SortIt for Phone & TV

1. Introduction

SortIt is digital version of the classic combinatorial game 15-Puzzle, invented 1874.

Game is also called Gem Puzzle, Boss Puzzle, Game of Fifteen, Mystic Square, 16-puzzle.

The famous chess player Bobby Fischer "was an expert at solving the 15-Puzzle. He had been timed to be able to solve it within 25 seconds" [WikipediA].

Classic version of game was extended from size "4 x 4" to everything between "2 x 2" and:

- "5 x 7" on iPhone 4,
- "5 x 8" on iPhone 5, iPhone 5s, iPhone 5c,
- "6 x 10" on iPhone 6, iPhone 6 s,
- "7 x 11" on iPhone 6 Plus,
- "9 x 11" on iPad, iPad mini,
- "12 x 15" on iPad Pro

The goal of game is to sort the buttons from the upper left to lower right corner. At the end of the game the bottom right corner should be empty and all buttons should be ordered in numerically: 1, 2, 3..., left to right, top to bottom.

Game result can be saved in score database.

Starting from version 3.0 app supports iCloud data synchronization - data on all iOS and tvOS devices with same iCloud account will be synchronized. By using "Sync settings" you can determine what kind of data will be synchronized (saved in iCloud); rest of data is saved locally.

You can customize the app functionality by using "Settings". It is possible to adjust almost everything:

- Game dimension.
- Colors.
- Shape and size of buttons.
- Way of counting of score.
- Sound.
- Data which will be synchronized.

App "Help" available in the app or on WWW contains detailed description of all functions and options.

All app activities and events are recorded in the system Log. Statistics about the app usage are accumulated.

In the app has been implemented total saving/restoration of state – it means that app might be interrupted at any time (by phone call, pressing one of device buttons, screen lock) and your data will not be lost. When app is activated next time all not saved data will be restored.

App is optimized for iOS9, iOS8, iOS7, iOS6, tvOS.

Pro-version does not contain advertisement banner in main game view.

1	2	3	4
5	6	7	8
9	10	11	

New game   Score   ⓘ
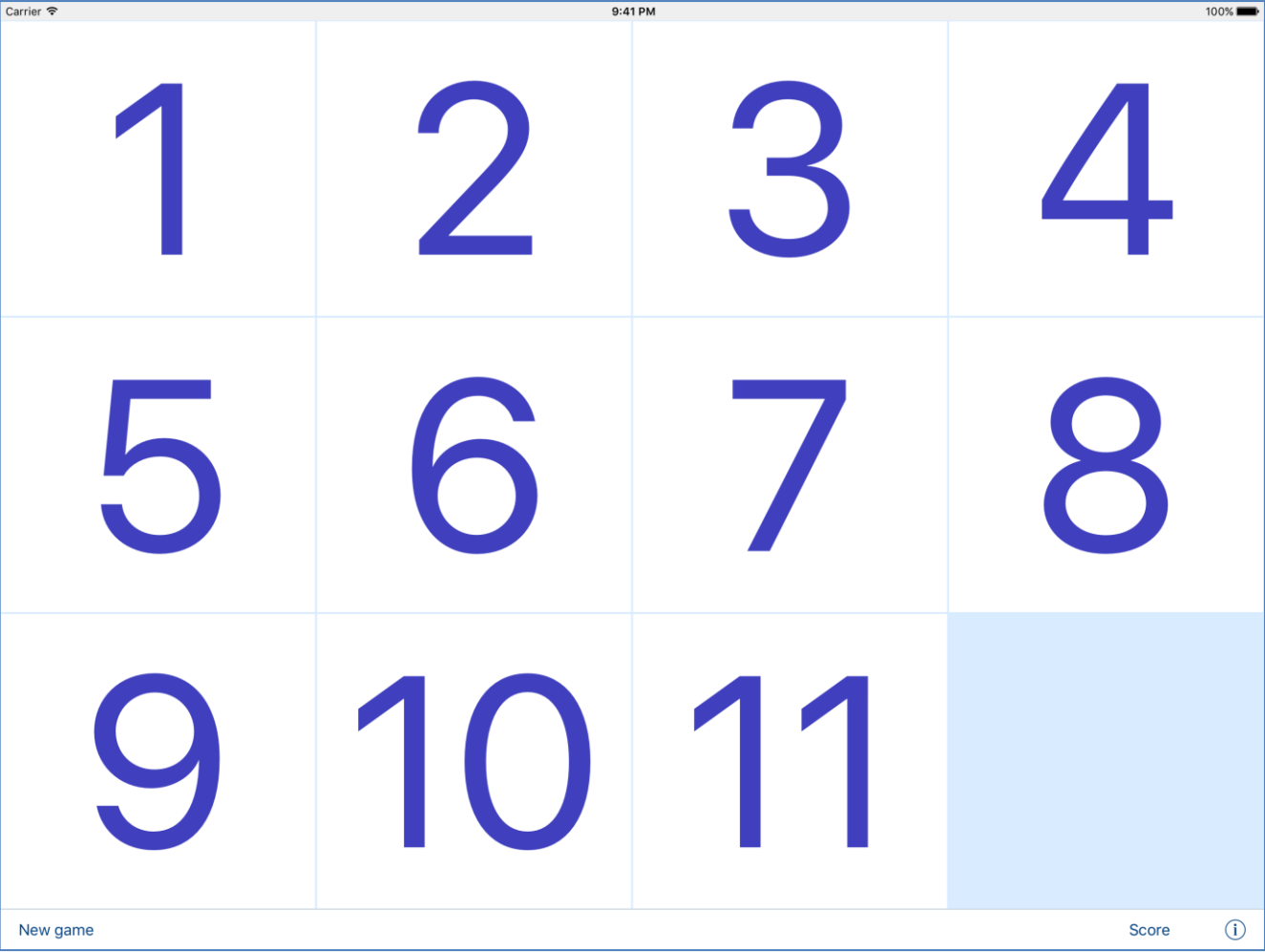
Pictures in current documentation are taken from iOS8.x and iOS7.x version of SortIt. On devices, which are running older versions of iOS (6.x and 5.x) some controls will look slightly different. Following table contains couple of examples of such differences.

Button
iOS6.x

Done

iOS9.x, iOS8.x, iOS7.x

Done

Picker
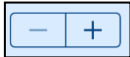
iOS6.x

iOS9.x, iOS8.x, iOS7.x

Stepper

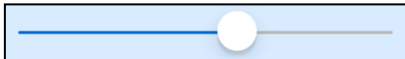iOS6.x

iOS9.x, iOS8.x, iOS7.x

Slider

iOS6.x

iOS9.x, iOS8.x, iOS7.x
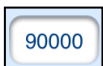

Text field

iOS6.x

iOS9.x, iOS8.x, iOS7.x

Switch

iOS6.x
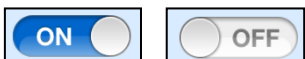
iOS9.x, iOS8.x, iOS7.x

Alert
iOS6.x

iOS9.x, iOS8.x, iOS7.x

2. View orientation

All app views works in portrait and landscape orientation:
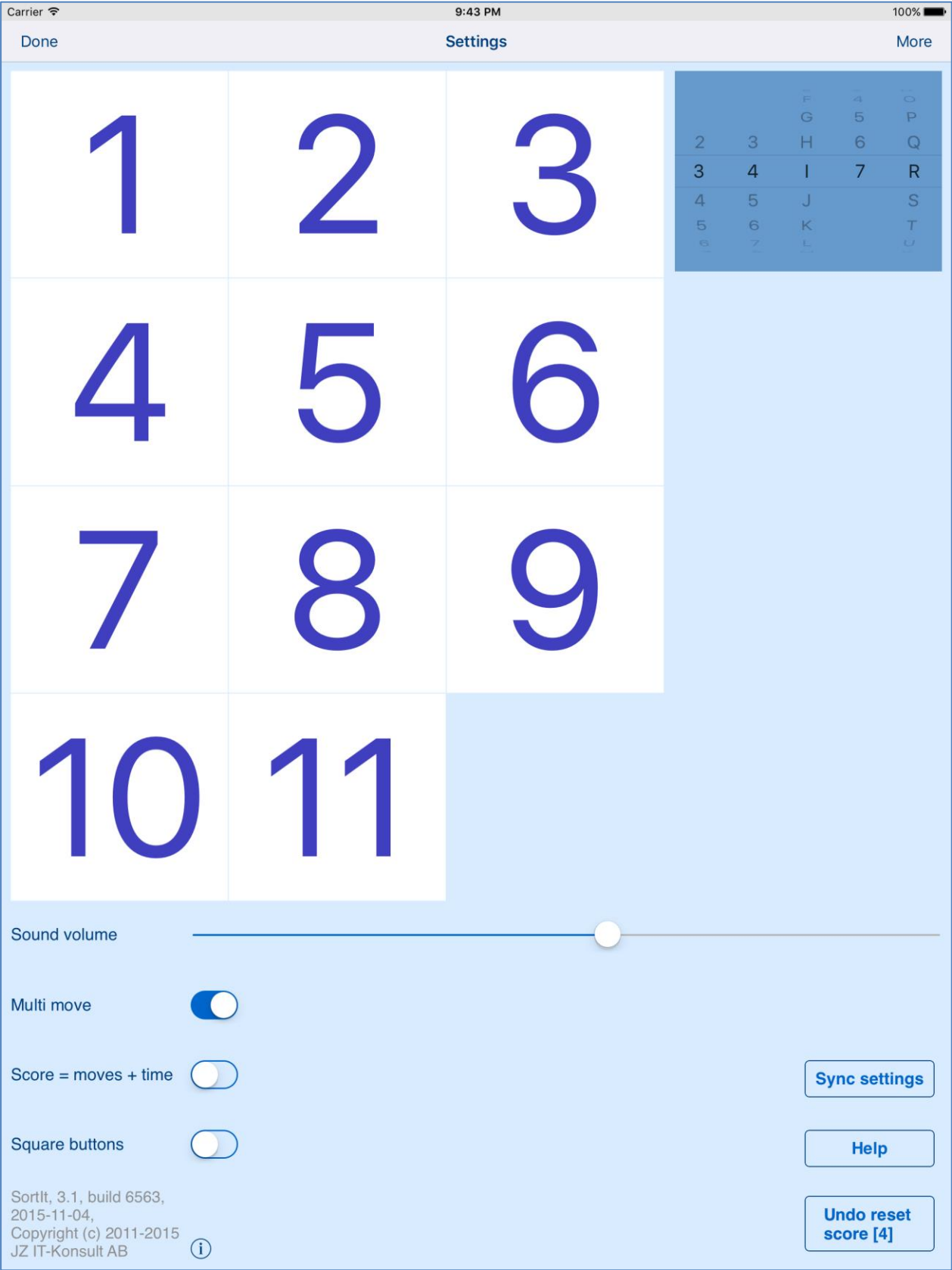
portrait orientation

