

Various Filters and Techniques for:

Serial Data Analysis

Part 2, Coaxitron, D and P Protocols

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Contents

1	Some .BAT files used with Coaxitron, D and P protocol files	3
1.1	Kk.bat	3
1.2	Kkk.bat	3
1.3	JDCE.bat	3
1.4	JDTE.bat	4
1.5	Kkc.bat	4
2	D Protocol Specific Filters	5
2.1	DmpShort	5
2.2	DoD	7
2.3	DtoP	8
2.4	Dump3Q	10
2.5	EasyD	11
2.6	EasyD1	12
2.7	FixD	14
2.8	GetCmnds	15
2.9	GetPlace	16
2.10	GetPT	18
2.11	MakeCmnd	19
2.12	PTVals	20
2.13	PTZVals	21
3	P Protocol Specific Filters	22
3.1	FixP	22
4	Coaxitron Protocol Specific Filters	23
4.1	EasyCq	25
4.2	EasyC1q	26
4.3	FixCq	28

1 Some .BAT files used with Coaxitron, D and P protocol files

All of the examples in “D Protocol Specific Filters” (Section 2, page 5) are the same ones that were used in SDA2INTR and are not reproduced here. The first 300 lines of the sample test file (tt.txt) are shown in SDA2INTR.

All of these files are also reproduced in SDA2INTR. They are reproduced here for convenience.

1.1 Kk.bat

```

1 @echo off
2 rem $Header: d:/Binder4/sda2/RCS/Kk.bat,v 1.1 2008-02-15 11:45:25-08 Hamilton Exp Hamilton $
3 makesecs %1.txt %1.out
4 fixd %1.out %1.fix
5 dump3q %1.fix %1.d3q
6 easyd1 %1.fix %1.ez
7 easyd1 %1.d3q %1.dez
8 deltas %1.fix %1.dlt

```

1.2 Kkk.bat

```

1 @echo off
2 rem $Header: d:/Binder4/sda2/RCS/Kkk.bat,v 1.6 2008-03-10 09:50:11-08 Hamilton Exp Hamilton $
3 rem makesecx original\%1.txt %1.out
4 makesecx %1.txt %1.out
5 head -6 %1.out > %1.hed
6 tail -11 %1.out > %1.tal
7 getdte %1.out %1.dte
8 fixd %1.dte %1.ft
9 del %1.dte
10 getdce %1.out %1.dce
11 fixd %1.dce %1.fc
12 del %1.dce
13 copy %1.ft+%1.fc %1.cat
14 del %1.ft
15 del %1.fc
16 sort -k31,44 %1.cat -o%1.srt
17 del %1.cat
18 copy %1.hed+%1.srt+%1.tal %1.dat
19 del %1.hed
20 del %1.srt
21 del %1.tal
22 easyd %1.dat %1.ez
23 rem call 1 %1.ez
24 easyd1 %1.dat %1.ez1
25 call 1 %1.ez1
26 del %1.dat

```

1.3 JDCE.bat

```

1 @echo off
2 rem $Header: d:/Binder4/sda2/RCS/JDce.bat,v 1.5 2008-03-05 08:48:48-08 Hamilton Exp Hamilton $
3 echo Make two GnuPlot data files, steps are:
4 echo MakeSex, GetDCE, FixD, GetPT, DmpShort and PTVals/PTZVals
5 rem makesecx original\%1.txt %1.out
6 makesecx %1.txt %1.out
7 getdce %1.out %1.dce
8 rem del %1.out
9 fixd %1.dce %1.fc
10 rem del %1.dce
11 getpt %1.fc %1.cc
12 rem del %1.fc
13 dmpshort %1.cc %1.ccc
14 rem del %1.cc
15 ptvals %1.ccc %1.p

```

²\$Header: d:/Binder4/sda2/RCS/Dp.inc,v 1.6 2009-07-07 08:24:28-07 Hamilton Exp Hamilton \$

```
16 ptzvals %1.ccc %1.pz
17 rem del %1.ccc
18 echo The GnuPlot data files are in %1.p and/or %1.pz
```

1.4 JDTE.bat

```
1 @echo off
2 rem $Header: d:/Binder4/sda2/RCS/JDte.bat,v 1.3 2008-03-05 08:48:48-08 Hamilton Exp Hamilton $
3 echo This file builds a set of motion/query commands.
4 echo Processing goes like this: MakeSecX, GetDTE, FixD, GetCmnds and MakeCmnd
5 rem makesecx original\%1.txt %1.out
6 makesecx %1.txt %1.out
7 getdte %1.out %1.dte
8 rem del %1.out
9 fixd %1.dte %1.ft
10 rem del %1.dte
11 getcmnds %1.ft %1.get
12 rem del %1.ft
13 makecmnd %1.get %1.d
14 rem del %1.get
15 echo The D Protocol command file is in: %1.d
```

1.5 Kkc.bat

This script file is unique to Coaxitron processing.

```
1 @echo off
2 rem $Header: d:/Binder4/sda2/RCS/KKC.bat,v 1.1 2009-07-07 08:12:46-07 Hamilton Exp Hamilton $
3 msq original\%1.txt %1.out
4 fixcq %1.out %1.cx
5 easycq %1.cx %1.d
6 easyclq %1.cx %1.d1
7 echo Results are in %1.d and %1.d1
```

2 D Protocol Specific Filters

Note

There has been an effort to upgrade the various filters listed here. Those filters that have been upgraded have had a “Q” appended to their name if there was room or had the last character of their name changed to a “Q” if appending a letter would violate the 8.3 naming convention.

In this set of documentation the old and new names may appear depending on the software update schedule. (And any documentation errors that may occur!)

2.1 DmpShort

DMPSHORT is used to dump four byte replies and concatenate other short ones into full size replies. The reason that some replies are “short” is because the line building algorithm starts a new line with the “sync” byte of D Protocol. Unfortunately the sync byte (of `0xFF` or `0xff`) is also a valid data and checksum byte. This routine is an effort to repair the results of an over simplification of the problem.

Typical count of command lengths from a captured D Protocol file of over 300,000 replies:

Length	Count	Description	Format
2	789	Partial reply	xx
5	742	Partial reply	xx_xx
11	116351	Motion reply	xx_xx_xx_xx
14	742	Partial reply	xx_xx_xx_xx_xx
17	789	Partial reply	xx_xx_xx_xx_xx_xx
20	299935	Full reply	xx_xx_xx_xx_xx_xx_xx 123456789_1234567890

1. This filter is written in Flex.
2. This filter is suitable for use with D Protocol only.
3. This filter requires preprocessing by either MAKESECS or MAKESECX. (Updated versions are MSQ and MSXQ.)
4. A typical use of this filter is shown in: `jdce.bat` (Section 1.3, page 3)
5. **Listing of: `htt.cc` a typical input file.**

```

1 ff 01 00 28
2 ff 01 00 59 27 e9 6a
3 ff 01 00 5b 02 4c aa
4 ff 01 00 63 03 77 de
5 ff 01 00 38
6 ff 01 00 59 27 a8 29
7 ff 01 00 5b 02 3c 9a
8 ff 01 00 63 03 77 de
9 ff 01 00 32
10 ff 01 00 59 27 c7 48
11 ff 01 00 5b 02 15 73
12 ff 01 00 63 03 77 de
13 ff 01 00 27
14 ff 01 00 59 27 93 14
15 ff 01 00 5b 02 11 6f
16 ff 01 00 63 03 77 de
17 ff 01 00 27
18 ff 01 00 59 27 52 d3

```

```
19 ff 01 00 5b 02 11 6f
20 ff 01 00 63 03 77 de
```

6. Listing of: `htt.ccc` a typical output file.

```
1 ff 01 00 59 27 e9 6a
2 ff 01 00 5b 02 4c aa
3 ff 01 00 63 03 77 de
4 ff 01 00 59 27 a8 29
5 ff 01 00 5b 02 3c 9a
6 ff 01 00 63 03 77 de
7 ff 01 00 59 27 c7 48
8 ff 01 00 5b 02 15 73
9 ff 01 00 63 03 77 de
10 ff 01 00 59 27 93 14
11 ff 01 00 5b 02 11 6f
12 ff 01 00 63 03 77 de
13 ff 01 00 59 27 52 d3
14 ff 01 00 5b 02 11 6f
15 ff 01 00 63 03 77 de
16 ff 01 00 59 27 10 91
17 ff 01 00 5b 02 11 6f
18 ff 01 00 63 03 77 de
19 ff 01 00 59 26 ce 4e
20 ff 01 00 5b 02 11 6f
```

2.2 DoD

DoD is used to take processed D Protocol command files and add notes to them that describe the D Protocol command/response on the line.

Older version of EASYD.

