Subject: How do I make this graph?
Posted by jerson on Sat, 04 May 2013 07:51:55 GMT
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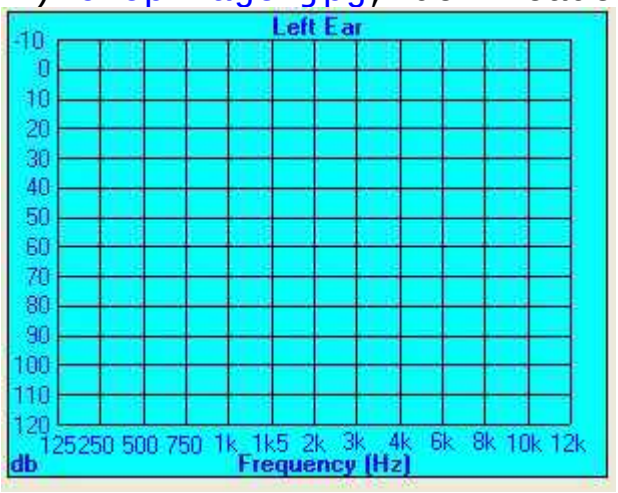
I've been trying my hand using the scatter control to achieve something like this.

This is a user control I had built in Visual Basic. Is it possible to get a similar graph using the scatter control or any widget already present in U++?

Regards
Jerson

File Attachments

1) CropImage.jpg, downloaded 1598 times



Subject: Re: How do I make this graph?
Posted by Didier on Sat, 04 May 2013 13:22:22 GMT
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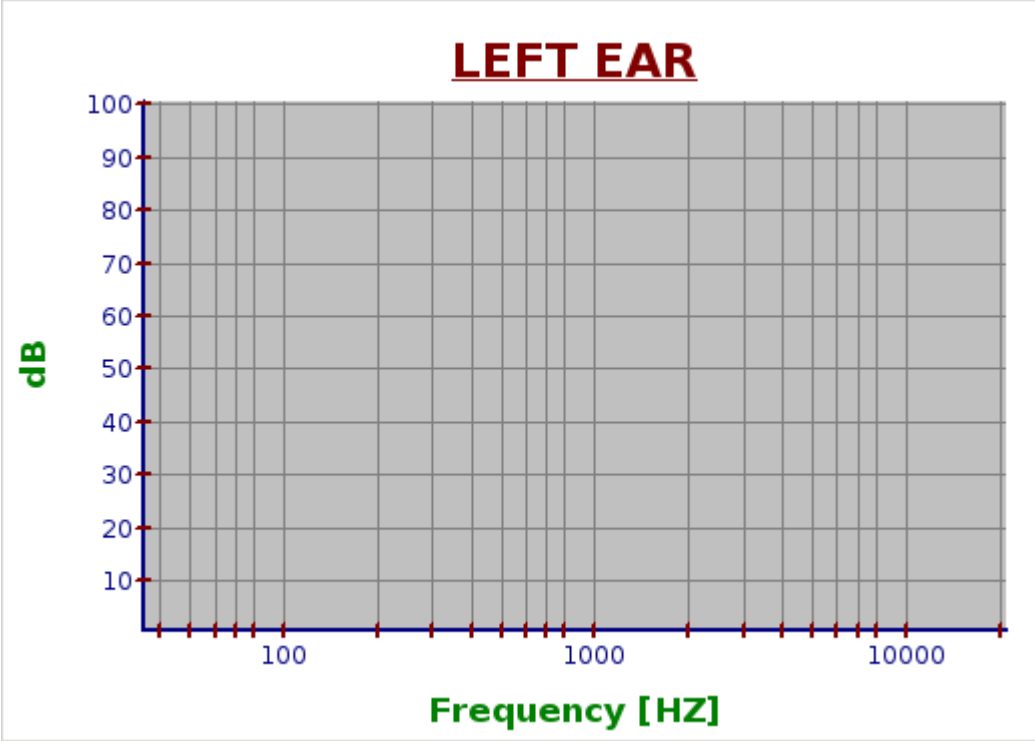
Hi Jerson,

Is this what you are trying to do ?

File Attachments

1) GC_test.png, downloaded 1272 times



Subject: Re: How do I make this graph?
Posted by Didier on Sat, 04 May 2013 13:26:27 GMT
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If this the case than you can use the following example as starting point.

This example uses GraphCtrl and GraphDraw (they are in svn sandbox)

If the X axis layout does not fit you're needs then you can build you're own layout quite easily

File Attachments

1) GC_test.tar.gz, downloaded 363 times

Subject: Re: How do I make this graph?
Posted by jerson on Sat, 04 May 2013 14:53:04 GMT
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Didier

Thank you for your response. What I am trying to do is like this graph sample here.

