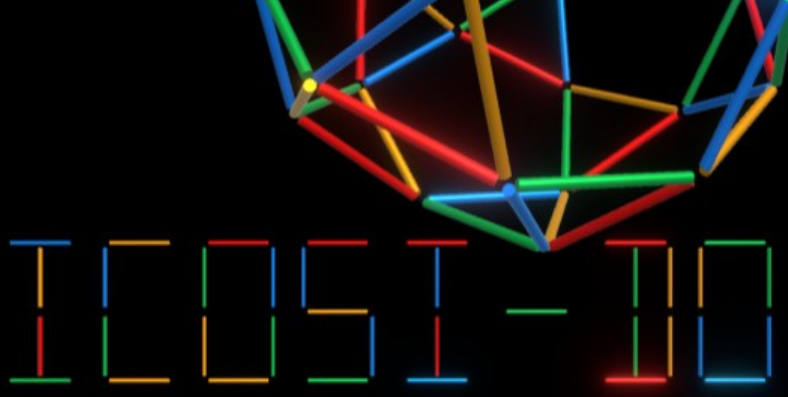




icosi-do manual

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January 29, 2023

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MODES AND LEVELS

Introduction: icosi-do is a minimalist puzzle game including thousands of procedurally generated puzzles in various modes and 59 levels (29 levels in RACEs; 7 levels in the demo). icosi-do is available at <https://store.steampowered.com/app/2072540/icosido/>. This manual hopes to answer many questions about the game, but it is not a gentle introduction to playing the game. Thus, it actually helps to play the game before you read this manual.

How to solve the puzzles: Puzzles are solved by swapping pairs of rods such that 4 different rods (4 different colors or 4 different rotations) meet in all 30 corners. (See page 5 for more details about puzzle solving.)

Modes:

- When a NEW GAME is started (see page 7), one of 3 modes has to be selected: SOLO and COOP are currently equivalent and allow one player/party or multiple cooperating players/parties using a shared screen to solve puzzles of increasing levels. RACE allows two players/parties using a shared screen to compete in solving puzzles of the same level with as few swaps as possible.
- If MOVE LIMIT is turned on (see page 9) and the game is not in RACE mode, each puzzle has to be solved with at most as many swaps as the level number specifies.
- If MOVE LIMIT is turned off (see page 9), the number of swaps is unlimited.
- If COLORS are turned on (see page 9), each rod has one of 4 colors.
- If COLORS are turned off (see page 9), each rod has one of 4 rotations relative to the faces of the (icosidodecahedral) base shape.

Difficulty of modes and levels for SOLO/COOP games:

- For SOLO/COOP games, levels have to be unlocked by solving them in order.
- The easiest mode is MOVE LIMIT off and COLORS on. This mode is indicated by a “-” after the level number, e.g. “level 1-”. (Starting a game with a higher level than 1 is also indicated in this way.)
- The default mode is MOVE LIMIT on and COLORS on. This mode is indicated by a “+” after the level number, e.g. “level 1+”. (The most difficult levels are between 20 and 30; lower levels are easier because the starting position is closer to a solution; higher levels are easier because they all start from a basically random position but the higher the level, the more swaps are allowed.)
- The mode MOVE LIMIT off and COLORS off (indicated by a “X” after the level number) as well as the mode MOVE LIMIT on and COLORS off (indicated by a “*” after the level number) are very difficult for humans.



MENU NAVIGATION

On startup, the game asks players to press “->” (“cursor right” or “D-pad right”) , “D”, or right mouse button. In case Tilt Five™ glasses are detected, the game asks to press the “2” button. Once a player complies, the game enters the main menu (see page 7), which may be navigated with mouse buttons, keyboard, Xbox controller, or Tilt Five™ wand:

Menu navigation with mouse buttons:

- Press the right mouse button to navigate to the next menu item.
- Press the left mouse button to select or change the current menu item.
- Press the optional middle mouse button to leave the current submenu and return to the menu that activated the submenu; alternatively, select “BACK” with left mouse button.