1. This filter is written in Flex.
2. This filter is suitable for use with D Protocol only.
3. This filter requires preprocessing by either MAKESECS or MAKESECX. (Updated versions are MSQ and MSXQ.)
4. Typical command line calling sequence:

```
dod infile outfile
```

5. Listing of: htt.dat a typical input file.

```

1 $ Id: MakeSecx.1,v 1.3 2008-02-20 08:06:33-08 Hamilton Exp Hamilton $
2 $Header: d:/Binder4/sda2/RCS/Http.dat,v 1.6 2008-03-07 08:28:09-08 Hamilton Exp Hamilton $
3 FTS capture buffer (2/13/2008 7:38:38 AM)
4 Event 1 (2/12/2008 3:20:53.464983 PM) through
5 Event 5,500,405 (2/12/2008 7:26:11.773878 PM)
6
7 1,      1: DTE      1      0.000000 0.000000 ff 01 00 04 23 00 28
8 2,      8: DTE     12      0.019925 0.001042 ff 01 00 51 00 00 52
9 3,      5: DCE     19      0.027477 0.001304 ff 01 00 59 27 e9 6a
10 3,     15: DTE     26      0.039819 0.001041 ff 01 00 53 00 00 54
11 4,     12: DCE     33      0.047476 0.001406 ff 01 00 5b 02 4c aa
12 4,     22: DTE     40      0.060028 0.001043 ff 01 00 61 00 00 62
13 5,     19: DCE     47      0.067472 0.001325 ff 01 00 63 03 77 de
14 5,     29: DTE     54      0.120104 0.001040 ff 01 00 0a 1c 11 38
15 6,     26: DCE     61      0.133819 0.007334 ff 01 00 38
16 6,     36: DTE     65      0.140027 0.001042 ff 01 00 51 00 00 52
17 7,     30: DCE     72      0.149755 0.003478 ff 01 00 59 27 a8 29
18 7,     43: DTE     79      0.162319 0.001043 ff 01 00 53 00 00 54
19 8,     37: DCE     86      0.169859 0.001290 ff 01 00 5b 02 3c 9a
20 8,     50: DTE     93      0.179924 0.000909 ff 01 00 61 00 00 62

```

6. Listing of: htt.dod a typical output file.

```

1 $ Id: MakeSecx.1,v 1.3 2008-02-20 08:06:33-08 Hamilton Exp Hamilton $
2 $Header: d:/Binder4/sda2/RCS/Http.dod,v 1.6 2008-03-07 08:28:12-08 Hamilton Exp Hamilton $
3 FTS capture buffer (2/13/2008 7:38:38 AM)
4 Event 1 (2/12/2008 3:20:53.464983 PM) through
5 Event 5,500,405 (2/12/2008 7:26:11.773878 PM)
6
7 1,      1: DTE      1      0.000000 0.000000 ff 01 00 04 23 00 28
8 2,      8: DTE     12      0.019925 0.001042 ff 01 00 51 00 00 52 Query Pan Position
9 3,      5: DCE     19      0.027477 0.001304 ff 01 00 59 27 e9 6a Query Pan Response
10 3,     15: DTE     26      0.039819 0.001041 ff 01 00 53 00 00 54 Query Tilt Position
11 4,     12: DCE     33      0.047476 0.001406 ff 01 00 5b 02 4c aa Query Tilt Response
12 4,     22: DTE     40      0.060028 0.001043 ff 01 00 61 00 00 62 Query Magnification
13 5,     19: DCE     47      0.067472 0.001325 ff 01 00 63 03 77 de Query Magnification Response
14 5,     29: DTE     54      0.120104 0.001040 ff 01 00 0a 1c 11 38
15 6,     26: DCE     61      0.133819 0.007334 ff 01 00 38
16 6,     36: DTE     65      0.140027 0.001042 ff 01 00 51 00 00 52 Query Pan Position
17 7,     30: DCE     72      0.149755 0.003478 ff 01 00 59 27 a8 29 Query Pan Response
18 7,     43: DTE     79      0.162319 0.001043 ff 01 00 53 00 00 54 Query Tilt Position
19 8,     37: DCE     86      0.169859 0.001290 ff 01 00 5b 02 3c 9a Query Tilt Response
20 8,     50: DTE     93      0.179924 0.000909 ff 01 00 61 00 00 62 Query Magnification

```

2.3 DtoP

DTOP is used to process files generated for the GlassKeyboard in Direct Mode which are written for use with D Protocol. DTOP translates the direct mode D Protocol commands into P Protocol direct mode commands. The camera address must be set to D Protocol address 1.

1. This filter is written in Flex.
2. This filter is suitable for use with D to P protocols only.
3. A typical use of this filter is:

```
dtop <fromfile> <tofile>
```

4. Print commands of the form “:print(” are deleted, while print commands of the form “:print_”(are retained.
5. Each translated command has a print command associated with it to indicate the current step in processing.
6. All input lines that are not understood are copied to the output file unchanged.
7. **Listing of: hdtop.txt a typical D Protocol direct mode GlassKeyboard input file.**

```
1 Stop
2 # FF 01 00 00 00 00 01
3 :print("# FF 01 00 00 00 00 01")
4 :delay(1000)
5 Query
6 # FF 01 00 45 00 00 46
7 :print("# FF 01 00 45 00 00 46")
8 :delay(1000)
9 Set Preset
10 :print("# FF 01 00 03 00 01 05")
11 # FF 01 00 03 00 01 05
12 :delay(1000)
13 Clear Preset
14 :print("# FF 01 00 05 00 01 07")
15 # FF 01 00 05 00 01 07
16 :delay(1000)
17 Call Preset
18 :print("# FF 01 00 07 00 01 09")
19 # FF 01 00 07 00 01 09
20 :delay(1000)
```

8. **Listing of: hdtop.out a typical P Protocol direct mode GlassKeyboard input file.**

```
1 Stop
2 # A0 01 00 00 00 00 AF 0E
3 :print("A0 01 00 00 00 00 AF 0E")
4 :delay(1000)
5 Query
6 # A0 01 00 45 00 00 AF 4B
7 :print("A0 01 00 45 00 00 AF 4B")
8 :delay(1000)
9 Set Preset
10 # A0 01 00 03 00 01 AF 0C
11 :print("A0 01 00 03 00 01 AF 0C")
12 :delay(1000)
13 Clear Preset
14 # A0 01 00 05 00 01 AF 0A
```



```
15 :print("A0 01 00 05 00 01 AF 0A")
16 :delay(1000)
17 Call Preset
18 # A0 01 00 07 00 01 AF 08
19 :print("A0 01 00 07 00 01 AF 08")
20 :delay(1000)
```

2.4 Dump3Q

DUMP3Q is used to dump the “3 queries” and their responses from a file. It also dumps stop commands and their replies. This is a somewhat special routine that is used to make a file shorter and thus more manageable when not looking for the values contained in the replies. There are other replies that were not included in the test data and thus are not delted. Commands with the following op-codes are dumped: 0x00, 0x51, 0x53, 0x59, 0x5b, 0x61 and 0x63.

1. This filter is written in Flex.
2. This filter is suitable for use with D Protocol only.
3. This filter requires preprocessing by either MAKESECS or MAKESECX. (Updated versions are MSQ and MSXQ.)
4. A typical use of this filter is shown in: `kk.bat` (Section 1.1, page 3)
5. Listing of: `htt.dat` a typical input file.

```

1 $ Id: MakeSecx.1,v 1.3 2008-02-20 08:06:33-08 Hamilton Exp Hamilton $
2 $Header: d:/Binder4/sda2/RCS/Http.dat,v 1.6 2008-03-07 08:28:09-08 Hamilton Exp Hamilton $
3 FTS capture buffer (2/13/2008 7:38:38 AM)
4 Event 1 (2/12/2008 3:20:53.464983 PM) through
5 Event 5,500,405 (2/12/2008 7:26:11.773878 PM)
6
7 1, 1: DTE 1 0.000000 0.000000 ff 01 00 04 23 00 28
8 2, 8: DTE 12 0.019925 0.001042 ff 01 00 51 00 00 52
9 3, 5: DCE 19 0.027477 0.001304 ff 01 00 59 27 e9 6a
10 3, 15: DTE 26 0.039819 0.001041 ff 01 00 53 00 00 54
11 4, 12: DCE 33 0.047476 0.001406 ff 01 00 5b 02 4c aa
12 4, 22: DTE 40 0.060028 0.001043 ff 01 00 61 00 00 62
13 5, 19: DCE 47 0.067472 0.001325 ff 01 00 63 03 77 de
14 5, 29: DTE 54 0.120104 0.001040 ff 01 00 0a 1c 11 38
15 6, 26: DCE 61 0.133819 0.007334 ff 01 00 38
16 6, 36: DTE 65 0.140027 0.001042 ff 01 00 51 00 00 52
17 7, 30: DCE 72 0.149755 0.003478 ff 01 00 59 27 a8 29
18 7, 43: DTE 79 0.162319 0.001043 ff 01 00 53 00 00 54
19 8, 37: DCE 86 0.169859 0.001290 ff 01 00 5b 02 3c 9a
20 8, 50: DTE 93 0.179924 0.000909 ff 01 00 61 00 00 62

