QLockButton

Generated by Doxygen 1.8.17

	4.1.4.23 reset()	20
	4.1.4.24 resizeEvent()	20
	4.1.4.25 setBackgroundColor()	21
	4.1.4.26 setBorderColor()	21
	4.1.4.27 setBorderWidth()	21
	4.1.4.28 setFillEndColor()	22
	4.1.4.29 setFillStartColor()	22
	4.1.4.30 setInnerColor()	22
	4.1.4.31 setLockTimeout()	24
	4.1.4.32 setMode()	24
	4.1.4.33 setStatus()	24
	4.1.4.34 setUnlockTimeout()	26
	4.1.4.35 status()	26
	4.1.4.36 statusChanged	26
	4.1.4.37 StatusToString()	27
	4.1.4.38 StringToMode()	27
	4.1.4.39 StringToStatus()	27
	4.1.4.40 success	28
	4.1.4.41 unlockTimeout()	28
	4.1.4.42 unlockTimeoutChanged	28
4.2 QLo	ckButtonPlugin Class Reference	29
Index	3	31

Chapter 1

QLockButton

QLockButton is a Qt 5 widget that implements an interactive lock button. The widget contains a timer that is activated when the user press inside the button area, if the user keep the button pressed for at given time the button change its state.

This widget can be used to *secure* some action/feature that you don't want to be activated by a random click. The widget provide also a visual indicator of the time needed to fullfill the status change trough a progressive fill effect of the outer rim.

To use this widget you should download the source code of this repository and then you can opt between:

- use the class code directly adding qlockbutton.h, qlockbutton.cpp files to your code;
- include the class folder adding a include (qlockbutton/qlockbutton.pri) directive to your .pro file.

Optionally you can compile the main project file to enhance the visual integration experience (loading and building LockButton.pro file).

If you have installed succesfully the plugin you can enjoy the full user experience as you can drop QLockButton into your form straight form the pallette in QtCreator (or QtDesigner), there you can manage properties as any other widget. If you are using QLockButton trough source code then you can add the widget to the UI programatically or promoting a widget placeholder to QLockButton class (referencing its header: qlockbutton.h of course). You don't need to make the placeholder square since QLockButton is beend designed to always use a square footprint (inside assigned widget area). To be notified of user interactions connect to the success and/or fail signals. Every successul attempt to change the state of the button (i.e. keeping the button pressed for the time needed) is notified trough success signal along with the state reached by the button (Lockedcor Unlocked). If the user fails then the corresponding signal is fired (it will also report the missing time to a successfull state switch).

You can customize the look and behaviour of the widget through its properties. You can find an example of the code needed to use this widget in the associated Qt application (Test.pro).

For the sake of documentation this is a complete list of QLockButton widget properties and their usage:

- QColor backgroundColor: is the main color of the background (default: Qt::white).
- QColor innerColor: is the main color of the button actuator (default: Qt::blue).
- QColor borderColor: is the color of the external border of both background and actuator area (default: Qt::black).

2 QLockButton

- int borderWidth: is the thickness of border (default: 1).
- int lockTimeout: is the time needed to get to Locked status in milliseconds (default: 3000).
- int UnlockTimeout: is the time needed to get to Unlocked status in milliseconds (default: 3000).
- Mode mode: this property tells if the widget can be switched many times (MultiShot, default) or just one (SingleShot)
- State state: this property read/set the internal status. You can choose between none (Unlocked, default) or (Locked).
- QColor fillStartColor: is the color of the start of the fill effect gradient (default Qt::white).
- QColor fillEndColor: is the color of the end of the fill effect gradient (default Qt::red).

There are also a number of static constants made public for reference use:

- DEF_INNER_RATIO (actuator size ratio)
- DEF_GLYPH_RATIO (lock/unlock glyph size ratio)
- DEF_TIMEOUT (default timeout for both Locking and Unlocking)
- MAX_TIMEOUT (maximum timeout value)
- MIN_TIMEOUT (minimum timeout value)
- DEF_UPDATE_TIMEOUT (this is update time in milliseconds of the fill effect)

If you are guessing how this widget may look like:

This is the widget running in its associated Qt application.

1.1 TODO

- · Distribute as library/plugin
- · Reverse fill direction (CW instead CCW)
- Translation
- · Docs (doxygen)
- · Add support for stylesheets
- · Improve lock/unlock glyph rendering quality
- · More features...

