AGA Swiss McMahon:
Program Interface and Reporting Requirements

This document defines the functions, inputs, outputs, and the program and user interface requirements for computer programs that will be certified as meeting AGA standards for pairing programs. This document does not describe the mechanics of the AGA Swiss McMahon pairing algorithm, which are covered in the document "AGA Swiss McMahon Pairing Protocol Standards," referred to as the "Protocol Document" hereafter.

Most of these element apply to other tournaments systems as well, and would be common to many pairing programs.

Data use and management

Tournament data is recorded in order to maintain the historical record of AGA tournaments and to assist in automatic rebuilding of tournament archives. Player data is collected in order to maintain the AGA membership database.

Tournament data

While the design of a data storage format is left to choice, all pairing programs must be able to generate a standard XML data file in a format specified by the AGA (see the section on Reporting). In addition, pairing programs must be able to import enough data from such a file so as to be able to pair the next round of a Swiss McMahon tournament.

A pairing program must be able to collect certain data about the tournament organization and structure. Data labeled optional can be included at the discretion of the Tournament Director (TD); the program must provide the ability to record the data. See the External Reports section for reporting formats.

- Tournament Name
- Tournament Venue (optional)
- Start date of the tournament
- End data of the tournament (optional)
- Tournament Venue (with optional address information)
- Tournament Director
  - Name
  - Postal address (optional)
  - Phone number
  - Email address
- Tournament Sponsor (optional)
  - Name
  - Postal address
  - Email address
  - Phone number
  - Web page

- Tournament Convener (optional)
  - Name
  - Postal address
  - Email address
  - Phone number
  - Web page
- Pairing format (e.g. Swiss, Swiss McMahon, round robin, etc.)
- Rule set
- Time controls
- Basic time (in minutes)
- Overtime format (e.g., sudden death, Canadian, byo-yomi, Fischer, etc.)
- Overtime conditions (e.g., 25 stones in 10 minutes, 5 periods of 30 seconds, 5 second increment per move, etc.)
- Komi for even games
- Tie break system(s)

Player data

The program must be able to import available player data from the AGA database. The data is formatted in a tab-delimited file known as the TDListA, and may be downloaded from the AGA web site. Fields are:
- Name
- AGA number
- Membership expiration date
- Rating
- Chapter affiliation
- State

The program must assign player numbers for the tournament in order to generate certain reports. With computer pairing programs it is customary (but not mandatory) to do this based on a player's current standing within the tournament field, which will naturally vary from round to round. While a player's AGA number could in principle be used as his player number, this is generally not advisable. The AGA number may be up to five digits long, which can lead to crowded tournament reports. The unique nature of the AGA numbers, however, makes it well-suited for indexing internal data structures.

The program must also be able to record data for new AGA members that join at the tournament. Programs should automatically assign temporary AGA numbers in the range 90000-99999. Temporary numbers must be unique within each tournament.

In addition to the previously mentioned data, the program must be able to record:
- Mailing address
- Email address
- Phone number
- Citizenship

• Birth date

Citizenship is recorded so that the AGA can determine eligibility for overseas trips and other invitational events. Birth dates are recorded to identify youth members.

This extra information is included in the tournament report submitted to the AGA. See the section entitled "External Reports" for details.

User interface

A well-designed user interface is essential for a useful pairing program. The interface requirements are separated into two main areas:
1. registration and tournament setup information, which is typically entered only once during the tournament
2. pairing information, which occurs at each tournament round

Registration

There must be the capability to manually search the TDListA file to acquire AGA data by family name or AGA number.

The TD must be **actively** warned of lapsed membership if the data so indicates.

If an entered name has duplicates in the TDListA file, the TD should be warned and presented with the player information for each matched player.

The TD must be **actively** warned if a player requests to play at a rating other than their current published rating. A player's default entry rating is their current AGA rating, if available. Otherwise it will be the midpoint of the rank specified (e.g., a 4 dan would be given an entry rating of 4.5). The TD must have the ability to alter the entry rating as needed.

