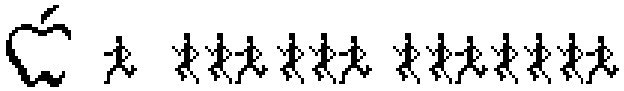

Apple Raceberry JaM

Road Race and Cross Country Meet Management Software for Windows

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Scoring an Event with Apple Raceberry JaM: Overview

Your basic objective in scoring a race is to report the order in which the runners finish, and in what time. Once that is done, you must be able to score teams according to the rules of the race, and/or to rank the runners in any award groups the race may have, such as those based on age and sex but perhaps other criteria as well.

Apple Raceberry JaM is a very powerful system for scoring road races and cross country meets, in that it can do just about everything that needs to be done for just about any race or meet. The cost of this power and flexibility is that you have many choices to make in order to score any one race. To help you get started, it may be useful to take a look at the complete process of scoring a race in outline before getting into any of the details.

Here's the basic idea:

1. Before the event, you must first create files on your computer in which to store the data on the participants and their results. These files are kept in a folder with the event's name.
2. Also before the event, enter the data on pre-registered participants, such as their name, age, sex, address, and team. You will probably print out lists and labels for their bibs/ID numbers.
3. At the event, you may have to enter data on walk-up participants. In any case you must enter the times and the finishers' ID numbers in order of finish.
4. Finally you output the results, certainly in printed form and perhaps in files that can be uploaded to the Internet.

These steps are covered in separate chapters of this manual.

Suggested Peripheral Equipment

Apple Raceberry JaM is a complete race management system. The software allows you to record all the information you need on the runners and their results, to score them in (probably) any way you can think of, to output the results in a variety of forms, and to communicate with the runners by email and snail mail.

For recording their results manually, the runners must be issued bibs (race numbers) with detachable tags and you must have spindles on which to collect the tags at the end of a chute. The recommended source is Rainbow Racing System (800-962-1011). The tags on other brands are much harder to handle on the spindles. A bar code reader (again obtainable from Rainbow) would also be useful; ARJaM prints out bar coded labels.

You also need to record their times. The software has the ability to make the scoring computer act as a timer (see page 39). However, so doing does not supply the select times that are so important for insuring the accuracy of your results (pages 46-49).

An external timing device of some sort is therefore highly recommended. A simple printing timer would allow you to input the times manually, which is not unreasonable for a small race (page 44), although it might not produce select times. Serial devices, in particular the TimeMachine, do produce select times and allow you to download them as the race progresses (page 37).

A more economical solution is to network the scoring computer with a laptop that is set up at the finish line. With an access point/router, you can do the networking wirelessly. If you don't have a laptop available and don't want to borrow one, you can get a Windows netbook for $300 or less. A useful accessory is the Logitech keypad, also economical, which makes it easy to collect select times. The netbook can also be used to assist with race day entries. See page 40.

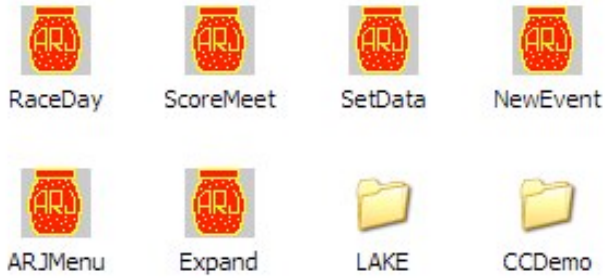
Alternatively, rather than enter IDs and times manually, you could purchase a chip system. Apple Raceberry JaM is compatible with most chip systems currently on the market; see page 37. All such systems use antennas to signal the chip, which reports to a decoder its ID number (which may have to be translated into the number assigned runners by ARJaM) and the time at which the chip reaches the antenna. Some chips attach to the runner's shoe. With those systems bibs are unnecessary, although they are

useful if you have a video system to back up the chip results. Chip systems, properly used, are very accurate for the finishers' times, but cannot resolve really close finishes.

For a really cool option, a flat screen TV can be obtained for under $300 and can be rigged to scroll through the results. See page 67.

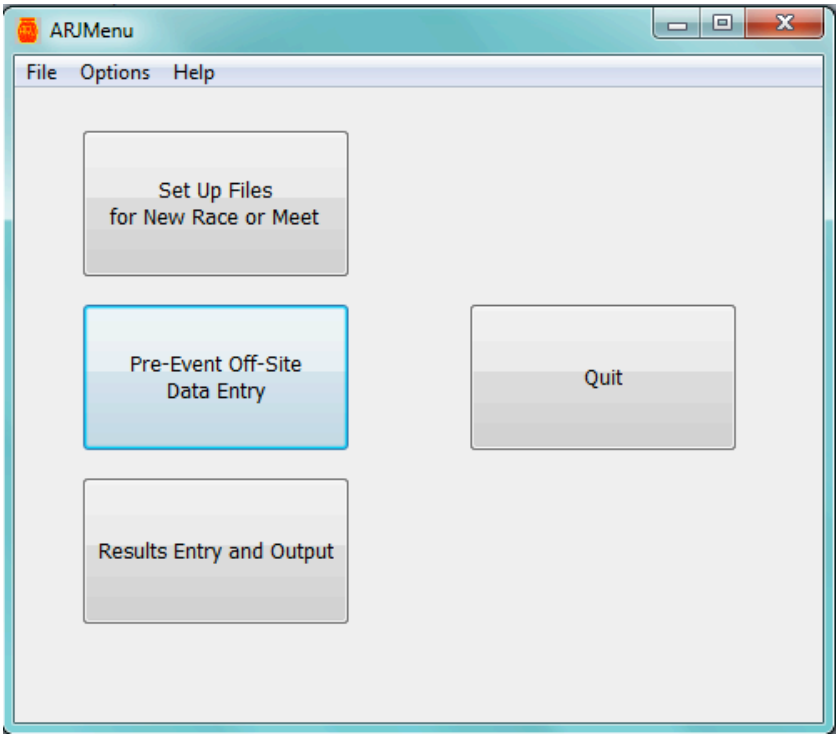
Step 0: "Installing" the Software and Getting to Know Apple Raceberry JaM

Welcome to Apple Raceberry JaM! Your software is on the CD in the back of the manual. Put the CD in your CD drive. Depending on your operating system, you may get a dialog asking if you want to view the contents of the CD. You do. You'll see a single folder called "ARJaM Windows Road." Drag the folder into your "Documents" (or perhaps "My Documets") folder. With older operating systems, you may need to go to "Windows Explorer:" right-click on the Start button at the lower left-hand corner of your desktop and select "Explore" with your mouse or by typing "x" and <enter>. Find the CD drive (probably "D:" drive), open it up, and drag the "ARJaM Windows Road" folder on to the (My) Documents folder.

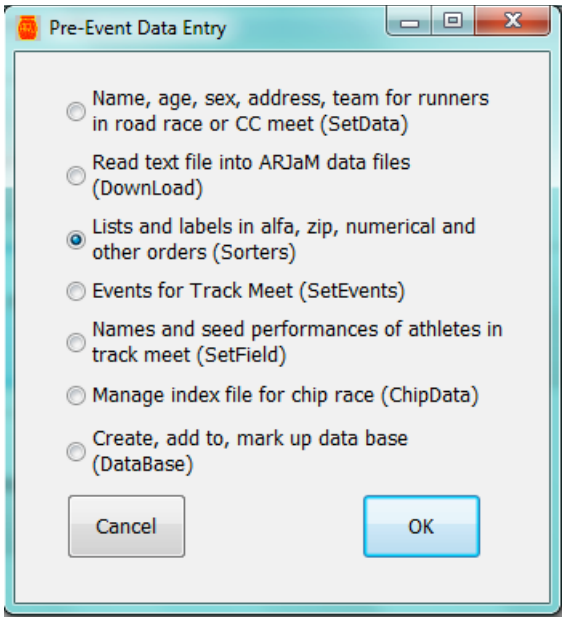


If you open up the ARJaM Windows Road folder, you will see several "jam-jar" icons and a couple of folders. The folders hold files for demos of the software; instructions for running the demos are enclosed in the software package.

Running the ARJaM Programs



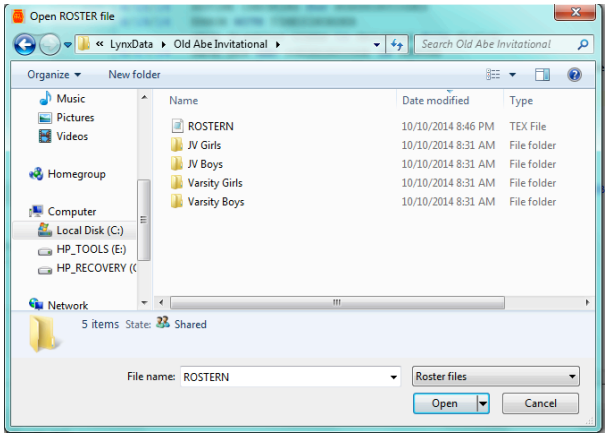
The application ARJMenu is your gateway into the ARJaM system. Double-click on it. Its various buttons direct you to the basic steps of the process.



Clicking on the first button simply takes you to the NewEvent application, which will be discussed in detail in the next chapter. Clicking on the one below brings up the dialog at the left, which lists all the applications in the ARJaM system employed before or away from the event (SetData is also useful at the event for entering data on race day entrants). The fourth and fifth items are not available in the basic Road Race/Cross Country package and are greyed-out; they belong to the Track Meet package. The last two are optional pieces of the Road Race/Cross Country package. ChipData is required if you have an IPICO or Championchip chips system.

Using ARJMenu to call up the various pieces of the Apple Raceberry JaM suite of applications is so convenient that you will find it useful to put a shortcut to it on your desktop. From Windows Explorer (see above), click on the ARJMenu icon, pull the File menu down to "Create shortcut," and then drag the shortcut to the desktop. Or, with more modern operating systems, once ARJMenu is started, right-click on its icon in the task bar and select "pin this program to task bar."

Locating Race Data Files



Except for NewEvent, which creates the files in the first place, after you call up an ARJaM program it starts looking for the data files on which it will operate, in particular one called ROSTERN.TEX (ROSTER.TEX in older versions of ARJaM), which stores the runners' names and ID numbers. As you'll see in the next chapter, the data files for each event are created and stored in a folder named (by you) after the event. The programs remember where they were last used; initially they will look in the last directory in which they were located. If there is a file called ROSTERN in the directory where it starts looking, the standard File Open dialog looks like the one shown on the right. If that is the ROSTERN file you want, you just hit the <enter> key to get the program going. If you're in some other directory, click on the folder icon with the up-arrow in it to get to the parent of your current directory – and double-click on it (in Windows 10, click on the arrow next to the name of the last directory used to get to the parent directory). Double click on ROSTERN (or, if its name is showing in the "File name" box, hit <enter>).

In any case note that only files of the type you want are shown. In most cases there is only one permissible name for a file of a given type. Theoretically ROSTERN files could actually be called anything that begins with "R," but you should choose ROSTERN to take advantage of recent improvements in Apple Raceberry JaM.

If, after starting up a program, you discover you're in the wrong one, clicking the "Cancel" button of one of the standard file dialogs shown above will usually get you out and let you look for the right program.

You cannot start an ARJaM program by double-clicking on one of the files they create. There are too many different programs that can operate in different ways on the same data, so declaring you want to use an ARJaM file does not identify the program (application) that you want to use.

Peculiarities of ARJaM Programs

For the most part, the ARJ programs conform to the standard Windows user interface. The principal exception is the lack of "Open," "New," "Close," and "Save" items under the File menu, since these functions are all carried out for you

automatically. Program NewEvent creates space on the data disk for a number of blank lines of data (per your specifications). The other applications write data into those blanks as they go along.

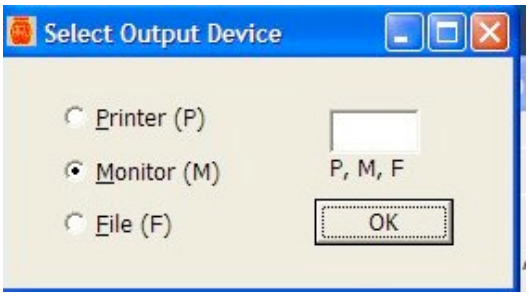
The good side of this is, if the system crashes or you lose power, you do not lose (much) data. The bad side is that you may have to work a bit to undo mistakes, since bad data can be written over good. The "Undo" command under the Edit menu is not activated.

Also, if you ask for some data beyond the end of the file as it was created in NewEvent, the system may crash with an error message or at least refuse to go any further. If you need more room in your files than you thought, use program SetData and its "Expand" option to lengthen them; see page 14.

One thing that has generated a lot of phone calls is that age groups and teams do not seem to be properly reported in program RaceDay if they were input or changed in program SetData after the finish order was recorded while RaceDay is open. When you enter a runner's ID in RaceDay, that information is stored in a file called ORDER along with the runner's team and age/sex class, which are determined by looking up the data entered in file ROSTERN. If you change the data in ROSTERN via a program other than RaceDay, that doesn't automatically change the data in ORDER. The solution is, if you find (or feel; as noted on page 42, you can enter or change the name, age, and team associated with a given ID in RaceDay) it necessary to change the runners' data with program SetData while RaceDay is open and you have recorded some finishers, pull down RaceDay's Finish Order menu to "Check finish order." This will reset the data in ORDER to conform with what is currently in ROSTERN.

See also the section above on "Running ARJ Programs," which is also peculiar to the extent that you cannot start up a program by clicking on an ARJ data file.

The "Output Device"

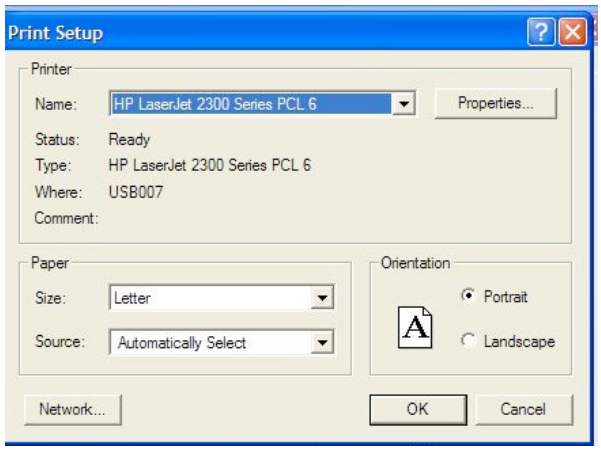


Whenever you want some output from an ARJ program, you are asked where you wish to direct that output by a dialog box like the one at right. You are allowed to "Select the output device" among Printer, Monitor, and File. Rather than use a radio button, you can do so by typing "P," "M," "F" or their lower-case versions.

If you don't need or want a permanent record of the output, select the Monitor by typing "M" (or "m"), clicking on the second button, or using the down arrow once, and then clicking on "OK" or hitting <enter>. You can usually interrupt a long output to the monitor by pressing <esc>.

At the end of the output, there will be a message "Hit any key to continue" at the bottom of the screen. You must hit a key to continue the program. If there are several pages of output, the message will say "Hit <esc> to terminate and any other key to continue," so that you can terminate the output when you've seen enough.

When you wish to send your output to a printer, most programs use the drawing capabilities of the Windows operating system. That is, characters are drawn at specified locations on the paper. This enables such features as centering a meet title and printing it in a relatively large font size, printing results in two columns, and using bold face to highlight subheads, as is illustrated by the samples in the back.



The "Printer setup" item under the File menu allows you to output data "sideways;" i.e., in "landscape" style rather than the default "portrait."

Select File for an output device (you will then be asked to name the file) if you want to massage the output with a word processor if you, or are "downloading" data to another program, or are preparing a file for the Internet, or need to send results to news media. Usually columns of data are separated with tabs for easy formatting, but there is also a csv (comma-separated-values) option. You can open the file with any word-processing program, and then change the font to suit yourself, paste in graphs, etc.

In naming a file, be careful. You will be warned if you attempt to overwrite an existing file.

"Built-In Keypad"

A laptop computer is a very nice machine, especially when you have to carry your computer any distance. Although you can buy a numeric keypad to facilitate its use for one-handed data entry, every attachment you put on it diminishes its basic attribute of compactness. Therefore, when you are required to input a number, the ARJ programs will accept these substitutions without your pressing the NumLock key:

M= 0, J = 1, K = 2, L = 3, U = 4, I = 5, O = 6

Together with the ordinary 7-8-9-0 keys, this creates a software keypad that helps speed data entry. Your laptop may have these numbers printed on the keys.

Quitting ARJ Programs

If you shut down your computer using its "Shut down" procedure without first quitting an ARJ program "normally" (by pulling the File menu down to "Quit" or hitting Ctrl+Q), you may seem to lose some data. What has happened is that counter variables that ARJ uses to keep track of how much data is in each file may not be properly filed away. When you restart ARJ, you may get a notice that the "next line of file XXX is not empty" and be prompted to search for the end of the file. Accepting the suggestion will usually correct the problem, but you may not get the notice at all. Your safest course is to Quit the ARJ programs using the command under the File menu before shutting down the computer.

It should be noted that Windows is blessed with allowing keyboard shortcuts to every menu item and desktop button. Just press the "Alt" key and then hit the key for the character that is underlined in the item you want. Some of the most common functions can also be accessed with "Ctrl" key shortcuts. For example, as indicated above, every program can be terminated by hitting the "Ctrl" key and then "Q." Such shortcuts will be pointed out as we go along.

Selection of Upper and Lower Number Ranges by Inserting Gaps

In cross country in particular, ID numbers may be assigned consecutively for boys and girls/men and women in different ranges. In road races a similar separation may be used to distinguish runners in different races (5K and 10K, e.g.). Inserting an unassigned number or sequence of numbers facilitates listing and scoring runners by gender or race distance. In dialogs like that on page 23, you can select either the high or low range by inputting a "?" into the box for the starting or ending ID number, respectively. The division codes described on page 12 can also be used for this purpose (without wasting bib numbers).

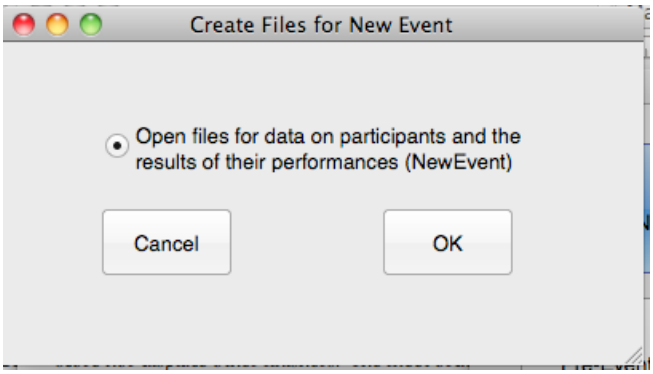
Help

Some of the programs have help menus, and some of the dialogs and other windows have question marks that you can click on to access context-sensitive help.

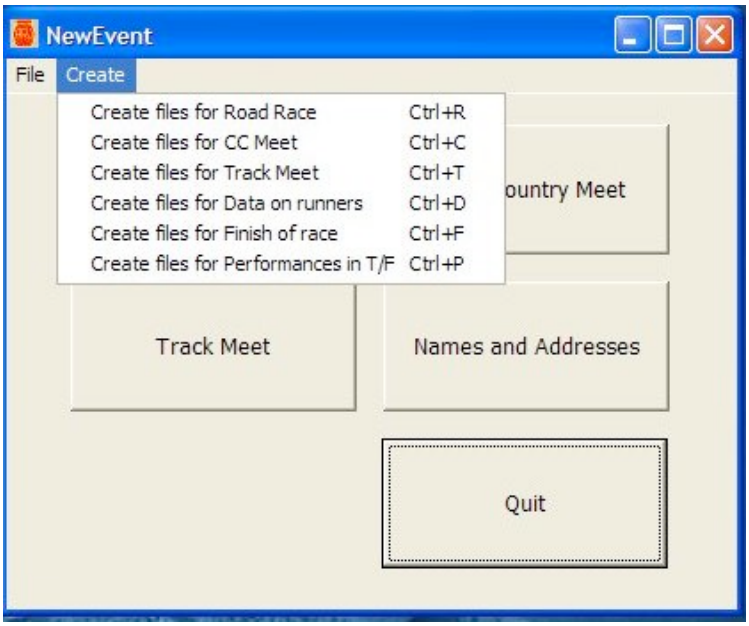
To the best of my ability, I have tried to write the Apple Raceberry JaM programs so that a person reasonably familiar with Windows would not have to keep this manual open while operating the programs. However, I use these programs for some seventy events a year, and could not resist introducing a number of "short cuts" that cut down the labor of producing results. These often necessitate some unusual behaviors of the programs. I have tried to flag these with shading like this.

Step 1: Setting Up Files for a New Event

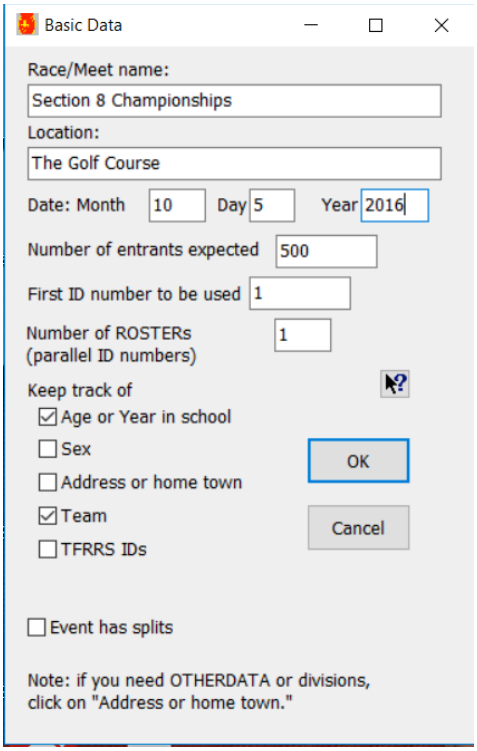
Double-click on the ARJMenu icon (if you do a lot of events, you might do as I do, and create a "short cut" to ARJMenu on your desktop and in your taskbar). This brings up the four-button display shown on page 3.



Then click on the button at the top on the left, "Set Up Files for New Race or Meet." This brings up the dialog at the right. Not much choice here; just hit <enter>.



NewEvent's five buttons now appear. Whatever option you choose, you are asked whether you want to "Create files for a new event" or "Replace or revise existing files." You'd use the latter option if you needed to restart the whole process, or if you realize you neglected to create certain types of files (most common for road races).



Cross Country Meet

Suppose first that it is a cross country meet you want to set up. Clicking on the Cross Country button brings up the dialog at right. You are then asked for some basic data on the meet: its name and location (which you should now enter), the meet date (the default being today's date), the range of possible ID (bib) numbers, and the types of data you will store. Change the date to the meet date and enter the lowest bib number available as the first ID. What you enter for the "Number of entrants" sets the size of the files; it is best to make the files too large. They're small enough so that they won't take much space on your computer. The default for cross country is to store team data and the athletes' school year. For collegiate meets, you should also store the runners' "TFRRS IDs;" see "Variations" below. Although both genders are competing, they usually do so in separate races[1], so there's no point to keeping track of the entrants' sex. If you must use parallel ranges of numbers for males and females (both

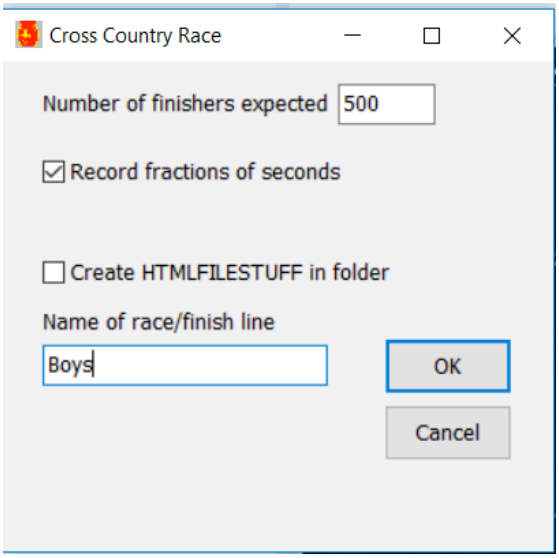
[1] When they don't in middle school races, for example the recommended procedure is to use male and female divisions. See page 12.

[*] Bug: RaceDay has problems connecting with built-in serial ports. It works best with USB serial

starting at #1, e.g.), enter "2" or whatever is appropriate for the number of ROSTERs. For age-group meets (USATF or AAU, e.g.), you may also want to keep track of sex, home towns, and addresses; see below, under "Variations." Hit <enter> when done.

All the data for the meet will be stored in a folder named after the event ("Section 8 Championships" in this example) that will be created in the folder in which your software is stored (or in a subfolder of your choosing).

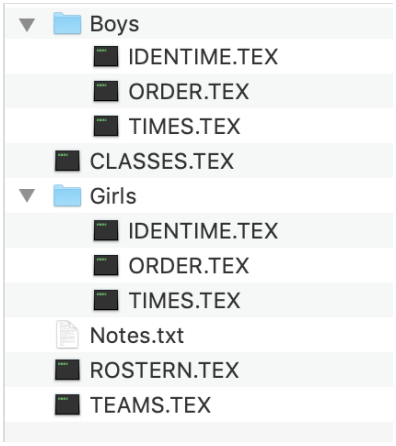
Next you are asked for the number of teams expected, with a default of 50. If that seems way too many, don't worry about it; accept it. Again make the files commodious.



Next you enter the number of finish lines. As noted above, cross country meets usually have at least two races. Their results will be stored in separate directories, which you will name on the fly. For this meet, enter "2" and hit <enter>. Then, for each race, the dialog at left asks its name ("Boys" or "Girls," e.g.), creates a folder within the meet folder with that name, and then creates the files required in the race folder. The default number of finishers you "expect" is the range of ID numbers you specified earlier. Obviously, if you divide the entrants into two races there will be many fewer in any one race, but the files are small enough that you can simply accept the defaults by hitting <enter>. Recording fractions of seconds is conventional with cross country meets.

As you'll see on page 10, the dialog also allows for the possibility that splits will be recorded in each race. If so, click on the "Event has splits" box in the dialog above.

That's it. Now quit the program by clicking on the "Quit" button (Ctrl+Q). You have now set up the files for your meet. If you examine the meet directory from Windows Explorer, you will see that it contains three files and two subdirectories. Double-clicking on either one of those directories will show that they each contain three files, called ORDER.TEX, TIMES.TEX, and IDENTIME.TEX.



Variations

For non-collegiate non-scholastic cross country meets, like USATF meets for example, runners will enter their addresses and some may be unattached. They probably pick up their packets as individuals. Thus you will have to enter their gender as well as their addresses, and follow procedures like that described below for a road race, albeit a road race with team competition.

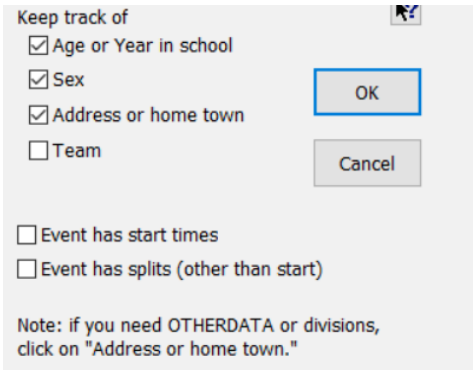
For NCAA meets, you must submit results to TFRRS (Track & Field Results Reporting System), which requires that you store TFRRS IDs for the collegiate runners. These data will be stored in the address field in ARJaM, which you can enable by clicking on the "TFRRS IDs" box in the Basic Data dialog above without having to open a CITIES file.

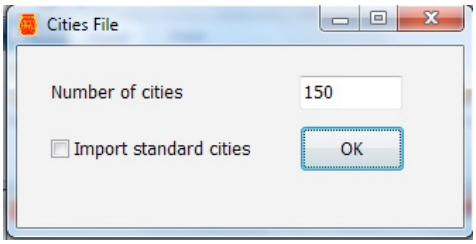
Chip races that use the ChampionChip/MyLaps shoe chips or IPICO shoe or bib chips store the chip number in a file called OTHERDATA. To access this file you must store CITIES and follow the procedures outlined below for road races.

Similarly, if you want to use "division codes" (see page 12), you must create an ADDRESSESN file, which also requires that you store CITIES.

Road Race

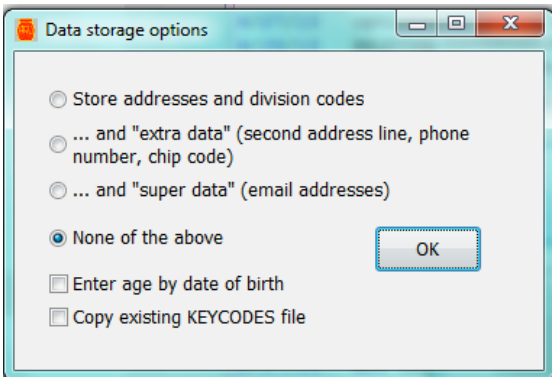
The procedure for a road race is somewhat more involved. It starts out asking for basic data as shown above, but the default "Types of data stored" include sex and home town and not team. You can, of course, have team competition in a road race. If so, just click it on. There is also, in addition to the item about splits, a check box for "Start times."





Your first new option is (assuming you are storing home towns) is how many you cities will store (ARJaM's data base consists of several linked files; for backward compatibility, it uses a data structure not much different than it used in 1980, when its storage media was 144K floppy disks and space was scarce). The default 150 is probably enough for the default race size of 500. Again, don't be stingy.

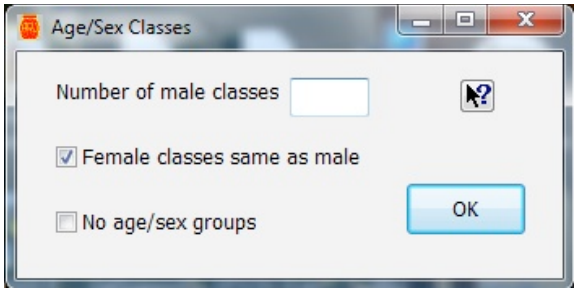
Note the option to import "standard cities." When you score a lot of races in the same geographical area, you soon find that most of the runners come from a relatively few cities. Since, as you'll see (page 20), the ARJ system looks up cities in the CITIES file after you start typing their names starting at the top of the file, it is convenient to use a CITIES file that begins with the most frequently encountered cities. In my case, I have a set of 50 cities with which the CITIES file always begins in every race I do. After entering those cities manually for some race, I copied the CITIES file (along with an associated file called ZIPCODES) to the folder in which I file the races and locate the "standard cities" when prompted to do so, copying the first 50. At the same time this imports corresponding zip codes into a ZIPCODES file, which suggests a zip code after you enter a city (see page 20).



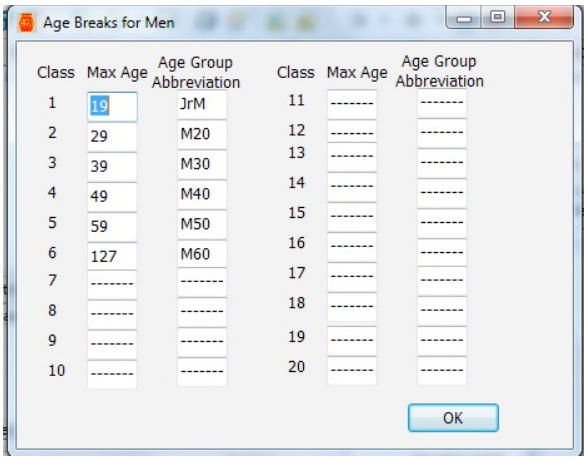
Storing cities enables storing street addresses (in a file called ADDRESSESN) and email addresses (in file SUPERDATA). ARJaM allows you to email individuals with their time, place overall, and age group place, and makes entering email addresses reasonably easy. If you want to do so, you will also store an "extra data" field for each runner (in file OTHERDATA) which may or may not be useful (it can be important in chip-timed races). At this time you can also elect to enter runners' ages on race day from their dates of birth.

The ADDRESSESN file contains, besides the runner's street address and zip code, an optional "division code." Division codes and names are stored in a file called KEYCODES. The dialog at left allows you to copy an existing KEYCODES file from a similar event. Division codes will be explained in detail on page 12. For now simply note that if you wish to use such codes, you must create an ADDRESSESN file and hence a CITIES file.

Next you input the age/sex group for awards. First you are asked if you want to copy an existing CLASSES file (like the one you used for this race last year, for example). If not, you are asked for the number of male age groups and whether the female age groups are the same.

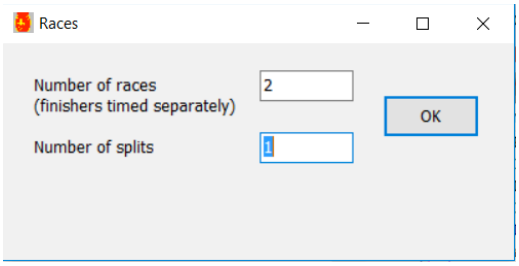


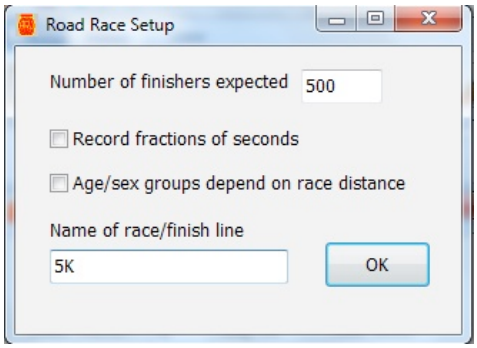
If you have six or seven age groups, NewEvent assumes you will have 10-year age groups terminating at either "60 and up" or "70 and up," and fills in the age-group breaks accordingly. Otherwise you enter the maximum age in each class (127 is the default maximum age in an ARJaM event). Age-group abbreviations are created for you, but can be modified (three letters maximum; you could use OpM for the lowest male age group, e.g.). They can be printed out in lists by Sorters and SetData – see pages 23 and 32 – and in the results, to indicate the age group in which they competed.



Multiple Races

Finally you are asked for the number of separate finish lines. Usually it's just one, but you may have consecutive races (not finishing simultaneously).



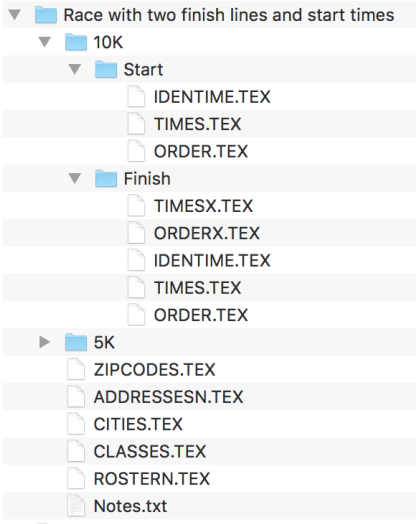


If you do have separate consecutive races, you are asked to name each one, just as when doing a cross country meet with separate girls and boys races (see page 8 above). A set of results files (ORDER, TIMES, and IDENTIME) will be created within a subfolder of the race folder whose name is that of the finish line; see page 8. But if you have multiple races that go through the same finish line during the same time frame, treat them as a single race/finish line. ARJaM can easily sort out the different distances if you assign division codes to runners in the different races, even if the races do not start at the same time (page 57).

Some road races with multiple distances finishing concurrently use different age groups depending on distance. In such cases, your best bet is to create separate folders for each race (even if they start together and go through the same finish line) and click on the "Age/sex groups depend on race distance" box that shows up in the dialog above when you are tracking age and sex. You will then put the appropriate CLASSES files in each race folder (one of which you can copy from whichever CLASSES you created already). The race-scoring program RaceDay will automatically substitute the correct file for the race of interest when you switch from one "race" to the other.

Start Times

If start times are recorded, click on the appropriate check box in the dialog on page 9. Separate folders for the start and finish (with default names "Finish" and "Start") are created in the race folder. If there are multiple races, start and finish folders are created in each race folder. Results files ORDER, TIMES, and IDENTIME are created in each folder. The start folder(s) also get files called ORDERX and TIMESX; these store the finish order and times in order of net time; see page 53. The file structure is for an event with two races with start times recorded is shown at right.



Splits

If splits are recorded, you are asked to name them. In naming the split folders, keep the names down to 12 characters. Longer names will mess up the results printout (see page 64). Subfolders of the race folder with those names will be created with those names and a set of race files created within each folder. A subfolder for the race finish will also be created in the race folder; as shown above, its default name is "Finish." If there are multiple races/finish lines, similar subfolders are created within the folder for each race.

The Notes File

NewEvent creates in each folder containing a ROSTERN.tex file a text file called "Notes.txt." Initially it contains the name, location and date of the event. By the time the meet is over the RaceDay application will have added the weather, useful if you later have to edit the results. SetData also records counts of entrants by age group, the total of which may be needed for your bill. Both programs allow you to edit the Notes file. If you need to record your mileage, etc., create a file in the folder where your programs are kept (typically ARJW14) to remind you of what you need to record. Mine looks like this:

Travel (miles):
ROAD
Generator?
Chutes?
Clock?
Numbers:
Team scoring:
Races/finish lines:

Points of Emphasis

Two things need to be emphasized: usually you run NewEvent only once per event. Once you have created runner-data files like ROSTERN to hold the proper types of data on the competitors, and results files like ORDER and TIMES to hold the race results, you use the other programs in the ARJaM package to fill those files and to report on the data they contain. Each of those programs does "open up" the files that it needs, but NewEvent creates them in the first place. If you do run NewEvent twice for the same meet, you will be told that the file you want to "open" already exists and asked to confirm (by answering the question, "are you sure?") that you want to overwrite it.

Secondly, be generous in sizing the files. The ARJaM programs will complain if you ask them to read or write data beyond the end of the files as you create them. The ARJaM files are very compact, so that you can usually afford to have quite a few empty lines in them.

Step 2: Pre-Event Data Entry

Now you need to enter the data on the runners, at least those who are pre-registered, and assign them ID numbers. If you have a text file containing the requisite data, the DownLoad application discussed below can do most of the heavy lifting for you. But it won't help you with race day entrants, so we will first look at program SetData, which has some limited options for uploading data from a file but also allows you to enter data from entry forms one at a time.

Division Codes

First we will explain ARJaM "divisions." The scoring application RaceDay will score runners by age group or team, using data that you enter (mostly) before the event. Some events have multiple divisions that must be scored concurrently. For a simple example, a road race may have multiple distance options, such as 5K and 10K, and have them all finish in the same chute. Using separate chutes would demand separate timing setups (and also some intelligence on the part of the runners). A cross country meet may want to run girls and boys together (typical for middle school traces), or score small and large schools separately, or schools from a certain locale among themselves as well as against all participants.

Both SetData and DownLoad allow you to create "division codes" that RaceDay can use to distinguish different award groups. Codes are simply alphanumeric characters; each division is defined by a unique combination of codes, which are used to identify the race division of each entrant. A runner's codes are stored in the ADDRESSESN file, which must therefore be created in program NewEvent. That, in turn, requires enabling storage of cities, or clicking on the TFRRS IDs option in the dialog on page 7. The names of the divisions and their codes are stored in a text file called KEYCODES.

For a simple 5K-10K event, you could separate their results by inserting a blank record between their ID numbers, as described on page 6. However, runners often change their minds as to which event they want to run. Using division codes to distinguish the 5K and 10K runners makes it possible to account for such indecisiveness relatively easily in the race scoring program, as is discussed on page 46. Thus you could give all the 5K runners a code of "5" and the 10K runners a code of "T":

Code	Division
5	5K
T	10K

Some races have more complex award systems. The race may wish to list walkers separately from runners (and also with them), awards can be based on the runner's weight ("Clydesdales" and "Heavyweights"), or given to veterans or residents of nearby towns. Here are a couple of examples to illustrate the possibilities.

Consider a 5K/10K race in which 5K runners and walkers are to be listed separately. The KEYCODES file could be set up as follows:

Code	Division
R	5K Runner
W	5K Walker
T	10K

This would separate 5K runners, 5K walkers, and 10K runners. However, suppose the race wanted to list all participants in the 5K together as well as separate the runners and walkers. If so, set up divisions like this:

Code	Division
5R	5K Runner
5W	5K Walker
T	10K

and look for runners with a "5" among their codes. On the other hand, if there was no need to list 5K runners separately from 5K walkers, you could eliminate the "5K Runner" division:

5	5K
5W	5K Walker
T	10K

The rule is this: Each division must have a unique code, which can be a single character or a combination of characters. Codes are case sensitive. If you enter a code of "t" instead of "T" for a 10K runner, the division name will show "No code assigned."

In fact codes that are lowercase characters ("a" to "z") have a special, useful property. In the "preliminary results" printout discussed on page 43, the divisions of runners whose division code contains a lower-class character will be printed out on the far right. Making the codes in the preceding example 5, 5r, 5w, and -5 will show the divisions of all 5K participants in those results but not of the 10K runners. This can be useful in checking that divisions were assigned correctly. It may be more useful to make W and T lowercase, so that you can see when walkers and 10K runners have started to arrive.

You are limited to seven distinct characters for codes. From seven characters you can construct hundreds of distinct keys. Keeping them mnemonic is not terribly important; except in SetData's Proofreading display, you are always shown the division name that goes with the code. However, you can extend the utility of a given number of keys by "negating" them. The preceding example could have been coded as follows:

5R	5K Runner
5W	5K Walker
-5	10K

or

5R	5K Runner
5-R	5K Walker
-5	10K

Note that if a runner belongs to a division with a code of "-5," that simply means that the code(s) in his division do not include a "5." Thus in entering or editing a runner's data (in SetData or RaceDay), you would not enter a "-5" in the code box (like the one on page 18). On the other hand, when selecting runners to list by division in RaceDay (see page 57), if you want to enter a code rather than pull down the pop-up menu to the division name, you could enter "-5," meaning that you want to exclude runners with a code of "5" in their record. Strictly speaking, you do not have to enter a division name for the 10K runners in the above examples, but if you don't you will have to enter the division name in RaceDay. So you may as well enter it before the race.

Entering a negated code is rare, and indicated by a note about the use of minus signs as in the dialog on page 57. Here's a case in which it makes sense to use a negated code. Some races give awards or otherwise recognize walkers. Relying on entry form information for a runner's intentions is always chancy; the run/walk division is particularly problematic. First create divisions of walkers and runners, with codes W and -W respectively. Have the walkers start a few minutes after the runners. After the runners start, line the walkers up and enter a division code of W for each. Since the runners' code is -W, you don't have to do anything with them.

To tag the walkers, if there aren't that many, sort all the entrants alphabetically in program Sorters and use the "scroll thru list" option to edit their division codes; see page 30. For chip races, if you are recording start times, use RaceDay's "Tag finishers with division code" option (under its Other Options menu) to tag the starters with a W. If you are not recording start times, have them walk across a mat before they start anyway, recording their passages as if it were a start time. In any case, you can easily correct for their late starts in RaceDay with the "Correct constant error" item under the Times menu, which can be confined to runners with specified division codes.

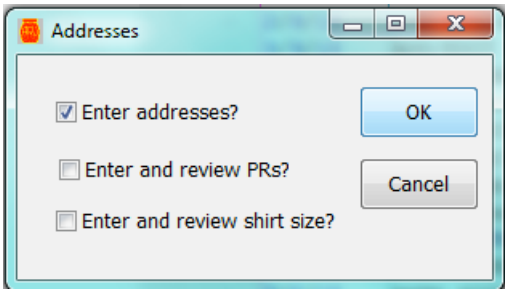
For TFRRS cross country meets, coaches may submit a roster that contains the team's TFRRS IDs and then indicate separately the runners who will compete. It may be useful to tag the non-competitors with a division code. A division code of "T" is set automatically for TFRRS meets for which an ADDRESSESN file is not created by first declaring you want to enter cities in the dialog on page 7 but instead by clicking on the "TFRRS IDs" box. For TFRRS meets that are chip timed with IPICO or MyLaps shoe chips and so require an OTHERDATA file, you should add the "T" tag code (with a "distance" of -1.0) manually.

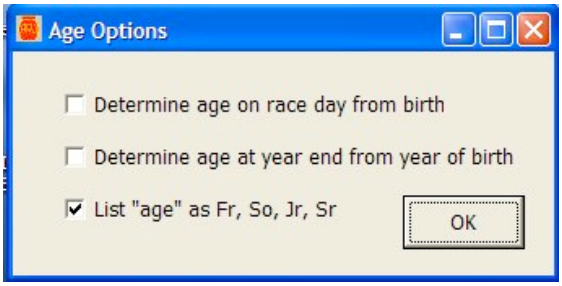
Program SetData

Start up ARJMenu and click on "Pre-Event Data Entry." Call up SetData by clicking on the top-most button of the dialog on page 4 and hit <enter>. This brings up the

"open file" dialog discussed on page 4. Locate the folder for your race/meet and open up the ROSTERN file.

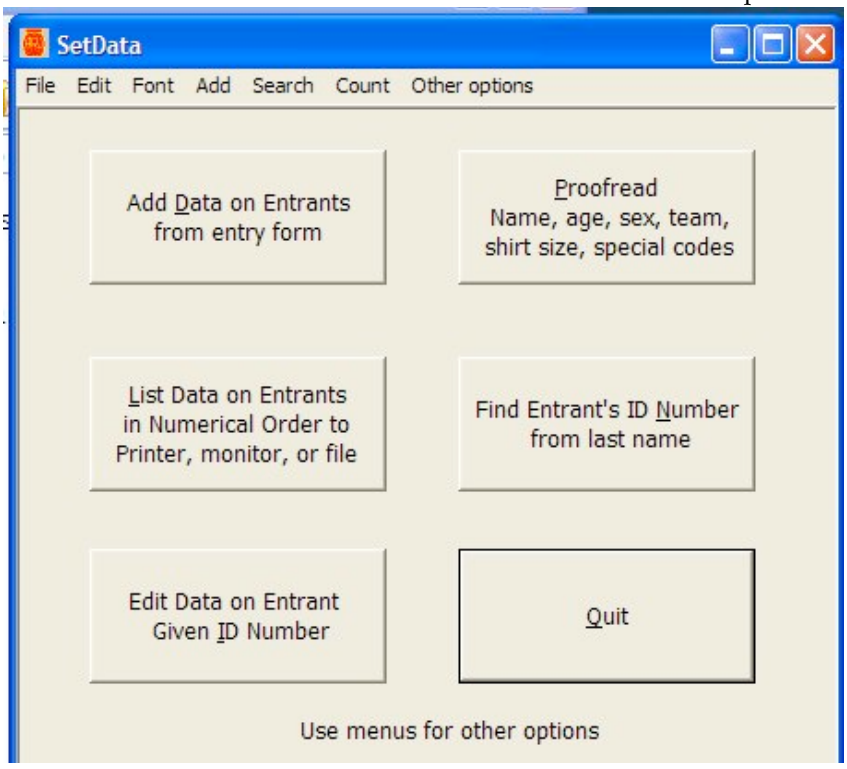
If cities are being tracked, you are asked if you want to work with addresses at this time. If you are not tracking addresses, you should hit "Cancel," but if you don't you will simply be told that none are being filed. On race day, you may choose not to work with addresses, to save time entering data on race day entrants in the files for results purposes. Entering PRs is rarely of interest in any case, and shirt sizes are usually irrelevant after packet pickup.





If age and sex are being tracked, you then get an option to enter the runners' birth dates, from which their age on race day would be calculated, and, if so, whether their age group is determined by their year of birth rather than their age on race day, as in the case in Junior Olympic competition. If you do want to accept one of these options, click on the box before clicking on "OK" or hitting <enter>. A file called DATES.TEX will be created (if it has already been created, the first box is checked on when you start up SetData; you may then click on the second one, too).

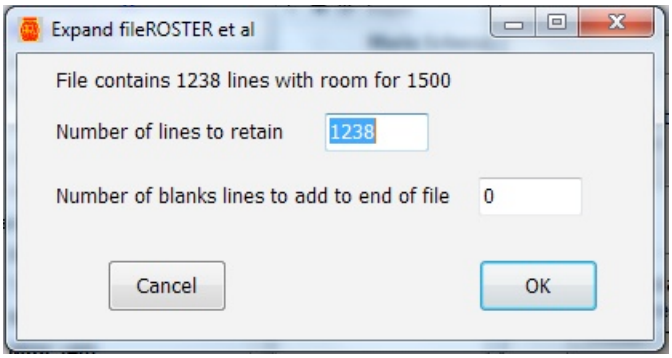
The main options of SetData are shown in the buttons on its desktop. Obviously, we need first to discuss how it is used to "Add Data on Entrants." Before getting into this, however, we will look at some menu options in SetData that can be used to correct errors you may have made in setting up the files.



Editing Decisions Made in NewEvent

If the age/sex groups you entered are not what the race wants to use for awards, pull down the Edit menu to "Change age-sex groups." You'll be led to dialogs like those on page 9 with which you set up the age/sex groups in the first place.

The "Race date" item under the Edit menu allows you to edit the date that was entered while creating the files.

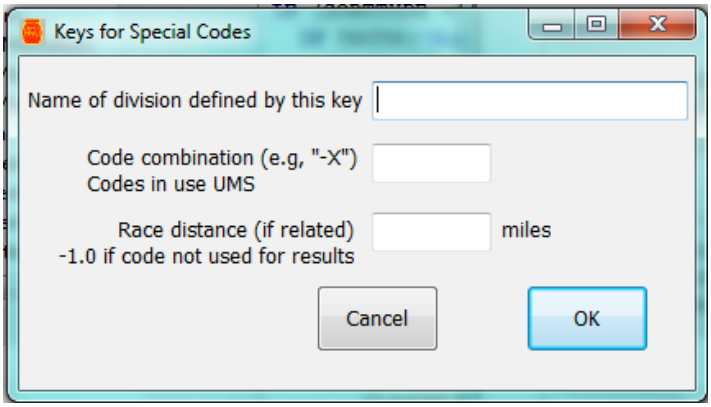


Suppose you realize that you made the files too small. Pull the Expand files menu down to the appropriate item (to explain "ROSTERN at al," if the ROSTERN file is too small, so are ADDRESSESN, OTHERDATA, and SUPERDATA, if they were also created). The dialog at left asks for the number of lines you wish to keep and how many you wish to add to the file. Ordinarily you would accept what's in the first box and just enter the number of lines you wish to add in the second, but sometimes, the file is filled to the limit, it may have been filled with junk thru a mistake in DownLoad, e.g. In such cases you can limit the number of records that will be retained.

If you find that the event has a different range of bib numbers than you expected, simply go to the "Numbers" item under the Edit menu (Ctrl+N) and change the first number on file. Anyone you have already entered will have their ID number changed to match the change in first number.

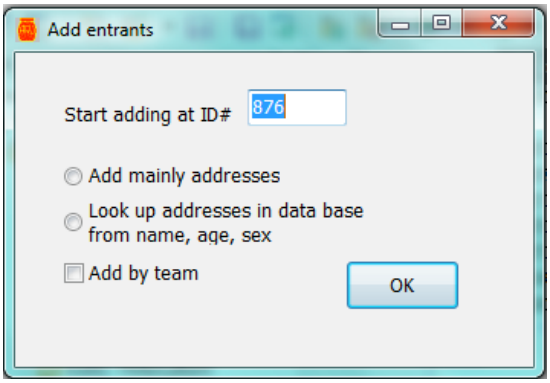
If you discover that the race has team competition but you did not set it up to track teams in NewEvent, you will have to go back to NewEvent to enable them. Click on "Data Base" so you won't have to deal with the results files, and say you want to "Replace or revise existing files." Locate the ROSTERN file. You'll be asked if you want to replace it. Accept the default ("No"). You'll get the basic data dialog back. Click on "Teams." Continue through the rest of the dialogs, declaring how many teams you expect but otherwise without changing anything. Then, when back in SetData, pull the Edit menu down to "Data types stored." Make sure Teams is checked.

Division Codes

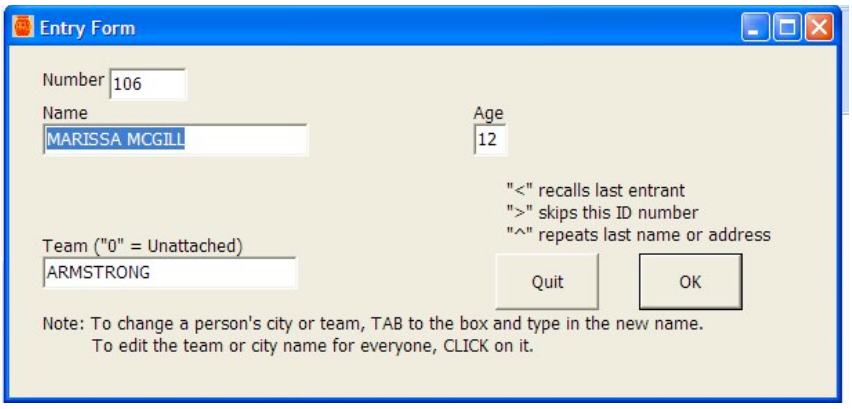


To use the division codes discussed above, create a KEYCODES file by pulling the Other Options menu down to "Make or add to file KEYCODES for division codes." For each division you wish to flag in the results, enter its name ("Half marathon," e.g.) and an appropriate code (like "H"). If the division defines the distance of the runners' event, enter it. If the division has nothing to do with the results (people who owe money, or to whom you must mail a T shirt, e.g.), enter a "distance" of -1.0. The code you assign will show up in their records and will be searchable but will not affect the results. ChipData tags runners whose chips are missing after the event with such a "tag code," and RaceDay can tag finishers in similar fashion with an item under its Other Options menu.

Cross Country



Data entry for a team-based cross country meet is very straightforward. On clicking on the "Add Data" button (Ctrl-A) you are invited to add entrants at the next available ID number and to add entrants by team (the first two options are blocked out unless addresses are available). I like to assign males and females numbers in different ranges, and so override the default starting number when switching genders. That makes it easy to print out separate lists and labels for boys and girls/men and women and to score them separately if they run together (as often happens in middle school races), and also to assign them division codes that indicate their gender.



The entry form for a simple cross country meet is pretty sparse. Enter the runner's name, first name first. Then tab to the "Age" box and enter his/her year in school (I use 7-12 for high school meets, some like 1-4; ages of 1 to 4 are output as "Fr,", "So," "Jr," and "Sr"). If you enter two characters in the "Age" box, the cursor jumps to the "Team" box. If you are entering runners by team (you probably get their rosters team by team), the team name is already there once you enter it for the first runner on your list, so just hit <enter> to accept the entry and move on to the next ID.

Here are some details of this process.

Number. The ID number is automatically indexed for you in SetData's "Add entrants" mode; after each person's data are entered, it is increased by 1. If you need to skip around, click on or shift-tab to the "Number" box (hitting <tab> moves you to the right and down; holding the shift key down while you hit <tab> moves you back), enter the desired number and hit <tab> (or <enter>).

To change the number of a runner already assigned one, you cannot simply edit his/her data and change the number in the "Number" box. All that does is to recall the data already entered (if any) for the new number. Instead use the "Move line" option under the Other Options menu; see page 25.

If you need to skip a number while in the Add Entrants mode (if it's not available, e.g.), type ">." If you see you made a mistake after you accept an entry (or if you hit <enter> too soon) and so want to go back to the preceding entry, type "<." Caution: do this after you have accepted the current entry. Whatever is showing on the screen when you hit "<" or ">" is not saved.

Name. The alphabetizing and search routines expect the last name to begin after the first space. Therefore, if the entrant has a middle initial, put a "." before the middle initial, as in

```
JACK.P MORAN
```

You can enter names all in capitals to save time; they will be printed in initial-cap form in lists and final results. The initial-cap routine will capitalize the letter after any space, period, parenthesis, hyphen, or lower-case letter. All other letters are (if necessary) converted to lower case, except for

(a) the I's in "II" and "III" following a blank space;

(b) the first letter following the combination "Mc"

(c) the first letter following a letter initially input as lower case.