or
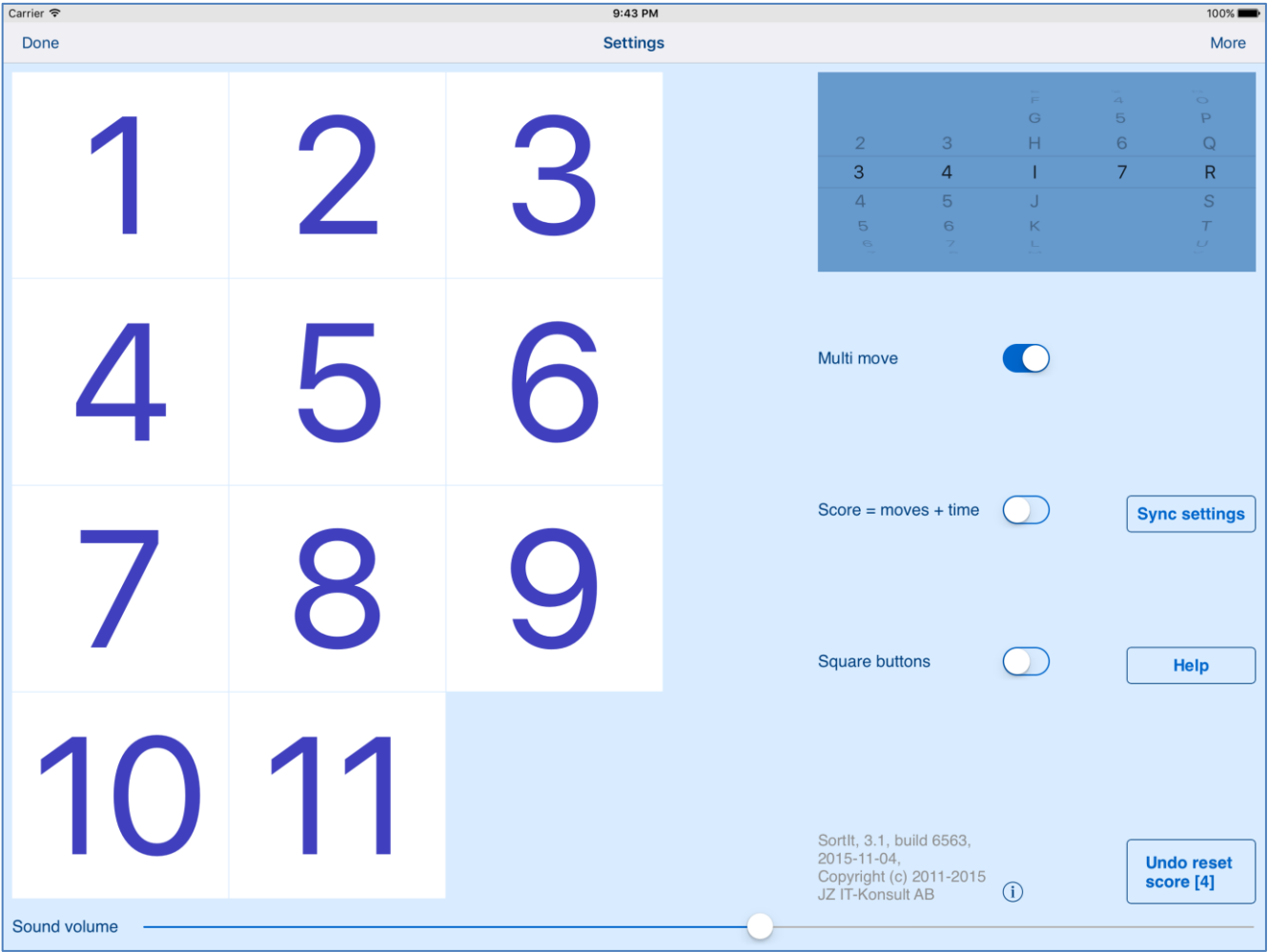
landscape orientation

Just select orientation, which is most convenient for you. View orientation can be change at any time.

3. Main view

It is view you will usually see when you start the app. When app was terminated in another view, next time you start app you will be directed to that view.

View contains:

- Game desktop with button to sort.
- Game score.
- Controls to start new game and allow access to Settings view and Score view.

| |
|---|
| New game |
| Button to start new game |
| 34 |
| Game score, calculated as sum of:

• Number of times buttons were moved. Tapping on button without move do not counts. When "Multi move" is activated – moving of many buttons in one row column counts as one move.
• Time in seconds from first game move divided by "Seconds per score point". For example: when "1 second" is selected extra score point will be added for every game second. When "10 seconds" is chosen you will get extra score point every ten seconds. |
| Score |
| Button used to open Score view. |
| ⓘ |
| Button used to open Settings view. |

When game is terminated - the following will be shown:
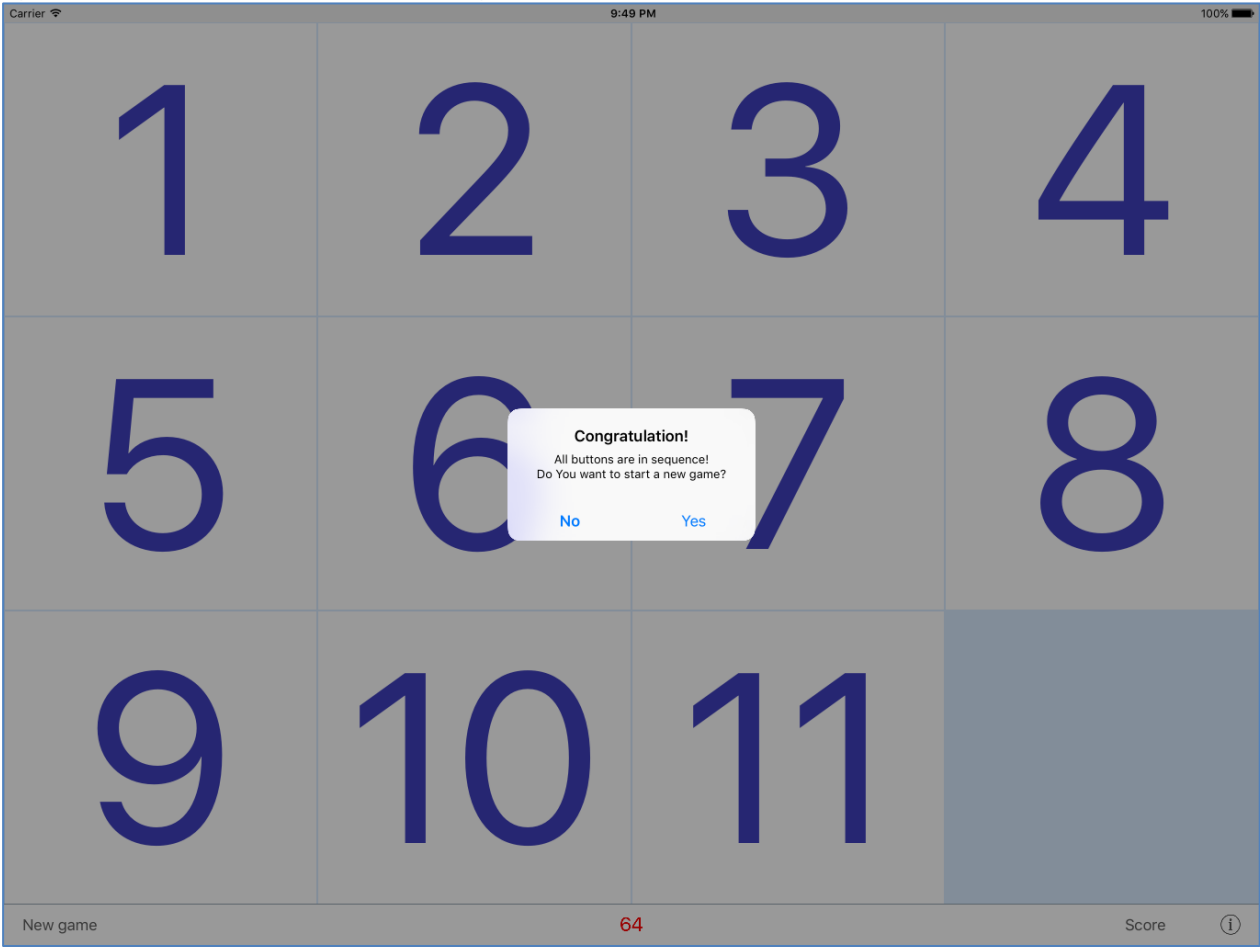
When you answer "Yes" the new game will be started directly after that.

