Subject: [BUG] Memory leak in MySql package
Posted by Klugier on Fri, 05 Apr 2013 10:43:17 GMT
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Hello,

I diagnosed serious memory leak in MySql package. According to the following reference http://dev.mysql.com/doc/refman/5.1/en/mysql-library-end.htm l we need to call extra function (mysql_library_end(void)) to make total order.

I enclose patch code (MySql/MySql.cpp - line 132):

```
void MySqlSession::Close()
{
 SessionClose();
 if(mysql) {
  mysql_close(mysql);
  mysql_library_end();
  mysql = NULL;
  level = 0;
 }
}
```

Sincerely,
Klugier

Subject: Re: [BUG] Memory leak in MySql package
Posted by Alboni on Fri, 19 Apr 2013 14:12:38 GMT
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Hi Klugier,
How did you diagnose the leak?

As I read it:

mysql_library_end() should be called after the last session close. Not after each session close.

I cannot find any mysql_library_init() call anywhere in Upp.
(Yet still it works)

I need to conclude that these calls are made in DllMain() of MySql.dll when loading and unloading the dll.

Doing it explicitly is imho only relevant for programs that statically link MySql (wich Upp does not).

Subject: Re: [BUG] Memory leak in MySql package
Posted by Klugier on Sat, 20 Apr 2013 13:05:51 GMT
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Hello Alboni,

You are absolutly right, We need to count global number of MySqlSession instances. If the number of instances falls to zero we need to call mysql_library_end().

I use a memory profiler called valgrind. I invoke him with following command:

valgrind --tool=memcheck --leak-check=full --show-reachable=yes ./ProgramName

I enclose completed patch for this issue. I have added new static variable to count number of instances (numberOfInstances) of the class MySqlSession.

Sincerely,
Klugier

File Attachments
1) MySql-Patch.tar.gz, downloaded 461 times

Subject: Re: [BUG] Memory leak in MySql package
Posted by BioBytes on Fri, 03 May 2013 19:48:12 GMT
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Hello Klugier,

Do you know if your MySql patch has been included in the Upp core ?

Regards

Biobytes

Subject: Re: [BUG] Memory leak in MySql package
Posted by Klugier on Sat, 11 May 2013 00:31:30 GMT
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Hello BioBytes,

Now, I am waiting for patch confirmation.

Sincerely,
Klugier

Subject: Re: [BUG] Memory leak in MySql package
Posted by mirek on Sat, 11 May 2013 09:27:53 GMT
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klugier wrote on Sat, 20 April 2013 09:05Hello Alboni,

You are absolutly right, We need to count global number of MySqlSession instances. If the number of instances falls to zero we need to call mysql_library_end().

I use a memory profiler called valgrind. I invoke him with following command:

valgrind --tool=memcheck --leak-check=full --show-reachable=yes ./ProgramName

I enclose completed patch for this issue. I have added new static variable to count number of instances (numberOfInstances) of the class MySqlSession.

Sincerely,
Klugier

I believe that your code does not really do anything with numberOfInstances - it is always zero.

Anyway, while not quite sure about what mysql_library_end does, what about simply putting it to EXITBLOCK and call when any MySql was performed to keep valgrind quiet?

Mirek

Subject: Re: [BUG] Memory leak in MySql package
Posted by Klugier on Sat, 11 May 2013 15:19:52 GMT
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Hello Mirek,

I sorry, I have sent wrong header file. Of course, we need to add "counter" code to constructor and destructor.

```
MySqlSession()      { numberOfInstances++; mysql = NULL; Dialect(MY_SQL); }
~MySqlSession()     { numberOfInstances--; Close(); }
```

I would like to relate to putting EXITBLOCK. In my option counter method is more efficient, because memory can be free at runtime. On the other hand, EXITBLOCK will make order when the program ends. Of course, I can be wrong what EXITBLOCK is doing. I have never used it in my applications.

I have attached improved version of this patch.

Sincerely,
Klugier

File Attachments

1) MySqlPatch2.tar.gz, downloaded 452 times

Subject: Re: [BUG] Memory leak in MySql package
Posted by mirek on Wed, 22 May 2013 07:41:50 GMT
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klugier wrote on Sat, 11 May 2013 11:19Hello Mirek,

I sorry, I have sent wrong header file. Of course, we need to add "counter" code to constructor and destructor.


```
MySqlSession()      { numberOfInstances++; mysql = NULL; Dialect(MY_SQL); }
~MySqlSession()     { numberOfInstances--; Close(); }
```

I would like to relate to putting EXITBLOCK. In my option counter method is more efficient, because memory can be free at runtime. On the other hand, EXITBLOCK will make order when the program ends. Of course, I can be wrong what EXITBLOCK is doing. I have never used it in my applications.

Well, I think that amount of memory is not high and there is plausible usage scenario where you create DB connection per request - in that case MySql will have to recreate the whole memory area....

Frankly, more I am thinking about this, perhaps the best course of action is to do nothing. This is a 'leak' we can afford.

Mirek

Subject: Re: [BUG] Memory leak in MySql package
Posted by Alboni on Wed, 22 May 2013 08:13:08 GMT
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I'm in favor of doing the obvious:

mysql_library_init() in initblock
mysql_library_end() in exitblock

Subject: Re: [BUG] Memory leak in MySql package
Posted by mirek on Wed, 22 May 2013 08:40:12 GMT
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Alboni wrote on Wed, 22 May 2013 04:13
mysql_library_end() in exitblock

But what is the point?

Subject: Re: [BUG] Memory leak in MySql package
Posted by Alboni on Wed, 22 May 2013 09:53:28 GMT
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The point is that the MySql documentation says that mysql_library_end() should be called before closing the program. MySql was written by smart people and I see no reason to doubt their wisdom. I don't know what problems not calling it induces. Maybe none. Maybe some that are not evident. I haven't analysed MySql sourcecode.

Subject: Re: [BUG] Memory leak in MySql package
Posted by piotr5 on Thu, 23 May 2013 10:52:43 GMT
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once upon a time closing a program that's using a database without closing that database did damage the actual database-file. one had to restore its contents with an external program. so were the times of msdos. with the introduction of write-caching also file-systems needed to be unmounted before turning off the computer. now filesystems have a journal for this purpose (even though still one is supposed to unmount them since otherwise the write-cache is lost). guess mysql is using similar solutions to avoid damage to data? maybe there's also some sort of write-cache for complicated meta-data that could become simplified in case large amounts of information is available? and if not, maybe the future would give us such technology...

Subject: Re: [BUG] Memory leak in MySql package
Posted by Alboni on Thu, 23 May 2013 11:17:09 GMT
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MySql is a separate program (unlike SqLite). It is not closed when the application program that uses it closes. So this will not damage the databasefile, but I can imagine that it can take longer for MySql to register that the client app is gone wich might be a problem if there is a maximum number of connections allowed etc. etc. Anyway can't figure out a reason not to do the closing call.

Subject: Re: [BUG] Memory leak in MySql package
Posted by mirek on Sun, 26 May 2013 18:18:23 GMT
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Alboni wrote on Wed, 22 May 2013 04:13I'm in favor of doing the obvious:

mysql_library_init() in initblock
mysql_library_end() in exitblock

So be it...

Mirek