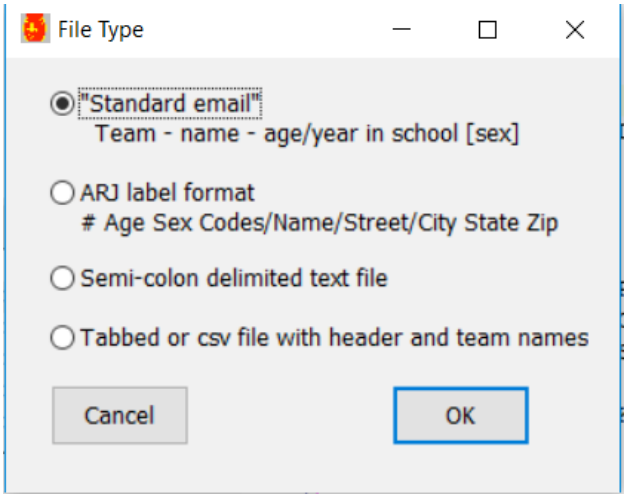
Thus you can type in "McNutt" as "MCNUTT", but "MACNUTT" becomes "Macnutt". To get "MacNutt", type "MAcNUTT" or "MacNUTT."

If the last name of an entrant is the same as the one you last entered, type an up-arrow ("^", shift-6) in the first space of the "Name" box and that surname will be recalled.

Team. If there is nothing in the "Team" box, or if it is the wrong team name, tab to the "Team" box (if you have not been sent there already after entering an age) and input the initial letter of the runner's team. SetData will search through its list of teams until it finds one that begins with that letter. If it does, it will pull it up into the "Team" box. If that's the team you want, hit <enter> to go on to the next runner. If not, type the second letter. SetData then looks for the next team in its list beginning with the two letters you typed, etc. This is called "completion." If it's a new team, you'll just end up typing in its full name. For example, suppose you want to type in "MINNESOTA." After you type an "M" the program may show you "MICHIGAN." That's not what you want, so you type an "I." Now the program shows you "MICHIGAN STATE." That's still not what you want, so you type an "N." "MINNESOTA" is not on file, so the program waits for you to type in "NESOTA."

This system only works when you tab to the "Team" box. If you instead click the mouse on the box, the program assumes you want to edit the name of an existing team. Thus, to correct a typo in the spelling of a team, click on the team box. Tabbing to it tells the program you want to enter a new team. To eliminate a team from the runner's record, do not select its name and then hit <delete>; that may wipe out that team's name in the record of every runner from that team. Instead, enter "0" (zero) for its name. The runner is then "Unattached."

Uploading Entries from a File for Cross Country



Although not as flexible as the DownLoad program to be discussed below (not part of the Cross Country package), SetData does have the ability to upload entries from a properly formatted text file. Pull the Add menu down to "Entrants from file" (Ctrl-R). The second choice is useful for moving data between computers (see page 36), and the next enables uploading a Hy-Tek formatted file. A "Standard email" file is simply a tab-delimited file with three fields ordered team, name, and age/year in school. It's pretty flexible, however. One or both of the tabs can be replaced by a comma, and the first and last name can be separated with a delimiter, too. Thus, all of the following could be lines in the file:

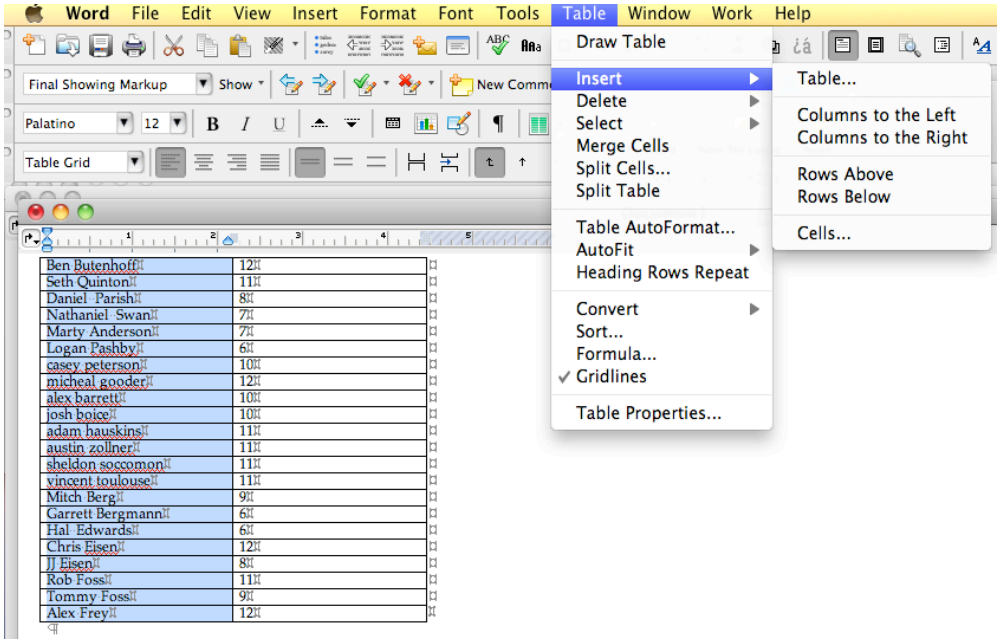
Webster<tab> Joey Erickson<tab>12
Webster<tab> Dan Formanek, 9
Webster<tab> Nathan<tab> Gatten, 9

The only hard requirement is that the names be first name first.

The fourth item allows you to upload a tab- or comma-delimited file that has a header line, like

First name, last name, year of eligibility, team

so that SetDats can identify the fields in the file.



One way to get a "standard email" file is to use Apple Raceberry JaM's online entry service ($50 per meet). But it's not hard to set up such a file if you can get the coaches to send you an Excel file with their runners' names and school year in separate fields. I'm not much of an Excel user, but here's what I would do with such a file, using my Word expertise.

Save the Excel file as tab-delimited text. Open the text file from Word. Select it all, and use the "Convert text to table" item under Word's Insert/Table menu to make it into a table. Select the first column, and then use the "Insert Columns to the left" item under Word's Layout menu to put a third column in front of the other two. Type the team's name in front of just the first member of that team, select the table, and then

"Layout/Convert table to text," accepting the tab-delimited option. Save the file as text, and concatenate it with similar files from other teams. The final result will resemble what's shown below. Although the team name does not appear on every line, it's good enough; SetData will assume a runner belongs to the same team as the last one if the team field is blank.

Shell Lake	Ben Butenhoff	12
	Seth Quinton	11
	Daniel Parish	8
	Nathaniel Swan	7
	Marty Anderson	7
	Logan Pashby	6
North StPaul	casey peterson	10
	micheal gooder	12
	alex barrett	10
	josh boice	10
	adam hauskins	11
	austin zollner	11
	sheldon soccomon	11
	vincent toulouse	11
St Croix Falls	Mitch Berg	9
	Garrett Bergmann	6
	Hal Edwards	6
	Chris Eisen	12
	JJ Eisen	8
	Rob Foss	11
	Tommy Foss	9
	Alex Frey	12

You will be asked for the range of ID numbers in which to file the data, the default starting after the last ID number on file. You can override that if you wish to overwrite the data currently on file, or if you want the numbers of the runners in the file you're importing to be in a range different from that of the runners currently on file (as when you want to assign numbers in blocks by gender, see page 6).

For NCAA meets, you can also upload TFRRS IDs from a properly constructed "standard email" file. The format is

Minnesota-Duluth<tab>Bethany Alber,
1<tab>TFRRS<tab>224794BET*ALBE
Minnesota-Duluth<tab>Kate Bendel,
3<tab>TFRRS<tab>162384KAT*BEND
Minnesota-Duluth<tab>Amanda Boman,
2<tab>TFRRS<tab>962278AMA*BOMA

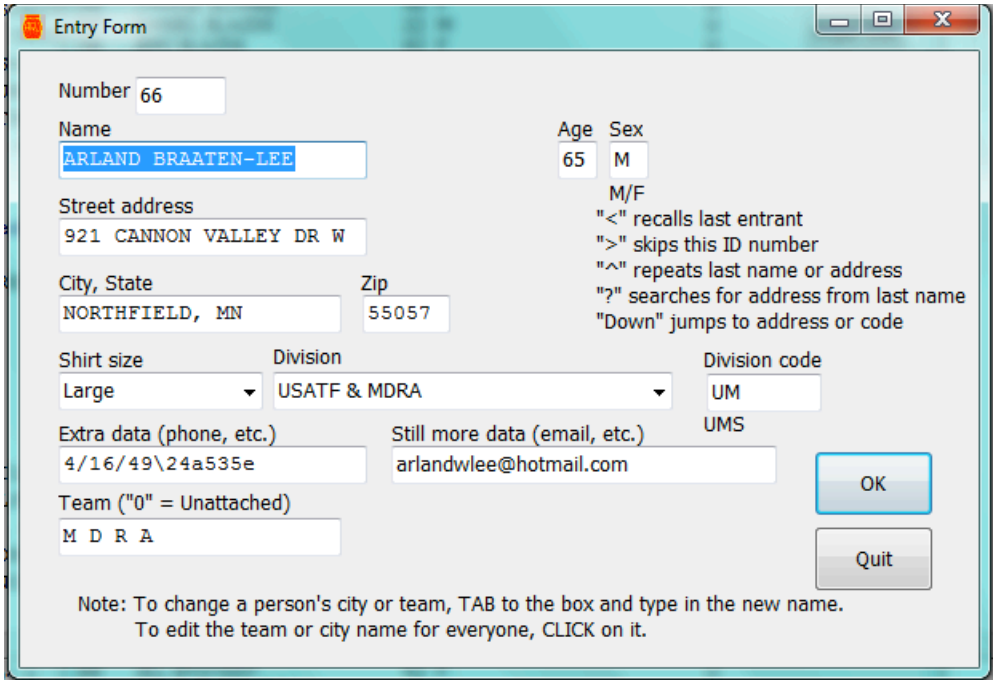
Here "TFRRS" is case-sensitive. The last field is the ID. You can upload the IDs after you load the entries; SetData will attempt to match the names in the TFRRS file with those submitted for entries. Runners in the TFRRS file but not entered will be tagged with the division code "T" (see page 13). You can move all those athletes to the end of the ROSTERN by using the "Move coded runners to end of file" item under the Other Options menu. You can also use the "header" format to upload a standard TFRRS roster file.

You should list the entries afterwards to track down missing IDs in the entries (the IDs are in the address field), which may a result of different/mis-spellings of the runner's names in the two lists.

Road Races

For road races, when you click on the "Add Data on Entrants" button, the dialog shown on page 15 pops up. We'll discuss the first two options on pages 22 and 80.

As can be seen below, the entry form that shows up in road races is much richer than in the cross country meet discussed above. After entering a name, hit <tab> or <enter> to advance to the age box and then to succeeding boxes. When you've entered all the data on the entry form, hit <enter> to advance to the next entrant.



Here are some details of this process. Some are repeated from the discussion above of the cross country meet, but you may have skipped that section.

Number. The ID number is automatically indexed for you in SetData's "Add entrants" mode; after each person's data are entered, it is increased by 1. However, you may need to skip around, either to fix mistakes or because the numbers were preassigned by the race. To change the ID number, click on or shift-tab to the "Number" box (hitting <tab> moves you to the right and down; holding the shift key down while you hit <tab> moves you back), enter the desired number and hit <tab> (or <enter>).

To change the number of a runner already assigned one, you

cannot simply edit his/her data and change the number in the "Number" box. All that does is to recall the data already entered (if any) for the new number. Instead use the "Move line" option under the Other Options menu; see page 25.

If you need to skip a number (if it's not available, or was not used in in-person registration), type ">." If you see you made a mistake after you accept an entry (or if you hit <enter> too soon) and so want to go back to the preceding entry, type "<." Caution: do this after you have accepted the current entry. Whatever is showing on the screen when you hit "<" or ">" is not saved.

Name. Enter first names first; the alphabetizing and search routines expect the last name to begin after the first space. Therefore, if the entrant has a middle initial, put a "." before the middle initial, as in

```
JACK.P MORAN
```

You can enter names all in capitals to save time; they will be printed in initial-cap form in lists and final results. The initial-cap routine will capitalize the letter after any space, period, parenthesis, hyphen, or lower-case letter. All other letters are (if necessary) converted to lower case, except for

(a) the Is in "II" and "III" following a blank space;

(b) the first letter following the combination "Mc"

(c) the first letter following a letter initially input as lower case.

Thus you can type in "McNutt" as "MCNUTT", but "MACNUTT" becomes "Macnutt". To get "MacNutt", type "MAcNUTT" or "MacNUTT." If you have the caps-lock key down, you can input a lower-case letter by using the shift key.

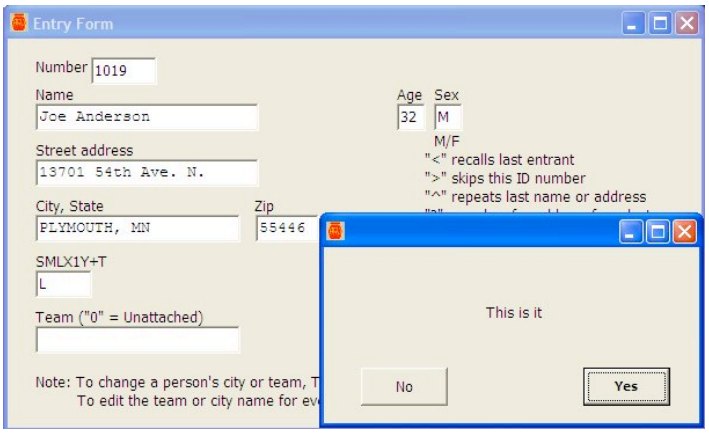
If the last name of an entrant is the same as the one you last entered, type an up-arrow ("^", shift-6) in the first space of the "Name" box and that surname will be recalled.

Age. Tab to the "Age" box and enter the age. I like it when entry forms ask for both age and date of birth, since if I can't read the age I can figure it out from the birth date. Sometimes the runner is too lazy to enter an age on race day as well as a date of birth. If so, type a "B" in the Age box. A dialog pops up and asks for the date of birth (be sure to enter four digits for the year of birth), and the age is computed as of the day of the race.

SetData assumes all your runners have ages under 100, so if you enter two digits the focus automatically shifts to the next box (probably sex). If you get a runner over 100, type a "B" in the age box and enter his/her birth date, from which an age is computed.

If you had declared in NewEvent that all ages would be computed from birth dates, three boxes for the entrant's month, day, and year of birth would have preceded the "age" box, and the age would have been computed from your entries in those boxes (and the race date you entered in NewEvent) and displayed in the "age" box. Entering a month greater than 9, a day greater than 3, or two digits of the year shifts the focus to the next box. If the runner doesn't supply his/her birth date, you can enter the age on race day instead directly.

Sex. Tab to the "sex" box (if necessary) and enter "M" for male or "F" for female. This moves you to the next box.



Address. You should then be in the "Street" box. Enter the street address, including apartment number. Only twenty-three (23) characters are available for the runner's address, and you may have to abbreviate.

If the street address of an entrant is the same as the last one you entered, type a caret (shift-6; "^") in the first space of the "Street" box and that address will be recalled, including the city and zip code.

If not, but you think someone else with the same last name has already been entered, type a "?" in the box. SetData searches thru the file of entrants and, if it finds someone with the same last name as the one you just entered, pops his/her address into the form and asks if that's the one. If it's not, SetData will continue to search

for a match until you hit either accept the data or it gets to the end of the file.

City. If the runner has an address different from the one preceding, so that you cannot take advantage of the short cut above, tab to the "City and state" box. Cities (and teams) are stored in a person's file by number, with team and city names being stored in separate files. Type the city's initial. The program searches through its list of cities until it finds one beginning with that letter. If it finds one, it beeps and displays in the box the name of that city, and "selects" the part after the first letter; i.e., reverses that part so that it is deleted if you type anything over it, as shown above. If this is the city you want, accept it by tabbing to the zip-code box. If not, type the second letter. The program now looks for the next city (in its list) beginning with those two letters. If it finds one, it beeps, displays the city's name, and selects all but the first two letters. Eventually, it either finds the city you want or lets you type in the rest of the name. (This is called "completion.") For example, suppose you want to type in "MINNESOTA CITY, MN." After you type an "M" the program may show you "MINNEAPOLIS, MN." That's not what you want, so you type an "I." Now the program shows you "MINNETONKA, MN." That's still not what you want, so you type an "N." "MINNESOTA CITY, MN" is not on file, so the program waits for you to type in "NESOTA CITY, MN."

To eliminate a city from the runner's record, do not select its name and then hit <delete>; that may wipe out that city's name in the record of every runner from that city. Instead, enter "0" (zero) for its name. This is more important when dealing with teams than cities; see page 16.

This system only works when you tab to the "City" box. If you instead click the mouse on the box, the program assumes you want to edit the name of an existing city. Thus, to correct a typo in the spelling of a team, click on the team box. Tabbing to it tells the program you want to enter a new team.

With this system it pays to have frequently encountered cities already on file when you start entering names. You can enter cities separately by pulling down the Add menu to "Cities." I have fifty favorite cities that I have on file for every race I do. See page 9.

If you want to print out results for all runners from particular states, be sure to end the entry for the runners' city and state with the standard two-letter abbreviation for those states; see page 62.

Zip Codes. When the cursor arrives at the zip code box, the last zip code entered for the runner's city will be recalled from a file called ZIPCODES and displayed in the zip-code box. The fourth through last characters of the zip code are "selected," as shown above. This allows for the fact that a sufficiently large city will have more than one zip-code area within its limits, but the first three digits are usually the same. If you do have to change the third digit, just backspace.

Of course, if this is the first runner from that city, no zip code will be on file in ZIPCODES and the cursor will rest on the first character of the zip code line.

PR (Previous Best Time). If the race's entry form asks for previous best time, the race director may want you to fill in the PR box. You will then be able to keep track of personal records in the results and/or assign numbers by previous best time. The format required for a PR is (hours):(minutes):(seconds). If the time is less than an hour, all you need is (minutes):(seconds). You can, if you wish, input a time greater than an hour in this same format; e.g., 70:00 = 1:10:00. You do not have to input "insignificant zeroes;" this same time could be input as "70:0," and even as "70:" or "1:10:". But "70" would be interpreted as 70 seconds.

A common typing error is to input a semi-colon instead of a colon; if you do this, the program will assume that you meant to type a colon. Thus you can save a little time by just typing the lower-case semi-colon instead of the upper-case colon.

Because PRs are so seldom required, you are asked when you start up and SetData and invited to enter addresses if you really want to "Enter and review PRs," the default being off, as shown above. You can change your mind after starting SetData by toggling the "Enter and edit PRs" item under the Other Options menu.

Team. If the race has team competition, usually not every entrant will have an affiliation, so you will have to watch out for those who do. Tab to the "Team" box and start inputting the runner's team. SetData will search through its list of teams and

attempt to complete your entry, just as it does for city names. See also the discussion of entering cities for the difference between clicking the mouse on the box and tabbing to it.

To eliminate a team from the runner's record, do not select its name and then hit <delete>; that may wipe out that team's name in the record of every runner from that team. Instead, enter "0" (zero) for its name.

Team Classes

In road races it often happens that awards are given for different types of teams: all male, all female, and mixed, for example. (If it is just all men and all women, you do not have to do anything at this point. The scoring program RaceDay can easily separate all-men from all-women teams. It can also score masters and grand masters in a roster based on their age and sex, but assumes that masters and grand masters can also score in a younger division.) In cross country this is not usually a problem, assuming males and females compete in separate races.

If you are scoring teams in classes, assign each team class a two-character code and include that code in the last two characters of the team name. Here are a few examples:

OP	Open
MW	Masters women
MD	Mother-daughter
CL	Corporate (large)

Teams in these categories might be entered

TWIN CITIES TC OP
CALIF CONDORSMW
JONES'S MD
3 M COMPANY CL

Note that the codes are case dependent.

To simplify team scoring in classes (see page 59), use the "Make file TeamCodes" item under SetData's "Other options" menu to store the abbreviations you use and the categories that they define.

Shirt size. The race director may want you to keep track of shirt size. You will be able to count the numbers of each shirt size ordered and print out packet labels with the runner's shirt size on it. The pull-down menu for shirt size has 16 different sizes, plus "Unkown" and "None." You can save data entry time by typing the initial let of the size you want ("X" for extra large and variations, "W" for women's sizes, "Y" for youth).

To record shirt sizes, you must open an ADDRESSESN file, which in turn requires that you track cities.

Division code. If you have created a KEYCODES file (which in turn requires that you open an ADDRESSESN file, which requires that you track cities), you can declare the runner's division by selecting from the pull-down menu next to the shirt size menu. Or you can enter the code in the box to its right.

Although you can enter the runners' division codes as you enter their names, if they are grouped by ID number there's an easier way. Use the "Assign division codes in batches" item under the Other Options menu to tag the entrants. If you're entering data from paper entry forms, this makes it a good idea to separate them by race entered first to facilitate batch processing of the division assignment. See page 25 for details; you can also assign codes by gender, for members of selected teams and residents of selected cities, and for entrants with certain codes.

Extra Data. If you elected to open an OTHERDATA file in NewEvent (page 9), you can enter any 23 characters you want in the next box. Those data can be used for a second address line, and printed out on labels below the street address line, or for such data as telephone numbers and birth dates, and printed out in lists or on the first line of "packet labels." They are also used for chip numbers in some systems.

Super Data. If you also elected to store "super data," a file called SUPERDATA is opened for you. This holds one 39-character string per runner, which should be enough for most email addresses. If that's what you're using it for, hit a "-" (dash) when you get to the super data box. The runner's name will be inserted in the box, stripped of spaces and followed by the "@" symbol. Like "JACKMORAN@." SetData

will complete many choices of the email service for you. If you enter "A" after the @, you get AOL.COM; "H" gives HOTMAIL.COM; "M," MSN.COM; "E," EARTHLINK.NET; "C,", COMCAST.NET; "S," SBCGLOBAL.NET; "P," PRESSENTER.COM. To get MSCHI.COM, press "M," backspace, "S." To get EMBARQMAIL.COM, it's "E,", backspace, "M." If a runner has the same email address as the one entered just before you started on this one, hitting "^" (shift-6) will repeat the address.

Using a Data Base to Assist in Data Entry

If you have purchased the optional Data Base package, and have used it to build up a data base of runners from races you have scored (see page 81), you can save a lot of work in entering runners in a new race. When you select SetData's "Add entrants" option (Ctrl+A), the dialog on page 15 appears. Click on the "Add addresses by name/age/sex" box; you are then asked to locate the ROSTERN and ADDRESSES file of your data base, and the usual "Entry form" appears.

After you enter a runner's name, age, and sex, SetData searches for that runner in the data base. If it finds someone with the same last name (or close to it; DataBase "hashes" the last name by removing vowels while filing a runner's info), age (±2 years), sex, and first-name-initial, it beeps and displays the runner's address. A dialog like that on page 19 asks if this is the address you want. If the runner found has a different name or address from the one you want, click on the "No" box or hit <esc>.

In fact I usually enter only the runner's last name and let the program look up the first name (except when the last name is really common, as "Anderson" is in Minnesota). If no acceptable "hit" is made, a space is inserted in front of the last name and the cursor jumps in front of that so you can fill it in. You can then jump down to the (empty) address box, past the age and sex you've already filled in, by hitting the down-arrow. If the name was found in the data base file, you can jump from the address box to the shirt size box (if you're entering shirt size, division codes box if you're not) by hitting the down arrow.

If the runner does not supply an age or date of birth, tab past the age box and enter the sex. SetData will search for runners with the same name and sex as the one you input. I often find the runner's age this way, especially when the race's entry form is so poorly designed that the age box is ignored (for best results, put the age and sex blanks up at the top). SetData computes the runner's age on race day from an estimate of his/her birth date, which in turn is based on the runners' age on the day of the last race he/she ran, so far as you know.

Proofreading.

Undoubtedly you have heard the computer programmer's slogan, "Garbage in, garbage out". The race results are liable to be garbage if you don't proofread your ROSTERN. All it takes is a little mistake in typing in someone's age or sex, and your list of class winners is messed up.

If you plan to do the proofreading and corrections yourself, the quickest way is to use SetData's proofreading option. Click on the "Proofread" button or pull down the Edit menu to "Proofread" or type Ctrl+P. The name, age, sex, team or (if teams are not stored) hometown, and, if addresses are on file, shirt size and division codes of the runners are now shown on a screen like that at the left, starting with the number you select.

To scroll through the list, click on the "up" or "down" buttons (or click on your computer's Page Up or Page Down buttons). You can jump to an entirely different number by typing it in the "Go to" box and hitting <enter>. When you find an item that is in error, click on it. An entry form appears with the data for that entry in it and the cursor in the box with the erroneous data. Fix the error. After you accept the corrected data by hitting <enter> or clicking on "OK"

you are returned to the proofreading display, with the most recently examined entry at the top.

You can also insert or delete lines in the ROSTERN from this display, as might be required to fit each team's entries in a certain range of ID numbers. Click on the "Insert" or "Delete" button or type Alt+I or Alt+D. A dialog asks you how many lines to insert/delete and at what place to start; fill it in and hit <enter>. You'll be asked to confirm any deletions, which cannot be undone. The data on runners after a deletion will be moved to lower ID numbers. If you want to remove the data on a runner without changing anyone's ID number, use instead the "Wipe out" option (Alt+W).

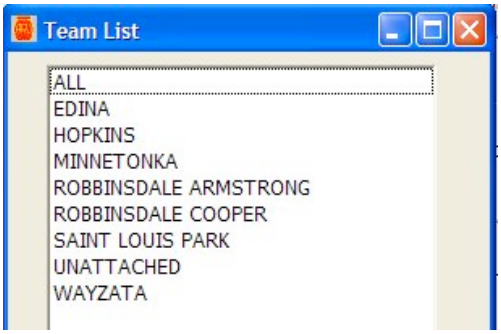
The Insert, Delete, and Wipe out functions are also available outside the Proofreading option, under the Other Options menu and with the shortcuts Ctrl-I, Ctrl-D, and Ctrl-W, respectively. See page 25 for the Move and Copy options.

When you're done proofreading, click on the "Quit" button or type <esc>.

Editing by Number

If you can get help with proofreading, you can use the "List Data on Entrants": button or the "List entrants" option under the File menu to create a printed list of recent entrants (see page 23) and ask your helpers to mark up the list with the needed corrections. The "Edit Entrants" option (Ctrl+E) can then be used to correct errors in the data you entered on the runners and their cities and teams. On entering an ID, the current data are displayed. Use the mouse or <tab> to get to the item(s) that need to be corrected and fix them in the usual way.

Editing City and Team Names

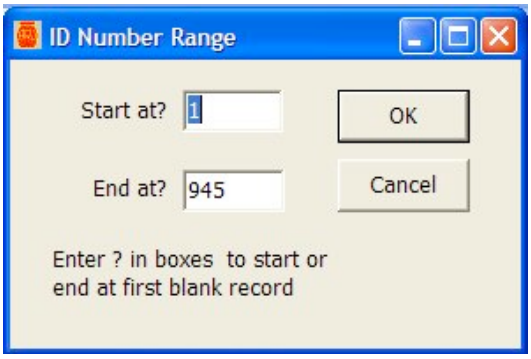


If you need to edit the spelling of a city or team name, select the "Cities" or "Teams" item under the Edit menu. A scrollable list like that at right will appear; click on the one you want and a dialog will pop up with the city/team name ready for you to edit. You can also edit city names from the proofreading display (if cities are shown; if teams are available, they are shown instead), as noted above. First click on the city name. When the entry form appears, click on it again and you get the dialog that allows you to edit the city name. Team names may be edited in the same way.

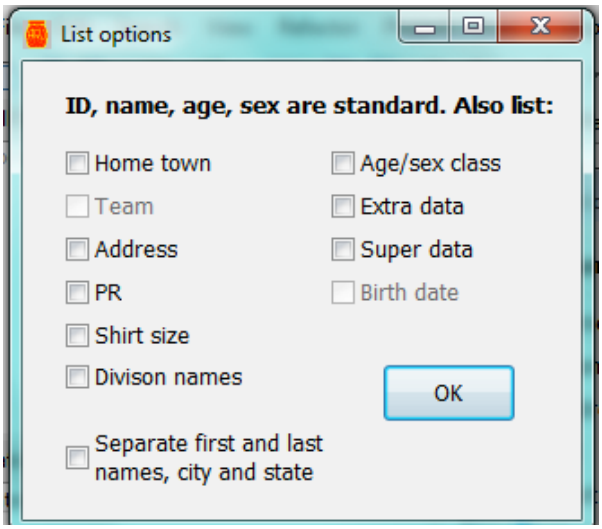
To remove an item from the list, select its name in the editing dialog and delete it. It will be replaced by "XX."

Especially for team names, it is important to resolve discrepancies in spelling of the name. If the team or city name to which you edit an entry is already on file, you are asked if you want to assign entrants with the name you are editing to the one on file. If so, the rejected team or city name is changed to "XX."

Lists



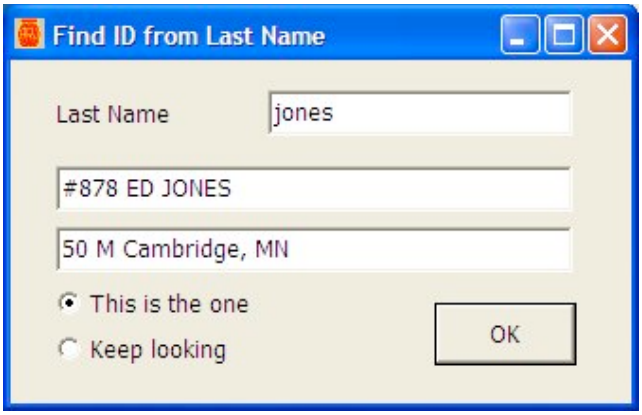
Lists of entrants will be needed for packet pickup, among other purposes. Clicking on its "List" button (Ctrl-L) enables SetData to output data in numerical order. First you choose the number range of interest from the dialog at right. As noted on page 6, it is often useful in cross country meets to assign boys and girls/men and women numbers in different ranges. They generally compete separately and may or may not have different coaches. If there is a range of unassigned IDs between the genders, you can select one gender or the other by entering a "?" in either of the Start/End boxes. For example, if the males have the lower numbers, you can confine attention to them by entering a ? in the "End at what ID number?" box. To concentrate on the females, enter ? in the "Start at what ID number?" box. This option is ubiquitous in ARJaM; see page 57, e.g..



Next you choose the types of data you wish to list from a dialog like that at left. Listing the keys to any "Division names" you may be using to sort out race divisions is available only if you created a KEYCODES file; see page 15.

Program Sorters can also be used to produce lists of entrants, in alphabetical order and otherwise. See page 32.

Searching for Specific Runners

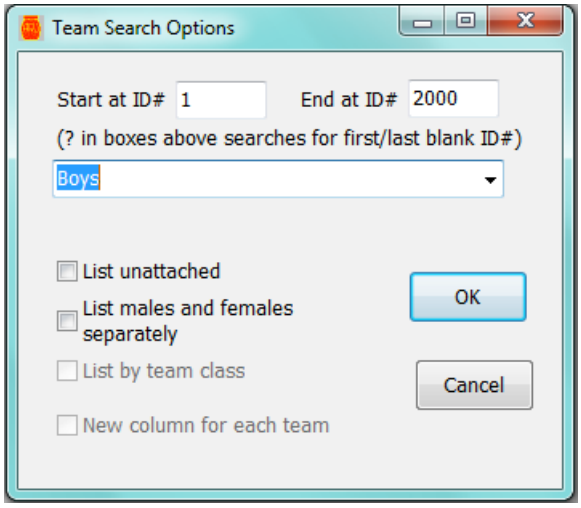


If you need to find a runner's ID number by name, click on the "Find" button, pull down SetData's Search menu to "For ID by name" or type Ctrl+F. Type the runner's last name into the first box of the dialog at right and hit <enter>. The ID number, full name, age, sex and team or home town of the first runner (the one with the lowest ID number) are put into the other two boxes. If this isn't the one you want, click on the "Keep looking" button. If it is, hit <enter> and you get the option of editing his/her data. If not, the boxes clear, so you can look up someone else.

Searching for Runners by Age Group, City, Team, Division

To list runners by age group, city, team, or division, pull SetData's Search menu down to the appropriate item. You can either select a specific age group, city, or team from a dialog like those on pages 23 (for cities) or 31 (for age groups), or list all the age groups, cities, or teams from first to last by selecting the "All" item at the top of the list. In that case all the runners who belong to each subgroup are listed in numerical order beneath the group name. Again you can select the range of ID numbers for which the search is made.

When you search for teams, after you specify the types of data you want output and the output device, the additional options shown at right are available. The "New column for each team" option (active when you output data to a printer) facilitates chopping roster printouts for coaches' packets. It works even better if you first pull the File menu down to "Page setup" and change the orientation to landscape.



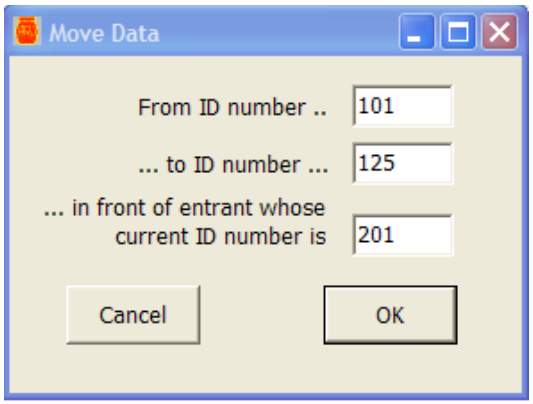
Counting Runners

SetData also has a Count menu that allows you to count entrants by age group, city, team, shirt size, and division codes for specified ranges of ID number. Cities and teams are listed in alphabetical order in those searches.

In races with team competition, every scoring system requires that participants be assigned to the correct team. Before leaving SetData, pull down the Count menu to "By team." Because of mistakes in data entry, you may have used two different versions of a team's name. In such cases, you need to put everyone on the same team. Pull down the Edit menu to "Teams" and select the "wrong" team name. Edit it to the "right" team name. You will be asked if you want to reassign entrants from the wrong team to the right one. You do. The wrong team name will be set to "XX."

Changing ID Numbers; Seeded Runners

If you need to seed a runner whose data have already been entered, or otherwise want to change a runner's ID number (which may be used to identify what race he/she is in; see page 57), you cannot simply use the "Edit Entrants" option, call up the runner's present ID number, and then edit that number. All that does is to call up the data entered (if any) for the second ID number.



Pull down the Other Options menu to "Move lines" (Ctrl+M). You can use this to (re)assign an individual a specific number or a whole block of numbers. You are asked for the ID number range of the runners whose IDs you want to change, and then the ID number of the runner in front of whom you want them inserted. With the options in the dialog at left, the runners whose IDs are currently 101-125 will be reassigned to 176-200; in front of the runner whose current ID is 201.

There is also a "Copy line" item (Ctrl+T) under the Other Options menu. On specifying the runner's old and new ID numbers, all the data on file under the old number (including address and extra data, if any) are transferred to the new ID number. The data remain on file under the old number, too, so you may wish to delete or wipe out those data (unless you've already printed out bar codes with the old set of numbers).

Both the "Move" and "Copy" functions can be exercised from the "Proofreading" option by clicking on the appropriate button; see page 22.

If you need to change everyone's ID number – if the race director has a different range of ID numbers than you thought, for example – pull the Edit menu down to "Numbers" and change the first ID number.

"Hip codes"

Championship cross country meets are generally scored with chips. These produce results very quickly, and are very accurate so far as time is concerned. However, their resolution is usually about a tenth of a second, which is not enough to resolve really close finishes. Because placement is so important in these meets, they usually use FinishLynx or video to confirm the placement.

Often the runners' bibs are enough to establish the identities of the runners whose places are in question, but sometimes they are obscured by other runners' bodies. To provide additional clues as to the runners' identities, they may be assigned hip numbers. These are most effective (because they are bigger) when they are one or two digits or characters. Thus they may be assigned by team.

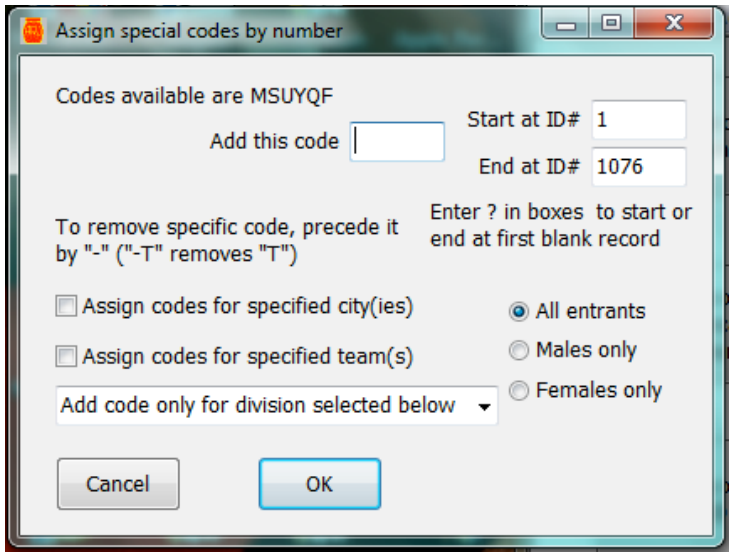
If that is the case, pull the Other Options menu down to "Make file HipCodes." SetData will cycle thru the teams and ask for their "hip code." Theses are filed in HIPCODES.txt, a simple text file that lists the team numbers followed by a space and the hipcode for that team as shown at right (for this meet, the hip numbers were assigned by the starting lane of the team). In RaceDay, a list of the finish order will contain the hip code of each finisher.

```
1 11
2 19
3 17
4 20
5 22
6 14
7 8
8 16
9 23
10 2
11 1
12 7
13 13
14 5
15 4
16 10
```

Assigning/Editing Division Codes in Batches

If you are using division codes to identify finishers in certain categories, you may be able to assign their codes in a batch. Then pull the Other Options menu down to "Assign division codes in batches."

The dialog at right gives you a multitude of options as to how to do this. If you separate their entry forms and assign them ID numbers in non-contiguous ranges, simply specify the ID range for the code of interest.



You can of course choose the code; if you precede it with a "-" sign you can remove it from the records of the runners you select. That is an editing tool. E.g., if you have assigned "W" to the walkers, and want to assign "R" to the runners (non-walkers), first assign "R" to every one, and then "-R" to people with "W."

You can use a "?" in the number boxes if you put a gap between categories when assigning IDs (see page 6). You can also assign codes by gender, by the current division, and also for specific cities (for races that want to recognize local runners), or members of specific teams (for meets with multiple classes). If you want to assign a code ("M," say) to everyone who doesn't have a certain code ("S," say), first assign "M" to everyone and then assign "-M" to entrants with the code "S."

Saving Data

Apple Raceberry JaM adheres to the principle of WYSIWYG (what you see is what you get). When the entrant's data are completely input, click on "OK" or hit <enter> to proceed to the next one. If you decide not to save the data that are showing on the screen, click on "Quit."

Backing Up Data

An item under the Other Options menu allows you to back up your entries. If you add any entries, when you quit SetData they are written to a tab-delimited text file, which can be uploaded with the Download program to be discussed next. The file name shows when it was created; e.g., "BACKUP 4-1-2014 1551" (the "1551" is the time at which it was created). All such files are stored in a folder names "Backups." Once you select the "Backup data" item, it will be on by default in subsequent races.

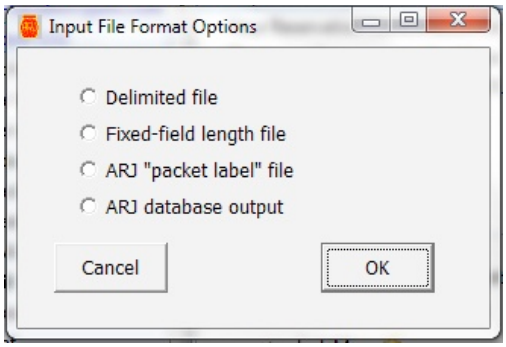
Program DownLoad

Most road races get at least some – in many cases most – of their pre-registered entries from an online service. You can download such entries into your ARJaM files with the aid of program DownLoad (not available in the cross country package). It can also be used when the race or meet supplies you with the pre-race entries in an Excel file, and when you wish to re-process race results produced by someone else.

Select DownLoad from the dialog that pops up when you click on the "Pre-Event" button of ARJMenu (page 4). After you locate the ROSTERN of interest (if you've just created the files you'll be in the correct folder already), you are first asked to confirm the race date.

DownLoad has a couple of items under its Add menu worth mentioning at this point. One is "Import cities." If you did not do so while setting up the files in NewEvent, you can use this opportunity to put your most frequently encountered cities at the head of the CITIES file; see page 9. You can also import teams from a text file created by listing the teams in a meet previously scored.

If the file from which you want to import data on runners has information on race divisions, pull the Add menu down to "Make or add to file KEYCODES for Division code" before proceeding further. The dialog on page 15 appears. Assign every division listed in the file a code, making sure the division names match exactly what is in the file. You can edit the division names later in program SetData (use the KEYCODES item under its Edit menu) if you prefer some other name.



When you click on "Read Data from File" (Ctrl+R), you first locate the file (it's a good idea to save it in your race folder) and then specify the file format. In most cases it will be "delimited," with the various fields separated either by tabs (the default), commas, or (sometimes) semi-colons. If your file is an Excel file, cancel if you've gotten this far without saving it as a tab-delimited or CSV text file (to do so, double-click on the file, pull Excel's File menu down to "Save as..," and select a format of "Text (tab delimited)" or "CSV.)" If it is an HTML file, open it from Word (i.e., open Word first and then open up the file, don't just double-click on the file). If the data are in columns, drag the cursor along the top row to select the data (the cursor should become a down arrow). Then pull Word's Insert tab down to Table, then down to "Convert table to text" and click on "Tab" under "Separate text as." You may have to delete extraneous data, like the page title. Then save the file as text; pull Word's File menu down to "Save as.." and select "Plain text" as the format.

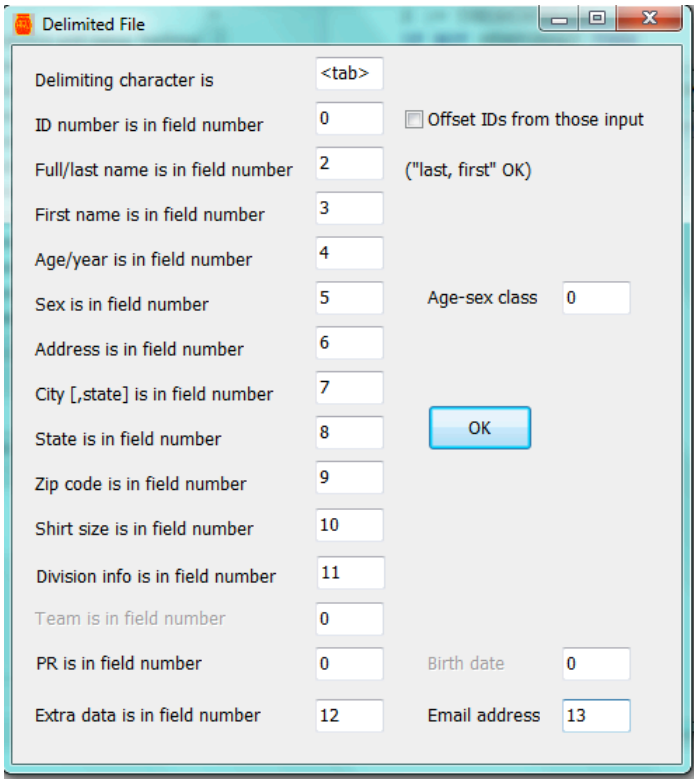
A fixed-field length file has no delimiters between the fields. I see it mostly when I'm reprocessing results. As will be discussed below, to upload such a file you need know which characters on each line hold each field. The "packet label" format is useful for exchanging data between multiple computers processing race day entries, but can be better handled within SetData; see page 36.

If there is an ORDER file in the same folder as ROSTERN, you are asked if there are times in the file and, if so, whether they are results or PRs. If you are uploading race results, the options are slightly different from when you are uploading entry data, the case that is discussed below. Hit <tab> or the down arrow twice or click on the bottom button.

Delimited Files

You now must specify the delimiter used in the file (the default being <tab>), what fields it contains, and their order of appearance in the file. By a "field number" of "3," for example, is meant that two delimiters – tabs – appear before that field. Thus in the example below there is nothing of interest in the first field (before the first tab), the runner's first name is in the second field, last name in the third, etc.

If the file has a "header" (a line indicating the order of the fields in the file), DownLoad will use it and try to guess which field in the file goes with which ARJaM field. If it can't interpret the file field, you get a message like "Field 12 BIRTHDATE is unknown," and, after the header is searched to the end, a list of ARJaM fields that were not assigned.



If you have an ID number field in the file, you have the option of offsetting the ID number at which a given runner's data are filed from the number in the file. There are occasions where that's necessary. If you don't enter a field number for the runner's ID, you get the option of checking the file for duplicate entries, an occasional occurrence with online entries. In either case, you are asked for the range of ID numbers in which to file the data.

The range of ID numbers that is suggested for your use

begins at the number after the last ID number already used (if any). If you accept the default, the data will be tacked on to the end of the existing data. If you want to add them starting at a certain ID number, simply change the first number in that dialog. You can even add them starting at a number lower than the last ID number already used, but you are warned that you then risk overwriting some data already on file. E.g., if you have entered some data for IDs 1 to 253 and some for IDs 501 to 622, and allowed for numbers 1-1000 when you set up the files, it is suggested the new data get IDs in the range 623-1000. You could instead change "623" to "254" and put the new data in the ID range 254-500. But if you had more than 247 (500-253) names in the file, you would overwrite some of the data starting at ID #501.

You then get a "format check": DownLoad shows you where the data will be stored according to your specifications. In this case the user has switched the field numbers for the runner's first and last names. After selecting "No" and trying to upload the file again, the field numbers used last are displayed. Switching the ones for first and last name gets it done right.

```
FORMAT CHECK

FIRST NAME          RIEDL
LAST NAME           MARIAH
AGE                 30
SEX                 F
CITY                MORA
STATE               MN
STREET ADDRESS      17 PINE ST N
SHIRT SIZE          MEDIUM
DIVISION            MORA HALF MARATHON
ZIP CODE            =55051
EXTRA DATA          11/15/1983
SUPER DATA          MAWINDY@AOL.COM
```

You may notice a "=" in front of the zip code. This is a peculiarity of files downloaded from the online site active.com. DownLoad will take care of it without your intervention. It also handles quotes in csv (comma-separated-values) files, invites you to insert commas when there aren't any in a city-state field (and no state field is specified), abbreviates U.S. state names if they're longer than two characters, and invites you to extract the zip code when a single field contains the city, state, and zip (like "Edina, MN 55424").

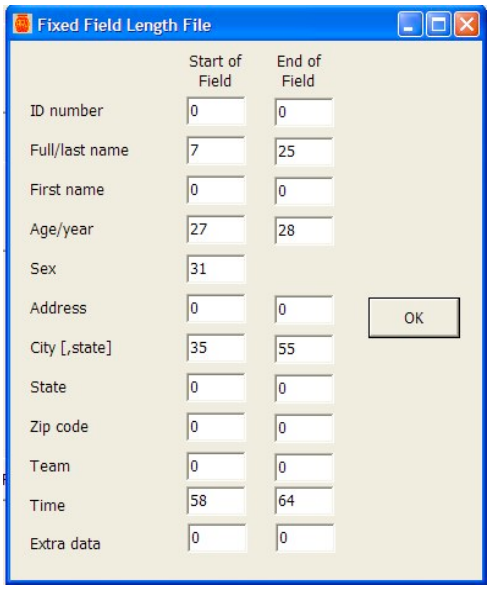
As the data are uploaded into your files, the names and ID numbers are displayed on the monitor. Keep hitting <enter> until it's done.

Fixed-Field Length Files

As noted above, race results are often in fixed-field length format, like this:

Place	Name	Age	S	Town	St	Club	15k	Pace
1	Braden Richardson	26	M	Rochester	MN		55:36	5:59
2	David Kallmes	49	M	Rochester	MN		56:06	6:02
3	Mario Minelli	41	M	Kasson	MN		56:56	6:08
4	Devin Oglesbee	36	M	Rochester	MN		57:56	6:14
5	Jim Hannon	53	M	Rochester	MN		58:43	6:19
6	Patrick Steward	43	M				58:45	6:19
7	Eric Woodford	39	M				58:50	6:20
8	John Krebsbach	24	M	St Ansgar	IA		59:21	6:23
9	Rudy Regalado	47	M	Rochester	MN		59:23	6:24
10	Zach Fogarty	24	M				59:51	6:27

If you need to process such a file (redoing the results for whatever reason), you will have to manually determine the numbers of the first and last characters for each field. In this case, a runner's first name occupies characters 7 through 25; age is in characters 27 and 28; sex is character number 31; city in 35-55; and time in 58-64 (allowing for times over an hour). Thus, after selecting a file, declaring it to be fixed-field length and to contain times, you would fill in the dialog shown at left (which doesn't quite match the file above).



As with uploading a delimited file, you get a "format check" display so you can check whether you have set the fields correctly.

Miscellaneous DownLoad Functions

Under its Other options menu, DownLoad has an option to "Delimit file around numerals." This can be used to help prepare a file for uploading (as a delimited file). Typically these are files saved as text from a pdf, as in the example at left. Applying the option to this file would insert tabs around all the numbers separated from other data by spaces. Thus nine spaces would be replaced by tabs in these lines of the file.

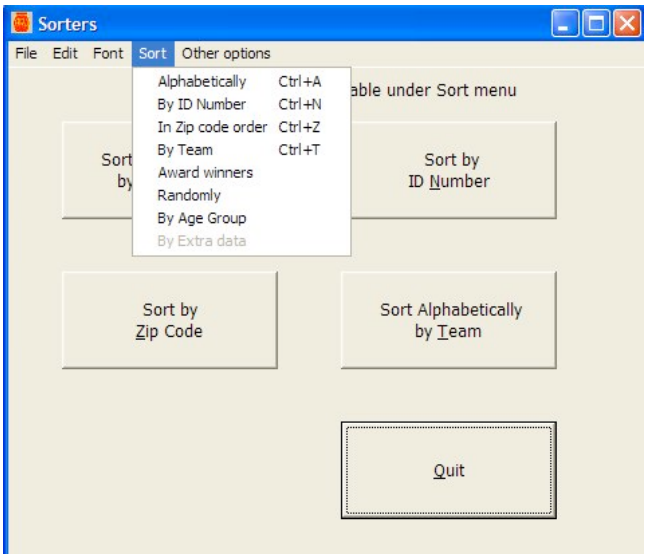
There is also an option to "Translate Mac file to DOS." An effort has been made to do this translation automatically for files uploaded into ARJaM files, so it's probably not something that you will have to use.

```
1 1 883 Nicole Heitzman 11 1 Andover 14:32.2 00:00.0 05:50
2 2 2207 Erin Baker 10 1 Grand Rapids 14:33.2 00:01.0 05:50
3 3 1184 Allison Bartlett 7 1 Forest Lake 14:43.7 00:11.5 05:54
4 4 891 Maddie McKeefry 10 2 Andover 14:47.1 00:14.9 05:56
5 5 2238 Natalie Stauber 11 1 Hermantown 14:48.1 00:15.9 05:56
6 6 1004 Noel Olson 11 1 Big Lake 14:50.8 00:18.6 05:57
7 7 1053 Abbi Forsman 11 1 Chisago Lakes 14:53.2 00:21.0 05:58
8 8 1168 Chelsea Schlegel 11 1 Elk River 15:08.7 00:36.5 06:04
9 9 2214 Jaylynn Lauer 8 2 Grand Rapids 15:12.2 00:40.0 06:06
10 10 1166 Rachel Ness 8 2 Elk River 15:15.4 00:43.2 06:07
11 11 1186 Emma Benner 8 2 Forest Lake 15:21.9 00:49.7 06:10
12 12 1194 Holly Winberg 12 3 Forest Lake 15:24.9 00:52.7 06:11
13 13 1189 Andrea Mogren 12 4 Forest Lake 15:26.9 00:54.7 06:12
```

Program Sorters

To make it easy for runners to pick up their packets on race day, their packets should be alphabetized. This is hard work unless their ID numbers are assigned in alphabetical order. Program Sorters can do that, as follows.

Select Sorters from the dialog that appears when you click on the "Pre-Event Off-Site" button of ARJMenu (page 4). Its primary options are shown as buttons in the form that appears after you locate the ROSTERN of interest.

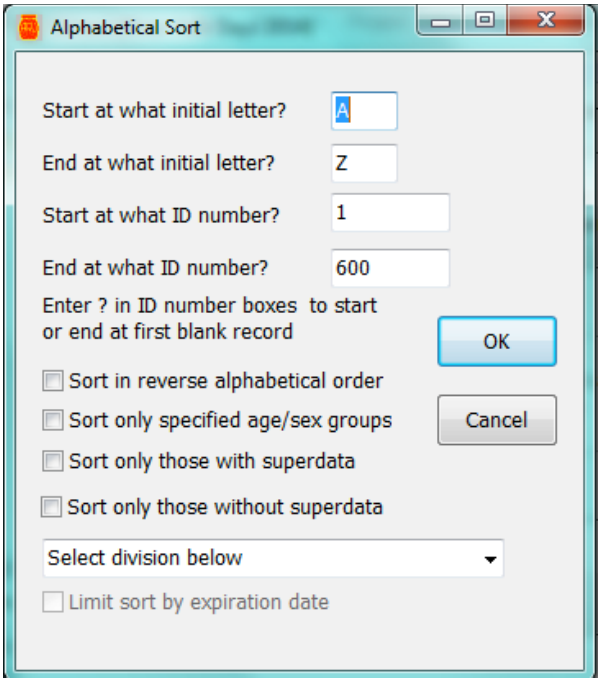


Alphabetical Sort

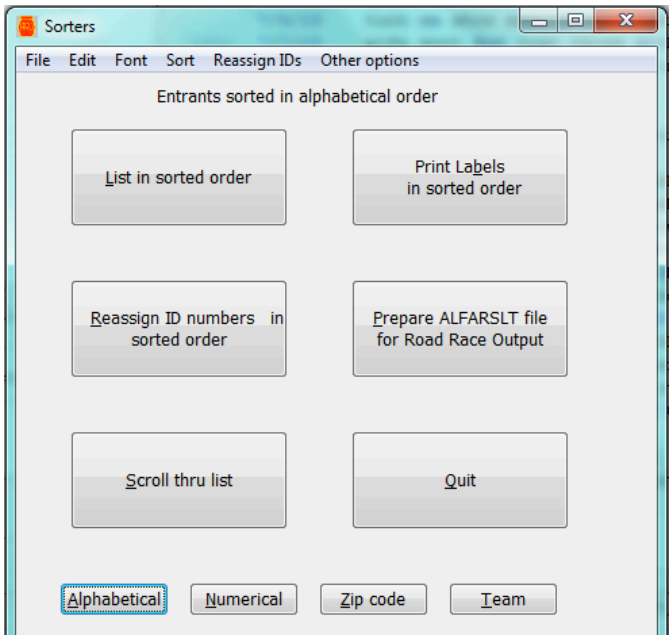
On selecting the "Alphabetical" sort option by clicking on the appropriate button (Ctrl-A), you get the options to restrict your sort shown on the right. If reassigning the ID numbers is your purpose, you generally don't want any restrictions. The IDs can be reassigned only if there are no unassigned ID numbers in the range selected. Thus you certainly will accept the A-Z defaults.

You can, however, limit the sort to a specific range of ID numbers. Note the ability to use a "?" in the Start/End boxes to limit the sort by exploiting a gap in ID numbers; see page 6.

You can also restrict the sort by division. When working with a data base, you can also restrict the sort by the runners' "expiration dates." Again, such



options are useful only when you want to list the runners in alphabetical order; if you want to reassign numbers in alphabetical order you must select everyone in the ID number range of interest.



