ELECTRONIC SCORING SYSTEM Implementation Guidelines

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Manual developed by
Fabio Giammarinaro and Manrico Mincuzzi
June 2020. Ver. 1.5

1. Hardware Requirements

This set up is the Noutamatic option*, that we recommend, since it enables the following advantages:

1. Never loose site of the airplane
2. Remind the judge of each figure through earphones
3. Print results and introduce corrections after each flight
4. Very easy to find buttons
5. No need of scribes

* The digital scoring system can be implemented also using tablets, computers or mobile phones, instead the of Noutamatic keyboards. If you will decide to adopt one of these alternatives, you will have to use a different software setup, available from Dan Carroll. However, the whole logic of the electronic scoring system will remain the same.

✓ One Laptop with Lan cable. (Both windows and mac will be compatible)

✓ One Raspberry Pi4 model B - 4Gb Ram

✓ One SD Card to be inserted into Raspberry: MicoSd Sandisk of at least 16 or 32 Gb A1 Class 10 U1

✓ One Noutamatic per Judge. Each machine will need:

- ✓ One SD cards of at least 8 Gb Class 10 UHS-I
- ✓ Thermal paper rolls 57 mm, diameter 35 mm
- ✓ Battery, Lipo 3S 2200 mAh batteries and charger

✓ One UPS power strip (Optional, but highly recommended, to ensure continuity of energy supply in case of central power failure)

✓ Any Router (to create a second Wi-Fi network in order to ensure a stable connection dedicated to view scores on smartphones and tablets)

✓ Any Printer (Optional, but recommended. Scores can be viewed also through other computers and connected mobile phones or tables)

2. Software: Score 4.32 + FlightLine + Noutamatic

2nd WI-FI cloud dedicated to ranking vision through smartphone and tables

Each flight result can be viewed on a smartphone or tablet through Wi-Fi connection with Score

Lan Cable

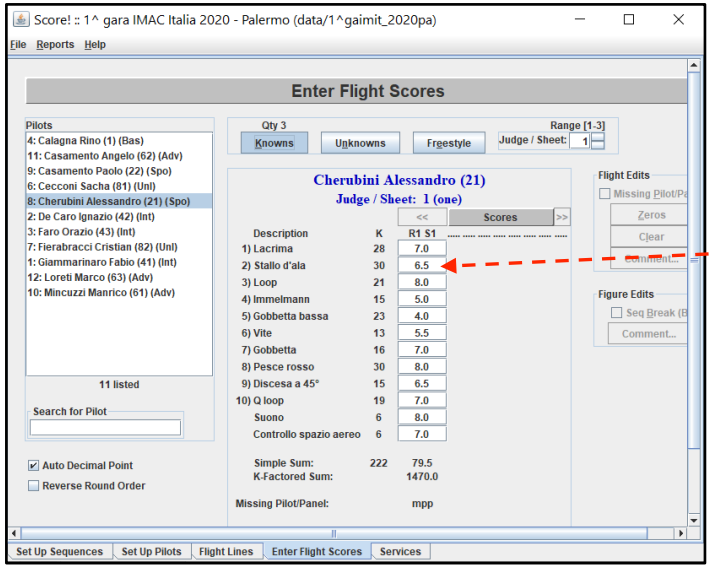
Lan Cable

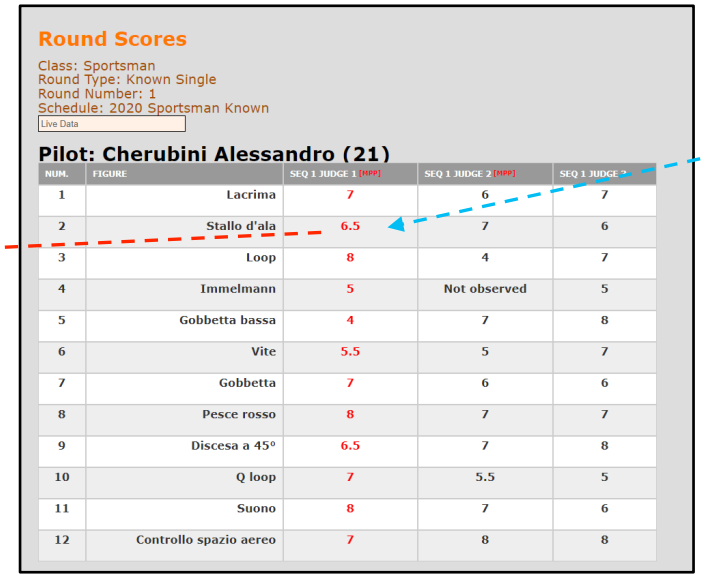
1st WI-FI cloud dedicated to raw score data exchange

Noutamatic is the software, installed into each Noutamatic SD card, enabling all the functionalities of the keyboard.

Score 4.32 is the IMAC software the enables to structure the competition and to process all judges scores, generating the competition ranking. It acquires each score data from FlightLine.

FlightLine is the IMAC software that, installed into the Raspberry SD card. It acquires each judge score from all the activated Noutamatic via Wi-Fi





Round Scores

Class: Sportsman
Round Type: Known Single
Round Number: 1
Schedule: 2020 Sportsman Known

Pilot: Cherubini Alessandro (21)

NUM.	FIGURE	SEQ 1 JUDGE 1 [MPP]	SEQ 1 JUDGE 2 [MPP]	SEQ 1 JUDGE 3
1	Lacrima	7	6	7
2	Stallo d'ala	6.5	7	6
3	Loop	8	4	7
4	Immelmann	5	Not observed	5
5	Gobbetta bassa	4	7	8
6	Vite	5.5	5	7
7	Gobbetta	7	6	6
8	Pesce rosso	8	7	7
9	Discesa a 45°	6.5	7	8
10	Q loop	7	5.5	5
11	Suono	8	7	6
12	Controllo spazio aereo	7	8	8

3. 1st Wi-Fi Cloud communication parameters

ALIGN PARAMETERS TO ENABLE COMMUNICATION WITHIN THE ESTABLISHED CABLE AND WI-FI CONNECTION

SCORE (Pc)
Score-4.32.jar
Login
U.N. : admin
PW : password

ETHERNET PC
IPV4 Address IP : 192.168.1.100
Subnet : 255.255.255.0
Gateway default : 192.168.1.1

Wi Fi PC
IPV4 Address IP : 192.168.1.200
Subnet : 255.255.255.0
Gateway default : 192.168.1.9

Even if the Lan connection is recommended, alternatively you can connect the PC to the Raspberry with WiFi

Cable LAN

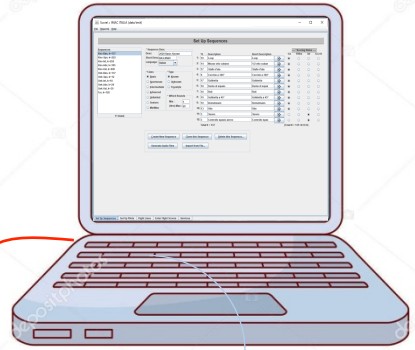
Raspberry
MicroSd
Flight Line
SSID = IMAC-ENG1
PW: imacenglish

FLIGHTLINE (Raspberry)
Google Chrome : 192.168.1.9
Login
U.N. : admin
PW : password

SD Card Notaumatic
SSID = IMAC-ENG1
PW: imacenglish
IPSERVER= 192.168.1.9
URLSERVER= 192.168.1.9

4. 2nd Wi-Fi cloud communication parameters

ALIGN PARAMETERS TO ENABLE COMMUNICATION WITHIN THE ESTABLISHED CABLE AND WI-FI CONNECTION



SCORE (Pc)
Score-4.32.jar
Login
U.N. : admin
PW : password

ETHERNET PC
IPV4 Address IP : 192.168.1.100
Subnet : 255.255.255.0
Gateway default : 192.168.1.1

Wi-Fi PC
IPV4 Address IP : 192.168.1.200
Subnet : 255.255.255.0
Gateway default : 192.168.1.9

FLIGHTLINE (Raspberry)
Google Chrome : 192.168.1.9
Login
U.N. : admin
PW : password

LAN Cable

Fritz!Box
Wi-Fi : IMAC-SCORE1
PW : *(none)*

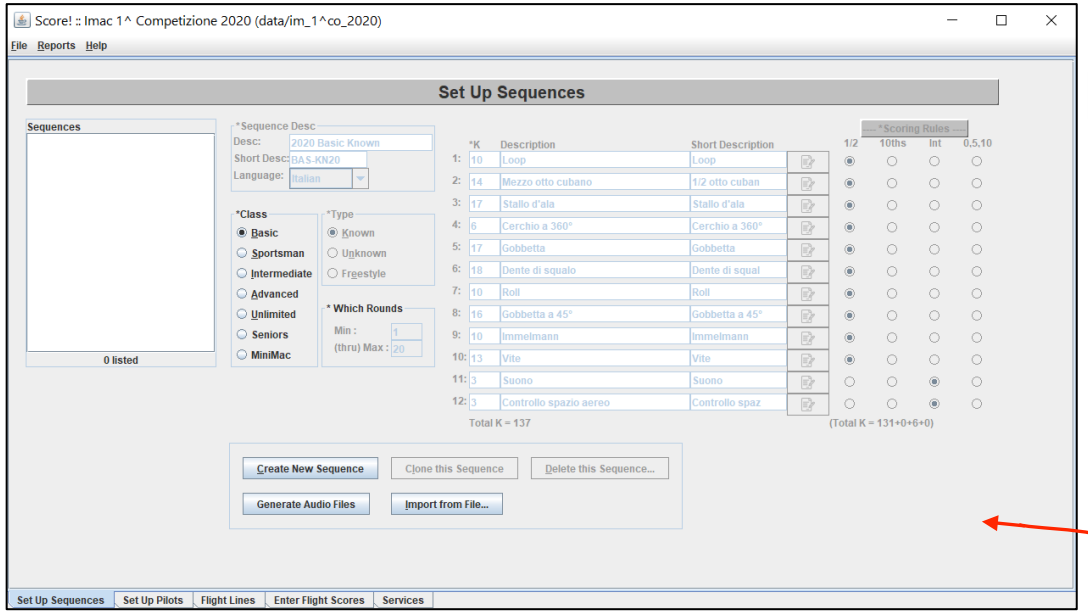
SMARTPHONE
Wi-Fi network : IMAC-SCORE1
PW : *(none)*
Browser : 192.168.1.100

5. Score 4.32

Score 4.32

Score-4.32.jar

- Written Dave Smith, U.S.A.
  and Dan Carroll, Australia -



Score is installed on the PC and communicates via Lan Cable with FlightLine installed on the Raspberry

FlightLine

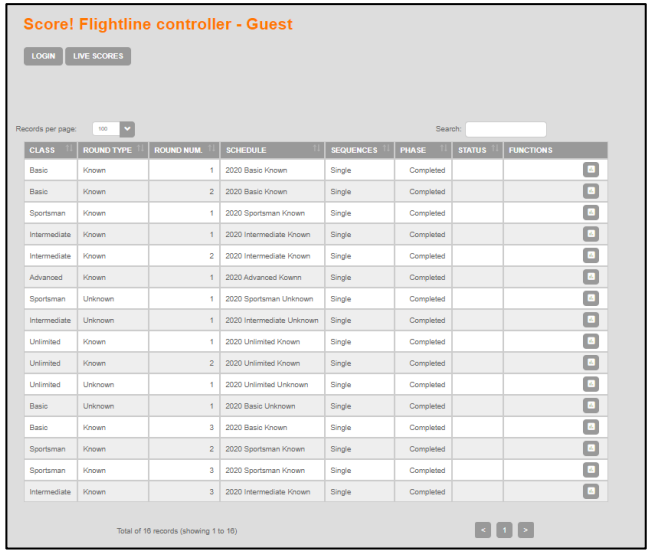
This is an evolution of the official Imac software, normally in use to calculate scores implementing the traditional paper and manual input process. This new release of the IMAC Score software acquires the competition scores from the FlightLine software installed into the Raspberry SD card. The communication can be established via Lan cable (suggested) or via Wi-FI.

Score 4.32 has to be installed on the PC, enabling, as usual, the creation of the competition and the transfer of final results to the IMAC central website.

6. FlightLine

FlightLine for Noutamatic

- By Dan Carroll, Australia -



FlightLine is the software developed to receive, into the Raspberry, all the competition scores coming from the Noutamatics and to transfer them to the Score application installed in the PC. All data transfer happen in real time through the established local 1st Wi-Fi connection from Noutamatics to Raspberry and through Lan cable from the Raspberry to the PC.

Insert the card into the Raspberry and then install FlightLine into the card from your PC, connected via Lan cable to the Raspberry.

A MicroSd card of at least 16 or 32 Gb, operating in Linux environment, has to be installed into a Raspberry Pi4 (also a Pi3 could be used, but we definitely advise to use the more powerful Pi4 version).

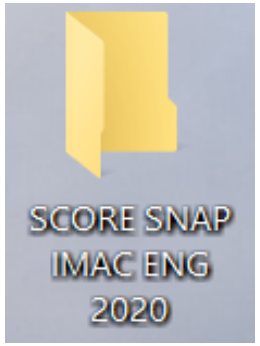
After connecting the PC to the Raspberry, through the Lan cable, the Flight line software has to be installed into the MicroSd card (installation procedure attached to this manual).

7. Noutamatic

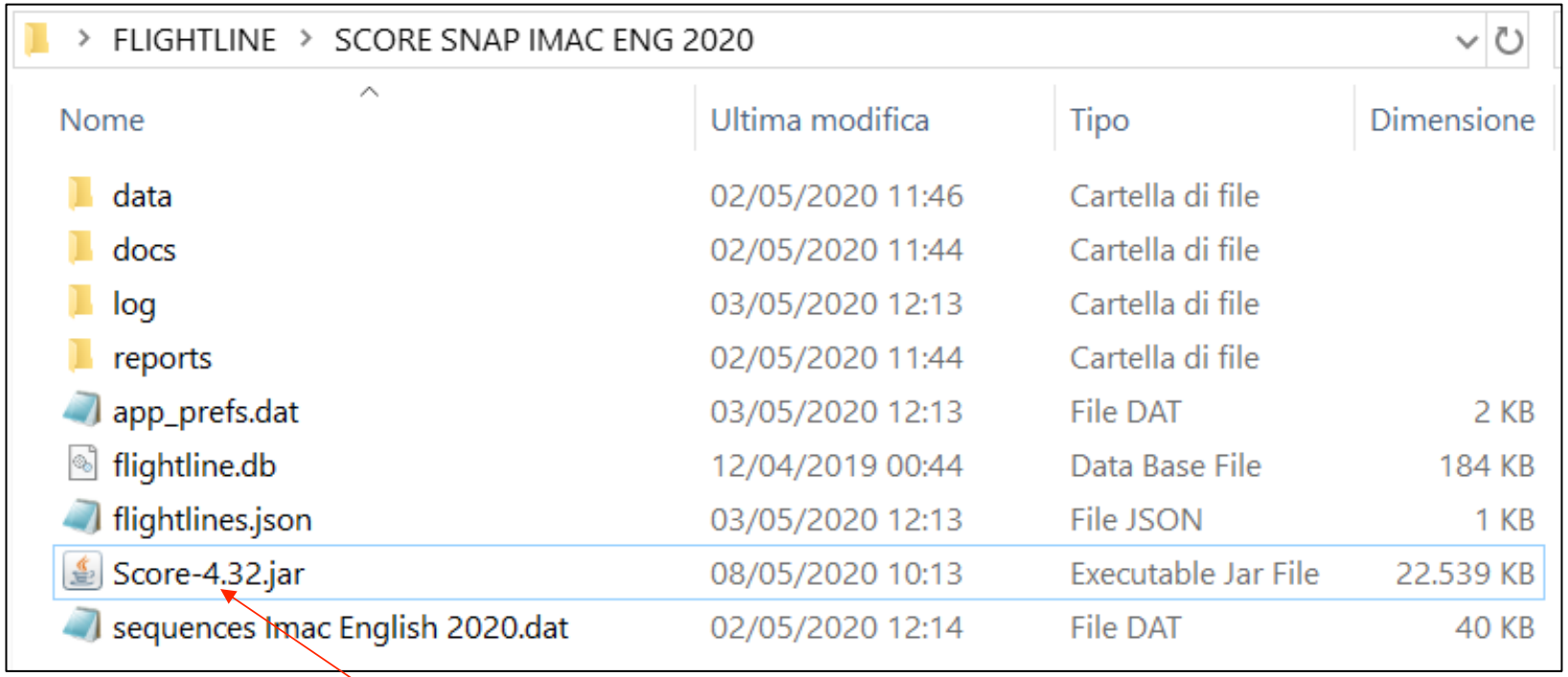
- ✓ The software enabling to score maneuvers through the the Noutamatic keyboard has to be loaded on the SD cad. After having been programmed in the PC, the card has to be inserted into the card slot of the Noutamatic.
- ✓ The SD card has to be formatted and then loaded with the Noutamatic software.
- ✓ The Software has to be programmed inserting the data communication parameters and all the information required to manage the competition
- ✓ An earphone can be plugged into the Noutamatic, enabling voice announcements to the judges at the beginning of each maneuver.
- ✓ The audio files, .waw, enabling the announcements have to be programmed via Score and then inserted in the Noutamatic cards.

8. Install Score 4.32

Download or receive Score 4.32 and install it in your PC as a folder. Then open the folder and click on the start up application file.
The programming of a competition into Score 4.32 has remained unchanged versus the usual procedure characterizing previous versions of the software (find below an Italian example).



