

GCIS Hash-to-Password Recovery & Cryptographic Side-Channel Report

CHARGE ANALYSIS - OVERVIEW

INDIVIDUAL VALUES (20 characters):

0' -> -1 1' -> -1 2' -> -1 3' -> -1
4' -> -1 5' -> -1 6' -> -1 8' -> -1
'A' -> -1 'L' -> -1 'P' -> -1 'R' -> -1
'T' -> -1 'W' -> -1 'b' -> -1 'c' -> -1
'e' -> -1 'h' -> -1 'k' -> -1 's' -> -1

TOTAL: 20 x -1, 0 x +1

SIGNIFICANT (100.0% uniform charge) - Dominant charge: -1

PATTERN CONSISTENCY ANALYSIS

```
20/20 bytes show 100% pattern consistency
```

RESULT: All password bytes have UNIQUE, CONSISTENT sign patterns

STATISTICAL SUMMARY

Pearson Correlation: 1.0000

Bit-Sign Agreement: 100.00%

INPUT DATA

Password: PeRTh5s80L12Ab34ck6W

Password Bitstring:

```
01010000 01100101 01010010 01010100 01101000 00110101 01110011 00111000 00110000 01001100
00110001 00110010 01000001 01100010 00110011 00110100 01100011 01101011 00110110 01010111
```

Layer 1 (es17): 2048 bits

Bitstring:

[illegible]

Sign sequence (complete):

[illegible]

[illegible]

PAGE 2: LAYER DATA + CHARGE DETAILS

LAYER: es17 (2048 bits)

Bitstring:

```

01100100000111001111101100011100100111011111100111100011110101110101110000101010010001011001
1011100001101010000100000110011000101011101110111011000011001000101000000001100000011
011101011101000111011001100110001101100000111000001110011110001011100101000010101000111010100
00010100101001100011010000001010001010001000000100101000001101111001100010101110011001000001
00111110110001010110000011111001000100100001011011111011010101010100100100110001100110111
11011110101010101001010100100101011101101000001010001100011111000000101111100000001000100001
01100001100010100011000000111011000010101111010101011100010000010101000000100100100111100
100010100011000001011001010111101010100100100111001001000000000011101010010101111010010100
1000010010000101010101010101001000010011010011101000110010100101000010010001100110100
0011010001101100111000010010100110110000000101000111101001011000100100000010000100001111
1100101001010101000000100001010010111011011000000000100101110100110110001010001010110111
11110100010100000100110001111101011101101101000101000001010011101011010100100000110000
111111010010000001001011000110100101101100101001011100001010011011000000001101010101000111
01010001110101010100101001001110010010000001110100010100101000110101100011110000100
0001100010010010101001110001110011010000100101001011010010111000111001010101010101000011
1010001110010110000111001000111100000100111000011111100011100110001011100100110110010001100
10101100111010101000110000001010100101010000010111101000101001000000101011110100111111111
101001011100001010100001001000001111001000000100010110100011100011110001010000100001010010
0111001000101001110100111000111010010101111010100010000000010101010111100001000010100011
11001000101000110010010110100101011100000100101010100000111100100010010000101110101100100
000101000100101011100001010110100111100001110101001001101001010010010100100110011111
000001101011110001001101001000111110000110001010100
Sign sequence: -1, -1, +1, -1, -1, +1, -1, -1, -1, -1, -1, +1, -1, -1, +1, +1, +1, +1, +1, +1, -1, -1, +1,
-1, -1, +1, +1, -1, +1, +1, +1, +1, +1, +1, +1, +1, -1, -1, +1, ...

