DPA Contest v4.2
Evaluation results

Dai Tian, Sun Xibo, Zhang Chi, Wang Lihui and Shan Weijun

September 2016

1 Introduction

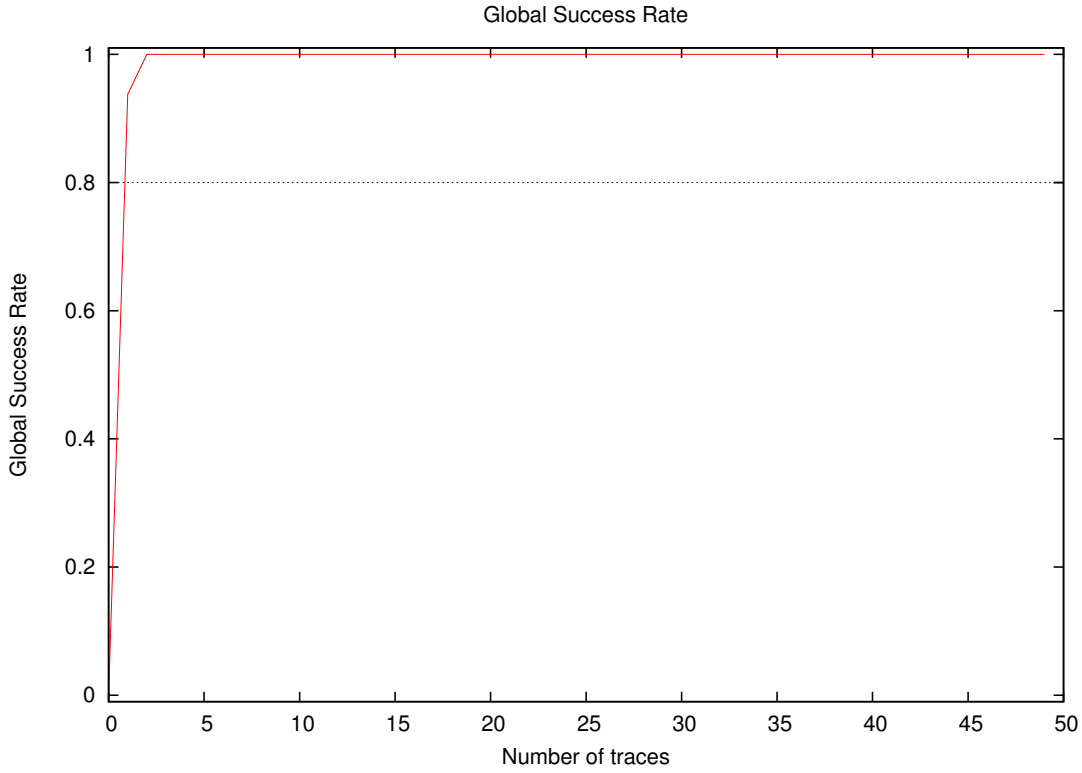
1.1 About the attack

- **Sender/Team:** Dai Tian, Sun Xibo, Zhang Chi, Wang Lihui and Shan Weijun
- **Institution:** Shanghai Fudan Microeletronics Group Company Limited, China
- **Language:** Matlab
- **Operating system:** Windows
- **Attacked subkey:** 0

