

The WBL Automatic Draw System

This document explains the automatic draw capabilities of the WBL event management web application.

The system is now capable of performing several types of draw (at Knockout stage or first round). It is no longer necessary, except in rare circumstances (see later) for any manual intervention in making the draw after the group stages of an active tournament have completed.

Throughout this document I use the **2013 World Championship (150 up)** as the example (all detail on this tournament can be found [here](#)). This is because it is a worst-case scenario. Most other draws are much simpler and trouble free.

Firstly, the rationale behind the seeded draw is explained.

WBL Draw System Specification

The two basic criteria for the draw system are :-

1. Higher seeded players should not meet until as late as possible in the knockout stage.
For example, the 1 seed is drawn against the 32 seed; and in the other half of the draw the 2 seed against the 31, etc. Therefore the no 1 & 2 seeds cannot meet until the final. And so on.
2. Players from the same group should not meet until as late as possible.
For example, Group 1st and 2nd players should not meet until the final.

These two criteria ensure a fair competition and are designed to reward performance at the group stage (ie. 'on the day') whilst minimising the element of 'luck of the draw'.

This system works well when there are a regular number of groups supplying the knockout stage, for example 16 groups of 4 players per group. The problems arise when there is an irregular group number – eg. 13 groups of 4 players. More on this later.

Implementation

After the group stage of a tournament has completed, the WBL system automatically orders players into 'Draw Positions' (viz. seeds) based on their group stage performance. How they are ordered is explained in Appendix A.

An example :-

Figure 1 - WBL Player List (final)

| World Championship (150 up) | | | | | World Championship |
|-----------------------------|--------------------|---------------|---------------|-----------------------|--------------------|
| Players | | | | | |
| Player | Seed before trnmnt | Round Reached | Draw Position | Ranking Points Earned | |
| David Causier | 1 | Final | 1 | 15350.00 | |
| Geet Sethi | 15 | Last 32 | 2 | 4600.00 | |
| Balachandra Bhaskar | 16 | Quarter Final | 3 | 5850.00 | |
| Robert Hall | 3 | Semi Final | 4 | 8350.00 | |
| Rupesh Shah | 9 | Quarter Final | 5 | 6850.00 | |
| Alok Kumar | 6 | Final | 6 | 11350.00 | |
| Martin Goodwill | 5 | Last 32 | 7 | 4600.00 | |
| Matthew Bolton | 4 | Quarter Final | 8 | 6850.00 | |
| Sourav Kothari | 13 | Last 32 | 9 | 4600.00 | |
| Devendra Joshi | 11 | Semi Final | 10 | 7350.00 | |
| Dhruv Sitwala | 12 | Last 16 | 11 | 5350.00 | |
| Phil Mumford | 7 | Last 16 | 12 | 4350.00 | |
| Kien Nguyen Trung | 84 | Last 32 | 13 | 2533.34 | |
| Siddharth Parikh | 21 | Last 16 | 14 | 4250.00 | |
| Phil Davis | 19 | Last 32 | 15 | 3450.00 | |
| Wayne Doyle | 29 | Last 16 | 16 | 4200.00 | |
| Robin Wilson | 34 | Last 32 | 17 | 3550.00 | |
| Dhvaj Haria | 23 | Last 32 | 18 | 3450.00 | |
| Michael Pearson | 17 | Last 16 | 19 | 4200.00 | |
| Steve Brookshaw | 32 | Last 32 | 20 | 3450.00 | |
| Ian Williamson | 20 | Last 32 | 21 | 3450.00 | |
| Ashok Shandilya | 10 | Last 16 | 22 | 3283.34 | |
| Peter Gilchrist | 2 | Last 16 | 23 | 3150.00 | |
| Neil Bolton | 27 | Last 32 | 24 | 2533.34 | |
| Peter Shelley | 175 | Last 32 | 25 | 2466.66 | |
| Nalin Patel | 18 | Last 16 | 26 | 2050.00 | |
| Raj Kumar | 84 | Last 32 | 27 | 2466.66 | |
| Aditya Agrawal | 183 | Last 32 | 28 | 2500.00 | |
| Arun Agrawal | 22 | Quarter Final | 29 | 4750.00 | |
| Chris Taylor | 14 | Last 32 | 30 | 2400.00 | |
| Akhilesh Mohan | 38 | Last 32 | 31 | 2350.00 | |
| Subramanian Venkateshwaran | 35 | Last 32 | 32 | 2400.00 | |
| Binh Nquyen Thanh | 84 | Group H | 33 | 2350.00 | |

