The currency package*

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1 Introduction

This package creates macros for defined currencies which follow the ISO 4217 codes, with various formatting options for both the currency (code, symbols, names, ...) and the numbers (using `siunitx`).

The currency code ISO 4217 specifies the code of the currency as a three-letters code. The first two ones are the code of the country according to ISO 3166. The last one is the name of the currency name.

2 Licence

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This work has the LPPL maintenance status 'maintained'.

The Current Maintainer of this work is Antoine Lejay.

3 Documentation and sources

This package is documented in `currency_doc`.

A source of this package is hosted in

`https://github.com/antoinelejay/currency`

*This document corresponds to currency v0.1, dated 2017/05/25.

4 Implementation

4.1 Dependencies

```
\RequirePackage{siunitx}
\RequirePackage{pgfkeys}
\RequirePackage{etoolbox}
\RequirePackage{xparse}
\RequirePackage{expl3}
\RequirePackage{textcomp}
\RequirePackage{eurosym}
```

The unit could be printed before or after

```
\newif\ifcurrencynumber
\pgfkeys{/currency/.cd,number/.is if=currencynumber,number=true}
\newif\ifprintbefore
\pgfkeys{/currency/pre/.is if=printbefore}
\pgfkeys{/currency/name/.initial=ZZZ}
\pgfkeys{/currency/symbol/.initial=\textcurrency}
```

Defines a style currency, which is general and empty. The styles are then called in order - the currency style - currency (initially empty) - the options passed to the command

```
\pgfkeys{/currency/currency/.style={}}
```

```
\newcommand{\CurrencySetup}[1]{%
    \pgfkeys{/currency/currency/.style={#1}}%
}
\newcommand{\CurrencySetupAppend}[1]{%
    \pgfkeys{/currency/currency/.append style={#1}}%
}
```

4.2 Names and symbols definitions

The commands `\currencyName`, `\currencyNames`, `\currencyISO` and `\currencySymbol` are used internally every time a currency is called to define the name, the plural, the ISO code and the symbol associated to a currency.

```
\pgfkeys{/currency/name/.store in=\currencyName}
\pgfkeys{/currency/plural/.store in=\currencyNames}
\pgfkeys{/currency/plural/.initial=\currencyName s}
\pgfkeys{/currency/iso/.store in=\currencyISO}
\pgfkeys{/currency/symbol/.store in=\currencySymbol}
```

4.3 Keys for formatting

Several keys are devoted to insert tokens before or after th unit and the amount, set up the font, ...

```
% between the symbol and the num if before
\pgfkeys{/currency/pre-between/.initial={~}}
% between the symbol and the num if after
\pgfkeys{/currency/post-between/.initial={~}}
```

```
% tokens that are inserted before
\pgfkeys{/currency/before/.initial={}}
% append to before
\pgfkeys{/currency/before+/.code={\pgfkeys{/currency/before/.append={#1}}}}
% prepend to before
\pgfkeys{/currency/before</.code={\pgfkeys{/currency/before/.prefix={#1}}}}
\pgfkeys{/currency/after/.initial={}} % tokens that are inserted after
% append to after
\pgfkeys{/currency/after+/.code={\pgfkeys{/currency/after/.append={#1}}}}
% prepend to after
\pgfkeys{/currency/after</.code={\pgfkeys{/currency/after/.prefix={#1}}}}
\pgfkeys{/currency/font/.initial={}} % for setting up the fonts
% append to the font definition
\pgfkeys{/currency/font+/.code={\pgfkeys{/currency/font/.append={#1}}}}
% the prefix before the name
\pgfkeys{/currency/prefix/.initial={}}
```

Several options are given for printing the kind of unit (`iso`, `plural`, `name`, `symbol`).

```
%
\pgfkeys{/currency/kind/.is choice}
\pgfkeys{/currency/kind/iso/.code=%
    {\def\currencyunit{\currencyISO}}}
\pgfkeys{/currency/kind/plural/.code=%
    {\def\currencyunit{\currencyNames}\printbeforefalse}}
\pgfkeys{/currency/kind/name/.code=%
    {\def\currencyunit{\currencyName}\printbeforefalse}}
\pgfkeys{/currency/kind/symbol/.code=%
    {\def\currencyunit{\currencySymbol}}}
\pgfkeys{/currency/kind=iso}
```

Options are also define for printing the cents (`true`, `false`, `always`).

```
\pgfkeys{/currency/cents/.is choice}
\pgfkeys{/currency/cents/true/.code=%
    {\sisetup{zero-decimal-to-integer=true}}}
\pgfkeys{/currency/cents/false/.code=%
    {\sisetup{zero-decimal-to-integer=true,round-precision=0}}}
\pgfkeys{/currency/cents/always/.code=%
    {\sisetup{zero-decimal-to-integer=false,round-integer-to-decimal=true}}}
\pgfkeys{/currency/cents=true}
```

4.4 Dealing with unknown keys

The unknown keys are passed to the `\num` command of `siunitx`, which use the LaTeX3 syntax and not the pgf one.

```
\ExplSyntaxOn
\pgfkeys{/currency/.unknown/.code={%
\edef\Unknown{\pgfkeyscurrentname=\pgfkeyscurrentvalue}%
\keys_set:nV {siunitx} {\Unknown}%
```

```
    }}%
\ExplSyntaxOff
```

4.5 Setting the precision

The key `base` is used to set the precision. Its value is passed to the key `round-precision` of `siunitx`.

```
\ExplSyntaxOn
\pgfkeys{/currency/base/.code={%
\edef\SetPrecision{round-precision=\pgfkeyscurrentvalue}%
\keys_set:nV {siunitx} {\SetPrecision}%
    }}%
\ExplSyntaxOff
```

4.6 Defining new currencies

The first argument is the name of the currency, normally its ISO symbol (3 letters). This commands defines two global commands.