1.2 About the evaluation

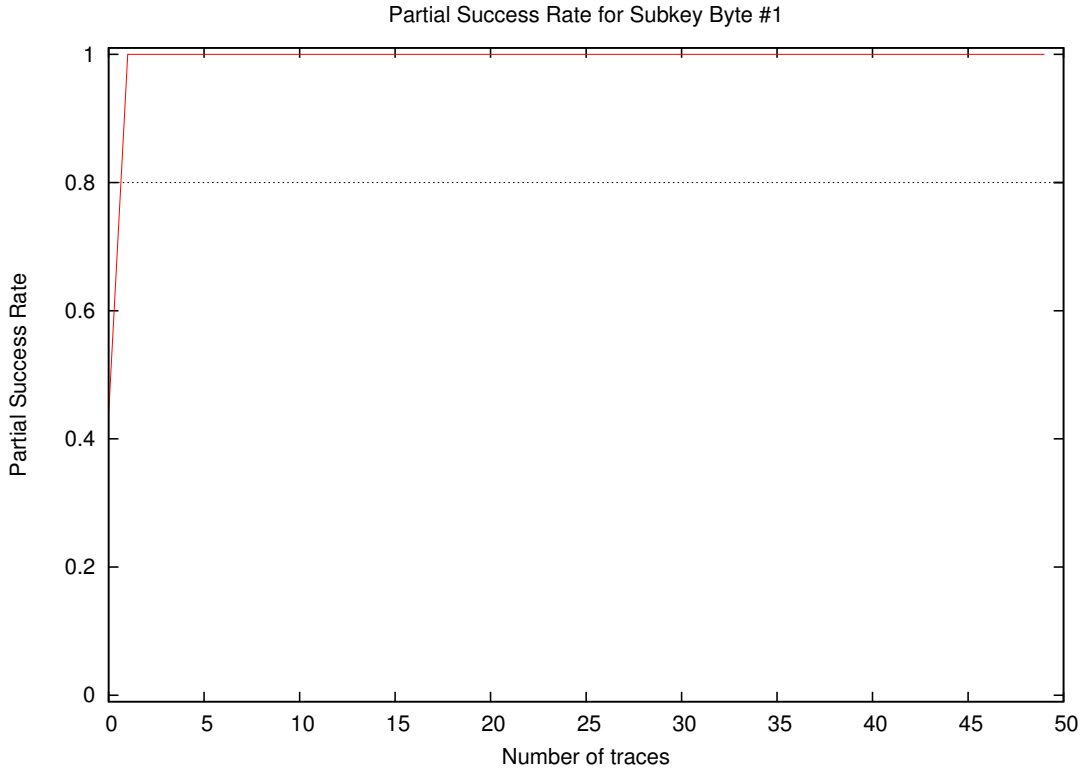
- **Date of evaluation:** October 2016

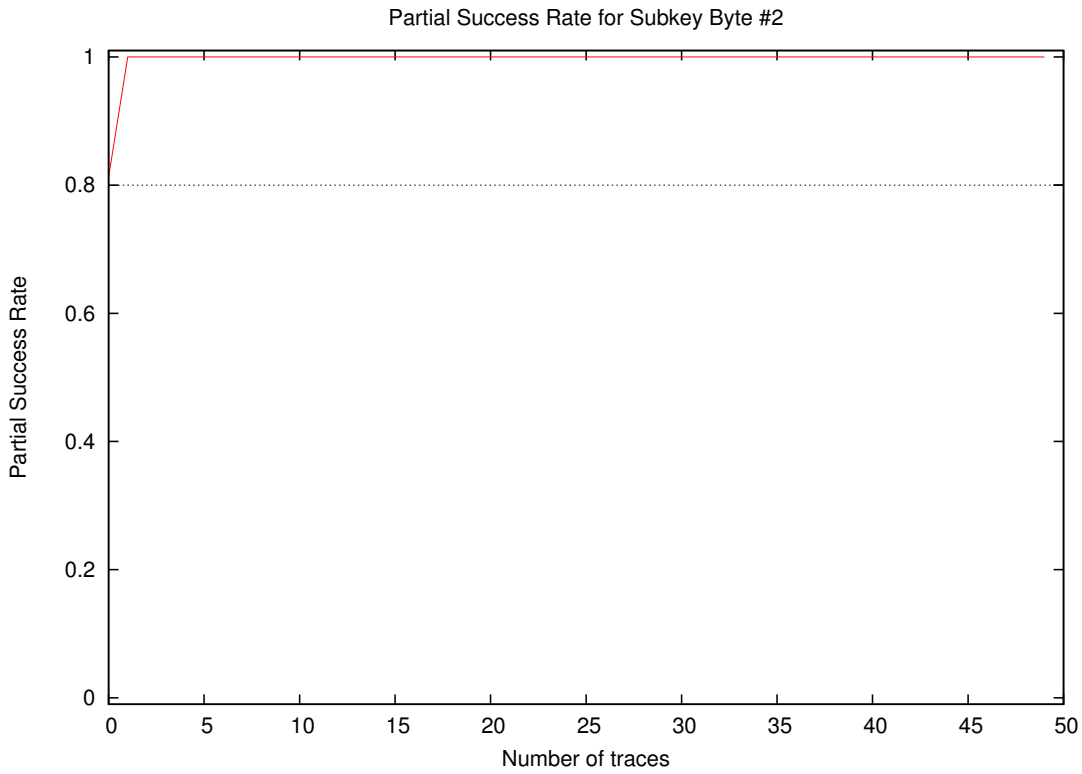
2 Global Success Rate

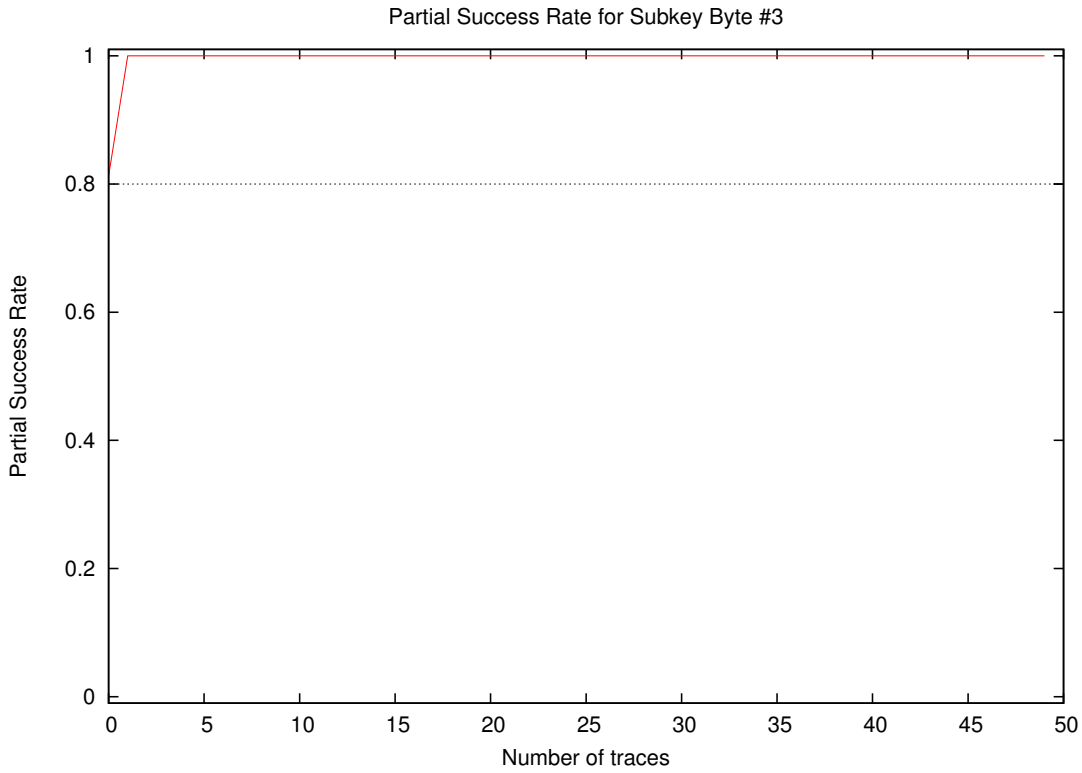


Number of traces	Global Success Rate
10	1.00
20	1.00
30	1.00
40	1.00
50	1.00

3 Partial Success Rate






Partial Success Rate for Subkey Byte #3
