

The library is loaded by a package option or inside the preamble by:

该库可以通过包选项或在导言中加载:

```
\tcbuselibrary{raster}
```

16.1 Concept of Rasters

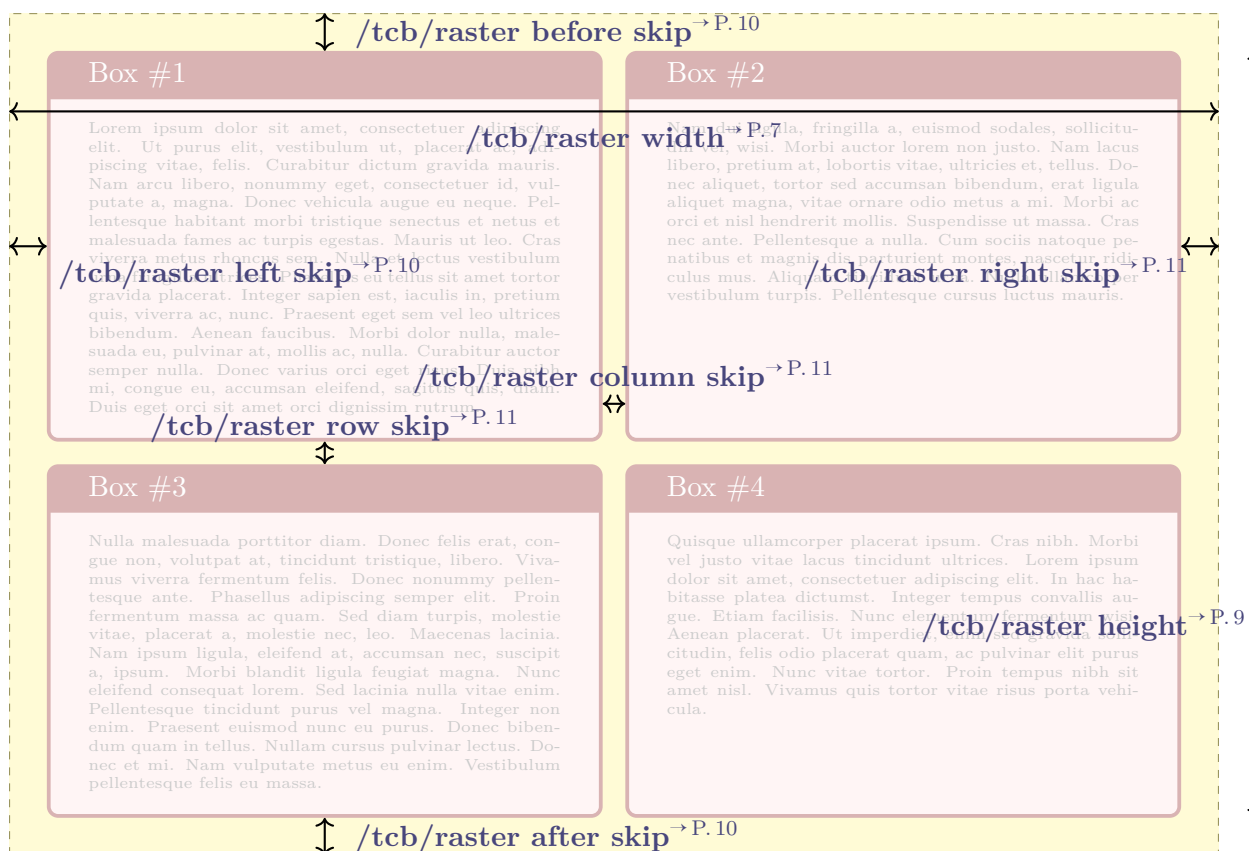
栅格的概念

A *raster* is used to align several colored boxes in a regular way. It can be seen as a far related counterpart to the `matrix` construct of TikZ, but it differs in many aspects.

栅格用于以规则的方式对齐多个彩色盒子。它可以看作是 TikZ 中 `matrix` 结构的远亲，但在许多方面有所不同。

In principle, `tcolorboxes` are arranged in rows and columns when put inside a `tcbraster`^{→ P.3} environment. The boxes are fluently added to the raster like adding text to a paragraph. Especially, line/row breaks are done automatically and one cannot end a line/row ahead of schedule. Further, a *raster* is not restricted to a single page but may break into an arbitrary series of pages.

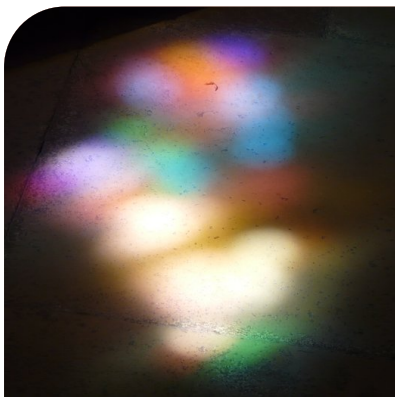
原则上，当放置在 `tcbraster`^{→ P.3} 环境中时，`tcolorbox` 以行和列的形式排列。这些盒子被流畅地添加到栅格中，就像将文本添加到段落中一样。特别地，行/列换行是自动完成的，不能提前结束行/列。此外，栅格不仅限于单个页面，还可以分成任意一系列页面。



```

\begin{tcbraster}[raster columns=3,raster rows=3,raster height=\linewidth,
enhanced,size=small,sharp corners,arc=8mm,colframe=red!50!black,
colback=yellow!10!white,watermark overzoom=1.0,fit algorithm=hybrid* ]
\begin{tcolorbox}[rounded corners=northwest,boxrule=0pt,
watermark graphics=lichtspiel.jpg]\end{tcolorbox}
\tcboxfit{\lipsum[1]}
\begin{tcolorbox}[rounded corners=northeast,boxrule=0pt,
watermark graphics=goldshade.png]\end{tcolorbox}
\tcboxfit{\lipsum[2]}
\begin{tcolorbox}[valign=center,halign=center]Nine Boxes.\end{tcolorbox}
\tcboxfit{\lipsum[3]}
\begin{tcolorbox}[rounded corners=southwest,boxrule=0pt,
watermark graphics=goldshade.png]\end{tcolorbox}
\tcboxfit{\lipsum[4]}
\begin{tcolorbox}[rounded corners=southeast,boxrule=0pt,
watermark graphics=lichtspiel.jpg]\end{tcolorbox}
\end{tcbraster}

```



Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.



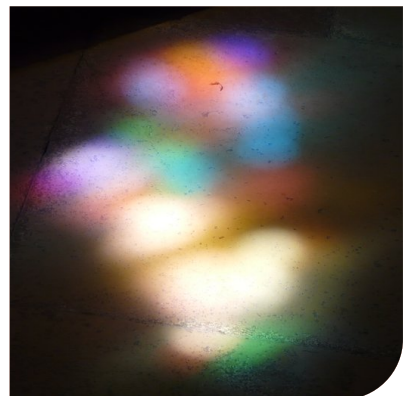
Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

Nine Boxes.

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.



Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetur adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.



16.2 Macros of the Library 库的宏

N 2014-11-10
U 2017-02-01

```
\begin{tcbrafter}[<options>]
  <environment content>
\end{tcbrafter}
```

A raster arranges enclosed boxes in a regular way, mainly into rows and columns. The $\langle options \rangle$ are used to control the raster parameters and to set the properties for the enclosed boxes.

