

Cantor



Georg Cantor (1845–1918)

Cantor User's Manual

David Marcus

Version 17.5

April 10, 2025

Cantor and Ratings Central are not free; see Appendix [F on page 95](#).

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Contents

| | |
|---|----|
| List of Figures | 9 |
| List of Tables | 11 |
| Chapter 1. Introduction | 13 |
| 1. Installation | 13 |
| 1.1. Hardware and Software Requirements | 13 |
| 1.2. Files | 13 |
| 1.3. Default Database Folder | 14 |
| 1.4. Making Backups | 14 |
| 1.5. Upgrading | 15 |
| 1.6. Restoring Backups | 15 |
| 1.7. Minor Issues | 15 |
| 2. Language | 16 |
| 3. Notation | 16 |
| Chapter 2. Overview | 17 |
| Chapter 3. Cantor Menu | 27 |
| 1. Exit | 27 |
| 2. Set Up | 27 |
| 2.1. Director | 27 |
| 2.2. List Database Folder | 29 |
| 3. Set Up Internet | 29 |
| 3.1. Email | 31 |
| 3.2. Web Proxy Server | 31 |
| 3.3. Test | 31 |
| 4. Select Printer | 32 |
| 5. Visit Website | 32 |
| 6. Display Version | 33 |
| Chapter 4. Lists Menu | 35 |
| 1. Import | 35 |
| 1.1. Automatic Download | 35 |
| 1.2. Manual Download | 36 |
| 1.3. USATT Rating List | 37 |
| 1.4. Import Errors | 38 |
| 2. Browse Rating | 38 |
| 3. Browse Club | 38 |

| | |
|--------------------------------|----|
| Chapter 5. Events Menu | 39 |
| 1. Multiple-Day Events | 39 |
| 2. Subevents | 40 |
| 3. Select Current | 40 |
| 3.1. Browse | 41 |
| 3.2. Edit | 42 |
| 4. Submit | 44 |
| 4.1. Submit Events | 44 |
| 4.2. Previous Submissions | 45 |
| 5. Import | 45 |
| 5.1. Ratings Central API | 47 |
| 6. Help Correct Date | 47 |
| 6.1. Step 1 | 47 |
| 6.2. Step 2 | 47 |
| 6.3. Step 3 | 48 |
| 6.4. Step 4 | 48 |
| 6.5. Step 5 | 48 |
| 6.6. Step 6 | 48 |
| 6.7. Step 7 | 48 |
| 6.8. Step 8 | 48 |
| Chapter 6. Players Menu | 49 |
| 1. Modify | 49 |
| 1.1. Browse | 50 |
| 1.2. Edit | 50 |
| 1.3. Rating-List Browser | 55 |
| 2. Copy from Event | 57 |
| 3. Export | 57 |
| 4. Import | 58 |
| 5. Print | 58 |
| 6. Get New IDs | 59 |
| Chapter 7. Main Window | 61 |
| 1. Database Folder Display | 61 |
| 2. New Result | 62 |
| 3. Modify Result | 63 |
| 4. Print Results | 63 |
| Chapter 8. Club Browser | 65 |
| Chapter 9. Unrated Players | 67 |
| 1. Rating Scale | 67 |
| 2. The Fewer Priors the Better | 68 |
| 3. Player Priors | 68 |
| 4. Event Prior | 69 |
| 5. Rating System Floor | 70 |
| 6. First Event | 70 |

| | |
|------------------------------------|----|
| Chapter 10. Submitting Events | 71 |
| 1. Duplicate Players | 72 |
| 2. Wrong Director ID | 74 |
| 3. Lost Files | 74 |
| Chapter 11. Mistakes and Errors | 75 |
| Appendix A. Who Was Cantor? | 77 |
| Appendix B. User Interface | 79 |
| 1. Persistence | 79 |
| 2. Basic Window Operation | 79 |
| 3. Scroll Bars | 79 |
| 4. Focus | 80 |
| 5. Disabled and Read-Only Controls | 80 |
| 6. The Main Menu | 81 |
| 7. Enter Key | 81 |
| 8. Accelerator Keys | 81 |
| 9. Grids | 83 |
| 9.1. Incremental Search | 83 |
| 10. Drop-Down List | 84 |
| 11. List Box | 84 |
| 12. Dates and Date Fields | 84 |
| 12.1. Calendar | 85 |
| 13. Buttons and Radio Buttons | 85 |
| 14. Button Edits | 85 |
| 15. Check Boxes | 85 |
| 16. Navigator Bar | 86 |
| 17. Notebooks | 86 |
| 18. Edit Fields | 86 |
| 19. Progress Bars | 86 |
| Appendix C. Database Folder | 89 |
| 1. Specifying the Database Folder | 89 |
| 2. Multiple Director IDs | 90 |
| Appendix D. Crashes and Bugs | 91 |
| Appendix E. Data Safety | 93 |
| Appendix F. Cost | 95 |
| Appendix. Index | 97 |

List of Figures

| | | |
|----|---|----|
| 1 | Quick-start window | 17 |
| 2 | Main window | 18 |
| 3 | Import-lists window | 18 |
| 4 | Select-current-event window | 19 |
| 5 | Edit-event page | 20 |
| 6 | Club browser | 20 |
| 7 | Event grid | 21 |
| 8 | Main window showing event name and date | 21 |
| 9 | Modify-players window | 22 |
| 10 | Rating-list browser | 22 |
| 11 | Edit-player page | 23 |
| 12 | Player grid | 24 |
| 13 | New-result window | 24 |
| 14 | Result being entered | 25 |
| 15 | Main window showing result | 25 |
| 16 | About to delete result | 26 |
| 1 | Set-up window | 27 |
| 2 | Set-up-Internet window | 30 |
| 3 | Test-sent window | 32 |
| 4 | Test reply email | 32 |
| 5 | Select-printer window | 33 |
| 6 | Version window | 33 |
| 1 | Import-lists window | 35 |
| 2 | Download window | 36 |
| 3 | Sample USATT rating list | 37 |
| 4 | Import-lists error window | 38 |
| 1 | Select-current-event window | 41 |
| 2 | Edit-event page | 42 |
| 3 | Submit-events window | 44 |

| | | |
|---|---|----|
| 4 | Import-events window | 45 |
| 5 | Help-correct-date window | 48 |
| 1 | Modify-players window | 49 |
| 2 | Edit-player page | 51 |
| 3 | Rating-list browser | 55 |
| 4 | Copy-players-from-event window | 57 |
| 5 | Print-lists window | 59 |
| 6 | Player list sorted by name | 59 |
| 7 | Player list sorted by rating | 59 |
| 1 | Main window | 61 |
| 2 | Result window | 62 |
| 3 | Result list | 63 |
| 1 | Club browser | 65 |
| 1 | Event-processed email | 73 |
| 2 | Problem email | 74 |
| 1 | Error-message window | 75 |
| 1 | Window showing disabled and read-only controls | 80 |
| 2 | The <i>Modify Result</i> button is the default button | 82 |
| 3 | Progress bar | 87 |
| 1 | Crash window | 91 |

List of Tables

1 Main-window shortcut keys

82

CHAPTER 1

Introduction

Cantor is the front end for Ratings Central. Cantor allows you to easily submit results and corrections to Ratings Central. You can see all the results and ratings on the [Ratings Central website](https://www.ratingscentral.com) at <https://www.ratingscentral.com>. Cantor and Ratings Central are not free; see Appendix F on page 95.

The only documentation for Cantor is this manual—there is no Help. You may want to print this manual (double-sided) and place it in a three-ring binder. If you read this manual, you will find Cantor to be very easy to use. Chapter 2 on page 17 contains an overview in the form of a tutorial. The following chapters of the manual are organized around each of the item's in Cantor's main menu. These are followed by chapters on Cantor's main window and club browser. Then come chapters on unrated players, submitting events, and mistakes and errors. The appendices cover Georg Cantor, detailed information on the user interface, how Cantor finds the database folder, crashes and bugs, data safety, and cost.

1. Installation

This section discusses Cantor's hardware and software requirements, what happens when you install Cantor, how to upgrade Cantor, and how to back up and restore your data.

1.1. Hardware and Software Requirements. Cantor runs on Windows 11, Windows 10, or Windows 7 (SP1+). Any computer hardware should work. You can also run it on a Mac or Linux using Wine, CrossOver, Parallels, etc. To submit results to Ratings Central, you will need a connection to the Internet (see Section 3 on page 29 for more information). You do not need to be connected to the Internet while you are entering results into Cantor. So, you could enter the results at your club and then submit the results later.

1.2. Files. The installation program (e.g., Cantor_17.5_Setup.exe) creates a program folder (e.g., C:\Program Files (x86)\RatingsCentral\Cantor) and places the executable (Cantor.exe), User's Manual (Cantor.pdf), sample rating list (SampleRatingList.csv), sample club list (SampleClubList.csv), license file (License.txt), OpenSSL files (libeay32.dll, ssleay32.dll), read-me file (ReadMe.txt), and a file detailing the changes in each version (VersionHistory.txt) in the program folder. It adds Cantor and the User's Manual to the Windows "Start" menu and optionally to the desktop. That's all that the installation program does.

Note that the sample rating list and club list files are just samples—they do not contain real players or clubs. Their only purpose is to let you work through the

tutorial in Chapter 2 on page 17. Do not use them when running a real event that you will submit to Ratings Central.

When you start Cantor, it will create the following set of database files in the database folder: Club.nx1, Configuration.nx1, Event.nx1, Player.nx1, RatingList.nx1, Result.nx1, and Submission.nx1. It will also create an nxTrans.cfg file.

The nxTrans.cfg file is used by the database library that Cantor uses, but the file is not essential. If it is erased, it will be recreated.

The Club.nx1 and RatingList.nx1 files only contain the data from whatever club list and rating list that you've imported. Also, it is possible to keep these two files in a different folder than the other database files (see Section 2.2 on page 29).

The remaining five files with the nx1 extension contain the information for all the events, players, and results. They are interdependent, so you should treat them as a group.

1.3. Default Database Folder. The location of the database folder is controlled by the shortcut that you use to start Cantor. The shortcuts that the installer creates put this folder in a subfolder of your AppData folder, e.g., C:\Users\YourUserName\AppData\Roaming\RatingsCentral\Cantor.

The default location of the database folder is where Microsoft thinks apps should put their files. It is a good idea to change the location to one that is more convenient so that you can easily back up the files. The AppData folder is a hidden folder. This means that by default Windows File Explorer doesn't show it when you browse. However, you can type it into the address bar, and File Explorer will then show the contents of the folder. So, to go to the default database folder, you can type C:\Users\YourUserName\AppData\Roaming\RatingsCentral\Cantor, for example, into the address bar. Or, in File Explorer, you can go to "View" > "Options" > "Change Folder and Search Options" > "View" > "Hidden files and folders", and select "Show hidden files, folders, and drives". Or, you can use the Windows Command Prompt: The CD and COPY commands don't care that the folder is hidden. The DIR command needs the "/a" option to show hidden folders. The default database-folder location is fine for doing the tutorial in Chapter 2 on page 17, but you really should put your real data someplace else.

See Section 1 on page 61 for how to see what folder Cantor is using for the database folder. See Appendix C on page 89 for how to tell Cantor what folder to use as the database folder. See Appendix E on page 93 for advice on where you should put the database folder.

1.4. Making Backups. Each time that you use Cantor, be sure to make backup copies of the files in your database folder, and keep the copies in a safe place. To make a backup, close Cantor, then copy the files. See Section 1 on page 61 for how to see what folder Cantor is using for the database folder.

As noted above, you don't need to back up all the files in the database folder, but it is simpler and safer to back them all up. If you don't want to back up the Club.nx1 and RatingList.nx1 files (since they are not needed when restoring a backup), you can tell Cantor to put these files in a different folder. See Section 2.2 on page 29.

1.5. Upgrading. The format of the database files in a new major version of Cantor will be different than in previous versions. However, the file format will not change in a minor version release. You do not need to uninstall a previous version when installing a new version (this applies to both major and minor versions). By default, the installation program will install a new version so that it replaces an older version. But, please make sure that your shortcuts still point to the location of your database folder.

In general, Cantor can update database files from previous versions to the current version's format. It will do this automatically when it starts if the files in the database folder are from a previous version. Please back up your database files before running a new version of Cantor on a previous version's files.

Cantor doesn't bother to update the `Club.nxl` and `RatingList.nxl` files since they only contain the same data that is in the club and rating lists that you imported. If Cantor finds that these files are from a different version, it will simply delete them and create new, empty ones that are for the current version.

If you have database files from Cantor version 1 or 2 and you used different director IDs for different events, then Cantor won't be able to update the files. In this case, keep your old version of Cantor to access the old files. If you have multiple versions of Cantor installed, be sure that you don't enter the same event into more than one version.

If you upgrade from a version before version 10 to version 10 or later, you will need to reenter your director, email (SMTP), and Web-proxy-server passwords. This is because the way that these are stored changed in version 10.

1.6. Restoring Backups. To restore a backup (to the same or a different computer), you need to have Cantor installed on the computer that you are restoring to. You then need to determine (or change) the location of the database folder. See [Section 1.3 on the facing page](#) and [Appendix C on page 89](#). Finally, you need to copy the files from your backup to the database folder. You can then start Cantor. The location of the database folder is displayed in the status bar at the bottom of Cantor's main window (see [Section 1 on page 61](#)). Make sure that the status bar displays the folder that you copied the files to.

1.7. Minor Issues. If you move the database files from one computer to another by writing them to a CD or DVD, or if you restore them from a backup on a CD or DVD, the files may end up being read-only. When you start Cantor, you will get an error message to this effect. To fix the problem, right-click the files in Windows File Explorer, select *Properties*, and uncheck the *Read-only* check box.

Sometimes, if you move the database files to a different version of Windows or if Windows has been updated, Cantor will need to do a database pack when it starts. If it does, you may see a slight delay when Cantor starts. The reason is that Windows is telling the database that the way it sorts strings may be in a slightly different order from the other version of Windows, and the database wants to make sure that everything will work correctly.

2. Language

Cantor and Ratings Central use the Unicode character set. Cantor versions before version 10 used the ISO 8859-1 (Latin 1) character set (https://en.wikipedia.org/wiki/ISO/IEC_8859-1). If you have database files from an ISO 8859-1 version of Cantor, it is best to upgrade to a Unicode version. An ISO 8859-1 version of Cantor will still be able to submit events to Ratings Central, but will not be able to use characters that are not in the ISO 8859-1 character set. If you use an ISO 8859-1 version to download club and rating lists from the [Ratings Central website](#), characters in those lists that are not in the ISO 8859-1 character set will be replaced by question marks.

Cantor will use your Windows locale. Your Windows locale will affect the order in which records are displayed in grids as well as the display of some dates, times, and monetary values.

3. Notation

In this manual, I'll write the names of menu items, buttons, field labels, etc. in a slanted sans-serif font, e.g., *Rating List*. I'll specify sequences of menu items, buttons, etc. by separating them with a ">" sign. The double colon "::" means that the sequence of items starts at the main menu. For example, you can exit Cantor via *::Cantor > Exit*. I'll write keys on the keyboard by putting the name of the key between angle brackets, e.g., <Ctrl+Del> or <Enter>. Note that <Ctrl+Del> means hold down the control key and press the delete key.

CHAPTER 2

Overview

This chapter provides a brief overview in the form of a tutorial. Working through this tutorial is not a substitute for reading the rest of the manual.

Start Cantor. You will see the quick-start window (see Figure 1). Cantor only displays this window if you haven't entered any results. Close the window. You will see Cantor's main window (Figure 2 on the following page).

Select *::Lists > Import*. You will see the window shown in Figure 3 on the next page. Click the button at the right of the *Rating list* field and select the file *SampleRatingList.csv* in the program folder (e.g., *C:\Program Files (x86)\RatingsCentral\Cantor*). Click the button at the right of the *Club list* field and select the file *SampleClubList.csv* in the program folder. Click the *Import* button. Cantor will import the lists.

Select *::Events > Select Current*. You will see the window in Figure 4 on page 19. Click the *Add Event* button. The notebook will switch to the *Edit* page (see Figure 5 on page 20). Type "Ratings Central Open" in the *Name* field. Click the button at the right of the *Date* field to drop down a calendar. Click the *Today* button. Set *State* to "VA". Click on the *Change* button to pop up the club browser (Figure 6 on page 20). Click the *Select Club* button to select the VTTA club and close the window. Enter "1600" in the *Unrated prior > Mean* field, and enter "200" in the *Unrated prior > Standard deviation* field (see Chapter 9 on page 67 for instructions on how to set the *Unrated prior* fields for your event).

Click the *Save* button. You will see the *Browse* page and the event you just added will be listed in the grid (see Figure 7 on page 21). Click the *OK* button. The main window now displays the name and date of the event (see Figure 8 on page 21).

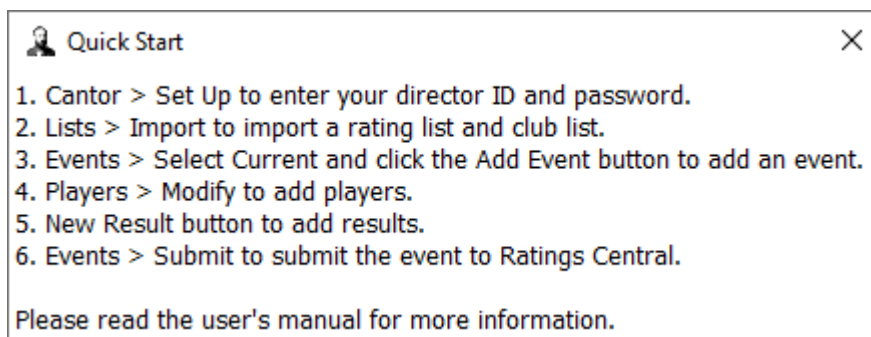


FIGURE 1. Quick-start window

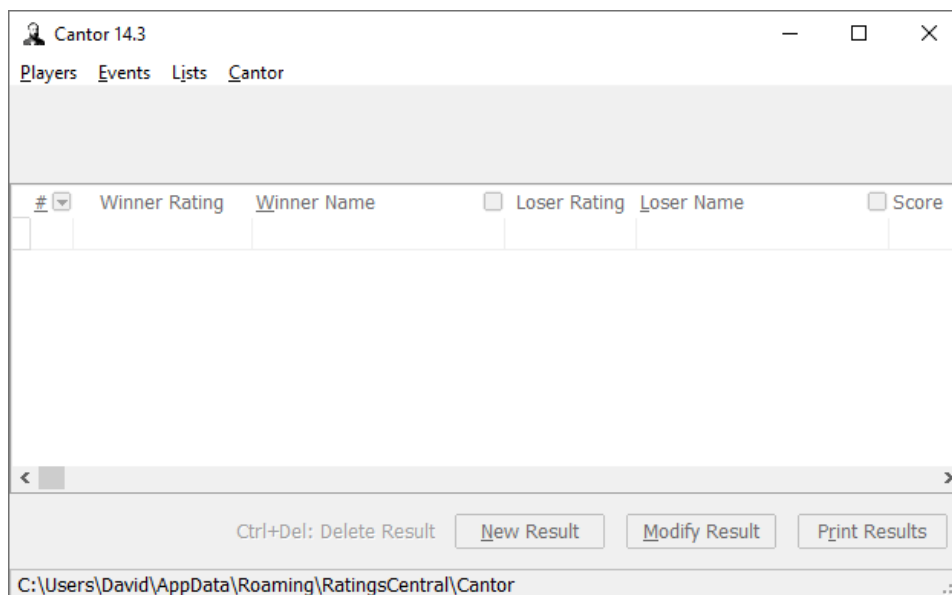


FIGURE 2. Main window

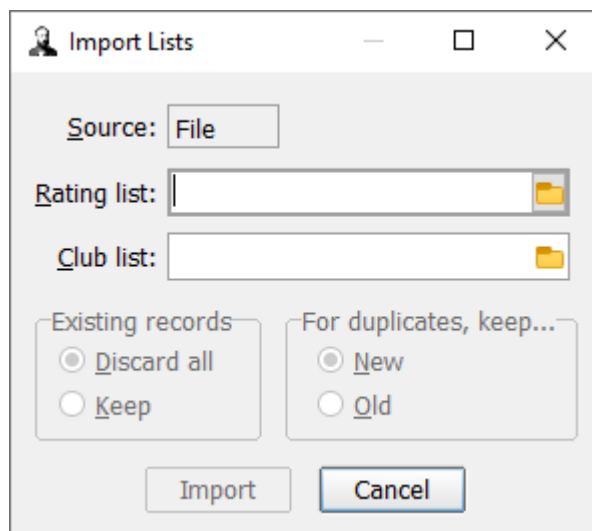


FIGURE 3. Import-lists window

Select *Players > Modify*. You will see the window in Figure 9 on page 22. We'll assume the players have played in a previous event and so are on the rating list. If you have players who have not played in a previous event, then you would add them by clicking the *Add Player* button.

