

Learning Cocoa

This is a **Reference Manual** for Cocoa. It documents common operations, tools, windows and menus in Cocoa DR2. There is a brief description of each item for your reference. Here's a quick index:

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Common Operations

Selection

Pieces on the board can be selected using the standard Macintosh selection conventions (e.g., clicking on a piece selects it, shift-clicking toggles the piece in or out of the set of currently selected pieces, mousing down on an empty area of the board and dragging enables the user to marquee select.)

Pressing the delete key deletes the current selection. Option-dragging pieces makes a copy of the dragged items. 

Working with Appearances

Changing a Piece's Appearance


There are four ways to change a piece's current appearance. All have the same effect on the piece. 1) With the desired Piece selected, select an appearance from the [Appearance Menu](#), 2) Drag an appearance from the Appearances window onto the piece, 3) Command Mouse Down on the piece to

bring up a picture popup menu



and select one, or 4) Drag an


appearance from the Appearances window into the Appearance variable box. If a rule is being recorded when any of these are done, the appearance change action is recorded in the rule.

If you drag one piece's appearance from its Appearances window onto a DIFFERENT type of piece, that other type of piece will NOT change to that appearance. (Note: if the 2nd piece does have an appearance with that same name, it will change to that appearance.) An appearance belongs to the specific type of piece for which it was drawn. You can copy an appearance from one piece's Appearances window to another piece by dragging an appearance from one piece's Appearances window to the other piece's Appearances window. 

Working with Sounds

Adding Sound to a Rule

If a rule is being recorded when any of these are done, the "say a sound" action is recorded in the rule: 1) With the desired Piece selected, select a sound from the [Sound Menu](#), 2) Drag a sound from the Sounds window onto the piece, or 3) Drag a sound from the Sounds window into the Said Variable box. Double-clicking on a sound in the Sounds window will play that sound, but the sound playing action will not be recorded in a rule.

If you drag one piece's sound from its Sounds window onto a DIFFERENT type of piece, that other type of piece will NOT say that sound. (Note: if the 2nd piece does have a sound with that same name, it will play that sound.) The sound belongs to the specific type of piece for which it was recorded. You can copy a sound from one piece's Sounds window to another piece by dragging the sound from one Sounds window to the other Sounds window. 

