TScore

QIRA Integration Guide

This document includes features introduced at TScore v11.3

TScore *the complete Trampoline Competition package*

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1. Introduction

TScore can integrate with the Eurotramp HSTS / QIRA automatic time-of-flight (ToF), HD and Synchro equipment.

Integrating with other systems introduces some risks, as you have 2 different development teams involved. We recommend that you stick with the currently tested versions of QIRA (2.4.0, 2.5.0 or 2.6.0). Please ensure that you have a manual backup in place. We also strongly advise that you use the QIRA Autosave option so that you can easily replay any ToF / HD results (see later).

The diagram below shows the way the systems communicate, so you can easily set them up in your network.

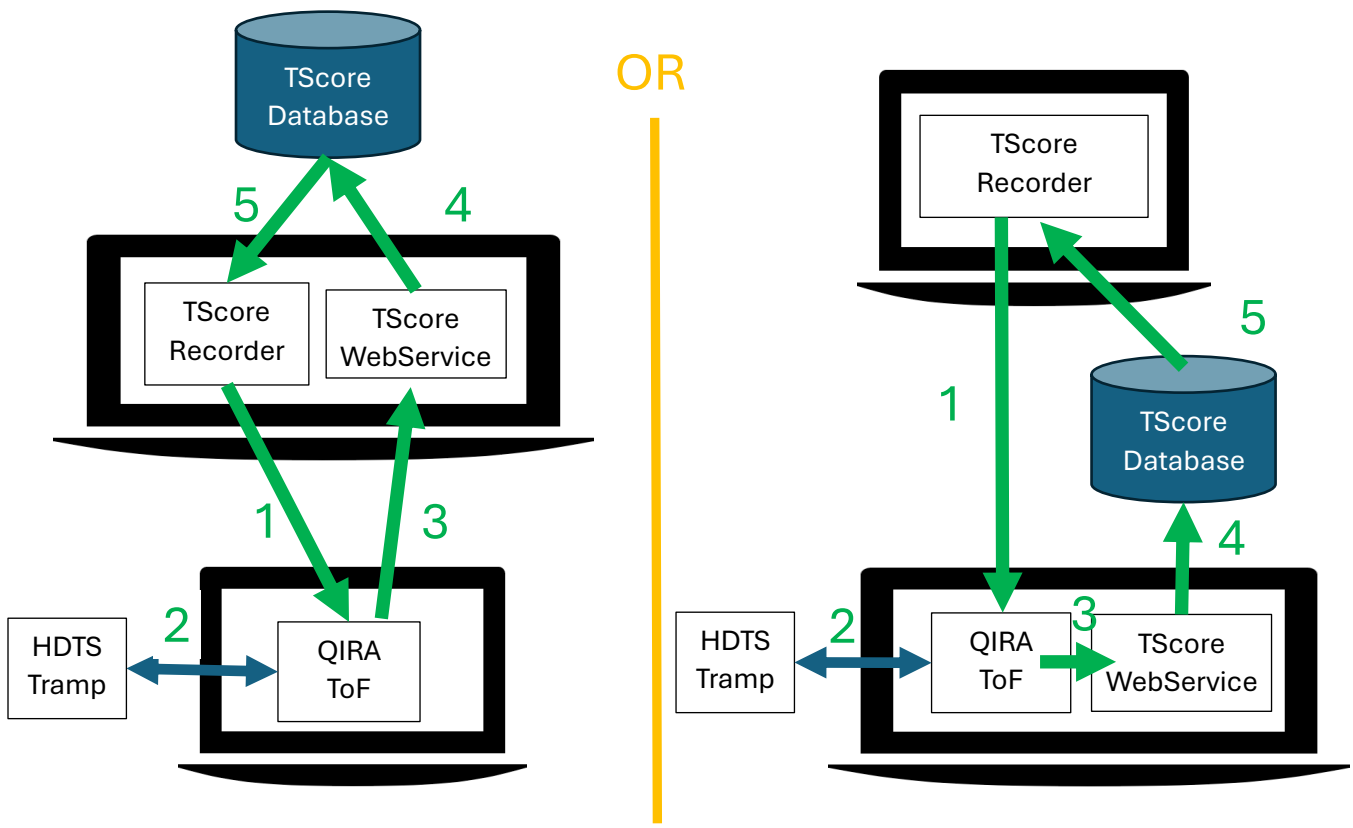
For the illustration, all devices are attached to the same network (192.168.0.x).

So for example, you may typically have the TScore data base running as 192.168.0.2.

The TScore Client for Panel 1 as 192.168.1.11

The QIRA ToF software is running on its own workstation – 192.168.1.41

The new 'TScore WebService' program running on either the TScore or QIRA laptop.



In practice, it appears that option 2 is the most straightforward as there is one less network message. i.e. run the TScore web service on the QIRA PC.

To communicate, each of the components has to know which computer the other component is running on (Its IP Address) and the number of the 'port' that the other computer is monitoring for data.

Each route needs to be allowed through the firewalls (if present). Windows will often prompt for this, but you can also run the TScore 'SystemCheck' PowerShell script to set the ones you need or do this manually.

