The tikzfill package

Manual for version 1.0.1 (2023/08/08)

Thomas F. Sturm
The `tikzfill` package

Manual for version \version\ (\datum);  
{Thomas F. Sturm};

\node[white,font=\Large\bfseries,below=8mm] (title) at (title.south)  
{Manual for version \version\ (\datum)};  
\node[white,font=\Large\bfseries,below=8mm] (title) at (title.south)  
{Thomas F. Sturm};

\end{tikzpicture}
\end{tcolorbox}
% \end{document}
Abstract

\texttt{tikzfill} is a collection of Ti\texttt{kZ} libraries which add further options to fill \texttt{TikZ} paths with images and patterns. The libraries comprise fillings with images from files and from \texttt{TikZ} pictures. Also, patterns of hexagons and of rhombi are provided.
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1 Short Introduction

TikZ is a very advanced and comprehensive graphics package for \LaTeX. The package \texttt{tikzfill} comprises a collection of libraries for TikZ which add further options to fill TikZ paths with images and patterns.

For \LaTeX, the provided libraries can be loaded using the preferred TikZ mechanism by

\begin{verbatim}
\usetikzlibrary{fill.***} % \LaTeX (primary choice) and plain TeX
\end{verbatim}

where *** is to be replaced by the actual library name found on the following pages. Alternatively, the libraries can be loaded using \LaTeX style files

\begin{verbatim}
\usepackage{tikzfill.***} % \LaTeX (secondary choice)
\end{verbatim}

If you want to load all TikZ libraries of this package, you can use the following \LaTeX style file

\begin{verbatim}
\usepackage{tikzfill} % load all libraries
\end{verbatim}
2 Image and Picture Fill Library

This library defines options to fill graphs with images or arbitrary pictures.

Until `tcolorbox` version 5.1.1 (2022/06/24), the code of this library was part of `tcolorbox`. Now, on suggestion of muzimuzhi, it is a separate library usable without `tcolorbox`. Also, the code is completely rewritten with `exp3`.

2.1 Fill Plain

/tikz/fill plain image\(=(file\ name)\) (no default, initially unset)
Fills the current path with an external image referenced by \(file\ name\). The image is put in the center of the path, but it is not resized to fit into the path area.

\begin{tikzpicture}
\path\[draw,fill plain image=goldshade.png\]
(2.75,-0.75) -- (3,0) -- (2.75,0.75)
\foreach \w in {45,90,...,315}
{ -- (\w:1.5cm) } -- cycle;
\end{tikzpicture}

/tikz/fill plain image*=\(=(file\ name)\) (no default, initially unset)
Fills the current path with an external image referenced by \(file\ name\). The image is put in the center of the path, but it is not resized to fit into the path area. The \(graphics\ options\) are given to the underlying `\includegraphics` command.

\begin{tikzpicture}
\path\[draw,
\quad fill plain image*=\{width=2.5cm\}\{goldshade.png\}\]
(2.75,-0.75) -- (3,0) -- (2.75,0.75)
\foreach \w in \{45,90,...,315\}
{ -- (\w:1.5cm) } -- cycle;
\end{tikzpicture}

/tikz/fill plain picture\(=(graphical\ code)\) (no default, initially unset)
Fills the current path with the given \(graphical\ code\). The result is put in the center of the path, but it is not resized to fit into the path area. Note that this is almost identical to the standard `path picture` option.

\begin{tikzpicture}
\path\[draw,fill plain picture=\%
\quad \draw[red!50!yellow,line width=2mm]
\quad (0,0) circle \{8mm\};\]
\foreach \w in \{45,90,...,315\}
{ -- (\w:1.5cm) } -- cycle;
\end{tikzpicture}
2.2 Fill Stretch

\t/tikz/fill stretch image=(file name) (no default, initially unset)
Fills the current path with an external image referenced by (file name). The image is stretched to fill the path area.

\begin{tikzpicture}
\path[fill stretch image=goldshade.png]
(2.75,-0.75) -- (3,0) -- (2.75,0.75)
\foreach \w in {45,90,...,315}
{ -- (\w:1.5cm) } -- cycle;
\end{tikzpicture}

\t/tikz/fill stretch image*={(graphics options)}{(file name)} (no default, initially unset)
Fills the current path with an external image referenced by (file name). The (graphics options) are given to the underlying \includegraphics command. The image is stretched to fill the path area.