Next you will get opportunity to save score in score-database:
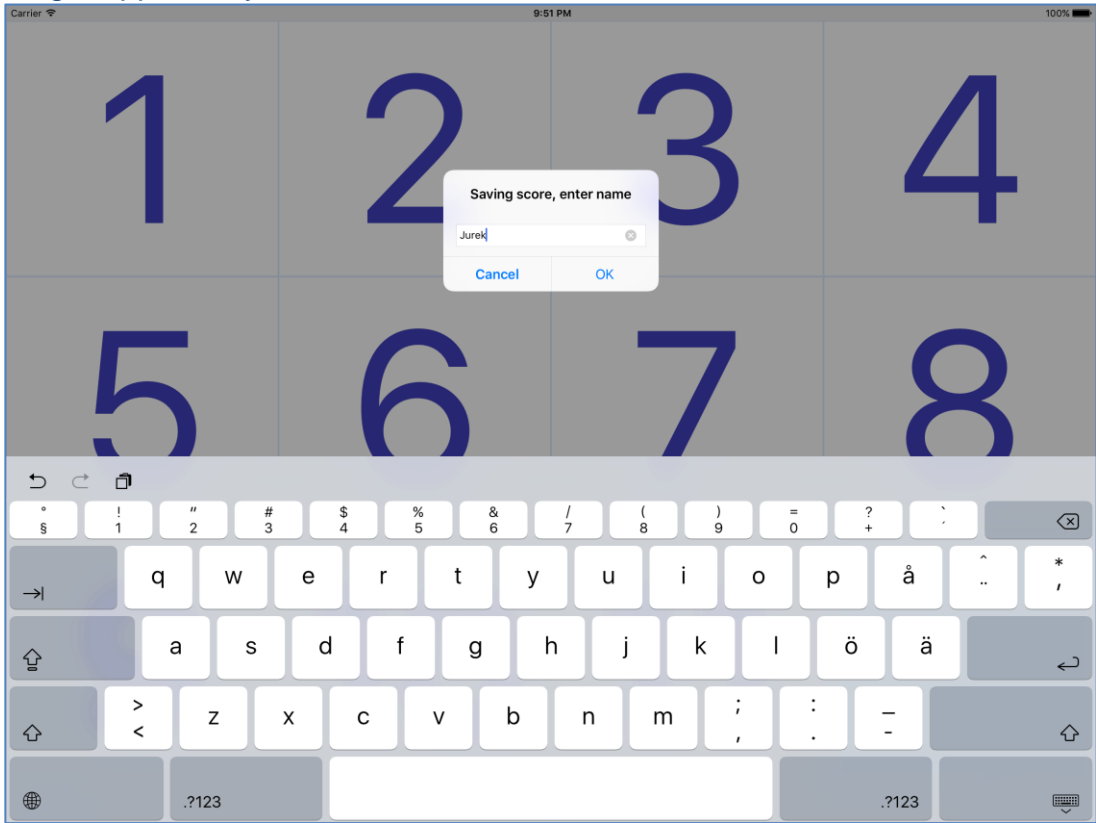
When new game has not been started and you are tapping on any game-button you will see:
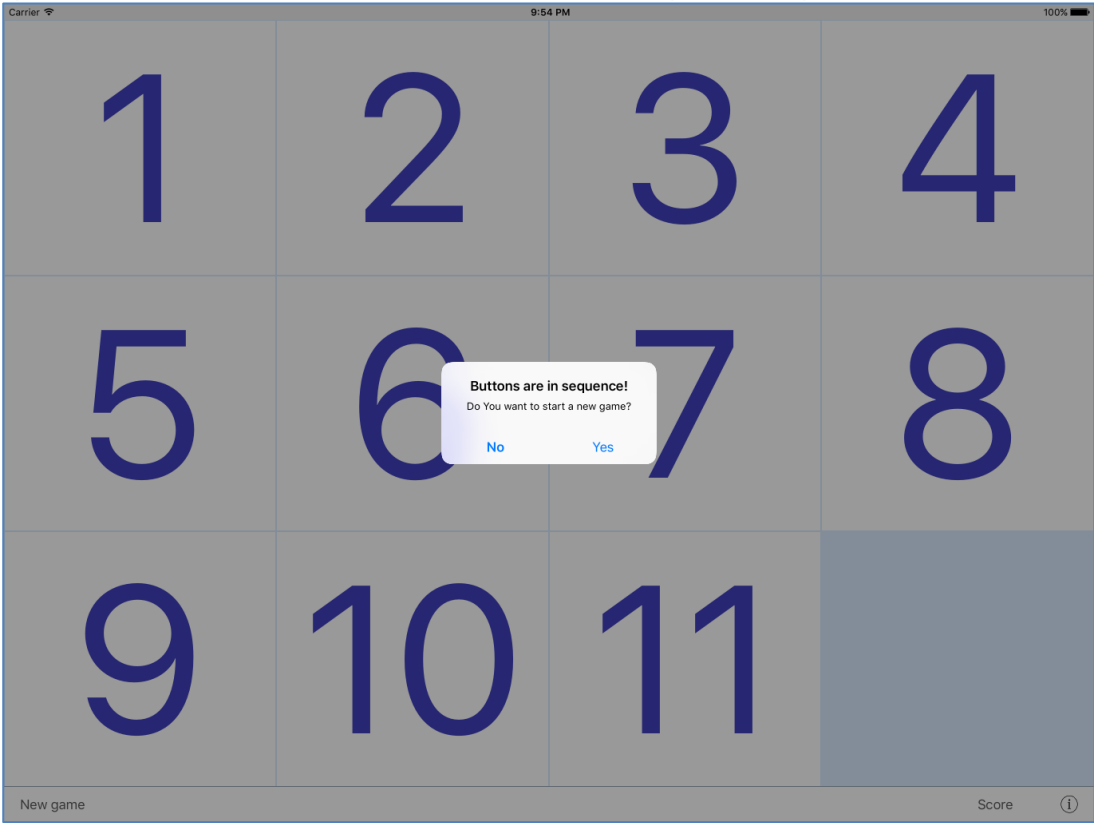
When you tap on "New game" button and game is not terminated you will see warning/question:
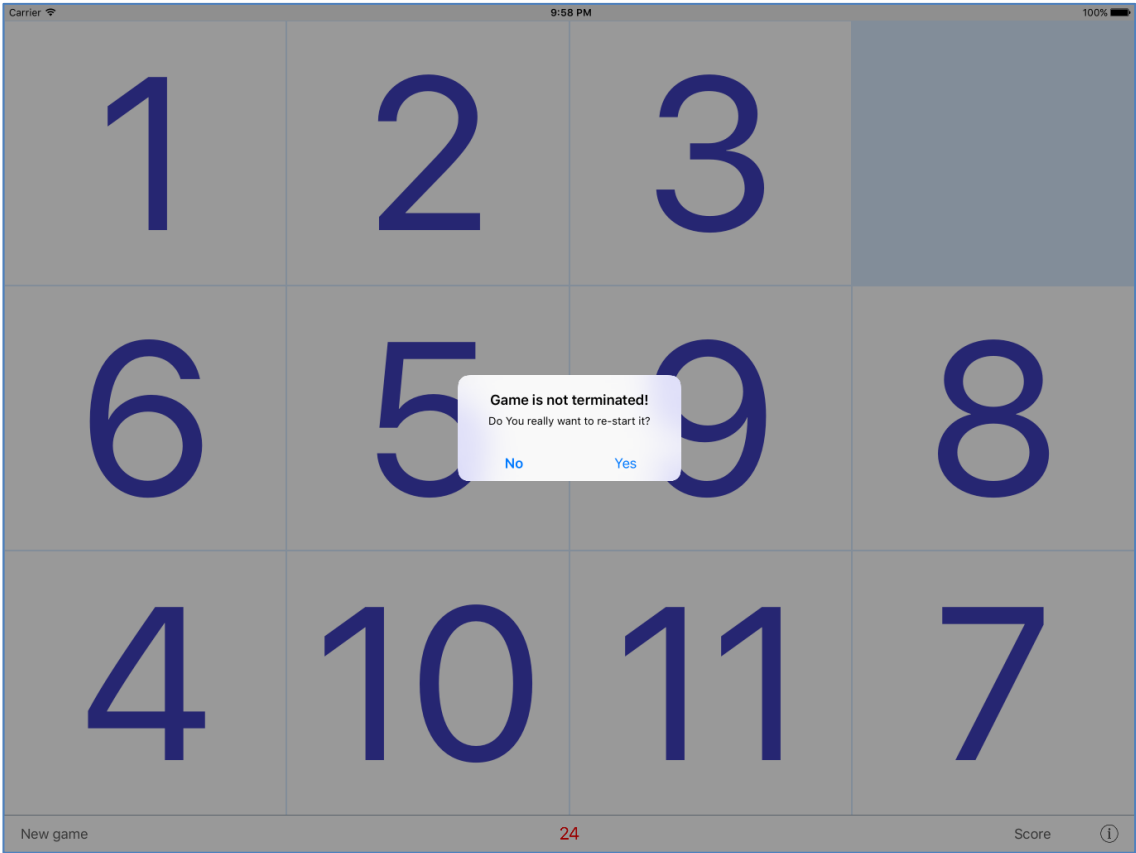
When you change orientation of your device after starting game and game has different number of buttons on height and width you will see warning/question:
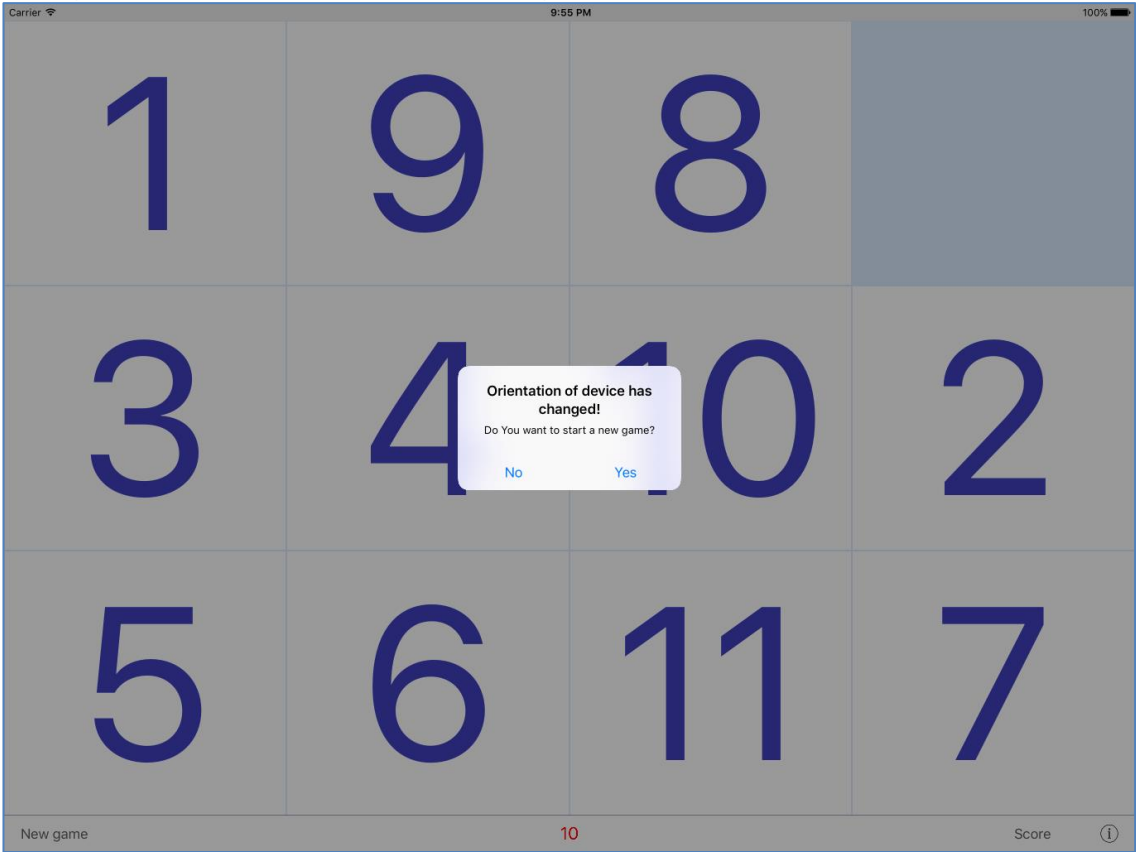
When data is synchronized with iCloud following info box popups:
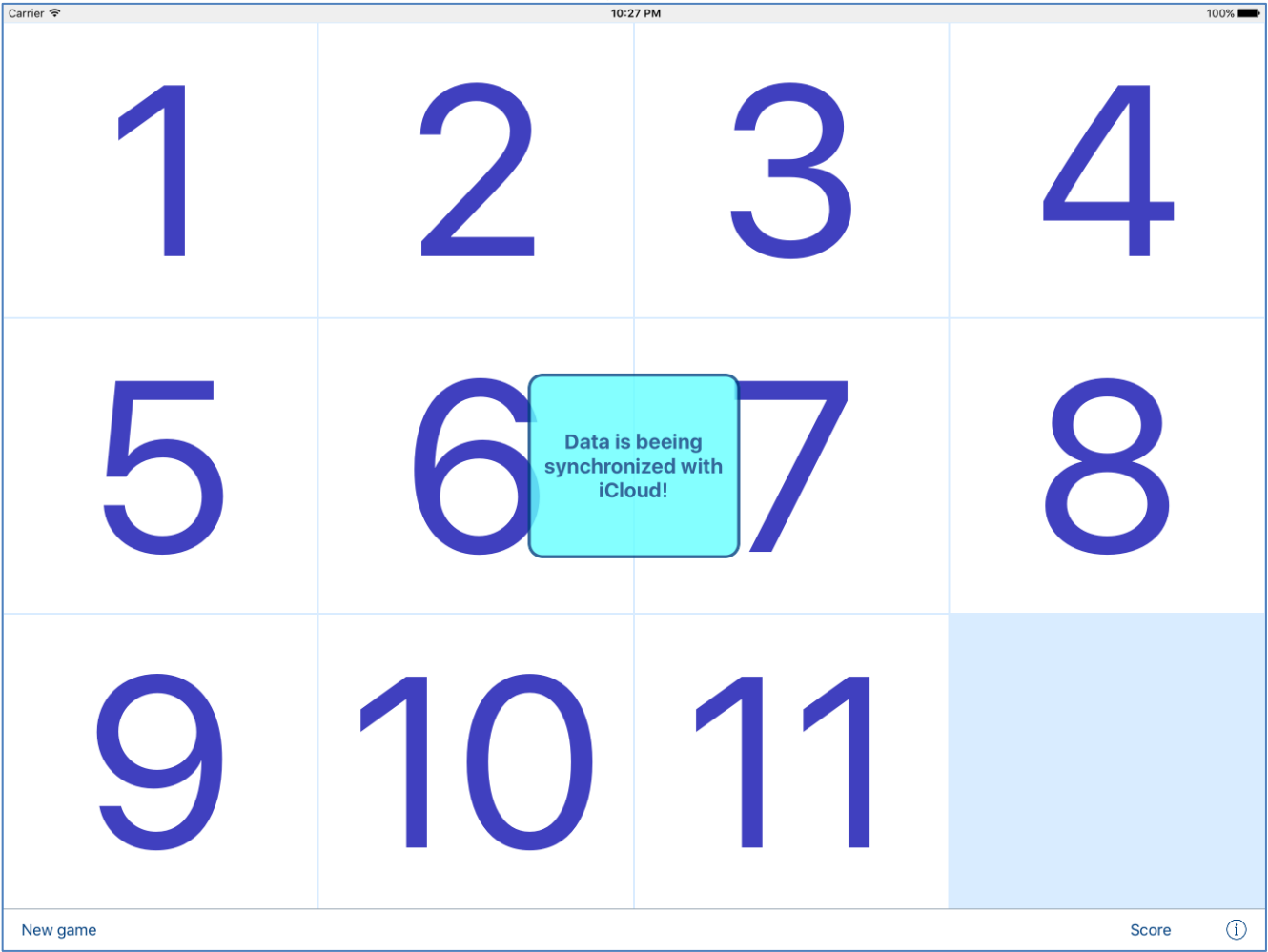
When it is impossible to synchronize game dimensions with dimensions from iCloud you will see following alert:

4. Settings view

This view allows you to configure system parameters and settings. From this view you have also access to: Sync settings view, Help view and Statistics view:
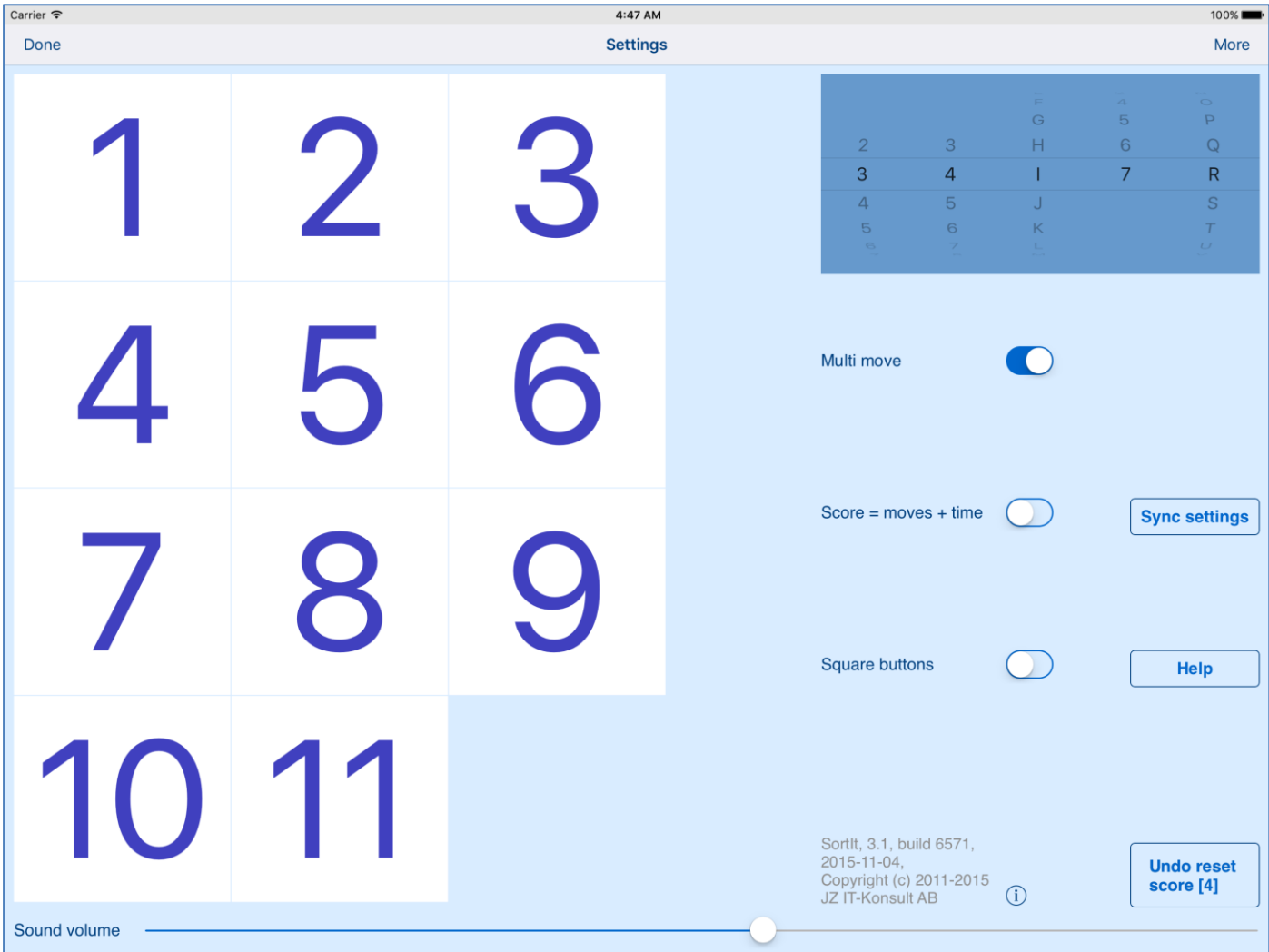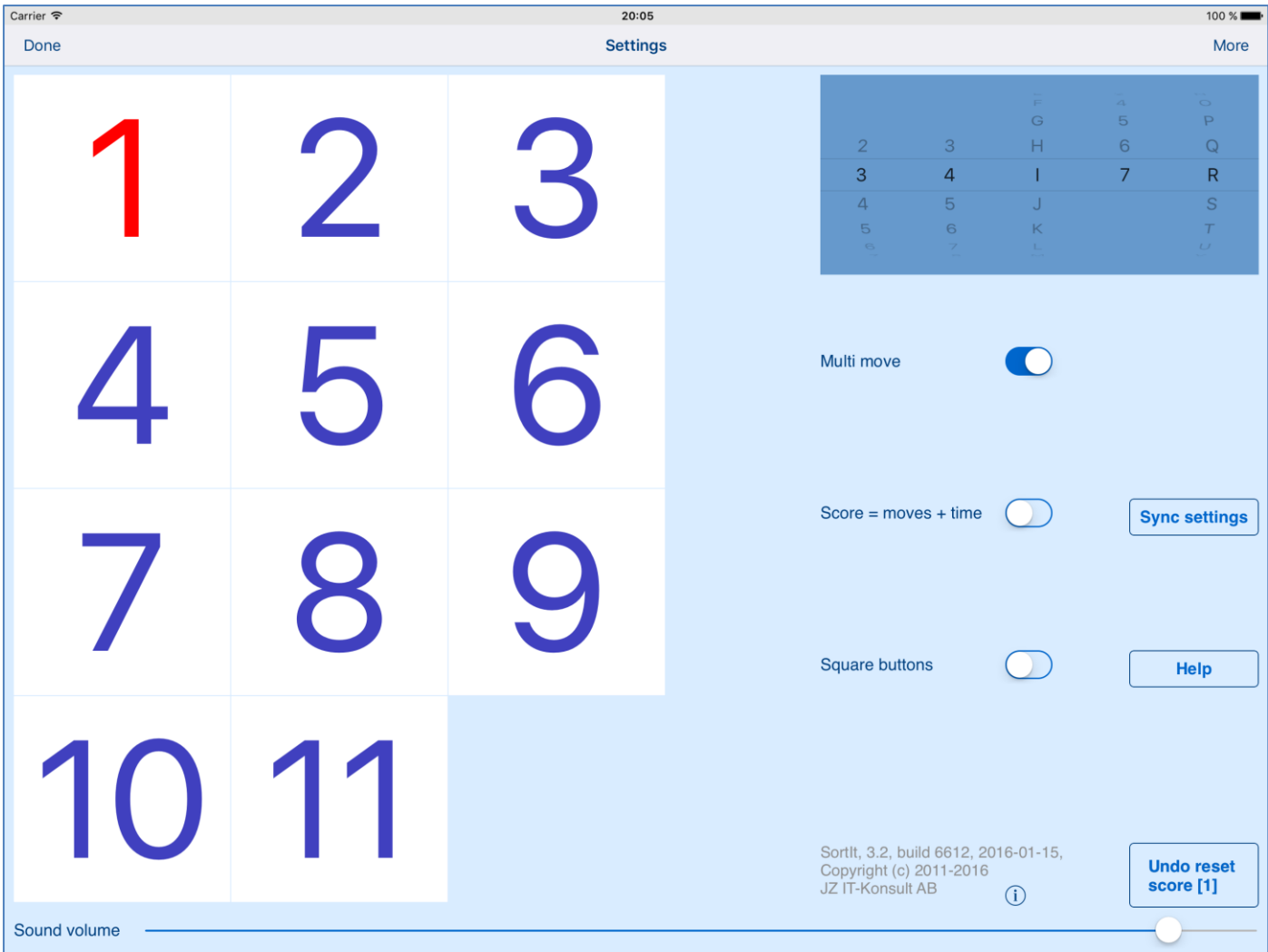
1	2	3
4	5	6
7	8	9
10	11	

2	3	G	4	5	o P
3	4	H	6	Q
4	5	I	7	R
5	6	J		S
	7	K		T
		L		U

Multi move　　　🔵

Score = moves + time　　⚪　　　**Sync settings**

Square buttons　　⚪　　　**Help**

SortIt, 3.2, build 6612, 2016-01-15,
Copyright (c) 2011-2016
JZ IT-Konsult AB　　ⓘ　　　**Undo reset score [1]**

Sound volume ━━━━━━━━━━━━━━━⚪━

Here is detailed description of controls available from this view:

Done	Terminate view and save changes. Instead tapping on button you can use gesture - swipe to the right.
More	Terminate view, save changes and go to More settings view.
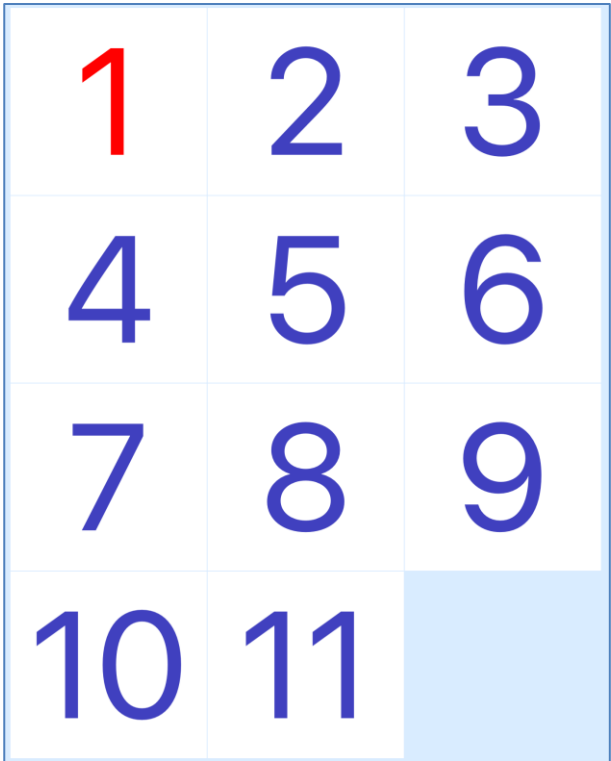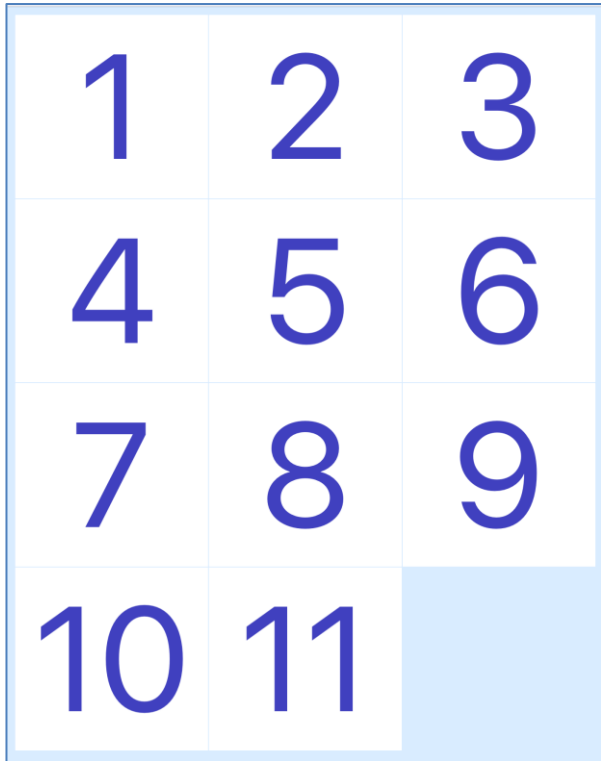
Visualization of game surface.

Starting from version 3.2 color of "focused" button on tvOS version of app is shown in left-top corner.

Color of "focused" button is changed automatically when Button text color (last selector)" is changed.