The sequence of operations is as follows:

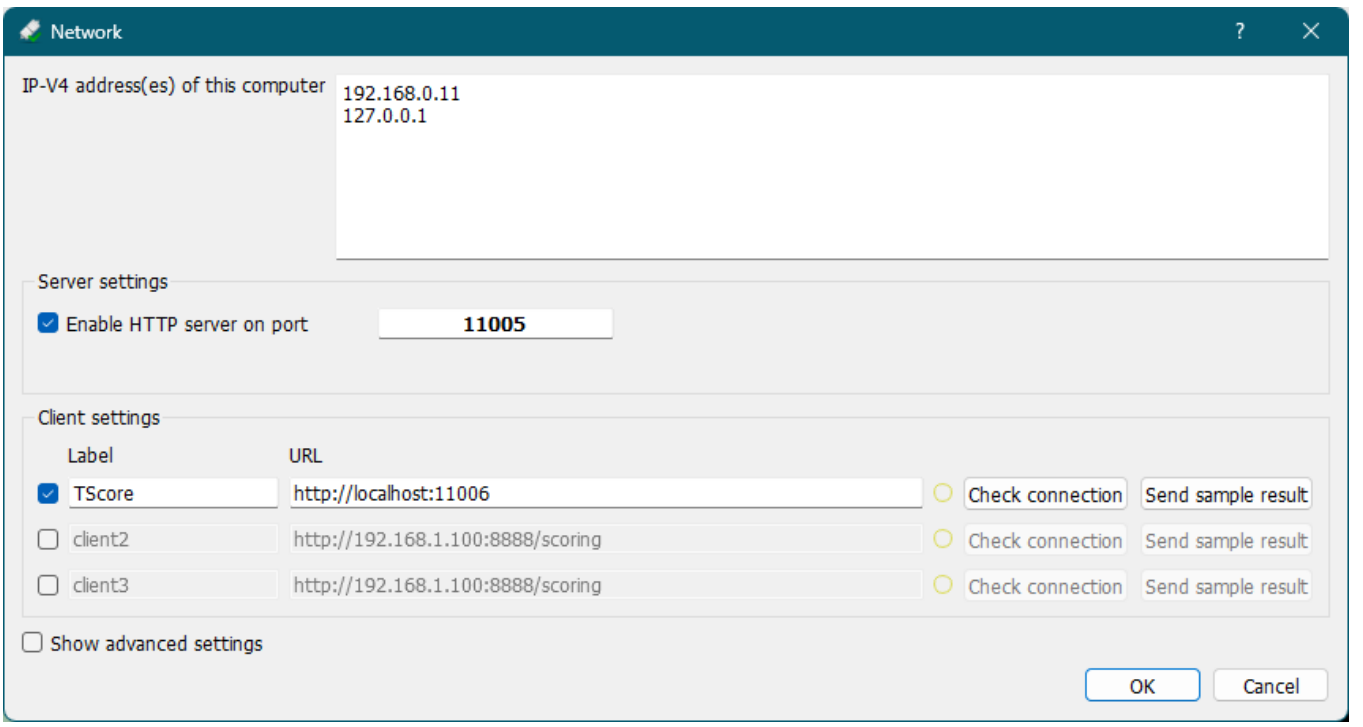
1. The TScore recorder selects the gymnast in the tablet scoring screen and clicks 'Start Scoring'
   TScore sends the gymnast details to QIRA, which displays them (Name, Club etc)
2. The Gymnast performs the routine with the QIRA operator doing the usual Start/Ed/Confirm actions.
3. Once the QIRA operator clicks 'Confirm' the results are sent to the TScore Webservice
4. The TScore Webservice pushes the results to the database
5. The TScore workstation detects the results and displays them for overall review and adjustment

2. Configuring the communication ports

Note that in the screenshots below, ALL components are running on a single computer (192.168.0.11).

The communications settings are applied as follows.

First you need to run QIRA on the chosen laptop, get it running properly (see the QIRA manual for instructions) and then set the address and port number for its listening service. This is done on the Config-Network screen



Enable the HTTP Service and set the port to **11005**. This is where message from TScore will arrive to set the current gymnast name, club, round etc. when you click the TScore 'Start Scoring' button.

You also need to tell QIRA where to send its results. In our case, we want these to go to the TScore WebService (which you can choose to run either on the QIRA laptop or the TScore laptop).

In the 'Client settings' bit of the screen above, turn on the first client and give it a helpful name (TScore). Then set the URL to the correct laptop address and port. In this example, as we are running the TScore WebService on the same laptop as QIRA, so the address can be given as http://localhost:11006 (where **11006** is the port number that the WebService will be listening to).

If you are running the TScore Web Service on the TScore laptop instead, you must set it to http:// followed by the IP address of the TScore laptop, then ":11006". (Where 11006 is the port configured in the TScore web service).

For example, http://192.168.0.11:11006.

In summary then, for all of these examples, The main TScore program sends data to QIRA on port 11005 when you click 'Start Scoring'. QIRA sends data to the TScore Web Service on port 11006 when you click Confirm in QIRA.

We will verify the TScore connection later, once the TScore Web Service is running.