栅格将封闭的盒子以规则的方式排列，主要是按行和列排列。 $\langle options \rangle$ 用于控制栅格参数并设置封闭盒子的属性。

- The *raster* is only allowed to contain a series of `tcolorbox`^{→P.??} environments or derived constructs. With some small restrictions, boxes created with `\tcboxfit`^{→P.??} can also be added. Boxes created with `\tcbox`^{→P.??} are not reasonable here, but may be used to a certain degree.

光栅只允许包含一系列 `tcolorbox`^{→P.??} 环境或衍生结构。在一些小限制下，使用 `\tcboxfit`^{→P.??} 创建的盒子也可以被添加。在此处不合理使用 `\tcbox`^{→P.??} 创建的盒子，但可以在一定程度上使用。

- Do not add anything else between the boxes inside the raster with exception of white-space. Especially, do not use `\\` or `\par` to end a row; row breaks are done automatically.

在光栅内的盒子之间不要添加任何其他东西，除了空格符。特别是不要使用 `\\` 或 `\par` 结束一行；行断自动完成。

- The boxes inside a raster are numbered automatically. `\thetcbrafternum` may be used inside a box to access this number. The L^AT_EX counter `tcbraftercolumn` holds the current column, the counter `tcbrafterrow` holds the current row, and the counter `tcbrafternum` holds the current box number.

光栅内的盒子会自动编号。在盒子内部使用 `\thetcbrafternum` 可访问此编号。L^AT_EX 计数器 `tcbraftercolumn` 保存当前列，计数器 `tcbrafterrow` 保存当前行，计数器 `tcbrafternum` 保存当前盒子编号。

```
\begin{tcbrafter}[raster columns=3, raster equal height,
size=small,colframe=red!50!black,colback=red!10!white,colbacktitle=red!50!white,
title={\tt 盒 \makebox{}{\#\thetcbrafternum}}]
\begin{tcolorbox}第一个盒子\end{tcolorbox}
\begin{tcolorbox}第二个盒子\end{tcolorbox}
\begin{tcolorbox}这是一个带有\\第二行的盒子\end{tcolorbox}
\begin{tcolorbox}另一个盒子\end{tcolorbox}
\begin{tcolorbox}再次一个盒子\end{tcolorbox}
\end{tcbrafter}
```

盒#1 第一个盒子	盒#2 第二个盒子	盒#3 这是一个带有 第二行的盒子
盒#4 另一个盒子	盒#5 再次一个盒子	

```

\begin{tcbrafter}[raster columns=2, raster equal height=rows,
size=small,colframe=red!50!black,colback=red!10!white,colbacktitle=red!50!white,
title={Box \# \thetcbrafternum}]
\begin{tcolorbox}First box\end{tcolorbox}
\begin{tcolorbox}Second box\end{tcolorbox}
\begin{tcolorbox}This is a box\\with a second line\end{tcolorbox}
\begin{tcolorbox}Another box\end{tcolorbox}
\begin{tcolorbox}A box again\end{tcolorbox}
\end{tcbrafter}

```

Box # 1 First box	Box # 2 Second box
Box # 3 This is a box with a second line	Box # 4 Another box
Box # 5 A box again	

N 2014-11-10

```

\begin{tcbitemize}[\langle options \rangle]
\langle environment content \rangle
\end{tcbitemize}

```

This is a special case of a `tcbrafter`^{→P.3} with the given *options*.
 这是具有给定选项的 `tcbrafter`^{→P.3} 的特殊情况。

- Here, the enclosed boxes are created using `\tcbitem`^{→P.5}.
 在这里，封闭的框使用 `\tcbitem`^{→P.5} 创建。
- There has to be at least one `\tcbitem`^{→P.5}.
 必须至少有一个 `\tcbitem`^{→P.5}。
- One cannot use anything else than `\tcbitem`^{→P.5} to add something to the *raster*.
 不能使用除 `\tcbitem`^{→P.5} 之外的任何东西来添加内容到 *raster* 中。

This leads to a very compact syntax.
 这导致了非常紧凑的语法。

```

\begin{tcbitemize}[raster columns=2, raster equal height=rows,
size=small,colframe=red!50!black,colback=red!10!white,colbacktitle=red!50!white,
title={Box \# \thetcbrafternum}]
\tcbitem First box
\tcbitem Second box
\tcbitem This is a box\\with a second line
\tcbitem[colback=yellow,colbacktitle=yellow!50!black] Another box
\tcbitem A box again
\end{tcbitemize}

```

Box # 1 First box	Box # 2 Second box
Box # 3 This is a box with a second line	Box # 4 Another box
Box # 5 A box again	

tcbitemize has more restrictions than **tcbrafter**^{→P.3}. Especially, the **/tcb/capture**^{→P.??} mode has to be **minipage**. For example, **/tcb/fit**^{→P.??} cannot be used safely. If **/tcb/fit**^{→P.??} should be used, turn over to **tcbrafter**^{→P.3}.

! **tcbitemize** 比 **tcbrafter**^{→P.3} 有更多的限制。特别地, **/tcb/capture**^{→P.??} 模式必须是 **minipage**。例如, **/tcb/fit**^{→P.??} 不能安全地使用。如果必须使用 **/tcb/fit**^{→P.??}, 请转到 **tcbrafter**^{→P.3}。

N 2014-11-10

\tcbitem[*⟨options⟩*]

Used inside **tcbitemize**^{→P.4} to create a new **tcolorbox**^{→P.??} with the given *⟨options⟩*. 在 **tcbitemize**^{→P.4} 中使用, 用给定的 *⟨options⟩* 创建一个新的 **tcolorbox**^{→P.??}。

N 2016-02-19

```
\begin{tcbboxedrafter}[⟨raster options⟩]{⟨box options⟩}
  ⟨environment content⟩
\end{tcbboxedrafter}
```

This is a convenience environment which combines a **tcolorbox**^{→P.??} with an embedded **tcbrafter**^{→P.3}. The *⟨box options⟩* are given to the outer **tcolorbox**^{→P.??}, while the *⟨raster options⟩* are given to the embedded **tcbrafter**^{→P.3}. This environment is especially useful for rasters inside rasters.

这是一个方便的环境, 它将 **tcolorbox**^{→P.??} 和嵌入式 **tcbrafter**^{→P.3} 组合起来。*⟨box options⟩* 应用于外部的 **tcolorbox**^{→P.??}, 而 *⟨raster options⟩* 应用于嵌入式的 **tcbrafter**^{→P.3}。这个环境对于嵌套的栅格特别有用。

```
\begin{tcbboxedrafter}[raster columns=3, raster equal height,
size=small,colframe=red!50!black,colback=red!10!white,colbacktitle=red!50!white,
title={Box \# \thetcbrafternum}]
{colback=yellow!10,fonttitle=\bfseries,title=Boxed Raster}
\begin{tcolorbox}First box\end{tcolorbox}
\begin{tcolorbox}Second box\end{tcolorbox}
\begin{tcolorbox}This is a box\\with a second line\end{tcolorbox}
\begin{tcolorbox}Another box\end{tcolorbox}
\begin{tcolorbox}A box again\end{tcolorbox}
\end{tcbboxedrafter}
```