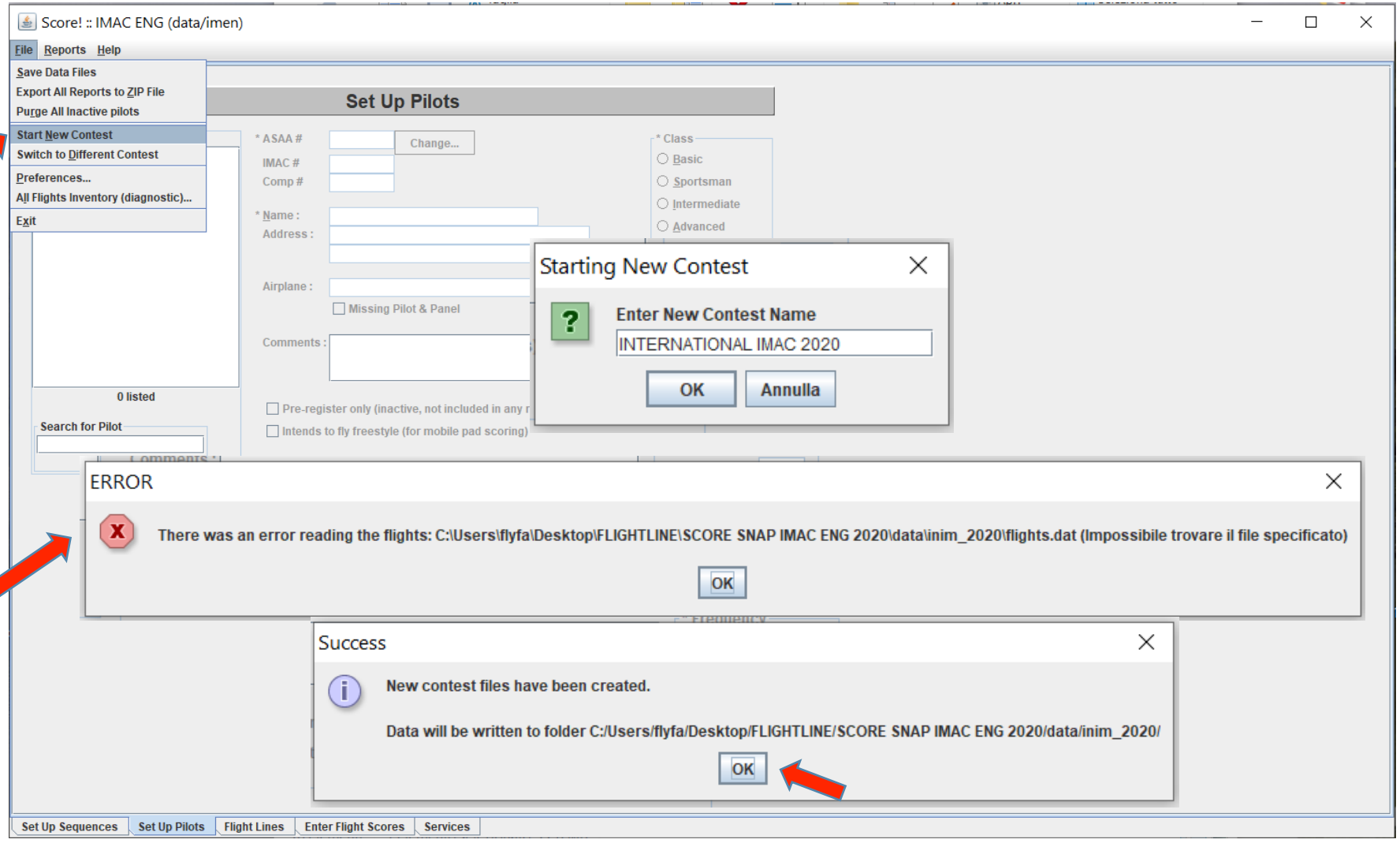
Download or copy the Score folder on the desktop or your PC



Open the folder and then start up the application from this file

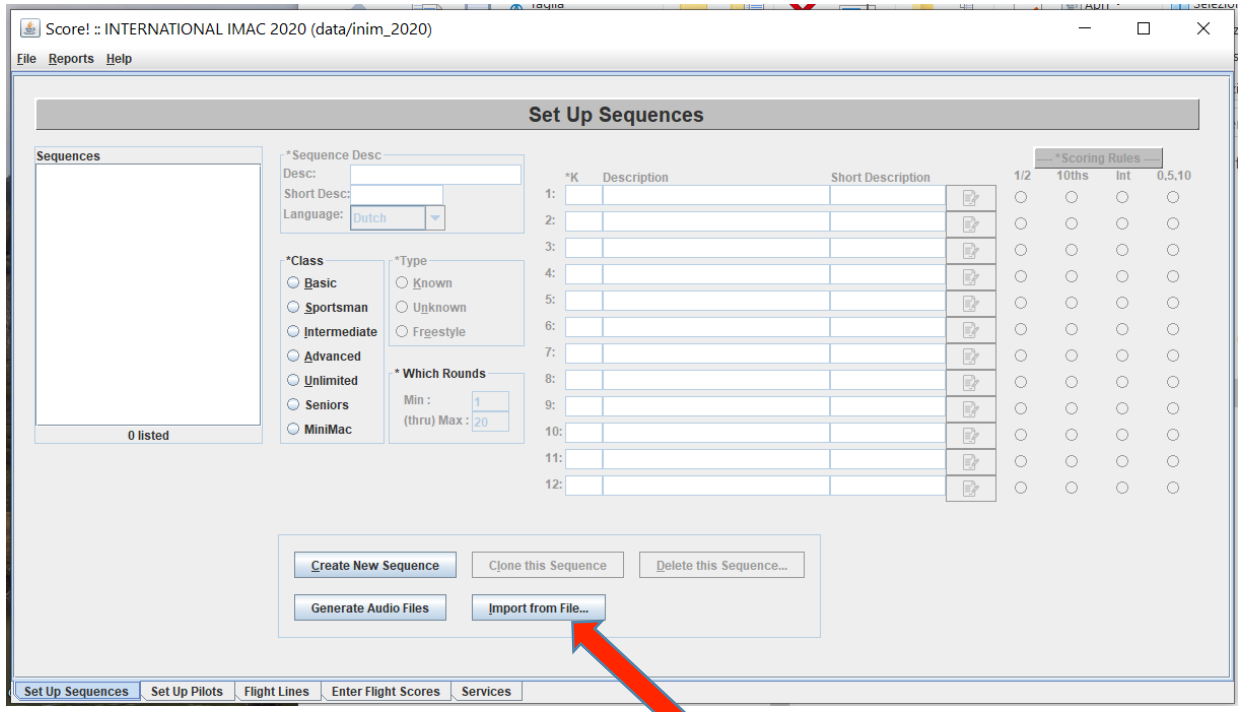
8.a. Program Score to initialize a competition

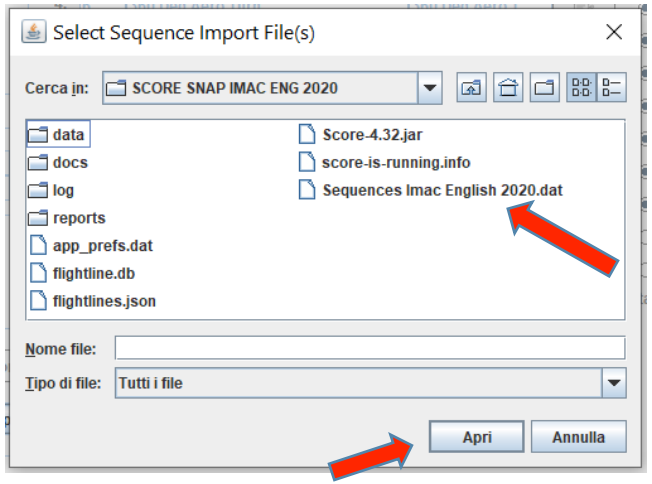
Initialize a new Contest

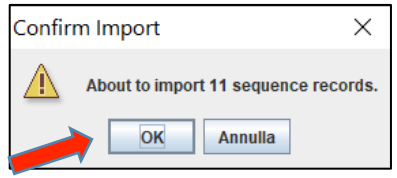


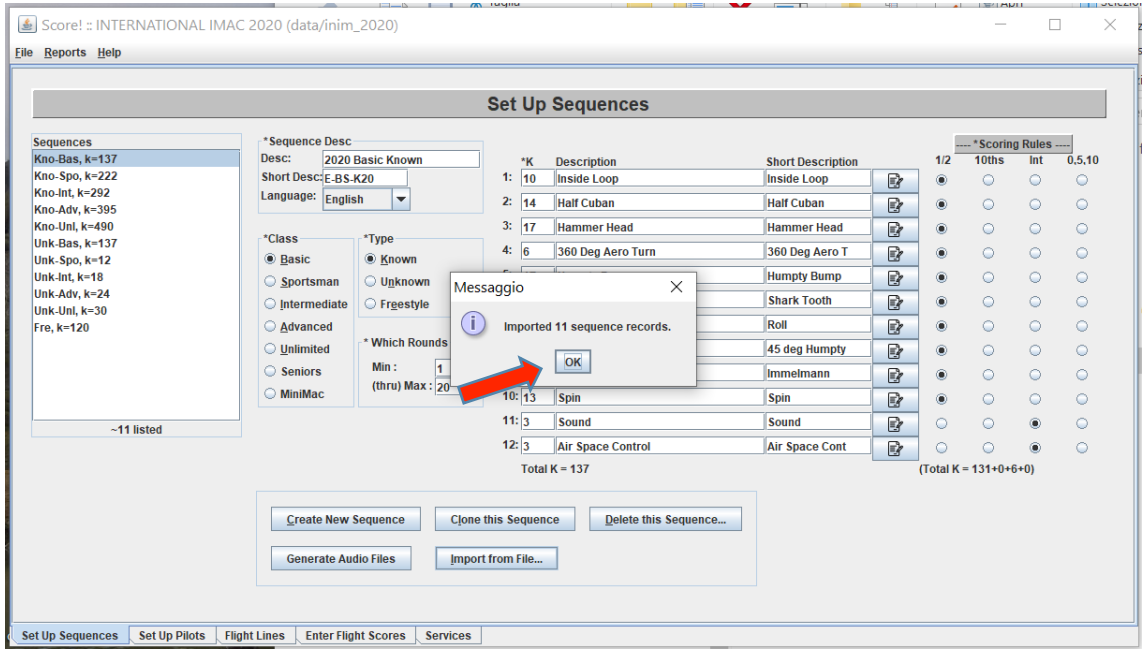
Even if it gives the error message continue

8.b. Set up sequences



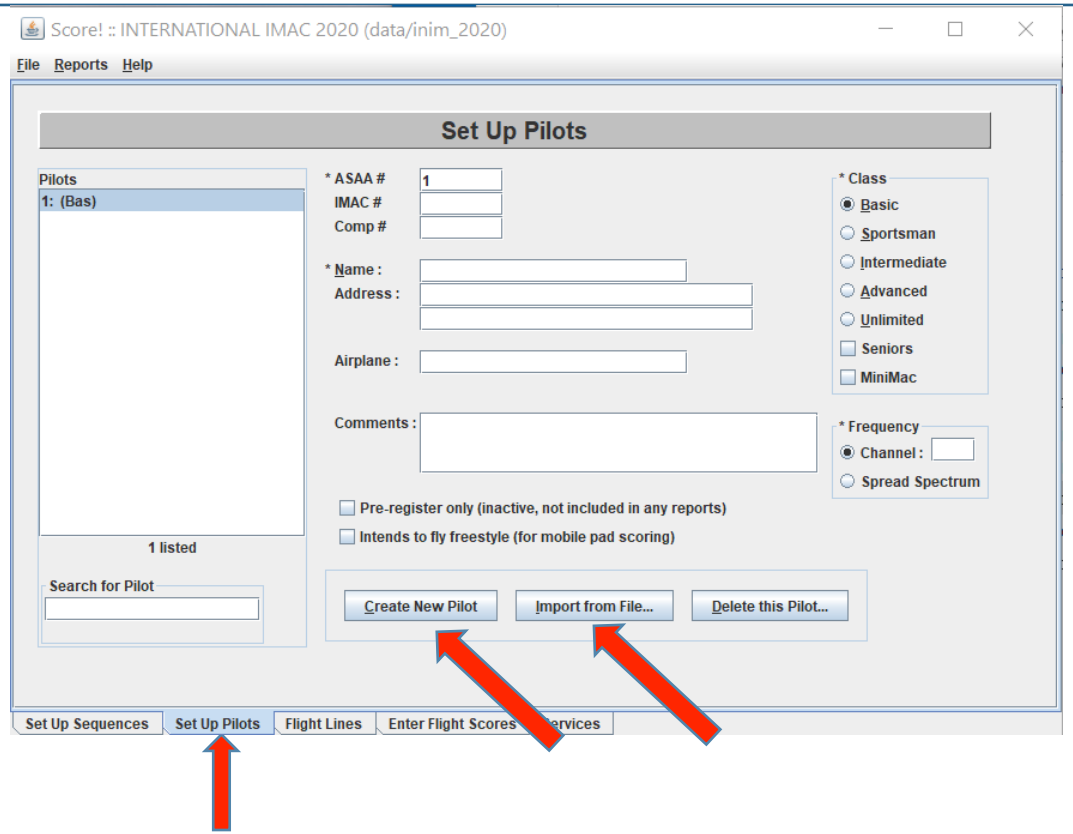




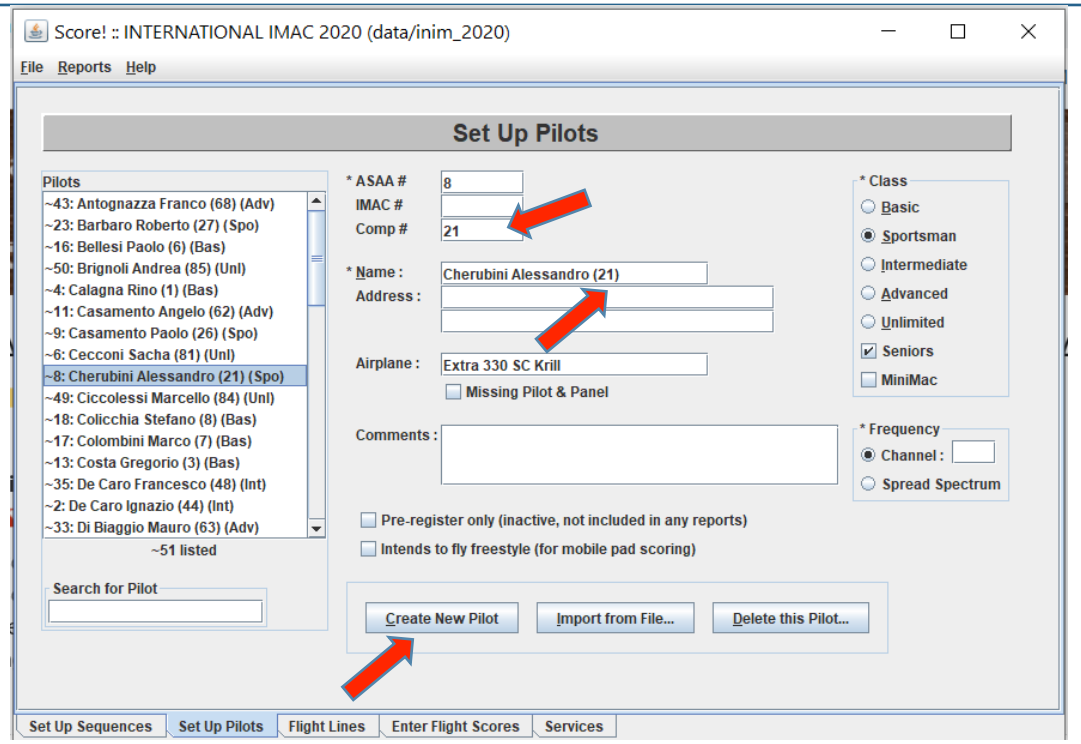


Enter the sequences of the current year or, if already created elsewhere, just import them.

8.c. Input names of participating pilots

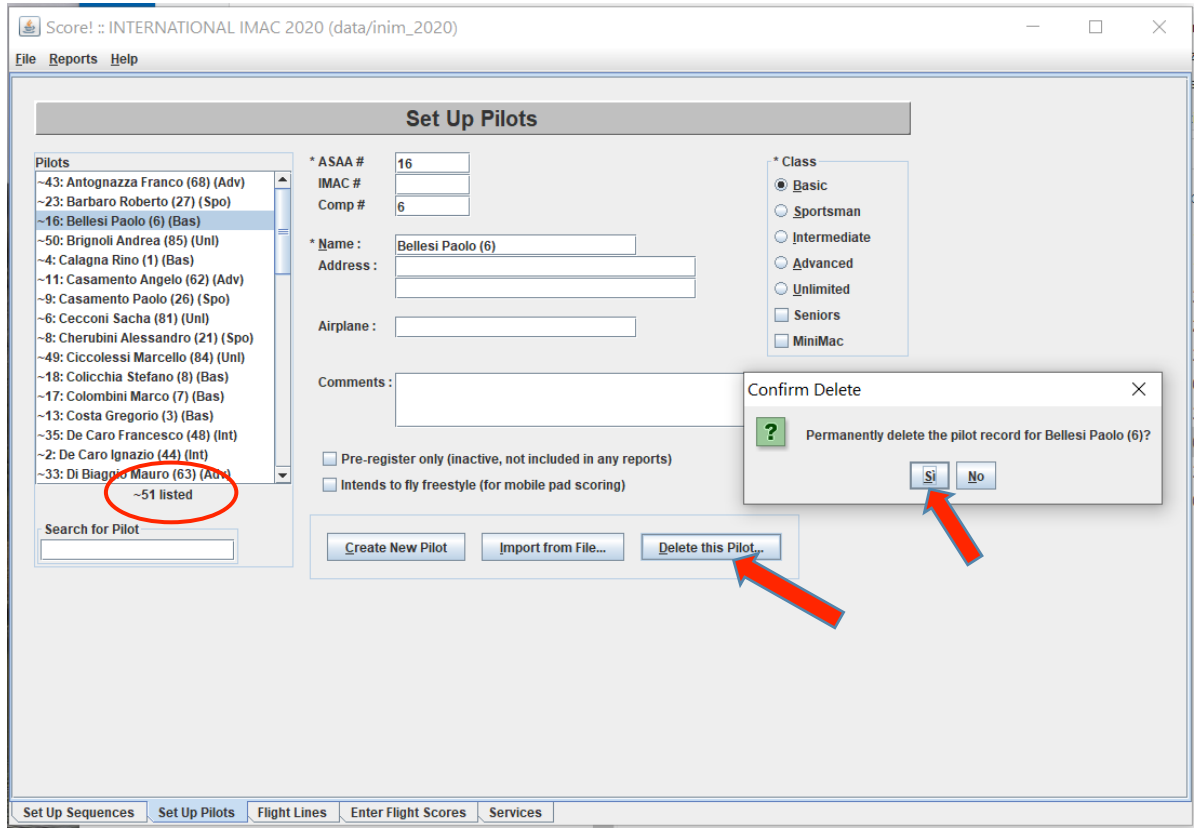


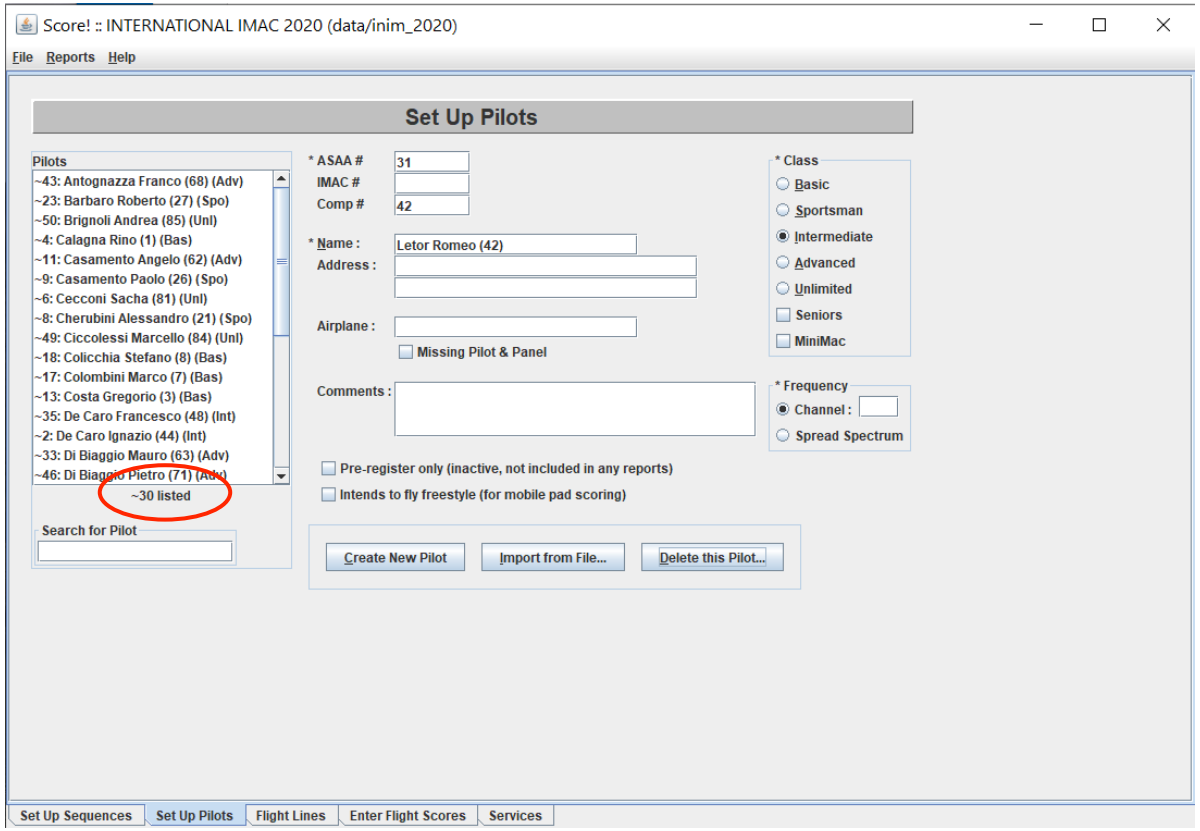
Insert the each name of the pilots participating to the competition or import the whole available list from the Regional or National data base (this process saves a lot of work in preparing each contest)



Each competitor should be assigned a pectoral number, that the competitor should show with a sticker on his shirt, if possible. It is mandatory to input this number after each competitor name into Score, as this number will be displayed in the Flightline and in the Notaumatic. This number will also show on each ranking printout or smartphone visualization.