The *Draw Position* column shows the seeding. This is required for seeding the knockout stage. Ignore the other columns for now. We are interested only in Draw Positions (seeds) 1-32.

Applying the WBL specification using the above draw positions, the 'ideal' draw would be :-

Figure 2 - Example Draw (first pass)

| match | seed | Player 1 | Group | Group | Player 2 | seed |
|-------|------|------------------------|-------|-------|-----------------------|------|
| 1 | 1 | David Causier | B1 | F3 | Sub Venkateshwaran | 32 |
| 2 | 10 | Devendra Joshi | M1 | E2 | Peter Gilchrist | 23 |
| 3 | 13 | Kien Nguyen Trung | D1 | F2 | Steve Brookshaw | 20 |
| 4 | 8 | Matthew Bolton | C1 | G2 | Peter Shelley | 25 |
| 5 | 5 | Rupesh Shah | A1 | I3 | Aditya Agrawal | 28 |
| 6 | 16 | Wayne Doyle | A2 | K2 | Robin Wilson | 17 |
| 7 | 12 | Phil Mumford | G1 | C2 | Ian Williamson | 21 |
| 8 | 4 | Robert Hall | F1 | C3 | Arun Agrawal | 29 |
| 9 | 3 | Balachandra Bhaskar | E1 | J3 | Chris Taylor | 30 |
| 10 | 11 | Dhruv Sitwala | K1 | M2 | Ashok Shandilya | 22 |
| 11 | 15 | Phil Davis | L2 | J2 | Dhvaj Haria | 18 |
| 12 | 6 | Alok Kumar | J1 | D3 | Raj Kumar | 27 |
| 13 | 7 | Martin Goodwill | H1 | B2 | Nalin Patel | 26 |
| 14 | 14 | Siddharth Parikh | H2 | I2 | Michael Pearson | 19 |
| 15 | 9 | Sourav Kothari | I1 | D2 | Neil Bolton | 24 |
| 16 | 2 | Geet Sethi | L1 | L3 | Akhilesh Mohan | 31 |

From a cursory glance at this draw it is clear that it is unacceptable and seeding has to be adjusted to fulfil the basic criteria of the draw system. It should also be evident that due to the 3rd place players, matching players and fulfilling the seeding criteria will not be simple, perhaps even impossible in rare cases.

The above draw is the start point of the automated system. It first tries to position each seed in the allocated slot as given above. If it cannot it tries the **next available** slot (the next higher seed number) and so on until it can find an acceptable slot for the player.

For example: seed 18 *Dhvaj Haria* – is in same half of draw as group winner *Alok Kumar* – this is unacceptable. So, it tries the next slot at 19 (also unacceptable), then 20 which is acceptable. It continues like this until it has covered all players.

Draw Options of the new system

After the completion of the group stage in a tournament, the draw can be done automatically by selecting from the following options :-

Random

A fully random draw is available by selecting this type of draw. All Plate and levels 1 & 2 competitions use a random draw.

The random element is provided by <http://www.random.org/> in real time – ie. when the button is clicked. This is a genuine (ie. not pseudo) random number generator.

The WBL system first inspects how many players are in the draw – anything between 5 and 64, and it then posts the list of numbers to the above website which returns the list randomised.

Matches are then assigned players using this list. If there is an odd number of players, then BYEs are issued. This is the case for nearly all Plate competitions.