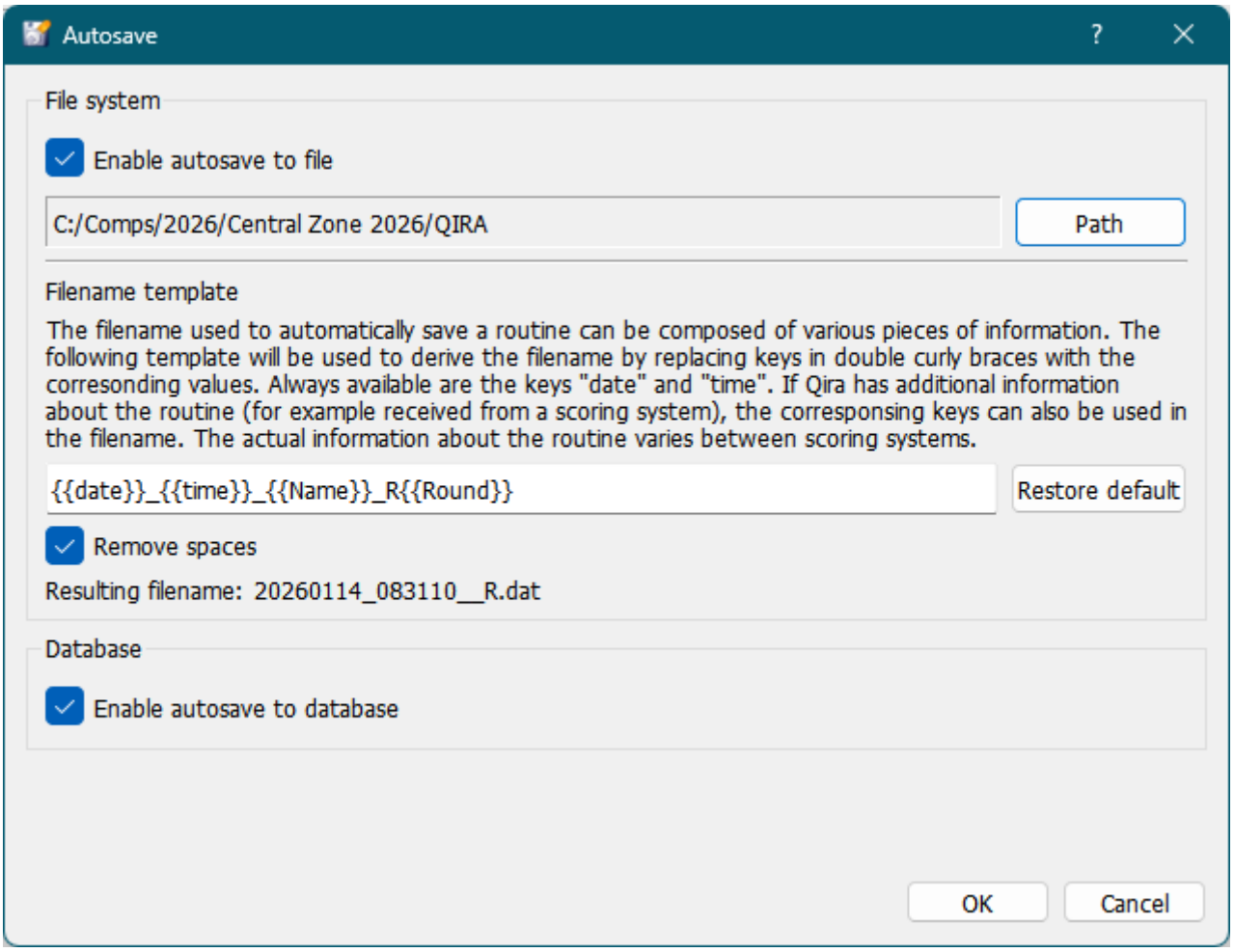
Click **OK** to save the settings.

NOTE: If you do not have the HDTS equipment available, you will need to perform a File=>Open File operation to load a test routine and get to the main working screen for QIRA. There is a Routine1.dat sample provided in the TScore web service folder for this. Unless you do this, you will be stuck on the 'No USB' screen of QIRA.

3. Setting QIRA 'Autosave' options

It is *strongly advised* that you configure QIRA to automatically save each recorded routine to file. This lets you reload and resubmit results in the event of a connection failure. To do this, pick Config=>Autosave, check 'Enable autosave to file' and set a suitable folder to save the results.

Set the filename template to something obvious and helpful – we suggest {{date}}_{{time}}_{{Name}}_R{{Round}}



4. What happens if QIRA hasn't received the Gymnast data when the routine starts?

It is important to note that even if QIRA hasn't received the gymnast information from TScore, it will still record the ToF and HD information and send the results to TScore, as it purely checks for the currently scoring gymnast on the panel set by the TScore Web Service when it writes the scores.

In this case though, the QIRA autosave filename will be missing the name and round number, but you can still use the date/time marker to identify the routine. You might like to consider making a note of the actual time of each routine on a manual recording sheet for later cross-reference.

Note: If QIRA doesn't receive the gymnast information from TScore, you should check that the QIRA server address and port number are correctly set in the TScore Preferences->Panels tab, and that the QIRA HTTP Server is enabled with a matching port number in the QIRA Network Configuration screen.

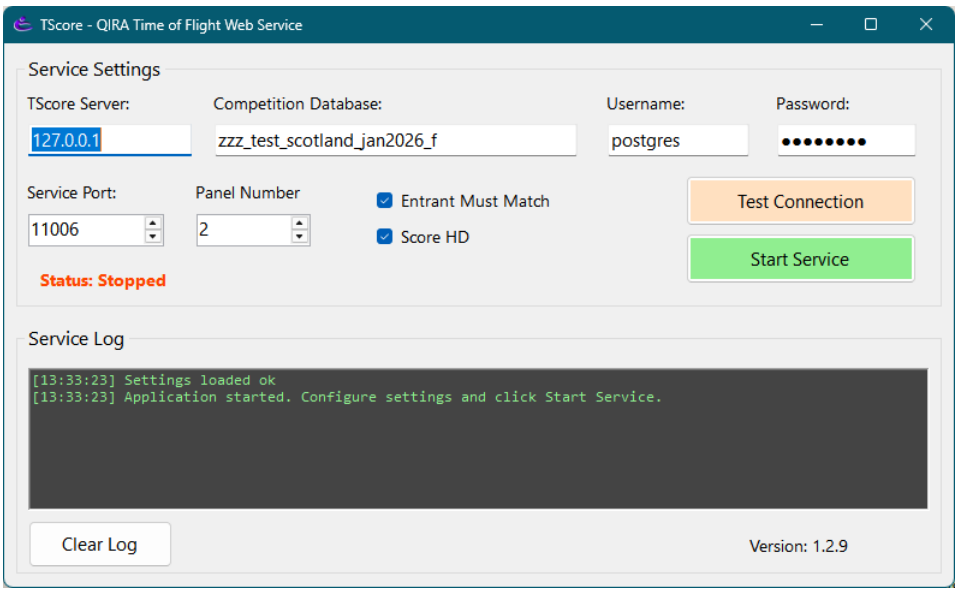
Once the first gymnast has been sent, QIRA will let you choose Name and Club (for example) to be shown on its screen – by right clicking in its display boxes.

