. Optional. |
| Acclamation Type | Enumeration: None, Remove Empty, Remove Acclaimed | Indicates the acclamation behaviour for this office (see section "*A.1.5 Parties (TRN)*"). Optional. |
| Voting System | Enumeration: FPTP, Preferential | Indicates what method of tabulation is used. |
| Number of office ranks | Integer | The number of office ranks for this office. |
| Number of contest ranks | Integer | The number of ranks for this contest. |
| Office Page | Enumeration: None, Front and Back | The ballot artwork page position. |
| Office Column | Integer | The office column position. Allowed values are 1,2,3,4,5. |
| Office Contest Span | Integer | The office column span. Allowed values are 1,2,3,4,5. |
| Office Candidate Span | Integer | The office column span for candidate. Allowed values are 1,2,3,4,5. |

Table A-11: Columns for the Contests Worksheet (Continued)

| Contests Columns | | |
|---|---|---|
| **Attribute** | **Type** | **Description** |
| Office Contest Position | Enumeration: None, New Column, New Side | The contest relative position . |
| Contest Page | Enumeration: None, Front and Back | The ballot artwork page position. |
| Contest Column | Integer | The contest column position. Allowed values are 1,2,3,4,5. |
| Contest Span | Enumeration 1,2,3,4,5 | The contest span. Contest span is number of candidate units occupied by contest. |
| Candidate Column Span | Enumeration 1,2,3,4,5 | The number of columns occupied by candidate box. |
| Contest Position | Enumeration: None, Default, New Column, New Side | The contest position configuration for this office/contest. Optional. |
| Screen Placement | String | Specifies how contests are displayed on the ICX screen in terms of page breaks. Possible values: Default, New Screen or Single. |
| Screen Column Span | Integer | The number of candidate columns on the ICX screen that contest will span across. Allowed values are 1,2,3,4,5,6. |
| Screen Candidate Column Span | Integer | The number of columns  that candidates will span within single contest on the ICX screen. Allowed values are 1,2,3,4,5,6. |
| Disable Rotation | Boolean | If it is false rotation will be allowed. If it is true, contest will not be rotated. |
| Writein Line Count | Integer | Indicates the number of write-in lines to render for this contest. Optional |

Table A-11: Columns for the Contests Worksheet (Continued)

| Contests Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Cannot be duplicated | Boolean | If set to true, Contest cannot be duplicated in Provisional mode of Conditional Voting. Optional |
| Disabled | Boolean | If set to "true, Contest will not be tallied. Optional |
| Reporting Order | Integer | Defines order of contests in reports. |
| EG-[*] | String | Refers to an elector group linked to this contest (see section "*A.1.9 Elector Groups*"). Since multiple elector groups can belong to any contest, the user can add as many columns as required. The columns must be uniquely named and prefixed by E-. |
| SP-[*] | String | Contest is connected with Straight Party contest. Optional |
| CH-[*] | String | Refers to a contest heading linked to this contest. Since contest headings can belong to any contest, the user can add as many columns as required. The columns must be uniquely named and prefixed by CH-. Optional |

Table A-11: Columns for the Contests Worksheet (Continued)

## A.1.12 Contest Display (TRN)

The Contest Display worksheet, in Table A-12, contains all styling-related information for contests.

| Contest Display Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Id | Integer | Uniquely identifies this contest display item. |
| Name | String | Refers to the contest name (see section "*A.1.11 Contests*"). |
| Language | String | Refers to a language name (see section "*A.1.7 Languages (TRN)*"). |

Table A-12: Columns for the Contest Display Worksheet

| Contest Display Columns | | |
|---|---|---|
| **Attribute** | **Type** | **Description** |
| Purpose | Enumeration: Ballot Content and Audio | Refers to the contest display ballot or audio content. |
| Contest Template | String | Refers to the name of a Contest Header template that must exist in the database that the information is being imported into. Optional. |
| Choice Template | String | Refers to the name of a Choice template that must exist in the database that the information is being imported into. Optional. |
| Choice Group Template | String | Refers to the name of a Choice Group template that must exist in the database that the information is being imported into. Optional. |
| Review Title Template | String | Refers to the name of a Review Title template that must exist in the database that the information is being imported into. Optional. |
| Proposition Appearance | String | Refers to the type of the proposition appearance. |
| Proposition RTF Text | String | Refers to the proposition RTF text. |
| Appearance | Enumeration: object name, rtf text, Units | For ballot type content or object name, rtf text, units and templates, ballot text for audio content appearance. |
| RTF Text | String | Refers to the RTF text of audio ballot content (RTF appearance type). |
| Audio File | String | Represents full audio file path (including extension) or relative path based on imported excel file for contest title. Optional. |
| Proposition Audio File | String | Represents full audio file path (including extension) or relative path based on imported excel file for proposition title. Optional. |
| Review Title Audio File | String | Represents full audio file path (including extension) or relative path based on imported excel file for review title. Optional. |