Picker for selection of:

- Game dimensions (first and second selector from left)
- Desktop color (third selector)
- Button surface color (forth selector)
- Button text color (last selector)

Help

Show Help view.
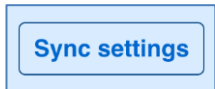
Sync settings

Show Sync settings view
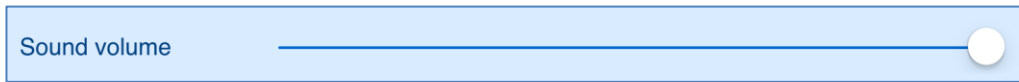
Sound volume

Volume of sound effects in app.

Multi move ⬤	
Determines if it is allowed to move several buttons with one button-touch.	
Score = moves + time ⬤	
Determines if time will be counted as score.	
Square buttons ⬤	
Shape of game buttons: square or rectangular to fill whole game surface.	
ⓘ	
Show [Statistics View](#)	

Undo reset score [5]

Undo resetting of score - number in brackets shows number of undo levels. When tapped the following will be shown:
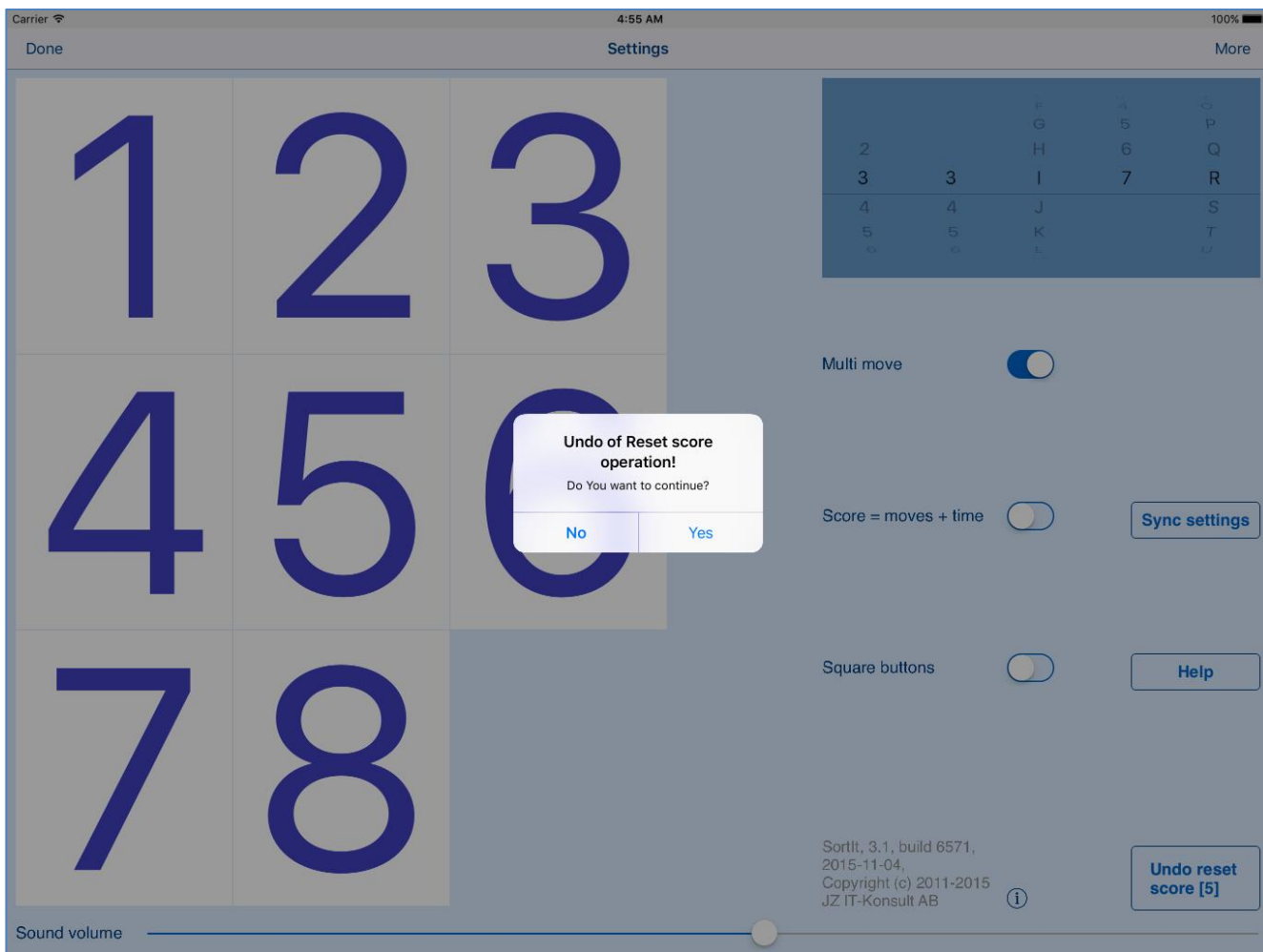
When you answer "Yes" game results removed during previous reset operation will be restored back and information about number of restored scores will be shown:
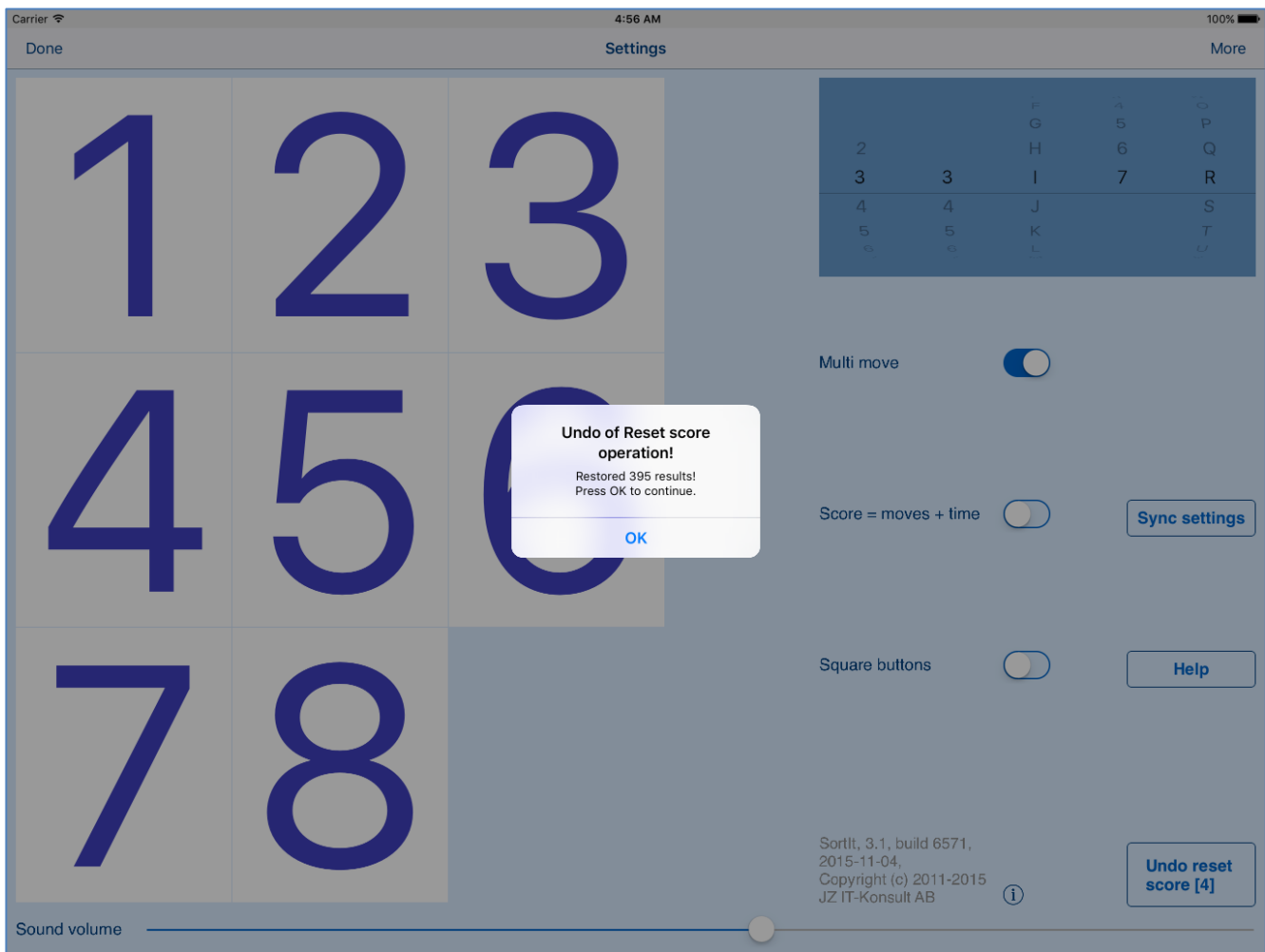
5. Sync settings view

This view is used to configure what data should be synchronized with iCloud.

