

Qwt User's Guide Reference Manual

5.0.2

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1 Qwt - Qt Widgets for Technical Applications

The Qwt library contains GUI Components and utility classes which are primarily useful for programs with a technical background. Beside a 2D plot widget it provides scales, sliders, dials, compasses, thermometers, wheels and knobs to control or display values, arrays, or ranges of type double.

1.1 Project page

The official project page is hosted at [sourceforge](#)

1.2 License

Qwt is distributed under the terms of the [Qwt License, Version 1.0](#).

1.3 Mailing list

For all kind of Qwt related questions there is a Qwt [mailing list](#).

1.4 Supported platforms

Qwt 5.x might be usable in all environments where you find a [Qt](#). It is compatible with Qt 3.3.x and Qt 4.x, but the documentation is generated for Qt 4.x.

1.5 Screenshots

- [Curve Plots](#)
- [Scatter Plot](#)
- [Spectrogram, Contour Plot](#)
- [Histogram](#)

- [Dials](#), [Compasses](#), [Knobs](#), [Wheels](#), [Sliders](#), [Thermos](#)

Screenshots are only available in the HTML docs.

1.6 Downloads

Stable releases, prereleases and snapshots are available at the [Qwt project page](#).

Qwt doesn't distribute binary packages, but below is an incomplete list of packagers : [Debian](#), [S.u.S.E](#), [Fedora](#), [Gentoo](#), [Fink](#), [Ubuntu](#).

For getting a 5.1 development snapshot from the SVN repository:

```
svn co https://qwt.svn.sourceforge.net/svnroot/qwt/trunk/qwt
```

For getting a snapshot with all bugfixes for the latest 5.0 release:

```
svn co https://qwt.svn.sourceforge.net/svnroot/qwt/branches/qwt-5.0
```

1.7 Installation

Have a look at the qwt.pro project file. It is prepared for building dynamic libraries in Win32 and Unix/X11 environments. If you don't know what to do with it, read the file [INSTALL](#) and/or Trolltechs [qmake](#) documentation. Once you have build the library you have to install all files from the lib, include and doc directories.

1.8 Related Projects

[QwtPlot3D](#), an OpenGL 3D plot widget.

[QtiPlot](#), data analysis and scientific plotting tool, using [QwtPlot](#).

1.9 Language Bindings

[PyQwt](#), a set of Qwt Python bindings.

[Korundum/QtRuby](#), including a set of Qwt Ruby bindings.

1.10 Credits:

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2 Qwt User's Guide Hierarchical Index

2.1 Qwt User's Guide Class Hierarchy

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3 Qwt User's Guide Class Index

3.1 Qwt User's Guide Class List

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4 Qwt User's Guide Page Index

4.1 Qwt User's Guide Related Pages

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5 Qwt User's Guide Class Documentation

5.1 QwtAbstractScale Class Reference

Inheritance diagram for QwtAbstractScale:



5.1.1 Detailed Description

An abstract base class for classes containing a scale.

[QwtAbstractScale](#) is used to provide classes with a [QwtScaleDraw](#), and a [QwtScaleDiv](#). The [QwtScaleDiv](#) might be set explicitly or calculated by a [QwtScaleEngine](#).

Definition at line 29 of file `qwt_abstract_scale.h`.

Public Member Functions

- [QwtAbstractScale](#) ()
- virtual [~QwtAbstractScale](#) ()
- void [setScale](#) (double vmin, double vmax, double step=0.0)
- void [setScale](#) (const [QwtDoubleInterval](#) &, double step=0.0)
- void [setScale](#) (const [QwtScaleDiv](#) &s)

- void [setAutoScale](#) ()
- bool [autoScale](#) () const
- void [setScaleMaxMajor](#) (int ticks)
- int [scaleMaxMinor](#) () const
- void [setScaleMaxMinor](#) (int ticks)
- int [scaleMaxMajor](#) () const
- void [setScaleEngine](#) (QwtScaleEngine *)
- const QwtScaleEngine * [scaleEngine](#) () const
- QwtScaleEngine * [scaleEngine](#) ()
- const QwtScaleMap & [scaleMap](#) () const

Protected Member Functions

- void [rescale](#) (double vmin, double vmax, double step=0.0)
- void [setAbstractScaleDraw](#) (QwtAbstractScaleDraw *)
- const QwtAbstractScaleDraw * [abstractScaleDraw](#) () const
- QwtAbstractScaleDraw * [abstractScaleDraw](#) ()
- virtual void [scaleChange](#) ()

5.1.2 Constructor & Destructor Documentation

5.1.2.1 QwtAbstractScale::QwtAbstractScale ()

Constructor

Creates a default [QwtScaleDraw](#) and a [QwtLinearScaleEngine](#). Autoscaling is enabled, and the stepSize is initialized by 0.0.

Definition at line 53 of file `qwt_abstract_scale.cpp`.

References [rescale\(\)](#).

5.1.2.2 QwtAbstractScale::~~QwtAbstractScale () [virtual]

Destructor.

Definition at line 60 of file `qwt_abstract_scale.cpp`.

5.1.3 Member Function Documentation

5.1.3.1 QwtAbstractScaleDraw * QwtAbstractScale::abstractScaleDraw () [protected]

Returns:

Scale draw

See also:

[setAbstractScaleDraw\(\)](#)

Definition at line 237 of file `qwt_abstract_scale.cpp`.

5.1.3.2 `const QwtAbstractScaleDraw * QwtAbstractScale::abstractScaleDraw () const`
[protected]

Returns:

Scale draw

See also:

[setAbstractScaleDraw\(\)](#)

Definition at line 246 of file `qwt_abstract_scale.cpp`.

Referenced by `QwtThermo::scaleDraw()`, `QwtSlider::scaleDraw()`, and `QwtKnob::scaleDraw()`.

5.1.3.3 `bool QwtAbstractScale::autoScale () const`

Returns:

`true` if autoscaling is enabled

Definition at line 159 of file `qwt_abstract_scale.cpp`.

Referenced by `QwtSlider::rangeChange()`, and `QwtThermo::setRange()`.

5.1.3.4 `void QwtAbstractScale::rescale (double vmin, double vmax, double stepSize = 0.0)`
[protected]

Recalculate the scale division and update the scale draw.

Parameters:

vmin Lower limit of the scale interval

vmax Upper limit of the scale interval

stepSize Major step size

See also:

[scaleChange\(\)](#)

Definition at line 127 of file `qwt_abstract_scale.cpp`.

References `scaleChange()`.

Referenced by `QwtAbstractScale()`, `QwtSlider::rangeChange()`, `QwtThermo::setRange()`, and `setScale()`.

5.1.3.5 `void QwtAbstractScale::scaleChange ()` [protected, virtual]

Notify changed scale.

Dummy empty implementation, intended to be overloaded by derived classes

Reimplemented in [QwtSlider](#), and [QwtThermo](#).

Definition at line 298 of file `qwt_abstract_scale.cpp`.

Referenced by `rescale()`, `setAutoScale()`, and `setScale()`.

5.1.3.6 [QwtScaleEngine](#) * QwtAbstractScale::scaleEngine ()

Returns:

Scale engine

See also:

[setScaleEngine\(\)](#)

Definition at line 288 of file qwt_abstract_scale.cpp.

5.1.3.7 const [QwtScaleEngine](#) * QwtAbstractScale::scaleEngine () const

Returns:

Scale engine

See also:

[setScaleEngine\(\)](#)

Definition at line 279 of file qwt_abstract_scale.cpp.

Referenced by QwtThermo::setRange(), and setScaleEngine().

5.1.3.8 const [QwtScaleMap](#) & QwtAbstractScale::scaleMap () const

Returns:

[abstractScaleDraw\(\)->scaleMap\(\)](#)

Definition at line 305 of file qwt_abstract_scale.cpp.

5.1.3.9 int QwtAbstractScale::scaleMaxMajor () const

Returns:

Max. number of major tick intervals The default value is 5.

Definition at line 213 of file qwt_abstract_scale.cpp.

5.1.3.10 int QwtAbstractScale::scaleMaxMinor () const

Returns:

Max. number of minor tick intervals The default value is 3.

Definition at line 204 of file qwt_abstract_scale.cpp.

5.1.3.11 void QwtAbstractScale::setAbstractScaleDraw ([QwtAbstractScaleDraw](#) * *scaleDraw*) [protected]

Set a scale draw.

scaleDraw has to be created with new and will be deleted in ~QwtAbstractScale or the next call of setAbstractScaleDraw.

Definition at line 224 of file qwt_abstract_scale.cpp.

Referenced by QwtThermo::setScaleDraw(), QwtSlider::setScaleDraw(), and QwtKnob::setScaleDraw().

5.1.3.12 void QwtAbstractScale::setAutoScale ()

Advise the widget to control the scale range internally.

Autoscaling is on by default.

See also:

[setScale\(\)](#), [autoScale\(\)](#)

Definition at line 147 of file qwt_abstract_scale.cpp.

References [scaleChange\(\)](#).

5.1.3.13 void QwtAbstractScale::setScale (const [QwtScaleDiv](#) & *scaleDiv*)

Specify a scale.

Disable autoscaling and define a scale by a scale division

Parameters:

scaleDiv Scale division

See also:

[setAutoScale\(\)](#)

Definition at line 107 of file qwt_abstract_scale.cpp.

References [scaleChange\(\)](#).

5.1.3.14 void QwtAbstractScale::setScale (const [QwtDoubleInterval](#) & *interval*, double *stepSize* = 0.0)

Specify a scale.

Disable autoscaling and define a scale by an interval and a step size

Parameters:

interval Interval

stepSize major step size

See also:

[setAutoScale\(\)](#)

Definition at line 92 of file qwt_abstract_scale.cpp.

References [QwtDoubleInterval::maxValue\(\)](#), [QwtDoubleInterval::minValue\(\)](#), and [setScale\(\)](#).

5.1.3.15 void QwtAbstractScale::setScale (double *vmin*, double *vmax*, double *stepSize* = 0.0)

Specify a scale.

Disable autoscaling and define a scale by an interval and a step size

Parameters:

vmin lower limit of the scale interval

vmax upper limit of the scale interval

stepSize major step size

See also:

[setAutoScale\(\)](#)

Definition at line 75 of file qwt_abstract_scale.cpp.

References [rescale\(\)](#).

Referenced by [setScale\(\)](#).

5.1.3.16 void QwtAbstractScale::setScaleEngine (QwtScaleEngine * *scaleEngine*)

Set a scale engine.

The scale engine is responsible for calculating the scale division, and in case of auto scaling how to align the scale.

scaleEngine has to be created with `new` and will be deleted in `~QwtAbstractScale` or the next call of `setScaleEngine`.

Definition at line 266 of file qwt_abstract_scale.cpp.

References [scaleEngine\(\)](#).

Referenced by [QwtThermo::setRange\(\)](#).

5.1.3.17 void QwtAbstractScale::setScaleMaxMajor (int *ticks*)

Set the maximum number of major tick intervals.

The scale's major ticks are calculated automatically such that the number of major intervals does not exceed ticks. The default value is 5.

Parameters:

ticks maximal number of major ticks.

See also:

[QwtAbstractScaleDraw](#)

Definition at line 173 of file qwt_abstract_scale.cpp.

5.1.3.18 void QwtAbstractScale::setScaleMaxMinor (int *ticks*)

Set the maximum number of minor tick intervals.

The scale's minor ticks are calculated automatically such that the number of minor intervals does not exceed ticks. The default value is 3.

Parameters:

ticks

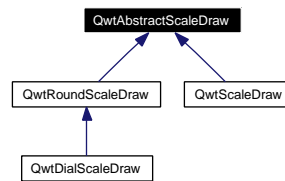
See also:

[QwtAbstractScaleDraw](#)

Definition at line 191 of file qwt_abstract_scale.cpp.

5.2 QwtAbstractScaleDraw Class Reference

Inheritance diagram for QwtAbstractScaleDraw:



5.2.1 Detailed Description

A abstract base class for drawing scales.

[QwtAbstractScaleDraw](#) can be used to draw linear or logarithmic scales.

After a scale division has been specified as a [QwtScaleDiv](#) object using [QwtAbstractScaleDraw::setScaleDiv\(const QwtScaleDiv &s\)](#), the scale can be drawn with the [QwtAbstractScaleDraw::draw\(\)](#) member.

Definition at line 37 of file `qwt_abstract_scale_draw.h`.

Public Types

- enum [ScaleComponent](#) {
Backbone = 1,
Ticks = 2,
Labels = 4 }

Public Member Functions

- [QwtAbstractScaleDraw](#) ()
- [QwtAbstractScaleDraw](#) (const [QwtAbstractScaleDraw](#) &)
- virtual [~QwtAbstractScaleDraw](#) ()
- [QwtAbstractScaleDraw](#) & operator= (const [QwtAbstractScaleDraw](#) &)
- void [setScaleDiv](#) (const [QwtScaleDiv](#) &s)
- const [QwtScaleDiv](#) & [scaleDiv](#) () const
- void [setTransformation](#) ([QwtScaleTransformation](#) *)
- const [QwtScaleMap](#) & [map](#) () const
- void [enableComponent](#) ([ScaleComponent](#), bool enable=true)
- bool [hasComponent](#) ([ScaleComponent](#)) const
- void [setTickLength](#) ([QwtScaleDiv::TickType](#), int length)
- int [tickLength](#) ([QwtScaleDiv::TickType](#)) const
- int [majTickLength](#) () const
- void [setSpacing](#) (int margin)
- int [spacing](#) () const
- virtual void [draw](#) (QPainter *, const QPalette &) const
- virtual [QwtText](#) [label](#) (double) const
- virtual int [extent](#) (const QPen &, const QFont &) const =0
- void [setMinimumExtent](#) (int)
- int [minimumExtent](#) () const
- [QwtScaleMap](#) & [scaleMap](#) ()

Protected Member Functions

- virtual void [drawTick](#) (QPainter *painter, double value, int len) const =0
- virtual void [drawBackbone](#) (QPainter *painter) const =0
- virtual void [drawLabel](#) (QPainter *painter, double value) const =0
- void [invalidateCache](#) ()
- const [QwtText](#) & [tickLabel](#) (const QFont &, double value) const

5.2.2 Member Enumeration Documentation

5.2.2.1 enum [QwtAbstractScaleDraw::ScaleComponent](#)

Components of a scale

- Backbone
- Ticks
- Label

See also:

[QwtAbstractScaleDraw::enableComponent](#), [QwtAbstractScaleDraw::hasComponent](#)

Definition at line 52 of file `qwt_abstract_scale_draw.h`.

5.2.3 Constructor & Destructor Documentation

5.2.3.1 [QwtAbstractScaleDraw::QwtAbstractScaleDraw \(\)](#)

Constructor.

The range of the scale is initialized to [0, 100], The spacing (distance between ticks and labels) is set to 4, the tick lengths are set to 4,6 and 8 pixels

Definition at line 54 of file `qwt_abstract_scale_draw.cpp`.

5.2.3.2 [QwtAbstractScaleDraw::QwtAbstractScaleDraw \(const \[QwtAbstractScaleDraw\]\(#\) &\)](#)

Copy constructor.

Definition at line 60 of file `qwt_abstract_scale_draw.cpp`.

References `d_data`.

5.2.3.3 [QwtAbstractScaleDraw::~QwtAbstractScaleDraw \(\)](#) [virtual]

Destructor.

Definition at line 66 of file `qwt_abstract_scale_draw.cpp`.

5.2.4 Member Function Documentation

5.2.4.1 void [QwtAbstractScaleDraw::draw](#) (QPainter * *painter*, const [QPalette](#) & *palette*) const [virtual]

Draw the scale.

Parameters:

painter The painter

palette Palette, text color is used for the labels, foreground color for ticks and backbone

Definition at line 164 of file qwt_abstract_scale_draw.cpp.

Referenced by QwtThermo::draw(), QwtSlider::draw(), and QwtKnob::draw().

5.2.4.2 virtual void QwtAbstractScaleDraw::drawBackbone (QPainter * *painter*) const
[protected, pure virtual]

Draws the baseline of the scale

Parameters:

painter Painter

See also:

[drawTick\(\)](#), [drawLabel\(\)](#)

Implemented in [QwtRoundScaleDraw](#), and [QwtScaleDraw](#).

5.2.4.3 virtual void QwtAbstractScaleDraw::drawLabel (QPainter * *painter*, double *value*) const
[protected, pure virtual]

Draws the label for a major scale tick

Parameters:

painter Painter

value Value

See also:

[drawTick](#), [drawBackbone](#)

Implemented in [QwtRoundScaleDraw](#), and [QwtScaleDraw](#).

5.2.4.4 virtual void QwtAbstractScaleDraw::drawTick (QPainter * *painter*, double *value*, int *len*) const
[protected, pure virtual]

Draw a tick

Parameters:

painter Painter

value Value of the tick

len Length of the tick

See also:

[drawBackbone\(\)](#), [drawLabel\(\)](#)

Implemented in [QwtRoundScaleDraw](#), and [QwtScaleDraw](#).

5.2.4.5 `void QwtAbstractScaleDraw::enableComponent (ScaleComponent component, bool enable = true)`

En/Disable a component of the scale

Parameters:

component Scale component

enable On/Off

See also:

[QwtAbstractScaleDraw::hasComponent](#)

Definition at line 85 of file `qwt_abstract_scale_draw.cpp`.

Referenced by `QwtDial::setScaleOptions()`.

5.2.4.6 `virtual int QwtAbstractScaleDraw::extent (const QPen &, const QFont &) const` [pure virtual]

Calculate the extent

The extent is the distance from the baseline to the outermost pixel of the scale draw in opposite to its orientation. It is at least [minimumExtent\(\)](#) pixels.

See also:

[setMinimumExtent\(\)](#), [minimumExtent\(\)](#)

Implemented in [QwtRoundScaleDraw](#), and [QwtScaleDraw](#).

5.2.4.7 `bool QwtAbstractScaleDraw::hasComponent (ScaleComponent component) const`

Check if a component is enabled

See also:

[QwtAbstractScaleDraw::enableComponent](#)

Definition at line 98 of file `qwt_abstract_scale_draw.cpp`.

Referenced by `QwtRoundScaleDraw::drawLabel()`, `QwtScaleDraw::extent()`, `QwtRoundScaleDraw::extent()`, `QwtScaleDraw::getBorderDistHint()`, `QwtScaleDraw::labelPosition()`, `QwtScaleDraw::minLabelDist()`, and `QwtScaleDraw::minLength()`.

5.2.4.8 `void QwtAbstractScaleDraw::invalidateCache ()` [protected]

Invalidate the cache used by [QwtAbstractScaleDraw::tickLabel](#)

The cache is invalidated, when a new [QwtScaleDiv](#) is set. If the labels need to be changed. while the same [QwtScaleDiv](#) is set, [QwtAbstractScaleDraw::invalidateCache](#) needs to be called manually.

Definition at line 402 of file `qwt_abstract_scale_draw.cpp`.

5.2.4.9 `QwtText QwtAbstractScaleDraw::label (double value) const` [virtual]

Convert a value into its representing label.

The value is converted to a plain text using `QString::number(value)`. This method is often overloaded by applications to have individual labels.

Parameters:

value Value

Returns:

Label string.

Reimplemented in [QwtDialScaleDraw](#).

Definition at line 359 of file qwt_abstract_scale_draw.cpp.

Referenced by [QwtRoundScaleDraw::drawLabel\(\)](#), [QwtRoundScaleDraw::extent\(\)](#), [QwtDialScaleDraw::label\(\)](#), and [tickLabel\(\)](#).

5.2.4.10 int QwtAbstractScaleDraw::majTickLength () const

The same as [QwtAbstractScaleDraw::tickLength\(QwtScaleDiv::MajorTick\)](#).

Definition at line 344 of file qwt_abstract_scale_draw.cpp.

Referenced by [QwtRoundScaleDraw::drawLabel\(\)](#), [QwtScaleDraw::extent\(\)](#), and [QwtScaleDraw::labelPosition\(\)](#).

5.2.4.11 const [QwtScaleMap](#) & QwtAbstractScaleDraw::map () const**Returns:**

Map how to translate between scale and pixel values

Definition at line 125 of file qwt_abstract_scale_draw.cpp.

Referenced by [QwtRoundScaleDraw::drawBackbone\(\)](#), [QwtScaleWidget::drawColorBar\(\)](#), [QwtRoundScaleDraw::drawLabel\(\)](#), [QwtScaleDraw::drawTick\(\)](#), [QwtRoundScaleDraw::drawTick\(\)](#), [QwtRoundScaleDraw::extent\(\)](#), [QwtScaleDraw::getBorderDistHint\(\)](#), [QwtScaleDraw::labelPosition\(\)](#), and [QwtScaleWidget::setScaleDiv\(\)](#).

5.2.4.12 int QwtAbstractScaleDraw::minimumExtent () const

Get the minimum extent

See also:

[extent\(\)](#), [setMinimumExtent\(\)](#)

Definition at line 292 of file qwt_abstract_scale_draw.cpp.

Referenced by [QwtScaleDraw::extent\(\)](#).

5.2.4.13 [QwtAbstractScaleDraw](#) & QwtAbstractScaleDraw::operator= (const [QwtAbstractScaleDraw](#) &)

Assignment operator.

Definition at line 71 of file qwt_abstract_scale_draw.cpp.

References [d_data](#).

5.2.4.14 `const QwtScaleDiv & QwtAbstractScaleDraw::scaleDiv () const`

Returns:

scale division

Definition at line 137 of file `qwt_abstract_scale_draw.cpp`.

Referenced by `QwtRoundScaleDraw::extent()`, `QwtScaleDraw::getBorderDistHint()`, `QwtScaleDraw::maxLabelHeight()`, `QwtScaleDraw::maxLabelWidth()`, `QwtScaleDraw::minLabelDist()`, `QwtScaleDraw::minLength()`, `QwtScaleWidget::setScaleDiv()`, and `QwtPlot::sizeHint()`.

5.2.4.15 `QwtScaleMap & QwtAbstractScaleDraw::scaleMap ()`

Returns:

Map how to translate between scale and pixel values

Definition at line 131 of file `qwt_abstract_scale_draw.cpp`.

Referenced by `QwtScaleDraw::drawTick()`, `QwtRoundScaleDraw::QwtRoundScaleDraw()`, and `QwtRoundScaleDraw::setAngleRange()`.

5.2.4.16 `void QwtAbstractScaleDraw::setMinimumExtent (int minExtent)`

Set a minimum for the extent.

The extent is calculated from the components of the scale draw. In situations, where the labels are changing and the layout depends on the extent (f.e scrolling a scale), setting an upper limit as minimum extent will avoid jumps of the layout.

Parameters:

minExtent Minimum extent

See also:

[extent\(\)](#), [minimumExtent\(\)](#)

Definition at line 280 of file `qwt_abstract_scale_draw.cpp`.

5.2.4.17 `void QwtAbstractScaleDraw::setScaleDiv (const QwtScaleDiv & sd)`

Change the scale division

Parameters:

sd New scale division

Definition at line 107 of file `qwt_abstract_scale_draw.cpp`.

References `QwtScaleDiv::hBound()`, and `QwtScaleDiv::lBound()`.

Referenced by `QwtScaleWidget::setScaleDiv()`.

5.2.4.18 `void QwtAbstractScaleDraw::setSpacing (int spacing)`

Set the spacing between tick and labels.

The spacing is the distance between ticks and labels. The default spacing is 4 pixels.

Parameters:

spacing Spacing

See also:

[QwtAbstractScaleDraw::spacing](#)

Definition at line 246 of file qwt_abstract_scale_draw.cpp.

5.2.4.19 void QwtAbstractScaleDraw::setTickLength (QwtScaleDiv::TickType tickType, int length)

Set the length of the ticks

Parameters:

tickType Tick type

length New length

Warning:

the length is limited to [0..1000]

Definition at line 305 of file qwt_abstract_scale_draw.cpp.

Referenced by QwtDial::setScaleTicks().

5.2.4.20 void QwtAbstractScaleDraw::setTransformation (QwtScaleTransformation * transformation)

Change the transformation of the scale

Parameters:

transformation New scale transformation

Definition at line 118 of file qwt_abstract_scale_draw.cpp.

Referenced by QwtScaleWidget::setScaleDiv().

5.2.4.21 int QwtAbstractScaleDraw::spacing () const

Get the spacing.

The spacing is the distance between ticks and labels. The default spacing is 4 pixels.

See also:

[QwtAbstractScaleDraw::setSpacing](#)

Definition at line 262 of file qwt_abstract_scale_draw.cpp.

Referenced by QwtRoundScaleDraw::drawLabel(), QwtScaleDraw::extent(), and QwtScaleDraw::labelPosition().

5.2.4.22 const QwtText & QwtAbstractScaleDraw::tickLabel (const QFont & font, double value) const [protected]

Convert a value into its representing label and cache it.

The conversion between value and label is called very often in the layout and painting code. Unfortunately the calculation of the label sizes might be slow (really slow for rich text in Qt4), so it's necessary to cache the labels.

Parameters:

font Font
value Value

Returns:

Tick label

Definition at line 377 of file qwt_abstract_scale_draw.cpp.

References `label()`, and `QwtText::setRenderFlags()`.

Referenced by `QwtScaleDraw::drawLabel()`, `QwtRoundScaleDraw::drawLabel()`, `QwtRoundScaleDraw::extent()`, and `QwtScaleDraw::labelRect()`.

5.2.4.23 int QwtAbstractScaleDraw::tickLength (QwtScaleDiv::TickType tickType) const

Return the length of the ticks

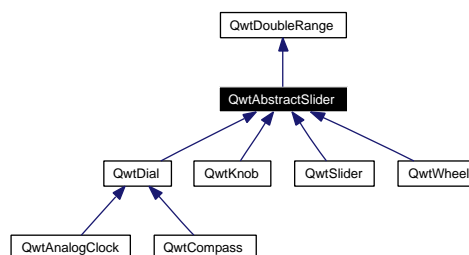
See also:

[QwtAbstractScaleDraw::setTickLength](#), [QwtAbstractScaleDraw::majTickLength](#)

Definition at line 330 of file qwt_abstract_scale_draw.cpp.

5.3 QwtAbstractSlider Class Reference

Inheritance diagram for QwtAbstractSlider:



Collaboration diagram for QwtAbstractSlider:



5.3.1 Detailed Description

An abstract base class for slider widgets.

[QwtAbstractSlider](#) is a base class for slider widgets. It handles mouse events and updates the slider's value accordingly. Derived classes only have to implement the [getValue\(\)](#) and [getScrollMode\(\)](#) members, and should react to a [valueChange\(\)](#), which normally requires repainting.

Definition at line 28 of file `qwt_abstract_slider.h`.

Public Types

- enum [ScrollMode](#) {
 ScrNone,
 ScrMouse,
 ScrTimer,
 ScrDirect,
 ScrPage }

Public Slots

- virtual void [setValue](#) (double val)
- virtual void [fitValue](#) (double val)
- virtual void [incValue](#) (int steps)
- virtual void [setReadOnly](#) (bool)

Signals

- void [valueChanged](#) (double value)
- void [sliderPressed](#) ()
- void [sliderReleased](#) ()
- void [sliderMoved](#) (double value)

Public Member Functions

- [QwtAbstractSlider](#) (Qt::Orientation, QWidget *parent=NULL)
- virtual [~QwtAbstractSlider](#) ()
- void [setUpdateTime](#) (int t)
- void [stopMoving](#) ()
- void [setTracking](#) (bool enable)
- virtual void [setMass](#) (double val)
- virtual double [mass](#) () const
- virtual void [setOrientation](#) (Qt::Orientation o)
- Qt::Orientation [orientation](#) () const
- bool [isReadOnly](#) () const
- bool [isValid](#) () const
- void [setValid](#) (bool valid)

Protected Member Functions

- virtual void [setPosition](#) (const QPoint &)
- virtual void [valueChange](#) ()
- virtual void [timerEvent](#) (QTimerEvent *e)
- virtual void [mousePressEvent](#) (QMouseEvent *e)
- virtual void [mouseReleaseEvent](#) (QMouseEvent *e)
- virtual void [mouseMoveEvent](#) (QMouseEvent *e)
- virtual void [keyPressEvent](#) (QKeyEvent *e)
- virtual void [wheelEvent](#) (QWheelEvent *e)
- virtual double [getValue](#) (const QPoint &p)=0
- virtual void [getScrollMode](#) (const QPoint &p, int &scrollMode, int &direction)=0
- void [setMouseOffset](#) (double)
- double [mouseOffset](#) () const
- int [scrollMode](#) () const

5.3.2 Member Enumeration Documentation

5.3.2.1 enum [QwtAbstractSlider::ScrollMode](#)

Scroll mode

See also:

[getScrollMode\(\)](#)

Definition at line 50 of file qwt_abstract_slider.h.

5.3.3 Constructor & Destructor Documentation

5.3.3.1 [QwtAbstractSlider::QwtAbstractSlider](#) (Qt::Orientation *orientation*, QWidget * *parent* = NULL) [[explicit](#)]

Constructor.

Parameters:

orientation Orientation

parent Parent widget

Definition at line 54 of file qwt_abstract_slider.cpp.

5.3.3.2 [QwtAbstractSlider::~~QwtAbstractSlider](#) () [[virtual](#)]

Destructor.

Definition at line 68 of file qwt_abstract_slider.cpp.

5.3.4 Member Function Documentation

5.3.4.1 void [QwtAbstractSlider::fitValue](#) (double *value*) [[virtual](#), [slot](#)]

Set the slider's value to the nearest integer multiple of the step size.

Parameters:*value* Value**See also:**[setValue\(\)](#), [incValue\(\)](#)Reimplemented from [QwtDoubleRange](#).Definition at line 550 of file `qwt_abstract_slider.cpp`.References [QwtDoubleRange::fitValue\(\)](#), and [stopMoving\(\)](#).**5.3.4.2 virtual void QwtAbstractSlider::getScrollMode (const QPoint & *p*, int & *scrollMode*, int & *direction*)** [protected, pure virtual]

Determine what to do when the user presses a mouse button.

This function is abstract and has to be implemented by derived classes. It is called on a `mousePressEvent`. The derived class can determine what should happen next in dependence of the position where the mouse was pressed by returning scrolling mode and direction. [QwtAbstractSlider](#) knows the following modes:

QwtAbstractSlider::ScrNone Scrolling switched off. Don't change the value.**QwtAbstractSlider::ScrMouse** Change the value while the user keeps the button pressed and moves the mouse.**QwtAbstractSlider::ScrTimer** Automatic scrolling. Increment the value in the specified direction as long as the user keeps the button pressed.**QwtAbstractSlider::ScrPage** Automatic scrolling. Same as `ScrTimer`, but increment by page size.**Parameters:***p* point where the mouse was pressed**Return values:***scrollMode* The scrolling mode*direction* direction: 1, 0, or -1.Implemented in [QwtDial](#), [QwtSlider](#), and [QwtWheel](#).Referenced by [mousePressEvent\(\)](#), and [wheelEvent\(\)](#).**5.3.4.3 virtual double QwtAbstractSlider::getValue (const QPoint & *p*)** [protected, pure virtual]

Determine the value corresponding to a specified point.

This is an abstract virtual function which is called when the user presses or releases a mouse button or moves the mouse. It has to be implemented by the derived class.

Parameters:*p* pointImplemented in [QwtDial](#), [QwtSlider](#), and [QwtWheel](#).Referenced by [mousePressEvent\(\)](#), and [setPosition\(\)](#).

5.3.4.4 void QwtAbstractSlider::incValue (int steps) [virtual, slot]

Increment the value by a specified number of steps.

Parameters:

steps number of steps

See also:

[setValue\(\)](#)

Reimplemented from [QwtDoubleRange](#).

Definition at line 562 of file qwt_abstract_slider.cpp.

References [QwtDoubleRange::incValue\(\)](#), and [stopMoving\(\)](#).

5.3.4.5 bool QwtAbstractSlider::isReadOnly () const

In read only mode the slider can't be controlled by mouse or keyboard.

Returns:

true if read only

See also:

[setReadOnly\(\)](#)

Definition at line 98 of file qwt_abstract_slider.cpp.

Referenced by [QwtDial::drawFocusIndicator\(\)](#), [QwtDial::keyPressEvent\(\)](#), [QwtCompass::keyPressEvent\(\)](#), [keyPressEvent\(\)](#), [mouseMoveEvent\(\)](#), [mousePressEvent\(\)](#), [mouseReleaseEvent\(\)](#), and [wheelEvent\(\)](#).

5.3.4.6 bool QwtAbstractSlider::isValid () const [inline]**See also:**

[QwtDblRange::isValid](#)

Reimplemented from [QwtDoubleRange](#).

Definition at line 87 of file qwt_abstract_slider.h.

References [QwtDoubleRange::isValid\(\)](#).

Referenced by [QwtDial::drawContents\(\)](#), [QwtKnob::drawKnob\(\)](#), [QwtAnalogClock::drawNeedle\(\)](#), [QwtCompass::drawScaleContents\(\)](#), [QwtSlider::drawSlider\(\)](#), [QwtDial::keyPressEvent\(\)](#), [keyPressEvent\(\)](#), [mouseMoveEvent\(\)](#), [mousePressEvent\(\)](#), [mouseReleaseEvent\(\)](#), and [wheelEvent\(\)](#).

5.3.4.7 void QwtAbstractSlider::keyPressEvent (QKeyEvent * e) [protected, virtual]

Handles key events

- Key_Down, Key_Left
Decrement by 1
- Key_Up, Key_Right
Increment by 1

Parameters:

e Key event

See also:

[isReadOnly\(\)](#)

Reimplemented in [QwtCompass](#), and [QwtDial](#).

Definition at line 371 of file qwt_abstract_slider.cpp.

References [isReadOnly\(\)](#), [isValid\(\)](#), and [orientation\(\)](#).

5.3.4.8 double QwtAbstractSlider::mass () const [virtual]**Returns:**

mass

See also:

[setMass\(\)](#)

Reimplemented in [QwtWheel](#).

Definition at line 521 of file qwt_abstract_slider.cpp.

Referenced by [QwtWheel::mass\(\)](#).

5.3.4.9 void QwtAbstractSlider::mouseMoveEvent (QMouseEvent * *e*) [protected, virtual]

Mouse Move Event handler

Parameters:

e Mouse event

Definition at line 305 of file qwt_abstract_slider.cpp.

References [QwtDoubleRange::exactPrevValue\(\)](#), [QwtDoubleRange::exactValue\(\)](#), [isReadOnly\(\)](#), [isValid\(\)](#), [QwtDoubleRange::prevValue\(\)](#), [setPosition\(\)](#), [sliderMoved\(\)](#), and [QwtDoubleRange::value\(\)](#).

5.3.4.10 void QwtAbstractSlider::mousePressEvent (QMouseEvent * *e*) [protected, virtual]

Mouse press event handler.

Definition at line 147 of file qwt_abstract_slider.cpp.

References [getScrollMode\(\)](#), [getValue\(\)](#), [isReadOnly\(\)](#), [isValid\(\)](#), [sliderPressed\(\)](#), [stopMoving\(\)](#), and [QwtDoubleRange::value\(\)](#).

5.3.4.11 void QwtAbstractSlider::mouseReleaseEvent (QMouseEvent * *e*) [protected, virtual]

Mouse Release Event handler.

Definition at line 196 of file qwt_abstract_slider.cpp.

References [QwtDoubleRange::fitValue\(\)](#), [QwtDoubleRange::incPages\(\)](#), [isReadOnly\(\)](#), [isValid\(\)](#), [setPosition\(\)](#), [sliderReleased\(\)](#), [QwtDoubleRange::step\(\)](#), [stopMoving\(\)](#), and [QwtDoubleRange::value\(\)](#).

5.3.4.12 Qt::Orientation QwtAbstractSlider::orientation () const

Returns:

Orientation

See also:

[setOrientation\(\)](#)

Definition at line 117 of file qwt_abstract_slider.cpp.

Referenced by [QwtSlider::drawSlider\(\)](#), [QwtSlider::drawThumb\(\)](#), [QwtWheel::drawWheel\(\)](#), [QwtWheel::drawWheelBackground\(\)](#), [QwtWheel::getValue\(\)](#), [QwtSlider::getValue\(\)](#), [keyPressEvent\(\)](#), [QwtSlider::layoutSlider\(\)](#), [QwtWheel::minimumSizeHint\(\)](#), [QwtSlider::minimumSizeHint\(\)](#), [QwtWheel::setOrientation\(\)](#), and [QwtSlider::setOrientation\(\)](#).

5.3.4.13 void QwtAbstractSlider::setMass (double *val*) [virtual]

Set the slider's mass for flywheel effect.

If the slider's mass is greater than 0, it will continue to move after the mouse button has been released. Its speed decreases with time at a rate depending on the slider's mass. A large mass means that it will continue to move for a long time.

Derived widgets may overload this function to make it public.

Parameters:

val New mass in kg

See also:

[mass\(\)](#)

Reimplemented in [QwtWheel](#).

Definition at line 507 of file qwt_abstract_slider.cpp.

Referenced by [QwtWheel::setMass\(\)](#).

5.3.4.14 void QwtAbstractSlider::setOrientation (Qt::Orientation *o*) [virtual]

Set the orientation.

Parameters:

o Orientation. Allowed values are [Qt::Horizontal](#) and [Qt::Vertical](#).

Reimplemented in [QwtSlider](#), and [QwtWheel](#).

Definition at line 108 of file qwt_abstract_slider.cpp.

Referenced by [QwtWheel::setOrientation\(\)](#), and [QwtSlider::setOrientation\(\)](#).

5.3.4.15 void QwtAbstractSlider::setPosition (const QPoint & *p*) [protected, virtual]

Move the slider to a specified point, adjust the value and emit signals if necessary.

Definition at line 276 of file qwt_abstract_slider.cpp.

References [QwtDoubleRange::fitValue\(\)](#), and [getValue\(\)](#).

Referenced by [mouseMoveEvent\(\)](#), and [mouseReleaseEvent\(\)](#).

5.3.4.16 void QwtAbstractSlider::setReadOnly (bool *readOnly*) [virtual, slot]

En/Disable read only mode

In read only mode the slider can't be controlled by mouse or keyboard.

Parameters:

readOnly Enables in case of true

See also:

[isReadOnly\(\)](#)

Definition at line 85 of file qwt_abstract_slider.cpp.

5.3.4.17 void QwtAbstractSlider::setTracking (bool *enable*)

Enables or disables tracking.

If tracking is enabled, the slider emits a [valueChanged\(\)](#) signal whenever its value changes (the default behaviour). If tracking is disabled, the value changed() signal will only be emitted if:

- the user releases the mouse button and the value has changed or
- at the end of automatic scrolling.

Tracking is enabled by default.

Parameters:

enable true (enable) or false (disable) tracking.

Definition at line 296 of file qwt_abstract_slider.cpp.

5.3.4.18 void QwtAbstractSlider::setUpdateTime (int *t*)

Specify the update interval for automatic scrolling.

Parameters:

t update interval in milliseconds

See also:

[getScrollMode\(\)](#)

Definition at line 138 of file qwt_abstract_slider.cpp.

5.3.4.19 void QwtAbstractSlider::setValid (bool *valid*) [inline]**See also:**

[QwtDbfRange::isValid](#)

Reimplemented from [QwtDoubleRange](#).

Definition at line 92 of file qwt_abstract_slider.h.

References [QwtDoubleRange::setValid\(\)](#).

5.3.4.20 void QwtAbstractSlider::setValue (double *val*) [virtual, slot]

Move the slider to a specified value.

This function can be used to move the slider to a value which is not an integer multiple of the step size.

Parameters:

val new value

See also:

[fitValue\(\)](#)

Reimplemented from [QwtDoubleRange](#).

Definition at line 535 of file qwt_abstract_slider.cpp.

References [QwtDoubleRange::setValue\(\)](#), and [stopMoving\(\)](#).

Referenced by [QwtDial::keyPressEvent\(\)](#), and [QwtAnalogClock::setTime\(\)](#).

5.3.4.21 void QwtAbstractSlider::sliderMoved (double *value*) [signal]

This signal is emitted when the user moves the slider with the mouse.

Parameters:

value new value

Referenced by [mouseMoveEvent\(\)](#), and [wheelEvent\(\)](#).

5.3.4.22 void QwtAbstractSlider::sliderPressed () [signal]

This signal is emitted when the user presses the movable part of the slider (start ScrMouse Mode).

Referenced by [mousePressEvent\(\)](#).

5.3.4.23 void QwtAbstractSlider::sliderReleased () [signal]

This signal is emitted when the user releases the movable part of the slider.

Referenced by [mouseReleaseEvent\(\)](#).

5.3.4.24 void QwtAbstractSlider::stopMoving ()

Stop updating if automatic scrolling is active.

Definition at line 124 of file qwt_abstract_slider.cpp.

Referenced by [fitValue\(\)](#), [incValue\(\)](#), [mousePressEvent\(\)](#), [mouseReleaseEvent\(\)](#), [setValue\(\)](#), and [timerEvent\(\)](#).

5.3.4.25 void QwtAbstractSlider::timerEvent (QTimerEvent * *e*) [protected, virtual]

Qt timer event

Parameters:

e Timer event

Definition at line 417 of file qwt_abstract_slider.cpp.

References [QwtDoubleRange::exactValue\(\)](#), [QwtDoubleRange::fitValue\(\)](#), [QwtDoubleRange::incPages\(\)](#), [QwtDoubleRange::step\(\)](#), [stopMoving\(\)](#), and [QwtDoubleRange::value\(\)](#).

5.3.4.26 void QwtAbstractSlider::valueChange () [protected, virtual]

Notify change of value

This function can be reimplemented by derived classes in order to keep track of changes, i.e. repaint the widget. The default implementation emits a [valueChanged\(\)](#) signal if tracking is enabled.

Reimplemented from [QwtDoubleRange](#).

Reimplemented in [QwtDial](#), [QwtSlider](#), and [QwtWheel](#).

Definition at line 484 of file qwt_abstract_slider.cpp.

References [QwtDoubleRange::value\(\)](#), and [valueChanged\(\)](#).

Referenced by [QwtWheel::valueChange\(\)](#), [QwtSlider::valueChange\(\)](#), and [QwtDial::valueChange\(\)](#).

5.3.4.27 void QwtAbstractSlider::valueChanged (double value) [signal]

Notify a change of value.

In the default setting (tracking enabled), this signal will be emitted every time the value changes (see [setTracking\(\)](#)).

Parameters:

value new value

Referenced by [valueChange\(\)](#).

5.3.4.28 void QwtAbstractSlider::wheelEvent (QWheelEvent * e) [protected, virtual]

Wheel Event handler

Parameters:

e Whell event

Definition at line 336 of file qwt_abstract_slider.cpp.

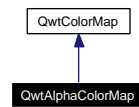
References [getScrollMode\(\)](#), [QwtDoubleRange::incPages\(\)](#), [isReadOnly\(\)](#), [isValid\(\)](#), [QwtDoubleRange::prevValue\(\)](#), [sliderMoved\(\)](#), and [QwtDoubleRange::value\(\)](#).

5.4 QwtAlphaColorMap Class Reference

Inheritance diagram for QwtAlphaColorMap:



Collaboration diagram for QwtAlphaColorMap:



5.4.1 Detailed Description

[QwtAlphaColorMap](#) varies the alpha value of a color.

Definition at line 160 of file `qwt_color_map.h`.

Public Member Functions

- [QwtAlphaColorMap](#) (const QColor &=QColor(Qt::gray))
- [QwtAlphaColorMap](#) (const [QwtAlphaColorMap](#) &)
- virtual [~QwtAlphaColorMap](#) ()
- [QwtAlphaColorMap](#) & operator= (const [QwtAlphaColorMap](#) &)
- virtual [QwtColorMap](#) * copy () const
- void [setColor](#) (const QColor &)
- QColor [color](#) () const
- virtual QRgb [rgb](#) (const [QwtDoubleInterval](#) &, double value) const

5.4.2 Constructor & Destructor Documentation

5.4.2.1 [QwtAlphaColorMap::QwtAlphaColorMap](#) (const QColor & *color* = QColor(Qt::gray))

Constructor

Parameters:

color Color of the map

Definition at line 402 of file `qwt_color_map.cpp`.

Referenced by `copy()`.

5.4.2.2 [QwtAlphaColorMap::QwtAlphaColorMap](#) (const [QwtAlphaColorMap](#) & *other*)

Copy constructor

Parameters:

other Other color map

Definition at line 414 of file `qwt_color_map.cpp`.

5.4.2.3 [QwtAlphaColorMap::~QwtAlphaColorMap](#) () [virtual]

Destructor.

Definition at line 422 of file `qwt_color_map.cpp`.

5.4.3 Member Function Documentation

5.4.3.1 QColor QwtAlphaColorMap::color () const

Returns:

the color

See also:

[setColor\(\)](#)

Definition at line 465 of file qwt_color_map.cpp.

5.4.3.2 QwtColorMap * QwtAlphaColorMap::copy () const [virtual]

Clone the color map.

Implements [QwtColorMap](#).

Definition at line 441 of file qwt_color_map.cpp.

References [QwtAlphaColorMap\(\)](#).

5.4.3.3 QwtAlphaColorMap & QwtAlphaColorMap::operator= (const QwtAlphaColorMap & other)

Assignment operator

Parameters:

other Other color map

Returns:

*this

Definition at line 432 of file qwt_color_map.cpp.

References [d_data](#).

5.4.3.4 QRgb QwtAlphaColorMap::rgb (const QwtDoubleInterval & interval, double value) const [virtual]

Map a value of a given interval into a alpha value.

$\text{alpha} := (\text{value} - \text{interval.minValue}()) / \text{interval.width}();$

Parameters:

interval Range for all values

value Value to map into a rgb value

Returns:

rgb value, with an alpha value

Implements [QwtColorMap](#).

Definition at line 479 of file qwt_color_map.cpp.

References [QwtDoubleInterval::isValid\(\)](#), [QwtDoubleInterval::minValue\(\)](#), and [QwtDoubleInterval::width\(\)](#).

5.4.3.5 void QwtAlphaColorMap::setColor (const QColor & color)

Set the color

Parameters:

color Color

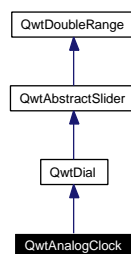
See also:

[color\(\)](#)

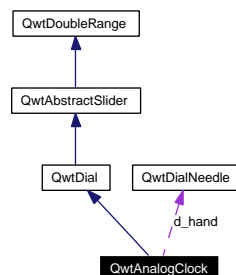
Definition at line 455 of file qwt_color_map.cpp.

5.5 QwtAnalogClock Class Reference

Inheritance diagram for QwtAnalogClock:



Collaboration diagram for QwtAnalogClock:



5.5.1 Detailed Description

An analog clock.

Example

```

#include <qwt_analog_clock.h>

QwtAnalogClock *clock = new QwtAnalogClock(...);
clock->scaleDraw()->setPenWidth(3);
clock->setLineWidth(6);
clock->setFrameShadow(QwtDial::Sunken);
clock->setTime();

// update the clock every second

```

```
QTimer *timer = new QTimer(clock);
timer->connect(timer, SIGNAL(timeout()), clock, SLOT(setCurrentTime()));
timer->start(1000);
```

Qwt is missing a set of good looking hands. Contributions are very welcome.

Note:

The examples/dials example shows how to use [QwtAnalogClock](#).

Definition at line 45 of file qwt_analog_clock.h.

Public Types

- enum [Hand](#) {
 SecondHand,
 MinuteHand,
 HourHand,
 NHands }

Public Slots

- void [setCurrentTime](#) ()
- void [setTime](#) (const QTime &=QTime::currentTime())

Public Member Functions

- [QwtAnalogClock](#) (QWidget *parent=NULL)
- virtual [~QwtAnalogClock](#) ()
- virtual void [setHand](#) ([Hand](#), [QwtDialNeedle](#) *)
- const [QwtDialNeedle](#) * [hand](#) ([Hand](#)) const
- [QwtDialNeedle](#) * [hand](#) ([Hand](#))

Protected Member Functions

- virtual [QwtText](#) [scaleLabel](#) (double) const
- virtual void [drawNeedle](#) (QPainter *, const QPoint &, int radius, double direction, QPalette::ColorGroup) const
- virtual void [drawHand](#) (QPainter *, [Hand](#), const QPoint &, int radius, double direction, QPalette::ColorGroup) const

5.5.2 Member Enumeration Documentation**5.5.2.1 enum [QwtAnalogClock::Hand](#)**

Hand type

See also:

[setHand\(\)](#), [hand\(\)](#)

Definition at line 55 of file qwt_analog_clock.h.

5.5.3 Constructor & Destructor Documentation

5.5.3.1 QwtAnalogClock::QwtAnalogClock (QWidget * *parent* = NULL) [explicit]

Constructor

Parameters:

parent Parent widget

Definition at line 16 of file qwt_analog_clock.cpp.

5.5.3.2 QwtAnalogClock::~QwtAnalogClock () [virtual]

Destructor.

Definition at line 82 of file qwt_analog_clock.cpp.

5.5.4 Member Function Documentation

5.5.4.1 void QwtAnalogClock::drawHand (QPainter * *painter*, **Hand** *hd*, const QPoint & *center*, int *radius*, double *direction*, QPalette::ColorGroup *cg*) const [protected, virtual]

Draw a clock hand

Parameters:

painter Painter

hd Specify the type of hand

center Center of the clock

radius Maximum length for the hands

direction Direction of the hand in degrees, counter clockwise

cg ColorGroup

Definition at line 220 of file qwt_analog_clock.cpp.

References QwtDialNeedle::draw(), hand(), and QwtDial::needle().

Referenced by drawNeedle().

5.5.4.2 void QwtAnalogClock::drawNeedle (QPainter * *painter*, const QPoint & *center*, int *radius*, double *direction*, QPalette::ColorGroup *cg*) const [protected, virtual]

Draw the needle.

A clock has no single needle but three hands instead. drawNeedle translates [value\(\)](#) into directions for the hands and calls [drawHand\(\)](#).

Parameters:

painter Painter

center Center of the clock

radius Maximum length for the hands

direction Dummy, not used.

cg ColorGroup

See also:

[QwtAnalogClock::drawHand\(\)](#)

Reimplemented from [QwtDial](#).

Definition at line 191 of file qwt_analog_clock.cpp.

References [drawHand\(\)](#), [QwtAbstractSlider::isValid\(\)](#), [QwtDial::origin\(\)](#), and [QwtDoubleRange::value\(\)](#).

5.5.4.3 [QwtDialNeedle](#) * QwtAnalogClock::hand ([Hand](#) *hd*)

Returns:

Clock hand

Parameters:

hd Specifies the type of hand

See also:

[QwtAnalogClock::setHand](#)

Definition at line 118 of file qwt_analog_clock.cpp.

5.5.4.4 const [QwtDialNeedle](#) * QwtAnalogClock::hand ([Hand](#) *hd*) const

Returns:

Clock hand

Parameters:

hd Specifies the type of hand

See also:

[QwtAnalogClock::setHand](#)

Definition at line 131 of file qwt_analog_clock.cpp.

Referenced by [drawHand\(\)](#).

5.5.4.5 [QwtText](#) QwtAnalogClock::scaleLabel (double *value*) const [protected, virtual]

Find the scale label for a given value

Parameters:

value Value

Returns:

Label

Reimplemented from [QwtDial](#).

Definition at line 168 of file qwt_analog_clock.cpp.

5.5.4.6 void QwtAnalogClock::setCurrentTime () [slot]

Set the current time.

This is the same as [QwtAnalogClock::setTime\(\)](#), but Qt < 3.0 can't handle default parameters for slots.

Definition at line 142 of file qwt_analog_clock.cpp.

References [setTime\(\)](#).

5.5.4.7 void QwtAnalogClock::setHand (Hand hand, QwtDialNeedle * needle) [virtual]

Set a clockhand

Parameters:

hand Specifies the type of hand

needle Hand

See also:

[QwtAnalogClock::hand\(\)](#)

Definition at line 104 of file qwt_analog_clock.cpp.

References [QwtDial::needle\(\)](#).

5.5.4.8 void QwtAnalogClock::setTime (const QTime & time = QTime::currentTime()) [slot]

Set a time

Parameters:

time Time to display

Definition at line 151 of file qwt_analog_clock.cpp.

References [QwtAbstractSlider::setValue\(\)](#).

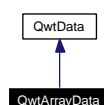
Referenced by [setCurrentTime\(\)](#).

5.6 QwtArrayData Class Reference

Inheritance diagram for QwtArrayData:



Collaboration diagram for QwtArrayData:



5.6.1 Detailed Description

Data class containing two `QwtArray<double>` objects.

Definition at line 119 of file `qwt_data.h`.

Public Member Functions

- [QwtArrayData](#) (const `QwtArray< double >` &`x`, const `QwtArray< double >` &`y`)
- [QwtArrayData](#) (const double *`x`, const double *`y`, `size_t` `size`)
- [QwtArrayData](#) & [operator=](#) (const [QwtArrayData](#) &)
- virtual [QwtData](#) * [copy](#) () const
- virtual `size_t` [size](#) () const
- virtual double [x](#) (`size_t` `i`) const
- virtual double [y](#) (`size_t` `i`) const
- const `QwtArray< double >` & [xData](#) () const
- const `QwtArray< double >` & [yData](#) () const
- virtual `QwtDoubleRect` [boundingRect](#) () const

5.6.2 Constructor & Destructor Documentation

5.6.2.1 QwtArrayData::QwtArrayData (const QwtArray< double > &`x`, const QwtArray< double > &`y`)

Constructor

Parameters:

- `x` Array of `x` values
- `y` Array of `y` values

See also:

[QwtPlotCurve::setData](#)

Definition at line 141 of file `qwt_data.cpp`.

Referenced by `copy()`.

5.6.2.2 QwtArrayData::QwtArrayData (const double *`x`, const double *`y`, `size_t` `size`)

Constructor

Parameters:

- `x` Array of `x` values
- `y` Array of `y` values
- `size` Size of the `x` and `y` arrays

See also:

[QwtPlotCurve::setData](#)

Definition at line 156 of file `qwt_data.cpp`.

5.6.3 Member Function Documentation

5.6.3.1 `QwtDoubleRect QwtArrayData::boundingRect () const` [virtual]

Returns the bounding rectangle of the data. If there is no bounding rect, like for empty data the rectangle is invalid: `QwtDoubleRect::isValid() == false`

Reimplemented from [QwtData](#).

Definition at line 237 of file `qwt_data.cpp`.

References `size()`.

5.6.3.2 `QwtData * QwtArrayData::copy () const` [virtual]

Returns:

Pointer to a copy (virtual copy constructor)

Implements [QwtData](#).

Definition at line 227 of file `qwt_data.cpp`.

References `QwtArrayData()`.

5.6.3.3 `QwtArrayData & QwtArrayData::operator= (const QwtArrayData &)`

Assignment.

Definition at line 174 of file `qwt_data.cpp`.

References `d_x`, and `d_y`.

5.6.3.4 `size_t QwtArrayData::size () const` [virtual]

Returns:

Size of the data set

Implements [QwtData](#).

Definition at line 185 of file `qwt_data.cpp`.

Referenced by `boundingRect()`.

5.6.3.5 `double QwtArrayData::x (size_t i) const` [virtual]

Return the x value of data point `i`

Parameters:

`i` Index

Returns:

x X value of data point `i`

Implements [QwtData](#).

Definition at line 196 of file `qwt_data.cpp`.

5.6.3.6 `const QwtArray< double > & QwtArrayData::xData () const`

Returns:

Array of the x-values

Definition at line 213 of file qwt_data.cpp.

5.6.3.7 `double QwtArrayData::y (size_t i) const` `[virtual]`

Return the y value of data point i

Parameters:

i Index

Returns:

y Y value of data point i

Implements [QwtData](#).

Definition at line 207 of file qwt_data.cpp.

5.6.3.8 `const QwtArray< double > & QwtArrayData::yData () const`

Returns:

Array of the y-values

Definition at line 219 of file qwt_data.cpp.

5.7 QwtArrowButton Class Reference

5.7.1 Detailed Description

Arrow Button.

A push button with one or more filled triangles on its front. An Arrow button can have 1 to 3 arrows in a row, pointing up, down, left or right.

Definition at line 23 of file qwt_arrow_button.h.

Public Member Functions

- [QwtArrowButton](#) (int num, Qt::ArrowType, QWidget *parent=NULL)
- virtual [~QwtArrowButton](#) ()
- Qt::ArrowType [arrowType](#) () const
- int [num](#) () const
- virtual QSize [sizeHint](#) () const
- virtual QSize [minimumSizeHint](#) () const

Protected Member Functions

- virtual void [paintEvent](#) (QPaintEvent *event)
- virtual void [drawButtonLabel](#) (QPainter *p)
- virtual void [drawArrow](#) (QPainter *, const QRect &, Qt::ArrowType) const
- virtual QRect [labelRect](#) () const
- virtual QSize [arrowSize](#) (Qt::ArrowType, const QSize &boundingSize) const
- virtual void [keyPressEvent](#) (QKeyEvent *)

5.7.2 Constructor & Destructor Documentation

5.7.2.1 QwtArrowButton::QwtArrowButton (int *num*, Qt::ArrowType *arrowType*, QWidget * *parent* = NULL) [explicit]

Parameters:

num Number of arrows

arrowType see Qt::ArrowType in the Qt docs.

parent Parent widget

Definition at line 58 of file qwt_arrow_button.cpp.

5.7.2.2 QwtArrowButton::~QwtArrowButton () [virtual]

Destructor.

Definition at line 83 of file qwt_arrow_button.cpp.

5.7.3 Member Function Documentation

5.7.3.1 QSize QwtArrowButton::arrowSize (Qt::ArrowType *arrowType*, const QSize & *boundingSize*) const [protected, virtual]

Calculate the size for a arrow that fits into a rect of a given size

Parameters:

arrowType Arrow type

boundingSize Bounding size

Returns:

Size of the arrow

Definition at line 331 of file qwt_arrow_button.cpp.

Referenced by [drawButtonLabel\(\)](#), and [minimumSizeHint\(\)](#).

5.7.3.2 Qt::ArrowType QwtArrowButton::arrowType () const

The direction of the arrows.

Definition at line 92 of file qwt_arrow_button.cpp.

5.7.3.3 void QwtArrowButton::drawArrow (QPainter * *painter*, const QRect & *r*, Qt::ArrowType *arrowType*) const [protected, virtual]

Draw an arrow into a bounding rect

Parameters:

painter Painter

r Rectangle where to paint the arrow

arrowType Arrow type

Definition at line 240 of file qwt_arrow_button.cpp.

Referenced by drawButtonLabel().

5.7.3.4 void QwtArrowButton::drawButtonLabel (QPainter * *painter*) [protected, virtual]

Draw the button label.

Parameters:

painter Painter

See also:

The Qt Manual on QPushButton

Definition at line 157 of file qwt_arrow_button.cpp.

References arrowSize(), drawArrow(), and labelRect().

Referenced by paintEvent().

5.7.3.5 void QwtArrowButton::keyPressEvent (QKeyEvent *) [protected, virtual]

autoRepeat for the space keys

Definition at line 361 of file qwt_arrow_button.cpp.

5.7.3.6 QRect QwtArrowButton::labelRect () const [protected, virtual]

Returns:

the bounding rect for the label

Definition at line 108 of file qwt_arrow_button.cpp.

Referenced by drawButtonLabel().

5.7.3.7 QSize QwtArrowButton::minimumSizeHint () const [virtual]

Return a minimum size hint.

Definition at line 294 of file qwt_arrow_button.cpp.

References arrowSize().

Referenced by sizeHint().

5.7.3.8 int QwtArrowButton::num () const

The number of arrows.

Definition at line 100 of file qwt_arrow_button.cpp.

5.7.3.9 void QwtArrowButton::paintEvent (QPaintEvent * event) [protected, virtual]

Paint event handler

Parameters:

event Paint event

Definition at line 143 of file qwt_arrow_button.cpp.

References drawButtonLabel().

5.7.3.10 QSize QwtArrowButton::sizeHint () const [virtual]**Returns:**

a size hint

Definition at line 286 of file qwt_arrow_button.cpp.

References minimumSizeHint().

5.8 QwtColorMap Class Reference

Inheritance diagram for QwtColorMap:

**5.8.1 Detailed Description**

[QwtColorMap](#) is used to map values into colors.

For displaying 3D data on a 2D plane the 3rd dimension is often displayed using colors, like f.e in a spectrogram.

Each color map is optimized to return colors for only one of the following image formats:

- QImage::Format_Indexed8
- QImage::Format_ARGB32

See also:

[QwtPlotSpectrogram](#), [QwtScaleWidget](#)

Definition at line 44 of file qwt_color_map.h.

Public Types

- enum [Format](#) {
 RGB,
 Indexed }

Public Member Functions

- [QwtColorMap](#) ([Format](#)=[QwtColorMap::RGB](#))
- virtual [~QwtColorMap](#) ()
- [Format](#) [format](#) () const
- virtual [QwtColorMap](#) * [copy](#) () const =0
- virtual [QRgb](#) [rgb](#) (const [QwtDoubleInterval](#) &interval, double value) const =0
- virtual unsigned char [colorIndex](#) (const [QwtDoubleInterval](#) &interval, double value) const =0
- [QColor](#) [color](#) (const [QwtDoubleInterval](#) &, double value) const
- virtual [QVector](#)< [QRgb](#) > [colorTable](#) (const [QwtDoubleInterval](#) &) const

5.8.2 Member Enumeration Documentation

5.8.2.1 enum [QwtColorMap::Format](#)

- **RGB**
The map is intended to map into [QRgb](#) values.
- **Indexed**
The map is intended to map into 8 bit values, that are indices into the color table.

See also:

[rgb\(\)](#), [colorIndex\(\)](#), [colorTable\(\)](#)

Definition at line 57 of file [qwt_color_map.h](#).

5.8.3 Constructor & Destructor Documentation

5.8.3.1 [QwtColorMap::QwtColorMap](#) ([Format](#) = [QwtColorMap::RGB](#))

Constructor.

Definition at line 164 of file [qwt_color_map.cpp](#).

5.8.3.2 [QwtColorMap::~QwtColorMap](#) () [virtual]

Destructor.

Definition at line 170 of file [qwt_color_map.cpp](#).

5.8.4 Member Function Documentation

5.8.4.1 QColor QwtColorMap::color (const [QwtDoubleInterval](#) & *interval*, double *value*) const [inline]

Map a value into a color

Parameters:

interval Valid interval for values

value Value

Returns:

Color corresponding to value

Warning:

This method is slow for Indexed color maps. If it is necessary to map many values, its better to get the color table once and find the color using [colorIndex\(\)](#).

Definition at line 198 of file qwt_color_map.h.

References [colorIndex\(\)](#), [colorTable\(\)](#), and [rgb\(\)](#).

5.8.4.2 virtual unsigned char QwtColorMap::colorIndex (const [QwtDoubleInterval](#) & *interval*, double *value*) const [pure virtual]

Map a value of a given interval into a color index

Parameters:

interval Range for the values

value Value

Returns:

color index, corresponding to value

Implemented in [QwtLinearColorMap](#).

Referenced by [color\(\)](#), and [QwtPainter::drawColorBar\(\)](#).

5.8.4.3 QwtColorTable QwtColorMap::colorTable (const [QwtDoubleInterval](#) & *interval*) const [virtual]

Build and return a color map of 256 colors

The color table is needed for rendering indexed images in combination with using [colorIndex\(\)](#).

Parameters:

interval Range for the values

Returns:

A color table, that can be used for a QImage

Definition at line 183 of file qwt_color_map.cpp.

References [QwtDoubleInterval::isValid\(\)](#), [QwtDoubleInterval::minValue\(\)](#), [rgb\(\)](#), and [QwtDoubleInterval::width\(\)](#).

Referenced by [color\(\)](#), and [QwtPainter::drawColorBar\(\)](#).

5.8.4.4 `virtual QwtColorMap* QwtColorMap::copy () const` [pure virtual]

Clone the color map.

Implemented in [QwtLinearColorMap](#), and [QwtAlphaColorMap](#).

Referenced by [QwtScaleWidget::setColorMap\(\)](#), and [QwtPlotSpectrogram::setColorMap\(\)](#).

5.8.4.5 `QwtColorMap::Format QwtColorMap::format () const` [inline]**Returns:**

Intended format of the color map

See also:

[Format](#)

Definition at line 216 of file `qwt_color_map.h`.

Referenced by [QwtPainter::drawColorBar\(\)](#).

5.8.4.6 `virtual QRgb QwtColorMap::rgb (const QwtDoubleInterval & interval, double value) const` [pure virtual]

Map a value of a given interval into a rgb value.

Parameters:

interval Range for the values

value Value

Returns:

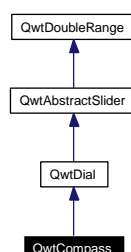
rgb value, corresponding to value

Implemented in [QwtLinearColorMap](#), and [QwtAlphaColorMap](#).

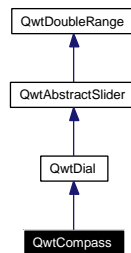
Referenced by [color\(\)](#), [colorTable\(\)](#), and [QwtPainter::drawColorBar\(\)](#).

5.9 QwtCompass Class Reference

Inheritance diagram for QwtCompass:



Collaboration diagram for QwtCompass:



5.9.1 Detailed Description

A Compass Widget.

[QwtCompass](#) is a widget to display and enter directions. It consists of a scale, an optional needle and rose.

Note:

The examples/dials example shows how to use [QwtCompass](#).

Definition at line 48 of file qwt_compass.h.

Public Member Functions

- [QwtCompass](#) (QWidget *parent=NULL)
- virtual [~QwtCompass](#) ()
- void [setRose](#) ([QwtCompassRose](#) *rose)
- const [QwtCompassRose](#) * [rose](#) () const
- [QwtCompassRose](#) * [rose](#) ()
- const QMap< double, QString > & [labelMap](#) () const
- QMap< double, QString > & [labelMap](#) ()
- void [setLabelMap](#) (const QMap< double, QString > &map)

Protected Member Functions

- virtual [QwtText](#) [scaleLabel](#) (double value) const
- virtual void [drawRose](#) (QPainter *, const QPoint ¢er, int radius, double north, QPalette::ColorGroup) const
- virtual void [drawScaleContents](#) (QPainter *, const QPoint ¢er, int radius) const
- virtual void [keyPressEvent](#) (QKeyEvent *)

5.9.2 Constructor & Destructor Documentation

5.9.2.1 QwtCompass::QwtCompass (QWidget *parent = NULL) [explicit]

Constructor.

Parameters:

parent Parent widget

Create a compass widget with a scale, no needle and no rose. The default origin is 270.0 with no valid value. It accepts mouse and keyboard inputs and has no step size. The default mode is [QwtDial::RotateNeedle](#).

Definition at line 50 of file qwt_compass.cpp.

5.9.2.2 QwtCompass::~~QwtCompass () [virtual]

Destructor.

Definition at line 77 of file qwt_compass.cpp.

5.9.3 Member Function Documentation

5.9.3.1 void QwtCompass::drawRose (QPainter * *painter*, const QPoint & *center*, int *radius*, double *north*, QPalette::ColorGroup *cg*) const [protected, virtual]

Draw the compass rose

Parameters:

painter Painter

center Center of the compass

radius of the circle, where to paint the rose

north Direction pointing north, in degrees counter clockwise

cg Color group

Definition at line 143 of file qwt_compass.cpp.

Referenced by drawScaleContents().

5.9.3.2 void QwtCompass::drawScaleContents (QPainter *, const QPoint & *center*, int *radius*) const [protected, virtual]

Draw the contents of the scale.

Reimplemented from [QwtDial](#).

Definition at line 114 of file qwt_compass.cpp.

References [drawRose\(\)](#), [QwtAbstractSlider::isValid\(\)](#), [QwtDial::mode\(\)](#), [QwtDial::origin\(\)](#), and [QwtDoubleRange::value\(\)](#).

5.9.3.3 void QwtCompass::keyPressEvent (QKeyEvent * *kev*) [protected, virtual]

Handles key events

Beside the keys described in [QwtDial::keyPressEvent](#) numbers from 1-9 (without 5) set the direction according to their position on the num pad.

See also:

[isReadOnly\(\)](#)

Reimplemented from [QwtDial](#).

Definition at line 196 of file qwt_compass.cpp.

References [QwtAbstractSlider::isReadOnly\(\)](#).

5.9.3.4 QMap< double, QString > & QwtCompass::labelMap ()

Returns:

map, mapping values to labels

See also:

[setLabelMap\(\)](#)

Definition at line 265 of file qwt_compass.cpp.

5.9.3.5 `const QMap< double, QString > & QwtCompass::labelMap () const`

Returns:

map, mapping values to labels

See also:

[setLabelMap\(\)](#)

Definition at line 256 of file qwt_compass.cpp.

5.9.3.6 `QwtCompassRose * QwtCompass::rose ()`

Returns:

rose

See also:

[setRose\(\)](#)

Definition at line 182 of file qwt_compass.cpp.

5.9.3.7 `const QwtCompassRose * QwtCompass::rose () const`

Returns:

rose

See also:

[setRose\(\)](#)

Definition at line 173 of file qwt_compass.cpp.

Referenced by [setRose\(\)](#).

5.9.3.8 `QwtText QwtCompass::scaleLabel (double value) const` [protected, virtual]

Map a value to a corresponding label

Parameters:

value Value that will be mapped

Returns:

Label, or QString::null

label() looks in a map for a corresponding label for value or return an null text.

See also:

[labelMap\(\)](#), [setLabelMap\(\)](#)

Reimplemented from [QwtDial](#).

Definition at line 297 of file qwt_compass.cpp.

5.9.3.9 void QwtCompass::setLabelMap (const QMap< double, QString > & map)

Set a map, mapping values to labels.

Parameters:

map value to label map

The values of the major ticks are found by looking into this map. The default map consists of the labels N, NE, E, SE, S, SW, W, NW.

Warning:

The map will have no effect for values that are no major tick values. Major ticks can be changed by QwtScaleDraw::setScale

See also:

[labelMap\(\)](#), [scaleDraw\(\)](#), [setScale\(\)](#)

Definition at line 282 of file qwt_compass.cpp.

5.9.3.10 void QwtCompass::setRose (QwtCompassRose * rose)

Set a rose for the compass

Parameters:

rose Compass rose

Warning:

The rose will be deleted, when a different rose is set or in ~QwtCompass

See also:

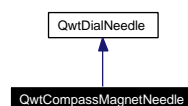
[rose\(\)](#)

Definition at line 157 of file qwt_compass.cpp.

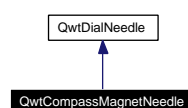
References [rose\(\)](#).

5.10 QwtCompassMagnetNeedle Class Reference

Inheritance diagram for QwtCompassMagnetNeedle:



Collaboration diagram for QwtCompassMagnetNeedle:



5.10.1 Detailed Description

A magnet needle for compass widgets.

A magnet needle points to two opposite directions indicating north and south.

The following colors are used:

- `QColorGroup::Light`
Used for pointing south
- `QColorGroup::Dark`
Used for pointing north
- `QColorGroup::Base`
Knob (ThinStyle only)

See also:

[QwtDial](#), [QwtCompass](#)

Definition at line 125 of file `qwt_dial_needle.h`.

Public Types

- enum `Style` {
 TriangleStyle,
 ThinStyle }

Public Member Functions

- [QwtCompassMagnetNeedle](#) (`Style=TriangleStyle`, const `QColor` &`light=Qt::white`, const `QColor` &`dark=Qt::red`)
- virtual void [draw](#) (`QPainter *`, const `QPoint` &, int `length`, double `direction`, `QPalette::ColorGroup=QPalette::Active`) const

Static Public Member Functions

- static void [drawTriangleNeedle](#) (`QPainter *`, const `QPalette` &, `QPalette::ColorGroup`, const `QPoint` &, int `length`, double `direction`)
- static void [drawThinNeedle](#) (`QPainter *`, const `QPalette` &, `QPalette::ColorGroup`, const `QPoint` &, int `length`, double `direction`)

Static Protected Member Functions

- static void [drawPointer](#) (`QPainter *painter`, const `QBrush` &`brush`, int `colorOffset`, const `QPoint` &`center`, int `length`, int `width`, double `direction`)

5.10.2 Member Enumeration Documentation

5.10.2.1 enum [QwtCompassMagnetNeedle::Style](#)

Style of the needle.

Definition at line 129 of file `qwt_dial_needle.h`.

5.10.3 Constructor & Destructor Documentation

5.10.3.1 [QwtCompassMagnetNeedle::QwtCompassMagnetNeedle](#) ([Style](#) = `TriangleStyle`, `const QColor & light` = `Qt::white`, `const QColor & dark` = `Qt::red`)

Constructor.

Definition at line 265 of file `qwt_dial_needle.cpp`.

References `QwtDialNeedle::palette()`.

5.10.4 Member Function Documentation

5.10.4.1 `void QwtCompassMagnetNeedle::draw (QPainter * painter, const QPoint & center, int length, double direction, QPalette::ColorGroup colorGroup = QPalette::Active) const` [virtual]

Draw the needle

Parameters:

painter Painter

center Center of the dial, start position for the needle

length Length of the needle

direction Direction of the needle, in degrees counter clockwise

colorGroup Color group, used for painting

Implements [QwtDialNeedle](#).

Definition at line 292 of file `qwt_dial_needle.cpp`.

References `drawThinNeedle()`, `drawTriangleNeedle()`, and `QwtDialNeedle::palette()`.

5.10.4.2 `void QwtCompassMagnetNeedle::drawPointer (QPainter * painter, const QBrush & brush, int colorOffset, const QPoint & center, int length, int width, double direction)` [static, protected]

Draw a compass needle

Parameters:

painter Painter

brush Brush

colorOffset Color offset

center Center, where the needle starts

length Length of the needle

width Width of the needle

direction Direction

Definition at line 419 of file qwt_dial_needle.cpp.

Referenced by drawThinNeedle().

5.10.4.3 void QwtCompassMagnetNeedle::drawThinNeedle (QPainter * *painter*, const QPalette & *palette*, QPalette::ColorGroup *colorGroup*, const QPoint & *center*, int *length*, double *direction*)
[static]

Draw a compass needle

Parameters:

painter Painter

palette Palette

colorGroup Color group

center Center, where the needle starts

length Length of the needle

direction Direction

Definition at line 383 of file qwt_dial_needle.cpp.

References QwtDialNeedle::drawKnob(), and drawPointer().

Referenced by draw().

5.10.4.4 void QwtCompassMagnetNeedle::drawTriangleNeedle (QPainter * *painter*, const QPalette & *palette*, QPalette::ColorGroup *colorGroup*, const QPoint & *center*, int *length*, double *direction*)
[static]

Draw a compass needle

Parameters:

painter Painter

palette Palette

colorGroup Color group

center Center, where the needle starts

length Length of the needle

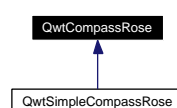
direction Direction

Definition at line 317 of file qwt_dial_needle.cpp.

Referenced by draw().

5.11 QwtCompassRose Class Reference

Inheritance diagram for QwtCompassRose:



5.11.1 Detailed Description

Abstract base class for a compass rose.

Definition at line 21 of file qwt_compass_rose.h.

Public Member Functions

- virtual [~QwtCompassRose](#) ()
- virtual void [setPalette](#) (const QPalette &p)
- const QPalette & [palette](#) () const
- virtual void [draw](#) (QPainter *painter, const QPoint ¢er, int radius, double north, QPalette::ColorGroup colorGroup=QPalette::Active) const =0

5.11.2 Member Function Documentation

5.11.2.1 virtual void QwtCompassRose::draw (QPainter * *painter*, const QPoint & *center*, int *radius*, double *north*, QPalette::ColorGroup *colorGroup* = QPalette::Active) const [pure virtual]

Draw the rose

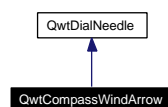
Parameters:

- painter* Painter
center Center point
radius Radius of the rose
north Position
colorGroup Color group

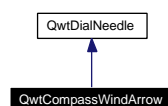
Implemented in [QwtSimpleCompassRose](#).

5.12 QwtCompassWindArrow Class Reference

Inheritance diagram for QwtCompassWindArrow:



Collaboration diagram for QwtCompassWindArrow:



5.12.1 Detailed Description

An indicator for the wind direction.

[QwtCompassWindArrow](#) shows the direction where the wind comes from.

- `QColorGroup::Light`
Used for Style1, or the light half of Style2
- `QColorGroup::Dark`
Used for the dark half of Style2

See also:

[QwtDial](#), [QwtCompass](#)

Definition at line 170 of file `qwt_dial_needle.h`.

Public Types

- enum [Style](#) {
 Style1,
 Style2 }

Public Member Functions

- [QwtCompassWindArrow](#) ([Style](#), const QColor &light=Qt::white, const QColor &dark=Qt::gray)
- virtual void [draw](#) (QPainter *, const QPoint &, int length, double direction, QPalette::ColorGroup=QPalette::Active) const

Static Public Member Functions

- static void [drawStyle1Needle](#) (QPainter *, const QPalette &, QPalette::ColorGroup, const QPoint &, int length, double direction)
- static void [drawStyle2Needle](#) (QPainter *, const QPalette &, QPalette::ColorGroup, const QPoint &, int length, double direction)

5.12.2 Member Enumeration Documentation

5.12.2.1 enum [QwtCompassWindArrow::Style](#)

Style of the arrow.

Definition at line 174 of file `qwt_dial_needle.h`.

5.12.3 Constructor & Destructor Documentation

5.12.3.1 [QwtCompassWindArrow::QwtCompassWindArrow](#) ([Style](#) style, const QColor & light = Qt::white, const QColor & dark = Qt::gray)

Constructor

Parameters:

style Arrow style

light Light color

dark Dark color

Definition at line 467 of file qwt_dial_needle.cpp.

References [QwtDialNeedle::palette\(\)](#).

5.12.4 Member Function Documentation

5.12.4.1 `void QwtCompassWindArrow::draw (QPainter * painter, const QPoint & center, int length, double direction, QPalette::ColorGroup colorGroup = QPalette::Active) const`
[virtual]

Draw the needle

Parameters:

painter Painter

center Center of the dial, start position for the needle

length Length of the needle

direction Direction of the needle, in degrees counter clockwise

colorGroup Color group, used for painting

Implements [QwtDialNeedle](#).

Definition at line 492 of file qwt_dial_needle.cpp.

References [drawStyle1Needle\(\)](#), [drawStyle2Needle\(\)](#), and [QwtDialNeedle::palette\(\)](#).

5.12.4.2 `void QwtCompassWindArrow::drawStyle1Needle (QPainter * painter, const QPalette & palette, QPalette::ColorGroup colorGroup, const QPoint & center, int length, double direction)`
[static]

Draw a compass needle

Parameters:

painter Painter

palette Palette

colorGroup colorGroup

center Center of the dial, start position for the needle

length Length of the needle

direction Direction of the needle, in degrees counter clockwise

Definition at line 517 of file qwt_dial_needle.cpp.

Referenced by [draw\(\)](#).

5.12.4.3 void QwtCompassWindArrow::drawStyle2Needle (QPainter * *painter*, const QPalette & *palette*, QPalette::ColorGroup *colorGroup*, const QPoint & *center*, int *length*, double *direction*) [static]

Draw a compass needle

Parameters:

painter Painter

palette Palette

colorGroup colorGroup

center Center of the dial, start position for the needle

length Length of the needle

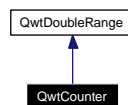
direction Direction of the needle, in degrees counter clockwise

Definition at line 554 of file qwt_dial_needle.cpp.

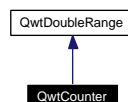
Referenced by draw().

5.13 QwtCounter Class Reference

Inheritance diagram for QwtCounter:



Collaboration diagram for QwtCounter:



5.13.1 Detailed Description

The Counter Widget.

A Counter consists of a label displaying a number and one or more (up to three) push buttons on each side of the label which can be used to increment or decrement the counter's value.

A Counter has a range from a minimum value to a maximum value and a step size. The range can be specified using `QwtDbiRange::setRange()`. The counter's value is an integer multiple of the step size. The number of steps by which a button increments or decrements the value can be specified using [QwtCounter::setIncSteps\(\)](#). The number of buttons can be changed with [QwtCounter::setNumButtons\(\)](#).

