

Election Setup and Results User Manual

Electronic Voting System

Group C

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1 Introduction

This document is a user manual for the Setup and Results program of the electronic voting system designed and implemented by Group C. It is intended as a guide for the government official who will be responsible for setting up the election or referendum prior to polling day. This manual also explains how to obtain results at the close of an election or referendum. This manual is divided into five sections for clarity. This introduction is the first. The second explains the program installation. The third covers setting up an election or referendum. The fourth deals with running an election or referendum. The fifth guides the user through the results process.

2 System Installation

This product itself requires no installation. It does however require the Java Runtime Environment (JRE) to be installed on the system where this program will be run. If you do not have the JRE the latest version can be obtained from the Sun website at <http://java.sun.com/j2se/1.5.0/download.jsp>. Detailed instructions can be found at this site explaining the installation of the JRE. At this point the Setup and Results program can be run by simply double clicking the ElectronicVotingSystem program icon.

3 Setting up an Election or Referendum

3.1 Adding Voters to the System



Figure 1

Group C – Electronic Voting System

When the program is first run the user is presented with the main menu as seen in Figure 1 above. This offers a number of options. To add voters to the system select the “Edit Registered Voters” button. This opens the menu seen in Figure 2 below.

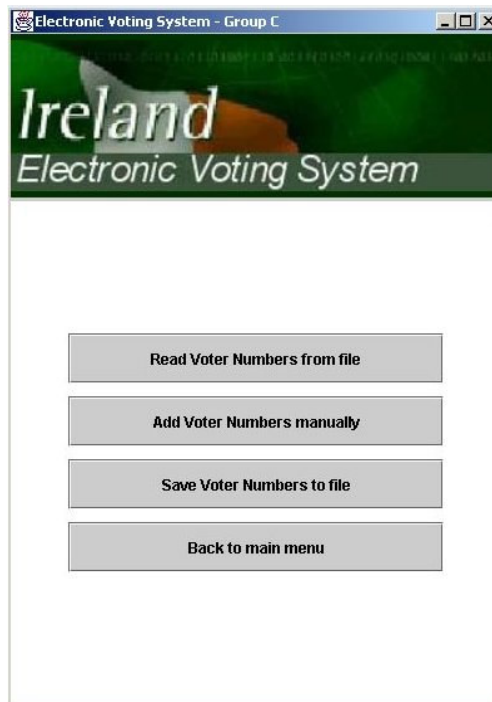


Figure 2

Voters can be added to the system in two different ways. They can either be added all at once from a file or manually. To add the voters from a file select the “Read Voter Numbers from file” button.



Figure 3

This displays the window seen in Figure 3 above. To add the voters enter the name of the file storing the voter information and select the “OK” button.

Adding voter information manually is done by selecting the “Add Voter Numbers manually” button seen in Figure 2. This displays the window below in Figure 4.



Figure 4

Enter the voters ID number, pin number, password and constituency name in the relevant fields and select the “OK” button. This adds a voter to the list previously read from file. It is also possible to write out the updated list to a file for use in future elections or referendum. To do this select the “Save Voter Numbers to file” button. This displays a window similar to that in Figure 3. Enter the name of the file you wish to save the voter information in. This writes out the information to the file as soon as the “OK” button is selected.

3.2 Setting up a Referendum

When setting up a referendum or election the user has the choice of creating a new one or editing an old one. To do either of these the user selects the relevant button from Figure 1. Either of these options will display the window in Figure 5 below. The difference between the two is that selecting the “Create New Election/Referendum” button clears all the referendum information as well as the constituency and candidate information from the database to allow the user to start fresh. The “Edit Old Election/Referendum” option leaves all the information and allows the user to edit it as he/she wishes.

To edit a referendum select “Edit Referendum” from the window in Figure 5. This displays the window in Figure 6. The user then has three options. He/she can add a new referendum, edit an existing referendum or remove a referendum. When the user selects add a new referendum he/she is shown a window similar to that of Figure 3 but it has two fields. One for the referendum title and one for the referendum question. Enter the relevant information in

both fields and select “OK”. To edit a referendum select the title from Figure 6 and press “Edit”. This does the same as adding a referendum but allows the user to change the existing information.

