Subject: Excessive memory use
Posted by nixnixnix on Fri, 09 Mar 2012 04:10:35 GMT
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Hi Daniel,

I love GridCtrl and use it in many many places in my code. I am currently writing a data processing app in which I want the users to be able to look at multiple data sets and then process these datasets and be able to step back and forth through the steps being able to see each data set at each step. The data sets might take up 20MB each in ASCII format and I might have 12 or 20 loaded at once and then want to take them through 10 or more steps.

My concern is that when I load just three 20MB ASCII data files and display them on GridCtrl, my memory usage grows to 2.9GB of which I am pretty sure the majority is GridCtrl.

My question is: are there obvious things that I might be doing wrong or any tips that you have for conserving memory in GridCtrl when displaying large datasets?

[One of my 20MB datasets might be 4 years of 10 minute data with 30 fields per record. I need to write my software to be able to cope with much much more though.]

Cheers,

Nick

Subject: Re: Excessive memory use
Posted by Novo on Fri, 09 Mar 2012 04:51:53 GMT
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ArrayCtrl can behave as a virtual array (it doesn't store data in the control itself in this case). GridCtrl doesn't seem to have this feature. So, you need to sacrifice some nice features of GridCtrl to save memory with ArrayCtrl.

It is a common design pattern of UPP to store data within controls. And it work very well if you do not have a lot of data.

Subject: Re: Excessive memory use
Posted by unodgs on Fri, 09 Mar 2012 13:22:50 GMT
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Novo is right. GridCtrl doesn't support virtual rows. They are relatively easy to add but I have no time to do this. All I can do right now is to add it on my todo list
Besides I think that displaying large data sets is useless. In most cases user is interested in a few first rows (instead of scrolling down user will sort or filter columns). Large sets of data have also another disadvantage. When you move a scroll thumb content of grid is scrolling very fast and you very often skip some data (I assume that scrolling is used to browse data) In my applications I simply use pagination. This is not built in feature of gridctrl but it's quite easy to implement.
It doesn't mean I'm against adding virtual rows/columns. Certainly there are cases when it fits in. Right now I have lot of other work to finish.

Subject: Re: Excessive memory use
Posted by nixnixnix on Sun, 11 Mar 2012 04:34:43 GMT
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Thanks. ArrayCtrl isn't as pretty but it will do what I need.

Daniel, you're right about the awkwardness of scrolling through tens of thousands of lines of data. One of the other things I need to code is an interface that has various ways of navigating the data. The users need to be able to see the data and edit it and so it does need to be in a grid. It's a very niche application. Up till now they have been using a mixture of Excel spreadsheets and macros - the entire industry does this.

ArrayCtrl question: even though I SetCount() it still takes a minute or more to allocate the memory for 150,0000 rows on a i7 980X with 24GB of 1600Mhz DDR3. Is there a way to disable update until I have finished adding the data?

Cheers,

Nick

Subject: Re: Excessive memory use
Posted by Novo on Sun, 11 Mar 2012 14:27:55 GMT
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IMHO, you need to call SetVirtualCount(). My app WordNet 3.0 browser is an example of using this technique. It is basically a database browser. I'm not sure that a table, I'm trying to scroll, has

150K rows, but it should be close to that. ArrayCtrl initialization code snippet is below.

```
warray.AddRowNumColumn("lemma", 80).SetConvert(*Number2Lexeme);
// Set count.
{
 String sql;
 Sql stmt(db_session);

 sql  = " SELECT max(wordid)";
 sql << " FROM words";

 stmt.SetStatement(sql);

 stmt.RunX();
 if (stmt.Fetch())
  warray.SetVirtualCount(stmt[0]);
}
```

Subject: Re: Excessive memory use
Posted by nixnixnix on Mon, 12 Mar 2012 21:44:07 GMT
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Hi Novo,

SetVirtualCount doesn't appear to change anything. It still takes a minute or more to load up the data from my data structures into the ArrayCtrl one row at a time using ArrayCtrl::Set(int row, Vector<Value> vals); Is there a quicker way please? I can't see anything in the popup list of functions.

Cheers,

Nick

Subject: Re: Excessive memory use
Posted by Novo on Mon, 12 Mar 2012 21:52:28 GMT
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nixnixnix wrote on Mon, 12 March 2012 17:44Hi Novo,

SetVirtualCount doesn't appear to change anything. It still takes a minute or more to load up the data from my data structures into the ArrayCtrl one row at a time using ArrayCtrl::Set(int row, Vector<Value> vals); Is there a quicker way please? I can't see anything in the popup list of

functions.

Cheers,

Nick

The secret of virtual array is that you do not need to load data into it.

You need to do two things:
1) Set number of virtual rows by calling SetVirtualCount().
2) Set converters for your columns, which will convert row number into data you want to display.

