

GUI Specification for **Connect X**

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Chapter 1

Motivation

This document is the GUI specification for **Connect X**, a scalable Four-in-a-row software. It is intended to inform developpers on the required GUI components needed to allow users to use the program effectively. It is expected of any developer working on the core **Connect X** application GUI layer to make sure:

1. that any GUI developpement is done according to the specification;
2. that any piece of GUI added to the project is first documented here.

Also note that this specification only applies for GUI developpement and for the core **Connect X** application. If you are working on an internal piece of software (a plugin, for example), please refer to the specification for that particular project.

Chapter 2

Detailed specification

2.1 The Connect X game dialog

Here is the layout for the game dialog:

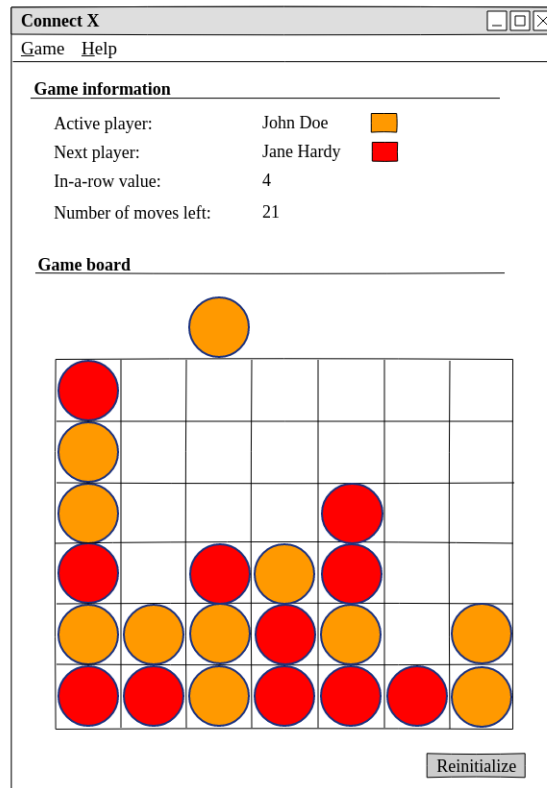


Figure 2.1 – The game dialog layout

The dialog shall have the following elements:

1. Dialog

Title Game

Close button Yes

Minimize button Yes

Resize button Yes

Modal No

2. Menu

Menu items The following describe the menu elements for each menu section:

Game

New game

Reinitialize game

Quit

Help

Show help

About Connect X

Alternate control  + g for the **Game** menu section.  + h for the **Help** menu section.

3. Menu item

Label New game

Readonly Yes

Enabled Yes

Visible Yes

Tooltip No

Events When triggered, brings up the new game dialog (see section 2.2).

4. Menu item

Label Reinitialize game

Readonly Yes

Enabled Yes

Visible Yes

Tooltip No

Events When triggered, the game is reinitialized, which means that it is put in the exact same state as it was after the initialization (i.e. when it had just been created).

Alternate control The Reinitialize button, at the bottom of the dialog (see item 21).

5. Menu item

Label Quit

Readonly Yes

Enabled Yes

Visible Yes

Tooltip No

Alternate control The Close **Button** of the dialog.

Events When triggered, the application is closed.

6. Menu item

Label Show help

Readonly Yes

Enabled Yes

Visible Yes

Tooltip No

Events When triggered, brings up the help dialog (see section 2.3).

7. Menu item

Label About **Connect X**

Readonly Yes

Enabled Yes

Visible Yes

Tooltip No

Events When triggered, brings up the about **Connect X** dialog (see section 2.4).

8. Section

Label Game information

Readonly Yes

Folding No

Visible Yes

Tooltip No

9. Label

Label Active player:

Readonly Yes

Visible Yes

Tooltip No

10. Label

Label <Active player's name>

Readonly Yes

Visible Yes

Tooltip No

Misc Contents shall vary according to the player that is the active player. Each turn, this content will get updated. It shall also be updated when the game is reinitialized.

11. Label

Label <Active player's disc color>

Readonly Yes

Visible Yes

Tooltip No

Misc Contents shall vary according to the player that is the active player. Each turn, this content will get updated. It shall also be updated when the game is reinitialized.

12. Label

Label Next player:

Readonly Yes

Visible Yes

Tooltip No

13. Label

Label <Next player's name>

Readonly Yes

Visible Yes

Tooltip No

Misc Contents shall vary according to the player that is the next player. Each turn, this content will get updated. It shall also be updated when the game is reinitialized.

