

The `tikzPackets` package

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This package provide command for simple build network packets illustration with `tikz`. Similar functionality (with tables instead of `tikz`) provide package `bytefield`.

1 Basic Example

```
\begin{tikzpicture}
  \packetsInit
  \packetsBitWidth=4.5mm
  \packetsPrintBitScale{31}

  \packetsPutField{16}{Source Port}
  \packetsPutField{16}{Destination Port}
  \packetsEndLine{0}{}

  \packetsPutField{16}{Length}
  \packetsPutField{16}{Checksum}
  \packetsEndLine{32}{}

  \packetsPutField[protocolsField, minimum height=1.5cm]{32}{Data}
  \packetsEndLine{64}{}
\end{tikzpicture}
```

0		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31
0	Source Port																Destination Port																																													
32	Length																Checksum																																													
64	Data																																																													

2 Macros description

2.1 `packetsInit`

`\packetsInit` is used to initialise `tikzPackets` variables, counters and `tikz` styles. Must be used in every `tikzpicture` that use `tikzPackets` package commands before any other `tikzPackets` command.

2.2 `packetsPrintBitScale`

`\packetsPrintBitScale` draw bits scale. It takes one argument: last bit value.

Formatting of bits scale can be adjust by redefine (after `\packetsInit`) `tikz` style `bitScaleInfo`, redefine `\packetsBitFont` or `\packetsPrintBitNumber` macro.

2.3 packetsPutField

`\packetsPutField` draw packet field. It takes 4 arguments:

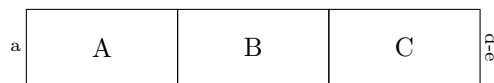
1. (optional) node style and formatting options
2. number of bits (width of field)
3. (optional) node name for new created node
4. name (text to display)

2.4 packetsPrintRangeOnLeft and packetsPrintRangeOnRight

`\packetsPrintRangeOnLeft` and `\packetsPrintRangeOnRight` prints info (start bit number or bits range) on left or right side of current line. Should be call after call all `\packetsPutField` \rightarrow `d` for this line. Both commands takes two arguments: first bit in line and last bit in line, but `\packetsPrintRangeOnLeft` ignore second argument.

Formatting of printing text can be adjust by redefine `\packetsBitFont` macro or redefine `\packetsPrintRangeOnLeft` / `\packetsPrintRangeOnRight` macros.

```
\begin{tikzpicture}
  \packetsInit
  \renewcommand{\packetsBitFont}{\scriptsize}
  \packetsPutField{4}{A} \packetsPutField{4}{B} \packetsPutField{4}{C}
  \packetsPrintRangeOnLeft{a}{b}
  \packetsPrintRangeOnRight{d}{e}
\end{tikzpicture}
```



2.5 packetsNextLine

`\packetsNextLine` end current line of field and prepare to start next line of field. It don't have arguments.

2.6 packetsEndLine

`\packetsEndLine` call `\packetsPrintRangeOnLeft` and `\packetsNextLine`. Arguments are passed to `\packetsPrintRangeOnLeft`.

2.7 packetsLastNode and packetsFirstNodeInLastLine

`\packetsLastNode` hold name of last added node by `\packetsPutField` or `\packetsPrintBitScale` \rightarrow `ale` (and is used for node positioning in `\packetsPutField` and `\packetsPrintRangeOnRight` macros).

`\packetsFirstNodeInLastLine` hold name of first node (added by macro `\packetsPutField` or `\packetsPrintBitScale`) in current line (and is used in `\packetsPutField` and `\packetsPrintRangeOnLeft` for positioning)

Both can be use for external to reference node adding by these macros (can be captured after add node by `\edef`) or can be used to start adding nodes by `\packetsPutField` relative to some manually added node.

```

\begin{tikzpicture}
  \packetsInit
  \packetsPutField{4}{A}
  \packetsPutField{4}{B}

  \node[
    align=left, anchor=north west,
    text width=7\packetsBitWidth, node font=\footnotesize
  ] [] at (\packetsFirstNodeInLastLine.south west) {
    Some extra info about this packet. And more more info \ldots
  };
\end{tikzpicture}

```

A	B
---	---

Some extra info about this packet. And more more info ...

3 Styles and dimmensions

Width of single bit is set by `\packetsBitWidth` and default is 5mm. Default style for node created by `\packetsPutField` is `protocolsField` and it set line height to 1cm. Package provide also `protocolsFieldBase` style with minimal setting for node style. Macro `\packetsBitFont` define font settings for bits info. All this change should be done after use `\packetsInit`.

```

\begin{tikzpicture}
  \packetsInit
  \tikzstyle{protocolsField}=[protocolsFieldBase, draw, minimum height = 0.8cm]
  \packetsBitWidth=10mm
  \renewcommand{\packetsBitFont}{\scriptsize\it}

  \packetsPrintBitScale{7}
  \packetsPutField{4}{Long field names}
  \packetsPutField{4}{and low rows}
\end{tikzpicture}

```

<i>0</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
Long field names				and low rows			