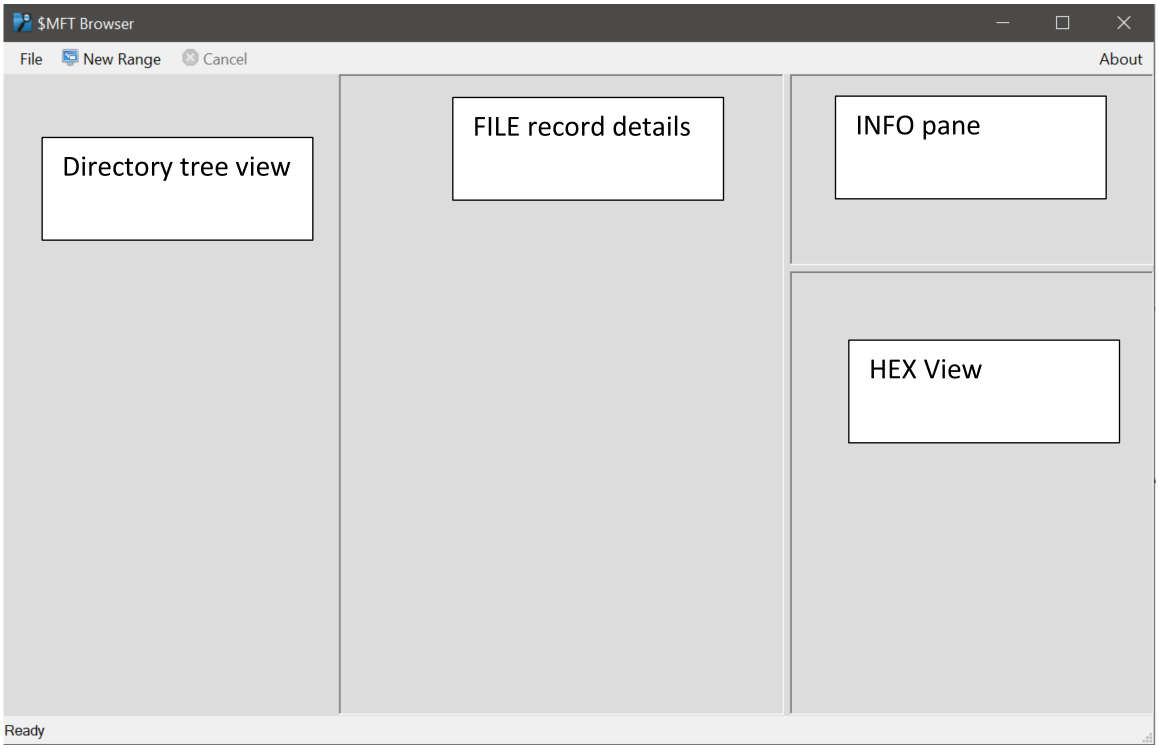
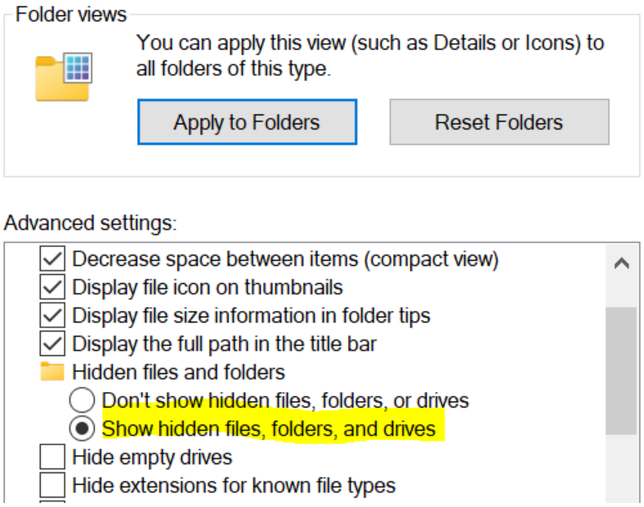
GUI description



Loading an MFT file to MFTBrowser

Note1: you will need to enable Windows explorer to show hidden files

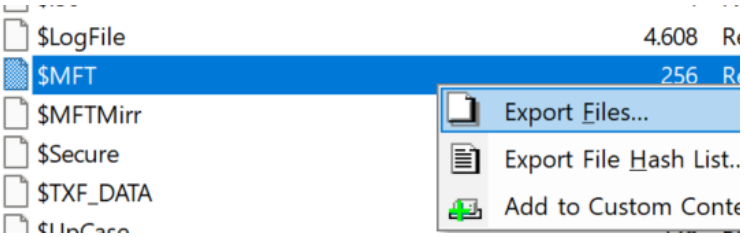


You can apply this view (such as Details or Icons) to all folders of this type.

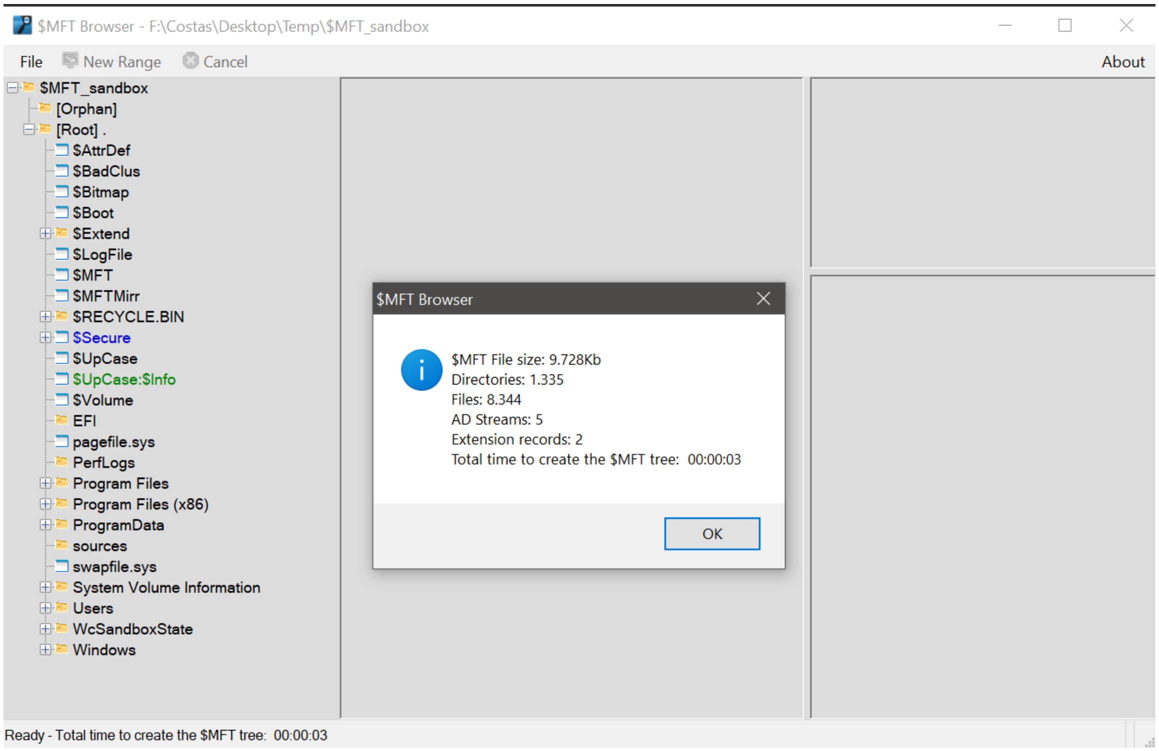
- ☑ Decrease space between items (compact view)
- ☑ Display file icon on thumbnails
- ☑ Display file size information in folder tips
- ☑ Display the full path in the title bar
- Hidden files and folders
  - ○ Don't show hidden files, folders, or drives
  - ● Show hidden files, folders, and drives
- □ Hide empty drives
- □ Hide extensions for known file types

Note2: for the demo, select an image with a small $MFT file. Processing time grows exponentially relative to the file size, as it needs to map each child record to its parent node, and as the structure grows, the time needed grows exponentially. (*There is a trick for that discussed later*)

Open the drive/image containing at least one NTFS partition with a tool like FTK Imager, select the $MFT file in the partition of interest and export it to a folder on your desktop:



Open MFTBrowser and select the $MFT file you just exported. Processing will start, and the status bar (bottom left) shows what is happening.
When that is finished, the Root Directory tree will load:

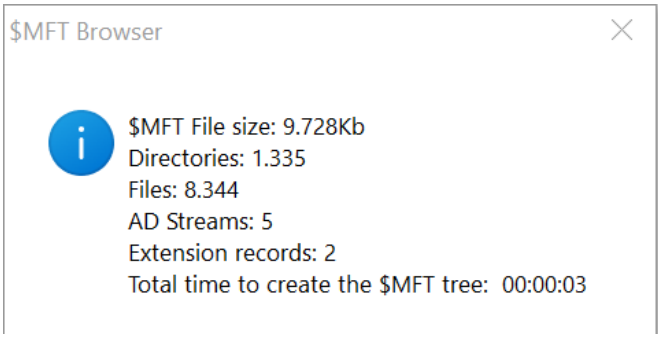


```
$MFT_sandbox
  [Orphan]
  [Root] .
    $AttrDef
    $BadClus
    $Bitmap
    $Boot
    $Extend
    $LogFile
    $MFT
    $MFTMirr
    $RECYCLE.BIN
    $Secure
    $UpCase
    $UpCase:$Info
    $Volume
    EFI
    pagefile.sys
    PerfLogs
    Program Files
    Program Files (x86)
    ProgramData
    sources
    swapfile.sys
    System Volume Information
    Users
    WcSandboxState
    Windows
```

```
$MFT File size: 9.728Kb
Directories: 1.335
Files: 8.344
AD Streams: 5
Extension records: 2
Total time to create the $MFT tree:  00:00:03
```

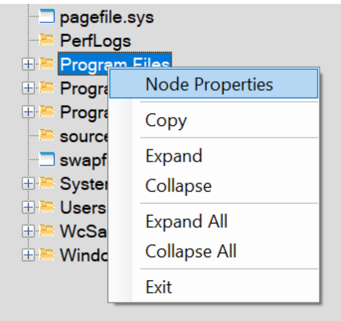
```
Ready - Total time to create the $MFT tree:  00:00:03
```

The popup displays some info on the processed $MFT:

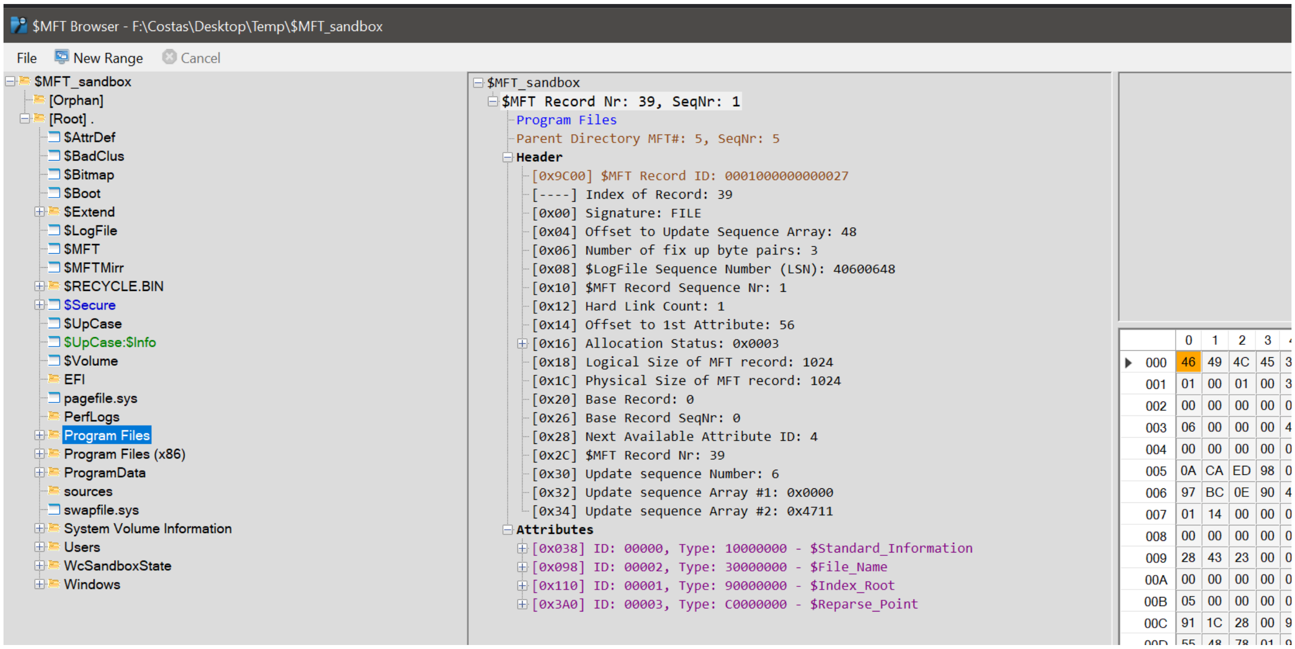


$MFT File size: 9.728Kb
Directories: 1.335
Files: 8.344
AD Streams: 5
Extension records: 2
Total time to create the $MFT tree: 00:00:03

Right clicking on a tree node (file/directory) and selecting ‘Node Properties’



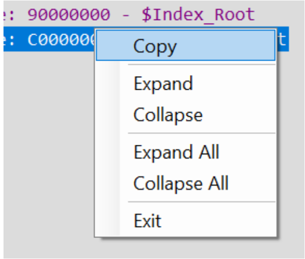
will load the FILE record of the selected node in the Details pane (center treeview):



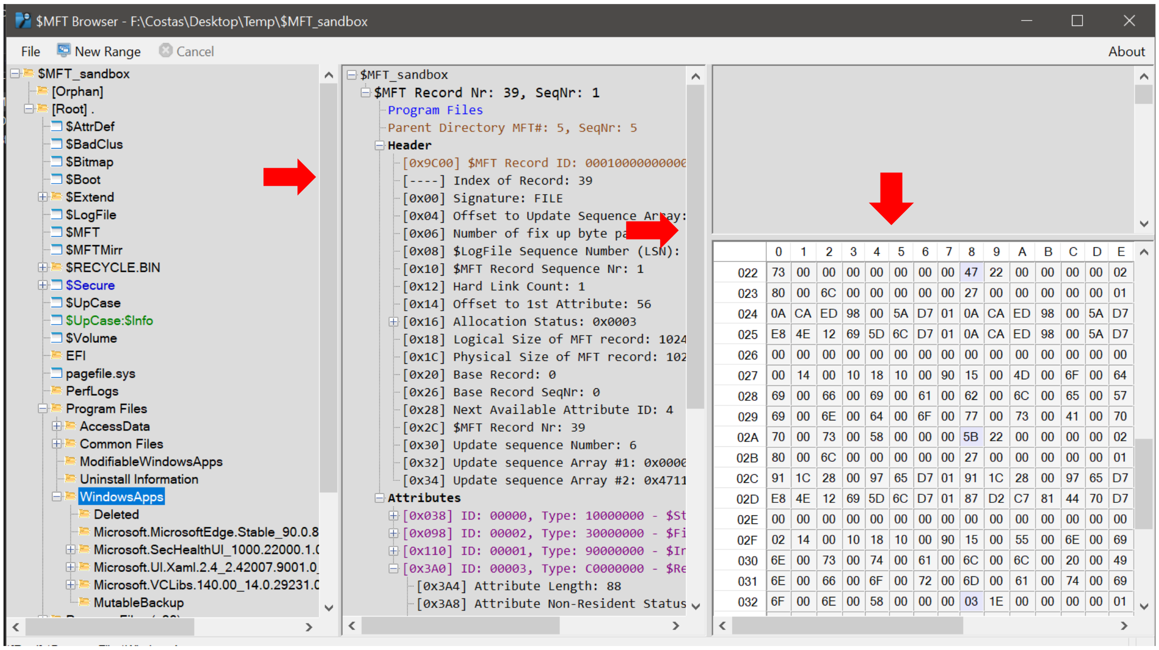
```
$MFT_sandbox
  $MFT Record Nr: 39, SeqNr: 1
    Program Files
    Parent Directory MFT#: 5, SeqNr: 5
    Header
      [0x9C00] $MFT Record ID: 0001000000000027
      [----] Index of Record: 39
      [0x00] Signature: FILE
      [0x04] Offset to Update Sequence Array: 48
      [0x06] Number of fix up byte pairs: 3
      [0x08] $LogFile Sequence Number (LSN): 40600648
      [0x10] $MFT Record Sequence Nr: 1
      [0x12] Hard Link Count: 1
      [0x14] Offset to 1st Attribute: 56
    + [0x16] Allocation Status: 0x0003
      [0x18] Logical Size of MFT record: 1024
      [0x1C] Physical Size of MFT record: 1024
      [0x20] Base Record: 0
      [0x26] Base Record SeqNr: 0
      [0x28] Next Available Attribute ID: 4
      [0x2C] $MFT Record Nr: 39
      [0x30] Update sequence Number: 6
      [0x32] Update sequence Array #1: 0x0000
      [0x34] Update sequence Array #2: 0x4711
    Attributes
    + [0x038] ID: 00000, Type: 10000000 - $Standard_Information
    + [0x098] ID: 00002, Type: 30000000 - $File_Name
    + [0x110] ID: 00001, Type: 90000000 - $Index_Root
    + [0x3A0] ID: 00003, Type: C0000000 - $Reparse_Point
```

