ChessBase Engine Tips

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I. Introduction

This document does not attempt to explain or give advice for every feature of using the "Kibitzer", commonly referred to as "the Engine". ChessBase Help provides a lot of information but like most software, Help, doesn't give guidance on how to use the features.

The tips provided are based on my personal experience with the program since the DOS (pre-Window) versions of the program and are often questions that people new to ChessBase ask me about or I discover they had no idea about.

I have tested all the tips but it is possible that:

- CB has changed something in an update
  - I've seen subtle changes due to an update and some settings lost so this is not unusual
- I could have made a mistake or missed a nuance

II. Understanding the Engine Window

I highly recommend that you take the time to open the ChessBase help and read the page titled:

- Engine Window
  - https://help.chessbase.com/CBase/18/Eng/index.html

It will provide a lot of information not covered by this document

III. When is the Engine done Analyzing a position?

A. What does "done" mean to you?

The engine keeps running as long as you let it.

The question really is, **how long should I let the engine run** before I can consider the result reliable for what I want to use for?

I define reliable as:

- When the ranking of lines seems to have stopped changing
- I have the number of answers I am looking for
  - If you are looking for the single best move, then you are looking for just one answer.
  - If you are looking for the best moves your opponent may make, you want all the "strong" moves the engine finds
    - Example: The line from the book I was studying ends. Now I must figure out what my next move is or what my opponent may play.

B. What is the engine doing

When the engine is running it does a lot of things, among which are:

- It's going "deep" meaning it is looking at what results as the best set of moves after the starting move
- It is going "wide" to look at many possible starting moves

The engine must make a trade-off between going deep and wide because if it didn't, it would spend eternity figuring out what the single best move could be and the perfect game resulting from it.

C. How long do I wait for the engine to be "done"

When you first turn the engine on you will see it updating the lines very fast. As you wait, the engine is going deeper and wider and improving its analysis and changes appear more slowly.

From my observations I've seen huge changes occur in the first ten seconds and occasionally longer. I have settled on the following rules to decide when the results are "good enough" for me.

Depth	Good enough to show …
< 20	The idea of a move. I use the space key to play in a few moves into the notation
>= 30	A solid line of play. I use Ctrl-Space key to copy the best line into the notation
>=40	That I am willing to add to my repertoire as if it were from a book

D. Does it matter how many lines I have the engine show in the window?

When you set the number of Lines to be displayed you ask the engine to show you the best results it has found so far. It is still calculating on many lines that are not in the view.

Sometimes the best lines are all very close in value. If you set the number of lines to display too small, you may not realize that multiple lines are essentially of equal value.

I recommend that you set the number of lines to be **Eight**. This tends to be enough to show:

- How many of the lines are much better than the next best lines.
- When all eight lines are about the same value then many move are just as good.

IV. How to change the Default Engine

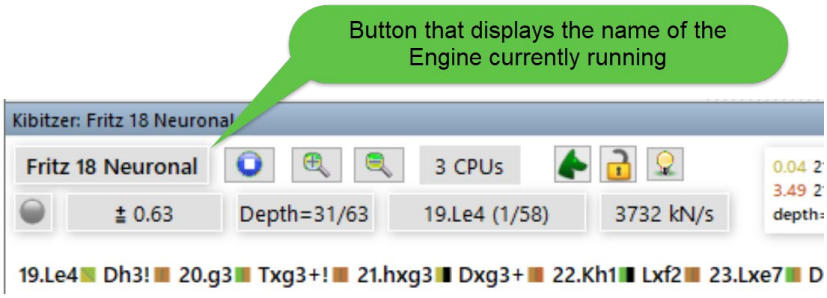
This section is sometimes referenced by the sections that follow.

A. Changing the Default settings by way of Options

1. Go Files, Options
2. Selecting Engines
3. Select Browse
4. Select the Engine you want to use as the Default
5. Select the Advanced Button
6. Select the check box for Default Engine
   - Hash table size can be changed here
   - CPUs / Threads can be changed here via the Engine Parameters button
7. Select OK when done

B. Changing the Default settings by way of a Running Engine

1. With the Engine running, click on the button that shows the name of the Engine in the Engine window, e.g.



2. The same window for changing the default engine or editing parameters will be display as in the previous section.

V. Copying one, multiple or all lines into the notation

This is covered in the CB Help when you search for: **Engine Window**

In the help, it is easy to miss the sentence that says:

- Right-clicking the variation window produces a function menu for the analysis engine.

