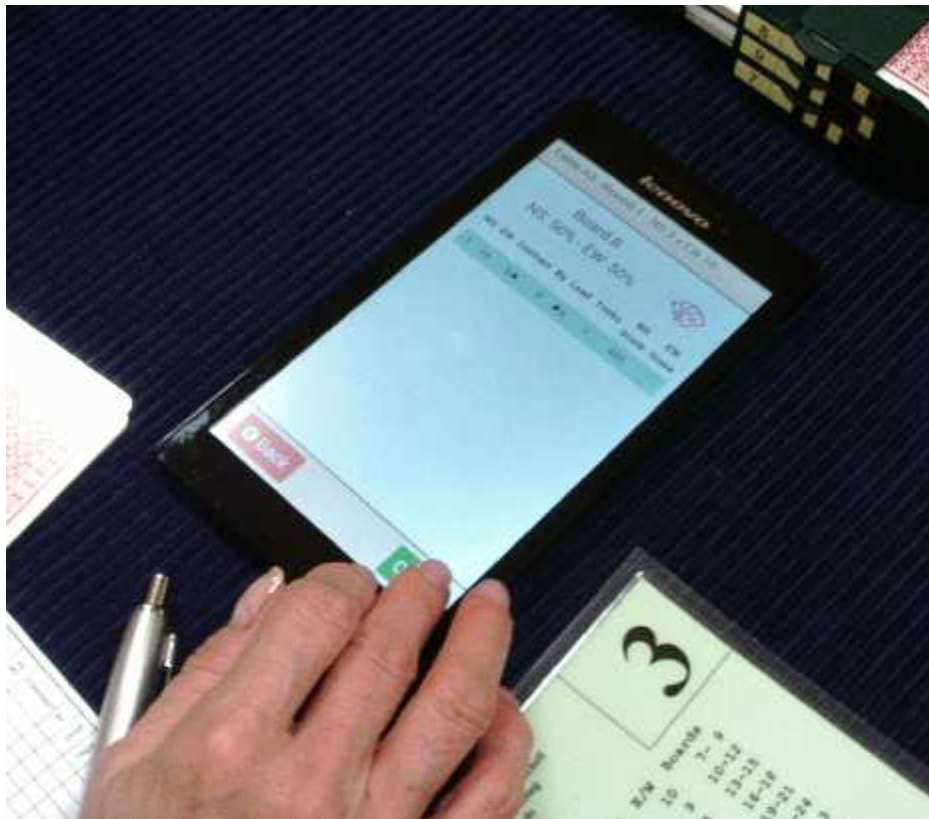


# TabScore

## User Guide

Version 1.4.0



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# Description and Features

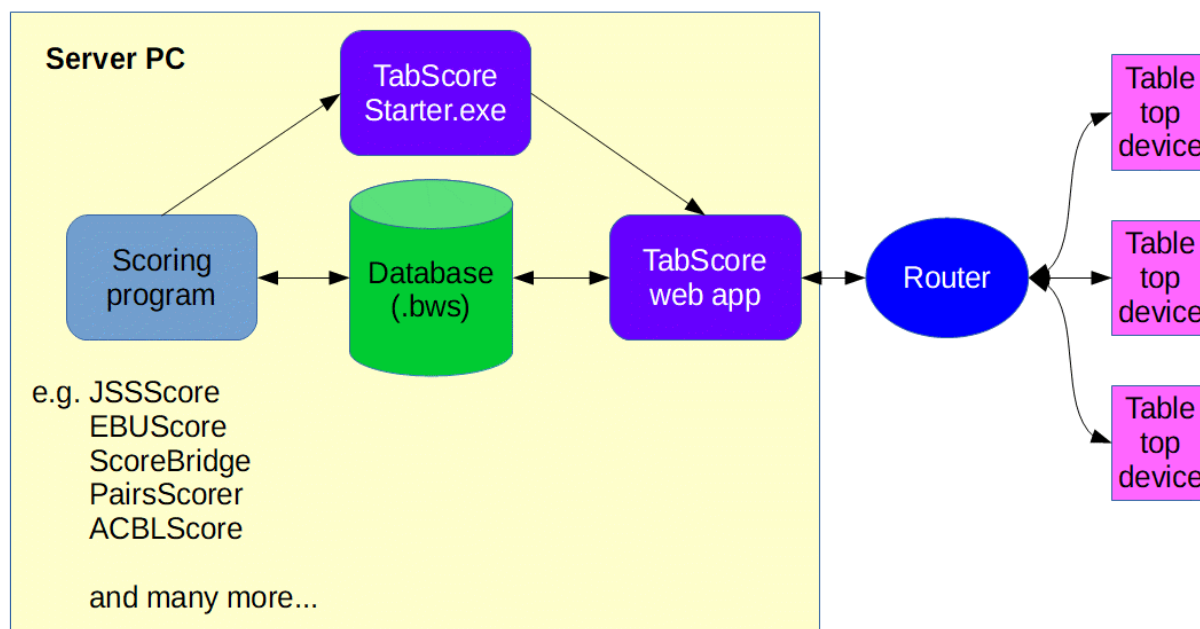
## What is TabScore?