Take a closer look at
warray.AddRowNumColumn("lemma", 80).SetConvert(*Number2Lexeme);

There is an app VirtualArray in the "reference" assembly.

Subject: Re: Excessive memory use
Posted by nixnixnix on Mon, 12 Mar 2012 22:08:36 GMT
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You just literally blew my mind

4 seconds to load 170k+ records

However, when I go to edit a value, all the values in the row show as the row number and not the value that should be there. Is there a good way to deal with this? I noticed that your app doesn't do in place editing and of course the reference app doesn't either.

Nick

Subject: Re: Excessive memory use
Posted by nixnixnix on Mon, 12 Mar 2012 23:56:58 GMT
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Hey Daniel,

My client is mostly interested in being able to examine flags in the data so I colour the flags and then use the panel at the right hand side to display the entire data set and whilst mousemove over

that a popup window shows the data above and below the point that the mouse is over in the entire dataset along with the central section of the popup showing what will be on displayed on the main grid if you currently click in the right hand pane.

Just thought I'd share in case these ideas can be useful to others here.

Nick

File Attachments

1) UI200krecs.png, downloaded 1293 times

AWST WRA Processor

File View Settings



Towers | Step 1 | Step 2 | Step 3

Mast 0483 | Mast 3639 | Mast 0484

Drop your tab-delimited text file into the grid below

Time Stamp	57 SW W	57 SW W	57 SW W	47 SW W	47 SW W	47 SW W	32 SW W	32 SW W	32 SW W	57 NW W	57 NW W	57 N
11/09/2010 21:40:	14.66	1.03	0	14.17	1.03	0	13.59	1.18	0	14.7	1.05	0
11/09/2010 21:50:	14.4	1.08	0	14.04	1.03	0	13.56	0.99	0	14.46	1.14	0
11/09/2010 22:00:	13.74	0.95	0	13.41	0.95	0	12.9	0.99	0	13.7	1.05	0
11/09/2010 22:10:	13.97	0.77	0	13.64	0.8	0	13.15	0.83	0	13.96	0.81	0
11/09/2010 22:20:	13.18	0.7	0	12.88	0.7	0	12.48	0.7	0	13.22	0.74	0
11/09/2010 22:30:	13.57	1.03	0	13.26	1.08	0	12.8	1.08	0	13.6	1.1	0
11/09/2010 22:40:	12.1	0.83	0	11.85	0.8	0	11.37	0.77	0	12.18	0.88	0
11/09/2010 22:50:	13.55	0.8	0	13.23	0.83	0	12.61	0.87	0	13.6	0.84	0
11/09/2010 23:00:	13.89	0.77	0	13.74	0.77	0	13.19	0.77	0	13.92	0.77	0
11/09/2010 23:10:	14.46	0.73	0	14.21	0.73	0	13.58	0.77	0	14.42	0.74	0
11/09/2010 23:20:	14.53	0.73	0	14.2	0.8	0	13.59	0.8	0	14.52	0.77	0
11/09/2010 23:30:	14.4	0.83	0	14	0.83	0	13.35	0.73	0	14.35	0.84	0
11/09/2010 23:40:	14.36	0.73	0	13.98	0.77	0	13.27	0.8	0	14.36	0.74	0
11/09/2010 23:50:	13.84	0.83	0	13.54	0.83	0	12.88	0.83	0	13.78	0.84	0
11/10/2010 00:00:	14.27	0.73	0	14.03	0.8	0	13.45	0.83	0	14.26	0.77	0
11/10/2010 00:10:	13.74	0.77	0	13.49	0.77	0	12.93	0.77	0	13.74	0.81	0
11/10/2010 00:20:	13.55	0.73	0	13.25	0.73	0	12.61	0.77	0	13.56	0.74	0
11/10/2010 00:30:	12.44	0.8	0	12.12	0.8	0	11.63	0.8	0	12.4	0.84	0
11/10/2010 00:40:	12.27	0.62	0	11.95	0.7	0	11.41	0.7	0	12.24	0.62	0
11/10/2010 00:50:	12.17	0.57	0	11.86	0.59	0	11.24	0.62	0	12.1	0.55	0
11/10/2010 01:00:	11.63	0.47	0	11.3	0.52	0	10.72	0.54	0	11.66	0.51	0
11/10/2010 01:10:	11.18	0.45	0	10.89	0.47	0	10.35	0.52	0	11.19	0.48	0