```

Character positions and charges:

```

0' @ 160->-1, 177->-1, 324->-1, 674->-1 -> Charge: -1
1' @ 216->-1, 298->-1, 353->-1, 456->-1 -> Charge: -1
2' @ 0->-1, 153->-1, 367->-1, 701->-1 -> Charge: -1
3' @ 117->-1, 121->-1, 212->-1, 461->-1 -> Charge: -1
4' @ 145->-1, 286->-1, 303->-1, 798->-1 -> Charge: -1
5' @ 1590->-1, 1744->-1, 1852->-1 -> Charge: -1
6' @ 85->-1, 125->-1, 221->-1, 680->-1 -> Charge: -1
8' @ 231->-1, 575->-1, 587->-1, 869->-1 -> Charge: -1
'A' @ 281->-1, 307->-1, 338->-1, 372->-1 -> Charge: -1
'L' @ 158->-1, 454->-1, 1061->-1 -> Charge: -1
'P' @ 106->-1, 167->-1, 260->-1, 279->-1 -> Charge: -1
'R' @ 77->-1, 446->-1, 735->-1, 825->-1 -> Charge: -1
'T' @ 75->-1, 267->-1, 444->-1, 637->-1 -> Charge: -1
'W' @ 359->-1, 505->-1, 608->-1, 621->-1 -> Charge: -1
'b' @ 354->-1, 388->-1, 914->-1, 1017->-1 -> Charge: -1
'c' @ 21->-1, 217->-1, 299->-1, 457->-1 -> Charge: -1
'e' @ 490->-1, 684->-1, 821->-1, 1155->-1 -> Charge: -1
'h' @ 146->-1, 304->-1, 848->-1, 856->-1 -> Charge: -1
'k' @ 485->-1, 782->-1, 1409->-1, 1591->-1 -> Charge: -1
's' @ 10->-1, 363->-1, 1264->-1, 1362->-1 -> Charge: -1

```

LAYER: es18 (4096 bits)

