# Lucas Chess – Tools Guide

Tools is where you manage your games and databases, your customized openings, and your engines. As with other aspects of Lucas Chess, you will probably not find yourself using all of these offered capabilities, but there are some gems in here that you ought to know about. We will touch on all of them to some extent but, again as elsewhere in Lucas Chess, there are some features that will remain the sole preserve of the true chess programming aficionado.

Create your own game

Did you ever come across an interesting game in a book, magazine, newspaper, or even on a web site for which no PGN file was available? Did you want to preserve, analyze, and annotate it? With "Create your own game," you can replicate the game by moving the pieces to match the printed move list. There is no engine involved; you make the moves for both sides and the program records them all. This is a famous game played by Francois-Andre Danican Philidor as black in 1790; white resigned, having no answer for 29. Ka1 Nb3 (or Qd4), checkmate:
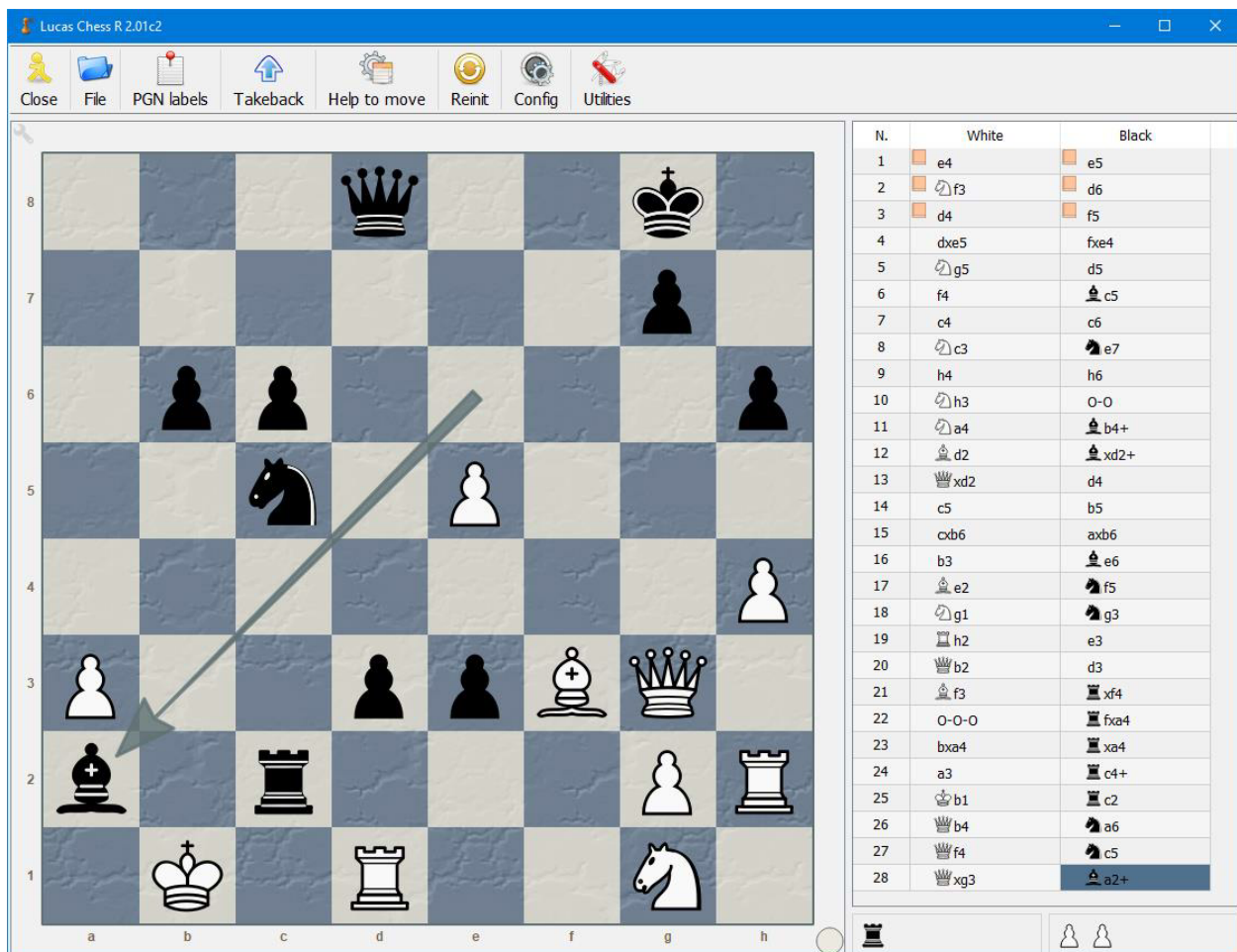
This game's moves have all been recorded (and double-checked against the source for accuracy, for it is easy to make mistakes). Now, clicking Utilities, Save affords all sorts of ways of saving the game for future contemplation. But are you done at this point? Not necessarily, for the program offers more ways to analyze, understand, document, and enjoy this game.

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The toolbar in this mode is different from that of the regular Play mode. Of course, there is no Resign or Draw because you are not competing against an engine. There is Takeback which is handy when you do make a mistake in transcribing a move. Help to move is there to offer the Tutor's opinion on what it would have played at any point. But let's go back to File for a moment:
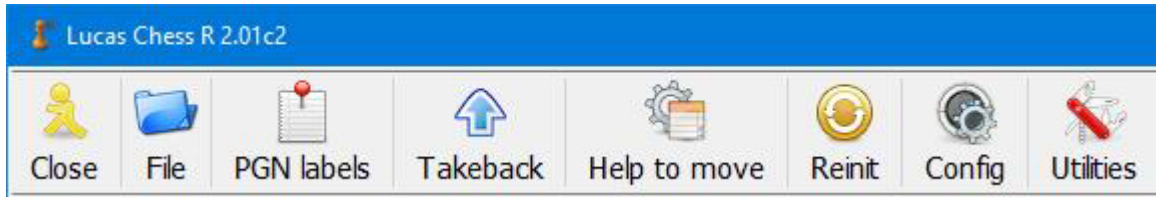

When you save a created game using the Utilities menu, you are provided with the usual choices of saved file formats. You can save in PGN format, for example, but perhaps it is better to use the proprietary format provided by the program, .lcsb, which is also available in the File menu.

With .lcsb format, the program knows to use the "Create your own game" module to display the file, including the toolbar shown above. When you click File, it offers Save, New, Open, and Reopen, all in reference to .lcsb files. So again, you can save a created game in other ways but it may be easier to work with them, at least initially, in this .lcsb format.

Having the toolbar above appear instead of what you see when you open a PGN format file means a couple of subtle differences in the Utilities menu; the most important of which is "Enable engine" in case you do want to try your hand at playing one side or the other at some point.
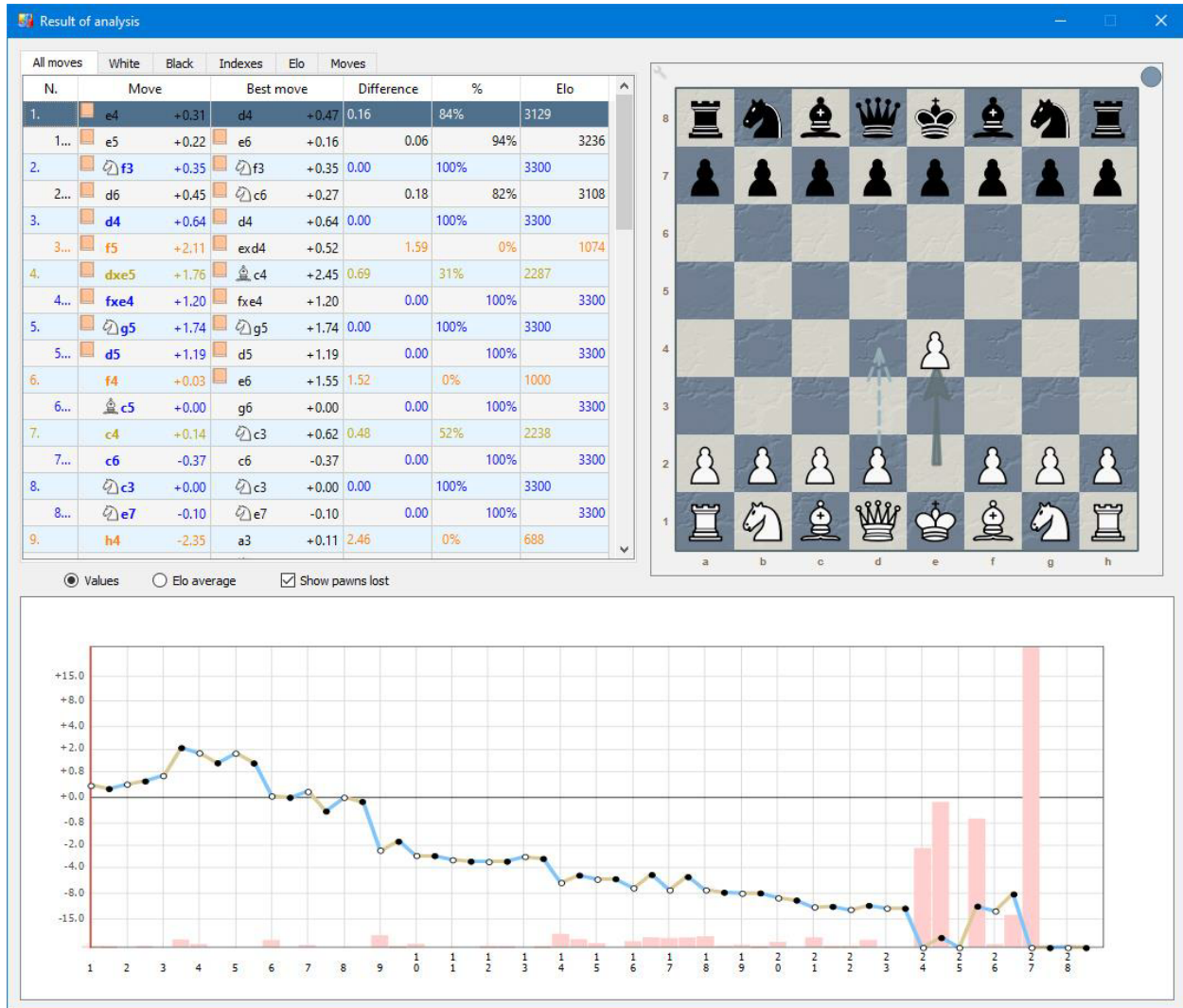
Just as exciting a prospect is letting the Tutor program engine analyze the entire game:
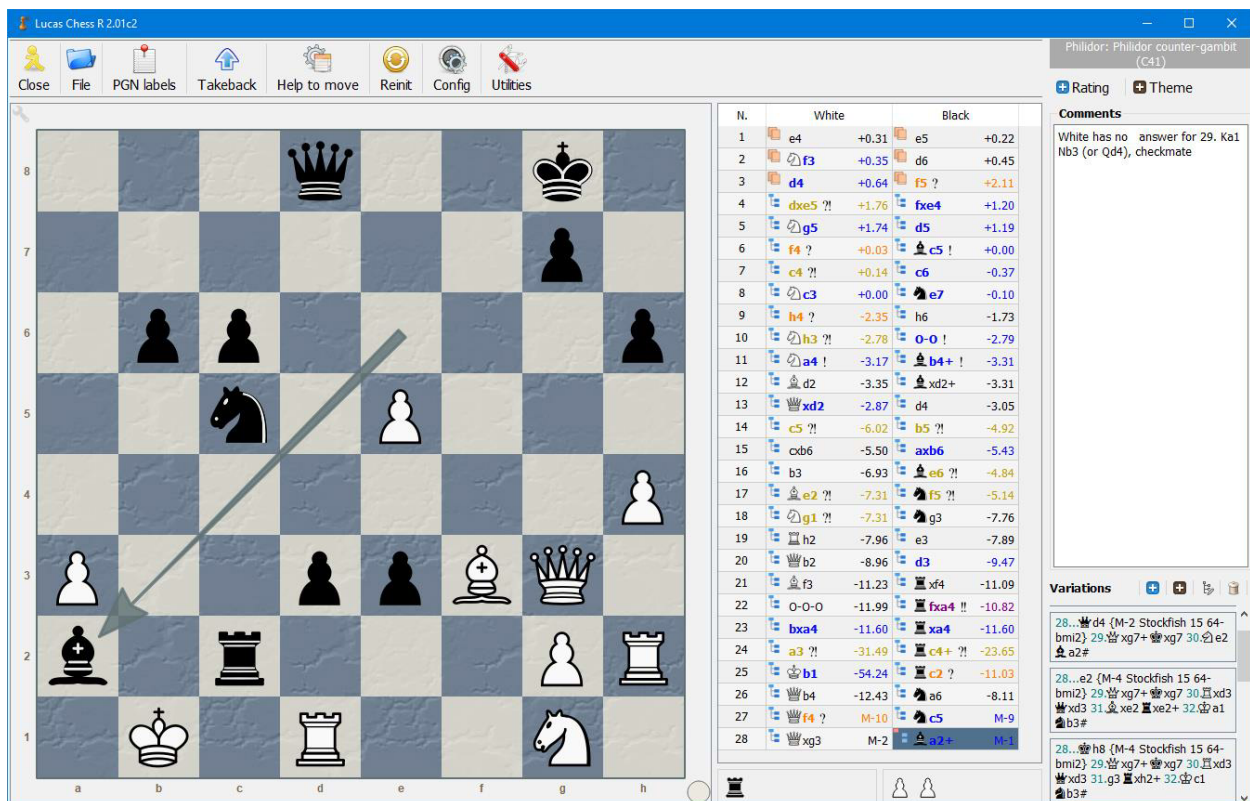
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The Tutor has identified the opening as Philidor's own Philidor counter-gambit defense and has, in its own judgment, shown that Philidor dominated play for most of the game, picking apart and scattering white's defenses. Scores, move ratings, and variations are provided. Note, however, that the human player has inserted his own comment at the end of the game and has upgraded, in his own judgment, 22 … fxa4 to be a brilliant move (!!).