1.2 References

- Qt framework
- Google Material Icons: lock/unlock icon.

1.3 License 3

1.3 License

Copyright 2023 Michele Santucci. This product is released under MIT License.

1.4 Greetings

Thanks to everyone collaborating. #

Live long and prosper!

That's all folks.

Bye by[t]e[s]...Weirdgyn!

4 QLockButton

Chapter 2

Hierarchical Index

2.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

DesignerCustomWidgetInterface	
QLockButtonPlugin	29
Object	
QLockButtonPlugin	29
Widget	
OLockButton	ç

6 Hierarchical Index

Chapter 3

Class Index

3.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

QLockButton	
QLockButton class	. 9
QLockButtonPlugin	. 29

8 Class Index

Chapter 4

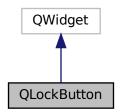
Class Documentation

4.1 QLockButton Class Reference

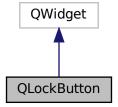
QLockButton class.

#include <qlockbutton.h>

Inheritance diagram for QLockButton:



Collaboration diagram for QLockButton:



Public Types

• enum Mode { Mode::SingleShot = 0, Mode::MultiShot }

LockButton function Mode.

enum Status { Status::Unlocked = 0, Status::Locked }

LockButton status.

Signals

· void success (QLockButton::Status status)

signal successful change in status.

void fail (int remainingTime)

signal unsuccessful attempt.

void lockTimeoutChanged ()

signal change in lockTimeout property value.

void unlockTimeoutChanged ()

signal change in unlockTimeout property value.

void borderWidthChanged ()

signal change in borderWidth property value.

• void statusChanged ()

signal change in status property value.

• void modeChanged ()

signal change in mode property value.

void innerColorChanged ()

signal innerColor in mode property value.

void backgroundColorChanged ()

signal backgroundColor in mode property value.

void borderColorChanged ()

signal borderColor in mode property value.

void fillStartColorChanged ()

signal fillStartColor in mode property value.

· void fillEndColorChanged ()

signal fillEndColor in mode property value.

Public Member Functions

QLockButton (QWidget *parent=0)

Construct a new QLockButton object.

~QLockButton ()

Destroy the QLockButton object.

• int lockTimeout () const

lockTimeout property getter.

void setLockTimeout (int lockTimeout)

lockTimeout property setter.

int unlockTimeout () const

unlockTimeout property getter.

void setUnlockTimeout (int unlockTimeout)

unlockTimeout property setter.

• int borderWidth () const

borderWidth property getter.

void setBorderWidth (int borderWidth)

borderWidth property setter.

• Status status () const

status property getter.

void setStatus (Status status)

status property setter.

• Mode mode () const

mode property getter.

• void setMode (Mode mode)

mode property setter.

· void reset ()

reset internal status.

• QColor innerColor () const

innerColor property getter.

void setInnerColor (const QColor &innerColor)

innerColor propery setter.

QColor backgroundColor () const

backgroundColor property getter.

void setBackgroundColor (const QColor &backgroundColor)

backgroundColor property setter.

• QColor borderColor () const

borderColor property getter.

void setBorderColor (const QColor &borderColor)

borderColor property setter.

• QColor fillStartColor () const

fillStartColor property getter.

void setFillStartColor (const QColor &fillStartColor)

fillStartColor property setter.

• QColor fillEndColor () const

fillEndColor property getter.

void setFillEndColor (const QColor &fillEndColor)

fillEndColor property setter.

Static Public Member Functions

• static QString ModeToString (Mode mode)

Convert argument into a readable string.

static Mode StringToMode (QString mode)

Convert argument string in a Mode value.

static QString StatusToString (Status status)

Convert argument into a readable string.

• static Status StringToStatus (QString status)

Convert argument in a Status value.

Static Public Attributes

• constexpr static const float DEF INNER RATIO = 0.8f

Size ratio of inner area (button actuator) against the full widget frame.

constexpr static const float DEF_GLYPH_RATIO = 0.8f

Size ratio of glyph/symbol ratio relative to inner area.

constexpr static const int DEF_TIMEOUT = 3000

Default timeout value for both locking and unlocking (ms).

constexpr static const int MAX TIMEOUT = 3000

Maximum timeout value for locking and unlocking (ms).

constexpr static const int MIN_TIMEOUT = 500

Minimum timeout value for locking and unlocking (ms).