Menu navigation with keyboard:

- Press the “D” or “cursor right” key to navigate to the next menu item.
- Press the “A” or “cursor left” key to navigate to the previous menu item.
- Press the “enter”, “space”, or left “ctrl” key to select or change the current menu item.
- Press the “escape,” “tab,” or “backspace” key to leave the current submenu and return to the menu that activated it. In the main menu: leave menu and activate puzzle.
- For menu items that may be changed: press the “W” or “cursor up” key to change in one direction; press the “S” or “cursor down” key to change in the other direction.

Menu navigation with Xbox controller:

- Press the “D-pad right” button, push the left thumb-stick to the right, or (unless using Tilt Five™) the right bumper button to navigate to the next menu item.
- Press the “D-pad left” button, push the left thumb-stick to the left, or (unless using Tilt Five™) the left bumper button to navigate to the previous menu item.
- Press the “A” button, pull either trigger, or click-in the left thumb-stick to select or change the current menu item.
- Press the “View” button (two rectangles), the “Menu” button (three lines), or the “B” button to leave the current submenu and return to the menu that activated it. In the main menu: leave menu and activate puzzle.
- For menu items that may be changed: press the “D-pad up” button or push the left thumb-stick forward; press the “D-pad down” button or push the left thumb-stick backward to change in the other direction.

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Menu navigation with Tilt Five™ wand:

- Push the thumb-stick to the right to navigate to the next menu item.
- Push the thumb-stick to the left to navigate to the previous menu item.
- Pull the trigger, press the “1” button, or click-in the thumb-stick to select or change the current menu item.
- Press the “2” button to leave the current submenu and return to the menu that activated it. In the main menu: leave menu and activate puzzle.
- Press the “T5” button to leave the current submenu and return to the menu that activated it. In the main menu: go to “QUIT APP”, and in the main menu when already at “QUIT APP”: actually quit the app.
- For menu items that may be changed: push the thumb-stick forward to change in one direction; push the left thumb-stick backward to change in the other direction.



PUZZLE SOLVING

As mentioned on page 2, puzzles are solved by swapping pairs of rods such that rods of 4 different colors (or 4 different rotations if COLORS are off) meet in all 30 corners. Puzzles may be solved with mouse buttons, keyboard, Xbox controller, or Tilt Five™ wand:

Puzzle solving with mouse buttons:

- Press and hold the left mouse button and drag the mouse to rotate the puzzle.
- Press the left mouse button to select the individual rod below the mouse cursor. Once two rods are selected at the same time, their colors or rotations are swapped.
- Press the right or middle mouse button to return to the main menu.

Puzzle solving with keyboard:

- Press the “W”, “A”, “S”, “D”, or cursor keys to rotate the puzzle.
- Press the “return”, “space”, or left “ctrl” key to select the individual rod below the reticle in the center of the screen. Once two rods are selected at the same time, their colors or rotations are swapped.
- Press the “escape”, “tab”, or “backspace” key to return to the main menu.
- Press “X” to undo the last move or show a hint for the first move (not in RACE mode).
- If Tilt Five™ glasses are connected: press “Y” to scale up the puzzle (hold it to scale down); press “G” to move the puzzle up, press “B” to move the puzzle down.

Puzzle solving with Xbox controller:

- Press the D-pad or push the left thumb-stick to rotate the puzzle.
- Press the “A” button, pull either trigger, or click-in the left thumb-stick to select the individual rod below the reticle in the center of the screen. Once two rods are selected at the same time, their colors or rotations are swapped.
- Press the “B” button, “view” button (two rectangles), or the “menu” button (three lines) to return to the main menu.
- Press the “X” button to undo the last move or show a hint for the first move (not in RACE mode).
- If Tilt Five™ glasses are connected: press the “Y” button to scale up the puzzle (hold it to scale down); press left bumper to move the puzzle up, press right bumper to move the puzzle down



Puzzle solving with Tilt Five™ wand:

- Push the thumb-stick to rotate the puzzle.
- Press the “1” button, pull the trigger, or click-in the thumb-stick to select the individual rod that the wands points at, or unselect a selected rod by pointing at no rod. Once two rods are selected at the same time, their colors or rotations are swapped.
- Press the “2” button or the “T5” button to return to the main menu.
- Press the “X” button to undo the last move or show a hint for the first move (not in RACE mode).
- Press the “Y” button to scale up the puzzle (hold it to scale down).
- Press the “A” button to move the puzzle up.
- Press the “B” button to move the puzzle down.



