

Test Image ext-01 .....	3
Test Image ext-01-recycle .....	4
Test Image ext-02 .....	6
Test Image ext-03 .....	7
Test Image ext-04 .....	10
Test Image ext-05 .....	17
Test Image ext-05-braid .....	20
Test Image ext-05-nest .....	23
Test Image ext-06 .....	26
Test Image ext-07 .....	28
Test Image ext-07-one .....	31
Test Image ext-07-two .....	34
Test Image ext-08 .....	36
Test Image ext-09 .....	42
Test Image ext-10 .....	45
Test Image ext-11 .....	52
Test Image ext-12 .....	55
Test Image ext-13 .....	62
Test Image ext-14 .....	67
Test Image ext-15 .....	70
Test Image ext-16 .....	71
Test Image ext-17 .....	82
Test Image fat-01 .....	92
Test Image fat-01-recycle .....	94
Test Image fat-02 .....	95
Test Image fat-03 .....	97
Test Image fat-04 .....	100
Test Image fat-05 .....	107
Test Image fat-05-braid .....	110
Test Image fat-05-nest .....	112
Test Image fat-06 .....	115
Test Image fat-07 .....	117
Test Image fat-07-one .....	119
Test Image fat-07-two .....	122
Test Image fat-08 .....	125
Test Image fat-09 .....	132
Test Image fat-10 .....	135
Test Image fat-11 .....	145
Test Image fat-12 .....	148
Test Image fat-13 .....	155
Test Image fat-14 .....	161
Test Image fat-15 .....	163
Test Image fat-16 .....	164
Test Image fat-17 .....	174
Test Image ntfs-01 .....	185
Test Image ntfs-01-recycle .....	186

Test Image ntfs-02.....	187
Test Image ntfs-03.....	188
Test Image ntfs-04.....	189
Test Image ntfs-05.....	192
Test Image ntfs-05-braid .....	194
Test Image ntfs-05-nest.....	195
Test Image ntfs-06.....	197
Test Image ntfs-07.....	198
Test Image ntfs-07-one.....	199
Test Image ntfs-07-two.....	200
Test Image ntfs-08.....	202
Test Image ntfs-09.....	205
Test Image ntfs-10.....	208
Test Image ntfs-11.....	212
Test Image ntfs-11-compress.....	213
Test Image ntfs-11-mft .....	215
Test Image ntfs-12.....	216
Test Image ntfs-13.....	220
Test Image ntfs-14.....	224
Test Image ntfs-15.....	227
Test Image ntfs-16.....	227
Test Image ntfs-17.....	231
Test Image osx-01 .....	235
Test Image osx-04 .....	236
Test Image xfat-01.....	244
Test Image xfat-02.....	245
Test Image xfat-03.....	246
Test Image xfat-04.....	248
Test Image xfat-05.....	251
Test Image xfat-05-braid .....	252
Test Image xfat-05-nest.....	253
Test Image xfat-06.....	255
Test Image xfat-07.....	256
Test Image xfat-07-one.....	257
Test Image xfat-07-two.....	259
Test Image xfat-08.....	260
Test Image xfat-09.....	264
Test Image xfat-10.....	266
Test Image xfat-11.....	272
Test Image xfat-12.....	273
Test Image xfat-13.....	277
Test Image xfat-14.....	281
Test Image xfat-15.....	282
Test Image xfat-16.....	283
Test Image xfat-17.....	287

# 1 Test Image ext-01

DFR-01. Recover one non-fragmented file.

## Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes  
 34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors  
 Device Boot Start End Blocks Id System  
 /dev/sdd1 61 651235 325587+ 83 Linux  
 /dev/sdd2 651236 1302471 325618 83 Linux  
 /dev/sdd3 1302472 1953707 325618 83 Linux

3 files deleted

Deleted files (3)			
Name	Size	F-Hd	F-Bks
Bellatrix.txt	712 (1+200)	1	0
Bunda.txt	712 (1+200)	1	0
Botein.txt	712 (1+200)	1	0

## MAC times just before file deletion

File: `Bellatrix.txt'  
 Access: 1999-01-02 03:03:00.000000000 -0500  
 Modify: 2000-02-29 13:13:00.000000000 -0500  
 Change: 2011-10-09 13:10:19.000000000 -0400  
 File: `Bunda.txt'  
 Access: 1999-01-02 03:04:00.000000000 -0500  
 Modify: 2000-02-29 13:14:00.000000000 -0500  
 Change: 2011-10-09 13:10:20.000000000 -0400  
 File: `Botein.txt'  
 Access: 1999-01-02 03:05:00.655449905 -0500  
 Modify: 2000-02-29 13:15:00.655449905 -0500  
 Change: 2011-10-09 13:10:20.660434905 -0400

## File delete times:

Times: /Volumes/CFTT/df/df-setup/ntfs-delete-times.txt Case ext-01  
 ===== Run step 3 =====  
 ACTION (delete): Bellatrix.txt  
 ACTION (delete time): Sun Oct 9 13:12:59 EDT 2011  
 ACTION (delete): Bunda.txt  
 ACTION (delete time): Sun Oct 9 13:13:00 EDT 2011  
 ACTION (delete): Botein.txt  
 ACTION (delete time): Sun Oct 9 13:13:00 EDT 2011

Steps to Create Image ext-01		
Step	Action	Files in Partition EXT2
1	create	Algol.txt Bellatrix.txt Canopus.txt
2	set date/time	Algol.txt Bellatrix.txt Canopus.txt
3	delete	Bellatrix.txt
Step	Action	Files in Partition EXT3
1	create	Arcturus.txt Bunda.txt Castor.txt
2	set date/time	Arcturus.txt Bunda.txt Castor.txt
3	delete	Bunda.txt
Step	Action	Files in Partition EXT4
1	create	Antares.txt Botein.txt Chort.txt
2	set date/time	Antares.txt Botein.txt Chort.txt
3	delete	Botein.txt

No overwrites

File: Bunda.txt 1 1  
 File: Bellatrix.txt 1 1  
 File: Botein.txt 1 1  
 Summary: 3 3 0 0

Metadata available  
 ext-01 Metadata found 3 files, not found 0, total 3 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2
6207 - 6207	Algol	Algol
7231 - 7231	Bellatrix	Bellatrix
7232 - 7232	TAIL/Bellatrix	TAIL/Bellatrix
8255 - 8255	Canopus	Canopus
657382 - 657382	Arcturus	Arcturus
658406 - 658406	Bunda	Bunda
658407 - 658407	TAIL/Bunda	TAIL/Bunda
659430 - 659430	Castor	Castor
1319376 - 1319376	Antares	Antares
1319378 - 1319378	Botein	Botein
1319379 - 1319379	TAIL/Botein	TAIL/Botein
1319380 - 1319380	Chort	Chort

Sector List	
Algol.txt	6207 - 6207
Antares.txt	1319376 - 1319376
Arcturus.txt	657382 - 657382
Bellatrix.txt	7231 - 7231
Botein.txt	1319378 - 1319378
Bunda.txt	658406 - 658406
Canopus.txt	8255 - 8255
Castor.txt	659430 - 659430
Chort.txt	1319380 - 1319380

## 2 Test Image ext-01-recycle

DFR-01. Recover one non-fragmented file.

Partition Table Layout  
 Disk /dev/sdd: 1073 MB, 1073742336 bytes  
 34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors  
 Device Boot Start End Blocks Id System  
 /dev/sdd1 61 651235 325587+ 83 Linux  
 /dev/sdd2 651236 1302471 325618 83 Linux  
 /dev/sdd3 1302472 1953707 325618 83 Linux

3 files deleted

Deleted files (3)			
Name	Size	F-Hd	F-Bks
Bellatrix.txt	4096 (8+0)	1	7
Bunda.txt	4096 (8+0)	1	7
Botein.txt	4096 (8+0)	1	7

MAC times just before file deletion

File: `Bellatrix.txt`  
 Access: 1999-01-02 03:03:00.000000000 -0500  
 Modify: 2000-02-29 13:13:00.000000000 -0500  
 Change: 2012-03-14 19:37:27.000000000 -0400  
 File: `Bunda.txt`  
 Access: 1999-01-02 03:04:00.000000000 -0500  
 Modify: 2000-02-29 13:14:00.000000000 -0500  
 Change: 2012-03-14 19:37:27.000000000 -0400  
 File: `Botein.txt`

Access: 1999-01-02 03:05:00.902652481 -0500  
 Modify: 2000-02-29 13:15:00.964653007 -0500  
 Change: 2012-03-14 19:37:28.964653007 -0400

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/nfs-delete-times.txt Case ext-01-recycle  
 ===== Run step 3 =====

ACTION (delete): Bellatrix.txt  
 ACTION (delete time): Wed Mar 14 19:40:32 EDT 2012  
 ACTION (delete): Bunda.txt  
 ACTION (delete time): Wed Mar 14 19:40:32 EDT 2012  
 ACTION (delete): Botein.txt  
 ACTION (delete time): Wed Mar 14 19:40:33 EDT 2012

Steps to Create Image ext-01-recycle		
Step	Action	Files in Partition EXT2
1	create	Algol.txt Bellatrix.txt Canopus.txt
2	set date/time	Algol.txt Bellatrix.txt Canopus.txt
3	delete	Bellatrix.txt
Step	Action	Files in Partition EXT3
1	create	Arcturus.txt Bunda.txt Castor.txt
2	set date/time	Arcturus.txt Bunda.txt Castor.txt
3	delete	Bunda.txt
Step	Action	Files in Partition EXT4
1	create	Antares.txt Botein.txt Chort.txt
2	set date/time	Antares.txt Botein.txt Chort.txt
3	delete	Botein.txt

No overwrites

File: Bunda.txt 8 8  
 File: Bellatrix.txt 8 8  
 File: Botein.txt 8 8  
 Summary: 3 3 0 0

Metadata available  
 ext-01-recycle Metadata found 3 files, not found 0, total 3 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2
13375 - 13382	Algol	Algol
14399 - 14406	Bellatrix	Bellatrix
15423 - 15430	Canopus	Canopus
662502 - 662509	Arcturus	Arcturus
663526 - 663533	Bunda	Bunda
664550 - 664557	Castor	Castor
1319378 - 1319385	Antares	Antares
1319386 - 1319393	Botein	Botein
1319394 - 1319401	Chort	Chort

Sector List	
Algol.txt	13375 - 13382
Antares.txt	1319378 - 1319385
Arcturus.txt	662502 - 662509
Bellatrix.txt	14399 - 14406
Botein.txt	1319386 - 1319393
Bunda.txt	663526 - 663533
Canopus.txt	15423 - 15430
Castor.txt	664550 - 664557

Sector List	
Chort.txt	1319394 - 1319401

### 3 Test Image ext-02

DFR-02. Recover file with two fragments.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		61	651235	325587+	83	Linux
/dev/sdd2		651236	1302471	325618	83	Linux
/dev/sdd3		1302472	1953707	325618	83	Linux

3 files deleted

Deleted files (3)			
Name	Size	F-Hd	F-Bks
Bellatrix.txt	526336 (1028+0)	1	1027
Bunda.txt	8192 (16+0)	1	15
Botein.txt	8192 (16+0)	1	15

MAC times just before file deletion

File: `Bellatrix.txt`

Access: 1999-01-02 03:03:00.000000000 -0500

Modify: 2000-02-29 13:13:00.000000000 -0500

Change: 2011-10-16 13:43:31.000000000 -0400

File: `Bunda.txt`

Access: 1999-01-02 03:04:00.000000000 -0500

Modify: 2000-02-29 13:14:00.000000000 -0500

Change: 2011-10-16 13:43:31.000000000 -0400

File: `Botein.txt`

Access: 1999-01-02 03:05:00.480028000 -0500

Modify: 2000-02-29 13:15:00.480028000 -0500

Change: 2011-10-16 13:43:32.482028002 -0400

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ext-02

==== Run step 5 =====

ACTION (delete): Bellatrix.txt

ACTION (delete time): Sun Oct 16 13:52:30 EDT 2011

ACTION (delete): Bunda.txt

ACTION (delete time): Sun Oct 16 13:52:31 EDT 2011

ACTION (delete): Botein.txt

ACTION (delete time): Sun Oct 16 13:52:31 EDT 2011

Steps to Create Image ext-02		
Step	Action	Files in Partition EXT2
1	create	Algol.txt Bellatrix.txt Canopus.txt
2	append	Bellatrix.txt
3	create	Denebola.TXT
4	set date/time	Algol.txt Bellatrix.txt Canopus.txt Denebola.TXT
5	delete	Bellatrix.txt
Step	Action	Files in Partition EXT3
1	create	Arcturus.txt Bunda.txt Castor.txt
2	append	Bunda.txt
3	create	Duhr.TXT
4	set date/time	Arcturus.txt Bunda.txt Castor.txt Duhr.TXT
5	delete	Bunda.txt
Step	Action	Files in Partition EXT4
1	create	Antares.txt Botein.txt Chort.txt
2	append	Botein.txt
3	create	Diadem.TXT
4	set date/time	Antares.txt Botein.txt Chort.txt Diadem.TXT

Steps to Create Image ext-02		
5	delete	Botein.txt

No overwrites

File: Bunda.txt 16 16  
 File: Bellatrix.txt 1028 1028  
 File: Botein.txt 16 16  
 Summary: 3 3 0 0

Metadata available  
 ext-02 Metadata found 3 files, not found 0, total 3 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 4				
Sectors	Step 1	Step 2	Step 3	Step 4
1125 - 1132	Algol	Algol	Algol	Algol
2111 - 2118	Bellatrix	Bellatrix	Bellatrix	Bellatrix
2119 - 2134	empty	Bellatrix	Bellatrix	Bellatrix
2137 - 2648	empty	Bellatrix	Bellatrix	Bellatrix
2653 - 3134	empty	Bellatrix	Bellatrix	Bellatrix
3135 - 3142	Canopus	Canopus	Canopus	Canopus
3143 - 3152	empty	Bellatrix	Bellatrix	Bellatrix
6207 - 6214	empty	empty	Denebola	Denebola
652300 - 652307	Bunda	Bunda	Bunda	Bunda
652308 - 652315	Castor	Castor	Castor	Castor
652316 - 652323	empty	Bunda	Bunda	Bunda
654310 - 654317	empty	empty	Duhr	Duhr
666598 - 666605	Arcturus	Arcturus	Arcturus	Arcturus
1319378 - 1319385	Antares	Antares	Antares	Antares
1319386 - 1319393	Botein	Botein	Botein	Botein
1319394 - 1319401	Chort	Chort	Chort	Chort
1319402 - 1319409	empty	Botein	Botein	Botein
1319410 - 1319417	empty	empty	Diadem	Diadem

Sector List	
Algol.txt	1125 - 1132
Antares.txt	1319378 - 1319385
Arcturus.txt	666598 - 666605
Bellatrix.txt	2111 - 2134, 2137 - 2648, 2653 - 3134, 3143 - 3152
Botein.txt	1319386 - 1319393, 1319402 - 1319409
Bunda.txt	652300 - 652307, 652316 - 652323
Canopus.txt	3135 - 3142
Castor.txt	652308 - 652315
Chort.txt	1319394 - 1319401
Denebola.TXT	6207 - 6214
Diadem.TXT	1319410 - 1319417
Duhr.TXT	654310 - 654317

#### 4 Test Image ext-03

DFR-03. Recover file with multiple fragments.

Partition Table Layout  
 Disk /dev/sdd: 1073 MB, 1073742336 bytes  
 34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors  
 Device Boot Start End Blocks Id System

```

/dev/sdd1      61  651235  325587+ 83 Linux
/dev/sdd2     651236 1302471  325618 83 Linux
/dev/sdd3     1302472 1953707  325618 83 Linux

```

3 files deleted

Deleted files (3)			
Name	Size	F-Hd	F-Bks
Bellatrix.txt	541696 (1058+0)	1	1057
Bunda.txt	541696 (1058+0)	1	1057
Botein.txt	32768 (64+0)	1	63

MAC times just before file deletion

```

File: `Bellatrix.txt'
Access: 1999-01-02 03:03:00.000000000 -0500
Modify: 2000-02-29 13:13:00.000000000 -0500
Change: 2012-02-04 12:05:51.000000000 -0500
File: `Bunda.txt'
Access: 1999-01-02 03:04:00.000000000 -0500
Modify: 2000-02-29 13:14:00.000000000 -0500
Change: 2012-02-04 12:05:52.000000000 -0500
File: `Botein.txt'
Access: 1999-01-02 03:05:00.369540158 -0500
Modify: 2000-02-29 13:15:00.435541363 -0500
Change: 2012-02-04 12:05:52.435541363 -0500

```

File delete times:

```

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ext-03
===== Run step 9 =====
ACTION (delete): Bellatrix.txt
ACTION (delete time): Sat Feb 4 12:13:04 EST 2012
ACTION (delete): Bunda.txt
ACTION (delete time): Sat Feb 4 12:13:05 EST 2012
ACTION (delete): Botein.txt
ACTION (delete time): Sat Feb 4 12:13:06 EST 2012

```

Steps to Create Image ext-03		
Step	Action	Files in Partition EXT2
1	create	Algol.txt Bellatrix.txt Canopus.txt
2	append	Bellatrix.txt
3	create	Denebola.TXT
4	append	Bellatrix.txt
5	create	Electra.TXT
6	append	Bellatrix.txt
7	create	FumAlSamakah.txt
8	set date/time	Algol.txt Bellatrix.txt Canopus.txt Denebola.TXT
9	delete	Bellatrix.txt
Step	Action	Files in Partition EXT3
1	create	Arcturus.txt Bunda.txt Castor.txt
2	append	Bunda.txt
3	create	Duhr.TXT
4	append	Bunda.txt
5	create	Eltanin.txt
6	append	Bunda.txt
7	create	Furud.txt
8	set date/time	Arcturus.txt Bunda.txt Castor.txt Duhr.TXT
9	delete	Bunda.txt
Step	Action	Files in Partition EXT4
1	create	Antares.txt Botein.txt Chort.txt
2	append	Botein.txt
3	create	Diadem.TXT
4	append	Botein.txt
5	create	Edasich.txt
6	append	Botein.txt
7	create	fornax.txt
8	set date/time	Antares.txt Botein.txt Chort.txt Diadem.TXT
9	delete	Botein.txt



No overwrites

File: Bunda.txt 1058 1058  
 File: Bellatrix.txt 1058 1058  
 File: Botein.txt 64 64  
 Summary: 3 3 0 0

Metadata available  
 ext-03 Metadata found 3 files, not found 0, total 3 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 4				
Sectors	Step 1	Step 2	Step 3	Step 4
1131 - 1146	empty	empty	empty	empty
5183 - 5198	empty	empty	empty	empty
8255 - 8270	empty	empty	Denebola	Denebola
11327 - 11342	Algol	Algol	Algol	Algol
12351 - 12366	Bellatrix	Bellatrix	Bellatrix	Bellatrix
12367 - 12374	empty	Bellatrix	Bellatrix	Bellatrix
12377 - 12888	empty	Bellatrix	Bellatrix	Bellatrix
12893 - 13374	empty	Bellatrix	Bellatrix	Bellatrix
13375 - 13390	Canopus	Canopus	Canopus	Canopus
13391 - 13398	empty	Bellatrix	Bellatrix	Bellatrix
13399 - 13414	empty	empty	empty	Bellatrix
13415 - 13420	empty	empty	empty	empty
13423 - 13432	empty	empty	empty	empty
652304 - 652319	empty	empty	empty	empty
656358 - 656373	empty	empty	Duhr	Duhr
660454 - 660469	Arcturus	Arcturus	Arcturus	Arcturus
661478 - 661493	Bunda	Bunda	Bunda	Bunda
661494 - 661501	empty	Bunda	Bunda	Bunda
661504 - 662015	empty	Bunda	Bunda	Bunda
662020 - 662501	empty	Bunda	Bunda	Bunda
662502 - 662517	Castor	Castor	Castor	Castor
662518 - 662525	empty	Bunda	Bunda	Bunda
662526 - 662541	empty	empty	empty	Bunda
662542 - 662547	empty	empty	empty	empty
662550 - 662559	empty	empty	empty	empty
663526 - 663541	empty	empty	empty	empty
1319386 - 1319401	Antares	Antares	Antares	Antares
1319402 - 1319417	Botein	Botein	Botein	Botein
1319418 - 1319433	Chort	Chort	Chort	Chort
1319434 - 1319449	empty	Botein	Botein	Botein
1319450 - 1319465	empty	empty	Diadem	Diadem
1319466 - 1319481	empty	empty	empty	Botein
1319482 - 1319497	empty	empty	empty	empty
1319498 - 1319513	empty	empty	empty	empty
1319514 - 1319529	empty	empty	empty	empty

Layout for Steps 5 through 8				
Sectors	Step 5	Step 6	Step 7	Step 8
1131 - 1146	empty	empty	FumAlSamakah	FumAlSamakah
5183 - 5198	Electra	Electra	Electra	Electra
8255 - 8270	Denebola	Denebola	Denebola	Denebola
11327 - 11342	Algol	Algol	Algol	Algol
12351 - 12366	Bellatrix	Bellatrix	Bellatrix	Bellatrix
12367 - 12374	Bellatrix	Bellatrix	Bellatrix	Bellatrix
12377 - 12888	Bellatrix	Bellatrix	Bellatrix	Bellatrix

Layout for Steps 5 through 8				
12893 - 13374	Bellatrix	Bellatrix	Bellatrix	Bellatrix
13375 - 13390	Canopus	Canopus	Canopus	Canopus
13391 - 13398	Bellatrix	Bellatrix	Bellatrix	Bellatrix
13399 - 13414	Bellatrix	Bellatrix	Bellatrix	Bellatrix
13415 - 13420	empty	Bellatrix	Bellatrix	Bellatrix
13423 - 13432	empty	Bellatrix	Bellatrix	Bellatrix
652304 - 652319	Eltanin	Eltanin	Eltanin	Eltanin
656358 - 656373	Duhr	Duhr	Duhr	Duhr
660454 - 660469	Arcturus	Arcturus	Arcturus	Arcturus
661478 - 661493	Bunda	Bunda	Bunda	Bunda
661494 - 661501	Bunda	Bunda	Bunda	Bunda
661504 - 662015	Bunda	Bunda	Bunda	Bunda
662020 - 662501	Bunda	Bunda	Bunda	Bunda
662502 - 662517	Castor	Castor	Castor	Castor
662518 - 662525	Bunda	Bunda	Bunda	Bunda
662526 - 662541	Bunda	Bunda	Bunda	Bunda
662542 - 662547	empty	Bunda	Bunda	Bunda
662550 - 662559	empty	Bunda	Bunda	Bunda
663526 - 663541	empty	empty	Furud	Furud
1319386 - 1319401	Antares	Antares	Antares	Antares
1319402 - 1319417	Botein	Botein	Botein	Botein
1319418 - 1319433	Chort	Chort	Chort	Chort
1319434 - 1319449	Botein	Botein	Botein	Botein
1319450 - 1319465	Diadem	Diadem	Diadem	Diadem
1319466 - 1319481	Botein	Botein	Botein	Botein
1319482 - 1319497	Edasich	Edasich	Edasich	Edasich
1319498 - 1319513	empty	Botein	Botein	Botein
1319514 - 1319529	empty	empty	fornax	fornax

Sector List	
Algol.txt	11327 - 11342
Antares.txt	1319386 - 1319401
Arcturus.txt	660454 - 660469
Bellatrix.txt	12351 - 12374, 12377 - 12888, 12893 - 13374, 13391 - 13420, 13423 - 13432
Botein.txt	1319402 - 1319417, 1319434 - 1319449, 1319466 - 1319481, 1319498 - 1319513
Bunda.txt	661478 - 661501, 661504 - 662015, 662020 - 662501, 662518 - 662547, 662550 - 662559
...	
3 omitted	
Denebola.TXT	8255 - 8270
Diadem.TXT	1319450 - 1319465
Duhr.TXT	656358 - 656373
Edasich.txt	1319482 - 1319497
Electra.TXT	5183 - 5198
Eltanin.txt	652304 - 652319
FumAlSamakah.txt	1131 - 1146
Furud.txt	663526 - 663541
fornax.txt	1319514 - 1319529

## 5 Test Image ext-04

DFR-04. Recover several non-fragmented files with non-ASCII file names.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		61	651235	325587+	83	Linux
/dev/sdd2		651236	1302471	325618	83	Linux

/dev/sdd3 1302472 1953707 325618 83 Linux

36 files deleted

Deleted files (36)			
Name	Size	F-Hd	F-Bks
/tmp/dfr-04-3/Beijing.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Hummus.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Mitsubishi-h.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Mitsubishi-k.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Naan.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Pakora.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Seoul.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Tagine.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Tea.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Tokyo.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Vessel.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Walnut.txt3	4096 (8+0)	1	7
/tmp/dfr-04-4/Beijing.txt4	4096 (8+0)	1	7
/tmp/dfr-04-4/Hummus.txt4	4096 (8+0)	1	7
/tmp/dfr-04-4/Mitsubishi-h.txt4	4096 (8+0)	1	7
/tmp/dfr-04-4/Mitsubishi-k.txt4	4096 (8+0)	1	7
/tmp/dfr-04-4/Naan.txt4	4096 (8+0)	1	7
/tmp/dfr-04-4/Pakora.txt4	4096 (8+0)	1	7
/tmp/dfr-04-4/Seoul.txt4	4096 (8+0)	1	7
/tmp/dfr-04-4/Tagine.txt4	4096 (8+0)	1	7
/tmp/dfr-04-4/Tea.txt4	4096 (8+0)	1	7
/tmp/dfr-04-4/Tokyo.txt4	4096 (8+0)	1	7
/tmp/dfr-04-4/Vessel.txt4	4096 (8+0)	1	7
/tmp/dfr-04-4/Walnut.txt4	4096 (8+0)	1	7
/tmp/dfr-04-5/Beijing.txt5	4096 (8+0)	1	7
/tmp/dfr-04-5/Hummus.txt5	4096 (8+0)	1	7
/tmp/dfr-04-5/Mitsubishi-h.txt5	4096 (8+0)	1	7
/tmp/dfr-04-5/Mitsubishi-k.txt5	4096 (8+0)	1	7
/tmp/dfr-04-5/Naan.txt5	4096 (8+0)	1	7
/tmp/dfr-04-5/Pakora.txt5	4096 (8+0)	1	7
/tmp/dfr-04-5/Seoul.txt5	4096 (8+0)	1	7
/tmp/dfr-04-5/Tagine.txt5	4096 (8+0)	1	7
/tmp/dfr-04-5/Tea.txt5	4096 (8+0)	1	7
/tmp/dfr-04-5/Tokyo.txt5	4096 (8+0)	1	7
/tmp/dfr-04-5/Vessel.txt5	4096 (8+0)	1	7
/tmp/dfr-04-5/Walnut.txt5	4096 (8+0)	1	7

MAC times just before file deletion

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ext-04

==== Run step 3 =====

ACTION (delete): नान.txt3

ACTION (delete time): Tue Mar 13 20:26:14 EDT 2012

ACTION (delete): پکورا.txt3

ACTION (delete time): Tue Mar 13 20:26:14 EDT 2012

ACTION (delete): 서울.txt3

ACTION (delete time): Tue Mar 13 20:26:14 EDT 2012

ACTION (delete): گوردو.txt3

ACTION (delete time): Tue Mar 13 20:26:14 EDT 2012

ACTION (delete): 01010.txt3

ACTION (delete time): Tue Mar 13 20:26:14 EDT 2012

ACTION (delete): طاجين.txt3

ACTION (delete time): Tue Mar 13 20:26:14 EDT 2012

ACTION (delete): чай.txt3

ACTION (delete time): Tue Mar 13 20:26:14 EDT 2012

ACTION (delete): ミツビン.txt3

ACTION (delete time): Tue Mar 13 20:26:14 EDT 2012

ACTION (delete): みつびし.txt3

ACTION (delete time): Tue Mar 13 20:26:14 EDT 2012  
 ACTION (delete): Gefäß.txt3  
 ACTION (delete time): Tue Mar 13 20:26:14 EDT 2012  
 ACTION (delete): 北京.txt3  
 ACTION (delete time): Tue Mar 13 20:26:14 EDT 2012  
 ACTION (delete): 東京.txt3  
 ACTION (delete time): Tue Mar 13 20:26:14 EDT 2012  
 ACTION (delete): नान.txt4  
 ACTION (delete time): Tue Mar 13 20:26:14 EDT 2012  
 ACTION (delete): پڪوڙا.txt4  
 ACTION (delete time): Tue Mar 13 20:26:15 EDT 2012  
 ACTION (delete): 서울.txt4  
 ACTION (delete time): Tue Mar 13 20:26:15 EDT 2012  
 ACTION (delete): گرد و.txt4  
 ACTION (delete time): Tue Mar 13 20:26:15 EDT 2012  
 ACTION (delete): Ч1П1П.txt4  
 ACTION (delete time): Tue Mar 13 20:26:15 EDT 2012  
 ACTION (delete): طاجين.txt4  
 ACTION (delete time): Tue Mar 13 20:26:15 EDT 2012  
 ACTION (delete): чай.txt4  
 ACTION (delete time): Tue Mar 13 20:26:15 EDT 2012  
 ACTION (delete): ミツビシ.txt4  
 ACTION (delete time): Tue Mar 13 20:26:15 EDT 2012  
 ACTION (delete): みつびし.txt4  
 ACTION (delete time): Tue Mar 13 20:26:15 EDT 2012  
 ACTION (delete): Gefäß.txt4  
 ACTION (delete time): Tue Mar 13 20:26:15 EDT 2012  
 ACTION (delete): 北京.txt4  
 ACTION (delete time): Tue Mar 13 20:26:15 EDT 2012  
 ACTION (delete): 東京.txt4  
 ACTION (delete time): Tue Mar 13 20:26:15 EDT 2012  
 ACTION (delete): नान.txt5  
 ACTION (delete time): Tue Mar 13 20:26:15 EDT 2012  
 ACTION (delete): पڪوڙا.txt5  
 ACTION (delete time): Tue Mar 13 20:26:15 EDT 2012  
 ACTION (delete): 서울.txt5  
 ACTION (delete time): Tue Mar 13 20:26:15 EDT 2012  
 ACTION (delete): گرد و.txt5  
 ACTION (delete time): Tue Mar 13 20:26:15 EDT 2012  
 ACTION (delete): Ч1П1П.txt5  
 ACTION (delete time): Tue Mar 13 20:26:15 EDT 2012  
 ACTION (delete): طاجين.txt5  
 ACTION (delete time): Tue Mar 13 20:26:16 EDT 2012  
 ACTION (delete): чай.txt5  
 ACTION (delete time): Tue Mar 13 20:26:16 EDT 2012  
 ACTION (delete): मिツビシ.txt5  
 ACTION (delete time): Tue Mar 13 20:26:16 EDT 2012  
 ACTION (delete): みつびし.txt5  
 ACTION (delete time): Tue Mar 13 20:26:16 EDT 2012  
 ACTION (delete): Gefäß.txt5  
 ACTION (delete time): Tue Mar 13 20:26:16 EDT 2012  
 ACTION (delete): 北京.txt5  
 ACTION (delete time): Tue Mar 13 20:26:16 EDT 2012  
 ACTION (delete): 東京.txt5  
 ACTION (delete time): Tue Mar 13 20:26:16 EDT 2012

Steps to Create Image ext-04		
Step	Action	Files in Partition EXT-2
1	create	/tmp/Naan.txt3 => नान.txt3)
1	create	/tmp/Chapati.txt3 => चपाती.txt3)
1	create	/tmp/Pakora.txt3 => پڪوڙا.txt3)
1	create	/tmp/Gulab_jamun.txt3 => گلاب جامن.txt3)
1	create	/tmp/Seoul.txt3 => 서울.txt3)
1	create	/tmp/Korea.txt3 => 한국.txt3)

Steps to Create Image ext-04		
1	create	/tmp/Kabob.txt3 => چلوکباب.txt3)
1	create	/tmp/Walnut.txt3 => گردو.txt3)
1	create	/tmp/Falafel.txt3 => لؤلؤ.txt3)
1	create	/tmp/Hummus.txt3 => حمص.txt3)
1	create	/tmp/Couscous.txt3 => كسكس.txt3)
1	create	/tmp/Tagine.txt3 => طاجين.txt3)
1	create	/tmp/Tea.txt3 => чай.txt3)
1	create	/tmp/Cheese.txt3 => сыр.txt3)
1	create	/tmp/Mitsubishi-k.txt3 => ミツビシ.txt3)
1	create	/tmp/Mitsubishi-h.txt3 => みつびし.txt3)
1	create	/tmp/Sweets.txt3 => Süßigkeiten.txt3)
1	create	/tmp/Vessel.txt3 => Gefäß.txt3)
1	create	/tmp/Beijing.txt3 => 北京.txt3)
1	create	/tmp/China.txt3 => 中國.txt3)
1	create	/tmp/Japan.txt3 => 日本.txt3)
1	create	/tmp/Tokyo.txt3 => 東京.txt3)
1	create	/tmp/Subaru-k.txt3 => スバル.txt3)
1	create	/tmp/Subaru-h.txt3 => すばる.txt3)
2	set date/time	चपाती.txt3 नान.txt3
2	set date/time	پکوڑا.txt3 گلاب جامن.txt3
2	set date/time	한국.txt3 서울.txt3
2	set date/time	چلوکباب.txt3 گردو.txt3
2	set date/time	لؤلؤ.txt3 حمص.txt3
2	set date/time	کسکس.txt3 طاجين.txt3
2	set date/time	сыр.txt3 чай.txt3
2	set date/time	スバル.txt3 ミツビシ.txt3
2	set date/time	すばる.txt3 みつびし.txt3
2	set date/time	Süßigkeiten.txt3 Gefäß.txt3
2	set date/time	中國.txt3 北京.txt3
2	set date/time	日本.txt3 東京.txt3
3	delete	नान.txt3
3	delete	پکوڑا.txt3
3	delete	서울.txt3
3	delete	گردو.txt3
3	delete	حمص.txt3
3	delete	کسکس.txt3
3	delete	طاجين.txt3
3	delete	чай.txt3
3	delete	ミツビシ.txt3
3	delete	みつびし.txt3
3	delete	Gefäß.txt3
3	delete	北京.txt3
3	delete	東京.txt3
Step	Action	Files in Partition EXT-3
1	create	/tmp/Naan.txt4 => नान.txt4)
1	create	/tmp/Chapati.txt4 => चपाती.txt4)
1	create	/tmp/Pakora.txt4 => पकोड़ा.txt4)
1	create	/tmp/Gulab_jamun.txt4 => گلاب جامن.txt4)
1	create	/tmp/Seoul.txt4 => 서울.txt4)
1	create	/tmp/Korea.txt4 => 한국.txt4)
1	create	/tmp/Kabob.txt4 => چلوکباب.txt4)
1	create	/tmp/Walnut.txt4 => گردو.txt4)
1	create	/tmp/Falafel.txt4 => لؤلؤ.txt4)
1	create	/tmp/Hummus.txt4 => حمص.txt4)
1	create	/tmp/Couscous.txt4 => كسكس.txt4)
1	create	/tmp/Tagine.txt4 => طاجين.txt4)
1	create	/tmp/Tea.txt4 => чай.txt4)
1	create	/tmp/Cheese.txt4 => сыр.txt4)
1	create	/tmp/Mitsubishi-k.txt4 => ミツビシ.txt4)
1	create	/tmp/Mitsubishi-h.txt4 => みつびし.txt4)

Steps to Create Image ext-04		
1	create	/tmp/Sweets.txt4 => Süßigkeiten.txt4)
1	create	/tmp/Vessel.txt4 => Gefäß.txt4)
1	create	/tmp/Beijing.txt4 => 北京.txt4)
1	create	/tmp/China.txt4 => 中國.txt4)
1	create	/tmp/Japan.txt4 => 日本.txt4)
1	create	/tmp/Tokyo.txt4 => 東京.txt4)
1	create	/tmp/Subaru-k.txt4 => スバル.txt4)
1	create	/tmp/Subaru-h.txt4 => すばる.txt4)
2	set date/time	चपाती.txt4 नान.txt4
2	set date/time	گلاب.txt4 پکوڑا.txt4
2	set date/time	한국.txt4 서울.txt4
2	set date/time	چلوکیاب.txt4 گردو.txt4
2	set date/time	فالفه.txt4 فوفه.txt4
2	set date/time	كسكس.txt4 طاچين.txt4
2	set date/time	сыр.txt4 чай.txt4
2	set date/time	スバル.txt4 ミツビシ.txt4
2	set date/time	すばる.txt4 みつびし.txt4
2	set date/time	Süßigkeiten.txt4 Gefäß.txt4
2	set date/time	中國.txt4 北京.txt4
2	set date/time	日本.txt4 東京.txt4
3	delete	नान.txt4
3	delete	پکوڑا.txt4
3	delete	서울.txt4
3	delete	گردو.txt4
3	delete	فالفه.txt4
3	delete	طاچين.txt4
3	delete	чай.txt4
3	delete	ミツビシ.txt4
3	delete	みつびし.txt4
3	delete	Gefäß.txt4
3	delete	北京.txt4
3	delete	東京.txt4
Step	Action	Files in Partition EXT-4
1	create	/tmp/Naan.txt5 => नान.txt5)
1	create	/tmp/Chapati.txt5 => चपाती.txt5)
1	create	/tmp/Pakora.txt5 => پکوڑا.txt5)
1	create	/tmp/Gulab_jamun.txt5 => گلاب_جامن.txt5)
1	create	/tmp/Seoul.txt5 => 서울.txt5)
1	create	/tmp/Korea.txt5 => 한국.txt5)
1	create	/tmp/Kabob.txt5 => چلوکیاب.txt5)
1	create	/tmp/Walnut.txt5 => گردو.txt5)
1	create	/tmp/Falafel.txt5 => فالفه.txt5)
1	create	/tmp/Hummus.txt5 => فوفه.txt5)
1	create	/tmp/Couscous.txt5 => كسكس.txt5)
1	create	/tmp/Tagine.txt5 => طاچين.txt5)
1	create	/tmp/Tea.txt5 => чай.txt5)
1	create	/tmp/Cheese.txt5 => сыр.txt5)
1	create	/tmp/Mitsubishi-k.txt5 => ミツビシ.txt5)
1	create	/tmp/Mitsubishi-h.txt5 => みつびし.txt5)
1	create	/tmp/Sweets.txt5 => Süßigkeiten.txt5)
1	create	/tmp/Vessel.txt5 => Gefäß.txt5)
1	create	/tmp/Beijing.txt5 => 北京.txt5)
1	create	/tmp/China.txt5 => 中國.txt5)
1	create	/tmp/Japan.txt5 => 日本.txt5)
1	create	/tmp/Tokyo.txt5 => 東京.txt5)
1	create	/tmp/Subaru-k.txt5 => スバル.txt5)
1	create	/tmp/Subaru-h.txt5 => すばる.txt5)
2	set date/time	चपाती.txt5 नान.txt5

Steps to Create Image ext-04		
2	set date/time	پکورا .txt5 گلاب .txt5 جامن
2	set date/time	한국.txt5 서울.txt5
2	set date/time	چلوکباب .txt5 گردو .txt5
2	set date/time	۷۹۷۹.txt5 ۵۱۵۱۱.txt5
2	set date/time	کسکس .txt5 طاجين .txt5
2	set date/time	сыр.txt5 чай.txt5
2	set date/time	スバル.txt5 ミツビシ.txt5
2	set date/time	すばる.txt5 みつびし.txt5
2	set date/time	Süßigkeiten.txt5 Gefäß.txt5
2	set date/time	中國.txt5 北京.txt5
2	set date/time	日本.txt5 東京.txt5
3	delete	नान.txt5
3	delete	پکورا .txt5
3	delete	서울.txt5
3	delete	گردو .txt5
3	delete	۵۱۵۱۱.txt5
3	delete	طاجين .txt5
3	delete	чай.txt5
3	delete	ミツビシ.txt5
3	delete	みつびし.txt5
3	delete	Gefäß.txt5
3	delete	北京.txt5
3	delete	東京.txt5

No overwrites

File: Tea.txt3 8 8  
 File: Tea.txt4 8 8  
 File: Tea.txt5 8 8  
 File: Seoul.txt4 8 8  
 File: Seoul.txt5 8 8  
 File: Seoul.txt3 8 8  
 File: Mitsubishi-h.txt3 8 8  
 File: Mitsubishi-h.txt5 8 8  
 File: Mitsubishi-h.txt4 8 8  
 File: Mitsubishi-k.txt4 8 8  
 File: Mitsubishi-k.txt5 8 8  
 File: Pakora.txt3 8 8  
 ...  
 File: Tokyo.txt4 8 8  
 File: Tokyo.txt5 8 8  
 File: Walnut.txt4 8 8  
 File: Walnut.txt5 8 8  
 File: Walnut.txt3 8 8  
 File: Beijing.txt3 8 8  
 File: Beijing.txt4 8 8  
 File: Beijing.txt5 8 8  
 File: Hummus.txt3 8 8  
 File: Hummus.txt4 8 8  
 File: Hummus.txt5 8 8  
 Summary: 36 36 0 0

Metadata available  
 ext-04 Metadata found 0 files, not found 36, total 36 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2

Layout for Steps 1 through 2		
1125 - 1132	Gulab_jamun3	Gulab_jamun3
1133 - 1140	Tagine3	Tagine3
1141 - 1148	China3	China3
3135 - 3142	Seoul3	Seoul3
3143 - 3150	Tea3	Tea3
3151 - 3158	Japan3	Japan3
5183 - 5190	Korea3	Korea3
5191 - 5198	Cheese3	Cheese3
6207 - 6214	Tokyo3	Tokyo3
7231 - 7238	Kabob3	Kabob3
7239 - 7246	Mitsubishi-k3	Mitsubishi-k3
8255 - 8262	Subaru-k3	Subaru-k3
9279 - 9286	Walnut3	Walnut3
9287 - 9294	Mitsubishi-h3	Mitsubishi-h3
10303 - 10310	Subaru-h3	Subaru-h3
11327 - 11334	Naan3	Naan3
11335 - 11342	Falafel3	Falafel3
11343 - 11350	Sweets3	Sweets3
13375 - 13382	Chapati3	Chapati3
13383 - 13390	Hummus3	Hummus3
13391 - 13398	Vessel3	Vessel3
15423 - 15430	Pakora3	Pakora3
15431 - 15438	Couscous3	Couscous3
15439 - 15446	Beijing3	Beijing3
652300 - 652307	Seoul4	Seoul4
652308 - 652315	Tea4	Tea4
652316 - 652323	Japan4	Japan4
653286 - 653293	Korea4	Korea4
653294 - 653301	Cheese4	Cheese4
653302 - 653309	Tokyo4	Tokyo4
655334 - 655341	Kabob4	Kabob4
655342 - 655349	Mitsubishi-k4	Mitsubishi-k4
655350 - 655357	Subaru-k4	Subaru-k4
657382 - 657389	Walnut4	Walnut4
657390 - 657397	Mitsubishi-h4	Mitsubishi-h4
657398 - 657405	Subaru-h4	Subaru-h4
659430 - 659437	Naan4	Naan4
659438 - 659445	Falafel4	Falafel4
659446 - 659453	Sweets4	Sweets4
661478 - 661485	Chapati4	Chapati4
661486 - 661493	Hummus4	Hummus4
661494 - 661501	Vessel4	Vessel4
663526 - 663533	Pakora4	Pakora4
663534 - 663541	Couscous4	Couscous4
663542 - 663549	Beijing4	Beijing4
665574 - 665581	Gulab_jamun4	Gulab_jamun4
665582 - 665589	Tagine4	Tagine4
665590 - 665597	China4	China4
1319378 - 1319385	Naan5	Naan5
1319386 - 1319393	Chapati5	Chapati5
1319394 - 1319401	Pakora5	Pakora5
1319402 - 1319409	Gulab_jamun5	Gulab_jamun5
1319410 - 1319417	Seoul5	Seoul5
1319418 - 1319425	Korea5	Korea5
1319426 - 1319433	Kabob5	Kabob5
1319434 - 1319441	Walnut5	Walnut5
1319442 - 1319449	Falafel5	Falafel5
1319450 - 1319457	Hummus5	Hummus5
1319458 - 1319465	Couscous5	Couscous5
1319466 - 1319473	Tagine5	Tagine5
1319474 - 1319481	Tea5	Tea5
1319482 - 1319489	Cheese5	Cheese5
1319490 - 1319497	Mitsubishi-k5	Mitsubishi-k5
1319498 - 1319505	Mitsubishi-h5	Mitsubishi-h5



Layout for Steps 1 through 2		
1319506 - 1319513	Sweets5	Sweets5
1319514 - 1319521	Vessel5	Vessel5
1319522 - 1319529	Beijing5	Beijing5
1319530 - 1319537	China5	China5
1319538 - 1319545	Japan5	Japan5
1319546 - 1319553	Tokyo5	Tokyo5
1319554 - 1319561	Subaru-k5	Subaru-k5
1319562 - 1319569	Subaru-h5	Subaru-h5

Sector List	
Beijing.txt3	15439 - 15446
Beijing.txt4	663542 - 663549
Beijing.txt5	1319522 - 1319529
Chapati.txt3	13375 - 13382
Chapati.txt4	661478 - 661485
Chapati.txt5	1319386 - 1319393
Cheese.txt3	5191 - 5198
Cheese.txt4	653294 - 653301
Cheese.txt5	1319482 - 1319489
...	
54 omitted	
Tokyo.txt3	6207 - 6214
Tokyo.txt4	653302 - 653309
Tokyo.txt5	1319546 - 1319553
Vessel.txt3	13391 - 13398
Vessel.txt4	661494 - 661501
Vessel.txt5	1319514 - 1319521
Walnut.txt3	9279 - 9286
Walnut.txt4	657382 - 657389
Walnut.txt5	1319434 - 1319441

## 6 Test Image ext-05

DFR-05. Recover several fragmented files.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		61	651235	325587+	83	Linux
/dev/sdd2		651236	1302471	325618	83	Linux
/dev/sdd3		1302472	1953707	325618	83	Linux

6 files deleted

Deleted files (6)			
Name	Size	F-Hd	F-Bks
Bellatrix.txt	526336 (1028+0)	1	1027
Electra.TXT	526336 (1028+0)	1	1027
Bunda.txt	8192 (16+0)	1	15
Eltanin.txt	526336 (1028+0)	1	1027
Botein.txt	8192 (16+0)	1	15
Edasich.txt	8192 (16+0)	1	15

MAC times just before file deletion

File: 'Bellatrix.txt'

Access: 1999-01-02 03:03:00.000000000 -0500

Modify: 2008-07-04 13:13:00.000000000 -0400

Change: 2012-02-03 16:31:22.000000000 -0500

File: 'Electra.TXT'

Access: 1998-01-02 03:03:00.000000000 -0500

Modify: 2000-02-29 13:13:00.000000000 -0500

Change: 2012-02-03 16:31:22.000000000 -0500  
 File: `Bunda.txt`  
 Access: 1999-01-02 03:04:00.000000000 -0500  
 Modify: 2008-07-04 13:14:00.000000000 -0400  
 Change: 2012-02-03 16:31:22.000000000 -0500  
 File: `Eltanin.txt`  
 Access: 1998-01-02 03:04:00.000000000 -0500  
 Modify: 2000-02-29 13:14:00.000000000 -0500  
 Change: 2012-02-03 16:31:22.000000000 -0500  
 File: `Botein.txt`  
 Access: 1999-01-02 03:05:00.826153959 -0500  
 Modify: 2008-07-04 13:15:00.877154764 -0400  
 Change: 2012-02-03 16:31:23.877154764 -0500  
 File: `Edasich.txt`  
 Access: 1998-01-02 03:05:00.000000000 -0500  
 Modify: 2000-02-29 13:15:00.000000000 -0500  
 Change: 2012-02-03 16:31:23.000000000 -0500

File delete times:  
 Times: /Volumes/CFFT/dfr/dfr-setup/ntfs-delete-times.txt Case ext-05  
 ===== Run step 7 =====  
 ACTION (delete): Bellatrix.txt Electra.TXT  
 ACTION (delete time): Fri Feb 3 16:39:30 EST 2012  
 ACTION (delete): Bunda.txt Eltanin.txt  
 ACTION (delete time): Fri Feb 3 16:39:31 EST 2012  
 ACTION (delete): Botein.txt Edasich.txt  
 ACTION (delete time): Fri Feb 3 16:39:32 EST 2012

Steps to Create Image ext-05		
Step	Action	Files in Partition EXT2
1	create	Algol.txt Bellatrix.txt Canopus.txt
2	append	Bellatrix.txt
3	create	Denebola.TXT Electra.TXT FumAlSamakah.txt
4	append	Electra.TXT
5	create	Giauzar.txt
6	set date/time	Algol.txt Bellatrix.txt Canopus.txt Denebola.TXT Electra.TXT FumAlSamakah.txt Giauzar.txt
7	delete	Bellatrix.txt Electra.TXT
Step	Action	Files in Partition EXT3
1	create	Arcturus.txt Bunda.txt Castor.txt
2	append	Bunda.txt
3	create	Duhr.TXT Eltanin.txt Furud.txt
4	append	Eltanin.txt
5	create	Grumium.txt
6	set date/time	Arcturus.txt Bunda.txt Castor.txt Duhr.TXT Eltanin.txt Furud.txt Grumium.txt
7	delete	Bunda.txt Eltanin.txt
Step	Action	Files in Partition EXT4
1	create	Antares.txt Botein.txt Chort.txt
2	append	Botein.txt
3	create	Diadem.TXT Edasich.txt fornax.txt
4	append	Edasich.txt
5	create	Gomeisa.txt
6	set date/time	Antares.txt Botein.txt Chort.txt Diadem.TXT Edasich.txt fornax.txt Gomeisa.txt
7	delete	Botein.txt Edasich.txt

No overwrites

File: Bellatrix.txt 1028 1028  
 File: Bunda.txt 16 16  
 File: Edasich.txt 16 16  
 File: Botein.txt 16 16  
 File: Eltanin.txt 1028 1028  
 File: Electra.TXT 1028 1028  
 Summary: 6 6 0 0

Metadata available  
 ext-05 Metadata found 6 files, not found 0, total 6 deleted files  
 Metadata available for all deleted files

Layout History

<b>Layout for Steps 1 through 4</b>				
Sectors	Step 1	Step 2	Step 3	Step 4
1125 - 1132	Algol	Algol	Algol	Algol
2111 - 2118	Bellatrix	Bellatrix	Bellatrix	Bellatrix
2119 - 2134	empty	Bellatrix	Bellatrix	Bellatrix
2137 - 2648	empty	Bellatrix	Bellatrix	Bellatrix
2653 - 3134	empty	Bellatrix	Bellatrix	Bellatrix
3135 - 3142	Canopus	Canopus	Canopus	Canopus
3143 - 3152	empty	Bellatrix	Bellatrix	Bellatrix
5183 - 5190	empty	empty	Denebola	Denebola
6207 - 6214	empty	empty	Electra	Electra
6215 - 6230	empty	empty	empty	Electra
6233 - 6744	empty	empty	empty	Electra
6749 - 7230	empty	empty	empty	Electra
7231 - 7238	empty	empty	FumAlSamakah	FumAlSamakah
7239 - 7248	empty	empty	empty	Electra
8255 - 8262	empty	empty	empty	empty
652300 - 652307	Bunda	Bunda	Bunda	Bunda
652308 - 652315	Castor	Castor	Castor	Castor
652316 - 652323	empty	Bunda	Bunda	Bunda
654310 - 654317	empty	empty	Duhr	Duhr
655334 - 655341	empty	empty	Eltanin	Eltanin
655342 - 655357	empty	empty	empty	Eltanin
655360 - 655871	empty	empty	empty	Eltanin
655876 - 656357	empty	empty	empty	Eltanin
656358 - 656365	empty	empty	Furud	Furud
656374 - 656383	empty	empty	empty	Eltanin
658406 - 658413	empty	empty	empty	empty
666598 - 666605	Arcturus	Arcturus	Arcturus	Arcturus
1319378 - 1319385	Antares	Antares	Antares	Antares
1319386 - 1319393	Botein	Botein	Botein	Botein
1319394 - 1319401	Chort	Chort	Chort	Chort
1319402 - 1319409	empty	Botein	Botein	Botein
1319410 - 1319417	empty	empty	Diadem	Diadem
1319418 - 1319425	empty	empty	Edasich	Edasich
1319426 - 1319433	empty	empty	fornax	fornax
1319434 - 1319441	empty	empty	empty	Edasich
1319442 - 1319449	empty	empty	empty	empty

<b>Layout for Steps 5 through 6</b>		
Sectors	Step 5	Step 6
1125 - 1132	Algol	Algol
2111 - 2118	Bellatrix	Bellatrix
2119 - 2134	Bellatrix	Bellatrix
2137 - 2648	Bellatrix	Bellatrix
2653 - 3134	Bellatrix	Bellatrix
3135 - 3142	Canopus	Canopus
3143 - 3152	Bellatrix	Bellatrix
5183 - 5190	Denebola	Denebola
6207 - 6214	Electra	Electra
6215 - 6230	Electra	Electra
6233 - 6744	Electra	Electra
6749 - 7230	Electra	Electra
7231 - 7238	FumAlSamakah	FumAlSamakah
7239 - 7248	Electra	Electra
8255 - 8262	Giauzar	Giauzar
652300 - 652307	Bunda	Bunda

Layout for Steps 5 through 6		
652308 - 652315	Castor	Castor
652316 - 652323	Bunda	Bunda
654310 - 654317	Duhr	Duhr
655334 - 655341	Eltanin	Eltanin
655342 - 655357	Eltanin	Eltanin
655360 - 655871	Eltanin	Eltanin
655876 - 656357	Eltanin	Eltanin
656358 - 656365	Furud	Furud
656374 - 656383	Eltanin	Eltanin
658406 - 658413	Grumium	Grumium
666598 - 666605	Arcturus	Arcturus
1319378 - 1319385	Antares	Antares
1319386 - 1319393	Botein	Botein
1319394 - 1319401	Chort	Chort
1319402 - 1319409	Botein	Botein
1319410 - 1319417	Diadem	Diadem
1319418 - 1319425	Edasich	Edasich
1319426 - 1319433	fornax	fornax
1319434 - 1319441	Edasich	Edasich
1319442 - 1319449	Gomeisa	Gomeisa

Sector List	
Algol.txt	1125 - 1132
Antares.txt	1319378 - 1319385
Arcturus.txt	666598 - 666605
Bellatrix.txt	2111 - 2134, 2137 - 2648, 2653 - 3134, 3143 - 3152
Botein.txt	1319386 - 1319393, 1319402 - 1319409
Bunda.txt	652300 - 652307, 652316 - 652323
Canopus.txt	3135 - 3142
Castor.txt	652308 - 652315
Chort.txt	1319394 - 1319401
...	
4 omitted	
Electra.TXT	6207 - 6230, 6233 - 6744, 6749 - 7230, 7239 - 7248
Eltanin.txt	655334 - 655357, 655360 - 655871, 655876 - 656357, 656374 - 656383
FumAlSamakah.txt	7231 - 7238
Furud.txt	656358 - 656365
Giauzar.txt	8255 - 8262
Gomeisa.txt	1319442 - 1319449
Grumium.txt	658406 - 658413
fornax.txt	1319426 - 1319433

## 7 Test Image ext-05-braid

DFR-05. Recover several fragmented files.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		61	651235	325587+	83	Linux
/dev/sdd2		651236	1302471	325618	83	Linux
/dev/sdd3		1302472	1953707	325618	83	Linux

6 files deleted

Deleted files (6)			
Name	Size	F-Hd	F-Bks
Bellatrix.txt	526336 (1028+0)	1	1027
Canopus.txt	8192 (16+0)	1	15
Bunda.txt	526336 (1028+0)	1	1027

Deleted files (6)			
Castor.txt	12288 (24+0)	1	23
Botein.txt	8192 (16+0)	1	15
Chort.txt	8192 (16+0)	1	15

MAC times just before file deletion

File: `Bellatrix.txt`  
 Access: 1999-01-02 03:03:00.000000000 -0500  
 Modify: 2008-07-04 13:13:00.000000000 -0400  
 Change: 2012-02-04 10:02:34.000000000 -0500  
 File: `Canopus.txt`  
 Access: 1998-01-02 03:03:00.000000000 -0500  
 Modify: 2000-02-29 13:13:00.000000000 -0500  
 Change: 2012-02-04 10:02:34.000000000 -0500  
 File: `Bunda.txt`  
 Access: 1999-01-02 03:04:00.000000000 -0500  
 Modify: 2008-07-04 13:14:00.000000000 -0400  
 Change: 2012-02-04 10:02:35.000000000 -0500  
 File: `Castor.txt`  
 Access: 1998-01-02 03:04:00.000000000 -0500  
 Modify: 2000-02-29 13:14:00.000000000 -0500  
 Change: 2012-02-04 10:02:35.000000000 -0500  
 File: `Botein.txt`  
 Access: 1999-01-02 03:05:00.662656509 -0500  
 Modify: 2008-07-04 13:15:00.000000000 -0400  
 Change: 2012-02-04 10:02:35.774680262 -0500  
 File: `Chort.txt`  
 Access: 1998-01-02 03:05:00.768421802 -0500  
 Modify: 2000-02-29 13:15:00.237355980 -0500  
 Change: 2012-02-04 10:02:35.237355980 -0500

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ext-05-braid  
 ===== Run step 6 =====  
 ACTION (delete): Bellatrix.txt Canopus.txt  
 ACTION (delete time): Sat Feb 4 10:06:05 EST 2012  
 ACTION (delete): Bunda.txt Castor.txt  
 ACTION (delete time): Sat Feb 4 10:06:06 EST 2012  
 ACTION (delete): Botein.txt Chort.txt  
 ACTION (delete time): Sat Feb 4 10:06:07 EST 2012

Steps to Create Image ext-05-braid		
Step	Action	Files in Partition EXT2
1	create	Algol.txt Bellatrix.txt Canopus.txt
2	append	Bellatrix.txt
3	append	Canopus.txt
4	create	Denebola.TXT
5	set date/time	Algol.txt Bellatrix.txt Canopus.txt Denebola.TXT
6	delete	Bellatrix.txt Canopus.txt
Step	Action	Files in Partition EXT3
1	create	Arcturus.txt Bunda.txt Castor.txt
2	append	Bunda.txt
3	append	Castor.txt
4	create	Duhr.TXT
5	set date/time	Arcturus.txt Bunda.txt Castor.txt Duhr.TXT
6	delete	Bunda.txt Castor.txt
Step	Action	Files in Partition EXT4
1	create	Antares.txt Botein.txt Chort.txt
2	append	Botein.txt
3	append	Chort.txt
4	create	Diadem.TXT
5	set date/time	Antares.txt Botein.txt Chort.txt Diadem.TXT
6	delete	Botein.txt Chort.txt

No overwrites

File: Bellatrix.txt 1028 1028  
 File: Chort.txt 16 16  
 File: Bunda.txt 1028 1028  
 File: Castor.txt 24 24  
 File: Canopus.txt 16 16  
 File: Botein.txt 16 16  
 Summary: 6 6 0 0

Metadata available  
 ext-05-braid Metadata found 6 files, not found 0, total 6 deleted files  
 Metadata available for all deleted files

Layout History

<b>Layout for Steps 1 through 4</b>				
Sectors	Step 1	Step 2	Step 3	Step 4
2111 - 2118	empty	empty	empty	Denebola
6207 - 6214	Algol	Algol	Algol	Algol
7231 - 7238	Bellatrix	Bellatrix	Bellatrix	Bellatrix
7239 - 7254	empty	Bellatrix	Bellatrix	Bellatrix
7257 - 7768	empty	Bellatrix	Bellatrix	Bellatrix
7773 - 8254	empty	Bellatrix	Bellatrix	Bellatrix
8255 - 8262	Canopus	Canopus	Canopus	Canopus
8263 - 8272	empty	Bellatrix	Bellatrix	Bellatrix
8273 - 8280	empty	empty	Canopus	Canopus
655334 - 655341	Arcturus	Arcturus	Arcturus	Arcturus
656358 - 656365	Bunda	Bunda	Bunda	Bunda
656366 - 656381	empty	Bunda	Bunda	Bunda
656384 - 656895	empty	Bunda	Bunda	Bunda
656900 - 657381	empty	Bunda	Bunda	Bunda
657382 - 657389	Castor	Castor	Castor	Castor
657390 - 657397	empty	empty	Castor	Castor
657398 - 657407	empty	Bunda	Bunda	Bunda
657408 - 657415	empty	empty	Castor	Castor
665574 - 665581	empty	empty	empty	Duhr
1319378 - 1319385	Antares	Antares	Antares	Antares
1319386 - 1319393	Botein	Botein	Botein	Botein
1319394 - 1319401	Chort	Chort	Chort	Chort
1319402 - 1319409	empty	Botein	Botein	Botein
1319410 - 1319417	empty	empty	Chort	Chort
1319418 - 1319425	empty	empty	empty	Diadem

<b>Layout for Steps 5 through 5</b>	
Sectors	Step 5
2111 - 2118	Denebola
6207 - 6214	Algol
7231 - 7238	Bellatrix
7239 - 7254	Bellatrix
7257 - 7768	Bellatrix
7773 - 8254	Bellatrix
8255 - 8262	Canopus
8263 - 8272	Bellatrix
8273 - 8280	Canopus
655334 - 655341	Arcturus
656358 - 656365	Bunda
656366 - 656381	Bunda
656384 - 656895	Bunda
656900 - 657381	Bunda
657382 - 657389	Castor
657390 - 657397	Castor
657398 - 657407	Bunda

Layout for Steps 5 through 5	
657408 - 657415	Castor
665574 - 665581	Duhr
1319378 - 1319385	Antares
1319386 - 1319393	Botein
1319394 - 1319401	Chort
1319402 - 1319409	Botein
1319410 - 1319417	Chort
1319418 - 1319425	Diadem

Sector List	
Algol.txt	6207 - 6214
Antares.txt	1319378 - 1319385
Arcturus.txt	655334 - 655341
Bellatrix.txt	7231 - 7254, 7257 - 7768, 7773 - 8254, 8263 - 8272
Botein.txt	1319386 - 1319393, 1319402 - 1319409
Bunda.txt	656358 - 656381, 656384 - 656895, 656900 - 657381, 657398 - 657407
Canopus.txt	8255 - 8262, 8273 - 8280
Castor.txt	657382 - 657397, 657408 - 657415
Chort.txt	1319394 - 1319401, 1319410 - 1319417
Denebola.TXT	2111 - 2118
Diadem.TXT	1319418 - 1319425
Duhr.TXT	665574 - 665581

## 8 Test Image ext-05-nest

DFR-05. Recover several fragmented files.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		61	651235	325587+	83	Linux
/dev/sdd2		651236	1302471	325618	83	Linux
/dev/sdd3		1302472	1953707	325618	83	Linux

6 files deleted

Deleted files (6)			
Name	Size	F-Hd	F-Bks
Bellatrix.txt	1048576 (2048+0)	1	2047
Denebola.TXT	526336 (1028+0)	1	1027
Bunda.txt	1048576 (2048+0)	1	2047
Duhr.TXT	526336 (1028+0)	1	1027
Botein.txt	8192 (16+0)	1	15
Diadem.TXT	8192 (16+0)	1	15

MAC times just before file deletion

File: `Bellatrix.txt`

Access: 1999-01-02 03:03:00.000000000 -0500

Modify: 2008-07-04 13:13:00.000000000 -0400

Change: 2012-02-04 11:06:23.000000000 -0500

File: `Denebola.TXT`

Access: 1998-01-02 03:03:00.000000000 -0500

Modify: 2000-02-29 13:13:00.000000000 -0500

Change: 2012-02-04 11:06:23.000000000 -0500

File: `Bunda.txt`

Access: 1999-01-02 03:04:00.000000000 -0500

Modify: 2008-07-04 13:14:00.000000000 -0400

Change: 2012-02-04 11:06:24.000000000 -0500

File: `Duhr.TXT`

Access: 1998-01-02 03:04:00.000000000 -0500

Modify: 2000-02-29 13:14:00.000000000 -0500

Change: 2012-02-04 11:06:24.000000000 -0500  
 File: `Botein.txt'  
 Access: 1999-01-02 03:05:00.000000000 -0500  
 Modify: 2008-07-04 13:15:00.000000000 -0400  
 Change: 2012-02-04 11:06:24.000000000 -0500  
 File: `Diadem.TXT'  
 Access: 1998-01-02 03:05:00.000000000 -0500  
 Modify: 2000-02-29 13:15:00.000000000 -0500  
 Change: 2012-02-04 11:06:24.000000000 -0500

File delete times:  
 Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ext-05-nest  
 ===== Run step 7 =====  
 ACTION (delete): Bellatrix.txt Denebola.TXT  
 ACTION (delete time): Sat Feb 4 11:10:03 EST 2012  
 ACTION (delete): Bunda.txt Duhr.TXT  
 ACTION (delete time): Sat Feb 4 11:10:04 EST 2012  
 ACTION (delete): Botein.txt Diadem.TXT  
 ACTION (delete time): Sat Feb 4 11:10:04 EST 2012

Steps to Create Image ext-05-nest		
Step	Action	Files in Partition EXT2
1	create	Algol.txt Bellatrix.txt Canopus.txt Denebola.TXT Electra.TXT
2	append	Denebola.TXT
3	create	FumAlSamakah.txt
4	append	Bellatrix.txt
5	create	Giauzar.txt
6	set date/time	Algol.txt Bellatrix.txt Canopus.txt Denebola.TXT Electra.TXT FumAlSamakah.txt Giauzar.txt
7	delete	Bellatrix.txt Denebola.TXT
Step	Action	Files in Partition EXT3
1	create	Arcturus.txt Bunda.txt Castor.txt Duhr.TXT Eltanin.txt
2	append	Duhr.TXT
3	create	Furud.txt
4	append	Bunda.txt
5	create	Grumium.txt
6	set date/time	Arcturus.txt Bunda.txt Castor.txt Duhr.TXT Eltanin.txt Furud.txt Grumium.txt
7	delete	Bunda.txt Duhr.TXT
Step	Action	Files in Partition EXT4
1	create	Antares.txt Botein.txt Chort.txt Diadem.TXT Edasich.txt
2	append	Diadem.TXT
3	create	fornax.txt
4	append	Botein.txt
5	create	Gomeisa.txt
6	set date/time	Antares.txt Botein.txt Chort.txt Diadem.TXT Edasich.txt fornax.txt Gomeisa.txt
7	delete	Botein.txt Diadem.TXT

No overwrites

File: Bellatrix.txt 2048 2048  
 File: Bunda.txt 2048 2048  
 File: Denebola.TXT 1028 1028  
 File: Botein.txt 16 16  
 File: Duhr.TXT 1028 1028  
 File: Diadem.TXT 16 16  
 Summary: 6 6 0 0

Metadata available  
 ext-05-nest Metadata found 6 files, not found 0, total 6 deleted files  
 Metadata available for all deleted files

Layout History

<b>Layout for Steps 1 through 4</b>
-------------------------------------



Layout for Steps 1 through 4				
Sectors	Step 1	Step 2	Step 3	Step 4
2111 - 2118	Algol	Algol	Algol	Algol
3135 - 3142	Bellatrix	Bellatrix	Bellatrix	Bellatrix
3143 - 3158	empty	empty	empty	Bellatrix
3161 - 3672	empty	empty	empty	Bellatrix
3677 - 4158	empty	empty	empty	Bellatrix
4159 - 4166	Canopus	Canopus	Canopus	Canopus
4167 - 4196	empty	empty	empty	Bellatrix
4199 - 4710	empty	empty	empty	Bellatrix
4713 - 5182	empty	empty	empty	Bellatrix
5183 - 5190	Denebola	Denebola	Denebola	Denebola
5191 - 5206	empty	Denebola	Denebola	Denebola
5209 - 5720	empty	Denebola	Denebola	Denebola
5725 - 6206	empty	Denebola	Denebola	Denebola
6207 - 6214	Electra	Electra	Electra	Electra
6215 - 6224	empty	Denebola	Denebola	Denebola
6225 - 6242	empty	empty	empty	Bellatrix
10303 - 10310	empty	empty	FumAlSamakah	FumAlSamakah
14399 - 14406	empty	empty	empty	empty
653286 - 653293	Arcturus	Arcturus	Arcturus	Arcturus
654310 - 654317	Bunda	Bunda	Bunda	Bunda
654318 - 654333	empty	empty	empty	Bunda
654336 - 654847	empty	empty	empty	Bunda
654852 - 655333	empty	empty	empty	Bunda
655334 - 655341	Castor	Castor	Castor	Castor
655350 - 655379	empty	empty	empty	Bunda
655382 - 655893	empty	empty	empty	Bunda
655896 - 656357	empty	empty	empty	Bunda
656358 - 656365	Duhr	Duhr	Duhr	Duhr
656366 - 656381	empty	Duhr	Duhr	Duhr
656384 - 656895	empty	Duhr	Duhr	Duhr
656900 - 657381	empty	Duhr	Duhr	Duhr
657382 - 657389	Eltanin	Eltanin	Eltanin	Eltanin
657390 - 657397	empty	empty	Furud	Furud
657398 - 657407	empty	Duhr	Duhr	Duhr
657414 - 657439	empty	empty	empty	Bunda
662502 - 662509	empty	empty	empty	empty
1319378 - 1319385	Antares	Antares	Antares	Antares
1319386 - 1319393	Botein	Botein	Botein	Botein
1319394 - 1319401	Chort	Chort	Chort	Chort
1319402 - 1319409	Diadem	Diadem	Diadem	Diadem
1319410 - 1319417	Edasich	Edasich	Edasich	Edasich
1319418 - 1319425	empty	Diadem	Diadem	Diadem
1319426 - 1319433	empty	empty	fornax	fornax
1319434 - 1319441	empty	empty	empty	Botein
1319442 - 1319449	empty	empty	empty	empty

Layout for Steps 5 through 6		
Sectors	Step 5	Step 6
2111 - 2118	Algol	Algol
3135 - 3142	Bellatrix	Bellatrix
3143 - 3158	Bellatrix	Bellatrix
3161 - 3672	Bellatrix	Bellatrix
3677 - 4158	Bellatrix	Bellatrix
4159 - 4166	Canopus	Canopus
4167 - 4196	Bellatrix	Bellatrix
4199 - 4710	Bellatrix	Bellatrix
4713 - 5182	Bellatrix	Bellatrix
5183 - 5190	Denebola	Denebola
5191 - 5206	Denebola	Denebola
5209 - 5720	Denebola	Denebola
5725 - 6206	Denebola	Denebola
6207 - 6214	Electra	Electra

Layout for Steps 5 through 6		
6215 - 6224	Denebola	Denebola
6225 - 6242	Bellatrix	Bellatrix
10303 - 10310	FumAlSamakah	FumAlSamakah
14399 - 14406	Giauzar	Giauzar
653286 - 653293	Arcturus	Arcturus
654310 - 654317	Bunda	Bunda
654318 - 654333	Bunda	Bunda
654336 - 654847	Bunda	Bunda
654852 - 655333	Bunda	Bunda
655334 - 655341	Castor	Castor
655350 - 655379	Bunda	Bunda
655382 - 655893	Bunda	Bunda
655896 - 656357	Bunda	Bunda
656358 - 656365	Duhr	Duhr
656366 - 656381	Duhr	Duhr
656384 - 656895	Duhr	Duhr
656900 - 657381	Duhr	Duhr
657382 - 657389	Eltanin	Eltanin
657390 - 657397	Furud	Furud
657398 - 657407	Duhr	Duhr
657414 - 657439	Bunda	Bunda
662502 - 662509	Grumium	Grumium
1319378 - 1319385	Antares	Antares
1319386 - 1319393	Botein	Botein
1319394 - 1319401	Chort	Chort
1319402 - 1319409	Diadem	Diadem
1319410 - 1319417	Edasich	Edasich
1319418 - 1319425	Diadem	Diadem
1319426 - 1319433	fornax	fornax
1319434 - 1319441	Botein	Botein
1319442 - 1319449	Gomeisa	Gomeisa

Sector List	
Algol.txt	2111 - 2118
Antares.txt	1319378 - 1319385
Arcturus.txt	653286 - 653293
Bellatrix.txt	3135 - 3158 3161 - 3672 3677 - 4158 4167 - 4196 4199 -
4710 4713 - 5182 ... + 1 more	
Botein.txt	1319386 - 1319393, 1319434 - 1319441
Bunda.txt	654310 - 654333 654336 - 654847 654852 - 655333 655350 -
655379 655382 - 655893 ... + 2 more	
Canopus.txt	4159 - 4166
...	
5 omitted	
Edasich.txt	1319410 - 1319417
Electra.TXT	6207 - 6214
Eltanin.txt	657382 - 657389
FumAlSamakah.txt	10303 - 10310
Furud.txt	657390 - 657397
Giauzar.txt	14399 - 14406
Gomeisa.txt	1319442 - 1319449
Grumium.txt	662502 - 662509
fornax.txt	1319426 - 1319433

## 9 Test Image ext-06

DFR-06. Recover one large file.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

```

Device Boot  Start    End  Blocks Id System
/dev/sdd1    61    651235  325587+ 83 Linux
/dev/sdd2   651236  1302471  325618 83 Linux
/dev/sdd3   1302472  1953707  325618 83 Linux

```

3 files deleted

Deleted files (3)			
Name	Size	F-Hd	F-Bks
Bellatrix.txt	319476736 (623978+0)	1	623977
Bunda.txt	311119872 (607656+0)	1	607655
Botein.txt	309429248 (604354+0)	1	604353

MAC times just before file deletion

```

File: `Bellatrix.txt'
Access: 1999-01-02 03:02:00.000000000 -0500
Modify: 2008-07-04 13:13:00.000000000 -0400
Change: 2011-10-09 14:41:44.000000000 -0400
File: `Bunda.txt'
Access: 1999-01-02 03:02:00.000000000 -0500
Modify: 2008-07-04 13:13:00.000000000 -0400
Change: 2011-10-09 14:42:01.000000000 -0400
File: `Botein.txt'
Access: 1999-01-02 03:02:00.480334801 -0500
Modify: 2008-07-04 13:13:00.480334801 -0400
Change: 2011-10-09 14:42:16.480334801 -0400

```

File delete times:

```

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ext-06
===== Run step 4 =====
ACTION (delete): Bellatrix.txt
ACTION (delete time): Sun Oct 9 14:43:57 EDT 2011
ACTION (delete): Bunda.txt
ACTION (delete time): Sun Oct 9 14:44:02 EDT 2011
ACTION (delete): Botein.txt
ACTION (delete time): Sun Oct 9 14:44:09 EDT 2011

```

Steps to Create Image ext-06		
Step	Action	Files in Partition EXT2
1	create	Algol.txt
2	create	Bellatrix.txt
4	delete	Bellatrix.txt
Step	Action	Files in Partition EXT3
1	create	Arcturus.txt
2	create	Bunda.txt
4	delete	Bunda.txt
Step	Action	Files in Partition EXT4
1	create	Antares.txt
2	create	Botein.txt
4	delete	Botein.txt

No overwrites

```

File: Bunda.txt 607656 607657 Growth
File: Bellatrix.txt 623978 623978
File: Botein.txt 604354 604354
Summary: 3 2 1 0

```

Metadata available

```

ext-06 Metadata found 3 files, not found 0, total 3 deleted files
Metadata available for all deleted files

```

Layout History

Block map has more than 200 entries

Sector List	
Algol.txt	12351 - 12351
Antares.txt	1319376 - 1319376
Arcturus.txt	659430 - 659430
Bellatrix.txt	1127 - 1380 1383 - 1894 1897 - 2134 2137 - 2648 2653 - 3164 3167 - 3678 ... + 1254 more
Botein.txt	1311248 - 1318857 1319378 - 1351625 1352144 - 1384393 1384912 - 1387567 ... + 11 more
Bunda.txt	652302 - 652363 652366 - 652877 652880 - 653309 653312 - 653823 653828 - 654339 ... + 1223 more

## 10 Test Image ext-07

DFR-07. Recover one overwritten file.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device Boot Start End Blocks Id System

/dev/sdd1 61 651235 325587+ 83 Linux

/dev/sdd2 651236 1302471 325618 83 Linux

/dev/sdd3 1302472 1953707 325618 83 Linux

15 files deleted

Deleted files (15)			
Name	Size	F-Hd	F-Bks
Bellatrix.txt	4096 (8+0)	1	7
Canopus.txt	4096 (8+0)	1	7
Denebola.TXT	4096 (8+0)	1	7
FumAlSamakah.txt	8192 (16+0)	1	15
Giauzar.txt	3072 (6+0)	1	5
Bunda.txt	4096 (8+0)	1	7
Castor.txt	4096 (8+0)	1	7
Duhr.TXT	4096 (8+0)	1	7
Furud.txt	8192 (16+0)	1	15
Grumium.txt	3072 (6+0)	1	5
Botein.txt	4096 (8+0)	1	7
Chort.txt	4096 (8+0)	1	7
Diadem.TXT	4096 (8+0)	1	7
Gomeisa.txt	4096 (8+0)	1	7
fornax.txt	8192 (16+0)	1	15

MAC times just before file deletion

File: `Bellatrix.txt'

Access: 2011-10-09 14:56:54.000000000 -0400

Modify: 2011-10-09 14:56:33.000000000 -0400

Change: 2011-10-09 14:56:33.000000000 -0400

File: `Canopus.txt'

Access: 2011-10-09 14:56:55.000000000 -0400

Modify: 2011-10-09 14:56:33.000000000 -0400

Change: 2011-10-09 14:56:33.000000000 -0400

File: `Denebola.TXT'

Access: 2011-10-09 14:56:55.000000000 -0400

Modify: 2011-10-09 14:56:33.000000000 -0400

Change: 2011-10-09 14:56:33.000000000 -0400

File: `FumAlSamakah.txt'

Access: 2011-10-09 15:02:13.000000000 -0400

Modify: 2011-10-09 15:02:13.000000000 -0400

Change: 2011-10-09 15:02:13.000000000 -0400

File: `Giauzar.txt'

Access: 2011-10-09 15:02:13.000000000 -0400

Modify: 2011-10-09 15:02:13.000000000 -0400

Change: 2011-10-09 15:02:13.000000000 -0400

...

20 omitted

File: `Botein.txt'

Access: 2011-10-09 14:57:40.290599401 -0400  
 Modify: 2011-10-09 14:57:28.290599401 -0400  
 Change: 2011-10-09 14:57:28.292574600 -0400  
 File: `Chort.txt`  
 Access: 2011-10-09 14:57:40.004314207 -0400  
 Modify: 2011-10-09 14:57:28.000000000 -0400  
 Change: 2011-10-09 14:57:28.381113174 -0400  
 File: `Diadem.TXT`  
 Access: 2011-10-09 14:57:40.001318409 -0400  
 Modify: 2011-10-09 14:57:28.000000000 -0400  
 Change: 2011-10-09 14:57:28.346121242 -0400  
 File: `Gomeisa.txt`  
 Access: 2011-10-09 15:02:14.871069201 -0400  
 Modify: 2011-10-09 15:02:14.871069201 -0400  
 Change: 2011-10-09 15:02:14.872068400 -0400  
 File: `fornax.txt`  
 Access: 2011-10-09 15:02:14.000000000 -0400  
 Modify: 2011-10-09 15:02:14.000000000 -0400  
 Change: 2011-10-09 15:02:14.395109947 -0400

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ext-07  
 ===== Run step 2 =====

ACTION (delete): Bellatrix.txt Canopus.txt Denebola.TXT  
 ACTION (delete time): Sun Oct 9 15:00:33 EDT 2011  
 ACTION (delete): Bunda.txt Castor.txt Duhr.TXT  
 ACTION (delete time): Sun Oct 9 15:00:33 EDT 2011  
 ACTION (delete): Botein.txt Chort.txt Diadem.TXT  
 ACTION (delete time): Sun Oct 9 15:00:34 EDT 2011  
 ACTION (delete): FumAlSamakah.txt Giauzar.txt  
 ACTION (delete time): Sun Oct 9 15:03:57 EDT 2011  
 ACTION (delete): Furud.txt Grumium.txt  
 ACTION (delete time): Sun Oct 9 15:03:58 EDT 2011  
 ACTION (delete): fornax.txt Gomeisa.txt  
 ACTION (delete time): Sun Oct 9 15:03:59 EDT 2011

Steps to Create Image ext-07		
Step	Action	Files in Partition EXT2
1	create	Algol.txt Bellatrix.txt Canopus.txt Denebola.TXT Electra.TXT
2	delete	Bellatrix.txt Canopus.txt Denebola.TXT
3	create	FumAlSamakah.txt Giauzar.txt
4	delete	FumAlSamakah.txt Giauzar.txt
Step	Action	Files in Partition EXT3
1	create	Arcturus.txt Bunda.txt Castor.txt Duhr.TXT Eltanin.txt
2	delete	Bunda.txt Castor.txt Duhr.TXT
3	create	Furud.txt Grumium.txt
4	delete	Furud.txt Grumium.txt
Step	Action	Files in Partition EXT4
1	create	Antares.txt Botein.txt Chort.txt Diadem.TXT Edasich.txt
2	delete	Botein.txt Chort.txt Diadem.TXT
3	create	fornax.txt Gomeisa.txt
4	delete	fornax.txt Gomeisa.txt

9 overwrites

Bellatrix.txt x FumAlSamakah.txt: overlap - 10305 - 10310  
 Botein.txt x fornax.txt: overlap - 1319386 - 1319393  
 Bunda.txt x Grumium.txt: overlap - 658408 - 658413  
 Canopus.txt x FumAlSamakah.txt: overlap - 11327 - 11334  
 Castor.txt x Furud.txt: overlap - 659430 - 659437  
 Chort.txt x fornax.txt: overlap - 1319394 - 1319401  
 Denebola.TXT x FumAlSamakah.txt: overlap - 12351 - 12352  
 Denebola.TXT x Giauzar.txt: overlap - 12353 - 12358  
 Duhr.TXT x Furud.txt: overlap - 660454 - 660461

File: FumAlSamakah.txt 16 16  
 File: Bellatrix.txt 8 0

File: Diadem.TXT 8 6  
 File: Chort.txt 8 0  
 File: Botein.txt 8 0  
 File: Bunda.txt 8 0  
 File: Castor.txt 8 0  
 File: Canopus.txt 8 0  
 File: Denebola.TXT 8 0  
 File: Grumium.txt 6 6  
 File: Duhr.TXT 8 0  
 File: Furud.txt 16 16  
 File: Giauzar.txt 6 6  
 File: Gomeisa.txt 8 8  
 File: fornax.txt 16 16  
 Summary: 15 6 1 8

Metadata available  
 ext-07 Metadata found 9 files, not found 6, total 15 deleted files  
 Deleted files without metadata (cannot be found)  
 Bellatrix.txt Botein.txt Bunda.txt Canopus.txt  
 Castor.txt Chort.txt

Layout History

Layout for Steps 1 through 3			
Sectors	Step 1	Step 2	Step 3
9279 - 9286	Algol	Algol	Algol
10303 - 10304	Bellatrix	Bellatrix	metadata
10305 - 10310	Bellatrix	Bellatrix	FumAlSamakah
11327 - 11334	Canopus	Canopus	FumAlSamakah
12351 - 12352	Denebola	Denebola	FumAlSamakah
12353 - 12358	Denebola	Denebola	Giauzar
13375 - 13382	Electra	Electra	Electra
657382 - 657389	Arcturus	Arcturus	Arcturus
658406 - 658407	Bunda	Bunda	metadata
658408 - 658413	Bunda	Bunda	Grumium
659430 - 659437	Castor	Castor	Furud
660454 - 660461	Duhr	Duhr	Furud
661478 - 661485	Eltanin	Eltanin	Eltanin
1319378 - 1319385	Antares	Antares	Antares
1319386 - 1319393	Botein	Botein	fornax
1319394 - 1319401	Chort	Chort	fornax
1319402 - 1319403	Diadem	Diadem	metadata
1319404 - 1319409	Diadem	Diadem	Diadem
1319410 - 1319417	Edasich	Edasich	Edasich
1388138 - 1388145	empty	empty	Gomeisa

Sector List	
Algol.txt	9279 - 9286
Antares.txt	1319378 - 1319385
Arcturus.txt	657382 - 657389
Bellatrix.txt	10303 - 10310
Botein.txt	1319386 - 1319393
Bunda.txt	658406 - 658413
Canopus.txt	11327 - 11334
Castor.txt	659430 - 659437
Chort.txt	1319394 - 1319401
...	
3 omitted	
Edasich.txt	1319410 - 1319417
Electra.TXT	13375 - 13382
Eltanin.txt	661478 - 661485
FumAlSamakah.txt	10305 - 10310, 11327 - 11334, 12351 - 12352
Furud.txt	659430 - 659437, 660454 - 660461
Giauzar.txt	12353 - 12358

Sector List	
Gomeisa.txt	1388138 - 1388145
Grumium.txt	658408 - 658413
fornax.txt	1319386 - 1319401

## 11 Test Image ext-07-one

DFR-07. Recover one overwritten file.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		61	651235	325587+	83	Linux
/dev/sdd2		651236	1302471	325618	83	Linux
/dev/sdd3		1302472	1953707	325618	83	Linux

9 files deleted

Deleted files (9)			
Name	Size	F-Hd	F-Bks
Bellatrix.txt	4096 (8+0)	1	7
Canopus.txt	4096 (8+0)	1	7
Electra.TXT	3072 (6+0)	1	5
Bunda.txt	4096 (8+0)	1	7
Castor.txt	4096 (8+0)	1	7
Eltanin.txt	3072 (6+0)	1	5
Botein.txt	4096 (8+0)	1	7
Chort.txt	4096 (8+0)	1	7
Edasich.txt	4096 (8+0)	1	7

MAC times just before file deletion

File: `Bellatrix.txt`

Access: 2011-10-09 15:35:21.000000000 -0400

Modify: 2011-10-09 15:35:04.000000000 -0400

Change: 2011-10-09 15:35:04.000000000 -0400

File: `Canopus.txt`

Access: 2011-10-09 15:39:56.000000000 -0400

Modify: 2011-10-09 15:35:04.000000000 -0400

Change: 2011-10-09 15:35:04.000000000 -0400

File: `Electra.TXT`

Access: 2011-10-09 15:45:04.000000000 -0400

Modify: 2011-10-09 15:45:04.000000000 -0400

Change: 2011-10-09 15:45:04.000000000 -0400

File: `Bunda.txt`

Access: 2011-10-09 15:35:57.000000000 -0400

Modify: 2011-10-09 15:35:31.000000000 -0400

Change: 2011-10-09 15:35:31.000000000 -0400

File: `Castor.txt`

Access: 2011-10-09 15:39:57.000000000 -0400

Modify: 2011-10-09 15:35:31.000000000 -0400

Change: 2011-10-09 15:35:31.000000000 -0400

File: `Eltanin.txt`

Access: 2011-10-09 15:45:04.000000000 -0400

Modify: 2011-10-09 15:45:04.000000000 -0400

Change: 2011-10-09 15:45:04.000000000 -0400

File: `Botein.txt`

Access: 2011-10-09 15:36:08.672008110 -0400

Modify: 2011-10-09 15:35:59.672008110 -0400

Change: 2011-10-09 15:35:59.672008110 -0400

File: `Chort.txt`

Access: 2011-10-09 15:35:59.349086106 -0400

Modify: 2011-10-09 15:35:59.349086106 -0400

Change: 2011-10-09 15:35:59.349086106 -0400

File: `Edasich.txt`

Access: 2011-10-09 15:45:05.730533302 -0400  
 Modify: 2011-10-09 15:45:05.730533302 -0400  
 Change: 2011-10-09 15:45:05.732521100 -0400

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ext-07-one  
 ===== Run step 2 =====

ACTION (delete): Bellatrix.txt  
 ACTION (delete time): Sun Oct 9 15:38:07 EDT 2011  
 ACTION (delete): Bunda.txt  
 ACTION (delete time): Sun Oct 9 15:38:08 EDT 2011  
 ACTION (delete): Botein.txt  
 ACTION (delete time): Sun Oct 9 15:38:08 EDT 2011  
 ACTION (delete): Canopus.txt  
 ACTION (delete time): Sun Oct 9 15:42:39 EDT 2011  
 ACTION (delete): Castor.txt  
 ACTION (delete time): Sun Oct 9 15:42:40 EDT 2011  
 ACTION (delete): Chort.txt  
 ACTION (delete time): Sun Oct 9 15:42:40 EDT 2011  
 ACTION (delete): Electra.TXT  
 ACTION (delete time): Sun Oct 9 15:46:55 EDT 2011  
 ACTION (delete): Eltanin.txt  
 ACTION (delete time): Sun Oct 9 15:46:56 EDT 2011  
 ACTION (delete): Edasich.txt  
 ACTION (delete time): Sun Oct 9 15:46:57 EDT 2011

Steps to Create Image ext-07-one		
Step	Action	Files in Partition EXT2
1	create	Algol.txt Bellatrix.txt Canopus.txt Denebola.TXT
2	delete	Bellatrix.txt
3	append	Algol.txt
4	delete	Canopus.txt
5	create	Electra.TXT
6	delete	Electra.TXT
Step	Action	Files in Partition EXT3
1	create	Arcturus.txt Bunda.txt Castor.txt Duhr.TXT
2	delete	Bunda.txt
3	append	Arcturus.txt
4	delete	Castor.txt
5	create	Eltanin.txt
6	delete	Eltanin.txt
Step	Action	Files in Partition EXT4
1	create	Antares.txt Botein.txt Chort.txt Diadem.TXT
2	delete	Botein.txt
3	append	Antares.txt
4	delete	Chort.txt
5	create	Edasich.txt
6	delete	Edasich.txt

6 overwrites

Algol.txt x Bellatrix.txt: overlap - 12351 - 12358  
 Antares.txt x Botein.txt: overlap - 1319386 - 1319393  
 Arcturus.txt x Bunda.txt: overlap - 654310 - 654317  
 Canopus.txt x Electra.TXT: overlap - 13377 - 13382  
 Castor.txt x Eltanin.txt: overlap - 655336 - 655341  
 Chort.txt x Edasich.txt: overlap - 1319394 - 1319401

File: Bellatrix.txt 8 0  
 File: Chort.txt 8 0  
 File: Bunda.txt 8 0  
 File: Castor.txt 8 0  
 File: Edasich.txt 8 8  
 File: Canopus.txt 8 0  
 File: Botein.txt 8 0  
 File: Eltanin.txt 6 6



File: Electra.TXT 6 6  
 Summary: 9 3 0 6

Metadata available  
 ext-07-one Metadata found 6 files, not found 3, total 9 deleted files  
 Deleted files without metadata (cannot be found)  
 Bellatrix.txt Botein.txt Bunda.txt

Layout History

Layout for Steps 1 through 4				
Sectors	Step 1	Step 2	Step 3	Step 4
11327 - 11334	Algol	Algol	Algol	Algol
12351 - 12358	Bellatrix	Bellatrix	Algol	Algol
13375 - 13376	Canopus	Canopus	Canopus	Canopus
13377 - 13382	Canopus	Canopus	Canopus	Canopus
14399 - 14406	Denebola	Denebola	Denebola	Denebola
653286 - 653293	Arcturus	Arcturus	Arcturus	Arcturus
654310 - 654317	Bunda	Bunda	Arcturus	Arcturus
655334 - 655335	Castor	Castor	Castor	Castor
655336 - 655341	Castor	Castor	Castor	Castor
656358 - 656365	Duhr	Duhr	Duhr	Duhr
1319378 - 1319385	Antares	Antares	Antares	Antares
1319386 - 1319393	Botein	Botein	Antares	Antares
1319394 - 1319401	Chort	Chort	Chort	Chort
1319402 - 1319409	Diadem	Diadem	Diadem	Diadem

Layout for Steps 5 through 5	
Sectors	Step 5
11327 - 11334	Algol
12351 - 12358	Algol
13375 - 13376	metadata
13377 - 13382	Electra
14399 - 14406	Denebola
653286 - 653293	Arcturus
654310 - 654317	Arcturus
655334 - 655335	metadata
655336 - 655341	Eltanin
656358 - 656365	Duhr
1319378 - 1319385	Antares
1319386 - 1319393	Antares
1319394 - 1319401	Edasich
1319402 - 1319409	Diadem

Sector List	
Algol.txt	11327 - 11334, 12351 - 12358
Antares.txt	1319378 - 1319393
Arcturus.txt	653286 - 653293, 654310 - 654317
Bellatrix.txt	12351 - 12358
Botein.txt	1319386 - 1319393
Bunda.txt	654310 - 654317
Canopus.txt	13375 - 13382
Castor.txt	655334 - 655341
Chort.txt	1319394 - 1319401
Denebola.TXT	14399 - 14406
Diadem.TXT	1319402 - 1319409
Duhr.TXT	656358 - 656365
Edasich.txt	1319394 - 1319401
Electra.TXT	13377 - 13382
Eltanin.txt	655336 - 655341

## 12 Test Image ext-07-two

DFR-07. Recover one overwritten file.

### Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes  
34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors  
Device Boot Start End Blocks Id System  
/dev/sdd1 61 651235 325587+ 83 Linux  
/dev/sdd2 651236 1302471 325618 83 Linux  
/dev/sdd3 1302472 1953707 325618 83 Linux

9 files deleted

Deleted files (9)			
Name	Size	F-Hd	F-Bks
Bellatrix.txt	8192 (16+0)	1	15
Canopus.txt	8192 (16+0)	1	15
Electra.TXT	7168 (14+0)	1	13
Bunda.txt	8192 (16+0)	1	15
Castor.txt	8192 (16+0)	1	15
Eltanin.txt	7168 (14+0)	1	13
Botein.txt	8192 (16+0)	1	15
Chort.txt	8192 (16+0)	1	15
Edasich.txt	8192 (16+0)	1	15

MAC times just before file deletion

File: `Bellatrix.txt'  
Access: 2012-02-04 14:37:28.000000000 -0500  
Modify: 2012-02-04 14:37:08.000000000 -0500  
Change: 2012-02-04 14:37:08.000000000 -0500  
File: `Canopus.txt'  
Access: 2012-02-04 14:44:26.000000000 -0500  
Modify: 2012-02-04 14:37:08.000000000 -0500  
Change: 2012-02-04 14:37:08.000000000 -0500  
File: `Bunda.txt'  
Access: 2012-02-04 14:38:04.000000000 -0500  
Modify: 2012-02-04 14:37:37.000000000 -0500  
Change: 2012-02-04 14:37:37.000000000 -0500  
File: `Castor.txt'  
Access: 2012-02-04 14:44:26.000000000 -0500  
Modify: 2012-02-04 14:37:37.000000000 -0500  
Change: 2012-02-04 14:37:37.000000000 -0500  
File: `Botein.txt'  
Access: 2012-02-04 14:38:15.316044654 -0500  
Modify: 2012-02-04 14:38:06.316044654 -0500  
Change: 2012-02-04 14:38:06.316044654 -0500  
File: `Chort.txt'  
Access: 2012-02-04 14:44:27.420831616 -0500  
Modify: 2012-02-04 14:38:06.420831616 -0500  
Change: 2012-02-04 14:38:06.420831616 -0500

File delete times:

Times: /Volumes/CFTT/df/df-setup/ntfs-delete-times.txt Case ext-07-two

==== Run step 2 =====

ACTION (delete): Bellatrix.txt  
ACTION (delete time): Sat Feb 4 14:41:21 EST 2012  
ACTION (delete): Bunda.txt  
ACTION (delete time): Sat Feb 4 14:41:21 EST 2012  
ACTION (delete): Botein.txt  
ACTION (delete time): Sat Feb 4 14:41:22 EST 2012  
ACTION (delete): Canopus.txt  
ACTION (delete time): Sat Feb 4 14:47:31 EST 2012  
ACTION (delete): Castor.txt  
ACTION (delete time): Sat Feb 4 14:47:32 EST 2012  
ACTION (delete): Chort.txt  
ACTION (delete time): Sat Feb 4 14:47:32 EST 2012

Steps to Create Image ext-07-two		
Step	Action	Files in Partition EXT2
1	create	Algol.txt Bellatrix.txt Canopus.txt Denebola.TXT
2	delete	Bellatrix.txt
3	append	Algol.txt
4	delete	Canopus.txt
5	create	Electra.TXT
Step	Action	Files in Partition EXT3
1	create	Arcturus.txt Bunda.txt Castor.txt Duhr.TXT
2	delete	Bunda.txt
3	append	Arcturus.txt
4	delete	Castor.txt
5	create	Eltanin.txt
Step	Action	Files in Partition EXT4
1	create	Antares.txt Botein.txt Chort.txt Diadem.TXT
2	delete	Botein.txt
3	append	Antares.txt
4	delete	Chort.txt
5	create	Edasich.txt

6 overwrites

Algol.txt x Bellatrix.txt: overlap - 14399 - 14406, 14409 - 14414  
 Antares.txt x Botein.txt: overlap - 1319402 - 1319417  
 Arcturus.txt x Bunda.txt: overlap - 654310 - 654317, 654320 - 654325  
 Canopus.txt x Electra.TXT: overlap - 15425 - 15438  
 Castor.txt x Eltanin.txt: overlap - 655336 - 655349  
 Chort.txt x Edasich.txt: overlap - 1319418 - 1319433

File: Bellatrix.txt 16 0  
 File: Chort.txt 16 0  
 File: Bunda.txt 16 0  
 File: Castor.txt 16 0  
 File: Canopus.txt 16 0  
 File: Botein.txt 16 0  
 Summary: 6 0 0 6

Metadata available

ext-07-two Metadata found 6 files, not found 3, total 9 deleted files  
 Deleted files without metadata (cannot be found)  
 Bellatrix.txt Botein.txt Bunda.txt

Layout History

Layout for Steps 1 through 4				
Sectors	Step 1	Step 2	Step 3	Step 4
1125 - 1140	Denebola	Denebola	Denebola	Denebola
13375 - 13390	Algol	Algol	Algol	Algol
14399 - 14406	Bellatrix	Bellatrix	Algol	Algol
14407 - 14408	Bellatrix	Bellatrix	metadata	metadata
14409 - 14414	Bellatrix	Bellatrix	Algol	Algol
15423 - 15424	Canopus	Canopus	Canopus	Canopus
15425 - 15438	Canopus	Canopus	Canopus	Canopus
653286 - 653301	Arcturus	Arcturus	Arcturus	Arcturus
654310 - 654317	Bunda	Bunda	Arcturus	Arcturus
654318 - 654319	Bunda	Bunda	metadata	metadata
654320 - 654325	Bunda	Bunda	Arcturus	Arcturus
655334 - 655335	Castor	Castor	Castor	Castor
655336 - 655349	Castor	Castor	Castor	Castor
656358 - 656373	Duhr	Duhr	Duhr	Duhr
1319386 - 1319401	Antares	Antares	Antares	Antares
1319402 - 1319417	Botein	Botein	Antares	Antares
1319418 - 1319433	Chort	Chort	Chort	Chort
1319434 - 1319449	Diadem	Diadem	Diadem	Diadem

Layout for Steps 5 through 5	
Sectors	Step 5
1125 - 1140	Denebola
13375 - 13390	Algol
14399 - 14406	Algol
14407 - 14408	metadata
14409 - 14414	Algol
15423 - 15424	metadata
15425 - 15438	Electra
653286 - 653301	Arcturus
654310 - 654317	Arcturus
654318 - 654319	metadata
654320 - 654325	Arcturus
655334 - 655335	metadata
655336 - 655349	Eltanin
656358 - 656373	Duhr
1319386 - 1319401	Antares
1319402 - 1319417	Antares
1319418 - 1319433	Edasich
1319434 - 1319449	Diadem

Sector List	
Algol.txt	13375 - 13390, 14399 - 14406, 14409 - 14414
Antares.txt	1319386 - 1319417
Arcturus.txt	653286 - 653301, 654310 - 654317, 654320 - 654325
Bellatrix.txt	14399 - 14414
Botein.txt	1319402 - 1319417
Bunda.txt	654310 - 654325
Canopus.txt	15423 - 15438
Castor.txt	655334 - 655349
Chort.txt	1319418 - 1319433
Denebola.TXT	1125 - 1140
Diadem.TXT	1319434 - 1319449
Duhr.TXT	656358 - 656373
Edasich.txt	1319418 - 1319433
Electra.TXT	15425 - 15438
Eltanin.txt	655336 - 655349

### 13 Test Image ext-08

DFR-08. Recover several overwritten files.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes  
 34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors  
 Device Boot Start End Blocks Id System  
 /dev/sdd1 61 651235 325587+ 83 Linux  
 /dev/sdd2 651236 1302471 325618 83 Linux  
 /dev/sdd3 1302472 1953707 325618 83 Linux

50 files deleted

Deleted files (50)			
Name	Size	F-Hd	F-Bks
Aldebaran.txt	512 (1+0)	1	0
Alnitak.txt	512 (1+0)	1	0
Alphard.txt	512 (1+0)	1	0
Arcturus.txt	512 (1+0)	1	0
Bellatrix.txt	8192 (16+0)	1	15
Canopus.txt	1024 (2+0)	1	1
Chara.txt	1024 (2+0)	1	1
Cujam.txt	1024 (2+0)	1	1

Deleted files (50)			
Cursa.txt	1024 (2+0)	1	1
Denebola.txt	2048 (4+0)	1	3
Dschubba.txt	2048 (4+0)	1	3
El_Nath.txt	4096 (8+0)	1	7
Eltanin.txt	4096 (8+0)	1	7
Graffias.txt	2048 (4+0)	1	3
Hadar.txt	2048 (4+0)	1	3
Massim.txt	2048 (4+0)	1	3
Megrez.txt	4096 (8+0)	1	7
Mintaka.txt	4096 (8+0)	1	7
Pollux.txt	8192 (16+0)	1	15
Rigel.txt	4096 (8+0)	1	7
Scheat.txt	512 (1+0)	1	0
Schedar.txt	512 (1+0)	1	0
Shaula.txt	512 (1+0)	1	0
Skat.txt	512 (1+0)	1	0
Tarazed.txt	2048 (4+0)	1	3
Achemar.txt	512 (1+0)	1	0
Albireo.txt	512 (1+0)	1	0
Atlas.txt	512 (1+0)	1	0
Azha.txt	512 (1+0)	1	0
Betelgeuse.txt	8192 (16+0)	1	15
Capella.txt	1024 (2+0)	1	1
Cheleb.txt	1024 (2+0)	1	1
Cor_Caroli.txt	1024 (2+0)	1	1
Cursa.txt	1024 (2+0)	1	1
Diphda.txt	2048 (4+0)	1	3
Dziban.txt	2048 (4+0)	1	3
Electra.txt	4096 (8+0)	1	7
Er_Rai.txt	4096 (8+0)	1	7
Grumium.txt	2048 (4+0)	1	3
Heze.txt	2048 (4+0)	1	3
Matar.txt	4096 (8+0)	1	7
Mimosa.txt	2048 (4+0)	1	3
Mira.txt	4096 (8+0)	1	7
Procyon.txt	8192 (16+0)	1	15
Rukbat.txt	4096 (8+0)	1	7
Sarin.txt	512 (1+0)	1	0
Sheliak.txt	512 (1+0)	1	0
Sirius.txt	512 (1+0)	1	0
Sulafat.txt	512 (1+0)	1	0
Tarf.txt	2048 (4+0)	1	3

MAC times just before file deletion

File: `Aldebaran.txt`  
Access: 2011-10-10 17:53:06.000000000 -0400  
Modify: 2011-10-10 17:48:28.000000000 -0400  
Change: 2011-10-10 17:48:28.000000000 -0400  
File: `Alnitak.txt`  
Access: 2011-10-10 17:48:47.000000000 -0400  
Modify: 2011-10-10 17:48:28.000000000 -0400  
Change: 2011-10-10 17:48:28.000000000 -0400  
File: `Alphard.txt`  
Access: 2011-10-10 17:56:55.000000000 -0400  
Modify: 2011-10-10 17:48:28.000000000 -0400  
Change: 2011-10-10 17:48:28.000000000 -0400  
File: `Arcturus.txt`  
Access: 2011-10-10 17:48:47.000000000 -0400  
Modify: 2011-10-10 17:48:28.000000000 -0400  
Change: 2011-10-10 17:48:28.000000000 -0400  
File: `Bellatrix.txt`  
Access: 2011-10-10 17:48:47.000000000 -0400  
Modify: 2011-10-10 17:48:28.000000000 -0400  
Change: 2011-10-10 17:48:28.000000000 -0400

...  
 168 omitted  
 File: `Sarin.txt`  
 Access: 2011-10-10 17:56:56.000000000 -0400  
 Modify: 2011-10-10 17:56:56.000000000 -0400  
 Change: 2011-10-10 17:56:56.000000000 -0400  
 File: `Sheliak.txt`  
 Access: 2011-10-10 17:56:56.000000000 -0400  
 Modify: 2011-10-10 17:56:56.000000000 -0400  
 Change: 2011-10-10 17:56:56.000000000 -0400  
 File: `Sirius.txt`  
 Access: 2011-10-10 17:56:56.000000000 -0400  
 Modify: 2011-10-10 17:56:56.000000000 -0400  
 Change: 2011-10-10 17:56:56.000000000 -0400  
 File: `Sulafat.txt`  
 Access: 2011-10-10 17:56:56.000000000 -0400  
 Modify: 2011-10-10 17:56:56.000000000 -0400  
 Change: 2011-10-10 17:56:56.000000000 -0400  
 File: `Tarf.txt`  
 Access: 2011-10-10 17:56:56.000000000 -0400  
 Modify: 2011-10-10 17:56:56.000000000 -0400  
 Change: 2011-10-10 17:56:56.000000000 -0400

File delete times:  
 Times: /Volumes/CFTT/df/df-setup/ntfs-delete-times.txt Case ext-08  
 ===== Run step 2 =====

ACTION (delete): Arcturus.txt Alnitak.txt Bellatrix.txt  
 ACTION (delete): Cujam.txt Canopus.txt Cursa.txt  
 ACTION (delete): Dschubba.txt El\_Nath.txt Eltanin.txt  
 ACTION (delete time): Mon Oct 10 17:51:14 EDT 2011  
 ACTION (delete): Albireo.txt Atlas.txt Betelgeuse.txt  
 ACTION (delete): Cursa.txt Capella.txt Cor\_Caroli.txt  
 ACTION (delete): Dziban.txt Electra.txt Er\_Rai.txt  
 ACTION (delete time): Mon Oct 10 17:51:15 EDT 2011  
 ACTION (delete): Graffias.txt Mintaka.txt Pollux.txt  
 ACTION (delete): Denebola.txt Aldebaran.txt Massim.txt  
 ACTION (delete time): Mon Oct 10 17:54:56 EDT 2011  
 ACTION (delete): Grumium.txt Mira.txt Procyon.txt  
 ACTION (delete): Diphda.txt Azha.txt Mimosa.txt  
 ACTION (delete time): Mon Oct 10 17:54:57 EDT 2011  
 ACTION (delete): Rigel.txt Shaula.txt Tarazed.txt Megrez.txt  
 ACTION (delete): Skat.txt Scheat.txt Schedar.txt  
 ACTION (delete): Alphard.txt Chara.txt Hadar.txt  
 ACTION (delete time): Mon Oct 10 17:58:47 EDT 2011  
 ACTION (delete): Rukbat.txt Sheliak.txt Tarf.txt Matar.txt  
 ACTION (delete): Sulafat.txt Sarin.txt Sirius.txt  
 ACTION (delete): Achemar.txt Cheleb.txt Heze.txt  
 ACTION (delete time): Mon Oct 10 17:58:48 EDT 2011

Steps to Create Image ext-08		
Step	Action	Files in Partition EXT2
1	create	Arcturus.txt Alphard.txt Aldebaran.txt Alnitak.txt Bellatrix.txt
1	create	Cujam.txt Canopus.txt Chara.txt Cursa.txt
1	create	Denebola.txt Dschubba.txt El_Nath.txt Eltanin.txt
1	create	Arcturus.txt Bellatrix.txt Cujam.txt Denebola.txt El_Nath.txt
2	delete	Albireo.txt Atlas.txt Betelgeuse.txt
2	delete	Cursa.txt Capella.txt Cor_Caroli.txt
2	delete	Dziban.txt Electra.txt Er_Rai.txt
3	delete	Graffias.txt Mintaka.txt Pollux.txt
3	delete	Denebola.txt Aldebaran.txt Massim.txt
4	create	Rukbat.txt Sheliak.txt Tarf.txt
4	create	Sulafat.txt Sarin.txt Sirius.txt
Step	Action	Files in Partition EXT3
1	create	Albireo.txt Achemar.txt Azha.txt Atlas.txt Betelgeuse.txt
1	create	Cursa.txt Capella.txt Cheleb.txt Cor_Caroli.txt
1	create	Diphda.txt Dziban.txt Electra.txt Er_Rai.txt
1	create	Albireo.txt Betelgeuse.txt Cursa.txt Diphda.txt Electra.txt
2	create	Graffias.txt Hadar.txt Pollux.txt

Steps to Create Image ext-08		
2	create	Mintaka.txt Megrez.txt Massim.txt
3	delete	Grumium.txt Mira.txt Procyon.txt
3	delete	Diphda.txt Azha.txt Mimosa.txt
4	delete	Rigel.txt Shaula.txt Tarazed.txt Megrez.txt
4	delete	Skat.txt Scheat.txt Schedar.txt
4	delete	Alphard.txt Chara.txt Hadar.txt
Step	Action	Files in Partition EXT4
1	delete	Arcturus.txt Alnitak.txt Bellatrix.txt
1	delete	Cujam.txt Canopus.txt Cursa.txt
1	delete	Dschubba.txt El_Nath.txt Eltanin.txt
2	create	Grumium.txt Heze.txt Procyon.txt
2	create	Mira.txt Matar.txt Mimosa.txt
3	create	Rigel.txt Shaula.txt Tarazed.txt
3	create	Skat.txt Scheat.txt Schedar.txt
4	delete	Rukbat.txt Sheliak.txt Tarf.txt Matar.txt
4	delete	Sulafat.txt Sarin.txt Sirius.txt
4	delete	Achemar.txt Cheleb.txt Heze.txt

50 overwrites

Albireo.txt x Matar.txt: overlap - 660454 - 660454  
 Aldebaran.txt x Shaula.txt: overlap - 7231 - 7231  
 Alnitak.txt x Mintaka.txt: overlap - 9279 - 9279  
 Alnitak.txt x Skat.txt: overlap - 9279 - 9279  
 Arcturus.txt x Megrez.txt: overlap - 1127 - 1127  
 Atlas.txt x Mira.txt: overlap - 652304 - 652304  
 Atlas.txt x Rukbat.txt: overlap - 652304 - 652304  
 Bellatrix.txt x Megrez.txt: overlap - 4159 - 4162  
 Bellatrix.txt x Pollux.txt: overlap - 4163 - 4174  
 Betelgeuse.txt x Procyon.txt: overlap - 663528 - 663541  
 Betelgeuse.txt x Sarin.txt: overlap - 663532 - 663532  
 Betelgeuse.txt x Sirius.txt: overlap - 663534 - 663534  
 Betelgeuse.txt x Sulafat.txt: overlap - 663530 - 663530  
 Betelgeuse.txt x Tarf.txt: overlap - 663528 - 663529  
 Canopus.txt x Megrez.txt: overlap - 3135 - 3136  
 Capella.txt x Procyon.txt: overlap - 662502 - 662503  
 Capella.txt x Tarf.txt: overlap - 662502 - 662503  
 Cor\_Caroli.txt x Matar.txt: overlap - 655334 - 655335  
 Cursa.txt x Hadar.txt: overlap - 12351 - 12352  
 Cursa.txt x Matar.txt: overlap - 659430 - 659431  
 Diphda.txt x Rukbat.txt: overlap - 661478 - 661479  
 Diphda.txt x Sheliak.txt: overlap - 661480 - 661480  
 Dschubba.txt x Graffias.txt: overlap - 8255 - 8258  
 Dschubba.txt x Tarazed.txt: overlap - 8255 - 8258  
 Dziban.txt x Mira.txt: overlap - 652300 - 652303  
 Dziban.txt x Rukbat.txt: overlap - 652302 - 652303  
 El\_Nath.txt x Massim.txt: overlap - 6211 - 6214  
 El\_Nath.txt x Pollux.txt: overlap - 6207 - 6210  
 El\_Nath.txt x Rigel.txt: overlap - 6207 - 6214  
 Electra.txt x Grumium.txt: overlap - 665574 - 665577  
 Electra.txt x Mimosa.txt: overlap - 665578 - 665581  
 Eltanin.txt x Hadar.txt: overlap - 11333 - 11334  
 Eltanin.txt x Mintaka.txt: overlap - 11327 - 11332  
 Eltanin.txt x Scheat.txt: overlap - 11327 - 11327  
 Eltanin.txt x Schedar.txt: overlap - 11329 - 11329  
 Er\_Rai.txt x Heze.txt: overlap - 654312 - 654315  
 Er\_Rai.txt x Matar.txt: overlap - 654316 - 654317  
 Er\_Rai.txt x Mira.txt: overlap - 654310 - 654311  
 Er\_Rai.txt x Rukbat.txt: overlap - 654310 - 654311  
 Graffias.txt x Tarazed.txt: overlap - 8255 - 8258  
 Massim.txt x Rigel.txt: overlap - 6211 - 6214  
 Mintaka.txt x Scheat.txt: overlap - 11327 - 11327  
 Mintaka.txt x Schedar.txt: overlap - 11329 - 11329  
 Mintaka.txt x Skat.txt: overlap - 9279 - 9279  
 Mira.txt x Rukbat.txt: overlap - 652302 - 652305, 654310 - 654311  
 Pollux.txt x Rigel.txt: overlap - 6207 - 6210  
 Procyon.txt x Sarin.txt: overlap - 663532 - 663532

Procyon.txt x Sirius.txt: overlap - 663534 - 663534  
 Procyon.txt x Sulafat.txt: overlap - 663530 - 663530  
 Procyon.txt x Tarf.txt: overlap - 662502 - 662503, 663528 - 663529

Duplicate name: cols[2]  
 File: Scheat.txt 1 1  
 File: Bellatrix.txt 16 0  
 File: Hadar.txt 4 4  
 File: Dziban.txt 4 0  
 File: Capella.txt 2 0  
 File: Procyon.txt 16 6  
 File: Tarf.txt 4 4  
 File: Canopus.txt 2 0  
 File: Atlas.txt 1 0  
 File: Eltanin.txt 8 0  
 File: Pollux.txt 16 12  
 ...  
 File: El\_Nath.txt 8 0  
 File: Schedar.txt 1 1  
 File: Mimosa.txt 4 4  
 File: Alphard.txt 1 1  
 File: Heze.txt 4 4  
 File: Cursa.txt 2 0  
 File: Betelgeuse.txt 16 0  
 File: Denebola.txt 4 2  
 File: Azha.txt 1 1  
 File: Sarin.txt 1 1  
 File: Mira.txt 8 0  
 Summary: 49 23 4 22

Metadata available  
 ext-08 Metadata found 26 files, not found 24, total 50 deleted files  
 Deleted files without metadata (cannot be found)

Albireo.txt	Aldebaran.txt	Arcturus.txt	Azha.txt
Bellatrix.txt	Betelgeuse.txt	Canopus.txt	Capella.txt
Cujam.txt	Denebola.txt	Diphda.txt	Dschubba.txt
Dziban.txt	El_Nath.txt	Electra.txt	Graffias.txt
Grumium.txt	Massim.txt	Mimosa.txt	Mintaka.txt
Mira.txt	Pollux.txt	Procyon.txt	

Layout History

Layout for Steps 1 through 4				
Sectors	Step 1	Step 2	Step 3	Step 4
1125 - 1126	Cujam	Cujam	metadata	metadata
1127 - 1127	Arcturus	Arcturus	Megrez	Megrez
1128 - 1128	metadata	metadata	Megrez	Megrez
2111 - 2112	Denebola	Denebola	Denebola	Denebola
2113 - 2114	Denebola	Denebola	Denebola	Denebola
3135 - 3136	Canopus	Canopus	Megrez	Megrez
4159 - 4162	Bellatrix	Bellatrix	Megrez	Megrez
4163 - 4174	Bellatrix	Bellatrix	Pollux	Pollux
5183 - 5183	Alphard	Alphard	Alphard	Alphard
6207 - 6210	El_Nath	El_Nath	Pollux	Pollux
6211 - 6214	El_Nath	El_Nath	Massim	Massim
7231 - 7231	Aldebaran	Aldebaran	Aldebaran	Aldebaran
8255 - 8258	Dschubba	Dschubba	Graffias	Graffias
9279 - 9279	Alnitak	Alnitak	Mintaka	Mintaka
9280 - 9280	metadata	metadata	Mintaka	Mintaka
10303 - 10304	Chara	Chara	Chara	Chara
11327 - 11327	Eltanin	Eltanin	Mintaka	Mintaka
11328 - 11328	Eltanin	Eltanin	Mintaka	Mintaka
11329 - 11329	Eltanin	Eltanin	Mintaka	Mintaka
11330 - 11330	Eltanin	Eltanin	Mintaka	Mintaka
11331 - 11332	Eltanin	Eltanin	Mintaka	Mintaka