• constexpr static const int DEF_UPDATE_TIMEOUT = 50

Timeout value for paint update (only used for fill effect).

Protected Member Functions

void resizeEvent (QResizeEvent *event)

override of base class resizeEvent.

void paintEvent (QPaintEvent *event)

override of base class paintEvent.

• void mousePressEvent (QMouseEvent *event)

override of base class mousePressEvent

void mouseReleaseEvent (QMouseEvent *event)

override of base class mouseReleaseEvent

void mouseMoveEvent (QMouseEvent *event)

override of base class mouseMoveEvent

Properties

- int lockTimeout
- int unlockTimeout
- · int borderWidth
- · Status status
- Mode mode
- QColor innerColor
- QColor backgroundColor
- QColor borderColor
- QColor fillStartColor
- QColor fillEndColor

4.1.1 Detailed Description

QLockButton class.

QLockButton implements a two state, time based lock button.

4.1.2 Member Enumeration Documentation

4.1.2.1 Mode

enum QLockButton::Mode [strong]

LockButton function Mode.

Enumerator

SingleShot	Only one successful status switch allowed
MultiShot	Unlimited number of status switch allowed

4.1.2.2 Status

```
enum QLockButton::Status [strong]
```

LockButton status.

Enumerator

Unlocked	Unlocked
Locked	Locked

4.1.3 Constructor & Destructor Documentation

4.1.3.1 QLockButton()

Construct a new QLockButton object.

Parameters

parent	parent object

4.1.4 Member Function Documentation

4.1.4.1 backgroundColor()

QColor QLockButton::backgroundColor () const

backgroundColor property getter.

QColor backgroundColor value

See also

mBackgroundColor

4.1.4.2 backgroundColorChanged

```
void QLockButton::backgroundColorChanged ( ) [signal]
```

signal backgroundColor in mode property value.

See also

mBackgroundColor

4.1.4.3 borderColor()

QColor QLockButton::borderColor () const

borderColor property getter.

Returns

QColor borderColor value

See also

mBorderColor

4.1.4.4 borderColorChanged

```
void QLockButton::borderColorChanged ( ) [signal]
```

signal borderColor in mode property value.

See also

mBorderColor

4.1.4.5 borderWidth()

```
\verb"int QLockButton::borderWidth" ( ) const
```

borderWidth property getter.

Returns

int borderWidth value

See also

mBorderWidth

4.1.4.6 borderWidthChanged

```
void QLockButton::borderWidthChanged ( ) [signal]
```

signal change in borderWidth property value.

See also

mBorderWidth

4.1.4.7 fail

```
void QLockButton::fail (
          int remainingTime ) [signal]
```

signal unsuccessful attempt.

Parameters

remainingTime time missing to a successfull status change (ms)

4.1.4.8 fillEndColor()

```
QColor QLockButton::fillEndColor ( ) const
```

fillEndColor property getter.

Returns QColor fillEndColor value See also mFillEndColor 4.1.4.9 fillEndColorChanged void QLockButton::fillEndColorChanged () [signal] signal fillEndColor in mode property value. See also mFillEndColor 4.1.4.10 fillStartColor() QColor QLockButton::fillStartColor () const fillStartColor property getter. Returns QColor See also mFillStartColor 4.1.4.11 fillStartColorChanged void QLockButton::fillStartColorChanged () [signal]

signal fillStartColor in mode property value.

See also

mFillStartColor

4.1.4.12 innerColor()

```
QColor QLockButton::innerColor ( ) const
innerColor property getter.
Returns
     QColor innerColor value.
See also
     mInnerColor
4.1.4.13 innerColorChanged
void QLockButton::innerColorChanged ( ) [signal]
signal innerColor in mode property value.
See also
     mInnerColor
4.1.4.14 lockTimeout()
int QLockButton::lockTimeout ( ) const
lockTimeout property getter.
Returns
     int lockTimeout value.
See also
```

mLockTimeout

4.1.4.15 lockTimeoutChanged

```
void QLockButton::lockTimeoutChanged ( ) [signal]
```

signal change in lockTimeout property value.

See also

mLockTimeout

4.1.4.16 mode()

```
Mode QLockButton::mode ( ) const mode property getter.
```

Returns

Mode mode value

See also

Mode, mMode

4.1.4.17 modeChanged

```
void QLockButton::modeChanged ( ) [signal]
```

signal change in mode property value.