One of the most time consuming activities in tournament organization is adding players into the tournament system at registration time. We strongly encourage programmers to provide a preregistration mechanism, which would allow for quicker registration on the day of the tournament.

Handicap Specification

Games between players with a sufficiently large rating difference may be played with a handicap. Handicaps are based on the difference in the player's ratings, rounded to the nearest integer. Calculations involving players with ratings that straddle the ratings zero must compensate for the fact that the AGA ratings system does not have values between -1 and 1.

The default handicap for AGA Swiss McMahon tournaments is the "handicap-minus-one" system, which is one less than the value calculated above. A one-stone handicap is played with Black giving a reverse komi of 0.5 points. Handicaps are capped at a maximum of nine stones,

regardless of the actual ratings difference of the players. Also, note that the reduced handicap system will never convert an even game into one with a handicap. Once a handicap reduction yields an even game, further reductions have no effect.

Pairing programs must provide the option to change the handicap setting from the handicap-minus-one system to full handicap, handicap-minus-two or no handicap (all games even). The program must also have an option to ensure that all games involving players in the top band are even, regardless of the handicap setting for the remainder of the field.

Some sample handicap calculations are shown in the table below:

Player 1 Rating	Player 2 Rating	Rating Difference	Full Handicap	Handicap- 1 (AGA default)	Handicap - 2
3.5	3.5	0.0	Even game	Even game	Even game
1.5	-1.5	1.0	1 stone	Even game	Even game
-2.3	-6.5	4.2	4 stones	3 stones	2 stones
-7.3	-5.5	1.8	2 stones	1 stone	Even game
-7.3	-5.9	1.4	1 stone	Even game	Even game
-11.0	-1.0	10.0	9 stones	9 stones	8 stones
-28.0	-10.0	18.0	9 stones	9 stones	9 stones

Banding

Players in a Swiss McMahon tournament are grouped by strength into bands. By tradition, the top band in a Swiss McMahon tournament is assigned an initial score of 0 and values decrease to negative initial scores in lower bands. It is also possible, however, to place the 0 score at the lowest band and have scores increase from there. In practice, Tournament Directors like to set the initial score slightly higher than zero, to allow for late arrivals who are ranked below the initial starting band. Pairing programs should provide the TD with the option to use either method, as well as the option to specify the initial score of the lowest band.

Programmers are directed to the Protocol Document for instructions on how bands are created in a Swiss McMahon tournament.

Band construction should be performed automatically and then presented to the TD for editing prior to the start of the first round of the tournament. The TD should be able to merge bands and manually alter particular band separations, as well as move individual players to other bands.

Note: Increasing the separation below a band is not the same as increasing the separation above a band. Increasing the band separation for large groups is done so that the players have a greater opportunity to play within the band before the winners get promoted to play outside the band. This helps reduce the chances of ties for band winners, but only if the larger separation is correctly placed above the band rather than below it.

Pairing Interface

This section describes the *interface* requirements for a Swiss McMahon pairing program. See the Protocol Document for a description of the algorithm itself.

Pairing Options

Tournament Directors must be able to customize the way the paring program operates. These customizations should be controlled by individual on/off switches.

Color Assignment

The TD must have the following options:
- Manual color assignment (pairing program does not assign colors). Programs must allow the TD to enter colors after the round has begun in order to allow for tournaments where color is determined by players through random draw at the start of the game.
- Restricted color assignment (pairing program restricts the number of times a player is assigned the same color, see the Protocol Document for details)
- Unrestricted color assignment (pairing program does not consider the number of times a player is assigned the same color)

Top Band Separation

See the Protocol Document for details. The TD must have the following options for setting the McMahon score separation between the top band and the next band:
- Have the pairing program calculate the band separation based on the size of the second band
- Force a band separation of only one point, regardless of the size of the bands

Pairing Restrictions

Especially for tournaments at the local level, Tournament Directors may wish to avoid pairing players from the same family, club, city, state or country if possible. Avoiding handicap games may also be desirable.