The program provides the usual extensive graphic analysis as well:

Result of analysis

All moves | White | Black | Indexes | Elo | Moves

| N.	Move		Best move		Difference	%	Elo
1.	e4	+0.31	d4	+0.47	0.16	84%	3129
1...	e5	+0.22	e6	+0.16	0.06	94%	3236
2.	♘f3	+0.35	♘f3	+0.35	0.00	100%	3300
2...	d6	+0.45	♘c6	+0.27	0.18	82%	3108
3.	d4	+0.64	d4	+0.64	0.00	100%	3300
3...	f5	+2.11	exd4	+0.52	1.59	0%	1074
4.	dxe5	+1.76	♗c4	+2.45	0.69	31%	2287
4...	fxe4	+1.20	fxe4	+1.20	0.00	100%	3300
5.	♘g5	+1.74	♘g5	+1.74	0.00	100%	3300
5...	d5	+1.19	d5	+1.19	0.00	100%	3300
6.	f4	+0.03	e6	+1.55	1.52	0%	1000
6...	♗c5	+0.00	g6	+0.00	0.00	100%	3300
7.	c4	+0.14	♘c3	+0.62	0.48	52%	2238
7...	c6	-0.37	c6	-0.37	0.00	100%	3300
8.	♘c3	+0.00	♘c3	+0.00	0.00	100%	3300
8...	♘e7	-0.10	♘e7	-0.10	0.00	100%	3300
9.	h4	-2.35	a3	+0.11	2.46	0%	688

◉ Values   ◯ Elo average   ☑ Show pawns lost

When this game is reopened, the above can be accessed by Utilities, Analysis, Show graphics. An interesting difference between "Create your own game" mode and a game saved in PGN format is that analysis is not fully saved in a PGN file. For example, in PGN there is no option to Show graphics even if they were run last time. Instead, analysis must be run again. Another reason to use the .lcsb format when creating your own games.

A few additional notes about "Create your own game": Reinit does not work, but it shouldn't anyway. Of the Config menu, you will use only Show/Hide, Window on top, Live graphics with right mouse, and Auto-rotate board as preferred. Most of the Utilities are operational, however.

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Lastly, use the PGN labels button to access and enter the game's metadata, such as shown here:
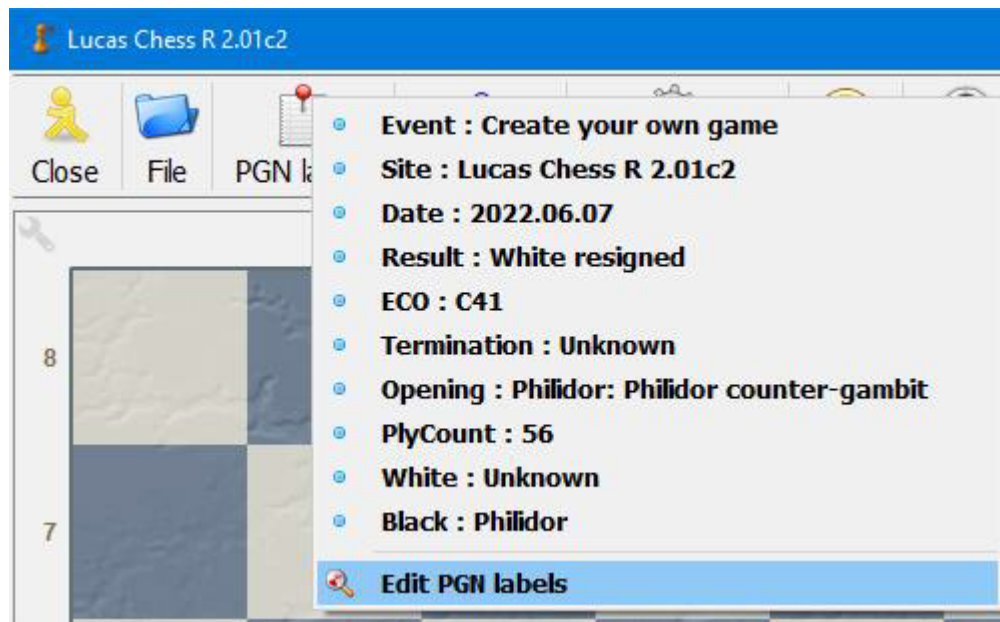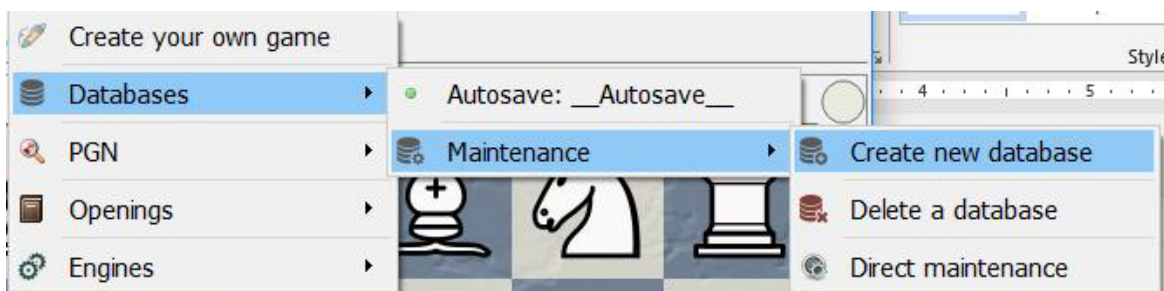

Databases

There is the Autosave database (named __Autosave__ and located in the Databases folder). There is always the Autosave database, for there is no apparent way to turn it off. It records everything you do in terms of gameplay, even games that you cancel. Obviously, it comes in handy occasionally but best practice is to export whatever games in the Autosave database, which you have not previously manually saved and wish to retain, to a permanent database of your choosing. Then occasionally clean out the Autosave database to keep it manageable. Or, if you are sure, delete it (both __Autosave__.lcdb and __Autosave__.lcdb.st1). The program will create a new Autosave database the next time you play a game.

Maintenance

Unless you are working with the Autosave database, which is probably a suboptimal thing to do, you will need to create at least one custom database. That is done here:

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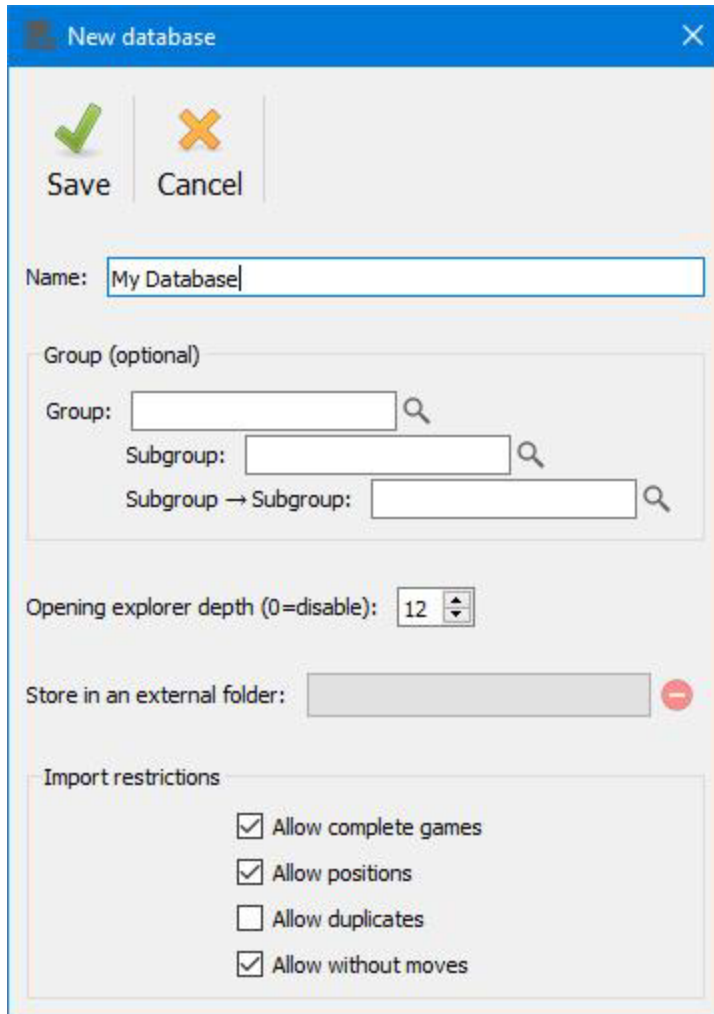
This is the dialog window for New database. Give it a name and specify a group and/or subgroups (this creates subfolders inside the default Databases folder wherever the user's data folder is stored).

The Opening explorer automatically saves information for each game in the database as to opening moves and game results. Select the depth to which the Opening explorer should go.

It is possible to store the new database in a folder outside of the user's data folder or on an external storage device. Select the location here.

Finally, there are Import restrictions available. Why it may be advantageous to not allow complete games is not known, but one may wish to bar positions (not games, but situational snapshots), duplicates, and other entries without moves.