Boxed Raster

Box # 1

First box

Box # 2

Second box

Box # 3

This is a box
with a second line

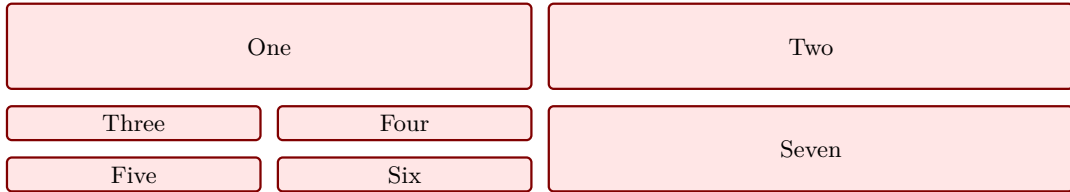
Box # 4

Another box

Box # 5

A box again

```
% \tcboxlibrary{skins}
\begin{tcbraster}[raster columns=2, raster equal height,
raster every box/.style={size=small,colframe=red!50!black,colback=red!10!white,
valign=center,halign=center}]
\begin{tcolorbox}One\end{tcolorbox}
\begin{tcolorbox}Two\end{tcolorbox}
\begin{tcboxedraster}{blankest}
\begin{tcolorbox}Three\end{tcolorbox}
\begin{tcolorbox}Four\end{tcolorbox}
\begin{tcolorbox}Five\end{tcolorbox}
\begin{tcolorbox}Six\end{tcolorbox}
\end{tcboxedraster}
\begin{tcolorbox}Seven\end{tcolorbox}
\end{tcbraster}
```



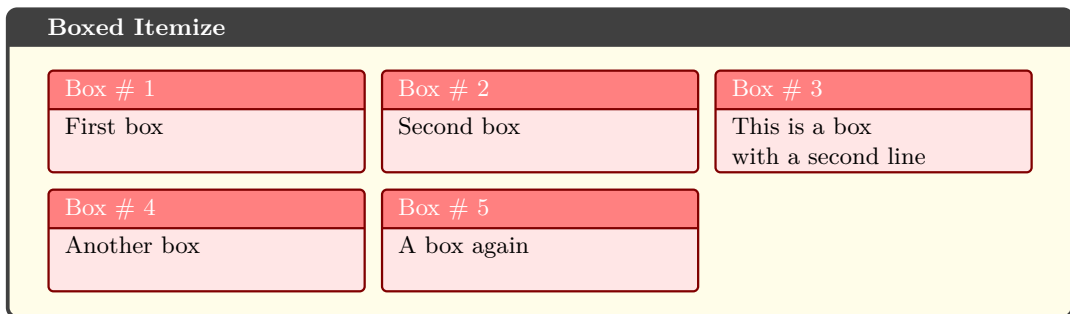
N 2016-04-27

```
\begin{tcboxeditemize}[\langle raster options \rangle]{\langle box options \rangle}
\langle environment content \rangle
\end{tcboxeditemize}
```

This is a convenience environment which combines a $\text{tcolorbox}^{\rightarrow P.??}$ with an embedded $\text{tcbitemize}^{\rightarrow P.4}$. The $\langle box options \rangle$ are given to the outer $\text{tcolorbox}^{\rightarrow P.??}$, while the $\langle raster options \rangle$ are given to the embedded $\text{tcbitemize}^{\rightarrow P.4}$. This environment is especially useful for rasters inside rasters.

这是一个便利的环境，它将 $\text{tcolorbox}^{\rightarrow P.??}$ 和嵌入的 $\text{tcbitemize}^{\rightarrow P.4}$ 结合在一起。 $\langle box options \rangle$ 用于外部的 $\text{tcolorbox}^{\rightarrow P.??}$ ，而 $\langle raster options \rangle$ 用于嵌入的 $\text{tcbitemize}^{\rightarrow P.4}$ 。这个环境在嵌套的栅格中非常有用。

```
\begin{tcboxeditemize}[raster columns=3, raster equal height,
size=small,colframe=red!50!black,colback=red!10!white,colbacktitle=red!50!white,
title={Box \# \thetcbrastrernum}]
{colback=yellow!10,fonttttitle=\bfseries,title=Boxed Itemize}
\tcbitem First box
\tcbitem Second box
\tcbitem This is a box\\with a second line
\tcbitem Another box
\tcbitem A box again
\end{tcboxeditemize}
```



16.3 Option Keys of the Library 库的选项键

/tcb/raster columns= $\langle number \rangle$ (no default, initially 2)

Sets the $\langle number \rangle$ of columns for a *raster*.
设置光栅的列数为 $\langle number \rangle$ 。

```
\begin{tcbitemize}[raster columns=3,
size=small,colframe=red!50!black,colback=red!10!white]
\tcbitem One
\tcbitem Two
\tcbitem Three
\tcbitem Four
\end{tcbitemize}
\begin{tcbitemize}[raster columns=4,
size=small,colframe=blue!50!black,colback=blue!10!white]
\tcbitem One
\tcbitem Two
\tcbitem Three
\tcbitem Four
\end{tcbitemize}
```

One

Two

Three

Four

One

Two

Three

Four

/tcb/raster rows= $\langle number \rangle$ (no default, initially 2)

Sets the $\langle number \rangle$ of rows for a *raster*. Note that this is only relevant in connection with setting **/tcb/raster height^{→P.9}** to a value greater than 0pt. Then, it defines the number of rows *per* given height.

设置光栅的 $\langle number \rangle$ 行数。请注意，只有在将 **/tcb/raster height^{→P.9}** 设置为大于0pt 的值时才相关。然后，它定义了每个给定高度的行数。

/tcb/raster width= $\langle length \rangle$ (no default, initially \linewidth)

Sets the total raster width to the given $\langle length \rangle$. **/tcb/raster left skip^{→P.10}** and **/tcb/raster right skip^{→P.11}** are part of the total width. Note that both skip values are not changed by this option.

将栅格的总宽度设置为给定的 $\langle length \rangle$ 。**/tcb/raster left skip^{→P.10}** 和 **/tcb/raster right skip^{→P.11}** 是总宽度的一部分。请注意，这两个值不会因此选项而改变。

```
\begin{tcbitemize}[raster width=\linewidth/2,
size=small,colframe=red!50!black,colback=red!10!white]
\tcbitem One
\tcbitem Two
\tcbitem Three
\tcbitem Four
\end{tcbitemize}
```

One

Two

Three

Four

/tcb/raster width flush left= $\langle length \rangle$ (style, no default)

Sets the total **/tcb/raster width** to \linewidth and adapts **/tcb/raster left skip^{→P.10}**

and `/tcb/raster right skip`^{→P.11} to place the raster on the left hand side with a visual width of the given $\langle length \rangle$.

将 `/tcb/raster width`^{→P.7} 的总宽度设置为 `\linewidth`, 并调整 `/tcb/raster left skip`^{→P.10} 和 `/tcb/raster right skip`^{→P.11} 以将光栅放置在左侧, 其可视宽度为给定的 $\langle length \rangle$ 。

```
\begin{tcbitemize}[raster width flush left=\linewidth/2,
size=small,colframe=red!50!black,colback=red!10!white]
\tcbitem One
\tcbitem Two
\tcbitem Three
\tcbitem Four
\end{tcbitemize}
```

One

Two

Three

Four

Note that the results of `/tcb/raster width`^{→P.7} and `/tcb/raster width flush left` look identical, but differ on technical side since the later always fills the available `\linewidth`.