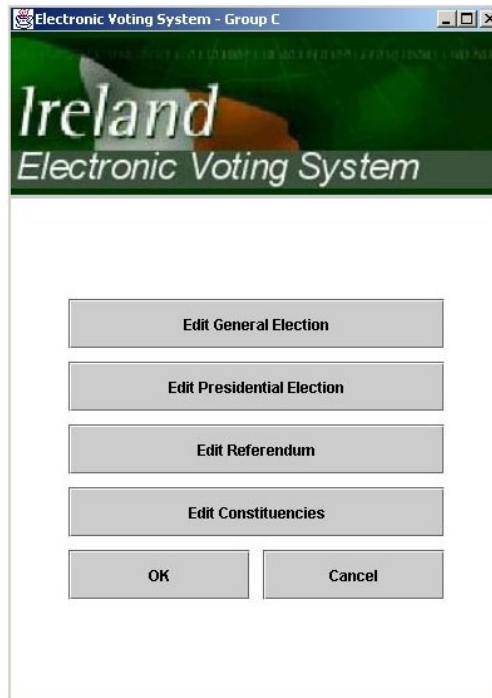


Figure 5

To remove a referendum select the title from the list in Figure 6 and press “Remove”. When finished editing the referendums select “OK” to return to menu in Figure 5. The new information is saved to the database when the “OK” button on this menu is selected.

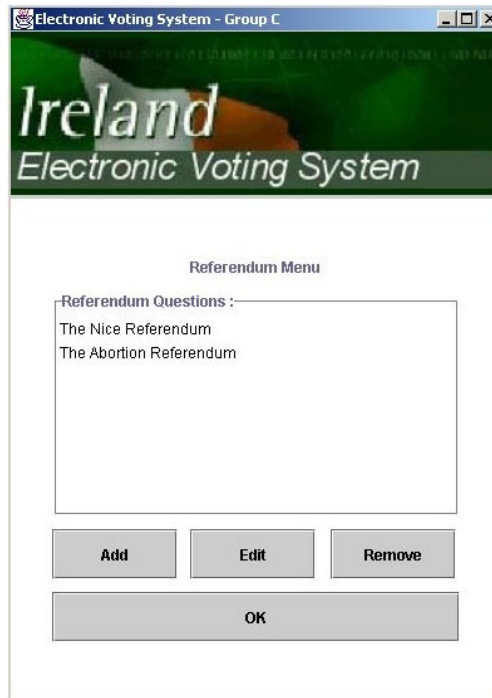


Figure 6

***Note** The user must also add constituencies for referendum when there are no general elections running. This is so voters will be recognised by the system. Voters are linked to their constituencies. The user does not need to add candidate information. This can be done through the “Edit Constituencies” button in Figure 5. This menu allows adding and editing of constituencies without candidates i.e. the constituency name.

3.3 Setting up a Presidential Election

To set up a Presidential election select “Edit Presidential Election” from Figure 5. This displays the window in Figure 7 below.

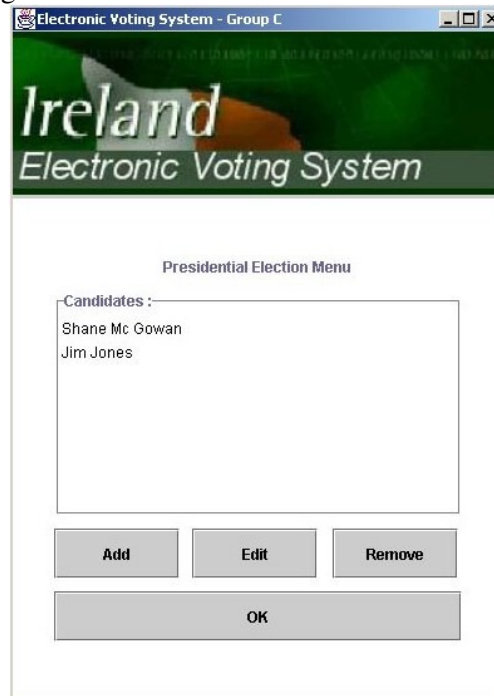


Figure 7

The operation of this window is the same as the one for editing a referendum in the previous section.

To add a candidate select “Add”. This provides a window like those in Figure 3 and Figure 4. It can be seen in Figure 8 below. It has three fields of information. One is for the candidate’s name, one for the candidate’s party and the other is for the location of the candidate’s image. When finished adding candidate information just press “OK”.

Editing a candidate is the same as adding one, just select a candidate from the list in Figure 7 and press “Edit”. This allows the user to change existing candidate information.

To remove a candidate select the name from the list and press “Remove”. When finished editing the candidates select “OK” to return to menu in Figure 5. The new information is saved to the database when the “OK” button on this menu is selected.

***Note** The user must also add constituencies for Presidential elections when there are no general elections running. This is so voters will be recognised by the system. Voters are linked to their constituencies. The user does not need to add candidate information. This can

be done through the “Edit Constituencies” button in Figure 5. This menu allows adding and editing of constituencies without candidates i.e. the constituency name.