Holding the space bar down with focus on a button is the fastest method to step through the counter values. When the counter underflows/overflows, the focus is set to the smallest up/down button and counting is disabled. Counting is re-enabled on a button release event (mouse or space bar).

Example:

```
#include "../include/qwt_counter.h>

QwtCounter *cnt;

cnt = new QwtCounter(parent, name);

cnt->setRange(0.0, 100.0, 1.0);           // From 0.0 to 100, step 1.0
cnt->setNumButtons(2);                   // Two buttons each side
cnt->setIncSteps(QwtCounter::Button1, 1); // Button 1 increments 1 step
cnt->setIncSteps(QwtCounter::Button2, 20); // Button 2 increments 20 steps

connect(cnt, SIGNAL(valueChanged(double)), my_class, SLOT(newValue(double)));
```

Definition at line 60 of file qwt_counter.h.

Public Types

- enum [Button](#) {
Button1,
Button2,
Button3,
ButtonCnt }

Signals

- void [buttonReleased](#) (double value)
- void [valueChanged](#) (double value)

Public Member Functions

- [QwtCounter](#) (QWidget *parent=NULL)
- virtual [~QwtCounter](#) ()
- bool [editable](#) () const
- void [setEditable](#) (bool)
- void [setNumButtons](#) (int n)
- int [numButtons](#) () const
- void [setIncSteps](#) ([QwtCounter::Button](#) btn, int nSteps)
- int [incSteps](#) ([QwtCounter::Button](#) btn) const
- virtual void [setValue](#) (double)
- virtual QSize [sizeHint](#) () const
- virtual void [polish](#) ()
- double [step](#) () const
- void [setStep](#) (double s)
- double [minVal](#) () const
- void [setMinValue](#) (double m)
- double [maxVal](#) () const
- void [setMaxValue](#) (double m)
- void [setStepButton1](#) (int nSteps)
- int [stepButton1](#) () const
- void [setStepButton2](#) (int nSteps)
- int [stepButton2](#) () const

- void [setStepButton3](#) (int nSteps)
- int [stepButton3](#) () const
- virtual double [value](#) () const

Protected Member Functions

- virtual bool [event](#) (QEvent *)
- virtual void [wheelEvent](#) (QWheelEvent *)
- virtual void [keyPressEvent](#) (QKeyEvent *)
- virtual void [rangeChange](#) ()

5.13.2 Member Enumeration Documentation

5.13.2.1 enum [QwtCounter::Button](#)

Button index

Definition at line 79 of file qwt_counter.h.

5.13.3 Constructor & Destructor Documentation

5.13.3.1 [QwtCounter::QwtCounter](#) (QWidget * *parent* = NULL) [explicit]

The default number of buttons is set to 2. The default increments are:

- Button 1: 1 step
- Button 2: 10 steps
- Button 3: 100 steps

Parameters:

parent

Definition at line 50 of file qwt_counter.cpp.

5.13.3.2 [QwtCounter::~~QwtCounter](#) () [virtual]

Destructor.

Definition at line 143 of file qwt_counter.cpp.

5.13.4 Member Function Documentation

5.13.4.1 void [QwtCounter::buttonReleased](#) (double *value*) [signal]

This signal is emitted when a button has been released

Parameters:

value The new value

5.13.4.2 bool QwtCounter::editable () const

returns whether the line edit is editable. (default is yes)

Definition at line 198 of file qwt_counter.cpp.

5.13.4.3 bool QwtCounter::event (QEvent *e) [protected, virtual]

Handle PolishRequest events

Definition at line 206 of file qwt_counter.cpp.

References polish().

5.13.4.4 int QwtCounter::incSteps (QwtCounter::Button btn) const

Returns:

the number of steps by which a specified button increments the value or 0 if the button is invalid.

Parameters:

btn One of QwtCounter::Button1, QwtCounter::Button2, QwtCounter::Button3

Definition at line 367 of file qwt_counter.cpp.

Referenced by stepButton1(), stepButton2(), and stepButton3().

5.13.4.5 void QwtCounter::keyPressEvent (QKeyEvent *e) [protected, virtual]

Handles key events

- Ctrl + Qt::Key_Home Step to [minValue\(\)](#)
- Ctrl + Qt::Key_End Step to [maxValue\(\)](#)
- Qt::Key_Up Increment by incSteps(QwtCounter::Button1)
- Qt::Key_Down Decrement by incSteps(QwtCounter::Button1)
- Qt::Key_PageUp Increment by incSteps(QwtCounter::Button2)
- Qt::Key_PageDown Decrement by incSteps(QwtCounter::Button2)
- Shift + Qt::Key_PageUp Increment by incSteps(QwtCounter::Button3)
- Shift + Qt::Key_PageDown Decrement by incSteps(QwtCounter::Button3)

Definition at line 236 of file qwt_counter.cpp.

References QwtDoubleRange::incValue(), QwtDoubleRange::maxValue(), QwtDoubleRange::minValue(), and setValue().

5.13.4.6 double QwtCounter::maxVal () const

returns the maximum value of the range

Definition at line 574 of file qwt_counter.cpp.

References QwtDoubleRange::maxValue().

5.13.4.7 double QwtCounter::minVal () const

returns the minimum value of the range

Definition at line 562 of file qwt_counter.cpp.

References [QwtDoubleRange::minValue\(\)](#).

5.13.4.8 int QwtCounter::numButtons () const**Returns:**

The number of buttons on each side of the widget.

Definition at line 466 of file qwt_counter.cpp.

5.13.4.9 void QwtCounter::polish () [virtual]

Sets the minimum width for the buttons

Definition at line 151 of file qwt_counter.cpp.

Referenced by [event\(\)](#).

5.13.4.10 void QwtCounter::rangeChange () [protected, virtual]

Notify change of range.

This function updates the enabled property of all buttons contained in [QwtCounter](#).

Reimplemented from [QwtDoubleRange](#).

Definition at line 507 of file qwt_counter.cpp.

5.13.4.11 void QwtCounter::setEditable (bool *editable*)

Allow/disallow the user to manually edit the value.

Parameters:

editable true enables editing

See also:

[editable\(\)](#)

Definition at line 185 of file qwt_counter.cpp.

5.13.4.12 void QwtCounter::setIncSteps ([QwtCounter::Button](#) *btn*, int *nSteps*)

Specify the number of steps by which the value is incremented or decremented when a specified button is pushed.

Parameters:

btn One of [QwtCounter::Button1](#), [QwtCounter::Button2](#), [QwtCounter::Button3](#)

nSteps Number of steps

Definition at line 355 of file qwt_counter.cpp.

Referenced by [setStepButton1\(\)](#), [setStepButton2\(\)](#), and [setStepButton3\(\)](#).

5.13.4.13 void QwtCounter::setMaxValue (double *m*)

sets the maximum value of the range

Definition at line 580 of file qwt_counter.cpp.

References [QwtDoubleRange::minValue\(\)](#), [QwtDoubleRange::setRange\(\)](#), and [step\(\)](#).

5.13.4.14 void QwtCounter::setMinValue (double *m*)

sets the minimum value of the range

Definition at line 568 of file qwt_counter.cpp.

References [QwtDoubleRange::maxValue\(\)](#), [QwtDoubleRange::setRange\(\)](#), and [step\(\)](#).

5.13.4.15 void QwtCounter::setNumButtons (int *n*)

Specify the number of buttons on each side of the label.

Parameters:

n Number of buttons

Definition at line 441 of file qwt_counter.cpp.

5.13.4.16 void QwtCounter::setStep (double *s*)

sets the step size

Reimplemented from [QwtDoubleRange](#).

Definition at line 556 of file qwt_counter.cpp.

References [QwtDoubleRange::setStep\(\)](#).

5.13.4.17 void QwtCounter::setStepButton1 (int *nSteps*)

set the number of increment steps for button 1

Definition at line 586 of file qwt_counter.cpp.

References [setIncSteps\(\)](#).

5.13.4.18 void QwtCounter::setStepButton2 (int *nSteps*)

set the number of increment steps for button 2

Definition at line 598 of file qwt_counter.cpp.

References [setIncSteps\(\)](#).

5.13.4.19 void QwtCounter::setStepButton3 (int *nSteps*)

set the number of increment steps for button 3

Definition at line 610 of file qwt_counter.cpp.

References [setIncSteps\(\)](#).

5.13.4.20 void QwtCounter::setValue (double v) [virtual]

Set a new value.

Parameters:

v new value Calls [QwtDoubleRange::setValue](#) and does all visual updates.

See also:

[QwtDoubleRange::setValue](#)

Reimplemented from [QwtDoubleRange](#).

Definition at line 382 of file qwt_counter.cpp.

References [QwtDoubleRange::setValue\(\)](#), and [value\(\)](#).

Referenced by [keyPressEvent\(\)](#).

5.13.4.21 QSize QwtCounter::sizeHint () const [virtual]

A size hint.

Definition at line 513 of file qwt_counter.cpp.

References [QwtDoubleRange::maxValue\(\)](#), [QwtDoubleRange::minValue\(\)](#), and [step\(\)](#).

5.13.4.22 double QwtCounter::step () const

returns the step size

Reimplemented from [QwtDoubleRange](#).

Definition at line 550 of file qwt_counter.cpp.

References [QwtDoubleRange::step\(\)](#).

Referenced by [setMaxValue\(\)](#), [setMinValue\(\)](#), and [sizeHint\(\)](#).

5.13.4.23 int QwtCounter::stepButton1 () const

returns the number of increment steps for button 1

Definition at line 592 of file qwt_counter.cpp.

References [incSteps\(\)](#).

5.13.4.24 int QwtCounter::stepButton2 () const

returns the number of increment steps for button 2

Definition at line 604 of file qwt_counter.cpp.

References [incSteps\(\)](#).

5.13.4.25 int QwtCounter::stepButton3 () const

returns the number of increment steps for button 3

Definition at line 616 of file qwt_counter.cpp.

References [incSteps\(\)](#).

5.13.4.26 `double QwtCounter::value () const` [virtual]

Returns the current value.

Reimplemented from [QwtDoubleRange](#).

Definition at line 621 of file `qwt_counter.cpp`.

References `QwtDoubleRange::value()`.

Referenced by `setValue()`.

5.13.4.27 `void QwtCounter::valueChanged (double value)` [signal]

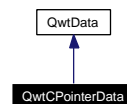
This signal is emitted when the counter's value has changed

Parameters:

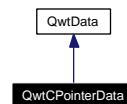
value The new value

5.14 QwtCPointerData Class Reference

Inheritance diagram for QwtCPointerData:



Collaboration diagram for QwtCPointerData:

**5.14.1 Detailed Description**

Data class containing two pointers to memory blocks of doubles.

Definition at line 144 of file `qwt_data.h`.

Public Member Functions

- [QwtCPointerData](#) (const double *x, const double *y, size_t size)
- [QwtCPointerData](#) & `operator=` (const [QwtCPointerData](#) &)
- virtual [QwtData](#) * `copy` () const
- virtual size_t `size` () const
- virtual double `x` (size_t i) const
- virtual double `y` (size_t i) const
- const double * `xData` () const
- const double * `yData` () const
- virtual [QwtDoubleRect](#) `boundingRect` () const

5.14.2 Constructor & Destructor Documentation

5.14.2.1 QwtCPointerData::QwtCPointerData (const double * x, const double * y, size_t size)

Constructor

Parameters:

- x* Array of x values
- y* Array of y values
- size* Size of the x and y arrays

Warning:

The programmer must assure that the memory blocks referenced by the pointers remain valid during the lifetime of the QwtPlotCPointer object.

See also:

[QwtPlotCurve::setData\(\)](#), [QwtPlotCurve::setRawData\(\)](#)

Definition at line 281 of file qwt_data.cpp.

Referenced by [copy\(\)](#).

5.14.3 Member Function Documentation

5.14.3.1 QwtDoubleRect QwtCPointerData::boundingRect () const [virtual]

Returns the bounding rectangle of the data. If there is no bounding rect, like for empty data the rectangle is invalid: `QwtDoubleRect::isValid() == false`

Reimplemented from [QwtData](#).

Definition at line 354 of file qwt_data.cpp.

References [size\(\)](#).

5.14.3.2 [QwtData](#) * QwtCPointerData::copy () const [virtual]

Returns:

Pointer to a copy (virtual copy constructor)

Implements [QwtData](#).

Definition at line 344 of file qwt_data.cpp.

References [QwtCPointerData\(\)](#).

5.14.3.3 [QwtCPointerData](#) & QwtCPointerData::operator= (const [QwtCPointerData](#) &)

Assignment.

Definition at line 290 of file qwt_data.cpp.

References [d_size](#), [d_x](#), and [d_y](#).

5.14.3.4 `size_t QwtCPointerData::size () const` [virtual]

Returns:

Size of the data set

Implements [QwtData](#).

Definition at line 302 of file `qwt_data.cpp`.

Referenced by `boundingRect()`.

5.14.3.5 `double QwtCPointerData::x (size_t i) const` [virtual]

Return the x value of data point i

Parameters:

i Index

Returns:

x X value of data point i

Implements [QwtData](#).

Definition at line 313 of file `qwt_data.cpp`.

5.14.3.6 `const double * QwtCPointerData::xData () const`

Returns:

Array of the x-values

Definition at line 330 of file `qwt_data.cpp`.

5.14.3.7 `double QwtCPointerData::y (size_t i) const` [virtual]

Return the y value of data point i

Parameters:

i Index

Returns:

y Y value of data point i

Implements [QwtData](#).

Definition at line 324 of file `qwt_data.cpp`.

5.14.3.8 `const double * QwtCPointerData::yData () const`

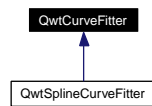
Returns:

Array of the y-values

Definition at line 336 of file `qwt_data.cpp`.

5.15 QwtCurveFitter Class Reference

Inheritance diagram for QwtCurveFitter:



5.15.1 Detailed Description

Abstract base class for a curve fitter.

Definition at line 42 of file qwt_curve_fitter.h.

Public Member Functions

- virtual [~QwtCurveFitter](#) ()
- virtual QPolygonF **fitCurve** (const QPolygonF &) const =0

Protected Member Functions

- [QwtCurveFitter](#) ()

5.15.2 Constructor & Destructor Documentation

5.15.2.1 QwtCurveFitter::~~QwtCurveFitter () [virtual]

Destructor.

Definition at line 20 of file qwt_curve_fitter.cpp.

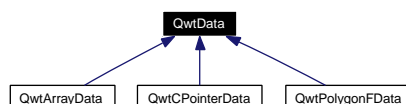
5.15.2.2 QwtCurveFitter::QwtCurveFitter () [protected]

Constructor.

Definition at line 15 of file qwt_curve_fitter.cpp.

5.16 QwtData Class Reference

Inheritance diagram for QwtData:



5.16.1 Detailed Description

[QwtData](#) defines an interface to any type of curve data.

Classes, derived from [QwtData](#) may:

- store the data in almost any type of container
- calculate the data on the fly instead of storing it

Definition at line 47 of file `qwt_data.h`.

Public Member Functions

- [QwtData](#) ()
- virtual [~QwtData](#) ()
- virtual [QwtData](#) * [copy](#) () const =0
- virtual `size_t` [size](#) () const =0
- virtual double [x](#) (`size_t` i) const =0
- virtual double [y](#) (`size_t` i) const =0
- virtual `QwtDoubleRect` [boundingRect](#) () const

Protected Member Functions

- [QwtData](#) & [operator=](#) (const [QwtData](#) &)

5.16.2 Constructor & Destructor Documentation

5.16.2.1 [QwtData::QwtData](#) ()

Constructor.

Definition at line 14 of file `qwt_data.cpp`.

5.16.2.2 [QwtData::~~QwtData](#) () [virtual]

Destructor.

Definition at line 19 of file `qwt_data.cpp`.

5.16.3 Member Function Documentation

5.16.3.1 `QwtDoubleRect` [QwtData::boundingRect](#) () const [virtual]

Returns the bounding rectangle of the data. If there is no bounding rect, like for empty data the rectangle is invalid: `QwtDoubleRect::isValid() == false`

Warning:

This is an slow implementation iterating over all points. It is intended to be overloaded by derived classes. In case of auto scaling [boundingRect\(\)](#) is called for every replot, so it might be worth to implement a cache, or use `x(0)`, `x(size() - 1)` for ordered data ...

Reimplemented in [QwtArrayData](#), and [QwtCPointerData](#).

Definition at line 34 of file `qwt_data.cpp`.

References `size()`, `x()`, and `y()`.

Referenced by `QwtPlotCurve::boundingRect()`.

5.16.3.2 **virtual [QwtData*](#) QwtData::copy () const** [pure virtual]

Returns:

Pointer to a copy (virtual copy constructor)

Implemented in [QwtPolygonFData](#), [QwtArrayData](#), and [QwtCPointerData](#).

Referenced by `QwtPlotCurve::setData()`.

5.16.3.3 **[QwtData&](#) QwtData::operator= (const [QwtData](#) &)** [protected]

Assignment operator (virtualized)

5.16.3.4 **virtual [size_t](#) QwtData::size () const** [pure virtual]

Returns:

Size of the data set

Implemented in [QwtPolygonFData](#), [QwtArrayData](#), and [QwtCPointerData](#).

Referenced by `boundingRect()`, and `QwtPlotCurve::dataSize()`.

5.16.3.5 **virtual [double](#) QwtData::x (size_t *i*) const** [pure virtual]

Return the x value of data point *i*

Parameters:

i Index

Returns:

x X value of data point *i*

Implemented in [QwtPolygonFData](#), [QwtArrayData](#), and [QwtCPointerData](#).

Referenced by `boundingRect()`, and `QwtPlotCurve::x()`.

5.16.3.6 **virtual [double](#) QwtData::y (size_t *i*) const** [pure virtual]

Return the y value of data point *i*

Parameters:

i Index

Returns:

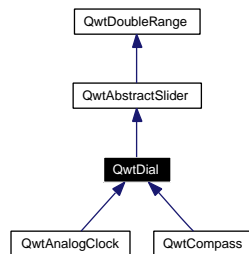
y Y value of data point *i*

Implemented in [QwtPolygonFData](#), [QwtArrayData](#), and [QwtCPointerData](#).

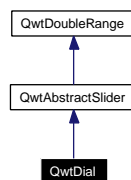
Referenced by `boundingRect()`, and `QwtPlotCurve::y()`.

5.17 QwtDial Class Reference

Inheritance diagram for QwtDial:



Collaboration diagram for QwtDial:



5.17.1 Detailed Description

[QwtDial](#) class provides a rounded range control.

[QwtDial](#) is intended as base class for dial widgets like speedometers, compass widgets, clocks ...

A dial contains a scale and a needle indicating the current value of the dial. Depending on Mode one of them is fixed and the other is rotating. If not [isReadOnly\(\)](#) the dial can be rotated by dragging the mouse or using keyboard inputs (see [keyPressEvent\(\)](#)). A dial might be wrapping, what means a rotation below/above one limit continues on the other limit (f.e compass). The scale might cover any arc of the dial, its values are related to the [origin\(\)](#) of the dial.

Qwt is missing a set of good looking needles ([QwtDialNeedle](#)). Contributions are very welcome.

See also:

[QwtCompass](#), [QwtAnalogClock](#), [QwtDialNeedle](#)

Note:

The examples/dials example shows different types of dials.

Definition at line 67 of file `qwt_dial.h`.

Public Types

- enum [Shadow](#) {
 - Plain** = QFrame::Plain,
 - Raised** = QFrame::Raised,
 - Sunken** = QFrame::Sunken }

- enum [ScaleOptions](#) {
ScaleBackbone = 1,
ScaleTicks = 2,
ScaleLabel = 4 }
- enum [Mode](#) {
RotateNeedle,
RotateScale }

Public Member Functions

- [QwtDial](#) (QWidget *parent=NULL)
- virtual [~QwtDial](#) ()
- void [setFrameShadow](#) ([Shadow](#))
- [Shadow](#) [frameShadow](#) () const
- bool [hasVisibleBackground](#) () const
- void [showBackground](#) (bool)
- void [setLineWidth](#) (int)
- int [lineWidth](#) () const
- void [setMode](#) ([Mode](#))
- [Mode](#) [mode](#) () const
- virtual void [setWrapping](#) (bool)
- bool [wrapping](#) () const
- virtual void [setScale](#) (int maxMajIntv, int maxMinIntv, double step=0.0)
- void [setScaleArc](#) (double min, double max)
- void [setScaleOptions](#) (int)
- void [setScaleTicks](#) (int minLen, int medLen, int majLen, int penWidth=1)
- double [minScaleArc](#) () const
- double [maxScaleArc](#) () const
- virtual void [setOrigin](#) (double)
- double [origin](#) () const
- virtual void [setNeedle](#) ([QwtDialNeedle](#) *)
- const [QwtDialNeedle](#) * [needle](#) () const
- [QwtDialNeedle](#) * [needle](#) ()
- QRect [boundingRect](#) () const
- QRect [contentsRect](#) () const
- virtual QRect [scaleContentsRect](#) () const
- virtual QSize [sizeHint](#) () const
- virtual QSize [minimumSizeHint](#) () const
- virtual void [setScaleDraw](#) ([QwtDialScaleDraw](#) *)
- [QwtDialScaleDraw](#) * [scaleDraw](#) ()
- const [QwtDialScaleDraw](#) * [scaleDraw](#) () const

Protected Member Functions

- virtual void [paintEvent](#) (QPaintEvent *)
- virtual void [resizeEvent](#) (QResizeEvent *)
- virtual void [keyPressEvent](#) (QKeyEvent *)
- virtual void [updateMask](#) ()
- virtual void [drawFrame](#) (QPainter *p)
- virtual void [drawContents](#) (QPainter *) const
- virtual void [drawFocusIndicator](#) (QPainter *) const
- virtual void [drawScale](#) (QPainter *, const QPoint ¢er, int radius, double origin, double arcMin, double arcMax) const
- virtual void [drawScaleContents](#) (QPainter *painter, const QPoint ¢er, int radius) const
- virtual void [drawNeedle](#) (QPainter *, const QPoint &, int radius, double direction, QPalette::ColorGroup) const
- virtual [QwtText scaleLabel](#) (double) const
- void [updateScale](#) ()
- virtual void [rangeChange](#) ()
- virtual void [valueChange](#) ()
- virtual double [getValue](#) (const QPoint &)
- virtual void [getScrollMode](#) (const QPoint &, int &scrollMode, int &direction)

Friends

- class [QwtDialScaleDraw](#)

5.17.2 Member Enumeration Documentation

5.17.2.1 enum [QwtDial::Mode](#)

In case of RotateNeedle the needle is rotating, in case of RotateScale, the needle points to [origin\(\)](#) and the scale is rotating.

Definition at line 112 of file `qwt_dial.h`.

5.17.2.2 enum [QwtDial::ScaleOptions](#)

see [QwtDial::setScaleOptions](#)

Definition at line 100 of file `qwt_dial.h`.

5.17.2.3 enum [QwtDial::Shadow](#)

Frame shadow.

Unfortunately it is not possible to use `QFrame::Shadow` as a property of a widget that is not derived from `QFrame`. The following enum is made for the designer only. It is safe to use `QFrame::Shadow` instead.

Definition at line 92 of file `qwt_dial.h`.

5.17.3 Constructor & Destructor Documentation

5.17.3.1 QwtDial::QwtDial (QWidget * *parent* = NULL) [explicit]

Constructor.

Parameters:

parent Parent widget

Create a dial widget with no scale and no needle. The default origin is 90.0 with no valid value. It accepts mouse and keyboard inputs and has no step size. The default mode is QwtDial::RotateNeedle.

Definition at line 143 of file qwt_dial.cpp.

5.17.3.2 QwtDial::~~QwtDial () [virtual]

Destructor.

Definition at line 207 of file qwt_dial.cpp.

5.17.4 Member Function Documentation

5.17.4.1 QRect QwtDial::boundingRect () const

Returns:

bounding rect of the dial including the frame

See also:

[setLineWidth\(\)](#), [scaleContentsRect\(\)](#), [contentsRect\(\)](#)

Definition at line 311 of file qwt_dial.cpp.

Referenced by [contentsRect\(\)](#), [drawContents\(\)](#), [drawFrame\(\)](#), and [updateMask\(\)](#).

5.17.4.2 QRect QwtDial::contentsRect () const

Returns:

bounding rect of the circle inside the frame

See also:

[setLineWidth\(\)](#), [scaleContentsRect\(\)](#), [boundingRect\(\)](#)

Definition at line 294 of file qwt_dial.cpp.

References [boundingRect\(\)](#), and [lineWidth\(\)](#).

Referenced by [drawFocusIndicator\(\)](#), [getScrollMode\(\)](#), and [scaleContentsRect\(\)](#).

5.17.4.3 void QwtDial::drawContents (QPainter * *painter*) const [protected, virtual]

Draw the contents inside the frame.

QColorGroup::Background is the background color outside of the frame. QColorGroup::Base is the background color inside the frame. QColorGroup::Foreground is the background color inside the scale.

Parameters:*painter* Painter**See also:**[boundingRect\(\)](#), [contentsRect\(\)](#), [scaleContentsRect\(\)](#), [QWidget::setPalette](#)

Definition at line 572 of file qwt_dial.cpp.

References [boundingRect\(\)](#), [drawNeedle\(\)](#), [drawScale\(\)](#), [drawScaleContents\(\)](#), [QwtAbstractSlider::isValid\(\)](#), [QwtDoubleRange::maxValue\(\)](#), [QwtDoubleRange::minValue\(\)](#), [mode\(\)](#), [origin\(\)](#), [scaleContentsRect\(\)](#), and [QwtDoubleRange::value\(\)](#).

Referenced by [paintEvent\(\)](#).

5.17.4.4 void QwtDial::drawFocusIndicator (QPainter * *painter*) const [protected, virtual]

Draw a dotted round circle, if !isReadOnly()

Parameters:*painter* Painter

Definition at line 463 of file qwt_dial.cpp.

References [contentsRect\(\)](#), and [QwtAbstractSlider::isReadOnly\(\)](#).

Referenced by [paintEvent\(\)](#).

5.17.4.5 void QwtDial::drawFrame (QPainter * *painter*) [protected, virtual]

Draw the frame around the dial

Parameters:*painter* Painter**See also:**[lineWidth\(\)](#), [frameShadow\(\)](#)

Definition at line 510 of file qwt_dial.cpp.

References [boundingRect\(\)](#), [QwtPainter::drawRoundFrame\(\)](#), and [lineWidth\(\)](#).

Referenced by [paintEvent\(\)](#).

5.17.4.6 void QwtDial::drawNeedle (QPainter * *painter*, const QPoint & *center*, int *radius*, double *direction*, QPalette::ColorGroup *cg*) const [protected, virtual]

Draw the needle

Parameters:*painter* Painter*center* Center of the dial*radius* Length for the needle*direction* Direction of the needle in degrees, counter clockwise*cg* ColorGroup

Reimplemented in [QwtAnalogClock](#).

Definition at line 682 of file qwt_dial.cpp.

Referenced by drawContents().

5.17.4.7 void QwtDial::drawScale (QPainter * *painter*, const QPoint & *center*, int *radius*, double *origin*, double *minArc*, double *maxArc*) const [protected, virtual]

Draw the scale

Parameters:

painter Painter

center Center of the dial

radius Radius of the scale

origin Origin of the scale

minArc Minimum of the arc

maxArc Maximum of the arc

See also:

QwtAbstractScaleDraw::setAngleRange

Definition at line 704 of file qwt_dial.cpp.

Referenced by drawContents().

5.17.4.8 void QwtDial::drawScaleContents (QPainter * *painter*, const QPoint & *center*, int *radius*) const [protected, virtual]

Draw the contents inside the scale

Paints nothing.

Parameters:

painter Painter

center Center of the contents circle

radius Radius of the contents circle

Reimplemented in [QwtCompass](#).

Definition at line 755 of file qwt_dial.cpp.

Referenced by drawContents().

5.17.4.9 [QwtDial::Shadow](#) QwtDial::frameShadow () const

Returns:

Frame shadow /sa [setFrameShadow\(\)](#), [lineWidth\(\)](#), QFrame::frameShadow

Definition at line 258 of file qwt_dial.cpp.

5.17.4.10 `void QwtDial::getScrollMode (const QPoint & p, int & scrollMode, int & direction)` [protected, virtual]

See also:

[QwtAbstractSlider::getScrollMode](#)

Implements [QwtAbstractSlider](#).

Definition at line 1155 of file `qwt_dial.cpp`.

References `contentsRect()`.

5.17.4.11 `double QwtDial::getValue (const QPoint & pos)` [protected, virtual]

Find the value for a given position

Parameters:

pos Position

Returns:

Value

Implements [QwtAbstractSlider](#).

Definition at line 1052 of file `qwt_dial.cpp`.

References `QwtDoubleRange::maxValue()`, `QwtDoubleRange::minValue()`, `mode()`, `QwtAbstractSlider::mouseOffset()`, `QwtAbstractSlider::scrollMode()`, `QwtAbstractSlider::setMouseOffset()`, `QwtDoubleRange::value()`, and `wrapping()`.

5.17.4.12 `bool QwtDial::hasVisibleBackground () const`

true when the area outside of the frame is visible

See also:

[showBackground\(\)](#), [setMask\(\)](#)

Definition at line 234 of file `qwt_dial.cpp`.

Referenced by `resizeEvent()`.

5.17.4.13 `void QwtDial::keyPressEvent (QKeyEvent * e)` [protected, virtual]

Handles key events

- `Key_Down`, `Key_Left`
Decrement by 1
- `Key_Prior`
Decrement by [pageSize\(\)](#)
- `Key_Home`
Set the value to [minValue\(\)](#)

- Key_Up, KeyRight
Increment by 1
- Key_Next
Increment by [pageSize\(\)](#)
- Key_End
Set the value to [maxValue\(\)](#)

See also:[isReadOnly\(\)](#)

Reimplemented from [QwtAbstractSlider](#).

Reimplemented in [QwtCompass](#).

Definition at line 1187 of file `qwt_dial.cpp`.

References [QwtDoubleRange::incValue\(\)](#), [QwtAbstractSlider::isReadOnly\(\)](#), [QwtAbstractSlider::isValid\(\)](#), [QwtDoubleRange::maxValue\(\)](#), [QwtDoubleRange::minValue\(\)](#), [QwtDoubleRange::pageSize\(\)](#), [QwtDoubleRange::prevValue\(\)](#), and [QwtAbstractSlider::setValue\(\)](#).

5.17.4.14 int QwtDial::lineWidth () const**Returns:**

Line width of the frame

See also:[setLineWidth\(\)](#), [frameShadow\(\)](#), [lineWidth\(\)](#)

Definition at line 285 of file `qwt_dial.cpp`.

Referenced by [contentsRect\(\)](#), [drawFrame\(\)](#), [minimumSizeHint\(\)](#), [setFrameShadow\(\)](#), and [sizeHint\(\)](#).

5.17.4.15 double QwtDial::maxScaleArc () const**Returns:**

Upper limit of the scale arc

Definition at line 940 of file `qwt_dial.cpp`.

5.17.4.16 QSize QwtDial::minimumSizeHint () const [virtual]

Return a minimum size hint.

Warning:

The return value of [QwtDial::minimumSizeHint\(\)](#) depends on the font and the scale.

Definition at line 1017 of file `qwt_dial.cpp`.

References [lineWidth\(\)](#).

5.17.4.17 double QwtDial::minScaleArc () const

Returns:

Lower limit of the scale arc

Definition at line 934 of file qwt_dial.cpp.

5.17.4.18 QwtDial::Mode QwtDial::mode () const

Returns:

mode of the dial.

The value of the dial is indicated by the difference between the origin and the direction of the needle. In case of QwtDial::RotateNeedle the scale arc is fixed to the [origin\(\)](#) and the needle is rotating, in case of QwtDial::RotateScale, the needle points to [origin\(\)](#) and the scale is rotating.

The default mode is QwtDial::RotateNeedle.

See also:

[setMode\(\)](#), [origin\(\)](#), [setScaleArc\(\)](#), [value\(\)](#)

Definition at line 382 of file qwt_dial.cpp.

Referenced by [drawContents\(\)](#), [QwtCompass::drawScaleContents\(\)](#), and [getValue\(\)](#).

5.17.4.19 QwtDialNeedle * QwtDial::needle ()

Returns:

needle

See also:

[setNeedle\(\)](#)

Definition at line 796 of file qwt_dial.cpp.

5.17.4.20 const QwtDialNeedle * QwtDial::needle () const

Returns:

needle

See also:

[setNeedle\(\)](#)

Definition at line 787 of file qwt_dial.cpp.

Referenced by [QwtAnalogClock::drawHand\(\)](#), [QwtAnalogClock::setHand\(\)](#), and [setNeedle\(\)](#).

5.17.4.21 double QwtDial::origin () const

The origin is the angle where scale and needle is relative to.

Returns:

Origin of the dial

See also:

[setOrigin\(\)](#)

Definition at line 965 of file qwt_dial.cpp.

Referenced by [drawContents\(\)](#), [QwtAnalogClock::drawNeedle\(\)](#), and [QwtCompass::drawScaleContents\(\)](#).

5.17.4.22 void QwtDial::paintEvent (QPaintEvent * e) [protected, virtual]

Paint the dial

Parameters:

e Paint event

Definition at line 431 of file qwt_dial.cpp.

References [drawContents\(\)](#), [drawFocusIndicator\(\)](#), and [drawFrame\(\)](#).

5.17.4.23 void QwtDial::rangeChange () [protected, virtual]

[QwtDoubleRange](#) update hook.

Reimplemented from [QwtDoubleRange](#).

Definition at line 802 of file qwt_dial.cpp.

References [updateScale\(\)](#).

5.17.4.24 void QwtDial::resizeEvent (QResizeEvent * e) [protected, virtual]

Resize the dial widget

Parameters:

e Resize event

Definition at line 419 of file qwt_dial.cpp.

References [hasVisibleBackground\(\)](#), and [updateMask\(\)](#).

5.17.4.25 QRect QwtDial::scaleContentsRect () const [virtual]

Returns:

rect inside the scale

See also:

[setLineWidth\(\)](#), [boundingRect\(\)](#), [contentsRect\(\)](#)

Definition at line 324 of file qwt_dial.cpp.

References [contentsRect\(\)](#).

Referenced by [drawContents\(\)](#).

5.17.4.26 `const QwtDialScaleDraw * QwtDial::scaleDraw () const`

Return the scale draw.

Definition at line 833 of file qwt_dial.cpp.

5.17.4.27 `QwtDialScaleDraw * QwtDial::scaleDraw ()`

Return the scale draw.

Definition at line 827 of file qwt_dial.cpp.

Referenced by `setScaleDraw()`.

5.17.4.28 `QwtText QwtDial::scaleLabel (double value) const` `[protected, virtual]`

Find the label for a value

Parameters:

value Value

Returns:

label

Reimplemented in [QwtAnalogClock](#), and [QwtCompass](#).

Definition at line 923 of file qwt_dial.cpp.

Referenced by `QwtDialScaleDraw::label()`.

5.17.4.29 `void QwtDial::setFrameShadow (Shadow shadow)`

Sets the frame shadow value from the frame style.

Parameters:

shadow Frame shadow

See also:

[setLineWidth\(\)](#), [QFrame::setFrameShadow\(\)](#)

Definition at line 244 of file qwt_dial.cpp.

References `linewidth()`.

5.17.4.30 `void QwtDial::setLineWidth (int lineWidth)`

Sets the line width

Parameters:

lineWidth Line width

See also:

[setFrameShadow\(\)](#)

Definition at line 269 of file qwt_dial.cpp.

5.17.4.31 void QwtDial::setMode ([Mode](#) *mode*)

Change the mode of the meter.

Parameters:

mode New mode

The value of the meter is indicated by the difference between north of the scale and the direction of the needle. In case of QwtDial::RotateNeedle north is pointing to the [origin\(\)](#) and the needle is rotating, in case of QwtDial::RotateScale, the needle points to [origin\(\)](#) and the scale is rotating.

The default mode is QwtDial::RotateNeedle.

See also:

[mode\(\)](#), [setValue\(\)](#), [setOrigin\(\)](#)

Definition at line 359 of file qwt_dial.cpp.

5.17.4.32 void QwtDial::setNeedle ([QwtDialNeedle](#) * *needle*) [virtual]

Set a needle for the dial

Qwt is missing a set of good looking needles. Contributions are very welcome.

Parameters:

needle Needle

Warning:

The needle will be deleted, when a different needle is set or in [~QwtDial\(\)](#)

Definition at line 771 of file qwt_dial.cpp.

References [needle\(\)](#).

5.17.4.33 void QwtDial::setOrigin (double *origin*) [virtual]

Change the origin.

The origin is the angle where scale and needle is relative to.

Parameters:

origin New origin

See also:

[origin\(\)](#)

Definition at line 953 of file qwt_dial.cpp.

5.17.4.34 void QwtDial::setScale (int *maxMajIntv*, int *maxMinIntv*, double *step* = 0.0) [virtual]

Change the intervals of the scale

See also:

[QwtAbstractScaleDraw::setScale](#)

Definition at line 861 of file qwt_dial.cpp.

References [updateScale\(\)](#).

5.17.4.35 void QwtDial::setScaleArc (double *minArc*, double *maxArc*)

Change the arc of the scale

Parameters:

minArc Lower limit

maxArc Upper limit

Definition at line 976 of file qwt_dial.cpp.

5.17.4.36 void QwtDial::setScaleDraw (QwtDialScaleDraw * *scaleDraw*) [virtual]

Set an individual scale draw

Parameters:

scaleDraw Scale draw

Warning:

The previous scale draw is deleted

Definition at line 844 of file qwt_dial.cpp.

References `scaleDraw()`, and `updateScale()`.

Referenced by `setScaleOptions()`.

5.17.4.37 void QwtDial::setScaleOptions (int *options*)

A wrapper method for accessing the scale draw.

- `options == 0`
No visible scale: `setScaleDraw(NULL)`
- `options & ScaleBackbone`
En/disable the backbone of the scale.
- `options & ScaleTicks`
En/disable the ticks of the scale.
- `options & ScaleLabel`
En/disable scale labels

See also:

[QwtAbstractScaleDraw::enableComponent](#)

Definition at line 884 of file qwt_dial.cpp.

References `QwtAbstractScaleDraw::enableComponent()`, and `setScaleDraw()`.

5.17.4.38 void QwtDial::setScaleTicks (int *minLen*, int *medLen*, int *majLen*, int *penWidth* = 1)

See: [QwtAbstractScaleDraw::setTickLength](#), [QwtDialScaleDraw::setPenWidth](#).

Definition at line 904 of file qwt_dial.cpp.

References `QwtDialScaleDraw::setPenWidth()`, and `QwtAbstractScaleDraw::setTickLength()`.

5.17.4.39 void QwtDial::setWrapping (bool *wrapping*) [virtual]

Sets whether it is possible to step the value from the highest value to the lowest value and vice versa to on.

Parameters:

wrapping en/disables wrapping

See also:

[wrapping\(\)](#), [QwtDoubleRange::periodic\(\)](#)

Note:

The meaning of wrapping is like the wrapping property of QSpinBox, but not like it is used in QDial.

Definition at line 397 of file qwt_dial.cpp.

References [QwtDoubleRange::setPeriodic\(\)](#).

5.17.4.40 void QwtDial::showBackground (bool *show*)

Show/Hide the area outside of the frame

Parameters:

show Show if true, hide if false

See also:

[hasVisibleBackground\(\)](#), [setMask\(\)](#)

Warning:

When [QwtDial](#) is a toplevel widget the window border might disappear too.

Definition at line 220 of file qwt_dial.cpp.

References [updateMask\(\)](#).

5.17.4.41 QSize QwtDial::sizeHint () const [virtual]**Returns:**

Size hint

Definition at line 1001 of file qwt_dial.cpp.

References [lineWidth\(\)](#).

5.17.4.42 void QwtDial::updateMask () [protected, virtual]

Update the mask of the dial.

In case of "[hasVisibleBackground\(\)](#) == false", the background is transparent by a mask.

See also:

[showBackground\(\)](#), [hasVisibleBackground\(\)](#)

Definition at line 1246 of file qwt_dial.cpp.

References [boundingRect\(\)](#).

Referenced by [resizeEvent\(\)](#), and [showBackground\(\)](#).

5.17.4.43 void QwtDial::updateScale () [protected]

Update the scale with the current attributes

See also:

[setScale\(\)](#)

Definition at line 811 of file qwt_dial.cpp.

References [QwtLinearScaleEngine::divideScale\(\)](#), [QwtDoubleRange::maxValue\(\)](#), [QwtDoubleRange::minValue\(\)](#), and [QwtLinearScaleEngine::transformation\(\)](#).

Referenced by [rangeChange\(\)](#), [setScale\(\)](#), and [setScaleDraw\(\)](#).

5.17.4.44 void QwtDial::valueChange () [protected, virtual]

[QwtDoubleRange](#) update hook.

Reimplemented from [QwtAbstractSlider](#).

Definition at line 992 of file qwt_dial.cpp.

References [QwtAbstractSlider::valueChange\(\)](#).

5.17.4.45 bool QwtDial::wrapping () const

[wrapping\(\)](#) holds whether it is possible to step the value from the highest value to the lowest value and vice versa.

See also:

[setWrapping\(\)](#), [QwtDoubleRange::setPeriodic\(\)](#)

Note:

The meaning of wrapping is like the wrapping property of [QSpinBox](#), but not like it is used in [QDial](#).

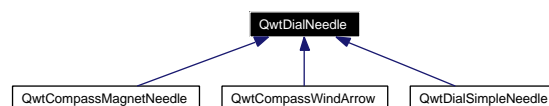
Definition at line 410 of file qwt_dial.cpp.

References [QwtDoubleRange::periodic\(\)](#).

Referenced by [getValue\(\)](#).

5.18 QwtDialNeedle Class Reference

Inheritance diagram for QwtDialNeedle:

**5.18.1 Detailed Description**

Base class for needles that can be used in a [QwtDial](#).

[QwtDialNeedle](#) is a pointer that indicates a value by pointing to a specific direction.

Qwt is missing a set of good looking needles. Contributions are very welcome.

See also:

[QwtDial](#), [QwtCompass](#)

Definition at line 31 of file qwt_dial_needle.h.

Public Member Functions

- [QwtDialNeedle](#) ()
- virtual [~QwtDialNeedle](#) ()
- virtual void [draw](#) (QPainter *painter, const QPoint ¢er, int length, double direction, QPalette::ColorGroup cg=QPalette::Active) const =0
- virtual void [setPalette](#) (const QPalette &)
- const QPalette & [palette](#) () const

Static Protected Member Functions

- static void [drawKnob](#) (QPainter *, const QPoint &pos, int width, const QBrush &, bool sunken)

5.18.2 Constructor & Destructor Documentation

5.18.2.1 QwtDialNeedle::QwtDialNeedle ()

Constructor.

Definition at line 25 of file qwt_dial_needle.cpp.

5.18.2.2 QwtDialNeedle::~~QwtDialNeedle () [virtual]

Destructor.

Definition at line 31 of file qwt_dial_needle.cpp.

5.18.3 Member Function Documentation

5.18.3.1 virtual void QwtDialNeedle::draw (QPainter * *painter*, const QPoint & *center*, int *length*, double *direction*, QPalette::ColorGroup *cg* = QPalette::Active) const [pure virtual]

Draw the needle

Parameters:

painter Painter

center Center of the dial, start position for the needle

length Length of the needle

direction Direction of the needle, in degrees counter clockwise

cg Color group, used for painting

Implemented in [QwtDialSimpleNeedle](#), [QwtCompassMagnetNeedle](#), and [QwtCompassWindArrow](#).

Referenced by [QwtAnalogClock::drawHand\(\)](#).

5.18.3.2 void QwtDialNeedle::drawKnob (QPainter *, const QPoint & *pos*, int *width*, const QBrush &, bool *sunken*) [static, protected]

Draw the knob.

Definition at line 54 of file qwt_dial_needle.cpp.

Referenced by QwtDialSimpleNeedle::drawArrowNeedle(), QwtDialSimpleNeedle::drawRayNeedle(), and QwtCompassMagnetNeedle::drawThinNeedle().

5.18.3.3 const QPalette & QwtDialNeedle::palette () const

Returns:

the palette of the needle.

Definition at line 48 of file qwt_dial_needle.cpp.

Referenced by QwtCompassWindArrow::draw(), QwtCompassMagnetNeedle::draw(), QwtDialSimpleNeedle::draw(), QwtCompassMagnetNeedle::QwtCompassMagnetNeedle(), QwtCompassWindArrow::QwtCompassWindArrow(), and QwtDialSimpleNeedle::QwtDialSimpleNeedle().

5.18.3.4 void QwtDialNeedle::setPalette (const QPalette & *palette*) [virtual]

Sets the palette for the needle.

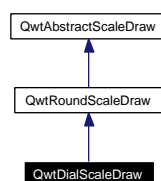
Parameters:

palette New Palette

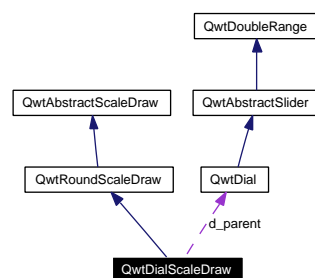
Definition at line 40 of file qwt_dial_needle.cpp.

5.19 QwtDialScaleDraw Class Reference

Inheritance diagram for QwtDialScaleDraw:



Collaboration diagram for QwtDialScaleDraw:



5.19.1 Detailed Description

A special scale draw made for [QwtDial](#).

See also:

[QwtDial](#), [QwtCompass](#)

Definition at line 29 of file `qwt_dial.h`.

Public Member Functions

- [QwtDialScaleDraw](#) ([QwtDial](#) *)
- virtual [QwtText](#) `label` (double *value*) const
- void [setPenWidth](#) (uint)
- uint [penWidth](#) () const

5.19.2 Constructor & Destructor Documentation

5.19.2.1 [QwtDialScaleDraw::QwtDialScaleDraw](#) ([QwtDial](#) * *parent*) [explicit]

Constructor

Parameters:

parent Parent dial widget

Definition at line 91 of file `qwt_dial.cpp`.

5.19.3 Member Function Documentation

5.19.3.1 [QwtText](#) [QwtDialScaleDraw::label](#) (double *value*) const [virtual]

Call [QwtDial::scaleLabel](#) of the parent dial widget.

Parameters:

value Value to display

See also:

[QwtDial::scaleLabel](#)

Reimplemented from [QwtAbstractScaleDraw](#).

Definition at line 125 of file `qwt_dial.cpp`.

References [QwtAbstractScaleDraw::label\(\)](#), and [QwtDial::scaleLabel\(\)](#).

5.19.3.2 [uint](#) [QwtDialScaleDraw::penWidth](#) () const

Returns:

Pen width used for painting the scale

See also:

[setPenWidth](#), [QwtDial::drawScale\(\)](#)

Definition at line 113 of file `qwt_dial.cpp`.

5.19.3.3 void QwtDialScaleDraw::setPenWidth (uint *penWidth*)

Set the pen width used for painting the scale

Parameters:

penWidth Pen width

See also:

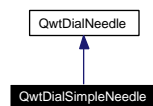
[penWidth\(\)](#), [QwtDial::drawScale\(\)](#)

Definition at line 104 of file qwt_dial.cpp.

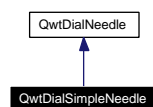
Referenced by [QwtDial::setScaleTicks\(\)](#).

5.20 QwtDialSimpleNeedle Class Reference

Inheritance diagram for QwtDialSimpleNeedle:



Collaboration diagram for QwtDialSimpleNeedle:



5.20.1 Detailed Description

A needle for dial widgets.

The following colors are used:

- [QColorGroup::Mid](#)
Pointer
- [QColorGroup::base](#)
Knob

See also:

[QwtDial](#), [QwtCompass](#)

Definition at line 73 of file qwt_dial_needle.h.

Public Types

- enum [Style](#) {
 Arrow,
 Ray }

Public Member Functions

- [QwtDialSimpleNeedle](#) ([Style](#), bool hasKnob=true, const QColor &mid=Qt::gray, const QColor &base=Qt::darkGray)
- virtual void [draw](#) (QPainter *, const QPoint &, int length, double direction, QPalette::ColorGroup=QPalette::Active) const
- void [setWidth](#) (int width)
- int [width](#) () const

Static Public Member Functions

- static void [drawArrowNeedle](#) (QPainter *, const QPalette &, QPalette::ColorGroup, const QPoint &, int length, int width, double direction, bool hasKnob)
- static void [drawRayNeedle](#) (QPainter *, const QPalette &, QPalette::ColorGroup, const QPoint &, int length, int width, double direction, bool hasKnob)

5.20.2 Member Enumeration Documentation

5.20.2.1 enum [QwtDialSimpleNeedle::Style](#)

Style of the needle.

Definition at line 77 of file qwt_dial_needle.h.

5.20.3 Constructor & Destructor Documentation

5.20.3.1 [QwtDialSimpleNeedle::QwtDialSimpleNeedle](#) ([Style](#) *style*, bool *hasKnob* = true, const QColor & *mid* = Qt::gray, const QColor & *base* = Qt::darkGray)

Constructor

Definition at line 91 of file qwt_dial_needle.cpp.

References [QwtDialNeedle::palette\(\)](#).

5.20.4 Member Function Documentation

5.20.4.1 void [QwtDialSimpleNeedle::draw](#) (QPainter * *painter*, const QPoint & *center*, int *length*, double *direction*, QPalette::ColorGroup *colorGroup* = QPalette::Active) const [virtual]

Draw the needle

Parameters:

painter Painter

center Center of the dial, start position for the needle

length Length of the needle

direction Direction of the needle, in degrees counter clockwise

colorGroup Color group, used for painting

Implements [QwtDialNeedle](#).

Definition at line 132 of file qwt_dial_needle.cpp.

References [drawArrowNeedle\(\)](#), [drawRayNeedle\(\)](#), and [QwtDialNeedle::palette\(\)](#).

5.20.4.2 void QwtDialSimpleNeedle::drawArrowNeedle (QPainter * *painter*, const QPalette & *palette*, QPalette::ColorGroup *colorGroup*, const QPoint & *center*, int *length*, int *width*, double *direction*, bool *hasKnob*) [static]

Draw a needle looking like an arrow

Definition at line 202 of file qwt_dial_needle.cpp.

References QwtDialNeedle::drawKnob().

Referenced by draw().

5.20.4.3 void QwtDialSimpleNeedle::drawRayNeedle (QPainter * *painter*, const QPalette & *palette*, QPalette::ColorGroup *colorGroup*, const QPoint & *center*, int *length*, int *width*, double *direction*, bool *hasKnob*) [static]

Draw a needle looking like a ray

Definition at line 150 of file qwt_dial_needle.cpp.

References QwtDialNeedle::drawKnob().

Referenced by draw().

5.20.4.4 void QwtDialSimpleNeedle::setWidth (int *width*)

Set the width of the needle.

Definition at line 110 of file qwt_dial_needle.cpp.

5.20.4.5 int QwtDialSimpleNeedle::width () const

Returns:

the width of the needle

Definition at line 118 of file qwt_dial_needle.cpp.

5.21 QwtDoubleInterval Class Reference

5.21.1 Detailed Description

A class representing an interval.

The interval is represented by 2 doubles, the lower and the upper limit.

Definition at line 21 of file qwt_double_interval.h.

Public Member Functions

- [QwtDoubleInterval](#) ()
- [QwtDoubleInterval](#) (double min**Value**, double max**Value**)
- void [setInterval](#) (double min**Value**, double max**Value**)
- [QwtDoubleInterval normalized](#) () const
- [QwtDoubleInterval inverted](#) () const
- [QwtDoubleInterval limited](#) (double min**Value**, double max**Value**) const
- int [operator==](#) (const [QwtDoubleInterval](#) &) const

- `int operator!= (const QwtDoubleInterval &) const`
- `double minValue () const`
- `double maxValue () const`
- `double width () const`
- `void setMinValue (double)`
- `void setMaxValue (double)`
- `bool contains (double value) const`
- `bool intersects (const QwtDoubleInterval &) const`
- `QwtDoubleInterval intersect (const QwtDoubleInterval &) const`
- `QwtDoubleInterval unite (const QwtDoubleInterval &) const`
- `QwtDoubleInterval operator| (const QwtDoubleInterval &) const`
- `QwtDoubleInterval operator & (const QwtDoubleInterval &) const`
- `QwtDoubleInterval & operator|= (const QwtDoubleInterval &)`
- `QwtDoubleInterval & operator &= (const QwtDoubleInterval &)`
- `QwtDoubleInterval extend (double value) const`
- `QwtDoubleInterval operator| (double) const`
- `QwtDoubleInterval & operator|= (double)`
- `bool isValid () const`
- `bool isNull () const`
- `void invalidate ()`
- `QwtDoubleInterval symmetrize (double value) const`

5.21.2 Constructor & Destructor Documentation

5.21.2.1 QwtDoubleInterval::QwtDoubleInterval () [inline]

Default Constructor.

Creates an invalid interval [0.0, -1.0]

See also:

[setInterval](#), [isValid](#)

Definition at line 77 of file `qwt_double_interval.h`.

Referenced by `extend()`, `intersect()`, `inverted()`, `limited()`, `normalized()`, `symmetrize()`, and `unite()`.

5.21.2.2 QwtDoubleInterval::QwtDoubleInterval (double *minValue*, double *maxValue*) [inline]

Constructor

Parameters:

minValue Minimum value

maxValue Maximum value

Definition at line 89 of file `qwt_double_interval.h`.

5.21.3 Member Function Documentation

5.21.3.1 `bool QwtDoubleInterval::contains (double value) const`

Test if a value is inside an interval

Parameters:

value Value

Returns:

true, if `value >= minValue()` && `value <= maxValue()`

Definition at line 54 of file `qwt_double_interval.cpp`.

References `isValid()`.

5.21.3.2 `QwtDoubleInterval QwtDoubleInterval::extend (double value) const`

Extend the interval

If `value` is below `minValue`, `value` becomes the lower limit. If `value` is above `maxValue`, `value` becomes the upper limit.

`extend` has no effect for invalid intervals

Parameters:

value Value

See also:

[`isValid`](#)

Definition at line 185 of file `qwt_double_interval.cpp`.

References `isValid()`, and `QwtDoubleInterval()`.

Referenced by `QwtLog10ScaleEngine::autoScale()`, `QwtLinearScaleEngine::autoScale()`, and `operator|()`.

5.21.3.3 `QwtDoubleInterval QwtDoubleInterval::intersect (const QwtDoubleInterval &) const`

Intersect 2 intervals.

Definition at line 83 of file `qwt_double_interval.cpp`.

References `isValid()`, `maxValue()`, `minValue()`, and `QwtDoubleInterval()`.

Referenced by `operator &()`.

5.21.3.4 `bool QwtDoubleInterval::intersects (const QwtDoubleInterval & interval) const`

Test if two intervals overlap

Definition at line 119 of file `qwt_double_interval.cpp`.

References `isValid()`, `maxValue()`, and `minValue()`.

5.21.3.5 `void QwtDoubleInterval::invalidate () [inline]`

Invalidate the interval

The limits are set to interval `[0.0, -1.0]`

See also:

[isValid](#)

Definition at line 211 of file qwt_double_interval.h.

5.21.3.6 [QwtDoubleInterval](#) QwtDoubleInterval::inverted () const

Invert the limits of the interval

Returns:

Inverted interval

See also:

[normalized](#)

Definition at line 43 of file qwt_double_interval.cpp.

References [QwtDoubleInterval\(\)](#).

5.21.3.7 bool QwtDoubleInterval::isNull () const [inline]

Returns:

true, if [minValue\(\)](#) >= [maxValue\(\)](#)

Definition at line 194 of file qwt_double_interval.h.

5.21.3.8 bool QwtDoubleInterval::isValid () const [inline]

Returns:

true, if [minValue\(\)](#) <= [maxValue\(\)](#)

Definition at line 200 of file qwt_double_interval.h.

Referenced by [QwtLinearColorMap::colorIndex\(\)](#), [QwtColorMap::colorTable\(\)](#), [QwtScaleEngine::contains\(\)](#), [contains\(\)](#), [QwtRasterData::contourLines\(\)](#), [extend\(\)](#), [intersect\(\)](#), [intersects\(\)](#), [limited\(\)](#), [normalized\(\)](#), [QwtAlphaColorMap::rgb\(\)](#), [QwtScaleEngine::strip\(\)](#), [symmetrize\(\)](#), [unite\(\)](#), and [width\(\)](#).

5.21.3.9 [QwtDoubleInterval](#) QwtDoubleInterval::limited (double *lBound*, double *hBound*) const

Limit the interval

Parameters:

lBound Lower limit

hBound Upper limit

Returns:

Limited interval

Definition at line 159 of file qwt_double_interval.cpp.

References [isValid\(\)](#), [maxValue\(\)](#), [minValue\(\)](#), and [QwtDoubleInterval\(\)](#).

Referenced by [QwtLog10ScaleEngine::autoScale\(\)](#), and [QwtLog10ScaleEngine::divideScale\(\)](#).

5.21.3.10 double QwtDoubleInterval::maxValue () const [inline]**Returns:**

Upper limit of the interval

Definition at line 134 of file qwt_double_interval.h.

Referenced by QwtLinearScaleEngine::align(), QwtLog10ScaleEngine::autoScale(), QwtLinearScaleEngine::autoScale(), QwtLinearColorMap::colorIndex(), QwtScaleEngine::contains(), QwtLog10ScaleEngine::divideScale(), intersect(), intersects(), limited(), QwtLog10ScaleEngine::log10(), QwtLog10ScaleEngine::pow10(), QwtAbstractScale::setScale(), and unite().

5.21.3.11 double QwtDoubleInterval::minValue () const [inline]**Returns:**

Lower limit of the interval

Definition at line 128 of file qwt_double_interval.h.

Referenced by QwtLinearScaleEngine::align(), QwtLog10ScaleEngine::autoScale(), QwtLinearScaleEngine::autoScale(), QwtLinearColorMap::colorIndex(), QwtColorMap::colorTable(), QwtScaleEngine::contains(), QwtLog10ScaleEngine::divideScale(), intersect(), intersects(), limited(), QwtLog10ScaleEngine::log10(), QwtLog10ScaleEngine::pow10(), QwtAlphaColorMap::rgb(), QwtLinearColorMap::rgb(), QwtAbstractScale::setScale(), and unite().

5.21.3.12 QwtDoubleInterval QwtDoubleInterval::normalized () const

Normalize the limits of the interval.

If [maxValue\(\)](#) > [minValue\(\)](#) the limits will be inverted.

Returns:

Normalized interval

See also:

[isValid](#), [inverted](#)

Definition at line 28 of file qwt_double_interval.cpp.

References [isValid\(\)](#), and [QwtDoubleInterval\(\)](#).

Referenced by QwtLinearScaleEngine::autoScale(), and QwtLog10ScaleEngine::divideScale().

5.21.3.13 QwtDoubleInterval QwtDoubleInterval::operator & (const QwtDoubleInterval & interval) const [inline]

Intersection of two intervals

See also:

[intersect](#)

Definition at line 155 of file qwt_double_interval.h.

References [intersect\(\)](#).

5.21.3.14 `int QwtDoubleInterval::operator!= (const QwtDoubleInterval &) const` `[inline]`

Compare two intervals.

Definition at line 179 of file `qwt_double_interval.h`.

5.21.3.15 `int QwtDoubleInterval::operator== (const QwtDoubleInterval &) const` `[inline]`

Compare two intervals.

Definition at line 172 of file `qwt_double_interval.h`.

References `d_maxValue`, and `d_minValue`.

5.21.3.16 `QwtDoubleInterval QwtDoubleInterval::operator| (double value) const` `[inline]`

Extend an interval

See also:

[extend](#)

Definition at line 188 of file `qwt_double_interval.h`.

References `extend()`.

5.21.3.17 `QwtDoubleInterval QwtDoubleInterval::operator| (const QwtDoubleInterval & interval) const` `[inline]`

Union of two intervals

See also:

[unite](#)

Definition at line 165 of file `qwt_double_interval.h`.

References `unite()`.

5.21.3.18 `void QwtDoubleInterval::setInterval (double minValue, double maxValue)` `[inline]`

Assign the limits of the interval

Parameters:

minValue Minimum value

maxValue Maximum value

Definition at line 101 of file `qwt_double_interval.h`.

Referenced by `QwtLog10ScaleEngine::autoScale()`.

5.21.3.19 `void QwtDoubleInterval::setMaxValue (double maxValue)` `[inline]`

Assign the upper limit of the interval

Parameters:

maxValue Maximum value

Definition at line 122 of file qwt_double_interval.h.

Referenced by QwtLinearScaleEngine::autoScale().

5.21.3.20 void QwtDoubleInterval::setMinValue (double *minValue*) [inline]

Assign the lower limit of the interval

Parameters:

minValue Minimum value

Definition at line 112 of file qwt_double_interval.h.

Referenced by QwtLinearScaleEngine::autoScale().

5.21.3.21 QwtDoubleInterval QwtDoubleInterval::symmetrize (double *value*) const

Adjust the limit that is closer to value, so that value becomes the center of the interval.

Parameters:

value Center

Returns:

Interval with value as center

Definition at line 140 of file qwt_double_interval.cpp.

References isValid(), and QwtDoubleInterval().

Referenced by QwtLinearScaleEngine::autoScale().

5.21.3.22 QwtDoubleInterval QwtDoubleInterval::unite (const QwtDoubleInterval &) const

Unite 2 intervals.

Definition at line 63 of file qwt_double_interval.cpp.

References isValid(), maxValue(), minValue(), and QwtDoubleInterval().

Referenced by operator|().

5.21.3.23 double QwtDoubleInterval::width () const [inline]

Return the width of an interval The width of invalid intervals is 0.0, otherwise the result is [maxValue\(\)](#) - [minValue\(\)](#).

See also:

[isValid](#)

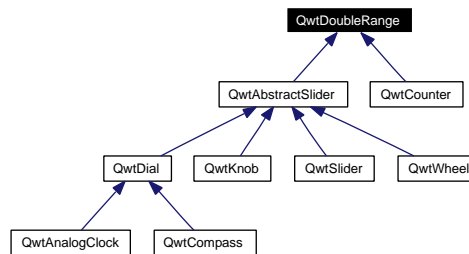
Definition at line 146 of file qwt_double_interval.h.

References isValid().

Referenced by QwtLog10ScaleEngine::autoScale(), QwtLinearScaleEngine::autoScale(), QwtLinearColorMap::colorIndex(), QwtColorMap::colorTable(), QwtScaleEngine::contains(), QwtLog10ScaleEngine::divideScale(), QwtLinearScaleEngine::divideScale(), QwtAlphaColorMap::rgb(), and QwtLinearColorMap::rgb().

5.22 QwtDoubleRange Class Reference

Inheritance diagram for QwtDoubleRange:



5.22.1 Detailed Description

A class which controls a value within an interval.

This class is useful as a base class or a member for sliders. It represents an interval of type double within which a value can be moved. The value can be either an arbitrary point inside the interval (see [QwtDoubleRange::setValue\(\)](#)), or it can be fitted into a step raster (see [QwtDoubleRange::fitValue\(\)](#) and [QwtDoubleRange::incValue\(\)](#)).

As a special case, a [QwtDoubleRange](#) can be periodic, which means that a value outside the interval will be mapped to a value inside the interval when [QwtDoubleRange::setValue\(\)](#), [QwtDoubleRange::fitValue\(\)](#), [QwtDoubleRange::incValue\(\)](#) or [QwtDoubleRange::incPages\(\)](#) are called.

Definition at line 31 of file `qwt_double_range.h`.

Public Member Functions

- [QwtDoubleRange](#) ()
- virtual [~QwtDoubleRange](#) ()
- void [setRange](#) (double vmin, double vmax, double vstep=0.0, int pagesize=1)
- void [setValid](#) (bool)
- bool [isValid](#) () const
- virtual void [setValue](#) (double)
- double [value](#) () const
- void [setPeriodic](#) (bool tf)
- bool [periodic](#) () const
- void [setStep](#) (double)
- double [step](#) () const
- double [maxValue](#) () const
- double [minValue](#) () const
- int [pageSize](#) () const
- virtual void [incValue](#) (int)
- virtual void [incPages](#) (int)
- virtual void [fitValue](#) (double)

Protected Member Functions

- double [exactValue](#) () const
- double [exactPrevValue](#) () const
- double [prevValue](#) () const
- virtual void [valueChange](#) ()
- virtual void [stepChange](#) ()
- virtual void [rangeChange](#) ()

5.22.2 Constructor & Destructor Documentation**5.22.2.1 QwtDoubleRange::QwtDoubleRange ()**

The range is initialized to [0.0, 100.0], the step size to 1.0, and the value to 0.0.

Definition at line 21 of file `qwt_double_range.cpp`.

5.22.2.2 QwtDoubleRange::~QwtDoubleRange () [virtual]

Destroys the [QwtDoubleRange](#).

Definition at line 36 of file `qwt_double_range.cpp`.

5.22.3 Member Function Documentation**5.22.3.1 double QwtDoubleRange::exactPrevValue () const [protected]**

Returns the exact previous value.

Definition at line 380 of file `qwt_double_range.cpp`.

Referenced by `QwtAbstractSlider::mouseMoveEvent()`.

5.22.3.2 double QwtDoubleRange::exactValue () const [protected]

Returns the exact value.

The exact value is the value which [QwtDoubleRange::value](#) would return if the value were not adjusted to the step raster. It differs from the current value only if [QwtDoubleRange::fitValue](#) or [QwtDoubleRange::incValue](#) have been used before. This function is intended for internal use in derived classes.

Definition at line 374 of file `qwt_double_range.cpp`.

Referenced by `QwtAbstractSlider::mouseMoveEvent()`, and `QwtAbstractSlider::timerEvent()`.

5.22.3.3 void QwtDoubleRange::fitValue (double x) [virtual]

Adjust the value to the closest point in the step raster.

Parameters:

x value

Warning:

The value is clipped when it lies outside the range. When the range is [QwtDoubleRange::periodic](#), it will be mapped to a point in the interval such that

```
new value := x + n * (max. value - min. value)
```

with an integer number *n*.

Reimplemented in [QwtAbstractSlider](#).

Definition at line 132 of file `qwt_double_range.cpp`.

Referenced by `QwtAbstractSlider::fitValue()`, `QwtAbstractSlider::mouseReleaseEvent()`, `QwtAbstractSlider::setPosition()`, and `QwtAbstractSlider::timerEvent()`.

5.22.3.4 void QwtDoubleRange::incPages (int *nPages*) [virtual]

Increment the value by a specified number of pages.

Parameters:

nPages Number of pages to increment. A negative number decrements the value.

Warning:

The Page size is specified in the constructor.

Definition at line 271 of file `qwt_double_range.cpp`.

References `isValid()`.

Referenced by `QwtAbstractSlider::mouseReleaseEvent()`, `QwtAbstractSlider::timerEvent()`, and `QwtAbstractSlider::wheelEvent()`.

5.22.3.5 void QwtDoubleRange::incValue (int *nSteps*) [virtual]

Increment the value by a specified number of steps.

Parameters:

nSteps Number of steps to increment

Warning:

As a result of this operation, the new value will always be adjusted to the step raster.

Reimplemented in [QwtAbstractSlider](#).

Definition at line 259 of file `qwt_double_range.cpp`.

References `isValid()`.

Referenced by `QwtAbstractSlider::incValue()`, `QwtDial::keyPressEvent()`, and `QwtCounter::keyPressEvent()`.

5.22.3.6 bool QwtDoubleRange::isValid () const

Indicates if the value is valid.

Reimplemented in [QwtAbstractSlider](#).

Definition at line 51 of file `qwt_double_range.cpp`.

Referenced by `incPages()`, `incValue()`, and `QwtAbstractSlider::isValid()`.

5.22.3.7 double QwtDoubleRange::maxValue () const

Returns the value of the second border of the range.

maxValue returns the value which has been specified as the second parameter in [QwtDoubleRange::setRange](#).

See also:

[QwtDoubleRange::setRange\(\)](#)

Definition at line 326 of file qwt_double_range.cpp.

Referenced by [QwtDial::drawContents\(\)](#), [QwtWheel::drawWheel\(\)](#), [QwtWheel::getValue\(\)](#), [QwtDial::getValue\(\)](#), [QwtDial::keyPressEvent\(\)](#), [QwtCounter::keyPressEvent\(\)](#), [QwtCounter::maxVal\(\)](#), [QwtSlider::rangeChange\(\)](#), [QwtCounter::setMinValue\(\)](#), [QwtCounter::sizeHint\(\)](#), and [QwtDial::updateScale\(\)](#).

5.22.3.8 double QwtDoubleRange::minValue () const

Returns the value at the first border of the range.

minValue returns the value which has been specified as the first parameter in [setRange\(\)](#).

See also:

[QwtDoubleRange::setRange\(\)](#)

Definition at line 339 of file qwt_double_range.cpp.

Referenced by [QwtDial::drawContents\(\)](#), [QwtWheel::drawWheel\(\)](#), [QwtWheel::getValue\(\)](#), [QwtDial::getValue\(\)](#), [QwtDial::keyPressEvent\(\)](#), [QwtCounter::keyPressEvent\(\)](#), [QwtCounter::minVal\(\)](#), [QwtSlider::rangeChange\(\)](#), [QwtCounter::setMaxValue\(\)](#), [QwtCounter::sizeHint\(\)](#), and [QwtDial::updateScale\(\)](#).

5.22.3.9 int QwtDoubleRange::pageSize () const

Returns the page size in steps.

Definition at line 354 of file qwt_double_range.cpp.

Referenced by [QwtDial::keyPressEvent\(\)](#).

5.22.3.10 bool QwtDoubleRange::periodic () const

Returns true if the range is periodic.

See also:

[QwtDoubleRange::setPeriodic\(\)](#)

Definition at line 348 of file qwt_double_range.cpp.

Referenced by [QwtDial::wrapping\(\)](#).

5.22.3.11 double QwtDoubleRange::prevValue () const [protected]

Returns the previous value.

Definition at line 386 of file qwt_double_range.cpp.

Referenced by [QwtDial::keyPressEvent\(\)](#), [QwtAbstractSlider::mouseMoveEvent\(\)](#), and [QwtAbstractSlider::wheelEvent\(\)](#).

5.22.3.12 void QwtDoubleRange::rangeChange () [protected, virtual]

Notify a change of the range.

This virtual function is called whenever the range changes. The default implementation does nothing.

Reimplemented in [QwtCounter](#), [QwtDial](#), and [QwtSlider](#).

Definition at line 294 of file `qwt_double_range.cpp`.

Referenced by `QwtSlider::rangeChange()`, and `setRange()`.

5.22.3.13 void QwtDoubleRange::setPeriodic (bool *tf*)

Make the range periodic.

When the range is periodic, the value will be set to a point inside the interval such that

```
point = value + n * width
```

if the user tries to set a new value which is outside the range. If the range is nonperiodic (the default), values outside the range will be clipped.

Parameters:

tf true for a periodic range

Definition at line 248 of file `qwt_double_range.cpp`.

Referenced by `QwtDial::setWrapping()`.

5.22.3.14 void QwtDoubleRange::setRange (double *vmin*, double *vmax*, double *vstep* = 0.0, int *pageSize* = 1)

Specify range and step size.

Parameters:

vmin lower boundary of the interval

vmax higher boundary of the interval

vstep step width

pageSize page size in steps

Warning:

- A change of the range changes the value if it lies outside the new range. The current value will *not* be adjusted to the new step raster.
- $vmax < vmin$ is allowed.
- If the step size is left out or set to zero, it will be set to 1/100 of the interval length.
- If the step size has an absurd value, it will be corrected to a better one.

Definition at line 169 of file `qwt_double_range.cpp`.

References `rangeChange()`, and `setStep()`.

Referenced by `QwtCounter::setMaxValue()`, and `QwtCounter::setMinValue()`.

5.22.3.15 void QwtDoubleRange::setStep (double *vstep*)

Change the step raster.

Parameters:

vstep new step width

Warning:

The value will *not* be adjusted to the new step raster.

Reimplemented in [QwtCounter](#).

Definition at line 208 of file qwt_double_range.cpp.

References [stepChange\(\)](#).

Referenced by [setRange\(\)](#), and [QwtCounter::setStep\(\)](#).

5.22.3.16 void QwtDoubleRange::setValid (bool)

Set the value to be valid/invalid.

Reimplemented in [QwtAbstractSlider](#).

Definition at line 41 of file qwt_double_range.cpp.

References [valueChange\(\)](#).

Referenced by [QwtAbstractSlider::setValid\(\)](#).

5.22.3.17 void QwtDoubleRange::setValue (double *x*) [virtual]

Set a new value without adjusting to the step raster.

Parameters:

x new value

Warning:

The value is clipped when it lies outside the range. When the range is [QwtDoubleRange::periodic](#), it will be mapped to a point in the interval such that

$$\text{new value} := x + n * (\text{max. value} - \text{min. value})$$

with an integer number *n*.

Reimplemented in [QwtAbstractSlider](#), and [QwtCounter](#).

Definition at line 147 of file qwt_double_range.cpp.

Referenced by [QwtCounter::setValue\(\)](#), and [QwtAbstractSlider::setValue\(\)](#).

5.22.3.18 double QwtDoubleRange::step () const

Returns:

the step size

See also:

[QwtDoubleRange::setStep](#), [QwtDoubleRange::setRange](#)

Reimplemented in [QwtCounter](#).

Definition at line 313 of file qwt_double_range.cpp.

Referenced by [QwtAbstractSlider::mouseReleaseEvent\(\)](#), [QwtCounter::step\(\)](#), and [QwtAbstractSlider::timerEvent\(\)](#).

5.22.3.19 void QwtDoubleRange::stepChange () [protected, virtual]

Notify a change of the step size.

This virtual function is called whenever the step size changes. The default implementation does nothing.

Definition at line 305 of file qwt_double_range.cpp.

Referenced by [setStep\(\)](#).

5.22.3.20 double QwtDoubleRange::value () const

Returns the current value.

Reimplemented in [QwtCounter](#).

Definition at line 360 of file qwt_double_range.cpp.

Referenced by [QwtDial::drawContents\(\)](#), [QwtAnalogClock::drawNeedle\(\)](#), [QwtCompass::drawScaleContents\(\)](#), [QwtSlider::drawSlider\(\)](#), [QwtWheel::drawWheel\(\)](#), [QwtDial::getValue\(\)](#), [QwtAbstractSlider::mouseMoveEvent\(\)](#), [QwtAbstractSlider::mousePressEvent\(\)](#), [QwtAbstractSlider::mouseReleaseEvent\(\)](#), [QwtAbstractSlider::timerEvent\(\)](#), [QwtCounter::value\(\)](#), [QwtAbstractSlider::valueChange\(\)](#), and [QwtAbstractSlider::wheelEvent\(\)](#).

5.22.3.21 void QwtDoubleRange::valueChange () [protected, virtual]

Notify a change of value.

This virtual function is called whenever the value changes. The default implementation does nothing.

Reimplemented in [QwtAbstractSlider](#), [QwtDial](#), [QwtSlider](#), and [QwtWheel](#).

Definition at line 283 of file qwt_double_range.cpp.

Referenced by [setValid\(\)](#).

5.23 QwtDynGridLayout Class Reference

5.23.1 Detailed Description

The [QwtDynGridLayout](#) class lays out widgets in a grid, adjusting the number of columns and rows to the current size.

[QwtDynGridLayout](#) takes the space it gets, divides it up into rows and columns, and puts each of the widgets it manages into the correct cell(s). It lays out as many number of columns as possible (limited by [maxCols\(\)](#)).

Definition at line 32 of file qwt_dyngrid_layout.h.

Public Member Functions

- [QwtDynGridLayout](#) (QWidget *, int margin=0, int space=-1)

- [QwtDynGridLayout](#) (int space=-1)
- virtual [~QwtDynGridLayout](#) ()
- virtual void [invalidate](#) ()
- void [setMaxCols](#) (uint maxCols)
- uint [maxCols](#) () const
- uint [numRows](#) () const
- uint [numCols](#) () const
- virtual void [addItem](#) (QLayoutItem *)
- virtual QLayoutItem * [itemAt](#) (int index) const
- virtual QLayoutItem * [takeAt](#) (int index)
- virtual int [count](#) () const
- void [setExpandingDirections](#) (Qt::Orientations)
- virtual Qt::Orientations [expandingDirections](#) () const
- QList< QRect > [layoutItems](#) (const QRect &, uint numCols) const
- virtual int [maxItemWidth](#) () const
- virtual void [setGeometry](#) (const QRect &rect)
- virtual bool [hasHeightForWidth](#) () const
- virtual int [heightForWidth](#) (int) const
- virtual QSize [sizeHint](#) () const
- virtual bool [isEmpty](#) () const
- uint [itemCount](#) () const
- virtual uint [columnsForWidth](#) (int width) const

Protected Member Functions

- void [layoutGrid](#) (uint numCols, QwtArray< int > &rowHeight, QwtArray< int > &colWidth) const
- void [stretchGrid](#) (const QRect &rect, uint numCols, QwtArray< int > &rowHeight, QwtArray< int > &colWidth) const

5.23.2 Constructor & Destructor Documentation

5.23.2.1 QwtDynGridLayout::QwtDynGridLayout (QWidget * *parent*, int *margin* = 0, int *spacing* = -1) [explicit]

Parameters:

parent Parent widget

margin Margin

spacing Spacing

Definition at line 107 of file qwt_dyngrid_layout.cpp.

5.23.2.2 QwtDynGridLayout::QwtDynGridLayout (int *spacing* = -1) [explicit]

Parameters:

spacing Spacing

Definition at line 133 of file qwt_dyngrid_layout.cpp.

5.23.2.3 QwtDynGridLayout::~~QwtDynGridLayout () [virtual]

Destructor.

Definition at line 158 of file qwt_dyngrid_layout.cpp.

5.23.3 Member Function Documentation

5.23.3.1 void QwtDynGridLayout::addItem (QLayoutItem *) [virtual]

Adds item to the next free position.

Definition at line 212 of file qwt_dyngrid_layout.cpp.

References [invalidate\(\)](#).

5.23.3.2 uint QwtDynGridLayout::columnsForWidth (int *width*) const [virtual]

Calculate the number of columns for a given width. It tries to use as many columns as possible (limited by [maxCols\(\)](#))

Parameters:

width Available width for all columns

See also:

[QwtDynGridLayout::maxCols\(\)](#), [QwtDynGridLayout::setMaxCols\(\)](#)

Definition at line 353 of file qwt_dyngrid_layout.cpp.

References [isEmpty\(\)](#), [itemCount\(\)](#), [maxCols\(\)](#), and [numCols\(\)](#).

Referenced by [heightForWidth\(\)](#), [QwtPlot::printLegend\(\)](#), and [setGeometry\(\)](#).

5.23.3.3 bool QwtDynGridLayout::hasHeightForWidth () const [virtual]

Returns:

true: [QwtDynGridLayout](#) implements [heightForWidth](#).

See also:

[QwtDynGridLayout::heightForWidth\(\)](#)

Definition at line 547 of file qwt_dyngrid_layout.cpp.

5.23.3.4 int QwtDynGridLayout::heightForWidth (int *width*) const [virtual]

Returns:

The preferred height for this layout, given the width *w*.

See also:

[QwtDynGridLayout::hasHeightForWidth\(\)](#)

Definition at line 557 of file qwt_dyngrid_layout.cpp.

References [columnsForWidth\(\)](#), [isEmpty\(\)](#), [itemCount\(\)](#), [layoutGrid\(\)](#), and [numRows\(\)](#).

5.23.3.5 bool QwtDynGridLayout::isEmpty () const [virtual]

Returns:

true if this layout is empty.

Definition at line 222 of file qwt_dyngrid_layout.cpp.

Referenced by columnsForWidth(), heightForWidth(), maxItemWidth(), setGeometry(), sizeHint(), and stretchGrid().

5.23.3.6 uint QwtDynGridLayout::itemCount () const

Returns:

number of layout items

Definition at line 231 of file qwt_dyngrid_layout.cpp.

Referenced by columnsForWidth(), heightForWidth(), setGeometry(), and sizeHint().

5.23.3.7 void QwtDynGridLayout::layoutGrid (uint *numCols*, QwtArray< int > & *rowHeight*, QwtArray< int > & *colWidth*) const [protected]

Calculate the dimensions for the columns and rows for a grid of numCols columns.

