



Ratings Bureau

Rating Regulations

Effective as of 01 January 2024

INTRODUCTION

- 1 Following are the Rules and Regulations for the calculation and updating of Chess South African ratings and comes into force on 01 January 2024.
- 2 In this document, any gender reference to “him”, “his”, etc. also includes the female equivalent.
- 3 These regulations are the only and official regulations which determine the manner in which South African ratings are managed and calculated and these Regulations overwrite/supersede any regulations existing elsewhere in whatever/whichever form and/or format.

DEFINITIONS AND ABBREVIATIONS

4 **Definitions**

4.1 Event

A competition where players participate in one or more sections, is governed by the official FIDE Laws of Chess, and is Chess SA and/or FIDE rated.

4.2 Section

A sub-group of an event.

4.3 Province

One of the nine (9) provinces of the Republic of South Africa.

4.4 Region

An area within a province and which is a member of that Provincial Body, functions independently from other regions within the same province and which has been constituted by Chess South Africa.

4.5 Regional Administrator

Is a person appointed by the Region/Province Executive Committee to administer tournaments on the Chess SA Rating System on behalf of the Region/Province.

4.6 Rating Period

One calendar month.

4.7 Over-the-board

A face-to-face game (players sitting opposite to each other with a chessboard between them).

4.8 Hybrid

A game where a player plays against a remote opponent and using a real chessboard to make his and his opponent's moves and a computer to transmit his moved and receive his opponent's moves. All such games must comply with the FIDE Hybrid Regulations.

5 **Abbreviations**

- 5.1 CSA: Chess South Africa
- 5.2 AOC: Arbiters and Organisers Commission
- 5.3 FIDE: Federation Internationale des Echecs.
- 5.4 RSA: Republic of South Africa
- 5.5 OTB: Over-the-board
- 5.6 HYB: Hybrid

ARBITERS AT TOURNAMENTS

- 6 During each and every round of an event, a qualified arbiter (as recognised and approved by the AOC and/or FIDE) must be present (in an appointed capacity) for the duration of the round.
- 7 An RSA arbiter officiating at an event (regardless of where the event is held) must have paid his AOC membership fees for the year in which the event is held and must have done so before the start of the event, otherwise the event may not be rated and not count towards the arbiter's activity.
- 8 Excluding club events, no arbiter (in an appointed capacity) may participate in the event, not even as a filler, otherwise the event may not be rated and not count towards the arbiter's activity.

EVENTS TO BE RATED

- 9 Events played within the borders of RSA.
- 10 **Events played outside the borders of RSA:**
Must be FIDE rated. It will be the responsibility of the player (or team manager) who participated in such an event to submit his results of the event (including a link to the website where his complete official results can be obtained and verified) to the

Ratings Bureau, no later than the following month after the event has ended otherwise the event will not be accepted for rating and will not count towards the updating of his rating, activity and calculation of Grand Prix Points. Once details of the event have been submitted and processed, it may not be unrated upon request by either a player, team manager or anyone else. The following shall apply when rating these events:

- 10.1 If the opponent has a FIDE rating, his "adjusted" FIDE rating will be used.
 - 10.2 If the opponent has no FIDE rating, his "adjusted" tournament performance rating will be used.
- 11 The Ratings Committee reserves the right to refuse to rate an event (or one or more sections of that event) regardless if the event was played within/outside the borders of RSA. In the event of refusal to rate an event (or section/s) the Ratings Bureau will provide reasons why the event (or section/s) is/are not to be rated. The aggrieved party may appeal this decision (lodge an appeal with CSA) but no later than 21 calendar days after receiving notification of refusal.
- 12 The Ratings Committee reserves the right to rate an event:
- 12.1 regardless of where or when it was played,
 - 12.2 that was not submitted for rating purposes and/or registered to be rated.
 - 12.3 regardless if an arbiter has not paid his AOC membership and/or FIDE license fees.

EVENT DETAILS REQUIRED

The following information must be indicated in each tournament file. Files without these details will not be processed and sent back to the relevant region for updating the files and submitting them again.

13 Event/Section details

- 13.1 Complete event name, including section name (if applicable).
- 13.2 Start and end dates of the event/section.
- 13.3 Date on which each round was played.
- 13.4 Code of the region physically hosting the event.
- 13.5 Name, surname and CSA id of the Chief Organiser.

14 Player details

- 14.1 Surname, Initials and First name (no nicknames).
- 14.2 Date of birth (in the format yyyy/mm/dd).
- 14.3 Gender (M or F).
- 14.4 CSA id and FIDE id (where a player exists in the ratings database). FIDE id will be required for all FIDE rated events.
- 14.5 Code of the region the player is a member of. If no code is provided, the player will be assigned the code of the host region.

15 Arbiter details

- 15.1 Name and surname (no nicknames).
- 15.2 Chess SA id number and/or FIDE id number (FIDE id required if the event is FIDE rated).
- 15.3 Current title.
- 15.4 The names of the arbiters must be indicated in order of appointed position. The 1st name must be the Chief Arbiter, the 2nd and 3rd names the Deputy Chief Arbiters, then all other arbiters.