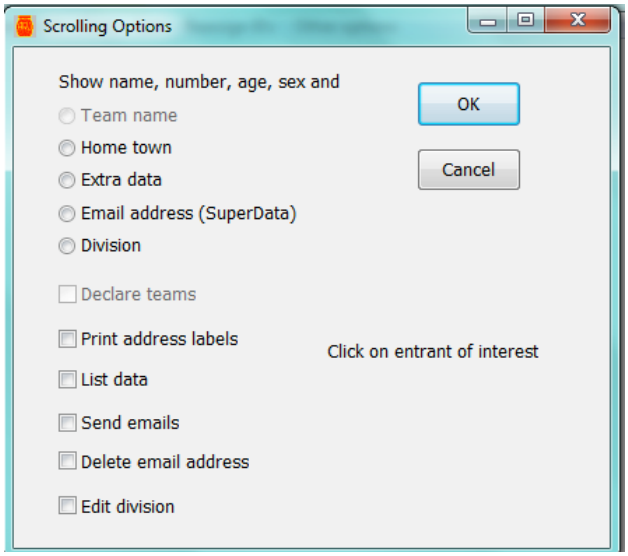
After going through the sorting process, Sorters puts a new set of buttons on the desktop. Unless there are IDs with no names in the selected range, one of them is "Reassign ID numbers." Click on that button or pull the Other options menu down to "Reassign ID's in order." You are then asked if you first want to print out the names (with their old numbers) and, if you have addresses on file, whether you want to store the old numbers in an OTHERDATA file, separated from the rest of extra data by a backslash; e.g., "0034\952-920-0558". This option allows you to recover the original ordering of names, by sorting them by "extra data" (Ctrl+X) and then reassigning the ID numbers after doing corrections/additions.

The portion of ROSTERN that you selected, along with the ADDRESSES file (if any), is now sorted in alphabetical order. If OTHERDATA, SUPERDATA and/or TRIPLEDATA (a file used in chip-timed races, multi-race series and triathlons) are on line, they will be sorted, too.

The routine used to reassign ID's in order fails if there are any blank names in the sequence of ID numbers you wanted alphabetized. If this is the case you won't be able to reassign ID numbers; the appropriate option under the Other options menu and the corresponding button will be disabled. If there is no reason for the empty lines in the ROSTERN, use SetData's "Delete" option to get rid of them (best done from the Proofreading display; see page 22) and try again.

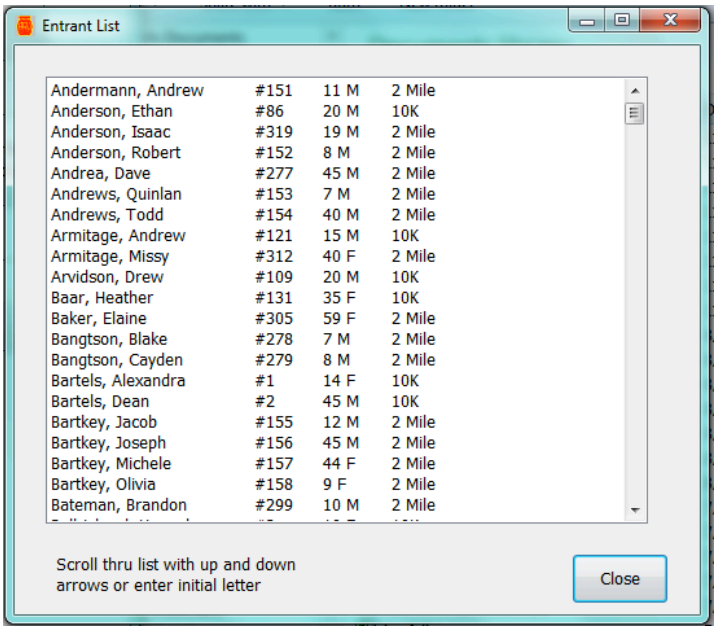
Scrolling thru the List

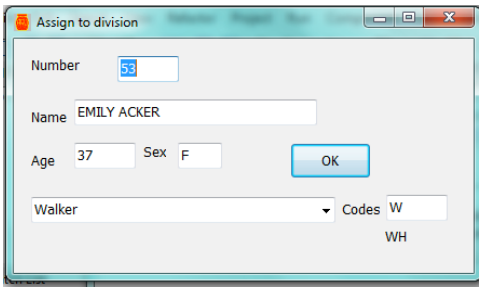
After any alphabetical sort, a button "Scroll thru List" appears on the desktop. This highly useful option allows you to edit certain data on entrants you choose from an alphabetized list and/or to communicate with them by mail or email, as indicated by the options below. If you want either to send out emails or to delete someone's (incorrect) address, you should of course click on the option in the alphabetical sort dialog to sort only runners whose email address is known (i.e., with an entry in the "superdata" field).



The "Declare teams" option is useful in road races with team scoring, when you discover that some runners neglected to include their team name in their entry, or declared a team on which they are ineligible to compete (lacking USATF memberships, e.g.). Deleting email addresses is something I routinely do after road races when I find the emails in which I reported the runners' individual results (see page 72) were incorrectly entered. You can also change a runner's division, send him an individual email, print a mailing label, or simply list him.

On selecting any option, the runners' name, ID number, age, sex, other data appropriate to your selection from the dialog above appear, in alphabetical order. You can scroll thru the list with the arrow keys, the scroll bar, or by pressing the key for the runner's initial.



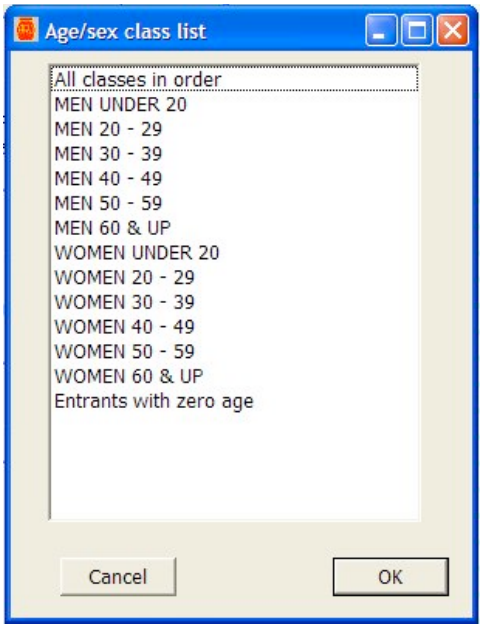


Selecting a runner's name leads to the appropriate action you may have selected from the check boxes above: declaring a team, printing a label, adding the runner to a list, etc. The team and division options bring up a specialized entry form like that at left.

Sorting by Age Group

You may also be asked to assign numbers by age group; e.g., to give runners under 30 the numbers 100-199, runners 30-39 the numbers 200-299, etc., or to give men and women different ranges of numbers. This is especially common when the runners start in waves by age group, as in triathlons.

Pull the Sort menu down to "By age group." You get options as to ID number range and division codes as in an alfa sort, and then select the age group(s) of interest from the list above.



As with alphabetizing, you can use Sorters to do this if and only if there are absolutely no gaps in the runners' ID numbers when you start.; if necessary, use SetData to eliminate any gaps with its "Delete" option, and of course select "All classes in order" from the dialog

Sorting Alphabetically by Team

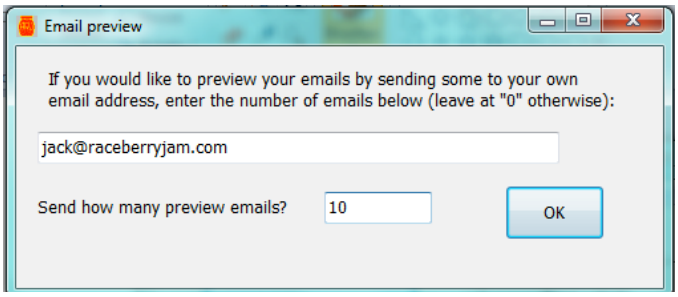
In cross country, you will almost certainly want to reassign ID numbers alphabetically by team. The usual restrictions apply. If men and women/boys and girls are assigned numbers in different ranges, using the "?" in the boxes for the ID number range of the sort makes it easy to separate runners by gender. In addition to the usual options, you can also decide whether to sort the runners on each team in alphabetical order or to leave them in the same order they were entered. Also, you get an option to sort the team names in the TEAMS file alphabetically. This is useful in printing out team labels.

Sorting by Zip Code and Bulk Mailing and Emailing

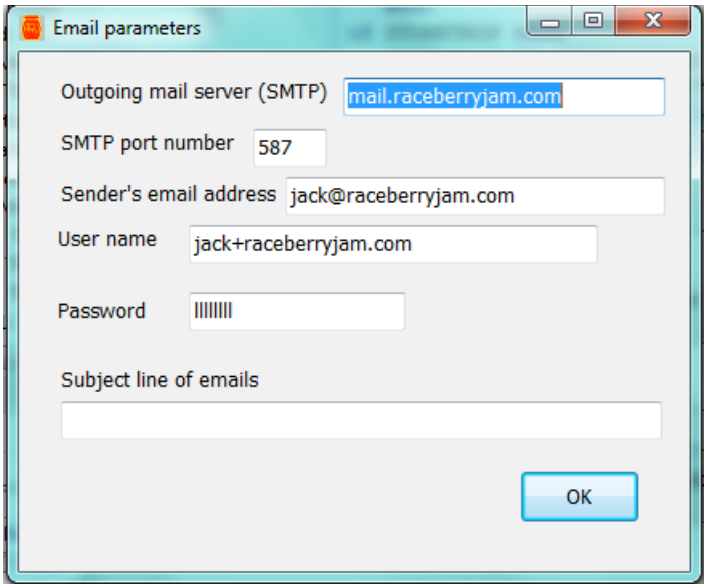
Road races used to mail entry forms to previous years' entrants. Bulk mailing required that the labels be printed in zip-code order. On clicking on the "Sort by Zip Code" button or pulling down the sort menu to the corresponding item, a dialog similar to the alphabetical sort appears.

Mailing entry forms is expensive, and has given way to email blasts, to entrants in the upcoming race (for informational purposes) and to previous years' entrants. To do so, do a zip-code sort for those runners whose email address is known (and stored in

the "superdata" field). You can restrict the sort to a particular range of zips and to a division of the race if you wish. Click on the "List" button. You get an option to send emails to the sorted runners.



Your first option is to send out some "preview" emails to yourself. This is a good idea; you can see if what you're sending makes any sense.



Then you fill in some blanks specific to your email account (this may not work with gmail, yahoo, and the like) and the subject line of your email. Finally you create your message. On accepting what you've written, you get an option to record the disposition of your emails. I usually make a file of the runners' names and email addresses.

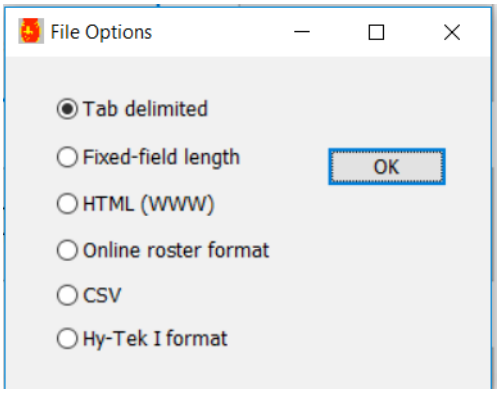
Lists

To prepare for packet pickup, you need to print out various lists. Sorters is the program best equipped to do this, although SetData has some capabilities as well, as was discussed on page 23.

Sorters will print lists of the runners in any order you select from its Sort menu (or from the desktop). For road races you should at least print lists in numerical and alphabetical order; the alfa list can be printed "last name, first name." As indicated on the dialog on page 24, all lists include the runner's ID number, name, age, sex, and home town (or team). You can add other fields of you like (shirt size and division, e.g.) and put a title at the top of the list so you can tell what it contains; the default title is the race name.

For cross-country meets, and in other cases where team competition is important, you can use SetData's search-by-team function (pull down the Search menu to "By team") or Sorters's sort-by-team option to list all members of every team together, again in eye-pleasing initial-cap form. The team name will be listed first, and then all members.

SetData and Sorters have a Font menu that allows you to select the font and its size and style for printed output, in two columns if you wish. They list entrants in initial-cap form regardless of how they were entered. Selecting a file as the "output device" may be useful if you want to list the entrants for a pre-race program. You can then paste the file into your favorite word processor or page layout program and add titles, coaches' names and other information.

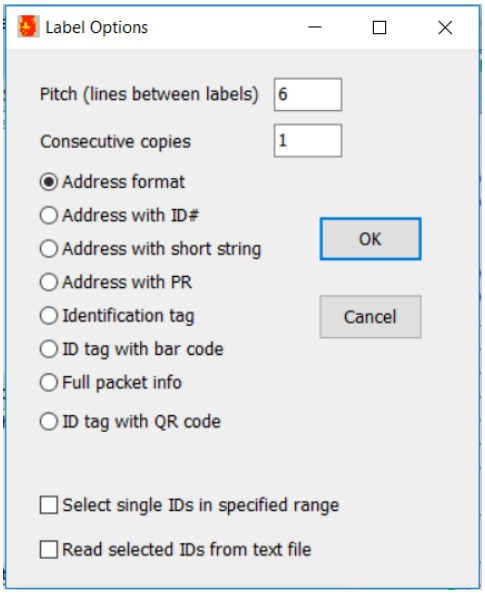


When you list data to a file you get the several formatting options shown at left. You can also choose to separate first and last names (advisable in listing to a file that you want to upload to another computer since the initial-cap process removes the periods that otherwise separate first names from middle initials) and cities from states (which works only if you used the standard "city, XX" format when entering the city and state name).

Labels

ARJaM produces labels in a variety of formats. Before a race of any type, the most important is an identification tag that can be stuck on the tag portion of the runners' bibs to facilitate distributing them to the runners. These labels necessarily have the runner's name and ID number on them. When those tags are detached and collected at the end of the chutes, they can be used to establish the order of finish. If you have a bar code reader, the labels can be printed with bar codes on them; using bar codes can reduce the number of typos in the finish order. If you have packets of information and/or T shirts to give them, you may also want to print out labels to stick on the packets.

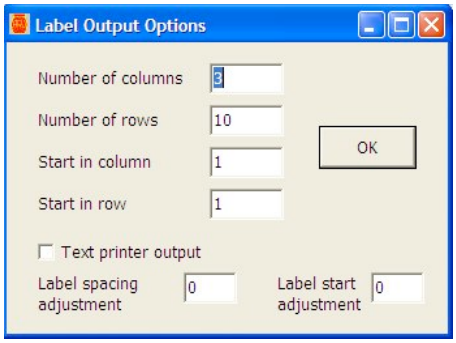
Both SetData and Sorters can print labels. SetData will do so only in numerical order, which is certainly what you want if you're sticking them on bibs. You can also print labels with "QR codes," which are sometimes useful in assigning bibs at the race ("dynamic bib assignment;" see page 35). If you're using Sorters, first sort the runners by ID number, selecting the number range in the process. If you're printing bar-coded labels, include enough unassigned numbers to cover race-day entrants. Then pull down the File menu to "Print labels" (Ctrl+B) or click on the "Print labels" button. In SetData, you pull down the File menu to "Print labels" (Ctrl+B) first and then select the number range of the labels. You are next asked to direct the output.



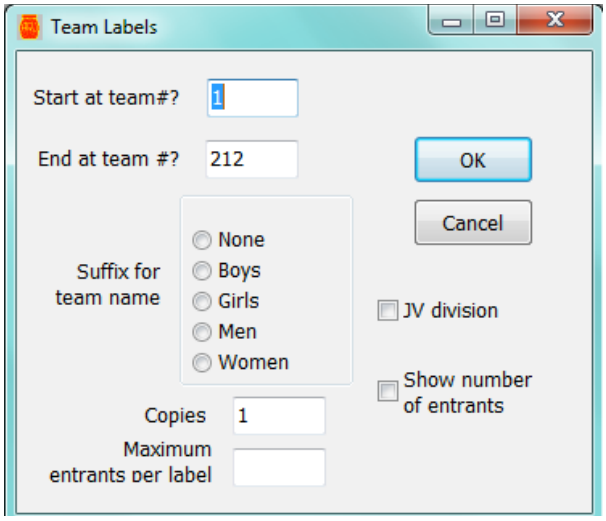
Now select the type of label you want from the dialog box at left. The default "pitch" of 6 lines is appropriate for the standard 15/16-inch high labels, but in fact can be left as is even for bigger labels.

For identification tags, you are asked whether you want to print out shirt size and/or "extra data" and/or "keys to division codes" (if they're available). A sample is shown at right. You're also asked whether you want to print labels for ID numbers that are not yet assigned. If so SetData and Sorters will print out a tag with blank lines for the runner's Name, Age, and Sex. Ask the registration crew to fill in the blanks if they give that number to a late entrant.

If you are using a bar code reader, print out bar codes for a range of negative ID numbers; these can be used as "turkey tags" (in fact the "name" above the code will be "TURKEY"), since RaceDay recognizes an unregistered finisher by a negative ID number (see page 42).



Finally (assuming you are sending your output to a printer or previewing it) you define the label configuration. The default 3 columns, 10 rows is the usual 1 X 2-5/8 inch label, but you can also do two columns of 1-1/3 X 4 inch labels, for example. The "Narrow 3-column labels" (an option not shown at right) are ¾-inches high.



Note that you can choose the column and row in which to start printing. Don't throw away your last label sheet; you may be able to use it for your next event.

SetData and other ARJaM programs will print to any printer you can select from the Printers dialog. For some printers, the code used to space the labels vertically does not do so accurately; the printing at the bottom of the page slops over on to the label above the one where it should be. The dialog used to select the number of columns contains items "Label spacing adjustment" and "Label start adjustment." Try something in the range 7 to 10. SetData and Sorters will remember your last choice and use it as the default the next time you run it. I haven't seen this happen in years.

For cross country meets you may also want to print labels for team packets. If so, pull SetData's File menu down to the team labels item. You get the options shown at left. I typically print out labels separately for each gender, and show the number of entrants

(a subsequent dialog asks for the number range, which I use to separate entries by sex). After doing one gender, the dialog returns. I do the other one and hit "Cancel" when the dialog returns.

The "Maximum entrants per label" option allows me to print out multiple labels for meets in which I must prepare labels for packets with limited capacity (actually for packets of chips).

Random Lists

Some races give prizes or merchandise randomly. Sorters can be used to select any number of runners randomly; just pull down the Sort menu to "Randomly." You will get the usual options for selecting the range of ID numbers you wish to deal with, and for restricting the search to runners with specified "division codes." If you want to list finishers only, first run RaceDay and use the "Tag finishers with division code" option under the Other Options menu, and select the "Finishers" division code.

You can also reassign ID numbers in random order, provided (as usual) that there are no gaps in the ID numbers. This could be useful in cross-country skiing or other races in which the competitors start one at a time at fixed time intervals, and you want to assign their starting times randomly but keep their numbers in the order they start, to simplify the starting process. Just Sort them "Randomly" and pull down Sorters's Other Options menu to "Reassign ID numbers."

Dynamic Bib Assignment

Much of the work detailed in the preceding pages can be avoided, at least for road races, if you don't assign a runner's bib until he/she shows up. This is called "dynamic bib assignment." Advantages include:

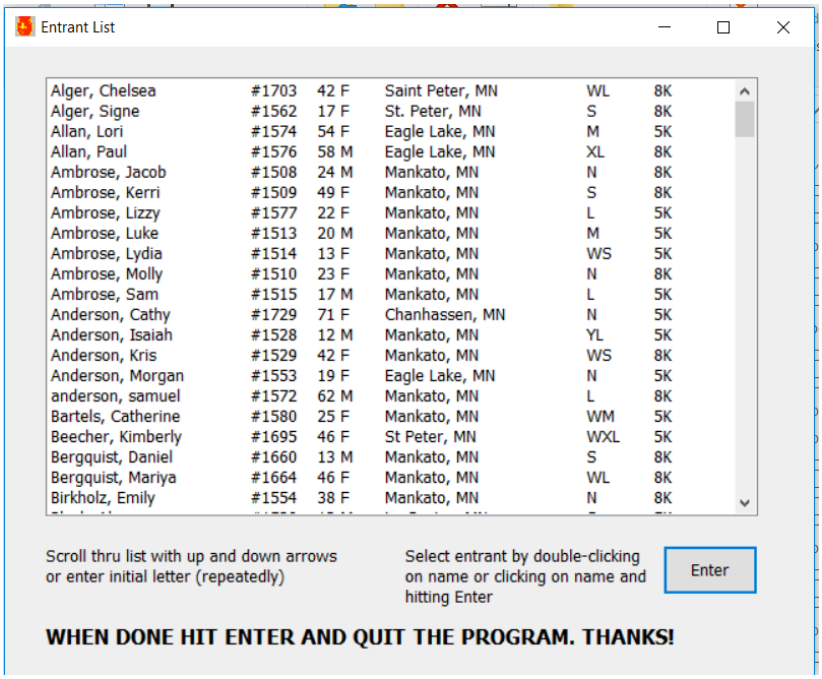
(1) Less work before the race: no sticking labels on all the chips and/or bibs, no assigning numbers in alfa order, no dealing with lists.

(2) You don't waste bibs and chips on no-shows. It is by no means unusual if 20% of preregistered entrants stay home. I charge by the entry, so this saves the race money, too.

(3) Using a computer to look up an entrant's data is quicker than searching for a name or number in a pile of bibs.

(4) Online entries can be kept open until the last minute; with the right online service, even until the close of race day registration.

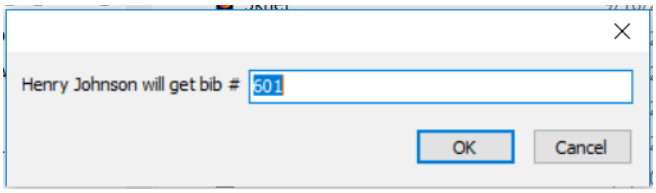
The online service I've used is Tempo Events (http://www.tempoevents.com). They supply tablets that can be used for runners to enter their data at the race and for race personnel to assign bibs. When a runner comes up to get a bib, they scan a QR code on his phone or printed receipt to access his data and then another QR code on the next bib in the stack of available bibs.



For races that use their own online systems, an application BibSetter in the Apple Raceberry JaM package can handle bib assignment for preregistered runners. After creating a race folder, make a copy of it; we'll call that folder the "source" folder and the original folder the "destination" folder. Download the entries into the source folder and put a copy of BibSetter in that folder. Then copy both folders on to as many memory sticks as there are computers available for bib assignment at the race (they could be computers supplied by race management or your own; so long as they run Windows).

At the race, each of the people assigning bibs will have a computer and a stack of bibs. Put a memory stick in each computer. The two folders you created will show up in the Windows Explorer file list. Open up the source folder and start BibSetter. You'll be asked to locate the ROSTERN in the destination folder.

The display at left appears. The names in the source files are show in alfa order, along with the shirt size each runner ordered and their race



division, if any. When Henry Johnson comes up, press "J" to get to that section of the alphabet and click on his name and hit "Enter." The dialog at left asks you to confirm the number he will be issued. It should be the next one in the stack of bibs; the suggested number is increased by one after each entry. Sometimes the operator hits the Enter key twice and the number is not correct. If the number selected has already been assigned, the operator is warned. But if it's the next bib in the stack, she should go with it.

When the operator is done -- when registration closes or the last few registrants are lined up at another station -- he/she hits "Enter." Clicking on a "Backup data" button creates a file like "201-278" in the destination folder, the file name indicating the range of bib numbers that were assoigned. This file is a csv file with a header. Grab the memory sticks and use Download to upload the data files in each stick's destination folder.

If the operator pulls the stick out of the computer without saving the file, all is not lost. Put it into your computer, find BibSetter, hit "Enter," and click on "Backup data."

Step 3: Entering Results and Other Data at the Event

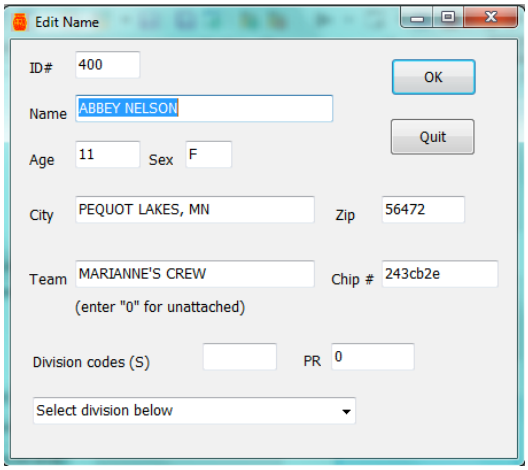
Race Day Entries

If there are walk-up entries, their names must be added to the files before you can list them in the results. SetData is best equipped to do this, although RaceDay has capabilities in this respect; see below. For cross country, this is quite straightforward; all you have to enter are name, year, and team. If you have separated the runners by gender with some unassigned numbers so as to score them by gender in a mixed race, an easy way to switch from one gender to the other while doing the adds is to use the Proofreading display.

Road races are more complex and often attract a hundred or more race day entrants. Ask the race-day registrars to try to keep the entry forms in numerical order, so you can use the "Add" option, and above all to be sure to write the numbers they issue on the forms. If you have a substantial number of race-day entrants, you may elect not to locate the ADDRESSES file when you open up SetData on race day, and so restrict your work at the race site to inputting their name, age, sex, and home town, the only information you really need to produce results. But if you are scoring by division, you will need to leave the "Enter addresses" box checked.

If you have the data base package, you can save some time by accepting the option to enter addresses. As discussed on page 22, enter the runner's last name, age, and sex. If an entrant is in your data base, great. If not, enter the first name, then hit the down-arrow to advance to the address box, tab to the city box, enter the city, tab to the zip code box (may as well enter/correct it while you're there), and hit <enter> to advance to the next runner.

Later you can go back and fill in the missing addresses; see page 71.



If you are unable to enter all the race day entrants before the runners are close to finishing, you can enter the most essential information (name, age, sex, team, city, division code, PR) using the "Add Entrants" item under RaceDay's Data Entry menu or the "Name by number" item under the Edit menu. You can fill in street addresses, extra data, and superdata later as mentioned above. "Division codes" may be necessary to score the runner in the right category (see page 57), and PR could be important in races with a handicapped start (page 81). Enter the missing data as usual. The entry form, shown at left, behaves much like that in SetData: entering two digits in the age box jumps you to the sex box, entering the sex jumps to the next available box, and team and city names are completed.

In "simple" events, you can, if you wish, leave Setdata open and use it for data entry after you switch to RaceDay. Before you switch, use SetData's Edit/Numbers (ctrl-N) option to change "Names on file" to a number high enough to accommodate runners still to be entered. If you need to change age groups, however (see below), or have different age groups for different distances (see page 9), you should close SetData before you open RaceDay or execute the change in age groups. It's safest to close it once runners start finishing.

Multiple Computers

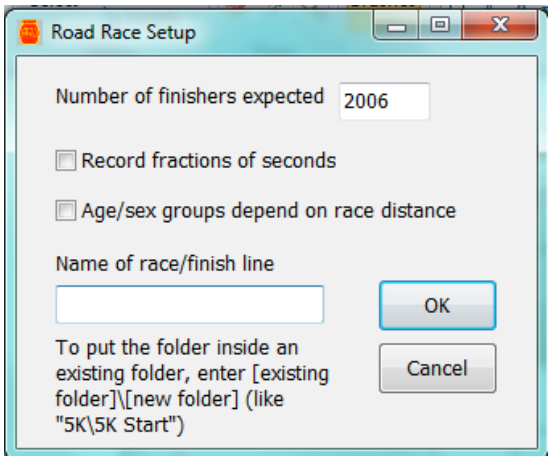
Multiple computers can be used to spread out the job of inputting data on the runners. SetData can both export and import data from one computer to another, through the "ARJ packet label" files mentioned on page 27, unless there is team competition.

After entering some data on an auxiliary computer, pull down the File menu of SetData to "Make ARJ file." Name the file and specify the range of ID numbers to be sent to the main computer. Skip the option to write out "extra data" on a second address line, if any. Move the file from the auxiliary computer to the main computer (a stick will do, or you can network them; see Appendix A). Then use program SetData the main computer to read the file into ROSTERN by pulling down the Add menu to "Entrants from ARJ file," selecting ARJ file and locating the file from the auxiliary computer.

If the race has team competition, make a "backup file" with SetData (page 26) on the auxiliary computer and use DownLoad on the scoring computer to import it.

Adding a Finish Line

If you realize, after setting up files for an event that you need to set up files for another finish line/race that you didn't know about or forgot, pull RaceDay's Edit menu down to "Add new results folder." By default the new folder will be located in the current race folder. As indicated at the right, you can put the folder inside some other existing folder. You will be automatically switched to the new folder, and given the usual info on the numbers of finishers and times on file (zero, of course) as on page 41.



Rarely, the size of your results files is insufficient. If so, there is an "Expand results files" under the Edit menu similar to the one in SetData (page 14).

Changing Age Groups

If the age/sex groups you entered are not what the race wants to use for awards, pull down the Edit menu to "Change age-sex groups." You'll be led to dialogs like those on page 9 with which you set up the age/sex groups in the first place.

Data Collection

Three types of data have to be input in order to score a race: ID numbers in order of finish, times in order of finish, and "select times;" i.e., records of the ID number and time of selected finishers. Select times are important for the accuracy of the final results, as will be discussed on pages 46-49: manually recording a time for every finisher (and not otherwise) is subject to errors, finishers get out of order on their way to the end of the chute, etc. To each of these functions corresponds an item under the Data Input menu of RaceDay and a button on its main window.

Chip Timing

Chip systems, in which the runner wears a transponder on his/her shoes or bib, allow the semi-automatic capture of all three types of data. Apple Raceberry JaM has been used with Championchip/MyLaps, DAG, Jaguar, Bibs Bolt, IPICO, and race|result systems. Such systems are discussed below starting on page 51. The IPICO system, which I used for 10 years, is discussed in detail Appendix B, and race|result, my current choice, in Appendix D.

For now we'll consider manual data collection.

The Finish Order.

Runners must be issued identification tags on which the ID number is preprinted. Race management should be prepared to collect the tags in order of finish on spindles or stringers at the end of a finish line chute. The tags should have punched holes so as to allow them to rotate freely on the spindle. Most races big enough to computerize use two-part race numbers, one part bearing the runner's number in large numerals (useful for recording select times) and the other being the tear-off tag; these do very well. The "Print labels" option of programs SetData and Sorters can be used to print adhesive-backed labels that can be stuck on the tags to identify the runners; see page 33. Ask the volunteers collecting tags to put them on the spindles printed side face down; they'll be easier to process that way.

Spindles should be brought in from the finish line to the computer operator periodically; e.g., after the first 20 finishers and at intervals of 25 to 50 after that. For small races, I just go over to the end of the chute and pick up another spindle whenever I'm ready. The spindles should be tagged with numbers or letters in order of their use, so that you can identify which one is to be read next. "Turkeys" (finishers who enter the chute without an ID and so have a time recorded) should be identified by putting a special card or tag on the spindle (see page 33 for how to print out bar coded labels for such "turkey tags"). And then perhaps taken out and shot.

Times and Select Times: Serial Devices

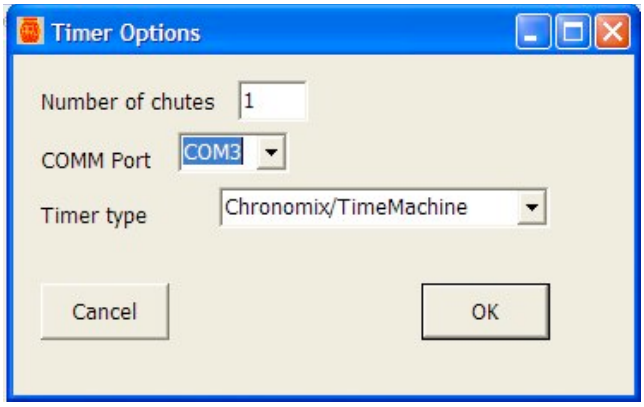
Most professional timers, when they're not using chips, use a serial device called TimeMachine to record times. Apple Raceberry JaM also works with the Chronomix 737X and Sprint 8, although with difficulty in the latter case. These timers have optional settings as to baud rate, stop bits, etc. RaceDay assumes the timer is set up as follows:

9600 baud, no parity, 8 bits, no handshaking

For the Chronomix 737X, you may have to ask the manufacturer to cut a wire on the timer end of the cable to disable handshaking. With the TimeMachine you should select the "Line Setup" display to insure the machine is properly configured.

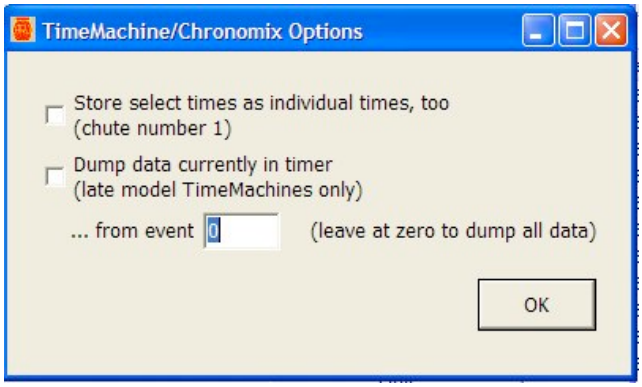
Dumping times during the race

To have the timer dump times directly from the finish line into the computer, start the timer as usual (preferably with the gun) and connect it to the serial port.* Start up RaceDay, and pull down the Serial Port menu to "Open" before the arrival of the first finisher.



A dialog box like that at left now appears, asking for the number of finish lines, the COMM port available and the type of timer you are using. If your timer is a TimeTech, you will have to press a key on the computer at this point, as you will be told by RaceDay.

The TimeMachine and Chronomix will record both individual times and "select times," IDs and times for some of the finishers. One person clicks the switch for every finisher, while another enters the ID number of runners before they hit the finish line and hits an <enter> button when they arrive. It's not usually possible to get select times for every finisher, but it's not hard to record one every few seconds.



If you are using a Chronomix or TimeMachine, you get the additional options shown at right. Some people like to record either an individual or select time for each finisher, but not both. They can then more easily read the times off the tape for the award ceremony. Needless to say, this option is exercised only for small races, and the timer is dumped into the computer only after the race is over. If this is the way it is done, turn on the first check box. Most people will prefer to use the select times as an independent check on the timing, and so engage two people to operate the machine as described above.

The second check box is useful for dumping the times from a TimeMachine after the race.

The timer is now ready to dump data into the computer. The data stay in a buffer until you are ready to read them into the ARJ files. In the meantime, you can go about other tasks in RaceDay, in particular entering ID numbers.

When you close a spindle of ID data, you are invited to read the times from the timer. Accept the invitation; the times and select times will then be listed on the preliminary results printout (see page 43). The times and select times are shown on the screen as they are filed away.

Dumping times after the race

If you are not able to get your computer close enough to the finish line to read times directly into it, you can read the timer after the race. If you had recorded some individual times by hand, you should zero out the TIMES file before reading the timer or its files; after selecting the "Times" option from RaceDay's Options menu (Ctrl+T), pull down the Edit menu to "Number" (Ctrl+N) and enter "0" for the number of times on file.

When you are ready to dump the timer, pull down RaceDay's Serial Port menu to "Open" and connect the timer to the serial port. Indicate the number of chutes and timer type on the dialog above and declare whether or not select times are to be included in the TIMES file. With a TimeMachine, click on the "Dump Data" button and

* Bug: RaceDay has problems connecting with built-in serial ports. It works best with USB serial adapters.

enter the TimeMachine's event number of interest if, as in a cross country meet, several events have been recorded in the machine.

For a TimeTech, the computer screen now says "Set up the timer to transmit now." Do not press the <enter> key yet. Reset the timer (for a Sprint 8, turn it off and on) and tell it you want to score a road race. Press any key on the computer to open the connection. Go back to the TimeTech and enter the number that indicates that you want to transmit times. When the TimeTech indicates the data have been transmitted, go to the "Read" option under the Serial Port menu and the data are yours.

For a Chronomix or TimeMachine, after you connect the timer and open up the Serial Port, go directly to the "Read" option under the Serial Port menu. Unless you elect to dump the times in the TimeMachine from the computer as described above, you then have to do something with the timer to get it to transmit its data:

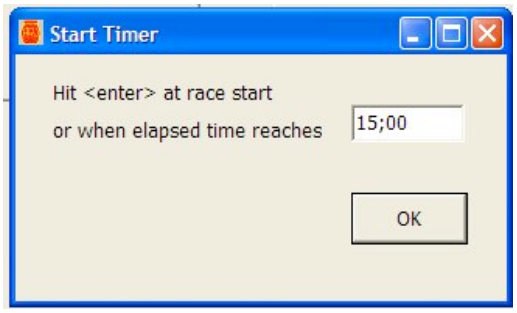
For the TimeMachine, press the SET UP key until the display shows "Setup Parameter/[RS232 PORT]." Then press the ENTER key. Next press the SET UP key so that the display shows "RS232 OPERATIONS/[RE-XMIT DATA]." Press the ENTER key on the TimeMachine. Depending on the model of your machine, the display may now say "Specify [PLACE#] To Begin Re-Xmit;" hit ENTER, then enter "1" for the place at which you want to begin transmitting (unless you have already transmitted some of the times). On newer models it suggests a starting time, and on older models it just dumps everything. The display on the TimeMachine will show the "transmit status."

With the Chronomix 737X, you must first end the race by pressing the "E" key and holding it down until an "EOR" message appears on the timer's display. After hooking the timer up to the computer, press "B". You should get a message "BAUD-1 MEMORY-3" on the display (if you don't, press the reset button and then press "B" again). Press 3; the message changes to "C-1 P-2 C/P-3". Press 1 on the Chronomix. The timer indicates it is transmitting data by changing the message to something like "STOP DUMP-0". When it is done, the message changes back to "BAUD-1 MEMORY-3".

"F-Key Timing"

Serial devices like the TimeMachine work very well, but they are expensive, and may not be within your budget if all you need to do is score one or two races a year.

If you are scoring with a laptop you can operate close to the finish line, Apple Raceberry JaM allows the entry of times into its files by using the F1 or F12 key on the computer.* These are far enough removed from the rest of the keyboard that you can have someone pressing one of these keys as the finishers arrive while you enter the finish order. Or you can have one person timing everyone with the F1 or F12 key and the other entering select times; see below.



To start the timer, pull the Times menu down to "Keyboard timer." A dialog will ask you the race time at which you will start the timer. If you are able to start it with the gun, accept the default of "0:00:00.00" and hit the <enter> key at the gun. If not, bring a watch that was started with the gun over to the computer, pull the Times menu down to "Keyboard timer," enter a time a little beyond the current race time, and hit <enter> when that time is reached. Once the timer is started, hitting the F1 or F12 key will cause a time to be added to the end of the TIMES file and displayed at the lower-right corner of the monitor.

For races so small that you can enter a select time for every finisher, you can use F-Key timing to completely create your results. After starting the keyboard timer as described above in the Times section of RaceDay, shift to the Select Times section. Click on the "Add" button. You'll be asked if you want to "Add IDs to ORDER file and times to TIMES file." Click on "Yes." As finishers arrive, enter their bib numbers in the left column of the form shown on page 47 and hit <enter> when they cross the finish line. That's it.

* With Windows 10, you may have to work with the "Fn key" to enable this operation; e.g., <Fn >+ <esc>.

Putting a lot of equipment at the finish line – computer and printer – may not be possible. And having two sets of fingers on the keyboard is not the way you may want to work. You can separate the tasks of timing and entering IDs/reporting results with the purchase (under $50) of a Logitech N305 Wireless Keypad. This is a Bluetooth device, which connects to the computer through a USB receiver (supplied with the Keypad) over short distances (several feet at least). Start the "Keyboard timer" as described above, and record times by hitting the "+" key on the keypad.

Manual Timing

If you can't use "F-key timing" and don't have a computer that can be set up as a timing computer, times must be recorded manually. If you use any printing timer, the data you need to set up the file of TIMES are printed on the tape. If, as we shall assume in most of the discussion that follows, you are entering times manually, the race director should have someone bring pieces of the tape over from the finish line to the computer operator along with the spindles of ID numbers.

If you are entering data manually, a simple sheet of lined paper suffices to record ID numbers and times by hand; "tic sheets" are unnecessary and usually harder to read. Again, these data should be brought over from the finish line periodically.

Timing with a Remote Computer

It's much more efficient to have a computer do the timing for you. If you have or can borrow a second computer, you can use that computer at the finish line and download the times to your scoring computer over a LAN ("local area network"). This allows the timing computer to record select times, too, so that it has all the capabilities of a special-purpose automatic timer like the TimeMachine. With Netbooks retailing under $300 and a keypad under $50, less than a third of the cost of a TimeMachine, this becomes economically attractive even if you have to buy a timing computer. See also the discussion above for using such a computer to assist with race day entries. Appendix A discusses the details of networking the computers.

The Windows application TheTimerAP is part of your package. Put a copy on the timing computer, in a folder that can be shared with your scoring computer. On starting up TheTimerAP you are asked to locate the TIMES file (it doesn't use either ROSTERN or ORDER). To create TIMES and IDENTIME files for a new race, click "Cancel." You are then asked to name the race (or finish line) for which you will be recording data. This creates a folder of the same name in which to hold the data in the folder containing TheTimerAP. You then specify the number of times you want to handle (default 512).

Once you have found/created the timing files, you get the "Start Timer" dialog shown and discussed above. After starting the timer, you are asked if you want to enter select times. Hopefully you have two persons assigned to timing, one to time every finisher and the other to enter IDs and times for specific finishers. If so, accept the suggestion and click on the entry form that appears to give it focus. Your (individual) timer is now ready to record times by hitting the F1 or F12 key (or, in fact, the "-" or "=" key) every time a finisher hits the line.

To record select times in TheTimerAP, accept the option to record select times that appears after you start the timer. An entry form like that on page 47 appears. When possible, your select timer then enters IDs of runners before they finish, and hits the <enter> key when they do. By using the keypad built into Apple Raceberry JaM (J=1, K=2, etc., see page 6), which works even if the computer's "num lock" option is off, the two timers can comfortably work together.

Even better is to use a Logitech keypad (very cheap, under $50), which sends the data to the timing computer wirelessly (via BlueTooth). Simply enter the ID on the keypad and hit <enter> when the runner arrives. You can also use a second keypad to enter individual times by hitting the "+" sign when they cross the finish line.

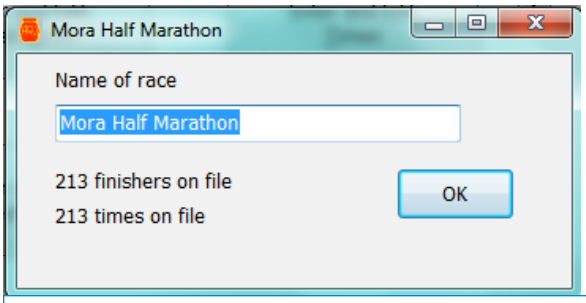
One important caveat: to enter the select times, be sure the focus is on the select times dialog. You should see them being recorded as they are entered. If not, click on the dialog.

If, as at a cross country meet, you have more than one race to time, click on the "Change results files" button when you want to switch. Then enter the name of the new event.

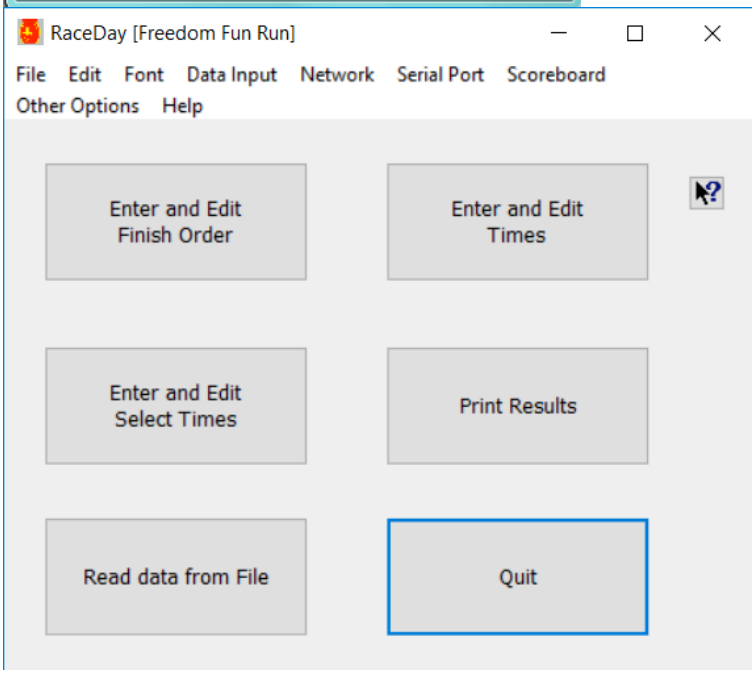
Program RaceDay

To score a road race or cross country meet, only one program is required: RaceDay. Click on ARJMenu's "Results Entry & Output" button and select the first item. Then locate ROSTERN in the race directory as usual (see page 4) and open it up. You can

elect to show age-group abbreviations with the class place (why not?). If you have multiple races, you will then be asked to locate the ORDER file for the race of interest. It is in one of the results folders you opened up (see page 8, 9 or 37).



You will then be asked to name the race or finish line. The default is based on what you named the race folder, concatenated with the name of the results folder in which you found the ORDER file in races with multiple finish lines. This name will be printed at the top of preliminary results from the Finish Order part of RaceDay and of the "Check times" output by the Select Times part, so you can tell what race or, in a multi-finish line race, what finish line the printed results came from, and is the default title for printing out final results. The dialog also shows how much data have been recorded. Initially, of course, those numbers are zeroes.



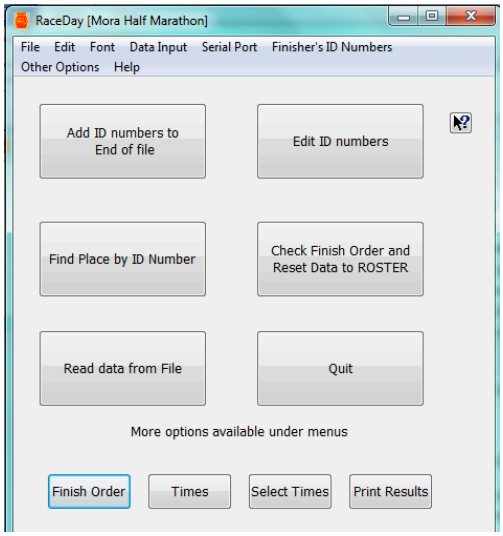
You are then shown the major options of program RaceDay.

If you have a web site to which you can upload results, and have Internet access during the race (perhaps through your smart phone), it is a good idea to run RaceDay before the event and set up some files that can automate the process of sending them up; see page 66.

The Finish Order

If you are networked with a computer that is running TheTimerAP, first pull the Network menu down to "Get times from remote computer after entering data." Similarly, if you are connected to a TimeMachine, establish a connection as described above, and if you are using keyboard timing, click on the Times button and pull the menu down to "Keyboard timer." That's all you have to do for now.

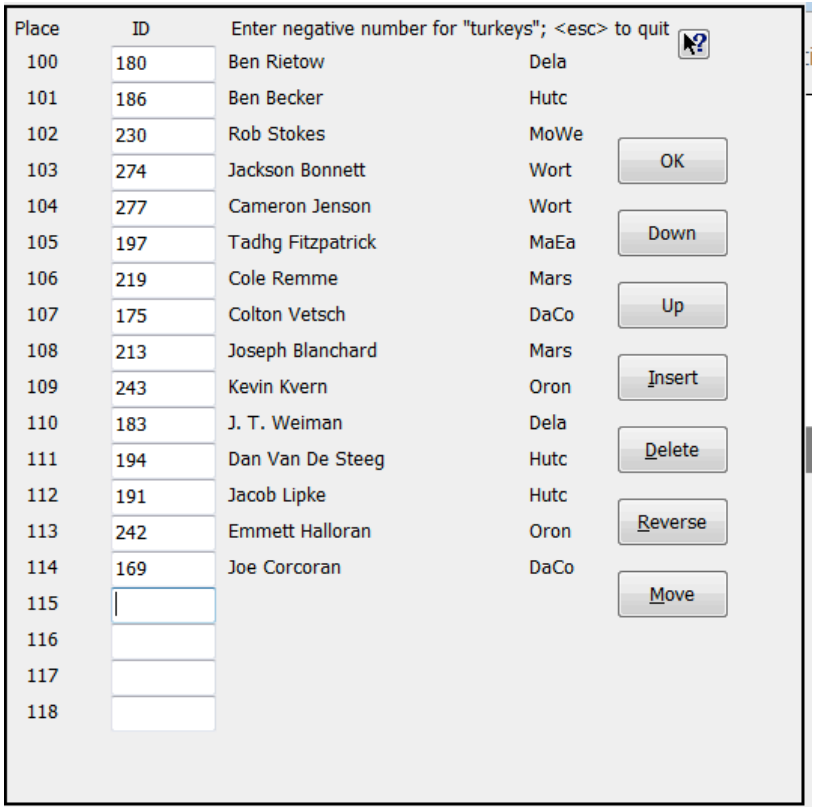
When you click on the "Finish Order" button (ctrl-O), a new Finishers' ID Numbers menu appears on the menu bar and a new set of buttons on the main window.



Recording Finishers

To record finishers, pull down the Finish Order menu to "Add" or type Ctrl+A or click on the "Add ID numbers" button. You are then told what the number of the last spindle input was and asked what is the number of this one. This is to help you input them in order. The locations of the spindle breaks are stored and printed out on various lists (a spindle printout, see the sample in the Appendix; you can get a similar list when you click the "Check" button), to assist in resolving problems like a mislabeled spindle or one read in reverse order. You are also asked

at what place to add the data. Naturally, the default is the place after the last runner you input.



A data entry window (shown at left) now pops up. Input the ID (bib) numbers of the finishers in the boxes that appear. Type a negative number in case of a turkey. To advance from one place to the next, hit <tab>, <enter>, or a down-arrow. To go backwards, use <shift-tab> (hold the shift key down while pressing <tab>), the up-arrow or the mouse.

If an error is detected, the program gives you a message. On seeing such a message, your first step should be to reexamine the tag from which you got that number. If you simply misread it, use the mouse (or up arrow) to select the mistaken entry and correct it.

Number out of range indicates that the ID number is outside the range you established when you opened up the ROSTERN file (page 7 or 8) and possibly modified with the help of programs SetData and/or Expand. Such errors indicate a lack of communication with the meet director; you should know what numbers were available! If the name, age, and sex of the runner are written on the tag, you can correct the out-of-range error, but only by closing RaceDay and going to program SetData to expand the ROSTERN and related files; see page 14. Then, when you come back to RaceDay, you will have to reenter the Finish Order part of the program, choose its "Edit" option (Ctrl+E) and retype the troublesome ID number, and then enter the runner's data via the dialog shown on page 36 (if you didn't already fix it in SetData).

The other types of errors shown can (and should) be fixed in RaceDay. No name entered for this ID usually indicates a registration error; entry forms often get lost on the way to the computer on race day. Double-click on the ID number for which no name is known. That brings up the form shown on page 36 in which you can enter the most essential information (name, age, sex, team, city, division code, PR), some of which may be on the finisher' tag. Or you may find an entry form with the runner's name on it but no indication as to the number the runner was assigned; now you know.

Similarly, you will get a No age for this runner message if a name was recorded for the ID number but no age was entered (unless in opening the files you did not declare that ages would be recorded). Race day entrants sometimes neglect to fill in their forms completely, but the age may be recorded on the finisher's tag.

If the number was used before this place, and the current entry is correct, the previous one must have been wrong. The first place at which it was used is indicated in the message. If that place was on a previous spindle, you will have to wait until after entering the rest of the ID's on the present spindle before retrieving the previous spindle and correcting it with the "Edit" option (Ctrl+E), which looks just like the "Add" option.

After entering all the ID numbers on a given spindle, you should go back to the beginning and check your input against the tags on the spindle (although, if you can get volunteers to do the checking for you, you can accelerate your output considerably; see below for using a spindle printout for this purpose). Especially when it's wet, they may stick together, causing you to miss one. If there were more tags on the spindle than can be shown on the screen, scroll back to the beginning of the spindle by clicking on the "Up" box. Click on "Down" when you have reviewed all the ID numbers shown to get to the next page of ID numbers.

If you find you missed an ID number, you can insert it on the spot, as follows. Click on the place where you need to insert it, and then on the "Insert" button. The dialog assumes that you want to insert some data in the ORDER file at the place where you

clicked (but check to see that it's right), and asks how many lines you want. After you tell it, the program will insert a "-1" (as for a turkey) at each line. Type in the missing ID number. If you insert a single ID, you may be asked if you want also to insert a time at that place, by interpolation. That might be appropriate after the race, or in a chip race where the runner's chip was not recorded (see page 53 for an easy way to enter IDs and times after finishers have been recorded). Similarly, you can delete an erroneous ID number by clicking on it and then clicking on the "Delete" button. In such cases you may be asked whether you also want to delete the time entered for that place. Probably not if you're entering IDs manually.

Sometimes a husband/wife/parent/sibling will inadvertently switch their assigned numbers with their partner. An item under the Finish Order menu allows you to "Switch places of pair of finishers;" you simply enter their ID numbers.

Preliminary Results

In cross country you can probably wait until the conclusion of each race before you leave the ID entry process (unless you're sending results to a web site or scoreboard during the race; see page 66). In road races you will want to interrupt the process (after each spindle is a convenient time) to post preliminary results.

When you are satisfied that you have correctly entered the data on the present spindle (or have volunteers ready to check your work for you), quit entering data by clicking on the "OK" box or typing <esc>. If you are networked with a computer that is running TheTimerAP, or are connected to a TimeMachine or the like, you are invited to "read" in the times before printing anything out. The results of the runners on this spindle are then printed out; see the sample at the end of the manual. If you didn't already check your entries against the spindle on screen, pass this printout on to a volunteer who will do so.

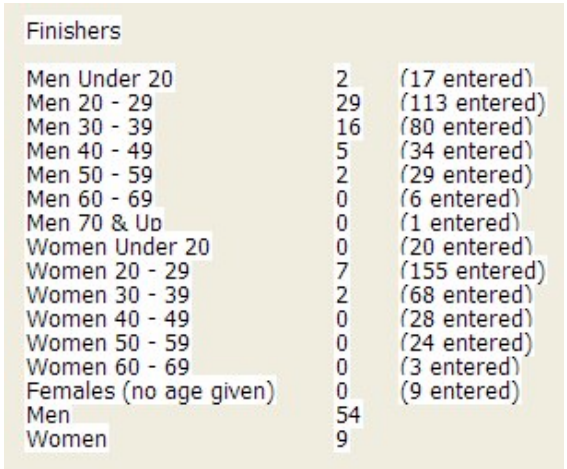
To the extent that the times of those runners are on file, they will be listed on the printout, too, which can be posted to provide very rapid results. Similarly, if select times are on file, they will also be listed beside the individual time for the runner whose ID number was entered by the select timer. Comparing the two times will help you detect timing and tag collection errors; see pages 46-49 on "Using Select Times."

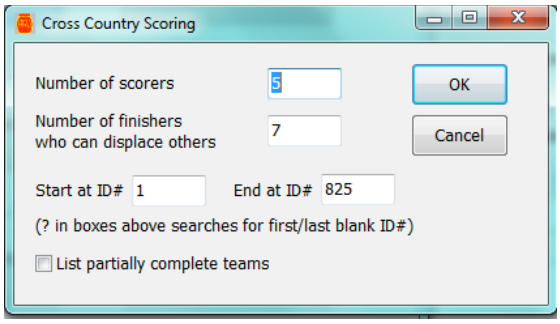
If you are using KEYCODES to flag runners in different divisions, you can list their divisions in the preliminary results by using lower-case codes for divisions of interest; see page 12.

The spindle printout will flag runners for whom no age is on file (assuming you are tracking age or year in school). If the age is shown on the runner's tag (as is often the case for a race day entrant who did not enter his/her age on the entry form), use the "Edit" option to enter it as described above.

The number of the spindle is shown on the printout and the location of the end of the spindle is stored (in a file called "SPINDLES"). Printing out the data entered spindle by spindle will help you locate errors of which become aware later. If you find there is a problem with runner number 1038, for example, you can find his place in the finish order by using Finish Order's "Find place by ID" option (Ctrl+F), and then find out what spindle his/her tag is on by looking through your printouts.

In road races, the numbers of finishers recorded thus far in each age group are now shown on the screen. This gives you a clue as to when you have enough data on file to print out results for the awards ceremony. If you are still short, simply go on to the next spindle, typing Ctrl+A or pulling down the Finish Order menu to "Add" or clicking on the "Add ID numbers" button. In some of the age groups, there may not be enough entrants to take all the awards. Thus the display also lists the number of entrants in each age-sex group.





In cross country, after entering each batch of finihsers you get an option to print out "preliminary XC team scores;" i.e., scoring by place with displacement, as opposed to scoring by time which is used in road races. The scoring is based on finishers recorded. As indicated in the dialog at left, you can, if you choose, list the numbers of finishers in teams that are currently incomplete. Although the scores are based on the assumption that eventually all teams will be complete (runners on incomplete teams do not affect the placing), it is usually quite accurate.