Parameters:

numCols Number of columns.

rowHeight Array where to fill in the calculated row heights.

colWidth Array where to fill in the calculated column widths.

Definition at line 518 of file qwt_dyngrid_layout.cpp.

Referenced by heightForWidth(), and sizeHint().

5.23.3.8 QList< QRect > QwtDynGridLayout::layoutItems (const QRect & *rect*, uint *numCols*) const

Calculate the geometries of the layout items for a layout with numCols columns and a given rect.

Parameters:

rect Rect where to place the items

numCols Number of columns

Returns:

item geometries

Definition at line 440 of file qwt_dyngrid_layout.cpp.

References d_data.

Referenced by QwtPlot::printLegend(), and setGeometry().

5.23.3.9 uint QwtDynGridLayout::maxCols () const

Return the upper limit for the number of columns. 0 means unlimited, what is the default.

See also:

[QwtDynGridLayout::setMaxCols\(\)](#)

Definition at line 205 of file qwt_dyngrid_layout.cpp.

Referenced by columnsForWidth().

5.23.3.10 int QwtDynGridLayout::maxItemWidth () const [virtual]

Returns:

the maximum width of all layout items

Definition at line 409 of file qwt_dyngrid_layout.cpp.

References isEmpty().

5.23.3.11 uint QwtDynGridLayout::numCols () const

Returns:

Number of columns of the current layout.

See also:

[QwtDynGridLayout::numRows](#)

Warning:

The number of columns might change whenever the geometry changes

Definition at line 688 of file qwt_dyngrid_layout.cpp.

Referenced by columnsForWidth().

5.23.3.12 uint QwtDynGridLayout::numRows () const

Returns:

Number of rows of the current layout.

See also:

[QwtDynGridLayout::numCols](#)

Warning:

The number of rows might change whenever the geometry changes

Definition at line 678 of file qwt_dyngrid_layout.cpp.

Referenced by heightForWidth(), and sizeHint().

5.23.3.13 void QwtDynGridLayout::setGeometry (const QRect & rect) [virtual]

Reorganizes columns and rows and resizes managed widgets within the rectangle rect.

Definition at line 314 of file qwt_dyngrid_layout.cpp.

References columnsForWidth(), isEmpty(), itemCount(), and layoutItems().

5.23.3.14 void QwtDynGridLayout::setMaxCols (uint *maxCols*)

Limit the number of columns.

Parameters:

maxCols upper limit, 0 means unlimited

See also:

[QwtDynGridLayout::maxCols\(\)](#)

Definition at line 194 of file qwt_dyngrid_layout.cpp.

5.23.3.15 QSize QwtDynGridLayout::sizeHint () const [virtual]

Return the size hint. If [maxCols\(\)](#) > 0 it is the size for a grid with [maxCols\(\)](#) columns, otherwise it is the size for a grid with only one row.

See also:

[QwtDynGridLayout::maxCols\(\)](#), [QwtDynGridLayout::setMaxCols\(\)](#)

Definition at line 647 of file qwt_dyngrid_layout.cpp.

References [isEmpty\(\)](#), [itemCount\(\)](#), [layoutGrid\(\)](#), and [numRows\(\)](#).

5.23.3.16 void QwtDynGridLayout::stretchGrid (const QRect & *rect*, uint *numCols*, QwtArray< int > & *rowHeight*, QwtArray< int > & *colWidth*) const [protected]

Stretch columns in case of [expanding\(\)](#) & [QSizePolicy::Horizontal](#) and rows in case of [expanding\(\)](#) & [QSizePolicy::Vertical](#) to fill the entire rect. Rows and columns are stretched with the same factor.

See also:

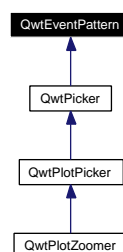
[QwtDynGridLayout::setExpanding\(\)](#), [QwtDynGridLayout::expanding\(\)](#)

Definition at line 586 of file qwt_dyngrid_layout.cpp.

References [expandingDirections\(\)](#), and [isEmpty\(\)](#).

5.24 QwtEventPattern Class Reference

Inheritance diagram for QwtEventPattern:



5.24.1 Detailed Description

A collection of event patterns.

[QwtEventPattern](#) introduces an level of indirection for mouse and keyboard inputs. Those are represented by symbolic names, so the application code can be configured by individual mappings.

See also:

[QwtPicker](#), [QwtPickerMachine](#), [QwtPlotZoomer](#)

Definition at line 28 of file `qwt_event_pattern.h`.

Public Types

- enum [MousePatternCode](#) {
 MouseSelect1,
 MouseSelect2,
 MouseSelect3,
 MouseSelect4,
 MouseSelect5,
 MouseSelect6,
 MousePatternCount }
- enum [KeyPatternCode](#) {
 KeySelect1,
 KeySelect2,
 KeyAbort,
 KeyLeft,
 KeyRight,
 KeyUp,
 KeyDown,
 KeyRedo,
 KeyUndo,
 KeyHome,
 KeyPatternCount }

Public Member Functions

- [QwtEventPattern](#) ()
- virtual [~QwtEventPattern](#) ()
- void [initMousePattern](#) (int numButtons)
- void [initKeyPattern](#) ()
- void [setMousePattern](#) (uint pattern, int button, int state=Qt::NoButton)
- void [setKeyPattern](#) (uint pattern, int key, int state=Qt::NoButton)
- void [setMousePattern](#) (const QwtArray< [MousePattern](#) > &)
- void [setKeyPattern](#) (const QwtArray< [KeyPattern](#) > &)
- const QwtArray< [MousePattern](#) > & [mousePattern](#) () const

- const QwtArray< [KeyPattern](#) > & [keyPattern](#) () const
- QwtArray< [MousePattern](#) > & [mousePattern](#) ()
- QwtArray< [KeyPattern](#) > & [keyPattern](#) ()
- bool [mouseMatch](#) (uint pattern, const QMouseEvent *) const
- bool [keyMatch](#) (uint pattern, const QKeyEvent *) const

Protected Member Functions

- virtual bool [mouseMatch](#) (const [MousePattern](#) &, const QMouseEvent *) const
- virtual bool [keyMatch](#) (const [KeyPattern](#) &, const QKeyEvent *) const

Classes

- class [KeyPattern](#)
A pattern for key events.
- class [MousePattern](#)
A pattern for mouse events.

5.24.2 Member Enumeration Documentation

5.24.2.1 enum [QwtEventPattern::KeyPatternCode](#)

Symbolic keyboard input codes.

Default initialization:

- KeySelect1
Qt::Key_Return
- KeySelect2
Qt::Key_Space
- KeyAbort
Qt::Key_Escape
- KeyLeft
Qt::Key_Left
- KeyRight
Qt::Key_Right
- KeyUp
Qt::Key_Up
- KeyDown
Qt::Key_Down
- KeyUndo
Qt::Key_Minus

- KeyRedo
Qt::Key_Plus
- KeyHome
Qt::Key_Escape

Definition at line 118 of file qwt_event_pattern.h.

5.24.2.2 enum QwtEventPattern::MousePatternCode

Symbolic mouse input codes.

The default initialization for 3 button mice is:

- MouseSelect1
Qt::LeftButton
- MouseSelect2
Qt::RightButton
- MouseSelect3
Qt::MidButton
- MouseSelect4
Qt::LeftButton + Qt::ShiftButton
- MouseSelect5
Qt::RightButton + Qt::ShiftButton
- MouseSelect6
Qt::MidButton + Qt::ShiftButton

The default initialization for 2 button mice is:

- MouseSelect1
Qt::LeftButton
- MouseSelect2
Qt::RightButton
- MouseSelect3
Qt::LeftButton + Qt::AltButton
- MouseSelect4
Qt::LeftButton + Qt::ShiftButton
- MouseSelect5
Qt::RightButton + Qt::ShiftButton
- MouseSelect6
Qt::LeftButton + Qt::AltButton + Qt::ShiftButton

The default initialization for 1 button mice is:

- MouseSelect1
Qt::LeftButton
- MouseSelect2
Qt::LeftButton + Qt::ControlButton
- MouseSelect3
Qt::LeftButton + Qt::AltButton
- MouseSelect4
Qt::LeftButton + Qt::ShiftButton
- MouseSelect5
Qt::LeftButton + Qt::ControlButton + Qt::ShiftButton
- MouseSelect6
Qt::LeftButton + Qt::AltButton + Qt::ShiftButton

See also:

[initMousePattern\(\)](#)

Definition at line 79 of file qwt_event_pattern.h.

5.24.3 Constructor & Destructor Documentation

5.24.3.1 QwtEventPattern::QwtEventPattern ()

Constructor

See also:

[MousePatternCode](#), [KeyPatternCode](#)

Definition at line 19 of file qwt_event_pattern.cpp.

References [initKeyPattern\(\)](#), and [initMousePattern\(\)](#).

5.24.3.2 QwtEventPattern::~QwtEventPattern () [virtual]

Destructor.

Definition at line 28 of file qwt_event_pattern.cpp.

5.24.4 Member Function Documentation

5.24.4.1 void QwtEventPattern::initKeyPattern ()

Set default mouse patterns.

See also:

[KeyPatternCode](#)

Definition at line 88 of file qwt_event_pattern.cpp.

References [setKeyPattern\(\)](#).

Referenced by [QwtEventPattern\(\)](#).

5.24.4.2 void QwtEventPattern::initMousePattern (int *numButtons*)

Set default mouse patterns, depending on the number of mouse buttons

Parameters:

numButtons Number of mouse buttons (≤ 3)

See also:

[MousePatternCode](#)

Definition at line 38 of file qwt_event_pattern.cpp.

References [setMousePattern\(\)](#).

Referenced by [QwtEventPattern\(\)](#).

5.24.4.3 bool QwtEventPattern::keyMatch (const [KeyPattern](#) & *pattern*, const QKeyEvent * *e*) const [protected, virtual]

Compare a key event with an event pattern.

A key event matches the pattern when both have the same key value and in the state value the same key flags (Qt::KeyButtonMask) are set.

Parameters:

pattern Key event pattern

e Key event

Returns:

true if matches

See also:

[mouseMatch\(\)](#)

Definition at line 272 of file qwt_event_pattern.cpp.

References [QwtEventPattern::KeyPattern::key](#), and [QwtEventPattern::KeyPattern::state](#).

5.24.4.4 bool QwtEventPattern::keyMatch (uint *pattern*, const QKeyEvent * *e*) const

Compare a key event with an event pattern.

A key event matches the pattern when both have the same key value and in the state value the same key flags (Qt::KeyButtonMask) are set.

Parameters:

pattern Index of the event pattern

e Key event

Returns:

true if matches

See also:

[mouseMatch\(\)](#)

Definition at line 248 of file qwt_event_pattern.cpp.

Referenced by [QwtPlotZoomer::widgetKeyPressEvent\(\)](#), and [QwtPicker::widgetKeyPressEvent\(\)](#).

5.24.4.5 `QwtArray< QwtEventPattern::KeyPattern > & QwtEventPattern::keyPattern ()`

Return Key patterns.

Definition at line 175 of file `qwt_event_pattern.cpp`.

5.24.4.6 `const QwtArray< QwtEventPattern::KeyPattern > & QwtEventPattern::keyPattern () const`

Return key patterns.

Definition at line 163 of file `qwt_event_pattern.cpp`.

5.24.4.7 `bool QwtEventPattern::mouseMatch (const MousePattern & pattern, const QMouseEvent * e) const` [protected, virtual]

Compare a mouse event with an event pattern.

A mouse event matches the pattern when both have the same button value and in the state value the same key flags(`Qt::KeyButtonMask`) are set.

Parameters:

pattern Mouse event pattern

e Mouse event

Returns:

true if matches

See also:

[keyMatch\(\)](#)

Definition at line 217 of file `qwt_event_pattern.cpp`.

References `QwtEventPattern::MousePattern::button`, and `QwtEventPattern::MousePattern::state`.

5.24.4.8 `bool QwtEventPattern::mouseMatch (uint pattern, const QMouseEvent * e) const`

Compare a mouse event with an event pattern.

A mouse event matches the pattern when both have the same button value and in the state value the same key flags(`Qt::KeyButtonMask`) are set.

Parameters:

pattern Index of the event pattern

e Mouse event

Returns:

true if matches

See also:

[keyMatch\(\)](#)

Definition at line 193 of file `qwt_event_pattern.cpp`.

Referenced by `QwtPickerPolygonMachine::transition()`, `QwtPickerDragRectMachine::transition()`, `QwtPickerClickRectMachine::transition()`, `QwtPickerDragPointMachine::transition()`, `QwtPickerClickPointMachine::transition()`, and `QwtPlotZoomer::widgetMouseReleaseEvent()`.

5.24.4.9 `QwtArray< QwtEventPattern::MousePattern > & QwtEventPattern::mousePattern ()`

Return ,ouse patterns.

Definition at line 169 of file qwt_event_pattern.cpp.

5.24.4.10 `const QwtArray< QwtEventPattern::MousePattern > & QwtEventPattern::mousePattern () const`

Return mouse patterns.

Definition at line 156 of file qwt_event_pattern.cpp.

5.24.4.11 `void QwtEventPattern::setKeyPattern (const QwtArray< KeyPattern > &)`

Change the key event patterns.

Definition at line 149 of file qwt_event_pattern.cpp.

5.24.4.12 `void QwtEventPattern::setKeyPattern (uint pattern, int key, int state = Qt::NoButton)`

Change one key pattern

Parameters:

pattern Index of the pattern

key Key

state State

See also:

QKeyEvent

Definition at line 133 of file qwt_event_pattern.cpp.

Referenced by initKeyPattern().

5.24.4.13 `void QwtEventPattern::setMousePattern (const QwtArray< MousePattern > &)`

Change the mouse event patterns.

Definition at line 143 of file qwt_event_pattern.cpp.

5.24.4.14 `void QwtEventPattern::setMousePattern (uint pattern, int button, int state = Qt::NoButton)`

Change one mouse pattern

Parameters:

pattern Index of the pattern

button Button

state State

See also:

QMouseEvent

Definition at line 115 of file qwt_event_pattern.cpp.

Referenced by initMousePattern().

5.25 QwtEventPattern::KeyPattern Class Reference

5.25.1 Detailed Description

A pattern for key events.

Definition at line 151 of file qwt_event_pattern.h.

Public Member Functions

- [KeyPattern](#) (int k=0, int st=Qt::NoButton)

Public Attributes

- int [key](#)
- int [state](#)

5.26 QwtEventPattern::MousePattern Class Reference

5.26.1 Detailed Description

A pattern for mouse events.

Definition at line 137 of file qwt_event_pattern.h.

Public Member Functions

- [MousePattern](#) (int btn=Qt::NoButton, int st=Qt::NoButton)

Public Attributes

- int [button](#)
- int [state](#)

5.27 QwtIntervalData Class Reference

5.27.1 Detailed Description

Interval data class.

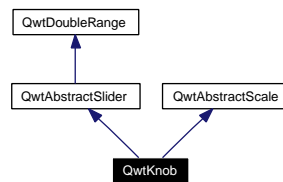
Definition at line 34 of file qwt_interval_data.h.

Public Member Functions

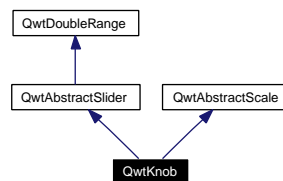
- [QwtIntervalData](#) ()
- [QwtIntervalData](#) (const QwtArray< [QwtDoubleInterval](#) > &, const QwtArray< double > &)
- void [setData](#) (const QwtArray< [QwtDoubleInterval](#) > &, const QwtArray< double > &)
- size_t [size](#) () const
- const [QwtDoubleInterval](#) & [interval](#) (size_t i) const
- double [value](#) (size_t i) const
- QwtDoubleRect [boundingRect](#) () const

5.28 QwtKnob Class Reference

Inheritance diagram for QwtKnob:



Collaboration diagram for QwtKnob:



5.28.1 Detailed Description

The Knob Widget.

The [QwtKnob](#) widget imitates look and behaviour of a volume knob on a radio. It contains a scale around the knob which is set up automatically or can be configured manually (see [QwtAbstractScale](#)). Automatic scrolling is enabled when the user presses a mouse button on the scale. For a description of signals, slots and other members, see [QwtAbstractSlider](#).

See also:

[QwtAbstractSlider](#) and [QwtAbstractScale](#) for the descriptions of the inherited members.

Definition at line 34 of file qwt_knob.h.

Public Types

- enum [Symbol](#) {
 Line,
 Dot }

Public Member Functions

- [QwtKnob](#) (QWidget *parent=NULL)
- virtual [~QwtKnob](#) ()
- void [setKnobWidth](#) (int w)
- int [knobWidth](#) () const
- void [setTotalAngle](#) (double angle)
- double [totalAngle](#) () const

- void [setBorderWidth](#) (int bw)
- int [borderWidth](#) () const
- void [setSymbol](#) (Symbol)
- Symbol [symbol](#) () const
- virtual QSize [sizeHint](#) () const
- virtual QSize [minimumSizeHint](#) () const
- void [setScaleDraw](#) (QwtRoundScaleDraw *)
- const QwtRoundScaleDraw * [scaleDraw](#) () const
- QwtRoundScaleDraw * [scaleDraw](#) ()

Protected Member Functions

- virtual void [paintEvent](#) (QPaintEvent *e)
- virtual void [resizeEvent](#) (QResizeEvent *e)
- void [draw](#) (QPainter *p, const QRect &r)
- void [drawKnob](#) (QPainter *p, const QRect &r)
- void [drawMarker](#) (QPainter *p, double arc, const QColor &c)

5.28.2 Member Enumeration Documentation

5.28.2.1 enum QwtKnob::Symbol

Symbol

See also:

[QwtKnob::QwtKnob\(\)](#)

Definition at line 49 of file qwt_knob.h.

5.28.3 Constructor & Destructor Documentation

5.28.3.1 QwtKnob::QwtKnob (QWidget *parent = NULL) [explicit]

Constructor

Parameters:

parent Parent widget

Definition at line 59 of file qwt_knob.cpp.

5.28.3.2 QwtKnob::~QwtKnob () [virtual]

Destructor.

Definition at line 99 of file qwt_knob.cpp.

5.28.4 Member Function Documentation

5.28.4.1 int QwtKnob::borderWidth () const

Return the border width.

Definition at line 475 of file qwt_knob.cpp.

5.28.4.2 void QwtKnob::draw (QPainter * *p*, const QRect & *ur*) [protected]

Repaint the knob.

Definition at line 382 of file qwt_knob.cpp.

References QwtAbstractScaleDraw::draw(), and scaleDraw().

Referenced by paintEvent().

5.28.4.3 void QwtKnob::drawKnob (QPainter * *painter*, const QRect & *r*) [protected]

Draw the knob.

Parameters:

painter painter

r Bounding rectangle of the knob (without scale)

Definition at line 189 of file qwt_knob.cpp.

References drawMarker(), and QwtAbstractSlider::isValid().

5.28.4.4 void QwtKnob::drawMarker (QPainter * *p*, double *arc*, const QColor & *c*)
[protected]

Draw the marker at the knob's front.

Parameters:

p Painter

arc Angle of the marker

c Marker color

Definition at line 405 of file qwt_knob.cpp.

Referenced by drawKnob().

5.28.4.5 int QwtKnob::knobWidth () const

Return the width of the knob.

Definition at line 459 of file qwt_knob.cpp.

5.28.4.6 QSize QwtKnob::minimumSizeHint () const [virtual]

Return a minimum size hint.

Warning:

The return value of [QwtKnob::minimumSizeHint\(\)](#) depends on the font and the scale.

Definition at line 536 of file qwt_knob.cpp.

References QwtRoundScaleDraw::extent(), and scaleDraw().

Referenced by sizeHint().

5.28.4.7 void QwtKnob::paintEvent (QPaintEvent * *e*) [protected, virtual]

Repaint the knob.

Definition at line 362 of file qwt_knob.cpp.

References `draw()`.

5.28.4.8 void QwtKnob::resizeEvent (QResizeEvent * *e*) [protected, virtual]

Qt Resize Event.

Definition at line 331 of file qwt_knob.cpp.

5.28.4.9 [QwtRoundScaleDraw](#) * QwtKnob::scaleDraw ()

Returns:

the scale draw of the knob

See also:

[setScaleDraw\(\)](#)

Definition at line 179 of file qwt_knob.cpp.

References `QwtAbstractScale::abstractScaleDraw()`.

5.28.4.10 const [QwtRoundScaleDraw](#) * QwtKnob::scaleDraw () const

Returns:

the scale draw of the knob

See also:

[setScaleDraw\(\)](#)

Definition at line 170 of file qwt_knob.cpp.

References `QwtAbstractScale::abstractScaleDraw()`.

Referenced by `draw()`, `minimumSizeHint()`, `setScaleDraw()`, and `setTotalAngle()`.

5.28.4.11 void QwtKnob::setBorderWidth (int *bw*)

Set the knob's border width.

Parameters:

bw new border width

Definition at line 468 of file qwt_knob.cpp.

5.28.4.12 void QwtKnob::setKnobWidth (int *w*)

Change the knob's width.

The specified width must be ≥ 5 , or it will be clipped.

Parameters:

w New width

Definition at line 452 of file qwt_knob.cpp.

5.28.4.13 void QwtKnob::setScaleDraw (QwtRoundScaleDraw * *scaleDraw*)

Change the scale draw of the knob

For changing the labels of the scales, it is necessary to derive from [QwtRoundScaleDraw](#) and overload [QwtRoundScaleDraw::label\(\)](#).

See also:

[scaleDraw\(\)](#)

Definition at line 161 of file qwt_knob.cpp.

References [scaleDraw\(\)](#), and [QwtAbstractScale::setAbstractScaleDraw\(\)](#).

5.28.4.14 void QwtKnob::setSymbol (QwtKnob::Symbol *s*)

Set the symbol of the knob.

See also:

[symbol\(\)](#)

Definition at line 108 of file qwt_knob.cpp.

5.28.4.15 void QwtKnob::setTotalAngle (double *angle*)

Set the total angle by which the knob can be turned.

Parameters:

angle Angle in degrees.

The default angle is 270 degrees. It is possible to specify an angle of more than 360 degrees so that the knob can be turned several times around its axis.

Definition at line 134 of file qwt_knob.cpp.

References [scaleDraw\(\)](#), and [QwtRoundScaleDraw::setAngleRange\(\)](#).

5.28.4.16 QSize QwtKnob::sizeHint () const [virtual]

Returns:

[minimumSizeHint\(\)](#)

Definition at line 526 of file qwt_knob.cpp.

References [minimumSizeHint\(\)](#).

5.28.4.17 QwtKnob::Symbol QwtKnob::symbol () const

Returns:

symbol of the knob

See also:

[setSymbol\(\)](#)

Definition at line 121 of file qwt_knob.cpp.

5.28.4.18 double QwtKnob::totalAngle () const

Return the total angle.

Definition at line 147 of file qwt_knob.cpp.

5.29 QwtLegend Class Reference

5.29.1 Detailed Description

The legend widget.

The [QwtLegend](#) widget is a tabular arrangement of legend items. Legend items might be any type of widget, but in general they will be a [QwtLegendItem](#).

See also:

[QwtLegendItem](#), [QwtPlot](#)

Definition at line 36 of file qwt_legend.h.

Public Types

- enum [LegendDisplayPolicy](#) {
 NoIdentifier = 0,
 FixedIdentifier = 1,
 AutoIdentifier = 2 }
- enum [LegendItemMode](#) {
 ReadOnlyItem,
 ClickableItem,
 CheckableItem }

Public Member Functions

- [QwtLegend](#) (QWidget *parent=NULL)
- virtual [~QwtLegend](#) ()
- void [setDisplayPolicy](#) ([LegendDisplayPolicy](#) policy, int mode)
- [LegendDisplayPolicy](#) [displayPolicy](#) () const
- void [setItemMode](#) ([LegendItemMode](#))
- [LegendItemMode](#) [itemMode](#) () const
- int [identifierMode](#) () const
- QWidget * [contentsWidget](#) ()
- const QWidget * [contentsWidget](#) () const
- void [insert](#) (const [QwtPlotItem](#) *, QWidget *)
- void [remove](#) (const [QwtPlotItem](#) *)
- QWidget * [find](#) (const [QwtPlotItem](#) *) const
- [QwtPlotItem](#) * [find](#) (const QWidget *) const
- virtual QList< QWidget * > [legendItems](#) () const
- void [clear](#) ()
- bool [isEmpty](#) () const
- uint [itemCount](#) () const

- virtual bool [eventFilter](#) (QObject *, QEvent *)
- virtual QSize [sizeHint](#) () const
- virtual int [heightForWidth](#) (int w) const
- QScrollBar * [horizontalScrollBar](#) () const
- QScrollBar * [verticalScrollBar](#) () const

Protected Member Functions

- virtual void [resizeEvent](#) (QResizeEvent *)
- virtual void [layoutContents](#) ()

5.29.2 Member Enumeration Documentation

5.29.2.1 enum [QwtLegend::LegendDisplayPolicy](#)

Display policy.

- NoIdentifier
The client code is responsible how to display of each legend item. The Qwt library will not interfere.
- FixedIdentifier
All legend items are displayed with the [QwtLegendItem::IdentifierMode](#) to be passed in 'mode'.
- AutoIdentifier
Each legend item is displayed with a mode that is a bitwise or of
 - [QwtLegendItem::ShowLine](#) (if its curve is drawn with a line) and
 - [QwtLegendItem::ShowSymbol](#) (if its curve is drawn with symbols) and
 - [QwtLegendItem::ShowText](#) (if the has a title).

Default is AutoIdentifier.

See also:

[setDisplayPolicy\(\)](#), [displayPolicy\(\)](#), [QwtLegendItem::IdentifierMode](#)

Definition at line 62 of file `qwt_legend.h`.

5.29.2.2 enum [QwtLegend::LegendItemMode](#)

Interaction mode for the legend items.

Definition at line 70 of file `qwt_legend.h`.

5.29.3 Constructor & Destructor Documentation

5.29.3.1 [QwtLegend::QwtLegend](#) (QWidget * *parent* = NULL) [[explicit](#)]

Parameters:

parent Parent widget

Definition at line 258 of file `qwt_legend.cpp`.

5.29.3.2 QwtLegend::~~QwtLegend () [virtual]

Destructor.

Definition at line 283 of file qwt_legend.cpp.

5.29.4 Member Function Documentation

5.29.4.1 void QwtLegend::clear ()

Remove all items.

Definition at line 490 of file qwt_legend.cpp.

5.29.4.2 const QWidget * QwtLegend::contentsWidget () const

The contents widget is the only child of the viewport() and the parent widget of all legend items.

Definition at line 375 of file qwt_legend.cpp.

5.29.4.3 QWidget * QwtLegend::contentsWidget ()

The contents widget is the only child of the viewport() and the parent widget of all legend items.

Definition at line 355 of file qwt_legend.cpp.

Referenced by insert(), and QwtPlot::printLegend().

5.29.4.4 [QwtLegend::LegendDisplayPolicy](#) QwtLegend::displayPolicy () const

Returns:

the legend display policy. Default is LegendDisplayPolicy::Auto.

See also:

[setDisplayPolicy](#), [LegendDisplayPolicy](#)

Definition at line 324 of file qwt_legend.cpp.

Referenced by QwtPlotCurve::updateLegend().

5.29.4.5 [QwtPlotItem](#) * QwtLegend::find (const QWidget * *legendItem*) const

Find the widget that represents a plot item

Parameters:

plotItem Plot item

Returns:

Widget on the legend, or NULL

Definition at line 471 of file qwt_legend.cpp.

5.29.4.6 QWidget * QwtLegend::find (const QwtPlotItem * *plotItem*) const

Find the widget that represents a plot item

Parameters:

plotItem Plot item

Returns:

Widget on the legend, or NULL

Definition at line 460 of file qwt_legend.cpp.

Referenced by QwtPlotItem::updateLegend(), and QwtPlotCurve::updateLegend().

5.29.4.7 int QwtLegend::heightForWidth (int *width*) const [virtual]

Returns:

The preferred height, for the width w.

Parameters:

width Width

Definition at line 518 of file qwt_legend.cpp.

5.29.4.8 int QwtLegend::identifierMode () const

Returns:

the IdentifierMode to be used in combination with LegendDisplayPolicy::Fixed.

Default is ShowLine | ShowSymbol | ShowText.

Definition at line 346 of file qwt_legend.cpp.

Referenced by QwtPlotCurve::updateLegend().

5.29.4.9 void QwtLegend::insert (const QwtPlotItem * *plotItem*, QWidget * *legendItem*)

Insert a new item for a plot item

Parameters:

plotItem Plot item

legendItem New legend item

Note:

The parent of item will be changed to [QwtLegend::contentsWidget\(\)](#)

Definition at line 386 of file qwt_legend.cpp.

References contentsWidget().

Referenced by QwtPlotItem::updateLegend().

5.29.4.10 bool QwtLegend::isEmpty () const

Return true, if there are no legend items.

Definition at line 617 of file qwt_legend.cpp.

Referenced by QwtPlotLayout::activate().

5.29.4.11 uint QwtLegend::itemCount () const

Return the number of legend items.

Definition at line 623 of file qwt_legend.cpp.

5.29.4.12 void QwtLegend::layoutContents () [protected, virtual]

Adjust contents widget and item layout to the size of the viewport().

Definition at line 543 of file qwt_legend.cpp.

Referenced by eventFilter().

5.29.4.13 void QwtLegend::remove (const [QwtPlotItem](#) * *plotItem*)

Find the corresponding item for a plotItem and remove it from the item list.

Parameters:

plotItem Plot item

Definition at line 482 of file qwt_legend.cpp.

5.29.4.14 void QwtLegend::resizeEvent (QResizeEvent * *e*) [protected, virtual]

Resize event

Parameters:

e Event

Definition at line 654 of file qwt_legend.cpp.

5.29.4.15 void QwtLegend::setDisplayPolicy ([LegendDisplayPolicy](#) *policy*, int *mode*)

Set the legend display policy to:

Parameters:

policy Legend display policy

mode Identifier mode (or'd ShowLine, ShowSymbol, ShowText)

See also:

[displayPolicy](#), [LegendDisplayPolicy](#)

Definition at line 296 of file qwt_legend.cpp.

References [QwtPlotItem::updateLegend\(\)](#).

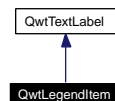
5.29.4.16 QSize QwtLegend::sizeHint () const [virtual]

Return a size hint.

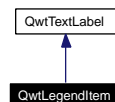
Definition at line 506 of file qwt_legend.cpp.

5.30 QwtLegendItem Class Reference

Inheritance diagram for QwtLegendItem:



Collaboration diagram for QwtLegendItem:



5.30.1 Detailed Description

A legend label.

[QwtLegendItem](#) represents a curve on a legend. It displays an curve identifier with an explaining text. The identifier might be a combination of curve symbol and line. In readonly mode it behaves like a label, otherwise like an unstylish push button.

See also:

[QwtLegend](#), [QwtPlotCurve](#)

Definition at line 35 of file qwt_legend_item.h.

Public Types

- enum [IdentifierMode](#) {
 NoIdentifier = 0,
 ShowLine = 1,
 ShowSymbol = 2,
 ShowText = 4 }

Public Slots

- void [setChecked](#) (bool on)

Signals

- void [clicked](#) ()
- void [pressed](#) ()
- void [released](#) ()
- void [checked](#) (bool)

Public Member Functions

- [QwtLegendItem](#) (QWidget *parent=0)
- [QwtLegendItem](#) (const [QwtSymbol](#) &, const QPen &, const [QwtText](#) &, QWidget *parent=0)
- virtual [~QwtLegendItem](#) ()
- virtual void [setText](#) (const [QwtText](#) &)
- void [setItemMode](#) (QwtLegend::LegendItemMode)
- [QwtLegend::LegendItemMode itemMode](#) () const
- void [setIdentifierMode](#) (int)
- int [identifierMode](#) () const
- void [setIdentifierWidth](#) (int width)
- int [identifierWidth](#) () const
- void [setSpacing](#) (int spacing)
- int [spacing](#) () const
- void [setSymbol](#) (const [QwtSymbol](#) &)
- const [QwtSymbol](#) & [symbol](#) () const
- void [setCurvePen](#) (const QPen &)
- const QPen & [curvePen](#) () const
- virtual void [drawIdentifier](#) (QPainter *, const QRect &) const
- virtual void [drawItem](#) (QPainter *p, const QRect &) const
- virtual QSize [sizeHint](#) () const
- bool [isChecked](#) () const

Protected Member Functions

- void [setDown](#) (bool)
- bool [isDown](#) () const
- virtual void [paintEvent](#) (QPaintEvent *)
- virtual void [mousePressEvent](#) (QMouseEvent *)
- virtual void [mouseReleaseEvent](#) (QMouseEvent *)
- virtual void [keyPressEvent](#) (QKeyEvent *)
- virtual void [keyReleaseEvent](#) (QKeyEvent *)
- virtual void [drawText](#) (QPainter *, const QRect &)

5.30.2 Member Enumeration Documentation

5.30.2.1 enum [QwtLegendItem::IdentifierMode](#)

Identifier mode.

Default is ShowLine | ShowText

See also:

[QwtLegendItem::identifierMode](#), [QwtLegendItem::setIdentifierMode](#)

Definition at line 47 of file `qwt_legend_item.h`.

5.30.3 Constructor & Destructor Documentation

5.30.3.1 QwtLegendItem::QwtLegendItem (QWidget **parent* = 0) [explicit]

Parameters:

parent Parent widget

Definition at line 74 of file qwt_legend_item.cpp.

5.30.3.2 QwtLegendItem::QwtLegendItem (const QwtSymbol & *symbol*, const QPen & *curvePen*, const QwtText & *text*, QWidget **parent* = 0) [explicit]

Parameters:

symbol Curve symbol

curvePen Curve pen

text Label text

parent Parent widget

Definition at line 87 of file qwt_legend_item.cpp.

References `symbol()`, and `QwtTextLabel::text()`.

5.30.3.3 QwtLegendItem::~QwtLegendItem () [virtual]

Destructor.

Definition at line 108 of file qwt_legend_item.cpp.

5.30.4 Member Function Documentation

5.30.4.1 void QwtLegendItem::checked (bool) [signal]

Signal, when the legend item has been toggled.

Referenced by `setDown()`.

5.30.4.2 void QwtLegendItem::clicked () [signal]

Signal, when the legend item has been clicked.

Referenced by `setDown()`.

5.30.4.3 const QPen & QwtLegendItem::curvePen () const

Returns:

The curve pen.

See also:

[setCurvePen\(\)](#)

Definition at line 288 of file qwt_legend_item.cpp.

5.30.4.4 `void QwtLegendItem::drawIdentifier (QPainter * painter, const QRect & rect) const` [virtual]

Paint the identifier to a given rect.

Parameters:

painter Painter

rect Rect where to paint

Definition at line 298 of file qwt_legend_item.cpp.

References QwtPainter::drawLine(), QwtPainter::metricsMap(), and QwtMetricsMap::screenToLayout().

Referenced by drawItem(), and paintEvent().

5.30.4.5 `void QwtLegendItem::drawItem (QPainter * painter, const QRect & rect) const` [virtual]

Draw the legend item to a given rect.

Parameters:

painter Painter

rect Rect where to paint the button

Definition at line 354 of file qwt_legend_item.cpp.

References QwtText::draw(), drawIdentifier(), identifierWidth(), QwtTextLabel::margin(), QwtPainter::metricsMap(), QwtMetricsMap::screenToLayoutX(), spacing(), and QwtTextLabel::text().

5.30.4.6 `void QwtLegendItem::drawText (QPainter *, const QRect &) [protected, virtual]`

Redraw the text.

Reimplemented from [QwtTextLabel](#).

Definition at line 535 of file qwt_legend_item.cpp.

References QwtTextLabel::drawText().

5.30.4.7 `int QwtLegendItem::identifierMode () const`

Or'd values of IdentifierMode.

See also:

[setIdentifierMode\(\)](#), [IdentifierMode](#)

Definition at line 186 of file qwt_legend_item.cpp.

5.30.4.8 `int QwtLegendItem::identifierWidth () const`

Return the width of the identifier

See also:

[setIdentifierWidth](#)

Definition at line 214 of file qwt_legend_item.cpp.

Referenced by drawItem().

5.30.4.9 QwtLegend::LegendItemMode QwtLegendItem::itemMode () const

Return the item mode

See also:

[setItemMode\(\)](#)

Definition at line 161 of file qwt_legend_item.cpp.

5.30.4.10 void QwtLegendItem::paintEvent (QPaintEvent *) [protected, virtual]

Qt paint event.

Reimplemented from [QwtTextLabel](#).

Definition at line 378 of file qwt_legend_item.cpp.

References [QwtTextLabel::drawContents\(\)](#), [drawIdentifier\(\)](#), and [QwtTextLabel::margin\(\)](#).

5.30.4.11 void QwtLegendItem::pressed () [signal]

Signal, when the legend item has been pressed.

Referenced by [setDown\(\)](#).

5.30.4.12 void QwtLegendItem::released () [signal]

Signal, when the legend item has been released.

Referenced by [setDown\(\)](#).

5.30.4.13 void QwtLegendItem::setCurvePen (const QPen & pen)

Set curve pen.

Parameters:

pen Curve pen

See also:

[curvePen\(\)](#)

Definition at line 275 of file qwt_legend_item.cpp.

5.30.4.14 void QwtLegendItem::setIdentifierWidth (int width)

Set the width for the identifier Default is 8 pixels

Parameters:

width New width

See also:

[identifierMode\(\)](#), [identifierWidth](#)

Definition at line 199 of file qwt_legend_item.cpp.

References [QwtTextLabel::margin\(\)](#), and [QwtTextLabel::setIndent\(\)](#).

5.30.4.15 void QwtLegendItem::setIdentifierMode (int *mode*)

Set identifier mode. Default is ShowLine | ShowText.

Parameters:

mode Or'd values of IdentifierMode

See also:

[identifierMode\(\)](#)

Definition at line 173 of file qwt_legend_item.cpp.

5.30.4.16 void QwtLegendItem::setItemMode (QwtLegend::LegendItemMode *mode*)

Set the item mode The default is QwtLegend::ReadOnlyItem

Parameters:

mode Item mode

See also:

[itemMode\(\)](#)

Definition at line 142 of file qwt_legend_item.cpp.

References [QwtTextLabel::setMargin\(\)](#).

5.30.4.17 void QwtLegendItem::setSpacing (int *spacing*)

Change the spacing

Parameters:

spacing Spacing

See also:

[spacing\(\)](#), [identifierWidth\(\)](#), [QwtTextLabel::margin\(\)](#)

Definition at line 224 of file qwt_legend_item.cpp.

References [QwtTextLabel::margin\(\)](#), and [QwtTextLabel::setIndent\(\)](#).

5.30.4.18 void QwtLegendItem::setSymbol (const QwtSymbol & *symbol*)

Set curve symbol.

Parameters:

symbol Symbol

See also:

[symbol\(\)](#)

Definition at line 250 of file qwt_legend_item.cpp.

References [symbol\(\)](#).

5.30.4.19 void QwtLegendItem::setText (const [QwtText](#) & *text*) [virtual]

Set the text to the legend item

Parameters:

text Text label

See also:

[QwtTextLabel::text\(\)](#)

Reimplemented from [QwtTextLabel](#).

Definition at line 120 of file qwt_legend_item.cpp.

References [QwtText::setRenderFlags\(\)](#), [QwtTextLabel::setText\(\)](#), and [QwtTextLabel::text\(\)](#).

5.30.4.20 QSize QwtLegendItem::sizeHint () const [virtual]

Return label's margin in pixels.

Reimplemented from [QwtTextLabel](#).

Definition at line 526 of file qwt_legend_item.cpp.

References [QwtTextLabel::sizeHint\(\)](#).

5.30.4.21 int QwtLegendItem::spacing () const

Return the spacing

See also:

[setSpacing\(\)](#), [identifierWidth\(\)](#), [QwtTextLabel::margin\(\)](#)

Definition at line 239 of file qwt_legend_item.cpp.

Referenced by [drawItem\(\)](#).

5.30.4.22 const [QwtSymbol](#) & QwtLegendItem::symbol () const**Returns:**

The curve symbol.

See also:

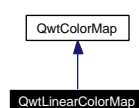
[setSymbol\(\)](#)

Definition at line 263 of file qwt_legend_item.cpp.

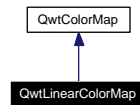
Referenced by [QwtLegendItem\(\)](#), and [setSymbol\(\)](#).

5.31 QwtLinearColorMap Class Reference

Inheritance diagram for QwtLinearColorMap:



Collaboration diagram for QwtLinearColorMap:



5.31.1 Detailed Description

[QwtLinearColorMap](#) builds a color map from color stops.

A color stop is a color at a specific position. The valid range for the positions is [0.0, 1.0]. When mapping a value into a color it is translated into this interval. If `mode() == FixedColors` the color is calculated from the next lower color stop. If `mode() == ScaledColors` the color is calculated by interpolating the colors of the adjacent stops.

Definition at line 111 of file `qwt_color_map.h`.

Public Types

- enum [Mode](#) {
FixedColors,
ScaledColors }

Public Member Functions

- [QwtLinearColorMap](#) ([QwtColorMap::Format](#)=[QwtColorMap::RGB](#))
- [QwtLinearColorMap](#) (const QColor &from, const QColor &to, [QwtColorMap::Format](#)=[QwtColorMap::RGB](#))
- [QwtLinearColorMap](#) (const [QwtLinearColorMap](#) &)
- virtual [~QwtLinearColorMap](#) ()
- [QwtLinearColorMap](#) & operator= (const [QwtLinearColorMap](#) &)
- virtual [QwtColorMap](#) * [copy](#) () const
- void [setMode](#) ([Mode](#))
- [Mode](#) [mode](#) () const
- void [setColorInterval](#) (const QColor &color1, const QColor &color2)
- void [addColorStop](#) (double value, const QColor &)
- [QwtArray](#)< double > [colorStops](#) () const
- QColor [color1](#) () const
- QColor [color2](#) () const
- virtual QRgb [rgb](#) (const [QwtDoubleInterval](#) &, double value) const
- virtual unsigned char [colorIndex](#) (const [QwtDoubleInterval](#) &, double value) const

5.31.2 Member Enumeration Documentation

5.31.2.1 enum [QwtLinearColorMap::Mode](#)

Mode of color map

See also:

[setMode\(\)](#), [mode\(\)](#)

Definition at line 118 of file qwt_color_map.h.

5.31.3 Constructor & Destructor Documentation

5.31.3.1 QwtLinearColorMap::QwtLinearColorMap (QwtColorMap::Format *format* = QwtColorMap::RGB)

Build a color map with two stops at 0.0 and 1.0. The color at 0.0 is Qt::blue, at 1.0 it is Qt::yellow.

Parameters:

format Preferred format of the color map

Definition at line 211 of file qwt_color_map.cpp.

References setColorInterval().

Referenced by copy().

5.31.3.2 QwtLinearColorMap::QwtLinearColorMap (const QColor & *color1*, const QColor & *color2*, QwtColorMap::Format *format* = QwtColorMap::RGB)

Build a color map with two stops at 0.0 and 1.0.

Parameters:

color1 Color used for the minimum value of the value interval

color2 Color used for the maximum value of the value interval

format Preferred format of the color map

Definition at line 235 of file qwt_color_map.cpp.

References setColorInterval().

5.31.3.3 QwtLinearColorMap::QwtLinearColorMap (const QwtLinearColorMap &)

Copy constructor.

Definition at line 221 of file qwt_color_map.cpp.

5.31.3.4 QwtLinearColorMap::~QwtLinearColorMap () [virtual]

Destructor.

Definition at line 245 of file qwt_color_map.cpp.

5.31.4 Member Function Documentation

5.31.4.1 void QwtLinearColorMap::addColorStop (double *value*, const QColor & *color*)

Add a color stop

The value has to be in the range [0.0, 1.0]. F.e. a stop at position 17.0 for a range [10.0,20.0] must be passed as: (17.0 - 10.0) / (20.0 - 10.0)

Parameters:

value Value between [0.0, 1.0]

color Color stop

Definition at line 319 of file qwt_color_map.cpp.

5.31.4.2 QColor QwtLinearColorMap::color1 () const

Returns:

the first color of the color range

See also:

[setColorInterval\(\)](#)

Definition at line 337 of file qwt_color_map.cpp.

5.31.4.3 QColor QwtLinearColorMap::color2 () const

Returns:

the second color of the color range

See also:

[setColorInterval\(\)](#)

Definition at line 346 of file qwt_color_map.cpp.

5.31.4.4 unsigned char QwtLinearColorMap::colorIndex (const [QwtDoubleInterval](#) & *interval*, double *value*) const [virtual]

Map a value of a given interval into a color index, between 0 and 255

Parameters:

interval Range for all values

value Value to map into a color index

Implements [QwtColorMap](#).

Definition at line 370 of file qwt_color_map.cpp.

References [QwtDoubleInterval::isValid\(\)](#), [QwtDoubleInterval::maxValue\(\)](#), [QwtDoubleInterval::minValue\(\)](#), and [QwtDoubleInterval::width\(\)](#).

5.31.4.5 QwtArray< double > QwtLinearColorMap::colorStops () const

Return all positions of color stops in increasing order

Definition at line 328 of file qwt_color_map.cpp.

5.31.4.6 [QwtColorMap](#) * QwtLinearColorMap::copy () const [virtual]

Clone the color map.

Implements [QwtColorMap](#).

Definition at line 260 of file qwt_color_map.cpp.

References [QwtLinearColorMap\(\)](#).

5.31.4.7 [QwtLinearColorMap::Mode](#) QwtLinearColorMap::mode () const

Returns:

Mode of the color map

See also:

[setMode\(\)](#)

Definition at line 286 of file qwt_color_map.cpp.

5.31.4.8 [QwtLinearColorMap](#) & QwtLinearColorMap::operator= (const [QwtLinearColorMap](#) &)

Assignment operator.

Definition at line 251 of file qwt_color_map.cpp.

References `d_data`.

5.31.4.9 [QRgb](#) QwtLinearColorMap::rgb (const [QwtDoubleInterval](#) & *interval*, double *value*) const [virtual]

Map a value of a given interval into a rgb value

Parameters:

interval Range for all values

value Value to map into a rgb value

Implements [QwtColorMap](#).

Definition at line 357 of file qwt_color_map.cpp.

References `QwtDoubleInterval::minValue()`, and `QwtDoubleInterval::width()`.

5.31.4.10 void QwtLinearColorMap::setColorInterval (const QColor & *color1*, const QColor & *color2*)

Set the color range

Add stops at 0.0 and 1.0.

Parameters:

color1 Color used for the minimum value of the value interval

color2 Color used for the maximum value of the value interval

See also:

[color1\(\)](#), [color2\(\)](#)

Definition at line 301 of file qwt_color_map.cpp.

Referenced by `QwtLinearColorMap()`.

5.31.4.11 void QwtLinearColorMap::setMode (Mode mode)

Set the mode of the color map.

FixedColors means the color is calculated from the next lower color stop. ScaledColors means the color is calculated by interpolating the colors of the adjacent stops.

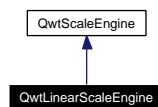
See also:

[mode\(\)](#)

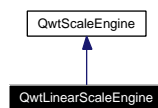
Definition at line 277 of file qwt_color_map.cpp.

5.32 QwtLinearScaleEngine Class Reference

Inheritance diagram for QwtLinearScaleEngine:



Collaboration diagram for QwtLinearScaleEngine:

**5.32.1 Detailed Description**

A scale engine for linear scales.

The step size will fit into the pattern $\{1, 2, 5\} \cdot 10^n$, where n is an integer.

Definition at line 126 of file qwt_scale_engine.h.

Public Member Functions

- virtual void [autoScale](#) (int maxSteps, double &x1, double &x2, double &stepSize) const
- virtual [QwtScaleDiv](#) [divideScale](#) (double x1, double x2, int numMajorSteps, int numMinorSteps, double stepSize=0.0) const
- virtual [QwtScaleTransformation](#) * [transformation](#) () const

Protected Member Functions

- [QwtDoubleInterval](#) [align](#) (const [QwtDoubleInterval](#) &, double stepSize) const

5.32.2 Member Function Documentation

5.32.2.1 [QwtDoubleInterval](#) QwtLinearScaleEngine::align (const [QwtDoubleInterval](#) & *interval*, double *stepSize*) const [protected]

Align an interval to a step size.

The limits of an interval are aligned that both are integer multiples of the step size.

Parameters:

interval Interval

stepSize Step size

Returns:

Aligned interval

Definition at line 600 of file `qwt_scale_engine.cpp`.

References `QwtScaleArithmetic::ceilEps()`, `QwtScaleArithmetic::floorEps()`, `QwtDoubleInterval::maxValue()`, and `QwtDoubleInterval::minValue()`.

Referenced by `autoScale()`.

5.32.2.2 void QwtLinearScaleEngine::autoScale (int *maxNumSteps*, double & *x1*, double & *x2*, double & *stepSize*) const [virtual]

Align and divide an interval

Parameters:

maxNumSteps Max. number of steps

x1 First limit of the interval (In/Out)

x2 Second limit of the interval (In/Out)

stepSize Step size (Out)

See also:

[QwtLinearScaleEngine::setAttribute](#)

Implements [QwtScaleEngine](#).

Definition at line 416 of file `qwt_scale_engine.cpp`.

References `align()`, `QwtScaleEngine::buildInterval()`, `QwtScaleEngine::divideInterval()`, `QwtDoubleInterval::extend()`, `QwtScaleEngine::hiMargin()`, `QwtScaleEngine::loMargin()`, `QwtDoubleInterval::maxValue()`, `QwtDoubleInterval::minValue()`, `QwtDoubleInterval::normalized()`, `QwtScaleEngine::reference()`, `QwtDoubleInterval::setMaxValue()`, `QwtDoubleInterval::setMinValue()`, `QwtDoubleInterval::symmetrize()`, `QwtScaleEngine::testAttribute()`, and `QwtDoubleInterval::width()`.

5.32.2.3 [QwtScaleDiv](#) QwtLinearScaleEngine::divideScale (double *x1*, double *x2*, int *maxMajSteps*, int *maxMinSteps*, double *stepSize* = 0.0) const [virtual]

Calculate a scale division.

Parameters:

x1 First interval limit

x2 Second interval limit

maxMajSteps Maximum for the number of major steps

maxMinSteps Maximum number of minor steps

stepSize Step size. If `stepSize == 0`, the `scaleEngine` calculates one.

See also:

`QwtScaleEngine::stepSize`, `QwtScaleEngine::subDivide`

Implements [QwtScaleEngine](#).

Definition at line 461 of file `qwt_scale_engine.cpp`.

References `QwtScaleEngine::divideInterval()`, and `QwtDoubleInterval::width()`.

Referenced by `QwtLog10ScaleEngine::divideScale()`, and `QwtDial::updateScale()`.

5.32.2.4 QwtScaleTransformation * **QwtLinearScaleEngine::transformation** () **const**
[virtual]

Return a transformation, for linear scales

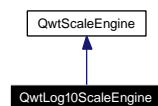
Implements [QwtScaleEngine](#).

Definition at line 401 of file `qwt_scale_engine.cpp`.

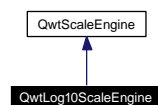
Referenced by `QwtDial::updateScale()`.

5.33 QwtLog10ScaleEngine Class Reference

Inheritance diagram for `QwtLog10ScaleEngine`:



Collaboration diagram for `QwtLog10ScaleEngine`:



5.33.1 Detailed Description

A scale engine for logarithmic (base 10) scales.

The step size is measured in **decades** and the major step size will be adjusted to fit the pattern $\{1, 2, 3, 5\} \cdot 10^n$, where n is a natural number including zero.

Warning:

the step size as well as the margins are measured in **decades**.

Definition at line 167 of file `qwt_scale_engine.h`.

Public Member Functions

- virtual void [autoScale](#) (int maxSteps, double &x1, double &x2, double &stepSize) const
- virtual [QwtScaleDiv divideScale](#) (double x1, double x2, int numMajorSteps, int numMinorSteps, double stepSize=0.0) const
- virtual [QwtScaleTransformation * transformation](#) () const

Protected Member Functions

- [QwtDoubleInterval log10](#) (const [QwtDoubleInterval](#) &) const
- [QwtDoubleInterval pow10](#) (const [QwtDoubleInterval](#) &) const

5.33.2 Member Function Documentation

5.33.2.1 void QwtLog10ScaleEngine::autoScale (int *maxNumSteps*, double & *x1*, double & *x2*, double & *stepSize*) const [virtual]

Align and divide an interval

Parameters:

- maxNumSteps* Max. number of steps
x1 First limit of the interval (In/Out)
x2 Second limit of the interval (In/Out)
stepSize Step size (Out)

See also:

[QwtScaleEngine::setAttribute](#)

Implements [QwtScaleEngine](#).

Definition at line 629 of file `qwt_scale_engine.cpp`.

References [QwtScaleEngine::buildInterval\(\)](#), [QwtScaleEngine::divideInterval\(\)](#), [QwtDoubleInterval::extend\(\)](#), [QwtScaleEngine::hiMargin\(\)](#), [QwtDoubleInterval::limited\(\)](#), [log10\(\)](#), [QwtScaleEngine::loMargin\(\)](#), [QwtDoubleInterval::maxValue\(\)](#), [QwtDoubleInterval::minValue\(\)](#), [QwtScaleEngine::reference\(\)](#), [QwtDoubleInterval::setInterval\(\)](#), [QwtScaleEngine::testAttribute\(\)](#), and [QwtDoubleInterval::width\(\)](#).

5.33.2.2 [QwtScaleDiv](#) QwtLog10ScaleEngine::divideScale (double *x1*, double *x2*, int *maxMajSteps*, int *maxMinSteps*, double *stepSize* = 0.0) const [virtual]

Calculate a scale division.

Parameters:

- x1* First interval limit
x2 Second interval limit
maxMajSteps Maximum for the number of major steps
maxMinSteps Maximum number of minor steps
stepSize Step size. If `stepSize == 0`, the scaleEngine calculates one.

See also:

[QwtScaleEngine::stepSize](#), [QwtLog10ScaleEngine::subDivide](#)

Implements [QwtScaleEngine](#).

Definition at line 686 of file qwt_scale_engine.cpp.

References [QwtScaleEngine::attributes\(\)](#), [QwtScaleEngine::divideInterval\(\)](#), [QwtLinearScaleEngine::divideScale\(\)](#), [QwtScaleEngine::hiMargin\(\)](#), [QwtScaleDiv::invert\(\)](#), [QwtDoubleInterval::limited\(\)](#), [log10\(\)](#), [QwtScaleEngine::loMargin\(\)](#), [QwtDoubleInterval::maxValue\(\)](#), [QwtDoubleInterval::minValue\(\)](#), [QwtDoubleInterval::normalized\(\)](#), [QwtScaleEngine::reference\(\)](#), [QwtScaleEngine::setAttributes\(\)](#), [QwtScaleEngine::setMargins\(\)](#), [QwtScaleEngine::setReference\(\)](#), and [QwtDoubleInterval::width\(\)](#).

5.33.2.3 [QwtDoubleInterval](#) [QwtLog10ScaleEngine::log10](#) (const [QwtDoubleInterval](#) & interval) const [protected]

Return the interval [[log10](#)(interval.minValue()), [log10](#)(interval.maxValue)]

Definition at line 892 of file qwt_scale_engine.cpp.

References [QwtDoubleInterval::maxValue\(\)](#), and [QwtDoubleInterval::minValue\(\)](#).

Referenced by [autoScale\(\)](#), and [divideScale\(\)](#).

5.33.2.4 [QwtDoubleInterval](#) [QwtLog10ScaleEngine::pow10](#) (const [QwtDoubleInterval](#) & interval) const [protected]

Return the interval [[pow10](#)(interval.minValue()), [pow10](#)(interval.maxValue)]

Definition at line 902 of file qwt_scale_engine.cpp.

References [QwtDoubleInterval::maxValue\(\)](#), and [QwtDoubleInterval::minValue\(\)](#).

5.33.2.5 [QwtScaleTransformation](#) * [QwtLog10ScaleEngine::transformation](#) () const [virtual]

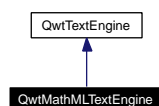
Return a transformation, for logarithmic (base 10) scales

Implements [QwtScaleEngine](#).

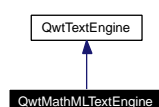
Definition at line 614 of file qwt_scale_engine.cpp.

5.34 QwtMathMLTextEngine Class Reference

Inheritance diagram for QwtMathMLTextEngine:



Collaboration diagram for QwtMathMLTextEngine:



5.34.1 Detailed Description

Text Engine for the MathML renderer of the Qt solutions package.

The Qt Solution package includes a renderer for MathML <http://www.trolltech.com/products/qt/addon/solutions/> that is available for owners of a commercial Qt license. You need a version ≥ 2.1 , that is only available for Qt4.

To enable MathML support the following code needs to be added to the application:

```
#include <qwt_mathml_text_engine.h>

QwtText::setTextEngine(QwtText::MathMLText, new QwtMathMLTextEngine());
```

See also:

[QwtTextEngine](#), [QwtText::setTextEngine](#)

Warning:

Unfortunately the MathML renderer doesn't support rotating of texts.

Definition at line 39 of file `qwt_mathml_text_engine.h`.

Public Member Functions

- [QwtMathMLTextEngine \(\)](#)
- virtual [~QwtMathMLTextEngine \(\)](#)
- virtual int [heightForWidth](#) (const QFont &font, int flags, const QString &text, int width) const
- virtual QSize [textSize](#) (const QFont &font, int flags, const QString &text) const
- virtual void [draw](#) (QPainter *painter, const QRect &rect, int flags, const QString &text) const
- virtual bool [mightRender](#) (const QString &) const
- virtual void [textMargins](#) (const QFont &, const QString &, int &left, int &right, int &top, int &bottom) const

5.34.2 Constructor & Destructor Documentation

5.34.2.1 QwtMathMLTextEngine::QwtMathMLTextEngine ()

Constructor.

Definition at line 22 of file `qwt_mathml_text_engine.cpp`.

5.34.2.2 QwtMathMLTextEngine::~QwtMathMLTextEngine () [virtual]

Destructor.

Definition at line 27 of file `qwt_mathml_text_engine.cpp`.

5.34.3 Member Function Documentation

5.34.3.1 void QwtMathMLTextEngine::draw (QPainter * painter, const QRect & rect, int flags, const QString & text) const [virtual]

Draw the text in a clipping rectangle

Parameters:

painter Painter
rect Clipping rectangle
flags Bitwise OR of the flags like in for QPainter::drawText
text Text to be rendered

Implements [QwtTextEngine](#).

Definition at line 97 of file qwt_mathml_text_engine.cpp.

5.34.3.2 int QwtMathMLTextEngine::heightForWidth (const QFont & *font*, int *flags*, const QString & *text*, int *width*) const [virtual]

Find the height for a given width

Parameters:

font Font of the text
flags Bitwise OR of the flags used like in QPainter::drawText
text Text to be rendered
width Width

Returns:

Calculated height

Implements [QwtTextEngine](#).

Definition at line 41 of file qwt_mathml_text_engine.cpp.

References [textSize\(\)](#).

5.34.3.3 bool QwtMathMLTextEngine::mightRender (const QString & *text*) const [virtual]

Test if a string can be rendered by [QwtMathMLTextEngine](#)

Parameters:

text Text to be tested

Returns:

true, if text begins with "<math>".

Implements [QwtTextEngine](#).

Definition at line 131 of file qwt_mathml_text_engine.cpp.

5.34.3.4 void QwtMathMLTextEngine::textMargins (const QFont &, const QString &, int & *left*, int & *right*, int & *top*, int & *bottom*) const [virtual]

Return margins around the texts

Parameters:

left Return 0
right Return 0

top Return 0

bottom Return 0

Implements [QwtTextEngine](#).

Definition at line 83 of file qwt_mathml_text_engine.cpp.

5.34.3.5 QSize QwtMathMLTextEngine::textSize (const QFont & *font*, int *flags*, const QString & *text*) const [virtual]

Returns the size, that is needed to render text

Parameters:

font Font of the text

flags Bitwise OR of the flags used like in QPainter::drawText

text Text to be rendered

Returns:

Calculated size

Implements [QwtTextEngine](#).

Definition at line 56 of file qwt_mathml_text_engine.cpp.

Referenced by heightForWidth().

5.35 QwtMetricsMap Class Reference

5.35.1 Detailed Description

A Map to translate between layout, screen and paint device metrics.

Definition at line 31 of file qwt_layout_metrics.h.

Public Member Functions

- [QwtMetricsMap](#) ()
- bool [isIdentity](#) () const
- void [setMetrics](#) (const QPaintDevice *layoutMetrics, const QPaintDevice *deviceMetrics)
- int [layoutToDeviceX](#) (int x) const
- int [deviceToLayoutX](#) (int x) const
- int [screenToLayoutX](#) (int x) const
- int [layoutToScreenX](#) (int x) const
- int [layoutToDeviceY](#) (int y) const
- int [deviceToLayoutY](#) (int y) const
- int [screenToLayoutY](#) (int y) const
- int [layoutToScreenY](#) (int y) const
- QPoint [layoutToDevice](#) (const QPoint &, const QPainter *=>NULL) const
- QPoint [deviceToLayout](#) (const QPoint &, const QPainter *=>NULL) const
- QPoint [screenToLayout](#) (const QPoint &) const
- QPoint [layoutToScreen](#) (const QPoint &point) const
- QSize [layoutToDevice](#) (const QSize &) const

- QSize [deviceToLayout](#) (const QSize &) const
- QSize [screenToLayout](#) (const QSize &) const
- QSize [layoutToScreen](#) (const QSize &) const
- QRect [layoutToDevice](#) (const QRect &, const QPainter *=*NULL*) const
- QRect [deviceToLayout](#) (const QRect &, const QPainter *=*NULL*) const
- QRect [screenToLayout](#) (const QRect &) const
- QRect [layoutToScreen](#) (const QRect &) const
- QwtPolygon [layoutToDevice](#) (const QwtPolygon &, const QPainter *=*NULL*) const
- QwtPolygon [deviceToLayout](#) (const QwtPolygon &, const QPainter *=*NULL*) const

Static Public Member Functions

- static QwtPolygon [translate](#) (const QMatrix &, const QwtPolygon &)
- static QRect [translate](#) (const QMatrix &, const QRect &)

5.35.2 Member Function Documentation

5.35.2.1 QRect QwtMetricsMap::translate (const QMatrix & *m*, const QRect & *rect*) [static]

Wrapper for QMatrix::mapRect.

Parameters:

m Matrix

rect Rectangle to translate

Returns:

Translated rectangle

Definition at line 313 of file qwt_layout_metrics.cpp.

5.35.2.2 QwtPolygon QwtMetricsMap::translate (const QMatrix & *m*, const QwtPolygon & *pa*) [static]

Wrapper for QMatrix::map.

Parameters:

m Matrix

pa Polygon to translate

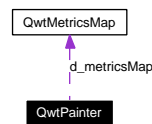
Returns:

Translated polygon

Definition at line 326 of file qwt_layout_metrics.cpp.

5.36 QwtPainter Class Reference

Collaboration diagram for QwtPainter:



5.36.1 Detailed Description

A collection of QPainter workarounds.

1) Clipping to coordinate system limits (Qt3 only)

On X11 pixel coordinates are stored in shorts. Qt produces overruns when mapping QCOORDS to shorts.

2) Scaling to device metrics

QPainter scales fonts, line and fill patterns to the metrics of the paint device. Other values like the geometries of rects, points remain device independent. To enable a device independent widget implementation, [QwtPainter](#) adds scaling of these geometries. (Unfortunately QPainter::scale scales both types of paintings, so the objects of the first type would be scaled twice).

Definition at line 62 of file qwt_painter.h.

Static Public Member Functions

- static void [setMetricsMap](#) (const QPainterDevice *layout, const QPainterDevice *device)
- static void [setMetricsMap](#) (const [QwtMetricsMap](#) &)
- static void [resetMetricsMap](#) ()
- static const [QwtMetricsMap](#) & [metricsMap](#) ()
- static void [setDeviceClipping](#) (bool)
- static bool [deviceClipping](#) ()
- static void [setClipRect](#) (QPainter *, const QRect &)
- static void [drawText](#) (QPainter *, int x, int y, const QString &)
- static void [drawText](#) (QPainter *, const QPoint &, const QString &)
- static void [drawText](#) (QPainter *, int x, int y, int w, int h, int flags, const QString &)
- static void [drawText](#) (QPainter *, const QRect &, int flags, const QString &)
- static void [drawSimpleRichText](#) (QPainter *, const QRect &, int flags, QTextDocument &)
- static void [drawRect](#) (QPainter *, int x, int y, int w, int h)
- static void [drawRect](#) (QPainter *, const QRect &rect)
- static void [fillRect](#) (QPainter *, const QRect &, const QBrush &)
- static void [drawEllipse](#) (QPainter *, const QRect &)
- static void [drawPie](#) (QPainter *, const QRect &r, int a, int alen)
- static void [drawLine](#) (QPainter *, int x1, int y1, int x2, int y2)
- static void [drawLine](#) (QPainter *, const QPoint &p1, const QPoint &p2)
- static void [drawPolygon](#) (QPainter *, const QwtPolygon &pa)
- static void [drawPolyline](#) (QPainter *, const QwtPolygon &pa)
- static void [drawPoint](#) (QPainter *, int x, int y)
- static void [drawRoundFrame](#) (QPainter *, const QRect &, int width, const QPalette &, bool sunken)
- static void [drawFocusRect](#) (QPainter *, QWidget *)

- static void [drawFocusRect](#) (QPainter *, QWidget *, const QRect &)
- static QwtPolygon [clip](#) (const QwtPolygon &)
- static void [drawColorBar](#) (QPainter *painter, const [QwtColorMap](#) &, const [QwtDoubleInterval](#) &, const [QwtScaleMap](#) &, Qt::Orientation, const QRect &)

5.36.2 Member Function Documentation

5.36.2.1 QwtPolygon QwtPainter::clip (const QwtPolygon &) [static]

Clip a point array.

Definition at line 95 of file qwt_painter.cpp.

References [QwtRect::clip\(\)](#).

Referenced by [drawPolygon\(\)](#), and [drawPolyline\(\)](#).

5.36.2.2 bool QwtPainter::deviceClipping () [static]

Returns whether device clipping is enabled. On X11 the default is enabled, otherwise it is disabled.

See also:

[QwtPainter::setDeviceClipping\(\)](#)

Definition at line 73 of file qwt_painter.cpp.

5.36.2.3 void QwtPainter::drawEllipse (QPainter *painter, const QRect & rect) [static]

Wrapper for QPainter::drawEllipse()

Definition at line 295 of file qwt_painter.cpp.

References [QwtMetricsMap::layoutToDevice\(\)](#).

Referenced by [QwtSymbol::draw\(\)](#), and [QwtPicker::drawRubberBand\(\)](#).

5.36.2.4 void QwtPainter::drawLine (QPainter *, const QPoint & p1, const QPoint & p2) [inline, static]

Wrapper for QPainter::drawLine().

Definition at line 143 of file qwt_painter.h.

References [drawLine\(\)](#).

5.36.2.5 void QwtPainter::drawLine (QPainter *painter, int x1, int y1, int x2, int y2) [static]

Wrapper for QPainter::drawLine()

Definition at line 438 of file qwt_painter.cpp.

References [drawPolyline\(\)](#), and [QwtMetricsMap::isIdentity\(\)](#).

Referenced by [QwtSymbol::draw\(\)](#), [QwtPlotMarker::draw\(\)](#), [QwtScaleDraw::drawBackbone\(\)](#), [QwtPlotSpectrogram::drawContourLines\(\)](#), [QwtLegendItem::drawIdentifier\(\)](#), [drawLine\(\)](#), [QwtPicker::drawRubberBand\(\)](#), [QwtPlotCurve::drawSticks\(\)](#), and [QwtRoundScaleDraw::drawTick\(\)](#).

5.36.2.6 void QwtPainter::drawPie (QPainter * *painter*, const QRect & *rect*, int *a*, int *alen*) [static]

Wrapper for QPainter::drawPie()

Definition at line 280 of file qwt_painter.cpp.

References QwtMetricsMap::layoutToDevice().

5.36.2.7 void QwtPainter::drawPoint (QPainter * *painter*, int *x*, int *y*) [static]

Wrapper for QPainter::drawPoint()

Definition at line 548 of file qwt_painter.cpp.

References QwtMetricsMap::layoutToDevice().

Referenced by QwtPlotCurve::drawDots().

5.36.2.8 void QwtPainter::drawPolygon (QPainter * *painter*, const QwtPolygon & *pa*) [static]

Wrapper for QPainter::drawPolygon()

Definition at line 488 of file qwt_painter.cpp.

References clip(), and QwtMetricsMap::layoutToDevice().

Referenced by QwtSymbol::draw(), and QwtPlotCurve::fillCurve().

5.36.2.9 void QwtPainter::drawPolyline (QPainter * *painter*, const QwtPolygon & *pa*) [static]

Wrapper for QPainter::drawPolyline()

Definition at line 505 of file qwt_painter.cpp.

References clip(), and QwtMetricsMap::layoutToDevice().

Referenced by drawLine(), and drawRect().

5.36.2.10 void QwtPainter::drawRect (QPainter * *painter*, const QRect & *rect*) [static]

Wrapper for QPainter::drawRect()

Definition at line 185 of file qwt_painter.cpp.

References drawPolyline(), fillRect(), and QwtMetricsMap::layoutToDevice().

5.36.2.11 void QwtPainter::drawRect (QPainter * *painter*, int *x*, int *y*, int *w*, int *h*) [static]

Wrapper for QPainter::drawRect()

Definition at line 177 of file qwt_painter.cpp.

Referenced by QwtText::draw(), QwtSymbol::draw(), drawColorBar(), and QwtPicker::drawRubberBand().

5.36.2.12 void QwtPainter::drawRoundFrame (QPainter *, const QRect &, int *width*, const QPalette &, bool *sunken*) [static]

Draw a round frame.

Definition at line 622 of file qwt_painter.cpp.

Referenced by QwtDial::drawFrame().

5.36.2.13 void QwtPainter::drawSimpleRichText (QPainter * *painter*, const QRect & *rect*, int *flags*, QTextDocument & *text*) [static]

Wrapper for QSimpleRichText::draw()

Definition at line 405 of file qwt_painter.cpp.

References QwtMetricsMap::layoutToDevice().

Referenced by QwtRichTextEngine::draw().

5.36.2.14 void QwtPainter::drawText (QPainter * *painter*, const QRect & *rect*, int *flags*, const QString & *text*) [static]

Wrapper for QPainter::drawText()

Definition at line 358 of file qwt_painter.cpp.

References QwtMetricsMap::layoutToDevice().

5.36.2.15 void QwtPainter::drawText (QPainter * *painter*, int *x*, int *y*, int *w*, int *h*, int *flags*, const QString & *text*) [static]

Wrapper for QPainter::drawText()

Definition at line 349 of file qwt_painter.cpp.

References drawText().

5.36.2.16 void QwtPainter::drawText (QPainter * *painter*, const QPoint & *pos*, const QString & *text*) [static]

Wrapper for QPainter::drawText()

Definition at line 333 of file qwt_painter.cpp.

References QwtMetricsMap::layoutToDevice().

5.36.2.17 void QwtPainter::drawText (QPainter * *painter*, int *x*, int *y*, const QString & *text*) [static]

Wrapper for QPainter::drawText()

Definition at line 324 of file qwt_painter.cpp.

Referenced by QwtPlainTextEngine::draw(), and drawText().

5.36.2.18 void QwtPainter::fillRect (QPainter * *painter*, const QRect & *rect*, const QBrush & *brush*) [static]

Wrapper for QPainter::fillRect()

Definition at line 242 of file qwt_painter.cpp.

References QwtMetricsMap::layoutToDevice().

Referenced by `drawRect()`.

5.36.2.19 `const QwtMetricsMap & QwtPainter::metricsMap ()` [static]

Returns:

Metrics map

Definition at line 161 of file `qwt_painter.cpp`.

Referenced by `QwtText::draw()`, `QwtSymbol::draw()`, `QwtLegendItem::drawIdentifier()`, `QwtLegendItem::drawItem()`, `QwtPlotCurve::drawSymbols()`, `QwtScaleDraw::drawTick()`, `QwtText::heightForWidth()`, `QwtPlot::print()`, and `QwtPlot::printScale()`.

5.36.2.20 `void QwtPainter::resetMetricsMap ()` [static]

Reset the metrics map to the ratio 1:1

See also:

[QwtPainter::setMetricsMap](#), [QwtPainter::resetMetricsMap](#)

Definition at line 153 of file `qwt_painter.cpp`.

Referenced by `QwtScaleDraw::drawTick()`.

5.36.2.21 `void QwtPainter::setClipRect (QPainter * painter, const QRect & rect)` [static]

Wrapper for `QPainter::setClipRect()`

Definition at line 169 of file `qwt_painter.cpp`.

References `QwtMetricsMap::layoutToDevice()`.

Referenced by `drawColorBar()`, and `QwtPlot::printLegend()`.

5.36.2.22 `void QwtPainter::setDeviceClipping (bool enable)` [static]

En/Disable device clipping.

On X11 the default for device clipping is enabled, otherwise it is disabled.

See also:

[QwtPainter::deviceClipping\(\)](#)

Definition at line 62 of file `qwt_painter.cpp`.

5.36.2.23 `void QwtPainter::setMetricsMap (const QwtMetricsMap & map)` [static]

Change the metrics map

See also:

[QwtPainter::resetMetricsMap](#), [QwtPainter::metricsMap](#)

Definition at line 144 of file `qwt_painter.cpp`.

5.36.2.24 void QwtPainter::setMetricsMap (const QPaintDevice * *layout*, const QPaintDevice * *device*) [static]

Scale all [QwtPainter](#) drawing operations using the ratio $\text{QwtPaintMetrics}(\text{from}).\text{logicalDpiX}() / \text{QwtPaintMetrics}(\text{to}).\text{logicalDpiX}()$ and $\text{QwtPaintMetrics}(\text{from}).\text{logicalDpiY}() / \text{QwtPaintMetrics}(\text{to}).\text{logicalDpiY}()$

See also:

[QwtPainter::resetScaleMetrics\(\)](#), [QwtPainter::scaleMetricsX](#), [QwtPainter::scaleMetricsY](#)()

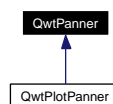
Definition at line 134 of file `qwt_painter.cpp`.

References [QwtMetricsMap::setMetrics\(\)](#).

Referenced by [QwtPlot::print\(\)](#).

5.37 QwtPanner Class Reference

Inheritance diagram for QwtPanner:



5.37.1 Detailed Description

[QwtPanner](#) provides panning of a widget.

[QwtPanner](#) grabs the contents of a widget, that can be dragged in all directions. The offset between the start and the end position is emitted by the panned signal.

[QwtPanner](#) grabs the content of the widget into a pixmap and moves the pixmap around, without initiating any repaint events for the widget. Areas, that are not part of content are not painted while panning in process. This makes panning fast enough for widgets, where repaints are too slow for mouse movements.

For widgets, where repaints are very fast it might be better to implement panning manually by mapping mouse events into paint events.

Definition at line 35 of file `qwt_panner.h`.

Signals

- void [panned](#) (int dx, int dy)
- void [moved](#) (int dx, int dy)

Public Member Functions

- [QwtPanner](#) (QWidget *parent)
- virtual [~QwtPanner](#) ()
- void [setEnabled](#) (bool)
- bool [isEnabled](#) () const
- void [setMouseButton](#) (int button, int buttonState=Qt::NoButton)
- void [getMouseButton](#) (int &button, int &buttonState) const

- void [setAbortKey](#) (int key, int state=Qt::NoButton)
- void [getAbortKey](#) (int &key, int &state) const
- void [setCursor](#) (const QCursor &)
- const QCursor [cursor](#) () const
- virtual bool [eventFilter](#) (QObject *, QEvent *)

Protected Member Functions

- virtual void [widgetMouseEvent](#) (QMouseEvent *)
- virtual void [widgetMouseReleaseEvent](#) (QMouseEvent *)
- virtual void [widgetMouseMoveEvent](#) (QMouseEvent *)
- virtual void [widgetKeyPressEvent](#) (QKeyEvent *)
- virtual void [widgetKeyReleaseEvent](#) (QKeyEvent *)
- virtual void [paintEvent](#) (QPaintEvent *)

5.37.2 Constructor & Destructor Documentation

5.37.2.1 QwtPanner::QwtPanner (QWidget * *parent*)

Creates an panner that is enabled for the left mouse button.

Parameters:

parent Parent widget to be panned

Definition at line 108 of file qwt_panner.cpp.

References [setEnabled\(\)](#).

5.37.2.2 QwtPanner::~QwtPanner () [virtual]

Destructor.

Definition at line 127 of file qwt_panner.cpp.

5.37.3 Member Function Documentation

5.37.3.1 const QCursor QwtPanner::cursor () const

Returns:

Cursor that is active while panning

See also:

[setCursor\(\)](#)

Definition at line 186 of file qwt_panner.cpp.

5.37.3.2 bool QwtPanner::eventFilter (QObject * *o*, QEvent * *e*) [virtual]

Event filter.

When [isEnabled\(\)](#) the mouse events of the observed widget are filtered.

See also:

[widgetMousePressEvent\(\)](#), [widgetMouseReleaseEvent\(\)](#), [widgetMouseMoveEvent\(\)](#)

Definition at line 287 of file qwt_panner.cpp.

References [widgetMousePressEvent\(\)](#).

5.37.3.3 void QwtPanner::getAbortKey (int & key, int & state) const

Get the abort key.

Definition at line 160 of file qwt_panner.cpp.

5.37.3.4 void QwtPanner::getMouseButton (int & button, int & buttonState) const

Get the mouse button.

Definition at line 143 of file qwt_panner.cpp.

5.37.3.5 bool QwtPanner::isEnabled () const**Returns:**

true when enabled, false otherwise

See also:

[setEnabled\(\)](#), [eventFilter\(\)](#)

Definition at line 233 of file qwt_panner.cpp.

5.37.3.6 void QwtPanner::moved (int dx, int dy) [signal]

Signal emitted, while the widget moved, but panning is not finished.

Parameters:

dx Offset in horizontal direction

dy Offset in vertical direction

Referenced by [widgetMouseMoveEvent\(\)](#).

5.37.3.7 void QwtPanner::paintEvent (QPaintEvent * pe) [protected, virtual]

Paint event.

Repaint the grabbed pixmap on its current position and fill the empty spaces by the background of the parent widget.

Parameters:

pe Paint event

Definition at line 246 of file qwt_panner.cpp.

5.37.3.8 void QwtPanner::panned (int *dx*, int *dy*) [signal]

Signal emitted, when panning is done

Parameters:

dx Offset in horizontal direction

dy Offset in vertical direction

Referenced by QwtPlotPanner::QwtPlotPanner(), and widgetMouseReleaseEvent().

5.37.3.9 void QwtPanner::setAbortKey (int *key*, int *state* = Qt::NoButton)

Change the abort key The defaults are Qt::Key_Escape and Qt::NoButton

Definition at line 153 of file qwt_panner.cpp.

5.37.3.10 void QwtPanner::setCursor (const QCursor & *cursor*)

Change the cursor, that is active while panning The default is the cursor of the parent widget.

Parameters:

cursor New cursor

See also:

[setCursor\(\)](#)

Definition at line 175 of file qwt_panner.cpp.

5.37.3.11 void QwtPanner::setEnabled (bool *on*)

En/disable the panner.

When enabled is true an event filter is installed for the observed widget, otherwise the event filter is removed.

Parameters:

on true or false

See also:

[isEnabled\(\)](#), [eventFilter\(\)](#)

Definition at line 207 of file qwt_panner.cpp.

Referenced by QwtPanner(), and widgetMouseEvent().

5.37.3.12 void QwtPanner::setMouseButton (int *button*, int *buttonState* = Qt::NoButton)

Change the mouse button The defaults are Qt::LeftButton and Qt::NoButton

Definition at line 136 of file qwt_panner.cpp.

5.37.3.13 void QwtPanner::widgetKeyPressEvent (QKeyEvent * *ke*) [protected, virtual]

Handle a key press event for the observed widget.

