

SortIt for iPhone & iPad

[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](#)

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” [\[WikipediA\]](#).



1

2

3

4

5

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10

11

[New game](#)[Score](#)

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,
- "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 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.x, iOS8, iOS7, iOS6.

Pro-version does not contain

advertisement banner in main game view.



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



iOS9.x, iOS8.x, iOS7.x



Picker

iOS6.x



iOS9.x, iOS8.x, iOS7.x

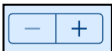
		F	4	O
		G	5	P
2		H	6	Q
3	3	I	7	R
4	4	J		S
5	5	K		T
6	6	L		U

Stepper

iOS6.x

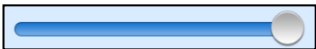


iOS9.x, iOS8.x, iOS7.x

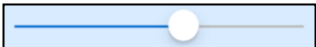


Slider

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

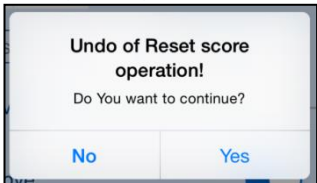


Alert

iOS6.x



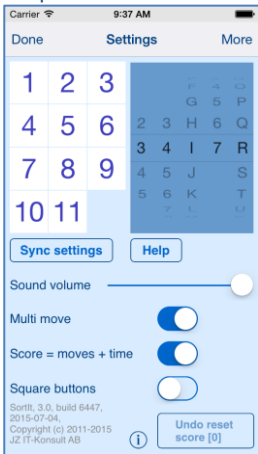
iOS9.x, iOS8.x, iOS7.x



[\[Back to top\]](#)

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.

[\[Back to top\]](#)

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 used 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.

A rectangular button with a black border and the word "Score" in blue text.

Button used to open [Score view](#).



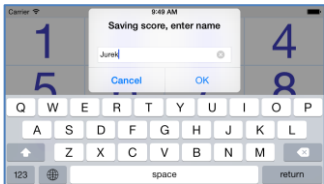
Button used to open [Settings view](#).

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:



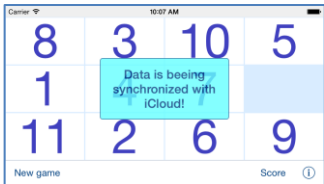
When you tap on “New game” button and game is not terminated you will see warning/question:



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:



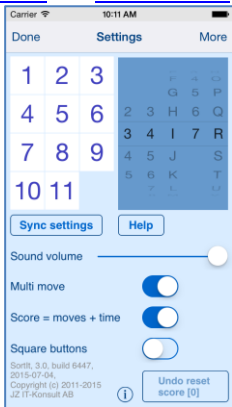
When it is impossible to synchronize game dimensions with dimensions from iCloud you will see following alert:



[\[Back to top\]](#)

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](#):



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](#).

1	2	3
4	5	6
7	8	9
10	11	

Visualization of game surface.

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

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.



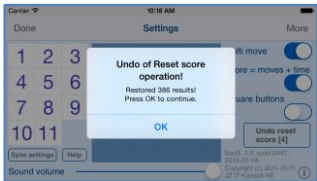
Show [Statistics View](#)

Undo reset
score [4]

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:

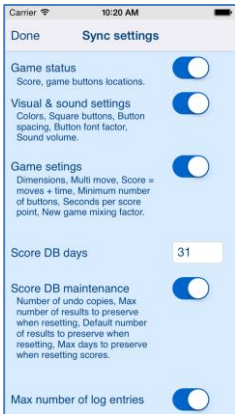


[\[Back to top\]](#)

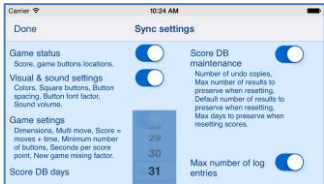
5. Sync settings view

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

View looks like this:



or



Here is detailed description of controls available from this view:

Game status

Score, game buttons locations.



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 settings

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.

Score DB days

28

29

30

31

32

33

Score DB maintenance

Number of undo copies, Max

34

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:

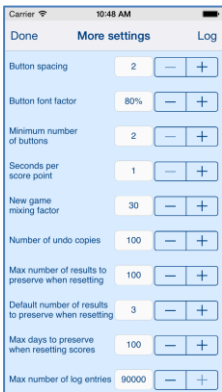
- Max number of log entries will be synchronized with iCloud and restored on all your iOS devices with same iCloud account.