请注意, `/tcb/raster width`^{→P.7} 和 `/tcb/raster width flush left` 的结果看起来相同, 但在技术方面有所不同, 因为后者始终填充可用的 `\linewidth`。

N 2018-11-30

`/tcb/raster width center`^{→P.7} = $\langle length \rangle$ (style, no default)

Sets the total `/tcb/raster width`^{→P.7} to `\linewidth` and adapts `/tcb/raster left skip`^{→P.10} and `/tcb/raster right skip`^{→P.11} to center the raster with a visual width of the given $\langle length \rangle$.

将 `/tcb/raster width`^{→P.7} 设置为 `\linewidth`, 并适应 `/tcb/raster left skip`^{→P.10} 和 `/tcb/raster right skip`^{→P.11} 以使具有给定 $\langle length \rangle$ 的视觉宽度的栅格居中。

```
\begin{tcbitemize}[raster width center=\linewidth/2,
size=small,colframe=red!50!black,colback=red!10!white]
\tcbitem One
\tcbitem Two
\tcbitem Three
\tcbitem Four
\end{tcbitemize}
```

One

Two

Three

Four

N 2018-11-30

`/tcb/raster width flush right`^{→P.7} = $\langle length \rangle$ (style, no default)

Sets the total `/tcb/raster width`^{→P.7} to `\linewidth` and adapts `/tcb/raster left skip`^{→P.10} and `/tcb/raster right skip`^{→P.11} to place the raster on the right hand side with a visual width of the given $\langle length \rangle$.

将总的 `/tcb/raster width`^{→P.7} 设置为 `\linewidth`, 并调整 `/tcb/raster left skip`^{→P.10} 和 `/tcb/raster right skip`^{→P.11}, 以便将光栅放置在右侧, 其视觉宽度为给定的 $\langle length \rangle$ 。


```

\begin{tcbitemize}[raster width flush right=\linewidth/2,
size=small,colframe=red!50!black,colback=red!10!white]
\tcbitem One
\tcbitem Two
\tcbitem Three
\tcbitem Four
\end{tcbitemize}

```

One

Two

Three

Four

N 2014-11-10

/tcb/raster height= $\langle length \rangle$ (no default, initially 0pt)

Sets the raster height *per* **/tcb/raster rows**^{→P.7} to the given $\langle length \rangle$. This forces an appropriate height for the enclosed boxes. **/tcb/raster before skip**^{→P.10} and **/tcb/raster after skip**^{→P.10} are not part of this calculation. If the $\langle length \rangle$ is set to 0pt, this feature is deactivated.

将光栅高度设置为给定的长度，即每个 **/tcb/raster rows**^{→P.7} 的高度。这将强制包裹的盒子具有适当的高度。**/tcb/raster before skip**^{→P.10} 和 **/tcb/raster after skip**^{→P.10} 不参与此计算。如果将 $\langle length \rangle$ 设置为 0pt，则此功能将被停用。

```

\begin{tcbitemize}[raster height=4cm, raster rows=2,
size=small,colframe=red!50!black,colback=red!10!white]
\tcbitem One
\tcbitem Two
\tcbitem[enhanced,
finish={\draw[blue,very thick,<->] (frame.south)
-- node[right,pos=.75]{4cm} +(0,4); }]
Three
\tcbitem Four
\tcbitem Five
\end{tcbitemize}

```

One

Two

4cm

Three

Four

Five

N 2014-11-10

U 2014-12-16

/tcb/raster before skip= $\langle glue \rangle$ (no default, initially 2mm)

Space of the given $\langle glue \rangle$ is inserted vertically before the *raster*. This space is discardable. 在 $\langle glue \rangle$ 给定的空间被插入图像的上方。这个空间是可以被丢弃的。

/tcb/raster after skip= $\langle glue \rangle$ (no default, initially 2mm)

Space of the given $\langle glue \rangle$ is inserted vertically after the *raster*. This space is discardable. 给定的 $\langle glue \rangle$ 空间在栅格后垂直插入。这个空间是可丢弃的。

/tcb/raster equal skip= $\langle length \rangle$ (style, no default)

Shortcut to set `/tcb/raster before skip`^{→ P.10}, `/tcb/raster after skip`^{→ P.10}, `/tcb/raster column skip`^{→ P.11}, and `/tcb/raster row skip`^{→ P.11} to the same $\langle length \rangle$ value.

设置快捷方式, 将 `/tcb/raster before skip`、`/tcb/raster after skip`、`/tcb/raster column skip`^{→ P.11}和 `/tcb/raster row skip`^{→ P.11}设置为相同的 $\langle length \rangle$ 值。

```
\begin{tcbitemize}[raster equal skip=4mm,
size=small,colframe=red!50!black,colback=red!10!white]
\tcbitem One
\tcbitem Two
\tcbitem Three
\tcbitem Four
\end{tcbitemize}
```

One

Two

Three

Four

N 2014-11-10 `/tcb/raster left skip= $\langle length \rangle$` (no default, initially 0pt)

Space of the given $\langle length \rangle$ is inserted horizontally left of the *raster*.

在栅格的左侧水平插入给定 $\langle 长度 \rangle$ 的空间。

```
\begin{tcbitemize}[raster left skip=2cm,
size=small,colframe=red!50!black,colback=red!10!white]
\tcbitem One
\tcbitem Two
\tcbitem Three
\tcbitem Four
\end{tcbitemize}
```

One

Two

Three

Four

N 2014-11-10 `/tcb/raster right skip= $\langle length \rangle$` (no default, initially 0pt)

Space of the given $\langle length \rangle$ is inserted horizontally right of the *raster*.

在栅格的右侧水平插入给定 $\langle 长度 \rangle$ 的空间。

```
\begin{tcbitemize}[raster right skip=2cm,
size=small,colframe=red!50!black,colback=red!10!white]
\tcbitem One
\tcbitem Two
\tcbitem Three
\tcbitem Four
\end{tcbitemize}
```

One

Two

Three

Four

N 2014-11-10 `/tcb/raster column skip= $\langle length \rangle$` (no default, initially 2mm)

Space of the given $\langle length \rangle$ is inserted horizontally between the columns.

在列之间水平插入给定 $\langle 长度 \rangle$ 的空间。

```

\begin{tcbitemize}[raster column skip=2cm,
size=small,colframe=red!50!black,colback=red!10!white]
\tcbitem One
\tcbitem Two
\tcbitem Three
\tcbitem Four
\end{tcbitemize}

```

One

Two

Three

Four

N 2014-11-10

/tcb/raster row skip= $\langle length \rangle$ (no default, initially 2mm)

Space of the given $\langle length \rangle$ is inserted vertically between the rows.
在行之间垂直插入给定 $\langle 长度 \rangle$ 的空间。

```

\begin{tcbitemize}[raster row skip=0pt,
size=small,colframe=red!50!black,colback=red!10!white]
\tcbitem One
\tcbitem Two
\tcbitem Three
\tcbitem Four
\end{tcbitemize}

```

One

Two

Three

Four

N 2014-11-10

/tcb/raster halign= $\langle alignment \rangle$ (no default, initially **left**)

Defines the horizontal alignment for the boxes of the rows of a *raster*, if these rows are not completely filled (mainly: the last one).