<b>Layout for Steps 1 through 4</b>				
11333 - 11334	Eltanin	Eltanin	Hadar	Hadar
12351 - 12352	Cursa	Cursa	Hadar	Hadar
652300 - 652301	Dziban	Dziban	Mira	Mira
652302 - 652303	Dziban	Dziban	Mira	Mira
652304 - 652304	Atlas	Atlas	Mira	Mira
652305 - 652305	metadata	metadata	Mira	Mira
653286 - 653287	Cheleb	Cheleb	Cheleb	Cheleb
654310 - 654311	Er_Rai	Er_Rai	Mira	Mira
654312 - 654315	Er_Rai	Er_Rai	Heze	Heze
654316 - 654317	Er_Rai	Er_Rai	Matar	Matar
655334 - 655335	Cor_Caroli	Cor_Caroli	Matar	Matar
659430 - 659431	Cursa	Cursa	Matar	Matar
660454 - 660454	Albireo	Albireo	Matar	Matar
660455 - 660455	metadata	metadata	Matar	Matar
661478 - 661479	Diphda	Diphda	Diphda	Diphda
661480 - 661480	Diphda	Diphda	Diphda	Diphda
661481 - 661481	Diphda	Diphda	Diphda	Diphda
662502 - 662503	Capella	Capella	Procyon	Procyon
663526 - 663527	Betelgeuse	Betelgeuse	metadata	metadata
663528 - 663529	Betelgeuse	Betelgeuse	Procyon	Procyon
663530 - 663530	Betelgeuse	Betelgeuse	Procyon	Procyon
663531 - 663531	Betelgeuse	Betelgeuse	Procyon	Procyon
663532 - 663532	Betelgeuse	Betelgeuse	Procyon	Procyon
663533 - 663533	Betelgeuse	Betelgeuse	Procyon	Procyon
663534 - 663534	Betelgeuse	Betelgeuse	Procyon	Procyon
663535 - 663535	Betelgeuse	Betelgeuse	Procyon	Procyon
663536 - 663541	Betelgeuse	Betelgeuse	Procyon	Procyon
664550 - 664550	Achemar	Achemar	Achemar	Achemar
665574 - 665577	Electra	Electra	Grumium	Grumium
665578 - 665581	Electra	Electra	Mimosa	Mimosa
666598 - 666598	Azha	Azha	Azha	Azha

<b>Layout for Steps 5 through 5</b>	
Sectors	Step 5
1125 - 1126	metadata
1127 - 1127	Megrez
1128 - 1128	Megrez
2111 - 2112	metadata
2113 - 2114	Denebola
3135 - 3136	Megrez
4159 - 4162	Megrez
4163 - 4174	Pollux
5183 - 5183	Alphard
6207 - 6210	Rigel
6211 - 6214	Rigel
7231 - 7231	Shaula
8255 - 8258	Tarazed
9279 - 9279	Skat
9280 - 9280	metadata
10303 - 10304	Chara
11327 - 11327	Scheat
11328 - 11328	metadata
11329 - 11329	Schedar
11330 - 11330	metadata
11331 - 11332	Mintaka
11333 - 11334	Hadar
12351 - 12352	Hadar
652300 - 652301	metadata
652302 - 652303	Rukbat
652304 - 652304	Rukbat
652305 - 652305	Rukbat
653286 - 653287	Cheleb
654310 - 654311	Rukbat

Layout for Steps 5 through 5	
654312 - 654315	Heze
654316 - 654317	Matar
655334 - 655335	Matar
659430 - 659431	Matar
660454 - 660454	Matar
660455 - 660455	Matar
661478 - 661479	Rukbat
661480 - 661480	Sheliak
661481 - 661481	metadata
662502 - 662503	Tarf
663526 - 663527	metadata
663528 - 663529	Tarf
663530 - 663530	Sulafat
663531 - 663531	metadata
663532 - 663532	Sarin
663533 - 663533	metadata
663534 - 663534	Sirius
663535 - 663535	metadata
663536 - 663541	Procyon
664550 - 664550	Achemar
665574 - 665577	Grumium
665578 - 665581	Mimosa
666598 - 666598	Azha

Sector List	
Achemar.txt	664550 - 664550
Albireo.txt	660454 - 660454
Aldebaran.txt	7231 - 7231
Alnitak.txt	9279 - 9279
Alphard.txt	5183 - 5183
Arcturus.txt	1127 - 1127
Atlas.txt	652304 - 652304
Azha.txt	666598 - 666598
Bellatrix.txt	4159 - 4174
...	
32 omitted	
Scheat.txt	11327 - 11327
Schedar.txt	11329 - 11329
Shaula.txt	7231 - 7231
Sheliak.txt	661480 - 661480
Sirius.txt	663534 - 663534
Skat.txt	9279 - 9279
Sulafat.txt	663530 - 663530
Tarazed.txt	8255 - 8258
Tarf.txt	662502 - 662503, 663528 - 663529

## 14 Test Image ext-09

DFR-09. Recover large number of files no overwrite.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		61	651235	325587+	83	Linux
/dev/sdd2		651236	1302471	325618	83	Linux
/dev/sdd3		1302472	1953707	325618	83	Linux

780 files deleted

Deleted files (780)			
Name	Size	F-Hd	F-Bks

Deleted files (780)			
xB0000-3.txt	4096 (8+0)	1	7
xB0001-3.txt	4096 (8+0)	1	7
xB0002-3.txt	4096 (8+0)	1	7
xB0003-3.txt	4096 (8+0)	1	7
xB0004-3.txt	4096 (8+0)	1	7
xB0005-3.txt	4096 (8+0)	1	7
xB0006-3.txt	4096 (8+0)	1	7
xB0007-3.txt	4096 (8+0)	1	7
xB0008-3.txt	4096 (8+0)	1	7
xB0009-3.txt	4096 (8+0)	1	7
xB0010-3.txt	4096 (8+0)	1	7
xB0011-3.txt	4096 (8+0)	1	7
xB0012-3.txt	4096 (8+0)	1	7
xB0013-3.txt	4096 (8+0)	1	7
xB0014-3.txt	4096 (8+0)	1	7
xB0015-3.txt	4096 (8+0)	1	7
xB0016-3.txt	4096 (8+0)	1	7
xB0017-3.txt	4096 (8+0)	1	7
xB0018-3.txt	4096 (8+0)	1	7
xB0019-3.txt	4096 (8+0)	1	7
...			
740 omitted			
xB0240-5.txt	4096 (8+0)	1	7
xB0241-5.txt	4096 (8+0)	1	7
xB0242-5.txt	4096 (8+0)	1	7
xB0243-5.txt	4096 (8+0)	1	7
xB0244-5.txt	4096 (8+0)	1	7
xB0245-5.txt	4096 (8+0)	1	7
xB0246-5.txt	4096 (8+0)	1	7
xB0247-5.txt	4096 (8+0)	1	7
xB0248-5.txt	4096 (8+0)	1	7
xB0249-5.txt	4096 (8+0)	1	7
xB0250-5.txt	4096 (8+0)	1	7
xB0251-5.txt	4096 (8+0)	1	7
xB0252-5.txt	4096 (8+0)	1	7
xB0253-5.txt	4096 (8+0)	1	7
xB0254-5.txt	4096 (8+0)	1	7
xB0255-5.txt	4096 (8+0)	1	7
xB0256-5.txt	4096 (8+0)	1	7
xB0257-5.txt	4096 (8+0)	1	7
xB0258-5.txt	4096 (8+0)	1	7
xB0259-5.txt	4096 (8+0)	1	7

MAC times just before file deletion

File: `xB0000-3.txt'  
Access: 2011-10-09 18:25:29.000000000 -0400  
Modify: 2011-10-09 18:25:29.000000000 -0400  
Change: 2011-10-09 18:25:29.000000000 -0400  
File: `xB0001-3.txt'  
Access: 2011-10-09 18:25:29.000000000 -0400  
Modify: 2011-10-09 18:25:29.000000000 -0400  
Change: 2011-10-09 18:25:29.000000000 -0400  
File: `xB0002-3.txt'  
Access: 2011-10-09 18:25:29.000000000 -0400  
Modify: 2011-10-09 18:25:29.000000000 -0400  
Change: 2011-10-09 18:25:29.000000000 -0400  
File: `xB0003-3.txt'  
Access: 2011-10-09 18:25:29.000000000 -0400  
Modify: 2011-10-09 18:25:29.000000000 -0400  
Change: 2011-10-09 18:25:29.000000000 -0400  
File: `xB0004-3.txt'  
Access: 2011-10-09 18:25:29.000000000 -0400  
Modify: 2011-10-09 18:25:29.000000000 -0400  
Change: 2011-10-09 18:25:29.000000000 -0400

...  
 3080 omitted  
 File: `xB0255-5.txt'  
 Access: 2011-10-09 18:25:49.093316369 -0400  
 Modify: 2011-10-09 18:25:49.000000000 -0400  
 Change: 2011-10-09 18:25:49.871678642 -0400  
 File: `xB0256-5.txt'  
 Access: 2011-10-09 18:25:49.276052962 -0400  
 Modify: 2011-10-09 18:25:49.000000000 -0400  
 Change: 2011-10-09 18:25:49.132320023 -0400  
 File: `xB0257-5.txt'  
 Access: 2011-10-09 18:25:49.969575476 -0400  
 Modify: 2011-10-09 18:25:49.000000000 -0400  
 Change: 2011-10-09 18:25:49.764669842 -0400  
 File: `xB0258-5.txt'  
 Access: 2011-10-09 18:25:49.885133796 -0400  
 Modify: 2011-10-09 18:25:49.000000000 -0400  
 Change: 2011-10-09 18:25:49.200522444 -0400  
 File: `xB0259-5.txt'  
 Access: 2011-10-09 18:25:49.900208021 -0400  
 Modify: 2011-10-09 18:25:49.000000000 -0400  
 Change: 2011-10-09 18:25:49.870490014 -0400

File delete times:  
 Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ext-09  
 ===== Run step 2 =====  
 ACTION (delete): 260 files  
 ACTION (delete time): Sun Oct 9 18:27:30 EDT 2011  
 ACTION (delete): 260 files  
 ACTION (delete time): Sun Oct 9 18:27:31 EDT 2011  
 ACTION (delete): 260 files  
 ACTION (delete time): Sun Oct 9 18:27:32 EDT 2011

Steps to Create Image ext-09		
Step	Action	Files in Partition EXT2
1	create	260 files
2	delete	260 files
Step	Action	Files in Partition EXT3
1	create	260 files
2	delete	260 files
Step	Action	Files in Partition EXT4
1	create	260 files
2	delete	260 files

No overwrites

File: xB0195-5.txt 8 8  
 File: xB0247-3.txt 8 8  
 File: xB0171-4.txt 8 8  
 File: xB0183-5.txt 8 8  
 File: xB0080-3.txt 8 8  
 File: xB0179-3.txt 8 8  
 File: xB0047-4.txt 8 8  
 File: xB0046-4.txt 8 8  
 File: xB0081-3.txt 8 8  
 File: xB0231-4.txt 8 8  
 File: xB0048-3.txt 8 8  
 File: xB0146-3.txt 8 8  
 ...  
 File: xB0063-3.txt 8 8  
 File: xB0164-5.txt 8 8  
 File: xB0007-4.txt 8 8  
 File: xB0025-5.txt 8 8  
 File: xB0193-4.txt 8 8  
 File: xB0211-3.txt 8 8  
 File: xB0089-4.txt 8 8

File: xB0221-3.txt 8 8  
 File: xB0222-5.txt 8 8  
 File: xB0008-3.txt 8 8  
 File: xB0107-3.txt 8 8  
 Summary: 780 780 0 0

Metadata available

ext-09 Metadata found 766 files, not found 14, total 780 deleted files

Deleted files without metadata (cannot be found)

xB0023-3.txt        xB0054-5.txt        xB0074-3.txt        xB0106-5.txt  
 xB0113-4.txt        xB0116-5.txt        xB0125-3.txt        xB0175-4.txt  
 xB0176-3.txt        xB0178-4.txt        xB0211-5.txt        xB0227-3.txt  
 xB0244-4.txt        xB0257-5.txt

Layout History

Block map has more than 200 entries

Sector List	
Alpha	536639 - 536639, 818150 - 818150, 1597386 - 1597386
Omega	530503 - 530503, 827622 - 827622, 1597388 - 1597388
xB0000-3.txt	537663 - 537670
xB0000-4.txt	819174 - 819181
xB0000-5.txt	1597394 - 1597401
xB0001-3.txt	539711 - 539718
xB0001-4.txt	821222 - 821229
xB0001-5.txt	1597402 - 1597409
xB0002-3.txt	525375 - 525382
...	
764 omitted	
xB0257-3.txt	524875 - 524882
xB0257-4.txt	821478 - 821485
xB0257-5.txt	1599450 - 1599457
xB0258-3.txt	526407 - 526414
xB0258-4.txt	823526 - 823533
xB0258-5.txt	1599458 - 1599465
xB0259-3.txt	528455 - 528462
xB0259-4.txt	825574 - 825581
xB0259-5.txt	1599466 - 1599473

## 15 Test Image ext-10

DFR-10. Recover large number of files, with some overwritten.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		61	651235	325587+	83	Linux
/dev/sdd2		651236	1302471	325618	83	Linux
/dev/sdd3		1302472	1953707	325618	83	Linux

2340 files deleted

Deleted files (2340)			
Name	Size	F-Hd	F-Bks
xB0000-3.txt	4096 (8+0)	1	7
xB0001-3.txt	4096 (8+0)	1	7
xB0002-3.txt	4096 (8+0)	1	7
xB0003-3.txt	4096 (8+0)	1	7
xB0004-3.txt	4096 (8+0)	1	7
xB0005-3.txt	4096 (8+0)	1	7
xB0006-3.txt	4096 (8+0)	1	7
xB0007-3.txt	4096 (8+0)	1	7
xB0008-3.txt	4096 (8+0)	1	7

Deleted files (2340)			
xB0009-3.txt	4096 (8+0)	1	7
xB0010-3.txt	4096 (8+0)	1	7
xB0011-3.txt	4096 (8+0)	1	7
xB0012-3.txt	4096 (8+0)	1	7
xB0013-3.txt	4096 (8+0)	1	7
xB0014-3.txt	4096 (8+0)	1	7
xB0015-3.txt	4096 (8+0)	1	7
xB0016-3.txt	4096 (8+0)	1	7
xB0017-3.txt	4096 (8+0)	1	7
xB0018-3.txt	4096 (8+0)	1	7
xB0019-3.txt	4096 (8+0)	1	7
...			
2300 omitted			
xD0240-5.txt	4096 (8+0)	1	7
xD0241-5.txt	4096 (8+0)	1	7
xD0242-5.txt	4096 (8+0)	1	7
xD0243-5.txt	4096 (8+0)	1	7
xD0244-5.txt	4096 (8+0)	1	7
xD0245-5.txt	4096 (8+0)	1	7
xD0246-5.txt	4096 (8+0)	1	7
xD0247-5.txt	4096 (8+0)	1	7
xD0248-5.txt	4096 (8+0)	1	7
xD0249-5.txt	4096 (8+0)	1	7
xD0250-5.txt	4096 (8+0)	1	7
xD0251-5.txt	4096 (8+0)	1	7
xD0252-5.txt	4096 (8+0)	1	7
xD0253-5.txt	4096 (8+0)	1	7
xD0254-5.txt	4096 (8+0)	1	7
xD0255-5.txt	4096 (8+0)	1	7
xD0256-5.txt	4096 (8+0)	1	7
xD0257-5.txt	4096 (8+0)	1	7
xD0258-5.txt	4096 (8+0)	1	7
xD0259-5.txt	4096 (8+0)	1	7

MAC times just before file deletion

File: `xB0000-3.txt'  
Access: 2011-10-09 18:48:21.000000000 -0400  
Modify: 2011-10-09 18:48:21.000000000 -0400  
Change: 2011-10-09 18:48:21.000000000 -0400  
File: `xB0001-3.txt'  
Access: 2011-10-09 18:48:21.000000000 -0400  
Modify: 2011-10-09 18:48:21.000000000 -0400  
Change: 2011-10-09 18:48:21.000000000 -0400  
File: `xB0002-3.txt'  
Access: 2011-10-09 18:48:21.000000000 -0400  
Modify: 2011-10-09 18:48:21.000000000 -0400  
Change: 2011-10-09 18:48:21.000000000 -0400  
File: `xB0003-3.txt'  
Access: 2011-10-09 18:48:21.000000000 -0400  
Modify: 2011-10-09 18:48:21.000000000 -0400  
Change: 2011-10-09 18:48:21.000000000 -0400  
File: `xB0004-3.txt'  
Access: 2011-10-09 18:48:21.000000000 -0400  
Modify: 2011-10-09 18:48:21.000000000 -0400  
Change: 2011-10-09 18:48:21.000000000 -0400  
...  
9320 omitted  
File: `xD0255-5.txt'  
Access: 2011-10-09 18:50:03.000000000 -0400  
Modify: 2011-10-09 18:50:03.000000000 -0400  
Change: 2011-10-09 18:50:03.000000000 -0400  
File: `xD0256-5.txt'  
Access: 2011-10-09 18:50:03.000000000 -0400  
Modify: 2011-10-09 18:50:03.000000000 -0400  
Change: 2011-10-09 18:50:03.000000000 -0400

File: `xD0257-5.txt'  
 Access: 2011-10-09 18:50:03.000000000 -0400  
 Modify: 2011-10-09 18:50:03.000000000 -0400  
 Change: 2011-10-09 18:50:03.000000000 -0400  
 File: `xD0258-5.txt'  
 Access: 2011-10-09 18:50:03.000000000 -0400  
 Modify: 2011-10-09 18:50:03.000000000 -0400  
 Change: 2011-10-09 18:50:03.000000000 -0400  
 File: `xD0259-5.txt'  
 Access: 2011-10-09 18:50:03.660864548 -0400  
 Modify: 2011-10-09 18:50:03.000000000 -0400  
 Change: 2011-10-09 18:50:03.592846813 -0400

File delete times:  
 Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ext-10  
 ===== Run step 2 =====

ACTION (delete): 260 C files  
 ACTION (delete time): Sun Oct 9 18:52:11 EDT 2011  
 ACTION (delete): 260 C files  
 ACTION (delete time): Sun Oct 9 18:52:12 EDT 2011  
 ACTION (delete): 260 C files  
 ACTION (delete time): Sun Oct 9 18:52:13 EDT 2011  
 ACTION (delete): 260 B files  
 ACTION (delete time): Sun Oct 9 18:56:04 EDT 2011  
 ACTION (delete): 260 B files  
 ACTION (delete time): Sun Oct 9 18:56:05 EDT 2011  
 ACTION (delete): 260 B files  
 ACTION (delete time): Sun Oct 9 18:56:06 EDT 2011  
 ACTION (delete): 260 D files  
 ACTION (delete time): Sun Oct 9 19:00:05 EDT 2011  
 ACTION (delete): 260 D files  
 ACTION (delete time): Sun Oct 9 19:00:06 EDT 2011  
 ACTION (delete): 260 D files  
 ACTION (delete time): Sun Oct 9 19:00:08 EDT 2011

Steps to Create Image ext-10		
Step	Action	Files in Partition EXT2
1	create	260 B,C&D files
2	delete	260 C files
3	create	260 E files
4	delete	260 B files
5	create	260 F files
6	delete	260 D files
Step	Action	Files in Partition EXT3
1	create	260 B,C&D files
2	delete	260 C files
3	create	260 E files
4	delete	260 B files
5	create	260 F files
6	delete	260 D files
Step	Action	Files in Partition EXT4
1	create	260 B,C&D files
2	delete	260 C files
3	create	260 E files
4	delete	260 B files
5	create	260 F files
6	delete	260 D files

1451 overwrites  
 xB0000-3.txt x xF0010-3.txt: overlap - 585791 - 585798  
 xB0000-4.txt x xF0007-4.txt: overlap - 1071078 - 1071085  
 xB0000-5.txt x xF0000-5.txt: overlap - 1597394 - 1597401  
 xB0001-3.txt x xF0012-3.txt: overlap - 587839 - 587846  
 xB0001-4.txt x xF0009-4.txt: overlap - 1073126 - 1073133  
 xB0001-5.txt x xF0004-5.txt: overlap - 1597402 - 1597409  
 xB0002-3.txt x xF0014-3.txt: overlap - 574019 - 574026

xB0002-4.txt x xF0011-4.txt: overlap - 1075174 - 1075181  
xB0002-5.txt x xF0005-5.txt: overlap - 1597410 - 1597417  
xB0003-3.txt x xF0000-3.txt: overlap - 575551 - 575558  
xB0003-4.txt x xF0013-4.txt: overlap - 1061872 - 1061879  
xB0003-5.txt x xF0014-5.txt: overlap - 1597418 - 1597425  
xB0004-3.txt x xF0002-3.txt: overlap - 577599 - 577606  
xB0004-4.txt x xF0000-4.txt: overlap - 1062886 - 1062893  
xB0004-5.txt x xF0015-5.txt: overlap - 1597426 - 1597433  
xB0005-3.txt x xF0004-3.txt: overlap - 579647 - 579654  
xB0005-4.txt x xF0001-4.txt: overlap - 1064934 - 1064941  
xB0005-5.txt x xF0016-5.txt: overlap - 1597434 - 1597441  
xB0006-3.txt x xF0006-3.txt: overlap - 581695 - 581702  
xB0006-4.txt x xF0003-4.txt: overlap - 1066982 - 1066989  
xB0006-5.txt x xF0017-5.txt: overlap - 1597442 - 1597449  
xB0007-3.txt x xF0008-3.txt: overlap - 583745 - 583752  
xB0007-4.txt x xF0005-4.txt: overlap - 1069032 - 1069039  
xB0007-5.txt x xF0034-5.txt: overlap - 1597450 - 1597457  
xB0008-3.txt x xF0011-3.txt: overlap - 585799 - 585806  
xB0008-4.txt x xF0008-4.txt: overlap - 1071086 - 1071093  
xB0008-5.txt x xF0035-5.txt: overlap - 1597458 - 1597465  
xB0009-3.txt x xF0013-3.txt: overlap - 587847 - 587854  
xB0009-4.txt x xF0010-4.txt: overlap - 1073134 - 1073141  
xB0009-5.txt x xF0036-5.txt: overlap - 1597466 - 1597473  
xB0010-3.txt x xF0015-3.txt: overlap - 574027 - 574034  
xB0010-4.txt x xF0012-4.txt: overlap - 1075182 - 1075189  
xB0010-5.txt x xF0037-5.txt: overlap - 1597474 - 1597481  
xB0011-3.txt x xF0001-3.txt: overlap - 575559 - 575566  
xB0011-4.txt x xF0014-4.txt: overlap - 1061880 - 1061887  
xB0011-5.txt x xF0038-5.txt: overlap - 1597482 - 1597489  
xB0012-3.txt x xF0003-3.txt: overlap - 577607 - 577614  
xB0012-4.txt x xF0016-4.txt: overlap - 1062894 - 1062901  
xB0012-5.txt x xF0039-5.txt: overlap - 1597490 - 1597497  
xB0013-3.txt x xF0005-3.txt: overlap - 579655 - 579662  
xB0013-4.txt x xF0002-4.txt: overlap - 1064942 - 1064949  
xB0013-5.txt x xF0040-5.txt: overlap - 1597498 - 1597505  
xB0014-3.txt x xF0007-3.txt: overlap - 581703 - 581710  
xB0014-4.txt x xF0004-4.txt: overlap - 1066990 - 1066997  
xB0014-5.txt x xF0041-5.txt: overlap - 1597506 - 1597513  
xB0015-3.txt x xF0009-3.txt: overlap - 583753 - 583760  
xB0015-4.txt x xF0006-4.txt: overlap - 1069040 - 1069047  
xB0015-5.txt x xF0050-5.txt: overlap - 1597514 - 1597521  
xB0016-3.txt x xF0026-3.txt: overlap - 585807 - 585814  
xB0016-4.txt x xF0023-4.txt: overlap - 1071094 - 1071101  
...  
xC0243-5.txt x xE0242-5.txt: overlap - 1603362 - 1603369  
xC0244-3.txt x xE0244-3.txt: overlap - 581087 - 581094  
xC0244-4.txt x xE0241-4.txt: overlap - 1064222 - 1064229  
xC0244-5.txt x xE0243-5.txt: overlap - 1603378 - 1603385  
xC0245-3.txt x xE0248-3.txt: overlap - 585199 - 585206  
xC0245-4.txt x xE0244-4.txt: overlap - 1068318 - 1068325  
xC0245-5.txt x xE0244-5.txt: overlap - 1603394 - 1603401  
xC0246-3.txt x xE0252-3.txt: overlap - 589295 - 589302  
xC0246-4.txt x xE0248-4.txt: overlap - 1072422 - 1072429  
xC0246-5.txt x xE0245-5.txt: overlap - 1603410 - 1603417  
xC0247-3.txt x xE0241-3.txt: overlap - 577007 - 577014  
xC0247-4.txt x xE0252-4.txt: overlap - 1076518 - 1076525  
xC0247-5.txt x xE0246-5.txt: overlap - 1603426 - 1603433  
xC0248-3.txt x xE0245-3.txt: overlap - 581095 - 581102  
xC0248-4.txt x xE0242-4.txt: overlap - 1064230 - 1064237  
xC0248-5.txt x xE0247-5.txt: overlap - 1603442 - 1603449  
xC0249-3.txt x xE0249-3.txt: overlap - 585207 - 585214  
xC0249-4.txt x xE0245-4.txt: overlap - 1068326 - 1068333  
xC0249-5.txt x xE0248-5.txt: overlap - 1603458 - 1603465  
xC0250-3.txt x xE0253-3.txt: overlap - 589303 - 589310  
xC0250-4.txt x xE0249-4.txt: overlap - 1072430 - 1072437  
xC0250-5.txt x xE0249-5.txt: overlap - 1603474 - 1603481  
xC0251-3.txt x xE0242-3.txt: overlap - 577015 - 577022  
xC0251-4.txt x xE0253-4.txt: overlap - 1076526 - 1076533  
xC0251-5.txt x xE0250-5.txt: overlap - 1603490 - 1603497



xC0252-3.txt x xE0246-3.txt: overlap - 581103 - 581110  
xC0252-4.txt x xE0255-4.txt: overlap - 1064238 - 1064245  
xC0252-5.txt x xE0251-5.txt: overlap - 1603506 - 1603513  
xC0253-3.txt x xE0250-3.txt: overlap - 585215 - 585222  
xC0253-4.txt x xE0246-4.txt: overlap - 1068334 - 1068341  
xC0253-5.txt x xE0252-5.txt: overlap - 1603522 - 1603529  
xC0254-3.txt x xE0254-3.txt: overlap - 589311 - 589318  
xC0254-4.txt x xE0250-4.txt: overlap - 1072438 - 1072445  
xC0254-5.txt x xE0253-5.txt: overlap - 1603538 - 1603545  
xC0255-3.txt x xE0255-3.txt: overlap - 577023 - 577030  
xC0255-4.txt x xE0254-4.txt: overlap - 1076534 - 1076541  
xC0255-5.txt x xE0254-5.txt: overlap - 1603554 - 1603561  
xC0256-3.txt x xE0257-3.txt: overlap - 581111 - 581118  
xC0256-4.txt x xE0256-4.txt: overlap - 1064246 - 1064253  
xC0256-5.txt x xE0255-5.txt: overlap - 1603570 - 1603577  
xC0257-3.txt x xE0258-3.txt: overlap - 585223 - 585230  
xC0257-4.txt x xE0257-4.txt: overlap - 1068342 - 1068349  
xC0257-5.txt x xE0256-5.txt: overlap - 1603586 - 1603593  
xC0258-3.txt x xE0259-3.txt: overlap - 589319 - 589326  
xC0258-4.txt x xE0258-4.txt: overlap - 1072448 - 1072453  
xC0258-5.txt x xE0257-5.txt: overlap - 1603602 - 1603609  
xC0259-3.txt x xE0256-3.txt: overlap - 577031 - 577038  
xC0259-4.txt x xE0258-4.txt: overlap - 1076542 - 1076543  
xC0259-4.txt x xE0259-4.txt: overlap - 1076544 - 1076549  
xC0259-5.txt x xE0258-5.txt: overlap - 1603618 - 1603625

File: xC0151-4.txt 8 0  
File: xD0052-3.txt 8 8  
File: xB0247-3.txt 8 0  
File: xD0109-3.txt 8 8  
File: xB0195-5.txt 8 8  
File: xC0058-5.txt 8 0  
File: xC0115-4.txt 8 0  
File: xD0083-5.txt 8 8  
File: xB0023-3.txt 8 0  
File: xC0104-4.txt 8 0  
File: xB0081-3.txt 8 0  
File: xD0090-4.txt 8 8  
...  
File: xB0211-5.txt 8 8  
File: xB0025-5.txt 8 0  
File: xD0006-4.txt 8 8  
File: xC0120-5.txt 8 0  
File: xC0071-5.txt 8 0  
File: xC0025-4.txt 8 0  
File: xC0178-4.txt 8 0  
File: xC0122-3.txt 8 0  
File: xD0116-3.txt 8 8  
File: xB0068-4.txt 8 0  
File: xB0107-3.txt 8 0  
Summary: 2340 908 1 1431

Metadata available

ext-10 Metadata found 1757 files, not found 583, total 2340 deleted files

Deleted files without metadata (cannot be found)

xB0000-3.txt	xB0001-3.txt	xB0002-3.txt	xB0003-3.txt
xB0004-3.txt	xB0005-3.txt	xB0005-5.txt	xB0006-3.txt
xB0007-3.txt	xB0008-3.txt	xB0009-3.txt	xB0010-3.txt
xB0011-3.txt	xB0012-3.txt	xB0013-3.txt	xB0014-3.txt
xB0015-3.txt	xB0016-3.txt	xB0017-3.txt	xB0018-3.txt
xB0019-3.txt	xB0020-3.txt	xB0021-3.txt	xB0022-3.txt
xB0023-3.txt	xB0023-4.txt	xB0024-3.txt	xB0025-3.txt
xB0026-3.txt	xB0027-3.txt	xB0028-3.txt	xB0029-3.txt
xB0030-3.txt	xB0031-3.txt	xB0032-3.txt	xB0033-3.txt
xB0034-3.txt	xB0035-3.txt	xB0036-3.txt	xB0037-3.txt
xB0038-3.txt	xB0039-3.txt	xB0040-3.txt	xB0041-3.txt
xB0042-3.txt	xB0043-3.txt	xB0044-3.txt	xB0045-3.txt

xB0046-3.txt	xB0047-3.txt	xB0048-3.txt	xB0049-3.txt
xB0050-3.txt	xB0050-4.txt	xB0051-3.txt	xB0052-3.txt
xB0053-3.txt	xB0054-3.txt	xB0055-3.txt	xB0056-3.txt
xB0057-3.txt	xB0058-3.txt	xB0059-3.txt	xB0060-3.txt
xB0061-3.txt	xB0062-3.txt	xB0063-3.txt	xB0064-3.txt
xB0064-4.txt	xB0065-3.txt	xB0065-4.txt	xB0066-3.txt
xB0067-3.txt	xB0068-3.txt	xB0069-3.txt	xB0070-3.txt
xB0071-3.txt	xB0072-3.txt	xB0073-3.txt	xB0074-3.txt
xB0075-3.txt	xB0076-3.txt	xB0076-4.txt	xB0077-3.txt
xB0077-4.txt	xB0078-3.txt	xB0079-3.txt	xB0080-3.txt
xB0081-3.txt	xB0082-3.txt	xB0083-3.txt	xB0084-3.txt
xB0084-4.txt	xB0085-3.txt	xB0086-3.txt	xB0087-3.txt
xB0088-3.txt	xB0089-3.txt	xB0090-3.txt	xB0090-4.txt
xB0091-3.txt	xB0091-4.txt	xB0092-3.txt	xB0093-3.txt
xB0094-3.txt	xB0094-4.txt	xB0095-3.txt	xB0096-3.txt
xB0097-3.txt	xB0098-3.txt	xB0099-3.txt	xB0100-3.txt
xB0100-4.txt	xB0101-3.txt	xB0102-3.txt	xB0103-3.txt
xB0104-3.txt	xB0105-3.txt	xB0106-3.txt	xB0107-3.txt
xB0108-3.txt	xB0109-3.txt	xB0110-3.txt	xB0111-3.txt
xB0112-3.txt	xB0113-3.txt	xB0113-5.txt	xB0114-3.txt
xB0115-3.txt	xB0115-4.txt	xB0116-3.txt	xB0117-3.txt
xB0118-3.txt	xB0119-3.txt	xB0120-3.txt	xB0121-3.txt
xB0122-3.txt	xB0123-3.txt	xB0124-3.txt	xB0125-3.txt
xB0126-3.txt	xB0126-5.txt	xB0127-3.txt	xB0128-3.txt
xB0129-3.txt	xB0130-3.txt	xB0131-3.txt	xB0131-4.txt
xB0132-3.txt	xB0133-3.txt	xB0134-3.txt	xB0135-3.txt
xB0136-3.txt	xB0137-3.txt	xB0138-3.txt	xB0139-3.txt
xB0140-3.txt	xB0141-3.txt	xB0142-3.txt	xB0143-3.txt
xB0143-4.txt	xB0144-3.txt	xB0145-3.txt	xB0146-3.txt
xB0147-3.txt	xB0148-3.txt	xB0149-3.txt	xB0150-3.txt
xB0151-3.txt	xB0151-4.txt	xB0152-3.txt	xB0153-3.txt
xB0154-3.txt	xB0155-3.txt	xB0156-3.txt	xB0157-3.txt
xB0158-3.txt	xB0159-3.txt	xB0160-3.txt	xB0161-3.txt
xB0162-3.txt	xB0163-3.txt	xB0164-3.txt	xB0165-3.txt
xB0166-3.txt	xB0167-3.txt	xB0168-3.txt	xB0169-3.txt
xB0170-3.txt	xB0171-3.txt	xB0172-3.txt	xB0173-3.txt
xB0174-3.txt	xB0175-3.txt	xB0176-3.txt	xB0177-3.txt
xB0178-3.txt	xB0179-3.txt	xB0180-3.txt	xB0181-3.txt
xB0182-3.txt	xB0183-3.txt	xB0184-3.txt	xB0185-3.txt
xB0186-3.txt	xB0186-4.txt	xB0187-3.txt	xB0187-4.txt
xB0188-3.txt	xB0189-3.txt	xB0190-3.txt	xB0191-3.txt
xB0192-3.txt	xB0193-3.txt	xB0193-4.txt	xB0194-3.txt
xB0195-3.txt	xB0196-3.txt	xB0197-3.txt	xB0198-3.txt
xB0199-3.txt	xB0200-3.txt	xB0201-3.txt	xB0202-3.txt
xB0203-3.txt	xB0204-3.txt	xB0205-3.txt	xB0206-3.txt
xB0207-3.txt	xB0208-3.txt	xB0209-3.txt	xB0210-3.txt
xB0211-3.txt	xB0212-3.txt	xB0213-3.txt	xB0214-3.txt
xB0215-3.txt	xB0216-3.txt	xB0217-3.txt	xB0218-3.txt
xB0219-3.txt	xB0220-3.txt	xB0221-3.txt	xB0222-3.txt
xB0223-3.txt	xB0224-3.txt	xB0225-3.txt	xB0226-3.txt
xB0227-3.txt	xB0227-4.txt	xB0228-3.txt	xB0229-3.txt
xB0230-3.txt	xB0231-3.txt	xB0232-3.txt	xB0233-3.txt
xB0234-3.txt	xB0235-3.txt	xB0236-3.txt	xB0237-3.txt
xB0238-3.txt	xB0239-3.txt	xB0240-3.txt	xB0241-3.txt
xB0242-3.txt	xB0243-3.txt	xB0243-4.txt	xB0244-3.txt
xB0245-3.txt	xB0246-3.txt	xB0247-3.txt	xB0248-3.txt
xB0248-4.txt	xB0249-3.txt	xB0250-3.txt	xB0251-3.txt
xB0252-3.txt	xB0253-3.txt	xB0254-3.txt	xB0255-3.txt
xB0256-3.txt	xB0257-3.txt	xB0258-3.txt	xB0259-3.txt
xC0000-3.txt	xC0001-3.txt	xC0002-3.txt	xC0003-3.txt
xC0004-3.txt	xC0005-3.txt	xC0006-3.txt	xC0007-3.txt
xC0008-3.txt	xC0009-3.txt	xC0009-4.txt	xC0010-3.txt
xC0011-3.txt	xC0012-3.txt	xC0013-3.txt	xC0014-3.txt
xC0015-3.txt	xC0016-3.txt	xC0017-3.txt	xC0017-4.txt
xC0018-3.txt	xC0018-4.txt	xC0019-3.txt	xC0019-4.txt
xC0020-3.txt	xC0021-3.txt	xC0022-3.txt	xC0023-3.txt
xC0023-4.txt	xC0024-3.txt	xC0025-3.txt	xC0026-3.txt
xC0027-3.txt	xC0028-3.txt	xC0029-3.txt	xC0030-3.txt
xC0031-3.txt	xC0032-3.txt	xC0033-3.txt	xC0034-3.txt

xC0035-3.txt	xC0035-4.txt	xC0036-3.txt	xC0037-3.txt
xC0038-3.txt	xC0039-3.txt	xC0040-3.txt	xC0041-3.txt
xC0042-3.txt	xC0043-3.txt	xC0044-3.txt	xC0045-3.txt
xC0046-3.txt	xC0047-3.txt	xC0048-3.txt	xC0049-3.txt
xC0049-4.txt	xC0050-3.txt	xC0051-3.txt	xC0052-3.txt
xC0053-3.txt	xC0054-3.txt	xC0055-3.txt	xC0056-3.txt
xC0057-3.txt	xC0058-3.txt	xC0059-3.txt	xC0060-3.txt
xC0061-3.txt	xC0062-3.txt	xC0063-3.txt	xC0064-3.txt
xC0065-3.txt	xC0066-3.txt	xC0067-3.txt	xC0067-5.txt
xC0068-3.txt	xC0069-3.txt	xC0070-3.txt	xC0071-3.txt
xC0071-4.txt	xC0072-3.txt	xC0073-3.txt	xC0074-3.txt
xC0075-3.txt	xC0076-3.txt	xC0077-3.txt	xC0078-3.txt
xC0079-3.txt	xC0079-4.txt	xC0079-5.txt	xC0080-3.txt
xC0081-3.txt	xC0082-3.txt	xC0083-3.txt	xC0084-3.txt
xC0085-3.txt	xC0086-3.txt	xC0087-3.txt	xC0088-3.txt
xC0089-3.txt	xC0090-3.txt	xC0090-5.txt	xC0091-3.txt
xC0092-3.txt	xC0093-3.txt	xC0094-3.txt	xC0095-3.txt
xC0096-3.txt	xC0097-3.txt	xC0098-3.txt	xC0098-5.txt
xC0099-3.txt	xC0100-3.txt	xC0101-3.txt	xC0102-3.txt
xC0103-3.txt	xC0104-3.txt	xC0105-3.txt	xC0106-3.txt
xC0107-3.txt	xC0108-3.txt	xC0109-3.txt	xC0110-3.txt
xC0111-3.txt	xC0112-3.txt	xC0113-3.txt	xC0114-3.txt
xC0115-3.txt	xC0116-3.txt	xC0117-3.txt	xC0118-3.txt
xC0119-3.txt	xC0120-3.txt	xC0121-3.txt	xC0122-3.txt
xC0123-3.txt	xC0124-3.txt	xC0125-3.txt	xC0126-3.txt
xC0127-3.txt	xC0128-3.txt	xC0129-3.txt	xC0130-3.txt
xC0131-3.txt	xC0132-3.txt	xC0133-3.txt	xC0134-3.txt
xC0135-3.txt	xC0136-3.txt	xC0137-3.txt	xC0138-3.txt
xC0139-3.txt	xC0140-3.txt	xC0141-3.txt	xC0142-3.txt
xC0143-3.txt	xC0144-3.txt	xC0145-3.txt	xC0146-3.txt
xC0146-4.txt	xC0147-3.txt	xC0148-3.txt	xC0149-3.txt
xC0150-3.txt	xC0151-3.txt	xC0152-3.txt	xC0153-3.txt
xC0154-3.txt	xC0155-3.txt	xC0156-3.txt	xC0157-3.txt
xC0158-3.txt	xC0159-3.txt	xC0160-3.txt	xC0161-3.txt
xC0162-3.txt	xC0163-3.txt	xC0164-3.txt	xC0165-3.txt
xC0166-3.txt	xC0167-3.txt	xC0168-3.txt	xC0169-3.txt
xC0170-3.txt	xC0171-3.txt	xC0172-3.txt	xC0173-3.txt
xC0174-3.txt	xC0175-3.txt	xC0176-3.txt	xC0177-3.txt
xC0178-3.txt	xC0179-3.txt	xC0180-3.txt	xC0181-3.txt
xC0182-3.txt	xC0183-3.txt	xC0183-5.txt	xC0184-3.txt
xC0185-3.txt	xC0186-3.txt	xC0187-3.txt	xC0188-3.txt
xC0189-3.txt	xC0190-3.txt	xC0191-3.txt	xC0192-3.txt
xC0193-3.txt	xC0194-3.txt	xC0195-3.txt	xC0196-3.txt
xC0196-4.txt	xC0197-3.txt	xC0198-3.txt	xC0199-3.txt
xC0200-3.txt	xC0200-4.txt	xC0201-3.txt	xC0202-3.txt
xC0203-3.txt	xC0204-3.txt	xC0205-3.txt	xC0206-3.txt
xC0206-4.txt	xC0207-3.txt	xC0208-3.txt	xC0209-3.txt
xC0210-3.txt	xC0211-3.txt	xC0212-3.txt	xC0212-4.txt
xC0213-3.txt	xC0214-3.txt	xC0215-3.txt	xC0216-3.txt
xC0217-3.txt	xC0217-4.txt	xC0218-3.txt	xC0219-3.txt
xC0219-4.txt	xC0220-3.txt	xC0220-4.txt	xC0221-3.txt
xC0221-4.txt	xC0222-3.txt	xC0223-3.txt	xC0223-4.txt
xC0224-3.txt	xC0225-3.txt	xC0226-3.txt	xC0227-3.txt
xC0228-3.txt	xC0229-3.txt	xC0230-3.txt	xC0231-3.txt
xC0232-3.txt	xC0233-3.txt	xC0234-3.txt	xC0235-3.txt
xC0236-3.txt	xC0236-5.txt	xC0237-3.txt	xC0238-3.txt
xC0239-3.txt	xC0240-3.txt	xC0241-3.txt	xC0242-3.txt
xC0243-3.txt	xC0244-3.txt	xC0245-3.txt	xC0246-3.txt
xC0247-3.txt	xC0247-4.txt	xC0248-3.txt	xC0249-3.txt
xC0250-3.txt	xC0251-3.txt	xC0252-3.txt	xC0253-3.txt
xC0254-3.txt	xC0255-3.txt	xC0256-3.txt	xC0257-3.txt
xC0258-3.txt	xC0259-3.txt	xC0259-5.txt	xD0031-5.txt
xD0034-3.txt	xD0085-3.txt	xD0106-5.txt	xD0136-3.txt
xD0157-4.txt	xD0177-4.txt	xD0184-4.txt	xD0187-3.txt
xD0238-3.txt	xD0243-5.txt	xD0247-5.txt	

Layout History  
Block map has more than 200 entries

Sector List	
Alpha	584767 - 584774, 1070054 - 1070061, 1597386 - 1597393
Omega	581119 - 581126, 1064254 - 1064261, 1603634 - 1603641
xB0000-3.txt	585791 - 585798
xB0000-4.txt	1071078 - 1071085
xB0000-5.txt	1597394 - 1597401
xB0001-3.txt	587839 - 587846
xB0001-4.txt	1073126 - 1073133
xB0001-5.txt	1597402 - 1597409
xB0002-3.txt	574019 - 574026
...	
3884 omitted	
xF0257-3.txt	586047 - 586054
xF0257-4.txt	1071334 - 1071341
xF0257-5.txt	1604162 - 1604169
xF0258-3.txt	588095 - 588102
xF0258-4.txt	1073384 - 1073389, 1075430 - 1075431
xF0258-5.txt	1604170 - 1604177
xF0259-3.txt	574275 - 574282
xF0259-4.txt	1075432 - 1075437
xF0259-5.txt	1604178 - 1604185

## 16 Test Image ext-11

DFR-11. Recover one non-fragmented directory.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1	61	651235	325587+	83	Linux	
/dev/sdd2	651236	1302471	325618	83	Linux	
/dev/sdd3	1302472	1953707	325618	83	Linux	

9 files deleted

Deleted files (9)			
Name	Size	F-Hd	F-Bks
Betelguese.txt	8192 (16+0)	1	15
Mintaka.txt	8192 (16+0)	1	15
Rigel.txt	8192 (16+0)	1	15
Adhil.txt	8192 (16+0)	1	15
Alpheratz.txt	8192 (16+0)	1	15
Mirach.txt	8192 (16+0)	1	15
Sheliak.txt	8192 (16+0)	1	15
Sulafat.txt	8192 (16+0)	1	15
Vega.txt	8192 (16+0)	1	15

MAC times just before file deletion

File: `Orion/Betelguese.txt`

Access: 1999-01-02 03:04:00.000000000 -0500

Modify: 2000-02-29 13:15:00.000000000 -0500

Change: 2011-10-09 19:19:10.000000000 -0400

File: `Orion/Mintaka.txt`

Access: 1999-01-02 03:04:00.000000000 -0500

Modify: 2000-02-29 13:15:00.000000000 -0500

Change: 2011-10-09 19:19:10.000000000 -0400

File: `Orion/Rigel.txt`

Access: 1999-01-02 03:04:00.000000000 -0500

Modify: 2000-02-29 13:15:00.000000000 -0500

Change: 2011-10-09 19:19:10.000000000 -0400

File: `Andromeda/Adhil.txt`

Access: 1999-01-02 03:04:00.000000000 -0500

Modify: 2000-02-29 13:15:00.000000000 -0500

Change: 2011-10-09 19:19:10.000000000 -0400  
 File: `Andromeda/Alpheratz.txt'  
 Access: 1999-01-02 03:04:00.000000000 -0500  
 Modify: 2000-02-29 13:15:00.000000000 -0500  
 Change: 2011-10-09 19:19:10.000000000 -0400  
 File: `Andromeda/Mirach.txt'  
 Access: 1999-01-02 03:04:00.000000000 -0500  
 Modify: 2000-02-29 13:15:00.000000000 -0500  
 Change: 2011-10-09 19:19:10.000000000 -0400  
 File: `Lyra/Sheliak.txt'  
 Access: 1999-01-02 03:04:00.853910358 -0500  
 Modify: 2000-02-29 13:15:00.008548117 -0500  
 Change: 2011-10-09 19:19:11.010547657 -0400  
 File: `Lyra/Sulafat.txt'  
 Access: 1999-01-02 03:04:00.854910334 -0500  
 Modify: 2000-02-29 13:15:00.499051643 -0500  
 Change: 2011-10-09 19:19:11.500051412 -0400  
 File: `Lyra/Vega.txt'  
 Access: 1999-01-02 03:04:00.853910358 -0500  
 Modify: 2000-02-29 13:15:00.449526855 -0500  
 Change: 2011-10-09 19:19:11.450526625 -0400

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ext-11  
 ===== Run step 3 =====

ACTION (delete): Rigel.txt Mintaka.txt Betelguese.txt  
 ACTION (delete time): Sun Oct 9 19:21:01 EDT 2011  
 ACTION (delete): Alpheratz.txt Mirach.txt Adhil.txt  
 ACTION (delete time): Sun Oct 9 19:21:02 EDT 2011  
 ACTION (delete): Sheliak.txt Vega.txt Sulafat.txt  
 ACTION (delete time): Sun Oct 9 19:21:02 EDT 2011

Steps to Create Image ext-11		
Step	Action	Files in Partition EXT2
1	mkdir	Ursa_Major Orion Draco
1	create	Alcor.txt Mizar.txt Dubhe.txt
1	create	Rigel.txt Mintaka.txt Betelguese.txt
1	create	Rastaban.txt Thuban.txt Tyl.txt
2	set date/time	Orion Rigel.txt Mintaka.txt Betelguese.txt
3	delete	Rigel.txt Mintaka.txt Betelguese.txt
3	rmdir	Orion
Step	Action	Files in Partition EXT3
1	mkdir	Bootes Andromeda Auriga
1	create	Archurus.txt Mirak.txt Nekkar.txt
1	create	Alpheratz.txt Mirach.txt Adhil.txt
1	create	Capella.txt Maaz.txt Sadatoni.txt
2	set date/time	Andromeda Alpheratz.txt Mirach.txt Adhil.txt
3	delete	Alpheratz.txt Mirach.txt Adhil.txt
3	rmdir	Andromeda
Step	Action	Files in Partition EXT4
1	mkdir	Cygnus Lyra Sagittarius
1	create	Albireo.txt Deneb.txt Sadr.txt
1	create	Sheliak.txt Vega.txt Sulafat.txt
1	create	Rukbat.txt Elnasl.txt Nunki.txt
2	set date/time	Lyra Sheliak.txt Vega.txt Sulafat.txt
3	delete	Sheliak.txt Vega.txt Sulafat.txt
3	rmdir	Lyra

No overwrites

File: Rigel.txt 16 16  
 File: Adhil.txt 16 16  
 File: Betelguese.txt 16 16  
 File: Vega.txt 16 16  
 File: Alpheratz.txt 16 16

File: Mintaka.txt 16 16  
 File: Sulafat.txt 16 16  
 File: Mirach.txt 16 16  
 File: Sheliak.txt 16 16  
 Summary: 9 9 0 0

Metadata available  
 ext-11 Metadata found 9 files, not found 0, total 9 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2
45119 - 45134	Ursa_Major/Alcor	Ursa_Major/Alcor
46143 - 46158	Ursa_Major/Mizar	Ursa_Major/Mizar
47167 - 47182	Ursa_Major/Dubhe	Ursa_Major/Dubhe
201791 - 201806	Draco/Rastaban	Draco/Rastaban
202815 - 202830	Draco/Thuban	Draco/Thuban
203839 - 203854	Draco/Tyl	Draco/Tyl
311873 - 311888	Orion/Mintaka	Orion/Mintaka
312383 - 312398	Orion/Betelguese	Orion/Betelguese
326719 - 326734	Orion/Rigel	Orion/Rigel
1028584 - 1028599	Auriga/Maaz	Auriga/Maaz
1029094 - 1029109	Auriga/Sadatoni	Auriga/Sadatoni
1043430 - 1043445	Auriga/Capella	Auriga/Capella
1050598 - 1050613	Bootes/Archturus	Bootes/Archturus
1051622 - 1051637	Bootes/Mirak	Bootes/Mirak
1052646 - 1052661	Bootes/Nekkar	Bootes/Nekkar
1135590 - 1135605	Andromeda/Alpheratz	Andromeda/Alpheratz
1136614 - 1136629	Andromeda/Mirach	Andromeda/Mirach
1137638 - 1137653	Andromeda/Adhil	Andromeda/Adhil
1319386 - 1319401	Sagittarius/Rukbat	Sagittarius/Rukbat
1319402 - 1319417	Sagittarius/Elnasl	Sagittarius/Elnasl
1319418 - 1319433	Sagittarius/Nunki	Sagittarius/Nunki
1597386 - 1597401	Cygnus/Albireo	Cygnus/Albireo
1597402 - 1597417	Cygnus/Deneb	Cygnus/Deneb
1597418 - 1597433	Cygnus/Sadr	Cygnus/Sadr
1597434 - 1597449	Lyra/Sheliak	Lyra/Sheliak
1597450 - 1597465	Lyra/Vega	Lyra/Vega
1597466 - 1597481	Lyra/Sulafat	Lyra/Sulafat

Sector List	
Adhil.txt	1137638 - 1137653
Albireo.txt	1597386 - 1597401
Alcor.txt	45119 - 45134
Alpheratz.txt	1135590 - 1135605
Archturus.txt	1050598 - 1050613
Betelguese.txt	312383 - 312398
Capella.txt	1043430 - 1043445
Deneb.txt	1597402 - 1597417
Dubhe.txt	47167 - 47182
...	
9 omitted	
Rigel.txt	326719 - 326734
Rukbat.txt	1319386 - 1319401
Sadatoni.txt	1029094 - 1029109
Sadr.txt	1597418 - 1597433
Sheliak.txt	1597434 - 1597449
Sulafat.txt	1597466 - 1597481
Thuban.txt	202815 - 202830
Tyl.txt	203839 - 203854
Vega.txt	1597450 - 1597465

## 17 Test Image ext-12

DFR-12. Recover one fragmented directory.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		61	651235	325587+	83	Linux
/dev/sdd2		651236	1302471	325618	83	Linux
/dev/sdd3		1302472	1953707	325618	83	Linux

36 files deleted

Deleted files (36)			
Name	Size	F-Hd	F-Bks
Alcor.txt	8192 (16+0)	1	15
Betelguese.txt	4096 (8+0)	1	7
Dubhe.txt	8192 (16+0)	1	15
Mintaka.txt	4096 (8+0)	1	7
Mizar.txt	8192 (16+0)	1	15
Rastaban.txt	8192 (16+0)	1	15
Rigel.txt	4096 (8+0)	1	7
Sheliak.txt	12288 (24+0)	1	23
Sulafat.txt	12288 (24+0)	1	23
Thuban.txt	8192 (16+0)	1	15
Tyl.txt	8192 (16+0)	1	15
Vega.txt	16384 (32+0)	1	31
Ain.txt	12288 (24+0)	1	23
Albireo.txt	8192 (16+0)	1	15
Aldebaran.txt	12288 (24+0)	1	23
Arcturus.txt	8192 (16+0)	1	15
Deneb.txt	8192 (16+0)	1	15
ElNath.txt	16384 (32+0)	1	31
Elnasl.txt	4096 (8+0)	1	7
Mirak.txt	8192 (16+0)	1	15
Nekkar.txt	8192 (16+0)	1	15
Nunki.txt	4096 (8+0)	1	7
Rukbat.txt	4096 (8+0)	1	7
Sadr.txt	8192 (16+0)	1	15
Alshain.txt	8192 (16+0)	1	15
Altair.txt	8192 (16+0)	1	15
Alterf.txt	8192 (16+0)	1	15
Castor.txt	4096 (8+0)	1	7
Kalb.txt	8192 (16+0)	1	15
Kochab.txt	16384 (32+0)	1	31
Polaris.txt	12288 (24+0)	1	23
Pollux.txt	4096 (8+0)	1	7
RasElased.txt	8192 (16+0)	1	15
Tarazed.txt	8192 (16+0)	1	15
Wasat.txt	4096 (8+0)	1	7
Yildun.txt	12288 (24+0)	1	23

MAC times just before file deletion

File: `Ursa\_Major/Alcor.txt`

Access: 1999-01-02 03:42:00.000000000 -0500

Modify: 2000-02-29 13:52:00.000000000 -0500

Change: 2012-02-01 21:40:11.000000000 -0500

File: `Orion/Betelguese.txt`

Access: 1999-01-02 03:44:00.000000000 -0500

Modify: 2000-02-29 13:54:00.000000000 -0500

Change: 2012-02-01 21:40:11.000000000 -0500

File: `Ursa\_Major/Dubhe.txt`

Access: 1999-01-02 03:44:00.000000000 -0500  
 Modify: 2000-02-29 13:54:00.000000000 -0500  
 Change: 2012-02-01 21:40:11.000000000 -0500  
 File: `Orion/Mintaka.txt`  
 Access: 1999-01-02 03:43:00.000000000 -0500  
 Modify: 2000-02-29 13:53:00.000000000 -0500  
 Change: 2012-02-01 21:40:11.000000000 -0500  
 File: `Ursa\_Major/Mizar.txt`  
 Access: 1999-01-02 03:43:00.000000000 -0500  
 Modify: 2000-02-29 13:53:00.000000000 -0500  
 Change: 2012-02-01 21:40:11.000000000 -0500

...

104 omitted

File: `Gemini/Pollux.txt`  
 Access: 1999-01-02 03:43:00.000000000 -0500  
 Modify: 2000-02-29 13:53:00.000000000 -0500  
 Change: 2012-02-01 21:40:13.047552424 -0500  
 File: `Leo/RasElased.txt`  
 Access: 1999-01-02 03:43:00.554743786 -0500  
 Modify: 2000-02-29 13:53:00.554743786 -0500  
 Change: 2012-02-01 21:40:13.554743786 -0500  
 File: `Aquila/Tarazed.txt`  
 Access: 1999-01-02 03:44:00.000000000 -0500  
 Modify: 2000-02-29 13:54:00.000000000 -0500  
 Change: 2012-02-01 21:40:13.828310500 -0500  
 File: `Gemini/Wasat.txt`  
 Access: 1999-01-02 03:44:00.000000000 -0500  
 Modify: 2000-02-29 13:54:00.000000000 -0500  
 Change: 2012-02-01 21:40:13.018559108 -0500  
 File: `Ursa\_Minor/Yildun.txt`  
 Access: 1999-01-02 03:44:00.000000000 -0500  
 Modify: 2000-02-29 13:54:00.000000000 -0500  
 Change: 2012-02-01 21:29:49.000000000 -0500

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ext-12

==== Run step 4 =====

ACTION (delete): Sheliak.txt Vega.txt Sulafat.txt  
 ACTION (delete time): Wed Feb 1 21:33:08 EST 2012  
 ACTION (delete): Aldebaran.txt ElNath.txt Ain.txt  
 ACTION (delete time): Wed Feb 1 21:33:09 EST 2012  
 ACTION (delete): Polaris.txt Kochab.txt Yildun.txt  
 ACTION (delete time): Wed Feb 1 21:33:09 EST 2012  
 ACTION (delete): Rastaban.txt Thuban.txt Tyl.txt  
 ACTION (delete): Rigel.txt Mintaka.txt Betelguese.txt  
 ACTION (delete): Alcor.txt Mizar.txt Dubhe.txt  
 ACTION (delete time): Wed Feb 1 21:43:46 EST 2012  
 ACTION (delete): Archturus.txt Mirak.txt Nekkar.txt  
 ACTION (delete): Rukbat.txt Elnasl.txt Nunki.txt  
 ACTION (delete): Albireo.txt Deneb.txt Sadr.txt  
 ACTION (delete time): Wed Feb 1 21:43:47 EST 2012  
 ACTION (delete): Altair.txt Alshain.txt Tarazed.txt  
 ACTION (delete): Castor.txt Pollux.txt Wasat.txt  
 ACTION (delete): Kalb.txt RasElased.txt Alterf.txt  
 ACTION (delete time): Wed Feb 1 21:43:48 EST 2012

Steps to Create Image ext-12		
Step	Action	Files in Partition EXT2
1	mkdir	Andromeda Draco Ursa_Major Lyra
1	create	Alpheratz.txt Mirach.txt Adhil.txt
1	create	Rastaban.txt Thuban.txt Tyl.txt
1	create	Alcor.txt Mizar.txt Dubhe.txt
1	create	Sheliak.txt Vega.txt Sulafat.txt
2	append	Rastaban.txt Thuban.txt Tyl.txt
2	append	Sheliak.txt Vega.txt Sulafat.txt
3	set date/time	Lyra Sheliak.txt Vega.txt Sulafat.txt
4	delete	Sheliak.txt Vega.txt Sulafat.txt



Steps to Create Image ext-12		
4	rmdir	Lyra
5	mkdir	Orion
5	create	Rigel.txt Mintaka.txt Betelguese.txt
5	append	Alcor.txt Mizar.txt Dubhe.txt
6	set date/time	Draco Rastaban.txt Thuban.txt Tyl.txt Ursa_Major Alcor.txt Mizar.txt Dubhe.txt Orion Rigel.txt Mintaka.txt Betelguese.txt
7	delete	Rastaban.txt Thuban.txt Tyl.txt
7	delete	Rigel.txt Mintaka.txt Betelguese.txt
7	delete	Alcor.txt Mizar.txt Dubhe.txt
7	rmdir	Draco
7	rmdir	Orion
Step	Action	Files in Partition EXT3
1	mkdir	Auriga Bootes Cygnus Taurus
1	create	Capella.txt Maaz.txt Sadatoni.txt
1	create	Archturus.txt Mirak.txt Nekkar.txt
1	create	Albireo.txt Deneb.txt Sadr.txt
1	create	Aldebaran.txt ElNath.txt Ain.txt
2	append	Archturus.txt Mirak.txt Nekkar.txt
2	append	Aldebaran.txt ElNath.txt Ain.txt
3	set date/time	Taurus Aldebaran.txt ElNath.txt Ain.txt
4	delete	Aldebaran.txt ElNath.txt Ain.txt
4	rmdir	Taurus
5	mkdir	Sagittarius
5	create	Rukbat.txt Elnasl.txt Nunki.txt
5	append	Albireo.txt Deneb.txt Sadr.txt
6	set date/time	Bootes Archturus.txt Mirak.txt Nekkar.txt Cygnus Albireo.txt Deneb.txt Sadr.txt Sagittarius Rukbat.txt Elnasl.txt Nunki.txt
7	delete	Archturus.txt Mirak.txt Nekkar.txt
7	delete	Rukbat.txt Elnasl.txt Nunki.txt
7	delete	Albireo.txt Deneb.txt Sadr.txt
7	rmdir	Bootes
7	rmdir	Sagittarius
Step	Action	Files in Partition EXT4
1	mkdir	Scorpius Aquila Leo Ursa_Minor
1	create	Antares.txt Shaula.txt Lesath.txt
1	create	Altair.txt Alshain.txt Tarazed.txt
1	create	Kalb.txt RasElased.txt Alterf.txt
1	create	Polaris.txt Kochab.txt Yildun.txt
2	append	Altair.txt Alshain.txt Tarazed.txt
2	append	Polaris.txt Kochab.txt Yildun.txt
3	set date/time	Ursa_Minor Polaris.txt Kochab.txt Yildun.txt
4	delete	Polaris.txt Kochab.txt Yildun.txt
4	rmdir	Ursa_Minor
5	mkdir	Gemini
5	create	Castor.txt Pollux.txt Wasat.txt
5	append	Kalb.txt RasElased.txt Alterf.txt
6	set date/time	Aquila Altair.txt Alshain.txt Tarazed.txt Leo Kalb.txt RasElased.txt Alterf.txt Gemini Castor.txt Pollux.txt Wasat.txt
7	delete	Altair.txt Alshain.txt Tarazed.txt
7	delete	Castor.txt Pollux.txt Wasat.txt
7	delete	Kalb.txt RasElased.txt Alterf.txt
7	rmdir	Aquila
7	rmdir	Gemini

12 overwrites

Albireo.txt x Aldebaran.txt: overlap - 782832 - 782839

Alcor.txt x Sheliak.txt: overlap - 136255 - 136262

Aldebaran.txt x Elnasl.txt: overlap - 782840 - 782847

Aldebaran.txt x Rukbat.txt: overlap - 782824 - 782831

Betelguese.txt x Vega.txt: overlap - 137281 - 137288

Deneb.txt x ElNath.txt: overlap - 783336 - 783343

Dubhe.txt x Vega.txt: overlap - 137289 - 137296

ElNath.txt x Nunki.txt: overlap - 783344 - 783351  
 ElNath.txt x Sadr.txt: overlap - 783352 - 783357  
 Mintaka.txt x Sheliak.txt: overlap - 136263 - 136270  
 Mizar.txt x Sheliak.txt: overlap - 136271 - 136278  
 Rigel.txt x Sulafat.txt: overlap - 138303 - 138310

File: Betelguese.txt 8 8  
 File: ElNath.txt 32 8  
 File: Vega.txt 32 14  
 File: Deneb.txt 16 16  
 File: Pollux.txt 8 8  
 File: Aldebaran.txt 24 0  
 File: Nunki.txt 8 8  
 File: Tyl.txt 16 16  
 File: Mintaka.txt 8 8  
 File: Kalb.txt 16 16  
 File: Mizar.txt 16 16  
 File: Rukbat.txt 8 8  
 ...  
 File: Ain.txt 24 24  
 File: Rastaban.txt 16 16  
 File: Castor.txt 8 8  
 File: Mirak.txt 16 16  
 File: Alterf.txt 16 16  
 File: Polaris.txt 24 24  
 File: Sulafat.txt 24 16  
 File: Archturus.txt 16 16  
 File: Wasat.txt 8 8  
 File: Elnasl.txt 8 8  
 File: Dubhe.txt 16 16  
 Summary: 36 31 3 2

Metadata available  
 ext-12 Metadata found 30 files, not found 6, total 36 deleted files  
 Deleted files without metadata (cannot be found)  
 Ain.txt Aldebaran.txt ElNath.txt Sheliak.txt  
 Sulafat.txt Vega.txt

Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2
136255 - 136262	Lyra/Sheliak	Lyra/Sheliak
136263 - 136270	empty	Lyra/Sheliak
136271 - 136278	empty	Lyra/Sheliak
137279 - 137280	Lyra/Vega	Lyra/Vega
137281 - 137286	Lyra/Vega	Lyra/Vega
137287 - 137288	empty	Lyra/Vega
137289 - 137296	empty	Lyra/Vega
137297 - 137302	empty	Lyra/Vega
137305 - 137312	empty	Lyra/Vega
138303 - 138310	Lyra/Sulafat	Lyra/Sulafat
138311 - 138326	empty	Lyra/Sulafat
240703 - 240710	Andromeda/Alpheratz	Andromeda/Alpheratz
241727 - 241734	Andromeda/Mirach	Andromeda/Mirach
242751 - 242758	Andromeda/Adhil	Andromeda/Adhil
246847 - 246854	Ursa_Major/Mizar	Ursa_Major/Mizar
248895 - 248902	Ursa_Major/Dubhe	Ursa_Major/Dubhe
261183 - 261190	Ursa_Major/Alcor	Ursa_Major/Alcor
262721 - 262728	Draco/Thuban	Draco/Thuban
262729 - 262736	empty	Draco/Thuban
264255 - 264262	Draco/Tyl	Draco/Tyl
264263 - 264270	empty	Draco/Tyl
276543 - 276550	Draco/Rastaban	Draco/Rastaban
276551 - 276558	empty	Draco/Rastaban

<b>Layout for Steps 1 through 2</b>		
782824 - 782831	Taurus/Aldebaran	Taurus/Aldebaran
782832 - 782839	empty	Taurus/Aldebaran
782840 - 782847	empty	Taurus/Aldebaran
783334 - 783335	Taurus/ElNath	Taurus/ElNath
783336 - 783341	Taurus/ElNath	Taurus/ElNath
783342 - 783343	empty	Taurus/ElNath
783344 - 783351	empty	Taurus/ElNath
783352 - 783357	empty	Taurus/ElNath
783358 - 783359	empty	metadata
783360 - 783367	empty	Taurus/ElNath
784358 - 784365	Taurus/Ain	Taurus/Ain
784366 - 784381	empty	Taurus/Ain
808934 - 808941	Cygnus/Albireo	Cygnus/Albireo
810982 - 810989	Cygnus/Deneb	Cygnus/Deneb
813030 - 813037	Cygnus/Sadr	Cygnus/Sadr
1001446 - 1001453	Auriga/Capella	Auriga/Capella
1002470 - 1002477	Auriga/Maaz	Auriga/Maaz
1003494 - 1003501	Auriga/Sadatoni	Auriga/Sadatoni
1250278 - 1250285	Bootes/Archturus	Bootes/Archturus
1250286 - 1250293	empty	Bootes/Archturus
1252326 - 1252333	Bootes/Mirak	Bootes/Mirak
1252334 - 1252341	empty	Bootes/Mirak
1254374 - 1254381	Bootes/Nekkar	Bootes/Nekkar
1254382 - 1254389	empty	Bootes/Nekkar
1319378 - 1319385	Leo/Kalb	Leo/Kalb
1319386 - 1319393	Leo/RasElased	Leo/RasElased
1319394 - 1319401	Leo/Alterf	Leo/Alterf
1386594 - 1386601	empty	empty
1386602 - 1386609	empty	empty
1386610 - 1386617	empty	empty
1386618 - 1386625	empty	empty
1386626 - 1386633	empty	empty
1386634 - 1386641	empty	empty
1597386 - 1597393	Scorpius/Antares	Scorpius/Antares
1597394 - 1597401	Scorpius/Shaula	Scorpius/Shaula
1597402 - 1597409	Scorpius/Lesath	Scorpius/Lesath
1597410 - 1597417	Aquila/Altair	Aquila/Altair
1597418 - 1597425	Aquila/Alshain	Aquila/Alshain
1597426 - 1597433	Aquila/Tarazed	Aquila/Tarazed
1597434 - 1597441	Ursa_Minor/Polaris	Ursa_Minor/Polaris
1597442 - 1597449	Ursa_Minor/Kochab	Ursa_Minor/Kochab
1597450 - 1597457	Ursa_Minor/Yildun	Ursa_Minor/Yildun
1597458 - 1597465	empty	Aquila/Altair
1597466 - 1597473	empty	Aquila/Alshain
1597474 - 1597481	empty	Aquila/Tarazed
1597482 - 1597497	empty	Ursa_Minor/Yildun
1597498 - 1597521	empty	Ursa_Minor/Kochab
1597530 - 1597545	empty	Ursa_Minor/Polaris

<b>Layout for Steps 3 through 4</b>		
Sectors	Step 3	Step 4
136255 - 136262	Lyra/Sheliak	Lyra/Sheliak
136263 - 136270	Lyra/Sheliak	Lyra/Sheliak
136271 - 136278	Lyra/Sheliak	Lyra/Sheliak
137279 - 137280	Lyra/Vega	Lyra/Vega
137281 - 137286	Lyra/Vega	Lyra/Vega
137287 - 137288	Lyra/Vega	Lyra/Vega
137289 - 137296	Lyra/Vega	Lyra/Vega
137297 - 137302	Lyra/Vega	Lyra/Vega
137305 - 137312	Lyra/Vega	Lyra/Vega
138303 - 138310	Lyra/Sulafat	Lyra/Sulafat
138311 - 138326	Lyra/Sulafat	Lyra/Sulafat
240703 - 240710	Andromeda/Alpheratz	Andromeda/Alpheratz

<b>Layout for Steps 3 through 4</b>		
241727 - 241734	Andromeda/Mirach	Andromeda/Mirach
242751 - 242758	Andromeda/Adhil	Andromeda/Adhil
246847 - 246854	Ursa_Major/Mizar	Ursa_Major/Mizar
248895 - 248902	Ursa_Major/Dubhe	Ursa_Major/Dubhe
261183 - 261190	Ursa_Major/Alcor	Ursa_Major/Alcor
262721 - 262728	Draco/Thuban	Draco/Thuban
262729 - 262736	Draco/Thuban	Draco/Thuban
264255 - 264262	Draco/Tyl	Draco/Tyl
264263 - 264270	Draco/Tyl	Draco/Tyl
276543 - 276550	Draco/Rastaban	Draco/Rastaban
276551 - 276558	Draco/Rastaban	Draco/Rastaban
782824 - 782831	Taurus/Aldebaran	Taurus/Aldebaran
782832 - 782839	Taurus/Aldebaran	Taurus/Aldebaran
782840 - 782847	Taurus/Aldebaran	Taurus/Aldebaran
783334 - 783335	Taurus/ElNath	Taurus/ElNath
783336 - 783341	Taurus/ElNath	Taurus/ElNath
783342 - 783343	Taurus/ElNath	Taurus/ElNath
783344 - 783351	Taurus/ElNath	Taurus/ElNath
783352 - 783357	Taurus/ElNath	Taurus/ElNath
783358 - 783359	metadata	metadata
783360 - 783367	Taurus/ElNath	Taurus/ElNath
784358 - 784365	Taurus/Ain	Taurus/Ain
784366 - 784381	Taurus/Ain	Taurus/Ain
808934 - 808941	Cygnus/Albireo	Cygnus/Albireo
810982 - 810989	Cygnus/Deneb	Cygnus/Deneb
813030 - 813037	Cygnus/Sadr	Cygnus/Sadr
1001446 - 1001453	Auriga/Capella	Auriga/Capella
1002470 - 1002477	Auriga/Maaz	Auriga/Maaz
1003494 - 1003501	Auriga/Sadatoni	Auriga/Sadatoni
1250278 - 1250285	Bootes/Archturus	Bootes/Archturus
1250286 - 1250293	Bootes/Archturus	Bootes/Archturus
1252326 - 1252333	Bootes/Mirak	Bootes/Mirak
1252334 - 1252341	Bootes/Mirak	Bootes/Mirak
1254374 - 1254381	Bootes/Nekkar	Bootes/Nekkar
1254382 - 1254389	Bootes/Nekkar	Bootes/Nekkar
1319378 - 1319385	Leo/Kalb	Leo/Kalb
1319386 - 1319393	Leo/RasElased	Leo/RasElased
1319394 - 1319401	Leo/Alterf	Leo/Alterf
1386594 - 1386601	empty	empty
1386602 - 1386609	empty	empty
1386610 - 1386617	empty	empty
1386618 - 1386625	empty	empty
1386626 - 1386633	empty	empty
1386634 - 1386641	empty	empty
1597386 - 1597393	Scorpius/Antares	Scorpius/Antares
1597394 - 1597401	Scorpius/Shaula	Scorpius/Shaula
1597402 - 1597409	Scorpius/Lesath	Scorpius/Lesath
1597410 - 1597417	Aquila/Altair	Aquila/Altair
1597418 - 1597425	Aquila/Alshain	Aquila/Alshain
1597426 - 1597433	Aquila/Tarazed	Aquila/Tarazed
1597434 - 1597441	Ursa_Minor/Polaris	Ursa_Minor/Polaris
1597442 - 1597449	Ursa_Minor/Kochab	Ursa_Minor/Kochab
1597450 - 1597457	Ursa_Minor/Yildun	Ursa_Minor/Yildun
1597458 - 1597465	Aquila/Altair	Aquila/Altair
1597466 - 1597473	Aquila/Alshain	Aquila/Alshain
1597474 - 1597481	Aquila/Tarazed	Aquila/Tarazed
1597482 - 1597497	Ursa_Minor/Yildun	Ursa_Minor/Yildun
1597498 - 1597521	Ursa_Minor/Kochab	Ursa_Minor/Kochab
1597530 - 1597545	Ursa_Minor/Polaris	Ursa_Minor/Polaris

<b>Layout for Steps 5 through 6</b>		
Sectors	Step 5	Step 6
136255 - 136262	Ursa_Major/Alcor	Ursa_Major/Alcor

Layout for Steps 5 through 6		
136263 - 136270	Orion/Mintaka	Orion/Mintaka
136271 - 136278	Ursa_Major/Mizar	Ursa_Major/Mizar
137279 - 137280	metadata	metadata
137281 - 137286	Orion/Betelguese	Orion/Betelguese
137287 - 137288	Orion/Betelguese	Orion/Betelguese
137289 - 137296	Ursa_Major/Dubhe	Ursa_Major/Dubhe
137297 - 137302	Lyra/Vega	Lyra/Vega
137305 - 137312	Lyra/Vega	Lyra/Vega
138303 - 138310	Orion/Rigel	Orion/Rigel
138311 - 138326	Lyra/Sulafat	Lyra/Sulafat
240703 - 240710	Andromeda/Alpheratz	Andromeda/Alpheratz
241727 - 241734	Andromeda/Mirach	Andromeda/Mirach
242751 - 242758	Andromeda/Adhil	Andromeda/Adhil
246847 - 246854	Ursa_Major/Mizar	Ursa_Major/Mizar
248895 - 248902	Ursa_Major/Dubhe	Ursa_Major/Dubhe
261183 - 261190	Ursa_Major/Alcor	Ursa_Major/Alcor
262721 - 262728	Draco/Thuban	Draco/Thuban
262729 - 262736	Draco/Thuban	Draco/Thuban
264255 - 264262	Draco/Tyl	Draco/Tyl
264263 - 264270	Draco/Tyl	Draco/Tyl
276543 - 276550	Draco/Rastaban	Draco/Rastaban
276551 - 276558	Draco/Rastaban	Draco/Rastaban
782824 - 782831	Sagittarius/Rukbat	Sagittarius/Rukbat
782832 - 782839	Cygnus/Albireo	Cygnus/Albireo
782840 - 782847	Sagittarius/Elnasl	Sagittarius/Elnasl
783334 - 783335	metadata	metadata
783336 - 783341	Cygnus/Deneb	Cygnus/Deneb
783342 - 783343	Cygnus/Deneb	Cygnus/Deneb
783344 - 783351	Sagittarius/Nunki	Sagittarius/Nunki
783352 - 783357	Cygnus/Sadr	Cygnus/Sadr
783358 - 783359	Cygnus/Sadr	Cygnus/Sadr
783360 - 783367	Taurus/ElNath	Taurus/ElNath
784358 - 784365	Taurus/Ain	Taurus/Ain
784366 - 784381	Taurus/Ain	Taurus/Ain
808934 - 808941	Cygnus/Albireo	Cygnus/Albireo
810982 - 810989	Cygnus/Deneb	Cygnus/Deneb
813030 - 813037	Cygnus/Sadr	Cygnus/Sadr
1001446 - 1001453	Auriga/Capella	Auriga/Capella
1002470 - 1002477	Auriga/Maaz	Auriga/Maaz
1003494 - 1003501	Auriga/Sadatoni	Auriga/Sadatoni
1250278 - 1250285	Bootes/Archturus	Bootes/Archturus
1250286 - 1250293	Bootes/Archturus	Bootes/Archturus
1252326 - 1252333	Bootes/Mirak	Bootes/Mirak
1252334 - 1252341	Bootes/Mirak	Bootes/Mirak
1254374 - 1254381	Bootes/Nekkar	Bootes/Nekkar
1254382 - 1254389	Bootes/Nekkar	Bootes/Nekkar
1319378 - 1319385	Leo/Kalb	Leo/Kalb
1319386 - 1319393	Leo/RasElased	Leo/RasElased
1319394 - 1319401	Leo/Alterf	Leo/Alterf
1386594 - 1386601	Gemini/Castor	Gemini/Castor
1386602 - 1386609	Leo/Kalb	Leo/Kalb
1386610 - 1386617	Gemini/Pollux	Gemini/Pollux
1386618 - 1386625	Leo/RasElased	Leo/RasElased
1386626 - 1386633	Gemini/Wasat	Gemini/Wasat
1386634 - 1386641	Leo/Alterf	Leo/Alterf
1597386 - 1597393	Scorpius/Antares	Scorpius/Antares
1597394 - 1597401	Scorpius/Shaula	Scorpius/Shaula
1597402 - 1597409	Scorpius/Lesath	Scorpius/Lesath
1597410 - 1597417	Aquila/Altair	Aquila/Altair
1597418 - 1597425	Aquila/Alshain	Aquila/Alshain
1597426 - 1597433	Aquila/Tarazed	Aquila/Tarazed
1597434 - 1597441	Ursa_Minor/Polaris	Ursa_Minor/Polaris
1597442 - 1597449	Ursa_Minor/Kochab	Ursa_Minor/Kochab
1597450 - 1597457	Ursa_Minor/Yildun	Ursa_Minor/Yildun

Layout for Steps 5 through 6		
1597458 - 1597465	Aquila/Altair	Aquila/Altair
1597466 - 1597473	Aquila/Alshain	Aquila/Alshain
1597474 - 1597481	Aquila/Tarazed	Aquila/Tarazed
1597482 - 1597497	Ursa_Minor/Yildun	Ursa_Minor/Yildun
1597498 - 1597521	Ursa_Minor/Kochab	Ursa_Minor/Kochab
1597530 - 1597545	Ursa_Minor/Polaris	Ursa_Minor/Polaris

Sector List	
Adhil.txt	242751 - 242758
Ain.txt	784358 - 784381
Albireo.txt	782832 - 782839, 808934 - 808941
Alcor.txt	136255 - 136262, 261183 - 261190
Aldebaran.txt	782824 - 782847
Alpheratz.txt	240703 - 240710
Alshain.txt	1597418 - 1597425, 1597466 - 1597473
Altair.txt	1597410 - 1597417, 1597458 - 1597465
Alterf.txt	1319394 - 1319401, 1386634 - 1386641
...	
27 omitted	
Shaula.txt	1597394 - 1597401
Sheliak.txt	136255 - 136278
Sulafat.txt	138303 - 138326
Tarazed.txt	1597426 - 1597433, 1597474 - 1597481
Thuban.txt	262721 - 262736
Tyl.txt	264255 - 264270
Vega.txt	137279 - 137302, 137305 - 137312
Wasat.txt	1386626 - 1386633
Yildun.txt	1597450 - 1597457, 1597482 - 1597497

## 18 Test Image ext-13

DFR-13. Recover chaotic file system activity.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		61	651235	325587+	83	Linux
/dev/sdd2		651236	1302471	325618	83	Linux
/dev/sdd3		1302472	1953707	325618	83	Linux

414 files deleted

Deleted files (414)			
Name	Size	F-Hd	F-Bks
C000-alpha=a-a=D=s-s=C-1.txt	9216 (18+0)	1	17
C001-alpha=a-a=D=s-s=C-2.txt	20480 (40+0)	1	39
C002-alpha=a-a=D=s-s=C-3.txt	7168 (14+0)	1	13
C003-alpha=a-a=D=s-s=C-4.txt	37376 (73+0)	1	72
C004-alpha=a-a=D=s-s=C-5.txt	7680 (15+0)	1	14
C005-alpha=a-a=D=s-s=C-6.txt	30208 (59+0)	1	58
C006-alpha=a-a=D=s-s=C-7.txt	10240 (20+0)	1	19
C007-alpha=a-a=D=s-s=C-8.txt	25088 (49+0)	1	48
C008-alpha=a-s=D=s-s=C-1.txt	9728 (19+0)	1	18
C009-alpha=a-s=D=s-s=C-2.txt	2560 (5+0)	1	4
C010-alpha=a-s=D=s-s=C-3.txt	19456 (38+0)	1	37
C011-alpha=a-s=D=s-s=C-4.txt	5120 (10+0)	1	9
C012-alpha=a-s=D=s-s=C-5.txt	22016 (43+0)	1	42
C013-alpha=a-s=D=s-s=C-6.txt	5120 (10+0)	1	9
C014-alpha=a-s=D=s-s=C-7.txt	9728 (19+0)	1	18
C015-alpha=a-s=D=s-s=C-8.txt	8704 (17+0)	1	16
C016-alpha=s-a=D=s-s=C-1.txt	18944 (37+0)	1	36

Deleted files (414)			
C017-alpha=s-a=D=s-s=C-2.txt	29184 (57+0)	1	56
C018-alpha=s-a=D=s-s=C-3.txt	2048 (4+0)	1	3
C019-alpha=s-a=D=s-s=C-4.txt	10752 (21+0)	1	20
...			
374 omitted			
E190-gamma=s-s=C=a-s=D-3.txt	6656 (13+0)	1	12
E191-gamma=s-s=C=a-s=D-4.txt	4608 (9+0)	1	8
E196-gamma=s-s=C=s-a=D-1.txt	3072 (6+0)	1	5
E197-gamma=s-s=C=s-a=D-2.txt	6144 (12+0)	1	11
E198-gamma=s-s=C=s-a=D-3.txt	9216 (18+0)	1	17
E199-gamma=s-s=C=s-a=D-4.txt	2560 (5+0)	1	4
E204-gamma=s-s=C=s-s=D-1.txt	4096 (8+0)	1	7
E205-gamma=s-s=C=s-s=D-2.txt	2560 (5+0)	1	4
E206-gamma=s-s=C=s-s=D-3.txt	1536 (3+0)	1	2
E207-gamma=s-s=C=s-s=D-4.txt	3584 (7+0)	1	6
E213-delta=s-s=C=s-a=D-1.txt	8192 (16+0)	1	15
E214-delta=s-s=C=s-a=D-2.txt	4608 (9+0)	1	8
E215-delta=s-s=C=s-a=D-3.txt	2048 (4+0)	1	3
E216-delta=s-s=C=s-a=D-4.txt	6656 (13+0)	1	12
E217-delta=s-s=C=s-a=D-5.txt	4608 (9+0)	1	8
E223-delta=s-s=C=s-s=D-1.txt	1536 (3+0)	1	2
E224-delta=s-s=C=s-s=D-2.txt	3584 (7+0)	1	6
E225-delta=s-s=C=s-s=D-3.txt	512 (1+0)	1	0
E226-delta=s-s=C=s-s=D-4.txt	4096 (8+0)	1	7
E227-delta=s-s=C=s-s=D-5.txt	2560 (5+0)	1	4

MAC times just before file deletion

File: `Orion/C000-alpha=a-a=D=s-s=C-1.txt'  
Access: 2012-03-08 18:26:17.000000000 -0500  
Modify: 2012-03-08 18:19:06.000000000 -0500  
Change: 2012-03-08 18:19:06.000000000 -0500  
File: `Taurus/C001-alpha=a-a=D=s-s=C-2.txt'  
Access: 2012-03-08 18:26:18.000000000 -0500  
Modify: 2012-03-08 18:19:06.000000000 -0500  
Change: 2012-03-08 18:19:06.000000000 -0500  
File: `Taurus/C002-alpha=a-a=D=s-s=C-3.txt'  
Access: 2012-03-08 18:26:18.000000000 -0500  
Modify: 2012-03-08 18:19:06.000000000 -0500  
Change: 2012-03-08 18:19:06.000000000 -0500  
File: `Taurus/C003-alpha=a-a=D=s-s=C-4.txt'  
Access: 2012-03-08 18:26:18.000000000 -0500  
Modify: 2012-03-08 18:19:06.000000000 -0500  
Change: 2012-03-08 18:19:06.000000000 -0500  
File: `Ursa/C004-alpha=a-a=D=s-s=C-5.txt'  
Access: 2012-03-08 18:26:17.000000000 -0500  
Modify: 2012-03-08 18:19:06.000000000 -0500  
Change: 2012-03-08 18:19:06.000000000 -0500  
...  
1616 omitted  
File: `Taurus/E223-delta=s-s=C=s-s=D-1.txt'  
Access: 2012-03-08 18:42:17.181634451 -0500  
Modify: 2012-03-08 18:38:31.846184720 -0500  
Change: 2012-03-08 18:38:31.846184720 -0500  
File: `Ursa/E224-delta=s-s=C=s-s=D-2.txt'  
Access: 2012-03-08 18:42:16.261546462 -0500  
Modify: 2012-03-08 18:38:31.000000000 -0500  
Change: 2012-03-08 18:38:31.927320024 -0500  
File: `Ursa/E225-delta=s-s=C=s-s=D-3.txt'  
Access: 2012-03-08 18:38:31.383327200 -0500  
Modify: 2012-03-08 18:38:31.000000000 -0500  
Change: 2012-03-08 18:38:31.639882275 -0500  
File: `Orion/E226-delta=s-s=C=s-s=D-4.txt'  
Access: 2012-03-08 18:42:17.221364545 -0500  
Modify: 2012-03-08 18:38:31.000000000 -0500  
Change: 2012-03-08 18:38:31.380944617 -0500

File: 'Orion/E227-delta=s-s=C=s-s=D-5.txt'  
 Access: 2012-03-08 18:42:17.287349330 -0500  
 Modify: 2012-03-08 18:38:31.000000000 -0500  
 Change: 2012-03-08 18:38:31.995331248 -0500

File delete times:  
 Times: /Volumes/CFFT/dfr/dfr-setup/ntfs-delete-times.txt Case ext-13  
 ===== Run step 7 =====

ACTION (delete): part 1 =D= in partition C  
 ACTION (delete time): Thu Mar 8 18:31:01 EST 2012  
 ACTION (delete): part 1 =D= in partition D  
 ACTION (delete time): Thu Mar 8 18:31:02 EST 2012  
 ACTION (delete): part 1 =D= in partition E  
 ACTION (delete time): Thu Mar 8 18:31:03 EST 2012  
 ACTION (delete): part 2 =D- in partition C  
 ACTION (delete time): Thu Mar 8 18:45:52 EST 2012  
 ACTION (delete): part 2 =D- in partition D  
 ACTION (delete time): Thu Mar 8 18:45:53 EST 2012  
 ACTION (delete): part 2 =D- in partition E  
 ACTION (delete time): Thu Mar 8 18:45:54 EST 2012

Steps to Create Image ext-13		
Step	Action	Files in Partition EXT2
1	create	alpha in partition C
2	append	a1 a-x... in partition C
3	create	beta in partition C
4	append	a2 x-a... in partition C
5	create	gamma in partition C
6	create	fill in partition C
7	delete	part 1 =D= in partition C
8	append	a3 x-x=x-a... in partition C
9	create	delta in partition C
10	append	a4 x-x=x-x-a... in partition C
11	delete	part 2 =D- in partition C
Step	Action	Files in Partition EXT3
1	create	alpha in partition D
2	append	a1 a-x... in partition D
3	create	beta in partition D
4	append	a2 x-a... in partition D
5	create	gamma in partition D
6	create	fill in partition D
7	delete	part 1 =D= in partition D
8	append	a3 x-x=x-a... in partition D
9	create	delta in partition D
10	append	a4 x-x=x-x-a... in partition D
11	delete	part 2 =D- in partition D
Step	Action	Files in Partition EXT4
1	create	alpha in partition E
2	append	a1 a-x... in partition E
3	create	beta in partition E
4	append	a2 x-a... in partition E
5	create	gamma in partition E
6	create	fill in partition E
7	delete	part 1 =D= in partition E
8	append	a3 x-x=x-a... in partition E
9	create	delta in partition E
10	append	a4 x-x=x-x-a... in partition E
11	delete	part 2 =D- in partition E

351 overwrites

C000-alpha=a-a=D=s-s=C-1.txt x C146-beta=s-s=C=a-a=C-3.txt: overlap - 590911 - 590912, 590919 - 590919  
 C000-alpha=a-a=D=s-s=C-1.txt x C147-beta=s-s=C=a-a=C-4.txt: overlap - 590983 - 590986  
 C000-alpha=a-a=D=s-s=C-1.txt x C226-delta=s-s=C=s-s=D-4.txt: overlap - 590921 - 590928  
 C000-alpha=a-a=D=s-s=C-1.txt x C227-delta=s-s=C=s-s=D-5.txt: overlap - 590929 - 590930  
 C001-alpha=a-a=D=s-s=C-2.txt x C148-beta=s-s=C=a-a=D-1.txt: overlap - 510085 - 510086  
 C001-alpha=a-a=D=s-s=C-2.txt x C159-beta=s-s=C=a-a=D-4.txt: overlap - 510015 - 510015



C001-alpha=a-a=D=s-s=C-2.txt x C184-gamma=s-s=C=a-s=C-1.txt: overlap - 510017 - 510018  
C001-alpha=a-a=D=s-s=C-2.txt x C185-gamma=s-s=C=a-s=C-2.txt: overlap - 510019 - 510022  
C001-alpha=a-a=D=s-s=C-2.txt x C209-delta=s-s=C=s-a=C-2.txt: overlap - 510047 - 510048, 510087 - 510087  
C001-alpha=a-a=D=s-s=C-2.txt x C212-delta=s-s=C=s-a=C-5.txt: overlap - 510089 - 510093  
C001-alpha=a-a=D=s-s=C-2.txt x C213-delta=s-s=C=s-a=D-1.txt: overlap - 510095 - 510097  
C001-alpha=a-a=D=s-s=C-2.txt x C224-delta=s-s=C=s-s=D-2.txt: overlap - 510101 - 510105  
C001-alpha=a-a=D=s-s=C-2.txt x C225-delta=s-s=C=s-s=D-3.txt: overlap - 510107 - 510107  
C002-alpha=a-a=D=s-s=C-3.txt x C081-alpha=s-s=C=a-a=C-2.txt: overlap - 511059 - 511061  
C003-alpha=a-a=D=s-s=C-4.txt x C082-alpha=s-s=C=a-a=D-1.txt: overlap - 512075 - 512087  
C003-alpha=a-a=D=s-s=C-4.txt x C191-gamma=s-s=C=a-s=D-4.txt: overlap - 512063 - 512065  
C004-alpha=a-a=D=s-s=C-5.txt x C034-alpha=a-a=C=a-a=D-1.txt: overlap - 365631 - 365633  
C004-alpha=a-a=D=s-s=C-5.txt x C049-alpha=a-s=C=a-a=C-2.txt: overlap - 365635 - 365637  
C004-alpha=a-a=D=s-s=C-5.txt x C065-alpha=s-a=C=a-a=C-2.txt: overlap - 365649 - 365649  
C004-alpha=a-a=D=s-s=C-5.txt x C115-beta=s-a=C=a-a=C-4.txt: overlap - 365651 - 365652  
C004-alpha=a-a=D=s-s=C-5.txt x C214-delta=s-s=C=s-a=D-2.txt: overlap - 365679 - 365681  
C005-alpha=a-a=D=s-s=C-6.txt x C035-alpha=a-a=C=a-a=D-2.txt: overlap - 366655 - 366659  
C005-alpha=a-a=D=s-s=C-6.txt x C084-alpha=s-s=C=a-s=C-1.txt: overlap - 366663 - 366664  
C005-alpha=a-a=D=s-s=C-6.txt x C119-beta=s-a=C=a-a=D-4.txt: overlap - 366665 - 366666  
C006-alpha=a-a=D=s-s=C-7.txt x C036-alpha=a-a=C=a-s=C-1.txt: overlap - 597055 - 597058  
C006-alpha=a-a=D=s-s=C-7.txt x C066-alpha=s-a=C=a-a=D-1.txt: overlap - 597059 - 597059  
C006-alpha=a-a=D=s-s=C-7.txt x C067-alpha=s-a=C=a-a=D-2.txt: overlap - 597061 - 597070, 597077 - 597078  
C006-alpha=a-a=D=s-s=C-7.txt x C177-gamma=s-s=C=a-a=C-2.txt: overlap - 597125 - 597126  
C007-alpha=a-a=D=s-s=C-8.txt x C037-alpha=a-a=C=a-s=C-2.txt: overlap - 598079 - 598088, 598091 - 598093  
C007-alpha=a-a=D=s-s=C-8.txt x C086-alpha=s-s=C=a-s=D-1.txt: overlap - 598121 - 598123  
C007-alpha=a-a=D=s-s=C-8.txt x C177-gamma=s-s=C=a-a=C-2.txt: overlap - 598095 - 598100  
C007-alpha=a-a=D=s-s=C-8.txt x C180-gamma=s-s=C=a-a=D-1.txt: overlap - 598101 - 598102, 598105 - 598105  
C007-alpha=a-a=D=s-s=C-8.txt x C216-delta=s-s=C=s-a=D-4.txt: overlap - 598107 - 598112, 598125 - 598126  
C007-alpha=a-a=D=s-s=C-8.txt x C217-delta=s-s=C=s-a=D-5.txt: overlap - 598127 - 598131  
C008-alpha=a-s=D=s-s=C-1.txt x C038-alpha=a-a=C=a-s=D-1.txt: overlap - 517183 - 517183  
C008-alpha=a-s=D=s-s=C-1.txt x C122-beta=s-a=C=a-s=C-3.txt: overlap - 517185 - 517196  
C008-alpha=a-s=D=s-s=C-1.txt x C178-gamma=s-s=C=a-a=C-3.txt: overlap - 517197 - 517197  
C008-alpha=a-s=D=s-s=C-1.txt x C181-gamma=s-s=C=a-a=D-2.txt: overlap - 517199 - 517200  
C009-alpha=a-s=D=s-s=C-2.txt x C039-alpha=a-a=C=a-s=D-2.txt: overlap - 370751 - 370752  
C009-alpha=a-s=D=s-s=C-2.txt x C085-alpha=s-s=C=a-s=C-2.txt: overlap - 370769 - 370769  
C009-alpha=a-s=D=s-s=C-2.txt x C154-beta=s-s=C=a-s=C-3.txt: overlap - 370771 - 370771  
C010-alpha=a-s=D=s-s=C-3.txt x C070-alpha=s-a=C=a-s=D-1.txt: overlap - 601151 - 601154  
C010-alpha=a-s=D=s-s=C-3.txt x C087-alpha=s-s=C=a-s=D-2.txt: overlap - 601155 - 601158, 601167 - 601174  
C010-alpha=a-s=D=s-s=C-3.txt x C156-beta=s-s=C=a-s=D-1.txt: overlap - 601175 - 601177  
C010-alpha=a-s=D=s-s=C-3.txt x C220-delta=s-s=C=s-s=C-3.txt: overlap - 601179 - 601179  
C011-alpha=a-s=D=s-s=C-4.txt x C071-alpha=s-a=C=a-s=D-2.txt: overlap - 521279 - 521282  
C011-alpha=a-s=D=s-s=C-4.txt x C123-beta=s-a=C=a-s=C-4.txt: overlap - 521283 - 521284  
C011-alpha=a-s=D=s-s=C-4.txt x C158-beta=s-s=C=a-s=D-3.txt: overlap - 521295 - 521295  
C011-alpha=a-s=D=s-s=C-4.txt x C182-gamma=s-s=C=a-a=D-3.txt: overlap - 521297 - 521298  
C012-alpha=a-s=D=s-s=C-5.txt x C182-gamma=s-s=C=a-a=D-3.txt: overlap - 522303 - 522306  
...  
E025-alpha=s-s=D=s-s=C-2.txt x E224-delta=s-s=C=s-s=D-2.txt: overlap - 1597554 - 1597560  
E025-alpha=s-s=D=s-s=C-2.txt x E225-delta=s-s=C=s-s=D-3.txt: overlap - 1597552 - 1597552  
E026-alpha=s-s=D=s-s=C-3.txt x E037-alpha=a-a=C=a-s=C-2.txt: overlap - 1319498 - 1319508  
E027-alpha=s-s=D=s-s=C-4.txt x E037-alpha=a-a=C=a-s=C-2.txt: overlap - 1319508 - 1319508  
E028-alpha=s-s=D=s-s=C-5.txt x E085-alpha=s-s=C=a-s=C-2.txt: overlap - 1597530 - 1597534  
E028-alpha=s-s=D=s-s=C-5.txt x E113-beta=s-a=C=a-a=C-2.txt: overlap - 1597536 - 1597537  
E029-alpha=s-s=D=s-s=C-6.txt x E038-alpha=a-a=C=a-s=D-1.txt: overlap - 1597542 - 1597542  
E029-alpha=s-s=D=s-s=C-6.txt x E049-alpha=a-s=C=a-a=C-2.txt: overlap - 1597538 - 1597540  
E030-alpha=s-s=D=s-s=C-7.txt x E037-alpha=a-a=C=a-s=C-2.txt: overlap - 1319510 - 1319510  
E031-alpha=s-s=D=s-s=C-8.txt x E145-beta=s-s=C=a-a=C-2.txt: overlap - 1597578 - 1597582  
E031-alpha=s-s=D=s-s=C-8.txt x E148-beta=s-s=C=a-a=D-1.txt: overlap - 1597584 - 1597584  
E064-alpha=s-a=C=a-a=C-1.txt x E101-beta=s-a=D=s-s=C-6.txt: overlap - 1598410 - 1598412  
E071-alpha=s-a=C=a-s=D-2.txt x E104-beta=s-s=D=s-s=C-1.txt: overlap - 1598434 - 1598437  
E080-alpha=s-s=C=a-a=C-1.txt x E096-beta=s-a=D=s-s=C-1.txt: overlap - 1320222 - 1320225  
E087-alpha=s-s=C=a-s=D-2.txt x E107-beta=s-s=D=s-s=C-4.txt: overlap - 1319914 - 1319925  
E096-beta=s-a=D=s-s=C-1.txt x E117-beta=s-a=C=a-a=D-2.txt: overlap - 1319818 - 1319821  
E096-beta=s-a=D=s-s=C-1.txt x E146-beta=s-s=C=a-a=C-3.txt: overlap - 1319822 - 1319824  
E096-beta=s-a=D=s-s=C-1.txt x E156-beta=s-s=C=a-s=D-1.txt: overlap - 1319826 - 1319828  
E096-beta=s-a=D=s-s=C-1.txt x E176-gamma=s-s=C=a-a=C-1.txt: overlap - 1319830 - 1319833  
E097-beta=s-a=D=s-s=C-2.txt x E147-beta=s-s=C=a-a=C-4.txt: overlap - 1319850 - 1319861  
E097-beta=s-a=D=s-s=C-2.txt x E150-beta=s-s=C=a-a=D-3.txt: overlap - 1319862 - 1319865  
E097-beta=s-a=D=s-s=C-2.txt x E157-beta=s-s=C=a-s=D-2.txt: overlap - 1319866 - 1319877  
E097-beta=s-a=D=s-s=C-2.txt x E186-gamma=s-s=C=a-s=C-3.txt: overlap - 1319878 - 1319880  
E098-beta=s-a=D=s-s=C-3.txt x E121-beta=s-a=C=a-s=C-2.txt: overlap - 1599262 - 1599264

E098-beta=s-a=D=s-s=C-3.txt x E123-beta=s-a=C=a-s=C-4.txt: overlap - 1598392 - 1598393  
E098-beta=s-a=D=s-s=C-3.txt x E152-beta=s-s=C=a-s=C-1.txt: overlap - 1598394 - 1598406  
E098-beta=s-a=D=s-s=C-3.txt x E153-beta=s-s=C=a-s=C-2.txt: overlap - 1598408 - 1598408  
E099-beta=s-a=D=s-s=C-4.txt x E114-beta=s-a=C=a-a-C-3.txt: overlap - 1598072 - 1598072  
E099-beta=s-a=D=s-s=C-4.txt x E189-gamma=s-s=C=a-s=D-2.txt: overlap - 1599266 - 1599267  
E099-beta=s-a=D=s-s=C-4.txt x E191-gamma=s-s=C=a-s=D-4.txt: overlap - 1599270 - 1599272  
E100-beta=s-a=D=s-s=C-5.txt x E117-beta=s-a=C=a-a-D-2.txt: overlap - 1319810 - 1319817  
E101-beta=s-a=D=s-s=C-6.txt x E124-beta=s-a=C=a-s=D-1.txt: overlap - 1598414 - 1598415  
E102-beta=s-a=D=s-s=C-7.txt x E122-beta=s-a=C=a-s=C-3.txt: overlap - 1598418 - 1598421  
E102-beta=s-a=D=s-s=C-7.txt x E154-beta=s-s=C=a-s=C-3.txt: overlap - 1598736 - 1598737  
E103-beta=s-a=D=s-s=C-8.txt x E122-beta=s-a=C=a-s=C-3.txt: overlap - 1598426 - 1598429  
E103-beta=s-a=D=s-s=C-8.txt x E125-beta=s-a=C=a-s=D-2.txt: overlap - 1598430 - 1598433  
E103-beta=s-a=D=s-s=C-8.txt x E208-delta=s-s=C=s-a=C-1.txt: overlap - 1599338 - 1599340  
E103-beta=s-a=D=s-s=C-8.txt x E213-delta=s-s=C=s-a=D-1.txt: overlap - 1599342 - 1599344  
E104-beta=s-s=D=s-s=C-1.txt x E144-beta=s-s=C=a-a-C-1.txt: overlap - 1598438 - 1598439  
E105-beta=s-s=D=s-s=C-2.txt x E211-delta=s-s=C=s-a-C-4.txt: overlap - 1598442 - 1598449  
E105-beta=s-s=D=s-s=C-2.txt x E212-delta=s-s=C=s-a-C-5.txt: overlap - 1598450 - 1598454  
E105-beta=s-s=D=s-s=C-2.txt x E215-delta=s-s=C=s-a-D-3.txt: overlap - 1598456 - 1598456  
E107-beta=s-s=D=s-s=C-4.txt x E116-beta=s-a=C=a-a-D-1.txt: overlap - 1319926 - 1319929  
E107-beta=s-s=D=s-s=C-4.txt x E180-gamma=s-s=C=a-a-D-1.txt: overlap - 1319930 - 1319930  
E108-beta=s-s=D=s-s=C-5.txt x E119-beta=s-a=C=a-a-D-4.txt: overlap - 1598160 - 1598160  
E109-beta=s-s=D=s-s=C-6.txt x E159-beta=s-s=C=a-s=D-4.txt: overlap - 1598458 - 1598460  
E109-beta=s-s=D=s-s=C-6.txt x E179-gamma=s-s=C=a-a-C-4.txt: overlap - 1598462 - 1598463  
E109-beta=s-s=D=s-s=C-6.txt x E183-gamma=s-s=C=a-a-D-4.txt: overlap - 1598464 - 1598465  
E110-beta=s-s=D=s-s=C-7.txt x E180-gamma=s-s=C=a-a-D-1.txt: overlap - 1319932 - 1319934  
E111-beta=s-s=D=s-s=C-8.txt x E122-beta=s-a=C=a-s=C-3.txt: overlap - 1598422 - 1598424

File: C082-alpha=s-s=C=a-a=D-1.txt 23 23  
File: E223-delta=s-s=C=s-s=D-1.txt 3 3  
File: E007-alpha=a-a=D=s-s=C-8.txt 49 6  
File: D167-beta=s-s=C=s-a=D-4.txt 19 19  
File: C078-alpha=s-a=C=s-s=D-1.txt 38 38  
File: C027-alpha=s-s=D=s-s=C-4.txt 1 0  
File: C104-beta=s-s=D=s-s=C-1.txt 6 0  
File: E226-delta=s-s=C=s-s=D-4.txt 8 8  
File: E020-alpha=s-a=D=s-s=C-5.txt 7 7  
File: C119-beta=s-a=C=a-a=D-4.txt 10 10  
File: E024-alpha=s-s=D=s-s=C-1.txt 15 0  
File: D083-alpha=s-s=C=a-a=D-2.txt 30 30  
...  
File: C043-alpha=a-a=C=s-a=D-2.txt 53 53  
File: E027-alpha=s-s=D=s-s=C-4.txt 1 0  
File: D116-beta=s-a=C=a-a=D-1.txt 19 19  
File: C216-delta=s-s=C=s-a=D-4.txt 13 13  
File: C217-delta=s-s=C=s-a=D-5.txt 9 9  
File: C086-alpha=s-s=C=a-s=D-1.txt 9 9  
File: E101-beta=s-a=D=s-s=C-6.txt 45 0  
File: E191-gamma=s-s=C=a-s=D-4.txt 9 9  
File: C083-alpha=s-s=C=a-a=D-2.txt 30 30  
File: E216-delta=s-s=C=s-a=D-4.txt 13 13  
File: D031-alpha=s-s=D=s-s=C-8.txt 7 0  
Summary: 414 271 20 123

#### Metadata available

ext-13 Metadata found 384 files, not found 30, total 414 deleted files

Deleted files without metadata (cannot be found)

C000-alpha=a-a=D=s-s=C-1.txt C001-alpha=a-a=D=s-s=C-2.txt  
C002-alpha=a-a=D=s-s=C-3.txt C003-alpha=a-a=D=s-s=C-4.txt  
C004-alpha=a-a=D=s-s=C-5.txt C005-alpha=a-a=D=s-s=C-6.txt  
C006-alpha=a-a=D=s-s=C-7.txt C007-alpha=a-a=D=s-s=C-8.txt  
C008-alpha=a-s=D=s-s=C-1.txt C009-alpha=a-s=D=s-s=C-2.txt  
C010-alpha=a-s=D=s-s=C-3.txt C011-alpha=a-s=D=s-s=C-4.txt  
C012-alpha=a-s=D=s-s=C-5.txt C013-alpha=a-s=D=s-s=C-6.txt  
C014-alpha=a-s=D=s-s=C-7.txt C015-alpha=a-s=D=s-s=C-8.txt  
C016-alpha=s-a=D=s-s=C-1.txt C017-alpha=s-a=D=s-s=C-2.txt  
C018-alpha=s-a=D=s-s=C-3.txt C019-alpha=s-a=D=s-s=C-4.txt  
C046-alpha=a-a=C=s-s=D-1.txt D000-alpha=a-a=D=s-s=C-1.txt

D004-alpha=a-a=D=s-s=C-5.txt D098-beta=s-a=D=s-s=C-3.txt  
 D104-beta=s-s=D=s-s=C-1.txt D105-beta=s-s=D=s-s=C-2.txt  
 D110-beta=s-s=D=s-s=C-7.txt E097-beta=s-a=D=s-s=C-2.txt  
 E099-beta=s-a=D=s-s=C-4.txt E101-beta=s-a=D=s-s=C-6.txt

Layout History

Block map has more than 200 entries

Sector List	
C000-alpha=a-a=D=s-s=C-1.txt	590911 - 590912, 590919 - 590930, 590983 - 590986
C001-alpha=a-a=D=s-s=C-2.txt	510015 - 510022 510047 - 510048 510085 - 510098 510101 - 510116 ... + 0 more
C002-alpha=a-a=D=s-s=C-3.txt	511039 - 511044, 511059 - 511062, 511111 - 511114
C003-alpha=a-a=D=s-s=C-4.txt	512063 - 512066 512075 - 512094 512097 - 512106 512131 - 512169 ... + 0 more
C004-alpha=a-a=D=s-s=C-5.txt	365631 - 365638, 365649 - 365652, 365679 - ...
...	
872 omitted	
E219-delta=s-s=C=s-s=C-2.txt	1598922 - 1598928
E220-delta=s-s=C=s-s=C-3.txt	1319408 - 1319408
E221-delta=s-s=C=s-s=C-4.txt	1598930 - 1598937
E222-delta=s-s=C=s-s=C-5.txt	1597546 - 1597550
E223-delta=s-s=C=s-s=D-1.txt	1598806 - 1598808
E224-delta=s-s=C=s-s=D-2.txt	1597554 - 1597560
E225-delta=s-s=C=s-s=D-3.txt	1597552 - 1597552
E226-delta=s-s=C=s-s=D-4.txt	1319410 - 1319417
E227-delta=s-s=C=s-s=D-5.txt	1319418 - 1319422

## 19 Test Image ext-14

DFR-14. Recover other file system object.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		61	651235	325587+	83	Linux
/dev/sdd2		651236	1302471	325618	83	Linux
/dev/sdd3		1302472	1953707	325618	83	Linux

6 files deleted

Deleted files (6)			
Name	Size	F-Hd	F-Bks
Canopus-target-local-rmTarget-X4.txt	4096 (8+0)	1	7
Canopus-target-remote-rmTarget-X4.txt	4096 (8+0)	1	7
Capella-target-local-rmBoth-X4.txt	4096 (8+0)	1	7
Capella-target-remote-rmBoth-X4.txt	4096 (8+0)	1	7
far-X4/Castor-far-rmLink-X4.txt	4096 (8+0)	1	7
Castor-near-rmLink-X4.txt	4096 (8+0)	1	7

MAC times just before file deletion

File: `Canopus-target-local-rmTarget-X4.txt`  
 Access: 2011-10-09 21:05:24.000000000 -0400  
 Modify: 2011-10-09 21:02:04.000000000 -0400  
 Change: 2011-10-09 21:02:14.000000000 -0400  
 File: `Canopus-target-remote-rmTarget-X4.txt`  
 Access: 2011-10-09 21:05:24.000000000 -0400  
 Modify: 2011-10-09 21:02:04.000000000 -0400  
 Change: 2011-10-09 21:02:14.000000000 -0400  
 File: `Capella-target-local-rmBoth-X4.txt`  
 Access: 2011-10-09 21:05:24.000000000 -0400  
 Modify: 2011-10-09 21:02:25.000000000 -0400

Change: 2011-10-09 21:02:35.000000000 -0400  
 File: `Capella-target-remote-rmBoth-X4.txt`  
 Access: 2011-10-09 21:05:24.000000000 -0400  
 Modify: 2011-10-09 21:02:25.000000000 -0400  
 Change: 2011-10-09 21:02:35.000000000 -0400

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ext-14

==== Run step 2 =====

ACTION (delete): Canopus-target-local-rmTarget-X4.txt Canopus-target-remote-rmTarget-X4.txt  
 ACTION (delete): Castor-near-rmLink-X4.txt Castor-far-rmLink-X4.txt  
 ACTION (delete): Capella-target-local-rmBoth-X4.txt Capella-target-remote-rmBoth-X4.txt Capella-near-rmBoth-X4.txt  
 Capella-far-rmBoth-X4.txt  
 ACTION (delete time): Sun Oct 9 21:05:24 EDT 2011  
 ACTION (delete): Mintaka-target-local-rmTarget-X4.txt Mintaka-target-remote-rmTarget-X4.txt  
 ACTION (delete): Mizar-near-rmLink-X4.txt Mizar-far-rmLink-X4.txt  
 ACTION (delete): Mimosa-target-local-rmBoth-X4.txt Mimosa-target-remote-rmBoth-X4.txt Mimosa-near-rmBoth-X4.txt  
 Mimosa-far-rmBoth-X4.txt  
 ACTION (delete time): Sun Oct 9 21:05:35 EDT 2011  
 ACTION (delete): Leo-target-local-rmTarget-X4 Leo-target-remote-rmTarget-X4  
 ACTION (delete): Libra-near-rmLink-X4 Libra-far-rmLink-X4  
 ACTION (delete): Lynx-target-local-rmBoth-X4 Lynx-target-remote-rmBoth-X4 Lynx-near-rmBoth-X4 Lynx-far-rmBoth-X4  
 ACTION (delete time): Sun Oct 9 21:05:46 EDT 2011

Steps to Create Image ext-14		
Step	Action	Files in Partition EXT2
1	mkdir	far-X4
1	create	Canopus-target-local-rmTarget-X4.txt Canopus-target-remote-rmTarget-X4.txt
1	link	Canopus-near-rmTarget-X4.txt->Canopus-target-local-rmTarget-X4.txt
1	link	far-X4/Canopus-far-rmTarget-X4.txt->Canopus-target-remote-rmTarget-X4.txt
1	create	Castor-target-local-rmLink-X4.txt Castor-target-remote-rmLink-X4.txt
1	link	Castor-near-rmLink-X4.txt->Castor-target-local-rmLink-X4.txt
1	link	far-X4/Castor-far-rmLink-X4.txt->Castor-target-remote-rmLink-X4.txt
1	create	Capella-target-local-rmBoth-X4.txt Capella-target-remote-rmBoth-X4.txt
1	link	Capella-near-rmBoth-X4.txt->Capella-target-local-rmBoth-X4.txt
1	link	far-X4/Capella-far-rmBoth-X4.txt->Capella-target-remote-rmBoth-X4.txt
1	create	Mintaka-target-local-rmTarget-X4.txt Mintaka-target-remote-rmTarget-X4.txt
1	link	Mintaka-near-rmTarget-X4.txt=>Mintaka-target-local-rmTarget-X4.txt
1	link	far-X4/Mintaka-far-rmTarget-X4.txt=>Mintaka-target-remote-rmTarget-X4.txt
1	create	Mizar-target-local-rmLink-X4.txt Mizar-target-remote-rmLink-X4.txt
1	link	Mizar-near-rmLink-X4.txt=>Mizar-target-local-rmLink-X4.txt
1	link	far-X4/Mizar-far-rmLink-X4.txt=>Mizar-target-remote-rmLink-X4.txt
1	create	Mimosa-target-local-rmBoth-X4.txt Mimosa-target-remote-rmBoth-X4.txt
1	link	Mimosa-near-rmBoth-X4.txt=>Mimosa-target-local-rmBoth-X4.txt
1	link	far-X4/Mimosa-far-rmBoth-X4.txt=>Mimosa-target-remote-rmBoth-X4.txt
1	mkdir	Leo-target-local-rmTarget-X4 Libra-target-local-rmLink-X4 Lynx-target-local-rmBoth-X4
1	create	Regulas-target-local-rmTarget-X4
1	create	Vega-target-local-rmLink-X4
1	create	Elvashak-target-local-rmBoth-X4
1	mkdir	Leo-target-remote-rmTarget-X4 Libra-target-remote-rmLink-X4 Lynx-target-remote-rmBoth-X4
1	create	Regulas-target-remote-rmTarget-X4
1	create	Vega-target-remote-rmLink-X4
1	create	Elvashak-target-remote-rmBoth-X4
1	link	Leo-near-rmTarget-X4=>Leo-target-local-rmTarget-X4
1	link	far-X4/Leo-far-rmTarget-X4=>Leo-target-remote-rmTarget-X4
1	link	Libra-near-rmLink-X4=>Libra-target-local-rmLink-X4
1	link	far-X4/Libra-far-rmLink-X4=>Libra-target-remote-rmLink-X4
1	link	Lynx-near-rmBoth-X4=>Lynx-target-local-rmBoth-X4
1	link	far-X4/Lynx-far-rmBoth-X4=>Lynx-target-remote-rmBoth-X4
2	delete	Canopus-target-local-rmTarget-X4.txt Canopus-target-remote-rmTarget-X4.txt
2	delete	Castor-near-rmLink-X4.txt Castor-far-rmLink-X4.txt
2	delete	Capella-target-local-rmBoth-X4.txt Capella-target-remote-rmBoth-X4.txt Capella-near-rmBoth-X4.txt Capella-far-rmBoth-X4.txt
2	delete	Mintaka-target-local-rmTarget-X4.txt Mintaka-target-remote-rmTarget-X4.txt
2	delete	Mizar-near-rmLink-X4.txt Mizar-far-rmLink-X4.txt
2	delete	Mimosa-target-local-rmBoth-X4.txt Mimosa-target-remote-rmBoth-X4.txt Mimosa-near-rmBoth-X4.txt

Steps to Create Image ext-14		
		Mimosa-far-rmBoth-X4.txt
2	delete	Leo-target-local-rmTarget-X4 Leo-target-remote-rmTarget-X4
2	delete	Libra-near-rmLink-X4 Libra-far-rmLink-X4
2	delete	Lynx-target-local-rmBoth-X4 Lynx-target-remote-rmBoth-X4 Lynx-near-rmBoth-X4 Lynx-far-rmBoth-X4
Step	Action	Files in Partition EXT3
Step	Action	Files in Partition EXT4

No overwrites

File: Castor-near-rmLink-X4.txt 8 0  
 File: Canopus-target-remote-rmTarget-X4.txt 8 8  
 File: Canopus-target-local-rmTarget-X4.txt 8 8  
 File: Capella-target-local-rmBoth-X4.txt 8 8  
 File: far-X4/Castor-far-rmLink-X4.txt 8 0  
 File: Capella-target-remote-rmBoth-X4.txt 8 8  
 Summary: 6 4 0 2

Metadata available  
 ext-14 Metadata found 6 files, not found 0, total 6 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 0
Sectors
1123 - 1130
2111 - 2118
3135 - 3142
4159 - 4166
4167 - 4174
5183 - 5190
6207 - 6214
7231 - 7238
11327 - 11334
12351 - 12358
14399 - 14406
15423 - 15430
349247 - 349254
366655 - 366662
384063 - 384070
508991 - 508998
606785 - 606792
638015 - 638022

Layout for Steps 1 through 1	
Sectors	Step 1
1123 - 1130	Capella-target-local-rmBoth-X4
2111 - 2118	Capella-target-remote-rmBoth-X4
3135 - 3142	Canopus-target-local-rmTarget-X4
4159 - 4166	Canopus-target-remote-rmTarget-X4
4167 - 4174	Mimosa-target-local-rmBoth-X4
5183 - 5190	Mimosa-target-remote-rmBoth-X4
6207 - 6214	Mintaka-target-local-rmTarget-X4
7231 - 7238	Mintaka-target-remote-rmTarget-X4
11327 - 11334	Castor-target-local-rmLink-X4
12351 - 12358	Castor-target-remote-rmLink-X4
14399 - 14406	Mizar-target-local-rmLink-X4
15423 - 15430	Mizar-target-remote-rmLink-X4
349247 - 349254	Leo-target-remote-rmTarget-X4/Regulas-target-remote-rmTarget-X4
366655 - 366662	Libra-target-remote-rmLink-X4/Vega-target-remote-rmLink-X4

Layout for Steps 1 through 1	
384063 - 384070	Lynx-target-remote-rmBoth-X4/Elvashak-target-remote-rmBoth-X4
508991 - 508998	Lynx-target-local-rmBoth-X4/Elvashak-target-local-rmBoth-X4
606785 - 606792	Libra-target-local-rmlink-X4/Vega-target-local-rmlink-X4
638015 - 638022	Leo-target-local-rmTarget-X4/Regulas-target-local-rmTarget-X4

Sector List	
Canopus-target-local-rmTarget-X4.txt	3135 - 3142
Canopus-target-remote-rmTarget-X4.txt	4159 - 4166
Capella-target-local-rmBoth-X4.txt	1123 - 1130
Capella-target-remote-rmBoth-X4.txt	2111 - 2118
Castor-target-local-rmlink-X4.txt	11327 - 11334
Castor-target-remote-rmlink-X4.txt	12351 - 12358
Elvashak-target-local-rmBoth-X4	508991 - 508998
Elvashak-target-remote-rmBoth-X4	384063 - 384070
Mimosa-target-local-rmBoth-X4.txt	4167 - 4174
Mimosa-target-remote-rmBoth-X4.txt	5183 - 5190
Mintaka-target-local-rmTarget-X4.txt	6207 - 6214
Mintaka-target-remote-rmTarget-X4.txt	7231 - 7238
Mizar-target-local-rmlink-X4.txt	14399 - 14406
Mizar-target-remote-rmlink-X4.txt	15423 - 15430
Regulas-target-local-rmTarget-X4	638015 - 638022
Regulas-target-remote-rmTarget-X4	349247 - 349254
Vega-target-local-rmlink-X4	606785 - 606792
Vega-target-remote-rmlink-X4	366655 - 366662

## 20 Test Image ext-15

Partition Table Layout  
Disk /dev/sdd: 1073 MB, 1073742336 bytes  
34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors  
Device Boot Start End Blocks Id System  
/dev/sdd1 61 651235 325587+ 83 Linux  
/dev/sdd2 651236 1302471 325618 83 Linux  
/dev/sdd3 1302472 1953707 325618 83 Linux  
End of partition table

### Active Files

```

.:
Adhara-hard-link-X2.txt Aquila-sym-linkToDir-X2 .hidden-X2.txt
Adhara-X2.txt Dschubba-symbolic-link-X2.txt lost+found
Aquila-dir-X2 Dschubba-X2.txt

./Aquila-dir-X2:
Altair-FileInDir-X2

./lost+found:
.:
Betelgeuse-hard-link-X3.txt Cygnus-sym-linkToDir-X3 .hidden-X3.txt
Betelgeuse-X3.txt Electra-symbolic-link-X3.txt lost+found
Cygnus-dir-X3 Electra-X3.txt

./Cygnus-dir-X3:
Deneb-FileInDir-X3

./lost+found:
.:
Canopus-hard-link-X4.txt lost+found Mintaka-symbolic-link-X4.txt
Canopus-X4.txt Lyra-dir-X4 Mintaka-X4.txt
.hidden-X4.txt Lyra-sym-linkToDir-X4

./lost+found:

```

./Lyra-dir-X4:  
 Vega-FileInDir-X4  
 0 files deleted

Steps to Create Image ext-15		
Step	Action	Files in Partition EXT2
1	create	Adhara-X2.txt
1	link	Adhara-hard-link-X2.txt->Adhara-X2.txt
1	create	.hidden-X2.txt
1	create	Dschubba-X2.txt
1	link	Dschubba-symbolic-link-X2.txt=>Dschubba-X2.txt
1	mkdir	Aquila-dir-X2
1	create	Altair-FileInDir-X2
1	link	Aquila-sym-linkToDir-X2=>Aquila-dir-X2
Step	Action	Files in Partition EXT3
1	create	Betelgeuse-X3.txt
1	link	Betelgeuse-hard-link-X3.txt->Betelgeuse-X3.txt
1	create	.hidden-X3.txt
1	create	Electra-X3.txt
1	link	Electra-symbolic-link-X3.txt=>Electra-X3.txt
1	mkdir	Cygnus-dir-X3
1	create	Deneb-FileInDir-X3
1	link	Cygnus-sym-linkToDir-X3=>Cygnus-dir-X3
Step	Action	Files in Partition EXT4
1	create	Canopus-X4.txt
1	link	Canopus-hard-link-X4.txt->Canopus-X4.txt
1	create	.hidden-X4.txt
1	create	Mintaka-X4.txt
1	link	Mintaka-symbolic-link-X4.txt=>Mintaka-X4.txt
1	mkdir	Lyra-dir-X4
1	create	Vega-FileInDir-X4
1	link	Lyra-sym-linkToDir-X4=>Lyra-dir-X4

## 21 Test Image ext-16

Partition Table Layout  
 Disk /dev/sdd: 1073 MB, 1073742336 bytes  
 34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors  
 Device Boot Start End Blocks Id System  
 /dev/sdd1 61 651235 325587+ 83 Linux  
 /dev/sdd2 651236 1302471 325618 83 Linux  
 /dev/sdd3 1302472 1953707 325618 83 Linux  
 End of partition table

### Active Files

```

.:
3-dir-01 3-dir-03 3-dir-05 3-dir-07 3-dir-09
3-dir-02 3-dir-04 3-dir-06 3-dir-08 lost+found

./3-dir-01:
3-01-00001.txt 3-01-00002.txt

./3-dir-02:
3-02-00001.txt 3-02-00002.txt 3-02-00003.txt 3-02-00004.txt

./3-dir-03:
3-03-00001.txt 3-03-00003.txt 3-03-00005.txt 3-03-00007.txt
3-03-00002.txt 3-03-00004.txt 3-03-00006.txt 3-03-00008.txt

./3-dir-04:
3-04-00001.txt 3-04-00005.txt 3-04-00009.txt 3-04-00013.txt
3-04-00002.txt 3-04-00006.txt 3-04-00010.txt 3-04-00014.txt
3-04-00003.txt 3-04-00007.txt 3-04-00011.txt 3-04-00015.txt

```

3-04-00004.txt	3-04-00008.txt	3-04-00012.txt	3-04-00016.txt	
./3-dir-05:				
3-05-00001.txt	3-05-00008.txt	3-05-00015.txt	3-05-00022.txt	3-05-00029.txt
3-05-00002.txt	3-05-00009.txt	3-05-00016.txt	3-05-00023.txt	3-05-00030.txt
3-05-00003.txt	3-05-00010.txt	3-05-00017.txt	3-05-00024.txt	3-05-00031.txt
3-05-00004.txt	3-05-00011.txt	3-05-00018.txt	3-05-00025.txt	3-05-00032.txt
3-05-00005.txt	3-05-00012.txt	3-05-00019.txt	3-05-00026.txt	
3-05-00006.txt	3-05-00013.txt	3-05-00020.txt	3-05-00027.txt	
3-05-00007.txt	3-05-00014.txt	3-05-00021.txt	3-05-00028.txt	
./3-dir-06:				
3-06-00001.txt	3-06-00014.txt	3-06-00027.txt	3-06-00040.txt	3-06-00053.txt
3-06-00002.txt	3-06-00015.txt	3-06-00028.txt	3-06-00041.txt	3-06-00054.txt
3-06-00003.txt	3-06-00016.txt	3-06-00029.txt	3-06-00042.txt	3-06-00055.txt
3-06-00004.txt	3-06-00017.txt	3-06-00030.txt	3-06-00043.txt	3-06-00056.txt
3-06-00005.txt	3-06-00018.txt	3-06-00031.txt	3-06-00044.txt	3-06-00057.txt
3-06-00006.txt	3-06-00019.txt	3-06-00032.txt	3-06-00045.txt	3-06-00058.txt
3-06-00007.txt	3-06-00020.txt	3-06-00033.txt	3-06-00046.txt	3-06-00059.txt
3-06-00008.txt	3-06-00021.txt	3-06-00034.txt	3-06-00047.txt	3-06-00060.txt
3-06-00009.txt	3-06-00022.txt	3-06-00035.txt	3-06-00048.txt	3-06-00061.txt
3-06-00010.txt	3-06-00023.txt	3-06-00036.txt	3-06-00049.txt	3-06-00062.txt
3-06-00011.txt	3-06-00024.txt	3-06-00037.txt	3-06-00050.txt	3-06-00063.txt
3-06-00012.txt	3-06-00025.txt	3-06-00038.txt	3-06-00051.txt	3-06-00064.txt
3-06-00013.txt	3-06-00026.txt	3-06-00039.txt	3-06-00052.txt	
./3-dir-07:				
3-07-00001.txt	3-07-00027.txt	3-07-00053.txt	3-07-00079.txt	3-07-00105.txt
3-07-00002.txt	3-07-00028.txt	3-07-00054.txt	3-07-00080.txt	3-07-00106.txt
3-07-00003.txt	3-07-00029.txt	3-07-00055.txt	3-07-00081.txt	3-07-00107.txt
3-07-00004.txt	3-07-00030.txt	3-07-00056.txt	3-07-00082.txt	3-07-00108.txt
3-07-00005.txt	3-07-00031.txt	3-07-00057.txt	3-07-00083.txt	3-07-00109.txt
3-07-00006.txt	3-07-00032.txt	3-07-00058.txt	3-07-00084.txt	3-07-00110.txt
3-07-00007.txt	3-07-00033.txt	3-07-00059.txt	3-07-00085.txt	3-07-00111.txt
3-07-00008.txt	3-07-00034.txt	3-07-00060.txt	3-07-00086.txt	3-07-00112.txt
3-07-00009.txt	3-07-00035.txt	3-07-00061.txt	3-07-00087.txt	3-07-00113.txt
3-07-00010.txt	3-07-00036.txt	3-07-00062.txt	3-07-00088.txt	3-07-00114.txt
3-07-00011.txt	3-07-00037.txt	3-07-00063.txt	3-07-00089.txt	3-07-00115.txt
3-07-00012.txt	3-07-00038.txt	3-07-00064.txt	3-07-00090.txt	3-07-00116.txt
3-07-00013.txt	3-07-00039.txt	3-07-00065.txt	3-07-00091.txt	3-07-00117.txt
3-07-00014.txt	3-07-00040.txt	3-07-00066.txt	3-07-00092.txt	3-07-00118.txt
3-07-00015.txt	3-07-00041.txt	3-07-00067.txt	3-07-00093.txt	3-07-00119.txt
3-07-00016.txt	3-07-00042.txt	3-07-00068.txt	3-07-00094.txt	3-07-00120.txt
3-07-00017.txt	3-07-00043.txt	3-07-00069.txt	3-07-00095.txt	3-07-00121.txt
3-07-00018.txt	3-07-00044.txt	3-07-00070.txt	3-07-00096.txt	3-07-00122.txt
3-07-00019.txt	3-07-00045.txt	3-07-00071.txt	3-07-00097.txt	3-07-00123.txt
3-07-00020.txt	3-07-00046.txt	3-07-00072.txt	3-07-00098.txt	3-07-00124.txt
3-07-00021.txt	3-07-00047.txt	3-07-00073.txt	3-07-00099.txt	3-07-00125.txt
3-07-00022.txt	3-07-00048.txt	3-07-00074.txt	3-07-00100.txt	3-07-00126.txt
3-07-00023.txt	3-07-00049.txt	3-07-00075.txt	3-07-00101.txt	3-07-00127.txt
3-07-00024.txt	3-07-00050.txt	3-07-00076.txt	3-07-00102.txt	3-07-00128.txt
3-07-00025.txt	3-07-00051.txt	3-07-00077.txt	3-07-00103.txt	
3-07-00026.txt	3-07-00052.txt	3-07-00078.txt	3-07-00104.txt	
./3-dir-08:				
3-08-00001.txt	3-08-00053.txt	3-08-00105.txt	3-08-00157.txt	3-08-00209.txt
3-08-00002.txt	3-08-00054.txt	3-08-00106.txt	3-08-00158.txt	3-08-00210.txt
3-08-00003.txt	3-08-00055.txt	3-08-00107.txt	3-08-00159.txt	3-08-00211.txt
3-08-00004.txt	3-08-00056.txt	3-08-00108.txt	3-08-00160.txt	3-08-00212.txt
3-08-00005.txt	3-08-00057.txt	3-08-00109.txt	3-08-00161.txt	3-08-00213.txt
3-08-00006.txt	3-08-00058.txt	3-08-00110.txt	3-08-00162.txt	3-08-00214.txt
3-08-00007.txt	3-08-00059.txt	3-08-00111.txt	3-08-00163.txt	3-08-00215.txt
3-08-00008.txt	3-08-00060.txt	3-08-00112.txt	3-08-00164.txt	3-08-00216.txt
3-08-00009.txt	3-08-00061.txt	3-08-00113.txt	3-08-00165.txt	3-08-00217.txt
3-08-00010.txt	3-08-00062.txt	3-08-00114.txt	3-08-00166.txt	3-08-00218.txt
3-08-00011.txt	3-08-00063.txt	3-08-00115.txt	3-08-00167.txt	3-08-00219.txt
3-08-00012.txt	3-08-00064.txt	3-08-00116.txt	3-08-00168.txt	3-08-00220.txt
3-08-00013.txt	3-08-00065.txt	3-08-00117.txt	3-08-00169.txt	3-08-00221.txt
3-08-00014.txt	3-08-00066.txt	3-08-00118.txt	3-08-00170.txt	3-08-00222.txt







3-09-00099.txt 3-09-00202.txt 3-09-00305.txt 3-09-00408.txt 3-09-00511.txt  
3-09-00100.txt 3-09-00203.txt 3-09-00306.txt 3-09-00409.txt 3-09-00512.txt  
3-09-00101.txt 3-09-00204.txt 3-09-00307.txt 3-09-00410.txt  
3-09-00102.txt 3-09-00205.txt 3-09-00308.txt 3-09-00411.txt  
3-09-00103.txt 3-09-00206.txt 3-09-00309.txt 3-09-00412.txt

./lost+found:

..