What you see in the graph are

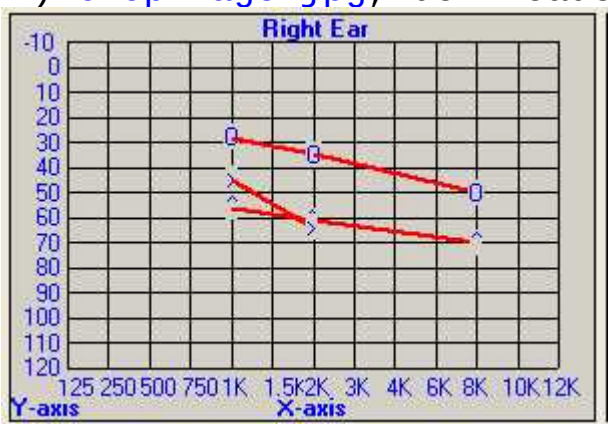
1 - there are upto 4 series in the graph(this graph shows 3 series)
2 - The Y axis is linear and goes from +120 at the min position(Bot+Left) and -10db at the max position (Top+Left)
3 - X axis has only 13 points max, but the point legends are decided by me as you can see.
4 - Each series has a plot symbol

I would like to use any pre-existing widget as far as possible so I am looking for hints.

Thank you
PS: My current version is the last stable release 5485

File Attachments

1) CropImage.jpg, downloaded 1513 times



Subject: Re: How do I make this graph?
Posted by koldo on Sun, 05 May 2013 13:57:07 GMT
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Hello Jerson

I imagine the X and Y axis are rather "custom" so I propose you this to have exactly what you want:

This is the code:

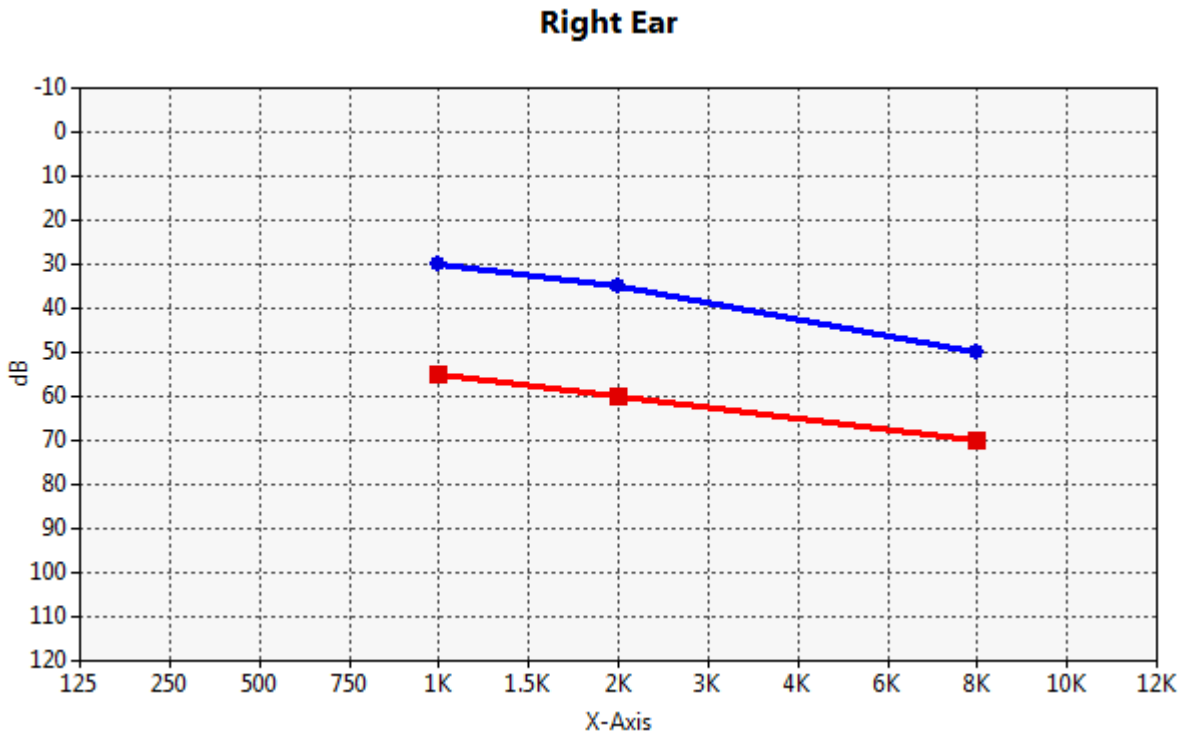
```
void MyClass::Init() {
 CtrlLayout(*this);
 HSizePos().VSizePos();

 scatter.SetRange(12, 130);
 scatter.SetXYMin(0, -120);
 scatter.SetMajorUnits(1, 10);
 scatter.ShowLegend(false);
```

```
 scatter.SetTitle("Right Ear").SetLabelX("X-Axis").SetLabelY("dB");
 scatter.SetPlotAreaLeftMargin(40).SetPlotAreaBottomMargin(40);

 s1 <<Pointf(4, -30) << Pointf(6, -35) << Pointf(10, -50);
 s2 <<Pointf(4, -55) << Pointf(6, -60) << Pointf(10, -70);

 scatter.AddSeries(s1);
 scatter.AddSeries(s2);

 scatter.cbModifFormatX = THISBACK(FormatX);
 scatter.cbModifFormatY = THISBACK(FormatY);
}

void MyClass::FormatX(String& s, int i, double d) {
 Vector<String> xLegend;
 xLegend << "125" << "250" << "500" << "750" << "1K" << "1.5K" << "2K" << "3K" << "4K" << "6K"
<< "8K" << "10K" << "12K";
 s = xLegend[i];
}

void MyClass::FormatY(String& s, int i, double d) {
 s = FormatDouble(-d, 0);
}
```