如果 *raster* 的行未被完全填充（主要是最后一行），则定义行中盒子的水平对齐方式。

Feasible values for $\langle alignment \rangle$ are:

$\langle alignment \rangle$ 可行的值有：

- **left**: align to the left side,
左对齐
- **center**: align to the center,
居中对齐
- **right**: align to the right side.
右对齐

```

\begin{tcbitemize}[raster halign=center,
size=small,colframe=red!50!black,colback=red!10!white]
\tcbitem One
\tcbitem Two
\tcbitem Three
\end{tcbitemize}

```

One

Two

Three

N 2014-11-10

/tcb/raster valign= $\langle alignment \rangle$ (no default, initially **center**)

Defines the vertical alignment for the boxes of a row, if the boxes do not have equal height.
This sets the `/tcb/box align→P.??` option.

如果行中的盒子高度不相等，则定义盒子的垂直对齐方式。这设置了 `/tcb/box align→P.??`

选项。

Feasible values for $\langle alignment \rangle$ are:

可行的 $\langle \text{对齐方式} \rangle$ 取值包括:

- **top**: align to the top side,
对齐到顶部
- **center**: align to the center,
对齐到中心
- **bottom**: align to the bottom side.
对齐到底部

```
\begin{tcbitemize}[raster valign=top, raster columns=3,
size=small,colframe=red!50!black,colback=red!10!white]
\tcbitem \Huge top
\tcbitem \Large top
\tcbitem top
\end{tcbitemize}
\begin{tcbitemize}[raster valign=center, raster columns=3,
size=small,colframe=blue!50!black,colback=blue!10!white]
\tcbitem \Huge center
\tcbitem \Large center
\tcbitem center
\end{tcbitemize}
\begin{tcbitemize}[raster valign=bottom, raster columns=3,
size=small,colframe=green!50!black,colback=green!10!white]
\tcbitem \Huge bottom
\tcbitem \Large bottom
\tcbitem bottom
\end{tcbitemize}
```

top

top

top

center

center

center

bottom

bottom

bottom

N 2014-11-10
U 2017-02-28

$\texttt{/tcb/raster equal height}=\langle type \rangle$ (default **all**, initially **none**)

Puts the enclosed boxes into a common $\texttt{/tcb/equal height group}^{\rightarrow P.??}$. The $\langle id \rangle$ of the equal height group is chosen automatically, but it may be set manually by $\texttt{/tcb/raster equal height group}^{\rightarrow P.14}$. Also see $\texttt{/tcb/minimum for current equal height group}^{\rightarrow P.??}$.

将包含的盒子放入一个共同的 $\texttt{/tcb/equal height group}^{\rightarrow P.??}$ 中。等高组的 $\langle id \rangle$ 是自动选择的, 但可以通过 $\texttt{/tcb/raster equal height group}^{\rightarrow P.14}$ 进行手动设置。还请参阅 $\texttt{/tcb/minimum for current equal height group}^{\rightarrow P.??}$ 。

Feasible values for $\langle type \rangle$ are:

$\langle \text{类型} \rangle$ 的可行值包括:

- **none**: no equal height setting,
不设置等高,
- **rows**: all boxes in a row are set to equal height,
一行中的所有盒子都设置为等高
- **all**: all boxes in the raster are set to equal height.
网格中的所有盒子都设置为等高。

Note that you have to compile twice to see changes.

请注意, 您需要编译两次才能看到更改。

```

\begin{tcbitemize}[raster equal height=rows,
size=small,colframe=red!50!black,colback=red!10!white]
\tcbitem One
\tcbitem \Huge Two
\tcbitem Three
\tcbitem Four
\end{tcbitemize}

```

One

Two

Three

Four

```

\begin{tcbitemize}[raster equal height,
size=small,colframe=red!50!black,colback=red!10!white]
\tcbitem One
\tcbitem \Huge Two
\tcbitem Three
\tcbitem Four
\end{tcbitemize}

```

One

Two

Three

Four

N 2014-11-10

`/tcb/raster equal height group=<id>`

(no default)

Overwrites the automatically chosen id with the given $\langle id \rangle$. If this is used to share a common height between the *raster* and another raster or box, the `/tcb/raster equal height` option should be set to `all`.

用给定的 $\langle id \rangle$ 覆盖自动选择的 id。如果用于在 *raster* 和另一个栅格或盒子之间共享公共高度，则应将 `/tcb/raster equal height` 选项设置为 `all`。

```

\tcbset{size=small,colframe=red!50!black,colback=red!10!white}
\begin{tcolorbox}[equal height group=raster-manual-id]
A single box
\end{tcolorbox}
\begin{tcbitemize}[raster equal height,raster equal height group=raster-manual-id]
\tcbitem One
\tcbitem \Huge Two
\end{tcbitemize}

```

A single box

One

Two

`/tcb/raster force size=true|false`

(default `true`, initially `true`)

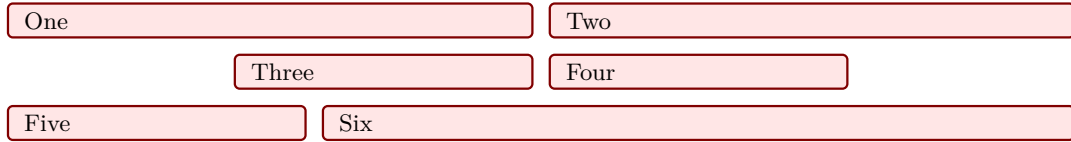
Enforces the raster size computations onto the enclosed boxes. If set to `false`, individual settings can be used (for the better or worse).

将栅格大小计算强制应用于封闭框中。如果设置为 `false`，可以使用单独的设置（好坏自负）。

```

\begin{tcbitemize}[raster force size=false, raster halign=center,
size=small,colframe=red!50!black,colback=red!10!white]
\tcbitem One
\tcbitem Two
\tcbitem[add to width=-3cm] Three
\tcbitem[add to width=-3cm] Four
\tcbitem[add to width=-3cm] Five
\tcbitem[add to width=3cm] Six
\end{tcbitemize}

```



N 2014-11-10

`/tcb/raster reset`

(no value)

Sets all raster settings back to their default values. Note that `/tcb/reset`^{→P.??} does not execute this option. Style settings like `/tcb/raster odd column`^{→P.15} etc. are not touched by `/tcb/raster reset`^{→P.15}.

将所有光栅设置恢复为默认值。请注意，`/tcb/reset`^{→P.??} 不执行此选项。像 `/tcb/raster odd column`^{→P.15} 等风格设置不受 `/tcb/raster reset`^{→P.15} 的影响。

16.4 Adding Styles for Specific Boxes 为特定盒子添加样式

The following styles can be defined to address certain boxes inside a *raster*. Note that such style definitions are not removed by `/tcb/reset`^{→P.??} or `/tcb/raster reset`^{→P.15}. The style definitions are used in the order given below.

