



# DATA-SOFTWARE BOOKLET

ALPINE SKIING

Version 1.13 (Oct. 2022)

## Table of contents

1. Levels .....	3
2. Introduction .....	4
3. Result software .....	5
4. User support .....	6
4.1. Updates.....	6
5. Set up of the computer processing system in the cabin.....	7
5.1. Installation .....	7
5.2. Power .....	7
5.3. Radio Communication Devices.....	7
6. Language.....	8
7. Interface with timing devices .....	9
7.1. Data.....	9
7.2. Bi-Directional timing communication of result data.....	9
7.3. Timing Precision .....	9
7.4. Connections .....	9
7.5. Result computer <A> and <B>.....	9
7.6. Online / Offline.....	9
8. Timing.....	10
8.1. Time of day.....	10
8.2. Net time .....	10
8.3. Modifying Times .....	10
9. Auto-save.....	11
10. Timing and data technical report .....	12
11. Recording the race parameters .....	13
11.1. Race Characteristics.....	13
12. Competitors.....	14
12.1. Entries .....	14
12.2. FIS lists.....	14
12.3. Points validity check .....	14
12.4. Athlete Age Classifications .....	15
13. Paper Editions of Competition Lists.....	16



14. Fields ..... 17

    14.1. Statuses (IRMs) ..... 17

    14.2. Marks ..... 17

    14.3. Documents Headers ..... 17

15. Start list ..... 18

    15.1. Bib assignment / Draw ..... 18

    15.2. Electronic draw ..... 18

    15.3. Snow Seed ..... 18

    15.4. First run ..... 18

    15.5. Second Run ..... 18

16. Abbreviations ..... 19

17. Competition results exportation to FIS ..... 20

18. FIS Live timing usage ..... 21

19. Live timing developers ..... 22

20. Live data usage ..... 23

21. Appendix A ..... 24

22. Document Control ..... 25

## 1. Levels

Please note references to race Level classifications as listed here:

Category	Description	Level
OWG	Olympic Winter Games	0
WSC	FIS World Ski Championships	0
WC	FIS World Cup	0
WQUA	World Cup Qualification	0
COM	World Cup Speed Event	0
ANC	Australian New Zealand Cup	1
EC	European Cup	1
ECOM	European Cup Speed Event	1
EQUA	European Cup Qualification	1
FEC	Far East Cup	1
NAC	Nor-Am Cup	1
SAC	South American Cup	1
UVS	Universiade	1
WJC	FIS Junior World Ski Championships	1
YOG	Youth Olympic Winter Games	1
NC	National Championships	2
AWG	Asian Winter Games	3
CISM	Military and Police	3
CIT	CIT Race	3
CITWC	CIT Race Arnold Lunn World Cup	3
FIS	FIS Race	3
FQUA	FIS Qualification	3
JUN	Junior Race	3
NJC	National Junior Championships	3
NJR	National Junior Race	3
UNI	University Race	3
EYOF	European Youth Olympic Festival	3
PARA	PARA events	3
ENL	Entry League FIS races	4

Software and setup of a higher category can also be used.

Example: Level 2 can use same software and setup as Level 1 or 0.

## 2. Introduction

The purpose of the Data book is to aid software developers who have interest to provide software for FIS disciplined Sports. This book is not intended to be a specification for writing software but only a guide to establish the elements needed to produce the proper information, reports and electronic files for scoring Alpine FIS Races.

The Data book will also serve as a resource to organizers for the production of pre and post competition information, sending electronic result files and verification of valid races (valid for points).

Templates, sample competition lists and XML descriptions can be found in the Appendix.

### 3. Result software

Data software must be written to follow the FIS rules and include elements defined by the FIS for the production of competition lists and results. The software must also have the ability to produce xml messages for sending electronic results to the FIS result server and for FIS live timing (optional). Providers interested to produce software for FIS competitions should contact the FIS IT department and arrange a test of the xml electronic file for validation. There is no direct certification by the FIS for software at this time.

## 4. User support

Software editor should provide a user support (technical manual or hotline).

The FIS will not give any software assistance.

### 4.1. Updates

Software Providers must publish software updates in order to meet changes in rules or FIS constant values.

## **5. Set up of the computer processing system in the cabin**

### **5.1. Installation**

Care should be taken when using computers in an outdoor environment. Operating conditions must be respected in terms of humidity and temperature especially if the computer is left overnight inside a cabin.