Over the years, Bedford Bridge Club has used a variety of scoring (ScoreBridge, EBUScore, JSSScore) and wireless scoring (BridgePad, BridgeTab) software. Having settled on EBUScore for our scoring program, we found that there was no wireless scoring software that met our requirements for functionality, ease of use, robustness and price. So Peter Flippant sat down and wrote TabScore to meet those requirements.

TabScore is primarily a web application that runs across a local wireless network. Unlike most wireless scoring systems, TabScore uses modern thin-client architecture that provides consistent data by using a single scoring database. That database is a Bridgemate .bws standard Access database, so TabScore is a direct replacement for BridgeTab (or Bridgemate, BridgePad etc) and it should work with any scoring software that can run Bridgemates.

TabScore requires a server PC or laptop computer, a wireless router, and some sort of table-top device with a browser on each table (tablet, Kindle, phone, etc). Bedford Bridge Club has a set of 18 seven-inch tablets that are used only for scoring. In the rest of this document, the table-top devices will be referred to as tablets. Other than a browser, no special software is needed on the tablets, although some customization of the tablets will provide a much better user experience. See later in this Guide for more details.

## TabScore Architecture



For those interested in the technical specification, TabScore is written using C# and MVC, and the web pages use HTML5 and Bootstrap for formatting, and some basic JavaScript. The source code is available on GitHub.

## Features

TabScore can be used to score pairs, teams and Swiss events; it can also be used for individual events with EBUScore. It is currently configured for club use and is limited to 4 section (A, B, C and D in that order) and 30 tables per section. It offers a range of options that can be set either via the scoring software or by using the Options button in TabScoreStarter. In particular, TabScore offers:

- The option to import deal files and display hand records on the tablets. It uses Bo Haglund's Double Dummy Solver (DDS) to analyse hand records, and can display the makeable contracts.
- The option to enter results as either total tricks won or +/- against the contract.
- The option to enter a lead card and validate that lead card against the hand record.
- The option to display the pairs or individual ranking list at the end of each round, or at the end of the event (but see Appendix 1 for more information on this).
- The option to use either or both of an internal or external player names database. This is useful if your national bridge organization, like the EBU, provides a database of membership numbers.

A full list of available options is at Appendix 1. All options take effect immediately, so where necessary options can be changed during a scoring session.

If the tablet and browser support the functionality, TabScore will display a battery level indicator (in the top right of the screen).

## Prerequisites

TabScore has been developed for a server PC running Windows 10 (which includes Internet Information Services (IIS) 10), .NET Framework 4.6.1 and ASP.NET 4.7. It should run on a Windows 7, 8 or 8.1 PC but it has not been fully tested on these platforms, and it will require a manual installation.

Bo Haglund's DDS requires the Microsoft Visual C++ Redistributable 2015 (or later) to be installed on the PC.

A local wireless (Wi-Fi) network, ideally using a dedicated router and network. However, the system should run over a pre-existing Wi-Fi network without any problem.

Tablets, phones or other devices with an internet browser that supports Javascript (ie any mainstream browser). For an Android full-screen locked-down browser, Fully Kiosk Browser (<https://www.ozeroov.de/fully-kiosk-browser/>) has been used successfully at Bedford Bridge Club.

A scoring program that creates a Bridgmate-compatible scoring database (.bws file). Examples include JSSScore, EBUScore, ScoreBridge and BridgeScorer. For full TabScore functionality, either

EBUScore or JSSScore by Jeff Smith is recommended, and the latest version includes a 'TabScore' scoring option.