Table A-12: Columns for the Contest Display Worksheet (Continued)

| Contest Display Columns | | |
|---|---|---|
| Attribute | Type | Description |
| NumOfTU | String | The Number of Textual Units. Default value is (0). |
| TU-[*] | Integer | Textual unit. The user can add as many columns as required. The columns must be uniquely named and prefixed by TU-. |

Table A-12: Columns for the Contest Display Worksheet (Continued)

## A.1.13 Choices (TRN)

The Choices worksheet, in Table A-13, defines all candidates/choices in the election.

| Choices Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Id | Integer | Uniquely identifies the choice. |
| Name | String | Names the choice, has to be unique within the contest. |
| Contest | String | Refers to the contest (see section "*A.1.11 Contests*"). |
| Choice Group | String | A name for the choice group for this choice. Optional. |
| Cross Over Group | Integer | Refers to an elector group linked to this choice (see section "*A.1.9 Elector Groups*"). The referred group represents the cross-over group; this is used by choices in a party preference ticket contest. Optional. |
| Cell Reference | String | A reference value for the voting box. Optional. |
| First Name | String | First name of candidate. Optional. |
| Last Name | String | Last name of candidate. Optional. |
| Gender | Enumeration: Male, Female, Unknown | Gender of the candidate. Optional. |

Table A-13: Columns for the Choices Worksheet

| Choices Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Birth Year | Integer | Birth year. Optional. |
| Birth Month | Integer | Birth month. Optional. |
| Birth Day | Integer | Birth day. Optional. |
| Incumbent | Boolean | 1 - indicates that the candidate is running for re-election. Optional. |
| Line Override | Integer | Allows to place the choice in any line. |
| Contest Index | Integer | Sets the contest index. Optional. |
| Type | Enumeration: Regular, No Candidate | Specifies the type of candidate. Optional. |
| Non-Rotatable | Boolean | Disable or Enable rotation on the choice level. Values can be 0 (choice rotation will be enabled) or 1 (choice rotation will be disabled) |
| ExternalId | String | External Id of the choice. Optional |
| Disabled | Boolean | If set to true, Choice will not be tallied. Optional |
| ImageName | String | Name of file containing the image for the choice. The file must be placed in the same directory as the EDT sheet. |
| PARTY-[*] | String | Party affiliation reference columns. The user can indicate that a choice is affiliated to a political party by adding a reference to the name of an existing party (see section "*A.1.5 Parties (TRN)*"). Since a choice can be affiliated to multiple parties, the user can add as many columns as required as long as they have the prefix PARTY- and are uniquely named. Optional. |
| CR-[*] | String | Refers to Cell Reference. Number should match with PARTY. Optional |

Table A-13: Columns for the Choices Worksheet (Continued)

| Choices Columns | | |
|---|---|---|
| Attribute | Type | Description |
| PE-[*] | String | Refers to the political party. This option allows multiple party affiliation to the same choice. Optional |

Table A-13: Columns for the Choices Worksheet (Continued)

## A.1.14 Choice Display (TRN)

The Choice Display worksheet, in Table A-14, contains all styling-related information for choices.

| Choice Display Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Id | Integer | Uniquely identifies this choice display item. |
| Contest Name | String | Refers to the contest (see section "*A.1.11 Contests*"). |
| Choice Name | String | This is used in combination with the contest name to refer to a unique choice (See Choices). |
| Language | String | Refers to the language name (see section "*A.1.7 Languages (TRN)*"). |
| Purpose | Enumeration: Ballot Content and Audio | Refers to the choice display ballot or audio content. |
| Appearance | Enumeration: Name, Rtf, Unit | For ballot type, content, or object name, rtf text, units and templates, ballot text for audio content appearance. |
| RTF Text | String | Specifies the override text to be used. |
| Audio File | String | Represents full audio file path (including extension) or relative path based on imported excel file for choice name. Optional. |
| NumOfTU | String | The Number of Textual Units. Default value is (0). |
| TU-[*] | Integer | Textual unit. The user can add as many columns as required, as long as they have prefix "TU-" and are uniquely named. |