Prequalification

In some tournaments there is a 'prequalifier' round at the Knockout stage. This is because there were insufficient players for a 8/16/32 stage. For example, in a tournament with 35 players, a prequalifier stage of 24 players is better than 16 or 32. In this event, the top 8 seeds get a bye straight through to the last 16 and the remaining 16 play off for places in the last 16.

Note that for this type of draw (ie. seeded AND random) to happen it cannot be a fully random draw. If it is required that the top 8 get BYEs but the remaining 16 are drawn randomly, then the whole draw has to be done manually (as we have been doing up till now).

A prequalifier can have 6, 12 or 24 players. In fact these are rounds of 8, 16 and 32 incorporating 2, 4 or 8 BYEs, resp. The system works this out automatically.

This option can be combined with the WBL seeded draw options.

Seeded

Seeded draws come in two flavours of the WBL system – 'strict' and 'relaxed'. The reason we have two options here is that the strict interpretation can sometimes be impossible, or it can grossly distort the draw. This can only happen when there are 3rd (or 4th) placed players going through to the knockout stage because of an irregular number of groups.

It is recommended that the strict interpretation is tried first. If the resulting draw is too distorted then the relaxed version should be tried.

Manual adjustment of 1 or 2 matches is also possible – sometimes the eye can spot a solution better than the system.

Both flavours of the WBL system are discussed below. Note that they produce identical output for 1st and 2nd placed players from the group – they differ only in the placement of 3rd and 4th placed players.

WBL strict

This shows the 'strict' WBL draw of the 2013 World Championship (150 up). Note that this is a good example because it was very difficult to seed all the players correctly.

Figure 3 - Draw (strict interpretation)

| World Championship (150 up) | | | | | | | | World Championship |
|-----------------------------|-----|---------------------|----------|----------|------------------------------|-----|------|------------------------|
| Draw | | | | | | | | Draw Efficiency : 8/46 |
| Match | Grp | Player 1 | Draw Pos | Draw Pos | Player 2 | Grp | Adjs | Save |
| 1 | B-1 | David Causier | 1 | 29 | * Arun Agrawal | C-3 | 3 | |
| 2 | M-1 | Devendra Joshi | 10 | 19 | Michael Pearson | I-2 | 4 | |
| 3 | D-1 | Kien Nguyen Trung | 13 | 17 | Robin Wilson | K-2 | 3 | |
| 4 | C-1 | Matthew Bolton | 8 | 23 | Peter Gilchrist | E-2 | 2 | |
| 5 | A-1 | Rupesh Shah | 5 | 28 | Aditya Agrawal | I-3 | 0 | |
| 6 | H-2 | Siddharth Parikh | 14 | 15 | Phil Davis | L-2 | 4 | |
| 7 | G-1 | Phil Mumford | 12 | 18 | Dhvj Haria | J-2 | 3 | |
| 8 | F-1 | Robert Hall | 4 | 31 | * Akhilesh Mohan | L-3 | 2 | |
| 9 | E-1 | Balachandra Bhaskar | 3 | 30 | * Chris Taylor | J-3 | 0 | |
| 10 | K-1 | Dhruv Sitwala | 11 | 24 | Neil Bolton | D-2 | 2 | |
| 11 | F-2 | Steve Brookshaw | 20 | 21 | Ian Williamson | C-2 | 8 | |
| 12 | J-1 | Alok Kumar | 6 | 32 | * Subramanian Venkateshwaran | F-3 | 5 | |
| 13 | H-1 | Martin Goodwill | 7 | 26 | Nalin Patel | B-2 | 0 | |
| 14 | A-2 | Wayne Doyle | 16 | 22 | Ashok Shandilya | M-2 | 5 | |
| 15 | I-1 | Sourav Kothari | 9 | 25 | Peter Shelley | G-2 | 1 | |
| 16 | L-1 | Geet Sethi | 2 | 27 | Raj Kumar | D-3 | 4 | |

Draw Efficiency: This indicates the efficiency of the automatic draw. The first number is the most places a player has been reseeded. The second number is the total places for all players. For both figures, the lower the better. That is, "0/0" is perfect.