	0	1	2	3
000	46	49	4C	45
001	01	00	01	00
002	00	00	00	00
003	06	00	00	00
004	00	00	00	00
005	0A	CA	ED	98
006	97	BC	0E	90
007	01	14	00	00
008	00	00	00	00
009	28	43	23	00
00A	00	00	00	00
00B	05	00	00	00
00C	91	1C	28	00

The record header is automatically expanded, but the Attributes are not. To expand/collapse any node (+), or all, just click on the node, or right click and select any option:



Note: The pane separators are movable and scrollable:

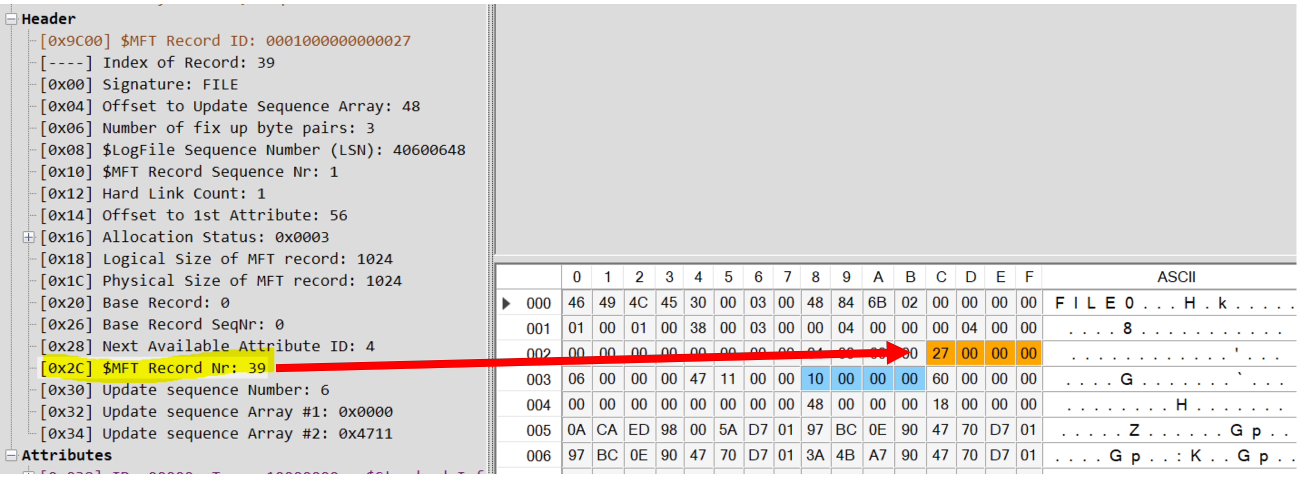


```
$MFT_sandbox
  [Orphan]
  [Root] .
    $AttrDef
    $BadClus
    $Bitmap
    $Boot
    $Extend
    $LogFile
    $MFT
    $MFTMirr
    $RECYCLE.BIN
    $Secure
    $UpCase
    $UpCase:$Info
    $Volume
    EFI
    pagefile.sys
    PerfLogs
    Program Files
      AccessData
      Common Files
      ModifiableWindowsApps
      Uninstall Information
      WindowsApps
        Deleted
        Microsoft.MicrosoftEdge.Stable_90.0.8
        Microsoft.SecHealthUI_1000.22000.1.(
        Microsoft.UI.Xaml.2.4_2.42007.9001.0_
        Microsoft.VCLibs.140.00_14.0.29231.(
        MutableBackup
```

```
$MFT_sandbox
  $MFT Record Nr: 39, SeqNr: 1
    Program Files
    Parent Directory MFT#: 5, SeqNr: 5
    Header
      [0x9C00] $MFT Record ID: 00010000000000
      [----] Index of Record: 39
      [0x00] Signature: FILE
      [0x04] Offset to Update Sequence Array:
      [0x06] Number of fix up byte pa
      [0x08] $LogFile Sequence Number (LSN):
      [0x10] $MFT Record Sequence Nr: 1
      [0x12] Hard Link Count: 1
      [0x14] Offset to 1st Attribute: 56
      [0x16] Allocation Status: 0x0003
      [0x18] Logical Size of MFT record: 1024
      [0x1C] Physical Size of MFT record: 102
      [0x20] Base Record: 0
      [0x26] Base Record SeqNr: 0
      [0x28] Next Available Attribute ID: 4
      [0x2C] $MFT Record Nr: 39
      [0x30] Update sequence Number: 6
      [0x32] Update sequence Array #1: 0x0000
      [0x34] Update sequence Array #2: 0x4711
    Attributes
      [0x038] ID: 00000, Type: 10000000 - $St
      [0x098] ID: 00002, Type: 30000000 - $Fi
      [0x110] ID: 00001, Type: 90000000 - $Ir
      [0x3A0] ID: 00003, Type: C0000000 - $Re
        [0x3A4] Attribute Length: 88
        [0x3A8] Attribute Non-Resident Status
```

```
      0  1  2  3  4  5  6  7  8  9  A  B  C  D  E
022  73 00 00 00 00 00 00 00 47 22 00 00 00 00 02
023  80 00 6C 00 00 00 00 00 27 00 00 00 00 00 01
024  0A CA ED 98 00 5A D7 01 0A CA ED 98 00 5A D7
025  E8 4E 12 69 5D 6C D7 01 0A CA ED 98 00 5A D7
026  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
027  00 14 00 10 18 10 00 90 15 00 4D 00 6F 00 64
028  69 00 66 00 69 00 61 00 62 00 6C 00 65 00 57
029  69 00 6E 00 64 00 6F 00 77 00 73 00 41 00 70
02A  70 00 73 00 58 00 00 00 5B 22 00 00 00 00 02
02B  80 00 6C 00 00 00 00 00 27 00 00 00 00 00 01
02C  91 1C 28 00 97 65 D7 01 91 1C 28 00 97 65 D7
02D  E8 4E 12 69 5D 6C D7 01 87 D2 C7 81 44 70 D7
02E  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
02F  02 14 00 10 18 10 00 90 15 00 55 00 6E 00 69
030  6E 00 73 00 74 00 61 00 6C 00 6C 00 20 00 49
031  6E 00 66 00 6F 00 72 00 6D 00 61 00 74 00 69
032  6F 00 6E 00 58 00 00 00 03 1E 00 00 00 00 01
```

Clicking any entry on the FILE record Details Pane will select the raw (source) hex of that entry in the Hex View pane:

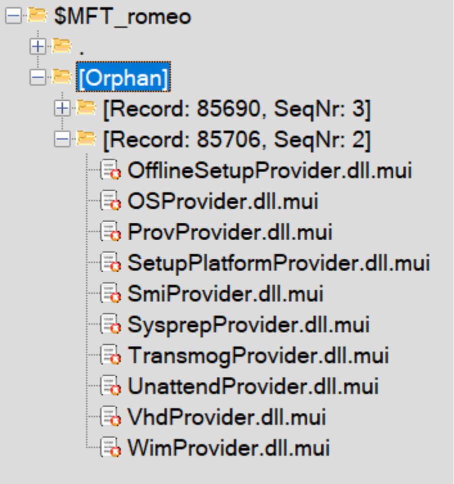


```
Header
  [0x9C00] $MFT Record ID: 0001000000000027
  [----] Index of Record: 39
  [0x00] Signature: FILE
  [0x04] Offset to Update Sequence Array: 48
  [0x06] Number of fix up byte pairs: 3
  [0x08] $LogFile Sequence Number (LSN): 40600648
  [0x10] $MFT Record Sequence Nr: 1
  [0x12] Hard Link Count: 1
  [0x14] Offset to 1st Attribute: 56
  [0x16] Allocation Status: 0x0003
  [0x18] Logical Size of MFT record: 1024
  [0x1C] Physical Size of MFT record: 1024
  [0x20] Base Record: 0
  [0x26] Base Record SeqNr: 0
  [0x28] Next Available Attribute ID: 4
  [0x2C] $MFT Record Nr: 39
  [0x30] Update sequence Number: 6
  [0x32] Update sequence Array #1: 0x0000
  [0x34] Update sequence Array #2: 0x4711
Attributes
```

```
      0  1  2  3  4  5  6  7  8  9  A  B  C  D  E  F           ASCII
000  46 49 4C 45 30 00 03 00 48 84 6B 02 00 00 00 00   F I L E 0 . . . H . k . . . . .
001  01 00 01 00 38 00 03 00 00 04 00 00 00 04 00 00   . . . . 8 . . . . . . . . . . .
002  00 00 00 00 00 00 00 00 [illegible] [illegible] [illegible] 00 27 00 00 00   . . . . . . . . . . . . ' . . .
003  06 00 00 00 47 11 00 00 10 00 00 00 60 00 00 00   . . . . G . . . . . . . ` . . .
004  00 00 00 00 00 00 00 00 48 00 00 00 18 00 00 00   . . . . . . . . H . . . . . . .
005  0A CA ED 98 00 5A D7 01 97 BC 0E 90 47 70 D7 01   . . . . . . Z . . . . . . G p . .
006  97 BC 0E 90 47 70 D7 01 3A 4B A7 90 47 70 D7 01   . . . . G p . . : K . . G p . .
```