Electronic Voting System - Group C

Ireland
Electronic Voting System

General Election Candidate

-Candidate Name :
B J Mc Guinness

-Political Party :
Ind

-Image Location :
http://student.cs.ucc.ie/~pfd2/Polittions/default.jpg

OK

Figure 8

3.4 Setting up a General Election

Electronic Voting System - Group C

Ireland
Electronic Voting System

General Election Menu

-Constituencies :
Carlow Kilkenny
Cavan Monaghan
Clare
Cork East
Cork North Central
Cork North West
Cork South Central
Cork South West

Add Edit Remove

OK

Figure 9

To set up a general election select “Edit General Election” from the menu in Figure 5. This displays the menu in Figure 9. Here is also similar to the previous two sections. The user can add, edit or remove constituencies. This is done in the same way as adding or editing referendum.

When the user selects “Add” or “Edit” he/she sees the window in Figure 10. Here the user must enter the constituency name and the number of seats available in the constituency.

The user must also add, edit or remove candidates from the constituency he/she is editing. This is done in exactly the same way as for Presidential candidates. When finished adding candidates press “OK” and continue adding constituencies.

When finished press editing constituencies select “OK”. This takes the user back to the menu in Figure 5. When the user selects “OK” here all the new referendum, Presidential election and general election information is written to the database.

The screenshot shows a software window titled "Electronic Voting System - Group C". The window has a header with the Irish flag and the text "Ireland Electronic Voting System". Below the header, the window is titled "Constituency". It contains a form with the following elements:

- A text box labeled "Constituency Name :" containing the text "Carlow Kilkenny".
- A text box labeled "Enter the number of seats :" containing the number "4".
- A list box labeled "Candidates :" containing the following names:
 - B J Mc Guinness
 - Paide O Toole
 - Sean O Reilly
 - Seymour Crawford
 - Tommy Murphy
- Three buttons: "Add", "Edit", and "Remove".
- A large "OK" button at the bottom.

Figure 10

3.5 Setting up a Local Election

The setting up of a local election is identical to that of a general election except all the candidates are in one constituency.

4 Running an Election or Referendum

To run an election or referendum simply set up all the necessary information at some point prior to the polling day as explained in the previous section. When this is done press the “End” button on the main menu in Figure 1. This removes all the voter information from the database and stores it in a file. This prevents voters logging in before an election commences.

The voting process is explained in the Voters Guide.

4.1 Starting an Election or Referendum

To start the election press “Start” on the main menu. This loads all voter data from the file mentioned above. Voters can now login and vote until the “End” button is pressed.

4.2 Ending an Election or Referendum

To end the election or referendum press “End” on the main menu in Figure 1. The results can now be viewed as explained in section 5.

5 Calculating the Results of an Election or Referendum

The Graphical User Interface displays Results of:

- (1) General Election / Local Elections (2) Referenda (3) Presidential Elections

The screenshot displays the 'Electronic Voting System - Group C' interface. On the left, a 'SELECT CONSTITUENCY' panel lists various constituencies, with 'Cork North Central' selected. Below this is a search bar and buttons for 'SEARCH', 'Show Full List', and 'RETURN TO MENU'. The main area is titled 'Constituency Details' and shows 'GENERAL ELECTION DETAILS Cork North Central' with the following data:

Total Electorate:	7
Valid Poll :	1
Quota :	1
Number of Seats :	5

Below this is a section for 'General Election Candidates Elected - Cork North Central' with the following data:

Name :	Shane Mc Gowan
Party :	Green Party
Elected on Count	1
Number of Votes :	1

Navigation buttons 'PREVIOUS Candidate' and 'NEXT Candidate' are present. The next section is 'REFERENDUM RESULTS for Cork North Central' with the following data:

Referendum Question :	The Nice Referendum
Votes in Favour :	0
Votes against :	1

Navigation buttons 'PREVIOUS Question' and 'NEXT Question' are present. The final section is 'PRESIDENTIAL RESULTS (for all Ireland)' with the following data:

President Elect :	Jim Jones
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Figure 11

The Results User interface displays Electoral information for a selected constituency
A breakdown of information is given including,

Total Electorate: i.e. the total number of registered voters for the selected constituency

Valid Poll: i.e. The Total Valid Poll number of all those who have cast non spoilt votes in the election for the selected constituency

Quota: i.e. the number of votes needed by a candidate in order to be deemed elected (as per the current electoral system)

$$\text{Quota} = \frac{\text{Valid Poll}}{[\text{Number of Seats} + 1] + 1}$$

Number of Seats: Number of Seats allocated for the selected constituency

5.1 General Election / Local Election Results

To view the General / Local Election results, select the constituency from the ‘Constituency List’, (In the case of Local Elections, only one Constituency will appear on the ‘Constituency List’) For the selected Constituency, the Name, Party, Number of Votes of an Elected Candidate is displayed along with the count on which they were elected.