Table A-14: Columns for the Choice Display Worksheet

## A.1.15 Choice Group Display (TRN)

The Choice Group Display worksheet, in Table A-15, contains all styling-related information for choice groups.

| Choice Group Display Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Id | Integer | Uniquely identifies this choice group display item. |
| Contest Name | String | Refers to the contest (see section "*A.1.11 Contests*"). |
| Choice Group Name | String | This is used in combination with the contest name to refer to a unique choice group (see section  "*A.1.13 Choices (TRN)*"). |
| Language | String | Refers to the language name (see section "*A.1.7 Languages (TRN)*"). |
| Purpose | String | Refers to the choice group display ballot or audio content. |
| Appearance | Enumeration: Object name, RTF text, UNITS | For ballot type content or object name, rtf text, units and templates, ballot text for audio content appearance. |
| RTF Text | String | Refers to the RTF text of audio ballot content (rtf appearance type). |
| Audio File | String | Represents full audio file path (including extension) or relative path based on imported excel file for choice group name . Optional. |
| NumOfTU | String | The Number of Textual Units. Default value is (0). |
| TU-[*] | Integer | Textual unit. The user can add as many columns as required. These columns must be uniquely named and prefixed by "TU-". |

Table A-15: Columns for the Choice Group Display Worksheet

## A.1.16 Lines

The Lines worksheet contains, in Table A-16, all lines in the election. This sheet is not relevant for every ballot style.

| Lines Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Id | Integer | Uniquely identifies the line. |
| Name | String | Name of the line, has to be unique. |
| Number | Integer | Number of the line, has to be unique. |
| Letter | String | Letter for the line. |

Table A-16: Columns for the Lines Worksheet

## A.1.17 Line Display (TRN)

The Line Display worksheet, in Table A-17, contains all styling information for lines.

| Line Display Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Id | Integer | Uniquely identifies the line display item. |
| Name | String | Refers to the name of an existing line (see section "*A.1.16 Lines*" Lines). |
| Language | String | Refers to the language name (see section "*A.1.7 Languages (TRN)*"). |
| Purpose | String | Refers to the line display ballot or audio content. |
| Appearance | Enumeration: object name, rtf text, UNITS | For ballot type content or object name, rtf text, units and templates, ballot text for audio content appearance. |
| RTF Text | String | Refers to the RTF text of audio ballot content (rtf appearance type). |
| Line Template | String | Refers to the name of a line template that should be present in the database that will the data will be imported into. |

Table A-17: Columns for the Line Display Worksheet

| Line Display Columns | | |
|---|---|---|
| Attribute | Type | Description |
| NumOfTU | String | The Number of Textual Units. Default value is (0). |
| TU -[*] | Integer | Textual unit. The user can add as many columns as required. These columns must be uniquely named and prefixed by "TU-". |

Table A-17: Columns for the Line Display Worksheet (Continued)

## A.1.18 Contest Headings

The Contest Heading worksheet, in Table A-18, contains all information for contest headings.

| Contest Headings Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Id | Integer | Uniquely identifies the contest heading item. |
| Name | String | The name of contest heading. |
| Purpose | String | Type of presentation the heading is applied to (Both, Paper, Screen). |
| Paper appearance | String | Refers to contest heading paper appearance (All, First Appearance, First Appearance and each new column, First Appearance and each new sheet, First Appearance and each new card, No Appearance, Each Appearance). |
| Screen appearance | String | Refers to contest heading screen appearance (First Appearance, Each Appearance). |

Table A-18: Columns for the Contest Headings Worksheet

## A.1.19 Contest Heading Display (TRN)

The Contest Heading Display worksheet, in Table A-19, contains all information for displaying contest headings.

| Contest Headings Display Columns | | |
|---|---|---|
| **Attribute** | **Type** | **Description** |
| Id | Integer | Uniquely identifies contest heading item. |
| Contest Heading Name | String | Refers to the name of contest heading. |
| Language | String | Refers to the language name (see section "*A.1.7 Languages (TRN)*"). |
| Purpose | Enumeration: Ballot Content and Audio | Refers to the Ballot Content or Audio content. |
| Appearance | Enumeration: Name, Rtf, Unit | For ballot type content or object name, rtf text, units and templates, ballot text for audio content appearance. |
| RTF Text | String | RTF text for contest header. |
| Audio File | String | Represents full audio file path (including extension) or relative path based on imported excel file for contest heading name. Optional. |
| Contest Heading Template | String | Name of contest heading template. |
| NumbOfTU | String | The Number of Textual Units. Default value is (0). |
| TU -[*] | Integer | Textual unit. The user can add as many columns as required. These columns must be uniquely named and prefixed by"TU-". |