Click save when the setup is finished. Now it is available for saving games:
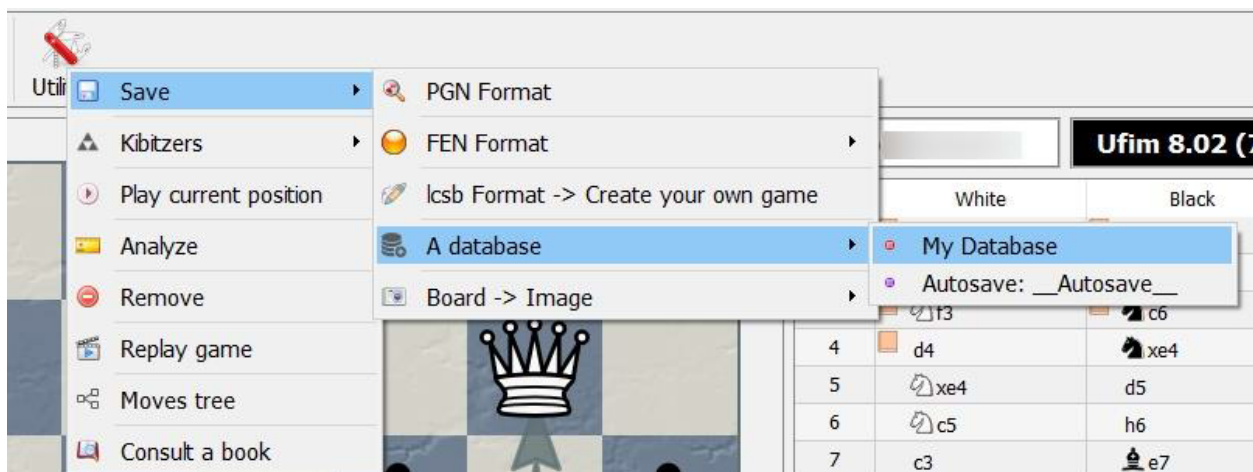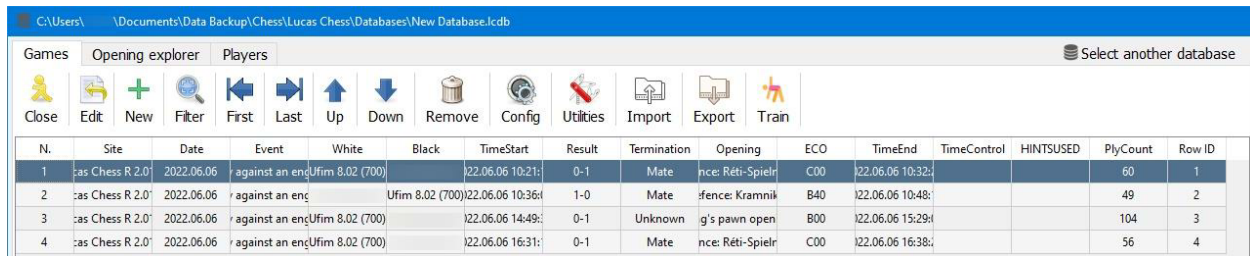
In the same Tools, Databases, Maintenance menu, in addition to Create new database, there are:

- Delete a database (a menu of possibilities will be provided), and
- Direct maintenance. This takes you directly to the default Databases folder in which you may do your own file moves and/or deletions.

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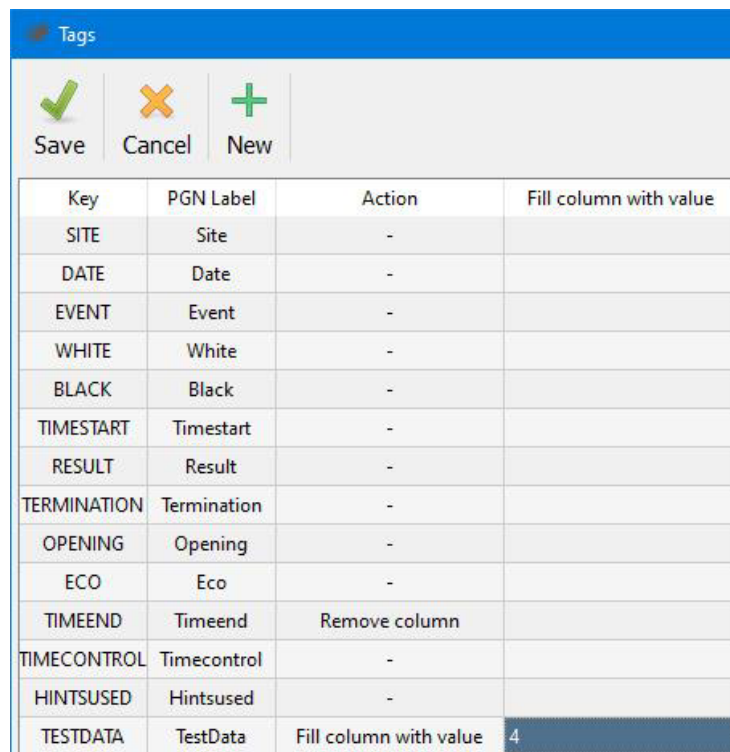If you have created a database of your own, it will appear in the Databases menu. Click to open:

Every game that you have manually saved in this database, or imported into it, will be included. Similar to a worksheet, it can be filtered (click Filter) or sorted (double-click a column heading). Close is obviously to quit the database and return to the home screen. Edit opens the selected game, as does double-clicking on it. New seems to open a version of the "Create your own game" module. First/Last/Up/Down are self-explanatory. Choose Remove to delete selected games.

The Config menu has very different functions in conjunction with databases.

Database options are explained above; they are the same as for New database. Realize that these options can be used to alter an existing database as well as creating a new one.

Tags is a mechanism for editing data columns: relabel, add, remove, fill with value as shown here.

Appearance is for resizing, reordering, and otherwise configuring the columns. Also under Appearance is the option to allow viewing Director board graphics (see the Director section in the Play guide), either in this specific database or over all databases in general.

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Utilities also has some unique functions.

Mass Analysis

This may take a while, but the potential rewards are great.

Basically, this lets you analyze many of your games at once with an engine, thereby scoring each move and finding mistakes. It behaves almost in the same way as the module for single game analysis.

For General options, choose the engine for the analysis job. The Stockfish engine is the default. Set the options for time and depth as desired. (Duration is per move, not overall. Set it to zero for unlimited analysis until your target Depth is reached.) "MultiPV" is multiple position values. It's a way of defining how wide (as opposed to deep) you want the engine to go when tutoring and analyzing. More multiPV lines of play will slow down the engine significantly. If you only care about the very best line, and you wish the analysis to be completed faster, set MultiPV to 1.

There are ways to filter which games will be analyzed, other than by checking "Only selected games" at the bottom of the window. There may be a reason why you want only white or black moves to be analyzed. For "Only player moves," put your username here. When you make trainings (under "Wrong moves" – see below), do this; otherwise trainings are generated from both sides of the game.

Perhaps you want to analyze only the first 20 moves of each game. Or, you want to exclude from analysis the moves from standard openings (GMopenings is the default openings book).

Recall that a player may always analyze and annotate his or her own games. This includes applying Theme labels to moves like "Advanced pawn," "Exposed king," "Skewer," and "Zugzwang" (a situation in a chess game in which a player is forced to make an undesirable or disadvantageous move). The program will do this for you as well, if you check "Automatically assign themes using Lichess/Thibault code." (Thibault Duplessis is the founder of Lichess.com.)

There may be an advantage to starting the analysis at the end of games, presumably working backwards. You probably will want to "Redo any prior existing analysis" to avoid confusion.

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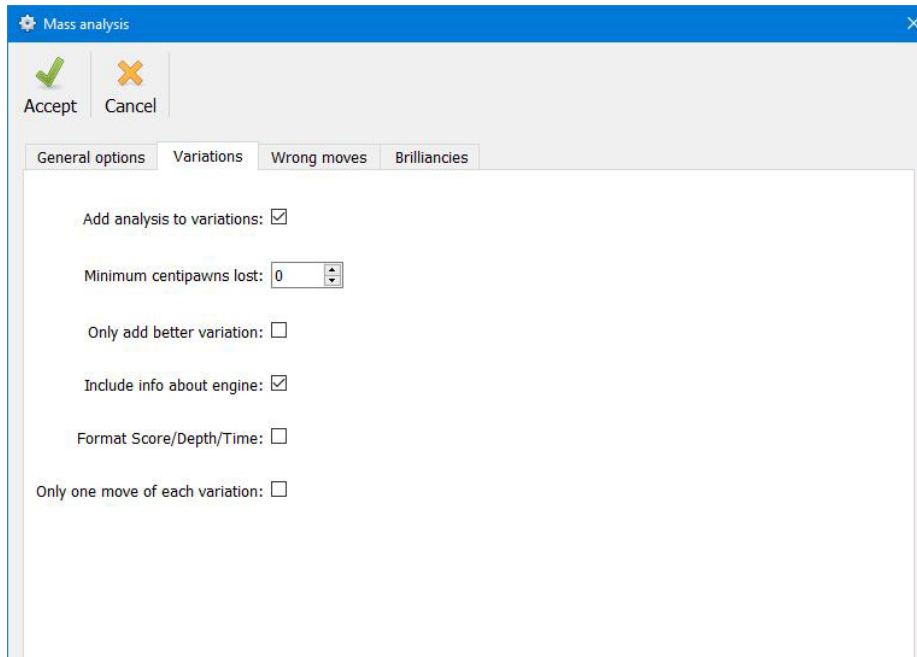
On the Variations tab, choose whether to include analysis of any move variations. This is a big job, so perhaps cut it down a bit by stipulating a minimum loss of centipawns (a centipawn is 1/100th of the worth of a pawn; a centipawn loss is the centipawn value between the played move and the engine's best move). Perhaps "Only add better variation" and "Only one move of each variation" are good choices in this regard. There seems to be no downside to including Engine and Score/Depth/Time information in the analysis.

The purpose of Wrong moves is not to make you feel bad (necessarily)! It is intended to help you learn from your mistakes. Mass analysis will facilitate this if you activate certain settings here:

Set a threshold for the Wrong moves module to be activated, either in terms of centipawns loss or a minimum difference between the value of your move and the engine's best move.
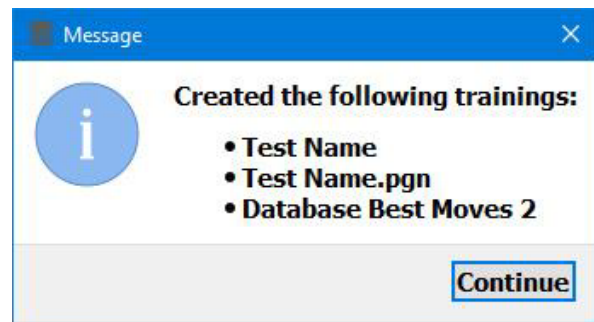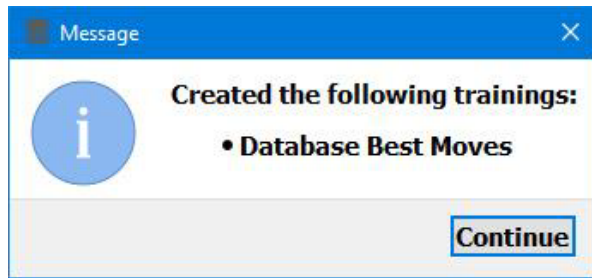
A training file can be saved in the Personal Training folder in PGN format. Fill in the file name and whether to add the entire game.