These restrictions should be controlled by individual on/off switches so that, for example, a Tournament Director could restrict pairing players from the same chapter but not from the same state.

Note that the pairing program will override this type of restriction in the latter part of the tournament, see the Protocol Document for details.

Manual pairings

While a standard pairing is generally satisfactory, the TD must have several options available in order to deal with unusual circumstances, such as players who fail to show for a round. The TD must have the following options:

   After a round has been paired
- undo the current pairing
- break an existing pairing between two players
- manually create a new pairing between two players
- assign a voluntary bye to an unpaired player
- drop an unpaired player from the tournament
- adjust the handicap between two players

   Before a round is paired
- manually force a pairing between two players
- assign a voluntary bye to a player for a future round
- designate a player as a bye volunteer for a future round
- drop a player from the tournament

The TD must be **actively** warned if attempting to undo a round for which game results have been recorded, or if attempting to manually create or break pairings that involve players who have already recorded game results for the round.

The TD should be **actively** warned if he
- attempts to pair a new round before all results from the previous round have been recorded
- matches two players against each other twice in one tournament
- violates the Swiss McMahon rules by
     - playing a player with the same color for three rounds in a row
     - floating a player in the same direction two rounds in a row (see the Protocol Document for details and a discussion of floaters)
- matches a player who received a game forfeit in the previous round.

Programs should not bar the TD from performing these operations but rather warn of potential problems before proceeding.

Note that a player who receives a game forfeit in the previous round is not barred from participating in future rounds. This feature serves to remind the TD to check that a player has not dropped out of the tournament without notice.

The TD must also have the option to revise a player's entry rating or band placement (i.e., initial McMahon score) prior to the start of a new round. In this case, a player's current McMahon score is recalculated based on the new data.

Recording Results

There are two particularly common methods of having players report results to the TD. The first method is to post a pairing sheet for each round where the winner's name is circled. The second is to have the pairing program generate pairing slips for each game, which can be printed and delivered to each board, either before the round starts or while the round is in progress. Players record their result and submit the slip to the TD. Programmers should feel free to implement either (preferably both) of these systems or to create an entirely new system.

The program must provide options for several possible game outcomes: White wins, Black wins, Jigo, No result, White forfeit, Black forfeit, or Double forfeit. Almost all games of go end with a winner and the program may require additional steps (e.g., an additional menu) to record less common results.

Recorded results must be adjustable even after the next round begins. Errors are common and are often not noted until a subsequent round. Users must receive appropriate warnings to ensure that prior rounds results are not changed by mistake.

Tiebreaks

Ties for final standing are common in Swiss McMahon tournaments, and these are usually resolved using a series of mathematical tiebreak calculations. A pairing program must be able to calculate a variety of tiebreaks in an arbitrary order and present an ordered list of players (see the Cross Table Report in the Reporting section). There is some subtlety to calculating tiebreaks for tournaments in which one or more players have received byes. Consult the Protocol Document for details on this, as well as a list of the standard tiebreak procedures.

Programmers are free to implement additional tiebreak algorithms that the TD may use at his discretion. Note that under no circumstances can tiebreaks be based upon a player's raw score (number of wins)—tiebreaks must always be calculated based on a player's McMahon score.

Reporting

Reports are created for a variety of reasons. In-tournament reports are created during the tournament and provide up-to-date information to the TD and players. External reports are created at the end of the tournament to help the TD award prizes and report results to the public and the AGA.

In-tournament reports

The following reports must be available on a round-by-round basis. In some cases a sample line from a report is included for illustrative purposes.

i. Registration Report (sign up sheet)

Posted for players to check their data. Many errors are caught this way.

Contains:
     AGA number, Name and Entry Rating.