14. Label

Label <Next player's disc color>

Readonly Yes

Visible Yes

Tooltip No

Misc Contents shall vary according to the player that is the next player. Each turn, this content will get updated. It shall also be updated when the game is reinitialized.

15. Label

Label In-a-row value:

Readonly Yes

Visible Yes

Tooltip No

16. Label

Label <In-a-row value>

Readonly Yes

Visible Yes

Tooltip No

Misc This value does not change for a particular game. If a new game is defined, it is updated to the new game's in-a-row value.

17. Label

Label Number of moves left:

Readonly Yes

Visible Yes

Tooltip No

18. Label

Label <Number of moves left>

Readonly Yes

Visible Yes

Tooltip No

Misc This value shall be updated at every turn change to reflect the actual number of remaining moves for the current game. It shall also be updated to show the total number of turn for the entire game when the game is reinitialized.

19. Section

Label Game board

Readonly Yes

Folding No

Visible Yes



Tooltip No

20. Game board


General idea The **Game board** element is included here as an entity in itself, even though GUI frameworks don't usually provide such a thing directly. This means that the implementer has much liberty in the way the **Game board** entity is implemented in terms of GUI; only the following general specifications shall be met by the **Game board**.

Readonly Yes

Next disc area The game board shall contain an area where the next disc to be placed in the game board is visible.

Next disc movement The following controls shall be available to choose where the next disc will be placed. The disc shall be movable left and right via the  and  keys and by dragging it on the wanted game board column.

Column highlighting Each time the next disc is moved to a game board column (either with the keyboard or the mouse), the column shall be highlighted.

Disc placement To place a disc in a column, you first move the disc to that column (see item 20). from there, the disc shall be placed¹ if the  key is pressed or the right mouse button is released (dropping).

21. Button

Label Reinitialize

Readonly Yes

Enabled Yes

Visible Yes

Tooltip No

Alternate control Through the menu: **Game > Reinitialize Game** (see item 4).

Events When triggered, the game is reinitialized, which means that it is put in the exact same state as it was after the initialization (i.e. when it had just been created).

2.2 The new game dialog

Here is the layout for the new game dialog:

¹if there is still room in the column, of course. Otherwise nothing shall happen

New game

Game



In-a-row value:

Game board

Number of rows:

Number of columns:

Players

No.	Name	Disc
1	John Doe	 ▼
2	Jane Hawking	 ▼
3	--Player 3--	Color... ▼

Add player

Start

Figure 2.2 – The new game dialog layout

The dialog shall contain the following elements:

1. Dialog

Title New game

Close button Yes

Minimize button Yes

Resize button Yes

Modal Yes

2. Section

Label Game

Readonly Yes

Folding No

Visible Yes

Tooltip No

3. Label

Label In-a-row value:

Readonly Yes

Visible Yes

Tooltip No

4. Edit box

Default value 4

Value limits Integer between three and the minimum between the number of rows for the game board and the number of columns in the game board.

Readonly No

Enabled Yes

Visible Yes

Tooltip Yes: *The in-a-row value must be at least 3 and fit in the game board for all orientations.*

Events No

Misc The edit box is only validated when the start button is pressed. See item 13.

5. Section

Label Game board

Readonly Yes

Folding No

Visible Yes

Tooltip No

6. Label

Label Number of rows:

Readonly Yes

Visible Yes

Tooltip No

7. Edit box

Default value 6

Value limits Integer between 6 and 64 included.

Readonly No

Enabled Yes

Visible Yes

Tooltip Yes: *The number of rows must be at least 6 and must not exceed 64.*

Events No

Misc The edit box is only validated when the start button is pressed. See item 13.

8. Label

Label Number of columns:

Readonly Yes

Visible Yes

Tooltip No

9. Edit box

Default value 7

Value limits Integer between 7 and 64.

Readonly No

Enabled Yes

Visible Yes

Tooltip Yes: *The number of columns must be at least 7 and must not exceed 64.*

Events No

Misc The edit box is only validated when the start button is pressed. See item 13.

10. Section

Label Players

Readonly Yes

Folding No

Visible Yes

Tooltip No

11. Player table

General idea The player table is a table containing three columns titles respectively **No.**, **Name** and **Disc**. Each table line is formed of three cells, each containing respectively: the row number, the player's name and the disc color for the player.

Row number The row number is an integer value from 1 to 10. It shall be readonly and visible.

Player name The player name is a non-empty string value with initial value "–Player *n*–", where *n* represents the player's row number value.