Since we are assuming the players are on the rating list, click the *Rating List* button. You will see the rating-list browser (Figure 10 on page 22). Click the *Add*

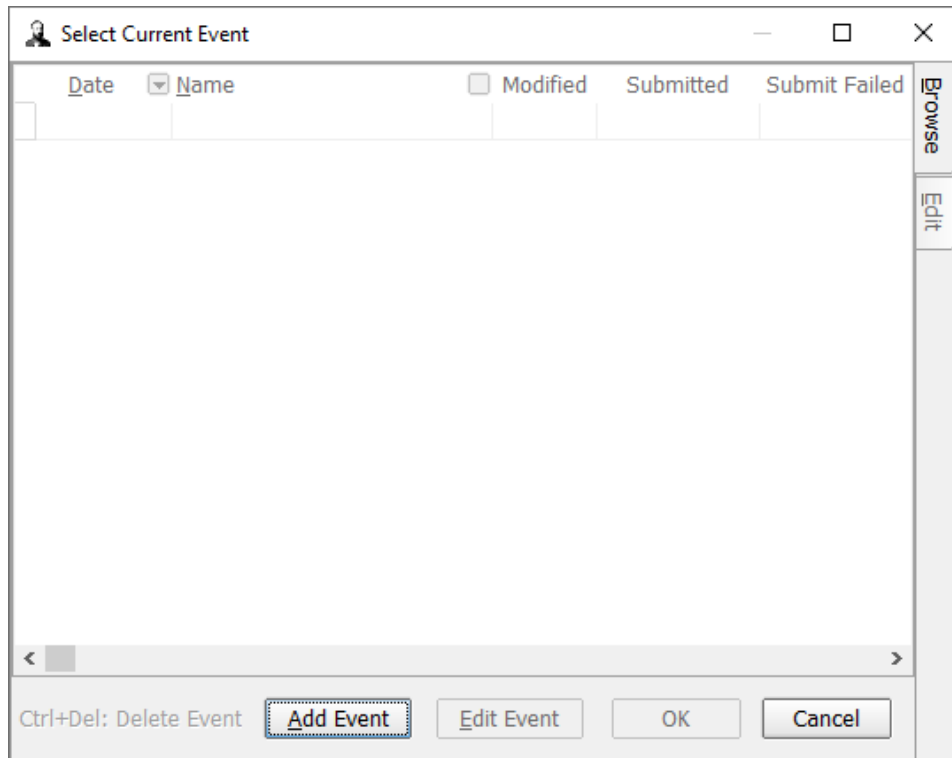


FIGURE 4. Select-current-event window

Player button to add David H. James to the event. You will now see the *Edit* page of the modify-players notebook (Figure 11 on page 23). Click the *Save* button.

Click the *Rating List* button to bring up the rating list again. This time, click on the line that says “O’Neill, Sean Patrick”, then click the *Add Player* button. Click the *Save* button. The window should look like Figure 12 on page 24. Click the *Close* button.

Click the *New Result* button at the bottom of the main window. You will see the window in Figure 13 on page 24. Click “O’Neill, Sean Patrick” in the *Winner* (left) list box and “James, David H.” in the *Loser* (right) list box. Enter “7”, “-4”, “10”, and “2” in the *Score* boxes. The window will look like Figure 14 on page 25. Click the *OK* button. Click the *Cancel* button to close the window. The main window will look like Figure 15 on page 25.

The final step is to submit the event to Ratings Central. Submitting events is covered in Section 4 on page 44 rather than in this tutorial. But, you don’t want to submit the test event that you just created. So, click anywhere in the grid, e.g., click Sean’s name. The result row in the grid will now be highlighted and the words “Ctrl+Del: Delete Result” in the bottom left will no longer be dimmed (see Figure 16 on page 26). Press (Ctrl+Del) to delete the result. Then select *::Events > Select Current* and press (Ctrl+Del) to delete the event. This also deletes the players in the event. Select *::Cantor > Exit* to close Cantor, and then use Windows File Explorer to delete the Club.nx1 and RatingList.nx1 files in the database folder. The location

FIGURE 5. Edit-event page

| ID | Nickname | Name | City | State | Country |
|-------|----------|-----------------------------------|-----------------|-------|---------|
| 99991 | VTTA | Virginia Table Tennis Association | Charlottesville | VA | USA |
| 99992 | BTTC | Boston Table Tennis Club | Medford | MA | USA |

FIGURE 6. Club browser

of the database folder is displayed in the status bar at the bottom of Cantor's main window (see Section 1 on page 61).

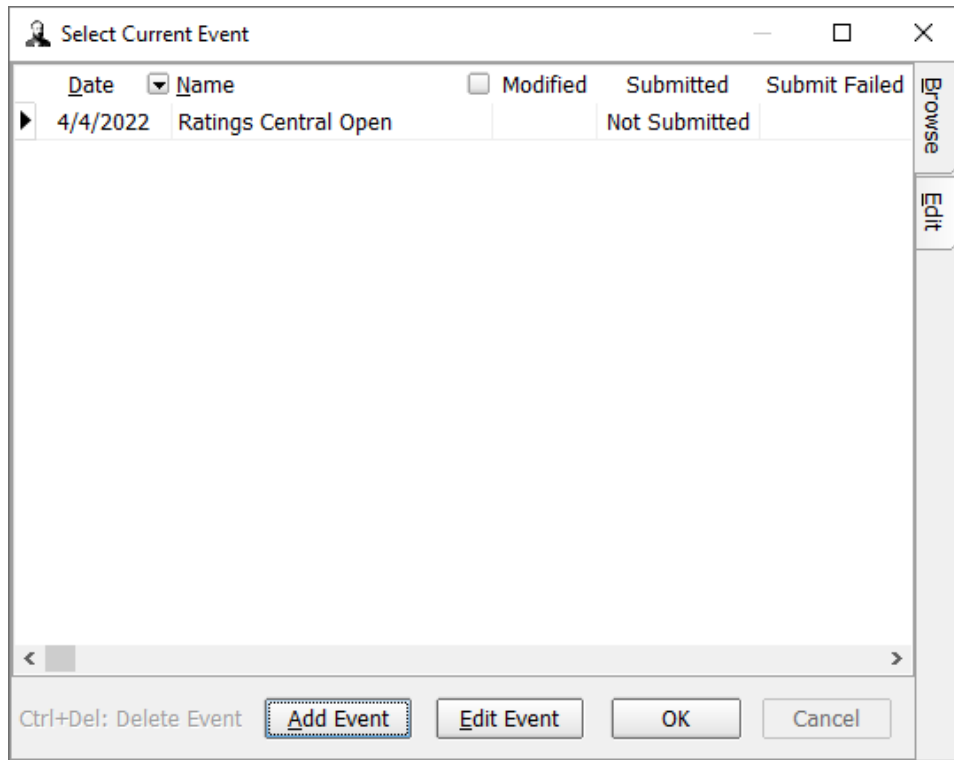


FIGURE 7. Event grid

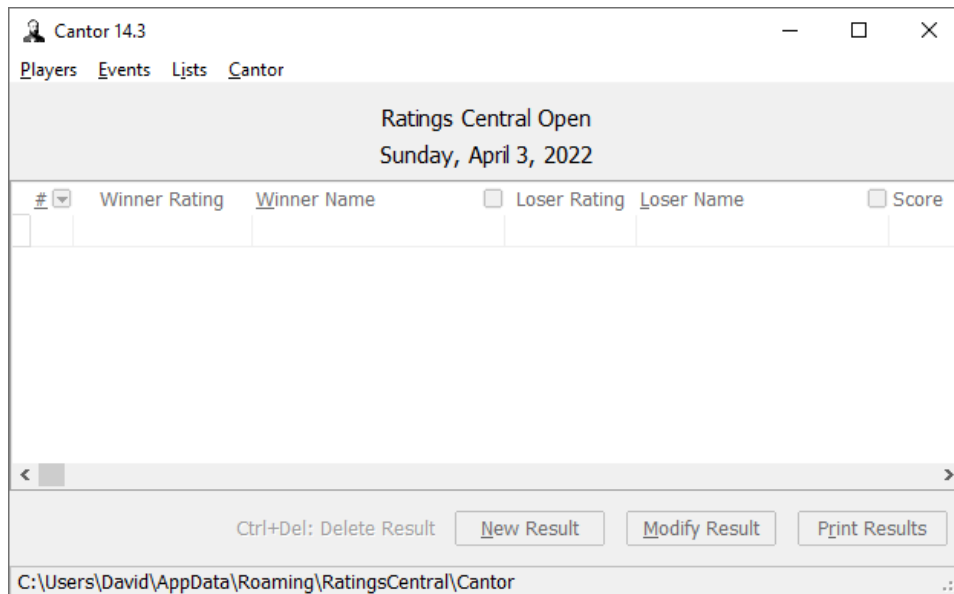


FIGURE 8. Main window showing event name and date

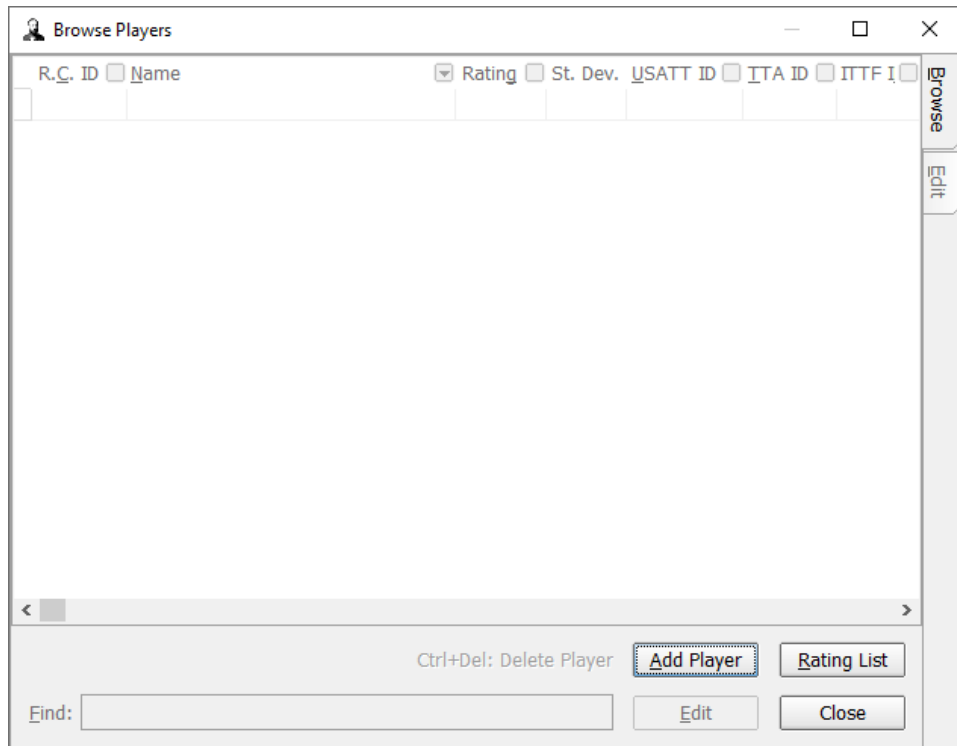


FIGURE 9. Modify-players window

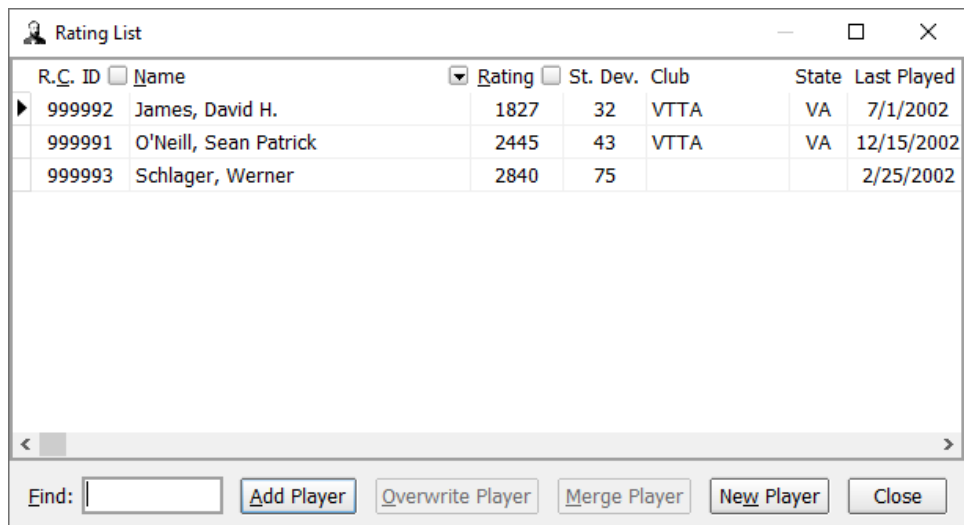


FIGURE 10. Rating-list browser

The screenshot shows a web-based form titled "Edit Player". The form is organized into several sections:

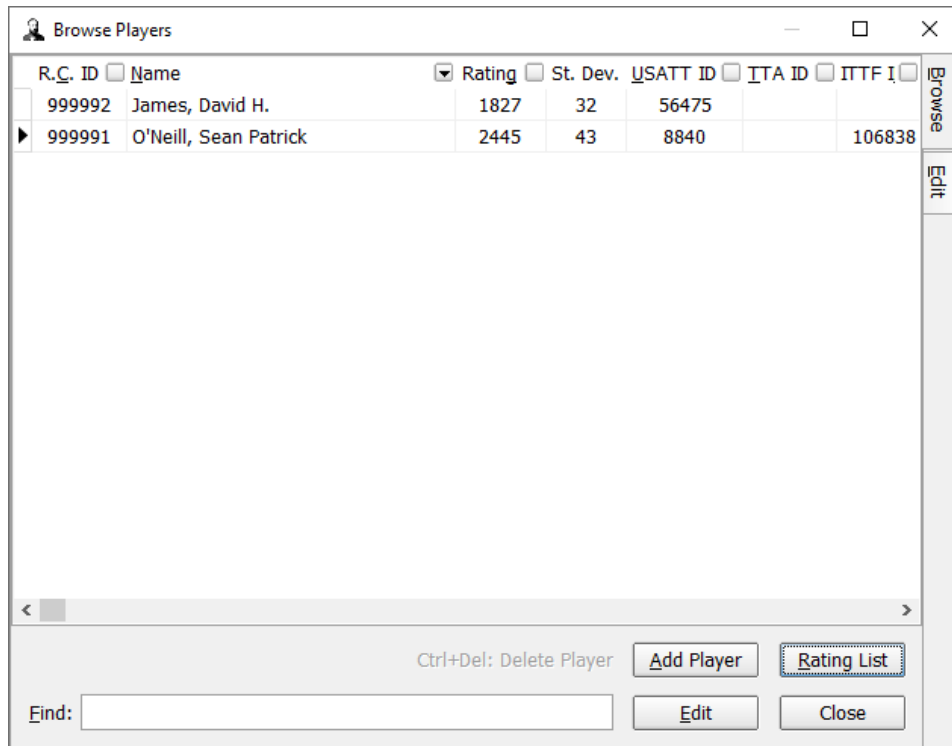
- Personal Information:** Name (James, David H.), Address 1, Address 2, City, State (VA), Province, Postal code (23227-1721), Country (United States), Email, Sex (Male), Phone, Mobile (checkbox), Birth (3/4/1973), Deceased (checkbox), New personal info (checkbox).
- Ratings and IDs:** Ratings Central (999992), USATT (56475), IT Australia, ITTF.
- Performance Metrics:** Rating (1827), Standard deviation (32), Unrated prior Mean, Standard deviation.
- Club:** Virginia Table Tennis Association, with Change and Clear buttons.
- Navigation:** Save and Cancel buttons at the bottom right.

FIGURE 11. Edit-player page

Note that the sample rating list and club list files you used in this overview are just samples—they do not contain real players or clubs. Their only purpose is to let you work through this overview. Do not use them when running a real event that you will submit to Ratings Central. See [Section 1 on page 35](#) for how to download and import real rating and club lists.

Before entering a real event into Cantor, please enter your Internet parameters (see [Section 3 on page 29](#)) and perform the test in [Section 3.3 on page 31](#) to make sure you can submit events.

Before submitting a real event to Ratings Central, please read [Chapter 9 on page 67](#) to learn how to set the priors for unrated players.

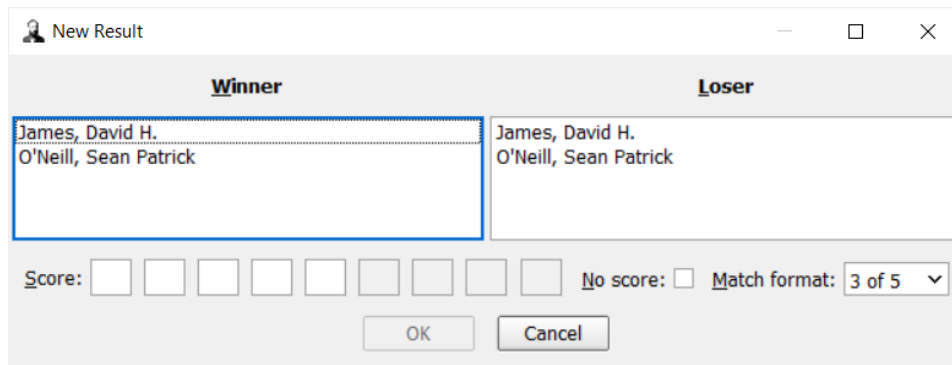


The 'Browse Players' window displays a table with the following columns: R.C. ID, Name, Rating, St. Dev., USATT ID, ITA ID, and ITTF ID. The data is as follows:

| R.C. ID | Name | Rating | St. Dev. | USATT ID | ITA ID | ITTF ID |
|---------|-----------------------|--------|----------|----------|--------|---------|
| 999992 | James, David H. | 1827 | 32 | 56475 | | |
| 999991 | O'Neill, Sean Patrick | 2445 | 43 | 8840 | | 106838 |

Below the table, there is a search field labeled 'Find:' and several buttons: 'Add Player', 'Rating List', 'Edit', and 'Close'. A tooltip for 'Rating List' is visible, showing 'Ctrl+Del: Delete Player'.

FIGURE 12. Player grid



The 'New Result' window is divided into two sections: 'Winner' and 'Loser'. Both sections contain the names 'James, David H.' and 'O'Neill, Sean Patrick'. Below these sections, there is a 'Score:' field with ten input boxes, a 'No score:' checkbox, and a 'Match format:' dropdown menu set to '3 of 5'. 'OK' and 'Cancel' buttons are at the bottom.

FIGURE 13. New-result window

Winner

James, David H.
O'Neill, Sean Patrick

Loser

James, David H.
O'Neill, Sean Patrick

Score: 7 -4 10 2 No score: Match format: 3 of 5

OK Cancel

FIGURE 14. Result being entered

Cantor 14.3

Players Events Lists Cantor

Ratings Central Open
Sunday, April 3, 2022

| # | Winner Rating | Winner Name | Loser Rating | Loser Name | Score |
|---|---------------|-----------------------|--------------|-----------------|-----------|
| 1 | 2445±43 | O'Neill, Sean Patrick | 1827±32 | James, David H. | 7,-4,10,2 |

Ctrl+Del: Delete Result New Result Modify Result Print Results

C:\Users\David\AppData\Roaming\RatingsCentral\Cantor

FIGURE 15. Main window showing result

Cantor 14.3

Players Events Lists Cantor

Ratings Central Open
Sunday, April 3, 2022

| # | Winner Rating | Winner Name | Loser Rating | Loser Name | Score |
|---|---------------|-----------------------|--------------|-----------------|-----------|
| 1 | 2445±43 | O'Neill, Sean Patrick | 1827±32 | James, David H. | 7,-4,10,2 |

Ctrl+Del: Delete Result [New Result](#) [Modify Result](#) [Print Results](#)

C:\Users\David\AppData\Roaming\RatingsCentral\Cantor

FIGURE 16. About to delete result

Cantor Menu

The Cantor menu contains items that relate to the application as a whole.

1. Exit

The *Exit* menu item closes Cantor. No information is lost when you do this because Cantor always writes all information to the database files immediately after completing any operation.

2. Set Up

The *Set Up* menu item brings up a window (Figure 1) that lets you set your director ID and password and the location of the list database folder.

2.1. Director. Enter your director ID in the *ID* field. To get a director ID, you must register on the [Ratings Central website](#). Your director ID is not the same as your player ID (if you have one). If you have more than one director ID (an unusual situation), see [Section 2 on page 90](#).

Once you've submitted an event, Cantor won't let you change the director ID. If you submit the event using the wrong director ID, see [Section 2 on page 74](#) for how to fix it.

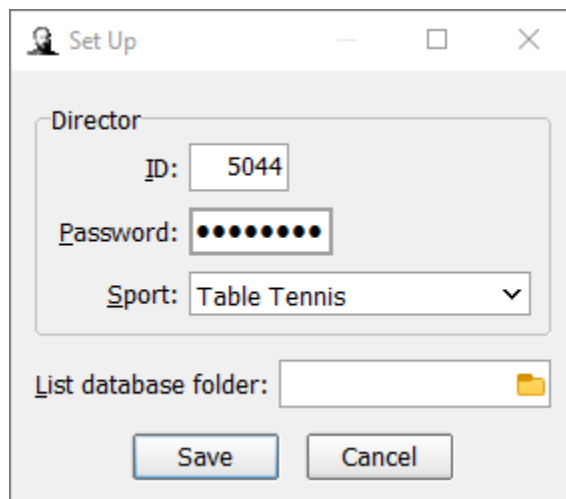


FIGURE 1. Set-up window

Enter your director password in the *Password* field. You select your password on the [Ratings Central website](#). Since this is a password, Cantor will display asterisks or bullets in this field rather than the characters you type. The field scrolls so that you can enter a long password, but since the characters all display the same, you won't see it scroll. Of course, you can paste your password instead of typing it. The password is case sensitive.

Select the sport that corresponds to your director ID in the *Sport* field. If you want to submit events for more than one sport, you will need a director ID for each sport; see [Section 2 on page 90](#).

2.1.1. *Policies and Responsibilities*. Director IDs are assigned to people, not to organizations, clubs, groups, etc. This is because Ratings Central needs to know whom to contact if there is a question or a problem. So, your registration information on the [Ratings Central website](#) must be your information, not your organization's. However, you may enter an organization email address as long as you will respond to emails sent to it. If for legal reasons you don't want your name displayed on the website, please contact us; see <https://www.ratingscentral.com/Problems.php> for our email address.

As an event director, you are expected to reply to emails within one business day and fix problems within one week.

Do not share your director ID with anyone else. Each person who submits events must have their own director ID and is responsible for the events that they submit. You may have someone assist you, but you are still responsible for the events submitted using your director ID.

You are responsible for making corrections (including removing duplicate players) for any events that you submit. Such corrections may be necessary long after an event is submitted. Therefore you are expected to back up the database files and retain them indefinitely. If you get a new computer, copy the files to the new computer (and make a backup; see [Section 1.4 on page 14](#)). If you do lose your files, Ratings Central can send you replacements; see [Section 3 on page 74](#).

2.1.2. *Retiring or Transferring*. You may transfer your director ID to another person by giving the other person the database files and updating the information for the director ID on the [Ratings Central website](#) to be that of the other person. There are two ways that you can do this: One way is to change the information on the website to the other person, change the password to a temporary one, give the other person the temporary password, and have the other person set their own password. The other way is to change the password to a temporary one, give the other person the temporary password, and have the other person set their own password and change the information to them. In both cases, you need to give your database files to the other person.