AGE GROUPS

- 16 A player's age (and age group) is calculated by subtracting his year of birth (ignoring month-in and date-on) from the year in which the event (CSA and/or FIDE rated) will be hosted.

NUMBER OF PLAYERS AND ROUNDS PER SECTION

- 17 A section of an event will only be rated if:
 - 17.1 Individual Swiss and Individual Single Round-Robin:
There are at least 6 players participating **AND** at least 5 rounds are completed.
 - 17.2 Individual Double Round-Robin sections:
There are at least 4 players participating **AND** at least 6 rounds are completed.
 - 17.3 Team Swiss and Round-Robin (Single and Double):
Each team has at least 4 boards **AND** at least 5 rounds are completed.
 - 17.4 Team Scheveningen sections:
There are at least 5 players per team participating **AND** at least 5 rounds are completed.

- 17.5 Disabled (e.g. Braille) events (or sections) only (regardless of format):
There are at least 4 players participating **AND** at least 3 rounds are completed.
- 17.6 The Ratings Bureau reserves the right to rate any tournament which does not comply with the above.
- 18 Organisers and arbiters must always try to ensure that all points (above) are adhered to, even if it means merging age and/or gender groups, etc. However, if this is/was not possible (e.g. there were only 5 players in the Section due to a player withdrawing before the start of the tournament), the Chief Organiser and/or Chief Arbiter must contact the Ratings Bureau no later than 1 (ONE) calendar day after the event has ended asking permission if the affected section(s) can be rated.

TIME CONTROL

- 19 The time control for a game is defined as (per player) the base time (original time on the clock) plus 60 times any increment per move.
- 20 The type of games is (where each player has the following):
- 20.1 Classical: A standard game with at least 120 minutes.
 - 20.2 Standard: At least 60 minutes but less than 120 minutes.
 - 20.3 Rapid: At least 10 minutes but less than 60 minutes.
 - 20.4 Blitz: At least 5 minutes but less than 10 minutes.
- 21 The time control for both players must be the same.
- 22 The time control for all games/rounds must be the same.
- 23 **Games played at a rate faster than 5 minutes (including increments) will not be rated.**

TYPE OF RATINGS

- 24 There are the following 4 ratings:
- 24.1 Main (M): Updated regardless of the time control.
 - 24.2 Standard (S): Updated only if the game was a Standard game.
 - 24.3 Rapid (R): Updated only if the game was a Rapid game.
 - 24.4 Blitz (B): Updated only if the game was a Blitz game.

- 25 The official format for all ratings will be a real number saved on the database to sixteen (16) decimal places but displayed online to one (1) decimal place. Only for exporting the ratings to the downloadable ratings databases (for pairing purposes) will they be rounded up/down to the nearest integer.

TOURNAMEN WEIGHT FACTOR (T_w)

- 26 T_w is only applicable when updating Main Ratings and depends on the time control used.
- 27 T_w is based on the following distribution with a classical game (120/120) counting 100%, a standard game (60/60) 83%, a Rapid game (10/10) 29% and a Blitz game (5/5) 18%.



$$T_w = 1.189618 - \frac{1.112268}{1 + \left(\frac{t}{32.70617}\right)^{1.217172}}$$

where t is the actual time control (in minutes) used.

PERFORMANCE RATING

- 28 The following formula is used:

$$P = A_{or} + \left[850 \times \left(\frac{s}{n} - 0.5 \right) \right]$$

where

P = performance rating

A_{or} = average opponent rating

s = total score (excluding default games and byes)

n = number of games played (excluding default games and byes)

- 29 A performance is calculated for each of the rating types and using the relevant opponent rating types.
- 30 The part between the block brackets [...] is also known as the “performance gain/loss” (D_p).

PLAYER K-FACTOR

- 31 A player’s K-factor depends on his highest historical rating achieved. Unrated players are assigned a $K=40$.

Highest rating	K
Below 1200	40
1200-1399	36
1400-1599	32
1600-1799	28
1800-1999	24
2000-2199	20
2200-2399	16
2400+	12

EXPECTED SCORE (W_e)

- 32 A player’s W_e for a game is based on the difference in rating between the player playing white and the player playing black.
- 33 The formula for W_e is:

$$W_{ew/b} = 0.541767 + [0.001164 \times (R_W - R_B)]$$

where

R_W = rating of the player playing with the white pieces

R_B = rating of the player playing with the black pieces

W_{ew} = Expected score of the player playing white. W_{eb} (expected score of the player playing black) is simply $W_{eb} = 1 - W_{ew}$.

- 34 The lower and upper bounds for $R_W - R_B$ are $[-460, 390]$. Meaning, if the rating difference is less than -460 or greater than $+390$, the difference is adjusted accordingly.

WEIGHTED PERFORMANCE (W_p)

- 35 For each rating type, a player’s W_p is calculated by weighing his last 5 tournaments played (taken in chronological order with the most recent tournament listed first).
- 36 The following formula is used:

$$W_p = \frac{\sum_{i=1}^5 (P_i \times R_i \times A \times i)}{15}$$

where

i = 1=oldest, ..., 5=most recent

P = tournament performance

R = rating type weight

A = Age factor based on 2920 days (8 years) and ignoring leap years and is calculated as **A=(2920-d)/2920** where d is the age of the tournament (in days: "date when new ratings are calculated" minus "end date of the tournament"). Any tournaments older than 2920 days are ignored.