4-dir-01 4-dir-03 4-dir-05 4-dir-07 4-dir-09  
4-dir-02 4-dir-04 4-dir-06 4-dir-08 lost+found

./4-dir-01:

4-01-00001.txt 4-01-00002.txt

./4-dir-02:

4-02-00001.txt 4-02-00002.txt 4-02-00003.txt 4-02-00004.txt

./4-dir-03:

4-03-00001.txt 4-03-00003.txt 4-03-00005.txt 4-03-00007.txt  
4-03-00002.txt 4-03-00004.txt 4-03-00006.txt 4-03-00008.txt

./4-dir-04:

4-04-00001.txt 4-04-00005.txt 4-04-00009.txt 4-04-00013.txt  
4-04-00002.txt 4-04-00006.txt 4-04-00010.txt 4-04-00014.txt  
4-04-00003.txt 4-04-00007.txt 4-04-00011.txt 4-04-00015.txt  
4-04-00004.txt 4-04-00008.txt 4-04-00012.txt 4-04-00016.txt

./4-dir-05:

4-05-00001.txt 4-05-00008.txt 4-05-00015.txt 4-05-00022.txt 4-05-00029.txt  
4-05-00002.txt 4-05-00009.txt 4-05-00016.txt 4-05-00023.txt 4-05-00030.txt  
4-05-00003.txt 4-05-00010.txt 4-05-00017.txt 4-05-00024.txt 4-05-00031.txt  
4-05-00004.txt 4-05-00011.txt 4-05-00018.txt 4-05-00025.txt 4-05-00032.txt  
4-05-00005.txt 4-05-00012.txt 4-05-00019.txt 4-05-00026.txt  
4-05-00006.txt 4-05-00013.txt 4-05-00020.txt 4-05-00027.txt  
4-05-00007.txt 4-05-00014.txt 4-05-00021.txt 4-05-00028.txt

./4-dir-06:

4-06-00001.txt 4-06-00014.txt 4-06-00027.txt 4-06-00040.txt 4-06-00053.txt  
4-06-00002.txt 4-06-00015.txt 4-06-00028.txt 4-06-00041.txt 4-06-00054.txt  
4-06-00003.txt 4-06-00016.txt 4-06-00029.txt 4-06-00042.txt 4-06-00055.txt  
4-06-00004.txt 4-06-00017.txt 4-06-00030.txt 4-06-00043.txt 4-06-00056.txt  
4-06-00005.txt 4-06-00018.txt 4-06-00031.txt 4-06-00044.txt 4-06-00057.txt  
4-06-00006.txt 4-06-00019.txt 4-06-00032.txt 4-06-00045.txt 4-06-00058.txt  
4-06-00007.txt 4-06-00020.txt 4-06-00033.txt 4-06-00046.txt 4-06-00059.txt  
4-06-00008.txt 4-06-00021.txt 4-06-00034.txt 4-06-00047.txt 4-06-00060.txt  
4-06-00009.txt 4-06-00022.txt 4-06-00035.txt 4-06-00048.txt 4-06-00061.txt  
4-06-00010.txt 4-06-00023.txt 4-06-00036.txt 4-06-00049.txt 4-06-00062.txt  
4-06-00011.txt 4-06-00024.txt 4-06-00037.txt 4-06-00050.txt 4-06-00063.txt  
4-06-00012.txt 4-06-00025.txt 4-06-00038.txt 4-06-00051.txt 4-06-00064.txt  
4-06-00013.txt 4-06-00026.txt 4-06-00039.txt 4-06-00052.txt

./4-dir-07:

4-07-00001.txt 4-07-00027.txt 4-07-00053.txt 4-07-00079.txt 4-07-00105.txt  
4-07-00002.txt 4-07-00028.txt 4-07-00054.txt 4-07-00080.txt 4-07-00106.txt  
4-07-00003.txt 4-07-00029.txt 4-07-00055.txt 4-07-00081.txt 4-07-00107.txt  
4-07-00004.txt 4-07-00030.txt 4-07-00056.txt 4-07-00082.txt 4-07-00108.txt  
4-07-00005.txt 4-07-00031.txt 4-07-00057.txt 4-07-00083.txt 4-07-00109.txt  
4-07-00006.txt 4-07-00032.txt 4-07-00058.txt 4-07-00084.txt 4-07-00110.txt  
4-07-00007.txt 4-07-00033.txt 4-07-00059.txt 4-07-00085.txt 4-07-00111.txt  
4-07-00008.txt 4-07-00034.txt 4-07-00060.txt 4-07-00086.txt 4-07-00112.txt  
4-07-00009.txt 4-07-00035.txt 4-07-00061.txt 4-07-00087.txt 4-07-00113.txt  
4-07-00010.txt 4-07-00036.txt 4-07-00062.txt 4-07-00088.txt 4-07-00114.txt  
4-07-00011.txt 4-07-00037.txt 4-07-00063.txt 4-07-00089.txt 4-07-00115.txt  
4-07-00012.txt 4-07-00038.txt 4-07-00064.txt 4-07-00090.txt 4-07-00116.txt  
4-07-00013.txt 4-07-00039.txt 4-07-00065.txt 4-07-00091.txt 4-07-00117.txt  
4-07-00014.txt 4-07-00040.txt 4-07-00066.txt 4-07-00092.txt 4-07-00118.txt  
4-07-00015.txt 4-07-00041.txt 4-07-00067.txt 4-07-00093.txt 4-07-00119.txt  
4-07-00016.txt 4-07-00042.txt 4-07-00068.txt 4-07-00094.txt 4-07-00120.txt  
4-07-00017.txt 4-07-00043.txt 4-07-00069.txt 4-07-00095.txt 4-07-00121.txt





4-09-00074.txt	4-09-00177.txt	4-09-00280.txt	4-09-00383.txt	4-09-00486.txt
4-09-00075.txt	4-09-00178.txt	4-09-00281.txt	4-09-00384.txt	4-09-00487.txt
4-09-00076.txt	4-09-00179.txt	4-09-00282.txt	4-09-00385.txt	4-09-00488.txt
4-09-00077.txt	4-09-00180.txt	4-09-00283.txt	4-09-00386.txt	4-09-00489.txt
4-09-00078.txt	4-09-00181.txt	4-09-00284.txt	4-09-00387.txt	4-09-00490.txt
4-09-00079.txt	4-09-00182.txt	4-09-00285.txt	4-09-00388.txt	4-09-00491.txt
4-09-00080.txt	4-09-00183.txt	4-09-00286.txt	4-09-00389.txt	4-09-00492.txt
4-09-00081.txt	4-09-00184.txt	4-09-00287.txt	4-09-00390.txt	4-09-00493.txt
4-09-00082.txt	4-09-00185.txt	4-09-00288.txt	4-09-00391.txt	4-09-00494.txt
4-09-00083.txt	4-09-00186.txt	4-09-00289.txt	4-09-00392.txt	4-09-00495.txt
4-09-00084.txt	4-09-00187.txt	4-09-00290.txt	4-09-00393.txt	4-09-00496.txt
4-09-00085.txt	4-09-00188.txt	4-09-00291.txt	4-09-00394.txt	4-09-00497.txt
4-09-00086.txt	4-09-00189.txt	4-09-00292.txt	4-09-00395.txt	4-09-00498.txt
4-09-00087.txt	4-09-00190.txt	4-09-00293.txt	4-09-00396.txt	4-09-00499.txt
4-09-00088.txt	4-09-00191.txt	4-09-00294.txt	4-09-00397.txt	4-09-00500.txt
4-09-00089.txt	4-09-00192.txt	4-09-00295.txt	4-09-00398.txt	4-09-00501.txt
4-09-00090.txt	4-09-00193.txt	4-09-00296.txt	4-09-00399.txt	4-09-00502.txt
4-09-00091.txt	4-09-00194.txt	4-09-00297.txt	4-09-00400.txt	4-09-00503.txt
4-09-00092.txt	4-09-00195.txt	4-09-00298.txt	4-09-00401.txt	4-09-00504.txt
4-09-00093.txt	4-09-00196.txt	4-09-00299.txt	4-09-00402.txt	4-09-00505.txt
4-09-00094.txt	4-09-00197.txt	4-09-00300.txt	4-09-00403.txt	4-09-00506.txt
4-09-00095.txt	4-09-00198.txt	4-09-00301.txt	4-09-00404.txt	4-09-00507.txt
4-09-00096.txt	4-09-00199.txt	4-09-00302.txt	4-09-00405.txt	4-09-00508.txt
4-09-00097.txt	4-09-00200.txt	4-09-00303.txt	4-09-00406.txt	4-09-00509.txt
4-09-00098.txt	4-09-00201.txt	4-09-00304.txt	4-09-00407.txt	4-09-00510.txt
4-09-00099.txt	4-09-00202.txt	4-09-00305.txt	4-09-00408.txt	4-09-00511.txt
4-09-00100.txt	4-09-00203.txt	4-09-00306.txt	4-09-00409.txt	4-09-00512.txt
4-09-00101.txt	4-09-00204.txt	4-09-00307.txt	4-09-00410.txt	
4-09-00102.txt	4-09-00205.txt	4-09-00308.txt	4-09-00411.txt	
4-09-00103.txt	4-09-00206.txt	4-09-00309.txt	4-09-00412.txt	

./lost+found:

..  
5-dir-01 5-dir-03 5-dir-05 5-dir-07  
5-dir-02 5-dir-04 5-dir-06 5-dir-08

5-dir-09  
lost+found

./5-dir-01:

5-01-00001.txt 5-01-00002.txt

./5-dir-02:

5-02-00001.txt 5-02-00002.txt 5-02-00003.txt 5-02-00004.txt

./5-dir-03:

5-03-00001.txt 5-03-00003.txt 5-03-00005.txt 5-03-00007.txt  
5-03-00002.txt 5-03-00004.txt 5-03-00006.txt 5-03-00008.txt

./5-dir-04:

5-04-00001.txt 5-04-00005.txt 5-04-00009.txt 5-04-00013.txt  
5-04-00002.txt 5-04-00006.txt 5-04-00010.txt 5-04-00014.txt  
5-04-00003.txt 5-04-00007.txt 5-04-00011.txt 5-04-00015.txt  
5-04-00004.txt 5-04-00008.txt 5-04-00012.txt 5-04-00016.txt

./5-dir-05:

5-05-00001.txt 5-05-00008.txt 5-05-00015.txt 5-05-00022.txt 5-05-00029.txt  
5-05-00002.txt 5-05-00009.txt 5-05-00016.txt 5-05-00023.txt 5-05-00030.txt  
5-05-00003.txt 5-05-00010.txt 5-05-00017.txt 5-05-00024.txt 5-05-00031.txt  
5-05-00004.txt 5-05-00011.txt 5-05-00018.txt 5-05-00025.txt 5-05-00032.txt  
5-05-00005.txt 5-05-00012.txt 5-05-00019.txt 5-05-00026.txt  
5-05-00006.txt 5-05-00013.txt 5-05-00020.txt 5-05-00027.txt  
5-05-00007.txt 5-05-00014.txt 5-05-00021.txt 5-05-00028.txt

./5-dir-06:

5-06-00001.txt 5-06-00014.txt 5-06-00027.txt 5-06-00040.txt 5-06-00053.txt  
5-06-00002.txt 5-06-00015.txt 5-06-00028.txt 5-06-00041.txt 5-06-00054.txt  
5-06-00003.txt 5-06-00016.txt 5-06-00029.txt 5-06-00042.txt 5-06-00055.txt  
5-06-00004.txt 5-06-00017.txt 5-06-00030.txt 5-06-00043.txt 5-06-00056.txt  
5-06-00005.txt 5-06-00018.txt 5-06-00031.txt 5-06-00044.txt 5-06-00057.txt  
5-06-00006.txt 5-06-00019.txt 5-06-00032.txt 5-06-00045.txt 5-06-00058.txt  
5-06-00007.txt 5-06-00020.txt 5-06-00033.txt 5-06-00046.txt 5-06-00059.txt







5-09-00049.txt 5-09-00152.txt 5-09-00255.txt 5-09-00358.txt 5-09-00461.txt  
5-09-00050.txt 5-09-00153.txt 5-09-00256.txt 5-09-00359.txt 5-09-00462.txt  
5-09-00051.txt 5-09-00154.txt 5-09-00257.txt 5-09-00360.txt 5-09-00463.txt  
5-09-00052.txt 5-09-00155.txt 5-09-00258.txt 5-09-00361.txt 5-09-00464.txt  
5-09-00053.txt 5-09-00156.txt 5-09-00259.txt 5-09-00362.txt 5-09-00465.txt  
5-09-00054.txt 5-09-00157.txt 5-09-00260.txt 5-09-00363.txt 5-09-00466.txt  
5-09-00055.txt 5-09-00158.txt 5-09-00261.txt 5-09-00364.txt 5-09-00467.txt  
5-09-00056.txt 5-09-00159.txt 5-09-00262.txt 5-09-00365.txt 5-09-00468.txt  
5-09-00057.txt 5-09-00160.txt 5-09-00263.txt 5-09-00366.txt 5-09-00469.txt  
5-09-00058.txt 5-09-00161.txt 5-09-00264.txt 5-09-00367.txt 5-09-00470.txt  
5-09-00059.txt 5-09-00162.txt 5-09-00265.txt 5-09-00368.txt 5-09-00471.txt  
5-09-00060.txt 5-09-00163.txt 5-09-00266.txt 5-09-00369.txt 5-09-00472.txt  
5-09-00061.txt 5-09-00164.txt 5-09-00267.txt 5-09-00370.txt 5-09-00473.txt  
5-09-00062.txt 5-09-00165.txt 5-09-00268.txt 5-09-00371.txt 5-09-00474.txt  
5-09-00063.txt 5-09-00166.txt 5-09-00269.txt 5-09-00372.txt 5-09-00475.txt  
5-09-00064.txt 5-09-00167.txt 5-09-00270.txt 5-09-00373.txt 5-09-00476.txt  
5-09-00065.txt 5-09-00168.txt 5-09-00271.txt 5-09-00374.txt 5-09-00477.txt  
5-09-00066.txt 5-09-00169.txt 5-09-00272.txt 5-09-00375.txt 5-09-00478.txt  
5-09-00067.txt 5-09-00170.txt 5-09-00273.txt 5-09-00376.txt 5-09-00479.txt  
5-09-00068.txt 5-09-00171.txt 5-09-00274.txt 5-09-00377.txt 5-09-00480.txt  
5-09-00069.txt 5-09-00172.txt 5-09-00275.txt 5-09-00378.txt 5-09-00481.txt  
5-09-00070.txt 5-09-00173.txt 5-09-00276.txt 5-09-00379.txt 5-09-00482.txt  
5-09-00071.txt 5-09-00174.txt 5-09-00277.txt 5-09-00380.txt 5-09-00483.txt  
5-09-00072.txt 5-09-00175.txt 5-09-00278.txt 5-09-00381.txt 5-09-00484.txt  
5-09-00073.txt 5-09-00176.txt 5-09-00279.txt 5-09-00382.txt 5-09-00485.txt  
5-09-00074.txt 5-09-00177.txt 5-09-00280.txt 5-09-00383.txt 5-09-00486.txt  
5-09-00075.txt 5-09-00178.txt 5-09-00281.txt 5-09-00384.txt 5-09-00487.txt  
5-09-00076.txt 5-09-00179.txt 5-09-00282.txt 5-09-00385.txt 5-09-00488.txt  
5-09-00077.txt 5-09-00180.txt 5-09-00283.txt 5-09-00386.txt 5-09-00489.txt  
5-09-00078.txt 5-09-00181.txt 5-09-00284.txt 5-09-00387.txt 5-09-00490.txt  
5-09-00079.txt 5-09-00182.txt 5-09-00285.txt 5-09-00388.txt 5-09-00491.txt  
5-09-00080.txt 5-09-00183.txt 5-09-00286.txt 5-09-00389.txt 5-09-00492.txt  
5-09-00081.txt 5-09-00184.txt 5-09-00287.txt 5-09-00390.txt 5-09-00493.txt  
5-09-00082.txt 5-09-00185.txt 5-09-00288.txt 5-09-00391.txt 5-09-00494.txt  
5-09-00083.txt 5-09-00186.txt 5-09-00289.txt 5-09-00392.txt 5-09-00495.txt  
5-09-00084.txt 5-09-00187.txt 5-09-00290.txt 5-09-00393.txt 5-09-00496.txt  
5-09-00085.txt 5-09-00188.txt 5-09-00291.txt 5-09-00394.txt 5-09-00497.txt  
5-09-00086.txt 5-09-00189.txt 5-09-00292.txt 5-09-00395.txt 5-09-00498.txt  
5-09-00087.txt 5-09-00190.txt 5-09-00293.txt 5-09-00396.txt 5-09-00499.txt  
5-09-00088.txt 5-09-00191.txt 5-09-00294.txt 5-09-00397.txt 5-09-00500.txt  
5-09-00089.txt 5-09-00192.txt 5-09-00295.txt 5-09-00398.txt 5-09-00501.txt  
5-09-00090.txt 5-09-00193.txt 5-09-00296.txt 5-09-00399.txt 5-09-00502.txt  
5-09-00091.txt 5-09-00194.txt 5-09-00297.txt 5-09-00400.txt 5-09-00503.txt  
5-09-00092.txt 5-09-00195.txt 5-09-00298.txt 5-09-00401.txt 5-09-00504.txt  
5-09-00093.txt 5-09-00196.txt 5-09-00299.txt 5-09-00402.txt 5-09-00505.txt  
5-09-00094.txt 5-09-00197.txt 5-09-00300.txt 5-09-00403.txt 5-09-00506.txt  
5-09-00095.txt 5-09-00198.txt 5-09-00301.txt 5-09-00404.txt 5-09-00507.txt  
5-09-00096.txt 5-09-00199.txt 5-09-00302.txt 5-09-00405.txt 5-09-00508.txt  
5-09-00097.txt 5-09-00200.txt 5-09-00303.txt 5-09-00406.txt 5-09-00509.txt  
5-09-00098.txt 5-09-00201.txt 5-09-00304.txt 5-09-00407.txt 5-09-00510.txt  
5-09-00099.txt 5-09-00202.txt 5-09-00305.txt 5-09-00408.txt 5-09-00511.txt  
5-09-00100.txt 5-09-00203.txt 5-09-00306.txt 5-09-00409.txt 5-09-00512.txt  
5-09-00101.txt 5-09-00204.txt 5-09-00307.txt 5-09-00410.txt  
5-09-00102.txt 5-09-00205.txt 5-09-00308.txt 5-09-00411.txt  
5-09-00103.txt 5-09-00206.txt 5-09-00309.txt 5-09-00412.txt

./lost+found:  
0 files deleted

Steps to Create Image ext-16		
Step	Action	Files in Partition EXT2
1	create	3 dirs
Step	Action	Files in Partition EXT3
1	create	4 dirs
Step	Action	Files in Partition EXT4
1	create	5 dirs

## 22 Test Image ext-17

### Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes  
34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors  
Device Boot Start End Blocks Id System  
/dev/sdd1 61 651235 325587+ 83 Linux  
/dev/sdd2 651236 1302471 325618 83 Linux  
/dev/sdd3 1302472 1953707 325618 83 Linux  
End of partition table

### Active Files

```
..  
lost+found X01 X02 X03 X04 X05 X06 X07 X08 X09
```

```
./lost+found:
```

```
./X01:  
X01F01.TXT
```

```
./X02:  
X02F01.TXT X02L01
```

```
./X02/X02L01:  
X02F02.TXT
```

```
./X03:  
X03F01.TXT X03L01
```

```
./X03/X03L01:  
X03F02.TXT X03L02
```

```
./X03/X03L01/X03L02:  
X03F03.TXT
```

```
./X04:  
X04F01.TXT X04L01
```

```
./X04/X04L01:  
X04F02.TXT X04L02
```

```
./X04/X04L01/X04L02:  
X04F03.TXT X04L03
```

```
./X04/X04L01/X04L02/X04L03:  
X04F04.TXT
```

```
./X05:  
X05F01.TXT X05L01
```

```
./X05/X05L01:  
X05F02.TXT X05L02
```

```
./X05/X05L01/X05L02:  
X05F03.TXT X05L03
```

```
./X05/X05L01/X05L02/X05L03:  
X05F04.TXT X05L04
```

```
./X05/X05L01/X05L02/X05L03/X05L04:  
X05F05.TXT
```

```
./X06:  
X06F01.TXT X06L01
```

```
./X06/X06L01:  
X06F02.TXT X06L02
```

./X06/X06L01/X06L02:  
X06F03.TXT X06L03

./X06/X06L01/X06L02/X06L03:  
X06F04.TXT X06L04

./X06/X06L01/X06L02/X06L03/X06L04:  
X06F05.TXT X06L05

./X06/X06L01/X06L02/X06L03/X06L04/X06L05:  
X06F06.TXT

./X07:  
X07F01.TXT X07L01

./X07/X07L01:  
X07F02.TXT X07L02

./X07/X07L01/X07L02:  
X07F03.TXT X07L03

./X07/X07L01/X07L02/X07L03:  
X07F04.TXT X07L04

./X07/X07L01/X07L02/X07L03/X07L04:  
X07F05.TXT X07L05

./X07/X07L01/X07L02/X07L03/X07L04/X07L05:  
X07F06.TXT X07L06

./X07/X07L01/X07L02/X07L03/X07L04/X07L05/X07L06:  
X07F07.TXT

./X08:  
X08F01.TXT X08L01

./X08/X08L01:  
X08F02.TXT X08L02

./X08/X08L01/X08L02:  
X08F03.TXT X08L03

./X08/X08L01/X08L02/X08L03:  
X08F04.TXT X08L04

./X08/X08L01/X08L02/X08L03/X08L04:  
X08F05.TXT X08L05

./X08/X08L01/X08L02/X08L03/X08L04/X08L05:  
X08F06.TXT X08L06

./X08/X08L01/X08L02/X08L03/X08L04/X08L05/X08L06:  
X08F07.TXT X08L07

./X08/X08L01/X08L02/X08L03/X08L04/X08L05/X08L06/X08L07:  
X08F08.TXT

./X09:  
X09F01.TXT X09L01

./X09/X09L01:  
X09F02.TXT X09L02

./X09/X09L01/X09L02:  
X09F03.TXT X09L03

./X09/X09L01/X09L02/X09L03:  
X09F04.TXT X09L04

./X09/X09L01/X09L02/X09L03/X09L04:  
X09F05.TXT X09L05

./X09/X09L01/X09L02/X09L03/X09L04/X09L05:  
X09F06.TXT X09L06

./X09/X09L01/X09L02/X09L03/X09L04/X09L05/X09L06:  
X09F07.TXT X09L07

./X09/X09L01/X09L02/X09L03/X09L04/X09L05/X09L06/X09L07:  
X09F08.TXT X09L08

./X09/X09L01/X09L02/X09L03/X09L04/X09L05/X09L06/X09L07/X09L08:  
X09F09.TXT  
.:  
lost+found Y01 Y02 Y03 Y04 Y05 Y06 Y07 Y08 Y09

./lost+found:

./Y01:  
Y01F01.TXT

./Y02:  
Y02F01.TXT Y02L01

./Y02/Y02L01:  
Y02F02.TXT

./Y03:  
Y03F01.TXT Y03L01

./Y03/Y03L01:  
Y03F02.TXT Y03L02

./Y03/Y03L01/Y03L02:  
Y03F03.TXT

./Y04:  
Y04F01.TXT Y04L01

./Y04/Y04L01:  
Y04F02.TXT Y04L02

./Y04/Y04L01/Y04L02:  
Y04F03.TXT Y04L03

./Y04/Y04L01/Y04L02/Y04L03:  
Y04F04.TXT

./Y05:  
Y05F01.TXT Y05L01

./Y05/Y05L01:  
Y05F02.TXT Y05L02

./Y05/Y05L01/Y05L02:  
Y05F03.TXT Y05L03

./Y05/Y05L01/Y05L02/Y05L03:  
Y05F04.TXT Y05L04

./Y05/Y05L01/Y05L02/Y05L03/Y05L04:  
Y05F05.TXT

./Y06:  
Y06F01.TXT Y06L01

./Y06/Y06L01:

Y06F02.TXT Y06L02

./Y06/Y06L01/Y06L02:  
Y06F03.TXT Y06L03

./Y06/Y06L01/Y06L02/Y06L03:  
Y06F04.TXT Y06L04

./Y06/Y06L01/Y06L02/Y06L03/Y06L04:  
Y06F05.TXT Y06L05

./Y06/Y06L01/Y06L02/Y06L03/Y06L04/Y06L05:  
Y06F06.TXT

./Y07:  
Y07F01.TXT Y07L01

./Y07/Y07L01:  
Y07F02.TXT Y07L02

./Y07/Y07L01/Y07L02:  
Y07F03.TXT Y07L03

./Y07/Y07L01/Y07L02/Y07L03:  
Y07F04.TXT Y07L04

./Y07/Y07L01/Y07L02/Y07L03/Y07L04:  
Y07F05.TXT Y07L05

./Y07/Y07L01/Y07L02/Y07L03/Y07L04/Y07L05:  
Y07F06.TXT Y07L06

./Y07/Y07L01/Y07L02/Y07L03/Y07L04/Y07L05/Y07L06:  
Y07F07.TXT

./Y08:  
Y08F01.TXT Y08L01

./Y08/Y08L01:  
Y08F02.TXT Y08L02

./Y08/Y08L01/Y08L02:  
Y08F03.TXT Y08L03

./Y08/Y08L01/Y08L02/Y08L03:  
Y08F04.TXT Y08L04

./Y08/Y08L01/Y08L02/Y08L03/Y08L04:  
Y08F05.TXT Y08L05

./Y08/Y08L01/Y08L02/Y08L03/Y08L04/Y08L05:  
Y08F06.TXT Y08L06

./Y08/Y08L01/Y08L02/Y08L03/Y08L04/Y08L05/Y08L06:  
Y08F07.TXT Y08L07

./Y08/Y08L01/Y08L02/Y08L03/Y08L04/Y08L05/Y08L06/Y08L07:  
Y08F08.TXT

./Y09:  
Y09F01.TXT Y09L01

./Y09/Y09L01:  
Y09F02.TXT Y09L02

./Y09/Y09L01/Y09L02:  
Y09F03.TXT Y09L03

./Y09/Y09L01/Y09L02/Y09L03:

Y09F04.TXT Y09L04

./Y09/Y09L01/Y09L02/Y09L03/Y09L04:  
Y09F05.TXT Y09L05

./Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05:  
Y09F06.TXT Y09L06

./Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05/Y09L06:  
Y09F07.TXT Y09L07

./Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05/Y09L06/Y09L07:  
Y09F08.TXT Y09L08

./Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05/Y09L06/Y09L07/Y09L08:  
Y09F09.TXT

∴  
lost+found Z01 Z02 Z03 Z04 Z05 Z06 Z07 Z08 Z09

./lost+found:

./Z01:  
Z01F01.TXT

./Z02:  
Z02F01.TXT Z02L01

./Z02/Z02L01:  
Z02F02.TXT

./Z03:  
Z03F01.TXT Z03L01

./Z03/Z03L01:  
Z03F02.TXT Z03L02

./Z03/Z03L01/Z03L02:  
Z03F03.TXT

./Z04:  
Z04F01.TXT Z04L01

./Z04/Z04L01:  
Z04F02.TXT Z04L02

./Z04/Z04L01/Z04L02:  
Z04F03.TXT Z04L03

./Z04/Z04L01/Z04L02/Z04L03:  
Z04F04.TXT

./Z05:  
Z05F01.TXT Z05L01

./Z05/Z05L01:  
Z05F02.TXT Z05L02

./Z05/Z05L01/Z05L02:  
Z05F03.TXT Z05L03

./Z05/Z05L01/Z05L02/Z05L03:  
Z05F04.TXT Z05L04

./Z05/Z05L01/Z05L02/Z05L03/Z05L04:  
Z05F05.TXT

./Z06:  
Z06F01.TXT Z06L01

./Z06/Z06L01:  
Z06F02.TXT Z06L02

./Z06/Z06L01/Z06L02:  
Z06F03.TXT Z06L03

./Z06/Z06L01/Z06L02/Z06L03:  
Z06F04.TXT Z06L04

./Z06/Z06L01/Z06L02/Z06L03/Z06L04:  
Z06F05.TXT Z06L05

./Z06/Z06L01/Z06L02/Z06L03/Z06L04/Z06L05:  
Z06F06.TXT

./Z07:  
Z07F01.TXT Z07L01

./Z07/Z07L01:  
Z07F02.TXT Z07L02

./Z07/Z07L01/Z07L02:  
Z07F03.TXT Z07L03

./Z07/Z07L01/Z07L02/Z07L03:  
Z07F04.TXT Z07L04

./Z07/Z07L01/Z07L02/Z07L03/Z07L04:  
Z07F05.TXT Z07L05

./Z07/Z07L01/Z07L02/Z07L03/Z07L04/Z07L05:  
Z07F06.TXT Z07L06

./Z07/Z07L01/Z07L02/Z07L03/Z07L04/Z07L05/Z07L06:  
Z07F07.TXT

./Z08:  
Z08F01.TXT Z08L01

./Z08/Z08L01:  
Z08F02.TXT Z08L02

./Z08/Z08L01/Z08L02:  
Z08F03.TXT Z08L03

./Z08/Z08L01/Z08L02/Z08L03:  
Z08F04.TXT Z08L04

./Z08/Z08L01/Z08L02/Z08L03/Z08L04:  
Z08F05.TXT Z08L05

./Z08/Z08L01/Z08L02/Z08L03/Z08L04/Z08L05:  
Z08F06.TXT Z08L06

./Z08/Z08L01/Z08L02/Z08L03/Z08L04/Z08L05/Z08L06:  
Z08F07.TXT Z08L07

./Z08/Z08L01/Z08L02/Z08L03/Z08L04/Z08L05/Z08L06/Z08L07:  
Z08F08.TXT

./Z09:  
Z09F01.TXT Z09L01

./Z09/Z09L01:  
Z09F02.TXT Z09L02

./Z09/Z09L01/Z09L02:  
Z09F03.TXT Z09L03

./Z09/Z09L01/Z09L02/Z09L03:  
Z09F04.TXT Z09L04

./Z09/Z09L01/Z09L02/Z09L03/Z09L04:  
Z09F05.TXT Z09L05

./Z09/Z09L01/Z09L02/Z09L03/Z09L04/Z09L05:  
Z09F06.TXT Z09L06

./Z09/Z09L01/Z09L02/Z09L03/Z09L04/Z09L05/Z09L06:  
Z09F07.TXT Z09L07

./Z09/Z09L01/Z09L02/Z09L03/Z09L04/Z09L05/Z09L06/Z09L07:  
Z09F08.TXT Z09L08

./Z09/Z09L01/Z09L02/Z09L03/Z09L04/Z09L05/Z09L06/Z09L07/Z09L08:  
Z09F09.TXT  
0 files deleted

Steps to Create Image ext-17		
Step	Action	Files in Partition EXT2
1	mkdir	X01
1	mkdir	X02
1	mkdir	X02/X02L01
1	mkdir	X03
1	mkdir	X03/X03L01
1	mkdir	X03/X03L01/X03L02
1	mkdir	X04
1	mkdir	X04/X04L01
1	mkdir	X04/X04L01/X04L02
1	mkdir	X04/X04L01/X04L02/X04L03
1	mkdir	X05
1	mkdir	X05/X05L01
1	mkdir	X05/X05L01/X05L02
1	mkdir	X05/X05L01/X05L02/X05L03
1	mkdir	X05/X05L01/X05L02/X05L03/X05L04
1	mkdir	X06
1	mkdir	X06/X06L01
1	mkdir	X06/X06L01/X06L02
1	mkdir	X06/X06L01/X06L02/X06L03
1	mkdir	X06/X06L01/X06L02/X06L03/X06L04
1	mkdir	X06/X06L01/X06L02/X06L03/X06L04/X06L05
1	mkdir	X07
1	mkdir	X07/X07L01
1	mkdir	X07/X07L01/X07L02
1	mkdir	X07/X07L01/X07L02/X07L03
1	mkdir	X07/X07L01/X07L02/X07L03/X07L04
1	mkdir	X07/X07L01/X07L02/X07L03/X07L04/X07L05
1	mkdir	X07/X07L01/X07L02/X07L03/X07L04/X07L05/X07L06
1	mkdir	X08
1	mkdir	X08/X08L01
1	mkdir	X08/X08L01/X08L02
1	mkdir	X08/X08L01/X08L02/X08L03
1	mkdir	X08/X08L01/X08L02/X08L03/X08L04
1	mkdir	X08/X08L01/X08L02/X08L03/X08L04/X08L05
1	mkdir	X08/X08L01/X08L02/X08L03/X08L04/X08L05/X08L06
1	mkdir	X08/X08L01/X08L02/X08L03/X08L04/X08L05/X08L06/X08L07
1	mkdir	X09
1	mkdir	X09/X09L01
1	mkdir	X09/X09L01/X09L02
1	mkdir	X09/X09L01/X09L02/X09L03
1	mkdir	X09/X09L01/X09L02/X09L03/X09L04
1	mkdir	X09/X09L01/X09L02/X09L03/X09L04/X09L05
1	mkdir	X09/X09L01/X09L02/X09L03/X09L04/X09L05/X09L06
1	mkdir	X09/X09L01/X09L02/X09L03/X09L04/X09L05/X09L06/X09L07
1	mkdir	X09/X09L01/X09L02/X09L03/X09L04/X09L05/X09L06/X09L07/X09L08
1	create	X01/X01F01.TXT



Steps to Create Image ext-17		
1	create	X02/X02F01.TXT
1	create	X02/X02L01/X02F02.TXT
1	create	X03/X03F01.TXT
1	create	X03/X03L01/X03F02.TXT
1	create	X03/X03L01/X03L02/X03F03.TXT
1	create	X04/X04F01.TXT
1	create	X04/X04L01/X04F02.TXT
1	create	X04/X04L01/X04L02/X04F03.TXT
1	create	X04/X04L01/X04L02/X04L03/X04F04.TXT
1	create	X05/X05F01.TXT
1	create	X05/X05L01/X05F02.TXT
1	create	X05/X05L01/X05L02/X05F03.TXT
1	create	X05/X05L01/X05L02/X05L03/X05F04.TXT
1	create	X05/X05L01/X05L02/X05L03/X05L04/X05F05.TXT
1	create	X06/X06F01.TXT
1	create	X06/X06L01/X06F02.TXT
1	create	X06/X06L01/X06L02/X06F03.TXT
1	create	X06/X06L01/X06L02/X06L03/X06F04.TXT
1	create	X06/X06L01/X06L02/X06L03/X06L04/X06F05.TXT
1	create	X06/X06L01/X06L02/X06L03/X06L04/X06L05/X06F06.TXT
1	create	X07/X07F01.TXT
1	create	X07/X07L01/X07F02.TXT
1	create	X07/X07L01/X07L02/X07F03.TXT
1	create	X07/X07L01/X07L02/X07L03/X07F04.TXT
1	create	X07/X07L01/X07L02/X07L03/X07L04/X07F05.TXT
1	create	X07/X07L01/X07L02/X07L03/X07L04/X07L05/X07F06.TXT
1	create	X07/X07L01/X07L02/X07L03/X07L04/X07L05/X07L06/X07F07.TXT
1	create	X08/X08F01.TXT
1	create	X08/X08L01/X08F02.TXT
1	create	X08/X08L01/X08L02/X08F03.TXT
1	create	X08/X08L01/X08L02/X08L03/X08F04.TXT
1	create	X08/X08L01/X08L02/X08L03/X08L04/X08F05.TXT
1	create	X08/X08L01/X08L02/X08L03/X08L04/X08L05/X08F06.TXT
1	create	X08/X08L01/X08L02/X08L03/X08L04/X08L05/X08L06/X08F07.TXT
1	create	X08/X08L01/X08L02/X08L03/X08L04/X08L05/X08L06/X08L07/X08F08.TXT
1	create	X09/X09F01.TXT
1	create	X09/X09L01/X09F02.TXT
1	create	X09/X09L01/X09L02/X09F03.TXT
1	create	X09/X09L01/X09L02/X09L03/X09F04.TXT
1	create	X09/X09L01/X09L02/X09L03/X09L04/X09F05.TXT
1	create	X09/X09L01/X09L02/X09L03/X09L04/X09L05/X09F06.TXT
1	create	X09/X09L01/X09L02/X09L03/X09L04/X09L05/X09L06/X09F07.TXT
1	create	X09/X09L01/X09L02/X09L03/X09L04/X09L05/X09L06/X09L07/X09F08.TXT
1	create	X09/X09L01/X09L02/X09L03/X09L04/X09L05/X09L06/X09L07/X09L08/X09F09.TXT
Step	Action	Files in Partition EXT3
1	mkdir	Y01
1	mkdir	Y02
1	mkdir	Y02/Y02L01
1	mkdir	Y03
1	mkdir	Y03/Y03L01
1	mkdir	Y03/Y03L01/Y03L02
1	mkdir	Y04
1	mkdir	Y04/Y04L01
1	mkdir	Y04/Y04L01/Y04L02
1	mkdir	Y04/Y04L01/Y04L02/Y04L03
1	mkdir	Y05
1	mkdir	Y05/Y05L01
1	mkdir	Y05/Y05L01/Y05L02
1	mkdir	Y05/Y05L01/Y05L02/Y05L03
1	mkdir	Y05/Y05L01/Y05L02/Y05L03/Y05L04
1	mkdir	Y06
1	mkdir	Y06/Y06L01
1	mkdir	Y06/Y06L01/Y06L02
1	mkdir	Y06/Y06L01/Y06L02/Y06L03

Steps to Create Image ext-17		
1	mkdir	Y06/Y06L01/Y06L02/Y06L03/Y06L04
1	mkdir	Y06/Y06L01/Y06L02/Y06L03/Y06L04/Y06L05
1	mkdir	Y07
1	mkdir	Y07/Y07L01
1	mkdir	Y07/Y07L01/Y07L02
1	mkdir	Y07/Y07L01/Y07L02/Y07L03
1	mkdir	Y07/Y07L01/Y07L02/Y07L03/Y07L04
1	mkdir	Y07/Y07L01/Y07L02/Y07L03/Y07L04/Y07L05
1	mkdir	Y07/Y07L01/Y07L02/Y07L03/Y07L04/Y07L05/Y07L06
1	mkdir	Y08
1	mkdir	Y08/Y08L01
1	mkdir	Y08/Y08L01/Y08L02
1	mkdir	Y08/Y08L01/Y08L02/Y08L03
1	mkdir	Y08/Y08L01/Y08L02/Y08L03/Y08L04
1	mkdir	Y08/Y08L01/Y08L02/Y08L03/Y08L04/Y08L05
1	mkdir	Y08/Y08L01/Y08L02/Y08L03/Y08L04/Y08L05/Y08L06
1	mkdir	Y08/Y08L01/Y08L02/Y08L03/Y08L04/Y08L05/Y08L06/Y08L07
1	mkdir	Y09
1	mkdir	Y09/Y09L01
1	mkdir	Y09/Y09L01/Y09L02
1	mkdir	Y09/Y09L01/Y09L02/Y09L03
1	mkdir	Y09/Y09L01/Y09L02/Y09L03/Y09L04
1	mkdir	Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05
1	mkdir	Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05/Y09L06
1	mkdir	Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05/Y09L06/Y09L07
1	mkdir	Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05/Y09L06/Y09L07/Y09L08
1	create	Y01/Y01F01.TXT
1	create	Y02/Y02F01.TXT
1	create	Y02/Y02L01/Y02F02.TXT
1	create	Y03/Y03F01.TXT
1	create	Y03/Y03L01/Y03F02.TXT
1	create	Y03/Y03L01/Y03L02/Y03F03.TXT
1	create	Y04/Y04F01.TXT
1	create	Y04/Y04L01/Y04F02.TXT
1	create	Y04/Y04L01/Y04L02/Y04F03.TXT
1	create	Y04/Y04L01/Y04L02/Y04L03/Y04F04.TXT
1	create	Y05/Y05F01.TXT
1	create	Y05/Y05L01/Y05F02.TXT
1	create	Y05/Y05L01/Y05L02/Y05F03.TXT
1	create	Y05/Y05L01/Y05L02/Y05L03/Y05F04.TXT
1	create	Y05/Y05L01/Y05L02/Y05L03/Y05L04/Y05F05.TXT
1	create	Y06/Y06F01.TXT
1	create	Y06/Y06L01/Y06F02.TXT
1	create	Y06/Y06L01/Y06L02/Y06F03.TXT
1	create	Y06/Y06L01/Y06L02/Y06L03/Y06F04.TXT
1	create	Y06/Y06L01/Y06L02/Y06L03/Y06L04/Y06F05.TXT
1	create	Y06/Y06L01/Y06L02/Y06L03/Y06L04/Y06L05/Y06F06.TXT
1	create	Y07/Y07F01.TXT
1	create	Y07/Y07L01/Y07F02.TXT
1	create	Y07/Y07L01/Y07L02/Y07F03.TXT
1	create	Y07/Y07L01/Y07L02/Y07L03/Y07F04.TXT
1	create	Y07/Y07L01/Y07L02/Y07L03/Y07L04/Y07F05.TXT
1	create	Y07/Y07L01/Y07L02/Y07L03/Y07L04/Y07L05/Y07F06.TXT
1	create	Y07/Y07L01/Y07L02/Y07L03/Y07L04/Y07L05/Y07L06/Y07F07.TXT
1	create	Y08/Y08F01.TXT
1	create	Y08/Y08L01/Y08F02.TXT
1	create	Y08/Y08L01/Y08L02/Y08F03.TXT
1	create	Y08/Y08L01/Y08L02/Y08L03/Y08F04.TXT
1	create	Y08/Y08L01/Y08L02/Y08L03/Y08L04/Y08F05.TXT
1	create	Y08/Y08L01/Y08L02/Y08L03/Y08L04/Y08L05/Y08F06.TXT
1	create	Y08/Y08L01/Y08L02/Y08L03/Y08L04/Y08L05/Y08L06/Y08F07.TXT
1	create	Y08/Y08L01/Y08L02/Y08L03/Y08L04/Y08L05/Y08L06/Y08L07/Y08F08.TXT
1	create	Y09/Y09F01.TXT
1	create	Y09/Y09L01/Y09F02.TXT

Steps to Create Image ext-17		
1	create	Y09/Y09L01/Y09L02/Y09F03.TXT
1	create	Y09/Y09L01/Y09L02/Y09L03/Y09F04.TXT
1	create	Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09F05.TXT
1	create	Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05/Y09F06.TXT
1	create	Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05/Y09L06/Y09F07.TXT
1	create	Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05/Y09L06/Y09L07/Y09F08.TXT
1	create	Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05/Y09L06/Y09L07/Y09L08/Y09F09.TXT
Step	Action	Files in Partition EXT4
1	mkdir	Z01
1	mkdir	Z02
1	mkdir	Z02/Z02L01
1	mkdir	Z03
1	mkdir	Z03/Z03L01
1	mkdir	Z03/Z03L01/Z03L02
1	mkdir	Z04
1	mkdir	Z04/Z04L01
1	mkdir	Z04/Z04L01/Z04L02
1	mkdir	Z04/Z04L01/Z04L02/Z04L03
1	mkdir	Z05
1	mkdir	Z05/Z05L01
1	mkdir	Z05/Z05L01/Z05L02
1	mkdir	Z05/Z05L01/Z05L02/Z05L03
1	mkdir	Z05/Z05L01/Z05L02/Z05L03/Z05L04
1	mkdir	Z06
1	mkdir	Z06/Z06L01
1	mkdir	Z06/Z06L01/Z06L02
1	mkdir	Z06/Z06L01/Z06L02/Z06L03
1	mkdir	Z06/Z06L01/Z06L02/Z06L03/Z06L04
1	mkdir	Z06/Z06L01/Z06L02/Z06L03/Z06L04/Z06L05
1	mkdir	Z07
1	mkdir	Z07/Z07L01
1	mkdir	Z07/Z07L01/Z07L02
1	mkdir	Z07/Z07L01/Z07L02/Z07L03
1	mkdir	Z07/Z07L01/Z07L02/Z07L03/Z07L04
1	mkdir	Z07/Z07L01/Z07L02/Z07L03/Z07L04/Z07L05
1	mkdir	Z07/Z07L01/Z07L02/Z07L03/Z07L04/Z07L05/Z07L06
1	mkdir	Z08
1	mkdir	Z08/Z08L01
1	mkdir	Z08/Z08L01/Z08L02
1	mkdir	Z08/Z08L01/Z08L02/Z08L03
1	mkdir	Z08/Z08L01/Z08L02/Z08L03/Z08L04
1	mkdir	Z08/Z08L01/Z08L02/Z08L03/Z08L04/Z08L05
1	mkdir	Z08/Z08L01/Z08L02/Z08L03/Z08L04/Z08L05/Z08L06
1	mkdir	Z08/Z08L01/Z08L02/Z08L03/Z08L04/Z08L05/Z08L06/Z08L07
1	mkdir	Z09
1	mkdir	Z09/Z09L01
1	mkdir	Z09/Z09L01/Z09L02
1	mkdir	Z09/Z09L01/Z09L02/Z09L03
1	mkdir	Z09/Z09L01/Z09L02/Z09L03/Z09L04
1	mkdir	Z09/Z09L01/Z09L02/Z09L03/Z09L04/Z09L05
1	mkdir	Z09/Z09L01/Z09L02/Z09L03/Z09L04/Z09L05/Z09L06
1	mkdir	Z09/Z09L01/Z09L02/Z09L03/Z09L04/Z09L05/Z09L06/Z09L07
1	mkdir	Z09/Z09L01/Z09L02/Z09L03/Z09L04/Z09L05/Z09L06/Z09L07/Z09L08
1	create	Z01/Z01F01.TXT
1	create	Z02/Z02F01.TXT
1	create	Z02/Z02L01/Z02F02.TXT
1	create	Z03/Z03F01.TXT
1	create	Z03/Z03L01/Z03F02.TXT
1	create	Z03/Z03L01/Z03L02/Z03F03.TXT
1	create	Z04/Z04F01.TXT
1	create	Z04/Z04L01/Z04F02.TXT
1	create	Z04/Z04L01/Z04L02/Z04F03.TXT
1	create	Z04/Z04L01/Z04L02/Z04L03/Z04F04.TXT
1	create	Z05/Z05F01.TXT

Steps to Create Image ext-17		
1	create	Z05/Z05L01/Z05F02.TXT
1	create	Z05/Z05L01/Z05L02/Z05F03.TXT
1	create	Z05/Z05L01/Z05L02/Z05L03/Z05F04.TXT
1	create	Z05/Z05L01/Z05L02/Z05L03/Z05L04/Z05F05.TXT
1	create	Z06/Z06F01.TXT
1	create	Z06/Z06L01/Z06F02.TXT
1	create	Z06/Z06L01/Z06L02/Z06F03.TXT
1	create	Z06/Z06L01/Z06L02/Z06L03/Z06F04.TXT
1	create	Z06/Z06L01/Z06L02/Z06L03/Z06L04/Z06F05.TXT
1	create	Z06/Z06L01/Z06L02/Z06L03/Z06L04/Z06L05/Z06F06.TXT
1	create	Z07/Z07F01.TXT
1	create	Z07/Z07L01/Z07F02.TXT
1	create	Z07/Z07L01/Z07L02/Z07F03.TXT
1	create	Z07/Z07L01/Z07L02/Z07L03/Z07F04.TXT
1	create	Z07/Z07L01/Z07L02/Z07L03/Z07L04/Z07F05.TXT
1	create	Z07/Z07L01/Z07L02/Z07L03/Z07L04/Z07L05/Z07F06.TXT
1	create	Z07/Z07L01/Z07L02/Z07L03/Z07L04/Z07L05/Z07L06/Z07F07.TXT
1	create	Z08/Z08F01.TXT
1	create	Z08/Z08L01/Z08F02.TXT
1	create	Z08/Z08L01/Z08L02/Z08F03.TXT
1	create	Z08/Z08L01/Z08L02/Z08L03/Z08F04.TXT
1	create	Z08/Z08L01/Z08L02/Z08L03/Z08L04/Z08F05.TXT
1	create	Z08/Z08L01/Z08L02/Z08L03/Z08L04/Z08L05/Z08F06.TXT
1	create	Z08/Z08L01/Z08L02/Z08L03/Z08L04/Z08L05/Z08L06/Z08F07.TXT
1	create	Z08/Z08L01/Z08L02/Z08L03/Z08L04/Z08L05/Z08L06/Z08L07/Z08F08.TXT
1	create	Z09/Z09F01.TXT
1	create	Z09/Z09L01/Z09F02.TXT
1	create	Z09/Z09L01/Z09L02/Z09F03.TXT
1	create	Z09/Z09L01/Z09L02/Z09L03/Z09F04.TXT
1	create	Z09/Z09L01/Z09L02/Z09L03/Z09L04/Z09F05.TXT
1	create	Z09/Z09L01/Z09L02/Z09L03/Z09L04/Z09L05/Z09F06.TXT
1	create	Z09/Z09L01/Z09L02/Z09L03/Z09L04/Z09L05/Z09L06/Z09F07.TXT
1	create	Z09/Z09L01/Z09L02/Z09L03/Z09L04/Z09L05/Z09L06/Z09L07/Z09F08.TXT
1	create	Z09/Z09L01/Z09L02/Z09L03/Z09L04/Z09L05/Z09L06/Z09L07/Z09L08/Z09F09.TXT

### 23 Test Image fat-01

DFR-01. Recover one non-fragmented file.

#### Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes  
 34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors  
 Device Boot Start End Blocks Id System  
 /dev/sdd1 128 16511 8192 1 FAT12  
 /dev/sdd2 16512 82047 32768 6 FAT16  
 /dev/sdd3 82048 213119 65536 b W95 FAT32

3 files deleted

Deleted files (3)			
Name	Size	F-Hd	F-Bks
XBEID.TXT	712 (1+200)	1	0
Betelgeuse.txt	712 (1+200)	1	0
Bellatrix.txt	712 (1+200)	1	0

MAC times just before file deletion

File: `XBEID.TXT`  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2000-02-29 13:11:00.000000000 -0500  
 Change: 2011-12-25 13:02:23.000000000 -0500  
 File: `Betelgeuse.txt`  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2000-02-29 13:12:00.000000000 -0500

Change: 2011-12-25 13:02:24.000000000 -0500  
 File: `Bellatrix.txt`  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2000-02-29 13:13:00.000000000 -0500  
 Change: 2011-12-25 13:02:24.000000000 -0500

File delete times:  
 Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case fat-01  
 ===== Run step 3 =====

ACTION (delete): XBEID.TXT  
 ACTION (delete time): Sun Dec 25 13:05:28 EST 2011  
 ACTION (delete): Betelgeuse.txt  
 ACTION (delete time): Sun Dec 25 13:05:29 EST 2011  
 ACTION (delete): Bellatrix.txt  
 ACTION (delete time): Sun Dec 25 13:05:29 EST 2011

Steps to Create Image fat-01		
Step	Action	Files in Partition FAT12
1	create	XALTIR.TXT XBEID.TXT XCAPH.TXT
2	set date/time	XALTIR.TXT XBEID.TXT XCAPH.TXT
3	delete	XBEID.TXT
Step	Action	Files in Partition FAT16
1	create	Alcor.TXT Betelgeuse.txt Capella.txt
2	set date/time	Alcor.TXT Betelgeuse.txt Capella.txt
3	delete	Betelgeuse.txt
Step	Action	Files in Partition FAT32
1	create	Algol.txt Bellatrix.txt Canopus.txt
2	set date/time	Algol.txt Bellatrix.txt Canopus.txt
3	delete	Bellatrix.txt

No overwrites

File: Bellatrix.txt 1 1  
 File: Betelgeuse.txt 1 1  
 File: XBEID.TXT 1 1  
 Summary: 3 3 0 0

Metadata available  
 fat-01 Metadata found 3 files, not found 0, total 3 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2
297 - 297	XALTIR	XALTIR
298 - 298	XBEID	XBEID
299 - 299	TAIL/XBEID	TAIL/XBEID
300 - 300	XCAPH	XCAPH
17057 - 17057	Alcor	Alcor
17058 - 17058	Betelgeuse	Betelgeuse
17059 - 17059	TAIL/Betelgeuse	TAIL/Betelgeuse
17060 - 17060	Capella	Capella
90242 - 90242	Algol	Algol
90243 - 90243	Bellatrix	Bellatrix
90244 - 90244	TAIL/Bellatrix	TAIL/Bellatrix
90245 - 90245	Canopus	Canopus

Sector List	
Alcor.TXT	17057 - 17057
Algol.txt	90242 - 90242
Bellatrix.txt	90243 - 90243

Sector List	
Betelgeuse.txt	17058 - 17058
Canopus.txt	90245 - 90245
Capella.txt	17060 - 17060
XALTIR.TXT	297 - 297
XBEID.TXT	298 - 298
XCAPH.TXT	300 - 300

## 24 Test Image fat-01-recycle

DFR-01. Recover one non-fragmented file.

### Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		128	16511	8192	1	FAT12
/dev/sdd2		16512	82047	32768	6	FAT16
/dev/sdd3		82048	213119	65536	b	W95 FAT32

3 files deleted

Deleted files (3)			
Name	Size	F-Hd	F-Bks
XBEID.TXT	4096 (8+0)	1	7
Betelgeuse.txt	4096 (8+0)	1	7
Bellatrix.txt	4096 (8+0)	1	7

MAC times just before file deletion

File: `XBEID.TXT`

Access: 1999-01-02 00:00:00.000000000 -0500

Modify: 2000-02-29 13:11:00.000000000 -0500

Change: 2012-04-01 16:19:44.000000000 -0400

File: `Betelgeuse.txt`

Access: 1999-01-02 00:00:00.000000000 -0500

Modify: 2000-02-29 13:12:00.000000000 -0500

Change: 2012-04-01 16:19:45.000000000 -0400

File: `Bellatrix.txt`

Access: 1999-01-02 00:00:00.000000000 -0500

Modify: 2000-02-29 13:13:00.000000000 -0500

Change: 2012-04-01 16:19:45.000000000 -0400

File delete times:

Times: /Volumes/CFTT/df/df-setup/ntfs-delete-times.txt Case fat-01-recycle

===== Run step 3 =====

ACTION (delete): XBEID.TXT

ACTION (delete time): Sun Apr 1 16:21:27 EDT 2012

ACTION (delete): Betelgeuse.txt

ACTION (delete time): Sun Apr 1 16:21:27 EDT 2012

ACTION (delete): Bellatrix.txt

ACTION (delete time): Sun Apr 1 16:21:27 EDT 2012

Steps to Create Image fat-01-recycle		
Step	Action	Files in Partition FAT12
1	create	XALTIR.TXT XBEID.TXT XCAPH.TXT
2	set date/time	XALTIR.TXT XBEID.TXT XCAPH.TXT
3	delete	XBEID.TXT
Step	Action	Files in Partition FAT16
1	create	Alcor.TXT Betelgeuse.txt Capella.txt
2	set date/time	Alcor.TXT Betelgeuse.txt Capella.txt
3	delete	Betelgeuse.txt
Step	Action	Files in Partition FAT32
1	create	Algol.txt Bellatrix.txt Canopus.txt
2	set date/time	Algol.txt Bellatrix.txt Canopus.txt
3	delete	Bellatrix.txt

No overwrites

File: Bellatrix.txt 8 8  
File: Betelgeuse.txt 8 8  
File: XBEID.TXT 8 8  
Summary: 3 3 0 0

Metadata available  
fat-01-recycle Metadata found 3 files, not found 0, total 3 deleted files  
Metadata available for all deleted files

Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2
297 - 304	XALTIR	XALTIR
305 - 312	XBEID	XBEID
313 - 320	XCAPH	XCAPH
17057 - 17064	Alcor	Alcor
17065 - 17072	Betelgeuse	Betelgeuse
17073 - 17080	Capella	Capella
90242 - 90249	Algol	Algol
90250 - 90257	Bellatrix	Bellatrix
90258 - 90265	Canopus	Canopus

Sector List	
Alcor.TXT	17057 - 17064
Algol.txt	90242 - 90249
Bellatrix.txt	90250 - 90257
Betelgeuse.txt	17065 - 17072
Canopus.txt	90258 - 90265
Capella.txt	17073 - 17080
XALTIR.TXT	297 - 304
XBEID.TXT	305 - 312
XCAPH.TXT	313 - 320

## 25 Test Image fat-02

DFR-02. Recover file with two fragments.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes  
34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors  
Device Boot Start End Blocks Id System  
/dev/sdd1 128 16511 8192 1 FAT12  
/dev/sdd2 16512 82047 32768 6 FAT16  
/dev/sdd3 82048 606335 262144 b W95 FAT32

3 files deleted

Deleted files (3)			
Name	Size	F-Hd	F-Bks
XBEID.TXT	4096 (8+0)	1	7
Betelgeuse.txt	4096 (8+0)	1	7
Bellatrix.txt	4096 (8+0)	1	7

MAC times just before file deletion

File: `XBEID.TXT`  
Access: 1999-01-01 23:00:00.000000000 -0500

Modify: 2000-02-29 13:11:00.000000000 -0500  
 Change: 2011-12-25 13:27:13.000000000 -0500  
 File: `Betelgeuse.txt'  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2000-02-29 13:12:00.000000000 -0500  
 Change: 2011-12-25 13:27:13.000000000 -0500  
 File: `Bellatrix.txt'  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2000-02-29 13:13:00.000000000 -0500  
 Change: 2011-12-25 13:27:14.000000000 -0500

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case fat-02

==== Run step 5 =====

ACTION (delete): XBEID.TXT

ACTION (delete time): Sun Dec 25 13:30:23 EST 2011

ACTION (delete): Betelgeuse.txt

ACTION (delete time): Sun Dec 25 13:30:24 EST 2011

ACTION (delete): Bellatrix.txt

ACTION (delete time): Sun Dec 25 13:30:24 EST 2011

Steps to Create Image fat-02		
Step	Action	Files in Partition FAT12
1	create	XALTIR.TXT XBEID.TXT XCAPH.TXT
2	append	XBEID.TXT
3	create	XDUBHE.TXT
4	set date/time	XALTIR.TXT XBEID.TXT XCAPH.TXT XDUBHE.TXT
5	delete	XBEID.TXT
Step	Action	Files in Partition FAT16
1	create	Alcor.TXT Betelgeuse.txt Capella.txt
2	append	Betelgeuse.txt
3	create	Deneb.txt
4	set date/time	Alcor.TXT Betelgeuse.txt Capella.txt Deneb.txt
5	delete	Betelgeuse.txt
Step	Action	Files in Partition FAT32
1	create	Algol.txt Bellatrix.txt Canopus.txt
2	append	Bellatrix.txt
3	create	Denebola.TXT
4	set date/time	Algol.txt Bellatrix.txt Canopus.txt Denebola.TXT
5	delete	Bellatrix.txt

No overwrites

File: Bellatrix.txt 8 8  
 File: Betelgeuse.txt 8 8  
 File: XBEID.TXT 8 8  
 Summary: 3 3 0 0

Metadata available

fat-02 Metadata found 3 files, not found 0, total 3 deleted files

Metadata available for all deleted files

Layout History

Layout for Steps 1 through 4				
Sectors	Step 1	Step 2	Step 3	Step 4
234 - 237	XALTIR	XALTIR	XALTIR	XALTIR
238 - 241	XBEID	XBEID	XBEID	XBEID
242 - 245	XCAPH	XCAPH	XCAPH	XCAPH
246 - 249	empty	XBEID	XBEID	XBEID
250 - 253	empty	empty	XDUBHE	XDUBHE
16810 - 16813	Alcor	Alcor	Alcor	Alcor
16814 - 16817	Betelgeuse	Betelgeuse	Betelgeuse	Betelgeuse



Layout for Steps 1 through 4				
16818 - 16821	Capella	Capella	Capella	Capella
16822 - 16825	empty	Betelgeuse	Betelgeuse	Betelgeuse
16826 - 16829	empty	empty	Deneb	Deneb
90244 - 90247	Algol	Algol	Algol	Algol
90248 - 90251	Bellatrix	Bellatrix	Bellatrix	Bellatrix
90252 - 90255	Canopus	Canopus	Canopus	Canopus
90256 - 90259	empty	Bellatrix	Bellatrix	Bellatrix
90260 - 90263	empty	empty	Denebola	Denebola

Sector List	
Alcor.TXT	16810 - 16813
Algol.txt	90244 - 90247
Bellatrix.txt	90248 - 90251, 90256 - 90259
Betelgeuse.txt	16814 - 16817, 16822 - 16825
Canopus.txt	90252 - 90255
Capella.txt	16818 - 16821
Deneb.txt	16826 - 16829
Denebola.TXT	90260 - 90263
XALTIR.TXT	234 - 237
XBEID.TXT	238 - 241, 246 - 249
XCAPH.TXT	242 - 245
XDUBHE.TXT	250 - 253

## 26 Test Image fat-03

DFR-03. Recover file with multiple fragments.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		128	16511	8192	1	FAT12
/dev/sdd2		16512	82047	32768	6	FAT16
/dev/sdd3		82048	213119	65536	b	W95 FAT32

3 files deleted

Deleted files (3)			
Name	Size	F-Hd	F-Bks
XBEID.TXT	8192 (16+0)	1	15
Betelgeuse.txt	8192 (16+0)	1	15
Bellatrix.txt	8192 (16+0)	1	15

MAC times just before file deletion

File: `XBEID.TXT`

Access: 1999-01-02 00:00:00.000000000 -0500

Modify: 2000-02-29 13:11:00.000000000 -0500

Change: 2012-02-01 20:15:32.000000000 -0500

File: `Betelgeuse.txt`

Access: 1999-01-02 00:00:00.000000000 -0500

Modify: 2000-02-29 13:12:00.000000000 -0500

Change: 2012-02-01 20:15:32.000000000 -0500

File: `Bellatrix.txt`

Access: 1999-01-02 00:00:00.000000000 -0500

Modify: 2000-02-29 13:13:00.000000000 -0500

Change: 2012-02-01 20:15:33.000000000 -0500

File delete times:

Times: /Volumes/CFTT/df/df-setup/nfs-delete-times.txt Case fat-03

==== Run step 9 =====

ACTION (delete): XBEID.TXT

ACTION (delete time): Wed Feb 1 20:19:04 EST 2012

ACTION (delete): Betelgeuse.txt

ACTION (delete time): Wed Feb 1 20:19:05 EST 2012  
 ACTION (delete): Bellatrix.txt  
 ACTION (delete time): Wed Feb 1 20:19:05 EST 2012

Steps to Create Image fat-03		
Step	Action	Files in Partition FAT12
1	create	XALTIR.TXT XBEID.TXT XCAPH.TXT
2	append	XBEID.TXT
3	create	XDUBHE.TXT
4	append	XBEID.TXT
5	create	XEnif.txt
6	append	XBEID.TXT
7	create	XFURUD.TXT
8	set date/time	XALTIR.TXT XBEID.TXT XCAPH.TXT XDUBHE.TXT
9	delete	XBEID.TXT
Step	Action	Files in Partition FAT16
1	create	Alcor.TXT Betelgeuse.txt Capella.txt
2	append	Betelgeuse.txt
3	create	Deneb.txt
4	append	Betelgeuse.txt
5	create	ElNath.TXT
6	append	Betelgeuse.txt
7	create	Fomalhaut.TXT
8	set date/time	Alcor.TXT Betelgeuse.txt Capella.txt Deneb.txt
9	delete	Betelgeuse.txt
Step	Action	Files in Partition FAT32
1	create	Algol.txt Bellatrix.txt Canopus.txt
2	append	Bellatrix.txt
3	create	Denebola.TXT
4	append	Bellatrix.txt
5	create	Electra.TXT
6	append	Bellatrix.txt
7	create	FumAlSamakah.txt
8	set date/time	Algol.txt Bellatrix.txt Canopus.txt Denebola.TXT
9	delete	Bellatrix.txt

No overwrites

File: Bellatrix.txt 16 16  
 File: Betelgeuse.txt 16 16  
 File: XBEID.TXT 16 16  
 Summary: 3 3 0 0

Metadata available  
 fat-03 Metadata found 3 files, not found 0, total 3 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 4				
Sectors	Step 1	Step 2	Step 3	Step 4
297 - 300	XALTIR	XALTIR	XALTIR	XALTIR
301 - 304	XBEID	XBEID	XBEID	XBEID
305 - 308	XCAPH	XCAPH	XCAPH	XCAPH
309 - 312	empty	XBEID	XBEID	XBEID
313 - 316	empty	empty	XDUBHE	XDUBHE
317 - 320	empty	empty	empty	XBEID
321 - 324	empty	empty	empty	empty
325 - 328	empty	empty	empty	empty
329 - 332	empty	empty	empty	empty
17057 - 17060	Alcor	Alcor	Alcor	Alcor
17061 - 17064	Betelgeuse	Betelgeuse	Betelgeuse	Betelgeuse

Layout for Steps 1 through 4				
17065 - 17068	Capella	Capella	Capella	Capella
17069 - 17072	empty	Betelgeuse	Betelgeuse	Betelgeuse
17073 - 17076	empty	empty	Deneb	Deneb
17077 - 17080	empty	empty	empty	Betelgeuse
17081 - 17084	empty	empty	empty	empty
17085 - 17088	empty	empty	empty	empty
17089 - 17092	empty	empty	empty	empty
90242 - 90245	Algol	Algol	Algol	Algol
90246 - 90249	Bellatrix	Bellatrix	Bellatrix	Bellatrix
90250 - 90253	Canopus	Canopus	Canopus	Canopus
90254 - 90257	empty	Bellatrix	Bellatrix	Bellatrix
90258 - 90261	empty	empty	Denebola	Denebola
90262 - 90265	empty	empty	empty	Bellatrix
90266 - 90269	empty	empty	empty	empty
90270 - 90273	empty	empty	empty	empty
90274 - 90277	empty	empty	empty	empty

Layout for Steps 5 through 7			
Sectors	Step 5	Step 6	Step 7
297 - 300	XALTIR	XALTIR	XALTIR
301 - 304	XBEID	XBEID	XBEID
305 - 308	XCAPH	XCAPH	XCAPH
309 - 312	XBEID	XBEID	XBEID
313 - 316	XDUBHE	XDUBHE	XDUBHE
317 - 320	XBEID	XBEID	XBEID
321 - 324	XEnif	XEnif	XEnif
325 - 328	empty	XBEID	XBEID
329 - 332	empty	empty	XFURUD
17057 - 17060	Alcor	Alcor	Alcor
17061 - 17064	Betelgeuse	Betelgeuse	Betelgeuse
17065 - 17068	Capella	Capella	Capella
17069 - 17072	Betelgeuse	Betelgeuse	Betelgeuse
17073 - 17076	Deneb	Deneb	Deneb
17077 - 17080	Betelgeuse	Betelgeuse	Betelgeuse
17081 - 17084	ElNath	ElNath	ElNath
17085 - 17088	empty	Betelgeuse	Betelgeuse
17089 - 17092	empty	empty	Fomalhaut
90242 - 90245	Algol	Algol	Algol
90246 - 90249	Bellatrix	Bellatrix	Bellatrix
90250 - 90253	Canopus	Canopus	Canopus
90254 - 90257	Bellatrix	Bellatrix	Bellatrix
90258 - 90261	Denebola	Denebola	Denebola
90262 - 90265	Bellatrix	Bellatrix	Bellatrix
90266 - 90269	Electra	Electra	Electra
90270 - 90273	empty	Bellatrix	Bellatrix
90274 - 90277	empty	empty	FumAlSamakah

Layout for Steps 8 through 8	
Sectors	Step 8
297 - 300	XALTIR
301 - 304	XBEID
305 - 308	XCAPH
309 - 312	XBEID
313 - 316	XDUBHE
317 - 320	XBEID
321 - 324	XEnif
325 - 328	XBEID
329 - 332	XFURUD
17057 - 17060	Alcor
17061 - 17064	Betelgeuse
17065 - 17068	Capella
17069 - 17072	Betelgeuse

Layout for Steps 8 through 8	
17073 - 17076	Deneb
17077 - 17080	Betelgeuse
17081 - 17084	ElNath
17085 - 17088	Betelgeuse
17089 - 17092	Fomalhaut
90242 - 90245	Algol
90246 - 90249	Bellatrix
90250 - 90253	Canopus
90254 - 90257	Bellatrix
90258 - 90261	Denebola
90262 - 90265	Bellatrix
90266 - 90269	Electra
90270 - 90273	Bellatrix
90274 - 90277	FumAlSamakah

Sector List	
Alcor.TXT	17057 - 17060
Algol.txt	90242 - 90245
Bellatrix.txt	90246 - 90249, 90254 - 90257, 90262 - 90265, 90270 - 90273
Betelgeuse.txt	17061 - 17064, 17069 - 17072, 17077 - 17080, 17085 - 17088
Canopus.txt	90250 - 90253
Capella.txt	17065 - 17068
Deneb.txt	17073 - 17076
Denebola.TXT	90258 - 90261
ElNath.TXT	17081 - 17084
Electra.TXT	90266 - 90269
Fomalhaut.TXT	17089 - 17092
FumAlSamakah.txt	90274 - 90277
XALTIR.TXT	297 - 300
XBEID.TXT	301 - 304, 309 - 312, 317 - 320, 325 - 328
XCAPH.TXT	305 - 308
XDUBHE.TXT	313 - 316
XEnif.txt	321 - 324
XFURUD.TXT	329 - 332

## 27 Test Image fat-04

DFR-04. Recover several non-fragmented files with non-ASCII file names.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		128	16511	8192	1	FAT12
/dev/sdd2		16512	82047	32768	6	FAT16
/dev/sdd3		82048	213119	65536	b	W95 FAT32

36 files deleted

Deleted files (36)			
Name	Size	F-Hd	F-Bks
/tmp/dfr-04-1/Beijing.txt1	4096 (8+0)	1	7
/tmp/dfr-04-1/Hummus.txt1	4096 (8+0)	1	7
/tmp/dfr-04-1/Mitsubishi-h.txt1	4096 (8+0)	1	7
/tmp/dfr-04-1/Mitsubishi-k.txt1	4096 (8+0)	1	7
/tmp/dfr-04-1/Naan.txt1	4096 (8+0)	1	7
/tmp/dfr-04-1/Pakora.txt1	4096 (8+0)	1	7
/tmp/dfr-04-1/Seoul.txt1	4096 (8+0)	1	7
/tmp/dfr-04-1/Tagine.txt1	4096 (8+0)	1	7
/tmp/dfr-04-1/Tea.txt1	4096 (8+0)	1	7
/tmp/dfr-04-1/Tokyo.txt1	4096 (8+0)	1	7
/tmp/dfr-04-1/Vessel.txt1	4096 (8+0)	1	7

Deleted files (36)			
/tmp/dfr-04-1/Walnut.txt1	4096 (8+0)	1	7
/tmp/dfr-04-2/Beijing.txt2	4096 (8+0)	1	7
/tmp/dfr-04-2/Hummus.txt2	4096 (8+0)	1	7
/tmp/dfr-04-2/Mitsubishi-h.txt2	4096 (8+0)	1	7
/tmp/dfr-04-2/Mitsubishi-k.txt2	4096 (8+0)	1	7
/tmp/dfr-04-2/Naan.txt2	4096 (8+0)	1	7
/tmp/dfr-04-2/Pakora.txt2	4096 (8+0)	1	7
/tmp/dfr-04-2/Seoul.txt2	4096 (8+0)	1	7
/tmp/dfr-04-2/Tagine.txt2	4096 (8+0)	1	7
/tmp/dfr-04-2/Tea.txt2	4096 (8+0)	1	7
/tmp/dfr-04-2/Tokyo.txt2	4096 (8+0)	1	7
/tmp/dfr-04-2/Vessel.txt2	4096 (8+0)	1	7
/tmp/dfr-04-2/Walnut.txt2	4096 (8+0)	1	7
/tmp/dfr-04-3/Beijing.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Hummus.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Mitsubishi-h.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Mitsubishi-k.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Naan.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Pakora.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Seoul.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Tagine.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Tea.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Tokyo.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Vessel.txt3	4096 (8+0)	1	7
/tmp/dfr-04-3/Walnut.txt3	4096 (8+0)	1	7

MAC times just before file deletion

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case fat-04

==== Run step 3 =====

ACTION (delete): नान.txt1

ACTION (delete time): Tue Mar 13 20:46:27 EDT 2012

ACTION (delete): پڪوڙا.txt1

ACTION (delete time): Tue Mar 13 20:46:27 EDT 2012

ACTION (delete): 서울.txt1

ACTION (delete time): Tue Mar 13 20:46:27 EDT 2012

ACTION (delete): گجرو.txt1

ACTION (delete time): Tue Mar 13 20:46:27 EDT 2012

ACTION (delete): 北京.txt1

ACTION (delete time): Tue Mar 13 20:46:27 EDT 2012

ACTION (delete): طاجين.txt1

ACTION (delete time): Tue Mar 13 20:46:27 EDT 2012

ACTION (delete): чай.txt1

ACTION (delete time): Tue Mar 13 20:46:27 EDT 2012

ACTION (delete): ミツビシ.txt1

ACTION (delete time): Tue Mar 13 20:46:27 EDT 2012

ACTION (delete): みつびし.txt1

ACTION (delete time): Tue Mar 13 20:46:27 EDT 2012

ACTION (delete): Gefäß.txt1

ACTION (delete time): Tue Mar 13 20:46:27 EDT 2012

ACTION (delete): 北京.txt1

ACTION (delete time): Tue Mar 13 20:46:27 EDT 2012

ACTION (delete): 東京.txt1

ACTION (delete time): Tue Mar 13 20:46:27 EDT 2012

ACTION (delete): नान.txt2

ACTION (delete time): Tue Mar 13 20:46:28 EDT 2012

ACTION (delete): پڪوڙا.txt2

ACTION (delete time): Tue Mar 13 20:46:28 EDT 2012

ACTION (delete): 서울.txt2

ACTION (delete time): Tue Mar 13 20:46:28 EDT 2012

ACTION (delete): گجرو.txt2

ACTION (delete time): Tue Mar 13 20:46:28 EDT 2012

ACTION (delete): ॐ1ॐ1π.txt2  
 ACTION (delete time): Tue Mar 13 20:46:28 EDT 2012  
 ACTION (delete): ٲا جين.txt2  
 ACTION (delete time): Tue Mar 13 20:46:28 EDT 2012  
 ACTION (delete): 4ай.txt2  
 ACTION (delete time): Tue Mar 13 20:46:28 EDT 2012  
 ACTION (delete): 3ツビシ.txt2  
 ACTION (delete time): Tue Mar 13 20:46:28 EDT 2012  
 ACTION (delete): 4みつびし.txt2  
 ACTION (delete time): Tue Mar 13 20:46:28 EDT 2012  
 ACTION (delete): Gefäß.txt2  
 ACTION (delete time): Tue Mar 13 20:46:28 EDT 2012  
 ACTION (delete): 北京.txt2  
 ACTION (delete time): Tue Mar 13 20:46:28 EDT 2012  
 ACTION (delete): 東京.txt2  
 ACTION (delete time): Tue Mar 13 20:46:28 EDT 2012  
 ACTION (delete): नान.txt3  
 ACTION (delete time): Tue Mar 13 20:46:29 EDT 2012  
 ACTION (delete): ٲكوزا.txt3  
 ACTION (delete time): Tue Mar 13 20:46:29 EDT 2012  
 ACTION (delete): 서울.txt3  
 ACTION (delete time): Tue Mar 13 20:46:29 EDT 2012  
 ACTION (delete): ګرد و.txt3  
 ACTION (delete time): Tue Mar 13 20:46:29 EDT 2012  
 ACTION (delete): ॐ1ॐ1π.txt3  
 ACTION (delete time): Tue Mar 13 20:46:29 EDT 2012  
 ACTION (delete): ٲا جين.txt3  
 ACTION (delete time): Tue Mar 13 20:46:29 EDT 2012  
 ACTION (delete): 4ай.txt3  
 ACTION (delete time): Tue Mar 13 20:46:29 EDT 2012  
 ACTION (delete): 3ツビシ.txt3  
 ACTION (delete time): Tue Mar 13 20:46:29 EDT 2012  
 ACTION (delete): 4みつびし.txt3  
 ACTION (delete time): Tue Mar 13 20:46:29 EDT 2012  
 ACTION (delete): Gefäß.txt3  
 ACTION (delete time): Tue Mar 13 20:46:29 EDT 2012  
 ACTION (delete): 北京.txt3  
 ACTION (delete time): Tue Mar 13 20:46:29 EDT 2012  
 ACTION (delete): 東京.txt3  
 ACTION (delete time): Tue Mar 13 20:46:29 EDT 2012  
 ACTION (delete time): Tue Mar 13 20:46:29 EDT 2012

Steps to Create Image fat-04		
Step	Action	Files in Partition FAT-12
1	create	/tmp/Naan.txt1 => नान.txt1)
1	create	/tmp/Chapati.txt1 => चपाती.txt1)
1	create	/tmp/Pakora.txt1 => ٲكوزا.txt1)
1	create	/tmp/Gulab_jamun.txt1 => ګلاب جامن.txt1)
1	create	/tmp/Seoul.txt1 => 서울.txt1)
1	create	/tmp/Korea.txt1 => 4한글.txt1)
1	create	/tmp/Kabob.txt1 => 4چلوکباب.txt1)
1	create	/tmp/Walnut.txt1 => ګرد و.txt1)
1	create	/tmp/Falafel.txt1 => 4فلفل.txt1)
1	create	/tmp/Hummus.txt1 => ٲ1ٲ1π.txt1)
1	create	/tmp/Couscous.txt1 => 4كسكس.txt1)
1	create	/tmp/Tagine.txt1 => ٲا جين.txt1)
1	create	/tmp/Tea.txt1 => 4ай.txt1)
1	create	/tmp/Cheese.txt1 => 4сыр.txt1)
1	create	/tmp/Mitsubishi-k.txt1 => 3ツビシ.txt1)
1	create	/tmp/Mitsubishi-h.txt1 => 4みつびし.txt1)
1	create	/tmp/Sweets.txt1 => Süßigkeiten.txt1)
1	create	/tmp/Vessel.txt1 => Gefäß.txt1)
1	create	/tmp/Beijing.txt1 => 北京.txt1)
1	create	/tmp/China.txt1 => 中國.txt1)

Steps to Create Image fat-04		
1	create	/tmp/Japan.txt1 => 日本.txt1)
1	create	/tmp/Tokyo.txt1 => 東京.txt1)
1	create	/tmp/Subaru-k.txt1 => スバル.txt1)
1	create	/tmp/Subaru-h.txt1 => すばる.txt1)
2	set date/time	चपाती.txt1 नान.txt1
2	set date/time	گلاب.یکوڑا.txt1
2	set date/time	한국.txt1 서울.txt1
2	set date/time	چلوکیاب.txt1 گوردو.txt1
2	set date/time	لؤلؤلؤلؤ.txt1 ۛۛۛۛۛۛ.txt1
2	set date/time	کسکس.txt1 طاجین.txt1
2	set date/time	сыр.txt1 чай.txt1
2	set date/time	スバル.txt1 ミツビシ.txt1
2	set date/time	すばる.txt1 みつびし.txt1
2	set date/time	Süßigkeiten.txt1 Gefäß.txt1
2	set date/time	中國.txt1 北京.txt1
2	set date/time	日本.txt1 東京.txt1
3	delete	नान.txt1
3	delete	یکوڑا.txt1
3	delete	서울.txt1
3	delete	گوردو.txt1
3	delete	ۛۛۛۛۛۛ.txt1
3	delete	طاجین.txt1
3	delete	чай.txt1
3	delete	ミツビシ.txt1
3	delete	みつびし.txt1
3	delete	Gefäß.txt1
3	delete	北京.txt1
3	delete	東京.txt1
Step	Action	Files in Partition FAT-16
1	create	/tmp/Naan.txt2 => नान.txt2)
1	create	/tmp/Chapati.txt2 => चपाती.txt2)
1	create	/tmp/Pakora.txt2 => پاکوڑا.txt2)
1	create	/tmp/Gulab_jamun.txt2 => گلاب.جامن.txt2)
1	create	/tmp/Seoul.txt2 => 서울.txt2)
1	create	/tmp/Korea.txt2 => 한국.txt2)
1	create	/tmp/Kabob.txt2 => چلوکیاب.txt2)
1	create	/tmp/Walnut.txt2 => گوردو.txt2)
1	create	/tmp/Falafel.txt2 => لؤلؤلؤلؤ.txt2)
1	create	/tmp/Hummus.txt2 => ۛۛۛۛۛۛ.txt2)
1	create	/tmp/Couscous.txt2 => کسکس.txt2)
1	create	/tmp/Tagine.txt2 => طاجین.txt2)
1	create	/tmp/Tea.txt2 => чай.txt2)
1	create	/tmp/Cheese.txt2 => сыр.txt2)
1	create	/tmp/Mitsubishi-k.txt2 => ミツビシ.txt2)
1	create	/tmp/Mitsubishi-h.txt2 => みつびし.txt2)
1	create	/tmp/Sweets.txt2 => Süßigkeiten.txt2)
1	create	/tmp/Vessel.txt2 => Gefäß.txt2)
1	create	/tmp/Beijing.txt2 => 北京.txt2)
1	create	/tmp/China.txt2 => 中國.txt2)
1	create	/tmp/Japan.txt2 => 日本.txt2)
1	create	/tmp/Tokyo.txt2 => 東京.txt2)
1	create	/tmp/Subaru-k.txt2 => スバル.txt2)
1	create	/tmp/Subaru-h.txt2 => すばる.txt2)
2	set date/time	चपाती.txt2 नान.txt2
2	set date/time	گلاب.یکوڑا.txt2
2	set date/time	한국.txt2 서울.txt2
2	set date/time	چلوکیاب.txt2 گوردو.txt2
2	set date/time	لؤلؤلؤلؤ.txt2 ۛۛۛۛۛۛ.txt2

Steps to Create Image fat-04		
2	set date/time	طسا جين كسكس.txt2
2	set date/time	сыр.txt2 чай.txt2
2	set date/time	スバル.txt2 ミツビシ.txt2
2	set date/time	すばる.txt2 みつびし.txt2
2	set date/time	Süßigkeiten.txt2 Gefäß.txt2
2	set date/time	中國.txt2 北京.txt2
2	set date/time	日本.txt2 東京.txt2
3	delete	नान.txt2
3	delete	پکوڑا.txt2
3	delete	서울.txt2
3	delete	گردو.txt2
3	delete	ठमठम.txt2
3	delete	طسا جين.txt2
3	delete	чай.txt2
3	delete	ミツビシ.txt2
3	delete	みつびし.txt2
3	delete	Gefäß.txt2
3	delete	北京.txt2
3	delete	東京.txt2
Step	Action	Files in Partition FAT-32
1	create	/tmp/Naan.txt3 => नान.txt3)
1	create	/tmp/Chapati.txt3 => चपाती.txt3)
1	create	/tmp/Pakora.txt3 => پکوڑا.txt3)
1	create	/tmp/Gulab_jamun.txt3 => گلاب جامن.txt3)
1	create	/tmp/Seoul.txt3 => 서울.txt3)
1	create	/tmp/Korea.txt3 => 한국.txt3)
1	create	/tmp/Kabob.txt3 => چلوکباب.txt3)
1	create	/tmp/Walnut.txt3 => گردو.txt3)
1	create	/tmp/Falafel.txt3 => لؤلؤ.txt3)
1	create	/tmp/Hummus.txt3 => ठमठम.txt3)
1	create	/tmp/Couscous.txt3 => كسكس.txt3)
1	create	/tmp/Tagine.txt3 => طسا جين.txt3)
1	create	/tmp/Tea.txt3 => чай.txt3)
1	create	/tmp/Cheese.txt3 => сыр.txt3)
1	create	/tmp/Mitsubishi-k.txt3 => मिツビシ.txt3)
1	create	/tmp/Mitsubishi-h.txt3 => みつびし.txt3)
1	create	/tmp/Sweets.txt3 => Süßigkeiten.txt3)
1	create	/tmp/Vessel.txt3 => Gefäß.txt3)
1	create	/tmp/Beijing.txt3 => 北京.txt3)
1	create	/tmp/China.txt3 => 中國.txt3)
1	create	/tmp/Japan.txt3 => 日本.txt3)
1	create	/tmp/Tokyo.txt3 => 東京.txt3)
1	create	/tmp/Subaru-k.txt3 => スバル.txt3)
1	create	/tmp/Subaru-h.txt3 => すばる.txt3)
2	set date/time	चपाती.txt3 नान.txt3
2	set date/time	गلاب पकोड़ा.txt3
2	set date/time	한국.txt3 서울.txt3
2	set date/time	چلوکباب.txt3 گردو.txt3
2	set date/time	لؤلؤ.txt3 ठमठम.txt3
2	set date/time	كسكس.txt3 طسا جين.txt3
2	set date/time	сыр.txt3 чай.txt3
2	set date/time	スバル.txt3 मिツビシ.txt3
2	set date/time	すばる.txt3 みつびし.txt3
2	set date/time	Süßigkeiten.txt3 Gefäß.txt3
2	set date/time	中國.txt3 北京.txt3
2	set date/time	日本.txt3 東京.txt3
3	delete	नान.txt3
3	delete	پکوڑا.txt3



Steps to Create Image fat-04		
3	delete	서울.txt3
3	delete	گوردو.txt3
3	delete	ДІДІП.txt3
3	delete	طاجين.txt3
3	delete	чай.txt3
3	delete	ミツビシ.txt3
3	delete	みつびし.txt3
3	delete	Gefäß.txt3
3	delete	北京.txt3
3	delete	東京.txt3

No overwrites

File: Tea.txt1 8 8  
 File: Tea.txt2 8 8  
 File: Tea.txt3 8 8  
 File: Seoul.txt1 8 8  
 File: Seoul.txt2 8 8  
 File: Seoul.txt3 8 8  
 File: Mitsubishi-h.txt1 8 8  
 File: Mitsubishi-h.txt3 8 8  
 File: Mitsubishi-h.txt2 8 8  
 File: Pakora.txt1 8 8  
 File: Pakora.txt3 8 8  
 File: Pakora.txt2 8 8  
 ...  
 File: Tokyo.txt3 8 8  
 File: Tokyo.txt1 8 8  
 File: Walnut.txt2 8 8  
 File: Walnut.txt3 8 8  
 File: Walnut.txt1 8 8  
 File: Beijing.txt1 8 8  
 File: Beijing.txt2 8 8  
 File: Beijing.txt3 8 8  
 File: Hummus.txt1 8 8  
 File: Hummus.txt2 8 8  
 File: Hummus.txt3 8 8  
 Summary: 36 36 0 0

Metadata available  
 fat-04 Metadata found 0 files, not found 36, total 36 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2
297 - 304	Naan1	Naan1
305 - 312	Chapati1	Chapati1
313 - 320	Pakora1	Pakora1
321 - 328	Gulab_jamun1	Gulab_jamun1
329 - 336	Seoul1	Seoul1
337 - 344	Korea1	Korea1
345 - 352	Kabob1	Kabob1
353 - 360	Walnut1	Walnut1
361 - 368	Falafel1	Falafel1
369 - 376	Hummus1	Hummus1
377 - 384	Couscous1	Couscous1
385 - 392	Tagine1	Tagine1
393 - 400	Tea1	Tea1
401 - 408	Cheese1	Cheese1

<b>Layout for Steps 1 through 2</b>		
409 - 416	Mitsubishi-k1	Mitsubishi-k1
417 - 424	Mitsubishi-h1	Mitsubishi-h1
425 - 432	Sweets1	Sweets1
433 - 440	Vessel1	Vessel1
441 - 448	Beijing1	Beijing1
449 - 456	China1	China1
457 - 464	Japan1	Japan1
465 - 472	Tokyo1	Tokyo1
473 - 480	Subaru-k1	Subaru-k1
481 - 488	Subaru-h1	Subaru-h1
17057 - 17064	Naan2	Naan2
17065 - 17072	Chapati2	Chapati2
17073 - 17080	Pakora2	Pakora2
17081 - 17088	Gulab_jamun2	Gulab_jamun2
17089 - 17096	Seoul2	Seoul2
17097 - 17104	Korea2	Korea2
17105 - 17112	Kabob2	Kabob2
17113 - 17120	Walnut2	Walnut2
17121 - 17128	Falafel2	Falafel2
17129 - 17136	Hummus2	Hummus2
17137 - 17144	Couscous2	Couscous2
17145 - 17152	Tagine2	Tagine2
17153 - 17160	Tea2	Tea2
17161 - 17168	Cheese2	Cheese2
17169 - 17176	Mitsubishi-k2	Mitsubishi-k2
17177 - 17184	Mitsubishi-h2	Mitsubishi-h2
17185 - 17192	Sweets2	Sweets2
17193 - 17200	Vessel2	Vessel2
17201 - 17208	Beijing2	Beijing2
17209 - 17216	China2	China2
17217 - 17224	Japan2	Japan2
17225 - 17232	Tokyo2	Tokyo2
17233 - 17240	Subaru-k2	Subaru-k2
17241 - 17248	Subaru-h2	Subaru-h2
90242 - 90249	Naan3	Naan3
90250 - 90257	Chapati3	Chapati3
90258 - 90265	Pakora3	Pakora3
90266 - 90273	Gulab_jamun3	Gulab_jamun3
90274 - 90281	Seoul3	Seoul3
90282 - 90289	Korea3	Korea3
90290 - 90297	Kabob3	Kabob3
90299 - 90306	Walnut3	Walnut3
90307 - 90314	Falafel3	Falafel3
90315 - 90322	Hummus3	Hummus3
90323 - 90330	Couscous3	Couscous3
90331 - 90338	Tagine3	Tagine3
90339 - 90346	Tea3	Tea3
90347 - 90354	Cheese3	Cheese3
90355 - 90362	Mitsubishi-k3	Mitsubishi-k3
90364 - 90371	Mitsubishi-h3	Mitsubishi-h3
90372 - 90379	Sweets3	Sweets3
90380 - 90387	Vessel3	Vessel3
90388 - 90395	Beijing3	Beijing3
90396 - 90403	China3	China3
90404 - 90411	Japan3	Japan3
90412 - 90419	Tokyo3	Tokyo3
90421 - 90428	Subaru-k3	Subaru-k3
90429 - 90436	Subaru-h3	Subaru-h3

<b>Sector List</b>	
Beijing.txt1	441 - 448
Beijing.txt2	17201 - 17208
Beijing.txt3	90388 - 90395

Sector List	
Chapati.txt1	305 - 312
Chapati.txt2	17065 - 17072
Chapati.txt3	90250 - 90257
Cheese.txt1	401 - 408
Cheese.txt2	17161 - 17168
Cheese.txt3	90347 - 90354
...	
54 omitted	
Tokyo.txt1	465 - 472
Tokyo.txt2	17225 - 17232
Tokyo.txt3	90412 - 90419
Vessel.txt1	433 - 440
Vessel.txt2	17193 - 17200
Vessel.txt3	90380 - 90387
Walnut.txt1	353 - 360
Walnut.txt2	17113 - 17120
Walnut.txt3	90299 - 90306

## 28 Test Image fat-05

DFR-05. Recover several fragmented files.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes  
 34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		128	16511	8192	1	FAT12
/dev/sdd2		16512	82047	32768	6	FAT16
/dev/sdd3		82048	213119	65536	b	W95 FAT32

6 files deleted

Deleted files (6)			
Name	Size	F-Hd	F-Bks
XBEID.TXT	4096 (8+0)	1	7
XEnif.txt	4096 (8+0)	1	7
Betelgeuse.txt	4096 (8+0)	1	7
ElNath.TXT	4096 (8+0)	1	7
Bellatrix.txt	4096 (8+0)	1	7
Electra.TXT	4096 (8+0)	1	7

MAC times just before file deletion

File: `XBEID.TXT'  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2008-07-04 13:11:00.000000000 -0400  
 Change: 2011-10-11 19:19:06.000000000 -0400

File: `XEnif.txt'  
 Access: 1998-01-01 23:00:00.000000000 -0500  
 Modify: 2000-02-29 13:11:00.000000000 -0500  
 Change: 2011-10-11 19:19:06.000000000 -0400

File: `Betelgeuse.txt'  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2008-07-04 13:12:00.000000000 -0400  
 Change: 2011-10-11 19:19:07.000000000 -0400

File: `ElNath.TXT'  
 Access: 1998-01-01 23:00:00.000000000 -0500  
 Modify: 2000-02-29 13:12:00.000000000 -0500  
 Change: 2011-10-11 19:19:07.000000000 -0400

File: `Bellatrix.txt'  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2008-07-04 13:13:00.000000000 -0400  
 Change: 2011-10-11 19:19:08.000000000 -0400

File: `Electra.TXT'  
 Access: 1998-01-01 23:00:00.000000000 -0500

Modify: 2000-02-29 13:13:00.000000000 -0500  
 Change: 2011-10-11 19:19:08.000000000 -0400

File delete times:

Times: /Volumes/CFFT/dfr/dfr-setup/ntfs-delete-times.txt Case fat-05

===== Run step 7 =====

ACTION (delete): XBEID.TXT XEnif.txt  
 ACTION (delete time): Tue Oct 11 19:22:15 EDT 2011  
 ACTION (delete): Betelgeuse.txt ElNath.TXT  
 ACTION (delete time): Tue Oct 11 19:22:16 EDT 2011  
 ACTION (delete): Bellatrix.txt Electra.TXT  
 ACTION (delete time): Tue Oct 11 19:22:16 EDT 2011

Steps to Create Image fat-05		
Step	Action	Files in Partition FAT12
1	create	XALTIR.TXT XBEID.TXT XCAPH.TXT
2	append	XBEID.TXT
3	create	XDUBHE.TXT XEnif.txt XFURUD.TXT
4	append	XEnif.txt
5	create	Graffias.TXT
6	set date/time	XALTIR.TXT XBEID.TXT XCAPH.TXT XDUBHE.TXT XEnif.txt XFURUD.TXT Graffias.TXT
7	delete	XBEID.TXT XEnif.txt
Step	Action	Files in Partition FAT16
1	create	Alcor.TXT Betelgeuse.txt Capella.txt
2	append	Betelgeuse.txt
3	create	Deneb.txt ElNath.TXT Fomalhaut.TXT
4	append	ElNath.TXT
5	create	Gemma.TXT
6	set date/time	Alcor.TXT Betelgeuse.txt Capella.txt Deneb.txt ElNath.TXT Fomalhaut.TXT Gemma.TXT
7	delete	Betelgeuse.txt ElNath.TXT
Step	Action	Files in Partition FAT32
1	create	Algol.txt Bellatrix.txt Canopus.txt
2	append	Bellatrix.txt
3	create	Denebola.TXT Electra.TXT FumAlSamakah.txt
4	append	Electra.TXT
5	create	Giauzar.txt
6	set date/time	Algol.txt Bellatrix.txt Canopus.txt Denebola.TXT Electra.TXT FumAlSamakah.txt Giauzar.txt
7	delete	Bellatrix.txt Electra.TXT

No overwrites

File: Bellatrix.txt 8 8  
 File: Betelgeuse.txt 8 8  
 File: ElNath.TXT 8 8  
 File: XEnif.txt 8 8  
 File: XBEID.TXT 8 8  
 File: Electra.TXT 8 8  
 Summary: 6 6 0 0

Metadata available  
 fat-05 Metadata found 6 files, not found 0, total 6 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 3			
Sectors	Step 1	Step 2	Step 3
234 - 237	XALTIR	XALTIR	XALTIR
238 - 241	XBEID	XBEID	XBEID
242 - 245	XCAPH	XCAPH	XCAPH
246 - 249	empty	XBEID	XBEID
250 - 253	empty	empty	XDUBHE
254 - 257	empty	empty	XEnif

Layout for Steps 1 through 3			
258 - 261	empty	empty	XFURUD
262 - 265	empty	empty	empty
266 - 269	empty	empty	empty
16810 - 16813	Alcor	Alcor	Alcor
16814 - 16817	Betelgeuse	Betelgeuse	Betelgeuse
16818 - 16821	Capella	Capella	Capella
16822 - 16825	empty	Betelgeuse	Betelgeuse
16826 - 16829	empty	empty	Deneb
16830 - 16833	empty	empty	ElNath
16834 - 16837	empty	empty	Fomalhaut
16838 - 16841	empty	empty	empty
16842 - 16845	empty	empty	empty
90242 - 90245	Algol	Algol	Algol
90246 - 90249	Bellatrix	Bellatrix	Bellatrix
90250 - 90253	Canopus	Canopus	Canopus
90254 - 90257	empty	Bellatrix	Bellatrix
90258 - 90261	empty	empty	Denebola
90262 - 90265	empty	empty	Electra
90266 - 90269	empty	empty	FumAlSamakah
90270 - 90273	empty	empty	empty
90274 - 90277	empty	empty	empty

Layout for Steps 4 through 6			
Sectors	Step 4	Step 5	Step 6
234 - 237	XALTIR	XALTIR	XALTIR
238 - 241	XBEID	XBEID	XBEID
242 - 245	XCAPH	XCAPH	XCAPH
246 - 249	XBEID	XBEID	XBEID
250 - 253	XDUBHE	XDUBHE	XDUBHE
254 - 257	XEnif	XEnif	XEnif
258 - 261	XFURUD	XFURUD	XFURUD
262 - 265	XEnif	XEnif	XEnif
266 - 269	empty	Graffias	Graffias
16810 - 16813	Alcor	Alcor	Alcor
16814 - 16817	Betelgeuse	Betelgeuse	Betelgeuse
16818 - 16821	Capella	Capella	Capella
16822 - 16825	Betelgeuse	Betelgeuse	Betelgeuse
16826 - 16829	Deneb	Deneb	Deneb
16830 - 16833	ElNath	ElNath	ElNath
16834 - 16837	Fomalhaut	Fomalhaut	Fomalhaut
16838 - 16841	ElNath	ElNath	ElNath
16842 - 16845	empty	Gemma	Gemma
90242 - 90245	Algol	Algol	Algol
90246 - 90249	Bellatrix	Bellatrix	Bellatrix
90250 - 90253	Canopus	Canopus	Canopus
90254 - 90257	Bellatrix	Bellatrix	Bellatrix
90258 - 90261	Denebola	Denebola	Denebola
90262 - 90265	Electra	Electra	Electra
90266 - 90269	FumAlSamakah	FumAlSamakah	FumAlSamakah
90270 - 90273	Electra	Electra	Electra
90274 - 90277	empty	Giauzar	Giauzar

Sector List	
Alcor.TXT	16810 - 16813
Algol.txt	90242 - 90245
Bellatrix.txt	90246 - 90249, 90254 - 90257
Betelgeuse.txt	16814 - 16817, 16822 - 16825
Canopus.txt	90250 - 90253
Capella.txt	16818 - 16821
Deneb.txt	16826 - 16829
Denebola.TXT	90258 - 90261
ElNath.TXT	16830 - 16833, 16838 - 16841

Sector List	
...	
3 omitted	
Gemma.TXT	16842 - 16845
Giauzar.txt	90274 - 90277
Graffias.TXT	266 - 269
XALTIR.TXT	234 - 237
XBEID.TXT	238 - 241, 246 - 249
XCAPH.TXT	242 - 245
XDUBHE.TXT	250 - 253
XEnif.txt	254 - 257, 262 - 265
XFURUD.TXT	258 - 261

## 29 Test Image fat-05-braid

DFR-05. Recover several fragmented files.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes  
 34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors  
 Device Boot Start End Blocks Id System  
 /dev/sdd1 128 16511 8192 1 FAT12  
 /dev/sdd2 16512 82047 32768 6 FAT16  
 /dev/sdd3 82048 1130623 524288 b W95 FAT32

6 files deleted

Deleted files (6)			
Name	Size	F-Hd	F-Bks
XBEID.TXT	2048 (4+0)	1	3
XCAPH.TXT	2048 (4+0)	1	3
Betelgeuse.txt	2048 (4+0)	1	3
Capella.txt	2048 (4+0)	1	3
Bellatrix.txt	2048 (4+0)	1	3
Canopus.txt	2048 (4+0)	1	3

MAC times just before file deletion

File: `XBEID.TXT'  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2008-07-04 13:11:00.000000000 -0400  
 Change: 2011-10-11 19:44:48.000000000 -0400  
 File: `XCAPH.TXT'  
 Access: 1998-01-01 23:00:00.000000000 -0500  
 Modify: 2000-02-29 13:11:00.000000000 -0500  
 Change: 2011-10-11 19:44:48.000000000 -0400  
 File: `Betelgeuse.txt'  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2008-07-04 13:12:00.000000000 -0400  
 Change: 2011-10-11 19:44:49.000000000 -0400  
 File: `Capella.txt'  
 Access: 1998-01-01 23:00:00.000000000 -0500  
 Modify: 2000-02-29 13:12:00.000000000 -0500  
 Change: 2011-10-11 19:44:49.000000000 -0400  
 File: `Bellatrix.txt'  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2008-07-04 13:13:00.000000000 -0400  
 Change: 2011-10-11 19:44:50.000000000 -0400  
 File: `Canopus.txt'  
 Access: 1998-01-01 23:00:00.000000000 -0500  
 Modify: 2000-02-29 13:13:00.000000000 -0500  
 Change: 2011-10-11 19:44:50.000000000 -0400

File delete times:

Times: /Volumes/CFTT/df/df-setup/ntfs-delete-times.txt Case fat-05-braid  
 ===== Run step 6 =====

ACTION (delete): XBEID.TXT XCAPH.TXT  
 ACTION (delete time): Tue Oct 11 19:46:33 EDT 2011  
 ACTION (delete): Betelgeuse.txt Capella.txt  
 ACTION (delete time): Tue Oct 11 19:46:34 EDT 2011  
 ACTION (delete): Bellatrix.txt Canopus.txt  
 ACTION (delete time): Tue Oct 11 19:46:34 EDT 2011

Steps to Create Image fat-05-braid		
Step	Action	Files in Partition FAT12
1	create	XALTIR.TXT XBEID.TXT XCAPH.TXT
2	append	XBEID.TXT
3	append	XCAPH.TXT
4	create	XDUBHE.TXT
5	set date/time	XALTIR.TXT XBEID.TXT XCAPH.TXT XDUBHE.TXT
6	delete	XBEID.TXT XCAPH.TXT
Step	Action	Files in Partition FAT16
1	create	Alcor.TXT Betelgeuse.txt Capella.txt
2	append	Betelgeuse.txt
3	append	Capella.txt
4	create	Deneb.txt
5	set date/time	Alcor.TXT Betelgeuse.txt Capella.txt Deneb.txt
6	delete	Betelgeuse.txt Capella.txt
Step	Action	Files in Partition FAT32
1	create	Algol.txt Bellatrix.txt Canopus.txt
2	append	Bellatrix.txt
3	append	Canopus.txt
4	create	Denebola.TXT
5	set date/time	Algol.txt Bellatrix.txt Canopus.txt Denebola.TXT
6	delete	Bellatrix.txt Canopus.txt

No overwrites

File: Bellatrix.txt 4 4  
 File: XCAPH.TXT 4 4  
 File: Betelgeuse.txt 4 4  
 File: Capella.txt 4 4  
 File: Canopus.txt 4 4  
 File: XBEID.TXT 4 4  
 Summary: 6 6 0 0

Metadata available  
 fat-05-braid Metadata found 6 files, not found 0, total 6 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 4				
Sectors	Step 1	Step 2	Step 3	Step 4
234 - 235	XALTIR	XALTIR	XALTIR	XALTIR
236 - 237	XBEID	XBEID	XBEID	XBEID
238 - 239	XCAPH	XCAPH	XCAPH	XCAPH
240 - 241	empty	XBEID	XBEID	XBEID
242 - 243	empty	empty	XCAPH	XCAPH
244 - 245	empty	empty	empty	XDUBHE
16810 - 16811	Alcor	Alcor	Alcor	Alcor
16812 - 16813	Betelgeuse	Betelgeuse	Betelgeuse	Betelgeuse
16814 - 16815	Capella	Capella	Capella	Capella
16816 - 16817	empty	Betelgeuse	Betelgeuse	Betelgeuse
16818 - 16819	empty	empty	Capella	Capella
16820 - 16821	empty	empty	empty	Deneb
98436 - 98437	Algol	Algol	Algol	Algol
98438 - 98439	Bellatrix	Bellatrix	Bellatrix	Bellatrix

Layout for Steps 1 through 4				
98440 - 98441	Canopus	Canopus	Canopus	Canopus
98442 - 98443	empty	Bellatrix	Bellatrix	Bellatrix
98444 - 98445	empty	empty	Canopus	Canopus
98446 - 98447	empty	empty	empty	Denebola

Layout for Steps 5 through 5	
Sectors	Step 5
234 - 235	XALTIR
236 - 237	XBEID
238 - 239	XCAPH
240 - 241	XBEID
242 - 243	XCAPH
244 - 245	XDUBHE
16810 - 16811	Alcor
16812 - 16813	Betelgeuse
16814 - 16815	Capella
16816 - 16817	Betelgeuse
16818 - 16819	Capella
16820 - 16821	Deneb
98436 - 98437	Algol
98438 - 98439	Bellatrix
98440 - 98441	Canopus
98442 - 98443	Bellatrix
98444 - 98445	Canopus
98446 - 98447	Denebola

Sector List	
Alcor.TXT	16810 - 16811
Algol.txt	98436 - 98437
Bellatrix.txt	98438 - 98439, 98442 - 98443
Betelgeuse.txt	16812 - 16813, 16816 - 16817
Canopus.txt	98440 - 98441, 98444 - 98445
Capella.txt	16814 - 16815, 16818 - 16819
Deneb.txt	16820 - 16821
Denebola.TXT	98446 - 98447
XALTIR.TXT	234 - 235
XBEID.TXT	236 - 237, 240 - 241
XCAPH.TXT	238 - 239, 242 - 243
XDUBHE.TXT	244 - 245

### 30 Test Image fat-05-nest

DFR-05. Recover several fragmented files.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		128	16511	8192	1	FAT12
/dev/sdd2		16512	82047	32768	6	FAT16
/dev/sdd3		82048	213119	65536	b	W95 FAT32

6 files deleted

Deleted files (6)			
Name	Size	F-Hd	F-Bks
XBEID.TXT	1024 (2+0)	1	1
XDUBHE.TXT	1024 (2+0)	1	1
Betelgeuse.txt	1024 (2+0)	1	1
Deneb.txt	1024 (2+0)	1	1
Bellatrix.txt	1024 (2+0)	1	1
Denebola.TXT	1024 (2+0)	1	1



MAC times just before file deletion

File: `XBEID.TXT'  
Access: 1999-01-01 23:00:00.000000000 -0500  
Modify: 2008-07-04 13:11:00.000000000 -0400  
Change: 2011-10-12 10:46:49.000000000 -0400  
File: `XDUBHE.TXT'  
Access: 1998-01-01 23:00:00.000000000 -0500  
Modify: 2000-02-29 13:11:00.000000000 -0500  
Change: 2011-10-12 10:46:49.000000000 -0400  
File: `Betelgeuse.txt'  
Access: 1999-01-01 23:00:00.000000000 -0500  
Modify: 2008-07-04 13:12:00.000000000 -0400  
Change: 2011-10-12 10:46:50.000000000 -0400  
File: `Deneb.txt'  
Access: 1998-01-01 23:00:00.000000000 -0500  
Modify: 2000-02-29 13:12:00.000000000 -0500  
Change: 2011-10-12 10:46:50.000000000 -0400  
File: `Bellatrix.txt'  
Access: 1999-01-01 23:00:00.000000000 -0500  
Modify: 2008-07-04 13:13:00.000000000 -0400  
Change: 2011-10-12 10:46:50.000000000 -0400  
File: `Denebola.TXT'  
Access: 1998-01-01 23:00:00.000000000 -0500  
Modify: 2000-02-29 13:13:00.000000000 -0500  
Change: 2011-10-12 10:46:50.000000000 -0400

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case fat-05-nest

==== Run step 7 =====

ACTION (delete): XBEID.TXT XDUBHE.TXT  
ACTION (delete time): Wed Oct 12 10:49:59 EDT 2011  
ACTION (delete): Betelgeuse.txt Deneb.txt  
ACTION (delete time): Wed Oct 12 10:50:00 EDT 2011  
ACTION (delete): Bellatrix.txt Denebola.TXT  
ACTION (delete time): Wed Oct 12 10:50:01 EDT 2011

Steps to Create Image fat-05-nest		
Step	Action	Files in Partition FAT12
1	create	XALTIR.TXT XBEID.TXT XCAPH.TXT XDUBHE.TXT XEnif.txt
2	append	XDUBHE.TXT
3	create	XFURUD.TXT
4	append	XBEID.TXT
5	create	Graffias.TXT
6	set date/time	XALTIR.TXT XBEID.TXT XCAPH.TXT XDUBHE.TXT XEnif.txt XFURUD.TXT Graffias.TXT
7	delete	XBEID.TXT XDUBHE.TXT
Step	Action	Files in Partition FAT16
1	create	Alcor.TXT Betelgeuse.txt Capella.txt Deneb.txt EINath.TXT
2	append	Deneb.txt
3	create	Fomalhaut.TXT
4	append	Betelgeuse.txt
5	create	Gemma.TXT
6	set date/time	Alcor.TXT Betelgeuse.txt Capella.txt Deneb.txt EINath.TXT Fomalhaut.TXT Gemma.TXT
7	delete	Betelgeuse.txt Deneb.txt
Step	Action	Files in Partition FAT32
1	create	Algol.txt Bellatrix.txt Canopus.txt Denebola.TXT Electra.TXT
2	append	Denebola.TXT
3	create	FumAlSamakah.txt
4	append	Bellatrix.txt
5	create	Giauzar.txt
6	set date/time	Algol.txt Bellatrix.txt Canopus.txt Denebola.TXT Electra.TXT FumAlSamakah.txt Giauzar.txt
7	delete	Bellatrix.txt Denebola.TXT

No overwrites

File: Bellatrix.txt 2 2  
 File: XDUBHE.TXT 2 2  
 File: Betelgeuse.txt 2 2  
 File: Deneb.txt 2 2  
 File: Denebola.TXT 2 2  
 File: XBEID.TXT 2 2  
 Summary: 6 6 0 0

Metadata available  
 fat-05-nest Metadata found 6 files, not found 0, total 6 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 3			
Sectors	Step 1	Step 2	Step 3
297 - 297	XALTIR	XALTIR	XALTIR
298 - 298	XBEID	XBEID	XBEID
299 - 299	XCAPH	XCAPH	XCAPH
300 - 300	XDUBHE	XDUBHE	XDUBHE
301 - 301	XEnif	XEnif	XEnif
302 - 302	empty	XDUBHE	XDUBHE
303 - 303	empty	empty	XFURUD
304 - 304	empty	empty	empty
305 - 305	empty	empty	empty
17057 - 17057	Alcor	Alcor	Alcor
17058 - 17058	Betelgeuse	Betelgeuse	Betelgeuse
17059 - 17059	Capella	Capella	Capella
17060 - 17060	Deneb	Deneb	Deneb
17061 - 17061	ElNath	ElNath	ElNath
17062 - 17062	empty	Deneb	Deneb
17063 - 17063	empty	empty	Fomalhaut
17064 - 17064	empty	empty	empty
17065 - 17065	empty	empty	empty
90242 - 90242	Algol	Algol	Algol
90243 - 90243	Bellatrix	Bellatrix	Bellatrix
90244 - 90244	Canopus	Canopus	Canopus
90245 - 90245	Denebola	Denebola	Denebola
90246 - 90246	Electra	Electra	Electra
90247 - 90247	empty	Denebola	Denebola
90248 - 90248	empty	empty	FumAlSamakah
90249 - 90249	empty	empty	empty
90250 - 90250	empty	empty	empty

Layout for Steps 4 through 6			
Sectors	Step 4	Step 5	Step 6
297 - 297	XALTIR	XALTIR	XALTIR
298 - 298	XBEID	XBEID	XBEID
299 - 299	XCAPH	XCAPH	XCAPH
300 - 300	XDUBHE	XDUBHE	XDUBHE
301 - 301	XEnif	XEnif	XEnif
302 - 302	XDUBHE	XDUBHE	XDUBHE
303 - 303	XFURUD	XFURUD	XFURUD
304 - 304	XBEID	XBEID	XBEID
305 - 305	empty	Graffias	Graffias
17057 - 17057	Alcor	Alcor	Alcor
17058 - 17058	Betelgeuse	Betelgeuse	Betelgeuse
17059 - 17059	Capella	Capella	Capella
17060 - 17060	Deneb	Deneb	Deneb
17061 - 17061	ElNath	ElNath	ElNath
17062 - 17062	Deneb	Deneb	Deneb
17063 - 17063	Fomalhaut	Fomalhaut	Fomalhaut

Layout for Steps 4 through 6			
17064 - 17064	Betelgeuse	Betelgeuse	Betelgeuse
17065 - 17065	empty	Gemma	Gemma
90242 - 90242	Algol	Algol	Algol
90243 - 90243	Bellatrix	Bellatrix	Bellatrix
90244 - 90244	Canopus	Canopus	Canopus
90245 - 90245	Denebola	Denebola	Denebola
90246 - 90246	Electra	Electra	Electra
90247 - 90247	Denebola	Denebola	Denebola
90248 - 90248	FumAlSamakah	FumAlSamakah	FumAlSamakah
90249 - 90249	Bellatrix	Bellatrix	Bellatrix
90250 - 90250	empty	Giauzar	Giauzar

Sector List	
Alcor.TXT	17057 - 17057
Algol.txt	90242 - 90242
Bellatrix.txt	90243 - 90243, 90249 - 90249
Betelgeuse.txt	17058 - 17058, 17064 - 17064
Canopus.txt	90244 - 90244
Capella.txt	17059 - 17059
Deneb.txt	17060 - 17060, 17062 - 17062
Denebola.TXT	90245 - 90245, 90247 - 90247
ElNath.TXT	17061 - 17061
...	
3 omitted	
Gemma.TXT	17065 - 17065
Giauzar.txt	90250 - 90250
Graffias.TXT	305 - 305
XALTIR.TXT	297 - 297
XBEID.TXT	298 - 298, 304 - 304
XCAPH.TXT	299 - 299
XDUBHE.TXT	300 - 300, 302 - 302
XEnif.txt	301 - 301
XFURUD.TXT	303 - 303

### 31 Test Image fat-06

DFR-06. Recover one large file.

#### Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes  
 34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors  
 Device Boot Start End Blocks Id System  
 /dev/sdd1 128 16511 8192 1 FAT12  
 /dev/sdd2 16512 82047 32768 6 FAT16  
 /dev/sdd3 82048 213119 65536 b W95 FAT32

3 files deleted

Deleted files (3)			
Name	Size	F-Hd	F-Bks
XBEID.TXT	8353792 (16316+0)	1	16315
Betelgeuse.txt	33275392 (64991+0)	1	64990
Bellatrix.txt	62913536 (122878+0)	1	122877

MAC times just before file deletion

File: `XBEID.TXT`  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2008-07-04 13:13:00.000000000 -0400  
 Change: 2011-10-10 10:33:36.000000000 -0400  
 File: `Betelgeuse.txt`  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2008-07-04 13:13:00.000000000 -0400

Change: 2011-10-10 10:33:39.000000000 -0400  
 File: `Bellatrix.txt'  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2008-07-04 13:13:00.000000000 -0400  
 Change: 2011-10-10 10:33:44.000000000 -0400

File delete times:  
 Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case fat-06  
 ===== Run step 4 =====

ACTION (delete): XBEID.TXT  
 ACTION (delete time): Mon Oct 10 10:36:47 EDT 2011  
 ACTION (delete): Betelgeuse.txt  
 ACTION (delete time): Mon Oct 10 10:36:48 EDT 2011  
 ACTION (delete): Bellatrix.txt  
 ACTION (delete time): Mon Oct 10 10:36:49 EDT 2011

Steps to Create Image fat-06		
Step	Action	Files in Partition FAT12
1	create	XALTIR.TXT
2	create	XBEID.TXT
4	delete	XBEID.TXT
Step	Action	Files in Partition FAT16
1	create	Alcor.TXT
2	create	Betelgeuse.txt
4	delete	Betelgeuse.txt
Step	Action	Files in Partition FAT32
1	create	Algol.txt
2	create	Bellatrix.txt
4	delete	Bellatrix.txt

No overwrites

File: Bellatrix.txt 122878 122878  
 File: Betelgeuse.txt 64991 64991  
 File: XBEID.TXT 16316 16316  
 Summary: 3 3 0 0

Metadata available  
 fat-06 Metadata found 3 files, not found 0, total 3 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 3			
Sectors	Step 1	Step 2	Step 3
192 - 195	empty	XBEID	XBEID
196 - 196	XALTIR	XALTIR	XALTIR
200 - 16510	empty	XBEID	XBEID
16511 - 16511	metadata	XBEID	XBEID
17056 - 17056	empty	Betelgeuse	Betelgeuse
17057 - 17057	Alcor	Alcor	Alcor
17058 - 82046	empty	Betelgeuse	Betelgeuse
82047 - 82047	metadata	Betelgeuse	Betelgeuse
90241 - 90241	empty	Bellatrix	Bellatrix
90242 - 90242	Algol	Algol	Algol
90243 - 213118	empty	Bellatrix	Bellatrix
213119 - 213119	metadata	Bellatrix	Bellatrix

Sector List	
Alcor.TXT	17057 - 17057
Algol.txt	90242 - 90242
Bellatrix.txt	90241 - 90241, 90243 - 213119

Sector List	
Betelgeuse.txt	17056 - 17056, 17058 - 82047
XALTIR.TXT	196 - 196
XBEID.TXT	192 - 195, 200 - 16511

## 32 Test Image fat-07

DFR-07. Recover one overwritten file.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		128	16511	8192	1	FAT12
/dev/sdd2		16512	82047	32768	6	FAT16
/dev/sdd3		82048	213119	65536	b	W95 FAT32

15 files deleted

Deleted files (15)			
Name	Size	F-Hd	F-Bks
Graffias.TXT	4096 (8+0)	1	7
XBEID.TXT	4096 (8+0)	1	7
XCAPH.TXT	4096 (8+0)	1	7
XDUBHE.TXT	4096 (8+0)	1	7
XFURUD.TXT	8192 (16+0)	1	15
Betelgeuse.txt	4096 (8+0)	1	7
Capella.txt	4096 (8+0)	1	7
Deneb.txt	4096 (8+0)	1	7
Fomalhaut.TXT	8192 (16+0)	1	15
Gemma.TXT	4096 (8+0)	1	7
Bellatrix.txt	4096 (8+0)	1	7
Canopus.txt	4096 (8+0)	1	7
Denebola.TXT	4096 (8+0)	1	7
FumAlSamakah.txt	8192 (16+0)	1	15
Giauzar.txt	4096 (8+0)	1	7

MAC times just before file deletion

File: `Graffias.TXT`

Access: 2011-10-10 00:00:00.000000000 -0400

Modify: 2011-10-10 11:07:10.000000000 -0400

Change: 2011-10-10 11:07:11.000000000 -0400

File: `XBEID.TXT`

Access: 2011-10-10 00:00:00.000000000 -0400

Modify: 2011-10-10 11:01:00.000000000 -0400

Change: 2011-10-10 11:01:00.000000000 -0400

File: `XCAPH.TXT`

Access: 2011-10-10 00:00:00.000000000 -0400

Modify: 2011-10-10 11:01:00.000000000 -0400

Change: 2011-10-10 11:01:00.000000000 -0400

File: `XDUBHE.TXT`

Access: 2011-10-10 00:00:00.000000000 -0400

Modify: 2011-10-10 11:01:00.000000000 -0400

Change: 2011-10-10 11:01:00.000000000 -0400

File: `XFURUD.TXT`

Access: 2011-10-10 00:00:00.000000000 -0400

Modify: 2011-10-10 11:07:10.000000000 -0400

Change: 2011-10-10 11:07:11.000000000 -0400

...

20 omitted

File: `Bellatrix.txt`

Access: 2011-10-10 00:00:00.000000000 -0400

Modify: 2011-10-10 11:01:04.000000000 -0400

Change: 2011-10-10 11:01:05.000000000 -0400

File: `Canopus.txt`

Access: 2011-10-10 00:00:00.000000000 -0400  
 Modify: 2011-10-10 11:01:04.000000000 -0400  
 Change: 2011-10-10 11:01:05.000000000 -0400  
 File: `Denebola.TXT'  
 Access: 2011-10-10 00:00:00.000000000 -0400  
 Modify: 2011-10-10 11:01:04.000000000 -0400  
 Change: 2011-10-10 11:01:05.000000000 -0400  
 File: `FumAlSamakah.txt'  
 Access: 2011-10-10 00:00:00.000000000 -0400  
 Modify: 2011-10-10 11:07:12.000000000 -0400  
 Change: 2011-10-10 11:07:12.000000000 -0400  
 File: `Giauzar.txt'  
 Access: 2011-10-10 00:00:00.000000000 -0400  
 Modify: 2011-10-10 11:07:12.000000000 -0400  
 Change: 2011-10-10 11:07:12.000000000 -0400

File delete times:  
 Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case fat-07  
 ===== Run step 2 =====

ACTION (delete): XBEID.TXT XCAPH.TXT XDUBHE.TXT  
 ACTION (delete time): Mon Oct 10 11:04:08 EDT 2011  
 ACTION (delete): Betelgeuse.txt Capella.txt Deneb.txt  
 ACTION (delete time): Mon Oct 10 11:04:09 EDT 2011  
 ACTION (delete): Bellatrix.txt Canopus.txt Denebola.TXT  
 ACTION (delete time): Mon Oct 10 11:04:09 EDT 2011  
 ACTION (delete): XFURUD.TXT Graffias.TXT  
 ACTION (delete time): Mon Oct 10 11:10:14 EDT 2011  
 ACTION (delete): Fomalhaut.TXT Gemma.TXT  
 ACTION (delete time): Mon Oct 10 11:10:14 EDT 2011  
 ACTION (delete): FumAlSamakah.txt Giauzar.txt  
 ACTION (delete time): Mon Oct 10 11:10:15 EDT 2011

Steps to Create Image fat-07		
Step	Action	Files in Partition FAT12
1	create	XALTIR.TXT XBEID.TXT XCAPH.TXT XDUBHE.TXT XEnif.txt
2	delete	XBEID.TXT XCAPH.TXT XDUBHE.TXT
3	create	XFURUD.TXT Graffias.TXT
4	delete	XFURUD.TXT Graffias.TXT
Step	Action	Files in Partition FAT16
1	create	Alcor.TXT Betelgeuse.txt Capella.txt Deneb.txt ElNath.TXT
2	delete	Betelgeuse.txt Capella.txt Deneb.txt
3	create	Fomalhaut.TXT Gemma.TXT
4	delete	Fomalhaut.TXT Gemma.TXT
Step	Action	Files in Partition FAT32
1	create	Algol.txt Bellatrix.txt Canopus.txt Denebola.TXT Electra.TXT
2	delete	Bellatrix.txt Canopus.txt Denebola.TXT
3	create	FumAlSamakah.txt Giauzar.txt
4	delete	FumAlSamakah.txt Giauzar.txt

9 overwrites  
 Bellatrix.txt x FumAlSamakah.txt: overlap - 90250 - 90257  
 Betelgeuse.txt x Fomalhaut.TXT: overlap - 17065 - 17072  
 Canopus.txt x FumAlSamakah.txt: overlap - 90258 - 90265  
 Capella.txt x Fomalhaut.TXT: overlap - 17073 - 17080  
 Deneb.txt x Gemma.TXT: overlap - 17081 - 17088  
 Denebola.TXT x Giauzar.txt: overlap - 90266 - 90273  
 Graffias.TXT x XDUBHE.TXT: overlap - 220 - 227  
 XBEID.TXT x XFURUD.TXT: overlap - 204 - 211  
 XCAPH.TXT x XFURUD.TXT: overlap - 212 - 219

File: Fomalhaut.TXT 16 16  
 File: Denebola.TXT 8 0  
 File: Bellatrix.txt 8 0  
 File: XCAPH.TXT 8 0  
 File: XDUBHE.TXT 8 0  
 File: Betelgeuse.txt 8 0

File: Capella.txt 8 0  
 File: XFURUD.TXT 16 16  
 File: FumAlSamakah.txt 16 16  
 File: Canopus.txt 8 0  
 File: XBEID.TXT 8 0  
 File: Gemma.TXT 8 8  
 File: Deneb.txt 8 0  
 File: Giauzar.txt 8 8  
 File: Graffias.TXT 8 8  
 Summary: 15 6 0 9

Metadata available

fat-07 Metadata found 9 files, not found 6, total 15 deleted files

Deleted files without metadata (cannot be found)

Bellatrix.txt          Betelgeuse.txt          Canopus.txt          XBEID.TXT  
 XCAPH.TXT          XDUBHE.TXT

Layout History

Layout for Steps 1 through 3			
Sectors	Step 1	Step 2	Step 3
196 - 203	XALTIR	XALTIR	XALTIR
204 - 211	XBEID	XBEID	XFURUD
212 - 219	XCAPH	XCAPH	XFURUD
220 - 227	XDUBHE	XDUBHE	Graffias
228 - 235	XEnif	XEnif	XEnif
17057 - 17064	Alcor	Alcor	Alcor
17065 - 17072	Betelgeuse	Betelgeuse	Fomalhaut
17073 - 17080	Capella	Capella	Fomalhaut
17081 - 17088	Deneb	Deneb	Gemma
17089 - 17096	ElNath	ElNath	ElNath
90242 - 90249	Algol	Algol	Algol
90250 - 90257	Bellatrix	Bellatrix	FumAlSamakah
90258 - 90265	Canopus	Canopus	FumAlSamakah
90266 - 90273	Denebola	Denebola	Giauzar
90274 - 90281	Electra	Electra	Electra

Sector List	
Alcor.TXT	17057 - 17064
Algol.txt	90242 - 90249
Bellatrix.txt	90250 - 90257
Betelgeuse.txt	17065 - 17072
Canopus.txt	90258 - 90265
Capella.txt	17073 - 17080
Deneb.txt	17081 - 17088
Denebola.TXT	90266 - 90273
ElNath.TXT	17089 - 17096
...	
3 omitted	
Gemma.TXT	17081 - 17088
Giauzar.txt	90266 - 90273
Graffias.TXT	220 - 227
XALTIR.TXT	196 - 203
XBEID.TXT	204 - 211
XCAPH.TXT	212 - 219
XDUBHE.TXT	220 - 227
XEnif.txt	228 - 235
XFURUD.TXT	204 - 219

### 33 Test Image fat-07-one

DFR-07. Recover one overwritten file.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes  
34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors  
Device Boot Start End Blocks Id System  
/dev/sdd1 128 16511 8192 1 FAT12  
/dev/sdd2 16512 82047 32768 6 FAT16  
/dev/sdd3 82048 213119 65536 b W95 FAT32

9 files deleted

Deleted files (9)			
Name	Size	F-Hd	F-Bks
XBEID.TXT	4096 (8+0)	1	7
XCAPH.TXT	4096 (8+0)	1	7
XEnif.txt	4096 (8+0)	1	7
Betelgeuse.txt	4096 (8+0)	1	7
Capella.txt	4096 (8+0)	1	7
ElNath.TXT	4096 (8+0)	1	7
Bellatrix.txt	4096 (8+0)	1	7
Canopus.txt	4096 (8+0)	1	7
Electra.TXT	4096 (8+0)	1	7

MAC times just before file deletion

File: `XBEID.TXT'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 11:27:06.000000000 -0400  
Change: 2011-10-10 11:27:07.000000000 -0400  
File: `XCAPH.TXT'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 11:27:06.000000000 -0400  
Change: 2011-10-10 11:27:07.000000000 -0400  
File: `XEnif.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 11:39:38.000000000 -0400  
Change: 2011-10-10 11:39:39.000000000 -0400  
File: `Betelgeuse.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 11:27:08.000000000 -0400  
Change: 2011-10-10 11:27:08.000000000 -0400  
File: `Capella.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 11:27:08.000000000 -0400  
Change: 2011-10-10 11:27:08.000000000 -0400  
File: `ElNath.TXT'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 11:39:40.000000000 -0400  
Change: 2011-10-10 11:39:40.000000000 -0400  
File: `Bellatrix.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 11:27:10.000000000 -0400  
Change: 2011-10-10 11:27:11.000000000 -0400  
File: `Canopus.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 11:27:10.000000000 -0400  
Change: 2011-10-10 11:27:11.000000000 -0400  
File: `Electra.TXT'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 11:39:40.000000000 -0400  
Change: 2011-10-10 11:39:40.000000000 -0400

File delete times:

Times: /Volumes/CFIT/dfr/dfr-setup/ntfs-delete-times.txt Case fat-07-one  
==== Run step 2 =====  
ACTION (delete): XBEID.TXT  
ACTION (delete time): Mon Oct 10 11:30:19 EDT 2011  
ACTION (delete): Betelgeuse.txt  
ACTION (delete time): Mon Oct 10 11:30:20 EDT 2011



ACTION (delete): Bellatrix.txt  
 ACTION (delete time): Mon Oct 10 11:30:20 EDT 2011  
 ACTION (delete): XCAPH.TXT  
 ACTION (delete time): Mon Oct 10 11:36:31 EDT 2011  
 ACTION (delete): Capella.txt  
 ACTION (delete time): Mon Oct 10 11:36:32 EDT 2011  
 ACTION (delete): Canopus.txt  
 ACTION (delete time): Mon Oct 10 11:36:32 EDT 2011  
 ACTION (delete): XEnif.txt  
 ACTION (delete time): Mon Oct 10 11:42:52 EDT 2011  
 ACTION (delete): ElNath.TXT  
 ACTION (delete time): Mon Oct 10 11:42:53 EDT 2011  
 ACTION (delete): Electra.TXT  
 ACTION (delete time): Mon Oct 10 11:42:54 EDT 2011

Steps to Create Image fat-07-one		
Step	Action	Files in Partition FAT12
1	create	XALTIR.TXT XBEID.TXT XCAPH.TXT XDUBHE.TXT
2	delete	XBEID.TXT
3	append	XALTIR.TXT
4	delete	XCAPH.TXT
5	create	XEnif.txt
6	delete	XEnif.txt
Step	Action	Files in Partition FAT16
1	create	Alcor.TXT Betelgeuse.txt Capella.txt Deneb.txt
2	delete	Betelgeuse.txt
3	append	Alcor.TXT
4	delete	Capella.txt
5	create	ElNath.TXT
6	delete	ElNath.TXT
Step	Action	Files in Partition FAT32
1	create	Algol.txt Bellatrix.txt Canopus.txt Denebola.TXT
2	delete	Bellatrix.txt
3	append	Algol.txt
4	delete	Canopus.txt
5	create	Electra.TXT
6	delete	Electra.TXT

6 overwrites

Alcor.TXT x Betelgeuse.txt: overlap - 17065 - 17072  
 Algol.txt x Bellatrix.txt: overlap - 90250 - 90257  
 Canopus.txt x Electra.TXT: overlap - 90258 - 90265  
 Capella.txt x ElNath.TXT: overlap - 17073 - 17080  
 XALTIR.TXT x XBEID.TXT: overlap - 204 - 211  
 XCAPH.TXT x XEnif.txt: overlap - 212 - 219

File: Bellatrix.txt 8 0  
 File: XCAPH.TXT 8 0  
 File: Betelgeuse.txt 8 0  
 File: ElNath.TXT 8 8  
 File: Capella.txt 8 0  
 File: Canopus.txt 8 0  
 File: XBEID.TXT 8 0  
 File: Electra.TXT 8 8  
 File: XEnif.txt 8 8  
 Summary: 9 3 0 6

Metadata available

fat-07-one Metadata found 5 files, not found 4, total 9 deleted files  
 Deleted files without metadata (cannot be found)

Bellatrix.txt      Betelgeuse.txt      XBEID.TXT      XCAPH.TXT

Layout History

Layout for Steps 1 through 4				
Sectors	Step 1	Step 2	Step 3	Step 4
196 - 203	XALTIR	XALTIR	XALTIR	XALTIR
204 - 211	XBEID	XBEID	XALTIR	XALTIR
212 - 219	XCAPH	XCAPH	XCAPH	XCAPH
220 - 227	XDUBHE	XDUBHE	XDUBHE	XDUBHE
17057 - 17064	Alcor	Alcor	Alcor	Alcor
17065 - 17072	Betelgeuse	Betelgeuse	Alcor	Alcor
17073 - 17080	Capella	Capella	Capella	Capella
17081 - 17088	Deneb	Deneb	Deneb	Deneb
90242 - 90249	Algol	Algol	Algol	Algol
90250 - 90257	Bellatrix	Bellatrix	Algol	Algol
90258 - 90265	Canopus	Canopus	Canopus	Canopus
90266 - 90273	Denebola	Denebola	Denebola	Denebola

Layout for Steps 5 through 5	
Sectors	Step 5
196 - 203	XALTIR
204 - 211	XALTIR
212 - 219	XEnif
220 - 227	XDUBHE
17057 - 17064	Alcor
17065 - 17072	Alcor
17073 - 17080	ElNath
17081 - 17088	Deneb
90242 - 90249	Algol
90250 - 90257	Algol
90258 - 90265	Electra
90266 - 90273	Denebola

Sector List	
Alcor.TXT	17057 - 17072
Algol.txt	90242 - 90257
Bellatrix.txt	90250 - 90257
Betelgeuse.txt	17065 - 17072
Canopus.txt	90258 - 90265
Capella.txt	17073 - 17080
Deneb.txt	17081 - 17088
Denebola.TXT	90266 - 90273
ElNath.TXT	17073 - 17080
Electra.TXT	90258 - 90265
XALTIR.TXT	196 - 211
XBEID.TXT	204 - 211
XCAPH.TXT	212 - 219
XDUBHE.TXT	220 - 227
XEnif.txt	212 - 219

### 34 Test Image fat-07-two

DFR-07. Recover one overwritten file.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		128	16511	8192	1	FAT12
/dev/sdd2		16512	82047	32768	6	FAT16
/dev/sdd3		82048	213119	65536	b	W95 FAT32

9 files deleted

Deleted files (9)			
Name	Size	F-Hd	F-Bks

Deleted files (9)			
XBEID.TXT	4096 (8+0)	1	7
XCAPH.TXT	4096 (8+0)	1	7
XEnif.txt	4096 (8+0)	1	7
Betelgeuse.txt	4096 (8+0)	1	7
Capella.txt	4096 (8+0)	1	7
ElNath.TXT	4096 (8+0)	1	7
Bellatrix.txt	4096 (8+0)	1	7
Canopus.txt	4096 (8+0)	1	7
Electra.TXT	4096 (8+0)	1	7

MAC times just before file deletion

File: `XBEID.TXT`

Access: 2011-10-10 00:00:00.000000000 -0400

Modify: 2011-10-10 12:01:16.000000000 -0400

Change: 2011-10-10 12:01:17.000000000 -0400

File: `XCAPH.TXT`

Access: 2011-10-10 00:00:00.000000000 -0400

Modify: 2011-10-10 12:01:16.000000000 -0400

Change: 2011-10-10 12:01:17.000000000 -0400

File: `Betelgeuse.txt`

Access: 2011-10-10 00:00:00.000000000 -0400

Modify: 2011-10-10 12:01:18.000000000 -0400

Change: 2011-10-10 12:01:18.000000000 -0400

File: `Capella.txt`

Access: 2011-10-10 00:00:00.000000000 -0400

Modify: 2011-10-10 12:01:18.000000000 -0400

Change: 2011-10-10 12:01:18.000000000 -0400

File: `Bellatrix.txt`

Access: 2011-10-10 00:00:00.000000000 -0400

Modify: 2011-10-10 12:01:22.000000000 -0400

Change: 2011-10-10 12:01:22.000000000 -0400

File: `Canopus.txt`

Access: 2011-10-10 00:00:00.000000000 -0400

Modify: 2011-10-10 12:01:22.000000000 -0400

Change: 2011-10-10 12:01:22.000000000 -0400

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case fat-07-two

==== Run step 2 =====

ACTION (delete): XBEID.TXT

ACTION (delete time): Mon Oct 10 12:04:33 EDT 2011

ACTION (delete): Betelgeuse.txt

ACTION (delete time): Mon Oct 10 12:04:34 EDT 2011

ACTION (delete): Bellatrix.txt

ACTION (delete time): Mon Oct 10 12:04:34 EDT 2011

ACTION (delete): XCAPH.TXT

ACTION (delete time): Mon Oct 10 12:10:52 EDT 2011

ACTION (delete): Capella.txt

ACTION (delete time): Mon Oct 10 12:10:52 EDT 2011

ACTION (delete): Canopus.txt

ACTION (delete time): Mon Oct 10 12:10:53 EDT 2011

Steps to Create Image fat-07-two		
Step	Action	Files in Partition FAT12
1	create	XALTIR.TXT XBEID.TXT XCAPH.TXT XDUBHE.TXT
2	delete	XBEID.TXT
3	append	XALTIR.TXT
4	delete	XCAPH.TXT
5	create	XEnif.txt
Step	Action	Files in Partition FAT16
1	create	Alcor.TXT Betelgeuse.txt Capella.txt Deneb.txt
2	delete	Betelgeuse.txt
3	append	Alcor.TXT
4	delete	Capella.txt
5	create	ElNath.TXT

Steps to Create Image fat-07-two		
Step	Action	Files in Partition FAT32
1	create	Algol.txt Bellatrix.txt Canopus.txt Denebola.TXT
2	delete	Bellatrix.txt
3	append	Algol.txt
4	delete	Canopus.txt
5	create	Electra.TXT

6 overwrites

Alcor.TXT x Betelgeuse.txt: overlap - 17065 - 17072  
 Algol.txt x Bellatrix.txt: overlap - 90250 - 90257  
 Canopus.txt x Electra.TXT: overlap - 90258 - 90265  
 Capella.txt x ElNath.TXT: overlap - 17073 - 17080  
 XALTIR.TXT x XBEID.TXT: overlap - 204 - 211  
 XCAPH.TXT x XEnif.txt: overlap - 212 - 219

File: Bellatrix.txt 8 0  
 File: XCAPH.TXT 8 0  
 File: Betelgeuse.txt 8 0  
 File: Capella.txt 8 0  
 File: Canopus.txt 8 0  
 File: XBEID.TXT 8 0  
 Summary: 6 0 0 6

Metadata available

fat-07-two Metadata found 5 files, not found 4, total 9 deleted files

Deleted files without metadata (cannot be found)

Bellatrix.txt          Betelgeuse.txt          XBEID.TXT          XCAPH.TXT

Layout History

Layout for Steps 1 through 4				
Sectors	Step 1	Step 2	Step 3	Step 4
196 - 203	XALTIR	XALTIR	XALTIR	XALTIR
204 - 211	XBEID	XBEID	XALTIR	XALTIR
212 - 219	XCAPH	XCAPH	XCAPH	XCAPH
220 - 227	XDUBHE	XDUBHE	XDUBHE	XDUBHE
17057 - 17064	Alcor	Alcor	Alcor	Alcor
17065 - 17072	Betelgeuse	Betelgeuse	Alcor	Alcor
17073 - 17080	Capella	Capella	Capella	Capella
17081 - 17088	Deneb	Deneb	Deneb	Deneb
90242 - 90249	Algol	Algol	Algol	Algol
90250 - 90257	Bellatrix	Bellatrix	Algol	Algol
90258 - 90265	Canopus	Canopus	Canopus	Canopus
90266 - 90273	Denebola	Denebola	Denebola	Denebola

Layout for Steps 5 through 5	
Sectors	Step 5
196 - 203	XALTIR
204 - 211	XALTIR
212 - 219	XEnif
220 - 227	XDUBHE
17057 - 17064	Alcor
17065 - 17072	Alcor
17073 - 17080	ElNath
17081 - 17088	Deneb
90242 - 90249	Algol
90250 - 90257	Algol
90258 - 90265	Electra
90266 - 90273	Denebola

Sector List	
Alcor.TXT	17057 - 17072
Algol.txt	90242 - 90257
Bellatrix.txt	90250 - 90257
Betelgeuse.txt	17065 - 17072
Canopus.txt	90258 - 90265
Capella.txt	17073 - 17080
Deneb.txt	17081 - 17088
Denebola.TXT	90266 - 90273
ElNath.TXT	17073 - 17080
Electra.TXT	90258 - 90265
XALTIR.TXT	196 - 211
XBEID.TXT	204 - 211
XCAPH.TXT	212 - 219
XDUBHE.TXT	220 - 227
XEnif.txt	212 - 219

### 35 Test Image fat-08

DFR-08. Recover several overwritten files.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		128	16511	8192	1	FAT12
/dev/sdd2		16512	82047	32768	6	FAT16
/dev/sdd3		82048	213119	65536	b	W95 FAT32

75 files deleted

Deleted files (75)			
Name	Size	F-Hd	F-Bks
XAIN.TXT	512 (1+0)	1	0
XALCOR.TXT	512 (1+0)	1	0
XALGOL.TXT	512 (1+0)	1	0
XANTARES.TXT	512 (1+0)	1	0
XBEID.TXT	8192 (16+0)	1	15
XCAPH.TXT	1024 (2+0)	1	1
XCASTOR.TXT	1024 (2+0)	1	1
XCUJAM.TXT	1024 (2+0)	1	1
XCamelopardalis.txt	1024 (2+0)	1	1
XDENEb.TXT	2048 (4+0)	1	3
XDUBHE.TXT	2048 (4+0)	1	3
XEL_NASL.TXT	4096 (8+0)	1	7
XENIF.TXT	4096 (8+0)	1	7
XGEMMA.TXT	2048 (4+0)	1	3
XHAMAL.TXT	2048 (4+0)	1	3
XMAIA.TXT	4096 (8+0)	1	7
XMIRFAK.TXT	4096 (8+0)	1	7
XMIZAR.TXT	4096 (8+0)	1	7
XPOLARIS.TXT	8192 (16+0)	1	15
XRANA.TXT	4096 (8+0)	1	7
...			
35 omitted			
Canopus.txt	1024 (2+0)	1	1
Chara.txt	1024 (2+0)	1	1
Cujam.txt	1024 (2+0)	1	1
Cursa.txt	1024 (2+0)	1	1
Denebola.txt	2048 (4+0)	1	3
Dschubba.txt	2048 (4+0)	1	3
El_Nath.txt	4096 (8+0)	1	7
Eltanin.txt	4096 (8+0)	1	7
Graffias.txt	2048 (4+0)	1	3

Deleted files (75)			
Hadar.txt	2048 (4+0)	1	3
Massim.txt	2048 (4+0)	1	3
Megrez.txt	4096 (8+0)	1	7
Mintaka.txt	4096 (8+0)	1	7
Pollux.txt	8192 (16+0)	1	15
Rigel.txt	4096 (8+0)	1	7
Scheat.txt	512 (1+0)	1	0
Schedar.txt	512 (1+0)	1	0
Shaula.txt	512 (1+0)	1	0
Skat.txt	512 (1+0)	1	0
Tarazed.txt	2048 (4+0)	1	3

MAC times just before file deletion

```

File: `XAIN.TXT`
Access: 2011-10-10 00:00:00.000000000 -0400
Modify: 2011-10-10 17:04:48.000000000 -0400
Change: 2011-10-10 17:04:49.000000000 -0400
File: `XALCOR.TXT`
Access: 2011-10-10 00:00:00.000000000 -0400
Modify: 2011-10-10 17:04:48.000000000 -0400
Change: 2011-10-10 17:04:49.000000000 -0400
File: `XALGOL.TXT`
Access: 2011-10-10 00:00:00.000000000 -0400
Modify: 2011-10-10 17:04:48.000000000 -0400
Change: 2011-10-10 17:04:49.000000000 -0400
File: `XANTARES.TXT`
Access: 2011-10-10 00:00:00.000000000 -0400
Modify: 2011-10-10 17:04:48.000000000 -0400
Change: 2011-10-10 17:04:49.000000000 -0400
File: `XBEID.TXT`
Access: 2011-10-10 00:00:00.000000000 -0400
Modify: 2011-10-10 17:04:48.000000000 -0400
Change: 2011-10-10 17:04:49.000000000 -0400
...
272 omitted
File: `Scheat.txt`
Access: 2011-10-10 00:00:00.000000000 -0400
Modify: 2011-10-10 17:18:52.000000000 -0400
Change: 2011-10-10 17:18:53.000000000 -0400
File: `Schedar.txt`
Access: 2011-10-10 00:00:00.000000000 -0400
Modify: 2011-10-10 17:18:52.000000000 -0400
Change: 2011-10-10 17:18:53.000000000 -0400
File: `Shaula.txt`
Access: 2011-10-10 00:00:00.000000000 -0400
Modify: 2011-10-10 17:18:52.000000000 -0400
Change: 2011-10-10 17:18:53.000000000 -0400
File: `Skat.txt`
Access: 2011-10-10 00:00:00.000000000 -0400
Modify: 2011-10-10 17:18:52.000000000 -0400
Change: 2011-10-10 17:18:53.000000000 -0400
File: `Tarazed.txt`
Access: 2011-10-10 00:00:00.000000000 -0400
Modify: 2011-10-10 17:18:52.000000000 -0400
Change: 2011-10-10 17:18:53.000000000 -0400

```

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case fat-08

==== Run step 2 =====

```

ACTION (delete): XAIN.TXT XANTARES.TXT XBEID.TXT
ACTION (delete): XCamelopardalis.txt XCAPH.TXT XCUJAM.TXT
ACTION (delete): XDUBHE.TXT XEL_NASL.TXT XENIF.TXT
ACTION (delete time): Mon Oct 10 17:08:31 EDT 2011
ACTION (delete): Ain.txt Antares.txt Beid.txt
ACTION (delete): Camelopardalis.txt Caph.txt Cujam.txt
ACTION (delete): Dubhe.txt EL_Nasl.txt Enif.txt

```

ACTION (delete time): Mon Oct 10 17:08:32 EDT 2011  
 ACTION (delete): Arcturus.txt Alnitak.txt Bellatrix.txt  
 ACTION (delete): Cujam.txt Canopus.txt Cursa.txt  
 ACTION (delete): Dschubba.txt El\_Nath.txt Eltanin.txt  
 ACTION (delete time): Mon Oct 10 17:08:33 EDT 2011  
 ACTION (delete): XGEMMA.TXT XMIRFAK.TXT XPOLARIS.TXT  
 ACTION (delete): XDENEK.TXT XALGOL.TXT XMAIA.TXT  
 ACTION (delete time): Mon Oct 10 17:15:30 EDT 2011  
 ACTION (delete): Gemma.txt Mirfak.txt Polaris.txt  
 ACTION (delete): Deneb.txt Algol.txt Maia.txt  
 ACTION (delete time): Mon Oct 10 17:15:30 EDT 2011  
 ACTION (delete): Graffias.txt Mintaka.txt Pollux.txt  
 ACTION (delete): Denebola.txt Aldebaran.txt Massim.txt  
 ACTION (delete time): Mon Oct 10 17:15:31 EDT 2011  
 ACTION (delete): XRANA.TXT XSPICA.TXT XTHUBAN.TXT XMIZAR.TXT  
 ACTION (delete): XSABIK.TXT XSADR.TXT XSARGAS.TXT  
 ACTION (delete): XALCOR.TXT XCASTOR.TXT XHAMAL.TXT  
 ACTION (delete time): Mon Oct 10 17:22:28 EDT 2011  
 ACTION (delete): Rana.txt Spica.txt Thuban.txt Mizar.txt  
 ACTION (delete): Sabik.txt Sadr.txt Sargas.txt  
 ACTION (delete): Alcor.txt Castor.txt Hamal.txt  
 ACTION (delete time): Mon Oct 10 17:22:28 EDT 2011  
 ACTION (delete): Rigel.txt Shaula.txt Tarazed.txt Megrez.txt  
 ACTION (delete): Skat.txt Scheat.txt Schedar.txt  
 ACTION (delete): Alphard.txt Chara.txt Hadar.txt  
 ACTION (delete time): Mon Oct 10 17:22:29 EDT 2011

Steps to Create Image fat-08		
Step	Action	Files in Partition FAT12
1	create	XAIN.TXT XALCOR.TXT XALGOL.TXT XANTARES.TXT XBEID.TXT
1	create	XCamelopardalis.txt XCAPH.TXT XCASTOR.TXT XCUJAM.TXT
1	create	XDENEK.TXT XDUBHE.TXT XEL_NASL.TXT XENIF.TXT
1	create	XAIN.TXT XBEID.TXT XCamelopardalis.txt XDENEK.TXT XEL_NASL.TXT
2	delete	XAIN.TXT XANTARES.TXT XBEID.TXT
2	delete	XCamelopardalis.txt XCAPH.TXT XCUJAM.TXT
2	delete	XDUBHE.TXT XEL_NASL.TXT XENIF.TXT
3	create	XGEMMA.TXT XHAMAL.TXT XPOLARIS.TXT
3	create	XMIRFAK.TXT XMIZAR.TXT XMAIA.TXT
4	delete	XGEMMA.TXT XMIRFAK.TXT XPOLARIS.TXT
4	delete	XDENEK.TXT XALGOL.TXT XMAIA.TXT
5	create	XRANA.TXT XSPICA.TXT XTHUBAN.TXT
5	create	XSABIK.TXT XSADR.TXT XSARGAS.TXT
6	delete	XRANA.TXT XSPICA.TXT XTHUBAN.TXT XMIZAR.TXT
6	delete	XSABIK.TXT XSADR.TXT XSARGAS.TXT
6	delete	XALCOR.TXT XCASTOR.TXT XHAMAL.TXT
Step	Action	Files in Partition FAT16
1	create	Ain.txt Alcor.txt Algol.txt Antares.txt Beid.txt
1	create	Camelopardalis.txt Caph.txt Castor.txt Cujam.txt
1	create	Deneb.txt Dubhe.txt El_Nasl.txt Enif.txt
1	create	Ain.txt Beid.txt Camelopardalis.txt Deneb.txt El_Nasl.txt
2	delete	Ain.txt Antares.txt Beid.txt
2	delete	Camelopardalis.txt Caph.txt Cujam.txt
2	delete	Dubhe.txt El_Nasl.txt Enif.txt
3	create	Gemma.txt Hamal.txt Polaris.txt
3	create	Mirfak.txt Mizar.txt Maia.txt
4	delete	Gemma.txt Mirfak.txt Polaris.txt
4	delete	Deneb.txt Algol.txt Maia.txt
5	create	Rana.txt Spica.txt Thuban.txt
5	create	Sabik.txt Sadr.txt Sargas.txt
6	delete	Rana.txt Spica.txt Thuban.txt Mizar.txt
6	delete	Sabik.txt Sadr.txt Sargas.txt
6	delete	Alcor.txt Castor.txt Hamal.txt
Step	Action	Files in Partition FAT32
1	create	Arcturus.txt Alphard.txt Aldebaran.txt Alnitak.txt Bellatrix.txt
1	create	Cujam.txt Canopus.txt Chara.txt Cursa.txt
1	create	Denebola.txt Dschubba.txt El_Nath.txt Eltanin.txt

Steps to Create Image fat-08		
1	create	Arcturus.txt Bellatrix.txt Cujam.txt Denebola.txt El_Nath.txt
2	delete	Arcturus.txt Alnitak.txt Bellatrix.txt
2	delete	Cujam.txt Canopus.txt Cursa.txt
2	delete	Dschubba.txt El_Nath.txt Eltanin.txt
3	create	Graffias.txt Hadar.txt Pollux.txt
3	create	Mintaka.txt Megrez.txt Massim.txt
4	delete	Graffias.txt Mintaka.txt Pollux.txt
4	delete	Denebola.txt Aldebaran.txt Massim.txt
5	create	Rigel.txt Shaula.txt Tarazed.txt
5	create	Skat.txt Scheat.txt Schedar.txt
6	delete	Rigel.txt Shaula.txt Tarazed.txt Megrez.txt
6	delete	Skat.txt Scheat.txt Schedar.txt
6	delete	Alphard.txt Chara.txt Hadar.txt

81 overwrites

Ain.txt x Gemma.txt: overlap - 17059 - 17059  
Ain.txt x Rana.txt: overlap - 17059 - 17059  
Alnitak.txt x Pollux.txt: overlap - 90282 - 90282  
Antares.txt x Polaris.txt: overlap - 17096 - 17096  
Arcturus.txt x Graffias.txt: overlap - 90244 - 90244  
Arcturus.txt x Rigel.txt: overlap - 90244 - 90244  
Beid.txt x Hamal.txt: overlap - 17073 - 17076  
Beid.txt x Mirfak.txt: overlap - 17066 - 17072  
Beid.txt x Mizar.txt: overlap - 17077 - 17081  
Beid.txt x Sabik.txt: overlap - 17070 - 17070  
Beid.txt x Sadr.txt: overlap - 17071 - 17071  
Beid.txt x Sargas.txt: overlap - 17072 - 17072  
Beid.txt x Thuban.txt: overlap - 17066 - 17069  
Bellatrix.txt x Hadar.txt: overlap - 90258 - 90261  
Bellatrix.txt x Megrez.txt: overlap - 90262 - 90266  
Bellatrix.txt x Mintaka.txt: overlap - 90251 - 90257  
Bellatrix.txt x Scheat.txt: overlap - 90256 - 90256  
Bellatrix.txt x Schedar.txt: overlap - 90257 - 90257  
Bellatrix.txt x Skat.txt: overlap - 90255 - 90255  
Bellatrix.txt x Tarazed.txt: overlap - 90251 - 90254  
Camelopardalis.txt x Gemma.txt: overlap - 17057 - 17058  
Camelopardalis.txt x Rana.txt: overlap - 17057 - 17058  
Canopus.txt x Graffias.txt: overlap - 90249 - 90249  
Canopus.txt x Mintaka.txt: overlap - 90250 - 90250  
Canopus.txt x Rigel.txt: overlap - 90249 - 90249  
Canopus.txt x Shaula.txt: overlap - 90250 - 90250  
Caph.txt x Gemma.txt: overlap - 17064 - 17064  
Caph.txt x Mirfak.txt: overlap - 17065 - 17065  
Caph.txt x Rana.txt: overlap - 17064 - 17064  
Caph.txt x Spica.txt: overlap - 17065 - 17065  
Cujam.txt x Graffias.txt: overlap - 90242 - 90243  
Cujam.txt x Maia.txt: overlap - 17107 - 17108  
Cujam.txt x Rigel.txt: overlap - 90242 - 90243  
Cursa.txt x Massim.txt: overlap - 90293 - 90294  
Deneb.txt x Rana.txt: overlap - 17060 - 17063  
Denebola.txt x Rigel.txt: overlap - 90245 - 90248  
Dschubba.txt x Pollux.txt: overlap - 90278 - 90281  
Dubhe.txt x Polaris.txt: overlap - 17092 - 17095  
El\_Nasl.txt x Mizar.txt: overlap - 17083 - 17085  
El\_Nasl.txt x Polaris.txt: overlap - 17086 - 17090  
El\_Nath.txt x Megrez.txt: overlap - 90268 - 90270  
El\_Nath.txt x Pollux.txt: overlap - 90271 - 90275  
Eltanin.txt x Massim.txt: overlap - 90291 - 90292  
Eltanin.txt x Pollux.txt: overlap - 90285 - 90290  
Enif.txt x Maia.txt: overlap - 17105 - 17106  
Enif.txt x Polaris.txt: overlap - 17099 - 17104  
Gemma.txt x Rana.txt: overlap - 17057 - 17059, 17064 - 17064  
Graffias.txt x Rigel.txt: overlap - 90242 - 90244, 90249 - 90249  
Mintaka.txt x Scheat.txt: overlap - 90256 - 90256  
Mintaka.txt x Schedar.txt: overlap - 90257 - 90257  
Mintaka.txt x Shaula.txt: overlap - 90250 - 90250



Mintaka.txt x Skat.txt: overlap - 90255 - 90255  
 Mintaka.txt x Tarazed.txt: overlap - 90251 - 90254  
 Mirfak.txt x Sabik.txt: overlap - 17070 - 17070  
 Mirfak.txt x Sadr.txt: overlap - 17071 - 17071  
 Mirfak.txt x Sargas.txt: overlap - 17072 - 17072  
 Mirfak.txt x Spica.txt: overlap - 17065 - 17065  
 Mirfak.txt x Thuban.txt: overlap - 17066 - 17069  
 XAIN.TXT x XMIRFAK.TXT: overlap - 200 - 200  
 XAIN.TXT x XRANA.TXT: overlap - 200 - 200  
 XANTARES.TXT x XMAIA.TXT: overlap - 248 - 248  
 XBEID.TXT x XHAMAL.TXT: overlap - 212 - 215  
 XBEID.TXT x XMIZAR.TXT: overlap - 216 - 223  
 XBEID.TXT x XPOLARIS.TXT: overlap - 224 - 227  
 XBEID.TXT x XSABIK.TXT: overlap - 224 - 224  
 XCAPH.TXT x XMIRFAK.TXT: overlap - 208 - 209  
 XCAPH.TXT x XTHUBAN.TXT: overlap - 208 - 209  
 XCamelopardalis.txt x XGEMMA.TXT: overlap - 196 - 197  
 XCamelopardalis.txt x XRANA.TXT: overlap - 196 - 197  
 XDENEK.TXT x XSPICA.TXT: overlap - 204 - 204  
 XDUBHE.TXT x XPOLARIS.TXT: overlap - 244 - 247  
 XEL\_NASL.TXT x XPOLARIS.TXT: overlap - 232 - 239  
 XEL\_NASL.TXT x XSADR.TXT: overlap - 232 - 232  
 XEL\_NASL.TXT x XSARGAS.TXT: overlap - 236 - 236  
 XENIF.TXT x XMAIA.TXT: overlap - 256 - 259  
 XGEMMA.TXT x XRANA.TXT: overlap - 196 - 199  
 XMIRFAK.TXT x XRANA.TXT: overlap - 200 - 203  
 XMIRFAK.TXT x XTHUBAN.TXT: overlap - 208 - 211  
 XPOLARIS.TXT x XSABIK.TXT: overlap - 224 - 224  
 XPOLARIS.TXT x XSADR.TXT: overlap - 232 - 232  
 XPOLARIS.TXT x XSARGAS.TXT: overlap - 236 - 236

Duplicate name: cols[2]

File: Scheat.txt 1 1  
 File: XHAMAL.TXT 4 4  
 File: Bellatrix.txt 16 0  
 File: XCASTOR.TXT 2 2  
 File: XDUBHE.TXT 4 0  
 File: Hadar.txt 4 4  
 File: Mintaka.txt 8 0  
 File: Canopus.txt 2 0  
 File: XBEID.TXT 16 0  
 File: XMAIA.TXT 8 8  
 File: Eltanin.txt 8 0  
 ...  
 File: Cursa.txt 2 0  
 File: Castor.txt 2 2  
 File: Alphard.txt 1 1  
 File: Sabik.txt 1 1  
 File: Gemma.txt 4 0  
 File: XTHUBAN.TXT 4 4  
 File: Massim.txt 4 4  
 File: XSARGAS.TXT 1 1  
 File: Polaris.txt 16 16  
 File: XEL\_NASL.TXT 8 0  
 File: Dubhe.txt 4 0  
 Summary: 74 39 3 32

Metadata available

fat-08 Metadata found 43 files, not found 32, total 75 deleted files

Deleted files without metadata (cannot be found)

Ain.txt Aldebaran.txt Algol.txt Arcturus.txt  
 Beid.txt Bellatrix.txt Camelopardalis.txt  
 Canopus.txt Caph.txt Denebola.txt Dschubba.txt  
 Dubhe.txt EL\_Nasl.txt EL\_Nath.txt Gemma.txt  
 Graffias.txt Maia.txt Massim.txt Mintaka.txt  
 Mirfak.txt Polaris.txt Pollux.txt XAIN.TXT  
 XBEID.TXT XCAPH.TXT XCamelopardalis.txt

XEL\_NASL.TXT      XGEMMA.TXT      XMAIA.TXT      XMIRFAK.TXT  
 XPOLARIS.TXT

Layout History

Layout for Steps 1 through 3			
Sectors	Step 1	Step 2	Step 3
196 - 197	XCamelopardalis	XCamelopardalis	XGEMMA
198 - 199	empty	empty	XGEMMA
200 - 200	XAIN	XAIN	XMIRFAK
201 - 203	empty	empty	XMIRFAK
204 - 204	XDENEb	XDENEb	XDENEb
205 - 207	XDENEb	XDENEb	XDENEb
208 - 209	XCAPH	XCAPH	XMIRFAK
210 - 211	empty	empty	XMIRFAK
212 - 215	XBEID	XBEID	XHAMAL
216 - 223	XBEID	XBEID	XMIZAR
224 - 224	XBEID	XBEID	XPOLARIS
225 - 227	XBEID	XBEID	XPOLARIS
228 - 228	XALCOR	XALCOR	XALCOR
232 - 232	XEL_NASL	XEL_NASL	XPOLARIS
233 - 235	XEL_NASL	XEL_NASL	XPOLARIS
236 - 236	XEL_NASL	XEL_NASL	XPOLARIS
237 - 239	XEL_NASL	XEL_NASL	XPOLARIS
240 - 240	XALGOL	XALGOL	XALGOL
244 - 247	XDUBHE	XDUBHE	XPOLARIS
248 - 248	XANTARES	XANTARES	XMAIA
249 - 251	empty	empty	XMAIA
252 - 253	XCASTOR	XCASTOR	XCASTOR
256 - 259	XENIF	XENIF	XMAIA
260 - 263	XENIF	XENIF	XENIF
264 - 265	XCUJAM	XCUJAM	XCUJAM
17057 - 17058	Camelopardalis	Camelopardalis	Gemma
17059 - 17059	Ain	Ain	Gemma
17060 - 17063	Deneb	Deneb	Deneb
17064 - 17064	Caph	Caph	Gemma
17065 - 17065	Caph	Caph	Mirfak
17066 - 17069	Beid	Beid	Mirfak
17070 - 17070	Beid	Beid	Mirfak
17071 - 17071	Beid	Beid	Mirfak
17072 - 17072	Beid	Beid	Mirfak
17073 - 17076	Beid	Beid	Hamal
17077 - 17081	Beid	Beid	Mizar
17082 - 17082	Alcor	Alcor	Alcor
17083 - 17085	El_Nasl	El_Nasl	Mizar
17086 - 17090	El_Nasl	El_Nasl	Polaris
17091 - 17091	Algol	Algol	Algol
17092 - 17095	Dubhe	Dubhe	Polaris
17096 - 17096	Antares	Antares	Polaris
17097 - 17098	Castor	Castor	Castor
17099 - 17104	Enif	Enif	Polaris
17105 - 17106	Enif	Enif	Maia
17107 - 17108	Cujam	Cujam	Maia
90242 - 90243	Cujam	Cujam	Graffias
90244 - 90244	Arcturus	Arcturus	Graffias
90245 - 90248	Denebola	Denebola	Denebola
90249 - 90249	Canopus	Canopus	Graffias
90250 - 90250	Canopus	Canopus	Mintaka
90251 - 90254	Bellatrix	Bellatrix	Mintaka
90255 - 90255	Bellatrix	Bellatrix	Mintaka
90256 - 90256	Bellatrix	Bellatrix	Mintaka
90257 - 90257	Bellatrix	Bellatrix	Mintaka
90258 - 90261	Bellatrix	Bellatrix	Hadar
90262 - 90266	Bellatrix	Bellatrix	Megrez
90267 - 90267	Alphard	Alphard	Alphard

<b>Layout for Steps 1 through 3</b>			
90268 - 90270	El_Nath	El_Nath	Megrez
90271 - 90275	El_Nath	El_Nath	Pollux
90277 - 90277	Aldebaran	Aldebaran	Aldebaran
90278 - 90281	Dschubba	Dschubba	Pollux
90282 - 90282	Alnitak	Alnitak	Pollux
90283 - 90284	Chara	Chara	Chara
90285 - 90290	Eltanin	Eltanin	Pollux
90291 - 90292	Eltanin	Eltanin	Massim
90293 - 90294	Cursa	Cursa	Massim

<b>Layout for Steps 4 through 5</b>		
Sectors	Step 4	Step 5
196 - 197	XGEMMA	XRANA
198 - 199	XGEMMA	XRANA
200 - 200	XMIRFAK	XRANA
201 - 203	XMIRFAK	XRANA
204 - 204	XDENEK	XSPICA
205 - 207	XDENEK	XDENEK
208 - 209	XMIRFAK	XTHUBAN
210 - 211	XMIRFAK	XTHUBAN
212 - 215	XHAMAL	XHAMAL
216 - 223	XMIZAR	XMIZAR
224 - 224	XPOLARIS	XSABIK
225 - 227	XPOLARIS	XPOLARIS
228 - 228	XALCOR	XALCOR
232 - 232	XPOLARIS	XSADR
233 - 235	XPOLARIS	XPOLARIS
236 - 236	XPOLARIS	XSARGAS
237 - 239	XPOLARIS	XPOLARIS
240 - 240	XALGOL	XALGOL
244 - 247	XPOLARIS	XPOLARIS
248 - 248	XMAIA	XMAIA
249 - 251	XMAIA	XMAIA
252 - 253	XCASTOR	XCASTOR
256 - 259	XMAIA	XMAIA
260 - 263	XENIF	XENIF
264 - 265	XCUJAM	XCUJAM
17057 - 17058	Gemma	Rana
17059 - 17059	Gemma	Rana
17060 - 17063	Deneb	Rana
17064 - 17064	Gemma	Rana
17065 - 17065	Mirfak	Spica
17066 - 17069	Mirfak	Thuban
17070 - 17070	Mirfak	Sabik
17071 - 17071	Mirfak	Sadr
17072 - 17072	Mirfak	Sargas
17073 - 17076	Hamal	Hamal
17077 - 17081	Mizar	Mizar
17082 - 17082	Alcor	Alcor
17083 - 17085	Mizar	Mizar
17086 - 17090	Polaris	Polaris
17091 - 17091	Algol	Algol
17092 - 17095	Polaris	Polaris
17096 - 17096	Polaris	Polaris
17097 - 17098	Castor	Castor
17099 - 17104	Polaris	Polaris
17105 - 17106	Maia	Maia
17107 - 17108	Maia	Maia
90242 - 90243	Graffias	Rigel
90244 - 90244	Graffias	Rigel
90245 - 90248	Denebola	Rigel
90249 - 90249	Graffias	Rigel
90250 - 90250	Mintaka	Shaula

Layout for Steps 4 through 5		
90251 - 90254	Mintaka	Tarazed
90255 - 90255	Mintaka	Skat
90256 - 90256	Mintaka	Scheat
90257 - 90257	Mintaka	Schedar
90258 - 90261	Hadar	Hadar
90262 - 90266	Megrez	Megrez
90267 - 90267	Alphard	Alphard
90268 - 90270	Megrez	Megrez
90271 - 90275	Pollux	Pollux
90277 - 90277	Aldebaran	Aldebaran
90278 - 90281	Pollux	Pollux
90282 - 90282	Pollux	Pollux
90283 - 90284	Chara	Chara
90285 - 90290	Pollux	Pollux
90291 - 90292	Massim	Massim
90293 - 90294	Massim	Massim

Sector List	
Ain.txt	17059 - 17059
Alcor.txt	17082 - 17082
Aldebaran.txt	90277 - 90277
Algol.txt	17091 - 17091
Alnitak.txt	90282 - 90282
Alphard.txt	90267 - 90267
Antares.txt	17096 - 17096
Arcturus.txt	90244 - 90244
Beid.txt	17066 - 17081
...	
56 omitted	
XMIRFAK.TXT	200 - 203, 208 - 211
XMIZAR.TXT	216 - 223
XPOLARIS.TXT	224 - 227, 232 - 239, 244 - 247
XRANA.TXT	196 - 203
XSABIK.TXT	224 - 224
XSADR.TXT	232 - 232
XSARGAS.TXT	236 - 236
XSPICA.TXT	204 - 204
XTHUBAN.TXT	208 - 211

### 36 Test Image fat-09

DFR-09. Recover large number of files no overwrite.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		128	16511	8192	1	FAT12
/dev/sdd2		16512	82047	32768	6	FAT16
/dev/sdd3		82048	213119	65536	b	W95 FAT32

780 files deleted

Deleted files (780)			
Name	Size	F-Hd	F-Bks
xB0000-1.txt	4096 (8+0)	1	7
xB0001-1.txt	4096 (8+0)	1	7
xB0002-1.txt	4096 (8+0)	1	7
xB0003-1.txt	4096 (8+0)	1	7
xB0004-1.txt	4096 (8+0)	1	7
xB0005-1.txt	4096 (8+0)	1	7
xB0006-1.txt	4096 (8+0)	1	7

Deleted files (780)			
xB0007-1.txt	4096 (8+0)	1	7
xB0008-1.txt	4096 (8+0)	1	7
xB0009-1.txt	4096 (8+0)	1	7
xB0010-1.txt	4096 (8+0)	1	7
xB0011-1.txt	4096 (8+0)	1	7
xB0012-1.txt	4096 (8+0)	1	7
xB0013-1.txt	4096 (8+0)	1	7
xB0014-1.txt	4096 (8+0)	1	7
xB0015-1.txt	4096 (8+0)	1	7
xB0016-1.txt	4096 (8+0)	1	7
xB0017-1.txt	4096 (8+0)	1	7
xB0018-1.txt	4096 (8+0)	1	7
xB0019-1.txt	4096 (8+0)	1	7
...			
740 omitted			
xB0240-3.txt	4096 (8+0)	1	7
xB0241-3.txt	4096 (8+0)	1	7
xB0242-3.txt	4096 (8+0)	1	7
xB0243-3.txt	4096 (8+0)	1	7
xB0244-3.txt	4096 (8+0)	1	7
xB0245-3.txt	4096 (8+0)	1	7
xB0246-3.txt	4096 (8+0)	1	7
xB0247-3.txt	4096 (8+0)	1	7
xB0248-3.txt	4096 (8+0)	1	7
xB0249-3.txt	4096 (8+0)	1	7
xB0250-3.txt	4096 (8+0)	1	7
xB0251-3.txt	4096 (8+0)	1	7
xB0252-3.txt	4096 (8+0)	1	7
xB0253-3.txt	4096 (8+0)	1	7
xB0254-3.txt	4096 (8+0)	1	7
xB0255-3.txt	4096 (8+0)	1	7
xB0256-3.txt	4096 (8+0)	1	7
xB0257-3.txt	4096 (8+0)	1	7
xB0258-3.txt	4096 (8+0)	1	7
xB0259-3.txt	4096 (8+0)	1	7

MAC times just before file deletion

File: `xB0000-1.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 12:29:42.000000000 -0400  
Change: 2011-10-10 12:29:43.000000000 -0400  
File: `xB0001-1.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 12:29:42.000000000 -0400  
Change: 2011-10-10 12:29:43.000000000 -0400  
File: `xB0002-1.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 12:29:42.000000000 -0400  
Change: 2011-10-10 12:29:43.000000000 -0400  
File: `xB0003-1.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 12:29:42.000000000 -0400  
Change: 2011-10-10 12:29:43.000000000 -0400  
File: `xB0004-1.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 12:29:42.000000000 -0400  
Change: 2011-10-10 12:29:43.000000000 -0400  
...  
3080 omitted  
File: `xB0255-3.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 12:30:06.000000000 -0400  
Change: 2011-10-10 12:30:07.000000000 -0400  
File: `xB0256-3.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400

Modify: 2011-10-10 12:30:08.000000000 -0400  
 Change: 2011-10-10 12:30:08.000000000 -0400  
 File: `xB0257-3.txt'  
 Access: 2011-10-10 00:00:00.000000000 -0400  
 Modify: 2011-10-10 12:30:08.000000000 -0400  
 Change: 2011-10-10 12:30:08.000000000 -0400  
 File: `xB0258-3.txt'  
 Access: 2011-10-10 00:00:00.000000000 -0400  
 Modify: 2011-10-10 12:30:08.000000000 -0400  
 Change: 2011-10-10 12:30:08.000000000 -0400  
 File: `xB0259-3.txt'  
 Access: 2011-10-10 00:00:00.000000000 -0400  
 Modify: 2011-10-10 12:30:08.000000000 -0400  
 Change: 2011-10-10 12:30:08.000000000 -0400

File delete times:  
 Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case fat-09  
 ===== Run step 2 =====  
 ACTION (delete): 260 files  
 ACTION (delete time): Mon Oct 10 12:33:10 EDT 2011  
 ACTION (delete): 260 files  
 ACTION (delete time): Mon Oct 10 12:33:11 EDT 2011  
 ACTION (delete): 260 files  
 ACTION (delete time): Mon Oct 10 12:33:12 EDT 2011

Steps to Create Image fat-09		
Step	Action	Files in Partition FAT12
1	create	260 files
2	delete	260 files
Step	Action	Files in Partition FAT16
1	create	260 files
2	delete	260 files
Step	Action	Files in Partition FAT32
1	create	260 files
2	delete	260 files

No overwrites

File: xB0178-2.txt 8 8  
 File: xB0141-1.txt 8 8  
 File: xB0151-1.txt 8 8  
 File: xB0071-1.txt 8 8  
 File: xB0015-2.txt 8 8  
 File: xB0080-3.txt 8 8  
 File: xB0054-1.txt 8 8  
 File: xB0108-1.txt 8 8  
 File: xB0122-2.txt 8 8  
 File: xB0088-2.txt 8 8  
 File: xB0117-1.txt 8 8  
 File: xB0174-2.txt 8 8  
 ...  
 File: xB0132-2.txt 8 8  
 File: xB0019-1.txt 8 8  
 File: xB0063-3.txt 8 8  
 File: xB0245-2.txt 8 8  
 File: xB0183-1.txt 8 8  
 File: xB0110-2.txt 8 8  
 File: xB0211-3.txt 8 8  
 File: xB0000-1.txt 8 8  
 File: xB0191-1.txt 8 8  
 File: xB0008-3.txt 8 8  
 File: xB0107-3.txt 8 8  
 Summary: 780 780 0 0

Metadata available

fat-09 Metadata found 780 files, not found 0, total 780 deleted files  
 Metadata available for all deleted files

Layout History

Block map has more than 200 entries

Sector List	
Alpha	200 - 200, 17058 - 17058, 90243 - 90243
Omega	2316 - 2316, 19171 - 19171, 92356 - 92356
xB0000-1.txt	204 - 211
xB0000-2.txt	17059 - 17066
xB0000-3.txt	90244 - 90251
xB0001-1.txt	212 - 219
xB0001-2.txt	17067 - 17074
xB0001-3.txt	90252 - 90259
xB0002-1.txt	220 - 227
...	
764 omitted	
xB0257-1.txt	2292 - 2299
xB0257-2.txt	19147 - 19154
xB0257-3.txt	92332 - 92339
xB0258-1.txt	2300 - 2307
xB0258-2.txt	19155 - 19162
xB0258-3.txt	92340 - 92347
xB0259-1.txt	2308 - 2315
xB0259-2.txt	19163 - 19170
xB0259-3.txt	92348 - 92355

### 37 Test Image fat-10

DFR-10. Recover large number of files, with some overwritten.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes  
 34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors  
 Device Boot Start End Blocks Id System  
 /dev/sdd1 128 16511 8192 1 FAT12  
 /dev/sdd2 16512 82047 32768 6 FAT16  
 /dev/sdd3 82048 213119 65536 b W95 FAT32

2340 files deleted

Deleted files (2340)			
Name	Size	F-Hd	F-Bks
xB0000-1.txt	4096 (8+0)	1	7
xB0001-1.txt	4096 (8+0)	1	7
xB0002-1.txt	4096 (8+0)	1	7
xB0003-1.txt	4096 (8+0)	1	7
xB0004-1.txt	4096 (8+0)	1	7
xB0005-1.txt	4096 (8+0)	1	7
xB0006-1.txt	4096 (8+0)	1	7
xB0007-1.txt	4096 (8+0)	1	7
xB0008-1.txt	4096 (8+0)	1	7
xB0009-1.txt	4096 (8+0)	1	7
xB0010-1.txt	4096 (8+0)	1	7
xB0011-1.txt	4096 (8+0)	1	7
xB0012-1.txt	4096 (8+0)	1	7
xB0013-1.txt	4096 (8+0)	1	7
xB0014-1.txt	4096 (8+0)	1	7
xB0015-1.txt	4096 (8+0)	1	7
xB0016-1.txt	4096 (8+0)	1	7
xB0017-1.txt	4096 (8+0)	1	7
xB0018-1.txt	4096 (8+0)	1	7
xB0019-1.txt	4096 (8+0)	1	7

Deleted files (2340)			
...			
2300 omitted			
xD0240-3.txt	4096 (8+0)	1	7
xD0241-3.txt	4096 (8+0)	1	7
xD0242-3.txt	4096 (8+0)	1	7
xD0243-3.txt	4096 (8+0)	1	7
xD0244-3.txt	4096 (8+0)	1	7
xD0245-3.txt	4096 (8+0)	1	7
xD0246-3.txt	4096 (8+0)	1	7
xD0247-3.txt	4096 (8+0)	1	7
xD0248-3.txt	4096 (8+0)	1	7
xD0249-3.txt	4096 (8+0)	1	7
xD0250-3.txt	4096 (8+0)	1	7
xD0251-3.txt	4096 (8+0)	1	7
xD0252-3.txt	4096 (8+0)	1	7
xD0253-3.txt	4096 (8+0)	1	7
xD0254-3.txt	4096 (8+0)	1	7
xD0255-3.txt	4096 (8+0)	1	7
xD0256-3.txt	4096 (8+0)	1	7
xD0257-3.txt	4096 (8+0)	1	7
xD0258-3.txt	4096 (8+0)	1	7
xD0259-3.txt	4096 (8+0)	1	7

MAC times just before file deletion

File: `xB0000-1.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 12:46:36.000000000 -0400  
Change: 2011-10-10 12:46:37.000000000 -0400  
File: `xB0001-1.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 12:46:36.000000000 -0400  
Change: 2011-10-10 12:46:37.000000000 -0400  
File: `xB0002-1.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 12:46:36.000000000 -0400  
Change: 2011-10-10 12:46:37.000000000 -0400  
File: `xB0003-1.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 12:46:36.000000000 -0400  
Change: 2011-10-10 12:46:37.000000000 -0400  
File: `xB0004-1.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 12:46:36.000000000 -0400  
Change: 2011-10-10 12:46:37.000000000 -0400  
...  
9320 omitted  
File: `xD0255-3.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 12:48:06.000000000 -0400  
Change: 2011-10-10 12:48:06.000000000 -0400  
File: `xD0256-3.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 12:48:06.000000000 -0400  
Change: 2011-10-10 12:48:07.000000000 -0400  
File: `xD0257-3.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 12:48:06.000000000 -0400  
Change: 2011-10-10 12:48:07.000000000 -0400  
File: `xD0258-3.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 12:48:06.000000000 -0400  
Change: 2011-10-10 12:48:07.000000000 -0400  
File: `xD0259-3.txt'  
Access: 2011-10-10 00:00:00.000000000 -0400  
Modify: 2011-10-10 12:48:06.000000000 -0400



Change: 2011-10-10 12:48:07.000000000 -0400

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case fat-10

==== Run step 2 =====

ACTION (delete): 260 C files  
ACTION (delete time): Mon Oct 10 12:51:11 EDT 2011  
ACTION (delete): 260 C files  
ACTION (delete time): Mon Oct 10 12:51:13 EDT 2011  
ACTION (delete): 260 C files  
ACTION (delete time): Mon Oct 10 12:51:14 EDT 2011  
ACTION (delete): 260 B files  
ACTION (delete time): Mon Oct 10 12:57:30 EDT 2011  
ACTION (delete): 260 B files  
ACTION (delete time): Mon Oct 10 12:57:31 EDT 2011  
ACTION (delete): 260 B files  
ACTION (delete time): Mon Oct 10 12:57:32 EDT 2011  
ACTION (delete): 260 D files  
ACTION (delete time): Mon Oct 10 13:03:57 EDT 2011  
ACTION (delete): 260 D files  
ACTION (delete time): Mon Oct 10 13:03:59 EDT 2011  
ACTION (delete): 260 D files  
ACTION (delete time): Mon Oct 10 13:04:01 EDT 2011

Steps to Create Image fat-10		
Step	Action	Files in Partition FAT12
1	create	260 B,C&D files
2	delete	260 C files
3	create	260 E files
4	delete	260 B files
5	create	260 F files
6	delete	260 D files
Step	Action	Files in Partition FAT16
1	create	260 B,C&D files
2	delete	260 C files
3	create	260 E files
4	delete	260 B files
5	create	260 F files
6	delete	260 D files
Step	Action	Files in Partition FAT32
1	create	260 B,C&D files
2	delete	260 C files
3	create	260 E files
4	delete	260 B files
5	create	260 F files
6	delete	260 D files

1560 overwrites

xB0000-1.txt x xF0000-1.txt: overlap - 208 - 215  
xB0000-2.txt x xF0000-2.txt: overlap - 17066 - 17073  
xB0000-3.txt x xF0000-3.txt: overlap - 90251 - 90258  
xB0001-1.txt x xF0001-1.txt: overlap - 216 - 223  
xB0001-2.txt x xF0001-2.txt: overlap - 17074 - 17081  
xB0001-3.txt x xF0001-3.txt: overlap - 90259 - 90266  
xB0002-1.txt x xF0002-1.txt: overlap - 224 - 231  
xB0002-2.txt x xF0002-2.txt: overlap - 17082 - 17089  
xB0002-3.txt x xF0002-3.txt: overlap - 90267 - 90274  
xB0003-1.txt x xF0003-1.txt: overlap - 232 - 239  
xB0003-2.txt x xF0003-2.txt: overlap - 17090 - 17097  
xB0003-3.txt x xF0003-3.txt: overlap - 90275 - 90282  
xB0004-1.txt x xF0004-1.txt: overlap - 240 - 247  
xB0004-2.txt x xF0004-2.txt: overlap - 17098 - 17105  
xB0004-3.txt x xF0004-3.txt: overlap - 90283 - 90290  
xB0005-1.txt x xF0005-1.txt: overlap - 248 - 255  
xB0005-2.txt x xF0005-2.txt: overlap - 17106 - 17113  
xB0005-3.txt x xF0005-3.txt: overlap - 90291 - 90298

xB0006-1.txt xF0006-1.txt: overlap - 256 - 263  
xB0006-2.txt xF0006-2.txt: overlap - 17115 - 17122  
xB0006-3.txt xF0006-3.txt: overlap - 90300 - 90307  
xB0007-1.txt xF0007-1.txt: overlap - 264 - 271  
xB0007-2.txt xF0007-2.txt: overlap - 17123 - 17130  
xB0007-3.txt xF0007-3.txt: overlap - 90308 - 90315  
xB0008-1.txt xF0008-1.txt: overlap - 272 - 279  
xB0008-2.txt xF0008-2.txt: overlap - 17131 - 17138  
xB0008-3.txt xF0008-3.txt: overlap - 90316 - 90323  
xB0009-1.txt xF0009-1.txt: overlap - 280 - 287  
xB0009-2.txt xF0009-2.txt: overlap - 17139 - 17146  
xB0009-3.txt xF0009-3.txt: overlap - 90324 - 90331  
xB0010-1.txt xF0010-1.txt: overlap - 288 - 295  
xB0010-2.txt xF0010-2.txt: overlap - 17147 - 17154  
xB0010-3.txt xF0010-3.txt: overlap - 90332 - 90339  
xB0011-1.txt xF0011-1.txt: overlap - 296 - 303  
xB0011-2.txt xF0011-2.txt: overlap - 17155 - 17162  
xB0011-3.txt xF0011-3.txt: overlap - 90340 - 90347  
xB0012-1.txt xF0012-1.txt: overlap - 304 - 311  
xB0012-2.txt xF0012-2.txt: overlap - 17163 - 17170  
xB0012-3.txt xF0012-3.txt: overlap - 90348 - 90355  
xB0013-1.txt xF0013-1.txt: overlap - 312 - 319  
xB0013-2.txt xF0013-2.txt: overlap - 17171 - 17178  
xB0013-3.txt xF0013-3.txt: overlap - 90356 - 90363  
xB0014-1.txt xF0014-1.txt: overlap - 320 - 327  
xB0014-2.txt xF0014-2.txt: overlap - 17180 - 17187  
xB0014-3.txt xF0014-3.txt: overlap - 90365 - 90372  
xB0015-1.txt xF0015-1.txt: overlap - 328 - 335  
xB0015-2.txt xF0015-2.txt: overlap - 17188 - 17195  
xB0015-3.txt xF0015-3.txt: overlap - 90373 - 90380  
xB0016-1.txt xF0016-1.txt: overlap - 336 - 343  
xB0016-2.txt xF0016-2.txt: overlap - 17196 - 17203  
...  
xC0243-2.txt xE0243-2.txt: overlap - 23127 - 23134  
xC0243-3.txt xE0243-3.txt: overlap - 96312 - 96319  
xC0244-1.txt xE0244-1.txt: overlap - 6284 - 6291  
xC0244-2.txt xE0244-2.txt: overlap - 23143 - 23150  
xC0244-3.txt xE0244-3.txt: overlap - 96328 - 96335  
xC0245-1.txt xE0245-1.txt: overlap - 6300 - 6307  
xC0245-2.txt xE0245-2.txt: overlap - 23160 - 23167  
xC0245-3.txt xE0245-3.txt: overlap - 96345 - 96352  
xC0246-1.txt xE0246-1.txt: overlap - 6316 - 6323  
xC0246-2.txt xE0246-2.txt: overlap - 23176 - 23183  
xC0246-3.txt xE0246-3.txt: overlap - 96361 - 96368  
xC0247-1.txt xE0247-1.txt: overlap - 6332 - 6339  
xC0247-2.txt xE0247-2.txt: overlap - 23192 - 23199  
xC0247-3.txt xE0247-3.txt: overlap - 96377 - 96384  
xC0248-1.txt xE0248-1.txt: overlap - 6348 - 6355  
xC0248-2.txt xE0248-2.txt: overlap - 23208 - 23215  
xC0248-3.txt xE0248-3.txt: overlap - 96393 - 96400  
xC0249-1.txt xE0249-1.txt: overlap - 6364 - 6371  
xC0249-2.txt xE0249-2.txt: overlap - 23225 - 23232  
xC0249-3.txt xE0249-3.txt: overlap - 96410 - 96417  
xC0250-1.txt xE0250-1.txt: overlap - 6380 - 6387  
xC0250-2.txt xE0250-2.txt: overlap - 23241 - 23248  
xC0250-3.txt xE0250-3.txt: overlap - 96426 - 96433  
xC0251-1.txt xE0251-1.txt: overlap - 6396 - 6403  
xC0251-2.txt xE0251-2.txt: overlap - 23257 - 23264  
xC0251-3.txt xE0251-3.txt: overlap - 96442 - 96449  
xC0252-1.txt xE0252-1.txt: overlap - 6412 - 6419  
xC0252-2.txt xE0252-2.txt: overlap - 23273 - 23280  
xC0252-3.txt xE0252-3.txt: overlap - 96458 - 96465  
xC0253-1.txt xE0253-1.txt: overlap - 6432 - 6439  
xC0253-2.txt xE0253-2.txt: overlap - 23290 - 23297  
xC0253-3.txt xE0253-3.txt: overlap - 96475 - 96482  
xC0254-1.txt xE0254-1.txt: overlap - 6448 - 6455  
xC0254-2.txt xE0254-2.txt: overlap - 23306 - 23313  
xC0254-3.txt xE0254-3.txt: overlap - 96491 - 96498  
xC0255-1.txt xE0255-1.txt: overlap - 6464 - 6471

xC0255-2.txt x xE0255-2.txt: overlap - 23322 - 23329  
xC0255-3.txt x xE0255-3.txt: overlap - 96507 - 96514  
xC0256-1.txt x xE0256-1.txt: overlap - 6480 - 6487  
xC0256-2.txt x xE0256-2.txt: overlap - 23338 - 23345  
xC0256-3.txt x xE0256-3.txt: overlap - 96523 - 96530  
xC0257-1.txt x xE0257-1.txt: overlap - 6496 - 6503  
xC0257-2.txt x xE0257-2.txt: overlap - 23355 - 23362  
xC0257-3.txt x xE0257-3.txt: overlap - 96540 - 96547  
xC0258-1.txt x xE0258-1.txt: overlap - 6512 - 6519  
xC0258-2.txt x xE0258-2.txt: overlap - 23371 - 23378  
xC0258-3.txt x xE0258-3.txt: overlap - 96556 - 96563  
xC0259-1.txt x xE0259-1.txt: overlap - 6528 - 6535  
xC0259-2.txt x xE0259-2.txt: overlap - 23387 - 23394  
xC0259-3.txt x xE0259-3.txt: overlap - 96572 - 96579

File: xD0241-2.txt 8 8  
File: xB0178-2.txt 8 0  
File: xC0143-2.txt 8 0  
File: xD0052-3.txt 8 8  
File: xB0247-3.txt 8 0  
File: xD0109-3.txt 8 8  
File: xB0054-1.txt 8 0  
File: xD0049-2.txt 8 8  
File: xB0122-2.txt 8 0  
File: xB0023-3.txt 8 0  
File: xD0002-1.txt 8 8  
File: xC0077-1.txt 8 0  
...  
File: xD0030-1.txt 8 8  
File: xD0037-1.txt 8 8  
File: xD0097-1.txt 8 8  
File: xB0110-2.txt 8 0  
File: xD0022-1.txt 8 8  
File: xC0147-1.txt 8 0  
File: xD0183-1.txt 8 8  
File: xD0150-2.txt 8 8  
File: xB0191-1.txt 8 0  
File: xD0024-1.txt 8 8  
File: xB0107-3.txt 8 0  
Summary: 2340 780 0 1560

Metadata available

fat-10 Metadata found 780 files, not found 1560, total 2340 deleted files

Deleted files without metadata (cannot be found)

xB0000-1.txt	xB0000-2.txt	xB0000-3.txt	xB0001-1.txt
xB0001-2.txt	xB0001-3.txt	xB0002-1.txt	xB0002-2.txt
xB0002-3.txt	xB0003-1.txt	xB0003-2.txt	xB0003-3.txt
xB0004-1.txt	xB0004-2.txt	xB0004-3.txt	xB0005-1.txt
xB0005-2.txt	xB0005-3.txt	xB0006-1.txt	xB0006-2.txt
xB0006-3.txt	xB0007-1.txt	xB0007-2.txt	xB0007-3.txt
xB0008-1.txt	xB0008-2.txt	xB0008-3.txt	xB0009-1.txt
xB0009-2.txt	xB0009-3.txt	xB0010-1.txt	xB0010-2.txt
xB0010-3.txt	xB0011-1.txt	xB0011-2.txt	xB0011-3.txt
xB0012-1.txt	xB0012-2.txt	xB0012-3.txt	xB0013-1.txt
xB0013-2.txt	xB0013-3.txt	xB0014-1.txt	xB0014-2.txt
xB0014-3.txt	xB0015-1.txt	xB0015-2.txt	xB0015-3.txt
xB0016-1.txt	xB0016-2.txt	xB0016-3.txt	xB0017-1.txt
xB0017-2.txt	xB0017-3.txt	xB0018-1.txt	xB0018-2.txt
xB0018-3.txt	xB0019-1.txt	xB0019-2.txt	xB0019-3.txt
xB0020-1.txt	xB0020-2.txt	xB0020-3.txt	xB0021-1.txt
xB0021-2.txt	xB0021-3.txt	xB0022-1.txt	xB0022-2.txt
xB0022-3.txt	xB0023-1.txt	xB0023-2.txt	xB0023-3.txt
xB0024-1.txt	xB0024-2.txt	xB0024-3.txt	xB0025-1.txt
xB0025-2.txt	xB0025-3.txt	xB0026-1.txt	xB0026-2.txt
xB0026-3.txt	xB0027-1.txt	xB0027-2.txt	xB0027-3.txt
xB0028-1.txt	xB0028-2.txt	xB0028-3.txt	xB0029-1.txt
xB0029-2.txt	xB0029-3.txt	xB0030-1.txt	xB0030-2.txt

xB0030-3.txt	xB0031-1.txt	xB0031-2.txt	xB0031-3.txt
xB0032-1.txt	xB0032-2.txt	xB0032-3.txt	xB0033-1.txt
xB0033-2.txt	xB0033-3.txt	xB0034-1.txt	xB0034-2.txt
xB0034-3.txt	xB0035-1.txt	xB0035-2.txt	xB0035-3.txt
xB0036-1.txt	xB0036-2.txt	xB0036-3.txt	xB0037-1.txt
xB0037-2.txt	xB0037-3.txt	xB0038-1.txt	xB0038-2.txt
xB0038-3.txt	xB0039-1.txt	xB0039-2.txt	xB0039-3.txt
xB0040-1.txt	xB0040-2.txt	xB0040-3.txt	xB0041-1.txt
xB0041-2.txt	xB0041-3.txt	xB0042-1.txt	xB0042-2.txt
xB0042-3.txt	xB0043-1.txt	xB0043-2.txt	xB0043-3.txt
xB0044-1.txt	xB0044-2.txt	xB0044-3.txt	xB0045-1.txt
xB0045-2.txt	xB0045-3.txt	xB0046-1.txt	xB0046-2.txt
xB0046-3.txt	xB0047-1.txt	xB0047-2.txt	xB0047-3.txt
xB0048-1.txt	xB0048-2.txt	xB0048-3.txt	xB0049-1.txt
xB0049-2.txt	xB0049-3.txt	xB0050-1.txt	xB0050-2.txt
xB0050-3.txt	xB0051-1.txt	xB0051-2.txt	xB0051-3.txt
xB0052-1.txt	xB0052-2.txt	xB0052-3.txt	xB0053-1.txt
xB0053-2.txt	xB0053-3.txt	xB0054-1.txt	xB0054-2.txt
xB0054-3.txt	xB0055-1.txt	xB0055-2.txt	xB0055-3.txt
xB0056-1.txt	xB0056-2.txt	xB0056-3.txt	xB0057-1.txt
xB0057-2.txt	xB0057-3.txt	xB0058-1.txt	xB0058-2.txt
xB0058-3.txt	xB0059-1.txt	xB0059-2.txt	xB0059-3.txt
xB0060-1.txt	xB0060-2.txt	xB0060-3.txt	xB0061-1.txt
xB0061-2.txt	xB0061-3.txt	xB0062-1.txt	xB0062-2.txt
xB0062-3.txt	xB0063-1.txt	xB0063-2.txt	xB0063-3.txt
xB0064-1.txt	xB0064-2.txt	xB0064-3.txt	xB0065-1.txt
xB0065-2.txt	xB0065-3.txt	xB0066-1.txt	xB0066-2.txt
xB0066-3.txt	xB0067-1.txt	xB0067-2.txt	xB0067-3.txt
xB0068-1.txt	xB0068-2.txt	xB0068-3.txt	xB0069-1.txt
xB0069-2.txt	xB0069-3.txt	xB0070-1.txt	xB0070-2.txt
xB0070-3.txt	xB0071-1.txt	xB0071-2.txt	xB0071-3.txt
xB0072-1.txt	xB0072-2.txt	xB0072-3.txt	xB0073-1.txt
xB0073-2.txt	xB0073-3.txt	xB0074-1.txt	xB0074-2.txt
xB0074-3.txt	xB0075-1.txt	xB0075-2.txt	xB0075-3.txt
xB0076-1.txt	xB0076-2.txt	xB0076-3.txt	xB0077-1.txt
xB0077-2.txt	xB0077-3.txt	xB0078-1.txt	xB0078-2.txt
xB0078-3.txt	xB0079-1.txt	xB0079-2.txt	xB0079-3.txt
xB0080-1.txt	xB0080-2.txt	xB0080-3.txt	xB0081-1.txt
xB0081-2.txt	xB0081-3.txt	xB0082-1.txt	xB0082-2.txt
xB0082-3.txt	xB0083-1.txt	xB0083-2.txt	xB0083-3.txt
xB0084-1.txt	xB0084-2.txt	xB0084-3.txt	xB0085-1.txt
xB0085-2.txt	xB0085-3.txt	xB0086-1.txt	xB0086-2.txt
xB0086-3.txt	xB0087-1.txt	xB0087-2.txt	xB0087-3.txt
xB0088-1.txt	xB0088-2.txt	xB0088-3.txt	xB0089-1.txt
xB0089-2.txt	xB0089-3.txt	xB0090-1.txt	xB0090-2.txt
xB0090-3.txt	xB0091-1.txt	xB0091-2.txt	xB0091-3.txt
xB0092-1.txt	xB0092-2.txt	xB0092-3.txt	xB0093-1.txt
xB0093-2.txt	xB0093-3.txt	xB0094-1.txt	xB0094-2.txt
xB0094-3.txt	xB0095-1.txt	xB0095-2.txt	xB0095-3.txt
xB0096-1.txt	xB0096-2.txt	xB0096-3.txt	xB0097-1.txt
xB0097-2.txt	xB0097-3.txt	xB0098-1.txt	xB0098-2.txt
xB0098-3.txt	xB0099-1.txt	xB0099-2.txt	xB0099-3.txt
xB0100-1.txt	xB0100-2.txt	xB0100-3.txt	xB0101-1.txt
xB0101-2.txt	xB0101-3.txt	xB0102-1.txt	xB0102-2.txt
xB0102-3.txt	xB0103-1.txt	xB0103-2.txt	xB0103-3.txt
xB0104-1.txt	xB0104-2.txt	xB0104-3.txt	xB0105-1.txt
xB0105-2.txt	xB0105-3.txt	xB0106-1.txt	xB0106-2.txt
xB0106-3.txt	xB0107-1.txt	xB0107-2.txt	xB0107-3.txt
xB0108-1.txt	xB0108-2.txt	xB0108-3.txt	xB0109-1.txt
xB0109-2.txt	xB0109-3.txt	xB0110-1.txt	xB0110-2.txt
xB0110-3.txt	xB0111-1.txt	xB0111-2.txt	xB0111-3.txt
xB0112-1.txt	xB0112-2.txt	xB0112-3.txt	xB0113-1.txt
xB0113-2.txt	xB0113-3.txt	xB0114-1.txt	xB0114-2.txt
xB0114-3.txt	xB0115-1.txt	xB0115-2.txt	xB0115-3.txt
xB0116-1.txt	xB0116-2.txt	xB0116-3.txt	xB0117-1.txt
xB0117-2.txt	xB0117-3.txt	xB0118-1.txt	xB0118-2.txt
xB0118-3.txt	xB0119-1.txt	xB0119-2.txt	xB0119-3.txt
xB0120-1.txt	xB0120-2.txt	xB0120-3.txt	xB0121-1.txt
xB0121-2.txt	xB0121-3.txt	xB0122-1.txt	xB0122-2.txt

xB0122-3.txt	xB0123-1.txt	xB0123-2.txt	xB0123-3.txt
xB0124-1.txt	xB0124-2.txt	xB0124-3.txt	xB0125-1.txt
xB0125-2.txt	xB0125-3.txt	xB0126-1.txt	xB0126-2.txt
xB0126-3.txt	xB0127-1.txt	xB0127-2.txt	xB0127-3.txt
xB0128-1.txt	xB0128-2.txt	xB0128-3.txt	xB0129-1.txt
xB0129-2.txt	xB0129-3.txt	xB0130-1.txt	xB0130-2.txt
xB0130-3.txt	xB0131-1.txt	xB0131-2.txt	xB0131-3.txt
xB0132-1.txt	xB0132-2.txt	xB0132-3.txt	xB0133-1.txt
xB0133-2.txt	xB0133-3.txt	xB0134-1.txt	xB0134-2.txt
xB0134-3.txt	xB0135-1.txt	xB0135-2.txt	xB0135-3.txt
xB0136-1.txt	xB0136-2.txt	xB0136-3.txt	xB0137-1.txt
xB0137-2.txt	xB0137-3.txt	xB0138-1.txt	xB0138-2.txt
xB0138-3.txt	xB0139-1.txt	xB0139-2.txt	xB0139-3.txt
xB0140-1.txt	xB0140-2.txt	xB0140-3.txt	xB0141-1.txt
xB0141-2.txt	xB0141-3.txt	xB0142-1.txt	xB0142-2.txt
xB0142-3.txt	xB0143-1.txt	xB0143-2.txt	xB0143-3.txt
xB0144-1.txt	xB0144-2.txt	xB0144-3.txt	xB0145-1.txt
xB0145-2.txt	xB0145-3.txt	xB0146-1.txt	xB0146-2.txt
xB0146-3.txt	xB0147-1.txt	xB0147-2.txt	xB0147-3.txt
xB0148-1.txt	xB0148-2.txt	xB0148-3.txt	xB0149-1.txt
xB0149-2.txt	xB0149-3.txt	xB0150-1.txt	xB0150-2.txt
xB0150-3.txt	xB0151-1.txt	xB0151-2.txt	xB0151-3.txt
xB0152-1.txt	xB0152-2.txt	xB0152-3.txt	xB0153-1.txt
xB0153-2.txt	xB0153-3.txt	xB0154-1.txt	xB0154-2.txt
xB0154-3.txt	xB0155-1.txt	xB0155-2.txt	xB0155-3.txt
xB0156-1.txt	xB0156-2.txt	xB0156-3.txt	xB0157-1.txt
xB0157-2.txt	xB0157-3.txt	xB0158-1.txt	xB0158-2.txt
xB0158-3.txt	xB0159-1.txt	xB0159-2.txt	xB0159-3.txt
xB0160-1.txt	xB0160-2.txt	xB0160-3.txt	xB0161-1.txt
xB0161-2.txt	xB0161-3.txt	xB0162-1.txt	xB0162-2.txt
xB0162-3.txt	xB0163-1.txt	xB0163-2.txt	xB0163-3.txt
xB0164-1.txt	xB0164-2.txt	xB0164-3.txt	xB0165-1.txt
xB0165-2.txt	xB0165-3.txt	xB0166-1.txt	xB0166-2.txt
xB0166-3.txt	xB0167-1.txt	xB0167-2.txt	xB0167-3.txt
xB0168-1.txt	xB0168-2.txt	xB0168-3.txt	xB0169-1.txt
xB0169-2.txt	xB0169-3.txt	xB0170-1.txt	xB0170-2.txt
xB0170-3.txt	xB0171-1.txt	xB0171-2.txt	xB0171-3.txt
xB0172-1.txt	xB0172-2.txt	xB0172-3.txt	xB0173-1.txt
xB0173-2.txt	xB0173-3.txt	xB0174-1.txt	xB0174-2.txt
xB0174-3.txt	xB0175-1.txt	xB0175-2.txt	xB0175-3.txt
xB0176-1.txt	xB0176-2.txt	xB0176-3.txt	xB0177-1.txt
xB0177-2.txt	xB0177-3.txt	xB0178-1.txt	xB0178-2.txt
xB0178-3.txt	xB0179-1.txt	xB0179-2.txt	xB0179-3.txt
xB0180-1.txt	xB0180-2.txt	xB0180-3.txt	xB0181-1.txt
xB0181-2.txt	xB0181-3.txt	xB0182-1.txt	xB0182-2.txt
xB0182-3.txt	xB0183-1.txt	xB0183-2.txt	xB0183-3.txt
xB0184-1.txt	xB0184-2.txt	xB0184-3.txt	xB0185-1.txt
xB0185-2.txt	xB0185-3.txt	xB0186-1.txt	xB0186-2.txt
xB0186-3.txt	xB0187-1.txt	xB0187-2.txt	xB0187-3.txt
xB0188-1.txt	xB0188-2.txt	xB0188-3.txt	xB0189-1.txt
xB0189-2.txt	xB0189-3.txt	xB0190-1.txt	xB0190-2.txt
xB0190-3.txt	xB0191-1.txt	xB0191-2.txt	xB0191-3.txt
xB0192-1.txt	xB0192-2.txt	xB0192-3.txt	xB0193-1.txt
xB0193-2.txt	xB0193-3.txt	xB0194-1.txt	xB0194-2.txt
xB0194-3.txt	xB0195-1.txt	xB0195-2.txt	xB0195-3.txt
xB0196-1.txt	xB0196-2.txt	xB0196-3.txt	xB0197-1.txt
xB0197-2.txt	xB0197-3.txt	xB0198-1.txt	xB0198-2.txt
xB0198-3.txt	xB0199-1.txt	xB0199-2.txt	xB0199-3.txt
xB0200-1.txt	xB0200-2.txt	xB0200-3.txt	xB0201-1.txt
xB0201-2.txt	xB0201-3.txt	xB0202-1.txt	xB0202-2.txt
xB0202-3.txt	xB0203-1.txt	xB0203-2.txt	xB0203-3.txt
xB0204-1.txt	xB0204-2.txt	xB0204-3.txt	xB0205-1.txt
xB0205-2.txt	xB0205-3.txt	xB0206-1.txt	xB0206-2.txt
xB0206-3.txt	xB0207-1.txt	xB0207-2.txt	xB0207-3.txt
xB0208-1.txt	xB0208-2.txt	xB0208-3.txt	xB0209-1.txt
xB0209-2.txt	xB0209-3.txt	xB0210-1.txt	xB0210-2.txt
xB0210-3.txt	xB0211-1.txt	xB0211-2.txt	xB0211-3.txt
xB0212-1.txt	xB0212-2.txt	xB0212-3.txt	xB0213-1.txt
xB0213-2.txt	xB0213-3.txt	xB0214-1.txt	xB0214-2.txt

xB0214-3.txt	xB0215-1.txt	xB0215-2.txt	xB0215-3.txt
xB0216-1.txt	xB0216-2.txt	xB0216-3.txt	xB0217-1.txt
xB0217-2.txt	xB0217-3.txt	xB0218-1.txt	xB0218-2.txt
xB0218-3.txt	xB0219-1.txt	xB0219-2.txt	xB0219-3.txt
xB0220-1.txt	xB0220-2.txt	xB0220-3.txt	xB0221-1.txt
xB0221-2.txt	xB0221-3.txt	xB0222-1.txt	xB0222-2.txt
xB0222-3.txt	xB0223-1.txt	xB0223-2.txt	xB0223-3.txt
xB0224-1.txt	xB0224-2.txt	xB0224-3.txt	xB0225-1.txt
xB0225-2.txt	xB0225-3.txt	xB0226-1.txt	xB0226-2.txt
xB0226-3.txt	xB0227-1.txt	xB0227-2.txt	xB0227-3.txt
xB0228-1.txt	xB0228-2.txt	xB0228-3.txt	xB0229-1.txt
xB0229-2.txt	xB0229-3.txt	xB0230-1.txt	xB0230-2.txt
xB0230-3.txt	xB0231-1.txt	xB0231-2.txt	xB0231-3.txt
xB0232-1.txt	xB0232-2.txt	xB0232-3.txt	xB0233-1.txt
xB0233-2.txt	xB0233-3.txt	xB0234-1.txt	xB0234-2.txt
xB0234-3.txt	xB0235-1.txt	xB0235-2.txt	xB0235-3.txt
xB0236-1.txt	xB0236-2.txt	xB0236-3.txt	xB0237-1.txt
xB0237-2.txt	xB0237-3.txt	xB0238-1.txt	xB0238-2.txt
xB0238-3.txt	xB0239-1.txt	xB0239-2.txt	xB0239-3.txt
xB0240-1.txt	xB0240-2.txt	xB0240-3.txt	xB0241-1.txt
xB0241-2.txt	xB0241-3.txt	xB0242-1.txt	xB0242-2.txt
xB0242-3.txt	xB0243-1.txt	xB0243-2.txt	xB0243-3.txt
xB0244-1.txt	xB0244-2.txt	xB0244-3.txt	xB0245-1.txt
xB0245-2.txt	xB0245-3.txt	xB0246-1.txt	xB0246-2.txt
xB0246-3.txt	xB0247-1.txt	xB0247-2.txt	xB0247-3.txt
xB0248-1.txt	xB0248-2.txt	xB0248-3.txt	xB0249-1.txt
xB0249-2.txt	xB0249-3.txt	xB0250-1.txt	xB0250-2.txt
xB0250-3.txt	xB0251-1.txt	xB0251-2.txt	xB0251-3.txt
xB0252-1.txt	xB0252-2.txt	xB0252-3.txt	xB0253-1.txt
xB0253-2.txt	xB0253-3.txt	xB0254-1.txt	xB0254-2.txt
xB0254-3.txt	xB0255-1.txt	xB0255-2.txt	xB0255-3.txt
xB0256-1.txt	xB0256-2.txt	xB0256-3.txt	xB0257-1.txt
xB0257-2.txt	xB0257-3.txt	xB0258-1.txt	xB0258-2.txt
xB0258-3.txt	xB0259-1.txt	xB0259-2.txt	xB0259-3.txt
xC0000-1.txt	xC0000-2.txt	xC0000-3.txt	xC0001-1.txt
xC0001-2.txt	xC0001-3.txt	xC0002-1.txt	xC0002-2.txt
xC0002-3.txt	xC0003-1.txt	xC0003-2.txt	xC0003-3.txt
xC0004-1.txt	xC0004-2.txt	xC0004-3.txt	xC0005-1.txt
xC0005-2.txt	xC0005-3.txt	xC0006-1.txt	xC0006-2.txt
xC0006-3.txt	xC0007-1.txt	xC0007-2.txt	xC0007-3.txt
xC0008-1.txt	xC0008-2.txt	xC0008-3.txt	xC0009-1.txt
xC0009-2.txt	xC0009-3.txt	xC0010-1.txt	xC0010-2.txt
xC0010-3.txt	xC0011-1.txt	xC0011-2.txt	xC0011-3.txt
xC0012-1.txt	xC0012-2.txt	xC0012-3.txt	xC0013-1.txt
xC0013-2.txt	xC0013-3.txt	xC0014-1.txt	xC0014-2.txt
xC0014-3.txt	xC0015-1.txt	xC0015-2.txt	xC0015-3.txt
xC0016-1.txt	xC0016-2.txt	xC0016-3.txt	xC0017-1.txt
xC0017-2.txt	xC0017-3.txt	xC0018-1.txt	xC0018-2.txt
xC0018-3.txt	xC0019-1.txt	xC0019-2.txt	xC0019-3.txt
xC0020-1.txt	xC0020-2.txt	xC0020-3.txt	xC0021-1.txt
xC0021-2.txt	xC0021-3.txt	xC0022-1.txt	xC0022-2.txt
xC0022-3.txt	xC0023-1.txt	xC0023-2.txt	xC0023-3.txt
xC0024-1.txt	xC0024-2.txt	xC0024-3.txt	xC0025-1.txt
xC0025-2.txt	xC0025-3.txt	xC0026-1.txt	xC0026-2.txt
xC0026-3.txt	xC0027-1.txt	xC0027-2.txt	xC0027-3.txt
xC0028-1.txt	xC0028-2.txt	xC0028-3.txt	xC0029-1.txt
xC0029-2.txt	xC0029-3.txt	xC0030-1.txt	xC0030-2.txt
xC0030-3.txt	xC0031-1.txt	xC0031-2.txt	xC0031-3.txt
xC0032-1.txt	xC0032-2.txt	xC0032-3.txt	xC0033-1.txt
xC0033-2.txt	xC0033-3.txt	xC0034-1.txt	xC0034-2.txt
xC0034-3.txt	xC0035-1.txt	xC0035-2.txt	xC0035-3.txt
xC0036-1.txt	xC0036-2.txt	xC0036-3.txt	xC0037-1.txt
xC0037-2.txt	xC0037-3.txt	xC0038-1.txt	xC0038-2.txt
xC0038-3.txt	xC0039-1.txt	xC0039-2.txt	xC0039-3.txt
xC0040-1.txt	xC0040-2.txt	xC0040-3.txt	xC0041-1.txt
xC0041-2.txt	xC0041-3.txt	xC0042-1.txt	xC0042-2.txt
xC0042-3.txt	xC0043-1.txt	xC0043-2.txt	xC0043-3.txt
xC0044-1.txt	xC0044-2.txt	xC0044-3.txt	xC0045-1.txt
xC0045-2.txt	xC0045-3.txt	xC0046-1.txt	xC0046-2.txt

xC0046-3.txt	xC0047-1.txt	xC0047-2.txt	xC0047-3.txt
xC0048-1.txt	xC0048-2.txt	xC0048-3.txt	xC0049-1.txt
xC0049-2.txt	xC0049-3.txt	xC0050-1.txt	xC0050-2.txt
xC0050-3.txt	xC0051-1.txt	xC0051-2.txt	xC0051-3.txt
xC0052-1.txt	xC0052-2.txt	xC0052-3.txt	xC0053-1.txt
xC0053-2.txt	xC0053-3.txt	xC0054-1.txt	xC0054-2.txt
xC0054-3.txt	xC0055-1.txt	xC0055-2.txt	xC0055-3.txt
xC0056-1.txt	xC0056-2.txt	xC0056-3.txt	xC0057-1.txt
xC0057-2.txt	xC0057-3.txt	xC0058-1.txt	xC0058-2.txt
xC0058-3.txt	xC0059-1.txt	xC0059-2.txt	xC0059-3.txt
xC0060-1.txt	xC0060-2.txt	xC0060-3.txt	xC0061-1.txt
xC0061-2.txt	xC0061-3.txt	xC0062-1.txt	xC0062-2.txt
xC0062-3.txt	xC0063-1.txt	xC0063-2.txt	xC0063-3.txt
xC0064-1.txt	xC0064-2.txt	xC0064-3.txt	xC0065-1.txt
xC0065-2.txt	xC0065-3.txt	xC0066-1.txt	xC0066-2.txt
xC0066-3.txt	xC0067-1.txt	xC0067-2.txt	xC0067-3.txt
xC0068-1.txt	xC0068-2.txt	xC0068-3.txt	xC0069-1.txt
xC0069-2.txt	xC0069-3.txt	xC0070-1.txt	xC0070-2.txt
xC0070-3.txt	xC0071-1.txt	xC0071-2.txt	xC0071-3.txt
xC0072-1.txt	xC0072-2.txt	xC0072-3.txt	xC0073-1.txt
xC0073-2.txt	xC0073-3.txt	xC0074-1.txt	xC0074-2.txt
xC0074-3.txt	xC0075-1.txt	xC0075-2.txt	xC0075-3.txt
xC0076-1.txt	xC0076-2.txt	xC0076-3.txt	xC0077-1.txt
xC0077-2.txt	xC0077-3.txt	xC0078-1.txt	xC0078-2.txt
xC0078-3.txt	xC0079-1.txt	xC0079-2.txt	xC0079-3.txt
xC0080-1.txt	xC0080-2.txt	xC0080-3.txt	xC0081-1.txt
xC0081-2.txt	xC0081-3.txt	xC0082-1.txt	xC0082-2.txt
xC0082-3.txt	xC0083-1.txt	xC0083-2.txt	xC0083-3.txt
xC0084-1.txt	xC0084-2.txt	xC0084-3.txt	xC0085-1.txt
xC0085-2.txt	xC0085-3.txt	xC0086-1.txt	xC0086-2.txt
xC0086-3.txt	xC0087-1.txt	xC0087-2.txt	xC0087-3.txt
xC0088-1.txt	xC0088-2.txt	xC0088-3.txt	xC0089-1.txt
xC0089-2.txt	xC0089-3.txt	xC0090-1.txt	xC0090-2.txt
xC0090-3.txt	xC0091-1.txt	xC0091-2.txt	xC0091-3.txt
xC0092-1.txt	xC0092-2.txt	xC0092-3.txt	xC0093-1.txt
xC0093-2.txt	xC0093-3.txt	xC0094-1.txt	xC0094-2.txt
xC0094-3.txt	xC0095-1.txt	xC0095-2.txt	xC0095-3.txt
xC0096-1.txt	xC0096-2.txt	xC0096-3.txt	xC0097-1.txt
xC0097-2.txt	xC0097-3.txt	xC0098-1.txt	xC0098-2.txt
xC0098-3.txt	xC0099-1.txt	xC0099-2.txt	xC0099-3.txt
xC0100-1.txt	xC0100-2.txt	xC0100-3.txt	xC0101-1.txt
xC0101-2.txt	xC0101-3.txt	xC0102-1.txt	xC0102-2.txt
xC0102-3.txt	xC0103-1.txt	xC0103-2.txt	xC0103-3.txt
xC0104-1.txt	xC0104-2.txt	xC0104-3.txt	xC0105-1.txt
xC0105-2.txt	xC0105-3.txt	xC0106-1.txt	xC0106-2.txt
xC0106-3.txt	xC0107-1.txt	xC0107-2.txt	xC0107-3.txt
xC0108-1.txt	xC0108-2.txt	xC0108-3.txt	xC0109-1.txt
xC0109-2.txt	xC0109-3.txt	xC0110-1.txt	xC0110-2.txt
xC0110-3.txt	xC0111-1.txt	xC0111-2.txt	xC0111-3.txt
xC0112-1.txt	xC0112-2.txt	xC0112-3.txt	xC0113-1.txt
xC0113-2.txt	xC0113-3.txt	xC0114-1.txt	xC0114-2.txt
xC0114-3.txt	xC0115-1.txt	xC0115-2.txt	xC0115-3.txt
xC0116-1.txt	xC0116-2.txt	xC0116-3.txt	xC0117-1.txt
xC0117-2.txt	xC0117-3.txt	xC0118-1.txt	xC0118-2.txt
xC0118-3.txt	xC0119-1.txt	xC0119-2.txt	xC0119-3.txt
xC0120-1.txt	xC0120-2.txt	xC0120-3.txt	xC0121-1.txt
xC0121-2.txt	xC0121-3.txt	xC0122-1.txt	xC0122-2.txt
xC0122-3.txt	xC0123-1.txt	xC0123-2.txt	xC0123-3.txt
xC0124-1.txt	xC0124-2.txt	xC0124-3.txt	xC0125-1.txt
xC0125-2.txt	xC0125-3.txt	xC0126-1.txt	xC0126-2.txt
xC0126-3.txt	xC0127-1.txt	xC0127-2.txt	xC0127-3.txt
xC0128-1.txt	xC0128-2.txt	xC0128-3.txt	xC0129-1.txt
xC0129-2.txt	xC0129-3.txt	xC0130-1.txt	xC0130-2.txt
xC0130-3.txt	xC0131-1.txt	xC0131-2.txt	xC0131-3.txt
xC0132-1.txt	xC0132-2.txt	xC0132-3.txt	xC0133-1.txt
xC0133-2.txt	xC0133-3.txt	xC0134-1.txt	xC0134-2.txt
xC0134-3.txt	xC0135-1.txt	xC0135-2.txt	xC0135-3.txt
xC0136-1.txt	xC0136-2.txt	xC0136-3.txt	xC0137-1.txt
xC0137-2.txt	xC0137-3.txt	xC0138-1.txt	xC0138-2.txt

xC0138-3.txt	xC0139-1.txt	xC0139-2.txt	xC0139-3.txt
xC0140-1.txt	xC0140-2.txt	xC0140-3.txt	xC0141-1.txt
xC0141-2.txt	xC0141-3.txt	xC0142-1.txt	xC0142-2.txt
xC0142-3.txt	xC0143-1.txt	xC0143-2.txt	xC0143-3.txt
xC0144-1.txt	xC0144-2.txt	xC0144-3.txt	xC0145-1.txt
xC0145-2.txt	xC0145-3.txt	xC0146-1.txt	xC0146-2.txt
xC0146-3.txt	xC0147-1.txt	xC0147-2.txt	xC0147-3.txt
xC0148-1.txt	xC0148-2.txt	xC0148-3.txt	xC0149-1.txt
xC0149-2.txt	xC0149-3.txt	xC0150-1.txt	xC0150-2.txt
xC0150-3.txt	xC0151-1.txt	xC0151-2.txt	xC0151-3.txt
xC0152-1.txt	xC0152-2.txt	xC0152-3.txt	xC0153-1.txt
xC0153-2.txt	xC0153-3.txt	xC0154-1.txt	xC0154-2.txt
xC0154-3.txt	xC0155-1.txt	xC0155-2.txt	xC0155-3.txt
xC0156-1.txt	xC0156-2.txt	xC0156-3.txt	xC0157-1.txt
xC0157-2.txt	xC0157-3.txt	xC0158-1.txt	xC0158-2.txt
xC0158-3.txt	xC0159-1.txt	xC0159-2.txt	xC0159-3.txt
xC0160-1.txt	xC0160-2.txt	xC0160-3.txt	xC0161-1.txt
xC0161-2.txt	xC0161-3.txt	xC0162-1.txt	xC0162-2.txt
xC0162-3.txt	xC0163-1.txt	xC0163-2.txt	xC0163-3.txt
xC0164-1.txt	xC0164-2.txt	xC0164-3.txt	xC0165-1.txt
xC0165-2.txt	xC0165-3.txt	xC0166-1.txt	xC0166-2.txt
xC0166-3.txt	xC0167-1.txt	xC0167-2.txt	xC0167-3.txt
xC0168-1.txt	xC0168-2.txt	xC0168-3.txt	xC0169-1.txt
xC0169-2.txt	xC0169-3.txt	xC0170-1.txt	xC0170-2.txt
xC0170-3.txt	xC0171-1.txt	xC0171-2.txt	xC0171-3.txt
xC0172-1.txt	xC0172-2.txt	xC0172-3.txt	xC0173-1.txt
xC0173-2.txt	xC0173-3.txt	xC0174-1.txt	xC0174-2.txt
xC0174-3.txt	xC0175-1.txt	xC0175-2.txt	xC0175-3.txt
xC0176-1.txt	xC0176-2.txt	xC0176-3.txt	xC0177-1.txt
xC0177-2.txt	xC0177-3.txt	xC0178-1.txt	xC0178-2.txt
xC0178-3.txt	xC0179-1.txt	xC0179-2.txt	xC0179-3.txt
xC0180-1.txt	xC0180-2.txt	xC0180-3.txt	xC0181-1.txt
xC0181-2.txt	xC0181-3.txt	xC0182-1.txt	xC0182-2.txt
xC0182-3.txt	xC0183-1.txt	xC0183-2.txt	xC0183-3.txt
xC0184-1.txt	xC0184-2.txt	xC0184-3.txt	xC0185-1.txt
xC0185-2.txt	xC0185-3.txt	xC0186-1.txt	xC0186-2.txt
xC0186-3.txt	xC0187-1.txt	xC0187-2.txt	xC0187-3.txt
xC0188-1.txt	xC0188-2.txt	xC0188-3.txt	xC0189-1.txt
xC0189-2.txt	xC0189-3.txt	xC0190-1.txt	xC0190-2.txt
xC0190-3.txt	xC0191-1.txt	xC0191-2.txt	xC0191-3.txt
xC0192-1.txt	xC0192-2.txt	xC0192-3.txt	xC0193-1.txt
xC0193-2.txt	xC0193-3.txt	xC0194-1.txt	xC0194-2.txt
xC0194-3.txt	xC0195-1.txt	xC0195-2.txt	xC0195-3.txt
xC0196-1.txt	xC0196-2.txt	xC0196-3.txt	xC0197-1.txt
xC0197-2.txt	xC0197-3.txt	xC0198-1.txt	xC0198-2.txt
xC0198-3.txt	xC0199-1.txt	xC0199-2.txt	xC0199-3.txt
xC0200-1.txt	xC0200-2.txt	xC0200-3.txt	xC0201-1.txt
xC0201-2.txt	xC0201-3.txt	xC0202-1.txt	xC0202-2.txt
xC0202-3.txt	xC0203-1.txt	xC0203-2.txt	xC0203-3.txt
xC0204-1.txt	xC0204-2.txt	xC0204-3.txt	xC0205-1.txt
xC0205-2.txt	xC0205-3.txt	xC0206-1.txt	xC0206-2.txt
xC0206-3.txt	xC0207-1.txt	xC0207-2.txt	xC0207-3.txt
xC0208-1.txt	xC0208-2.txt	xC0208-3.txt	xC0209-1.txt
xC0209-2.txt	xC0209-3.txt	xC0210-1.txt	xC0210-2.txt
xC0210-3.txt	xC0211-1.txt	xC0211-2.txt	xC0211-3.txt
xC0212-1.txt	xC0212-2.txt	xC0212-3.txt	xC0213-1.txt
xC0213-2.txt	xC0213-3.txt	xC0214-1.txt	xC0214-2.txt
xC0214-3.txt	xC0215-1.txt	xC0215-2.txt	xC0215-3.txt
xC0216-1.txt	xC0216-2.txt	xC0216-3.txt	xC0217-1.txt
xC0217-2.txt	xC0217-3.txt	xC0218-1.txt	xC0218-2.txt
xC0218-3.txt	xC0219-1.txt	xC0219-2.txt	xC0219-3.txt
xC0220-1.txt	xC0220-2.txt	xC0220-3.txt	xC0221-1.txt
xC0221-2.txt	xC0221-3.txt	xC0222-1.txt	xC0222-2.txt
xC0222-3.txt	xC0223-1.txt	xC0223-2.txt	xC0223-3.txt
xC0224-1.txt	xC0224-2.txt	xC0224-3.txt	xC0225-1.txt
xC0225-2.txt	xC0225-3.txt	xC0226-1.txt	xC0226-2.txt
xC0226-3.txt	xC0227-1.txt	xC0227-2.txt	xC0227-3.txt
xC0228-1.txt	xC0228-2.txt	xC0228-3.txt	xC0229-1.txt
xC0229-2.txt	xC0229-3.txt	xC0230-1.txt	xC0230-2.txt



