QCustomPlot Discussion and Comments

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Moving traces from one plot to an other plot, Sharing a data set between plots

5 Replies

by *WylieSt* — 3309 views, last reply on November 25, 2014

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January 21, 2014, 02:26
by *WylieSt*

What is the most effective way to a trace from one plot to another. I have tried using the pointer of the QCPGraph and this only creates a error. I was hoping that If I did this that I would not have to call addData for each plot and it would just be added to the second plot after the real Time Plot Update was called.

```
1 // example code
2 Plot2->addPlottable(Plot1->graph());
```

Should I just do something like this. With this just share only the pointer of the data

```
1 // 1 possible way // example code
2 QCPGraph * trace = new QCPGraph(Plot2);
3 trace->setData(Plot1->graph()->data(),false);
4 Plot2->addPlottable(trace);
```

Do I have to have to do a memcpy of the plottable(QCPGraph) or ...?

What is the most reasonable way of making shared data between 2 Plots?

January 21, 2014, 08:07
by *deping chen*

I just have a review on the API.
I found a way to fulfill your target.

You can't share QCPGraph/QCPCurve/QCPBars.
In QCP design, plotable object is related to only one plot object

```
QCustomPlot* parentPlot () const
```

But, you can share QCPGraphDataMap/QCPCurveDataMap/QCPBarsDataMap object as you have demonstrated.

But the following document says:
void QCPCurve::setData (QCPCurveDataMap * data,bool copy = false)

Replaces the current data with the provided data.

If copy is set to true, data points in data will only be copied. if false, the plottable **takes ownership of the passed data** and replaces the internal data pointer with it.

so data may be delete more than once if you share it.
if QCP use std::shared_ptr<QCPCurveDataMap> as parameter, then it can be shared.

for now, if you shared, you must detach data from plottable yourself before it is deleted.

January 21, 2014, 10:47
by *DerManu*

It's true that currently theres no elegant solution to shared data in two separate graphs. Chen's suggestion is a good starting point. I am considering something similar for a future QCP version. Which version it will be depends on whether I need to break code backward compatibility.
Until then, I suggest you either modify QCP to _not_ take ownership when copy=false (i.e. you will have to manually delete the memory when you remove the graphs at some time). Or you

simply distribute the two data sets independently, i.e. call setData of them at the same time, with the same QVector. This isn't a performance problem in most situations, just not so elegant duplicating the data.

January 21, 2014, 18:37
by *WylieSt*

Chen:
I am new to shared pointers in C++, can you share some example code of how one would go about doing this. This looks like what I am going to have to do for now.

DerManu:
Its not just a un-elegant way of solving this problem, I would like to not have multiple copies of each trace to be plotted for each plot and select what ones to make visible. I guess I should have mentioned this up front, but oh well. It is real time plotting of +100k points, so the data sets are kind of large. One feature I need is being able to select a trace in any one of the plots and move it to any of the other plots and do this efficiently.

February 2, 2014, 04:31
by *DerManu*

Since QCPDataMap is a QMap and QMap is implicitly shared, data moving by setData with copy=true should be efficient. A deep-copy only occurs if you modify the data copy.
I'm currently planning a method to share these data containers (QCPDataMap, QCPCurveDataMap, etc.) between multiple plottables in a safe way. Possibly with some smart pointer mechanism. I haven't decided yet whether it's a good idea to put smart pointers in the public interface, so we'll see how this plays out.

November 25, 2014, 14:17
by *FÃ©lix*

Sorry to ressuciate an old thread but have you made any decision as to how you would provide such a feature Emmanuel ?
If so, is it on a roadmap somewhere ?

QCustomPlot RealTime demo "hangs" for 0.5 sec when MainWindow is clicked — 0 Replies
by *Kris* — 1113 views, created on July 21, 2014

how to display time as x coordinates on mousemove — 8 Replies
by *suganya* — 2451 views, last reply on October 20, 2014

Plot video problem — 3 Replies
by *Andrea* — 1155 views, last reply on February 24, 2015

Real time plot issues — 1 Reply
by *foga* — 3107 views, last reply on February 27, 2015

Linking two graphs — 7 Replies
by *jipe3001* — 2709 views, last reply on June 15, 2016

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May 31, 2016, 19:26
by *jipe3001*

I am facing a issue with my QCustom app:

I have created and displayed in the same frame two separate graphs using QCustomplot

Each one has been defined with idrag and izoom attributes and work fine but
I would like to link the two zooms and drags which means each time I zoom a graph
I would like the other one to be zoomed accordingly, same thing for the drag function.