37 When calculating the W_p for Main ratings, R_i is used with the following values:

37.1 Standard: 1.00

37.2 Rapid: 0.95

37.3 Blitz: 0.90

38 When calculating the W_p for Standard, Rapid or Blitz ratings, R_i is ignored (not used in the formula). Or you can include it but set $R_i = 1$.

39 Weighed performances are calculated after new ratings are updated/calculated.

40 If a player's W_p is higher than his newly calculated rating, his newly calculated rating will be adjusted with immediate effect but up to a maximum determined by Point 47 below.

RATING CHANGE PER GAME

41 A player's rating change per game is calculated by subtracting his expected score from his actual result and multiplying the answers by the tournament weight factor and the player's K-factor.

$$Change = (R - W_e) \times T_w \times K$$

RATING FLOOR

42 A player's rating may not drop more than 500 points below his highest rating achieved. If it does, his rating will be set equal to his highest rating minus 500. The rating floor for all players rated 1000 and lower is 500.

ADJUSTED FIDE RATINGS

- 43 Only applicable to events hosted outside the borders of RSA.
- 44 The FIDE ratings of rated opponents will be used. The tournament performance rating of unrated opponents will be used.
- 45 Before doing any calculations, opponent ratings are adjusted as follows:
- 45.1 FIDE rating less or equal to 2000: $180 + (0.94 \times \text{rating})$
- 45.2 FIDE rating greater than 2000: $20 + (1.02 \times \text{rating})$
- 46 Rounds where a player won by forfeit (opponent did not arrive) or received a bye (as determined by the pairing software), will not be rated.

MAXIMUM RATING GAIN/LOSS

- 47 The maximum rating change for a player (at the end of the rating period) depends on his/her current raw rating and is calculated as follows:

$$\text{Change} = \pm 916.4904 \times e^{-0.00142473 \times \text{rating}}$$

RAW, WEIGHTED AND PUBLISHED RATINGS

- 48 A player's raw rating is simply his "normal" updated rating (or his "now" rating).
- 49 A player's weighted rating is the weighted average of his newly calculated raw rating and his 23 previously calculated raw ratings. Thus, the weighted average of his last 24 raw ratings.

$$W_r = \frac{\sum_{i=1}^{24} [R_i \times (25 - i)]}{300}$$

with

W_r = Weighted rating

R_i = Raw rating

i = 1..24 with 1 being the most recent and 24 the oldest raw rating.

- 50 A player's published rating is the higher rating between Raw and Weighted.

PENALTIES

- 51 Excluding round 1, any player who forfeits a game (did not inform the Chief Organiser and/or Chief Arbiter that he will not be participating in that round, including players arriving after the forfeit time for a round), will have 20 rating points deducted for each such round/game.
- 52 Any player who withdraws from the event without informing the Chief Organiser and/or Chief Arbiter in writing/verbally and without a good reason (according to the Chief Organiser and/or Chief Arbiter) will have 20 rating points deducted for that round and each subsequent round, even though the player is not participating in the event anymore.
- 53 Where an unrated player is penalised, the total penalty points will be deducted from his first calculated rating.
- 54 Penalties are only applied when all other ratings have been calculated.

ACTIVITY

- 55 Only the following games will count towards a player's activity:
 - 55.1 Games played with the white/black pieces (regardless of the opponent's rating).
 - 55.2 Bye (as determined by the pairing software).
 - 55.3 Forfeit win (opponent did not arrive for the game).

FIRST OFFICIAL RATING FOR AN UNRATED PLAYER

- 56 Unrated/new players (not yet existing on the database) will be assigned a rating of 1200 and a K-factor of 40, regardless of age and gender.

ACCEPTANCE OF EVENT FILES FOR RATING

- 57 Each region must have one appointed Regional Administrator who will be tasked with the following:
 - 57.1 Only events complying with the points below will be accepted for the updating of ratings and calculation performances.
 - 57.2 When uploading a tournament file, the Region acknowledges that all information indicated in the file is 100% correct.

57.3 A Regional Administrator shall not refuse to register or submit a tournament if the tournament fulfils the regulations of this policy.

58 Chess SA reserves the right to replace a Regional Administrator if he/she does not act in the interest of chess by deliberately obstructing the rating of tournaments without reasonable cause.

59 A Region/Province may formulate its own rating regulations in addition to this policy as long as:

59.1 It does not contradict this policy. In such case the articles of this policy shall be binding.

59.2 The regulations are approved by the Region/Province Council and published on the website of the Region/Province.

60 Each section of an event must be registered via the Chess SA website at least the following number of days before the start of the event.

60.1 CSA rated only: At least 3 days before the start of the event.

60.2 FIDE rated: 30 days for norm events and 7 days for non-norm events. Please contact the CSA Ratings Bureau for more details.

61 Once the event has finished, the event files must be uploaded to the CSA website no later than the following rating period otherwise the event will not be rated.