## Words of Warning

TabScore is not an 'out-of-the-box' solution. To get the system up and running, you will need to install and configure IIS, configure your network, install the software, set up the tablets, and integrate TabScore with your existing scoring program. Doing all this requires some degree of IT competence.

TabScore comes with 2 Windows installer files (TabScoreIISSetup.msi and TabScoreSetup.msi) to make the installation and set-up process as automated and as straightforward as possible. But please make sure you read and understand the installation instructions thoroughly before proceeding.

The other issue to consider with using tablets is charging. The tablets in use at Bedford Bridge Club will generally last 2 sessions of bridge between charging, and it is worth investing in good quality tablets to obtain a long battery life. We have adopted a system using battery packs. We charge up the battery packs during the bridge session, and then use the battery packs to re-charge the tablets overnight. This avoids the need to leave the tablets charging unattended on mains power. The picture shows the charging boxes we use with tablets and battery packs.



# Installation

## IIS Installation

IIS provides the framework to run a web application on the server PC. It is a feature of Windows 10, but it is not installed by default. To install IIS and configure Windows Defender Firewall, either:

- **Automatic Installation:** Run the installer file TabScoreIISSetup.msi. If you have proprietary security software installed, please also see the section on Windows Defender Firewall.
- **Manual Installation:** Follow the steps below.

**IMPORTANT:** In either case, it will be necessary to restart the PC once this part of the installation is complete.

## Manually Install IIS Features

To install the necessary IIS features on the server PC:

- Control Panel – Programs – Programs and Features - Turn Windows features on or off (requires Administrator privileges)
- Ensure that the following are selected:
  - .NET Framework 4.7 Advanced Services/ASP.NET 4.7
  - Internet Information Services
  - Internet Information Services/Web Management Tools/IIS Management Console
  - Internet Information Services/World Wide Web Services
  - Internet Information Services/World Wide Web Services/Application Development Features/ASP.NET 4.7

## Manually Configure Windows Defender Firewall

You need to enable Port 80 on the server PC for incoming browser requests. If you have proprietary security software installed, then you may need to make the changes in that software. If using just Windows Defender Firewall, then:

- Control Panel – System and Security – Windows Defender Firewall
- Advanced settings (requires Administrator privileges)
- Inbound Rules – New Rule.
- Port, TCP, Specific Local Ports = 80
- Allow, Private

- Name the rule something meaningful (eg TabScore Port 80) and Finish

## Configure and Test Network

### Configure Network

Various network configurations are possible, and this guide cannot consider all possibilities. The essential requirement is that the tablet browsers can consistently find the server PC across the router network. One approach is to use a static IP address for the server PC. This can usually be set on the router:

- Log on to the router and set a DHCP device reservation (static IPv4 address) for the server PC. If there is no other network, an IP address something like 192.168.0.100 is probably suitable
- Setting a DHCP reservation may require the PC's physical MAC address. This can be found by opening a command prompt (cmd.exe) and typing 'ipconfig /all'

If your router does not support DHCP device registration, you can go to the router network's settings via the Control Panel, select Properties/Internet Protocol Version 4 (TCP/IPv4)/Properties and specify the IP address you require. When doing this, the default gateway is normally the IP address of the router, as is the preferred DNS server; setting 8.8.8.8 for the alternative DNS server usually works.

It is possible to have the server PC connected to the internet via one network and TabScore connected via another. This would require 2 network cards (Wi-Fi or Ethernet). A configuration that has worked successfully at Bedford Bridge Club is internet on Wi-Fi (using subnet 192.168.0.xxx) and the TabScore router on Ethernet (using subnet 192.168.2.xxx and a static IP address of 192.168.2.100 for the PC)

### Test Network Connection

Connect a tablet to the router network. This may require a password that is usually supplied with the router. Enter the IP address of the PC in address bar (or default URL) in the tablet browser (so it should look something like <http://192.168.0.100>). If IIS is working correctly, the tablet browser should display the default IIS webpage.

## TabScore Installation

TabScore comprises 2 main components: a web application that runs under the default IIS website; and a Windows executable (TabScoreStarter.exe) that is called by the main scoring program. Again it is possible to do either:

- **Automatic Installation:** Run the installer file TabScoreSetup.msi. This copies the necessary files and configures IIS to run the web application.
- **Manual Installation:** Follow the steps below.