Note that this system makes it simple for an organization to effectively have a director ID. All the organization has to do is pick a responsible person, who registers as the director. When that person no longer wishes to be the responsible person, the organization picks a new responsible person, and the first person transfers the director ID to the second person.

If you are no longer able to be responsible for the events that you submitted, do not simply disappear. It is best to find someone else to transfer your director

ID to. But, if you cannot do that, contact us; see <https://www.ratingscentral.com/Problems.php> for our email address.

If you want to delete your director ID, contact us. However, we cannot delete a director ID if there are events that were submitted using that ID. (You can search for your events on the website by entering your director ID in the “Director ID number” field on the “Events” page on the website.)

If you want to delete an event, delete all the results, then submit the event; see Section 3.1.1 on page 42. (Are you sure that you want to delete the event? Players may wish to see their old results.) If you used Zermelo to submit a tournament, it isn’t practical to use Zermelo to delete it. If you need assistance deleting tournaments or events, contact us. Rather than deleting events, it may be better to transfer your director ID to another person.

2.1.3. *Old Version Password Compatibility.* Versions of Cantor before version 10 only accept passwords that are at most twenty ISO 8859-1 (Latin 1) characters. If you used such a version and you need to resubmit an event and your current password does not satisfy the twenty ISO 8859-1 character limitation, you have three choices: You can upgrade to the current version of Cantor, you can change your password on the website to satisfy the limitation (and maybe change it back when you are done), or you can enter a “short password” on the website. If you enter a short password, it will be used with Zermelo versions before 21 and Cantor versions before 10; your regular password will be used with other (more recent) versions. In all cases, your regular password will be used to log in to the website. The recommended approach is to upgrade to the current version of Cantor.

2.2. List Database Folder. The rating-list database file `RatingList.nx1` and the club database file `Club.nx1` contain the same information that is in whatever rating and club lists that you’ve imported. Since the rating-list database file can be rather large and there is no need to back up either of the list database files, you may wish to keep them in a folder other than the database folder, thus making it simpler to back up the database files that you do need to back up whenever you use Cantor. Another reason you might wish to do this is if you have more than one director ID—see Section 2 on page 90. You can use the same list-database folder for both Cantor and Zermelo (or two or more instances of either of them), but if you do so, you can only have one app running at a time.

Enter the folder you wish to use in the *List database folder* field. Leave the field blank to use the database folder as the list database folder. You can enter the name of a folder that doesn’t exist and Cantor will create it. You can click the button to the right of the field to browse to the folder you want.

If you have already imported a list, changing the list database folder will not move the list database files. You will either have to move them yourself or import the lists again. If you wish to move them yourself, do it when Cantor is not running.

3. Set Up Internet

The *Set Up Internet* menu item brings up a window (Figure 2 on the following page) that lets you set your email and Web parameters. Cantor uses these when submitting events to Ratings Central and when downloading rating and club lists and getting new Ratings Central IDs.

Set Up Internet

Your email address: davidmarcus@alum.mit.edu

Submission method: Web

Email

SMTP server:

SMTP port:

Use authentication: Use TLS:

Username:

Password:

Web proxy server

Use proxy server:

Server name:

Port:

Username:

Password:

Test Save Cancel

FIGURE 2. Set-up-Internet window

Put your email address in the *Your email address* field. Enter only your email address; don't include angle brackets or a display name. If you do a test submission (see Section 3.3 on the next page), Ratings Central will send the reply to the email address that you enter here. If you submit an event, Ratings Central will send any error messages to the email address that you enter here. However, Ratings Central will send the email message that the event has been processed to the email address that Ratings Central has for your director ID, not the email address that you enter here. To update the email address for your director ID, log into the [Ratings Central website](#). We recommend that you enter the same email address here that you have set up for your director ID.

Cantor can submit events to Ratings Central using either email or the Web. Select the method you prefer in the *Submission method* drop-down list. The Web

submission method is easier to set up and will work with more Internet connections. The email submission method may work more quickly.

3.1. Email. Enter the name of your SMTP (outgoing mail) server in the *SMTP server* field. This may be something like `smtp.YourDomain.com` or `mail.YourDomain.com`. Your Internet or email provider may include this information on their website in their instructions for setting up your email client. If you only use webmail, then you probably won't find the SMTP server name in your email settings. If you can't find the SMTP server name anywhere, ask your Internet or email provider.

Enter your SMTP port in the *SMTP port* field. The standard ports for SMTP are 25 and 587. If your Internet or email provider doesn't tell you the port to use for their SMTP server, try both of them (both, one, or neither may work).

Some Internet or email providers have their SMTP servers set up to use authentication (i.e., to require a username and password). If your Internet provider uses SMTP authentication, check the *Use authentication* check box. Then enter your account username and password in the *Username* and *Password* fields. If the SMTP server supports TLS (the "explicit" type of TLS), then check the *Use TLS* check box. TLS encrypts the communication with the server so that your password is not sent in clear text. The SMTP port to use may depend on whether you are using TLS. When using TLS, Cantor just makes sure to create a TLS connection and does not verify that the certificate that the server provides is really for the server, is not expired, etc. Note that just because you have a username and password doesn't mean that your SMTP server uses SMTP authentication. You always have a username and password so that you can access the POP (incoming mail) server.

If your Internet and email providers do not have an SMTP server that you can use, you can use a free account from SMTP2GO, <https://www.smtp2go.com>. SMTP2GO has two ways to verify senders: Sender Domain and Single Sender Email. For submitting to Ratings Central, either one should work.

If you don't have access to an SMTP server or you don't know how to configure Cantor to use it, then use the Web submission method.

3.2. Web Proxy Server. Usually, you don't have to set any Web parameters. However, some Internet connections use a proxy server to access the Web. It is unlikely that a home connection uses a proxy server, but it is moderately common for companies to use proxy servers. Cantor uses the *Web proxy server* parameters when downloading rating and club lists and when submitting events to Ratings Central using the Web submission method.

You can find whether you are using a proxy server by looking at your Internet options in Windows: *All settings > Network & Internet > Proxy*. If the *Use a proxy server for your LAN* check box is checked, then you should check Cantor's *Use proxy server* check box and copy the values from the Windows *Address* and *Port* fields to Cantor's *Server name* and *Port* fields. If your proxy server requires a username and password enter them in the *Username* and *Password* fields.

Sometimes a company uses a proxy server, but you can still access the Web even if you leave the *User proxy server* check box unchecked.

3.3. Test. Click the *Test* button to test your Internet setup. When you click this button, Cantor will send a test submission to Ratings Central. If Cantor succeeds in

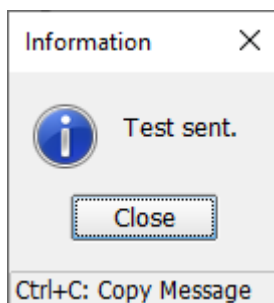


FIGURE 3. Test-sent window

From: Ratings Central
Sent: Saturday, March 26, 2022 1:54 PM
To: David Marcus
Subject: Ratings Central received your test

Submitted: Sat, 26 Mar 2022 13:52:16 -0400 (EDT)
Status: Test

We received the test that you sent.

Ratings Central
www.ratingscentral.com

FIGURE 4. Test reply email

sending the test, it will display the window in Figure 3. Ratings Central will respond with an email like the one in Figure 4. The “Submitted” date and time in the email will be the date and time that you clicked the *Test* button.

Usually, you will get a reply to your test in a few minutes. However, the Ratings Central processor may be busy processing events, so it may take longer. It won’t take more than a day.

4. Select Printer

The *Select Printer* menu item brings up a window (Figure 5 on the facing page) that lets you select which printer Cantor prints to. If you select “Default”, then Cantor will print to whichever printer you’ve set as the default printer in Windows. Cantor stores the printer that you select in the Cantor.ini file, so Cantor will remember the value even after you quit Cantor.

5. Visit Website

The *Visit Website* menu item opens your browser on the Ratings Central home page (<https://www.ratingscentral.com>). To get to the “Event Director Support” webpage, click the “Event Director Support” link that is in the left sidebar on every page on the website.

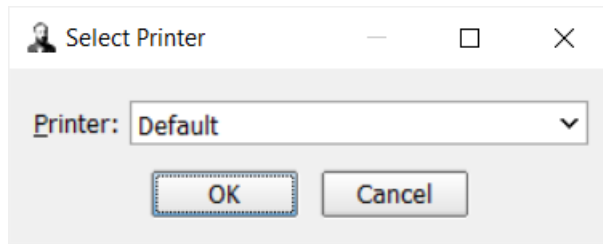


FIGURE 5. Select-printer window



FIGURE 6. Version window

6. Display Version

The *Display Version* menu item brings up a window (Figure 6) that shows version and copyright information. The version number is also shown in the title bar of Cantor's main window. You can find the latest version of Cantor on the [Ratings Central website](#).

You can click on the photo to go to a webpage about Georg Cantor.

Lists Menu

The *Lists* menu contains items that let you import rating or club lists and browse the imported lists.

1. Import

The *::Lists > Import* menu item brings up a window (Figure 1) that lets you import a rating list or club list into Cantor.

You don't need a rating list to use Cantor, but a rating list makes entering players much simpler. Similarly, you don't need a club list, but without one, Cantor won't let you enter clubs for players or events.

To add your club to the Ratings Central club list, go to the [Ratings Central website](#) and log in (see Section 5 on page 32).

Ratings Central provides players' personal information so that you can publicize and run your events. Please respect players' privacy—do not use the information for other purposes or give it to anyone else.

There are two ways to download the rating and club lists: automatic and manual.

1.1. Automatic Download. To have Cantor automatically download the rating and club lists from the [Ratings Central website](#) and import them, set the *Source*

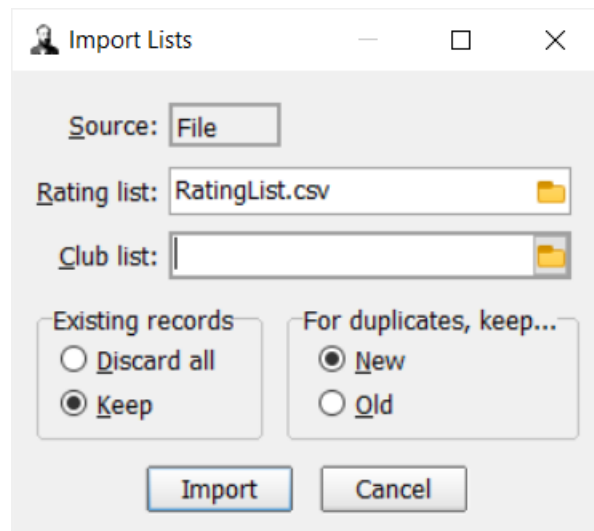


FIGURE 1. Import-lists window

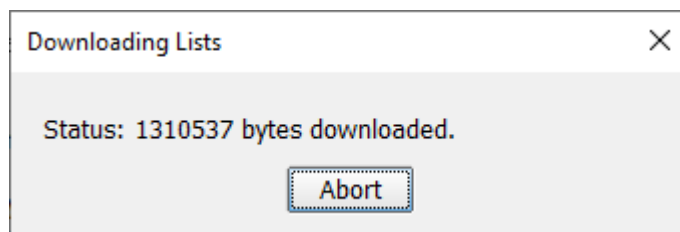


FIGURE 2. Download window

drop-down list to “Web”. You won’t be able to select “Web” unless you’ve already entered your director ID and password via `::Cantor > Set Up`. You must also have set the sport that is associated with your director ID. If you select the wrong sport, then the import will fail with a message that Cantor can’t find a file.

If you’ve previously imported lists, then the *Existing records* radio box will be active. If you select the *Discard all* radio button, then all the records that you previously imported will be discarded. If you select the *Keep* radio button, the new records you are about to import will be appended to the ones you previously imported. (If you previously imported the sample rating or club lists that come with Cantor, be sure to select *Discard all*.)

If you select *Keep*, then the *For duplicates, keep...* radio box will be active. You have a duplicate record if there are two records for the same player ID or club ID number. If you select *New*, then the new record for any duplicate will be kept and the old one will be discarded. If you select *Old*, then the old record will be kept and the new one discarded.

Click the *Import* button to download and import the lists. Figure 2 shows the window that Cantor will display while downloading. Once the lists are downloaded, Cantor will automatically import them.

In addition to importing the lists, Cantor will place text copies of the lists in the list database folder (see Section 2.2 on page 29). The files will have names like `RatingList.csv` and `ClubList.csv`, but if your director ID is for a sport other than table tennis, the filenames will have a prefix that identifies the sport (e.g., “Hardbat”, “Sandpaper”). See Section 1.2 for more information on these two files.

If you connect to the Web via a proxy server, you will need to enter your proxy server information in `::Cantor > Set Up Internet`.

1.2. Manual Download. To download a rating list and a club list manually, go to the [Ratings Central website](#) and log in (see Section 5 on page 32). Just below where it says “Download zipped rating and club lists”, click the link for the appropriate version. This will download the two lists in a single zip archive. Save the file.

You will need any unzip program to extract the two lists from the archive. Windows has built-in support for unzipping files. There are also dozens of unzip programs available on the Web.

Extract the contents of the zip file. You should now have two files with names like `RatingList.csv` and `ClubList.csv`. (As mentioned above, if your director ID is for a sport other than table tennis, the filenames will contain a prefix that identifies the

```
Member ID,Last Name,First Name,Rating,State,Zip,Gender,Date of Birth,Expiration Date,Last Played Date
8840,O'Neill,Sean Patrick,2484,VA,22903,M,1/2/1967,12/31/2099,8/31/2003
56475,James,David H.,1827,VA,23227-1721,M,3/4/1973,9/30/2002,11/25/2001
```

FIGURE 3. Sample USATT rating list

sport.) These are CSV files. “CSV” stands for comma-separated values. A CSV file is just a text file with commas separating the values.

Excel understands CSV files, so you can open them in Excel, if you wish. You can't have a list open in Excel while you are trying to import it into Cantor. If you do this, you'll get an error message that says something like “Cannot open file RatingList.csv: The file is open in another application.” Excel uses a nonstandard CSV format—Cantor can import lists that are in either the standard CSV format or in Excel's CSV format.

Once you've downloaded the rating list and the club list, you are ready to import them. Set the *Source* drop-down list to “File”. To import the rating-list file, RatingList.csv, type the filename of the file in the *Rating list* field. Include the path to the folder where the file is, e.g., C:\My Documents\RatingList.csv. Alternatively, click on the button at the right of the field to browse for the file.

To import the club-list file, ClubList.csv, type the filename including path in the *Club list* field, or click on the button at the right of the field to browse for the file.

You can import both a rating list and a club list at the same time. If you do so, then the selections you make in the radio boxes apply to both lists.

Click the *Import* button to import the lists.

Note that the rating list and club list are sport specific. So, if you have more than one director ID and the director IDs are for different sports, be sure you download and import the lists that are appropriate for your event's sport.

1.3. USATT Rating List. Cantor can also import a USATT rating list in CSV format that you can get from USATT. USATT provides a list that is only available to tournament directors that includes birth dates. There may also be a publicly accessible list that does not include birth dates. Cantor can import either version of the list. Figure 3 shows the first few lines from such a list (including birth dates). To compare Figure 3 to the file that you receive from USATT, view the file in Notepad, not Excel. The first/header line must have the column headers shown (ignoring case) and in the same order (the “Date of Birth” column can be omitted). Each succeeding line must have the information for one player with the fields separated by commas. Any field that contains a comma must be surrounded by double quotes. The “State” column may contain a three-letter country code. Unrated players must have a rating of “0” or blank. Dates must be in m/d/yyyy format. Gender must be either “M”, “F”, or blank. Players with life memberships must have an expiration date of “12/31/2099”.

Import the USATT rating-list file the same way that you would import the Ratings Central RatingList.csv file, i.e., set the *Rating list* field to the name and path of the file and click the *Import* button.

You can import both a Ratings Central rating list and a USATT rating list. When you import the second rating list, you will need to select the *Keep* radio button in

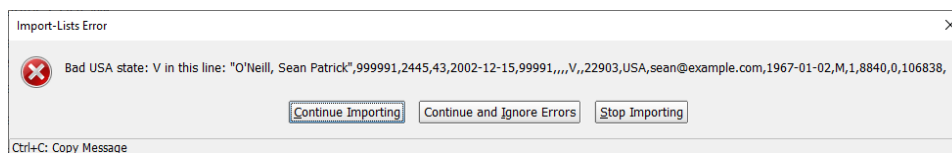


FIGURE 4. Import-lists error window

the *Existing records* radio box. For the *For duplicates, keep...* radio box, it doesn't matter whether you select *New* or *Old* because Cantor knows to not confuse player IDs from the two organizations.

1.4. Import Errors. If Cantor encounters a problem parsing a line in a list that it is importing, it will display a window with a message explaining what the problem is and what line is causing the problem; see Figure 4. Click the *Continue Importing* button to skip the line and continue importing the list. Click the *Continue and Ignore Errors* button to skip the line, continue importing, and silently skip any subsequent lines that have errors. Click the *Stop Importing* button to stop importing the list. In all cases, any lines already imported will remain imported and the problem line will not be imported.

2. Browse Rating

The *Browse Rating* menu item brings up a window that lets you browse the rating lists that you've imported. See Section 1.3 on page 55 for more information.

3. Browse Club

The *Browse Club* menu item brings up a window that lets you browse the club list that you've imported. See Chapter 8 on page 65 for more information.

CHAPTER 5

Events Menu

The *Events* menu contains items that let you set the current event, add events, set event parameters, and submit events to Ratings Central.

Ratings Central identifies an event by its date and director ID. So, Cantor only allows you to have one event on a given date. If you need to submit two events on the same date, see Section 2 on page 90 for instructions on how to do this.

Do not use the same director ID with Zermelo, or any other client, to submit an event on the same date as an event that you are submitting with Cantor. Do not use the same director ID with two sets of Cantor database files, since then there will be nothing to prevent you using the same event date in both sets, and you must not do that.

If you accidentally submit two different events using the same date and director ID, you must completely delete the event from Ratings Central (by submitting the event with no results), then resubmit the event that you want to have this date and director ID. If you do not completely delete the event, new players in the event may have the wrong names, ratings, etc. If you need help with this, please contact us; see <https://www.ratingscentral.com/Problems.php> for our email address.

1. Multiple-Day Events

While events are identified by their date, you don't have to have all the matches be played on a single day. For example, if you run a tournament that lasts two or three days, you should put all the matches into a single event. If you play matches at your club several nights during the week, you could treat each day's matches as a different event, but it would probably be better to consider the week's matches to be a single event. If you run a weekly league that has a season spanning several months, you could consider each week to be an event or you could consider several weeks or the whole season to be an event.

Ratings Central will calculate different ratings depending on how you group the matches into events. Bunching up matches into fewer events will generally improve the accuracy of the ratings, since the system has more information on how each opponent is playing and because information only flows forward in time in the rating system. In particular, if you have a large number of unrated players in your league, it would probably be better to bunch up more matches into a single event. Bunching up matches changes how the temporal update is applied, since the system treats all the matches as being played on the same date. So, all the matches in a single event should be from a reasonably short span of time. A few weeks is reasonable. Three or four months is the longest that may be reasonable.

This flexibility in what constitutes an event is mainly for leagues. In general, each tournament should be its own event and not combined with other tournaments. Note that the [Ratings Central website](#) displays all the matches in an event together and as occurring on a single date. So, if you need to track how players improve during your league season, you may not want to treat the whole season as a single event. If you aren't sure what to do, please contact us for advice; see <https://www.ratingscentral.com/Problems.php> for our email address.

Normally, the event date is the first day of the event. However, this isn't required. If you prefer, you can use the last day or a day in the middle. This choice will affect the ratings, but the effect will not be large.

If your event lasts more than one day, you could submit the event each day. This is rarely worth the effort for a tournament. But, if you are combining multiple weeks into one event for a league, you might wish to resubmit the event each week. When you resubmit the event, Ratings Central will recalculate the ratings taking into account all the matches in the event. Note that Ratings Central will not let you submit an event before the event date. Also note that Ratings Central will only send one email to a player for a given event notifying them that the event has been posted on the website. So, if you resubmit an event, players who were in the first submission will not receive a second email. If you think it would be useful for there to be a way to request that players be notified again, let us know.

2. Subevents

Tournaments typically are composed of several "events", e.g., singles, doubles, team, open, junior, senior, rating-limited. In this manual and for Ratings Central, the word "event" never refers to this type of event. In this manual, if we need to refer to this type of event, we will say "subevent". For Ratings Central, an *event* is a collection of matches that are submitted together. A tournament should always be submitted as a single Ratings Central event. An exception to this rule is if the players can be separated into groups such that the groups don't play each other. For example, if males only play males and females only play females, then submitting the male matches as one event and the female matches as another event will not change the ratings and may make the event summary report and detailed report webpages on the [Ratings Central website](#) easier to peruse.

One of the requirements for submitting an event or tournament to Ratings Central is that you submit all matches that are part of the event or tournament, not just some of them. In particular, don't just submit the matches played by your club members (for example). However, if you wish to run an unrated novice subevent or some sort of "fun" subevent as part of your tournament, it is acceptable to submit the tournament and not submit the novice or "fun" subevent. See <https://www.ratingscentral.com/MinimumRequirements.php> for the minimum requirements for Ratings Central events. Note that you should never submit a handicap subevent (i.e., a subevent where the weaker player is spotted points) for ratings.