Partial Success Rate
Number of traces
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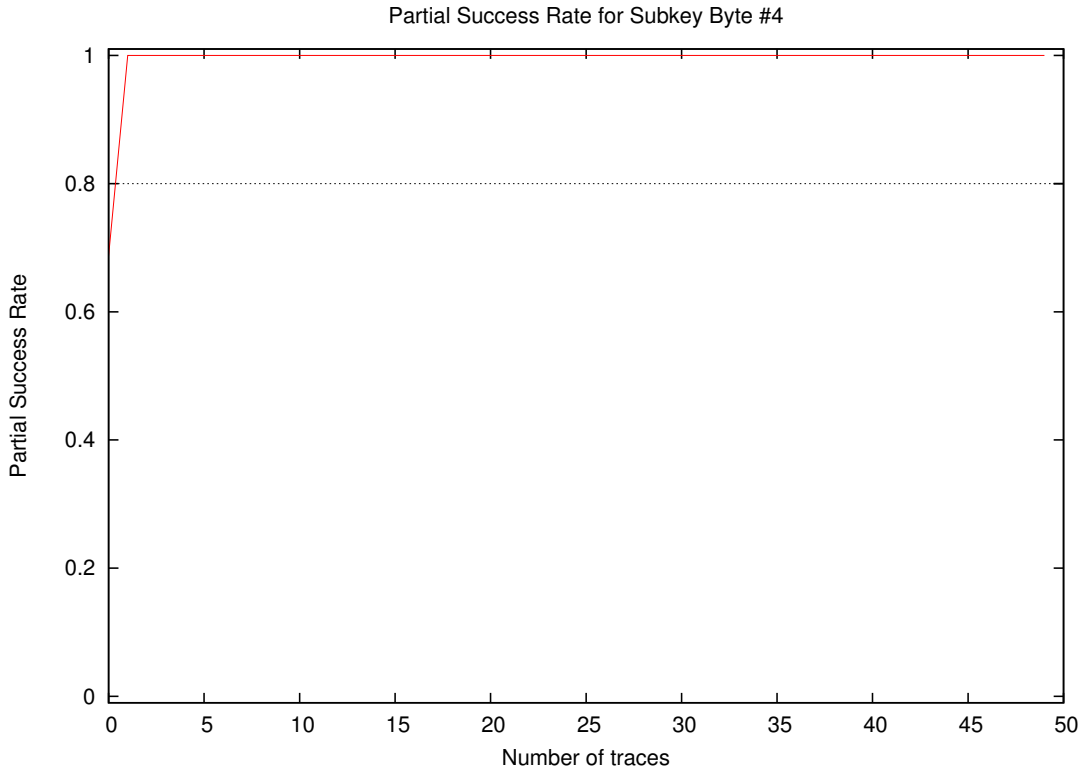
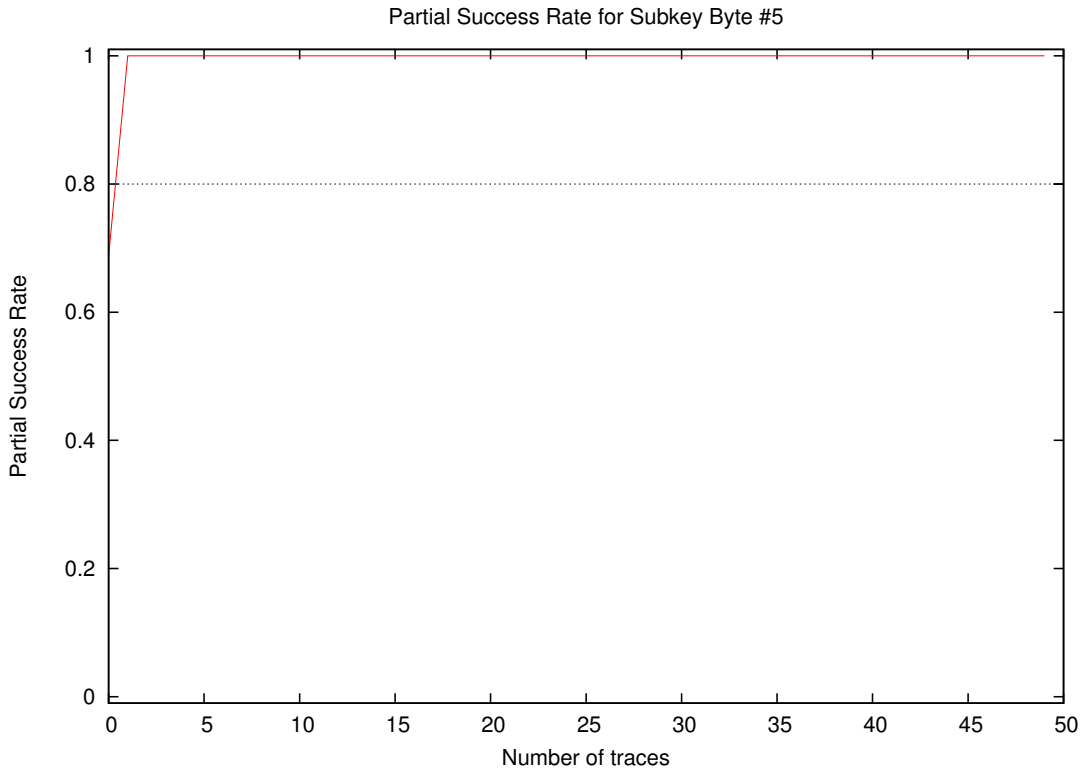
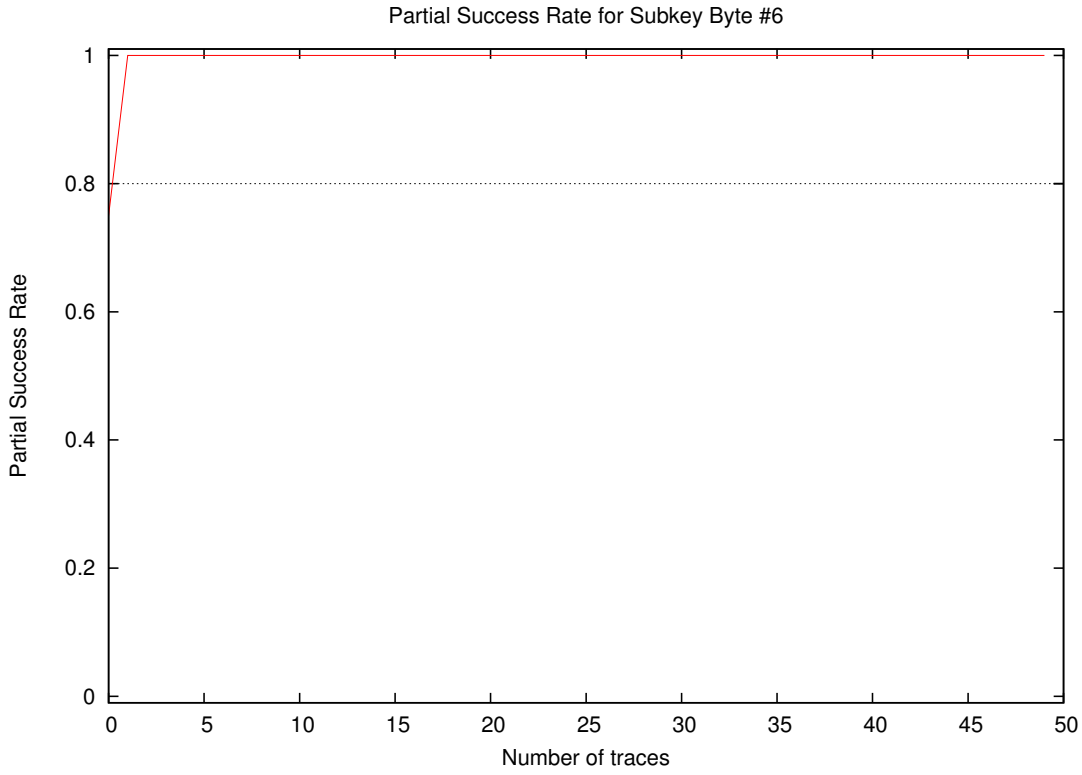
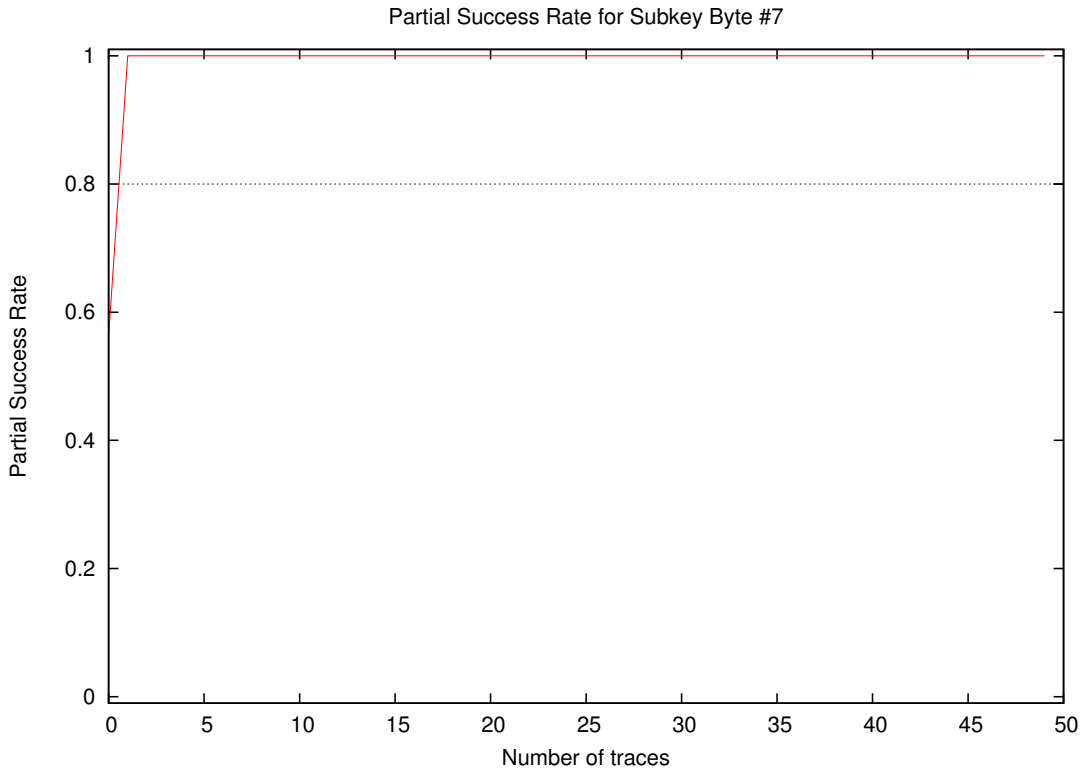
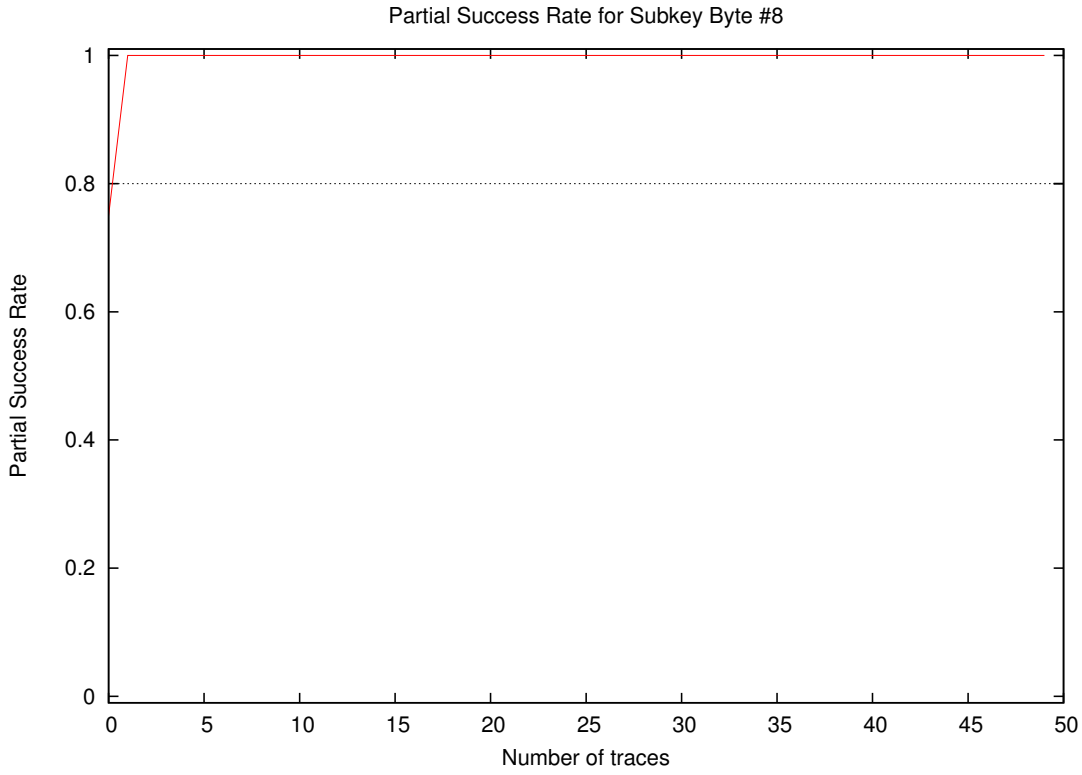
0.2
0.4
0.6
0.8
1
0
5
10
15
20
25
30
35
40
45
50