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xC0230-3.txt      xC0231-1.txt      xC0231-2.txt      xC0231-3.txt
xC0232-1.txt      xC0232-2.txt      xC0232-3.txt      xC0233-1.txt
xC0233-2.txt      xC0233-3.txt      xC0234-1.txt      xC0234-2.txt
xC0234-3.txt      xC0235-1.txt      xC0235-2.txt      xC0235-3.txt
xC0236-1.txt      xC0236-2.txt      xC0236-3.txt      xC0237-1.txt
xC0237-2.txt      xC0237-3.txt      xC0238-1.txt      xC0238-2.txt
xC0238-3.txt      xC0239-1.txt      xC0239-2.txt      xC0239-3.txt
xC0240-1.txt      xC0240-2.txt      xC0240-3.txt      xC0241-1.txt
xC0241-2.txt      xC0241-3.txt      xC0242-1.txt      xC0242-2.txt
xC0242-3.txt      xC0243-1.txt      xC0243-2.txt      xC0243-3.txt
xC0244-1.txt      xC0244-2.txt      xC0244-3.txt      xC0245-1.txt
xC0245-2.txt      xC0245-3.txt      xC0246-1.txt      xC0246-2.txt
xC0246-3.txt      xC0247-1.txt      xC0247-2.txt      xC0247-3.txt
xC0248-1.txt      xC0248-2.txt      xC0248-3.txt      xC0249-1.txt
xC0249-2.txt      xC0249-3.txt      xC0250-1.txt      xC0250-2.txt
xC0250-3.txt      xC0251-1.txt      xC0251-2.txt      xC0251-3.txt
xC0252-1.txt      xC0252-2.txt      xC0252-3.txt      xC0253-1.txt
xC0253-2.txt      xC0253-3.txt      xC0254-1.txt      xC0254-2.txt
xC0254-3.txt      xC0255-1.txt      xC0255-2.txt      xC0255-3.txt
xC0256-1.txt      xC0256-2.txt      xC0256-3.txt      xC0257-1.txt
xC0257-2.txt      xC0257-3.txt      xC0258-1.txt      xC0258-2.txt
xC0258-3.txt      xC0259-1.txt      xC0259-2.txt      xC0259-3.txt

```

Layout History  
Block map has more than 200 entries

Sector List	
Alpha	200 - 207, 17058 - 17065, 90243 - 90250
Omega	6544 - 6551, 23403 - 23410, 96588 - 96595
xB0000-1.txt	208 - 215
xB0000-2.txt	17066 - 17073
xB0000-3.txt	90251 - 90258
xB0001-1.txt	216 - 223
xB0001-2.txt	17074 - 17081
xB0001-3.txt	90259 - 90266
xB0002-1.txt	224 - 231
...	
3884 omitted	
xF0257-1.txt	2296 - 2303
xF0257-2.txt	19154 - 19161
xF0257-3.txt	92339 - 92346
xF0258-1.txt	2304 - 2311
xF0258-2.txt	19162 - 19169
xF0258-3.txt	92347 - 92354
xF0259-1.txt	2312 - 2319
xF0259-2.txt	19170 - 19177
xF0259-3.txt	92355 - 92362

### 38 Test Image fat-11

DFR-11. Recover one non-fragmented directory.

Partition Table Layout  
Disk /dev/sdd: 1073 MB, 1073742336 bytes  
34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors  
Device Boot Start End Blocks Id System  
/dev/sdd1 128 16511 8192 1 FAT12  
/dev/sdd2 16512 82047 32768 6 FAT16  
/dev/sdd3 82048 213119 65536 b W95 FAT32

9 files deleted

Deleted files (9)			
Name	Size	F-Hd	F-Bks
Capella.txt	8192 (16+0)	1	15
Maaz.txt	8192 (16+0)	1	15

Deleted files (9)			
Sadatoni.txt	8192 (16+0)	1	15
Rastaban.txt	8192 (16+0)	1	15
Thuban.txt	8192 (16+0)	1	15
Tyl.txt	8192 (16+0)	1	15
Elnasl.txt	8192 (16+0)	1	15
Nunki.txt	8192 (16+0)	1	15
Rukbat.txt	8192 (16+0)	1	15

MAC times just before file deletion

File: `Auriga/Capella.txt`  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2000-02-29 13:15:00.000000000 -0500  
 Change: 2011-10-10 14:33:08.000000000 -0400  
 File: `Auriga/Maaz.txt`  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2000-02-29 13:15:00.000000000 -0500  
 Change: 2011-10-10 14:33:08.000000000 -0400  
 File: `Auriga/Sadatoni.txt`  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2000-02-29 13:15:00.000000000 -0500  
 Change: 2011-10-10 14:33:08.000000000 -0400  
 File: `Draco/Rastaban.txt`  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2000-02-29 13:15:00.000000000 -0500  
 Change: 2011-10-10 14:33:09.000000000 -0400  
 File: `Draco/Thuban.txt`  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2000-02-29 13:15:00.000000000 -0500  
 Change: 2011-10-10 14:33:09.000000000 -0400  
 File: `Draco/Tyl.txt`  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2000-02-29 13:15:00.000000000 -0500  
 Change: 2011-10-10 14:33:09.000000000 -0400  
 File: `Sagittarius/Elnasl.txt`  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2000-02-29 13:15:00.000000000 -0500  
 Change: 2011-10-10 14:33:09.000000000 -0400  
 File: `Sagittarius/Nunki.txt`  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2000-02-29 13:15:00.000000000 -0500  
 Change: 2011-10-10 14:33:09.000000000 -0400  
 File: `Sagittarius/Rukbat.txt`  
 Access: 1999-01-01 23:00:00.000000000 -0500  
 Modify: 2000-02-29 13:15:00.000000000 -0500  
 Change: 2011-10-10 14:33:09.000000000 -0400

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case fat-11

==== Run step 3 =====

ACTION (delete): Capella.txt Maaz.txt Sadatoni.txt  
 ACTION (delete time): Mon Oct 10 14:35:59 EDT 2011  
 ACTION (delete): Rastaban.txt Thuban.txt Tyl.txt  
 ACTION (delete time): Mon Oct 10 14:35:59 EDT 2011  
 ACTION (delete): Rukbat.txt Elnasl.txt Nunki.txt  
 ACTION (delete time): Mon Oct 10 14:36:00 EDT 2011

Steps to Create Image fat-11		
Step	Action	Files in Partition FAT12
1	mkdir	Andromeda Auriga Bootes
1	create	Alpheratz.txt Mirach.txt Adhil.txt
1	create	Capella.txt Maaz.txt Sadatoni.txt
1	create	Archurus.txt Mirak.txt Nekkar.txt
2	set date/time	Auriga Capella.txt Maaz.txt Sadatoni.txt
3	delete	Capella.txt Maaz.txt Sadatoni.txt
3	rmdir	Auriga
Step	Action	Files in Partition FAT16

Steps to Create Image fat-11		
1	mkdir	Cygnus Draco Lyra
1	create	Albireo.txt Deneb.txt Sadr.txt
1	create	Rastaban.txt Thuban.txt Tyl.txt
1	create	Sheliak.txt Vega.txt Sulafat.txt
2	set date/time	Draco Rastaban.txt Thuban.txt Tyl.txt
3	delete	Rastaban.txt Thuban.txt Tyl.txt
3	rmdir	Draco
Step	Action	Files in Partition FAT32
1	mkdir	Orion Sagittarius Ursa_Major
1	create	Rigel.txt Mintaka.txt Betelguese.txt
1	create	Rukbat.txt Elnasl.txt Nunki.txt
1	create	Alcor.txt Mizar.txt Dubhe.txt
2	set date/time	Sagittarius Rukbat.txt Elnasl.txt Nunki.txt
3	delete	Rukbat.txt Elnasl.txt Nunki.txt
3	rmdir	Sagittarius

No overwrites

File: Nunki.txt 16 16  
 File: Tyl.txt 16 16  
 File: Capella.txt 16 16  
 File: Rastaban.txt 16 16  
 File: Maaz.txt 16 16  
 File: Thuban.txt 16 16  
 File: Rukbat.txt 16 16  
 File: Elnasl.txt 16 16  
 File: Sadatoni.txt 16 16  
 Summary: 9 9 0 0

Metadata available  
 fat-11 Metadata found 9 files, not found 0, total 9 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2
208 - 223	Andromeda/Alpheratz	Andromeda/Alpheratz
224 - 239	Andromeda/Mirach	Andromeda/Mirach
240 - 255	Andromeda/Adhil	Andromeda/Adhil
256 - 271	Auriga/Capella	Auriga/Capella
272 - 287	Auriga/Maaz	Auriga/Maaz
288 - 303	Auriga/Sadatoni	Auriga/Sadatoni
304 - 319	Bootes/Archturus	Bootes/Archturus
320 - 335	Bootes/Mirak	Bootes/Mirak
336 - 351	Bootes/Nekkar	Bootes/Nekkar
17060 - 17075	Cygnus/Albireo	Cygnus/Albireo
17076 - 17091	Cygnus/Deneb	Cygnus/Deneb
17092 - 17107	Cygnus/Sadr	Cygnus/Sadr
17108 - 17123	Draco/Rastaban	Draco/Rastaban
17124 - 17139	Draco/Thuban	Draco/Thuban
17140 - 17155	Draco/Tyl	Draco/Tyl
17156 - 17171	Lyra/Sheliak	Lyra/Sheliak
17172 - 17187	Lyra/Vega	Lyra/Vega
17188 - 17203	Lyra/Sulafat	Lyra/Sulafat
90245 - 90260	Orion/Rigel	Orion/Rigel
90261 - 90276	Orion/Mintaka	Orion/Mintaka
90277 - 90292	Orion/Betelguese	Orion/Betelguese
90293 - 90308	Sagittarius/Rukbat	Sagittarius/Rukbat
90309 - 90324	Sagittarius/Elnasl	Sagittarius/Elnasl
90325 - 90340	Sagittarius/Nunki	Sagittarius/Nunki

Layout for Steps 1 through 2		
90341 - 90356	Ursa_Major/Alcor	Ursa_Major/Alcor
90357 - 90372	Ursa_Major/Mizar	Ursa_Major/Mizar
90373 - 90388	Ursa_Major/Dubhe	Ursa_Major/Dubhe

Sector List	
Adhil.txt	240 - 255
Albireo.txt	17060 - 17075
Alcor.txt	90341 - 90356
Alpheratz.txt	208 - 223
Arcturus.txt	304 - 319
Betelguese.txt	90277 - 90292
Capella.txt	256 - 271
Deneb.txt	17076 - 17091
Dubhe.txt	90373 - 90388
...	
9 omitted	
Rigel.txt	90245 - 90260
Rukbat.txt	90293 - 90308
Sadatoni.txt	288 - 303
Sadr.txt	17092 - 17107
Sheliak.txt	17156 - 17171
Sulafat.txt	17188 - 17203
Thuban.txt	17124 - 17139
Tyl.txt	17140 - 17155
Vega.txt	17172 - 17187

### 39 Test Image fat-12

DFR-12. Recover one fragmented directory.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		128	16511	8192	1	FAT12
/dev/sdd2		16512	82047	32768	6	FAT16
/dev/sdd3		82048	213119	65536	b	W95 FAT32

36 files deleted

Deleted files (36)			
Name	Size	F-Hd	F-Bks
Alcor.txt	2048 (4+0)	1	3
Betelguese.txt	1024 (2+0)	1	1
Dubhe.txt	2048 (4+0)	1	3
Mintaka.txt	1024 (2+0)	1	1
Mizar.txt	2048 (4+0)	1	3
Rastaban.txt	2048 (4+0)	1	3
Rigel.txt	1024 (2+0)	1	1
Sheliak.txt	3072 (6+0)	1	5
Sulafat.txt	3072 (6+0)	1	5
Thuban.txt	2048 (4+0)	1	3
Tyl.txt	2048 (4+0)	1	3
Vega.txt	4096 (8+0)	1	7
Ain.txt	3072 (6+0)	1	5
Albireo.txt	2048 (4+0)	1	3
Aldebaran.txt	3072 (6+0)	1	5
Arcturus.txt	2048 (4+0)	1	3
Deneb.txt	2048 (4+0)	1	3
ElNath.txt	4096 (8+0)	1	7
Elnasl.txt	1024 (2+0)	1	1
Mirak.txt	2048 (4+0)	1	3

Deleted files (36)			
Nekkar.txt	2048 (4+0)	1	3
Nunki.txt	1024 (2+0)	1	1
Rukbat.txt	1024 (2+0)	1	1
Sadr.txt	2048 (4+0)	1	3
Alshain.txt	2048 (4+0)	1	3
Altair.txt	2048 (4+0)	1	3
Alterf.txt	2048 (4+0)	1	3
Castor.txt	1024 (2+0)	1	1
Kalb.txt	2048 (4+0)	1	3
Kochab.txt	4096 (8+0)	1	7
Polaris.txt	3072 (6+0)	1	5
Pollux.txt	1024 (2+0)	1	1
RasElased.txt	2048 (4+0)	1	3
Tarazed.txt	2048 (4+0)	1	3
Wasat.txt	1024 (2+0)	1	1
Yildun.txt	3072 (6+0)	1	5

MAC times just before file deletion

```

File: `Ursa_Major/Alcor.txt'
Access: 1999-01-02 00:00:00.000000000 -0500
Modify: 2000-02-29 13:52:00.000000000 -0500
Change: 2012-02-01 21:03:35.000000000 -0500
File: `Orion/Betelguese.txt'
Access: 1999-01-02 00:00:00.000000000 -0500
Modify: 2000-02-29 13:54:00.000000000 -0500
Change: 2012-02-01 21:03:35.000000000 -0500
File: `Ursa_Major/Dubhe.txt'
Access: 1999-01-02 00:00:00.000000000 -0500
Modify: 2000-02-29 13:54:00.000000000 -0500
Change: 2012-02-01 21:03:35.000000000 -0500
File: `Orion/Mintaka.txt'
Access: 1999-01-02 00:00:00.000000000 -0500
Modify: 2000-02-29 13:53:00.000000000 -0500
Change: 2012-02-01 21:03:35.000000000 -0500
File: `Ursa_Major/Mizar.txt'
Access: 1999-01-02 00:00:00.000000000 -0500
Modify: 2000-02-29 13:53:00.000000000 -0500
Change: 2012-02-01 21:03:35.000000000 -0500
...
104 omitted
File: `Gemini/Pollux.txt'
Access: 1999-01-02 00:00:00.000000000 -0500
Modify: 2000-02-29 13:53:00.000000000 -0500
Change: 2012-02-01 21:03:37.000000000 -0500
File: `Leo/RasElased.txt'
Access: 1999-01-02 00:00:00.000000000 -0500
Modify: 2000-02-29 13:53:00.000000000 -0500
Change: 2012-02-01 21:03:36.000000000 -0500
File: `Aquila/Tarazed.txt'
Access: 1999-01-02 00:00:00.000000000 -0500
Modify: 2000-02-29 13:54:00.000000000 -0500
Change: 2012-02-01 21:03:36.000000000 -0500
File: `Gemini/Wasat.txt'
Access: 1999-01-02 00:00:00.000000000 -0500
Modify: 2000-02-29 13:54:00.000000000 -0500
Change: 2012-02-01 21:03:37.000000000 -0500
File: `Ursa_Minor/Yildun.txt'
Access: 1999-01-02 00:00:00.000000000 -0500
Modify: 2000-02-29 13:54:00.000000000 -0500
Change: 2012-02-01 20:54:07.000000000 -0500

```

File delete times:

```

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case fat-12
===== Run step 4 =====
ACTION (delete): Sheliak.txt Vega.txt Sulafat.txt
ACTION (delete time): Wed Feb 1 20:57:13 EST 2012

```

ACTION (delete): Aldebaran.txt ElNath.txt Ain.txt  
 ACTION (delete time): Wed Feb 1 20:57:14 EST 2012  
 ACTION (delete): Polaris.txt Kochab.txt Yildun.txt  
 ACTION (delete time): Wed Feb 1 20:57:14 EST 2012  
 ACTION (delete): Rastaban.txt Thuban.txt Tyl.txt  
 ACTION (delete): Rigel.txt Mintaka.txt Betelguese.txt  
 ACTION (delete): Alcor.txt Mizar.txt Dubhe.txt  
 ACTION (delete time): Wed Feb 1 21:06:42 EST 2012  
 ACTION (delete): Archturus.txt Mirak.txt Nekkar.txt  
 ACTION (delete): Rukbat.txt Elnasl.txt Nunki.txt  
 ACTION (delete): Albireo.txt Deneb.txt Sadr.txt  
 ACTION (delete time): Wed Feb 1 21:06:43 EST 2012  
 ACTION (delete): Altair.txt Alshain.txt Tarazed.txt  
 ACTION (delete): Castor.txt Pollux.txt Wasat.txt  
 ACTION (delete): Kalb.txt RasElased.txt Alterf.txt  
 ACTION (delete time): Wed Feb 1 21:06:43 EST 2012

Steps to Create Image fat-12		
Step	Action	Files in Partition FAT12
1	mkdir	Andromeda Draco Ursa_Major Lyra
1	create	Alpheratz.txt Mirach.txt Adhil.txt
1	create	Rastaban.txt Thuban.txt Tyl.txt
1	create	Alcor.txt Mizar.txt Dubhe.txt
1	create	Sheliak.txt Vega.txt Sulafat.txt
2	append	Rastaban.txt Thuban.txt Tyl.txt
2	append	Sheliak.txt Vega.txt Sulafat.txt
3	set date/time	Lyra Sheliak.txt Vega.txt Sulafat.txt
4	delete	Sheliak.txt Vega.txt Sulafat.txt
4	rmdir	Lyra
5	mkdir	Orion
5	create	Rigel.txt Mintaka.txt Betelguese.txt
5	append	Alcor.txt Mizar.txt Dubhe.txt
6	set date/time	Draco Rastaban.txt Thuban.txt Tyl.txt Ursa_Major Alcor.txt Mizar.txt Dubhe.txt Orion Rigel.txt Mintaka.txt Betelguese.txt
7	delete	Rastaban.txt Thuban.txt Tyl.txt
7	delete	Rigel.txt Mintaka.txt Betelguese.txt
7	delete	Alcor.txt Mizar.txt Dubhe.txt
7	rmdir	Draco
7	rmdir	Orion
Step	Action	Files in Partition FAT16
1	mkdir	Auriga Bootes Cygnus Taurus
1	create	Capella.txt Maaz.txt Sadatoni.txt
1	create	Archturus.txt Mirak.txt Nekkar.txt
1	create	Albireo.txt Deneb.txt Sadr.txt
1	create	Aldebaran.txt ElNath.txt Ain.txt
2	append	Archturus.txt Mirak.txt Nekkar.txt
2	append	Aldebaran.txt ElNath.txt Ain.txt
3	set date/time	Taurus Aldebaran.txt ElNath.txt Ain.txt
4	delete	Aldebaran.txt ElNath.txt Ain.txt
4	rmdir	Taurus
5	mkdir	Sagittarius
5	create	Rukbat.txt Elnasl.txt Nunki.txt
5	append	Albireo.txt Deneb.txt Sadr.txt
6	set date/time	Bootes Archturus.txt Mirak.txt Nekkar.txt Cygnus Albireo.txt Deneb.txt Sadr.txt Sagittarius Rukbat.txt Elnasl.txt Nunki.txt
7	delete	Archturus.txt Mirak.txt Nekkar.txt
7	delete	Rukbat.txt Elnasl.txt Nunki.txt
7	delete	Albireo.txt Deneb.txt Sadr.txt
7	rmdir	Bootes
7	rmdir	Sagittarius
Step	Action	Files in Partition FAT32
1	mkdir	Scorpius Aquila Leo Ursa_Minor
1	create	Antares.txt Shaula.txt Lesath.txt
1	create	Altair.txt Alshain.txt Tarazed.txt

Steps to Create Image fat-12		
1	create	Kalb.txt RasElased.txt Alterf.txt
1	create	Polaris.txt Kochab.txt Yildun.txt
2	append	Altair.txt Alshain.txt Tarazed.txt
2	append	Polaris.txt Kochab.txt Yildun.txt
3	set date/time	Ursa_Minor Polaris.txt Kochab.txt Yildun.txt
4	delete	Polaris.txt Kochab.txt Yildun.txt
4	rmdir	Ursa_Minor
5	mkdir	Gemini
5	create	Castor.txt Pollux.txt Wasat.txt
5	append	Kalb.txt RasElased.txt Alterf.txt
6	set date/time	Aquila Altair.txt Alshain.txt Tarazed.txt Leo Kalb.txt RasElased.txt Alterf.txt Gemini Castor.txt Pollux.txt Wasat.txt
7	delete	Altair.txt Alshain.txt Tarazed.txt
7	delete	Castor.txt Pollux.txt Wasat.txt
7	delete	Kalb.txt RasElased.txt Alterf.txt
7	rmdir	Aquila
7	rmdir	Gemini

18 overwrites

Ain.txt x Deneb.txt: overlap - 17091 - 17092  
 Ain.txt x Elnasl.txt: overlap - 17083 - 17084  
 Albireo.txt x ElNath.txt: overlap - 17081 - 17082  
 Alcor.txt x Vega.txt: overlap - 321 - 322  
 Aldebaran.txt x Rukbat.txt: overlap - 17079 - 17080  
 Aldebaran.txt x Sadr.txt: overlap - 17095 - 17096  
 Alterf.txt x Polaris.txt: overlap - 90280 - 90281  
 Betelguese.txt x Vega.txt: overlap - 333 - 334  
 Castor.txt x Polaris.txt: overlap - 90264 - 90265  
 Dubhe.txt x Sheliak.txt: overlap - 335 - 336  
 ElNath.txt x Nunki.txt: overlap - 17093 - 17094  
 Kalb.txt x Kochab.txt: overlap - 90266 - 90267  
 Kochab.txt x Wasat.txt: overlap - 90278 - 90279  
 Mintaka.txt x Sulafat.txt: overlap - 323 - 324  
 Mizar.txt x Sulafat.txt: overlap - 331 - 332  
 Pollux.txt x Yildun.txt: overlap - 90268 - 90269  
 RasElased.txt x Yildun.txt: overlap - 90276 - 90277  
 Rigel.txt x Sheliak.txt: overlap - 319 - 320

File: Betelguese.txt 2 2  
 File: ElNath.txt 8 4  
 File: Vega.txt 8 4  
 File: Deneb.txt 4 4  
 File: Pollux.txt 2 2  
 File: Aldebaran.txt 6 2  
 File: Nunki.txt 2 2  
 File: Tyl.txt 4 4  
 File: Mintaka.txt 2 2  
 File: Kalb.txt 4 4  
 File: Mizar.txt 4 4  
 File: Rukbat.txt 2 2  
 ...  
 File: Ain.txt 6 2  
 File: Rastaban.txt 4 4  
 File: Castor.txt 2 2  
 File: Mirak.txt 4 4  
 File: Alterf.txt 4 4  
 File: Polaris.txt 6 2  
 File: Sulafat.txt 6 2  
 File: Archturus.txt 4 4  
 File: Wasat.txt 2 2  
 File: Elnasl.txt 2 2  
 File: Dubhe.txt 4 4  
 Summary: 36 27 9 0

Metadata available

fat-12 Metadata found 27 files, not found 9, total 36 deleted files

Deleted files without metadata (cannot be found)

Ain.txt Aldebaran.txt ElNath.txt Kochab.txt

Polaris.txt Sheliak.txt Sulafat.txt Vega.txt

Yildun.txt

Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2
300 - 301	Andromeda/Alpheratz	Andromeda/Alpheratz
302 - 303	Andromeda/Mirach	Andromeda/Mirach
304 - 305	Andromeda/Adhil	Andromeda/Adhil
306 - 307	Draco/Rastaban	Draco/Rastaban
308 - 309	Ursa_Major/Alcor	Ursa_Major/Alcor
310 - 311	Draco/Thuban	Draco/Thuban
312 - 313	Ursa_Major/Mizar	Ursa_Major/Mizar
314 - 315	Draco/Tyl	Draco/Tyl
316 - 317	Ursa_Major/Dubhe	Ursa_Major/Dubhe
319 - 320	Lyra/Sheliak	Lyra/Sheliak
321 - 322	Lyra/Vega	Lyra/Vega
323 - 324	Lyra/Sulafat	Lyra/Sulafat
325 - 326	empty	Draco/Rastaban
327 - 328	empty	Draco/Thuban
329 - 330	empty	Draco/Tyl
331 - 332	empty	Lyra/Sulafat
333 - 334	empty	Lyra/Vega
335 - 336	empty	Lyra/Sheliak
337 - 338	empty	Lyra/Vega
339 - 340	empty	Lyra/Sheliak
341 - 342	empty	Lyra/Vega
343 - 344	empty	Lyra/Sulafat
17060 - 17061	Auriga/Capella	Auriga/Capella
17062 - 17063	Auriga/Maaz	Auriga/Maaz
17064 - 17065	Auriga/Sadatoni	Auriga/Sadatoni
17066 - 17067	Bootes/Archturus	Bootes/Archturus
17068 - 17069	Cygnus/Albireo	Cygnus/Albireo
17070 - 17071	Bootes/Mirak	Bootes/Mirak
17072 - 17073	Cygnus/Deneb	Cygnus/Deneb
17074 - 17075	Bootes/Nekkar	Bootes/Nekkar
17076 - 17077	Cygnus/Sadr	Cygnus/Sadr
17079 - 17080	Taurus/Aldebaran	Taurus/Aldebaran
17081 - 17082	Taurus/ElNath	Taurus/ElNath
17083 - 17084	Taurus/Ain	Taurus/Ain
17085 - 17086	empty	Bootes/Archturus
17087 - 17088	empty	Bootes/Mirak
17089 - 17090	empty	Bootes/Nekkar
17091 - 17092	empty	Taurus/Ain
17093 - 17094	empty	Taurus/ElNath
17095 - 17096	empty	Taurus/Aldebaran
17097 - 17098	empty	Taurus/ElNath
17099 - 17100	empty	Taurus/Aldebaran
17101 - 17102	empty	Taurus/ElNath
17103 - 17104	empty	Taurus/Ain
90245 - 90246	Scorpius/Antares	Scorpius/Antares
90247 - 90248	Scorpius/Shaula	Scorpius/Shaula
90249 - 90250	Scorpius/Lesath	Scorpius/Lesath
90251 - 90252	Aquila/Altair	Aquila/Altair
90253 - 90254	Leo/Kalb	Leo/Kalb
90255 - 90256	Aquila/Alshain	Aquila/Alshain
90257 - 90258	Leo/RasElased	Leo/RasElased
90259 - 90260	Aquila/Tarazed	Aquila/Tarazed
90261 - 90262	Leo/Alterf	Leo/Alterf
90264 - 90265	Ursa_Minor/Polaris	Ursa_Minor/Polaris



Layout for Steps 1 through 2		
90266 - 90267	Ursa_Minor/Kochab	Ursa_Minor/Kochab
90268 - 90269	Ursa_Minor/Yildun	Ursa_Minor/Yildun
90270 - 90271	empty	Aquila/Altair
90272 - 90273	empty	Aquila/Alshain
90274 - 90275	empty	Aquila/Tarazed
90276 - 90277	empty	Ursa_Minor/Yildun
90278 - 90279	empty	Ursa_Minor/Kochab
90280 - 90281	empty	Ursa_Minor/Polaris
90282 - 90283	empty	Ursa_Minor/Kochab
90284 - 90285	empty	Ursa_Minor/Polaris
90286 - 90287	empty	Ursa_Minor/Kochab
90288 - 90289	empty	Ursa_Minor/Yildun

Layout for Steps 3 through 4		
Sectors	Step 3	Step 4
300 - 301	Andromeda/Alpheratz	Andromeda/Alpheratz
302 - 303	Andromeda/Mirach	Andromeda/Mirach
304 - 305	Andromeda/Adhil	Andromeda/Adhil
306 - 307	Draco/Rastaban	Draco/Rastaban
308 - 309	Ursa_Major/Alcor	Ursa_Major/Alcor
310 - 311	Draco/Thuban	Draco/Thuban
312 - 313	Ursa_Major/Mizar	Ursa_Major/Mizar
314 - 315	Draco/Tyl	Draco/Tyl
316 - 317	Ursa_Major/Dubhe	Ursa_Major/Dubhe
319 - 320	Lyra/Sheliak	Lyra/Sheliak
321 - 322	Lyra/Vega	Lyra/Vega
323 - 324	Lyra/Sulafat	Lyra/Sulafat
325 - 326	Draco/Rastaban	Draco/Rastaban
327 - 328	Draco/Thuban	Draco/Thuban
329 - 330	Draco/Tyl	Draco/Tyl
331 - 332	Lyra/Sulafat	Lyra/Sulafat
333 - 334	Lyra/Vega	Lyra/Vega
335 - 336	Lyra/Sheliak	Lyra/Sheliak
337 - 338	Lyra/Vega	Lyra/Vega
339 - 340	Lyra/Sheliak	Lyra/Sheliak
341 - 342	Lyra/Vega	Lyra/Vega
343 - 344	Lyra/Sulafat	Lyra/Sulafat
17060 - 17061	Auriga/Capella	Auriga/Capella
17062 - 17063	Auriga/Maaz	Auriga/Maaz
17064 - 17065	Auriga/Sadatoni	Auriga/Sadatoni
17066 - 17067	Bootes/Archturus	Bootes/Archturus
17068 - 17069	Cygnus/Albireo	Cygnus/Albireo
17070 - 17071	Bootes/Mirak	Bootes/Mirak
17072 - 17073	Cygnus/Deneb	Cygnus/Deneb
17074 - 17075	Bootes/Nekkar	Bootes/Nekkar
17076 - 17077	Cygnus/Sadr	Cygnus/Sadr
17079 - 17080	Taurus/Aldebaran	Taurus/Aldebaran
17081 - 17082	Taurus/ElNath	Taurus/ElNath
17083 - 17084	Taurus/Ain	Taurus/Ain
17085 - 17086	Bootes/Archturus	Bootes/Archturus
17087 - 17088	Bootes/Mirak	Bootes/Mirak
17089 - 17090	Bootes/Nekkar	Bootes/Nekkar
17091 - 17092	Taurus/Ain	Taurus/Ain
17093 - 17094	Taurus/ElNath	Taurus/ElNath
17095 - 17096	Taurus/Aldebaran	Taurus/Aldebaran
17097 - 17098	Taurus/ElNath	Taurus/ElNath
17099 - 17100	Taurus/Aldebaran	Taurus/Aldebaran
17101 - 17102	Taurus/ElNath	Taurus/ElNath
17103 - 17104	Taurus/Ain	Taurus/Ain
90245 - 90246	Scorpius/Antares	Scorpius/Antares
90247 - 90248	Scorpius/Shaula	Scorpius/Shaula
90249 - 90250	Scorpius/Lesath	Scorpius/Lesath
90251 - 90252	Aquila/Altair	Aquila/Altair

Layout for Steps 3 through 4		
90253 - 90254	Leo/Kalb	Leo/Kalb
90255 - 90256	Aquila/Alshain	Aquila/Alshain
90257 - 90258	Leo/RasElased	Leo/RasElased
90259 - 90260	Aquila/Tarazed	Aquila/Tarazed
90261 - 90262	Leo/Alterf	Leo/Alterf
90264 - 90265	Ursa_Minor/Polaris	Ursa_Minor/Polaris
90266 - 90267	Ursa_Minor/Kochab	Ursa_Minor/Kochab
90268 - 90269	Ursa_Minor/Yildun	Ursa_Minor/Yildun
90270 - 90271	Aquila/Altair	Aquila/Altair
90272 - 90273	Aquila/Alshain	Aquila/Alshain
90274 - 90275	Aquila/Tarazed	Aquila/Tarazed
90276 - 90277	Ursa_Minor/Yildun	Ursa_Minor/Yildun
90278 - 90279	Ursa_Minor/Kochab	Ursa_Minor/Kochab
90280 - 90281	Ursa_Minor/Polaris	Ursa_Minor/Polaris
90282 - 90283	Ursa_Minor/Kochab	Ursa_Minor/Kochab
90284 - 90285	Ursa_Minor/Polaris	Ursa_Minor/Polaris
90286 - 90287	Ursa_Minor/Kochab	Ursa_Minor/Kochab
90288 - 90289	Ursa_Minor/Yildun	Ursa_Minor/Yildun

Layout for Steps 5 through 6		
Sectors	Step 5	Step 6
300 - 301	Andromeda/Alpheratz	Andromeda/Alpheratz
302 - 303	Andromeda/Mirach	Andromeda/Mirach
304 - 305	Andromeda/Adhil	Andromeda/Adhil
306 - 307	Draco/Rastaban	Draco/Rastaban
308 - 309	Ursa_Major/Alcor	Ursa_Major/Alcor
310 - 311	Draco/Thuban	Draco/Thuban
312 - 313	Ursa_Major/Mizar	Ursa_Major/Mizar
314 - 315	Draco/Tyl	Draco/Tyl
316 - 317	Ursa_Major/Dubhe	Ursa_Major/Dubhe
319 - 320	Orion/Rigel	Orion/Rigel
321 - 322	Ursa_Major/Alcor	Ursa_Major/Alcor
323 - 324	Orion/Mintaka	Orion/Mintaka
325 - 326	Draco/Rastaban	Draco/Rastaban
327 - 328	Draco/Thuban	Draco/Thuban
329 - 330	Draco/Tyl	Draco/Tyl
331 - 332	Ursa_Major/Mizar	Ursa_Major/Mizar
333 - 334	Orion/Betelguese	Orion/Betelguese
335 - 336	Ursa_Major/Dubhe	Ursa_Major/Dubhe
337 - 338	Lyra/Vega	Lyra/Vega
339 - 340	Lyra/Sheliak	Lyra/Sheliak
341 - 342	Lyra/Vega	Lyra/Vega
343 - 344	Lyra/Sulafat	Lyra/Sulafat
17060 - 17061	Auriga/Capella	Auriga/Capella
17062 - 17063	Auriga/Maaz	Auriga/Maaz
17064 - 17065	Auriga/Sadatoni	Auriga/Sadatoni
17066 - 17067	Bootes/Archturus	Bootes/Archturus
17068 - 17069	Cygnus/Albireo	Cygnus/Albireo
17070 - 17071	Bootes/Mirak	Bootes/Mirak
17072 - 17073	Cygnus/Deneb	Cygnus/Deneb
17074 - 17075	Bootes/Nekkar	Bootes/Nekkar
17076 - 17077	Cygnus/Sadr	Cygnus/Sadr
17079 - 17080	Sagittarius/Rukbat	Sagittarius/Rukbat
17081 - 17082	Cygnus/Albireo	Cygnus/Albireo
17083 - 17084	Sagittarius/Elnasl	Sagittarius/Elnasl
17085 - 17086	Bootes/Archturus	Bootes/Archturus
17087 - 17088	Bootes/Mirak	Bootes/Mirak
17089 - 17090	Bootes/Nekkar	Bootes/Nekkar
17091 - 17092	Cygnus/Deneb	Cygnus/Deneb
17093 - 17094	Sagittarius/Nunki	Sagittarius/Nunki
17095 - 17096	Cygnus/Sadr	Cygnus/Sadr
17097 - 17098	Taurus/ElNath	Taurus/ElNath
17099 - 17100	Taurus/Aldebaran	Taurus/Aldebaran

Layout for Steps 5 through 6		
17101 - 17102	Taurus/ElNath	Taurus/ElNath
17103 - 17104	Taurus/Ain	Taurus/Ain
90245 - 90246	Scorpius/Antares	Scorpius/Antares
90247 - 90248	Scorpius/Shaula	Scorpius/Shaula
90249 - 90250	Scorpius/Lesath	Scorpius/Lesath
90251 - 90252	Aquila/Altair	Aquila/Altair
90253 - 90254	Leo/Kalb	Leo/Kalb
90255 - 90256	Aquila/Alshain	Aquila/Alshain
90257 - 90258	Leo/RasElased	Leo/RasElased
90259 - 90260	Aquila/Tarazed	Aquila/Tarazed
90261 - 90262	Leo/Alterf	Leo/Alterf
90264 - 90265	Gemini/Castor	Gemini/Castor
90266 - 90267	Leo/Kalb	Leo/Kalb
90268 - 90269	Gemini/Pollux	Gemini/Pollux
90270 - 90271	Aquila/Altair	Aquila/Altair
90272 - 90273	Aquila/Alshain	Aquila/Alshain
90274 - 90275	Aquila/Tarazed	Aquila/Tarazed
90276 - 90277	Leo/RasElased	Leo/RasElased
90278 - 90279	Gemini/Wasat	Gemini/Wasat
90280 - 90281	Leo/Alterf	Leo/Alterf
90282 - 90283	Ursa_Minor/Kochab	Ursa_Minor/Kochab
90284 - 90285	Ursa_Minor/Polaris	Ursa_Minor/Polaris
90286 - 90287	Ursa_Minor/Kochab	Ursa_Minor/Kochab
90288 - 90289	Ursa_Minor/Yildun	Ursa_Minor/Yildun

Sector List	
Adhil.txt	304 - 305
Ain.txt	17083 - 17084, 17091 - 17092, 17103 - 17104
Albireo.txt	17068 - 17069, 17081 - 17082
Alcor.txt	308 - 309, 321 - 322
Aldebaran.txt	17079 - 17080, 17095 - 17096, 17099 - 17100
Alpheratz.txt	300 - 301
Alshain.txt	90255 - 90256, 90272 - 90273
Altair.txt	90251 - 90252, 90270 - 90271
Alterf.txt	90261 - 90262, 90280 - 90281
...	
27 omitted	
Shaula.txt	90247 - 90248
Sheliak.txt	319 - 320, 335 - 336, 339 - 340
Sulafat.txt	323 - 324, 331 - 332, 343 - 344
Tarazed.txt	90259 - 90260, 90274 - 90275
Thuban.txt	310 - 311, 327 - 328
Tyl.txt	314 - 315, 329 - 330
Vega.txt	321 - 322, 333 - 334, 337 - 338, 341 - 342
Wasat.txt	90278 - 90279
Yildun.txt	90268 - 90269, 90276 - 90277, 90288 - 90289

## 40 Test Image fat-13

DFR-13. Recover chaotic file system activity.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device Boot Start End Blocks Id System

/dev/sdd1 128 16511 8192 1 FAT12

/dev/sdd2 16512 82047 32768 6 FAT16

/dev/sdd3 82048 213119 65536 b W95 FAT32

414 files deleted

Deleted files (414)
---------------------

Deleted files (414)			
Name	Size	F-Hd	F-Bks
A000-alpha=a-a=D=s-s=C-1.txt	9216 (18+0)	1	17
A001-alpha=a-a=D=s-s=C-2.txt	20480 (40+0)	1	39
A002-alpha=a-a=D=s-s=C-3.txt	7168 (14+0)	1	13
A003-alpha=a-a=D=s-s=C-4.txt	37376 (73+0)	1	72
A004-alpha=a-a=D=s-s=C-5.txt	7680 (15+0)	1	14
A005-alpha=a-a=D=s-s=C-6.txt	30208 (59+0)	1	58
A006-alpha=a-a=D=s-s=C-7.txt	10240 (20+0)	1	19
A007-alpha=a-a=D=s-s=C-8.txt	25088 (49+0)	1	48
A008-alpha=a-s=D=s-s=C-1.txt	9728 (19+0)	1	18
A009-alpha=a-s=D=s-s=C-2.txt	2560 (5+0)	1	4
A010-alpha=a-s=D=s-s=C-3.txt	19456 (38+0)	1	37
A011-alpha=a-s=D=s-s=C-4.txt	5120 (10+0)	1	9
A012-alpha=a-s=D=s-s=C-5.txt	22016 (43+0)	1	42
A013-alpha=a-s=D=s-s=C-6.txt	5120 (10+0)	1	9
A014-alpha=a-s=D=s-s=C-7.txt	9728 (19+0)	1	18
A015-alpha=a-s=D=s-s=C-8.txt	8704 (17+0)	1	16
A016-alpha=s-a=D=s-s=C-1.txt	18944 (37+0)	1	36
A017-alpha=s-a=D=s-s=C-2.txt	29184 (57+0)	1	56
A018-alpha=s-a=D=s-s=C-3.txt	2048 (4+0)	1	3
A019-alpha=s-a=D=s-s=C-4.txt	10752 (21+0)	1	20
...			
374 omitted			
C190-gamma=s-s=C=a-s=D-3.txt	6656 (13+0)	1	12
C191-gamma=s-s=C=a-s=D-4.txt	4608 (9+0)	1	8
C196-gamma=s-s=C=s-a=D-1.txt	3072 (6+0)	1	5
C197-gamma=s-s=C=s-a=D-2.txt	6144 (12+0)	1	11
C198-gamma=s-s=C=s-a=D-3.txt	9216 (18+0)	1	17
C199-gamma=s-s=C=s-a=D-4.txt	2560 (5+0)	1	4
C204-gamma=s-s=C=s-s=D-1.txt	4096 (8+0)	1	7
C205-gamma=s-s=C=s-s=D-2.txt	2560 (5+0)	1	4
C206-gamma=s-s=C=s-s=D-3.txt	1536 (3+0)	1	2
C207-gamma=s-s=C=s-s=D-4.txt	3584 (7+0)	1	6
C213-delta=s-s=C=s-a=D-1.txt	5120 (10+0)	1	9
C214-delta=s-s=C=s-a=D-2.txt	3584 (7+0)	1	6
C215-delta=s-s=C=s-a=D-3.txt	512 (1+0)	1	0
C216-delta=s-s=C=s-a=D-4.txt	4096 (8+0)	1	7
C217-delta=s-s=C=s-a=D-5.txt	2560 (5+0)	1	4
C223-delta=s-s=C=s-s=D-1.txt	1536 (3+0)	1	2
C224-delta=s-s=C=s-s=D-2.txt	3584 (7+0)	1	6
C225-delta=s-s=C=s-s=D-3.txt	512 (1+0)	1	0
C226-delta=s-s=C=s-s=D-4.txt	4096 (8+0)	1	7
C227-delta=s-s=C=s-s=D-5.txt	2560 (5+0)	1	4

MAC times just before file deletion

File: `Orion/A000-alpha=a-a=D=s-s=C-1.txt'  
Access: 2012-03-08 00:00:00.000000000 -0500  
Modify: 2012-03-08 20:08:44.000000000 -0500  
Change: 2012-03-08 20:08:45.000000000 -0500  
File: `Taurus/A001-alpha=a-a=D=s-s=C-2.txt'  
Access: 2012-03-08 00:00:00.000000000 -0500  
Modify: 2012-03-08 20:08:44.000000000 -0500  
Change: 2012-03-08 20:08:45.000000000 -0500  
File: `Taurus/A002-alpha=a-a=D=s-s=C-3.txt'  
Access: 2012-03-08 00:00:00.000000000 -0500  
Modify: 2012-03-08 20:08:44.000000000 -0500  
Change: 2012-03-08 20:08:45.000000000 -0500  
File: `Taurus/A003-alpha=a-a=D=s-s=C-4.txt'  
Access: 2012-03-08 00:00:00.000000000 -0500  
Modify: 2012-03-08 20:08:44.000000000 -0500  
Change: 2012-03-08 20:08:45.000000000 -0500  
File: `Ursa/A004-alpha=a-a=D=s-s=C-5.txt'  
Access: 2012-03-08 00:00:00.000000000 -0500  
Modify: 2012-03-08 20:08:44.000000000 -0500

Change: 2012-03-08 20:08:45.000000000 -0500

...

1616 omitted

File: `Taurus/C223-delta=s-s=C=s-s=D-1.txt'  
 Access: 2012-03-08 00:00:00.000000000 -0500  
 Modify: 2012-03-08 20:24:44.000000000 -0500  
 Change: 2012-03-08 20:24:44.000000000 -0500  
 File: `Ursa/C224-delta=s-s=C=s-s=D-2.txt'  
 Access: 2012-03-08 00:00:00.000000000 -0500  
 Modify: 2012-03-08 20:24:44.000000000 -0500  
 Change: 2012-03-08 20:24:44.000000000 -0500  
 File: `Ursa/C225-delta=s-s=C=s-s=D-3.txt'  
 Access: 2012-03-08 00:00:00.000000000 -0500  
 Modify: 2012-03-08 20:24:44.000000000 -0500  
 Change: 2012-03-08 20:24:44.000000000 -0500  
 File: `Orion/C226-delta=s-s=C=s-s=D-4.txt'  
 Access: 2012-03-08 00:00:00.000000000 -0500  
 Modify: 2012-03-08 20:24:44.000000000 -0500  
 Change: 2012-03-08 20:24:44.000000000 -0500  
 File: `Orion/C227-delta=s-s=C=s-s=D-5.txt'  
 Access: 2012-03-08 00:00:00.000000000 -0500  
 Modify: 2012-03-08 20:24:44.000000000 -0500  
 Change: 2012-03-08 20:24:44.000000000 -0500

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case fat-13  
 ===== Run step 7 =====

ACTION (delete): part 1 =D= in partition A  
 ACTION (delete time): Thu Mar 8 20:18:23 EST 2012  
 ACTION (delete): part 1 =D= in partition B  
 ACTION (delete time): Thu Mar 8 20:18:24 EST 2012  
 ACTION (delete): part 1 =D= in partition C  
 ACTION (delete time): Thu Mar 8 20:18:25 EST 2012  
 ACTION (delete): part 2 =D- in partition A  
 ACTION (delete time): Thu Mar 8 20:31:14 EST 2012  
 ACTION (delete): part 2 =D- in partition B  
 ACTION (delete time): Thu Mar 8 20:31:15 EST 2012  
 ACTION (delete): part 2 =D- in partition C  
 ACTION (delete time): Thu Mar 8 20:31:16 EST 2012

Steps to Create Image fat-13		
Step	Action	Files in Partition FAT12
1	create	alpha in partition A
2	append	a1 a-x... in partition A
3	create	beta in partition A
4	append	a2 x-a... in partition A
5	create	gamma in partition A
6	create	fill in partition A
7	delete	part 1 =D= in partition A
8	append	a3 x-x=x=a... in partition A
9	create	delta in partition A
10	append	a4 x-x=x-a... in partition A
11	delete	part 2 =D- in partition A
Step	Action	Files in Partition FAT16
1	create	alpha in partition B
2	append	a1 a-x... in partition B
3	create	beta in partition B
4	append	a2 x-a... in partition B
5	create	gamma in partition B
6	create	fill in partition B
7	delete	part 1 =D= in partition B
8	append	a3 x-x=x=a... in partition B
9	create	delta in partition B
10	append	a4 x-x=x-a... in partition B
11	delete	part 2 =D- in partition B
Step	Action	Files in Partition FAT32
1	create	alpha in partition C

Steps to Create Image fat-13		
2	append	a1 a-x... in partition C
3	create	beta in partition C
4	append	a2 x-a... in partition C
5	create	gamma in partition C
6	create	fill in partition C
7	delete	part 1 =D= in partition C
8	append	a3 x-x=x-a... in partition C
9	create	delta in partition C
10	append	a4 x-x=x-x-a... in partition C
11	delete	part 2 =D- in partition C

405 overwrites

A000-alpha=a-a=D=s-s=C-1.txt x A032-alpha=a-a=C=a-a=C-1.txt: overlap - 300 - 300  
A000-alpha=a-a=D=s-s=C-1.txt x A152-beta=s-s=C=a-s=C-1.txt: overlap - 1041 - 1050  
A000-alpha=a-a=D=s-s=C-1.txt x A153-beta=s-s=C=a-s=C-2.txt: overlap - 1051 - 1052  
A000-alpha=a-a=D=s-s=C-1.txt x A154-beta=s-s=C=a-s=C-3.txt: overlap - 1053 - 1053  
A001-alpha=a-a=D=s-s=C-2.txt x A032-alpha=a-a=C=a-a=C-1.txt: overlap - 301 - 308  
A001-alpha=a-a=D=s-s=C-2.txt x A154-beta=s-s=C=a-s=C-3.txt: overlap - 1054 - 1055  
A002-alpha=a-a=D=s-s=C-3.txt x A032-alpha=a-a=C=a-a=C-1.txt: overlap - 309 - 312  
A002-alpha=a-a=D=s-s=C-3.txt x A033-alpha=a-a=C=a-a=C-2.txt: overlap - 313 - 313  
A002-alpha=a-a=D=s-s=C-3.txt x A155-beta=s-s=C=a-s=C-4.txt: overlap - 1056 - 1059  
A003-alpha=a-a=D=s-s=C-4.txt x A033-alpha=a-a=C=a-a=C-2.txt: overlap - 314 - 314  
A003-alpha=a-a=D=s-s=C-4.txt x A034-alpha=a-a=C=a-a=D-1.txt: overlap - 315 - 316  
A003-alpha=a-a=D=s-s=C-4.txt x A155-beta=s-s=C=a-s=C-4.txt: overlap - 1060 - 1060  
A003-alpha=a-a=D=s-s=C-4.txt x A156-beta=s-s=C=a-s=D-1.txt: overlap - 1061 - 1064  
A003-alpha=a-a=D=s-s=C-4.txt x A157-beta=s-s=C=a-s=D-2.txt: overlap - 1065 - 1077  
A003-alpha=a-a=D=s-s=C-4.txt x A158-beta=s-s=C=a-s=D-3.txt: overlap - 1078 - 1079  
A003-alpha=a-a=D=s-s=C-4.txt x A159-beta=s-s=C=a-s=D-4.txt: overlap - 1080 - 1082  
A003-alpha=a-a=D=s-s=C-4.txt x A176-gamma=s-s=C=a-a=C-1.txt: overlap - 1083 - 1086  
A003-alpha=a-a=D=s-s=C-4.txt x A177-gamma=s-s=C=a-a=C-2.txt: overlap - 1087 - 1089  
A004-alpha=a-a=D=s-s=C-5.txt x A034-alpha=a-a=C=a-a=D-1.txt: overlap - 317 - 317  
A004-alpha=a-a=D=s-s=C-5.txt x A035-alpha=a-a=C=a-a=D-2.txt: overlap - 318 - 322  
A004-alpha=a-a=D=s-s=C-5.txt x A036-alpha=a-a=C=a-s=C-1.txt: overlap - 323 - 323  
A004-alpha=a-a=D=s-s=C-5.txt x A177-gamma=s-s=C=a-a=C-2.txt: overlap - 1090 - 1094  
A005-alpha=a-a=D=s-s=C-6.txt x A036-alpha=a-a=C=a-s=C-1.txt: overlap - 324 - 326  
A005-alpha=a-a=D=s-s=C-6.txt x A037-alpha=a-a=C=a-s=C-2.txt: overlap - 327 - 329  
A005-alpha=a-a=D=s-s=C-6.txt x A177-gamma=s-s=C=a-a=C-2.txt: overlap - 1095 - 1099  
A005-alpha=a-a=D=s-s=C-6.txt x A178-gamma=s-s=C=a-a=C-3.txt: overlap - 1100 - 1101  
A005-alpha=a-a=D=s-s=C-6.txt x A179-gamma=s-s=C=a-a=C-4.txt: overlap - 1102 - 1104  
A005-alpha=a-a=D=s-s=C-6.txt x A180-gamma=s-s=C=a-a=D-1.txt: overlap - 1105 - 1109  
A005-alpha=a-a=D=s-s=C-6.txt x A181-gamma=s-s=C=a-a=D-2.txt: overlap - 1110 - 1113  
A005-alpha=a-a=D=s-s=C-6.txt x A182-gamma=s-s=C=a-a=D-3.txt: overlap - 1114 - 1126  
A005-alpha=a-a=D=s-s=C-6.txt x A183-gamma=s-s=C=a-a=D-4.txt: overlap - 1127 - 1128  
A005-alpha=a-a=D=s-s=C-6.txt x A184-gamma=s-s=C=a-s=C-1.txt: overlap - 1129 - 1131  
A005-alpha=a-a=D=s-s=C-6.txt x A185-gamma=s-s=C=a-s=C-2.txt: overlap - 1132 - 1134  
A006-alpha=a-a=D=s-s=C-7.txt x A037-alpha=a-a=C=a-s=C-2.txt: overlap - 330 - 339  
A006-alpha=a-a=D=s-s=C-7.txt x A038-alpha=a-a=C=a-s=D-1.txt: overlap - 340 - 341  
A006-alpha=a-a=D=s-s=C-7.txt x A039-alpha=a-a=C=a-s=D-2.txt: overlap - 342 - 344  
A006-alpha=a-a=D=s-s=C-7.txt x A185-gamma=s-s=C=a-s=C-2.txt: overlap - 1135 - 1136  
A006-alpha=a-a=D=s-s=C-7.txt x A186-gamma=s-s=C=a-s=C-3.txt: overlap - 1137 - 1137  
A007-alpha=a-a=D=s-s=C-8.txt x A048-alpha=a-a=C=a-a=C-1.txt: overlap - 345 - 346  
A007-alpha=a-a=D=s-s=C-8.txt x A049-alpha=a-a=C=a-a=C-2.txt: overlap - 347 - 349  
A007-alpha=a-a=D=s-s=C-8.txt x A050-alpha=a-a=C=a-a=D-1.txt: overlap - 350 - 354  
A007-alpha=a-a=D=s-s=C-8.txt x A051-alpha=a-a=C=a-a=D-2.txt: overlap - 355 - 358  
A007-alpha=a-a=D=s-s=C-8.txt x A052-alpha=a-a=C=a-s=C-1.txt: overlap - 359 - 371  
A007-alpha=a-a=D=s-s=C-8.txt x A053-alpha=a-a=C=a-s=C-2.txt: overlap - 372 - 373  
A007-alpha=a-a=D=s-s=C-8.txt x A054-alpha=a-a=C=a-s=D-1.txt: overlap - 374 - 376  
A007-alpha=a-a=D=s-s=C-8.txt x A186-gamma=s-s=C=a-s=C-3.txt: overlap - 1138 - 1140  
A007-alpha=a-a=D=s-s=C-8.txt x A187-gamma=s-s=C=a-s=C-4.txt: overlap - 1141 - 1150  
A008-alpha=a-a=D=s-s=C-1.txt x A055-alpha=a-a=C=a-s=D-2.txt: overlap - 378 - 382  
A008-alpha=a-a=D=s-s=C-1.txt x A064-alpha=s-a=C=a-a=C-1.txt: overlap - 383 - 385  
A008-alpha=a-a=D=s-s=C-1.txt x A065-alpha=s-a=C=a-a=C-2.txt: overlap - 386 - 390  
...  
C014-alpha=a-a=D=s-s=C-7.txt x C223-delta=s-s=C=s-s=D-1.txt: overlap - 91185 - 91187  
C014-alpha=a-a=D=s-s=C-7.txt x C224-delta=s-s=C=s-s=D-2.txt: overlap - 91188 - 91192  
C015-alpha=a-a=D=s-s=C-8.txt x C080-alpha=s-s=C=a-a=C-1.txt: overlap - 90372 - 90373

C015-alpha=a-s=D=s-s=C-8.txt x C081-alpha=s-s=C=a-a=C-2.txt: overlap - 90374 - 90377  
C015-alpha=a-s=D=s-s=C-8.txt x C082-alpha=s-s=C=a-a=D-1.txt: overlap - 90378 - 90386  
C015-alpha=a-s=D=s-s=C-8.txt x C224-delta=s-s=C=s-s=D-2.txt: overlap - 91193 - 91194  
C016-alpha=s-a=D=s-s=C-1.txt x C082-alpha=s-s=C=a-a=D-1.txt: overlap - 90387 - 90390  
C016-alpha=s-a=D=s-s=C-1.txt x C083-alpha=s-s=C=a-a=D-2.txt: overlap - 90391 - 90392  
C016-alpha=s-a=D=s-s=C-1.txt x C084-alpha=s-s=C=a-a=C-1.txt: overlap - 90393 - 90395  
C016-alpha=s-a=D=s-s=C-1.txt x C085-alpha=s-s=C=a-a=C-2.txt: overlap - 90396 - 90400  
C016-alpha=s-a=D=s-s=C-1.txt x C086-alpha=s-s=C=a-a=D-1.txt: overlap - 90401 - 90404  
C016-alpha=s-a=D=s-s=C-1.txt x C087-alpha=s-s=C=a-a=D-2.txt: overlap - 90405 - 90417  
C016-alpha=s-a=D=s-s=C-1.txt x C112-beta=s-a=C=a-a=C-1.txt: overlap - 90418 - 90418  
C017-alpha=s-a=D=s-s=C-2.txt x C112-beta=s-a=C=a-a=C-1.txt: overlap - 90419 - 90430  
C017-alpha=s-a=D=s-s=C-2.txt x C113-beta=s-a=C=a-a=C-2.txt: overlap - 90431 - 90432  
C017-alpha=s-a=D=s-s=C-2.txt x C114-beta=s-a=C=a-a=C-3.txt: overlap - 90433 - 90435  
C018-alpha=s-a=D=s-s=C-3.txt x C115-beta=s-a=C=a-a=C-4.txt: overlap - 90437 - 90437  
C019-alpha=s-a=D=s-s=C-4.txt x C115-beta=s-a=C=a-a=C-4.txt: overlap - 90438 - 90441  
C019-alpha=s-a=D=s-s=C-4.txt x C116-beta=s-a=C=a-a=D-1.txt: overlap - 90442 - 90445  
C020-alpha=s-a=D=s-s=C-5.txt x C117-beta=s-a=C=a-a=D-2.txt: overlap - 90446 - 90450  
C021-alpha=s-a=D=s-s=C-6.txt x C117-beta=s-a=C=a-a=D-2.txt: overlap - 90451 - 90453  
C022-alpha=s-a=D=s-s=C-7.txt x C117-beta=s-a=C=a-a=D-2.txt: overlap - 90454 - 90458  
C022-alpha=s-a=D=s-s=C-7.txt x C118-beta=s-a=C=a-a=D-3.txt: overlap - 90459 - 90460  
C023-alpha=s-a=D=s-s=C-8.txt x C119-beta=s-a=C=a-a=D-4.txt: overlap - 90461 - 90463  
C023-alpha=s-a=D=s-s=C-8.txt x C120-beta=s-a=C=a-a=C-1.txt: overlap - 90464 - 90466  
C024-alpha=s-s=D=s-s=C-1.txt x C120-beta=s-a=C=a-s=C-1.txt: overlap - 90467 - 90468  
C024-alpha=s-s=D=s-s=C-1.txt x C121-beta=s-a=C=a-s=C-2.txt: overlap - 90469 - 90472  
C024-alpha=s-s=D=s-s=C-1.txt x C122-beta=s-a=C=a-s=C-3.txt: overlap - 90473 - 90481  
C025-alpha=s-s=D=s-s=C-2.txt x C122-beta=s-a=C=a-s=C-3.txt: overlap - 90483 - 90486  
C025-alpha=s-s=D=s-s=C-2.txt x C123-beta=s-a=C=a-s=C-4.txt: overlap - 90487 - 90488  
C025-alpha=s-s=D=s-s=C-2.txt x C124-beta=s-a=C=a-s=D-1.txt: overlap - 90489 - 90491  
C025-alpha=s-s=D=s-s=C-2.txt x C125-beta=s-a=C=a-s=D-2.txt: overlap - 90492 - 90496  
C025-alpha=s-s=D=s-s=C-2.txt x C126-beta=s-a=C=a-s=D-3.txt: overlap - 90497 - 90500  
C025-alpha=s-s=D=s-s=C-2.txt x C127-beta=s-a=C=a-s=D-4.txt: overlap - 90501 - 90513  
C025-alpha=s-s=D=s-s=C-2.txt x C144-beta=s-s=C=a-a=C-1.txt: overlap - 90514 - 90514  
C026-alpha=s-s=D=s-s=C-3.txt x C144-beta=s-s=C=a-a=C-1.txt: overlap - 90516 - 90517  
C026-alpha=s-s=D=s-s=C-3.txt x C145-beta=s-s=C=a-a=C-2.txt: overlap - 90518 - 90522  
C026-alpha=s-s=D=s-s=C-3.txt x C146-beta=s-s=C=a-a=C-3.txt: overlap - 90523 - 90526  
C026-alpha=s-s=D=s-s=C-3.txt x C147-beta=s-s=C=a-a=C-4.txt: overlap - 90527 - 90532  
C027-alpha=s-s=D=s-s=C-4.txt x C147-beta=s-s=C=a-a=C-4.txt: overlap - 90533 - 90533  
C028-alpha=s-s=D=s-s=C-5.txt x C147-beta=s-s=C=a-a=C-4.txt: overlap - 90535 - 90540  
C028-alpha=s-s=D=s-s=C-5.txt x C148-beta=s-s=C=a-a=D-1.txt: overlap - 90541 - 90542  
C029-alpha=s-s=D=s-s=C-6.txt x C149-beta=s-s=C=a-a=D-2.txt: overlap - 90543 - 90545  
C029-alpha=s-s=D=s-s=C-6.txt x C150-beta=s-s=C=a-a=D-3.txt: overlap - 90546 - 90547  
C030-alpha=s-s=D=s-s=C-7.txt x C150-beta=s-s=C=a-a=D-3.txt: overlap - 90548 - 90550  
C031-alpha=s-s=D=s-s=C-8.txt x C151-beta=s-s=C=a-a=D-4.txt: overlap - 90551 - 90554  
C031-alpha=s-s=D=s-s=C-8.txt x C152-beta=s-s=C=a-s=C-1.txt: overlap - 90555 - 90557  
C096-beta=s-a=D=s-s=C-1.txt x C225-delta=s-s=C=s-s=D-3.txt: overlap - 91644 - 91644  
C096-beta=s-a=D=s-s=C-1.txt x C226-delta=s-s=C=s-s=D-4.txt: overlap - 91645 - 91652  
C096-beta=s-a=D=s-s=C-1.txt x C227-delta=s-s=C=s-s=D-5.txt: overlap - 91653 - 91657

File: B118-beta=s-a=C=a-a=D-3.txt 32 32  
File: A078-alpha=s-a=C=s-s=D-1.txt 38 38  
File: A028-alpha=s-s=D=s-s=C-5.txt 8 0  
File: A223-delta=s-s=C=s-s=D-1.txt 3 3  
File: C082-alpha=s-s=C=a-a=D-1.txt 23 23  
File: A110-beta=s-s=D=s-s=C-7.txt 5 0  
File: B156-beta=s-s=C=a-s=D-1.txt 9 9  
File: B191-gamma=s-s=C=a-s=D-4.txt 9 9  
File: A030-alpha=s-s=D=s-s=C-7.txt 3 0  
File: B070-alpha=s-a=C=a-s=D-1.txt 10 10  
File: A164-beta=s-s=C=s-a=D-1.txt 5 5  
File: C078-alpha=s-a=C=s-s=D-1.txt 38 38  
...  
File: A149-beta=s-s=C=a-a=D-2.txt 10 10  
File: C216-delta=s-s=C=s-a=D-4.txt 8 8  
File: A116-beta=s-a=C=a-a=D-1.txt 19 19  
File: C217-delta=s-s=C=s-a=D-5.txt 5 5  
File: A188-gamma=s-s=C=a-s=D-1.txt 17 17  
File: A198-gamma=s-s=C=s-a=D-3.txt 18 18  
File: C086-alpha=s-s=C=a-s=D-1.txt 9 9

File: C083-alpha=s-s=C=a-a=D-2.txt 30 30  
 File: B063-alpha=a-a=s-C=s-s=D-2.txt 14 14  
 File: A132-beta=s-a=C=s-s-a=D-1.txt 21 21  
 File: B027-alpha=s-s=D=s-s=C-4.txt 1 0  
 Summary: 414 270 0 144

Metadata available

fat-13 Metadata found 354 files, not found 60, total 414 deleted files

Deleted files without metadata (cannot be found)

A000-alpha=a-a=D=s-s=C-1.txt A001-alpha=a-a=D=s-s=C-2.txt  
 A002-alpha=a-a=D=s-s=C-3.txt A003-alpha=a-a=D=s-s=C-4.txt  
 A004-alpha=a-a=D=s-s=C-5.txt A005-alpha=a-a=D=s-s=C-6.txt  
 A006-alpha=a-a=D=s-s=C-7.txt A007-alpha=a-a=D=s-s=C-8.txt  
 A008-alpha=a-s=D=s-s=C-1.txt A009-alpha=a-s=D=s-s=C-2.txt  
 A010-alpha=a-s=D=s-s=C-3.txt A011-alpha=a-s=D=s-s=C-4.txt  
 A012-alpha=a-s=D=s-s=C-5.txt A013-alpha=a-s=D=s-s=C-6.txt  
 A014-alpha=a-s=D=s-s=C-7.txt A015-alpha=a-s=D=s-s=C-8.txt  
 A016-alpha=s-a=D=s-s=C-1.txt A017-alpha=s-a=D=s-s=C-2.txt  
 A018-alpha=s-a=D=s-s=C-3.txt A019-alpha=s-a=D=s-s=C-4.txt  
 B000-alpha=a-a=D=s-s=C-1.txt B001-alpha=a-a=D=s-s=C-2.txt  
 B002-alpha=a-a=D=s-s=C-3.txt B003-alpha=a-a=D=s-s=C-4.txt  
 B004-alpha=a-a=D=s-s=C-5.txt B005-alpha=a-a=D=s-s=C-6.txt  
 B006-alpha=a-a=D=s-s=C-7.txt B007-alpha=a-a=D=s-s=C-8.txt  
 B008-alpha=a-s=D=s-s=C-1.txt B009-alpha=a-s=D=s-s=C-2.txt  
 B010-alpha=a-s=D=s-s=C-3.txt B011-alpha=a-s=D=s-s=C-4.txt  
 B012-alpha=a-s=D=s-s=C-5.txt B013-alpha=a-s=D=s-s=C-6.txt  
 B014-alpha=a-s=D=s-s=C-7.txt B015-alpha=a-s=D=s-s=C-8.txt  
 B016-alpha=s-a=D=s-s=C-1.txt B017-alpha=s-a=D=s-s=C-2.txt  
 B018-alpha=s-a=D=s-s=C-3.txt B019-alpha=s-a=D=s-s=C-4.txt  
 C000-alpha=a-a=D=s-s=C-1.txt C001-alpha=a-a=D=s-s=C-2.txt  
 C002-alpha=a-a=D=s-s=C-3.txt C003-alpha=a-a=D=s-s=C-4.txt  
 C004-alpha=a-a=D=s-s=C-5.txt C005-alpha=a-a=D=s-s=C-6.txt  
 C006-alpha=a-a=D=s-s=C-7.txt C007-alpha=a-a=D=s-s=C-8.txt  
 C008-alpha=a-s=D=s-s=C-1.txt C009-alpha=a-s=D=s-s=C-2.txt  
 C010-alpha=a-s=D=s-s=C-3.txt C011-alpha=a-s=D=s-s=C-4.txt  
 C012-alpha=a-s=D=s-s=C-5.txt C013-alpha=a-s=D=s-s=C-6.txt  
 C014-alpha=a-s=D=s-s=C-7.txt C015-alpha=a-s=D=s-s=C-8.txt  
 C016-alpha=s-a=D=s-s=C-1.txt C017-alpha=s-a=D=s-s=C-2.txt  
 C018-alpha=s-a=D=s-s=C-3.txt C019-alpha=s-a=D=s-s=C-4.txt

Layout History

Block map has more than 200 entries

Sector List	
A000-alpha=a-a=D=s-s=C-1.txt	300 - 300, 1041 - 1053, 2300 - 2303
A001-alpha=a-a=D=s-s=C-2.txt	301 - 308, 1054 - 1055, 2304 - 2333
A002-alpha=a-a=D=s-s=C-3.txt	309 - 313, 1056 - 1059, 2334 - 2338
A003-alpha=a-a=D=s-s=C-4.txt	314 - 316, 1060 - 1089, 2339 - 2378
A004-alpha=a-a=D=s-s=C-5.txt	317 - 323, 1090 - 1094, 2379 - 2381
A005-alpha=a-a=D=s-s=C-6.txt	324 - 329, 1095 - 1134, 2382 - 2394
A006-alpha=a-a=D=s-s=C-7.txt	330 - 344, 1135 - 1137, 2395 - 2396
A007-alpha=a-a=D=s-s=C-8.txt	345 - 376, 1138 - 1150, 2397 - 2400
A008-alpha=a-s=D=s-s=C-1.txt	378 - 394, 1151 - 1152
...	
688 omitted	
C219-delta=s-s=C=s-s=C-2.txt	91164 - 91170
C220-delta=s-s=C=s-s=C-3.txt	91171 - 91171
C221-delta=s-s=C=s-s=C-4.txt	91172 - 91179
C222-delta=s-s=C=s-s=C-5.txt	91180 - 91184
C223-delta=s-s=C=s-s=D-1.txt	91185 - 91187
C224-delta=s-s=C=s-s=D-2.txt	91188 - 91194
C225-delta=s-s=C=s-s=D-3.txt	91644 - 91644
C226-delta=s-s=C=s-s=D-4.txt	91645 - 91652
C227-delta=s-s=C=s-s=D-5.txt	91653 - 91657



## 41 Test Image fat-14

DFR-14. Recover other file system object.

### Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes  
34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors  
Device Boot Start End Blocks Id System  
/dev/sdd1 128 16511 8192 1 FAT12  
/dev/sdd2 16512 82047 32768 6 FAT16  
/dev/sdd3 82048 213119 65536 b W95 FAT32

12 files deleted

Deleted files (12)			
Name	Size	F-Hd	F-Bks
fat12-file-db.txt	4096 (8+0)	1	7
fat12-file-df.txt	4096 (8+0)	1	7
fat12-shortcut-db.lnk	237 (0+237)	0	0
fat12-shortcut-dl.lnk	237 (0+237)	0	0
fat16-file-db.txt	4096 (8+0)	1	7
fat16-file-df.txt	4096 (8+0)	1	7
fat16-shortcut-db.lnk	237 (0+237)	0	0
fat16-shortcut-dl.lnk	237 (0+237)	0	0
fat32-file-db.txt	4096 (8+0)	1	7
fat32-file-df.txt	4096 (8+0)	1	7
fat32-shortcut-db.lnk	237 (0+237)	0	0
fat32-shortcut-dl.lnk	237 (0+237)	0	0

### MAC times just before file deletion

File: `fat12-file-db.txt`  
Access: 2012-01-16 20:11:15.000000000 -0500  
Modify: 2012-01-16 20:09:24.000000000 -0500  
Change: 2012-01-16 20:09:23.910000000 -0500  
File: `fat12-file-df.txt`  
Access: 2012-01-16 20:11:16.000000000 -0500  
Modify: 2012-01-16 20:09:24.000000000 -0500  
Change: 2012-01-16 20:09:23.520000000 -0500  
File: `fat16-file-db.txt`  
Access: 2012-01-16 20:11:16.000000000 -0500  
Modify: 2012-01-16 20:09:26.000000000 -0500  
Change: 2012-01-16 20:09:24.490000000 -0500  
File: `fat16-file-df.txt`  
Access: 2012-01-16 20:11:16.000000000 -0500  
Modify: 2012-01-16 20:09:26.000000000 -0500  
Change: 2012-01-16 20:09:24.110000000 -0500  
File: `fat32-file-db.txt`  
Access: 2012-01-16 20:11:16.000000000 -0500  
Modify: 2012-01-16 20:09:26.000000000 -0500  
Change: 2012-01-16 20:09:25.050000000 -0500  
File: `fat32-file-df.txt`  
Access: 2012-01-16 20:11:16.000000000 -0500  
Modify: 2012-01-16 20:09:26.000000000 -0500  
Change: 2012-01-16 20:09:24.690000000 -0500

### File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case fat-14  
CASE fat-14 delete time for step 2 Mon 01/16/2012 08:17 PM  
==== Run step 2 =====  
ACTION (delete): fat12-file-db.txt  
ACTION (delete): fat12-file-df.txt  
ACTION (delete): fat12-shortcut-db.lnk  
ACTION (delete): fat12-shortcut-dl.lnk  
ACTION (delete): fat16-file-db.txt  
ACTION (delete): fat16-file-df.txt  
ACTION (delete): fat16-shortcut-db.lnk  
ACTION (delete): fat16-shortcut-dl.lnk  
ACTION (delete): fat32-file-db.txt

ACTION (delete): fat32-file-df.txt  
 ACTION (delete): fat32-shortcut-db.lnk  
 ACTION (delete): fat32-shortcut-dl.lnk

Steps to Create Image fat-14		
Step	Action	Files in Partition FAT12
1	create	fat12-file-df.txt
1	create	fat12-file-dl.txt
1	create	fat12-file-db.txt
1	link	fat12-shortcut-df.lnk->fat12-file-df.txt
1	link	fat12-shortcut-dl.lnk->fat12-file-dl.txt
1	link	fat12-shortcut-db.lnk->fat12-file-db.txt
2	delete	fat12-file-db.txt
2	delete	fat12-file-df.txt
2	delete	fat12-shortcut-db.lnk
2	delete	fat12-shortcut-dl.lnk
Step	Action	Files in Partition FAT16
1	create	fat16-file-df.txt
1	create	fat16-file-dl.txt
1	create	fat16-file-db.txt
1	link	fat16-shortcut-df.lnk->fat16-file-df.txt
1	link	fat16-shortcut-dl.lnk->fat16-file-dl.txt
1	link	fat16-shortcut-db.lnk->fat16-file-db.txt
2	delete	fat16-file-db.txt
2	delete	fat16-file-df.txt
2	delete	fat16-shortcut-db.lnk
2	delete	fat16-shortcut-dl.lnk
Step	Action	Files in Partition FAT32
1	create	fat32-file-df.txt
1	create	fat32-file-dl.txt
1	create	fat32-file-db.txt
1	link	fat32-shortcut-df.lnk->fat32-file-df.txt
1	link	fat32-shortcut-dl.lnk->fat32-file-dl.txt
1	link	fat32-shortcut-db.lnk->fat32-file-db.txt
2	delete	fat32-file-db.txt
2	delete	fat32-file-df.txt
2	delete	fat32-shortcut-db.lnk
2	delete	fat32-shortcut-dl.lnk

No overwrites

File: fat32-shortcut-db.lnk 0 0  
 File: fat12-file-df.txt 8 8  
 File: fat16-shortcut-dl.lnk 0 0  
 File: fat32-file-df.txt 8 8  
 File: fat12-file-db.txt 8 8  
 File: fat12-shortcut-db.lnk 0 0  
 File: fat12-shortcut-dl.lnk 0 0  
 File: fat16-file-db.txt 8 8  
 File: fat16-shortcut-db.lnk 0 0  
 File: fat16-file-df.txt 8 8  
 File: fat32-file-db.txt 8 8  
 File: fat32-shortcut-dl.lnk 0 0  
 Summary: 12 6 0 6

Metadata available  
 fat-14 Metadata found 9 files, not found 3, total 12 deleted files  
 Deleted files without metadata (cannot be found)  
 fat12-shortcut-dl.lnk fat16-shortcut-dl.lnk  
 fat32-shortcut-dl.lnk

Layout History

**Layout for Steps 1 through 1**

Layout for Steps 1 through 1	
Sectors	Step 1
296 - 303	fat12-file-df
305 - 312	fat12-file-dl
314 - 321	fat12-file-db
17056 - 17063	fat16-file-df
17065 - 17072	fat16-file-dl
17074 - 17081	fat16-file-db
90241 - 90248	fat32-file-df
90250 - 90257	fat32-file-dl
90259 - 90266	fat32-file-db

Sector List	
fat12-file-db.txt	314 - 321
fat12-file-df.txt	296 - 303
fat12-file-dl.txt	305 - 312
fat16-file-db.txt	17074 - 17081
fat16-file-df.txt	17056 - 17063
fat16-file-dl.txt	17065 - 17072
fat32-file-db.txt	90259 - 90266
fat32-file-df.txt	90241 - 90248
fat32-file-dl.txt	90250 - 90257

## 42 Test Image fat-15

### Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes  
 34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors  
 Device Boot Start End Blocks Id System  
 /dev/sdd1 128 16511 8192 1 FAT12  
 /dev/sdd2 16512 82047 32768 6 FAT16  
 /dev/sdd3 82048 213119 65536 b W95 FAT32  
 End of partition table

### Active Files

```

.:
Adhara-file-FAT12.txt      Hidden-FAT12.txt  System-FAT12.txt
Adhara-shortcut-FAT12.lnk NotIndexed-FAT12.txt
Archive-FAT12.txt      ReadOnly-FAT12.txt
.:
Archive-FAT16.txt      Hidden-FAT16.txt  System-FAT16.txt
Betelgeuse-file-FAT16.txt NotIndexed-FAT16.txt
Betelgeuse-shortcut-FAT16.lnk ReadOnly-FAT16.txt
.:
Archive-FAT32.txt      Hidden-FAT32.txt  System-FAT32.txt
Canopus-file-FAT32.txt      NotIndexed-FAT32.txt
Canopus-shortcut-FAT32.lnk ReadOnly-FAT32.txt

```

### File Attributes

```

A   F:\Adhara-file-FAT12.txt
A   F:\Adhara-shortcut-FAT12.lnk
A R  F:\ReadOnly-FAT12.txt
A H  F:\Hidden-FAT12.txt
A   F:\Archive-FAT12.txt
A S  F:\System-FAT12.txt
A   F:\NotIndexed-FAT12.txt
A   G:\Betelgeuse-file-FAT16.txt
A   G:\Betelgeuse-shortcut-FAT16.lnk
A R  G:\ReadOnly-FAT16.txt
A H  G:\Hidden-FAT16.txt
A   G:\Archive-FAT16.txt
A S  G:\System-FAT16.txt

```

```

A   G:\NotIndexed-FAT16.txt
A   H:\Canopus-file-FAT32.txt
A   H:\Canopus-shortcut-FAT32.lnk
A R  H:\ReadOnly-FAT32.txt
A H  H:\Hidden-FAT32.txt
A   H:\Archive-FAT32.txt
A S  H:\System-FAT32.txt
A   H:\NotIndexed-FAT32.txt
0 files deleted

```

Steps to Create Image fat-15		
Step	Action	Files in Partition FAT12
1	create	Adhara-file-FAT12.txt
1	link	Adhara-shortcut-FAT12.txt->Adhara-file-FAT12.txt
1	create	ReadOnly-FAT12.txt
1	create	Archive-FAT12.txt
1	create	System-FAT12.txt
1	create	Hidden-FAT12.txt
1	create	NotIndexed-FAT12.txt
Step	Action	Files in Partition FAT16
1	create	Betelgeuse-file-FAT16.txt
1	link	Betelgeuse-shortcut-FAT16.txt->Betelgeuse-file-FAT16.txt
1	create	ReadOnly-FAT16.txt
1	create	Archive-FAT16.txt
1	create	System-FAT16.txt
1	create	Hidden-FAT16.txt
1	create	NotIndexed-FAT16.txt
Step	Action	Files in Partition FAT32
1	create	Canopus-file-FAT32.txt
1	link	Canopus-shortcut-FAT32.txt->Canopus-file-FAT32.txt
1	create	ReadOnly-FAT32.txt
1	create	Archive-FAT32.txt
1	create	System-FAT32.txt
1	create	Hidden-FAT32.txt
1	create	NotIndexed-FAT32.txt

### 43 Test Image fat-16

#### Partition Table Layout

```

Disk /dev/sdd: 1073 MB, 1073742336 bytes
34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors
  Device Boot  Start  End  Blocks Id System
/dev/sdd1     128  16511   8192  1 FAT12
/dev/sdd2    16512  82047  32768  6 FAT16
/dev/sdd3     82048 213119  65536  b W95 FAT32
End of partition table

```

#### Active Files

```

.:
1-dir-01 1-dir-03 1-dir-05 1-dir-07 1-dir-09
1-dir-02 1-dir-04 1-dir-06 1-dir-08

./1-dir-01:
1-01-00001.txt 1-01-00002.txt

./1-dir-02:
1-02-00001.txt 1-02-00002.txt 1-02-00003.txt 1-02-00004.txt

./1-dir-03:
1-03-00001.txt 1-03-00003.txt 1-03-00005.txt 1-03-00007.txt
1-03-00002.txt 1-03-00004.txt 1-03-00006.txt 1-03-00008.txt