可以定义以下样式来处理 *raster* 中的特定盒子。请注意，此类样式定义不会被 `/tcb/reset`^{→P.??} 或 `/tcb/raster reset`^{→P.15} 删除。样式定义按照以下顺序使用。

N 2014-11-24

`/tcb/raster every box`

(style)

This style is used for every box.
此样式用于每个盒子。

`/tcb/raster odd column`

(style)

This style is used for every box in an odd column.
此样式用于奇数列中的每个盒子。

```

\begin{tcbitemize}[size=small,colframe=red!50!black,colback=red!10!white,
raster odd column/.style={colframe=blue!50!black,colback=blue!10!white}]
\tcbitem One
\tcbitem Two
\tcbitem Three
\tcbitem Four
\end{tcbitemize}

```



`/tcb/raster even column`

(style)

This style is used for every box in an even column.
这种样式适用于偶数列中的每个方框。

`/tcb/raster column n`

(style)

This style is used for every box in the n -th column. n has to be replaced by a number.
 这种样式适用于第 n 列中的每个方框。 n 必须替换为一个数字。

N 2014-11-10 `/tcb/raster odd row` (style)

This style is used for every box in an odd row.
 这种样式适用于奇数行中的每个方框。

N 2014-11-10 `/tcb/raster even row` (style)

This style is used for every box in an even row.
 这种样式适用于偶数行中的每个方框。

N 2014-11-10 `/tcb/raster row m` (style)

This style is used for every box in the m -th row. m has to be replaced by a number.
 这种样式适用于第 m 行中的每个方框。 m 必须替换为一个数字。

```
\begin{tcbitemize}[size=small,colframe=red!50!black,colback=red!10!white,
raster row 2/.style={colframe=blue!50!black,colback=blue!10!white}]
\tcbitem One
\tcbitem Two
\tcbitem Three
\tcbitem Four
\end{tcbitemize}
```

N 2014-11-10 `/tcb/raster odd number` (style)

This style is used for every box with an odd number.
 这种样式适用于每个奇数编号的方框。

N 2014-11-10 `/tcb/raster even number` (style)

This style is used for every box with an even number.
 这种样式适用于每个偶数编号的方框。

```
\begin{tcbitemize}[size=small,colframe=red!50!black,colback=red!10!white,
raster columns=3,
raster even number/.style={colframe=blue!50!black,colback=blue!10!white}]
\tcbitem One
\tcbitem Two
\tcbitem Three
\tcbitem Four
\tcbitem Five
\tcbitem Six
\end{tcbitemize}
```

N 2014-11-10 `/tcb/raster row m column n` (style)

This style is used for the box in the m -th row and n -th column. m and n have to be replaced by numbers.
 这种样式用于第 m 行和第 n 列的方框。其中 m 和 n 必须替换为数字。

N 2014-11-10 `/tcb/raster number n` (style)

This style is used for the box with number n . n has to be replaced by a number.
 这种风格用于带有编号 n 的盒子。 n 必须由数字替换。


```

\begin{tcbitemize}[size=small,colframe=red!50!black,colback=red!10!white,
raster number 4/.style={colframe=blue!50!black,colback=blue!10!white}]
\tcbitem One
\tcbitem Two
\tcbitem Three
\tcbitem Four
\end{tcbitemize}

```

One

Two

Three

Four

16.5 Combining Columns or Rows 合并列或行

N 2016-02-19

`/tcb/raster multicolumn=<number>` (no default, initially unset)

This option has to be set inside the option list of a `tcolorbox`^{→P.??} inside a `tcbrafter`^{→P.3} or inside `\tcbitem`^{→P.5} inside `tcbitemize`^{→P.4}. It merges the given `<number>` of boxes into one single box on the same line. The resulting box gets the `\thetcbrafternum` of the first box. If there are not enough boxes available on the current line, this option is ignored and a warning is given.

该选项必须在 `tcbrafter`^{→P.3} 内的 `tcolorbox`^{→P.??} 的选项列表中或在 `tcbitemize`^{→P.4} 内的 `\tcbitem`^{→P.5} 中设置。它将给定的 `<number>` 个盒子合并成同一行的一个单独的盒子。结果的盒子将获得第一个盒子的 `\thetcbrafternum`。如果当前行上没有足够的盒子可用，则忽略此选项并发出警告。

```

\begin{tcbitemize}[raster equal height=rows,raster columns=3,
title=\thetcbrafternum,colframe=red!50!black,colback=red!10!white]
\tcbitem[colframe=blue!50!black,colback=blue!10!white,raster multicolumn=1]
multicolumn=1
\tcbitem
\tcbitem
\tcbitem[colframe=blue!50!black,colback=blue!10!white,raster multicolumn=2]
multicolumn=2
\tcbitem
\tcbitem[colframe=blue!50!black,colback=blue!10!white,raster multicolumn=3]
multicolumn=3
\tcbitem
\tcbitem[colframe=blue!50!black,colback=blue!10!white,raster multicolumn=2]
multicolumn=2
\end{tcbitemize}

```

1

multicolumn=1

2

3

4

multicolumn=2

6

7

multicolumn=3

10

11

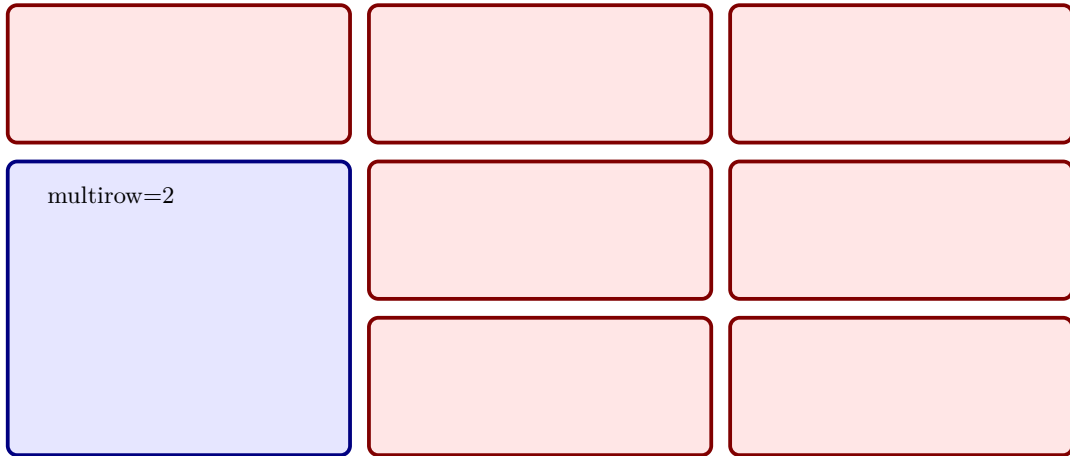
multicolumn=2

This option has to be set inside the option list of a `tcolorbox`^{→P.??} inside a `tcbrastrer`^{→P.3} or inside `\tcbitem`^{→P.5} inside `tcbitemize`^{→P.4}. This option not really merges boxes, but simply sizes the current box to fit the space of `<number>` rows.