Table A-19: Columns for the Contest Heading Display Worksheet

## A.1.20 Contest Rotation

The Contest Rotation worksheet, in Table A-20, contains all styling information for contest rotations.

| Contest Rotation Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Id | Integer | Uniquely identifies contest heading item. |
| Contest Heading Name | String | Refers to the name of contest heading. |
| Language | String | Refers to the language name (see "*A.1.7 Languages (TRN)*"). |
| Purpose | Enumeration: Ballot Content and Audio | Refers to the Ballot Content or Audio content. |
| Appearance | Enumeration: Name, Rtf, Unit | For ballot type content or object name, rtf text, units and templates, ballot text for audio content appearance. |
| RTF Text | String | RTF text for contest header. |
| Audio File | String | Represents full audio file path (including extension) or relative path based on imported excel file for contest heading name. Optional. |
| Contest Heading Template | String | Name of contest heading template. |
| NumbOfTU | String | The Number of Textual Units. Default value is (0). |
| TU -[*] | Integer | Textual unit. The user can add as many columns as required. These columns must be uniquely named and prefixed by"TU-". |

Table A-20: Columns for Contest Rotation Worksheet

## A.1.21 Custom Position

The Custom Position worksheet, in Table A-21, contains all the information for custom positions.

| Custom Position Columns | | |
|---|---|---|
| **Attribute** | **Type** | **Description** |
| Id | Integer | Uniquely identifies custom position item. |
| Contest | String | Refers to the contest to which the custom position applies (see section *"A.1.11 Contests"*). |
| District Type | String | Name of the district type, helps to filter the drop-down list for District column, empty cell means that the type will be the default district type. Optional. |
| District | String | Name of the district that this custom position applies to (section *"A.1.4 Precincts (TAB)"*), empty cell means that the district will be the default district. Optional. |
| Choice | String | Refers to the choice to which the custom position applies (see section *"A.1.13 Choices (TRN)"*). |
| CellReference | String | A reference value for the voting box. Optional. |

Table A-21: Columns for Custom Position Worksheet

## A.1.22 District Rotation

The District Rotation worksheet, in Table A-22, contains all the information for district rotations.

| District Rotation Columns | | |
|---|---|---|
| **Attribute** | **Type** | **Description** |
| Id | Integer | Uniquely identifies district rotation item. |
| ContestArea ExternalId | String | External Id of contest area. |
| RotationArea ExternalId | String | External Id of rotation area. |

Table A-22: Columns for District Rotation Worksheet

| District Rotation Columns | | |
|---|---|---|
| Attribute | Type | Description |
| RotationInde x | String | Index of rotation. |

Table A-22: Columns for District Rotation Worksheet (Continued)

## A.1.23 Ballot Type

The Ballot Type worksheet, in Table A-23, contains all the information for ballot types.

| Ballot Type Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Id | Integer | Uniquely identifies ballot type item. |
| Name | String | Name of the Ballot Type. |
| ExternalId | String | External Id of the ballot type. Optional |
| Abbreviation | String | Abbreviation for the Ballot Type. Optional |
| Polling District | String | Polling districts that this Ballot Type is assigned to. Optional |
| EGC-[*] | String | Ballot group reference columns. The user can indicate that a ballot type is linked to one or more ballot groups (in EED they are called elector group combinations) by adding a reference to the name of the ballot group (see section  "*A.1.10 Ballot Groups*"). Since a ballot type can be linked to multiple ballot groups, user can add as many columns as required as long as they have the prefix EGC- and are uniquely named. Optional. |

Table A-23: Columns for Ballot Type Worksheet

## A.1.24 Ballot Type Contest

The Ballot Type Contest worksheet, in Table A-24, contains all the information for ballot type contests.

| Ballot Type Contest Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Id | Integer | Uniquely identifies ballot type contest item. |
| BallotTypeName | String | Name of the ballot type. |
| ContestName | String | Name of the contest. |
| RotationIndex | String | Index of rotation |

Table A-24: Columns for BallotTypeContest Worksheet

## A.1.25 BallotTypePrecincts

The Ballot Type Precincts worksheet, in Table A-25, contains all information for ballot type precincts.

| Ballot Type Precincts Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Id | Integer | Uniquely identifies ballot type precinct item. |
| BallotTypeName | String | Name of the ballot type. |
| PrecinctName | String | Name of the precinct. |
| PrecinctId | Integer | Refers to Id of the precinct. |