### **5.2. Power**

The use of power generators is not recommended. Back up UPS's are recommended in case of power failure. It is important that the installation is performed in the state of the art with a properly grounded earth current and overcurrent connectors for a standard differential protection.

### **5.3. Radio Communication Devices**

The proximity of computers and RF emitting devices must be controlled so no interference can occur for example: walkie-talkie, HF radio transmission ...



## 6. Language

For FIS Races levels 2, 3 and 4, all lists produced should have information available in English in addition to the language of the country. The ability to produce data lists in English must be an option in the software. For FIS race levels 0, 1 all lists must be produced in English.

## 7. Interface with timing devices

### 7.1. Data

The software must be able to record 'Time of Day' or net times in the correct precision from a FIS homologated timing devices. For a current list of Homologated Timing look on the FIS website under "Alpine" Timing & Data.

### 7.2. Bi-Directional timing communication of result data

The transfer of data from the result software back to the homologated timing (device) tape is strictly prohibited. The original timing tape from the timing device must remain protected from any external downstream system data as the original timing tape is the only official record of the core timing data in as it occurs in sequential order.

Result verification (Results = Tapes) as defined in the Rules. See Alpine ICR 611.3.3.

### 7.3. Timing Precision

FIS competitions time of day times must be immediately and automatically sequentially recorded on printed strips to at least 1/1000<sup>th</sup> (0.001) of second. Each competitor's net time must be truncated to 1/100<sup>th</sup> (0.01) of a second.

Computer software calculating net times must use the precision of the "Timing of Day" used in the timing device. See ICR 611.3.5

For more details, see the Timing Booklet on the FIS website under Alpine/Timing & Data. Computer Links Level 0 and 1 must be wired. Recommend also for any other level a wired connection.

### 7.4. Connections

The distances between computers are limited according to the type of connection:

Please read and respect the manufacture's specification.

### 7.5. Result computer <A> and <B>

The result computer <A> and <B> must operate completely independent of each other. The computer used to calculate and transmit live results must be connected to "Primary" or "A" timing device.

### 7.6. Online / Offline

The software should be able to read the data online (real time) or offline (after the race) from the homologated timing device.

## 8. Timing

### 8.1. Time of day

If the timers send Time of Day times, the precision must be equal to the precision of the timing device. The calculated net time corresponds to the difference between the finish time and start time of a competitor (ICR art. 611.2.1).

### 8.2. Net time

If the timer sends net times, the software must be not making any correction or calculation on this time.

### 8.3. Modifying Times

If a time from hand timing must be used in order to obtain the Net Time of a competitor, the calculation of the correction must be applied in accordance with (ICR art. 611.3.2.1).

If a time must be manually entered in the software, this must have to be noted or flagged in an obvious way within the timing log.

## 9. Auto-save

The software shall generate an “auto-save” cycle (maximum every ten seconds) in order to ensure backup in case of unwanted reboot or shut-down of the computer.

## 10. Timing and data technical report

The Timing and Data Technical Report (TDTR) is required to be sent by xml to the FIS following a race. The software developer has the option to produce the XML file out of the software ([ftp://ftp.fis-ski.com/Software/XML/XMLdescription\\_Timing\\_Report\\_AL.pdf](ftp://ftp.fis-ski.com/Software/XML/XMLdescription_Timing_Report_AL.pdf)) or it can be used the FIS Timing Report software (<ftp://ftp.fis-ski.com/Software/Programs/TimingReport/AL>).

## 11. Recording the race parameters

For each race, it must be possible to input and record all required race data elements defined in each discipline XML. The current xml description for Alpine can be found on the FIS website FTP: <https://www.fis-ski.com/en/inside-fis/document-library/timing-data>

The software must be able to record results for each athlete/competitor for all disciplines in Alpine Skiing and at a minimum for those counting for FIS points.

Counting for FIS points	
DH	Downhill
SL	Slalom
GS	Giant slalom
SG	Super-G
AC	Alpine Combined

Other events	
TP	Team Parallel
KO	KO slalom
K	Combine events

### 11.1. Race Characteristics

FIS constant values are values used to calculate results. To find the formula

Penalty result calculation, see Rules of the FIS points art. 4

All values (F-Factor, Adder, minimum penalty, maximum points) are integrated in the current FIS point list file available of the FIS FTP: <ftp://ftp.fis-ski.com/Software/Files/Fislist> or on the FIS website (FIS points section).