3. Select Current

The *Select Current* menu item brings up a tabbed-notebook window (Figure 1 on the facing page) that lets you select which event is the current event. The current

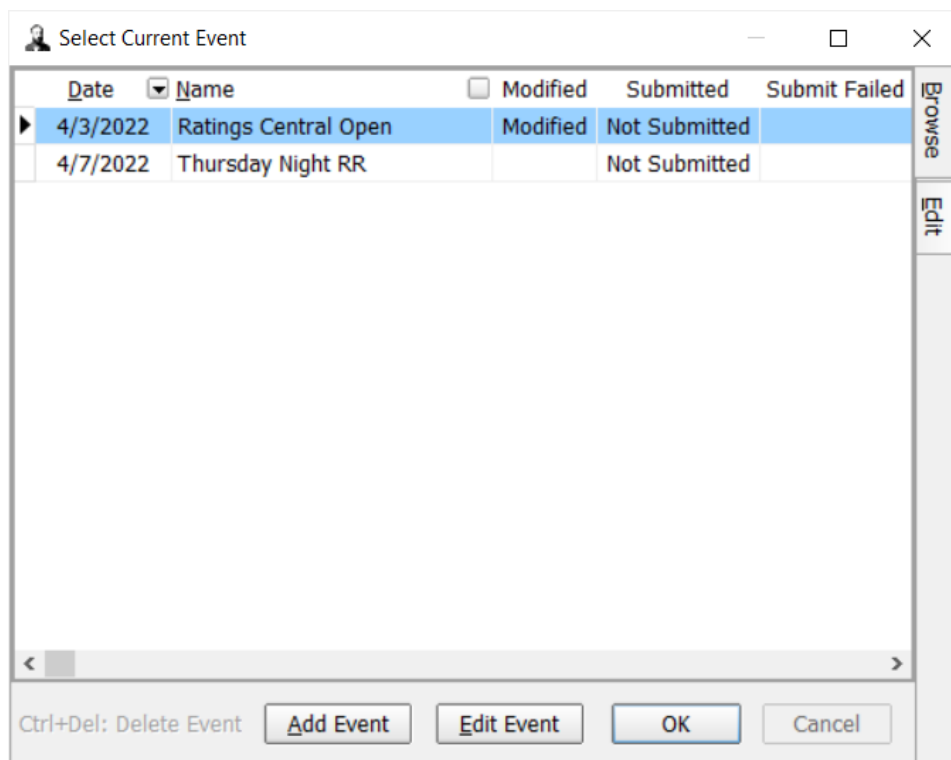


FIGURE 1. Select-current-event window

event is displayed in Cantor's main window and is the event that you can add players and results to.

The *Select Current* menu item also lets you browse and add events and set the parameters for each event.

3.1. Browse. The first page of the notebook (the *Browse* page) contains a grid listing the events along with various parameters for each event. Just like Cantor's other grids, you can resize a column by dragging an edge of the column header, you can rearrange the order of the columns by dragging a column header with the mouse, and you can sort the grid on a column by clicking the button to the right in the column header. You can only sort the grid on columns that have the button. The column that is being used for sorting will show a downward-pointing arrowhead in the button.

The grid lets you select which event is the current event. The current event is indicated by the right-pointing arrowhead in the leftmost column of the grid. If the grid has the focus (see Section 4 on page 80 for an explanation of "focus"), then the current event is also highlighted. When you click the *OK* button to close the window, Cantor will update the main window so it displays the name, date, and results of the current event. If you click the *Cancel* button, then Cantor will not change which event was current. You can also double-click the row of an event to select it as the current event and close the window.

FIGURE 2. Edit-event page

The columns of the event grid display information that you can also view on the *Edit* notebook page. Each column is described below when we describe the *Edit* page.

The *Add Event* button switches to the *Edit* page to let you add a new event. The *Edit Event* button switches to the *Edit* page for the currently selected event; you can also click the *Edit* notebook tab.

3.1.1. *Delete Event.* Press (Ctrl+Del) to delete the event that is highlighted. The grid must have the focus for you to delete an event. Cantor will not let you delete an event if there are any match results entered for the event or if you have submitted the event and made any modifications to the event since you've submitted it. If you want to delete such an event, first delete all the results. If you haven't previously submitted the event, you will now be able to delete it. If you have previously submitted the event, then resubmit it. To make sure that the resubmission worked, wait until you get the email confirmation that the event is deleted, or check the [Ratings Central website](#) and make sure that the event is no longer there. Then, delete the event. You can tell whether you can delete the highlighted event by whether the words "Ctrl+Del: Delete Event" just below the grid are dimmed or not.

3.2. Edit. Figure 2 shows the *Edit* notebook page.

3.2.1. *Navigation and Saving.* Any changes you make on the *Edit* notebook page are not saved to the database files until you save them. One way to save your

changes is to click the *Save* button. If you click the *Browse* notebook tab, Cantor will save your changes just as if you clicked the *Save* button.

In the bottom left of the window there is a navigator bar with four buttons. This lets you move to a different event without first going back to the *Browse* page. The left navigator button moves to the first event (order of events is determined by how the grid on the *Browse* page is sorted), while the right navigator button moves to the last event. The middle-left button moves to the event before the one that is displayed, while the middle-right button moves to the event after the displayed one. If you navigate to a different event, Cantor first saves any changes you have made to the displayed event. If you do not want to save your changes, you should click the *Cancel* button instead.

3.2.2. *Name*. Enter the name of the event in the *Name* field. You must set the name for the event.

3.2.3. *Date*. Enter the date of the event in the *Date* field. If the event lasts more than one day, see [Section 1 on page 39](#).

If your short-date Windows setting uses the month-day-year order, the field will display the month name. Regardless of how the date is displayed, you must enter the date using numbers or by clicking the button to the right of the field to drop down a calendar.

Once you've submitted the event, it is difficult to change the date. See [Section 6 on page 47](#) for the procedure.

3.2.4. *Match Format*. When you enter results, you can select the match format for each result. Since it would be tedious to have to change the format for every result, the *Match format* field lets you set the default format to use when entering results for matches in the event. In other words, this field lets you set which match format the *New Result* window starts out with when you click the *New Result* button. See [Section 2 on page 62](#) for more information.

3.2.5. *State and Province*. For the USA and Canada, set the *State* field to the state (for the USA) or province (for Canada) where the event is located. For countries other than the USA and Canada, set the *Province* field to the province where the event is located; you may leave the *Province* field blank. The *State* and *Province* fields will be enabled or disabled appropriately when you select the country. Cantor also uses the event state and province as the default state and province when adding new players to the event. When you add a new event, Cantor initializes the state and province to the state and province of the current event.

3.2.6. *Country*. Set the *Country* field to the country where the event is located. Cantor also uses the country as the default country when adding new players to the event. When you add a new event, Cantor initializes the country to the country of the current event.

3.2.7. *Club*. The *Club* box shows the club that is sponsoring the event. An event does not have to have a sponsoring club. When you add a new event, Cantor initializes the club to the club of the current event.

Cantor won't let you type the name of a club in the club field. To set or change the club, click on the *Change* button to bring up the club browser. The club browser is described in [Chapter 8 on page 65](#). The *Change* button will only be enabled if

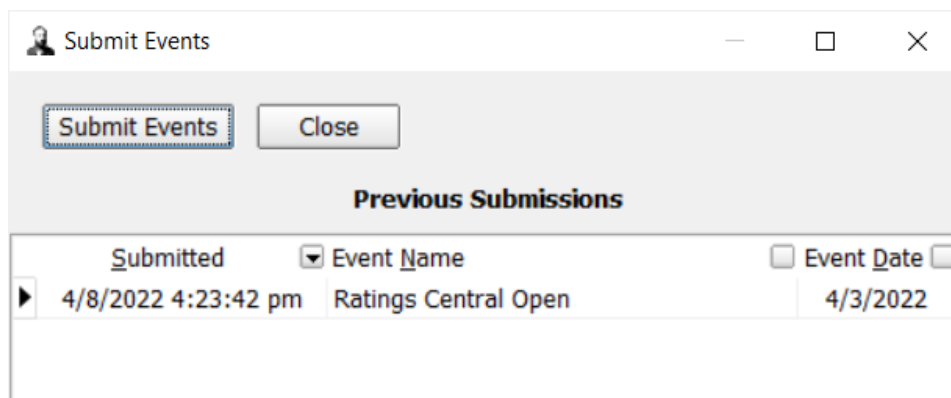


FIGURE 3. Submit-events window

you have imported a club list (see Section 1 on page 35). To clear the club, click the *Clear* button.

3.2.8. *Unrated Prior*. The *Mean* and *Standard deviation* fields let you specify the mean and standard deviation of the playing strength of unrated players in the event. You must set both of these. See Chapter 9 on page 67 for advice on what to put in these fields.

3.2.9. *Status*. The *Modified* check box indicates whether you've made any modifications to the event, its players, or its results that require that the event be submitted or resubmitted. This is an informational check box, i.e., you can't change it. If the *Modified* check box is checked, then Cantor will submit this event the next time you submit events.

The *Submitted* check box indicates whether the event has ever been submitted. This is also an informational check box.

The *Submit failed* check box lets you tell Cantor that the previous submission of the event didn't work, i.e., wasn't received by Ratings Central. If you check this box, then Cantor will resubmit the event the next time that you submit events. You will need to re-check any player *New personal info* check boxes that were checked in the prior submission. See Section 1.2.14 on page 53 for more information on the *New personal info* check box.

For more information on submitting events, see Section 4 and Chapter 10 on page 71.

4. Submit

The *Submit* menu item brings up a window (Figure 3) that lets you submit events to Ratings Central.

4.1. Submit Events. Click the *Submit Events* button to submit results to Ratings Central. Clicking this button submits all events to Ratings Central that need to be submitted. You do not have to, nor can you, specify a single event to submit.

The button will be disabled unless there are events to submit. The button will also be disabled if you haven't entered your director ID and password (in *::Cantor > Set Up*) or haven't set up your Internet parameters (in *::Cantor > Set Up Internet*).

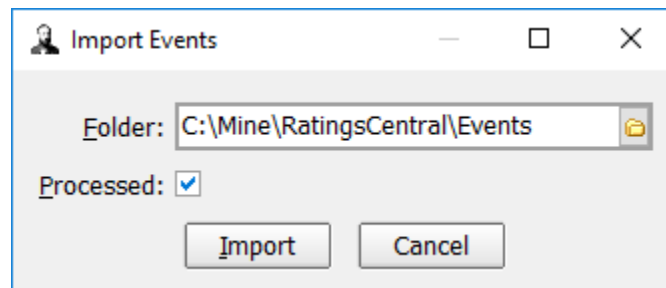


FIGURE 4. Import-events window

If the button is disabled for a reason other than there being no events to submit, a message will be displayed below the button giving the reason that the button is disabled.

If an event has not been submitted before, then it will be submitted if it has any results. Once an event has been submitted, it will be resubmitted if you've made any changes to the event, its players, or its results that Ratings Central needs to know about.

You can tell if an event will be submitted by looking at the grid in `::Events > Select Current`. Cantor will submit the event if the row for the event says "Modified" or "Submit Failed". You can also look on the *Edit* page of the notebook to see if either the *Modified* check box or the *Submit failed* check box is checked.

See Chapter 10 on page 71 for what happens when you submit events.

4.1.1. *Correcting Errors*. If you need to correct any of the match results, player data, or other information that you submitted, just correct them and then click the *Submit Events* button to submit the events again. If you are correcting a player's personal information, you will have to check the player's *New personal info* check box. Do not check the *New personal info* check box if you are only correcting a player's ID, rating, or unrated prior. See Section 1.2.14 on page 53 for more information on the *New personal info* check box. See Section 1 on page 72 for how to fix a duplicate player. See Section 6 on page 47 for how to fix the event date after the event has been submitted. See Section 2 on page 74 for how to fix the director ID after the event has been submitted.

If a player or another event director contacts you to inform you of an error that you need to correct, you should reply to them within one business day and fix the problem within one week.

4.2. Previous Submissions. The grid at the bottom of the window shows each submission of an event. The grid works like Cantor's other grids (see Section 9 on page 83). The "Submitted" column is the date and time that Cantor sent the event to Ratings Central.

5. Import

The `::Events > Import` menu item brings up a window (Figure 4) that lets you import event report files into Cantor. The menu item will be disabled if you haven't entered your director ID (in `::Cantor > Set Up`).

The event report files will either have been constructed by you (using the API documentation that you got when you requested the documentation from Ratings Central) or will have been given to you by Ratings Central (because the database files that were used to generate the event reports and submit the events to Ratings Central have been lost; see [Section 3 on page 74](#)).

Regardless of which API version the files use, the files must use the UTF-8 character encoding. It is best to include the BOM (byte-order mark) in the file to indicate the character encoding. If the file does not have the BOM, Cantor will assume it is UTF-8. If everything in the file is ASCII, then you don't have to worry about the character encoding since the encoding of ASCII characters is the same in UTF-8, ISO 8859-1 (Latin 1), and ASCII.

Type the name of the folder that contains the event report files in the *Folder* field. Include the path to the folder. Alternatively, click on the button at the right of the field to browse for the folder.

Leave the *Processed* check box checked if the events have already been processed by Ratings Central. If they have not been processed, uncheck the check box.

Click the *Import* button to import the event reports. Cantor will import all the event report files in the folder that are for your director ID, i.e., all the files of the form YYYY-MM-DD_<ID>.dat where <ID> is your director ID. Before importing the events, Cantor will read all of the files to make sure that there are no problems. If it finds a problem, it will display a message and not import any of the events. If there are no problems, it will import all the events. So, it should either import all the events or none. After importing the events, it will display a message that says how many events it imported.

If the event report files that you want to import are for a different director ID than your other events, see [Section 2 on page 90](#).

Since Cantor requires that player names in an event be unique (see [Section 1.2.1 on page 50](#)), if two players in an event report file have the same name, Cantor will append the player's report ID to one of the names. The *report ID* is the ID in the event report file that identifies the player. This will either be the player's Ratings Central ID or a negative number. A negative report ID is a temporary ID that is used because the player did not have a Ratings Central ID when the event was submitted.

If a player's report ID is negative and the event has been processed, you won't be able to delete the player even if you delete all of the player's results. This is so that Cantor will know that the particular temporary ID has been used and not use it for a different player that you subsequently add to the event. After resubmitting such an event, you also won't be able to delete any players without Ratings Central IDs that you added to the event after importing it (since they will now have been assigned temporary IDs). This shouldn't cause a problem since you can delete any erroneous match results that involve such players, even if you can't delete the players from the event in Cantor.

If you check the *Processed* check box, Cantor will add the events to the *Previous Submissions* log just as if Cantor had originally submitted them.

Cantor will ignore the value of the *New personal info* flag in the event report file unless the player has a Ratings Central ID and you do not check the *Processed*

check box. The reason for this is the following: If you check the *Processed* check box, then the value of the flag in the file was used when the event was processed, so is not relevant for any resubmission. If you do not check the *Processed* check box and the player does not have a Ratings Central ID, then the player will be created when the event is submitted, so the flag is meaningless.

5.1. Ratings Central API. As mentioned above, there is an API that lets you construct an event report and submit it to Ratings Central without using Cantor or Zermelo. If you need the documentation for the API, contact us; see <https://www.ratingscentral.com/Problems.php> for our email address.

While the API documentation explains how to submit an event report without using Cantor, you could also construct the event report according to the API documentation, then import the event report file into Cantor and have Cantor submit it. If you do this, any corrections that you need to make to the event after it has been submitted must be made in Cantor. In other words, you must have only one master copy of an event. Once you import it into Cantor, then the master copy is the one Cantor has, not the file that you imported. There is no “replace” option on the import to replace an event that is already in Cantor nor is there any way to export an event from Cantor.

You could also use Cantor to check your event report files for errors without using Cantor to submit them: Start Cantor on an empty database folder (see Appendix C on page 89). Import your event report files into Cantor. See if Cantor reports any errors. Exit Cantor. Delete the files in the database folder.

Cantor will use the temporary IDs in the event report file that you import when submitting the event to Ratings Central, even if the event has not been submitted before. This allows you to use temporary IDs that are meaningful to you.

Never submit test data to Ratings Central.

6. Help Correct Date

The *Help Correct Date* menu item helps you correct the date of an already-submitted event. Because Ratings Central identifies an event by its date and director ID, it is not easy to change the date of an already-submitted event. To change the date, you must follow the following procedure.

6.1. Step 1. Make sure that the Ratings Central website is up to date for the wrong-date event, i.e., you received the event-processed email after you last submitted the event (see Chapter 10 on page 71). Note that the website displays the date and time of the original submission (“Submitted”) and the last resubmission (“Revised”) on the event summary report and event detailed report webpages. If the last submission failed, you need to tell Cantor this via the `::Events > Select Current > Edit Event > Status > Submit failed` check box. If the last submission failed or you have made any modifications to the event since your last submission, have Cantor resubmit the event via `::Events > Submit > Submit Events`.

6.2. Step 2. Use `::Events > Select Current` to make the wrong-date event be the current event.

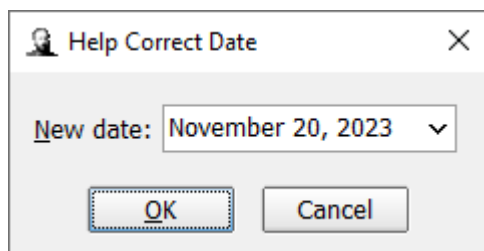


FIGURE 5. Help-correct-date window

6.3. Step 3. Do `::Players > Get New IDs` to get the Ratings Central IDs for new players in the wrong-date event. See Section 6 on page 59 for more information.

6.4. Step 4. Do `::Events > Help Correct Date`. (The menu item will be disabled if you have not submitted the event, the event has been modified since it was submitted, you checked the *Submit failed* check box, or if any players who have played in the event do not have a value in the *IDs > Ratings Central* field.) The menu item brings up a window (Figure 5) that lets you enter the correct date of the event. Enter the correct date in the *New date* field. (See Section 12 on page 84 for how to enter dates in a date field.) There must not already be an event on this date in Cantor. Click the *OK* button. There will now be a new event on the correct date that has all the players and results from the wrong-date event.

6.5. Step 5. Do `::Events > Submit > Submit Events` to submit the new (correct-date) event. Make sure that you receive the event-processed email.

6.6. Step 6. If you've changed which event is the current event, use `::Events > Select Current` to make the wrong-date event be the current event. In the main window, repeatedly press `Ctrl+Del` to delete all the results in the wrong-date event.

6.7. Step 7. Do `::Events > Submit > Submit Events` to submit the wrong-date event. Make sure that you receive the event-deleted email.

6.8. Step 8. Do `::Events > Select Current`. Press `Ctrl+Del` to delete the wrong-date event.

Players Menu

The *Players* menu contains items that let you add players to, modify players in, and print lists of the players in the current event. It also contains items that let you export the players in the current event and import players into the current event. It also contains an item that lets you get the Ratings Central IDs for new players in the current event after you have submitted the event. The current event is the one that is displayed in the main window and which you selected via *::Events > Select Current*.

1. Modify

The *Modify* menu item brings up a tabbed-notebook window (Figure 1) that lets you add and modify players in the current event and access the rating list. This

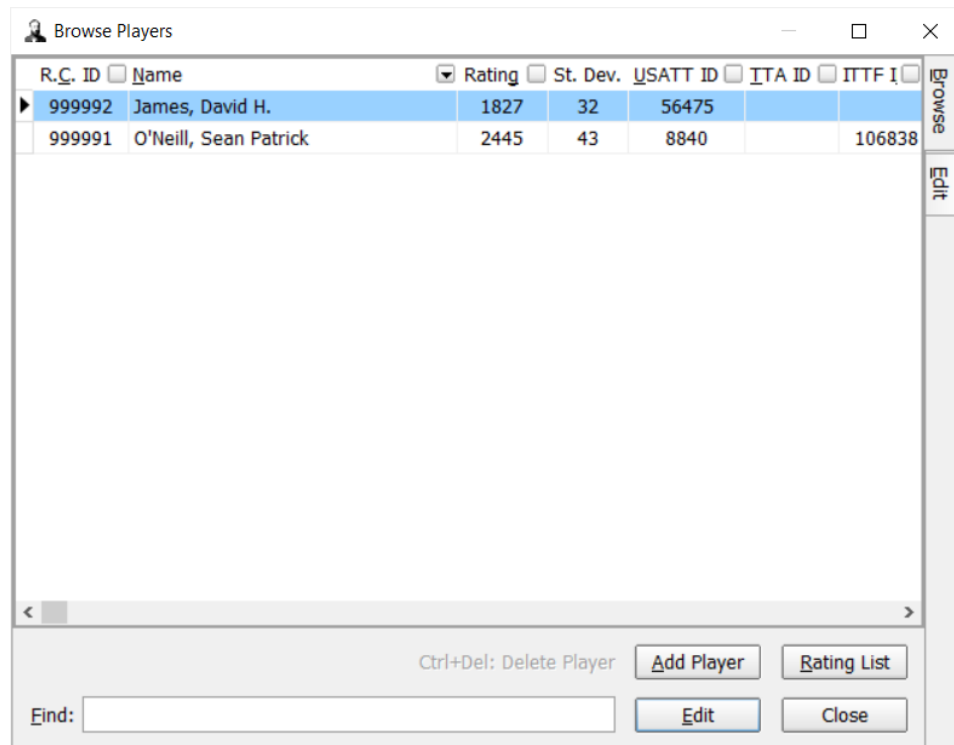


FIGURE 1. Modify-players window

menu item will be disabled until you have selected a current event.

1.1. Browse. The first page of the notebook (the *Browse* page) contains a grid listing the players along with various information about each player. The grid works like Cantor's other grids (see Section 9 on page 83). The columns of the player grid display information that you can also view on the *Edit* notebook page. Each column is described below when we describe the *Edit* page.

The *Find* field lets you search for a specific player. This is an incremental-search field, so you can type just the first part of what you are searching for and the grid will move to the first matching player. The search happens after every keystroke. The value you type must be the sort of thing that is in the column that the grid is sorted on, e.g., if you want to search for a player by name, you must sort the grid by name by clicking on the button in the header of the "Name" column.

The *Add Player* button switches to the *Edit* page to let you add a new player to the event. The *Edit* button switches to the *Edit* page for the currently selected player; you can also click the *Edit* notebook tab or double-click the player's row. The *Close* button closes the window.

Press <Ctrl+Del> to delete the player that is highlighted. The grid must have the focus for you to delete a player. Cantor will not let you delete a player who has any results. (To delete the player, first delete the player's results.) You can tell whether you can delete the highlighted player by whether the words "Ctrl+Del: Delete Player" just below the grid are dimmed or not. If you imported the event, Cantor may not let you delete the player even if they do not have any results; see Section 5 on page 45.

The *Rating List* button brings up the rating-list browser. See Section 1.3 on page 55 for more information on the rating-list browser.