[\[Back to top\]](#)

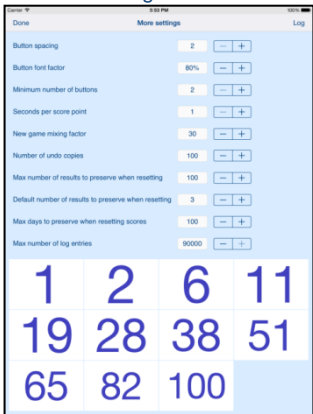
6. More settings view

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

On iPhone view looks like this:



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



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

2

-

+

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.

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

[\[Back to top\]](#)

7. Log view

Log view contains list of all system events. Every event might be investigated by activating [Log details view](#).



The screenshot shows the iOS Log view interface. At the top, the status bar displays 'Carrier', signal strength, '10:50 AM', and battery level. Below the status bar is a navigation bar with 'Done', 'Log', and 'Details' buttons. A search bar is located below the navigation bar. The main content area displays a list of log entries, each with a date, time, and message. The entry '2015-07-04 10:48:01 INFO: orientation cha...' is highlighted in yellow.

Date	Time	Level	Message
2015-07-04	10:50:46	INFO	starting Log Vi...
2015-07-04	10:50:01	MEMORY	55.0 Mbytes
2015-07-04	10:49:01	MEMORY	55.1 Mbytes
2015-07-04	10:48:13	INFO	starting More S...
2015-07-04	10:48:11	INFO	starting Settin...
2015-07-04	10:48:01	INFO	orientation cha...
2015-07-04	10:48:01	INFO	orientation cha...
2015-07-04	10:48:01	INFO	Starting program
2015-07-04	10:48:01	INFO	Data has been s...
2015-07-04	10:48:01	ERROR	Abnormal progr...
2015-07-04	10:48:01	WARNING	event 'appli...
2015-07-04	10:27:05	MEMORY	56.8 Mbytes
2015-07-04	10:26:05	MEMORY	56.7 Mbytes
2015-07-04	10:25:05	MEMORY	56.7 Mbytes
2015-07-04	10:24:23	INFO	orientation cha...
2015-07-04	10:24:23	INFO	status bar chan...
2015-07-04	10:24:09	INFO	orientation cha...
2015-07-04	10:24:09	INFO	status bar chan...
2015-07-04	10:24:05	MEMORY	56.7 Mbytes

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.

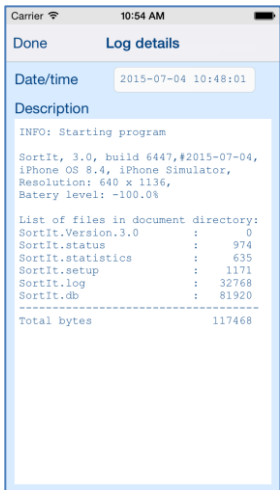
Details

Terminate view and go to [Log details view](#).

[\[Back to top\]](#)

8. Log details view

View shows details of log event.



Controls available from this view:

A rectangular button with a light gray background and a black border, containing the text "Done" in blue.

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:

Done	Statistics	Reset
<code>SortIt, 3.0, build 6447,#2015-07-04,</code>		
<code>iPhone OS 8.4, iPhone Simulator,</code>		
<code>Resolution: 640 x 1136,</code>		
<code>Battery level: -100.0%</code>		
<code>Memory in use (Mbytes):</code>		<code>62.4</code>
<code>Max memory used (Mbytes):</code>		<code>94.3</code>
<code>Average memory used (Mbytes):</code>		<code>78.7</code>
<code>Time max used:</code>		<code>2015-07-04 10:05:24</code>
<code>Number of memory checks:</code>		<code>50</code>
<code>First game:</code>		<code>2015-07-04 09:39:20</code>
<code>Number of started games:</code>		<code>9</code>
<code>Number of finished games:</code>		<code>1</code>
<code>Total number of moves:</code>		<code>63</code>
<code>Total play time:</code>		<code>0:01:05</code>
<code>Number of log entries:</code>		<code>219</code>
<code>Entries in score DB:</code>		<code>597</code>
<code>Deleted score DB entries:</code>		<code>1103</code>
<code>Game types in score DB:</code>		<code>70</code>
<code>Users in score DB:</code>		<code>15</code>
<code>List of files in document directory:</code>		
<code>SortIt.Version.3.0</code>	<code>:</code>	<code>0</code>
<code>SortIt.status</code>	<code>:</code>	<code>1308</code>
<code>SortIt.statistics</code>	<code>:</code>	<code>635</code>
<code>SortIt.setup</code>	<code>:</code>	<code>1171</code>
<code>SortIt.log</code>	<code>:</code>	<code>32768</code>
<code>SortIt.db</code>	<code>:</code>	<code>81920</code>

