

# chaossudoku.sty

v1.0

**A style file for typesetting Chaos  
Sudoku logic puzzles**

4				2
		4	5	
3				

4	3	5	1	2
2	1	3	4	5
5	4	2	3	1
1	2	4	5	3
3	5	1	2	4

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## 1 The puzzle

Fill the cells of an area with numbers from 1 to N of the N\*N grid. Each number can appear only once - in each area, column, row or diagonal if indicated. Here's a little self-explanatory example:

4				2
		4	5	
3				

4	3	5	1	2
2	1	3	4	5
5	4	2	3	1
1	2	4	5	3
3	5	1	2	4

```

1 \begin{center}
2   \begin{chaossudoku}
3     \chaossudokucell{1}{1}{3}
4     \chaossudokucell{1}{5}{4}
5     \chaossudokucell{3}{2}{4}
6     \chaossudokucell{4}{2}{5}
7     \chaossudokucell{5}{5}{2}
8     \begin{puzzlebackground}
9       \fillarea{Wheat}{(1,1)--(1,2)--(2,2)--(2,3)--(4,3)--(4,1)--(1,1)}
10      \fillarea{HotPink!30}{(1,2)--(1,6)--(3,6)--(3,5)--(2,5)--(2,2)--(1,2)}
11      \fillarea{GreenYellow}{(2,3)--(2,5)--(3,5)--(3,4)--(5,4)--(5,2)--(4,2)--(4,3)--(2,3)}
12      \fillarea{LightBlue}{(3,4)--(3,6)--(6,6)--(6,5)--(5,5)--(5,4)--(3,4)}
13      \fillarea{LightYellow}{(4,1)--(4,2)--(5,2)--(5,5)--(6,5)--(6,1)--(4,1)}
14    \end{puzzlebackground}
15  \end{chaossudoku}
16  \hspace{1,5cm}
17  \begin{chaossudoku}
18    \setrow{5}{4,3,5,1,2}
19    \setrow{4}{2,1,3,4,5}
20    \setrow{3}{5,4,2,3,1}
21    \setrow{2}{1,2,4,5,3}
22    \setrow{1}{3,5,1,2,4}
23    \begin{puzzlebackground}
24      \fillarea{Wheat}{(1,1)--(1,2)--(2,2)--(2,3)--(4,3)--(4,1)--(1,1)}
25      \fillarea{HotPink!30}{(1,2)--(1,6)--(3,6)--(3,5)--(2,5)--(2,2)--(1,2)}
26      \fillarea{GreenYellow}{(2,3)--(2,5)--(3,5)--(3,4)--(5,4)--(5,2)--(4,2)--(4,3)--(2,3)}
27      \fillarea{LightBlue}{(3,4)--(3,6)--(6,6)--(6,5)--(5,5)--(5,4)--(3,4)}
28      \fillarea{LightYellow}{(4,1)--(4,2)--(5,2)--(5,5)--(6,5)--(6,1)--(4,1)}
29    \end{puzzlebackground}
30  \end{chaossudoku}
31 \end{center}

```

## 2 Options

**rows** [5] defines the number of rows in the grid.

**columns** [5] specifies the number of columns in the grid

**width** [5.1cm] sets the width of the minipage, in which the grid is typeset.

**scale** [1] scales the size of the grid in the minipage.

**fontsize** [Large] specifies the size of the numbers next to the grid. Here, the usual L<sup>A</sup>T<sub>E</sub>X sizes are used. Possible values: tiny, scriptsize, footnotesize, small, normalsize, large, Large, LARGE, huge, Huge

**title** [] sets the title of a puzzle.

**titleindent** [0cm] defines the indent of the title.

**titlewidth** [5.1cm] specifies the width of the box the title is set in.

**bgcolor** [] sets the background color of the grid.

**counterstyle** [none] defines the counter style. Predefined styles: none, left, right

**cvoffset** [-22pt] sets the vertical offset of the counters in the margin.

## 3 Environments

### 3.1 chaossudoku

```
\begin{chaossudoku}[\langle options \rangle]
...
\end{chaossudoku}
```

The chaossudoku environment is the central core of the style file. With the optional argument of the environment, you can reset the options with local scope. Here, a blank grid is created.

### 3.2 puzzlebackground

```
\begin{puzzlebackground}
...
\end{puzzlebackground}
```

The puzzlebackground environment allows you to place elements behind the main layer. This is for example usefull for the \fillarea command.

### 3.3 puzzleforeground

```
\begin{puzzleforeground}
...
\end{puzzleforeground}
```

The puzzleforeground environment allows you to place elements in front of the main layer. This is for example usefull for the \framearea command.

## 4 Commands

### 4.1 In the grid and around

#### 4.1.1 chaossudokucell

`\chaossudokucell{<column>}{<row>}{<number>}` The command `\chaossudokucell` sets the *<number>* of the grid cell *<column>* *<row>*.

#### 4.1.2 setrow

`\setrow{<row>}{<csv list>}` The command `\setrow` sets the contents of *<row>*. It expects a comma-separated list.

#### 4.1.3 setcolumn

`\setcolumn{<column>}{<csv list>}` The command `\setcolumn` sets the contents of *<column>*.

#### 4.1.4 framearea

`\framearea{<color>}{<tikz path>}` The command `\framearea` frames the area given by *<tikz path>* with color *<color>*. The reference for coordinates is the bottom left corner of the cell.

```
1 \framearea{green}{(2,2) -- (2,3) -- (3,3) -- (3,2) -- (2,2)}
```

This command will color the frame of the grid cell (2,2) green. You should consider using this command in the `puzzleforeground` environment.

#### 4.1.5 fillarea

`\fillarea{<color>}{<tikz path>}` The command `\fillarea` fills the area given by *<tikz path>* with color *<color>*. The reference for coordinates is the bottom left corner of the cell. You should consider using this command in the `puzzlebackground` environment.

### 4.2 Presentation

#### 4.2.1 definecounterstyle

`\definecounterstyle{<name>}{<definition>}` The command `\definecounterstyle` allows you to define your own styles. For example, the style `left` is defined as follows:

```
1 \definecounterstyle{left}{
2   \begin{group}\reversemarginpar\marginnote{
3     \tikz\node[shape=rectangle,fill=yellow!40,inner sep=7pt,
4       draw,rounded corners=3pt,thick]
5     {\Huge\puzzlecounter};}\LP@cwoffset\endgroup
6 }
```

To typeset the counter into the margin we use the command `\marginnote`. We need to use the command `\reversemarginpar` to set the counter into the left margin. Of course, we must use this command in a group for local scope.

Finally we use `\puzzlecounter` in a `\tikz` node with a vertical offset set with the option `cvoffset`.

#### 4.2.2 puzzlecounter

`\puzzlecounter` The command `\puzzlecounter` provides the counter in textual form to use it for example in `\definecounterstyle`.

#### 4.2.3 titleformat

`\titleformat{<format>}` With the command `\titleformat`, you can define the format of the title. By default, the definition is as follows:

```
1 \titleformat{\centering\Large\color{blue}}
```

### 4.3 Miscellaneous

#### 4.3.1 chaossudokusetup

`\chaossudokusetup{<options>}` With the command `\chaossudokusetup` you can reset the options with global scope.

#### 4.3.2 setpuzzlecounter

`\setpuzzlecounter{<number>}` With the command `\setpuzzlecounter`, you can reset the puzzle counter, for example before the solutions.

## 5 Examples & Solutions



You can download application examples and their solutions from the [project page](#). The puzzles are originally licensed under .