```

6. Listing of: `htt.d3q` a typical output file.

```

1 $ Id: MakeSecs.1,v 1.11 2008-02-20 08:06:33-08 Hamilton Exp Hamilton $
2 $Header: d:/Binder4/sda2/RCS/Http.d3q,v 1.6 2008-03-07 08:28:07-08 Hamilton Exp Hamilton $
3 FTS capture buffer (2/13/2008 7:38:38 AM)
4 Event 1 (2/12/2008 3:20:53.464983 PM) through
5 Event 5,500,405 (2/12/2008 7:26:11.773878 PM)
6
7
8 1, 1: DTE 1 0.000000 0.000000 ff 01 00 04 23 00 28
9 2, 1: DCE 8 0.007936 0.001688 ff 01 00 28
10 5, 29: DTE 54 0.120104 0.001040 ff 01 00 0a 1c 11 38
11 6, 26: DCE 61 0.133819 0.007334 ff 01 00 38
12 9, 57: DTE 107 0.240110 0.001042 ff 01 00 0c 1f 06 32
13 10, 51: DCE 114 0.253908 0.007423 ff 01 00 32
14 13, 85: DTE 160 0.360349 0.001041 ff 01 00 04 22 00 27
15 14, 76: DCE 167 0.374728 0.008132 ff 01 00 27
16 17, 113: DTE 213 0.480180 0.001042 ff 01 00 04 22 00 27
17 18, 101: DCE 220 0.487773 0.001349 ff 01 00 27
18 21, 141: DTE 266 0.600174 0.001042 ff 01 00 04 22 00 27
19 22, 126: DCE 273 0.607593 0.001316 ff 01 00 27
20 25, 169: DTE 319 0.720174 0.001042 ff 01 00 04 22 00 27

```

2.5 EasyD

EASYD is used to process files that have been preprocessed by MAKESECS or MAKESECX (Updated versions are MSQ and MSXQ.) and then by FIXD to format the captured data into readable D Protocol messages. The primary difference between EASYD and EASYD1 is that EASYD1 puts all of its information on one line, while EASYD uses two lines followed by a blank line.

1. This filter is written in Flex.
2. This filter is suitable for use with D Protocol only.
3. This filter requires preprocessing by either MAKESECS or MAKESECX. (Updated versions are MSQ and MSXQ.)
4. A typical use of this filter is shown in: `kkk.bat` (Section 1.2, page 3)
5. Listing of: `htt.dat` a typical input file.

```

1 $ Id: MakeSecx.1,v 1.3 2008-02-20 08:06:33-08 Hamilton Exp Hamilton $
2 $Header: d:/Binder4/sda2/RCS/Http.dat,v 1.6 2008-03-07 08:28:09-08 Hamilton Exp Hamilton $
3 FTS capture buffer (2/13/2008 7:38:38 AM)
4 Event 1 (2/12/2008 3:20:53.464983 PM) through
5 Event 5,500,405 (2/12/2008 7:26:11.773878 PM)
6
7 1, 1: DTE 1 0.000000 0.000000 ff 01 00 04 23 00 28
8 2, 8: DTE 12 0.019925 0.001042 ff 01 00 51 00 00 52
9 3, 5: DCE 19 0.027477 0.001304 ff 01 00 59 27 e9 6a
10 3, 15: DTE 26 0.039819 0.001041 ff 01 00 53 00 00 54
11 4, 12: DCE 33 0.047476 0.001406 ff 01 00 5b 02 4c aa
12 4, 22: DTE 40 0.060028 0.001043 ff 01 00 61 00 00 62
13 5, 19: DCE 47 0.067472 0.001325 ff 01 00 63 03 77 de
14 5, 29: DTE 54 0.120104 0.001040 ff 01 00 0a 1c 11 38
15 6, 26: DCE 61 0.133819 0.007334 ff 01 00 38
16 6, 36: DTE 65 0.140027 0.001042 ff 01 00 51 00 00 52
17 7, 30: DCE 72 0.149755 0.003478 ff 01 00 59 27 a8 29
18 7, 43: DTE 79 0.162319 0.001043 ff 01 00 53 00 00 54
19 8, 37: DCE 86 0.169859 0.001290 ff 01 00 5b 02 3c 9a
20 8, 50: DTE 93 0.179924 0.000909 ff 01 00 61 00 00 62

```

6. Listing of: `htt.ez` a typical output file.

```

1 $ Id: MakeSecx.1,v 1.3 2008-02-20 08:06:33-08 Hamilton Exp Hamilton $
2 $Header: d:/Binder4/sda2/RCS/Http.ez,v 1.9 2008-03-07 08:31:34-08 Hamilton Exp Hamilton $
3 FTS capture buffer (2/13/2008 7:38:38 AM)
4 Event 1 (2/12/2008 3:20:53.464983 PM) through
5 Event 5,500,405 (2/12/2008 7:26:11.773878 PM)
6
7 1, 1: DTE 1 0.000000 0.000000 ff 01 00 04 23 00 28: .....L. 35 0:
8 ---> Motion command
9
10 2, 8: DTE 12 0.019925 0.001042 ff 01 00 51 00 00 52: 0 0:
11 ---> Return the absolute pan position
12
13 3, 5: DCE 19 0.027477 0.001304 ff 01 00 59 27 e9 6a: 39 233:
14 ---> Query pan resp: 102.17
15
16 3, 15: DTE 26 0.039819 0.001041 ff 01 00 53 00 00 54: 0 0:
17 ---> Return the absolute tilt position
18
19 4, 12: DCE 33 0.047476 0.001406 ff 01 00 5b 02 4c aa: 2 76:
20 ---> Query tilt resp: 5.88

```

2.6 EasyD1

EASYD1 is used to process files that have been preprocessed by MAKESECS or MAKESECX (Updated versions are MSQ and MSXQ.) and then by FIXD to format the captured data into readable single line D Protocol messages. The primary difference between EASYD and EASYD1 is that EASYD1 puts all of its information on one line, while EASYD uses two lines followed by a blank line.

1. This filter is written in Flex.
2. This filter is suitable for use with D Protocol only.
3. This filter requires preprocessing by either MAKESECS or MAKESECX. (Updated versions are MSQ and MSXQ.)
4. A typical use of this filter is shown in: `kkk.bat` (Section 1.2, page 3)
5. Listing of: `htt.dat` a typical input file.

```

1 $ Id: MakeSecx.1,v 1.3 2008-02-20 08:06:33-08 Hamilton Exp Hamilton $
2 $Header: d:/Binder4/sda2/RCS/Http.dat,v 1.6 2008-03-07 08:28:09-08 Hamilton Exp Hamilton $
3 FTS capture buffer (2/13/2008 7:38:38 AM)
4 Event 1 (2/12/2008 3:20:53.464983 PM) through
5 Event 5,500,405 (2/12/2008 7:26:11.773878 PM)
6
7 1, 1: DTE 1 0.000000 0.000000 ff 01 00 04 23 00 28
8 2, 8: DTE 12 0.019925 0.001042 ff 01 00 51 00 00 52
9 3, 5: DCE 19 0.027477 0.001304 ff 01 00 59 27 e9 6a
10 3, 15: DTE 26 0.039819 0.001041 ff 01 00 53 00 00 54
11 4, 12: DCE 33 0.047476 0.001406 ff 01 00 5b 02 4c aa
12 4, 22: DTE 40 0.060028 0.001043 ff 01 00 61 00 00 62
13 5, 19: DCE 47 0.067472 0.001325 ff 01 00 63 03 77 de
14 5, 29: DTE 54 0.120104 0.001040 ff 01 00 0a 1c 11 38
15 6, 26: DCE 61 0.133819 0.007334 ff 01 00 38
16 6, 36: DTE 65 0.140027 0.001042 ff 01 00 51 00 00 52
17 7, 30: DCE 72 0.149755 0.003478 ff 01 00 59 27 a8 29
18 7, 43: DTE 79 0.162319 0.001043 ff 01 00 53 00 00 54
19 8, 37: DCE 86 0.169859 0.001290 ff 01 00 5b 02 3c 9a
20 8, 50: DTE 93 0.179924 0.000909 ff 01 00 61 00 00 62