8.d. Exclude non participating pilots

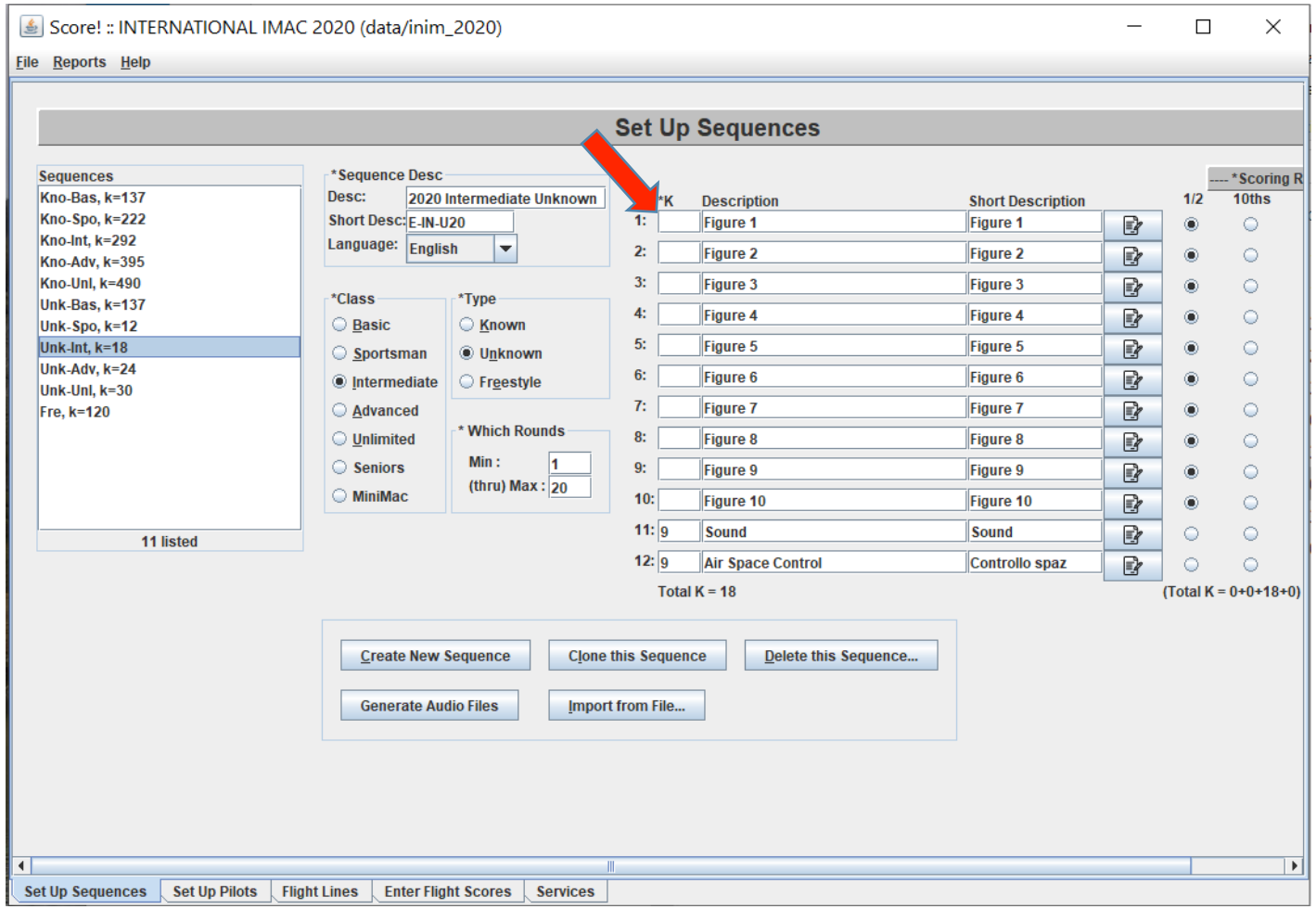




If you have imported the whole Regional or National pilot list, you will have to eliminate the ones who will not participate to the competition you are organizing.

At the end of this process, only the pilots participating to the competition will remain in the competition data base

8.e. Insert K value for unknown sequences

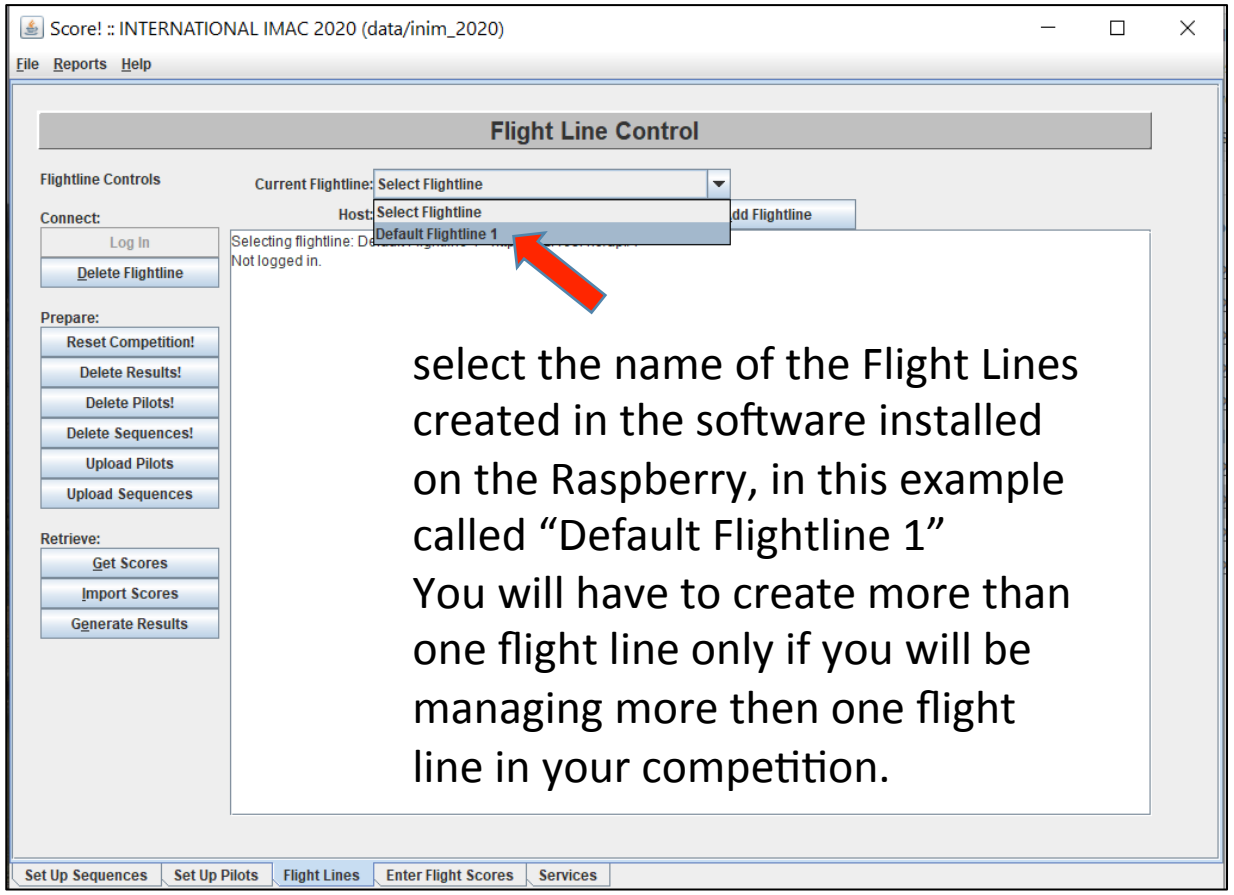


When the unknown sequences arrive from the Central IMAC Commission:

- ✓ Insert the K value for each maneuver;
- ✓ Do not insert the name of the maneuver if you are not interested in voice calling;
- ✓ If you want to enable voice calling, insert the maneuver names. Score will automatically generate the voice files to be inserted into the Noutamatic SD cards.

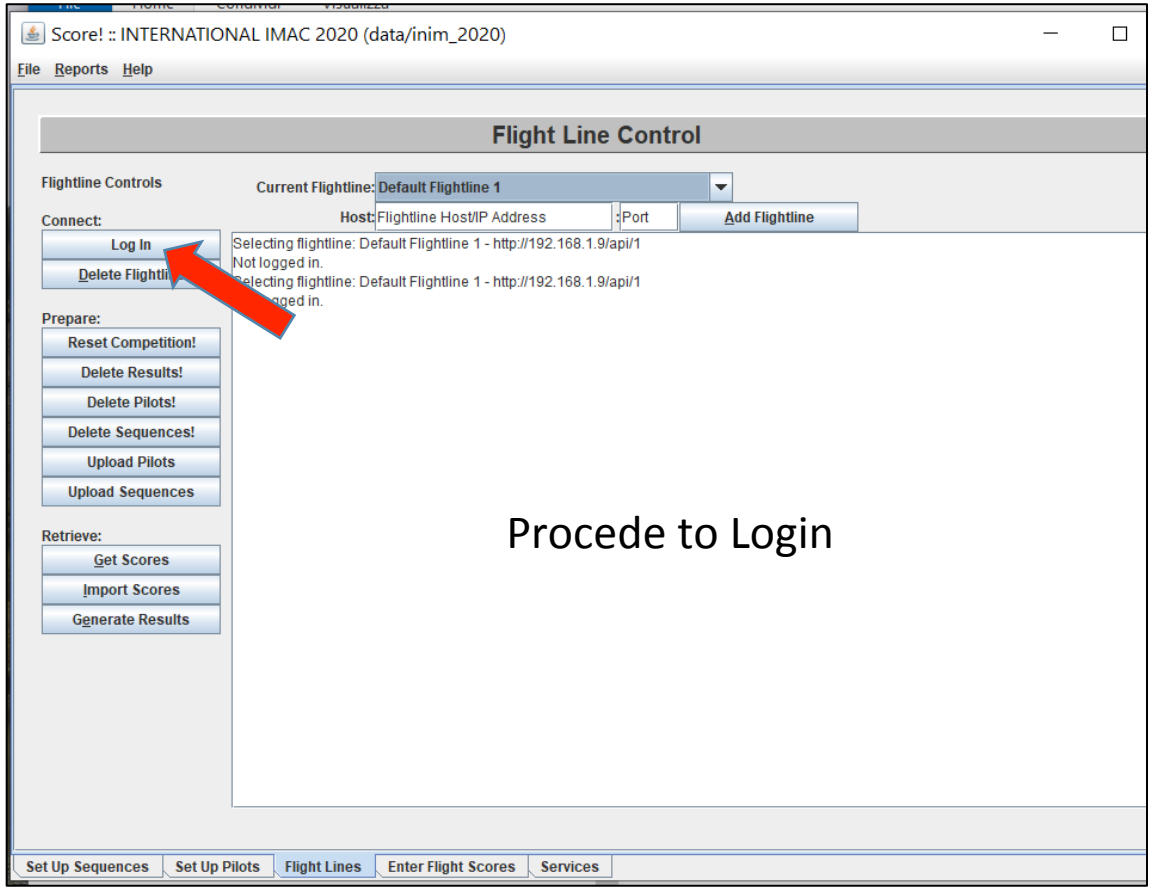
8.f. Align Score with FlightLine

The Flightline name inserted in Score has to be identical to the one defined in the FlightLine software loaded on the Raspberry . Proceed to login into FlightLine (assuming you have already set up and aligned all IP codes, as per slide 3).



select the name of the Flight Lines created in the software installed on the Raspberry, in this example called “Default Flightline 1”
You will have to create more than one flight line only if you will be managing more then one flight line in your competition.

Click the FlightLine tab and insert the name



Procede to Login

9. Download FlightLine

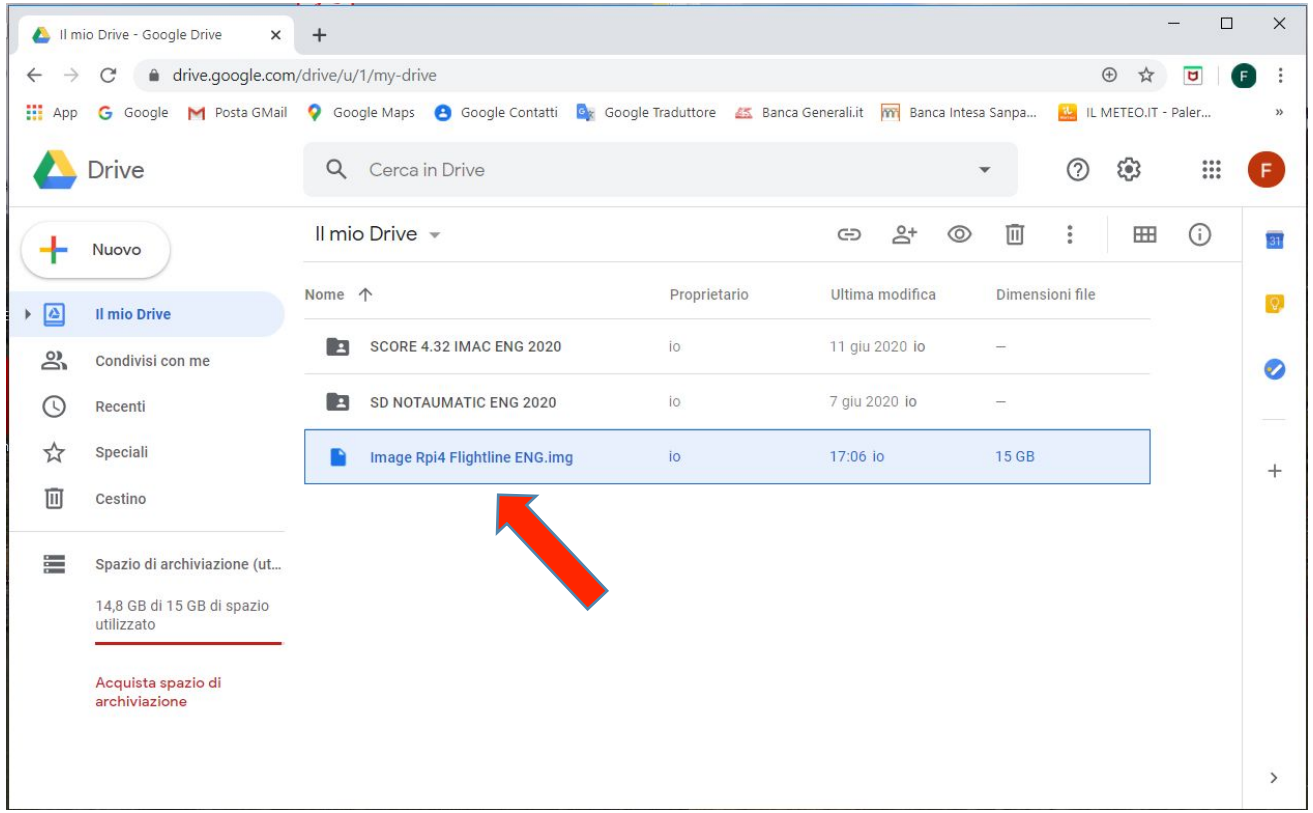
To download the Flightline software, the Score and the SD files of the Notaumatic, send an email to Fabio Giammarinaro at flyfabio62@gmail.com. He will set up the transfer process via Google Drive.

In case you will not be able to accomplish this installation task, you will be able to activate the following options:

1. We will be able to provide you with online or email remote assistance. To ask for support please email Alessandro Cherubini at acherubini@tiscali.it
2. If you will prefer, we will be able to send you the Raspberry SD card already programmed and follow up with remote assistance

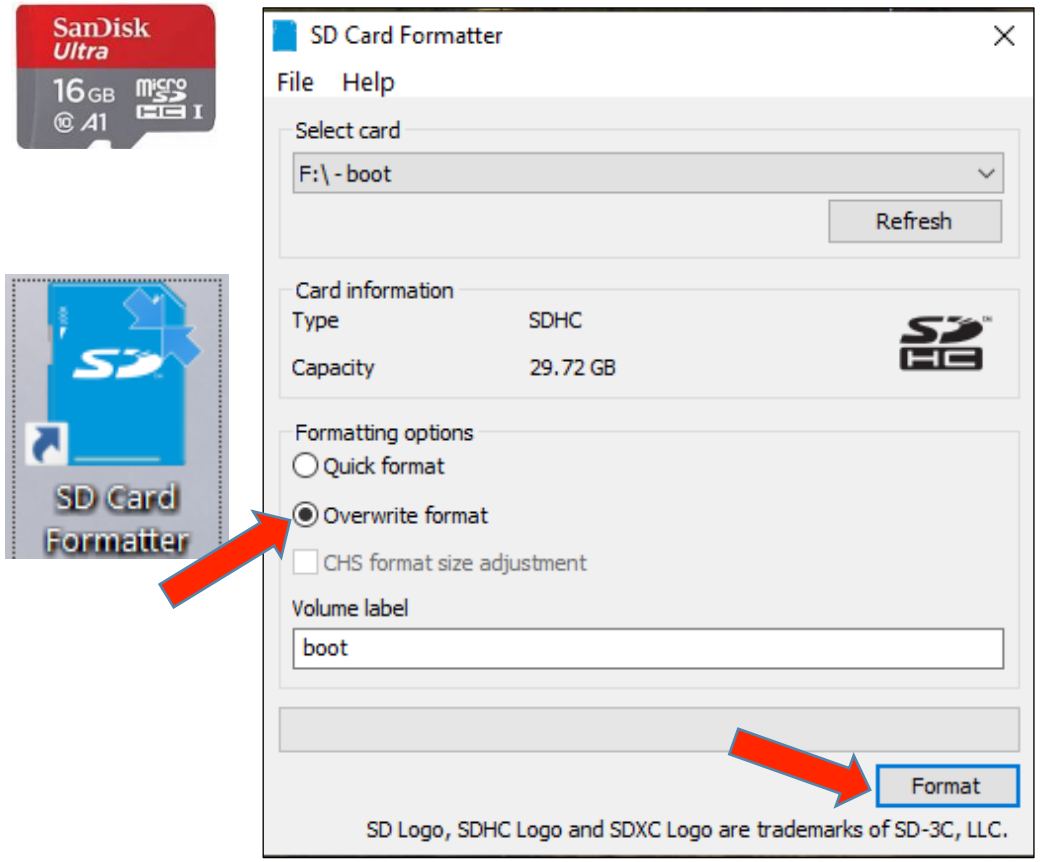
However, it is recommended that you involve some local IT competence, as it has been done in all the places where the system has already been activated.