## Manually Copy Files

Copy files and folders to the following locations, creating folders if necessary:

- TabScore folder to C:\Program Files (x86). This includes the WebApp subfolder.
- TabScoreDB.txt to C:\Users\Public\TabScore

## Manually Configure IIS

Open the Internet Information Services (IIS) Manager:

- Application Pools – Add Application Pool...
  - Name = TabScoreAppPool
  - Start application pool immediately
- TabScoreAppPool – Advanced Settings...
  - Enable 32-Bit Applications = True
- Sites – Default Web Site – Add Application...
  - Alias: = TabScore
  - Application pool: = TabScoreAppPool
  - Physical path: C:\Program Files (x86)\TabScore\WebApp
  - Start Website immediately

## Installation of Microsoft Visual C++ Redistributable

Bo Haglund's DDS needs the Microsoft Visual C++ Redistributable (x86) 2015 (or later) to be installed on the PC. To check if this is already installed, go to Control Panel/Programs/Programs and Features, and see if it is listed as an installed program.

If necessary, search the Microsoft website for a suitable installer (it will have a name like vc\_redist.x86.exe). Download this file, run it and follow the instructions.

## Complete the Set-up

### Test the TabScore Web Application

Enter the IP address of the PC in address bar (or default URL) in the tablet browser, followed by /TabScore (so the URL should look something like http://192.168.0.100/TabScore). If IIS is working correctly, the tablet browser should display the TabScore start screen.



## Modify Scoring Program

The scoring program needs to start TabScoreStarter.exe as its wireless scoring software. How this is done varies considerably by scoring program.

In JSSScore and EBUScore (provided you have the latest versions), go to the Event menu for any event and then the Table Top Unit Scoring screen. This might be called something else if the program is currently configured for some other wireless scoring software. From here you can set the Table Top Unit to TabScore using the drop-down list. Then using the Admin tab and the Set TabScore Program Location button, set it to:

C:\Program Files(x86)\TabScore\TabScoreStarter.exe

For other scoring programs, please see your scoring program documentation.

## Setting Up Tablets

As mentioned previously, the tablets do not need any form of special configuration to run TabScore – just a web browser. However, to give a good user experience, it helps to configure and lock down the tablet to some extent, so that the user is presented with a simple start-up screen. For example, it makes sense to set the TabScore URL as the home page in the tablet's browser.

Bedford Bridge Club uses dedicated tablets using the Fully kiosk browser. The configuration of this and other tablet software used at Bedford Bridge Club is given in Appendix 3.

Thanks to innovative work by Tony Ferneyhough, TabScore has also been set up to run on Kindle Fire tablets. Information on configuring Kindles is given in Appendix 4.

The information in both Appendices is indicative only, and the best way to set up the tablets will depend very much on the make and model of tablet, and its operating system.

## Upgrading TabScore

When upgrading TabScore to a new version, it is better not to do a full installation. Once you have downloaded the new installation zip file, all that is needed is to copy the TabScore folder (which includes a WebApp subfolder) to C:\Program Files (x86), overwriting all the existing files and folders.

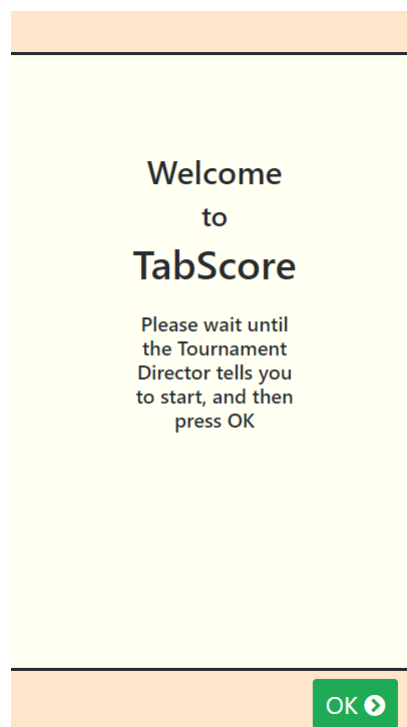
# Using TabScore

## Overview

Compared to installing TabScore, using it is pretty straightforward. The tablets will sit at the Start Screen until the event organizer has set the movement, created the scoring database, and launched TabScoreStarter.exe. See your scoring program documentation for how to do all this.

Once TabScoreStarter.exe has been launched, players will be able to enter their section and table numbers (TabScore defaults to Section A if there is only one section), enter their player ID numbers, and then proceed to enter contract details and results for each round of the movement and each board. A diagram showing the flow through the various TabScore screens is at Appendix 2.