5. Configure the TScore WebService

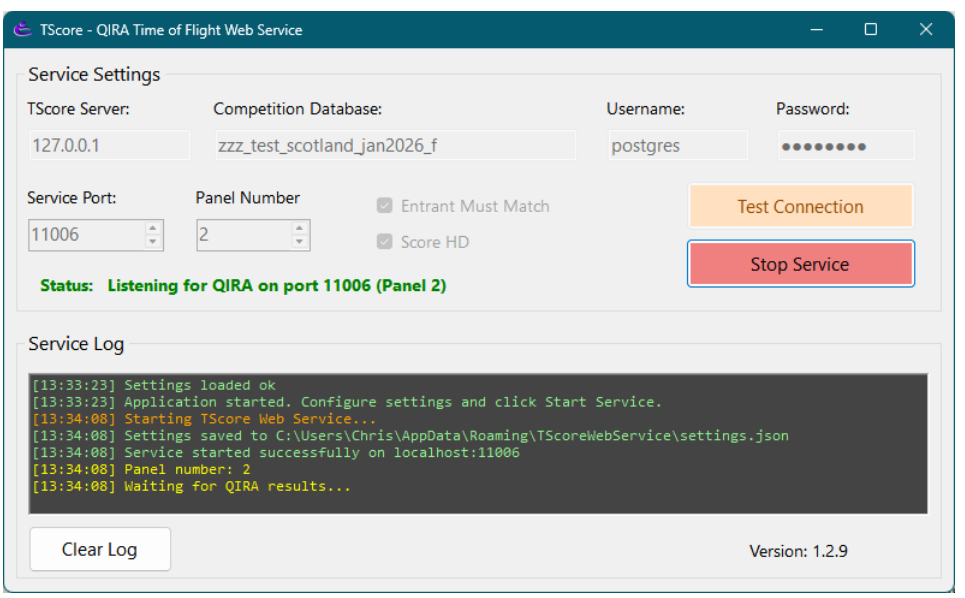
Start the TScore WebService program C:\Program Files (x86)\TScore\TScore-WebService\TScoreWebService.exe

In here, you need to set the **TScore Database Server** address, the name of the competition database, and the PostgreSQL username and password. (these are usually both 'postgres'). Leave the 'Score HD box' checked.

You can test the database connection by clicking the Test Connection button.



Now set the Port number for this web service to 'listen' to – we suggest you use **11006** - and choose the scoring panel to which this particular QIRA relates. Click '**Start Service**' and you can now leave this service running.



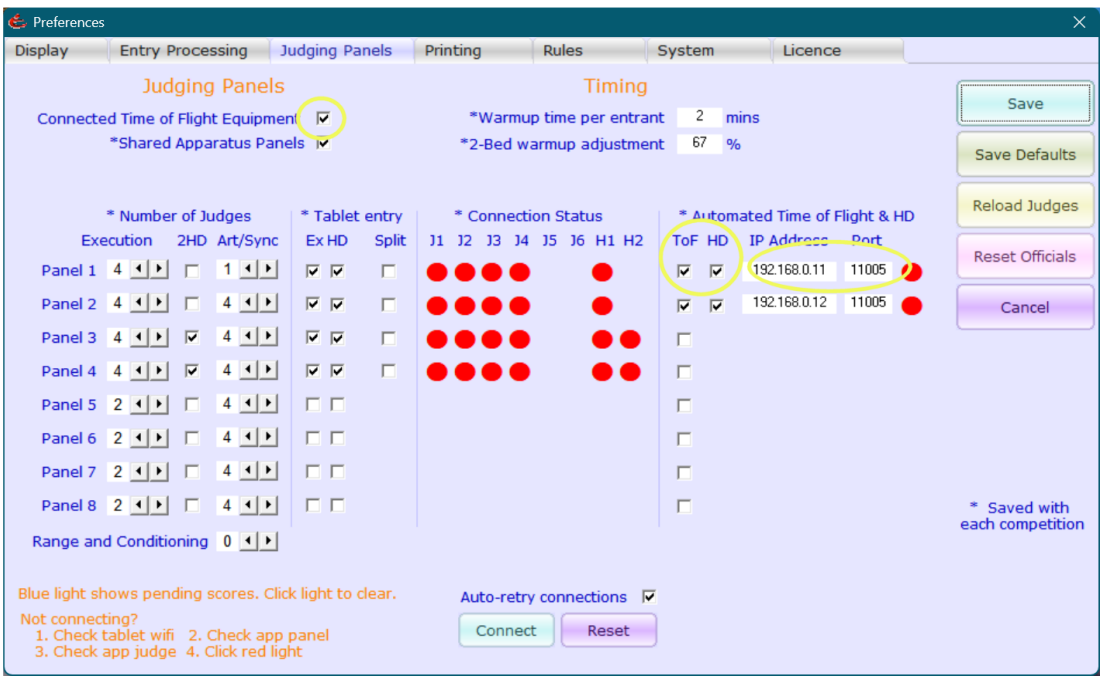
At this point you can hop back to the QIRA Network Config screen and click "Check Connection" for the TScore service. The light there should turn green and you will see a message in the TScore Web Service screen.