1.2. Edit. Figure 2 on the facing page shows the *Edit* notebook page. This notebook page handles navigation and saving just as the `::Events > Select Current > Edit` notebook page (see Section 3.2.1 on page 42).

1.2.1. *Name.* Enter the player's name in the *Name* field with the surname first, then a comma, then the given names. If the player's name has a suffix, e.g., "Jr.", add that after a comma at the end. Since Cantor identifies players by their name, you cannot have two players in an event that have exactly the same name.

The button to the right of the *Name* field brings up the rating-list browser positioned on the player in the rating list whose name is closest to the name you have in the *Name* field. The button will be disabled unless you've imported a rating list. The shortcut key for the button is <Ctrl+N>. This shortcut key also works from the *Browse* page of the notebook. See Section 1.3 on page 55 for more information on the rating-list browser.

Never do the following sequence of actions:

- (1) Add a player leaving the *IDs > Ratings Central* field blank.
- (2) Submit the event.
- (3) Change the player's name in the *Name* field to that of a different player while leaving the *IDs > Ratings Central* field blank and without checking the *New personal info* check box.
- (4) Resubmit the event.

The screenshot shows a web form titled "Edit Player" with the following fields and controls:

- Name:** O'Neill, Sean Patrick
- Address 1:** (empty)
- Address 2:** (empty)
- City:** (empty)
- State:** VA
- Province:** (empty)
- Postal code:** 22903
- Country:** United States
- Email:** sean@example.com
- Sex:** Male
- Phone:** +1 617-555-0100
- Mobile:**
- Birth:** 1/2/1967
- Deceased:**
- New personal info:**
- Rating:** 2445
- Standard deviation:** 43
- Unrated prior Mean:** (empty)
- Unrated prior Standard deviation:** (empty)
- Club:** Virginia Table Tennis Association
- IDs section:**
 - Ratings Central:** 999991
 - USATT:** 8840
 - IT Australia:** (empty)
 - ITTF:** 106838
- Navigation:** Back, Forward, Save, Cancel buttons.

FIGURE 2. Edit-player page

If you aren't sure why you should not do this, see Section 1.2.14 on page 53 for more information on the *New personal info* check box, and see the discussion of how Cantor and Ratings Central keep track of players without a Ratings Central ID in Chapter 10 on page 71. If despite this warning you think that you need to do this, contact us to discuss it; see <https://www.ratingscentral.com/Problems.php> for our email address.

1.2.2. *IDs*. Enter the player's Ratings Central ID number in the *Ratings Central* field. If the player does not have a Ratings Central ID (because this is the first time that the player has played), then leave the field blank.

The button to the right of the *Ratings Central* field brings up the rating-list browser positioned on the player whose Ratings Central ID is closest to the value in the *Ratings Central* field. The button will be disabled unless you've imported a Ratings Central rating list. The shortcut key for the button is (Ctrl+R).

Enter the player's USATT ID number in the *USATT* field. If the player does not have a USATT ID, then leave the field blank. Ratings Central will save the USATT ID in its database to help identify the player, but does not use the USATT ID for any other purpose.

The button to the right of the *USATT* field brings up the rating-list browser positioned on the player whose USATT ID is closest to the value in the *USATT* field. The button will be disabled unless you've imported a rating list. The shortcut key for the button is (Ctrl+U).

Enter the player's TT Australia ID number in the *TT Australia* field. If the player does not have a TT Australia ID, then leave the field blank. Ratings Central will save the TT Australia ID in its database to help identify the player, but does not use the TT Australia ID for any other purpose.

The button to the right of the *TT Australia* field brings up the rating-list browser positioned on the player whose TT Australia ID is closest to the value in the *TT Australia* field. The button will be disabled unless you've imported a Ratings Central rating list. The shortcut key for the button is <Ctrl+T>.

Enter the player's ITTF ID number in the *ITTF* field. If the player does not have an ITTF ID, then leave the field blank. If the player has played in an ITTF tournament, Ratings Central may have the ITTF ID for the player in its database (and in the rating list that you download). However, you cannot set or modify the ITTF ID for a player in the Ratings Central database. If the player has an ITTF ID in the Ratings Central database, then the effect of checking the *New personal info* check box is different; see Section 1.2.15 on page 54 for more information.

The button to the right of the *ITTF* field brings up the rating-list browser positioned on the player whose ITTF ID is closest to the value in the *ITTF* field. The button will be disabled unless you've imported a Ratings Central rating list. The shortcut key for the button is <Ctrl+I>.

See Section 1.3 on page 55 for more information on the rating-list browser. The shortcut keys for the rating-list-browser buttons also work from the *Browse* page of the notebook.

1.2.3. *Address*. Enter the player's address in the *Address 1* and *Address 2* fields. If you only need one line for the player's address, leave the *Address 2* field blank. The address is optional, but helps directors identify the player.

1.2.4. *City*. Enter the player's city in the *City* field. The city is optional, but helps directors identify the player.

1.2.5. *State and Province*. For the USA and Canada, set the *State* field to the state (for the USA) or province (for Canada) that the player is from. For countries other than the USA or Canada, if the player's mailing address includes a province, enter it in the *Province* field. The province is optional, but helps to identify the player. The *State* and *Province* fields will be enabled or disabled appropriately when you select the country. When you add a new player, Cantor initializes the state and province to the state and province of the event, since most new players are from the state that the event is in.

1.2.6. *Postal Code*. Enter the player's postal code in the *Postal code* field. The postal code is optional, but helps to identify the player.

1.2.7. *Country*. Set the *Country* field to the country that the player is from. When you add a new player, Cantor initializes the country to the country of the event, since most new players are from the country that the event is in.

1.2.8. *Email*. Enter the player's email address in the *Email* field. Enter only the email address; don't include angle brackets or a display name. The email address is optional.

When you submit an event, Ratings Central will send an email to each player who played in the event to let them know that the event has been posted on the [Ratings Central website](#). The email will contain a link to the results on the website

and a link so that the player can unsubscribe from receiving future emails. Of course, the player will only receive the email if Ratings Central has the player's email address. At most one email will be sent to a player for a given event. So, if you resubmit an event (e.g., to make corrections), players who were in the first submission will not receive a second email.

To resubscribe a player who has unsubscribed, go to the [Ratings Central website](#) and log in (see Section 5 on page 32). Select "Update a player's information". Check the "Event-posted emails" check box.

1.2.9. *Sex*. Set the *Sex* field to the player's sex.

1.2.10. *Phone*. Enter the player's telephone number in the *Phone* field. The telephone number is optional.

1.2.11. *Mobile*. If the player's telephone number is for a mobile phone, check the *Mobile* check box. The purpose of the check box is to indicate mobile phone numbers that are in E.164 format and so could be used for texting with Twilio. E.164 format starts with the country code and contains at most fifteen digits. The check box will be disabled if, after removing characters that are not digits, the phone number is more than fifteen digits or the first digit is zero.

1.2.12. *Birth*. Enter the player's birth date in the *Birth* field. Use the year-month-day order that matches your Windows region settings. The birth date is optional, but helps to identify the player.

If a player in the Ratings Central rating list that you download has an ITTF ID, then the birth date probably came from the ITTF website. But, the ITTF website only has birth years. So, lacking any other information, Ratings Central set the day to January 1. If you know the correct day, you may correct the birth date, if you wish.

1.2.13. *Deceased*. Check the *Deceased* check box if the player is deceased (i.e., dead, no longer living). Obviously a deceased player cannot be playing table tennis. However, it would be appropriate to check this box if you are correcting an event that you submitted in the past or entering the results of an event from the past and the player has died since they played the event.

1.2.14. *New Personal Info*. Check the *New personal info* check box if the personal information that Ratings Central has for the player is incorrect or incomplete and you are updating it.

The *New personal info* check box only applies to the personal information fields, i.e., the *Name*, *IDs > USATT*, *IDs > TT Australia*, *Address 1*, *Address 2*, *City*, *State*, *Province*, *Postal code*, *Country*, *Email*, *Sex*, *Phone*, *Mobile*, *Birth*, *Deceased*, and *Club* fields. If you check the *New personal info* check box, the values in all these fields will be sent to Ratings Central and will replace the corresponding information for the player that Ratings Central has (however, if the player has an ITTF ID, see Section 1.2.15 on the following page). Note that this includes any fields that you clear. For example, if you clear a player's *Email* field and check the *New personal info* check box, then after you've submitted the event, Ratings Central will not have an email for the player. Also note that if you check the *New personal info* check box, you should make sure that all of the personal information fields for the player have the correct information since all of them will be sent to Ratings Central.

Do not check the *New personal info* check box if you only make changes to the *Rating*, *Standard deviation*, or *Unrated prior* fields, since the check box has nothing to do with these fields.

Generally, you should not check the *New personal info* check box if you change the *IDs > Ratings Central* field. (The most common reason you would change the *IDs > Ratings Central* field is if a player has two Ratings Central IDs, an original one and a duplicate, and you are changing the value in the field to the player's original ID.) The Ratings Central ID is not personal information about the player, but rather identifies who the player is. If you change the *IDs > Ratings Central* field and also check the *New personal info* check box, then this means that you want Ratings Central to update the personal info for the player who corresponds to the new ID. This is unlikely to be what you want.

See Chapter 10 on page 71 for more information.

The *New personal info* check box will be disabled if the player's *IDs > Ratings Central* field is blank and the event has not been submitted (since there is no old info in this case to update). When you submit the event, Cantor will clear the *New personal info* check box (since the new info has now been sent to Ratings Central).

Note that Cantor only submits a player to Ratings Central if the player has played at least one match. So, checking the *New personal info* check box will have no effect if the player doesn't play any matches in the event.

1.2.15. *ITTF IDs and Personal Info*. If a player has an ITTF ID in the Ratings Central database, then you cannot change the player's name, country, sex, or birth year. So, checking the *New personal info* check box will only affect the other parts of the player's personal information. Also, you can't set or modify the ITTF ID. And, your updates to the player's address will only be accepted if you set the country to the country that the player already has (since you can't change the country and an address in a different country wouldn't make sense). The Ratings Central website enforces the same restrictions. If you think the personal information that you can't change should be changed for some player, contact us.

1.2.16. *Rating*. Enter the player's rating in the *Rating* field. If the player is unrated, leave the field blank or enter an estimated rating. This field is not submitted to Ratings Central when you submit the event. It is only for your information. It is displayed in the player grid (on the *Browse* page of the notebook) and the result grid (in the main window) and printed on the player and result lists (when you do *::Players > Print* or click the *Print Results* button in the main window).

Note that the Ratings Central and USATT rating scales are different. See Chapter 9 on page 67 for more information.

1.2.17. *Standard Deviation*. Enter the player's standard deviation in the *Standard deviation* field. If the player is unrated, leave the field blank or enter an estimated standard deviation. This field is not submitted to Ratings Central when you submit the event. It is only for your information. It is displayed in the player and result grids and printed on the player and result lists.

1.2.18. *Unrated Prior*. The *Mean* and *Standard deviation* fields in the *Unrated prior* box let you specify the mean and standard deviation of the playing strength of the player, if this is the player's first event. You can leave these fields blank, but

The screenshot shows a window titled "Rating List" with a table of player data. The table has columns for R.C. ID, Name, Rating, St. Dev., Club, State, Last Played, and Postal Code. The row for Sean O'Neill (R.C. ID 6528) is selected. Below the table is a control panel with a "Find:" field containing "O'Neill, Sean" and several buttons: "Add Player", "Overwrite Player", "Merge Player", "New Player", and "Close".

| R.C. ID | Name | Rating | St. Dev. | Club | State | Last Played | Postal Code |
|---------|--------------------|--------|----------|----------------|-------|-------------|-------------|
| 57003 | O'Neill, Jeff | 942 | 105 | Twmsvl | | 4/29/2017 | |
| 97430 | O'Neill, Kaitlyn | 187 | 71 | PPC | OR | 2/26/2017 | 97223 |
| 23789 | O'Neill, Kathryn | 836 | 264 | Twmsvl | | 3/25/2007 | |
| 13791 | O'Neill, Kevin | 990 | 315 | | NY | 2/6/2005 | |
| 6528 | O'Neill, Sean | 2005 | 123 | PortlandTTC | OR | 11/14/2015 | 97223-2257 |
| 47201 | O'Neill, Stephen | 683 | 210 | | MA | 7/16/2011 | 01879 |
| 70918 | Oner, Aybuke | 1470 | 74 | Junior Circuit | | 7/23/2017 | |
| 19810 | Oner, Funda | 1470 | 264 | ivtta | | 11/4/2006 | |
| 92816 | Oner, Oguzhan | 1679 | 128 | ETTU | | 7/17/2016 | |
| 58738 | Ong, Aniko Rochael | 1264 | 178 | PTTA | | 3/2/2013 | |

FIGURE 3. Rating-list browser

if you set one, you must set both. See Chapter 9 on page 67 for advice on what to put in these fields.

1.2.19. *Club*. The *Club* box shows the club that the player is from. A player can be from more than one club, but Cantor only lets you set one club for a player. The club you set for the player in Cantor will be the player's primary club. To add a secondary club for the player, you must go to the [Ratings Central website](#) and log in (see Section 5 on page 32). A player doesn't have to belong to a club. If you change an existing player's primary club (and check the *New personal info* check box), the player will still be a secondary member of the old primary club. To remove the player completely from the club, you must go to the [Ratings Central website](#) and log in.

You set or change the player's club just as you do for the event club on the `::Events > Select Current > Edit` notebook page (see Section 3.2.7 on page 43). If the player's club is not set, then when you click the *Change* button, the club browser will come up with the event club selected. Since most new players are from the club that is sponsoring the event, this makes it easy to set these players' clubs.

1.3. Rating-List Browser. The rating-list browser (Figure 3) lets you view the rating list. You can bring up the rating-list browser from either page of the player notebook or from the `::Lists > Rating` menu item. From the *Browse* page of the player notebook you can click the *Rating List* button. From the *Edit* page, you can click any of the buttons that show a hand pointing to a list of records. From either page, you can use the `<Ctrl+N>`, `<Ctrl+R>`, `<Ctrl+U>`, `<Ctrl+T>`, and `<Ctrl+I>` shortcut keys. These bring up the rating-list browser on the player whose name, Ratings Central ID, USATT ID, TT Australia ID, or ITTF ID (respectively) is closest to that of the player that you are editing or that you have selected in the grid on the *Browse* page. A button and shortcut will be inactive unless you've imported a suitable rating list via `::Lists > Import`.

The rating-list grid works like Cantor's other grids (see Section 9 on page 83). The meaning of most of the columns should be obvious. The "Last Played" column contains the date of the last event that the player played. The "Source" column indicates whether the record came from Ratings Central ("R.C.") or USATT. The "Expiration" column contains the player's USATT membership expiration date. If the player has a life membership, the "Expiration" column will say, "Never".

The *Find* field lets you search for a specific player. It works like Cantor's other incremental-search fields (see Section 9.1 on page 83).

Click the *Add Player* button to close the rating-list browser and add the selected player to the current event. If you were editing a player (i.e., you were on the *Edit* page of the player notebook), Cantor will save any changes you made to the player. Then Cantor will add a new player to the current event and copy the information for the player you selected in the rating-list browser from the rating list to the new-player's fields, all ready for you to save the player.

Click the *Overwrite Player* button to close the rating-list browser and overwrite the player that you were editing or had selected in the player grid with the player you selected in the rating-list browser. This copies all values from the player in the rating list to the player that you were editing or had selected, including blank values.

Click the *Merge Player* button to close the rating-list browser and merge the information from the player that you selected in the rating-list browser into the player that you were editing or had selected in the player grid. This copies all non-blank values from the player in the rating list to the player that you were editing or had selected. But, if a value for the player in the rating-list browser is blank, then the corresponding value for the player that you were editing or had selected will be retained; it will not be blanked.

Click the *New Player* button to close the rating-list browser and add a new, blank player to the current event. If you were editing a player, Cantor will save any changes you made to the player. If the rating-list grid is sorted on the "Name" column, Cantor will set the new-player's name to the contents of the *Find* field. If the string in the *Find* field is all lower case, Cantor will capitalize the initial letters of words when setting the new-player's name. This makes it easy to add a player when you discover that the player you are looking for is not in the rating list.

Click the *Close* button to close the rating-list browser without changing the players in the event.

If you open the rating-list browser from the *Rating List* button on the *Browse* page, the *Overwrite Player* and *Merge Player* buttons will be disabled, the *Add Player* button will be the default button, and you can double-click a player in the grid to add the player to the current event.

If you open the rating-list browser from the *::Lists > Browse Rating* menu item, the *Add Player*, *Overwrite Player*, *Merge Player*, and *New Player* buttons will be disabled.

If the list database folder is set (see Section 2.2 on page 29), the title bar of the window shows the folder's location.

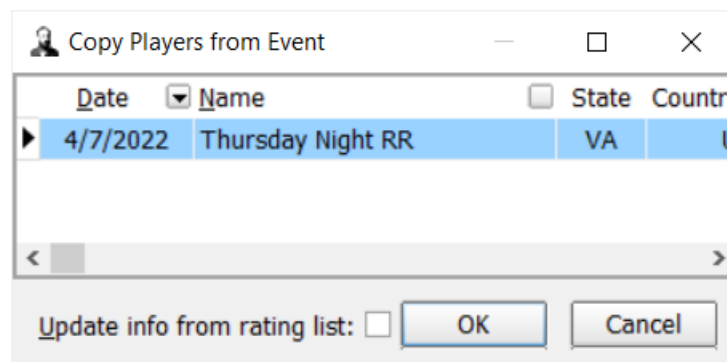


FIGURE 4. Copy-players-from-event window

2. Copy from Event

The *Copy from Event* menu item brings up a window (Figure 4) that lets you copy players from another event into the current event. This is a convenient way to add players to the current event if another event has many players in common with the current event. The menu item will be disabled if you don't have at least two events.

Select the other event in the grid. Then click the *OK* button. Cantor will copy the players from the selected event to the current event. Cantor will only copy players that have Ratings Central ID numbers; see Section 6 on page 59 for how to get the IDs for new players. Cantor will not copy a player if the player's name or player's Ratings Central, USATT, or TT Australia ID number is the same as that of a player who is already in the current event.

You can also double click the event in the grid. This will select the event and immediately copy the players.

If you check the *Update info from rating list* check box, then Cantor will replace each copied player's information (i.e., name, address, rating, etc.) with the player's information from the rating list.

Note that if you create an event and add players to it, but never add any results to it, then Cantor will never submit it. So, you could create a dummy event containing the members of your club and copy the players from this dummy event to each new event that your club runs. However, it is probably better to keep the members in a CSV file and use `::Players > Import`; see Section 4 on the following page.

3. Export

The *Export* menu item writes the player information for the current event to a CSV file named "Player_YYY-MM-DD.csv" in the database folder, where "YYY-MM-DD" is the date of the current event. The location of the database folder is displayed in Zermelo's status bar (see Section 1 on page 61). You can import such a file into Cantor to set up the players for another event. See Section 4 on the following page. You can also import such a file into Zermelo to set up the players for a tournament.

Cantor and Zermelo use the same format for this file. The columns between “Tournament ID” and “Notes” inclusive are only relevant for Zermelo, and so will be empty when you export from Cantor and ignored when you import into Cantor.

Dates are written in the format specified by your Windows region settings.

4. Import

The *Import* menu item lets you add players to the event by importing a CSV file. This menu item will be disabled until you have selected a current event. When you select the *Import* menu item, Cantor will display the standard Windows dialog to let you select the file to import.

Importing players is an alternative to the *Add Player* and *Rating List* buttons in *::Players > Modify*. You can use both methods in one event, i.e., add some players by importing from a file and add others via the *Add Player* and *Rating List* buttons.

To see the format of the file, have Cantor create such a file via *::Players > Export*; see Section 3 on the previous page. You may change the order of the columns and remove columns. The column headers are case insensitive. In each line, you may leave columns empty. Any values that you do not specify for a player will have the default values that they have when you create a new player via the *Add Player* button.

The “Look Up Rating” and “Look Up Personal Info” columns let you specify that the rating or personal information for the player should be looked up in the rating list. The possible values are “RC”, “USATT”, “TTA”, “ITTF”. The value indicates which ID should be used to look up the player in the rating list. All values in the rating list will be copied to the player, including blank values.

Cantor and Zermelo use the same format for this file. Cantor will ignore the columns that are only relevant for Zermelo when you import the file into Cantor. See Section 3 on the preceding page for which columns these are.

Specify check-box values as “Y” or “N”. Specify “Sex” as “M” or “F”. Specify “State” as the two-letter USA state or Canada province abbreviation. Specify “Country” as the three-letter abbreviation. Specify “Club” as the club ID. Where it makes sense, the values are case insensitive, i.e., check-box values, “State”, “Country”, “Sex”, “Look Up Rating”, and “Look Up Personal Info”.

Cantor will read the entire file and check for problems before creating any of the players. So, if Cantor displays an error message, you can fix the file, then try to import it again. If you have entered a value for “Look Up Rating” or “Look Up Personal Info” for the player, then an error message may refer to the looked-up values, not the values that you entered into the file.

Don’t put your modified import file in the database folder and name it like *Player_YYY-MM-DD.csv* because Cantor overwrites a file with this name when you do *::Players > Export*.

5. Print

The *Print* menu item brings up a window (Figure 5 on the next page) that lets you print lists of the players in the current event.

If you check the *Name* check box, Cantor will print a player list sorted alphabetically (see Figure 6 on the facing page). If you check the *Rating* check box, Cantor

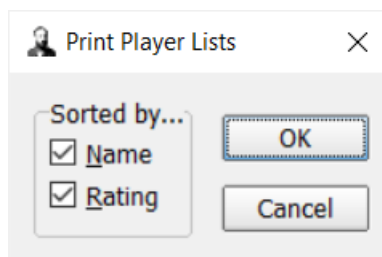


FIGURE 5. Print-lists window

| Rating | Unrated Prior | Name |
|---------------|----------------------|-----------------------|
| 1827±32 | | James, David H. |
| 2445±43 | | O'Neill, Sean Patrick |

FIGURE 6. Player list sorted by name

| Seed | Rating | Name |
|-------------|---------------|-----------------------|
| 1 | 2445±43 | O'Neill, Sean Patrick |
| 2 | 1827±32 | James, David H. |

FIGURE 7. Player list sorted by rating

will print a player list sorted in order of rating (see Figure 7). The latter list also shows the seeding of each player in the event.