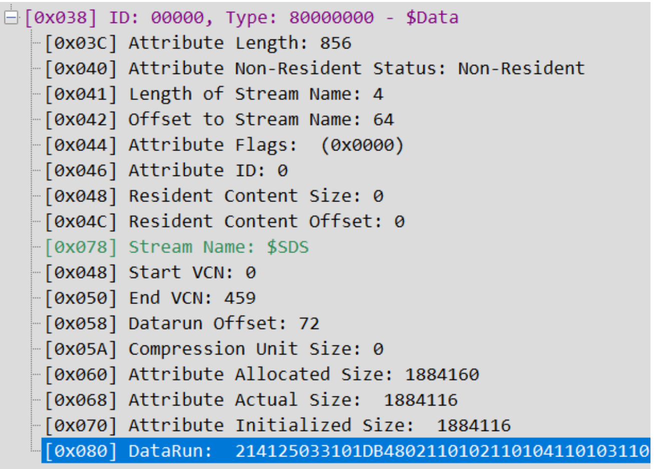
- ○ All offsets displayed on the FILE record details pane (center) are relative to the Start of the record.
- ○ All Timestamps are in UTC.

Orphan records (*records whose Parent ID can’t be found*) are listed under the ‘Orphan’ Node:



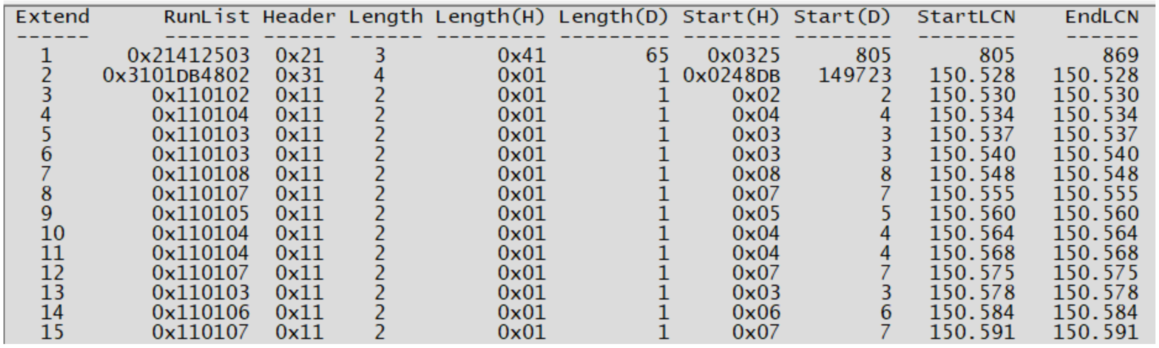
```
$MFT_romeo
  .
  [Orphan]
    [Record: 85690, SeqNr: 3]
    [Record: 85706, SeqNr: 2]
      OfflineSetupProvider.dll.mui
      OSProvider.dll.mui
      ProvProvider.dll.mui
      SetupPlatformProvider.dll.mui
      SmiProvider.dll.mui
      SysprepProvider.dll.mui
      TransmogProvider.dll.mui
      UnattendProvider.dll.mui
      VhdProvider.dll.mui
      WimProvider.dll.mui
```

When an Attribute is Non-Resident and has a Datarun, clicking on the DataRun in the Details pane:



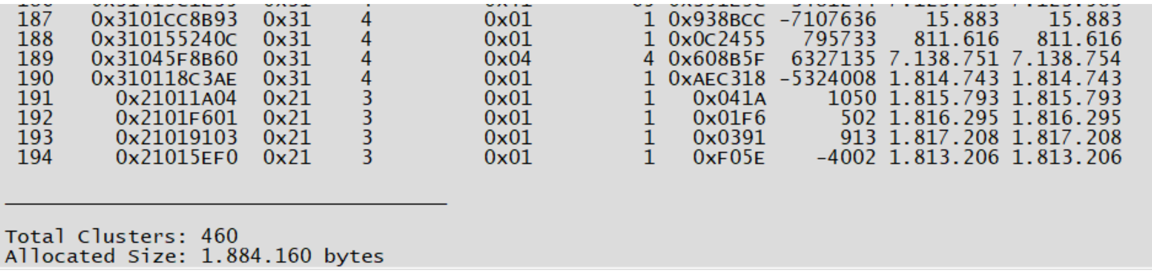
```
[0x038] ID: 00000, Type: 80000000 - $Data
  [0x03C] Attribute Length: 856
  [0x040] Attribute Non-Resident Status: Non-Resident
  [0x041] Length of Stream Name: 4
  [0x042] Offset to Stream Name: 64
  [0x044] Attribute Flags:  (0x0000)
  [0x046] Attribute ID: 0
  [0x048] Resident Content Size: 0
  [0x04C] Resident Content Offset: 0
  [0x078] Stream Name: $SDS
  [0x048] Start VCN: 0
  [0x050] End VCN: 459
  [0x058] Datarun Offset: 72
  [0x05A] Compression Unit Size: 0
  [0x060] Attribute Allocated Size: 1884160
  [0x068] Attribute Actual Size:  1884116
  [0x070] Attribute Initialized Size:  1884116
  [0x080] DataRun:  214125033101DB48021101021101041101031l0
```

will show the run list in the top right pane:



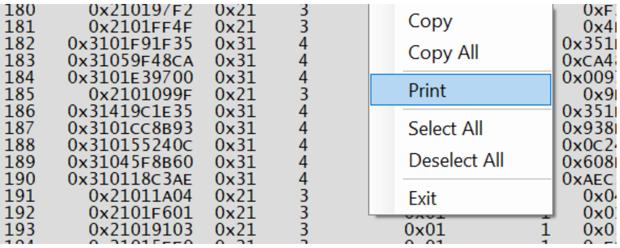
```
Extend       RunList Header Length Length(H) Length(D) Start(H) Start(D)  StartLCN   EndLCN
------      -------- ------ ------ --------- --------- -------- --------  --------   ------
  1       0x21412503  0x21    3         0x41        65   0x0325      805       805      869
  2     0x3101DB4802  0x31    4         0x01         1 0x0248DB   149723   150.528  150.528
  3         0x110102  0x11    2         0x01         1     0x02        2   150.530  150.530
  4         0x110104  0x11    2         0x01         1     0x04        4   150.534  150.534
  5         0x110103  0x11    2         0x01         1     0x03        3   150.537  150.537
  6         0x110103  0x11    2         0x01         1     0x03        3   150.540  150.540
  7         0x110108  0x11    2         0x01         1     0x08        8   150.548  150.548
  8         0x110107  0x11    2         0x01         1     0x07        7   150.555  150.555
  9         0x110105  0x11    2         0x01         1     0x05        5   150.560  150.560
  10        0x110104  0x11    2         0x01         1     0x04        4   150.564  150.564
  11        0x110104  0x11    2         0x01         1     0x04        4   150.568  150.568
  12        0x110107  0x11    2         0x01         1     0x07        7   150.575  150.575
  13        0x110103  0x11    2         0x01         1     0x03        3   150.578  150.578
  14        0x110106  0x11    2         0x01         1     0x06        6   150.584  150.584
  15        0x110107  0x11    2         0x01         1     0x07        7   150.591  150.591
```

..