E.g. if an event ends in January, it should be submitted in January to be incorporated for the February ratings. However, files submitted in February will be accepted (this is not encouraged though). Files submitted later than February will not be accepted and processed.

Only event files submitted by Regional Administrators will be accepted. Events that are submitted late distort the accuracy of the rating system especially if they are submitted in a latter month to the month in which the event was held, as the selection process of players (updating of ratings and Grand Prix points) are heavily reliant on the most recent information. This is extremely unfair towards players and everyone else involved.

62 The following are applicable to all events to be rated:

62.1 OTB events must be registered by the Region where it will be physically hosted.

62.2 HYB events must be registered by one of the Regions where there is a playing hub.

- 62.3 Provincial bodies may register an event on behalf of any Region that is a member of that Province.
- 62.4 National events must be registered by the organising Province/Region or approved entity regardless of where it is physically hosted.

CHANGES MADE TO EVENTS ALREADY RATED

- 63 Making changes (e.g. wrong results were originally captured, etc.) to a section already rated necessitates un-rating and re-rating the file. It is not a problem if the file is still to be incorporated in the next rating list as it merely involves deleting existing records. However, it is problematic if the file has already been incorporated into a rating list. Any changes must be reported to the Ratings Bureau before the end of the rating period in which the event/section was played.
- 64 **No changes will be made (e.g. correcting player results, removing penalty rating points, etc.) once a section has been incorporated into a new rating list. It is the responsibility of the Chief Arbiter, Chief Organiser and Regional Administrator to ensure that all data is 100% correct before the files are submitted for rating.** However, the Ratings Bureau reserves the right to un-rate and re-rate such sections and will not be held responsible for any negative effects this may have on a player's selection (rating and/or Grand Prix points).

WHEN NEW RATINGS ARE CALCULATED

- 65 New ratings are calculated at the end of each rating period.
- 66 New ratings are published on the first day of the next rating period.

EXAMPLE: CALCULATING A PLAYER'S NEW OFFICIAL RATING

The following example was created using the actual results of a player and is aimed to be as detailed as possible to explain exactly how ratings are calculated. For this example, assume new ratings are calculated on 1 April 2024. All calculations are rounded off to either 1 or 2 decimal places. No rounding is applied when official calculations are performed.

Player current information

	Main	Standard	Rapid	Blitz
Rating (raw)	1405.6	1406.3	1398.8	1200
K	32	32	32	40

Last 5 tournaments played

Tournament	Type	Performance	Time	Time weight	Date	Age	Age weight
<i>All tournaments (for Main)</i>							
1	Rapid	1289.8	30	0.60	2023/12/09	114	0.96
2	Rapid	1614.2	25	0.54	2023/11/04	149	0.95
3	Rapid	1157.1	30	0.60	2023/10/14	170	0.94
4	Standard	1037.0	90	0.94	2023/09/25	189	0.94
5	Rapid	1536.4	25	0.54	2023/09/23	191	0.93
<i>Standard only</i>							
1	Standard	1025.8	90	0.94	2023/09/25	189	0.94
2	Standard	1297.9	60	0.83	2023/08/12	233	0.92
3	Standard	1685.1	70	0.87	2023/07/25	251	0.91
4	Standard	1456.4	60	0.83	2023/06/18	288	0.90
5	Standard	1262.0	70	0.87	2023/05/28	309	0.89
<i>Rapid only</i>							
1	Rapid	1359.3	30	0.60	2023/12/09	114	0.96
2	Rapid	1616.2	25	0.54	2023/11/04	149	0.95
3	Rapid	1129.4	30	0.60	2023/10/14	170	0.94
4	Rapid	1521.3	25	0.54	2023/09/23	191	0.93
5	Rapid	1088.8	35	0.66	2023/07/15	261	0.91
<i>Blitz only</i>							
<i>The player has played no blitz tournaments before.</i>							

Last 24 raw ratings

#	Main	Standard	Rapid	Blitz	#	Main	Standard	Rapid	Blitz
1	1405.6	1406.3	1398.8	1200.0	13	1235.4	1235.4	1509.7	1200.0
2	1351.2	1344.2	1398.8	1200.0	14	1235.4	1235.4	1436	1200.0
3	1350.8	1344.2	1398.8	1200.0	15	1235.4	1235.4	1396.6	1200.0
4	1350.8	1344.2	1398.8	1200.0	16	1330.4	1330.4	1396.6	1200.0
5	1360.2	1344.2	1410.6	1200.0	17	1330.4	1330.4	1390.8	1200.0
6	1324.9	1344.2	1350.1	1200.0	18	1330.4	1330.4	1425.0	1200.0
7	1351.2	1344.2	1414.1	1200.0	19	1330.4	1330.4	1392.6	1200.0
8	1399.7	1418.8	1382.7	1200.0	20	1359.6	1359.6	1392.6	1200.0
9	1414.6	1445.7	1382.7	1200.0	21	1359.6	1359.6	1392.6	1200.0
10	1423.0	1353.8	1492.1	1200.0	22	1359.6	1359.6	1392.6	1200.0
11	1405.2	1323.6	1492.1	1200.0	23	1359.6	1359.6	1392.6	1200.0
12	1391.4	1235.4	1492.1	1200.0	24	1231.2	1231.2	1333.6	1200.0

Tournaments played in the current rating period

The average opponent ratings (A_{or}) and total scores are also indicated.