Windows, Graphics & Tools

Controls



Create Tool - click on the board to create a new type of piece



Paint Tool - click on a piece to edit its appearance



Rule Record Tool - click on a piece to record a rule



Clock Controls - "Stop" or "Run" the world



Rewind - run the world backward, undo up to 1000 actions




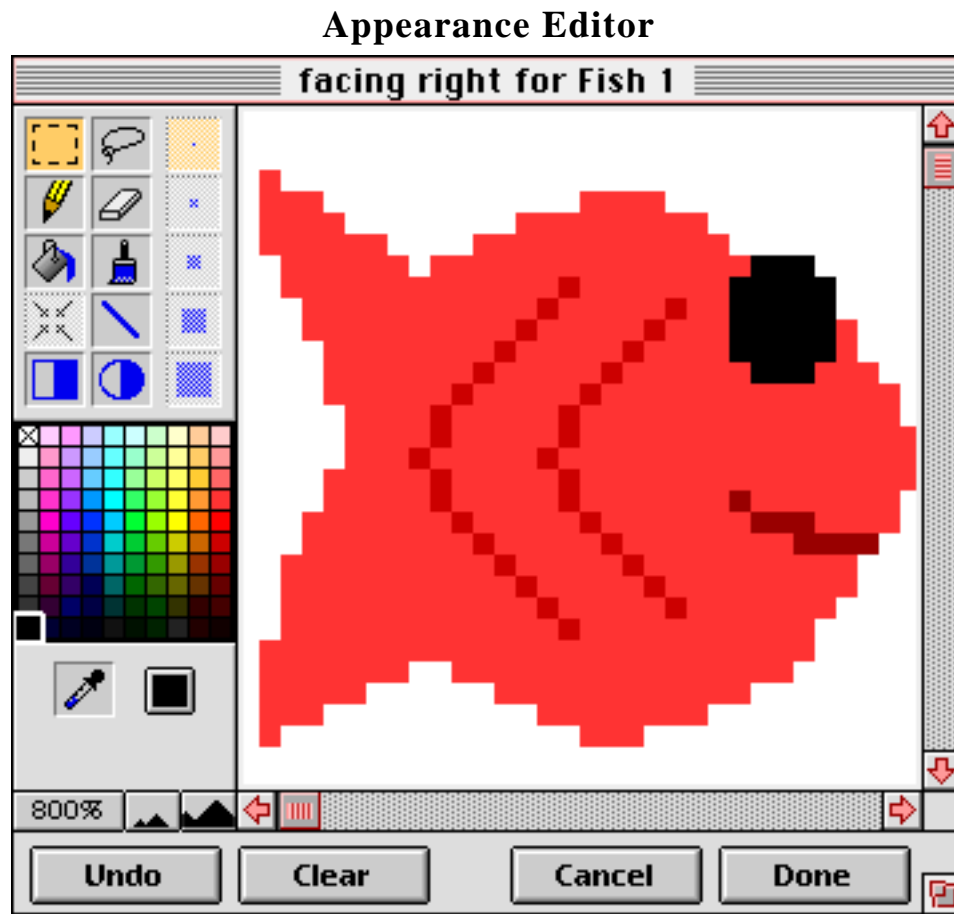
Step Controls - run the world backward or forward one step at a time







Clock Speed - adjust the world's running speed from fast to slow

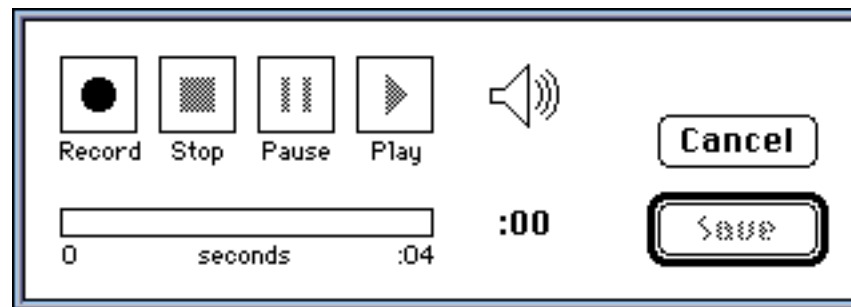


Delete Tool - click on anything to delete it. Hold the shift key to delete more than one thing. You can also delete things by selecting them then hitting the delete key. 