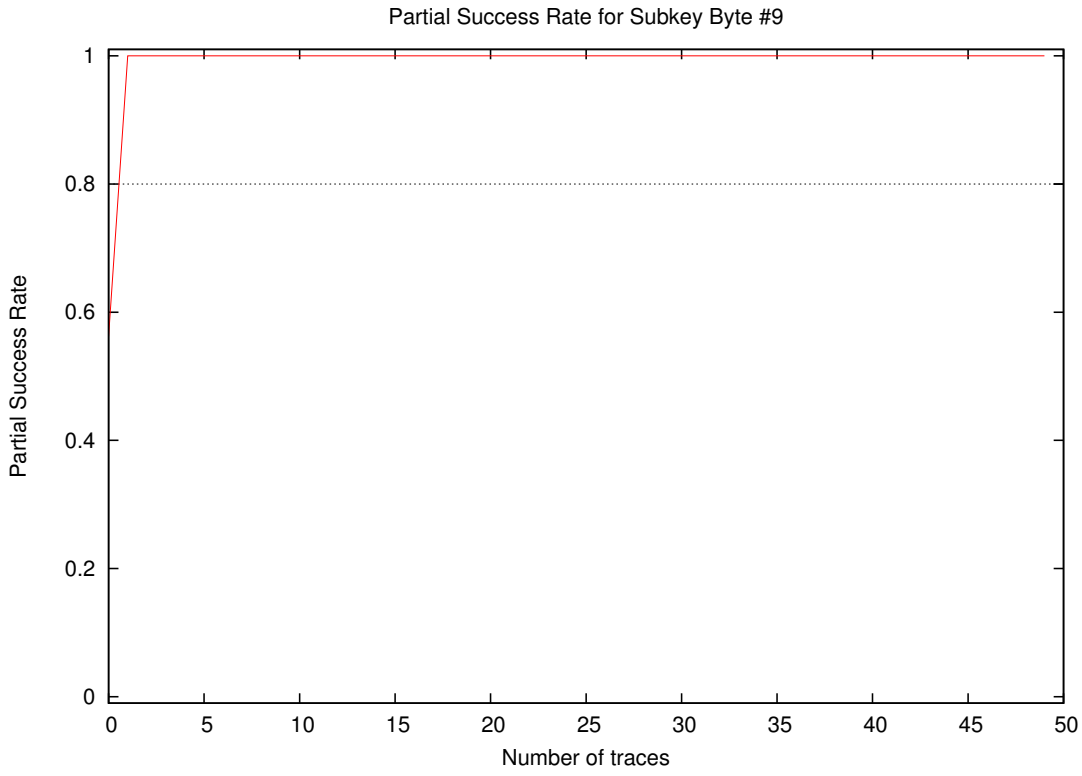

Partial Success Rate for Subkey Byte #4
Partial Success Rate
Number of traces
0
0.2
0.4
0.6
0.8
1
0
5
10
15
20
25
30
35
40
45
50