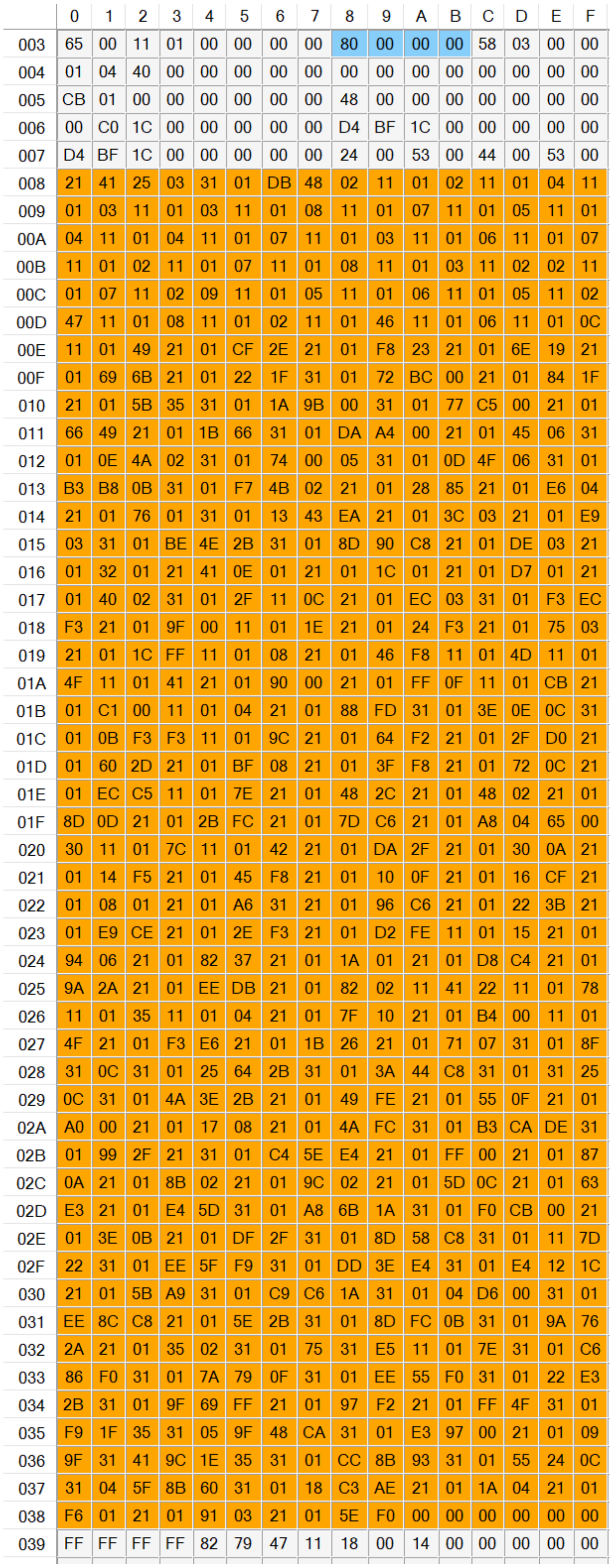
```
 187    0x3101CC8B93  0x31     4          0x01           1 0x938BCC -7107636     15.883     15.883
 188    0x310155240C  0x31     4          0x01           1 0x0C2455   795733    811.616    811.616
 189    0x31045F8B60  0x31     4          0x04           4 0x608B5F  6327135 7.138.751 7.138.754
 190    0x310118C3AE  0x31     4          0x01           1 0xAEC318 -5324008 1.814.743 1.814.743
 191      0x21011A04  0x21     3          0x01           1   0x041A     1050 1.815.793 1.815.793
 192      0x2101F601  0x21     3          0x01           1   0x01F6      502 1.816.295 1.816.295
 193      0x21019103  0x21     3          0x01           1   0x0391      913 1.817.208 1.817.208
 194      0x21015EF0  0x21     3          0x01           1   0xF05E    -4002 1.813.206 1.813.206

____________________________________

Total Clusters: 460
Allocated Size: 1.884.160 bytes
```

Which can be copied or printed:



```
180      0x210197F2   0x21     3                            0xF
181      0x2101FF4F   0x21     3                            0x4
182    0x3101F91F35   0x31     4                          0x351
183    0x31059F48CA   0x31     4                          0xCA4
184    0x3101E39700   0x31     4                          0x009
185      0x2101099F   0x21     3                            0x9
186    0x31419C1E35   0x31     4                          0x351
187    0x3101CC8B93   0x31     4                          0x938
188    0x310155240C   0x31     4                          0x0C2
189    0x31045F8B60   0x31     4                          0x608
190    0x310118C3AE   0x31     4                          0xAEC
191      0x21011A04   0x21     3                            0x0
192      0x2101F601   0x21     3                            0x0
193      0x21019103   0x21     3          0x01         1    0x0
```

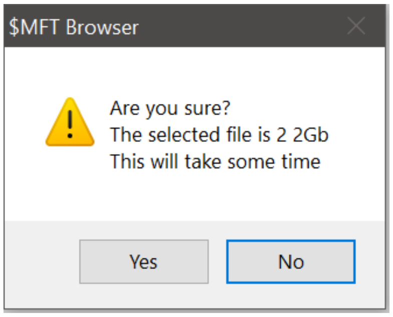
As well as select the raw HEX in the Hex View pane:



	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
003	65	00	11	01	00	00	00	00	80	00	00	00	58	03	00	00
004	01	04	40	00	00	00	00	00	00	00	00	00	00	00	00	00
005	CB	01	00	00	00	00	00	00	48	00	00	00	00	00	00	00
006	00	C0	1C	00	00	00	00	00	D4	BF	1C	00	00	00	00	00
007	D4	BF	1C	00	00	00	00	00	24	00	53	00	44	00	53	00
008	21	41	25	03	31	01	DB	48	02	11	01	02	11	01	04	11
009	01	03	11	01	03	11	01	08	11	01	07	11	01	05	11	01
00A	04	11	01	04	11	01	07	11	01	03	11	01	06	11	01	07
00B	11	01	02	11	01	07	11	01	08	11	01	03	11	02	02	11
00C	01	07	11	02	09	11	01	05	11	01	06	11	01	05	11	02
00D	47	11	01	08	11	01	02	11	01	46	11	01	06	11	01	0C
00E	11	01	49	21	01	CF	2E	21	01	F8	23	21	01	6E	19	21
00F	01	69	6B	21	01	22	1F	31	01	72	BC	00	21	01	84	1F
010	21	01	5B	35	31	01	1A	9B	00	31	01	77	C5	00	21	01
011	66	49	21	01	1B	66	31	01	DA	A4	00	21	01	45	06	31
012	01	0E	4A	02	31	01	74	00	05	31	01	0D	4F	06	31	01
013	B3	B8	0B	31	01	F7	4B	02	21	01	28	85	21	01	E6	04
014	21	01	76	01	31	01	13	43	EA	21	01	3C	03	21	01	E9
015	03	31	01	BE	4E	2B	31	01	8D	90	C8	21	01	DE	03	21
016	01	32	01	21	41	0E	01	21	01	1C	01	21	01	D7	01	21
017	01	40	02	31	01	2F	11	0C	21	01	EC	03	31	01	F3	EC
018	F3	21	01	9F	00	11	01	1E	21	01	24	F3	21	01	75	03
019	21	01	1C	FF	11	01	08	21	01	46	F8	11	01	4D	11	01
01A	4F	11	01	41	21	01	90	00	21	01	FF	0F	11	01	CB	21
01B	01	C1	00	11	01	04	21	01	88	FD	31	01	3E	0E	0C	31
01C	01	0B	F3	F3	11	01	9C	21	01	64	F2	21	01	2F	D0	21
01D	01	60	2D	21	01	BF	08	21	01	3F	F8	21	01	72	0C	21
01E	01	EC	C5	11	01	7E	21	01	48	2C	21	01	48	02	21	01
01F	8D	0D	21	01	2B	FC	21	01	7D	C6	21	01	A8	04	65	00
020	30	11	01	7C	11	01	42	21	01	DA	2F	21	01	30	0A	21
021	01	14	F5	21	01	45	F8	21	01	10	0F	21	01	16	CF	21
022	01	08	01	21	01	A6	31	21	01	96	C6	21	01	22	3B	21
023	01	E9	CE	21	01	2E	F3	21	01	D2	FE	11	01	15	21	01
024	94	06	21	01	82	37	21	01	1A	01	21	01	D8	C4	21	01
025	9A	2A	21	01	EE	DB	21	01	82	02	11	41	22	11	01	78
026	11	01	35	11	01	04	21	01	7F	10	21	01	B4	00	11	01
027	4F	21	01	F3	E6	21	01	1B	26	21	01	71	07	31	01	8F
028	31	0C	31	01	25	64	2B	31	01	3A	44	C8	31	01	31	25
029	0C	31	01	4A	3E	2B	21	01	49	FE	21	01	55	0F	21	01
02A	A0	00	21	01	17	08	21	01	4A	FC	31	01	B3	CA	DE	31
02B	01	99	2F	21	31	01	C4	5E	E4	21	01	FF	00	21	01	87
02C	0A	21	01	8B	02	21	01	9C	02	21	01	5D	0C	21	01	63
02D	E3	21	01	E4	5D	31	01	A8	6B	1A	31	01	F0	CB	00	21
02E	01	3E	0B	21	01	DF	2F	31	01	8D	58	C8	31	01	11	7D
02F	22	31	01	EE	5F	F9	31	01	DD	3E	E4	31	01	E4	12	1C
030	21	01	5B	A9	31	01	C9	C6	1A	31	01	04	D6	00	31	01
031	EE	8C	C8	21	01	5E	2B	31	01	8D	FC	0B	31	01	9A	76
032	2A	21	01	35	02	31	01	75	31	E5	11	01	7E	31	01	C6
033	86	F0	31	01	7A	79	0F	31	01	EE	55	F0	31	01	22	E3
034	2B	31	01	9F	69	FF	21	01	97	F2	21	01	FF	4F	31	01
035	F9	1F	35	31	05	9F	48	CA	31	01	E3	97	00	21	01	09
036	9F	31	41	9C	1E	35	31	01	CC	8B	93	31	01	55	24	0C
037	31	04	5F	8B	60	31	01	18	C3	AE	21	01	1A	04	21	01
038	F6	01	21	01	91	03	21	01	5E	F0	00	00	00	00	00	00
039	FF	FF	FF	FF	82	79	47	11	18	00	14	00	00	00	00	00