```

6. Listing of: `htt.ez1` a typical output file.

```

1 $ Id: MakeSecx.1,v 1.3 2008-02-20 08:06:33-08 Hamilton Exp Hamilton $
2 $Header: d:/Binder4/sda2/RCS/Http.ez1,v 1.6 2008-03-07 08:28:09-08 Hamilton Exp Hamilton $
3 FTS capture buffer (2/13/2008 7:38:38 AM)
4 Event 1 (2/12/2008 3:20:53.464983 PM) through
5 Event 5,500,405 (2/12/2008 7:26:11.773878 PM)
6
7 1, 1: DTE 1 0.000000 0.000000 ff 01 00 04 23 00 28: .....L. 35 0: --->
Motion command
8 2, 8: DTE 12 0.019925 0.001042 ff 01 00 51 00 00 52: 0 0: --->
Return the absolute pan position
9 3, 5: DCE 19 0.027477 0.001304 ff 01 00 59 27 e9 6a: 39 233: --->
Query pan resp: 102.17
10 3, 15: DTE 26 0.039819 0.001041 ff 01 00 53 00 00 54: 0 0: --->
Return the absolute tilt position
11 4, 12: DCE 33 0.047476 0.001406 ff 01 00 5b 02 4c aa: 2 76: --->
Query tilt resp: 5.88
12 4, 22: DTE 40 0.060028 0.001043 ff 01 00 61 00 00 62: 0 0: --->
Return the current magnification
13 5, 19: DCE 47 0.067472 0.001325 ff 01 00 63 03 77 de: 3 119: --->
Query magnification response: 8.87
14 5, 29: DTE 54 0.120104 0.001040 ff 01 00 0a 1c 11 38: .....U.R 28 17: --->
Motion command
15 6, 26: DCE 61 0.133819 0.007334 ff 01 00 38

```

16	6,	36: DTE	65	0.140027	0.001042 ff 01 00 51 00 00 52:	0	0: --->
Return the absolute pan position							
17	7,	30: DCE	72	0.149755	0.003478 ff 01 00 59 27 a8 29:	39	168: --->
Query pan resp: 101.52							
18	7,	43: DTE	79	0.162319	0.001043 ff 01 00 53 00 00 54:	0	0: --->
Return the absolute tilt position							
19	8,	37: DCE	86	0.169859	0.001290 ff 01 00 5b 02 3c 9a:	2	60: --->
Query tilt resp: 5.72							
20	8,	50: DTE	93	0.179924	0.000909 ff 01 00 61 00 00 62:	0	0: --->
Return the current magnification							

2.7 FixD

FIXD is used to process files that have been preprocessed by MAKESECS or MAKESECX (Updated versions are MSQ and MSXQ.) to format captured data into hexadecimal D Protocol messages.

There are two problem areas with this filter and those are that it breaks the byte stream into messages based on the 0xFF character. Unfortunately, not only is 0xFF the sync byte, but it is also valid data and a valid checksum value. The other problem is that breaking the data based on a single character, results in mixed up commands when replies “overlap” the next command.

1. This filter is written in Flex.
2. This filter is suitable for use with any protocol.
3. This filter requires preprocessing by either MAKESECS or MAKESECX. (Updated versions are MSQ and MSXQ.)
4. Typical uses of this filter is shown in: **kkk.bat** (Section 1.2, page 3), **jdce.bat** (Section 1.3, page 3) and **jdte.bat** (Section 1.4, page 4.)
5. **Listing of: htt.dce a typical input file.** Note that the format of this file is identical a .OUT file.

1	2,	1: DCE	8	0.007936	0.001688	ff
2	2,	2: DCE	9	0.009041	0.001105	01
3	2,	3: DCE	10	0.010081	0.001040	00
4	2,	4: DCE	11	0.011123	0.001042	28
5	3,	5: DCE	19	0.027477	0.001304	ff
6	3,	6: DCE	20	0.028518	0.001041	01
7	3,	7: DCE	21	0.029560	0.001042	00
8	3,	8: DCE	22	0.030601	0.001041	59
9	3,	9: DCE	23	0.031643	0.001042	27
10	3,	10: DCE	24	0.032685	0.001042	e9
11	3,	11: DCE	25	0.033726	0.001041	6a
12	4,	12: DCE	33	0.047476	0.001406	ff
13	4,	13: DCE	34	0.048519	0.001043	01
14	4,	14: DCE	35	0.049561	0.001042	00
15	4,	15: DCE	36	0.050601	0.001040	5b
16	4,	16: DCE	37	0.051643	0.001042	02
17	4,	17: DCE	38	0.052684	0.001041	4c
18	4,	18: DCE	39	0.053727	0.001043	aa
19	5,	19: DCE	47	0.067472	0.001325	ff
20	5,	20: DCE	48	0.068511	0.001039	01

6. **Listing of: htt.fc a typical output file.**

1	2,	1: DCE	8	0.007936	0.001688	ff 01 00 28
2	3,	5: DCE	19	0.027477	0.001304	ff 01 00 59 27 e9 6a
3	4,	12: DCE	33	0.047476	0.001406	ff 01 00 5b 02 4c aa
4	5,	19: DCE	47	0.067472	0.001325	ff 01 00 63 03 77 de
5	6,	26: DCE	61	0.133819	0.007334	ff 01 00 38
6	7,	30: DCE	72	0.149755	0.003478	ff 01 00 59 27 a8 29
7	8,	37: DCE	86	0.169859	0.001290	ff 01 00 5b 02 3c 9a
8	9,	44: DCE	100	0.187560	0.001387	ff 01 00 63 03 77 de
9	10,	51: DCE	114	0.253908	0.007423	ff 01 00 32
10	11,	55: DCE	125	0.267659	0.001507	ff 01 00 59 27 c7 48
11	12,	62: DCE	139	0.287443	0.001263	ff 01 00 5b 02 15 73
12	13,	69: DCE	153	0.307418	0.001268	ff 01 00 63 03 77 de
13	14,	76: DCE	167	0.374728	0.008132	ff 01 00 27
14	15,	80: DCE	178	0.387645	0.001361	ff 01 00 59 27 93 14
15	16,	87: DCE	192	0.407743	0.001489	ff 01 00 5b 02 11 6f
16	17,	94: DCE	206	0.427431	0.001148	ff 01 00 63 03 77 de
17	18,	101: DCE	220	0.487773	0.001349	ff 01 00 27
18	19,	105: DCE	231	0.507602	0.001470	ff 01 00 59 27 52 d3
19	20,	112: DCE	245	0.527559	0.001398	ff 01 00 5b 02 11 6f
20	21,	119: DCE	259	0.547453	0.001263	ff 01 00 63 03 77 de

2.8 GetCmnds

GETCMNDS is used to get all the commands from files that have been processed with MAKESEX, GETDTE (Updated versions are MSQ and MSXQ.) and FIXD1.

1. This filter is written in Flex.
2. This filter is suitable for use with D Protocol only.
3. This filter requires preprocessing by either MAKESECS or MAKESECX. (Updated versions are MSQ and MSXQ.)
4. A typical use of this filter is shown in: `jdte.bat` (Section 1.4, page 4)
5. **Listing of: `htt.ft` a typical input file.**

1	1,	1: DTE	1	0.000000	0.000000	ff 01 00 04 23 00 28
2	2,	8: DTE	12	0.019925	0.001042	ff 01 00 51 00 00 52
3	3,	15: DTE	26	0.039819	0.001041	ff 01 00 53 00 00 54
4	4,	22: DTE	40	0.060028	0.001043	ff 01 00 61 00 00 62
5	5,	29: DTE	54	0.120104	0.001040	ff 01 00 0a 1c 11 38
6	6,	36: DTE	65	0.140027	0.001042	ff 01 00 51 00 00 52
7	7,	43: DTE	79	0.162319	0.001043	ff 01 00 53 00 00 54
8	8,	50: DTE	93	0.179924	0.000909	ff 01 00 61 00 00 62
9	9,	57: DTE	107	0.240110	0.001042	ff 01 00 0c 1f 06 32
10	10,	64: DTE	118	0.260034	0.001033	ff 01 00 51 00 00 52
11	11,	71: DTE	132	0.279931	0.001043	ff 01 00 53 00 00 54
12	12,	78: DTE	146	0.300034	0.001042	ff 01 00 61 00 00 62
13	13,	85: DTE	160	0.360349	0.001041	ff 01 00 04 22 00 27
14	14,	92: DTE	171	0.380034	0.001044	ff 01 00 51 00 00 52
15	15,	99: DTE	185	0.400138	0.001034	ff 01 00 53 00 00 54
16	16,	106: DTE	199	0.420034	0.001041	ff 01 00 61 00 00 62
17	17,	113: DTE	213	0.480180	0.001042	ff 01 00 04 22 00 27
18	18,	120: DTE	224	0.499966	0.001040	ff 01 00 51 00 00 52
19	19,	127: DTE	238	0.520068	0.001042	ff 01 00 53 00 00 54
20	20,	134: DTE	252	0.539965	0.001041	ff 01 00 61 00 00 62