See also

mMode

4.1.4.18 ModeToString()

Convert argument into a readable string.

Parameters

mode

Returns

QString

4.1.4.19 mouseMoveEvent()

```
void QLockButton::mouseMoveEvent ( {\tt QMouseEvent * event }) \quad [{\tt protected}]
```

override of base class mouseMoveEvent

N/A

Parameters

event | event descriptor

4.1.4.20 mousePressEvent()

override of base class mousePressEvent

Invoked when user press mouse button/touch inside widget area. This action start the status change evaluation process/timeout.

Parameters

event Event descriptor

4.1.4.21 mouseReleaseEvent()

override of base class mouseReleaseEvent

Invoked when the user release mouse button/touch inside widget area. This action usually reports an unsuccessfull status change.

Parameters

event	event descriptor
-------	------------------

4.1.4.22 paintEvent()

override of base class paintEvent.

Invoked when widget area need to be repainted. Forced by repaint() method calls. Will depict widget current status.

Parameters

event	Event descriptor
-------	------------------

4.1.4.23 reset()

```
void QLockButton::reset ( )
```

reset internal status.

Reset interal object status to allow further re-triggers (only when used in SingleShot mode)

See also

mTriggered

4.1.4.24 resizeEvent()

override of base class resizeEvent.

Invoked when widget area is resized. Will update internal sub-areas size accordingly with defined ratios.

Parameters

event	Event descriptor
-------	------------------

See also

resize()

4.1.4.25 setBackgroundColor()

backgroundColor property setter.

Parameters

backgroundColor	new value
-----------------	-----------

See also

mBackgroundColor

4.1.4.26 setBorderColor()

borderColor property setter.

Parameters

```
borderColor new value
```

See also

mBorderColor

4.1.4.27 setBorderWidth()

```
\begin{tabular}{ll} \beg
```

borderWidth property setter.

Parameters

See also

mBorderWidth

4.1.4.28 setFillEndColor()

fillEndColor property setter.

Parameters

fillEndColor	new value
--------------	-----------

See also

mFillEndColor

4.1.4.29 setFillStartColor()

fillStartColor property setter.

Parameters

```
fillStartColor new value
```

See also

mFillStartColor

4.1.4.30 setInnerColor()

innerColor propery setter.

Parameters

innerColor	new value

See also

mInnerColor

4.1.4.31 setLockTimeout()

lockTimeout property setter.

Parameters

```
lockTimeout new value
```

See also

mLockTimeout

4.1.4.32 setMode()

mode property setter.

Parameters

```
mode new value
```

See also

Mode, mMode

4.1.4.33 setStatus()

status property setter.

Parameters

status	new value

See also

mStatus

4.1.4.34 setUnlockTimeout()

unlockTimeout property setter.

Parameters

unlockTimeout	new value
---------------	-----------

See also

mUnlockTimeout

4.1.4.35 status()

```
Status QLockButton::status ( ) const
```

status property getter.

Returns

Status status value

See also

mStatus

4.1.4.36 statusChanged

```
void QLockButton::statusChanged ( ) [signal]
```

signal change in status property value.

See also

mStatus, Status

4.1.4.37 StatusToString()

```
QString QLockButton::StatusToString (
Status status) [static]
```

Convert argument into a readable string.

Parameters

status

Returns

QString

4.1.4.38 StringToMode()

Convert argument string in a Mode value.

Parameters

mode

Returns

Mode

4.1.4.39 StringToStatus()

Convert argument in a Status value.

Parameters

status

Returns

Status

4.1.4.40 success

```
void QLockButton::success (
          QLockButton::Status status ) [signal]
```

signal successful change in status.

Parameters

```
status reached status
```

See also

Status, mStatus

4.1.4.41 unlockTimeout()

```
int QLockButton::unlockTimeout ( ) const
```

unlockTimeout property getter.

Returns

int unlockTimeout value

See also

mUnlockTimeout

4.1.4.42 unlockTimeoutChanged

```
void QLockButton::unlockTimeoutChanged ( ) [signal]
```

signal change in unlockTimeout property value.