\begin{tikzpicture}
\path[fill stretch image*={angle=90,origin=c}{goldshade.png}]
(2.75,-0.75) -- (3,0) -- (2.75,0.75)
\foreach \w in {45,90,...,315}
{ -- (\w:1.5cm) } -- cycle;
\end{tikzpicture}

\t/tikz/fill stretch picture=(graphical code) (no default, initially unset)
Fills the current path with the given (graphical code). The result is stretched to fill the path area.

\begin{tikzpicture}
\path[draw,fill stretch picture={%}
\draw[red!50!yellow,line width=2mm]
(0,0) circle (8mm);
\draw[red,line width=5mm] (-1,-1) -- (1,1);
\draw[red,line width=5mm] (-1,1) -- (1,-1);
}\]
(2.75,-0.75) -- (3,0) -- (2.75,0.75)
\foreach \w in {45,90,...,315}
{ -- (\w:1.5cm) } -- cycle;
\end{tikzpicture}
2.3 Fill Overzoom

\input{tikz/fill_overzoom_image}
\begin{tikzpicture}
    \path [fill overzoom image=goldshade.png]
        (2.75,-0.75) -- (3,0) -- (2.75,0.75)
        \foreach \w in {45,90,...,315}
            { -- (\w:1.5cm) } -- cycle;
\end{tikzpicture}

\input{tikz/fill_overzoom_image*}
\begin{tikzpicture}
    \path [fill overzoom image*={angle=90,origin=c}{goldshade.png}]
        (2.75,-0.75) -- (3,0) -- (2.75,0.75)
        \foreach \w in {45,90,...,315}
            { -- (\w:1.5cm) } -- cycle;
\end{tikzpicture}

\input{tikz/fill_overzoom_picture}
\begin{tikzpicture}
    \path [draw,fill overzoom picture={
    \draw [red!50!yellow,line width=2mm] (0,0) circle (8mm);
    \draw [red,line width=5mm] (-1,-1) -- (1,1);
    \draw [red,line width=5mm] (-1,1) -- (1,-1);
    }]
        (2.75,-0.75) -- (3,0) -- (2.75,0.75)
        \foreach \w in {45,90,...,315}
            { -- (\w:1.5cm) } -- cycle;
\end{tikzpicture}
2.4 Fill Zoom

\texttt{/tikz/fill zoom image=(file name)} \hspace{1cm} (no default, initially unset)

Fills the current path with an external image referenced by \texttt{(file name)}. The image is zoomed such that it fits inside the path area. Typically, some parts of the path area will stay unfilled.

\begin{tikzpicture}
\path[draw,fill zoom image=goldshade.png]
(2.75,-0.75) -- (3,0) -- (2.75,0.75)
\foreach \w in {45,90,...,315}
{ -- (\w:1.5cm) } -- cycle;
\end{tikzpicture}

\texttt{/tikz/fill zoom image*=\{graphics options\}\{file name\}} \hspace{1cm} (no default, initially unset)

Fills the current path with an external image referenced by \texttt{(file name)}. The \texttt{(graphics options)} are given to the underlying \texttt{includegraphics} command. The image is zoomed such that it fits inside the path area. Typically, some parts of the path area will stay unfilled.

\begin{tikzpicture}
\path[draw,fill zoom image*={angle=90,origin=c}{goldshade.png}]
(2.75,-0.75) -- (3,0) -- (2.75,0.75)
\foreach \w in {45,90,...,315}
{ -- (\w:1.5cm) } -- cycle;
\end{tikzpicture}

\texttt{/tikz/fill zoom picture=(graphical code)} \hspace{1cm} (no default, initially unset)

Fills the current path with the given \texttt{(graphical code)}. The result is zoomed such that it fits inside the path area. Typically, some parts of the path area will stay unfilled.

\begin{tikzpicture}
\path[draw,fill zoom picture={%
\draw[red!50!yellow,line width=2mm]
(0,0) circle (8mm);
\draw[red,line width=5mm] (-1,-1) -- (1,1);
\draw[red,line width=5mm] (-1,1) -- (1,-1);
}]
(2.75,-0.75) -- (3,0) -- (2.75,0.75)
\foreach \w in {45,90,...,315}
{ -- (\w:1.5cm) } -- cycle;
\end{tikzpicture}
2.5 Fill Shrink