PLACE	TEAM	POINTS	SCORES					
1	Grantsburg	23	2	3	4	5	9	14
2	North StPaul	53	7	8	10	13	15	16
3	Webster	92	1	17	24	27	28	
	Teams not yet complete							
	Shell Lake	1 in so far						
	St Croix Falls	4 in so far						
	Spooner	0 in so far						
	Unity/Luck	4 in so far						
	Unity MS	0 in so far						

If you wish, you can print or reprint the preliminary results later. To create a list of finishers (with spindle breaks indicated), pull down the Finish Order menu to "Check finish order" (Ctrl+C) or click on the "Check" button, declare that you do want to print out the "details" of the results, and specify the starting and ending places of your printout.

Finalizing the Finish Order

Before finalizing your results, pull down the Finish Order menu to "Check finish order" or click on the corresponding button. This will display any errors you may have missed (duplicate ID's, blank names, etc.). You do not need to click on the "Print results in detail" box for this purpose.

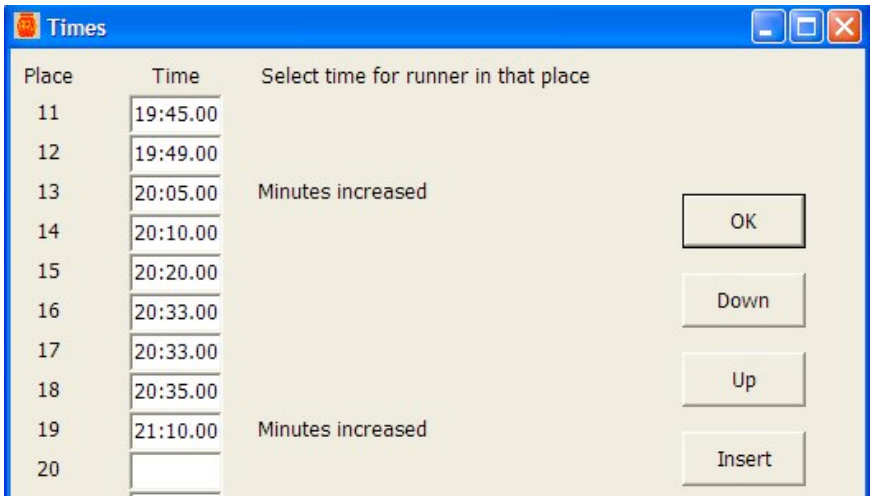
The Times

As indicated above, entering the finish order is usually first in priority, since you can identify the age-group winners (and score teams by place) without knowing their times. However, runners are interested in their times (and sometimes in their rivals' times), so the more you can print out by the time of the awards ceremony the better. This is no problem if you are downloading times from a serial device like the TimeMachine or a networked computer. After each spindle, you simply accept the option to update your times files and there they are, along with select times that help to confirm the accuracy of the results; see pages 46-49. You might also use the "Print Results" option (discussed in detail in the next chapter of this manual) during the race to the extent you can, especially in longer races, for which the lower rate of finishing permits it and the long time between the arrival of the first finisher and the award ceremony demands it.

Entering Times Manually

If you must input times manually, you should go back and forth between the Finish Order and Times parts of RaceDay, at least until the spindles start to pile up.

Pull the Data entry menu down to "Times" or type Ctrl+T or click on the "Times" button on the desktop. A "Times" menu then appears on the menu bar and the desktop buttons change appropriately. Click on the "Add Times" button (ctrl-A) or pull the Data entry menu down to "Add results data." You are asked at what place you want to add times, the default being the next available place. The entry form shown at left now appears.



For the first finisher, enter the time with the usual colons (or semi-colons; quicker) separating the minutes and seconds (and hours and minutes, if it's more than an hour) as you would expect: 15:22.3, e.g. After the first finisher, the program will remember the hours and minutes of the previous finisher, which speeds up the rate of data input. If the next finisher's time is

less than a minute more than the last time recorded, you need only type in the seconds. If the seconds are less than the seconds part of the last time recorded, the program assumes that the minutes have increased by one. Thus, to enter the data shown above, one enters 45, 49, 5, 10, 20, 33, 33, 35, and 10.

When there is more than a minute between successive finishers, you type the minutes and seconds (and hours if it's more than an hour). But you can then use a semi-colon rather than a colon.

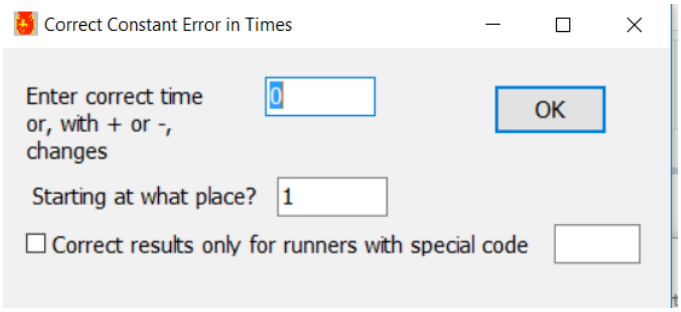
After typing in each time, press <enter>, <tab> or the down arrow to get to the next one. Hit the <escape> key or click on "OK" to terminate data entry.

This procedure applies only when the time is being added to the end of the TIMES file. To edit a time already input, click on it, and then correct the seconds, minutes and/or hours part of the time by the usual drag-delete-type procedure, (re)entering it with colons (or semi-colons; again, the ARJaM programs assume a semi-colon is supposed to be a colon but that the shift key was not pressed "by mistake").

One disadvantage of this system is that an undetected error can mess up subsequent entries as well. That is, if the last time was 58:40 and the next time is 59:45, you might type "45" and so get 58:45. Once you catch the error, simply scroll backwards though the data entry window by clicking on the up-arrow until you locate the erroneous entry and fix it as described above. Now move to the next time and pull down the Times menu to "Fix propagated error." The times after the erroneous entry will now be redone as if the seconds part of each of those times were entered.

To terminate adding times, click on the "Quit" box or type <enter>.

Adjusting Times



There are situations in which all the times are off by a fixed amount. For some races, the "official time" of the first finisher is collected by a timer different from the one used to generate the finishers' times. Also, in chip timing, the chip reading device may be supplying times as time of day, and so need to be corrected by manually entering the time of the first finisher, e.g. (see page 52), a source of error. RaceDay has an option under the Times menu, "Correct constant error", that may be used in such cases. You can either enter the correct time (with colons and decimals) or add (or subtract) any given number of seconds (put a plus or minus in front) to all the times, starting at any place you specify. Note the option to handle races in which different divisions started at different times.

Sorting IDs and Times by Time

An item under the Other Options menu allows you to "Sort IDs and times by time." Since the IDs and times are generally entered in order of finish, this item is seldom useful. However, occasionally one has to adjust a runner's time; e.g., in triathlons and bike races penalties are sometimes assessed. You can simply use the "Edit" item under the Times menu to change the time, and then use the "Sort" item to move both the corrected time and the corresponding ID number into their proper places.

But see also "Editing Results After the Race" on page 53. It's quicker to enter the correct data as a select time. The new data will wipe out the old and be inserted at the proper time.

Adding Missed Runners

Also, after the race you may be convinced that a runner's tag blew away or was otherwise uncollected, and accept some estimate of his/her time (you may have a select time for that ID). In chip races, the runner may have lost the chip enroute, or not fastened it to his shoe, or it may have failed. If you know the place of the missed runner, you can go to the Finish Order/Edit menu and insert the runner's ID at the proper place. If the numbers of finishers and times are the same, you will be asked if you also want to insert a time at that place, which would be done by interpolation.

See page 53, "Editing Results After the Race," for making corrections when you know the missed runner(s) time(s). The select time trick mentioned above is fast and accurate.

DQs and DNFs

In some cross country meets it is important to note runners who did not finish, and you may wish to report those who were disqualified. To do so, simply enter "DQ" or "DNF" for their time.

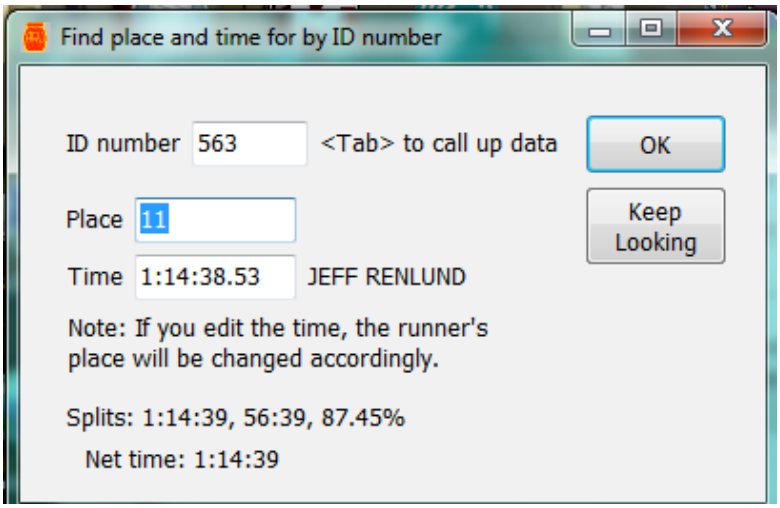
DNFs should be listed in the results at the end of the finish order. Simply enter their IDs after the runners who finished the race and the time of "DNF" at the same place. You may learn of a disqualification after the runner's ID number is already entered, at place "N," say. If you simply edit time number N to "DQ," the runner will still be listed as coming in in place N. That may not be a bad thing, but, if you prefer to list the DQs at the end of the finish order, use the "Sort IDs and times by time" item discussed above.

If you scored the race before entering the DQs, those runners may be given team points. To correct this, you will have to re-score the teams.

Coaches have been known to whine when their runners are disqualified, sometimes successfully. Make a note of the times of DQed runners before you change those times to "DQ." If you've already sorted them to the bottom of the finish order, restoring their times and then using the "Sort IDs and times by time" option will put them back in their proper position. You may then have to redo the scoring, too, as noted in the preceding paragraph.

Finding a Runner's Place and Time

Editing a Runner's Time and/or Data



You may be asked to find out whether a specific runner has finished, or to edit his time or basic info. If you know the runner's name but not his/her ID number, pull the Other Options menu down to "Find runner's ID by name" item, which is similar to that available in SetData, see page 24. You are then asked if you want to find the runner's place and time. Initially the dialog at the right has only the runner's number filled in. Follow the directions: hit a <tab>, and the name, place and time are filled in. As noted in the dialog, you can correct the runner's time at this point, and his place will be changed if necessary. The race illustrated was chip timed; hence splits and net times are shown.

You are then asked if you want to edit any data on the runner. If so, you get the dialog on page 36, and can edit the runner's name, age, sex, team, division, and PR, which may be important for scoring (see page 81).

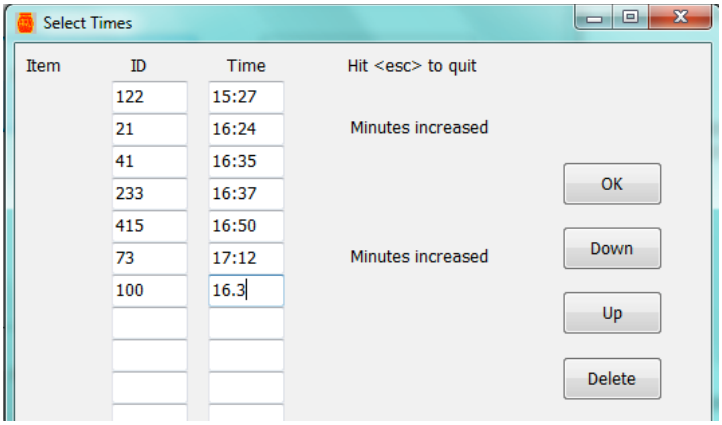
When you know the ID number, pull the Other Options menu down to "Find runner's place by ID." That will bring up the dialog above and you go through the same subsequent options.

If the ID number is not found in the finish order, RaceDay also searches the list of select times. If a select time was recorded for that number, the place is shown as "unknown" but the time is reported. This can be helpful if the runner's tag was lost or not recorded. See the discussion above under "Adding Missed Runners."

Select Times

Select times are entered with a procedure very much like whatever is used for times. If you are networked with a computer that is running TheTimerAP, or are connected to a TimeMachine, they can be downloaded after you close each spindle of ID tags, provided they are being recorded by those devices.

Entering Select Times Manually



To enter them manually, first pull down RaceDay's Data entry menu to "Select times," click on the "Select times" button or type Ctrl+S. A Select Times menu appears on the menu bar and new buttons on the desktop. Click on the "Add Select Times" button (ctrl-A) or pull the Data entry menu down to "Add results data." Enter an ID, then hit <tab> or <enter> to get to the time box. As with individual times, RaceDay remembers the hours and minutes of the previous finisher, which speeds up the data input. If the next finisher's time is less than a minute more than the last time recorded, you need only type in the seconds. If the seconds are less than the seconds part of the last time recorded, the program assumes that the minutes have increased by one. To get the times shown above, one enters 24, 35, 37, 50, 12, and 16.3 (select times are stored only to whole seconds, but when the data are being stored in the finish order and times files, too – see page 53, "Editing Results After the Race" – the times are stored as input).

As noted on page 6, ARJaM has a keypad built into the software. Thus an entry of "L7" for the time of runner #233 would be translated as "37" and produce the time of 16:37 once the <tab> or <enter> key is pressed.

Move around from one item to another with the mouse or arrow keys when you need to edit something. As with times, when editing a time you need either to enter the colons or to edit around the existing colons.

To delete a select time, pull the Select Times menu down to "Delete" (Ctrl-D) and enter the time. All this does is to set the time part to zero. It is never necessary to insert a select time, since the program sorts all select times on file before using them; you just tack new data on to the end of the list.

To terminate adding select times, click on the "OK" button or hit <esc>.

Using Select Times

Select times can be used in several ways:

1. To provide approximate times, by interpolation between select times. This can be useful for large races, in which the individual times may be unreliable (until corrected with the help of select times), temporarily unavailable (because they will be input by hand), or missing entirely (because of a timer failure).

2. As a check on the order of finish. Select times are recorded at the finish line, whereas the "finish order" is based on data taken at the end of the chute. Runners do get out of order in the chute, spindles are sometimes labeled out of order, and spindles may also be read into the computer in reverse order.

3. As a check on the order of times. This is the primary function of select times. The person recording individual times may have pressed the switch too often or too seldom, and results for non-winning finishers are not acceptable for age/sex group records without the support of select times.

4. As the source of both the finish places of individuals and their times. See "Editing Results After the Race" on page 53.

Checking the Finish Order

The "preliminary results" discussed on page 43 list IDs, times, and select times: all the info you need to check the finish order. To get complete results in that format, "Check Finish Order" item in the Finish Order part of the program (ctrl-F to get to that part and then either the first item under the Finish Order menu or the middle button on the right). You do want to print out results; doing them to the monitor is good enough for an initial check.

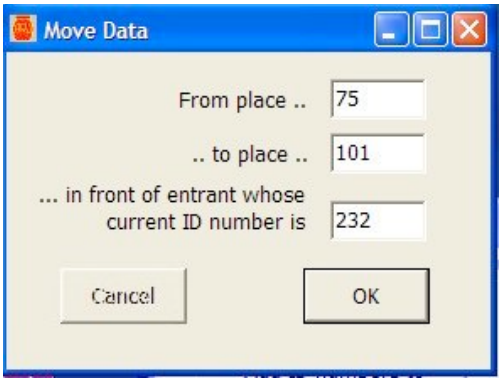
ID#	PLACE	AGE	CLASS SEX	CLASS PLACE	NAME	TEAM	TIME	SELECT TIME
11	1	32	M30	1	MATT GABRIELSON	Team USA MN	14:23	14:24
112	2	25	M20	1	CHRIS ERICHSEN	Collegeville	14:38	14:40
10	3	23	M20	2	DAN GREENO	Run N Fun	14:58	15:00
7	4	36	M30	2	JOEY KEILLOR	TC Running Company	15:00	
168	5	26	M20	3	CORY HAYDEN	Run N Fun	15:09	
42	6	24	M20	4	MATTHEW BOUMEESTER	Run N Fun	15:10	15:23
8	7	24	M20	5	BEN KAMPF	Run N Fun	15:13	15:15
205	8	24	M20	6	BRENT KANN		15:15	15:17
323	9	24	M20	7	PHILIP RICHERT	Run N Fun	15:17	15:19
272	10	31	M30	3	BEN MERCHANT	SLAB CITY RUNNING CO	15:19	
482	11	35	M30	4	Chris Lundstrom	TC Running Company	15:19	
418	12	25	M20	8	MATT WEGMANN	Run N Fun	15:25	15:26
273	13	28	M20	9	JEFF METZDORFF	Run N Fun	15:36	15:37
299	14	22	M20	10	KYLE NEUMANN		15:44	
339	15	24	M20	11	BRIAN SAMES	Gear West Racing Team	15:45	
252	16	34	M30	5	MICHAEL LITTLE	Run N Fun	15:45	
324	17	23	M20	12	CHRIS RIVERS	Collegeville	15:45	
351	18	27	M20	13	BEN SCHNEIDER		15:46	
332	19	35	M30	6	PATRICK RUSSELL	TC Running Company	15:55	15:56
146	20	23	M20	14	KEVIN GROH	Run N Fun	15:56	
492	21	27	M20	15	John Maresh	Collegeville	15:56	
36	22	48	M40	1	PATRICK BILLIG	Run N Fun	15:58	
285	23	40	M40	2	KELLY MORTENSON	Run N Fun	16:00	
177	24	24	M20	16	TYLER HINRICHS	Run N Fun	16:03	
433	25	21	M20	17	COLIN ZAUNER		16:04	
114	26	31	M30	7	JEREMY ESSLER	TC Running Company	16:06	
28	27	28	M20	18	AARON BEABER	Collegeville	16:08	22:27
385	28	22	M20	19	ERIC THIES		16:08	
315	29	24	M20	20	JASON PHILLIPPI	Gear West Racing Team	16:09	
132	30	28	M20	21	CORY FUSCO		16:09	24:20

Terminate List Continue

The important things to check are whether the select times (the times in the far right column) keep on increasing with the runners' places, without taking a sudden jump up. Some judgment is required here: these select times were entered manually on an external device, and not always accurately. For example, the select time of 15:23 recorded for runner #42, who finished at 15:10, probably belongs to runner #482.

You may spot a couple of instances of successive select times being out of order; e.g., if the select time for place 75 is faster than that shown for a previous place. This may indicate that the runners got out of order before they turned in their tags; select times are recorded at the finish line and tags are collected at the end of the chute. However, it may also have been an error in entering the select times. If you decide you want to switch them, wait until you edit the times (see below). It will be much easier (and safer) then.

If you see a long sequence of select times decreasing with place, check the spindle which was the source of those IDs. It may be because the tags on the spindle were entered in reverse order (I had a meet once where the volunteer realized he had been putting the tags on the spindle upside down, printed side up, and so took all the tags off the spindle and put them back on printed side down but in reverse order). This is easy to fix. Pull the Finish Order menu down to "Reverse order of IDs" and enter the places of the first and last runners on the reversed spindle.



If the select times jump up by a few minutes for a sequence of runners and then jump back down, a spindle may have been read out of order (or was used in the wrong sequence). This is a problem that sometimes occurs in multiple-chute races. Note the places of the first and last runners on the misplaced spindle, and the ID number of the first runner on the spindle that should have been entered after the misplaced one. Pull the Finish Order menu down to "Move finish order data" and enter those data into the dialog like the one at left.

The worst case is where just <u>part</u> of a spindle is out of order. This happens in multiple-chute finish lines when a spindle is reused after the chute for which it was first used is closed and then reopened. It's very hard to determine exactly at what point the chute was closed and where the reuse began. Although it may be too late to do anything about it, it may give you some satisfaction to yell at the person supervising the tag collection.

Such problems can be minimized if the spindles are handed out at the head of the chute (near the finish line) and, when a chute is closed, a "plugger" is sent down with the next spindle to be used behind the last runner in that chute.

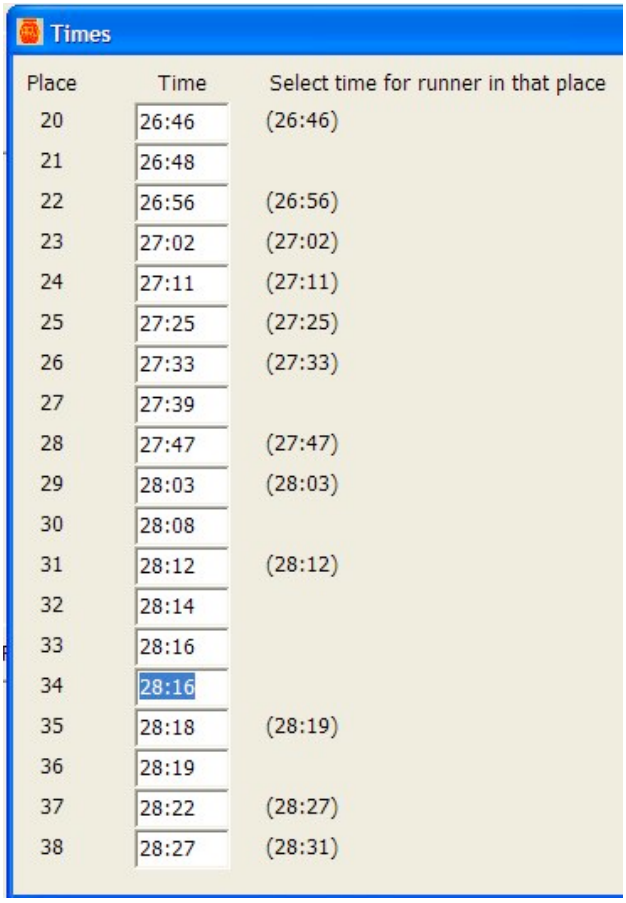
Rather than eyeball the output of a "Check Finish Order" operation and search for problems in the order of finish, you can pull the Select Times menu down to "Check times and order." Basically this mechanizes the operations discussed above. An output like that shown at right suggests a reversed spindle for places 204-219, and a spindle out of order for places 260-308 (which is pretty close to how the errors were introduced). If you are downloading times from an external computer after each spindle, the eyeballing approach is appropriate.

CHECK OF ORDER OF FINISH

Select times decreasing at place 141
Select times decreasing at place 204
Select times decreasing at place 206
Select times decreasing at place 208
Select times decreasing at place 210
Select times decreasing at place 211
Select times decreasing at place 212
Select times decreasing at place 215
Select times decreasing at place 216
Select times decreasing at place 218
Select times decreasing at place 219
Select times take big jump at place 260
Select times dropped back at place 308

Editing the Times

When you are satisfied that the finishers have been entered in the correct order, you are in a position to check the timing. It is hard to hit a button once and only once for every finisher.



Click on the Times button (ctrl-T) and then on "Edit Times" (ctrl-E). Start viewing the times at place 1. The select time for a runner who finished in a certain place is shown on the same line as the individual time recorded for that runner. In the picture shown at left, you can see that the times and select times match up pretty well until between places 32 and 35. After that the individual times are evidently off by one place. You can bring them back into sync by deleting a time in that range. (Disclosure: the display was created by inserting a time at place 35.) Similarly, you can detect cases where the timer failed to push the button and so insert a time at a place that will make subsequent times match up with select times.

To insert a time, click on the place where you want to do the insertion and then on the "Insert" button (not shown at left). You'll be asked how many times you want to insert and to confirm the place where you want to insert them. Times will be interpolated between the existing times before and after the insertion. Caution: make sure the place is correct. Sometimes it is not recorded correctly if you don't click hard enough on the place you wanted the insertion.

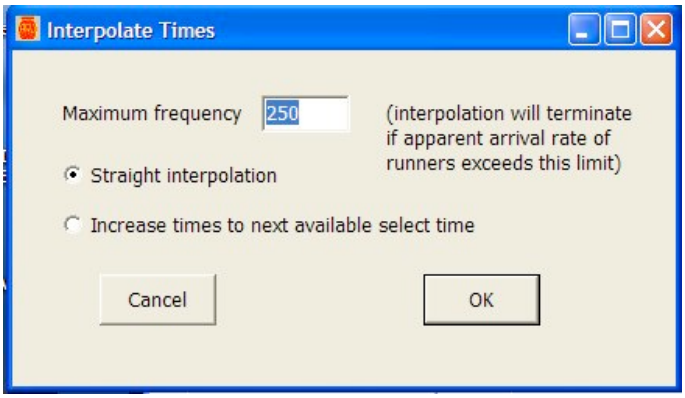
If you need to delete a time, click on the place where you want to do the deletion, then on the "Delete" button, and enter how many times you want to delete and confirm the place where you want to delete them.

The apparent necessity to delete a time could be due, not to the timer clicking the button too often, but to a missed finisher. Therefore, after indicating you wish to delete a time, you are asked if you instead want to insert blank lines (turkeys) in the finish order. If you later find the missing finisher(s), you simply change the negative number(s) to runners' ID's. The default is to insert blanks in the finish order rather than delete times if only one time is being deleted.

If you have select times on the runners who finished one behind the other, with the select time of the second one less than that of the one in the lower place, and you trust the select timer, you can use this display to reverse their finishes. Click on "Reverse" and then enter their places. You could also use the "Move" button to take care of a misplaced spindle, but you would have to know the ID number of the runner in front of whom the IDs on that spindle should be.

Interpolating Times

Hopefully you'll never have to use this option. It could be handy if your timing failed, but you were able to record select times (manually), or if the person doing the timing completely screwed it up (I remember one who clicked the button as soon as she saw the runner rather than wait for them to finish). At least it's easy.



Go to the Select Times section (click on the button or type Ctrl-S) and pull the Select Times menu down to "Interpolate times." The dialog at left asks for a "maximum frequency." This refers to the rate at which runners finish, which is estimated by the difference between the times at which the select timer recorded them divided by the difference in the places of the runners whose ID is part of two sequential select times.* A typo in the ID can give a runner who finished long before the time at which it was recorded a select time long after he actually finished, leading to ridiculously high frequencies. The "Straight interpolation" option is usual, although increasing the time

* Actually this is the inverse of a frequency, but I've been using this nomenclature for 30 years and still can't think of a compact way to say it.

to the next available select time is required by USATF rules. You can probably accept the defaults.

ID#	TIME	PLACE ACTUAL ID	FOR THAT FREQUENCY	
370	14:54	1	0	
				370 FOUND AT PLACE 1
1	15:10	2	3	
142	15:14	5	45	
2	15:16	6	30	
382	15:21	7	12	
107	15:26	8	12	
349	15:34	10	15	
7	15:37	11	20	
				3 NOT FOUND AFTER PLACE 11
118	15:44	15	34	
208	15:50	19	40	
235	15:55	22	36	
33	16:02	27	42	
374	16:07	28	12	
402	16:10	30	40	
246	16:14	31	15	
234	16:17	32	20	
81	16:22	33	12	
72	16:31	37	26	
147	16:35	38	15	
71	16:39	44	90	
				71 FOUND AT PLACE 44
334	16:49	46	12	
238	16:53	49	45	
254	16:58	52	36	
64	17:04	54	20	
46	17:10	57	30	
77	17:15	61	48	
				1 FOUND AT PLACE 2
243	17:28	67	27	
59	17:41	72	23	

RaceDay now goes through the select times, looking for the place of the finisher whose ID the timer recorded. If there are no individual times entered, RaceDay sets the first finisher's time equal to the first select time. After that, when a finisher's ID matches what the timer recorded, times are interpolated between that runner's place and the place of the last runner found. Note that the display at left shows you when an ID is not found in the finish order and also when it is found, but at a place before that of the corresponding time.

Regardless of which version of interpolation you employ, its use furnishes a check on the finish order, because the search for the place in ORDER of the ID begins at the place of the last time on file. If an ID is not found after that place, it may simply be due to a transcription error, either on your part or at the finish line, but it may also be that the runner to whom it belongs was recorded as finishing earlier than the runner to whom the previous select time belonged. Since select times are recorded at the finish line, whereas the finish order is based on tags collected at the end of a chute, this indicates an error in ORDER. However, you may or may not be able to do anything about it. If the runner whose ID was found before the last select time shows up in ORDER immediately before the runner whose ID was in the previous select time, fine, just switch those two finishers around in ORDER by using RaceDay's "Fix reversed IDs" option (see below). But if there were several finishers between the two selected runners, it's hard to say whether the first one got lost on the way to the end of the chute or the second one jumped ahead.

If the apparent frequency of the finishers is too high, you are asked if you want to delete the select time just read and to continue interpolating at the last place where the interpolation was not problematic. I can't think of why not.

That's it.

Changing Finish Lines/Races

Especially in cross country, you may have to process several separate races in succession. When one is done, pull the Other options menu down to "Get another set of results" (ctrl-G). You'll be asked if you want a new ROSTERN; probably not. Then find the folder in which the next race's results are stored. The dialog is asking for an ORDER file, but it's usually nough just to click on the folder and hit <enter>.

If you are networked to a remote computer running TheTimerAP, you'll be asked at this time to locate the folder on that computer in which the new race's times will be stored.

Merging Results from Multiple Finish Lines

Manual timing becomes problematic when finishers come in too frequently to capture accurately; i.e., when the race gets large. Before chip timing, the solution was to operate multiple chutes, each timed independently and each with its own set of spindles and tag collectors, and then to merge their results on the basis of time. Although that is now ancient history, there are still occasions when merging the results of separate races/finish lines is necessary. I have one chip race that requires two chip systems to handle the start; the start line is too wide for one system. I time each start in two separate folders and then merge the results. For billing cross country meets, I merge the results of the different races rather than add up the finishers in each.

The "Merge data" option of RaceDay can merge any two sets of results on the basis of finishing time. First be sure that both sets of results are correct.

After pulling down the Data Entry menu to "Merge data" (Ctrl+M), you are asked to locate the ORDER file of the finish line whose data you want merged with the data from the finish line on which you are currently working. Suppose that the results files for men are in directory "Men" and those for women are in directory "Women," and that you are in RaceDay working on the men's results. Call up the "Merge data" option and locate the Women's ORDER file (it's important in this case to actually click on ORDER). The ORDER and TIMES files from the "Men" directory will be kept in the "Men" directory but renamed as ORDERA and TIMESA, respectively, and the merged data will be put in the "Men" directory as ORDER and TIMES. If you merge the data from more than two finish lines, simply recall the "Merge data" option and click on the

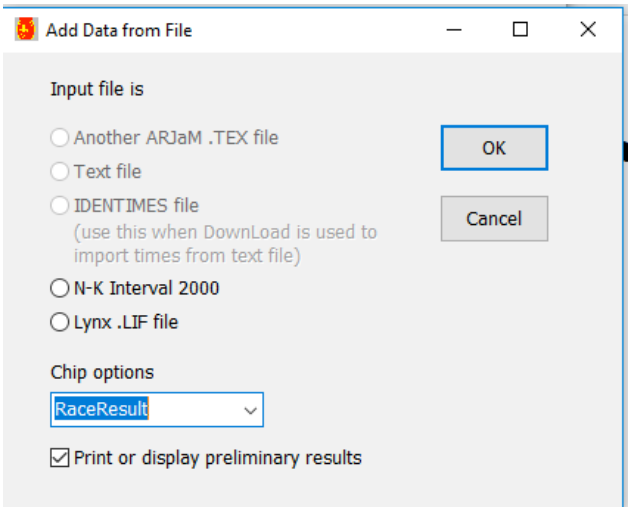
ORDER file from another finish line. The data from each successive merge will be saved each time in file pairs ORDERB and TIMESB, ORDERC and TIMESC, etc. Thus you will not lose the unmerged data; they will still be available if further corrections are found necessary. Since RaceDay can open up files ORDERA (or any other file that contains the string "ORDER") and TIMESA, you can leave them in the Women's directory.

RaceDay keeps you informed of its progress by printing out the place, runner number, and time of every tenth runner in the merged file on the screen.

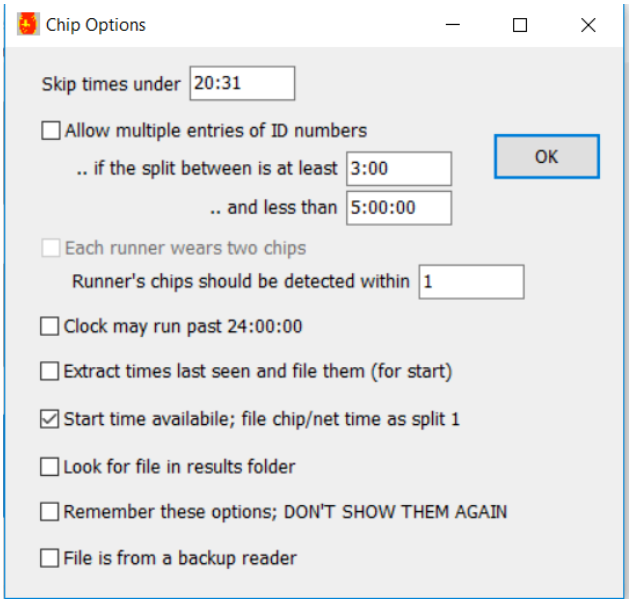
The merged files are always sized large enough to contain the two sets of files you are merging.

Uploading Results from Chip Systems and Other External Devices

ARJaM is compatible with several chip systems: Championchip/MyLaps shoe and bib chips, DAG, Jaguar, IPICO, Chronotrack, Bibs Bolt, RFID Race Timing, Race Results: the list keeps growing. To use it with Championchip/MyLaps shoe chips and IPICO/Trident requires a special interpretative application ChipData, but the others can be handled with RaceDay as is. Appendix B deals with certain special aspects of the IPICO system (which I used for 10 years) and Appendix D with race | result (my current system).



Most of these systems create a file containing results in a format special to the system. To read these files, pull the Data Entry menu down to "Read results data from file" (or type Ctrl-R or click on the "Read" button on the desktop). The first three options in the dialog at right appear only if you first declare (by typing ctrl-F, pulling the Data Input menu down to "Order of finish," or clicking on the "Enter and Edit Finish order" button, e.g.) whether you are working with finishers' IDs, times, or select times. The "Lynx .LIF file" option allows you upload a file from the FinishLynx electronic timing system. That system produces very accurate times and places, but requires the user to click on the torso of each finisher in the image captured by the system and then manually enter the corresponding bib number. The Chronotrack routines assume that the file is in the default CSV format: variable width lines and <CR><LF> line termination.

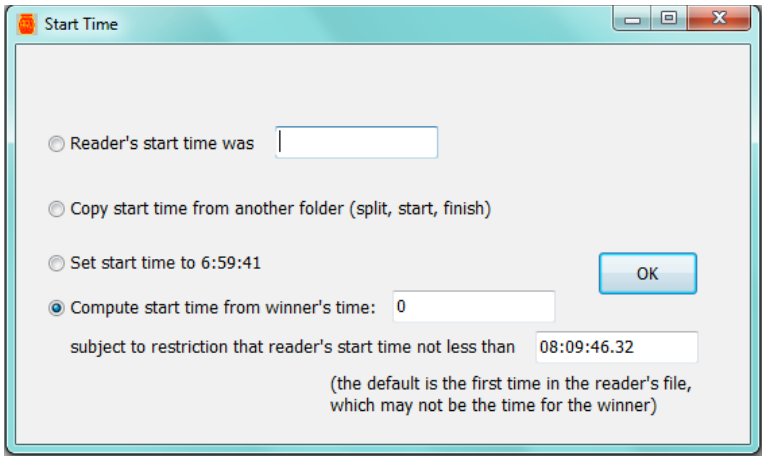


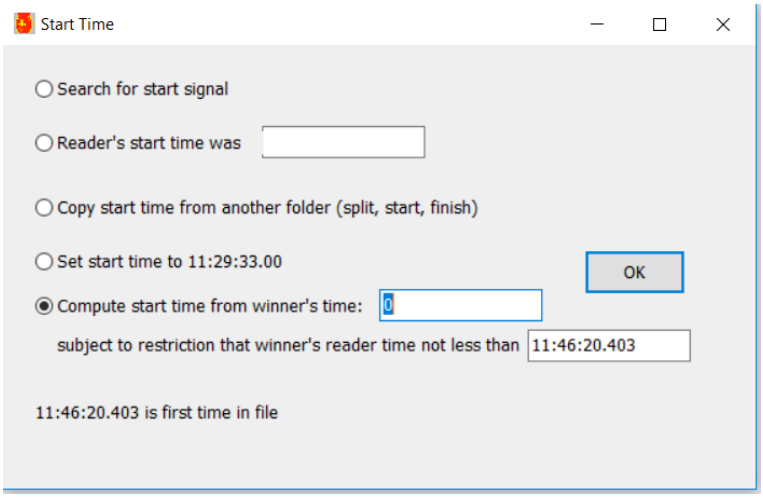
When you exercise one of the chip options, the dialog at left gives you several options. The default is to reject times that are faster than the last time on file. This prevents reentering a time for a runner who was turkeyed out for one reason or another. Chip systems typically employ a 24-hour time-of-day clock; the third check box allows for the possibility that the clock goes from 24:00:00 to 0:00:01. Clicking on the next to last check box allows you to bypass this dialog and the file options dialog above. The other options will be discussed below.

Except when you are reading a text or ARJaM .TEX file into the TIMES or IDENTIME file, the data read from the file are displayed in the "preliminary results" format described on page 43.

Turning Reader Times into Race Times

To convert the times communicated by the reader into runner times, you need to know the reader time at which the race started. That time will be subtracted from all times in the file to get each runner's time. ChampionChip/MyLaps and race|result systems allow you to put a marker in the file at the start, or at a known time after the start. If the marker is on the first line of the file (i.e., it was entered before any finishers), you're asked for the race time at which the marker was recorded (you may be at the start and have to run to the finish to start the chip reader).





Otherwise you establish the start time from the dialog at the left. The "Search for start signal" option appears only when you are using MyLaps shoe chips or race|result and the first line of the file is not a start marker. When recording splits (or start times) with the same reader or a synchronized reader, you can import the start time from another split (it will be in a text file called "CHIPTIMESTARTED" in the folder in which that split was recorded). The start time shown below that option is the last start time recorded, presumably for a split or the start.

The default is to enter the winner's time (which you should always determine by using a watch or other timer) in the second box. The default entry in the last box is the reader time at which the first chip was recorded. If the reader was cleared of data before the arrival of the first finisher, that is the reader time of the winner. If not, change that time to something just before the winner's reader time. RaceDay will then compute the reader start time by subtracting the winner's actual time from the reader time at which the winner finished.

In any case the reader's start time is subtracted from the other times it collects to get the runners' times. If you input the reader data in batches, the dialog above will not appear once you establish the start time.

For road races, you may want to start outputting results for awards before the last finisher arrives. Once you enter the results part of RaceDay, you can continue to read data from chip files by pressing ⌘R or clicking on the Read button.

Start Times

The "Extract times last seen" option is, as indicated, useful for capturing start times. One of the attractions of chip races to runners is the possibility of getting their time from when they crossed the start line to when they reached the finish. To satisfy them, you must open a folder ("Start," say) in which to store the times at which they leave the start line, either by declaring you will have start times when you first create files for the race in program NewEvent (page 10) or afterwards in RaceDay (page 37).

Recording start times is somewhat messy, since the reader typically records runner's times when they go back and forth across the starting mats before the start and when they are standing on the mats (which are supposed to be behind the start line) waiting for the gun. The solution is to operate on the reader's data file with the "Extract times last seen" option. With some chip systems you are invited to input an approximate start time, which should exclude the extraneous records. If you take your computer to the start, and have synchronized the reader(s) with the computer, you will be able to observe the start time; input something a few seconds before the start time

you observe. The last time each chip is seen is first written to a file whose name appends "LS" to that of the source file in the same folder as the source file. You then upload that file into the ARJaM files. When presented with the "Start Time" dialog, simply hit "Okay;" the "winner's time" is 0.0 and the first time in the file is the time at which a runner first crossed the starting line.

ID#	PLACE	AGE	CLASS/SEX	CLASS PLACE	NAME	TEAM	TIME
495	1	45	M40	1	GEORGE OIEN		
493	2	30	M30	1	THOMAS CHURCH	Slab City Running Co	20
177	3	37	M30	2	ERIC JOHNSON		1:21
230	4	25	M20	1	JESSE McCAFFREY		1:50
435	5	24	M20	2	JOSHUA LABLANC	Run N Fun	4:09
209	6	25	M20	3	PAUL LIMPF	Run N Fun	5:19
222	7	24	M20	4	JAKE MAROTZ	Run N Fun	6:02
418	8	22	M20	5	SCOTT BEHLING		6:03
286	9	25	M20	6	PHILIP RICHERT	Run N Fun	6:04
2	10	33	M30	3	MATT GABRIELSON	Team USA Minnesota	6:04
6	11	37	M30	4	JOEY KEILLOR	TC Running Company	6:04
476	12	33	M30	5	RICH MALENIAK		6:04
132	13	24	M20	7	BRENT HAGLUND		6:04
422	14	22	M20	8	DEVIN MONSON	Run N Fun	6:04

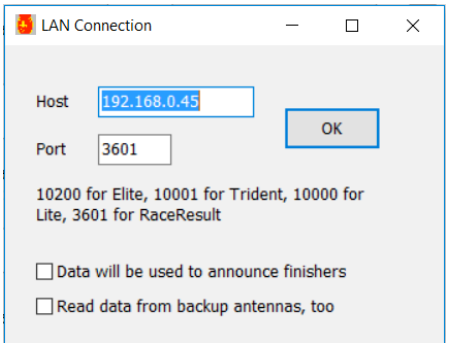
Ideally, when you list the "preliminary results" for the start on the monitor, you should see the first several runners with times under a few seconds. However, if you did not choose an approximate start time close enough to the actual start time, it can happen that a runner crosses the mat(s) before the start, but then runs around them or is otherwise not recorded crossing them after the start. In that case you get results like those shown at the left. Clearly #222 was the first runner to cross the start line. In such a case you must delete the data for the runners who were not recorded crossing the start mats after the race start. In the case shown, delete the first six runners and accept the option to delete their times, too. Then go to the Times part of RaceDay and "Correct constant error," subtracting 6:02 from everyone's time.

If your start line is so wide that you need more than one reader, read them all into separate files and then merge them.

"Chip (Net) Times"

As noted above, many runners want to know their "chip time," their time elapsed between the start line and the finish line. To get chip/net times, (1) while in the Start folder, pull down the File menu to "Store start times" (they are stored in a file called TRIPLEDATA) and (2) when you start to record finishers' times, click on the "Start time available" box in the Chip Options dialog shown on page 51 (it should be on by default because of the ORDERX file created in NewEvent; see page 10). If you forget to do that for the first batch of finishers, pull down the Other Options menu to "Subtract start times to get net times." The chip times will then be displayed on your preliminary results (in the column otherwise occupied by select times), and are easily inserted in printed results (see "Splits and Net Times" on page 64).

Streaming Data from the Chip Reader



IPICO, Trident and race | result allow you to stream data directly from the reader. Pull RaceDay's Network menu down to "Open LAN connection" and select the timer type (RaceDay remembers the last timer type you used). You are then asked for the IP address and port of the reader, as shown at right. When you want to import some data, pull the Network menu down to "Read data over LAN." The data in the reader are processed automatically: once you establish the chip start time, results are shown in the preliminary results format. See Appendix B for details of working with IPICO/Trident and Appendix D if you're using race | result.

Editing Results After the Race

Q: Why did the arrogant runner not get recorded in the results?

A: Because he had a chip on his shoulder.

Chip times are always very accurate, and you always get one and only one time per finisher. However, especially with shoe chips, not every runner wears the chip properly, and they sometimes fail, in which case the runner receives neither a time nor a place. I use FinishLynx to back up the chips.

Chip race or not, if you are able to determine a missing runner's time, the quickest way to correct the results is to use the "Add" routine in the Select Times section of RaceDay. When you start adding select times, if the numbers of finishers and

individual times on file are equal (if you have none on file at all, e.g.), you are asked if you want to store the IDs in the finish order file and the times in the times file. The data will be inserted in the files at the proper place.

You can also edit a runner's time by the same means. The existing data will be removed (the runner is turned into a turkey, actually) and the runner's correct result put into the files at the correct place.

You could in fact enter a complete set of results simply by entering select times, but I think I'd soon go nuts.

Announcing Finishers

If your event has a race announcer with a computer, put a copy of the Announcer application inside your event folder and put a copy of the event folder on a stick or otherwise make it available. It's very easy to operate.

Double-click on the Announcer icon. It will look for the ROSTERN file. When you find it, click on "Start Timer." A dialog like that on page 39 allows you to start a timer so that the announcer can see what the running time is.

Every time a number is entered, Announcer will look it up and display the runner's name, age, sex (if it's tracked), home town (if it's tracked), and team (if any). As new runners are spotted, the ones already entered will remain on the screen, in inverse order of when their IDs were entered, with the most recent runner entered in bold at the top of the list.

If the announcer doesn't have a computer, see if you can supply one. If you've got a spare Logitech keypad, an announcer's assistant can enter IDs at will and leave it to the announcer just to look at the screen and talk.

If you are using an IPICO, race|result or MyLaps system, you can stream data from the chip reader in program RaceDay. Pull the Network menu down to "Open LAN connection" and click on "Data will be used to announce finishers.". When the announcer runs out of names to announce, he/she clicks on "Read data over LAN." The recent arrivers will then be displayed as described above.

Results After the Fact

You may need to produce results for a race without having prepared the data base beforehand. I often did so in order to reformat them for a magazine I published, and now often post results of other people's races on my web site. Program DownLoad can upload the data from most files you are likely to encounter; see pages 26-29. If sent to you as an Excel file, first save it as tab-delimited text or csv.

In the dialog that appears after you identify the file type, accept the default that the "Times in the file are finishers' times." After uploading the data with DownLoad, start up RaceDay. Go first to the "Finish Order" option (Ctrl-F) and its "Read" option (Ctrl-R). Accept the default file type of "IDENTIME." This will take the data from the TIMES file and fill in an IDENTIME file, the "ID" of the Nth select time being "N" and the time being the Nth time, and put the IDs in the ORDER file. Your results files are now complete and you are ready for the "Print Results" functions we shall next discuss.

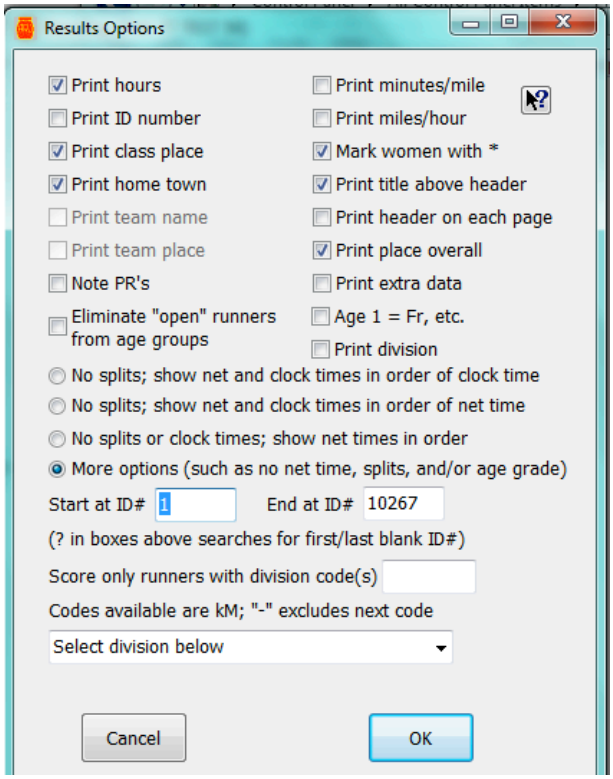
Step 4: Outputting Results

The general objective of Apple Raceberry JaM is to report the times and places of the individuals in a race and the scores of participating teams. For a cross country meet, you will probably want to wait for each race to finish before posting results. The last finisher usually is not that far behind, and may complete a team and so affect the scoring all the way down the line. For road races, you can post the preliminary results discussed on page 43, although some users prefer to use the more elegant formatting available with the Print Results option that is the subject of this "Step" and use its "Order of finish" function for posting. Once enough finishers are recorded that you know (from the display that appears after entering every spindle, see page 43) that at least some award groups are complete, you can start reporting them to the race director.

In any case, click on the "Results" button (Ctrl-P).

Formatting Options

You are now presented with a wide choice of formatting options, as shown below. RaceDay will remember the options you choose, and use them as the defaults if you return repeatedly to print out more results, perhaps for a different race.



These are the default options for a road race with no team competition but for which division codes will be used to separate finishers doing different distances, so that a KEYCODES file was created to simplify that task (page 15). If there was team competition, you might want to click on the option to print a team name for affiliated runners. Also click on minutes per mile if you want to show the finishers' pace. The options to "Eliminate open runners" and restrict the output by ID number and/or division code will be discussed below. For cross country meets the defaults include team name and team place rather than class place and home town. The four radio buttons appear only when a chip system has been used to create net times; see page 64. The option to print the runner's division is active only when KEYCODES exist and at least one code is lower case.

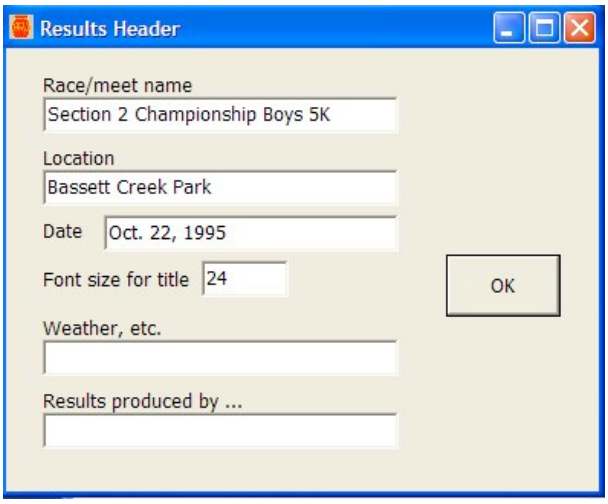
The "Age 1=Fr, etc." box will be turned on by default if the first 100 entrants have "ages" 1 to 4, as would be the case for a collegiate cross country meet.

A header names the items listed: Place, Team Place, Finisher, etc. If you choose it can be printed on every page of the results, along with a title if you elected to print one.

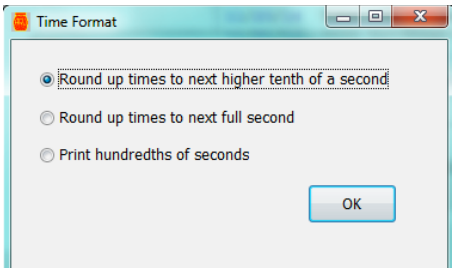
Whatever options you choose, the order in which items are printed is fixed, as is shown in the sample results at the end of this manual:

Place overall*
Place in class or team place*
Name
Age
Female indicator*
Time
PR indicator*
Time per mile or miles per hour*
Extra data* or Division*
Team name*

The items marked * are optional; whether they appear depends on your selections from the dialog shown above.



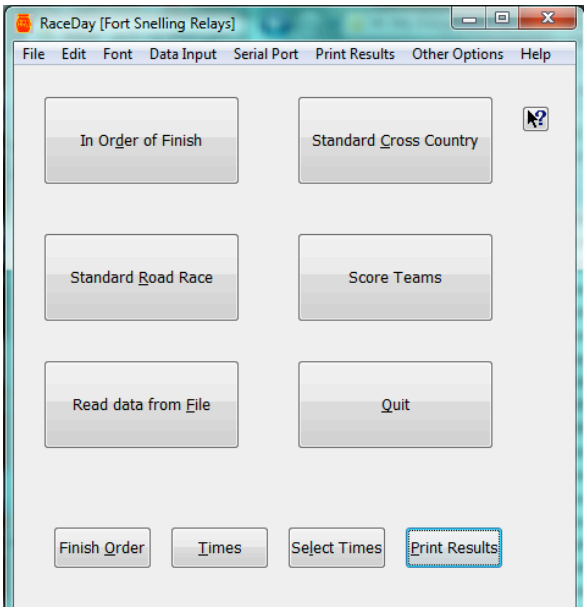
Unless you deselect the option to print a title above the header, you will be asked what you want for a three-line title, as shown at right. The default Race/Meet Name is whatever you entered when you started up RaceDay, and the location and date what you entered when you opened up the files with NewEvent. The race location can be left blank when it is clear from the race name, in which case you'll get just a two-line headline. The title will be centered and in the larger font size that you select in the dialog above. You are also invited to print out comments on the weather, records that were set, or whatever (if you can say it in 40 characters or less) and to identify the company producing the results. These comments are printed in the basic font size (typically 12 point) just below the race date, and on the right. The company name is stored in the ARJaM.ini file in your ARJW10 folder, so that it will be the default for your next event, with the other data being stored in the Notes file in the race or meet folder.



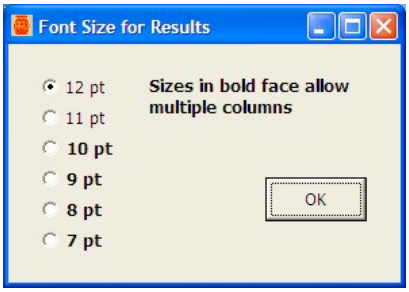
The dialog at right will appear if you have elected to print out fractions of seconds (an option under the Times menu). That is the default for cross country meets; you can also select or deselect the option with an item under the Times menu.

If you have elected to print minutes per mile (or miles per hour, as is preferred in bike racing), you are next asked for the race distance.

After selecting the format of the results, a Print Results menu appears along with a few buttons on the desktop.



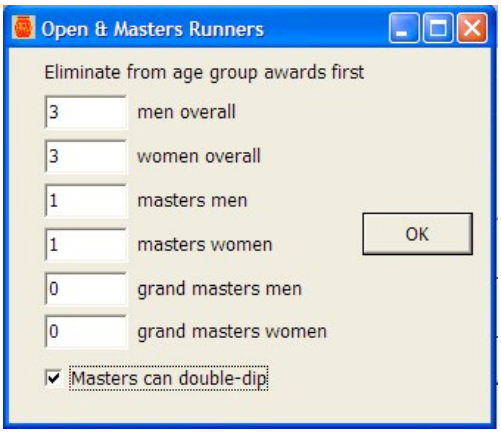
Every time you select one of these options, you pick the output device, the default being the same device you last chose. If you select "Printer," you can print results in two columns under a centered three-line title. The dialog at right allows you to select the font size, indicating what sizes will allow multiple columns. Use the smaller sizes in cross country meets when it's time to print out results for the coaches to take home, and the default 12 points for results easy to read when posted or used for the awards presentation.



See page 66 for how you can pre-select the format for road race results by creating an HTMLFILESTUFF file in the results folder.

Eliminating Open Runners

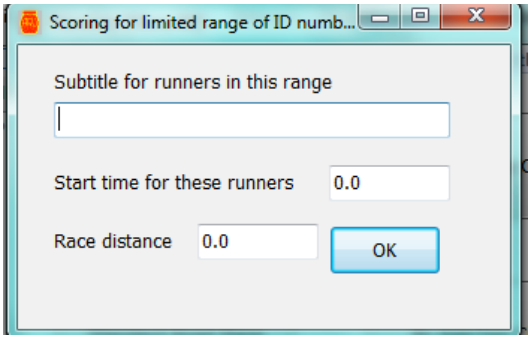
Road races sometimes wants to exclude the first few men and women from age-group awards, and perhaps masters (age 40+) and grand masters (age 50+) men and women as well. This is particularly so when those runners earn prize money. If so, clicking on the "Eliminate open runners" box will bring up the dialog at the right.

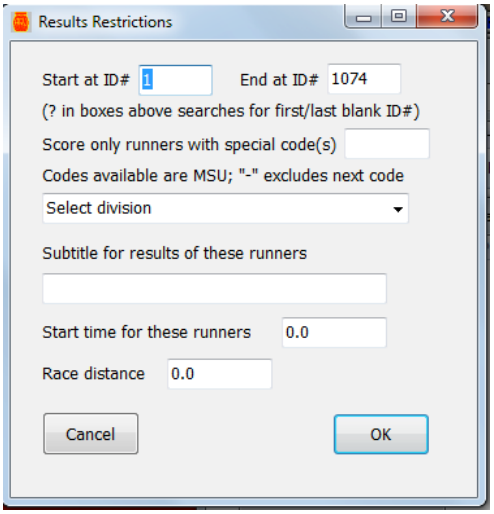


Races with Multiple Scoring Divisions

If the race will be scored in divisions, select the division of current interest from the formatting dialog above. If the divisions are defined by assigning them numbers in a certain range, pick the ID number range (use a "?" in the Start or End box if the ranges are separated by some blank names, see page 6). If they are specified with division codes, enter the division code(s) of interest in the box or pull the "Select division" menu down to the appropriate division.