## 12. Competitors

### 12.1. Entries

Entries are sent to the organizer with information required for each competitor :( FIS code #, Name, First Name, National ski association (NSA), Year of Birth and Category). The entry list must be used to select the corresponding competitor in the software for entry into the competition. See Alpine Skiing ICR art. 215.3.1

### 12.2. FIS lists

The software must be able to download or load exclusively the most Official recent FIS Points List. The lists are available on the FIS FTP: <ftp://ftp.fis-ski.com/Software/Files/Fislist> or on the FIS website (FIS points section).

For better understanding of what follows the writing conventions is as below for the example of season 2013/2014 : ALFP214F.zip

"AL" [2 letters]	FIS discipline code
"FP" [2 letters]	Fix letters and is the abbreviation of FIS Points
"2" [1-2 digits]	List number in the season
"14" [2 digits]	Current season e.g.: season 2013/2014 = 14
"F" [1 letter]	2 possible value
<ul style="list-style-type: none"> <li>• "F" = Full with athletes results in the season</li> <li>• "P" = Partial without athletes results</li> </ul>	

#### Points range

Athletes who have 9999.99 points have no FIS points. No FIS points is not the same as 0 points. The Software have to support values with a minimum of 4 digits and 2 decimals.

### 12.3. Points validity check

Software must warn the user when points are updated from a list whose expiry date is exceeded.

- These start and end of the application period are in a file of the ".zip" archive in each discipline folder. In addition the FIS points list number/code shall be displayed on the start list and result pages <ftp://ftp.fis-ski.com/Software/Files/Fislist>
- AL<Z><Y>hdr.csv : in columns "Validfrom" and "Validto"
- The FIS points list number/code shall be displayed on the start list and result pages to validate the correct list is being used.

## 12.4. Athlete Age Classifications

Software should be able to update each competitor's age class according to the current season using official age class limits. The FIS competition years run from the 1<sup>st</sup> of July until the 30<sup>st</sup> of June of the year after. A competitor age class is determined from Jan.1<sup>st</sup> to Dec 31<sup>st</sup>. These categories must be updated according to the rules. See article 607 of Alpine Skiing ICR.



## 13. Paper Editions of Competition Lists

The software should be able to produce the following lists:

All levels:

- Entry form
- Competitor Draw List by Points
- Start List 1<sup>st</sup> Run (One Run Events)
- Start List 1<sup>st</sup> Run
- Start List 2<sup>nd</sup> Run
- Start List Training Run (DH)
- Unofficial Results - One Run Events
- Unofficial Results 1<sup>st</sup> Run
- Unofficial Results 2<sup>nd</sup> Run
- Official Results – One Run Events
- Official Results -1<sup>st</sup> Run
- Official Results – 2<sup>nd</sup> Run
- Official Results Super Combined
- Results by Rank Training Run
- Penalty Calculation
- Equivalent electronic time report (in case of missed time)

Only for Level 0:

- Analysis

Refer to the ICR 617.3.4 for the information on the start and result lists.

Any other report, like TD report, report by the referee must be not covered by the software or filled by the timekeeper.

The Equivalent electronic time report, if used, must be signed by the TD and the Chief of Timing.

Report examples in appendix A

## 14. Fields

### 14.1. Statuses (IRMs)

There are six IRMs that will have: immediate consequences on the rankings.

The software must be able to take into account the following statuses:

IRM code	Description
DSQ, DSQ1, DSQ2, DSQ3	Disqualified (Run 1, Run 2, Run 3)
DNS, DNS1, DNS2, DNS3	Did Not Start (Run 1, Run 2, Run 3)
DNF, DNF1, DNF2, DNF3	Did Not Finish (Run 1, Run 2, Run 3)
DNQ2	Did not qualify for second run
NPS, NPS1, NPS2, NPS3	Not Permitted to Start (Run 1, Run 2, Run 3)
DQO	Disqualify for Over Quota
DPD	Disqualify for doping offense (special case and must be only entered by FIS)

Marks	
PF	Photo finish
*	Snow seed
DQP	Potentially disqualify (only for partial or live information)

In case of missed time:

1. We put the athlete as DNF
2. Then we will display \*DNF (with a star)
3. As soon as we have a calculated time or photofinish time, we display the time with a star \*1:23.56

In case manual timing is used, the net time will not be published before the correction can be calculated according to the rule (10 times). (ICR 611.3.2.1)

### 14.2. Documents Headers

The Lists must be made available in English in addition to the language of the country and must contain certain mandatory header information on Start Lists and Results. See appendix A

## 15. Start list

### 15.1. Bib assignment / Draw

Software should allow to change bib assignment according to each discipline requirements. Provides an electronic random draw or a manually entry after the draw.