What they are saying is move your mouse over the Engine Analysis window where the lines are being displayed and to a Right-click to bring up the options available to you.

VI. How do I know how many CPUs I should have the Engine use?

A. Explanation of CPUs

ChessBase is not always consistent when they use the words CPUs and Threads.

Don't worry about the explanation below as it's not going to clear things up perfectly, what we really want to know, how do I know what number to set the CPUs to

> *In Windows the number of CPUs is the number of Physical CPUs and not "Threads". Threads is the common term and usually refer to the number of "logical processors" but technically Threads is not really that either.*

We want to pick the highest number we can without the PC keeping us from doing other things like reading email

- If you pick the max number your PC has, when the engine is running, you won't be able to do much else on the computer. So, if you are going to let an engine run for 10 minutes, that's 10 minutes you can't do much on the PC.
- I recommend you pick a number that is one or two less than the number of physical cores on your PC.

B. Determining how many CPUs your PC has

To determine the number of physical cores in your PC:

1. Open Windows Task Manager – **Ctrl + Shift + Esc** simultaneously
2. Select Performance the Select CPU
3. Below the graphs you will see the number of Cores
4. See the section titled: How to change the Default Engine
    - Try setting CPUs to: **Number of cores – one**.
    - If you find you don't like how slow trying to do other things on your PC is
        - Try setting CPUs to: **Number of cores – two**

C. Temporarily change the running Engine settings

Be aware that you can **temporarily** change the number of CPUs when the engine is running by Selecting the button where the number of CPUs is displayed

After you unload the Engine, the CPUs will return to the number set in the **Default Engine settings**

I find that I have no need to ever change the number of CPUs once I've figured out what is best for my PC.

VII. Playing against the Engine

A. What does playing against the Engine mean?

Here I define Playing against the Engine as:

- You select a move then you let the Engine select the move in response to you

You may find this useful to help you figure out:

- Why the engine doesn't have the move I would play listed
- What's happens if I play this move
- The engine says the position is a Draw or Winning or Losing. I don't believe it, so I want to see what happens if I play this move instead.

B. How to play against the engine

- Turn on the engine
- Go to where you want to start playing from
- Make your move on the board
- Wait a few seconds to let the engine go 10 to 20 moves deep
- Press the Space Bar to force the current engine move to be played
- Repeat the above

Another way to test your ideas is to let the engine play both sides by continuing to hit the Space Bar and when you are interested in making it test an idea along the way, play in your own move then let it continue playing both sides.

VIII. Looking at the engine lines on a board

You've probably seen this by accident:

- If you move the mouse over the lines in the engine analysis window you can see the moves played on the main board.

It may be challenging to carefully move the mouse over the moves to play through the line. Once you have hovered over the line:

- You can use the left and right arrow keys
- on the keyboard to more carefully play the moves

IX. Kibitzer Button vs Add Kibitzer button

From what I have found, but not exhaustively tested to see if there are any exceptions or other quirks:

- The parameters when you set via the Kibitzer button, are independent of what you set the Default Kibitzer.

After fiddling with settings and getting some information from CB Support, I concluded that:

- The Default Kibitzer Button will remember how you set things up for parameters
  - The parameters are set by going to the Configuration (gear button)
- The Add Kibitzer button
  - When you edit parameters for any engine from the engines listed here, those parameters be applied to any engine selected here in the future. In other words, when you edit the parameters here, it is for all engines you may select here.

X. Why does the Engine take so long to load?

- See section about newer computer works slower

XI. Why does my better, faster, newer computer analyze slower (kN/s speed) ?

When you install CB, it looks at your Ram and adjusts default settings that remain in place until you decide to change them

After reading the CB help and an email exchange with CB Support:

- Increasing Hash table size improves efficiency of the engine
- Increasing Hash table size directly impacts performance
- Having more Ram doesn't negate the performance hit of the Hashtable in any proportional way.
- **YOU** must determine for **YOUR PC** how big you can make the Hash table before you don't like what you are seeing in terms of loading and unloading.
- CB stated that in a good machine, a Hash table size of 2048 or 4096 should be ok.

I researched this topic because my own new machine with a lot more ram and power than my old machine took **17 seconds** to load the engine before it started updating the lines.