Disc color The disc color cell shall be an edit box showing initial value "Choose color..." and proposing a choice of 10 different colors.

Readonly Yes, but entire lines can be deleted.

Default values Here is how the initial table should look like:



No.	Name	Disc
1	-Player 1-	
2	-Player 2-	

Table 2.1 – Default values for the **Player** table.


Limits The table shall contain a minimum of 2 lines and a maximum of 10 lines.


Visible Yes

Tooltip No

Events When a player is registered (see item 12) the table is automatically updated in the following way:

- (a) A new row is added.
- (b) The row number cell contains the incremented number of rows (n).
- (c) The "-Player n -" player name is added to the name cell.
- (d) If $n = 10$, the add player button is deactivated. (see item 12).

Players can be removed from the tables until two players are left. Clicking on the row number and hitting  shall remove a player. Alternatively, right clicking on the player row and choosing "remove" from the menu shall remove a player from the list. Once a player is removed, the player table shall be updated in the following way:

- (a) If $n > 2$, the row disappears.
- (b) If the row is not the end row, all player numbers, either in their default names or ther No column are adjusted in such a way that they flow from top top to bottom of the table from 1 to n . There shall be no jumps.
- (c) The color that was chosen by the player who's row is removed shall return to the pool of possible disc colors to choose from.
- (d) If $n = 2$, selecting a row and pressing  shall not remove a player.
- (e) If $n = 2$, the "delete" option from the right click menu shall be deactivated.

When a color is chosen by a registered player, the disc color selection edit box shall remove this color from the list of available colors to choose from.

12. Button

Label Add player

Readonly Yes

Enabled If there are less than 10 registered players, the button shall be enabled. Otherwise, it shall be disabled.

Visible Yes

Tooltip Yes: *You can register a maximum of 10 players.*

Events Triggering this button shall add an entry to the player table (see item 11).

13. Button

Label Start

Readonly Yes

Enabled The button shall be enabled when all the following conditions are met:

- There is a value in the in-a-row edit box (see item 4).
- There is a value in the number of rows edit box (see item 7).
- There is a value in the number of columns edit box (see item 9).
- All players have chosen a color (see item 11).

Visible Yes

Tooltip No

Alternate control No

Events The button shall validate all the fields from the dialog when clicked. This validation shall take place before any other action can be triggered. The following elements shall be validated according to their specifications: item 4, item 7 and item 9. Furthermore, the following validation shall take place: the players must all have an equal amount of game moves at game start, according to the dialog parameters and the number of registered players.

2.3 The help dialog

Here is the layout for the game dialog:

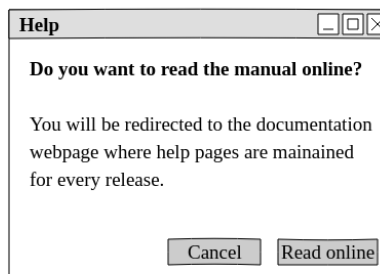


Figure 2.3 – The help dialog layout

The help dialog shall contain the following elements:

1. Dialog

Title Help

Close button Yes

Minimize button Yes

Resize button Yes

Modal No

2. Label

Label Do you want to read the manual online?

Readonly Yes

Visible Yes

Tooltip No

3. Label

Label You will be redirected to the documentation webpage where help pages are maintained for every release.

Readonly Yes

Visible Yes

Tooltip No

4. Button

Label Cancel

Readonly Yes

Enabled Yes

Visible Yes

Tooltip No

Alternate control No

Events When the button is clicked, the dialog is removed and no further action is taken.

5. Button

Label Read online

Readonly Yes

Enabled Yes

Visible Yes

Alternate control No

Events When the button is clicked, a web browser is launched and the **Connect X** help webpage for the running version is opened.

2.4 The about Connect X dialog

Here is the about dialog layout:

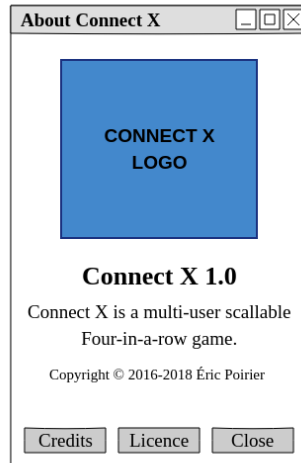


Figure 2.4 – The about dialog layout

The dialog shall contain the following elements:

1. Dialog

Title About Connect X

Close button Yes

Minimize button Yes

Resize button Yes

Modal No

2. Label

Label <Connect X logo>

Readonly Yes

Visible Yes

Tooltip No

3. Label

Label Connect X XX : YY

Readonly Yes

Visible Yes

Tooltip No

Misc *XX : YY* represents the complete version number of **Connect X**

4. Label

Label Connect X is a multi-user scallable Fout-in-a-row game.