6. **Listing of: `htt.get` a typical output file.**

1	ff 01 00 04 23 00 28
2	ff 01 00 51 00 00 52
3	ff 01 00 53 00 00 54
4	ff 01 00 61 00 00 62
5	ff 01 00 0a 1c 11 38
6	ff 01 00 51 00 00 52
7	ff 01 00 53 00 00 54
8	ff 01 00 61 00 00 62
9	ff 01 00 0c 1f 06 32
10	ff 01 00 51 00 00 52
11	ff 01 00 53 00 00 54
12	ff 01 00 61 00 00 62
13	ff 01 00 04 22 00 27
14	ff 01 00 51 00 00 52
15	ff 01 00 53 00 00 54
16	ff 01 00 61 00 00 62
17	ff 01 00 04 22 00 27
18	ff 01 00 51 00 00 52
19	ff 01 00 53 00 00 54
20	ff 01 00 61 00 00 62

2.9 GetPlace

GETPLACE is used to extract all pan/tilt readouts from a file. It uses data from op-codes 0x59 and 0x5B.

1. This filter is written in Flex.
2. This filter is suitable for use with D Protocol only.
3. This filter requires preprocessing by either MAKESECS or MAKESECX. (Updated versions are MSQ and MSXQ.)
4. Typical command line calling sequence:

```
getplace infile outfile
```

5. Listing of: htt.ez1 a typical input file.

```

1  $ Id: MakeSecx.1,v 1.3 2008-02-20 08:06:33-08 Hamilton Exp Hamilton $
2  $Header: d:/Binder4/sda2/RCS/Http.ez1,v 1.6 2008-03-07 08:28:09-08 Hamilton Exp Hamilton $
3  FTS capture buffer (2/13/2008 7:38:38 AM)
4  Event 1 (2/12/2008 3:20:53.464983 PM) through
5  Event 5,500,405 (2/12/2008 7:26:11.773878 PM)
6
7      1,      1: DTE      1      0.000000 0.000000 ff 01 00 04 23 00 28: .....L. 35  0: --->
Motion command
8      2,      8: DTE     12      0.019925 0.001042 ff 01 00 51 00 00 52:      0  0: --->
Return the absolute pan position
9      3,      5: DCE     19      0.027477 0.001304 ff 01 00 59 27 e9 6a:      39 233: --->
Query pan resp: 102.17
10     3,     15: DTE     26      0.039819 0.001041 ff 01 00 53 00 00 54:      0  0: --->
Return the absolute tilt position
11     4,     12: DCE     33      0.047476 0.001406 ff 01 00 5b 02 4c aa:      2  76: --->
Query tilt resp: 5.88
12     4,     22: DTE     40      0.060028 0.001043 ff 01 00 61 00 00 62:      0  0: --->
Return the current magnification
13     5,     19: DCE     47      0.067472 0.001325 ff 01 00 63 03 77 de:      3 119: --->
Query magnification response: 8.87
14     5,     29: DTE     54      0.120104 0.001040 ff 01 00 0a 1c 11 38: .....U.R 28 17: --->
Motion command
15     6,     26: DCE     61      0.133819 0.007334 ff 01 00 38
16     6,     36: DTE     65      0.140027 0.001042 ff 01 00 51 00 00 52:      0  0: --->
Return the absolute pan position
17     7,     30: DCE     72      0.149755 0.003478 ff 01 00 59 27 a8 29:      39 168: --->
Query pan resp: 101.52
18     7,     43: DTE     79      0.162319 0.001043 ff 01 00 53 00 00 54:      0  0: --->
Return the absolute tilt position
19     8,     37: DCE     86      0.169859 0.001290 ff 01 00 5b 02 3c 9a:      2  60: --->
Query tilt resp: 5.72
20     8,     50: DTE     93      0.179924 0.000909 ff 01 00 61 00 00 62:      0  0: --->
Return the current magnification

```

6. Listing of: htt.plc a typical output file.

```

1  Pan   : 102.17
2  Tilt  : 5.88
3  Pan   : 101.52
4  Tilt  : 5.72
5  Pan   : 101.83
6  Tilt  : 5.33
7  Pan   : 101.31
8  Tilt  : 5.29
9  Pan   : 100.66
10 Tilt  : 5.29
11 Pan   : 100.00

```



```
12 Tilt : 5.29
13 Pan  : 99.34
14 Tilt : 5.29
15 Pan  : 98.75
16 Tilt : 5.70
17 Pan  : 104.16
18 Tilt : 10.27
19 Pan  : 119.31
20 Tilt : 13.71
```

2.10 GetPT

GETPT is used to get pan/tilt information from a capture file that has been processed by MAKESECX, (Updated versions are MSQ and MSXQ.) GETDCE and FIXD.

1. This filter is written in Flex.
2. This filter is suitable for use with D Protocol only.
3. This filter requires preprocessing by either MAKESECS or MAKESECX. (Updated versions are MSQ and MSXQ.)
4. A typical use of this filter is shown in: `jdce.bat` (Section 1.3, page 3)
5. Listing of: `htt.fc` a typical input file.

1	2,	1: DCE	8	0.007936	0.001688	ff 01 00 28
2	3,	5: DCE	19	0.027477	0.001304	ff 01 00 59 27 e9 6a
3	4,	12: DCE	33	0.047476	0.001406	ff 01 00 5b 02 4c aa
4	5,	19: DCE	47	0.067472	0.001325	ff 01 00 63 03 77 de
5	6,	26: DCE	61	0.133819	0.007334	ff 01 00 38
6	7,	30: DCE	72	0.149755	0.003478	ff 01 00 59 27 a8 29
7	8,	37: DCE	86	0.169859	0.001290	ff 01 00 5b 02 3c 9a
8	9,	44: DCE	100	0.187560	0.001387	ff 01 00 63 03 77 de
9	10,	51: DCE	114	0.253908	0.007423	ff 01 00 32
10	11,	55: DCE	125	0.267659	0.001507	ff 01 00 59 27 c7 48
11	12,	62: DCE	139	0.287443	0.001263	ff 01 00 5b 02 15 73
12	13,	69: DCE	153	0.307418	0.001268	ff 01 00 63 03 77 de
13	14,	76: DCE	167	0.374728	0.008132	ff 01 00 27
14	15,	80: DCE	178	0.387645	0.001361	ff 01 00 59 27 93 14
15	16,	87: DCE	192	0.407743	0.001489	ff 01 00 5b 02 11 6f
16	17,	94: DCE	206	0.427431	0.001148	ff 01 00 63 03 77 de
17	18,	101: DCE	220	0.487773	0.001349	ff 01 00 27
18	19,	105: DCE	231	0.507602	0.001470	ff 01 00 59 27 52 d3
19	20,	112: DCE	245	0.527559	0.001398	ff 01 00 5b 02 11 6f
20	21,	119: DCE	259	0.547453	0.001263	ff 01 00 63 03 77 de

6. Listing of: `htt.cc` a typical output file.

```

1 ff 01 00 28
2 ff 01 00 59 27 e9 6a
3 ff 01 00 5b 02 4c aa
4 ff 01 00 63 03 77 de
5 ff 01 00 38
6 ff 01 00 59 27 a8 29
7 ff 01 00 5b 02 3c 9a
8 ff 01 00 63 03 77 de
9 ff 01 00 32
10 ff 01 00 59 27 c7 48
11 ff 01 00 5b 02 15 73
12 ff 01 00 63 03 77 de
13 ff 01 00 27
14 ff 01 00 59 27 93 14
15 ff 01 00 5b 02 11 6f
16 ff 01 00 63 03 77 de
17 ff 01 00 27
18 ff 01 00 59 27 52 d3
19 ff 01 00 5b 02 11 6f
20 ff 01 00 63 03 77 de

```

2.11 MakeCmnd

MAKECMND is used to process 7 byte D Protocol commands into a format usable by the GLASSKEYBOARD. It also adds delays where needed. Following each op-code 0x61 a delay of 50 ms command is added, and after each “stop” command a delay of 100 ms is added.