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:

Done

Statistics

Reset

SortIt, 3.0, build 6447, #2015-07-04,

iPhone OS 8.4, iPhone Simulator,

Resolution: 640 x 1136,

Battery level: -100.0%

Memory in use (Mbytes): 84.9

Max memory used (Mbytes): 94.3

Average memory used (Mbytes): 78.1

Ti

Nu

Fi

Nu

Nu

To

Total play time:

0:01:05

Number of log entries: 305

Entries in score DB: 643

Deleted score DB entries: 1057

Game types in score DB: 70

Users in score DB: 16

List of files in document directory:

SortIt.Version.3.0 : 0

SortIt.status : 1308

SortIt.statistics : 635

SortIt.setup : 1171

SortIt.log : 40960

SortIt.db : 81920

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.

[\[Back to top\]](#)

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.

Done

Score

Reset

5 Sofie

2013-09-18 15:48:07

237**6 Joanna**

2013-09-18 15:48:35

238**7 Stefan**

2013-09-18 15:49:04

244**8 Maria**

2013-09-18 15:49:33

245**3 x 3****1 Benjamin**

2013-11-28 11:47:35

23**2 Florence**

2013-11-28 10:56:15

23**3 Florence**

2013-11-28 10:39:57

23**4 George**

2015-06-23 18:40:28

66**3 x 4****1 George**

2013-03-20 23:17:53

63

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](#)".

[\[Back to top\]](#)

11.Reset score view

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

Carrier 11:09 AM

Done **Reset score** Reset

Results to preserve

Older than days

User

Game type

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

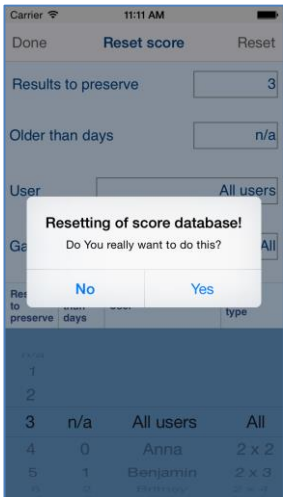
- “Older than days” – remove results older than selected number of days
- “User” – remove results for all users or only for selected user.

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

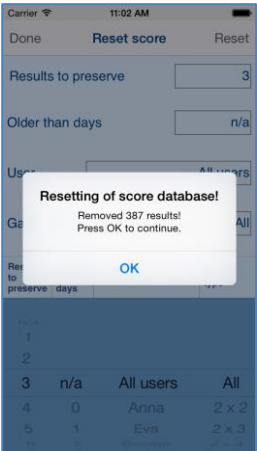
Reset

Performs resetting of scores according to selection from picker.

When tapped the following will be shown:



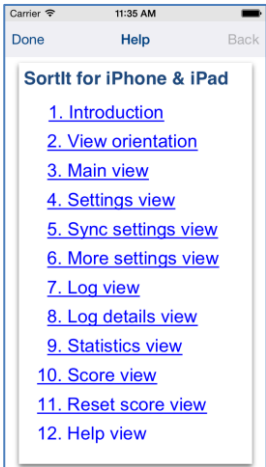
When you confirm resetting by selecting “Yes” the following information will be shown:



[\[Back to top\]](#)

12.Help view

This view shows user guide for app.



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 tapping "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 tapping “Back”
button.

[\[Back to top\]](#)