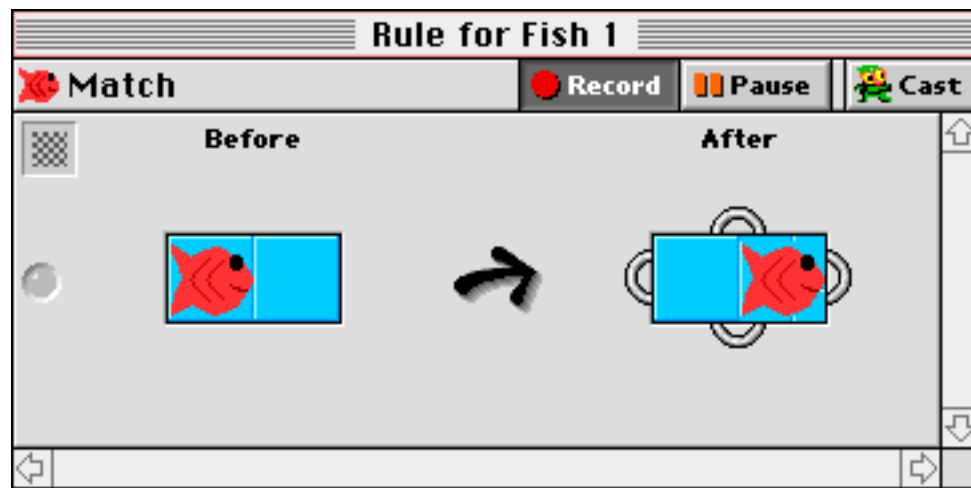
- **Marquee** - select part of the drawing area
- **Lasso** - select part of the drawing area
- **Pencil** - draw in the selected color
- **Eraser** - erase an area in the selected size
- **Paintbucket** - fill in an area in the selected color
- **Paintbrush** - paint an area in the selected color and brush size
- **Line** - draw a line in the selected color and line size
- **Square** - draw a square or filled square
- **Circle** - draw a circle or filled circle
- **Color Selector**  - select a color in the drawing area
- **Current Color**  - the color currently selected. Double click on it to bring up the Macintosh color picker.
- **Magnification**  - Percentage that the drawing area is magnified. You can zoom the magnification in or out. The piece is at 100% magnification on the board.
- The large space is the drawing area for the appearance
- **Undo** the last edit of the appearance
- **Clear** the entire drawing area
- **Cancel** changes made to the appearance and close the appearance editor
- **Done** with changes made to the appearance. Save the changes and close the appearance editor 


Sound Editor



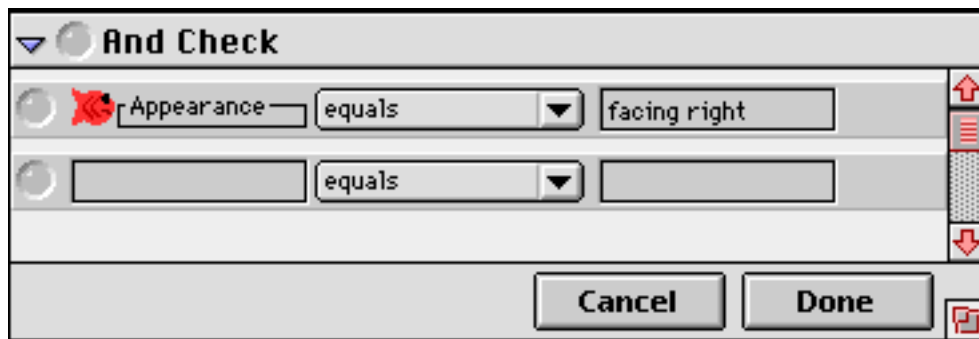
The basic Macintosh sound editor to record sounds for the piece that's selected. ▲

Rule Editor



- **Record Button** - start rule recording
- **Pause Button** - pause rule recording
- **Cast Button** - open the cast list of all pieces in this rule
- **Don't care square tool**  - put a don't care square on a square in the Before side if you want to ignore that square when the rule is tested
- **Before side of the rule** - must match what's on the board before this rule will work
- **After side of the rule** - shows what the board will look like after the rule works ▲




Checklist



- **Checklist** - a list of what more will be checked to match for this rule when deciding if it will work. Drag variables from the piece's [Variables](#) area into either side of the Check to check those variables as part of the rule. You can check variables of any piece in the spotlight or the [World's Variables](#).
- **Cancel Button** - cancel the recorded actions and/or changes to this rule. Undo all the changes and close the rule editor.
- **Done Button** - done recording the rule. Save the changes and close the rule editor. ▲




Piece Editor




- **Rule Record Button**  - start rule recording for this piece
- **Rule Set Tool**  - create a new [Rule Set](#) to hold a group of rules
- **Yellow Note**  - create a note anywhere in the Rules area. You can type in information about this piece's rules in a Yellow Note. ▲