这个选项必须在 `tcolorbox`^{→P.??} 的选项列表中设置，要么在 `tcbrastrer`^{→P.3} 中，要么在 `tcbitemize`^{→P.4} 中的 `\tcbitem`^{→P.5} 中。这个选项并不是真正地合并盒子，而是简单地调整当前盒子的大小，以适应 `<number>` 行的空间。

! `/tcb/raster multirow`^{→P.18} needs `/tcb/raster height`^{→P.9} to be set. How to achieve a similar result for boxes without fixed `/tcb/raster height`^{→P.9} is shown afterwards.
`/tcb/raster multirow`^{→P.18} 需要设置 `/tcb/raster height`^{→P.9}。如何为没有固定 `/tcb/raster height`^{→P.9} 的盒子实现类似的结果将在后面展示。

```
\begin{tcbitemize}[raster rows=3,raster columns=3,raster height=6cm,
raster every box/.style={colframe=red!50!black,colback=red!10!white}]
\tcbitem
\tcbitem
\tcbitem
\tcbitem[colframe=blue!50!black,colback=blue!10!white,raster multirow=2]
multirow=2
\tcbitem[raster multicolumn=2,raster multirow=2,blankest]
\begin{tcbitemize}[raster rows=2,raster columns=2,raster height=\tcbtextheight]
\tcbitem
\tcbitem
\tcbitem
\tcbitem
\end{tcbitemize}
\end{tcbitemize}
```



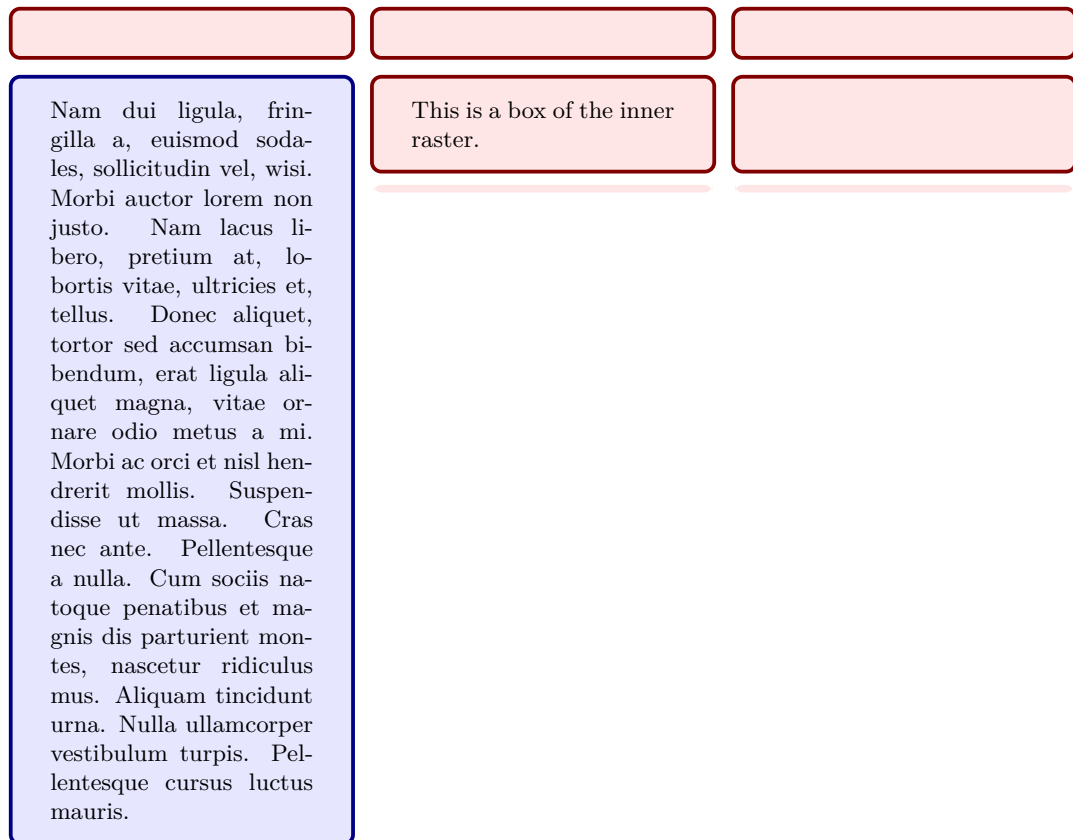
For rasters without fixed `/tcb/raster height`^{→P.9}, `/tcb/raster multirow`^{→P.18} cannot be used. Note that `\tcbtextheight`^{→P.??} also cannot be used like in the previous example. 对于没有固定 `/tcb/raster height`^{→P.9} 的栅格，无法使用 `/tcb/raster multirow`^{→P.18}。请注意，与之前的示例不同，也不能像之前的示例中那样使用 `\tcbtextheight`^{→P.??}。But, with combination of `/tcb/raster equal height`^{→P.13} and `/tcb/space to`^{→P.??}, a similar effect can be created:

但是，结合 `/tcb/raster equal height`^{→P.13} 和 `/tcb/space to`^{→P.??}，可以创建类似的效果：

```

\begin{tcbitemize}[raster columns=3,raster equal height=rows,
raster every box/.style={colframe=red!50!black,colback=red!10!white}]
\tcbitem
\tcbitem
\tcbitem
\tcbitem[colframe=blue!50!black,colback=blue!10!white]
\lipsum[2]
\tcbitem[raster multicolumn=2,blankest,space to=\myspace]
\begin{tcbitemize}[raster columns=2]
\tcbitem This is a box of the inner raster.
\tcbitem
\tcbitem[height=\myspace]
\tcbitem[height=\myspace]
\end{tcbitemize}
\end{tcbitemize}

```



16.6 Rasters inside Rasters

栅格内的栅格

A *raster* inside a *raster* cannot be used directly, because a *raster* can only contain a *tcolorbox* or something derived from a *tcolorbox*. So, a *raster* can be put inside a *tcolorbox* inside a *raster*.

栅格内的栅格不能直接使用，因为栅格只能包含一个 *tcolorbox* 或者从 *tcolorbox* 派生出的东西。因此，可以将一个栅格放在另一个 *tcolorbox* 内部的栅格中。

Some examples for such constructions can be found at [tboxedraster](#)^{→P.5}, [/tcb/raster multicolumn](#)^{→P.17}, [/tcb/raster multirow](#).

这种结构的一些示例可以在 [tboxedraster](#)^{→P.5}, [/tcb/raster multicolumn](#)^{→P.17}, [/tcb/raster multirow](#) 中找到。

16.6.1 Raster Setup 光栅设置

The intermediating `tcolorbox`^{→P.??} can be made invisible by using `/tcb/blankest`^{→P.??}.
通过使用 `/tcb/blankest`^{→P.??}, 可以使中间的 `tcolorbox`^{→P.??} 不可见。

```
\begin{tcbraster}[raster equal height=rows,
raster every box/.style={colframe=red!50!black,colback=red!10!white}]
\begin{tcolorbox}[blankest]
\begin{tcbraster}[raster columns=1]
\begin{tcolorbox}One\end{tcolorbox}
\begin{tcolorbox}Two\end{tcolorbox}
\end{tcbraster}
\end{tcolorbox}
\begin{tcolorbox}raster+tcolorbox+raster\end{tcolorbox}
\end{tcbraster}
```

One

raster+tcolorbox+raster

Two

```
\begin{tcbraster}[raster equal height=rows,
raster every box/.style={colframe=red!50!black,colback=red!10!white}]
\begin{tcbboxdraster}[raster columns=1]{blankest}
\begin{tcolorbox}One\end{tcolorbox}
\begin{tcolorbox}Two\end{tcolorbox}
\end{tcbboxdraster}
\begin{tcolorbox}raster+tcbboxdraster\end{tcolorbox}
\end{tcbraster}
```

One

raster+tcbboxdraster

Two

```
\begin{tcbitemize}[raster equal height=rows,
raster every box/.style={colframe=red!50!black,colback=red!10!white}]
\tcbitem[blankest]
\begin{tcbitemize}[raster columns=1]
\tcbitem One
\tcbitem Two
\end{tcbitemize}
\tcbitem tcbitemize+tcbitem+tcbitemize
\end{tcbitemize}
```

One

tcbitemize+tcbitem+tcbitemize

Two

16.6.2 Placing Spaces 放置空间

If the heights of boxes inside staggered rasters should be matched, the space has to be distributed accordingly.

