

AutoCell Introduction

AutoCell 1.1©

Cellular Automata for Windows 3.1

© 1993 by Paul Keet

Programming:

Paul Keet

Graphics:

Matt B. Pearson

AutoCell provides a simple way of designing cellular automatons and cellular computers. Each type of cell can be programmed to turn 'on' or 'off' based on the number of cells adjacent to it in an on state and on its previous on or off state (see Programming). This program is inspired by years of articles by A.K. Dewdney in the **Scientific American** which covered this and similar topics.

Use the context-sensitive help feature to become familiar with AutoCell: just click on the question button (?) at the bottom right corner and select a button or menu command for more information.

AutoCell is shareware with a registration fee of \$10 US (\$12 Can). Registered users will be upgraded to AutoCell 2.0 automatically. Register to:

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Please also forward your comments and AutoCell constructions. Your input will be appreciated and utilized.

See also:

Programming How to program AutoCell cellular automatons.

AutoCell 2.0 Upgrade for more capabilities.

Programming AutoCell

Any cell determines its current state ('**on**' or '**off**') based on its previous state and the number of **on** cells adjacent to it.

If the cell *was not on* the previous clock cycle the cell's state will be determined by the count (0 to 9) in the *first column* (topped by the small stork) of states on the Programming Panel. If the cell *was on* the previous clock cycle the current state will be based on the *second column* (topped by the pyramid icon).

For example if you wanted a cell to switch **on** when it becomes surrounded by three cells, and when it previously was not **on** do the following:

- a) Select the cell you wish to program.
- b) Move the mouse cursor to the first column in the Programming Panel.
- c) Move the mouse cursor to the row corresponding to '3.'
- d) Click the left mouse button.

You may also determine if there is a delay in the cell's operation. Clicking on the Regeneration button to the delayed position will prevent a cell from working for one generation after it has gone from an **on** position to an **off** position. This ability allows you, among other things, to create pulses that move one way along a path.

New

Create a new Cellular Automaton program.

Open

Load a Cellular Automaton program from a file.

Save

Save current Cellular Automaton program to a file.

Save As

Save current Cellular Automaton program to a file of a different name.

Exit

Exit AutoCell (don't be silly!)

Clear Life

Kills all life (turns all cells in the cell matrix off).

Clear Matrix

Clears the entire matrix of life and cell types. Does not reset programming.

Life button

Use this button to give a cell in the matrix "life" (turn a cell on).

Using this button will automatically cancel Death and Select Cell modes. This button is represented by the large stork icon.

Death button

Use this button to "kill" a cell in the matrix (turn a cell off).

Using this button will automatically cancel Life and Select Cell modes. This button is represented by the grim reaper icon.

Select Cell

Select one of the sixteen different types of cells for placement in the matrix or for programming.

Using this button will automatically cancel Life and Death modes. Note that the last four cell types trigger a sound when they spring into life.

Program Panel

You must first select a cell from the [Select Cell](#) bar before programming. Use this panel to determine whether a cell will live or die.

The stork represents the possibility of life in a cell where there is none already, and the pyramids represent the possible continuation of a cell.

See also:

[Programming AutoCell](#)

[Regeneration button](#)

Regeneration button

You must first select a cell from the Select Cell bar before programming in a delay in cell regeneration.

See also:

Programming AutoCell

Program Panel

Generation Counter

This panel will display the number of generations the current Cellular Automaton program has aged.
See also [Rewind button](#).

Rewind button

This button will return the states of the cells matrix back to their original states and reset the Generation Counter to "0".

See also [Generation Counter](#).

Play/Pause button

This button will start and stop the Cellular Automaton program you have created.

Fast Forward button

Speeds up screen redrawing.

Information button

This button will call up a text box that users can read or write information about the current Cellular Automaton program and matrix. We encourage you to include descriptions of your automata. Descriptions are limited to 256 characters.

Cell Matrix

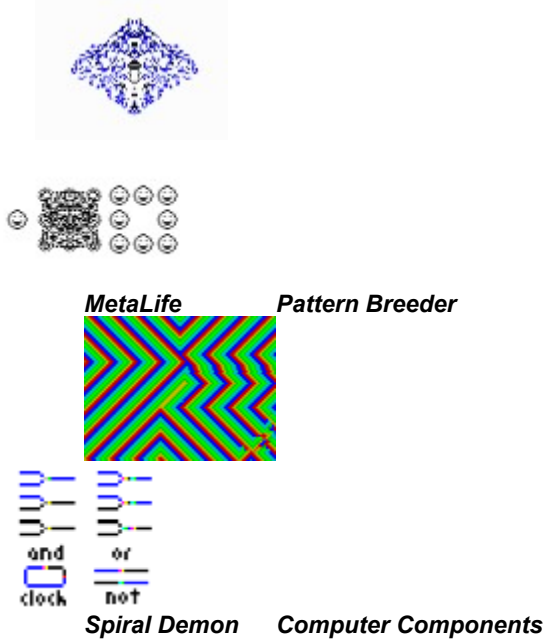
Users may perform the following actions on the matrix:

- change the type of cell (see [Select Cell](#));
- give the cell life (see [Life](#) button); or
- kill the cell (see [Death](#) button).

The Cell Matrix is the workspace for designing and testing cellular automata.

Upgrade to AutoCell 2.0

AutoCell 2.0 provides outstanding flexibility, well beyond the capability of Life or AutoCell 1.1 The following experiments were all conducted with AutoCell 2.0:



AutoCell 2.0 offers registered users other powerful new features, including:

- A powerful new programming system;
- Drawing tools and cut and paste edit functions;
- Large, variable matrix sizes;
- Fast generation (up to 10 generations/second) and smooth graphics;
- Multiple document interface;
- 256 color palette.

Registration for AutoCell 1.1 costs \$10 U.S., and you will automatically receive AutoCell 2.0 on 3-1/2" disk free. See the introduction to this help file for more information.