A dialog (it is slightly different from the one at right when you select a division by division code) allows you to designate a subtitle for the category (it is filled in from your KEYCODES file when you score by division) and also the start time for the category (which will be stored if you change it) and race distance, if you had indicated you want the pace. Thus you can handle, for example, a 5K/10K in which the 10K starts first and everyone goes through the finish line at the same time.





When you are done scoring one division, you can move on to another (with the same formatting selections) by pulling the Print Results menu down to "Change number/division code restrictions." The dialog at left invites you to enter the new restrictions, plus the associated subtitle, start time, and, if you're showing pace or mph, the race distance.

It often happens that runners enter one division and then change their minds at the last minute. You can easily edit the runner's choice if you are using division codes. Simply double-click on the runner's ID in the ID entry dialog on page 42 or pull the Edit menu down to "Name by number." This brings up the dialog on page 36 in which you can edit the runner's division from either the pull-down menu or the division codes box.

Resetting Format Options

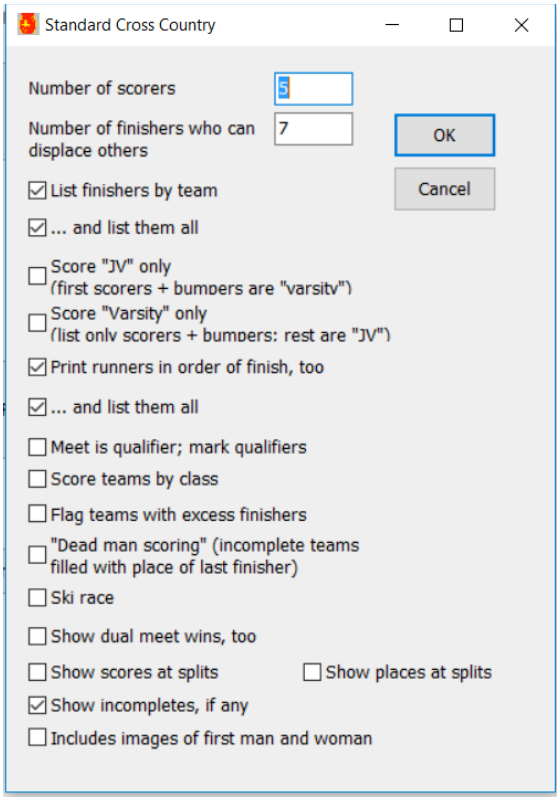
If you are printing results periodically as the race proceeds, you may have to switch in and out of the "Print Results" option. When you reenter it, you are asked if you wish to re-use the previous options. This can save you several dialogs.

Cross Country

For the typical cross country meet, the "Standard Road Race" button above will not be showing. In any case your preferred option is "Standard Cross Country," which will show the team scores, the scoring runners, and the individual results.

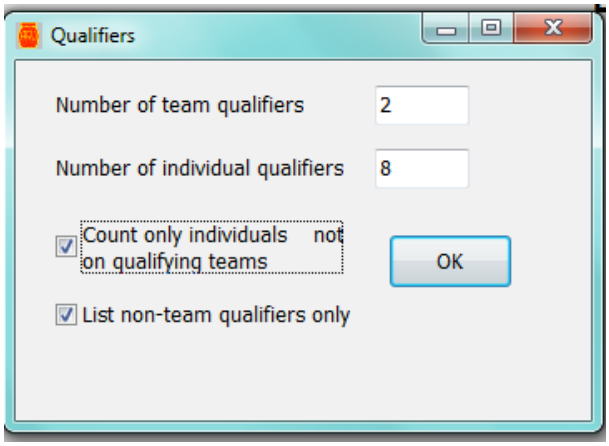
The details for this powerful option are shown at right. In most cases the defaults will be fine. Here's a description of the other options:

- "JV scoring." In most meets with more entrants than the usual seven who affect the scoring, any additional runners are simply listed



with no team place. Some meets want to have a "JV competition" and run the JV along with the "varsity." Unless they insist on pre-declaring who's varsity and who's JV (bad idea! Although you could handle it with the "division code" device.), use the JV scoring option. This eliminates the first seven runners from each team (if that's the number who affect the scoring) from the scoring, scores the rest, and defines them as the JV.

• Varsity only. If you're doing "JV only," the meet may want you to show the top seven separately, or simply list all the finishers together. In the latter case the "varsity" will be those indicated with a point score.



• Mark qualifiers. If the meet is a qualifier for another meet, you can flag the teams and individuals who qualify in the output. For printed output, they are marked with a "Q" and printed in bold face. In Internet files, they are shown in red. See below for an example of how they look in "newspaper" format. There is also an item under the Print results menu that allows you to list just the qualifiers and alternates (members of the qualifying team who did not run).

• Scoring by class. USATF rules now require that teams be scored by age group in masters' championships. See page 21 as to how you can identify the age group of a team.

• Excess finishers. Some meets (such as qualifiers) limit the number of entrants. When they are chip timed, alternates sometimes wear chips and are inadvertently recorded.

• "Dual meet scoring" scores the teams in pairs and totals the number of wins and losses for each team.

Ski races will be discussed in Appendix C. The first skier earns a specified number of points for his/her team, and those that follow get one less point than the one before. Teams are ranked in order of decreasing number of points.

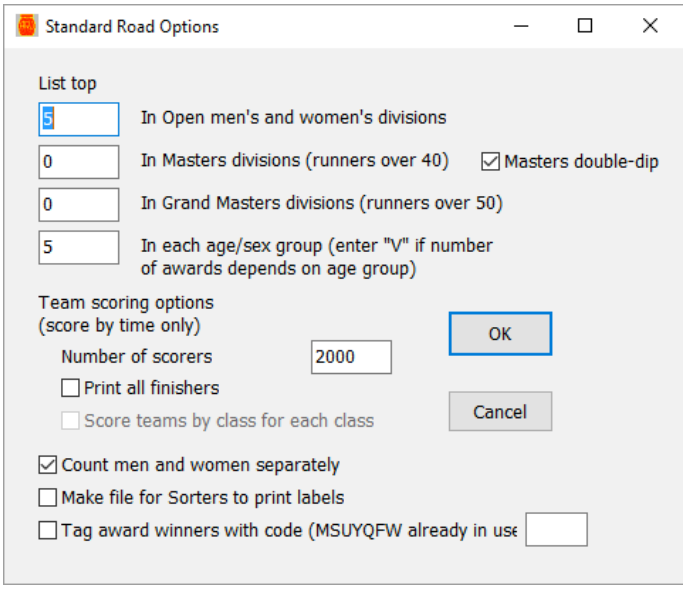
Accepting the defaults produces the results shown in the back of the manual. The team scores and scorers are shown on the first page, and the finish order on the second.

Note that there was a tie for second place. Under high-school rules ties are broken by looking at the places of the first non-scorer. For USATF it used to be the place of the last scorer (now they use the "NCAA regional rule"), whereas NCAA rules let the tie stand (except for Regionals, or when the host decides to use regional rules). In any case, when two teams have the same number of points an asterisk is inserted after the team place. Once you make your selection, RaceDay remembers it as the default for ties in subsequent races of the meet.

Road Races

Age Group Awards

Road races generally give awards to the first few finishers in specified age/sex categories. The quickest way to get an awards printout is with the "Standard Road Race" option. Hitting the button so labeled or pulling down the Print Results menu to this item (Ctrl-R) brings up the dialog shown at left. The program will then list the first "O" men, the first "O" women, the top "M" masters men and women, the top "G" grand masters men and women, and the first "A" in each



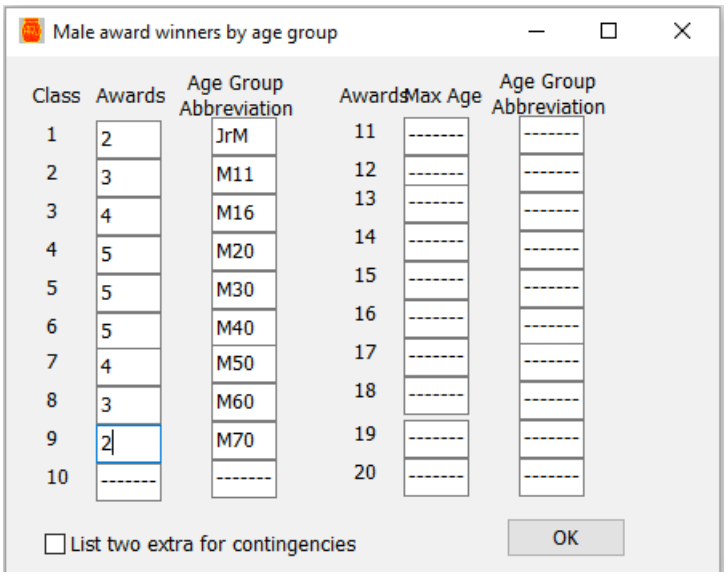
male and female age group, where "O," "M," "G" and "A" are the numbers you enter in the first four boxes, presumably after consultation with the race director. If open and/or masters runners are ineligible for age-group awards, the numbers you entered in the dialog on page 56 will be filled in for "O," "M", and "G."

The "Make file" check box at the bottom (active only when you output the results to a file) puts the names and division places into a file that can be uploaded by Sorters and used to print labels for the award winners, via an item under its Other Options menu. Select File for the output device. Upload the file in Sorters. The labels show the place and age group (and time, if you choose).

1st Man 60 - 69
WADE WEBER
939 ELDRIS WAY
MORA, MN 55051

The bottom check box allows you to tag award winners with a division code. This enables sending emails just to award winners (page 72).

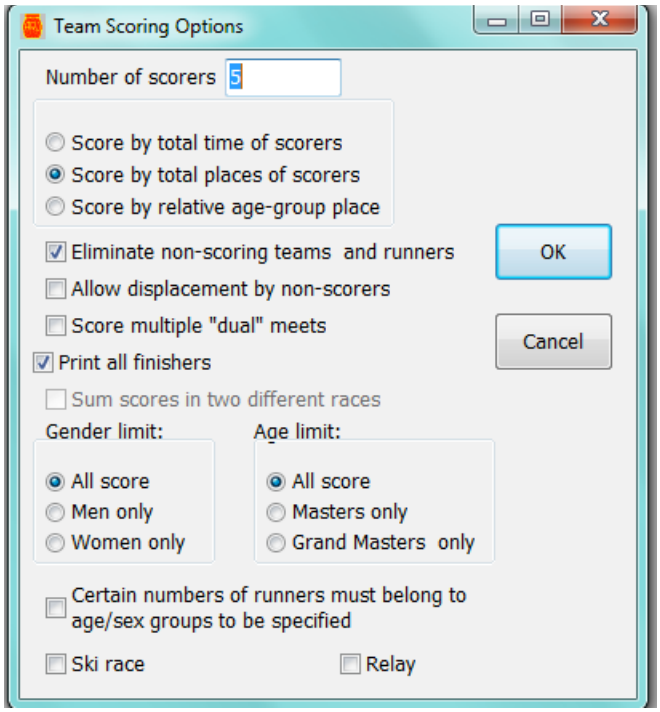
Teams can be scored as part of the Standard Road Race printout, but only by time. If you have team classes, and the number of scorers is the same in each class, and set up a file "TEAMCODE" in SetData, the default is to list all teams by class at this time (see page 21). If those restrictions are not useful, leave the "Number of team scorers" at the default "2000;" presumably no team will have that number of finishers and so the team scoring will be bypassed. You'll need the discussion below to get your team results.



As indicated in the dialog, if the number of awards varies with the age group (in recognition of the fact that the number of entrants certainly so varies), typing a "V" in the fourth box allows you to tailor the awards printout accordingly by filling in the boxes in dialogs like that at left. The check box at the bottom adds two extra names to each category, separated from the others by a dashed line, to allow for errors in data entry.

Team Scoring

When cross country scoring and scoring by time with team classes don't do the trick, click on the "By Team" button or pull the Results menu down to "Teams" (Ctrl-T). The options at the right appear. As already noted, you can score on the basis of total times or total places. One system or another is sure to be mandated by the rules of the race.



The "multiple dual meets" option is similar to what you can get under standard cross country scoring, adding the option to print out team vs. team scores for all pairs of teams. Picking out all-men and all-

women teams can be useful in mixed races.

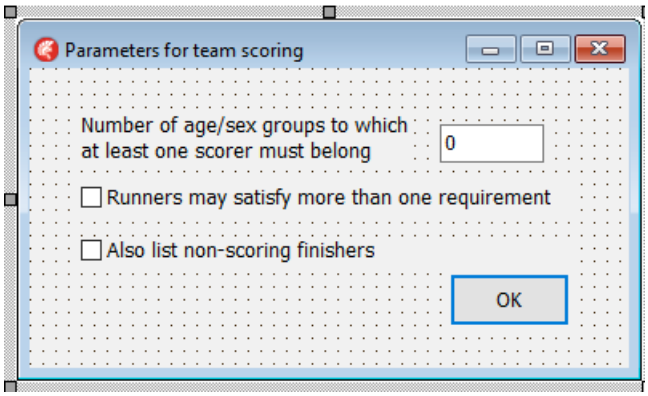
Clicking on "Relay" forces the number of scorers to 1, the scoring method to total time, and removes the option to print all finishers. It scores the teams by their only finisher, but lists the other members of the team as well.

When you score by place, you usually elect not to allow unattached runners to displace team members. For example, if the only team-affiliated finishers in the top 10 are places 2, 3, 5, 7, 8, and 9, they would get 1, 2, 3, 4, 5, and 6 points, respectively. To elect this option, leave the "Allow displacement by non-team members" box turned off.

There is no limit on the number of entrants per team in the ARJ software (although there may be in the rules governing the competition). However, if you elect to score by total places, and do not allow unattached runners to count in the place totals, you usually also need to limit the number of team members who can displace other finishers ("bumpers"). Usually five finishers count in the scoring and seven can displace other finishers (in USA Track & Field championships, the number of team finishers who count as such is usually 8). If a team had 10 finishers, their last three would be treated as if unaffiliated.

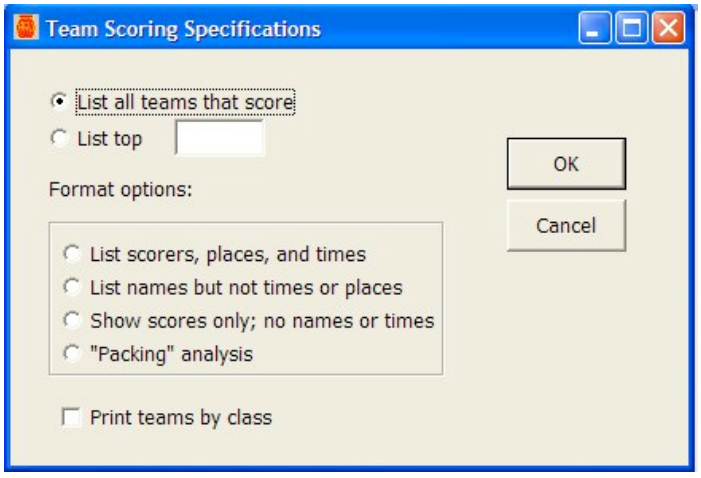
Also when scoring by place, you usually must "Eliminate non-scoring teams". Members of incomplete teams (teams with fewer finishers than the number who count in the scoring) are then treated as if unattached. As with the limit on the number of team members who can displace others, this option zeroes out the members' team record in the ORDER file, but the runners' affiliations will still be listed in the final results (provided the format you selected includes the team name, whether as a "home town" or not).

If you choose to score by place, and not to allow unattached runners and/or members of incomplete teams to displace team members in the scoring, it is useful to print out the "Team place" of the finishers when printing out the complete order of finish. For this to be meaningful you must score the teams before printing out the order of finish. Which is what happens in the default version of "Standard Cross Country." You get the scores, then the scorers, and then the order of finish.



Some road races have a "coed" teams division; scored, e.g., by the times of the first two men on the team and its first two women. Click on the box "Certain numbers of runners must belong to age/sex groups to be specified." The dialog at left then appears. For the code teams case, you'd enter "4" in the box. You would then get a dialog asking to which age group each of the scorers must belong. You'd click on "Males of any age" twice and "Females of any age twice."

You can elect to print the names and performances of all finishers (when scoring by place, all those who either score or displace other scorers) from each team. If you do not turn on the "Print all finishers" box, only those whose performances count directly in the scoring will be listed.



Once RaceDay has determined the scores of the teams, the program begins a loop with the dialog at left. If there are a large number of teams, you may not want to list "All" teams. Those that do not have enough finishers to be counted in the scoring are eliminated anyway in cross country scoring.

If you have prepared a TEAMCODES file, you will get the option to score all the classes in succession.

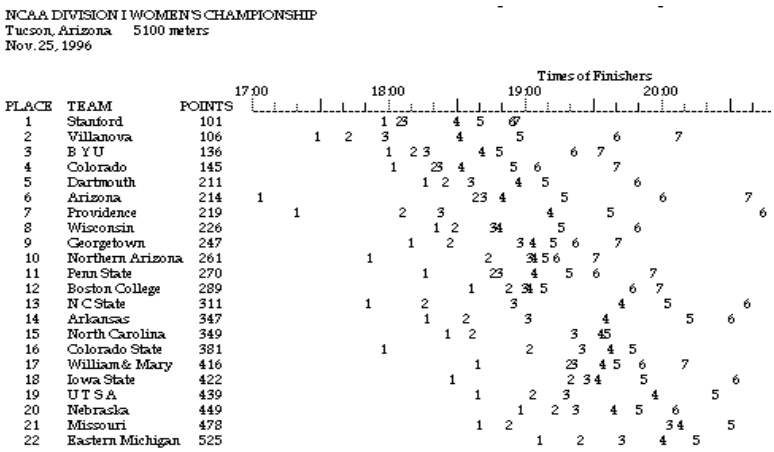
If you select the "Scores only" option, you get a concise summary of team scoring that shows (in order of scores) the team name, team score, and team place of all its finishers), as shown below. This is essentially the format that leads off the "Standard cross country" output. "Scorers, places, and times" gives the second part of that output.

The "List names only" option lists the teams in order of finish in "paragraph form," as shown below:

```
1    Lakeville (Phil Smith, Chuck Smith, Chris Newby, Vince
     Reed, Matt Beauchane)                                    94
2    Duluth East (Jay Schoenfelder, Nic Matack, Eric Hartmark,
     Nils Arvold, Justin Kavie)                              103
3    White Bear Lake Area (Josh Kath, Troy Brinkman, Andy
     Kummer, Chad Laber, Justin Skjegstad)                   105
4    Wayzata (David Herman, Jacob Hallen, Todd Obermiller, Ben
     Morris, David Frank)                                    124
5    Minneapolis South (Ben Wahlstrand, Paul Richter, Ben Peck,
     Eric Giesen-Fields, Alex Rand)                          180
```

Again, ties are flagged by an asterisk after the place. If you are scoring by time, the total time is listed instead of the total points. You can elect to "Print all finishers" and list teams in this format by class.

The "Packing" option is shown at right. The teams are listed in order of increasing score, and the times of their finishers are graphed to the right. Thus you can see how Stanford's pack won the 1996 NCAAs over a Villanova team that had two finishers ahead of its first.



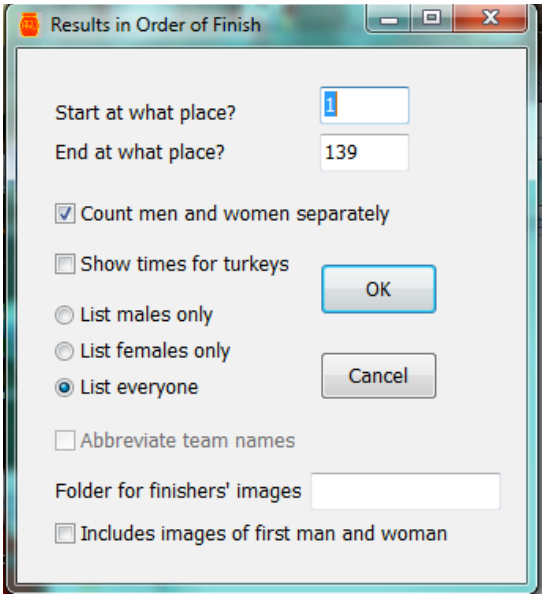
Relay Competition

The optional program MultiRace is designed to score relays (and triathlons) and to record the splits turned in by each member of the team. However, you can figure out the winning team without recording splits, since the first team to finish is of course the winner, by using RaceDay's Relay option (see above).

To exclude the relays from the individual competition, assign the relays numbers higher than those given individuals or give them a division code. RaceDay will then be able to score the individuals separately from the relays by specifying the correct ID number range or division in the formatting dialog.

Results in Order of Finish

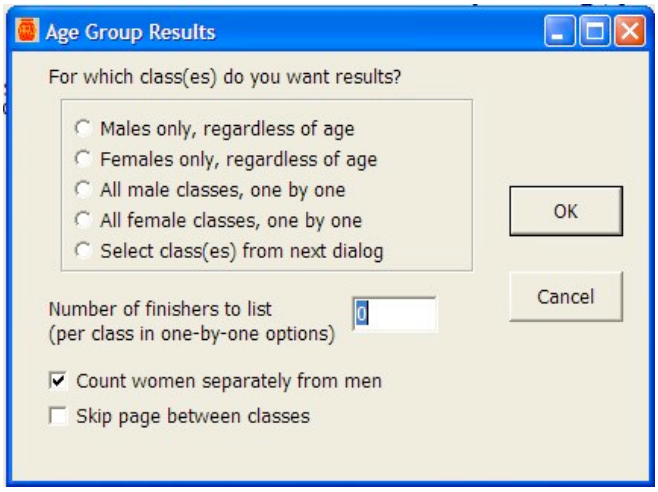
I generally print out the complete order of finish at the conclusion of the race, at least for the race director for his/her records **and** for posting if anyone is still around. Click on "In Order of Finish" to get complete results in that order. You'll get the choices shown at right. The last two items are of interest only when the results are to be posted on the Internet, as will be discussed shortly.



You may also choose to print out the order of finish for posting during the race. This is especially easy in chip races. Once you set the results format, you add finishers in batches either by clicking on the "Read data from file" button or pulling the Network menu down to "Read data over LAN." After viewing the results on the monitor, click on the "Order of

Finish" button. RaceDay will remember where you left off the last time you did so, and so, if you just added finishers starting at place 63, the dialog above will suggest you start at that place.

Age-Group Results



Although the "Standard Road race" option probably meets your needs for awards presentation, you may need to list results for specific classes. Pull down the Results menu to "By Class" option (Ctrl+C) or hit the corresponding button. The choices associated with this option are shown at right. Clicking on the first button gives the first N male finishers, regardless of age and as to whether or not open runners are eligible for age-group awards, where N is the number you type into the "Number of finishers" box. With N = 3, clicking on the third button gives the first 3 men in each male age group whereas the next button gives the first 3 females by age group, open runners not listed with either group if they were declared ineligible for age group awards. If the race wants you to list everyone by age group, you may want to skip a page between age groups; if so, click on the last box. The fifth button brings up a list of age-sex classes, so you can select a particular group.

Results in Alphabetical, Zip-Code or Numerical Order

You may also be asked to print out results in alphabetical order. Once you have finalized the finish order and times, go to program Sorters (you don't have to quit RaceDay before doing so). Click on the "Alphabetical" button (Ctrl+A), sort everyone on file, and click on the "Prepare alphabetized results" button. If you have multiple race/finish line folders, you'll have to navigate to the ORDER file of interest. A file called ALFARSLT, which contains the ID number, place overall, and place in class of the runners in alphabetical order, is stored in that folder.

In RaceDay, pull the Print Results menu down to "Alphabetical results" option. You can list last names first, if you choose. Also, rather than list age-group abbreviations along with the runners' places in those groups, you can list the number of finishers in those groups along with their place ("22/53." e.g.)..

A similar procedure produces results in zip-code or numerical order; just sort the runners by zip code (Ctrl+Z) or numerically (Ctrl+N) rather than alphabetically. You can select a limited range of zip codes when doing the sort in Sorters, and so get results of interest to a particular newspaper, for example. They will be listed in order of zip code, however.

Results for Particular City, Team or State

If you want results for all the runners from a particular state, it's even easier. Include their "Home towns" in the results format, and pull down the Print Results menu to "By state." You will be asked for the two-letter abbreviation for the state of interest. If, when you input the runners' city and state, you used that abbreviation for the last two letters of its name, those runners will be listed in order of finish. Similarly, you can get results for all entrants for a particular city or team by choosing those items from the Print Results menu. You will have to supply the name of the city or team of interest; as usual, you start typing it and RaceDay looks it up for you. Again the results will be in order of finish.

Age Group Records

If you wish, you can keep track of age-group (or single-age) records for your race, and flag performances that set new records. All you need is a tab-delimited text file like this in your results folder:

```
MN   EASY DOES IT                CLASS
M    25:03   Brian McCollor      18  Minneapolis, MN        14 Jun 86
M    23:58   Rolf Schmidt        23  North St. Paul, MN     10 Jun 89
M    23:48   John Mirth          27  Minneapolis, MN        10 Jun 89
M    24:23   Tom Stambaugh       30  Burnsville, MN         16 Jun 90
M    25:12   Mike Seaman         35  Minneapolis, MN        14 Jun 86
```

```
M    25:37.9 Doug Suker          40  MINNEAPOLIS, MN        15 Jun 91
M    26:30.1 John Emmons         45  WHITE BEAR LAKE, MN    15 Jun 91
M    27:31   Paul Noreen         50  Plymouth, MN           29 Jun 85
M    29:50   Greg Prom           55  St. Anthony, MN        14 Jun 86
M    28:28   Alex Ratelle        61  Edina, MN              14 Jun 86
M    31:02   Alex Ratelle        65  Edina, MN              16 Jun 90
M    32:07.8 Alan R Anderson     71  EXCELSIOR, MN          15 Jun 91
F    30:50   Debra Board         18  Maple Grove, MN        29 Jun 85
F    28:33   Eileen Donaghy      22  Minneapolis, MN        10 Jun 89
F    28:25   Lisa Czech          26  Hastings, MN           16 Jun 90
F    27:14.2 Janis Klecker       30  MINNETONKA, MN         15 Jun 91
F    29:49   Francine M Pahl     39  Minneapolis, MN        18 Jun 88
F    30:13   Susan Josselson     40  Minnetonka, MN         14 Jun 86
F    33:25   Judith Cronen       47  Lakeville, MN          18 Jun 88
F    34:03   Patricia Larson     52  Prior Lake, MN         16 Jun 90
F    36:15   Mae Horns           56  Edina, MN              16 Jun 90
F    38:52.9 Mickey Armstrong    60  EDINA, MN              15 Jun 91
F    39:37   Barbara Andersen    65  St. Louis Park, MN     16 Jun 90
F    52:10   Helen Reiter        72  Edina, MN              10 Jun 89
```

"Like this" means

1. Its name is AGERECORDS.

2. It must be saved as a "text" file.

3. The first line of the file has the home state, the name of the record (race name, e.g.), and the kind of record, all separated by tabs:

   Home state: you can, if you wish, keep separate records for in-state runners and visitors. If you don't wish, just enter one record for each age or age group. But enter your home state anyway.

   Record name: for state records, use "STATE." For race records, use the name of the race. The records will be labeled (in the example case) EASY DOES IT RECORD FOR ...

   Kinds of record: enter CLASS on the header line if the records are for the age groups used in the race. In the example case, a record would be labeled EASY DOES IT RECORD FOR MEN 19 & UNDER. If the records are for single ages, use AGE RECORDS instead of CLASS. Such a record would be labeled EASY DOES IT RECORD FOR MEN 19.

4. The rest of the file has one line for each record, with tabs between each field, in this order:

   sex time name age home town (or at least state) date (or year) of record

You'll hear a beep for each record detected if you accept the suggestion to "Mark all age records" (as noted, don't do it until you've entered and corrected all the times) that appears when you go to enter results. Those records are written out in tab-delimited form to a file called NEWAGERECORDS. By cutting and pasting from NEWAGERECORDS to AGERECORDS, you can update the latter.

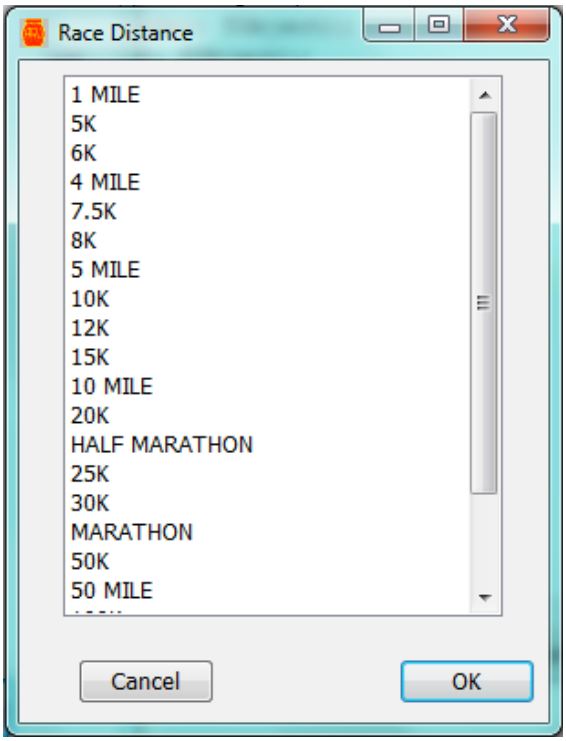
If you have results files going back to the race's first year, you can use NEWAGERECORDS to create a file of race records. Simply start with an AGERECORDS file that has no entries below the first ("home state") line.

Age-graded results

Listing runners by their age-sex group provides a measure of how they performed relative to their peers in this race. However, given that a runner's performances sooner or later decline with age, and that the best men will always run faster than women, such lists do not rate the runners across age/sex boundaries. Hence the advent of "age grading" (actually age/sex grading), which assigns each performance a percent, ideally a percent of a world-class performance. For details of the generally accepted WMA (World Masters Athletes; formerly WAVA) system, see

http://www.usatfmasters.org/fa_agegrading.htm.

To age-grade runners' performances in a race (or meet for which the runners' age and sex are tracked), pull the Other Options menu down to "File WMA age graded results as split." You first identify the race distance from the scroll list at right (the mile, 3 mile and 7.5K factors are "unofficial"). Then you open up the file of age-grading factors, currently called ROAD2015.txt but named ROADXXX.txt in the file-open dialog, which is in the ARJW15 folder. The age-graded results (percentages) are then stored as a split. You are asked to identify the split. Printing out results is discussed below. You can, if you wish, sort the results by the age-graded percentages. To do so make the percentages the last split and see the discussion that follows.

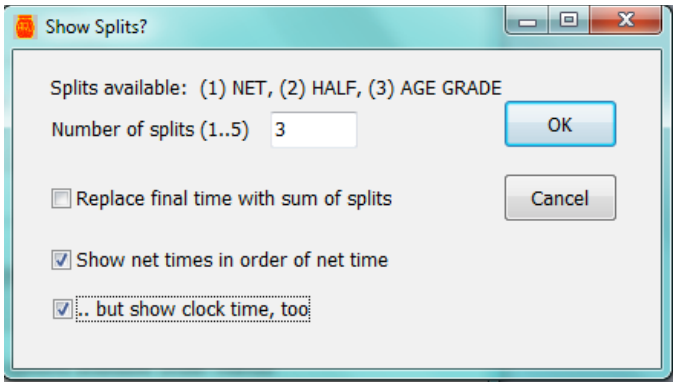


Splits and Net Times

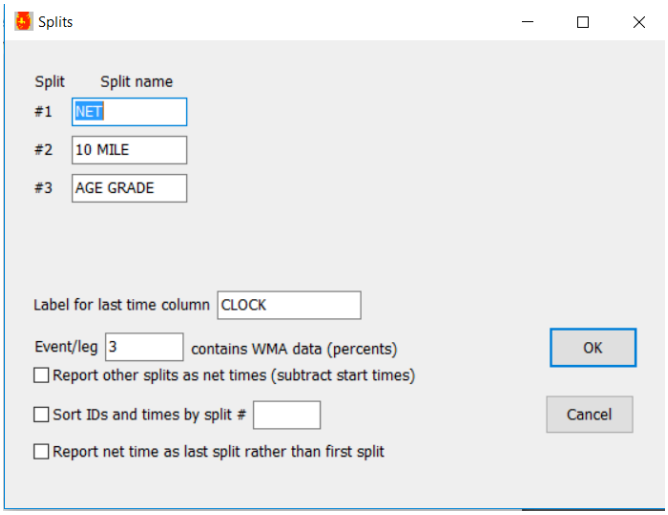
If you have results at splits along the course, or at the start line, you probably have a chip system. Lucky you.

See below under "Lap races" if you have more than one split at the same point.

As noted on page 53, if you have start times it is easy to compute chip times and to store them as split #1. If you will collect results at intermediate points, you must open separate folders for each split. You can do so in NewEvent (see page 10) or use RaceDay's "Add new results folder" item under the Edit menu. The folder name will be used for the name of the split in results; keep its length to 12 characters or less so that the split name will fit on printouts. You can store the split results as the split of your choice (except that split #1 is reserved for net times, if you have them) by pulling down the File menu to "Store results as split" when you're in the split folder.



If you have net times and splits, and want to report the splits, select the default "More options" radio button in the formatting dialog on page 55 (it doesn't appear if you don't have net times). The dialog at left will appear. Note the option for reporting results in order of "net times." If you choose that, you can either report the clock time, too (by clicking on the last check box), or not. The "Replace final time with sum of splits" option is often useful in Nordic pursuit races; see Appendix C.



In any case, after leaving the splits dialog you name the splits from the dialog at right; the names you assign will be

printed in the results header. The default names of the available splits are stored when you save them, based on the names of the results folders from which they come. If you have stored age-graded results, that split is named "AGE GRADE." Note the option to sort the results by one of the splits. This is not available when you ask for the results in order of net time. If one of the splits is the WMA age/sex percent, and you can accept the name "AGE GRADE" for the split, the box asking for the number of that type of split will be filled in. Also note the option to report the net time as the last split (just before the clock time). If you decided in the preceding dialog to report the results in order of net time, that option does not appear. The net time will then be the last column, and the clock times will be listed just to its left, unless you decided not to print them at all. Finally, note the option to subtract each runner's start time from each of the non-WMA splits, making them all net times.

Rather than report the net or clock time runners get to the splits, you may wish to report the time they take between splits. For example, if you have a split at 5K in a 10K, you may want to report the times taken for the first and second 5K's. If so, there is an option in program MultiRace that can do the trick. See page 83.

As indicated by the Standard Cross Country dialog, if you have timed splits in a country meet you can show the team scores at those splits and show the finishers places and times at the splits. For an extreme example, see

http://raceberryjam.com/2018/nc2mencc.html

Chip (Net) Times Without Splits

If you have net times but no splits, you can use the radio buttons in the formatting dialog on page 55 to report net times only or net and clock times sorted by one or the other. The splits dialogs described above will not appear at all unless you accept the default choice "More options." If you decide you want to report clock times only, simply leave the number of splits as the default "0."

Lap races

The maximum number of splits RaceDay can display is 15 (you'll have to print results sideways -- i.e., landscape rather than portrait -- if you have more than five). If you are scoring a lap race, you may have many more splits than that.

```
        CLASS
PLACE   PLACE        FINISHER                            TIME  laps

  1                Team Bartkowiak                     10:45:16  408 legs
                    Splits: 23. 1:13. 1:27. 1:31. 1:33. 1:35. 1:38. 1:41. 1:57. 1:21.
                    1:18. 1:34. 1:22. 1:27. 1:32. 1:30. 1:20. 1:09. 1:16. 1:40. 1:24.
                    1:25. 1:35. 1:29. 1:32. 1:36. 1:23. 1:08. 1:24. 1:50. 1:29. 1:36.
                    1:29. 1:26. 1:32. 1:33. 1:31. 1:24. 1:09. 1:26. 1:47. 1:30. 1:35.
                    1:30. 1:24. 1:35. 1:42. 1:26. 1:08. 1:26. 1:48. 1:30. 1:27. 1:29.
                    1:35. 1:38. 1:47. 1:28. 1:27. 1:08. 1:27. 1:49. 1:27. 1:29. 1:32.
                    1:33. 1:36. 1:45. 1:26. 1:11. 1:25. 1:46. 1:28. 1:30. 1:33. 1:29.
                    1:36. 1:37. 1:27. 1:22. 1:10. 1:23. 1:47. 1:26. 1:31. 1:34. 1:25.
                    1:35. 1:41. 1:20. 1:23. 1:15. 1:28. 1:45. 1:30. 1:32. 1:34. 1:26.
                    1:39. 1:51. 1:21. 1:25. 1:08. 1:24. 1:43. 1:27. 1:34. 1:31. 1:29.
                    1:37. 1:41. 1:52. 1:25. 1:30. 1:10. 1:34. 1:32. 1:45. 1:28. 1:33.
                    1:32. 1:28. 1:43. 1:41. 1:25. 1:12. 1:26. 1:46. 1:29. 1:28. 1:32.
                    1:30. 1:44. 1:47. 1:26. 1:38. 1:07. 1:27. 1:49. 1:26. 1:32. 1:28.
                    1:44. 1:27. 1:30. 1:28. 1:13. 1:27. 1:46. 1:23. 1:29. 1:36. 1:34.
                    1:48. 1:48. 1:30. 1:31. 1:12. 1:26. 1:48. 1:29. 1:35. 1:34. 1:31.
                    1:30. 1:44. 1:30. 1:27. 1:12. 1:25. 1:54. 1:33. 1:36. 1:30. 1:52.
                    1:50. 1:33. 1:35. 1:14. 1:35. 1:36. 1:35. 1:38. 1:36. 1:31. 1:53.
                    2:02. 1:37. 1:32. 1:29. 1:24. 1:27. 1:55. 1:32. 1:52. 1:50. 1:39.
                    1:30. 1:52. 1:58. 1:38. 1:35. 1:18. 1:30. 1:46. 1:33. 1:37. 1:45.
                    1:44. 1:28. 1:51. 2:01. 1:34. 1:45. 1:41. 1:16. 1:27. 1:49. 1:33.
                    1:40. 1:38. 1:40. 1:45. 1:50. 1:56. 1:30. 1:20. 1:34. 2:06. 2:02.
                    1:31. 1:45. 1:37. 1:36. 1:50. 1:56. 1:36. 1:34. 1:21. 1:28. 1:52.
                    1:37. 1:39. 1:37. 1:32. 1:48. 1:58. 1:36. 1:34. 1:19. 1:32. 1:48.
                    1:42. 1:39. 1:36. 1:56. 1:53. 1:30. 1:39. 1:21. 1:32. 1:50. 1:31.
                    1:43. 1:38. 1:37. 1:40. 1:55. 1:33. 1:43. 1:23. 1:32. 1:51. 1:32.
                    1:38. 1:39. 1:36. 1:51. 1:57. 1:38. 1:42. 1:23. 1:37. 1:53. 1:33.
                    1:39. 1:37. 1:38. 1:33. 1:28. 1:40. 1:20. 1:33. 1:33. 1:49. 1:40.
                    1:37. 1:44. 1:47. 2:03. 1:32. 1:35. 1:41. 1:19. 1:36. 1:54. 1:40.
                    1:37. 1:37. 1:48. 1:57. 1:34. 1:35. 1:42. 1:19. 1:37. 1:57. 1:45.
                    1:39. 1:38. 1:58. 2:04. 1:36. 1:46. 1:31. 1:14. 1:36. 1:54. 1:43.
                    1:39, 1:37, 1:57, 2:01, 1:36, 1:46, 1:36, 1:23, 1:34, 1:57, 1:47,
```

First you have the problem of recording the splits. The easiest way (short of a chip system; the dialog on page 51 allows you to record runners repeatedly after a specified interval) would be to record select times for everyone, accepting the option to add the IDs to the finish order and the select times to the individual times file. If you record IDs manually, you will soon have to brave a lot of "NUMBER XXX FOUND AT PLACE YYY" messages.

To display the splits, pull the Print Results menu down to "Count multiple finishes (splits)." The splits are then shown as at left. When you're done, you're asked if you want to file the "last IDs and times." If so, it actually shows the final elapsed time for each ID in ARJaM results files ORDER and TIMES.

Combining Results of Races

Some events enable runners to participate in more than one race. For example, a 10K and 5K may be run in succession. The obvious thing to do is to score runners who do both races by summing their times.

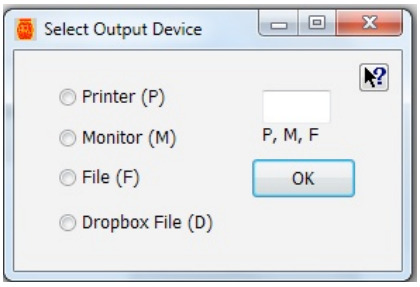
To do so in RaceDay (see page 83 for using Multirace, which provides more options in reporting the results), simply save the results of each race as a split (an option under the File menu). Then pull down the Edit menu to "Add new results folder." Click on "Print results," say you want two splits and click on "Replace final time with sum of splits" in the splits dialog on page 64. You'll be asked for the "Required number of splits." Say "2" and click on "Order of finish."

If you have splits or a start time in the two events, it's slightly more complicated. Splits are stored in a file called TRIPLEDATA. If you have split folders within the 5K and 10K folders, there is a TRIPLEDATA created inside both the 5K and 10K folders. Copy the finish results for each race (an item under the File menu) to new folders outside the 5K and 10K folders (in the ROSTERN folder). Then go to those folders before you start saving the results as splits.

Posting Results Online During the Race

Runners (and their friends) can now obtain smartphone apps from which they can find their place and time "shortly" after they finish. RaceJoy, currently available for iPhones, is the more sophisticated of those available at this time, also provides place by age group and live tracking. It costs the runners $1.99 and there is also a fee to the event. Bibs runs on iPhones and Androids and is free to both runners and events. Apps of this type are probably released every month; I'm sure this it out of date info.

Using Apps That Get Data from Your Dropbox

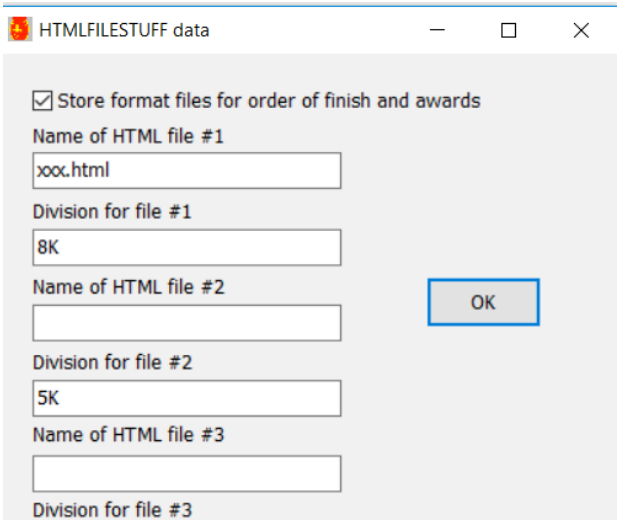


To enable any of these apps you must have Internet access during the race and send results files periodically to a Dropbox folder to which the purveyors of the service have been given access (Dropbox, a cloud-like service, is also free; at least up to a point)). In RaceDay, name the file "racename.csv" and put it in the Dropbox folder. Once you do so, the output device selection device will have a special Dropbox item and ARJaM will remember the location of the Dropbox folder, even after you close RaceDay. Also, if you have been using files from a chip system for your results, RaceDay will remember where they are, too, and take you back to the folder in which they are filed when you are ready to read another file.

For this to work, runners must have the appropriate app. Send preregistered runners an email before the race to advise them of its availability; see page 31 for how to do this with program Sorters.

Using Links on Your Own Web Site: Road Races

If you have a web site on which you can post data yourself, you can set up links that will enable runners and their friends to access both their individual results and periodically updated full results from their smart phones without having an app. Preparing and posting an HTML file that will include links to your results files is discussed in detail on pages 71 and 72.



Before the race, open RaceDay and navigate to the folder that contains the ORDER file for the finish. Pull down RaceDay's File menu to "Make HTMLFILESTUFF." That is the name of a file which will stored in the finish folder. In the race for which the file at left appeared, 8K runners were finishing with 5K runners. The "xxx" in the first line was replaced by "freedomfun8k" and "freedomfun5k.html" was entered on the third line. There are also boxes for two more divisions, not needed for this event.

Note the check box at the top for storing "format files." Unless you reject this useful option, you are then asked if you want to include award winners in the results files. If so, there will be a link in the results file(s) to the finishers who will take home awards. Here's a sample of such a file:

http://raceberryjam.com/2018/nv10k.html

In any case, you are now taken to the "Results options" dialog of page 55 and all the related dialogs (race distance, eliminated open runners, net-time related options, etc.). Your choices are put into a file called xxxORDER.txt; you can edit the part of the name before "ORDER," but leave "ORDER" alone. If you accepted the option to include award winners in the file, you then enter the numbers of open and age group award

winners. Your selections are written to a file called xxxAWARDS.txt. This is done for each division you wish to post separately.

You are then asked if you want to "Make LIVEFILE, now, too." LIVEFILE is discussed below.

During the race, after entering a batch of finishers (with or without the help of a chip system), you are asked if you want to update the file(s). If so, you'll see messages to that effect. If you have to edit the results (enter a name for an unidentified runner, correct someone's age or division, correct a constant error in the times, reverse the order of some runners, whatever) the files will be updated automatically and refreshed every 60 seconds.

You should put a link to these files in a prominent place on your web site before the race.

As above, send preregistered runners an email before the race to advise them how to access the results when you're updating them periodically; see page 30 for how to do this with program Sorters.

If you have two to four race divisions finishing thru the same finish line, and the divisions have different age groups, their results must be kept in separate folders. Create an HTMFILESTUFF file in each folder. When you add to the finishers in a division, only its html file will be updated. When you switch from one division/folder to the other and enter some more finishers, the correct html file will be updated.

When, as in the 5K/8K case, one division has quite a few finishers before the other has any, it is useful to give the division that finishes later a lower-case code. Then you will see on the preliminary results display when members of that division start to arrive, and so will know when it's time to switch divisions to print out results of the second division; see page 13.

As a bonus for creating an HTMLFILESTUFF file, an item under the file menu "Output results using stored formats" is enabled. After clicking on this item, you're asked to locate the xxxORDER.txt or xxxAWARDS.txt file of interest. This enables printing results without having to format them.

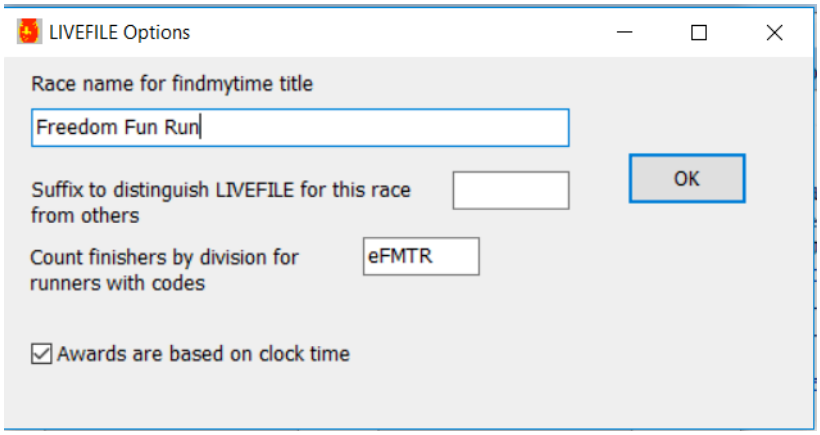
Using Links on Your Own Web Site: Cross Country

For road races, the order of finish -- overall, by sex, and by age group -- are of primary interest. In cross country, team scoring is as important as individual placement. This is supplied by a function similar to that of HTMLFILESTUFF in road races.

Because the formatting is usually minimal (name, year in school, team, time, and place overall), and because scholastic and collegiate cross country meets always have at least two separate races, it is convenient and useful to create the files in NewEvent as you make results folders. Click on the "Create HTMLFILESTUFF" option in the dialog on page 8 for the first race you set up. All you'll have to do is to name the results file for that race. The option will be on for the other races; simply name the results file for each race.

At the meet, after each batch of finishers is entered, you are first asked if you want to "Show preliminary XC team scores." You do; see page 44. If you made HTMLFILESTUFF, you are then asked if you want to update the html file. If you do, the html file will include "PRELIMINARY RESULTS" in its header and show the preliminary team scores based on the finishers recorded thus far under the assumption that all teams will eventually be complete (again, see page 44), followed by the order of finish.

LIVEFILE



To permit runners to access their individual results without searching thru the full results, also post a link to a file called "findmytime XX.php" on your server. To enable it, before the race pull down RaceDay's Other options menu to "Make LIVEFILE" (as you're invited to do when you create HTMLFILESTUFF in RaceDay). The dialog above appears. Because you may have several active versions of this file on your site (for different races in a cross country meet, or for races scored by different members of your scoring team), you can enter a suffix for the LIVEFILEs that contain the data for each race and for the "findmytimeXX.php" files that operate on those files. If you are using KEYCODES to distinguish different divisions of the finishers, you can select the divisions in which to report the runner's order of finish. For the Freedom Fun Run, "e" was used to indicate 8K runners and "F" 5K runners. Note: as you'll see below, results are always reported by sex as well as by division, so, if you have assigned division codes by sex, don't bother to include the sex-based division codes you select here. Also note the question as to the basis for awards.

When you create a LIVEFILE, a blank version of it and the files that will operate on it once you have some results are posted to your web site. During the race, after each batch of finishers are recorded, their data are put into the LIVEFILE in your results folder and its version on your web site are updated. On clicking on the link to findmytimeXX.php, a display like that at left appears. (For cross country meets, there is a note that entering a team name will yield individual results of all team members who have finished thus far.)

Apple Raceberry JaM

What's My Time in the NITTANY VALLEY2 HALF MARATHON?

What was your race number?

Or enter a runner's last name:

Press this button to get results: Submit .

Results are currently available up to 4:14:06

Results for PATRICK APPLEGATE
STATE COLLEGE, PA

Note: Places listed here are based on clock time which may not be the basis for awards.

Division: Walk (clock start: -1:09:00)
Bib number: 1023
Place overall: 8
Place among men: 4
Place among M30: 1
Clock time: 3:07:09
Net time: 3:07:04

E-Mail these results to

or hit the "Submit" Button below to check someone else's results.

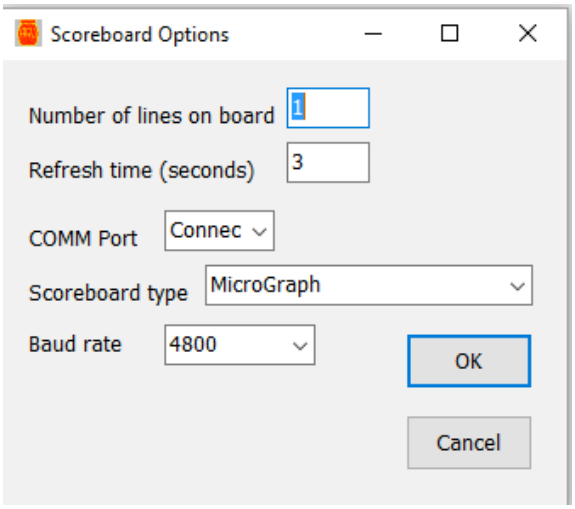
To send a text message instead, enter a phone number and select the carrier below:
○ **ATT** ○ **Sprint** ○ **TMobile** ○ **Verizon** ○ **USCellular**

Submit .

When you enter a race number or last name, the findmytime app searches its version of LIVEFILE on your web site (which is usually different from the version on your results folder) for the associated runner. If successful, the results are reported in the display at left. For this race, awards were based on net time. LIVEFILE records them in order of finish; hence the note. This runner was entered in the walk division. His placement overall, by gender, and by age group are reported relative to that division. Also note the negative start time; walkers started 1:09:00 before the runners. Finally, note the options to email or text the results.

Scoreboards

In principle, Apple Raceberry JaM can send results to any properly configured scoreboard that can accept data from FinishLynx. The only one with which this has been done so far as I know is the Micrograph, marketed in the United States by Lynx System Developers. It also connects to a computer running ResultsTV, another Lynx product, which can in turn drive a Jumbotron.



RaceDay connects to a Micrograph either via a serial connection or over a LAN. Pull down the Scoreboard menu to "Open scoreboard." The dialog at right allows you select the COMM port if you're using a serial connection. If not, set the COMM port to "Connect." Then select the particular function of interest under that menu. Initially you should select "Show running time," just to get something showing on the board and so attract the attention of spectators. You are then taken to a dialog like that on page 39, where you input a time and hit enter when the running time reaches it.

As indicated above, RaceDay is programmed to show a variety of results on the board. But since the board shows only one result at a time (every 3 seconds is the recommended refresh time), I have not found it useful for most of these functions.

What has been useful is to show team scores and the first few finishers in cross country races. After each batch of finishers is recorded, accept the option to "Show XC team scores." If any teams are complete, they will be scored assuming all teams will eventually be complete, and you are asked if you want to send the results to the scoreboard. If you say yes, you're asked how many teams and individual results you wish to show; the limit is a total of 29 (which will take about a minute and a half). The results are labeled "Preliminary," since, if any teams never complete, the scores are incorrect. But the placement is usually accurate. For championship meets, some runners compete as individuals. If they are separated from those who compete as team

members by a range of ID numbers, you can exclude them from the scoring, which will then be perfect.

Here's what it looks like:

https://youtu.be/aajgky2fPfI

The Poor Man's Scoreboard

The Micrograph costs $7500. Thanks to a suggestion from one of my customers, I've come up with a much cheaper and, in a way, more powerful solution.

You need a flat screen TV (you can get a 40-inch screen for about $250) with an HDMI connection. Mount the TV on a tripod (I use a Monoprice ceiling mount and an old tripod that has a one-inch diameter shaft). Connect the TV to your computer with an HDMI cable (50 feet is probably the longest you'll find).

When you open the scoreboard in RaceDay, choose "HTML" as the scoreboard type. The COMM port is not used; it can be ignored, as is the case with the baud rate. As for the number of lines, for cross country anything from five to twelve looks good. For road races, choosing 15 to 20 lines gives you two columns. Five or six seconds is probably okay for a refresh time; suit yourself. You can always pull the Scoreboard menu down to "Change board settings."

Once you select the scoreboard parameters, you're asked if you want to "Refresh board after adding results." You do. An html file BOARDFILE.html is then created in your race folder. Double-click on it; initially it will say "Results will be posted here when available." Turn on the TV. Right-click on the desktop and click on "Display settings." Scroll down to "Multiple displays" and select "Extend." Then, with BOARDFILE visible on your monitor, press and hold down the Windows Key and then press the SHIFT key. While keeping those two pressed hit the right arrow key to move the current active window left or right. The html file will disappear from your computer and magically reappear on the TV, many times larger.

If you have created race divisions and asked for more than 14 lines, you're asked if you want to show results separately for any two divisions. For a 5K and 10K finishing at the same time, e.g., first the 5K finishers will be listed and then the 10K finishers. Check it out here (this one was a 5K/8K):

http://raceberryjam.com/scoreboard.MOV

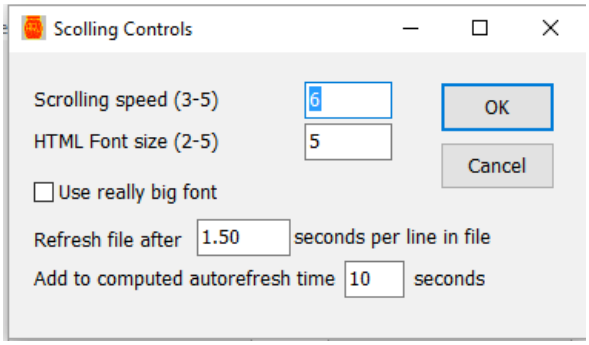
After each batch of finishers is processed, you're asked if you want to update the scoreboard. As with the html results files sent to the Internet, any correction of errors or omissions automatically refreshes the scoreboard.

