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KpjComp
Hero Member

Posts: 680

KpjComp
Hero Member

Posts: 680

Topic: Why is my packed record

Re: Why is my packed record structure and CompareMem function failing?
« **Reply #15 on:** April 09, 2012, 08:16:08 pm »

> **Quote**
>
> Like i said a bit earlier, it is possible that file data has the word FILE0 inside it.

My routine is to replicate what Grep does, nothing more, nothing less.

To add:
From what I can gather ted is parsing some MFT records, he's then just searching for the magic FILE0 tag inside the NTFS MFT file he has, I assume details on Microsoft MFT file structure is not easy to follow or find, and is the reason he's searching for the Magic pattern. Also isn't MFT just pointers to the data files, so there's no data there anyway, apart from maybe the filename. IOW: The data will be spread all other the place on the HD.
« *Last Edit: April 09, 2012, 08:45:49 pm by KpjComp* »

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Re: Why is my packed record structure and CompareMem function failing?
« **Reply #16 on:** April 09, 2012, 11:16:47 pm »

Ok, I've updated the TBlockSearch

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Ok, I've updated the TBlockSearch class.

One problem I mentioned was with large search terms, the reason for this was due to the way I was filling the Fifo buffer up, this was done this way so that comparemem would work.

Now with some small modifications large search terms are not a problem, and it's also twice as fast as my previous one. eg. 20Gig search takes about 5 mins.

Basically instead of shifting the fifo buffer using the move instructions, I've just created a simple ring buffer instead, comparemem of course won't understand the ringbuffer so I also just do the comparison manually inside the checkPos sub procedure.

Also there was a slight bug in the fact that integer or even largeint is not big enough for 20Gig files, so I've updated to use int64.

I'm sure there are ways to make this faster, eg. even Lazarus has the Search in files, that I assume will be doing even cleverer things for doing it's grep.

Code: [Select]

```
unit block_search;

{$mode objfpc}{$H+}

interface

uses
  Classes, SysUtils, fgl;

type

  { TBlockSearch }
```

```
TBlockSearchResults = specializ

TBlockSearch = class
```

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Gizmo
Sr. Member
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Posts: 304

🔷 **Re: Why is my packed record structure and CompareMem function failing?**
« **Reply #17 on:** April 10, 2012, 10:05:56 pm »

Dudes

What I have found in my time programming (which is not very long) is that although my coding efforts are not advanced or clever or even sensible, I usually understand them. I find following other examples, especially long ones, tricky to follow. I am though, of course, very very greatful for everyones help, especially KpjComp who has clearly spent a significant amount of time helping.

Consequently, I went away and just tried to work this out and came up with the following, which works (i.e. it finds the same number of entries as grep and it records the offset and I can fill my packed arrays with other relevant data and whenever it finds an entry it then goes back to where it found it (during the same loop) and reads approx 1024 bytes of data):

Code: [Select]

```
type
  MFTRecords = packed record
    // MFT Records have 41 bytes
    // We have a seperate array s
    FILEOMagicMarker : array[0..4
  end;

  // Now we have another record f
  // that is populated by data fo
    MFTRecordStructure = packed r
    FixupSequenceOffset:     arra
    UpdateSequenceSize:      arra
    ....and so on
    end;
var
```

◀   ▶

It's not very quick and not especially efficient, but if finds all the records and when it finds them, it reads a series of bytes after each entry that I can work with, and am working with.

As to why I'm doing this - I can't really say publically. However, MFT entries store the files themselves witnion the MFT if their size is < 1024 bytes, as well as created dates etc. It's called resident data. If they're larger than that they're stored out in NTFS clusters but data about them is still in the MFT.

Ted
« Last Edit: April 10, 2012, 10:08:21 pm by tedsmith »

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http://www.sourceforge.net/projects/quick

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KpjComp
Hero Member
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Posts: 680

Re: Why is my packed record structure and CompareMem function failing?
« Reply #18 on: April 10, 2012, 11:36:51 pm »

Hi Ted,

No problem..
If you want to speed things up, it's not much of a modification using the BlockSearch class I've created. There's no need to understand how the BlockSearch works, but that it returns you a list of File Positions that you can then use. Basically take out your current while loop and place the following in it's place.

Code: [Select]

```
var
  bs:TBlockSearch;
..
..
  bs := TBlockSearch.Create(Sourc
  try
    bs.SearchFor(MFTMagicMarker);
    for i := 0 to bs.results.coun
    begin
      SourceFile.Position := bs.R
```

```
SourceFile.ReadBuffer(MFTRe
  // And now I work on the da
end;
finally
  bs.free;
```

BigChimp

Hero Member

Posts: 4745

Re: Why is my packed record structure and CompareMem function failing?
« **Reply #19 on:** April 11, 2012, 10:39:39 am »

Kpjcomp,

Thanks for your code.

I added it to the wiki:
http://wiki.lazarus.freepascal.org/Roset

Hope you don't mind.

Thanks,
BigChimp

Want quicker answers to your questions? Read
http://wiki.lazarus.freepascal.org/Lazarus_

Open source including twitter/Oauth library:
https://bitbucket.org/reiniero

Lazarus trunk+FPC trunk x86, Windows x64 unless otherwise specified

KpjComp

Hero Member

Posts: 680

Re: Why is my packed record structure and CompareMem function failing?
« **Reply #20 on:** April 11, 2012, 02:19:14 pm »

Quote from: BigChimp on April 11, 2012, 10:39:39 am

Hope you don't mind.

No problem, good idea!!. Hope

others find it useful. 😊

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