Add to the training "Find best move" by entering a name for this as well.
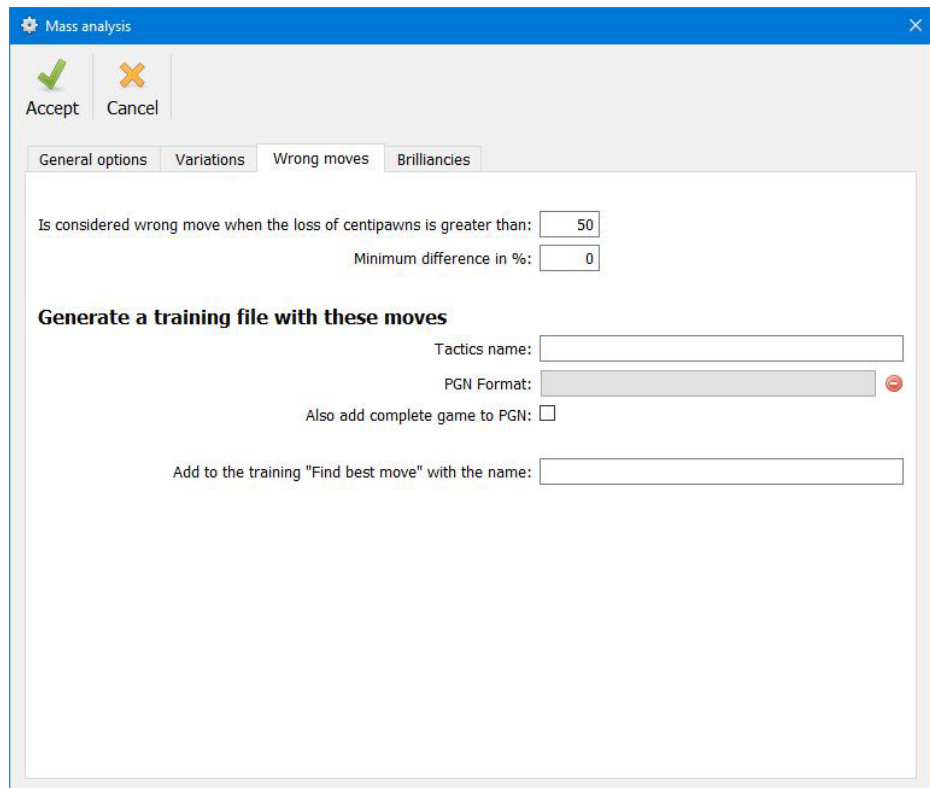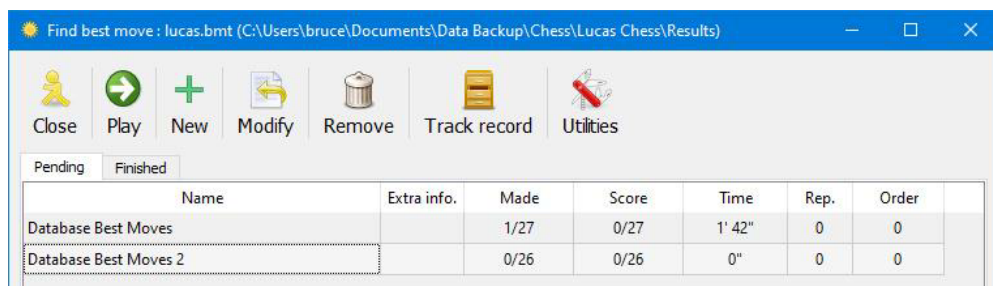
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These are the results from running the mass analysis once with just "Find best move" and then again with a Tactics file created as well.

In the Train menu, under Tactics, Find best move, there are now two sets of training exercises. (Remember, mass analysis was run twice in the example shown above.)

An example of what the program is trying to teach in Find best move is shown below (2. … a6 was the correct move, not Nc6). See Tactics, Find best move in the Train guide for more information.
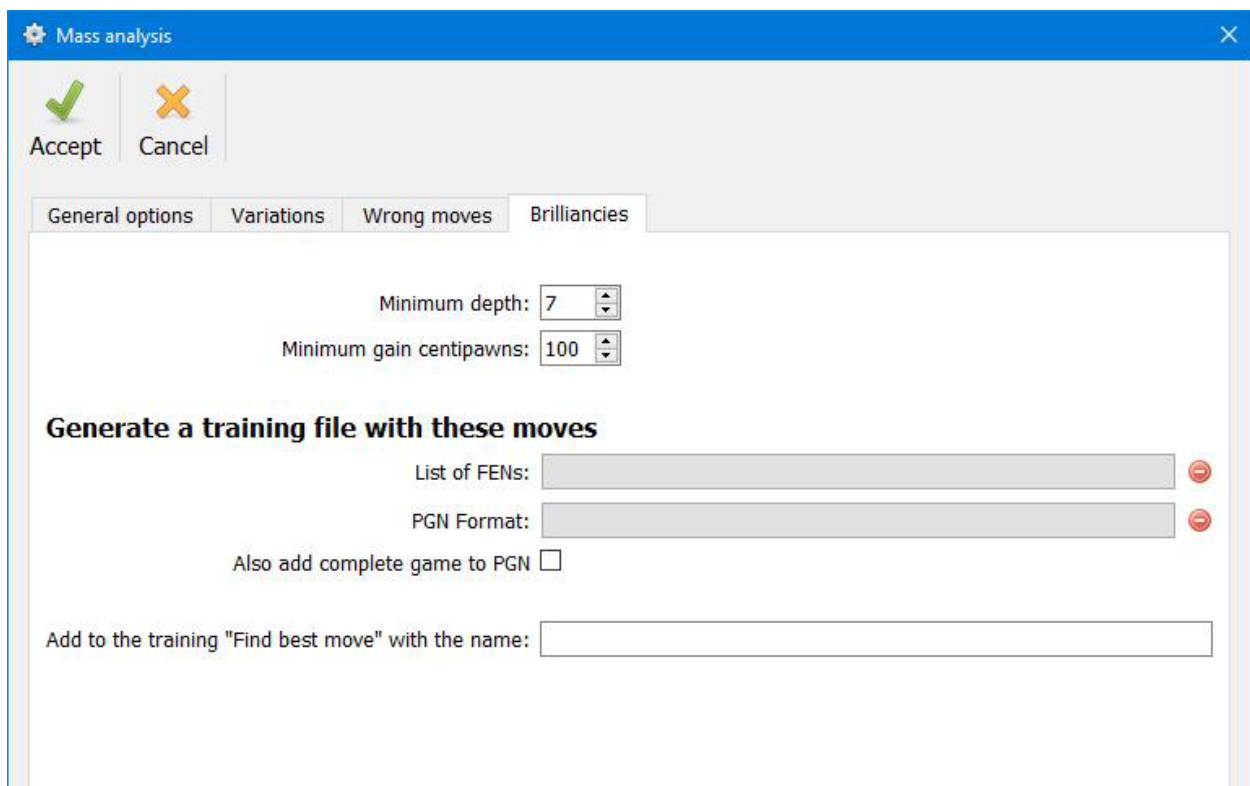
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Similarly, in the Train menu, under Tactics, Training positions, a Tactics submenu has been added with a "Test Name" entry. It contains two sets of tactical training exercises based on what the program found in its database mass analysis. See Tactics, Training positions in the Train guide for more information.
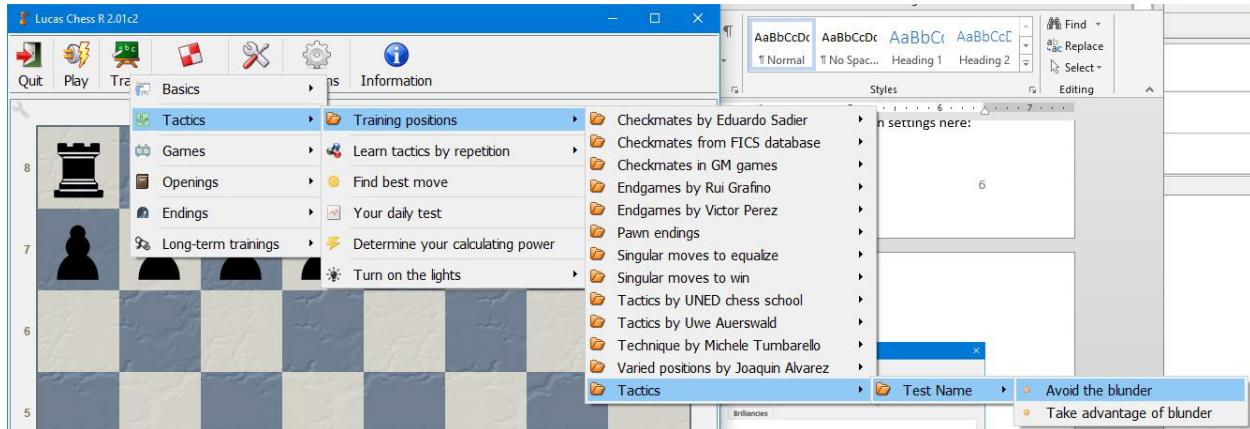
Ah, brilliancies. May you have your fair share of them. Occasionally? Once in a long while? Ever?

Well, if and when you do, you may record them by using the settings in the Brilliancies tab which work the same (albeit in reverse) as those found in the Wrong moves tab except that there is a stipulation about Minimum depth. Set this to avoid prematurely award brilliancies based on insufficient analysis in depth.
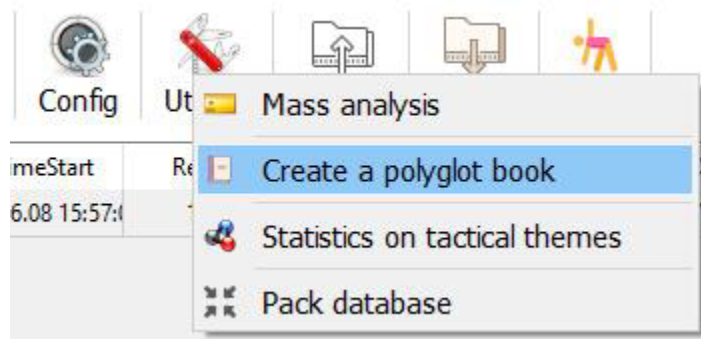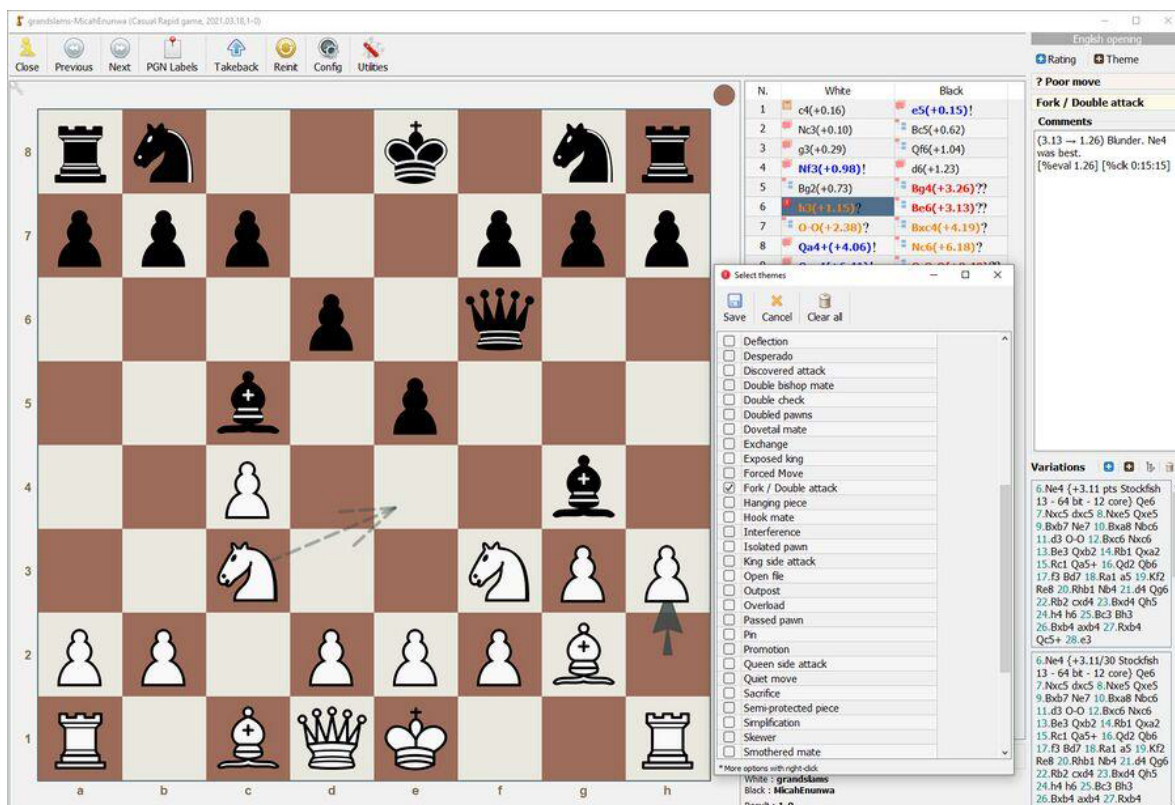
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Create a polyglot book

Continuing with Databases, the next item in the Utilities menu is "Create a polyglot book." You may be asking, "What's a polyglot book?" A good question. This is one of the aspects of Lucas Chess that are in "the sole preserve of the true chess programming aficionado" as was said in the beginning of this Tools guide.