Once you as satisfied that the service is running correctly, you may minimise the service window.

6. Configure TScore

In TScore, go to Preference – Panels and turn on the “Connected Time of Flight Equipment’ switch.

Note: If TScore is not licensed for the optional Automated Time of Flight module, it will report an error here. Please ensure that all TScore laptops being used at your event have this license feature enabled.

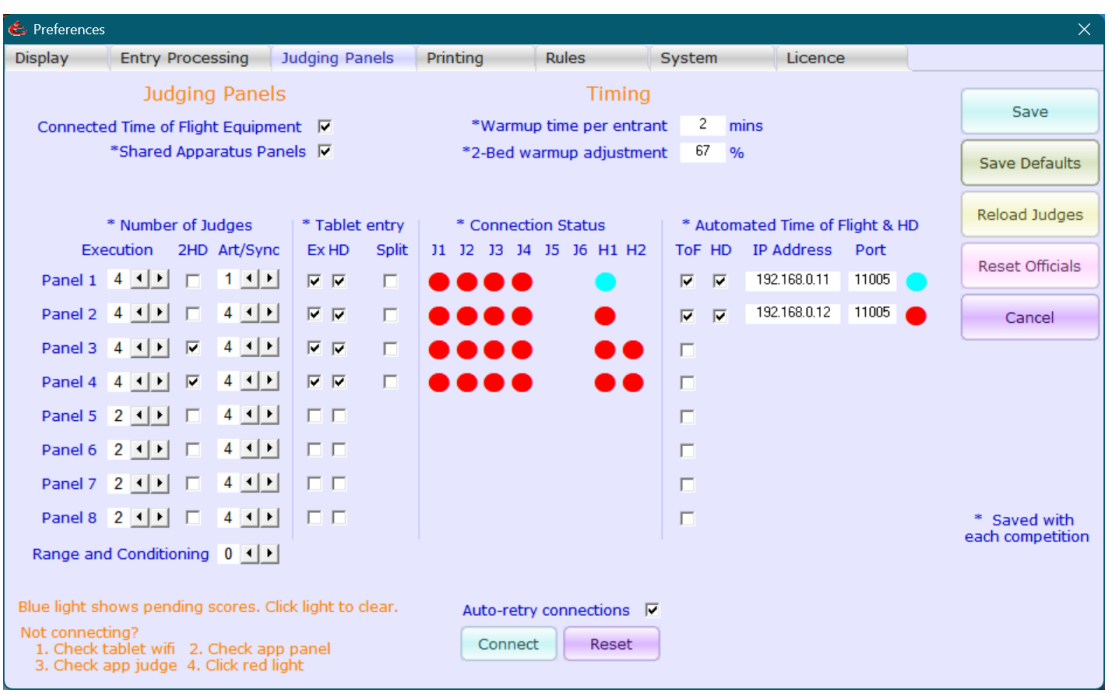


Then pick the ToF and HD boxes for each of panels that are using the QIRA system and fill in the IP Address and Port number to use. (To find the IP Address of the QIRA computer, just start a commend shell and type *ipconfig*. The IPv4 value should be of the form 192.168.x.y Alternatively, the QIRA network config screen shows its IP address.

Set a value of **11005** for the port number – this matches the QIRA HTTP Server configuration that you set above.

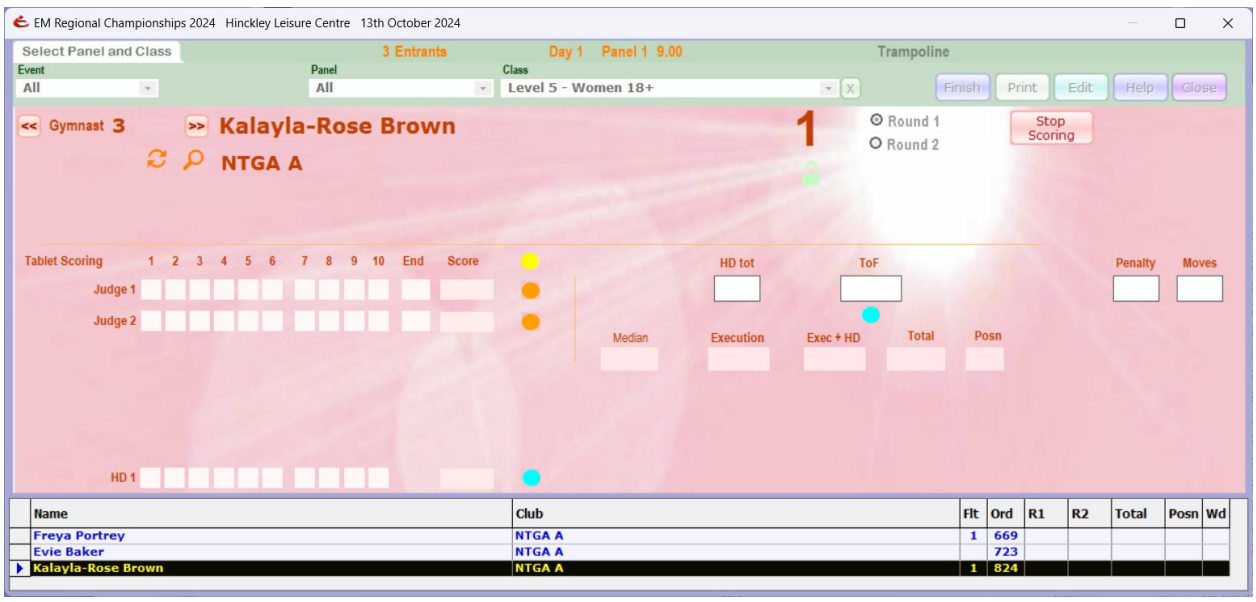
To test the connection to QIRA, just click the red light to the right of the port number. If all is well, the red light will change colour to cyan. (note – uncheck the ‘2HD’ box)

Click Save to save the settings.