Is there a way to link these two functions in two different graphs?

Thks in advance for your help

June 1, 2016, 15:14
by *Grom*

Hi,

I am working on a frame where my I can add graph dynamically. All graphs are linked so when I drag on one graph it does the same on the other. Same for zoom, ... What you are looking for if

I understood.

How I did it:

When I had a QCustomPlot to my Frame, I connect the QCustomPlot signals to my QFrame. So when you drag you emit the signal "rangeChanged" with the QCustomPlot (for a axys moving). In your QFrame your slot loop on all QCustomPlot in your QFrame and change the range.

This is one solution. Maybe not the best. It's my 1'st app with Qt. But works great for me. I have 6 QCustomPlot with 12000+ points in each one.

June 2, 2016, 11:37
by *jipe3001*

Grom,

Sounds very good indeed !

Could you please post your example in order to explain how
you succeed to connect the Qcustomplot signals between
two separate graphs?

Thks in advance,

June 2, 2016, 12:18
by *Grom*

Hello,

A part of my code.
OK so i have a QFrame where I'll add all my plots.

I add my slot to the QFrame.

```
1  private slots:
2      void xAxisChanged(QCPRange range);
```

A list where I put all my plots. I use it for other things also.

```
1  private:
2      QList<QCustomPlot*> myPlots;
```

In this QFrame a function to configure my plots and connect sig / slot :

```
1  void Frame::connectPlots(QCustomPlot *plot) {
2  this->myPlots << plot;
3  connect(plot->xAxis,SIGNAL(rangeChanged(QCPRange)),this,SLOT(xAxisChanged(QCPRa
4  // add more connect slot / sig here
5  }
```

Finaly the slot code where I move the range of all plots.

```
1  void Frame::xAxisChanged(QCPRange range){
2
3      QList<QCustomPlot*>::iterator plotIt;
4
5      for( plotIt = this->myPlots.begin(); plotIt != this->myPlots.end();
6  ++plotIt ){
7          (*plotIt)->xAxis->setRange(range);
8          (*plotIt)->replot();
9      }
   }
```

And you have all your plots moving at the same time.

You can link other signals with the same method.
connect slot / signal in your connect function.
Implement the slot in your QFrame and loop for all the plots to do the action.

Grom.

June 2, 2016, 18:20
by *jipe3001*

Hi,

I'm not sure we are talking about the same thing :

I used the following functions to zoom and drag a curve within a plot:

plot0->setInteractions(QCP::iRangeZoom | QCP::iRangeDrag);
plot0->axisRect(0)->setRangeZoom(Qt::Horizontal);

and same thing for plot1, plot2 etc..

I do not see, even with your example, how to connect the irange drag and irange zoom

Do you have a screenshot of your app?

June 3, 2016, 13:58
by *Grom*

Hi,

2 screenshot of my app.

http://postimg.org/image/tts9skonv/
http://postimg.org/image/rzwvr1xaz/

When I move a graph, the other one is moving also. And all the items in the graph are also moving. You can use the dates to compare the 2 graphs.

Is it what you need ?

```
plot0->setInteractions(QCP::iRangeZoom | QCP::iRangeDrag );
plot0->axisRect(0)->setRangeZoom(Qt::Horizontal);
```

just allows you to zoom / drag on your graph.

Grom.

June 15, 2016, 11:44
by *jipe3001*

Grom,

Sorry for late reply but I was out of the office for several days.

I succeed to implement the following

```
connect(plot0->xAxis,SIGNAL(rangeChanged(QCPRange)),this,
SLOT(change_X(QCPRange)));
connect(plot01->xAxis,SIGNAL(rangeChanged(QCPRange)),this,
SLOT(change_X(QCPRange)));


void MainWindow::change_X(QCPRange range)
{
    plot01->xAxis->setRange(range);
    plot01->replot();
    plot0->xAxis->setRange(range);
    plot0->replot();
}
```

and everything is working fine including iRange & iZoom

Many thanks

June 15, 2016, 17:46
by *Grom*

Hi,

Great !

Grom.

Mutliple plot pointing — 2 Replies
by *Manu* — 1438 views, last reply on August 8, 2016

scatter style broken on QCPCurve inside subplot — 1 Reply
by *Samit Ray* — 1047 views, last reply on May 5, 2017

Synchronize several QCustomPlot on xAxis — 2 Replies
by *Mark81* — 1783 views, last reply on August 13, 2017

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August 13, 2017, 10:34
by *Mark81*

Hello, on my QMainWindow I have several QCustomPlot that show different real-time data.
They virtually "share" the xAxis (time).
I would like to keep them in sync when the user move one of them.