See also

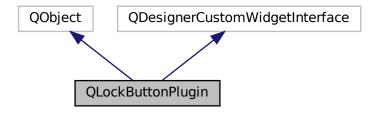
mUnlockTimeout

The documentation for this class was generated from the following files:

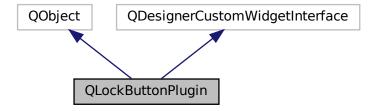
- qlockbutton/qlockbutton.h
- qlockbutton/qlockbutton.cpp

4.2 QLockButtonPlugin Class Reference

Inheritance diagram for QLockButtonPlugin:



Collaboration diagram for QLockButtonPlugin:



Public Member Functions

- QLockButtonPlugin (QObject *parent=0)
- · bool isContainer () const
- · bool isInitialized () const
- · Qlcon icon () const
- QString domXml () const
- QString group () const
- QString includeFile () const
- QString name () const
- QString toolTip () const
- QString whatsThis () const
- QWidget * createWidget (QWidget *parent)
- void initialize (QDesignerFormEditorInterface *core)

The documentation for this class was generated from the following files:

- · qlockbuttonplugin.h
- · qlockbuttonplugin.cpp

Index

backgroundColor	MultiShot
QLockButton, 13	QLockButton, 13
backgroundColorChanged	
QLockButton, 14	paintEvent
borderColor	QLockButton, 20
QLockButton, 14	
borderColorChanged	QLockButton, 9
QLockButton, 14	backgroundColor, 13
borderWidth	backgroundColorChanged, 14
QLockButton, 14	borderColor, 14
borderWidthChanged	borderColorChanged, 14
QLockButton, 15	borderWidth, 14
,	borderWidthChanged, 15
fail	fail, 15
QLockButton, 15	fillEndColor, 15
fillEndColor	fillEndColorChanged, 16
QLockButton, 15	fillStartColor, 16
fillEndColorChanged	fillStartColorChanged, 16
QLockButton, 16	innerColor, 16
fillStartColor	innerColorChanged, 17
QLockButton, 16	Locked, 13
fillStartColorChanged	lockTimeout, 17
QLockButton, 16	lockTimeoutChanged, 17
	Mode, 12
innerColor	mode, 18
QLockButton, 16	modeChanged, 18
innerColorChanged	ModeToString, 18
QLockButton, 17	mouseMoveEvent, 19
,	mousePressEvent, 19
Locked	mouseReleaseEvent, 19
QLockButton, 13	MultiShot, 13
lockTimeout	paintEvent, 20
QLockButton, 17	QLockButton, 13
lockTimeoutChanged	reset, 20
QLockButton, 17	resizeEvent, 20
,	setBackgroundColor, 21
Mode	setBorderColor, 21
QLockButton, 12	setBorderWidth, 21
mode	setFillEndColor, 22
QLockButton, 18	setFillStartColor, 22
modeChanged	setInnerColor, 22
QLockButton, 18	setLockTimeout, 24
ModeToString	setMode, 24
QLockButton, 18	setStatus, 24
mouseMoveEvent	setUnlockTimeout, 26
QLockButton, 19	SingleShot, 13
mousePressEvent	Status, 13
QLockButton, 19	status, 26
mouseReleaseEvent	statusChanged, 26
QLockButton, 19	StatusToString, 26
acombatton, 10	Ctatao rooti ing, 20

32 INDEX

StringToMode, 27
StringToStatus, 27
success, 28
Unlocked, 13
unlockTimeout, 28
unlockTimeoutChanged.
QLockButtonPlugin, 29
•
reset
QLockButton, 20
resizeEvent
QLockButton, 20
setBackgroundColor
QLockButton, 21
setBorderColor
QLockButton, 21
setBorderWidth
QLockButton, 21
setFillEndColor
QLockButton, 22
setFillStartColor
QLockButton, 22
setInnerColor
QLockButton, 22
setLockTimeout
QLockButton, 24
setMode
QLockButton, 24
setStatus
QLockButton, 24
setUnlockTimeout
QLockButton, 26
SingleShot
QLockButton, 13
Status
QLockButton, 13
status
QLockButton, 26
statusChanged
QLockButton, 26
StatusToString
QLockButton, 26
StringToMode
QLockButton, 27
StringToStatus
QLockButton, 27
SUCCESS OI col/Putton 29
QLockButton, 28
Unlocked
QLockButton, 13
unlockTimeout
QLockButton, 28
unlockTimeoutChanged
QLockButton, 28
GLOONDUILOII, LO

28