./1-dir-04:
1-04-00001.txt 1-04-00005.txt 1-04-00009.txt 1-04-00013.txt

```

1-04-00002.txt	1-04-00006.txt	1-04-00010.txt	1-04-00014.txt	
1-04-00003.txt	1-04-00007.txt	1-04-00011.txt	1-04-00015.txt	
1-04-00004.txt	1-04-00008.txt	1-04-00012.txt	1-04-00016.txt	
./1-dir-05:				
1-05-00001.txt	1-05-00008.txt	1-05-00015.txt	1-05-00022.txt	1-05-00029.txt
1-05-00002.txt	1-05-00009.txt	1-05-00016.txt	1-05-00023.txt	1-05-00030.txt
1-05-00003.txt	1-05-00010.txt	1-05-00017.txt	1-05-00024.txt	1-05-00031.txt
1-05-00004.txt	1-05-00011.txt	1-05-00018.txt	1-05-00025.txt	1-05-00032.txt
1-05-00005.txt	1-05-00012.txt	1-05-00019.txt	1-05-00026.txt	
1-05-00006.txt	1-05-00013.txt	1-05-00020.txt	1-05-00027.txt	
1-05-00007.txt	1-05-00014.txt	1-05-00021.txt	1-05-00028.txt	
./1-dir-06:				
1-06-00001.txt	1-06-00014.txt	1-06-00027.txt	1-06-00040.txt	1-06-00053.txt
1-06-00002.txt	1-06-00015.txt	1-06-00028.txt	1-06-00041.txt	1-06-00054.txt
1-06-00003.txt	1-06-00016.txt	1-06-00029.txt	1-06-00042.txt	1-06-00055.txt
1-06-00004.txt	1-06-00017.txt	1-06-00030.txt	1-06-00043.txt	1-06-00056.txt
1-06-00005.txt	1-06-00018.txt	1-06-00031.txt	1-06-00044.txt	1-06-00057.txt
1-06-00006.txt	1-06-00019.txt	1-06-00032.txt	1-06-00045.txt	1-06-00058.txt
1-06-00007.txt	1-06-00020.txt	1-06-00033.txt	1-06-00046.txt	1-06-00059.txt
1-06-00008.txt	1-06-00021.txt	1-06-00034.txt	1-06-00047.txt	1-06-00060.txt
1-06-00009.txt	1-06-00022.txt	1-06-00035.txt	1-06-00048.txt	1-06-00061.txt
1-06-00010.txt	1-06-00023.txt	1-06-00036.txt	1-06-00049.txt	1-06-00062.txt
1-06-00011.txt	1-06-00024.txt	1-06-00037.txt	1-06-00050.txt	1-06-00063.txt
1-06-00012.txt	1-06-00025.txt	1-06-00038.txt	1-06-00051.txt	1-06-00064.txt
1-06-00013.txt	1-06-00026.txt	1-06-00039.txt	1-06-00052.txt	
./1-dir-07:				
1-07-00001.txt	1-07-00027.txt	1-07-00053.txt	1-07-00079.txt	1-07-00105.txt
1-07-00002.txt	1-07-00028.txt	1-07-00054.txt	1-07-00080.txt	1-07-00106.txt
1-07-00003.txt	1-07-00029.txt	1-07-00055.txt	1-07-00081.txt	1-07-00107.txt
1-07-00004.txt	1-07-00030.txt	1-07-00056.txt	1-07-00082.txt	1-07-00108.txt
1-07-00005.txt	1-07-00031.txt	1-07-00057.txt	1-07-00083.txt	1-07-00109.txt
1-07-00006.txt	1-07-00032.txt	1-07-00058.txt	1-07-00084.txt	1-07-00110.txt
1-07-00007.txt	1-07-00033.txt	1-07-00059.txt	1-07-00085.txt	1-07-00111.txt
1-07-00008.txt	1-07-00034.txt	1-07-00060.txt	1-07-00086.txt	1-07-00112.txt
1-07-00009.txt	1-07-00035.txt	1-07-00061.txt	1-07-00087.txt	1-07-00113.txt
1-07-00010.txt	1-07-00036.txt	1-07-00062.txt	1-07-00088.txt	1-07-00114.txt
1-07-00011.txt	1-07-00037.txt	1-07-00063.txt	1-07-00089.txt	1-07-00115.txt
1-07-00012.txt	1-07-00038.txt	1-07-00064.txt	1-07-00090.txt	1-07-00116.txt
1-07-00013.txt	1-07-00039.txt	1-07-00065.txt	1-07-00091.txt	1-07-00117.txt
1-07-00014.txt	1-07-00040.txt	1-07-00066.txt	1-07-00092.txt	1-07-00118.txt
1-07-00015.txt	1-07-00041.txt	1-07-00067.txt	1-07-00093.txt	1-07-00119.txt
1-07-00016.txt	1-07-00042.txt	1-07-00068.txt	1-07-00094.txt	1-07-00120.txt
1-07-00017.txt	1-07-00043.txt	1-07-00069.txt	1-07-00095.txt	1-07-00121.txt
1-07-00018.txt	1-07-00044.txt	1-07-00070.txt	1-07-00096.txt	1-07-00122.txt
1-07-00019.txt	1-07-00045.txt	1-07-00071.txt	1-07-00097.txt	1-07-00123.txt
1-07-00020.txt	1-07-00046.txt	1-07-00072.txt	1-07-00098.txt	1-07-00124.txt
1-07-00021.txt	1-07-00047.txt	1-07-00073.txt	1-07-00099.txt	1-07-00125.txt
1-07-00022.txt	1-07-00048.txt	1-07-00074.txt	1-07-00100.txt	1-07-00126.txt
1-07-00023.txt	1-07-00049.txt	1-07-00075.txt	1-07-00101.txt	1-07-00127.txt
1-07-00024.txt	1-07-00050.txt	1-07-00076.txt	1-07-00102.txt	1-07-00128.txt
1-07-00025.txt	1-07-00051.txt	1-07-00077.txt	1-07-00103.txt	
1-07-00026.txt	1-07-00052.txt	1-07-00078.txt	1-07-00104.txt	
./1-dir-08:				
1-08-00001.txt	1-08-00053.txt	1-08-00105.txt	1-08-00157.txt	1-08-00209.txt
1-08-00002.txt	1-08-00054.txt	1-08-00106.txt	1-08-00158.txt	1-08-00210.txt
1-08-00003.txt	1-08-00055.txt	1-08-00107.txt	1-08-00159.txt	1-08-00211.txt
1-08-00004.txt	1-08-00056.txt	1-08-00108.txt	1-08-00160.txt	1-08-00212.txt
1-08-00005.txt	1-08-00057.txt	1-08-00109.txt	1-08-00161.txt	1-08-00213.txt
1-08-00006.txt	1-08-00058.txt	1-08-00110.txt	1-08-00162.txt	1-08-00214.txt
1-08-00007.txt	1-08-00059.txt	1-08-00111.txt	1-08-00163.txt	1-08-00215.txt
1-08-00008.txt	1-08-00060.txt	1-08-00112.txt	1-08-00164.txt	1-08-00216.txt
1-08-00009.txt	1-08-00061.txt	1-08-00113.txt	1-08-00165.txt	1-08-00217.txt
1-08-00010.txt	1-08-00062.txt	1-08-00114.txt	1-08-00166.txt	1-08-00218.txt
1-08-00011.txt	1-08-00063.txt	1-08-00115.txt	1-08-00167.txt	1-08-00219.txt
1-08-00012.txt	1-08-00064.txt	1-08-00116.txt	1-08-00168.txt	1-08-00220.txt





1-09-00097.txt	1-09-00200.txt	1-09-00303.txt	1-09-00406.txt	1-09-00509.txt
1-09-00098.txt	1-09-00201.txt	1-09-00304.txt	1-09-00407.txt	1-09-00510.txt
1-09-00099.txt	1-09-00202.txt	1-09-00305.txt	1-09-00408.txt	1-09-00511.txt
1-09-00100.txt	1-09-00203.txt	1-09-00306.txt	1-09-00409.txt	1-09-00512.txt
1-09-00101.txt	1-09-00204.txt	1-09-00307.txt	1-09-00410.txt	
1-09-00102.txt	1-09-00205.txt	1-09-00308.txt	1-09-00411.txt	
1-09-00103.txt	1-09-00206.txt	1-09-00309.txt	1-09-00412.txt	
.				
2-dir-01	2-dir-03	2-dir-05	2-dir-07	2-dir-09
2-dir-02	2-dir-04	2-dir-06	2-dir-08	
./2-dir-01:				
2-01-00001.txt	2-01-00002.txt			
./2-dir-02:				
2-02-00001.txt	2-02-00002.txt	2-02-00003.txt	2-02-00004.txt	
./2-dir-03:				
2-03-00001.txt	2-03-00003.txt	2-03-00005.txt	2-03-00007.txt	
2-03-00002.txt	2-03-00004.txt	2-03-00006.txt	2-03-00008.txt	
./2-dir-04:				
2-04-00001.txt	2-04-00005.txt	2-04-00009.txt	2-04-00013.txt	
2-04-00002.txt	2-04-00006.txt	2-04-00010.txt	2-04-00014.txt	
2-04-00003.txt	2-04-00007.txt	2-04-00011.txt	2-04-00015.txt	
2-04-00004.txt	2-04-00008.txt	2-04-00012.txt	2-04-00016.txt	
./2-dir-05:				
2-05-00001.txt	2-05-00008.txt	2-05-00015.txt	2-05-00022.txt	2-05-00029.txt
2-05-00002.txt	2-05-00009.txt	2-05-00016.txt	2-05-00023.txt	2-05-00030.txt
2-05-00003.txt	2-05-00010.txt	2-05-00017.txt	2-05-00024.txt	2-05-00031.txt
2-05-00004.txt	2-05-00011.txt	2-05-00018.txt	2-05-00025.txt	2-05-00032.txt
2-05-00005.txt	2-05-00012.txt	2-05-00019.txt	2-05-00026.txt	
2-05-00006.txt	2-05-00013.txt	2-05-00020.txt	2-05-00027.txt	
2-05-00007.txt	2-05-00014.txt	2-05-00021.txt	2-05-00028.txt	
./2-dir-06:				
2-06-00001.txt	2-06-00014.txt	2-06-00027.txt	2-06-00040.txt	2-06-00053.txt
2-06-00002.txt	2-06-00015.txt	2-06-00028.txt	2-06-00041.txt	2-06-00054.txt
2-06-00003.txt	2-06-00016.txt	2-06-00029.txt	2-06-00042.txt	2-06-00055.txt
2-06-00004.txt	2-06-00017.txt	2-06-00030.txt	2-06-00043.txt	2-06-00056.txt
2-06-00005.txt	2-06-00018.txt	2-06-00031.txt	2-06-00044.txt	2-06-00057.txt
2-06-00006.txt	2-06-00019.txt	2-06-00032.txt	2-06-00045.txt	2-06-00058.txt
2-06-00007.txt	2-06-00020.txt	2-06-00033.txt	2-06-00046.txt	2-06-00059.txt
2-06-00008.txt	2-06-00021.txt	2-06-00034.txt	2-06-00047.txt	2-06-00060.txt
2-06-00009.txt	2-06-00022.txt	2-06-00035.txt	2-06-00048.txt	2-06-00061.txt
2-06-00010.txt	2-06-00023.txt	2-06-00036.txt	2-06-00049.txt	2-06-00062.txt
2-06-00011.txt	2-06-00024.txt	2-06-00037.txt	2-06-00050.txt	2-06-00063.txt
2-06-00012.txt	2-06-00025.txt	2-06-00038.txt	2-06-00051.txt	2-06-00064.txt
2-06-00013.txt	2-06-00026.txt	2-06-00039.txt	2-06-00052.txt	
./2-dir-07:				
2-07-00001.txt	2-07-00027.txt	2-07-00053.txt	2-07-00079.txt	2-07-00105.txt
2-07-00002.txt	2-07-00028.txt	2-07-00054.txt	2-07-00080.txt	2-07-00106.txt
2-07-00003.txt	2-07-00029.txt	2-07-00055.txt	2-07-00081.txt	2-07-00107.txt
2-07-00004.txt	2-07-00030.txt	2-07-00056.txt	2-07-00082.txt	2-07-00108.txt
2-07-00005.txt	2-07-00031.txt	2-07-00057.txt	2-07-00083.txt	2-07-00109.txt
2-07-00006.txt	2-07-00032.txt	2-07-00058.txt	2-07-00084.txt	2-07-00110.txt
2-07-00007.txt	2-07-00033.txt	2-07-00059.txt	2-07-00085.txt	2-07-00111.txt
2-07-00008.txt	2-07-00034.txt	2-07-00060.txt	2-07-00086.txt	2-07-00112.txt
2-07-00009.txt	2-07-00035.txt	2-07-00061.txt	2-07-00087.txt	2-07-00113.txt
2-07-00010.txt	2-07-00036.txt	2-07-00062.txt	2-07-00088.txt	2-07-00114.txt
2-07-00011.txt	2-07-00037.txt	2-07-00063.txt	2-07-00089.txt	2-07-00115.txt
2-07-00012.txt	2-07-00038.txt	2-07-00064.txt	2-07-00090.txt	2-07-00116.txt
2-07-00013.txt	2-07-00039.txt	2-07-00065.txt	2-07-00091.txt	2-07-00117.txt
2-07-00014.txt	2-07-00040.txt	2-07-00066.txt	2-07-00092.txt	2-07-00118.txt
2-07-00015.txt	2-07-00041.txt	2-07-00067.txt	2-07-00093.txt	2-07-00119.txt
2-07-00016.txt	2-07-00042.txt	2-07-00068.txt	2-07-00094.txt	2-07-00120.txt
2-07-00017.txt	2-07-00043.txt	2-07-00069.txt	2-07-00095.txt	2-07-00121.txt







2-09-00074.txt	2-09-00177.txt	2-09-00280.txt	2-09-00383.txt	2-09-00486.txt
2-09-00075.txt	2-09-00178.txt	2-09-00281.txt	2-09-00384.txt	2-09-00487.txt
2-09-00076.txt	2-09-00179.txt	2-09-00282.txt	2-09-00385.txt	2-09-00488.txt
2-09-00077.txt	2-09-00180.txt	2-09-00283.txt	2-09-00386.txt	2-09-00489.txt
2-09-00078.txt	2-09-00181.txt	2-09-00284.txt	2-09-00387.txt	2-09-00490.txt
2-09-00079.txt	2-09-00182.txt	2-09-00285.txt	2-09-00388.txt	2-09-00491.txt
2-09-00080.txt	2-09-00183.txt	2-09-00286.txt	2-09-00389.txt	2-09-00492.txt
2-09-00081.txt	2-09-00184.txt	2-09-00287.txt	2-09-00390.txt	2-09-00493.txt
2-09-00082.txt	2-09-00185.txt	2-09-00288.txt	2-09-00391.txt	2-09-00494.txt
2-09-00083.txt	2-09-00186.txt	2-09-00289.txt	2-09-00392.txt	2-09-00495.txt
2-09-00084.txt	2-09-00187.txt	2-09-00290.txt	2-09-00393.txt	2-09-00496.txt
2-09-00085.txt	2-09-00188.txt	2-09-00291.txt	2-09-00394.txt	2-09-00497.txt
2-09-00086.txt	2-09-00189.txt	2-09-00292.txt	2-09-00395.txt	2-09-00498.txt
2-09-00087.txt	2-09-00190.txt	2-09-00293.txt	2-09-00396.txt	2-09-00499.txt
2-09-00088.txt	2-09-00191.txt	2-09-00294.txt	2-09-00397.txt	2-09-00500.txt
2-09-00089.txt	2-09-00192.txt	2-09-00295.txt	2-09-00398.txt	2-09-00501.txt
2-09-00090.txt	2-09-00193.txt	2-09-00296.txt	2-09-00399.txt	2-09-00502.txt
2-09-00091.txt	2-09-00194.txt	2-09-00297.txt	2-09-00400.txt	2-09-00503.txt
2-09-00092.txt	2-09-00195.txt	2-09-00298.txt	2-09-00401.txt	2-09-00504.txt
2-09-00093.txt	2-09-00196.txt	2-09-00299.txt	2-09-00402.txt	2-09-00505.txt
2-09-00094.txt	2-09-00197.txt	2-09-00300.txt	2-09-00403.txt	2-09-00506.txt
2-09-00095.txt	2-09-00198.txt	2-09-00301.txt	2-09-00404.txt	2-09-00507.txt
2-09-00096.txt	2-09-00199.txt	2-09-00302.txt	2-09-00405.txt	2-09-00508.txt
2-09-00097.txt	2-09-00200.txt	2-09-00303.txt	2-09-00406.txt	2-09-00509.txt
2-09-00098.txt	2-09-00201.txt	2-09-00304.txt	2-09-00407.txt	2-09-00510.txt
2-09-00099.txt	2-09-00202.txt	2-09-00305.txt	2-09-00408.txt	2-09-00511.txt
2-09-00100.txt	2-09-00203.txt	2-09-00306.txt	2-09-00409.txt	2-09-00512.txt
2-09-00101.txt	2-09-00204.txt	2-09-00307.txt	2-09-00410.txt	
2-09-00102.txt	2-09-00205.txt	2-09-00308.txt	2-09-00411.txt	
2-09-00103.txt	2-09-00206.txt	2-09-00309.txt	2-09-00412.txt	
.				
3-dir-01	3-dir-03	3-dir-05	3-dir-07	3-dir-09
3-dir-02	3-dir-04	3-dir-06	3-dir-08	
./3-dir-01:				
3-01-00001.txt	3-01-00002.txt			
./3-dir-02:				
3-02-00001.txt	3-02-00002.txt	3-02-00003.txt	3-02-00004.txt	
./3-dir-03:				
3-03-00001.txt	3-03-00003.txt	3-03-00005.txt	3-03-00007.txt	
3-03-00002.txt	3-03-00004.txt	3-03-00006.txt	3-03-00008.txt	
./3-dir-04:				
3-04-00001.txt	3-04-00005.txt	3-04-00009.txt	3-04-00013.txt	
3-04-00002.txt	3-04-00006.txt	3-04-00010.txt	3-04-00014.txt	
3-04-00003.txt	3-04-00007.txt	3-04-00011.txt	3-04-00015.txt	
3-04-00004.txt	3-04-00008.txt	3-04-00012.txt	3-04-00016.txt	
./3-dir-05:				
3-05-00001.txt	3-05-00008.txt	3-05-00015.txt	3-05-00022.txt	3-05-00029.txt
3-05-00002.txt	3-05-00009.txt	3-05-00016.txt	3-05-00023.txt	3-05-00030.txt
3-05-00003.txt	3-05-00010.txt	3-05-00017.txt	3-05-00024.txt	3-05-00031.txt
3-05-00004.txt	3-05-00011.txt	3-05-00018.txt	3-05-00025.txt	3-05-00032.txt
3-05-00005.txt	3-05-00012.txt	3-05-00019.txt	3-05-00026.txt	
3-05-00006.txt	3-05-00013.txt	3-05-00020.txt	3-05-00027.txt	
3-05-00007.txt	3-05-00014.txt	3-05-00021.txt	3-05-00028.txt	
./3-dir-06:				
3-06-00001.txt	3-06-00014.txt	3-06-00027.txt	3-06-00040.txt	3-06-00053.txt
3-06-00002.txt	3-06-00015.txt	3-06-00028.txt	3-06-00041.txt	3-06-00054.txt
3-06-00003.txt	3-06-00016.txt	3-06-00029.txt	3-06-00042.txt	3-06-00055.txt
3-06-00004.txt	3-06-00017.txt	3-06-00030.txt	3-06-00043.txt	3-06-00056.txt
3-06-00005.txt	3-06-00018.txt	3-06-00031.txt	3-06-00044.txt	3-06-00057.txt
3-06-00006.txt	3-06-00019.txt	3-06-00032.txt	3-06-00045.txt	3-06-00058.txt
3-06-00007.txt	3-06-00020.txt	3-06-00033.txt	3-06-00046.txt	3-06-00059.txt
3-06-00008.txt	3-06-00021.txt	3-06-00034.txt	3-06-00047.txt	3-06-00060.txt
3-06-00009.txt	3-06-00022.txt	3-06-00035.txt	3-06-00048.txt	3-06-00061.txt





3-09-00051.txt 3-09-00154.txt 3-09-00257.txt 3-09-00360.txt 3-09-00463.txt  
3-09-00052.txt 3-09-00155.txt 3-09-00258.txt 3-09-00361.txt 3-09-00464.txt  
3-09-00053.txt 3-09-00156.txt 3-09-00259.txt 3-09-00362.txt 3-09-00465.txt  
3-09-00054.txt 3-09-00157.txt 3-09-00260.txt 3-09-00363.txt 3-09-00466.txt  
3-09-00055.txt 3-09-00158.txt 3-09-00261.txt 3-09-00364.txt 3-09-00467.txt  
3-09-00056.txt 3-09-00159.txt 3-09-00262.txt 3-09-00365.txt 3-09-00468.txt  
3-09-00057.txt 3-09-00160.txt 3-09-00263.txt 3-09-00366.txt 3-09-00469.txt  
3-09-00058.txt 3-09-00161.txt 3-09-00264.txt 3-09-00367.txt 3-09-00470.txt  
3-09-00059.txt 3-09-00162.txt 3-09-00265.txt 3-09-00368.txt 3-09-00471.txt  
3-09-00060.txt 3-09-00163.txt 3-09-00266.txt 3-09-00369.txt 3-09-00472.txt  
3-09-00061.txt 3-09-00164.txt 3-09-00267.txt 3-09-00370.txt 3-09-00473.txt  
3-09-00062.txt 3-09-00165.txt 3-09-00268.txt 3-09-00371.txt 3-09-00474.txt  
3-09-00063.txt 3-09-00166.txt 3-09-00269.txt 3-09-00372.txt 3-09-00475.txt  
3-09-00064.txt 3-09-00167.txt 3-09-00270.txt 3-09-00373.txt 3-09-00476.txt  
3-09-00065.txt 3-09-00168.txt 3-09-00271.txt 3-09-00374.txt 3-09-00477.txt  
3-09-00066.txt 3-09-00169.txt 3-09-00272.txt 3-09-00375.txt 3-09-00478.txt  
3-09-00067.txt 3-09-00170.txt 3-09-00273.txt 3-09-00376.txt 3-09-00479.txt  
3-09-00068.txt 3-09-00171.txt 3-09-00274.txt 3-09-00377.txt 3-09-00480.txt  
3-09-00069.txt 3-09-00172.txt 3-09-00275.txt 3-09-00378.txt 3-09-00481.txt  
3-09-00070.txt 3-09-00173.txt 3-09-00276.txt 3-09-00379.txt 3-09-00482.txt  
3-09-00071.txt 3-09-00174.txt 3-09-00277.txt 3-09-00380.txt 3-09-00483.txt  
3-09-00072.txt 3-09-00175.txt 3-09-00278.txt 3-09-00381.txt 3-09-00484.txt  
3-09-00073.txt 3-09-00176.txt 3-09-00279.txt 3-09-00382.txt 3-09-00485.txt  
3-09-00074.txt 3-09-00177.txt 3-09-00280.txt 3-09-00383.txt 3-09-00486.txt  
3-09-00075.txt 3-09-00178.txt 3-09-00281.txt 3-09-00384.txt 3-09-00487.txt  
3-09-00076.txt 3-09-00179.txt 3-09-00282.txt 3-09-00385.txt 3-09-00488.txt  
3-09-00077.txt 3-09-00180.txt 3-09-00283.txt 3-09-00386.txt 3-09-00489.txt  
3-09-00078.txt 3-09-00181.txt 3-09-00284.txt 3-09-00387.txt 3-09-00490.txt  
3-09-00079.txt 3-09-00182.txt 3-09-00285.txt 3-09-00388.txt 3-09-00491.txt  
3-09-00080.txt 3-09-00183.txt 3-09-00286.txt 3-09-00389.txt 3-09-00492.txt  
3-09-00081.txt 3-09-00184.txt 3-09-00287.txt 3-09-00390.txt 3-09-00493.txt  
3-09-00082.txt 3-09-00185.txt 3-09-00288.txt 3-09-00391.txt 3-09-00494.txt  
3-09-00083.txt 3-09-00186.txt 3-09-00289.txt 3-09-00392.txt 3-09-00495.txt  
3-09-00084.txt 3-09-00187.txt 3-09-00290.txt 3-09-00393.txt 3-09-00496.txt  
3-09-00085.txt 3-09-00188.txt 3-09-00291.txt 3-09-00394.txt 3-09-00497.txt  
3-09-00086.txt 3-09-00189.txt 3-09-00292.txt 3-09-00395.txt 3-09-00498.txt  
3-09-00087.txt 3-09-00190.txt 3-09-00293.txt 3-09-00396.txt 3-09-00499.txt  
3-09-00088.txt 3-09-00191.txt 3-09-00294.txt 3-09-00397.txt 3-09-00500.txt  
3-09-00089.txt 3-09-00192.txt 3-09-00295.txt 3-09-00398.txt 3-09-00501.txt  
3-09-00090.txt 3-09-00193.txt 3-09-00296.txt 3-09-00399.txt 3-09-00502.txt  
3-09-00091.txt 3-09-00194.txt 3-09-00297.txt 3-09-00400.txt 3-09-00503.txt  
3-09-00092.txt 3-09-00195.txt 3-09-00298.txt 3-09-00401.txt 3-09-00504.txt  
3-09-00093.txt 3-09-00196.txt 3-09-00299.txt 3-09-00402.txt 3-09-00505.txt  
3-09-00094.txt 3-09-00197.txt 3-09-00300.txt 3-09-00403.txt 3-09-00506.txt  
3-09-00095.txt 3-09-00198.txt 3-09-00301.txt 3-09-00404.txt 3-09-00507.txt  
3-09-00096.txt 3-09-00199.txt 3-09-00302.txt 3-09-00405.txt 3-09-00508.txt  
3-09-00097.txt 3-09-00200.txt 3-09-00303.txt 3-09-00406.txt 3-09-00509.txt  
3-09-00098.txt 3-09-00201.txt 3-09-00304.txt 3-09-00407.txt 3-09-00510.txt  
3-09-00099.txt 3-09-00202.txt 3-09-00305.txt 3-09-00408.txt 3-09-00511.txt  
3-09-00100.txt 3-09-00203.txt 3-09-00306.txt 3-09-00409.txt 3-09-00512.txt  
3-09-00101.txt 3-09-00204.txt 3-09-00307.txt 3-09-00410.txt  
3-09-00102.txt 3-09-00205.txt 3-09-00308.txt 3-09-00411.txt  
3-09-00103.txt 3-09-00206.txt 3-09-00309.txt 3-09-00412.txt

0 files deleted

Steps to Create Image fat-16		
Step	Action	Files in Partition FAT12
1	create	1 dirs
Step	Action	Files in Partition FAT16
1	create	2 dirs
Step	Action	Files in Partition FAT32
1	create	3 dirs

## 44 Test Image fat-17

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes  
34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors  
Device Boot Start End Blocks Id System  
/dev/sdd1 128 16511 8192 1 FAT12  
/dev/sdd2 16512 82047 32768 6 FAT16  
/dev/sdd3 82048 213119 65536 b W95 FAT32  
End of partition table

Active Files

..  
V01 V02 V03 V04 V05 V06 V07 V08 V09

./V01:  
V01F01.TXT

./V02:  
V02F01.TXT V02L01

./V02/V02L01:  
V02F02.TXT

./V03:  
V03F01.TXT V03L01

./V03/V03L01:  
V03F02.TXT V03L02

./V03/V03L01/V03L02:  
V03F03.TXT

./V04:  
V04F01.TXT V04L01

./V04/V04L01:  
V04F02.TXT V04L02

./V04/V04L01/V04L02:  
V04F03.TXT V04L03

./V04/V04L01/V04L02/V04L03:  
V04F04.TXT

./V05:  
V05F01.TXT V05L01

./V05/V05L01:  
V05F02.TXT V05L02

./V05/V05L01/V05L02:  
V05F03.TXT V05L03

./V05/V05L01/V05L02/V05L03:  
V05F04.TXT V05L04

./V05/V05L01/V05L02/V05L03/V05L04:  
V05F05.TXT

./V06:  
V06F01.TXT V06L01

./V06/V06L01:  
V06F02.TXT V06L02

./V06/V06L01/V06L02:  
V06F03.TXT V06L03

./V06/V06L01/V06L02/V06L03:  
V06F04.TXT V06L04

./V06/V06L01/V06L02/V06L03/V06L04:  
V06F05.TXT V06L05

./V06/V06L01/V06L02/V06L03/V06L04/V06L05:  
V06F06.TXT

./V07:  
V07F01.TXT V07L01

./V07/V07L01:  
V07F02.TXT V07L02

./V07/V07L01/V07L02:  
V07F03.TXT V07L03

./V07/V07L01/V07L02/V07L03:  
V07F04.TXT V07L04

./V07/V07L01/V07L02/V07L03/V07L04:  
V07F05.TXT V07L05

./V07/V07L01/V07L02/V07L03/V07L04/V07L05:  
V07F06.TXT V07L06

./V07/V07L01/V07L02/V07L03/V07L04/V07L05/V07L06:  
V07F07.TXT

./V08:  
V08F01.TXT V08L01

./V08/V08L01:  
V08F02.TXT V08L02

./V08/V08L01/V08L02:  
V08F03.TXT V08L03

./V08/V08L01/V08L02/V08L03:  
V08F04.TXT V08L04

./V08/V08L01/V08L02/V08L03/V08L04:  
V08F05.TXT V08L05

./V08/V08L01/V08L02/V08L03/V08L04/V08L05:  
V08F06.TXT V08L06

./V08/V08L01/V08L02/V08L03/V08L04/V08L05/V08L06:  
V08F07.TXT V08L07

./V08/V08L01/V08L02/V08L03/V08L04/V08L05/V08L06/V08L07:  
V08F08.TXT

./V09:  
V09F01.TXT V09L01

./V09/V09L01:  
V09F02.TXT V09L02

./V09/V09L01/V09L02:  
V09F03.TXT V09L03

./V09/V09L01/V09L02/V09L03:  
V09F04.TXT V09L04

./V09/V09L01/V09L02/V09L03/V09L04:  
V09F05.TXT V09L05

./V09/V09L01/V09L02/V09L03/V09L04/V09L05:  
V09F06.TXT V09L06



./V09/V09L01/V09L02/V09L03/V09L04/V09L05/V09L06:  
V09F07.TXT V09L07

./V09/V09L01/V09L02/V09L03/V09L04/V09L05/V09L06/V09L07:  
V09F08.TXT V09L08

./V09/V09L01/V09L02/V09L03/V09L04/V09L05/V09L06/V09L07/V09L08:  
V09F09.TXT

..  
W01 W02 W03 W04 W05 W06 W07 W08 W09

./W01:  
W01F01.TXT

./W02:  
W02F01.TXT W02L01

./W02/W02L01:  
W02F02.TXT

./W03:  
W03F01.TXT W03L01

./W03/W03L01:  
W03F02.TXT W03L02

./W03/W03L01/W03L02:  
W03F03.TXT

./W04:  
W04F01.TXT W04L01

./W04/W04L01:  
W04F02.TXT W04L02

./W04/W04L01/W04L02:  
W04F03.TXT W04L03

./W04/W04L01/W04L02/W04L03:  
W04F04.TXT

./W05:  
W05F01.TXT W05L01

./W05/W05L01:  
W05F02.TXT W05L02

./W05/W05L01/W05L02:  
W05F03.TXT W05L03

./W05/W05L01/W05L02/W05L03:  
W05F04.TXT W05L04

./W05/W05L01/W05L02/W05L03/W05L04:  
W05F05.TXT

./W06:  
W06F01.TXT W06L01

./W06/W06L01:  
W06F02.TXT W06L02

./W06/W06L01/W06L02:  
W06F03.TXT W06L03

./W06/W06L01/W06L02/W06L03:  
W06F04.TXT W06L04

./W06/W06L01/W06L02/W06L03/W06L04:  
W06F05.TXT W06L05

./W06/W06L01/W06L02/W06L03/W06L04/W06L05:  
W06F06.TXT

./W07:  
W07F01.TXT W07L01

./W07/W07L01:  
W07F02.TXT W07L02

./W07/W07L01/W07L02:  
W07F03.TXT W07L03

./W07/W07L01/W07L02/W07L03:  
W07F04.TXT W07L04

./W07/W07L01/W07L02/W07L03/W07L04:  
W07F05.TXT W07L05

./W07/W07L01/W07L02/W07L03/W07L04/W07L05:  
W07F06.TXT W07L06

./W07/W07L01/W07L02/W07L03/W07L04/W07L05/W07L06:  
W07F07.TXT

./W08:  
W08F01.TXT W08L01

./W08/W08L01:  
W08F02.TXT W08L02

./W08/W08L01/W08L02:  
W08F03.TXT W08L03

./W08/W08L01/W08L02/W08L03:  
W08F04.TXT W08L04

./W08/W08L01/W08L02/W08L03/W08L04:  
W08F05.TXT W08L05

./W08/W08L01/W08L02/W08L03/W08L04/W08L05:  
W08F06.TXT W08L06

./W08/W08L01/W08L02/W08L03/W08L04/W08L05/W08L06:  
W08F07.TXT W08L07

./W08/W08L01/W08L02/W08L03/W08L04/W08L05/W08L06/W08L07:  
W08F08.TXT

./W09:  
W09F01.TXT W09L01

./W09/W09L01:  
W09F02.TXT W09L02

./W09/W09L01/W09L02:  
W09F03.TXT W09L03

./W09/W09L01/W09L02/W09L03:  
W09F04.TXT W09L04

./W09/W09L01/W09L02/W09L03/W09L04:  
W09F05.TXT W09L05

./W09/W09L01/W09L02/W09L03/W09L04/W09L05:  
W09F06.TXT W09L06

./W09/W09L01/W09L02/W09L03/W09L04/W09L05/W09L06:  
W09F07.TXT W09L07

./W09/W09L01/W09L02/W09L03/W09L04/W09L05/W09L06/W09L07:  
W09F08.TXT W09L08

./W09/W09L01/W09L02/W09L03/W09L04/W09L05/W09L06/W09L07/W09L08:  
W09F09.TXT  
.:  
X01 X02 X03 X04 X05 X06 X07 X08 X09

./X01:  
X01F01.TXT

./X02:  
X02F01.TXT X02L01

./X02/X02L01:  
X02F02.TXT

./X03:  
X03F01.TXT X03L01

./X03/X03L01:  
X03F02.TXT X03L02

./X03/X03L01/X03L02:  
X03F03.TXT

./X04:  
X04F01.TXT X04L01

./X04/X04L01:  
X04F02.TXT X04L02

./X04/X04L01/X04L02:  
X04F03.TXT X04L03

./X04/X04L01/X04L02/X04L03:  
X04F04.TXT

./X05:  
X05F01.TXT X05L01

./X05/X05L01:  
X05F02.TXT X05L02

./X05/X05L01/X05L02:  
X05F03.TXT X05L03

./X05/X05L01/X05L02/X05L03:  
X05F04.TXT X05L04

./X05/X05L01/X05L02/X05L03/X05L04:  
X05F05.TXT

./X06:  
X06F01.TXT X06L01

./X06/X06L01:  
X06F02.TXT X06L02

./X06/X06L01/X06L02:  
X06F03.TXT X06L03

./X06/X06L01/X06L02/X06L03:  
X06F04.TXT X06L04

./X06/X06L01/X06L02/X06L03/X06L04:

X06F05.TXT X06L05

./X06/X06L01/X06L02/X06L03/X06L04/X06L05:  
X06F06.TXT

./X07:  
X07F01.TXT X07L01

./X07/X07L01:  
X07F02.TXT X07L02

./X07/X07L01/X07L02:  
X07F03.TXT X07L03

./X07/X07L01/X07L02/X07L03:  
X07F04.TXT X07L04

./X07/X07L01/X07L02/X07L03/X07L04:  
X07F05.TXT X07L05

./X07/X07L01/X07L02/X07L03/X07L04/X07L05:  
X07F06.TXT X07L06

./X07/X07L01/X07L02/X07L03/X07L04/X07L05/X07L06:  
X07F07.TXT

./X08:  
X08F01.TXT X08L01

./X08/X08L01:  
X08F02.TXT X08L02

./X08/X08L01/X08L02:  
X08F03.TXT X08L03

./X08/X08L01/X08L02/X08L03:  
X08F04.TXT X08L04

./X08/X08L01/X08L02/X08L03/X08L04:  
X08F05.TXT X08L05

./X08/X08L01/X08L02/X08L03/X08L04/X08L05:  
X08F06.TXT X08L06

./X08/X08L01/X08L02/X08L03/X08L04/X08L05/X08L06:  
X08F07.TXT X08L07

./X08/X08L01/X08L02/X08L03/X08L04/X08L05/X08L06/X08L07:  
X08F08.TXT

./X09:  
X09F01.TXT X09L01

./X09/X09L01:  
X09F02.TXT X09L02

./X09/X09L01/X09L02:  
X09F03.TXT X09L03

./X09/X09L01/X09L02/X09L03:  
X09F04.TXT X09L04

./X09/X09L01/X09L02/X09L03/X09L04:  
X09F05.TXT X09L05

./X09/X09L01/X09L02/X09L03/X09L04/X09L05:  
X09F06.TXT X09L06

./X09/X09L01/X09L02/X09L03/X09L04/X09L05/X09L06:

X09F07.TXT X09L07

./X09/X09L01/X09L02/X09L03/X09L04/X09L05/X09L06/X09L07:  
X09F08.TXT X09L08

./X09/X09L01/X09L02/X09L03/X09L04/X09L05/X09L06/X09L07/X09L08:  
X09F09.TXT  
0 files deleted

Steps to Create Image fat-17		
Step	Action	Files in Partition FAT12
1	mkdir	V01
1	mkdir	V02
1	mkdir	V02/V02L01
1	mkdir	V03
1	mkdir	V03/V03L01
1	mkdir	V03/V03L01/V03L02
1	mkdir	V04
1	mkdir	V04/V04L01
1	mkdir	V04/V04L01/V04L02
1	mkdir	V04/V04L01/V04L02/V04L03
1	mkdir	V05
1	mkdir	V05/V05L01
1	mkdir	V05/V05L01/V05L02
1	mkdir	V05/V05L01/V05L02/V05L03
1	mkdir	V05/V05L01/V05L02/V05L03/V05L04
1	mkdir	V06
1	mkdir	V06/V06L01
1	mkdir	V06/V06L01/V06L02
1	mkdir	V06/V06L01/V06L02/V06L03
1	mkdir	V06/V06L01/V06L02/V06L03/V06L04
1	mkdir	V06/V06L01/V06L02/V06L03/V06L04/V06L05
1	mkdir	V07
1	mkdir	V07/V07L01
1	mkdir	V07/V07L01/V07L02
1	mkdir	V07/V07L01/V07L02/V07L03
1	mkdir	V07/V07L01/V07L02/V07L03/V07L04
1	mkdir	V07/V07L01/V07L02/V07L03/V07L04/V07L05
1	mkdir	V07/V07L01/V07L02/V07L03/V07L04/V07L05/V07L06
1	mkdir	V08
1	mkdir	V08/V08L01
1	mkdir	V08/V08L01/V08L02
1	mkdir	V08/V08L01/V08L02/V08L03
1	mkdir	V08/V08L01/V08L02/V08L03/V08L04
1	mkdir	V08/V08L01/V08L02/V08L03/V08L04/V08L05
1	mkdir	V08/V08L01/V08L02/V08L03/V08L04/V08L05/V08L06
1	mkdir	V08/V08L01/V08L02/V08L03/V08L04/V08L05/V08L06/V08L07
1	mkdir	V09
1	mkdir	V09/V09L01
1	mkdir	V09/V09L01/V09L02
1	mkdir	V09/V09L01/V09L02/V09L03
1	mkdir	V09/V09L01/V09L02/V09L03/V09L04
1	mkdir	V09/V09L01/V09L02/V09L03/V09L04/V09L05
1	mkdir	V09/V09L01/V09L02/V09L03/V09L04/V09L05/V09L06
1	mkdir	V09/V09L01/V09L02/V09L03/V09L04/V09L05/V09L06/V09L07
1	mkdir	V09/V09L01/V09L02/V09L03/V09L04/V09L05/V09L06/V09L07/V09L08
1	create	V01/V01F01.TXT
1	create	V02/V02F01.TXT
1	create	V02/V02L01/V02F02.TXT
1	create	V03/V03F01.TXT
1	create	V03/V03L01/V03F02.TXT
1	create	V03/V03L01/V03L02/V03F03.TXT
1	create	V04/V04F01.TXT
1	create	V04/V04L01/V04F02.TXT
1	create	V04/V04L01/V04L02/V04F03.TXT
1	create	V04/V04L01/V04L02/V04L03/V04F04.TXT

Steps to Create Image fat-17		
1	create	V05/V05F01.TXT
1	create	V05/V05L01/V05F02.TXT
1	create	V05/V05L01/V05L02/V05F03.TXT
1	create	V05/V05L01/V05L02/V05L03/V05F04.TXT
1	create	V05/V05L01/V05L02/V05L03/V05L04/V05F05.TXT
1	create	V06/V06F01.TXT
1	create	V06/V06L01/V06F02.TXT
1	create	V06/V06L01/V06L02/V06F03.TXT
1	create	V06/V06L01/V06L02/V06L03/V06F04.TXT
1	create	V06/V06L01/V06L02/V06L03/V06L04/V06F05.TXT
1	create	V06/V06L01/V06L02/V06L03/V06L04/V06L05/V06F06.TXT
1	create	V07/V07F01.TXT
1	create	V07/V07L01/V07F02.TXT
1	create	V07/V07L01/V07L02/V07F03.TXT
1	create	V07/V07L01/V07L02/V07L03/V07F04.TXT
1	create	V07/V07L01/V07L02/V07L03/V07L04/V07F05.TXT
1	create	V07/V07L01/V07L02/V07L03/V07L04/V07L05/V07F06.TXT
1	create	V07/V07L01/V07L02/V07L03/V07L04/V07L05/V07L06/V07F07.TXT
1	create	V08/V08F01.TXT
1	create	V08/V08L01/V08F02.TXT
1	create	V08/V08L01/V08L02/V08F03.TXT
1	create	V08/V08L01/V08L02/V08L03/V08F04.TXT
1	create	V08/V08L01/V08L02/V08L03/V08L04/V08F05.TXT
1	create	V08/V08L01/V08L02/V08L03/V08L04/V08L05/V08F06.TXT
1	create	V08/V08L01/V08L02/V08L03/V08L04/V08L05/V08L06/V08F07.TXT
1	create	V08/V08L01/V08L02/V08L03/V08L04/V08L05/V08L06/V08L07/V08F08.TXT
1	create	V09/V09F01.TXT
1	create	V09/V09L01/V09F02.TXT
1	create	V09/V09L01/V09L02/V09F03.TXT
1	create	V09/V09L01/V09L02/V09L03/V09F04.TXT
1	create	V09/V09L01/V09L02/V09L03/V09L04/V09F05.TXT
1	create	V09/V09L01/V09L02/V09L03/V09L04/V09L05/V09F06.TXT
1	create	V09/V09L01/V09L02/V09L03/V09L04/V09L05/V09L06/V09F07.TXT
1	create	V09/V09L01/V09L02/V09L03/V09L04/V09L05/V09L06/V09L07/V09F08.TXT
1	create	V09/V09L01/V09L02/V09L03/V09L04/V09L05/V09L06/V09L07/V09L08/V09F09.TXT
Step	Action	Files in Partition FAT16
1	mkdir	W01
1	mkdir	W02
1	mkdir	W02/W02L01
1	mkdir	W03
1	mkdir	W03/W03L01
1	mkdir	W03/W03L01/W03L02
1	mkdir	W04
1	mkdir	W04/W04L01
1	mkdir	W04/W04L01/W04L02
1	mkdir	W04/W04L01/W04L02/W04L03
1	mkdir	W05
1	mkdir	W05/W05L01
1	mkdir	W05/W05L01/W05L02
1	mkdir	W05/W05L01/W05L02/W05L03
1	mkdir	W05/W05L01/W05L02/W05L03/W05L04
1	mkdir	W06
1	mkdir	W06/W06L01
1	mkdir	W06/W06L01/W06L02
1	mkdir	W06/W06L01/W06L02/W06L03
1	mkdir	W06/W06L01/W06L02/W06L03/W06L04
1	mkdir	W06/W06L01/W06L02/W06L03/W06L04/W06L05
1	mkdir	W07
1	mkdir	W07/W07L01
1	mkdir	W07/W07L01/W07L02
1	mkdir	W07/W07L01/W07L02/W07L03
1	mkdir	W07/W07L01/W07L02/W07L03/W07L04
1	mkdir	W07/W07L01/W07L02/W07L03/W07L04/W07L05
1	mkdir	W07/W07L01/W07L02/W07L03/W07L04/W07L05/W07L06

Steps to Create Image fat-17		
1	mkdir	W08
1	mkdir	W08/W08L01
1	mkdir	W08/W08L01/W08L02
1	mkdir	W08/W08L01/W08L02/W08L03
1	mkdir	W08/W08L01/W08L02/W08L03/W08L04
1	mkdir	W08/W08L01/W08L02/W08L03/W08L04/W08L05
1	mkdir	W08/W08L01/W08L02/W08L03/W08L04/W08L05/W08L06
1	mkdir	W08/W08L01/W08L02/W08L03/W08L04/W08L05/W08L06/W08L07
1	mkdir	W09
1	mkdir	W09/W09L01
1	mkdir	W09/W09L01/W09L02
1	mkdir	W09/W09L01/W09L02/W09L03
1	mkdir	W09/W09L01/W09L02/W09L03/W09L04
1	mkdir	W09/W09L01/W09L02/W09L03/W09L04/W09L05
1	mkdir	W09/W09L01/W09L02/W09L03/W09L04/W09L05/W09L06
1	mkdir	W09/W09L01/W09L02/W09L03/W09L04/W09L05/W09L06/W09L07
1	mkdir	W09/W09L01/W09L02/W09L03/W09L04/W09L05/W09L06/W09L07/W09L08
1	create	W01/W01F01.TXT
1	create	W02/W02F01.TXT
1	create	W02/W02L01/W02F02.TXT
1	create	W03/W03F01.TXT
1	create	W03/W03L01/W03F02.TXT
1	create	W03/W03L01/W03L02/W03F03.TXT
1	create	W04/W04F01.TXT
1	create	W04/W04L01/W04F02.TXT
1	create	W04/W04L01/W04L02/W04F03.TXT
1	create	W04/W04L01/W04L02/W04L03/W04F04.TXT
1	create	W05/W05F01.TXT
1	create	W05/W05L01/W05F02.TXT
1	create	W05/W05L01/W05L02/W05F03.TXT
1	create	W05/W05L01/W05L02/W05L03/W05F04.TXT
1	create	W05/W05L01/W05L02/W05L03/W05L04/W05F05.TXT
1	create	W06/W06F01.TXT
1	create	W06/W06L01/W06F02.TXT
1	create	W06/W06L01/W06L02/W06F03.TXT
1	create	W06/W06L01/W06L02/W06L03/W06F04.TXT
1	create	W06/W06L01/W06L02/W06L03/W06L04/W06F05.TXT
1	create	W06/W06L01/W06L02/W06L03/W06L04/W06L05/W06F06.TXT
1	create	W07/W07F01.TXT
1	create	W07/W07L01/W07F02.TXT
1	create	W07/W07L01/W07L02/W07F03.TXT
1	create	W07/W07L01/W07L02/W07L03/W07F04.TXT
1	create	W07/W07L01/W07L02/W07L03/W07L04/W07F05.TXT
1	create	W07/W07L01/W07L02/W07L03/W07L04/W07L05/W07F06.TXT
1	create	W07/W07L01/W07L02/W07L03/W07L04/W07L05/W07L06/W07F07.TXT
1	create	W08/W08F01.TXT
1	create	W08/W08L01/W08F02.TXT
1	create	W08/W08L01/W08L02/W08F03.TXT
1	create	W08/W08L01/W08L02/W08L03/W08F04.TXT
1	create	W08/W08L01/W08L02/W08L03/W08L04/W08F05.TXT
1	create	W08/W08L01/W08L02/W08L03/W08L04/W08L05/W08F06.TXT
1	create	W08/W08L01/W08L02/W08L03/W08L04/W08L05/W08L06/W08F07.TXT
1	create	W08/W08L01/W08L02/W08L03/W08L04/W08L05/W08L06/W08L07/W08F08.TXT
1	create	W09/W09F01.TXT
1	create	W09/W09L01/W09F02.TXT
1	create	W09/W09L01/W09L02/W09F03.TXT
1	create	W09/W09L01/W09L02/W09L03/W09F04.TXT
1	create	W09/W09L01/W09L02/W09L03/W09L04/W09F05.TXT
1	create	W09/W09L01/W09L02/W09L03/W09L04/W09L05/W09F06.TXT
1	create	W09/W09L01/W09L02/W09L03/W09L04/W09L05/W09L06/W09F07.TXT
1	create	W09/W09L01/W09L02/W09L03/W09L04/W09L05/W09L06/W09L07/W09F08.TXT
1	create	W09/W09L01/W09L02/W09L03/W09L04/W09L05/W09L06/W09L07/W09L08/W09F09.TXT
Step	Action	Files in Partition FAT32
1	mkdir	X01

Steps to Create Image fat-17		
1	mkdir	X02
1	mkdir	X02/X02L01
1	mkdir	X03
1	mkdir	X03/X03L01
1	mkdir	X03/X03L01/X03L02
1	mkdir	X04
1	mkdir	X04/X04L01
1	mkdir	X04/X04L01/X04L02
1	mkdir	X04/X04L01/X04L02/X04L03
1	mkdir	X05
1	mkdir	X05/X05L01
1	mkdir	X05/X05L01/X05L02
1	mkdir	X05/X05L01/X05L02/X05L03
1	mkdir	X05/X05L01/X05L02/X05L03/X05L04
1	mkdir	X06
1	mkdir	X06/X06L01
1	mkdir	X06/X06L01/X06L02
1	mkdir	X06/X06L01/X06L02/X06L03
1	mkdir	X06/X06L01/X06L02/X06L03/X06L04
1	mkdir	X06/X06L01/X06L02/X06L03/X06L04/X06L05
1	mkdir	X07
1	mkdir	X07/X07L01
1	mkdir	X07/X07L01/X07L02
1	mkdir	X07/X07L01/X07L02/X07L03
1	mkdir	X07/X07L01/X07L02/X07L03/X07L04
1	mkdir	X07/X07L01/X07L02/X07L03/X07L04/X07L05
1	mkdir	X07/X07L01/X07L02/X07L03/X07L04/X07L05/X07L06
1	mkdir	X08
1	mkdir	X08/X08L01
1	mkdir	X08/X08L01/X08L02
1	mkdir	X08/X08L01/X08L02/X08L03
1	mkdir	X08/X08L01/X08L02/X08L03/X08L04
1	mkdir	X08/X08L01/X08L02/X08L03/X08L04/X08L05
1	mkdir	X08/X08L01/X08L02/X08L03/X08L04/X08L05/X08L06
1	mkdir	X08/X08L01/X08L02/X08L03/X08L04/X08L05/X08L06/X08L07
1	mkdir	X09
1	mkdir	X09/X09L01
1	mkdir	X09/X09L01/X09L02
1	mkdir	X09/X09L01/X09L02/X09L03
1	mkdir	X09/X09L01/X09L02/X09L03/X09L04
1	mkdir	X09/X09L01/X09L02/X09L03/X09L04/X09L05
1	mkdir	X09/X09L01/X09L02/X09L03/X09L04/X09L05/X09L06
1	mkdir	X09/X09L01/X09L02/X09L03/X09L04/X09L05/X09L06/X09L07
1	mkdir	X09/X09L01/X09L02/X09L03/X09L04/X09L05/X09L06/X09L07/X09L08
1	create	X01/X01F01.TXT
1	create	X02/X02F01.TXT
1	create	X02/X02L01/X02F02.TXT
1	create	X03/X03F01.TXT
1	create	X03/X03L01/X03F02.TXT
1	create	X03/X03L01/X03L02/X03F03.TXT
1	create	X04/X04F01.TXT
1	create	X04/X04L01/X04F02.TXT
1	create	X04/X04L01/X04L02/X04F03.TXT
1	create	X04/X04L01/X04L02/X04L03/X04F04.TXT
1	create	X05/X05F01.TXT
1	create	X05/X05L01/X05F02.TXT
1	create	X05/X05L01/X05L02/X05F03.TXT
1	create	X05/X05L01/X05L02/X05L03/X05F04.TXT
1	create	X05/X05L01/X05L02/X05L03/X05L04/X05F05.TXT
1	create	X06/X06F01.TXT
1	create	X06/X06L01/X06F02.TXT
1	create	X06/X06L01/X06L02/X06F03.TXT
1	create	X06/X06L01/X06L02/X06L03/X06F04.TXT
1	create	X06/X06L01/X06L02/X06L03/X06L04/X06F05.TXT



Steps to Create Image fat-17		
1	create	X06/X06L01/X06L02/X06L03/X06L04/X06L05/X06F06.TXT
1	create	X07/X07F01.TXT
1	create	X07/X07L01/X07F02.TXT
1	create	X07/X07L01/X07L02/X07F03.TXT
1	create	X07/X07L01/X07L02/X07L03/X07F04.TXT
1	create	X07/X07L01/X07L02/X07L03/X07L04/X07F05.TXT
1	create	X07/X07L01/X07L02/X07L03/X07L04/X07L05/X07F06.TXT
1	create	X07/X07L01/X07L02/X07L03/X07L04/X07L05/X07L06/X07F07.TXT
1	create	X08/X08F01.TXT
1	create	X08/X08L01/X08F02.TXT
1	create	X08/X08L01/X08L02/X08F03.TXT
1	create	X08/X08L01/X08L02/X08L03/X08F04.TXT
1	create	X08/X08L01/X08L02/X08L03/X08L04/X08F05.TXT
1	create	X08/X08L01/X08L02/X08L03/X08L04/X08L05/X08F06.TXT
1	create	X08/X08L01/X08L02/X08L03/X08L04/X08L05/X08L06/X08F07.TXT
1	create	X08/X08L01/X08L02/X08L03/X08L04/X08L05/X08L06/X08L07/X08F08.TXT
1	create	X09/X09F01.TXT
1	create	X09/X09L01/X09F02.TXT
1	create	X09/X09L01/X09L02/X09F03.TXT
1	create	X09/X09L01/X09L02/X09L03/X09F04.TXT
1	create	X09/X09L01/X09L02/X09L03/X09L04/X09F05.TXT
1	create	X09/X09L01/X09L02/X09L03/X09L04/X09L05/X09F06.TXT
1	create	X09/X09L01/X09L02/X09L03/X09L04/X09L05/X09L06/X09F07.TXT
1	create	X09/X09L01/X09L02/X09L03/X09L04/X09L05/X09L06/X09L07/X09F08.TXT
1	create	X09/X09L01/X09L02/X09L03/X09L04/X09L05/X09L06/X09L07/X09L08/X09F09.TXT

## 45 Test Image ntfs-01

DFR-01. Recover one non-fragmented file.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		61	586941	293440+	7	HPFS/NTFS

1 files deleted

Deleted files (1)			
Name	Size	F-Hd	F-Bks
Bunda.txt	4296 (8+200)	1	7

MAC times just before file deletion

File: `Bunda.txt`

Access: 1999-01-02 03:04:00.000000000 -0500

Modify: 2000-02-29 13:14:00.000000000 -0500

Change: 2012-02-03 10:12:59.674880000 -0500

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ntfs-01

CASE ntfs-01 delete time for step 3 Fri 02/03/2012 10:25 AM

===== Run step 3 =====

ACTION (delete): Bunda.txt

Steps to Create Image ntfs-01		
Step	Action	Files in Partition NTFS
1	create	Arcturus.txt Bunda.txt Castor.txt
2	set date/time	Arcturus.txt Bunda.txt Castor.txt
3	delete	Bunda.txt

No overwrites

File: Bunda.txt 8 8  
Summary: 1 1 0 0

Metadata available  
ntfs-01 Metadata found 1 files, not found 0, total 1 deleted files  
Metadata available for all deleted files

#### Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2
74285 - 74292	Arcturus	Arcturus
107005 - 107012	Bunda	Bunda
107013 - 107013	TAIL/Bunda	TAIL/Bunda
139773 - 139780	Castor	Castor

Sector List	
Arcturus.txt	74285 - 74292
Bunda.txt	107005 - 107012
Castor.txt	139773 - 139780

## 46 Test Image ntfs-01-recycle

DFR-01. Recover one non-fragmented file.

Partition Table Layout  
Disk /dev/sdd: 1073 MB, 1073742336 bytes  
65 heads, 26 sectors/track, 1240 cylinders, total 2097153 sectors  
Device Boot Start End Blocks Id System  
/dev/sdd1 128 614527 307200 7 HPFS/NTFS

1 files deleted

Deleted files (1)			
Name	Size	F-Hd	F-Bks
Bunda.txt	4296 (8+200)	1	7

MAC times just before file deletion

File: `Bunda.txt`  
Access: 1999-01-02 03:04:00.000000000 -0500  
Modify: 2000-02-29 13:14:00.000000000 -0500  
Change: 2012-03-28 14:50:37.485506000 -0400

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ntfs-01-recycle  
===== Run step 3 =====  
ACTION (delete): Bunda.txt

Steps to Create Image ntfs-01-recycle		
Step	Action	Files in Partition NTFS
1	create	Arcturus.txt Bunda.txt Castor.txt
2	set date/time	Arcturus.txt Bunda.txt Castor.txt
3	delete	Bunda.txt

No overwrites

File: Bunda.txt 8 8  
Summary: 1 1 0 0

Metadata available  
 ntfs-01-recycle Metadata found 1 files, not found 0, total 1 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2
307820 - 307827	Arcturus	Arcturus
311912 - 311919	Bunda	Bunda
311920 - 311920	TAIL/Bunda	TAIL/Bunda
316008 - 316015	Castor	Castor

Sector List	
Arcturus.txt	307820 - 307827
Bunda.txt	311912 - 311919
Castor.txt	316008 - 316015

## 47 Test Image ntfs-02

DFR-02. Recover file with two fragments.

Partition Table Layout  
 Disk /dev/sdd: 1073 MB, 1073742336 bytes  
 34 heads, 61 sectors/track, 1011 cylinders, total 2097153 sectors  
 Device Boot Start End Blocks Id System  
 /dev/sdd1 61 586941 293440+ 7 HPFS/NTFS

1 files deleted

Deleted files (1)			
Name	Size	F-Hd	F-Bks
Bunda.txt	8192 (16+0)	1	15

MAC times just before file deletion  
 File: `Bunda.txt`  
 Access: 1999-01-02 03:04:00.000000000 -0500  
 Modify: 2000-02-29 13:14:00.000000000 -0500  
 Change: 2012-02-03 12:02:41.499321000 -0500

File delete times:  
 Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ntfs-02  
 CASE ntfs-02 delete time for step 5 Fri 02/03/2012 12:11 PM  
 ===== Run step 5 =====  
 ACTION (delete): Bunda.txt

Steps to Create Image ntfs-02		
Step	Action	Files in Partition NTFS
1	create	Arcturus.txt Bunda.txt Castor.txt
2	append	Bunda.txt
3	create	Duhr.TXT
4	set date/time	Arcturus.txt Bunda.txt Castor.txt Duhr.TXT
5	delete	Bunda.txt

No overwrites

File: Bunda.txt 16 16  
 Summary: 1 1 0 0

Metadata available  
 ntfs-02 Metadata found 1 files, not found 0, total 1 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 4				
Sectors	Step 1	Step 2	Step 3	Step 4
109245 - 109252	Arcturus	Arcturus	Arcturus	Arcturus
109253 - 109260	Bunda	Bunda	Bunda	Bunda
109261 - 109268	Castor	Castor	Castor	Castor
109269 - 109276	empty	Bunda	Bunda	Bunda
109277 - 109284	empty	empty	Duhr	Duhr
293565 - 293565	metadata	metadata	Duhr	Duhr
293611 - 293611	Arcturus	Arcturus	Arcturus	Arcturus
293619 - 293619	Bunda	Bunda	Bunda	Bunda
293627 - 293627	Castor	Castor	Castor	Castor

Sector List	
Arcturus.txt	109245 - 109252, 293611 - 293611
Bunda.txt	109253 - 109260, 109269 - 109276, 293619 - 293619
Castor.txt	109261 - 109268, 293627 - 293627
Duhr.TXT	109277 - 109284, 293565 - 293565

## 48 Test Image ntfs-03

DFR-03. Recover file with multiple fragments.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes  
 255 heads, 63 sectors/track, 130 cylinders, total 2097153 sectors  
 Device Boot Start End Blocks Id System  
 /dev/sdd1 128 2091135 1045504 7 HPFS/NTFS

1 files deleted

Deleted files (1)			
Name	Size	F-Hd	F-Bks
Bunda.txt	2107392 (4116+0)	1	4115

MAC times just before file deletion

File: `Bunda.txt`  
 Access: 1999-01-02 03:04:00.000000000 -0500  
 Modify: 2000-02-29 13:14:00.000000000 -0500  
 Change: 2011-11-26 21:41:55.314831000 -0500

File delete times:

Times: /Volumes/CFTT/df/df-setup/ntfs-delete-times.txt Case ntfs-03  
 CASE ntfs-03 delete time for step 9 Sat 11/26/2011 09:56 PM  
 ===== Run step 9 =====  
 ACTION (delete): Bunda.txt

Steps to Create Image ntfs-03		
Step	Action	Files in Partition NTFS
1	create	Arcturus.txt Bunda.txt Castor.txt
2	append	Bunda.txt
3	create	Duhr.TXT
4	append	Bunda.txt
5	create	Eltanin.txt
6	append	Bunda.txt
7	create	Furud.txt
8	set date/time	Arcturus.txt Bunda.txt Castor.txt Duhr.TXT

Steps to Create Image ntfs-03		
9	delete	Bunda.txt

No overwrites

File: Bunda.txt 4116 4116

Summary: 1 1 0 0

Metadata available

ntfs-03 Metadata found 1 files, not found 0, total 1 deleted files

Metadata available for all deleted files

Layout History

Layout for Steps 1 through 5					
Sectors	Step 1	Step 2	Step 3	Step 4	Step 5
958504 - 958507	Arcturus	Arcturus	Arcturus	Arcturus	Arcturus
958508 - 958516	empty	Bunda	Bunda	Bunda	Bunda
958517 - 958520	empty	empty	Duhr	Duhr	Duhr
958521 - 958527	empty	empty	empty	Bunda	Bunda
1002177 - 1002180	Bunda	Bunda	Bunda	Bunda	Bunda
1002181 - 1006271	empty	Bunda	Bunda	Bunda	Bunda
1006272 - 1006275	Castor	Castor	Castor	Castor	Castor
1006276 - 1006276	empty	empty	empty	Bunda	Bunda
1006277 - 1006280	empty	empty	empty	empty	Eltanin
1006281 - 1006284	empty	empty	empty	empty	empty
1006285 - 1006288	empty	empty	empty	empty	empty

Layout for Steps 6 through 8			
Sectors	Step 6	Step 7	Step 8
958504 - 958507	Arcturus	Arcturus	Arcturus
958508 - 958516	Bunda	Bunda	Bunda
958517 - 958520	Duhr	Duhr	Duhr
958521 - 958527	Bunda	Bunda	Bunda
1002177 - 1002180	Bunda	Bunda	Bunda
1002181 - 1006271	Bunda	Bunda	Bunda
1006272 - 1006275	Castor	Castor	Castor
1006276 - 1006276	Bunda	Bunda	Bunda
1006277 - 1006280	Eltanin	Eltanin	Eltanin
1006281 - 1006284	Bunda	Bunda	Bunda
1006285 - 1006288	empty	Furud	Furud

Sector List	
Arcturus.txt	958504 - 958507
Bunda.txt	958508 - 958516 958521 - 958527 1002177 - 1006271 1006276 - 1006276 1006281 - 1006284 ... + 0 more
Castor.txt	1006272 - 1006275
Duhr.TXT	958517 - 958520
Eltanin.txt	1006277 - 1006280
Furud.txt	1006285 - 1006288

## 49 Test Image ntfs-04

DFR-04. Recover several non-fragmented files with non-ASCII file names.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

129 heads, 39 sectors/track, 416 cylinders, total 2097153 sectors

Device Boot Start End Blocks Id System  
 /dev/sdd1 128 409727 204800 7 HPFS/NTFS

12 files deleted

Deleted files (12)			
Name	Size	F-Hd	F-Bks
/tmp/dfr-04/Beijing.txt	2048 (4+0)	1	3
/tmp/dfr-04/Hummus.txt	2048 (4+0)	1	3
/tmp/dfr-04/Mitsubishi-h.txt	2048 (4+0)	1	3
/tmp/dfr-04/Mitsubishi-k.txt	2048 (4+0)	1	3
/tmp/dfr-04/Naan.txt	2048 (4+0)	1	3
/tmp/dfr-04/Pakora.txt	2048 (4+0)	1	3
/tmp/dfr-04/Seoul.txt	2048 (4+0)	1	3
/tmp/dfr-04/Tagine.txt	2048 (4+0)	1	3
/tmp/dfr-04/Tea.txt	2048 (4+0)	1	3
/tmp/dfr-04/Tokyo.txt	2048 (4+0)	1	3
/tmp/dfr-04/Vessel.txt	2048 (4+0)	1	3
/tmp/dfr-04/Walnut.txt	2048 (4+0)	1	3

MAC times just before file deletion

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ntfs-04

CASE ntfs-04 delete time for step 3 Thu 01/19/2012 05:53 PM

==== Run step 3 =====

ACTION (delete): नान.txt

ACTION (delete): پکوڑا.txt

ACTION (delete): 서울.txt

ACTION (delete): گردو.txt

ACTION (delete): पनीर.txt

ACTION (delete): طاجين.txt

ACTION (delete): чай.txt

ACTION (delete): ミツビシ.txt

ACTION (delete): みつびし.txt

ACTION (delete): Gefäß.txt

ACTION (delete): 北京.txt

ACTION (delete): 東京.txt

Steps to Create Image ntfs-04		
Step	Action	Files in Partition NTFS
1	create	/tmp/Naan.txt => नान.txt)
1	create	/tmp/Chapati.txt => चपाती.txt)
1	create	/tmp/Pakora.txt => پکوڑا.txt)
1	create	/tmp/Gulab_jamun.txt => گلاب جامن.txt)
1	create	/tmp/Seoul.txt => 서울.txt)
1	create	/tmp/Korea.txt => 한국.txt)
1	create	/tmp/Kabob.txt => چلوکیاب.txt)
1	create	/tmp/Walnut.txt => گردو.txt)
1	create	/tmp/Falafel.txt => لؤلؤء.txt)
1	create	/tmp/Hummus.txt => حمص.txt)
1	create	/tmp/Couscous.txt => كسكس.txt)
1	create	/tmp/Tagine.txt => طاجين.txt)
1	create	/tmp/Tea.txt => чай.txt)
1	create	/tmp/Cheese.txt => сыр.txt)
1	create	/tmp/Mitsubishi-k.txt => ミツビシ.txt)
1	create	/tmp/Mitsubishi-h.txt => みつびし.txt)
1	create	/tmp/Sweets.txt => Süßigkeiten.txt)
1	create	/tmp/Vessel.txt => Gefäß.txt)
1	create	/tmp/Beijing.txt => 北京.txt)
1	create	/tmp/China.txt => 中國.txt)
1	create	/tmp/Japan.txt => 日本.txt)
1	create	/tmp/Tokyo.txt => 東京.txt)

Steps to Create Image ntfs-04		
1	create	/tmp/Subaru-k.txt => スバル.txt)
1	create	/tmp/Subaru-h.txt => すばる.txt)
2	set date/time	चपाती.txt नान.txt
2	set date/time	چلوکباب.txt یا پکوڑا.txt
2	set date/time	한국.txt 서울.txt
2	set date/time	گرد و چلوکباب.txt
2	set date/time	Горы.txt Чина.txt
2	set date/time	طاجین.txt کسکس
2	set date/time	сыр.txt чай.txt
2	set date/time	スバル.txt ミツビシ.txt
2	set date/time	すばる.txt みつびし.txt
2	set date/time	Süßigkeiten.txt Gefäß.txt
2	set date/time	中國.txt 北京.txt
2	set date/time	日本.txt 東京.txt
3	delete	नान.txt
3	delete	پکوڑا.txt
3	delete	서울.txt
3	delete	گرد و
3	delete	Чина.txt
3	delete	طاجین.txt
3	delete	чай.txt
3	delete	ミツビシ.txt
3	delete	みつびし.txt
3	delete	Gefäß.txt
3	delete	北京.txt
3	delete	東京.txt

No overwrites

File: Mitsubishi-h.txt 4 4  
 File: Tagine.txt 4 4  
 File: Pakora.txt 4 4  
 File: Tokyo.txt 4 4  
 File: Hummus.txt 4 4  
 File: Naan.txt 4 4  
 File: Tea.txt 4 4  
 File: Beijing.txt 4 4  
 File: Walnut.txt 4 4  
 File: Mitsubishi-k.txt 4 4  
 File: Seoul.txt 4 4  
 File: Vessel.txt 4 4  
 Summary: 12 12 0 0

Metadata available  
 ntfs-04 Metadata found 0 files, not found 12, total 12 deleted files  
 Deleted files without metadata (cannot be found)  
 Beijing.txt Hummus.txt Mitsubishi-h.txt  
 Mitsubishi-k.txt Naan.txt Pakora.txt  
 Seoul.txt Tagine.txt Tea.txt Tokyo.txt  
 Vessel.txt Walnut.txt

Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2
205370 - 205373	Naan	Naan
209464 - 209467	Chapati	Chapati
213560 - 213563	Pakora	Pakora
217656 - 217659	Gulab_jamun	Gulab_jamun
221752 - 221755	Seoul	Seoul

Layout for Steps 1 through 2		
225848 - 225851	Korea	Korea
229944 - 229947	Kabob	Kabob
234040 - 234043	Walnut	Walnut
238136 - 238139	Falafel	Falafel
242232 - 242235	Hummus	Hummus
246328 - 246331	Couscous	Couscous
250424 - 250427	Tagine	Tagine
254520 - 254523	Tea	Tea
258616 - 258619	Cheese	Cheese
262712 - 262715	Mitsubishi-k	Mitsubishi-k
266808 - 266811	Mitsubishi-h	Mitsubishi-h
270904 - 270907	Sweets	Sweets
275000 - 275003	Vessel	Vessel
279096 - 279099	Beijing	Beijing
283192 - 283195	China	China
287288 - 287291	Japan	Japan
291384 - 291387	Tokyo	Tokyo
295480 - 295483	Subaru-k	Subaru-k
299576 - 299579	Subaru-h	Subaru-h

Sector List	
Beijing.txt	279096 - 279099
Chapati.txt	209464 - 209467
Cheese.txt	258616 - 258619
China.txt	283192 - 283195
Couscous.txt	246328 - 246331
Falafel.txt	238136 - 238139
Gulab_jamun.txt	217656 - 217659
Hummus.txt	242232 - 242235
Japan.txt	287288 - 287291
...	
6 omitted	
Seoul.txt	221752 - 221755
Subaru-h.txt	299576 - 299579
Subaru-k.txt	295480 - 295483
Sweets.txt	270904 - 270907
Tagine.txt	250424 - 250427
Tea.txt	254520 - 254523
Tokyo.txt	291384 - 291387
Vessel.txt	275000 - 275003
Walnut.txt	234040 - 234043

## 50 Test Image ntfs-05

DFR-05. Recover several fragmented files.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes  
 255 heads, 63 sectors/track, 130 cylinders, total 2097153 sectors  
 Device Boot Start End Blocks Id System  
 /dev/sdd1 128 2091135 1045504 7 HPFS/NTFS

2 files deleted

Deleted files (2)			
Name	Size	F-Hd	F-Bks
Bunda.txt	2101248 (4104+0)	1	4103
Eltanin.txt	2101248 (4104+0)	1	4103

MAC times just before file deletion

File: `Bunda.txt`

Access: 1999-01-02 03:04:00.000000000 -0500



Modify: 2008-07-04 13:14:00.000000000 -0400  
 Change: 2011-11-26 19:15:46.564561000 -0500  
 File: `Eltanin.txt`  
 Access: 1998-01-02 03:04:00.000000000 -0500  
 Modify: 2000-02-29 13:14:00.000000000 -0500  
 Change: 2011-11-26 19:15:46.571887000 -0500

File delete times:  
 Times: /Volumes/CFFT/dfr/dfr-setup/ntfs-delete-times.txt Case ntfs-05  
 CASE ntfs-05 delete time for step 7 Sat 11/26/2011 07:29 PM  
 CASE ntfs-05-braid delete time for step 6 Wed 02/01/2012 04:57 PM  
 CASE ntfs-05-nest delete time for step 7 Wed 02/01/2012 07:29 PM  
 ===== Run step 7 =====  
 ACTION (delete): Bunda.txt Eltanin.txt

Steps to Create Image ntfs-05		
Step	Action	Files in Partition NTFS
1	create	Arcturus.txt Bunda.txt Castor.txt
2	append	Bunda.txt
3	create	Duhr.TXT Eltanin.txt Furud.txt
4	append	Eltanin.txt
5	create	Grumium.txt
6	set date/time	Arcturus.txt Bunda.txt Castor.txt Duhr.TXT Eltanin.txt Furud.txt Grumium.txt
7	delete	Bunda.txt Eltanin.txt

No overwrites

File: Bunda.txt 4104 4104  
 File: Eltanin.txt 4104 4104  
 Summary: 2 2 0 0

Metadata available  
 ntfs-05 Metadata found 2 files, not found 0, total 2 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 5					
Sectors	Step 1	Step 2	Step 3	Step 4	Step 5
958504 - 958507	Arcturus	Arcturus	Arcturus	Arcturus	Arcturus
958508 - 958516	empty	Bunda	Bunda	Bunda	Bunda
958517 - 958520	empty	empty	Duhr	Duhr	Duhr
958521 - 958527	empty	empty	empty	Eltanin	Eltanin
1002177 - 1002180	Bunda	Bunda	Bunda	Bunda	Bunda
1002181 - 1006271	empty	Bunda	Bunda	Bunda	Bunda
1006272 - 1006275	Castor	Castor	Castor	Castor	Castor
1006276 - 1006279	empty	empty	Eltanin	Eltanin	Eltanin
1006280 - 1010367	empty	empty	empty	Eltanin	Eltanin
1010368 - 1010371	empty	empty	Furud	Furud	Furud
1010372 - 1010376	empty	empty	empty	Eltanin	Eltanin
1010377 - 1010380	empty	empty	empty	empty	Grumium

Layout for Steps 6 through 6	
Sectors	Step 6
958504 - 958507	Arcturus
958508 - 958516	Bunda
958517 - 958520	Duhr
958521 - 958527	Eltanin
1002177 - 1002180	Bunda
1002181 - 1006271	Bunda
1006272 - 1006275	Castor
1006276 - 1006279	Eltanin

Layout for Steps 6 through 6	
1006280 - 1010367	Eltanin
1010368 - 1010371	Furud
1010372 - 1010376	Eltanin
1010377 - 1010380	Grumium

Sector List	
Arcturus.txt	958504 - 958507
Bunda.txt	958508 - 958516, 1002177 - 1006271
Castor.txt	1006272 - 1006275
Duhr.TXT	958517 - 958520
Eltanin.txt	958521 - 958527, 1006276 - 1010367, 1010372 - 1010376
Furud.txt	1010368 - 1010371
Grumium.txt	1010377 - 1010380

## 51 Test Image ntfs-05-braid

DFR-05. Recover several fragmented files.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

65 heads, 26 sectors/track, 1240 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		128	614527	307200	7	HPFS/NTFS

2 files deleted

Deleted files (2)			
Name	Size	F-Hd	F-Bks
Bunda.txt	8192 (16+0)	1	15
Castor.txt	8192 (16+0)	1	15

MAC times just before file deletion

File: `Bunda.txt`

Access: 1999-01-02 03:04:00.000000000 -0500

Modify: 2008-07-04 13:14:00.000000000 -0400

Change: 2012-02-01 16:48:24.929434000 -0500

File: `Castor.txt`

Access: 1998-01-02 03:04:00.000000000 -0500

Modify: 2000-02-29 13:14:00.000000000 -0500

Change: 2012-02-01 16:48:24.955803000 -0500

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ntfs-05-braid

CASE ntfs-05-braid delete time for step 6 Wed 02/01/2012 04:57 PM

==== Run step 6 =====

ACTION (delete): Bunda.txt Castor.txt

Steps to Create Image ntfs-05-braid		
Step	Action	Files in Partition NTFS
1	create	Arcturus.txt Bunda.txt Castor.txt
2	append	Bunda.txt
3	append	Castor.txt
4	create	Duhr.TXT
5	set date/time	Arcturus.txt Bunda.txt Castor.txt Duhr.TXT
6	delete	Bunda.txt Castor.txt

No overwrites

File: Bunda.txt 16 16

File: Castor.txt 16 16

Summary: 2 2 0 0

Metadata available  
 ntfs-05-braid Metadata found 2 files, not found 0, total 2 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 5					
Sectors	Step 1	Step 2	Step 3	Step 4	Step 5
198773 - 198773	metadata	metadata	metadata	Duhr	Duhr
198818 - 198818	Arcturus	Arcturus	metadata	metadata	metadata
198840 - 198840	Castor	Castor	Castor	Castor	Castor
204926 - 204926	Arcturus	Arcturus	Arcturus	Arcturus	Arcturus
307343 - 307349	Arcturus	Arcturus	Arcturus	Arcturus	Arcturus
307350 - 307357	Bunda	Bunda	Bunda	Bunda	Bunda
307358 - 307365	Castor	Castor	Castor	Castor	Castor
307366 - 307373	metadata	Bunda	Bunda	Bunda	Bunda
307374 - 307381	metadata	metadata	Castor	Castor	Castor

Sector List	
Arcturus.txt	198818 - 198818, 204926 - 204926, 307343 - 307349
Bunda.txt	307350 - 307357, 307366 - 307373
Castor.txt	198840 - 198840, 307358 - 307365, 307374 - 307381
Duhr.TXT	198773 - 198773

## 52 Test Image ntfs-05-nest

DFR-05. Recover several fragmented files.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes  
 65 heads, 26 sectors/track, 1240 cylinders, total 2097153 sectors  
 Device Boot Start End Blocks Id System  
 /dev/sdd1 128 614527 307200 7 HPFS/NTFS

2 files deleted

Deleted files (2)			
Name	Size	F-Hd	F-Bks
Bunda.txt	8192 (16+0)	1	15
Duhr.TXT	8192 (16+0)	1	15

MAC times just before file deletion

File: `Bunda.txt`  
 Access: 1999-01-02 03:04:00.000000000 -0500  
 Modify: 2008-07-04 13:14:00.000000000 -0400  
 Change: 2012-02-01 19:21:09.162625000 -0500  
 File: `Duhr.TXT`  
 Access: 1998-01-02 03:04:00.000000000 -0500  
 Modify: 2000-02-29 13:14:00.000000000 -0500  
 Change: 2012-02-01 19:21:09.177744000 -0500

File delete times:

Times: /Volumes/CFTT/df/df-setup/ntfs-delete-times.txt Case ntfs-05-nest  
 CASE ntfs-05-nest delete time for step 7 Wed 02/01/2012 07:29 PM  
 ===== Run step 7 =====  
 ACTION (delete): Bunda.txt Duhr.TXT

Steps to Create Image ntfs-05-nest		
Step	Action	Files in Partition NTFS
1	create	Arcturus.txt Bunda.txt Castor.txt Duhr.TXT Eltanin.txt
2	append	Duhr.TXT

Steps to Create Image ntfs-05-nest		
3	create	Furud.txt
4	append	Bunda.txt
5	create	Grumium.txt
6	set date/time	Arcturus.txt Bunda.txt Castor.txt Duhr.TXT Eltanin.txt Furud.txt Grumium.txt
7	delete	Bunda.txt Duhr.TXT

No overwrites

File: Bunda.txt 16 16

File: Duhr.TXT 16 16

Summary: 2 2 0 0

Metadata available

ntfs-05-nest Metadata found 2 files, not found 0, total 2 deleted files

Metadata available for all deleted files

Layout History

Layout for Steps 1 through 5					
Sectors	Step 1	Step 2	Step 3	Step 4	Step 5
198818 - 198818	Arcturus	Arcturus	metadata	metadata	metadata
198839 - 198839	Castor	Castor	Castor	metadata	metadata
198850 - 198850	Duhr	Duhr	Duhr	metadata	metadata
198861 - 198861	Eltanin	Eltanin	Eltanin	metadata	metadata
204926 - 204926	Arcturus	Arcturus	Arcturus	Arcturus	Arcturus
300801 - 300808	empty	empty	empty	empty	Grumium
307343 - 307349	Arcturus	Arcturus	Arcturus	Arcturus	Arcturus
307350 - 307357	Bunda	Bunda	Bunda	Bunda	Bunda
307358 - 307365	Castor	Castor	Castor	Castor	Castor
307366 - 307373	Duhr	Duhr	Duhr	Duhr	Duhr
307374 - 307381	Eltanin	Eltanin	Eltanin	Eltanin	Eltanin
307382 - 307389	metadata	Duhr	Duhr	Duhr	Duhr
307390 - 307397	metadata	metadata	Furud	Furud	Furud
307398 - 307405	metadata	metadata	metadata	Bunda	Bunda

Layout for Steps 6 through 6	
Sectors	Step 6
198818 - 198818	metadata
198839 - 198839	metadata
198850 - 198850	metadata
198861 - 198861	metadata
204926 - 204926	Arcturus
300801 - 300808	Grumium
307343 - 307349	Arcturus
307350 - 307357	Bunda
307358 - 307365	Castor
307366 - 307373	Duhr
307374 - 307381	Eltanin
307382 - 307389	Duhr
307390 - 307397	Furud
307398 - 307405	Bunda

Sector List	
Arcturus.txt	198818 - 198818, 204926 - 204926, 307343 - 307349
Bunda.txt	307350 - 307357, 307398 - 307405
Castor.txt	198839 - 198839, 307358 - 307365
Duhr.TXT	198850 - 198850, 307366 - 307373, 307382 - 307389
Eltanin.txt	198861 - 198861, 307374 - 307381
Furud.txt	307390 - 307397

Sector List	
Grumium.txt	300801 - 300808

### 53 Test Image ntfs-06

DFR-06. Recover one large file.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

255 heads, 63 sectors/track, 130 cylinders, total 2097153 sectors

Device Boot Start End Blocks Id System

/dev/sdd1 128 2091135 1045504 7 HPFS/NTFS

1 files deleted

Deleted files (1)			
Name	Size	F-Hd	F-Bks
Bunda.txt	512000000 (1000000+0)	1	999999

MAC times just before file deletion

File: 'Bunda.txt'

Access: 1999-01-02 03:02:00.000000000 -0500

Modify: 2008-07-04 13:13:00.000000000 -0400

Change: 2012-01-18 16:36:23.681221000 -0500

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ntfs-06

CASE ntfs-06 delete time for step 4 Wed 01/18/2012 05:03 PM

===== Run step 4 =====

ACTION (delete): Bunda.txt

Steps to Create Image ntfs-06		
Step	Action	Files in Partition NTFS
1	create	Arcturus.txt
2	create	Bunda.txt
4	delete	Bunda.txt

No overwrites

File: Bunda.txt 1000000 1000000

Summary: 1 1 0 0

Metadata available

ntfs-06 Metadata found 1 files, not found 0, total 1 deleted files

Metadata available for all deleted files

Layout History

Layout for Steps 1 through 3			
Sectors	Step 1	Step 2	Step 3
697256 - 697256	Arcturus	Arcturus	Arcturus
1046032 - 2046031	empty	Bunda	Bunda

Sector List	
Arcturus.txt	697256 - 697256
Bunda.txt	1046032 - 2046031

## 54 Test Image ntfs-07

DFR-07. Recover one overwritten file.

### Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes  
255 heads, 63 sectors/track, 130 cylinders, total 2097153 sectors  
Device Boot Start End Blocks Id System  
/dev/sdd1 128 2091135 1045504 7 HPFS/NTFS

5 files deleted

Deleted files (5)			
Name	Size	F-Hd	F-Bks
Bunda.txt	4096 (8+0)	1	7
Castor.txt	4096 (8+0)	1	7
Duhr.TXT	4096 (8+0)	1	7
Furud.txt	7680 (15+0)	1	14
Grumium.txt	512 (1+0)	1	0

MAC times just before file deletion

File: `Bunda.txt`  
Access: 2011-11-06 15:12:56.321788000 -0500  
Modify: 2011-11-06 15:09:59.382432000 -0500  
Change: 2011-11-06 15:09:59.382432000 -0500  
File: `Castor.txt`  
Access: 2011-11-06 15:12:56.350438000 -0500  
Modify: 2011-11-06 15:09:59.386799000 -0500  
Change: 2011-11-06 15:09:59.386799000 -0500  
File: `Duhr.TXT`  
Access: 2011-11-06 15:12:56.384508000 -0500  
Modify: 2011-11-06 15:09:59.410316000 -0500  
Change: 2011-11-06 15:09:59.410316000 -0500  
File: `Furud.txt`  
Access: 2011-11-06 15:36:36.393151000 -0500  
Modify: 2011-11-06 15:36:36.385768000 -0500  
Change: 2011-11-06 15:36:36.385768000 -0500  
File: `Grumium.txt`  
Access: 2011-11-06 15:36:36.415644000 -0500  
Modify: 2011-11-06 15:36:36.389809000 -0500  
Change: 2011-11-06 15:36:36.389809000 -0500

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ntfs-07  
CASE ntfs-07 delete time for step 4 Sun 11/06/2011 03:49 PM  
CASE ntfs-07-one delete time for step 2 Fri 11/25/2011 10:30 AM  
CASE ntfs-07-one delete time for step 4 Fri 11/25/2011 10:42 AM  
CASE ntfs-07-one delete time for step 6 Fri 11/25/2011 10:57 AM  
CASE ntfs-07-two delete time for step 2 Fri 11/25/2011 11:34 AM  
CASE ntfs-07-two delete time for step 4 Fri 11/25/2011 11:48 AM  
==== Run step 2 ====  
ACTION (delete): Bunda.txt Castor.txt Duhr.TXT  
ACTION (delete): Furud.txt Grumium.txt

Steps to Create Image ntfs-07		
Step	Action	Files in Partition NTFS
1	create	Arcturus.txt Bunda.txt Castor.txt Duhr.TXT Eltanin.txt
2	delete	Bunda.txt Castor.txt Duhr.TXT
3	create	Furud.txt Grumium.txt
4	delete	Furud.txt Grumium.txt

2 overwrites

Castor.txt x Furud.txt: overlap - 1006273 - 1006279  
Duhr.TXT x Furud.txt: overlap - 1010368 - 1010375

File: Bunda.txt 8 0

File: Castor.txt 8 0  
 File: Grumium.txt 1 0  
 File: Duhr.TXT 8 0  
 File: Furud.txt 15 15  
 Summary: 5 1 0 4

Metadata available  
 ntfs-07 Metadata found 3 files, not found 2, total 5 deleted files  
 Deleted files without metadata (cannot be found)  
 Bunda.txt Castor.txt

Layout History

Layout for Steps 1 through 3			
Sectors	Step 1	Step 2	Step 3
697262 - 697262	metadata	metadata	Grumium
958504 - 958511	Arcturus	Arcturus	Arcturus
1002177 - 1002184	Bunda	metadata	metadata
1006272 - 1006272	Castor	metadata	metadata
1006273 - 1006279	Castor	Castor	Furud
1010368 - 1010375	Duhr	Duhr	Furud
1014464 - 1014471	Eltanin	Eltanin	Eltanin

Sector List	
Arcturus.txt	958504 - 958511
Bunda.txt	1002177 - 1002184
Castor.txt	1006272 - 1006279
Duhr.TXT	1010368 - 1010375
Eltanin.txt	1014464 - 1014471
Furud.txt	1006273 - 1006279, 1010368 - 1010375
Grumium.txt	697262 - 697262

## 55 Test Image ntfs-07-one

DFR-07. Recover one overwritten file.

Partition Table Layout  
 Disk /dev/sdd: 1073 MB, 1073742336 bytes  
 255 heads, 63 sectors/track, 130 cylinders, total 2097153 sectors  
 Device Boot Start End Blocks Id System  
 /dev/sdd1 128 2091135 1045504 7 HPFS/NTFS

3 files deleted

Deleted files (3)			
Name	Size	F-Hd	F-Bks
Bunda.txt	2048 (4+0)	1	3
Castor.txt	2048 (4+0)	1	3
Eltanin.txt	2048 (4+0)	1	3

MAC times just before file deletion

File: `Bunda.txt`  
 Access: 2011-11-25 10:09:08.520735000 -0500  
 Modify: 2011-11-25 10:04:36.562204000 -0500  
 Change: 2011-11-25 10:04:36.562204000 -0500  
 File: `Castor.txt`  
 Access: 2011-11-25 10:32:51.068493000 -0500  
 Modify: 2011-11-25 10:04:36.572141000 -0500  
 Change: 2011-11-25 10:04:36.572141000 -0500  
 File: `Eltanin.txt`  
 Access: 2011-11-25 10:45:26.580856000 -0500  
 Modify: 2011-11-25 10:45:26.560623000 -0500  
 Change: 2011-11-25 10:45:26.560623000 -0500

File: `Eltanin.txt`  
 Access: 2011-11-25 10:45:26.580856000 -0500  
 Modify: 2011-11-25 10:45:26.560623000 -0500  
 Change: 2011-11-25 10:45:26.560623000 -0500

File delete times:  
 Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ntfs-07-one  
 CASE ntfs-07-one delete time for step 2 Fri 11/25/2011 10:30 AM  
 CASE ntfs-07-one delete time for step 4 Fri 11/25/2011 10:42 AM  
 CASE ntfs-07-one delete time for step 6 Fri 11/25/2011 10:57 AM  
 ===== Run step 2 =====  
 ACTION (delete): Bunda.txt  
 ACTION (delete): Castor.txt  
 ACTION (delete): Eltanin.txt

Steps to Create Image ntfs-07-one		
Step	Action	Files in Partition NTFS
1	create	Arcturus.txt Bunda.txt Castor.txt Duhr.TXT
2	delete	Bunda.txt
3	append	Arcturus.txt
4	delete	Castor.txt
5	create	Eltanin.txt
6	delete	Eltanin.txt

2 overwrites  
 Arcturus.txt x Bunda.txt: overlap - 1010368 - 1010371  
 Castor.txt x Eltanin.txt: overlap - 1046230 - 1046233

File: Bunda.txt 4 0  
 File: Castor.txt 4 0  
 File: Eltanin.txt 4 4  
 Summary: 3 1 0 2

Metadata available  
 ntfs-07-one Metadata found 3 files, not found 0, total 3 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 5					
Sectors	Step 1	Step 2	Step 3	Step 4	Step 5
1002178 - 1002181	Arcturus	Arcturus	Arcturus	Arcturus	Arcturus
1010368 - 1010371	Bunda	Arcturus	Arcturus	Arcturus	Arcturus
1046230 - 1046233	Castor	Castor	Castor	Castor	Eltanin
1054416 - 1054419	Duhr	Duhr	Duhr	Duhr	Duhr

Sector List	
Arcturus.txt	1002178 - 1002181, 1010368 - 1010371
Bunda.txt	1010368 - 1010371
Castor.txt	1046230 - 1046233
Duhr.TXT	1054416 - 1054419
Eltanin.txt	1046230 - 1046233

**56** Test Image ntfs-07-two  
 DFR-07. Recover one overwritten file.

Partition Table Layout  
 Disk /dev/sdd: 1073 MB, 1073742336 bytes  
 255 heads, 63 sectors/track, 130 cylinders, total 2097153 sectors



Device Boot Start End Blocks Id System  
 /dev/sdd1 128 2091135 1045504 7 HPFS/NTFS

3 files deleted

Deleted files (3)			
Name	Size	F-Hd	F-Bks
Bunda.txt	4096 (8+0)	1	7
Castor.txt	4096 (8+0)	1	7
Eltanin.txt	4096 (8+0)	1	7

MAC times just before file deletion

File: `Bunda.txt`  
 Access: 2011-11-25 11:26:43.370430000 -0500  
 Modify: 2011-11-25 11:22:39.433858000 -0500  
 Change: 2011-11-25 11:22:39.433858000 -0500  
 File: `Castor.txt`  
 Access: 2011-11-25 11:36:59.817483000 -0500  
 Modify: 2011-11-25 11:22:39.444112000 -0500  
 Change: 2011-11-25 11:22:39.444112000 -0500

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ntfs-07-two  
 CASE ntfs-07-two delete time for step 2 Fri 11/25/2011 11:34 AM  
 CASE ntfs-07-two delete time for step 4 Fri 11/25/2011 11:48 AM  
 ===== Run step 2 =====  
 ACTION (delete): Bunda.txt  
 ACTION (delete): Castor.txt

Steps to Create Image ntfs-07-two		
Step	Action	Files in Partition NTFS
1	create	Arcturus.txt Bunda.txt Castor.txt Duhr.TXT
2	delete	Bunda.txt
3	append	Arcturus.txt
4	delete	Castor.txt
5	create	Eltanin.txt

2 overwrites

Arcturus.txt x Bunda.txt: overlap - 1078784 - 1078791  
 Castor.txt x Eltanin.txt: overlap - 1111552 - 1111559

File: Bunda.txt 8 0  
 File: Castor.txt 8 0  
 Summary: 2 0 0 2

Metadata available

ntfs-07-two Metadata found 3 files, not found 0, total 3 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 5					
Sectors	Step 1	Step 2	Step 3	Step 4	Step 5
1046032 - 1046039	Arcturus	Arcturus	Arcturus	Arcturus	Arcturus
1078784 - 1078791	Bunda	Bunda	Arcturus	Arcturus	Arcturus
1111552 - 1111559	Castor	Castor	Castor	Castor	Eltanin
1144320 - 1144327	Duhr	Duhr	Duhr	Duhr	Duhr

Sector List	
Arcturus.txt	1046032 - 1046039, 1078784 - 1078791
Bunda.txt	1078784 - 1078791
Castor.txt	1111552 - 1111559

Sector List	
Duhr.TXT	1144320 - 1144327
Eltanin.txt	1111552 - 1111559

## 57 Test Image ntfs-08

DFR-08. Recover several overwritten files.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

255 heads, 63 sectors/track, 130 cylinders, total 2097153 sectors

Device Boot Start End Blocks Id System

/dev/sdd1 128 2091135 1045504 7 HPFS/NTFS

25 files deleted

Deleted files (25)			
Name	Size	F-Hd	F-Bks
Achemar.txt	1024 (2+0)	1	1
Albireo.txt	1024 (2+0)	1	1
Atlas.txt	1024 (2+0)	1	1
Azha.txt	1024 (2+0)	1	1
Betelgeuse.txt	16384 (32+0)	1	31
Capella.txt	2048 (4+0)	1	3
Cheleb.txt	2048 (4+0)	1	3
Cor_Caroli.txt	2048 (4+0)	1	3
Cursa.txt	2048 (4+0)	1	3
Diphda.txt	4096 (8+0)	1	7
Dziban.txt	4096 (8+0)	1	7
Electra.txt	8192 (16+0)	1	15
Er_Rai.txt	8192 (16+0)	1	15
Grumium.txt	4096 (8+0)	1	7
Heze.txt	4096 (8+0)	1	7
Matar.txt	8192 (16+0)	1	15
Mimosa.txt	4096 (8+0)	1	7
Mira.txt	8192 (16+0)	1	15
Procyon.txt	16384 (32+0)	1	31
Rukbat.txt	8192 (16+0)	1	15
Sarin.txt	1024 (2+0)	1	1
Sheliak.txt	1024 (2+0)	1	1
Sirius.txt	1024 (2+0)	1	1
Sulafat.txt	1024 (2+0)	1	1
Tarf.txt	4096 (8+0)	1	7

MAC times just before file deletion

File: `Achemar.txt`

Access: 2011-11-25 13:07:00.727908000 -0500

Modify: 2011-11-25 12:34:00.005749000 -0500

Change: 2011-11-25 12:34:00.005749000 -0500

File: `Albireo.txt`

Access: 2011-11-25 12:38:47.779820000 -0500

Modify: 2011-11-25 12:33:59.954681000 -0500

Change: 2011-11-25 12:33:59.954681000 -0500

File: `Atlas.txt`

Access: 2011-11-25 12:38:47.797785000 -0500

Modify: 2011-11-25 12:34:00.075979000 -0500

Change: 2011-11-25 12:34:00.075979000 -0500

File: `Azha.txt`

Access: 2011-11-25 12:54:55.839241000 -0500

Modify: 2011-11-25 12:34:00.057578000 -0500

Change: 2011-11-25 12:34:00.057578000 -0500

File: `Betelgeuse.txt`

Access: 2011-11-25 12:38:47.811856000 -0500

Modify: 2011-11-25 12:33:59.991258000 -0500

Change: 2011-11-25 12:33:59.991258000 -0500

...  
 60 omitted  
 File: 'Sarin.txt'  
 Access: 2011-11-25 13:07:00.699029000 -0500  
 Modify: 2011-11-25 13:07:00.553667000 -0500  
 Change: 2011-11-25 13:07:00.553667000 -0500  
 File: 'Sheliak.txt'  
 Access: 2011-11-25 13:07:00.653419000 -0500  
 Modify: 2011-11-25 13:07:00.505334000 -0500  
 Change: 2011-11-25 13:07:00.505334000 -0500  
 File: 'Sirius.txt'  
 Access: 2011-11-25 13:07:00.705011000 -0500  
 Modify: 2011-11-25 13:07:00.575280000 -0500  
 Change: 2011-11-25 13:07:00.575280000 -0500  
 File: 'Sulafat.txt'  
 Access: 2011-11-25 13:07:00.678438000 -0500  
 Modify: 2011-11-25 13:07:00.542689000 -0500  
 Change: 2011-11-25 13:07:00.542689000 -0500  
 File: 'Tarf.txt'  
 Access: 2011-11-25 13:07:00.662646000 -0500  
 Modify: 2011-11-25 13:07:00.511906000 -0500  
 Change: 2011-11-25 13:07:00.511906000 -0500

File delete times:  
 Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ntfs-08  
 CASE ntfs-08 delete time for step 2 Fri 11/25/2011 12:52 PM  
 CASE ntfs-08 delete time for step 4 Fri 11/25/2011 01:04 PM  
 CASE ntfs-08 delete time for step 6 Fri 11/25/2011 01:15 PM  
 ===== Run step 2 =====  
 ACTION (delete): Albireo.txt Atlas.txt Betelgeuse.txt  
 ACTION (delete): Cursa.txt Capella.txt Cor\_Caroli.txt  
 ACTION (delete): Dziban.txt Electra.txt Er\_Rai.txt  
 ACTION (delete): Grumium.txt Mira.txt Procyon.txt  
 ACTION (delete): Diphda.txt Azha.txt Mimosa.txt  
 ACTION (delete): Rukbat.txt Sheliak.txt Tarf.txt Matar.txt  
 ACTION (delete): Sulafat.txt Sarin.txt Sirius.txt  
 ACTION (delete): Achemar.txt Cheleb.txt Heze.txt

Steps to Create Image ntfs-08		
Step	Action	Files in Partition NTFS
1	create	Albireo.txt Achemar.txt Azha.txt Atlas.txt Betelgeuse.txt
1	create	Cursa.txt Capella.txt Cheleb.txt Cor_Caroli.txt
1	create	Diphda.txt Dziban.txt Electra.txt Er_Rai.txt
1	create	Albireo.txt Betelgeuse.txt Cursa.txt Diphda.txt Electra.txt
2	delete	Albireo.txt Atlas.txt Betelgeuse.txt
2	delete	Cursa.txt Capella.txt Cor_Caroli.txt
2	delete	Dziban.txt Electra.txt Er_Rai.txt
3	create	Grumium.txt Heze.txt Procyon.txt
3	create	Mira.txt Matar.txt Mimosa.txt
4	delete	Grumium.txt Mira.txt Procyon.txt
4	delete	Diphda.txt Azha.txt Mimosa.txt
5	create	Rukbat.txt Sheliak.txt Tarf.txt
5	create	Sulafat.txt Sarin.txt Sirius.txt
6	delete	Rukbat.txt Sheliak.txt Tarf.txt Matar.txt
6	delete	Sulafat.txt Sarin.txt Sirius.txt
6	delete	Achemar.txt Cheleb.txt Heze.txt

26 overwrites  
 Albireo.txt x Mimosa.txt: overlap - 1002177 - 1002178  
 Atlas.txt x Mimosa.txt: overlap - 1050576 - 1050577  
 Betelgeuse.txt x Grumium.txt: overlap - 1014464 - 1014467  
 Betelgeuse.txt x Matar.txt: overlap - 1014468 - 1014479  
 Betelgeuse.txt x Procyon.txt: overlap - 1014480 - 1014495  
 Betelgeuse.txt x Rukbat.txt: overlap - 1014480 - 1014491  
 Capella.txt x Mimosa.txt: overlap - 1010368 - 1010371  
 Cor\_Caroli.txt x Matar.txt: overlap - 1062864 - 1062867  
 Cursa.txt x Grumium.txt: overlap - 958504 - 958507

Cursa.txt x Rukbat.txt: overlap - 958504 - 958507  
 Dziban.txt x Procyon.txt: overlap - 1046485 - 1046492  
 Dziban.txt x Tarf.txt: overlap - 1046485 - 1046492  
 Electra.txt x Mira.txt: overlap - 1022656 - 1022671  
 Electra.txt x Sarin.txt: overlap - 1022658 - 1022659  
 Electra.txt x Sheliak.txt: overlap - 1022656 - 1022657  
 Er\_Rai.txt x Heze.txt: overlap - 1058768 - 1058775  
 Er\_Rai.txt x Procyon.txt: overlap - 1058776 - 1058783  
 Er\_Rai.txt x Sirius.txt: overlap - 1058778 - 1058779  
 Er\_Rai.txt x Sulafat.txt: overlap - 1058776 - 1058777  
 Grumium.txt x Rukbat.txt: overlap - 958504 - 958507  
 Mira.txt x Sarin.txt: overlap - 1022658 - 1022659  
 Mira.txt x Sheliak.txt: overlap - 1022656 - 1022657  
 Procyon.txt x Rukbat.txt: overlap - 1014480 - 1014491  
 Procyon.txt x Sirius.txt: overlap - 1058778 - 1058779  
 Procyon.txt x Sulafat.txt: overlap - 1058776 - 1058777  
 Procyon.txt x Tarf.txt: overlap - 1046485 - 1046492

File: Dziban.txt 8 0  
 File: Capella.txt 4 0  
 File: Tarf.txt 8 8  
 File: Atlas.txt 2 0  
 File: Cor\_Caroli.txt 4 0  
 File: Rukbat.txt 16 16  
 File: Achemar.txt 2 2  
 File: Electra.txt 16 0  
 File: Matar.txt 16 16  
 File: Diphda.txt 8 8  
 File: Grumium.txt 8 4  
 File: Procyon.txt 32 8  
 File: Sulafat.txt 2 2  
 File: Sirius.txt 2 2  
 File: Albireo.txt 2 0  
 File: Sheliak.txt 2 2  
 File: Cheleb.txt 4 4  
 File: Er\_Rai.txt 16 0  
 File: Mimosa.txt 8 8  
 File: Betelgeuse.txt 32 0  
 File: Heze.txt 8 8  
 File: Cursa.txt 4 0  
 File: Azha.txt 2 2  
 File: Sarin.txt 2 2  
 File: Mira.txt 16 12  
 Summary: 25 13 3 9

Metadata available  
 ntfs-08 Metadata found 25 files, not found 0, total 25 deleted files  
 Metadata available for all deleted files

#### Layout History

Layout for Steps 1 through 5					
Sectors	Step 1	Step 2	Step 3	Step 4	Step 5
958504 - 958507	Cursa	Cursa	Grumium	Grumium	Rukbat
1002177 - 1002178	Albireo	Albireo	Mimosa	Mimosa	Mimosa
1006272 - 1006279	Diphda	Diphda	Diphda	Diphda	Diphda
1010368 - 1010371	Capella	Capella	Mimosa	Mimosa	Mimosa
1014464 - 1014467	Betelgeuse	Betelgeuse	Grumium	Grumium	Grumium
1014468 - 1014479	Betelgeuse	Betelgeuse	Matar	Matar	Matar
1014480 - 1014491	Betelgeuse	Betelgeuse	Procyon	Procyon	Rukbat
1014492 - 1014495	Betelgeuse	Betelgeuse	Procyon	Procyon	Procyon
1018560 - 1018561	Achemar	Achemar	Achemar	Achemar	Achemar
1022656 - 1022657	Electra	Electra	Mira	Mira	Sheliak
1022658 - 1022659	Electra	Electra	Mira	Mira	Sarin
1022660 - 1022671	Electra	Electra	Mira	Mira	Mira

Layout for Steps 1 through 5					
1026752 - 1026753	Azha	Azha	Azha	Azha	Azha
1046485 - 1046492	Dziban	Dziban	Procyon	Procyon	Tarf
1050576 - 1050577	Atlas	Atlas	Mimosa	Mimosa	Mimosa
1054672 - 1054675	Cheleb	Cheleb	Cheleb	Cheleb	Cheleb
1058768 - 1058775	Er_Rai	Er_Rai	Heze	Heze	Heze
1058776 - 1058777	Er_Rai	Er_Rai	Procyon	Procyon	Sulafat
1058778 - 1058779	Er_Rai	Er_Rai	Procyon	Procyon	Sirius
1058780 - 1058783	Er_Rai	Er_Rai	Procyon	Procyon	Procyon
1062864 - 1062867	Cor_Caroli	Cor_Caroli	Matar	Matar	Matar

Sector List	
Achemar.txt	1018560 - 1018561
Albireo.txt	1002177 - 1002178
Atlas.txt	1050576 - 1050577
Azha.txt	1026752 - 1026753
Betelgeuse.txt	1014464 - 1014495
Capella.txt	1010368 - 1010371
Cheleb.txt	1054672 - 1054675
Cor_Caroli.txt	1062864 - 1062867
Cursa.txt	958504 - 958507
...	
7 omitted	
Mimosa.txt	1002177 - 1002178, 1010368 - 1010371, 1050576 - 1050577
Mira.txt	1022656 - 1022671
Procyon.txt	1014480 - 1014495, 1046485 - 1046492, 1058776 - 1058783
Rukbat.txt	958504 - 958507, 1014480 - 1014491
Sarin.txt	1022658 - 1022659
Sheliak.txt	1022656 - 1022657
Sirius.txt	1058778 - 1058779
Sulafat.txt	1058776 - 1058777
Tarf.txt	1046485 - 1046492

## 58 Test Image ntfs-09

DFR-09. Recover large number of files no overwrite.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

255 heads, 63 sectors/track, 130 cylinders, total 2097153 sectors

Device Boot Start End Blocks Id System

/dev/sdd1 128 2091135 1045504 7 HPFS/NTFS

260 files deleted

Deleted files (260)			
Name	Size	F-Hd	F-Bks
xB0000-4.txt	2048 (4+0)	1	3
xB0001-4.txt	2048 (4+0)	1	3
xB0002-4.txt	2048 (4+0)	1	3
xB0003-4.txt	2048 (4+0)	1	3
xB0004-4.txt	2048 (4+0)	1	3
xB0005-4.txt	2048 (4+0)	1	3
xB0006-4.txt	2048 (4+0)	1	3
xB0007-4.txt	2048 (4+0)	1	3
xB0008-4.txt	2048 (4+0)	1	3
xB0009-4.txt	2048 (4+0)	1	3
xB0010-4.txt	2048 (4+0)	1	3
xB0011-4.txt	2048 (4+0)	1	3
xB0012-4.txt	2048 (4+0)	1	3
xB0013-4.txt	2048 (4+0)	1	3
xB0014-4.txt	2048 (4+0)	1	3
xB0015-4.txt	2048 (4+0)	1	3

Deleted files (260)			
xB0016-4.txt	2048 (4+0)	1	3
xB0017-4.txt	2048 (4+0)	1	3
xB0018-4.txt	2048 (4+0)	1	3
xB0019-4.txt	2048 (4+0)	1	3
...			
220 omitted			
xB0240-4.txt	2048 (4+0)	1	3
xB0241-4.txt	2048 (4+0)	1	3
xB0242-4.txt	2048 (4+0)	1	3
xB0243-4.txt	2048 (4+0)	1	3
xB0244-4.txt	2048 (4+0)	1	3
xB0245-4.txt	2048 (4+0)	1	3
xB0246-4.txt	2048 (4+0)	1	3
xB0247-4.txt	2048 (4+0)	1	3
xB0248-4.txt	2048 (4+0)	1	3
xB0249-4.txt	2048 (4+0)	1	3
xB0250-4.txt	2048 (4+0)	1	3
xB0251-4.txt	2048 (4+0)	1	3
xB0252-4.txt	2048 (4+0)	1	3
xB0253-4.txt	2048 (4+0)	1	3
xB0254-4.txt	2048 (4+0)	1	3
xB0255-4.txt	2048 (4+0)	1	3
xB0256-4.txt	2048 (4+0)	1	3
xB0257-4.txt	2048 (4+0)	1	3
xB0258-4.txt	2048 (4+0)	1	3
xB0259-4.txt	2048 (4+0)	1	3

MAC times just before file deletion

File: `xB0000-4.txt'  
 Access: 2011-11-25 17:48:44.905580000 -0500  
 Modify: 2011-11-25 17:48:44.871017000 -0500  
 Change: 2011-11-25 17:48:44.871017000 -0500  
 File: `xB0001-4.txt'  
 Access: 2011-11-25 17:48:44.949595000 -0500  
 Modify: 2011-11-25 17:48:44.927164000 -0500  
 Change: 2011-11-25 17:48:44.927164000 -0500  
 File: `xB0002-4.txt'  
 Access: 2011-11-25 17:48:44.982678000 -0500  
 Modify: 2011-11-25 17:48:44.972319000 -0500  
 Change: 2011-11-25 17:48:44.972319000 -0500  
 File: `xB0003-4.txt'  
 Access: 2011-11-25 17:48:45.008415000 -0500  
 Modify: 2011-11-25 17:48:44.998613000 -0500  
 Change: 2011-11-25 17:48:44.998613000 -0500  
 File: `xB0004-4.txt'  
 Access: 2011-11-25 17:48:45.058898000 -0500  
 Modify: 2011-11-25 17:48:45.030935000 -0500  
 Change: 2011-11-25 17:48:45.030935000 -0500  
 ...  
 1000 omitted  
 File: `xB0255-4.txt'  
 Access: 2011-11-25 17:48:55.156958000 -0500  
 Modify: 2011-11-25 17:48:55.140426000 -0500  
 Change: 2011-11-25 17:48:55.140426000 -0500  
 File: `xB0256-4.txt'  
 Access: 2011-11-25 17:48:55.188978000 -0500  
 Modify: 2011-11-25 17:48:55.178447000 -0500  
 Change: 2011-11-25 17:48:55.178447000 -0500  
 File: `xB0257-4.txt'  
 Access: 2011-11-25 17:48:55.231918000 -0500  
 Modify: 2011-11-25 17:48:55.223032000 -0500  
 Change: 2011-11-25 17:48:55.223032000 -0500  
 File: `xB0258-4.txt'  
 Access: 2011-11-25 17:48:55.266454000 -0500  
 Modify: 2011-11-25 17:48:55.253052000 -0500

Change: 2011-11-25 17:48:55.253052000 -0500  
 File: 'xB0259-4.txt'  
 Access: 2011-11-25 17:48:55.325134000 -0500  
 Modify: 2011-11-25 17:48:55.300840000 -0500  
 Change: 2011-11-25 17:48:55.300840000 -0500

File delete times:  
 Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ntfs-09  
 CASE ntfs-09 delete time for step 2 Fri 11/25/2011 06:13 PM  
 ===== Run step 2 =====  
 ACTION (delete): 260 files

Steps to Create Image ntfs-09		
Step	Action	Files in Partition NTFS
1	create	260 files
2	delete	260 files

No overwrites

File: xB0252-4.txt 4 4  
 File: xB0042-4.txt 4 4  
 File: xB0171-4.txt 4 4  
 File: xB0181-4.txt 4 4  
 File: xB0159-4.txt 4 4  
 File: xB0075-4.txt 4 4  
 File: xB0019-4.txt 4 4  
 File: xB0047-4.txt 4 4  
 File: xB0046-4.txt 4 4  
 File: xB0174-4.txt 4 4  
 File: xB0246-4.txt 4 4  
 File: xB0078-4.txt 4 4  
 ...  
 File: xB0085-4.txt 4 4  
 File: xB0193-4.txt 4 4  
 File: xB0080-4.txt 4 4  
 File: xB0214-4.txt 4 4  
 File: xB0251-4.txt 4 4  
 File: xB0043-4.txt 4 4  
 File: xB0011-4.txt 4 4  
 File: xB0211-4.txt 4 4  
 File: xB0004-4.txt 4 4  
 File: xB0148-4.txt 4 4  
 File: xB0089-4.txt 4 4  
 Summary: 260 260 0 0

Metadata available  
 ntfs-09 Metadata found 260 files, not found 0, total 260 deleted files  
 Metadata available for all deleted files

Layout History  
 Block map has more than 200 entries

Sector List	
Alpha	697260 - 697260
Omega	697782 - 697782
xB0000-4.txt	1002178 - 1002181
xB0001-4.txt	1010368 - 1010371
xB0002-4.txt	1046230 - 1046233
xB0003-4.txt	1062608 - 1062611
xB0004-4.txt	1070800 - 1070803
xB0005-4.txt	1078992 - 1078995
xB0006-4.txt	1087184 - 1087187
...	
244 omitted	

Sector List	
xB0251-4.txt	2029268 - 2029271
xB0252-4.txt	2037460 - 2037463
xB0253-4.txt	2045652 - 2045655
xB0254-4.txt	2053844 - 2053847
xB0255-4.txt	2062036 - 2062039
xB0256-4.txt	2070228 - 2070231
xB0257-4.txt	2078420 - 2078423
xB0258-4.txt	2086612 - 2086615
xB0259-4.txt	1002182 - 1002185

## 59 Test Image ntfs-10

DFR-10. Recover large number of files, with some overwritten.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

255 heads, 63 sectors/track, 130 cylinders, total 2097153 sectors

Device Boot Start End Blocks Id System

/dev/sdd1 128 2091135 1045504 7 HPFS/NTFS

780 files deleted

Deleted files (780)			
Name	Size	F-Hd	F-Bks
xB0000-4.txt	4096 (8+0)	1	7
xB0001-4.txt	4096 (8+0)	1	7
xB0002-4.txt	4096 (8+0)	1	7
xB0003-4.txt	4096 (8+0)	1	7
xB0004-4.txt	4096 (8+0)	1	7
xB0005-4.txt	4096 (8+0)	1	7
xB0006-4.txt	4096 (8+0)	1	7
xB0007-4.txt	4096 (8+0)	1	7
xB0008-4.txt	4096 (8+0)	1	7
xB0009-4.txt	4096 (8+0)	1	7
xB0010-4.txt	4096 (8+0)	1	7
xB0011-4.txt	4096 (8+0)	1	7
xB0012-4.txt	4096 (8+0)	1	7
xB0013-4.txt	4096 (8+0)	1	7
xB0014-4.txt	4096 (8+0)	1	7
xB0015-4.txt	4096 (8+0)	1	7
xB0016-4.txt	4096 (8+0)	1	7
xB0017-4.txt	4096 (8+0)	1	7
xB0018-4.txt	4096 (8+0)	1	7
xB0019-4.txt	4096 (8+0)	1	7
...			
740 omitted			
xD0240-4.txt	4096 (8+0)	1	7
xD0241-4.txt	4096 (8+0)	1	7
xD0242-4.txt	4096 (8+0)	1	7
xD0243-4.txt	4096 (8+0)	1	7
xD0244-4.txt	4096 (8+0)	1	7
xD0245-4.txt	4096 (8+0)	1	7
xD0246-4.txt	4096 (8+0)	1	7
xD0247-4.txt	4096 (8+0)	1	7
xD0248-4.txt	4096 (8+0)	1	7
xD0249-4.txt	4096 (8+0)	1	7
xD0250-4.txt	4096 (8+0)	1	7
xD0251-4.txt	4096 (8+0)	1	7
xD0252-4.txt	4096 (8+0)	1	7
xD0253-4.txt	4096 (8+0)	1	7
xD0254-4.txt	4096 (8+0)	1	7
xD0255-4.txt	4096 (8+0)	1	7
xD0256-4.txt	4096 (8+0)	1	7



Deleted files (780)			
xD0257-4.txt	4096 (8+0)	1	7
xD0258-4.txt	4096 (8+0)	1	7
xD0259-4.txt	4096 (8+0)	1	7

MAC times just before file deletion

File: `xB0000-4.txt'  
 Access: 2011-11-25 18:43:27.165547000 -0500  
 Modify: 2011-11-25 18:43:27.156170000 -0500  
 Change: 2011-11-25 18:43:27.156170000 -0500  
 File: `xB0001-4.txt'  
 Access: 2011-11-25 18:43:27.217726000 -0500  
 Modify: 2011-11-25 18:43:27.194530000 -0500  
 Change: 2011-11-25 18:43:27.194530000 -0500  
 File: `xB0002-4.txt'  
 Access: 2011-11-25 18:43:27.241087000 -0500  
 Modify: 2011-11-25 18:43:27.229678000 -0500  
 Change: 2011-11-25 18:43:27.229678000 -0500  
 File: `xB0003-4.txt'  
 Access: 2011-11-25 18:43:27.274408000 -0500  
 Modify: 2011-11-25 18:43:27.259974000 -0500  
 Change: 2011-11-25 18:43:27.259974000 -0500  
 File: `xB0004-4.txt'  
 Access: 2011-11-25 18:43:27.299337000 -0500  
 Modify: 2011-11-25 18:43:27.286242000 -0500  
 Change: 2011-11-25 18:43:27.286242000 -0500

...

4120 omitted

File: `xD0257-4.txt'  
 Access: 2011-11-25 18:43:54.438926000 -0500  
 Modify: 2011-11-25 18:43:54.426422000 -0500  
 Change: 2011-11-25 18:43:54.426422000 -0500  
 File: `xD0258-4.txt'  
 Access: 2011-11-25 18:43:54.529112000 -0500  
 Modify: 2011-11-25 18:43:54.515040000 -0500  
 Change: 2011-11-25 18:43:54.515040000 -0500  
 File: `xD0258-4.txt'  
 Access: 2011-11-25 18:43:54.529112000 -0500  
 Modify: 2011-11-25 18:43:54.515040000 -0500  
 Change: 2011-11-25 18:43:54.515040000 -0500  
 File: `xD0259-4.txt'  
 Access: 2011-11-25 18:43:54.606977000 -0500  
 Modify: 2011-11-25 18:43:54.588112000 -0500  
 Change: 2011-11-25 18:43:54.588112000 -0500  
 File: `xD0259-4.txt'  
 Access: 2011-11-25 18:43:54.606977000 -0500  
 Modify: 2011-11-25 18:43:54.588112000 -0500  
 Change: 2011-11-25 18:43:54.588112000 -0500

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ntfs-10  
 CASE ntfs-10 delete time for step 2 Fri 11/25/2011 07:16 PM  
 CASE ntfs-10 delete time for step 4 Fri 11/25/2011 07:27 PM  
 CASE ntfs-10 delete time for step 6 Fri 11/25/2011 09:01 PM  
 ===== Run step 2 =====  
 ACTION (delete): 260 C files  
 ACTION (delete): 260 B files  
 ACTION (delete): 260 D files

Steps to Create Image ntfs-10		
Step	Action	Files in Partition NTFS
1	create	260 B,C&D files
2	delete	260 C files
3	create	260 E files
4	delete	260 B files
5	create	260 F files
6	delete	260 D files

517 overwrites

xB0000-4.txt x xF0000-4.txt: overlap - 1010368 - 1010375  
xB0001-4.txt x xF0133-4.txt: overlap - 1046230 - 1046237  
xB0002-4.txt x xF0002-4.txt: overlap - 1054416 - 1054423  
xB0003-4.txt x xF0003-4.txt: overlap - 1070800 - 1070807  
xB0004-4.txt x xF0004-4.txt: overlap - 1078992 - 1078999  
xB0005-4.txt x xF0005-4.txt: overlap - 1087184 - 1087191  
xB0006-4.txt x xF0006-4.txt: overlap - 1095376 - 1095383  
xB0007-4.txt x xF0007-4.txt: overlap - 1103568 - 1103575  
xB0008-4.txt x xF0008-4.txt: overlap - 1111760 - 1111767  
xB0009-4.txt x xF0009-4.txt: overlap - 1119952 - 1119959  
xB0010-4.txt x xF0010-4.txt: overlap - 1128144 - 1128151  
xB0011-4.txt x xF0011-4.txt: overlap - 1136336 - 1136343  
xB0012-4.txt x xF0012-4.txt: overlap - 1144528 - 1144535  
xB0013-4.txt x xF0013-4.txt: overlap - 1152720 - 1152727  
xB0014-4.txt x xF0014-4.txt: overlap - 1160912 - 1160919  
xB0015-4.txt x xF0015-4.txt: overlap - 1169104 - 1169111  
xB0016-4.txt x xF0016-4.txt: overlap - 1177296 - 1177303  
xB0017-4.txt x xF0017-4.txt: overlap - 1185488 - 1185495  
xB0018-4.txt x xF0018-4.txt: overlap - 1193680 - 1193687  
xB0019-4.txt x xF0019-4.txt: overlap - 1201872 - 1201879  
xB0020-4.txt x xF0020-4.txt: overlap - 1210064 - 1210071  
xB0021-4.txt x xF0021-4.txt: overlap - 1218256 - 1218263  
xB0022-4.txt x xF0022-4.txt: overlap - 1226448 - 1226455  
xB0023-4.txt x xF0023-4.txt: overlap - 1234640 - 1234647  
xB0024-4.txt x xF0024-4.txt: overlap - 1242832 - 1242839  
xB0025-4.txt x xF0025-4.txt: overlap - 1251024 - 1251031  
xB0026-4.txt x xF0026-4.txt: overlap - 1259216 - 1259223  
xB0027-4.txt x xF0027-4.txt: overlap - 1267408 - 1267415  
xB0028-4.txt x xF0028-4.txt: overlap - 1275600 - 1275607  
xB0029-4.txt x xF0029-4.txt: overlap - 1283792 - 1283799  
xB0030-4.txt x xF0030-4.txt: overlap - 1291984 - 1291991  
xB0031-4.txt x xF0031-4.txt: overlap - 1300176 - 1300183  
xB0032-4.txt x xF0032-4.txt: overlap - 1308368 - 1308375  
xB0033-4.txt x xF0033-4.txt: overlap - 1316560 - 1316567  
xB0034-4.txt x xF0034-4.txt: overlap - 1324752 - 1324759  
xB0035-4.txt x xF0035-4.txt: overlap - 1332944 - 1332951  
xB0036-4.txt x xF0036-4.txt: overlap - 1341136 - 1341143  
xB0037-4.txt x xF0037-4.txt: overlap - 1349328 - 1349335  
xB0038-4.txt x xF0038-4.txt: overlap - 1357520 - 1357527  
xB0039-4.txt x xF0039-4.txt: overlap - 1365712 - 1365719  
xB0040-4.txt x xF0040-4.txt: overlap - 1373904 - 1373911  
xB0041-4.txt x xF0041-4.txt: overlap - 1382096 - 1382103  
xB0042-4.txt x xF0042-4.txt: overlap - 1390288 - 1390295  
xB0043-4.txt x xF0043-4.txt: overlap - 1398480 - 1398487  
xB0044-4.txt x xF0044-4.txt: overlap - 1406672 - 1406679  
xB0045-4.txt x xF0045-4.txt: overlap - 1414864 - 1414871  
xB0046-4.txt x xF0046-4.txt: overlap - 1423056 - 1423063  
xB0047-4.txt x xF0047-4.txt: overlap - 1431248 - 1431255  
xB0048-4.txt x xF0048-4.txt: overlap - 1439440 - 1439447  
xB0049-4.txt x xF0049-4.txt: overlap - 1447632 - 1447639  
...  
xC0209-4.txt x xE0162-4.txt: overlap - 1308408 - 1308415  
xC0210-4.txt x xE0164-4.txt: overlap - 1324792 - 1324799  
xC0211-4.txt x xE0166-4.txt: overlap - 1341176 - 1341183  
xC0212-4.txt x xE0168-4.txt: overlap - 1357560 - 1357567  
xC0213-4.txt x xE0170-4.txt: overlap - 1373944 - 1373951  
xC0214-4.txt x xE0172-4.txt: overlap - 1390328 - 1390335  
xC0215-4.txt x xE0174-4.txt: overlap - 1406712 - 1406719  
xC0216-4.txt x xE0176-4.txt: overlap - 1423096 - 1423103  
xC0217-4.txt x xE0178-4.txt: overlap - 1439480 - 1439487  
xC0218-4.txt x xE0180-4.txt: overlap - 1455864 - 1455871  
xC0219-4.txt x xE0182-4.txt: overlap - 1472248 - 1472255  
xC0220-4.txt x xE0184-4.txt: overlap - 1488632 - 1488639  
xC0221-4.txt x xE0186-4.txt: overlap - 1505016 - 1505023  
xC0222-4.txt x xE0188-4.txt: overlap - 1521400 - 1521407  
xC0223-4.txt x xE0190-4.txt: overlap - 1537784 - 1537791

xC0224-4.txt xxE0192-4.txt: overlap - 1554168 - 1554175  
xC0225-4.txt xxE0194-4.txt: overlap - 1570552 - 1570559  
xC0226-4.txt xxE0196-4.txt: overlap - 1586936 - 1586943  
xC0227-4.txt xxE0198-4.txt: overlap - 1603320 - 1603327  
xC0228-4.txt xxE0200-4.txt: overlap - 1619704 - 1619711  
xC0229-4.txt xxE0202-4.txt: overlap - 1636088 - 1636095  
xC0230-4.txt xxE0204-4.txt: overlap - 1652472 - 1652479  
xC0231-4.txt xxE0206-4.txt: overlap - 1668856 - 1668863  
xC0232-4.txt xxE0208-4.txt: overlap - 1685240 - 1685247  
xC0233-4.txt xxE0210-4.txt: overlap - 1701624 - 1701631  
xC0234-4.txt xxE0212-4.txt: overlap - 1718008 - 1718015  
xC0235-4.txt xxE0214-4.txt: overlap - 1734392 - 1734399  
xC0236-4.txt xxE0216-4.txt: overlap - 1750776 - 1750783  
xC0237-4.txt xxE0218-4.txt: overlap - 1767160 - 1767167  
xC0238-4.txt xxE0220-4.txt: overlap - 1783544 - 1783551  
xC0239-4.txt xxE0222-4.txt: overlap - 1799928 - 1799935  
xC0240-4.txt xxE0224-4.txt: overlap - 1816312 - 1816319  
xC0241-4.txt xxE0226-4.txt: overlap - 1832696 - 1832703  
xC0242-4.txt xxE0228-4.txt: overlap - 1849080 - 1849087  
xC0243-4.txt xxE0230-4.txt: overlap - 1865464 - 1865471  
xC0244-4.txt xxE0232-4.txt: overlap - 1881848 - 1881855  
xC0245-4.txt xxE0234-4.txt: overlap - 1898232 - 1898239  
xC0246-4.txt xxE0236-4.txt: overlap - 1914616 - 1914623  
xC0247-4.txt xxE0238-4.txt: overlap - 1931000 - 1931007  
xC0248-4.txt xxE0240-4.txt: overlap - 1947384 - 1947391  
xC0249-4.txt xxE0242-4.txt: overlap - 1963768 - 1963775  
xC0250-4.txt xxE0244-4.txt: overlap - 1980152 - 1980159  
xC0251-4.txt xxE0246-4.txt: overlap - 1996536 - 1996543  
xC0253-4.txt xxE0248-4.txt: overlap - 2029304 - 2029311  
xC0254-4.txt xxE0250-4.txt: overlap - 2045688 - 2045695  
xC0255-4.txt xxE0252-4.txt: overlap - 2062072 - 2062079  
xC0256-4.txt xxE0254-4.txt: overlap - 2078456 - 2078463  
xC0257-4.txt xxE0129-4.txt: overlap - 1002202 - 1002209  
xC0258-4.txt xxE0256-4.txt: overlap - 1046270 - 1046277  
xC0259-4.txt xxE0257-4.txt: overlap - 1070848 - 1070855

File: xC0098-4.txt 8 0  
File: xC0104-4.txt 8 0  
File: xB0204-4.txt 8 0  
File: xB0171-4.txt 8 0  
File: xC0151-4.txt 8 0  
File: xC0115-4.txt 8 0  
File: xD0235-4.txt 8 8  
File: xB0019-4.txt 8 0  
File: xB0047-4.txt 8 0  
File: xB0046-4.txt 8 0  
File: xD0036-4.txt 8 8  
File: xC0083-4.txt 8 0  
...  
File: xD0135-4.txt 8 8  
File: xB0007-4.txt 8 0  
File: xD0006-4.txt 8 8  
File: xD0246-4.txt 8 8  
File: xC0025-4.txt 8 0  
File: xB0193-4.txt 8 0  
File: xD0217-4.txt 8 8  
File: xC0001-4.txt 8 0  
File: xD0079-4.txt 8 8  
File: xD0115-4.txt 8 8  
File: xB0089-4.txt 8 0  
Summary: 780 260 0 520

Metadata available  
ntfs-10 Metadata found 757 files, not found 23, total 780 deleted files  
Deleted files without metadata (cannot be found)  
xB0047-4.txt      xB0097-4.txt      xB0136-4.txt      xB0186-4.txt  
xB0225-4.txt      xB0237-4.txt      xB0247-4.txt      xC0013-4.txt

xC0014-4.txt	xC0068-4.txt	xC0084-4.txt	xC0108-4.txt
xC0134-4.txt	xC0146-4.txt	xC0147-4.txt	xC0162-4.txt
xC0163-4.txt	xC0174-4.txt	xC0175-4.txt	xC0239-4.txt
xC0240-4.txt	xC0255-4.txt	xC0256-4.txt	

Layout History  
Block map has more than 200 entries

Sector List	
Alpha	1002178 - 1002185
Omega	1087232 - 1087239
xB0000-4.txt	1010368 - 1010375
xB0001-4.txt	1046230 - 1046237
xB0002-4.txt	1054416 - 1054423
xB0003-4.txt	1070800 - 1070807
xB0004-4.txt	1078992 - 1078999
xB0005-4.txt	1087184 - 1087191
xB0006-4.txt	1095376 - 1095383
...	
1283 omitted	
xF0251-4.txt	2037464 - 2037471
xF0252-4.txt	2045656 - 2045663
xF0253-4.txt	2053848 - 2053855
xF0254-4.txt	2062040 - 2062047
xF0255-4.txt	2070232 - 2070239
xF0256-4.txt	2078424 - 2078431
xF0257-4.txt	2086616 - 2086623
xF0258-4.txt	697778 - 697778
xF0259-4.txt	697780 - 697780

## 60 Test Image ntfs-11

DFR-11. Recover one non-fragmented directory.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes  
255 heads, 63 sectors/track, 130 cylinders, total 2097153 sectors  
Device Boot Start End Blocks Id System  
/dev/sdd1 128 2091135 1045504 7 HPFS/NTFS

3 files deleted

Deleted files (3)			
Name	Size	F-Hd	F-Bks
Sheliak.txt	2048 (4+0)	1	3
Sulafat.txt	2048 (4+0)	1	3
Vega.txt	2048 (4+0)	1	3

MAC times just before file deletion

File: `Lyra/Sheliak.txt'  
Access: 1999-01-02 03:04:00.000000000 -0500  
Modify: 2000-02-29 13:15:00.000000000 -0500  
Change: 2011-11-24 12:40:00.824948000 -0500  
File: `Lyra/Sulafat.txt'  
Access: 1999-01-02 03:04:00.000000000 -0500  
Modify: 2000-02-29 13:15:00.000000000 -0500  
Change: 2011-11-24 12:40:00.825187000 -0500  
File: `Lyra/Vega.txt'  
Access: 1999-01-02 03:04:00.000000000 -0500  
Modify: 2000-02-29 13:15:00.000000000 -0500  
Change: 2011-11-24 12:40:00.825403000 -0500

File delete times:

Times: /Volumes/CFFT/dfp/dfp-setup/ntfs-delete-times.txt Case ntfs-11  
CASE ntfs-11 delete time for step 3 Thu 11/24/2011 12:51 PM

==== Run step 3 ====

ACTION (delete): Sheliak.txt Vega.txt Sulafat.txt

Steps to Create Image ntfs-11		
Step	Action	Files in Partition NTFS
1	mkdir	Cygnus Lyra Orion
1	create	Albireo.txt Deneb.txt Sadr.txt
1	create	Sheliak.txt Vega.txt Sulafat.txt
1	create	Rigel.txt Mintaka.txt Betelguese.txt
2	set date/time	Lyra Sheliak.txt Vega.txt Sulafat.txt
3	delete	Sheliak.txt Vega.txt Sulafat.txt
3	rmdir	Lyra

No overwrites

File: Vega.txt 4 4  
File: Sheliak.txt 4 4  
File: Sulafat.txt 4 4  
Summary: 3 3 0 0

Metadata available  
ntfs-11 Metadata found 3 files, not found 0, total 3 deleted files  
Metadata available for all deleted files

Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2
958504 - 958507	Cygnus/Albireo	Cygnus/Albireo
1002177 - 1002180	Cygnus/Deneb	Cygnus/Deneb
1006272 - 1006275	Cygnus/Sadr	Cygnus/Sadr
1010368 - 1010371	Lyra/Sheliak	Lyra/Sheliak
1014464 - 1014467	Lyra/Vega	Lyra/Vega
1018560 - 1018563	Lyra/Sulafat	Lyra/Sulafat
1022656 - 1022659	Orion/Rigel	Orion/Rigel
1026752 - 1026755	Orion/Mintaka	Orion/Mintaka
1046485 - 1046488	Orion/Betelguese	Orion/Betelguese

Sector List	
Albireo.txt	958504 - 958507
Betelguese.txt	1046485 - 1046488
Deneb.txt	1002177 - 1002180
Mintaka.txt	1026752 - 1026755
Rigel.txt	1022656 - 1022659
Sadr.txt	1006272 - 1006275
Sheliak.txt	1010368 - 1010371
Sulafat.txt	1018560 - 1018563
Vega.txt	1014464 - 1014467

## 61 Test Image ntfs-11-compress

DFR-11. Recover one non-fragmented directory.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes  
255 heads, 63 sectors/track, 130 cylinders, total 2097153 sectors  
Device Boot Start End Blocks Id System  
/dev/sdd1 128 2091135 1045504 7 HPFS/NTFS

3 files deleted

Deleted files (3)			
Name	Size	F-Hd	F-Bks
Sheliak.txt	16384 (32+0)	1	31
Sulafat.txt	16384 (32+0)	1	31
Vega.txt	16384 (32+0)	1	31

MAC times just before file deletion

File: `Lyra/Sheliak.txt`  
Access: 1999-01-02 03:04:00.000000000 -0500  
Modify: 2000-02-29 13:15:00.000000000 -0500  
Change: 2012-03-14 14:36:54.446643000 -0400  
File: `Lyra/Sulafat.txt`  
Access: 1999-01-02 03:04:00.000000000 -0500  
Modify: 2000-02-29 13:15:00.000000000 -0500  
Change: 2012-03-14 14:36:54.446785000 -0400  
File: `Lyra/Vega.txt`  
Access: 1999-01-02 03:04:00.000000000 -0500  
Modify: 2000-02-29 13:15:00.000000000 -0500  
Change: 2012-03-14 14:36:54.451459000 -0400

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ntfs-11-compress

==== Run step 3 =====

ACTION (delete): Sheliak.txt Vega.txt Sulafat.txt

Steps to Create Image ntfs-11-compress		
Step	Action	Files in Partition NTFS
1	mkdir	Cygnus Lyra Orion
1	create	Albireo.txt Deneb.txt Sadr.txt
1	create	Sheliak.txt Vega.txt Sulafat.txt
1	create	Rigel.txt Mintaka.txt Betelguese.txt
2	set date/time	Lyra Sheliak.txt Vega.txt Sulafat.txt
3	delete	Sheliak.txt Vega.txt Sulafat.txt
3	rmdir	Lyra

No overwrites

File: Vega.txt 32 0  
File: Sheliak.txt 32 0  
File: Sulafat.txt 32 0  
Summary: 3 0 0 3

Metadata available

ntfs-11-compress Metadata found 3 files, not found 0, total 3 deleted files

Metadata available for all deleted files

Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2
682612 - 682612	Cygnus/Albireo	Cygnus/Albireo
682621 - 682621	Cygnus/Deneb	Cygnus/Deneb
682630 - 682630	Cygnus/Sadr	Cygnus/Sadr
682639 - 682639	Lyra/Sheliak	Lyra/Sheliak
682655 - 682655	Lyra/Vega	Lyra/Vega
682664 - 682664	Lyra/Sulafat	Lyra/Sulafat
682673 - 682673	Orion/Rigel	Orion/Rigel
682682 - 682682	Orion/Mintaka	Orion/Mintaka
682692 - 682692	Orion/Betelguese	Orion/Betelguese

Sector List	
Albireo.txt	682612 - 682612
Betelguese.txt	682692 - 682692
Deneb.txt	682621 - 682621
Mintaka.txt	682682 - 682682
Rigel.txt	682673 - 682673
Sadr.txt	682630 - 682630
Sheliak.txt	682639 - 682639
Sulafat.txt	682664 - 682664
Vega.txt	682655 - 682655

## 62 Test Image ntfs-11-mft

DFR-11. Recover one non-fragmented directory.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes  
 255 heads, 63 sectors/track, 130 cylinders, total 2097153 sectors  
 Device Boot Start End Blocks Id System  
 /dev/sdd1 128 2091135 1045504 7 HPFS/NTFS

3 files deleted

Deleted files (3)			
Name	Size	F-Hd	F-Bks
Sheliak.txt	512 (1+0)	1	0
Sulafat.txt	512 (1+0)	1	0
Vega.txt	512 (1+0)	1	0

MAC times just before file deletion

File: `Lyra/Sheliak.txt`  
 Access: 1999-01-02 03:04:00.000000000 -0500  
 Modify: 2000-02-29 13:15:00.000000000 -0500  
 Change: 2012-03-14 11:33:26.584846000 -0400  
 File: `Lyra/Sulafat.txt`  
 Access: 1999-01-02 03:04:00.000000000 -0500  
 Modify: 2000-02-29 13:15:00.000000000 -0500  
 Change: 2012-03-14 11:33:26.584970000 -0400  
 File: `Lyra/Vega.txt`  
 Access: 1999-01-02 03:04:00.000000000 -0500  
 Modify: 2000-02-29 13:15:00.000000000 -0500  
 Change: 2012-03-14 11:33:26.585062000 -0400

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ntfs-11-mft  
 ===== Run step 3 =====  
 ACTION (delete): Sheliak.txt Vega.txt Sulafat.txt

Steps to Create Image ntfs-11-mft		
Step	Action	Files in Partition NTFS
1	mkdir	Cygnus Lyra Orion
1	create	Albireo.txt Deneb.txt Sadr.txt
1	create	Sheliak.txt Vega.txt Sulafat.txt
1	create	Rigel.txt Mintaka.txt Betelguese.txt
2	set date/time	Lyra Sheliak.txt Vega.txt Sulafat.txt
3	delete	Sheliak.txt Vega.txt Sulafat.txt
3	rmdir	Lyra

No overwrites

File: Vega.txt 1 0  
 File: Sheliak.txt 1 0  
 File: Sulafat.txt 1 0

Summary: 3 0 0 3

Metadata available

ntfs-11-mft Metadata found 3 files, not found 0, total 3 deleted files

Metadata available for all deleted files

Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2
697196 - 697196	Cygnus/Albireo	Cygnus/Albireo
697198 - 697198	Cygnus/Deneb	Cygnus/Deneb
697200 - 697200	Cygnus/Sadr	Cygnus/Sadr
697202 - 697202	Lyra/Sheliak	Lyra/Sheliak
697204 - 697204	Lyra/Vega	Lyra/Vega
697206 - 697206	Lyra/Sulafat	Lyra/Sulafat
697208 - 697208	Orion/Rigel	Orion/Rigel
697210 - 697210	Orion/Mintaka	Orion/Mintaka
697212 - 697212	Orion/Betelguese	Orion/Betelguese

Sector List	
Albireo.txt	697196 - 697196
Betelguese.txt	697212 - 697212
Deneb.txt	697198 - 697198
Mintaka.txt	697210 - 697210
Rigel.txt	697208 - 697208
Sadr.txt	697200 - 697200
Sheliak.txt	697202 - 697202
Sulafat.txt	697206 - 697206
Vega.txt	697204 - 697204

### 63 Test Image ntfs-12

DFR-12. Recover one fragmented directory.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

255 heads, 63 sectors/track, 130 cylinders, total 2097153 sectors

Device Boot Start End Blocks Id System

/dev/sdd1 128 2091135 1045504 7 HPFS/NTFS

12 files deleted

Deleted files (12)			
Name	Size	F-Hd	F-Bks
Alcor.txt	4096 (8+0)	1	7
Betelguese.txt	2048 (4+0)	1	3
Dubhe.txt	4096 (8+0)	1	7
Mintaka.txt	2048 (4+0)	1	3
Mizar.txt	4096 (8+0)	1	7
Rastaban.txt	4096 (8+0)	1	7
Rigel.txt	2048 (4+0)	1	3
Sheliak.txt	6144 (12+0)	1	11
Sulafat.txt	6144 (12+0)	1	11
Thuban.txt	4096 (8+0)	1	7
Tyl.txt	4096 (8+0)	1	7
Vega.txt	8192 (16+0)	1	15

MAC times just before file deletion

File: `Ursa\_Major/Alcor.txt`

Access: 1999-01-02 03:42:00.000000000 -0500



Modify: 2000-02-29 13:52:00.000000000 -0500  
 Change: 2011-11-24 15:56:04.387364000 -0500  
 File: `Ursa\_Major/Alcor.txt'  
 Access: 1999-01-02 03:42:00.000000000 -0500  
 Modify: 2000-02-29 13:52:00.000000000 -0500  
 Change: 2011-11-24 15:56:04.387364000 -0500  
 File: `Orion/Betelguese.txt'  
 Access: 1999-01-02 03:44:00.000000000 -0500  
 Modify: 2000-02-29 13:54:00.000000000 -0500  
 Change: 2011-11-24 15:56:04.517565000 -0500  
 File: `Orion/Betelguese.txt'  
 Access: 1999-01-02 03:44:00.000000000 -0500  
 Modify: 2000-02-29 13:54:00.000000000 -0500  
 Change: 2011-11-24 15:56:04.517565000 -0500  
 File: `Ursa\_Major/Dubhe.txt'  
 Access: 1999-01-02 03:44:00.000000000 -0500  
 Modify: 2000-02-29 13:54:00.000000000 -0500  
 Change: 2011-11-24 15:56:04.453144000 -0500

...  
 44 omitted

File: `Draco/Thuban.txt'  
 Access: 1999-01-02 03:43:00.000000000 -0500  
 Modify: 2000-02-29 13:53:00.000000000 -0500  
 Change: 2011-11-24 15:56:04.306829000 -0500  
 File: `Draco/Thuban.txt'  
 Access: 1999-01-02 03:43:00.000000000 -0500  
 Modify: 2000-02-29 13:53:00.000000000 -0500  
 Change: 2011-11-24 15:56:04.306829000 -0500  
 File: `Draco/Tyl.txt'  
 Access: 1999-01-02 03:44:00.000000000 -0500  
 Modify: 2000-02-29 13:54:00.000000000 -0500  
 Change: 2011-11-24 15:56:04.334307000 -0500  
 File: `Draco/Tyl.txt'  
 Access: 1999-01-02 03:44:00.000000000 -0500  
 Modify: 2000-02-29 13:54:00.000000000 -0500  
 Change: 2011-11-24 15:56:04.334307000 -0500  
 File: `Lyra/Vega.txt'  
 Access: 1999-01-02 03:43:00.000000000 -0500  
 Modify: 2000-02-29 13:53:00.000000000 -0500  
 Change: 2011-11-24 15:25:16.279092000 -0500

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case ntfs-12  
 CASE ntfs-12 delete time for step 4 Thu 11/24/2011 03:48 PM  
 CASE ntfs-12 delete time for step 7 Thu 11/24/2011 04:08 PM  
 ===== Run step 4 =====  
 ACTION (delete): Sheliak.txt Vega.txt Sulafat.txt  
 ACTION (delete): Rastaban.txt Thuban.txt Tyl.txt  
 ACTION (delete): Rigel.txt Mintaka.txt Betelguese.txt  
 ACTION (delete): Alcor.txt Mizar.txt Dubhe.txt

Steps to Create Image ntfs-12		
Step	Action	Files in Partition NTFS
1	mkdir	Andromeda Draco Ursa_Major Lyra
1	create	Alpheratz.txt Mirach.txt Adhil.txt
1	create	Rastaban.txt Thuban.txt Tyl.txt
1	create	Alcor.txt Mizar.txt Dubhe.txt
1	create	Sheliak.txt Vega.txt Sulafat.txt
2	append	Rastaban.txt Thuban.txt Tyl.txt
2	append	Sheliak.txt Vega.txt Sulafat.txt
3	set date/time	Lyra Sheliak.txt Vega.txt Sulafat.txt
4	delete	Sheliak.txt Vega.txt Sulafat.txt
4	rmdir	Lyra
5	mkdir	Orion
5	create	Rigel.txt Mintaka.txt Betelguese.txt
5	append	Alcor.txt Mizar.txt Dubhe.txt
6	set	Draco Rastaban.txt Thuban.txt Tyl.txt Ursa_Major Alcor.txt Mizar.txt Dubhe.txt Orion Rigel.txt

Steps to Create Image ntfs-12		
	date/time	Mintaka.txt Betelguese.txt
7	delete	Rastaban.txt Thuban.txt Tyl.txt
7	delete	Rigel.txt Mintaka.txt Betelguese.txt
7	delete	Alcor.txt Mizar.txt Dubhe.txt
7	rmdir	Draco
7	rmdir	Orion

6 overwrites

Alcor.txt x Sulafat.txt: overlap - 1119952 - 1119955  
 Betelguese.txt x Sulafat.txt: overlap - 1119956 - 1119959  
 Dubhe.txt x Sheliak.txt: overlap - 1103572 - 1103575  
 Mintaka.txt x Sheliak.txt: overlap - 1103568 - 1103571  
 Mizar.txt x Vega.txt: overlap - 1111764 - 1111767  
 Rigel.txt x Vega.txt: overlap - 1111760 - 1111763

File: Rigel.txt 4 4  
 File: Betelguese.txt 4 4  
 File: Rastaban.txt 8 8  
 File: Vega.txt 16 8  
 File: Mintaka.txt 4 4  
 File: Tyl.txt 8 8  
 File: Thuban.txt 8 8  
 File: Alcor.txt 8 8  
 File: Sheliak.txt 12 4  
 File: Sulafat.txt 12 4  
 File: Mizar.txt 8 8  
 File: Dubhe.txt 8 8  
 Summary: 12 9 3 0

Metadata available

ntfs-12 Metadata found 9 files, not found 3, total 12 deleted files  
 Deleted files without metadata (cannot be found)  
 Sheliak.txtSulafat.txt Vega.txt

Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2
1002178 - 1002181	Andromeda/Alpheratz	Andromeda/Alpheratz
1010368 - 1010371	Andromeda/Mirach	Andromeda/Mirach
1046230 - 1046233	Andromeda/Adhil	Andromeda/Adhil
1054416 - 1054419	Draco/Rastaban	Draco/Rastaban
1054420 - 1054423	empty	Draco/Rastaban
1062608 - 1062611	Ursa_Major/Alcor	Ursa_Major/Alcor
1070800 - 1070803	Draco/Thuban	Draco/Thuban
1070804 - 1070807	empty	Draco/Thuban
1078992 - 1078995	Ursa_Major/Mizar	Ursa_Major/Mizar
1087184 - 1087187	Draco/Tyl	Draco/Tyl
1087188 - 1087191	empty	Draco/Tyl
1095376 - 1095379	Ursa_Major/Dubhe	Ursa_Major/Dubhe
1103568 - 1103571	Lyra/Sheliak	Lyra/Sheliak
1103572 - 1103575	empty	Lyra/Sheliak
1103576 - 1103579	empty	Lyra/Sheliak
1111760 - 1111763	Lyra/Vega	Lyra/Vega
1111764 - 1111767	empty	Lyra/Vega
1111768 - 1111775	empty	Lyra/Vega
1119952 - 1119955	Lyra/Sulafat	Lyra/Sulafat
1119956 - 1119959	empty	Lyra/Sulafat
1119960 - 1119963	empty	Lyra/Sulafat

Layout for Steps 3 through 4		
Sectors	Step 3	Step 4

<b>Layout for Steps 3 through 4</b>		
1002178 - 1002181	Andromeda/Alpheratz	Andromeda/Alpheratz
1010368 - 1010371	Andromeda/Mirach	Andromeda/Mirach
1046230 - 1046233	Andromeda/Adhil	Andromeda/Adhil
1054416 - 1054419	Draco/Rastaban	Draco/Rastaban
1054420 - 1054423	Draco/Rastaban	Draco/Rastaban
1062608 - 1062611	Ursa_Major/Alcor	Ursa_Major/Alcor
1070800 - 1070803	Draco/Thuban	Draco/Thuban
1070804 - 1070807	Draco/Thuban	Draco/Thuban
1078992 - 1078995	Ursa_Major/Mizar	Ursa_Major/Mizar
1087184 - 1087187	Draco/Tyl	Draco/Tyl
1087188 - 1087191	Draco/Tyl	Draco/Tyl
1095376 - 1095379	Ursa_Major/Dubhe	Ursa_Major/Dubhe
1103568 - 1103571	Lyra/Sheliak	Lyra/Sheliak
1103572 - 1103575	Lyra/Sheliak	Lyra/Sheliak
1103576 - 1103579	Lyra/Sheliak	Lyra/Sheliak
1111760 - 1111763	Lyra/Vega	Lyra/Vega
1111764 - 1111767	Lyra/Vega	Lyra/Vega
1111768 - 1111775	Lyra/Vega	Lyra/Vega
1119952 - 1119955	Lyra/Sulafat	Lyra/Sulafat
1119956 - 1119959	Lyra/Sulafat	Lyra/Sulafat
1119960 - 1119963	Lyra/Sulafat	Lyra/Sulafat

<b>Layout for Steps 5 through 6</b>		
Sectors	Step 5	Step 6
1002178 - 1002181	Andromeda/Alpheratz	Andromeda/Alpheratz
1010368 - 1010371	Andromeda/Mirach	Andromeda/Mirach
1046230 - 1046233	Andromeda/Adhil	Andromeda/Adhil
1054416 - 1054419	Draco/Rastaban	Draco/Rastaban
1054420 - 1054423	Draco/Rastaban	Draco/Rastaban
1062608 - 1062611	Ursa_Major/Alcor	Ursa_Major/Alcor
1070800 - 1070803	Draco/Thuban	Draco/Thuban
1070804 - 1070807	Draco/Thuban	Draco/Thuban
1078992 - 1078995	Ursa_Major/Mizar	Ursa_Major/Mizar
1087184 - 1087187	Draco/Tyl	Draco/Tyl
1087188 - 1087191	Draco/Tyl	Draco/Tyl
1095376 - 1095379	Ursa_Major/Dubhe	Ursa_Major/Dubhe
1103568 - 1103571	Orion/Mintaka	Orion/Mintaka
1103572 - 1103575	Ursa_Major/Dubhe	Ursa_Major/Dubhe
1103576 - 1103579	Lyra/Sheliak	Lyra/Sheliak
1111760 - 1111763	Orion/Rigel	Orion/Rigel
1111764 - 1111767	Ursa_Major/Mizar	Ursa_Major/Mizar
1111768 - 1111775	Lyra/Vega	Lyra/Vega
1119952 - 1119955	Ursa_Major/Alcor	Ursa_Major/Alcor
1119956 - 1119959	Orion/Betelguese	Orion/Betelguese
1119960 - 1119963	Lyra/Sulafat	Lyra/Sulafat

<b>Sector List</b>	
Adhil.txt	1046230 - 1046233
Alcor.txt	1062608 - 1062611, 1119952 - 1119955
Alpheratz.txt	1002178 - 1002181
Betelguese.txt	1119956 - 1119959
Dubhe.txt	1095376 - 1095379, 1103572 - 1103575
Mintaka.txt	1103568 - 1103571
Mirach.txt	1010368 - 1010371
Mizar.txt	1078992 - 1078995, 1111764 - 1111767
Rastaban.txt	1054416 - 1054423
Rigel.txt	1111760 - 1111763
Sheliak.txt	1103568 - 1103579
Sulafat.txt	1119952 - 1119963
Thuban.txt	1070800 - 1070807
Tyl.txt	1087184 - 1087191
Vega.txt	1111760 - 1111775

## 64 Test Image ntfs-13

DFR-13. Recover chaotic file system activity.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

65 heads, 26 sectors/track, 1240 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		128	614527	307200	7	HPFS/NTFS

138 files deleted

Deleted files (138)			
Name	Size	F-Hd	F-Bks
D000-alpha=a-a=D=s-s=C-1.txt	9216 (18+0)	1	17
D001-alpha=a-a=D=s-s=C-2.txt	20480 (40+0)	1	39
D002-alpha=a-a=D=s-s=C-3.txt	7168 (14+0)	1	13
D003-alpha=a-a=D=s-s=C-4.txt	37376 (73+0)	1	72
D004-alpha=a-a=D=s-s=C-5.txt	7680 (15+0)	1	14
D005-alpha=a-a=D=s-s=C-6.txt	30208 (59+0)	1	58
D006-alpha=a-a=D=s-s=C-7.txt	10240 (20+0)	1	19
D007-alpha=a-a=D=s-s=C-8.txt	25088 (49+0)	1	48
D008-alpha=a-s=D=s-s=C-1.txt	9728 (19+0)	1	18
D009-alpha=a-s=D=s-s=C-2.txt	2560 (5+0)	1	4
D010-alpha=a-s=D=s-s=C-3.txt	19456 (38+0)	1	37
D011-alpha=a-s=D=s-s=C-4.txt	5120 (10+0)	1	9
D012-alpha=a-s=D=s-s=C-5.txt	22016 (43+0)	1	42
D013-alpha=a-s=D=s-s=C-6.txt	5120 (10+0)	1	9
D014-alpha=a-s=D=s-s=C-7.txt	9728 (19+0)	1	18
D015-alpha=a-s=D=s-s=C-8.txt	8704 (17+0)	1	16
D016-alpha=s-a=D=s-s=C-1.txt	18944 (37+0)	1	36
D017-alpha=s-a=D=s-s=C-2.txt	29184 (57+0)	1	56
D018-alpha=s-a=D=s-s=C-3.txt	2048 (4+0)	1	3
D019-alpha=s-a=D=s-s=C-4.txt	10752 (21+0)	1	20
...			
98 omitted			
D190-gamma=s-s=C=a-s=D-3.txt	6656 (13+0)	1	12
D191-gamma=s-s=C=a-s=D-4.txt	4608 (9+0)	1	8
D196-gamma=s-s=C=s-a=D-1.txt	3072 (6+0)	1	5
D197-gamma=s-s=C=s-a=D-2.txt	6144 (12+0)	1	11
D198-gamma=s-s=C=s-a=D-3.txt	9216 (18+0)	1	17
D199-gamma=s-s=C=s-a=D-4.txt	2560 (5+0)	1	4
D204-gamma=s-s=C=s-s=D-1.txt	4096 (8+0)	1	7
D205-gamma=s-s=C=s-s=D-2.txt	2560 (5+0)	1	4
D206-gamma=s-s=C=s-s=D-3.txt	1536 (3+0)	1	2
D207-gamma=s-s=C=s-s=D-4.txt	3584 (7+0)	1	6
D213-delta=s-s=C=s-a=D-1.txt	1536 (3+0)	1	2
D214-delta=s-s=C=s-a=D-2.txt	3584 (7+0)	1	6
D215-delta=s-s=C=s-a=D-3.txt	512 (1+0)	1	0
D216-delta=s-s=C=s-a=D-4.txt	4096 (8+0)	1	7
D217-delta=s-s=C=s-a=D-5.txt	2560 (5+0)	1	4
D223-delta=s-s=C=s-s=D-1.txt	1536 (3+0)	1	2
D224-delta=s-s=C=s-s=D-2.txt	3584 (7+0)	1	6
D225-delta=s-s=C=s-s=D-3.txt	512 (1+0)	1	0
D226-delta=s-s=C=s-s=D-4.txt	4096 (8+0)	1	7
D227-delta=s-s=C=s-s=D-5.txt	2560 (5+0)	1	4

MAC times just before file deletion

File: `Orion/D000-alpha=a-a=D=s-s=C-1.txt'  
Access: 2012-03-10 08:44:02.669489000 -0500  
Modify: 2012-03-10 08:37:50.799961000 -0500  
Change: 2012-03-10 08:37:50.799961000 -0500  
File: `Taurus/D001-alpha=a-a=D=s-s=C-2.txt'

Access: 2012-03-10 08:44:02.967408000 -0500  
 Modify: 2012-03-10 08:37:50.823620000 -0500  
 Change: 2012-03-10 08:37:50.823620000 -0500  
 File: `Taurus/D002-alpha=a-a=D=s-s=C-3.txt'  
 Access: 2012-03-10 08:44:03.011768000 -0500  
 Modify: 2012-03-10 08:37:50.849494000 -0500  
 Change: 2012-03-10 08:37:50.849494000 -0500  
 File: `Taurus/D003-alpha=a-a=D=s-s=C-4.txt'  
 Access: 2012-03-10 08:44:03.039577000 -0500  
 Modify: 2012-03-10 08:37:50.906140000 -0500  
 Change: 2012-03-10 08:37:50.906140000 -0500  
 File: `Ursa/D004-alpha=a-a=D=s-s=C-5.txt'  
 Access: 2012-03-10 08:44:02.381382000 -0500  
 Modify: 2012-03-10 08:37:50.949456000 -0500  
 Change: 2012-03-10 08:37:50.949456000 -0500

...

512 omitted

File: `Taurus/D223-delta=s-s=C=s-s=D-1.txt'  
 Access: 2012-03-10 09:20:25.257570000 -0500  
 Modify: 2012-03-10 09:17:22.556110000 -0500  
 Change: 2012-03-10 09:17:22.556110000 -0500  
 File: `Ursa/D224-delta=s-s=C=s-s=D-2.txt'  
 Access: 2012-03-10 09:20:24.558436000 -0500  
 Modify: 2012-03-10 09:17:22.560516000 -0500  
 Change: 2012-03-10 09:17:22.560516000 -0500  
 File: `Ursa/D225-delta=s-s=C=s-s=D-3.txt'  
 Access: 2012-03-10 09:20:24.565275000 -0500  
 Modify: 2012-03-10 09:17:22.574459000 -0500  
 Change: 2012-03-10 09:17:22.574459000 -0500  
 File: `Orion/D226-delta=s-s=C=s-s=D-4.txt'  
 Access: 2012-03-10 09:20:24.819800000 -0500  
 Modify: 2012-03-10 09:17:22.579361000 -0500  
 Change: 2012-03-10 09:17:22.579361000 -0500  
 File: `Orion/D227-delta=s-s=C=s-s=D-5.txt'  
 Access: 2012-03-10 09:20:24.840044000 -0500  
 Modify: 2012-03-10 09:17:22.597783000 -0500  
 Change: 2012-03-10 09:17:22.597783000 -0500

File delete times:

Times: /Volumes/CFMT/dfr/dfr-setup/ntfs-delete-times.txt Case ntfs-13

CASE ntfs-13 delete time for step 11 Sat 03/10/2012 09:30 AM

CASE ntfs-13 delete time for step 7 Sat 03/10/2012 09:02 AM

==== Run step 7 =====

ACTION (delete): part 1 =D= in partition D

ACTION (delete): part 2 =D- in partition D

Steps to Create Image ntfs-13		
Step	Action	Files in Partition NTFS
1	create	alpha in partition D
2	append	a1 a-x... in partition D
3	create	beta in partition D
4	append	a2 x-a... in partition D
5	create	gamma in partition D
6	create	fill in partition D
7	delete	part 1 =D= in partition D
8	append	a3 x-x=x=a... in partition D
9	create	delta in partition D
10	append	a4 x-x=x=a... in partition D
11	delete	part 2 =D- in partition D

107 overwrites

D000-alpha=a-a=D=s-s=C-1.txt x D083-alpha=s-s=C=a-a=D-2.txt: overlap - 300816 - 300817  
 D000-alpha=a-a=D=s-s=C-1.txt x D126-beta=s-a=C=a-s=D-3.txt: overlap - 300818 - 300820  
 D000-alpha=a-a=D=s-s=C-1.txt x D208-delta=s-s=C=s-a=C-1.txt: overlap - 300821 - 300823  
 D001-alpha=a-a=D=s-s=C-2.txt x D065-alpha=s-a=C=a-a=C-2.txt: overlap - 307837 - 307841  
 D001-alpha=a-a=D=s-s=C-2.txt x D184-gamma=s-s=C=a-s=C-1.txt: overlap - 307842 - 307844  
 D002-alpha=a-a=D=s-s=C-3.txt x D032-alpha=a-a=C=a-a=C-1.txt: overlap - 311912 - 311920

D003-alpha=a-a=D=s-s=C-4.txt x D113-beta=s-a=C=a-a=C-2.txt: overlap - 324206 - 324207  
D003-alpha=a-a=D=s-s=C-4.txt x D127-beta=s-a=C=a-s=D-4.txt: overlap - 324208 - 324220  
D003-alpha=a-a=D=s-s=C-4.txt x D157-beta=s-s=C=a-s=D-2.txt: overlap - 324221 - 324233  
D003-alpha=a-a=D=s-s=C-4.txt x D185-gamma=s-s=C=a-s=C-2.txt: overlap - 324234 - 324238  
D003-alpha=a-a=D=s-s=C-4.txt x D209-delta=s-s=C=s-a=C-2.txt: overlap - 324239 - 324245  
D003-alpha=a-a=D=s-s=C-4.txt x D223-delta=s-s=C=s-s=D-1.txt: overlap - 324246 - 324248  
D005-alpha=a-a=D=s-s=C-6.txt x D033-alpha=a-a=C=a-a=C-2.txt: overlap - 324200 - 324201  
D005-alpha=a-a=D=s-s=C-6.txt x D034-alpha=a-a=C=a-a=D-1.txt: overlap - 344701 - 344703  
D005-alpha=a-a=D=s-s=C-6.txt x D066-alpha=s-a=C=a-a=D-1.txt: overlap - 324202 - 324205  
D005-alpha=a-a=D=s-s=C-6.txt x D067-alpha=s-a=C=a-a=D-2.txt: overlap - 344704 - 344716  
D005-alpha=a-a=D=s-s=C-6.txt x D145-beta=s-s=C=a-a=C-2.txt: overlap - 344717 - 344721  
D005-alpha=a-a=D=s-s=C-6.txt x D187-gamma=s-s=C=a-s=C-4.txt: overlap - 344722 - 344734  
D007-alpha=a-a=D=s-s=C-8.txt x D114-beta=s-a=C=a-a=C-3.txt: overlap - 332392 - 332394  
D007-alpha=a-a=D=s-s=C-8.txt x D144-beta=s-s=C=a-a=C-1.txt: overlap - 332395 - 332397  
D007-alpha=a-a=D=s-s=C-8.txt x D158-beta=s-s=C=a-s=D-3.txt: overlap - 332398 - 332399  
D007-alpha=a-a=D=s-s=C-8.txt x D186-gamma=s-s=C=a-s=C-3.txt: overlap - 332400 - 332403  
D007-alpha=a-a=D=s-s=C-8.txt x D211-delta=s-s=C=s-a=C-4.txt: overlap - 332404 - 332411  
D007-alpha=a-a=D=s-s=C-8.txt x D224-delta=s-s=C=s-s=D-2.txt: overlap - 332412 - 332418  
D010-alpha=a-s=D=s-s=C-3.txt x D115-beta=s-a=C=a-a=C-4.txt: overlap - 348792 - 348796  
D010-alpha=a-s=D=s-s=C-3.txt x D159-beta=s-s=C=a-s=D-4.txt: overlap - 348797 - 348799  
D010-alpha=a-s=D=s-s=C-3.txt x D212-delta=s-s=C=s-a=C-5.txt: overlap - 348800 - 348804  
D012-alpha=a-s=D=s-s=C-5.txt x D035-alpha=a-a=C=a-a=D-2.txt: overlap - 365187 - 365191  
D012-alpha=a-s=D=s-s=C-5.txt x D146-beta=s-s=C=a-a=C-3.txt: overlap - 365192 - 365195  
D012-alpha=a-s=D=s-s=C-5.txt x D188-gamma=s-s=C=a-s=D-1.txt: overlap - 365196 - 365197  
D012-alpha=a-s=D=s-s=C-5.txt x D213-delta=s-s=C=s-a=D-1.txt: overlap - 365198 - 365200  
D012-alpha=a-s=D=s-s=C-5.txt x D226-delta=s-s=C=s-s=D-4.txt: overlap - 365201 - 365208  
D015-alpha=a-s=D=s-s=C-8.txt x D227-delta=s-s=C=s-s=D-5.txt: overlap - 373376 - 373380  
D016-alpha=s-a=D=s-s=C-1.txt x D068-alpha=s-a=C=a-s=C-1.txt: overlap - 377472 - 377473  
D016-alpha=s-a=D=s-s=C-1.txt x D176-gamma=s-s=C=a-a=C-1.txt: overlap - 377474 - 377477  
D016-alpha=s-a=D=s-s=C-1.txt x D189-gamma=s-s=C=a-s=D-2.txt: overlap - 377478 - 377481  
D016-alpha=s-a=D=s-s=C-1.txt x D214-delta=s-s=C=s-a=D-2.txt: overlap - 377482 - 377488  
D017-alpha=s-a=D=s-s=C-2.txt x D036-alpha=a-a=C=a-s=C-1.txt: overlap - 381568 - 381571  
D017-alpha=s-a=D=s-s=C-2.txt x D069-alpha=s-a=C=a-s=C-2.txt: overlap - 381572 - 381574  
D017-alpha=s-a=D=s-s=C-2.txt x D116-beta=s-a=C=a-a=D-1.txt: overlap - 381575 - 381578  
D017-alpha=s-a=D=s-s=C-2.txt x D147-beta=s-s=C=a-a=C-4.txt: overlap - 381579 - 381592  
D017-alpha=s-a=D=s-s=C-2.txt x D177-gamma=s-s=C=a-a=C-2.txt: overlap - 381593 - 381605  
D017-alpha=s-a=D=s-s=C-2.txt x D190-gamma=s-s=C=a-s=D-3.txt: overlap - 381606 - 381610  
D017-alpha=s-a=D=s-s=C-2.txt x D216-delta=s-s=C=s-a=D-4.txt: overlap - 381611 - 381618  
D019-alpha=s-a=D=s-s=C-4.txt x D178-gamma=s-s=C=a-a=C-3.txt: overlap - 402065 - 402066  
D019-alpha=s-a=D=s-s=C-4.txt x D217-delta=s-s=C=s-a=D-5.txt: overlap - 402067 - 402071  
D021-alpha=s-a=D=s-s=C-6.txt x D182-gamma=s-s=C=a-a=D-3.txt: overlap - 447120 - 447123  
D022-alpha=s-a=D=s-s=C-7.txt x D049-alpha=a-s=C=a-a=C-2.txt: overlap - 459411 - 459413  
D022-alpha=s-a=D=s-s=C-7.txt x D082-alpha=s-s=C=a-a=D-1.txt: overlap - 459414 - 459426  
D022-alpha=s-a=D=s-s=C-7.txt x D120-beta=s-a=C=a-s=C-1.txt: overlap - 459427 - 459431  
D022-alpha=s-a=D=s-s=C-7.txt x D151-beta=s-s=C=a-a=D-4.txt: overlap - 459432 - 459435  
D022-alpha=s-a=D=s-s=C-7.txt x D182-gamma=s-s=C=a-a=D-3.txt: overlap - 459436 - 459439  
D023-alpha=s-a=D=s-s=C-8.txt x D152-beta=s-s=C=a-s=C-1.txt: overlap - 483986 - 483990  
D024-alpha=s-s=D=s-s=C-1.txt x D148-beta=s-s=C=a-a=D-1.txt: overlap - 406144 - 406145  
D024-alpha=s-s=D=s-s=C-1.txt x D191-gamma=s-s=C=a-s=D-4.txt: overlap - 406146 - 406149  
D025-alpha=s-s=D=s-s=C-2.txt x D038-alpha=a-a=C=a-s=D-1.txt: overlap - 410240 - 410241  
D025-alpha=s-s=D=s-s=C-2.txt x D070-alpha=s-a=C=a-s=D-1.txt: overlap - 410242 - 410246  
D025-alpha=s-s=D=s-s=C-2.txt x D117-beta=s-a=C=a-a=D-2.txt: overlap - 410247 - 410259  
D025-alpha=s-s=D=s-s=C-2.txt x D149-beta=s-s=C=a-a=D-2.txt: overlap - 410260 - 410262  
D025-alpha=s-s=D=s-s=C-2.txt x D179-gamma=s-s=C=a-a=C-4.txt: overlap - 410263 - 410265  
D026-alpha=s-s=D=s-s=C-3.txt x D039-alpha=a-a=C=a-s=D-2.txt: overlap - 414336 - 414338  
D026-alpha=s-s=D=s-s=C-3.txt x D071-alpha=s-a=C=a-s=D-2.txt: overlap - 414339 - 414342  
D026-alpha=s-s=D=s-s=C-3.txt x D118-beta=s-a=C=a-a=D-3.txt: overlap - 414344 - 414345  
D026-alpha=s-s=D=s-s=C-3.txt x D218-delta=s-s=C=s-s=C-1.txt: overlap - 414346 - 414348  
D028-alpha=s-s=D=s-s=C-5.txt x D080-alpha=s-s=C=a-a=C-1.txt: overlap - 418432 - 418436  
D029-alpha=s-s=D=s-s=C-6.txt x D180-gamma=s-s=C=a-a=D-1.txt: overlap - 422528 - 422532  
D030-alpha=s-s=D=s-s=C-7.txt x D219-delta=s-s=C=s-s=C-2.txt: overlap - 426624 - 426626  
D031-alpha=s-s=D=s-s=C-8.txt x D150-beta=s-s=C=a-a=D-3.txt: overlap - 430720 - 430724  
D031-alpha=s-s=D=s-s=C-8.txt x D219-delta=s-s=C=s-s=C-2.txt: overlap - 430725 - 430726  
D032-alpha=a-a=C=a-a=C-1.txt x D097-beta=s-a=D=s-s=C-2.txt: overlap - 311921 - 311924  
D037-alpha=a-a=C=a-s=C-2.txt x D096-beta=s-a=D=s-s=C-1.txt: overlap - 533137 - 533149  
D048-alpha=a-s=C=a-a=C-1.txt x D104-beta=s-s=D=s-s=C-1.txt: overlap - 447114 - 447115  
D050-alpha=a-s=C=a-a=D-1.txt x D105-beta=s-s=D=s-s=C-2.txt: overlap - 471690 - 471694  
D051-alpha=s-s=C=a-a=D-2.txt x D106-beta=s-s=D=s-s=C-3.txt: overlap - 500361 - 500364  
D052-alpha=a-s=C=a-s=C-1.txt x D106-beta=s-s=D=s-s=C-3.txt: overlap - 500365 - 500377

D053-alpha=a-s=C=a-s=C-2.txt x D107-beta=s-s=D=s-s=C-4.txt: overlap - 529032 - 529033  
D054-alpha=a-s=C=a-s=D-1.txt x D109-beta=s-s=D=s-s=C-6.txt: overlap - 561798 - 561800  
D055-alpha=a-s=C=a-s=D-2.txt x D101-beta=s-a=D=s-s=C-6.txt: overlap - 586388 - 586392  
D064-alpha=s-a=C=a-a=C-1.txt x D103-beta=s-a=D=s-s=C-8.txt: overlap - 598691 - 598693  
D081-alpha=s-s=C=a-a=C-2.txt x D104-beta=s-s=D=s-s=C-1.txt: overlap - 447116 - 447119  
D084-alpha=s-s=C=a-s=C-1.txt x D105-beta=s-s=D=s-s=C-2.txt: overlap - 471695 - 471698  
D085-alpha=s-s=C=a-s=C-2.txt x D106-beta=s-s=D=s-s=C-3.txt: overlap - 500378 - 500382  
D086-alpha=s-s=C=a-s=D-1.txt x D107-beta=s-s=D=s-s=C-4.txt: overlap - 529034 - 529037  
D087-alpha=s-s=C=a-s=D-2.txt x D101-beta=s-a=D=s-s=C-6.txt: overlap - 586393 - 586400  
D087-alpha=s-s=C=a-s=D-2.txt x D109-beta=s-s=D=s-s=C-6.txt: overlap - 561801 - 561805  
D097-beta=s-a=D=s-s=C-2.txt x D112-beta=s-a=C=a-a=C-1.txt: overlap - 311925 - 311927  
D097-beta=s-a=D=s-s=C-2.txt x D156-beta=s-s=C=a-s=D-1.txt: overlap - 311928 - 311931  
D097-beta=s-a=D=s-s=C-2.txt x D222-delta=s-s=C=s-s=C-5.txt: overlap - 311932 - 311936  
D098-beta=s-a=D=s-s=C-3.txt x D123-beta=s-a=C=a-s=C-4.txt: overlap - 557711 - 557712  
D098-beta=s-a=D=s-s=C-3.txt x D153-beta=s-s=C=a-s=C-2.txt: overlap - 557713 - 557714  
D099-beta=s-a=D=s-s=C-4.txt x D124-beta=s-a=C=a-s=D-1.txt: overlap - 569999 - 570001  
D099-beta=s-a=D=s-s=C-4.txt x D154-beta=s-s=C=a-s=C-3.txt: overlap - 570002 - 570005  
D099-beta=s-a=D=s-s=C-4.txt x D182-gamma=s-s=C=a-a=D-3.txt: overlap - 570006 - 570009  
D099-beta=s-a=D=s-s=C-4.txt x D219-delta=s-s=C=s-s=C-2.txt: overlap - 570010 - 570011  
D101-beta=s-a=D=s-s=C-6.txt x D125-beta=s-a=C=a-s=D-2.txt: overlap - 586401 - 586405  
D101-beta=s-a=D=s-s=C-6.txt x D155-beta=s-s=C=a-s=C-4.txt: overlap - 586406 - 586410  
D101-beta=s-a=D=s-s=C-6.txt x D183-gamma=s-s=C=a-a=D-4.txt: overlap - 586411 - 586412  
D101-beta=s-a=D=s-s=C-6.txt x D221-delta=s-s=C=s-s=C-4.txt: overlap - 586413 - 586420  
D102-beta=s-a=D=s-s=C-7.txt x D126-beta=s-a=C=a-s=D-3.txt: overlap - 590496 - 590496  
D103-beta=s-a=D=s-s=C-8.txt x D112-beta=s-a=C=a-a=C-1.txt: overlap - 598694 - 598703  
D103-beta=s-a=D=s-s=C-8.txt x D119-beta=s-a=C=a-a=D-4.txt: overlap - 426633 - 426635  
D103-beta=s-a=D=s-s=C-8.txt x D181-gamma=s-s=C=a-a=D-2.txt: overlap - 426636 - 426639  
D105-beta=s-s=D=s-s=C-2.txt x D121-beta=s-a=C=a-s=C-2.txt: overlap - 471699 - 471702  
D105-beta=s-s=D=s-s=C-2.txt x D182-gamma=s-s=C=a-a=D-3.txt: overlap - 471703 - 471704  
D106-beta=s-s=D=s-s=C-3.txt x D122-beta=s-a=C=a-s=C-3.txt: overlap - 500383 - 500392  
D107-beta=s-s=D=s-s=C-4.txt x D122-beta=s-a=C=a-s=C-3.txt: overlap - 529038 - 529040  
D107-beta=s-s=D=s-s=C-4.txt x D152-beta=s-s=C=a-s=C-1.txt: overlap - 529041 - 529048

File: D096-beta=s-a=D=s-s=C-1.txt 28 0  
File: D004-alpha=a-a=D=s-s=C-5.txt 15 0  
File: D086-alpha=s-s=C=a-s=D-1.txt 9 9  
File: D149-beta=s-s=C=a-a=D-2.txt 10 10  
File: D125-beta=s-a=C=a-s=D-2.txt 22 22  
File: D165-beta=s-s=C=s-a=D-2.txt 10 10  
File: D148-beta=s-s=C=a-a=D-1.txt 23 23  
File: D034-alpha=a-a=C=a-a=D-1.txt 25 25  
File: D016-alpha=s-a=D=s-s=C-1.txt 37 0  
File: D026-alpha=s-s=D=s-s=C-3.txt 17 0  
File: D067-alpha=s-a=C=a-a=D-2.txt 27 27  
File: D017-alpha=s-a=D=s-s=C-2.txt 57 0  
...  
File: D172-beta=s-s=C=s-s=D-1.txt 7 7  
File: D216-delta=s-s=C=s-a=D-4.txt 8 8  
File: D217-delta=s-s=C=s-a=D-5.txt 5 5  
File: D102-beta=s-a=D=s-s=C-7.txt 6 0  
File: D135-beta=s-a=C=s-a=D-4.txt 13 13  
File: D031-alpha=s-s=D=s-s=C-8.txt 7 0  
File: D188-gamma=s-s=C=a-s=D-1.txt 17 17  
File: D223-delta=s-s=C=s-s=D-1.txt 3 3  
File: D027-alpha=s-s=D=s-s=C-4.txt 1 0  
File: D175-beta=s-s=C=s-s=D-4.txt 1 0  
File: D118-beta=s-a=C=a-a=D-3.txt 32 32  
Summary: 138 87 0 51

Metadata available  
ntfs-13 Metadata found 135 files, not found 3, total 138 deleted files  
Deleted files without metadata (cannot be found)  
D005-alpha=a-a=D=s-s=C-6.txt D010-alpha=a-s=D=s-s=C-3.txt  
D013-alpha=a-s=D=s-s=C-6.txt

Layout History  
Block map has more than 200 entries

Sector List	
D000-alpha=a-a=D=s-s=C-1.txt	205062 - 205062, 300816 - 300829, 300862 - 300865
D001-alpha=a-a=D=s-s=C-2.txt	307820 - 307829, 307837 - 307866
D002-alpha=a-a=D=s-s=C-3.txt	311912 - 311920, 320129 - 320133
D003-alpha=a-a=D=s-s=C-4.txt	316008 - 316010, 324206 - 324275
D004-alpha=a-a=D=s-s=C-5.txt	320104 - 320115, 336521 - 336523
D005-alpha=a-a=D=s-s=C-6.txt	324200 - 324205, 344701 - 344753
D006-alpha=a-a=D=s-s=C-7.txt	328296 - 328313, 369299 - 369300
D007-alpha=a-a=D=s-s=C-8.txt	332392 - 332440
...	
246 omitted	
570011	
D220-delta=s-s=C=s-s=C-3.txt	205086 - 205086
D221-delta=s-s=C=s-s=C-4.txt	586413 - 586420
D222-delta=s-s=C=s-s=C-5.txt	311932 - 311936
D223-delta=s-s=C=s-s=D-1.txt	324246 - 324248
D224-delta=s-s=C=s-s=D-2.txt	332412 - 332418
D225-delta=s-s=C=s-s=D-3.txt	205096 - 205096
D226-delta=s-s=C=s-s=D-4.txt	365201 - 365208
D227-delta=s-s=C=s-s=D-5.txt	373376 - 373380

## 65 Test Image ntfs-14

DFR-14. Recover other file system object.

Partition Table Layout

Disk /dev/sdd: 1073 MB, 1073742336 bytes

129 heads, 39 sectors/track, 416 cylinders, total 2097153 sectors

Device	Boot	Start	End	Blocks	Id	System
/dev/sdd1		128	409727	204800	7	HPPFS/NTFS

15 files deleted

Deleted files (15)			
Name	Size	F-Hd	F-Bks
Nile.txt	4096 (8+0)	1	7
Volga.txt	4096 (8+0)	1	7
hard-file-db.txt	4096 (8+0)	1	7
hard-file-df.txt	4096 (8+0)	1	7
hard-link-db.txt	4096 (8+0)	1	7
hard-link-dl.txt	4096 (8+0)	1	7
shortcut-file-db.txt	4096 (8+0)	1	7
shortcut-file-df.txt	4096 (8+0)	1	7
shortcut-shortcut-db.lnk	247 (0+247)	0	0
shortcut-shortcut-dl.lnk	247 (0+247)	0	0
stream-file-df.txt	4096 (8+0)	1	7
symbolic-file-db.txt	4096 (8+0)	1	7
symbolic-file-df.txt	4096 (8+0)	1	7
symbolic-link-db.txt	4096 (8+0)	1	7
symbolic-link-dl.txt	4096 (8+0)	1	7

MAC times just before file deletion

File: `hard-file-db.txt`

Access: 2012-01-02 14:58:00.052073000 -0500

Modify: 2012-01-02 14:55:58.478967700 -0500

Change: 2012-01-02 14:55:58.510167700 -0500

File: `hard-file-df.txt`

Access: 2012-01-02 14:58:00.058697000 -0500

Modify: 2012-01-02 14:55:58.369767700 -0500

Change: 2012-01-02 14:55:58.400967700 -0500

File: `hard-file-db.txt`

Access: 2012-01-02 14:58:00.052073000 -0500



Modify: 2012-01-02 14:55:58.478967700 -0500  
 Change: 2012-01-02 14:55:58.510167700 -0500  
 File: `hard-file-df.txt`  
 Access: 2012-01-02 14:58:00.070580000 -0500  
 Modify: 2012-01-02 14:55:58.416567700 -0500  
 Change: 2012-01-02 14:55:58.447767700 -0500  
 File: `shortcut-file-db.txt`  
 Access: 2012-01-02 14:55:58.229367700 -0500  
 Modify: 2012-01-02 14:55:58.229367700 -0500  
 Change: 2012-01-02 14:55:58.229367700 -0500  
 ...  
 20 omitted  
 File: `symbolic-link-df.txt` -> `/mnt/symbolic-file-df.txt`  
 Access: 2012-01-02 14:55:58.572567700 -0500  
 Modify: 2012-01-02 14:55:58.572567700 -0500  
 Change: 2012-01-02 14:55:58.572567700 -0500  
 File: `symbolic-file-db.txt`  
 Access: 2012-01-02 14:55:58.666167700 -0500  
 Modify: 2012-01-02 14:55:58.666167700 -0500  
 Change: 2012-01-02 14:55:58.666167700 -0500  
 File: `symbolic-link-db.txt` -> `/mnt/symbolic-file-db.txt`  
 Access: 2012-01-02 14:55:58.697367700 -0500  
 Modify: 2012-01-02 14:55:58.697367700 -0500  
 Change: 2012-01-02 14:55:58.697367700 -0500  
 File: `symbolic-file-dl.txt`  
 Access: 2012-01-02 14:55:58.603767700 -0500  
 Modify: 2012-01-02 14:55:58.603767700 -0500  
 Change: 2012-01-02 14:55:58.603767700 -0500  
 File: `symbolic-link-dl.txt` -> `/mnt/symbolic-file-dl.txt`  
 Access: 2012-01-02 14:55:58.634967700 -0500  
 Modify: 2012-01-02 14:55:58.634967700 -0500  
 Change: 2012-01-02 14:55:58.634967700 -0500

File delete times:

Times: /Volumes/CFTT/df/df-setup/ntfs-delete-times.txt Case ntfs-14  
 CASE ntfs-14 delete time for step 2 Mon 01/02/2012 03:02 PM

==== Run step 2 =====

- ACTION (delete): shortcut-file-db.txt
- ACTION (delete): shortcut-file-df.txt
- ACTION (delete): shortcut-shortcut-db.lnk
- ACTION (delete): shortcut-shortcut-dl.lnk
- ACTION (delete): hard-file-db.txt
- ACTION (delete): hard-file-df.txt
- ACTION (delete): hard-link-db.txt
- ACTION (delete): hard-link-dl.txt
- ACTION (delete): symbolic-file-db.txt
- ACTION (delete): symbolic-file-df.txt
- ACTION (delete): symbolic-link-db.txt
- ACTION (delete): symbolic-link-dl.txt
- ACTION (delete): stream-dir.txt
- ACTION (delete): stream-file-df.txt

Steps to Create Image ntfs-14		
Step	Action	Files in Partition NTFS
1	create	shortcut-file-df.txt
1	create	hard-file-df.txt
1	create	symbolic-file-df.txt
1	create	stream-file-df.txt
1	link	shortcut-shortcut-df.lnk->shortcut-file-df.txt
1	link	hard-link-df.txt->hard-file-df.txt
1	link	symbolic-link-df.txt->symbolic-file-df.txt
1	create	stream-file-df.txt+Volga.txt
1	create	shortcut-file-dl.txt
1	create	hard-file-dl.txt
1	create	symbolic-file-dl.txt
1	create	stream-file-keep.txt
1	link	shortcut-shortcut-dl.lnk->shortcut-file-dl.txt
1	link	hard-link-dl.txt->hard-file-dl.txt

Steps to Create Image ntfs-14		
1	link	symbolic-link-dl.txt->symbolic-file-dl.txt
1	create	stream-file-keep.txt+Watauga.txt
1	create	shortcut-file-db.txt
1	create	hard-file-db.txt
1	create	symbolic-file-db.txt
1	create	stream-dir.txt
1	link	shortcut-shortcut-db.lnk->shortcut-file-db.txt
1	link	hard-link-db.txt->hard-file-db.txt
1	link	symbolic-link-db.txt->symbolic-file-db.txt
1	create	stream-dir.txt+Nile.txt
2	delete	shortcut-file-db.txt
2	delete	shortcut-file-df.txt
2	delete	shortcut-shortcut-db.lnk
2	delete	shortcut-shortcut-dl.lnk
2	delete	hard-file-db.txt
2	delete	hard-file-df.txt
2	delete	hard-link-db.txt
2	delete	hard-link-dl.txt
2	delete	symbolic-file-db.txt
2	delete	symbolic-file-df.txt
2	delete	symbolic-link-db.txt
2	delete	symbolic-link-dl.txt
2	delete	stream-dir.txt
2	delete	stream-file-df.txt

No overwrites

File: Nile.txt 8 8  
 File: symbolic-file-db.txt 8 8  
 File: hard-link-dl.txt 8 0  
 File: stream-file-df.txt 8 8  
 File: shortcut-shortcut-dl.lnk 0 0  
 File: hard-file-db.txt 8 8  
 File: symbolic-file-df.txt 8 8  
 File: hard-link-db.txt 8 0  
 File: symbolic-link-db.txt 8 0  
 File: symbolic-link-dl.txt 8 0  
 File: shortcut-file-db.txt 8 8  
 File: shortcut-shortcut-db.lnk 0 0  
 File: shortcut-file-df.txt 8 8  
 File: Volga.txt 8 8  
 File: hard-file-df.txt 8 8  
 Summary: 15 9 0 6

Metadata available  
 ntfs-14 Metadata found 15 files, not found 0, total 15 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 1	
Sectors	Step 1
132599 - 132599	shortcut-file-df
132616 - 132616	shortcut-file-dl
132652 - 132652	hard-file-df
132668 - 132668	hard-file-dl
132684 - 132684	hard-file-db
132700 - 132700	symbolic-file-df
132728 - 132728	symbolic-file-dl
132745 - 132745	symbolic-file-db
132762 - 132762	stream-file-df
132776 - 132776	Volga

**Sector List**

## 66 Test Image ntfs-15

Partition Table Layout  
Disk /dev/sdd: 1073 MB, 1073742336 bytes  
65 heads, 26 sectors/track, 1240 cylinders, total 2097153 sectors  
Device Boot Start End Blocks Id System  
/dev/sdd1 128 614527 307200 7 HPFS/NTFS  
End of partition table

Active Files

..  
Archive-ntfs.txt Hidden-ntfs.txt shortcut-file.txt symbolic-file.txt  
hard-file.txt NotIndexed-ntfs.txt shortcut-shortcut.lnk symbolic-link.txt  
hard-link.txt ReadOnly-ntfs.txt stream-file.txt System-ntfs.txt

File Attributes

A F:\Archive-ntfs.txt  
A F:\hard-file.txt  
A F:\hard-link.txt  
A H F:\Hidden-ntfs.txt  
A I F:\NotIndexed-ntfs.txt  
A R F:\ReadOnly-ntfs.txt  
A F:\shortcut-file.txt  
A F:\shortcut-shortcut.lnk  
A F:\stream-file.txt  
A F:\symbolic-file.txt  
A F:\symbolic-link.txt  
A S F:\System-ntfs.txt  
0 files deleted

Steps to Create Image ntfs-15		
Step	Action	Files in Partition NTFS
1	create	shortcut-file.txt
1	create	hard-file.txt
1	create	symbolic-file.txt
1	create	stream-file.txt
1	link	shortcut-shortcut.lnk->shortcut-file.txt
1	link	hard-link.txt->hard-file.txt
1	link	symbolic-link.txt->symbolic-file.txt
1	ads	stream-file.txt+Brahmaputra.txt
1	create	ReadOnly-ntfs.txt
1	create	Archive-ntfs.txt
1	create	System-ntfs.txt
1	create	Hidden-ntfs.txt
1	create	NotIndexed-ntfs.txt

## 67 Test Image ntfs-16

Partition Table Layout  
Disk /dev/sdd: 1073 MB, 1073742336 bytes  
65 heads, 26 sectors/track, 1240 cylinders, total 2097153 sectors  
Device Boot Start End Blocks Id System  
/dev/sdd1 128 614527 307200 7 HPFS/NTFS  
End of partition table

Active Files