I've tried:

```
connect(ui->plotPosition->xAxis, SIGNAL(rangeChanged(QCPRange)),
```

```
    ui->plotSpeed->xAxis, SLOT(setRange(QCPRange)));
```

but this signal is not emitted when is the user that move the graph.
Which one I have to catch?

Second question is possible to link all togheter without create a loop? I.e.:

```
connect(ui->plot1->xAxis, SIGNAL('''userPan'''), ui->plot2->xAxis,
SLOT('''userPan'''));
connect(ui->plot1->xAxis, SIGNAL('''userPan'''), ui->plot3->xAxis,
SLOT('''userPan'''));
connect(ui->plot2->xAxis, SIGNAL('''userPan'''), ui->plot1->xAxis,
SLOT('''userPan'''));
connect(ui->plot2->xAxis, SIGNAL('''userPan'''), ui->plot3->xAxis,
SLOT('''userPan'''));
connect(ui->plot3->xAxis, SIGNAL('''userPan'''), ui->plot1->xAxis,
SLOT('''userPan'''));
connect(ui->plot3->xAxis, SIGNAL('''userPan'''), ui->plot2->xAxis,
SLOT('''userPan'''));
```

Any graph the user interacts with should update the others.
Thanks in advance!

August 13, 2017, 13:26
by *DerManu*

> but this signal is not emitted when is the user that move the graph.

The signal is emitted.

You should also make sure that the plotSpeed is replotted in sync with the others. (e.g. connect signal afterReplot with replot of the others.)
Note that QCP supports multiple axis rects in one widget, which might be more convenient in your case, compared with multiple widgets.

It is possible to connect rangeChanged/setRange in a loop â€“ QCP will stop emitting rangeChanged, if setRange is called with a range that is already the current axis range.

August 13, 2017, 19:55
by *Mark81*

mmm... there should be something wrong in my code:

```
QSharedPointer<QCPAxisTickerDateTime> timeTicker(new QCPAxisTickerDateTime);
timeTicker->setDateTimeFormat("s.z");

ui->plotPosition->axisRect()->setupFullAxesBox();
ui->plotPosition->xAxis->setTicker(timeTicker);
ui->plotPosition->xAxis->setLabel("t");
ui->plotPosition->setInteractions(QCP::iRangeDrag | QCP::iRangeZoom |
QCP::iSelectPlottables);

ui->plotSpeed->axisRect()->setupFullAxesBox();
ui->plotSpeed->xAxis->setTicker(timeTicker);
ui->plotSpeed->xAxis->setLabel("t");
ui->plotSpeed->yAxis2->setVisible(true);
ui->plotSpeed->yAxis2->setTickLabels(true);
ui->plotSpeed->setInteractions(QCP::iRangeDrag | QCP::iRangeZoom |
QCP::iSelectPlottables);

connect(ui->plotPosition->xAxis, SIGNAL(rangeChanged(QCPRange)),
ui->plotSpeed->xAxis, SLOT(setRange(QCPRange)));

    connect(ui->plotPosition, SIGNAL(afterReplot()), ui->plotSpeed,
    SLOT(replot(QCustomPlot::RefreshPriority)));
    ui->plotPosition->replot();
```

Now, if I explicitly set the range of plotPlosition:

```
ui->plotPosition->xAxis->setRange(qMax(0.0, m_keyTime - 30.0), qMax(30.0,
m_keyTime), Qt::AlignLeft);
ui->plotPosition->replot();
```

both plots are updated hence I assume the signal is emitted.
But if I move the graph of plotPosition with the mouse, plotSpeed isn't affected.

I will try the multiple axis rects in one widget, but I would like to understand where is my mistake here.
Thanks!

QCPItemLine not drawn in mouseMove event — 1 Reply
by *Diracsbracket* — 1296 views, last reply on October 3, 2017

Plotting real time data — 1 Reply
by *Samir Tursunovic* — 880 views, last reply on March 12, 2018

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by *Me* — 540 views, last reply on January 13, 2020 Replies

Plotting In Other Threads, It Is Safe? 2
by *Ghasem Ramezani* — 785 views, last reply on November 10, 2022 Replies

Both axes zoom sometimes 6
by *Bob Babcock* — 473 views, last reply on November 23, 2022 Replies