Parameters:

ke Key event

See also:

[eventFilter\(\)](#), [widgetKeyReleaseEvent\(\)](#)

Definition at line 430 of file qwt_panner.cpp.

5.37.3.14 void QwtPanner::widgetKeyReleaseEvent (QKeyEvent *) [protected, virtual]

Handle a key release event for the observed widget.

Parameters:

ke Key event

See also:

[eventFilter\(\)](#), [widgetKeyReleaseEvent\(\)](#)

Definition at line 459 of file qwt_panner.cpp.

5.37.3.15 void QwtPanner::widgetMouseMoveEvent (QMouseEvent * *me*) [protected, virtual]

Handle a mouse release event for the observed widget.

Parameters:

me Mouse event

See also:

[eventFilter\(\)](#), [widgetMousePressEvent\(\)](#), [widgetMouseMoveEvent\(\)](#),

Definition at line 387 of file qwt_panner.cpp.

References [moved\(\)](#).

5.37.3.16 void QwtPanner::widgetMousePressEvent (QMouseEvent * *me*) [protected, virtual]

Handle a mouse press event for the observed widget.

Parameters:

me Mouse event

See also:

[eventFilter\(\)](#), [widgetMouseReleaseEvent\(\)](#), [widgetMouseMoveEvent\(\)](#),

Definition at line 332 of file qwt_panner.cpp.

References [setEnabled\(\)](#).

Referenced by [eventFilter\(\)](#).

5.37.3.17 void QwtPanner::widgetMouseEvent (QMouseEvent * *me*) [protected, virtual]

Handle a mouse move event for the observed widget.

See also:

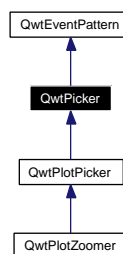
[eventFilter\(\)](#), [widgetMouseEvent\(\)](#), [widgetMousePressEvent\(\)](#), [widgetMouseReleaseEvent\(\)](#),

Definition at line 404 of file qwt_panner.cpp.

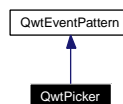
References [panned\(\)](#).

5.38 QwtPicker Class Reference

Inheritance diagram for QwtPicker:



Collaboration diagram for QwtPicker:



5.38.1 Detailed Description

[QwtPicker](#) provides selections on a widget.

[QwtPicker](#) filters all mouse and keyboard events of a widget and translates them into an array of selected points. Depending on the [QwtPicker::SelectionType](#) the selection might be a single point, a rectangle or a polygon. The selection process is supported by optional rubberbands (rubberband selection) and position trackers.

[QwtPicker](#) is useful for widgets where the event handlers can't be overloaded, like for components of composite widgets. It offers alternative handlers for mouse and key events.

Example

```

#include <qwt_picker.h>

QwtPicker *picker = new QwtPicker(widget);
picker->setTrackerMode(QwtPicker::ActiveOnly);
connect(picker, SIGNAL(selected(const QwtPolygon &)), ...);

// emit the position of clicks on widget
picker->setSelectionFlags(QwtPicker::PointSelection | QwtPicker::ClickSelection);

```

```

...

// now select rectangles
picker->setSelectionFlags(QwtPicker::RectSelection | QwtPicker::DragSelection);
picker->setRubberBand(QwtPicker::RectRubberBand);

```

The selection process uses the commands [begin\(\)](#), [append\(\)](#), [move\(\)](#) and [end\(\)](#). [append\(\)](#) adds a new point to the selection, [move\(\)](#) changes the position of the latest point.

The commands are initiated from a small state machine ([QwtPickerMachine](#)) that translates mouse and key events. There are a couple of predefined state machines for point, rect and polygon selections. The [selectionFlags\(\)](#) control which one should be used. It is possible to use other machines by overloading [stateMachine\(\)](#).

The picker is active ([isActive\(\)](#)), between [begin\(\)](#) and [end\(\)](#). In active state the rubberband is displayed, and the tracker is visible in case of trackerMode is ActiveOnly or AlwaysOn.

The cursor can be moved using the arrow keys. All selections can be aborted using the abort key. ([Qwt-EventPattern::KeyPatternCode](#))

Warning:

In case of QWidget::NoFocus the focus policy of the observed widget is set to QWidget::WheelFocus and mouse tracking will be manipulated for ClickSelection while the picker is active, or if [trackerMode\(\)](#) is AlwaysOn.

Definition at line 80 of file qwt_picker.h.

Public Types

- enum [SelectionType](#) {
NoSelection = 0,
PointSelection = 1,
RectSelection = 2,
PolygonSelection = 4 }
- enum [RectSelectionType](#) {
CornerToCorner = 64,
CenterToCorner = 128,
CenterToRadius = 256 }
- enum [SelectionMode](#) {
ClickSelection = 1024,
DragSelection = 2048 }
- enum [RubberBand](#) {
NoRubberBand = 0,
HLineRubberBand,
VLineRubberBand,
CrossRubberBand,
RectRubberBand,
EllipseRubberBand,
PolygonRubberBand,
UserRubberBand = 100 }

- enum [DisplayMode](#) {
 AlwaysOff,
 AlwaysOn,
 ActiveOnly }
- enum [ResizeMode](#) {
 Stretch,
 KeepSize }

Signals

- void [selected](#) (const QwtPolygon &pa)
- void [appended](#) (const QPoint &pos)
- void [moved](#) (const QPoint &pos)
- void [changed](#) (const QwtPolygon &pa)

Public Member Functions

- [QwtPicker](#) (QWidget *parent)
- [QwtPicker](#) (int selectionFlags, [RubberBand](#) rubberBand, [DisplayMode](#) trackerMode, QWidget *)
- virtual [~QwtPicker](#) ()
- virtual void [setSelectionFlags](#) (int)
- int [selectionFlags](#) () const
- virtual void [setRubberBand](#) ([RubberBand](#))
- [RubberBand](#) rubberBand () const
- virtual void [setTrackerMode](#) ([DisplayMode](#))
- [DisplayMode](#) trackerMode () const
- virtual void [setResizeMode](#) ([ResizeMode](#))
- [ResizeMode](#) resizeMode () const
- virtual void [setRubberBandPen](#) (const QPen &)
- QPen [rubberBandPen](#) () const
- virtual void [setTrackerPen](#) (const QPen &)
- QPen [trackerPen](#) () const
- virtual void [setTrackerFont](#) (const QFont &)
- QFont [trackerFont](#) () const
- bool [isEnabled](#) () const
- virtual void [setEnabled](#) (bool)
- bool [isActive](#) () const
- virtual bool [eventFilter](#) (QObject *, QEvent *)
- QWidget * [parentWidget](#) ()
- const QWidget * [parentWidget](#) () const
- virtual QRect [pickRect](#) () const
- const QwtPolygon & [selection](#) () const
- virtual void [drawRubberBand](#) (QPainter *) const
- virtual void [drawTracker](#) (QPainter *) const

Protected Member Functions

- virtual bool [accept](#) (QwtPolygon &selection) const
- virtual void [transition](#) (const QEvent *)
- virtual void [begin](#) ()
- virtual void [append](#) (const QPoint &)
- virtual void [move](#) (const QPoint &)
- virtual bool [end](#) (bool ok=true)
- virtual void [widgetMouseEvent](#) (QMouseEvent *)
- virtual void [widgetMouseReleaseEvent](#) (QMouseEvent *)
- virtual void [widgetMouseDoubleClickEvent](#) (QMouseEvent *)
- virtual void [widgetMouseMoveEvent](#) (QMouseEvent *)
- virtual void [widgetWheelEvent](#) (QWheelEvent *)
- virtual void [widgetKeyPressEvent](#) (QKeyEvent *)
- virtual void [widgetKeyReleaseEvent](#) (QKeyEvent *)
- virtual void [widgetLeaveEvent](#) (QEvent *)
- QRect [trackerRect](#) (QPainter *painter) const
- virtual void [stretchSelection](#) (const QSize &oldSize, const QSize &newSize)
- virtual [QwtText](#) [trackerText](#) (const QPoint &pos) const
- virtual [QwtPickerMachine](#) * [stateMachine](#) (int) const
- virtual void [updateDisplay](#) ()
- const QWidget * [rubberBandWidget](#) () const
- const QWidget * [trackerWidget](#) () const

5.38.2 Member Enumeration Documentation

5.38.2.1 enum [QwtPicker::DisplayMode](#)

- AlwaysOff
Display never.
- AlwaysOn
Display always.
- ActiveOnly
Display only when the selection is active.

See also:

[QwtPicker::setTrackerMode\(\)](#), [QwtPicker::trackerMode\(\)](#), [QwtPicker::isActive\(\)](#)

Definition at line 217 of file qwt_picker.h.

5.38.2.2 enum [QwtPicker::RectSelectionType](#)

Selection subtype for RectSelection This enum type describes the type of rectangle selections. It can be or'd with [QwtPicker::RectSelectionType](#) and [QwtPicker::SelectionMode](#) and passed to [QwtPicker::setSelectionFlags\(\)](#).

- CornerToCorner
The first and the second selected point are the corners of the rectangle.

- CenterToCorner

The first point is the center, the second a corner of the rectangle.

- CenterToRadius

The first point is the center of a quadrat, calculated by the maximum of the x- and y-distance.

The default value is CornerToCorner.

See also:

[QwtPicker::setSelectionFlags\(\)](#), [QwtPicker::selectionFlags\(\)](#)

Definition at line 143 of file qwt_picker.h.

5.38.2.3 enum [QwtPicker::ResizeMode](#)

Controls what to do with the selected points of an active selection when the observed widget is resized.

- Stretch

All points are scaled according to the new size,

- KeepSize

All points remain unchanged.

The default value is Stretch.

See also:

[QwtPicker::setResizeMode\(\)](#), [QwtPicker::resize\(\)](#)

Definition at line 236 of file qwt_picker.h.

5.38.2.4 enum [QwtPicker::RubberBand](#)

Rubberband style

- NoRubberBand

No rubberband.

- HLineRubberBand & PointSelection

A horizontal line.

- VLineRubberBand & PointSelection

A vertical line.

- CrossRubberBand & PointSelection

A horizontal and a vertical line.

- RectRubberBand & RectSelection

A rectangle.

- EllipseRubberBand & RectSelection

An ellipse.

- PolygonRubberBand & PolygonSelection
A polygon.
- UserRubberBand
Values \geq UserRubberBand can be used to define additional rubber bands.

The default value is NoRubberBand.

See also:

[QwtPicker::setRubberBand\(\)](#), [QwtPicker::rubberBand\(\)](#)

Definition at line 187 of file qwt_picker.h.

5.38.2.5 enum [QwtPicker::SelectionMode](#)

Values of this enum type or't'd together with a SelectionType value identifies which state machine should be used for the selection.

The default value is ClickSelection.

See also:

[stateMachine\(\)](#)

Definition at line 157 of file qwt_picker.h.

5.38.2.6 enum [QwtPicker::SelectionType](#)

This enum type describes the type of a selection. It can be or't'd with [QwtPicker::RectSelectionType](#) and [QwtPicker::SelectionMode](#) and passed to [QwtPicker::setSelectionFlags\(\)](#)

- NoSelection
Selection is disabled. Note this is different to the disabled state, as you might have a tracker.
- PointSelection
Select a single point.
- RectSelection
Select a rectangle.
- PolygonSelection
Select a polygon.

The default value is NoSelection.

See also:

[QwtPicker::setSelectionFlags\(\)](#), [QwtPicker::selectionFlags\(\)](#)

Definition at line 117 of file qwt_picker.h.

5.38.3 Constructor & Destructor Documentation

5.38.3.1 QwtPicker::QwtPicker (QWidget * *parent*) [explicit]

Constructor

Creates an picker that is enabled, but where selection flag is set to NoSelection, rubberband and tracker are disabled.

Parameters:

parent Parent widget, that will be observed

Definition at line 236 of file qwt_picker.cpp.

5.38.3.2 QwtPicker::QwtPicker (int *selectionFlags*, RubberBand *rubberBand*, DisplayMode *trackerMode*, QWidget * *parent*) [explicit]

Constructor

Parameters:

selectionFlags Or'd value of SelectionType, RectSelectionType and SelectionMode

rubberBand Rubberband style

trackerMode Tracker mode

parent Parent widget, that will be observed

Definition at line 251 of file qwt_picker.cpp.

5.38.3.3 QwtPicker::~~QwtPicker () [virtual]

Destructor.

Definition at line 259 of file qwt_picker.cpp.

5.38.4 Member Function Documentation

5.38.4.1 bool QwtPicker::accept (QwtPolygon & *selection*) const [protected, virtual]

Validate and fixup the selection.

Accepts all selections unmodified

Parameters:

selection Selection to validate and fixup

Returns:

true, when accepted, false otherwise

Reimplemented in [QwtPlotZoomer](#).

Definition at line 1260 of file qwt_picker.cpp.

Referenced by `end()`.

5.38.4.2 void QwtPicker::append (const QPoint & *pos*) [protected, virtual]

Append a point to the selection and update rubberband and tracker. The [appended\(\)](#) signal is emitted.

Parameters:

pos Additional point

See also:

[isActive](#), [begin\(\)](#), [end\(\)](#), [move\(\)](#), [appended\(\)](#)

Reimplemented in [QwtPlotPicker](#).

Definition at line 1219 of file qwt_picker.cpp.

References [appended\(\)](#), and [updateDisplay\(\)](#).

Referenced by [QwtPlotPicker::append\(\)](#).

5.38.4.3 void QwtPicker::appended (const QPoint & *pos*) [signal]

A signal emitted when a point has been appended to the selection

Parameters:

pos Position of the appended point.

See also:

[append\(\)](#), [moved\(\)](#)

Referenced by [append\(\)](#).

5.38.4.4 void QwtPicker::begin () [protected, virtual]

Open a selection setting the state to active

See also:

[isActive](#), [end\(\)](#), [append\(\)](#), [move\(\)](#)

Reimplemented in [QwtPlotZoomer](#).

Definition at line 1152 of file qwt_picker.cpp.

References [parentWidget\(\)](#), and [trackerMode\(\)](#).

5.38.4.5 void QwtPicker::changed (const QwtPolygon & *pa*) [signal]

A signal emitted when the active selection has been changed. This might happen when the observed widget is resized.

Parameters:

pa Changed selection

See also:

[stretchSelection\(\)](#)

Referenced by [stretchSelection\(\)](#).

5.38.4.6 void QwtPicker::drawRubberBand (QPainter * *painter*) const [virtual]

Draw a rubberband , depending on [rubberBand\(\)](#) and [selectionFlags\(\)](#)

Parameters:

painter Painter, initialized with clip rect

See also:

[rubberBand\(\)](#), [RubberBand](#), [selectionFlags\(\)](#)

Definition at line 642 of file qwt_picker.cpp.

References [QwtPainter::drawEllipse\(\)](#), [QwtPainter::drawLine\(\)](#), [QwtPainter::drawRect\(\)](#), [isActive\(\)](#), [pickRect\(\)](#), [rubberBand\(\)](#), [rubberBandPen\(\)](#), and [selectionFlags\(\)](#).

5.38.4.7 void QwtPicker::drawTracker (QPainter * *painter*) const [virtual]

Draw the tracker

Parameters:

painter Painter

See also:

[trackerRect\(\)](#), [trackerText\(\)](#)

Definition at line 737 of file qwt_picker.cpp.

References [trackerPen\(\)](#), [trackerRect\(\)](#), and [trackerText\(\)](#).

5.38.4.8 bool QwtPicker::end (bool *ok* = true) [protected, virtual]

Close a selection setting the state to inactive.

The selection is validated and maybe fixed by [QwtPicker::accept\(\)](#).

Parameters:

ok If true, complete the selection and emit a selected signal otherwise discard the selection.

Returns:

true if the selection is accepted, false otherwise

See also:

[isActive](#), [begin\(\)](#), [append\(\)](#), [move\(\)](#), [selected\(\)](#), [accept\(\)](#)

Reimplemented in [QwtPlotPicker](#), and [QwtPlotZoomer](#).

Definition at line 1184 of file qwt_picker.cpp.

References [accept\(\)](#), [selected\(\)](#), [trackerMode\(\)](#), and [updateDisplay\(\)](#).

Referenced by [QwtPlotPicker::end\(\)](#), and [widgetKeyPressEvent\(\)](#).

5.38.4.9 bool QwtPicker::eventFilter (QObject * *o*, QEvent * *e*) [virtual]

Event filter.

When `isEnabled()` == true all events of the observed widget are filtered. Mouse and keyboard events are translated into `widgetMouse-` and `widgetKey-` and `widgetWheel-`events. Paint and Resize events are handled to keep rubberband and tracker up to date.

See also:

`event()`, `widgetMousePressEvent()`, `widgetMouseReleaseEvent()`, `widgetMouseDoubleClickEvent()`, `widgetMouseMoveEvent()`, `widgetWheelEvent()`, `widgetKeyPressEvent()`, `widgetKeyReleaseEvent()`

Definition at line 864 of file `qwt_picker.cpp`.

References `parentWidget()`, `stretchSelection()`, `widgetKeyPressEvent()`, `widgetKeyReleaseEvent()`, `widgetLeaveEvent()`, `widgetMouseDoubleClickEvent()`, `widgetMouseMoveEvent()`, `widgetMousePressEvent()`, `widgetMouseReleaseEvent()`, and `widgetWheelEvent()`.

5.38.4.10 bool QwtPicker::isActive () const

A picker is active between `begin()` and `end()`.

Returns:

true if the selection is active.

Definition at line 1269 of file `qwt_picker.cpp`.

Referenced by `drawRubberBand()`, `trackerRect()`, `updateDisplay()`, `QwtPlotZoomer::widgetKeyPressEvent()`, `widgetKeyPressEvent()`, `widgetLeaveEvent()`, and `widgetMouseMoveEvent()`.

5.38.4.11 bool QwtPicker::isEnabled () const

Returns:

true when enabled, false otherwise

See also:

`setEnabled`, `eventFilter()`

Definition at line 525 of file `qwt_picker.cpp`.

5.38.4.12 void QwtPicker::move (const QPoint & *pos*) [protected, virtual]

Move the last point of the selection The `moved()` signal is emitted.

Parameters:

pos New position

See also:

`isActive`, `begin()`, `end()`, `append()`

Reimplemented in `QwtPlotPicker`.

Definition at line 1241 of file `qwt_picker.cpp`.

References `moved()`, and `updateDisplay()`.

Referenced by `QwtPlotPicker::move()`.

5.38.4.13 void QwtPicker::moved (const QPoint & *pos*) [signal]

A signal emitted whenever the last appended point of the selection has been moved.

Parameters:

pos Position of the moved last point of the selection.

See also:

[move\(\)](#), [appended\(\)](#)

Referenced by [move\(\)](#).

5.38.4.14 const QWidget * QwtPicker::parentWidget () const

Return the parent widget, where the selection happens.

Definition at line 373 of file `qwt_picker.cpp`.

5.38.4.15 QWidget * QwtPicker::parentWidget ()

Return the parent widget, where the selection happens.

Definition at line 363 of file `qwt_picker.cpp`.

Referenced by [begin\(\)](#), [QwtPlotPicker::canvas\(\)](#), [eventFilter\(\)](#), [pickRect\(\)](#), [setEnabled\(\)](#), [updateDisplay\(\)](#), and [widgetKeyPressEvent\(\)](#).

5.38.4.16 QRect QwtPicker::pickRect () const [virtual]

Find the area of the observed widget, where selection might happen.

Returns:

[QFrame::contentsRect\(\)](#) if it is a [QFrame](#), [QWidget::rect\(\)](#) otherwise.

Definition at line 1341 of file `qwt_picker.cpp`.

References [parentWidget\(\)](#).

Referenced by [drawRubberBand\(\)](#), [widgetKeyPressEvent\(\)](#), [widgetMouseMoveEvent\(\)](#), and [widgetWheelEvent\(\)](#).

5.38.4.17 QwtPicker::SizeMode QwtPicker::resizeMode () const**Returns:**

Resize mode

See also:

[setSizeMode\(\)](#), [SizeMode](#)

Definition at line 487 of file `qwt_picker.cpp`.

5.38.4.18 [QwtPicker::RubberBand](#) QwtPicker::rubberBand () const

Returns:

Rubberband style

See also:

[setRubberBand\(\)](#), [RubberBand](#), [rubberBandPen\(\)](#)

Definition at line 424 of file qwt_picker.cpp.

Referenced by [drawRubberBand\(\)](#), [trackerRect\(\)](#), [QwtPlotPicker::trackerText\(\)](#), [trackerText\(\)](#), and [updateDisplay\(\)](#).

5.38.4.19 [QPen](#) QwtPicker::rubberBandPen () const

Returns:

Rubberband pen

See also:

[setRubberBandPen\(\)](#), [rubberBand\(\)](#)

Definition at line 598 of file qwt_picker.cpp.

Referenced by [drawRubberBand\(\)](#), and [updateDisplay\(\)](#).

5.38.4.20 [void](#) QwtPicker::selected (const QwtPolygon & *pa*) [signal]

A signal emitting the selected points, at the end of a selection.

Parameters:

pa Selected points

Referenced by [end\(\)](#).

5.38.4.21 [const](#) QwtPolygon & QwtPicker::selection () const

Return Selected points.

Definition at line 1275 of file qwt_picker.cpp.

Referenced by [QwtPlotZoomer::end\(\)](#), and [QwtPlotPicker::end\(\)](#).

5.38.4.22 [int](#) QwtPicker::selectionFlags () const

Returns:

Selection flags, an Or'd value of [SelectionType](#), [RectSelectionType](#) and [SelectionMode](#).

See also:

[setSelectionFlags\(\)](#), [SelectionType](#), [RectSelectionType](#), [SelectionMode](#)

Definition at line 402 of file qwt_picker.cpp.

Referenced by [drawRubberBand\(\)](#), and [QwtPlotPicker::end\(\)](#).

5.38.4.23 void QwtPicker::setEnabled (bool *enabled*) [virtual]

En/disable the picker.

When enabled is true an event filter is installed for the observed widget, otherwise the event filter is removed.

Parameters:

enabled true or false

See also:

[isEnabled\(\)](#), [eventFilter\(\)](#)

Definition at line 501 of file qwt_picker.cpp.

References [parentWidget\(\)](#), and [updateDisplay\(\)](#).

5.38.4.24 void QwtPicker::setResizeMode (ResizeMode *mode*) [virtual]

Set the resize mode.

The resize mode controls what to do with the selected points of an active selection when the observed widget is resized.

Stretch means the points are scaled according to the new size, KeepSize means the points remain unchanged.

The default mode is Stretch.

Parameters:

mode Resize mode

See also:

[resizeMode\(\)](#), [ResizeMode](#)

Definition at line 477 of file qwt_picker.cpp.

5.38.4.25 void QwtPicker::setRubberBand (RubberBand *rubberBand*) [virtual]

Set the rubberband style

Parameters:

rubberBand Rubberband style The default value is NoRubberBand.

See also:

[rubberBand\(\)](#), [RubberBand](#), [setRubberBandPen\(\)](#)

Definition at line 415 of file qwt_picker.cpp.

5.38.4.26 void QwtPicker::setRubberBandPen (const QPen & *pen*) [virtual]

Set the pen for the rubberband

Parameters:

pen Rubberband pen

See also:

[rubberBandPen\(\)](#), [setRubberBand\(\)](#)

Definition at line 585 of file qwt_picker.cpp.

References [updateDisplay\(\)](#).

5.38.4.27 void QwtPicker::setSelectionFlags (int *flags*) [virtual]

Set the selection flags

Parameters:

flags Or'd value of SelectionType, RectSelectionType and SelectionMode. The default value is No-Selection.

See also:

[selectionFlags\(\)](#), [SelectionType](#), [RectSelectionType](#), [SelectionMode](#)

Reimplemented in [QwtPlotZoomer](#).

Definition at line 391 of file qwt_picker.cpp.

References [stateMachine\(\)](#).

Referenced by [QwtPlotZoomer::setSelectionFlags\(\)](#).

5.38.4.28 void QwtPicker::setTrackerFont (const QFont & *font*) [virtual]

Set the font for the tracker

Parameters:

font Tracker font

See also:

[trackerFont\(\)](#), [setTrackerMode\(\)](#), [setTrackerPen\(\)](#)

Definition at line 536 of file qwt_picker.cpp.

References [updateDisplay\(\)](#).

5.38.4.29 void QwtPicker::setTrackerMode (DisplayMode *mode*) [virtual]

Set the display mode of the tracker.

A tracker displays information about current position of the cursor as a string. The display mode controls if the tracker has to be displayed whenever the observed widget has focus and cursor (AlwaysOn), never (AlwaysOff), or only when the selection is active (ActiveOnly).

Parameters:

mode Tracker display mode

Warning:

In case of AlwaysOn, mouseTracking will be enabled for the observed widget.

See also:

[trackerMode\(\)](#), [DisplayMode](#)

Definition at line 445 of file qwt_picker.cpp.

5.38.4.30 void QwtPicker::setTrackerPen (const QPen & *pen*) [virtual]

Set the pen for the tracker

Parameters:

pen Tracker pen

See also:

[trackerPen\(\)](#), [setTrackerMode\(\)](#), [setTrackerFont\(\)](#)

Definition at line 561 of file qwt_picker.cpp.

References [updateDisplay\(\)](#).

5.38.4.31 QwtPickerMachine * QwtPicker::stateMachine (int *flags*) const [protected, virtual]

Create a state machine depending on the selection flags.

- PointSelection | ClickSelection
[QwtPickerClickPointMachine\(\)](#)
- PointSelection | DragSelection
[QwtPickerDragPointMachine\(\)](#)
- RectSelection | ClickSelection
[QwtPickerClickRectMachine\(\)](#)
- RectSelection | DragSelection
[QwtPickerDragRectMachine\(\)](#)
- PolygonSelection
[QwtPickerPolygonMachine\(\)](#)

See also:

[setSelectionFlags\(\)](#)

Definition at line 339 of file qwt_picker.cpp.

Referenced by [setSelectionFlags\(\)](#).

5.38.4.32 void QwtPicker::stretchSelection (const QSize & *oldSize*, const QSize & *newSize*) [protected, virtual]

Scale the selection by the ratios of *oldSize* and *newSize* The [changed\(\)](#) signal is emitted.

Parameters:

oldSize Previous size

newSize Current size

See also:

[ResizeMode](#), [setResizeMode\(\)](#), [resizeMode\(\)](#)

Definition at line 1289 of file qwt_picker.cpp.

References [changed\(\)](#).

Referenced by [eventFilter\(\)](#).

5.38.4.33 QFont QwtPicker::trackerFont () const

Returns:

Tracker font

See also:

[setTrackerFont\(\)](#), [trackerMode\(\)](#), [trackerPen\(\)](#)

Definition at line 550 of file qwt_picker.cpp.

5.38.4.34 QwtPicker::DisplayMode QwtPicker::trackerMode () const

Returns:

Tracker display mode

See also:

[setTrackerMode\(\)](#), [DisplayMode](#)

Definition at line 458 of file qwt_picker.cpp.

Referenced by [begin\(\)](#), [end\(\)](#), [trackerRect\(\)](#), and [updateDisplay\(\)](#).

5.38.4.35 QPen QwtPicker::trackerPen () const

Returns:

Tracker pen

See also:

[setTrackerPen\(\)](#), [trackerMode\(\)](#), [trackerFont\(\)](#)

Definition at line 574 of file qwt_picker.cpp.

Referenced by [drawTracker\(\)](#), and [updateDisplay\(\)](#).

5.38.4.36 QwtText QwtPicker::trackerText (const QPoint & pos) const [protected, virtual]

Return the label for a position.

In case of HLineRubberBand the label is the value of the y position, in case of VLineRubberBand the value of the x position. Otherwise the label contains x and y position separated by a ','.

The format for the string conversion is "%d".

Parameters:

pos Position

Returns:

Converted position as string

Reimplemented in [QwtPlotPicker](#).

Definition at line 616 of file qwt_picker.cpp.

References [rubberBand\(\)](#).

Referenced by [drawTracker\(\)](#), and [trackerRect\(\)](#).

5.38.4.37 void QwtPicker::transition (const QEvent * *e*) [protected, virtual]

Passes an event to the state machine and executes the resulting commands. Append and Move commands use the current position of the cursor (QCursor::pos()).

Parameters:

e Event

Definition at line 1095 of file qwt_picker.cpp.

Referenced by widgetKeyPressEvent(), widgetKeyReleaseEvent(), widgetMouseDoubleClickEvent(), widgetMouseMoveEvent(), widgetMousePressEvent(), widgetMouseReleaseEvent(), and widgetWheelEvent().

5.38.4.38 void QwtPicker::widgetKeyPressEvent (QKeyEvent * *ke*) [protected, virtual]

Handle a key press event for the observed widget.

Selections can be completely done by the keyboard. The arrow keys move the cursor, the abort key aborts a selection. All other keys are handled by the current state machine.

See also:

[QwtPicker](#), [selectionFlags\(\)](#), [eventFilter\(\)](#), [widgetMousePressEvent\(\)](#), [widgetMouseReleaseEvent\(\)](#), [widgetMouseDoubleClickEvent\(\)](#), [widgetMouseMoveEvent\(\)](#), [widgetWheelEvent\(\)](#), [widgetKeyReleaseEvent\(\)](#), [stateMachine\(\)](#), [QwtEventPattern::KeyPatternCode](#)

Reimplemented in [QwtPlotZoomer](#).

Definition at line 1029 of file qwt_picker.cpp.

References [end\(\)](#), [isActive\(\)](#), [QwtEventPattern::keyMatch\(\)](#), [parentWidget\(\)](#), [pickRect\(\)](#), and [transition\(\)](#).

Referenced by [eventFilter\(\)](#), and [QwtPlotZoomer::widgetKeyPressEvent\(\)](#).

5.38.4.39 void QwtPicker::widgetKeyReleaseEvent (QKeyEvent * *ke*) [protected, virtual]

Handle a key release event for the observed widget.

Passes the event to the state machine.

See also:

[eventFilter\(\)](#), [widgetMousePressEvent\(\)](#), [widgetMouseReleaseEvent\(\)](#), [widgetMouseDoubleClickEvent\(\)](#), [widgetMouseMoveEvent\(\)](#), [widgetWheelEvent\(\)](#), [widgetKeyPressEvent\(\)](#), [stateMachine\(\)](#)

Definition at line 1083 of file qwt_picker.cpp.

References [transition\(\)](#).

Referenced by [eventFilter\(\)](#).

5.38.4.40 void QwtPicker::widgetLeaveEvent (QEvent *) [protected, virtual]

Handle a leave event for the observed widget.

See also:

[eventFilter\(\)](#), [widgetMouseEvent\(\)](#), [widgetMousePressEvent\(\)](#), [widgetMouseReleaseEvent\(\)](#), [widgetMouseDoubleClickEvent\(\)](#), [widgetWheelEvent\(\)](#), [widgetKeyPressEvent\(\)](#), [widgetKeyReleaseEvent\(\)](#)

Definition at line 958 of file qwt_picker.cpp.

References [isActive\(\)](#), and [updateDisplay\(\)](#).

Referenced by [eventFilter\(\)](#).

5.38.4.41 void QwtPicker::widgetMouseDoubleClickEvent (QMouseEvent * *me*) [protected, virtual]

Handle mouse double click event for the observed widget.

Empty implementation, does nothing.

See also:

[eventFilter\(\)](#), [widgetMouseEvent\(\)](#), [widgetMousePressEvent\(\)](#), [widgetMouseReleaseEvent\(\)](#), [widgetMouseMoveEvent\(\)](#), [widgetWheelEvent\(\)](#), [widgetKeyPressEvent\(\)](#), [widgetKeyReleaseEvent\(\)](#)

Definition at line 989 of file qwt_picker.cpp.

References [transition\(\)](#).

Referenced by [eventFilter\(\)](#).

5.38.4.42 void QwtPicker::widgetMouseMoveEvent (QMouseEvent * *e*) [protected, virtual]

Handle a mouse move event for the observed widget.

Move the last point of the selection in case of [isActive\(\)](#) == true

See also:

[eventFilter\(\)](#), [widgetMouseEvent\(\)](#), [widgetMousePressEvent\(\)](#), [widgetMouseReleaseEvent\(\)](#), [widgetMouseDoubleClickEvent\(\)](#), [widgetWheelEvent\(\)](#), [widgetKeyPressEvent\(\)](#), [widgetKeyReleaseEvent\(\)](#)

Definition at line 938 of file qwt_picker.cpp.

References [isActive\(\)](#), [pickRect\(\)](#), [transition\(\)](#), and [updateDisplay\(\)](#).

Referenced by [eventFilter\(\)](#).

5.38.4.43 void QwtPicker::widgetMousePressEvent (QMouseEvent * *e*) [protected, virtual]

Handle a mouse press event for the observed widget.

Begin and/or end a selection depending on the selection flags.

See also:

[QwtPicker](#), [selectionFlags\(\)](#)
[eventFilter\(\)](#), [widgetMouseReleaseEvent\(\)](#), [widgetMouseDoubleClickEvent\(\)](#), [widgetMouseMoveEvent\(\)](#), [widgetWheelEvent\(\)](#), [widgetKeyPressEvent\(\)](#), [widgetKeyReleaseEvent\(\)](#)

Definition at line 924 of file qwt_picker.cpp.

References [transition\(\)](#).

Referenced by [eventFilter\(\)](#).

5.38.4.44 void QwtPicker::widgetMouseEvent (QMouseEvent * *e*) [protected, virtual]

Handle a mouse relase event for the observed widget.

End a selection depending on the selection flags.

See also:

[QwtPicker](#), [selectionFlags\(\)](#)
[eventFilter\(\)](#), [widgetMouseEvent\(\)](#), [widgetMouseEventDoubleClickEvent\(\)](#), [widgetMouseEventMoveEvent\(\)](#), [widgetWheelEvent\(\)](#), [widgetKeyPressEvent\(\)](#), [widgetKeyReleaseEvent\(\)](#)

Reimplemented in [QwtPlotZoomer](#).

Definition at line 975 of file `qwt_picker.cpp`.

References [transition\(\)](#).

Referenced by [eventFilter\(\)](#), and [QwtPlotZoomer::widgetMouseEvent\(\)](#).

5.38.4.45 void QwtPicker::widgetWheelEvent (QWheelEvent * *e*) [protected, virtual]

Handle a wheel event for the observed widget.

Move the last point of the selection in case of [isActive\(\)](#) == true

See also:

[eventFilter\(\)](#), [widgetMouseEvent\(\)](#), [widgetMouseEventReleaseEvent\(\)](#), [widgetMouseEventDoubleClickEvent\(\)](#), [widgetMouseEventMoveEvent\(\)](#), [widgetKeyPressEvent\(\)](#), [widgetKeyReleaseEvent\(\)](#)

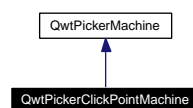
Definition at line 1004 of file `qwt_picker.cpp`.

References [pickRect\(\)](#), [transition\(\)](#), and [updateDisplay\(\)](#).

Referenced by [eventFilter\(\)](#).

5.39 QwtPickerClickPointMachine Class Reference

Inheritance diagram for QwtPickerClickPointMachine:



Collaboration diagram for QwtPickerClickPointMachine:



5.39.1 Detailed Description

A state machine for point selections.

Pressing `QwtEventPattern::MouseSelect1` or `QwtEventPattern::KeySelect1` selects a point.

See also:

[QwtEventPattern::MousePatternCode](#), [QwtEventPattern::KeyPatternCode](#)

Definition at line 75 of file `qwt_picker_machine.h`.

Public Member Functions

- virtual [CommandList transition](#) (const [QwtEventPattern](#) &, const `QEvent *`)

5.39.2 Member Function Documentation

5.39.2.1 [QwtPickerMachine::CommandList](#) [QwtPickerClickPointMachine::transition](#) (const [QwtEventPattern](#) &, const `QEvent *`) `[virtual]`

Transition.

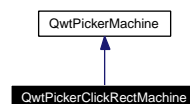
Implements [QwtPickerMachine](#).

Definition at line 44 of file `qwt_picker_machine.cpp`.

References `QwtEventPattern::mouseMatch()`.

5.40 QwtPickerClickRectMachine Class Reference

Inheritance diagram for `QwtPickerClickRectMachine`:



Collaboration diagram for `QwtPickerClickRectMachine`:



5.40.1 Detailed Description

A state machine for rectangle selections.

Pressing `QwtEventPattern::MouseSelect1` starts the selection, releasing it selects the first point. Pressing it again selects the second point and terminates the selection. Pressing `QwtEventPattern::KeySelect1` also starts the selection, a second press selects the first point. A third one selects the second point and terminates the selection.

See also:

[QwtEventPattern::MousePatternCode](#), [QwtEventPattern::KeyPatternCode](#)

Definition at line 109 of file qwt_picker_machine.h.

Public Member Functions

- virtual [CommandList transition](#) (const [QwtEventPattern](#) &, const [QEvent](#) *)

5.40.2 Member Function Documentation

5.40.2.1 [QwtPickerMachine::CommandList](#) [QwtPickerClickRectMachine::transition](#) (const [QwtEventPattern](#) &, const [QEvent](#) *) [virtual]

Transition.

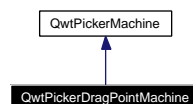
Implements [QwtPickerMachine](#).

Definition at line 145 of file qwt_picker_machine.cpp.

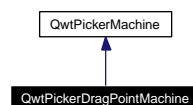
References [QwtEventPattern::mouseMatch\(\)](#), [QwtPickerMachine::setState\(\)](#), and [QwtPickerMachine::state\(\)](#).

5.41 QwtPickerDragPointMachine Class Reference

Inheritance diagram for QwtPickerDragPointMachine:



Collaboration diagram for QwtPickerDragPointMachine:



5.41.1 Detailed Description

A state machine for point selections.

Pressing [QwtEventPattern::MouseSelect1](#) or [QwtEventPattern::KeySelect1](#) starts the selection, releasing [QwtEventPattern::MouseSelect1](#) or a second press of [QwtEventPattern::KeySelect1](#) terminates it.

Definition at line 89 of file qwt_picker_machine.h.

Public Member Functions

- virtual [CommandList transition](#) (const [QwtEventPattern](#) &, const [QEvent](#) *)

5.41.2 Member Function Documentation

5.41.2.1 [QwtPickerMachine::CommandList](#) QwtPickerDragPointMachine::transition (const [QwtEventPattern](#) &, const [QEvent](#) *) [virtual]

Transition.

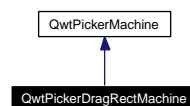
Implements [QwtPickerMachine](#).

Definition at line 81 of file qwt_picker_machine.cpp.

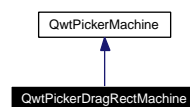
References [QwtEventPattern::mouseMatch\(\)](#), [QwtPickerMachine::setState\(\)](#), and [QwtPickerMachine::state\(\)](#).

5.42 QwtPickerDragRectMachine Class Reference

Inheritance diagram for QwtPickerDragRectMachine:



Collaboration diagram for QwtPickerDragRectMachine:



5.42.1 Detailed Description

A state machine for rectangle selections.

Pressing [QwtEventPattern::MouseSelect1](#) selects the first point, releasing it the second point. Pressing [QwtEventPattern::KeySelect1](#) also selects the first point, a second press selects the second point and terminates the selection.

See also:

[QwtEventPattern::MousePatternCode](#), [QwtEventPattern::KeyPatternCode](#)

Definition at line 128 of file qwt_picker_machine.h.

Public Member Functions

- virtual [CommandList](#) transition (const [QwtEventPattern](#) &, const [QEvent](#) *)

5.42.2 Member Function Documentation

5.42.2.1 [QwtPickerMachine::CommandList](#) QwtPickerDragRectMachine::transition (const [QwtEventPattern](#) &, const [QEvent](#) *) [virtual]

Transition.

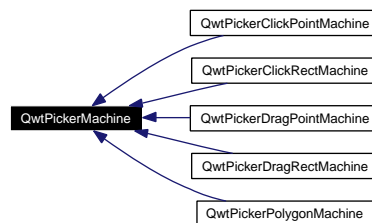
Implements [QwtPickerMachine](#).

Definition at line 234 of file qwt_picker_machine.cpp.

References [QwtEventPattern::mouseMatch\(\)](#), [QwtPickerMachine::setState\(\)](#), and [QwtPickerMachine::state\(\)](#).

5.43 QwtPickerMachine Class Reference

Inheritance diagram for QwtPickerMachine:



5.43.1 Detailed Description

A state machine for [QwtPicker](#) selections.

[QwtPickerMachine](#) accepts key and mouse events and translates them into selection commands.

See also:

[QwtEventPattern::MousePatternCode](#), [QwtEventPattern::KeyPatternCode](#)

Definition at line 32 of file qwt_picker_machine.h.

Public Types

- typedef [QList< Command >](#) [CommandList](#)
- enum [Command](#) {
Begin,
Append,
Move,
End }

Public Member Functions

- virtual [~QwtPickerMachine](#) ()
- virtual [CommandList](#) [transition](#) (const [QwtEventPattern](#) &, const [QEvent](#) *)=0
- void [reset](#) ()
- int [state](#) () const
- void [setState](#) (int)

Protected Member Functions

- [QwtPickerMachine](#) ()

5.43.2 Member Enumeration Documentation

5.43.2.1 enum [QwtPickerMachine::Command](#)

Commands - the output of the state machine.

Definition at line 36 of file qwt_picker_machine.h.

5.43.3 Constructor & Destructor Documentation

5.43.3.1 [QwtPickerMachine::~~QwtPickerMachine](#) () [virtual]

Destructor.

Definition at line 21 of file qwt_picker_machine.cpp.

5.43.3.2 [QwtPickerMachine::QwtPickerMachine](#) () [protected]

Constructor.

Definition at line 15 of file qwt_picker_machine.cpp.

5.43.4 Member Function Documentation

5.43.4.1 void [QwtPickerMachine::reset](#) ()

Set the current state to 0.

Definition at line 38 of file qwt_picker_machine.cpp.

References [setState\(\)](#).

5.43.4.2 void [QwtPickerMachine::setState](#) (int)

Change the current state.

Definition at line 32 of file qwt_picker_machine.cpp.

Referenced by [reset\(\)](#), [QwtPickerPolygonMachine::transition\(\)](#), [QwtPickerDragRectMachine::transition\(\)](#), [QwtPickerClickRectMachine::transition\(\)](#), and [QwtPickerDragPointMachine::transition\(\)](#).

5.43.4.3 int [QwtPickerMachine::state](#) () const

Return the current state.

Definition at line 26 of file qwt_picker_machine.cpp.

Referenced by [QwtPickerPolygonMachine::transition\(\)](#), [QwtPickerDragRectMachine::transition\(\)](#), [QwtPickerClickRectMachine::transition\(\)](#), and [QwtPickerDragPointMachine::transition\(\)](#).

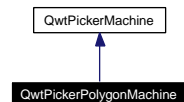
5.43.4.4 virtual [CommandList](#) [QwtPickerMachine::transition](#) (const [QwtEventPattern](#) &, const [QEvent](#) *) [pure virtual]

Transition.

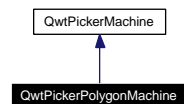
Implemented in [QwtPickerClickPointMachine](#), [QwtPickerDragPointMachine](#), [QwtPickerClickRectMachine](#), [QwtPickerDragRectMachine](#), and [QwtPickerPolygonMachine](#).

5.44 QwtPickerPolygonMachine Class Reference

Inheritance diagram for QwtPickerPolygonMachine:



Collaboration diagram for QwtPickerPolygonMachine:



5.44.1 Detailed Description

A state machine for polygon selections.

Pressing `QwtEventPattern::MouseSelect1` or `QwtEventPattern::KeySelect1` starts the selection and selects the first point, or appends a point. Pressing `QwtEventPattern::MouseSelect2` or `QwtEventPattern::KeySelect2` appends the last point and terminates the selection.

See also:

[QwtEventPattern::MousePatternCode](#), [QwtEventPattern::KeyPatternCode](#)

Definition at line 146 of file `qwt_picker_machine.h`.

Public Member Functions

- virtual [CommandList transition](#) (const [QwtEventPattern](#) &, const `QEvent *`)

5.44.2 Member Function Documentation

5.44.2.1 [QwtPickerMachine::CommandList](#) [QwtPickerPolygonMachine::transition](#) (const [QwtEventPattern](#) &, const `QEvent *`) [virtual]

Transition.

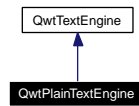
Implements [QwtPickerMachine](#).

Definition at line 300 of file `qwt_picker_machine.cpp`.

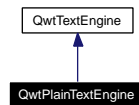
References [QwtEventPattern::mouseMatch\(\)](#), [QwtPickerMachine::setState\(\)](#), and [QwtPickerMachine::state\(\)](#).

5.45 QwtPlainTextEngine Class Reference

Inheritance diagram for QwtPlainTextEngine:



Collaboration diagram for QwtPlainTextEngine:



5.45.1 Detailed Description

A text engine for plain texts.

[QwtPlainTextEngine](#) renders texts using the basic Qt classes QPainter and QFontMetrics.

Definition at line 116 of file qwt_text_engine.h.

Public Member Functions

- [QwtPlainTextEngine](#) ()
- virtual [~QwtPlainTextEngine](#) ()
- virtual int [heightForWidth](#) (const QFont &font, int flags, const QString &text, int width) const
- virtual QSize [textSize](#) (const QFont &font, int flags, const QString &text) const
- virtual void [draw](#) (QPainter *painter, const QRect &rect, int flags, const QString &text) const
- virtual bool [mightRender](#) (const QString &) const
- virtual void [textMargins](#) (const QFont &, const QString &, int &left, int &right, int &top, int &bottom) const

5.45.2 Constructor & Destructor Documentation

5.45.2.1 QwtPlainTextEngine::QwtPlainTextEngine ()

Constructor.

Definition at line 134 of file qwt_text_engine.cpp.

5.45.2.2 QwtPlainTextEngine::~~QwtPlainTextEngine () [virtual]

Destructor.

Definition at line 140 of file qwt_text_engine.cpp.

5.45.3 Member Function Documentation

5.45.3.1 `void QwtPlainTextEngine::draw (QPainter * painter, const QRect & rect, int flags, const QString & text) const` [virtual]

Draw the text in a clipping rectangle.

A wrapper for QPainter::drawText.

Parameters:

painter Painter

rect Clipping rectangle

flags Bitwise OR of the flags used like in QPainter::drawText

text Text to be rendered

Implements [QwtTextEngine](#).

Definition at line 213 of file qwt_text_engine.cpp.

References QPainter::drawText().

5.45.3.2 `int QwtPlainTextEngine::heightForWidth (const QFont & font, int flags, const QString & text, int width) const` [virtual]

Find the height for a given width

Parameters:

font Font of the text

flags Bitwise OR of the flags used like in QPainter::drawText

text Text to be rendered

width Width

Returns:

Calculated height

Implements [QwtTextEngine](#).

Definition at line 155 of file qwt_text_engine.cpp.

5.45.3.3 `bool QwtPlainTextEngine::mightRender (const QString &) const` [virtual]

Test if a string can be rendered by this text engine.

Returns:

Always true. All texts can be rendered by [QwtPlainTextEngine](#)

Implements [QwtTextEngine](#).

Definition at line 223 of file qwt_text_engine.cpp.

5.45.3.4 `void QwtPlainTextEngine::textMargins (const QFont & font, const QString &, int & left, int & right, int & top, int & bottom) const` [virtual]

Return margins around the texts

Parameters:

font Font of the text
left Return 0
right Return 0
top Return value for the top margin
bottom Return value for the bottom margin

Implements [QwtTextEngine](#).

Definition at line 193 of file qwt_text_engine.cpp.

5.45.3.5 `QSize QwtPlainTextEngine::textSize (const QFont & font, int flags, const QString & text)`
const [virtual]

Returns the size, that is needed to render text

Parameters:

font Font of the text
flags Bitwise OR of the flags used like in QPainter::drawText
text Text to be rendered

Returns:

Caluclated size

Implements [QwtTextEngine](#).

Definition at line 174 of file qwt_text_engine.cpp.

5.46 QwtPlot Class Reference

Inheritance diagram for QwtPlot:



Collaboration diagram for QwtPlot:



5.46.1 Detailed Description

A 2-D plotting widget.

[QwtPlot](#) is a widget for plotting two-dimensional graphs. An unlimited number of plot items can be displayed on its canvas. Plot items might be curves ([QwtPlotCurve](#)), markers ([QwtPlotMarker](#)), the grid

([QwtPlotGrid](#)), or anything else derived from [QwtPlotItem](#). A plot can have up to four axes, with each plot item attached to an x- and a y axis. The scales at the axes can be explicitly set ([QwtScaleDiv](#)), or are calculated from the plot items, using algorithms ([QwtScaleEngine](#)) which can be configured separately for each axis.

Example

The following example shows (schematically) the most simple way to use [QwtPlot](#). By default, only the left and bottom axes are visible and their scales are computed automatically.

```
#include <qwt_plot.h>
#include <qwt_plot_curve.h>

QwtPlot *myPlot;
double x[100], y1[100], y2[100];          // x and y values

myPlot = new QwtPlot("Two Curves", parent);

// add curves
QwtPlotCurve *curve1 = new QwtPlotCurve("Curve 1");
QwtPlotCurve *curve2 = new QwtPlotCurve("Curve 2");

getSomeValues(x, y1, y2);

// copy the data into the curves
curve1->setData(x, y1, 100);
curve2->setData(x, y2, 100);

curve1->attach(myPlot);
curve2->attach(myPlot);

// finally, refresh the plot
myPlot->replot();
```

Definition at line 77 of file `qwt_plot.h`.

Public Types

- enum [Axis](#) {
 yLeft,
 yRight,
 xBottom,
 xTop,
 axisCnt }
- enum [LegendPosition](#) {
 LeftLegend,
 RightLegend,
 BottomLegend,
 TopLegend,
 ExternalLegend }

Public Slots

- void [clear](#) ()
- virtual void [replot](#) ()
- void [autoRefresh](#) ()

Signals

- void [legendClicked](#) ([QwtPlotItem](#) *plotItem)
- void [legendChecked](#) ([QwtPlotItem](#) *plotItem, bool on)

Public Member Functions

- [QwtPlot](#) ([QWidget](#) *p=NULL)
- [QwtPlot](#) (const [QwtText](#) &title, [QWidget](#) *p=NULL)
- virtual [~QwtPlot](#) ()
- void [applyProperties](#) (const [QString](#) &)
- [QString](#) [grabProperties](#) () const
- void [setAutoReplot](#) (bool tf=true)
- bool [autoReplot](#) () const
- void [print](#) ([QPaintDevice](#) &p, const [QwtPlotPrintFilter](#) &=QwtPlotPrintFilter()) const
- virtual void [print](#) ([QPainter](#) *, const [QRect](#) &rect, const [QwtPlotPrintFilter](#) &=QwtPlotPrintFilter()) const
- [QwtPlotLayout](#) * [plotLayout](#) ()
- const [QwtPlotLayout](#) * [plotLayout](#) () const
- void [setMargin](#) (int margin)
- int [margin](#) () const
- void [setTitle](#) (const [QString](#) &)
- void [setTitle](#) (const [QwtText](#) &t)
- [QwtText](#) [title](#) () const
- [QwtTextLabel](#) * [titleLabel](#) ()
- const [QwtTextLabel](#) * [titleLabel](#) () const
- [QwtPlotCanvas](#) * [canvas](#) ()
- const [QwtPlotCanvas](#) * [canvas](#) () const
- void [setCanvasBackground](#) (const [QColor](#) &c)
- const [QColor](#) & [canvasBackground](#) () const
- void [setCanvasLineWidth](#) (int w)
- int [canvasLineWidth](#) () const
- virtual [QwtScaleMap](#) [canvasMap](#) (int axisId) const
- double [invTransform](#) (int axisId, int pos) const
- int [transform](#) (int axisId, double value) const
- [QwtScaleEngine](#) * [axisScaleEngine](#) (int axisId)
- const [QwtScaleEngine](#) * [axisScaleEngine](#) (int axisId) const
- void [setAxisScaleEngine](#) (int axisId, [QwtScaleEngine](#) *)
- void [setAxisAutoScale](#) (int axisId)
- bool [axisAutoScale](#) (int axisId) const
- void [enableAxis](#) (int axisId, bool tf=true)
- bool [axisEnabled](#) (int axisId) const
- void [setAxisFont](#) (int axisId, const [QFont](#) &f)
- [QFont](#) [axisFont](#) (int axisId) const
- void [setAxisScale](#) (int axisId, double min, double max, double step=0)
- void [setAxisScaleDiv](#) (int axisId, const [QwtScaleDiv](#) &)
- void [setAxisScaleDraw](#) (int axisId, [QwtScaleDraw](#) *)
- const [QwtScaleDiv](#) * [axisScaleDiv](#) (int axisId) const
- [QwtScaleDiv](#) * [axisScaleDiv](#) (int axisId)
- const [QwtScaleDraw](#) * [axisScaleDraw](#) (int axisId) const

- [QwtScaleDraw](#) * [axisScaleDraw](#) (int axisId)
- const [QwtScaleWidget](#) * [axisWidget](#) (int axisId) const
- [QwtScaleWidget](#) * [axisWidget](#) (int axisId)
- void [setAxisLabelAlignment](#) (int axisId, Qt::Alignment)
- void [setAxisLabelRotation](#) (int axisId, double rotation)
- void [setAxisTitle](#) (int axisId, const QString &)
- void [setAxisTitle](#) (int axisId, const [QwtText](#) &)
- [QwtText](#) [axisTitle](#) (int axisId) const
- void [setAxisMaxMinor](#) (int axisId, int maxMinor)
- int [axisMaxMajor](#) (int axisId) const
- void [setAxisMaxMajor](#) (int axisId, int maxMajor)
- int [axisMaxMinor](#) (int axisId) const
- void [insertLegend](#) ([QwtLegend](#) *, [LegendPosition](#)=QwtPlot::RightLegend, double ratio=-1.0)
- [QwtLegend](#) * [legend](#) ()
- const [QwtLegend](#) * [legend](#) () const
- virtual void [polish](#) ()
- virtual QSize [sizeHint](#) () const
- virtual QSize [minimumSizeHint](#) () const
- virtual void [updateLayout](#) ()
- virtual bool [event](#) (QEvent *)

Protected Slots

- virtual void [legendItemClicked](#) ()
- virtual void [legendItemChecked](#) (bool)

Protected Member Functions

- virtual void [drawCanvas](#) (QPainter *)
- virtual void [drawItems](#) (QPainter *, const QRect &, const [QwtScaleMap](#) maps[axisCnt], const [QwtPlotPrintFilter](#) &) const
- virtual void [updateTabOrder](#) ()
- void [updateAxes](#) ()
- virtual void [resizeEvent](#) (QResizeEvent *e)
- virtual void [printLegendItem](#) (QPainter *, const QWidget *, const QRect &) const
- virtual void [printTitle](#) (QPainter *, const QRect &) const
- virtual void [printScale](#) (QPainter *, int axisId, int startDist, int endDist, int baseDist, const QRect &) const
- virtual void [printCanvas](#) (QPainter *, const QRect &, const [QwtScaleMap](#) maps[axisCnt], const [QwtPlotPrintFilter](#) &) const
- virtual void [printLegend](#) (QPainter *, const QRect &) const

Static Protected Member Functions

- static bool [axisValid](#) (int axisId)

Friends

- class [QwtPlotCanvas](#)

5.46.2 Member Enumeration Documentation

5.46.2.1 enum [QwtPlot::Axis](#)

Axis index.

Definition at line 87 of file qwt_plot.h.

5.46.2.2 enum [QwtPlot::LegendPosition](#)

Position of the legend, relative to the canvas.

ExternalLegend means that only the content of the legend will be handled by [QwtPlot](#), but not its geometry. This might be interesting if an application wants to have a legend in an external window.

Definition at line 105 of file qwt_plot.h.

5.46.3 Constructor & Destructor Documentation

5.46.3.1 [QwtPlot::QwtPlot](#) (QWidget * *parent* = NULL) [explicit]

Constructor.

Parameters:

parent Parent widget

Definition at line 53 of file qwt_plot.cpp.

5.46.3.2 [QwtPlot::QwtPlot](#) (const [QwtText](#) & *title*, QWidget * *parent* = NULL) [explicit]

Constructor.

Parameters:

title Title text

parent Parent widget

Definition at line 64 of file qwt_plot.cpp.

References [title\(\)](#).

5.46.3.3 [QwtPlot::~QwtPlot](#) () [virtual]

Destructor.

Definition at line 85 of file qwt_plot.cpp.

References [QwtPlotDict::autoDelete\(\)](#), and [QwtPlotDict::detachItems\(\)](#).

5.46.4 Member Function Documentation

5.46.4.1 void [QwtPlot::autoRefresh](#) () [slot]

Replots the plot if [QwtPlot::autoReplot\(\)](#) is true.

Definition at line 167 of file qwt_plot.cpp.

References [replot\(\)](#).

Referenced by `setAxisAutoScale()`, `setAxisMaxMajor()`, `setAxisMaxMinor()`, `setAxisScale()`, `setAxisScaleDiv()`, `setAxisScaleDraw()`, and `setAxisScaleEngine()`.

5.46.4.2 `bool QwtPlot::autoReplot () const`

Returns:

`true` if the `autoReplot` option is set.

Definition at line 195 of file `qwt_plot.cpp`.

Referenced by `QwtPlotPrintFilter::apply()`, `QwtPlotPanner::moveCanvas()`, `replot()`, `QwtPlotZoomer::rescale()`, `QwtPlotMagnifier::rescale()`, and `QwtPlotPrintFilter::reset()`.

5.46.4.3 `bool QwtPlot::axisAutoScale (int axisId) const`

Returns:

`true` if autoscaling is enabled

Parameters:

axisId axis index

Definition at line 154 of file `qwt_plot_axis.cpp`.

References `axisValid()`.

Referenced by `updateAxes()`.

5.46.4.4 `bool QwtPlot::axisEnabled (int axisId) const`

Returns:

`true` if a specified axis is enabled

Parameters:

axisId axis index

Definition at line 167 of file `qwt_plot_axis.cpp`.

References `axisValid()`.

Referenced by `canvasMap()`, `QwtPlotLayout::minimumSizeHint()`, `printScale()`, `QwtPlotPicker::QwtPlotPicker()`, and `sizeHint()`.

5.46.4.5 `QFont QwtPlot::axisFont (int axisId) const`

Returns:

the font of the scale labels for a specified axis

Parameters:

axisId axis index

Definition at line 179 of file `qwt_plot_axis.cpp`.

References `axisValid()`, and `axisWidget()`.

5.46.4.6 int QwtPlot::axisMaxMajor (int *axisId*) const

Returns:

the maximum number of major ticks for a specified axis

Parameters:

axisId axis index

Definition at line 192 of file qwt_plot_axis.cpp.

References `axisValid()`.

5.46.4.7 int QwtPlot::axisMaxMinor (int *axisId*) const

Returns:

the maximum number of minor ticks for a specified axis

Parameters:

axisId axis index

Definition at line 204 of file qwt_plot_axis.cpp.

References `axisValid()`.

5.46.4.8 [QwtScaleDiv](#) * QwtPlot::axisScaleDiv (int *axisId*)

Return the scale division of a specified axis.

`axisScaleDiv(axisId)->lBound()`, `axisScaleDiv(axisId)->hBound()` are the current limits of the axis scale.

Parameters:

axisId axis index

Returns:

Scale division

See also:

[QwtScaleDiv](#), [setAxisScaleDiv](#)

Definition at line 242 of file qwt_plot_axis.cpp.

References `axisValid()`.

5.46.4.9 const [QwtScaleDiv](#) * QwtPlot::axisScaleDiv (int *axisId*) const

Return the scale division of a specified axis.

`axisScaleDiv(axisId)->lBound()`, `axisScaleDiv(axisId)->hBound()` are the current limits of the axis scale.

Parameters:

axisId axis index

Returns:

Scale division

See also:

[QwtScaleDiv](#), [setAxisScaleDiv](#)

Definition at line 223 of file `qwt_plot_axis.cpp`.

References `axisValid()`.

Referenced by `canvasMap()`, `QwtPlotPanner::moveCanvas()`, `QwtPlotZoomer::rescale()`, `QwtPlotMagnifier::rescale()`, and `QwtPlotPicker::scaleRect()`.

5.46.4.10 [QwtScaleDraw](#) * `QwtPlot::axisScaleDraw (int axisId)`

Returns:

the scale draw of a specified axis

Parameters:

axisId axis index

Returns:

specified `scaleDraw` for axis, or NULL if axis is invalid.

See also:

[QwtScaleDraw](#)

Definition at line 270 of file `qwt_plot_axis.cpp`.

References `axisValid()`, `axisWidget()`, and `QwtScaleWidget::scaleDraw()`.

5.46.4.11 `const` [QwtScaleDraw](#) * `QwtPlot::axisScaleDraw (int axisId) const`

Returns:

the scale draw of a specified axis

Parameters:

axisId axis index

Returns:

specified `scaleDraw` for axis, or NULL if axis is invalid.

See also:

[QwtScaleDraw](#)

Definition at line 256 of file `qwt_plot_axis.cpp`.

References `axisValid()`, `axisWidget()`, and `QwtScaleWidget::scaleDraw()`.

5.46.4.12 [QwtText](#) `QwtPlot::axisTitle (int axisId) const`

Returns:

the title of a specified axis

Parameters:

axisId axis index

Definition at line 282 of file `qwt_plot_axis.cpp`.

References `axisValid()`, `axisWidget()`, and `QwtScaleWidget::title()`.

5.46.4.13 `bool QwtPlot::axisValid (int axisId)` [static, protected]**Returns:**

`true` if the specified axis exists, otherwise `false`

Parameters:

axisId axis index

Definition at line 767 of file `qwt_plot.cpp`.

Referenced by `axisAutoScale()`, `axisEnabled()`, `axisFont()`, `axisMaxMajor()`, `axisMaxMinor()`, `axisScaleDiv()`, `axisScaleDraw()`, `axisScaleEngine()`, `axisTitle()`, `axisWidget()`, `enableAxis()`, `invTransform()`, `setAxisAutoScale()`, `setAxisFont()`, `setAxisLabelRotation()`, `setAxisMaxMajor()`, `setAxisMaxMinor()`, `setAxisScale()`, `setAxisScaleDiv()`, `setAxisScaleDraw()`, `setAxisScaleEngine()`, `setAxisTitle()`, and `transform()`.

5.46.4.14 `QwtScaleWidget * QwtPlot::axisWidget (int axisId)`**Returns:**

specified axis, or `NULL` if *axisId* is invalid.

Parameters:

axisId axis index

Definition at line 112 of file `qwt_plot_axis.cpp`.

References `axisValid()`.

5.46.4.15 `const QwtScaleWidget * QwtPlot::axisWidget (int axisId) const`**Returns:**

specified axis, or `NULL` if *axisId* is invalid.

Parameters:

axisId axis index

Definition at line 100 of file `qwt_plot_axis.cpp`.

References `axisValid()`.

Referenced by `axisFont()`, `axisScaleDraw()`, `axisTitle()`, `canvasMap()`, `QwtPlotLayout::minimumSizeHint()`, `print()`, `printScale()`, `setAxisFont()`, `setAxisLabelRotation()`, `setAxisScaleDraw()`, `setAxisTitle()`, and `sizeHint()`.

5.46.4.16 `const QwtPlotCanvas * QwtPlot::canvas () const`**Returns:**

the plot's canvas

Definition at line 297 of file `qwt_plot.cpp`.

5.46.4.17 [QwtPlotCanvas](#) * [QwtPlot::canvas](#) ()

Returns:

the plot's canvas

Definition at line 289 of file `qwt_plot.cpp`.

Referenced by `canvasBackground()`, `canvasLineWidth()`, `QwtPlotCurve::draw()`, `printCanvas()`, `replot()`, and `setCanvasLineWidth()`.

5.46.4.18 `const QColor & QwtPlot::canvasBackground () const`

Nothing else than: `canvas()->palette().color(QPalette::Normal, QColorGroup::Background);`

Returns:

the background color of the plotting area.

Definition at line 730 of file `qwt_plot.cpp`.

References `canvas()`.

5.46.4.19 `int QwtPlot::canvasLineWidth () const`

Nothing else than: `canvas()->lineWidth()`, left for compatibility only.

Returns:

the border width of the plotting area

Definition at line 758 of file `qwt_plot.cpp`.

References `canvas()`.

5.46.4.20 [QwtScaleMap](#) [QwtPlot::canvasMap](#) (int *axisId*) const [virtual]

Parameters:

axisId Axis

Returns:

Map for the axis on the canvas. With this map pixel coordinates can translated to plot coordinates and vice versa.

See also:

[QwtScaleMap](#), [QwtPlot::transform](#), [QwtPlot::invTransform](#)

Definition at line 626 of file `qwt_plot.cpp`.

References `axisEnabled()`, `axisScaleDiv()`, `axisScaleEngine()`, `axisWidget()`, `QwtPlotLayout::canvasMargin()`, `QwtScaleWidget::endBorderDist()`, `QwtScaleDiv::hBound()`, `QwtScaleDiv::lBound()`, `margin()`, `plotLayout()`, `QwtScaleMap::setPaintInterval()`, `QwtScaleMap::setScaleInterval()`, `QwtScaleMap::setTransformation()`, and `QwtScaleWidget::startBorderDist()`.

Referenced by `QwtPlotCurve::closestPoint()`, `drawCanvas()`, `QwtPlotPicker::invTransform()`, `invTransform()`, `QwtPlotPanner::moveCanvas()`, `QwtPlotPicker::transform()`, and `transform()`.

5.46.4.21 void QwtPlot::clear () [slot]

Remove all curves and markers.

Definition at line 798 of file qwt_plot.cpp.

References QwtPlotDict::detachItems().

5.46.4.22 void QwtPlot::drawCanvas (QPainter * *painter*) [protected, virtual]

Redraw the canvas.

Parameters:

painter Painter used for drawing

Warning:

drawCanvas calls drawCanvasItems what is also used for printing. Applications that like to add individual plot items better overload QwtPlot::drawCanvasItems

See also:

[QwtPlot::drawItems](#)

Definition at line 568 of file qwt_plot.cpp.

References canvasMap(), and drawItems().

5.46.4.23 void QwtPlot::drawItems (QPainter * *painter*, const QRect & *rect*, const QwtScaleMap *map*[axisCnt], const QwtPlotPrintFilter & *pfilter*) const [protected, virtual]

Redraw the canvas items.

Parameters:

painter Painter used for drawing

rect Bounding rectangle where to paint

map QwtPlot::axisCnt maps, mapping between plot and paint device coordinates

pfilter Plot print filter

Definition at line 586 of file qwt_plot.cpp.

References QwtPlotDict::itemList(), and QwtPlotPrintFilter::options().

Referenced by drawCanvas().

5.46.4.24 void QwtPlot::enableAxis (int *axisId*, bool *tf* = true)

Enable or disable a specified axis.

When an axis is disabled, this only means that it is not visible on the screen. Curves, markers and can be attached to disabled axes, and transformation of screen coordinates into values works as normal.

Only xBottom and yLeft are enabled by default.

Parameters:

axisId axis index

tf true (enabled) or false (disabled)

Definition at line 302 of file qwt_plot_axis.cpp.

References axisValid(), and updateLayout().

5.46.4.25 `bool QwtPlot::event (QEvent *)` [virtual]

Adds handling of layout requests.

Definition at line 141 of file `qwt_plot.cpp`.

References `polish()`, and `updateLayout()`.

5.46.4.26 `void QwtPlot::insertLegend (QwtLegend * legend, QwtPlot::LegendPosition pos = QwtPlot::RightLegend, double ratio = -1.0)`

Insert a legend.

If the position legend is `QwtPlot::LeftLegend` or `QwtPlot::RightLegend` the legend will be organized in one column from top to down. Otherwise the legend items will be placed in a table with a best fit number of columns from left to right.

If `pos != QwtPlot::ExternalLegend` the plot widget will become parent of the legend. It will be deleted when the plot is deleted, or another legend is set with `insertLegend()`.

Parameters:

legend Legend

pos The legend's position. For top/left position the number of columns will be limited to 1, otherwise it will be set to unlimited.

ratio Ratio between legend and the bounding rect of title, canvas and axes. The legend will be shrinked if it would need more space than the given ratio. The ratio is limited to]0.0 .. 1.0]. In case of ≤ 0.0 it will be reset to the default ratio. The default vertical/horizontal ratio is 0.33/0.5.

See also:

[QwtPlotLayout::legendPosition\(\)](#), [QwtPlotLayout::setLegendPosition\(\)](#)

Definition at line 830 of file `qwt_plot.cpp`.

References `QwtPlotDict::itemList()`, and `legend()`.

5.46.4.27 `double QwtPlot::invTransform (int axisId, int pos) const`

Transform the x or y coordinate of a position in the drawing region into a value.

Parameters:

axisId axis index

pos position

Warning:

The position can be an x or a y coordinate, depending on the specified axis.

Definition at line 319 of file `qwt_plot_axis.cpp`.

References `axisValid()`, and `canvasMap()`.

5.46.4.28 `const QwtLegend * QwtPlot::legend () const`**Returns:**

the plot's legend

See also:

[printLegendItem\(\)](#)

Definition at line 280 of file qwt_plot.cpp.

5.46.4.29 **QwtLegend** * QwtPlot::legend ()

Returns:

the plot's legend

See also:

[printLegendItem\(\)](#)

Definition at line 271 of file qwt_plot.cpp.

Referenced by QwtPlotLayout::activate(), insertLegend(), and printLegend().

5.46.4.30 **void QwtPlot::legendChecked (QwtPlotItem * *plotItem*, bool *on*)** [signal]

A signal which is emitted when the user has clicked on a legend item, which is in QwtLegend::Checkable-Item mode

Parameters:

plotItem Corresponding plot item of the selected legend item

on True when the legen item is checked

Note:

clicks are disabled as default

See also:

[QwtLegend::setItemMode](#), [QwtLegend::itemMode](#)

Referenced by legendItemChecked().

5.46.4.31 **void QwtPlot::legendClicked (QwtPlotItem * *plotItem*)** [signal]

A signal which is emitted when the user has clicked on a legend item, which is in QwtLegend::Clickable-Item mode.

Parameters:

plotItem Corresponding plot item of the selected legend item

Note:

clicks are disabled as default

See also:

[QwtLegend::setItemMode](#), [QwtLegend::itemMode](#)

Referenced by legendItemClicked().

5.46.4.32 void QwtPlot::legendItemClicked () [protected, virtual, slot]

Called internally when the legend has been clicked on. Emits a [legendClicked\(\)](#) signal.

Definition at line 777 of file qwt_plot.cpp.

References [legendClicked\(\)](#).

5.46.4.33 int QwtPlot::margin () const**Returns:**

margin

See also:

[QwtPlot::setMargin\(\)](#), [QwtPlotLayout::margin\(\)](#), [QwtPlot::plotLayout\(\)](#)

Definition at line 695 of file qwt_plot.cpp.

Referenced by [canvasMap\(\)](#).

5.46.4.34 QSize QwtPlot::minimumSizeHint () const [virtual]

Return a minimum size hint.

Definition at line 351 of file qwt_plot.cpp.

5.46.4.35 const [QwtPlotLayout](#) * QwtPlot::plotLayout () const**Returns:**

the plot's layout

Definition at line 246 of file qwt_plot.cpp.

5.46.4.36 [QwtPlotLayout](#) * QwtPlot::plotLayout ()**Returns:**

the plot's layout

Definition at line 238 of file qwt_plot.cpp.

Referenced by [canvasMap\(\)](#).

5.46.4.37 void QwtPlot::print (QPainter * *painter*, const QRect & *plotRect*, const [QwtPlotPrintFilter](#) & *pfilter* = [QwtPlotPrintFilter](#)()) const [virtual]

Paint the plot into a given rectangle. Paint the contents of a [QwtPlot](#) instance into a given rectangle.

Parameters:

painter Painter

plotRect Bounding rectangle

pfilter Print filter

See also:

[QwtPlotPrintFilter](#)

Definition at line 74 of file qwt_plot_print.cpp.

References [QwtPlotPrintFilter::apply\(\)](#), [axisWidget\(\)](#), [QwtPainter::metricsMap\(\)](#), [QwtPlotPrintFilter::options\(\)](#), and [QwtPainter::setMetricsMap\(\)](#).

5.46.4.38 `void QwtPlot::print (QPaintDevice & paintDev, const QwtPlotPrintFilter & pfilter = QwtPlotPrintFilter()) const`

Print the plot to a QPaintDevice (QPrinter) This function prints the contents of a [QwtPlot](#) instance to QPaintDevice object. The size is derived from its device metrics.

Parameters:

paintDev device to paint on, often a printer

pfilter print filter

See also:

[QwtPlot::print](#)

[QwtPlotPrintFilter](#)

Definition at line 44 of file qwt_plot_print.cpp.

5.46.4.39 `void QwtPlot::printCanvas (QPainter * painter, const QRect & canvasRect, const QwtScaleMap map[axisCnt], const QwtPlotPrintFilter & pfilter) const` [protected, virtual]

Print the canvas into a given rectangle.

Parameters:

painter Painter

map Maps mapping between plot and paint device coordinates

canvasRect Bounding rectangle

pfilter Print filter

See also:

[QwtPlotPrintFilter](#)

Definition at line 450 of file qwt_plot_print.cpp.

References [canvas\(\)](#), and [QwtPlotPrintFilter::options\(\)](#).

5.46.4.40 `void QwtPlot::printLegend (QPainter * painter, const QRect & rect) const` [protected, virtual]

Print the legend into a given rectangle.

Parameters:

painter Painter

rect Bounding rectangle

Definition at line 267 of file qwt_plot_print.cpp.

References [QwtDynGridLayout::columnsForWidth\(\)](#), [QwtLegend::contentsWidget\(\)](#), [QwtDynGridLayout::count\(\)](#), [QwtDynGridLayout::itemAt\(\)](#), [QwtDynGridLayout::layoutItems\(\)](#), [legend\(\)](#), [printLegendItem\(\)](#), and [QwtPainter::setClipRect\(\)](#).

5.46.4.41 void QwtPlot::printLegendItem (QPainter * *painter*, const QWidget * *w*, const QRect & *rect*) const [protected, virtual]

Print the legend item into a given rectangle.

Parameters:

painter Painter

w Widget representing a legend item

rect Bounding rectangle

Definition at line 322 of file qwt_plot_print.cpp.

Referenced by printLegend().

5.46.4.42 void QwtPlot::printScale (QPainter * *painter*, int *axisId*, int *startDist*, int *endDist*, int *baseDist*, const QRect & *rect*) const [protected, virtual]

Paint a scale into a given rectangle. Paint the scale into a given rectangle.

Parameters:

painter Painter

axisId Axis

startDist Start border distance

endDist End border distance

baseDist Base distance

rect Bounding rectangle

Definition at line 346 of file qwt_plot_print.cpp.

References axisEnabled(), axisWidget(), QwtScaleWidget::colorBarRect(), QwtScaleWidget::colorBarWidth(), QwtScaleWidget::drawColorBar(), QwtScaleWidget::isColorBarEnabled(), QPainter::metricsMap(), QwtScaleDraw::orientation(), QwtScaleWidget::scaleDraw(), and QwtScaleWidget::spacing().

5.46.4.43 void QwtPlot::printTitle (QPainter * *painter*, const QRect & *rect*) const [protected, virtual]

Print the title into a given rectangle.

Parameters:

painter Painter

rect Bounding rectangle

Definition at line 243 of file qwt_plot_print.cpp.

References QwtText::draw(), QwtTextLabel::text(), and titleLabel().

5.46.4.44 void QwtPlot::replot () [virtual, slot]

Redraw the plot.

If the autoReplot option is not set (which is the default) or if any curves are attached to raw data, the plot has to be refreshed explicitly in order to make changes visible.

See also:

[setAutoReplot\(\)](#)

Warning:

Calls [canvas\(\)](#)->repaint, take care of infinite recursions

Definition at line 376 of file qwt_plot.cpp.

References [autoReplot\(\)](#), [canvas\(\)](#), [QwtPlotCanvas::invalidatePaintCache\(\)](#), [setAutoReplot\(\)](#), [QwtPlotCanvas::testPaintAttribute\(\)](#), and [updateAxes\(\)](#).

Referenced by [applyProperties\(\)](#), [autoRefresh\(\)](#), and [polish\(\)](#).

5.46.4.45 void QwtPlot::resizeEvent (QResizeEvent * e) [protected, virtual]

Resize and update internal layout.

Definition at line 360 of file qwt_plot.cpp.

References [updateLayout\(\)](#).

5.46.4.46 void QwtPlot::setAutoReplot (bool tf = true)

Set or reset the autoReplot option If the autoReplot option is set, the plot will be updated implicitly by manipulating member functions. Since this may be time-consuming, it is recommended to leave this option switched off and call [replot\(\)](#) explicitly if necessary.

The autoReplot option is set to false by default, which means that the user has to call [replot\(\)](#) in order to make changes visible.

Parameters:

tf true or false. Defaults to true.

See also:

[replot\(\)](#)

Definition at line 187 of file qwt_plot.cpp.

Referenced by [QwtPlotPrintFilter::apply\(\)](#), [QwtPlotPanner::moveCanvas\(\)](#), [replot\(\)](#), [QwtPlotZoomer::rescale\(\)](#), [QwtPlotMagnifier::rescale\(\)](#), and [QwtPlotPrintFilter::reset\(\)](#).

5.46.4.47 void QwtPlot::setAxisAutoScale (int axisId)

Enable autoscaling for a specified axis.

This member function is used to switch back to autoscaling mode after a fixed scale has been set. Autoscaling is enabled by default.

Parameters:

axisId axis index

See also:

[QwtPlot::setAxisScale\(\)](#), [QwtPlot::setAxisScaleDiv\(\)](#)

Definition at line 366 of file qwt_plot_axis.cpp.

References [autoRefresh\(\)](#), and [axisValid\(\)](#).

5.46.4.48 void QwtPlot::setAxisFont (int *axisId*, const QFont & *f*)

Change the font of an axis.

Parameters:

axisId axis index

f font

Warning:

This function changes the font of the tick labels, not of the axis title.

Definition at line 351 of file qwt_plot_axis.cpp.

References [axisValid\(\)](#), and [axisWidget\(\)](#).

5.46.4.49 void QwtPlot::setAxisLabelAlignment (int *axisId*, Qt::Alignment *alignment*)

Change the alignment of the tick labels

Parameters:

axisId axis index

alignment Or'd Qt::AlignmentFlags <see [qnamespace.h](#)>

See also:

[QwtScaleDraw::setLabelAlignment\(\)](#)

Definition at line 453 of file qwt_plot_axis.cpp.

5.46.4.50 void QwtPlot::setAxisLabelRotation (int *axisId*, double *rotation*)

Rotate all tick labels

Parameters:

axisId axis index

rotation Angle in degrees. When changing the label rotation, the label alignment might be adjusted too.

See also:

[QwtScaleDraw::setLabelRotation\(\)](#), [QwtPlot::setAxisLabelAlignment](#)

Definition at line 467 of file qwt_plot_axis.cpp.

References [axisValid\(\)](#), [axisWidget\(\)](#), and [QwtScaleWidget::setLabelRotation\(\)](#).

5.46.4.51 void QwtPlot::setAxisMaxMajor (int *axisId*, int *maxMajor*)

Set the maximum number of major scale intervals for a specified axis.

Parameters:

axisId axis index

maxMajor maximum number of major steps

See also:

[QwtAutoScale::setMaxMajor](#)

Definition at line 505 of file qwt_plot_axis.cpp.

References [autoRefresh\(\)](#), and [axisValid\(\)](#).

5.46.4.52 void QwtPlot::setAxisMaxMinor (int *axisId*, int *maxMinor*)

Set the maximum number of minor scale intervals for a specified axis.

Parameters:

axisId axis index

maxMinor maximum number of minor steps

See also:

[QwtAutoScale::setMaxMinor](#)

Definition at line 479 of file `qwt_plot_axis.cpp`.

References [autoRefresh\(\)](#), and [axisValid\(\)](#).

5.46.4.53 void QwtPlot::setAxisScale (int *axisId*, double *min*, double *max*, double *stepSize* = 0)

Disable autoscaling and specify a fixed scale for a selected axis.