1. This filter is written in Flex.
2. This filter is suitable for use with D Protocol only.
3. This filter requires preprocessing by either MAKESECS or MAKESECX. (Updated versions are MSQ and MSXQ.)
4. A typical use of this filter is shown in: `jdte.bat` (Section 1.4, page 4)
5. **Listing of: `htt.get` a typical input file.**

```

1 ff 01 00 04 23 00 28
2 ff 01 00 51 00 00 52
3 ff 01 00 53 00 00 54
4 ff 01 00 61 00 00 62
5 ff 01 00 0a 1c 11 38
6 ff 01 00 51 00 00 52
7 ff 01 00 53 00 00 54
8 ff 01 00 61 00 00 62
9 ff 01 00 0c 1f 06 32
10 ff 01 00 51 00 00 52
11 ff 01 00 53 00 00 54
12 ff 01 00 61 00 00 62
13 ff 01 00 04 22 00 27
14 ff 01 00 51 00 00 52
15 ff 01 00 53 00 00 54
16 ff 01 00 61 00 00 62
17 ff 01 00 04 22 00 27
18 ff 01 00 51 00 00 52
19 ff 01 00 53 00 00 54
20 ff 01 00 61 00 00 62

```

6. **Listing of: `htt.d` a typical output file.**

```

1 :SET_BAUD(9600)
2 :SET_DELTA(10)
3 # FF 01 00 07 00 22 2A
4 :delay(2000)
5 # FF 01 00 07 00 21 29
6 :delay(2000)
7
8 # ff 01 00 04 23 00 28
9 # ff 01 00 51 00 00 52
10 # ff 01 00 53 00 00 54
11 # ff 01 00 61 00 00 62
12 :delay(50)
13 # ff 01 00 0a 1c 11 38
14 # ff 01 00 51 00 00 52
15 # ff 01 00 53 00 00 54
16 # ff 01 00 61 00 00 62
17 :delay(50)
18 # ff 01 00 0c 1f 06 32
19 # ff 01 00 51 00 00 52
20 # ff 01 00 53 00 00 54

```

2.12 PTVals

PTVALS is used to process a D Protocol capture file that has been processed by MAKESECX, GETDCE, (Updated versions are MSQ and MSXQ.) FIXD, GETPT and DMPSHORT to generate pan/tilt values for GNUPLOT to process into a scatter plot. (All of the above processing is done by JDCE.BAT.) Uses op-codes 0x59 and 0x5B.

1. This filter is written in Flex.
2. This filter is suitable for use with D Protocol only.
3. This filter requires preprocessing by either MAKESECS or MAKESECX. (Updated versions are MSQ and MSXQ.)
4. A typical use of this filter is shown in: `jdce.bat` (Section 1.3, page 3)
5. **Listing of: `htt.ccc` a typical input file.**

```

1 ff 01 00 59 27 e9 6a
2 ff 01 00 5b 02 4c aa
3 ff 01 00 63 03 77 de
4 ff 01 00 59 27 a8 29
5 ff 01 00 5b 02 3c 9a
6 ff 01 00 63 03 77 de
7 ff 01 00 59 27 c7 48
8 ff 01 00 5b 02 15 73
9 ff 01 00 63 03 77 de
10 ff 01 00 59 27 93 14
11 ff 01 00 5b 02 11 6f
12 ff 01 00 63 03 77 de
13 ff 01 00 59 27 52 d3
14 ff 01 00 5b 02 11 6f
15 ff 01 00 63 03 77 de
16 ff 01 00 59 27 10 91
17 ff 01 00 5b 02 11 6f
18 ff 01 00 63 03 77 de
19 ff 01 00 59 26 ce 4e
20 ff 01 00 5b 02 11 6f

```

6. **Listing of: `htt.p` a typical output file.**

```

1 102.17 -5.88 # 1
2 101.52 -5.72 # 2
3 101.83 -5.33 # 3
4 101.31 -5.29 # 4
5 100.66 -5.29 # 5
6 100.00 -5.29 # 6
7 99.34 -5.29 # 7
8 98.75 -5.70 # 8
9 104.16 -10.27 # 9
10 119.31 -13.71 # 10
11 132.38 -12.79 # 11
12 135.63 -13.12 # 12
13 130.19 -14.29 # 13
14 117.73 -10.05 # 14
15 106.75 -5.17 # 15
16 98.06 -5.92 # 16
17 94.52 -7.02 # 17
18 94.35 -5.39 # 18
19 94.72 -5.29 # 19
20 94.68 -5.29 # 20

```

2.13 PTZVals

PTZVALS is used to process a D Protocol capture file that has been processed by MAKESECX, GETDCE, (Updated versions are MSQ and MSXQ.) FIXD, GETPT and DMPSHORT to generate pan/tilt/zoom values for GNUPLOT to process. (All of the above processing is done by JDCE.BAT.) Uses op-codes 0x59, 0x5B and 0x63.

1. This filter is written in Flex.
2. This filter is suitable for use with D Protocol only.
3. This filter requires preprocessing by either MAKESECS or MAKESECX. (Updated versions are MSQ and MSXQ.)
4. A typical use of this filter is shown in: `jdce.bat` (Section 1.3, page 3)
5. **Listing of: `htt.ccc` a typical input file.**

```

1 ff 01 00 59 27 e9 6a
2 ff 01 00 5b 02 4c aa
3 ff 01 00 63 03 77 de
4 ff 01 00 59 27 a8 29
5 ff 01 00 5b 02 3c 9a
6 ff 01 00 63 03 77 de
7 ff 01 00 59 27 c7 48
8 ff 01 00 5b 02 15 73
9 ff 01 00 63 03 77 de
10 ff 01 00 59 27 93 14
11 ff 01 00 5b 02 11 6f
12 ff 01 00 63 03 77 de
13 ff 01 00 59 27 52 d3
14 ff 01 00 5b 02 11 6f
15 ff 01 00 63 03 77 de
16 ff 01 00 59 27 10 91
17 ff 01 00 5b 02 11 6f
18 ff 01 00 63 03 77 de
19 ff 01 00 59 26 ce 4e
20 ff 01 00 5b 02 11 6f

```

6. **Listing of: `htt.pz` a typical output file.**

```

1 102.17 -5.88 8.87 # 1
2 101.52 -5.72 8.87 # 2
3 101.83 -5.33 8.87 # 3
4 101.31 -5.29 8.87 # 4
5 100.66 -5.29 8.87 # 5
6 100.00 -5.29 8.87 # 6
7 99.34 -5.29 8.87 # 7
8 98.75 -5.70 8.87 # 8
9 104.16 -10.27 8.87 # 9
10 119.31 -13.71 9.03 # 10
11 132.38 -12.79 9.03 # 11
12 135.63 -13.12 9.54 # 12
13 130.19 -14.29 10.45 # 13
14 117.73 -10.05 10.45 # 14
15 106.75 -5.17 11.75 # 15
16 98.06 -5.92 11.75 # 16
17 94.52 -7.02 11.75 # 17
18 94.35 -5.39 11.75 # 18
19 94.72 -5.29 11.75 # 19
20 94.68 -5.29 11.75 # 20

```

3 P Protocol Specific Filters

3.1 FixP

FixP is used to process a P Protocol capture file that has been processed by MAKESECS (Updated version is MSQ.) to generate a more easily understood output file.

1. This filter is written in Flex.
2. This filter is suitable for use with P Protocol commands only.
3. This filter requires its input data to have been preprocess by either MAKESECS. (Updated version is MSQ.)
4. A typical use of this filter is:

```
FixP <infile> <outfile>
```

5. Listing of: hpproto.txt a typical input file.

```

1 DCE      10 3/26/2008 6:28:57.013791 AM a0
2 DCE      11 3/26/2008 6:28:57.014886 AM 01
3 DCE      12 3/26/2008 6:28:57.015933 AM 00
4 DCE      13 3/26/2008 6:28:57.016969 AM 45
5 DCE      14 3/26/2008 6:28:57.018016 AM 00
6 DCE      15 3/26/2008 6:28:57.019052 AM 00
7 DCE      16 3/26/2008 6:28:57.020101 AM af
8 DCE      17 3/26/2008 6:28:57.021141 AM 4b
9 DTE      18 3/26/2008 6:28:57.022336 AM a2
10 DCE     19 3/26/2008 6:28:58.167141 AM a0
11 DCE     20 3/26/2008 6:28:58.168186 AM 01
12 DCE     21 3/26/2008 6:28:58.169219 AM 01
13 DCE     22 3/26/2008 6:28:58.170269 AM 45
14 DCE     23 3/26/2008 6:28:58.171303 AM 00
15 DCE     24 3/26/2008 6:28:58.172351 AM 00
16 DCE     25 3/26/2008 6:28:58.173393 AM af
17 DCE     26 3/26/2008 6:28:58.174430 AM 4a
18 DTE     27 3/26/2008 6:28:58.175603 AM a2
19 DCE     28 3/26/2008 6:28:59.318479 AM a0
```