Readonly Yes

Visible Yes

Tooltip No

5. Label

Label Copyright © AAAA-BBBB Éric Poirier

Readonly Yes

Visible Yes

Tooltip No

Misc AAAA-BBBB represents the year span for the copyright.

6. Button

Label Credits

Readonly Yes

Enabled Yes

Visible Yes

Tooltip No

Alternate control No

Events Brings up the credits dialog (see section 2.5).

7. Button

Label Licence

Readonly Yes

Enabled Yes

Visible Yes

Tooltip No

Alternate control No

Events Brings up the licence dialog (see section 2.6).

8. Button

Label Close

Readonly Yes

Enabled Yes

Visible Yes

Tooltip No

Alternate control Does the same as using the top right corner close button.

Events Closes the dialog. No other action taken.

2.5 The credits dialog

Here is the credits dialog layout:

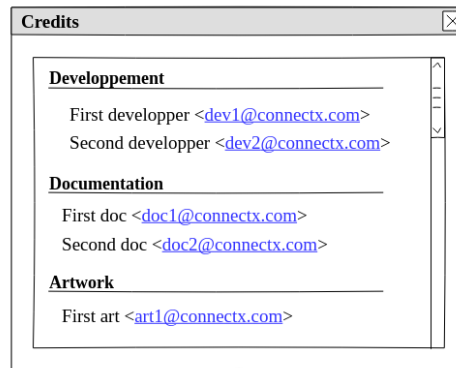


Figure 2.5 – The Credits dialog layout

The dialog shall contain the following elements:

1. Dialog

Title Credits

Close button Yes

Minimize button No

Resize button No

Modal No

2. Text box

Label The label is divided into three sections, each containing a list of the people involved:
Developpement, Documentation and Artwork.

Readonly Yes

Enabled Yes

Visible Yes

Tooltip No

Events No

2.6 The licence dialog

Here is the layout for the licence dialog:

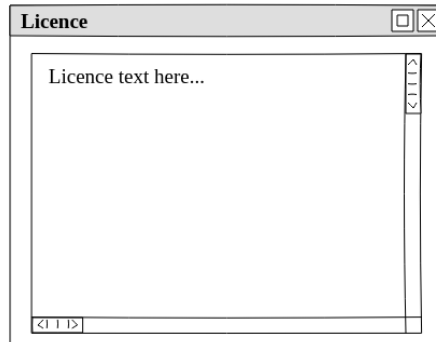


Figure 2.6 – The Licence dialog layout

The dialog shall contain the following elements:

1. Dialog

Title Licence

Close button Yes

Minimize button No

Resize button Yes

Modal No

2. Text box

Label <GNU GPL v3 licence>

Readonly Yes

Enabled Yes

Visible Yes

Tooltip No

Events No

Misc The text-box shall be scrollable for users to be able to inspect the whole licence even without resizing the dialog.

2.7 The message dialogs

Some actions in the **Connect X** application trigger message boxes: small dialogs intended to give the user some additional information, or a warning/error message. Their contents should be small (1-2 sentences maximum) and clear. Here is a list of all the GUI message box that will appear in the **Connect X** application, how they are triggered and the message they contain:











Trigger	Type	Message
A player has won.		Player <Player Name> has won! Play again?
A game is a draw.		The game is a draw! Play again?
A game is an early draw.		The game is going to be a draw! Play again?
The Reinitialize button is clicked.		Do you really want to reinitialize the game? This will cancel all your current moves.
The Start button is clicked: the in-a-row value is out of range.		The value you selected is out of range. Please enter a value between 3 and 64.
The Start button is clicked: the number of column is out of range.		The number of columns is out of range. Please enter a value between 7 and 64.
The Start button is clicked: the number of rows is out of range.		The number of rows is out of range. Please enter a value between 6 and 64.
The Start button is clicked: the game-board dimensions do not agree with the in-a-row value.		The game board dimensions do not agree with the in-a-row value you have chosen. Please enter new game board dimensions or a new in-a-row value.
The Start button is clicked: not all players have the same amount of moves available.		The game board dimensions you have chosen do not allow all players the same amount of moves. Please enter new values.
One or more players are unregistered: there were only two registered players.		You cannot unregister any more players: you need at least two players registered!

Table 2.3 – The **Connect X** message box dialogs