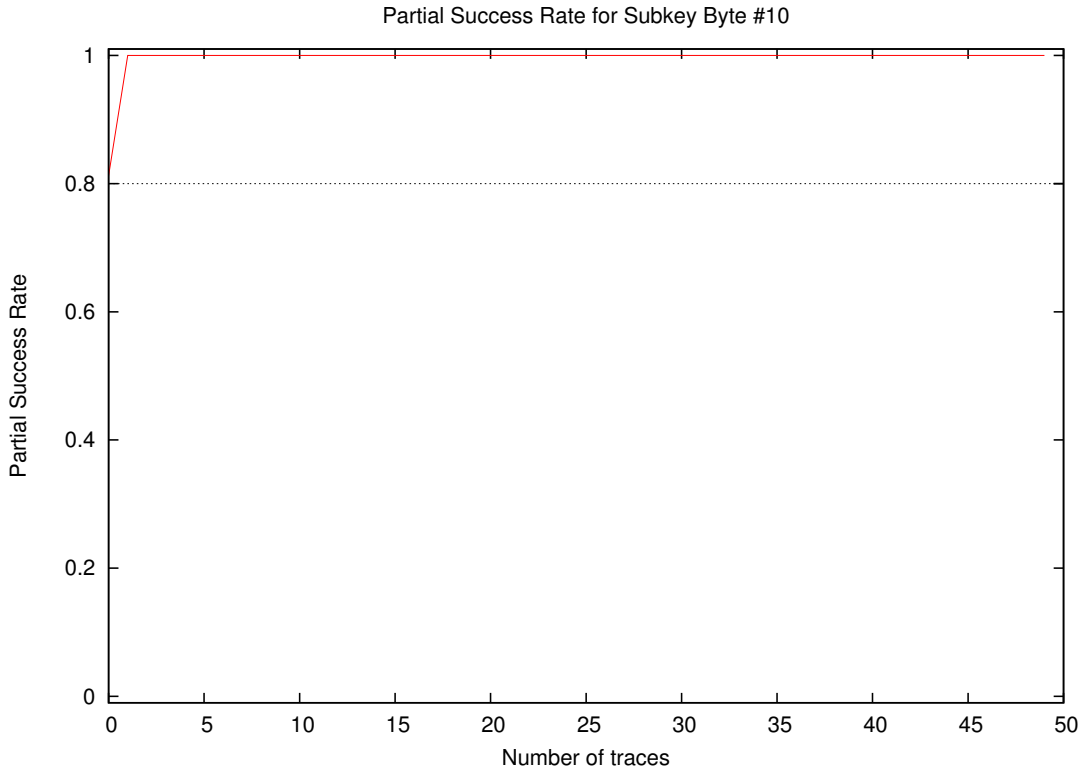

Partial Success Rate for Subkey Byte #5
Partial Success Rate
Number of traces
0
0.2
0.4
0.6
0.8
1
0
5
10
15
20
25
30
35
40
45
50

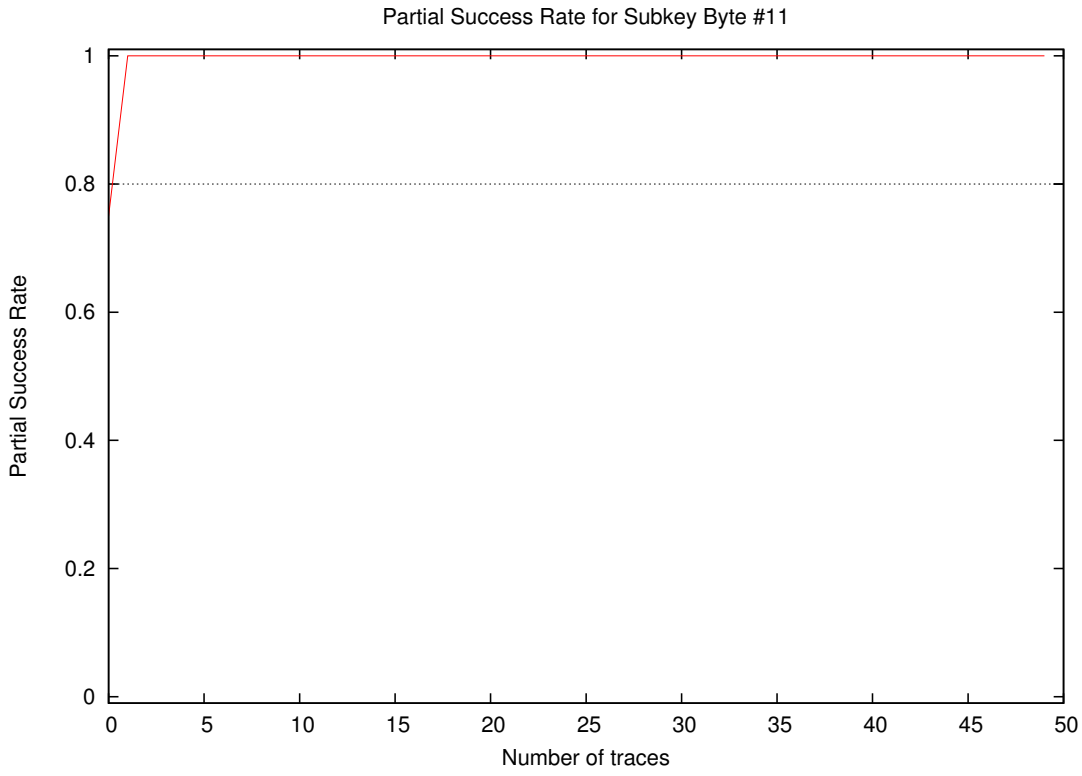

Partial Success Rate for Subkey Byte #6
Partial Success Rate
Number of traces
0
0.2
0.4
0.6
0.8
1
0
5
10
15
20
25
30
35
40
45
50