In general, a TabScore Enter or Edit button allows users to enter or change details, and the OK button moves on to the next screen when all details have been entered. In some cases, there is also a Back button that goes back to the previous screen.



## Player Numbers

A screenshot of the 'Enter/Edit Players' screen. The title 'Enter/Edit Players:' is at the top. Below it, the text 'North/South: Pair 7' is displayed. Under 'North:', there is a blue button labeled 'Enter'. Under 'South:', there is a blue button labeled 'Enter'. Below that, the text 'East/West: Pair 3' is displayed. Under 'East:', there is a blue button labeled 'Enter'. Under 'West:', there is a blue button labeled 'Enter'. At the bottom right, there is a green button with the text 'OK' and a right-pointing arrow.

Player numbers and/or names can be set within the scoring program before creating the scoring database. However, it is normally easier to let the players enter their own player numbers into TabScore at their tables.

How TabScore resolves player numbers to names is determined by an option that is set by the scoring program. Names can come from either an internal database of player names/numbers set up within the scoring program, or from an external database (as, for example, provided by your national bridge organization), or both. It is usual for numbers in the internal database to be in the range 1-9999 and for 10000+ for the external database.

If a player doesn't have or doesn't know their player number, TabScore provides the option to enter Unknown. Internally, this sets a value of 0, so 0 should not be used as an actual player number. Names can be updated or corrected within the scoring

program at any time. However, the scoring program needs to write the changes to the scoring database for the names to appear correctly in TabScore.

For teams events, you may need to change player names during the course of the event. TabScore can do this via an option set either in the scoring program or the TabScoreStarter Options button. This TabScoreStarter option is also available if, for example, you are playing a movement (like an individual) that doesn't have all the players seated for the first round.

### Entering Contracts and Results

TabScore shows a screen with all the boards to be played in the current round. Contract details and results can be entered for these boards in any order by tapping on the appropriate Enter button. And contract details and results can be amended up until the end of the round by tapping on an Edit button. This allows players at the table to confirm all the results for the round. However, once the round is complete, amendments can only be made from within the scoring program.

If you tap on OK before entering details for all the boards, TabScore will give a warning, but it will allow you to proceed to the next round. This is useful if you wish to skip certain boards (as part of the movement, for slow play, or any other reason). If you inadvertently skip to the next round, you will need to return to the Start Screen (see Troubleshooting below).

Table A2 - Round 3 - NS 2 v EW 5

Board 4

Enter contract:

PASS Out

1

2

3

4

5

6

7

NT

X

XX

by:

North

South

East

West

Back

OK

Table A2 - Round 3 - NS 2 v EW 5

Board 4

NS: 50% - EW: 50%

NS	EW	Contract	By	Lead	Tricks	NS Score	EW Score
4	4	2♥	E	♦J	-5	500	
2	5	1♥	S	♦3	=	80	
3	2	3NTx	S	♦Q	-1		200

Back

OK

### Viewing Hand Records

If you have imported a hand record file and have selected the option from within the scoring program to view hand records, TabScore will allow you to view the hand records and makeable contracts (TabScore uses Bo Haglund's double dummy solver to do the analysis). On the Traveller Screen, you will see a cards symbol – tap this to open the Hand Record screen.

Table A2 - Round 3 - NS 2 v EW 5

Board 4

Dealer: W

♠AQ86

♥T4

♦A765

♣AK5

♠J9

♥K8

♦Q9832

♣Q862

N (17)

W (8)

S (4)

E (11)

♠K

♥AQJ753

♦

♣JT9743

♠T75432

♥962

♦KJT4

♣

	NT	♠	♥	♦	♣
N	1	4	3		
S	1	4	3		
E			3	4	
W			3	4	

OK

# **Troubleshooting**

Things can go wrong during the scoring process, either as a result of user error or a problem with the server PC or network connection. The thing to remember is that all the data is stored on the PC, and TabScore merely shows a view of that data. So, as long as the PC is still working, no data will be lost. Thus, for example, it is always possible to resume scoring a previously aborted session simply by loading an existing database into the scoring program and launching TabScore. Likewise, it is easy to replace a tablet (if the battery runs out, for example), just by logging on to the same table with a new tablet.

## **Network or Database Connection Problem**

TabScore attempts to detect if there is any problem with the network or database connection for any one tablet. If this happens, TabScore will show an error screen, and it will prompt the user to log back on to their table. Usually such problems are rare and temporary, so logging back on will resolve the issue.