MENU OVERVIEW

See page 3 for how to navigate the menus. See page 5 for how to return to the main menu from the puzzle. The items of the main menu are CONTINUE, LEVEL MENU, TUTORIAL, NEW GAME, SETTINGS, CREDITS, and QUIT APP:

CONTINUE: Leaves the main menu and activates the puzzle.

LEVEL MENU:

- UNDO MOVE: Undoes the last move. (Not available in RACE games.)
- RETRY LEVEL: Restarts the current puzzle.
- SHARE LEVEL: Shows the 6-digit level of the puzzle; select the code to copy it to the clipboard; level codes may be entered under NEW GAME.
- LEVEL HISTORY: Provides a numbered list of puzzles played previously in this session. Select an item for details: how many moves were used to solve the puzzle, how many seconds were needed to solve it (only SOLO/COOP games), which party won (only RACE games), the number of wins of both parties after the game (only RACE GAMES), an option to play it again (RETRY LEVEL), and an option to show the 6-digit level code of the puzzle (SHARE LEVEL).
- NEW GAME: Starts a new game; see below on this page for more details.

TUTORIAL: Starts a tutorial explaining how to solve puzzles (see also page 5).

NEW GAME:

- Requires players to select a MODE (SOLO, COOP, or RACE) and a starting LEVEL.
- With SOLO and COOP, one or more cooperating players using a shared screen solve puzzles of increasing levels. With RACE, two players/parties using a shared screen compete in solving puzzles of the same level with as few swaps as possible.
- COOP games starting in a level greater than 1 are marked with a “-” after the level number; RACE games are marked with an “R” after the level number.
- CODE allows players to enter a 6-digit level code (see SHARE LEVEL above).

SETTINGS: Access player settings in 5 submenus: GAME MODES (page 9), VISUALS (page 10), AUDIO (page 11), CONTROLS (page 12), and AR GLASSES (page 13).

CREDITS: Displays information about icosi-do and authors of employed assets.

QUIT APP: Immediately exits the app.



POST-LEVEL MENUS

After a puzzle has been solved or a player has swapped too many pairs of rods without solving the puzzle, one of three post-level menus is entered:

Post-level menu after solving a puzzle in a SOLO or COOP game:

- LEVEL COMPLETE or – if the puzzle has been solved with fewer swaps than the level number specifies – COMPLETE IN x (with x being the number of performed swaps): Select to proceed to the next level. Leaving the menu with “escape”, “B” button, etc. also proceeds to the next level.
- x SECONDS: Specifies how many seconds have passed since starting the level. Select to proceed to the next level.
- NEXT LEVEL: Select to proceed to the next level.
- RETRY LEVEL: Restart the same puzzle.
- SHARE LEVEL: Show the 6-digit level code for this puzzle. Select the code to copy it to the clipboard. (Level codes may be entered under NEW GAME; see page 7).

Post-level menu after failing to solve a puzzle in a SOLO or COOP game:

- OUT OF MOVES: Select to restart the same puzzle. Leaving the menu with “escape”, “B” button, etc. also restarts the same puzzle.
- In level 1 and 2, information is provided explaining how to solve puzzles.
- RETRY LEVEL: Restart the same puzzle.
- TURN OFF LIMIT: Turn off MOVE LIMIT allowing to continue with the current puzzle.
- SHARE LEVEL: Show the 6-digit level code for this puzzle. Select the code to copy it to the clipboard. (Level codes may be entered under NEW GAME; see page 7).