Exclude competitors of category or gender out of the current competition scope. See articles 217, 621 (621.9) of Alpine Skiing ICR

The software must allow to establish start lists for any format (with or without Bibo, from a file, from another (qualification) event, ...) : See articles 1212.4 and 1212.5 of Alpine Skiing ICR.

### 15.2. Electronic draw

A double random draw must be done, first the draw number (competitor choice) and then a second random draw must be done to pick the bib.

Running a test with 10'000 bib assignments must show a good balance between all bibs assigned.

### 15.3. Snow Seed

The snow seed have to be marked on the start list according ICR art 621.10.

### 15.4. First run

Software must be able to create a Start List for paper production following the draw. See article 620 of the Alpine Skiing ICR.

### 15.5. Second Run

Possibility of operating an adjustable bibo: best ranked of the first run start in reverse order according to each discipline rules. The option to reverse either the top 15 or 30 based on Run 1 Rank needs to be available. Ensure ties are ranked correctly.

See section 621.11 of Alpine Skiing ICR.

## 16. Abbreviations

All abbreviation should have a legend at the bottom of the concerning document.

## 17. Competition results exportation to FIS

The software must be able to create result files in XML format.

The XML file must meet this format:

"Nation code" + "Event codex".

Example: "FRA5560.XML".

These files must fully comply to the definition given in the file available on FIS ftp:

[ftp://ftp.fis-ski.com/Software/XML/XMLdescription\\_AL.pdf](ftp://ftp.fis-ski.com/Software/XML/XMLdescription_AL.pdf)

The XML format is common to all events. After the event, the result and the electronic timing report XML files will have to be sent to FIS by e-mail to the following address: [alpineresults@fis-ski.com](mailto:alpineresults@fis-ski.com). The mail subject must be not containing any special characters; we suggest writing just nation code and the codex.

## 18. FIS Live timing usage

FIS provide a live timing service, if the data software support this feature,

This system can be used to register FIS races for FIS live results service on all competition levels.

All entered data for live races will be saved in the FIS database and visible linked on the FIS website.

USER: For the information on how to connect to FIS Live Timing see FIS website ([www.fis-ski.com](http://www.fis-ski.com)) ALPINE/Timing & Data tab.

## 19. Live timing developers

If any company have any interest to implement the live timing feature, they have to contact the FIS IT ([it\[at\].fisski.com](mailto:it[at].fisski.com)) department to get more details.

## 20. Live data usage

In case the timing data has to be used for different purpose like for example live streaming, TV graphics, etc... the data must be generated from the main timing system (System A).

The synchronisation between the image and the data overlay (graphic) must be checked.



## 21. Appendix A

Reports examples on the next pages.

## 22. Document Control

### Version 1.13

Section	Description
	<ul style="list-style-type: none"> <li>• Template updated</li> </ul>
Page 24	<ul style="list-style-type: none"> <li>• Electronic draw section added</li> </ul>
Page 26	<ul style="list-style-type: none"> <li>• Live data usage section added</li> </ul>

### Version 1.12

Section	Description
Page 12	<ul style="list-style-type: none"> <li>• Precision according the Timing booklet in section 8</li> </ul>
Page 15	<ul style="list-style-type: none"> <li>• Event name update in section 11</li> </ul>
Page 18	<ul style="list-style-type: none"> <li>• New report (EET calculation) in section 13 added</li> </ul>
Page 19	<ul style="list-style-type: none"> <li>• Procedures and special live status added in section 14.2 (missed time)</li> </ul>

### Version 1.11

Section	Description
Page 3	<ul style="list-style-type: none"> <li>• Levels list updated</li> </ul>

### Version 1.10

Section	Description
Page 19	<ul style="list-style-type: none"> <li>• 14.1 statuses updated, note added in point 13,</li> </ul>