If you have already logged on, you will get a warning; however, if you are logging back on to a table, it is safe to proceed. When you have logged back on, TabScore will take you to the beginning of the last round for which scores have been entered. This allows you to check, if necessary, that the scores have all been entered correctly before proceeding to the next round.

## **Corrections Requiring Changes in the Scoring Program**

If the user makes an error when entering player names, contract details and results, there is usually a chance to correct the entry before the data is committed (using the Edit or Back buttons). However, once the user has moved on to the next round, any corrections will need to be done via the scoring program. In addition, any scores that are adjusted by the Tournament Director will need to be entered at the scoring program.

Because TabScore uses a direct connection to the scoring database, any changes to that database will be visible on the tablet as soon as you go to the next screen. This includes name changes, and changes to contract details and results. However, be aware that some scoring programs do not automatically update the scoring database by default. In particular, in EBUScore you will need to use the Write Names button on the TabScore Scoring screen to update any name changes to the database. Please see the documentation for your own particular scoring program.

## **Corrections and Errors Requiring a Log-on**

There are a few user input errors that cannot be corrected using the software. Examples of common problems include logging on to the wrong table and skipping to the next round without entering contract details for some of the boards. These issues can generally be resolved by returning the tablet or tablets to the TabScore Start Screen, and then logging back on.

The procedure for getting to the Start Screen will depend on the browser. There may, for example, be a Home button. For the full-screen version of the Fully Kiosk browser, the procedure is usually to swipe right to get to the menu, and then tap on Goto Start URL.

From the Start Screen, tapping OK allows you to re-select a table. If you have already logged on, you will get a warning; however, if you are logging back on to a table, it is safe to proceed. When you have logged back on, TabScore will take you to the beginning of the last round for which scores have been entered. This allows you to check, if necessary, that the scores have all been entered correctly before proceeding to the next round.

## **Server or Wifi Connection Stops Working**

The server PC or Wifi router may stop working for some reason. A common example is when a laptop left running on battery power decides to shut itself down. If this happens, the tablets may freeze. Once you have resolved the problem with the server/router and re-started, the tablets may just continue working. If not, it may be necessary for all the tablets to be logged back on using the procedure above on each tablet.

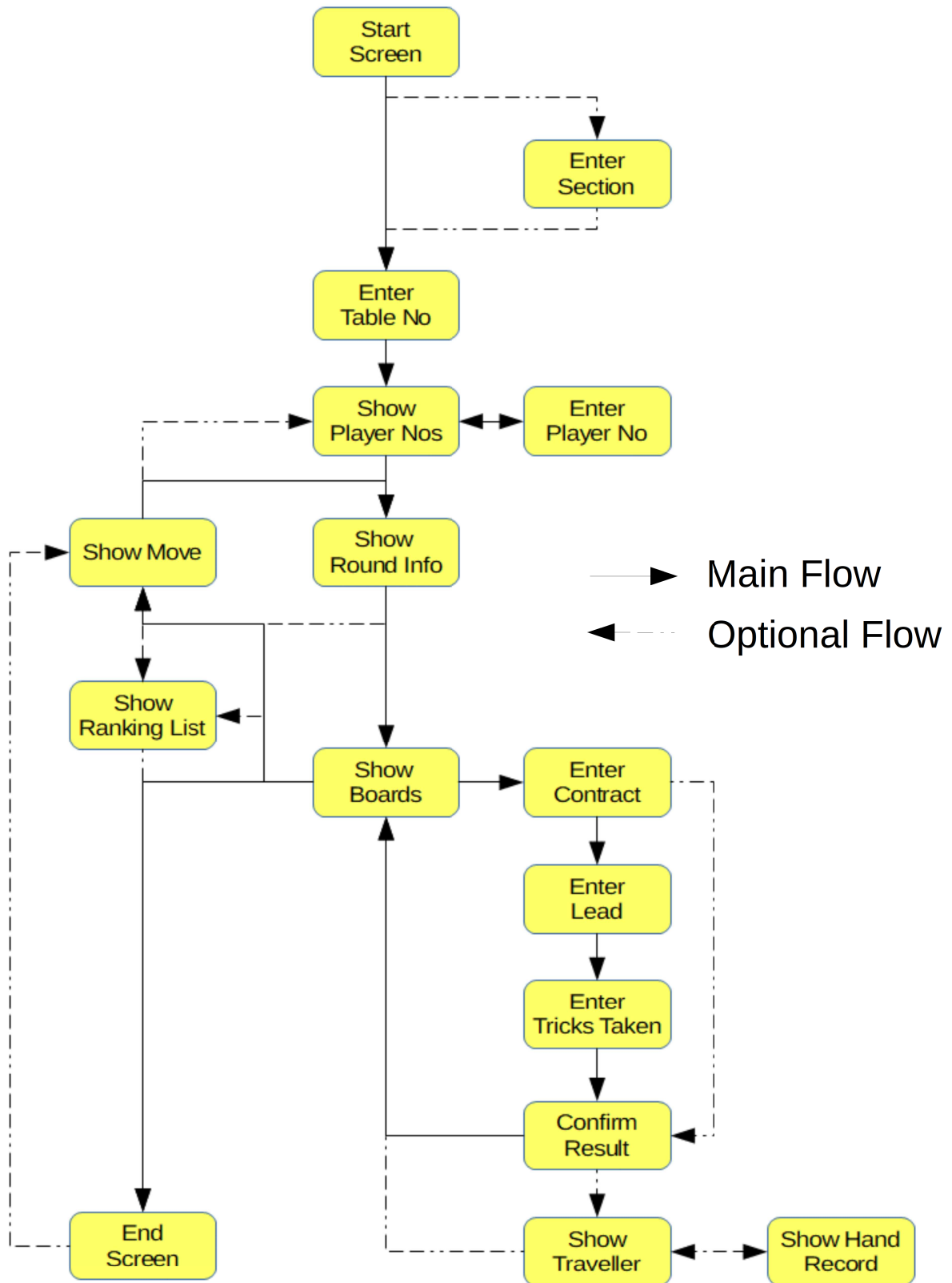
## Appendix 1 – BridgeMate BCS Options in TabScore