Parameters:

axisId axis index

min

max minimum and maximum of the scale

stepSize Major step size. If `step == 0`, the step size is calculated automatically using the max-Major setting.

See also:

[QwtPlot::setAxisMaxMajor\(\)](#), [QwtPlot::setAxisAutoScale\(\)](#)

Definition at line 384 of file `qwt_plot_axis.cpp`.

References [autoRefresh\(\)](#), and [axisValid\(\)](#).

Referenced by [QwtPlotPanner::moveCanvas\(\)](#), [QwtPlotZoomer::rescale\(\)](#), and [QwtPlotMagnifier::rescale\(\)](#).

5.46.4.54 void QwtPlot::setAxisScaleDiv (int *axisId*, const [QwtScaleDiv](#) & *scaleDiv*)

Disable autoscaling and specify a fixed scale for a selected axis.

Parameters:

axisId axis index

scaleDiv Scale division

See also:

[QwtPlot::setAxisScale\(\)](#), [QwtPlot::setAxisAutoScale\(\)](#)

Definition at line 407 of file `qwt_plot_axis.cpp`.

References [autoRefresh\(\)](#), and [axisValid\(\)](#).

5.46.4.55 void QwtPlot::setAxisScaleDraw (int *axisId*, [QwtScaleDraw](#) * *scaleDraw*)

Set a scale draw.

Parameters:

axisId axis index

scaleDraw object responsible for drawing scales.

By passing *scaleDraw* it is possible to extend [QwtScaleDraw](#) functionality and let it take place in [QwtPlot](#). Please note that *scaleDraw* has to be created with `new` and will be deleted by the corresponding [QwtScale](#) member (like a child object).

See also:

[QwtScaleDraw](#), [QwtScale](#)

Warning:

The attributes of *scaleDraw* will be overwritten by those of the previous [QwtScaleDraw](#).

Definition at line 435 of file `qwt_plot_axis.cpp`.

References [autoRefresh\(\)](#), [axisValid\(\)](#), [axisWidget\(\)](#), and [QwtScaleWidget::setScaleDraw\(\)](#).

5.46.4.56 void QwtPlot::setAxisTitle (int *axisId*, const [QwtText](#) & *title*)

Change the title of a specified axis.

Parameters:

axisId axis index

title axis title

Definition at line 540 of file `qwt_plot_axis.cpp`.

References [axisValid\(\)](#), [axisWidget\(\)](#), [QwtScaleWidget::setTitle\(\)](#), and [title\(\)](#).

5.46.4.57 void QwtPlot::setAxisTitle (int *axisId*, const QString & *title*)

Change the title of a specified axis.

Parameters:

axisId axis index

title axis title

Definition at line 529 of file `qwt_plot_axis.cpp`.

References [axisValid\(\)](#), [axisWidget\(\)](#), and [QwtScaleWidget::setTitle\(\)](#).

5.46.4.58 void QwtPlot::setCanvasBackground (const QColor & *c*)

Change the background of the plotting area.

Sets *c* to [QColorGroup::Background](#) of all colorgroups of the palette of the canvas. Using [canvas\(\)->set-Palette\(\)](#) is a more powerful way to set these colors.

Parameters:

c new background color

Definition at line 708 of file `qwt_plot.cpp`.

5.46.4.59 void QwtPlot::setCanvasLineWidth (int *w*)

Change the border width of the plotting area. Nothing else than [canvas\(\)->setLineWidth\(w\)](#), left for compatibility only.

Parameters:

w new border width

Definition at line 747 of file `qwt_plot.cpp`.

References `canvas()`, and `updateLayout()`.

5.46.4.60 void QwtPlot::setMargin (int *margin*)

Change the margin of the plot. The margin is the space around all components.

Parameters:

margin new margin

See also:

[QwtPlotLayout::setMargin\(\)](#), [QwtPlot::margin\(\)](#), [QwtPlot::plotLayout\(\)](#)

Definition at line 679 of file `qwt_plot.cpp`.

References `updateLayout()`.

5.46.4.61 void QwtPlot::setTitle (const [QwtText](#) & *t*)

Change the plot's title.

Parameters:

t new title

Definition at line 217 of file `qwt_plot.cpp`.

References `updateLayout()`.

5.46.4.62 void QwtPlot::setTitle (const [QString](#) & *t*)

Change the plot's title.

Parameters:

t new title

Definition at line 204 of file `qwt_plot.cpp`.

References `updateLayout()`.

Referenced by `applyProperties()`.

5.46.4.63 [QSize](#) QwtPlot::sizeHint () const [virtual]

Return `sizeHint`

See also:

[QwtPlot::minimumSizeHint\(\)](#)

Definition at line 316 of file qwt_plot.cpp.

References `axisEnabled()`, `axisWidget()`, `QwtScaleWidget::minimumSizeHint()`, `QwtAbstractScaleDraw::scaleDiv()`, `QwtScaleWidget::scaleDraw()`, and `QwtScaleDiv::ticks()`.

5.46.4.64 `QwtText` `QwtPlot::title () const`

Returns:

the plot's title

Definition at line 230 of file qwt_plot.cpp.

Referenced by `grabProperties()`, `QwtPlot()`, and `setAxisTitle()`.

5.46.4.65 `const QwtTextLabel *` `QwtPlot::titleLabel () const`

Returns:

the plot's titel label.

Definition at line 262 of file qwt_plot.cpp.

5.46.4.66 `QwtTextLabel *` `QwtPlot::titleLabel ()`

Returns:

the plot's titel label.

Definition at line 254 of file qwt_plot.cpp.

Referenced by `QwtPlotPrintFilter::apply()`, `printTitle()`, and `QwtPlotPrintFilter::reset()`.

5.46.4.67 `int` `QwtPlot::transform (int axisId, double value) const`

Transform a value into a coordinate in the plotting region.

Parameters:

axisId axis index

value value

Returns:

X or y coordinate in the plotting region corresponding to the value.

Definition at line 335 of file qwt_plot_axis.cpp.

References `axisValid()`, and `canvasMap()`.

5.46.4.68 `void` `QwtPlot::updateAxes ()` [protected]

Rebuild the scales and maps.

Definition at line 547 of file qwt_plot_axis.cpp.

References `axisAutoScale()`, and `QwtPlotDict::itemList()`.

Referenced by `replot()`.

5.46.4.69 void QwtPlot::updateLayout () [virtual]

Adjust plot content to its current size.

See also:

[QwtPlot::resizeEvent](#)

Definition at line 426 of file qwt_plot.cpp.

Referenced by [enableAxis\(\)](#), [event\(\)](#), [resizeEvent\(\)](#), [setCanvasLineWidth\(\)](#), [setMargin\(\)](#), and [setTitle\(\)](#).

5.46.4.70 void QwtPlot::updateTabOrder () [protected, virtual]

Update the focus tab order

The order is changed so that the canvas will be in front of the first legend item, or behind the last legend item - depending on the position of the legend.

Definition at line 490 of file qwt_plot.cpp.

5.47 QwtPlotCanvas Class Reference

5.47.1 Detailed Description

Canvas of a [QwtPlot](#).

See also:

[QwtPlot](#)

Definition at line 28 of file qwt_plot_canvas.h.

Public Types

- enum [PaintAttribute](#) {
 PaintCached = 1,
 PaintPacked = 2 }
- enum [FocusIndicator](#) {
 NoFocusIndicator,
 CanvasFocusIndicator,
 ItemFocusIndicator }

Public Member Functions

- void [setFocusIndicator](#) ([FocusIndicator](#))
- [FocusIndicator](#) [focusIndicator](#) () const
- void [setPaintAttribute](#) ([PaintAttribute](#), bool on=true)
- bool [testPaintAttribute](#) ([PaintAttribute](#)) const
- QPixmap * [paintCache](#) ()
- const QPixmap * [paintCache](#) () const
- void [invalidatePaintCache](#) ()

Protected Member Functions

- [QwtPlotCanvas](#) ([QwtPlot](#) *)
- virtual [~QwtPlotCanvas](#) ()
- virtual void [hideEvent](#) ([QHideEvent](#) *)
- virtual void [paintEvent](#) ([QPaintEvent](#) *)
- virtual void [drawContents](#) ([QPainter](#) *)
- virtual void [drawFocusIndicator](#) ([QPainter](#) *)
- void [drawCanvas](#) ([QPainter](#) *painter=NULL)

Friends

- class [QwtPlot](#)

5.47.2 Member Enumeration Documentation

5.47.2.1 enum [QwtPlotCanvas::FocusIndicator](#)

Focus indicator.

- NoFocusIndicator
Don't paint a focus indicator
- CanvasFocusIndicator
The focus is related to the complete canvas. Paint the focus indicator using [paintFocus\(\)](#)
- ItemFocusIndicator
The focus is related to an item (curve, point, ...) on the canvas. It is up to the application to display a focus indication using f.e. highlighting.

See also:

[setFocusIndicator\(\)](#), [focusIndicator\(\)](#), [paintFocus\(\)](#)

Definition at line 80 of file [qwt_plot_canvas.h](#).

5.47.2.2 enum [QwtPlotCanvas::PaintAttribute](#)

Paint attributes.

- PaintCached
Paint double buffered and reuse the content of the pixmap buffer for some spontaneous repaints that happen when a plot gets unhidden, deiconified or changes the focus. Disabling the cache will improve the performance for incremental paints (using [QwtPlotCurve::draw](#)).
- PaintPacked
Suppress system background repaints and paint it together with the canvas contents. Painting packed might avoid flickering for expensive repaints, when there is a notable gap between painting the background and the plot contents.

The default setting enables PaintCached and PaintPacked

See also:

[setPaintAttribute\(\)](#), [testPaintAttribute\(\)](#), [paintCache\(\)](#)

Definition at line 56 of file qwt_plot_canvas.h.

5.47.3 Constructor & Destructor Documentation

5.47.3.1 QwtPlotCanvas::QwtPlotCanvas ([QwtPlot](#) *) [explicit, protected]

Sets a cross cursor, enables QwtPlotCanvas::PaintCached.

Definition at line 50 of file qwt_plot_canvas.cpp.

References [setPaintAttribute\(\)](#).

5.47.3.2 QwtPlotCanvas::~QwtPlotCanvas () [protected, virtual]

Destructor.

Definition at line 75 of file qwt_plot_canvas.cpp.

5.47.4 Member Function Documentation

5.47.4.1 void QwtPlotCanvas::drawCanvas (QPainter * *painter* = NULL) [protected]

Draw the the canvas

Paints all plot items to the contentsRect(), using [QwtPlot::drawCanvas](#) and updates the paint cache.

See also:

[QwtPlot::drawCanvas](#), [setPaintAttributes\(\)](#), [testPaintAttributes\(\)](#)

Definition at line 259 of file qwt_plot_canvas.cpp.

5.47.4.2 void QwtPlotCanvas::drawContents (QPainter *) [protected, virtual]

Redraw the canvas, and focus rect.

Definition at line 228 of file qwt_plot_canvas.cpp.

Referenced by [paintEvent\(\)](#).

5.47.4.3 void QwtPlotCanvas::drawFocusIndicator (QPainter *) [protected, virtual]

Draw the focus indication.

Definition at line 328 of file qwt_plot_canvas.cpp.

References [QwtPainter::drawFocusRect\(\)](#).

5.47.4.4 [QwtPlotCanvas::FocusIndicator](#) QwtPlotCanvas::focusIndicator () const

Returns:

Focus indicator

See also:

[FocusIndicator](#), [setFocusIndicator](#)

Definition at line 185 of file `qwt_plot_canvas.cpp`.

5.47.4.5 void QwtPlotCanvas::invalidatePaintCache ()

Invalidate the internal paint cache.

Definition at line 164 of file `qwt_plot_canvas.cpp`.

Referenced by `QwtPlot::replot()`.

5.47.4.6 const QPixmap * QwtPlotCanvas::paintCache () const

Return the paint cache, might be null.

Definition at line 158 of file `qwt_plot_canvas.cpp`.

5.47.4.7 QPixmap * QwtPlotCanvas::paintCache ()

Return the paint cache, might be null.

Definition at line 152 of file `qwt_plot_canvas.cpp`.

5.47.4.8 void QwtPlotCanvas::setFocusIndicator ([FocusIndicator](#) *focusIndicator*)

Set the focus indicator

See also:

[FocusIndicator](#), [focusIndicator](#)

Definition at line 175 of file `qwt_plot_canvas.cpp`.

5.47.4.9 void QwtPlotCanvas::setPaintAttribute ([PaintAttribute](#) *attribute*, bool *on* = true)

Changing the paint attributes.

Parameters:

attribute Paint attribute

on On/Off

The default setting enables `PaintCached` and `PaintPacked`

See also:

[testPaintAttribute\(\)](#), [drawCanvas\(\)](#), [drawContents\(\)](#), [paintCache\(\)](#)

Definition at line 90 of file `qwt_plot_canvas.cpp`.

Referenced by `QwtPlotCanvas()`.

5.47.4.10 bool QwtPlotCanvas::testPaintAttribute (PaintAttribute attribute) const

Test whether a paint attribute is enabled

Parameters:

attribute Paint attribute

Returns:

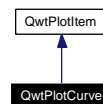
true if the attribute is enabled

Definition at line 146 of file qwt_plot_canvas.cpp.

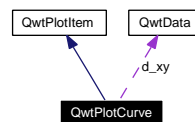
Referenced by QwtPlot::replot().

5.48 QwtPlotCurve Class Reference

Inheritance diagram for QwtPlotCurve:



Collaboration diagram for QwtPlotCurve:



5.48.1 Detailed Description

A class which draws curves.

This class can be used to display data as a curve in the x-y plane. It supports different display styles, spline interpolation and symbols.

Usage

A. Assign curve properties When a curve is created, it is configured to draw black solid lines with QwtPlotCurve::Lines and no symbols. You can change this by calling [setPen\(\)](#), [setStyle\(\)](#) and [setSymbol\(\)](#).

B. Assign or change data. Data can be set in two ways:

- [setData\(\)](#) is overloaded to initialize the x and y data by copying from different data structures with different kind of copy semantics.
- [setRawData\(\)](#) only stores the pointers and size information and is provided for backwards compatibility. This function is less safe (you must not delete the data while they are attached), but has been more efficient, and has been more convenient for dynamically changing data. Use of [setData\(\)](#) in combination with a problem-specific subclass of [QwtData](#) is always preferable.

C. Draw [draw\(\)](#) maps the data into pixel coordinates and paints them.

Example:

see examples/curvdemo

See also:

[QwtData](#), [QwtSymbol](#), [QwtScaleMap](#)

Definition at line 56 of file qwt_plot_curve.h.

Public Types

- enum [CurveType](#) {
 Yfx,
 Xfy }
- enum [CurveStyle](#) {
 NoCurve,
 Lines,
 Sticks,
 Steps,
 Dots,
 UserCurve = 100 }
- enum [CurveAttribute](#) {
 Inverted = 1,
 Fitted = 2 }
- enum [PaintAttribute](#) {
 PaintFiltered = 1,
 ClipPolygons = 2 }

Public Member Functions

- [QwtPlotCurve](#) ()
- [QwtPlotCurve](#) (const [QwtText](#) &title)
- [QwtPlotCurve](#) (const QString &title)
- virtual [~QwtPlotCurve](#) ()
- virtual int [rtti](#) () const
- void [setCurveType](#) ([CurveType](#))
- [CurveType](#) [curveType](#) () const
- void [setPaintAttribute](#) ([PaintAttribute](#), bool on=true)
- bool [testPaintAttribute](#) ([PaintAttribute](#)) const
- void [setRawData](#) (const double *x, const double *y, int size)
- void [setData](#) (const double *xData, const double *yData, int size)
- void [setData](#) (const QwtArray< double > &xData, const QwtArray< double > &yData)
- void [setData](#) (const QPolygonF &data)
- void [setData](#) (const [QwtData](#) &data)
- int [closestPoint](#) (const QPoint &pos, double *dist=NULL) const
- [QwtData](#) & [data](#) ()
- const [QwtData](#) & [data](#) () const
- int [dataSize](#) () const

- double `x` (int i) const
- double `y` (int i) const
- virtual QwtDoubleRect `boundingRect` () const
- double `minXValue` () const
- double `maxXValue` () const
- double `minYValue` () const
- double `maxYValue` () const
- void `setCurveAttribute` (CurveAttribute, bool on=true)
- bool `testCurveAttribute` (CurveAttribute) const
- void `setPen` (const QPen &)
- const QPen & `pen` () const
- void `setBrush` (const QBrush &)
- const QBrush & `brush` () const
- void `setBaseline` (double ref)
- double `baseline` () const
- void `setStyle` (CurveStyle style)
- CurveStyle `style` () const
- void `setSymbol` (const QwtSymbol &s)
- const QwtSymbol & `symbol` () const
- void `setCurveFitter` (QwtCurveFitter *)
- QwtCurveFitter * `curveFitter` () const
- virtual void `draw` (QPainter *p, const QwtScaleMap &xMap, const QwtScaleMap &yMap, const QRect &) const
- virtual void `draw` (QPainter *p, const QwtScaleMap &xMap, const QwtScaleMap &yMap, int from, int to) const
- void `draw` (int from, int to) const
- virtual void `updateLegend` (QwtLegend *) const

Protected Member Functions

- void `init` ()
- virtual void `drawCurve` (QPainter *p, int style, const QwtScaleMap &xMap, const QwtScaleMap &yMap, int from, int to) const
- virtual void `drawSymbols` (QPainter *p, const QwtSymbol &, const QwtScaleMap &xMap, const QwtScaleMap &yMap, int from, int to) const
- void `drawLines` (QPainter *p, const QwtScaleMap &xMap, const QwtScaleMap &yMap, int from, int to) const
- void `drawSticks` (QPainter *p, const QwtScaleMap &xMap, const QwtScaleMap &yMap, int from, int to) const
- void `drawDots` (QPainter *p, const QwtScaleMap &xMap, const QwtScaleMap &yMap, int from, int to) const
- void `drawSteps` (QPainter *p, const QwtScaleMap &xMap, const QwtScaleMap &yMap, int from, int to) const
- void `fillCurve` (QPainter *, const QwtScaleMap &, const QwtScaleMap &, QwtPolygon &) const
- void `closePolyline` (const QwtScaleMap &, const QwtScaleMap &, QwtPolygon &) const

5.48.2 Member Enumeration Documentation

5.48.2.1 enum [QwtPlotCurve::CurveAttribute](#)

Curve attributes.

See also:

[setCurveAttribute](#), [testCurveAttribute](#)

Definition at line 85 of file qwt_plot_curve.h.

5.48.2.2 enum [QwtPlotCurve::CurveStyle](#)

Curve styles.

See also:

[setStyle](#)

Definition at line 69 of file qwt_plot_curve.h.

5.48.2.3 enum [QwtPlotCurve::PaintAttribute](#)

Paint attributes

See also:

[setPaintAttribute](#), [testPaintAttribute](#)

Definition at line 95 of file qwt_plot_curve.h.

5.48.3 Constructor & Destructor Documentation

5.48.3.1 [QwtPlotCurve::QwtPlotCurve \(\)](#) [explicit]

Ctor.

Definition at line 138 of file qwt_plot_curve.cpp.

References [init\(\)](#).

5.48.3.2 [QwtPlotCurve::QwtPlotCurve \(const \[QwtText\]\(#\) & title\)](#) [explicit]

Ctor.

Parameters:

title title of the curve

Definition at line 148 of file qwt_plot_curve.cpp.

References [init\(\)](#).

5.48.3.3 [QwtPlotCurve::QwtPlotCurve \(const \[QString\]\(#\) & title\)](#) [explicit]

Ctor.

Parameters:

title title of the curve

Definition at line 158 of file qwt_plot_curve.cpp.

References `init()`.

5.48.3.4 QwtPlotCurve::~QwtPlotCurve () [virtual]

Dtor.

Definition at line 165 of file qwt_plot_curve.cpp.

5.48.4 Member Function Documentation

5.48.4.1 double QwtPlotCurve::baseline () const

Return the value of the baseline

See also:

[setBaseline](#)

Definition at line 1197 of file qwt_plot_curve.cpp.

5.48.4.2 QwtDoubleRect QwtPlotCurve::boundingRect () const [virtual]

Returns the bounding rectangle of the curve data. If there is no bounding rect, like for empty data the rectangle is invalid.

See also:

[QwtData::boundingRect\(\)](#), [QwtDoubleRect::isValid\(\)](#)

Reimplemented from [QwtPlotItem](#).

Definition at line 437 of file qwt_plot_curve.cpp.

References [QwtData::boundingRect\(\)](#).

5.48.4.3 const QBrush & QwtPlotCurve::brush () const

Return the brush used to fill the area between lines and the baseline.

See also:

[setBrush\(\)](#), [setBaseline\(\)](#), [baseline\(\)](#)

Definition at line 341 of file qwt_plot_curve.cpp.

5.48.4.4 void QwtPlotCurve::closePolyline (const [QwtScaleMap](#) & *xMap*, const [QwtScaleMap](#) & *yMap*, [QwtPolygon](#) & *pa*) const [protected]

Complete a polygon to be a closed polygon including the area between the original polygon and the baseline.

Parameters:

xMap X map

yMap Y map

pa Polygon to be completed

Definition at line 1091 of file qwt_plot_curve.cpp.

References `QwtScaleMap::transform()`.

Referenced by `fillCurve()`.

5.48.4.5 `QwtPlotCurve::CurveType QwtPlotCurve::curveType () const`

Return the curve type

See also:

[setCurveType\(\)](#)

Definition at line 1027 of file qwt_plot_curve.cpp.

5.48.4.6 `const QwtData & QwtPlotCurve::data () const` `[inline]`

Returns:

the the curve data

Definition at line 223 of file qwt_plot_curve.h.

5.48.4.7 `QwtData & QwtPlotCurve::data ()` `[inline]`

Returns:

the the curve data

Definition at line 217 of file qwt_plot_curve.h.

Referenced by `setData()`.

5.48.4.8 `int QwtPlotCurve::dataSize () const`

Return the size of the data arrays

See also:

[setData\(\)](#)

Definition at line 1206 of file qwt_plot_curve.cpp.

References `QwtData::size()`.

Referenced by `closestPoint()`, `draw()`, and `drawCurve()`.

5.48.4.9 `void QwtPlotCurve::draw (int from, int to) const`

Draw a set of points of a curve.

When observing an measurement while it is running, new points have to be added to an existing curve. `drawCurve` can be used to display them avoiding a complete redraw of the canvas.

Setting `plot()->canvas()->setAttribute(Qt::WA_PaintOutsidePaintEvent, true)`; will result in faster painting, if the paint engine of the canvas widget supports this feature.

Parameters:

from Index of the first point to be painted

to Index of the last point to be painted. If *to* < 0 the curve will be painted to its last point.

See also:

[drawCurve\(\)](#), [drawSymbols\(\)](#)

Definition at line 478 of file `qwt_plot_curve.cpp`.

References `QwtPlot::canvas()`, and `QwtPlotItem::plot()`.

5.48.4.10 `void QwtPlotCurve::draw (QPainter * painter, const QwtScaleMap & xMap, const QwtScaleMap & yMap, int from, int to) const` [virtual]

Draw an interval of the curve.

Parameters:

painter Painter

xMap maps x-values into pixel coordinates.

yMap maps y-values into pixel coordinates.

from index of the first point to be painted

to index of the last point to be painted. If *to* < 0 the curve will be painted to its last point.

See also:

[drawCurve\(\)](#), [draSymbols\(\)](#),

Definition at line 569 of file `qwt_plot_curve.cpp`.

References `dataSize()`, `drawCurve()`, and `drawSymbols()`.

5.48.4.11 `void QwtPlotCurve::draw (QPainter * painter, const QwtScaleMap & xMap, const QwtScaleMap & yMap, const QRect &) const` [virtual]

Draw the complete curve.

Parameters:

painter Painter

xMap Maps x-values into pixel coordinates.

yMap Maps y-values into pixel coordinates.

See also:

[drawCurve\(\)](#), [drawSymbols\(\)](#)

Implements [QwtPlotItem](#).

Definition at line 454 of file `qwt_plot_curve.cpp`.

5.48.4.12 `void QwtPlotCurve::drawCurve (QPainter * painter, int style, const QwtScaleMap & xMap, const QwtScaleMap & yMap, int from, int to) const` [protected, virtual]

Draw the line part (without symbols) of a curve interval.

Parameters:

painter Painter

style curve style, see [QwtPlotCurve::CurveStyle](#)

xMap x map

yMap y map

from index of the first point to be painted

to index of the last point to be painted

See also:

[draw\(\)](#), [drawDots\(\)](#), [drawLines\(\)](#), [drawSteps\(\)](#), [drawSticks\(\)](#)

Definition at line 613 of file `qwt_plot_curve.cpp`.

References [dataSize\(\)](#), [drawDots\(\)](#), [drawLines\(\)](#), [drawSteps\(\)](#), [drawSticks\(\)](#), and [testCurveAttribute\(\)](#).

Referenced by [draw\(\)](#).

5.48.4.13 `void QwtPlotCurve::drawDots (QPainter * painter, const QwtScaleMap & xMap, const QwtScaleMap & yMap, int from, int to) const` [protected]

Draw dots

Parameters:

painter Painter

xMap x map

yMap y map

from index of the first point to be painted

to index of the last point to be painted

See also:

[draw\(\)](#), [drawCurve\(\)](#), [drawSticks\(\)](#), [drawLines\(\)](#), [drawSteps\(\)](#)

Definition at line 818 of file `qwt_plot_curve.cpp`.

References [QwtPainter::drawPoint\(\)](#), [QwtScaleMap::transform\(\)](#), [x\(\)](#), and [y\(\)](#).

Referenced by [drawCurve\(\)](#).

5.48.4.14 `void QwtPlotCurve::drawLines (QPainter * painter, const QwtScaleMap & xMap, const QwtScaleMap & yMap, int from, int to) const` [protected]

Draw lines.

If the CurveAttribute Fitted is enabled a [QwtCurveFitter](#) tries to interpolate/smooth the curve, before it is painted.

Parameters:

painter Painter

xMap x map

yMap y map

from index of the first point to be painted

to index of the last point to be painted

See also:

[setCurveAttribute\(\)](#), [setCurveFitter\(\)](#), [draw\(\)](#), [drawLines\(\)](#), [drawDots\(\)](#), [drawSteps\(\)](#), [drawSticks\(\)](#)

Definition at line 659 of file `qwt_plot_curve.cpp`.

References [x\(\)](#), [QwtScaleMap::xTransform\(\)](#), and [y\(\)](#).

Referenced by [drawCurve\(\)](#).

5.48.4.15 `void QwtPlotCurve::drawSteps (QPainter * painter, const QwtScaleMap & xMap, const QwtScaleMap & yMap, int from, int to) const` [protected]

Draw step function

The direction of the steps depends on Inverted attribute.

Parameters:

painter Painter

xMap x map

yMap y map

from index of the first point to be painted

to index of the last point to be painted

See also:

[CurveAttribute](#), [setCurveAttribute\(\)](#), [draw\(\)](#), [drawCurve\(\)](#), [drawDots\(\)](#), [drawLines\(\)](#), [drawSticks\(\)](#)

Definition at line 914 of file `qwt_plot_curve.cpp`.

References [QwtScaleMap::transform\(\)](#), [x\(\)](#), and [y\(\)](#).

Referenced by [drawCurve\(\)](#).

5.48.4.16 `void QwtPlotCurve::drawSticks (QPainter * painter, const QwtScaleMap & xMap, const QwtScaleMap & yMap, int from, int to) const` [protected]

Draw sticks

Parameters:

painter Painter

xMap x map

yMap y map

from index of the first point to be painted

to index of the last point to be painted

See also:

[draw\(\)](#), [drawCurve\(\)](#), [drawDots\(\)](#), [drawLines\(\)](#), [drawSteps\(\)](#)

Definition at line 788 of file `qwt_plot_curve.cpp`.

References [QwtPainter::drawLine\(\)](#), [QwtScaleMap::transform\(\)](#), [x\(\)](#), and [y\(\)](#).

Referenced by [drawCurve\(\)](#).

5.48.4.17 void QwtPlotCurve::drawSymbols (QPainter * *painter*, const [QwtSymbol](#) & *symbol*, const [QwtScaleMap](#) & *xMap*, const [QwtScaleMap](#) & *yMap*, int *from*, int *to*) const [protected, virtual]

Draw symbols.

Parameters:

painter Painter
symbol Curve symbol
xMap x map
yMap y map
from index of the first point to be painted
to index of the last point to be painted

See also:

[setSymbol\(\)](#), [draw\(\)](#), [drawCurve\(\)](#)

Definition at line 1128 of file qwt_plot_curve.cpp.

References [QwtSymbol::brush\(\)](#), [QwtSymbol::draw\(\)](#), [QwtPainter::metricsMap\(\)](#), [QwtSymbol::pen\(\)](#), [QwtSymbol::size\(\)](#), [symbol\(\)](#), [QwtScaleMap::transform\(\)](#), [x\(\)](#), and [y\(\)](#).

Referenced by [draw\(\)](#).

5.48.4.18 void QwtPlotCurve::fillCurve (QPainter * *painter*, const [QwtScaleMap](#) & *xMap*, const [QwtScaleMap](#) & *yMap*, [QwtPolygon](#) & *pa*) const [protected]

Fill the area between the curve and the baseline with the curve brush

Parameters:

painter Painter
xMap x map
yMap y map
pa Polygon

See also:

[setBrush\(\)](#), [setBaseline\(\)](#), [setCurveType\(\)](#)

Definition at line 1057 of file qwt_plot_curve.cpp.

References [closePolyline\(\)](#), and [QwtPainter::drawPolygon\(\)](#).

5.48.4.19 void QwtPlotCurve::init () [protected]

Initialize data members.

Definition at line 174 of file qwt_plot_curve.cpp.

References [QwtPlotItem::setItemAttribute\(\)](#), and [QwtPlotItem::setZ\(\)](#).

Referenced by [QwtPlotCurve\(\)](#).

5.48.4.20 double QwtPlotCurve::maxXValue () const [inline]

[boundingRect\(\).right\(\)](#)

Definition at line 139 of file qwt_plot_curve.h.

References [QwtPlotItem::boundingRect\(\)](#).

5.48.4.21 double QwtPlotCurve::maxYValue () const [inline]

[boundingRect\(\).bottom\(\)](#)

Definition at line 143 of file qwt_plot_curve.h.

References [QwtPlotItem::boundingRect\(\)](#).

5.48.4.22 double QwtPlotCurve::minXValue () const [inline]

[boundingRect\(\).left\(\)](#)

Definition at line 137 of file qwt_plot_curve.h.

References [QwtPlotItem::boundingRect\(\)](#).

5.48.4.23 double QwtPlotCurve::minYValue () const [inline]

[boundingRect\(\).top\(\)](#)

Definition at line 141 of file qwt_plot_curve.h.

References [QwtPlotItem::boundingRect\(\)](#).

5.48.4.24 const QPen & QwtPlotCurve::pen () const

Return the pen used to draw the lines.

See also:

[setPen\(\)](#), [brush\(\)](#)

Definition at line 311 of file qwt_plot_curve.cpp.

Referenced by [updateLegend\(\)](#).

5.48.4.25 void QwtPlotCurve::setBaseline (double *reference*)

Set the value of the baseline.

The baseline is needed for filling the curve with a brush or the Sticks drawing style. The default value is 0.0. The interpretation of the baseline depends on the CurveType. With [QwtPlotCurve::Yfx](#), the baseline is interpreted as a horizontal line at `y = baseline\(\)`, with [QwtPlotCurve::Yfy](#), it is interpreted as a vertical line at `x = baseline\(\)`.

Parameters:

reference baseline

See also:

[baseline\(\)](#), [setBrush\(\)](#), [setStyle\(\)](#), [setCurveType\(\)](#)

Definition at line 1184 of file qwt_plot_curve.cpp.

References [QwtPlotItem::itemChanged\(\)](#).

5.48.4.26 void QwtPlotCurve::setBrush (const QBrush & *brush*)

Assign a brush. In case of `brush.style() != QBrush::NoBrush` and `style() != QwtPlotCurve::Sticks` the area between the curve and the baseline will be filled. In case `!brush.color().isValid()` the area will be filled by `pen.color()`. The fill algorithm simply connects the first and the last curve point to the baseline. So the curve data has to be sorted (ascending or descending).

Parameters:

brush New brush

See also:

[brush\(\)](#), [setBaseline\(\)](#), [baseline\(\)](#)

Definition at line 328 of file `qwt_plot_curve.cpp`.

References `QwtPlotItem::itemChanged()`.

5.48.4.27 void QwtPlotCurve::setCurveAttribute (CurveAttribute *attribute*, bool *on* = true)

Specify an attribute for drawing the curve.

The attributes can be used to modify the drawing style. The following attributes are defined:

Fitted For Lines only. A [QwtCurveFitter](#) tries to interpolate/smooth the curve, before it is painted. Note that curve fitting requires temporary memory for calculating coefficients and additional points. If painting in Fitted mode is slow it might be better to fit the points, before they are passed to [QwtPlotCurve](#).

Inverted For Steps only. Draws a step function from the right to the left.

Parameters:

attribute Curve attribute

on On/Off

/sa [testCurveAttribute\(\)](#), [setCurveFitter\(\)](#)

Definition at line 976 of file `qwt_plot_curve.cpp`.

References `QwtPlotItem::itemChanged()`.

5.48.4.28 void QwtPlotCurve::setCurveType (CurveType *curveType*)

Assign the curve type

`QwtPlotCurve::Yfx` Draws y as a function of x (the default). The baseline is interpreted as a horizontal line with $y = \text{baseline}()$.

`QwtPlotCurve::Xfy` Draws x as a function of y . The baseline is interpreted as a vertical line with $x = \text{baseline}()$.

The baseline is used for aligning the sticks, or filling the curve with a brush.

See also:

[curveType\(\)](#)

Definition at line 1014 of file `qwt_plot_curve.cpp`.

References `QwtPlotItem::itemChanged()`.

5.48.4.29 void QwtPlotCurve::setData (const [QwtData](#) & *data*)

Initialize data with a pointer to [QwtData](#).

Parameters:

data Data

See also:

[QwtData::copy\(\)](#)

Definition at line 404 of file qwt_plot_curve.cpp.

References [QwtData::copy\(\)](#), [data\(\)](#), and [QwtPlotItem::itemChanged\(\)](#).

5.48.4.30 void QwtPlotCurve::setData (const [QPolygonF](#) & *data*)

Initialize data with an array of points (explicitly shared).

Parameters:

data Data

See also:

[QwtPolygonFData](#)

Definition at line 390 of file qwt_plot_curve.cpp.

5.48.4.31 void QwtPlotCurve::setData (const [QwtArray](#)< double > & *xData*, const [QwtArray](#)< double > & *yData*)

Initialize data with x- and y-arrays (explicitly shared).

Parameters:

xData x data

yData y data

See also:

[QwtArrayData](#)

Definition at line 373 of file qwt_plot_curve.cpp.

References [QwtPlotItem::itemChanged\(\)](#).

5.48.4.32 void QwtPlotCurve::setData (const double * *xData*, const double * *yData*, int *size*)

Set data by copying x- and y-values from specified memory blocks. Contrary to [setCurveRawData\(\)](#), this function makes a 'deep copy' of the data.

Parameters:

xData pointer to x values

yData pointer to y values

size size of *xData* and *yData*

See also:

[QwtCPointerData](#)

Definition at line 358 of file qwt_plot_curve.cpp.

References [QwtPlotItem::itemChanged\(\)](#).

5.48.4.33 void QwtPlotCurve::setPaintAttribute (PaintAttribute attribute, bool on = true)

Specify an attribute how to draw the curve.

The attributes can be used to modify the drawing algorithm.

The following attributes are defined:

PaintFiltered Tries to reduce the data that has to be painted, by sorting out duplicates, or paintings outside the visible area. Might have a notable impact on curves with many close points. Only a couple of very basic filtering algos are implemented.

ClipPolygons Clip polygons before painting them.

The default is, that no paint attributes are enabled.

Parameters:

attribute Paint attribute

on On/Off /sa [testPaintAttribute\(\)](#)

Definition at line 211 of file qwt_plot_curve.cpp.

5.48.4.34 void QwtPlotCurve::setPen (const QPen & p)

Assign a pen.

Parameters:

p New pen

See also:

[pen\(\)](#), [brush\(\)](#)

Definition at line 298 of file qwt_plot_curve.cpp.

References [QwtPlotItem::itemChanged\(\)](#).

5.48.4.35 void QwtPlotCurve::setRawData (const double * xData, const double * yData, int size)

Initialize the data by pointing to memory blocks which are not managed by [QwtPlotCurve](#).

`setRawData` is provided for efficiency. It is important to keep the pointers during the lifetime of the underlying [QwtCPointerData](#) class.

Parameters:

xData pointer to x data

yData pointer to y data

size size of x and y

See also:

[QwtCPointerData::setData](#).

Definition at line 424 of file qwt_plot_curve.cpp.

References [QwtPlotItem::itemChanged\(\)](#).

5.48.4.36 void QwtPlotCurve::setStyle (CurveStyle style)

Set the curve's drawing style.

Valid styles are:

NoCurve Don't draw a curve. Note: This doesn't affect the symbol.

Lines Connect the points with straight lines. The lines might be interpolated depending on the 'Fitted' option. Curve fitting can be configured using `setCurveFitter`.

Sticks Draw vertical sticks from a baseline which is defined by `setBaseline()`.

Steps Connect the points with a step function. The step function is drawn from the left to the right or vice versa, depending on the 'Inverted' option.

Dots Draw dots at the locations of the data points. Note: This is different from a dotted line (see `setPen()`).

UserCurve ... Styles \geq UserCurve are reserved for derived classes of `QwtPlotCurve` that overload `drawCurve()` with additional application specific curve types.

See also:

[style\(\)](#)

Definition at line 255 of file `qwt_plot_curve.cpp`.

References `QwtPlotItem::itemChanged()`.

5.48.4.37 void QwtPlotCurve::setSymbol (const QwtSymbol & s)

Assign a symbol.

Parameters:

s symbol

See also:

[symbol\(\)](#)

Definition at line 278 of file `qwt_plot_curve.cpp`.

References `QwtPlotItem::itemChanged()`.

5.48.4.38 QwtPlotCurve::CurveStyle QwtPlotCurve::style () const

Return the current style.

See also:

[setStyle](#)

Definition at line 268 of file `qwt_plot_curve.cpp`.

Referenced by `updateLegend()`.

5.48.4.39 `const QwtSymbol & QwtPlotCurve::symbol () const`

Return the current symbol.

See also:

[setSymbol](#)

Definition at line 288 of file `qwt_plot_curve.cpp`.

Referenced by `drawSymbols()`, and `updateLegend()`.

5.48.4.40 `bool QwtPlotCurve::testCurveAttribute (CurveAttribute attribute) const`

Return the current curve attributes

See also:

[setCurveAttribute\(\)](#)

Definition at line 993 of file `qwt_plot_curve.cpp`.

Referenced by `drawCurve()`.

5.48.4.41 `bool QwtPlotCurve::testPaintAttribute (PaintAttribute attribute) const`

Return the current paint attributes.

See also:

[setPaintAttribute](#)

Definition at line 223 of file `qwt_plot_curve.cpp`.

5.48.4.42 `void QwtPlotCurve::updateLegend (QwtLegend * legend) const` `[virtual]`

Update the widget that represents the item on the legend.

`updateLegend()` is called from `itemChanged()` to adopt the widget representing the item on the legend to its new configuration.

The default implementation is made for `QwtPlotCurve` and updates a `QwtLegendItem()`, but an item could be represented by any type of widget, by overloading `legendItem()` and `updateLegend()`.

See also:

[legendItem\(\)](#), [itemChanged\(\)](#), [QwtLegend\(\)](#)

Reimplemented from [QwtPlotItem](#).

Definition at line 1240 of file `qwt_plot_curve.cpp`.

References `QwtLegend::displayPolicy()`, `QwtLegend::find()`, `QwtLegend::identifierMode()`, `QwtPlotItem::legendItem()`, `pen()`, `style()`, `symbol()`, `QwtPlotItem::title()`, and `QwtPlotItem::updateLegend()`.

5.48.4.43 `double QwtPlotCurve::x (int i) const` `[inline]`

Parameters:

i index

Returns:

x-value at position *i*

Definition at line 232 of file qwt_plot_curve.h.

References `QwtData::x()`.

Referenced by `closestPoint()`, `drawDots()`, `drawLines()`, `drawSteps()`, `drawSticks()`, and `drawSymbols()`.

5.48.4.44 double QwtPlotCurve::y (int *i*) const [inline]**Parameters:**

i index

Returns:

y-value at position *i*

Definition at line 241 of file qwt_plot_curve.h.

References `QwtData::y()`.

Referenced by `closestPoint()`, `drawDots()`, `drawLines()`, `drawSteps()`, `drawSticks()`, and `drawSymbols()`.

5.49 QwtPlotDict Class Reference

Inheritance diagram for QwtPlotDict:

**5.49.1 Detailed Description**

A dictionary for plot items.

`QwtPlotDict` organizes plot items in increasing z-order. If `autoDelete()` is enabled, all attached items will be deleted in the destructor of the dictionary.

See also:

`QwtPlotItem::attach()`, `QwtPlotItem::detach()`, `QwtPlotItem::z()`

Definition at line 37 of file qwt_plot_dict.h.

Public Member Functions

- `QwtPlotDict ()`
- `~QwtPlotDict ()`
- void `setAutoDelete` (bool)
- bool `autoDelete` () const
- const `QwtPlotItemList` & `itemList` () const
- void `detachItems` (int rtti=`QwtPlotItem::Rtti_PlotItem`, bool `autoDelete`=true)

Friends

- class [QwtPlotItem](#)

5.49.2 Constructor & Destructor Documentation

5.49.2.1 QwtPlotDict::QwtPlotDict () [explicit]

Constructor

Auto deletion is enabled.

See also:

[setAutoDelete](#), [attachItem](#)

Definition at line 94 of file `qwt_plot_dict.cpp`.

5.49.2.2 QwtPlotDict::~QwtPlotDict ()

Destructor

If `autoDelete` is on, all attached items will be deleted

See also:

[setAutoDelete](#), [autoDelete](#), [attachItem](#)

Definition at line 106 of file `qwt_plot_dict.cpp`.

References [detachItems\(\)](#).

5.49.3 Member Function Documentation

5.49.3.1 bool QwtPlotDict::autoDelete () const

Returns:

true if auto deletion is enabled

See also:

[setAutoDelete](#), [attachItem](#)

Definition at line 129 of file `qwt_plot_dict.cpp`.

Referenced by [QwtPlot::~QwtPlot\(\)](#).

5.49.3.2 void QwtPlotDict::detachItems (int *rtti* = `QwtPlotItem::Rtti_PlotItem`, bool *autoDelete* = `true`)

Detach items from the dictionary

Parameters:

rtti In case of `QwtPlotItem::Rtti_PlotItem` detach all items otherwise only those items of the type *rtti*.

autoDelete If true, delete all detached items

Definition at line 161 of file `qwt_plot_dict.cpp`.

Referenced by [QwtPlot::clear\(\)](#), [QwtPlot::~QwtPlot\(\)](#), and [~QwtPlotDict\(\)](#).

5.49.3.3 const QwtPlotItemList & QwtPlotDict::itemList () const

Returns:

List of all attached plot items

Definition at line 181 of file qwt_plot_dict.cpp.

Referenced by QwtPlot::drawItems(), QwtPlot::insertLegend(), and QwtPlot::updateAxes().

5.49.3.4 void QwtPlotDict::setAutoDelete (bool *autoDelete*)

En/Disable Auto deletion

If Auto deletion is on all attached plot items will be deleted in the destructor of [QwtPlotDict](#). The default value is on.

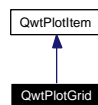
See also:

[autoDelete](#), [attachItem](#)

Definition at line 120 of file qwt_plot_dict.cpp.

5.50 QwtPlotGrid Class Reference

Inheritance diagram for QwtPlotGrid:



Collaboration diagram for QwtPlotGrid:



5.50.1 Detailed Description

A class which draws a coordinate grid.

The [QwtPlotGrid](#) class can be used to draw a coordinate grid. A coordinate grid consists of major and minor vertical and horizontal gridlines. The locations of the gridlines are determined by the X and Y scale divisions which can be assigned with [QwtPlotGrid::setXDiv](#) and [QwtPlotGrid::setYDiv\(\)](#) The [draw\(\)](#) member draws the grid within a bounding rectangle.

Definition at line 34 of file qwt_plot_grid.h.

Public Member Functions

- [QwtPlotGrid \(\)](#)

- virtual [~QwtPlotGrid](#) ()
- virtual int [rtti](#) () const
- void [enableX](#) (bool tf)
- bool [xEnabled](#) () const
- void [enableY](#) (bool tf)
- bool [yEnabled](#) () const
- void [enableXMin](#) (bool tf)
- bool [xMinEnabled](#) () const
- void [enableYMin](#) (bool tf)
- bool [yMinEnabled](#) () const
- void [setXDiv](#) (const [QwtScaleDiv](#) &sx)
- const [QwtScaleDiv](#) & [xScaleDiv](#) () const
- void [setYDiv](#) (const [QwtScaleDiv](#) &sy)
- const [QwtScaleDiv](#) & [yScaleDiv](#) () const
- void [setPen](#) (const QPen &p)
- void [setMajPen](#) (const QPen &p)
- const QPen & [majPen](#) () const
- void [setMinPen](#) (const QPen &p)
- const QPen & [minPen](#) () const
- virtual void [draw](#) (QPainter *p, const [QwtScaleMap](#) &xMap, const [QwtScaleMap](#) &yMap, const QRect &rect) const
- virtual void [updateScaleDiv](#) (const [QwtScaleDiv](#) &, const [QwtScaleDiv](#) &)

5.50.2 Constructor & Destructor Documentation

5.50.2.1 QwtPlotGrid::QwtPlotGrid () [explicit]

Enables major grid, disables minor grid.

Definition at line 42 of file qwt_plot_grid.cpp.

References [QwtPlotItem::setZ\(\)](#).

5.50.2.2 QwtPlotGrid::~QwtPlotGrid () [virtual]

dtor

Definition at line 50 of file qwt_plot_grid.cpp.

5.50.3 Member Function Documentation

5.50.3.1 void QwtPlotGrid::draw (QPainter * *painter*, const [QwtScaleMap](#) & *mx*, const [QwtScaleMap](#) & *my*, const QRect & *r*) const [virtual]

Draw the grid.

The grid is drawn into the bounding rectangle such that gridlines begin and end at the rectangle's borders. The X and Y maps are used to map the scale divisions into the drawing region screen.

Parameters:

painter Painter

mx X axis map

my Y axis

r Contents rect of the plot canvas

Implements [QwtPlotItem](#).

Definition at line 202 of file qwt_plot_grid.cpp.

5.50.3.2 void QwtPlotGrid::enableX (bool *tf*)

Enable or disable vertical gridlines.

Parameters:

tf Enable (true) or disable

See also:

Minor gridlines can be enabled or disabled with [enableXMin\(\)](#)

Definition at line 67 of file qwt_plot_grid.cpp.

References [QwtPlotItem::itemChanged\(\)](#).

5.50.3.3 void QwtPlotGrid::enableXMin (bool *tf*)

Enable or disable minor vertical gridlines.

Parameters:

tf Enable (true) or disable

See also:

[enableX\(\)](#)

Definition at line 95 of file qwt_plot_grid.cpp.

References [QwtPlotItem::itemChanged\(\)](#).

5.50.3.4 void QwtPlotGrid::enableY (bool *tf*)

Enable or disable horizontal gridlines.

Parameters:

tf Enable (true) or disable

See also:

Minor gridlines can be enabled or disabled with [enableYMin\(\)](#)

Definition at line 81 of file qwt_plot_grid.cpp.

References [QwtPlotItem::itemChanged\(\)](#).

5.50.3.5 void QwtPlotGrid::enableYMin (bool *tf*)

Enable or disable minor horizontal gridlines.

Parameters:

tf Enable (true) or disable

See also:

[enableY\(\)](#)

Definition at line 109 of file qwt_plot_grid.cpp.

References `QwtPlotItem::itemChanged()`.

5.50.3.6 `const QPen & QwtPlotGrid::majPen () const`

Returns:

the pen for the major gridlines

See also:

[setMajPen\(\)](#), [setMinPen\(\)](#), [setPen\(\)](#)

Definition at line 270 of file qwt_plot_grid.cpp.

5.50.3.7 `const QPen & QwtPlotGrid::minPen () const`

Returns:

the pen for the minor gridlines

See also:

[setMinPen\(\)](#), [setMajPen\(\)](#), [setPen\(\)](#)

Definition at line 279 of file qwt_plot_grid.cpp.

5.50.3.8 `void QwtPlotGrid::setMajPen (const QPen & p)`

Assign a pen for the major gridlines.

Parameters:

p Pen

See also:

[majPen\(\)](#), [setMinPen\(\)](#), [setPen\(\)](#)

Definition at line 168 of file qwt_plot_grid.cpp.

References `QwtPlotItem::itemChanged()`.

5.50.3.9 `void QwtPlotGrid::setMinPen (const QPen & p)`

Assign a pen for the minor gridlines.

Parameters:

p Pen

Definition at line 181 of file qwt_plot_grid.cpp.

References `QwtPlotItem::itemChanged()`.

5.50.3.10 void QwtPlotGrid::setPen (const QPen & *p*)

Assign a pen for both major and minor gridlines.

Parameters:

p Pen

See also:

[setMajPen\(\)](#), [setMinPen\(\)](#)

Definition at line 153 of file `qwt_plot_grid.cpp`.

References [QwtPlotItem::itemChanged\(\)](#).

5.50.3.11 void QwtPlotGrid::setXDiv (const QwtScaleDiv & *sx*)

Assign an x axis scale division.

Parameters:

sx Scale division

Warning:

[QwtPlotGrid](#) uses implicit sharing (see Qt Manual) for the scale divisions.

Definition at line 124 of file `qwt_plot_grid.cpp`.

References [QwtPlotItem::itemChanged\(\)](#).

Referenced by [updateScaleDiv\(\)](#).

5.50.3.12 void QwtPlotGrid::setYDiv (const QwtScaleDiv & *sy*)

Assign a y axis division.

Parameters:

sy Scale division

Warning:

[QwtPlotGrid](#) uses implicit sharing (see Qt Manual) for the scale divisions.

Definition at line 139 of file `qwt_plot_grid.cpp`.

References [QwtPlotItem::itemChanged\(\)](#).

Referenced by [updateScaleDiv\(\)](#).

5.50.3.13 void QwtPlotGrid::updateScaleDiv (const QwtScaleDiv & *xDiv*, const QwtScaleDiv & *yDiv*) [virtual]

Update the item to changes of the axes scale division.

Update the item, when the axes of plot have changed. The default implementation does nothing, but items that depend on the scale division (like [QwtPlotGrid\(\)](#)) have to reimplement [updateScaleDiv\(\)](#)

Parameters:

xScaleDiv Scale division of the x-axis

yScaleDiv Scale division of the y-axis

See also:

[QwtPlot::updateAxes\(\)](#)

Reimplemented from [QwtPlotItem](#).

Definition at line 333 of file qwt_plot_grid.cpp.

References [setXDiv\(\)](#), and [setYDiv\(\)](#).

5.50.3.14 bool QwtPlotGrid::xEnabled () const

Returns:

true if vertical gridlines are enabled

See also:

[enableX\(\)](#)

Definition at line 288 of file qwt_plot_grid.cpp.

5.50.3.15 bool QwtPlotGrid::xMinEnabled () const

Returns:

true if minor vertical gridlines are enabled

See also:

[enableXMin\(\)](#)

Definition at line 297 of file qwt_plot_grid.cpp.

5.50.3.16 const [QwtScaleDiv](#) & QwtPlotGrid::xScaleDiv () const

Returns:

the scale division of the x axis

Definition at line 322 of file qwt_plot_grid.cpp.

5.50.3.17 bool QwtPlotGrid::yEnabled () const

Returns:

true if horizontal gridlines are enabled

See also:

[enableY\(\)](#)

Definition at line 306 of file qwt_plot_grid.cpp.

5.50.3.18 bool QwtPlotGrid::yMinEnabled () const

Returns:

true if minor horizontal gridlines are enabled

See also:

[enableYMin\(\)](#)

Definition at line 315 of file qwt_plot_grid.cpp.

5.50.3.19 const QwtScaleDiv & QwtPlotGrid::yScaleDiv () const

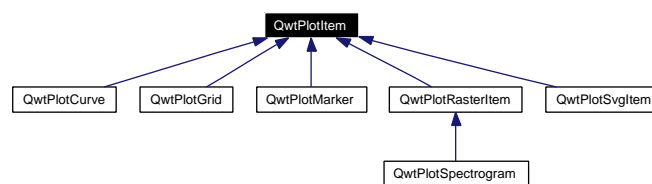
Returns:

the scale division of the y axis

Definition at line 328 of file qwt_plot_grid.cpp.

5.51 QwtPlotItem Class Reference

Inheritance diagram for QwtPlotItem:



5.51.1 Detailed Description

Base class for items on the plot canvas.

Definition at line 30 of file qwt_plot_item.h.

Public Types

- enum [RttiValues](#) {
Rtti_PlotItem = 0,
Rtti_PlotGrid,
Rtti_PlotMarker,
Rtti_PlotCurve,
Rtti_PlotHistogram,
Rtti_PlotSpectrogram,
Rtti_PlotSVG,
Rtti_PlotUserItem = 1000 }
- enum [ItemAttribute](#) {
Legend = 1,
AutoScale = 2 }
- enum [RenderHint](#) { **RenderAntialiased** = 1 }

Public Member Functions

- [QwtPlotItem](#) (const [QwtText](#) &title=[QwtText](#)())
- virtual [~QwtPlotItem](#) ()
- void [attach](#) ([QwtPlot](#) *plot)
- void [detach](#) ()
- [QwtPlot](#) * [plot](#) () const
- void [setTitle](#) (const [QString](#) &title)
- void [setTitle](#) (const [QwtText](#) &title)
- const [QwtText](#) & [title](#) () const
- virtual int [rtti](#) () const
- void [setItemAttribute](#) ([ItemAttribute](#), bool on=true)
- bool [testItemAttribute](#) ([ItemAttribute](#)) const
- void [setRenderHint](#) ([RenderHint](#), bool on=true)
- bool [testRenderHint](#) ([RenderHint](#)) const
- double [z](#) () const
- void [setZ](#) (double z)
- void [show](#) ()
- void [hide](#) ()
- virtual void [setVisible](#) (bool)
- bool [isVisible](#) () const
- void [setAxis](#) (int xAxis, int yAxis)
- void [setXAxis](#) (int axis)
- int [xAxis](#) () const
- void [setYAxis](#) (int axis)
- int [yAxis](#) () const
- virtual void [itemChanged](#) ()
- virtual void [draw](#) ([QPainter](#) *painter, const [QwtScaleMap](#) &xMap, const [QwtScaleMap](#) &yMap, const [QRect](#) &canvasRect) const =0
- virtual [QwtDoubleRect](#) [boundingRect](#) () const
- virtual void [updateLegend](#) ([QwtLegend](#) *) const
- virtual void [updateScaleDiv](#) (const [QwtScaleDiv](#) &, const [QwtScaleDiv](#) &)
- virtual [QWidget](#) * [legendItem](#) () const
- [QwtDoubleRect](#) [scaleRect](#) (const [QwtScaleMap](#) &, const [QwtScaleMap](#) &) const
- [QRect](#) [paintRect](#) (const [QwtScaleMap](#) &, const [QwtScaleMap](#) &) const
- [QRect](#) [transform](#) (const [QwtScaleMap](#) &, const [QwtScaleMap](#) &, const [QwtDoubleRect](#) &) const
- [QwtDoubleRect](#) [invTransform](#) (const [QwtScaleMap](#) &, const [QwtScaleMap](#) &, const [QRect](#) &) const

5.51.2 Constructor & Destructor Documentation**5.51.2.1 QwtPlotItem::QwtPlotItem (const [QwtText](#) & title = [QwtText](#) ())** [explicit]

Constructor.

Definition at line 48 of file qwt_plot_item.cpp.

References [title\(\)](#).

5.51.2.2 QwtPlotItem::~~QwtPlotItem () [virtual]

Destroy the [QwtPlotItem](#).

Definition at line 55 of file `qwt_plot_item.cpp`.

References `attach()`.

5.51.3 Member Function Documentation

5.51.3.1 void QwtPlotItem::attach (QwtPlot * plot)

Attach the item to a plot

Definition at line 64 of file `qwt_plot_item.cpp`.

References `legendItem()`, and `plot()`.

Referenced by `~QwtPlotItem()`.

5.51.3.2 QwtDoubleRect QwtPlotItem::boundingRect () const [virtual]

Returns:

An invalid bounding rect: `QwtDoubleRect(1.0, 1.0, -2.0, -2.0)`

Reimplemented in [QwtPlotCurve](#), [QwtPlotMarker](#), [QwtPlotSpectrogram](#), and [QwtPlotSvgItem](#).

Definition at line 367 of file `qwt_plot_item.cpp`.

Referenced by `QwtPlotRasterItem::draw()`, `QwtPlotCurve::maxXValue()`, `QwtPlotCurve::maxYValue()`, `QwtPlotCurve::minXValue()`, and `QwtPlotCurve::minYValue()`.

5.51.3.3 virtual void QwtPlotItem::draw (QPainter * painter, const QwtScaleMap & xMap, const QwtScaleMap & yMap, const QRect & canvasRect) const [pure virtual]

Draw the item.

Parameters:

painter Painter

xMap Maps x-values into pixel coordinates.

yMap Maps y-values into pixel coordinates.

canvasRect Contents rect of the canvas in painter coordinates

Implemented in [QwtPlotCurve](#), [QwtPlotGrid](#), [QwtPlotMarker](#), [QwtPlotRasterItem](#), [QwtPlotSpectrogram](#), and [QwtPlotSvgItem](#).

5.51.3.4 QwtDoubleRect QwtPlotItem::invTransform (const QwtScaleMap & xMap, const QwtScaleMap & yMap, const QRect & rect) const

Transform a rectangle from paint to scale coordinates

Parameters:

xMap X map

yMap Y map

rect Rectangle in paint coordinates

Returns:

Rectangle in scale coordinates

See also:

[transform\(\)](#)

Definition at line 526 of file qwt_plot_item.cpp.

References [QwtScaleMap::invTransform\(\)](#).

Referenced by [QwtPlotSvgItem::draw\(\)](#), [QwtPlotSpectrogram::draw\(\)](#), and [QwtPlotRasterItem::draw\(\)](#).

5.51.3.5 bool QwtPlotItem::isVisible () const**Returns:**

true if visible

See also:

[setVisible\(\)](#), [show\(\)](#), [hide\(\)](#)

Definition at line 275 of file qwt_plot_item.cpp.

5.51.3.6 void QwtPlotItem::itemChanged () [virtual]

Update the legend and call [QwtPlot::autoRefresh](#) for the parent plot.

See also:

[updateLegend\(\)](#)

Definition at line 286 of file qwt_plot_item.cpp.

References [updateLegend\(\)](#).

Referenced by [QwtPlotGrid::enableX\(\)](#), [QwtPlotGrid::enableXMin\(\)](#), [QwtPlotGrid::enableY\(\)](#), [QwtPlotGrid::enableYMin\(\)](#), [QwtPlotSvgItem::loadData\(\)](#), [QwtPlotSvgItem::loadFile\(\)](#), [QwtPlotRasterItem::setAlpha\(\)](#), [setAxis\(\)](#), [QwtPlotCurve::setBaseline\(\)](#), [QwtPlotCurve::setBrush\(\)](#), [QwtPlotRasterItem::setCachePolicy\(\)](#), [QwtPlotSpectrogram::setColorMap\(\)](#), [QwtPlotSpectrogram::setConrecAttribute\(\)](#), [QwtPlotSpectrogram::setContourLevels\(\)](#), [QwtPlotCurve::setCurveAttribute\(\)](#), [QwtPlotCurve::setCurveFitter\(\)](#), [QwtPlotCurve::setCurveType\(\)](#), [QwtPlotSpectrogram::setData\(\)](#), [QwtPlotCurve::setData\(\)](#), [QwtPlotSpectrogram::setDefaultContourPen\(\)](#), [QwtPlotSpectrogram::setDisplayMode\(\)](#), [setItemAttribute\(\)](#), [QwtPlotMarker::setLabel\(\)](#), [QwtPlotMarker::setLinePen\(\)](#), [QwtPlotMarker::setLineStyle\(\)](#), [QwtPlotGrid::setMajorPen\(\)](#), [QwtPlotGrid::setMinPen\(\)](#), [QwtPlotGrid::setPen\(\)](#), [QwtPlotCurve::setPen\(\)](#), [QwtPlotCurve::setRawData\(\)](#), [setRenderHint\(\)](#), [QwtPlotCurve::setStyle\(\)](#), [QwtPlotMarker::setSymbol\(\)](#), [QwtPlotCurve::setSymbol\(\)](#), [setTitle\(\)](#), [QwtPlotMarker::setValue\(\)](#), [setVisible\(\)](#), [setXAxis\(\)](#), [QwtPlotGrid::setXDiv\(\)](#), [setYAxis\(\)](#), [QwtPlotGrid::setYDiv\(\)](#), and [setZ\(\)](#).

5.51.3.7 QWidget * QwtPlotItem::legendItem () const [virtual]

Allocate the widget that represents the item on the legend.

The default implementation is made for [QwtPlotCurve](#) and returns a [QwtLegendItem\(\)](#), but an item could be represented by any type of widget, by overloading [legendItem\(\)](#) and [updateLegend\(\)](#).

Returns:

[QwtLegendItem\(\)](#)

See also:

[updateLegend\(\)](#) QwtLegend()

Definition at line 382 of file qwt_plot_item.cpp.

Referenced by [attach\(\)](#), [updateLegend\(\)](#), and [QwtPlotCurve::updateLegend\(\)](#).

5.51.3.8 QRect QwtPlotItem::paintRect (const QwtScaleMap & xMap, const QwtScaleMap & yMap) const

Calculate the bounding paint rect of 2 maps.

Parameters:

xMap X map

yMap X map

Returns:

Bounding rect of the scale maps

Definition at line 482 of file qwt_plot_item.cpp.

References [QwtScaleMap::p1\(\)](#), and [QwtScaleMap::pDist\(\)](#).

Referenced by [QwtPlotRasterItem::draw\(\)](#).

5.51.3.9 QwtPlot * QwtPlotItem::plot () const

Return attached plot.

Definition at line 103 of file qwt_plot_item.cpp.

Referenced by [attach\(\)](#), [QwtPlotCurve::closestPoint\(\)](#), and [QwtPlotCurve::draw\(\)](#).

5.51.3.10 QwtDoubleRect QwtPlotItem::scaleRect (const QwtScaleMap & xMap, const QwtScaleMap & yMap) const

Calculate the bounding scale rect of 2 maps.

Parameters:

xMap X map

yMap X map

Returns:

Bounding rect of the scale maps

Definition at line 467 of file qwt_plot_item.cpp.

References [QwtScaleMap::s1\(\)](#), and [QwtScaleMap::sDist\(\)](#).

5.51.3.11 void QwtPlotItem::setAxis (int xAxis, int yAxis)

Set X and Y axis

The item will painted according to the coordinates its Axes.

Parameters:*xAxis* X Axis*yAxis* Y Axis**See also:**[setXAxis\(\)](#), [setYAxis\(\)](#), [xAxis\(\)](#), [yAxis\(\)](#)

Definition at line 307 of file `qwt_plot_item.cpp`.

References `itemChanged()`.

5.51.3.12 void QwtPlotItem::setItemAttribute ([ItemAttribute](#) *attribute*, bool *on* = true)

Toggle an item attribute

Parameters:*attribute* Attribute type*on* true/false**See also:**[testItemAttribute\(\)](#), [ItemAttribute](#)

Definition at line 184 of file `qwt_plot_item.cpp`.

References `itemChanged()`.

Referenced by `QwtPlotCurve::init()`, and `QwtPlotSpectrogram::QwtPlotSpectrogram()`.

5.51.3.13 void QwtPlotItem::setRenderHint ([RenderHint](#) *hint*, bool *on* = true)

Toggle an render hint

Parameters:*hint* Render hint*on* true/false**See also:**[testRenderHint\(\)](#), [RenderHint](#)

Definition at line 219 of file `qwt_plot_item.cpp`.

References `itemChanged()`.

5.51.3.14 void QwtPlotItem::setTitle (const [QwtText](#) & *title*)

Set a new title

Parameters:*title* Title**See also:**[title\(\)](#)

Definition at line 158 of file `qwt_plot_item.cpp`.

References `itemChanged()`, and `title()`.

5.51.3.15 void QwtPlotItem::setTitle (const QString & *title*)

Set a new title

Parameters:

title Title

See also:

[title\(\)](#)

Definition at line 147 of file qwt_plot_item.cpp.

5.51.3.16 void QwtPlotItem::setVisible (bool *on*) [virtual]

Show/Hide the item

Parameters:

on Show if true, otherwise hide

See also:

[isVisible\(\)](#), [show\(\)](#), [hide\(\)](#)

Definition at line 262 of file qwt_plot_item.cpp.

References [itemChanged\(\)](#).

Referenced by [hide\(\)](#), and [show\(\)](#).

5.51.3.17 void QwtPlotItem::setXAxis (int *axis*)

Set the X axis

The item will painted according to the coordinates its Axes.

Parameters:

axis X Axis

See also:

[setAxis\(\)](#), [setYAxis\(\)](#), [xAxis\(\)](#)

Definition at line 326 of file qwt_plot_item.cpp.

References [itemChanged\(\)](#).

5.51.3.18 void QwtPlotItem::setYAxis (int *axis*)

Set the Y axis

The item will painted according to the coordinates its Axes.

Parameters:

axis Y Axis

See also:

[setAxis\(\)](#), [setXAxis\(\)](#), [yAxis\(\)](#)

Definition at line 343 of file qwt_plot_item.cpp.

References [itemChanged\(\)](#).

5.51.3.19 void QwtPlotItem::setZ (double *z*)

Set the *z* value.

Plot items are painted in increasing *z*-order.

Parameters:

z Z-value

See also:

[z\(\)](#), [QwtPlotDict::itemList\(\)](#)

Definition at line 126 of file `qwt_plot_item.cpp`.

References `itemChanged()`.

Referenced by `QwtPlotCurve::init()`, `QwtPlotGrid::QwtPlotGrid()`, `QwtPlotMarker::QwtPlotMarker()`, and `QwtPlotSpectrogram::QwtPlotSpectrogram()`.

5.51.3.20 bool QwtPlotItem::testItemAttribute ([ItemAttribute](#) *attribute*) const

Test an item attribute

Parameters:

ItemAttribute Attribute type

Returns:

true/false

See also:

[setItemAttribute\(\)](#), [ItemAttribute](#)

Definition at line 204 of file `qwt_plot_item.cpp`.

Referenced by `updateLegend()`.

5.51.3.21 bool QwtPlotItem::testRenderHint ([RenderHint](#) *hint*) const

Test a render hint

Parameters:

hint Render hint

Returns:

true/false

See also:

[setRenderHint\(\)](#), [RenderHint](#)

Definition at line 239 of file `qwt_plot_item.cpp`.

5.51.3.22 const [QwtText](#) & QwtPlotItem::title () const

Returns:

Title of the item

See also:

[setTitle\(\)](#)

Definition at line 171 of file qwt_plot_item.cpp.

Referenced by [QwtPlotItem\(\)](#), [setTitle\(\)](#), and [QwtPlotCurve::updateLegend\(\)](#).

5.51.3.23 QRect QwtPlotItem::transform (const [QwtScaleMap](#) & *xMap*, const [QwtScaleMap](#) & *yMap*, const [QwtDoubleRect](#) & *rect*) const

Transform a rectangle

Parameters:

xMap X map

yMap Y map

rect Rectangle in scale coordinates

Returns:

Rectangle in paint coordinates

See also:

[invTransform\(\)](#)

Definition at line 501 of file qwt_plot_item.cpp.

References [QwtScaleMap::transform\(\)](#).

Referenced by [QwtPlotSvgItem::draw\(\)](#), [QwtPlotSpectrogram::draw\(\)](#), [QwtPlotRasterItem::draw\(\)](#), and [QwtPlotSpectrogram::renderImage\(\)](#).

5.51.3.24 void QwtPlotItem::updateLegend ([QwtLegend](#) * *legend*) const [virtual]

Update the widget that represents the item on the legend.

[updateLegend\(\)](#) is called from [itemChanged\(\)](#) to adopt the widget representing the item on the legend to its new configuration.

The default implementation is made for [QwtPlotCurve](#) and updates a [QwtLegendItem\(\)](#), but an item could be represented by any type of widget, by overloading [legendItem\(\)](#) and [updateLegend\(\)](#).

See also:

[legendItem\(\)](#), [itemChanged\(\)](#), [QwtLegend\(\)](#)

Reimplemented in [QwtPlotCurve](#).

Definition at line 399 of file qwt_plot_item.cpp.

References [QwtLegend::find\(\)](#), [QwtLegend::insert\(\)](#), [QwtLegend::itemMode\(\)](#), [legendItem\(\)](#), and [testItemAttribute\(\)](#).

Referenced by [itemChanged\(\)](#), [QwtLegend::setDisplayPolicy\(\)](#), and [QwtPlotCurve::updateLegend\(\)](#).

5.51.3.25 void QwtPlotItem::updateScaleDiv (const [QwtScaleDiv](#) &, const [QwtScaleDiv](#) &) [virtual]

Update the item to changes of the axes scale division.

Update the item, when the axes of plot have changed. The default implementation does nothing, but items that depend on the scale division (like [QwtPlotGrid\(\)](#)) have to reimplement [updateScaleDiv\(\)](#)

Parameters:

xScaleDiv Scale division of the x-axis

yScaleDiv Scale division of the y-axis

See also:

[QwtPlot::updateAxes\(\)](#)

Reimplemented in [QwtPlotGrid](#).

Definition at line 454 of file qwt_plot_item.cpp.

5.51.3.26 int QwtPlotItem::xAxis () const

Return xAxis.

Definition at line 353 of file qwt_plot_item.cpp.

Referenced by [QwtPlotCurve::closestPoint\(\)](#).

5.51.3.27 int QwtPlotItem::yAxis () const

Return yAxis.

Definition at line 359 of file qwt_plot_item.cpp.

Referenced by [QwtPlotCurve::closestPoint\(\)](#).

5.51.3.28 double QwtPlotItem::z () const

Plot items are painted in increasing z-order.

Returns:

[setZ\(\)](#), [QwtPlotDict::itemList\(\)](#)

Definition at line 113 of file qwt_plot_item.cpp.

5.52 QwtPlotLayout Class Reference

5.52.1 Detailed Description

Layout class for [QwtPlot](#).

Organizes the geometry for the different [QwtPlot](#) components.

Definition at line 22 of file qwt_plot_layout.h.

Public Types

- enum [Options](#) {
 AlignScales = 1,
 IgnoreScrollbars = 2,
 IgnoreFrames = 4,
 IgnoreMargin = 8,
 IgnoreLegend = 16 }

Public Member Functions

- [QwtPlotLayout](#) ()
- virtual [~QwtPlotLayout](#) ()
- void [setMargin](#) (int)
- int [margin](#) () const
- void [setCanvasMargin](#) (int margin, int axis=-1)
- int [canvasMargin](#) (int axis) const
- void [setAlignCanvasToScales](#) (bool)
- bool [alignCanvasToScales](#) () const
- void [setSpacing](#) (int)
- int [spacing](#) () const
- void [setLegendPosition](#) ([QwtPlot::LegendPosition](#) pos, double ratio)
- void [setLegendPosition](#) ([QwtPlot::LegendPosition](#) pos)
- [QwtPlot::LegendPosition](#) [legendPosition](#) () const
- void [setLegendRatio](#) (double ratio)
- double [legendRatio](#) () const
- virtual QSize [minimumSizeHint](#) (const [QwtPlot](#) *) const
- virtual void [activate](#) (const [QwtPlot](#) *, const [QRect](#) &rect, int options=0)
- virtual void [invalidate](#) ()
- const [QRect](#) & [titleRect](#) () const
- const [QRect](#) & [legendRect](#) () const
- const [QRect](#) & [scaleRect](#) (int axis) const
- const [QRect](#) & [canvasRect](#) () const

Protected Member Functions

- [QRect](#) [layoutLegend](#) (int options, const [QRect](#) &) const
- [QRect](#) [alignLegend](#) (const [QRect](#) &canvasRect, const [QRect](#) &legendRect) const
- void [expandLineBreaks](#) (int options, const [QRect](#) &rect, int &dimTitle, int dimAxes[[QwtPlot::axisCnt](#)]) const
- void [alignScales](#) (int options, [QRect](#) &canvasRect, [QRect](#) scaleRect[[QwtPlot::axisCnt](#)]) const

5.52.2 Constructor & Destructor Documentation**5.52.2.1 [QwtPlotLayout::QwtPlotLayout](#) () [explicit]**

Constructor.

Definition at line 183 of file `qwt_plot_layout.cpp`.

References [invalidate\(\)](#), [setCanvasMargin\(\)](#), and [setLegendPosition\(\)](#).

5.52.2.2 [QwtPlotLayout::~~QwtPlotLayout](#) () [virtual]

Destructor.

Definition at line 194 of file `qwt_plot_layout.cpp`.

5.52.3 Member Function Documentation

5.52.3.1 `void QwtPlotLayout::activate (const QwtPlot * plot, const QRect & plotRect, int options = 0) [virtual]`

Recalculate the geometry of all components.

Parameters:

plot Plot to be layout

plotRect Rect where to place the components

options Options

See also:

[invalidate\(\)](#), [titleRect\(\)](#), [legendRect\(\)](#), [scaleRect\(\)](#), [canvasRect\(\)](#)

Definition at line 1017 of file `qwt_plot_layout.cpp`.

References [invalidate\(\)](#), [QwtLegend::isEmpty\(\)](#), [layoutLegend\(\)](#), and [QwtPlot::legend\(\)](#).

5.52.3.2 `bool QwtPlotLayout::alignCanvasToScales () const`

Return the align-canvas-to-axis-scales setting. The canvas may:

- extend beyond the axis scale ends to maximize its size
- align with the axis scale ends to control its size.

Returns:

align-canvas-to-axis-scales setting

See also:

[setAlignCanvasToScales](#), [setCanvasMargin\(\)](#)

Note:

In this context the term 'scale' means the backbone of a scale.

Definition at line 288 of file `qwt_plot_layout.cpp`.

5.52.3.3 `QRect QwtPlotLayout::alignLegend (const QRect & canvasRect, const QRect & legendRect) const [protected]`

Align the legend to the canvas

Parameters:

canvasRect Geometry of the canvas

legendRect Maximum geometry for the legend

Returns:

Geometry for the aligned legend

Definition at line 709 of file `qwt_plot_layout.cpp`.

5.52.3.4 void QwtPlotLayout::alignScales (int *options*, QRect & *canvasRect*, QRect *scaleRect*[QwtPlot::axisCnt]) const [protected]

Align the ticks of the axis to the canvas borders using the empty corners.

Definition at line 850 of file qwt_plot_layout.cpp.

5.52.3.5 int QwtPlotLayout::canvasMargin (int *axis*) const

Returns:

Margin around the scale tick borders

See also:

[setCanvasMargin\(\)](#)

Definition at line 254 of file qwt_plot_layout.cpp.

Referenced by QwtPlot::canvasMap().

5.52.3.6 const QRect & QwtPlotLayout::canvasRect () const

Returns:

Geometry for the canvas

See also:

[activate\(\)](#), [invalidate\(\)](#)

Definition at line 443 of file qwt_plot_layout.cpp.

5.52.3.7 void QwtPlotLayout::expandLineBreaks (int *options*, const QRect & *rect*, int & *dimTitle*, int *dimAxis*[QwtPlot::axisCnt]) const [protected]

Expand all line breaks in text labels, and calculate the height of their widgets in orientation of the text.

Parameters:

options Options how to layout the legend

rect Bounding rect for title, axes and canvas.

dimTitle Expanded height of the title widget

dimAxis Expanded heights of the axis in axis orientation.

Definition at line 744 of file qwt_plot_layout.cpp.

5.52.3.8 void QwtPlotLayout::invalidate () [virtual]

Invalidate the geometry of all components.

See also:

[activate\(\)](#)

Definition at line 452 of file qwt_plot_layout.cpp.

Referenced by [activate\(\)](#), and [QwtPlotLayout\(\)](#).

5.52.3.9 `QRect QwtPlotLayout::layoutLegend (int options, const QRect & rect) const`
[protected]

Find the geometry for the legend

Parameters:

options Options how to layout the legend

rect Rectangle where to place the legend

Returns:

Geometry for the legend

Definition at line 648 of file qwt_plot_layout.cpp.

Referenced by activate().

5.52.3.10 `QwtPlot::LegendPosition QwtPlotLayout::legendPosition () const`

Returns:

Position of the legend

See also:

[setLegendPosition\(\)](#), [QwtPlot::setLegendPosition\(\)](#), [QwtPlot::legendPosition\(\)](#)

Definition at line 374 of file qwt_plot_layout.cpp.

Referenced by setLegendRatio().

5.52.3.11 `double QwtPlotLayout::legendRatio () const`

Returns:

The relative size of the legend in the plot.

See also:

[setLegendPosition\(\)](#)

Definition at line 397 of file qwt_plot_layout.cpp.

5.52.3.12 `const QRect & QwtPlotLayout::legendRect () const`

Returns:

Geometry for the legend

See also:

[activate\(\)](#), [invalidate\(\)](#)

Definition at line 417 of file qwt_plot_layout.cpp.

5.52.3.13 int QwtPlotLayout::margin () const

Returns:

margin

See also:

[setMargin\(\)](#), [spacing\(\)](#), [QwtPlot::margin\(\)](#)

Definition at line 218 of file qwt_plot_layout.cpp.

5.52.3.14 QSize QwtPlotLayout::minimumSizeHint (const [QwtPlot](#) * *plot*) const [virtual]

Return a minimum size hint.

See also:

[QwtPlot::minimumSizeHint\(\)](#)

Definition at line 464 of file qwt_plot_layout.cpp.

References [QwtPlot::axisEnabled\(\)](#), [QwtPlot::axisWidget\(\)](#), and [QwtScaleWidget::minimumSizeHint\(\)](#).

5.52.3.15 const QRect & QwtPlotLayout::scaleRect (int *axis*) const

Parameters:

axis Axis index

Returns:

Geometry for the scale

See also:

[activate\(\)](#), [invalidate\(\)](#)

Definition at line 428 of file qwt_plot_layout.cpp.

5.52.3.16 void QwtPlotLayout::setAlignCanvasToScales (bool *alignCanvasToScales*)

Change the align-canvas-to-axis-scales setting. The canvas may:

- extend beyond the axis scale ends to maximize its size,
- align with the axis scale ends to control its size.

Parameters:

alignCanvasToScales New align-canvas-to-axis-scales setting

See also:

[setCanvasMargin\(\)](#)

Note:

In this context the term 'scale' means the backbone of a scale.

Warning:

In case of `alignCanvasToScales == true` `canvasMargin` will have no effect

Definition at line 274 of file qwt_plot_layout.cpp.

5.52.3.17 void QwtPlotLayout::setCanvasMargin (int *margin*, int *axis* = -1)

Change a margin of the canvas. The margin is the space above/below the scale ticks. A negative margin will be set to -1, excluding the borders of the scales.

Parameters:

margin New margin

axis One of [QwtPlot::Axis](#). Specifies where the position of the margin. -1 means margin at all borders.

See also:

[canvasMargin\(\)](#)

Warning:

The margin will have no effect when `alignCanvasToScales` is true

Definition at line 236 of file `qwt_plot_layout.cpp`.

Referenced by `QwtPlotLayout()`.

5.52.3.18 void QwtPlotLayout::setLegendPosition ([QwtPlot::LegendPosition](#) *pos*)

Specify the position of the legend.

Parameters:

pos The legend's position. Valid values are `QwtPlot::LeftLegend`, `QwtPlot::RightLegend`, `QwtPlot::TopLegend`, `QwtPlot::BottomLegend`.