According to a source, "PolyGlot, [is] an adapter that allows UCI engines to use interfaces and GUIs supporting the Chess Engine Communication Protocol, developed by Fabien Letouzey and modified by Fonzy Bluemers. Polyglot is open source, licensed under the GPL, and is able to run on various operating systems, which allows to run UCI engines not only under Windows with its native chess GUIs, but also under Linux and Mac OS using XBoard. PolyGlot 1.4 provides a simplistic opening book implementation, referred as bin-opening book format." If you know what all of that means, now you also know where to create one in Lucas Chess!

Statistics on tactical themes

Once mass analysis has been performed on the database, this feature may yield interesting data. Recall that a player may add Theme tags to certain moves in his or her own game analysis:

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In addition, recall the option to "Automatically assign themes using Lichess/Thibault code" during mass analysis. Here is an example of what you may then see with Statistics on tactical themes:

Theme	Games	Centipawns lost	Occurrences	★ Occ / game	★ Loss / game
Statistics on tactical themes - 14 games analysed (62 tags found)					
Hanging piece	7 (50%)	6979	12	0.86	498
development	6 (42%)	1202	6	0.43	85
Pin	3 (21%)	1528	5	0.36	109
Threat	4 (28%)	1680	4	0.29	120
Unsafe square	4 (28%)	1753	4	0.29	125
Fork / Double attack	3 (21%)	1249	4	0.29	89
Exposed king	3 (21%)	517	3	0.21	36
Semi-protected piece	2 (14%)	523	3	0.21	37
Weak square	3 (21%)	1022	3	0.21	73
castling	2 (14%)	653	2	0.14	46
Checkmate threat	2 (14%)	2648	2	0.14	189
Skewer	2 (14%)	533	2	0.14	38
Trapped piece	2 (14%)	354	2	0.14	25
Doubled pawns	2 (14%)	271	2	0.14	19
Outpost	2 (14%)	361	2	0.14	25
Discovered attack	1 (7%)	0	1	0.07	0
Capture the defender	1 (7%)	271	1	0.07	19
check	1 (7%)	238	1	0.07	17
Passed pawn	1 (7%)	238	1	0.07	17
checkMate	1 (7%)	20	1	0.07	1
Exchange	1 (7%)	312	1	0.07	22

★ calculated using all games

Pack database

It is not clear what this actually does, if anything. Sure, database files can get relatively large if they contain hundreds, or thousands, of games. (Probably, it would be best to have more than one database in that case.) Pack database may have been intended to reduce file size by compressing data in some manner. But since it is not explained, and its effects are not known, it might be better to avoid using something like this in order to avoid damaging your database.

Import/Export

These capabilities apply to both from or to a PGN file or another database. Just choose one or the other, and point to the PGN file or database in question. The program does a good job of importing and exporting with no further input. Remember that, in Config, Database options, certain Import restrictions can be set to allow or not allow complete games, positions (not games, but situational snapshots), duplicates, and other entries without moves. In the destination file, the program will insert columns if necessary to accommodate the data that is being consolidated.

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Train

If all that is not enough, there is a Train button on the end of the database toolbar.
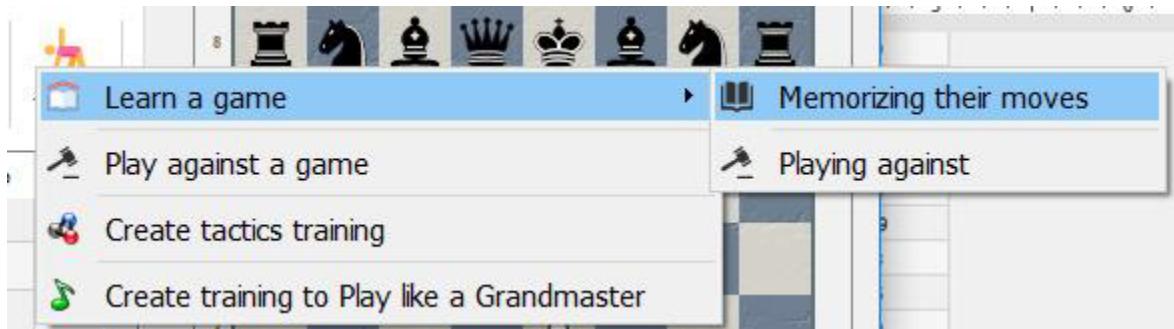
Select a game and follow the prompts to memorize the moves or play one side or the other. In addition, tactics training can be created as well as training for Play like a Grandmaster. See the Train guide for more information.

PGN

Read PGN file

Whether it is a single game or dozens of them contained in a PGN file, Read PGN file will import it into a temporary database. For example, this is a PGN file imported from an issue of Chess Life:
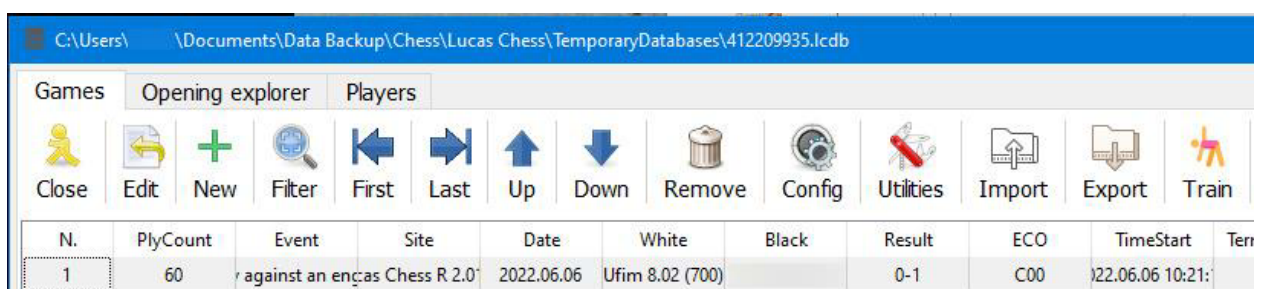
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Remember, this is a temporary database. The program keeps a copy of it in a folder named TemporaryDatabases but there is no apparent way of reopening that file. Instead, the PGN file must be read again. If for some reason you wish to save the temporary database as a permanent one, click Export, To other database, All registers (or Only selected games), Create new. Give it a name. Now it will appear in the Tools, Databases menu.

Paste PGN

In its simplest form, as a single game, a PGN file is merely a text file with certain game information followed by the moves list. Here is an example:

If this is copied and is residing in the clipboard memory, when you click Paste PGN the program will create a temporary database file containing this game. It can then be exported into a permanent database.
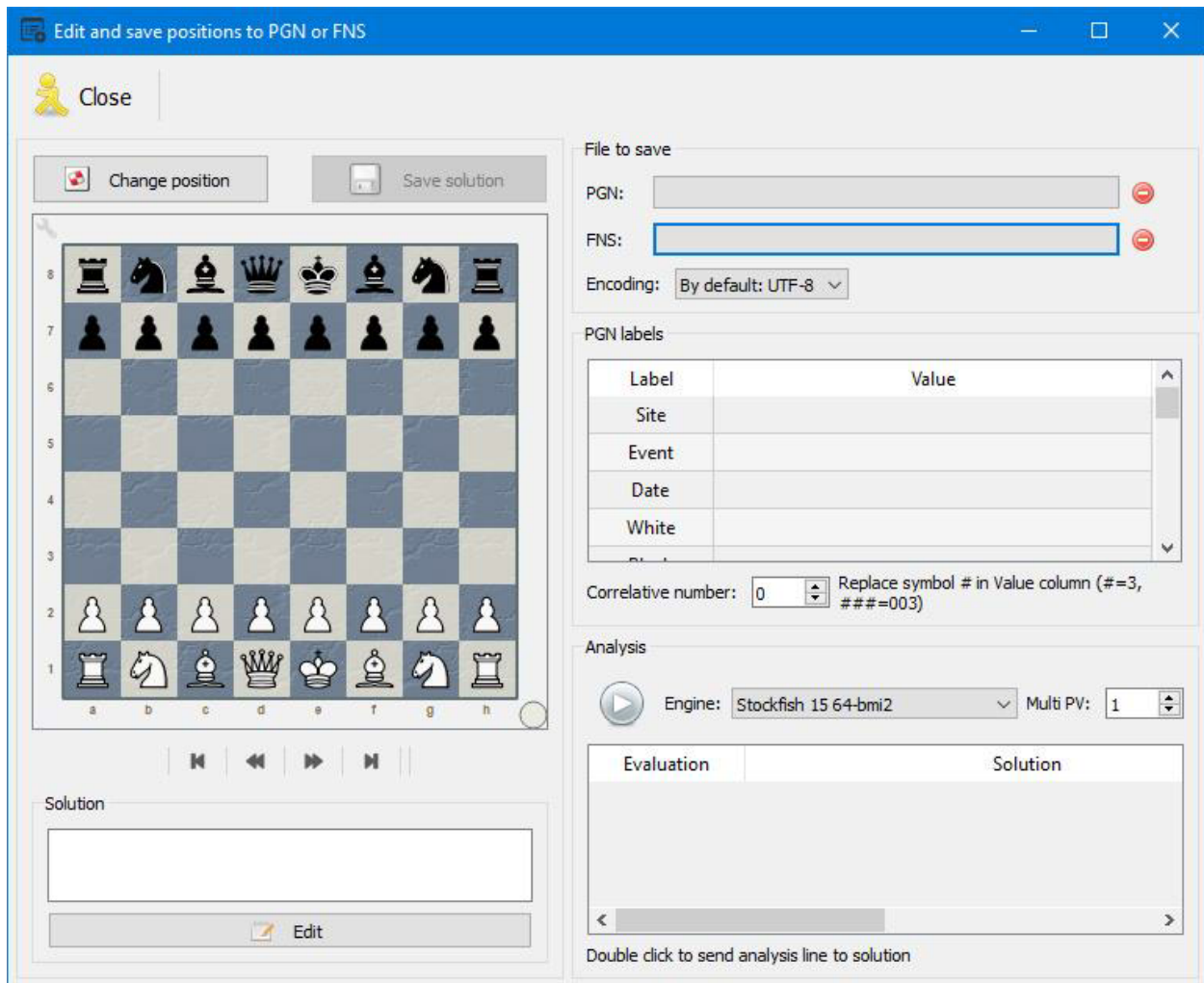

Unfortunately, it's one game at a time when using the Paste PGN module, so it can be tedious.

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Edit and save positions to PGN or FNS

Chess is always nerdy but we are getting into extra nerdy territory again here.

First, one may Change position, moving and removing pieces to set up a position to be analyzed. PGN labels may be entered and edited. Set a value for Multi PV (see the Mass Analysis section above for an explanation of this) and click Analysis. Double-click on a line that you like and it becomes the Solution, which can be subsequently edited. Save it to a file in PGN or FNS format. (If you don't know what a FNS file is, you are not alone. Stick to PGN format until you do know.)

Miniature of the day

What this is doing in the Tools, PGN menu, and what it has to do with PGN, is a mystery. It could involve PGN notation, of course, as any chess activity can, but it seems to be a random game generator in which you are thrust in the middle with a choice to play either side. (You may want to run an analysis before opting for the winning or losing side.) And it has nothing to do with "day" because it's a different position and game each time you open this module. All of the usual tools are available in the Config and Utilities menus. It is kind of fun once you get into it.