```

.:
4-dir-01 4-dir-03 4-dir-05 4-dir-07 4-dir-09
4-dir-02 4-dir-04 4-dir-06 4-dir-08

./4-dir-01:
4-01-00001.txt 4-01-00002.txt

./4-dir-02:
4-02-00001.txt 4-02-00002.txt 4-02-00003.txt 4-02-00004.txt

./4-dir-03:
4-03-00001.txt 4-03-00003.txt 4-03-00005.txt 4-03-00007.txt
4-03-00002.txt 4-03-00004.txt 4-03-00006.txt 4-03-00008.txt

./4-dir-04:
4-04-00001.txt 4-04-00005.txt 4-04-00009.txt 4-04-00013.txt
4-04-00002.txt 4-04-00006.txt 4-04-00010.txt 4-04-00014.txt
4-04-00003.txt 4-04-00007.txt 4-04-00011.txt 4-04-00015.txt
4-04-00004.txt 4-04-00008.txt 4-04-00012.txt 4-04-00016.txt

./4-dir-05:
4-05-00001.txt 4-05-00008.txt 4-05-00015.txt 4-05-00022.txt 4-05-00029.txt
4-05-00002.txt 4-05-00009.txt 4-05-00016.txt 4-05-00023.txt 4-05-00030.txt
4-05-00003.txt 4-05-00010.txt 4-05-00017.txt 4-05-00024.txt 4-05-00031.txt
4-05-00004.txt 4-05-00011.txt 4-05-00018.txt 4-05-00025.txt 4-05-00032.txt
4-05-00005.txt 4-05-00012.txt 4-05-00019.txt 4-05-00026.txt
4-05-00006.txt 4-05-00013.txt 4-05-00020.txt 4-05-00027.txt
4-05-00007.txt 4-05-00014.txt 4-05-00021.txt 4-05-00028.txt

./4-dir-06:
4-06-00001.txt 4-06-00014.txt 4-06-00027.txt 4-06-00040.txt 4-06-00053.txt
4-06-00002.txt 4-06-00015.txt 4-06-00028.txt 4-06-00041.txt 4-06-00054.txt
4-06-00003.txt 4-06-00016.txt 4-06-00029.txt 4-06-00042.txt 4-06-00055.txt
4-06-00004.txt 4-06-00017.txt 4-06-00030.txt 4-06-00043.txt 4-06-00056.txt
4-06-00005.txt 4-06-00018.txt 4-06-00031.txt 4-06-00044.txt 4-06-00057.txt
4-06-00006.txt 4-06-00019.txt 4-06-00032.txt 4-06-00045.txt 4-06-00058.txt
4-06-00007.txt 4-06-00020.txt 4-06-00033.txt 4-06-00046.txt 4-06-00059.txt
4-06-00008.txt 4-06-00021.txt 4-06-00034.txt 4-06-00047.txt 4-06-00060.txt
4-06-00009.txt 4-06-00022.txt 4-06-00035.txt 4-06-00048.txt 4-06-00061.txt
4-06-00010.txt 4-06-00023.txt 4-06-00036.txt 4-06-00049.txt 4-06-00062.txt
4-06-00011.txt 4-06-00024.txt 4-06-00037.txt 4-06-00050.txt 4-06-00063.txt
4-06-00012.txt 4-06-00025.txt 4-06-00038.txt 4-06-00051.txt 4-06-00064.txt
4-06-00013.txt 4-06-00026.txt 4-06-00039.txt 4-06-00052.txt

./4-dir-07:
4-07-00001.txt 4-07-00027.txt 4-07-00053.txt 4-07-00079.txt 4-07-00105.txt
4-07-00002.txt 4-07-00028.txt 4-07-00054.txt 4-07-00080.txt 4-07-00106.txt
4-07-00003.txt 4-07-00029.txt 4-07-00055.txt 4-07-00081.txt 4-07-00107.txt
4-07-00004.txt 4-07-00030.txt 4-07-00056.txt 4-07-00082.txt 4-07-00108.txt
4-07-00005.txt 4-07-00031.txt 4-07-00057.txt 4-07-00083.txt 4-07-00109.txt
4-07-00006.txt 4-07-00032.txt 4-07-00058.txt 4-07-00084.txt 4-07-00110.txt
4-07-00007.txt 4-07-00033.txt 4-07-00059.txt 4-07-00085.txt 4-07-00111.txt
4-07-00008.txt 4-07-00034.txt 4-07-00060.txt 4-07-00086.txt 4-07-00112.txt
4-07-00009.txt 4-07-00035.txt 4-07-00061.txt 4-07-00087.txt 4-07-00113.txt
4-07-00010.txt 4-07-00036.txt 4-07-00062.txt 4-07-00088.txt 4-07-00114.txt
4-07-00011.txt 4-07-00037.txt 4-07-00063.txt 4-07-00089.txt 4-07-00115.txt
4-07-00012.txt 4-07-00038.txt 4-07-00064.txt 4-07-00090.txt 4-07-00116.txt
4-07-00013.txt 4-07-00039.txt 4-07-00065.txt 4-07-00091.txt 4-07-00117.txt
4-07-00014.txt 4-07-00040.txt 4-07-00066.txt 4-07-00092.txt 4-07-00118.txt
4-07-00015.txt 4-07-00041.txt 4-07-00067.txt 4-07-00093.txt 4-07-00119.txt
4-07-00016.txt 4-07-00042.txt 4-07-00068.txt 4-07-00094.txt 4-07-00120.txt
4-07-00017.txt 4-07-00043.txt 4-07-00069.txt 4-07-00095.txt 4-07-00121.txt
4-07-00018.txt 4-07-00044.txt 4-07-00070.txt 4-07-00096.txt 4-07-00122.txt
4-07-00019.txt 4-07-00045.txt 4-07-00071.txt 4-07-00097.txt 4-07-00123.txt
4-07-00020.txt 4-07-00046.txt 4-07-00072.txt 4-07-00098.txt 4-07-00124.txt
4-07-00021.txt 4-07-00047.txt 4-07-00073.txt 4-07-00099.txt 4-07-00125.txt
4-07-00022.txt 4-07-00048.txt 4-07-00074.txt 4-07-00100.txt 4-07-00126.txt
4-07-00023.txt 4-07-00049.txt 4-07-00075.txt 4-07-00101.txt 4-07-00127.txt
4-07-00024.txt 4-07-00050.txt 4-07-00076.txt 4-07-00102.txt 4-07-00128.txt

```





```

4-09-00081.txt    4-09-00184.txt    4-09-00287.txt    4-09-00390.txt    4-09-00493.txt
4-09-00082.txt    4-09-00185.txt    4-09-00288.txt    4-09-00391.txt    4-09-00494.txt
4-09-00083.txt    4-09-00186.txt    4-09-00289.txt    4-09-00392.txt    4-09-00495.txt
4-09-00084.txt    4-09-00187.txt    4-09-00290.txt    4-09-00393.txt    4-09-00496.txt
4-09-00085.txt    4-09-00188.txt    4-09-00291.txt    4-09-00394.txt    4-09-00497.txt
4-09-00086.txt    4-09-00189.txt    4-09-00292.txt    4-09-00395.txt    4-09-00498.txt
4-09-00087.txt    4-09-00190.txt    4-09-00293.txt    4-09-00396.txt    4-09-00499.txt
4-09-00088.txt    4-09-00191.txt    4-09-00294.txt    4-09-00397.txt    4-09-00500.txt
4-09-00089.txt    4-09-00192.txt    4-09-00295.txt    4-09-00398.txt    4-09-00501.txt
4-09-00090.txt    4-09-00193.txt    4-09-00296.txt    4-09-00399.txt    4-09-00502.txt
4-09-00091.txt    4-09-00194.txt    4-09-00297.txt    4-09-00400.txt    4-09-00503.txt
4-09-00092.txt    4-09-00195.txt    4-09-00298.txt    4-09-00401.txt    4-09-00504.txt
4-09-00093.txt    4-09-00196.txt    4-09-00299.txt    4-09-00402.txt    4-09-00505.txt
4-09-00094.txt    4-09-00197.txt    4-09-00300.txt    4-09-00403.txt    4-09-00506.txt
4-09-00095.txt    4-09-00198.txt    4-09-00301.txt    4-09-00404.txt    4-09-00507.txt
4-09-00096.txt    4-09-00199.txt    4-09-00302.txt    4-09-00405.txt    4-09-00508.txt
4-09-00097.txt    4-09-00200.txt    4-09-00303.txt    4-09-00406.txt    4-09-00509.txt
4-09-00098.txt    4-09-00201.txt    4-09-00304.txt    4-09-00407.txt    4-09-00510.txt
4-09-00099.txt    4-09-00202.txt    4-09-00305.txt    4-09-00408.txt    4-09-00511.txt
4-09-00100.txt    4-09-00203.txt    4-09-00306.txt    4-09-00409.txt    4-09-00512.txt
4-09-00101.txt    4-09-00204.txt    4-09-00307.txt    4-09-00410.txt
4-09-00102.txt    4-09-00205.txt    4-09-00308.txt    4-09-00411.txt
4-09-00103.txt    4-09-00206.txt    4-09-00309.txt    4-09-00412.txt

```

0 files deleted

Steps to Create Image ntfs-16		
Step	Action	Files in Partition NTFS
1	create	4 dirs

## 68 Test Image ntfs-17

### Partition Table Layout

```

Disk /dev/sdd: 1073 MB, 1073742336 bytes
65 heads, 26 sectors/track, 1240 cylinders, total 2097153 sectors
 Device Boot   Start   End   Blocks Id System
 /dev/sdd1     128   614527   307200 7 HPFS/NTFS
End of partition table

```

### Active Files

```

.:
Y01 Y02 Y03 Y04 Y05 Y06 Y07 Y08   Y09

./Y01:
Y01F01.TXT

./Y02:
Y02F01.TXT Y02L01

./Y02/Y02L01:
Y02F02.TXT

./Y03:
Y03F01.TXT Y03L01

./Y03/Y03L01:
Y03F02.TXT Y03L02

./Y03/Y03L01/Y03L02:
Y03F03.TXT

./Y04:
Y04F01.TXT Y04L01

./Y04/Y04L01:
Y04F02.TXT Y04L02

```

./Y04/Y04L01/Y04L02:  
Y04F03.TXT Y04L03

./Y04/Y04L01/Y04L02/Y04L03:  
Y04F04.TXT

./Y05:  
Y05F01.TXT Y05L01

./Y05/Y05L01:  
Y05F02.TXT Y05L02

./Y05/Y05L01/Y05L02:  
Y05F03.TXT Y05L03

./Y05/Y05L01/Y05L02/Y05L03:  
Y05F04.TXT Y05L04

./Y05/Y05L01/Y05L02/Y05L03/Y05L04:  
Y05F05.TXT

./Y06:  
Y06F01.TXT Y06L01

./Y06/Y06L01:  
Y06F02.TXT Y06L02

./Y06/Y06L01/Y06L02:  
Y06F03.TXT Y06L03

./Y06/Y06L01/Y06L02/Y06L03:  
Y06F04.TXT Y06L04

./Y06/Y06L01/Y06L02/Y06L03/Y06L04:  
Y06F05.TXT Y06L05

./Y06/Y06L01/Y06L02/Y06L03/Y06L04/Y06L05:  
Y06F06.TXT

./Y07:  
Y07F01.TXT Y07L01

./Y07/Y07L01:  
Y07F02.TXT Y07L02

./Y07/Y07L01/Y07L02:  
Y07F03.TXT Y07L03

./Y07/Y07L01/Y07L02/Y07L03:  
Y07F04.TXT Y07L04

./Y07/Y07L01/Y07L02/Y07L03/Y07L04:  
Y07F05.TXT Y07L05

./Y07/Y07L01/Y07L02/Y07L03/Y07L04/Y07L05:  
Y07F06.TXT Y07L06

./Y07/Y07L01/Y07L02/Y07L03/Y07L04/Y07L05/Y07L06:  
Y07F07.TXT

./Y08:  
Y08F01.TXT Y08L01

./Y08/Y08L01:  
Y08F02.TXT Y08L02

./Y08/Y08L01/Y08L02:  
Y08F03.TXT Y08L03



./Y08/Y08L01/Y08L02/Y08L03:  
Y08F04.TXT Y08L04

./Y08/Y08L01/Y08L02/Y08L03/Y08L04:  
Y08F05.TXT Y08L05

./Y08/Y08L01/Y08L02/Y08L03/Y08L04/Y08L05:  
Y08F06.TXT Y08L06

./Y08/Y08L01/Y08L02/Y08L03/Y08L04/Y08L05/Y08L06:  
Y08F07.TXT Y08L07

./Y08/Y08L01/Y08L02/Y08L03/Y08L04/Y08L05/Y08L06/Y08L07:  
Y08F08.TXT

./Y09:  
Y09F01.TXT Y09L01

./Y09/Y09L01:  
Y09F02.TXT Y09L02

./Y09/Y09L01/Y09L02:  
Y09F03.TXT Y09L03

./Y09/Y09L01/Y09L02/Y09L03:  
Y09F04.TXT Y09L04

./Y09/Y09L01/Y09L02/Y09L03/Y09L04:  
Y09F05.TXT Y09L05

./Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05:  
Y09F06.TXT Y09L06

./Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05/Y09L06:  
Y09F07.TXT Y09L07

./Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05/Y09L06/Y09L07:  
Y09F08.TXT Y09L08

./Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05/Y09L06/Y09L07/Y09L08:  
Y09F09.TXT

0 files deleted

Steps to Create Image ntfs-17		
Step	Action	Files in Partition NTFS
1	mkdir	Y01
1	mkdir	Y02
1	mkdir	Y02/Y02L01
1	mkdir	Y03
1	mkdir	Y03/Y03L01
1	mkdir	Y03/Y03L01/Y03L02
1	mkdir	Y04
1	mkdir	Y04/Y04L01
1	mkdir	Y04/Y04L01/Y04L02
1	mkdir	Y04/Y04L01/Y04L02/Y04L03
1	mkdir	Y05
1	mkdir	Y05/Y05L01
1	mkdir	Y05/Y05L01/Y05L02
1	mkdir	Y05/Y05L01/Y05L02/Y05L03
1	mkdir	Y05/Y05L01/Y05L02/Y05L03/Y05L04
1	mkdir	Y06
1	mkdir	Y06/Y06L01
1	mkdir	Y06/Y06L01/Y06L02
1	mkdir	Y06/Y06L01/Y06L02/Y06L03
1	mkdir	Y06/Y06L01/Y06L02/Y06L03/Y06L04
1	mkdir	Y06/Y06L01/Y06L02/Y06L03/Y06L04/Y06L05
1	mkdir	Y07

Steps to Create Image ntfs-17		
1	mkdir	Y07/Y07L01
1	mkdir	Y07/Y07L01/Y07L02
1	mkdir	Y07/Y07L01/Y07L02/Y07L03
1	mkdir	Y07/Y07L01/Y07L02/Y07L03/Y07L04
1	mkdir	Y07/Y07L01/Y07L02/Y07L03/Y07L04/Y07L05
1	mkdir	Y07/Y07L01/Y07L02/Y07L03/Y07L04/Y07L05/Y07L06
1	mkdir	Y08
1	mkdir	Y08/Y08L01
1	mkdir	Y08/Y08L01/Y08L02
1	mkdir	Y08/Y08L01/Y08L02/Y08L03
1	mkdir	Y08/Y08L01/Y08L02/Y08L03/Y08L04
1	mkdir	Y08/Y08L01/Y08L02/Y08L03/Y08L04/Y08L05
1	mkdir	Y08/Y08L01/Y08L02/Y08L03/Y08L04/Y08L05/Y08L06
1	mkdir	Y08/Y08L01/Y08L02/Y08L03/Y08L04/Y08L05/Y08L06/Y08L07
1	mkdir	Y09
1	mkdir	Y09/Y09L01
1	mkdir	Y09/Y09L01/Y09L02
1	mkdir	Y09/Y09L01/Y09L02/Y09L03
1	mkdir	Y09/Y09L01/Y09L02/Y09L03/Y09L04
1	mkdir	Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05
1	mkdir	Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05/Y09L06
1	mkdir	Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05/Y09L06/Y09L07
1	mkdir	Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05/Y09L06/Y09L07/Y09L08
1	create	Y01/Y01F01.TXT
1	create	Y02/Y02F01.TXT
1	create	Y02/Y02L01/Y02F02.TXT
1	create	Y03/Y03F01.TXT
1	create	Y03/Y03L01/Y03F02.TXT
1	create	Y03/Y03L01/Y03L02/Y03F03.TXT
1	create	Y04/Y04F01.TXT
1	create	Y04/Y04L01/Y04F02.TXT
1	create	Y04/Y04L01/Y04L02/Y04F03.TXT
1	create	Y04/Y04L01/Y04L02/Y04L03/Y04F04.TXT
1	create	Y05/Y05F01.TXT
1	create	Y05/Y05L01/Y05F02.TXT
1	create	Y05/Y05L01/Y05L02/Y05F03.TXT
1	create	Y05/Y05L01/Y05L02/Y05L03/Y05F04.TXT
1	create	Y05/Y05L01/Y05L02/Y05L03/Y05L04/Y05F05.TXT
1	create	Y06/Y06F01.TXT
1	create	Y06/Y06L01/Y06F02.TXT
1	create	Y06/Y06L01/Y06L02/Y06F03.TXT
1	create	Y06/Y06L01/Y06L02/Y06L03/Y06F04.TXT
1	create	Y06/Y06L01/Y06L02/Y06L03/Y06L04/Y06F05.TXT
1	create	Y06/Y06L01/Y06L02/Y06L03/Y06L04/Y06L05/Y06F06.TXT
1	create	Y07/Y07F01.TXT
1	create	Y07/Y07L01/Y07F02.TXT
1	create	Y07/Y07L01/Y07L02/Y07F03.TXT
1	create	Y07/Y07L01/Y07L02/Y07L03/Y07F04.TXT
1	create	Y07/Y07L01/Y07L02/Y07L03/Y07L04/Y07F05.TXT
1	create	Y07/Y07L01/Y07L02/Y07L03/Y07L04/Y07L05/Y07F06.TXT
1	create	Y07/Y07L01/Y07L02/Y07L03/Y07L04/Y07L05/Y07L06/Y07F07.TXT
1	create	Y08/Y08F01.TXT
1	create	Y08/Y08L01/Y08F02.TXT
1	create	Y08/Y08L01/Y08L02/Y08F03.TXT
1	create	Y08/Y08L01/Y08L02/Y08L03/Y08F04.TXT
1	create	Y08/Y08L01/Y08L02/Y08L03/Y08L04/Y08F05.TXT
1	create	Y08/Y08L01/Y08L02/Y08L03/Y08L04/Y08L05/Y08F06.TXT
1	create	Y08/Y08L01/Y08L02/Y08L03/Y08L04/Y08L05/Y08L06/Y08F07.TXT
1	create	Y08/Y08L01/Y08L02/Y08L03/Y08L04/Y08L05/Y08L06/Y08L07/Y08F08.TXT
1	create	Y09/Y09F01.TXT
1	create	Y09/Y09L01/Y09F02.TXT
1	create	Y09/Y09L01/Y09L02/Y09F03.TXT
1	create	Y09/Y09L01/Y09L02/Y09L03/Y09F04.TXT
1	create	Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09F05.TXT

Steps to Create Image ntfs-17			
1	create	Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05/Y09F06.TXT	
1	create	Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05/Y09L06/Y09F07.TXT	
1	create	Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05/Y09L06/Y09L07/Y09F08.TXT	
1	create	Y09/Y09L01/Y09L02/Y09L03/Y09L04/Y09L05/Y09L06/Y09L07/Y09L08/Y09F09.TXT	

No entries for ntfs-delete-times.txt

## 69 Test Image osx-01

DFR-01. Recover one non-fragmented file.

Partition Table Layout

4 files deleted

Deleted files (4)			
Name	Size	F-Hd	F-Bks
Beid.txt	4296 (8+200)	1	7
Bellatrix.TXT	4296 (8+200)	1	7
Betelgeuse.txt	4296 (8+200)	1	7
xBellatrix.txt	4296 (8+200)	1	7

MAC times just before file deletion

File: "Beid.txt"

Access: Sat Jan 2 03:04:00 1999

Modify: Tue Feb 29 13:14:00 2000

Change: Tue Apr 19 21:29:31 2011

File: "Bellatrix.TXT"

Access: Sat Jan 2 03:02:00 1999

Modify: Tue Feb 29 13:12:00 2000

Change: Tue Apr 19 21:29:29 2011

File: "Betelgeuse.txt"

Access: Sat Jan 2 03:03:00 1999

Modify: Tue Feb 29 13:13:00 2000

Change: Tue Apr 19 21:29:30 2011

File: "xBellatrix.txt"

Access: Sat Jan 2 03:05:00 1999

Modify: Tue Feb 29 13:15:00 2000

Change: Tue Apr 19 21:29:33 2011

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case osx-01

==== Run step 3 =====

ACTION (delete): Bellatrix.TXT

ACTION (delete time): Tue Apr 19 21:35:42 EDT 2011

ACTION (delete): Betelgeuse.txt

ACTION (delete time): Tue Apr 19 21:35:43 EDT 2011

ACTION (delete): Beid.txt

ACTION (delete time): Tue Apr 19 21:35:45 EDT 2011

ACTION (delete): xBellatrix.txt

ACTION (delete time): Tue Apr 19 21:35:46 EDT 2011

Steps to Create Image osx-01		
Step	Action	Files in Partition OSXJ
1	create	Alcor.TXT Bellatrix.TXT Capella.TXT
2	set date/time	Alcor.TXT Bellatrix.TXT Capella.TXT
3	delete	Bellatrix.TXT
Step	Action	Files in Partition OSX
1	create	Algol.txt Betelgeuse.txt Canopus.txt
2	set date/time	Algol.txt Betelgeuse.txt Canopus.txt
3	delete	Betelgeuse.txt
Step	Action	Files in Partition OSXCJ
1	create	Algol.txt Beid.txt Capella.txt
2	set date/time	Algol.txt Beid.txt Capella.txt
3	delete	Beid.txt

Steps to Create Image osx-01		
Step	Action	Files in Partition OSXC
1	create	Altair.txt xBellatrix.txt Canopus.txt
2	set date/time	Altair.txt xBellatrix.txt Canopus.txt
3	delete	xBellatrix.txt

No overwrites

Metadata available

osx-01 Metadata found 2 files, not found 2, total 4 deleted files

Deleted files without metadata (cannot be found)

Bellatrix.TXT           xBellatrix.txt

Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2
116232 - 116239	Alcor	Alcor
116240 - 116247	Bellatrix	Bellatrix
116248 - 116248	TAIL/Bellatrix	TAIL/Bellatrix
116256 - 116263	Capella	Capella
657120 - 657127	Algol	Algol
657128 - 657135	Betelgeuse	Betelgeuse
657136 - 657136	TAIL/Betelgeuse	TAIL/Betelgeuse
657144 - 657151	Canopus	Canopus
1181208 - 1181215	Algol	Algol
1181216 - 1181223	Beid	Beid
1181224 - 1181224	TAIL/Beid	TAIL/Beid
1181232 - 1181239	Capella	Capella
1688832 - 1688839	Altair	Altair
1688840 - 1688847	xBellatrix	xBellatrix
1688848 - 1688848	TAIL/xBellatrix	TAIL/xBellatrix
1688856 - 1688863	Canopus	Canopus

Sector List	
Alcor.TXT	116232 - 116239
Algol.txt	657120 - 657127, 1181208 - 1181215
Altair.txt	1688832 - 1688839
Beid.txt	1181216 - 1181223
Bellatrix.TXT	116240 - 116247
Betelgeuse.txt	657128 - 657135
Canopus.txt	657144 - 657151, 1688856 - 1688863
Capella.TXT	116256 - 116263
Capella.txt	1181232 - 1181239
xBellatrix.txt	1688840 - 1688847

## 70 Test Image osx-04

DFR-04. Recover several non-fragmented files with non-ASCII file names.

Partition Table Layout

48 files deleted

Deleted files (48)			
Name	Size	F-Hd	F-Bks
/tmp/dfr-04/Beijing.txt	4096 (8+0)	1	7
/tmp/dfr-04/Hummus.txt	4096 (8+0)	1	7
/tmp/dfr-04/Mitsubishi-h.txt	4096 (8+0)	1	7
/tmp/dfr-04/Mitsubishi-k.txt	4096 (8+0)	1	7

Deleted files (48)			
/tmp/dfr-04/Naan.txt	4096 (8+0)	1	7
/tmp/dfr-04/Pakora.txt	4096 (8+0)	1	7
/tmp/dfr-04/Seoul.txt	4096 (8+0)	1	7
/tmp/dfr-04/Tagine.txt	4096 (8+0)	1	7
/tmp/dfr-04/Tea.txt	4096 (8+0)	1	7
/tmp/dfr-04/Tokyo.txt	4096 (8+0)	1	7
/tmp/dfr-04/Vessel.txt	4096 (8+0)	1	7
/tmp/dfr-04/Walnut.txt	4096 (8+0)	1	7
/tmp/dfr-04/Beijing.txt	4096 (8+0)	1	7
/tmp/dfr-04/Hummus.txt	4096 (8+0)	1	7
/tmp/dfr-04/Mitsubishi-h.txt	4096 (8+0)	1	7
/tmp/dfr-04/Mitsubishi-k.txt	4096 (8+0)	1	7
/tmp/dfr-04/Naan.txt	4096 (8+0)	1	7
/tmp/dfr-04/Pakora.txt	4096 (8+0)	1	7
/tmp/dfr-04/Seoul.txt	4096 (8+0)	1	7
/tmp/dfr-04/Tagine.txt	4096 (8+0)	1	7
/tmp/dfr-04/Tea.txt	4096 (8+0)	1	7
/tmp/dfr-04/Tokyo.txt	4096 (8+0)	1	7
/tmp/dfr-04/Vessel.txt	4096 (8+0)	1	7
/tmp/dfr-04/Walnut.txt	4096 (8+0)	1	7
/tmp/dfr-04/Beijing.txt	4096 (8+0)	1	7
/tmp/dfr-04/Hummus.txt	4096 (8+0)	1	7
/tmp/dfr-04/Mitsubishi-h.txt	4096 (8+0)	1	7
/tmp/dfr-04/Mitsubishi-k.txt	4096 (8+0)	1	7
/tmp/dfr-04/Naan.txt	4096 (8+0)	1	7
/tmp/dfr-04/Pakora.txt	4096 (8+0)	1	7
/tmp/dfr-04/Seoul.txt	4096 (8+0)	1	7
/tmp/dfr-04/Tagine.txt	4096 (8+0)	1	7
/tmp/dfr-04/Tea.txt	4096 (8+0)	1	7
/tmp/dfr-04/Tokyo.txt	4096 (8+0)	1	7
/tmp/dfr-04/Vessel.txt	4096 (8+0)	1	7
/tmp/dfr-04/Walnut.txt	4096 (8+0)	1	7
/tmp/dfr-04/Beijing.txt	4096 (8+0)	1	7
/tmp/dfr-04/Hummus.txt	4096 (8+0)	1	7
/tmp/dfr-04/Mitsubishi-h.txt	4096 (8+0)	1	7
/tmp/dfr-04/Mitsubishi-k.txt	4096 (8+0)	1	7
/tmp/dfr-04/Naan.txt	4096 (8+0)	1	7
/tmp/dfr-04/Pakora.txt	4096 (8+0)	1	7
/tmp/dfr-04/Seoul.txt	4096 (8+0)	1	7
/tmp/dfr-04/Tagine.txt	4096 (8+0)	1	7
/tmp/dfr-04/Tea.txt	4096 (8+0)	1	7
/tmp/dfr-04/Tokyo.txt	4096 (8+0)	1	7
/tmp/dfr-04/Vessel.txt	4096 (8+0)	1	7
/tmp/dfr-04/Walnut.txt	4096 (8+0)	1	7

MAC times just before file deletion

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case osx-04

===== Run step 3 =====

ACTION (delete): नान.txt

ACTION (delete time): Tue Apr 19 22:58:12 EDT 2011

ACTION (delete): پکورا.txt

ACTION (delete time): Tue Apr 19 22:58:12 EDT 2011

ACTION (delete): 서울.txt

ACTION (delete time): Tue Apr 19 22:58:12 EDT 2011

ACTION (delete): مجرد و.txt

ACTION (delete time): Tue Apr 19 22:58:12 EDT 2011

ACTION (delete): ДИДИИ.txt

ACTION (delete time): Tue Apr 19 22:58:12 EDT 2011

ACTION (delete): طاجين.txt

ACTION (delete time): Tue Apr 19 22:58:12 EDT 2011

ACTION (delete): чай.txt

ACTION (delete time): Tue Apr 19 22:58:12 EDT 2011  
ACTION (delete): ミツビシ.txt  
ACTION (delete time): Tue Apr 19 22:58:12 EDT 2011  
ACTION (delete): みつびし.txt  
ACTION (delete time): Tue Apr 19 22:58:12 EDT 2011  
ACTION (delete): Gefäß.txt  
ACTION (delete time): Tue Apr 19 22:58:12 EDT 2011  
ACTION (delete): 北京.txt  
ACTION (delete time): Tue Apr 19 22:58:13 EDT 2011  
ACTION (delete): 東京.txt  
ACTION (delete time): Tue Apr 19 22:58:13 EDT 2011  
ACTION (delete): नान.txt  
ACTION (delete time): Tue Apr 19 22:58:14 EDT 2011  
ACTION (delete): پڪوڙا.txt  
ACTION (delete time): Tue Apr 19 22:58:14 EDT 2011  
ACTION (delete): 서울.txt  
ACTION (delete time): Tue Apr 19 22:58:14 EDT 2011  
ACTION (delete): گردو.txt  
ACTION (delete time): Tue Apr 19 22:58:14 EDT 2011  
ACTION (delete): 北京.txt  
ACTION (delete time): Tue Apr 19 22:58:14 EDT 2011  
ACTION (delete): طاجين.txt  
ACTION (delete time): Tue Apr 19 22:58:14 EDT 2011  
ACTION (delete): чай.txt  
ACTION (delete time): Tue Apr 19 22:58:14 EDT 2011  
ACTION (delete): ミツビシ.txt  
ACTION (delete time): Tue Apr 19 22:58:14 EDT 2011  
ACTION (delete): みつびし.txt  
ACTION (delete time): Tue Apr 19 22:58:14 EDT 2011  
ACTION (delete): Gefäß.txt  
ACTION (delete time): Tue Apr 19 22:58:14 EDT 2011  
ACTION (delete): 北京.txt  
ACTION (delete time): Tue Apr 19 22:58:14 EDT 2011  
ACTION (delete): 東京.txt  
ACTION (delete time): Tue Apr 19 22:58:14 EDT 2011  
ACTION (delete): नान.txt  
ACTION (delete time): Tue Apr 19 22:58:15 EDT 2011  
ACTION (delete): پڪوڙا.txt  
ACTION (delete time): Tue Apr 19 22:58:15 EDT 2011  
ACTION (delete): 서울.txt  
ACTION (delete time): Tue Apr 19 22:58:15 EDT 2011  
ACTION (delete): گردو.txt  
ACTION (delete time): Tue Apr 19 22:58:15 EDT 2011  
ACTION (delete): 北京.txt  
ACTION (delete time): Tue Apr 19 22:58:15 EDT 2011  
ACTION (delete): طاجين.txt  
ACTION (delete time): Tue Apr 19 22:58:15 EDT 2011  
ACTION (delete): чай.txt  
ACTION (delete time): Tue Apr 19 22:58:15 EDT 2011  
ACTION (delete): मित्रशि.txt  
ACTION (delete time): Tue Apr 19 22:58:15 EDT 2011  
ACTION (delete): みつびし.txt  
ACTION (delete time): Tue Apr 19 22:58:15 EDT 2011  
ACTION (delete): Gefäß.txt  
ACTION (delete time): Tue Apr 19 22:58:15 EDT 2011  
ACTION (delete): 北京.txt  
ACTION (delete time): Tue Apr 19 22:58:15 EDT 2011  
ACTION (delete): 東京.txt  
ACTION (delete time): Tue Apr 19 22:58:15 EDT 2011  
ACTION (delete): नान.txt  
ACTION (delete time): Tue Apr 19 22:58:17 EDT 2011  
ACTION (delete): پڪوڙا.txt  
ACTION (delete time): Tue Apr 19 22:58:17 EDT 2011  
ACTION (delete): 서울.txt  
ACTION (delete time): Tue Apr 19 22:58:17 EDT 2011

ACTION (delete): گرد و.txt  
ACTION (delete time): Tue Apr 19 22:58:17 EDT 2011  
ACTION (delete): 010101.txt  
ACTION (delete time): Tue Apr 19 22:58:17 EDT 2011  
ACTION (delete): طاجين.txt  
ACTION (delete time): Tue Apr 19 22:58:17 EDT 2011  
ACTION (delete): чай.txt  
ACTION (delete time): Tue Apr 19 22:58:17 EDT 2011  
ACTION (delete): ミツビシ.txt  
ACTION (delete time): Tue Apr 19 22:58:17 EDT 2011  
ACTION (delete): みつびし.txt  
ACTION (delete time): Tue Apr 19 22:58:17 EDT 2011  
ACTION (delete): Gefäß.txt  
ACTION (delete time): Tue Apr 19 22:58:17 EDT 2011  
ACTION (delete): 北京.txt  
ACTION (delete time): Tue Apr 19 22:58:17 EDT 2011  
ACTION (delete): 東京.txt  
ACTION (delete time): Tue Apr 19 22:58:17 EDT 2011

Steps to Create Image osx-04		
Step	Action	Files in Partition OSXJ
1	create	/tmp/Naan.txt => नान.txt)
1	create	/tmp/Chapati.txt => चपाती.txt)
1	create	/tmp/Pakora.txt => پکوڑا.txt)
1	create	/tmp/Gulab_jamun.txt => گلاب جامن.txt)
1	create	/tmp/Seoul.txt => 서울.txt)
1	create	/tmp/Korea.txt => 한국.txt)
1	create	/tmp/Kabob.txt => چلوکباب.txt)
1	create	/tmp/Walnut.txt => گرد و.txt)
1	create	/tmp/Falafel.txt => ۷۹۷۹.txt)
1	create	/tmp/Hummus.txt => 010101.txt)
1	create	/tmp/Couscous.txt => کسکس.txt)
1	create	/tmp/Tagine.txt => طاجين.txt)
1	create	/tmp/Tea.txt => чай.txt)
1	create	/tmp/Cheese.txt => сыр.txt)
1	create	/tmp/Mitsubishi-k.txt => ミツビシ.txt)
1	create	/tmp/Mitsubishi-h.txt => みつびし.txt)
1	create	/tmp/Sweets.txt => Süßigkeiten.txt)
1	create	/tmp/Vessel.txt => Gefäß.txt)
1	create	/tmp/Beijing.txt => 北京.txt)
1	create	/tmp/China.txt => 中國.txt)
1	create	/tmp/Japan.txt => 日本.txt)
1	create	/tmp/Tokyo.txt => 東京.txt)
1	create	/tmp/Subaru-k.txt => スバル.txt)
1	create	/tmp/Subaru-h.txt => すばる.txt)
2	set date/time	चपाती.txt नान.txt
2	set date/time	پکوڑا.txt گلاب جامن.txt
2	set date/time	서울.txt 한국.txt
2	set date/time	چلوکباب.txt گرد و.txt
2	set date/time	۷۹۷۹.txt 010101.txt
2	set date/time	کسکس.txt طاجين.txt
2	set date/time	сыр.txt чай.txt
2	set date/time	スバル.txt ミツビシ.txt
2	set date/time	すばる.txt みつびし.txt
2	set date/time	Süßigkeiten.txt Gefäß.txt
2	set date/time	中國.txt 北京.txt
2	set date/time	日本.txt 東京.txt
3	delete	नान.txt
3	delete	پکوڑا.txt
3	delete	서울.txt
3	delete	گرد و.txt

Steps to Create Image osx-04		
3	delete	010101.txt
3	delete	طماچين.txt
3	delete	чай.txt
3	delete	ミツビシ.txt
3	delete	みつびし.txt
3	delete	Gefäß.txt
3	delete	北京.txt
3	delete	東京.txt
Step	Action	Files in Partition OSX
1	create	/tmp/Naan.txt => नान.txt
1	create	/tmp/Chapati.txt => चपाती.txt
1	create	/tmp/Pakora.txt => پکوڑا.txt
1	create	/tmp/Gulab_jamun.txt => گلاب جامن.txt
1	create	/tmp/Seoul.txt => 서울.txt
1	create	/tmp/Korea.txt => 한국.txt
1	create	/tmp/Kabob.txt => چلوکباب.txt
1	create	/tmp/Walnut.txt => گردو.txt
1	create	/tmp/Falafel.txt => ۷۹۷۹.txt
1	create	/tmp/Hummus.txt => 010101.txt
1	create	/tmp/Couscous.txt => کسکس.txt
1	create	/tmp/Tagine.txt => طماچين.txt
1	create	/tmp/Tea.txt => чай.txt
1	create	/tmp/Cheese.txt => сыр.txt
1	create	/tmp/Mitsubishi-k.txt => ミツビシ.txt
1	create	/tmp/Mitsubishi-h.txt => みつびし.txt
1	create	/tmp/Sweets.txt => Süßigkeiten.txt
1	create	/tmp/Vessel.txt => Gefäß.txt
1	create	/tmp/Beijing.txt => 北京.txt
1	create	/tmp/China.txt => 中國.txt
1	create	/tmp/Japan.txt => 日本.txt
1	create	/tmp/Tokyo.txt => 東京.txt
1	create	/tmp/Subaru-k.txt => スバル.txt
1	create	/tmp/Subaru-h.txt => すばる.txt
2	set date/time	चपाती.txt नान.txt
2	set date/time	چلوکباب.txt گلاب جامن.txt
2	set date/time	한국.txt 서울.txt
2	set date/time	چلوکباب.txt گردو.txt
2	set date/time	۷۹۷۹.txt 010101.txt
2	set date/time	کسکس.txt طماچين.txt
2	set date/time	сыр.txt чай.txt
2	set date/time	スバル.txt ミツビシ.txt
2	set date/time	すばる.txt みつびし.txt
2	set date/time	Süßigkeiten.txt Gefäß.txt
2	set date/time	中國.txt 北京.txt
2	set date/time	日本.txt 東京.txt
3	delete	नान.txt
3	delete	پکوڑا.txt
3	delete	서울.txt
3	delete	گردو.txt
3	delete	010101.txt
3	delete	طماچين.txt
3	delete	чай.txt
3	delete	ミツビシ.txt
3	delete	みつびし.txt
3	delete	Gefäß.txt
3	delete	北京.txt
3	delete	東京.txt
Step	Action	Files in Partition OSXCJ



Steps to Create Image osx-04		
1	create	/tmp/Naan.txt => नान.txt)
1	create	/tmp/Chapati.txt => चपाती.txt)
1	create	/tmp/Pakora.txt => پکوڑا.txt)
1	create	/tmp/Gulab_jamun.txt => گلاب جامن.txt)
1	create	/tmp/Seoul.txt => 서울.txt)
1	create	/tmp/Korea.txt => 한국.txt)
1	create	/tmp/Kabob.txt => چلوکباب.txt)
1	create	/tmp/Walnut.txt => گردو.txt)
1	create	/tmp/Falafel.txt => لؤلؤ.txt)
1	create	/tmp/Hummus.txt => حمص.txt)
1	create	/tmp/Couscous.txt => كسكس.txt)
1	create	/tmp/Tagine.txt => طاجين.txt)
1	create	/tmp/Tea.txt => чай.txt)
1	create	/tmp/Cheese.txt => сыр.txt)
1	create	/tmp/Mitsubishi-k.txt => ミツビシ.txt)
1	create	/tmp/Mitsubishi-h.txt => みつびし.txt)
1	create	/tmp/Sweets.txt => Süßigkeiten.txt)
1	create	/tmp/Vessel.txt => Gefäß.txt)
1	create	/tmp/Beijing.txt => 北京.txt)
1	create	/tmp/China.txt => 中國.txt)
1	create	/tmp/Japan.txt => 日本.txt)
1	create	/tmp/Tokyo.txt => 東京.txt)
1	create	/tmp/Subaru-k.txt => スバル.txt)
1	create	/tmp/Subaru-h.txt => すばる.txt)
2	set date/time	चपाती.txt नान.txt
2	set date/time	پکوڑا.txt گلاب جامن.txt
2	set date/time	서울.txt 한국.txt
2	set date/time	چلوکباب.txt گردو.txt
2	set date/time	لؤلؤ.txt حمص.txt
2	set date/time	طاجين.txt كسكس.txt
2	set date/time	сыр.txt чай.txt
2	set date/time	スバル.txt ミツビシ.txt
2	set date/time	すばる.txt みつびし.txt
2	set date/time	Süßigkeiten.txt Gefäß.txt
2	set date/time	中國.txt 北京.txt
2	set date/time	日本.txt 東京.txt
3	delete	नान.txt
3	delete	پکوڑا.txt
3	delete	서울.txt
3	delete	گردو.txt
3	delete	حمص.txt
3	delete	طاجين.txt
3	delete	чай.txt
3	delete	ミツビシ.txt
3	delete	みつびし.txt
3	delete	Gefäß.txt
3	delete	北京.txt
3	delete	東京.txt
Step	Action	Files in Partition OSXC
1	create	/tmp/Naan.txt => नान.txt)
1	create	/tmp/Chapati.txt => चपाती.txt)
1	create	/tmp/Pakora.txt => पکوڑा.txt)
1	create	/tmp/Gulab_jamun.txt => گلاب جامن.txt)
1	create	/tmp/Seoul.txt => 서울.txt)
1	create	/tmp/Korea.txt => 한국.txt)
1	create	/tmp/Kabob.txt => چلوکباب.txt)
1	create	/tmp/Walnut.txt => گردو.txt)
1	create	/tmp/Falafel.txt => لؤلؤ.txt)

Steps to Create Image osx-04		
1	create	/tmp/Hummus.txt => Hummus.txt
1	create	/tmp/Couscous.txt => Couscous.txt
1	create	/tmp/Tagine.txt => Tagine.txt
1	create	/tmp/Tea.txt => Tea.txt
1	create	/tmp/Cheese.txt => Cheese.txt
1	create	/tmp/Mitsubishi-k.txt => Mitsubishi-k.txt
1	create	/tmp/Mitsubishi-h.txt => Mitsubishi-h.txt
1	create	/tmp/Sweets.txt => Süßigkeiten.txt
1	create	/tmp/Vessel.txt => Gefäß.txt
1	create	/tmp/Beijing.txt => Beijing.txt
1	create	/tmp/China.txt => China.txt
1	create	/tmp/Japan.txt => Japan.txt
1	create	/tmp/Tokyo.txt => Tokyo.txt
1	create	/tmp/Subaru-k.txt => Subaru-k.txt
1	create	/tmp/Subaru-h.txt => Subaru-h.txt
2	set date/time	चपाती.txt नान.txt
2	set date/time	پکورا.txt گلاب جامن.txt
2	set date/time	서울.txt 한국.txt
2	set date/time	گرد و چلوکیاب.txt
2	set date/time	Humus.txt Couscous.txt
2	set date/time	Tagine.txt
2	set date/time	Tea.txt
2	set date/time	Subaru-k.txt Mitsubishi-k.txt
2	set date/time	Subaru-h.txt Mitsubishi-h.txt
2	set date/time	Süßigkeiten.txt Gefäß.txt
2	set date/time	Beijing.txt China.txt
2	set date/time	Japan.txt Tokyo.txt
3	delete	नान.txt
3	delete	پکورا.txt
3	delete	서울.txt
3	delete	گرد و چلوکیاب.txt
3	delete	Humus.txt
3	delete	Tagine.txt
3	delete	Tea.txt
3	delete	Subaru-k.txt
3	delete	Subaru-h.txt
3	delete	Gefäß.txt
3	delete	Beijing.txt
3	delete	China.txt
3	delete	Japan.txt
3	delete	Tokyo.txt

No overwrites

Metadata available  
 osx-04 Metadata found 0 files, not found 48, total 48 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2
116368 - 116375	Naan	Naan
116376 - 116383	Chapati	Chapati
116384 - 116391	Pakora	Pakora
116392 - 116399	Gulab_jamun	Gulab_jamun
116400 - 116407	Seoul	Seoul
116408 - 116415	Korea	Korea

Layout for Steps 1 through 2		
116416 - 116423	Kabob	Kabob
116424 - 116431	Walnut	Walnut
116432 - 116439	Falafel	Falafel
116440 - 116447	Hummus	Hummus
116448 - 116455	Couscous	Couscous
116456 - 116463	Tagine	Tagine
116464 - 116471	Tea	Tea
116472 - 116479	Cheese	Cheese
116480 - 116487	Mitsubishi-k	Mitsubishi-k
116488 - 116495	Mitsubishi-h	Mitsubishi-h
116496 - 116503	Sweets	Sweets
116504 - 116511	Vessel	Vessel
116512 - 116519	Beijing	Beijing
116520 - 116527	China	China
116528 - 116535	Japan	Japan
116536 - 116543	Tokyo	Tokyo
116544 - 116551	Subaru-k	Subaru-k
116552 - 116559	Subaru-h	Subaru-h
657048 - 657055	Naan	Naan
657056 - 657063	Chapati	Chapati
657064 - 657071	Pakora	Pakora
657072 - 657079	Gulab_jamun	Gulab_jamun
657080 - 657087	Seoul	Seoul
657088 - 657095	Korea	Korea
657096 - 657103	Kabob	Kabob
657104 - 657111	Walnut	Walnut
657112 - 657119	Falafel	Falafel
657120 - 657127	Hummus	Hummus
657128 - 657135	Couscous	Couscous
657136 - 657143	Tagine	Tagine
657144 - 657151	Tea	Tea
657152 - 657159	Cheese	Cheese
657160 - 657167	Mitsubishi-k	Mitsubishi-k
657168 - 657175	Mitsubishi-h	Mitsubishi-h
657176 - 657183	Sweets	Sweets
657184 - 657191	Vessel	Vessel
657192 - 657199	Beijing	Beijing
657200 - 657207	China	China
657208 - 657215	Japan	Japan
657216 - 657223	Tokyo	Tokyo
657224 - 657231	Subaru-k	Subaru-k
657232 - 657239	Subaru-h	Subaru-h
1181336 - 1181343	Naan	Naan
1181344 - 1181351	Chapati	Chapati
1181352 - 1181359	Pakora	Pakora
1181360 - 1181367	Gulab_jamun	Gulab_jamun
1181368 - 1181375	Seoul	Seoul
1181376 - 1181383	Korea	Korea
1181384 - 1181391	Kabob	Kabob
1181392 - 1181399	Walnut	Walnut
1181400 - 1181407	Falafel	Falafel
1181408 - 1181415	Hummus	Hummus
1181416 - 1181423	Couscous	Couscous
1181424 - 1181431	Tagine	Tagine
1181432 - 1181439	Tea	Tea
1181440 - 1181447	Cheese	Cheese
1181448 - 1181455	Mitsubishi-k	Mitsubishi-k
1181456 - 1181463	Mitsubishi-h	Mitsubishi-h
1181464 - 1181471	Sweets	Sweets
1181472 - 1181479	Vessel	Vessel
1181480 - 1181487	Beijing	Beijing
1181488 - 1181495	China	China
1181496 - 1181503	Japan	Japan
1181504 - 1181511	Tokyo	Tokyo

Layout for Steps 1 through 2		
1181512 - 1181519	Subaru-k	Subaru-k
1181520 - 1181527	Subaru-h	Subaru-h
1688960 - 1688967	Naan	Naan
1688968 - 1688975	Chapati	Chapati
1688976 - 1688983	Pakora	Pakora
1688984 - 1688991	Gulab_jamun	Gulab_jamun
1688992 - 1688999	Seoul	Seoul
1689000 - 1689007	Korea	Korea
1689008 - 1689015	Kabob	Kabob
1689016 - 1689023	Walnut	Walnut
1689024 - 1689031	Falafel	Falafel
1689032 - 1689039	Hummus	Hummus
1689040 - 1689047	Couscous	Couscous
1689048 - 1689055	Tagine	Tagine
1689056 - 1689063	Tea	Tea
1689064 - 1689071	Cheese	Cheese
1689072 - 1689079	Mitsubishi-k	Mitsubishi-k
1689080 - 1689087	Mitsubishi-h	Mitsubishi-h
1689088 - 1689095	Sweets	Sweets
1689096 - 1689103	Vessel	Vessel
1689104 - 1689111	Beijing	Beijing
1689112 - 1689119	China	China
1689120 - 1689127	Japan	Japan
1689128 - 1689135	Tokyo	Tokyo
1689136 - 1689143	Subaru-k	Subaru-k
1689144 - 1689151	Subaru-h	Subaru-h

Sector List	
Beijing.txt	116512 - 116519, 657192 - 657199, 1181480 - 1181487, 1689104 - 1689111
Chapati.txt	116376 - 116383, 657056 - 657063, 1181344 - 1181351, 1688968 - 1688975
Cheese.txt	116472 - 116479, 657152 - 657159, 1181440 - 1181447, 1689064 - 1689071
China.txt	116520 - 116527, 657200 - 657207, 1181488 - 1181495, 1689112 - 1689119
Couscous.txt	116448 - 116455, 657128 - 657135, 1181416 - 1181423, 1689040
...	
30 omitted	
1689055	
Tea.txt	116464 - 116471, 657144 - 657151, 1181432 - 1181439, 1689056 - 1689063
Tokyo.txt	116536 - 116543, 657216 - 657223, 1181504 - 1181511, 1689128 - 1689135
Vessel.txt	116504 - 116511, 657184 - 657191, 1181472 - 1181479, 1689096 - 1689103
Walnut.txt	116424 - 116431, 657104 - 657111, 1181392 - 1181399, 1689016 - 1689023

## 71 Test Image xfat-01

DFR-01. Recover one non-fragmented file.

Partition Table Layout

#:	TYPE NAME	SIZE	IDENTIFIER
0:	GUID_partition_scheme	*65.5 MB	disk1
1:	Microsoft Basic Data exFat	64.0 MB	disk1s1

1 files deleted

Deleted files (1)			
Name	Size	F-Hd	F-Bks

Deleted files (1)			
Betelgeuse.txt	4396 (8+300)	1	7

MAC times just before file deletion

File: "Betelgeuse.txt"

Access: Sat Jan 2 03:02:00 1999

Modify: Tue Feb 29 13:12:00 2000

Change: Tue Feb 29 13:12:00 2000

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case xfat-01

==== Run step 3 =====

ACTION (delete): Betelgeuse.txt

ACTION (delete time): Sun Oct 16 09:58:39 EDT 2011

Steps to Create Image xfat-01		
Step	Action	Files in Partition ExFAT
1	create	Alcor.TXT Betelgeuse.txt Capella.txt
2	set date/time	Alcor.TXT Betelgeuse.txt Capella.txt
3	delete	Betelgeuse.txt

No overwrites

File: Betelgeuse.txt 8 8

Summary: 1 1 0 0

Metadata available

xfat-01 Metadata found 1 files, not found 0, total 1 deleted files

Metadata available for all deleted files

Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2
2384 - 2391	Alcor	Alcor
2392 - 2399	Betelgeuse	Betelgeuse
2400 - 2400	TAIL/Betelgeuse	TAIL/Betelgeuse
2408 - 2415	Capella	Capella

Sector List	
Alcor.TXT	2384 - 2391
Betelgeuse.txt	2392 - 2399
Capella.txt	2408 - 2415

## 72 Test Image xfat-02

DFR-02. Recover file with two fragments.

Partition Table Layout

#:	TYPE NAME	SIZE	IDENTIFIER
0:	GUID_partition_scheme	*65.5 MB	disk1
1:	Microsoft Basic Data exFat	64.0 MB	disk1s1

1 files deleted

Deleted files (1)			
Name	Size	F-Hd	F-Bks
Betelgeuse.txt	8192 (16+0)	1	15

MAC times just before file deletion  
 File: "Betelgeuse.txt"  
 Access: Sat Jan 2 03:02:00 1999  
 Modify: Tue Feb 29 13:12:00 2000  
 Change: Tue Feb 29 13:12:00 2000

File delete times:  
 Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case xfat-02  
 ===== Run step 5 =====  
 ACTION (delete): Betelgeuse.txt  
 ACTION (delete time): Sun Oct 16 10:11:45 EDT 2011

Steps to Create Image xfat-02		
Step	Action	Files in Partition ExFAT
1	create	Alcor.TXT Betelgeuse.txt Capella.txt
2	append	Betelgeuse.txt
3	create	Deneb.txt
4	set date/time	Alcor.TXT Betelgeuse.txt Capella.txt Deneb.txt
5	delete	Betelgeuse.txt

No overwrites

File: Betelgeuse.txt 16 16  
 Summary: 1 1 0 0

Metadata available  
 xfat-02 Metadata found 1 files, not found 0, total 1 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 4				
Sectors	Step 1	Step 2	Step 3	Step 4
2384 - 2391	Alcor	Alcor	Alcor	Alcor
2392 - 2399	Betelgeuse	Betelgeuse	Betelgeuse	Betelgeuse
2400 - 2407	Capella	Capella	Capella	Capella
2408 - 2415	empty	Betelgeuse	Betelgeuse	Betelgeuse
2416 - 2423	empty	empty	Deneb	Deneb

Sector List	
Alcor.TXT	2384 - 2391
Betelgeuse.txt	2392 - 2399, 2408 - 2415
Capella.txt	2400 - 2407
Deneb.txt	2416 - 2423

## 73 Test Image xfat-03

DFR-03. Recover file with multiple fragments.

Partition Table Layout

#:	TYPE	NAME	SIZE	IDENTIFIER
0:	GUID_partition_scheme		*65.5 MB	disk1
1:	Microsoft Basic Data	exFat	64.0 MB	disk1s1

1 files deleted

Deleted files (1)			
Name	Size	F-Hd	F-Bks
Betelgeuse.txt	16384 (32+0)	1	31

MAC times just before file deletion  
 File: "Betelgeuse.txt"  
 Access: Sat Jan 2 03:02:00 1999  
 Modify: Tue Feb 29 13:12:00 2000  
 Change: Tue Feb 29 13:12:00 2000

File delete times:  
 Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case xfat-03  
 ===== Run step 9 =====  
 ACTION (delete): Betelgeuse.txt  
 ACTION (delete time): Sun Oct 16 10:56:30 EDT 2011

Steps to Create Image xfat-03		
Step	Action	Files in Partition ExFAT
1	create	Alcor.TXT Betelgeuse.txt Capella.txt
2	append	Betelgeuse.txt
3	create	Deneb.txt
4	append	Betelgeuse.txt
5	create	ElNath.TXT
6	append	Betelgeuse.txt
7	create	Fomalhaut.TXT
8	set date/time	Alcor.TXT Betelgeuse.txt Capella.txt Deneb.txt
9	delete	Betelgeuse.txt

No overwrites

File: Betelgeuse.txt 32 32  
 Summary: 1 1 0 0

Metadata available  
 xfat-03 Metadata found 1 files, not found 0, total 1 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 4				
Sectors	Step 1	Step 2	Step 3	Step 4
2384 - 2391	Alcor	Alcor	Alcor	Alcor
2392 - 2399	Betelgeuse	Betelgeuse	Betelgeuse	Betelgeuse
2400 - 2407	Capella	Capella	Capella	Capella
2408 - 2415	empty	Betelgeuse	Betelgeuse	Betelgeuse
2416 - 2423	empty	empty	Deneb	Deneb
2424 - 2431	empty	empty	empty	Betelgeuse
2432 - 2439	empty	empty	empty	empty
2440 - 2447	empty	empty	empty	empty
2448 - 2455	empty	empty	empty	empty

Layout for Steps 5 through 8				
Sectors	Step 5	Step 6	Step 7	Step 8
2384 - 2391	Alcor	Alcor	Alcor	Alcor
2392 - 2399	Betelgeuse	Betelgeuse	Betelgeuse	Betelgeuse
2400 - 2407	Capella	Capella	Capella	Capella
2408 - 2415	Betelgeuse	Betelgeuse	Betelgeuse	Betelgeuse
2416 - 2423	Deneb	Deneb	Deneb	Deneb
2424 - 2431	Betelgeuse	Betelgeuse	Betelgeuse	Betelgeuse
2432 - 2439	ElNath	ElNath	ElNath	ElNath
2440 - 2447	empty	Betelgeuse	Betelgeuse	Betelgeuse
2448 - 2455	empty	empty	Fomalhaut	Fomalhaut

Sector List	
Alcor.TXT	2384 - 2391

Sector List	
Betelgeuse.txt	2392 - 2399, 2408 - 2415, 2424 - 2431, 2440 - 2447
Capella.txt	2400 - 2407
Deneb.txt	2416 - 2423
ElNath.TXT	2432 - 2439
Fomalhaut.TXT	2448 - 2455

## 74 Test Image xfat-04

DFR-04. Recover several non-fragmented files with non-ASCII file names.

Partition Table Layout

```
#:      TYPE NAME      SIZE  IDENTIFIER
0:  GUID_partition_scheme  *65.5 MB  disk1
1:  Microsoft Basic Data exFat    64.0 MB  disk1s1
```

12 files deleted

Deleted files (12)			
Name	Size	F-Hd	F-Bks
/tmp/df-r-04/Beijing.txt	3072 (6+0)	1	5
/tmp/df-r-04/Hummus.txt	3072 (6+0)	1	5
/tmp/df-r-04/Mitsubishi-h.txt	3072 (6+0)	1	5
/tmp/df-r-04/Mitsubishi-k.txt	3072 (6+0)	1	5
/tmp/df-r-04/Naan.txt	3072 (6+0)	1	5
/tmp/df-r-04/Pakora.txt	3072 (6+0)	1	5
/tmp/df-r-04/Seoul.txt	3072 (6+0)	1	5
/tmp/df-r-04/Tagine.txt	3072 (6+0)	1	5
/tmp/df-r-04/Tea.txt	3072 (6+0)	1	5
/tmp/df-r-04/Tokyo.txt	3072 (6+0)	1	5
/tmp/df-r-04/Vessel.txt	3072 (6+0)	1	5
/tmp/df-r-04/Walnut.txt	3072 (6+0)	1	5

MAC times just before file deletion

File delete times:

Times: /Volumes/CFTT/df-r/df-r-setup/ntfs-delete-times.txt Case xfat-04

===== Run step 3 =====

ACTION (delete): नान.txt

ACTION (delete time): Wed Oct 19 05:55:15 EDT 2011

ACTION (delete): بېكوڙا.txt

ACTION (delete time): Wed Oct 19 05:55:15 EDT 2011

ACTION (delete): 서울.txt

ACTION (delete time): Wed Oct 19 05:55:15 EDT 2011

ACTION (delete): گجرو.txt

ACTION (delete time): Wed Oct 19 05:55:15 EDT 2011

ACTION (delete): 0101π.txt

ACTION (delete time): Wed Oct 19 05:55:15 EDT 2011

ACTION (delete): طاجين.txt

ACTION (delete time): Wed Oct 19 05:55:15 EDT 2011

ACTION (delete): чай.txt

ACTION (delete time): Wed Oct 19 05:55:15 EDT 2011

ACTION (delete): ミツビシ.txt

ACTION (delete time): Wed Oct 19 05:55:15 EDT 2011

ACTION (delete): みつびし.txt

ACTION (delete time): Wed Oct 19 05:55:15 EDT 2011

ACTION (delete): Gefäß.txt

ACTION (delete time): Wed Oct 19 05:55:15 EDT 2011

ACTION (delete): 北京.txt

ACTION (delete time): Wed Oct 19 05:55:15 EDT 2011

ACTION (delete): 東京.txt

ACTION (delete time): Wed Oct 19 05:55:15 EDT 2011

**Steps to Create Image xfat-04**



Steps to Create Image xfat-04		
Step	Action	Files in Partition ExFAT
1	create	/tmp/Naan.txt => नान.txt)
1	create	/tmp/Chapati.txt => चपाती.txt)
1	create	/tmp/Pakora.txt => پکوڑا.txt)
1	create	/tmp/Gulab_jamun.txt => گلاب جامن.txt)
1	create	/tmp/Seoul.txt => 서울.txt)
1	create	/tmp/Korea.txt => 한국.txt)
1	create	/tmp/Kabob.txt => چلوکباب.txt)
1	create	/tmp/Walnut.txt => گردو.txt)
1	create	/tmp/Falafel.txt => فلفل.txt)
1	create	/tmp/Hummus.txt => حمص.txt)
1	create	/tmp/Couscous.txt => كسكس.txt)
1	create	/tmp/Tagine.txt => طاجين.txt)
1	create	/tmp/Tea.txt => чай.txt)
1	create	/tmp/Cheese.txt => сыр.txt)
1	create	/tmp/Mitsubishi-k.txt => ミツビシ.txt)
1	create	/tmp/Mitsubishi-h.txt => みつびし.txt)
1	create	/tmp/Sweets.txt => Süßigkeiten.txt)
1	create	/tmp/Vessel.txt => Gefäß.txt)
1	create	/tmp/Beijing.txt => 北京.txt)
1	create	/tmp/China.txt => 中國.txt)
1	create	/tmp/Japan.txt => 日本.txt)
1	create	/tmp/Tokyo.txt => 東京.txt)
1	create	/tmp/Subaru-k.txt => スバル.txt)
1	create	/tmp/Subaru-h.txt => すばる.txt)
2	set date/time	चपाती.txt नान.txt
2	set date/time	چلوکباب.txt گلاب جامن.txt
2	set date/time	한국.txt 서울.txt
2	set date/time	چلوکباب.txt گردو.txt
2	set date/time	فلفل.txt حمص.txt
2	set date/time	کسکس.txt طاجين.txt
2	set date/time	сыр.txt чай.txt
2	set date/time	スバル.txt ミツビシ.txt
2	set date/time	すばる.txt みつびし.txt
2	set date/time	Süßigkeiten.txt Gefäß.txt
2	set date/time	中國.txt 北京.txt
2	set date/time	日本.txt 東京.txt
3	delete	नान.txt
3	delete	پکوڑا.txt
3	delete	서울.txt
3	delete	گردو.txt
3	delete	حمص.txt
3	delete	طاجين.txt
3	delete	чай.txt
3	delete	みつびし.txt
3	delete	みつびし.txt
3	delete	Gefäß.txt
3	delete	北京.txt
3	delete	東京.txt

No overwrites

File: Mitsubishi-h.txt 6 6  
File: Tagine.txt 6 6  
File: Pakora.txt 6 6  
File: Tokyo.txt 6 6  
File: Hummus.txt 6 6  
File: Naan.txt 6 6

File: Tea.txt 6 6  
 File: Beijing.txt 6 6  
 File: Walnut.txt 6 6  
 File: Mitsubishi-k.txt 6 6  
 File: Seoul.txt 6 6  
 File: Vessel.txt 6 6  
 Summary: 12 12 0 0

Metadata available  
 xfat-04 Metadata found 0 files, not found 12, total 12 deleted files  
 Deleted files without metadata (cannot be found)  
 Beijing.txt Hummus.txt Mitsubishi-h.txt  
 Mitsubishi-k.txt Naan.txt Pakora.txt  
 Seoul.txt Tagine.txt Tea.txt Tokyo.txt  
 Vessel.txt Walnut.txt

Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2
2384 - 2389	Naan	Naan
2392 - 2397	Chapati	Chapati
2400 - 2405	Pakora	Pakora
2408 - 2413	Gulab_jamun	Gulab_jamun
2416 - 2421	Seoul	Seoul
2424 - 2429	Korea	Korea
2432 - 2437	Kabob	Kabob
2440 - 2445	Walnut	Walnut
2448 - 2453	Falafel	Falafel
2456 - 2461	Hummus	Hummus
2464 - 2469	Couscous	Couscous
2472 - 2477	Tagine	Tagine
2480 - 2485	Tea	Tea
2488 - 2493	Cheese	Cheese
2496 - 2501	Mitsubishi-k	Mitsubishi-k
2504 - 2509	Mitsubishi-h	Mitsubishi-h
2512 - 2517	Sweets	Sweets
2520 - 2525	Vessel	Vessel
2528 - 2533	Beijing	Beijing
2536 - 2541	China	China
2544 - 2549	Japan	Japan
2552 - 2557	Tokyo	Tokyo
2560 - 2565	Subaru-k	Subaru-k
2568 - 2573	Subaru-h	Subaru-h

Sector List	
Beijing.txt	2528 - 2533
Chapati.txt	2392 - 2397
Cheese.txt	2488 - 2493
China.txt	2536 - 2541
Couscous.txt	2464 - 2469
Falafel.txt	2448 - 2453
Gulab_jamun.txt	2408 - 2413
Hummus.txt	2456 - 2461
Japan.txt	2544 - 2549
...	
6 omitted	
Seoul.txt	2416 - 2421
Subaru-h.txt	2568 - 2573
Subaru-k.txt	2560 - 2565
Sweets.txt	2512 - 2517
Tagine.txt	2472 - 2477
Tea.txt	2480 - 2485
Tokyo.txt	2552 - 2557

Sector List	
Vessel.txt	2520 - 2525
Walnut.txt	2440 - 2445

## 75 Test Image xfat-05

DFR-05. Recover several fragmented files.

Partition Table Layout

#:	TYPE NAME	SIZE	IDENTIFIER
0:	GUID_partition_scheme	*65.5 MB	disk1
1:	Microsoft Basic Data exFat	64.0 MB	disk1s1

2 files deleted

Deleted files (2)			
Name	Size	F-Hd	F-Bks
Betelgeuse.txt	8192 (16+0)	1	15
ElNath.TXT	8192 (16+0)	1	15

MAC times just before file deletion

File: "Betelgeuse.txt"  
Access: Sat Jan 2 03:02:00 1999  
Modify: Fri Jul 4 13:12:00 2008  
Change: Fri Jul 4 13:12:00 2008  
File: "ElNath.TXT"  
Access: Fri Jan 2 03:02:00 1998  
Modify: Tue Feb 29 13:12:00 2000  
Change: Tue Feb 29 13:12:00 2000

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case xfat-05  
===== Run step 7 =====  
ACTION (delete): Betelgeuse.txt ElNath.TXT  
ACTION (delete time): Sun Oct 16 11:08:53 EDT 2011

Steps to Create Image xfat-05		
Step	Action	Files in Partition ExFAT
1	create	Alcor.TXT Betelgeuse.txt Capella.txt
2	append	Betelgeuse.txt
3	create	Deneb.txt ElNath.TXT Fomalhaut.TXT
4	append	ElNath.TXT
5	create	Gemma.TXT
6	set date/time	Alcor.TXT Betelgeuse.txt Capella.txt Deneb.txt ElNath.TXT Fomalhaut.TXT Gemma.TXT
7	delete	Betelgeuse.txt ElNath.TXT

No overwrites

File: ElNath.TXT 16 16  
File: Betelgeuse.txt 16 16  
Summary: 2 2 0 0

Metadata available

xfat-05 Metadata found 2 files, not found 0, total 2 deleted files  
Metadata available for all deleted files

Layout History

Layout for Steps 1 through 4				
Sectors	Step 1	Step 2	Step 3	Step 4
2384 - 2391	Alcor	Alcor	Alcor	Alcor

Layout for Steps 1 through 4				
2392 - 2399	Betelgeuse	Betelgeuse	Betelgeuse	Betelgeuse
2400 - 2407	Capella	Capella	Capella	Capella
2408 - 2415	empty	Betelgeuse	Betelgeuse	Betelgeuse
2416 - 2423	empty	empty	Deneb	Deneb
2424 - 2431	empty	empty	ElNath	ElNath
2432 - 2439	empty	empty	Fomalhaut	Fomalhaut
2440 - 2447	empty	empty	empty	ElNath
2448 - 2455	empty	empty	empty	empty

Layout for Steps 5 through 6		
Sectors	Step 5	Step 6
2384 - 2391	Alcor	Alcor
2392 - 2399	Betelgeuse	Betelgeuse
2400 - 2407	Capella	Capella
2408 - 2415	Betelgeuse	Betelgeuse
2416 - 2423	Deneb	Deneb
2424 - 2431	ElNath	ElNath
2432 - 2439	Fomalhaut	Fomalhaut
2440 - 2447	ElNath	ElNath
2448 - 2455	Gemma	Gemma

Sector List	
Alcor.TXT	2384 - 2391
Betelgeuse.txt	2392 - 2399, 2408 - 2415
Capella.txt	2400 - 2407
Deneb.txt	2416 - 2423
ElNath.TXT	2424 - 2431, 2440 - 2447
Fomalhaut.TXT	2432 - 2439
Gemma.TXT	2448 - 2455

## 76 Test Image xfat-05-braid

DFR-05. Recover several fragmented files.

Partition Table Layout

#:	TYPE	NAME	SIZE	IDENTIFIER
0:	FDisk_partition_scheme		*65.5 MB	disk1
1:	Windows_NTFS	exFat	65.5 MB	disk1s1

2 files deleted

Deleted files (2)			
Name	Size	F-Hd	F-Bks
Betelgeuse.txt	8192 (16+0)	1	15
Capella.txt	8192 (16+0)	1	15

MAC times just before file deletion

File: "Betelgeuse.txt"  
 Access: Sat Jan 2 03:02:00 1999  
 Modify: Fri Jul 4 13:12:00 2008  
 Change: Fri Jul 4 13:12:00 2008  
 File: "Capella.txt"  
 Access: Fri Jan 2 03:02:00 1998  
 Modify: Tue Feb 29 13:12:00 2000  
 Change: Tue Feb 29 13:12:00 2000

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case xfat-05-braid  
 ===== Run step 6 =====  
 ACTION (delete): Betelgeuse.txt Capella.txt  
 ACTION (delete time): Wed Oct 19 06:24:49 EDT 2011

Steps to Create Image xfat-05-braid		
Step	Action	Files in Partition ExFAT
1	create	Alcor.TXT Betelgeuse.txt Capella.txt
2	append	Betelgeuse.txt
3	append	Capella.txt
4	create	Deneb.txt
5	set date/time	Alcor.TXT Betelgeuse.txt Capella.txt Deneb.txt
6	delete	Betelgeuse.txt Capella.txt

No overwrites

File: Capella.txt 16 16  
 File: Betelgeuse.txt 16 16  
 Summary: 2 2 0 0

Metadata available  
 xfat-05-braid Metadata found 2 files, not found 0, total 2 deleted files  
 Metadata available for all deleted files

Layout History

Layout for Steps 1 through 4				
Sectors	Step 1	Step 2	Step 3	Step 4
391 - 398	metadata	metadata	Capella	Capella
399 - 406	Alcor	Alcor	Alcor	Alcor
407 - 414	Betelgeuse	Betelgeuse	Betelgeuse	Betelgeuse
415 - 422	Capella	Capella	Capella	Capella
423 - 430	empty	Betelgeuse	Betelgeuse	Betelgeuse
439 - 446	empty	empty	empty	Deneb

Layout for Steps 5 through 5	
Sectors	Step 5
391 - 398	Capella
399 - 406	Alcor
407 - 414	Betelgeuse
415 - 422	Capella
423 - 430	Betelgeuse
439 - 446	Deneb

Sector List	
Alcor.TXT	399 - 406
Betelgeuse.txt	407 - 414, 423 - 430
Capella.txt	391 - 398, 415 - 422
Deneb.txt	439 - 446

## 77 Test Image xfat-05-nest

DFR-05. Recover several fragmented files.

Partition Table Layout

#:	TYPE	NAME	SIZE	IDENTIFIER
0:	FDisk_partition_scheme		*65.5 MB	disk1
1:	Windows_NTFS	exFat	65.5 MB	disk1s1

2 files deleted

Deleted files (2)			
Name	Size	F-Hd	F-Bks

Deleted files (2)			
Betelgeuse.txt	16384 (32+0)	1	31
Deneb.txt	16384 (32+0)	1	31

MAC times just before file deletion

File: "Betelgeuse.txt"

Access: Sat Jan 2 03:02:00 1999

Modify: Fri Jul 4 13:12:00 2008

Change: Fri Jul 4 13:12:00 2008

File: "Deneb.txt"

Access: Fri Jan 2 03:02:00 1998

Modify: Tue Feb 29 13:12:00 2000

Change: Tue Feb 29 13:12:00 2000

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case xfat-05-nest

==== Run step 7 =====

ACTION (delete): Betelgeuse.txt Deneb.txt

ACTION (delete time): Wed Oct 19 06:48:19 EDT 2011

Steps to Create Image xfat-05-nest		
Step	Action	Files in Partition ExFAT
1	create	Alcor.TXT Betelgeuse.txt Capella.txt Deneb.txt ElNath.TXT
2	append	Deneb.txt
3	create	Fomalhaut.TXT
4	append	Betelgeuse.txt
5	create	Gemma.TXT
6	set date/time	Alcor.TXT Betelgeuse.txt Capella.txt Deneb.txt ElNath.TXT Fomalhaut.TXT Gemma.TXT
7	delete	Betelgeuse.txt Deneb.txt

No overwrites

File: Deneb.txt 32 32

File: Betelgeuse.txt 32 32

Summary: 2 2 0 0

Metadata available

xfat-05-nest Metadata found 2 files, not found 0, total 2 deleted files

Metadata available for all deleted files

Layout History

Layout for Steps 1 through 4				
Sectors	Step 1	Step 2	Step 3	Step 4
391 - 398	metadata	metadata	Fomalhaut	Fomalhaut
399 - 414	Alcor	Alcor	Alcor	Alcor
415 - 430	Betelgeuse	Betelgeuse	Betelgeuse	Betelgeuse
431 - 446	Capella	Capella	Capella	Capella
447 - 462	Deneb	Deneb	Deneb	Deneb
463 - 478	ElNath	ElNath	ElNath	ElNath
479 - 494	empty	Deneb	Deneb	Deneb
503 - 510	empty	empty	Fomalhaut	Fomalhaut
511 - 526	empty	empty	empty	Betelgeuse
527 - 542	empty	empty	empty	empty

Layout for Steps 5 through 6		
Sectors	Step 5	Step 6
391 - 398	Fomalhaut	Fomalhaut
399 - 414	Alcor	Alcor
415 - 430	Betelgeuse	Betelgeuse
431 - 446	Capella	Capella

Layout for Steps 5 through 6		
447 - 462	Deneb	Deneb
463 - 478	ElNath	ElNath
479 - 494	Deneb	Deneb
503 - 510	Fomalhaut	Fomalhaut
511 - 526	Betelgeuse	Betelgeuse
527 - 542	Gemma	Gemma

Sector List	
Alcor.TXT	399 - 414
Betelgeuse.txt	415 - 430, 511 - 526
Capella.txt	431 - 446
Deneb.txt	447 - 462, 479 - 494
ElNath.TXT	463 - 478
Fomalhaut.TXT	391 - 398, 503 - 510
Gemma.TXT	527 - 542

## 78 Test Image xfat-06

DFR-06. Recover one large file.

Partition Table Layout

#:	TYPE	NAME	SIZE	IDENTIFIER
0:	FDisk_partition_scheme		*65.5 MB	disk1
1:	Windows_NTFS	exFat	65.5 MB	disk1s1

1 files deleted

Deleted files (1)			
Name	Size	F-Hd	F-Bks
Betelgeuse.txt	65302528 (127544+0)	1	127543

MAC times just before file deletion

File: "Betelgeuse.txt"

Access: Sat Jan 2 03:02:00 1999

Modify: Fri Jul 4 13:13:00 2008

Change: Fri Jul 4 13:13:00 2008

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case xfat-06

===== Run step 4 =====

ACTION (delete): Betelgeuse.txt

ACTION (delete time): Wed Oct 19 07:32:09 EDT 2011

Steps to Create Image xfat-06		
Step	Action	Files in Partition ExFAT
1	create	Alcor.TXT
2	create	Betelgeuse.txt
4	delete	Betelgeuse.txt

No overwrites

File: Betelgeuse.txt 127544 127544

Summary: 1 1 0 0

Metadata available

xfat-06 Metadata found 1 files, not found 0, total 1 deleted files

Metadata available for all deleted files

Layout History

Layout for Steps 1 through 3			
Sectors	Step 1	Step 2	Step 3
399 - 399	Alcor	Alcor	Alcor
407 - 127752	empty	Betelgeuse	Betelgeuse
127753 - 127950	metadata	Betelgeuse	Betelgeuse

Sector List	
Alcor.TXT	399 - 399
Betelgeuse.txt	407 - 127950

## 79 Test Image xfat-07

DFR-07. Recover one overwritten file.

Partition Table Layout