Scrolling Files for Scoreboards

Some Jumbotron operators will refresh their boards by accessing an html file you post on the Internet. Although you could send BOARDFILE to the Internet, you'd be sending a new file every 5 seconds or so. That's a lot of (expensive) bandwidth.

An option in the html language allows the data in an html file to scroll on the viewer's screen. See, for example,

http://raceberryjam.com/2018/scrollfilex.html



You can control the size of the results and the speed at which they scroll by pulling the Edit menu down to "Scrolling parameters."

To create such a file, after clicking on Print Results and selecting your formatting options, and then on the type of results wish to display and "File" for the output device, name the file something like "scrollfilesomething.html." Having "scroll" in the file name will make the default file format "Scrolling HTML file," which is what you want. As you add finishers, the file is updated and refreshed every 60 seconds.

After you enter each batch of finishers, you'll be asked if you want to update the scrolling results. After the results currently showing get to the bottom, they will automatically be replaced by the newer set.

In cross country meets, accept the option to "Show XC team scores." The scrolling file will list the complete teams (once at least one team is complete) and their scores, followed by all the individual finishers and their times.

Step 5: After the Race

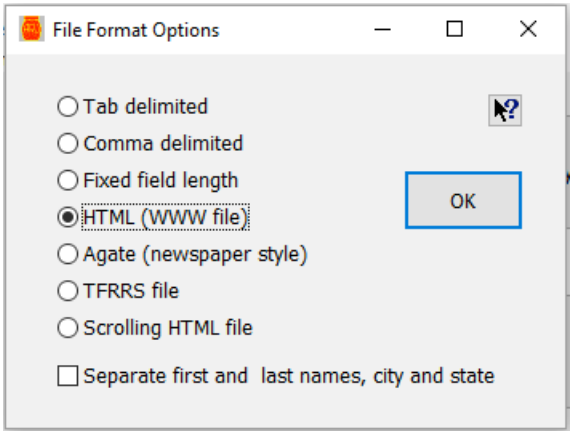
Complete Addresses for Race Day Entrants

If you have a substantial number of entrants on race day, you probably have to skip inputting their addresses until later. After the race, return to SetData. Leave the "Enter and edit shirt size" box off. When you pull down the Add menu to "Entrants" or type Ctrl+A, you get the dialog shown on page 15. Click on the "Add mainly addresses" box, and "start adding at" the first number of the race-day entrants. When the entry form for those runners appears, the cursor will be on the "Street" line. Enter the address if it's not there already. If you have already entered the runner's home town and zip code, hit the down-arrow to get past those boxes and tab to the email box if you need to enter an email address. Otherwise hit <enter> to move on to the next entrant.

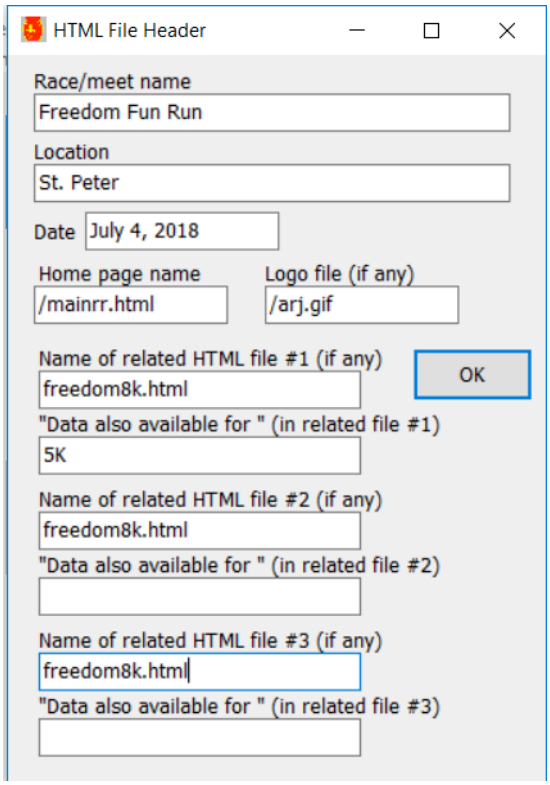
Posting Results on the Internet

Apple Raceberry JaM makes it possible for you to post your race results on the Internet with very little effort. You will, of course, need access to the Internet and an Internet service provider who allows you to store your files. Software that allows you to send files to the provider is optional; RaceDay can do it for you.

For examples of what your readers will see, check out my Web site http://www.raceberryjam.com. Note that the software you use to view the page (the "browser;" Netscape, e.g.) has a "Find" option that allows you to search for the performance of a particular runner or team. Note also the time it took for the software to read the file. These files are actually text files (save one as text if you like; first click on "Lose the frame" so you get the file you actually want to see) in the HTML format, not PDFs, which are much slower to load.



It is easy to prepare an "HTML file" of your results in whatever format you prefer: order of finish, standard cross country, standard road race, teams, alphabetical, etc., and to produce a single file containing more than one format. Your first step is to select an option under the Results menu or from the buttons shown on page 55. When asked to select an output device (page 5), select File (type "F") and give the file name a suffix of ".htm" or ".html." The file format options dialog (see page 65) that then appears confirms that you want to prepare a file for the World Wide Web.



The dialog at right asks you for some information that will be put at the head of the web page on which your results will be stored. The first three lines are filled in with what you entered if you declared you would put a title above the header of your results, page 55.

The last six lines of the dialog help you to "link" the page you are working on to other pages. One of the neat things about the Web is the ease with which you can jump from one page to another by clicking on a highlighted (usually underlined) piece of text or part of a graphic. The fourth line puts in a link back to the index page (named "mainrr.html") that the reader probably went to first in order to access the results. That it is labeled "/mainrr.html" indicates that the results files are being kept in a subfolder of that in which mainrr.html is stored. More about that and the "Logo file" below.

To keep the size of the files down – the bigger the files, the longer a user has to wait for them to load – I often create separate HTML files for men and women in big road races, using RaceDay's ability to list runners in order of finish separately by sex (page 59). Suppose you are working on the women's results, putting them into a file called "mora5kwomen.html." RaceDay assumes you will put the men's results into a file called "mora5kmen.html," pops that name up on the fifth line of the dialog and "men" into the next line. Accepting these defaults will add to the "mora5kwomen.html" file the lines

```
Results also available for <A HREF = mora5kmen.html>men.</A>
Return to <A HREF = /mainrr.html>home page</A>.
```

and your reader will see the lines

Results also available for men. Return to home page.

Clicking on the first underlined phrase will link the reader to the men's results page. Clicking on the second other one will link to a page called "mainrr.html" which is the index page of the WWW account you are using. Since sites differ as to the names of their home pages, you are given the opportunity to customize that, too, in the fourth box of the dialog above (what you choose is stored in the ARJaM.ini file in your program folder). The links are inserted both at the top and bottom of the file.

For events that have races at multiple distances, you can link the results of one to the other(s). In the example shown, there was a 5K race and an 8K. The 8K results were being sent to freedom8k.html. That name was used as the default choice for the 5K results. When, as in the case illustrated, the multiple races finish simultaneously, and you are separating the finishers by assigning them divisions (see page 12), RaceDay searches the KEYCODES file for the names of divisions other than the one currently being scored, and, if you entered the distances for each division, fills in the sixth line with the name of the first division not being scored. You would still have to name the results file used for that division on line 5. Changing the 5K link to freedom5k.html is pretty easy.

All internet-capable ARJaM programs (Sorters, SetData, RaceDay, Handicap, and MultiRace) allow you to put your "corporate logo" at the top of html files you create. The logo file must already be on the site to which you're sending results. When you set up the html header, put the file name in the new box for "Logo file." If, as I do, you put the results in a folder on your site, and the logo file is in the next level up, put a "/" in front of its name. E.g., mine is arj.gif, so I enter "/arj.gif." Note that it's case sensitive.

Cross Country

You can now put whatever type of results you want in the file. For cross country meets the standard cross country options are a good place to start. If you have splits in a cross country meet, you can show team scores at the splits and each runner's places at the splits. Simply say you want to list results of the splits in the splits dialog on page 64 and click on "show scores at splits" and "show places at splits" in the standard cross country dialog on page 57. The scores at splits will be listed after the final team scores. See. e.g.,

http://raceberryjam.com/2018/nc3mencc.html

Road Races

If you want to show award winners followed by a complete order of finish, first click on the Standard Road button, specify the file name and make your selections in the dialog on page 56. When that's done, you'll be asked if you want to "Add more results to the file." Say "Yes" and click on the Order of Finish button. If you made an HTMLFILESTUFF, you can use the "Output results using stored formats" option under the file menu to do this in one step. If there was team competition you can put the team results in the same file or post them separately (perhaps linking them to the order of finish).

If you include pace per mile in the results format, the reader will be able to step through the order of finish results by clicking on links to places where the pace changes to an even minute (6:00, 7:00, etc.).

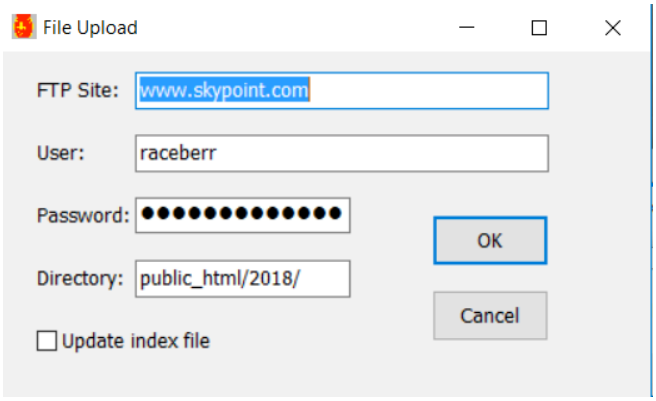
Winner's Pictures

If you have photos of the first man and woman in the race, you can include them in the order-of-finish results. Convert the photo to a "jpeg" file. Click on the "Include images of first man and woman" box in the dialog on page 59. You then are asked to name the jpeg. Lots of example on raceberryjam.com (I get my photos from my FinishLynx backup system that I bring to chip races). You need to upload the files to

the same location as your results file (in the 2019 folder, e.g.), but RaceDay makes that easy for you; see below.

Putting Your Files Up

The next step is getting your pages up on the Web, and making it easy for readers to find them. You could use a commercially available FTP program. For general purposes I have used a freeware program called FileZilla.



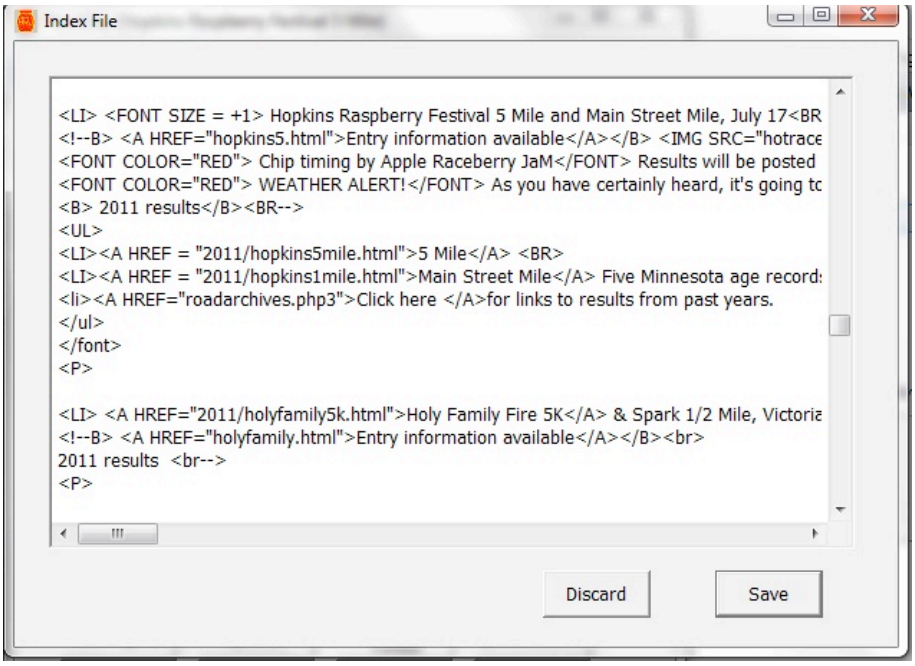
However, it is easy to use the ARJaM programs to do it for you. Immediately after you have finished writing results to the html file as described above, you are asked if you want to send them up to your web site. If you say yes, the dialog at left allows you to enter the same data as are required with an FTP program (ARJaM remembers your input in the ARJaM.ini file). Note the option to put the file in a particular directory on your web site. I post results from dozens of events each year, and by putting them in separate directories I can archive them. Put "/" after the directory name if you do likewise.

The Index File. For users easily to access your meet results, there should also be an index file, usually with a name like "index.html" (mine are called "mainrr.html" for road races and "maincc.html" for cross country) inside your "www" folder on the provider's server. This is basically a text file containing, most critically, links to your results (and any other) pages. Here is a bare-bones version of the index file for my www page that contains links to the results files discussed in the preceding paragraph:

```
<HTML>
<HEAD>
<TITLE>Apple Raceberry JaM</TITLE>
</HEAD>
<BODY>
<H1>Computer Services and Software for Road Races and Track
and Cross Country Meets</H1>
<BODY><BR>
<H2>Race Results</H2>
<UL><BR>
<LI> Tiger Trot 5K and Fountain Lake 5 Mile, Austin, April 16
<UL><BR>
<LI><A HREF="tigertrot.html"> Tiger Trot 5K </A><BR>
<LI><A HREF=" fountainlake.html"> Fountain Lake 5 Mile </A><BR>
</UL><BR>
</UL><BR>

To comment or for further info send e-mail to
jack@raceberryjam.com.

</BODY>
</HTML>
```



If you can learn a little bit of html, you can edit the index file and send it up when you post the results. Click on the "Update index file" box in the dialog above. After the results are uploaded, you are asked to locate the index file, which then appears in a memo box as shown at left. Scroll down to the location of your race information. You can copy and paste, delete and insert. Use the <!--XXX--> delimiter to hide data as necessary.

Otherwise you can use a commercial program to create and upload your index file.

You can also upload PDFs and jpeg files from RaceDay to the same folder as that which you use for results. Simply pull the Other options menu down to "Upload miscellaneous file."

Updating the Order of Finish During the Race

If you have Internet access at the race site, you can easily update the order of finish and awards lists during the race. Just create an HTMFILESTUFF file as described on page 66. For this to be useful, you will need a link to the results file in a prominent place on your web site. You might also post a line that says "Race starts at 9 a.m." so that impatient viewers won't complain about incorrect results.

PDFS

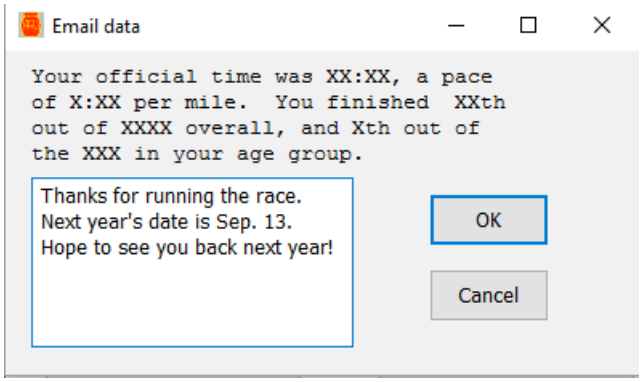
You may prefer to post your results as a PDF. The HTML files are efficient but, aside from the possibilities of a logo at the top and pictures of the winners, not as pretty as you can get by using RaceDay's printing capabilities.

If so, note that you can concatenate results in order of finish, "standard road" award winners, and teams by accepting the option to "Add more results to the file." You will, however, need to install some software to create the PDF. With Windows 10 comes Microsoft Print to PDF, which is great. I used to like "Foxit Reader," which is free. You can upload the PDF by pulling RaceDay's Other Options menu down to "Upload miscellaneous file."

Emailing Results

If you have stored email addresses in the "superdata" field (see pages 9 and 20), you can use RaceDay to email individual results to all finishers for whom you have an address.

Click on "Print results" and go through the usual formatting options (unless you've been printing results and will use the same options in your emails), including whether or not you wish to display any splits that are available. After confirming the range of finishers to which you wish to send emails, you get the formatting dialog shown at right. The emails that result will have the following form:



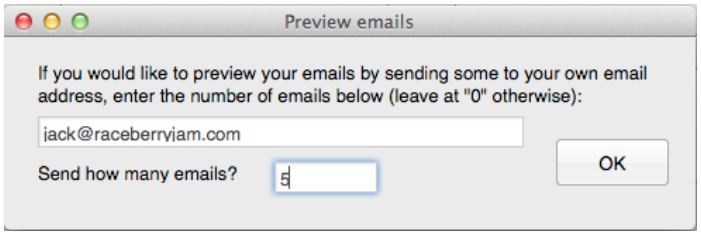

```
Your official time was 50:48, a pace of 5:27 per mile. You finished 5th out
of 216 overall and 3rd out of the 7 Men 20 - 24. Your age grade % was
 81.03%.
```

```
Complete results are available at http://www.raceberryjam.com (click on Road
Races then Results).

Thanks for running the race. Next year's date is Aug. 12. Hope to see you
back!
```

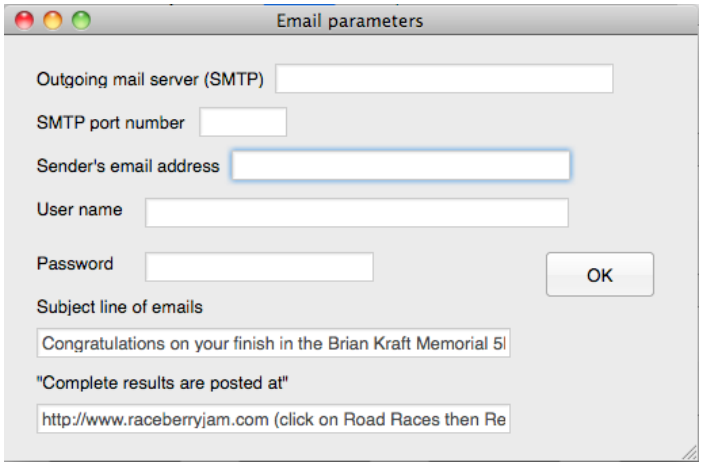
The pace appears if, when you encountered the formatting dialog on page 55, you declared you wished to, and the split(s) (here an age-graded result) if you want to include them. If so, you get a dialog like that on page 64 in which to name the splits (only 11 characters available) and identify which, if any, are WMA percents.

You are asked if you want to send emails to all the finishers (or at least those in the ID number range or divisions you may have selected) or to a select few. Sometimes you will hear from someone who received an email and wants to correct his/her age or have you send one to a friend/family member whose email address was not on file.



You then get the opportunity to review your emails before you send them out, which is a good idea. As shown on the left, simply enter the number of test emails you want to send; leave it at zero to actually send them out to your runners.

You are then asked for the information in the dialog at right. You can probably figure out what to put in the first four boxes by looking at the setup of your email.



That's about it. You can print a list of email addresses you send to if you wish, but you'll be able to tell they went out when you get some "Undelivered mail returned to sender" emails. Unless you input all those addresses perfectly. If you are collecting the results of your races in a data base so as to speed up data entry in future races (page 81), use Sorters and its scrolling display (page 30) to eliminate the incorrect email addresses before you run Database on your data.

Results for Newspapers

The "newspaper style" listed in the dialog above produces results suitable for the agate section of your newspaper; perhaps you can send them in by email, thus saving them work and improving your prospects for getting more finishers listed.

Here's a sample of what the "standard road results" option yields in this format:

RUNNING RESULTS

Nana's Run 5K, Minnetonka

Men

Open - 1. Roland Pauwels, Minneapolis, 15:24; 2. Pete Kessler, New Hope, 16:05; 3. Michael E Seaman, Edina, 16:37. 12 & Under - 1. Adam Wendle, Greenwood, 26:14. an13-19 - 1. Jeremy Beuch, Shakopee, 18:09. 20-29 - 1. Scott Wendt, Minnetonka, 19:02. 30-39 - 1. Mike Setter, Minneapolis, 17:32. 40-49 - 1. Tom Heimdal, Apple Valley, 18:23. 50-59 - 1. Carl A Koecher, Minnetonka, 21:40. 60-69 - 1. Bill Fraser, Edina, 21:01. 70 & Up - 1. Alex Ratelle, Grand Marais, 23:42.

Women

Open - 1. Janis Klecker, Minnetonka, 18:11; 2. Jessica Young, St. Louis Park, 18:26; 3. Judy Meyer, New Brighton, 18:44. 12 & Under - 1. Lisa Ekholm, Edina, 45:17. 13-19 - 1. Sarah Obert, St. Louis Park, 31:10. 20-29 - 1. Anne Fraser, Independence, 19:15. 30-39 - 1.

Tracy Kurschner, Minneapolis, 22:51. 40-49 - 1. Kathryn M Benhardus, Minnetonka, 23:21. 50-59 - 1. Pat Clabo, Minnetonka, 25:21. 60-69 - 1. Mae Horns, Bloomington, 26:05.

For this race, open runners (the top three men and women) were excluded from age group awards. When they are not, only the open award winners' names last names (and not their home towns) are listed in the age-group awards.

If the newspaper wants to print complete results, they will probably print the class place as well as home town and print them in columns rather than the condensed style shown above. If so, do not select the "newspaper" style for the output. Instead find out their preference as to the character(s) they prefer to use for delimiting the various fields. As shown above, your options are tabs, any one character of their choosing, or characters like @#$%.

Be sure to send the newspaper a sample file before the race so they can check the format out!

Here is the lightly edited form of results for a cross country meet, after selecting the "Standard Cross Country" option and electing to "Mark up qualifiers:"

RUNNING RESULTS

MSHSL Section 6AA Championships

Gale Woods Farm, Minnetrista

Boys

Team scores: 1. Edina (Will Burke 15:55.1, Jake Campbell 16:11.1, Matt Lumbar 16:13.7, Luke Lumbar 16:21.1, Matthew Berntson 16:47.0, Peter Knoll 17:00.0, Paul Nordquist 17:08.4), 53; 2. Eden Prairie (Cal Lawton 16:08.8, Henry Zurn 16:17.3, Andrew Hansen 16:19.7, Ricardo Reyes 16:21.3, Jacob Young 16:36.4, Ryan Stewart 16:43.4, Jack Odzer 17:06.9), 56; 3. Wayzata, 60; 4. Hopkins, 84; 5. Minnetonka, 95; 6. Minneapolis Southwest, 165; 7. Minneapolis South, 247; 8. St Louis Park, 258; 9. Robbinsdale Armstrong, 278; 10. Robbinsdale Cooper, 279; 11. Benilde St Margaret's, 303; 12. Minneapolis Washburn, 341; 13. Minneapolis Henry, 414; 14. DeLaSalle, 419.

Individuals: 1. Josh Thorson, Wayzata, 15:35.4; 2. Connor Olson, Wayzata, 15:37.7; 3. John Klecker, Hopkins, 15:51.4; 4. Will Burke, Edina, 15:55.1; 5. Kyle Anderson, Minnetonka, 16:07.5; 6. Cal Lawton, Eden Prairie, 16:08.8; 7. Jake Campbell, Edina, 16:11.1; 8. Joe Klecker, Hopkins, 16:11.4; 9. Matt Lumbar, Edina, 16:13.7; 10. Henry Zurn, Eden Prairie, 16:17.3.

Girls

Team scores: 1. Wayzata (Anna French 14:33.7, Annika HalvErson 14:51.2, Mackenzie Keller-Miller 15:16.9, Alayna Sonnesyn 15:17.8, McKenna Evans 15:23.0, Mary Franke 15:44.0, Emily Holscher 15:59.7), 60; 2. Edina (Piper Bain 15:02.2, Tate Sweeney 15:05.4, Stephanie Kohn 15:09.4, Molly Kuhs 15:11.3, Bridgit Loeffelholz 15:30.4, Laura Schmiel 16:01.3, McKenzie Lee 16:10.6), 69; 3. Eden Prairie, 97; 4. Hopkins, 118; 5*. Robbinsdale Armstrong, 136; 6*. Minneapolis Southwest, 136; 7. Minnetonka, 168; 8. Minneapolis South, 231; 9. Robbinsdale Cooper, 240; 10. Minneapolis Washburn, 254; 11. Benilde St Margaret's, 336; 12. St Louis Park, 343; 13. DeLaSalle, 367.

Individuals: 1. Anna French, Wayzata, 14:33.7; 2. Hannah Jeter, Eden Prairie, 14:47.8; 3. Sally Donovan, Minneapolis South, 14:50.8; 4. Annika HalvErson, Wayzata, 14:51.2; 5. Robin Fassett-Carman, Minneapolis Southwest, 14:54.7; 6. Lucy Hoelscher, Minnetonka, 14:58.6; 7. Piper Bain, Edina, 15:02.2; 8. melissa cabak, Robbinsdale Armstrong, 15:04.5; 9. Anna Nachbor, Robbinsdale Armstrong, 15:04.7; 10. Tate Sweeney, Edina, 15:05.4.

For this meet the first two teams and first 10 individuals qualified for the State Meet, and the scorer elected to output the first 10 individuals. Note that the names and times of the scoring members on the qualifying teams are listed. To get boys' and girls' results in the same file, I declared I would add more results to the file after doing the boys, switched to the girls' folder, and repeated the Standard Cross Country operation.

TFRRS Results

It is now required that results of NCAA cross country meets be submitted to TFRRS (Track & Field Results Reporting System). You will have to register with tfrrs.org to get a user name and password, and enter information on the meet (name, date, location). Then you upload a file, whose preparation is described below.

In RaceDay, go to Print Results/Standard Cross Country. Say you want to send the results to a file. Include "TFRRS" or "tfrrs" in the file name. It will be a text file. You'll be asked for names of the referee and meet director and the zip code of the venue, among other things (don't blame me). What you enter is stored in the Notes file for the meet, so you won't have to reenter it if you have to redo the results. You're also asked for the race distance and gender of the runners. If you have "Men"/"Women" and the race distance in the folder name, you'll just be verifying that info.

For the usual coed meet, when the results are done for one gender you're asked if you want to add more results to the file. Yes, you do. You are then prompted to search for the other gender's ORDER file and for the race distance and gender. Assuming

NCAA continues to score runners in just two genders, accept the default not to add any more results to the file.

Some meets want to score the runners in divisions; e.g., Division I and Division II or III. If so, create a KEYCODES file (page 12) in SetData or Download. Division codes must be assigned as numerals, in order of their line in KEYCODES; the code of the first division named in KEYCODES should be "1," e.g. If some runners are not in any division (non-NCAA or unattached), they will be scored in a division named "No code assigned," unless you edit the last line of KEYCODES to something more informative.

In RaceDay, do not select a division in the formatting dialog (page 55). Just confirm that the race is being scored in divisions when asked. On the TFRRS.org site, team scores will be computed separately for the divisions but all runners will be listed in a single order of finish.

Now you must get the data in the file to TFRRS. Quit RaceDay, and select from ARJMenu the Results/Upload XC Results item, which calls up the TFRRSXC program. This asks you for your TFRRS user name and password (which will be stored in the .ini file when you're done), shows you a list of meets you have filed info for, and, after you select the meet of current interest, asks you to locate the file you made in RaceDay. Much later you get a report on the number of entrants and finishers and will be able to see the results at the tfrrs.org site.

Mailing Awards

No matter how fast you are, there will always be some award winners who do not show up for the award ceremony. The race director may have to mail them their awards. Programs RaceDay and Sorters make preparing labels for the award winners easy; see page 58.

Listing, Printing Labels for, and Emailing Specific Runners:

There are times when you need to mail something to a runner whose number you don't have handy, or send him an email. Sorters is probably your quickest way to do so. See page 30 for how to scroll thru an alphabetical list to get the job done.

Database Package

Program DataBase helps you collect and maintain a database of runners who have entered or finished races scored with the Apple Raceberry JaM system. This database can be a source of income for you, provide you with a mailing list for races that you direct or service, and also, as described on page 22, speed data entry for other races you score. If you are timing a series of races (see page 85 for scoring options), you can use DataBase to keep track of which runners have run in which races. It also allows you to access individual records of the database and so to turn Apple Raceberry JaM into an efficient data-base manager suitable for maintaining an organization's membership. Before worrying about how you work with these programs, let's take a look at the finished product.

How it Works

As new runners are added to the database, they are not added to the bottom of the file. The line they occupy in the files is instead keyed to their last name. This speeds the search to determine if a runner is already on file without making great demands on the computer's memory. The technique used is called "hashing;" an integer equivalent to the letters in the runner's name is computed and then divided by the total number of lines available in the file. The remainder is the line to which that runner is assigned. If that line is occupied, the program searches for the next blank line. This file structure has implications for how you correct the duplicates that will inevitably occur because of misspelling and erroneous ages. See below.

Although hashing improves the speed of adding to the database, it requires a lot of empty lines in the file or it slows down unacceptably. Allow at least 30% and preferably 50% more lines in the files than you expect to fill.

Two runners are judged to be identical, and so not given different lines in the file, if the following conditions are met:

1. They have the same last names, through the first six letters (or consonants, if the name is longer than six characters); and
2. Their "birth dates" (estimated by subtracting the runner's age on race day from the date of the race in which they ran) are within one year of one another; and
3. They have the same sex; and
4. The first two characters of their first names agree, or else the numbers in their street addresses agree, or else one's name is a standard nickname for the other ("Dick" for "Richard," etc.).

Note that the ability of the system to detect whether or not two runners from different races are the same person depends on the accuracy with which the data for those races were entered (and on the runner's accuracy in specifying his/her age). When it works, however, the system allows you to update a runner's address as he/she moves about.

Files Used

Besides the usual ARJ files (ROSTERN, ADDRESSESN, CITIES, and CLASSES), DataBase uses and fills a file called DATES, which holds, for each runner, an estimated birth date and the date of the last race in which he/she ran. DATES is opened automatically by DataBase the first time you run it, as is a KEYCODES file. If you are using DataBase for a series of races (an option you declare when you create the KEYCODES), the KEYCODES file will have items like "Race 1," "Race 2," and "Races 2 & 3." Otherwise it helps you keep track of what types of races the runners have run: "8K or less," "10K," etc.

DataBase takes a set of ROSTERN/ADDRESSESN/CITIES files from a race and adds the entrants (or, if you prefer, just the finishers) to your data base files, hopefully without duplicating previous entries. It keeps track of what types of races (see the second dialog below) and how often the runners have run, and allows you to "mark up" the data base file for producing a set of labels or list of runners who have run at least a specified number of races and/or who have run at least one race in a certain distance range or of a certain type (bike or triathlon, to be specific). By "mark up" is meant that the fourth "division code" is turned on, allowing the alphabetical and zip-code parts of Sorters to concentrate on the "marked-up" runners. It can also "analyze" the runners

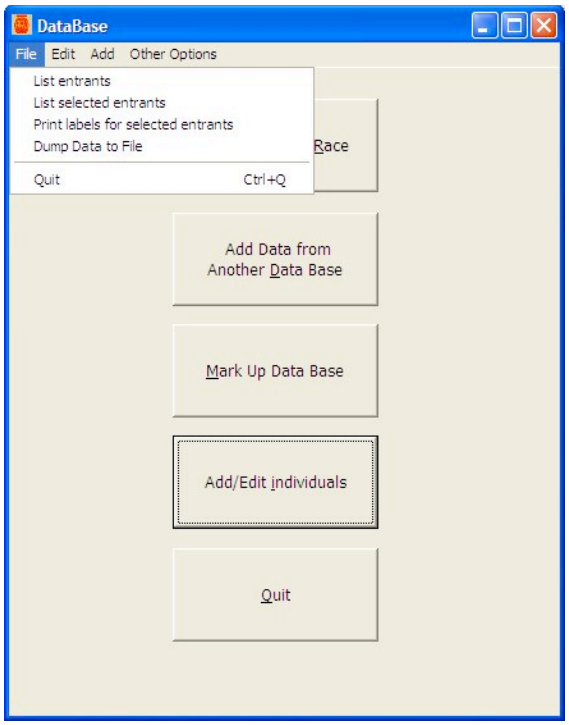
in your data base, listing how many in each age-sex group have run what distances and how often they have run.

DataBase also allows you to transfer the data in one data base to another, allowing you to break up (or compact) your data base files, to purify the files if you find some duplications (due to names being misspelled, for example), and to delete runners who have not entered or finished a race for some time. It may also be used to access and edit or delete the records of individuals, and also to add new names to the list.

Procedure

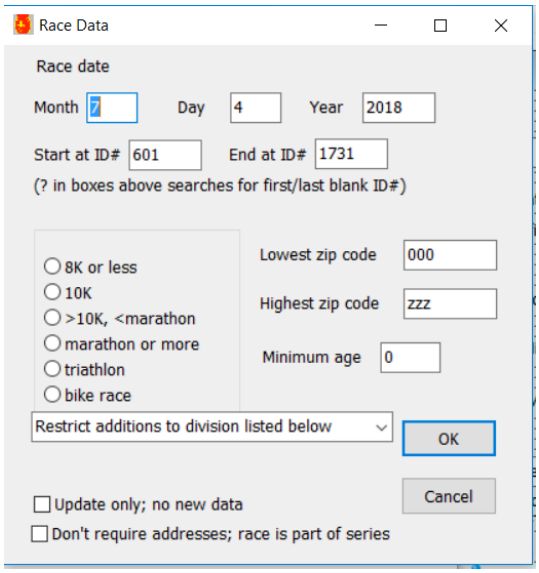
1. Use NewEvent to open the usual "runner data files." As noted above, allow 30 to 50% more room in ROSTERN than you expect to fill. The maximum number of runners you can store in an ARJ ROSTERN/ ADDRESSESN/CITIES file set is 32000, the maximum allowable integer in Pascal. You may as well allow for the maximum number of cities, which is 2047. Opening OTHERDATA and SUPERDATA files allows you to be able to track such information as phone numbers and email addresses, too. Choose the classes so that you can do demographic analyses (count the numbers in each age/sex group) fine enough to be useful.

2. If you want to keep track only of finishers (it may make your data base more salable and easier for you to handle, too), first pull down RaceDay's Other Options menu to "Set division code for all finishers."



3. Run DataBase to add the race data to your data base. When asked to locate the ROSTERN, it wants you to find the data base, not the race data that you will add (that will come later).

4. Now pull down the Options menu to "Add" (Ctrl+A) or click on the "Add Data from race" button. If the race was chip-timed with either the IPICO or MyLaps shoe chip systems, the extra data field will contain chip numbers and you will be asked if you want to remove them. The dialog at right asks for the type of race and whether you wish to restrict the additions by race division, zip codes, and runner's age.



You will probably want to restrict your data base to runners in your "local" area; what you choose is assumed to be your "standard" range of zip-codes and stored on your hard drive for future reference. Since younger runners seldom do more than one race a year (and since their parents may resent getting stuff mailed to them by your data base customers), I also exclude runners under the age of 16. For race series, the "8K or less" and similar labels are replaced by "Race 1," "Race 2," etc.

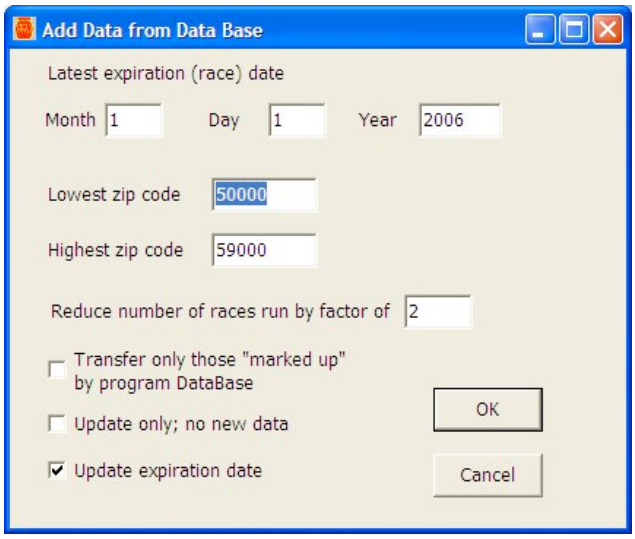
Note also that you can elect to "update" addresses in the data base, without adding new names.

Cleaning Up the Data Base

Once a year you should use DataBase to eliminate runners who have not run of your races in a year or more, and so may have moved out of town, taken up smoking, or died. Runners with blank zip codes are not transferred, which constitutes a way of eliminating duplicates.

You can transfer only those whose last race was after a certain date, and/or those whose fourth division code has been turned on by DataBase's "marking-up" mechanism. If you mark those who have run at least two races and elect this last option, you thus eliminate those who have run only one.

Also, you can reduce the "race counter" by a specified factor. At the end of each season, I eliminate everyone who (so far as I know) has run no races in the last year and reduce the race counter by a factor of two. The counter is then a rough indicator of how many races a person runs per year.

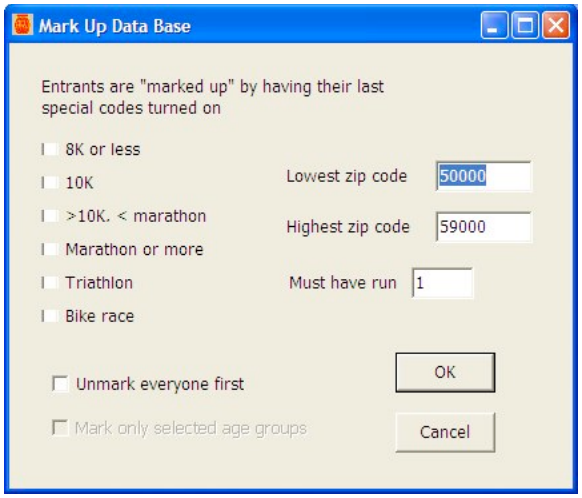


Use NewEvent to open up a new set of files in a new folder. Now run DataBase, locating the new ROSTERN and ADDRESSES files. Use the dialog shown at left to define who is going into the new data base and modify the race counter, if you so choose. Pull down the Add menu to "Add data from data base" and locate the old data base ROSTERN and ADDRESSES. And wait till it's done.

Using the Data Base

To use your data base, run Sorters. Pick a range of zip codes (or initials, if you're doing an alphabetical sort) for which you expect fewer than 20,000 runners (the maximum Sorters can sort in one batch). If there are more than 20,000 in the range you pick, no problem; you will be told so, and asked to pick a narrower range. You can also select what age/sex groups you want to receive the mailing by clicking on those of interest, and, at the cost of some extra time (a lot of time!), have the program eliminate duplicate labels for the same address.

This last facility isn't perfect, as was discussed above. However, if it finds two addresses in a certain zip-code area that are similar (have the same leading number), it will print them out in a file called "DUPEFILE" that will be saved in the folder containing the addresses. Each line of this file contains the zip code and the number and address of the two runners whose addresses were found either identical or similar. By going into the data base with SetData, you can judge for yourself whether the addresses are in fact the same. If so, change one of them to be identical in form with the other, so that, the next time you do a zip-code sort with the "Eliminate duplicates" option turned on, the two runners will be recognized as having the same address.



As noted above, before running Sorters you can "mark up" the data base, restricting the output to those who have run races of the type and distance in which you're interested and/or who have run two or more races. If you are using the data base to mail entries for another race, you will save a lot of postage if you mail only to those who you know have run at least two races in the last year or so. Remember that what DataBase does is to turn on the fourth division code for all who meet the specifications you set in the dialog at left. Thus when you run Sorters you must specify that you want out put only for runners whose last division code is on.

Here's how to prepare a mailing list tailor-made for a race that you scored last year. First mark up the data base to select "frequent" runners who have participated in races at least as long as the distance of the race of interest and who are in a nearby zip-code region, too. Then use NewEvent to open up a new set of name and address files in a new folder and use DataBase as described above to transfer the marked-up runners to those files. Then, without leaving DataBase, add the data from last year's race to the new data base, possibly allowing all zipcodes so as not to eliminate last year's far-flung entrants. You might also add the names from the year before, but I wouldn't go back any further than that; people are very mobile these days.

The new data base will now contain frequent runners, some of whom may have run the race last year, plus everybody else who ran last year (and optionally the year before). If the runners you marked up were from a smaller range of zip codes than other runners in your data base, some of the runners who ran the race in the last two years may have moved. You can update their addresses by choosing the "Add data from data base" option one more time, this time turning on the "update only" box but not the "marked-up" box.

You can use Sorters to select everybody in those files, or eliminate zip codes for areas not likely to come to the race. When you're done, trash the new data base.

Membership Management

Program DataBase can be used to access the records of individual runners in your data base, to look up their address, for example. On locating the ROSTERN and ADDRESSES in the usual way, pull down either its Add or Edit menu to "Individuals" or click on the "Add/Edit Individuals" button and enter the runner's name. If you enter just the last name, it will search for the first runner on file with that name. If it finds someone, your are asked to confirm "This is it" just as on page 19. If it is not the one you want, click on "No" or type <esc>. If you did not enter a first name, a blank is put in front of the last name you entered and you are expected to enter the initial of the person's first name (this is case sensitive). The search will be continued until you either find the person you're looking for or DataBase can find no one with that last name and first-name initial. In a large data base this method is generally a lot faster than using SetData's "Search For ID by name" option, in which you first find the ID number and then have to use the Edit or List option to pull up the address.

Program DataBase can also be used to create a data base that is well suited for keeping track of an organization's membership. Open up a ROSTERN, ADDRESSES, and CITIES files as usual; whether you keep track of the members' age and sex is optional. If you want to store their phone numbers, open up an OTHERDATA file at the same time, and SUPERDATA if you email addresses. When you run DataBase and locate a new set of ROSTERN and ADDRESSES files, a DATES file will be created. As noted above, this file consists of two dates, which DataBase uses for an approximate birth date and for the last time the runner ran. In DataBase, the first could be the member's actual birth date, if you are keeping track of ages, whereas the other one becomes an expiration date.

To enter data on a member, input his/her name. You may as well input the full name in the usual ARJ form (JACK.P MORAN, for example) since the member may be new and, if not, the initial of the first name helps narrow the search. Use the "Keep looking" box or "K" key to continue the search until you either locate the member or a set of blank boxes show up. All of SetData's short cuts are available for data entry; a "-" recalls the surname last entered in the "Name" box and the address last entered in the "Street" box, cities are looked up as you type in their names, and zip codes are looked up for cities previously entered.

Once your data are entered, Sorters can be used for lists and labels in alphabetical or zip-code order. To print out labels one at a time as you access (or enter) a person's record in program DataBase, select either the second or third item under its File menu. Only the members you have entered in the present session of DataBase will be listed.

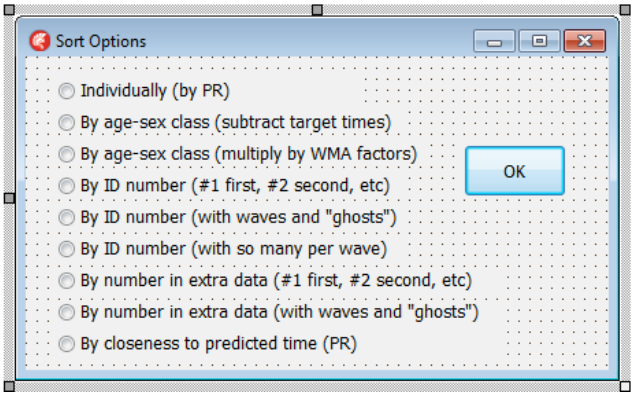
Other Options

Once you start setting up a multiplicity of data bases – besides the one you accumulate from each race you score, you might have one or more to keep track of the memberships of organizations you serve, and set them up for each year's entrants in specific races – you will find that an individual may be entered in more than one. DataBase allows you to update the data in each set of files from the others. The simplest way is to use the "Add data from data base" option under the Add menu as described above, turning on the "update only" button in the dialog shown above.

Alternatively, pull down the Add menu to "Add data from race" (Ctrl+A), but do not identify any race date or type; just click on the "Update only" button. You will be asked in the dialogs to the right, first, if you want to "add" data from another data base (accept the default), and, if so, whether you want to add addresses "regardless of expiration date." You probably don't. When DataBase finds a person whose name is in both data bases, it then compares the "expiration dates" of the two entries, and replaces the data in the file you are working on with those in the source file only if the latter data are newer. However, you can override this in special situations if you want (as when there are no addresses at all in the file you are working on).

Handicap Scoring and Wave Starts

The optional program Handicap, packaged with MultiRace (to be discussed below), helps you to score races in which the runners start at different times according to either age/sex group or some handicapping scheme, or start at the same time but are scored on a handicapped basis. In either case, the start times or handicaps are subtracted from their finish times (or the times are multiplied by a handicapping factor) and the finish order sorted in order of the handicapped times. You can then print out the results in order of (handicapped) finish or by classes.

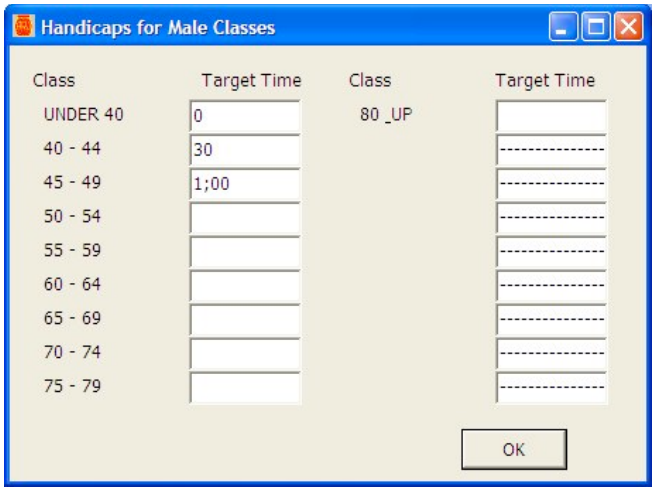


Specifically, as indicated by the dialog at the left, which appears shortly after you start up Handicap, you may use one of nine handicapping schemes: individual handicaps, handicaps based on age/sex group, the age/sex grading factors devised by WMA (World Masters Athletes; formerly WAVA), handicaps (actually starting times) based on race number or by an entry in the extra data field, a system peculiar to a biathlon (run and shoot series), and handicaps based on ranges of ID numbers (see page 96 for an example).

WMA handicaps can also be output in RaceDay; see page 63 for details of their usage. In Handicap the results are shown in order of WMA percent. To get the results in order of age grades in RaceDay, click on the "Sort IDs and times by split #" box in the dialog on page 64, entering the number of the age graded split.

To handicap the runners individually, store their handicaps as "PR's" through program SetData. That is, if 10 minutes is to be subtracted from a runner's actual clock time, you enter a PR for him/her as 10:00. Thus, to handicap runners individually you must have opened an ADDRESSES file in NewEvent, since PR's are stored in that file. You may also be able to use DownLoad to import pre-determined start times/handicaps from a file.

If you are handicapping on the basis of age/sex class, program Handicap can be used to input the handicaps for each age group, as will be discussed below. In triathlons, the runners often start in waves based mainly on class, except for an "elite" wave that cuts across age lines. For such a case, you can use Handicap to create a file of handicap times based on age and sex, store those handicaps as the runners' individual PR's by selecting an option within program Handicap, use SetData to edit the PR's of the "elites" to their correct starting times, and then choose the "individual" handicapping option in program Handicap.



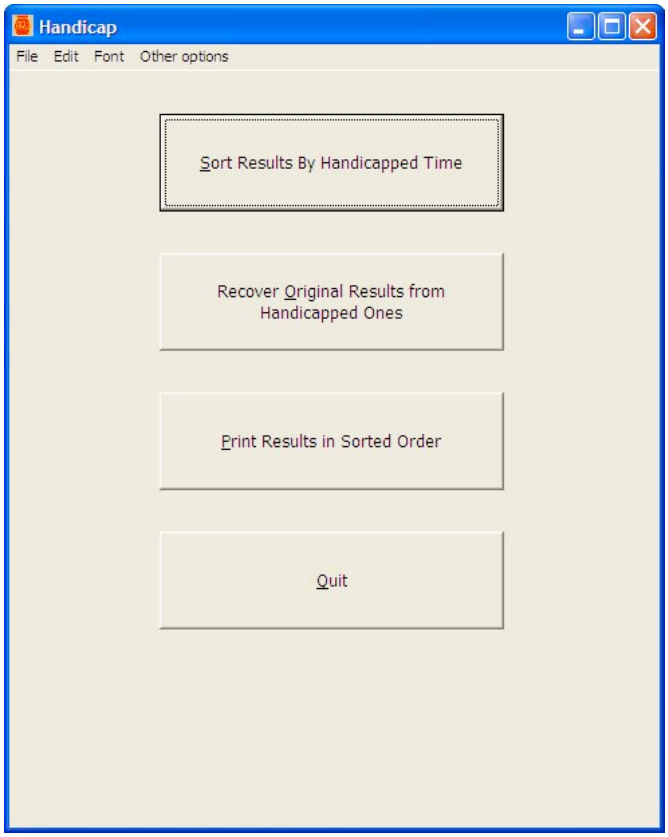
When handicapping the runners by age-sex class, a dialog like that at left asks for the handicaps for each age group (separately for men and women and for "regular" and "extra" classes, if any) and stores them in a file called HANDICAPS. Use the X:XX:XX format; if you input "3", the handicap is understood to be 3 seconds. If you want it to be 3 minutes, type "3:00" or at least "3:". As when entering a PR in SetData, you can "mistakenly" use a ";" in place of the ":". If you are not handicapping some classes, enter "0" for their handicap.

The fourth through sixth options, handicapping by ID number, allow you to start the runners at fixed intervals. Using the fourth option, number 1 goes first, then number 2, etc.; all you have to specify is the time interval between successive runners. With the sixth option you specify a range of ID numbers for each wave and their starting times. Each of these options simply stores each runner's start time in the PR field, after which you are using the "individual" handicapping option.

In the last option, the runners' predicted times are stored as PRs. The sort then puts the runners whose finish times are closest to their predicted time at the top. If you

want to show how close people run to their predictions in fractions of a second, use RaceDay to allow fractions of second in the finish times.

In chip-timed races where the start time was recorded and the handicaps are to be applied to the runners' net times, simply click on ORDERX in the Finish folder when you open Handicap.



Four buttons appear on the desktop, as shown at left. The "Print Results" option is not enabled until you have "Sorted" the raw data at least once. Except in the WMA option discussed above, the handicaps are subtracted from the clock times and a new finish order calculated on the basis of the handicapped times. The sorted ORDER and TIMES files are stored as ORDERH and TIMESH. This operation does not disturb the ORDER and TIMES files, so that you can go back and forth between RaceDay and Handicap repeatedly as the race progresses. The "Recover" option allows you to reconstruct ORDER and TIMES files from the ORDERH and TIMESH files (I put this in after accidentally wiping out the raw data).

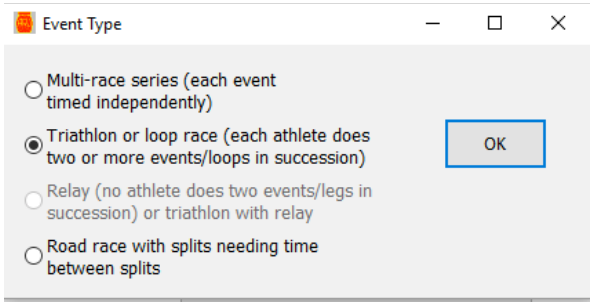
When you exercise the "Print Results" option you first get a formatting dialog similar to that on page 55, except that team scoring and tracking PR's are not supported (see below). Note that the "pace" options will not be useful in a handicapped race, since they are computed on the basis of handicapped time. Use them only in the case of a wave start. The desktop buttons change to "Order of Finish" and "Standard Road". Results by age-sex class are also available from an item under the Print results menu. The formatting options available for the results are similar to those of RaceDay, including the possibility of eliminating open runners from age-group awards. A sample of the output is shown at the end of the manual. Note that it includes the clock time.

While you are scoring a race in progress, you may not have the same number of times on file as you have ID numbers. The programs only sort handicapped times for as many runners as you have both ID's and times on file.

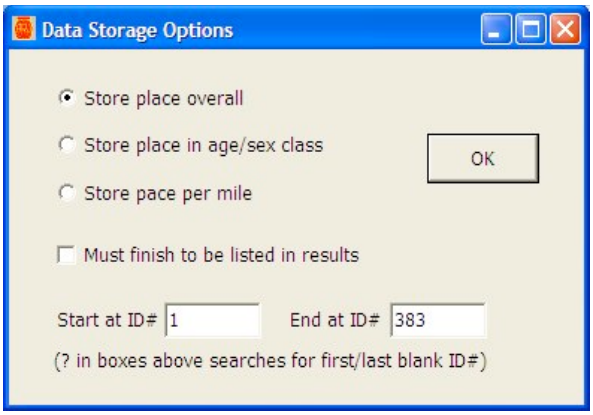
MultiRace

The optional program MultiRace, packaged with Handicap, extends the capabilities of the road race package to series of races, scoring according to either the total time, a weighted average time, average pace, total places, or place in a particular race. The series can consist of up to fifteen distinct races (or parts of a race). Results can be printed either only for those who finished all the races or for those who finished a specified number of the races. It can also be applied to triathlons and relays for which you want to record splits; results are then usually printed only for those who finished the last event. Finally, it can be used to report times between splits in a road race that captures splits.

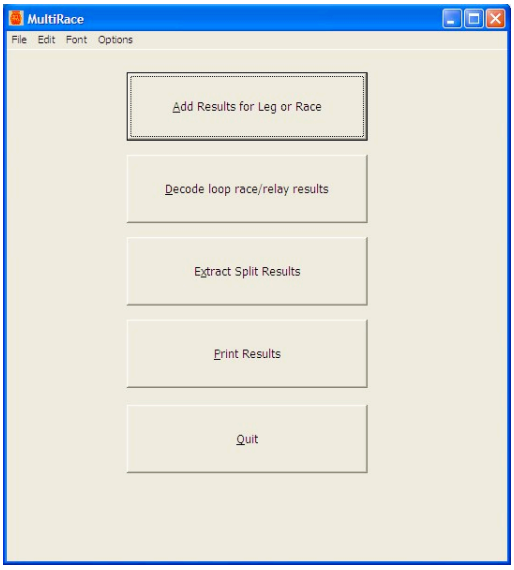
To use the program, you must first score each race or event in the usual way. Program MultiRace opens up and fills a file called TRIPLEDATA (the first version of the program was developed for a three-race series), which contains, for each entrant, in order of ID number, his/her age/sex class and, for each race in the series, the runner's finishing time and place overall in that race.



On starting MultiRace and locating the ROSTERN of interest, you first select the type of event from the dialog at left and then the data storage options from the one at the right. The split/event time is always stored, along with one of the three items shown for each event. You have the option of printing these items along with the runners' split/event times. If you select "pace," you will be asked for the event distance. In triathlons, you sometimes want the speed of the triathletes during the bike leg. If you enter the distance of that leg as a negative number ("-20" for 20 miles, e.g.), the miles per hour will be shown rather than pace.



A set of buttons now appears on the desktop.



Series of Races

First consider scoring a series of distinct races. Naturally, you must first score each race or event in the usual way. Two cases will be considered: first, when the runners have the same ID numbers in all the races, and second, when they do not. The first case includes chip races run the same day (a 10K followed by a 5K, for example); the runners simply keep the same chip during the second race that they wore in the first one. See page 65 for using RaceDay for such events; MultiRace has more formatting options for the output, in particular showing each runner's place in each race.

ID Numbers Same in All Races

Your first step will be to "Add the results of [each] event" to TRIPLEDATA. All you need do is to locate the ORDER file (or ORDERX file, if start times were recorded and you choose to score by net times), name the event, and specify which event of the series (name and number, 1 to 15) it is. If you later discover errors in the results, simply correct them with RaceDay and then

come back to MultiRace to put the corrected results for that event back into TRIPLEDATA.