(* If marked against a player this means that it was not possible to reseed this player optimally. Manual intervention may be necessary.)

Note how the 'Draw Efficiency Rating' is 8/46. This is NOT a good rating and it shows the difficulty in seeding the draw. The first of the two numbers (8) is the largest 'seed shift' – *Ian Williamson*. The second number (46) is the total 'shifts' in the draw.

Note also how four players are flagged by '*'. This occurs when the system has been unable to implement strict WBL seeding on these players. However, a closer look at the implications of these 'problem' seeds shows that there is little problem.

According to the strict interpretation the rules, *Arun Agrawal* (3rd in group C) should be in the opposite quarter from the 2nd placed player from his group (C – *Ian Williamson*). In fact, they are in separate halves and cannot meet until the final. Arun is however in the same half as the group C winner – *Matt Bolton*, but they cannot meet until the quarter final. This is probably an acceptable draw as the alternative could involve many changes and risk overall integrity, at the expense of a 3rd placed player meeting his group winner in the quarter final.

WBL relaxed

The next screenshot shows the result of the same competition, but using the 'WBL relaxed' draw option.

The difference with this draw is in handling 3rd & 4th placed players. That is, instead of ensuring that the 2nd and 3rd players are "in the opposite quarter" (see Fig 1; 9.2 (b)), this method simply ensures that they are **not in the same quarter**. It will also ensure that the 1st and 3rd placed players are also **not in the same quarter**. Similarly for 4th placed players.

Figure 4 - Draw (relaxed)

| World Championship (150 up) | | | | | | | World Champions |
|-------------------------------------|-----|---------------------|----------|----------|----------------------------|-----|-----------------|
| Draw | | | | | | | |
| Draw Efficiency : 8/36 | | | | | | | |
| <input type="button" value="Save"/> | | | | | | | |
| Match | Grp | Player 1 | Draw Pos | Draw Pos | Player 2 | Grp | Adjs |
| 1 | B-1 | David Causier | 1 | 32 | Subramanian Venkateshwaran | F-3 | 0 |
| 2 | M-1 | Devendra Joshi | 10 | 19 | Michael Pearson | I-2 | 4 |
| 3 | D-1 | Kien Nguyen Trung | 13 | 17 | Robin Wilson | K-2 | 3 |
| 4 | C-1 | Matthew Bolton | 8 | 23 | Peter Gilchrist | E-2 | 2 |
| 5 | A-1 | Rupesh Shah | 5 | 27 | Raj Kumar | D-3 | 1 |
| 6 | H-2 | Siddharth Parikh | 14 | 15 | Phil Davis | L-2 | 4 |
| 7 | G-1 | Phil Mumford | 12 | 18 | Dhvj Haria | J-2 | 3 |
| 8 | F-1 | Robert Hall | 4 | 29 | Arun Agrawal | C-3 | 0 |
| 9 | E-1 | Balachandra Bhaskar | 3 | 31 | Akhilesh Mohan | L-3 | 1 |
| 10 | K-1 | Dhruv Sitwala | 11 | 24 | Neil Bolton | D-2 | 2 |
| 11 | F-2 | Steve Brookshaw | 20 | 21 | Ian Williamson | C-2 | 8 |
| 12 | J-1 | Alok Kumar | 6 | 28 | Aditya Agrawal | I-3 | 1 |
| 13 | H-1 | Martin Goodwill | 7 | 26 | Nalin Patel | B-2 | 0 |
| 14 | A-2 | Wayne Doyle | 16 | 22 | Ashok Shandilya | M-2 | 5 |
| 15 | I-1 | Sourav Kothari | 9 | 25 | Peter Shelley | G-2 | 1 |
| 16 | L-1 | Geet Sethi | 2 | 30 | Chris Taylor | J-3 | 1 |

Draw Efficiency: This indicates the efficiency of the automatic draw. The first number is the most places a player has been reseeded. The second number is the total places for all players. For both figures, the lower the better. That is, "0/0" is perfect.