Post-level menu after solving a puzzle in a RACE game:

- PARTY 1/2 WINS or ROUND IS A TIE: A round is a tie if one party/player solves the puzzle and the other party/player could potentially solve the puzzle with the same number of swaps with their next swap. Select to proceed to the next round. Leaving the menu with “escape”, “B” button, etc. also proceeds to the next round.
- x TO y WINS: Specifies how often party 1 (x) and party 2 (y) have won since the current game has been started. Select to proceed to the next round.
- NEXT ROUND: Select to proceed to the next round (on the same level).
- RETRY ROUND: Select to restart the current round.
- SHARE LEVEL: Show the 6-digit level code for this puzzle. Select the code to copy it to the clipboard. (Level codes may be entered under NEW GAME; see page 7).



SETTINGS: GAME MODES

Player settings may be changed under SETTINGS in the main menu. See page 7 for an overview of the main menu; see page 3 for how to navigate menus and how to change menu items. GAME MODES settings are related to the modes discussed on page 2. See pages 10, 11, 12, and 13 for other settings.

MOVE LIMIT:

- ON: Each puzzle has to be solved with at most as many swaps as the level number specifies, e.g. 3 swaps in level 3. (This does not apply to RACE games.)
- OFF: The number of swaps is unlimited.

WARNING:

- 1/2/3/4/5: The warning “x MOVES LEFT” is presented when x moves are remaining.
- OFF: No warning is presented.

Note: This is not a different mode, but the setting is closely related to MOVE LIMIT.

COLORS:

- ON: Each rod has one of 4 colors; but also see GRAYING on page 10.
- OFF: Each rod has one of 4 rotations relative to the faces of the (icosidodecahedral) base shape; but also see GRAYING on page 10.

Note: In principle, this setting just affects the visuals; however, it has such a deep impact on the difficulty of the puzzles that it is considered a different mode.



SETTINGS: VISUALS

GRAYING:

- ON: If 4 different rods (4 different colors or 4 different rotations) meet at both ends of a (unselected) rod, the rod is shown in gray and without special rotation, i.e., aligned to an edge of the icosidodecahedral base shape. This is useful to see which parts of the puzzle have probably been solved already.
- OFF: Rods are always shown with their color (if COLORS are on) or rotation (if COLORS are off).

SOLID:

- ON: Shows semitransparent pentagons of the icosidodecahedral base shape. This is most useful when COLORS are off because it helps to identify and distinguish the 4 rotations of rods relative to the base shape.
- OFF: Hides the pentagons of the base shape.
- AUTO: Only shows the pentagons of the base shape when COLORS are off.

GROUND:

- BLACK, EERIE, JET, ONYX, BEAN, TAUPE, FIR, MOSS, NAVY, COAL, SLATE: Specifies a background color.
- CODE: Let's you specify a hex triplet for the background color by navigating to the right, e.g., FFA500 for orange.

TEXT:

- COLORED: Displays all texts with the colors that the rods have in the puzzle.
- GRAYISH: Displays all texts in menus and messages in grayish colors.
- GRAY: Displays all texts in menus and messages in gray.

QUALITY:

- LOW: low visual quality (no multisampling, 60 fps target)
- MID: medium visual quality (2x multisampling, 60 fps target)
- HIGH: high visual quality (4x multisampling, 120 fps target)

GLOW:

- WEAKEST, WEAK, WEAKISH, STRONG, INTENSE: Activates glow effects of various strengths.
- OFF: Deactivates glow effects.



SETTINGS: AUDIO

SOUNDS:

- 1, 2, 3, 4, 5, 6, 7, 8, 9, 10: Sets the volume of sound effects.
- OFF: Turns off sound effects.

MUSIC:

- 1, 2, 3, 4, 5, 6, 7, 8, 9, 10: Sets the volume of music.
- OFF: Turns off music.

TEMPO:

- SLOWEST, SLOW, SLOWISH, FASTISH, FAST, FASTEST: Sets the speed of music.