Tournament 1											
<i>Time control: 25/25, $T_w=?$, Date: 2024/03/29, Age=3, $A_w=1.00$.</i>											
Round	Opp Main	Opp Rapid	Col	Res	Main We	Rapid We	Main R-We	Rapid R-We	Main Change	Rapid Change	
6	1200.0	1200.0	W	1							
5	1225.9	1232.4	B	0							
4	1190.4	1161.8	W	1							
3	1206.1	1190.8	B	1							
2	1329.6	1284.3	W	0							
1	1179.4	1240.0	B	1							
Avg	1221.9	1218.2	Total	4	Total						

Tournament 2											
<i>Time control: 60/60, $T_w=?$, Date: 2024/03/22, Age=10, $A_w=1.00$.</i>											
Round	Opp Main	Opp Std	Col	Res	Main We	Std We	Main R-We	Std R-We	Main Change	Std Change	
6	1400.8	1350.8	W	1							
5	1553.5	1455.2	B	1							
4	1553.5	1256.0	W	1							
3	1351.4	1347.2	B	1							
2	1339.5	1265.2	W	1							
1	1185.8	1232.8	B	1							
Avg	1397.4	1317.9	Total	6	Total						

Tournament 3											
<i>Time control: 60/60, $T_w=?$, Date: 2024/02/08, Age=24, $A_w=0.99$.</i>											
Round	Opp Main	Opp Std	Col	Res	Main We	Std We	Main R-We	Std R-We	Main Change	Std Change	
5	1294.0	1271.5	B	1							
4	1317.9	1305.8	B	1							
3	1318.0	1253.2	W	1							
2	1230.6	1232.8	B	1							
1	1172.6	1143.6	W	1							
Avg	1266.6	1241.4	Total	6	Total						

Tournament 4											
<i>Time control: 5/5, $T_w=?$, Date: 2024/02/01, Age=31, $A_w=0.99$.</i>											
Round	Opp Main	Opp Blitz	Col	Res	Main We	Blitz We	Main R-We	Blitz R-We	Main Change	Blitz Change	
9	1248.9	1248.9	B	1							
8	1192.6	1270.6	B	1							
7	1267.7	1359.8	W	0.5							
6	1381.4	1185.6	B	0							
5	1468.5	1199.2	W	0.5							
4	1460.6	1341.6	B	0							
3	1226.0	1200.0	W	1							
2	1595.3	1370.0	B	0							
1	1767.7	1632.5	W	0							
Avg	1401.0	1312.0	Total	4	Total						

Step 1:

Calculate the weight (T_w) for each tournament.

$$\#1: T_w = 1.189618 - \frac{1.112268}{1 + \left(\frac{25}{32.70617}\right)^{1.217172}} = 0.54$$

$$\#2 \ \& \ \#3: T_w = 1.189618 - \frac{1.112268}{1 + \left(\frac{60}{32.70617}\right)^{1.217172}} = 0.83$$

$$\#4: T_w = 1.189618 - \frac{1.112268}{1 + \left(\frac{5}{32.70617}\right)^{1.217172}} = 0.18$$

Step 2:

Calculate the expected score (W_e) for each game. Then subtract W_e from the actual game result (R) achieved.

$$W_e = 0.541767 + [0.001164 \times (R_W - R_B)]$$

Tournament 1										
Time control: 25/25, $T_w=0.54$, Date: 2024/03/29, Age=3, $A_w=1.00$, Main=1405.6, Rapid=1398.8, Main K=32, Rapid K=32										
Round	Opp Main	Opp Rapid	Col	Res	Main We	Rapid We	Main R-We	Rapid R-We	Main Change	Rapid Change
6	1200.0	1200.0	W	1	0.78	0.77	0.22	0.23		
5	1225.9	1232.4	B	0	0.67	0.65	-0.67	-0.65		
4	1190.4	1161.8	W	1	0.79	0.82	0.21	0.18		
3	1206.1	1190.8	B	1	0.69	0.70	0.31	0.30		
2	1329.6	1284.3	W	0	0.63	0.68	-0.63	-0.68		
1	1179.4	1240.0	B	1	0.72	0.36	0.28	0.64		
Avg	1221.9	1218.2	Total	4			Total			

Tournament 2										
Time control: 60/60, $T_w=0.83$, Date: 2024/03/22, Age=10, $A_w=1.00$, Main=1405.6, Standard=1406.3, Main K=32, Standard K=32										
Round	Opp Main	Opp Std	Col	Res	Main We	Std We	Main R-We	Std R-We	Main Change	Std Change
6	1400.8	1350.8	W	1	0.55	0.61	0.45	0.39		
5	1553.5	1455.2	B	1	0.29	0.40	0.71	0.60		
4	1553.5	1256.0	W	1	0.37	0.72	0.63	0.28		
3	1351.4	1347.2	B	1	0.52	0.53	0.48	0.47		
2	1339.5	1265.2	W	1	0.62	0.71	0.38	0.29		
1	1185.8	1232.8	B	1	0.71	0.66	0.29	0.34		
Avg	1397.4	1317.9	Total	6			Total			