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Openings

When you click Opening lines, the first thing you see is this:

> **Message**
>
> **i** **In the next dialog box, play the initial fixed moves for your opening.**
>
> **Continue**
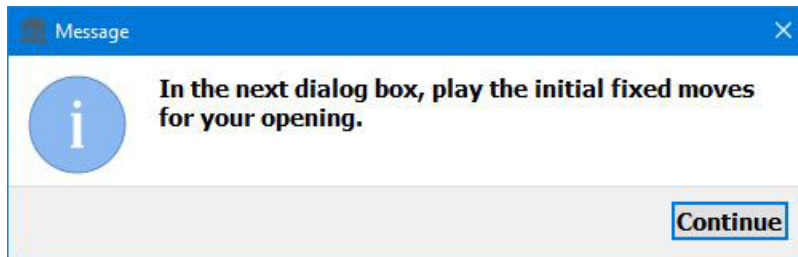
For one thing, it's a great way of identifying existing openings. Say, for example, you are wondering "What's that opening where black answers 1. e4 with 1. ... c5 and 2. .... Nc6? Oh yeah, it's the Sicilian Defense!"

Select an opening

Select | Cancel | Reinit | Takeback | Remove

Selected opening

1.e4 c5 2.Nf3 Nc6 3.d4
Sicilian Defence: Open

Possible continuation

- Sicilian Defence: Franco-Sicilian Variation
  1.e4 c5 2.Nf3 Nc6 3.d4 e6
- Sicilian Defence: Open
  1.e4 c5 2.Nf3 Nc6 3.d4 cxd4

Continue with some moves of your own, then click Select. The next prompt that you see is this:

> **Message**
>
> **i** **Now choose a name for this opening.**
>
> **Continue**
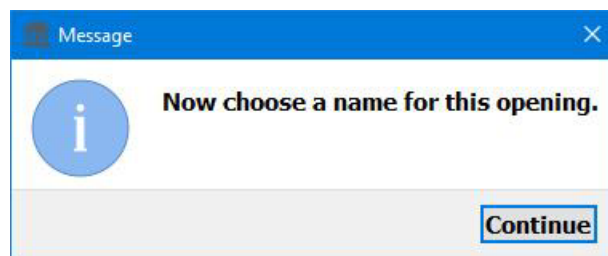
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Enter a name:
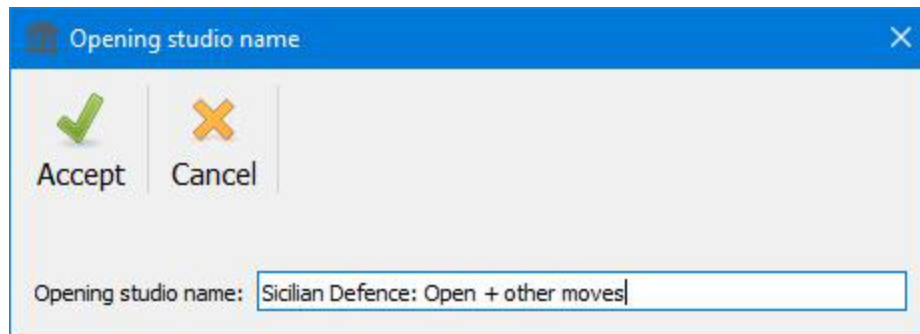
Now when you click Tools, Openings, Opening lines, there is an entry in the table:

And clicking Edit in the toolbar opens a window that will warm the heart of that true chess programming aficionado! Opportunities to import other elements, export, and perform analysis:

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It's a similar idea for Custom openings except that you are starting from scratch. For a New opening, add a Name and the ECO code if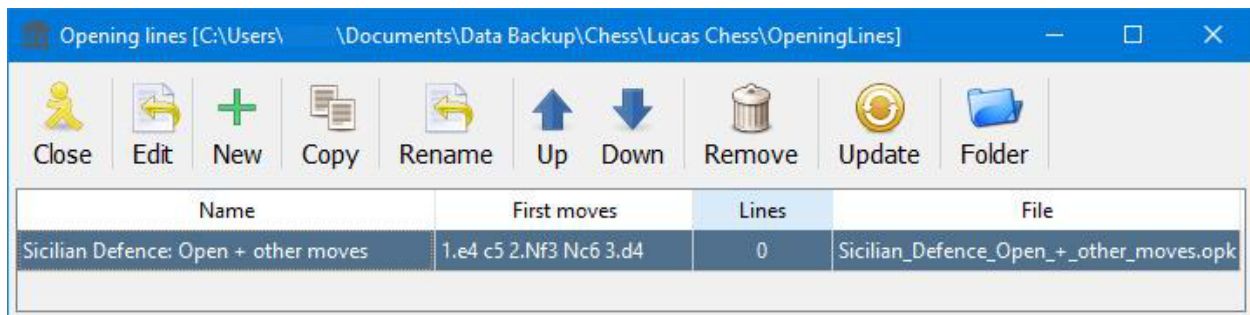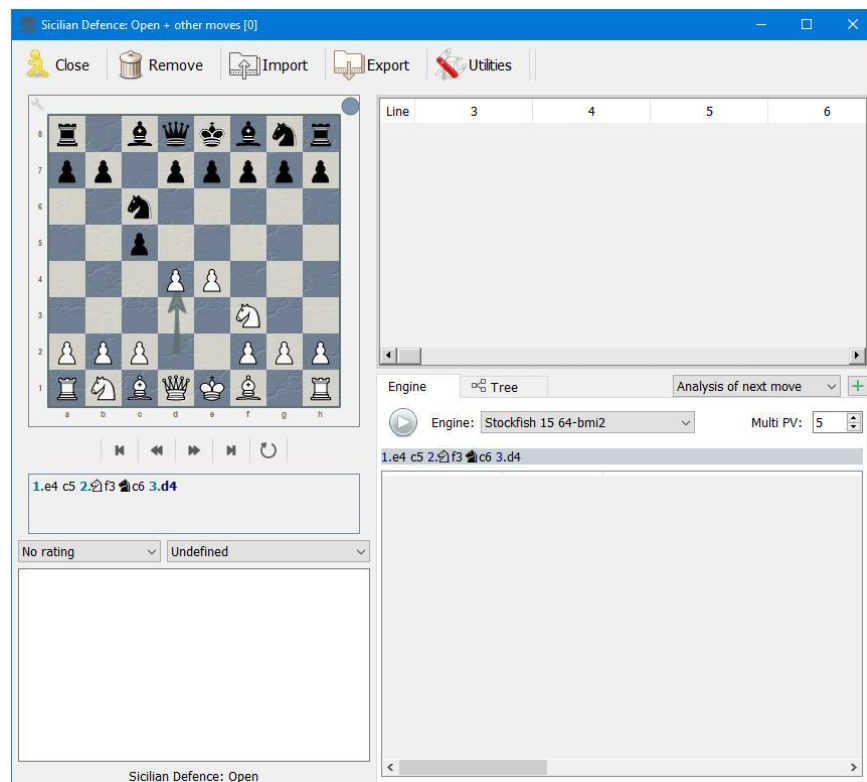 known. ("ECO" is an acronym for "Encyclopedia of Chess Openings." It is a coding system with five broad categories, "A" through "E", with each of those broken down into one hundred subcategories, "00" through "99". For example, there are dozens of variations of the Sicilian Defense, coded B20 through B99. If you have no idea about the ECO code, as with the example below, just leave it blank.)
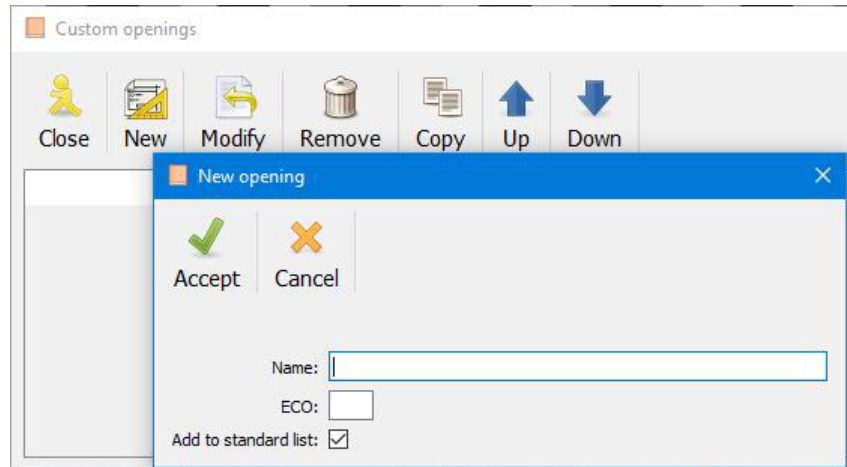
Play through your custom opening. These moves, although bizarre, do have a name (top right):
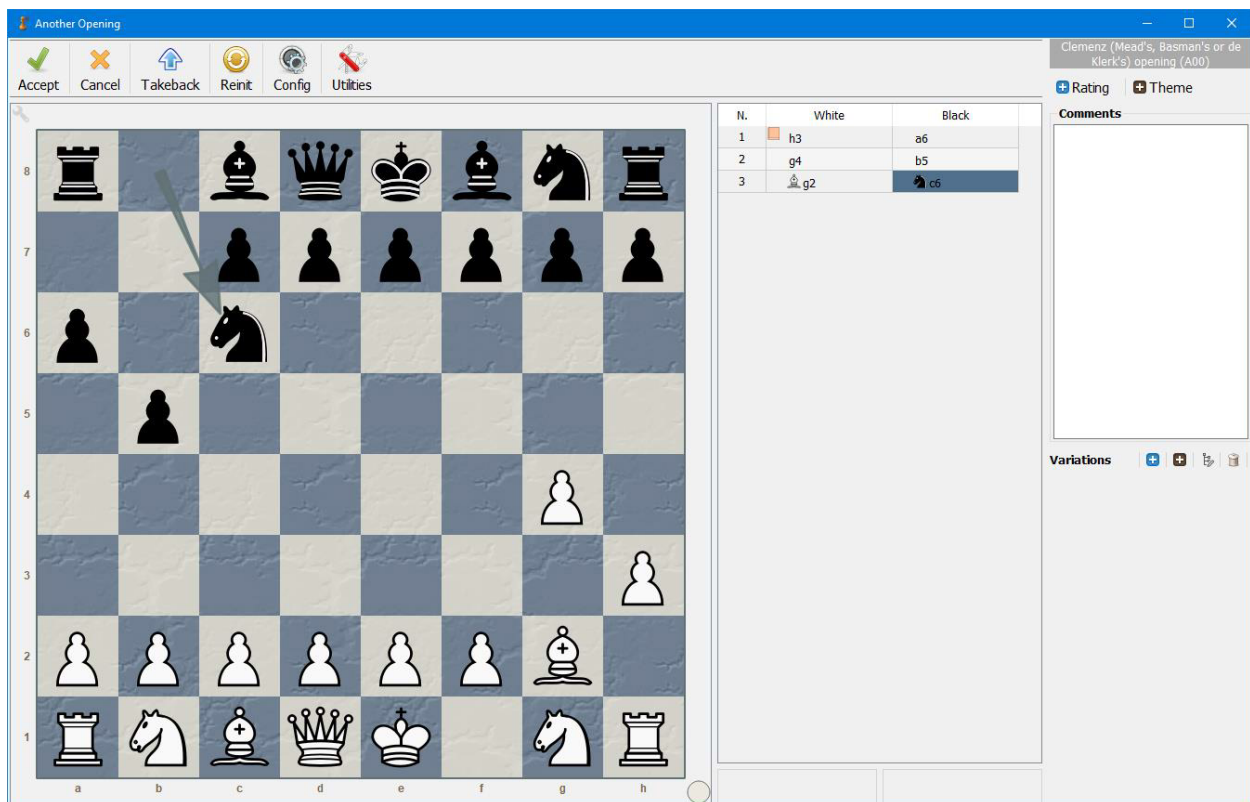
Once again, the player has the ability to use Kibitzers, Play current position, Analyze, make a Moves tree, or Consult a book as applicable, all in the Utilities menu. Click Accept when finished.

Incidentally, if you checked "Add to standard list" when you created your custom opening, it will indeed be part of the standard inventory of openings to choose from when playing a game.