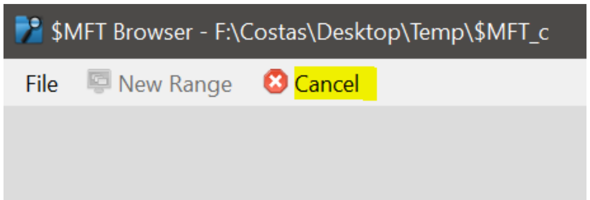
Loading a large $MFT to view select records

If the MFT is large (over 500kb) and you only want to view a few specific FILE records, right after you load the MFT file, you will be shown a popup warning:

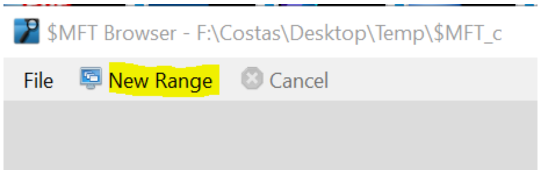


Are you sure?
The selected file is 2 2Gb
This will take some time

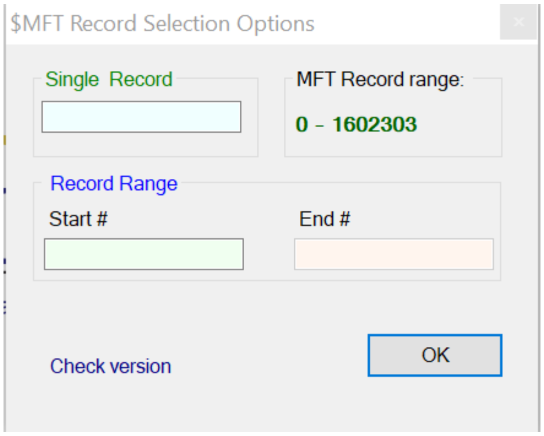
Select YES, and once the processing starts, press the Cancel button.



That will stop the Directory tree creation. The 'New Range' menu option becomes visible:



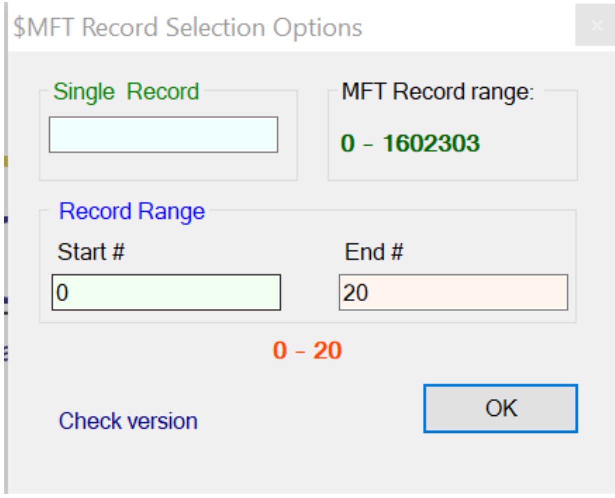
Clicking on it, which display this popup:



MFT Record range: 0 – 1602303

The MFT Record range is basically the division of the MFT file size by 1024. Record 0 is the $MFT itself. From this popup you can load either a single record or a range of records (e.g., 0-20).

For example, to view records 0 - 20 :