See also:

`QwtPlot::setLegendPosition()`

Definition at line 364 of file `qwt_plot_layout.cpp`.

References `setLegendPosition()`.

5.52.3.19 void QwtPlotLayout::setLegendPosition ([QwtPlot::LegendPosition](#) *pos*, double *ratio*)

Specify the position of the legend.

Parameters:

pos The legend's position.

ratio Ratio between legend and the bounding rect of title, canvas and axes. The legend will be shrunk if it would need more space than the given ratio. The ratio is limited to]0.0 .. 1.0]. In case of ≤ 0.0 it will be reset to the default ratio. The default vertical/horizontal ratio is 0.33/0.5.

See also:

`QwtPlot::setLegendPosition()`

Definition at line 327 of file `qwt_plot_layout.cpp`.

Referenced by `QwtPlotLayout()`, `setLegendPosition()`, and `setLegendRatio()`.

5.52.3.20 void QwtPlotLayout::setLegendRatio (double *ratio*)

Specify the relative size of the legend in the plot

Parameters:

ratio Ratio between legend and the bounding rect of title, canvas and axes. The legend will be shrinked if it would need more space than the given ratio. The ratio is limited to]0.0 .. 1.0]. In case of <= 0.0 it will be reset to the default ratio. The default vertical/horizontal ratio is 0.33/0.5.

Definition at line 388 of file qwt_plot_layout.cpp.

References [legendPosition\(\)](#), and [setLegendPosition\(\)](#).

5.52.3.21 void QwtPlotLayout::setMargin (int *margin*)

Change the margin of the plot. The margin is the space around all components.

Parameters:

margin new margin

See also:

[margin\(\)](#), [setSpacing\(\)](#), [QwtPlot::setMargin\(\)](#)

Definition at line 207 of file qwt_plot_layout.cpp.

5.52.3.22 void QwtPlotLayout::setSpacing (int *spacing*)

Change the spacing of the plot. The spacing is the distance between the plot components.

Parameters:

spacing new spacing

See also:

[setMargin\(\)](#), [spacing\(\)](#)

Definition at line 300 of file qwt_plot_layout.cpp.

5.52.3.23 int QwtPlotLayout::spacing () const**Returns:**

spacing

See also:

[margin\(\)](#), [setSpacing\(\)](#)

Definition at line 309 of file qwt_plot_layout.cpp.

5.52.3.24 const QRect & QwtPlotLayout::titleRect () const**Returns:**

Geometry for the title

See also:

[activate\(\)](#), [invalidate\(\)](#)

Definition at line 407 of file qwt_plot_layout.cpp.

5.53 QwtPlotMagnifier Class Reference

5.53.1 Detailed Description

[QwtPlotMagnifier](#) provides zooming, by magnifying in steps.

Together with [QwtPlotZoomer](#) and [QwtPlotPanner](#) it is possible to implement individual and powerful navigation of the plot canvas.

See also:

[QwtPlotZoomer](#), [QwtPlotPanner](#), [QwtPlot](#)

Definition at line 30 of file `qwt_plot_magnifier.h`.

Public Member Functions

- [QwtPlotMagnifier](#) ([QwtPlotCanvas](#) *)
- virtual [~QwtPlotMagnifier](#) ()
- void [setEnabled](#) (bool)
- bool [isEnabled](#) () const
- void [setAxisEnabled](#) (int axis, bool on)
- bool [isAxisEnabled](#) (int axis) const
- void [setMouseFactor](#) (double)
- double [mouseFactor](#) () const
- void [setMouseButton](#) (int button, int buttonState=[Qt::NoButton](#))
- void [getMouseButton](#) (int &button, int &buttonState) const
- void [setWheelFactor](#) (double)
- double [wheelFactor](#) () const
- void [setWheelButtonState](#) (int buttonState)
- int [wheelButtonState](#) () const
- void [setKeyFactor](#) (double)
- double [keyFactor](#) () const
- void [setZoomInKey](#) (int key, int buttonState)
- void [getZoomInKey](#) (int &key, int &buttonState)
- void [setZoomOutKey](#) (int key, int buttonState)
- void [getZoomOutKey](#) (int &key, int &buttonState)
- [QwtPlotCanvas](#) * [canvas](#) ()
- const [QwtPlotCanvas](#) * [canvas](#) () const
- [QwtPlot](#) * [plot](#) ()
- const [QwtPlot](#) * [plot](#) () const
- virtual bool [eventFilter](#) (QObject *, QEvent *)

Protected Member Functions

- virtual void [rescale](#) (double factor)
- virtual void [widgetMouseEvent](#) (QMouseEvent *)
- virtual void [widgetMouseReleaseEvent](#) (QMouseEvent *)
- virtual void [widgetMouseMoveEvent](#) (QMouseEvent *)
- virtual void [widgetWheelEvent](#) (QWheelEvent *)
- virtual void [widgetKeyPressEvent](#) (QKeyEvent *)
- virtual void [widgetKeyReleaseEvent](#) (QKeyEvent *)

5.53.2 Member Function Documentation

5.53.2.1 `const QwtPlotCanvas * QwtPlotMagnifier::canvas () const`

Return Observed plot canvas.

Definition at line 203 of file `qwt_plot_magnifier.cpp`.

5.53.2.2 `QwtPlotCanvas * QwtPlotMagnifier::canvas ()`

Return observed plot canvas.

Definition at line 193 of file `qwt_plot_magnifier.cpp`.

Referenced by `plot()`, `widgetMouseEvent()`, and `widgetMouseReleaseEvent()`.

5.53.2.3 `const QwtPlot * QwtPlotMagnifier::plot () const`

Return plot widget, containing the observed plot canvas.

Definition at line 223 of file `qwt_plot_magnifier.cpp`.

5.53.2.4 `QwtPlot * QwtPlotMagnifier::plot ()`

Return plot widget, containing the observed plot canvas.

Definition at line 209 of file `qwt_plot_magnifier.cpp`.

References `canvas()`.

Referenced by `rescale()`.

5.54 QwtPlotMarker Class Reference

Inheritance diagram for QwtPlotMarker:



Collaboration diagram for QwtPlotMarker:



5.54.1 Detailed Description

A class for drawing markers.

A marker can be a horizontal line, a vertical line, a symbol, a label or any combination of them, which can be drawn around a center point inside a bounding rectangle.

The [QwtPlotMarker::setSymbol\(\)](#) member assigns a symbol to the marker. The symbol is drawn at the specified point.

With [QwtPlotMarker::setLabel\(\)](#), a label can be assigned to the marker. The [QwtPlotMarker::setLabelAlignment\(\)](#) member specifies where the label is drawn. All the `Align*`-constants in `Qt::AlignmentFlags` (see Qt documentation) are valid. The interpretation of the alignment depends on the marker's line style. The alignment refers to the center point of the marker, which means, for example, that the label would be printed left above the center point if the alignment was set to `AlignLeft|AlignTop`.

Definition at line 45 of file `qwt_plot_marker.h`.

Public Types

- enum [LineStyle](#) {
 NoLine,
 HLine,
 VLine,
 Cross }

Public Member Functions

- [QwtPlotMarker](#) ()
- virtual [~QwtPlotMarker](#) ()
- virtual int [rtti](#) () const
- double [xValue](#) () const
- double [yValue](#) () const
- [QwtDoublePoint](#) [value](#) () const
- void [setXValue](#) (double)
- void [setYValue](#) (double)
- void [setValue](#) (double, double)
- void [setValue](#) (const [QwtDoublePoint](#) &)
- void [setLineStyle](#) ([LineStyle](#) st)
- [LineStyle](#) [lineStyle](#) () const
- void [setLinePen](#) (const [QPen](#) &p)
- const [QPen](#) & [linePen](#) () const
- void [setSymbol](#) (const [QwtSymbol](#) &s)
- const [QwtSymbol](#) & [symbol](#) () const
- void [setLabel](#) (const [QwtText](#) &)
- [QwtText](#) [label](#) () const
- void [setLabelAlignment](#) ([Qt::Alignment](#))
- [Qt::Alignment](#) [labelAlignment](#) () const
- virtual void [draw](#) ([QPainter](#) *p, const [QwtScaleMap](#) &xMap, const [QwtScaleMap](#) &yMap, const [QRect](#) &) const
- virtual [QwtDoubleRect](#) [boundingRect](#) () const

5.54.2 Member Enumeration Documentation

5.54.2.1 enum [QwtPlotMarker::LineStyle](#)

Line styles.

See also:

[QwtPlotMarker::setLineStyle](#), [QwtPlotMarker::lineStyle](#)

Definition at line 53 of file `qwt_plot_marker.h`.

5.54.3 Constructor & Destructor Documentation

5.54.3.1 [QwtPlotMarker::QwtPlotMarker\(\)](#) [explicit]

Sets alignment to `Qt::AlignCenter`, and style to `NoLine`.

Definition at line 48 of file `qwt_plot_marker.cpp`.

References [QwtPlotItem::setZ\(\)](#).

5.54.3.2 [QwtPlotMarker::~QwtPlotMarker\(\)](#) [virtual]

Destructor.

Definition at line 56 of file `qwt_plot_marker.cpp`.

5.54.4 Member Function Documentation

5.54.4.1 [QwtDoubleRect](#) [QwtPlotMarker::boundingRect\(\)](#) const [virtual]

Returns:

An invalid bounding rect: `QwtDoubleRect(1.0, 1.0, -2.0, -2.0)`

Reimplemented from [QwtPlotItem](#).

Definition at line 350 of file `qwt_plot_marker.cpp`.

5.54.4.2 [void](#) [QwtPlotMarker::draw\(QPainter *p, const \[QwtScaleMap\]\(#\) &xMap, const \[QwtScaleMap\]\(#\) &yMap, const \[QRect\]\(#\) &r\)](#) const [virtual]

Draw the marker.

Parameters:

p Painter

xMap x Scale Map

yMap y Scale Map

r Bounding rect, where to paint

Implements [QwtPlotItem](#).

Definition at line 120 of file `qwt_plot_marker.cpp`.

References [QwtPainter::drawLine\(\)](#), and [QwtScaleMap::transform\(\)](#).

5.54.4.3 [QwtText](#) QwtPlotMarker::label () const

Returns:

the label

See also:

[setLabel\(\)](#)

Definition at line 285 of file qwt_plot_marker.cpp.

Referenced by [setLabel\(\)](#).

5.54.4.4 [Qt::Alignment](#) QwtPlotMarker::labelAlignment () const

Returns:

the label alignment

See also:

[setLabelAlignment\(\)](#)

Definition at line 321 of file qwt_plot_marker.cpp.

5.54.4.5 [const QPen &](#) QwtPlotMarker::linePen () const

Returns:

the line pen

See also:

[setLinePen\(\)](#)

Definition at line 345 of file qwt_plot_marker.cpp.

5.54.4.6 [QwtPlotMarker::LineStyle](#) QwtPlotMarker::lineStyle () const

Returns:

the line style

See also:

For a description of line styles, see [QwtPlotMarker::setLineStyle\(\)](#)

Definition at line 242 of file qwt_plot_marker.cpp.

5.54.4.7 [void](#) QwtPlotMarker::setLabel (const [QwtText](#) & *label*)

Set the label.

Parameters:

label label text

See also:

[label\(\)](#)

Definition at line 272 of file qwt_plot_marker.cpp.

References [QwtPlotItem::itemChanged\(\)](#), and [label\(\)](#).

5.54.4.8 void QwtPlotMarker::setLabelAlignment (Qt::Alignment *align*)

Set the alignment of the label.

The alignment determines where the label is drawn relative to the marker's position.

Parameters:

align Alignment. A combination of AlignTop, AlignBottom, AlignLeft, AlignRight, AlignCenter, AlignHCenter, AlignVCenter.

See also:

[labelAlignment\(\)](#)

Definition at line 304 of file qwt_plot_marker.cpp.

5.54.4.9 void QwtPlotMarker::setLinePen (const QPen & *p*)

Specify a pen for the line.

Parameters:

p New pen

See also:

[linePen\(\)](#)

Definition at line 332 of file qwt_plot_marker.cpp.

References QwtPlotItem::itemChanged().

5.54.4.10 void QwtPlotMarker::setLineStyle (QwtPlotMarker::LineStyle *st*)

Set the line style.

Parameters:

st Line style. Can be one of QwtPlotMarker::NoLine, HLine, VLine or Cross

See also:

[lineStyle\(\)](#)

Definition at line 229 of file qwt_plot_marker.cpp.

References QwtPlotItem::itemChanged().

5.54.4.11 void QwtPlotMarker::setSymbol (const QwtSymbol & *s*)

Assign a symbol.

Parameters:

s New symbol

See also:

[symbol\(\)](#)

Definition at line 252 of file qwt_plot_marker.cpp.

References QwtPlotItem::itemChanged().

5.54.4.12 void QwtPlotMarker::setValue (const QwtDoublePoint &)

Set Value.

Definition at line 85 of file qwt_plot_marker.cpp.

References `setValue()`.

5.54.4.13 void QwtPlotMarker::setValue (double, double)

Set Value.

Definition at line 91 of file qwt_plot_marker.cpp.

References `QwtPlotItem::itemChanged()`.

Referenced by `setValue()`, `setXValue()`, and `setYValue()`.

5.54.4.14 void QwtPlotMarker::setXValue (double)

Set X Value.

Definition at line 102 of file qwt_plot_marker.cpp.

References `setValue()`.

5.54.4.15 void QwtPlotMarker::setYValue (double)

Set Y Value.

Definition at line 108 of file qwt_plot_marker.cpp.

References `setValue()`.

5.54.4.16 const [QwtSymbol](#) & QwtPlotMarker::symbol () const**Returns:**

the symbol

See also:

[setSymbol\(\)](#), [QwtSymbol](#)

Definition at line 262 of file qwt_plot_marker.cpp.

5.54.4.17 QwtDoublePoint QwtPlotMarker::value () const

Return Value.

Definition at line 67 of file qwt_plot_marker.cpp.

5.54.4.18 double QwtPlotMarker::xValue () const

Return x Value.

Definition at line 73 of file qwt_plot_marker.cpp.

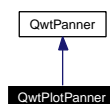
5.54.4.19 double QwtPlotMarker::yValue () const

Return y Value.

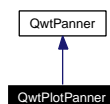
Definition at line 79 of file qwt_plot_marker.cpp.

5.55 QwtPlotPanner Class Reference

Inheritance diagram for QwtPlotPanner:



Collaboration diagram for QwtPlotPanner:



5.55.1 Detailed Description

[QwtPlotPanner](#) provides panning of a plot canvas.

[QwtPlotPanner](#) is a panner for a [QwtPlotCanvas](#), that adjusts the scales of the axes after dropping the canvas on its new position.

Together with [QwtPlotZoomer](#) and [QwtPlotMagnifier](#) powerful ways of navigating on a [QwtPlot](#) widget can be implemented easily.

Note:

The axes are not updated, while dragging the canvas

See also:

[QwtPlotZoomer](#), [QwtPlotMagnifier](#)

Definition at line 32 of file qwt_plot_panner.h.

Public Member Functions

- [QwtPlotPanner](#) ([QwtPlotCanvas](#) *)
- virtual [~QwtPlotPanner](#) ()
- [QwtPlotCanvas](#) * [canvas](#) ()
- const [QwtPlotCanvas](#) * [canvas](#) () const
- [QwtPlot](#) * [plot](#) ()
- const [QwtPlot](#) * [plot](#) () const
- void [setAxisEnabled](#) (int axis, bool on)
- bool [isAxisEnabled](#) (int axis) const

Protected Slots

- virtual void [moveCanvas](#) (int dx, int dy)

5.55.2 Constructor & Destructor Documentation

5.55.2.1 QwtPlotPanner::QwtPlotPanner (QwtPlotCanvas * canvas) [explicit]

Create a plot panner.

The panner is enabled for all axes

Parameters:

canvas Plot canvas to pan, also the parent object

See also:

[setAxisEnabled](#)

Definition at line 38 of file qwt_plot_panner.cpp.

References [moveCanvas\(\)](#), and [QwtPanner::panned\(\)](#).

5.55.2.2 QwtPlotPanner::~QwtPlotPanner () [virtual]

Destructor.

Definition at line 48 of file qwt_plot_panner.cpp.

5.55.3 Member Function Documentation

5.55.3.1 const QwtPlotCanvas * QwtPlotPanner::canvas () const

Return Observed plot canvas.

Definition at line 97 of file qwt_plot_panner.cpp.

5.55.3.2 QwtPlotCanvas * QwtPlotPanner::canvas ()

Return observed plot canvas.

Definition at line 87 of file qwt_plot_panner.cpp.

Referenced by [plot\(\)](#).

5.55.3.3 bool QwtPlotPanner::isAxisEnabled (int axis) const

Test if an axis is enabled

Parameters:

axis Axis, see [QwtPlot::Axis](#)

Returns:

True, if the axis is enabled

See also:

[setAxisEnabled](#), [moveCanvas](#)

Definition at line 78 of file qwt_plot_panner.cpp.

5.55.3.4 void QwtPlotPanner::moveCanvas (int *dx*, int *dy*) [protected, virtual, slot]

Adjust the enabled axes according to dx/dy

Parameters:

dx Pixel offset in x direction

dy Pixel offset in y direction

See also:

[QwtPanner::panned](#)

Definition at line 130 of file qwt_plot_panner.cpp.

References [QwtPlot::autoReplot\(\)](#), [QwtPlot::axisScaleDiv\(\)](#), [QwtPlot::canvasMap\(\)](#), [QwtScaleDiv::hBound\(\)](#), [QwtScaleDiv::lBound\(\)](#), [plot\(\)](#), [QwtPlot::setAutoReplot\(\)](#), [QwtPlot::setAxisScale\(\)](#), and [QwtScaleMap::transform\(\)](#).

Referenced by [QwtPlotPanner\(\)](#).

5.55.3.5 const [QwtPlot](#) * QwtPlotPanner::plot () const

Return plot widget, containing the observed plot canvas.

Definition at line 117 of file qwt_plot_panner.cpp.

5.55.3.6 [QwtPlot](#) * QwtPlotPanner::plot ()

Return plot widget, containing the observed plot canvas.

Definition at line 103 of file qwt_plot_panner.cpp.

References [canvas\(\)](#).

Referenced by [moveCanvas\(\)](#).

5.55.3.7 void QwtPlotPanner::setAxisEnabled (int *axis*, bool *on*)

En/Disable an axis.

Axes that are enabled will be synchronized to the result of panning. All other axes will remain unchanged.

Parameters:

axis Axis, see [QwtPlot::Axis](#)

on On/Off

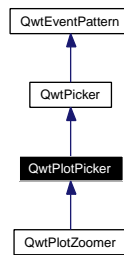
See also:

[isAxisEnabled](#), [moveCanvas](#)

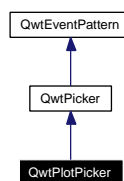
Definition at line 64 of file qwt_plot_panner.cpp.

5.56 QwtPlotPicker Class Reference

Inheritance diagram for QwtPlotPicker:



Collaboration diagram for QwtPlotPicker:



5.56.1 Detailed Description

[QwtPlotPicker](#) provides selections on a plot canvas.

[QwtPlotPicker](#) is a [QwtPicker](#) tailored for selections on a plot canvas. It is set to a x-Axis and y-Axis and translates all pixel coordinates into this coordinate system.

Definition at line 29 of file `qwt_plot_picker.h`.

Signals

- void [selected](#) (const [QwtDoublePoint](#) &pos)
- void [selected](#) (const [QwtDoubleRect](#) &rect)
- void [selected](#) (const [QwtArray](#)< [QwtDoublePoint](#) > &pa)
- void [appended](#) (const [QwtDoublePoint](#) &pos)
- void [moved](#) (const [QwtDoublePoint](#) &pos)

Public Member Functions

- [QwtPlotPicker](#) ([QwtPlotCanvas](#) *)
- [QwtPlotPicker](#) (int xAxis, int yAxis, [QwtPlotCanvas](#) *)
- [QwtPlotPicker](#) (int xAxis, int yAxis, int selectionFlags, [RubberBand](#) rubberBand, [DisplayMode](#) trackerMode, [QwtPlotCanvas](#) *)
- virtual void [setAxis](#) (int xAxis, int yAxis)
- int [xAxis](#) () const
- int [yAxis](#) () const
- [QwtPlot](#) * [plot](#) ()
- const [QwtPlot](#) * [plot](#) () const
- [QwtPlotCanvas](#) * [canvas](#) ()
- const [QwtPlotCanvas](#) * [canvas](#) () const

Protected Member Functions

- QwtDoubleRect [scaleRect](#) () const
- QwtDoubleRect [invTransform](#) (const QRect &) const
- QRect [transform](#) (const QwtDoubleRect &) const
- QwtDoublePoint [invTransform](#) (const QPoint &) const
- QPoint [transform](#) (const QwtDoublePoint &) const
- virtual [QwtText trackerText](#) (const QPoint &) const
- virtual [QwtText trackerText](#) (const QwtDoublePoint &) const
- virtual void [move](#) (const QPoint &)
- virtual void [append](#) (const QPoint &)
- virtual bool [end](#) (bool ok=true)

5.56.2 Constructor & Destructor Documentation

5.56.2.1 QwtPlotPicker::QwtPlotPicker ([QwtPlotCanvas](#) * *canvas*) [explicit]

Create a plot picker.

The picker is set to those x- and y-axis of the plot that are enabled. If both or no x-axis are enabled, the picker is set to QwtPlot::xBottom. If both or no y-axis are enabled, it is set to QwtPlot::yLeft.

Parameters:

canvas Plot canvas to observe, also the parent object

See also:

[QwtPlot::autoReplot\(\)](#), [QwtPlot::replot\(\)](#), [QwtPlotPicker::scaleRect\(\)](#)

Definition at line 32 of file qwt_plot_picker.cpp.

References [QwtPlot::axisEnabled\(\)](#), [canvas\(\)](#), [plot\(\)](#), and [xAxis\(\)](#).

5.56.2.2 QwtPlotPicker::QwtPlotPicker (int *xAxis*, int *yAxis*, [QwtPlotCanvas](#) * *canvas*) [explicit]

Create a plot picker

Parameters:

xAxis Set the x axis of the picker

yAxis Set the y axis of the picker

canvas Plot canvas to observe, also the parent object

See also:

[QwtPlot::autoReplot\(\)](#), [QwtPlot::replot\(\)](#), [QwtPlotPicker::scaleRect\(\)](#)

Definition at line 70 of file qwt_plot_picker.cpp.

5.56.2.3 QwtPlotPicker::QwtPlotPicker (int *xAxis*, int *yAxis*, int *selectionFlags*, [RubberBand](#) *rubberBand*, [DisplayMode](#) *trackerMode*, [QwtPlotCanvas](#) * *canvas*) [explicit]

Create a plot picker

Parameters:

xAxis X axis of the picker
yAxis Y axis of the picker
selectionFlags Or'd value of SelectionType, RectSelectionType and SelectionMode
rubberBand Rubberband style
trackerMode Tracker mode
canvas Plot canvas to observe, also the parent object

See also:

[QwtPicker](#), [QwtPicker::setSelectionFlags\(\)](#), [QwtPicker::setRubberBand\(\)](#), [QwtPicker::setTrackerMode](#)
[QwtPlot::autoReplot\(\)](#), [QwtPlot::replot\(\)](#), [QwtPlotPicker::scaleRect\(\)](#)

Definition at line 93 of file qwt_plot_picker.cpp.

5.56.3 Member Function Documentation**5.56.3.1 void QwtPlotPicker::append (const QPoint & pos) [protected, virtual]**

Append a point to the selection and update rubberband and tracker.

Parameters:

pos Additional point

See also:

[isActive](#), [begin\(\)](#), [end\(\)](#), [move\(\)](#), [appended\(\)](#)

Note:

The [appended\(const QPoint &\)](#), [appended\(const QDoublePoint &\)](#) signals are emitted.

Reimplemented from [QwtPicker](#).

Definition at line 244 of file qwt_plot_picker.cpp.

References [QwtPicker::append\(\)](#), [appended\(\)](#), and [invTransform\(\)](#).

5.56.3.2 void QwtPlotPicker::appended (const QwtDoublePoint & pos) [signal]

A signal emitted when a point has been appended to the selection

Parameters:

pos Position of the appended point.

See also:

[append\(\)](#), [moved\(\)](#)

Referenced by [append\(\)](#).

5.56.3.3 const QwtPlotCanvas * QwtPlotPicker::canvas () const

Return Observed plot canvas.

Definition at line 113 of file qwt_plot_picker.cpp.

5.56.3.4 [QwtPlotCanvas](#) * [QwtPlotPicker::canvas](#) ()

Return observed plot canvas.

Definition at line 103 of file `qwt_plot_picker.cpp`.

References [QwtPicker::parentWidget\(\)](#).

Referenced by [plot\(\)](#), [QwtPlotPicker\(\)](#), and [QwtPlotZoomer::QwtPlotZoomer\(\)](#).

5.56.3.5 **bool** [QwtPlotPicker::end](#) (**bool** *ok* = true) [[protected](#), [virtual](#)]

Close a selection setting the state to inactive.

Parameters:

ok If true, complete the selection and emit selected signals otherwise discard the selection.

Returns:

true if the selection is accepted, false otherwise

Reimplemented from [QwtPicker](#).

Reimplemented in [QwtPlotZoomer](#).

Definition at line 273 of file `qwt_plot_picker.cpp`.

References [QwtPicker::end\(\)](#), [invTransform\(\)](#), [plot\(\)](#), [selected\(\)](#), [QwtPicker::selection\(\)](#), and [QwtPicker::selectionFlags\(\)](#).

Referenced by [QwtPlotZoomer::end\(\)](#).

5.56.3.6 **QwtDoublePoint** [QwtPlotPicker::invTransform](#) (**const** **QPoint** & *pos*) **const** [[protected](#)]

Translate a point from pixel into plot coordinates

Returns:

Point in plot coordinates

See also:

[QwtPlotPicker::transform\(\)](#)

Definition at line 369 of file `qwt_plot_picker.cpp`.

References [QwtPlot::canvasMap\(\)](#), [QwtScaleMap::invTransform\(\)](#), and [plot\(\)](#).

5.56.3.7 **QwtDoubleRect** [QwtPlotPicker::invTransform](#) (**const** **QRect** & *rect*) **const** [[protected](#)]

Translate a rectangle from pixel into plot coordinates

Returns:

Rectangle in plot coordinates

See also:

[QwtPlotPicker::transform\(\)](#)

Definition at line 332 of file qwt_plot_picker.cpp.

References `QwtPlot::canvasMap()`, `QwtScaleMap::invTransform()`, and `plot()`.

Referenced by `append()`, `QwtPlotZoomer::end()`, `end()`, `move()`, and `trackerText()`.

5.56.3.8 void QwtPlotPicker::move (const QPoint & pos) [protected, virtual]

Move the last point of the selection

Parameters:

pos New position

See also:

[isActive](#), [begin\(\)](#), [end\(\)](#), [append\(\)](#)

Note:

The `moved(const QPoint &)`, `moved(const QDoublePoint &)` signals are emitted.

Reimplemented from [QwtPicker](#).

Definition at line 259 of file qwt_plot_picker.cpp.

References `invTransform()`, `QwtPicker::move()`, and `moved()`.

5.56.3.9 void QwtPlotPicker::moved (const QwtDoublePoint & pos) [signal]

A signal emitted whenever the last appended point of the selection has been moved.

Parameters:

pos Position of the moved last point of the selection.

See also:

[move\(\)](#), [appended\(\)](#)

Referenced by `move()`.

5.56.3.10 const QwtPlot * QwtPlotPicker::plot () const

Return plot widget, containing the observed plot canvas.

Definition at line 133 of file qwt_plot_picker.cpp.

5.56.3.11 QwtPlot * QwtPlotPicker::plot ()

Return plot widget, containing the observed plot canvas.

Definition at line 119 of file qwt_plot_picker.cpp.

References `canvas()`.

Referenced by `QwtPlotZoomer::end()`, `end()`, `invTransform()`, `QwtPlotPicker()`, `QwtPlotZoomer::rescale()`, `scaleRect()`, `setAxis()`, `QwtPlotZoomer::setZoomBase()`, and `transform()`.

5.56.3.12 QwtDoubleRect QwtPlotPicker::scaleRect () const [protected]

Return normalized bounding rect of the axes

See also:

[QwtPlot::autoReplot\(\)](#), [QwtPlot::replot\(\)](#).

Definition at line 143 of file `qwt_plot_picker.cpp`.

References [QwtPlot::axisScaleDiv\(\)](#), [QwtScaleDiv::lBound\(\)](#), [plot\(\)](#), [QwtScaleDiv::range\(\)](#), [xAxis\(\)](#), and [yAxis\(\)](#).

Referenced by [QwtPlotZoomer::rescale\(\)](#), [QwtPlotZoomer::setAxis\(\)](#), and [QwtPlotZoomer::setZoomBase\(\)](#).

5.56.3.13 void QwtPlotPicker::selected (const QwtArray< QwtDoublePoint > & pa) [signal]

A signal emitting the selected points, at the end of a selection.

Parameters:

pa Selected points

5.56.3.14 void QwtPlotPicker::selected (const QwtDoubleRect & rect) [signal]

A signal emitted in case of [selectionFlags\(\)](#) & RectSelection.

Parameters:

rect Selected rectangle

5.56.3.15 void QwtPlotPicker::selected (const QwtDoublePoint & pos) [signal]

A signal emitted in case of [selectionFlags\(\)](#) & PointSelection.

Parameters:

pos Selected point

Referenced by [end\(\)](#).

5.56.3.16 void QwtPlotPicker::setAxis (int xAxis, int yAxis) [virtual]

Set the x and y axes of the picker

Parameters:

xAxis X axis

yAxis Y axis

Reimplemented in [QwtPlotZoomer](#).

Definition at line 169 of file `qwt_plot_picker.cpp`.

References [plot\(\)](#).

Referenced by [QwtPlotZoomer::setAxis\(\)](#).

5.56.3.17 [QwtText](#) **QwtPlotPicker::trackerText (const QwtDoublePoint & pos) const** [protected, virtual]

Translate a position into a position string.

In case of HLineRubberBand the label is the value of the y position, in case of VLineRubberBand the value of the x position. Otherwise the label contains x and y position separated by a ','.

The format for the double to string conversion is "%.4f".

Parameters:

pos Position

Returns:

Position string

Definition at line 217 of file qwt_plot_picker.cpp.

References [QwtPicker::rubberBand\(\)](#).

5.56.3.18 [QwtText](#) **QwtPlotPicker::trackerText (const QPoint & pos) const** [protected, virtual]

Translate a pixel position into a position string

Parameters:

pos Position in pixel coordinates

Returns:

Position string

Reimplemented from [QwtPicker](#).

Definition at line 200 of file qwt_plot_picker.cpp.

References [invTransform\(\)](#).

5.56.3.19 **QPoint QwtPlotPicker::transform (const QwtDoublePoint & pos) const** [protected]

Translate a point from plot into pixel coordinates

Returns:

Point in pixel coordinates

See also:

[QwtPlotPicker::invTransform\(\)](#)

Definition at line 385 of file qwt_plot_picker.cpp.

References [QwtPlot::canvasMap\(\)](#), [plot\(\)](#), and [QwtScaleMap::transform\(\)](#).

5.56.3.20 **QRect QwtPlotPicker::transform (const QwtDoubleRect & rect) const** [protected]

Translate a rectangle from plot into pixel coordinates

Returns:

Rectangle in pixel coordinates

See also:

[QwtPlotPicker::invTransform\(\)](#)

Definition at line 351 of file qwt_plot_picker.cpp.

References [QwtPlot::canvasMap\(\)](#), [plot\(\)](#), and [QwtScaleMap::transform\(\)](#).

5.56.3.21 int QwtPlotPicker::xAxis () const

Return x axis.

Definition at line 183 of file qwt_plot_picker.cpp.

Referenced by [QwtPlotPicker\(\)](#), [QwtPlotZoomer::rescale\(\)](#), [scaleRect\(\)](#), and [QwtPlotZoomer::setAxis\(\)](#).

5.56.3.22 int QwtPlotPicker::yAxis () const

Return y axis.

Definition at line 189 of file qwt_plot_picker.cpp.

Referenced by [QwtPlotZoomer::rescale\(\)](#), [scaleRect\(\)](#), and [QwtPlotZoomer::setAxis\(\)](#).

5.57 QwtPlotPrintFilter Class Reference

5.57.1 Detailed Description

A base class for plot print filters.

A print filter can be used to customize [QwtPlot::print\(\)](#).

Deprecated

In Qwt 5.0 the design of [QwtPlot](#) allows/recommends writing individual [QwtPlotItems](#), that are not known to [QwtPlotPrintFilter](#). So this concept is outdated and [QwtPlotPrintFilter](#) will be removed/replaced in Qwt 6.x.

Definition at line 30 of file qwt_plot_printfilter.h.

Public Types

- enum [Options](#) {
 PrintMargin = 1,
 PrintTitle = 2,
 PrintLegend = 4,
 PrintGrid = 8,
 PrintCanvasBackground = 16,
 PrintWidgetBackground = 32,
 PrintAll = ~PrintWidgetBackground }

- enum [Item](#) {
 Title,
 Legend,
 Curve,
 CurveSymbol,
 Marker,
 MarkerSymbol,
 MajorGrid,
 MinorGrid,
 CanvasBackground,
 AxisScale,
 AxisTitle,
 WidgetBackground }

Public Member Functions

- [QwtPlotPrintFilter](#) ()
- virtual [~QwtPlotPrintFilter](#) ()
- virtual QColor [color](#) (const QColor &, [Item](#) item) const
- virtual QFont [font](#) (const QFont &, [Item](#) item) const
- void [setOptions](#) (int options)
- int [options](#) () const
- virtual void [apply](#) ([QwtPlot](#) *) const
- virtual void [reset](#) ([QwtPlot](#) *) const
- virtual void [apply](#) ([QwtPlotItem](#) *) const
- virtual void [reset](#) ([QwtPlotItem](#) *) const

5.57.2 Member Enumeration Documentation

5.57.2.1 enum [QwtPlotPrintFilter::Item](#)

Print items.

Definition at line 47 of file qwt_plot_printfilter.h.

5.57.2.2 enum [QwtPlotPrintFilter::Options](#)

Print options.

Definition at line 34 of file qwt_plot_printfilter.h.

5.57.3 Constructor & Destructor Documentation

5.57.3.1 [QwtPlotPrintFilter::QwtPlotPrintFilter](#) () [explicit]

Sets filter options to PrintAll

Definition at line 82 of file qwt_plot_printfilter.cpp.

5.57.3.2 QwtPlotPrintFilter::~~QwtPlotPrintFilter () [virtual]

Destructor.

Definition at line 88 of file qwt_plot_printfilter.cpp.

5.57.4 Member Function Documentation

5.57.4.1 void QwtPlotPrintFilter::apply (QwtPlot *plot) const [virtual]

Change color and fonts of a plot

See also:

[apply](#)

Definition at line 157 of file qwt_plot_printfilter.cpp.

References [QwtPlot::autoReplot\(\)](#), [color\(\)](#), [font\(\)](#), [QwtPlot::setAutoReplot\(\)](#), and [QwtPlot::titleLabel\(\)](#).

Referenced by [QwtPlot::print\(\)](#).

5.57.4.2 QColor QwtPlotPrintFilter::color (const QColor &c, Item item) const [virtual]

Modifies a color for printing.

Parameters:

c Color to be modified

item Type of item where the color belongs

Returns:

Modified color.

In case of `!(QwtPlotPrintFilter::options() & PrintBackground)` MajorGrid is modified to `Qt::darkGray`, MinorGrid to `Qt::gray`. All other colors are returned unmodified.

Definition at line 124 of file qwt_plot_printfilter.cpp.

References [options\(\)](#).

Referenced by [apply\(\)](#).

5.57.4.3 QFont QwtPlotPrintFilter::font (const QFont &f, Item item) const [virtual]

Modifies a font for printing.

Parameters:

f Font to be modified

item Type of item where the font belongs

All fonts are returned unmodified

Definition at line 148 of file qwt_plot_printfilter.cpp.

Referenced by [apply\(\)](#).

5.57.4.4 int QwtPlotPrintFilter::options () const

Get plot print options.

See also:

[setOptions\(\)](#)

Definition at line 108 of file qwt_plot_printfilter.cpp.

Referenced by [color\(\)](#), [QwtPlot::drawItems\(\)](#), [QwtPlot::print\(\)](#), and [QwtPlot::printCanvas\(\)](#).

5.57.4.5 void QwtPlotPrintFilter::reset (QwtPlot *plot) const [virtual]

Reset color and fonts of a plot

See also:

[apply](#)

Definition at line 366 of file qwt_plot_printfilter.cpp.

References [QwtPlot::autoReplot\(\)](#), [QwtPlot::setAutoReplot\(\)](#), [QwtText::setColor\(\)](#), [QwtTextLabel::text\(\)](#), and [QwtPlot::titleLabel\(\)](#).

5.57.4.6 void QwtPlotPrintFilter::setOptions (int options)

Set plot print options.

Parameters:

options Or'd [QwtPlotPrintFilter::Options](#) values

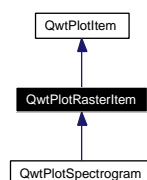
See also:

[options\(\)](#)

Definition at line 99 of file qwt_plot_printfilter.cpp.

5.58 QwtPlotRasterItem Class Reference

Inheritance diagram for QwtPlotRasterItem:



Collaboration diagram for QwtPlotRasterItem:



5.58.1 Detailed Description

A class, which displays raster data.

Raster data is a grid of pixel values, that can be represented as a QImage. It is used for many types of information like spectrograms, cartograms, geographical maps ...

Often a plot has several types of raster data organized in layers. (f.e a geographical map, with weather statistics). Using [setAlpha\(\)](#) raster items can be stacked easily.

[QwtPlotRasterItem](#) is only implemented for images of the following formats: QImage::Format_Indexed8, QImage::Format_ARGB32.

See also:

[QwtPlotSpectrogram](#)

Definition at line 36 of file qwt_plot_rasteritem.h.

Public Types

- enum [CachePolicy](#) {
 NoCache,
 PaintCache,
 ScreenCache }

Public Member Functions

- [QwtPlotRasterItem](#) (const QString &title=QString::null)
- [QwtPlotRasterItem](#) (const [QwtText](#) &title)
- virtual [~QwtPlotRasterItem](#) ()
- void [setAlpha](#) (int alpha)
- int [alpha](#) () const
- void [setCachePolicy](#) ([CachePolicy](#))
- [CachePolicy](#) [cachePolicy](#) () const
- void [invalidateCache](#) ()
- virtual void [draw](#) (QPainter *p, const [QwtScaleMap](#) &xMap, const [QwtScaleMap](#) &yMap, const QRect &rect) const
- virtual QSize [rasterHint](#) (const QwtDoubleRect &) const

Protected Member Functions

- virtual QImage [renderImage](#) (const [QwtScaleMap](#) &xMap, const [QwtScaleMap](#) &yMap, const QwtDoubleRect &area) const =0

5.58.2 Member Enumeration Documentation

5.58.2.1 enum [QwtPlotRasterItem::CachePolicy](#)

- NoCache
[renderImage\(\)](#) is called, whenever the item has to be repainted

- PaintCache

[renderImage\(\)](#) is called, whenever the image cache is not valid, or the scales, or the size of the canvas has changed. This type of cache is only useful for improving the performance of hide/show operations. All other situations are already handled by the plot canvas cache.

- ScreenCache

The screen cache is an image in size of the screen. As long as the scales don't change the target image is scaled from the cache. This might improve the performance when resizing the plot widget, but suffers from scaling effects.

The default policy is NoCache

Definition at line 56 of file qwt_plot_rasteritem.h.

5.58.3 Constructor & Destructor Documentation

5.58.3.1 QwtPlotRasterItem::QwtPlotRasterItem (const QString & title = QString::null) [explicit]

Constructor.

Definition at line 91 of file qwt_plot_rasteritem.cpp.

5.58.3.2 QwtPlotRasterItem::QwtPlotRasterItem (const QwtText & title) [explicit]

Constructor.

Definition at line 98 of file qwt_plot_rasteritem.cpp.

5.58.3.3 QwtPlotRasterItem::~QwtPlotRasterItem () [virtual]

Destructor.

Definition at line 105 of file qwt_plot_rasteritem.cpp.

5.58.4 Member Function Documentation

5.58.4.1 int QwtPlotRasterItem::alpha () const

Returns:

Alpha value of the raster item

See also:

[setAlpha\(\)](#)

Definition at line 163 of file qwt_plot_rasteritem.cpp.

5.58.4.2 QwtPlotRasterItem::CachePolicy QwtPlotRasterItem::cachePolicy () const

Returns:

Cache policy

See also:

[CachePolicy](#), [setCachePolicy\(\)](#)

Definition at line 192 of file `qwt_plot_rasteritem.cpp`.

5.58.4.3 `void QwtPlotRasterItem::draw (QPainter * painter, const QwtScaleMap & xMap, const QwtScaleMap & yMap, const QRect & canvasRect) const` `[virtual]`

Draw the raster data.

Parameters:

painter Painter

xMap X-Scale Map

yMap Y-Scale Map

canvasRect Contents rect of the plot canvas

Implements [QwtPlotItem](#).

Reimplemented in [QwtPlotSpectrogram](#).

Definition at line 229 of file `qwt_plot_rasteritem.cpp`.

References [QwtPlotItem::boundingRect\(\)](#), [QwtPlotItem::invTransform\(\)](#), [QwtPlotItem::paintRect\(\)](#), and [QwtPlotItem::transform\(\)](#).

Referenced by [QwtPlotSpectrogram::draw\(\)](#).

5.58.4.4 `void QwtPlotRasterItem::invalidateCache ()`

Invalidate the paint cache

See also:

[setCachePolicy](#)

Definition at line 201 of file `qwt_plot_rasteritem.cpp`.

Referenced by [setCachePolicy\(\)](#), [QwtPlotSpectrogram::setColorMap\(\)](#), and [QwtPlotSpectrogram::setData\(\)](#).

5.58.4.5 `QSize QwtPlotRasterItem::rasterHint (const QwtDoubleRect &) const` `[virtual]`

Returns the recommended raster for a given rect.

F.e the raster hint can be used to limit the resolution of the image that is rendered.

The default implementation returns an invalid size (`QSize()`), what means: no hint.

Reimplemented in [QwtPlotSpectrogram](#).

Definition at line 217 of file `qwt_plot_rasteritem.cpp`.

5.58.4.6 `virtual QImage QwtPlotRasterItem::renderImage (const QwtScaleMap & xMap, const QwtScaleMap & yMap, const QwtDoubleRect & area) const` `[protected, pure virtual]`

Renders an image for an area

The format of the image must be `QImage::Format_Indexed8`, `QImage::Format_RGB32` or `QImage::Format_ARGB32`

Parameters:

- xMap* Maps x-values into pixel coordinates.
yMap Maps y-values into pixel coordinates.
area Requested area for the image in scale coordinates

Implemented in [QwtPlotSpectrogram](#).

5.58.4.7 void QwtPlotRasterItem::setAlpha (int *alpha*)

Set an alpha value for the raster data.

Often a plot has several types of raster data organized in layers. (f.e a geographical map, with weather statistics). Using [setAlpha\(\)](#) raster items can be stacked easily.

The alpha value is a value [0, 255] to control the transparency of the image. 0 represents a fully transparent color, while 255 represents a fully opaque color.

Parameters:

alpha Alpha value

- $\alpha \geq 0$
All alpha values of the pixels returned by [renderImage\(\)](#) will be set to alpha, beside those with an alpha value of 0 (invalid pixels).
- $\alpha < 0$ The alpha values returned by [renderImage\(\)](#) are not changed.

The default alpha value is -1.

See also:

[alpha\(\)](#)

Definition at line 143 of file `qwt_plot_rasteritem.cpp`.

References `QwtPlotItem::itemChanged()`.

5.58.4.8 void QwtPlotRasterItem::setCachePolicy (QwtPlotRasterItem::CachePolicy *policy*)

Change the cache policy

The default policy is NoCache

Parameters:

policy Cache policy

See also:

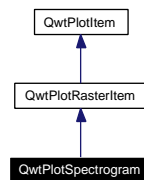
[CachePolicy](#), [cachePolicy\(\)](#)

Definition at line 176 of file `qwt_plot_rasteritem.cpp`.

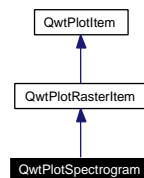
References `invalidateCache()`, and `QwtPlotItem::itemChanged()`.

5.59 QwtPlotSpectrogram Class Reference

Inheritance diagram for QwtPlotSpectrogram:



Collaboration diagram for QwtPlotSpectrogram:



5.59.1 Detailed Description

A plot item, which displays a spectrogram.

A spectrogram displays threedimensional data, where the 3rd dimension (the intensity) is displayed using colors. The colors are calculated from the values using a color map.

In ContourMode contour lines are painted for the contour levels.

See also:

[QwtRasterData](#), [QwtColorMap](#)

Definition at line 35 of file `qwt_plot_spectrogram.h`.

Public Types

- enum [DisplayMode](#) {
 ImageMode = 1,
 ContourMode = 2 }

Public Member Functions

- [QwtPlotSpectrogram](#) (const [QString](#) &title=[QString::null](#))
- virtual [~QwtPlotSpectrogram](#) ()
- void [setDisplayMode](#) ([DisplayMode](#), bool on=true)
- bool [testDisplayMode](#) ([DisplayMode](#)) const
- void [setData](#) (const [QwtRasterData](#) &data)
- const [QwtRasterData](#) & [data](#) () const
- void [setColorMap](#) (const [QwtColorMap](#) &)

- const [QwtColorMap](#) & [colorMap](#) () const
- virtual [QwtDoubleRect](#) [boundingRect](#) () const
- virtual [QSize](#) [rasterHint](#) (const [QwtDoubleRect](#) &) const
- void [setDefaultContourPen](#) (const [QPen](#) &)
- [QPen](#) [defaultContourPen](#) () const
- virtual [QPen](#) [contourPen](#) (double level) const
- void [setConrecAttribute](#) ([QwtRasterData::ConrecAttribute](#), bool on)
- bool [testConrecAttribute](#) ([QwtRasterData::ConrecAttribute](#)) const
- void [setContourLevels](#) (const [QwtValueList](#) &)
- [QwtValueList](#) [contourLevels](#) () const
- virtual int [rtti](#) () const
- virtual void [draw](#) ([QPainter](#) *p, const [QwtScaleMap](#) &xMap, const [QwtScaleMap](#) &yMap, const [QRect](#) &rect) const

Protected Member Functions

- virtual [QImage](#) [renderImage](#) (const [QwtScaleMap](#) &xMap, const [QwtScaleMap](#) &yMap, const [QwtDoubleRect](#) &rect) const
- virtual [QSize](#) [contourRasterSize](#) (const [QwtDoubleRect](#) &, const [QRect](#) &) const
- virtual [QwtRasterData::ContourLines](#) [renderContourLines](#) (const [QwtDoubleRect](#) &rect, const [QSize](#) &raster) const
- virtual void [drawContourLines](#) ([QPainter](#) *p, const [QwtScaleMap](#) &xMap, const [QwtScaleMap](#) &yMap, const [QwtRasterData::ContourLines](#) &lines) const

5.59.2 Member Enumeration Documentation

5.59.2.1 enum [QwtPlotSpectrogram::DisplayMode](#)

The display mode controls how the raster data will be represented.

- [ImageMode](#)
The values are mapped to colors using a color map.
- [ContourMode](#)
The data is displayed using contour lines

When both modes are enabled the contour lines are painted on top of the spectrogram. The default setting enables [ImageMode](#).

See also:

[setDisplayMode\(\)](#), [testDisplayMode\(\)](#)

Definition at line 51 of file `qwt_plot_spectrogram.h`.

5.59.3 Constructor & Destructor Documentation

5.59.3.1 [QwtPlotSpectrogram::QwtPlotSpectrogram](#) (const [QString](#) & *title* = [QString::null](#)) [explicit]

Sets the following item attributes:

- `QwtPlotItem::AutoScale`: true
- `QwtPlotItem::Legend`: false

The z value is initialized by 8.0.

Parameters:

title Title

See also:

[QwtPlotItem::setItemAttribute\(\)](#), [QwtPlotItem::setZ\(\)](#)

Definition at line 134 of file `qwt_plot_spectrogram.cpp`.

References [QwtPlotItem::setItemAttribute\(\)](#), and [QwtPlotItem::setZ\(\)](#).

5.59.3.2 QwtPlotSpectrogram::~~QwtPlotSpectrogram () [virtual]

Destructor.

Definition at line 146 of file `qwt_plot_spectrogram.cpp`.

5.59.4 Member Function Documentation**5.59.4.1 QwtDoubleRect QwtPlotSpectrogram::boundingRect () const [virtual]****Returns:**

Bounding rect of the data

See also:

[QwtRasterData::boundingRect](#)

Reimplemented from [QwtPlotItem](#).

Definition at line 364 of file `qwt_plot_spectrogram.cpp`.

Referenced by `draw()`.

5.59.4.2 const QwtColorMap & QwtPlotSpectrogram::colorMap () const**Returns:**

Color Map used for mapping the intensity values to colors

See also:

[setColorMap\(\)](#)

Definition at line 215 of file `qwt_plot_spectrogram.cpp`.

Referenced by `setColorMap()`.

5.59.4.3 QwtValueList QwtPlotSpectrogram::contourLevels () const

Return the levels of the contour lines.

The levels are sorted in increasing order.

See also:

[contourLevels](#), [renderContourLines](#), [QwtRasterData::contourLines](#)

Definition at line 331 of file qwt_plot_spectrogram.cpp.

5.59.4.4 QPen QwtPlotSpectrogram::contourPen (double *level*) const [virtual]

Calculate the pen for a contour line.

The color of the pen is the color for level calculated by the color map

Parameters:

level Contour level

Returns:

Pen for the contour line

Note:

contourPen is only used if [defaultContourPen\(\).style\(\)](#) == Qt::NoPen

See also:

[setDefaultContourPen](#), [setColorMap](#), [setContourLevels](#)

Definition at line 259 of file qwt_plot_spectrogram.cpp.

Referenced by [drawContourLines\(\)](#).

5.59.4.5 QSize QwtPlotSpectrogram::contourRasterSize (const QwtDoubleRect & *area*, const QRect & *rect*) const [protected, virtual]

Return the raster to be used by the CONREC contour algorithm.

A larger size will improve the precision of the CONREC algorithm, but will slow down the time that is needed to calculate the lines.

The default implementation returns `rect.size() / 2` bounded to [data\(\).rasterHint\(\)](#).

Parameters:

area Rect, where to calculate the contour lines

rect Rect in pixel coordinates, where to paint the contour lines

Returns:

Raster to be used by the CONREC contour algorithm.

Note:

The size will be bounded to `rect.size()`.

See also:

[drawContourLines](#), [QwtRasterData::contourLines](#)

Definition at line 529 of file qwt_plot_spectrogram.cpp.

References rasterHint().

Referenced by draw().

5.59.4.6 const [QwtRasterData](#) & QwtPlotSpectrogram::data () const

Returns:

Spectrogram data

See also:

[setData\(\)](#)

Definition at line 355 of file qwt_plot_spectrogram.cpp.

Referenced by setData().

5.59.4.7 QPen QwtPlotSpectrogram::defaultContourPen () const

Returns:

Default contour pen

See also:

[setDefaultContourPen](#)

Definition at line 243 of file qwt_plot_spectrogram.cpp.

Referenced by drawContourLines().

5.59.4.8 void QwtPlotSpectrogram::draw (QPainter * *painter*, const [QwtScaleMap](#) & *xMap*, const [QwtScaleMap](#) & *yMap*, const QRect & *canvasRect*) const [virtual]

Draw the spectrogram.

Parameters:

painter Painter

xMap Maps x-values into pixel coordinates.

yMap Maps y-values into pixel coordinates.

canvasRect Contents rect of the canvas in painter coordinates

See also:

[setDisplayMode](#), [renderImage](#), [QwtPlotRasterItem::draw](#), [drawContourLines](#)

Reimplemented from [QwtPlotRasterItem](#).

Definition at line 615 of file qwt_plot_spectrogram.cpp.

References boundingRect(), contourRasterSize(), QwtPlotRasterItem::draw(), drawContourLines(), QwtPlotItem::invTransform(), renderContourLines(), and QwtPlotItem::transform().

5.59.4.9 `void QwtPlotSpectrogram::drawContourLines (QPainter * painter, const QwtScaleMap & xMap, const QwtScaleMap & yMap, const QwtRasterData::ContourLines & contourLines) const` `[protected, virtual]`

Paint the contour lines

Parameters:

painter Painter

xMap Maps x-values into pixel coordinates.

yMap Maps y-values into pixel coordinates.

contourLines Contour lines

See also:

[renderContourLines](#), [defaultContourPen](#), [contourPen](#)

Definition at line 566 of file `qwt_plot_spectrogram.cpp`.

References [contourPen\(\)](#), [defaultContourPen\(\)](#), [QwtPainter::drawLine\(\)](#), and [QwtScaleMap::transform\(\)](#).

Referenced by [draw\(\)](#).

5.59.4.10 `QSize QwtPlotSpectrogram::rasterHint (const QwtDoubleRect & rect) const` `[virtual]`

Returns the recommended raster for a given rect.

E.g. the raster hint is used to limit the resolution of the image that is rendered.

Parameters:

rect Rect for the raster hint

Returns:

[data\(\)](#).[rasterHint\(rect\)](#)

Reimplemented from [QwtPlotRasterItem](#).

Definition at line 378 of file `qwt_plot_spectrogram.cpp`.

Referenced by [contourRasterSize\(\)](#).

5.59.4.11 `QwtRasterData::ContourLines QwtPlotSpectrogram::renderContourLines (const QwtDoubleRect & rect, const QSize & raster) const` `[protected, virtual]`

Calculate contour lines

Parameters:

rect Rectangle, where to calculate the contour lines

raster Raster, used by the CONREC algorithm

See also:

[contourLevels](#), [setConrecAttribute](#), [QwtRasterData::contourLines](#)

Definition at line 549 of file `qwt_plot_spectrogram.cpp`.

Referenced by [draw\(\)](#).

5.59.4.12 QImage QwtPlotSpectrogram::renderImage (const QwtScaleMap & *xMap*, const QwtScaleMap & *yMap*, const QwtDoubleRect & *area*) const [protected, virtual]

Render an image from the data and color map.

The area is translated into a rect of the paint device. For each pixel of this rect the intensity is mapped into a color.

Parameters:

xMap X-Scale Map

yMap Y-Scale Map

area Area that should be rendered in scale coordinates.

Returns:

A QImage::Format_Indexed8 or QImage::Format_ARGB32 depending on the color map.

See also:

QwtRasterData::intensity(), QwtColorMap::rgb(), QwtColorMap::colorIndex()

Implements [QwtPlotRasterItem](#).

Definition at line 400 of file qwt_plot_spectrogram.cpp.

References [QwtScaleMap::p1\(\)](#), [QwtScaleMap::p2\(\)](#), [QwtScaleMap::s1\(\)](#), [QwtScaleMap::s2\(\)](#), [QwtScaleMap::setPaintInterval\(\)](#), [QwtScaleMap::setScaleInterval\(\)](#), and [QwtPlotItem::transform\(\)](#).

5.59.4.13 int QwtPlotSpectrogram::rtti () const [virtual]

Returns:

QwtPlotItem::Rtti_PlotSpectrogram

Reimplemented from [QwtPlotItem](#).

Definition at line 152 of file qwt_plot_spectrogram.cpp.

5.59.4.14 void QwtPlotSpectrogram::setColorMap (const QwtColorMap & *colorMap*)

Change the color map

Often it is useful to display the mapping between intensities and colors as an additional plot axis, showing a color bar.

Parameters:

colorMap Color Map

See also:

[colorMap\(\)](#), [QwtScaleWidget::setColorBarEnabled\(\)](#), [QwtScaleWidget::setColorMap\(\)](#)

Definition at line 202 of file qwt_plot_spectrogram.cpp.

References [colorMap\(\)](#), [QwtColorMap::copy\(\)](#), [QwtPlotRasterItem::invalidateCache\(\)](#), and [QwtPlotItem::itemChanged\(\)](#).

5.59.4.15 void QwtPlotSpectrogram::setConrecAttribute ([QwtRasterData::ConrecAttribute](#) *attribute*, bool *on*)

Modify an attribute of the CONREC algorithm, used to calculate the contour lines.

Parameters:

attribute CONREC attribute

on On/Off

See also:

[testConrecAttribute](#), [renderContourLines](#), [QwtRasterData::contourLines](#)

Definition at line 276 of file `qwt_plot_spectrogram.cpp`.

References [QwtPlotItem::itemChanged\(\)](#).

5.59.4.16 void QwtPlotSpectrogram::setContourLevels (const [QwtValueList](#) & *levels*)

Set the levels of the contour lines

Parameters:

levels Values of the contour levels

See also:

[contourLevels](#), [renderContourLines](#), [QwtRasterData::contourLines](#)

Note:

`contourLevels` returns the same levels but sorted.

Definition at line 313 of file `qwt_plot_spectrogram.cpp`.

References [QwtPlotItem::itemChanged\(\)](#).

5.59.4.17 void QwtPlotSpectrogram::setData (const [QwtRasterData](#) & *data*)

Set the data to be displayed

Parameters:

data Spectrogram Data

See also:

[data\(\)](#)

Definition at line 342 of file `qwt_plot_spectrogram.cpp`.

References [QwtRasterData::copy\(\)](#), [data\(\)](#), [QwtPlotRasterItem::invalidateCache\(\)](#), and [QwtPlotItem::itemChanged\(\)](#).

5.59.4.18 void QwtPlotSpectrogram::setDefaultContourPen (const [QPen](#) & *pen*)

Set the default pen for the contour lines.

If the spectrogram has a valid default contour pen a contour line is painted using the default contour pen. Otherwise (`pen.style() == Qt::NoPen`) the pen is calculated for each contour level using [contourPen\(\)](#).

See also:

[defaultContourPen](#), [contourPen](#)

Definition at line 230 of file qwt_plot_spectrogram.cpp.

References [QwtPlotItem::itemChanged\(\)](#).

5.59.4.19 void QwtPlotSpectrogram::setDisplayMode ([DisplayMode](#) mode, bool on = true)

The display mode controls how the raster data will be represented.

Parameters:

mode Display mode

on On/Off

The default setting enables ImageMode.

See also:

[DisplayMode](#), [displayMode\(\)](#)

Definition at line 167 of file qwt_plot_spectrogram.cpp.

References [QwtPlotItem::itemChanged\(\)](#).

5.59.4.20 bool QwtPlotSpectrogram::testConrecAttribute ([QwtRasterData::ConrecAttribute](#) attribute) const

Test an attribute of the CONREC algorithm, used to calculate the contour lines.

Parameters:

attribute CONREC attribute

Returns:

true, is enabled

See also:

[setConrecAttribute](#), [renderContourLines](#), [QwtRasterData::contourLines](#)

Definition at line 299 of file qwt_plot_spectrogram.cpp.

5.59.4.21 bool QwtPlotSpectrogram::testDisplayMode ([DisplayMode](#) mode) const

The display mode controls how the raster data will be represented.

Parameters:

mode Display mode

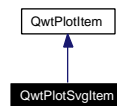
Returns:

true if mode is enabled

Definition at line 186 of file qwt_plot_spectrogram.cpp.

5.60 QwtPlotSvgItem Class Reference

Inheritance diagram for QwtPlotSvgItem:



Collaboration diagram for QwtPlotSvgItem:



5.60.1 Detailed Description

A plot item, which displays data in Scalable Vector Graphics (SVG) format.

SVG images are often used to display maps

Definition at line 31 of file qwt_plot_svgitem.h.

Public Member Functions

- [QwtPlotSvgItem](#) (const QString &title=QString::null)
- [QwtPlotSvgItem](#) (const [QwtText](#) &title)
- virtual [~QwtPlotSvgItem](#) ()
- bool [loadFile](#) (const QwtDoubleRect &, const QString &fileName)
- bool [loadData](#) (const QwtDoubleRect &, const QByteArray &)
- virtual QwtDoubleRect [boundingRect](#) () const
- virtual void [draw](#) (QPainter *p, const [QwtScaleMap](#) &xMap, const [QwtScaleMap](#) &yMap, const QRect &rect) const
- virtual int [rtti](#) () const

Protected Member Functions

- void [render](#) (QPainter *painter, const QwtDoubleRect &viewBox, const QRect &rect) const
- QwtDoubleRect [viewBox](#) (const QwtDoubleRect &area) const

5.60.2 Constructor & Destructor Documentation

5.60.2.1 QwtPlotSvgItem::QwtPlotSvgItem (const QString & title = QString::null) [explicit]

Constructor.

Sets the following item attributes:

- QwtPlotItem::AutoScale: true

- QwtPlotItem::Legend: false

Parameters:

title Title

Definition at line 51 of file qwt_plot_svgitem.cpp.

5.60.2.2 QwtPlotSvgItem::QwtPlotSvgItem (const [QwtText](#) & *title*) [explicit]

Constructor.

Sets the following item attributes:

- QwtPlotItem::AutoScale: true
- QwtPlotItem::Legend: false

Parameters:

title Title

Definition at line 66 of file qwt_plot_svgitem.cpp.

5.60.2.3 QwtPlotSvgItem::~QwtPlotSvgItem () [virtual]

Destructor.

Definition at line 73 of file qwt_plot_svgitem.cpp.

5.60.3 Member Function Documentation**5.60.3.1 QwtDoubleRect QwtPlotSvgItem::boundingRect () const** [virtual]

Bounding rect of the item.

Reimplemented from [QwtPlotItem](#).

Definition at line 142 of file qwt_plot_svgitem.cpp.

Referenced by draw(), and viewBox().

5.60.3.2 void QwtPlotSvgItem::draw (QPainter * *painter*, const [QwtScaleMap](#) & *xMap*, const [QwtScaleMap](#) & *yMap*, const QRect & *canvasRect*) const [virtual]

Draw the SVG item

Parameters:

painter Painter

xMap X-Scale Map

yMap Y-Scale Map

canvasRect Contents rect of the plot canvas

Implements [QwtPlotItem](#).

Definition at line 170 of file qwt_plot_svgitem.cpp.

References boundingRect(), QwtPlotItem::invTransform(), render(), QwtPlotItem::transform(), and viewBox().

5.60.3.3 bool QwtPlotSvgItem::loadData (const QwtDoubleRect & *rect*, const QByteArray & *data*)

Load SVG data

Parameters:

rect Bounding rectangle

data in SVG format

Returns:

true, if the SVG data could be loaded

Definition at line 123 of file qwt_plot_svgitem.cpp.

References QwtPlotItem::itemChanged().

5.60.3.4 bool QwtPlotSvgItem::loadFile (const QwtDoubleRect & *rect*, const QString & *fileName*)

Load a SVG file

Parameters:

rect Bounding rectangle

fileName SVG file name

Returns:

true, if the SVG file could be loaded

Definition at line 102 of file qwt_plot_svgitem.cpp.

References QwtPlotItem::itemChanged().

5.60.3.5 void QwtPlotSvgItem::render (QPainter * *painter*, const QwtDoubleRect & *viewBox*, const QRect & *rect*) const [protected]

Render the SVG data

Parameters:

painter Painter

viewBox View Box, see QSvgRenderer::viewBox

rect Target rectangle on the paint device

Definition at line 194 of file qwt_plot_svgitem.cpp.

Referenced by draw().

5.60.3.6 int QwtPlotSvgItem::rtti () const [virtual]

Returns:

QwtPlotItem::Rtti_PlotSVG

Reimplemented from [QwtPlotItem](#).

Definition at line 89 of file qwt_plot_svgitem.cpp.

5.60.3.7 QwtDoubleRect QwtPlotSvgItem::viewBox (const QwtDoubleRect & *rect*) const [protected]

Calculate the viewBox from an rect and [boundingRect\(\)](#).

Parameters:

rect Rectangle in scale coordinates

Returns:

viewBox View Box, see [QSvgRenderer::viewBox](#)

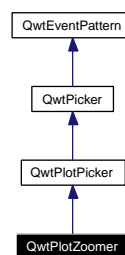
Definition at line 254 of file `qwt_plot_svgitem.cpp`.

References [boundingRect\(\)](#), [QwtScaleMap::setPaintInterval\(\)](#), [QwtScaleMap::setScaleInterval\(\)](#), and [QwtScaleMap::xTransform\(\)](#).

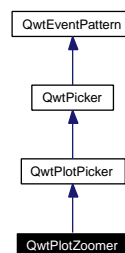
Referenced by [draw\(\)](#).

5.61 QwtPlotZoomer Class Reference

Inheritance diagram for QwtPlotZoomer:



Collaboration diagram for QwtPlotZoomer:



5.61.1 Detailed Description

[QwtPlotZoomer](#) provides stacked zooming for a plot widget.

[QwtPlotZoomer](#) offers rubberband selections on the plot canvas, translating the selected rectangles into plot coordinates and adjusting the axes to them. Zooming can repeated as often as possible, limited only by [maxStackDepth\(\)](#) or [minZoomSize\(\)](#). Each rectangle is pushed on a stack.

Zoom rectangles can be selected depending on [selectionFlags\(\)](#) using the mouse or keyboard ([QwtEventPattern](#), [QwtPickerMachine](#)). [QwtEventPattern::MouseSelect3/QwtEventPatternKeyUndo](#), or [QwtEventPattern::MouseSelect6/QwtEventPatternKeyRedo](#) walk up and down the zoom stack. [QwtEventPattern::MouseSelect2](#) or [QwtEventPattern::KeyHome](#) unzoom to the initial size.

[QwtPlotZoomer](#) is tailored for plots with one x and y axis, but it is allowed to attach a second [QwtPlotZoomer](#) for the other axes.

Note:

The realtime example includes an derived zoomer class that adds scrollbars to the plot canvas.

Definition at line 49 of file `qwt_plot_zoomer.h`.

Public Slots

- void [moveBy](#) (double x, double y)
- virtual void [move](#) (double x, double y)
- virtual void [zoom](#) (const QwtDoubleRect &)
- virtual void [zoom](#) (int up)

Signals

- void [zoomed](#) (const QwtDoubleRect &rect)

Public Member Functions

- [QwtPlotZoomer](#) ([QwtPlotCanvas](#) *, bool doReplot=true)
- [QwtPlotZoomer](#) (int xAxis, int yAxis, [QwtPlotCanvas](#) *, bool doReplot=true)
- [QwtPlotZoomer](#) (int xAxis, int yAxis, int selectionFlags, [DisplayMode](#) trackerMode, [QwtPlotCanvas](#) *, bool doReplot=true)
- virtual [~QwtPlotZoomer](#) ()
- virtual void [setZoomBase](#) ()
- virtual void [setZoomBase](#) (const QwtDoubleRect &)
- QwtDoubleRect [zoomBase](#) () const
- QwtDoubleRect [zoomRect](#) () const
- virtual void [setAxis](#) (int xAxis, int yAxis)
- void [setMaxStackDepth](#) (int)
- int [maxStackDepth](#) () const
- const QStack< QwtDoubleRect > & [zoomStack](#) () const
- uint [zoomRectIndex](#) () const
- virtual void [setSelectionFlags](#) (int)

Protected Member Functions

- virtual void [rescale](#) ()
- virtual QwtDoubleSize [minZoomSize](#) () const
- virtual void [widgetMouseReleaseEvent](#) (QMouseEvent *)
- virtual void [widgetKeyPressEvent](#) (QKeyEvent *)
- virtual void [begin](#) ()
- virtual bool [end](#) (bool ok=true)
- virtual bool [accept](#) (QwtPolygon &) const

5.61.2 Constructor & Destructor Documentation

5.61.2.1 QwtPlotZoomer::QwtPlotZoomer (QwtPlotCanvas * *canvas*, bool *doReplot* = true) [explicit]

Create a zoomer for a plot canvas.

The zoomer is set to those x- and y-axis of the parent plot of the canvas that are enabled. If both or no x-axis are enabled, the picker is set to QwtPlot::xBottom. If both or no y-axis are enabled, it is set to QwtPlot::yLeft.

The [selectionFlags\(\)](#) are set to QwtPicker::RectSelection & QwtPicker::ClickSelection, the tracker mode to QwtPicker::ActiveOnly.

Parameters:

canvas Plot canvas to observe, also the parent object

doReplot Call replot for the attached plot before initializing the zoomer with its scales. This might be necessary, when the plot is in a state with pending scale changes.

See also:

[QwtPlot::autoReplot\(\)](#), [QwtPlot::replot\(\)](#), [QwtPlotPicker::setZoomBase\(\)](#)

Definition at line 51 of file qwt_plot_zoomer.cpp.

References [QwtPlotPicker::canvas\(\)](#).

5.61.2.2 QwtPlotZoomer::QwtPlotZoomer (int *xAxis*, int *yAxis*, QwtPlotCanvas * *canvas*, bool *doReplot* = true) [explicit]

Create a zoomer for a plot canvas.

The [selectionFlags\(\)](#) are set to QwtPicker::RectSelection & QwtPicker::ClickSelection, the tracker mode to QwtPicker::ActiveOnly.

Parameters:

xAxis X axis of the zoomer

yAxis Y axis of the zoomer

canvas Plot canvas to observe, also the parent object

doReplot Call replot for the attached plot before initializing the zoomer with its scales. This might be necessary, when the plot is in a state with pending scale changes.

See also:

[QwtPlot::autoReplot\(\)](#), [QwtPlot::replot\(\)](#), [QwtPlotPicker::setZoomBase\(\)](#)

Definition at line 75 of file qwt_plot_zoomer.cpp.

References [QwtPlotPicker::canvas\(\)](#).

5.61.2.3 QwtPlotZoomer::QwtPlotZoomer (int *xAxis*, int *yAxis*, int *selectionFlags*, [DisplayMode](#) *trackerMode*, QwtPlotCanvas * *canvas*, bool *doReplot* = true) [explicit]

Create a zoomer for a plot canvas.

Parameters:

xAxis X axis of the zoomer

yAxis Y axis of the zoomer

selectionFlags Or'd value of [QwtPicker::RectSelectionType](#) and [QwtPicker::SelectionMode](#). [QwtPicker::RectSelection](#) will be auto added.

trackerMode Tracker mode

canvas Plot canvas to observe, also the parent object

doReplot Call replot for the attached plot before initializing the zoomer with its scales. This might be necessary, when the plot is in a state with pending scale changes.

See also:

[QwtPicker](#), [QwtPicker::setSelectionFlags\(\)](#), [QwtPicker::setRubberBand\(\)](#), [QwtPicker::setTrackerMode](#)
[QwtPlot::autoReplot\(\)](#), [QwtPlot::replot\(\)](#), [setZoomBase\(\)](#)

Definition at line 103 of file `qwt_plot_zoomer.cpp`.

References [QwtPlotPicker::canvas\(\)](#).

5.61.3 Member Function Documentation

5.61.3.1 `bool QwtPlotZoomer::accept (QwtPolygon &pa) const` [protected, virtual]

Check and correct a selected rectangle.

Reject rectangles with a height or width < 2, otherwise expand the selected rectangle to a minimum size of 11x11 and accept it.

Returns:

true If rect is accepted, or has been changed to a accepted rectangle.

Reimplemented from [QwtPicker](#).

Definition at line 497 of file `qwt_plot_zoomer.cpp`.

References [minZoomSize\(\)](#).

5.61.3.2 `void QwtPlotZoomer::begin ()` [protected, virtual]

Rejects selections, when the stack depth is too deep, or the zoomed rectangle is [minZoomSize\(\)](#).

See also:

[minZoomSize\(\)](#), [maxStackDepth\(\)](#)

Reimplemented from [QwtPicker](#).

Definition at line 545 of file `qwt_plot_zoomer.cpp`.

References [minZoomSize\(\)](#).

5.61.3.3 `bool QwtPlotZoomer::end (bool ok = true)` [protected, virtual]

Expand the selected rectangle to [minZoomSize\(\)](#) and zoom in if accepted.

See also:

[QwtPlotZoomer::accept\(\)](#), [QwtPlotZoomer::minZoomSize\(\)](#)

Reimplemented from [QwtPlotPicker](#).

Definition at line 575 of file qwt_plot_zoomer.cpp.

References [QwtPlotPicker::end\(\)](#), [QwtPlotPicker::invTransform\(\)](#), [minZoomSize\(\)](#), [QwtPlotPicker::plot\(\)](#), [QwtPicker::selection\(\)](#), [zoom\(\)](#), and [zoomRect\(\)](#).

5.61.3.4 int QwtPlotZoomer::maxStackDepth () const

Returns:

Maximal depth of the zoom stack.

See also:

[setMaxStackDepth\(\)](#)

Definition at line 172 of file qwt_plot_zoomer.cpp.

5.61.3.5 QwtDoubleSize QwtPlotZoomer::minZoomSize () const [protected, virtual]

Limit zooming by a minimum rectangle.

Returns:

[zoomBase\(\).width\(\)](#) / 10e4, [zoomBase\(\).height\(\)](#) / 10e4

Definition at line 531 of file qwt_plot_zoomer.cpp.

Referenced by [accept\(\)](#), [begin\(\)](#), and [end\(\)](#).

5.61.3.6 void QwtPlotZoomer::move (double x, double y) [virtual, slot]

Move the the current zoom rectangle.

Parameters:

x X value

y Y value

See also:

[QwtDoubleRect::move](#)

Note:

The changed rectangle is limited by the zoom base

Definition at line 467 of file qwt_plot_zoomer.cpp.

References [rescale\(\)](#), [zoomBase\(\)](#), and [zoomRect\(\)](#).

Referenced by [moveBy\(\)](#).

5.61.3.7 void QwtPlotZoomer::moveBy (double dx, double dy) [slot]

Move the current zoom rectangle.

Parameters:

dx X offset

dy Y offset

Note:

The changed rectangle is limited by the zoom base

Definition at line 452 of file qwt_plot_zoomer.cpp.

References [move\(\)](#).

5.61.3.8 void QwtPlotZoomer::rescale () [protected, virtual]

Adjust the observed plot to [zoomRect\(\)](#)

Note:

Initiates [QwtPlot::replot](#)

Definition at line 343 of file qwt_plot_zoomer.cpp.

References [QwtPlot::autoReplot\(\)](#), [QwtPlot::axisScaleDiv\(\)](#), [QwtScaleDiv::hBound\(\)](#), [QwtScaleDiv::lBound\(\)](#), [QwtPlotPicker::plot\(\)](#), [QwtPlotPicker::scaleRect\(\)](#), [QwtPlot::setAutoReplot\(\)](#), [QwtPlot::setAxisScale\(\)](#), [QwtPlotPicker::xAxis\(\)](#), and [QwtPlotPicker::yAxis\(\)](#).

Referenced by [move\(\)](#), [setZoomBase\(\)](#), and [zoom\(\)](#).

5.61.3.9 void QwtPlotZoomer::setAxis (int xAxis, int yAxis) [virtual]

Reinitialize the axes, and set the zoom base to their scales.

Parameters:

xAxis X axis

yAxis Y axis

Reimplemented from [QwtPlotPicker](#).

Definition at line 387 of file qwt_plot_zoomer.cpp.

References [QwtPlotPicker::scaleRect\(\)](#), [QwtPlotPicker::setAxis\(\)](#), [setZoomBase\(\)](#), [QwtPlotPicker::xAxis\(\)](#), and [QwtPlotPicker::yAxis\(\)](#).

5.61.3.10 void QwtPlotZoomer::setMaxStackDepth (int depth)

Limit the number of recursive zoom operations to depth.

A value of -1 set the depth to unlimited, 0 disables zooming. If the current zoom rectangle is below depth, the plot is unzoomed.

Parameters:

depth Maximum for the stack depth

See also:

[maxStackDepth\(\)](#)

Note:

depth doesn't include the zoom base, so [zoomStack\(\).count\(\)](#) might be [maxStackDepth\(\)](#) + 1.

Definition at line 145 of file qwt_plot_zoomer.cpp.

References [zoom\(\)](#).

5.61.3.11 void QwtPlotZoomer::setSelectionFlags (int *flags*) [virtual]

Set the selection flags

Parameters:

flags Or'd value of [QwtPicker::RectSelectionType](#) and [QwtPicker::SelectionMode](#). The default value is [QwtPicker::RectSelection](#) & [QwtPicker::ClickSelection](#).

See also:

[selectionFlags\(\)](#), [SelectionType](#), [RectSelectionType](#), [SelectionMode](#)

Note:

[QwtPicker::RectSelection](#) will be auto added.

Reimplemented from [QwtPicker](#).

Definition at line 619 of file `qwt_plot_zoomer.cpp`.

References [QwtPicker::setSelectionFlags\(\)](#).

5.61.3.12 void QwtPlotZoomer::setZoomBase (const QwtDoubleRect & *base*) [virtual]

Set the initial size of the zoomer.

base is united with the current [scaleRect\(\)](#) and the zoom stack is reinitialized with it as zoom base. plot is zoomed to [scaleRect\(\)](#).

Parameters:

base Zoom base

See also:

[zoomBase\(\)](#), [scaleRect\(\)](#)

Definition at line 231 of file `qwt_plot_zoomer.cpp`.

References [QwtPlotPicker::plot\(\)](#), [rescale\(\)](#), and [QwtPlotPicker::scaleRect\(\)](#).

5.61.3.13 void QwtPlotZoomer::setZoomBase () [virtual]

Reinitialized the zoom stack with [scaleRect\(\)](#) as base.

See also:

[zoomBase\(\)](#), [scaleRect\(\)](#)

Warning:

Calling [QwtPlot::setAxisScale\(\)](#) while [QwtPlot::autoReplot\(\)](#) is false leaves the axis in an 'intermediate' state. In this case, to prevent buggy behaviour, you must call [QwtPlot::replot\(\)](#) before calling [QwtPlotZoomer::setZoomBase\(\)](#). This quirk will be removed in a future release.

See also:

[QwtPlot::autoReplot\(\)](#), [QwtPlot::replot\(\)](#).

Definition at line 208 of file `qwt_plot_zoomer.cpp`.

References [QwtPlotPicker::plot\(\)](#), [rescale\(\)](#), and [QwtPlotPicker::scaleRect\(\)](#).

Referenced by [setAxis\(\)](#).

5.61.3.14 void QwtPlotZoomer::widgetKeyPressEvent (QKeyEvent * *ke*) [protected, virtual]

Qt::Key_Plus zooms out, Qt::Key_Minus zooms in one position on the zoom stack, Qt::Key_Escape zooms out to the zoom base.

Changes the current position on the stack, but doesn't pop any rectangle.

Note:

The keys codes can be changed, using [QwtEventPattern::setKeyPattern](#): 3, 4, 5

Reimplemented from [QwtPicker](#).

Definition at line 429 of file qwt_plot_zoomer.cpp.

References [QwtPicker::isActive\(\)](#), [QwtEventPattern::keyMatch\(\)](#), [QwtPicker::widgetKeyPressEvent\(\)](#), and [zoom\(\)](#).

5.61.3.15 void QwtPlotZoomer::widgetMouseReleaseEvent (QMouseEvent * *me*) [protected, virtual]

Qt::MidButton zooms out one position on the zoom stack, Qt::RightButton to the zoom base.

Changes the current position on the stack, but doesn't pop any rectangle.

Note:

The mouse events can be changed, using [QwtEventPattern::setMousePattern](#): 2, 1

Reimplemented from [QwtPicker](#).

Definition at line 406 of file qwt_plot_zoomer.cpp.

References [QwtEventPattern::mouseMatch\(\)](#), [QwtPicker::widgetMouseReleaseEvent\(\)](#), and [zoom\(\)](#).

5.61.3.16 void QwtPlotZoomer::zoom (int *offset*) [virtual, slot]

Zoom in or out.

Activate a rectangle on the zoom stack with an offset relative to the current position. Negative values of offset will zoom out, positive zoom in. A value of 0 zooms out to the zoom base.

Parameters:

offset Offset relative to the current position of the zoom stack.

Note:

The zoomed signal is emitted.

See also:

[zoomRectIndex\(\)](#)

Definition at line 319 of file qwt_plot_zoomer.cpp.

References [rescale\(\)](#), [zoomed\(\)](#), and [zoomRect\(\)](#).