11/10/2010 01:20:	10.33	0.62	0	10.03	0.59	0	9.51	0.62	0	10.33	0.65	0
11/10/2010 01:30:	10.05	0.7	0	9.76	0.77	0	9.21	0.73	0	9.99	0.71	0
11/10/2010 01:40:	11.01	0.54	0	10.66	0.59	0	10.03	0.62	0	11.02	0.57	0
11/10/2010 01:50:	10.16	0.64	0	9.88	0.62	0	9.25	0.64	0	10.13	0.65	0
11/10/2010 02:00:	9.2	0.38	0	8.93	0.4	0	8.36	0.45	0	9.19	0.41	0
11/10/2010 02:10:	8.2	0.8	0	7.93	0.77	0	7.39	0.77	0	8.15	0.81	0
11/10/2010 02:20:	7.39	0.45	0	6.92	0.42	0	6.21	0.35	0	7.34	0.44	0
11/10/2010 02:30:	7.3	0.37	0	6.89	0.38	0	6.29	0.38	0	7.26	0.39	0
11/10/2010 02:40:	6.26	0.91	0	5.9	0.87	0	5.48	0.87	0	6.24	0.92	0
11/10/2010 02:50:	3.33	0.5	0	3.16	0.45	0	2.94	0.45	0	3.31	0.46	0
11/10/2010 03:00:	1.08	0.47	0	0.87	0.52	0	1.09	0.57	0	1.31	0.42	0
11/10/2010 03:10:	0.59	0.37	0	0.53	0.37	0	0.63	0.45	0	0.89	0.39	0
11/10/2010 03:20:	1.08	0.62	0	0.96	0.57	0	1.04	0.59	0	1.38	0.52	0
11/10/2010 03:30:	2.24	0.57	-993	2.08	0.52	-993	2.03	0.5	-993	2.34	0.51	0
11/10/2010 03:40:	2.2	0.64	-993	2.14	0.67	-993	2.16	0.57	-993	2.39	0.51	0
11/10/2010 03:50:	2.44	0.64	0	2.28	0.8	0	2.27	0.67	0	2.55	0.65	0
11/10/2010 04:00:	2.94	0.64	0	2.73	0.62	0	2.64	0.62	0	2.92	0.6	0
11/10/2010 04:10:	2.19	0.99	0	1.85	1.03	0	1.7	0.99	0	2.25	0.84	0
11/10/2010 04:20:	0.97	0.32	0	0.46	0.21	0	0.5	0.24	0	1.24	0.25	0
11/10/2010 04:30:	1.06	0.44	0	0.58	0.34	0	0.41	0.15	0	1.34	0.31	0
11/10/2010 04:40:	1.26	0.37	0	0.68	0.28	0	0.43	0.17	0	1.46	0.27	0
11/10/2010 04:50:	1.28	0.44	0	0.96	0.4	0	0.93	0.4	0	1.55	0.34	0
11/10/2010 05:00:	1.8	0.42	0	1.64	0.44	0	1.06	0.38	0	2.33	0.24	0
11/10/2010 05:10:	1.68	0.44	0	1.14	0.38	0	0.67	0.3	0	1.84	0.36	0
11/10/2010 05:20:	1.24	0.4	0	0.61	0.3	0	0.55	0.34	0	1.48	0.3	0
11/10/2010 05:30:	2.08	0.42	-993	0.98	0.54	-993	0.4	0.18	-993	2.21	0.36	0
11/10/2010 05:40:	2.06	0.35	-993	1.02	0.35	-993	0.37	0.11	-993	2.16	0.3	0
11/10/2010 05:50:	1.2	0.7	0	0.63	0.4	0	0.35	0.02	0	1.44	0.6	0
11/10/2010 06:00:	0.73	0.34	0	0.62	0.32	0	0.9	0.34	0	0.96	0.34	0
11/10/2010 06:10:	1.07	0.59	0	0.55	0.45	0	0.38	0.11	0	1.35	0.48	0
11/10/2010 06:20:	1.77	0.23	0	1.4	0.24	0	0.96	0.31	0	1.91	0.17	0

Subject: Re: Excessive memory use
Posted by Novo on Tue, 13 Mar 2012 03:49:58 GMT
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nixnixnix wrote on Mon, 12 March 2012 18:08
However, when I go to edit a value, all the values in the row show as the row number and not the value that should be there. Is there a good way to deal with this? I noticed that your app doesn't do in place editing and of course the reference app doesn't either.

Nick

Well, I made a small experiment with EditField and Convert.
I tried to overwrite Format() and Scan() in Convert and set this new converter on EditField. Now EditField can display correct text instead of a number. Scan() seems to be a right place to store edited value.

Subject: Re: Excessive memory use
Posted by nixnixnix on Tue, 13 Mar 2012 07:04:58 GMT
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Thanks Novo,

Worked a treat. My app can now load up 70MB of ASCII and display it using only 145MB of memory and the files load in 3 seconds and can be edited in place and I don't even have to retrieve the data from the Array Ctrl. Fantastic! Thanks for all your help.

Cheers,

Nick