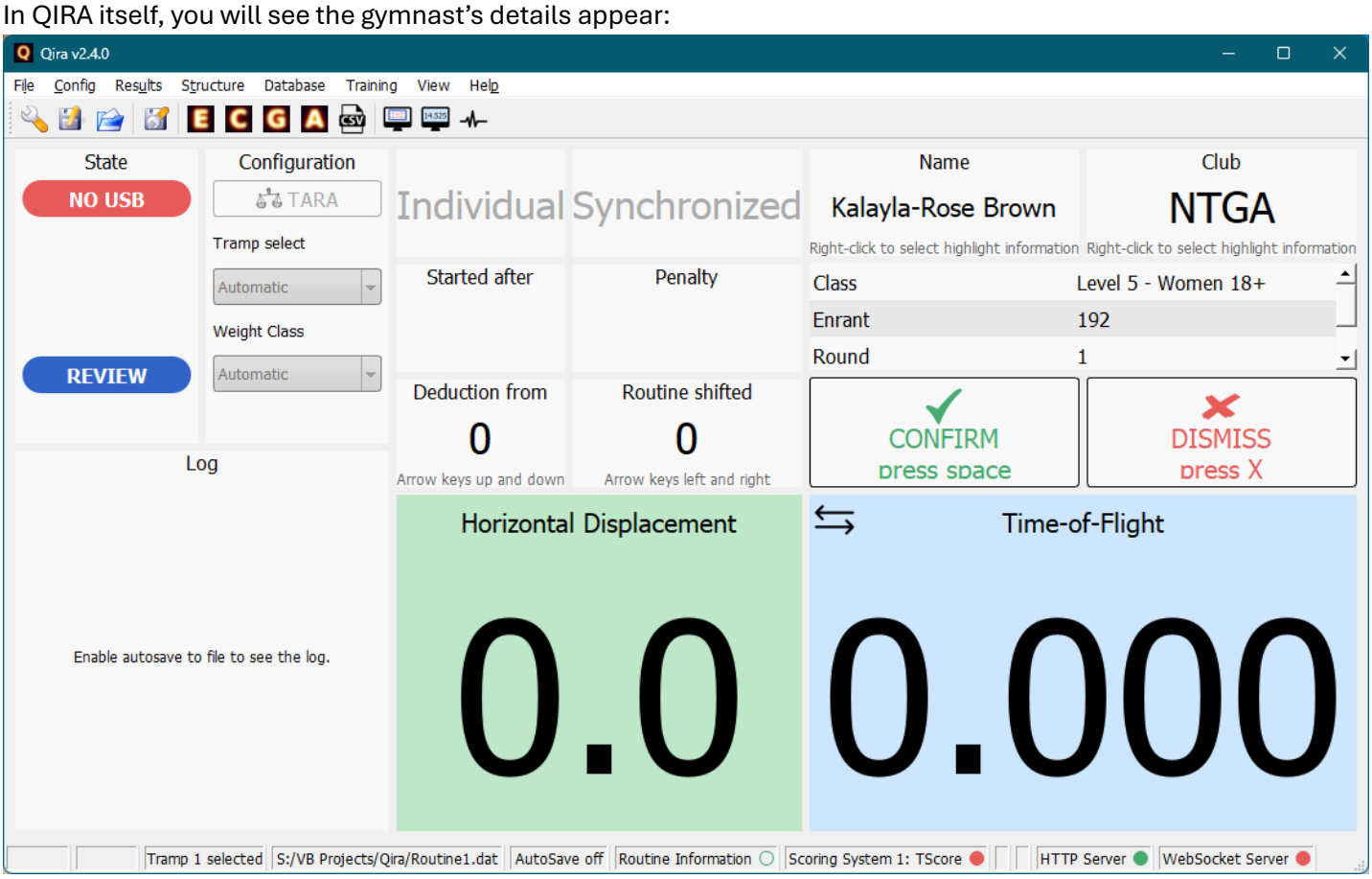
7. Scoring with QIRA Time of Flight

Now go to the TScore Scoring screen and choose a class that has Time of Flight and is on Panel 1.
You should see the usual tablet scoring screen, where you click Start Scoring



The lights start as red, then all turn amber or cyan as connections are acknowledged from the tablets or QIRA.