5.61.3.17 void QwtPlotZoomer::zoom (const QwtDoubleRect & rect) [virtual, slot]

Zoom in.

Clears all rectangles above the current position of the zoom stack and pushes the intersection of [zoomRect\(\)](#) and the normalized rect on it.

Note:

If the maximal stack depth is reached, zoom is ignored.
The zoomed signal is emitted.

Definition at line 282 of file qwt_plot_zoomer.cpp.

References [rescale\(\)](#), [zoomed\(\)](#), and [zoomRect\(\)](#).

Referenced by [end\(\)](#), [setMaxStackDepth\(\)](#), [widgetKeyPressEvent\(\)](#), and [widgetMouseReleaseEvent\(\)](#).

5.61.3.18 QwtDoubleRect QwtPlotZoomer::zoomBase () const**Returns:**

Initial rectangle of the zoomer

See also:

[setZoomBase\(\)](#), [zoomRect\(\)](#)

Definition at line 190 of file qwt_plot_zoomer.cpp.

Referenced by [move\(\)](#).

5.61.3.19 void QwtPlotZoomer::zoomed (const QwtDoubleRect & rect) [signal]

A signal emitting the [zoomRect\(\)](#), when the plot has been zoomed in or out.

Parameters:

rect Current zoom rectangle.

Referenced by [zoom\(\)](#).

5.61.3.20 QwtDoubleRect QwtPlotZoomer::zoomRect () const

Rectangle at the current position on the zoom stack.

See also:

[QwtPlotZoomer::zoomRectIndex\(\)](#), [QwtPlotZoomer::scaleRect\(\)](#).

Definition at line 258 of file qwt_plot_zoomer.cpp.

Referenced by [end\(\)](#), [move\(\)](#), and [zoom\(\)](#).

5.61.3.21 uint QwtPlotZoomer::zoomRectIndex () const**Returns:**

Index of current position of zoom stack.

Definition at line 266 of file qwt_plot_zoomer.cpp.

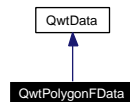
5.61.3.22 const QwtZoomStack & QwtPlotZoomer::zoomStack () const

Return the zoom stack. [zoomStack\(\)\[0\]](#) is the zoom base, [zoomStack\(\)\[1\]](#) the first zoomed rectangle.

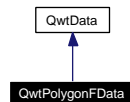
Definition at line 181 of file `qwt_plot_zoomer.cpp`.

5.62 QwtPolygonFData Class Reference

Inheritance diagram for QwtPolygonFData:



Collaboration diagram for QwtPolygonFData:



5.62.1 Detailed Description

Data class containing a single `QwtArray<QwtDoublePoint>` object.

Definition at line 85 of file `qwt_data.h`.

Public Member Functions

- [QwtPolygonFData](#) (const QPolygonF &)
- [QwtPolygonFData & operator=](#) (const [QwtPolygonFData](#) &)
- virtual [QwtData](#) * [copy](#) () const
- virtual size_t [size](#) () const
- virtual double [x](#) (size_t i) const
- virtual double [y](#) (size_t i) const
- const QPolygonF & [data](#) () const

5.62.2 Constructor & Destructor Documentation

5.62.2.1 QwtPolygonFData::QwtPolygonFData (const QPolygonF & *polygon*)

Constructor

Parameters:

polygon Polygon data

See also:

[QwtPlotCurve::setData\(\)](#)

Definition at line 69 of file `qwt_data.cpp`.

Referenced by `copy()`.

5.62.3 Member Function Documentation

5.62.3.1 [QwtData](#) * QwtPolygonFData::copy () const [virtual]

Returns:

Pointer to a copy (virtual copy constructor)

Implements [QwtData](#).

Definition at line 128 of file qwt_data.cpp.

References [QwtSpline::d_data](#), and [QwtPolygonFData\(\)](#).

5.62.3.2 [QwtPolygonFData](#) & QwtPolygonFData::operator= (const [QwtPolygonFData](#) &)

Assignment.

Definition at line 78 of file qwt_data.cpp.

References [QwtSpline::d_data](#), and [data\(\)](#).

5.62.3.3 size_t QwtPolygonFData::size () const [virtual]

Returns:

Size of the data set

Implements [QwtData](#).

Definition at line 89 of file qwt_data.cpp.

References [QwtSpline::d_data](#).

5.62.3.4 double QwtPolygonFData::x (size_t *i*) const [virtual]

Return the x value of data point *i*

Parameters:

i Index

Returns:

x X value of data point *i*

Implements [QwtData](#).

Definition at line 100 of file qwt_data.cpp.

References [QwtSpline::d_data](#).

5.62.3.5 double QwtPolygonFData::y (size_t *i*) const [virtual]

Return the y value of data point *i*

Parameters:

i Index

Returns:

y Y value of data point *i*

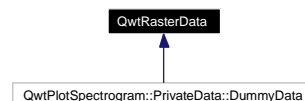
Implements [QwtData](#).

Definition at line 111 of file qwt_data.cpp.

References [QwtSpline::d_data](#).

5.63 QwtRasterData Class Reference

Inheritance diagram for QwtRasterData:



5.63.1 Detailed Description

[QwtRasterData](#) defines an interface to any type of raster data.

Definition at line 53 of file qwt_raster_data.h.

Public Types

- typedef QMap< double, QPolygonF > [ContourLines](#)
- enum [ConrecAttribute](#) {
 [IgnoreAllVerticesOnLevel](#) = 1,
 [IgnoreOutOfRange](#) = 2 }

Public Member Functions

- [QwtRasterData](#) ()
- [QwtRasterData](#) (const QwtDoubleRect &)
- virtual [~QwtRasterData](#) ()
- virtual [QwtRasterData](#) * [copy](#) () const =0
- virtual void [setBoundingRect](#) (const QwtDoubleRect &)
- QwtDoubleRect [boundingRect](#) () const
- virtual QSize [rasterHint](#) (const QwtDoubleRect &) const
- virtual void [initRaster](#) (const QwtDoubleRect &, const QSize &raster)
- virtual void [discardRaster](#) ()
- virtual double [value](#) (double x, double y) const =0
- virtual [QwtDoubleInterval](#) [range](#) () const =0
- virtual [ContourLines](#) [contourLines](#) (const QwtDoubleRect &rect, const QSize &raster, const QList< double > &levels, int flags) const

5.63.2 Member Function Documentation

5.63.2.1 [QwtRasterData::ContourLines](#) [QwtRasterData::contourLines](#) (const QwtDoubleRect &rect, const QSize &raster, const QList< double > &levels, int flags) const [virtual]

Calculate contour lines

An adaption of CONREC, a simple contouring algorithm. <http://astronomy.swin.edu.au/~pbourke/projecti>

Definition at line 270 of file qwt_raster_data.cpp.

References QwtDoubleInterval::isValid().

5.63.2.2 virtual QwtRasterData* QwtRasterData::copy() const [pure virtual]

Clone the data.

Referenced by QwtPlotSpectrogram::setData().

5.63.2.3 void QwtRasterData::discardRaster() [virtual]

Discard a raster.

After the composition of an image QwtPlotSpectrogram calls discardRaster().

The default implementation does nothing, but if data has been loaded in initRaster(), it could be deleted now.

See also:

[initRaster\(\)](#), [value\(\)](#)

Definition at line 236 of file qwt_raster_data.cpp.

5.63.2.4 void QwtRasterData::initRaster(const QwtDoubleRect &, const QSize & raster) [virtual]

Initialize a raster.

Before the composition of an image QwtPlotSpectrogram calls initRaster, announcing the area and its resolution that will be requested.

The default implementation does nothing, but for data sets that are stored in files, it might be a good idea to reimplement initRaster, where the data is resampled and loaded into memory.

Parameters:

rect Area of the raster

raster Number of horizontal and vertical pixels

See also:

[initRaster\(\)](#), [value\(\)](#)

Definition at line 222 of file qwt_raster_data.cpp.

5.63.2.5 virtual QwtDoubleInterval QwtRasterData::range() const [pure virtual]

Returns:

the range of the values

5.63.2.6 QSize QwtRasterData::rasterHint(const QwtDoubleRect &) const [virtual]

Find the raster of the data for an area.

The resolution is the number of horizontal and vertical pixels that the data can return for an area. An invalid resolution indicates that the data can return values for any detail level.

The resolution will limit the size of the image that is rendered from the data. F.e. this might be important when printing a spectrogram to a A0 printer with 600 dpi.

The default implementation returns an invalid resolution (size)

Parameters:

rect In most implementations the resolution of the data doesn't depend on the requested rectangle.

Returns:

Resolution, as number of horizontal and vertical pixels

Definition at line 258 of file qwt_raster_data.cpp.

5.63.2.7 virtual double QwtRasterData::value (double x, double y) const [pure virtual]**Returns:**

the value at a raster position

5.64 QwtRect Class Reference

5.64.1 Detailed Description

Some extensions for QRect.

Definition at line 21 of file qwt_rect.h.

Public Member Functions

- [QwtRect](#) ()
- [QwtRect](#) (const QRect &r)
- QwtPolygon [clip](#) (const QwtPolygon &) const

5.64.2 Constructor & Destructor Documentation

5.64.2.1 QwtRect::QwtRect ()

Constructor.

Definition at line 15 of file qwt_rect.cpp.

5.64.2.2 QwtRect::QwtRect (const QRect &r)

Copy constructor.

Definition at line 21 of file qwt_rect.cpp.

5.64.3 Member Function Documentation

5.64.3.1 QwtPolygon QwtRect::clip (const QwtPolygon &) const

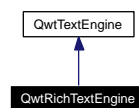
Sutherland-Hodgman polygon clipping.

Definition at line 36 of file qwt_rect.cpp.

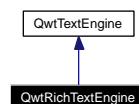
Referenced by QwtPainter::clip().

5.65 QwtRichTextEngine Class Reference

Inheritance diagram for QwtRichTextEngine:



Collaboration diagram for QwtRichTextEngine:



5.65.1 Detailed Description

A text engine for Qt rich texts.

[QwtRichTextEngine](#) renders Qt rich texts using the classes of the Scribe framework of Qt.

Definition at line 150 of file qwt_text_engine.h.

Public Member Functions

- [QwtRichTextEngine](#) ()
- virtual int [heightForWidth](#) (const QFont &font, int flags, const QString &text, int width) const
- virtual QSize [textSize](#) (const QFont &font, int flags, const QString &text) const
- virtual void [draw](#) (QPainter *painter, const QRect &rect, int flags, const QString &text) const
- virtual bool [mightRender](#) (const QString &) const
- virtual void [textMargins](#) (const QFont &, const QString &, int &left, int &right, int &top, int &bottom) const

5.65.2 Constructor & Destructor Documentation

5.65.2.1 QwtRichTextEngine::QwtRichTextEngine ()

Constructor.

Definition at line 231 of file qwt_text_engine.cpp.

5.65.3 Member Function Documentation

5.65.3.1 `void QwtRichTextEngine::draw (QPainter * painter, const QRect & rect, int flags, const QString & text) const` [virtual]

Draw the text in a clipping rectangle

Parameters:

painter Painter

rect Clipping rectangle

flags Bitwise OR of the flags like in for QPainter::drawText

text Text to be rendered

Implements [QwtTextEngine](#).

Definition at line 343 of file qwt_text_engine.cpp.

References [QwtPainter::drawSimpleRichText\(\)](#).

5.65.3.2 `int QwtRichTextEngine::heightForWidth (const QFont & font, int flags, const QString & text, int width) const` [virtual]

Find the height for a given width

Parameters:

font Font of the text

flags Bitwise OR of the flags used like in QPainter::drawText

text Text to be rendered

width Width

Returns:

Calculated height

Implements [QwtTextEngine](#).

Definition at line 245 of file qwt_text_engine.cpp.

5.65.3.3 `bool QwtRichTextEngine::mightRender (const QString & text) const` [virtual]

Test if a string can be rendered by this text engine

Parameters:

text Text to be tested

Returns:

`QStyleSheet::mightBeRichText(text);`

Implements [QwtTextEngine](#).

Definition at line 388 of file qwt_text_engine.cpp.

5.65.3.4 void QwtRichTextEngine::textMargins (const QFont &, const QString &, int & *left*, int & *right*, int & *top*, int & *bottom*) const [virtual]

Return margins around the texts

Parameters:

left Return 0
right Return 0
top Return 0
bottom Return 0

Implements [QwtTextEngine](#).

Definition at line 405 of file qwt_text_engine.cpp.

5.65.3.5 QSize QwtRichTextEngine::textSize (const QFont & *font*, int *flags*, const QString & *text*) const [virtual]

Returns the size, that is needed to render text

Parameters:

font Font of the text
flags Bitwise OR of the flags used like in QPainter::drawText
text Text to be rendered

Returns:

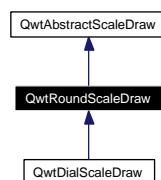
Caluclated size

Implements [QwtTextEngine](#).

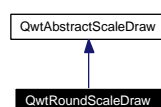
Definition at line 270 of file qwt_text_engine.cpp.

5.66 QwtRoundScaleDraw Class Reference

Inheritance diagram for QwtRoundScaleDraw:



Collaboration diagram for QwtRoundScaleDraw:



5.66.1 Detailed Description

A class for drawing round scales.

[QwtRoundScaleDraw](#) can be used to draw round scales. The circle segment can be adjusted by [QwtRoundScaleDraw::setAngleRange\(\)](#). The geometry of the scale can be specified with [QwtRoundScaleDraw::moveCenter\(\)](#) and [QwtRoundScaleDraw::setRadius\(\)](#).

After a scale division has been specified as a [QwtScaleDiv](#) object using [QwtAbstractScaleDraw::setScaleDiv\(const QwtScaleDiv &s\)](#), the scale can be drawn with the [QwtAbstractScaleDraw::draw\(\)](#) member.

Definition at line 32 of file `qwt_round_scale_draw.h`.

Public Member Functions

- [QwtRoundScaleDraw](#) ()
- [QwtRoundScaleDraw](#) (const [QwtRoundScaleDraw](#) &)
- virtual [~QwtRoundScaleDraw](#) ()
- [QwtRoundScaleDraw](#) & [operator=](#) (const [QwtRoundScaleDraw](#) &other)
- void [setRadius](#) (int radius)
- int [radius](#) () const
- void [moveCenter](#) (int x, int y)
- void [moveCenter](#) (const QPoint &)
- QPoint [center](#) () const
- void [setAngleRange](#) (double angle1, double angle2)
- virtual int [extent](#) (const QPen &, const QFont &) const

Protected Member Functions

- virtual void [drawTick](#) (QPainter *p, double val, int len) const
- virtual void [drawBackbone](#) (QPainter *p) const
- virtual void [drawLabel](#) (QPainter *p, double val) const

5.66.2 Constructor & Destructor Documentation

5.66.2.1 QwtRoundScaleDraw::QwtRoundScaleDraw ()

Constructor.

The range of the scale is initialized to [0, 100], The center is set to (50, 50) with a radius of 50. The angle range is set to [-135, 135].

Definition at line 46 of file `qwt_round_scale_draw.cpp`.

References [QwtAbstractScaleDraw::scaleMap\(\)](#), [QwtScaleMap::setPaintInterval\(\)](#), and [setRadius\(\)](#).

5.66.2.2 QwtRoundScaleDraw::QwtRoundScaleDraw (const [QwtRoundScaleDraw](#) &)

Copy constructor.

Definition at line 55 of file `qwt_round_scale_draw.cpp`.

References `d_data`.

5.66.2.3 QwtRoundScaleDraw::~~QwtRoundScaleDraw () [virtual]

Destructor.

Definition at line 63 of file qwt_round_scale_draw.cpp.

5.66.3 Member Function Documentation

5.66.3.1 QPoint QwtRoundScaleDraw::center () const

Get the center of the scale.

Definition at line 113 of file qwt_round_scale_draw.cpp.

5.66.3.2 void QwtRoundScaleDraw::drawBackbone (QPainter * *painter*) const [protected, virtual]

Draws the baseline of the scale

Parameters:

painter Painter

See also:

[drawTick\(\)](#), [drawLabel\(\)](#)

Implements [QwtAbstractScaleDraw](#).

Definition at line 241 of file qwt_round_scale_draw.cpp.

References [QwtAbstractScaleDraw::map\(\)](#), and [radius\(\)](#).

5.66.3.3 void QwtRoundScaleDraw::drawLabel (QPainter * *painter*, double *value*) const [protected, virtual]

Draws the label for a major scale tick

Parameters:

painter Painter

value Value

See also:

[drawTick\(\)](#), [drawBackbone\(\)](#)

Implements [QwtAbstractScaleDraw](#).

Definition at line 162 of file qwt_round_scale_draw.cpp.

References [QwtText::draw\(\)](#), [QwtAbstractScaleDraw::hasComponent\(\)](#), [QwtText::isEmpty\(\)](#), [QwtAbstractScaleDraw::label\(\)](#), [QwtAbstractScaleDraw::majTickLength\(\)](#), [QwtAbstractScaleDraw::map\(\)](#), [radius\(\)](#), [QwtAbstractScaleDraw::spacing\(\)](#), [QwtText::textSize\(\)](#), [QwtAbstractScaleDraw::tickLabel\(\)](#), and [QwtScaleMap::transform\(\)](#).

5.66.3.4 void QwtRoundScaleDraw::drawTick (QPainter * *painter*, double *value*, int *len*) const [protected, virtual]

Draw a tick

Parameters:

painter Painter
value Value of the tick
len Length of the tick

See also:

[drawBackbone\(\)](#), [drawLabel\(\)](#)

Implements [QwtAbstractScaleDraw](#).

Definition at line 207 of file `qwt_round_scale_draw.cpp`.

References [QwtPainter::drawLine\(\)](#), [QwtAbstractScaleDraw::map\(\)](#), [radius\(\)](#), and [QwtScaleMap::transform\(\)](#).

5.66.3.5 `int QwtRoundScaleDraw::extent (const QPen & pen, const QFont & font) const` [virtual]

Calculate the extent of the scale

The extent is the distance between the baseline to the outermost pixel of the scale draw. [radius\(\) + extent\(\)](#) is an upper limit for the radius of the bounding circle.

Parameters:

pen Pen that is used for painting backbone and ticks
font Font used for painting the labels

See also:

[setMinimumExtent\(\)](#), [minimumExtent\(\)](#)

Warning:

The implemented algo is not too smart and calculates only an upper limit, that might be a few pixels too large

Implements [QwtAbstractScaleDraw](#).

Definition at line 269 of file `qwt_round_scale_draw.cpp`.

References [QwtScaleDiv::contains\(\)](#), [QwtAbstractScaleDraw::hasComponent\(\)](#), [QwtText::isEmpty\(\)](#), [QwtAbstractScaleDraw::label\(\)](#), [QwtAbstractScaleDraw::map\(\)](#), [QwtAbstractScaleDraw::scaleDiv\(\)](#), [QwtText::textSize\(\)](#), [QwtAbstractScaleDraw::tickLabel\(\)](#), [QwtScaleDiv::ticks\(\)](#), and [QwtScaleMap::transform\(\)](#).

Referenced by [QwtKnob::minimumSizeHint\(\)](#).

5.66.3.6 `void QwtRoundScaleDraw::moveCenter (const QPoint & center)`

Move the center of the scale draw, leaving the radius unchanged

Parameters:

center New center

See also:

[setRadius](#)

Definition at line 107 of file `qwt_round_scale_draw.cpp`.

5.66.3.7 [QwtRoundScaleDraw](#) & [QwtRoundScaleDraw::operator=](#) (const [QwtRoundScaleDraw](#) & *other*)

Assignment operator.

Definition at line 69 of file `qwt_round_scale_draw.cpp`.

References `d_data`.

5.66.3.8 `int QwtRoundScaleDraw::radius () const`

Get the radius

Radius is the radius of the backbone without ticks and labels.

See also:

[setRadius\(\)](#), [extent\(\)](#)

Definition at line 96 of file `qwt_round_scale_draw.cpp`.

Referenced by `drawBackbone()`, `drawLabel()`, and `drawTick()`.

5.66.3.9 `void QwtRoundScaleDraw::setAngleRange (double angle1, double angle2)`

Adjust the baseline circle segment for round scales.

The baseline will be drawn from `min(angle1,angle2)` to `max(angle1, angle2)`. The default setting is [-135, 135]. An angle of 0 degrees corresponds to the 12 o'clock position, and positive angles count in a clockwise direction.

Parameters:

angle1

angle2 boundaries of the angle interval in degrees.

Warning:

- The angle range is limited to [-360, 360] degrees. Angles exceeding this range will be clipped.
- For angles more than 359 degrees above or below `min(angle1, angle2)`, scale marks will not be drawn.
- If you need a counterclockwise scale, use `QwtScaleDiv::setRange`

Definition at line 135 of file `qwt_round_scale_draw.cpp`.

References `QwtAbstractScaleDraw::scaleMap()`, and `QwtScaleMap::setPaintInterval()`.

Referenced by `QwtKnob::setTotalAngle()`.

5.66.3.10 `void QwtRoundScaleDraw::setRadius (int radius)`

Change of radius the scale

Radius is the radius of the backbone without ticks and labels.

Parameters:

radius New Radius

See also:

[moveCenter](#)

Definition at line 84 of file qwt_round_scale_draw.cpp.

Referenced by QwtRoundScaleDraw().

5.67 QwtScaleArithmetic Class Reference

5.67.1 Detailed Description

Arithmetic including a tolerance.

Definition at line 22 of file qwt_scale_engine.h.

Static Public Member Functions

- static int [compareEps](#) (double value1, double value2, double intervalSize)
- static double [ceilEps](#) (double value, double intervalSize)
- static double [floorEps](#) (double value, double intervalSize)
- static double [divideEps](#) (double interval, double steps)
- static double [ceil125](#) (double x)
- static double [floor125](#) (double x)

5.67.2 Member Function Documentation

5.67.2.1 double QwtScaleArithmetic::ceil125 (double *x*) [static]

Find the smallest value out of $\{1,2,5\} \cdot 10^n$ with an integer number n which is greater than or equal to x

Parameters:

x Input value

Definition at line 98 of file qwt_scale_engine.cpp.

Referenced by QwtScaleEngine::divideInterval().

5.67.2.2 double QwtScaleArithmetic::ceilEps (double *value*, double *intervalSize*) [static]

Ceil a value, relative to an interval

Parameters:

value Value to ceil

intervalSize Interval size

See also:

[floorEps](#)

Definition at line 50 of file qwt_scale_engine.cpp.

Referenced by QwtLinearScaleEngine::align().

5.67.2.3 `int QwtScaleArithmetic::compareEps (double value1, double value2, double intervalSize)` `[static]`

Compare 2 values, relative to an interval.

Values are "equal", when : $\cdot value2 - value1 \leq abs(intervalSize * 10e^{-6})$

Parameters:

value1 First value to compare

value2 Second value to compare

intervalSize interval size

Returns:

0: if equal, -1: if $value2 > value1$, 1: if $value1 > value2$

Definition at line 28 of file `qwt_scale_engine.cpp`.

Referenced by `QwtScaleEngine::contains()`.

5.67.2.4 `double QwtScaleArithmetic::floor125 (double x)` `[static]`

Find the largest value out of $\{1,2,5\} * 10^n$ with an integer number n which is smaller than or equal to x .

Parameters:

x Input value

Definition at line 126 of file `qwt_scale_engine.cpp`.

5.67.2.5 `double QwtScaleArithmetic::floorEps (double value, double intervalSize)` `[static]`

Floor a value, relative to an interval

Parameters:

value Value to floor

intervalSize Interval size

See also:

[floorEps](#)

Definition at line 67 of file `qwt_scale_engine.cpp`.

Referenced by `QwtLinearScaleEngine::align()`.

5.68 QwtScaleDiv Class Reference

5.68.1 Detailed Description

A class representing a scale division.

A scale division consists of its limits and 3 list of tick values qualified as major, medium and minor ticks.

In most cases scale divisions are calculated by a [QwtScaleEngine](#).

See also:

`QwtScaleEngine::subDivideInto`, `QwtScaleEngine::subDivide`

Definition at line 29 of file `qwt_scale_div.h`.

Public Types

- enum [TickType](#) {
 NoTick = -1,
 MinorTick,
 MediumTick,
 MajorTick,
 NTickTypes }

Public Member Functions

- [QwtScaleDiv](#) ()
- [QwtScaleDiv](#) (const [QwtDoubleInterval](#) &, [QwtValueList](#)[[NTickTypes](#)])
- [QwtScaleDiv](#) (double lBound, double rBound, [QwtValueList](#)[[NTickTypes](#)])
- int [operator==](#) (const [QwtScaleDiv](#) &s) const
- int [operator!=](#) (const [QwtScaleDiv](#) &s) const
- double [lBound](#) () const
- double [hBound](#) () const
- double [range](#) () const
- bool [contains](#) (double v) const
- const [QwtValueList](#) & [ticks](#) (int type) const
- void [invalidate](#) ()
- bool [isValid](#) () const
- void [invert](#) ()

5.68.2 Constructor & Destructor Documentation**5.68.2.1 QwtScaleDiv::QwtScaleDiv () [explicit]**

Construct an invalid [QwtScaleDiv](#) instance.

Definition at line 15 of file `qwt_scale_div.cpp`.

5.68.2.2 QwtScaleDiv::QwtScaleDiv (const [QwtDoubleInterval](#) & *interval*, [QwtValueList](#) *ticks*[[NTickTypes](#)]) [explicit]

Construct [QwtScaleDiv](#) instance.

Parameters:

interval Interval

ticks List of major, medium and minor ticks

Definition at line 28 of file `qwt_scale_div.cpp`.

References [ticks\(\)](#).

5.68.2.3 QwtScaleDiv::QwtScaleDiv (double *lBound*, double *hBound*, QwtValueList *ticks*[NTickTypes]) [explicit]

Construct [QwtScaleDiv](#) instance.

Parameters:

lBound First interval limit

hBound Second interval limit

ticks List of major, medium and minor ticks

Definition at line 46 of file `qwt_scale_div.cpp`.

References `ticks()`.

5.68.3 Member Function Documentation

5.68.3.1 double QwtScaleDiv::hBound () const [inline]

Returns:

right bound

See also:

[QwtScaleDiv::lBound](#)

Definition at line 86 of file `qwt_scale_div.h`.

Referenced by `QwtPlot::canvasMap()`, `QwtPlotPanner::moveCanvas()`, `QwtPlotZoomer::rescale()`, and `QwtAbstractScaleDraw::setScaleDiv()`.

5.68.3.2 void QwtScaleDiv::invalidate ()

Invalidate the scale division.

Definition at line 89 of file `qwt_scale_div.cpp`.

5.68.3.3 void QwtScaleDiv::invert ()

Invert the scale division.

Definition at line 118 of file `qwt_scale_div.cpp`.

References `ticks()`.

Referenced by `QwtLog10ScaleEngine::divideScale()`.

5.68.3.4 bool QwtScaleDiv::isValid () const

Check if the scale division is valid.

Definition at line 101 of file `qwt_scale_div.cpp`.

5.68.3.5 double QwtScaleDiv::lBound () const [inline]

Returns:

left bound

See also:

[QwtScaleDiv::hBound](#)

Definition at line 77 of file qwt_scale_div.h.

Referenced by `QwtPlot::canvasMap()`, `QwtPlotPanner::moveCanvas()`, `QwtPlotZoomer::rescale()`, `QwtPlotMagnifier::rescale()`, `QwtPlotPicker::scaleRect()`, and `QwtAbstractScaleDraw::setScaleDiv()`.

5.68.3.6 `int QwtScaleDiv::operator!=(const QwtScaleDiv & s) const`

Inequality.

Returns:

true if this instance is not equal to s

Definition at line 83 of file qwt_scale_div.cpp.

5.68.3.7 `int QwtScaleDiv::operator==(const QwtScaleDiv & other) const`

Equality operator.

Returns:

true if this instance is equal to other

Definition at line 61 of file qwt_scale_div.cpp.

References `d_hBound`, `d_isValid`, `d_lBound`, and `d_ticks`.

5.68.3.8 `double QwtScaleDiv::range () const` `[inline]`

Returns:

`hBound() - lBound()`

Definition at line 94 of file qwt_scale_div.h.

Referenced by `QwtPlotPicker::scaleRect()`.

5.68.3.9 `const QwtValueList & QwtScaleDiv::ticks (int type) const`

Return a list of ticks

Parameters:

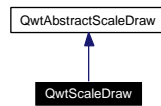
type MinorTick, MediumTick or MajorTick

Definition at line 139 of file qwt_scale_div.cpp.

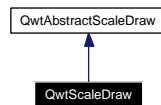
Referenced by `QwtRoundScaleDraw::extent()`, `QwtScaleDraw::getBorderDistHint()`, `invert()`, `QwtScaleDraw::maxLabelHeight()`, `QwtScaleDraw::maxLabelWidth()`, `QwtScaleDraw::minLabelDist()`, `QwtScaleDraw::minLength()`, `QwtScaleDiv()`, and `QwtPlot::sizeHint()`.

5.69 QwtScaleDraw Class Reference

Inheritance diagram for QwtScaleDraw:



Collaboration diagram for QwtScaleDraw:



5.69.1 Detailed Description

A class for drawing scales.

[QwtScaleDraw](#) can be used to draw linear or logarithmic scales. A scale has a position, an alignment and a length, which can be specified. The labels can be rotated and aligned to the ticks using [setLabelRotation\(\)](#) and [setLabelAlignment\(\)](#).

After a scale division has been specified as a [QwtScaleDiv](#) object using [QwtAbstractScaleDraw::setScaleDiv\(const QwtScaleDiv &s\)](#), the scale can be drawn with the [QwtAbstractScaleDraw::draw\(\)](#) member.

Definition at line 30 of file `qwt_scale_draw.h`.

Public Types

- enum [Alignment](#) {
BottomScale,
TopScale,
LeftScale,
RightScale }

Public Member Functions

- [QwtScaleDraw](#) ()
- [QwtScaleDraw](#) (const [QwtScaleDraw](#) &)
- virtual [~QwtScaleDraw](#) ()
- [QwtScaleDraw](#) & [operator=](#) (const [QwtScaleDraw](#) &other)
- void [getBorderDistHint](#) (const QFont &, int &start, int &end) const
- int [minLabelDist](#) (const QFont &) const
- int [minLength](#) (const QPen &, const QFont &) const
- virtual int [extent](#) (const QPen &, const QFont &) const
- void [move](#) (int x, int y)
- void [move](#) (const QPoint &)

- void [setLength](#) (int length)
- [Alignment alignment](#) () const
- void [setAlignment](#) ([Alignment](#))
- Qt::Orientation [orientation](#) () const
- QPoint [pos](#) () const
- int [length](#) () const
- void [setLabelAlignment](#) (Qt::Alignment)
- Qt::Alignment [labelAlignment](#) () const
- void [setLabelRotation](#) (double rotation)
- double [labelRotation](#) () const
- int [maxLabelHeight](#) (const QFont &) const
- int [maxLabelWidth](#) (const QFont &) const
- QPoint [labelPosition](#) (double val) const
- QRect [labelRect](#) (const QFont &, double val) const
- QSize [labelSize](#) (const QFont &, double val) const

Protected Member Functions

- QMatrix [labelMatrix](#) (const QPoint &, const QSize &) const
- virtual void [drawTick](#) (QPainter *p, double val, int len) const
- virtual void [drawBackbone](#) (QPainter *p) const
- virtual void [drawLabel](#) (QPainter *p, double val) const

5.69.2 Member Enumeration Documentation

5.69.2.1 enum [QwtScaleDraw::Alignment](#)

Alignment of the scale draw

See also:

[setAlignment\(\)](#), [alignment\(\)](#)

Definition at line 37 of file `qwt_scale_draw.h`.

5.69.3 Constructor & Destructor Documentation

5.69.3.1 [QwtScaleDraw::QwtScaleDraw \(\)](#)

Constructor.

The range of the scale is initialized to [0, 100], The position is at (0, 0) with a length of 100. The orientation is `QwtAbstractScaleDraw::Bottom`.

Definition at line 60 of file `qwt_scale_draw.cpp`.

References [setLength\(\)](#).

5.69.3.2 [QwtScaleDraw::QwtScaleDraw \(const \[QwtScaleDraw\]\(#\) &\)](#)

Copy constructor.

Definition at line 67 of file `qwt_scale_draw.cpp`.

References [d_data](#).

5.69.3.3 QwtScaleDraw::~~QwtScaleDraw () [virtual]

Destructor.

Definition at line 74 of file qwt_scale_draw.cpp.

5.69.4 Member Function Documentation

5.69.4.1 QwtScaleDraw::Alignment QwtScaleDraw::alignment () const

Return alignment of the scale

See also:

[setAlignment\(\)](#)

Definition at line 91 of file qwt_scale_draw.cpp.

Referenced by QwtScaleWidget::alignment(), drawBackbone(), labelMatrix(), and labelPosition().

5.69.4.2 void QwtScaleDraw::drawBackbone (QPainter * *painter*) const [protected, virtual]

Draws the baseline of the scale

Parameters:

painter Painter

See also:

[drawTick\(\)](#), [drawLabel\(\)](#)

Implements [QwtAbstractScaleDraw](#).

Definition at line 507 of file qwt_scale_draw.cpp.

References [alignment\(\)](#), [QwtPainter::drawLine\(\)](#), and [pos\(\)](#).

5.69.4.3 void QwtScaleDraw::drawLabel (QPainter * *painter*, double *value*) const [protected, virtual]

Draws the label for a major scale tick

Parameters:

painter Painter

value Value

See also:

[drawTick](#), [drawBackbone](#)

Implements [QwtAbstractScaleDraw](#).

Definition at line 612 of file qwt_scale_draw.cpp.

References [QwtText::draw\(\)](#), [QwtText::isEmpty\(\)](#), [labelMatrix\(\)](#), [labelPosition\(\)](#), [labelSize\(\)](#), [pos\(\)](#), [QwtText::textSize\(\)](#), and [QwtAbstractScaleDraw::tickLabel\(\)](#).

5.69.4.4 `void QwtScaleDraw::drawTick (QPainter * painter, double value, int len) const` `[protected, virtual]`

Draw a tick

Parameters:

painter Painter
value Value of the tick
len Length of the tick

See also:

[drawBackbone\(\)](#), [drawLabel\(\)](#)

Implements [QwtAbstractScaleDraw](#).

Definition at line 406 of file `qwt_scale_draw.cpp`.

References [QwtMetricsMap::isIdentity\(\)](#), [QwtMetricsMap::layoutToDevice\(\)](#), [QwtMetricsMap::layoutToDeviceX\(\)](#), [QwtMetricsMap::layoutToDeviceY\(\)](#), [QwtAbstractScaleDraw::map\(\)](#), [QwtPainter::metricsMap\(\)](#), [orientation\(\)](#), [pos\(\)](#), [QwtPainter::resetMetricsMap\(\)](#), and [QwtAbstractScaleDraw::scaleMap\(\)](#).

5.69.4.5 `int QwtScaleDraw::extent (const QPen & pen, const QFont & font) const` `[virtual]`

Calculate the width/height that is needed for a vertical/horizontal scale.

The extent is calculated from the pen width of the backbone, the major tick length, the spacing and the maximum width/height of the labels.

Parameters:

pen Pen that is used for painting backbone and ticks
font Font used for painting the labels

See also:

[minLength\(\)](#)

Implements [QwtAbstractScaleDraw](#).

Definition at line 280 of file `qwt_scale_draw.cpp`.

References [QwtAbstractScaleDraw::hasComponent\(\)](#), [QwtAbstractScaleDraw::majTickLength\(\)](#), [maxLabelHeight\(\)](#), [maxLabelWidth\(\)](#), [QwtAbstractScaleDraw::minimumExtent\(\)](#), [orientation\(\)](#), and [QwtAbstractScaleDraw::spacing\(\)](#).

Referenced by [QwtThermo::minimumSizeHint\(\)](#), and [QwtSlider::minimumSizeHint\(\)](#).

5.69.4.6 `void QwtScaleDraw::getBorderDistHint (const QFont & font, int & start, int & end) const`

Determine the minimum border distance.

This member function returns the minimum space needed to draw the mark labels at the scale's endpoints.

Parameters:

font Font
start Start border distance

end End border distance

Definition at line 139 of file qwt_scale_draw.cpp.

References `QwtAbstractScaleDraw::hasComponent()`, `labelRect()`, `QwtAbstractScaleDraw::map()`, `orientation()`, `QwtAbstractScaleDraw::scaleDiv()`, and `QwtScaleDiv::ticks()`.

Referenced by `QwtSlider::layoutSlider()`, `QwtThermo::layoutThermo()`, `QwtSlider::minimumSizeHint()`, and `minLength()`.

5.69.4.7 Qt::Alignment QwtScaleDraw::labelAlignment () const

Returns:

the label flags

See also:

[setLabelAlignment\(\)](#), [labelRotation\(\)](#)

Definition at line 834 of file qwt_scale_draw.cpp.

Referenced by `labelMatrix()`.

5.69.4.8 QMatrix QwtScaleDraw::labelMatrix (const QPoint & pos, const QSize & size) const [protected]

Calculate the matrix that is needed to paint a label depending on its alignment and rotation.

Parameters:

pos Position where to paint the label

size Size of the label

See also:

[setLabelAlignment\(\)](#), [setLabelRotation\(\)](#)

Definition at line 646 of file qwt_scale_draw.cpp.

References `alignment()`, `labelAlignment()`, and `labelRotation()`.

Referenced by `drawLabel()`.

5.69.4.9 QPoint QwtScaleDraw::labelPosition (double value) const

Find the position, where to paint a label

The position has a distance of [majTickLength\(\)](#) + [spacing\(\)](#) + 1 from the backbone. The direction depends on the [alignment\(\)](#)

Parameters:

value Value

Definition at line 356 of file qwt_scale_draw.cpp.

References `alignment()`, `QwtAbstractScaleDraw::hasComponent()`, `QwtAbstractScaleDraw::majTickLength()`, `QwtAbstractScaleDraw::map()`, `QwtAbstractScaleDraw::spacing()`, and `QwtScaleMap::transform()`.

Referenced by `drawLabel()`, and `labelRect()`.

5.69.4.10 QRect QwtScaleDraw::labelRect (const QFont & *font*, double *value*) const

Find the bounding rect for the label. The coordinates of the rect are relative to spacing + ticklength from the backbone in direction of the tick.

Parameters:

font Font used for painting

value Value

Definition at line 717 of file qwt_scale_draw.cpp.

References `QwtText::isEmpty()`, `labelPosition()`, `labelSize()`, `pos()`, `QwtText::textSize()`, and `QwtAbstractScaleDraw::tickLabel()`.

Referenced by `getBorderDistHint()`, `labelSize()`, and `minLabelDist()`.

5.69.4.11 double QwtScaleDraw::labelRotation () const

Returns:

the label rotation

See also:

[setLabelRotation\(\)](#), [labelAlignment\(\)](#)

Definition at line 788 of file qwt_scale_draw.cpp.

Referenced by `labelMatrix()`.

5.69.4.12 QSize QwtScaleDraw::labelSize (const QFont & *font*, double *value*) const

Calculate the size that is needed to draw a label

Parameters:

font Label font

value Value

Definition at line 761 of file qwt_scale_draw.cpp.

References `labelRect()`.

Referenced by `drawLabel()`, `labelRect()`, `maxLabelHeight()`, and `maxLabelWidth()`.

5.69.4.13 int QwtScaleDraw::length () const

Returns:

the length of the backbone

See also:

[setLength\(\)](#), [pos\(\)](#)

Definition at line 599 of file qwt_scale_draw.cpp.

5.69.4.14 int QwtScaleDraw::maxLabelHeight (const QFont & *font*) const**Parameters:***font* Font**Returns:**

the maximum height of a label

Definition at line 867 of file qwt_scale_draw.cpp.

References labelSize(), QwtAbstractScaleDraw::scaleDiv(), and QwtScaleDiv::ticks().

Referenced by extent().

5.69.4.15 int QwtScaleDraw::maxLabelWidth (const QFont & *font*) const**Parameters:***font* Font**Returns:**

the maximum width of a label

Definition at line 844 of file qwt_scale_draw.cpp.

References labelSize(), QwtAbstractScaleDraw::scaleDiv(), and QwtScaleDiv::ticks().

Referenced by extent().

5.69.4.16 int QwtScaleDraw::minLabelDist (const QFont & *font*) const

Determine the minimum distance between two labels, that is necessary that the texts don't overlap.

Parameters:*font* Font**Returns:**

The maximum width of a label

See also:[getBorderDistHint\(\)](#)

Definition at line 192 of file qwt_scale_draw.cpp.

References QwtAbstractScaleDraw::hasComponent(), labelRect(), orientation(), QwtAbstractScaleDraw::scaleDiv(), and QwtScaleDiv::ticks().

Referenced by minLength().

5.69.4.17 int QwtScaleDraw::minLength (const QPen & *pen*, const QFont & *font*) const

Calculate the minimum length that is needed to draw the scale

Parameters:*pen* Pen that is used for painting backbone and ticks

font Font used for painting the labels

See also:

[extent\(\)](#)

Definition at line 318 of file qwt_scale_draw.cpp.

References [getBorderDistHint\(\)](#), [QwtAbstractScaleDraw::hasComponent\(\)](#), [minLabelDist\(\)](#), [QwtAbstractScaleDraw::scaleDiv\(\)](#), and [QwtScaleDiv::ticks\(\)](#).

Referenced by [QwtThermo::minimumSizeHint\(\)](#), and [QwtSlider::minimumSizeHint\(\)](#).

5.69.4.18 void QwtScaleDraw::move (const QPoint & pos)

Move the position of the scale.

The meaning of the parameter pos depends on the alignment:

QwtScaleDraw::LeftScale The origin is the topmost point of the backbone. The backbone is a vertical line. Scale marks and labels are drawn at the left of the backbone.

QwtScaleDraw::RightScale The origin is the topmost point of the backbone. The backbone is a vertical line. Scale marks and labels are drawn at the right of the backbone.

QwtScaleDraw::TopScale The origin is the leftmost point of the backbone. The backbone is a horizontal line. Scale marks and labels are drawn above the backbone.

QwtScaleDraw::BottomScale The origin is the leftmost point of the backbone. The backbone is a horizontal line. Scale marks and labels are drawn below the backbone.

Parameters:

pos Origin of the scale

See also:

[pos\(\)](#), [setLength\(\)](#)

Definition at line 566 of file qwt_scale_draw.cpp.

5.69.4.19 QwtScaleDraw & QwtScaleDraw::operator= (const QwtScaleDraw & other)

Assignment operator.

Definition at line 80 of file qwt_scale_draw.cpp.

References [d_data](#).

5.69.4.20 Qt::Orientation QwtScaleDraw::orientation () const

Return the orientation

TopScale, BottomScale are horizontal (Qt::Horizontal) scales, LeftScale, RightScale are vertical (Qt::Vertical) scales.

See also:

[alignment\(\)](#)

Definition at line 115 of file qwt_scale_draw.cpp.

Referenced by [QwtScaleWidget::drawColorBar\(\)](#), [drawTick\(\)](#), [extent\(\)](#), [getBorderDistHint\(\)](#), [minLabelDist\(\)](#), and [QwtPlot::printScale\(\)](#).

5.69.4.21 QPoint QwtScaleDraw::pos () const

Returns:

Origin of the scale

See also:

[move\(\)](#), [length\(\)](#)

Definition at line 576 of file qwt_scale_draw.cpp.

Referenced by [drawBackbone\(\)](#), [drawLabel\(\)](#), [drawTick\(\)](#), and [labelRect\(\)](#).

5.69.4.22 void QwtScaleDraw::setAlignment ([Alignment](#) *align*)

Set the alignment of the scale

The default alignment is QwtScaleDraw::BottomScale

See also:

[alignment\(\)](#)

Definition at line 102 of file qwt_scale_draw.cpp.

Referenced by [QwtThermo::layoutThermo\(\)](#), and [QwtScaleWidget::setScaleDraw\(\)](#).

5.69.4.23 void QwtScaleDraw::setLabelAlignment (Qt::Alignment *alignment*)

Change the label flags.

Labels are aligned to the point ticklength + spacing away from the backbone.

The alignment is relative to the orientation of the label text. In case of an flags of 0 the label will be aligned depending on the orientation of the scale:

QwtScaleDraw::TopScale: Qt::AlignHCenter | Qt::AlignTop

QwtScaleDraw::BottomScale: Qt::AlignHCenter | Qt::AlignBottom

QwtScaleDraw::LeftScale: Qt::AlignLeft | Qt::AlignVCenter

QwtScaleDraw::RightScale: Qt::AlignRight | Qt::AlignVCenter

Changing the alignment is often necessary for rotated labels.

Parameters:

alignment Or'd Qt::AlignmentFlags <see qnamespace.h>

See also:

[setLabelRotation\(\)](#), [labelRotation\(\)](#), [labelAlignment\(\)](#)

Warning:

The various alignments might be confusing. The alignment of the label is not the alignment of the scale and is not the alignment of the flags ([QwtText::flags\(\)](#)) returned from [QwtAbstractScaleDraw::label\(\)](#).

Definition at line 821 of file qwt_scale_draw.cpp.

5.69.4.24 void QwtScaleDraw::setLabelRotation (double *rotation*)

Rotate all labels.

When changing the rotation, it might be necessary to adjust the label flags too. Finding a useful combination is often the result of try and error.

Parameters:

rotation Angle in degrees. When changing the label rotation, the label flags often needs to be adjusted too.

See also:

[setLabelAlignment\(\)](#), [labelRotation\(\)](#), [labelAlignment\(\)](#).

Definition at line 779 of file `qwt_scale_draw.cpp`.

5.69.4.25 void QwtScaleDraw::setLength (int *length*)

Set the length of the backbone.

The length doesn't include the space needed for overlapping labels.

See also:

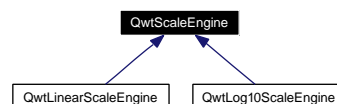
[move\(\)](#), [minLabelDist\(\)](#)

Definition at line 589 of file `qwt_scale_draw.cpp`.

Referenced by `QwtSlider::layoutSlider()`, `QwtThermo::layoutThermo()`, and `QwtScaleDraw()`.

5.70 QwtScaleEngine Class Reference

Inheritance diagram for QwtScaleEngine:

**5.70.1 Detailed Description**

Base class for scale engines.

A scale engine tries to find "reasonable" ranges and step sizes for scales.

The layout of the scale can be varied with [setAttribute\(\)](#).

Qwt offers implementations for logarithmic (log10) and linear scales. Contributions for other types of scale engines (date/time, log2 ...) are welcome.

Definition at line 50 of file `qwt_scale_engine.h`.

Public Types

- enum [Attribute](#) {

```

NoAttribute = 0,
IncludeReference = 1,
Symmetric = 2,
Floating = 4,
Inverted = 8 }

```

Public Member Functions

- [QwtScaleEngine](#) ()
- virtual [~QwtScaleEngine](#) ()
- void [setAttribute](#) ([Attribute](#), bool on=true)
- bool [testAttribute](#) ([Attribute](#)) const
- void [setAttributes](#) (int)
- int [attributes](#) () const
- void [setReference](#) (double reference)
- double [reference](#) () const
- void [setMargins](#) (double m1, double m2)
- double [loMargin](#) () const
- double [hiMargin](#) () const
- virtual void [autoScale](#) (int maxNumSteps, double &x1, double &x2, double &stepSize) const =0
- virtual [QwtScaleDiv](#) [divideScale](#) (double x1, double x2, int maxMajSteps, int maxMinSteps, double stepSize=0.0) const =0
- virtual [QwtScaleTransformation](#) * [transformation](#) () const =0

Protected Member Functions

- bool [contains](#) (const [QwtDoubleInterval](#) &, double val) const
- [QwtValueList](#) [strip](#) (const [QwtValueList](#) &, const [QwtDoubleInterval](#) &) const
- double [divideInterval](#) (double interval, int numSteps) const
- [QwtDoubleInterval](#) [buildInterval](#) (double v) const

5.70.2 Member Enumeration Documentation

5.70.2.1 enum [QwtScaleEngine::Attribute](#)

see [QwtScaleEngine::setOption](#), [testOption](#)

Definition at line 54 of file [qwt_scale_engine.h](#).

5.70.3 Constructor & Destructor Documentation

5.70.3.1 [QwtScaleEngine::QwtScaleEngine](#) () [explicit]

Ctor.

Definition at line 169 of file [qwt_scale_engine.cpp](#).

5.70.3.2 [QwtScaleEngine::~QwtScaleEngine](#) () [virtual]

Dtor.

Definition at line 176 of file [qwt_scale_engine.cpp](#).

5.70.4 Member Function Documentation

5.70.4.1 `int QwtScaleEngine::attributes () const`

Return the scale attributes

Definition at line 372 of file `qwt_scale_engine.cpp`.

Referenced by `QwtLog10ScaleEngine::divideScale()`.

5.70.4.2 `virtual void QwtScaleEngine::autoScale (int maxNumSteps, double & x1, double & x2, double & stepSize) const` [pure virtual]

Align and divide an interval

Parameters:

maxNumSteps Max. number of steps

x1 First limit of the interval (In/Out)

x2 Second limit of the interval (In/Out)

stepSize Step size (Return value)

Implemented in [QwtLinearScaleEngine](#), and [QwtLog10ScaleEngine](#).

5.70.4.3 `QwtDoubleInterval QwtScaleEngine::buildInterval (double v) const` [protected]

Build an interval for a value.

In case of $v == 0.0$ the interval is $[-0.5, 0.5]$, otherwise it is $[0.5 * v, 1.5 * v]$

Definition at line 309 of file `qwt_scale_engine.cpp`.

Referenced by `QwtLog10ScaleEngine::autoScale()`, and `QwtLinearScaleEngine::autoScale()`.

5.70.4.4 `bool QwtScaleEngine::contains (const QwtDoubleInterval & interval, double value) const` [protected]

Check if an interval "contains" a value

Parameters:

interval Interval

value Value

See also:

[QwtScaleArithmetic::compareEps](#)

Definition at line 251 of file `qwt_scale_engine.cpp`.

References `QwtScaleArithmetic::compareEps()`, `QwtDoubleInterval::isValid()`, `QwtDoubleInterval::maxValue()`, `QwtDoubleInterval::minValue()`, and `QwtDoubleInterval::width()`.

Referenced by `strip()`.

5.70.4.5 `double QwtScaleEngine::divideInterval (double intervalSize, int numSteps) const` [protected]

Calculate a step size for an interval size

Parameters:

intervalSize Interval size
numSteps Number of steps

Returns:

Step size

Definition at line 233 of file qwt_scale_engine.cpp.

References [QwtScaleArithmetic::ceil125\(\)](#), and [QwtScaleArithmetic::divideEps\(\)](#).

Referenced by [QwtLog10ScaleEngine::autoScale\(\)](#), [QwtLinearScaleEngine::autoScale\(\)](#), [QwtLog10ScaleEngine::divideScale\(\)](#), and [QwtLinearScaleEngine::divideScale\(\)](#).

5.70.4.6 virtual [QwtScaleDiv](#) [QwtScaleEngine::divideScale](#) (double *x1*, double *x2*, int *maxMajSteps*, int *maxMinSteps*, double *stepSize* = 0.0) const [pure virtual]

Calculate a scale division.

Parameters:

x1 First interval limit
x2 Second interval limit
maxMajSteps Maximum for the number of major steps
maxMinSteps Maximum number of minor steps
stepSize Step size. If *stepSize* == 0.0, the scaleEngine calculates one.

Implemented in [QwtLinearScaleEngine](#), and [QwtLog10ScaleEngine](#).

5.70.4.7 double [QwtScaleEngine::hiMargin](#) () const

Returns:

the margin at the upper end of the scale The default margin is 0.

See also:

[QwtScaleEngine::setMargins\(\)](#)

Definition at line 198 of file qwt_scale_engine.cpp.

Referenced by [QwtLog10ScaleEngine::autoScale\(\)](#), [QwtLinearScaleEngine::autoScale\(\)](#), and [QwtLog10ScaleEngine::divideScale\(\)](#).

5.70.4.8 double [QwtScaleEngine::loMargin](#) () const

Returns:

the margin at the lower end of the scale The default margin is 0.

See also:

[QwtScaleEngine::setMargins\(\)](#)

Definition at line 187 of file qwt_scale_engine.cpp.

Referenced by [QwtLog10ScaleEngine::autoScale\(\)](#), [QwtLinearScaleEngine::autoScale\(\)](#), and [QwtLog10ScaleEngine::divideScale\(\)](#).

5.70.4.9 double QwtScaleEngine::reference () const

Returns:

the reference value

See also:

[QwtScaleEngine::setReference\(\)](#), [QwtScaleEngine::setOptions\(\)](#)

Definition at line 393 of file `qwt_scale_engine.cpp`.

Referenced by [QwtLog10ScaleEngine::autoScale\(\)](#), [QwtLinearScaleEngine::autoScale\(\)](#), and [QwtLog10ScaleEngine::divideScale\(\)](#).

5.70.4.10 void QwtScaleEngine::setAttribute ([Attribute](#) attribute, bool on = true)

Change a scale attribute

Parameters:

attribute Attribute to change

on On/Off

The behaviour of the scale engine can be changed with the following attributes:

QwtScaleEngine::IncludeReference Build a scale which includes the reference value.

QwtScaleEngine::Symmetric Build a scale which is symmetric to the reference value.

QwtScaleEngine::Floating The endpoints of the scale are supposed to be equal the outmost included values plus the specified margins (see [setMargins\(\)](#)). If this attribute is not* set, the endpoints of the scale will be integer multiples of the step size.

QwtScaleEngine::Inverted Turn the scale upside down.

See also:

[QwtScaleEngine::testAttribute\(\)](#)

Definition at line 339 of file `qwt_scale_engine.cpp`.

5.70.4.11 void QwtScaleEngine::setAttributes (int attributes)

Change the scale attribute

Parameters:

attributes Set scale attributes

See also:

[QwtScaleEngine::attributes\(\)](#)

Definition at line 364 of file `qwt_scale_engine.cpp`.

Referenced by [QwtLog10ScaleEngine::divideScale\(\)](#).

5.70.4.12 void QwtScaleEngine::setMargins (double *mlo*, double *mhi*)

Specify margins at the scale's endpoints.

Parameters:

mlo minimum distance between the scale's lower boundary and the smallest enclosed value

mhi minimum distance between the scale's upper boundary and the greatest enclosed value

Margins can be used to leave a minimum amount of space between the enclosed intervals and the boundaries of the scale.

Warning:

- [QwtLog10ScaleEngine](#) measures the margins in decades.

See also:

[QwtScaleEngine::hiMargin](#), [QwtScaleEngine::loMargin](#)

Definition at line 219 of file `qwt_scale_engine.cpp`.

Referenced by `QwtLog10ScaleEngine::divideScale()`.

5.70.4.13 void QwtScaleEngine::setReference (double *r*)

Specify a reference point.

Parameters:

r new reference value

The reference point is needed if options `IncludeRef` or `Symmetric` are active. Its default value is 0.0.

Definition at line 384 of file `qwt_scale_engine.cpp`.

Referenced by `QwtLog10ScaleEngine::divideScale()`.

5.70.4.14 QwtValueList QwtScaleEngine::strip (const QwtValueList & *ticks*, const [QwtDoubleInterval](#) & *interval*) const [protected]

Remove ticks from a list, that are not inside an interval

Parameters:

ticks Tick list

interval Interval

Returns:

Stripped tick list

Definition at line 280 of file `qwt_scale_engine.cpp`.

References `contains()`, and `QwtDoubleInterval::isValid()`.

5.70.4.15 bool QwtScaleEngine::testAttribute ([Attribute](#) *attribute*) const

Check if a attribute is set.

Parameters:

attribute Attribute to be tested

See also:

[QwtScaleEngine::setAttribute\(\)](#) for a description of the possible options.

Definition at line 353 of file `qwt_scale_engine.cpp`.

Referenced by `QwtLog10ScaleEngine::autoScale()`, and `QwtLinearScaleEngine::autoScale()`.

5.70.4.16 virtual [QwtScaleTransformation*](#) [QwtScaleEngine::transformation \(\) const](#) [pure virtual]

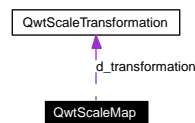
Returns:

a transformation

Implemented in [QwtLinearScaleEngine](#), and [QwtLog10ScaleEngine](#).

5.71 QwtScaleMap Class Reference

Collaboration diagram for QwtScaleMap:



5.71.1 Detailed Description

A scale map.

[QwtScaleMap](#) offers transformations from a scale into a paint interval and vice versa.

Definition at line 55 of file `qwt_scale_map.h`.

Public Member Functions

- [QwtScaleMap \(\)](#)
- [QwtScaleMap \(const \[QwtScaleMap\]\(#\) &\)](#)
- [~QwtScaleMap \(\)](#)
- [QwtScaleMap & operator= \(const \[QwtScaleMap\]\(#\) &\)](#)
- void [setTransformation](#) ([QwtScaleTransformation](#) *)
- const [QwtScaleTransformation](#) * [transformation \(\) const](#)
- void [setPaintInterval](#) (int p1, int p2)
- void [setPaintXInterval](#) (double p1, double p2)
- void [setScaleInterval](#) (double s1, double s2)
- int [transform](#) (double x) const
- double [invTransform](#) (double i) const
- double [xTransform](#) (double x) const
- double [p1 \(\) const](#)

- double [p2](#) () const
- double [s1](#) () const
- double [s2](#) () const
- double [pDist](#) () const
- double [sDist](#) () const

Public Attributes

- QT_STATIC_CONST double [LogMin](#) = 1.0e-150
- QT_STATIC_CONST double [LogMax](#) = 1.0e150

5.71.2 Constructor & Destructor Documentation

5.71.2.1 QwtScaleMap::QwtScaleMap ()

Constructor.

The scale and paint device intervals are both set to [0,1].

Definition at line 84 of file `qwt_scale_map.cpp`.

5.71.2.2 QwtScaleMap::~QwtScaleMap ()

Destructor

Definition at line 108 of file `qwt_scale_map.cpp`.

5.71.3 Member Function Documentation

5.71.3.1 double QwtScaleMap::invTransform (double i) const [inline]

Transform an paint device value into a value in the interval of the scale.

Definition at line 163 of file `qwt_scale_map.h`.

References `QwtScaleTransformation::invXForm()`.

Referenced by `QwtPainter::drawColorBar()`, `QwtPlotPicker::invTransform()`, and `QwtPlotItem::invTransform()`.

5.71.3.2 double QwtScaleMap::p1 () const [inline]

Returns:

First border of the paint interval

Definition at line 119 of file `qwt_scale_map.h`.

Referenced by `QwtPlotItem::paintRect()`, and `QwtPlotSpectrogram::renderImage()`.

5.71.3.3 double QwtScaleMap::p2 () const [inline]

Returns:

Second border of the paint interval

Definition at line 127 of file qwt_scale_map.h.

Referenced by QwtPlotSpectrogram::renderImage().

5.71.3.4 double QwtScaleMap::s1 () const [inline]

Returns:

First border of the scale interval

Definition at line 103 of file qwt_scale_map.h.

Referenced by QwtPlotSpectrogram::renderImage(), and QwtPlotItem::scaleRect().

5.71.3.5 double QwtScaleMap::s2 () const [inline]

Returns:

Second border of the scale interval

Definition at line 111 of file qwt_scale_map.h.

Referenced by QwtPlotSpectrogram::renderImage().

5.71.3.6 void QwtScaleMap::setPaintInterval (int *p1*, int *p2*)

Specify the borders of the paint device interval.

Parameters:

p1 first border

p2 second border

Definition at line 180 of file qwt_scale_map.cpp.

References QwtScaleTransformation::type().

Referenced by QwtPlot::canvasMap(), QwtPainter::drawColorBar(), QwtRoundScaleDraw::QwtRoundScaleDraw(), QwtPlotSpectrogram::renderImage(), QwtRoundScaleDraw::setAngleRange(), and QwtPlotSvgItem::viewBox().

5.71.3.7 void QwtScaleMap::setPaintXInterval (double *p1*, double *p2*)

Specify the borders of the paint device interval.

Parameters:

p1 first border

p2 second border

Definition at line 194 of file qwt_scale_map.cpp.

References QwtScaleTransformation::type().

5.71.3.8 void QwtScaleMap::setScaleInterval (double *s1*, double *s2*)

Specify the borders of the scale interval.

Parameters:

s1 first border

s2 second border

Warning:

logarithmic scales might be aligned to [LogMin, LogMax]

Definition at line 153 of file qwt_scale_map.cpp.

References LogMax, LogMin, and QwtScaleTransformation::type().

Referenced by QwtPlot::canvasMap(), QwtPlotSpectrogram::renderImage(), setTransformation(), and QwtPlotSvgItem::viewBox().

5.71.3.9 void QwtScaleMap::setTransformation (QwtScaleTransformation * *transformation*)

Initialize the map with a transformation

Definition at line 130 of file qwt_scale_map.cpp.

References setScaleInterval(), and transformation().

Referenced by QwtPlot::canvasMap().

5.71.3.10 int QwtScaleMap::transform (double *s*) const [inline]

Transform a point related to the scale interval into an point related to the interval of the paint device and round it to an integer. (In Qt <= 3.x paint devices are integer based.)

See also:

[QwtScaleMap::xTransform](#)

Definition at line 175 of file qwt_scale_map.h.

References xTransform().

Referenced by QwtPlotCurve::closePolyline(), QwtPlotMarker::draw(), QwtPlotSpectrogram::drawContourLines(), QwtPlotCurve::drawDots(), QwtRoundScaleDraw::drawLabel(), QwtPlotCurve::drawSteps(), QwtPlotCurve::drawSticks(), QwtPlotCurve::drawSymbols(), QwtRoundScaleDraw::drawTick(), QwtRoundScaleDraw::extent(), QwtScaleDraw::labelPosition(), QwtPlotPanner::moveCanvas(), QwtPlotPicker::transform(), and QwtPlotItem::transform().

5.71.3.11 const QwtScaleTransformation * QwtScaleMap::transformation () const

Get the transformation.

Definition at line 142 of file qwt_scale_map.cpp.

Referenced by QwtScaleWidget::setScaleDiv(), and setTransformation().

5.71.3.12 double QwtScaleMap::xTransform (double *s*) const [inline]

Transform a point related to the scale interval into an point related to the interval of the paint device

Definition at line 146 of file qwt_scale_map.h.

References `QwtScaleTransformation::type()`, and `QwtScaleTransformation::xForm()`.

Referenced by `QwtPlotCurve::closestPoint()`, `QwtPlotCurve::drawLines()`, `transform()`, and `QwtPlotSvgItem::viewBox()`.

5.72 QwtScaleTransformation Class Reference

5.72.1 Detailed Description

Operations for linear or logarithmic (base 10) transformations.

Definition at line 19 of file qwt_scale_map.h.

Public Types

- enum `Type` {
 Linear,
 Log10,
 Other }

Public Member Functions

- `QwtScaleTransformation` (`Type` type)
- virtual `~QwtScaleTransformation` ()
- virtual double `xForm` (double x, double s1, double s2, double p1, double p2) const
- virtual double `invXForm` (double x, double s1, double s2, double p1, double p2) const
- `Type` type () const
- virtual `QwtScaleTransformation * copy` () const

5.72.2 Constructor & Destructor Documentation

5.72.2.1 QwtScaleTransformation::QwtScaleTransformation (`Type` type)

Constructor for a linear transformation.

Definition at line 16 of file qwt_scale_map.cpp.

References `QwtScaleTransformation()`.

Referenced by `QwtScaleTransformation()`.

5.72.3 Member Function Documentation

5.72.3.1 double QwtScaleTransformation::invXForm (double p, double p1, double p2, double s1, double s2) const [virtual]

Transform a value from a linear to a logarithmic interval.

Parameters:

- `x` value related to the linear interval [p1, p2]
- `p1` first border of linear interval

p2 first border of linear interval
s1 first border of logarithmic interval
s2 first border of logarithmic interval

Returns:

$\exp((x - p1) / (p2 - p1) * \log(s2 / s1)) * s1;$

Definition at line 70 of file qwt_scale_map.cpp.

Referenced by QwtScaleMap::invTransform().

5.72.3.2 double QwtScaleTransformation::xForm (double *s*, double *s1*, double *s2*, double *p1*, double *p2*) const [virtual]

Transform a value between 2 linear intervals.

Parameters:

x value related to the interval [*x1*, *x2*]
x1 first border of source interval
x2 first border of source interval
y1 first border of target interval
y2 first border of target interval

Returns:

linear mapping: $y1 + (y2 - y1) / (x2 - x1) * (x - x1)$
log10 mapping: $p1 + (p2 - p1) / \log(s2 / s1) * \log(x / s1)$

Definition at line 47 of file qwt_scale_map.cpp.

Referenced by QwtScaleMap::xTransform().

5.73 QwtScaleWidget Class Reference

5.73.1 Detailed Description

A Widget which contains a scale.

This Widget can be used to decorate composite widgets with a scale.

Definition at line 34 of file qwt_scale_widget.h.

Signals

- void [scaleDivChanged](#) ()

Public Member Functions

- [QwtScaleWidget](#) (QWidget *parent=NULL)
- [QwtScaleWidget](#) (QwtScaleDraw::Alignment, QWidget *parent=NULL)
- virtual [~QwtScaleWidget](#) ()

- void [setTitle](#) (const QString &title)
- void [setTitle](#) (const [QwtText](#) &title)
- [QwtText](#) [title](#) () const
- void [setBorderDist](#) (int start, int end)
- int [startBorderDist](#) () const
- int [endBorderDist](#) () const
- void [getBorderDistHint](#) (int &start, int &end) const
- void [getMinBorderDist](#) (int &start, int &end) const
- void [setMinBorderDist](#) (int start, int end)
- void [setMargin](#) (int)
- int [margin](#) () const
- void [setSpacing](#) (int td)
- int [spacing](#) () const
- void [setPenWidth](#) (int)
- int [penWidth](#) () const
- void [setScaleDiv](#) ([QwtScaleTransformation](#) *, const [QwtScaleDiv](#) &sd)
- void [setScaleDraw](#) ([QwtScaleDraw](#) *)
- const [QwtScaleDraw](#) * [scaleDraw](#) () const
- [QwtScaleDraw](#) * [scaleDraw](#) ()
- void [setLabelAlignment](#) (Qt::Alignment)
- void [setLabelRotation](#) (double rotation)
- void [setColorBarEnabled](#) (bool)
- bool [isColorBarEnabled](#) () const
- void [setColorBarWidth](#) (int)
- int [colorBarWidth](#) () const
- void [setColorMap](#) (const [QwtDoubleInterval](#) &, const [QwtColorMap](#) &)
- [QwtDoubleInterval](#) [colorBarInterval](#) () const
- const [QwtColorMap](#) & [colorMap](#) () const
- virtual QSize [sizeHint](#) () const
- virtual QSize [minimumSizeHint](#) () const
- int [titleHeightForWidth](#) (int width) const
- int [dimForLength](#) (int length, const QFont &scaleFont) const
- void [drawColorBar](#) (QPainter *painter, const QRect &rect) const
- void [drawTitle](#) (QPainter *painter, [QwtScaleDraw::Alignment](#), const QRect &rect) const
- void [setAlignment](#) ([QwtScaleDraw::Alignment](#))
- [QwtScaleDraw::Alignment](#) [alignment](#) () const
- QRect [colorBarRect](#) (const QRect &) const

Protected Member Functions

- virtual void [paintEvent](#) (QPaintEvent *e)
- virtual void [resizeEvent](#) (QResizeEvent *e)
- void [draw](#) (QPainter *p) const
- void [scaleChange](#) ()
- void [layoutScale](#) (bool update=true)

5.73.2 Constructor & Destructor Documentation

5.73.2.1 QwtScaleWidget::QwtScaleWidget (QWidget * *parent* = NULL) [explicit]

Create a scale with the position QwtScaleWidget::Left.

Parameters:

parent Parent widget

Definition at line 64 of file qwt_scale_widget.cpp.

5.73.2.2 QwtScaleWidget::QwtScaleWidget (QwtScaleDraw::Alignment *align*, QWidget * *parent* = NULL) [explicit]

Constructor.

Parameters:

align Alignment.

parent Parent widget

Definition at line 88 of file qwt_scale_widget.cpp.

5.73.2.3 QwtScaleWidget::~QwtScaleWidget () [virtual]

Destructor.

Definition at line 96 of file qwt_scale_widget.cpp.

5.73.3 Member Function Documentation

5.73.3.1 QwtScaleDraw::Alignment QwtScaleWidget::alignment () const

Returns:

position

See also:

QwtScaleWidget::setPosition

Definition at line 218 of file qwt_scale_widget.cpp.

References QwtScaleDraw::alignment(), and scaleDraw().

5.73.3.2 int QwtScaleWidget::dimForLength (int *length*, const QFont & *scaleFont*) const

Find the minimum dimension for a given length. *dim* is the height, *length* the width seen in direction of the title.

Parameters:

length width for horizontal, height for vertical scales

scaleFont Font of the scale

Returns:

height for horizontal, width for vertical scales

Definition at line 747 of file qwt_scale_widget.cpp.

References `titleHeightForWidth()`.

Referenced by `minimumSizeHint()`.

5.73.3.3 void QwtScaleWidget::draw (QPainter * *p*) const [protected]

draw the scale

Definition at line 428 of file qwt_scale_widget.cpp.

References `colorBarRect()`, and `drawColorBar()`.

Referenced by `paintEvent()`.

5.73.3.4 void QwtScaleWidget::drawTitle (QPainter * *painter*, QwtScaleDraw::Alignment *align*, const QRect & *rect*) const

Rotate and paint a title according to its position into a given rectangle.

Parameters:

painter Painter

align Alignment

rect Bounding rectangle

Definition at line 622 of file qwt_scale_widget.cpp.

References `QwtText::draw()`, `QwtText::setRenderFlags()`, and `title()`.

5.73.3.5 int QwtScaleWidget::endBorderDist () const

Returns:

end border distance

See also:

[QwtScaleWidget::setBorderDist](#)

Definition at line 376 of file qwt_scale_widget.cpp.

Referenced by `QwtPlot::canvasMap()`.

5.73.3.6 void QwtScaleWidget::getBorderDistHint (int & *start*, int & *end*) const

Calculate a hint for the border distances.

This member function calculates the distance of the scale's endpoints from the widget borders which is required for the mark labels to fit into the widget. The maximum of this distance and the minimum border distance is returned.

Warning:

- The minimum border distance depends on the font.

See also:

[setMinBorderDist\(\)](#), [getMinBorderDist\(\)](#), [setBorderDist\(\)](#)

Definition at line 775 of file qwt_scale_widget.cpp.

Referenced by `layoutScale()`, and `minimumSizeHint()`.

5.73.3.7 void QwtScaleWidget::getMinBorderDist (int & start, int & end) const

Get the minimum value for the distances of the scale's endpoints from the widget borders.

See also:

[setMinBorderDist\(\)](#), [getBorderDistHint\(\)](#)

Definition at line 806 of file `qwt_scale_widget.cpp`.

5.73.3.8 void QwtScaleWidget::layoutScale (bool update = true) [protected]

Recalculate the scale's geometry and layout based on.

Definition at line 552 of file `qwt_scale_widget.cpp`.

References `colorBarWidth()`, and `getBorderDistHint()`.

Referenced by `resizeEvent()`, `scaleChange()`, `setAlignment()`, `setBorderDist()`, `setColorBarEnabled()`, `setColorBarWidth()`, `setColorMap()`, `setLabelRotation()`, `setMargin()`, `setPenWidth()`, `setScaleDiv()`, `setScaleDraw()`, `setSpacing()`, and `setTitle()`.

5.73.3.9 int QwtScaleWidget::margin () const

Returns:

margin

See also:

[QwtScaleWidget::setMargin](#)

Definition at line 385 of file `qwt_scale_widget.cpp`.

5.73.3.10 QSize QwtScaleWidget::minimumSizeHint () const [virtual]

Returns:

a minimum size hint

Definition at line 698 of file `qwt_scale_widget.cpp`.

References `dimForLength()`, and `getBorderDistHint()`.

Referenced by `QwtPlotLayout::minimumSizeHint()`, `sizeHint()`, and `QwtPlot::sizeHint()`.

5.73.3.11 void QwtScaleWidget::paintEvent (QPaintEvent * e) [protected, virtual]

paintEvent

Definition at line 410 of file `qwt_scale_widget.cpp`.

References `draw()`.

5.73.3.12 int QwtScaleWidget::penWidth () const

Returns:

Scale pen width

See also:

[QwtScaleWidget::setPenWidth](#)

Definition at line 403 of file qwt_scale_widget.cpp.

5.73.3.13 void QwtScaleWidget::resizeEvent (QResizeEvent * *e*) [protected, virtual]
resizeEvent

Definition at line 542 of file qwt_scale_widget.cpp.

References [layoutScale\(\)](#).

5.73.3.14 void QwtScaleWidget::scaleChange () [protected]

Notify a change of the scale.

This virtual function can be overloaded by derived classes. The default implementation updates the geometry and repaints the widget.

Definition at line 682 of file qwt_scale_widget.cpp.

References [layoutScale\(\)](#).

5.73.3.15 void QwtScaleWidget::scaleDivChanged () [signal]

Signal emitted, whenever the scale division changes.

Referenced by [setScaleDiv\(\)](#).

5.73.3.16 [QwtScaleDraw](#) * QwtScaleWidget::scaleDraw ()

scaleDraw of this scale

See also:

[QwtScaleDraw::setScaleDraw](#)

Definition at line 349 of file qwt_scale_widget.cpp.

5.73.3.17 const [QwtScaleDraw](#) * QwtScaleWidget::scaleDraw () const

scaleDraw of this scale

See also:

[QwtScaleDraw::setScaleDraw](#)

Definition at line 340 of file qwt_scale_widget.cpp.

Referenced by [alignment\(\)](#), [QwtPlot::axisScaleDraw\(\)](#), [QwtPlot::printScale\(\)](#), and [QwtPlot::sizeHint\(\)](#).

5.73.3.18 void QwtScaleWidget::setAlignment ([QwtScaleDraw::Alignment](#) *alignment*)

Change the alignment

Parameters:

alignment New alignment

See also:

[QwtScaleWidget::alignment](#)

Definition at line 187 of file `qwt_scale_widget.cpp`.

References `layoutScale()`.

5.73.3.19 void QwtScaleWidget::setBorderDist (int *dist1*, int *dist2*)

Specify distances of the scale's endpoints from the widget's borders. The actual borders will never be less than minimum border distance.

Parameters:

dist1 Left or top Distance

dist2 Right or bottom distance

See also:

[QwtScaleWidget::borderDist](#)

Definition at line 234 of file `qwt_scale_widget.cpp`.

References `layoutScale()`.

5.73.3.20 void QwtScaleWidget::setLabelAlignment (Qt::Alignment *alignment*)

Change the alignment for the labels.

See also:

[QwtScaleDraw::setLabelAlignment\(\)](#), [QwtScaleWidget::setLabelRotation\(\)](#)

Definition at line 299 of file `qwt_scale_widget.cpp`.

5.73.3.21 void QwtScaleWidget::setLabelRotation (double *rotation*)

Change the rotation for the labels. See [QwtScaleDraw::setLabelRotation\(\)](#).

See also:

[QwtScaleDraw::setLabelRotation\(\)](#), [QwtScaleWidget::setLabelFlags\(\)](#)

Definition at line 311 of file `qwt_scale_widget.cpp`.

References `layoutScale()`.

Referenced by `QwtPlot::setAxisLabelRotation()`.

5.73.3.22 void QwtScaleWidget::setMargin (int *margin*)

Specify the margin to the colorBar/base line.

Parameters:

margin Margin

See also:

[QwtScaleWidget::margin](#)

Definition at line 249 of file `qwt_scale_widget.cpp`.

References `layoutScale()`.

5.73.3.23 void QwtScaleWidget::setMinBorderDist (int *start*, int *end*)

Set a minimum value for the distances of the scale's endpoints from the widget borders. This is useful to avoid that the scales are "jumping", when the tick labels or their positions change often.

See also:

[getMinBorderDist\(\)](#), [getBorderDistHint\(\)](#)

Definition at line 794 of file `qwt_scale_widget.cpp`.

5.73.3.24 void QwtScaleWidget::setPenWidth (int *width*)

Specify the width of the scale pen.

Parameters:

width Pen width

See also:

[QwtScaleWidget::penWidth](#)

Definition at line 279 of file `qwt_scale_widget.cpp`.

References `layoutScale()`.

5.73.3.25 void QwtScaleWidget::setScaleDiv ([QwtScaleTransformation](#) * *transformation*, const [QwtScaleDiv](#) & *scaleDiv*)

Assign a scale division.

The scale division determines where to set the tick marks.

Parameters:

transformation Transformation, needed to translate between scale and pixal values

scaleDiv Scale Division

See also:

For more information about scale divisions, see [QwtScaleDiv](#).

Definition at line 840 of file `qwt_scale_widget.cpp`.

References `layoutScale()`, `QwtAbstractScaleDraw::map()`, `QwtAbstractScaleDraw::scaleDiv()`, `scaleDivChanged()`, `QwtAbstractScaleDraw::setScaleDiv()`, `QwtAbstractScaleDraw::setTransformation()`, `QwtScaleMap::transformation()`, and `QwtScaleTransformation::type()`.

5.73.3.26 void QwtScaleWidget::setScaleDraw ([QwtScaleDraw](#) *)

Set a scale draw `sd` has to be created with `new` and will be deleted in `QwtScaleWidget::~~QwtScale` or the next call of [QwtScaleWidget::setScaleDraw](#).

Definition at line 322 of file `qwt_scale_widget.cpp`.

References `layoutScale()`, and `QwtScaleDraw::setAlignment()`.

Referenced by `QwtPlot::setAxisScaleDraw()`.

5.73.3.27 void QwtScaleWidget::setSpacing (int *spacing*)

Specify the distance between color bar, scale and title.

Parameters:

spacing Spacing

See also:

[QwtScaleWidget::spacing](#)

Definition at line 264 of file qwt_scale_widget.cpp.

References [layoutScale\(\)](#).

5.73.3.28 void QwtScaleWidget::setTitle (const [QwtText](#) & *title*)

Give title new text contents.

Parameters:

title New title

See also:

[QwtScaleWidget::title](#)

Warning:

The title flags are interpreted in direction of the label, [AlignTop](#), [AlignBottom](#) can't be set as the title will always be aligned to the scale.

Definition at line 168 of file qwt_scale_widget.cpp.

References [layoutScale\(\)](#), [QwtText::renderFlags\(\)](#), [QwtText::setRenderFlags\(\)](#), and [title\(\)](#).

5.73.3.29 QSize QwtScaleWidget::sizeHint () const [virtual]**Returns:**

a size hint

Definition at line 690 of file qwt_scale_widget.cpp.

References [minimumSizeHint\(\)](#).

5.73.3.30 int QwtScaleWidget::spacing () const**Returns:**

distance between scale and title

See also:

[QwtScaleWidget::setMargin](#)

Definition at line 394 of file qwt_scale_widget.cpp.

Referenced by [QwtPlot::printScale\(\)](#).

5.73.3.31 int QwtScaleWidget::startBorderDist () const**Returns:**

start border distance

See also:[QwtScaleWidget::setBorderDist](#)

Definition at line 367 of file qwt_scale_widget.cpp.

Referenced by QwtPlot::canvasMap().

5.73.3.32 [QwtText](#) QwtScaleWidget::title () const**Returns:**

title

See also:[QwtScaleWidget::setTitle](#)

Definition at line 358 of file qwt_scale_widget.cpp.

Referenced by QwtPlot::axisTitle(), drawTitle(), and setTitle().

5.73.3.33 int QwtScaleWidget::titleHeightForWidth (int *width*) const

Find the height of the title for a given width.

Parameters:*width* Width**Returns:**

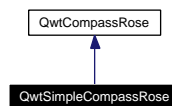
height Height

Definition at line 733 of file qwt_scale_widget.cpp.

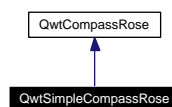
Referenced by dimForLength().

5.74 QwtSimpleCompassRose Class Reference

Inheritance diagram for QwtSimpleCompassRose:



Collaboration diagram for QwtSimpleCompassRose:



5.74.1 Detailed Description

A simple rose for [QwtCompass](#).