This report should be sorted alphabetically by the player's family names.

ii. Pairing List Report

Posted to inform players of their board number and opponent.

Contains:
     Name, AGA #, Board #, Color, Opp. Name and AGA #, Opp. Color.

This report should be available in two formats: sorted alphabetically by player's family name or by board number.

iii. Win/Loss Report

Usually posted as the last game of the round is finished so that players can check for recording errors.

Contains:
     Name, Player result, Opponent Name.

This report should be sorted alphabetically by the player's family names.

iv. Cross Table Report

Posted between rounds to show player histories and current standings.

Contains:
    Player Number, Player Name, Rating, List of Games: Opponent Numbers and Results, Current McMahon and Tiebreak Scores.

Example:
    45 Bob Smith   6k   35+ 67- 46+ -4 -15 -45 -20

In this case, Bob Smith faced player 35 in the first round and won, followed by a loss to player 67 and a win over player 46 in the next two rounds. He has a McMahon score of -4 and a tiebreak scores of -15, -45 and -20 (using an unknown tiebreak system for this example). Note that it is the McMahon score that matters in a Swiss McMahon tournament and not a player's raw score, which would be 2 in this case.

The cross table should be available in two formats: sorted alphabetically by player family name and also sorted by a player's current standing in the tournament. The player's current standing will reflect the current state of the tiebreak calculations.

Programmers may wish to make this report available in a web-compatible format to aid TDs who are providing live tournament updates online.

v. Tiebreak List Report

Used to help the TD in making manual pairings decisions for next round (if necessary). Occasionally posted publicly for players' interest after the next round begins.

Contains:
    Player Number, Player Name, Raw Score (i.e., number of wins), McMahon score, Opponents (shown in such a manner as to indicate win or loss) and tie-breaking scores applicable to event.

Example:

		Wins	Losses	
45 Bob Smith 2 -4		35 46	67	-15 -45 -20

This list should be available in three formats: sorted alphabetically by player name, by player entry rating and by a player's raw number of wins in the tournament. The latter format is useful for Tournament Directors who wish to award prizes based on a player's number of wins rather than final McMahon score.

vi. Bye, drop report

A list of players for which a bye or drop has been issued, along with the reason for the bye. Byes may be issued by player request or may be forced (issued by the pairing program as the result of an odd number of players in the field).

Contains: AGA #, Player Name, Round(s) for which bye or drop is given, Reason (Request/Forced).

This report should be sorted alphabetically by the player's family names.

vii. Pairing card report

Pairing cards serve as a backup in case a program or equipment failure which means that the computer pairing system is not available. This data should be exported as either a flat text file or in another easily portable format that would allow the TD to print the pairing cards and use them to generate a manual pairing. This is not a mandatory report, but a good back up just in case.

Example:

45		Bob Smith (-6)						6k
35	+2	67	-2	46	B			
-5		-5		-4				

This shows the pairing card for the hypothetical Bob Smith. It indicates his player number, name, initial McMahon Score (-6) and entry rating along the top. Each round is represented by a group of three boxes that show his opponent's player number (top left), handicap or color (top right) and McMahon score (bottom) at the end of the round.

In this example, Bob Smith received a two-stone handicap from player number 35 in the first round, gave a two-stone handicap to player number 67 in the second round, and played player 46 with no handicap, taking black, in the third round. The score increases from -6 (Bob's initial score) to -5 and from -5 to -4 indicate won games.

External reports

External reports are generated at the end of a tournament in order to submit game results and membership information to the AGA. Before generating this report, the program should make sure that all required data for the tournament has been entered. See the Tournament Data section for details.

There are now two formats: the original AGA tournament report format and the AGA XML tournament format. The original AGA rating format is described in further detail below. The XML format is defined through an XML Schema, which can be found at www.usgo.org/tournaments/TournamentStandards/ along with sample document formats. A brief sample document is also included here for illustrative purposes.