As soon as the email with the flies sharing option arrives, download the files from Google Drive

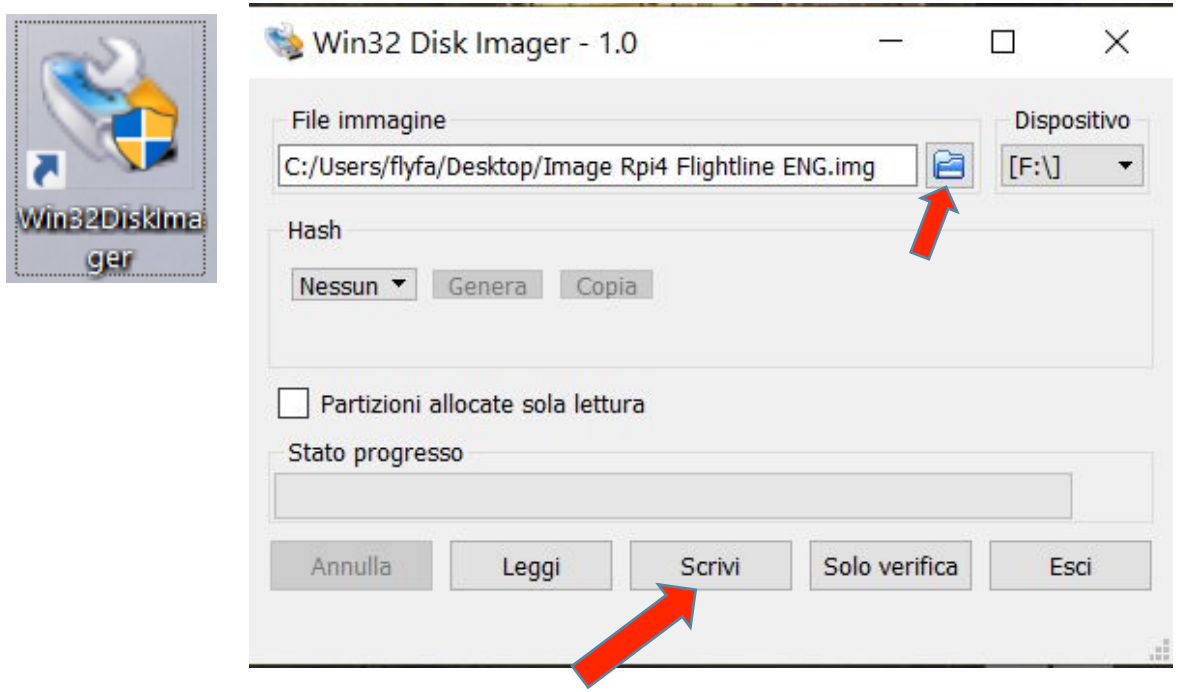


9.a. To download FlighLine from Google Drive

After installing an external USB card reader, format your new SD Card with the SD Card format software in Overwrite format mode (it takes about 30 ’ minutes for a 32 Gb card)



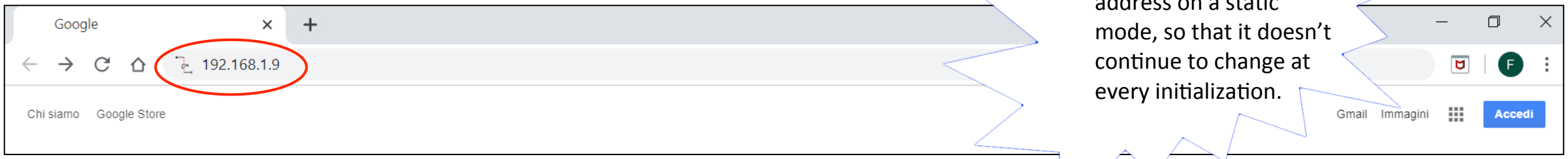
Then open the Win32 DiskImanger software, click in the folder and search the PC for the "Flightline and Raspberry 4.img image" file previously downloaded from Google Drive. It takes about 30 'to copy the image file to the SD Card. After this operation, all the software including the Raspberry. The Raspbian operating system and the FlightLine will be installed.



Both the SD Card Formatter software and Win32DiskImager can be downloaded for free from the web

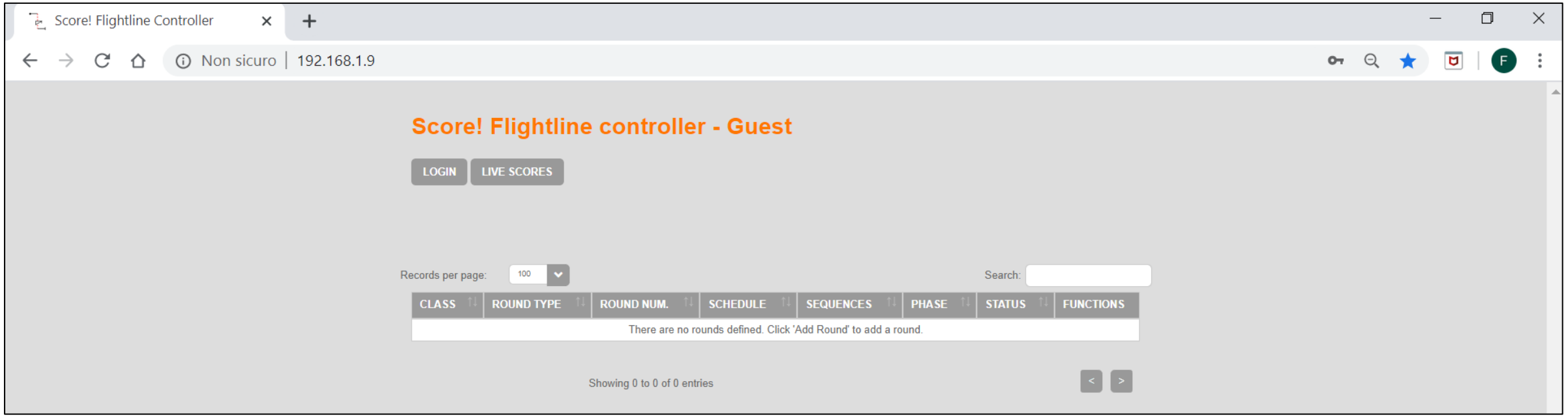
8.b. Access FlightLine from Google Chrome

Launch Google Chrome, insert the Raspberry IP code (set into the SD card), access FlightLine on the Raspberry.

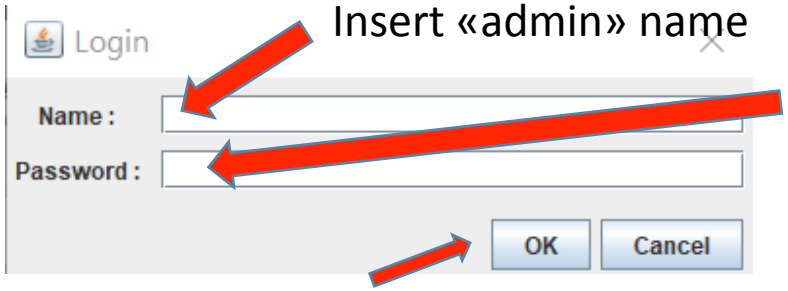


Set the Raspberry IP address on a static mode, so that it doesn't continue to change at every initialization.

FlightLine screen without previous competitions, ready to be programmed for your next competition

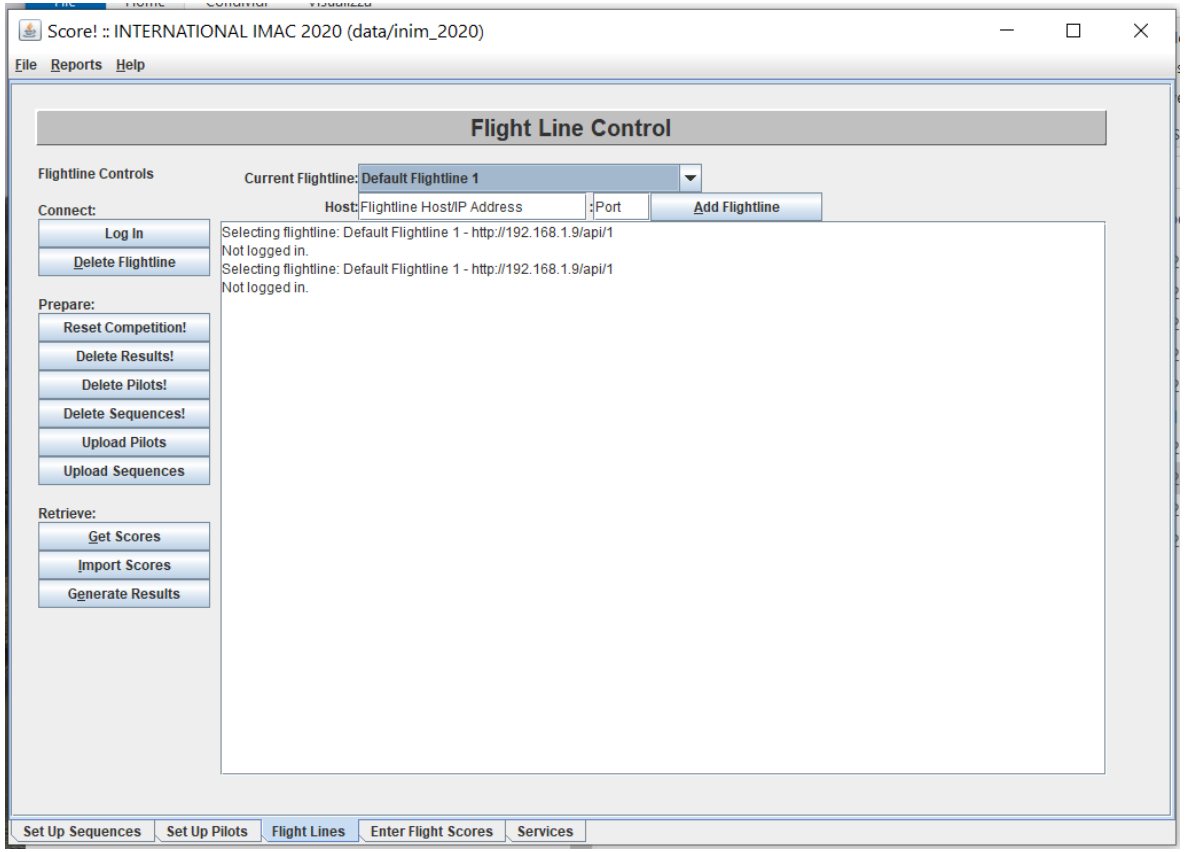


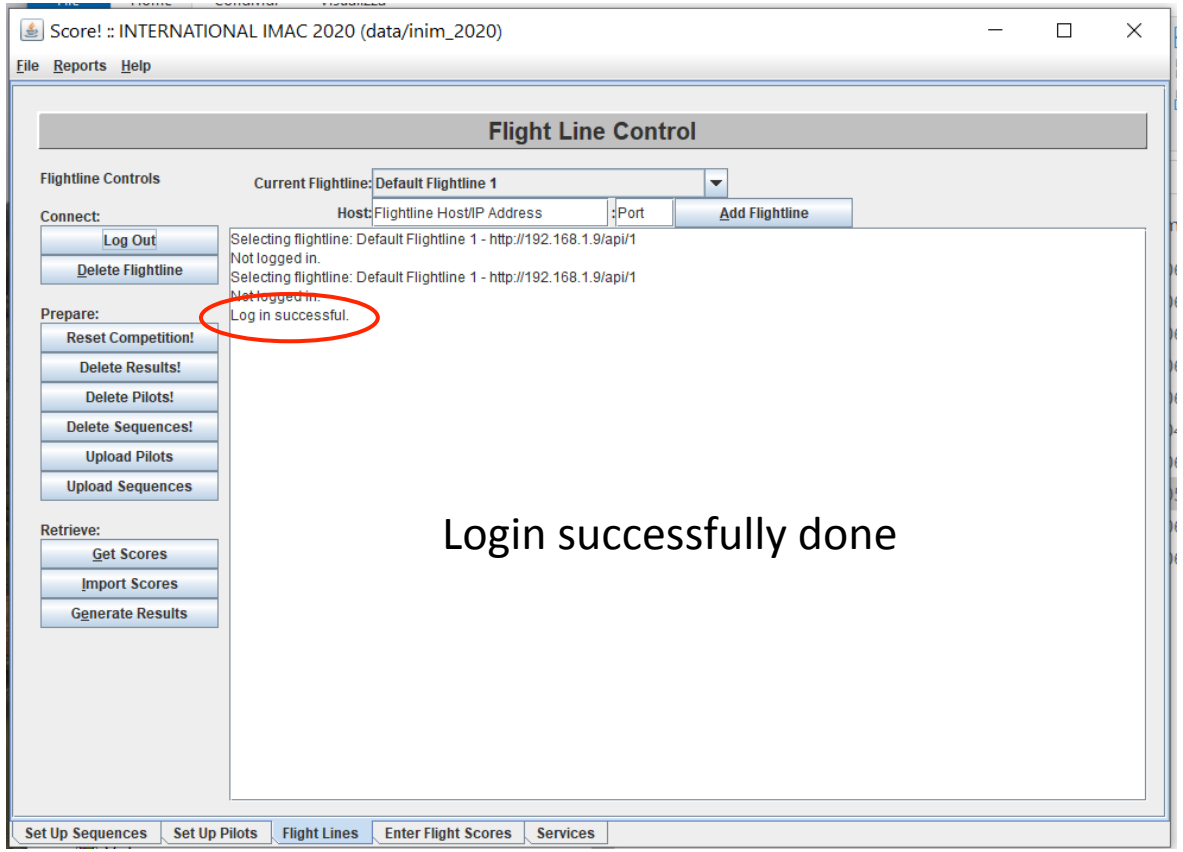
9.c. Insert FlightLine Admin and Password



INSERT ADMIN NAME AND PASSWORD

Connect your PC to the Raspberry via Lan cable and open the FlightLine application





Login successfully done

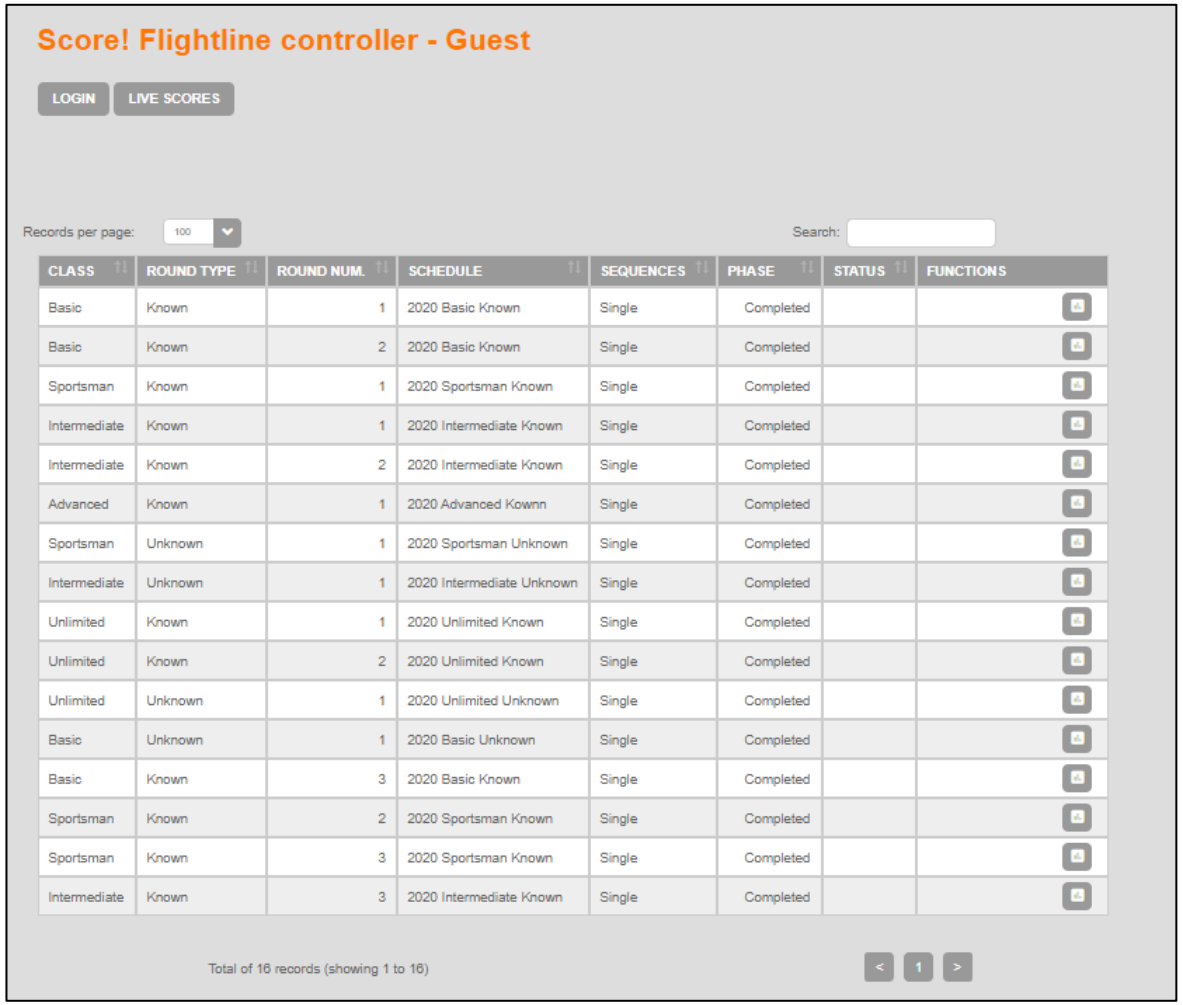
9.d. Delete all previous data

This is the FlightLine controller showing the inserted rounds of a previous competition.

It is very important to completely erase this old data and to clear the FlightLine data base before initializing a new competition.