/tikz/fill shrink image=(file name)  (no default, initially unset)
Fills the current path with an external image referenced by (file name). The image is zoomed such that it fits inside the path area, but it never gets enlarged. Typically, some parts of the path area will stay unfilled.

\begin{tikzpicture}
\path
[draw,fill shrink image=goldshade.png]
(2.75,–0.75) -- (3,0) -- (2.75,0.75)
\foreach \w in {45, 90, ..., 315}
{ -- (\w:1.5cm) } -- cycle;
\end{tikzpicture}

/tikz/fill shrink image*= (file name)  (no default, initially unset)
Fills the current path with an external image referenced by (file name). The \texttt{graphics options} are given to the underlying \texttt{includegraphics} command. The image is zoomed such that it fits inside the path area, but it never gets enlarged. Typically, some parts of the path area will stay unfilled.

\begin{tikzpicture}
\path
[draw,
 fill shrink image*={width=1.5cm}{goldshade.png}]
(2.75,–0.75) -- (3,0) -- (2.75,0.75)
\foreach \w in {45, 90, ..., 315}
{ -- (\w:1.5cm) } -- cycle;
\end{tikzpicture}

/tikz/fill shrink picture=(graphical code)  (no default, initially unset)
Fills the current path with the given \texttt{graphical code}. The result is zoomed such that it fits inside the path area, but it never gets enlarged. Typically, some parts of the path area will stay unfilled.

\begin{tikzpicture}
\path
[draw,fill shrink picture={%
 \draw[red!50!yellow,line width=2mm]
 (0,0) circle (8mm);
 \draw[red,line width=5mm] (-1,-1) -- (1,1);
 \draw[red,line width=5mm] (-1,1) -- (1,-1);
}]
(2.75,–0.75) -- (3,0) -- (2.75,0.75)
\foreach \w in {45, 90, ..., 315}
{ -- (\w:1.5cm) } -- cycle;
\end{tikzpicture}
2.6 Fill Tile

\begin{tikzpicture}
\path [fill tile image=pink_marble.png]
(2.75,-0.75) -- (3.0) -- (2.75,0.75)
\foreach \w in {45,90,...,315}
{ -- (\w:1.5cm) } -- cycle;
\end{tikzpicture}

\begin{tikzpicture}
\path [fill tile image*=\{width=8mm\} pink_marble.png]
(2.75,-0.75) -- (3.0) -- (2.75,0.75)
\foreach \w in {45,90,...,315}
{ -- (\w:1.5cm) } -- cycle;
\end{tikzpicture}

\begin{tikzpicture}
\path [draw,fill tile picture={% 
\draw[red!50!yellow,line width=2mm]
(0,0) circle (8mm);
\draw[red,line width=5mm] (-1,-1) -- (1,1);
\draw[red,line width=5mm] (-1,1) -- (1,-1);
}]
(2.75,-0.75) -- (3.0) -- (2.75,0.75)
\foreach \w in {45,90,...,315}
{ -- (\w:1.5cm) } -- cycle;
\end{tikzpicture}

\begin{tikzpicture}
\path [draw,fill tile picture*={0.25}{% 
\draw[red!50!yellow,line width=2mm]
(0,0) circle (8mm);
\draw[red,line width=5mm] (-1,-1) -- (1,1);
\draw[red,line width=5mm] (-1,1) -- (1,-1);
}]
(2.75,-0.75) -- (3.0) -- (2.75,0.75)
\foreach \w in {45,90,...,315}
{ -- (\w:1.5cm) } -- cycle;
\end{tikzpicture}
2.7  Filling Options

/\texttt{tikz/fill image opacity}=(\textit{fraction}) \hspace{1cm} \text{(no default, initially 1.0)}

Sets the fill opacity for the image or picture fill options to the given (\textit{fraction}).

\begin{tikzpicture}
\path[fill stretch image=goldshade.png] (0,0) circle (8mm);
\path[fill=red,fill stretch image=goldshade.png,fill image opacity=0.75] (2,0) circle (8mm);
\path[fill=red,fill stretch image=goldshade.png,fill image opacity=0.5] (4,0) circle (8mm);
\path[fill=red,fill stretch image=goldshade.png,fill image opacity=0.25] (6,0) circle (8mm);
\path[fill=red] (8,0) circle (8mm);
\end{tikzpicture}