DYNAMICS:

- ON: Activates variations of loudness between musical notes.
- OFF: Plays all musical notes with the same loudness.

DEVICE:

- PIANO, SPINET (actually a harpsichord), HARP, GUITAR, MALLETS (actually a marimba), ORGAN, BELLS (i.e. glockenspiel): Sets the musical instrument.
- CYCLE: Cycles through musical instruments after each level or round (except level 1).
Note: Changing from CYCLE to another instrument and back to CYCLE switches the musical instrument one step in the cycle. This provides a way to skip an instrument.

PRELUDE:

- 846: Prelude in C major from The Well-Tempered Clavier, Book I (BWV 846)
- 848: Prelude in C-sharp major from The Well-Tempered Clavier, Book I (BWV 848)
- 863: Prelude in G-sharp minor from The Well-Tempered Clavier, Book I (BWV 863)
- CYCLE: Cycles through the three preludes after each level or round.



SETTINGS: CONTROLS

UI TIPS:

- ON: Shows the most useful buttons and keys (UI tips) at the top of the screen.
- OFF: Does not show UI tips.

INVERT:

- Y AXIS: Inverts vertical movements when rotating a puzzle.
- X AXIS: Inverts horizontal movements when rotating a puzzle.
- X+Y AXIS: Inverts horizontal and vertical movements when rotating a puzzle.
- NO AXIS: Does not invert movements.

SPEED:

- SLOWEST, SLOW, MEDIUM, FASTISH, FAST, FASTEST: Sets the speed of rotations of a puzzle.

RESET APP:

- Resets the app. This includes all settings and for SOLO and COOP games, it locks all levels except level 1.



SETTINGS: AR GLASSES

CHECK SYSTEM:

After selecting this menu item, the game responds with one of 5 messages:

- NO TILT FIVE: Tilt Five™ glasses were not detected, for example because the computer does not support Tilt Five™ glasses or they are not correctly connected .
- NO DRIVER 1_3_0: A Tilt Five™ driver has been detected but it is not up-to-date (currently 1.3.0); download new drivers at <https://www.tiltfive.com/downloads> .
- NO TRACKING: The Tilt Five™ glasses are active but they do not track a gameboard. Point the glasses towards the gameboard and make sure that enough of the dots on the border of the gameboard are visible to the glasses. If necessary, check the settings in the Tilt Five™ Control Center.
- NO WAND: No Tilt Five™ wand was detected. Hold the “T5” button for a few seconds to turn it on, and – if necessary – check its battery.
- NO PROBLEM: Everything appears to be in order.

CLONE VIEW:

- ON: If Tilt Five™ glasses are tracking a gameboard, the view through the glasses is cloned/mirrored/shared on the PC display. This is particularly useful if you want to use mouse, keyboard, or Xbox controller instead of the Tilt Five™ wand while using the Tilt Five™ glasses.
- OFF: Shows the standard view on the PC display even if Tilt Five™ glasses are connected. This is particularly useful if one player is using Tilt Five™ glasses and plays with another player who is using the PC display and mouse, keyboard, or Xbox controller.

GROUND:

- BLACK, EERIE, JET, ONYX, BEAN, TAUPE, FIR, MOSS, NAVY, COAL, SLATE: Specifies a background color for the display with Tilt Five™ glasses.
- CODE: Let's you specify a hex triplet for the background color by navigating to the right, e.g., FFA500 for orange.

**BEAM:**

- ON: Shows a semitransparent beam between the tip of the Tilt Five™ wand and the point that it is pointing at.
- OFF: Hides that semitransparent beam.

PROPS:

- ON: Shows a white table surface, a flat XE gameboard with a hole instead of the retroreflective material, and a model of the Tilt Five™ wand. This is useful for recording and/or streaming gameplay with Tilt Five™ glasses as it shows representations of the physical props that the player sees in addition to the virtual scene.
- OFF: Hides any representations of physical props.

Please enjoy!