In QIRA itself, you will see the gymnast's details appear:

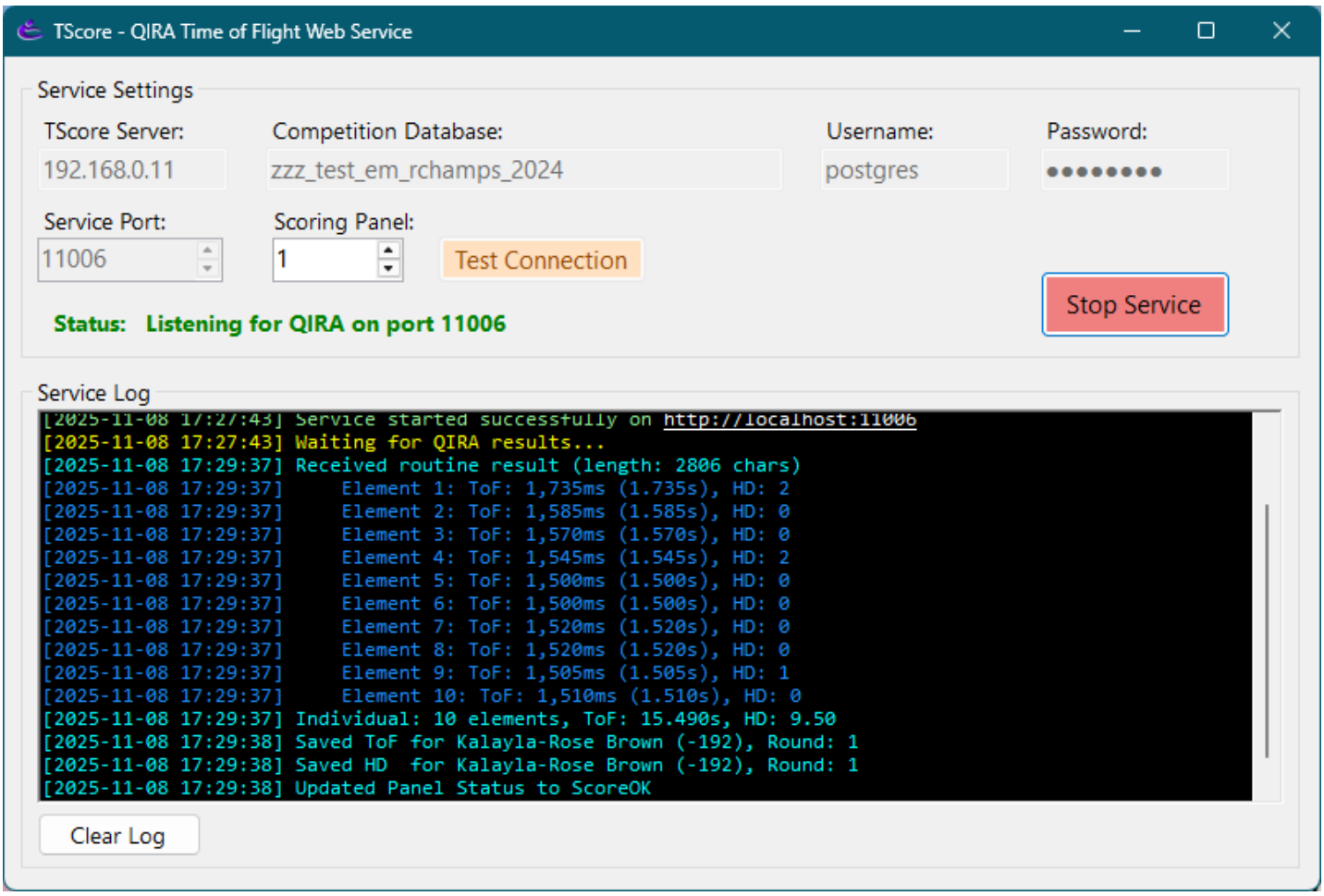


Note: You need to right click and pick 'Name' and 'Club' to show those details in the two Information boxes each time you restart QIRA.

The Name and Club options are available the first time QIRA receives a 'Start Scoring' instruction from TScore.

You can now test the response from QIRA by opening its Config => Network dialog again and clicking the ‘Send Sample Result’ button for the TScore client.

You should immediately see the results listed in the TScore WebService window.



And then appear in TScore itself as the HD and ToF lights turn green.

The Form judges enter their scores as usual on the tablets:

You can then set the difficulty, penalties etc. and save the scores.

Note that if the gymnast has an interrupted routine, the 'Moves' box will be set according to the moves counted in QIRA. You can subsequently override this by typing the number of moves yourself. The Execution, HD and ToF scores are adjusted accordingly.

If for any reason you need to manually override the ToF, then use the 'Clear' button to remove the per-move scores in the background before entering your new total (otherwise it will just be reset when it recalculates them!)

For Synchro, operation is broadly similar, but you will see a Synchro score rather than ToF, and there will be 2 sets of HD scores displayed.

8. Additional Service Options

At version 1.2.9, extra switches were added to the Web Service to give you more flexibility in the way scores are handled, and misconfigurations are trapped.

On the service screen you will see two check boxes – Entrants Must Match and Score HD.

Score HD is quite obvious – it just tells TScore whether to send HD scores when ToF or Synchro scores are submitted.

Entrants Must Match tells the service how to behave if the Panel or Entrant that it believes is being scored does not match the entrant for the panel set by the service.

This can happen if:

1. You retrieve a previous QIRA routine data file that relates to a different person and/or panel, and 'Confirm' those scores
2. You have just submitted a set of scores from QIRA, but then re-submit without TScore refreshing the QIRA gymnast data (which gets reset by QIRA on every 'Confirm)
3. The TScore operator forgets to click 'Start Scoring' before you Confirm the QIRA scores
4. The communication from TScore to QIRA fails

This can result in 2 situations. (a) QIRA has no gymnast set and (b) QIRA has the wrong gymnast or panel set.

The service decides how to treat this according to the 'Entrant Must Match setting.
If this is ON (default):

any attempt to submit a score that does not match the panel set in the service screen, or the gymnast currently scoring on that panel, will result is the score being rejected.