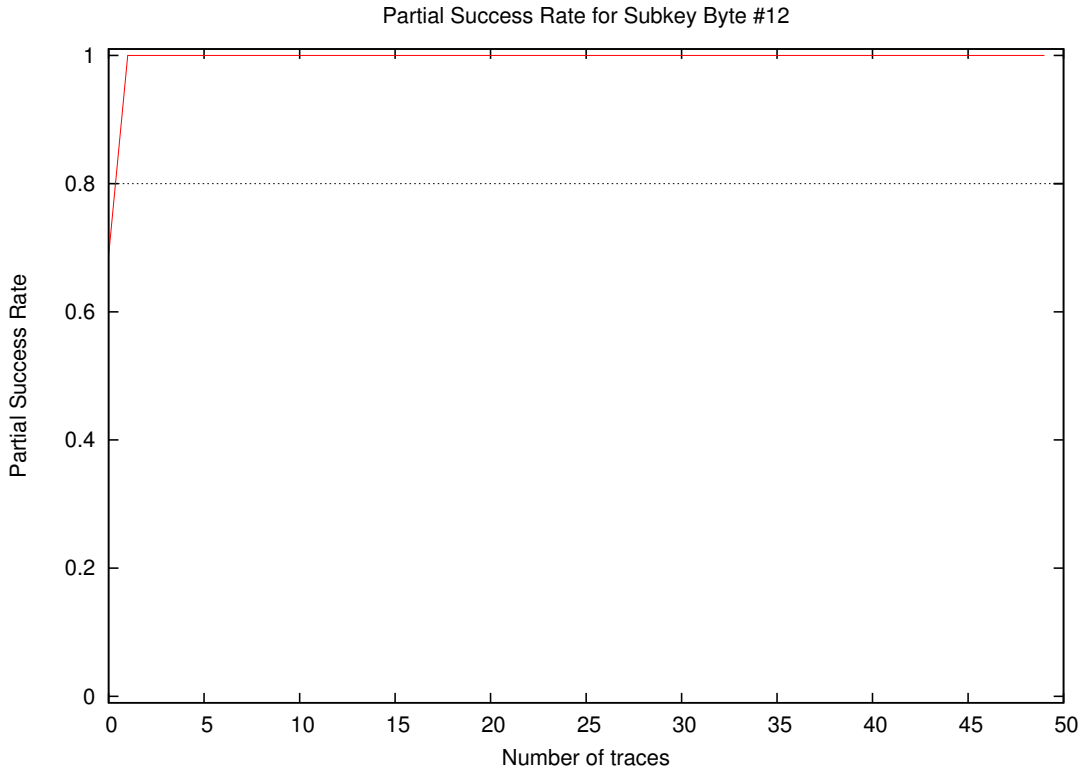

Partial Success Rate for Subkey Byte #7
Partial Success Rate
Number of traces
0
0.2
0.4
0.6
0.8
1
0
5
10
15
20
25
30
35
40
45
50


Partial Success Rate for Subkey Byte #8
Partial Success Rate
Number of traces
0
0.2
0.4
0.6
0.8
1
0
5
10
15
20
25
30
35
40
45
50


Partial Success Rate for Subkey Byte #9
Partial Success Rate
Number of traces
0
0.2
0.4
0.6
0.8
1
0
5
10
15
20
25
30
35
40
45
50


Partial Success Rate for Subkey Byte #10
Partial Success Rate
Number of traces
0
0.2
0.4
0.6
0.8
1
0
5
10
15
20
25
30
35
40
45
50


Partial Success Rate for Subkey Byte #11
Partial Success Rate
Number of traces
0
0.2
0.4
0.6
0.8
1
0
5
10
15
20
25
30
35
40
45
50