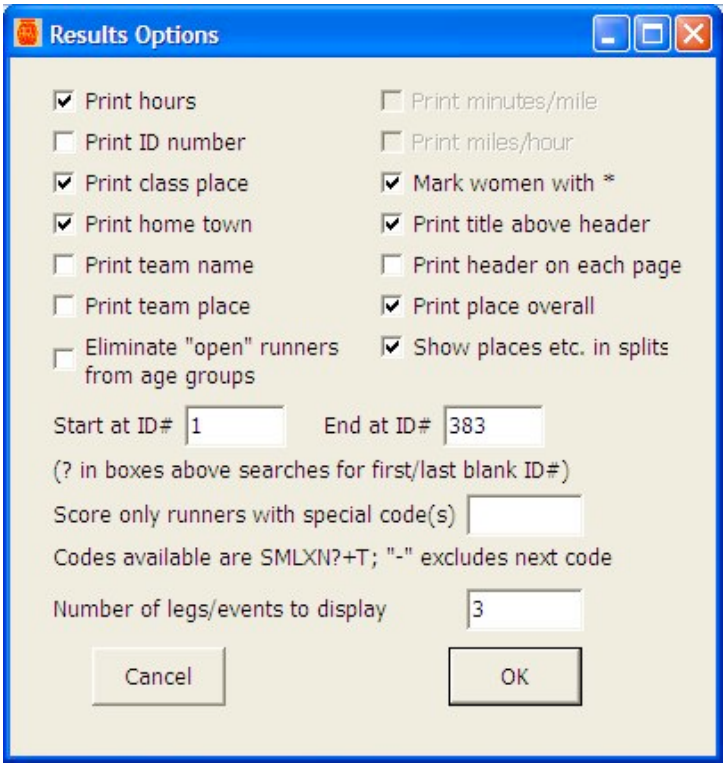
As you add data from the various events, MultiRace asks if you want to

1. Update the runners' PR's with the results of this race. This makes sense when the races all have the same length (the program was developed for a series of 10Ks).

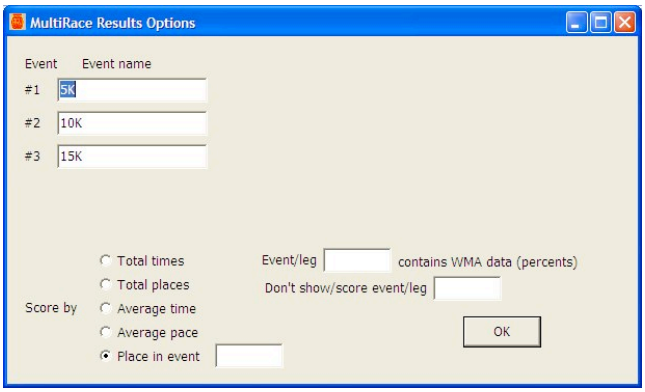
2. Weight the race times with an "equalization factor", as MultiRace calls it. This, of course, is most attractive when the races are *not* of the same length. The factor can be an integer or a real number (with or without a decimal).

The number of times added for the race in question is shown on the desktop.

When the data for all the events have been added to TRIPLEDATA, click on the "Print results" button or pull down the File menu to ""Print results." You will then select the format of the results and the output device. Program MultiRace outputs the results for all or the first few races in the series. It works with only four files: ROSTERN, TRIPLEDATA, CLASSES, and (optionally) CITIES.



As shown at left, the formatting options include the number of events/races for which you want data output. The "Show places etc in splits." option allows you to print the runners' place overall, place in class or pace (whatever you selected when you added the data from the events to your files) along with their times in each event, according to the selection you made on the dialog above. If you click it off, only the event times (and final score) will be printed. The results resemble the samples shown at the end of the manual for a triathlon.



MultiRace then asks you to name each of the events (recalling any names you've input the races you added to the series in the current session), for use in the header of the printed output, and to select the method of scoring: by either total or average time (if you have weighted the times from one or more races, it works with the weighted times), by average pace, by total places, or by the place in a specific event.

When scoring a series of races, it also asks how many of the races the runner must have run in order to be considered in the final scoring. Optionally, you can "tag" those who did run enough races by turning on their fourth "division code," which makes possible a special mailing just to those runners; just use Sorters, sorting them any way you wish but restricting the sort to people with the last code. After sorting the data accordingly to your instructions, MultiRace gives you the usual options of printing out results in order of finish, by class, or "standard road."

ID Numbers Different in Separate Races

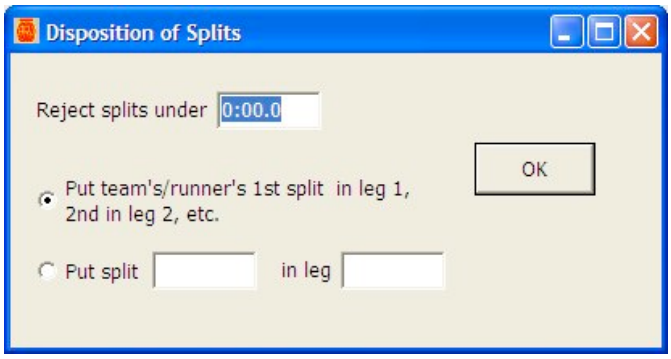
The foregoing procedure works fine when the runners have the same ID number in each event. When dealing with completely separate races, you could sort the ROSTERN in alphabetical order after each race and use the sorted ROSTERN as the basis for the next race; TRIPLEDATA will be sorted, too, so that it could be used for subsequent races. Here's a simpler method.

Open up some road race files big enough to hold all the runners who take part in the series. After each race, write out its results in order of finish to a csv file, selecting

the option to "separate first and last names." Don't include pace in the formatting options.

Use DownLoad to upload the files from each race into the ARJaM files for the series. Zero out the field number for ID/bib number. Accept the options to add the names to the end of the file and, crucially, also to "Check for repeated names."

Each runner who participated in more than one race will now have each of his times in the series file, all associated with the a same ID number (his/her place overall in the first race if the runner ran it). Run RaceDay on the series data. Go to the Finish Order part and read in the IDENTIME file; you will see many runners with "ID # ALREADY SEEN AT PLACE …" but that's normal.



Run MultiRace on the series files, selecting the "Multi-race series" option. Then click on "Decode loop race/relay results." On locating the ORDER file for the series, you are first asked whether MultiRace will store each of a runner's times on his/her line of the TRIPLEDATA file, the first time for the first race he ran, the second for the second race, and so on. The numbers of runners who ran each race are shown on the desktop (actually it's the number who ran one race, then the number who ran two, etc.). You're then ready to print out results as described above

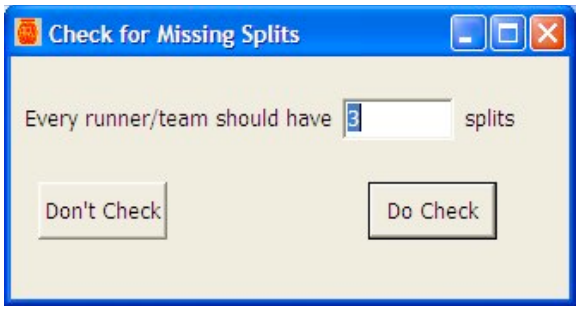
Loop Races, Relays, and Triathlons

Simply to determine the winners of a triathlon or relay, you can use programs RaceDay or Handicap, depending on whether or not the athletes start all together or in waves, since all that matters is who took the shortest time. RaceDay can also display their accumulated times in the individual events or legs, but if you want to record their split times – times between the splits – and places in those splits, you need MultiRace, selecting either the second or third option in the Event Types dialog on page 84. It can handle up to 15 splits.

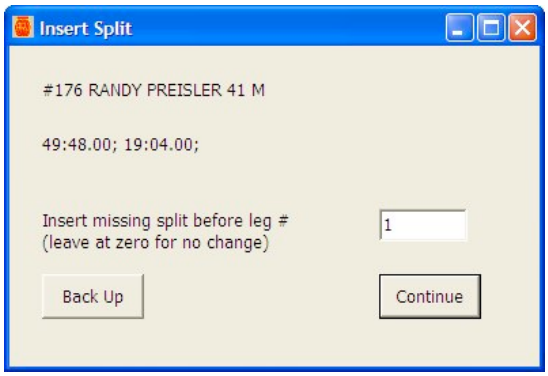
Splits Recorded at a Single Point

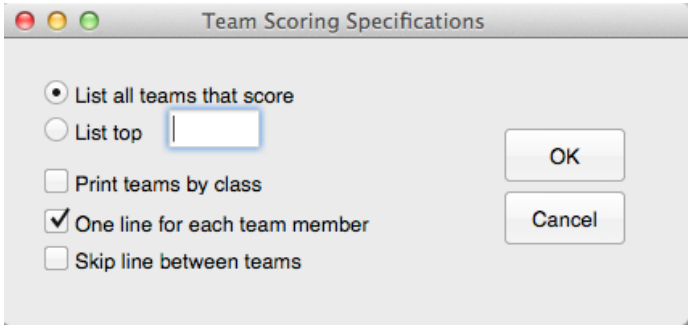
In some events, all the splits are collected at the same point and runners or teams lap one another. Then it makes sense to input them into a single set of results files and use MultiRace to sort everything out, using the "Decode" option discussed above.

On selecting this option for a triathlon or relay race, you are first asked if the runners' start times are available. If so they will be subtracted from their split times and total times. The split disposition dialog shown above then appears.



The numbers of runners recorded at each split are then displayed, and the dialog at left appears. "Check[ing] for missing splits" is useful when the numbers shown for the numbers recorded at the splits indicate some runners were missed. Since some runners may have been recorded too often, you can correct the number of splits expected. For each runner with fewer than the expected number of splits, the display at right above allows you to "insert" a split before one of the legs.





For relays, you get the scoring options shown at left.

Note that you can decode the results taken at the split repeatedly during the event. That is, you can input results in RaceDay until almost all the runners or teams have passed the split once, switch to MultiRace and post the results to that point, go back to RaceDay and collect results from the

second lap, back again to MultiRace for the results of the first two legs, etc.

Splits Recorded at Various Points

If the splits in an event are collected at different places, you will have to put each split's results in its own folder. You need a race folder to hold data on the runners in ROSTERN and related files, and folders within the race folder to hold results files ORDER, TIMES, and IDENTIME for each event/leg. The elapsed times and finish order at the end of each event are collected as usual by program RaceDay in files TIMES and ORDER. Program MultiRace takes these data and produces split times and ID's for each event, sorted in order of the split times rather than the elapsed times at the event's end.

If entrants are started in the traditional opening swim in waves, their start times must be input as their PR's before the start of the triathlon. When the starting times are determined at least in part by age/sex class or ID number, program Handicap can help with this process. Say you want to handicap the runners by age/sex class. Input the starting time for each age group as discussed on page 82, and then click the "Store handicaps as PR's" box on. If necessary, use SetData to correct the starting times of any runners who do not start with their age group (in an "elite" wave, for example). So important is it to getting the start times right (and so often do people jump into the "elite" wave without telling me) that I usually go right down to the water and check off anyone going in the elite wave.

When you start program MultiRace, you answer the "Event Type" dialog shown on page 84 by clicking on either the second or third button. Adding the results of an event to TRIPLEDATA is mechanically the same for you as if it were simply one of a series of independent races. When you "Add" the results of an event to TRIPLEDATA in a triathlon or relay, MultiRace subtracts the elapsed time at the end of the preceding event (or at the start of the triathlon) and stores the time taken to complete the event, or "split time," in file TRIPLEDATA. A finish order for the event is computed by sorting the event data in order of split time, and the place also stored in TRIPLEDATA. The elapsed time at the end of the event is simply the sum of all the splits up through that event plus the starting time or PR.

When you're done, results for each event are stored in file TRIPLEDATA. Pull down the Options menu to "Score race or series"or click on the "Print Results" button to get your final results.

Because splits are taken on the fly, you may not have splits for all the athletes. TRIPLEDATA will then contain zero times for some events and, for two or three events, times that combine the actual split times. MultiRace only prints out data for a split in a triathlon if there is a non-zero time for the previous split, indicating that the elapsed time was known both before and after the event. This leads to some holes in the final results, but what is printed should be accurate. Samples of the output are shown in the back of the manual.

Manually collecting the splits is one of the hardest parts of scoring a triathlon (thank God for chips!). I used to station four people at each split: one calls out numbers, one writes them down (along with the time when there is a break), one punches a timer for each person past the split line, and the fourth punches their numbers into an automatic timer. I dump the timer into the computer, create a preliminary ORDER file by reading the select times file, and then correct it with the handwritten list of IDs. Duplicate ID numbers are frequent. I try to eliminate them by comparing the places of the runners whose IDs were collected more than once at the different stages. To identify those for whom no time was collected, I use MultiRace to read the data for each event into a TRIPLEDATA file as if it were a multi-race series, and print out the results with ID number showing. This may help to fill in ID numbers of unidentified runners. It's a good place for chip timing.

Sometimes athletes are penalized a certain number of minutes for rule infractions, such as drafting. The easiest way to assess such penalties is to use SetData to subtract the penalty from the athlete's PR at the start of the event. That will add the penalty to the elapsed time for the event. Since MultiRace will add the elapsed times for all the events, the penalty is also added to the final time.

Relays

For relays with splits at various points and for triathlons with relay competition, you will again need a folder for each leg if you wish to record the splits. If each team is given just a single number, the "name" belonging to that number is just the team name, and each member of the relay team has the same number. The procedure used to enter

the data is then exactly the same as for a triathlon without a relay; in particular, when starting up MultiRace, click on the middle button of the "Event Type" dialog on page 84.

The bottom button of the dialog — the one that refers to relays — should be used only if you assign different numbers to the members of the relay. You will then be able to output the names of the individuals who do each leg (if you follow the procedure in the preceding paragraph, the splits will be assigned to the team as a whole). These individuals should all be assigned a team, and the team's starting time (in a wave start) input into the PR part of their ADDRESSES record.

In a triathlon with relay, relay team numbers should be higher than those used for the individual triathletes, so they don't mess up their overall and class results.

Inputting the data from the individual legs is the same as for a triathlon. For a triathlon with relay, it is done at the same time you add the data for the triathletes; the only thing you do differently is to click the third button of the "Event Type" dialog on page 84 rather than the second. When printing out the results, however, you must choose to deal with the relay portion or not (i.e., with the individuals). In the latter case, indicate the range of ID numbers assigned individuals (or division, if you're using division codes to flag relay competitors) in the formatting dialog on page 55, to keep relays out.

Other Stuff

Since MultiRace has the capability of dealing with series of up to fifteen events, the same procedure can be used to score a "quadrathlon" or "pentathlon," and to produce split times for the transitions in a triathlon along with the events themselves. You can get pretty fancy with this by pulling the Edit menu down to "Change type of event" and shifting to the Multi-Race Series option after inputting the splits as a triathlon. For example, you can add the accumulated times at the end of each leg and then the final time, and score by the place in the "last leg" (final time). When the event is a road race and MultiRace is being used to record the splits, you can also add the WMA percents as an "event."

Road Races with Splits

Road races that capture splits may choose to report the splits as is - for example, the runners' 5K times in a 10K - or want to list the times between splits: the runners' first and second 5K times. The "Triathlon" option on page 84 could be used, putting the 5K splits into split 1 and the 10K times into split 2.

However, almost always such races are chip timed (so are triathlons, for that matter). Further, they often employ starting line mats to record runners' start times. The problem is that the net times are then stored as split number one, which precludes using the triathlon routines. RaceDay is quite capable of handling these races; see page 64.

Appendix A: Networking Computers

For computers to share data, as when TheTimerAP records times on a remote computer (page 40), two things are required: the data that are to be shared must be in a folder that allows sharing, and the computers must have compatible IP addresses.

To turn on sharing, in Windows Explorer right-click on the folder. Select "Share with .." and then "Homegroup (Read/Write)." You'll be asked to confirm the sharing. That's it. (This is for Windows 7; it's slightly different for other versions of Windows.)

To set the IP address of a computer, proceed as follows:

2. In Windows 7:

a. Click on "My Network Places." In

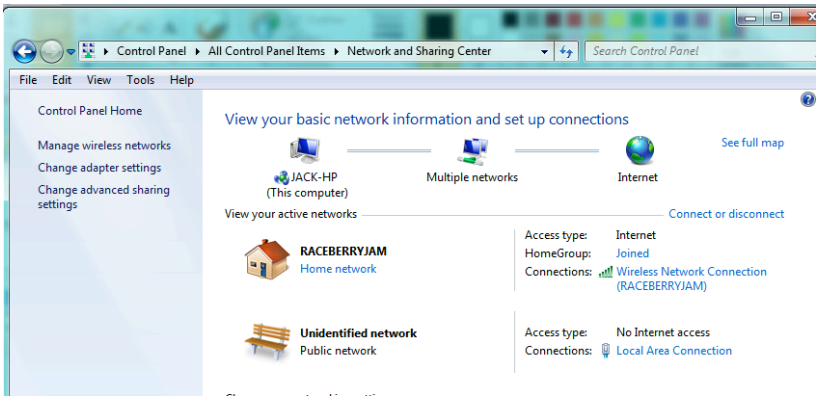
b. Click on "View network connections."

In Windows 10:

a. Click on "Settings."

b. Click on "Ethernet."

c. Click on "Network and Sharing Center."



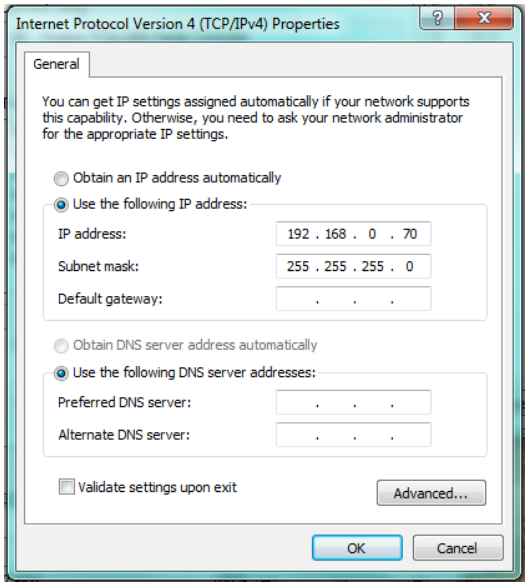
3. Click on "local area connection" and select "Properties."

4. Click on "Internet protocol Version 4 (TCP/IPv4)" and then on properties.

5. Turn on "Use the following IP address" and enter the desired address.

6. Tab; the subnet mask should turn to 255.255.255.0.

7. Click OK and then Close.



The addresses you choose must be compatible. Their form is A.B.C.D, where A, B, C, and D are numbers in the range 0 to 255. "Compatible" IP addresses have the same values of A, B, and C but different values of D. For example, two of my computers have IP addresses 192.168.0.70 and 192.168.0.100.

Connect the two computers with a LAN cable in their network ports, or to an Internet switch, or connect one of them to an access point from its network port. Now both computers should show up in the NetWork display (if not, try typing "\\[computer name" in the Network box). If you double-click on the "other" computer's icon, the shared folder will show up.

Appendix B: Timing with the IPICO and Trident Chip Systems

Note: IPICO prefers that the transponder worn by runners be called a "tag," but it is commonly called a "chip" and that's what we'll use here. The Trident system is physically and internally different from IPICO, but it uses the same chips as does IPICO and is operationally identical to IPICO. For brevity, when you see "IPICO" below, think "IPICO and/or Trident."

Pre-Race Operations

For RaceDay to use the IPICO chip system, it must know which runner is wearing which chip. This information is stored in the OTHERDATA file. Thus, when opening the files for the race, you must first elect to store the runners' home towns (even in cross country meets), and addresses, and then "extra data."

The IPICO chip numbers are 12 characters long (although only the last seven differ from one chip to another). Typing them would be not only tedious but likely to be often erroneous. An application called ChipData circumvents those problems, and also creates an index file (CHIPINDEX) that is used to translate chip numbers into ID numbers efficiently.

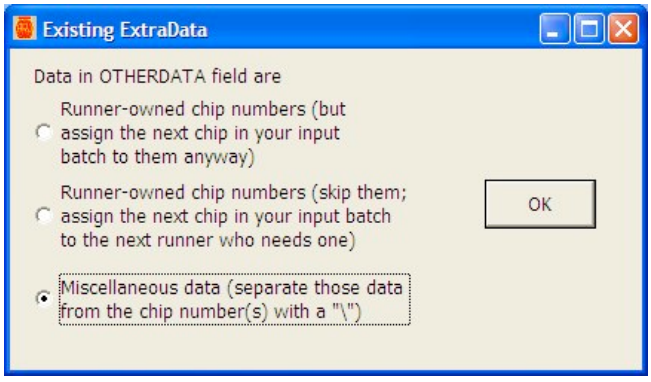
ChipData reads a text file into the race's OTHERDATA file. It also prepares the text file. First arrange the chips in the order they will be assigned. Some people label the chips with the runners' ID numbers for which they will be used. Because chips get lost and/or fail from time to time, I put the chips in plastic bags and put the bags on a stringer.

Because the success of chip timing depends on the index file, you are warned in SetData and Download to return to ChipData to (re)create the CHIPINDEX file if it does not correctly translate the chip numbers in OTHERDATA or is missing entirely.

Creating Uploadable File of Chip Numbers

To create a file that can be read into the race's OTHERDATA file, connect the IPICO registration reader to the computer, start up ChipData, select IPICO (ChipData also works with ChampionChip) and pull its Options menu down to "Read IPICO tags into file." You'll be asked to verify the COM port through which the registration reader is connected and name the file into which the chip numbers will be put. I have labeled my chips with their chip numbers ("058001545e3a," e.g.) and include the first chip number on the string in the file name (or at least the last seven characters). If you've labeled the chips with ID numbers, a name like "101-200" would be useful.

This assumes you have a serial registration reader. If you have a USB registration reader, you can use the TagData application supplied by IPICO to create the files of chip numbers. But ChipData works with the USB registration reader, too, with the help of IPICO's USB Port Driver.



Reading File of Chip Numbers into OTHERDATA

Once you have enough chips read into files to cover the race, and after you have assigned numbers to pre-registered runners (ChipData will assign the chips to specific ID numbers), go to ChipData. After locating the ROSTERN as usual, click on the "Read chip file into OTHERDATA" and read the files in the order that they will be assigned to runners.

You may have pre-existing data in the OTHERDATA field; phone numbers, birth dates, etc. The dialog at the right asks how the existing data are to be treated. In most cases, the default suffices; the chip number is appended to the existing data, separated by a backslash. In the first case listed in the dialog, your chip number is also appended to the existing data, but the separation character is a plus sign ("+"). The programs than know that either of the two chip numbers in the OTHERDATA field belong to that

runner. A similar device is used when runners are assigned two chips, as is often the case in cross country championships.

Note that you can start adding a file of tags at any ID number you wish. Since you always want to have plenty of tags for race day entrants, I often have many left over after a race, in bags and labeled with ID numbers. To save work I'll try to add those files starting at the ID number with which the first tag is labeled.

Also, note that you must have some ID numbers at the end of your file to which no chip is assigned. Sometimes unknown chips will cross the finish line (who knows where they come from). Those chips are tacked on to the end of the file, after the last ID number to which you assigned a chip. RaceDay will not function unless it has room for at least 20 unknown chips at the end of your file. Use the Expand option in SetData if necessary.

You can eliminate chips from particular ranges of ID numbers by clicking on ChipData's "Clear OTHERDATA file."

When you're done, click on "Create index file." The files are now ready for RaceDay.

I then use SetData or Sorters to print out ID labels (without bar codes), accepting the invitation to print the "extra data" field. These labels are then stuck on the plastic bags containing the chips. If the chips are labeled with chip numbers, I get a check as to whether I'm assigning the right chip to each runner. If they're labeled with bib numbers, they can be put in packets or envelopes labeled with the runner's name or at least number.

Operation of the System at the Race

Networking

The IPICO reader must be networked to the computer, and the computer's IP address must be in the same family as the reader. See Appendix A.

After you connect to the reader using the procedure in the IPICO manual, you can change the IP address of the reader to fit your own network. Click on the "Basic setup" icon and change the first three pieces of the reader's IP address so that they match those of your network. Then change the IP address of your computer back to what it was, using the procedure outlined above.

RaceDay Operations: the IPICO System

At a race or meet, the first things I do are as follows:

1. Hook up the mats to the reader. For races using a single shoe chip, three rows of mats will assure that the runner's chipped shoe cannot skip over all the mats; the system works best if the shoe lands on a mat or in an 18 to 24 inch gap between mats. If the runners wear two shoe chips or a bib chip, two rows of mats are fine.

2. Turn on the reader. With Trident, make sure the Data Mode Switch is in the "up" position. When the delta unit lights stabilize, test the mats with a chip. If they don't seem to be working, try pressing the reset button. On a Lite reader, the TXA/TXB lights should be green.

3. Connect the computer to the LAN port of the reader. Or connect the reader to an Internet switch to which the computer is connected.

With the Lite reader, be sure to clean out the TagData file on the memory stick supplied by IPICO before you insert it. Specifically, connect the stick to your computer, open up TagData, select all, delete the contents, and save it. If you are not using the stick supplied by IPICO, be sure its size is big enough (4GB is good, 125MB is bad) and that you have the IPICO software on it (MOXA Firmware and SDK). When you insert it in the Lite reader, you should get two beeps.

Whatever the type of reader, start up RaceDay and pull its Network menu down to "Synchronize IPICO reader." You'll be asked to identify the IP address of the reader and port with a LAN Connection dialog like that below (as noted on this version of the dialog, use 10000 for the port on a Lite Reader and 9999 for an Elite or Trident). If an Elite reader's time and computer time differ by more than a few minutes, the batteries in the delta unit need replacing. You should have a charged set with you. After changing them, restart the reader and reconnect. Synchronize the reader to the current computer time. With an Elite reader, you are invited to clear the existing log files. You probably want to do so.

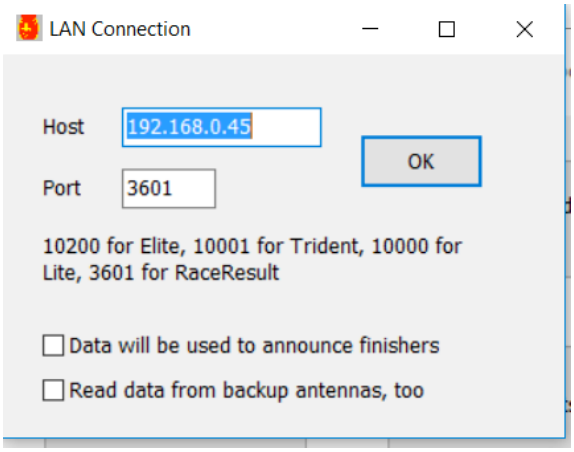
4. You can now turn off the reader to save its battery. Be sure to turn it back on 10 minutes before the first finishers arrives; even though you can hear beeps as runners cross the mats, they are not recorded until the reader warms up.

If you were not able to hear the chips when you ran them across the mats, or if you were not able to connect to the reader via your LAN, you are in trouble. Hopefully you have a backup system put in place.

At least 10 minutes before the reader will be used, turn it back on. Connect to it via LAN. Run RaceDay, and pull its Other Options menu down to "Synchronize IPICO readers." This will insure that all your readers are synchronized. Even if you're only using one reader, it's good to have the reader time close to the time of day; see the "Start Time" dialog below. Don't bother synchronizing until you're ready to leave the reader on; turning it off and on alters the reader's clock.

RaceDay Operations: Streaming

In most cases when you're doing finish-line results, and sometimes for splits, you can download the data as they are recorded in the reader through your LAN connection. Pull the Network menu down to "Open LAN connection" and select either IPICO Elite Reader, IPICO Lite Reader, or Trident. You are then asked for the IP address and port of the reader, as shown at right. For a Lite Reader, the port should be "10000." You can also use that for an Elite Reader, but "10200" reads just the first and last times each chip is recorded, which is quicker.



The option to read data from backup antennas is not available for IPICO and Trident, but note the option to use the data for announcing finishers. Selecting this will allow announcing finishers shortly after they finish (or cross a mat before the finish line, if you've got that much equipment). The format would be the same as described on page 54. Of course that would require a computer separate from the one being used for results.

The dialog on page 51 gives you several options for the disposition of the data. If you are just collecting times at the finish of a race, you probably don't need to accept any of them (the "multiple entries" option allows you to use the system for loop or lap races). If you have start mats, see page 52 for instructions on how to upload them.

Now all you do is to pull the Network menu down to "Read data over LAN" whenever you want to record some finishers. Their IDs, names and times can be printed and posted or at least viewed on the monitor in the "preliminary results" format described in the manual, just as if you had entered their IDs from tags on a spindle.

The first time you read data into the results files, the dialog on page 52 appears. See the discussion there for how to respond to that dialog.

In any case the reader's start time is subtracted from the other times it collects to get the runners' times.

Just as when entering IDs manually, each time you read results from the reader you are asked for the numbers of the "spindle" and the place at which IDs are to be added. In this case "spindle" number indicates simply the batch of finishers in the current download. You then select an output device for a listing similar to the preliminary results you get when entering IDs manually. If you have set up HTMLFILESTUFF and LIVEFILE, they are updated after each batch.

Reading Data From Files

For start times (see page 52) and splits that you cannot access until the end of the race, you will instead have to upload files that are produced in the reader. It could also happen that you lose the LAN connection to the reader, or that RaceDay crashes. Streaming only captures data as the runners finish.

The Lite Reader creates a file "TagData" on a memory stick (don't forget to press the button until you hear four beeps before you remove it). The Elite Reader stores data in three files on its hard drive, the most useful of which is "FS_LS," which contains the first and last times each chip is recorded. To move an FS_LS file to your computer, pull

the Network menu down to "Read IPICO log file." The file will be copied into the current results folder.

To upload a file, click on RaceDay's Finish Order button. Pull the Finish Order menu down to "Read" (Ctrl+R). Select IPICO chip file. The Chip Options dialog shown above then appears. You are then asked to locate the file you downloaded from the reader.

As when you are accessing the data over a LAN, the dialog on page 52 appears the first time you read data into the results files. The default entry in the last box now may or may not be the reader time at the arrival of the first finisher; you may not have cleaned out the reader after checking the mats or after some runners crossed the mats on their way to the start, or you may be timing a multi-race cross country meet.

In such cases replace the time in the last box with a reader time (which is close to clock time if you synchronized the reader to your computer) just before the arrival of the winner, and enter the winner's elapsed time in the second box. RaceDay will search through the reader file until it finds a time past what you enter, subtract what you enter in the winner's time box, and use that for the reader's start time, to be subtracted from the times in the reader to get the runners' times.

To guard against mistakes, if you change the default start time RaceDay reports the owner of the first chip to arrive after that time. If it's not the runner you expect, click "No" until it reports the right one.

RaceDay stores what it is using as the reader's start time in a text file called CHIPTIMESTARTED in the race folder. If it finds such a file in the folder, the dialog above is bypassed, even if you quit RaceDay (to go to Handicap, e.g.) or otherwise had to restart it. If your readers are synchronized, you can use the CHIPTIMESTARTED from the start or finish or one of the splits to set the start time for other sets of results.

Backup Procedure

If you lose your LAN connection to the reader during the race, you will have to download FS_LS.log files to get your results. As noted above under the heading Reading Data From Files, simply pull the Serial Port menu down to "Read IPICO log file." The file will be copied into the current results folder. Continue to download the current FS_LS.log file as the race proceeds; the various copies will be labeled FS_LSA.log, FS_LSB.log, etc. and you will be informed as to the name of the latest version. On uploading the most recent file, runners previously recorded will be skipped over.

Splits

Given enough equipment, you can record up to 15 splits with RaceDay. You have the usual problem of establishing the start time. Synchronizing the readers simplifies that task, obviously. Otherwise you will need the split times of the first runner to reach each split.

When the results for a split are done, use the "Store Results as Split" item under the File menu to store them in the TRIPLEDATA file. If you want to report the splits as net times, when you go to print results and get to the "Splits" dialog on page 64, say that you want to report the splits as net times.

If you have splits in a cross country meet, you can show the team scores at the splits in an html file. After doing the standard cross country results, say that you do want to add more results to the file. Then go to the split folder(s) whose results you want to show. You can do standard cross country for each split, turning off the options to list finishers by team and in order of finish if you wish.

Multiple Laps

Another coup for chip timing is the ease with which it can allow you to record lap times in a multiple-lap race. Simply click on the "Allow multiple entries of ID numbers" in the dialog above that appears when you read the reader or an IPICO .log file, and specify a minimum time between laps. When you go to list results, click on the option to print "Extra Data" and name the extra field "LAPS." Select the item "Count multiple finishes (splits)" under the Print Results menu. The output will be like that of http://www.raceberryjam.com/drakelaps.html. When it's done, you are asked if you want to "File last IDS and times." On accepting the suggestion, the runners' final results are stored in a folder of your choice (you create it on the fly).

In some races, a split is of no interest the first time a runner reaches it. If you allow multiple laps, you're asked if you want to "Skip splits until split #." If you change the default "1," all the splits will be recorded but the IDs will be negated (turkeyed) until the split of interest. If a runner was missed on the first split, you'll see his ID in the

preliminary results mixed in with the runners in the split of interest and can "unturkey" him.

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Post Race Operations

After the race you must (1) see if you got all your chips back, (2) see if they're still working, and (3) get them ready for your next event.

Quick Check

ChipData can give you a quick check for missing chips, as follows. Collect the chips that were assigned but not picked up (no shows) and read their numbers into a file with the registration reader. Then click on "Check for Missing Chips." Find the file, say you do not want to read another file, but that you do want to "Tag only non-finishers." Then locate the ORDER file(s) for your finishers; if you had multiple races, you'll be able to check the finishers in each file. You are then shown the name, age, sex, and assigned chip number of each entrant who was not recorded as a finisher but whose chip was picked up. The last "division code" in their data is turned on, and you can list their data to a file, and also email them concerning their (possibly) missing chip. Since it could be that they did not finish the race but returned the chip at the finish, or that they did finish the race but were not recorded (whether because of their chip went bad chip or they did not finish with it on their shoe), the default message gives them an out:

```
"Subject: Chip missing from Mora Half Marathon & 5K?

I may be missing the chip (numbered 1549c3e).
I've made a preliminary check as to what chips may be missing, comparing
those that were not picked up with the people who did not finish. You may be
getting this email because you didn't finish but did turn in the chip, or
because your chip failed to register your finish (if that's the case, please
let me know your approximate time and I'll check the video backup).If in fact
you still have your chip, please return it to Jack Moran, 5429 Wooddale Ave.,
Edina, MN 55424
Thanks."
```

I am able to get out these preliminary emails the day of the race. So long as the race collected chips from everyone who was recorded as finishing, that gives me time to do a more thorough check.

Chips Labeled with ID Numbers

If your chips are labeled with the ID numbers of the runners who will wear them, you need to sort them by number after the race. This will reveal which chips are missing. You also need to check that they are still working. Simply running them over an IPICO registration reader will suffice; it doesn't have to be connected to a computer. If and when you replace lost or defective chips with new ones, you will have to use ChipData to read the chip numbers into a file as described above. Otherwise you must keep track of which ID numbers are no longer associated with your remaining chips and avoid assigning those IDs.

Chips Labeled with Chip Numbers

I prefer not to have to think while I'm doing menial work, and so have labeled my chips with the chip numbers. I put them in plastic bags (90236 RESEALABLE PLASTIC BAGS - ALL-CLEAR from Store Supply Warehouse, http://www.storesupply.com/; under $10 per 1000) in which I have punched a hole and string the bags on Rainbow Racing System's nylon "fish stringers." The bags come in batches of 100, so it's easy to

put about 200 on each stringer. I then read the tag numbers into a file with ChipData, as described above.

To check for missing chips, I use ChipData. After clicking on the appropriate box, I locate the files for all the chips that were returned. When I'm done, the last division code of all the runners whose chips are missing has been turned on so that SetData or Sorters can be used to print out lists (Sorters can do labels, too) for those runners, so that you or the race can contact them. If you have their email address, you can email them right from ChipData, as in the "quick check" described above:

```
"Chip missing from River City Ramble!

I'm missing the chip (numbered 153383d).
Please return it to Jack Moran, 5429 Wooddale Ave., Edina, MN 55424
If you tape it to a card, it and the envelope will be fine. Thanks."
```

Chip Labeling

My source for chip labels (with either the ID number or chip number) is Mark Courtney, a long-time ARJaM customer. You can email him at smc@runhigh.com. Some examples of the kinds of labels he produces are shown below.

Appendix C: Nordic Ski Meets

In the typical Nordic ski meet, each skier competes twice: once in "classic style" and the other "freestyle" (skating). In the first race, skiers usually start out at intervals, two every 30 seconds for example, their starting positions being drawn by lot. Program Sorters has an option to assign numbers randomly, which may be of assistance in the draw. Program Handicap is in any case certainly useful in assigning the start times.

The second race is usually a "pursuit" race: skiers start at intervals according to their times in the first race. That is, the winner of the first race goes off first. The other skiers start behind the winner by the same time as they finished behind the first race winner. The order of finish in the second race is then the order of finish for the combined races. A major complication is that ID numbers are usually reassigned in start order for the second race.

Setting Up the Files

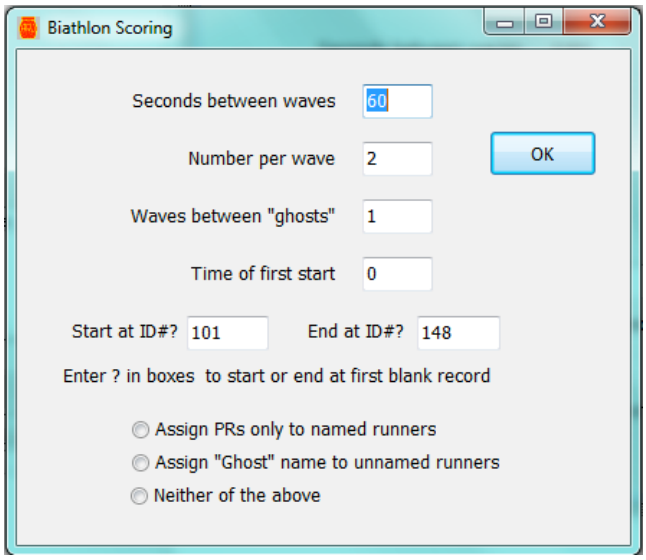
For the typical two-gender meet, you will need four divisions (folders) for the meet, each with its own ROSTERN, ADDRESSES (and hence CITIES), TEAMS, and results files like ORDER. For each gender, one folder contains the files for the first race and the other handles the pursuit race.

Use NewEvent's cross country meet option, saying you want four rosters. Name the divisions "Boys/Girls Freestyle" and "Boys/Girls Pursuit" (assuming the Freestyle is the first race; otherwise do "Boys Classic" and "Girls Classic"). Click on the option to store Cities and Addresses (to store start times as PRs). Each ROSTERN will have the same first number. Use SetData to correct the correct number for each ROSTERN as necessary.

For the first race, you will want one "finish line." For the Pursuit races, you want three: Classic, Freestyle, and one whose name you leave blank. This will put one set of result file outside the Classic and Freestyle folders.

Pre-Meet Data Entry

If, as is usual, ID numbers are pre-assigned (by lot), Download can be used to input the entrants with those numbers. Handicap can then be used to assign PRs (start times). Select the sort "By ID number (with waves and "ghosts)" option. Set the "Waves between ghosts" to zero. If the skiers form two lines for the start of the first race (odd numbers in one line, even in the other), you will want to fill in any unassigned numbers with dummy names (the "Ghost" option in the dialog at right) so that the start times are assigned at equal intervals.



Use Sorters to output start lists in printed form and post them on the internet. Sort the skiers by PR. If they are starting in lanes, accept the option to list them by lane.

Data Collection

Often a Nordic ski meet is an environment too harsh for my computers. I have had good luck with TimeMachines, however. A three-person team can produce excellent results: one person records an individual time for every finisher; a second person enters bib numbers in order of finish, hitting the <enter> button when the skier finishes when possible; and the third records bib numbers in order of finish with pencil and paper. If you have another timer available, use it. Getting the times right is of the utmost importance.

Bring the TimeMachine in from the cold, connect it to the scoring computer, and run RaceDay. Pull the Serial Port menu down to "Open timer" and dump the data from the

appropriate event (see page 38). This brings in the recorded times and select times. Then go to the Finish Order section, click on "Read data from file" (Ctrl-R) and select IDENTIME. This enters the ID numbers in the order that the select timer entered them. Check them against the handwritten list, and then check the times by selecting "Edit" from the Times menu (Ctrl-E). If you have a second timer, compare your results with its times, too.

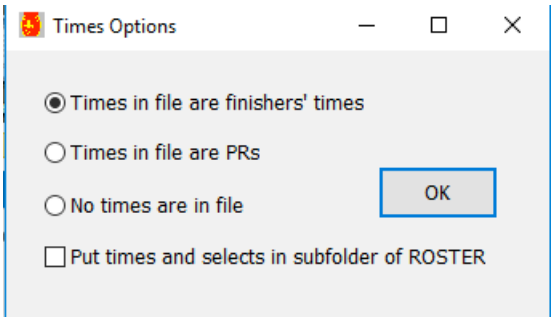
You could also use TheTimerAp on a netbook at the finish line. To pull in the times and select times, connect it to the scoring computer with an Ethernet cable. In RaceDay, pull the Network menu down to "Get times from remote computer," then say you want to add IDs. When the entry form (page 41) appears, hit <esc> without entering any IDs. This will activate the search for the remote computer and bring in the times. Then read the IDENTIME file as described above.

First Race Results

Once the IDs and times are available for the first race, you can produce the results by following a procedure similar to that described on page 53 for chip times. Pull the Other Options menu down to "Subtract start times to get net times." Then go to Print Results (Ctrl-P). In the formatting dialog (page 55), click on "No splits or clock times; show net times in order." You can then print the results of the first race in order of finish.

Preparing for the Second Race

Now you must reassign ID numbers for the second race in order of the skiers' net times in the first race, and assign them start times according to how close they finished behind the race winner. While still in the first race folder and in the Print Results/"No splits or clock times; show net times in order" option print results in order of finish to a csv file and save it in the Pursuit folder.



Now open the Pursuit ROSTERN in DownLoad. Pull its Edit menu down to "Edit first race number" and verify that it is correct. Meets will often use a series of bibs not starting with 1. Then click on the "Read" button and locate the csv results file from the first race (you will have to pull down the menu at the lower right to see csv files). In the Times Options dialog shown at left, click on the last check box, and then locate the IDENTIMES file in the subfolder for the first race.

As usual DownLoad will help you select the order of the fields and show you whether you've set the field numbers correctly (see page 27). Just set the ID number field to 0; you will want Download to assign ID numbers in order of net time in the first race.

Next open RaceDay and select the ROSTERN in the Pursuit folder. Switch to the results files for the first race. You will see that all the times have been entered but no finishers. Click on the Finish Order button, and then select the "Read file" option (⌘R). As before, select the IDENTIME file.

These results are now identical to those you printed out from the first race folder, but the ID numbers have been reassigned in order of the skiers' net times in that race. Now pull the File menu down to "Store results as PRs." So that they become start times, subtract the winner's time in the process (some meets want the first skier to start at 1:00 on the clock; if so, subtract one minute less than the winner's time).

Now you need to print out start lists for the second race. Sorters is best equipped to do this. Open the ROSTERN in the Pursuit folder and sort the skiers by PR. Usually the skiers will start in lanes; when two are used, odd numbers start in one lane and even in the other. If the meet does start in multiple lanes, accept the option to list the skiers by lane. You may also want to select a large font size, so the start lists can be posted near the start. If you accept the option to "Show start time and IDs only," the font size will be boosted to 80 for very visible results. Sorters also has the capability of printing special identification labels with the skier's lane and start time on them; say you want ID labels and accept the option to print them by lane. Start lists for the individual coaches should also be printed; suppress the lanes in those.

Scoring the Pursuit Race

To fix ideas, suppose that the Freestyle race was run first.

In RaceDay, open up the ROSTERN in the Pursuit folder. Switch to the Classic (second) race. Score the Classic race just as you did the Freestyle: dump the times and select times collected at the finish line into the ARJaM files, go to the Finish Order section and read in the IDENTIME file, check your results against the hand written list of finishers, and edit any errors in timing. Go to the Finish Order section and click on

"Check Finish Order" and accept the option to print out results. This is just to help you check the final results, which should be in the same order (unless some of the more heavily handicapped skiers were started early; if so, edit their PRs in RaceDay or SetData).

Pull the Other Options menu down to "Use PR to report net times." This creates files ORDERX and TIMESX which contain the results in order of net times.

Now Ctrl-G to the Freestyle (first race) folder and save those results as split number one. Then Ctrl-G back to the Classic (second race) folder, but click on ORDERX, which has the results of the Pursuit race in net-time order; i.e., it has the results of the Classic race. Save them as split number two. Finally, Ctrl-G back to the ORDER file in the Pursuit folder (outside the Classic and Freestyle folders). Select Print results. When the Splits dialog shows up, say you want two and that you want to replace the final times (which you may recall are the first-race results) with the sum of the splits. You'll be asked for the "Required number of splits," the default being two. If you say "1," skiers who finished the first race but not the second will be listed at the bottom of the results as DNFs. Print one copy of the order of finish and check it against your printout of the raw finish order from the second race. When two skiers finish almost together, you may have to reverse the finish order to make it match what was observed at the finish of the pursuit race.

In the Standard Cross Country option, click on "Ski race." You 'll be asked for the points awarded the winning skier, but otherwise the options are the same as in running..

Appendix D: Timing with the raceIresult System

After ten years of using IPICO, I have moved to race | result. Rather than using low frequency communication to charge the chip and high frequency to get information back from the chip, as do IPICO and Trident, race | result uses ultra-high frequency communication with the chips in both directions. As is typical of such systems, spectators wearing chips can produce spurious results. However, runners must cross the mats to be recorded.

As is also typical of UHF systems, the chips are designed to be attached to bibs and their ID number is simply the bib number. SetData does allow specifying a fixed gap between bib numbers and chip IDs (pull the Other Options menu down to "Make files for bib chips") but I've never used that option.

Operation of the System at the Race

RaceDay can communicate with the race | result decoder over a network cable. The decoder must be networked to the computer, and the computer's IP address must be in the same family as the decoder. See Appendix A.

Networking

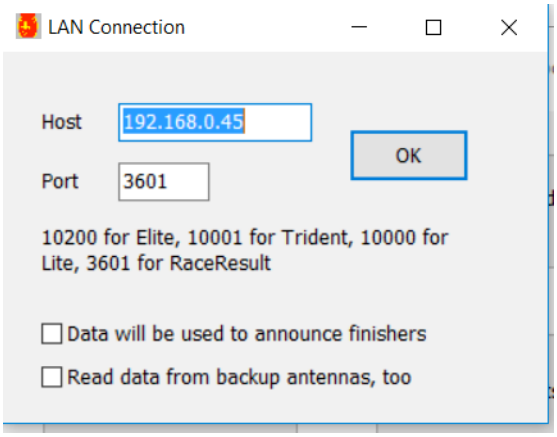
After you connect to the decoder, you can change the IP address of the decoder to fit your network. Press "Menu," use the down arrow on the decoder to move the cursor to "Network," and press "OK." You do not want DHCP on. If the display has "Yes" by DHCP, press "OK." Press the down arrow to move the selection to "no" and press "OK." Press "Menu" and return to "Network." Now press the down arrow to select "Manual configuration" and edit the IP address to what you want.

RaceDay Operations: the race | result System

At a race or meet, the first things I do are as follows:

1. Hook up the mats to the decoder. For races of moderate size, splitting the antennas in two allows two rows of 2.4m wide mats, which is usually adequate. Space the rows as far apart as the connecting cables will allow. If they are too close, the decoder will assign a finish time past that at which they cross the first row.

2. Turn on the decoder. After a few minutes, it will start looking for GPS to establish the time of day. You will also see whether all eight of the sections of the antenna are connected.



3. Connect the computer to the LAN port of the decoder. Or connect the decoder to an Internet switch to which the computer is connected. Start up RaceDay and pull its Network menu down to "Open LAN connection." Select "RaceResult" from the Network Options dialog. You'll be asked to identify the IP address of the reader and port with a LAN Connection dialog like that at left.

4. You can now turn off the reader to save its battery.

At least 10 minutes before the decoder will be used, turn it back on. Press the "Start" button when it settles down. **This is extremely important: no data are captured unless the "Start button" was pressed.**

Pressing the "Start" button a second time will put a marker in the data (usually an ID of 99999) . If you are recording a race start, press it at the gun. If it's the finish, press it at some time you can remember after the start. When you read the first batch of data, you'll be asked at what time the race started.

RaceDay Operations: "Streaming" Results

In most cases when you're doing finish-line results, and sometimes for splits, you can download the data as they are recorded in the reader through your LAN connection. Establish a network connection as described above.

Note the option to read data from backup antennas. Especially for cross country, where accurate places are as important as accurate times, it is best to have separate decoders for the primary and backup antennas. If you have split the antennas in two, a single decoder may assign a finish time between the times at which a runner crosses the two rows. If you have a backup decoder, you'll enter its IP address after getting that of the primary decoder. RaceDay will read the backup decoder immediately after reading the other.

Note also the option to use the data for announcing finishers. Selecting this will allow announcing finishers shortly after they finish (or cross a mat before the finish line, if you've got that much equipment). The format would be the same as described on page 54. Of course that would require a computer separate from the one being used for results.

The dialog on page 52 gives you several options for the disposition of the data. If you are just collecting times at the finish of a race, you probably don't need to accept any of them (the "multiple entries" option allows you to use the system for loop or lap races). If you have start mats, see page 52 for instructions on how to upload them.

Now all you do is to pull the Network menu down to "Read data over LAN" whenever you want to record some finishers. Their IDs, names and times can be printed and posted or at least viewed on the monitor in the "preliminary results" format described in the manual, just as if you had entered their IDs from tags on a spindle.

The first time you read data into the results files, the dialog on page 52 appears. See the discussion there for how to respond to that dialog. If you pressed "Start" twice, so as to put a marker in the file, you're asked at what race time you recorded the marker. In any case the reader's start time is subtracted from the other times it collects to get the runners' times.

Just as when entering IDs manually, each time you read results from the reader you are asked for the numbers of the "spindle" and the place at which IDs are to be added. In this case "spindle" number indicates simply the batch of finishers in the current download. You then select an output device for a listing similar to the preliminary results you get when entering IDs manually. If you have set up HTMLFILESTUFF and LIVEFILE, they are updated after each batch.

RaceDay stores what it is using as the reader's start time in a text file called CHIPTIMESTARTED in the race folder. If it finds such a file in the folder, the dialog above is bypassed, even if you quit RaceDay (to go to Handicap, e.g.) or otherwise had to restart it. If your readers are synchronized, you can use the CHIPTIMESTARTED from the start or finish or one of the splits to set the start time for other sets of results.

I've put "Streaming" in quotes in titling this section. Unlike with IPICO and the like, RaceDay does not have to be connected to the decoder as the runners finish in order to record their results over a network. It reads data from a file in the decoder, remembering the place in that file where it left off. Thus if the connection is interrupted one simply reconnects and picks up where you left off.

Reading Data From Files

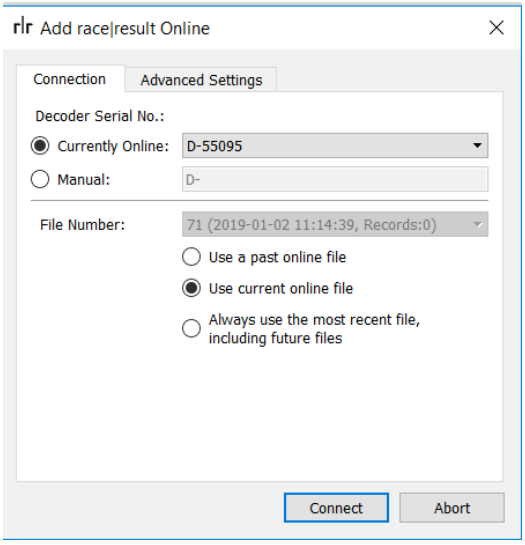
For start times (see page 52) and splits that you cannot access until the end of the race, you will instead have to upload files that are produced in the reader. If you insert a memory stick into the USB port on the decoder, you'll be asked to hit "OK" when it's ready to transfer data. Remove the stick when it stops flashing. Insert the stick into your computer and click on RaceDay's "Read data" button. You'll find the data in a folder "raceresult" on the stick. It will actually have data from all of your previous races; choose the appropriate one from the date of the file. Processing the data is described on page 51ff.

Connector

Race | result supplies an app "Connector," that enables remote operation of a decoder (or decoders) over an Internet connection and so facilitates scoring splits. And mailing a system to a race that interferes with your busy schedule.

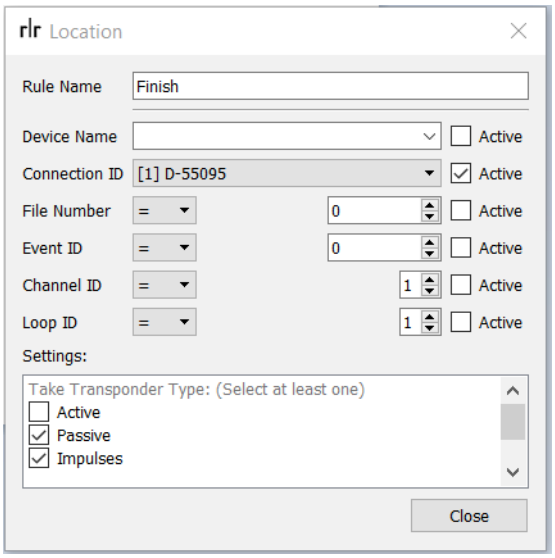
You will need a wireless router and plug it into one of the LAN ports on the decoder. Mine is a TP-Link TL-MR3040. To keep it going for hours, I hook it up to a portable battery charger, namely the meiyi 20000mAh Quick Charger. You will also need a MiFi to connect the router to the Internet.

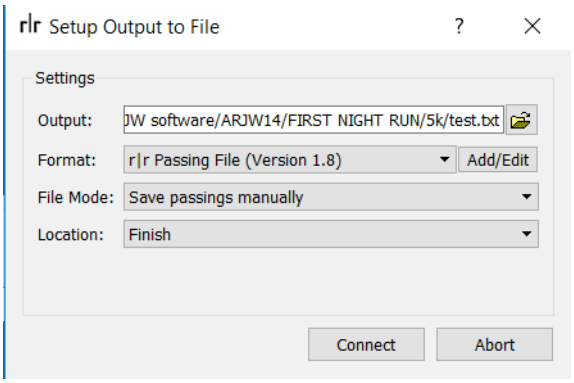
You must change the Network setting on the decoder. Click on "Menu," navigate to "Network," and hit "OK" on the DHCP line, selecting "Yes" on the next display and hitting "OK." Then hit "Menu" again, navigate to "Upload," click "OK," navigate to :"Enabled," and click "OK" if it's not "yes." Hit "Menu" to return to the basic setup. You should get a message indicating a connection to the race!result Connector.



Now run Connector. You're taken to the basic Connector screen. Click on "Add new source." Your decoder should show up in a dialog like that at left as "Currently Online." Select "Use current online file."

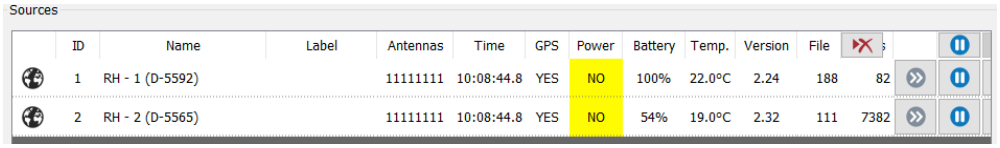
Next, click on "Add new location." Name the location (in the "Rule" box); a tab next to the "All" tab with that name will appear, as show below.





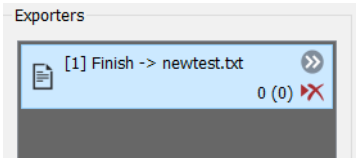
Next, click on "Add New Exporter." This is the destination of the file you will read from this source. Select "File" for the type of Exporter, and navigate to the location in your race folder from which you will upload data. Choose "Save passings manually" for the File Mode and be sure to replace "All" with the location (if you have more than one location).

If you have decoders at the start and/or at splits, repeat this process for each decoder.

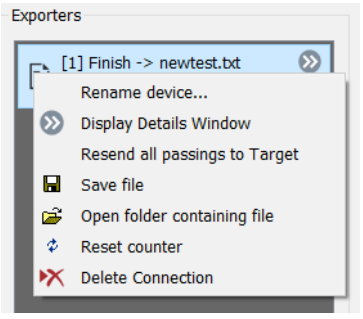


The source lines of Connector now resemble what's shown at left. Initially the numbers to the right of the File numbers read "TEST." Once you press the Start button on a decoder "TEST" changes to "0" and then to the number of records ("passings") in the decloder.