(*) If marked against a player this means that it was not possible to reseed this player optimally. Manual intervention may be necessary.

Note the Draw Efficiency – 8/36. This is better than the strict draw interpretation which was 8/46. An analysis of the 3rd placed players shows that all of them have been successfully separated from the 2nd placed player (ie. meet in final), and also from the 1st placed player (meet in semi).

Seeding Process

With the above options in mind, the seeding process can be laid out thus :-

1. In the Plate, Levels 1 or 2 competitions, then simply select **Random** Draw. This is all that is required.
2. For all other competition types, select **WBL (strict)** then inspect the draw. Perhaps keep it open in a separate browser window for comparison. It may well be fine as it is now, in which case ignore the next step.
3. If the **strict** draw looks flawed, then open a new browser window and select **WBL (relaxed)**. The two versions of the draw can now be compared. If this second draw is better, then no more needs to be done. If you prefer the strict draw, then redo the draw with **WBL (strict)**.

Tests

I ran these tests over all tournaments in 2013/2014 (16 tournaments; 6 seeded, 10 random). The random draws were perfect, as expected.

As for the six seeded draws, four were perfect in the WBL (strict) method.

The worst case was the example used above, the solution of which would have been to do the relaxed draw then *perhaps* do a single swap.

The next worst was the World (long up). This time, the WBL (strict) draw gave a good distribution, but with the single problem that the 2nd and 3rd placed players of group L could have met again in the quarter final. This was an acceptable draw in my opinion.

Summary

There will always be the potential for problematic draw seeding when 3rd & 4th placed players are included due to an irregular number of feeder groups. To minimise this risk two draw systems are available, one of which should work. In the worst case, a manual swap of a few players may be necessary.

To take the automatic system further, to be more clever than now (which is eminently possible) would have risked the integrity of the 'upper' seeds (ie. the 2nd placed). Therefore the tradeoff is made that in rare cases, manual shifting of a **lower** seed is necessary after visual inspection.

Appendix A – Group Positions

After a group stage has completed, all players are ordered based on their performance. This appendix explains exactly how this is done. To inspect the group results from the example tournament used in this document, click [here](#).

There are two areas (group and draw positions) and two formats (timed and frame-based) which all conspire to complicate it. Therefore I'll cover them in detail below.

Group Positions

The criteria for calculating your position within the group are :-

TIME-based tournament (or long-up)

1. Match Wins
2. Head-to-head
3. Average points difference
4. Seed at start of tournament
5. Coin toss

FRAME-based tournament (eg. 150-up)

1. Match Wins
2. Head-to-head
3. Average frames (not points) difference
4. Percentage of frames won on total played
5. Seed at start of tournament
6. Coin toss

Draw Positions

The criteria for calculating your position in the last-32 (or last-16) after the group stage has completed are :-

TIME-based

1. Group Position (eg. 1, 2,..)
2. Percentage of MATCHES won
3. Average points difference
4. Seed at start of tournament
5. Coin toss

FRAME-based

1. Group Position (eg. 1, 2,..)
2. Percentage of MATCHES won
3. Percentage of FRAMES won on total played
4. Average POINTS difference (across all frames played)
5. Seed at start of tournament
6. Coin toss

When a head-to-head ordering has been applied, the *Wins* value will show with a '+' or a '-'. For example, see Group J [here](#).

From a scan of past data using the above criteria, the *coin toss* and *seed at start of tournament* criteria have never been necessary. Nevertheless we do need these specified so that there is no ambiguity.

The long-up (or timed) format has never been a problem – it's the 150-up which has caused us bother as many of you will know from this year's World Championship. Having six players with a 100% record at group stage required a drill-down to points performance in each frame. This required quite a lot of manual calculation, however now it is all automatic.