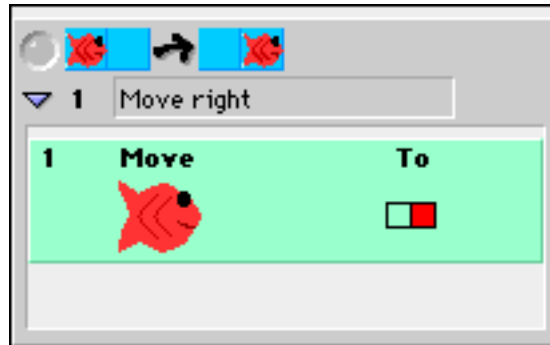
Tracing Lights


Tracing lights tell you whether the Rules, Checks or a rule in a Rule Set worked on the last clock tick; that is, if the Before side of the rule matched what was on the board and whether all the Checks

matched. A green light  means everything matched, a Red light  means something didn't match, so that rule didn't work. You can deactivate Rules or Checks or an entire Rule Set by clicking on its light and it becomes crossed out . You reactivate them by clicking on the light again. This

is useful for testing what would happen if a Rule or Check was deactivated. 


Rule Actions



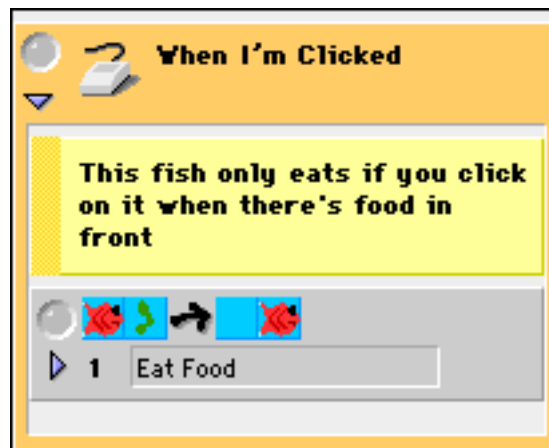
The actions that were recorded when you wrote the rule are shown in green. Use the disclosure triangle next to the rule's name to open or close the action list. 

Rule Set



A rule set is blue - it lets you group rules together and change how they are checked either "Do First Match", "Do All & Continue" or "Randomize and Do First". You drag rules to the Rule Set to move them there, or option-drag to put a copy there. You can only put rules into a Rule Set if the Rule Set is open. (Triangle is pointing down.) 

Click Response



A click response box is gold-yellow - when the mouse is clicked on this piece, any rule in this response box will try to work. This box also has a note in it with more information about this piece.

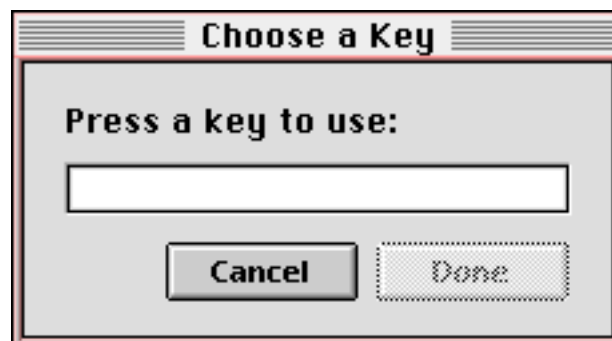


Key Response



A key response box is gold-yellow - when the key is pressed (in this example, the "right arrow key"), any rule in this response box will try to work.

When you create a new Key Response, a dialog appears asking you to type in the key which will activate the rule you are about to write:



Using Key Responses on a Web Page: If you "Save for Internet," the Netscape browser cannot detect key responses unless you first click on the Cocoa world. We suggest you make multiple boards and instruct viewers to click somewhere on the board 1 to begin. Write a rule for that click to make the world go to board 2 (select board 2 from the BOARD menu.) Then, write your key