View looks like this:
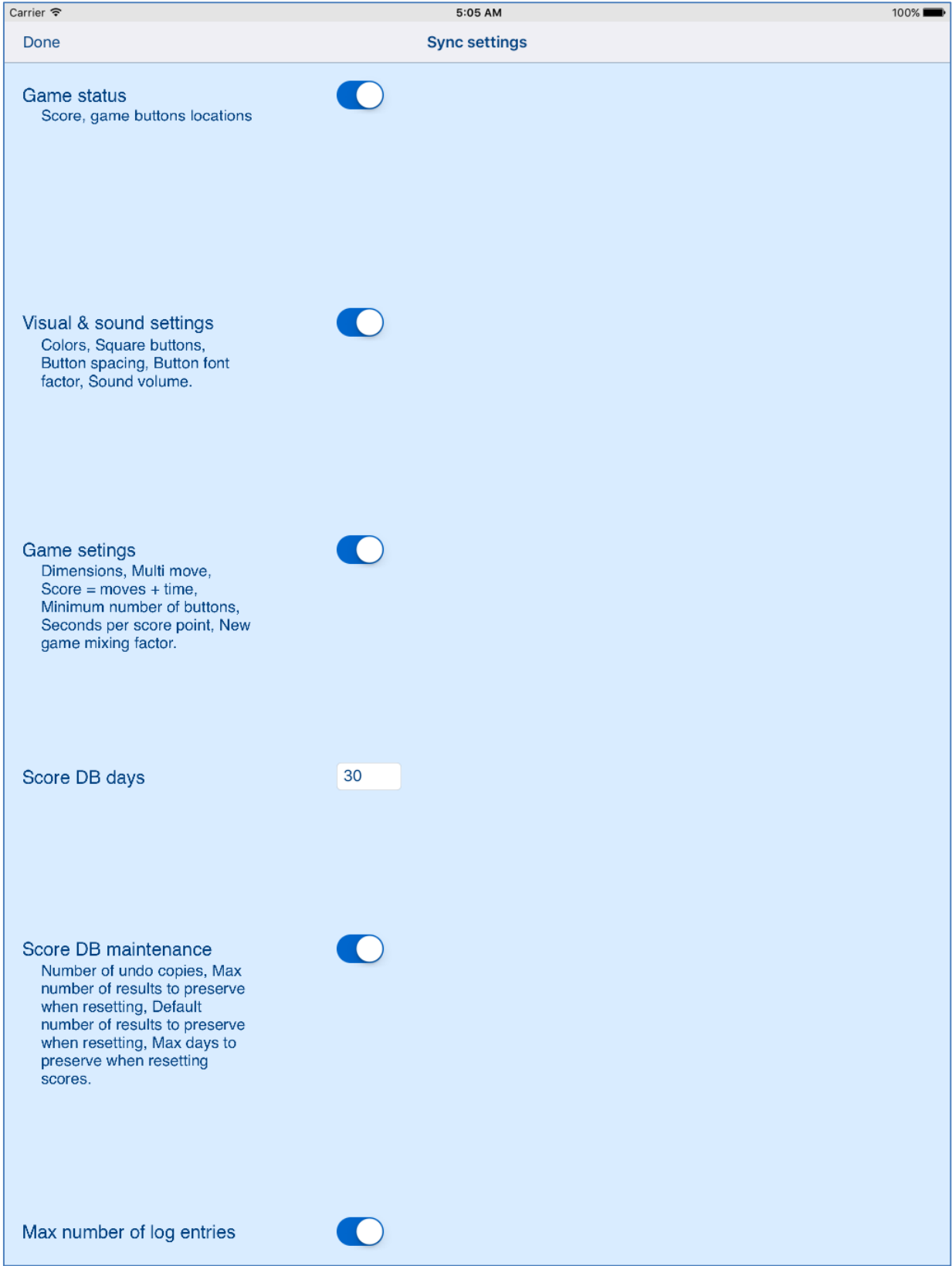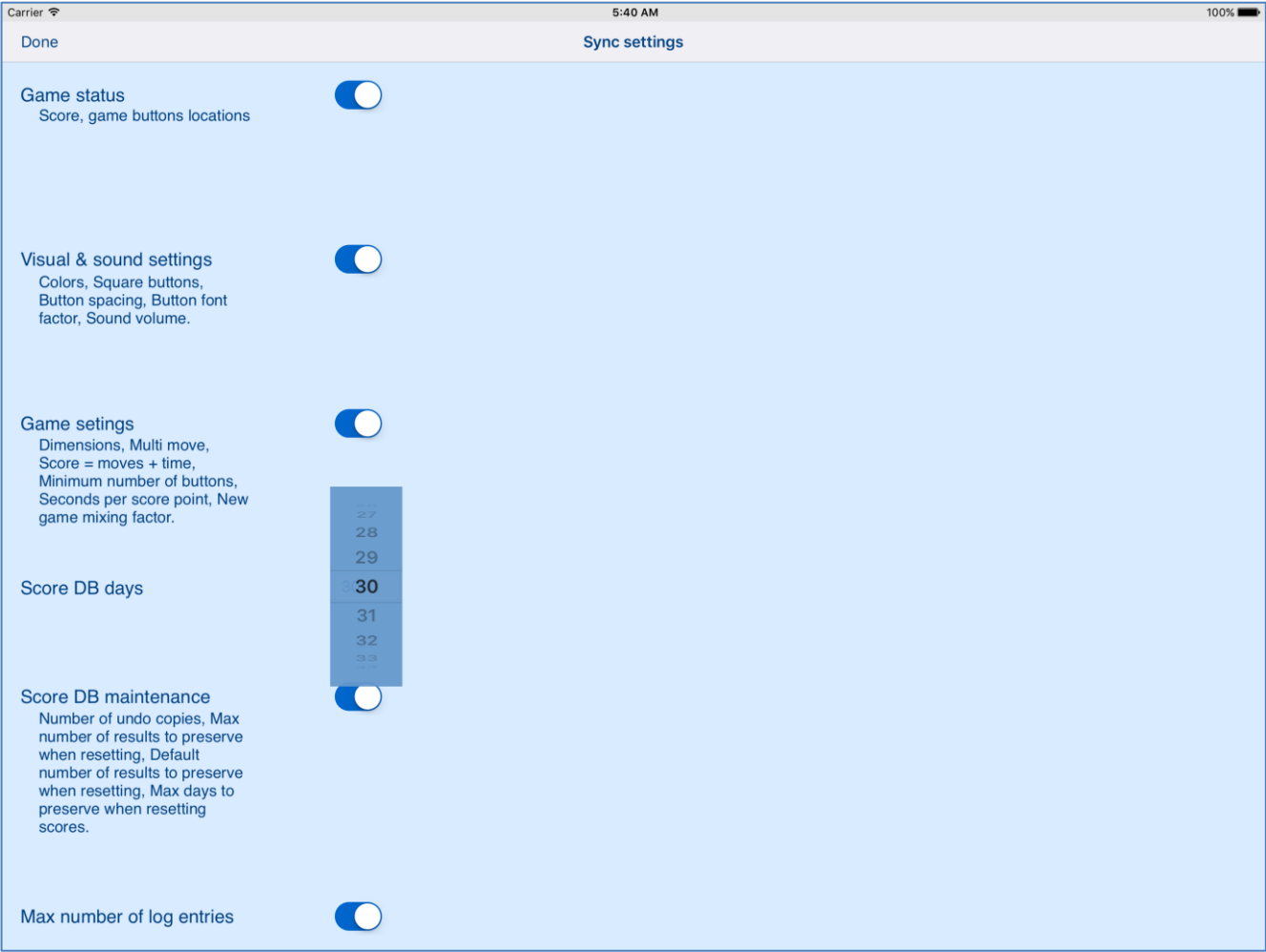
Done   **Sync settings**

Game status
   Score, game buttons locations

Visual & sound settings
   Colors, Square buttons,
   Button spacing, Button font
   factor, Sound volume.

Game setings
   Dimensions, Multi move,
   Score = moves + time,
   Minimum number of buttons,
   Seconds per score point, New
   game mixing factor.

Score DB days   30

Score DB maintenance
   Number of undo copies, Max
   number of results to preserve
   when resetting, Default
   number of results to preserve
   when resetting, Max days to
   preserve when resetting
   scores.

Max number of log entries

or

Here is detailed description of controls available from this view:

Determines if games status:
- Score
- Game buttons locations

will be synchronized with iCloud and restored on all your iOS devices with same iCloud account.

Visual & sound settings	
Colors, Square buttons, Button spacing, Button font factor, Sound volume.	⬤

Determines if game visual and sound settings:
- Colors
- "Square buttons" setting
- Button spacing
- Button font factor
- Sound volume

will be synchronized with iCloud and restored on all your iOS devices with same iCloud account.

Game setings	
Dimensions, Multi move, Score = moves + time, Minimum number of buttons, Seconds per score point, New game mixing factor.	⬤

Determines if game settings:
- Dimensions
- "Multi move" setting
- "Moves + time" setting
- Minimum number of buttons
- Sound volume

will be synchronized with iCloud and restored on all your iOS devices with same iCloud account.

Score DB days	31

Dimensions, Multi move, Score = moves + time, Minimum number of buttons, Seconds per score point, New game mixing factor.

	28
	29
	30
Score DB days	**31**
	32
	33
	34

Score DB maintenance
Number of undo copies, Max

Determines number of "score days" which will be synchronized with iCloud on all devices with same iCloud account:
- "0" – means no synchronization at all
- 31 or other number – determines number of latest days of score which will be synchronized.

To change value - just tap on field and pick new value and tap somewhere.

Score DB maintenance ⬤	
Number of undo copies, Max number of results to preserve when resetting, Default number of results to preserve when resetting, Max days to preserve when resetting scores.	

Determines which DB maintenance settings:
- Number of undo copies
- Max number of results to preserve when resetting
- Default number of results to preserve when resetting
- Max days to preserve when resetting scores

will be synchronized with iCloud and restored on all your iOS devices with same iCloud account.

Max number of log entries ⬤	

Determines if setting:
- Max number of log entries

will be synchronized with iCloud and restored on all your iOS devices with same iCloud account.

When iOS version of app is used together with tvOS version it is recommended to set all synchronization settings to "On".

6. More settings view

This view is used to configure additional app parameters and allows access to some additional views.

On iPhone view looks like this:

Carrier 🔋	3:43 PM	
Done	**More settings**	Log
Button spacing	2	− +
Button font factor	80%	− +
Minimum number of buttons	2	− +
Seconds per score point	1	− +
New game mixing factor	30	− +
Number of undo copies	100	− +
Max number of results to preserve when resetting	100	− +
Default number of results to preserve when resetting	3	− +
Max days to preserve when resetting scores	100	− +
Max number of log entries	90000	− +

Carrier 🔋	6:01 AM	
Done	**More settings**	Log
Button spacing	2 − +	Max number of results to preserve when resetting 100 − +
Button font factor	80% − +	
Minimum number of buttons	2 − +	Default number of results to preserve when resetting 3 − +
Seconds per score point	1 − +	Max days to preserve when resetting scores 300 − +
New game mixing factor	30 − +	
Number of undo copies	100 − +	Max number of log entries 90000 − +

On iPad there is additional part – visualization of game buttons:

Done   **More settings**   Log

Button spacing	2	— +
Button font factor	80%	— +
Minimum number of buttons	2	— +
Seconds per score point	1	— +
New game mixing factor	30	— +
Number of undo copies	100	— +
Max number of results to preserve when resetting	100	— +
Default number of results to preserve when resetting	3	— +
Max days to preserve when resetting scores	100	— +
Max number of log entries	90000	— +

1	2	6	11
19	28	38	51
65	82	100	

Here is detailed description of controls available from this view:

Done	

Terminate view and save changes. Instead tapping on button you can use gesture - swipe to the right.

Log	

Terminate view, save changes and go to Log view.

Button spacing	4	−	+

Determines space between buttons.

Button font factor	80%	−	+

Determines size of font used for text on game buttons. The greater percentage the bigger font.

Minimum number of buttons	2	−	+

Minimum size of game surface.

Seconds per score point	1	−	+

How many points per seconds is used for scoring game, when setting "Score = moves + time" is active.

New game mixing factor	30	−	+

Intensity of mixing buttons when New game is started. When you are not satisfied with quality of mixing increase this setting.

Number of undo copies	100	−	+

Number of undo copies of score database. Determines how many levels of game results removed by reset might be taken back by undo operation.

Max number of results to preserve when resetting	100	−	+

Maximum number of score results, which will be preserved during "Reset score" operation.

Default number of results to preserve when resetting	3	−	+

Default value of "Results to preserve" in Reset score view.

Max days to preserve when resetting scores	100	−	+

Default value of "Older than" in Reset score view.

Max number of log entries	90000	−	+

Sets number of log entries used to log game events. When number of log entries reaches this limit, the oldest entries will be removed automatically.

1	2	6	11
19	28	38	51
65	82	100	

Visualization of:
- Button spacing.
- Button font factor

7. Log view

Log view contains list of all system events. Every event might be investigated by activating Log details view.

View shows program events, such like:

- Start of game,
- Termination of game,
- Memory used, errors, etc.
- To refresh data from this view use gesture – shake device.

Controls available from this settings view:

Done
Terminate view. Instead tapping on button you can use gesture - swipe to the right.
Details
Terminate view and go to **Log details view**.