Have a nice Sunday!

File Attachments

1) Image.png, downloaded 1237 times



Subject: Re: How do I make this graph?
Posted by jerson on Sun, 05 May 2013 15:07:40 GMT
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Hi Koldo

This is brilliant. Thank you so much.

Regards
Jerson

Subject: Re: How do I make this graph?
Posted by jerson on Sun, 05 May 2013 16:42:11 GMT
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Hi Koldo

A small issue with the code; these functions are throwing compile errors with MinGW

SetPlotAreaLeftMargin(40)
SetPlotAreaBottomMargin(40)

I tried the code with the latest nightly build 6031 just to be sure.

Regards
Jerson

Subject: Re: How do I make this graph?
Posted by koldo on Sun, 05 May 2013 17:02:30 GMT
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Hello Jerson

Please enclose the error messages. I cannot reproduce it.

Subject: Re: How do I make this graph?
Posted by jerson on Mon, 06 May 2013 07:32:42 GMT
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Hi Koldo

These are the errors I get
BLITZ: ScrHistory.cpp ScrSetup.cpp main.cpp ScrSaveRecord.cpp ScrAudiometry.cpp
In file included from C:/upp/out/MyApps/A2001_13/MINGW.Blitz.Gui.Main\$blitz.cpp:25:0:

C:\MyApps\A2001_13\ScrAudiometry.cpp: In member function 'void A2001_13::ScrAudiometry()':
C:\MyApps\A2001_13\ScrAudiometry.cpp:30:16: error: 'class Scatter' has no member named 'SetPlotAreaLeftMargin'
A2001_13: 5 file(s) built in (0:02.79), 559 msecs / file, duration = 2797 msecs, parallelization 0%

for this line of code
Test.scaRight.SetPlotAreaLeftMargin(40).SetPlotAreaBottomMargin(40);

Test is a topwindow class, scaRight is the scatter control.

Another related question. I noticed that the series symbols are pre-defined like CIRCLE, RECTANGLE, TRIANGLE etc. Can they be changed to some images from an IML file?

Regards
Jerson

Subject: Re: How do I make this graph?
Posted by koldo on Mon, 06 May 2013 08:11:43 GMT
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Hello Jerson