Bitstring:

```

100100110011100101100100010111000010101101011011100101111011100100000100001101011011
1001011100100111010000001110111000010000100111011011101000101010011101101000100111000010011
0001000001100000101000110111100100110101100000100011000010011110000111000010011111011
1010101011100000110101010101110111011100110001010011100110011001101100110011011110110110
1101010111111101010010000100010100001000011011110111010001010110010101010101110110101
1000010000101010011001100101000100100110101110100010000111010110010000001001110101111
100010101000011010001010111101001011101001010111100001100111010001000010010101010101
0001001101010110000101110101010000011000011101110110010000110101010001011010100110000010101
01111110101100001010011000101000110001110011110100100010100111101101001010111101010000
11011010111110010011110110101010000000010011000101011010111010101110100101110000101000
01110100110011111010011001101111010011100000011110101010000010000010011100001111001
0011100101010000000011100001011100000000100111100000010001110100101000011101110110011
0010111110010110101100100001101111001000001111010000000000001110000111010000101011000010
110001100111001000101100000101001011100110100000101111001010111101001011101010100000
10100001011101000111011001010100110001001011011011010111100001010001010100010010010010
110110101010010101010100000101000010100001101000001000000101000010010000101101001
10000100100100100000100110101010100100111100001010010010101010100001101110100011
1010010000000101001100100110101001001101010101000011000010100010000010010010000001101
10100001010001110101010010000011110010010100001011101000100110011000001000101010001
1100010111101110100100001010101010101100111000011110101111010111101110110001101011000001
10010101010011000000010111011000100001000111010101101010100000010111110110101001010011
10100011010101010111100001010010010010010011010000101001000010101100000101110101010
100000001010001000100110100101010100100000011100101010100000101010100001011110011000
1101111001000000101011110000001111010010000100110010101110001110100000001010001010001
10010000011011100100001001110101111001000100110111101001101011010101000100000100001000
01100000011001100111101011010001110100110000000010000010111100010101010000011110101
1100111001010111010111010101010010100001000010010010101001000001000100011001001001
001011111010110100000100111010000010011010010101010001100011101011101010000000100
11010010100011010100010100001001001010000000010011001101101000101001110101010101
1100100100100100100100100100101110101110001001010111000100000101010101110001010000
00100010001110001010011110011000010011010100100001000001001101001110100111011101
0111010001000100001001100110100100000001110100001000010111101010110011101001011
010101010011000010110101001101010011101000000010011010010001110000000100110100000
00000100001100001010101000000111010100000000100011001110010100001110101011010101
1010101110000100000100001010101110000111010010111010110001000011010100001000100101
10001001111110001010101010000001000011001011111101010011100110100010100010101
1101001101011101110011010001010100000101010001000100010000010011110101011100
001010101010000001010011100000101110111011010110011101000111000011101000111010101
1110000000111001011111010101001000100010011100010001010110000001010111000001001010
010111010111100100101010101000101000110011010110010001100001001101000101000101
1100101000001100111101011101010010010001001010101001010010010010101010101010101
1100101000001100111101011010100100100010010100000100101000000111110101011100
001010101010000001010011100000101110111011010110011101000111000011101000111010101
111000000011100101111101010100100010001001110001000101011000000100101110000010010
01011101011110010010101010100010100011001101011001000110000100101010000101000101
1100101000001100111101011010100100100010010101010010100100100100101010101010101
1100101000001100111101011010100100100010010101010010100100100100101010101010101

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10001011001100010011110100110010010011010000011101001010100001110111100000100001010011011010101
11010110110101100011110000110110000010101000100100011111111100010101001100001000000011011111010
10010110111

Sign sequence: -1, +1, +1, -1, -1, -1, +1, +1, -1, -1, +1, +1, -1, -1, +1, -1, +1, -1, -1, -1, +1, -1, +1, +1, -1, -1, -1,
+1, -1, +1, +1, +1, -1, +1, -1, -1, -1, +1, -1, +1, -1, +1, +1, +1, -1, -1, -1,

Character positions and charges:

'0' @ 197->-1, 700->-1, 746->-1, 1682->-1 -> Charge: -1
'1' @ 186->-1, 325->-1, 405->-1, 529->-1 -> Charge: -1
'2' @ 497->-1, 1409->-1, 1502->-1, 1631->-1 -> Charge: -1
'3' @ 4->-1, 340->-1, 344->-1, 355->-1 -> Charge: -1
'4' @ 659->-1, 1254->-1, 1278->-1, 1517->-1 -> Charge: -1
'5' @ 83->-1, 225->-1, 299->-1, 442->-1 -> Charge: -1
'6' @ 348->-1, 483->-1, 582->-1, 1750->-1 -> Charge: -1
'8' @ 77->-1, 243->-1, 1029->-1, 1204->-1 -> Charge: -1
'A' @ 72->-1, 192->-1, 695->-1, 848->-1 -> Charge: -1
'L' @ 184->-1, 495->-1, 744->-1, 1359->-1 -> Charge: -1
'P' @ 693->-1, 846->-1, 943->-1, 1320->-1 -> Charge: -1
'R' @ 396->-1, 502->-1, 927->-1, 1264->-1 -> Charge: -1
'T' @ 158->-1, 653->-1, 691->-1, 728->-1 -> Charge: -1
'W' @ 288->-1, 310->-1, 383->-1, 458->-1 -> Charge: -1
'b' @ 187->-1, 326->-1, 406->-1, 586->-1 -> Charge: -1
'c' @ 0->-1, 438->-1, 530->-1, 1234->-1 -> Charge: -1
'e' @ 152->-1, 498->-1, 1111->-1, 1386->-1 -> Charge: -1
'h' @ 660->-1, 1225->-1, 1255->-1, 1279->-1 -> Charge: -1
'k' @ 47->-1, 84->-1, 300->-1, 443->-1 -> Charge: -1
's' @ 321->-1, 336->-1, 632->-1, 1513->-1 -> Charge: -1

PASSWORD BYTE SIGN PATTERNS

```
=====
BYTE 0 | ASCII: 'P' | Bit Pattern: 01010000
Found at 23 location(s)
SIGN PATTERN: -1 +1 -1 +1 -1 -1 -1 -1
CONSISTENCY: 100.0%
BIT-SIGN MATCH: 100.0%

BYTE 1 | ASCII: 'e' | Bit Pattern: 01100101
Found at 19 location(s)
SIGN PATTERN: -1 +1 +1 -1 -1 +1 -1 +1
CONSISTENCY: 100.0%
BIT-SIGN MATCH: 100.0%

BYTE 2 | ASCII: 'R' | Bit Pattern: 01010010
Found at 25 location(s)
SIGN PATTERN: -1 +1 -1 +1 -1 -1 +1 -1
CONSISTENCY: 100.0%
BIT-SIGN MATCH: 100.0%

BYTE 3 | ASCII: 'T' | Bit Pattern: 01010100
Found at 31 location(s)
SIGN PATTERN: -1 +1 -1 +1 -1 +1 -1 -1
CONSISTENCY: 100.0%
BIT-SIGN MATCH: 100.0%