/\texttt{tikz/fill image scale}=(\textit{fraction}) \hspace{1cm} \text{(no default, initially 1.0)}

Stretches, zooms, overzooms or shrinks the image or picture to the given (\textit{fraction}) of the width and height of the current path.

\begin{tikzpicture}
\path[draw,fill zoom image=goldshade.png] (0,0) rectangle +(2,2);
\path[draw,fill zoom image=goldshade.png,fill image scale=0.75] (3,0) rectangle +(2,2);
\path[draw,fill zoom image=goldshade.png,fill image scale=1.5] (6,0) rectangle +(2,2);
\end{tikzpicture}

/\texttt{tikz/fill image options}=(\textit{graphics options}) \hspace{1cm} \text{(no default, initially empty)}

The (\textit{graphics options}) are given to the underlying \texttt{\textbackslash includegraphics} command for the image fill options. This can be just together with /\texttt{tikz/fill stretch image} \textsuperscript{\texttt{\textbackslash P.7}}, /\texttt{tikz/fill overzoom image} \textsuperscript{\texttt{\textbackslash P.8}}, /\texttt{tikz/fill zoom image} \textsuperscript{\texttt{\textbackslash P.9}}, and /\texttt{tikz/fill tile image} \textsuperscript{\texttt{\textbackslash P.11}}.

\begin{tikzpicture}
\path[fill image options={width=8mm}, fill tile image=pink_marble.png] (2.75,-0.75) -- (3,0) -- (2.75,0.75) -- cycle;
\end{tikzpicture}
\begin{tikzpicture}[every node/.style={circle,minimum width=2cm}]
\node[fill stretch image=blueshade.png] (A) at (120:3cm) {A};
\node[fill stretch image=goldshade.png] (B) at (60:3cm) {B};
\node[preadaction={fill stretch image=blueshade.png}, fill stretch image=goldshade.png, fill image opacity=0.5] (C) {C};
\path (A) -- node {$+$} (B);
\draw[->,very thick] (A)--(C);
\draw[->,very thick] (B)--(C);
\end{tikzpicture}
3 Hexagon Pattern Library

Based on patterns.meta, this library defines new hexagon patterns to fill graphs.

### 3.1 Hexagon

The **hexagon** pattern draws hexagons which may be filled or outlined. A single pattern is one of two different *bands*, called band 0 and band 1.

\begin{tikzpicture}
\draw[preaction={pattern = {hexagon[
  size = 5mm, angle = 15, line width = 1mm, band = 1
]}, pattern color=blue},
pattern = {hexagon[
  size = 5mm, angle = 15, line width = 1mm, band = 0
]},
pattern color=red]
(0,0) rectangle (4,4);
\end{tikzpicture}

Both bands together build a uniform combined pattern.

\begin{tikzpicture}
\draw[pattern hexagon={
  size = 5mm, angle = 15, line width = 1mm
},
pattern color=red]
(0,0) rectangle (4,4);
\end{tikzpicture}

/tikz/pattern hexagon={*(pattern keys)*}  \hfill (style, no default)

Convenience shortcut for setting the combined pattern (in one color).
The given \texttt{\textit{size}} denotes the length of an edge of one hexagonal tile where the (possibly smaller) hexagon is located in.

\begin{tikzpicture}
\draw[
    pattern hexagon =
    {
        size = 5mm,
        pattern color=red
    },
    (0,0) rectangle (4,4);
\end{tikzpicture}

\textbf{/pgf/pattern keys/size=\textit{size}} \quad \text{(no default, initially 8mm)}

Sets the hexagons to be filled. \texttt{\textit{fill}} and \texttt{\textit{draw}} are mutually exclusionary.

\begin{tikzpicture}
\draw[
    pattern hexagon =
    {
        fill,
        pattern color=red
    },
    (0,0) rectangle (4,4);
\end{tikzpicture}

\textbf{/pgf/pattern keys/fill} \quad \text{(no value, initially set)}

Sets the hexagons to be outlined. \texttt{\textit{fill}} and \texttt{\textit{draw}} are mutually exclusionary.