$MFT Record Selection Options

Single Record

MFT Record range:
0 – 1602303

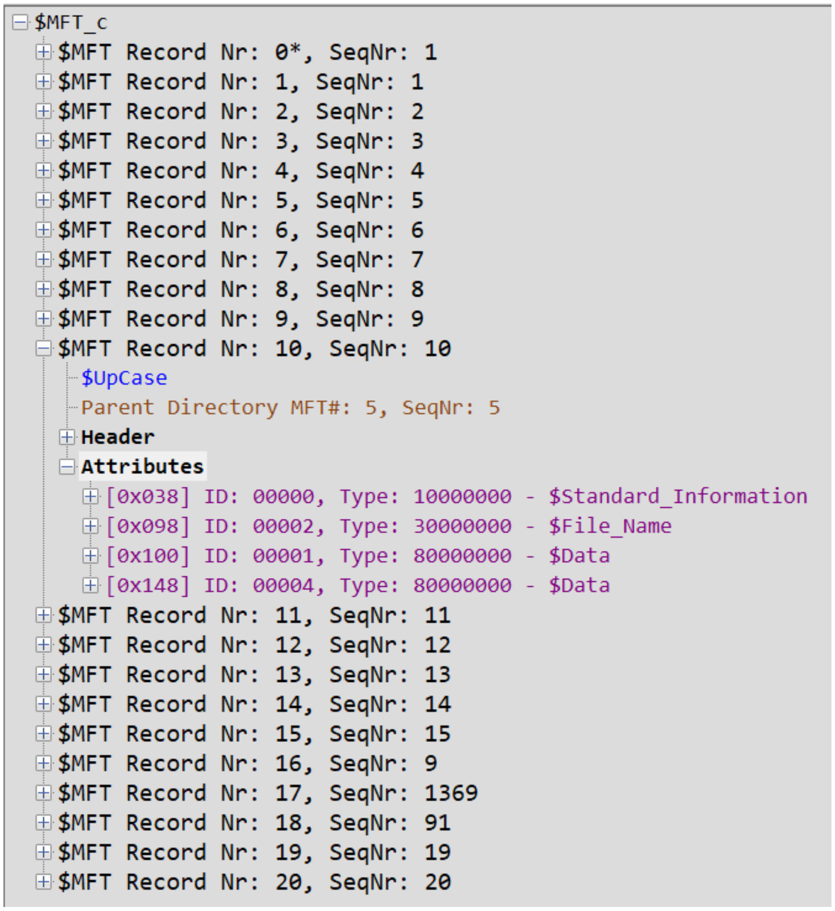
Record Range

Start #: 0

End #: 20

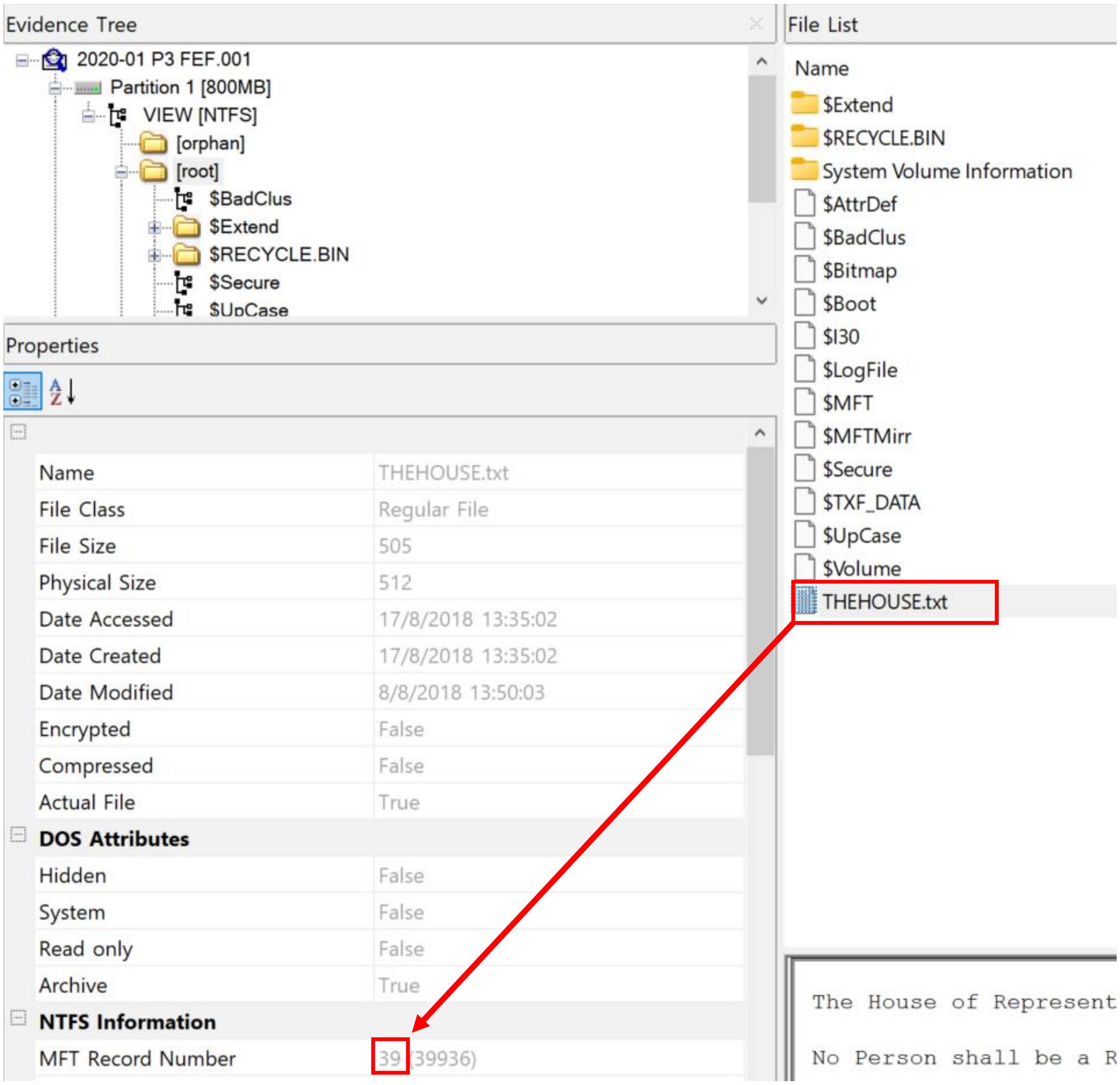
0 – 20

Pressing OK, will show the records in the Details pane (middle):



```
⊟ $MFT_c
  ⊞ $MFT Record Nr: 0*, SeqNr: 1
  ⊞ $MFT Record Nr: 1, SeqNr: 1
  ⊞ $MFT Record Nr: 2, SeqNr: 2
  ⊞ $MFT Record Nr: 3, SeqNr: 3
  ⊞ $MFT Record Nr: 4, SeqNr: 4
  ⊞ $MFT Record Nr: 5, SeqNr: 5
  ⊞ $MFT Record Nr: 6, SeqNr: 6
  ⊞ $MFT Record Nr: 7, SeqNr: 7
  ⊞ $MFT Record Nr: 8, SeqNr: 8
  ⊞ $MFT Record Nr: 9, SeqNr: 9
  ⊟ $MFT Record Nr: 10, SeqNr: 10
      $UpCase
      Parent Directory MFT#: 5, SeqNr: 5
    ⊞ Header
    ⊟ Attributes
      ⊞ [0x038] ID: 00000, Type: 10000000 - $Standard_Information
      ⊞ [0x098] ID: 00002, Type: 30000000 - $File_Name
      ⊞ [0x100] ID: 00001, Type: 80000000 - $Data
      ⊞ [0x148] ID: 00004, Type: 80000000 - $Data
  ⊞ $MFT Record Nr: 11, SeqNr: 11
  ⊞ $MFT Record Nr: 12, SeqNr: 12
  ⊞ $MFT Record Nr: 13, SeqNr: 13
  ⊞ $MFT Record Nr: 14, SeqNr: 14
  ⊞ $MFT Record Nr: 15, SeqNr: 15
  ⊞ $MFT Record Nr: 16, SeqNr: 9
  ⊞ $MFT Record Nr: 17, SeqNr: 1369
  ⊞ $MFT Record Nr: 18, SeqNr: 91
  ⊞ $MFT Record Nr: 19, SeqNr: 19
  ⊞ $MFT Record Nr: 20, SeqNr: 20
```

You can find the MFT record number of any file in a forensic Image with FTK Imager



Evidence Tree

- 2020-01 P3 FEF.001
  - Partition 1 [800MB]
    - VIEW [NTFS]
      - [orphan]
      - [root]
        - $BadClus
        - $Extend
        - $RECYCLE.BIN
        - $Secure
        - $UpCase

Properties

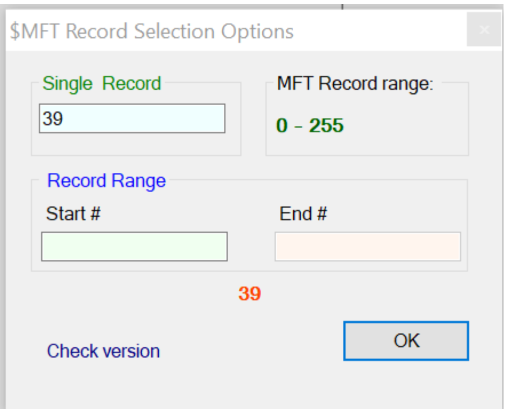
Name	THEHOUSE.txt
File Class	Regular File
File Size	505
Physical Size	512
Date Accessed	17/8/2018 13:35:02
Date Created	17/8/2018 13:35:02
Date Modified	8/8/2018 13:50:03
Encrypted	False
Compressed	False
Actual File	True
DOS Attributes	
Hidden	False
System	False
Read only	False
Archive	True
NTFS Information	
MFT Record Number	39 (39936)

File List

Name
- $Extend
- $RECYCLE.BIN
- System Volume Information
- $AttrDef
- $BadClus
- $Bitmap
- $Boot
- $I30
- $LogFile
- $MFT
- $MFTMirr
- $Secure
- $TXF_DATA
- $UpCase
- $Volume
- THEHOUSE.txt

```
The House of Represent
No Person shall be a R
```

to view that record information, just enter the record number from above to MFTbrowser:



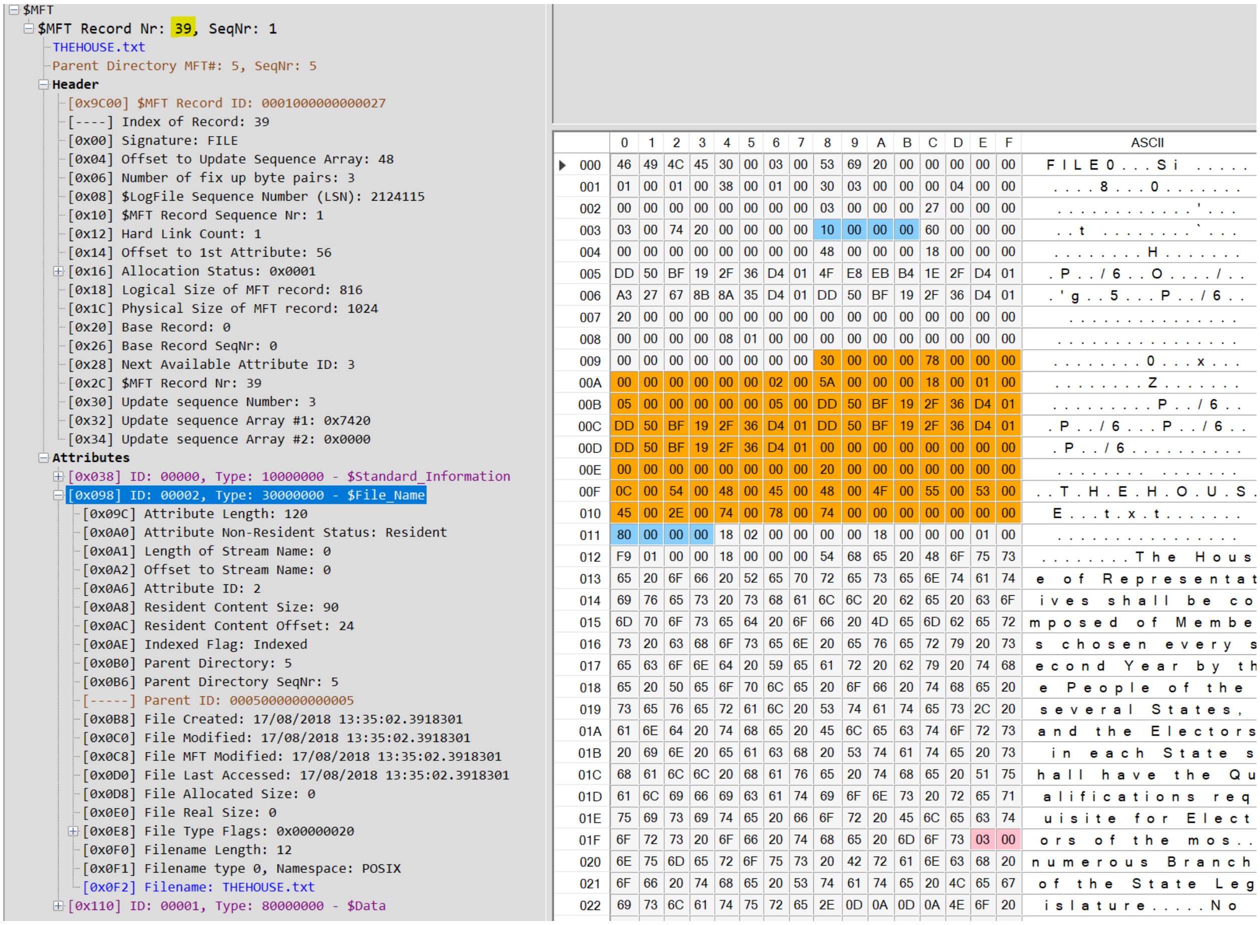
$MFT Record Selection Options

Single Record: 39

MFT Record range: **0 - 255**

Record Range
Start #:
End #:

39



```
⊟ $MFT
  ⊟ $MFT Record Nr: 39, SeqNr: 1
      THEHOUSE.txt
      Parent Directory MFT#: 5, SeqNr: 5
    ⊟ Header
        [0x9C00] $MFT Record ID: 0001000000000027
        [----] Index of Record: 39
        [0x00] Signature: FILE
        [0x04] Offset to Update Sequence Array: 48
        [0x06] Number of fix up byte pairs: 3
        [0x08] $LogFile Sequence Number (LSN): 2124115
        [0x10] $MFT Record Sequence Nr: 1
        [0x12] Hard Link Count: 1
        [0x14] Offset to 1st Attribute: 56
      ⊞ [0x16] Allocation Status: 0x0001
        [0x18] Logical Size of MFT record: 816
        [0x1C] Physical Size of MFT record: 1024
        [0x20] Base Record: 0
        [0x26] Base Record SeqNr: 0
        [0x28] Next Available Attribute ID: 3
        [0x2C] $MFT Record Nr: 39
        [0x30] Update sequence Number: 3
        [0x32] Update sequence Array #1: 0x7420
        [0x34] Update sequence Array #2: 0x0000
    ⊟ Attributes
      ⊞ [0x038] ID: 00000, Type: 10000000 - $Standard_Information
      ⊟ [0x098] ID: 00002, Type: 30000000 - $File_Name
          [0x09C] Attribute Length: 120
          [0x0A0] Attribute Non-Resident Status: Resident
          [0x0A1] Length of Stream Name: 0
          [0x0A2] Offset to Stream Name: 0
          [0x0A6] Attribute ID: 2
          [0x0A8] Resident Content Size: 90
          [0x0AC] Resident Content Offset: 24
          [0x0AE] Indexed Flag: Indexed
          [0x0B0] Parent Directory: 5
          [0x0B6] Parent Directory SeqNr: 5
          [-----] Parent ID: 0005000000000005
          [0x0B8] File Created: 17/08/2018 13:35:02.3918301
          [0x0C0] File Modified: 17/08/2018 13:35:02.3918301
          [0x0C8] File MFT Modified: 17/08/2018 13:35:02.3918301
          [0x0D0] File Last Accessed: 17/08/2018 13:35:02.3918301
          [0x0D8] File Allocated Size: 0
          [0x0E0] File Real Size: 0
        ⊞ [0x0E8] File Type Flags: 0x00000020
          [0x0F0] Filename Length: 12
          [0x0F1] Filename type 0, Namespace: POSIX
          [0x0F2] Filename: THEHOUSE.txt
      ⊞ [0x110] ID: 00001, Type: 80000000 - $Data
```

```
      0  1  2  3  4  5  6  7  8  9  A  B  C  D  E  F   ASCII
▶ 000 46 49 4C 45 30 00 03 00 53 69 20 00 00 00 00 00  FILE0...Si .....
  001 01 00 01 00 38 00 01 00 30 03 00 00 00 04 00 00  ....8...0.......
  002 00 00 00 00 00 00 00 00 03 00 00 00 27 00 00 00  ............'...
  003 03 00 74 20 00 00 00 00 10 00 00 00 60 00 00 00  ..t ........`...
  004 00 00 00 00 00 00 00 00 48 00 00 00 18 00 00 00  ........H.......
  005 DD 50 BF 19 2F 36 D4 01 4F E8 EB B4 1E 2F D4 01  .P../6..O..../..
  006 A3 27 67 8B 8A 35 D4 01 DD 50 BF 19 2F 36 D4 01  .'g..5...P../6..
  007 20 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00   ...............
  008 00 00 00 00 08 01 00 00 00 00 00 00 00 00 00 00  ................
  009 00 00 00 00 00 00 00 00 30 00 00 00 78 00 00 00  ........0...x...
  00A 00 00 00 00 00 00 02 00 5A 00 00 00 18 00 01 00  ........Z.......
  00B 05 00 00 00 00 00 05 00 DD 50 BF 19 2F 36 D4 01  .........P../6..
  00C DD 50 BF 19 2F 36 D4 01 DD 50 BF 19 2F 36 D4 01  .P../6...P../6..
  00D DD 50 BF 19 2F 36 D4 01 00 00 00 00 00 00 00 00  .P../6..........
  00E 00 00 00 00 00 00 00 00 20 00 00 00 00 00 00 00  ........ .......
  00F 0C 00 54 00 48 00 45 00 48 00 4F 00 55 00 53 00  ..T.H.E.H.O.U.S.
  010 45 00 2E 00 74 00 78 00 74 00 00 00 00 00 00 00  E...t.x.t.......
  011 80 00 00 00 18 02 00 00 00 00 18 00 00 00 01 00  ................
  012 F9 01 00 00 18 00 00 00 54 68 65 20 48 6F 75 73  ........The Hous
  013 65 20 6F 66 20 52 65 70 72 65 73 65 6E 74 61 74  e of Representat
  014 69 76 65 73 20 73 68 61 6C 6C 20 62 65 20 63 6F  ives shall be co
  015 6D 70 6F 73 65 64 20 6F 66 20 4D 65 6D 62 65 72  mposed of Membe
  016 73 20 63 68 6F 73 65 6E 20 65 76 65 72 79 20 73  s chosen every s
  017 65 63 6F 6E 64 20 59 65 61 72 20 62 79 20 74 68  econd Year by th
  018 65 20 50 65 6F 70 6C 65 20 6F 66 20 74 68 65 20  e People of the 
  019 73 65 76 65 72 61 6C 20 53 74 61 74 65 73 2C 20  several States, 
  01A 61 6E 64 20 74 68 65 20 45 6C 65 63 74 6F 72 73  and the Electors
  01B 20 69 6E 20 65 61 63 68 20 53 74 61 74 65 20 73   in each State s
  01C 68 61 6C 6C 20 68 61 76 65 20 74 68 65 20 51 75  hall have the Qu
  01D 61 6C 69 66 69 63 61 74 69 6F 6E 73 20 72 65 71  alifications req
  01E 75 69 73 69 74 65 20 66 6F 72 20 45 6C 65 63 74  uisite for Elect
  01F 6F 72 73 20 6F 66 20 74 68 65 20 6D 6F 73 03 00  ors of the mos..
  020 6E 75 6D 65 72 6F 75 73 20 42 72 61 6E 63 68 20  numerous Branch
  021 6F 66 20 74 68 65 20 53 74 61 74 65 20 4C 65 67  of the State Leg
  022 69 73 6C 61 74 75 72 65 2E 0D 0A 0D 0A 4E 6F 20  islature....No 
```