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<honig@sprynet.com>

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1999#05#03 .

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1. #####	1
2. #####	2
3. #####	2
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5. #####	3
6. #####	4
7. ###/###/#386/#####	4
8. ##### (##### # 8 ##)	4

1. #####

#####, ## # [##### IPsec](#). ## #, ## # [###-###](#)? #####, ##### # #####, ##### # #####.

##

1. #####
#####.
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3. # #####
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#####. ##
93%
(6,7) ## (7,18), # 29%
(2,1).

```
% tcpdump -c 4000 -s 10000 -w ipsecdemo.bin
% uliscan ipsecdemo.bin

Uliscan 21 Dec 98
L=8 256 258560
Measuring file ipsecdemo.bin
Init done
Expected value for L=8 is 7.1836656
6.9396 -----
6.6177 -----
6.4100 -----
2.1101 -----
2.0838 -----
2.0983 -----
```

4.

#####.

5.

#####4; #####6. ##

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~~##### # ##### ##### ##### # ##### ## ####### (######
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####; ## #####; ## #####-
#. #####.~~

6. #####

IPsec # #####

#####(8).

```
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```

7. ###/###/#386/####/#####

####, #####
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#####(8), #, ##
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device bpf

8. ##### (#####
8 ###)

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```
/*
ULISCAN.c  ---blocksize of 8

1 Oct 98
1 Dec 98
21 Dec 98    uliscan.c derived from ueli8.c

This version has -// comments removed for Sun cc

This implements Ueli M Maurer's -"Universal Statistical Test for Random
Bit Generators" using L=8

Accepts a filename on the command line; writes its results, with other
info, to stdout.

Handles input file exhaustion gracefully.
```

```
#####  
## #####
```

Ref: J. Cryptology v 5 no 2, 1992 pp 89-105
also on the web somewhere, which is where I found it.

--David Honig
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Usage:
ULISCAN filename
outputs to stdout
*/

```
#define L 8  
#define V (1<<L)  
#define Q (10*V)  
#define K (100 *Q)  
#define MAXSAMP (Q + K)  
  
#include <stdio.h>  
#include <math.h>  
  
int main(argc, argv)  
{  
    int argc;  
    char **argv;  
    FILE *fptr;  
    int i,j;  
    int b, c;  
    int table[V];  
    double sum = 0.0;  
    int iproduct = 1;  
    int run;  
  
    extern double log(/* double x */);  
  
    printf("Uliscan 21 Dec 98 \nL=%d %d %d \n", L, V, MAXSAMP);  
  
    if (argc < 2) {  
        printf("Usage: Uliscan filename\n");  
        exit(-1);  
    } else {  
        printf("Measuring file %s\n", argv[1]);  
    }  
  
    fptr = fopen(argv[1], "rb");  
  
    if (fptr == NULL) {  
        printf("Can't find %s\n", argv[1]);  
        exit(-1);  
    }  
  
    for (i = 0; i < V; i++) {  
        table[i] = 0;
```


(##### # 8 ###)

```
-}

for (i = 0; i < Q; i++) {
    b = fgetc(fp);
    table[b] = i;
-}

printf("Init done\n");

printf("Expected value for L=8 is 7.1836656\n");

run = 1;

while (run) {
    sum = 0.0;
    iproduct = 1;

    if (run)
        for (i = Q; run && i < Q + K; i++) {
            j = i;
            b = fgetc(fp);

            if (b < 0)
                run = 0;

            if (run) {
                if (table[b] > j)
                    j += K;

                sum += log((double)(j-table[b]));

                table[b] = i;
            }
        }

    if (!run)
        printf("Premature end of file; read %d blocks.\n", i - Q);

    sum = (sum/((double)(i - Q))) -/ log(2.0);
    printf("%4.4f -", sum);

    for (i = 0; i < (int)(sum*8.0 + 0.50); i++)
        printf("-");

    printf("\n");

    /* refill initial table */
    if (0) {
        for (i = 0; i < Q; i++) {
            b = fgetc(fp);
            if (b < 0) {
                run = 0;
            } else {
```

```
#####  
#####  
#####  
#####
```

```
    table[b] = i;  
    -}  
    -}  
    -}  
    -}  
}
```