response rules to add interaction on board 2. ▲

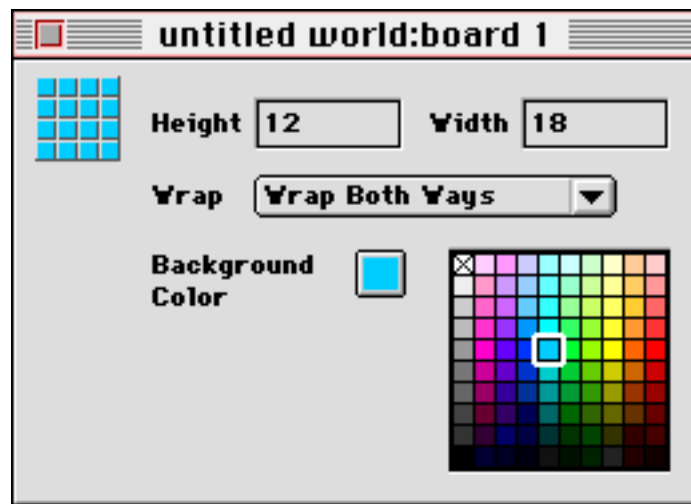
Variables

Each type of piece can keep track of different information called "Variables". You can create a new variable for a type of piece to track. You can use numbers or words, for example, a variable named "Energy" can have a number like "50" or a setting like "low" or "high". ▲

World Variables

- **New** - create a new variable for the world to track
- **Main Character** - the piece that will be controlled by key responses and followed to and from different boards. It appears on a board at the entrance for that board. If you use the popup menu to select none, you deactivate the Main Character. NOTE: if the shape of the original Main Character is different from the one you drag in to replace it, the key response rules won't work. Also, any rules that are dependent on variables will only work if the new Main Character has variables with the same name.
- **Current Board** - shows the board you are currently working on. You can switch boards by using the popup menu. ▲

Board Settings Window




- **Height** - how many squares current board is high
- **Width** - how many squares current board is wide
- **Wrap** - how the pieces move in the world - wrap around the top-bottom, left-right, both ways or don't wrap around at all

You can choose the background color of the current board by clicking on the color in the palette 

About This World Window

The screenshot shows a window titled 'About untitled world'. It has a form with four fields: 'Author', 'Affiliation', 'E-mail', and 'Comments'. The 'Comments' field is a large text area. There is a small red icon in the bottom right corner of the window.

Enter information about this world. If you save your world for Internet, this text will become an HTML document to be read with a web page browser. 

Cocoa Menu Reference

Apple Menu



- **About Cocoa...** - Cocoa software credits
- **About This World...** - open a [window](#) with a form that you can fill in with information about your world

File Menu


File		
New World		⌘N
Open World...		⌘O
Close untitled world		⌘W
Save World		⌘S
Save World As...		
Save for Internet...		
Build AutoPlayer...		
Page Setup...		
Print World...		⌘P
Quit		⌘Q

- **New World** - closes the current world and opens a new one. Cocoa can only have one world open at a time
- **Open World...** - lets you open a world that has already been saved
- **Save World** - save the changes you've made to the world
- **Save World As...** - save the changes you've made to the world as a new world with a new name
- **Save for Internet...** - save the world as a .cco file and create an HTML document from the [About This World](#) information that can be viewed with a web page browser.
- **Build AutoPlayer...** - save the world as a stand-alone player. It can be viewed on any Macintosh. Others who want to play your world don't need to have the Cocoa software to run this world, and they can't make changes to the world.

Play Menu


Play	
Run	⌘G
Stop	⌘H
✓ Record Pause	
Fast Forward Forward Step Back Step Rewind	
✓ Fast Pace Medium Pace Slow Pace	
✓ Sound On	

These act the same as the controls in the [Controls](#) palette.

- **Run** - run the world forward
- **Stop** - stop the world from running
- **Record** - start rule recording for the piece that's selected
- **Pause** - pause rule recording for the rule in the Rule Editor
- **Forward Step** - run the world forward one step at a time
- **Back Step** - run the world backward one step at a time
- **Rewind** - run the world backward, undo all the actions
- **Fast, Medium and Slow Pace** - adjust the world's running speed
- **Sound On** - when checked, sound is on, when unchecked, sound is off. 