Tournament 3										
Time control: 60/60, $T_w=0.83$, Date: 2024/02/08, Age=24, $A_w=0.99$, Main=1405.6, Standard=1406.3, Main K=32, Standard K=32										
Round	Opp Main	Opp Std	Col	Res	Main We	Std We	Main R-We	Std R-We	Main Change	Std Change
5	1294.0	1271.5	B	1	0.59	0.62	0.41	0.38		
4	1317.9	1305.8	B	1	0.56	0.58	0.44	0.42		
3	1318.0	1253.2	W	1	0.64	0.72	0.36	0.28		
2	1230.6	1232.8	B	1	0.66	0.66	0.34	0.34		
1	1172.6	1143.6	W	1	0.81	0.85	0.19	0.15		
Avg	1266.6	1241.4	Total	6	Total					

Tournament 4										
Time control: 5/5, $T_w=0.18$, Date: 2024/02/01, Age=31, $A_w=0.99$, Main=1405.6, Blitz=1200.0, Main K=32, Blitz K=40										
Round	Opp Main	Opp Blitz	Col	Res	Main We	Blitz We	Main R-We	Blitz R-We	Main Change	Blitz Change
9	1248.9	1248.9	B	1	0.64	0.40	0.36	0.60		
8	1192.6	1270.6	B	1	0.71	0.38	0.29	0.62		
7	1267.7	1359.8	W	0.5	0.70	0.36	-0.20	0.14		
6	1381.4	1185.6	B	0	0.49	0.47	-0.49	-0.47		
5	1468.5	1199.2	W	0.5	0.47	0.54	0.03	-0.04		
4	1460.6	1341.6	B	0	0.39	0.29	-0.39	-0.29		
3	1226.0	1200.0	W	1	0.75	0.50	0.25	0.50		
2	1595.3	1370.0	B	0	0.24	0.26	-0.24	-0.26		
1	1767.7	1632.5	W	0	0.12	0.04	-0.12	-0.04s		
Avg	1401.0	1312.0	Total	4	Total					

Step 3:

Calculate the rating change for each game. Then sum the changes for each rating type.

$$\text{Change} = (R - W_e) \times T_w \times K$$

Tournament 1										
Time control: 25/25, $T_w=0.54$, Date: 2024/03/29, Age=3, $A_w=1.00$, Main=1405.6, Rapid=1398.8, Main K=32, Rapid K=32										
Round	Opp Main	Opp Rapid	Col	Res	Main We	Rapid We	Main R-We	Rapid R-We	Main Change	Rapid Change
6	1200.0	1200.0	W	1	0.78	0.77	0.22	0.23	3.8	7.4
5	1225.9	1232.4	B	0	0.67	0.65	-0.67	-0.65	-11.6	-20.8
4	1190.4	1161.8	W	1	0.79	0.82	0.21	0.18	3.6	5.8
3	1206.1	1190.8	B	1	0.69	0.70	0.31	0.30	5.4	9.6
2	1329.6	1284.3	W	0	0.63	0.68	-0.63	-0.68	-10.9	-21.8
1	1179.4	1240.0	B	1	0.72	0.64	0.28	0.36	4.8	11.5
Avg	1221.9	1218.2	Total	4	Total				-4.8	-8.3

Tournament 2										
Time control: 60/60, $T_w=0.83$, Date: 2024/03/22, Age=10, $A_w=1.00$, Main=1405.6, Standard=1406.3, Main K=32, Standard K=32										
Round	Opp Main	Opp Std	Col	Res	Main We	Std We	Main R-We	Std R-We	Main Change	Std Change
6	1400.8	1350.8	W	1	0.55	0.61	0.45	0.39	13.9	12.5
5	1553.5	1455.2	B	1	0.29	0.40	0.71	0.60	18.9	19.2
4	1553.5	1256.0	W	1	0.37	0.72	0.63	0.28	16.7	9.0
3	1351.4	1347.2	B	1	0.52	0.53	0.48	0.47	12.7	15.0
2	1339.5	1265.2	W	1	0.62	0.71	0.38	0.29	10.1	9.3
1	1185.8	1232.8	B	1	0.71	0.66	0.29	0.34	7.7	10.9
Avg	1397.4	1317.9	Total	6	Total				80.0	75.9

Tournament 3										
Time control: 60/60, $T_w=0.83$, Date: 2024/02/08, Age=24, $A_w=0.99$, Main=1405.6, Standard=1406.3, Main K=32, Standard K=32										
Round	Opp Main	Opp Std	Col	Res	Main We	Std We	Main R-We	Std R-We	Main Change	Std Change
5	1294.0	1271.5	B	1	0.59	0.62	0.41	0.38	10.9	12.2
4	1317.9	1305.8	B	1	0.56	0.58	0.44	0.42	11.7	13.4
3	1318.0	1253.2	W	1	0.64	0.72	0.36	0.28	9.6	9.0
2	1230.6	1232.8	B	1	0.66	0.66	0.34	0.34	9.0	10.9
1	1172.6	1143.6	W	1	0.81	0.85	0.19	0.15	5.0	4.8
Avg	1266.6	1241.4	Total	5	Total				46.2	50.3