As only one candidate and their respective details are displayed at any one time,
The user can scroll through the list of elected candidates and the respective details by using the ‘NEXT Candidate’ / ‘PREVIOUS Candidate’

5.2 Referenda Results

Referenda results are broken down by constituency i.e. for any selected Constituency (including Ireland); a referendum title is displayed with the number of votes in favour and votes against for that particular referendum.

As only one referendum question and its respective votes in favour / votes against is displayed at any one time the user of the system can scroll through all referendum questions by using the Next Question / Previous Question buttons.

Overall Referendum Results

To find the Overall Referendum Results Select ‘**IRELAND**’ in the Constituency List. Votes in favour / Votes Against will then represent the Combined Results of ALL Constituencies in ‘IRELAND’.

5.3 Presidential Election Results

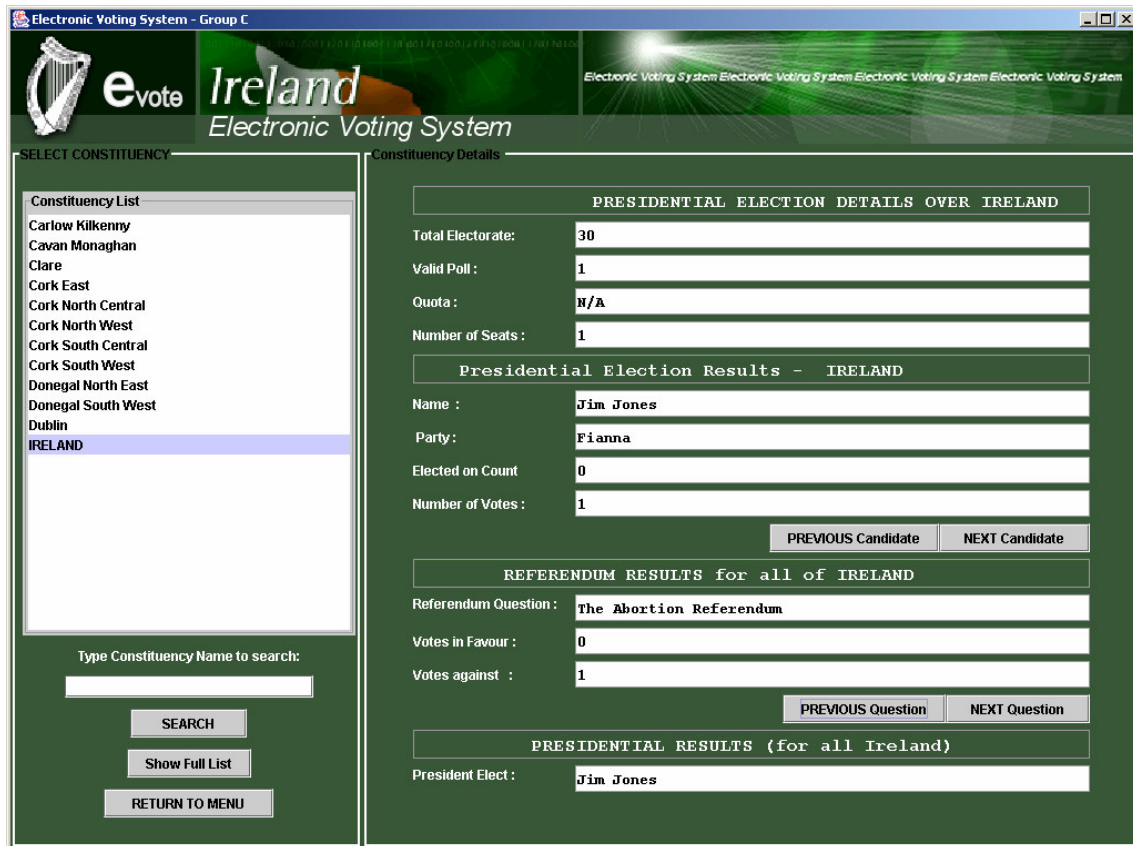


Figure 12

The Elected Presidential candidate will be displayed under ‘PRESIDENTIAL RESULTS (for All of Ireland)’ regardless of Constituency selected
 Where the selected Constituency is ‘IRELAND’ a list of ALL the presidential candidates will be available under the heading ‘Presidential Election Results - IRELAND’.

Again of course, only one Candidate with their corresponding details will be displayed at any one time, and the user can scroll through the list of candidates by clicking the ‘NEXT Candidate’ / ‘PREVIOUS Candidate’ buttons.

The Search Facility

The search facility included allows system users to search for constituencies by typing their required constituency into the text-field. That constituency if present will then be displayed on screen, clicking in it will then display the relevant electoral details and results for the same constituency.

The Show Full List will display the full list of all constituencies present in the database. The ‘search’ obviously is more useful, the larger the list of Constituencies.