Board Menu

Board
New Board...
Current Board Settings...
Show Entrance
Show Boards
Show World Variables
✓ board 1

- **New Board...** - create a new board with separate settings
- **Current Board Settings...** - open a [window](#) with board settings for size, color and wrapping options
- **Show Entrance** - show the entrance on each board in this world. When you switch boards, the Main Character will appear where you put the entrance to that board. No other piece uses the entrance, and no other piece will be automatically moved from the current board to the new board.
- **Show Boards** - open a window with all the boards in this world
- **Show World Variables** - open a [window](#) with the world's variables
- **(Boards List)** - A list of the world's boards is listed at the bottom. Select one to go to that board. 

Piece Menu


Piece
New Type Show Types
New Rule New Rule Set New Action Show Rules
New Click Response New Key Response Show Responses
New Variable Show Variables

- **New Type** - create a new type of piece in this world. A new piece will appear on the board and a new type will be added to the Types window.
- **Show Types** - open a window with all the types in this world. You can name them in this window.
- **New Rule** - record a new rule for the piece that's selected
- **New Rule Set** - create a new [rule set](#) for the piece that's selected. A rule set lets you group rules and change the way the piece behaves.
- **New Action** - create a new [action](#) in the rule that's being recorded. You can drop variables into the Action and change the values.
- **Show Rules** - open the rules window for the piece that's selected and show all the rule sets
- **New Click Response** - record a new [rule](#) that will work when the piece is clicked while the world is running
- **New Key Response** - record a new [rule](#) that will work when a specific key is pressed while the world is running. Only ONE piece in a world can react to key presses - this is the Main Character of the world.
- **Show Responses** - open the [Piece Editor](#) for the piece that's selected and show the click and/or key responses
- **New Variable** - open the [Variables](#) area and create a new variable for the piece that's selected
- **Show Variables** - show all the [variables](#) for the piece that's selected.

You can use numbers or words 


Appearance Menu

Appearance
New Appearance... Edit Current Appearance Show Appearances
appearance 1 ✓ appearance 2

- **New Appearance...** - create a new appearance for the piece that's selected
- **Edit Current Appearance** - edit the current appearance of the piece that's selected
- **Show Appearances** - open a window with all the appearances for the piece that's selected. You can name them in this window. If you double-click on an appearance, the appearance editor will open.
- **(Appearances List)** A list of the appearance names for the piece that's selected is listed at the bottom - select one to change its appearance. 

Sound Menu


Sound
New Sound... Show Sounds
sound 1 sound 2

- **New Sound...** - opens the [Sound Editor](#) where you can create a new sound for the piece that's selected.
- **Show Sounds** - open a window with all the sounds for the piece that's selected. You can name them in this window.
- **(Sounds List)** - A list of the sound names for the piece that's selected is listed at the bottom. Select one to play it. 

Paint Menu


Paint
Hide Grid
Rotate Right Rotate Left
Flip Upside-Down Flip Left-Right

This menu will only be visible when the [Appearance Editor](#) is open.

- **Hide/Show Grid** - hide or show the grid guidelines in the appearance editor
- **Rotate Right** - rotate the selected area to the right. If no area is selected, the entire appearance will be rotated.
- **Rotate Left** - rotate the selected area to the left. If no area is selected, the entire appearance will be rotated.
- **Flip Upside-Down** - flip the selected area upside-down. If no area is selected, the entire appearance will be flipped.
- **Flip Left-Right** - flip the selected area left to right. If no area is selected, the entire appearance will be flipped. 

Window Menu

Window
Hide Controls
✓ Aquarium Appearances for Fish Sounds for Fish Aquarium's Types

- **Hide/Show Controls** - hide or show the [Controls](#) palette which has the world building tools
- **(Windows List)** - A list of the open windows is listed at the bottom - select one to bring it to the front. 



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