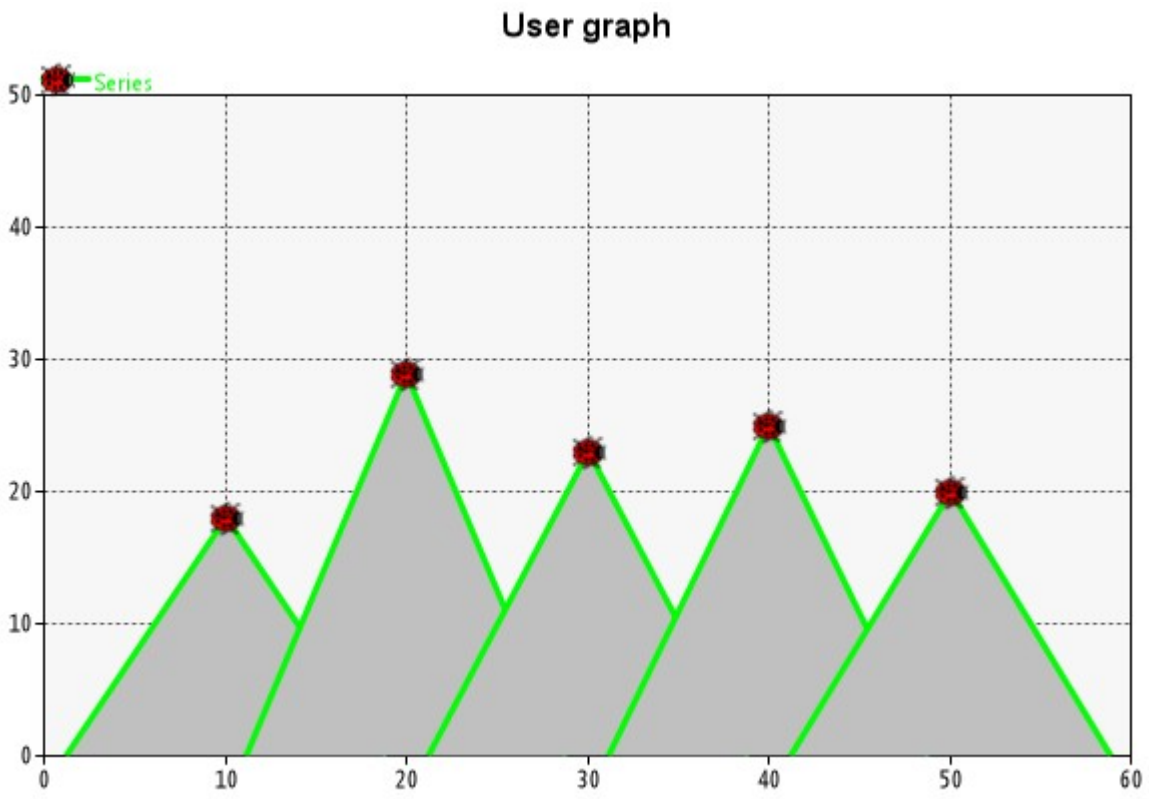
The message:

Quote:"... error: 'class Scatter' ..."

is strange for me as it should have to be either ScatterCtrl or ScatterDraw instead. Could you give me more details as the declaration?

To set images as symbols you can see examples/ScatterCtrl_demo, class tab10, class MyMark:

File Attachments
1) demo.jpg, downloaded 1533 times



Subject: Re: How do I make this graph?
Posted by jerson on Mon, 06 May 2013 09:40:02 GMT
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Hello Koldo

You are right. I was using the Scatter package and not ScatterCtrl

This was the included package
c:/upp/Bazaar/scatter

I have now changed to using ScatterCtrl and the problem has gone away.

Thanks

Jerson

Subject: Re: How do I make this graph?
Posted by koldo on Mon, 06 May 2013 10:07:25 GMT
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Excellent.

Subject: Re: How do I make this graph?
Posted by jerson on Thu, 09 May 2013 06:19:26 GMT
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Thanks for all the help. I have been able to make a workable solution with the scatterctrl.

The blue line is what I wish to draw. It interpolates between data points that are presented to scatterctrl. However, the un-initialized vector data shows up at 0,0 This is not desirable because when I turn on .plot(), lines appear connecting 0,0 to each of the points in the series. It looks like cones falling from 0,0(orange lines)

I am setting the vector like this

```
Vector<Pointf> LeftSeries[4];
```

Since I have just 12 points on X axis, I enter the data like this

```
 Test.scaLeft.SetRange(12, 130).SetXYMin(0, -120);
 Test.scaLeft.SetMajorUnits(1, 10).ShowLegend(true);
 Test.scaLeft.SetLabelX("Frequency (Hz)").SetLabelY("dB");
 Test.scaLeft.cbModifFormatX = THISBACK(A2001_13::FormatX);
 Test.scaLeft.cbModifFormatY = THISBACK(A2001_13::FormatY);
 Test.scaLeft.AddSeries(LeftSeries[0]).Legend("ACL").NoPlot()
    .AddSeries(LeftSeries[1]).Legend("ACLM")
    .AddSeries(LeftSeries[2]).Legend("BCL")
    .AddSeries(LeftSeries[3]).Legend("BCLM");
```

and to plot the points

```
 double f = -1;

 Test.stText = AsString(Test.spnFrequency.GetIndex());
 LeftSeries[0].Set(Test.spnFrequency.GetIndex(),
Pointf(Test.spnFrequency.GetIndex(),f*Test.spnIntensity));
 Test.scaLeft.Refresh();
```

Test is a <TopWindow>, others are EditIntSpin while spnFrequency is a droplist

The user can enter any point (not necessarily in a sequence of X) and the graph would interpolate it.