The following table lists all the BridgeMate and BridgeMate II options and identifies whether they are applicable for TabScore. The options that are available are normally set by the scoring program when it creates the BCS database. It is possible also to set these options by using the Options button in TabScoreStarter. Any changes to options will take effect immediately.

BridgeMate Option	Status in TabScore	Effect in TabScore
ShowResults	Used	Shows the traveller if True.
ShowOwnResult	Not used	
RepeatResults	Not used	
MaximumResults	Not applicable	
ShowPercentage	Used	Shows the percentage if True.
GroupSections	Not used	
ScorePoints	Not used	
EnterResultsMethod	Used	Determines if results are entered as total tricks won (=1), or as +/- against the contract (≠1; the TabScoreStarter Options button sets 0).
ShowPairNumbers	Not used	
IntermediateResults	Not used	
AutopoweroffTime	Not applicable	
VerificationTime	Not used	
ShowContract	Not used	
LeadCard	Used	Requests entry of a lead card if True.
MemberNumbers	Not used	
MemberNumbersNoBlankEntry	Not applicable	
BoardOrderVerification	Not applicable	
HandRecordValidation	Not applicable	
AutoShutDownBPC	Not applicable	
BM2PINcode	Not applicable	
BM2ConfirmNP	Not used	
BM2TDCall	Not applicable	
BM2RemainingBoards	Not used	
BM2NextSeatings	Not used	
BM2ScoreRecap	Not applicable	
BM2AutoShowScoreRecap	Not applicable	
BM2ScoreCorrection	Not applicable	
BM2AutoBoardNumber	Not applicable	
BM2FirstBoardManually	Not applicable	
BM2AutoBoardNumber	Not applicable	
BM2ValidateLeadCard	Used	Will validate lead card against the hand record if True and the hand record exists. Validation only occurs on the first attempt at lead card entry. On the second attempt, there is an option to skip lead card entry.
BM2ResultsOverview	Not applicable	
BM2ShowPlayerNames	Not used	