If the QIRA gymnast & panel data is unset, then it will allow the score to be set for the currently scoring gymnast on the panel set in the service screen

If this is OFF:

A mismatched panel and gymnast will be allowed to proceed, using the values from QIRA.

Note that operating in this mode is discouraged – it should be needed for very exceptional circumstances.

Note that the action being taken will be reported in the on-screen log.

The TScore web service also saves its log in the C:\Users\Public\Documents\TScoreX\TStemp folder, as a timestamped text file with a 'ws_' prefix.

9. TScore Tablet Scoring Entry – General Advice and troubleshooting

The QIRA integration relies on the use of the TScore Tablet entry system. Instructions for this are covered elsewhere, but here are a few handy tips.

1. Do not use a 'public' Wi-Fi!
   a. The network may get swamped once spectators arrive
   b. Peer-to-peer communications may be blocked
   c. Specific network ports may be blocked (5432, 8080, 8088, 11000-11006)
   d. FTP may be blocked
   e. DHCP may kick you off if it gets busy
   f. Use power banks for each tablet to avoid battery issues. Tablet battery lifetime varies dramatically by vendor and model. You can power them directly, but the use of power banks saves a lot of cabling.

2. Configure your tablet network connection to use a static IP address
   a. Use the subnet of your router: Normally 192.168.0.x or 193.168.1.x
   b. Disable DHCP on your router(s)
   c. Manually assign discrete ranges for device types.
      (e.g. Routers and Database server .0 to .9, Laptops .11 to .99, Tablets .201 to .250)
   d. When setting Tablet IP Addresses, set DNS to 0.0.0.0 - this can reduce tablet 'network hopping'
   e. Enable Android Developer Mode to control screen blanking / power-saving etc
   f. Disable any automatic network switching options and power-saving

3. If the tablets stop responding, these are the things to check
   a. Does the 'Refresh' button load the next competitor ok? If so, use this workaround until you can get to a short pause in proceedings
   b. Is the tablet still connected to the correct wi-fi? (Click the bottom right button to check)
   c. Go to the tablet's Internet settings and turn the wi-fi off and on again, ensuring it connects to the correct network. (Just click 'Reconnect' in the app to take you straight to the settings screen)
   d. If this still doesn't work, stop and restart the TScore app
   e. If this still doesn't work, stop and restart the tablet
   f. At each step, you can go to the Preferences->Panels screen in TScore and click the light corresponding to the unresponsive tablet to retry it. If that fails, trick <shift>click the light for a more aggressive reconnect.
      When the competition is running it is best to avoid the 'Reset' button on that screen, as it risks interfering with other panels unnecessarily.
      Note that unless you are also changing the number of tablets being used on panels, you shouldn't need to click 'Save on the preferences screen – cancel is quicker.

4. Intermittent failures / dropped connections
   a. Check for other signals interfering with the wi-fi. Prime candidates are:
      1. Someone with a cell phone running a hotspot in close proximity (3m or less) to your router;
      2. Network/usb adapters too close to the router (< 30cm or so).
      Either of these can cause the router to switch off its signal!
   b. Use an Android app such as 'WiFi Analyzer' to see the signals from your router and possible conflicting sources. You may need to swap your router to a less conjected channel (although most devices auto-hop to find space these days).
   c. Be sure to 'forget' any other wi-fi connections on you tablet if they are within range. Tablets will often try other networks to try to find an Internet connection. Disable any 'smart' network options.
   d. When you connect to you wi-fi, you may get a prompt saying something like 'no Internet connection available. Do you want to stay on this network?' Check the 'do not ask me again' box and click **Yes**.

    e. There is a useful developer mode switch on Android to 'Enable Wi-Fi verbose logging', which shows possibly help connection details in the Wi-Fi select options screen.

5. Correcting mistakes submitted from tablets
    a. If a judge sends an incorrect value through and then tries to correct it, TScore will normally complain that these scores have already been saved and refuse the update. Once the light on the scoring panel has turned green, further changes are blocked. However, the computer operator can click on the green light to enable a re-submit (the light turns amber again). The judge has to swap a value to get the 'Confirm' button to reappear.
    b. If scoring has already stopped, you may still be able to 'Resume' scoring, but doing a Start Scoring again can just lead to more confusion. It some cases it's easier just to overwrite the erroneous deduction from the TScore screen and save again.

6. Scores assigned to the wrong gymnast
    a. This does sometimes happen if a 'Withdraw' has not been flagged, and the wrong person is picked by the computer operator.
    b. To Move or Swap scores, mark the gymnast you are copying from by clicking the grey box at the LHS of their row. Then <ctrl>click the box of the gymnast you want to copy to. You should now see a 'Move Scores' button appear above the deductions panel.
    c. Click 'Move Scores' and you will be given the option to chose which round to move, and whether to Move or Swap the scores.
    d. If you do this the scores for the whole class may need to be updated to reflect the revised positions, team scores and tie-breaks. To do this, click the Edit button at the top and then use the Recalculate option to verify and update this secondary scoring information.

7. Scores entered for the wrong round
    a. If you accidentally enter the scores into the wrong round (despite TScore telling you not to!) you can still move them afterwards.
    b. Click the 'Copy Scores' option and choose which round you want to copy the current scores to.

8. Zero score
    a. If the gymnast fails on the first move, you can easily set a zero score by clicking the Zero Score button and saving

9. Clearing deductions
    a. If scoring has been partially completed, TScore will retain a copy of the previously entered deductions for each judge. When scoring resumes, the screen and tablets will show this existing set of scores.
    b. The 'Clear' button next to each judge only resets the committed scores – there may still be 'pending' scores in the background. To clear these too, <shift>click the Clear button.