Table A-25: Columns for BallotTypePrecincts Worksheet

## A.1.26 Activation Codes

The Activation Codes worksheet, in Table A-26, contains all the information for activation codes.

| Activation Codes Columns | | |
|---|---|---|
| **Attribute** | **Type** | **Description** |
| Code | Integer | Uniquely identifies the activation code. Optional |
| Description | String | Describes the activation code. Optional |
| PortionName | String | Name of the precinct portion. |
| PortionId | Integer | Refers to Id of the precinct portion. |
| BallotGroup | String | Name of the ballot group. |

Table A-26: Columns for Activation Codes Worksheet

## A.1.27 Polling Locations (TAB)

The Polling Locations worksheet, in Table A-27, contains all the information for polling locations.

| Polling Locations Columns | | |
|---|---|---|
| **Attribute** | **Type** | **Description** |
| Id | Integer | Uniquely identifies the polling location. |
| Polling Location Number | Integer | Uniquely identifies the polling location. |
| Name | String | Name of the polling location. Has to be unique. |
| Address | String | Address of the polling location. Optional. |
| Description | String | Description of the polling location. Optional. |
| External Id | String | External Id of the polling Location. Optional |

Table A-27: Columns for Polling Locations Worksheet

## A.1.28 Tabulators (TAB)

The Tabulators worksheet, in Table A-28, contains all the information for tabulators.

| Tabulators Columns | | |
|---|---|---|
| **Attribute** | **Type** | **Description** |
| Id | Integer | Uniquely identifies the tabulator. |
| Tabulator Name | Integer | Number of the tabulator. |
| Name | String | Name of the tabulator. Has to be unique. |
| Location | String | Refers to the name of the polling location (see section *"A.1.27 Polling Locations (TAB)"*). |
| Type | Enumeration: ImageCast Precinct, ImageCast Central, CF200, Ballot Box, ImageCast Evolution, Internet Voting, Interactive Voice Response | Tabulator type. |
| External Id | String | External Id of the tabulator. Optional |
| External Type Id | String | External identification of tabulator type. Optional |
| Counting Group | String | Name of the counting group. (Must be unique). |
| Programming Group | String | Name of the programming group. (Must be unique). |
| Device Settings | String | Refers to the name of the device settings configuration instance inside the EMS project that will be used to import into. Optional |

Table A-28: Columns for the Tabulators Worksheet

| Tabulators Columns | | |
|---|---|---|
| Attribute | Type | Description |
| AVS Support | Boolean | If set to 1, Tabulator will support Accessible Voting Session. |
| External Key | String | This field is used for WinDI only. It can be populated with the PIN value to be entered on cartridge reader when loading results from this machine. Optional |
| Vote Anywhere | Boolean | If this flag is set to 1, the user does not need to assign any precincts to the tabulator, implicitly all precincts are connected to the tabulator. |

Table A-28: Columns for the Tabulators Worksheet (Continued)

## A.1.29 Counting Group (TAB)

The Counting Group worksheet, in Table A-29, contains a list of all counting groups for the election, except the default counting group defined in the template database.

| Counting Group Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Id | Integer | Uniquely identifies the counting group. |
| Name | Integer | Name of the counting group. (Must be unique). |
| ExternalId | String | External Id of the counting group. Optional |

Table A-29: Columns for Counting Group Worksheet

## A.1.30 Programming Group (TAB)

The Programing Group worksheet, in Table A-30, contains all the information for programming groups.

| Counting Group Columns | | |
|---|---|---|
| Attribute | Type | Description |
| Id | Integer | Uniquely identifies the programming group. |
| Name | Integer | Name of the programming group. (Must be unique). |

Table A-30: Columns for Programming Group Worksheet

| Counting Group Columns | | |
|---|---|---|
| **Attribute** | **Type** | **Description** |
| Type | Enumeration (can be Regular or Election File) | The programming group type. |
| UnifyKey | Boolean | The unified security key for assigned tabulators. 1 (true) means that all assigned tabulators will be forced to have the same security key 0 (false) means that all assigned tabulators should not be forced to have the same security key. |

Table A-30: Columns for Programming Group Worksheet (Continued)

# REVISION HISTORY

| Rev. | Date | Summary |
|------|------|---------|
| 1 | 04-19-2022 | Branched for 5.13-A. |

# LIST OF FIGURES

## LIST OF TABLES

# End of Document