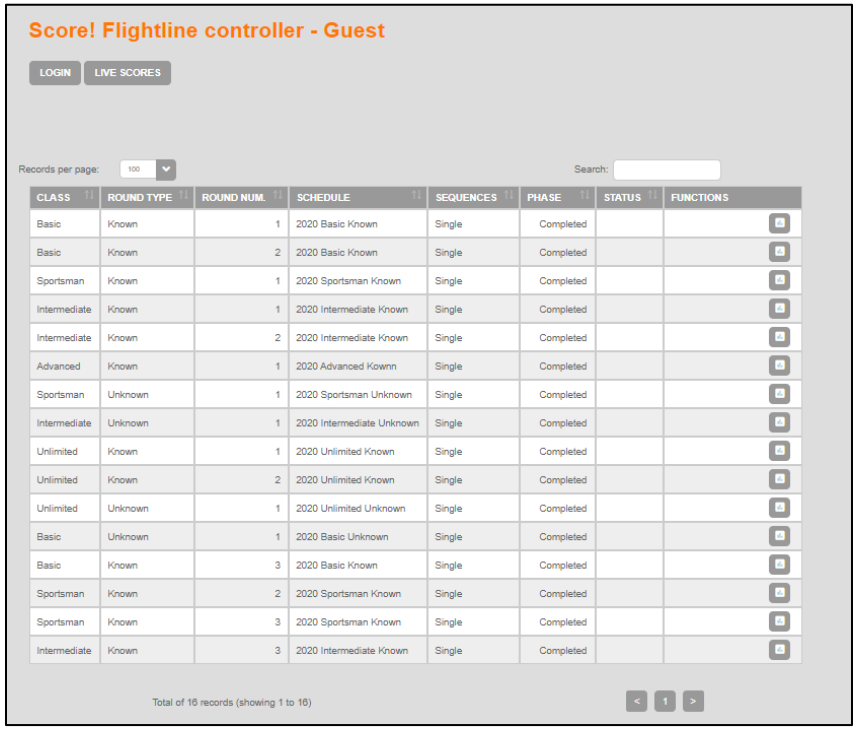
This is done in two steps:

1. Log into FlightLine as Admin
2. Operate from the Score menu to erase all previous data (see next two slides)



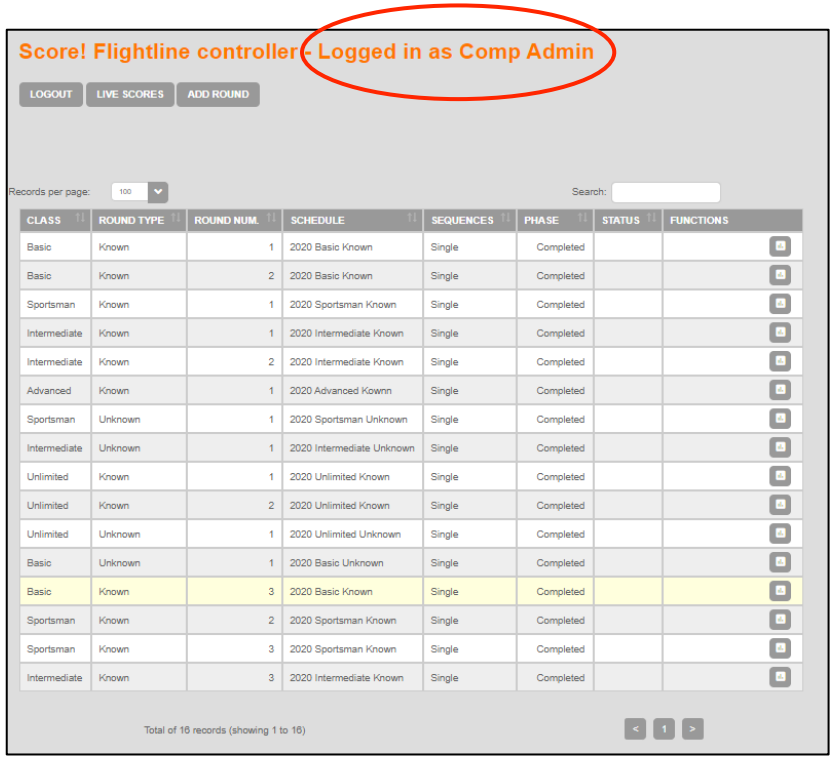
9.e. Log in to delete all previous data

As first step, log into FlightLine by inserting your Admin name and password



Insert «Admin Name»

Insert «Admin Password»

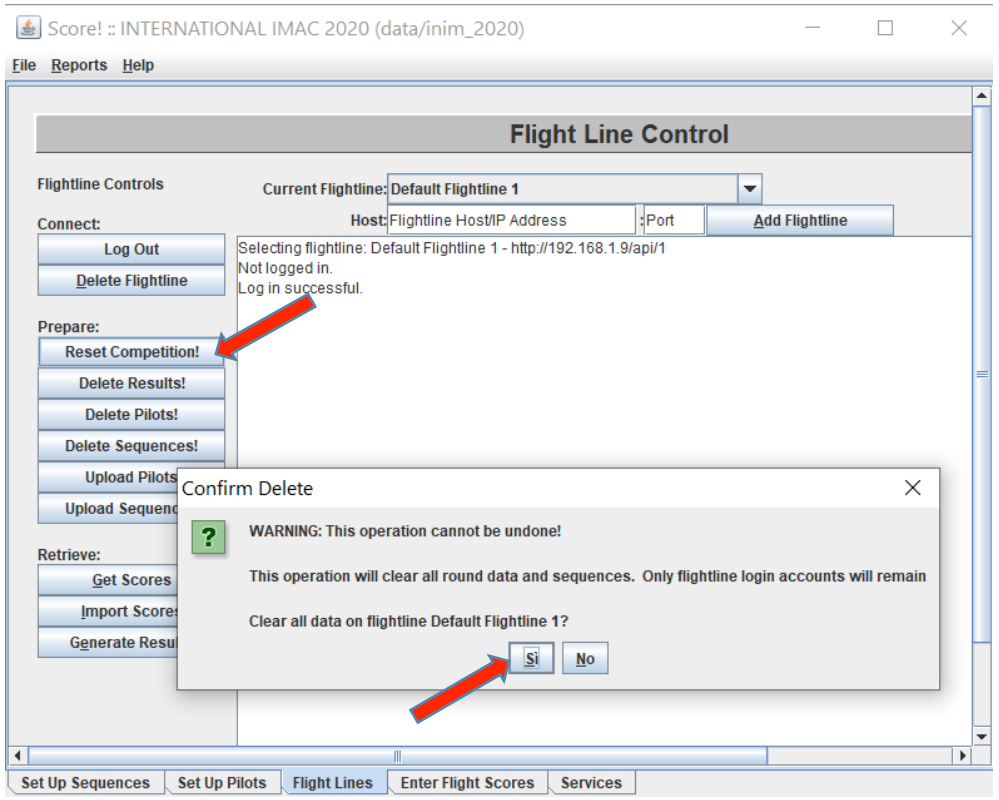


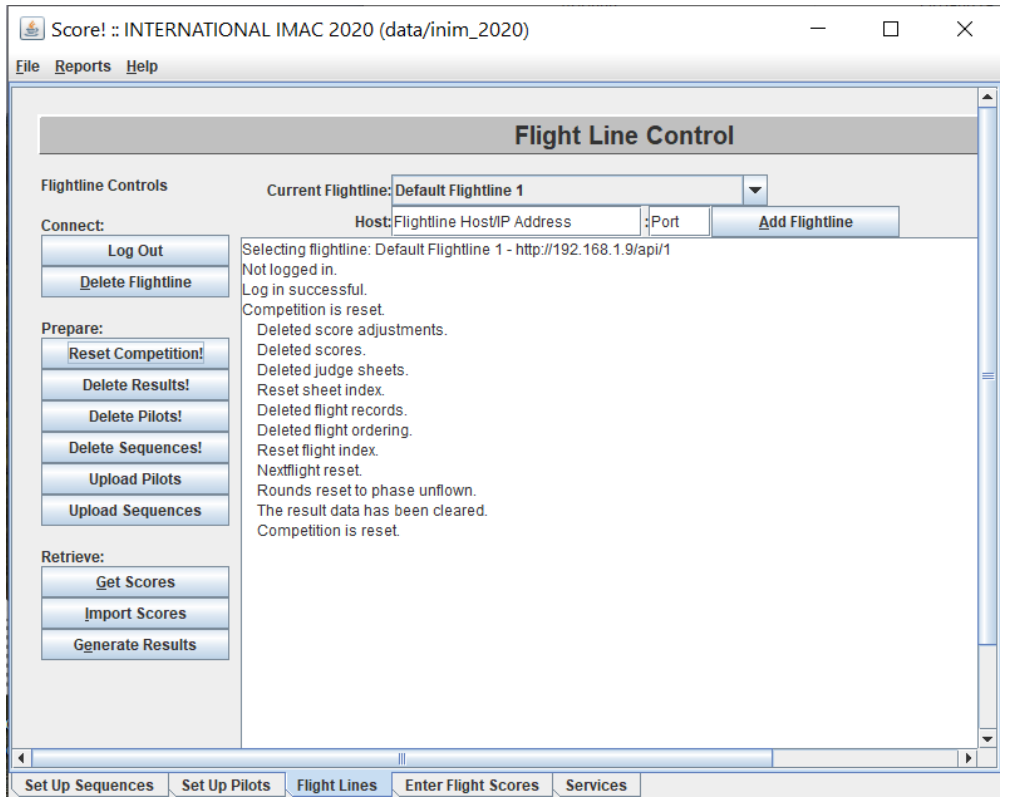
Login successfully done

9.f. Delete all previous data from Score

FROM SCORE, DELETE ALL PREVIOUS SEQUENCES, PILOTS AND RESULTS

Act from the Score menu by clicking on Delete Sequences. After confirmation, click on Delete Results. Confirm finally on Delete Pilots

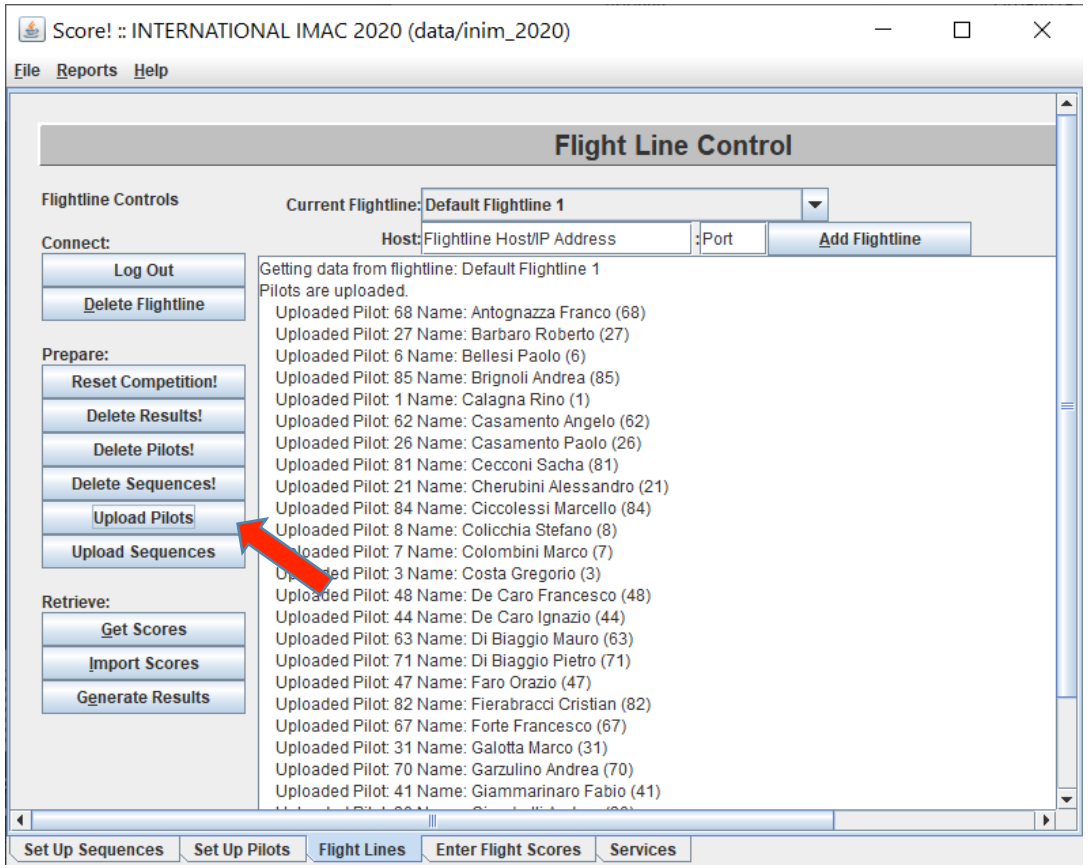


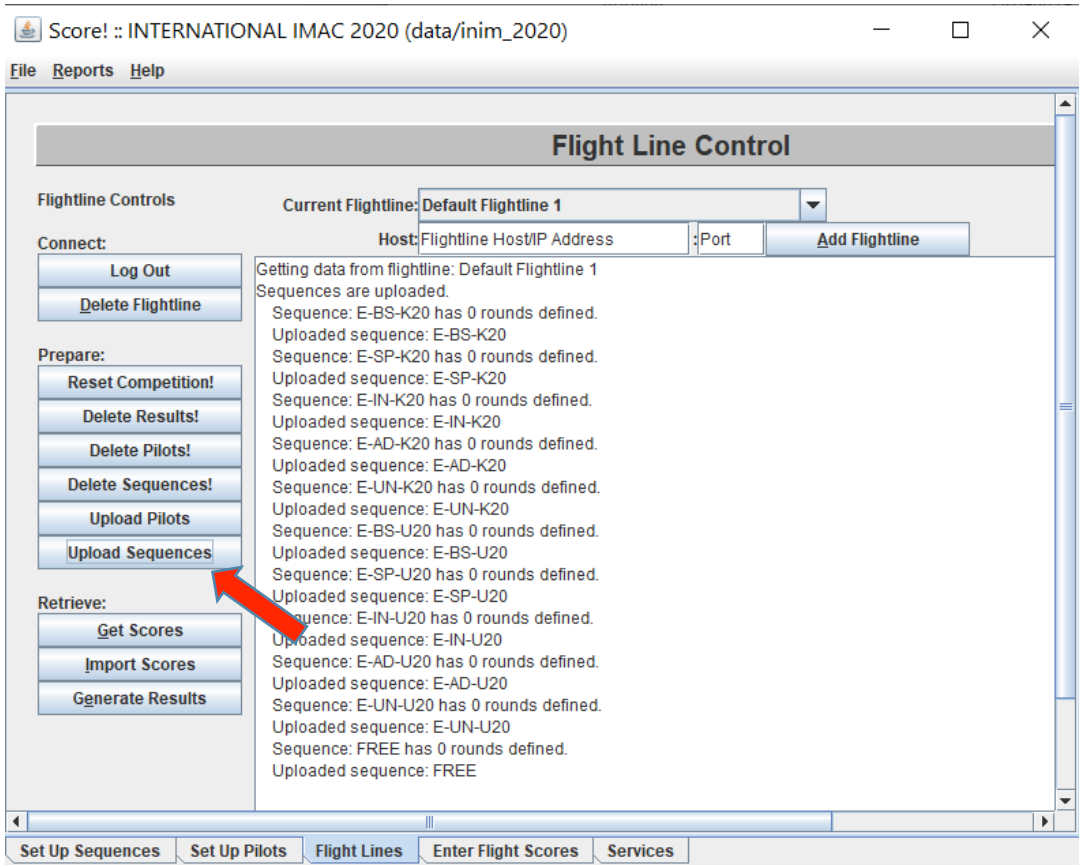


Delete all sequences, pilots and results of previous competitions

9.g. Upload pilots from Score

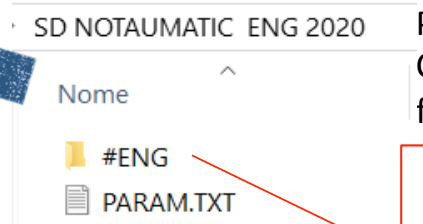
From the Score menu, after having logged into FlightLine, import the pilots and sequences database into FlightLine, by clicking on the tabs “Upload Pilots” and “Upload Sequences”



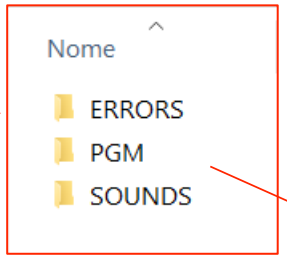


10. Install Noutamatic SD Cards

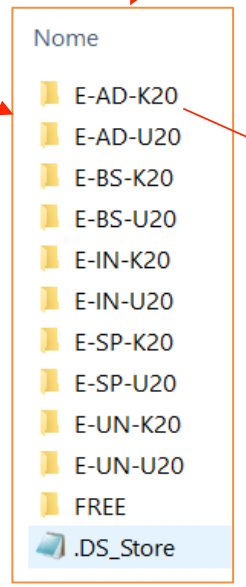
The Notaumatic SD Card must contain the connection parameters enabling Wi-Fi interaction with FlightLine loaded into the Raspberry. The Noutamatic SD Card must be loaded with all the information required to enable all functionalities.



PGM - Competition files

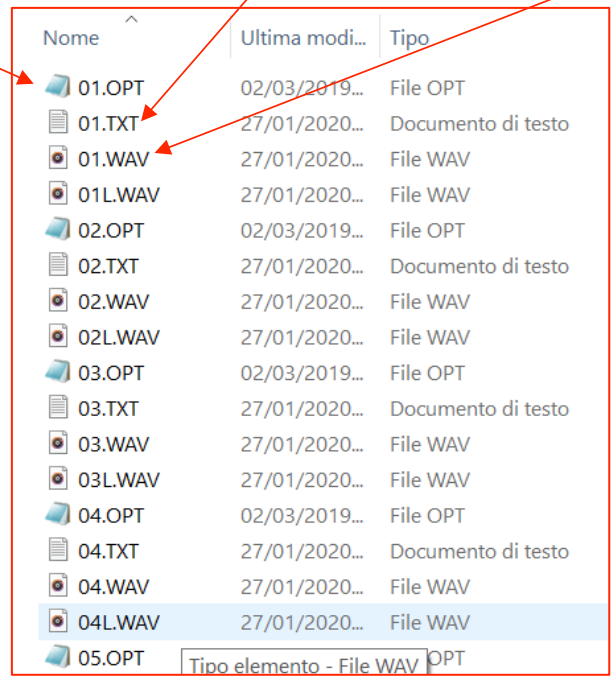


Known Sequences for the current year and Unknown sequences for the competition

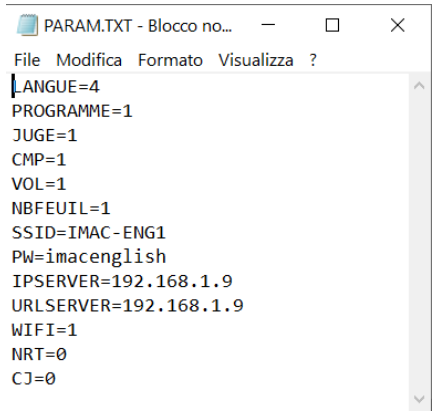


Text files, .txt, of each maneuver that will be displayed in the Notaumatic

WAW audio files enabling the Noutamatic to present the maneuver to the Judge via earphone



SD flies index



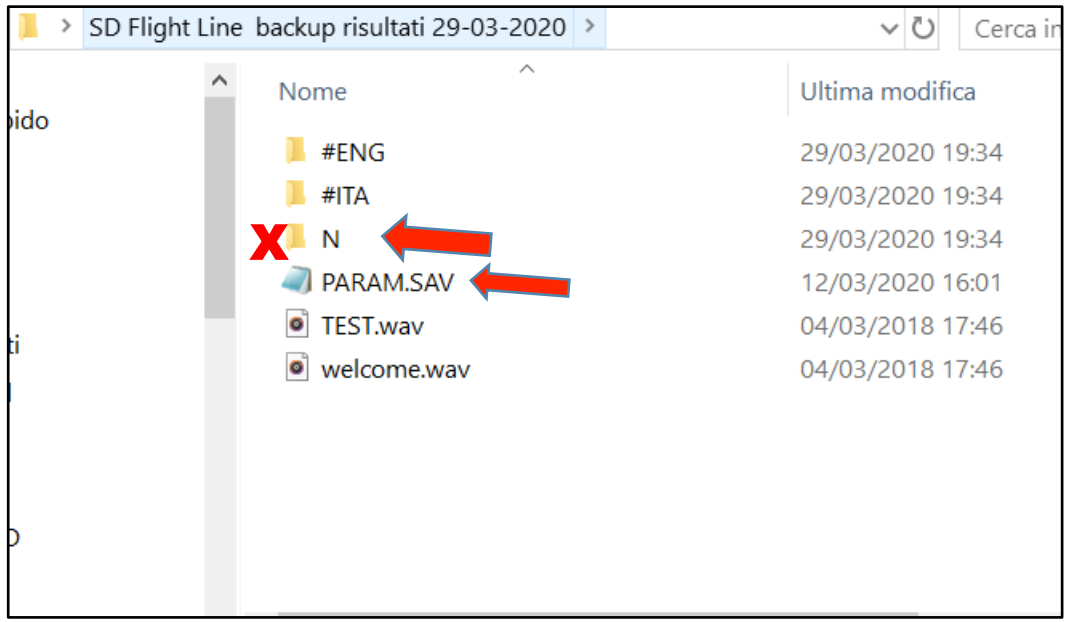
Connection parameters + Competition and Flight identification parameters.

After having inserted the card in your PC, you have to load the following files:

- ✓ Communication parameters
- ✓ Known sequences
- ✓ Unknown sequences
- ✓ Sound files

10.a. Check each card

Turn on the judges Notaumatic and start the flight sequence.



