The `tikzPackets` package

Robert Ryszard Paciorek <rrp@opcode.eu.org>

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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}
```


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

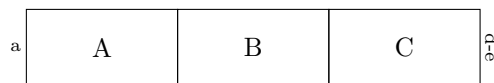`\packetsPutField` draw packet field. It takes 4 arguments:

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 `\packetsPutFiel`
↪ `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 `\pa`
↪ `cketsPrintRangeOnLeft` / `\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 `\packetsPrintBitSc`
↪ `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 `\packetsPri`
↪ `ntRangeOnLeft` 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 `pr ↪ otocolsFieldBase` 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}
```

0	1	2	3	4	5	6	7
Long field names				and low rows			