\begin{tikzpicture}
\draw[
    pattern hexagon =
    {
        draw,
        pattern color=red
    },
    (0,0) rectangle (4,4);
\end{tikzpicture}

\textbf{/pgf/pattern keys/draw} \quad \text{(no value, initially unset)}

Sets the \texttt{\textit{line width}} value of the line width. This is only relevant, if the hexagons are not filled.

\begin{tikzpicture}
\draw[
    pattern hexagon =
    {
        draw, line width = 1mm,
        pattern color=red
    },
    (0,0) rectangle (4,4);
\end{tikzpicture}

\textbf{/pgf/pattern keys/line width=\textit{length}} \quad \text{(no default, initially 0.4pt)}
The pattern is shifted by \( \langle xshift \rangle \) and \( \langle yshift \rangle \).
Note that for \texttt{hexagon} is valid, that a pattern is shifted first and rotated afterwards.

```
\begin{tikzpicture}
\draw
preaction={pattern hexagon grid, pattern color=blue},
{pattern hexagon =
 {xshift=3mm, yshift=1mm,},
 pattern color=red
},
(0,0) rectangle (4,4);
\end{tikzpicture}
```

The pattern is rotated by the given \( \langle angle \rangle \).
Note that for \texttt{hexagon} is valid, that a pattern is shifted first and rotated afterwards.

```
\begin{tikzpicture}
\draw
{pattern hexagon =
 {angle = 15,},
 pattern color=red
},
(0,0) rectangle (4,4);
\end{tikzpicture}
```

Sets the edge position with a \( \langle \text{value} \rangle \) between 0 and 1, where 0 is the center and 1 the outer rim of the hexagonal tile. 1 is a less efficient way to either fill the whole graph or to draw a \texttt{hexagon grid}.

```
\begin{tikzpicture}
\draw
preaction={ pattern hexagon={pos=0.8},
 pattern color=blue!80!red },
preaction={ pattern hexagon={pos=0.6},
 pattern color=blue!60!red },
preaction={ pattern hexagon={pos=0.4},
 pattern color=blue!40!red },
preaction={ pattern hexagon={pos=0.2},
 pattern color=blue!20!red, }
(0,0) rectangle (4,4);
\end{tikzpicture}
```
\begin{tikzpicture}
\draw[
  preaction = { pattern={hexagon[band=1,draw,
    line width=1mm]},
    pattern color=blue },
  pattern={hexagon[band=0,pos=0.5]},
  pattern color=red
} (0,0) rectangle (4,4);
\end{tikzpicture}
3.2 Hexagon Grid

The \texttt{hexagon grid} pattern draws a grid made of hexagons. It is a single pattern und more efficient than \texttt{hexagon} with settings \texttt{draw, pos=1}.

\begin{tikzpicture}
\draw[
    pattern = { hexagon grid 
      [ 
        size = 5mm, angle = 15, line width = 1mm 
      ],
      pattern color=red
    ]
  (0,0) rectangle (4,4);
\end{tikzpicture}

\texttt{/tikz/pattern hexagon grid=\{pattern keys\}} (style, no default)

Convenience shortcut for setting the pattern to \texttt{hexagon grid}:

\begin{tikzpicture}
\draw[
  pattern hexagon grid =
  { 
    size = 5mm, angle = 15, line width = 1mm 
  },
  pattern color=red
]
(0,0) rectangle (4,4);
\end{tikzpicture}

\texttt{/pgf/pattern keys/size=(size)} (no default, initially 8\texttt{mm})

The given \texttt{(size)} denotes the length of an edge of one hexagon.

\begin{tikzpicture}
\draw[
  pattern hexagon grid =
  { 
    size = 5mm, 
  },
  pattern color=red
]
(0,0) rectangle (4,4);
\end{tikzpicture}
The pattern is shifted by \langle xshift \rangle and \langle yshift \rangle.

Note that for \texttt{hexagon grid} is valid, that a pattern is shifted first and rotated afterwards.

\begin{tikzpicture}
\draw[preaction={pattern={hexagon grid}, pattern color=blue},
pattern hexagon grid =
{   xshift=3mm, yshift=1mm,}
pattern color=red ]
(0,0) rectangle (4,4);
\end{tikzpicture}

The pattern is rotated by the given \langle angle \rangle.