6. Get New IDs

The *Get New IDs* menu item gets the Ratings Central IDs for new players in the current event. Be sure that the website is up to date (i.e., your last submission processed and you haven't made any changes to the event since then) before getting the new IDs. To get the new IDs, you must be connected to the Internet.

The menu item will be disabled if you have not submitted the event, the event has been modified since it was submitted, or you checked the *Submit failed* check box. In other words, the website must be up to date for the event. The menu item will also be disabled if all players who have played in the event already have a value in the *IDs > Ratings Central* field.

In general, it is not necessary to get the new IDs. You can make changes to new players in an already-submitted event and resubmit the event without getting the new IDs. However, getting the new IDs will allow these players to be copied to a new event when you do *::Players > Copy from Event*. It will also make the look-up button to the right of *::Players > Modify > Edit > IDs > Ratings Central* work for these players (if you import an updated rating list). And, getting the new IDs is part of the process for changing the date of an already-submitted event; see Section 6 on page 47.

Main Window

Figure 1 shows Cantor's main window. The main menu is at the top. Below that is the name and date of the current event. Below that is a grid showing all the match results for the current event. The grid works like Cantor's other grids (see Section 9 on page 83).

The event date is displayed using the long-date format specified in your Windows region settings. You can change these settings in *All settings > Time & Language > Region > Change data formats*.

Press <Ctrl+Del> to delete the result that is highlighted. The grid must have the focus for you to delete a result.

The “#” column shows the order in which you entered the results. So, result #1 is the first result that you entered for the event, result #2 is the second, etc. Deleting a result does not change the numbers of the other results.

1. Database Folder Display

The status bar at the bottom of the window displays the location of the database folder that Cantor is using.

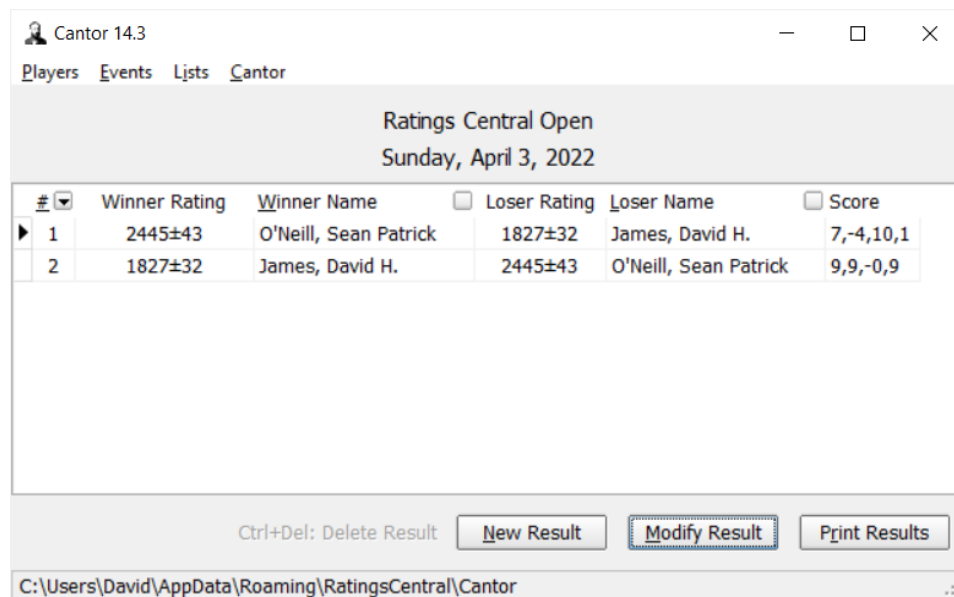


FIGURE 1. Main window

FIGURE 2. Result window

See Section 1.3 on page 14 for where the installer puts the database folder. See Appendix C on page 89 for how to tell Cantor what folder to use as the database folder. See Appendix E on page 93 for advice on where you should put the database folder.

2. New Result

The *New Result* button brings up a window (Figure 2) that lets you enter results for the current event. The button will be disabled until you've added at least two players to the current event.

Select the winner in the *Winner* (left) list box and select the loser in the *Loser* (right) list box. In addition to using the mouse or cursor keys, you can also type the player's name. See Section 11 on page 84 for more information.

Set the *Match format* field to the format for the match. Choices are "2 of 3", "3 of 5", "4 of 7", "5 of 9", and "Games" (the "Games" choice is explained below). Cantor initializes the *Match format* field to the match format you selected for the event.

Enter the score for each game in the *Score* fields. Only enter the number of points that the loser of each game got. If the winner of the match lost a particular game, prefix that game's score with a hyphen (i.e., the keyboard version of a minus sign). For example, if the scores for a match are 11-5, 10-12, 11-8, 11-3, enter "5", "-10", "8", and "3".

If you don't know the score for a result, but you know the number of games won and lost, you can select "Games" in the *Match format* field. If you don't know the score at all, you can check the *No score* check box.

The rating system only cares about who wins a match, not what the score is. However, people like to see the score on the website, so please enter the score, if you know it.

Cantor will not accept partial scores, as will happen if a match is started, but not completed because a player is injured. If this happens, enter it as a no-score result. Do not enter defaults (where the match was not played) at all. Defaults do not count for ratings. Matches stopped in the middle count for ratings if and only if one of the players is able to continue, i.e., the player who can continue gets credit

| # | Rating | Winner | Rating | Loser | Score |
|---|---------|-----------------------|---------|-----------------------|-----------|
| 1 | 1827±32 | James, David H. | 2445±43 | O'Neill, Sean Patrick | 9,9,-0,9 |
| 2 | 2445±43 | O'Neill, Sean Patrick | 1827±32 | James, David H. | 2,-10,3,0 |

FIGURE 3. Result list

for the win. So, if a match is not completed due to injury, then the winner is the player who was not injured. If the match is not completed due to circumstances outside the control of the players (e.g., loss of electricity), then do not enter the match into Cantor.

Unlike most windows, the result window does not have a default button. Therefore the `<Enter>` key will behave more like the `<Tab>` key.

The result window is special in that when you press the `<Enter>` key, Cantor tries to be smart about which field or button to move to next. If you press `<Enter>` and you've entered a complete result, Cantor moves you to the *OK* button.

Click the *OK* button to store the result. Cantor will clear the window, but leave it up so you can enter another result. If you do not have any more results, you can press `<Enter>` to select the *Cancel* button (which is, for the moment, the default button) to close the window. Cantor will display the new results in the main window's grid.

3. Modify Result

To modify a result that you've already entered, either double-click the result or select the result in the grid and click the *Modify Result* button. This brings up the result window (the same window you use for entering new results). Correct the information for the result and click the *OK* button.

4. Print Results

Click the *Print Results* button to print a list of all the results in the current event (see Figure 3). The list shows the same information that is displayed in the result grid. The results will be in the same order as they are in the grid. So, to change the printed order, change the order in the grid (by clicking the button in the header of a grid column).

CHAPTER 8

Club Browser

The club browser (Figure 1) lets you view the club list and select the club of a player or event. You can bring up the club browser from the *Club > Change* button of the *Edit* pages of the player (*::Players > Modify*) and event (*::Events > Select Current*) notebooks or from the *::Lists > Club* menu item.

The grid works like Cantor's other grids (see Section 9 on page 83). The *Find* field lets you search for a specific club. It works like Cantor's other incremental-search fields (see Section 9.1 on page 83).

If you've brought up the club browser by clicking the player or event *Club > Change* button, then the *Select Club* button will be enabled. Click this button to make the club that is selected in the grid the club of the player or event.



FIGURE 1. Club browser

CHAPTER 9

Unrated Players

When Ratings Central processes an event, it first assigns a prior mean and standard deviation to each unrated player in the event. The adjective “prior” means that it is the player’s mean and standard deviation prior to the start of the event. If you entered a prior mean and standard deviation for the player (in `::Players > Modify > Edit > Unrated prior`), then it uses those values. If you didn’t enter a prior mean and standard deviation for the player, then it uses the prior mean and standard deviation that you set for the event (in `::Events > Select Current > Edit > Unrated prior`). Note that it never uses the player’s rating (in `::Players > Modify > Edit > Rating`) for the prior.

The following sections explain how to set the individual player prior means and standard deviations and the event prior mean and standard deviation. This will give you an idea of how the system works. However, it isn’t easy to set good priors. **You must get our approval for the approach that you will use to set priors!** To get our approval, contact us; see <https://www.ratingscentral.com/Problems.php> for our email address.

Please get unrated players at your event as many matches with rated players of a similar playing level as you can. ***If you cannot get each unrated player several such matches at your events, please contact us for assistance.***

1. Rating Scale

In order to be a Ratings Central event director and submit events to Ratings Central, you must have an understanding of the rating scale that Ratings Central uses. The rating scale is what playing strength a rating number corresponds to. In other words, you must know what it means to be a “1500 player” or a “2000 player” You should be able to watch a player playing a match and estimate their level to within a few hundred rating points.

The Ratings Central rating scale is not the same as the USATT rating scale or any other organization’s rating scale. Unfortunately, you cannot reliably convert a USATT rating to a Ratings Central rating because USATT ratings are inflating, have regional differences, and vary widely in accuracy. All we can say is that a player’s USATT rating will often (but not always) be significantly greater than their Ratings Central rating.

To help you understand the Ratings Central rating scale, we have provided videos on the website at <https://www.ratingscentral.com/Videos.php>. If you show us videos of your players, we can tell you what their ratings are on the Ratings Central rating scale.

Ratings Central uses the same rating scale for all the table tennis sports (Table Tennis, Hardbat Table Tennis, Sandpaper Table Tennis). If a Table Tennis player who plays with an inverted sponge racket or a pips-out sponge racket plays Hardbat Table Tennis (with a hardbat, of course), we would expect their rating as a Hardbat Table Tennis player to be 200 points lower than their Table Tennis rating. If they play Sandpaper Table Tennis, we would expect their rating as a Sandpaper Table Tennis player to be 250 points lower than their Table Tennis rating.

2. The Fewer Priors the Better

Priors are necessary, but the fewer priors, the better. Every time you set a new player prior or event prior, you are adding new parameters to the rating system model. Each new parameter may be wrong or may have unintended consequences. The best approach is to determine a single prior that describes your entire population of players, then use that single prior as the event prior for all your events and not use player priors. If there isn't sufficient mixing (i.e., players of different levels playing each other), this may not work, in which case you will have to use different priors for subpopulations.

If you are just starting to use Ratings Central, and so most of your players are unrated, you may find that if you use one prior for everything, it takes a few events for the ratings to become accurate. It is generally best to live with such a "burn-in" period rather than try to use priors to make every player have an accurate rating immediately. Letting the ratings be determined by the match results rather than by the priors is also fairer. Backloading historical data is a good way to get things started. Such data can also be used to evaluate the effect of different priors. We can assist with such investigations.

The following sections explain how to set player priors and event priors. But, to reiterate, it is best to not use player priors and to use the same event prior for all your events. If you feel that this won't work for your situation or if you have already submitted events and it isn't working, then contact us for assistance.

3. Player Priors

The following advice for setting player priors assumes that you are very familiar with the rating scale, i.e., you know and play with many players who have established ratings. If this is not true, then you should rely on the event prior and rarely set individual player priors. Even if you are very familiar with the rating scale, evaluating individual players takes effort to do well, so relying on the event prior for some or all players can be simpler, more reliable, and fairer. If you aren't sure what to do, please contact us for assistance.

Despite the cautions in the previous paragraph, it can be helpful to set the player prior mean and standard deviation for an unrated player. However, you should only set the prior mean and standard deviation for an unrated player if you have additional information about that player. The "additional information" can be any information other than the player's match wins and losses in the event (Ratings Central sees those). For example, you might know the player from before the event or you might watch the player play their matches or you might look at how many points the player scored in their matches.

If a player is different from the general population of unrated players at the event, e.g., much better or much worse (perhaps because they are very young), then it is probably a good idea to set the player's prior mean and standard deviation, rather than trying to stretch the event prior to include the player.

If many or most of the players in your event are unrated, and so the unrated players are playing mostly other unrated players, then it is probably a good idea to set the prior mean and standard deviation for some or many of the unrated players.

The prior standard deviation for a player measures how sure you are that you know that player's playing strength. You should be willing to bet at 1:2 odds that the player's playing strength is within one standard deviation of the mean, and you should be willing to bet at 2:1 odds that the player's playing strength is more than one standard deviation from the mean. (Odds of 1:2 mean that you win \$1 if you win the bet, but you lose \$2 if you lose the bet. Odds of 2:1 mean that you win \$2 if you win, but you lose \$1 if you lose.)

For example, suppose you assign a prior mean of 1200 and a prior standard deviation of 100 to a player. Then you should be willing to bet at 1:2 odds that the player is really between 1100 and 1300, and you should be willing to bet at 2:1 odds that the player is really less than 1100 or more than 1300. Equivalently, you should believe that there is a $2/3$ chance that the player is really between 1100 and 1300 and a $1/3$ chance that the player is really less than 1100 or more than 1300.

Here are some very rough guidelines: If you know an unrated player extremely well (e.g., they've been playing at your club every week for a couple of years), then you might use a prior standard deviation of 100. If you only know a player moderately well (e.g., they came to your club a few times and played several matches with players of a similar level), then you might use a prior standard deviation of 125. If you know very little about a player (e.g., you had the player hit with a rated player of a similar level for five minutes), then you might use a prior standard deviation of 175.

Be cautious using low values for prior means or for prior standard deviations, as these can pull the ratings of other players down or make it difficult for a player's rating to change. It is harder to estimate the level of players below 1000 because these players are less consistent. So, you should use larger standard deviations for such players than you would otherwise. But, see [Section 5 on the following page](#).

If a player has a USATT rating, then that is a source of information. However, for the reasons mentioned above, it is not possible to simply convert USATT ratings to Ratings Central ratings. You will have to use your judgment in how you let a player's USATT rating influence the prior mean and standard deviation that you use. It is unlikely that you will want to use the player's USATT rating as the prior mean. Do not make the mistake of using too small a standard deviation when relying on a player's USATT rating.

4. Event Prior

You must always set the event prior mean and standard deviation.

While the prior mean and standard deviation for a player measure what you know of the player's playing strength, it is best to interpret the event prior mean and standard deviation as describing the range of unrated players at your event. For

example, if you think the unrated players range from 800 to 1400, then you would use the average of these two values (i.e., 1100) as the mean and the difference of these two values divided by four (i.e., 150) as the standard deviation.

More precisely, about $\frac{2}{3}$ of the unrated players should be within one standard deviation of the mean (and about $\frac{1}{3}$ should be more than one standard deviation from the mean), 95% should be within two standard deviations, and 99.7% should be within three standard deviations. So, for the example in the previous paragraph of a mean of 1100 and a standard deviation of 150, you should think that

- $\frac{2}{3}$ of the players are between 950 and 1250,
- 95% of the players are between 800 and 1400,
- 99.7% of the players are between 650 and 1550.

Note that when estimating the event prior standard deviation from the range of players that you expect at your event, you should interpret the range as being plus or minus two standard deviations, not three.

If you set the prior mean and standard deviation for any individual unrated players, then the event prior mean and standard deviation should only describe the population of unrated players for whom you haven't set individual prior means and standard deviations. If you set the prior mean and standard deviation individually for every unrated player at your event, then Ratings Central won't actually use the event prior mean and standard deviation, but you still have to set them.

It is possible that a player that you thought was rated may become unrated because of a correction to some other event. If this happens, the event prior mean and standard deviation would be used for the player, even though you thought it wouldn't be. But, this eventuality is extremely unlikely, so not worth worrying about.

5. Rating System Floor

While the system allows ratings to range from 1 to 3500, we don't expect an adult player to be less than 500. Do not set a player prior or event prior such that the mean minus twice the standard deviation is less than 500 unless you have first asked us and we have approved it. This applies to both adults and children.

6. First Event

If you want to find what unrated prior was used for a player and what their first event was, you can look at the player's rating history page, e.g., <https://www.ratingscentral.com/PlayerHistory.php?PlayerID=6528>. You can also get this information by using the FirstEvent.php page. This page takes most of the same parameters as the PlayerList.php page. The differences are that you can't specify the as-of date and the output is unsorted CSV with columns PlayerID, ReportID, InitialMean, InitialStDev, PointChange, StDevChange, EventDate, EventDirector. Note that the PlayerSport parameter is required; it can't be omitted or be an empty string. Perform a search using the <https://www.ratingscentral.com/PlayerSearch.php> page to see the parameters. Also, the PlayerID parameter can be a list, like the <https://www.ratingscentral.com/MultiplePlayerSearch.php> page does. The FirstEvent.php page accepts both GET and POST requests.

Submitting Events

This chapter describes what happens when you submit events.

When Cantor submits an event, it sends the following information to Ratings Central:

- Your director ID and password from *::Cantor > Set Up*.
- All information on the *::Events > Select Current > Edit* notebook page except for *Match format* and *Status*
- For each player in the event, all information on the *::Players > Modify > Edit* notebook page except for *Rating*, *Standard deviation*, and *IDs > ITTF* (the *Unrated prior > Mean* and *Unrated prior > Standard deviation* are sent)
- All results for the event, including the scores

The way that Ratings Central handles player information is a bit complicated. To make the explanation clearer, define the player's *RC-ID-and-rating information* to be the player's Ratings Central ID and unrated-prior mean and standard deviation. Define the player's *personal information* to be the player's name, club, address 1, address 2, city, state, province, postal code, country, sex, birth, email, phone, mobile, deceased status, USATT ID, and TT Australia ID.

While Cantor sends both the RC-ID-and-rating information and the personal information for each player in the event to Ratings Central, normally Ratings Central only copies the personal information for a player to its database if it is the first time that it has received information for that player. The reason for this is that suppose that you download a rating list, enter a player from the rating list in an event, don't make any changes to the player's personal information that was on the rating list, and submit the event. Also, suppose that in between the time that you download the rating list and the time that you submit the event, some other director makes a change to the player's personal information. If Ratings Central always copied the personal information to the Ratings Central database, then the old values that you submit would overwrite the changes that the other director made. Similarly, if you were to make a correction to an old event and resubmit it, all the old player personal information would overwrite the current information.

The exception to this rule of not copying personal information for players already in the Ratings Central database is if you check the *New personal info* check box for the player (the check box is on the *::Players > Modify > Edit* notebook page). If you check this check box, it tells Ratings Central that you have updated the player's personal information and that Ratings Central should replace the player's personal information in its database with the information that you are submitting. See Section 1.2.14 on page 53 for specific instructions on when you should check the *New personal info* check box. You can also update a player's personal information

by logging in to the [Ratings Central website](#). The website only lets you update players who have played in one of your events or who belong to a club that you are affiliated with. Note that there are special rules for players with ITTF IDs; see [Section 1.2.15 on page 54](#) for more information.

Note that the only changes to the *::Players > Modify > Edit* notebook page for a player in an already submitted event that will cause Cantor to consider the event to be modified (and so resubmit the event) are changes to the player's RC-ID-and-rating information or checking the *New personal info* check box.

When Ratings Central processes an event, it assigns a Ratings Central ID number to any player in the event who doesn't have one. You use this ID number to identify the player in subsequent events, typically by downloading and importing an updated rating list or by entering the ID number in the *IDs > Ratings Central* field in the *::Players > Modify > Edit* notebook page.

Cantor and Ratings Central keep track of which player without a Ratings Central ID is assigned which Ratings Central ID, so resubmitting an event will work correctly, even if it contains new players that don't have Ratings Central IDs. You only need to use the Ratings Central ID for the player when they play in a subsequent event.

When Ratings Central finishes processing the ratings for an event, it will send you an email like the one in [Figure 1 on the next page](#). If there is a problem with an event that you submit, Ratings Central will send you an email like the one in [Figure 2 on page 74](#).

Ratings Central will send an email to each player who played in the event to let them know that the event has been posted. The email will contain a link to the results on the [Ratings Central website](#) and a link so that the player can unsubscribe from receiving future emails. Of course, the player will only receive the email if Ratings Central has the player's email address. At most one email will be sent to a player for a given event. So, if you resubmit an event (to make corrections), players who were in the first submission will not receive a second email.

When Ratings Central receives an event (or a resubmitted event), it processes the ratings for the event and also processes all subsequent events that any of the players in the event (or in a subsequent event that is being processed) played in. Please be careful when viewing old events or results that you don't click the *Save* button even though you haven't really changed anything.

Usually, it takes only a few minutes to process an event. However, the Ratings Central processor may be busy processing other events or may need to process other events affected by your event, so it may take longer. It won't take more than a day.

1. Duplicate Players

If you neglect to enter a player's Ratings Central ID number for a player who has one (typically because, although the player had played before, you didn't notice them listed on the rating list), then when you submit the event, the player will end up in the Ratings Central database twice, i.e., there will be two Ratings Central ID numbers that are really the same player.

The way to fix this is to enter the player's first Ratings Central ID number (the ID number that you neglected to enter, not the new one) in the *IDs > Ratings Central*

From: Ratings Central
Sent: Wed, 30 Jul 2003 21:38:26 -0400
To: David Marcus
Subject: Event processed by Ratings Central

Event: Ratings Central Open
Event date: July 20, 2003
Submitted: July 30, 2003, 9:38 pm
Status: Processed

Thank you for submitting this event to Ratings Central. We have finished processing it.

Summary report:

<https://www.ratingscentral.com/EventSummary.php?EventID=1138>

Detailed report:

<https://www.ratingscentral.com/EventDetail.php?EventID=1138>

Here is the information that we have for you:

Name (Surname, Given): Marcus, David
Email: email@example.com
Director ID: 5044
Title:
Clubs: Boston Table Tennis Club
Address: 25 Beacon St. Apt. 16
City: Somerville
State: Massachusetts
Postal code: 02143-4336
Country: USA
Phone: 617-555-0100
Sport: Table Tennis

If any of this information is incorrect or missing, please log in to the Ratings Central website to correct it.

