# SOKOBAN
## user guide

Sokoban is a classic puzzle game that challenges players to think critically and strategize their moves. Players can control a character tasked with pushing a box onto a designated target within a confined space surrounded by walls. The objective is to move the box to the target with the least number of moves possible. With its simple mechanics, Sokoban provides an enjoyable experience for everyone.

## To Start:

- <u>Opening the game</u>
  First, download the sokoban.s source file. Then, click on this link https://cpulator.01xz.net/?sys=rv32-spim to open a space where you can play the game. Located at the top, click on "File" and then "Open…".
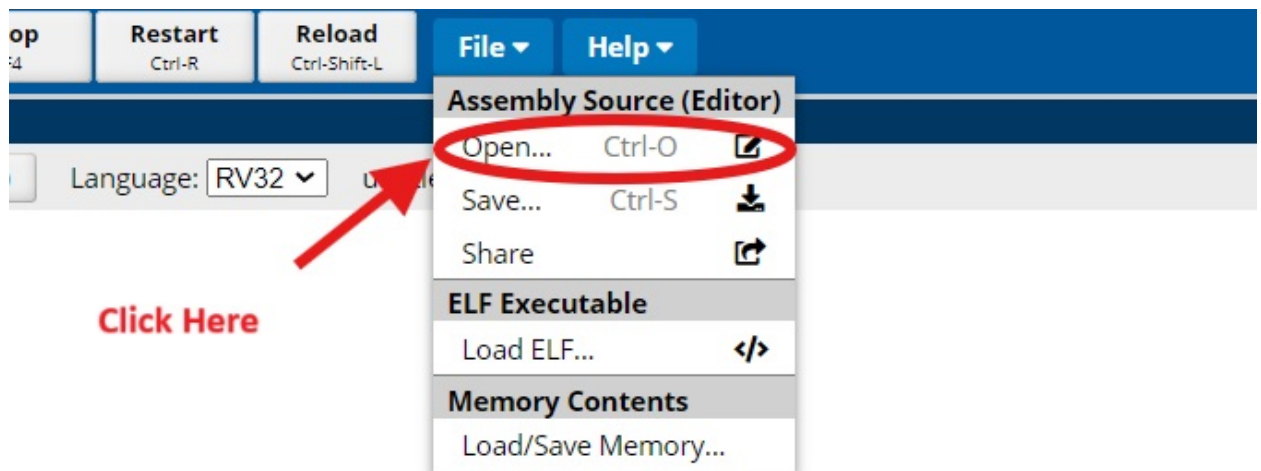


Figure 1. Location of "File" and "Open…"

  Navigate to the sokoban.s file and open it.

- <u>Adjusting board size</u>

The default board size is width 3 and height 3. This is the minimum board size. The maximum size is width 255 and height 255. The board size can be changed by navigating to line 37 and changing the default "3,3".



Figure 2. Location of board size settings

Figure 3 is an example of a board size changed to a width of 5 and height of 8.



Figure 3. Board size with width 5 and height 8

- <u>Starting the game</u>
  Located near the top, click on "Compile and Load", then click on "Continue". The panel on the right labeled "Terminal" would prompt you with the question, "How many players are playing?". You have successfully started the game.
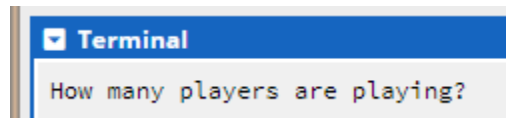


Figure 4. Initial prompt in the terminal

- <u>Objective</u>
  Push the box (X) onto target (*) while minimizing the number of moves. Use the player (i) to achieve this.

**Sokoban Shapes:**

- <u>Player</u> (i)
  You control the player. You can move it up, down, left and right.

- <u>Wall</u> (#)
  Walls encircle the Sokoban board and the player cannot pass through them.

- <u>Box</u> (X)
  The player can push the box.

- <u>Target</u> (*)
  The box must be placed on the target.

- <u>Space</u> (.)
  Empty space where the player can freely move.

**Controls:**

The game controls are performed from the keyboard.

- <u>Player Movement</u>

  Move Up (w)
  Move Down (s)
  Move Left (a)
  Move Right (d)

  If a move is not possible due to walls or boxes, the game will notify you that the direction is blocked.
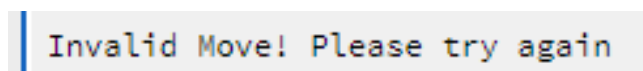


Figure 5. Game notification for invalid move

- <u>Restarting Game</u>

Press (r) to restart. By pressing (r) in the middle of a game, the board would reset to its original state. At the end of a round, pressing (r) restarts the whole game.

● <u>Continuing Game</u>

After each game, the user is prompted to press (n) to continue. This would start the next player's game or display the scoreboard.

## Multiplayer:

When prompted with "How many players are playing?", enter the desired number of players. Each player will then take turns playing the same game. At the top of the gameboard, the current player's number is displayed to indicate whose turn it is. Once a player completes their game, the next player's turn begins

## Winning The Game:

Once the box (X) has been placed on target (*), the game will display a congratulatory message.
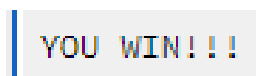
YOU WIN!!!

Figure 6. Congratulatory message

● <u>Scoreboard</u>

At the end of a round, the cumulative standings, ordered by the number of moves, are displayed.

Figure 7. Example of a scoreboard

In Figure 7, Player 2 is in first place with 6 moves. Then, Player 3 is in second place with 8 moves. Then, Player 1 is in last place with 12 moves.

## Replaying Moves:

If you would like to replay moves, after the scoreboard is displayed, you would be prompted with Figure 8.



Figure 8. Prompt to replay moves

Type the player number and press enter to watch the replay for that player. To skip replays, enter any other key.

Enjoy playing Sokoban! Feel free to customize your experience by exploring various board sizes.