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Well, here is "Polyglot" again, as in "Polyglot book factory/install/remove." If you have to ask what this means, you shouldn't. It's a secret club. See the comments for "Create a polyglot book."
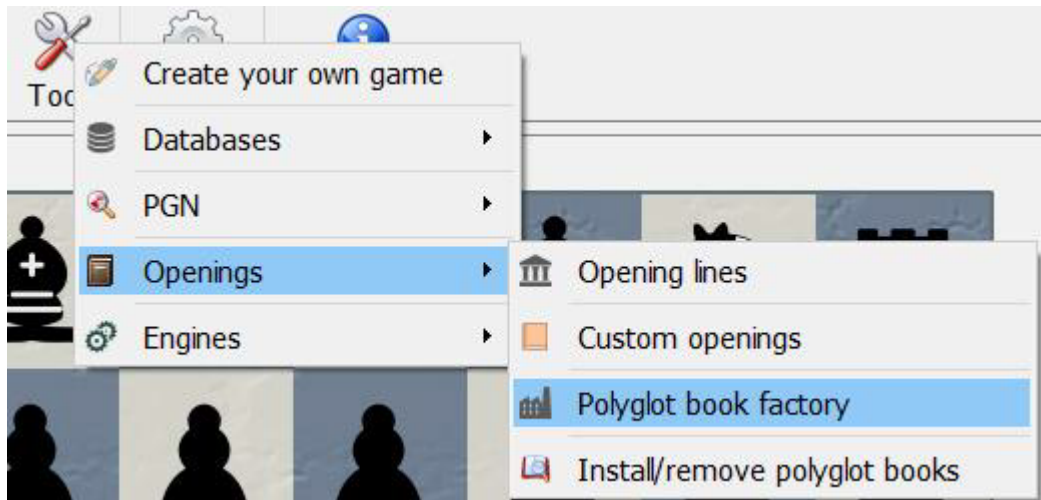
Engines

Tournaments between engines

This is a rather neat feature, if you can figure out how to set it up. As the name implies, it is a contest between two engines of your choosing. The first thing to do is click New and give the tournament a name.
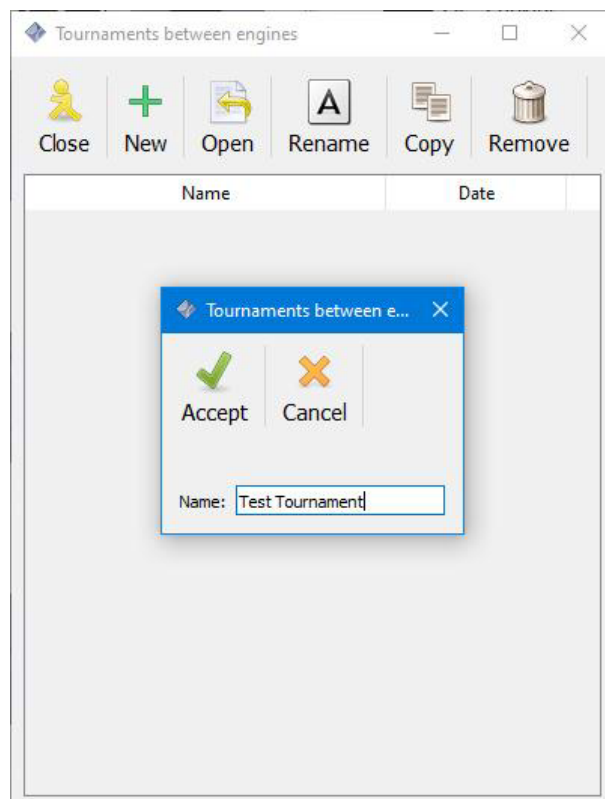
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The next thing to do is to think about the settings on the Configuration tab. It might be best to run a tournament or two before one changes these settings, with the exception of assigning an adjudicator engine. The adjudicator will pick a winner if necessary; else you may have to do so.
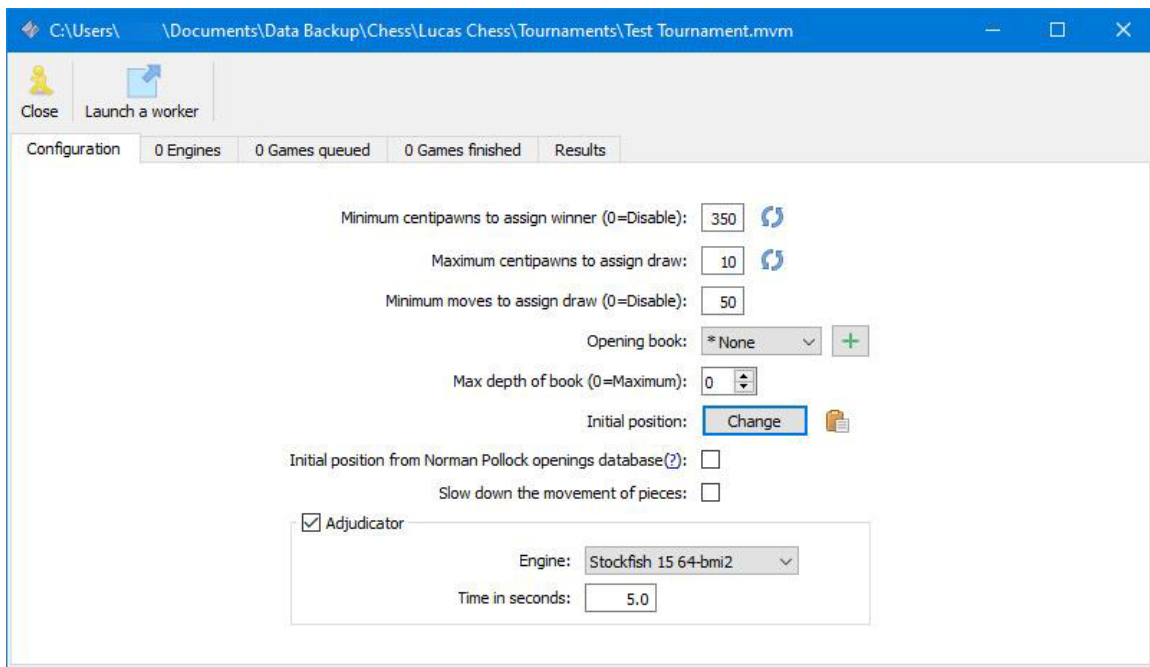
The two rival engines must be selected, of course. Do this on the Engines tab. Unless you are planning to bring in a new engine, use the Import button to access the engines that come with Lucas Chess. (Can one of the contestants also be the adjudicator? Who knows? Try it.) Do yourself a favor: Don't try to edit the engine settings unless you are a certified chess engine expert.
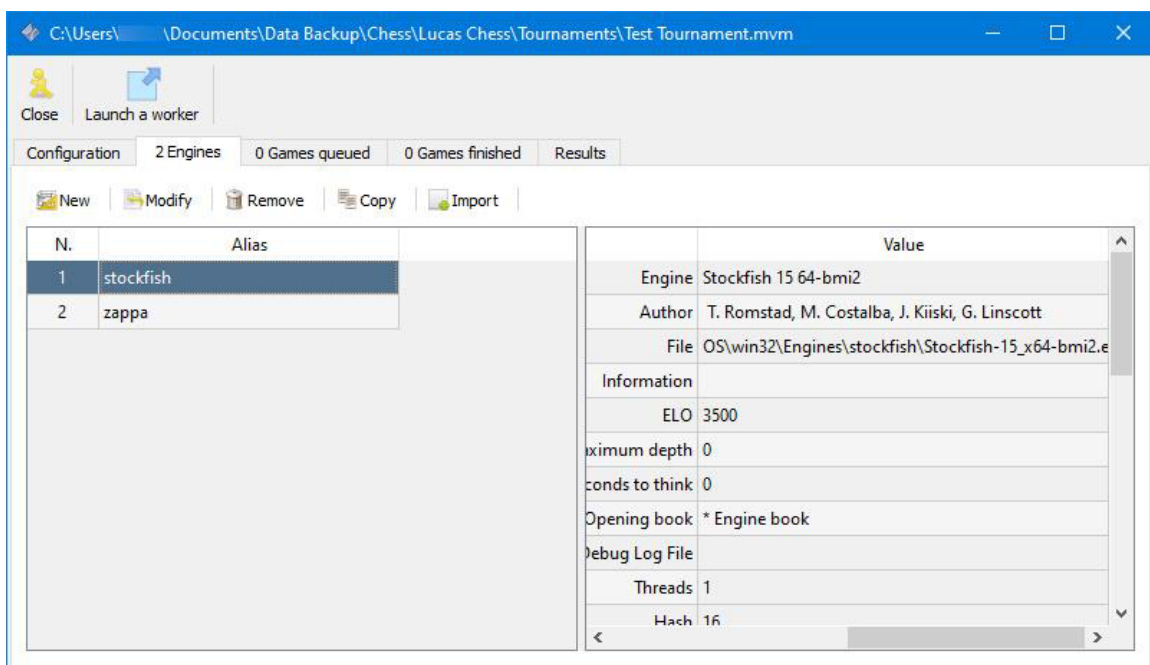
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The games must be scheduled. Click New in the Games queued tab and enter the number of rounds. Add or subtract from the time allotted to each side and/or seconds added per move.
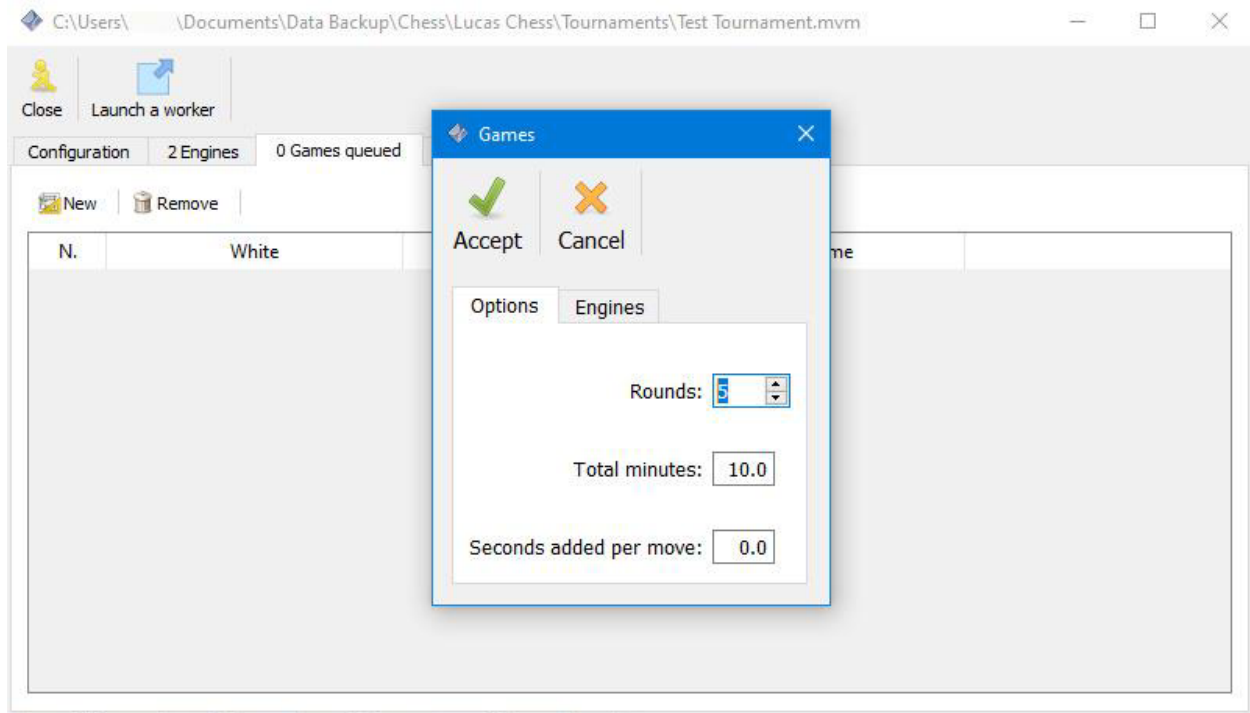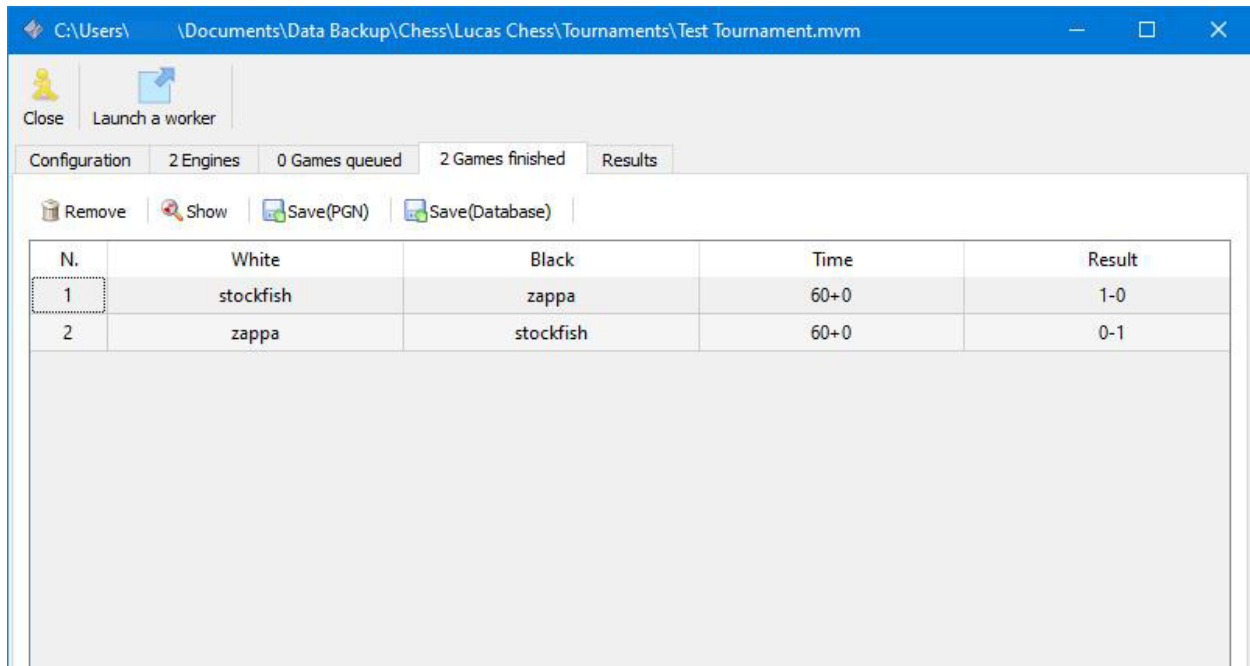
If 5 rounds is selected, 10 games are scheduled with each engine getting a chance to play white and black:

N.	White	Black	Time
1	stockfish	zappa	600+0
2	zappa	stockfish	600+0
3	stockfish	zappa	600+0
4	zappa	stockfish	600+0
5	stockfish	zappa	600+0
6	zappa	stockfish	600+0
7	stockfish	zappa	600+0
8	zappa	stockfish	600+0
9	stockfish	zappa	600+0
10	zappa	stockfish	600+0
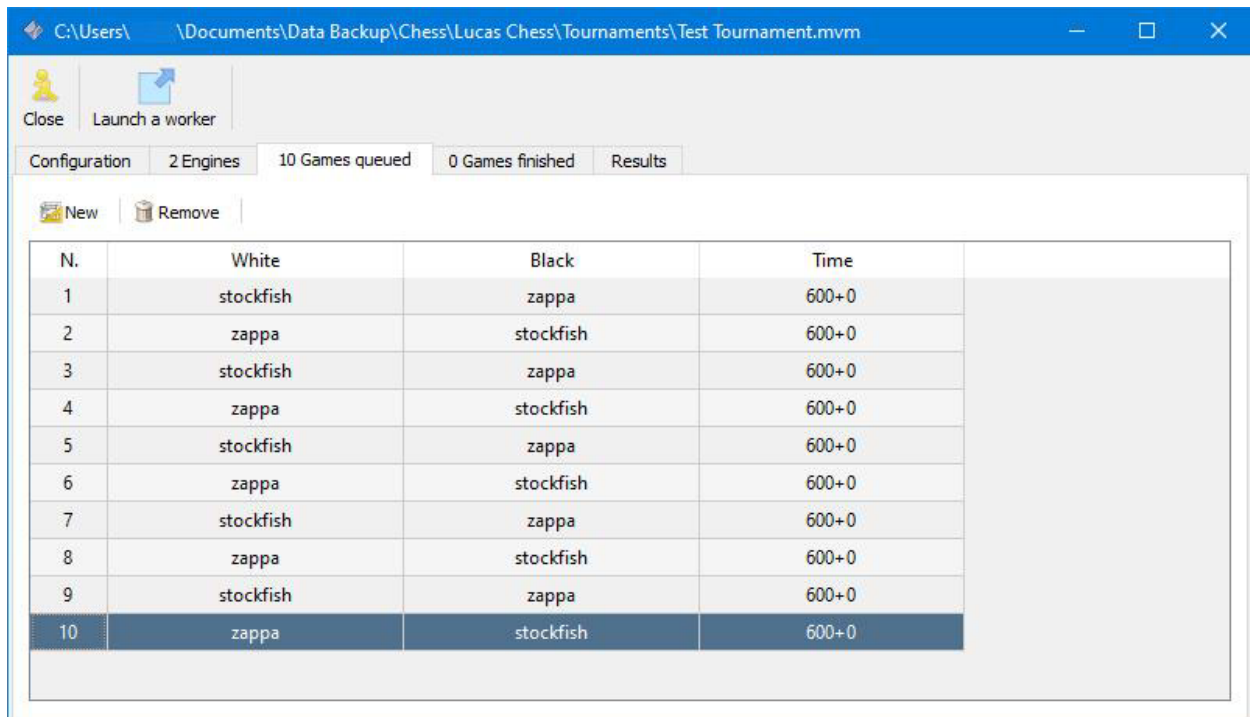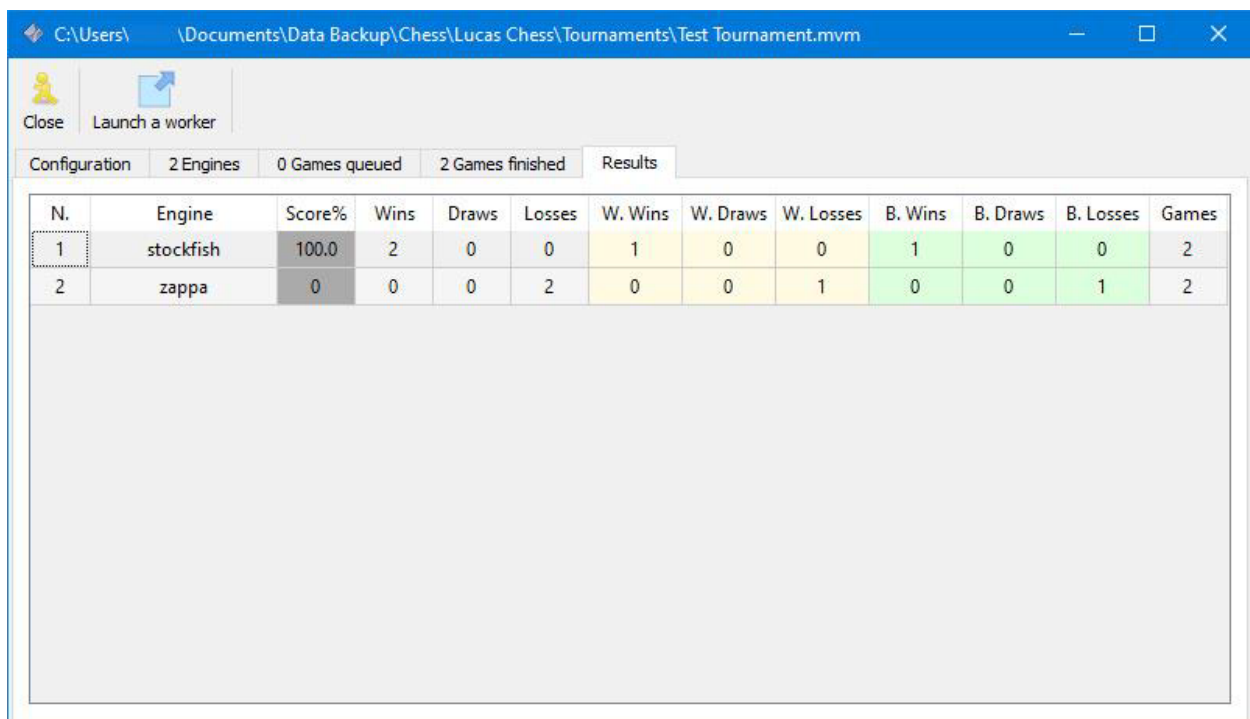
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There is only one person on earth who could answer why the button is labeled "Launch a worker," but that's the one to click to start the tournament. You can watch the action as it unfolds, of course, but with the setup above, that tournament would have taken many hours to play out.

So instead, a shorter tournament, 1 round with only a minute of total time to play for each side. Aaannnddd... Stockfish clobbered Zappa, 2-0! (Hmm, did serving as adjudicator influence this?)

N.	White	Black	Time	Result
1	stockfish	zappa	60+0	1-0
2	zappa	stockfish	60+0	0-1

N.	Engine	Score%	Wins	Draws	Losses	W. Wins	W. Draws	W. Losses	B. Wins	B. Draws	B. Losses	Games
1	stockfish	100.0	2	0	0	1	0	0	1	0	0	2
2	zappa	0	0	0	2	0	0	1	0	0	1	2

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Strategic Test Suite

There is a link to someone's web site at the bottom of the window that opens for this module. It says, "Strategic Test Suite consists of series of themed test suites designed to evaluate chess engine's long term understanding of strategical and positional concepts. We have had dozens of test suites. A lot of them are tactical in nature. This test set is something different in computer chess." Despite the sarcasm you've read here, no one should dismiss the efforts of advanced chess analytics merely from ignorance. No doubt this Strategic Test Suite has value to advanced chess players. But until you have mined all of the standard offerings in Lucas Chess, and mastered them, it makes no sense to get involved in something this arcane. Honestly, you may never get there. But also honestly, you could spend a lifetime enjoying chess — and get quite good at it — without getting into such depth. (This reminds one of baseball Sabermetrics, only much worse.)

Kibitzers

This is essentially a shortcut to where you can create and maintain kibitzers to use during gameplay. As mentioned in the Kibitzers section of the Play guide, you shouldn't need to or want to mess with any of these settings unless you truly know what you are doing.

The important thing is to choose an engine that you like to serve as a kibitzer. That is the Stockfish engine in this case. It cannot be changed in this window, so it is necessary to create a new kibitzer with a different engine of choice.

Stockfish seems like a very good engine, though. It is the default in Lucas Chess.

Label	Value
Name	test kibitzer
Type	Candidates
Priority	Normal
Visible in menu	True
Point of view	After current move
Engine	test kibitzer
Author	T. Romstad, M. Costalba, J. Kiiski, G. Linscott
File	OS\win32\Engines\stockfish\Stockfish-15_x64-bmi2.exe
Information	
Debug Log File	
Threads (1:1-512)	1
Hash (16:1-33554432)	16
Ponder (false)	false
MultiPV (1:1-500)	1
Skill Level (20:0-20)	20
ove Overhead (10:0-5000)	10
low Mover (100:10-1000)	100
nodestime (0:0-10000)	0
UCI_AnalyseMode (false)	false
UCI_LimitStrength (false)	false
CI_Elo (1350:1350-2850)	1350
UCI_ShowWDL (false)	false
SyzygyPath	
zygyProbeDepth (1:1-100)	1
Syzygy50MoveRule (true)	true
SyzygyProbeLimit (7:0-7)	7
Use NNUE (true)	true
EvalFile	nn-6877cd24400e.nnue