Ratings Central
www.ratingscentral.com

FIGURE 1. Event-processed email

field and resubmit the event. After you do this, the second ID number will be for a player who has not played at all. The system automatically deletes players who haven't played.

Actually, you can keep either of the two player IDs by changing the events for the other ID and resubmitting. So, you can keep the second ID, if that is easier, which it may be if different or multiple directors submitted events for the players.

From: Ratings Central
Sent: Wed, 30 Jul 2003 21:13:44 -0400
To: David Marcus
Subject: Incorrect Ratings Central password

Event: Ratings Central Open
Event date: July 30, 2003
Submitted: July 30, 2003, 7:27 pm
Status: Problem

The director's password is not correct or the director is not authorized.

Ratings Central
www.ratingscentral.com

FIGURE 2. Problem email

If you need another event director to remove a duplicate, please contact them directly. If that doesn't work, please contact us; see <https://www.ratingscentral.com/Problems.php> for our email address.

2. Wrong Director ID

If you submit an event using the wrong director ID, it is not easy to fix. Please contact us for assistance. Tell us the date and director ID that you used on the submission, the correct date and director ID, and that you used Cantor to submit the event. See <https://www.ratingscentral.com/Problems.php> for our email address.

3. Lost Files

If you lose your database files, you won't be able to resubmit events to make corrections. To replace lost files, contact us and tell us the filename of the event report file for each of the events that you have lost. The filenames are of the form YYYY-MM-DD_<ID>.dat where YYYY-MM-DD is the date of the event and <ID> is the director ID of the event. If you have lost all your files, just tell us the director ID. We will send you the event report files. You can import the files into Cantor. See Section 5 on page 45 for how to import them. See <https://www.ratingscentral.com/Problems.php> for our email address.

Mistakes and Errors

This chapter discusses Cantor’s handling of mistakes or errors in what you type or click. To correct information that Cantor submitted to Ratings Central, see [Section 4 on page 44](#).

Cantor checks all values you enter or selections you make to ensure that they are valid and consistent with all other values. On the other hand, Cantor almost never asks you to confirm your selections, i.e., it will do what you tell it without asking you if you really mean it. (Such confirmation dialogs rapidly become tedious and are often ignored anyway.) If you do make a mistake, Cantor provides ways to correct it.

If you enter a value that is not valid, Cantor displays an error-message window (Figure 1). In this window, you *cannot* select the *Close* button by pressing `<Enter>` or `<Space>`. This is so that you won’t accidentally close the window without noticing it was there. To close the window, you can click the *Close* button or press the `<Esc>` key. You can also use the standard Windows ways of closing windows, i.e., click the “`×`” in the title bar or press `<Alt+F4>`.

You can copy the message to the clipboard via `<Ctrl+C>`. You can select all of the message text via `<Ctrl+A>`. You can select part or all of the message with the mouse. Once you click in the message with the mouse, you can use the usual keyboard keys to change the selection, e.g., `<Shift+Right>`. If part or all of the message is selected, `<Ctrl+C>` copies the selected text to the clipboard. If nothing is selected, then `<Ctrl+C>` copies the entire message to the clipboard.

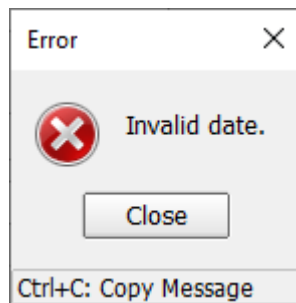


FIGURE 1. Error-message window

APPENDIX A

Who Was Cantor?

Georg Cantor (1845-1918) was a famous mathematician who founded set theory and introduced the concept of infinite numbers with his discovery of cardinal numbers. He also advanced the study of trigonometric series. Ernst Zermelo (1871-1953) was also a famous mathematician who developed an axiom system to lend structure to Cantor's set theory.

Cantor (the software system) can handle results from any sort of table-tennis event, structured or not, while Zermelo (the other software system that you can use with Ratings Central) handles tournaments that are more structured.

APPENDIX B

User Interface

This chapter gives detailed information on Cantor's user interface, i.e., how to use the keyboard and mouse with Cantor.

1. Persistence

Cantor remembers the position and size of all windows, the size and order of grid columns, which column each grid is sorted on, and the selected printer. Cantor remembers this information both during a single invocation and between invocations. To do this, Cantor writes the information to the file `Cantor.ini` in the database folder. You can delete the `Cantor.ini` file if you want Cantor to revert to the default positions, sizes, etc.

2. Basic Window Operation

The buttons in the top-right of a window's title bar work just as they do for other Windows applications to minimize, zoom, or close the window. You can right-click the title bar or press `<Alt+Space>` to activate the Windows system menu. You can close a window by pressing `<Alt+F4>`. You can resize a window by dragging its border with the mouse. A few of Cantor's windows cannot be resized while some others can have their width changed, but not their height. (In the latter case, Windows doesn't know that the window can only be resized in one dimension and so will change the mouse cursor if you hover over any of the borders.) You can maximize a window by double-clicking its title bar and restore it to its previous size by double-clicking it again. And, of course, you can move a window to a new position by dragging its title bar with the mouse.

Note that closing a window by `<Alt+F4>` or clicking the close button in the title bar (i.e., the "×" button) is similar to clicking the *Cancel* or *Close* button (whichever the window has). So, if you are currently editing something, any edits that you've made will be discarded. The `<Esc>` key is generally the same as pressing the *Cancel* or *Close* button.

3. Scroll Bars

Scroll bars work just as they do for other Windows apps. Click one of the arrow buttons to scroll one line or column. Click the area between the arrow buttons and the *thumb* (i.e., the slider in the middle of the scroll bar) to scroll by one screenful. Drag the thumb to scroll a variable amount. Scroll bars in grids work slightly differently; see Section 9 on page 83.

The screenshot shows a window titled "Edit Event" with the following controls:

- Name:** Ratings Central Open
- Date:** October 29, 2017 (dropdown)
- Match format:** 3 of 5 (dropdown)
- State:** VA (dropdown)
- Province:** (empty text field)
- Country:** United States (dropdown)
- Club:** Virginia Table Tennis Association (text field, read-only)
- Change** and **Clear** buttons (below the Club field)
- Unrated prior:**
 - Mean:** 1000 (text field)
 - Standard deviation:** 200 (text field)
- Status:**
 - Modified:** (disabled)
 - Submitted:** (disabled)
 - Submit failed:** (disabled)
- Navigation:** Four arrow buttons (left, right, up, down)
- Buttons:** **Save** (highlighted with a dotted border) and **Cancel**

FIGURE 1. Window showing disabled and read-only controls

4. Focus

A *control* is a menu, grid, button, edit field, drop-down list, check box, radio button, etc. The control that is currently receiving keyboard input is said to have the *focus*. The `<Tab>` key moves the focus to the next control while `<Shift+Tab>` moves the focus to the previous control. Controls generally show that they have the focus by either some sort of highlighting or by displaying a dotted focus rectangle. Windows may hide the focus rectangle until you use the keyboard; to turn off this “feature”, see Section 6 on the next page.

5. Disabled and Read-Only Controls

Controls can be enabled, disabled, or read-only. When a control is disabled, its background is the same color as the window and its label is grayed. A control will be disabled if it doesn’t currently apply. When a control is read-only, its background is the same color as the window, but its label is displayed normally. A control will be read-only if it does apply, but you aren’t allowed to change it.

For example, in Figure 1, the *Submitted* check box is read-only while the *Submit failed* check box is disabled (because until an event is submitted, the submission can’t have failed). The *Club* field is a bit unusual. It is shown as read-only because you can’t change it by editing the club’s name, but you can change it by clicking on the *Change* button.

6. The Main Menu

The main menu (and Cantor's only menu) is at the top of Cantor's main window. Each menu and submenu item has one letter underlined.

If you don't see the underlines, then the underlines should appear if you press **<Alt>**. You can also tell Windows to always show the underlines: In Windows 10, turn on "All settings" > "Ease of Access" > "Interaction" > "Keyboard" > "Change how keyboard shortcuts work" > "Underline access keys when available". This setting may also affect whether the focus rectangle is hidden until you use the keyboard.

You can select a menu or submenu item by pressing **<Alt>** and the underlined letter. If the menu has the focus, you can just press the letter without holding down the **<Alt>** key. You can toggle the focus between the menu and the rest of the main window by pressing **<Alt>** or **<F10>**.

If the menu has the focus, then **<Left>** moves to the previous menu item, or if a submenu is displayed, displays the previous submenu. Similarly, **<Right>** moves to the next menu item or submenu. **<Up>** and **<Down>** move to the previous or next submenu item. If no submenu is displayed, then they display the submenu. **<Enter>** selects the current menu or submenu item. **<Esc>** closes a submenu. If no submenu is open, then it gives the focus back to the rest of the main window.

Most of the submenu items have a single letter to their right. This letter specifies the *shortcut key* for the item. You can press the shortcut key to select the submenu item. For example, there is a "P" next to `::Players > Modify`. If you press **<P>**, it is the same as clicking on *Modify*. The shortcut keys only work if the main menu doesn't have the focus (which is normally the case). [Table 1 on the next page](#) lists the menu items and shortcut keys. The bold letters in the table show how the shortcut keys were chosen.

Some submenus have one item in bold. If you double-click a main menu item, then the submenu item in bold will be selected.

7. Enter Key

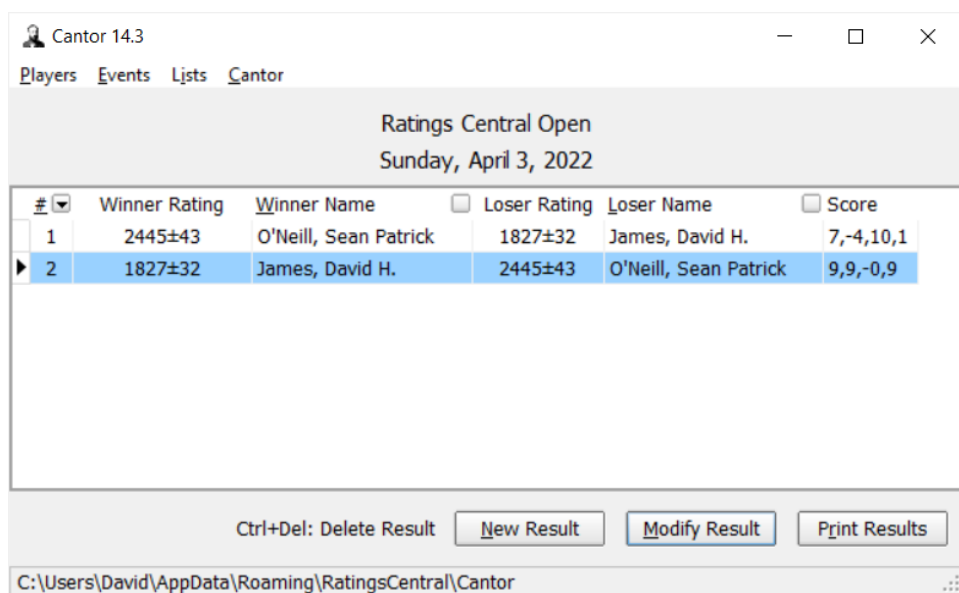
Most windows have a default button that will be selected if you press **<Enter>** even if the button does not have the focus. For example, in [Figure 2 on the following page](#), the *Modify Result* button is the default button. If there is no default button and the field that has the focus does not respond to the **<Enter>** key, then the **<Enter>** key moves the focus to the next field. If a button has the focus, then the **<Enter>** key always clicks the button.

8. Accelerator Keys

Most labels have an underlined letter. (If you don't see the underlines, see [Section 6](#) for how to tell Windows to show them.) You can press **<Alt>** plus the key corresponding to the letter to move the focus to the associated control. If the control you are moving to is a button, it will also be clicked. If the control is a check box, it will be toggled (i.e., checked if unchecked and vice versa). If the control is a radio button, it will be selected. If the control that has the focus doesn't respond to letter keys (e.g., a button or an edit field that only accepts numbers), then you don't have to hold down the **<Alt>** key—just press the letter key. Note that drop-down lists do respond to letter keys.

| <i>Menu</i> | <i>Submenu</i> | <i>Key</i> |
|----------------|--------------------------|------------|
| <i>Players</i> | <i>Modify</i> | ⟨P⟩ |
| | <i>Copy from Event</i> | ⟨Y⟩ |
| | <i>Export</i> | |
| | <i>Import</i> | ⟨O⟩ |
| | <i>Print</i> | ⟨T⟩ |
| | <i>Get New IDs</i> | |
| <i>Events</i> | <i>Select Current</i> | ⟨E⟩ |
| | <i>Submit</i> | ⟨S⟩ |
| | <i>Import</i> | |
| | <i>Help Correct Date</i> | |
| <i>Lists</i> | <i>Import</i> | ⟨I⟩ |
| | <i>Browse Rating</i> | ⟨G⟩ |
| | <i>Browse Club</i> | ⟨C⟩ |
| <i>Cantor</i> | <i>Exit</i> | ⟨X⟩ |
| | <i>Set Up</i> | ⟨U⟩ |
| | <i>Set Up Internet</i> | |
| | <i>Select Printer</i> | |
| | <i>Visit Website</i> | ⟨B⟩ |
| | <i>Display Version</i> | ⟨V⟩ |

TABLE 1. Main-window shortcut keys

FIGURE 2. The *Modify Result* button is the default button

9. Grids

Cantor uses grids to display events, players, clubs, results, and submissions. You can find grids in the main window and in *::Lists > Rating*, *::Events > Select Current*, *::Players > Modify*, as well as a few other places.

The selected item in a grid is indicated by a right-pointing arrowhead in the leftmost column. If the grid has the focus, then the selected item is also highlighted.

The scroll bars in grids are standard Windows scroll bars with the following differences: Click the area between the arrow buttons and the thumb of the horizontal scroll bar to scroll by one screenful minus one column. So, if you scroll right (say), the last fully visible column on the right before you scroll will be the column on the left after you scroll. Click the area between the arrow buttons and the thumb of the vertical scroll bar to move the number of rows in one screenful. Drag the thumb to move a variable amount.

You can resize or reorder columns by dragging with the mouse. To resize, drag the vertical line in the header that separates two columns. To reorder, drag the header for the column to where you want it.

You can sort the grid on a column by clicking the button to the right in the column header. Not all columns have the button. You can only sort on columns that do have the button. The column that the grid is currently sorted on will display a downward-pointing arrowhead in the button. Columns with buttons will also have an underlined letter in the column header. This indicates the accelerator key that you can press to sort on the column. These accelerator keys work like other accelerator keys in that you will have to also press *<Alt>* while pressing the accelerator key if the control that currently has the focus responds to letter keys. The sort order is decreasing for ratings and increasing for everything else.

In a grid, *<Up>* moves up one row, *<Down>* moves down one row, *<PgUp>* moves up the number of rows in one screenful, *<PgDn>* moves down the number of rows in one screenful, *<Ctrl+Home>* and *<Ctrl+PgUp>* scroll to the beginning, *<Ctrl+End>* and *<Ctrl+PgDn>* scroll to the end, *<Ctrl+Up>* moves to the first row displayed in the window, *<Ctrl+Down>* moves to the last row displayed in the window, *<Left>* scrolls the display left one grid column, *<Right>* scrolls the display right one grid column, *<Ctrl+Left>* scrolls the display left one screenful minus one column, *<Ctrl+Right>* scrolls the display right one screenful minus one column, *<Home>* scrolls all the way to the left, and *<End>* scrolls all the way to the right. Clicking with the mouse makes the row you clicked the current row.

In the grids on the *Browse* page of the player or event notebooks, you can double-click a player or event to switch to the *Edit* page for the player or event. In the result grid in the main window, you can double-click a result to modify the result, i.e., the effect is the same as selecting a result, then clicking the *Modify Result* button.

Pressing *<Ctrl+G>* sets the focus to the grid. In a *Find* field, pressing *<Up>* moves the focus to the grid.

9.1. Incremental Search. The player, rating list, and club grids have associated *Find* fields that let you search for a specific record. These are incremental-search fields, so you can type just the first part of what you are searching for and the grid will move to the first matching record. The search happens after every keystroke.

The value you type must be the sort of thing that is in the column that the grid is sorted on. For example, if you want to search for a player by name, you must sort the grid by name by clicking on the button in the header of the grid's "Name" column.

10. Drop-Down List

A *drop-down list* (also called a *combo box*) is a control that drops down a list of choices when you click the arrow at the right of the text, e.g., *::Players > Modify > Edit > State*. With the list open or closed, `<Up>` and `<Left>` select the previous item, `<Right>` and `<Down>` select the next item, `<PgUp>` moves up the number of items in one screenful, `<PgDn>` moves down the number of items in one screenful, `<Home>` goes all the way to the first item, `<End>` goes all the way to the last item, `<F4>`, `<Alt+Down>`, and `<Alt+Up>` act as toggles, opening and closing the list, and `<Esc>` closes the list without changing the selection from what it was when the list was opened. With the list open, clicking with the mouse selects an item and `<Enter>` closes the list.

With the list either open or closed, you can also select an item by typing it into the control. For example, to select "VA" you can type "v" or "va". Similarly, you can select "2" by typing "2". In general, the list moves to the first item which starts with the string you typed. After 1.5 seconds, the control forgets what you've typed, so you can type a new string. You can also press `<Backspace>` to clear the last character you typed.

11. List Box

Cantor uses list boxes to select the winner and loser in the *New Result* and *Modify Result* windows. In a list box, `<Up>` selects the previous player, `<Down>` selects the next player, `<PgUp>` moves up the number of players in one screenful, `<PgDn>` moves down the number of players in one screenful, `<Home>` goes all the way to the first player, `<End>` goes all the way to the last player. `<Left>` tabs to the previous control, and `<Right>` tabs to the next control. Clicking with the mouse selects a player.

You can also select a player by typing their name into the list box. For example, to select "James", you can type "j" or "ja". In general, the list box moves to the first player whose name starts with the string you typed. After 1.5 seconds, the list box forgets what you've typed, so you can type a new string. You can also press `<Backspace>` to clear the last character you typed.

12. Dates and Date Fields

In grids, Cantor displays dates using the short-date format specified in your Windows region settings. You can change these settings in "All settings" > "Time & Language" > "Region" > "Change data formats".

When entering a date, use the year-month-day order that matches your short-date Windows region settings. If your short-date setting uses the month-day-year order, the *::Events > Select Current > Edit Event > Date* field and the *::Events > Help Correct Date > New date* field display the month name, but you must enter the date

into these fields using numbers or by clicking the button to the right of the field to drop down a calendar.

You can use either a two-digit year or a four-digit year in any date field. Cantor assumes that two-digit years are between eighty years ago and twenty years from now. However, for the *Birth* field, Cantor assumes that a two-digit year is in the past.

In any date field, `<+>` increments the day, `<->` decrements the day, `<Up>` increments the month, `<Down>` decrements the month, `<Ctrl+Up>` increments the year, and `<Ctrl+Down>` decrements the year.

12.1. Calendar. For some date fields, you can click the button at the right of the field or press `<Alt+Down>` or `<F4>` to drop down a calendar. Today's date will have a maroon frame around it. You can select today's date by clicking the *Today* button. You can select any date by clicking a day. Click one of the buttons at the top of the calendar to move to the previous month or next month. If you click one of the buttons and hold the mouse down, the month will keep changing (and speed up the longer you hold the mouse down).

You can also select the month by clicking on the header text that displays the month name. This displays a pop-up menu that lists the months. Select the month you want by clicking on it or by using the `<Up>`, `<Down>`, and `<Return>` keys. You can also select the year by clicking on the header text that displays the year. This displays two buttons on either side of the year. Click the left button to move to the previous year and the right button to move to the next year. If you click one of the buttons and hold the mouse down, the year will keep changing.

As for the keyboard, `<Left>` moves to the previous day, `<Right>` moves to the next day, `<Up>` moves to the previous week, `<Down>` moves to the next week, `<Home>` moves to the first day of the month, `<End>` moves to the last day of the month, `<PgUp>` moves to the previous month, `<PgDn>` moves to the next month, `<Esc>` closes the calendar without changing the date, and `<Return>` accepts the selected date and closes the calendar.

13. Buttons and Radio Buttons

If a button has the focus, you can click it via either `<Enter>` or `<Space>`. If a button has an icon, but no text, you can hover the mouse over the button to pop up a hint that explains what the button does.

In a radio group box, you can use the `<Up>`, `<Left>`, `<Down>`, and `<Right>` keys to change which radio button is selected.

14. Button Edits

A button edit is an edit control that has a button as part of the control to the right of the edit box, e.g., `::Lists > Import > Rating list`. If the button edit has the focus, you can click the button by pressing `<Alt+Down>`.

15. Check Boxes

You can toggle a check box by clicking it or, if it has the focus, pressing `<Space>`. You can click the box or the text.

16. Navigator Bar

If a navigator bar (i.e., the bar containing four buttons in the bottom left of `::Events > Select Current > Edit` or `::Players > Modify > Edit`) has the focus, you can click the selected button with `<Space>` (but not `<Enter>`) and select a different button with `<Left>` or `<Right>`. If you hover over a button with the mouse, Cantor will display a hint that explains what the button does and what shortcut key you can use to do the same thing.

The shortcut keys are `<PgUp>` moves to the previous record, `<PgDn>` moves to the next record, `<Ctrl+PgUp>` moves to the first record, and `<Ctrl+PgDn>` moves to the last record. These keys work regardless of which control on the *Edit* page has the focus.

17. Notebooks

Notebook tabs can have the focus, just like any other control. If a notebook tab has the focus, then `<Up>`, `<Left>`, and `<Home>` change to the first notebook page, while `<Down>`, `<Right>`, and `<End>` change to the second notebook page (since all of Cantor's notebooks only have two pages).

18. Edit Fields

An *edit field* is a control into which you type text, numbers, or dates. In an edit field, `` deletes the character at the caret (the *caret* is the vertical bar that shows where you are in the field), `<Backspace>` deletes the character to the left of the caret, `<Left>` moves left one character, `<Right>` moves right one character, `<Home>` moves to the beginning of the field, `<End>` moves to the end of the field, `<Ctrl+Left>` moves left one word, `<Ctrl+Right>` moves right one word, `<Alt+Backspace>` and `<Ctrl+Z>` undo the last change you made, `<Ctrl+C>` copies the selected text to the clipboard, `<Ctrl+X>` cuts the selected text, `<Ctrl+V>` pastes, `<Shift+Home>` extends the selection to the start of the field, `<Shift+End>` extends the selection to the end of the field, `<Shift+Left>` extends the selection left one character, `<Shift+Right>` extends the selection right one character, `<Ctrl+Shift+Left>` extends the selection left by one word, and `<Ctrl+Shift+Right>` extends the selection right by one word.