6. Listing of: hfixp.p a typical output file.

```

1      2,      9: DCE      10      1.155474      0.001046 a0 01 00 45 00 00 af 4b
2      2,      2: DTE      18      1.164019      0.001195 a2
3
4      3,      17: DCE     19      2.308824      1.144805 a0 01 01 45 00 00 af 4a
5      3,      3: DTE     27      2.317286      0.001037 a2
6
7      4,      25: DCE     28      3.460162      0.001037 a0 01 00 73 00 00 af 7d
8      4,      4: DTE     36      3.468679      0.001303 a2
9
10     5,      33: DCE     37      4.611440      1.142761 a0 01 02 73 00 00 af 7f
11     5,      5: DTE     45      4.619972      0.001042 a2
12
13     6,      41: DCE     46      5.764811      0.001042 a0 01 02 73 00 00 af 7f
14     6,      6: DTE     54      5.773233      0.001123 a2
15
16     7,      49: DCE     55      6.916156      1.142923 a0 01 00 01 00 00 af 0f
17     7,      7: DTE     63      6.924633      0.001036 a2
18
19     8,      57: DCE     64      8.067465      0.001036 a0 01 01 01 00 00 af 0e
20     8,      8: DTE     72      8.075920      0.001129 a2
```

³\$Header: d:/Binder4/sda2/RCS/Dp.inc,v 1.6 2009-07-07 08:24:28-07 Hamilton Exp Hamilton \$

4 Coaxitron Protocol Specific Filters

A special compile option for the Esprit software has been implemented that mildly reformats Coaxitron commands and send them out the RS-422 interface. The reformatting consists of:

1. Placing the Coaxitron type code as the first byte. In D Protocol the first byte is always 0xFF and this is replaced as follows:

1.1 0xFE for 32 bit Coaxitron.

1.2 0xFD for 16 bit Coaxitron.

1.3 0xFC for 15 bit Coaxitron.

Note: That this byte is not transmitted by the Coaxitron system, but is used internally by the Esprit software in decoding and processing Coaxitron commands.

2. Putting the device address in the second byte position.

Note this byte is not send in Coaxitron, but is put here to help in generating a Psuedo-D Protocol command.

3. Bytes 2, 3, 4 and 5 are the Coaxitron command after minor reformatting by the Esprit software for decoding.

4. The last byte is a generated checksum of the preceeding bytes using D Protocol checksum rules.

Note this byte is not send in Coaxitron, but is put here to help in generating a Psuedo-D Protocol command.

This process results in having a fake D Protocol command that can utilize many of the D Protocol filters with little or no changes.

All of the following examples use this test file as input:

Listing of: test1.out a typical input file.

```

1 # FTS capture buffer (7/2/2009 2:01:47 PM)
2 # Event 1 (7/2/2009 1:58:26.668275 PM) through
3 # Event 14,392 (7/2/2009 2:01:31.422970 PM)
4
5 1,      1: DCE      1      0.000000  0.000000 fe
6 1,      2: DCE      2      0.001050  0.001050 01
7 1,      3: DCE      3      0.002092  0.001042 00
8 1,      4: DCE      4      0.003132  0.001040 00
9 1,      5: DCE      5      0.004176  0.001044 00
10 1,      6: DCE      6      0.005218  0.001042 00
11 1,      7: DCE      7      0.006259  0.001041 01
12 1,      8: DCE      8      0.104179  0.097920 fe
13 1,      9: DCE      9      0.105216  0.001037 01
14 1,     10: DCE     10      0.106258  0.001042 00
15 1,     11: DCE     11      0.107300  0.001042 00
16 1,     12: DCE     12      0.108342  0.001042 00
17 1,     13: DCE     13      0.109384  0.001042 00
18 1,     14: DCE     14      0.110258  0.000874 01
19 1,     15: DCE     15      0.111884  0.001626 fe
20 1,     16: DCE     16      0.112926  0.001042 01
21 1,     17: DCE     17      0.113967  0.001041 00
22 1,     18: DCE     18      0.115008  0.001041 00
23 1,     19: DCE     19      0.116050  0.001042 00
24 1,     20: DCE     20      0.117091  0.001041 00

```

⁴\$Header: d:/Binder4/sda2/RCS/Dp.inc,v 1.6 2009-07-07 08:24:28-07 Hamilton Exp Hamilton \$

25	1,	21: DCE	21	0.118133	0.001042 01
26	1,	22: DCE	22	0.119175	0.001042 fe
27	1,	23: DCE	23	0.120169	0.000994 01
28	1,	24: DCE	24	0.121260	0.001091 00
29	1,	25: DCE	25	0.122300	0.001040 00
30	1,	26: DCE	26	0.123341	0.001041 00

4.1 EasyCq

EASYCQ is used to process files that have been preprocessed by MSQ or MSXQ and then by FIXDC to format the captured data into readable Psuedo D Protocol messages. The primary difference between EASYCQ and EASYC1Q is that EASYC1Q puts all of its information on one line, while EASYCQ uses two lines followed by a blank line. (This filter is based on EASYDQ.L.)

1. This filter is written in Flex.
2. This filter is suitable for use with Coaxitron Protocol only.
3. This filter requires preprocessing by either MSQ or MSXQ.
4. A typical use of this filter is shown in: `kkc.bat` (Section 1.5, page 4)
5. **Listing of: test1.d a typical output file.**

```

1  # FTS capture buffer (7/2/2009 2:01:47 PM)
2  # Event 1 (7/2/2009 1:58:26.668275 PM) through
3  # Event 14,392 (7/2/2009 2:01:31.422970 PM)
4
5      1,          1: DCE      1      0.000000  0.000000 fe 01 00 00 00 00 01: ..... 0 0:
6      ---> 32 bit Coaxitron: Motion command
7
8      1,          8: DCE      8      0.104179  0.097920 fe 01 00 00 00 00 01: ..... 0 0:
9      ---> 32 bit Coaxitron: Motion command
10
11     1,         15: DCE     15      0.111884  0.001626 fe 01 00 00 00 00 01: ..... 0 0:
12     ---> 32 bit Coaxitron: Motion command
13
14     1,         22: DCE     22      0.119175  0.001042 fe 01 00 00 00 00 01: ..... 0 0:
15     ---> 32 bit Coaxitron: Motion command
16
17     1,         29: DCE     29      0.126467  0.001043 fe 01 00 00 00 00 01: ..... 0 0:
18     ---> 32 bit Coaxitron: Motion command
19
20     1,         36: DCE     36      0.133757  0.001041 fe 01 00 00 00 00 01: ..... 0 0:
21     ---> 32 bit Coaxitron: Motion command
22
23     1,         43: DCE     43      0.143863  0.003846 fe 01 00 00 00 00 01: ..... 0 0:
24     ---> 32 bit Coaxitron: Motion command
25
26     1,         50: DCE     50      0.151928  0.001805 fe 01 00 00 00 00 01: ..... 0 0:
27     ---> 32 bit Coaxitron: Motion command
28
29     1,         57: DCE     57      0.159487  0.001138 fe 01 00 00 00 00 01: ..... 0 0:
30     ---> 32 bit Coaxitron: Motion command

```

4.2 EasyC1q

EASYC1Q is used to process files that have been preprocessed by MSQ or MSXQ and then by FIXCQ to format the captured data into readable single line D Protocol messages. The primary difference between EASYCQ and EASYC1Q is that EASYC1Q puts all of its information on one line, while EASYCQ uses two lines followed by a blank line. (This filter is based on EASYD1Q.L.)