Question is, can this be done?

Best regards
Jerson

File Attachments

1) CropImage.jpg, downloaded 1429 times



Subject: Re: How do I make this graph?
Posted by koldo on Thu, 09 May 2013 09:04:25 GMT
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Sorry Jerson

I do not understand you.

If you do not want to see a series that has uninitiated data you can use Show(index, false) to hide it temporarily.

As Scatter classes show scattered data, to see it ordered you should have to do a Sort() of the Vector using x axis as sorting criteria.

Subject: Re: How do I make this graph?
Posted by jerson on Thu, 09 May 2013 10:15:10 GMT
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Hi Koldo

Let me try saying it another way. For the moment, let me assume we talk of only one data series.

The series has points like this

vector Index	Point X value	Point Y value
1	1	50
2	not yet filled in(uninitialised)	
3	not yet filled in(uninitialised)	
4	not yet filled in(uninitialised)	
5	not yet filled in(uninitialised)	
6	6	50
7	not yet filled in(uninitialised)	
8	not yet filled in(uninitialised)	
9	9	60
10	not yet filled in(uninitialised)	
11	not yet filled in(uninitialised)	
12	not yet filled in(uninitialised)	

As the user conducts the test, more points in the table will get filled with X = index value and Y = reading.

What I wish to see is the line connecting only the values that are initialized with data(1-6-9). Right now, the unitialised points show their value at X=0,Y=0. Because of this, the graph shows the orange curve.

the reason for doing it via indexing is that the same point could be tested again. the number of points in the series will always be 12 (tested or not tested)

Thanks for looking at my problem

Regards
Jerson

Subject: Re: How do I make this graph?
Posted by jerson on Thu, 09 May 2013 12:07:33 GMT
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I'd appreciate if anyone can show me an example of how to sort a vector of Pointf on member x.

Vector<Pointf> Series;

Subject: Re: How do I make this graph?
Posted by koldo on Thu, 09 May 2013 12:36:25 GMT
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Hello Jerson

As I understand user goes adding new unsorted points. Every time the user does it you call Sort() and scatter.Refresh(). Only added points are drawn. To sort the Vector you can do this:

```
struct SortPointf {
 bool operator () (const Pointf& a, const Pointf& b) const {
  return a.x < b.x
 }
};

....

Sort(series, SortPointf());
```

Subject: Re: How do I make this graph?
Posted by jerson on Thu, 09 May 2013 13:46:48 GMT
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Hi Koldo

Thanks, this is very close to what I want

How do I ensure that there is just one point at each X? Is there a function to find a point with x==index and replace that with a value?

What I am looking for is something like

```
    if (Find(Series, Pointx.a==Index))
        // replace the point
        Series.Set(Index, PointNew);
    else
        // add to the series
        Series << PointNew;
```

I'm sorry if this is very elementary. I haven't reached that far yet in C++.

Regards
Jerson

Subject: Re: How do I make this graph?
Posted by koldo on Thu, 09 May 2013 14:03:59 GMT
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Hello Jerson

- The dummy solution: If the point is repeated they will overlap so only one will be seen
- The other: I would Sort() the Vector and Remove() by hand the repeated elements doing the for from the last to the first to avoid problems.

Subject: Re: How do I make this graph?
Posted by jerson on Fri, 10 May 2013 04:48:43 GMT
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Hello Koldo

This is the final piece of code that does exactly what I want it to do. Please let me know if you would do the same differently.

```
void A2001_13::Plot()
{
 double f = -1;
 int  cnt;

 // First, if the point is already in the vector, remove it
 // Then add the point to the vector and
 // Sort it.
 for (cnt=0; cnt <  LeftSeries[0].GetCount(); cnt++)
 {
  if (LeftSeries[0].At(cnt).x == Test.spnFrequency.GetIndex())
    LeftSeries[0].Remove(cnt,1);
 }
 LeftSeries[0] << Pointf(Test.spnFrequency.GetIndex(),f*Test.spnIntensity);
 Sort(LeftSeries[0],SortPointf());
 Test.scaLeft.Refresh();
}
```

The max points in vector is 12. Any point changed, gets updated.

Best Regards
Jerson

Subject: Re: How do I make this graph?
Posted by koldo on Fri, 10 May 2013 06:01:44 GMT
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It seems right.