You can also drag with the mouse to select text. If any text is selected, then whatever you type will replace the selected text and `` and `<Backspace>` will delete the selected text. When you move to an edit field using the keyboard, the contents is selected, so whatever you type will replace the contents. To edit the contents, press a key that moves the caret (e.g., `<Left>` or `<End>`) or click with the mouse to deselect the text.

19. Progress Bars

When Cantor needs to do something that may take some time, it puts up a progress bar, e.g., Figure 3 on the facing page. For some operations, it doesn't put up a progress bar, but does change the cursor to an hourglass. When Cantor puts up a progress bar, you can abort the operation by clicking the *Abort* button or the "×" in the window title bar, or by pressing `<Esc>`, `<Enter>`, or `<Alt+F4>`.

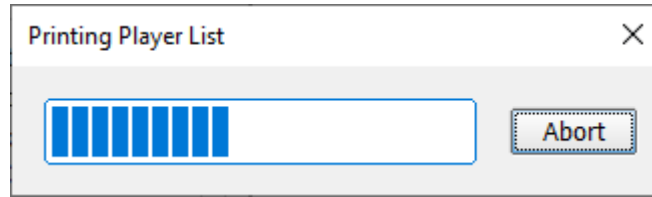


FIGURE 3. Progress bar

Database Folder

This chapter explains how Cantor finds the database folder, how you can move the folder to a different location after Cantor is installed, how you can have more than one event on a given date, and what to do if you have more than one director ID. There are two ways to tell Cantor where the database folder is: setting the current folder and using a command-line parameter. The following sections explain these.

See Section 1.3 on page 14 for where the installer puts the database folder. See Section 1 on page 61 for how to see what folder Cantor is using for the database folder. See Appendix E on page 93 for advice on where you should put the database folder.

1. Specifying the Database Folder

Whenever Windows starts an application, it designates one folder as the *current folder*. When you start Cantor, it looks for the database files in the current folder. For example, if you double-click on a file with an exe extension, then the current folder will be the folder containing the exe file. If you double-click on a Windows shortcut (e.g., an item on the desktop that has a little arrow on the bottom left or an item in the “Start” menu), then the current folder is determined by the shortcut. To see or change the current folder that the shortcut is using, right-click the shortcut and select “Properties”. The current folder is the folder listed in the “Start in” field.

You may also specify the database folder by giving the folder (including path) as a command-line parameter. You can do this by typing it in a Command Prompt or bat file or including it in the “Target” field in a shortcut’s properties. A command-line parameter takes precedence over the current folder. You can also use the special command-line parameter “appdata” to have Cantor put the database folder in a subfolder of your AppData folder, e.g., C:\Users\YourUserName\AppData\Roaming\RatingsCentral\Cantor.

Cantor’s installation program puts the “appdata” command-line parameter in the shortcuts on the desktop and in the “Start” menu. You can move the database files to any folder you want by updating the shortcuts: Remove “appdata” from the “Target” field and set the “Start in” field to the new folder. Or, instead of updating the existing shortcuts, you can create new shortcuts. Please do not use the “appdata” location for your real event data; put the files where you can easily find them.

If you accidentally delete the shortcuts, you can create a shortcut by right-clicking the desktop and selecting “New” > “Shortcut”. This starts the Windows “Create Shortcut” wizard. For the “location of the item” (on the first page of the wizard), enter the path and filename of the Cantor.exe file, e.g., C:\Program Files (x86)\RatingsCentral\Cantor\Cantor.exe. Click the “Next” button

to go to the second page of the wizard. For the name of the shortcut, enter the text that you want to appear as the caption under the desktop icon, e.g., “Cantor”. Click the “Finish” button. Right-click the shortcut that you just created on the desktop and select “Properties”. Change the “Start in” folder to the folder where you want to put the database files.

2. Multiple Director IDs

If you need to submit two events that have the same event date, then you need a second director ID. If the two events are related, it might make sense to combine them into one event. But, in general, the way to submit two events on the same date is to get a second director ID. If you aren’t sure what to do, discuss it with us; see <https://www.ratingscentral.com/Problems.php> for our email address.

If you want to submit events for more than one sport, you need a director ID for each sport. If you take over another director’s events, you will have more than one director ID.

Each director ID must have its own set of database files. To set up Cantor to use an additional director ID, choose a folder for the additional set of database files, and set up a shortcut for Cantor with the *Start in* field set to that folder. Set the shortcut’s caption to something that will tell you which set of database files it is using. If you do set up an additional set of database files, be sure that you don’t enter the same director ID into both sets of files, since this will give you two inconsistent versions of any events that occur on the same date in both sets.

If you set up an additional set of database files, you may wish to set the list database folder (see Section 2.2 on page 29) to something other than the database folder. This would let you set both copies of Cantor to use the same list database folder. So, you would only have to import the lists once rather than twice. However, if you do this, you won’t be able to run both copies of Cantor at the same time because only one copy of Cantor can be accessing a folder at a time. The lists are specific to a sport, so you can’t share them between director IDs for different sports.

Crashes and Bugs

If Cantor crashes, you will see a window like Figure 1. If you don't understand the message, then it may be a bug. You can copy the message and the details to the clipboard by clicking the *Copy Report to Clipboard* button or by pressing (Ctrl+C). The message and details in the window will also automatically be written to the file CantorCrash.txt in the database folder. There may also be a file CantorDatabaseError.txt that contains additional error messages.

If you wish to report a bug or have any questions or suggestions, please contact us; see <https://www.ratingscentral.com/Problems.php> for our email address. If you are reporting a bug, please include specific steps so that we can reproduce it, send us the CantorCrash.txt and CantorDatabaseError.txt files, and also send us the database files (if these will help us reproduce the bug).

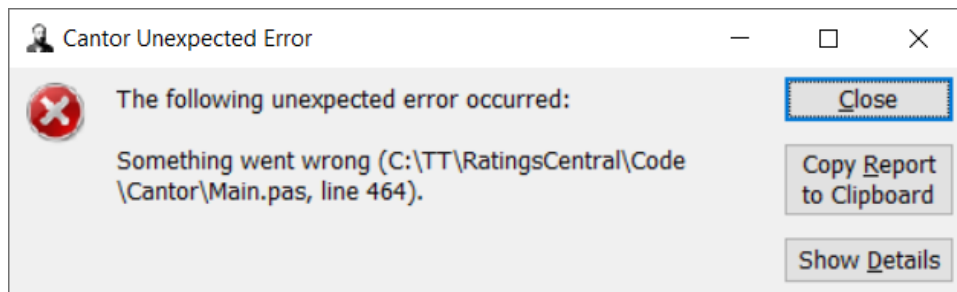


FIGURE 1. Crash window

APPENDIX E

Data Safety

Windows provides a write-caching feature. If this feature is on, applications may not be able to force data to be physically written to the disk and a software, hardware, or power problem may cause data corruption. The settings are in Device Manager. How you get to Device Manager varies in different versions of Windows. In Windows 10, you can find Device Manager in *Control Panel > Hardware and Sound > Devices and Printers > Device Manager*. Expand the *Disk drives* node. Right click on your hard disk or SSD (solid state drive) and choose *Properties > Policies*. The options vary in different versions of Windows. In Windows 10, you will see a check box labeled *Enable write caching on the disk* and under it another one that is labeled *Turn off Windows write-cache buffer flushing on the device*. Checking the second check box is very dangerous. Checking the first is dangerous. The slight speed increase is not worth the risk of data corruption. For safety, uncheck both check boxes.

Some hard disks and SSDs have built-in write caching that cannot be turned off. For safety, use a UPS (uninterruptible power supply) or both AC power and a battery.

Antivirus apps can interfere with an app's ability to write to the disk. For safety, exclude the database folder from your antivirus app.

You should put the database folder on the most reliable disk that you have, e.g., your C: drive. Using a USB key, removable disk, OneDrive folder, etc. is not a good idea. Of course, USB keys and OneDrive are excellent for transferring the database files between computers or making short-term backups. For long-term backups, CD-R or DVD-R disks are best.

APPENDIX F

Cost

Ratings Central uses a pay-what-you-think-is-fair fee system.

Different people use Ratings Central in different ways. Some directors have only a few players, a few matches, and an occasional event. Others have many players, many matches, and many events and tournaments. Some directors and clubs are independent. Others are part of larger organizations. Some clubs and organizations have many directors. Others have only one. Some use Cantor and Zermelo. Others use some other method of submitting results. Some grab data from the website for download or redisplay.

Rather than try to accommodate all the different ways that people use Ratings Central in a fee schedule, Ratings Central uses a *pay-what-you-think-is-fair* fee system: Each year that you, an event director, submit events to Ratings Central, you should pay what you think is fair, taking into account how you, your players, and your club or organization use Ratings Central.

For purposes of determining what you owe, “submit events to Ratings Central” means submit events that were not already in the system. So, if all you do during the year is resubmit events (e.g., to make corrections) that were already submitted in a previous year, then you do not owe anything for that year.

If you are part of a club, organization, or some other entity that has multiple event directors, then you (the event directors) can pay as a group. If you think that your players should contribute, then you should collect the money from them. That is, directors should handle the payments, but directors can decide how they raise the money within their club, organization, or tournament.

What you should pay should include what you think is fair for the use of all aspects of Ratings Central, including the ratings, website, Cantor, Zermelo, Fraenkel, the API, notification emails, etc.

Please pay in January for the previous calendar year. When paying, please tell us the calendar year and director IDs that you are paying for.

See <https://www.ratingscentral.com/Cost.php> for how to pay.

We are not going to tell you how much you should pay each year to use Ratings Central (where “you” includes the clubs and organizations that you represent). If you are not sure how to determine what is fair, the following may help: What is the most that you would pay to avoid the alternative of not using Ratings Central? You should not pay more than that. On the other hand, that is probably more than you feel comfortable paying. So, come up with an amount that you feel is reasonable and fair. You should be able to say to yourself, “I’m getting a good deal. I’d be willing to pay 50% or 100% more for what I get.” But, if you can say, “Wow. I’m only paying 5% of what I’d be willing to pay”, then do you think that is fair?

If you think that it is fair to pay nothing, then apparently Ratings Central is of no value to you, so you should not be using it.

Index

- <+>, 85
- <->, 85
- #, 61
- accelerator key, 81, 83
- Add Event*, 17, 42
- Add Player*, 18, 19, 50, 56, 58
- Address 1*, 52, 53
- Address 2*, 52, 53
- <Alt>, 81, 83
- <Alt+Backspace>, 86
- <Alt+Down>, 84, 85
- <Alt+F4>, 75, 79, 86
- <Alt+Space>, 79
- <Alt+Up>, 84
- antivirus, 93
- API, 47
- arrow buttons, 79
- <Backspace>, 84, 86
- backups
 - making, 14
 - restoring, 15
- Birth*, 53, 85
- bold submenu item, 81
- Browse*
 - Events > Select Current*, 41-42, 45
 - Players > Modify*, 50
- Browse Club*, 38
- Browse Rating*, 38, 56
- bugs, 91
- button, 81, 85
- button edit, 85
- calendar, 85
- Cancel*, 79
- Cantor*, 27
- Cantor, Georg, 33, 77
- Cantor.exe, 13, 89
- Cantor.ini, 32, 79
- Cantor.pdf, 13
- CantorCrash.txt, 91
- CantorDatabaseError.txt, 91
- caret, 86
- Change*
 - Club*, 17, 43, 55, 65
- check box, 81, 85
- City*, 52, 53
- Clear*
 - Club*, 44
- Close*, 79
- Club*
 - event, 43, 80
 - Lists*, 65
 - player, 53, 55, 80
- club browser, 17, 38, 43, 55, 65
- Club list*, 37
- club list, 13, 14, 35, 38, 44, 65
 - add your club, 35
- Club.nxl, 14, 29
- ClubList.csv, 36
- columns
 - reorder, 41, 79, 83
 - resize, 41, 79, 83
- combo box, 84
- Configuration.nxl, 14
- Continue and Ignore Errors*, 38
- Continue Importing*, 38
- control, 80
- Copy from Event*, 57, 59
- correcting errors, 45, 47, 63, 71, 72, 74
- cost, 95
- Country*
 - event, 43
 - player, 52, 53
- crash, 91
- CSV, 37, 57, 58
- <Ctrl+A>, 75
- <Ctrl+C>, 75, 86, 91
- <Ctrl+Del>, 19, 42, 50, 61
- <Ctrl+Down>, 83, 85
- <Ctrl+End>, 83
- <Ctrl+G>, 83
- <Ctrl+Home>, 83
- <Ctrl+I>, 52, 55

- (Ctrl+Left), 83, 86
- (Ctrl+N), 50, 55
- (Ctrl+PgDn), 83, 86
- (Ctrl+PgUp), 83, 86
- (Ctrl+R), 51, 55
- (Ctrl+Right), 83, 86
- (Ctrl+Shift+Left), 86
- (Ctrl+Shift+Right), 86
- (Ctrl+T), 52, 55
- (Ctrl+U), 51, 55
- (Ctrl+Up), 83, 85
- (Ctrl+V), 86
- (Ctrl+X), 86
- (Ctrl+Z), 86
- current event, 40, 41, 49, 61
- current folder, 89

- database folder, 14, 15, 57, 89, 91, 93
 - default location, 14
 - display, 61
- Date*, 17, 43, 84
 - wrong, 47
- Deceased*, 53
- default button, 63, 81
- (Del), 86
- Director*, 27
- director
 - policies, 28
 - retiring, 28
- director ID
 - second, 90
 - wrong, 74
- disabled, 80
- Discard all*, 36
- Display Version*, 33
- (Down), 81, 83-86
- drop-down list, 84
- duplicate players, 72-74
- duplicate record, 36

- Edit*, 86
 - Events > Select Current*, 42-44
 - Players > Modify*, 50-55, 72
- edit field, 86
- Email*, 52, 53
- enabled, 80
- (End), 83-86
- (Enter), 63, 75, 81, 84-86
- error-message window, 75
- errors, 75
 - correcting, *see* correcting errors
- (Esc), 75, 79, 81, 84-86
- event, 40
 - Club*, *see* *Club*, event
 - Country*, *see* *Country*, event
 - current, *see* current event
 - deleting, 42
 - lost, *see* lost files
 - Match format*, *see* *Match format*, event
 - multiple-day, *see* multiple-day events
 - Name*, *see* *Name*, event
 - resubmit, 44
 - State*, *see* *State*, event
 - submitting, 44, 71
 - two on same date, *see* multiple events on same date
 - wrong date, *see* *Date*, wrong
 - wrong director ID, *see* director ID, wrong
- Event Director Support, 32
- Event-posted emails, 53
- Event.nxl, 14
- Events*
 - Import*, *see* *Import*, *Events*
 - menu, 39
 - Select Current*, *see* *Select Current*
- Excel, 37
- Existing records*, 36
- Exit*, 27
- Expiration, 56
- Export*
 - Players*, 57

- (F10), 81
- (F4), 84, 85
- files
 - lost, *see* lost files
 - moving, *see* backups, restoring
- Find*, 83
 - club list, 65
 - Players > Modify*, 50
 - Rating List*, 56
 - rating list, 56
- focus, 80, 81
- Folder*, 46
- For duplicates, keep...*, 36

- Get New IDs*, 59
- grayed, 80
- grid, 17, 41, 50, 79, 83
 - sorting, 41, 79, 83

- handicap event, 40
- hardware requirements, 13
- Help, 13
- Help Correct Date*, 47, 48
- hint, 85
- (Home), 83-86
- hourglass, 86
- hover, 79, 85

- ID
 - ITTF*, 52, 71
 - new Ratings Central, 72

- Ratings Central*, 51, 54, 59, 72
- TT Australia*, 52, 53
- USATT*, 51, 53
- ID**
 - Director*, 27
- IDs*, 51, 53, 54
- Import**
 - Events*, 45
 - Lists*, 17, 35, 55
 - Players*, 58
- incremental search, 50, 56, 65, 83
- installation, 13
- ISO 8859-1, 16, 29
- ITTF**
 - ID, *see* ID, *ITTF*
- ITTF ID, 53, 54, 72
- Keep*, 36
- Last Played, 56
- Latin 1, 16, 29
- (Left), 81, 83-86
- libeay32.dll, 13
- License.txt, 13
- life membership, 56
- list box, 84
- List database folder*, 29, 56
- Lists*, 35
 - Import*, *see* *Import*, *Lists*
- log in to website, *see* website login
- Loser*, 19, 62
- lost files, 74
- main menu, 61, 81
- main window, 17, 19, 41, 49, 54, 61, 81, 83
- Match format**
 - event, 43, 71
 - result, 62
- match result, *see* result
- Mean**
 - event unrated prior, 44
 - player unrated prior, 54, 71
- Merge Player*, 56
- mistakes, *see* errors
- Mobile*, 53
- Modified*, 44, 45
- Modify**
 - Players*, 18, 49-56, 83
- Modify Result*, 63, 83, 84
- moving files, *see* backups, restoring
- multiple events on same date, 39, 90
- multiple-day events, 39
- Name**
 - event, 17, 43
 - player, 50, 53
 - Print*, 58
- navigator bar, 43, 86
- Never, 56
- New**
 - For duplicates, keep...*, 36
- New date*, 48, 84
- New personal info*, 44, 45, 53, 71
- New Player*, 56
- New Result*, 19, 43, 62, 84
- No score*, 62
- notation, 16
- notebook tab, 86
- nx1, 14
- nxTrans.cfg, 14
- Old*, 36
- OpenSSL, 13
- overview, 17-23
- Overwrite Player*, 56
- Password**
 - Director*, 28
 - Email*, 31
 - Web proxy server*, 31
- personal information, 71
- (PgDn), 83-86
- (PgUp), 83-86
- Phone*, 53
- player
 - Club*, *see* *Club*, player
 - Country*, *see* *Country*, player
 - deleting, 50
 - Name*, *see* *Name*, player
 - State*, *see* *State*, player
- player list, 58, 59
- Player.nx1, 14
- Player_YYY-MM-DD.csv, 57
- Players*, 49
 - Export*, *see* *Export*, *Players*
 - Import*, *see* *Import*, *Players*
 - Modify*, *see* *Modify*, *Players*
- Port*, 31
- Postal code*, 52, 53
- Previous Submissions*, 45
- Print*, 54, 58
- Print Results*, 54, 63
- printer, 32
- progress bar, 86
- Province*, 53
 - event, 43
 - player, 52
- quick start, 17
- radio button, 81, 85
- radio group box, 85
- Rating*, 54, 71
 - Lists*, 55, 83

- Print Lists*, 58
- Rating List*, 18, 19, 50, 55, 58
- Rating list*
 - ::Lists > Import, 37
- rating list, 13, 14, 35, 38, 49, 50, 55, 72, 83
- rating-list browser, 18, 38, 50-52, 55
- RatingList.csv, 36
- RatingList.nxl, 14, 29
- Ratings Central*
 - ID, *see* ID, *Ratings Central*
- RC-ID-and-rating information, 71
- Read-only*, 15
- read-only, 80
- ReadMe.txt, 13
- report ID, 46
- resubmit event, *see* event, resubmit
- resubscribe, 53
- result, 61, 62, 71
 - deleting, 61
 - grid, 54, 61, 63, 83
 - Match format*, *see* Match format, result
 - sorting, 63
 - window, 63
- Result.nxl, 14
- (Return), 85
- (Right), 81, 83-86
- SampleClubList.csv, 13, 17
- SampleRatingList.csv, 13, 17
- Score*, 19, 62
- scroll bar, 79, 83
- Select Club*, 17, 65
- Select Current*, 17, 40-44, 49, 83
- Select Printer*, 32
- Server name*, 31
- Set Up*, 27
- Set Up Internet*, 29
- Sex*, 53
- (Shift+End), 86
- (Shift+Home), 86
- (Shift+Left), 86
- (Shift+Right), 86
- (Shift+Tab), 80
- shortcut key, 50-52, 55, 81, 82
- SMTP port*, 31
- SMTP server*, 31
- sort
 - grid, *see* grid, sorting
 - results, *see* result, sorting
- Source, 56
- Source*, 35, 37
- (Space), 75, 85, 86
- Sport*, 28
- sports
 - multiple, 28, 90
- ssleay32.dll, 13
- Standard Deviation*
 - player, 71
- Standard deviation*
 - event unrated prior, 44
 - player, 54
 - player unrated prior, 54, 71
- Start in, 89
- State*
 - event, 17, 43
 - player, 52, 53
- Status*, 44, 71
- Stop Importing*, 38
- subevent, 40
- Submission method*, 30
- Submission.nxl, 14
- Submit*, 44
- Submit Events*, 44
- Submit failed*, 44, 45, 80
- Submitted, 45
- Submitted*, 44, 80
- (Tab), 63, 80
- Test*, 31
- thumb, 79, 83
- title bar, 79
- Today*, 17, 85
- TT Australia*
 - ID, *see* ID, *TT Australia*
- two events on same date, *see* multiple events on same date
- Unicode, 16
- Unrated prior*
 - event, 44, 67
 - player, 54, 67
- (Up), 81, 83-86
- Update info from rating list*, 57
- upgrading, 15
- UPS, 93
- USATT*
 - ID, *see* ID, *USATT*
- USATT membership*, 56
- Use authentication*, 31
- Use proxy server*, 31
- Use TLS*, 31
- user interface, 79-86
 - persistence, 79
- Username*
 - Email*, 31
 - Web proxy server*, 31
- VersionHistory.txt, 13
- Visit Website*, 32
- website login, 32
- window
 - closing, 79

resizing, [79](#)
Winner, [19](#), [62](#)
write caching, [93](#)
wrong date, *see* *Date*, wrong
wrong director ID, *see* director ID, wrong
Your email address, [30](#)
Zermelo, Ernst, [77](#)