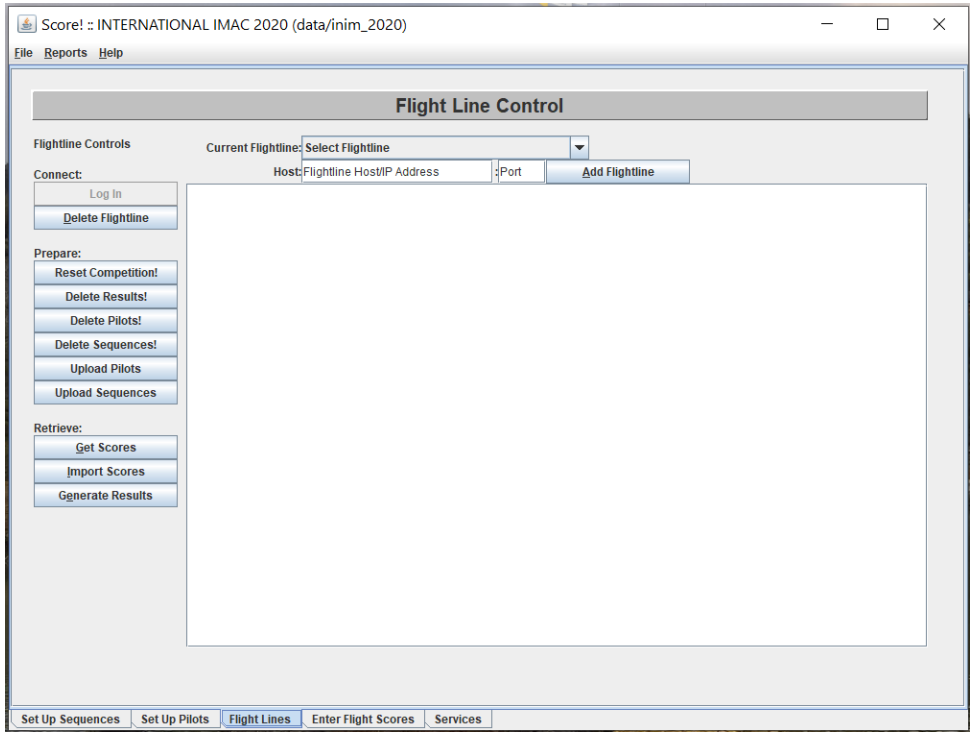
If the pilot number is not loaded when the Notaumatic is switched on, please check the following:

- ✓ make sure the N folder is not present in the SD card. This file contains the data of a previous competition and must be deleted.
- ✓ Also check that the PARAM file has the extension TXT and not SAV

11. Manage the competition

At the field, the day of the competition, start by opening both the Score and the FlightLine controllers on your desktop.

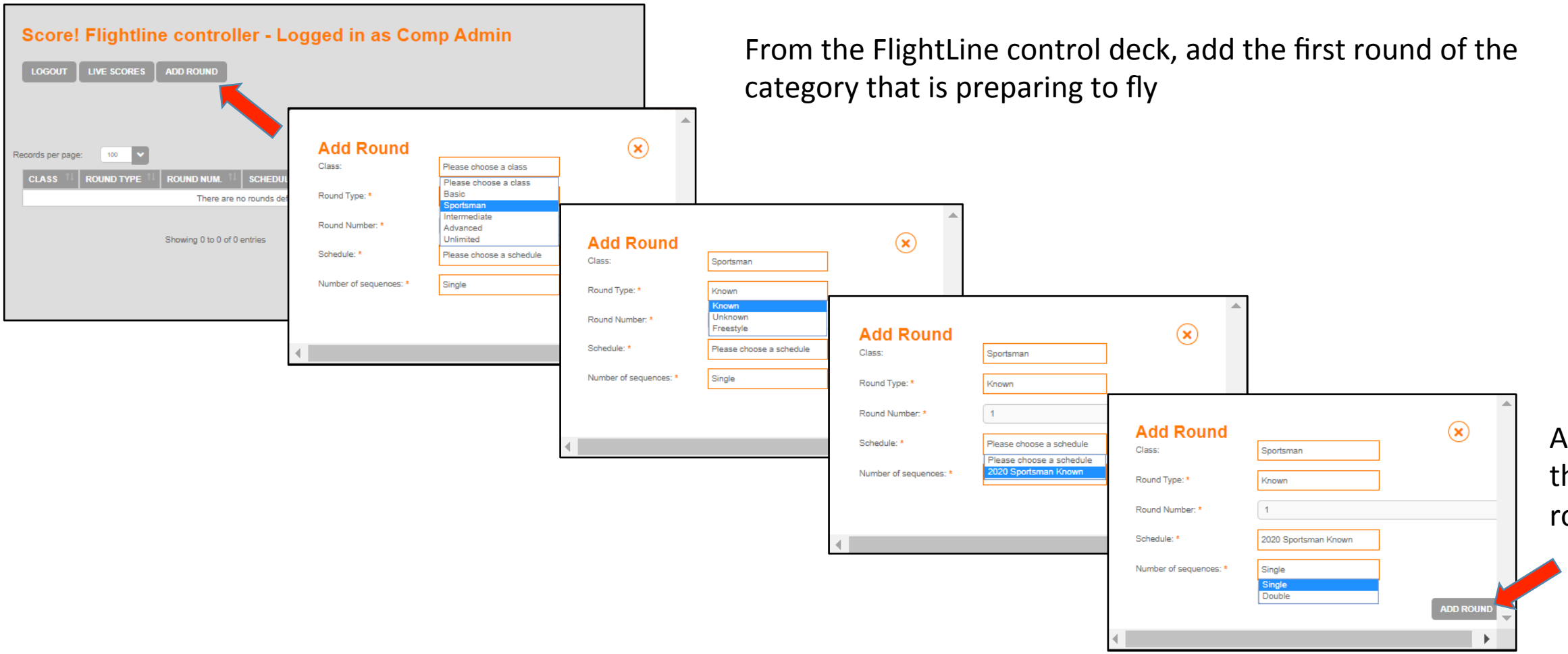
1. Open Score from the Score folder
2. Open FlightLine from Google Chrome



Score Control Deck

FlightLIne Control Deck

11.a. Add the first competition round

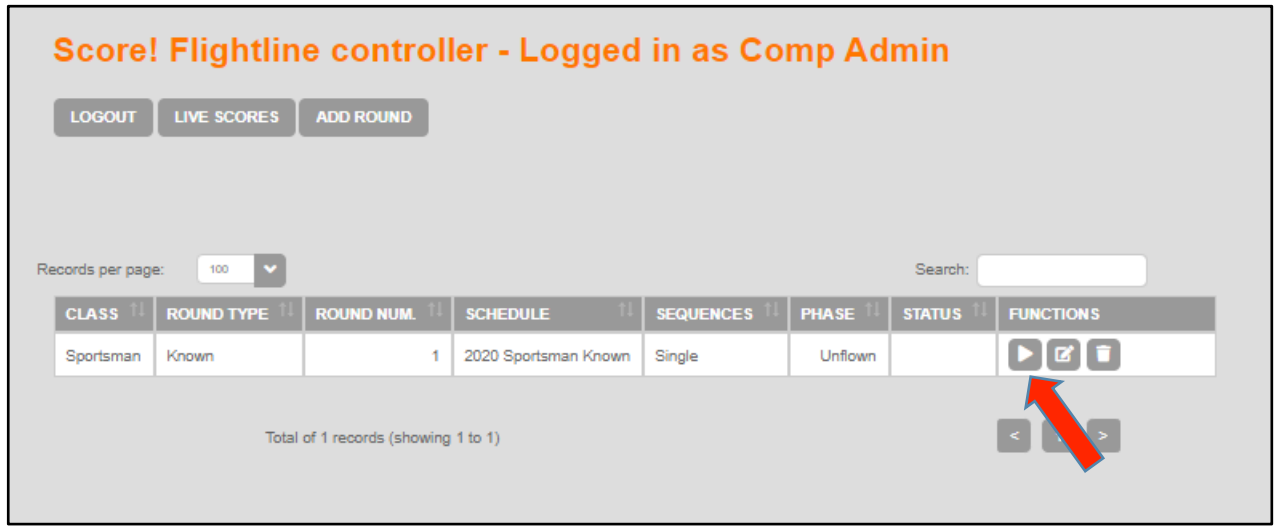


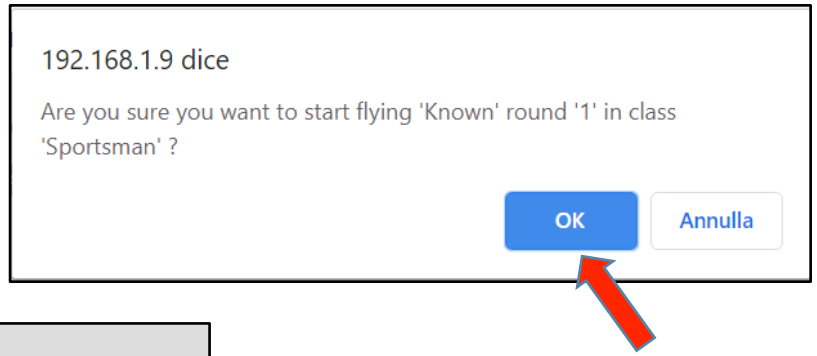
From the FlightLine control deck, add the first round of the category that is preparing to fly

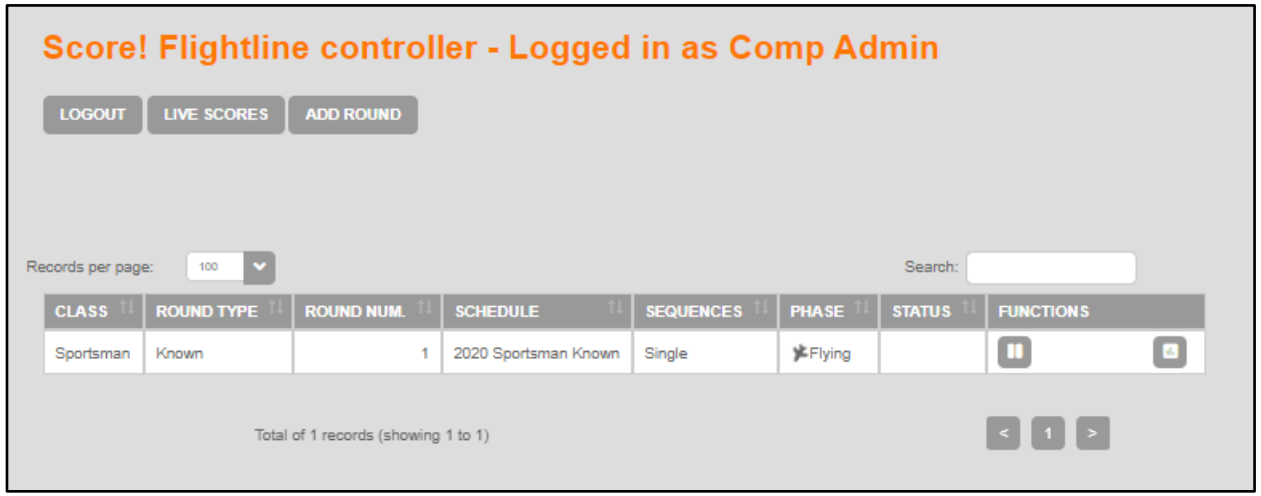
Add the round

11.b. Launch the first competition round

Start the competition by preparing to launch the first round



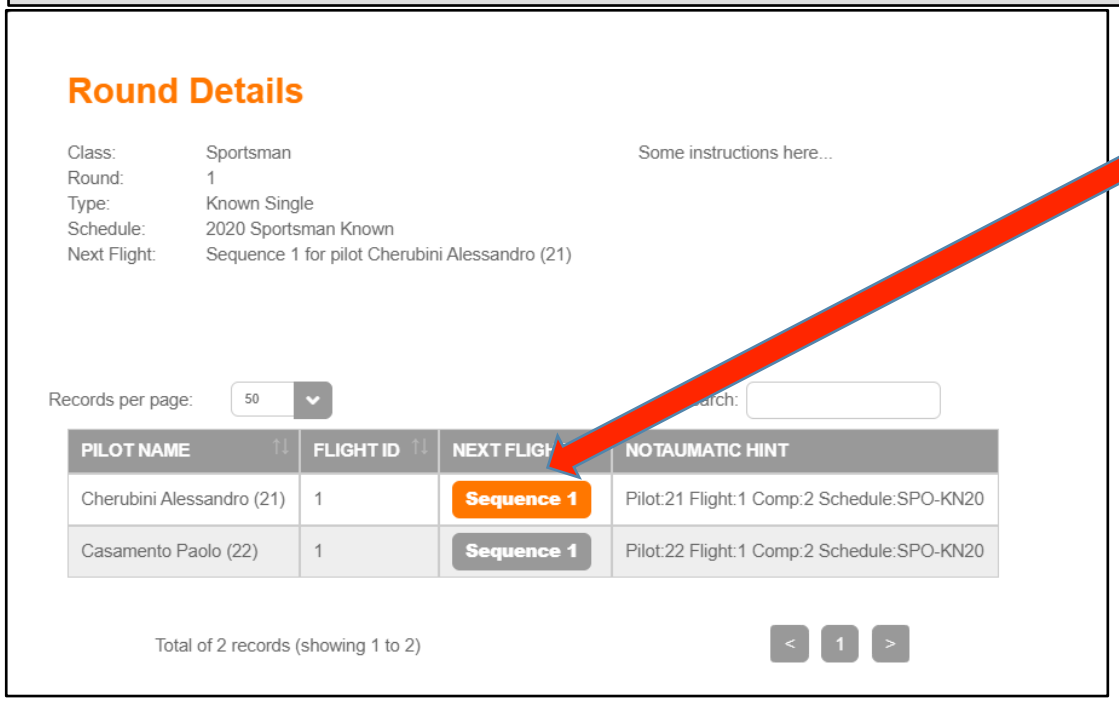




Round successfully activated.

11.c. Start the first competition round

Click inside the round to open the details

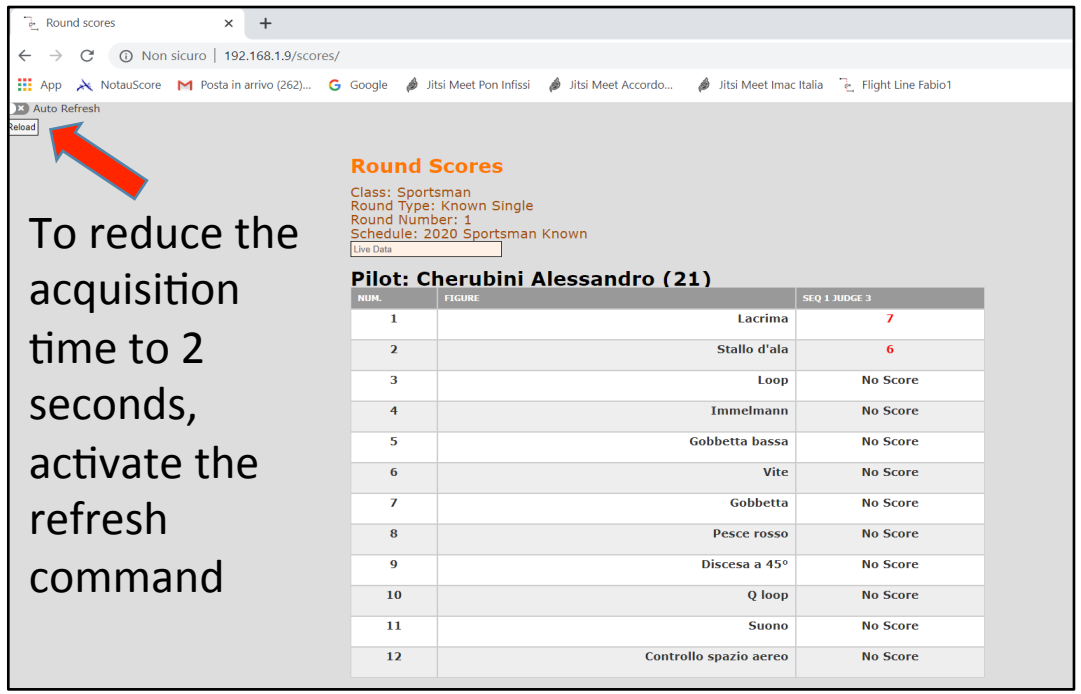


Select the pilot that is preparing to fly.
The button will change color for confirmation

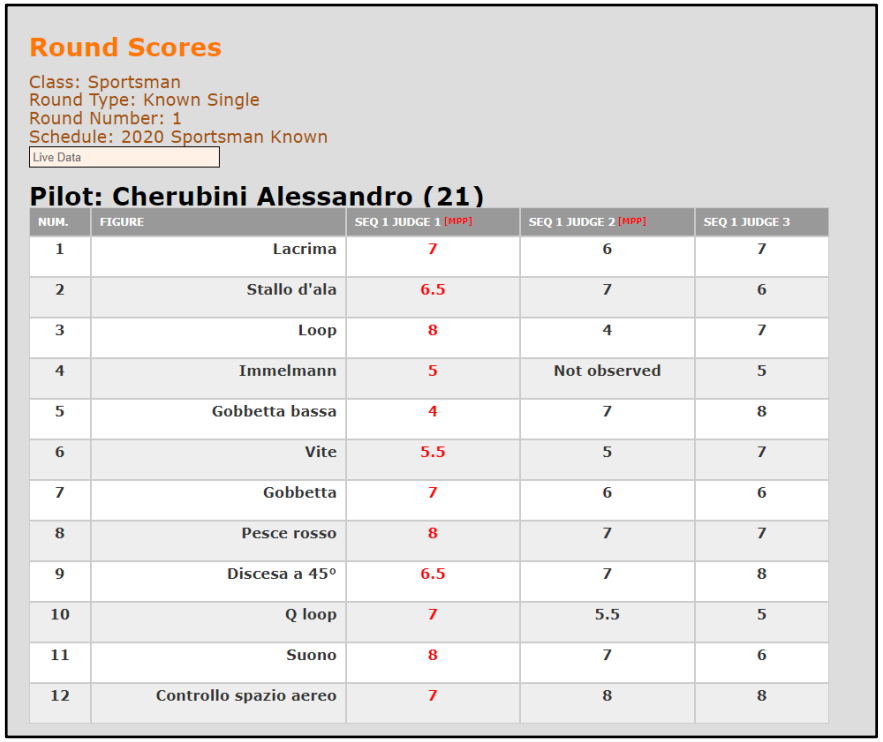
The pilot will start flying and the Judges will be ready to score

10.d. Observe scoring during the competition

During the competition, observe that the scores regularly arrive into FlightLine.
In order to do this, open the LIVE SCORES tab.
Scores acquired will begin to flash red.