1. This filter is written in Flex.
2. This filter is suitable for use with Coaxitron Protocol only.
3. This filter requires preprocessing by either MSQ or MSXQ.
4. A typical use of this filter is shown in: `kkc.bat` (Section 1.5, page 4)
5. **Listing of: test1.d1 a typical output file.**

```

1 # FTS capture buffer (7/2/2009 2:01:47 PM)
2 # Event 1 (7/2/2009 1:58:26.668275 PM) through
3 # Event 14,392 (7/2/2009 2:01:31.422970 PM)
4
5      1,      1: DCE      1      0.000000      0.000000 fe 01 00 00 00 00 01: ..... 0 0: ---> 32 bit
Coaxitron: Motion stop
6      1,      8: DCE      8      0.104179      0.097920 fe 01 00 00 00 00 01: ..... 0 0: ---> 32 bit
Coaxitron: Motion stop
7      1,     15: DCE     15      0.111884      0.001626 fe 01 00 00 00 00 01: ..... 0 0: ---> 32 bit
Coaxitron: Motion stop
8      1,     22: DCE     22      0.119175      0.001042 fe 01 00 00 00 00 01: ..... 0 0: ---> 32 bit
Coaxitron: Motion stop
9      1,     29: DCE     29      0.126467      0.001043 fe 01 00 00 00 00 01: ..... 0 0: ---> 32 bit
Coaxitron: Motion stop
10     1,     36: DCE     36      0.133757      0.001041 fe 01 00 00 00 00 01: ..... 0 0: ---> 32 bit
Coaxitron: Motion stop
11     1,     43: DCE     43      0.143863      0.003846 fe 01 00 00 00 00 01: ..... 0 0: ---> 32 bit
Coaxitron: Motion stop
12     1,     50: DCE     50      0.151928      0.001805 fe 01 00 00 00 00 01: ..... 0 0: ---> 32 bit
Coaxitron: Motion stop
13     1,     57: DCE     57      0.159487      0.001138 fe 01 00 00 00 00 01: ..... 0 0: ---> 32 bit
Coaxitron: Motion stop
14     1,     64: DCE     64      0.171781      0.006045 fe 01 00 00 00 00 01: ..... 0 0: ---> 32 bit
Coaxitron: Motion stop
15     1,     71: DCE     71      0.191779      0.013749 fe 01 00 00 00 00 01: ..... 0 0: ---> 32 bit
Coaxitron: Motion stop
16     1,     78: DCE     78      0.211884      0.013855 fe 01 00 00 00 00 01: ..... 0 0: ---> 32 bit
Coaxitron: Motion stop
17     1,     85: DCE     85      0.232717      0.014584 fe 01 00 00 00 00 01: ..... 0 0: ---> 32 bit
Coaxitron: Motion stop
18     1,     92: DCE     92      0.252822      0.013856 fe 01 00 00 00 00 01: ..... 0 0: ---> 32 bit
Coaxitron: Motion stop
19     1,     99: DCE     99      0.272925      0.013856 fe 01 00 00 00 00 01: ..... 0 0: ---> 32 bit
Coaxitron: Motion stop
20     1,    106: DCE    106      0.369178      0.090003 fe 01 00 02 05 00 08: .....R 5 0: ---> 32 bit
Coaxitron: Motion command
21     1,    113: DCE    113      0.409905      0.034481 fe 01 00 02 05 00 08: .....R 5 0: ---> 32 bit
Coaxitron: Motion command
22     1,    120: DCE    120      0.417821      0.001667 fe 01 00 02 05 00 08: .....R 5 0: ---> 32 bit
Coaxitron: Motion command
23     1,    127: DCE    127      0.426257      0.002186 fe 01 00 02 05 00 08: .....R 5 0: ---> 32 bit
Coaxitron: Motion command
24     1,    134: DCE    134      0.437925      0.005418 fe 01 00 02 05 00 08: .....R 5 0: ---> 32 bit
Coaxitron: Motion command
25     1,    141: DCE    141      0.446467      0.001979 fe 01 00 02 05 00 08: .....R 5 0: ---> 32 bit
Coaxitron: Motion command
26     1,    148: DCE    148      0.454383      0.001666 fe 01 00 02 05 00 08: .....R 5 0: ---> 32 bit
Coaxitron: Motion command
27     1,    155: DCE    155      0.462925      0.002266 fe 01 00 02 05 00 08: .....R 5 0: ---> 32 bit
Coaxitron: Motion command

```

28	1,	162: DCE	162	0.470672	0.001498	fe 01 00 02 05 00 08:	R	5	0: ---> 32 bit
Coaxitron: Motion command									
29	1,	169: DCE	169	0.482924	0.005937	fe 01 00 02 09 00 0c:	R	9	0: ---> 32 bit
Coaxitron: Motion command									
30	1,	176: DCE	176	0.490702	0.001527	fe 01 00 02 09 00 0c:	R	9	0: ---> 32 bit
Coaxitron: Motion command									

4.3 FixCq

FixCq is used to process files that have been preprocessed by MSQ or MSXQ to format captured data into hexadecimal Psuedo D Protocol messages. (This filter is based on FixCq.L.)

There are two problem areas with this filter and those are that it breaks the byte stream into messages based on the 0xFC, 0xFD or 0xFE character. Unfortunately, not only are 0xFC, 0xFD and 0xFE the type ID bytes, but they are also valid data and a valid checksum value. The other problem is that breaking the data based on a single character, results in mixed up commands when replies “overlap” the next command.

1. This filter is written in Flex.
2. This filter is suitable for use with Coaxitron Protocol.
3. This filter requires preprocessing by either MSQ or MSXQ.
4. Typical uses of this filter is shown in: `kkc.bat` (Section 1.5, page 4).
5. **Listing of: test1.cx a typical output file.**

```

1 # FTS capture buffer (7/2/2009 2:01:47 PM)
2 # Event 1 (7/2/2009 1:58:26.668275 PM) through
3 # Event 14,392 (7/2/2009 2:01:31.422970 PM)
4
5      1,      1: DCE      1      0.000000      0.000000 fe 01 00 00 00 00 01
6      1,      8: DCE      8      0.104179      0.097920 fe 01 00 00 00 00 01
7      1,     15: DCE     15      0.111884      0.001626 fe 01 00 00 00 00 01
8      1,     22: DCE     22      0.119175      0.001042 fe 01 00 00 00 00 01
9      1,     29: DCE     29      0.126467      0.001043 fe 01 00 00 00 00 01
10     1,     36: DCE     36      0.133757      0.001041 fe 01 00 00 00 00 01
11     1,     43: DCE     43      0.143863      0.003846 fe 01 00 00 00 00 01
12     1,     50: DCE     50      0.151928      0.001805 fe 01 00 00 00 00 01
13     1,     57: DCE     57      0.159487      0.001138 fe 01 00 00 00 00 01
14     1,     64: DCE     64      0.171781      0.006045 fe 01 00 00 00 00 01
15     1,     71: DCE     71      0.191779      0.013749 fe 01 00 00 00 00 01
16     1,     78: DCE     78      0.211884      0.013855 fe 01 00 00 00 00 01
17     1,     85: DCE     85      0.232717      0.014584 fe 01 00 00 00 00 01
18     1,     92: DCE     92      0.252822      0.013856 fe 01 00 00 00 00 01
19     1,     99: DCE     99      0.272925      0.013856 fe 01 00 00 00 00 01
20     1,    106: DCE    106      0.369178      0.090003 fe 01 00 02 05 00 08
21     1,    113: DCE    113      0.409905      0.034481 fe 01 00 02 05 00 08
22     1,    120: DCE    120      0.417821      0.001667 fe 01 00 02 05 00 08
23     1,    127: DCE    127      0.426257      0.002186 fe 01 00 02 05 00 08
24     1,    134: DCE    134      0.437925      0.005418 fe 01 00 02 05 00 08
25     1,    141: DCE    141      0.446467      0.001979 fe 01 00 02 05 00 08
26     1,    148: DCE    148      0.454383      0.001666 fe 01 00 02 05 00 08
27     1,    155: DCE    155      0.462925      0.002266 fe 01 00 02 05 00 08
28     1,    162: DCE    162      0.470672      0.001498 fe 01 00 02 05 00 08
29     1,    169: DCE    169      0.482924      0.005937 fe 01 00 02 09 00 0c
30     1,    176: DCE    176      0.490702      0.001527 fe 01 00 02 09 00 0c

```

Index

- 15 bit Coaxitron, 23
- 16 bit Coaxitron, 23
- 32 bit Coaxitron, 23
- Coaxitron, 23
- Coaxitron Protocol, 25, 26, 28
- D, 23
- D Protocol, 5, 7, 10–12, 14–16, 18–21, 23, 26
- DmpShort, 5, 20, 21
- DoD, 7
- DtoP, 8
- Dump3q, 10
- EasyC1q, 25, 26
- EasyCq, 25, 26
- EasyD, 7, 11, 12
- EasyD1, 11, 12
- EasyD1q.l, 26
- EasyDq.l, 25
- Esprit, 23
- FixCq, 26, 28
- FixCq.l, 28
- FixD, 11, 12, 14, 18, 20, 21
- FixD1, 15
- FixDC, 25
- FixP, 22
- GetCmnds, 15
- GetDce, 18, 20, 21
- GetDte, 15
- GetPlace, 16
- GetPT, 18, 20, 21
- GlassKeyboard, 8, 19
- GnuPlot, 20, 21
- Jdce.bat, 20, 21
- MakeCmnd, 19
- MakeSecs, 5, 7, 10–12, 14–16, 18–22
- MakeSecX, 5, 7, 10–12, 14–16, 18–21
- MakeSex, 15
- MSq, 5, 7, 10–12, 14–16, 18–22, 25, 26, 28
- MSXq, 5, 7, 10–12, 14–16, 18–21, 25, 26, 28
- P Protocol, 22
- Psuedo D Protocol, 25, 28
- Psuedo-D Protocol, 23
- PTVals, 20
- PTZVals, 21
- RS-422, 23
- Sda2Intr, 3