Tournament 4										
Time control: 5/5, $T_w=0.18$, Date: 2024/02/01, Age=31, $A_w=0.99$, Main=1405.6, Blitz=1200.0, Main K=32, Blitz K=40										
Round	Opp Main	Opp Blitz	Col	Res	Main We	Blitz We	Main R-We	Blitz R-We	Main Change	Blitz Change
9	1248.9	1248.9	B	1	0.64	0.40	0.36	0.60	2.1	24.0
8	1192.6	1270.6	B	1	0.71	0.38	0.29	0.62	1.7	24.8
7	1267.7	1359.8	W	0.5	0.70	0.36	-0.20	0.14	-1.2	5.6
6	1381.4	1185.6	B	0	0.49	0.47	-0.49	-0.47	-2.8	-18.8
5	1468.5	1199.2	W	0.5	0.47	0.54	0.03	-0.04	0.2	-1.6
4	1460.6	1341.6	B	0	0.39	0.29	-0.39	-0.29	-2.2	-11.6
3	1226.0	1200.0	W	1	0.75	0.50	0.25	0.50	1.4	20.0
2	1595.3	1370.0	B	0	0.24	0.26	-0.24	-0.26	-1.4	-10.4
1	1767.7	1632.5	W	0	0.12	0.04	-0.12	-0.04	-0.7	-1.6
Avg	1401.0	1312.0	Total	4	Total				-2.9	30.4

Step 4:

Calculate the new temporary raw ratings by adding the totals from Step 3 to the player's pre-tournament ratings.

Main: $1405.6 - 4.8 + 80.0 + 46.2 - 2.9 = 1524.1$
Standard: $1406.3 + 75.9 + 50.3 = 1532.5$
Rapid: $1398.8 - 8.3 = 1390.5$
Blitz: $1200.0 + 30.4 = 1230.4$

Step 5:

Calculate the performance ratings for each tournament.

$$\#1 \text{ Main} = 1221.9 + \left[850 \times \left(\frac{4}{6} - 0.5 \right) \right] = 1363.6$$

$$\#2 \text{ Main} = 1397.4 + \left[850 \times \left(\frac{6}{6} - 0.5 \right) \right] = 1822.4$$

$$\#3 \text{ Main} = 1266.6 + \left[850 \times \left(\frac{5}{5} - 0.5 \right) \right] = 1691.6$$

$$\#4 \text{ Main} = 1401.0 + \left[850 \times \left(\frac{4}{9} - 0.5 \right) \right] = 1353.8$$

$$\#1 \text{ Rapid} = 1218.2 + \left[850 \times \left(\frac{4}{6} - 0.5 \right) \right] = 1359.9$$

$$\#2 \text{ Standard} = 1317.9 + \left[850 \times \left(\frac{6}{6} - 0.5 \right) \right] = 1742.9$$

$$\#3 \text{ Standard} = 1241.4 + \left[850 \times \left(\frac{5}{5} - 0.5 \right) \right] = 1666.4$$

$$\#4 \text{ Blitz} = 1312.0 + \left[850 \times \left(\frac{4}{9} - 0.5 \right) \right] = 1264.8$$

Step 6:

Calculate the weighted performance of the last 5 tournaments for each rating. Insert the performances from Step 5 (in chronological order with the latest tournament listed first) to the top of the table and dropping the corresponding number from the bottom.