Note that for \texttt{hexagon grid} is valid, that a pattern is shifted first and rotated afterwards.

\begin{tikzpicture}
\draw[pattern hexagon grid =
{   angle = 15,}
pattern color=red ]
(0,0) rectangle (4,4);
\end{tikzpicture}

Sets the \langle length \rangle value of the line width.

\begin{tikzpicture}
\draw[pattern hexagon grid =
{   line width = 2mm,}
pattern color=red ]
(0,0) rectangle (4,4);
\end{tikzpicture}
3.3 Hexagon Cycle

The **hexagon cycle** pattern draws several hexagon rings in a cyclic manor. A single pattern is one of two different *bands*, called band 0 and band 1.

\begin{tikzpicture}
\draw[
    pattern = { hexagon cycle
                  \[ size = 5mm, angle = 15
                  \]},
    pattern color=red
    ]
    (0,0) rectangle (4,4);
\end{tikzpicture}

Both bands together build a uniform combined pattern.

\begin{tikzpicture}
\draw[
    preaction = {
        pattern = { hexagon cycle
                   \[ size = 5mm, angle = 15, band = 1
                   \]},
        pattern color=blue },
    pattern = { hexagon cycle
               \[ size = 5mm, angle = 15, band = 0
               \]},
    pattern color=red
    ]
    (0,0) rectangle (4,4);
\end{tikzpicture}

/tikz/pattern hexagon cycle=\{(pattern keys)\} (style, no default)

Convenience shortcut for setting the combined pattern (in one color).
/pgf/pattern keys/size=(size)  (no default, initially 8mm)
The given \(size\) denotes the length of an edge of one hexagonal tile where the (smaller) hexagons are located in.

\begin{tikzpicture}
\draw[\patternhexagoncycle={size=5mm}, pattern color=red]
(0,0) rectangle (4,4);
\end{tikzpicture}

/pgf/pattern keys/xshift=(xshift)  (no default, initially 0pt)
/pgf/pattern keys/yshift=(yshift)  (no default, initially 0pt)
The pattern is shifted by \(xshift\) and \(yshift\).
Note that for \texttt{hexagon cycle} is valid, that a pattern is shifted first and rotated afterwards.

\begin{tikzpicture}
\draw[postaction={pattern={hexagon grid}, pattern color=blue},\patternhexagoncycle={xshift=3mm, yshift=1mm}, pattern color=red]
(0,0) rectangle (4,4);
\end{tikzpicture}

/pgf/pattern keys/angle=(angle)  (no default, initially 0)
The pattern is rotated by the given \(angle\).
Note that for \texttt{hexagon cycle} is valid, that a pattern is shifted first and rotated afterwards.

\begin{tikzpicture}
\draw[\patternhexagoncycle={angle=15}, pattern color=red]
(0,0) rectangle (4,4);
\end{tikzpicture}
/pgf/pattern keys/rings\{number\} (no default, initially 3)
Sets the \{number\} of rings as 0,1,2,3,...

\begin{tikzpicture}
\draw[
  pattern hexagon cycle =
  {
    rings = 2,
  },
  pattern color=red
]
(0,0) rectangle (4,4);
\end{tikzpicture}

/pgf/pattern keys/gap\{value\} (no default, initially 1)
Sets the gap between two rings as \{value\} times the line width of a ring. \{value\} has to be greater or equal 0.01.

\begin{tikzpicture}
\draw[
  pattern hexagon cycle =
  {
    gap = 0.5,
  },
  pattern color=red
]
(0,0) rectangle (4,4);
\end{tikzpicture}

/pgf/pattern keys/band\{number\} (no default, initially 0)
\{number\} can take 0 or 1 and denotes one of two different bands of the pattern.

\begin{tikzpicture}
\draw[
  preaction = { pattern={hexagon cycle[
    band=1, gap=0.5 ]}, pattern color=blue },
  pattern={hexagon cycle[band=0,rings=2]},
  pattern color=red
]
(0,0) rectangle (4,4);
\end{tikzpicture}
4 Rhombus Pattern Library

TikZ Library fill.rhombus

\usetikzlibrary{fill.rhombus} % LaTeX (primary choice) and plain TeX
\usetikzlibrary{fill.rhombus} % ConTeXt
\usepackage{tikzfill.rhombus} % LaTeX (secondary choice)

Based on patterns.meta, this library defines new rhombus patterns to fill graphs.