For my new system I tried several Hash table sizes:

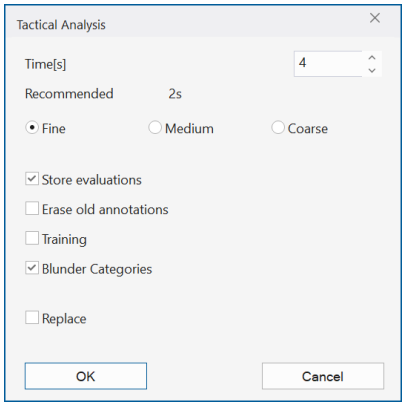
- 16384 puts in a noticeable delay of a several seconds
- 8192 results in just a second or two
- 4096 pops after just a moment

If you don't like how long it takes to load or unload your engine, fiddle with the Hash table size till it's acceptable to you.

XII. Full Game Analysis using just ChessBase

ChessBase can analyze one or more games in a database using the Default engine

1. Open a database
2. Select one or more games
3. Go to the Analysis Tab and select Tactical Analysis
4. Set the options as follows:



My Reasons for the above:

- Recommended: CB looked at your PC and offered a recommendation. I would go a touch higher than whatever it recommended to give it more time to look at each move.
- Fine: I've tested and I don't see much difference between the three settings analyzing the same game. I want the best analysis, so I select fine.
- Store Evaluations: I prefer to see the engine put in who's better and by how much into the notation
- I want anything already annotated in the game to remain, unless of course I really don't.
  - If you use ChessNoter it would wipe the time stamps and other information
- Training: Too much chatter in the notation. You might like it.
- Blunder Categories: Sure, why not
- Replace: **Never** use this.
  - If you don't like the annotations the engine added, you can't get rid of them without loosing anything else that was in there. E.g. You loose your ChessNoter time stamps or your own comments
  - Never put the original game at risk
    - I know someone who had Replace enabled to save him time from deleting the "before" analysis version of the game. His PC had a momentary problem, and the entire database of his personal games was destroyed. Remember the games live in a database so even if you are analyzing one game, CB is reading and writing into the database.

Interesting "Quirk"

- Once the engine determines one side is winning in the game, it no longer finds the best moves after that point. As long as you continue to be winning, it is happy to not comment on your moves.
  - For Example: A move results in one side going up 5 points, thus that side is winning. Later in the game, that winning side wins a Rook. The player missed that they could have won a Queen instead. The engine does not indicate this as a blunder an may not even alert you there was a better move.

I would prefer that the engine continues to show you to better moves. I submitted this as a bug/enhancement request over a year ago but have not heard back or seen it changed.

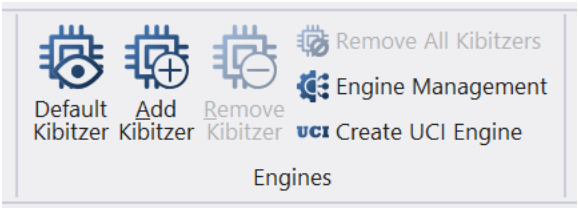
XIII. Using other Engines such as StockFish

CB supports the use of the UCI interface for using other engines.

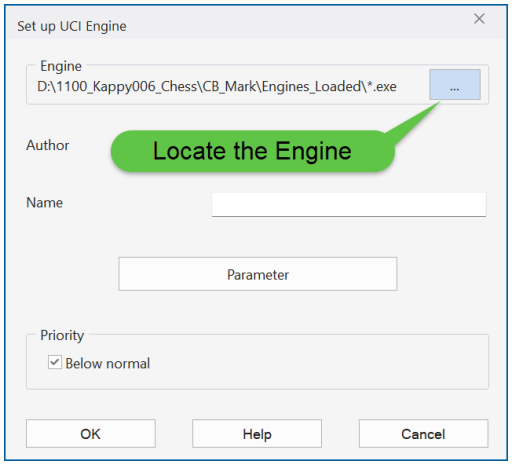
Before continuing on here, please read the Help Topic: **UCI Engines**

In short, the steps are:

1. Put the Engine file you have obtained in a location where you will keep your engines
   - It may have been downloaded as a zip. Be sure to unzip it.
2. In CB, open any game and go o the Home Tab and locate the Engines section which in CB18 appears as follows:



3. Select "Create UCI Engine"
4. Click to locate the engine as shown below and select the Engine .exe file



5. Select the Parameter button as shown above
6. Edit the value shown in "Threads"
   - Here "Threads" means Physical CPUs
   - CB may default to your maximum number of CPUs
   - To let you use your computer while the Engine is running, select a value that is less than your PCs total CPUs. Try selecting 2 less. You can edit this later if you need to
7. Select OK to finish the creation of the UCI process
8. Select Engine Management shown in the first image above and make the Engine UCI you just created Active