$$W_p = \frac{\sum_{i=1}^5 (P_i \times R_i \times A \times i)}{15}$$

Tournament	Type	Perform	Type weight	Date	Age	Age weight
<i>All tournaments (for Main)</i>						
1	Rapid	1363.6	0.95	2024/03/29	3	1.00
2	Standard	1822.4	1.00	2024/03/22	10	1.00
3	Standard	1691.6	1.00	2024/02/08	24	0.99
4	Blitz	1353.8	0.90	2024/02/01	31	0.99
5	Rapid	1289.8	0.95	2023/12/09	114	0.96
$W_{p1} = 1363.6 \times 0.95 \times 1.00 \times 5 = 6477.1$ $W_{p2} = 1822.4 \times 1.00 \times 1.00 \times 4 = 7289.6$ $W_{p3} = 1691.6 \times 1.00 \times 0.99 \times 3 = 5024.1$ $W_{p4} = 1353.8 \times 0.90 \times 0.99 \times 2 = 2412.5$ $W_{p5} = 1289.8 \times 0.95 \times 0.96 \times 1 = 1176.3$ Weighted performance = $(6477.1 + 7289.6 + 5024.1 + 2412.5 + 1176.3) / 15 = 1492.0$						
<i>Standard only</i>						
1	Standard	1742.9	N.A.	2024/03/22	10	1.00
2	Standard	1666.4	N.A.	2024/02/08	24	0.99
3	Standard	1025.8	N.A.	2023/09/25	189	0.94
4	Standard	1297.9	N.A.	2023/08/12	233	0.92
5	Standard	1685.1	N.A.	2023/07/25	251	0.91
$W_{p1} = 1742.9 \times 1.00 \times 5 = 8714.5$ $W_{p2} = 1666.4 \times 0.99 \times 4 = 6598.9$ $W_{p3} = 1025.8 \times 0.94 \times 3 = 2892.8$ $W_{p4} = 1297.9 \times 0.92 \times 2 = 2388.1$ $W_{p5} = 1685.1 \times 0.91 \times 1 = 1533.4$ Weighted performance = $(8714.5 + 6598.9 + 2892.8 + 2388.1 + 1533.4) / 15 = 1475.2$						
<i>Rapid only</i>						
1	Rapid	1359.9	N.A.	2024/03/29	3	1.00
2	Rapid	1359.3	N.A.	2023/12/09	114	0.96
3	Rapid	1616.2	N.A.	2023/11/04	149	0.95
4	Rapid	1129.4	N.A.	2023/10/14	170	0.94
5	Rapid	1521.3	N.A.	2023/09/23	191	0.93
$W_{p1} = 1359.9 \times 1.00 \times 5 = 6799.5$ $W_{p2} = 1359.3 \times 0.96 \times 4 = 5219.7$ $W_{p3} = 1616.2 \times 0.95 \times 3 = 4606.2$ $W_{p4} = 1129.4 \times 0.94 \times 2 = 2123.3$ $W_{p5} = 1521.3 \times 0.93 \times 1 = 1414.8$ Weighted performance = $(6799.5 + 5219.7 + 4606.2 + 2123.3 + 1414.8) / 15 = 1344.2$						
<i>Blitz only</i>						
Because the player has now only played 1 blitz tournament (which is less than 5) we cannot calculate a weighted blitz performance.						

Step 7:

Calculate the weighted rating of the player's last 24 ratings. Add the temporary raw ratings (from Step 4) to the top of each list and drop the bottom row.

$$W_r = \frac{\sum_{i=1}^{24} [R_i \times (25 - i)]}{300}$$

#	Main	Standard	Rapid	Blitz	#	Main	Standard	Rapid	Blitz
1	1524.1	1532.5	1390.5	1230.4	13	1391.4	1235.4	1492.1	1200.0
2	1351.2	1406.3	1398.8	1200.0	14	1235.4	1235.4	1509.7	1200.0
3	1350.8	1344.2	1398.8	1200.0	15	1235.4	1235.4	1436	1200.0
4	1350.8	1344.2	1398.8	1200.0	16	1235.4	1235.4	1396.6	1200.0
5	1360.2	1344.2	1398.8	1200.0	17	1330.4	1330.4	1396.6	1200.0
6	1324.9	1344.2	1410.6	1200.0	18	1330.4	1330.4	1390.8	1200.0
7	1351.2	1344.2	1350.1	1200.0	19	1330.4	1330.4	1425.0	1200.0
8	1399.7	1344.2	1414.1	1200.0	20	1330.4	1330.4	1392.6	1200.0
9	1414.6	1418.8	1382.7	1200.0	21	1359.6	1359.6	1392.6	1200.0
10	1423.0	1445.7	1382.7	1200.0	22	1359.6	1359.6	1392.6	1200.0
11	1405.2	1353.8	1492.1	1200.0	23	1359.6	1359.6	1392.6	1200.0
12	1351.2	1323.6	1492.1	1200.0	24	1359.6	1359.6	1392.6	1200.0

$$\text{Main } W_r = \frac{(1524.1 \times 24) + (1351.2 \times 23) + (1350.8 \times 22) + \dots + (1359.6 \times 2) + (1359.6 \times 1)}{300} = 1364.7$$

$$\text{Standard } W_r = \frac{(1532.5 \times 24) + (1406.3 \times 23) + (1344.2 \times 22) + \dots + (1359.6 \times 2) + (1359.6 \times 1)}{300} = 1356.7$$

$$\text{Rapid } W_r = \frac{(1390.5 \times 24) + (1398.8 \times 23) + (1398.8 \times 22) + \dots + (1392.6 \times 2) + (1392.6 \times 1)}{300} = 1412.5$$

$$\text{Blitz } W_r = \frac{(1230.4 \times 24) + (1200.0 \times 23) + (1200.0 \times 22) + \dots + (1200.0 \times 2) + (1200.0 \times 1)}{300} = 1202.4$$

Step 8:

Determine if the weighted performance (Step 6) is higher than the temporary raw rating. If so, set the temporary raw rating equal to the weighted performance rating. This is now the player's new raw rating.

	Temporary raw	Weighted performance	New raw
Main	1524.1	1492.0	1524.1
Standard	1532.5	1475.2	1532.5
Rapid	1390.5	1344.2	1390.5
Blitz	1230.4	N.A.	1230.4

Step 9:

Determine the player's Display rating by comparing the New raw rating (Step 8) and the weighted rating (Step 7). Assign the higher value.

	New raw	Weighted rating	Display rating (Official rating)
Main	1524.1	1364.7	1524.1
Standard	1532.5	1356.7	1532.5
Rapid	1390.5	1412.5	1412.5
Blitz	1230.4	1202.4	1230.4

These are now the player's official ratings that will be listed online as well as in the downloadable rating files.