Definition at line 49 of file `qwt_compass_rose.h`.

Public Member Functions

- [QwtSimpleCompassRose](#) (int numThorns=8, int numThornLevels=-1)
- void [setWidth](#) (double w)
- double [width](#) () const
- void [setNumThorns](#) (int count)
- int [numThorns](#) () const
- void [setNumThornLevels](#) (int count)
- int [numThornLevels](#) () const
- void [setShrinkFactor](#) (double factor)
- double [shrinkFactor](#) () const
- virtual void [draw](#) (QPainter *, const QPoint ¢er, int radius, double north, QPalette::ColorGroup=QPalette::Active) const

Static Public Member Functions

- static void [drawRose](#) (QPainter *, const QPalette &, const QPoint ¢er, int radius, double origin, double width, int numThorns, int numThornLevels, double shrinkFactor)

5.74.2 Constructor & Destructor Documentation

5.74.2.1 QwtSimpleCompassRose::QwtSimpleCompassRose (int *numThorns* = 8, int *numThornLevels* = -1)

Constructor

Parameters:

numThorns Number of thorns

numThornLevels Number of thorn levels

Definition at line 61 of file `qwt_compass_rose.cpp`.

References `QwtCompassRose::palette()`.

5.74.3 Member Function Documentation

5.74.3.1 void QwtSimpleCompassRose::draw (QPainter * *painter*, const QPoint & *center*, int *radius*, double *north*, QPalette::ColorGroup *cg* = QPalette::Active) const [virtual]

Draw the rose

Parameters:

painter Painter

center Center point

radius Radius of the rose

north Position

cg Color group

Implements [QwtCompassRose](#).

Definition at line 98 of file `qwt_compass_rose.cpp`.

References `drawRose()`, and `QwtCompassRose::palette()`.

5.74.3.2 `void QwtSimpleCompassRose::drawRose (QPainter * painter, const QPalette & palette, const QPoint & center, int radius, double north, double width, int numThorns, int numThornLevels, double shrinkFactor) [static]`

Draw the rose

Parameters:

painter Painter

palette Palette

center Center of the rose

radius Radius of the rose

north Position pointing to north

width Width of the rose

numThorns Number of thorns

numThornLevels Number of thorn levels

shrinkFactor Factor to shrink the thorns with each level

Definition at line 136 of file `qwt_compass_rose.cpp`.

Referenced by `draw()`.

5.74.3.3 `int QwtSimpleCompassRose::numThornLevels () const`

Returns:

Number of thorn levels

See also:

[setNumThorns\(\)](#), [setNumThornLevels\(\)](#)

Definition at line 278 of file `qwt_compass_rose.cpp`.

5.74.3.4 `int QwtSimpleCompassRose::numThorns () const`

Returns:

Number of thorns

See also:

[setNumThorns\(\)](#), [setNumThornLevels\(\)](#)

Definition at line 258 of file `qwt_compass_rose.cpp`.

5.74.3.5 void QwtSimpleCompassRose::setNumThornLevels (int *numThornLevels*)

Set the of thorns levels

Parameters:

numThornLevels Number of thorns levels

See also:

[setNumThorns\(\)](#), [numThornLevels\(\)](#)

Definition at line 269 of file qwt_compass_rose.cpp.

5.74.3.6 void QwtSimpleCompassRose::setNumThorns (int *numThorns*)

Set the number of thorns on one level The number is aligned to a multiple of 4, with a minimum of 4

Parameters:

numThorns Number of thorns

See also:

[numThorns\(\)](#), [setNumThornLevels\(\)](#)

Definition at line 243 of file qwt_compass_rose.cpp.

5.74.3.7 void QwtSimpleCompassRose::setWidth (double *width*)

Set the width of the rose heads. Lower value make thinner heads. The range is limited from 0.03 to 0.4.

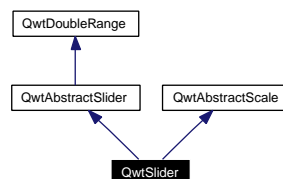
Parameters:

width Width

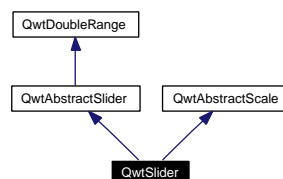
Definition at line 226 of file qwt_compass_rose.cpp.

5.75 QwtSlider Class Reference

Inheritance diagram for QwtSlider:



Collaboration diagram for QwtSlider:



5.75.1 Detailed Description

The Slider Widget.

[QwtSlider](#) is a slider widget which operates on an interval of type double. [QwtSlider](#) supports different layouts as well as a scale.

See also:

[QwtAbstractSlider](#) and [QwtAbstractScale](#) for the descriptions of the inherited members.

Definition at line 34 of file qwt_slider.h.

Public Types

- enum [ScalePos](#) {
 NoScale,
 LeftScale,
 RightScale,
 TopScale,
 BottomScale }
- enum [BGSTYLE](#) {
 BgTrough = 0x1,
 BgSlot = 0x2,
 BgBoth = BgTrough | BgSlot }

Public Member Functions

- [QwtSlider](#) (QWidget *parent, Qt::Orientation=Qt::Horizontal, [ScalePos](#)=NoScale, [BGSTYLE](#) bgStyle=BgTrough)
- virtual [~QwtSlider](#) ()
- virtual void [setOrientation](#) (Qt::Orientation)
- void [setBgStyle](#) ([BGSTYLE](#))
- [BGSTYLE](#) [bgStyle](#) () const
- void [setScalePosition](#) ([ScalePos](#) s)
- [ScalePos](#) [scalePosition](#) () const
- int [thumbLength](#) () const
- int [thumbWidth](#) () const
- int [borderWidth](#) () const
- void [setThumbLength](#) (int l)
- void [setThumbWidth](#) (int w)
- void [setBorderWidth](#) (int bw)
- void [setMargins](#) (int x, int y)
- virtual QSize [sizeHint](#) () const
- virtual QSize [minimumSizeHint](#) () const
- void [setScaleDraw](#) ([QwtScaleDraw](#) *)
- const [QwtScaleDraw](#) * [scaleDraw](#) () const

Protected Member Functions

- virtual double [getValue](#) (const QPoint &p)
- virtual void [getScrollMode](#) (const QPoint &p, int &scrollMode, int &direction)
- void [draw](#) (QPainter *p, const QRect &update_rect)
- virtual void [drawSlider](#) (QPainter *p, const QRect &r)
- virtual void [drawThumb](#) (QPainter *p, const QRect &, int pos)
- virtual void [resizeEvent](#) (QResizeEvent *e)
- virtual void [paintEvent](#) (QPaintEvent *e)
- virtual void [valueChange](#) ()
- virtual void [rangeChange](#) ()
- virtual void [scaleChange](#) ()
- virtual void [fontChange](#) (const QFont &oldFont)
- void [layoutSlider](#) (bool update=true)
- int [xyPosition](#) (double v) const
- [QwtScaleDraw](#) * [scaleDraw](#) ()

5.75.2 Member Enumeration Documentation

5.75.2.1 enum [QwtSlider::BGSTYLE](#)

Background style.

See also:

[QwtSlider::QwtSlider](#)

Definition at line 70 of file `qwt_slider.h`.

5.75.2.2 enum [QwtSlider::ScalePos](#)

Scale position. [QwtSlider](#) tries to enforce valid combinations of its orientation and scale position:

- Qt::Horizontal combines with NoScale, TopScale and BottomScale
- Qt::Vertical combines with NoScale, LeftScale and RightScale

See also:

[QwtSlider::QwtSlider](#)

Definition at line 56 of file `qwt_slider.h`.

5.75.3 Constructor & Destructor Documentation

5.75.3.1 [QwtSlider::QwtSlider](#) (QWidget * *parent*, Qt::Orientation *orientation* = Qt::Horizontal, [ScalePos](#) *scalePos* = NoScale, [BGSTYLE](#) *bgStyle* = BgTrough) [explicit]

Constructor.

Parameters:

parent parent widget

orientation Orientation of the slider. Can be Qt::Horizontal or Qt::Vertical. Defaults to Qt::Horizontal.

scalePos Position of the scale. Defaults to QwtSlider::NoScale.

bgStyle Background style. QwtSlider::BgTrough draws the slider button in a trough, QwtSlider::BgSlot draws a slot underneath the button. An or-combination of both may also be used. The default is QwtSlider::BgTrough.

[QwtSlider](#) enforces valid combinations of its orientation and scale position. If the combination is invalid, the scale position will be set to NoScale. Valid combinations are:

- Qt::Horizontal with NoScale, TopScale, or BottomScale;
- Qt::Vertical with NoScale, LeftScale, or RightScale.

Definition at line 64 of file qwt_slider.cpp.

5.75.4 Member Function Documentation

5.75.4.1 [QwtSlider::BGSTYLE](#) QwtSlider::bgStyle () const

Returns:

the background style.

Definition at line 735 of file qwt_slider.cpp.

5.75.4.2 int QwtSlider::borderWidth () const

Returns:

the border width.

Definition at line 759 of file qwt_slider.cpp.

5.75.4.3 void QwtSlider::draw (QPainter *p, const QRect &update_rect) [protected]

Draw the [QwtSlider](#).

Definition at line 517 of file qwt_slider.cpp.

References [QwtAbstractScaleDraw::draw\(\)](#), [QwtPainter::drawFocusRect\(\)](#), [drawSlider\(\)](#), and [scaleDraw\(\)](#).

Referenced by [paintEvent\(\)](#).

5.75.4.4 void QwtSlider::drawSlider (QPainter *p, const QRect &r) [protected, virtual]

Draw the slider into the specified rectangle.

Definition at line 319 of file qwt_slider.cpp.

References [drawThumb\(\)](#), [QwtAbstractSlider::isValid\(\)](#), [QwtAbstractSlider::orientation\(\)](#), [QwtDoubleRange::value\(\)](#), and [xyPosition\(\)](#).

Referenced by [draw\(\)](#).

5.75.4.5 void QwtSlider::drawThumb (QPainter * *p*, const QRect &, int *pos*) [protected, virtual]

Draw the thumb at a position.

Definition at line 395 of file qwt_slider.cpp.

References QwtAbstractSlider::orientation().

Referenced by drawSlider().

5.75.4.6 void QwtSlider::fontChange (const QFont & *oldFont*) [protected, virtual]

Notify change in font.

Definition at line 312 of file qwt_slider.cpp.

References layoutSlider().

5.75.4.7 void QwtSlider::getScrollMode (const QPoint & *p*, int & *scrollMode*, int & *direction*) [protected, virtual]

Determine scrolling mode and direction.

Parameters:

p point

scrollMode Scrolling mode

direction Direction

Implements [QwtAbstractSlider](#).

Definition at line 472 of file qwt_slider.cpp.

5.75.4.8 double QwtSlider::getValue (const QPoint & *p*) [protected, virtual]

Determine the value corresponding to a specified mouse location.

Implements [QwtAbstractSlider](#).

Definition at line 459 of file qwt_slider.cpp.

References QwtAbstractSlider::orientation().

5.75.4.9 void QwtSlider::layoutSlider (bool *update_geometry* = true) [protected]

Recalculate the slider's geometry and layout based on the current rect and fonts.

Parameters:

update_geometry notify the layout system and call update to redraw the scale

Definition at line 546 of file qwt_slider.cpp.

References QwtScaleDraw::getBorderDistHint(), QwtScaleDraw::move(), QwtAbstractSlider::orientation(), scaleDraw(), and QwtScaleDraw::setLength().

Referenced by fontChange(), rangeChange(), resizeEvent(), scaleChange(), setBgStyle(), setBorderWidth(), setMargins(), setOrientation(), setScalePosition(), setThumbLength(), and setThumbWidth().

5.75.4.10 QSize QwtSlider::minimumSizeHint () const [virtual]

Return a minimum size hint.

Warning:

The return value of [QwtSlider::minimumSizeHint\(\)](#) depends on the font and the scale.

Definition at line 777 of file qwt_slider.cpp.

References [QwtScaleDraw::extent\(\)](#), [QwtScaleDraw::getBorderDistHint\(\)](#), [QwtScaleDraw::minLength\(\)](#), [QwtAbstractSlider::orientation\(\)](#), and [scaleDraw\(\)](#).

Referenced by [sizeHint\(\)](#).

5.75.4.11 void QwtSlider::paintEvent (QPaintEvent * e) [protected, virtual]

Qt paint event.

Definition at line 501 of file qwt_slider.cpp.

References [draw\(\)](#).

5.75.4.12 void QwtSlider::rangeChange () [protected, virtual]

Notify change of range.

Reimplemented from [QwtDoubleRange](#).

Definition at line 692 of file qwt_slider.cpp.

References [QwtAbstractScale::autoScale\(\)](#), [layoutSlider\(\)](#), [QwtDoubleRange::maxValue\(\)](#), [QwtDoubleRange::minValue\(\)](#), [QwtDoubleRange::rangeChange\(\)](#), and [QwtAbstractScale::rescale\(\)](#).

5.75.4.13 void QwtSlider::resizeEvent (QResizeEvent * e) [protected, virtual]

Qt resize event.

Definition at line 535 of file qwt_slider.cpp.

References [layoutSlider\(\)](#).

5.75.4.14 void QwtSlider::scaleChange () [protected, virtual]

Notify changed scale.

Reimplemented from [QwtAbstractScale](#).

Definition at line 305 of file qwt_slider.cpp.

References [layoutSlider\(\)](#).

5.75.4.15 QwtSlider::ScalePos QwtSlider::scalePosition () const

Return the scale position.

Definition at line 236 of file qwt_slider.cpp.

5.75.4.16 void QwtSlider::setBgStyle (BGSTYLE sf)

Set the background style.

Definition at line 726 of file qwt_slider.cpp.

References `layoutSlider()`.

5.75.4.17 void QwtSlider::setBorderWidth (int *bd*)

Change the slider's border width.

Parameters:

bd border width

Definition at line 245 of file qwt_slider.cpp.

References `layoutSlider()`.

5.75.4.18 void QwtSlider::setMargins (int *xMargin*, int *yMargin*)

Set distances between the widget's border and internals.

Parameters:

xMargin Horizontal margin

yMargin Vertical margin

Definition at line 708 of file qwt_slider.cpp.

References `layoutSlider()`.

5.75.4.19 void QwtSlider::setOrientation (Qt::Orientation *o*) [virtual]

Set the orientation.

Parameters:

o Orientation. Allowed values are `Qt::Horizontal` and `Qt::Vertical`.

If the new orientation and the old scale position are an invalid combination, the scale position will be set to `QwtSlider::NoScale`.

See also:

[QwtAbstractSlider::orientation\(\)](#)

Reimplemented from [QwtAbstractSlider](#).

Definition at line 174 of file qwt_slider.cpp.

References `layoutSlider()`, `QwtAbstractSlider::orientation()`, and `QwtAbstractSlider::setOrientation()`.

Referenced by `setScalePosition()`.

5.75.4.20 void QwtSlider::setScalePosition (ScalePos *s*)

Change the scale position (and slider orientation).

Parameters:

s Position of the scale.

A valid combination of scale position and orientation is enforced:

- if the new scale position is Left or Right, the scale orientation will become Qt::Vertical;
- if the new scale position is Bottom or Top the scale orientation will become Qt::Horizontal;
- if the new scale position is QwtSlider::NoScale, the scale orientation will not change.

Definition at line 224 of file qwt_slider.cpp.

References `layoutSlider()`, and `setOrientation()`.

5.75.4.21 void QwtSlider::setThumbLength (int *thumbLength*)

Set the slider's thumb length.

Parameters:

thumbLength new length

Definition at line 261 of file qwt_slider.cpp.

References `layoutSlider()`.

5.75.4.22 void QwtSlider::setThumbWidth (int *w*)

Change the width of the thumb.

Parameters:

w new width

Definition at line 277 of file qwt_slider.cpp.

References `layoutSlider()`.

5.75.4.23 QSize QwtSlider::sizeHint () const [virtual]

Returns:

[QwtSlider::minimumSizeHint\(\)](#)

Definition at line 767 of file qwt_slider.cpp.

References `minimumSizeHint()`.

5.75.4.24 int QwtSlider::thumbLength () const

Returns:

the thumb length.

Definition at line 743 of file qwt_slider.cpp.

5.75.4.25 int QwtSlider::thumbWidth () const

Returns:

the thumb width.

Definition at line 751 of file qwt_slider.cpp.

5.75.4.26 void QwtSlider::valueChange () [protected, virtual]

Notify change of value.

Reimplemented from [QwtAbstractSlider](#).

Definition at line 684 of file qwt_slider.cpp.

References [QwtAbstractSlider::valueChange\(\)](#).

5.75.4.27 int QwtSlider::xyPosition (double v) const [protected]

Find the x/y position for a given value v.

Definition at line 453 of file qwt_slider.cpp.

Referenced by [drawSlider\(\)](#).

5.76 QwtSpline Class Reference

5.76.1 Detailed Description

A class for spline interpolation.

The [QwtSpline](#) class is used for cubical spline interpolation. Two types of splines, natural and periodic, are supported.

Usage:

1. First call [setPoints\(\)](#) to determine the spline coefficients for a tabulated function y(x).
2. After the coefficients have been set up, the interpolated function value for an argument x can be determined by calling [QwtSpline::value\(\)](#).

Example:

```
#include <qwt_spline.h>

QPolygonF interpolate(const QPolygonF& points, int numValues)
{
    QwtSpline spline;
    if ( !spline.setPoints(points) )
        return points;

    QPolygonF interpolatedPoints(numValues);

    const double delta =
        (points[numPoints - 1].x() - points[0].x()) / (points.size() - 1);
    for(i = 0; i < points.size(); i++) / interpolate
    {
        const double x = points[0].x() + i * delta;
        interpolatedPoints[i].setX(x);
        interpolatedPoints[i].setY(spline.value(x));
    }
    return interpolatedPoints;
}
```

Definition at line 77 of file qwt_spline.h.

Public Types

- enum [SplineType](#) {

Natural,
Periodic }

Public Member Functions

- [QwtSpline](#) ()
- [QwtSpline](#) (const [QwtSpline](#) &)
- [~QwtSpline](#) ()
- [QwtSpline](#) & [operator=](#) (const [QwtSpline](#) &)
- void [setSplineType](#) ([SplineType](#))
- [SplineType](#) [splineType](#) () const
- bool [setPoints](#) (const [QPolygonF](#) &points)
- [QPolygonF](#) [points](#) () const
- void [reset](#) ()
- bool [isValid](#) () const
- double [value](#) (double x) const

Protected Member Functions

- bool [buildNaturalSpline](#) (const [QPolygonF](#) &)
- bool [buildPeriodicSpline](#) (const [QPolygonF](#) &)

Protected Attributes

- [PrivateData](#) * [d_data](#)

5.76.2 Constructor & Destructor Documentation

5.76.2.1 QwtSpline::QwtSpline ()

Constructor.

Definition at line 73 of file [qwt_spline.cpp](#).

References [d_data](#).

5.76.2.2 QwtSpline::~~QwtSpline ()

Destructor.

Definition at line 90 of file [qwt_spline.cpp](#).

References [d_data](#).

5.76.3 Member Function Documentation

5.76.3.1 bool QwtSpline::buildNaturalSpline (const QPolygonF & points) [protected]

Determines the coefficients for a natural spline.

Returns:

true if successful

Definition at line 209 of file [qwt_spline.cpp](#).

5.76.3.2 bool QwtSpline::buildPeriodicSpline (const QPolygonF & *points*) [protected]

Determines the coefficients for a periodic spline.

Returns:

true if successful

Definition at line 292 of file qwt_spline.cpp.

5.76.3.3 bool QwtSpline::isValid () const

True if valid.

Definition at line 181 of file qwt_spline.cpp.

References `d_data`.

5.76.3.4 QPolygonF QwtSpline::points () const

Return points passed by `setPoints`

Definition at line 164 of file qwt_spline.cpp.

5.76.3.5 void QwtSpline::reset ()

Free allocated memory and set size to 0.

Definition at line 172 of file qwt_spline.cpp.

References `d_data`.

5.76.3.6 bool QwtSpline::setPoints (const QPolygonF & *points*)

Determine the function table index corresponding to a value *x* Calculate the spline coefficients.

Depending on the value of *periodic*, this function will determine the coefficients for a natural or a periodic spline and store them internally.

Parameters:

x

y points

size number of points

periodic if true, calculate periodic spline

Returns:

true if successful

Warning:

The sequence of *x* (but not *y*) values has to be strictly monotone increasing, which means $x[0] < x[1] < \dots < x[n-1]$. If this is not the case, the function will return false

Definition at line 126 of file qwt_spline.cpp.

5.76.3.7 double QwtSpline::value (double *x*) const

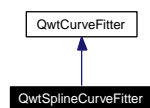
Calculate the interpolated function value corresponding to a given argument *x*.

Definition at line 190 of file qwt_spline.cpp.

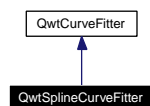
References `d_data`.

5.77 QwtSplineCurveFitter Class Reference

Inheritance diagram for QwtSplineCurveFitter:



Collaboration diagram for QwtSplineCurveFitter:



5.77.1 Detailed Description

A curve fitter using cubic splines.

Definition at line 65 of file qwt_curve_fitter.h.

Public Types

- enum `FitMode` {
 Auto,
 Spline,
 ParametricSpline }

Public Member Functions

- `QwtSplineCurveFitter` ()
- virtual `~QwtSplineCurveFitter` ()
- void `setFitMode` (`FitMode`)
- `FitMode` `fitMode` () const
- void `setSpline` (const `QwtSpline` &)
- const `QwtSpline` & `spline` () const
- `QwtSpline` & `spline` ()
- void `setSplineSize` (int size)
- int `splineSize` () const
- virtual `QPolygonF` `fitCurve` (const `QPolygonF` &) const

5.78 QwtSymbol Class Reference

5.78.1 Detailed Description

A class for drawing symbols.

Definition at line 22 of file qwt_symbol.h.

Public Types

- enum [Style](#) {
 NoSymbol = -1,
 Ellipse,
 Rect,
 Diamond,
 Triangle,
 DTriangle,
 UTriangle,
 LTriangle,
 RTriangle,
 Cross,
 XCross,
 HLine,
 VLine,
 Star1,
 Star2,
 Hexagon,
 StyleCnt }

Public Member Functions

- [QwtSymbol](#) ()
- [QwtSymbol](#) ([Style](#) st, const [QBrush](#) &bd, const [QPen](#) &pn, const [QSize](#) &s)
- virtual [~QwtSymbol](#) ()
- bool [operator!=](#) (const [QwtSymbol](#) &) const
- bool [operator==](#) (const [QwtSymbol](#) &) const
- void [setSize](#) (const [QSize](#) &s)
- void [setSize](#) (int a, int b=-1)
- void [setBrush](#) (const [QBrush](#) &b)
- void [setPen](#) (const [QPen](#) &p)
- void [setStyle](#) ([Style](#) s)
- const [QBrush](#) & [brush](#) () const
- const [QPen](#) & [pen](#) () const
- const [QSize](#) & [size](#) () const
- [Style](#) [style](#) () const
- void [draw](#) ([QPainter](#) *p, const [QPoint](#) &pt) const
- void [draw](#) ([QPainter](#) *p, int x, int y) const
- virtual void [draw](#) ([QPainter](#) *p, const [QRect](#) &r) const

5.78.2 Member Enumeration Documentation

5.78.2.1 enum [QwtSymbol::Style](#)

Style

See also:

[QwtSymbol::setStyle](#), [QwtSymbol::style](#)

Definition at line 29 of file `qwt_symbol.h`.

5.78.3 Constructor & Destructor Documentation

5.78.3.1 [QwtSymbol::QwtSymbol\(\)](#)

Default Constructor

The symbol is constructed with gray interior, black outline with zero width, no size and style 'NoSymbol'.

Definition at line 22 of file `qwt_symbol.cpp`.

5.78.3.2 [QwtSymbol::QwtSymbol\(\[QwtSymbol::Style\]\(#\) style, const QBrush & brush, const QPen & pen, const QSize & size\)](#)

Constructor.

Parameters:

style Symbol Style

brush brush to fill the interior

pen outline pen

size size

Definition at line 37 of file `qwt_symbol.cpp`.

5.78.3.3 [QwtSymbol::~~QwtSymbol\(\)](#) [virtual]

Destructor.

Definition at line 47 of file `qwt_symbol.cpp`.

5.78.4 Member Function Documentation

5.78.4.1 [const QBrush& QwtSymbol::brush\(\) const](#) [inline]

Return Brush.

Definition at line 67 of file `qwt_symbol.h`.

Referenced by `QwtPlotCurve::drawSymbols()`, and `operator==(())`.

5.78.4.2 [void QwtSymbol::draw\(QPainter * painter, const QRect & r\) const](#) [virtual]

Draw the symbol into a bounding rectangle.

This function assumes that the painter has been initialized with brush and pen before. This allows a much more performant implementation when painting many symbols with the same brush and pen like in curves.

Parameters:

- painter* Painter
- r* Bounding rectangle

Definition at line 116 of file qwt_symbol.cpp.

References QwtPainter::drawEllipse(), QwtPainter::drawLine(), QwtPainter::drawPolygon(), and QwtPainter::drawRect().

5.78.4.3 void QwtSymbol::draw (QPainter * *p*, int *x*, int *y*) const

Draw the symbol at a point (x,y).

Definition at line 100 of file qwt_symbol.cpp.

References draw().

5.78.4.4 void QwtSymbol::draw (QPainter * *painter*, const QPoint & *pos*) const

Draw the symbol at a specified point.

Parameters:

- painter* Painter
- pos* Center of the symbol

Definition at line 294 of file qwt_symbol.cpp.

References QwtPainter::metricsMap().

Referenced by draw(), and QwtPlotCurve::drawSymbols().

5.78.4.5 bool QwtSymbol::operator!= (const QwtSymbol &) const

!= operator

Definition at line 342 of file qwt_symbol.cpp.

5.78.4.6 bool QwtSymbol::operator== (const QwtSymbol &) const

== operator

Definition at line 335 of file qwt_symbol.cpp.

References brush(), pen(), size(), and style().

5.78.4.7 const QPen& QwtSymbol::pen () const [inline]

Return Pen.

Definition at line 69 of file qwt_symbol.h.

Referenced by QwtPlotCurve::drawSymbols(), and operator==().

5.78.4.8 void QwtSymbol::setBrush (const QBrush & *br*)

Assign a brush.

The brush is used to draw the interior of the symbol.

Parameters:*br* brush

Definition at line 80 of file qwt_symbol.cpp.

5.78.4.9 void QwtSymbol::setPen (const QPen & *pn*)

Assign a pen.

The pen is used to draw the symbol's outline.

Parameters:*pn* pen

Definition at line 92 of file qwt_symbol.cpp.

5.78.4.10 void QwtSymbol::setSize (int *w*, int *h* = -1)

Specify the symbol's size.

If the '*h*' parameter is left out or less than 0, and the '*w*' parameter is greater than or equal to 0, the symbol size will be set to (*w*,*w*).

Parameters:*w* width*h* height (defaults to -1)

Definition at line 60 of file qwt_symbol.cpp.

5.78.4.11 void QwtSymbol::setSize (const QSize & *s*)

Set the symbol's size.

Definition at line 68 of file qwt_symbol.cpp.

5.78.4.12 void QwtSymbol::setStyle (QwtSymbol::Style *s*)

Specify the symbol style.

The following styles are defined:

NoSymbol No Style. The symbol cannot be drawn.

Ellipse Ellipse or circle

Rect Rectangle

Diamond Diamond

Triangle Triangle pointing upwards

DTriangle Triangle pointing downwards

UTriangle Triangle pointing upwards

LTriangle Triangle pointing left

RTriangle Triangle pointing right

Cross Cross (+)

XCross Diagonal cross (X)

HLine Horizontal line

VLine Vertical line

Star1 X combined with +

Star2 Six-pointed star

Hexagon Hexagon

Parameters:

s style

Definition at line 329 of file qwt_symbol.cpp.

5.78.4.13 `const QSize& QwtSymbol::size () const` [inline]

Return Size.

Definition at line 71 of file qwt_symbol.h.

Referenced by `QwtPlotCurve::drawSymbols()`, and `operator==(())`.

5.78.4.14 `Style QwtSymbol::style () const` [inline]

Return Style.

Definition at line 73 of file qwt_symbol.h.

Referenced by `operator==(())`.

5.79 QwtText Class Reference

5.79.1 Detailed Description

A class representing a text.

A [QwtText](#) is a text including a set of attributes how to render it.

- Format

A text might include control sequences (f.e tags) describing how to render it. Each format (f.e MathML, TeX, Qt Rich Text) has its own set of control sequences, that can be handles by a [QwtTextEngine](#) for this format.

- Background

A text might have a background, defined by a `QPen` and `QBrush` to improve its visibility.

- Font

A text might have an individual font.

- **Color**
A text might have an individual color.
- **Render Flags**
Flags from Qt::AlignmentFlag and Qt::TextFlag used like in QPainter::drawText.

See also:

[QwtTextEngine](#), [QwtTextLabel](#)

Definition at line 51 of file qwt_text.h.

Public Types

- enum [TextFormat](#) {
 AutoText = 0,
 PlainText,
 RichText,
 MathMLText,
 TeXText,
 OtherFormat = 100 }
- enum [PaintAttribute](#) {
 PaintUsingTextFont = 1,
 PaintUsingTextColor = 2,
 PaintBackground = 4 }
- enum [LayoutAttribute](#) { **MinimumLayout** = 1 }

Public Member Functions

- [QwtText](#) (const QString &=QString::null, [TextFormat](#) textFormat=AutoText)
- [QwtText](#) (const [QwtText](#) &)
- [~QwtText](#) ()
- [QwtText](#) & [operator=](#) (const [QwtText](#) &)
- int [operator==](#) (const [QwtText](#) &) const
- int [operator!=](#) (const [QwtText](#) &) const
- void [setText](#) (const QString &, [QwtText::TextFormat](#) textFormat=AutoText)
- QString [text](#) () const
- bool [isNull](#) () const
- bool [isEmpty](#) () const
- void [setFont](#) (const QFont &)
- QFont [font](#) () const
- QFont [usedFont](#) (const QFont &) const
- void [setRenderFlags](#) (int flags)
- int [renderFlags](#) () const
- void [setColor](#) (const QColor &)
- QColor [color](#) () const
- QColor [usedColor](#) (const QColor &) const
- void [setBackgroundPen](#) (const QPen &)

- QPen [backgroundPen](#) () const
- void [setBackgroundBrush](#) (const QBrush &)
- QBrush [backgroundBrush](#) () const
- void [setPaintAttribute](#) (PaintAttribute, bool on=true)
- bool [testPaintAttribute](#) (PaintAttribute) const
- void [setLayoutAttribute](#) (LayoutAttribute, bool on=true)
- bool [testLayoutAttribute](#) (LayoutAttribute) const
- int [heightForWidth](#) (int width, const QFont &=QFont()) const
- QSize [textSize](#) (const QFont &=QFont()) const
- void [draw](#) (QPainter *painter, const QRect &rect) const

Static Public Member Functions

- static const [QwtTextEngine](#) * [textEngine](#) (const QString &text, [QwtText::TextFormat](#)=AutoText)
- static const [QwtTextEngine](#) * [textEngine](#) ([QwtText::TextFormat](#))
- static void [setTextEngine](#) ([QwtText::TextFormat](#), [QwtTextEngine](#) *)

5.79.2 Member Enumeration Documentation

5.79.2.1 enum [QwtText::LayoutAttribute](#)

Layout Attributes.

The layout attributes affects some aspects of the layout of the text.

- [MinimumLayout](#)
Layout the text without its margins. This mode is useful if a text needs to be aligned accurately, like the tick labels of a scale. If [QwtTextEngine::textMargins](#) is not implemented for the format of the text, [MinimumLayout](#) has no effect.

Definition at line 129 of file [qwt_text.h](#).

5.79.2.2 enum [QwtText::PaintAttribute](#)

Paint Attributes.

Font and color and background are optional attributes of a [QwtText](#). The paint attributes hold the information, if they are set.

- [PaintUsingTextFont](#)
The text has an individual font.
- [PaintUsingTextColor](#)
The text has an individual color.
- [PaintBackground](#)
The text has an individual background.

Definition at line 111 of file [qwt_text.h](#).

5.79.2.3 enum [QwtText::TextFormat](#)

Text format.

The text format defines the [QwtTextEngine](#), that is used to render the text.

- **AutoText**

The text format is determined using [QwtTextEngine::mightRender](#) for all available text engines in increasing order > PlainText. If none of the text engines can render the text is rendered like PlainText.

- **PlainText**

Draw the text as it is, using a [QwtPlainTextEngine](#).

- **RichText**

Use the Scribe framework (Qt Rich Text) to render the text.

- **MathMLText**

Use a MathML (<http://en.wikipedia.org/wiki/MathML>) render engine to display the text. The Qwt MathML extension offers such an engine based on the MathML renderer of the Qt solutions package. Unfortunately it is only available for owners of a commercial Qt license.

- **TeXText**

Use a TeX (<http://en.wikipedia.org/wiki/TeX>) render engine to display the text.

- **OtherFormat**

The number of text formats can be extended using `setTextEngine`. Formats \geq OtherFormat are not used by Qwt.

See also:

[QwtTextEngine](#), [setTextEngine](#)

Definition at line 85 of file `qwt_text.h`.

5.79.3 Constructor & Destructor Documentation

5.79.3.1 **QwtText::QwtText** (const [QString](#) & *text* = [QString::null](#), [QwtText::TextFormat](#) *textFormat* = [AutoText](#))

Constructor

Parameters:

text Text content

textFormat Text format

Definition at line 180 of file `qwt_text.cpp`.

References `textEngine()`.

5.79.3.2 **QwtText::QwtText** (const [QwtText](#) &)

Copy constructor.

Definition at line 190 of file `qwt_text.cpp`.

References `d_data`, and `d_layoutCache`.

5.79.3.3 QwtText::~~QwtText ()

Destructor.

Definition at line 200 of file qwt_text.cpp.

5.79.4 Member Function Documentation

5.79.4.1 QBrush QwtText::backgroundBrush () const

Returns:

Background brush

See also:

[setBackgroundBrush](#), [backgroundPen](#)

Definition at line 387 of file qwt_text.cpp.

5.79.4.2 QPen QwtText::backgroundPen () const

Returns:

Background pen

See also:

[setBackgroundPen](#), [backgroundBrush](#)

Definition at line 366 of file qwt_text.cpp.

5.79.4.3 QColor QwtText::color () const

Return the pen color, used for painting the text.

Definition at line 330 of file qwt_text.cpp.

5.79.4.4 void QwtText::draw (QPainter * *painter*, const QRect & *rect*) const

Draw a text into a rectangle

Parameters:

painter Painter

rect Rectangle

Definition at line 564 of file qwt_text.cpp.

References [QwtPainter::drawRect\(\)](#), [font\(\)](#), [QwtPainter::metricsMap\(\)](#), [QwtMetricsMap::screenToLayoutX\(\)](#), and [QwtMetricsMap::screenToLayoutY\(\)](#).

Referenced by [QwtLegendItem::drawItem\(\)](#), [QwtScaleDraw::drawLabel\(\)](#), [QwtRoundScaleDraw::drawLabel\(\)](#), [QwtScaleWidget::drawTitle\(\)](#), and [QwtPlot::printTitle\(\)](#).

5.79.4.5 QFont QwtText::font () const

Return the font.

Definition at line 296 of file qwt_text.cpp.

Referenced by [draw\(\)](#), [heightForWidth\(\)](#), and [textSize\(\)](#).

5.79.4.6 int QwtText::heightForWidth (int *width*, const QFont & *defaultFont* = QFont ()) const

Find the height for a given width

Parameters:

defaultFont Font, used for the calculation if the text has no font

width Width

Returns:

Calculated height

Definition at line 458 of file qwt_text.cpp.

References [font\(\)](#), [QwtMetricsMap::layoutToScreenX\(\)](#), [QwtPainter::metricsMap\(\)](#), [QwtMetricsMap::screenToLayoutY\(\)](#), and [usedFont\(\)](#).

5.79.4.7 bool QwtText::isEmpty () const [inline]**Returns:**

[text\(\).isEmpty\(\)](#)

Definition at line 152 of file qwt_text.h.

Referenced by [QwtScaleDraw::drawLabel\(\)](#), [QwtRoundScaleDraw::drawLabel\(\)](#), [QwtRoundScaleDraw::extent\(\)](#), [QwtScaleDraw::labelRect\(\)](#), and [QwtPicker::trackerRect\(\)](#).

5.79.4.8 bool QwtText::isNull () const [inline]**Returns:**

[text\(\).isNull\(\)](#)

Definition at line 149 of file qwt_text.h.

5.79.4.9 QwtText & QwtText::operator= (const QwtText &)

Assignment operator.

Definition at line 207 of file qwt_text.cpp.

References [d_data](#), and [d_layoutCache](#).

5.79.4.10 int QwtText::renderFlags () const**Returns:**

Render flags

See also:

[setRenderFlags](#)

Definition at line 277 of file qwt_text.cpp.

Referenced by [QwtScaleWidget::setTitle\(\)](#).

5.79.4.11 void QwtText::setBackgroundBrush (const QBrush & *brush*)

Set the background brush

Parameters:

brush Background brush

See also:

[backgroundBrush](#), [setBackgroundPen](#)

Definition at line 377 of file qwt_text.cpp.

References [setPaintAttribute\(\)](#).

5.79.4.12 void QwtText::setBackgroundPen (const QPen & *pen*)

Set the background pen

Parameters:

pen Background pen

See also:

[backgroundPen](#), [setBackgroundBrush](#)

Definition at line 356 of file qwt_text.cpp.

References [setPaintAttribute\(\)](#).

5.79.4.13 void QwtText::setColor (const QColor & *color*)

Set the pen color used for painting the text.

Parameters:

color Color

Note:

Setting the color might have no effect, when the text contains control sequences for setting colors.

Definition at line 323 of file qwt_text.cpp.

References [setPaintAttribute\(\)](#).

Referenced by [QwtPlotPrintFilter::reset\(\)](#).

5.79.4.14 void QwtText::setFont (const QFont & *font*)

Set the font.

Parameters:

font Font

Note:

Setting the font might have no effect, when the text contains control sequences for setting fonts.

Definition at line 289 of file qwt_text.cpp.

References [setPaintAttribute\(\)](#).

5.79.4.15 void QwtText::setLayoutAttribute ([LayoutAttribute](#) *attribute*, bool *on* = true)

Change a layout attribute

Parameters:

attribute Layout attribute

on On/Off

See also:

[testLayoutAttribute](#)

Definition at line 429 of file qwt_text.cpp.

5.79.4.16 void QwtText::setPaintAttribute ([PaintAttribute](#) *attribute*, bool *on* = true)

Change a paint attribute

Parameters:

attribute Paint attribute

on On/Off

Note:

Used by setFont(), setColor(), setBackgroundPen() and setBackgroundBrush()

See also:

[testPaintAttribute](#)

Definition at line 401 of file qwt_text.cpp.

Referenced by setBackgroundBrush(), setBackgroundPen(), setColor(), and setFont().

5.79.4.17 void QwtText::setRenderFlags (int *renderFlags*)

Change the render flags.

The default setting is Qt::AlignCenter

Parameters:

renderFlags Bitwise OR of the flags used like in QPainter::drawText()

See also:

[renderFlags](#), [QwtTextEngine::draw](#)

Note:

Some renderFlags might have no effect, depending on the text format.

Definition at line 264 of file qwt_text.cpp.

Referenced by QwtScaleWidget::drawTitle(), QwtLegendItem::setText(), QwtScaleWidget::setTitle(), and QwtAbstractScaleDraw::tickLabel().

5.79.4.18 void QwtText::setText (const QString & *text*, [QwtText::TextFormat](#) *textFormat* = AutoText)

Assign a new text content

Parameters:

text Text content

textFormat Text format

Definition at line 237 of file qwt_text.cpp.

References textEngine().

5.79.4.19 void QwtText::setTextEngine ([QwtText::TextFormat](#) *format*, [QwtTextEngine](#) * *engine*)
[static]

Assign/Replace a text engine for a text format

With setTextEngine it is possible to extend Qwt with other types of text formats.

Owner of a commercial Qt license can build the qwtmathml library, that is based on the MathML renderer, that is included in MML Widget component of the Qt solutions package.

For QwtText::PlainText it is not allowed to assign a engine == NULL.

Parameters:

format Text format

engine Text engine

See also:

[QwtMathMLTextEngine](#)

Warning:

Using QwtText::AutoText does nothing.

Definition at line 667 of file qwt_text.cpp.

5.79.4.20 bool QwtText::testLayoutAttribute ([LayoutAttribute](#) *attribute*) const

Test a layout attribute

Parameters:

attribute Layout attribute

Returns:

true, if attribute is enabled

See also:

[setLayoutAttribute](#)

Definition at line 445 of file qwt_text.cpp.

5.79.4.21 `bool QwtText::testPaintAttribute (PaintAttribute attribute) const`

Test a paint attribute

Parameters:

attribute Paint attribute

Returns:

true, if attribute is enabled

See also:

[setPaintAttribute](#)

Definition at line 417 of file qwt_text.cpp.

5.79.4.22 `QString QwtText::text () const`

Return the text.

See also:

[setText](#)

Definition at line 249 of file qwt_text.cpp.

Referenced by `QwtPlot::grabProperties()`.

5.79.4.23 `const QwtTextEngine * QwtText::textEngine (QwtText::TextFormat format) [static]`

Find the text engine for a text format.

`textEngine` can be used to find out if a text format is supported. F.e, if one wants to use MathML labels, the MathML renderer from the commercial Qt solutions package might be required, that is not available in Qt Open Source Edition environments.

Parameters:

format Text format

Returns:

The text engine, or NULL if no engine is available.

Definition at line 687 of file qwt_text.cpp.

5.79.4.24 `const QwtTextEngine * QwtText::textEngine (const QString & text, QwtText::TextFormat format = AutoText) [static]`

Find the text engine for a text format

In case of `QwtText::AutoText` the first text engine (beside [QwtPlainTextEngine](#)) is returned, where [QwtTextEngine::mightRender](#) returns true. If there is none [QwtPlainTextEngine](#) is returned.

If no text engine is registered for the format [QwtPlainTextEngine](#) is returned.

Parameters:

text Text, needed in case of `AutoText`

format Text format

Definition at line 640 of file qwt_text.cpp.

Referenced by QwtText(), and setText().

5.79.4.25 QSize QwtText::textSize (const QFont & *defaultFont* = QFont ()) const

Returns the size, that is needed to render text

Parameters:

defaultFont Font of the text

Returns:

Caluclated size

Definition at line 510 of file qwt_text.cpp.

References font(), and usedFont().

Referenced by QwtScaleDraw::drawLabel(), QwtRoundScaleDraw::drawLabel(), QwtRoundScaleDraw::extent(), QwtScaleDraw::labelRect(), and QwtPicker::trackerRect().

5.79.4.26 QColor QwtText::usedColor (const QColor & *defaultColor*) const

Return the color of the text, if it has one. Otherwise return defaultColor.

Parameters:

defaultColor Default color

See also:

[setColor](#), [color](#), PaintAttributes

Definition at line 342 of file qwt_text.cpp.

5.79.4.27 QFont QwtText::usedFont (const QFont & *defaultFont*) const

Return the font of the text, if it has one. Otherwise return defaultFont.

Parameters:

defaultFont Default font

See also:

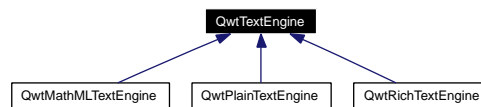
[setFont](#), [font](#), PaintAttributes

Definition at line 308 of file qwt_text.cpp.

Referenced by heightForWidth(), and textSize().

5.80 QwtTextEngine Class Reference

Inheritance diagram for QwtTextEngine:



5.80.1 Detailed Description

Abstract base class for rendering text strings.

A text engine is responsible for rendering texts for a specific text format. They are used by [QwtText](#) to render a text.

[QwtPlainTextEngine](#) and [QwtRichTextEngine](#) are part of the Qwt library.

[QwtMathMLTextEngine](#) can be found in Qwt MathML extension, that needs the MathML renderer of the Qt solutions package. Unfortunately it is only available with a commercial Qt license.

See also:

[QwtText::setTextEngine](#)

Definition at line 38 of file `qwt_text_engine.h`.

Public Member Functions

- virtual [~QwtTextEngine](#) ()
- virtual int [heightForWidth](#) (const QFont &font, int flags, const QString &text, int width) const =0
- virtual QSize [textSize](#) (const QFont &font, int flags, const QString &text) const =0
- virtual bool [mightRender](#) (const QString &text) const =0
- virtual void [textMargins](#) (const QFont &font, const QString &text, int &left, int &right, int &top, int &bottom) const =0
- virtual void [draw](#) (QPainter *painter, const QRect &rect, int flags, const QString &text) const =0

Protected Member Functions

- [QwtTextEngine](#) ()

5.80.2 Constructor & Destructor Documentation

5.80.2.1 QwtTextEngine::~~QwtTextEngine () [virtual]

Destructor.

Definition at line 129 of file `qwt_text_engine.cpp`.

5.80.2.2 QwtTextEngine::QwtTextEngine () [protected]

Constructor.

Definition at line 124 of file `qwt_text_engine.cpp`.

5.80.3 Member Function Documentation

5.80.3.1 `virtual void QwtTextEngine::draw (QPainter * painter, const QRect & rect, int flags, const QString & text) const` [pure virtual]

Draw the text in a clipping rectangle

Parameters:

painter Painter

rect Clipping rectangle

flags Bitwise OR of the flags like in for QPainter::drawText

text Text to be rendered

Implemented in [QwtPlainTextEngine](#), [QwtRichTextEngine](#), and [QwtMathMLTextEngine](#).

5.80.3.2 `virtual int QwtTextEngine::heightForWidth (const QFont & font, int flags, const QString & text, int width) const` [pure virtual]

Find the height for a given width

Parameters:

font Font of the text

flags Bitwise OR of the flags used like in QPainter::drawText

text Text to be rendered

width Width

Returns:

Calculated height

Implemented in [QwtPlainTextEngine](#), [QwtRichTextEngine](#), and [QwtMathMLTextEngine](#).

5.80.3.3 `virtual bool QwtTextEngine::mightRender (const QString & text) const` [pure virtual]

Test if a string can be rendered by this text engine

Parameters:

text Text to be tested

Returns:

true, if it can be rendered

Implemented in [QwtPlainTextEngine](#), [QwtRichTextEngine](#), and [QwtMathMLTextEngine](#).

5.80.3.4 `virtual void QwtTextEngine::textMargins (const QFont & font, const QString & text, int & left, int & right, int & top, int & bottom) const` [pure virtual]

Return margins around the texts

The textSize might include margins around the text, like QFontMetrics::descent. In situations where texts need to be aligned in detail, knowing these margins might improve the layout calculations.

Parameters:

- font* Font of the text
- text* Text to be rendered
- left* Return value for the left margin
- right* Return value for the right margin
- top* Return value for the top margin
- bottom* Return value for the bottom margin

Implemented in [QwtPlainTextEngine](#), [QwtRichTextEngine](#), and [QwtMathMLTextEngine](#).

5.80.3.5 virtual QSize QwtTextEngine::textSize (const QFont & *font*, int *flags*, const QString & *text*) const [pure virtual]

Returns the size, that is needed to render text

Parameters:

- font* Font of the text
- flags* Bitwise OR of the flags like in for QPainter::drawText
- text* Text to be rendered

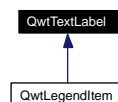
Returns:

Caluclated size

Implemented in [QwtPlainTextEngine](#), [QwtRichTextEngine](#), and [QwtMathMLTextEngine](#).

5.81 QwtTextLabel Class Reference

Inheritance diagram for QwtTextLabel:



5.81.1 Detailed Description

A Widget which displays a [QwtText](#).

Definition at line 25 of file qwt_text_label.h.

Public Slots

- void [setText](#) (const QString &, [QwtText::TextFormat](#) textFormat=QwtText::AutoText)
- virtual void [setText](#) (const [QwtText](#) &)
- void [clear](#) ()

Public Member Functions

- [QwtTextLabel](#) (QWidget *parent=NULL)
- [QwtTextLabel](#) (const [QwtText](#) &, QWidget *parent=NULL)
- virtual [~QwtTextLabel](#) ()
- const [QwtText](#) & [text](#) () const
- int [indent](#) () const
- void [setIndent](#) (int)
- int [margin](#) () const
- void [setMargin](#) (int)
- virtual QSize [sizeHint](#) () const
- virtual QSize [minimumSizeHint](#) () const
- virtual int [heightForWidth](#) (int) const
- QRect [textRect](#) () const

Protected Member Functions

- virtual void [paintEvent](#) (QPaintEvent *e)
- virtual void [drawContents](#) (QPainter *)
- virtual void [drawText](#) (QPainter *, const QRect &)

5.81.2 Constructor & Destructor Documentation

5.81.2.1 QwtTextLabel::QwtTextLabel (QWidget *parent = NULL) [explicit]

Constructs an empty label.

Parameters:

parent Parent widget

Definition at line 36 of file qwt_text_label.cpp.

5.81.2.2 QwtTextLabel::QwtTextLabel (const [QwtText](#) & text, QWidget *parent = NULL) [explicit]

Constructs a label that displays the text, text

Parameters:

parent Parent widget

text Text

Definition at line 60 of file qwt_text_label.cpp.

References [text\(\)](#).

5.81.2.3 QwtTextLabel::~QwtTextLabel () [virtual]

Destructor.

Definition at line 68 of file qwt_text_label.cpp.

5.81.3 Member Function Documentation

5.81.3.1 void QwtTextLabel::clear () [slot]

Clear the text and all [QwtText](#) attributes.

Definition at line 113 of file qwt_text_label.cpp.

5.81.3.2 void QwtTextLabel::drawContents (QPainter *) [protected, virtual]

Redraw the text and focus indicator.

Definition at line 241 of file qwt_text_label.cpp.

References [QwtPainter::drawFocusRect\(\)](#), [drawText\(\)](#), [margin\(\)](#), and [textRect\(\)](#).

Referenced by [paintEvent\(\)](#), and [QwtLegendItem::paintEvent\(\)](#).

5.81.3.3 void QwtTextLabel::drawText (QPainter *, const QRect &) [protected, virtual]

Redraw the text.

Reimplemented in [QwtLegendItem](#).

Definition at line 270 of file qwt_text_label.cpp.

Referenced by [drawContents\(\)](#), and [QwtLegendItem::drawText\(\)](#).

5.81.3.4 int QwtTextLabel::heightForWidth (int *width*) const [virtual]

Returns the preferred height for this widget, given the width.

Parameters:

width Width

Definition at line 196 of file qwt_text_label.cpp.

References [indent\(\)](#).

5.81.3.5 int QwtTextLabel::indent () const

Return label's text indent in pixels.

Definition at line 122 of file qwt_text_label.cpp.

Referenced by [heightForWidth\(\)](#), and [minimumSizeHint\(\)](#).

5.81.3.6 int QwtTextLabel::margin () const

Return label's text indent in pixels.

Definition at line 143 of file qwt_text_label.cpp.

Referenced by [drawContents\(\)](#), [QwtLegendItem::drawItem\(\)](#), [QwtLegendItem::paintEvent\(\)](#), [QwtLegendItem::setIdentifierWidth\(\)](#), and [QwtLegendItem::setSpacing\(\)](#).

5.81.3.7 QSize QwtTextLabel::minimumSizeHint () const [virtual]

Return a minimum size hint.

Definition at line 167 of file qwt_text_label.cpp.

References `indent()`.

Referenced by `sizeHint()`.

5.81.3.8 void QwtTextLabel::paintEvent (QPaintEvent *e) [protected, virtual]

Qt paint event.

Reimplemented in [QwtLegendItem](#).

Definition at line 218 of file qwt_text_label.cpp.

References `drawContents()`.

5.81.3.9 void QwtTextLabel::setIndent (int indent)

Set label's text indent in pixels

Parameters:

indent Indentation in pixels

Definition at line 131 of file qwt_text_label.cpp.

Referenced by `QwtLegendItem::setIdentifierWidth()`, and `QwtLegendItem::setSpacing()`.

5.81.3.10 void QwtTextLabel::setMargin (int margin)

Set label's margin in pixels

Parameters:

margin Margin in pixels

Definition at line 152 of file qwt_text_label.cpp.

Referenced by `QwtLegendItem::setItemMode()`.

5.81.3.11 void QwtTextLabel::setText (const QwtText &text) [virtual, slot]

Change the label's text

Parameters:

text New text

Reimplemented in [QwtLegendItem](#).

Definition at line 98 of file qwt_text_label.cpp.

References `text()`.

5.81.3.12 void QwtTextLabel::setText (const QString &text, QwtText::TextFormat textFormat = QwtText::AutoText) [slot]

Change the label's text, keeping all other [QwtText](#) attributes

Parameters:

text New text

textFormat Format of text

See also:

[QwtText](#)

Definition at line 86 of file qwt_text_label.cpp.

Referenced by `QwtLegendItem::setText()`.

5.81.3.13 QSize QwtTextLabel::sizeHint () const [virtual]

Return label's margin in pixels.

Reimplemented in [QwtLegendItem](#).

Definition at line 161 of file qwt_text_label.cpp.

References `minimumSizeHint()`.

Referenced by `QwtLegendItem::sizeHint()`.

5.81.3.14 const QwtText & QwtTextLabel::text () const

Return the text.

Definition at line 107 of file qwt_text_label.cpp.

Referenced by `QwtLegendItem::drawItem()`, `QwtPlot::printTitle()`, `QwtLegendItem::QwtLegendItem()`, `QwtTextLabel()`, `QwtPlotPrintFilter::reset()`, `setText()`, and `QwtLegendItem::setText()`.

5.81.3.15 QRect QwtTextLabel::textRect () const

Calculate the rect for the text in widget coordinates

Returns:

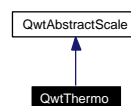
Text rect

Definition at line 279 of file qwt_text_label.cpp.

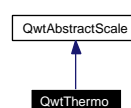
Referenced by `drawContents()`.

5.82 QwtThermo Class Reference

Inheritance diagram for QwtThermo:



Collaboration diagram for QwtThermo:



5.82.1 Detailed Description

The Thermometer Widget.

[QwtThermo](#) is a widget which displays a value in an interval. It supports:

- a horizontal or vertical layout;
- a range;
- a scale;
- an alarm level.

By default, the scale and range run over the same interval of values. [QwtAbstractScale::setScale\(\)](#) changes the interval of the scale and allows easy conversion between physical units.

The example shows how to make the scale indicate in degrees Fahrenheit and to set the value in degrees Kelvin:

```
#include <qapplication.h>
#include <qwt_thermo.h>

double Kelvin2Fahrenheit(double kelvin)
{
    // see http://en.wikipedia.org/wiki/Kelvin
    return 1.8*kelvin - 459.67;
}

int main(int argc, char **argv)
{
    const double minKelvin = 0.0;
    const double maxKelvin = 500.0;

    QApplication a(argc, argv);
    QwtThermo t;
    t.setRange(minKelvin, maxKelvin);
    t.setScale(Kelvin2Fahrenheit(minKelvin), Kelvin2Fahrenheit(maxKelvin));
    // set the value in Kelvin but the scale displays in Fahrenheit
    // 273.15 Kelvin = 0 Celsius = 32 Fahrenheit
    t.setValue(273.15);
    a.setMainWidget(&t);
    t.show();
    return a.exec();
}
```

Todo

Improve the support for a logarithmic range and/or scale.

Definition at line 69 of file `qwt_thermo.h`.

Public Types

- enum [ScalePos](#) {
 NoScale,
 LeftScale,
 RightScale,
 TopScale,
 BottomScale }

Public Slots

- void [setValue](#) (double val)

Public Member Functions

- [QwtThermo](#) (QWidget *parent=NULL)
- virtual [~QwtThermo](#) ()
- void [setOrientation](#) (Qt::Orientation o, [ScalePos](#) s)
- void [setScalePosition](#) ([ScalePos](#) s)
- [ScalePos](#) [scalePosition](#) () const
- void [setBorderWidth](#) (int w)
- int [borderWidth](#) () const
- void [setFillBrush](#) (const QBrush &b)
- const QBrush & [fillBrush](#) () const
- void [setFillColor](#) (const QColor &c)
- const QColor & [fillColor](#) () const
- void [setAlarmBrush](#) (const QBrush &b)
- const QBrush & [alarmBrush](#) () const
- void [setAlarmColor](#) (const QColor &c)
- const QColor & [alarmColor](#) () const
- void [setAlarmLevel](#) (double v)
- double [alarmLevel](#) () const
- void [setAlarmEnabled](#) (bool tf)
- bool [alarmEnabled](#) () const
- void [setPipeWidth](#) (int w)
- int [pipeWidth](#) () const
- void [setMaxValue](#) (double v)
- double [maxValue](#) () const
- void [setMinValue](#) (double v)
- double [minValue](#) () const
- double [value](#) () const
- void [setRange](#) (double vmin, double vmax, bool lg=false)
- void [setMargin](#) (int m)
- virtual QSize [sizeHint](#) () const
- virtual QSize [minimumSizeHint](#) () const
- void [setScaleDraw](#) ([QwtScaleDraw](#) *)
- const [QwtScaleDraw](#) * [scaleDraw](#) () const

Protected Member Functions

- void [draw](#) (QPainter *p, const QRect &update_rect)
- void [drawThermo](#) (QPainter *p)
- void [layoutThermo](#) (bool update=true)
- virtual void [scaleChange](#) ()
- virtual void [fontChange](#) (const QFont &oldFont)
- virtual void [paintEvent](#) (QPaintEvent *e)
- virtual void [resizeEvent](#) (QResizeEvent *e)
- [QwtScaleDraw](#) * [scaleDraw](#) ()

5.82.2 Constructor & Destructor Documentation

5.82.2.1 QwtThermo::QwtThermo (QWidget * *parent* = NULL) [explicit]

Constructor

Parameters:

parent Parent widget

Definition at line 64 of file qwt_thermo.cpp.

5.82.2.2 QwtThermo::~QwtThermo () [virtual]

Destructor.

Definition at line 105 of file qwt_thermo.cpp.

5.82.3 Member Function Documentation

5.82.3.1 const QBrush & QwtThermo::alarmBrush () const

Return the liquid brush above the alarm threshold.

Definition at line 694 of file qwt_thermo.cpp.

5.82.3.2 const QColor & QwtThermo::alarmColor () const

Return the liquid color above the alarm threshold.

Definition at line 710 of file qwt_thermo.cpp.

5.82.3.3 bool QwtThermo::alarmEnabled () const

Return if the alarm threshold is enabled or disabled.

Definition at line 776 of file qwt_thermo.cpp.

5.82.3.4 double QwtThermo::alarmLevel () const

Return the alarm threshold.

Definition at line 724 of file qwt_thermo.cpp.

5.82.3.5 int QwtThermo::borderWidth () const

Return the border width of the thermometer pipe.

Definition at line 615 of file qwt_thermo.cpp.

5.82.3.6 void QwtThermo::draw (QPainter * *p*, const QRect & *update_rect*) [protected]

Draw the whole [QwtThermo](#).

Definition at line 183 of file qwt_thermo.cpp.

References [QwtAbstractScaleDraw::draw\(\)](#), and [scaleDraw\(\)](#).

Referenced by [paintEvent\(\)](#).

5.82.3.7 void QwtThermo::drawThermo (QPainter *p) [protected]

Redraw the liquid in thermometer pipe.

Definition at line 440 of file qwt_thermo.cpp.

5.82.3.8 const QBrush & QwtThermo::fillBrush () const

Return the liquid brush.

Definition at line 662 of file qwt_thermo.cpp.

5.82.3.9 const QColor & QwtThermo::fillColor () const

Return the liquid color.

Definition at line 678 of file qwt_thermo.cpp.

5.82.3.10 void QwtThermo::fontChange (const QFont &oldFont) [protected, virtual]

Notify a font change.

Definition at line 426 of file qwt_thermo.cpp.

References layoutThermo().

5.82.3.11 void QwtThermo::layoutThermo (bool *update_geometry* = true) [protected]

Recalculate the [QwtThermo](#) geometry and layout based on the QwtThermo::rect() and the fonts.

Parameters:

update_geometry notify the layout system and call update to redraw the scale

Definition at line 223 of file qwt_thermo.cpp.

References QwtScaleDraw::getBorderDistHint(), QwtScaleDraw::move(), scaleDraw(), QwtScaleDraw::setAlignment(), and QwtScaleDraw::setLength().

Referenced by fontChange(), resizeEvent(), scaleChange(), setBorderWidth(), setOrientation(), setPipeWidth(), and setRange().

5.82.3.12 double QwtThermo::maxValue () const

Return the maximum value.

Definition at line 117 of file qwt_thermo.cpp.

5.82.3.13 QSize QwtThermo::minimumSizeHint () const [virtual]

Return a minimum size hint.

Warning:

The return value depends on the font and the scale.

See also:

[QwtThermo::sizeHint](#)

Definition at line 795 of file qwt_thermo.cpp.

References `QwtScaleDraw::extent()`, `QwtScaleDraw::minLength()`, and `scaleDraw()`.

Referenced by `sizeHint()`.

5.82.3.14 `double QwtThermo::minValue () const`

Return the minimum value.

Definition at line 129 of file qwt_thermo.cpp.

5.82.3.15 `void QwtThermo::paintEvent (QPaintEvent * e) [protected, virtual]`

Qt paint event.

Definition at line 166 of file qwt_thermo.cpp.

References `draw()`.

5.82.3.16 `int QwtThermo::pipeWidth () const`

Return the width of the pipe.

Definition at line 740 of file qwt_thermo.cpp.

5.82.3.17 `void QwtThermo::resizeEvent (QResizeEvent * e) [protected, virtual]`

Qt resize event handler.

Definition at line 212 of file qwt_thermo.cpp.

References `layoutThermo()`.

5.82.3.18 `void QwtThermo::scaleChange () [protected, virtual]`

Notify a scale change.

Reimplemented from [QwtAbstractScale](#).

Definition at line 433 of file qwt_thermo.cpp.

References `layoutThermo()`.

5.82.3.19 `QwtThermo::ScalePos QwtThermo::scalePosition () const`

Return the scale position.

Definition at line 420 of file qwt_thermo.cpp.

5.82.3.20 `void QwtThermo::setAlarmBrush (const QBrush & brush)`

Specify the liquid brush above the alarm threshold.

Parameters:

brush New brush. The default is solid white.

Definition at line 687 of file qwt_thermo.cpp.

5.82.3.21 void QwtThermo::setAlarmColor (const QColor & *c*)

Specify the liquid color above the alarm threshold.

Parameters:

c New color. The default is white.

Definition at line 703 of file qwt_thermo.cpp.

5.82.3.22 void QwtThermo::setAlarmEnabled (bool *tf*)

Enable or disable the alarm threshold.

Parameters:

tf true (disabled) or false (enabled)

Definition at line 769 of file qwt_thermo.cpp.

5.82.3.23 void QwtThermo::setAlarmLevel (double *v*)

Specify the alarm threshold.

Definition at line 716 of file qwt_thermo.cpp.

5.82.3.24 void QwtThermo::setBorderWidth (int *w*)

Set the border width of the pipe.

Definition at line 604 of file qwt_thermo.cpp.

References layoutThermo().

5.82.3.25 void QwtThermo::setFillBrush (const QBrush & *brush*)

Change the brush of the liquid.

Parameters:

brush New brush. The default brush is solid black.

Definition at line 655 of file qwt_thermo.cpp.

5.82.3.26 void QwtThermo::setFillColor (const QColor & *c*)

Change the color of the liquid.

Parameters:

c New color. The default color is black.

Definition at line 671 of file qwt_thermo.cpp.

5.82.3.27 void QwtThermo::setMargin (int *m*)

Specify the distance between the pipe's endpoints and the widget's border.

The margin is used to leave some space for the scale labels. If a large font is used, it is advisable to adjust the margins.

Parameters:

m New Margin. The default values are 10 for horizontal orientation and 20 for vertical orientation.

Warning:

The margin has no effect if the scale is disabled.

This function is a NOOP because margins are determined automatically.

Definition at line 760 of file qwt_thermo.cpp.

5.82.3.28 void QwtThermo::setMaxValue (double *v*)

Set the maximum value.

Definition at line 111 of file qwt_thermo.cpp.

References [setRange\(\)](#).

5.82.3.29 void QwtThermo::setMinValue (double *v*)

Set the minimum value.

Definition at line 123 of file qwt_thermo.cpp.

References [setRange\(\)](#).

5.82.3.30 void QwtThermo::setOrientation (Qt::Orientation *o*, [ScalePos](#) *s*)

Set the thermometer orientation and the scale position.

The scale position `NoScale` disables the scale.

Parameters:

o orientation. Possible values are `Qt::Horizontal` and `Qt::Vertical`. The default value is `Qt::Vertical`.

s Position of the scale. The default value is `NoScale`.

A valid combination of scale position and orientation is enforced:

- a horizontal thermometer can have the scale positions `TopScale`, `BottomScale` or `NoScale`;
- a vertical thermometer can have the scale positions `LeftScale`, `RightScale` or `NoScale`;
- an invalid scale position will default to `NoScale`.

See also:

[QwtThermo::setScalePosition\(\)](#)

Definition at line 346 of file qwt_thermo.cpp.

References [layoutThermo\(\)](#).

Referenced by [setScalePosition\(\)](#).

5.82.3.31 void QwtThermo::setPipeWidth (int *w*)

Change the width of the pipe.

Definition at line 730 of file qwt_thermo.cpp.

References layoutThermo().

5.82.3.32 void QwtThermo::setRange (double *vmin*, double *vmax*, bool *logarithmic* = false)

Set the range.

Parameters:

- vmin* value corresponding lower or left end of the thermometer
- vmax* value corresponding to the upper or right end of the thermometer
- logarithmic* logarithmic mapping, true or false

Definition at line 626 of file qwt_thermo.cpp.

References QwtAbstractScale::autoScale(), layoutThermo(), QwtAbstractScale::rescale(), QwtAbstractScale::scaleEngine(), and QwtAbstractScale::setScaleEngine().

Referenced by setMaxValue(), and setMinValue().

5.82.3.33 void QwtThermo::setScalePosition ([ScalePos](#) *s*)

Change the scale position (and thermometer orientation).

Parameters:

- s* Position of the scale.

A valid combination of scale position and orientation is enforced:

- if the new scale position is LeftScale or RightScale, the scale orientation will become Qt::Vertical;
- if the new scale position is BottomScale or TopScale, the scale orientation will become Qt::Horizontal;
- if the new scale position is NoScale, the scale orientation will not change.

See also:

[QwtThermo::setOrientation\(\)](#)

Definition at line 409 of file qwt_thermo.cpp.

References setOrientation().

5.82.3.34 void QwtThermo::setValue (double *val*) [[slot](#)]

Set the current value.

Definition at line 135 of file qwt_thermo.cpp.

5.82.3.35 QSize QwtThermo::sizeHint () const [virtual]

Returns:

the minimum size hint

See also:

[QwtThermo::minimumSizeHint](#)

Definition at line 785 of file qwt_thermo.cpp.

References [minimumSizeHint\(\)](#).

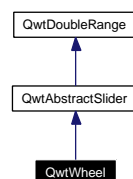
5.82.3.36 double QwtThermo::value () const

Return the value.

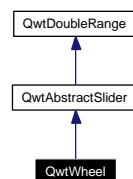
Definition at line 145 of file qwt_thermo.cpp.

5.83 QwtWheel Class Reference

Inheritance diagram for QwtWheel:



Collaboration diagram for QwtWheel:



5.83.1 Detailed Description

The Wheel Widget.

The wheel widget can be used to change values over a very large range in very small steps. Using the `setMass` member, it can be configured as a flywheel.

See also:

The radio example.

Definition at line 25 of file qwt_wheel.h.

Public Member Functions

- [QwtWheel](#) (QWidget *parent=NULL)
- virtual [~QwtWheel](#) ()
- virtual void [setOrientation](#) (Qt::Orientation)
- double [totalAngle](#) () const
- double [viewAngle](#) () const
- int [tickCnt](#) () const
- int [internalBorder](#) () const
- double [mass](#) () const
- void [setTotalAngle](#) (double angle)
- void [setTickCnt](#) (int cnt)
- void [setViewAngle](#) (double angle)
- void [setInternalBorder](#) (int width)
- void [setMass](#) (double val)
- void [setWheelWidth](#) (int w)
- virtual QSize [sizeHint](#) () const
- virtual QSize [minimumSizeHint](#) () const

Protected Member Functions

- virtual void [resizeEvent](#) (QResizeEvent *e)
- virtual void [paintEvent](#) (QPaintEvent *e)
- void [layoutWheel](#) (bool update=true)
- void [draw](#) (QPainter *p, const QRect &update_rect)
- void [drawWheel](#) (QPainter *p, const QRect &r)
- void [drawWheelBackground](#) (QPainter *p, const QRect &r)
- void [setColorArray](#) ()
- virtual void [valueChange](#) ()
- virtual void [paletteChange](#) (const QPalette &)
- virtual double [getValue](#) (const QPoint &p)
- virtual void [getScrollMode](#) (const QPoint &p, int &scrollMode, int &direction)

5.83.2 Constructor & Destructor Documentation

5.83.2.1 QwtWheel::QwtWheel (QWidget *parent = NULL) [explicit]

Constructor.

Definition at line 51 of file qwt_wheel.cpp.

5.83.2.2 QwtWheel::~QwtWheel () [virtual]

Destructor.

Definition at line 86 of file qwt_wheel.cpp.

5.83.3 Member Function Documentation

5.83.3.1 void QwtWheel::draw (QPainter **p*, const QRect & *update_rect*) [protected]

Redraw panel and wheel.

Definition at line 564 of file qwt_wheel.cpp.

References QwtPainter::drawFocusRect(), and drawWheel().

Referenced by paintEvent().

5.83.3.2 void QwtWheel::drawWheel (QPainter **p*, const QRect & *r*) [protected]

Redraw the wheel.

Parameters:

p painter

r contents rectangle

Definition at line 375 of file qwt_wheel.cpp.

References drawWheelBackground(), QwtDoubleRange::maxValue(), QwtDoubleRange::minValue(), QwtAbstractSlider::orientation(), and QwtDoubleRange::value().

Referenced by draw().

5.83.3.3 void QwtWheel::drawWheelBackground (QPainter * *p*, const QRect & *r*) [protected]

Draw the Wheel's background gradient.

Definition at line 197 of file qwt_wheel.cpp.

References QwtAbstractSlider::orientation(), and setColorArray().

Referenced by drawWheel().

5.83.3.4 void QwtWheel::getScrollMode (const QPoint & *p*, int & *scrollMode*, int & *direction*) [protected, virtual]

Determine the scrolling mode and direction corresponding to a specified point.

Parameters:

p point

scrollMode scrolling mode

direction direction

Implements [QwtAbstractSlider](#).

Definition at line 596 of file qwt_wheel.cpp.

5.83.3.5 double QwtWheel::getValue (const QPoint & *p*) [protected, virtual]

Determine the value corresponding to a specified point.

Implements [QwtAbstractSlider](#).

Definition at line 494 of file qwt_wheel.cpp.

References `QwtDoubleRange::maxValue()`, `QwtDoubleRange::minValue()`, and `QwtAbstractSlider::orientation()`.

5.83.3.6 `void QwtWheel::layoutWheel (bool update = true) [protected]`

Recalculate the slider's geometry and layout based on.

Definition at line 533 of file qwt_wheel.cpp.

Referenced by `resizeEvent()`, `setInternalBorder()`, `setOrientation()`, and `setWheelWidth()`.

5.83.3.7 `double QwtWheel::mass () const [virtual]`

Returns:

mass

Reimplemented from [QwtAbstractSlider](#).

Definition at line 168 of file qwt_wheel.cpp.

References `QwtAbstractSlider::mass()`.

5.83.3.8 `QSize QwtWheel::minimumSizeHint () const [virtual]`

Return a minimum size hint.

Warning:

The return value is based on the wheel width.

Definition at line 642 of file qwt_wheel.cpp.

References `QwtAbstractSlider::orientation()`.

Referenced by `sizeHint()`.

5.83.3.9 `void QwtWheel::paintEvent (QPaintEvent * e) [protected, virtual]`

Qt Paint Event.

Definition at line 547 of file qwt_wheel.cpp.

References `draw()`.

5.83.3.10 `void QwtWheel::paletteChange (const QPalette &) [protected, virtual]`

Call `update()` when the palette changes.

Definition at line 654 of file qwt_wheel.cpp.

5.83.3.11 `void QwtWheel::resizeEvent (QResizeEvent * e) [protected, virtual]`

Qt Resize Event.

Definition at line 524 of file qwt_wheel.cpp.

References `layoutWheel()`.

5.83.3.12 void QwtWheel::setColorArray () [protected]

Set up the color array for the background pixmap.

Definition at line 96 of file qwt_wheel.cpp.

Referenced by drawWheelBackground().

5.83.3.13 void QwtWheel::setInternalBorder (int *w*)

Set the internal border width of the wheel.

The internal border must not be smaller than 1 and is limited in dependence on the wheel's size. Values outside the allowed range will be clipped.

The internal border defaults to 2.

Parameters:

w border width

Definition at line 183 of file qwt_wheel.cpp.

References layoutWheel().

5.83.3.14 void QwtWheel::setMass (double *val*) [virtual]

Set the mass of the wheel.

Assigning a mass turns the wheel into a flywheel.

Parameters:

val the wheel's mass

Reimplemented from [QwtAbstractSlider](#).

Definition at line 612 of file qwt_wheel.cpp.

References QwtAbstractSlider::setMass().

5.83.3.15 void QwtWheel::setOrientation (Qt::Orientation *o*) [virtual]

Set the wheel's orientation.

Parameters:

o Orientation. Allowed values are Qt::Horizontal and Qt::Vertical. Defaults to Qt::Horizontal.

See also:

[QwtAbstractSlider::orientation\(\)](#)

Reimplemented from [QwtAbstractSlider](#).

Definition at line 325 of file qwt_wheel.cpp.

References layoutWheel(), [QwtAbstractSlider::orientation\(\)](#), and [QwtAbstractSlider::setOrientation\(\)](#).

5.83.3.16 void QwtWheel::setTickCnt (int *cnt*)

Adjust the number of grooves in the wheel's surface.

The number of grooves is limited to $6 \leq \text{cnt} \leq 50$. Values outside this range will be clipped. The default value is 10.

Parameters:

cnt Number of grooves per 360 degrees

Definition at line 154 of file qwt_wheel.cpp.

5.83.3.17 void QwtWheel::setTotalAngle (double *angle*)

Set the total angle which the wheel can be turned.

One full turn of the wheel corresponds to an angle of 360 degrees. A total angle of $n \times 360$ degrees means that the wheel has to be turned n times around its axis to get from the minimum value to the maximum value.

The default setting of the total angle is 360 degrees.

Parameters:

angle total angle in degrees

Definition at line 304 of file qwt_wheel.cpp.

5.83.3.18 void QwtWheel::setViewAngle (double *angle*)

Specify the visible portion of the wheel.

You may use this function for fine-tuning the appearance of the wheel. The default value is 175 degrees. The value is limited from 10 to 175 degrees.

Parameters:

angle Visible angle in degrees

Definition at line 359 of file qwt_wheel.cpp.

5.83.3.19 void QwtWheel::setWheelWidth (int *w*)

Set the width of the wheel.

Corresponds to the wheel height for horizontal orientation, and the wheel width for vertical orientation.

Parameters:

w the wheel's width

Definition at line 624 of file qwt_wheel.cpp.

References layoutWheel().

5.83.3.20 QSize QwtWheel::sizeHint () const [virtual]**Returns:**

a size hint

Definition at line 633 of file qwt_wheel.cpp.

References minimumSizeHint().

5.83.3.21 void QwtWheel::valueChange () [protected, virtual]

Notify value change.

Reimplemented from [QwtAbstractSlider](#).

Definition at line 582 of file qwt_wheel.cpp.

References [QwtAbstractSlider::valueChange\(\)](#).

6 Qwt User's Guide Page Documentation

6.1 Qwt License, Version 1.0

Qwt License
Version 1.0, January 1, 2003

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[program/widget] is based in part on the work of
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That's all there is to it!

6.2 INSTALL

Introduction
=====

Qwt uses qmake to build all its components and examples.
qmake is part of a Qt distribution.

qmake reads project files, that contain the options and rules how to
build a certain project. A project file ends with the suffix "*.pro".
Files that end with the suffix "*.pri" are included by the project
files and contain definitions, that are common for several project files.

qwtconfig.pri is read by all project files of the Qwt package.
So the first step is to edit qwtconfig.pri to adjust it to your
needs.

MathML Extension
=====

Qwt/Qt4 supports the MathML render engine from the Qt solutions package,
that is only available with a commercial Qt license.

You need a release of qtmmlwidget >= 2.1.
Copy the files qtmmlwidget.[cpp|h] to textengines/mathml.

A) Unix (+ MacOSX) Qt3/Qt4
=====

```
qmake
make
make install
```

If you didn't enable autobuilding of the examples in qwtconfig.pri
you have to build the examples this way:

```
cd examples
qmake
make
```

If you like to run the examples, don't forget to install the

Qwt library/plugins or set the LD_LIBRARY_PATH to the lib directory of your local build. (On some systems LIBPATH is used instead, on MacOSX it is called DYLD_LIBRARY_PATH.)

B) Win32/MSVC Qt3/Qt4
=====

Please read the qmake documentation how to convert your *.pro files into your development environment.

F.e MSVC with nmake:
qmake qwt.pro
nmake

If you didn't enable autobuilding of the examples in qwtconfig.pri you have to build the examples this way:

```
cd examples
nmake examples.pro
nmake
```

admin/msvc-qmake.bat helps users of Visual Studio users to generate makefiles or project files (.dsp for MSVC-6.0 or vcproj for MSVC.NET) for Qwt.

To generate makefiles, type: "admin\msvc-qmake"
To generate project files, type: "admin\msvc-qmake vc"

C) Win32/MinGW Qt4
=====

C1) Windows Shell

Start a Windows Shell, where Qt4 is initialized. (F.e. with "Programs->Qt by Trolltech ...->Qt 4.x.x Command Prompt").

```
qmake qwt.pro
make
```

If you didn't enable autobuilding of the examples in qwtconfig.pri you have to build the examples this way:

```
cd examples
qmake examples.pro
make
make install
```

C2) MSYS Shell Qt >= 4.3.0

Support for the MSYS Shell has been improved in Qt 4.3.0. Now building Qwt from the MSYS Shell works exactly like UNIX or in the Windows Shell.

C3) MSYS Shell Qt < 4.3.0

For Qt < 4.3.0 you have to set the MINGW_IN_SHELL variable. make will run into errors with the subdirs target, that can be ignored (make -i).

```
export MINGW_IN_SHELL=1;
```

```
qmake
make -i
make -i install
```

If you didn't enable autobuilding of the examples in qwtconfig.pri you have to build the examples this way:

```
cd examples
qmake examples.pro
make -i
make -i install
```

D) MacOSX

Well, the Mac is only another Unix system. So read the instructions in A).

D) Qtopia Core

I only tested Qwt with Qtopia Core in qvfb (Virtual Framebuffer Device) Emulator on my Linux box. To build Qwt for the emulator was as simple as for a regular Unix build.

```
qmake
make
```

E) Qtopia (!= Qtopia Core)

I once compiled the Qwt library against Qtopia 4.2.0 successfully - but not more. It should be possible to build and install Qwt, but it's not done yet.

Good luck !

6.3 Curve Plots

6.4 Scatter Plot

6.5 Spectrogram, Contour Plot

/*!

6.6 Histogram

6.7 Dials, Compasses, Knobs, Wheels, Sliders, Thermos

6.8 Deprecated List

Class [QwtPlotPrintFilter](#) In Qwt 5.0 the design of [QwtPlot](#) allows/recommends writing individual Qwt-PlotItems, that are not known to [QwtPlotPrintFilter](#). So this concept is outdated and [QwtPlotPrintFilter](#) will be removed/replaced in Qwt 6.x.

6.9 Todo List

Class [QwtThermo](#) Improve the support for a logarithmic range and/or scale.

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