```
#:      TYPE NAME      SIZE IDENTIFIER
0:  GUID_partition_scheme  *65.5 MB disk1
1:  Microsoft Basic Data exFat    64.0 MB disk1s1
```

5 files deleted

Deleted files (5)			
Name	Size	F-Hd	F-Bks
Betelgeuse.txt	512 (1+0)	1	0
Capella.txt	512 (1+0)	1	0
Deneb.txt	512 (1+0)	1	0
Fomalhaut.TXT	1024 (2+0)	1	1
Gemma.TXT	512 (1+0)	1	0

MAC times just before file deletion

File: "Betelgeuse.txt"

Access: Sun Oct 16 11:20:44 2011

Modify: Sun Oct 16 11:20:14 2011

Change: Sun Oct 16 11:20:14 2011

File: "Capella.txt"

Access: Sun Oct 16 11:20:44 2011

Modify: Sun Oct 16 11:20:14 2011

Change: Sun Oct 16 11:20:14 2011

File: "Deneb.txt"

Access: Sun Oct 16 11:20:44 2011

Modify: Sun Oct 16 11:20:14 2011

Change: Sun Oct 16 11:20:14 2011

File: "Fomalhaut.TXT"

Access: Sun Oct 16 11:21:24 2011

Modify: Sun Oct 16 11:21:24 2011

Change: Sun Oct 16 11:21:24 2011

File: "Gemma.TXT"

Access: Sun Oct 16 11:21:24 2011

Modify: Sun Oct 16 11:21:24 2011

Change: Sun Oct 16 11:21:24 2011

File delete times:

Times: /Volumes/CFTT/df/df-setup/nfs-delete-times.txt Case xfat-07

==== Run step 2 =====

ACTION (delete): Betelgeuse.txt Capella.txt Deneb.txt

ACTION (delete time): Sun Oct 16 11:21:05 EDT 2011

ACTION (delete): Fomalhaut.TXT Gemma.TXT

ACTION (delete time): Sun Oct 16 11:21:43 EDT 2011

Steps to Create Image xfat-07		
Step	Action	Files in Partition ExFAT
1	create	Alcor.TXT Betelgeuse.txt Capella.txt Deneb.txt ElNath.TXT
2	delete	Betelgeuse.txt Capella.txt Deneb.txt



Steps to Create Image xfat-07		
3	create	Fomalhaut.TXT Gemma.TXT
4	delete	Fomalhaut.TXT Gemma.TXT

2 overwrites

Betelgeuse.txt x Fomalhaut.TXT: overlap - 2392 - 2392

Capella.txt x Gemma.TXT: overlap - 2400 - 2400

File: Fomalhaut.TXT 2 2

File: Gemma.TXT 1 1

File: Capella.txt 1 0

File: Deneb.txt 1 1

File: Betelgeuse.txt 1 0

Summary: 5 3 0 2

Metadata available

xfat-07 Metadata found 3 files, not found 2, total 5 deleted files

Deleted files without metadata (cannot be found)

Betelgeuse.txt      Capella.txt

Layout History

Layout for Steps 1 through 3			
Sectors	Step 1	Step 2	Step 3
2384 - 2384	Alcor	Alcor	Alcor
2392 - 2392	Betelgeuse	Betelgeuse	Fomalhaut
2393 - 2393	metadata	metadata	Fomalhaut
2400 - 2400	Capella	Capella	Gemma
2408 - 2408	Deneb	Deneb	Deneb
2416 - 2416	ElNath	ElNath	ElNath

Sector List	
Alcor.TXT	2384 - 2384
Betelgeuse.txt	2392 - 2392
Capella.txt	2400 - 2400
Deneb.txt	2408 - 2408
ElNath.TXT	2416 - 2416
Fomalhaut.TXT	2392 - 2393
Gemma.TXT	2400 - 2400

## 80 Test Image xfat-07-one

DFR-07. Recover one overwritten file.

Partition Table Layout

#:	TYPE NAME	SIZE	IDENTIFIER
0:	FDisk_partition_scheme	*65.5 MB	disk1
1:	Windows_NTFS exFat	65.5 MB	disk1s1

3 files deleted

Deleted files (3)			
Name	Size	F-Hd	F-Bks
Betelgeuse.txt	4096 (8+0)	1	7
Capella.txt	4096 (8+0)	1	7
ElNath.TXT	4096 (8+0)	1	7

MAC times just before file deletion

File: "Betelgeuse.txt"

Access: Wed Oct 19 07:07:22 2011

Modify: Wed Oct 19 07:06:51 2011

Change: Wed Oct 19 07:06:51 2011  
 File: "Capella.txt"  
 Access: Wed Oct 19 07:07:54 2011  
 Modify: Wed Oct 19 07:06:51 2011  
 Change: Wed Oct 19 07:06:51 2011  
 File: "ElNath.TXT"  
 Access: Wed Oct 19 07:08:22 2011  
 Modify: Wed Oct 19 07:08:22 2011  
 Change: Wed Oct 19 07:08:22 2011

File delete times:  
 Times: /Volumes/CFTT/df/df-setup/ntfs-delete-times.txt Case xfat-07-one  
 ===== Run step 2 =====  
 ACTION (delete): Betelgeuse.txt  
 ACTION (delete time): Wed Oct 19 07:07:40 EDT 2011  
 ACTION (delete): Capella.txt  
 ACTION (delete time): Wed Oct 19 07:08:08 EDT 2011  
 ACTION (delete): ElNath.TXT  
 ACTION (delete time): Wed Oct 19 07:08:37 EDT 2011

Steps to Create Image xfat-07-one		
Step	Action	Files in Partition ExFAT
1	create	Alcor.TXT Betelgeuse.txt Capella.txt Deneb.txt
2	delete	Betelgeuse.txt
3	append	Alcor.TXT
4	delete	Capella.txt
5	create	ElNath.TXT
6	delete	ElNath.TXT

No overwrites

File: ElNath.TXT 8 8  
 File: Capella.txt 8 0  
 File: Betelgeuse.txt 8 0  
 Summary: 3 1 0 2

Metadata available  
 xfat-07-one Metadata found 2 files, not found 1, total 3 deleted files  
 Deleted files without metadata (cannot be found)  
 Betelgeuse.txt

Layout History

Layout for Steps 1 through 4				
Sectors	Step 1	Step 2	Step 3	Step 4
383 - 390	metadata	metadata	Alcor	Alcor
391 - 398	metadata	metadata	metadata	metadata
399 - 406	Alcor	Alcor	Alcor	Alcor
407 - 414	Betelgeuse	Betelgeuse	metadata	metadata
415 - 422	Capella	Capella	Capella	Capella
423 - 430	Deneb	Deneb	Deneb	Deneb

Layout for Steps 5 through 5	
Sectors	Step 5
383 - 390	Alcor
391 - 398	ElNath
399 - 406	Alcor
407 - 414	metadata
415 - 422	metadata
423 - 430	Deneb

<b>Sector List</b>
--------------------

Sector List	
Alcor.TXT	383 - 390, 399 - 406
Betelgeuse.txt	407 - 414
Capella.txt	415 - 422
Deneb.txt	423 - 430
ElNath.TXT	391 - 398

## 81 Test Image xfat-07-two

DFR-07. Recover one overwritten file.

Partition Table Layout

```
#:          TYPE NAME          SIZE  IDENTIFIER
0:  FDisk_partition_scheme    *65.5 MB  disk1
1:    Windows_NTFS exFat      65.5 MB  disk1s1
```

3 files deleted

Deleted files (3)			
Name	Size	F-Hd	F-Bks
Betelgeuse.txt	4096 (8+0)	1	7
Capella.txt	4096 (8+0)	1	7
ElNath.TXT	4096 (8+0)	1	7

MAC times just before file deletion

File: "Betelgeuse.txt"

Access: Wed Oct 19 07:19:02 2011

Modify: Wed Oct 19 07:18:31 2011

Change: Wed Oct 19 07:18:31 2011

File: "Capella.txt"

Access: Wed Oct 19 07:19:34 2011

Modify: Wed Oct 19 07:18:31 2011

Change: Wed Oct 19 07:18:31 2011

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case xfat-07-two

==== Run step 2 =====

ACTION (delete): Betelgeuse.txt

ACTION (delete time): Wed Oct 19 07:19:20 EDT 2011

ACTION (delete): Capella.txt

ACTION (delete time): Wed Oct 19 07:19:49 EDT 2011

Steps to Create Image xfat-07-two		
Step	Action	Files in Partition ExFAT
1	create	Alcor.TXT Betelgeuse.txt Capella.txt Deneb.txt
2	delete	Betelgeuse.txt
3	append	Alcor.TXT
4	delete	Capella.txt
5	create	ElNath.TXT

2 overwrites

Alcor.TXT x Betelgeuse.txt: overlap - 407 - 414

Capella.txt x ElNath.TXT: overlap - 415 - 422

File: Capella.txt 8 0

File: Betelgeuse.txt 8 0

Summary: 2 0 0 2

Metadata available

xfat-07-two Metadata found 2 files, not found 1, total 3 deleted files

Deleted files without metadata (cannot be found)

Betelgeuse.txt

Layout History

Layout for Steps 1 through 5					
Sectors	Step 1	Step 2	Step 3	Step 4	Step 5
399 - 406	Alcor	Alcor	Alcor	Alcor	Alcor
407 - 414	Betelgeuse	Betelgeuse	Alcor	Alcor	Alcor
415 - 422	Capella	Capella	Capella	Capella	ElNath
423 - 430	Deneb	Deneb	Deneb	Deneb	Deneb

Sector List	
Alcor.TXT	399 - 414
Betelgeuse.txt	407 - 414
Capella.txt	415 - 422
Deneb.txt	423 - 430
ElNath.TXT	415 - 422

## 82 Test Image xfat-08

DFR-08. Recover several overwritten files.

Partition Table Layout

#:	TYPE	NAME	SIZE	IDENTIFIER
0:	FDisk_partition_scheme		*65.5 MB	disk1
1:	Windows_NTFS	exFat	65.5 MB	disk1s1

25 files deleted

Deleted files (25)			
Name	Size	F-Hd	F-Bks
Ain.txt	512 (1+0)	1	0
Alcor.txt	512 (1+0)	1	0
Algol.txt	512 (1+0)	1	0
Antares.txt	512 (1+0)	1	0
Beid.txt	8192 (16+0)	1	15
Camelopardalis.txt	1024 (2+0)	1	1
Caph.txt	1024 (2+0)	1	1
Castor.txt	1024 (2+0)	1	1
Cujam.txt	1024 (2+0)	1	1
Deneb.txt	2048 (4+0)	1	3
Dubhe.txt	2048 (4+0)	1	3
El_Nasl.txt	4096 (8+0)	1	7
Enif.txt	4096 (8+0)	1	7
Gemma.txt	2048 (4+0)	1	3
Hamal.txt	2048 (4+0)	1	3
Maia.txt	4096 (8+0)	1	7
Mirfak.txt	4096 (8+0)	1	7
Mizar.txt	4096 (8+0)	1	7
Polaris.txt	8192 (16+0)	1	15
Rana.txt	4096 (8+0)	1	7
Sabik.txt	512 (1+0)	1	0
Sadr.txt	512 (1+0)	1	0
Sargas.txt	512 (1+0)	1	0
Spica.txt	512 (1+0)	1	0
Thuban.txt	2048 (4+0)	1	3

MAC times just before file deletion

File: "Ain.txt"  
 Access: Wed Oct 19 07:45:10 2011  
 Modify: Wed Oct 19 07:44:39 2011  
 Change: Wed Oct 19 07:44:39 2011  
 File: "Alcor.txt"  
 Access: Wed Oct 19 07:46:10 2011

Modify: Wed Oct 19 07:44:39 2011  
 Change: Wed Oct 19 07:44:39 2011  
 File: "Algol.txt"  
 Access: Wed Oct 19 07:45:42 2011  
 Modify: Wed Oct 19 07:44:39 2011  
 Change: Wed Oct 19 07:44:39 2011  
 File: "Antares.txt"  
 Access: Wed Oct 19 07:45:10 2011  
 Modify: Wed Oct 19 07:44:39 2011  
 Change: Wed Oct 19 07:44:39 2011  
 File: "Beid.txt"  
 Access: Wed Oct 19 07:45:10 2011  
 Modify: Wed Oct 19 07:44:39 2011  
 Change: Wed Oct 19 07:44:39 2011  
 ...  
 60 omitted  
 File: "Sabik.txt"  
 Access: Wed Oct 19 07:46:10 2011  
 Modify: Wed Oct 19 07:46:11 2011  
 Change: Wed Oct 19 07:46:11 2011  
 File: "Sadr.txt"  
 Access: Wed Oct 19 07:46:10 2011  
 Modify: Wed Oct 19 07:46:11 2011  
 Change: Wed Oct 19 07:46:11 2011  
 File: "Sargas.txt"  
 Access: Wed Oct 19 07:46:10 2011  
 Modify: Wed Oct 19 07:46:11 2011  
 Change: Wed Oct 19 07:46:11 2011  
 File: "Spica.txt"  
 Access: Wed Oct 19 07:46:10 2011  
 Modify: Wed Oct 19 07:46:11 2011  
 Change: Wed Oct 19 07:46:11 2011  
 File: "Thuban.txt"  
 Access: Wed Oct 19 07:46:10 2011  
 Modify: Wed Oct 19 07:46:11 2011  
 Change: Wed Oct 19 07:46:11 2011

File delete times:  
 Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case xfat-08  
 ===== Run step 2 =====  
 ACTION (delete): Ain.txt Antares.txt Beid.txt  
 ACTION (delete): Camelopardalis.txt Caph.txt Cujam.txt  
 ACTION (delete): Dubhe.txt El\_Nasl.txt Enif.txt  
 ACTION (delete time): Wed Oct 19 07:45:28 EDT 2011  
 ACTION (delete): Gemma.txt Mirfak.txt Polaris.txt  
 ACTION (delete): Deneb.txt Algol.txt Maia.txt  
 ACTION (delete time): Wed Oct 19 07:45:57 EDT 2011  
 ACTION (delete): Rana.txt Spica.txt Thuban.txt Mizar.txt  
 ACTION (delete): Sabik.txt Sadr.txt Sargas.txt  
 ACTION (delete): Alcor.txt Castor.txt Hamal.txt  
 ACTION (delete time): Wed Oct 19 07:46:25 EDT 2011

Steps to Create Image xfat-08		
Step	Action	Files in Partition ExFAT
1	create	Ain.txt Alcor.txt Algol.txt Antares.txt Beid.txt
1	create	Camelopardalis.txt Caph.txt Castor.txt Cujam.txt
1	create	Deneb.txt Dubhe.txt El_Nasl.txt Enif.txt
1	create	Ain.txt Beid.txt Camelopardalis.txt Deneb.txt El_Nasl.txt
2	delete	Ain.txt Antares.txt Beid.txt
2	delete	Camelopardalis.txt Caph.txt Cujam.txt
2	delete	Dubhe.txt El_Nasl.txt Enif.txt
3	create	Gemma.txt Hamal.txt Polaris.txt
3	create	Mirfak.txt Mizar.txt Maia.txt
4	delete	Gemma.txt Mirfak.txt Polaris.txt
4	delete	Deneb.txt Algol.txt Maia.txt
5	create	Rana.txt Spica.txt Thuban.txt
5	create	Sabik.txt Sadr.txt Sargas.txt
6	delete	Rana.txt Spica.txt Thuban.txt Mizar.txt

Steps to Create Image xfat-08		
6	delete	Sabik.txt Sadr.txt Sargas.txt
6	delete	Alcor.txt Castor.txt Hamal.txt

17 overwrites

Ain.txt x Mirfak.txt: overlap - 407 - 407  
 Ain.txt x Spica.txt: overlap - 407 - 407  
 Algol.txt x Sargas.txt: overlap - 463 - 463  
 Beid.txt x Mizar.txt: overlap - 431 - 438  
 Beid.txt x Polaris.txt: overlap - 439 - 446  
 Beid.txt x Sabik.txt: overlap - 439 - 439  
 Camelopardalis.txt x Gemma.txt: overlap - 399 - 400  
 Camelopardalis.txt x Rana.txt: overlap - 399 - 400  
 Caph.txt x Hamal.txt: overlap - 423 - 424  
 Deneb.txt x Thuban.txt: overlap - 415 - 418  
 Dubhe.txt x Maia.txt: overlap - 471 - 474  
 EL\_Nasl.txt x Polaris.txt: overlap - 455 - 462  
 EL\_Nasl.txt x Sadr.txt: overlap - 455 - 455  
 Gemma.txt x Rana.txt: overlap - 399 - 402  
 Mirfak.txt x Spica.txt: overlap - 407 - 407  
 Polaris.txt x Sabik.txt: overlap - 439 - 439  
 Polaris.txt x Sadr.txt: overlap - 455 - 455

File: Deneb.txt 4 0  
 File: Hamal.txt 4 4  
 File: Maia.txt 8 8  
 File: Spica.txt 1 1  
 File: Beid.txt 16 0  
 File: Antares.txt 1 1  
 File: Algol.txt 1 0  
 File: Thuban.txt 4 4  
 File: Caph.txt 2 0  
 File: Mirfak.txt 8 0  
 File: Camelopardalis.txt 2 0  
 File: Alcor.txt 1 1  
 File: Rana.txt 8 8  
 File: Mizar.txt 8 8  
 File: Cujam.txt 2 2  
 File: EL\_Nasl.txt 8 0  
 File: Enif.txt 8 8  
 File: Sadr.txt 1 1  
 File: Ain.txt 1 0  
 File: Sargas.txt 1 1  
 File: Castor.txt 2 2  
 File: Sabik.txt 1 1  
 File: Gemma.txt 4 0  
 File: Polaris.txt 16 0  
 File: Dubhe.txt 4 0  
 Summary: 25 14 0 11

Metadata available

xfat-08 Metadata found 14 files, not found 11, total 25 deleted files  
 Deleted files without metadata (cannot be found)  
 Ain.txt Algol.txt Beid.txt Camelopardalis.txt  
 Caph.txt Dubhe.txt EL\_Nasl.txtGemma.txt  
 Maia.txt Mirfak.txt Polaris.txt

Layout History

Layout for Steps 1 through 3			
Sectors	Step 1	Step 2	Step 3
399 - 400	Camelopardalis	Camelopardalis	Gemma
401 - 402	metadata	metadata	Gemma
403 - 406	metadata	metadata	metadata
407 - 407	Ain	Ain	Mirfak

Layout for Steps 1 through 3			
408 - 414	metadata	metadata	Mirfak
415 - 418	Deneb	Deneb	Deneb
423 - 424	Caph	Caph	Hamal
425 - 426	metadata	metadata	Hamal
431 - 438	Beid	Beid	Mizar
439 - 439	Beid	Beid	Polaris
440 - 446	Beid	Beid	Polaris
447 - 447	Alcor	Alcor	Alcor
455 - 455	El_Nasl	El_Nasl	Polaris
456 - 462	El_Nasl	El_Nasl	Polaris
463 - 463	Algol	Algol	Algol
471 - 474	Dubhe	Dubhe	Maia
475 - 478	metadata	metadata	Maia
479 - 479	Antares	Antares	Antares
487 - 488	Castor	Castor	Castor
495 - 502	Enif	Enif	Enif
503 - 504	Cujam	Cujam	Cujam

Layout for Steps 4 through 5		
Sectors	Step 4	Step 5
399 - 400	Gemma	Rana
401 - 402	Gemma	Rana
403 - 406	metadata	Rana
407 - 407	Mirfak	Spica
408 - 414	Mirfak	metadata
415 - 418	Deneb	Thuban
423 - 424	Hamal	Hamal
425 - 426	Hamal	Hamal
431 - 438	Mizar	Mizar
439 - 439	Polaris	Sabik
440 - 446	Polaris	metadata
447 - 447	Alcor	Alcor
455 - 455	Polaris	Sadr
456 - 462	Polaris	metadata
463 - 463	Algol	Sargas
471 - 474	Maia	Maia
475 - 478	Maia	Maia
479 - 479	Antares	Antares
487 - 488	Castor	Castor
495 - 502	Enif	Enif
503 - 504	Cujam	Cujam

Sector List	
Ain.txt	407 - 407
Alcor.txt	447 - 447
Algol.txt	463 - 463
Antares.txt	479 - 479
Beid.txt	431 - 446
Camelopardalis.txt	399 - 400
Caph.txt	423 - 424
Castor.txt	487 - 488
Cujam.txt	503 - 504
...	
7 omitted	
Mirfak.txt	407 - 414
Mizar.txt	431 - 438
Polaris.txt	439 - 446, 455 - 462
Rana.txt	399 - 406
Sabik.txt	439 - 439
Sadr.txt	455 - 455
Sargas.txt	463 - 463
Spica.txt	407 - 407

Sector List	
Thuban.txt	415 - 418

### 83 Test Image xfat-09

DFR-09. Recover large number of files no overwrite.

Partition Table Layout

#:	TYPE NAME	SIZE	IDENTIFIER
0:	FDisk_partition_scheme	*65.5 MB	disk1
1:	Windows_NTFS exFat	65.5 MB	disk1s1

260 files deleted

Deleted files (260)			
Name	Size	F-Hd	F-Bks
xB0000-2.txt	512 (1+0)	1	0
xB0001-2.txt	512 (1+0)	1	0
xB0002-2.txt	512 (1+0)	1	0
xB0003-2.txt	512 (1+0)	1	0
xB0004-2.txt	512 (1+0)	1	0
xB0005-2.txt	512 (1+0)	1	0
xB0006-2.txt	512 (1+0)	1	0
xB0007-2.txt	512 (1+0)	1	0
xB0008-2.txt	512 (1+0)	1	0
xB0009-2.txt	512 (1+0)	1	0
xB0010-2.txt	512 (1+0)	1	0
xB0011-2.txt	512 (1+0)	1	0
xB0012-2.txt	512 (1+0)	1	0
xB0013-2.txt	512 (1+0)	1	0
xB0014-2.txt	512 (1+0)	1	0
xB0015-2.txt	512 (1+0)	1	0
xB0016-2.txt	512 (1+0)	1	0
xB0017-2.txt	512 (1+0)	1	0
xB0018-2.txt	512 (1+0)	1	0
xB0019-2.txt	512 (1+0)	1	0
...			
220 omitted			
xB0240-2.txt	512 (1+0)	1	0
xB0241-2.txt	512 (1+0)	1	0
xB0242-2.txt	512 (1+0)	1	0
xB0243-2.txt	512 (1+0)	1	0
xB0244-2.txt	512 (1+0)	1	0
xB0245-2.txt	512 (1+0)	1	0
xB0246-2.txt	512 (1+0)	1	0
xB0247-2.txt	512 (1+0)	1	0
xB0248-2.txt	512 (1+0)	1	0
xB0249-2.txt	512 (1+0)	1	0
xB0250-2.txt	512 (1+0)	1	0
xB0251-2.txt	512 (1+0)	1	0
xB0252-2.txt	512 (1+0)	1	0
xB0253-2.txt	512 (1+0)	1	0
xB0254-2.txt	512 (1+0)	1	0
xB0255-2.txt	512 (1+0)	1	0
xB0256-2.txt	512 (1+0)	1	0
xB0257-2.txt	512 (1+0)	1	0
xB0258-2.txt	512 (1+0)	1	0
xB0259-2.txt	512 (1+0)	1	0

MAC times just before file deletion

File: "xB0000-2.txt"

Access: Wed Oct 19 08:12:42 2011

Modify: Wed Oct 19 08:12:42 2011

Change: Wed Oct 19 08:12:42 2011



File: "xB0001-2.txt"  
 Access: Wed Oct 19 08:12:42 2011  
 Modify: Wed Oct 19 08:12:42 2011  
 Change: Wed Oct 19 08:12:42 2011  
 File: "xB0002-2.txt"  
 Access: Wed Oct 19 08:12:42 2011  
 Modify: Wed Oct 19 08:12:42 2011  
 Change: Wed Oct 19 08:12:42 2011  
 File: "xB0003-2.txt"  
 Access: Wed Oct 19 08:12:42 2011  
 Modify: Wed Oct 19 08:12:42 2011  
 Change: Wed Oct 19 08:12:42 2011  
 File: "xB0004-2.txt"  
 Access: Wed Oct 19 08:12:42 2011  
 Modify: Wed Oct 19 08:12:43 2011  
 Change: Wed Oct 19 08:12:43 2011

...

1000 omitted

File: "xB0255-2.txt"  
 Access: Wed Oct 19 08:13:00 2011  
 Modify: Wed Oct 19 08:13:01 2011  
 Change: Wed Oct 19 08:13:01 2011  
 File: "xB0256-2.txt"  
 Access: Wed Oct 19 08:13:00 2011  
 Modify: Wed Oct 19 08:13:01 2011  
 Change: Wed Oct 19 08:13:01 2011  
 File: "xB0257-2.txt"  
 Access: Wed Oct 19 08:13:00 2011  
 Modify: Wed Oct 19 08:13:01 2011  
 Change: Wed Oct 19 08:13:01 2011  
 File: "xB0258-2.txt"  
 Access: Wed Oct 19 08:13:02 2011  
 Modify: Wed Oct 19 08:13:01 2011  
 Change: Wed Oct 19 08:13:01 2011  
 File: "xB0259-2.txt"  
 Access: Wed Oct 19 08:13:02 2011  
 Modify: Wed Oct 19 08:13:02 2011  
 Change: Wed Oct 19 08:13:02 2011

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case xfat-09

==== Run step 2 =====

ACTION (delete): 260 files

ACTION (delete time): Wed Oct 19 08:13:17 EDT 2011

Steps to Create Image xfat-09		
Step	Action	Files in Partition ExFAT
1	create	260 files
2	delete	260 files

No overwrites

File: xB0001-2.txt 1 1  
 File: xB0178-2.txt 1 1  
 File: xB0054-2.txt 1 1  
 File: xB0125-2.txt 1 1  
 File: xB0104-2.txt 1 1  
 File: xB0015-2.txt 1 1  
 File: xB0195-2.txt 1 1  
 File: xB0161-2.txt 1 1  
 File: xB0153-2.txt 1 1  
 File: xB0141-2.txt 1 1  
 File: xB0122-2.txt 1 1  
 File: xB0088-2.txt 1 1  
 ...  
 File: xB0200-2.txt 1 1

File: xB0233-2.txt 1 1  
 File: xB0101-2.txt 1 1  
 File: xB0110-2.txt 1 1  
 File: xB0169-2.txt 1 1  
 File: xB0162-2.txt 1 1  
 File: xB0094-2.txt 1 1  
 File: xB0171-2.txt 1 1  
 File: xB0253-2.txt 1 1  
 File: xB0185-2.txt 1 1  
 File: xB0212-2.txt 1 1  
 Summary: 260 260 0 0

Metadata available  
 xfat-09 Metadata found 260 files, not found 0, total 260 deleted files  
 Metadata available for all deleted files

Layout History  
 Block map has more than 200 entries

Sector List	
Alpha	407 - 407
Omega	2543 - 2543
xB0000-2.txt	415 - 415
xB0001-2.txt	423 - 423
xB0002-2.txt	431 - 431
xB0003-2.txt	439 - 439
xB0004-2.txt	447 - 447
xB0005-2.txt	455 - 455
xB0006-2.txt	463 - 463
...	
244 omitted	
xB0251-2.txt	2463 - 2463
xB0252-2.txt	2471 - 2471
xB0253-2.txt	2479 - 2479
xB0254-2.txt	2487 - 2487
xB0255-2.txt	2503 - 2503
xB0256-2.txt	2511 - 2511
xB0257-2.txt	2519 - 2519
xB0258-2.txt	2527 - 2527
xB0259-2.txt	2535 - 2535

## 84 Test Image xfat-10

DFR-10. Recover large number of files, with some overwritten.

Partition Table Layout

#:	TYPE NAME	SIZE	IDENTIFIER
0:	FDisk_partition_scheme	*65.5 MB	disk1
1:	Windows_NTFS exFat	65.5 MB	disk1s1

780 files deleted

Deleted files (780)			
Name	Size	F-Hd	F-Bks
xB0000-2.txt	1024 (2+0)	1	1
xB0001-2.txt	1024 (2+0)	1	1
xB0002-2.txt	1024 (2+0)	1	1
xB0003-2.txt	1024 (2+0)	1	1
xB0004-2.txt	1024 (2+0)	1	1
xB0005-2.txt	1024 (2+0)	1	1
xB0006-2.txt	1024 (2+0)	1	1
xB0007-2.txt	1024 (2+0)	1	1
xB0008-2.txt	1024 (2+0)	1	1

Deleted files (780)			
xB0009-2.txt	1024 (2+0)	1	1
xB0010-2.txt	1024 (2+0)	1	1
xB0011-2.txt	1024 (2+0)	1	1
xB0012-2.txt	1024 (2+0)	1	1
xB0013-2.txt	1024 (2+0)	1	1
xB0014-2.txt	1024 (2+0)	1	1
xB0015-2.txt	1024 (2+0)	1	1
xB0016-2.txt	1024 (2+0)	1	1
xB0017-2.txt	1024 (2+0)	1	1
xB0018-2.txt	1024 (2+0)	1	1
xB0019-2.txt	1024 (2+0)	1	1
...			
740 omitted			
xD0240-2.txt	1024 (2+0)	1	1
xD0241-2.txt	1024 (2+0)	1	1
xD0242-2.txt	1024 (2+0)	1	1
xD0243-2.txt	1024 (2+0)	1	1
xD0244-2.txt	1024 (2+0)	1	1
xD0245-2.txt	1024 (2+0)	1	1
xD0246-2.txt	1024 (2+0)	1	1
xD0247-2.txt	1024 (2+0)	1	1
xD0248-2.txt	1024 (2+0)	1	1
xD0249-2.txt	1024 (2+0)	1	1
xD0250-2.txt	1024 (2+0)	1	1
xD0251-2.txt	1024 (2+0)	1	1
xD0252-2.txt	1024 (2+0)	1	1
xD0253-2.txt	1024 (2+0)	1	1
xD0254-2.txt	1024 (2+0)	1	1
xD0255-2.txt	1024 (2+0)	1	1
xD0256-2.txt	1024 (2+0)	1	1
xD0257-2.txt	1024 (2+0)	1	1
xD0258-2.txt	1024 (2+0)	1	1
xD0259-2.txt	1024 (2+0)	1	1

MAC times just before file deletion

File: "xB0000-2.txt"  
Access: Wed Oct 19 08:31:20 2011  
Modify: Wed Oct 19 08:31:20 2011  
Change: Wed Oct 19 08:31:20 2011  
File: "xB0001-2.txt"  
Access: Wed Oct 19 08:31:20 2011  
Modify: Wed Oct 19 08:31:20 2011  
Change: Wed Oct 19 08:31:20 2011  
File: "xB0002-2.txt"  
Access: Wed Oct 19 08:31:20 2011  
Modify: Wed Oct 19 08:31:20 2011  
Change: Wed Oct 19 08:31:20 2011  
File: "xB0003-2.txt"  
Access: Wed Oct 19 08:31:20 2011  
Modify: Wed Oct 19 08:31:20 2011  
Change: Wed Oct 19 08:31:20 2011  
File: "xB0004-2.txt"  
Access: Wed Oct 19 08:31:20 2011  
Modify: Wed Oct 19 08:31:20 2011  
Change: Wed Oct 19 08:31:20 2011

...  
3080 omitted  
File: "xD0255-2.txt"  
Access: Wed Oct 19 08:32:18 2011  
Modify: Wed Oct 19 08:32:18 2011  
Change: Wed Oct 19 08:32:18 2011  
File: "xD0256-2.txt"  
Access: Wed Oct 19 08:32:18 2011  
Modify: Wed Oct 19 08:32:18 2011  
Change: Wed Oct 19 08:32:18 2011

File: "xD0257-2.txt"  
 Access: Wed Oct 19 08:32:18 2011  
 Modify: Wed Oct 19 08:32:18 2011  
 Change: Wed Oct 19 08:32:18 2011  
 File: "xD0258-2.txt"  
 Access: Wed Oct 19 08:32:18 2011  
 Modify: Wed Oct 19 08:32:19 2011  
 Change: Wed Oct 19 08:32:19 2011  
 File: "xD0259-2.txt"  
 Access: Wed Oct 19 08:32:18 2011  
 Modify: Wed Oct 19 08:32:19 2011  
 Change: Wed Oct 19 08:32:19 2011

File delete times:  
 Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case xfat-10  
 ===== Run step 2 =====  
 ACTION (delete): 260 C files  
 ACTION (delete time): Wed Oct 19 08:33:06 EDT 2011  
 ACTION (delete): 260 B files  
 ACTION (delete time): Wed Oct 19 08:33:55 EDT 2011  
 ACTION (delete): 260 D files  
 ACTION (delete time): Wed Oct 19 08:34:40 EDT 2011

Steps to Create Image xfat-10		
Step	Action	Files in Partition ExFAT
1	create	260 B,C&D files
2	delete	260 C files
3	create	260 E files
4	delete	260 B files
5	create	260 F files
6	delete	260 D files

520 overwrites  
 xB0000-2.txt x xF0000-2.txt: overlap - 415 - 416  
 xB0001-2.txt x xF0001-2.txt: overlap - 423 - 424  
 xB0002-2.txt x xF0002-2.txt: overlap - 431 - 432  
 xB0003-2.txt x xF0003-2.txt: overlap - 439 - 440  
 xB0004-2.txt x xF0004-2.txt: overlap - 447 - 448  
 xB0005-2.txt x xF0005-2.txt: overlap - 455 - 456  
 xB0006-2.txt x xF0006-2.txt: overlap - 463 - 464  
 xB0007-2.txt x xF0007-2.txt: overlap - 471 - 472  
 xB0008-2.txt x xF0008-2.txt: overlap - 479 - 480  
 xB0009-2.txt x xF0009-2.txt: overlap - 487 - 488  
 xB0010-2.txt x xF0010-2.txt: overlap - 495 - 496  
 xB0011-2.txt x xF0011-2.txt: overlap - 503 - 504  
 xB0012-2.txt x xF0012-2.txt: overlap - 511 - 512  
 xB0013-2.txt x xF0013-2.txt: overlap - 519 - 520  
 xB0014-2.txt x xF0014-2.txt: overlap - 527 - 528  
 xB0015-2.txt x xF0015-2.txt: overlap - 535 - 536  
 xB0016-2.txt x xF0016-2.txt: overlap - 543 - 544  
 xB0017-2.txt x xF0017-2.txt: overlap - 551 - 552  
 xB0018-2.txt x xF0018-2.txt: overlap - 559 - 560  
 xB0019-2.txt x xF0019-2.txt: overlap - 567 - 568  
 xB0020-2.txt x xF0020-2.txt: overlap - 575 - 576  
 xB0021-2.txt x xF0021-2.txt: overlap - 583 - 584  
 xB0022-2.txt x xF0022-2.txt: overlap - 591 - 592  
 xB0023-2.txt x xF0023-2.txt: overlap - 599 - 600  
 xB0024-2.txt x xF0024-2.txt: overlap - 607 - 608  
 xB0025-2.txt x xF0025-2.txt: overlap - 615 - 616  
 xB0026-2.txt x xF0026-2.txt: overlap - 623 - 624  
 xB0027-2.txt x xF0027-2.txt: overlap - 631 - 632  
 xB0028-2.txt x xF0028-2.txt: overlap - 639 - 640  
 xB0029-2.txt x xF0029-2.txt: overlap - 647 - 648  
 xB0030-2.txt x xF0030-2.txt: overlap - 655 - 656  
 xB0031-2.txt x xF0031-2.txt: overlap - 663 - 664  
 xB0032-2.txt x xF0032-2.txt: overlap - 671 - 672  
 xB0033-2.txt x xF0033-2.txt: overlap - 679 - 680

xB0034-2.txt x xF0034-2.txt: overlap - 687 - 688  
xB0035-2.txt x xF0035-2.txt: overlap - 695 - 696  
xB0036-2.txt x xF0036-2.txt: overlap - 703 - 704  
xB0037-2.txt x xF0037-2.txt: overlap - 711 - 712  
xB0038-2.txt x xF0038-2.txt: overlap - 719 - 720  
xB0039-2.txt x xF0039-2.txt: overlap - 727 - 728  
xB0040-2.txt x xF0040-2.txt: overlap - 735 - 736  
xB0041-2.txt x xF0041-2.txt: overlap - 751 - 752  
xB0042-2.txt x xF0042-2.txt: overlap - 759 - 760  
xB0043-2.txt x xF0043-2.txt: overlap - 767 - 768  
xB0044-2.txt x xF0044-2.txt: overlap - 775 - 776  
xB0045-2.txt x xF0045-2.txt: overlap - 783 - 784  
xB0046-2.txt x xF0046-2.txt: overlap - 791 - 792  
xB0047-2.txt x xF0047-2.txt: overlap - 799 - 800  
xB0048-2.txt x xF0048-2.txt: overlap - 807 - 808  
xB0049-2.txt x xF0049-2.txt: overlap - 815 - 816  
...  
xC0210-2.txt x xE0210-2.txt: overlap - 5975 - 5976  
xC0211-2.txt x xE0211-2.txt: overlap - 5999 - 6000  
xC0212-2.txt x xE0212-2.txt: overlap - 6015 - 6016  
xC0213-2.txt x xE0213-2.txt: overlap - 6031 - 6032  
xC0214-2.txt x xE0214-2.txt: overlap - 6047 - 6048  
xC0215-2.txt x xE0215-2.txt: overlap - 6063 - 6064  
xC0216-2.txt x xE0216-2.txt: overlap - 6079 - 6080  
xC0217-2.txt x xE0217-2.txt: overlap - 6095 - 6096  
xC0218-2.txt x xE0218-2.txt: overlap - 6111 - 6112  
xC0219-2.txt x xE0219-2.txt: overlap - 6127 - 6128  
xC0220-2.txt x xE0220-2.txt: overlap - 6143 - 6144  
xC0221-2.txt x xE0221-2.txt: overlap - 6159 - 6160  
xC0222-2.txt x xE0222-2.txt: overlap - 6175 - 6176  
xC0223-2.txt x xE0223-2.txt: overlap - 6191 - 6192  
xC0224-2.txt x xE0224-2.txt: overlap - 6207 - 6208  
xC0225-2.txt x xE0225-2.txt: overlap - 6223 - 6224  
xC0226-2.txt x xE0226-2.txt: overlap - 6239 - 6240  
xC0227-2.txt x xE0227-2.txt: overlap - 6255 - 6256  
xC0228-2.txt x xE0228-2.txt: overlap - 6271 - 6272  
xC0229-2.txt x xE0229-2.txt: overlap - 6287 - 6288  
xC0230-2.txt x xE0230-2.txt: overlap - 6303 - 6304  
xC0231-2.txt x xE0231-2.txt: overlap - 6319 - 6320  
xC0232-2.txt x xE0232-2.txt: overlap - 6343 - 6344  
xC0233-2.txt x xE0233-2.txt: overlap - 6359 - 6360  
xC0234-2.txt x xE0234-2.txt: overlap - 6375 - 6376  
xC0235-2.txt x xE0235-2.txt: overlap - 6391 - 6392  
xC0236-2.txt x xE0236-2.txt: overlap - 6407 - 6408  
xC0237-2.txt x xE0237-2.txt: overlap - 6423 - 6424  
xC0238-2.txt x xE0238-2.txt: overlap - 6439 - 6440  
xC0239-2.txt x xE0239-2.txt: overlap - 6455 - 6456  
xC0240-2.txt x xE0240-2.txt: overlap - 6471 - 6472  
xC0241-2.txt x xE0241-2.txt: overlap - 6487 - 6488  
xC0242-2.txt x xE0242-2.txt: overlap - 6503 - 6504  
xC0243-2.txt x xE0243-2.txt: overlap - 6519 - 6520  
xC0244-2.txt x xE0244-2.txt: overlap - 6535 - 6536  
xC0245-2.txt x xE0245-2.txt: overlap - 6551 - 6552  
xC0246-2.txt x xE0246-2.txt: overlap - 6567 - 6568  
xC0247-2.txt x xE0247-2.txt: overlap - 6583 - 6584  
xC0248-2.txt x xE0248-2.txt: overlap - 6599 - 6600  
xC0249-2.txt x xE0249-2.txt: overlap - 6615 - 6616  
xC0250-2.txt x xE0250-2.txt: overlap - 6631 - 6632  
xC0251-2.txt x xE0251-2.txt: overlap - 6647 - 6648  
xC0252-2.txt x xE0252-2.txt: overlap - 6663 - 6664  
xC0253-2.txt x xE0253-2.txt: overlap - 6679 - 6680  
xC0254-2.txt x xE0254-2.txt: overlap - 6703 - 6704  
xC0255-2.txt x xE0255-2.txt: overlap - 6719 - 6720  
xC0256-2.txt x xE0256-2.txt: overlap - 6735 - 6736  
xC0257-2.txt x xE0257-2.txt: overlap - 6751 - 6752  
xC0258-2.txt x xE0258-2.txt: overlap - 6767 - 6768  
xC0259-2.txt x xE0259-2.txt: overlap - 6783 - 6784

File: xC0134-2.txt 2 0  
 File: xB0178-2.txt 2 0  
 File: xC0143-2.txt 2 0  
 File: xD0174-2.txt 2 2  
 File: xB0015-2.txt 2 0  
 File: xC0250-2.txt 2 0  
 File: xD0214-2.txt 2 2  
 File: xD0049-2.txt 2 2  
 File: xB0122-2.txt 2 0  
 File: xB0088-2.txt 2 0  
 File: xD0196-2.txt 2 2  
 File: xB0174-2.txt 2 0  
 ...  
 File: xB0132-2.txt 2 0  
 File: xC0192-2.txt 2 0  
 File: xD0137-2.txt 2 2  
 File: xD0033-2.txt 2 2  
 File: xB0245-2.txt 2 0  
 File: xD0127-2.txt 2 2  
 File: xC0251-2.txt 2 0  
 File: xD0182-2.txt 2 2  
 File: xB0110-2.txt 2 0  
 File: xD0019-2.txt 2 2  
 File: xC0149-2.txt 2 0  
 Summary: 780 260 0 520

Metadata available

xfat-10 Metadata found 260 files, not found 520, total 780 deleted files

Deleted files without metadata (cannot be found)

xB0000-2.txt	xB0001-2.txt	xB0002-2.txt	xB0003-2.txt
xB0004-2.txt	xB0005-2.txt	xB0006-2.txt	xB0007-2.txt
xB0008-2.txt	xB0009-2.txt	xB0010-2.txt	xB0011-2.txt
xB0012-2.txt	xB0013-2.txt	xB0014-2.txt	xB0015-2.txt
xB0016-2.txt	xB0017-2.txt	xB0018-2.txt	xB0019-2.txt
xB0020-2.txt	xB0021-2.txt	xB0022-2.txt	xB0023-2.txt
xB0024-2.txt	xB0025-2.txt	xB0026-2.txt	xB0027-2.txt
xB0028-2.txt	xB0029-2.txt	xB0030-2.txt	xB0031-2.txt
xB0032-2.txt	xB0033-2.txt	xB0034-2.txt	xB0035-2.txt
xB0036-2.txt	xB0037-2.txt	xB0038-2.txt	xB0039-2.txt
xB0040-2.txt	xB0041-2.txt	xB0042-2.txt	xB0043-2.txt
xB0044-2.txt	xB0045-2.txt	xB0046-2.txt	xB0047-2.txt
xB0048-2.txt	xB0049-2.txt	xB0050-2.txt	xB0051-2.txt
xB0052-2.txt	xB0053-2.txt	xB0054-2.txt	xB0055-2.txt
xB0056-2.txt	xB0057-2.txt	xB0058-2.txt	xB0059-2.txt
xB0060-2.txt	xB0061-2.txt	xB0062-2.txt	xB0063-2.txt
xB0064-2.txt	xB0065-2.txt	xB0066-2.txt	xB0067-2.txt
xB0068-2.txt	xB0069-2.txt	xB0070-2.txt	xB0071-2.txt
xB0072-2.txt	xB0073-2.txt	xB0074-2.txt	xB0075-2.txt
xB0076-2.txt	xB0077-2.txt	xB0078-2.txt	xB0079-2.txt
xB0080-2.txt	xB0081-2.txt	xB0082-2.txt	xB0083-2.txt
xB0084-2.txt	xB0085-2.txt	xB0086-2.txt	xB0087-2.txt
xB0088-2.txt	xB0089-2.txt	xB0090-2.txt	xB0091-2.txt
xB0092-2.txt	xB0093-2.txt	xB0094-2.txt	xB0095-2.txt
xB0096-2.txt	xB0097-2.txt	xB0098-2.txt	xB0099-2.txt
xB0100-2.txt	xB0101-2.txt	xB0102-2.txt	xB0103-2.txt
xB0104-2.txt	xB0105-2.txt	xB0106-2.txt	xB0107-2.txt
xB0108-2.txt	xB0109-2.txt	xB0110-2.txt	xB0111-2.txt
xB0112-2.txt	xB0113-2.txt	xB0114-2.txt	xB0115-2.txt
xB0116-2.txt	xB0117-2.txt	xB0118-2.txt	xB0119-2.txt
xB0120-2.txt	xB0121-2.txt	xB0122-2.txt	xB0123-2.txt
xB0124-2.txt	xB0125-2.txt	xB0126-2.txt	xB0127-2.txt
xB0128-2.txt	xB0129-2.txt	xB0130-2.txt	xB0131-2.txt
xB0132-2.txt	xB0133-2.txt	xB0134-2.txt	xB0135-2.txt
xB0136-2.txt	xB0137-2.txt	xB0138-2.txt	xB0139-2.txt
xB0140-2.txt	xB0141-2.txt	xB0142-2.txt	xB0143-2.txt
xB0144-2.txt	xB0145-2.txt	xB0146-2.txt	xB0147-2.txt
xB0148-2.txt	xB0149-2.txt	xB0150-2.txt	xB0151-2.txt
xB0152-2.txt	xB0153-2.txt	xB0154-2.txt	xB0155-2.txt

xB0156-2.txt	xB0157-2.txt	xB0158-2.txt	xB0159-2.txt
xB0160-2.txt	xB0161-2.txt	xB0162-2.txt	xB0163-2.txt
xB0164-2.txt	xB0165-2.txt	xB0166-2.txt	xB0167-2.txt
xB0168-2.txt	xB0169-2.txt	xB0170-2.txt	xB0171-2.txt
xB0172-2.txt	xB0173-2.txt	xB0174-2.txt	xB0175-2.txt
xB0176-2.txt	xB0177-2.txt	xB0178-2.txt	xB0179-2.txt
xB0180-2.txt	xB0181-2.txt	xB0182-2.txt	xB0183-2.txt
xB0184-2.txt	xB0185-2.txt	xB0186-2.txt	xB0187-2.txt
xB0188-2.txt	xB0189-2.txt	xB0190-2.txt	xB0191-2.txt
xB0192-2.txt	xB0193-2.txt	xB0194-2.txt	xB0195-2.txt
xB0196-2.txt	xB0197-2.txt	xB0198-2.txt	xB0199-2.txt
xB0200-2.txt	xB0201-2.txt	xB0202-2.txt	xB0203-2.txt
xB0204-2.txt	xB0205-2.txt	xB0206-2.txt	xB0207-2.txt
xB0208-2.txt	xB0209-2.txt	xB0210-2.txt	xB0211-2.txt
xB0212-2.txt	xB0213-2.txt	xB0214-2.txt	xB0215-2.txt
xB0216-2.txt	xB0217-2.txt	xB0218-2.txt	xB0219-2.txt
xB0220-2.txt	xB0221-2.txt	xB0222-2.txt	xB0223-2.txt
xB0224-2.txt	xB0225-2.txt	xB0226-2.txt	xB0227-2.txt
xB0228-2.txt	xB0229-2.txt	xB0230-2.txt	xB0231-2.txt
xB0232-2.txt	xB0233-2.txt	xB0234-2.txt	xB0235-2.txt
xB0236-2.txt	xB0237-2.txt	xB0238-2.txt	xB0239-2.txt
xB0240-2.txt	xB0241-2.txt	xB0242-2.txt	xB0243-2.txt
xB0244-2.txt	xB0245-2.txt	xB0246-2.txt	xB0247-2.txt
xB0248-2.txt	xB0249-2.txt	xB0250-2.txt	xB0251-2.txt
xB0252-2.txt	xB0253-2.txt	xB0254-2.txt	xB0255-2.txt
xB0256-2.txt	xB0257-2.txt	xB0258-2.txt	xB0259-2.txt
xC0000-2.txt	xC0001-2.txt	xC0002-2.txt	xC0003-2.txt
xC0004-2.txt	xC0005-2.txt	xC0006-2.txt	xC0007-2.txt
xC0008-2.txt	xC0009-2.txt	xC0010-2.txt	xC0011-2.txt
xC0012-2.txt	xC0013-2.txt	xC0014-2.txt	xC0015-2.txt
xC0016-2.txt	xC0017-2.txt	xC0018-2.txt	xC0019-2.txt
xC0020-2.txt	xC0021-2.txt	xC0022-2.txt	xC0023-2.txt
xC0024-2.txt	xC0025-2.txt	xC0026-2.txt	xC0027-2.txt
xC0028-2.txt	xC0029-2.txt	xC0030-2.txt	xC0031-2.txt
xC0032-2.txt	xC0033-2.txt	xC0034-2.txt	xC0035-2.txt
xC0036-2.txt	xC0037-2.txt	xC0038-2.txt	xC0039-2.txt
xC0040-2.txt	xC0041-2.txt	xC0042-2.txt	xC0043-2.txt
xC0044-2.txt	xC0045-2.txt	xC0046-2.txt	xC0047-2.txt
xC0048-2.txt	xC0049-2.txt	xC0050-2.txt	xC0051-2.txt
xC0052-2.txt	xC0053-2.txt	xC0054-2.txt	xC0055-2.txt
xC0056-2.txt	xC0057-2.txt	xC0058-2.txt	xC0059-2.txt
xC0060-2.txt	xC0061-2.txt	xC0062-2.txt	xC0063-2.txt
xC0064-2.txt	xC0065-2.txt	xC0066-2.txt	xC0067-2.txt
xC0068-2.txt	xC0069-2.txt	xC0070-2.txt	xC0071-2.txt
xC0072-2.txt	xC0073-2.txt	xC0074-2.txt	xC0075-2.txt
xC0076-2.txt	xC0077-2.txt	xC0078-2.txt	xC0079-2.txt
xC0080-2.txt	xC0081-2.txt	xC0082-2.txt	xC0083-2.txt
xC0084-2.txt	xC0085-2.txt	xC0086-2.txt	xC0087-2.txt
xC0088-2.txt	xC0089-2.txt	xC0090-2.txt	xC0091-2.txt
xC0092-2.txt	xC0093-2.txt	xC0094-2.txt	xC0095-2.txt
xC0096-2.txt	xC0097-2.txt	xC0098-2.txt	xC0099-2.txt
xC0100-2.txt	xC0101-2.txt	xC0102-2.txt	xC0103-2.txt
xC0104-2.txt	xC0105-2.txt	xC0106-2.txt	xC0107-2.txt
xC0108-2.txt	xC0109-2.txt	xC0110-2.txt	xC0111-2.txt
xC0112-2.txt	xC0113-2.txt	xC0114-2.txt	xC0115-2.txt
xC0116-2.txt	xC0117-2.txt	xC0118-2.txt	xC0119-2.txt
xC0120-2.txt	xC0121-2.txt	xC0122-2.txt	xC0123-2.txt
xC0124-2.txt	xC0125-2.txt	xC0126-2.txt	xC0127-2.txt
xC0128-2.txt	xC0129-2.txt	xC0130-2.txt	xC0131-2.txt
xC0132-2.txt	xC0133-2.txt	xC0134-2.txt	xC0135-2.txt
xC0136-2.txt	xC0137-2.txt	xC0138-2.txt	xC0139-2.txt
xC0140-2.txt	xC0141-2.txt	xC0142-2.txt	xC0143-2.txt
xC0144-2.txt	xC0145-2.txt	xC0146-2.txt	xC0147-2.txt
xC0148-2.txt	xC0149-2.txt	xC0150-2.txt	xC0151-2.txt
xC0152-2.txt	xC0153-2.txt	xC0154-2.txt	xC0155-2.txt
xC0156-2.txt	xC0157-2.txt	xC0158-2.txt	xC0159-2.txt
xC0160-2.txt	xC0161-2.txt	xC0162-2.txt	xC0163-2.txt
xC0164-2.txt	xC0165-2.txt	xC0166-2.txt	xC0167-2.txt
xC0168-2.txt	xC0169-2.txt	xC0170-2.txt	xC0171-2.txt

xC0172-2.txt	xC0173-2.txt	xC0174-2.txt	xC0175-2.txt
xC0176-2.txt	xC0177-2.txt	xC0178-2.txt	xC0179-2.txt
xC0180-2.txt	xC0181-2.txt	xC0182-2.txt	xC0183-2.txt
xC0184-2.txt	xC0185-2.txt	xC0186-2.txt	xC0187-2.txt
xC0188-2.txt	xC0189-2.txt	xC0190-2.txt	xC0191-2.txt
xC0192-2.txt	xC0193-2.txt	xC0194-2.txt	xC0195-2.txt
xC0196-2.txt	xC0197-2.txt	xC0198-2.txt	xC0199-2.txt
xC0200-2.txt	xC0201-2.txt	xC0202-2.txt	xC0203-2.txt
xC0204-2.txt	xC0205-2.txt	xC0206-2.txt	xC0207-2.txt
xC0208-2.txt	xC0209-2.txt	xC0210-2.txt	xC0211-2.txt
xC0212-2.txt	xC0213-2.txt	xC0214-2.txt	xC0215-2.txt
xC0216-2.txt	xC0217-2.txt	xC0218-2.txt	xC0219-2.txt
xC0220-2.txt	xC0221-2.txt	xC0222-2.txt	xC0223-2.txt
xC0224-2.txt	xC0225-2.txt	xC0226-2.txt	xC0227-2.txt
xC0228-2.txt	xC0229-2.txt	xC0230-2.txt	xC0231-2.txt
xC0232-2.txt	xC0233-2.txt	xC0234-2.txt	xC0235-2.txt
xC0236-2.txt	xC0237-2.txt	xC0238-2.txt	xC0239-2.txt
xC0240-2.txt	xC0241-2.txt	xC0242-2.txt	xC0243-2.txt
xC0244-2.txt	xC0245-2.txt	xC0246-2.txt	xC0247-2.txt
xC0248-2.txt	xC0249-2.txt	xC0250-2.txt	xC0251-2.txt
xC0252-2.txt	xC0253-2.txt	xC0254-2.txt	xC0255-2.txt
xC0256-2.txt	xC0257-2.txt	xC0258-2.txt	xC0259-2.txt

Layout History  
Block map has more than 200 entries

Sector List	
Alpha	407 - 408
Omega	6799 - 6800
xB0000-2.txt	415 - 416
xB0001-2.txt	423 - 424
xB0002-2.txt	431 - 432
xB0003-2.txt	439 - 440
xB0004-2.txt	447 - 448
xB0005-2.txt	455 - 456
xB0006-2.txt	463 - 464
...	
1284 omitted	
xF0251-2.txt	2463 - 2464
xF0252-2.txt	2471 - 2472
xF0253-2.txt	2479 - 2480
xF0254-2.txt	2487 - 2488
xF0255-2.txt	2503 - 2504
xF0256-2.txt	2511 - 2512
xF0257-2.txt	2519 - 2520
xF0258-2.txt	2527 - 2528
xF0259-2.txt	2535 - 2536

## 85 Test Image xfat-11

DFR-11. Recover one non-fragmented directory.

Partition Table Layout

#:	TYPE NAME	SIZE	IDENTIFIER
0:	GUID_partition_scheme	*65.5 MB	disk1
1:	Microsoft Basic Data exFat	64.0 MB	disk1s1

3 files deleted

Deleted files (3)			
Name	Size	F-Hd	F-Bks
Adhil.txt	2048 (4+0)	1	3
Alpheratz.txt	2048 (4+0)	1	3
Mirach.txt	2048 (4+0)	1	3



MAC times just before file deletion

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case xfat-11

==== Run step 3 =====

ACTION (delete): Alpheratz.txt Mirach.txt Adhil.txt

ACTION (delete time): Sun Oct 16 12:31:07 EDT 2011

Steps to Create Image xfat-11		
Step	Action	Files in Partition ExFAT
1	mkdir	Sagittarius Andromeda Lyra
1	create	Rukbat.txt Elnasl.txt Nunki.txt
1	create	Alpheratz.txt Mirach.txt Adhil.txt
1	create	Sheliak.txt Vega.txt Sulafat.txt
2	set date/time	Andromeda Alpheratz.txt Mirach.txt Adhil.txt
3	delete	Alpheratz.txt Mirach.txt Adhil.txt
3	rmdir	Andromeda

No overwrites

File: Mirach.txt 4 4

File: Alpheratz.txt 4 4

File: Adhil.txt 4 4

Summary: 3 3 0 0

Metadata available

xfat-11 Metadata found 3 files, not found 0, total 3 deleted files

Metadata available for all deleted files

Layout History

Layout for Steps 1 through 2		
Sectors	Step 1	Step 2
2408 - 2411	Sagittarius/Rukbat	Sagittarius/Rukbat
2416 - 2419	Sagittarius/Elnasl	Sagittarius/Elnasl
2424 - 2427	Sagittarius/Nunki	Sagittarius/Nunki
2432 - 2435	Andromeda/Alpheratz	Andromeda/Alpheratz
2440 - 2443	Andromeda/Mirach	Andromeda/Mirach
2448 - 2451	Andromeda/Adhil	Andromeda/Adhil
2456 - 2459	Lyra/Sheliak	Lyra/Sheliak
2464 - 2467	Lyra/Vega	Lyra/Vega
2472 - 2475	Lyra/Sulafat	Lyra/Sulafat

Sector List	
Adhil.txt	2448 - 2451
Alpheratz.txt	2432 - 2435
Elnasl.txt	2416 - 2419
Mirach.txt	2440 - 2443
Nunki.txt	2424 - 2427
Rukbat.txt	2408 - 2411
Sheliak.txt	2456 - 2459
Sulafat.txt	2472 - 2475
Vega.txt	2464 - 2467

## 86 Test Image xfat-12

DFR-12. Recover one fragmented directory.

Partition Table Layout

```

#:          TYPE NAME          SIZE  IDENTIFIER
0:  GUID_partition_scheme     *65.5 MB  disk1
1:  Microsoft Basic Data exFat  64.0 MB  disk1s1

```

12 files deleted

Deleted files (12)			
Name	Size	F-Hd	F-Bks
Alcor.txt	8192 (16+0)	1	15
Betelguese.txt	4096 (8+0)	1	7
Dubhe.txt	8192 (16+0)	1	15
Mintaka.txt	4096 (8+0)	1	7
Mizar.txt	8192 (16+0)	1	15
Rastaban.txt	8192 (16+0)	1	15
Rigel.txt	4096 (8+0)	1	7
Sheliak.txt	12288 (24+0)	1	23
Sulafat.txt	12288 (24+0)	1	23
Thuban.txt	8192 (16+0)	1	15
Tyl.txt	8192 (16+0)	1	15
Vega.txt	16384 (32+0)	1	31

```

MAC times just before file deletion
File: "Ursa_Major/Alcor.txt"
Access: Sat Jan 2 03:42:00 1999
Modify: Tue Feb 29 13:52:00 2000
Change: Tue Feb 29 13:52:00 2000
File: "Orion/Betelguese.txt"
Access: Sat Jan 2 03:44:00 1999
Modify: Tue Feb 29 13:54:00 2000
Change: Tue Feb 29 13:54:00 2000
File: "Ursa_Major/Dubhe.txt"
Access: Sat Jan 2 03:44:00 1999
Modify: Tue Feb 29 13:54:00 2000
Change: Tue Feb 29 13:54:00 2000
File: "Orion/Mintaka.txt"
Access: Sat Jan 2 03:43:00 1999
Modify: Tue Feb 29 13:53:00 2000
Change: Tue Feb 29 13:53:00 2000
File: "Ursa_Major/Mizar.txt"
Access: Sat Jan 2 03:43:00 1999
Modify: Tue Feb 29 13:53:00 2000
Change: Tue Feb 29 13:53:00 2000
File: "Draco/Rastaban.txt"
Access: Sat Jan 2 03:42:00 1999
Modify: Tue Feb 29 13:52:00 2000
Change: Tue Feb 29 13:52:00 2000
File: "Orion/Rigel.txt"
Access: Sat Jan 2 03:42:00 1999
Modify: Tue Feb 29 13:52:00 2000
Change: Tue Feb 29 13:52:00 2000
File: "Lyra/Sheliak.txt"
Access: Sat Jan 2 03:42:00 1999
Modify: Tue Feb 29 13:52:00 2000
Change: Tue Feb 29 13:52:00 2000
File: "Lyra/Sulafat.txt"
Access: Sat Jan 2 03:44:00 1999
Modify: Tue Feb 29 13:54:00 2000
Change: Tue Feb 29 13:54:00 2000
File: "Draco/Thuban.txt"
Access: Sat Jan 2 03:43:00 1999
Modify: Tue Feb 29 13:53:00 2000
Change: Tue Feb 29 13:53:00 2000
File: "Draco/Tyl.txt"
Access: Sat Jan 2 03:44:00 1999
Modify: Tue Feb 29 13:54:00 2000
Change: Tue Feb 29 13:54:00 2000
File: "Lyra/Vega.txt"
Access: Sat Jan 2 03:43:00 1999

```

Modify: Tue Feb 29 13:53:00 2000  
Change: Tue Feb 29 13:53:00 2000

File delete times:

Times: /Volumes/CFFT/dfr/dfr-setup/ntfs-delete-times.txt Case xfat-12

===== Run step 4 =====

ACTION (delete): Sheliak.txt Vega.txt Sulafat.txt  
ACTION (delete time): Sun Oct 16 13:06:02 EDT 2011  
ACTION (delete): Rastaban.txt Thuban.txt Tyl.txt  
ACTION (delete): Rigel.txt Mintaka.txt Betelguese.txt  
ACTION (delete): Alcor.txt Mizar.txt Dubhe.txt  
ACTION (delete time): Sun Oct 16 13:07:01 EDT 2011

Steps to Create Image xfat-12		
Step	Action	Files in Partition ExFAT
1	mkdir	Andromeda Draco Ursa_Major Lyra
1	create	Alpheratz.txt Mirach.txt Adhil.txt
1	create	Rastaban.txt Thuban.txt Tyl.txt
1	create	Alcor.txt Mizar.txt Dubhe.txt
1	create	Sheliak.txt Vega.txt Sulafat.txt
2	append	Rastaban.txt Thuban.txt Tyl.txt
2	append	Sheliak.txt Vega.txt Sulafat.txt
3	set date/time	Lyra Sheliak.txt Vega.txt Sulafat.txt
4	delete	Sheliak.txt Vega.txt Sulafat.txt
4	rmdir	Lyra
5	mkdir	Orion
5	create	Rigel.txt Mintaka.txt Betelguese.txt
5	append	Alcor.txt Mizar.txt Dubhe.txt
6	set date/time	Draco Rastaban.txt Thuban.txt Tyl.txt Ursa_Major Alcor.txt Mizar.txt Dubhe.txt Orion Rigel.txt Mintaka.txt Betelguese.txt
7	delete	Rastaban.txt Thuban.txt Tyl.txt
7	delete	Rigel.txt Mintaka.txt Betelguese.txt
7	delete	Alcor.txt Mizar.txt Dubhe.txt
7	rmdir	Draco
7	rmdir	Orion

6 overwrites

Alcor.txt x Vega.txt: overlap - 2496 - 2503  
Betelguese.txt x Vega.txt: overlap - 2544 - 2551  
Dubhe.txt x Sheliak.txt: overlap - 2552 - 2559  
Mintaka.txt x Sulafat.txt: overlap - 2504 - 2511  
Mizar.txt x Sulafat.txt: overlap - 2536 - 2543  
Rigel.txt x Sheliak.txt: overlap - 2488 - 2495

File: Rigel.txt 8 8  
File: Betelguese.txt 8 8  
File: Rastaban.txt 16 16  
File: Vega.txt 32 16  
File: Mintaka.txt 8 8  
File: Tyl.txt 16 16  
File: Thuban.txt 16 16  
File: Alcor.txt 16 16  
File: Sheliak.txt 24 8  
File: Sulafat.txt 24 8  
File: Mizar.txt 16 16  
File: Dubhe.txt 16 16  
Summary: 12 9 3 0

Metadata available

xfat-12 Metadata found 9 files, not found 3, total 12 deleted files  
Deleted files without metadata (cannot be found)  
Sheliak.txtSulafat.txt Vega.txt

Layout History

<b>Layout for Steps 1 through 2</b>		
Sectors	Step 1	Step 2
2408 - 2415	Andromeda/Alpheratz	Andromeda/Alpheratz
2416 - 2423	Andromeda/Mirach	Andromeda/Mirach
2424 - 2431	Andromeda/Adhil	Andromeda/Adhil
2432 - 2439	Draco/Rastaban	Draco/Rastaban
2440 - 2447	Ursa_Major/Alcor	Ursa_Major/Alcor
2448 - 2455	Draco/Thuban	Draco/Thuban
2456 - 2463	Ursa_Major/Mizar	Ursa_Major/Mizar
2464 - 2471	Draco/Tyl	Draco/Tyl
2472 - 2479	Ursa_Major/Dubhe	Ursa_Major/Dubhe
2488 - 2495	Lyra/Sheliak	Lyra/Sheliak
2496 - 2503	Lyra/Vega	Lyra/Vega
2504 - 2511	Lyra/Sulafat	Lyra/Sulafat
2512 - 2519	empty	Draco/Rastaban
2520 - 2527	empty	Draco/Thuban
2528 - 2535	empty	Draco/Tyl
2536 - 2543	empty	Lyra/Sulafat
2544 - 2551	empty	Lyra/Vega
2552 - 2559	empty	Lyra/Sheliak
2560 - 2567	empty	Lyra/Vega
2568 - 2575	empty	Lyra/Sheliak
2576 - 2583	empty	Lyra/Vega
2584 - 2591	empty	Lyra/Sulafat

<b>Layout for Steps 3 through 4</b>		
Sectors	Step 3	Step 4
2408 - 2415	Andromeda/Alpheratz	Andromeda/Alpheratz
2416 - 2423	Andromeda/Mirach	Andromeda/Mirach
2424 - 2431	Andromeda/Adhil	Andromeda/Adhil
2432 - 2439	Draco/Rastaban	Draco/Rastaban
2440 - 2447	Ursa_Major/Alcor	Ursa_Major/Alcor
2448 - 2455	Draco/Thuban	Draco/Thuban
2456 - 2463	Ursa_Major/Mizar	Ursa_Major/Mizar
2464 - 2471	Draco/Tyl	Draco/Tyl
2472 - 2479	Ursa_Major/Dubhe	Ursa_Major/Dubhe
2488 - 2495	Lyra/Sheliak	Lyra/Sheliak
2496 - 2503	Lyra/Vega	Lyra/Vega
2504 - 2511	Lyra/Sulafat	Lyra/Sulafat
2512 - 2519	Draco/Rastaban	Draco/Rastaban
2520 - 2527	Draco/Thuban	Draco/Thuban
2528 - 2535	Draco/Tyl	Draco/Tyl
2536 - 2543	Lyra/Sulafat	Lyra/Sulafat
2544 - 2551	Lyra/Vega	Lyra/Vega
2552 - 2559	Lyra/Sheliak	Lyra/Sheliak
2560 - 2567	Lyra/Vega	Lyra/Vega
2568 - 2575	Lyra/Sheliak	Lyra/Sheliak
2576 - 2583	Lyra/Vega	Lyra/Vega
2584 - 2591	Lyra/Sulafat	Lyra/Sulafat

<b>Layout for Steps 5 through 6</b>		
Sectors	Step 5	Step 6
2408 - 2415	Andromeda/Alpheratz	Andromeda/Alpheratz
2416 - 2423	Andromeda/Mirach	Andromeda/Mirach
2424 - 2431	Andromeda/Adhil	Andromeda/Adhil
2432 - 2439	Draco/Rastaban	Draco/Rastaban
2440 - 2447	Ursa_Major/Alcor	Ursa_Major/Alcor
2448 - 2455	Draco/Thuban	Draco/Thuban
2456 - 2463	Ursa_Major/Mizar	Ursa_Major/Mizar
2464 - 2471	Draco/Tyl	Draco/Tyl
2472 - 2479	Ursa_Major/Dubhe	Ursa_Major/Dubhe

Layout for Steps 5 through 6		
2488 - 2495	Orion/Rigel	Orion/Rigel
2496 - 2503	Ursa_Major/Alcor	Ursa_Major/Alcor
2504 - 2511	Orion/Mintaka	Orion/Mintaka
2512 - 2519	Draco/Rastaban	Draco/Rastaban
2520 - 2527	Draco/Thuban	Draco/Thuban
2528 - 2535	Draco/Tyl	Draco/Tyl
2536 - 2543	Ursa_Major/Mizar	Ursa_Major/Mizar
2544 - 2551	Orion/Betelguese	Orion/Betelguese
2552 - 2559	Ursa_Major/Dubhe	Ursa_Major/Dubhe
2560 - 2567	Lyra/Vega	Lyra/Vega
2568 - 2575	Lyra/Sheliak	Lyra/Sheliak
2576 - 2583	Lyra/Vega	Lyra/Vega
2584 - 2591	Lyra/Sulafat	Lyra/Sulafat

Sector List	
Adhil.txt	2424 - 2431
Alcor.txt	2440 - 2447, 2496 - 2503
Alpheratz.txt	2408 - 2415
Betelguese.txt	2544 - 2551
Dubhe.txt	2472 - 2479, 2552 - 2559
Mintaka.txt	2504 - 2511
Mirach.txt	2416 - 2423
Mizar.txt	2456 - 2463, 2536 - 2543
Rastaban.txt	2432 - 2439, 2512 - 2519
Rigel.txt	2488 - 2495
Sheliak.txt	2488 - 2495, 2552 - 2559, 2568 - 2575
Sulafat.txt	2504 - 2511, 2536 - 2543, 2584 - 2591
Thuban.txt	2448 - 2455, 2520 - 2527
Tyl.txt	2464 - 2471, 2528 - 2535
Vega.txt	2496 - 2503, 2544 - 2551, 2560 - 2567, 2576 - 2583

## 87 Test Image xfat-13

DFR-13. Recover chaotic file system activity.

Partition Table Layout

#:	TYPE	NAME	SIZE	IDENTIFIER
0:	FDisk_partition_scheme		*65.5 MB	disk1
1:	Windows_NTFS	xfat	65.5 MB	disk1s1

138 files deleted

Deleted files (138)			
Name	Size	F-Hd	F-Bks
B000-alpha=a-a=D=s-s=C-1.txt	9216 (18+0)	1	17
B001-alpha=a-a=D=s-s=C-2.txt	20480 (40+0)	1	39
B002-alpha=a-a=D=s-s=C-3.txt	7168 (14+0)	1	13
B003-alpha=a-a=D=s-s=C-4.txt	37376 (73+0)	1	72
B004-alpha=a-a=D=s-s=C-5.txt	7680 (15+0)	1	14
B005-alpha=a-a=D=s-s=C-6.txt	30208 (59+0)	1	58
B006-alpha=a-a=D=s-s=C-7.txt	10240 (20+0)	1	19
B007-alpha=a-a=D=s-s=C-8.txt	25088 (49+0)	1	48
B008-alpha=a-s=D=s-s=C-1.txt	9728 (19+0)	1	18
B009-alpha=a-s=D=s-s=C-2.txt	2560 (5+0)	1	4
B010-alpha=a-s=D=s-s=C-3.txt	19456 (38+0)	1	37
B011-alpha=a-s=D=s-s=C-4.txt	5120 (10+0)	1	9
B012-alpha=a-s=D=s-s=C-5.txt	22016 (43+0)	1	42
B013-alpha=a-s=D=s-s=C-6.txt	5120 (10+0)	1	9
B014-alpha=a-s=D=s-s=C-7.txt	9728 (19+0)	1	18
B015-alpha=a-s=D=s-s=C-8.txt	8704 (17+0)	1	16
B016-alpha=s-a=D=s-s=C-1.txt	18944 (37+0)	1	36
B017-alpha=s-a=D=s-s=C-2.txt	29184 (57+0)	1	56

Deleted files (138)			
B018-alpha=s-a=D=s-s=C-3.txt	2048 (4+0)	1	3
B019-alpha=s-a=D=s-s=C-4.txt	10752 (21+0)	1	20
...			
98 omitted			
B190-gamma=s-s=C=a-s=D-3.txt	6656 (13+0)	1	12
B191-gamma=s-s=C=a-s=D-4.txt	4608 (9+0)	1	8
B196-gamma=s-s=C=s-a=D-1.txt	3072 (6+0)	1	5
B197-gamma=s-s=C=s-a=D-2.txt	6144 (12+0)	1	11
B198-gamma=s-s=C=s-a=D-3.txt	9216 (18+0)	1	17
B199-gamma=s-s=C=s-a=D-4.txt	2560 (5+0)	1	4
B204-gamma=s-s=C=s-s=D-1.txt	4096 (8+0)	1	7
B205-gamma=s-s=C=s-s=D-2.txt	2560 (5+0)	1	4
B206-gamma=s-s=C=s-s=D-3.txt	1536 (3+0)	1	2
B207-gamma=s-s=C=s-s=D-4.txt	3584 (7+0)	1	6
B213-delta=s-s=C=s-a=D-1.txt	8192 (16+0)	1	15
B214-delta=s-s=C=s-a=D-2.txt	4608 (9+0)	1	8
B215-delta=s-s=C=s-a=D-3.txt	2048 (4+0)	1	3
B216-delta=s-s=C=s-a=D-4.txt	6656 (13+0)	1	12
B217-delta=s-s=C=s-a=D-5.txt	4608 (9+0)	1	8
B223-delta=s-s=C=s-s=D-1.txt	1536 (3+0)	1	2
B224-delta=s-s=C=s-s=D-2.txt	3584 (7+0)	1	6
B225-delta=s-s=C=s-s=D-3.txt	512 (1+0)	1	0
B226-delta=s-s=C=s-s=D-4.txt	4096 (8+0)	1	7
B227-delta=s-s=C=s-s=D-5.txt	2560 (5+0)	1	4

MAC times just before file deletion

File: "Orion/B000-alpha=a-a=D=s-s=C-1.txt"

Access: Mon Mar 12 19:11:42 2012

Modify: Mon Mar 12 19:11:05 2012

Change: Mon Mar 12 19:11:05 2012

File: "Taurus/B001-alpha=a-a=D=s-s=C-2.txt"

Access: Mon Mar 12 19:11:42 2012

Modify: Mon Mar 12 19:11:05 2012

Change: Mon Mar 12 19:11:05 2012

File: "Taurus/B002-alpha=a-a=D=s-s=C-3.txt"

Access: Mon Mar 12 19:11:42 2012

Modify: Mon Mar 12 19:11:05 2012

Change: Mon Mar 12 19:11:05 2012

File: "Taurus/B003-alpha=a-a=D=s-s=C-4.txt"

Access: Mon Mar 12 19:11:42 2012

Modify: Mon Mar 12 19:11:05 2012

Change: Mon Mar 12 19:11:05 2012

File: "Ursa/B004-alpha=a-a=D=s-s=C-5.txt"

Access: Mon Mar 12 19:11:42 2012

Modify: Mon Mar 12 19:11:05 2012

Change: Mon Mar 12 19:11:05 2012

...

512 omitted

File: "Taurus/B223-delta=s-s=C=s-s=D-1.txt"

Access: Mon Mar 12 19:13:24 2012

Modify: Mon Mar 12 19:13:02 2012

Change: Mon Mar 12 19:13:02 2012

File: "Ursa/B224-delta=s-s=C=s-s=D-2.txt"

Access: Mon Mar 12 19:13:24 2012

Modify: Mon Mar 12 19:13:02 2012

Change: Mon Mar 12 19:13:02 2012

File: "Ursa/B225-delta=s-s=C=s-s=D-3.txt"

Access: Mon Mar 12 19:13:24 2012

Modify: Mon Mar 12 19:13:03 2012

Change: Mon Mar 12 19:13:03 2012

File: "Orion/B226-delta=s-s=C=s-s=D-4.txt"

Access: Mon Mar 12 19:13:24 2012

Modify: Mon Mar 12 19:13:03 2012

Change: Mon Mar 12 19:13:03 2012

File: "Orion/B227-delta=s-s=C=s-s=D-5.txt"

Access: Mon Mar 12 19:13:24 2012  
Modify: Mon Mar 12 19:13:03 2012  
Change: Mon Mar 12 19:13:03 2012

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case xfat-13

==== Run step 7 =====

ACTION (delete): part 1 =D= in partition B

ACTION (delete time): Mon Mar 12 19:12:27 EDT 2012

ACTION (delete): part 2 =D- in partition B

ACTION (delete time): Mon Mar 12 19:13:40 EDT 2012

Steps to Create Image xfat-13		
Step	Action	Files in Partition ExFAT
1	create	alpha in partition B
2	append	a1 a-x... in partition B
3	create	beta in partition B
4	append	a2 x-a... in partition B
5	create	gamma in partition B
6	create	fill in partition B
7	delete	part 1 =D= in partition B
8	append	a3 x-x=x-a... in partition B
9	create	delta in partition B
10	append	a4 x-x=x-x-a... in partition B
11	delete	part 2 =D- in partition B

75 overwrites

B000-alpha=a-a=D=s-s=C-1.txt x B032-alpha=a-a=C=a-a=C-1.txt: overlap - 423 - 430  
B000-alpha=a-a=D=s-s=C-1.txt x B186-gamma=s-s=C=a-s-C-3.txt: overlap - 1415 - 1417  
B001-alpha=a-a=D=s-s=C-2.txt x B032-alpha=a-a=C=a-a=C-1.txt: overlap - 431 - 434  
B001-alpha=a-a=D=s-s=C-2.txt x B187-gamma=s-s=C=a-s-C-4.txt: overlap - 1423 - 1430  
B002-alpha=a-a=D=s-s=C-3.txt x B036-alpha=a-a=C=a-s-C-1.txt: overlap - 439 - 442  
B002-alpha=a-a=D=s-s=C-3.txt x B187-gamma=s-s=C=a-s-C-4.txt: overlap - 1431 - 1433  
B003-alpha=a-a=D=s-s=C-4.txt x B037-alpha=a-a=C=a-s-C-2.txt: overlap - 447 - 454  
B003-alpha=a-a=D=s-s=C-4.txt x B188-gamma=s-s=C=a-s-D-1.txt: overlap - 1439 - 1439  
B003-alpha=a-a=D=s-s=C-4.txt x B190-gamma=s-s=C=a-s-D-3.txt: overlap - 1447 - 1451  
B003-alpha=a-a=D=s-s=C-4.txt x B191-gamma=s-s=C=a-s-D-4.txt: overlap - 1455 - 1455  
B003-alpha=a-a=D=s-s=C-4.txt x B208-delta=s-s=C=s-a-C-1.txt: overlap - 1463 - 1465  
B004-alpha=a-a=D=s-s=C-5.txt x B037-alpha=a-a=C=a-s-C-2.txt: overlap - 455 - 457  
B004-alpha=a-a=D=s-s=C-5.txt x B209-delta=s-s=C=s-a-C-2.txt: overlap - 1471 - 1477  
B005-alpha=a-a=D=s-s=C-6.txt x B039-alpha=a-a=C=a-s-D-2.txt: overlap - 463 - 464  
B005-alpha=a-a=D=s-s=C-6.txt x B210-delta=s-s=C=s-a-C-3.txt: overlap - 1479 - 1479  
B005-alpha=a-a=D=s-s=C-6.txt x B211-delta=s-s=C=s-a-C-4.txt: overlap - 1487 - 1494  
B005-alpha=a-a=D=s-s=C-6.txt x B212-delta=s-s=C=s-a-C-5.txt: overlap - 1495 - 1499  
B005-alpha=a-a=D=s-s=C-6.txt x B213-delta=s-s=C=s-a-D-1.txt: overlap - 1503 - 1505  
B005-alpha=a-a=D=s-s=C-6.txt x B214-delta=s-s=C=s-a-D-2.txt: overlap - 1511 - 1517  
B006-alpha=a-a=D=s-s=C-7.txt x B049-alpha=a-s=C=a-a-C-2.txt: overlap - 471 - 471  
B006-alpha=a-a=D=s-s=C-7.txt x B052-alpha=a-s=C=a-s-C-1.txt: overlap - 479 - 484  
B006-alpha=a-a=D=s-s=C-7.txt x B215-delta=s-s=C=s-a-D-3.txt: overlap - 1519 - 1519  
B007-alpha=a-a=D=s-s=C-8.txt x B054-alpha=a-s=C=a-s-D-1.txt: overlap - 487 - 487  
B007-alpha=a-a=D=s-s=C-8.txt x B064-alpha=s-a=C=a-a-C-1.txt: overlap - 495 - 495  
B007-alpha=a-a=D=s-s=C-8.txt x B067-alpha=s-a=C=a-a-D-2.txt: overlap - 503 - 509  
B007-alpha=a-a=D=s-s=C-8.txt x B070-alpha=s-a=C=a-s-D-1.txt: overlap - 511 - 512  
B007-alpha=a-a=D=s-s=C-8.txt x B216-delta=s-s=C=s-a-D-4.txt: overlap - 1527 - 1534  
B007-alpha=a-a=D=s-s=C-8.txt x B217-delta=s-s=C=s-a-D-5.txt: overlap - 1535 - 1539  
B008-alpha=a-s=D=s-s=C-1.txt x B071-alpha=s-a=C=a-s-D-2.txt: overlap - 519 - 520  
B008-alpha=a-s=D=s-s=C-1.txt x B081-alpha=s-s=C=a-a-C-2.txt: overlap - 527 - 529  
B008-alpha=a-s=D=s-s=C-1.txt x B082-alpha=s-s=C=a-a-D-1.txt: overlap - 535 - 537  
B009-alpha=a-s=D=s-s=C-2.txt x B082-alpha=s-s=C=a-a-D-1.txt: overlap - 543 - 545  
B010-alpha=a-s=D=s-s=C-3.txt x B083-alpha=s-s=C=a-a-D-2.txt: overlap - 551 - 551  
B010-alpha=a-s=D=s-s=C-3.txt x B218-delta=s-s=C=s-s-C-1.txt: overlap - 1543 - 1545  
B010-alpha=a-s=D=s-s=C-3.txt x B219-delta=s-s=C=s-s-C-2.txt: overlap - 1551 - 1557  
B010-alpha=a-s=D=s-s=C-3.txt x B220-delta=s-s=C=s-s-C-3.txt: overlap - 1559 - 1559  
B010-alpha=a-s=D=s-s=C-3.txt x B221-delta=s-s=C=s-s-C-4.txt: overlap - 1567 - 1572  
B011-alpha=a-s=D=s-s=C-4.txt x B085-alpha=s-s=C=a-s-C-2.txt: overlap - 559 - 563  
B011-alpha=a-s=D=s-s=C-4.txt x B222-delta=s-s=C=s-s-C-5.txt: overlap - 1575 - 1576  
B012-alpha=a-s=D=s-s=C-5.txt x B086-alpha=s-s=C=a-s-D-1.txt: overlap - 567 - 567

B012-alpha=a-s=D=s-s=C-5.txt x B223-delta=s-s=C=s-s=D-1.txt: overlap - 1583 - 1585  
B012-alpha=a-s=D=s-s=C-5.txt x B224-delta=s-s=C=s-s=D-2.txt: overlap - 1591 - 1597  
B012-alpha=a-s=D=s-s=C-5.txt x B225-delta=s-s=C=s-s=D-3.txt: overlap - 1599 - 1599  
B012-alpha=a-s=D=s-s=C-5.txt x B226-delta=s-s=C=s-s=D-4.txt: overlap - 1607 - 1614  
B012-alpha=a-s=D=s-s=C-5.txt x B227-delta=s-s=C=s-s=D-5.txt: overlap - 1615 - 1617  
B013-alpha=a-s=D=s-s=C-6.txt x B087-alpha=s-s=C=a-s=D-2.txt: overlap - 575 - 582  
B014-alpha=a-s=D=s-s=C-7.txt x B112-beta=s-a=C=a-a=C-1.txt: overlap - 583 - 590  
B015-alpha=a-s=D=s-s=C-8.txt x B112-beta=s-a=C=a-a=C-1.txt: overlap - 591 - 592  
B015-alpha=a-s=D=s-s=C-8.txt x B117-beta=s-a=C=a-a=D-2.txt: overlap - 599 - 606  
B016-alpha=s-a=D=s-s=C-1.txt x B120-beta=s-a=C=a-s=C-1.txt: overlap - 607 - 609  
B016-alpha=s-a=D=s-s=C-1.txt x B122-beta=s-a=C=a-s=C-3.txt: overlap - 615 - 622  
B016-alpha=s-a=D=s-s=C-1.txt x B126-beta=s-a=C=a-s=D-3.txt: overlap - 623 - 623  
B016-alpha=s-a=D=s-s=C-1.txt x B127-beta=s-a=C=a-s=D-4.txt: overlap - 631 - 638  
B017-alpha=s-a=D=s-s=C-2.txt x B127-beta=s-a=C=a-s=D-4.txt: overlap - 639 - 641  
B017-alpha=s-a=D=s-s=C-2.txt x B144-beta=s-s=C=a-a=C-1.txt: overlap - 647 - 648  
B017-alpha=s-a=D=s-s=C-2.txt x B145-beta=s-s=C=a-a=C-2.txt: overlap - 655 - 657  
B018-alpha=s-a=D=s-s=C-3.txt x B146-beta=s-s=C=a-a=C-3.txt: overlap - 663 - 665  
B019-alpha=s-a=D=s-s=C-4.txt x B147-beta=s-s=C=a-a=C-4.txt: overlap - 671 - 676  
B020-alpha=s-a=D=s-s=C-5.txt x B148-beta=s-s=C=a-a=D-1.txt: overlap - 679 - 680  
B021-alpha=s-a=D=s-s=C-6.txt x B151-beta=s-s=C=a-a=D-4.txt: overlap - 687 - 689  
B022-alpha=s-a=D=s-s=C-7.txt x B152-beta=s-s=C=a-s=C-1.txt: overlap - 695 - 702  
B023-alpha=s-a=D=s-s=C-8.txt x B152-beta=s-s=C=a-s=C-1.txt: overlap - 703 - 705  
B024-alpha=s-s=D=s-s=C-1.txt x B153-beta=s-s=C=a-s=C-2.txt: overlap - 711 - 711  
B024-alpha=s-s=D=s-s=C-1.txt x B155-beta=s-s=C=a-s=C-4.txt: overlap - 719 - 723  
B025-alpha=s-s=D=s-s=C-2.txt x B156-beta=s-s=C=a-s=D-1.txt: overlap - 727 - 727  
B025-alpha=s-s=D=s-s=C-2.txt x B157-beta=s-s=C=a-s=D-2.txt: overlap - 735 - 742  
B025-alpha=s-s=D=s-s=C-2.txt x B158-beta=s-s=C=a-s=D-3.txt: overlap - 743 - 743  
B025-alpha=s-s=D=s-s=C-2.txt x B159-beta=s-s=C=a-s=D-4.txt: overlap - 751 - 751  
B026-alpha=s-s=D=s-s=C-3.txt x B176-gamma=s-s=C=a-a=C-1.txt: overlap - 759 - 762  
B026-alpha=s-s=D=s-s=C-3.txt x B177-gamma=s-s=C=a-a=C-2.txt: overlap - 767 - 775  
B027-alpha=s-s=D=s-s=C-4.txt x B179-gamma=s-s=C=a-a=C-4.txt: overlap - 783 - 783  
B028-alpha=s-s=D=s-s=C-5.txt x B180-gamma=s-s=C=a-a=D-1.txt: overlap - 791 - 793  
B029-alpha=s-s=D=s-s=C-6.txt x B181-gamma=s-s=C=a-a=D-2.txt: overlap - 799 - 801  
B030-alpha=s-s=D=s-s=C-7.txt x B182-gamma=s-s=C=a-a=D-3.txt: overlap - 807 - 809  
B031-alpha=s-s=D=s-s=C-8.txt x B183-gamma=s-s=C=a-a=D-4.txt: overlap - 815 - 816

File: B007-alpha=a-a=D=s-s=C-8.txt 49 0  
File: B019-alpha=s-a=D=s-s=C-4.txt 21 0  
File: B217-delta=s-s=C=s-a=D-5.txt 9 9  
File: B013-alpha=a-s=D=s-s=C-6.txt 10 0  
File: B043-alpha=a-a=C=s-a=D-2.txt 53 53  
File: B181-gamma=s-s=C=a-a=D-2.txt 24 24  
File: B118-beta=s-a=C=a-a=D-3.txt 32 32  
File: B156-beta=s-s=C=a-s=D-1.txt 9 9  
File: B191-gamma=s-s=C=a-s=D-4.txt 9 9  
File: B083-alpha=s-s=C=a-a=D-2.txt 30 30  
File: B070-alpha=s-a=C=a-s=D-1.txt 10 10  
File: B103-beta=s-a=D=s-s=C-8.txt 20 12

...  
File: B075-alpha=s-a=C=s-a=D-2.txt 22 22  
File: B004-alpha=a-a=D=s-s=C-5.txt 15 0  
File: B000-alpha=a-a=D=s-s=C-1.txt 18 0  
File: B204-gamma=s-s=C=s-s=D-1.txt 8 8  
File: B199-gamma=s-s=C=s-a=D-4.txt 5 5  
File: B183-gamma=s-s=C=a-a=D-4.txt 23 23  
File: B071-alpha=s-a=C=a-s=D-2.txt 42 42  
File: B062-alpha=a-s=C=s-s=D-1.txt 18 18  
File: B063-alpha=a-s=C=s-s=D-2.txt 14 14  
File: B017-alpha=s-a=D=s-s=C-2.txt 57 0  
File: B027-alpha=s-s=D=s-s=C-4.txt 1 0  
Summary: 138 90 3 45

Metadata available

xfat-13 Metadata found 118 files, not found 20, total 138 deleted files

Deleted files without metadata (cannot be found)

B000-alpha=a-a=D=s-s=C-1.txt B001-alpha=a-a=D=s-s=C-2.txt

B002-alpha=a-a=D=s-s=C-3.txt B003-alpha=a-a=D=s-s=C-4.txt



B004-alpha=a-a=D=s-s=C-5.txt B005-alpha=a-a=D=s-s=C-6.txt  
 B006-alpha=a-a=D=s-s=C-7.txt B007-alpha=a-a=D=s-s=C-8.txt  
 B008-alpha=a-a=D=s-s=C-1.txt B009-alpha=a-a=D=s-s=C-2.txt  
 B010-alpha=a-s=D=s-s=C-3.txt B011-alpha=a-s=D=s-s=C-4.txt  
 B012-alpha=a-s=D=s-s=C-5.txt B013-alpha=a-s=D=s-s=C-6.txt  
 B014-alpha=a-s=D=s-s=C-7.txt B015-alpha=a-s=D=s-s=C-8.txt  
 B016-alpha=s-a=D=s-s=C-1.txt B017-alpha=s-a=D=s-s=C-2.txt  
 B018-alpha=s-a=D=s-s=C-3.txt B019-alpha=s-a=D=s-s=C-4.txt

Layout History

Block map has more than 200 entries

Sector List	
B000-alpha=a-a=D=s-s=C-1.txt	423 - 430, 1415 - 1422, 2999 - 3000
B001-alpha=a-a=D=s-s=C-2.txt	431 - 438, 1423 - 1430, 3007 - 3030
B002-alpha=a-a=D=s-s=C-3.txt	439 - 446, 1431 - 1436
B003-alpha=a-a=D=s-s=C-4.txt	447 - 454, 1439 - 1470, 3031 - 3063
B004-alpha=a-a=D=s-s=C-5.txt	455 - 462, 1471 - 1477
B005-alpha=a-a=D=s-s=C-6.txt	463 - 470, 1479 - 1518, 3071 - 3081
B006-alpha=a-a=D=s-s=C-7.txt	471 - 486, 1519 - 1522
B007-alpha=a-a=D=s-s=C-8.txt	487 - 518, 1527 - 1542, 3087 - 3087
B008-alpha=a-s=D=s-s=C-1.txt	519 - 537
...	
210 omitted	
B219-delta=s-s=C=s-s=C-2.txt	1551 - 1557
B220-delta=s-s=C=s-s=C-3.txt	1559 - 1559
B221-delta=s-s=C=s-s=C-4.txt	1567 - 1574
B222-delta=s-s=C=s-s=C-5.txt	1575 - 1579
B223-delta=s-s=C=s-s=D-1.txt	1583 - 1585
B224-delta=s-s=C=s-s=D-2.txt	1591 - 1597
B225-delta=s-s=C=s-s=D-3.txt	1599 - 1599
B226-delta=s-s=C=s-s=D-4.txt	1607 - 1614
B227-delta=s-s=C=s-s=D-5.txt	1615 - 1619

## 88 Test Image xfat-14

DFR-14. Recover other file system object.

Partition Table Layout

#:	TYPE NAME	SIZE	IDENTIFIER
0:	GUID_partition_scheme	*65.5 MB	disk1
1:	Microsoft Basic Data xfat	64.0 MB	disk1s1

4 files deleted

Deleted files (4)			
Name	Size	F-Hd	F-Bks
xfat-file-db.txt	4096 (8+0)	1	7
xfat-file-df.txt	4096 (8+0)	1	7
xfat-shortcut-db.lnk	235 (0+235)	0	0
xfat-shortcut-dl.lnk	235 (0+235)	0	0

MAC times just before file deletion

File: "xfat-file-db.txt"

Access: Wed Feb 8 19:20:54 2012

Modify: Wed Feb 8 19:12:54 2012

Change: Wed Feb 8 19:12:54 2012

File: "xfat-file-df.txt"

Access: Wed Feb 8 19:20:54 2012

Modify: Wed Feb 8 19:12:52 2012

Change: Wed Feb 8 19:12:52 2012

File delete times:

Times: /Volumes/CFTT/dfr/dfr-setup/ntfs-delete-times.txt Case xfat-14

CASE xfat-14 delete time for step 2 Wed 02/08/2012 07:20 PM

===== Run step 2 =====

ACTION (delete): xfat-file-db.txt

ACTION (delete): xfat-file-df.txt

ACTION (delete): xfat-shortcut-db.lnk

ACTION (delete): xfat-shortcut-dl.lnk

Steps to Create Image xfat-14		
Step	Action	Files in Partition ExFAT
1	create	xfat-file-df.txt
1	create	xfat-file-dl.txt
1	create	xfat-file-db.txt
1	link	xfat-shortcut-df.lnk->xfat-file-df.txt
1	link	xfat-shortcut-dl.lnk->xfat-file-dl.txt
1	link	xfat-shortcut-db.lnk->xfat-file-db.txt
2	delete	xfat-file-db.txt
2	delete	xfat-file-df.txt
2	delete	xfat-shortcut-db.lnk
2	delete	xfat-shortcut-dl.lnk

No overwrites

File: xfat-shortcut-db.lnk 0 0

File: xfat-file-df.txt 8 0

File: xfat-file-db.txt 8 0

File: xfat-shortcut-dl.lnk 0 0

Summary: 4 0 0 4

Metadata available

xfat-14 Metadata found 1 files, not found 3, total 4 deleted files

Deleted files without metadata (cannot be found)

xfat-file-db.txt      xfat-shortcut-db.lnk

xfat-shortcut-dl.lnk

Layout History

Layout for Steps 1 through 1	
Sectors	Step 1
2352 - 2359	xfat-file-df
2368 - 2375	xfat-file-dl
2384 - 2391	xfat-file-db

Sector List	
xfat-file-db.txt	2384 - 2391
xfat-file-df.txt	2352 - 2359
xfat-file-dl.txt	2368 - 2375

## 89 Test Image xfat-15

Partition Table Layout

#:	TYPE NAME	SIZE	IDENTIFIER
0:	FDisk_partition_scheme	*65.5 MB	disk1
1:	Windows_NTFS xfat	65.5 MB	disk1s1

End of partition table

Active Files

.Trashes	Archive-XFAT.txt
._Trashes	Hidden-XFAT.txt
.fseventsd	NotIndexed-XFAT.txt
Adhara-file-XFAT.txt	ReadOnly-XFAT.txt

Adhara-shortcut-XFAT.lnk    System-XFAT.txt

./Trashes:  
\_501    501

./Trashes/501:

./fseventsd:  
fseventsd-uuid

File Attributes

A H    F:\\_Trashes  
A     F:\Adhara-file-XFAT.txt  
A     F:\Adhara-shortcut-XFAT.lnk  
A R    F:\ReadOnly-XFAT.txt  
A H    F:\Hidden-XFAT.txt  
A     F:\Archive-XFAT.txt  
A S    F:\System-XFAT.txt  
A     F:\NotIndexed-XFAT.txt  
0 files deleted

Steps to Create Image xfat-15		
Step	Action	Files in Partition ExFAT
1	create	Adhara-file-XFAT.txt
1	link	Adhara-shortcut-XFAT.txt->Adhara-file-XFAT.txt
1	create	ReadOnly-XFAT.txt
1	create	Archive-XFAT.txt
1	create	System-XFAT.txt
1	create	Hidden-XFAT.txt
1	create	NotIndexed-XFAT.txt

## 90 Test Image xfat-16

Partition Table Layout

#:	TYPE	NAME	SIZE	IDENTIFIER
0:	GUID_partition_scheme		*65.5 MB	disk1
1:	Microsoft Basic Data	xfat	64.0 MB	disk1s1

End of partition table

Active Files

.Trashes 2-dir-01 2-dir-04 2-dir-07  
\_Trashes 2-dir-02 2-dir-05 2-dir-08  
.fseventsd 2-dir-03 2-dir-06 2-dir-09

./Trashes:  
\_501    501

./Trashes/501:

./fseventsd:  
fseventsd-uuid

./2-dir-01:  
2-01-00001.txt    2-01-00002.txt

./2-dir-02:  
2-02-00001.txt    2-02-00002.txt    2-02-00003.txt    2-02-00004.txt

./2-dir-03:  
2-03-00001.txt    2-03-00003.txt    2-03-00005.txt    2-03-00007.txt  
2-03-00002.txt    2-03-00004.txt    2-03-00006.txt    2-03-00008.txt

./2-dir-04:  
2-04-00001.txt    2-04-00005.txt    2-04-00009.txt    2-04-00013.txt  
2-04-00002.txt    2-04-00006.txt    2-04-00010.txt    2-04-00014.txt

2-04-00003.txt	2-04-00007.txt	2-04-00011.txt	2-04-00015.txt	
2-04-00004.txt	2-04-00008.txt	2-04-00012.txt	2-04-00016.txt	
./2-dir-05:				
2-05-00001.txt	2-05-00008.txt	2-05-00015.txt	2-05-00022.txt	2-05-00029.txt
2-05-00002.txt	2-05-00009.txt	2-05-00016.txt	2-05-00023.txt	2-05-00030.txt
2-05-00003.txt	2-05-00010.txt	2-05-00017.txt	2-05-00024.txt	2-05-00031.txt
2-05-00004.txt	2-05-00011.txt	2-05-00018.txt	2-05-00025.txt	2-05-00032.txt
2-05-00005.txt	2-05-00012.txt	2-05-00019.txt	2-05-00026.txt	
2-05-00006.txt	2-05-00013.txt	2-05-00020.txt	2-05-00027.txt	
2-05-00007.txt	2-05-00014.txt	2-05-00021.txt	2-05-00028.txt	
./2-dir-06:				
2-06-00001.txt	2-06-00014.txt	2-06-00027.txt	2-06-00040.txt	2-06-00053.txt
2-06-00002.txt	2-06-00015.txt	2-06-00028.txt	2-06-00041.txt	2-06-00054.txt
2-06-00003.txt	2-06-00016.txt	2-06-00029.txt	2-06-00042.txt	2-06-00055.txt
2-06-00004.txt	2-06-00017.txt	2-06-00030.txt	2-06-00043.txt	2-06-00056.txt
2-06-00005.txt	2-06-00018.txt	2-06-00031.txt	2-06-00044.txt	2-06-00057.txt
2-06-00006.txt	2-06-00019.txt	2-06-00032.txt	2-06-00045.txt	2-06-00058.txt
2-06-00007.txt	2-06-00020.txt	2-06-00033.txt	2-06-00046.txt	2-06-00059.txt
2-06-00008.txt	2-06-00021.txt	2-06-00034.txt	2-06-00047.txt	2-06-00060.txt
2-06-00009.txt	2-06-00022.txt	2-06-00035.txt	2-06-00048.txt	2-06-00061.txt
2-06-00010.txt	2-06-00023.txt	2-06-00036.txt	2-06-00049.txt	2-06-00062.txt
2-06-00011.txt	2-06-00024.txt	2-06-00037.txt	2-06-00050.txt	2-06-00063.txt
2-06-00012.txt	2-06-00025.txt	2-06-00038.txt	2-06-00051.txt	2-06-00064.txt
2-06-00013.txt	2-06-00026.txt	2-06-00039.txt	2-06-00052.txt	
./2-dir-07:				
2-07-00001.txt	2-07-00027.txt	2-07-00053.txt	2-07-00079.txt	2-07-00105.txt
2-07-00002.txt	2-07-00028.txt	2-07-00054.txt	2-07-00080.txt	2-07-00106.txt
2-07-00003.txt	2-07-00029.txt	2-07-00055.txt	2-07-00081.txt	2-07-00107.txt
2-07-00004.txt	2-07-00030.txt	2-07-00056.txt	2-07-00082.txt	2-07-00108.txt
2-07-00005.txt	2-07-00031.txt	2-07-00057.txt	2-07-00083.txt	2-07-00109.txt
2-07-00006.txt	2-07-00032.txt	2-07-00058.txt	2-07-00084.txt	2-07-00110.txt
2-07-00007.txt	2-07-00033.txt	2-07-00059.txt	2-07-00085.txt	2-07-00111.txt
2-07-00008.txt	2-07-00034.txt	2-07-00060.txt	2-07-00086.txt	2-07-00112.txt
2-07-00009.txt	2-07-00035.txt	2-07-00061.txt	2-07-00087.txt	2-07-00113.txt
2-07-00010.txt	2-07-00036.txt	2-07-00062.txt	2-07-00088.txt	2-07-00114.txt
2-07-00011.txt	2-07-00037.txt	2-07-00063.txt	2-07-00089.txt	2-07-00115.txt
2-07-00012.txt	2-07-00038.txt	2-07-00064.txt	2-07-00090.txt	2-07-00116.txt
2-07-00013.txt	2-07-00039.txt	2-07-00065.txt	2-07-00091.txt	2-07-00117.txt
2-07-00014.txt	2-07-00040.txt	2-07-00066.txt	2-07-00092.txt	2-07-00118.txt
2-07-00015.txt	2-07-00041.txt	2-07-00067.txt	2-07-00093.txt	2-07-00119.txt
2-07-00016.txt	2-07-00042.txt	2-07-00068.txt	2-07-00094.txt	2-07-00120.txt
2-07-00017.txt	2-07-00043.txt	2-07-00069.txt	2-07-00095.txt	2-07-00121.txt
2-07-00018.txt	2-07-00044.txt	2-07-00070.txt	2-07-00096.txt	2-07-00122.txt
2-07-00019.txt	2-07-00045.txt	2-07-00071.txt	2-07-00097.txt	2-07-00123.txt
2-07-00020.txt	2-07-00046.txt	2-07-00072.txt	2-07-00098.txt	2-07-00124.txt
2-07-00021.txt	2-07-00047.txt	2-07-00073.txt	2-07-00099.txt	2-07-00125.txt
2-07-00022.txt	2-07-00048.txt	2-07-00074.txt	2-07-00100.txt	2-07-00126.txt
2-07-00023.txt	2-07-00049.txt	2-07-00075.txt	2-07-00101.txt	2-07-00127.txt
2-07-00024.txt	2-07-00050.txt	2-07-00076.txt	2-07-00102.txt	2-07-00128.txt
2-07-00025.txt	2-07-00051.txt	2-07-00077.txt	2-07-00103.txt	
2-07-00026.txt	2-07-00052.txt	2-07-00078.txt	2-07-00104.txt	
./2-dir-08:				
2-08-00001.txt	2-08-00053.txt	2-08-00105.txt	2-08-00157.txt	2-08-00209.txt
2-08-00002.txt	2-08-00054.txt	2-08-00106.txt	2-08-00158.txt	2-08-00210.txt
2-08-00003.txt	2-08-00055.txt	2-08-00107.txt	2-08-00159.txt	2-08-00211.txt
2-08-00004.txt	2-08-00056.txt	2-08-00108.txt	2-08-00160.txt	2-08-00212.txt
2-08-00005.txt	2-08-00057.txt	2-08-00109.txt	2-08-00161.txt	2-08-00213.txt
2-08-00006.txt	2-08-00058.txt	2-08-00110.txt	2-08-00162.txt	2-08-00214.txt
2-08-00007.txt	2-08-00059.txt	2-08-00111.txt	2-08-00163.txt	2-08-00215.txt
2-08-00008.txt	2-08-00060.txt	2-08-00112.txt	2-08-00164.txt	2-08-00216.txt
2-08-00009.txt	2-08-00061.txt	2-08-00113.txt	2-08-00165.txt	2-08-00217.txt
2-08-00010.txt	2-08-00062.txt	2-08-00114.txt	2-08-00166.txt	2-08-00218.txt
2-08-00011.txt	2-08-00063.txt	2-08-00115.txt	2-08-00167.txt	2-08-00219.txt
2-08-00012.txt	2-08-00064.txt	2-08-00116.txt	2-08-00168.txt	2-08-00220.txt
2-08-00013.txt	2-08-00065.txt	2-08-00117.txt	2-08-00169.txt	2-08-00221.txt





```

2-09-00098.txt  2-09-00201.txt  2-09-00304.txt  2-09-00407.txt  2-09-00510.txt
2-09-00099.txt  2-09-00202.txt  2-09-00305.txt  2-09-00408.txt  2-09-00511.txt
2-09-00100.txt  2-09-00203.txt  2-09-00306.txt  2-09-00409.txt  2-09-00512.txt
2-09-00101.txt  2-09-00204.txt  2-09-00307.txt  2-09-00410.txt
2-09-00102.txt  2-09-00205.txt  2-09-00308.txt  2-09-00411.txt
2-09-00103.txt  2-09-00206.txt  2-09-00309.txt  2-09-00412.txt
0 files deleted

```

Steps to Create Image xfat-16		
Step	Action	Files in Partition ExFAT
1	create	2 dirs

## 91 Test Image xfat-17

### Partition Table Layout

```

#:      TYPE NAME      SIZE  IDENTIFIER
0:  FDisk_partition_scheme  *65.5 MB  disk1
1:  Windows_NTFS xfat      65.5 MB  disk1s1
End of partition table

```

### Active Files

```

.Trashes W01          W04          W07
_.Trashes W02        W05          W08
.fseventsd W03       W06          W09

```

```

./Trashes:
._501    501

```

```

./Trashes/501:

```

```

./fseventsd:
fseventsd-uuid

```

```

./W01:
W01F01.TXT

```

```

./W02:
W02F01.TXT      W02L01

```

```

./W02/W02L01:
W02F02.TXT

```

```

./W03:
W03F01.TXT      W03L01

```

```

./W03/W03L01:
W03F02.TXT      W03L02

```

```

./W03/W03L01/W03L02:
W03F03.TXT

```

```

./W04:
W04F01.TXT      W04L01

```

```

./W04/W04L01:
W04F02.TXT      W04L02

```

```

./W04/W04L01/W04L02:
W04F03.TXT      W04L03

```

```

./W04/W04L01/W04L02/W04L03:
W04F04.TXT

```

```

./W05:
W05F01.TXT      W05L01

```

./W05/W05L01:  
W05F02.TXT        W05L02

./W05/W05L01/W05L02:  
W05F03.TXT        W05L03

./W05/W05L01/W05L02/W05L03:  
W05F04.TXT        W05L04

./W05/W05L01/W05L02/W05L03/W05L04:  
W05F05.TXT

./W06:  
W06F01.TXT        W06L01

./W06/W06L01:  
W06F02.TXT        W06L02

./W06/W06L01/W06L02:  
W06F03.TXT        W06L03

./W06/W06L01/W06L02/W06L03:  
W06F04.TXT        W06L04

./W06/W06L01/W06L02/W06L03/W06L04:  
W06F05.TXT        W06L05

./W06/W06L01/W06L02/W06L03/W06L04/W06L05:  
W06F06.TXT

./W07:  
W07F01.TXT        W07L01

./W07/W07L01:  
W07F02.TXT        W07L02

./W07/W07L01/W07L02:  
W07F03.TXT        W07L03

./W07/W07L01/W07L02/W07L03:  
W07F04.TXT        W07L04

./W07/W07L01/W07L02/W07L03/W07L04:  
W07F05.TXT        W07L05

./W07/W07L01/W07L02/W07L03/W07L04/W07L05:  
W07F06.TXT        W07L06

./W07/W07L01/W07L02/W07L03/W07L04/W07L05/W07L06:  
W07F07.TXT

./W08:  
W08F01.TXT        W08L01

./W08/W08L01:  
W08F02.TXT        W08L02

./W08/W08L01/W08L02:  
W08F03.TXT        W08L03

./W08/W08L01/W08L02/W08L03:  
W08F04.TXT        W08L04

./W08/W08L01/W08L02/W08L03/W08L04:  
W08F05.TXT        W08L05

./W08/W08L01/W08L02/W08L03/W08L04/W08L05:  
W08F06.TXT        W08L06



```

./W08/W08L01/W08L02/W08L03/W08L04/W08L05/W08L06:
W08F07.TXT      W08L07

./W08/W08L01/W08L02/W08L03/W08L04/W08L05/W08L06/W08L07:
W08F08.TXT

./W09:
W09F01.TXT      W09L01

./W09/W09L01:
W09F02.TXT      W09L02

./W09/W09L01/W09L02:
W09F03.TXT      W09L03

./W09/W09L01/W09L02/W09L03:
W09F04.TXT      W09L04

./W09/W09L01/W09L02/W09L03/W09L04:
W09F05.TXT      W09L05

./W09/W09L01/W09L02/W09L03/W09L04/W09L05:
W09F06.TXT      W09L06

./W09/W09L01/W09L02/W09L03/W09L04/W09L05/W09L06:
W09F07.TXT      W09L07

./W09/W09L01/W09L02/W09L03/W09L04/W09L05/W09L06/W09L07:
W09F08.TXT      W09L08

./W09/W09L01/W09L02/W09L03/W09L04/W09L05/W09L06/W09L07/W09L08:
W09F09.TXT
0 files deleted

```

Steps to Create Image xfat-17		
Step	Action	Files in Partition ExFAT
1	mkdir	W01
1	mkdir	W02
1	mkdir	W02/W02L01
1	mkdir	W03
1	mkdir	W03/W03L01
1	mkdir	W03/W03L01/W03L02
1	mkdir	W04
1	mkdir	W04/W04L01
1	mkdir	W04/W04L01/W04L02
1	mkdir	W04/W04L01/W04L02/W04L03
1	mkdir	W05
1	mkdir	W05/W05L01
1	mkdir	W05/W05L01/W05L02
1	mkdir	W05/W05L01/W05L02/W05L03
1	mkdir	W05/W05L01/W05L02/W05L03/W05L04
1	mkdir	W06
1	mkdir	W06/W06L01
1	mkdir	W06/W06L01/W06L02
1	mkdir	W06/W06L01/W06L02/W06L03
1	mkdir	W06/W06L01/W06L02/W06L03/W06L04
1	mkdir	W06/W06L01/W06L02/W06L03/W06L04/W06L05
1	mkdir	W07
1	mkdir	W07/W07L01
1	mkdir	W07/W07L01/W07L02
1	mkdir	W07/W07L01/W07L02/W07L03
1	mkdir	W07/W07L01/W07L02/W07L03/W07L04
1	mkdir	W07/W07L01/W07L02/W07L03/W07L04/W07L05
1	mkdir	W07/W07L01/W07L02/W07L03/W07L04/W07L05/W07L06
1	mkdir	W08
1	mkdir	W08/W08L01
1	mkdir	W08/W08L01/W08L02

Steps to Create Image xfat-17		
1	mkdir	W08/W08L01/W08L02/W08L03
1	mkdir	W08/W08L01/W08L02/W08L03/W08L04
1	mkdir	W08/W08L01/W08L02/W08L03/W08L04/W08L05
1	mkdir	W08/W08L01/W08L02/W08L03/W08L04/W08L05/W08L06
1	mkdir	W08/W08L01/W08L02/W08L03/W08L04/W08L05/W08L06/W08L07
1	mkdir	W09
1	mkdir	W09/W09L01
1	mkdir	W09/W09L01/W09L02
1	mkdir	W09/W09L01/W09L02/W09L03
1	mkdir	W09/W09L01/W09L02/W09L03/W09L04
1	mkdir	W09/W09L01/W09L02/W09L03/W09L04/W09L05
1	mkdir	W09/W09L01/W09L02/W09L03/W09L04/W09L05/W09L06
1	mkdir	W09/W09L01/W09L02/W09L03/W09L04/W09L05/W09L06/W09L07
1	mkdir	W09/W09L01/W09L02/W09L03/W09L04/W09L05/W09L06/W09L07/W09L08
1	create	W01/W01F01.TXT
1	create	W02/W02F01.TXT
1	create	W02/W02L01/W02F02.TXT
1	create	W03/W03F01.TXT
1	create	W03/W03L01/W03F02.TXT
1	create	W03/W03L01/W03L02/W03F03.TXT
1	create	W04/W04F01.TXT
1	create	W04/W04L01/W04F02.TXT
1	create	W04/W04L01/W04L02/W04F03.TXT
1	create	W04/W04L01/W04L02/W04L03/W04F04.TXT
1	create	W05/W05F01.TXT
1	create	W05/W05L01/W05F02.TXT
1	create	W05/W05L01/W05L02/W05F03.TXT
1	create	W05/W05L01/W05L02/W05L03/W05F04.TXT
1	create	W05/W05L01/W05L02/W05L03/W05L04/W05F05.TXT
1	create	W06/W06F01.TXT
1	create	W06/W06L01/W06F02.TXT
1	create	W06/W06L01/W06L02/W06F03.TXT
1	create	W06/W06L01/W06L02/W06L03/W06F04.TXT
1	create	W06/W06L01/W06L02/W06L03/W06L04/W06F05.TXT
1	create	W06/W06L01/W06L02/W06L03/W06L04/W06L05/W06F06.TXT
1	create	W07/W07F01.TXT
1	create	W07/W07L01/W07F02.TXT
1	create	W07/W07L01/W07L02/W07F03.TXT
1	create	W07/W07L01/W07L02/W07L03/W07F04.TXT
1	create	W07/W07L01/W07L02/W07L03/W07L04/W07F05.TXT
1	create	W07/W07L01/W07L02/W07L03/W07L04/W07L05/W07F06.TXT
1	create	W07/W07L01/W07L02/W07L03/W07L04/W07L05/W07L06/W07F07.TXT
1	create	W08/W08F01.TXT
1	create	W08/W08L01/W08F02.TXT
1	create	W08/W08L01/W08L02/W08F03.TXT
1	create	W08/W08L01/W08L02/W08L03/W08F04.TXT
1	create	W08/W08L01/W08L02/W08L03/W08L04/W08F05.TXT
1	create	W08/W08L01/W08L02/W08L03/W08L04/W08L05/W08F06.TXT
1	create	W08/W08L01/W08L02/W08L03/W08L04/W08L05/W08L06/W08F07.TXT
1	create	W08/W08L01/W08L02/W08L03/W08L04/W08L05/W08L06/W08L07/W08F08.TXT
1	create	W09/W09F01.TXT
1	create	W09/W09L01/W09F02.TXT
1	create	W09/W09L01/W09L02/W09F03.TXT
1	create	W09/W09L01/W09L02/W09L03/W09F04.TXT
1	create	W09/W09L01/W09L02/W09L03/W09L04/W09F05.TXT
1	create	W09/W09L01/W09L02/W09L03/W09L04/W09L05/W09F06.TXT
1	create	W09/W09L01/W09L02/W09L03/W09L04/W09L05/W09L06/W09F07.TXT
1	create	W09/W09L01/W09L02/W09L03/W09L04/W09L05/W09L06/W09L07/W09F08.TXT
1	create	W09/W09L01/W09L02/W09L03/W09L04/W09L05/W09L06/W09L07/W09L08/W09F09.TXT