Pairing programs must be able to generate tournament reports in both formats and must also be able to input sufficient data (i.e., a list of players and game histories) from files written in the XML format so as to be able to pair the next round of a tournament.

i. Original AGA Tournament Report

The original AGA format is a flat ASCII text file with four sections:
- Header
- Player List
- Rounds
- Other Information

Lines beginning with a single # character are treated as comments and are ignored by the rating program, which allows extra information to be embedded in the tournament file.

Header block

The header block includes fields indicating the tournament, dates and game rules:

```
TOURNEY
      label="New Jersey Open, Princeton, NJ, February 28-29, 2004"
      start="2004-2-28"
      finish="2004-2-29"
      rules="AGA"
```

The label attribute must uniquely identify the tournament. A combination of the event name, location and dates is generally sufficient. Dates are specified in YYYY-MM-DD format. Rules may be any of: AGA, Ing, Japanese or Chinese.

Player block

The player block begins with a PLAYERS marker followed by one or more player records:

```
PLAYERS
15850 Chen, Renyu 6d
14481 Wilkins, Don 1.53
14002 Top, Daniel 2k
10283 Malveaux, Mike 3k
90001 Chang, Shih-wen -4.96
90000 Cole, Jason 7k
10927 Sato, Akira 7k
2786  Chiles, Bill 7k
7031  New, Gordon 7k
15511 Feiveson, Eric 8k
6096  Brown, Frank 8k
15583 Borges-Garven, Robert 8k
13502 Fitzpatrick, Wilhelm 9k
11734 Castanza, Gordon 13k
```

Player records have the general format

AGA number <tab> Player Name <tab> Rank or Rating

An AGA number is a numeric value containing up to five digits. Players without AGA number (e.g., those who have joined at the tournament) can be assigned temporary ID numbers with values between 90000 and 99999 inclusive. Player name is recorded as Family name <comma> Given names (e.g., Doe, Jane or Smith, John David III). Ranks are recorded using k or d to indicate kyu or dan ranks. Ratings are recorded as floating point numbers. Ranks and ratings can be combined within a report, although only one form can be used for a given player.

Players records are line delimited. Fields are delimited by tabs; the comma that occurs in the player name field is not used as a delimiter.

Results block

Results from a given round, *n*, begin with the "GAMES n" marker followed by one more game results:

```
GAMES 1

15850 14002 W 7 0
14481 10283 W 3 0
90001 15511 B 4 0
90000 6096 B 0 0
10927 15583 W 0 0
2786 13502 W 2 0
7031 11734 W 5 0

GAMES 2

15850 14481 B 6 0
```

```
14002 10283 W 0 0
10927 15511 B 0 0
2786 6096 W 0 0
90001 7031 B 3 0
90000 13502 W 2 0
15583 11734 W 5 0

GAMES 3

14481 14002 W 2 0
15850 10283 W 9 0
7031 15511 B 0 6
90000 15583 W 0 0
90001 6096 B 4 0
13502 11734 W 4 0
```

Game results are line delimited, with fields being delimited by tabs. Game results use the following standard format:

White Player <tab> Black Player <tab> Game Result <tab> Handicap <tab> Komi

White Player and Black Player indicate the AGA numbers of the relevant player and must correspond to an entry in the Player block. The Game Result may be one be one of several options:

Winner	Meaning
B	Black won
W	White won
BF	Black won by forfeit
WF	White won by forfeit
B	No result, for whatever reason

Handicap is an integer between 0 and 9. Komi is an **integer** value, which indicates the number of extra prisoners Black would give White in the game. Games with handicaps greater than 9 stones or with komi larger than 7 points are not counted in AGA ratings.