4.1 Rhombus

The rhombus pattern draws rhombi or diamonds. The rhombi may be filled or outlined and can be arranged in different bands, called band 0, band 1, and band 2.

\begin{tikzpicture}
  \draw[
    pattern = { rhombus [
      size = 8mm, angle = 15
    ],
    pattern color=red
  }
  (0,0) rectangle (4,4);
\end{tikzpicture}

/tikz/pattern rhombus=\{\patternkeys\}\hspace{1cm}(style, no default)

Convenience shortcut for setting the pattern to rhombus:

\begin{tikzpicture}
  \draw[
    pattern rhombus =
    {
      size = 8mm, angle = 15
    },
    pattern color=red
  ]
  (0,0) rectangle (4,4);
\end{tikzpicture}

/pgf/pattern keys/size=\size\hspace{1cm}(no default, initially 10mm)

The given \size denotes the length of an edge of one rhombical tile where the (possibly smaller) rhombus is located in.

\begin{tikzpicture}
  \draw[
    pattern rhombus =
    {
      size = 5mm,
    },
    pattern color=red
  ]
  (0,0) rectangle (4,4);
\end{tikzpicture}
Sets the rhombi to be filled. `fill` and `draw` are mutually exclusionary.

\begin{tikzpicture}
\draw[
  pattern rhombus =
  {
    fill,
  },
  pattern color=red
](0,0) rectangle (4,4);
\end{tikzpicture}

Sets the rhombi to be outlined. `fill` and `draw` are mutually exclusionary.

\begin{tikzpicture}
\draw[
  pattern rhombus =
  {
    draw,
  },
  pattern color=red
](0,0) rectangle (4,4);
\end{tikzpicture}

Sets the `(length)` value of the line width. This is only relevant, if the rhombi are not filled.

\begin{tikzpicture}
\draw[
  pattern rhombus =
  {
    line width = 1mm, draw
  },
  pattern color=red
](0,0) rectangle (4,4);
\end{tikzpicture}

The pattern is rotated by the given `(angle)`. Note that for `rhombus` is valid, that a pattern is rotated first and shifted afterwards.

\begin{tikzpicture}
\draw[
  pattern rhombus =
  {
    angle = 15,
  },
  pattern color=red
](0,0) rectangle (4,4);
\end{tikzpicture}
The pattern is shifted by \langle xshift \rangle and \langle yshift \rangle.
Note that for \textit{rhombus} is valid, that a pattern is rotated first and shifted afterwards.

\begin{tikzpicture}
\draw[
    preaction={pattern rhombus, pattern color=blue},
    pattern rhombus =
    {
        xshift=3mm, yshift=1mm,
    },
    pattern color=red
]
(0,0) rectangle (4,4);
\end{tikzpicture}

\texttt{/pgf/pattern keys/ratio=(value)}
(no default, initially 2)
Sets the \langle value \rangle of the ratio between the longer diagonal and the shorter diagonal. Therefore, \langle value \rangle \geq 1.

\begin{tikzpicture}
\draw[
    pattern rhombus =
    {
        ratio = 4
    },
    pattern color=red
]
(0,0) rectangle (4,4);
\end{tikzpicture}

\texttt{/pgf/pattern keys/pos=(value)}
(no default, initially 1)
Sets the edge position with a \langle value \rangle between 0 and 1, where 0 is the center and 1 the outer rim of the rhombical tile.

\begin{tikzpicture}
\draw[
    preaction={ pattern rhombus={pos=1},
    pattern color=blue },
    preaction={ pattern rhombus={pos=0.8},
    pattern color=blue!80!red },
    preaction={ pattern rhombus={pos=0.6},
    pattern color=blue!60!red },
    preaction={ pattern rhombus={pos=0.4},
    pattern color=blue!40!red },
    pattern rhombus={pos=0.2},
    pattern color=blue!20!red,
]
(0,0) rectangle (4,4);
\end{tikzpicture}
/pgf/pattern keys/\texttt{band}=\langle number \rangle

\langle number \rangle \text{ can take 0, 1, or 2. Here, 0 and 1 denote one of two different bands of the pattern, while 2 denotes the combination of both.}
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