BYTE 4 | ASCII: 'h' | Bit Pattern: 01101000
Found at 33 location(s)
SIGN PATTERN: -1 +1 +1 -1 +1 -1 -1 -1
CONSISTENCY: 100.0%
BIT-SIGN MATCH: 100.0%

BYTE 5 | ASCII: '5' | Bit Pattern: 00110101
Found at 20 location(s)
SIGN PATTERN: -1 -1 +1 +1 -1 +1 -1 +1
CONSISTENCY: 100.0%
BIT-SIGN MATCH: 100.0%

BYTE 6 | ASCII: 's' | Bit Pattern: 01110011
Found at 22 location(s)
SIGN PATTERN: -1 +1 +1 +1 -1 -1 +1 +1
CONSISTENCY: 100.0%
BIT-SIGN MATCH: 100.0%

BYTE 7 | ASCII: '8' | Bit Pattern: 00111000
Found at 27 location(s)
SIGN PATTERN: -1 -1 +1 +1 +1 -1 -1 -1
CONSISTENCY: 100.0%
BIT-SIGN MATCH: 100.0%

BYTE 8 | ASCII: '0' | Bit Pattern: 00110000
Found at 15 location(s)
SIGN PATTERN: -1 -1 +1 +1 -1 -1 -1 -1
CONSISTENCY: 100.0%
BIT-SIGN MATCH: 100.0%

BYTE 9 | ASCII: 'L' | Bit Pattern: 01001100
Found at 19 location(s)
SIGN PATTERN: -1 +1 -1 -1 +1 +1 -1 -1
CONSISTENCY: 100.0%
BIT-SIGN MATCH: 100.0%

BYTE 10 | ASCII: '1' | Bit Pattern: 00110001
Found at 27 location(s)
SIGN PATTERN: -1 -1 +1 +1 -1 -1 -1 +1
CONSISTENCY: 100.0%
BIT-SIGN MATCH: 100.0%

BYTE 11 | ASCII: '2' | Bit Pattern: 00110010
Found at 24 location(s)
SIGN PATTERN: -1 -1 +1 +1 -1 -1 +1 -1
CONSISTENCY: 100.0%
BIT-SIGN MATCH: 100.0%

BYTE 12 | ASCII: 'A' | Bit Pattern: 01000001
Found at 37 location(s)
SIGN PATTERN: -1 +1 -1 -1 -1 -1 -1 +1
CONSISTENCY: 100.0%
BIT-SIGN MATCH: 100.0%

BYTE 13 | ASCII: 'b' | Bit Pattern: 01100010
Found at 22 location(s)
SIGN PATTERN: -1 +1 +1 -1 -1 -1 +1 -1
CONSISTENCY: 100.0%
BIT-SIGN MATCH: 100.0%

BYTE 14 | ASCII: '3' | Bit Pattern: 00110011
Found at 27 location(s)
SIGN PATTERN: -1 -1 +1 +1 -1 -1 +1 +1
CONSISTENCY: 100.0%
BIT-SIGN MATCH: 100.0%

BYTE 15 | ASCII: '4' | Bit Pattern: 00110100
Found at 32 location(s)
SIGN PATTERN: -1 -1 +1 +1 -1 +1 -1 -1
CONSISTENCY: 100.0%
BIT-SIGN MATCH: 100.0%

BYTE 16 | ASCII: 'c' | Bit Pattern: 01100011
Found at 29 location(s)
SIGN PATTERN: -1 +1 +1 -1 -1 -1 +1 +1
CONSISTENCY: 100.0%
BIT-SIGN MATCH: 100.0%
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BYTE 17 | ASCII: 'k' | Bit Pattern: 01101011
Found at 24 location(s)
SIGN PATTERN: -1 +1 +1 -1 +1 -1 +1 +1
CONSISTENCY: 100.0%
BIT-SIGN MATCH: 100.0%

BYTE 18 | ASCII: '6' | Bit Pattern: 00110110
Found at 20 location(s)
SIGN PATTERN: -1 -1 +1 +1 -1 +1 +1 -1
CONSISTENCY: 100.0%
BIT-SIGN MATCH: 100.0%

BYTE 19 | ASCII: 'W' | Bit Pattern: 01010111
Found at 28 location(s)
SIGN PATTERN: -1 +1 -1 +1 -1 +1 +1 +1
CONSISTENCY: 100.0%
BIT-SIGN MATCH: 100.0%

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