Handicaps and komi differ slightly between the Ing rules and the AGA, Chinese or Japanese rule sets, as shown in the table:

Game conditions	Japanese, Chinese or AGA rules		Ing rules	
	Handicap	Komi	Handicap	Komi
Even game	0	7	0	7
No komi	0	0	0	-1
7 point reverse komi	0	-7	-	-

2 stone handicap	2	0	2	-2
N-stone handicap	N	0	N	-N

<u>Other information block</u>

The end of the tournament report block is marked by an END marker. All data following the marker is ignored by the rating system. The final block includes membership and contact information for new AGA members as well as updated information for existing members.

```
## END

AGA Fee: $15
AGA Number: 99999
Name: Chang, Bob
Address 1: 598 92nd Ave
Address 2:
City, State Zip: Seattle, WA 12345

AGA Fee: $30
AGA Number: 99998
Name: Taylor, Robert
Address 1: 278 41st St
Address 2:
City, State Zip: Seattle, WA 12345
Home Email:
Club:
Phone Number:
Citizenship:
Birthday:
```

ii. AGA XML Tournament Report

This reporting format is fully defined by an XML Schema that can be downloaded from www.usgo.org/tournaments/TournamentStandards. A sample of a tournament file based on the 2006 East Coast Toyota-Denso Oza Championship is presented here for illustrative purposes, but with fewer player and game entries than the actual tournament.

Fields for additional data such as contact information or birthday are included <Player> element. Consult the XML Schema for full information.

<?xml version="1.0" encoding="UTF-8"?>

<TournamentReport xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="http://www.usgo.org/tournaments/AGATournamentSchema.xsd">

<Header>

  <Software>WinTD</Software>

  <TournamentName>2006 Toyota-Denso -- East Coast Qualifier</TournamentName>

```
  <TournamentVenue>
          <Name>Pennsylvania Hotel</Name>
  </TournamentVenue>

  <TournamentDirector>
          <Name>Chuck Robbins</Name>
  </TournamentDirector>

  <TournamentSponsor>
          <Name>Toyota-Denso Corporation</Name>
  </TournamentSponsor>

  <TournamentConvenor>
          <Name>Roy Laird</Name>
  </TournamentConvenor>

  <StartDate>2006-01-14</StartDate>
  <EndDate>2006-01-15</EndDate>
  <PairingFormat>McMahon</PairingFormat>
  <Rules>AGA</Rules>
  <BasicTime>60</BasicTime>
  <OvertimeFormat>
          <ByoYomi TimeBlockSize="30" TimeBlockCount="5"></ByoYomi>
  </OvertimeFormat>
  <TiebreakSystemList>
          <System Tier="1" Method="SOS"></System>
          <System Tier="2" Method="SODOS"></System>
  </TiebreakSystemList>

</Header>

<PlayerList>
   <Player ID="10297" GivenName="Yun" FamilyName="Feng" Rating="7D" InitialTournamentScore="0"/>
   <Player ID="11891" GivenName="Yupei" FamilyName="Xiong" Rating="7D" InitialTournamentScore="0"/>
   <Player ID="6364" GivenName="Hui" FamilyName="Yang" Rating="7D" InitialTournamentScore="0"/>
   <Player ID="11106" GivenName="Lu" FamilyName="Wang" Rating="7D" InitialTournamentScore="0"/>
   <Player ID="6016" GivenName="Ke" FamilyName="Huang" Rating="7D" InitialTournamentScore="0"/>
</PlayerList>

<RoundList>
   <Round RoundNumber="1">
     <Game BlackPlayerID="1910" WhitePlayerID="10297" Komi="6" Handicap="0" GameResult="White Win"/>
     <Game BlackPlayerID="3616" WhitePlayerID="11891" Komi="6" Handicap="0" GameResult="White Win"/>
   </Round>

   <Round RoundNumber="2">
     <Game BlackPlayerID="10297" WhitePlayerID="11018" Komi="6" Handicap="0" GameResult="Black Win"/>
     <Game BlackPlayerID="6016" WhitePlayerID="11891" Komi="6" Handicap="0" GameResult="White Win"/>
   </Round>
</RoundList>
```