To reduce the acquisition time to 2 seconds, activate the refresh command



11.e. Manage “NO” scores and mistakes

Round Scores

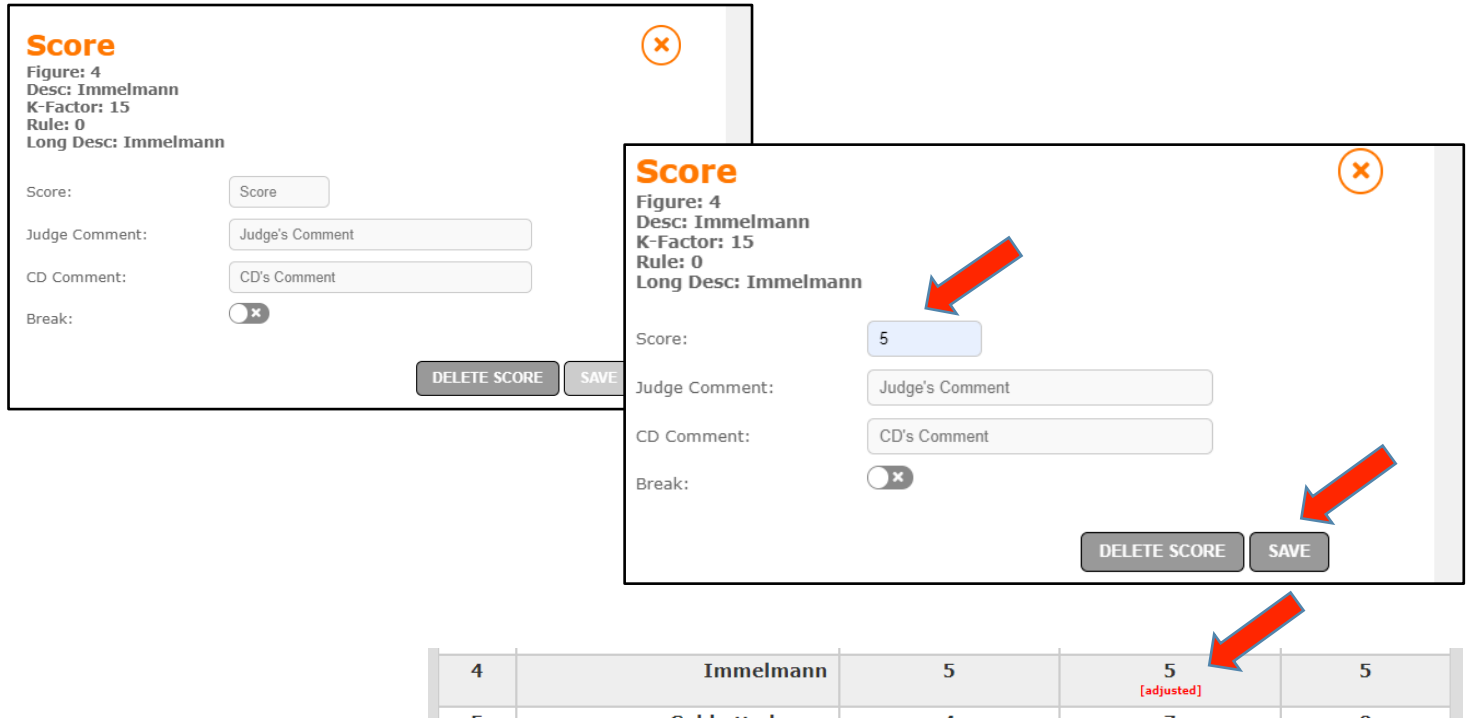
Class: Sportsman
Round Type: Known Single
Round Number: 1
Schedule: 2020 Sportsman Known
Live Data

Pilot: Cherubini Alessandro (21)

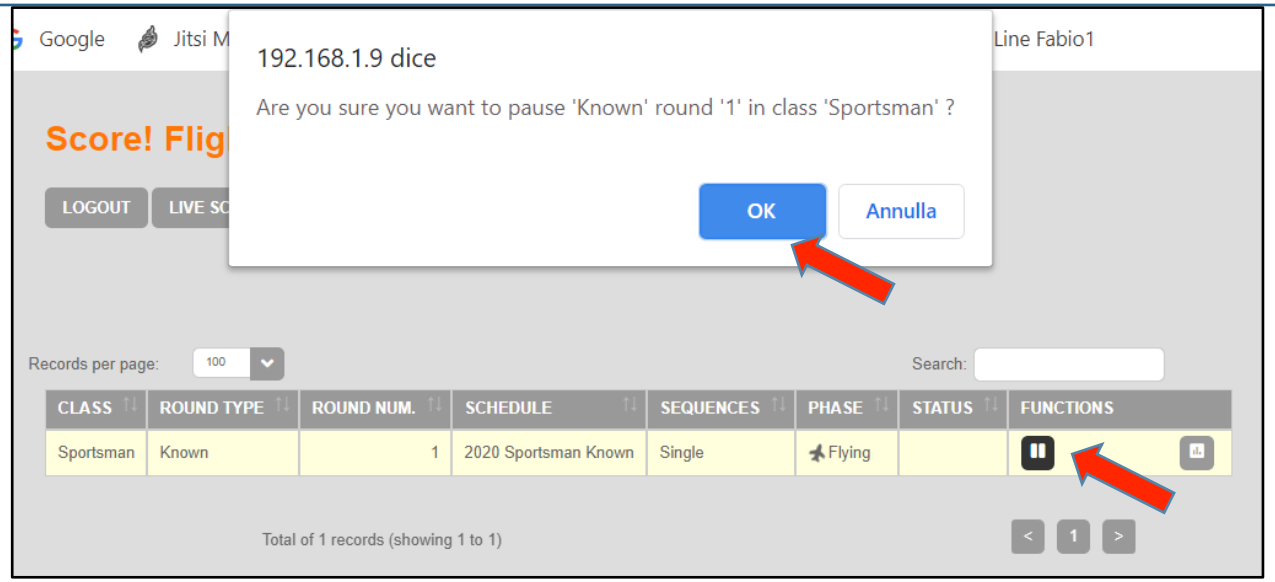
NUM.	FIGURE	SEQ 1 JUDGE 1 [MPP]	SEQ 1 JUDGE 2 [MPP]	SEQ 1 JUDGE 3
1	Lacrima	7	6	7
2	Stallo d'ala	6.5	7	6
3	Loop	8	4	7
4	Immelmann	5	Not observed	5
5	Gobbetta bassa	4	7	8
6	Vite	5.5	5	7
7	Gobbetta	7	6	6
8	Pesce rosso	8	7	7
9	Discesa a 45°	6.5	7	8
10	Q loop	7	5.5	5
11	Suono	8	7	6
12	Controllo spazio aereo	7	8	8

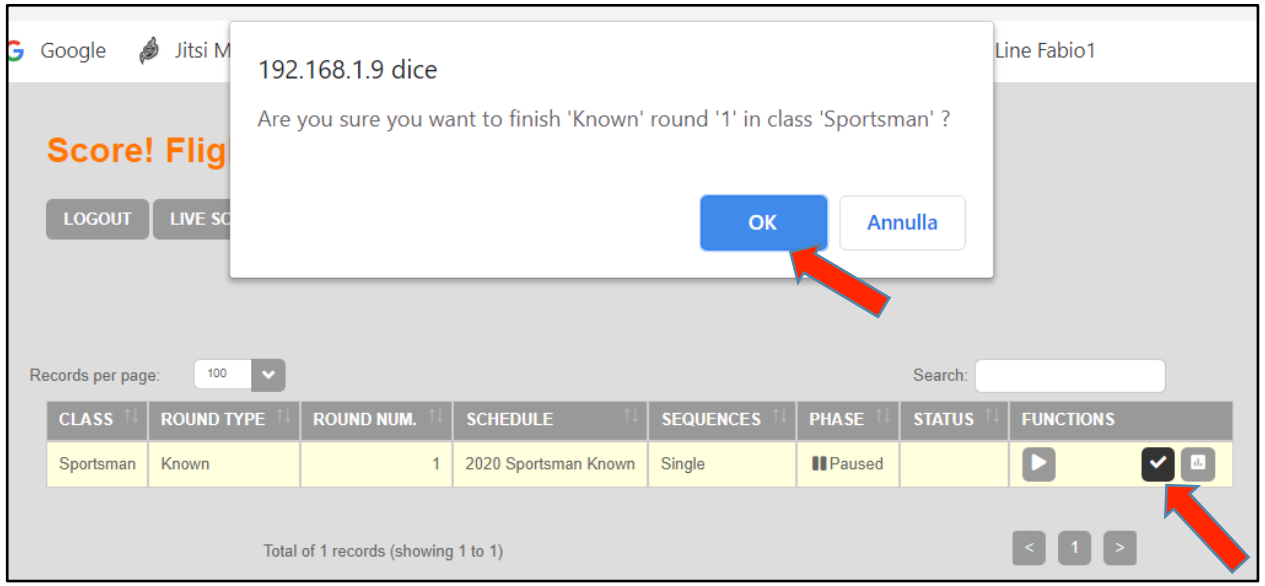
In Score, corrections can be made after each flight, checking the Judges print notes:

- ✓ Confirm “not observed (NO)” or insert the numeric value if reported on the print;
- ✓ Correct values that each judge may have corrected on his print (this is why prints are so important).



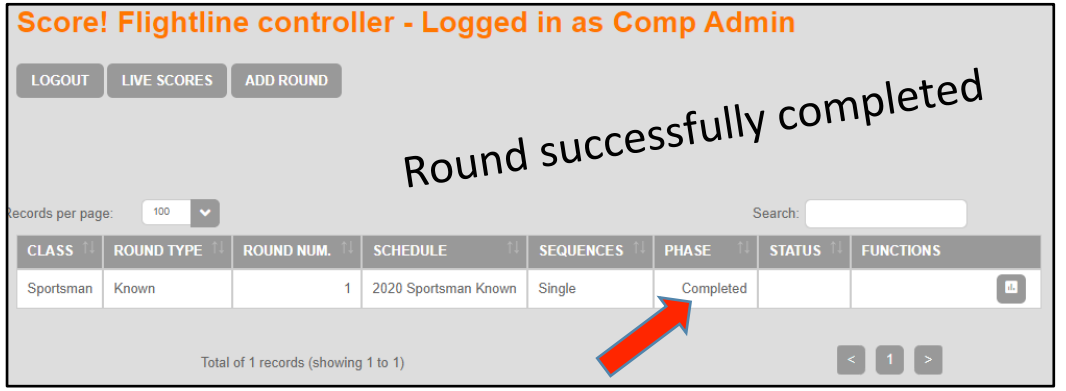
11.f. Close the round





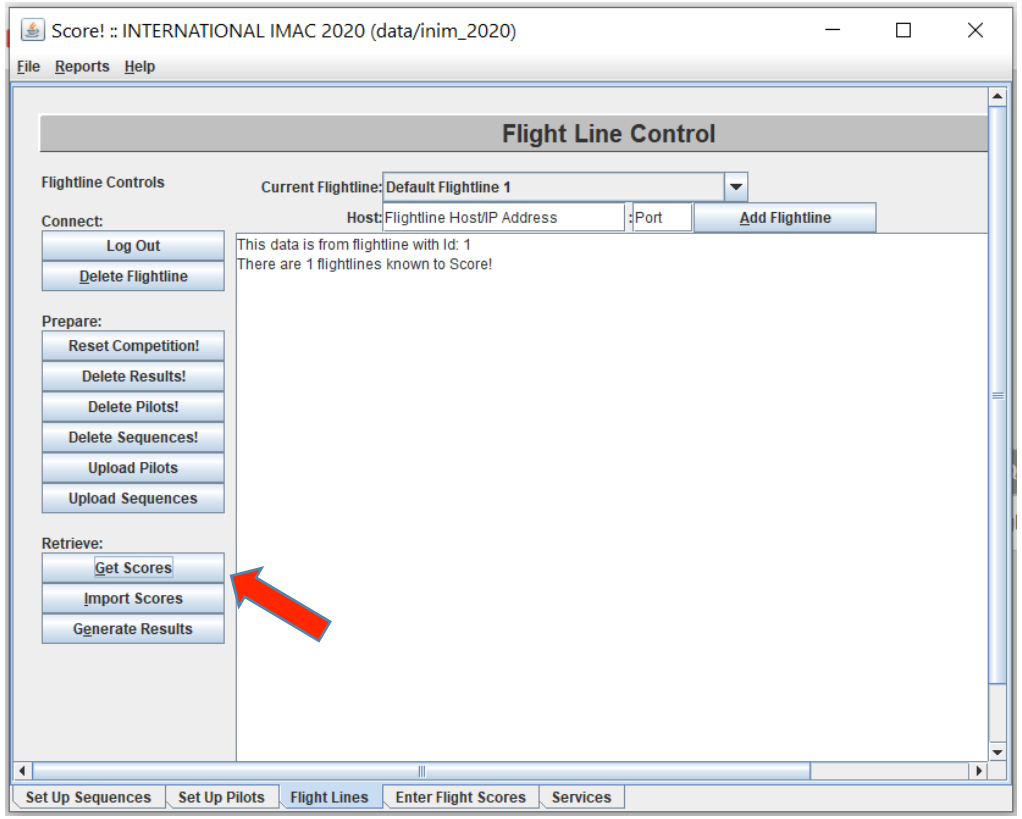
Once all judges have completed their voting process, close the round by:

1. Pause the round;
2. Close it by clicking of the confirmation button.

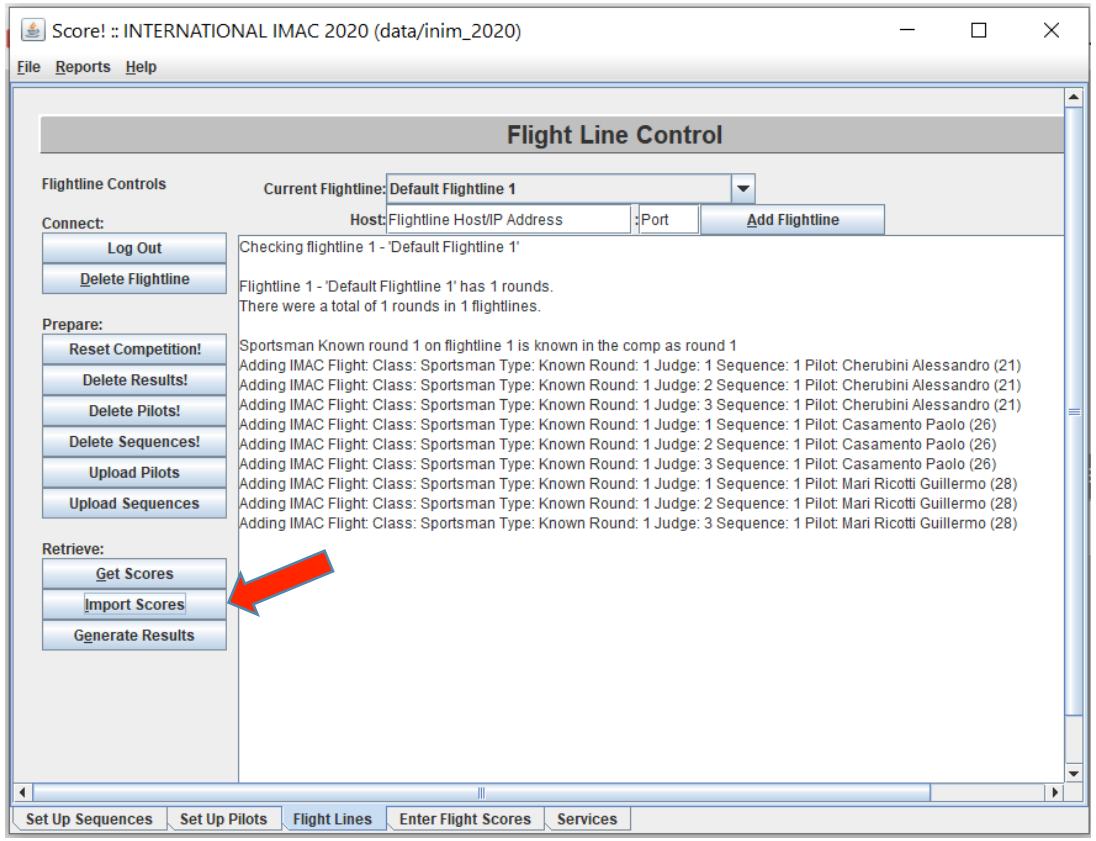


11.g. Import data from FlightLine to Score

IMPORT INTO SCORE ALL ROUND DATA FROM FLIGHTLINE

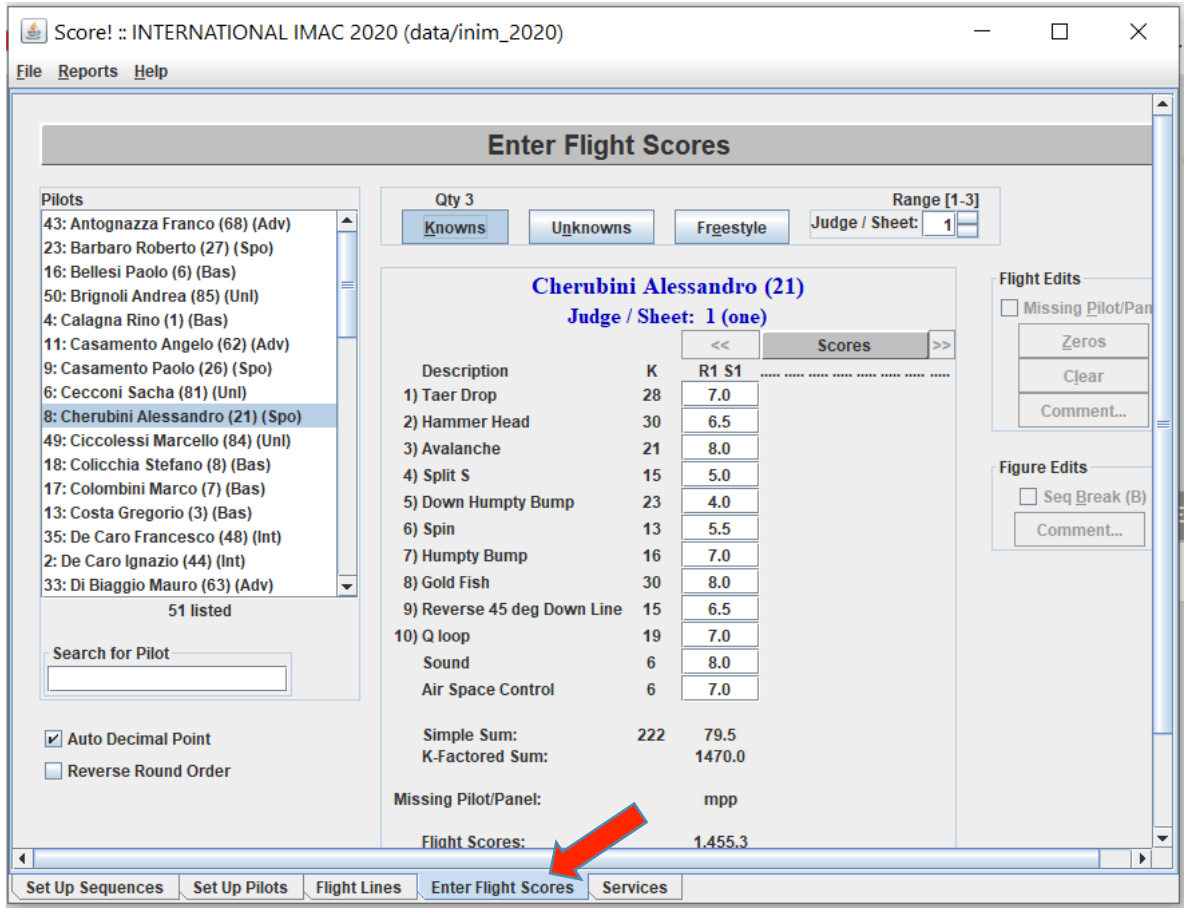


To import the scores, first select **Get Scores** in the Score menu

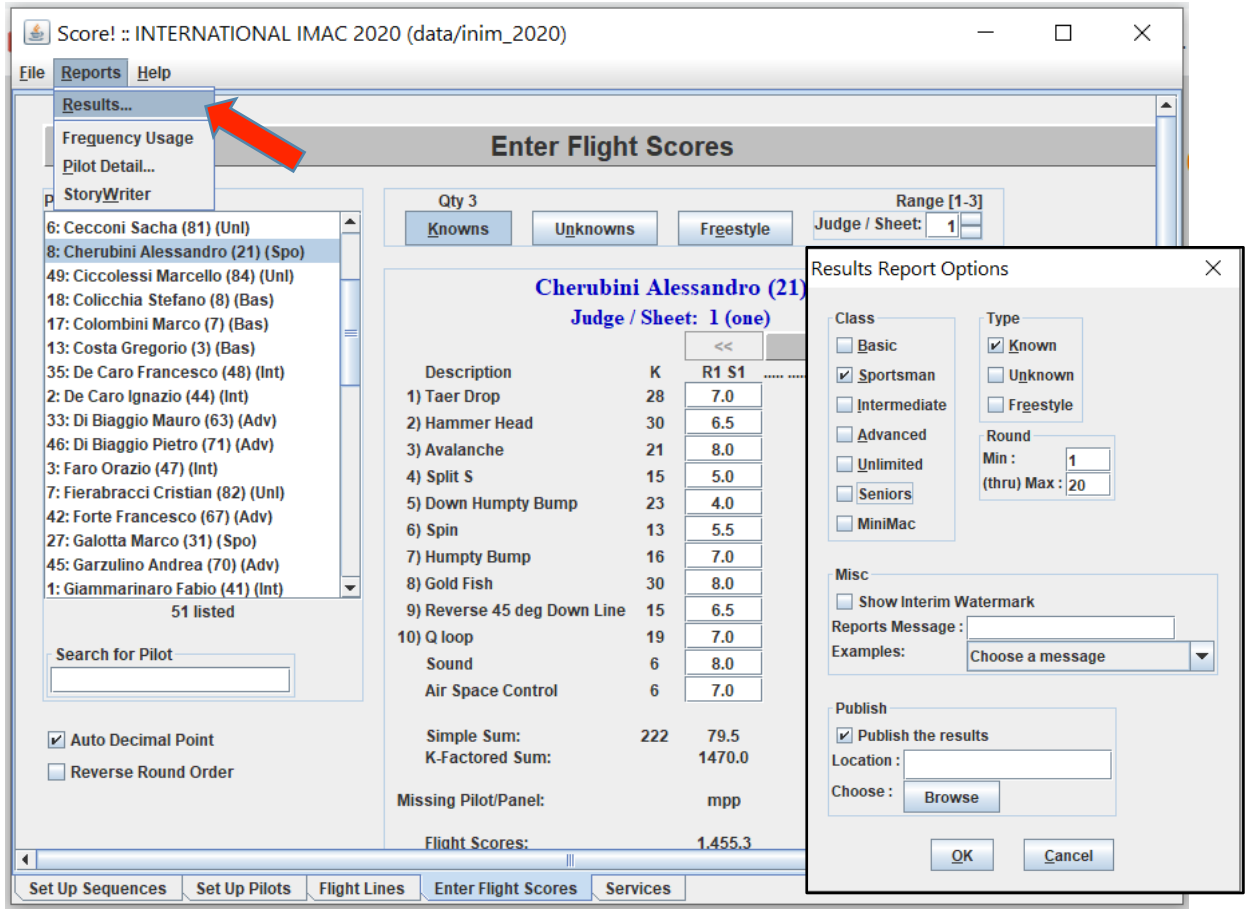


and click on **Import Scores**

11.h. View and print round results in Score



If needed, view scores of each flight



By selecting from the Result pull-down menu, the results can be viewed and printed. For an optimal visualization it is advisable to extract the results by single category and then print them

11.i. View and print rankings

INTERNATIONAL IMAC 2020
Contest Results

As of 10-giu-2020 22:42

Mobile view

Sportsman

Final scores in Sportsman ranged from a low of **954,1** to a high of **1.000,0** *(a range of 45,9)*

Rank	Pilot	Final Score	Known Round 1 Seq 1
1	Mari Ricotti Guillermo (28)	**1.000,0** 67,5%	**1.000,0** 67,5%
2	Casamento Paolo (26) (Katana)	**961,3** 64,9%	**961,3** 64,9% [pp]
3	Cherubini Alessandro (21) (Extra 330 SC Krill)	**954,1** 64,4%	**954,1** 64,4% [pp]

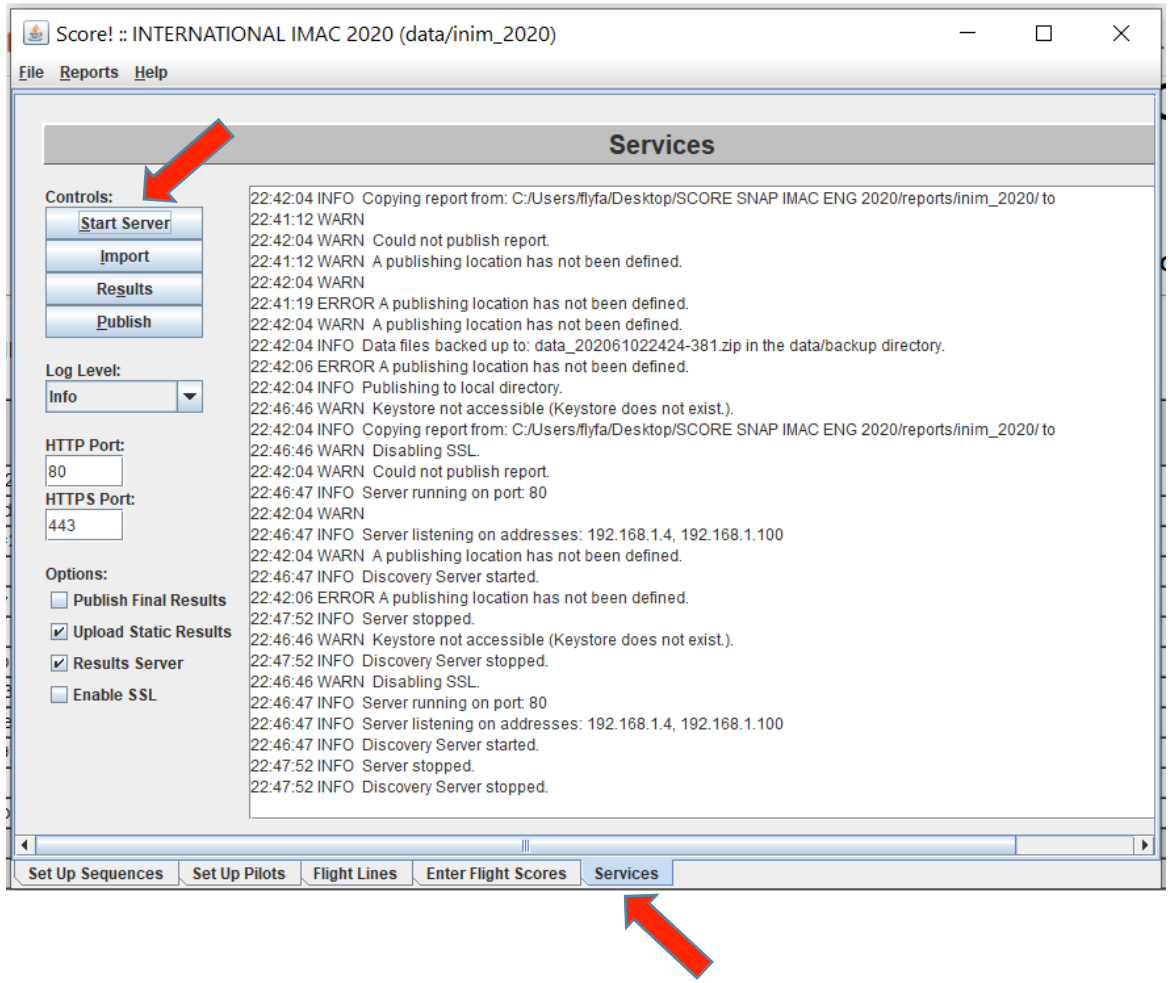
[pp] - "Missing scale pilot/panel" penalty was assessed.

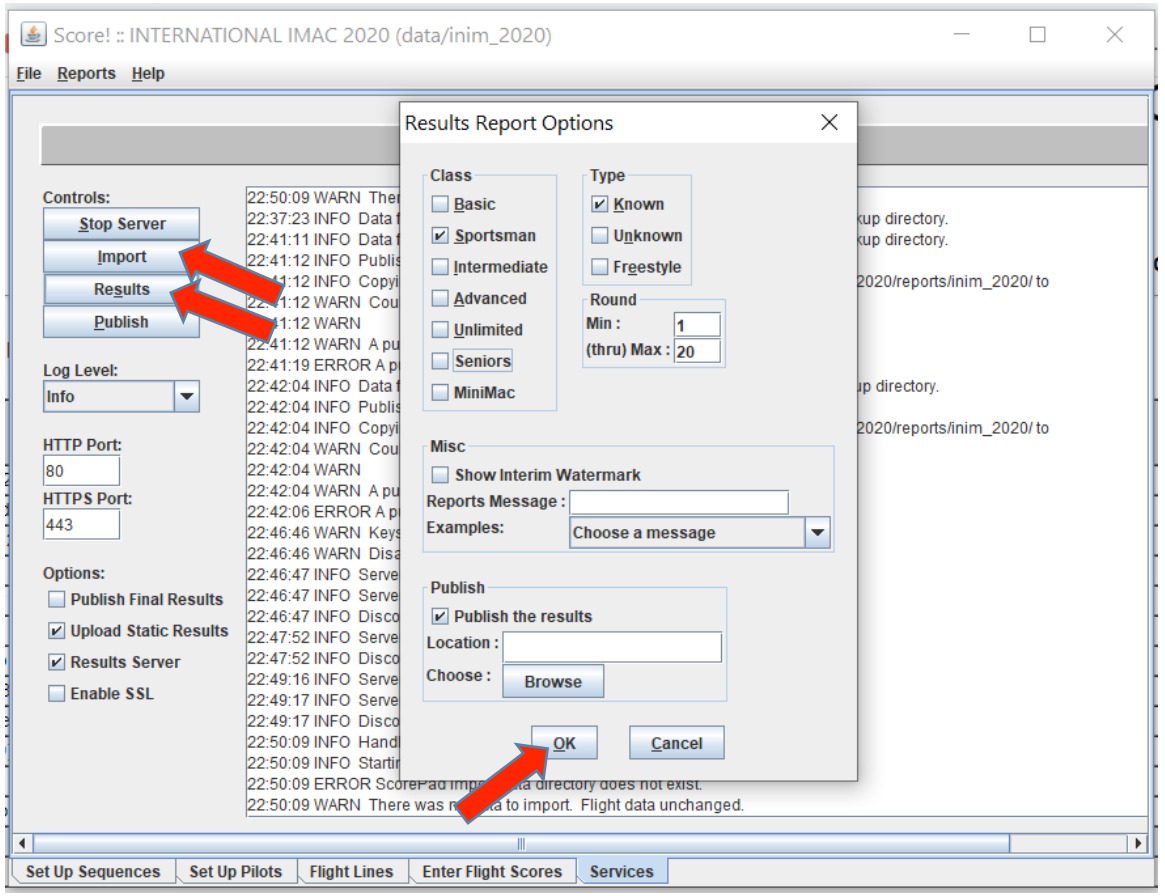
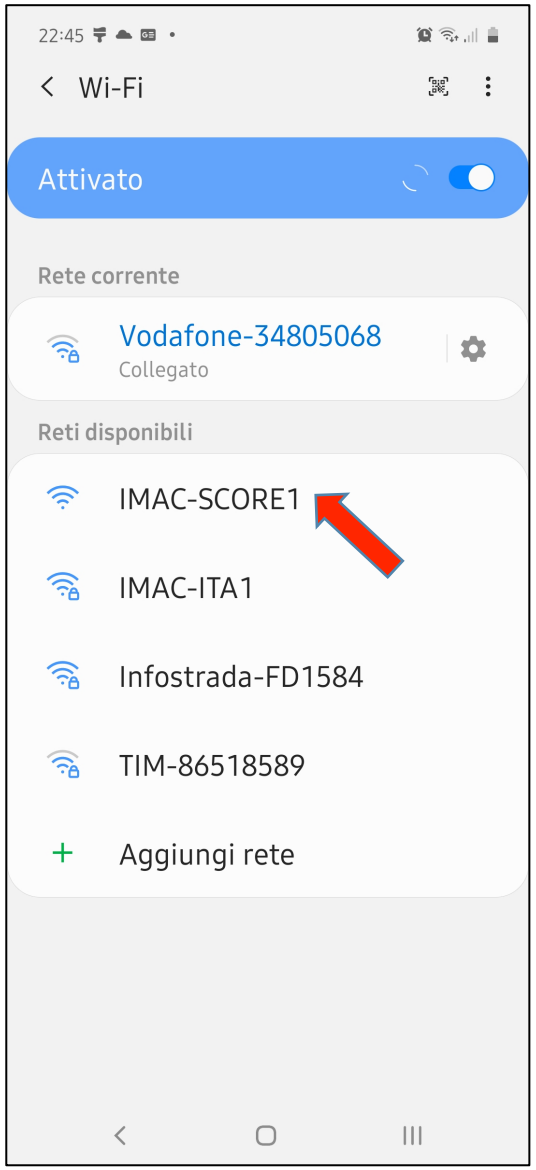
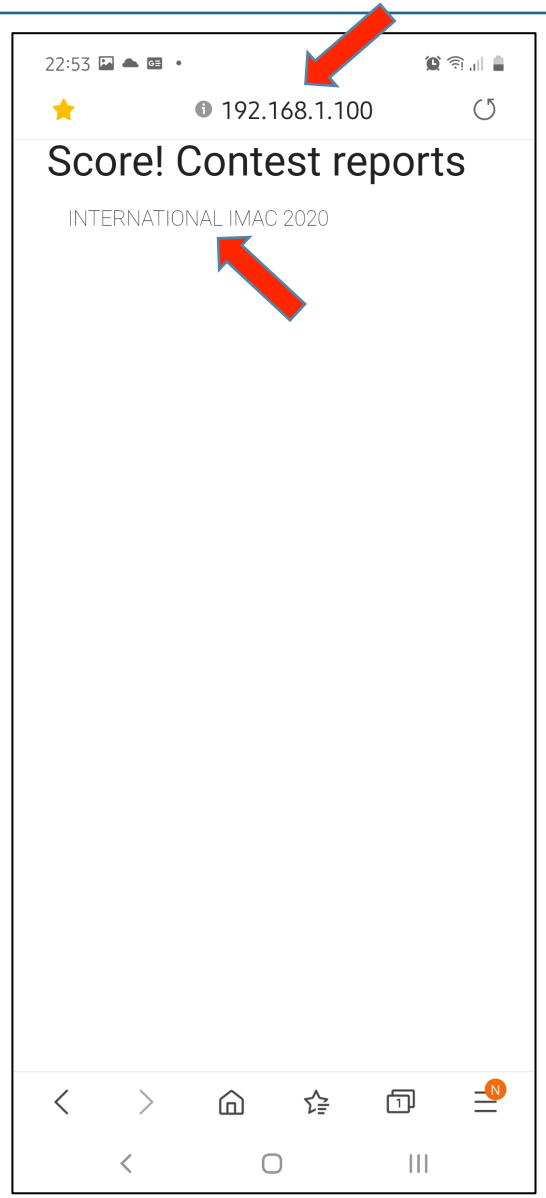
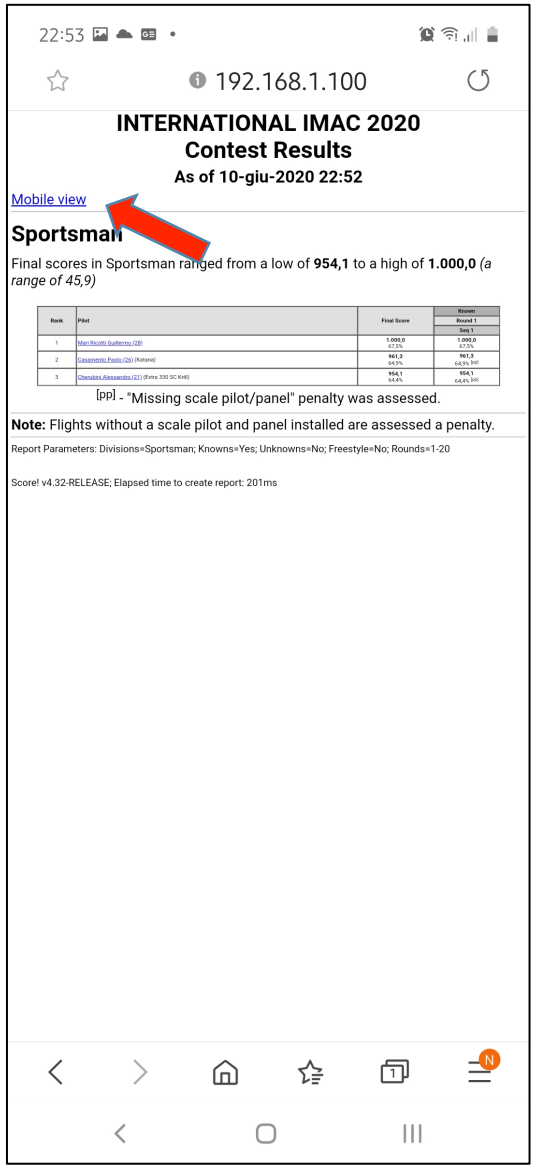
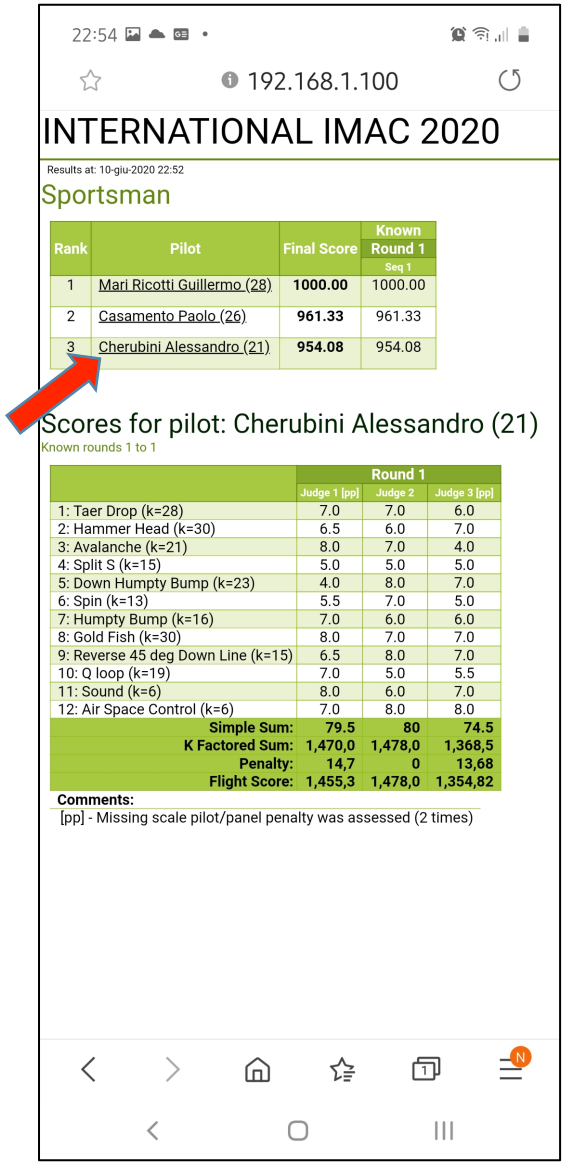
Note: Flights without a scale pilot and panel installed are assessed a penalty.

Report Parameters: Divisions=Sportsman; Knowns=Yes; Unknowns=No; Freestyle=No; Rounds=1-20

Score! v4.32-RELEASE; Elapsed time to create report: 170ms

11.j. Start server and import mobile visible scores





11.k. View scores on smartphones and tablets