如果需要匹配交错排列内部的盒子的高度，则必须相应地分配空间。

- For fixed height boxes/rasters using `/tcb/raster height→P.9`, the height of boxes is available by `\tcbtextheight→P.??`. This can be used to size deeper layered boxes/rasters. 对于使用 `/tcb/raster height→P.9` 的固定高度盒子/光栅, 可以通过 `\tcbtextheight→P.??` 获取盒子的高度。这可用于调整更深层的盒子/光栅的大小。
- For boxes/rasters layed out using `/tcb/raster equal height→P.13`, space can be distributed by `/tcb/space to→P.??`. It can take several compilations until all spaces are distributed correctly. 对于使用 `/tcb/raster equal height→P.13` 布局的盒子/光栅, 可以通过 `/tcb/space to→P.??` 分配间距。可能需要多次编译才能正确分配所有空间。

```
\begin{tcbitemize}[raster rows=2,raster height=6cm,  
raster every box/.style={colframe=red!50!black,colback=red!10!white}]  
\tcbitem[blankest]  
\begin{tcbitemize}[raster columns=1,raster rows=2,raster height=\tcbtextheight]  
\tcbitem One  
\tcbitem Two  
\end{tcbitemize}  
\tcbitem This is a fixed height box.  
\tcbitem Three  
\tcbitem Four  
\end{tcbitemize}
```

One

This is a fixed height box.

Two

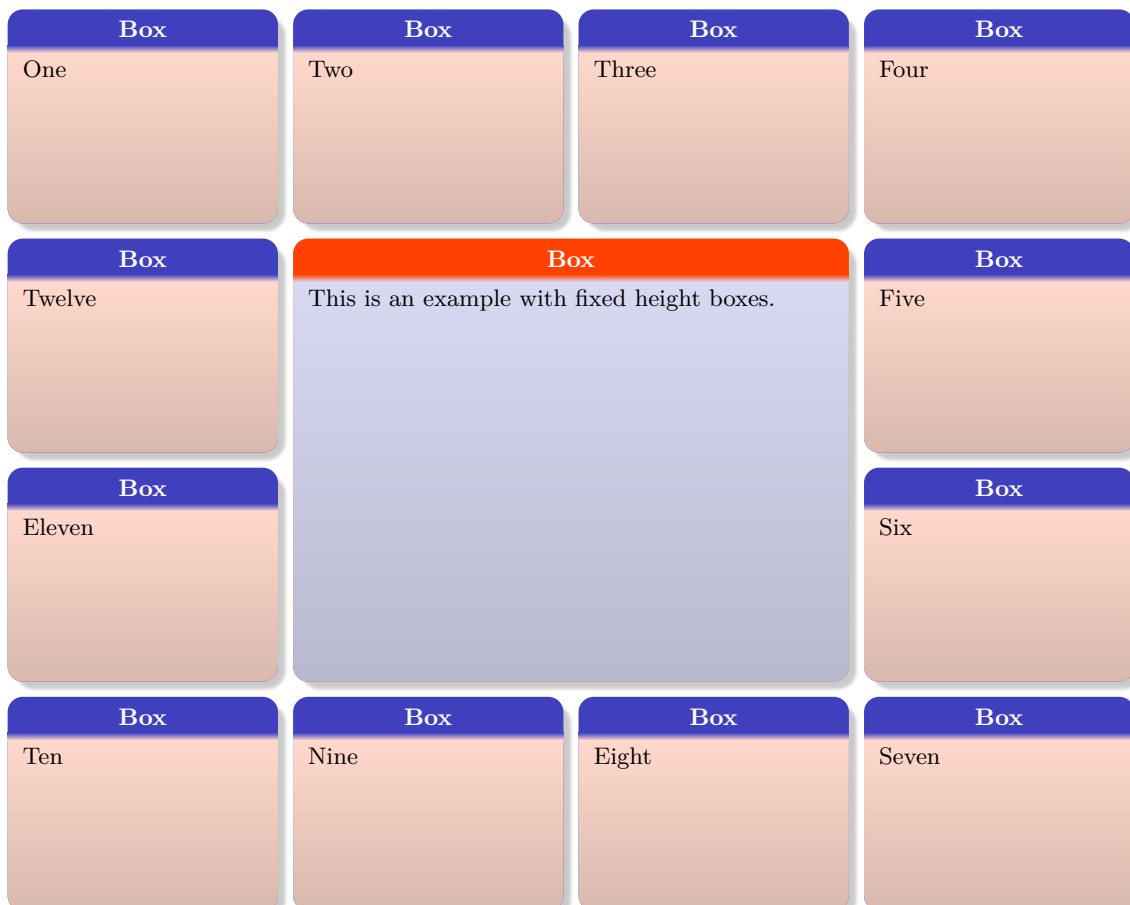
Three

Four

```

\begin{tcbitemize}[raster columns=4,raster rows=4,raster height=0.8\linewidth,
raster every box/.style={size=small,beamer,
colframe=blue!75!yellow,colback=red!75!yellow!20,
center title,title=Box}]
\tcbitem One
\tcbitem Two
\tcbitem Three
\tcbitem Four
\tcbitem[raster multirow=2,blankest]
\begin{tcbitemize}[raster columns=1,raster rows=2,raster height=\tcbtextheight]
\tcbitem Twelve
\tcbitem Eleven
\end{tcbitemize}
\tcbitem[raster multirow=2,raster multicolumn=2,
colframe=red!75!yellow,colback=blue!75!yellow!20]
This is an example with fixed height boxes.
\tcbitem[raster multirow=2,blankest]
\begin{tcbitemize}[raster columns=1,raster rows=2,raster height=\tcbtextheight]
\tcbitem Five
\tcbitem Six
\end{tcbitemize}
\tcbitem Ten
\tcbitem Nine
\tcbitem Eight
\tcbitem Seven
\end{tcbitemize}

```



```

\begin{tcbitemize}[raster equal height=rows,
raster every box/.style={colframe=red!50!black,colback=red!10!white}]
\tcbitem[blankest,space to=\myspace]
\begin{tcbitemize}[raster columns=1]
\tcbitem One
\tcbitem[add to natural height=\myspace]
This box will adapt its height.
\end{tcbitemize}
\tcbitem This is a flexible height box.
\tcbitem \lipsum[4]
\tcbitem[blankest,space to=\myspace]
\begin{tcbitemize}[raster columns=1]
\tcbitem One
\tcbitem[add to natural height=\myspace]
This box will adapt its height.
\end{tcbitemize}
\end{tcbitemize}

```

One

This is a flexible height box.

This box will adapt its height.

Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetur adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.

One

This box will adapt its height.


```

\begin{tcbitemize}[raster equal height=rows,
raster every box/.style={colframe=red!50!black,colback=red!10!white}]
\tcbitem[blankest,space to=\myspace]
\begin{tcbitemize}[raster columns=1]
\tcbitem One
\tcbitem[add to natural height=\myspace]
This box will adapt its height.
\tcbitem \lipsum[4]
\end{tcbitemize}
\tcbitem[blankest,space to=\myspace]
\begin{tcbitemize}[raster columns=1]
\tcbitem[blankest]\includegraphics[width=\linewidth]{goldshade.png}
\tcbitem[add to natural height=\myspace]
This box will adapt its height.
\end{tcbitemize}
\end{tcbitemize}

```

One

This box will adapt its height.

Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetur adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.



This box will adapt its height.