Data flow from decoder frequently stalls. To wake it up, click blue PAUSE button to the right of the source, then click it again to RESUME. Number should now jump to current count and flow all the way to the exporter.



To download results, right-click on the file icon in the Exporter list (to the left of the name of the Exporter destination, as show at left) and click on "Save file." A file of the passings recorded since the last time you downloaded results is sent to the destination folder. The files are named serially; "finish," "finish (1)," "finish (2)," etc., for example.



In RaceDay, after you have downloaded a file click on "Read Data from File." When you upload the file with the first batch of data, you establish the start time just as described above under "Streaming." After that the default name of the file is indexed as indicated above; after you read "finish (2)" you are invited to upload "finish (3)."

Splits

Given enough equipment, you can record up to 15 splits with RaceDay. You have the usual problem of establishing the start time. Race|result synchronizes all the decoders with a GPS signal, so that the start times are the same for all the splits and the finish.

When the results for a split are done, use the "Store Results as Split" item under the File menu to store them in the TRIPLEDATA file. If you want to report the splits as net times, when you go to print results and get to the "Splits" dialog on page 64, say that you want to report the splits as net times.

If you have splits in a cross country meet, you can show the team scores at the splits in an html file. After doing the standard cross country results, say that you do want to add more results to the file. Then go to the split folder(s) whose results you want to show. You can do standard cross country for each split, turning off the options to list finishers by team and in order of finish if you wish.

Multiple Laps

Another coup for chip timing is the ease with which it can allow you to record lap times in a multiple-lap race. Simply click on the "Allow multiple entries of ID numbers" in the dialog above that appears when you read the reader or an IPICO .log file, and specify a minimum time between laps. When you go to list results, click on the option to print "Extra Data" and name the extra field "LAPS." Select the item "Count multiple finishes (splits)" under the Print Results menu. The output will be like that of http://www.raceberryjam.com/drakelaps.html. When it's done, you are asked if you want to "File last IDS and times." On accepting the suggestion, the runners' final results are stored in a folder of your choice (you create it on the fly).

In some races, a split is of no interest the first time a runner reaches it. If you allow multiple laps, you're asked if you want to "Skip splits until split #." If you change the default "1," all the splits will be recorded but the IDs will be negated (turkeyed) until the split of interest. If a runner was missed on the first split, you'll see his ID in the preliminary results mixed in with the runners in the split of interest and can "unturkey" him.

Reusing Bib Chips

Bib chips are supposedly disposable, but they are in fact reusable. And they cost at least 50¢ apiece, not even including the cost of the bibs.

Here's how to reuse bib chips for races/meets that require bibs to be pre-assigned.

1. Put a couple of boxes out at events that used bib chips with a "Please recycle your bib here" sign. Sometimes I get half of them back (helps oif the race announcer says something about recycling).

2. Sort the bibs by number.

3. Use a chip checker to read the chips into a file.

4. For a subsequent race, merge the bib numbers with a file of the entrants. Use Download or Setdata to create a roster with the entrants in the order you want. If, as is usual, you don't have enough used bib chips to cover the race, use SetData to insert a gap in numbers past the highest number of your old bibs. Then export the entrants to a tabbed file and delete them all from your race file. Open the file in Word, select it all, and convert it to a "Table." Do the same with the file of bib numbers. Select the column of bib numbers and paste it over the ID number ion the file of entrants. Convert the file back to tabbed text and uploads the file into your race files with Download. You may prefer to use Excel rather than Word, but I'm better with Word than Excel.

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Easy Does It 5 Miler

ID#	PLACE	AGE	SEX	CLASS	CLASS PLACE	NAME	TEAM	UNOFFICIAL TIME	SELECT TIME
1	1	27	M	20	1	PAUL GISSELQUIST	ONE STEP AT A TIME	24:14	24:14
639	2	26	M	20	2	RICK MULVEY		25:04	25:04
2	3	30	M	30	1	PETER KESSLER	ONE STEP AT A TIME	25:14	25:14
580	4	25	M	20	3	MARV DENZER		25:16	
7	5	34	M	30	2	THOMAS PLETCHER	MARATHON SPORTS O	25:17	25:17
13	6	40	M	40	1	ROB WHETHAM	MARATHON SPORTS O	25:20	
30	7	30	M	30	3	JARROW	NORTHWOODS MINN C	25:31	25:31
491	8	26	M	20	4	ROLF SCHMIDT		25:37	25:37
539	9	24	M	20	5	BRIAN MCCOLLOR	MARATHON SPORTS O	25:44	25:44
645	10	28	M	20	6	MARTY HUMPHREY		25:55	
153	11	33	M	30	4	SCOTT BRINK		25:56	25:56
252	12	33	M	30	5	JOHN.F HOGAN		26:03	26:03
21	13	21	M	20	7	GREG HEXUM	NORTHWOODS MINN C	26:06	
9	14	41	M	40	2	DOUG SUKER	MARATHON SPORTS O	26:10	26:09
538	15	23	M	20	8	RORY MATTER	MAR SPORTS B OM	26:11	
41	16	41	M	40	3	JIM PELARSKE	NORTHWOODS MINN C	26:12	
644	17	19	JrM		1	THOMAS GOETZ		26:32	
46	18	46	M	40	4	JOHN EMMONS		26:34	26:33
494	19	38	M	30	6	STEVEN MOE		26:38	26:37
3	20	41	M	40	5	MICHAEL SEAMAN	MAR SPORTS B OM	26:46	26:46
24	21	24	M	20	9	KRAIG.R RUNQUIST	BIG AL & BULLWINKL	26:48	
6	22	35	M	30	7	BOBBY PAXTON	ONE STEP AT A TIME	26:56	26:56
45	23	45	M	40	6	DICK RUHLAND		27:02	27:02
22	24	22	M	20	10	JOHN BOHLKE	BIG AL & BULLWINKL	27:11	27:11
207	25	34	M	30	8	KEVIN FLOREY		27:25	27:25
545	26	29	M	20	11	M.PETER MOUKOFF		27:33	27:33
31	27	31	M	30	9	MIKE SCHADAUER	BIG AL & BULLWINKL	27:39	
409	28	32	M	30	10	TIM SMITH	WONDER LEFT T C OM	27:47	27:47
510	29	30	M	30	11	MARK ROTH		28:03	28:03
489	30	36	M	30	12	TIM.G O'BRIEN		28:08	
12	31	39	M	30	13	JACK ANKRUM	MAR SPORTS B OM	28:12	28:12

********** END OF SPINDLE NUMBER 1

EASY DOES IT 5 MILER
Hazdelden CFY
June 13, 1992

Results by Apple Raceberry JaM

PLACE	CLASS PLACE		FINISHER	TIME	PACE
Open Men					
1	1	M20	Paul Gisselquist, 27, Minneapolis, MN	24:14	4:53
2	2	M20	Rick Mulvey, 26, White Bear Lake, MN	25:04	5:03
3	3	M30	Peter Kessler, 30, Eden Prairie, MN	25:14	5:05
Open Women					
1	1	W20	Chryssa Nicholas, 25, Minneapolis, MN	28:31	5:44
2	2	W30	Kathy Nelson, 35, Golden Valley, MN	29:59	6:02
3	3	W20	Anne Fraser, 26, Independence, MN	30:16	6:05
Masters Men					
6	1	M40	Rob Whetham, 40, Stillwater, MN	25:20	5:06
Masters Women					
5	1	W40	Marcy Gilles, 42, Eden Prairie, MN	31:17	6:18

PLACE	CLASS PLACE	FINISHER	TIME	PACE
Men Under 20				
17	1	Thomas Goetz, 19, St. Paul, MN	26:32	5:20
43	2	Ben Seuieringer, 17, Maple Grove, MN	28:47	5:47
55	3	Dave Hawley, 16, Excelsior, MN	29:32	5:57
69	4	Jeff Potts, 18, Maple Grove, MN	30:15	6:05
78	5	Joseph A Anderson, 16, Faribault, MN	30:49	6:12
Men 20 - 29				
4	1	Marv Denzer, 25, Minneapolis, MN	25:16	5:05
8	2	Rolf Schmidt, 26, Minneapolis, MN	25:37	5:09
9	3	Brian McCollor, 24, Minneapolis, MN	25:44	5:11
10	4	Marty Humphrey, 28, Minneapolis, MN	25:55	5:13
13	5	Greg Hexum, 21, Duluth, MN	26:06	5:15
Men 30 - 39				
5	1	Thomas Pletcher, 34, Hopkins, MN	25:17	5:05
7	2	Jarrow, 30, Duluth, MN	25:31	5:08
11	3	Scott Brink, 33, Maple Grove, MN	25:56	5:13
12	4	John F Hogan, 33, Clear Lake, IA	26:03	5:14
19	5	Steven Moe, 38, New Ulm, MN	26:38	5:22
Men 40 - 49				
14	1	Doug Suker, 41, Minneapolis, MN	26:10	5:16
16	2	Jim Pelarske, 41, St. Cloud, MN	26:12	5:16
18	3	John Emmons, 46, White Bear Lake, MN	26:34	5:21
20	4	Michael Seaman, 41, Edina, MN	26:46	5:23
23	5	Dick Ruhland, 45, Montgomery, MN	27:02	5:26
Men 50 - 59				
54	1	Rick Kleyman, 52, Plymouth, MN	29:31	5:56
56	2	Andy Deters, 50, Bloomington, MN	29:35	5:57
59	3	Jim Mayerle, 52, Chaska, MN	29:47	6:00
74	4	Frank McCoy, 50, St. Paul, MN	30:33	6:09
83	5	Gary DeFrance, 58, Minneapolis, MN	30:57	6:14
Men 60 & Up				
122	1	Greg Prom, 61, St. Anthony, MN	32:14	6:29
188	2	Rogers H Anderson, 63, Bloomington, MN	34:44	6:59
309	3	Emil Gottlob Balz, 73, Circle Pines, MN	39:20	7:55
310	4	John D Miller, 65, Plymouth, MN	39:26	7:56
343	5	Jim Waterman, 66, Richfield, MN	41:24	8:20

EASY DOES IT 5 MILER
Hazdelden CFY
June 13, 1992

Results by Apple Raceberry Jam

PLACE	CLASS PLACE		FINISHER	TIME	PACE
1			Paul Gisselquist, 27, Minneapolis, MN	24:14	4:53
				5:00 Pace	
2			Rick Mulvey, 26, White Bear Lake, MN	25:04	5:03
3			Peter Kessler, 30, Eden Prairie, MN	25:14	5:05
4	1	M20	Marv Denzer, 25, Minneapolis, MN	25:16	5:05
5	1	M30	Thomas Pletcher, 34, Hopkins, MN	25:17	5:05
6			Rob Whetham, 40, Stillwater, MN	25:20	5:06
7	2	M30	Jarrow, 30, Duluth, MN	25:31	5:08
8	2	M20	Rolf Schmidt, 26, Minneapolis, MN	25:37	5:09
9	3	M20	Brian McCollor, 24, Minneapolis, MN	25:44	5:11
10	4	M20	Marty Humphrey, 28, Minneapolis, MN	25:55	5:13
11	3	M30	Scott Brink, 33, Maple Grove, MN	25:56	5:13
12	4	M30	John F Hogan, 33, Clear Lake, IA	26:03	5:14
13	5	M20	Greg Hexum, 21, Duluth, MN	26:06	5:15
14	1	M40	Doug Suker, 41, Minneapolis, MN	26:10	5:16
15	6	M20	Rory Matter, 23, St. Paul, MN	26:11	5:16
16	2	M40	Jim Pelarske, 41, St. Cloud, MN	26:12	5:16
17	1	JrM	Thomas Goetz, 19, St. Paul, MN	26:32	5:20
18	3	M40	John Emmons, 46, White Bear Lake, MN	26:34	5:21
19	5	M30	Steven Moe, 38, New Ulm, MN	26:38	5:22
20	4	M40	Michael Seaman, 41, Edina, MN	26:46	5:23
21	7	M20	Kraig R Runquist, 24, St Paul, MN	26:48	5:24
22	6	M30	Bobby Paxton, 35, Minneapolis, MN	26:56	5:25
23	5	M40	Dick Ruhland, 45, Montgomery, MN	27:02	5:26
24	8	M20	John Bohlke, 22, St Paul, MN	27:11	5:28
25	7	M30	Kevin Florey, 34, Vadnais Heights, MN	27:25	5:31
26	9	M20	M Peter Moukoff, 29, St. Paul, MN	27:33	5:33
27	8	M30	Mike Schadauer, 31, Minneapolis, MN	27:39	5:34
28	9	M30	Tim Smith, 32, Edina, MN	27:47	5:35
29	10	M30	Mark Roth, 30, Burnsville, MN	28:03	5:39
30	11	M30	Tim G O'Brien, 36, Plymouth, MN	28:08	5:40
31	12	M30	Jack Ankrum, 39, Roseville, MN	28:12	5:40
32	13	M30	Mike Weinkauf, 32, Edina, MN	28:14	5:41
33	14	M30	Jim Fethers, 38, Plymouth, MN	28:16	5:41
34	15	M30	Jim Sylvestre, 34, Eden Prairie, MN	28:16	5:41
35	10	M20	Daniel J Finanger, 27, Minneapolis, MN	28:19	5:42
36	11	M20	Allan Bohlke, 28, Woodbury, MN	28:22	5:42
37	6	M40	Don R Mathieu, 46, Brooklyn Center, MN	28:27	5:43
1			Chryssa Nicholas, 25*, Minneapolis, MN	28:31	5:44
38	12	M20	Hendrie Grant, 29, St. Paul, MN	28:34	5:45
39	7	M40	Jared Mondry, 49, Minneapolis, MN	28:37	5:45
40	16	M30	Mike A Babcock, 37, St. Louis Park, MN	28:38	5:46
41	13	M20	Bryan Beel, 22, Maple Grove, MN	28:41	5:46
42	17	M30	Dale Heinen, 36, Crystal, MN	28:47	5:47
43	2	JrM	Ben Seuieringer, 17, Maple Grove, MN	28:47	5:47
44	18	M30	Thomas Dooher, 33, Moorhead, MN	28:48	5:48
45	19	M30	James Harkin, 39, Minneapolis, MN	28:55	5:49
46	14	M20	Craig Crandall, 28, Minneapolis, MN	28:58	5:50
47	8	M40	Mike Muyres, 45, Maple Grove, MN	28:58	5:50
48	15	M20	Brian J Richardson, 28, Maple Grove, MN	29:07	5:52
49	16	M20	Steve Hibbs, 20, Minnetonka, MN	29:08	5:52
50	9	M40	Terry Lillibridge, 44, Plymouth, MN	29:10	5:52
51	10	M40	Bryan Olson, 41, Ramsey, MN	29:23	5:55
52	20	M30	David Marek, 35, Rogers, MN	29:25	5:55
53	21	M30	Tom Schuld, 34, Minneapolis, MN	29:30	5:56
54	1	M50	Rick Kleyman, 52, Plymouth, MN	29:31	5:56
55	3	JrM	Dave Hawley, 16, Excelsior, MN	29:32	5:57
56	2	M50	Andy Deters, 50, Bloomington, MN	29:35	5:57
57	17	M20	Duane Jacobson, 29, Minneapolis, MN	29:39	5:58
58	22	M30	Dean Laiti, 32, Brooklyn Park, MN	29:41	5:58
				6:00 Pace	
59	3	M50	Jim Mayerle, 52, Chaska, MN	29:47	6:00
60	23	M30	Gregory Reuter, 30, Maple Grove, MN	29:48	6:00
61	24	M30	Greg C Lerdall, 33, Golden Valley, MN	29:51	6:00
62	18	M20	David Smisek, 26, Moundsview, MN	29:52	6:01
63	25	M30	Nobby Hashizume, 33, Minnetonka, MN	29:54	6:01
64	26	M30	Jim Meredig, 34, Minneapolis, MN	29:54	6:01
65	19	M20	John DeLanoy, 23, St. Paul, MN	29:58	6:02
2			Kathy Nelson, 35*, Golden Valley, MN	29:59	6:02
66	27	M30	Mark Reasoner, 31, Arden Hills, MN	30:04	6:03
67	28	M30	Patrick Tobin, 38, Maple Grove, MN	30:05	6:03
68	29	M30	Paul Swan, 37, Riyadh, Saudia Arabia	30:09	6:04
69	4	JrM	Jeff Potts, 18, Maple Grove, MN	30:15	6:05
3			Anne Fraser, 26*, Independence, MN	30:16	6:05
70	30	M30	Keith S Basney, 38, Blaine, MN	30:16	6:05
71	11	M40	Rickey J Storebo, 40, Minneapolis, MN	30:18	6:06
72	12	M40	James Lundberg, 41, Minneapolis, MN	30:23	6:07
73	31	M30	Brian Hecht, 31, Arden Hills, MN	30:31	6:08
74	4	M50	Frank McCoy, 50, St. Paul, MN	30:33	6:09
75	32	M30	Jeff Gullord, 32, Crystal, MN	30:38	6:10
76	33	M30	James A Hertzog, 34, Winsted, MN	30:38	6:10
4	1	W30	Janet Skaalen, 39*, Minnetonka, MN	30:41	6:10
77	20	M20	Curtis Johnson, 29, Minneapolis, MN	30:45	6:11
78	5	JrM	Joseph A Anderson, 16, Faribault, MN	30:49	6:12
79	21	M20	Jeff Kappel, 25, Minneapolis, MN	30:53	6:13
80	34	M30	Randall Huskamp, 36, Minneapolis, MN	30:53	6:13
81	35	M30	Jim Rantala, 35, Minneapolis, MN	30:55	6:13
82	13	M40	Pat Foley, 44, Northfield, MN	30:56	6:13
83	5	M50	Gary DeFrance, 58, Minneapolis, MN	30:57	6:14
84	36	M30	Doug Strom, 36, St. Louis Park, MN	30:58	6:14
85	6	M50	Erv Tolkinen, 57, Perham, MN	30:59	6:14
86	37	M30	Alan J Goltzman, 33, Edina, MN	30:59	6:14
87	6	JrM	Brian Sorbel, 18, Plymouth, MN	31:00	6:14
88	14	M40	Steve Fulton, 41, Coon Rapids, MN	31:01	6:14
89	38	M30	Jerry Washatka, 31, Albertville, MN	31:03	6:15
90	15	M40	Ron Trussell, 42, Burnsville, MN	31:05	6:15
91	7	M50	George Savanick, 54, Apple Valley, MN	31:07	6:16
92	16	M40	Tom Bengel, 41, St. Paul, MN	31:09	6:16
93	17	M40	Eric R Benson, 42, St. Louis Park, MN	31:10	6:16
94	22	M20	Mike Gallagher, 28, Minneapolis, MN	31:11	6:16
95	18	M40	John Dickinson, 44, New Hope, MN	31:16	6:17
96	39	M30	Robert Ringwelski, 38, Maple Grove, MN	31:17	6:18
5			Marcy Gilles, 42*, Eden Prairie, MN	31:17	6:18
97	40	M30	Ron Lusk, 34, Minneapolis, MN	31:19	6:18
98	41	M30	Bill Kress, 33, St. Louis Park, MN	31:19	6:18
99	19	M40	Eric Peterson, 44, Minneapolis, MN	31:20	6:18
6	2	W30	Nancy L Rowe, 34*, St. Paul, MN	31:23	6:19
100	7	JrM	Fernando Aguirre, 17, Plymouth, MN	31:24	6:19
101	8	JrM	Max L Stanislowski, 19, Blaine, MN	31:32	6:21
102	42	M30	Paul J Stangl, 31, Maple Grove, MN	31:34	6:21
7	3	W30	Linda Rasmussen, 36*, Plymouth, MN	31:37	6:22
103	9	JrM	Charles A Anderson, 18, Faribault, MN	31:38	6:22
104	23	M20	Peter K Butler, 25, St. Paul, MN	31:40	6:22
105	24	M20	Greg Roach, 29, Woodbury, MN	31:42	6:23
106	10	JrM	Andrew Moore, 16, Plymouth, MN	31:42	6:23
107	25	M20	Mark Seefeldt, 23, Monticello, MN	31:42	6:23
108	43	M30	Charlie Goetsch, 36, Minneapolis, MN	31:45	6:23
109	20	M40	Roger Sexter, 42, Minneapolis, MN	31:54	6:25
110	44	M30	David L DePauw, 36, Eden Prairie, MN	31:57	6:26
111	21	M40	Robert J Roon, 48, Minneapolis, MN	32:02	6:27
112	22	M40	Patrick D Kennedy, 46, Richfield, MN	32:03	6:27
113	23	M40	Keith Tvedten, 42, St. Louis Park, MN	32:04	6:27
114	26	M20	Jeff Beyer, 23, Buffalo, MN	32:04	6:27
115	27	M20	Nathan Malek, 20, Forest Lake, MN	32:05	6:27
116	24	M40	Dave Trefethen, 44, Osseo, MN	32:06	6:28
117	25	M40	Gordy Strickland, 45, Cottage Grove, MN	32:08	6:28
118	26	M40	Thomas Kass, 41, Richfield, MN	32:09	6:28
119	27	M40	Pat J O'Neil, 49, Minneapolis, MN	32:09	6:28
120	28	M40	Mike Nagell, 40, Plymouth, MN	32:10	6:28
8	4	W30	Nancy Dahl, 34*, St. Louis Park, MN	32:11	6:29
121	11	JrM	Andrew Youngquist, 16, Plymouth, MN	32:11	6:29
9	5	W30	Mary Loving, 35*, Edina, MN	32:11	6:29
122	1	M60	Greg Prom, 61, St. Anthony, MN	32:14	6:29
123	28	M20	Mark Ahlers, 26, Plymouth, MN	32:15	6:29
124	45	M30	Patrick J Eastman, 31, Edina, MN	32:16	6:30
125	12	JrM	Damien Aguilor, 16, St. Louis Park, MN	32:17	6:30
126	46	M30	Jim Nielsen, 35, Minneapolis, MN	32:20	6:30
127	29	M40	Timothy D Nitz, 41, Bethel, MN	32:22	6:31
128	47	M30	Peter Dery, 35, Lakeville, MN	32:23	6:31
129	48	M30	Joe Sicora, 34, Minneapolis, MN	32:23	6:31
130	13	JrM	Mark Kunkel, 17, Plymouth, MN	32:23	6:31
131	8	M50	Ralph E Koenig, 58, Edina, MN	32:24	6:31
132	9	M50	Bob Lindberg, 51, Forest Lake, MN	32:26	6:32
133	10	M50	John Quinton, 55, Plymouth, MN	32:26	6:32
134	29	M20	Jeff Thompson, 29, Eagan, MN	32:27	6:32
135	30	M40	D Joseph Carlson, 48, Hastings, MN	32:29	6:32
136	31	M40	Paul Meyer, 40, Plymouth, MN	32:30	6:32
137	14	JrM	Dana Severson, 15, Plymouth, MN	32:31	6:33
138	32	M40	Dick Neumeg, 45, Apple Valley, MN	32:32	6:33
139	15	JrM	Jason Fortun, 18, St. Louis Park, MN	32:35	6:33
10	1	W20	Aimee B Schaefer, 21*, St. Louis Park, MN	32:36	6:34
140	16	JrM	Jason Waldowski, 19, Ramsey, MN	32:37	6:34

EASY DOES IT 5 MILER
Hazdelden CFY
June 13, 1992

Results by Apple Raceberry JaM

ALL MEN

PLACE	CLASS PLACE		FINISHER	TIME	PACE
. Marathon Sports					
3	2	M30	Thomas Pletcher, 34, Hopkins, MN	25:17	5:05
4	1	M40	Rob Whetham, 40, Stillwater, MN	25:20	5:06
6	2	M20	Brian McCollor, 24, Minneapolis, MN	25:44	5:11
8	2	M40	Doug Suker, 41, Minneapolis, MN	26:10	5:16
Total Time = 1:42:31 Total Places = 34					
. Big Al & Bullwinkls					
12	5	M20	Kraig R Runquist, 24, St Paul, MN	26:48	5:24
14	6	M20	John Bohlke, 22, St Paul, MN	27:11	5:28
15	5	M30	Mike Schadauer, 31, Minneapolis, MN	27:39	5:34
19	8	M20	Allan Bohlke, 28, Woodbury, MN	28:22	5:42
22	9	M20	Bryan Beel, 22, Maple Grove, MN	28:41	5:46
Total Time = 1:50:00 Total Places = 108					
. Mar Sports B					
9	4	M20	Rory Matter, 23, St. Paul, MN	26:11	5:16
11	4	M40	Michael Seaman, 41, Edina, MN	26:46	5:23
17	7	M30	Jack Ankrum, 39, Roseville, MN	28:12	5:40
70	7	M40	John D Naslund, 42, Bloomington, MN	35:10	7:05
Total Time = 1:56:19 Total Places = 270					
. Distance Derelicts					
21	8	M30	Mike A Babcock, 37, St. Louis Park, MN	28:38	5:46
25	9	M30	David Marek, 35, Rogers, MN	29:25	5:55
26	10	M30	Tom Schuld, 34, Minneapolis, MN	29:30	5:56
28	11	M30	Dean Laiti, 32, Brooklyn Park, MN	29:41	5:58
31	13	M30	Brian Hecht, 31, Arden Hills, MN	30:31	6:08
Total Time = 1:57:14 Total Places = 203					
. Wonder Left T C					
16	6	M30	Tim Smith, 32, Edina, MN	27:47	5:35
23	10	M20	Craig Crandall, 28, Minneapolis, MN	28:58	5:50
32	12	M20	Curtis Johnson, 29, Minneapolis, MN	30:45	6:11
44	14	M30	Jim Nielsen, 35, Minneapolis, MN	32:20	6:30
Total Time = 1:59:50 Total Places = 277					
. Graveyard Shift					
33	1	JrM	Brian Sorbel, 18, Plymouth, MN	31:00	6:14
35	2	JrM	Fernando Aguirre, 17, Plymouth, MN	31:24	6:19
46	6	JrM	Mark Kunkel, 17, Plymouth, MN	32:23	6:31
55	10	JrM	Jesse D Bryant, 18, Plymouth, MN	33:24	6:43
Total Time = 2:08:11 Total Places = 477					
. Sophomore Sensation					
39	4	JrM	Andrew Moore, 16, Plymouth, MN	31:42	6:23
43	5	JrM	Andrew Youngquist, 16, Plymouth, MN	32:11	6:29
47	7	JrM	Dana Severson, 15, Plymouth, MN	32:31	6:33
53	9	JrM	Kevin Decker, 16, New Hope, MN	33:20	6:42
78	11	JrM	Mike Helman, 16, Plymouth, MN	37:00	7:27
Total Time = 2:09:44 Total Places = 522					
. Touchables					
38	13	M20	Peter K Butler, 25, St. Paul, MN	31:40	6:22
58	15	M20	Paul Butler, 27, Mazama, WA	33:51	6:49
67	20	M30	John Butler, 32, Edina, MN	35:00	7:03
74	22	M30	Tom Butler, 30, Bingen, WA	36:06	7:16
Total Time = 2:16:37 Total Places = 690					
. Butler Center Team					
81	8	M40	Gerald Kegler, 47, Plymouth, MN	37:29	7:33
82	9	M40	Leroy J Stanislowski, 45, Blaine, MN	37:42	7:35
83	24	M30	Kevin F Johnson, 38, Taylors Falls, MN	37:59	7:39
84	25	M30	Bob Ackley, 38, Wyoming, MN	38:08	7:40
85	10	M40	Chuck Tomaszewski, 43, Lexington, MN	38:17	7:42
90	12	M40	Gary Hestness, 47, Minneapolis, MN	38:56	7:50
93	26	M30	Gregg Chartrand, 33, Lindstrom, MN	39:39	7:59
Total Time = 2:31:18 Total Places = 1051					

ALL WOMEN

PLACE	CLASS PLACE		FINISHER	TIME	PACE
1. Northern Lights					
52	4	W30	Bonnie Vendsel, 38*, St. Paul, MN	33:16	6:42
60	3	W20	Julia Mairs, 26*, St. Paul, MN	33:54	6:49
73	4	W20	Pamela Schmid, 26*, St. Paul, MN	36:01	7:15
80	8	W40	Leane Hewitt, 41*, St. Paul, MN	37:28	7:32
Total Time = 2:20:39 Total Places = 120					
2. Dangerous Curves					
102	9	W40	Elaine K DenHerder, 41*, Minneapolis, MN	41:33	8:22
110	10	W40	Jeanne Labore, 41*, Minneapolis, MN	43:21	8:43
116	11	W40	Diane M Anderson, 41*, Edina, MN	46:28	9:21
120	2	W50	Arlene M Dahlberg, 50*, Edina, MN	49:20	9:56
Total Time = 3:00:42 Total Places = 453					

CO-ED

PLACE	CLASS PLACE		FINISHER	TIME	PACE
1. One Step At A Time					
1	1	M20	Paul Gisselquist, 27, Minneapolis, MN	24:14	4:53
2	1	M30	Peter Kessler, 30, Eden Prairie, MN	25:14	5:05
13	4	M30	Bobby Paxton, 35, Minneapolis, MN	26:56	5:25
20	1	W20	Chryssa Nicholas, 25*, Minneapolis, MN	28:31	5:44
Total Time = 1:44:55 Total Places = 27					
2. No Big Names Here					
45	15	M30	Joe Sicora, 34, Minneapolis, MN	32:23	6:31
48	2	W20	Aimee B Schaefer, 21*, St. Louis Park, MN	32:36	6:34
63	6	M40	Dan Riser, 41, New Hope, MN	34:27	6:56
68	21	M30	Anthony Brown, 34, Crystal, MN	35:04	7:03
95	14	M40	Bob Hawkins, 48, St. Louis Park, MN	40:07	8:04
Total Time = 2:14:30 Total Places = 519					
3. Abbott Nw Hosp					
64	17	M30	Carl Hoang, 32, St. Louis Park, MN	34:28	6:56
65	18	M30	Craig Hall, 30, Minneapolis, MN	34:49	7:00
89	20	M20	Jeff Stramer, 29, Maple Grove, MN	38:55	7:50
96	5	W20	Christine Galloway, 26*, Bloomington, MN	40:16	8:06
105	28	M30	Terry L Reynolds, 36, Plymouth, MN	42:04	8:28
117	12	W30	Amy Amberg, 35*, Minneapolis, MN	46:43	9:24
Total Time = 2:28:28 Total Places = 742					
4. Cramp Meisters					
40	14	M20	Jeff Beyer, 23, Buffalo, MN	32:04	6:27
49	8	JrM	Jason Waldowski, 19, Ramsey, MN	32:37	6:34
88	19	M20	Greg Emerick, 29, Buffalo, MN	38:51	7:49
114	7	W20	Tracy Bergmann, 22*, Rockford, MN	46:04	9:16
Total Time = 2:29:36 Total Places = 669					
5. Not Ready Prime Tim					
75	23	M30	Leon Zaczkowski, 39, St. Paul, MN	36:15	7:18
77	18	M20	Craig Nelson, 25, St. Paul, MN	36:47	7:24
106	23	M20	Pete Schwen, 27, Minnetonka, MN	42:33	8:34
107	9	W30	Jeanette Zaczkowski, 39*, St. Paul, MN	42:46	8:36
Total Time = 2:38:21 Total Places = 926					

2+2

PLACE	CLASS PLACE		FINISHER	TIME	PACE
1. North By Northwest					
18	7	M20	Daniel J Finanger, 27, Minneapolis, MN	28:19	5:42
29	12	M30	Greg C Lerdall, 33, Golden Valley, MN	29:51	6:00
34	1	W40	Marcy Gilles, 42*, Eden Prairie, MN	31:17	6:18
50	2	W40	Gloria Jansen, 45*, Richfield, MN	32:40	6:34
62	5	W30	Therese Mahon, 30*, Minnetonka, MN	34:01	6:51
103	15	M40	Bill Hidding, 43, Edina, MN	41:34	8:22
Total Time = 2:02:07 Total Places = 112					

Rum River Invitational Boys' 5K
Anoka High School
Oct. 7, 1999

Results by Apple Race

PLACE	TEAM	POINTS	SCORES							AVG. TIME	SPREAD
1	Burnsville	47	1	8	10	11	17	24	26	17:00.0	1:23.7
2	Minneapolis South	51	3	5	6	12	25	29	42	16:55.8	1:28.9
3	Hudson (Wis)	101	2	4	13	39	43	47	58	17:27.1	2:18.3
4*	Maple Grove	132	14	15	18	35	50	56	60	18:05.1	1:54.6
5*	South St. Paul	132	7	16	19	33	57	59	65	18:01.4	2:59.2
6	Anoka	149	22	27	31	32	37	38	49	18:08.4	0:37.7
7	Park Cottage Grove	164	9	30	36	44	45	51	54	18:17.0	1:53.5
8	Cretin-Derham Hall	196	23	34	40	46	53	55	61	18:39.6	1:39.8
9	Robbinsdale Cooper	199	20	28	41	48	62	63	64	18:42.4	2:15.3
10	St Paul Acad/Summit	274	21	52	66	67	68	69	70	19:53.0	3:17.0

PLACE	FINISHER	TIME
1. Burnsville		
1	Reid Strain, 11	16:14.0
8	Derek Harmon, 10	16:50.8
10	Mark Bergstrom, 11	17:07.9
11	Eric Olson, 11	17:09.8
17	Brett Heimstead, 10	17:37.6
24	Nate Wucherfennig, 11	17:51.4
26	Joe Steffens, 12	17:55.0
Total Time = 1:25:00.0	Total Places = 47	
2. Minneapolis South		
3	Peter Voves, 12	16:23.0
5	Malcolm Richards, 11	16:24.5
6	Michael Keir, 12	16:44.8
12	Mac Page, 12	17:15.2
25	David Favero, 12	17:51.8
29	Devin Clarkson, 12	18:07.3
42	Nathaniel Miller, 11	18:35.4
Total Time = 1:24:39.1	Total Places = 51	
3. Hudson (Wis)		
2	Ryan Donovan, 12	16:22.4
4	Dustin Fier, 9	16:23.7
13	Kyle Long, 9	17:17.0
39	Matt Speirs, 12	18:31.6
43	Joel Haugen, 12	18:40.6
47	Deigo Vega, 11	19:09.3
58	Tony Barlow, 12	19:49.1
Total Time = 1:27:15.2	Total Places = 101	
4*. Maple Grove		
14	Joe Yard, 11	17:27.2
15	Mike Masters, 11	17:35.7
18	Mark Mellein, 11	17:38.4
35	Peter Preus, 11	18:22.4
50	Rory Indergaard, 11	19:21.8
56	James Kong, 12	19:39.8
60	Steve Fenske, 12	19:54.4
Total Time = 1:30:25.2	Total Places = 132	
5*. South St. Paul		
7	Jeff LeMire, 12	16:45.2
16	Nick Janssen, 12	17:36.9
19	Bill Bernard, 11	17:42.2
33	Mike Bauer, 10	18:18.3
57	Mike Krech, 10	19:44.4
59	Tony Mooney, 12	19:49.5
65	Eric Durand, 8	20:31.0
Total Time = 1:30:06.8	Total Places = 132	

PLACE	FINISHER	TIME
6. Anoka		
22	Matt Kurke, 11	17:48.8
27	Josh Hamre, 11	17:55.3
31	Nigel Dahlvang, 12	18:14.8
32	Matt Rauen, 12	18:16.9
37	Steve Voss, 9	18:26.5
38	Bryan Larison, 10	18:29.7
49	Neil Miller, 10	19:16.9
Total Time = 1:30:42.0	Total Places = 149	
7. Park Cottage Grove		
9	Greg Jahner, 12	17:06.1
30	Adam Johnson, 12	18:12.8
36	A J Gouws, 10	18:25.6
44	Mike Sevcik, 9	18:40.9
45	A J Kozlowski, 12	18:59.5
51	Dan Hunter, 12	19:28.0
54	Sean Stagg, 12	19:35.4
Total Time = 1:31:24.7	Total Places = 164	
8. Cretin-Derham Hall		
23	Matt Donohoo, 12	17:50.8
34	Jamie Smith, 11	18:20.5
40	Scott Peterson, 10	18:32.8
46	Joe Schneider, 11	19:03.3
53	Michael Leete, 10	19:30.5
55	Paul Singh, 11	19:38.8
61	Justin Dietz, 10	19:58.1
Total Time = 1:33:17.7	Total Places = 196	
9. Robbinsdale Cooper		
20	Erik Wiitala, 12	17:44.0
28	Scott Stanton, 12	17:59.0
41	Jonathan Schmitz, 10	18:35.1
48	Scott Whiteis, 11	19:14.8
62	Kenneth Olson, 12	19:59.2
63	Adam Olby, 12	20:02.0
64	Paul Lindquist, 11	20:10.0
Total Time = 1:33:32.0	Total Places = 199	
10. St Paul Acad/Summit		
21	Andrew Leavitt, 12	17:44.3
52	Dane Thomforde, 8	19:29.9
66	Corey Bergad, 11	20:33.7
67	Jeremy Neren, 11	20:35.9
68	Robert Butler, 12	21:01.3
69	Jesse Baltes, 12	21:08.5
70	Andrew Bohn, 11	21:42.8
Total Time = 1:39:24.8	Total Places = 274	

Classic Lake Championships Girls
Bassett Creek Park
Oct. 13, 1994

Results by Apple Raceberry Ja

PLACE	TEAM PLACE	FINISHER	TIME	TEAM
1	1	Karry Tierney, 11	19:26	Minnetonka
2	2	Maren Hoch, 8	19:29	Edina
3	3	Marissa McGill, 12	19:29	Armstrong
4	4	Addy Adamson, 10	19:35	Wayzata
5		Chrissy Eid, 9	19:36	Richfield
6	5	Julie Pritchard, 12	19:51	Armstrong
7	6	Alexis Bainbridge, 11	19:59	Edina
8	7	Laura Paulus, 12	20:08	Edina
9	8	Emily Shafer, 12	20:15	Armstrong
10	9	Jody Pederson, 12	20:28	Minnetonka
11	10	Kerri Nelson, 11	20:29	Edina
12	11	Christina Seifert, 10	20:38	Minnetonka
13	12	Kaili Richey, 11	20:38	Armstrong
14	13	Andrea Parrish, 8	20:39	Hopkins
15	14	Becky Neiman, 12	20:48	Edina
16	15	Lezlie Germann, 11	20:52	Minnetonka
17	16	Jamie Ehlen, 10	20:52	Wayzata
18	17	Courtney Porter, 12	20:53	Wayzata
19	18	Erin Wood, 12	20:54	Wayzata
20	19	Laura Joyce, 10	20:55	Wayzata
21	20	Jaymi Dirks, 10	21:02	Minnetonka
22	21	Debbie Maisel, 11	21:06	Hopkins
23	22	Margie Tilman, 10	21:07	St. Louis Park
24	23	Andrea Nahrgang, 11	21:13	Hopkins
25	24	Katie Perhai, 11	21:19	Cooper
26	25	Nissa Larson, 11	21:21	Armstrong
27	26	Molly Sheeley, 12	21:25	Minnetonka
28		Melissa Doren, 12	21:25	Richfield
29	27	Kristina Knuth, 12	21:30	Wayzata
30	28	Jennie Kinneberg, 9	21:32	St. Louis Park
31	29	Mia Justus, 10	21:32	Minnetonka
32	30	Laura Sampsell, 12	21:34	Edina
33	31	Jenny Hughes, 8	21:41	Cooper
34	32	Jessica Boschee, 9	21:44	Edina
35	33	Maren Sands, 12	21:46	Hopkins
36	34	Erica Halverson, 11	21:47	Armstrong
37	35	Kelly Berndt, 9	21:48	Wayzata
38		Virginia Rousu, 10	22:00	Wayzata
39		Megan Heino, 9	22:01	Wayzata
40	36	Michelle Marck, 10	22:02	Hopkins
41	37	Maria Frisch, 11	22:03	Armstrong
42	38	Crystal Constancio, 7	22:04	Hopkins
43	39	Katie Beck, 9	22:07	St. Louis Park
44		Becky Eayrs, 9	22:08	Wayzata
45		Susan Toyli, 12	22:08	Armstrong
46		Kelly McCoy, 9	22:09	Wayzata
47	40	Suzanne DePaulo, 10	22:09	St. Louis Park
48		Melissa Prom, 12	22:10	Armstrong
49		Becky Hargeaves, 10	22:10	Wayzata
50		Leah Ohman, 12	22:13	Edina
51		Barbara Wenger, 9	22:14	Edina
52	41	Kelli Brown, 10	22:15	St. Louis Park
53		Chrissy Deutschlander, 11	22:19	Minnetonka
54	42	Cara O'Connell, 9	22:19	Cooper
55	43	Bryn Smith, 9	22:24	Hopkins
56		Venita Chandra, 12	22:24	Edina
57		Jenni Anderson, 11	22:26	Minnetonka
58		Laura Berdan, 11	22:27	Minnetonka
59		Mahi Pelanisami, 10	22:27	Armstrong
60	44	Bridget Johnson, 9	22:29	St. Louis Park
61		Monica Radin, 10	22:32	Hopkins
62	45	Suzanne Bot, 12	22:37	St. Louis Park
63		Sarah Porter, 12	22:43	Armstrong
64		Courtney McElroy, 10	22:43	Armstrong
65		Nikki Lang, 10	22:54	St. Louis Park
66	46	Jenny Rusinko, 9	22:58	Cooper
67		Emily Engel, 7	22:59	Hopkins
68		Randee Carlson, 11	23:01	Minnetonka
69		Alia Bauman, 12	23:10	Minnetonka
70		Courtney Vashro, 12	23:24	Hopkins
71		Colleen Peach, 11	23:27	Edina
72		Allison Myss, 11	23:39	Hopkins
73		Patti Keillor, 10	23:42	St. Louis Park
74		Teresa Angier, 10	23:43	St. Louis Park
75		Daena Abelson, 9	23:48	St. Louis Park
76	47	Karen Wittig, 11	23:54	Cooper
77		Kindra Witthaus, 11	24:01	Richfield
78		Adrian Frykman, 8	24:09	Edina
79		Hadley Quam, 12	24:24	Richfield
80	48	Abby Boline, 10	24:53	Cooper
81	49	Donna Dawson, 11	25:22	Cooper
82		Lisa Chubb, 10	26:18	St. Louis Park

CLASSIC LAKE CONFERENCE GIRLS
Bassett Creek Park
Oct. 13, 1994

Results by Apple Raceberry JaM

PLACE	TEAM	POINTS	SCORES							AVG. TIME	SPREAD
1	Armstrong	16	1	2	3	4	6	8	9	20:19	1:52
2	Cooper	45	5	7	10	11	12	13	14	22:27	2:35

PLACE	TEAM	POINTS	SCORES							AVG. TIME	SPREAD
1	Edina	26	1	4	5	7	9	11	12	20:11	1:19
2	Armstrong	29	2	3	6	8	10	13	14	20:19	1:52

PLACE	TEAM	POINTS	SCORES							AVG. TIME	SPREAD
1	Armstrong	18	1	2	3	4	8	10	12	20:19	1:52
2	Hopkins	38	5	6	7	9	11	13	14	21:22	1:23

PLACE	TEAM	POINTS	SCORES							AVG. TIME	SPREAD
1	Armstrong	26	2	3	4	7	10	13	14	20:19	1:52
2	Minnetonka	29	1	5	6	8	9	11	12	20:30	1:36

PLACE	TEAM	POINTS	SCORES							AVG. TIME	SPREAD
1	Armstrong	16	1	2	3	4	6	8	9	20:19	1:52
2	St. Louis Park	45	5	7	10	11	12	13	14	21:50	1:08

PLACE	TEAM	POINTS	SCORES							AVG. TIME	SPREAD
1	Armstrong	23	1	3	4	5	10	12	14	20:19	1:52
2	Wayzata	32	2	6	7	8	9	11	13	20:38	1:20

PLACE	TEAM	POINTS	SCORES							AVG. TIME	SPREAD
1	Edina	15	1	2	3	4	5	7	9	20:11	1:19
2	Cooper	47	6	8	10	11	12	13	14	22:27	2:35

PLACE	TEAM	POINTS	SCORES							AVG. TIME	SPREAD
1	Hopkins	19	1	2	3	6	7	8	10	21:22	1:23
2	Cooper	41	4	5	9	11	12	13	14	22:27	2:35

PLACE	TEAM	POINTS	SCORES							AVG. TIME	SPREAD
1	Minnetonka	15	1	2	3	4	5	7	8	20:30	1:36
2	Cooper	48	6	9	10	11	12	13	14	22:27	2:35

MDRA Minnesota 15K
Minneapolis Heart Institute, Edina
Aug. 13, 2006

Cloudy, light breeze, 70s
Results by Apple Raceberry JaM

PLACE	CLASS PLACE		FINISHER	WMA PERCENT	RAW TIME
1	1	M50	Dan Morse, 53, Minneapolis, MN	87.5%	54:51
2	1	M45	Doug Keller, 48, Plymouth, MN	86.2%	53:24
3	2	M50	Randy Wiinanen, 51, Iron, MN	85.7%	55:04
4	1	M40	Pat Billig, 44, Roseville, MN	85.5%	52:08
1	1	W55	Gloria Jansen, 59*, White Bear Lake, MN	85.4%	1:09:41
5	2	M45	Bobby Paxton, 49, Minneapolis, MN	84.8%	54:43
6	3	M45	Bill Magdalene, 47, Minneapolis, MN	83.7%	54:30
7	2	M40	Digger Carlson, 44, White Bear Lake, MN	83.6%	53:17
8	4	M45	Paul Brown, 48, Waconia, MN	83.5%	55:08
9	5	M45	Kirt Goetzke, 45, Plymouth, MN	83.1%	54:05
10	1	OpM	Joey Keillor, 32, Rochester, MN	82.4%	50:05
11	2	OpM	Josh Metcalf, 31, Glencoe, MP	82.2%	50:06
12	3	OpM	Pete Gilman, 31, Runners Edge	82.2%	50:06
2	1	W40	Kelly Keeler, 44*, White Bear Lake, MN	82.2%	1:00:07
13	4	OpM	Josh Schoen, 26, Faribault, MN	82.0%	50:11
14	5	OpM	Matthew Reinders, 38, Bloomington, MN	81.6%	52:07
15	1	M60	Jim Graupner, 61, Lake Elmo, MN	81.6%	1:03:05
16	2	M60	Norm Purrington, 63, Lake Elmo, MN	81.5%	1:04:21
3	2	W40	Sharon Stubler, 41*, Minnetonka, MN	81.1%	59:25
17	3	M40	Jim Ramacier, 43, White Bear Lake, MN	80.7%	54:46
18	6	M45	David Tappe, 49, Maple Grove, MN	80.7%	57:30
19	6	OpM	Chris Lundberg, 23, Minneapolis, MN	80.6%	51:05
20	7	OpM	Michael Stoick, 29, St. Paul, MN	80.1%	51:22
21	1	M70	Dale Urbain, 72, Burnsville, MN	79.8%	1:12:10
22	8	OpM	Michael Henderson, 27, St. Paul, MN	79.6%	51:43
23	9	OpM	Christopher Kartschoke, 37, Prior Lake, MN	79.4%	53:12
24	10	OpM	Gregg Robertson, 36, Duluth, MN	79.2%	52:58
4	3	W40	Laurie Hanscom, 43*, Eden Prairie, MN	79.2%	1:01:49
25	7	M45	Chip Cheney, 47, Eden Prairie, MN	79.1%	57:40
26	11	OpM	Bryan Donald, 25, St. Paul, MN	78.9%	52:12
5	4	W40	Bonnie Sons, 41*, Shorewood, MN	78.8%	1:01:08
27	12	OpM	Brent Roeger, 34, Minneapolis, MN	78.7%	52:45
28	13	OpM	Brady Anderson, 28, Eau Claire, WI	78.7%	52:17
6	1	W65	Judy Cronen, 65*, Lakeville, MN	78.4%	1:22:52
29	14	OpM	Pete Miller, 36, St. Louis Park, MN	78.2%	53:37
30	3	M50	Mike Setter, 50, Minneapolis, MN	77.8%	1:00:07
31	15	OpM	Brian Moen, 36, Ramsey, MN	77.7%	54:01
32	16	OpM	Derek Dippon, 33, Cedar, MN	77.5%	53:22
33	3	M60	Stu Clem, 62, Pine City, MN	77.4%	1:07:07
34	17	OpM	Tom Church, 24, Minneapolis, MN	77.4%	53:10
35	4	M40	Hyun Yoon, 41, Vadnais Heights, MN	76.9%	56:38
7	1	W45	Kristi Larson, 48*, Brooklyn Park, MN	76.7%	1:07:10
36	1	M55	Jerry Beutel, 56, Afton, MN	76.6%	1:04:17
37	18	OpM	Dimitri Drekonja, 32, Minneapolis, MN	76.6%	53:55
8	1	OpW	Mary Chestolowski, 35*, Rochester, MN	76.4%	1:01:07
38	8	M45	Tom Prentice, 46, Lake Elmo, MN	76.2%	59:23
39	4	M50	Douglas Bakkene, 52, Worthington, MN	76.1%	1:02:29

MANITOU TRIATHLON
White Bear Lake
June 1, 1992

Individuals

PLACE	CLASS PLACE	FINISHER	SWIM PLACE	SWIM TIME	BIKE PLACE	BIKE TIME	RUN PLACE	RUN TIME	TOTAL TIME
1	1	Matt Haugen, 35, St. Paul, MN	29	8:50	3	33:53	1	16:14	58:57
2	1	Steven Kramer, 20, Burnsville, MN	17	8:26	4	34:31	2	17:17	1:00:14
3	1	Rocket Raymond, 27, Duluth, MN	11	8:11	1	33:52	3	18:17	1:00:20
4	2	Kevin O'Connor, 21, Ames, IA	13	8:16	5	34:43	4	17:30	1:00:29
5	3	Todd Morton, 22, Minneapolis, MN	19	8:29	6	35:04	5	17:30	1:01:03
6	1	Dan Schueller, 30, Brooklyn Center, MN	28	8:47	7	34:53	6	17:34	1:01:14
7	2	Kirk Clowser, 35, Circle Pines, MN	7	8:04	2	34:28	7	19:06	1:01:38
8	4	John Salzsiedler, 23, Bloomington, MN					8	18:55	1:02:36
9	5	Mike Sweeney, Jr, 23, Grand Forks, ND	8	8:06	12	36:53	9	18:20	1:03:19
10	1	Ben Ewers, Jr, 45, Fridley, MN	56	9:49	11	35:06	10	18:26	1:03:21
11	3	David Dow, 37, St. Paul, MN	42	9:23	9	34:55	11	19:17	1:03:35
1	1	Heidi Keller, 27*, Falcon Heights, MN	3	7:39	14	37:38	12	18:22	1:03:39
12	2	Rich Odash, 29, Fridley, MN	59	9:54					1:03:50
13	3	Matthew Evans, 26, Duluth, MN	10	8:10	18	37:48	14	18:02	1:04:00
14	1	Michael Martorelli, 41, Minneapolis, MN	14	8:17	10	36:31	15	19:24	1:04:12
15	6	Todd White, 24, Maplewood, MN	12	8:12	19	37:51	16	18:49	1:04:52
16	4	Dan Blekeberg, 35, St. Paul, MN	60	9:55	17	35:53	17	19:07	1:04:55
17	1	Dan Stocker, 16, Bloomington, MN	1	7:04	15	38:21	18	19:35	1:05:00
18	7	David Holden, 23, St. Paul, MN	4	7:42	16	37:46	19	19:39	1:05:07
2	1	Amy Hollingsworth, 20*, Duluth, MN	5	7:55	13	37:22	20	20:29	1:05:46
19	2	David M Dornfeld, 32, Burnsville, MN	58	9:54	33	39:00	21	17:48	1:06:42
20	8	Michael Noonan, 24, St. Paul, MN	113	11:40	40	38:02	22	17:20	1:07:02
21	2	Garrison Whyte, 17, St. Paul, MN	6	7:58	21	38:38	23	20:39	1:07:15
22	5	Mark A Harris, 38, Andover, MN	76	10:35	26	37:53	24	19:08	1:07:36
23	3	Erik Stange, 19, Shoreview, MN	25	8:44	23	38:43	25	20:14	1:07:41
24	9	Joel Johnson, 23, Excelsior, MN	31	8:55	32	39:54	26	19:01	1:07:50
25	3	Jamie Kujawa, 32, White Bear Lake, MN	54	9:46	20	36:26	27	21:40	1:07:52
26	4	David Ousdigian, 28, Woodbury, MN	35	9:09	22	37:39	28	21:11	1:07:59
3	1	Julie Olson, 31*, White Bear Lake, MN	9	8:09	24	39:32	29	20:37	1:08:18
27	4	Tom Pihlstrom, 19, St. Paul, MN	69	10:19	35	38:42	30	19:23	1:08:24
28	2	Randy Preisler, 41, North Branch, MN					31	19:04	1:08:52
29	6	Bill Souther, 39, Woodbury, MN	34	9:06	27	39:23	32	20:25	1:08:54
30	10	James Miklausich, 20, St. Paul, MN	104	11:26	57	40:18	33	17:24	1:09:08
31	7	John Fristik, 38, Stillwater, MN	44	9:27	39	40:07	34	19:38	1:09:12
32	5	Scott Anderson, 27, Phillips, WI	37	9:21	31	39:22	35	21:02	1:09:45
33	5	Ryan Woodbury, 16, Little Canada, MN	52	9:36	44	40:29	36	19:40	1:09:45
34	8	Richard Edinger, 36, Eagan, MN					37	19:40	1:09:46
35	6	Mark L Johnson, 28, Minneapolis, MN	65	10:04	30	38:34	38	21:13	1:09:51
4	2	Robin Tedlund, 33*, Duluth, MN					39	21:22	1:09:51
36	4	Dale Severude, 30, Vadnais Heights, MN	57	9:49	47	40:43	40	19:41	1:10:13
37	11	Jairo Hahn, 21, Spicer, MN	101	11:16	58	40:35	41	18:28	1:10:19
38	5	Joel Mickelson, 32, Woodbury, MN	21	8:39	34	40:22	42	21:19	1:10:20
39	6	Dennis Fick, 31, St. Paul, MN	50	9:34	38	40:00	43	20:57	1:10:31
40	3	Roger Anderson, 43, St. Paul, MN					44	22:39	1:10:33
41	7	Alvaro Vidal, 26, Golden Valley, MN	30	8:52	36	40:19	45	21:35	1:10:46
42	2	Daryl Stevens, 49, Sartell, MN	108	11:32	43	38:21	46	20:58	1:10:51
5	3	Katharine Priedeman, 32*, Wayzata, MN	32	8:55	48	41:49	47	20:20	1:11:04
43	12	Darin Pelegrino, 23, Richfield, MN	23	8:42	62	43:18	48	19:08	1:11:08
44	7	John Miller, 34, Woodbury, MN					49	20:25	1:11:27
6	2	Kris Breimhurst, 29*, Inver Grove Hgts, MN	100	11:16	55	40:13	50	20:01	1:11:30
45	4	Tom Nelson, 44, Cohasset, MN	117	11:46	49	39:09	51	20:35	1:11:30
46	8	Stephen Bullard, 34, Stephen Point, WI	49	9:33	41	40:15	52	21:43	1:11:31
47	9	Michael Hess, 31, Minnetonka, MN	2	7:39	37	41:42	53	22:39	1:12:00
48	10	Chris Duncan, 31, Minnetonka, MN	38	9:21	46	40:59	54	21:44	1:12:04
49	8	Ed Sullivan, 27, Sparat, WI	167	13:14	73	39:30	55	19:26	1:12:10
50	13	Rob Wright, 23, Chanhassen, MN	109	11:32	79	42:02	56	18:42	1:12:16
51	11	Steve Chase, 32, Chanhassen, MN	74	10:34	66	41:34	57	20:10	1:12:18
52	6	Jason Mathisen, 16, Maplewood, MN	166	13:10	96	41:42	58	18:10	1:13:02
53	12	Peter Tabor, 34, Minneapolis, MN	165	13:09	89	41:14	59	18:54	1:13:17
54	5	Brian L Martens, 44, St. Cloud, MN	96	11:13	52	39:56	60	22:12	1:13:21