Partial Success Rate for Subkey Byte #12
Partial Success Rate
Number of traces
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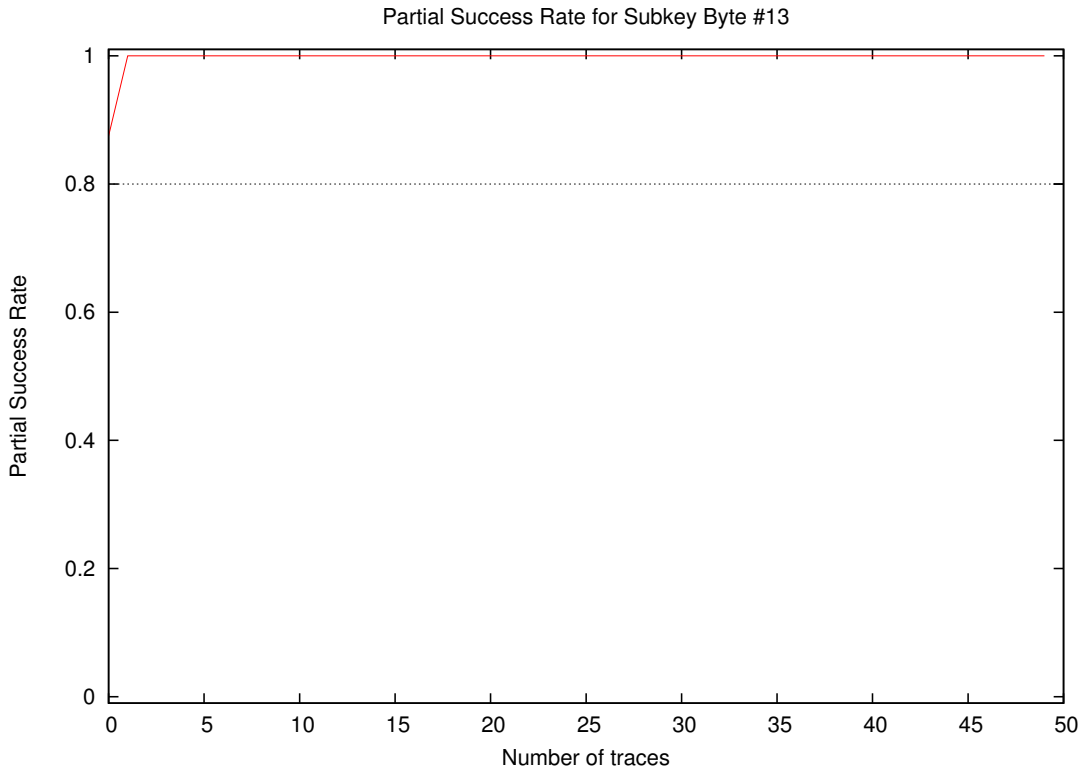
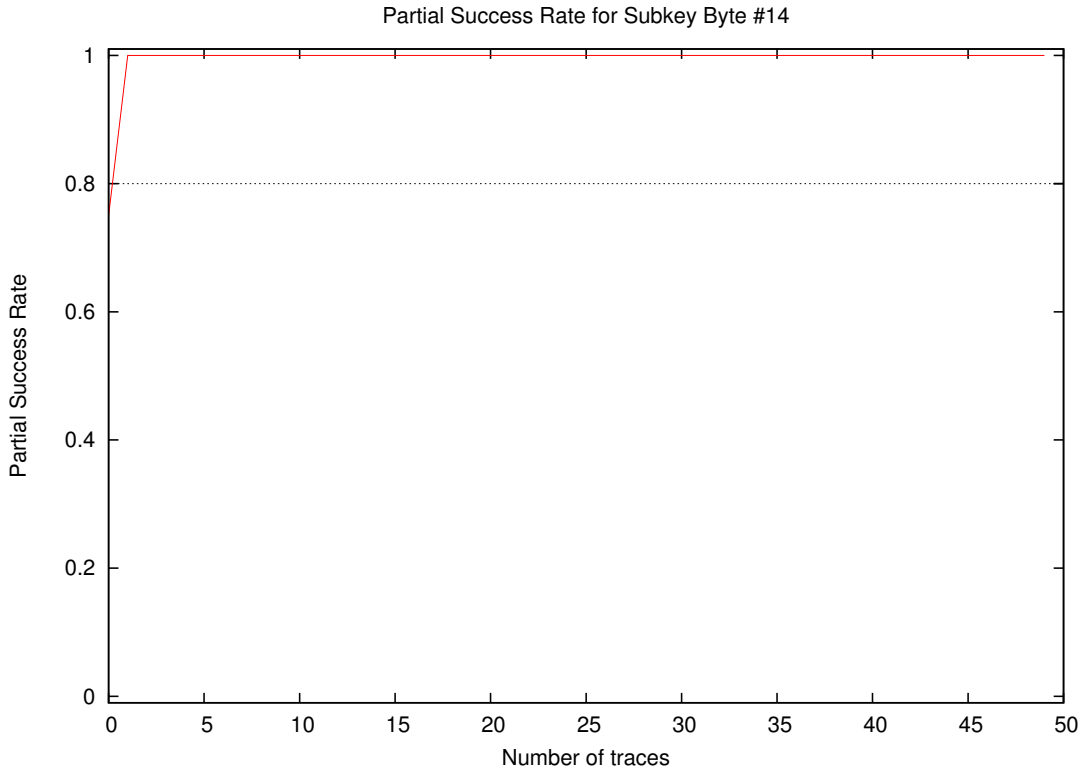
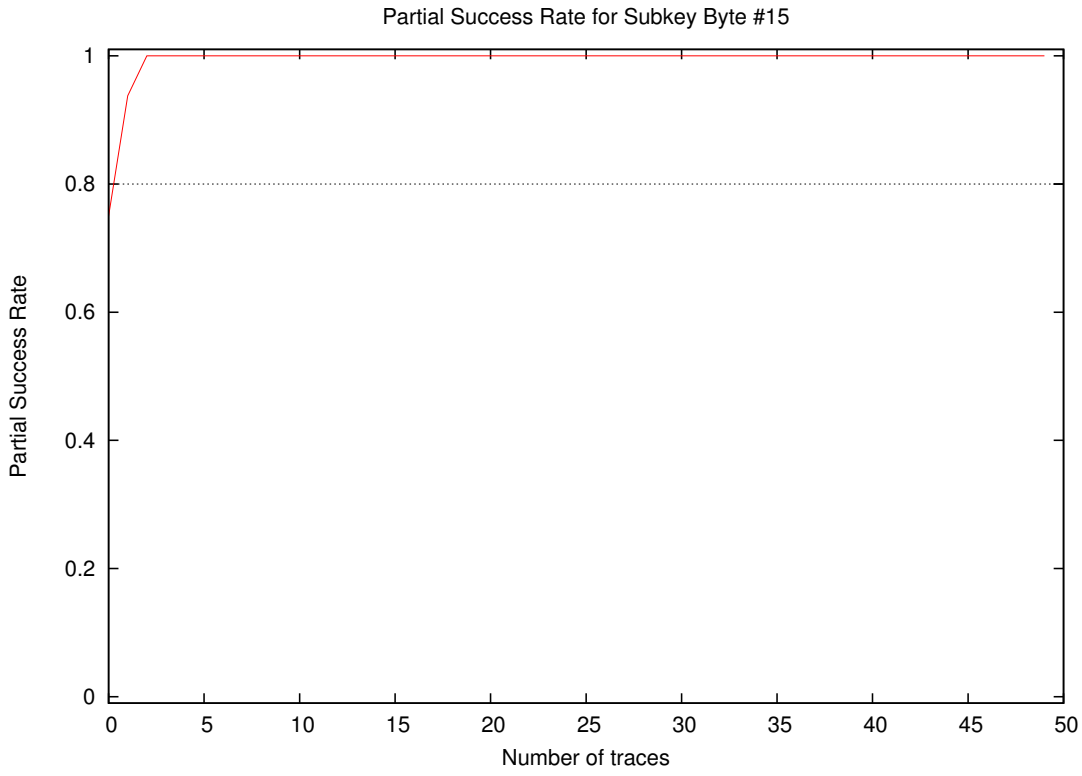
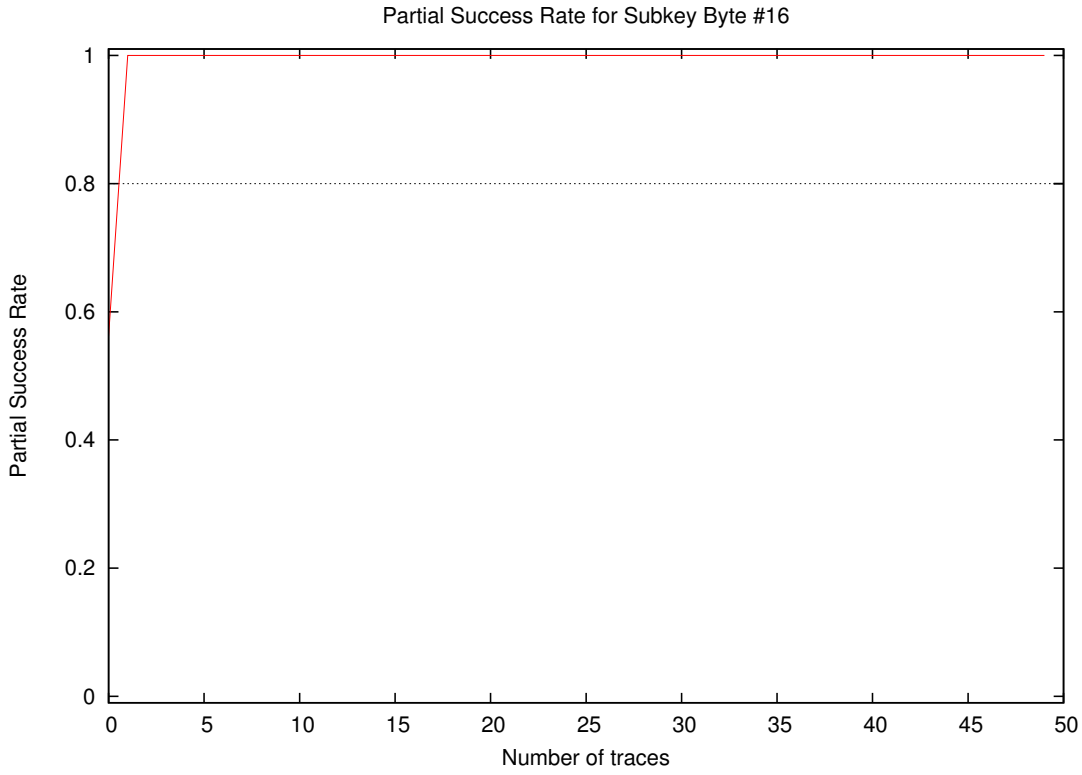
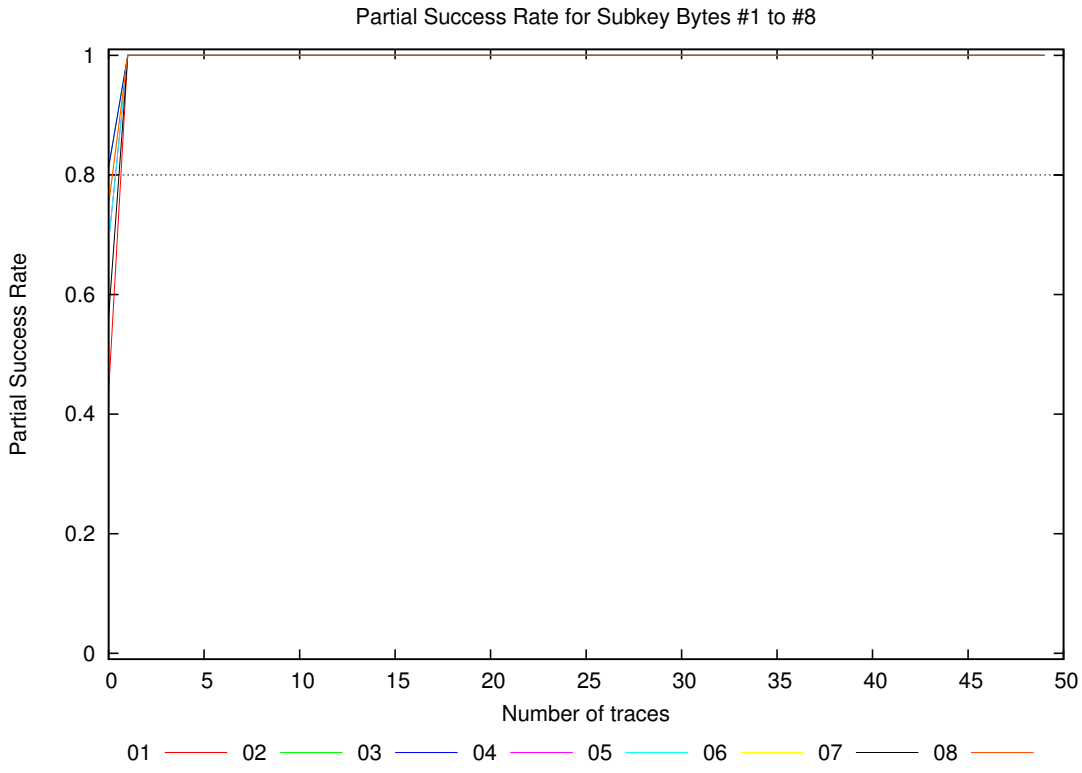
0.2
0.4
0.6
0.8
1
0
5
10
15
20
25
30
35
40
45
50