8. Log details view

View shows details of log event.
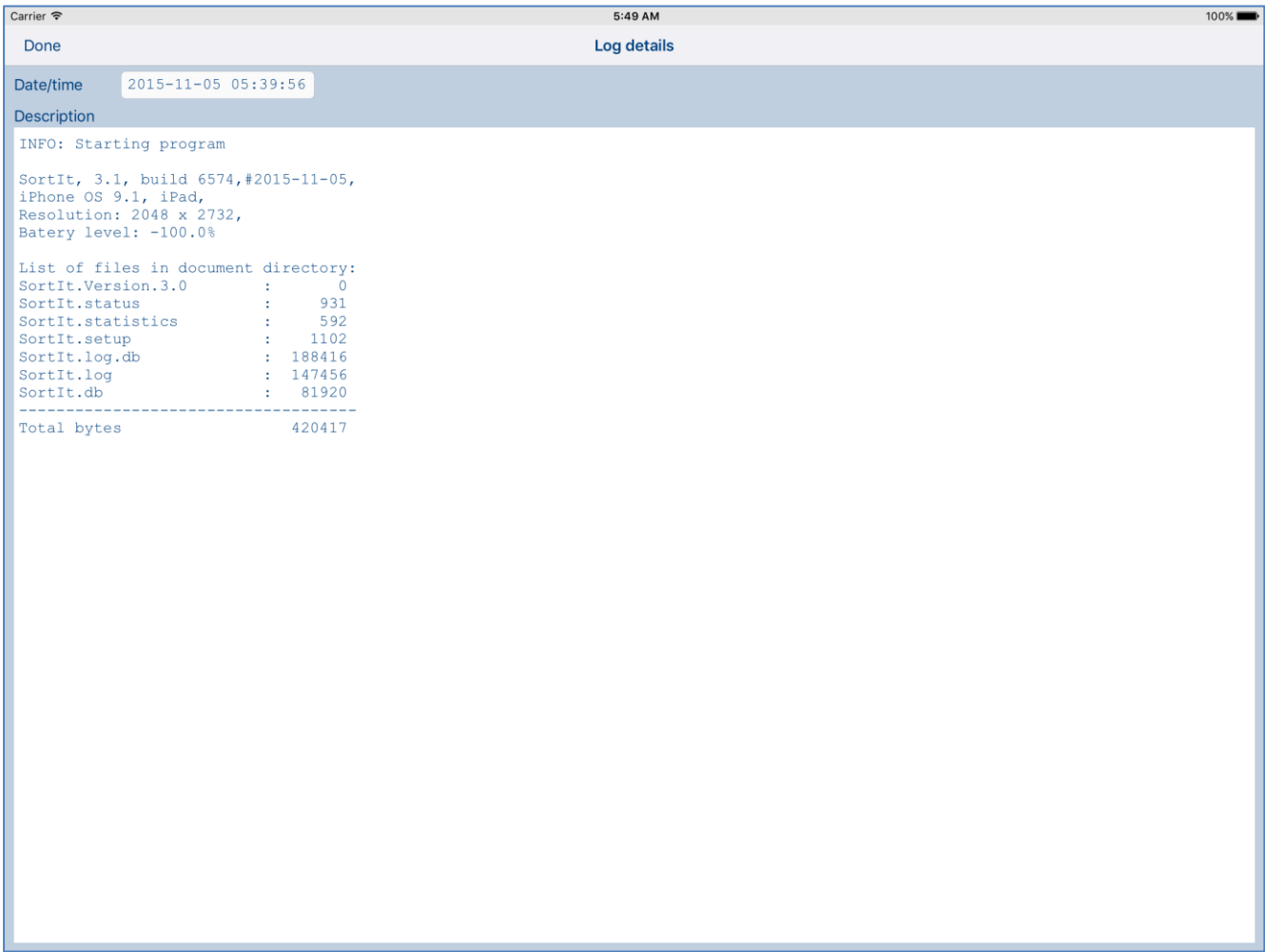
```
Carrier 🔗                                      5:49 AM                                      100% 🔋

Done                                          Log details

Date/time      2015-11-05 05:39:56
Description
INFO: Starting program

SortIt, 3.1, build 6574,#2015-11-05,
iPhone OS 9.1, iPad,
Resolution: 2048 x 2732,
Batery level: -100.0%

List of files in document directory:
SortIt.Version.3.0        :          0
SortIt.status             :        931
SortIt.statistics         :        592
SortIt.setup              :       1102
SortIt.log.db             :     188416
SortIt.log                :     147456
SortIt.db                 :      81920
----------------------------------
Total bytes                   420417
```

Controls available from this view:

Done

Terminate view. Instead tapping on button you can use gesture - swipe to the right.

[Back to top]

9. Statistics view

This view shows some statistics about usage of app:

```
Carrier                              5:50 AM                        100%

Done                                Statistics                         Reset

SortIt, 3.1, build 6574,#2015-11-05,

iPhone OS 9.1, iPad,
Resolution: 2048 x 2732,
Batery level: -100.0%

Memory in use (Mbytes):        131.2
Max memory used (Mbytes):      131.2
Average memory used (Mbytes):  131.2

Time max used:     2015-11-05 05:50:18
Number of memory checks:         1

First game:        2015-11-04 05:37:16
Number of started games:         2
Number of finished games:        1

Total number of moves:           5
Total play time:           0:00:02

Number of log entries:         915
Entries in score DB:           210
Deleted score DB entries:     1498
Game types in score DB:         70
Users in score DB:               5

List of files in document directory:
SortIt.Version.3.0      :        0
SortIt.status           :     3389
SortIt.statistics       :      592
SortIt.setup            :     1102
SortIt.log.db           :   188416
SortIt.log              :   151552
SortIt.db               :    81920
------------------------------------
Total bytes:               426971
Total Mbytes:                  0.4
```

Here is detailed description of controls available from this view:

Done	Terminate view. Instead tapping on button you can use gesture - swipe to the right.
Reset	Reset statistics. When tapped the following will be shown:

```
SortIt, 3.1, build 6574,#2015-11-05,

iPhone OS 9.1, iPad,
Resolution: 2048 x 2732,
Batery level: -100.0%

Memory in use (Mbytes):        131.2
Max memory used (Mbytes):      131.2
Average memory used (Mbytes):  131.2

Time max used:    2015-11-05 05:50:18
Number of memory checks:            1

First game:       2015-11-04 05:37:16
Number of started games:            2
Number of finished games:           1

Total number of moves:              5
Total play time:              0:00:02

Number of log entries:            915
Entries in score DB:              210
Deleted score DB entries:        1498
Game types in score DB:            70
Users in score DB:                  5

List of files in document directory:
SortIt.Version.3.0     :            0
SortIt.status          :         3389
SortIt.statistics      :          592
SortIt.setup           :         1102
SortIt.log.db          :       188416
SortIt.log             :       151552
SortIt.db              :        81920
------------------------------------
Total bytes:                   426971
Total Mbytes:                     0.4
```

Resetting of Statistics

Do You really want to reset statistics?

No   Yes

Reset statistics - clears accumulated statistics and sets to zero system-counters. To reset statistics you must answer "Yes" on alert question.

10. Score view

Show contents of score database, game results are sorted by game dimension and score. Date and time of game, player name and score is shown. Latest game type and result is shown in red color.

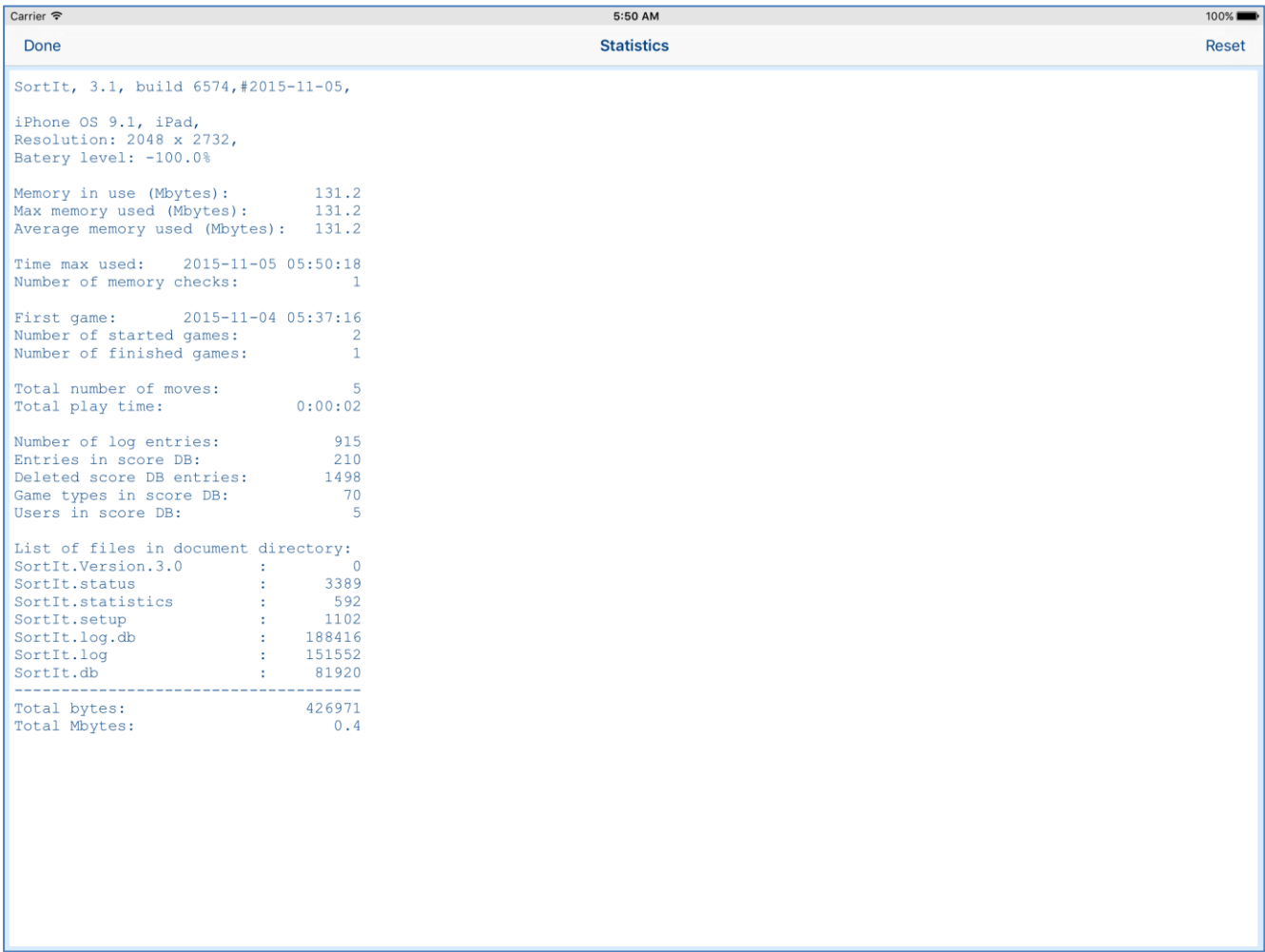| Carrier 🛜	5:56 AM	100% 🔋
Done	**Score**	Reset
2013-09-18 15:44:45		
3 John		**501**
2013-09-18 15:46:08		
3 x 2		
1 George		**228**
2013-09-18 15:53:55		
2 Anna		**229**
2013-09-18 15:54:22		
3 John		**230**
2013-09-18 15:54:49		
3 x 3		
1 Paula		**11**
2013-11-08 21:35:50		
2 Paula		**11**
2013-11-08 21:20:00		
3 Paula		**11**
2013-11-08 20:44:42		
4 Sofie		**29**
2015-11-05 05:55:33		
3 x 4		
1 George		**63**
2013-03-20 23:17:53		
2 George		**63**
2013-03-20 23:01:47		
3 George		**63**
2013-03-20 22:26:33		
3 x 5		
1 George		**171**
2013-04-14 18:06:55		
2 George		**171**
2013-04-14 17:15:43		
3 George		**210**
2013-03-20 22:22:39		

Here is detailed description of controls available from statistics view:

Done

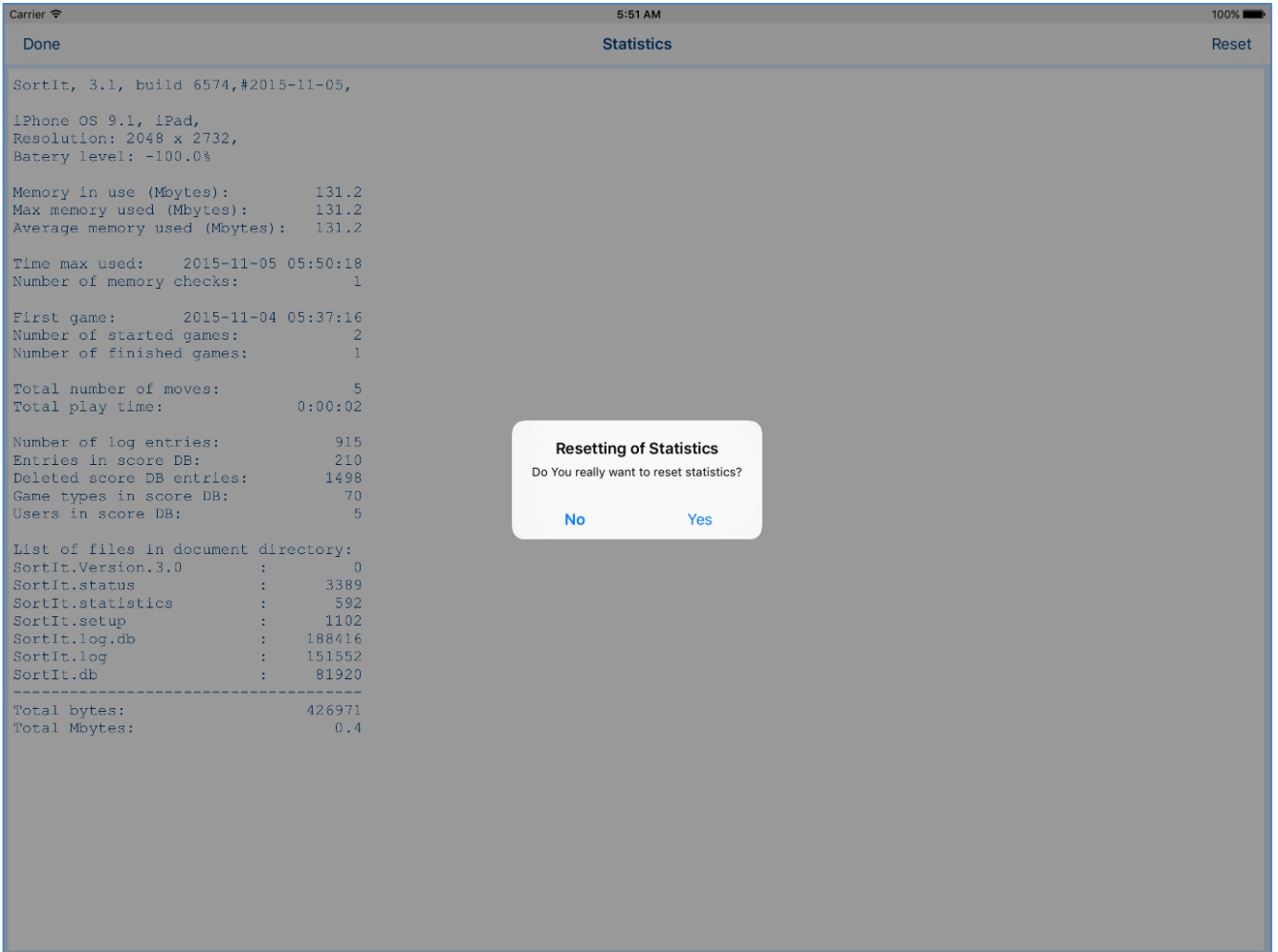Terminate view. Instead tapping on button you can use gesture - swipe to the right.

Reset

Opens "Reset score view".

11. Reset score view

This view allows to cleanup of score database by deleting of some scores.

Carrier 🖧	4:52 AM	100% ▮▸
Done	**Reset score**	Reset

Results to preserve   `3`

Older than days   `n/a`

User   `All users`

Game type   `All`

Results to preserve	Older than days	User	Game type
n/a			
1			
2			
3	n/a	All users	All
4	0	Anna	2 x 2
5	1	Benjamin	2 x 3
6	2	Eva	2 x 4

Here is detailed description of controls available from statistics view:

Done

Terminate view. Instead tapping on button you can use gesture - swipe to the right.

Results to preserve	Older than days	User		Game type
n/a				
1				
2				
3	n/a	All users		All
4	0	Anna		2 x 2
5	1	Eva		2 x 3
6	2	George		2 x 4

Picker for defining what should be deleted during resetting:

- "Results to preserve" – number of results for game type to preserve – not delete.
- "Older than days" – remove results older than selected number of days
- "User" – remove results for all users or only for selected user.

"Game type" – remove results for all game types or only for selected type.

Reset

Performs resetting of scores according to selection from picker. When tapped the following will be shown:

Done   Reset score   Reset

Results to preserve   3

Older than days   n/a

User   All users

Resetting of score database!
Do You really want to do this?

No   Yes

Game type   All

Results to preserve	Older than days	User		Game type
n/a				
1				
2				
3	n/a	All users		All
4	0	Anna		2 x 2
5	1	Benjamin		2 x 3
6	2	Eva		2 x 4

When you confirm resetting by selecting "Yes" the following information will be shown:
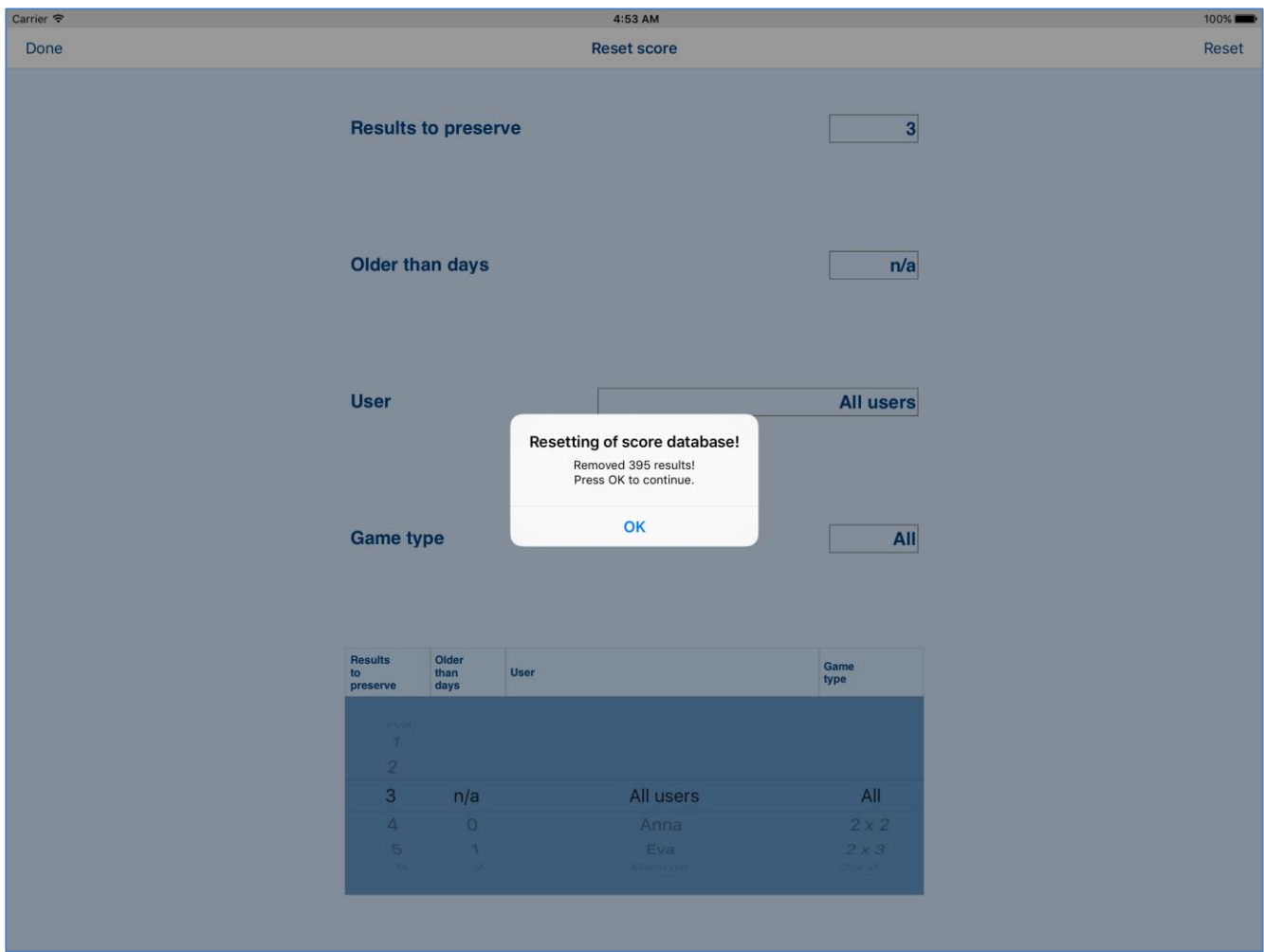
12. Help view

This view shows user guide for app.

SortIt for Phone & TV

1. Introduction

2. View orientation

3. Main view

4. Settings view

5. Sync settings view

6. More settings view

7. Log view

8. Log details view

9. Statistics view

10. Score view

11. Reset score view

12. Help view
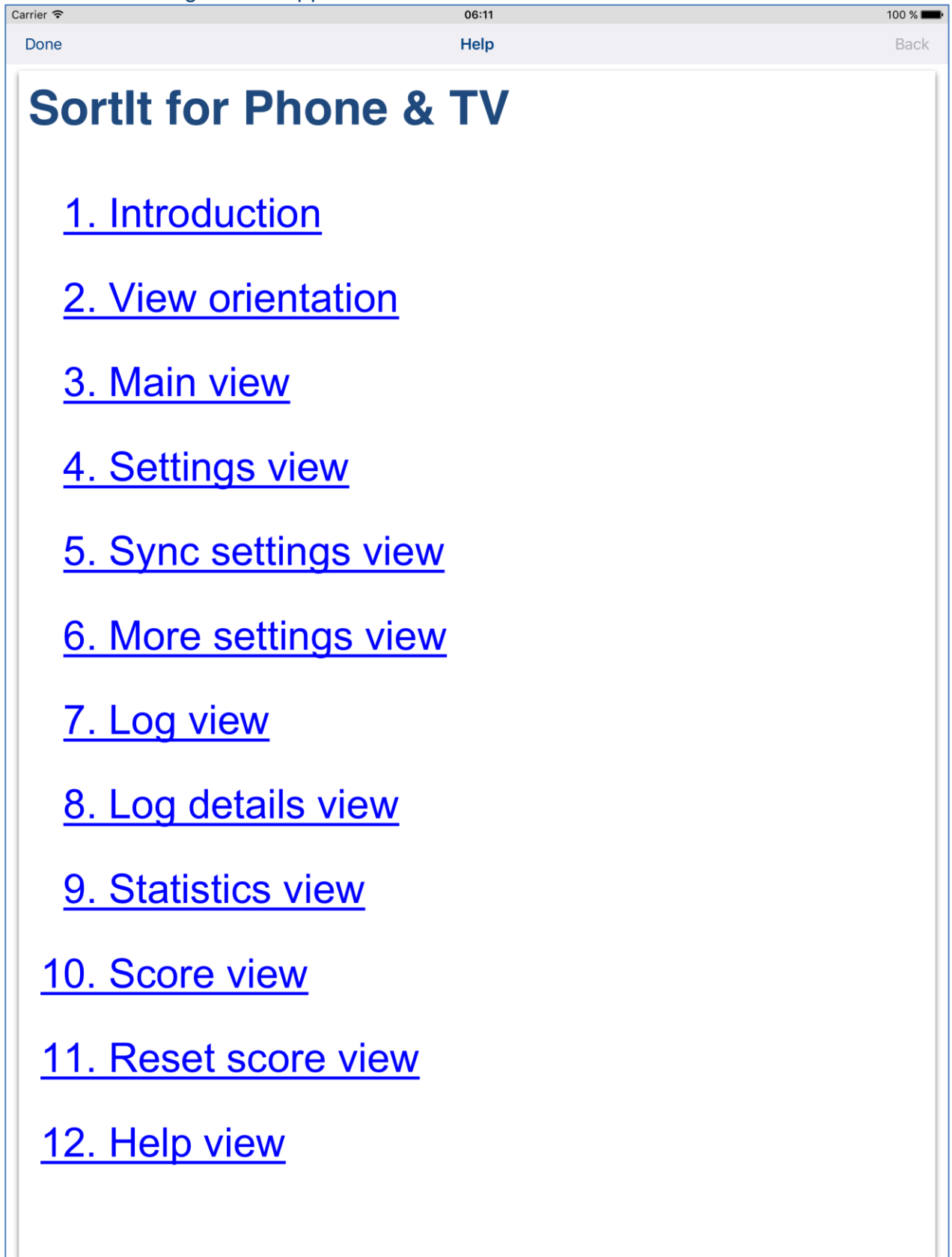
The only controls available here are:

Done
Terminate view. Instead tapping on button you can use gesture - swipe to the right, when you navigate in help. When you navigate to external links, swipe to right has same effect as taping "Back" button. Tapping "Done" button will always terminate Help view.
Back
Navigate to previous page in help or external web pages accessed through links. When you navigate to external links, swipe to right has same effect as taping "Back" button.

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