`\DefineCurrency` Define the parameters for a new currency. The first parameter is a three letters code of type `XXX` (actually, it should by any suitable word). Global commands `\dXXX` (for printing currency with an amount) and `\cXXX` (for printing only the symbols) are then defined, as well as a style under the pgfkey `/currency/XXX`.

```
\newcommand{\DefineCurrency}[2]{%
\pgfkeys{/currency/#1/.style={#2}}%%
% define the currency with digits as \dXXX
\global\expandafter\DeclareDocumentCommand\csname d#1\endcsname{o m}{%
\begingroup%
% default parameters, to put outside
\sisetup{round-mode=places,round-precision=2}
\IfNoValueTF{##1}%
    {\pgfkeys{/currency/.cd,#1,currency}}%
    {\pgfkeys{/currency/.cd,#1,currency,##1}}%
\ifbool{currencynumber}%
    {\sisetup{parse-numbers=true}}%
    {\sisetup{parse-numbers=false}}%
\edef\value{##2}% store the value of the currency
%
\ifprintbefore%
% true clause / print the unit before
\pgfkeys{/currency/font}%
\pgfkeys{/currency/before}%
\text{\pgfkeys{/currency/prefix}\currencyunit}%
\pgfkeys{/currency/pre-between}%
\num{\value}\pgfkeys{/currency/after}%
\else% print the unit after
\pgfkeys{/currency/font}%
\pgfkeys{/currency/before}%
```

```
\num{\value}%
\pgfkeys{/currency/post-between}%
\text{\pgfkeys{/currency/prefix}\currencyunit}%
\pgfkeys{/currency/after}%
\fi%
\endgroup%
    }%
    % define the currency symbol as \cXXX with one optional argument
    \global\expandafter\DeclareDocumentCommand\csname c#1\endcsname{o}{%
\begingroup%
    \IfNoValueTF{##1}%
{\pgfkeys{/currency/.cd,#1,currency}}%
{\pgfkeys{/currency/.cd,#1,currency,##1}}%
    \pgfkeys{/currency/font}%
    \pgfkeys{/currency/before}%
    \text{\pgfkeys{/currency/prefix}\currencyunit}
\pgfkeys{/currency/after}%
\endgroup%
    }%
}%
```

4.7 Predefined styles

Some styles are defined to shorten the typesetting.

```
\pgfkeys{/currency/@iso/.style={kind=iso}}
\pgfkeys{/currency/@symb/.style={kind=symbol}}
\pgfkeys{/currency/@sy/.style={kind=symbol}}
\pgfkeys{/currency/@name/.style={kind=name}}
\pgfkeys{/currency/@na/.style={kind=name}}
\pgfkeys{/currency/@plural/.style={kind=plural}}
\pgfkeys{/currency/@pl/.style={kind=plural}}
```

Index

Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.

B

\begingroup 81, 111

C

\csname 80, 110
\currencyISO 24, 49
\currencyName 21, 23, 53
\currencyNames .. 22, 51
\CurrencySetup 15
\CurrencySetupAppend 18
\currencySymbol . 25, 55
\currencyunit 49, 51, 53, 55, 96, 104, 117
\cXXX 109

D

\DeclareDocumentCommand 80, 110
\def 49, 51, 53, 55
\DefineCurrency ... 77
\dXXX 79

E

\edef 67, 73, 90
\else 99
\endcsname 80, 110
\endgroup 107, 119
\expandafter ... 80, 110
\ExplSyntaxOff .. 70, 76
\ExplSyntaxOn ... 65, 71

F

\fi 106

G

\global 80, 110

I

\ifbool 87
\ifcurrencynumber . . 8
\IfNoValueTF . . . 84, 112
\ifprintbefore . . 10, 92

K

\keys 68, 74

N

\newif 8, 10
\num 98, 102

P

\pgfkeys 9, 11–14, 16, 19, 21–25, 27, 29, 31, 33, 35, 36, 38, 40, 41, 43, 45, 47, 48, 50, 52, 54, 56–58, 60, 62, 64, 66, 72, 78, 85, 86, 94–98, 100, 101, 103–105, 113–118, 122–128

\pgfkeyscurrentname 67

\pgfkeyscurrentvalue 67, 73

\printbeforefalse 51, 53

R

\RequirePackage . . . 1–7

S

\SetPrecision . . . 73, 74
\sisetup 59, 61, 63, 83, 88, 89

T

\text 96, 104, 117
\textcurrency 13

U

\Unknown 67, 68

V

\value 90, 98, 102