BM2Ranking	Used	Will show ranking according to: 0=don't show; 1=show after each round; 2=show at end of session. This requires either that the scoring program creates and populates a Results table in the database, or that the scoring program at least sets the Winners field in the Section table to a value of either 1 or 2. In this second case, and also for individual events, TabScore will attempt to calculate the ranking using data from the ReceivedData table, and this may not match precisely the ranking shown by the scoring program (eg TabScore uses simple matchpoints and not Neuberg).
BM2GameSummary	Not used	
BM2SummaryPoints	Not used	
BM2ResetFunctionKey	Not applicable	
BM2RecordBidding	Not used	
BM2RecordPlay	Not used	
BM2ValidateRecording	Not used	
BM2ShowHands	Not applicable	
BM2NumberValidation	Not used	
BM2NumberEntryEachRound	Used	Will allow player number entry each round if True (eg for pivot teams, or team member changes, or for individual movements where not all players are seated for Round 1). Should not normally be used for pairs.
BM2NumberEntryPreloadValues	Not applicable	
BM2NameSource	Used	Will change the source for player names data according to: 0=table "PlayerNames" in .bws file; 1="C:\Bridgemate\BMPlayerDB.mdb" database lookup file; 2=no name source, names are preset/updated by the scoring program; and 3=first look in .bws file, then look in BMPlayerDB.mdb database.
BM2TextBasedNumber	Not used	
BM2ViewHandRecord	Used	Will show hand record and double-dummy analysis if True, provided that ShowResults is True and the hand record exists.
BM2EnterHandRecord	Not applicable	
BM2EnterHandRecordWhen	Not applicable	

## Appendix 2 – TabScore Workflow Diagram





## Appendix 3 – Setting Up Tablets

Bedford Bridge Club uses dedicated tablets with the following software: Fully-Kiosk-Browser-v1.28.1; Nova Launcher\_v5.5.4 and Icon Changer\_v2.0.

This has been configured as follows:

- Set Nova Launcher as the default start app.
- Set the following settings in Nova Launcher:
  - Desktop/Desktop grid 4x4
  - Desktop/Icon size/Font size = about 75%
  - Desktop/Wallpaper scrolling off
  - App & widget drawers/Frequently used apps off
  - Dock/Enable off
  - Look & feel/Normalize icon size off
  - Look & feel/Screen orientation Force Portrait
  - Look & feel/Show notification bar off
- Using Icon Changer, set the Fully icon to TabScore.png (included in zip file) and set label to TabScore.
- Delete all icons from desktop except TabScore'
- Set wallpaper to something suitable. Bedford Bridge Club has created it's own wallpaper as you can see in this image.
- Set Fully start URL to static IP address of laptop + /TabScore
- Set Fully/Web Zoom and Scaling/Set Font Size = 150% (or whatever best suits your device).



It is possible to use the Fully setting Device Management/Launch on Boot to start Fully automatically when the tablet is switched on. However, we have chosen not to do that.

## Appendix 4 – Setting Up Kindles

The information below has been provided by Tony Ferneyhough, and relates to Kindle Fire gen 5 upwards and Fully kiosk browser.

### From Main Menu

- **Web Content Setting**

Start URL (PC IP address - eg 192.168.20.50)

- **Web Browser Settings**

Enable Tap Sound (optional)

Animate Page Transitions (optional)

Wait for Network Connection ( optional – maybe)

- **Web Zooming and Scaling**

View in Desktop Mode

Set Font Size (135 in my case) (Font size can also be set on tablet)

- **Advanced Web Settings**

Enable Touch Interaction

Keep Screen on whilst in Full screen mode

- **Universal Launcher**

All set to off

- **Web Auto Reload**

Reload Current Page (not too sure how important this is)

- **Toolbar and Appearance**

Show Action Bar

Action Bar Title - preferred name - TabScore - about 40 spaces before name to help centre title up.

ShowAction Bar in Settings

Show Progress Bar

- **Screensaver (Plus)**

Screensaver Timer (set to 10 seconds) (when running screen goes black only 'skeleton' clock showing - this should help to save power). Tap screen to go back to TabScore.\*\*\*

Play in Full Screen

Screensaver brightness (set to 60)

Fading Duration (set 50 mS)

Use Android Daydream - try turning this feature off if there are problems with Screensaver.\*\*\*

- **Device Management**

Keep Screen on

Screen Brightness= 60

Screen Orientation is Portrait

Launch at Boot

Bluetooth – disable

- **Power Settings**

Set battery to 30%

- **Kiosk Mode - only use this when everything else is working okay !!!!**

Kiosk exit (fast 5 taps)

Disable Status Bar

Disable Volume Buttons

Disable Power Button (optional)

Disable Home Button

Disable Other Apps

Advanced Kiosk Protection

Disable camera

- **Motion Detection (Plus)**

All set to off

- **Device Movement Detection (Plus)**

All set to off

- **Remote Administration (Plus)**

All set to off

- **Other Settings**

All set to off