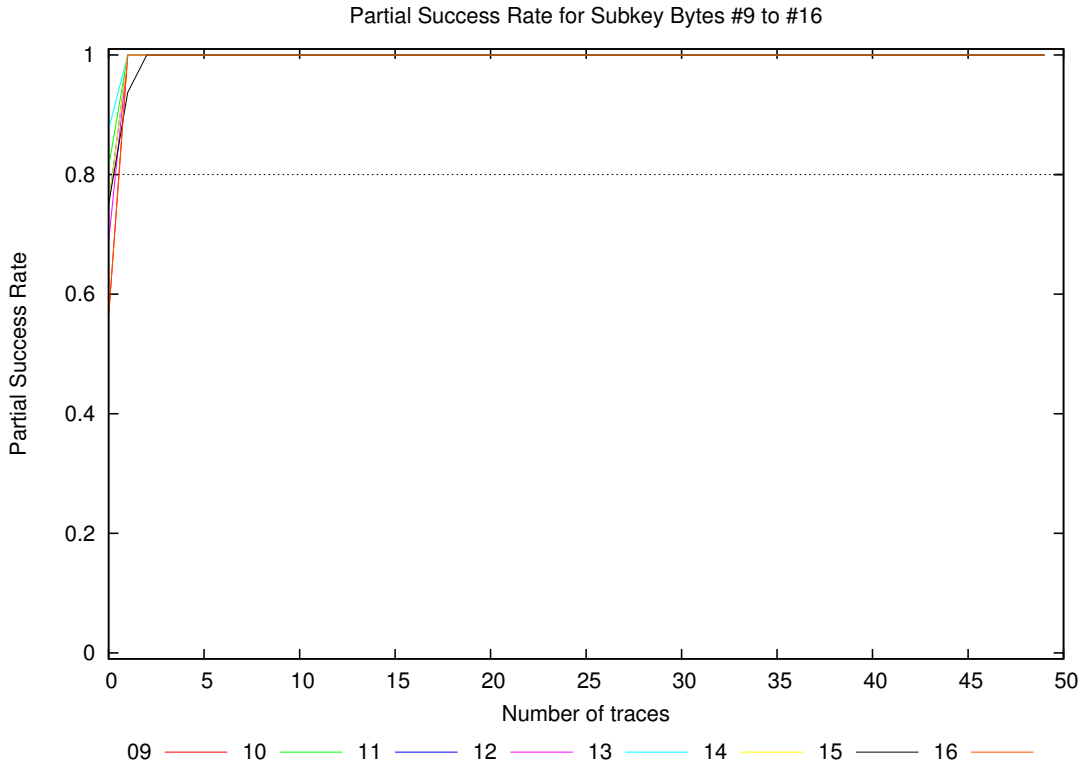

Partial Success Rate for Subkey Byte #13
Partial Success Rate
Number of traces
0
0.2
0.4
0.6
0.8
1
0
5
10
15
20
25
30
35
40
45
50


Partial Success Rate for Subkey Byte #14
Partial Success Rate
Number of traces
0
0.2
0.4
0.6
0.8
1
0
5
10
15
20
25
30
35
40
45
50


Partial Success Rate for Subkey Byte #15
Partial Success Rate
Number of traces
0
0.2
0.4
0.6
0.8
1
0
5
10
15
20
25
30
35
40
45
50

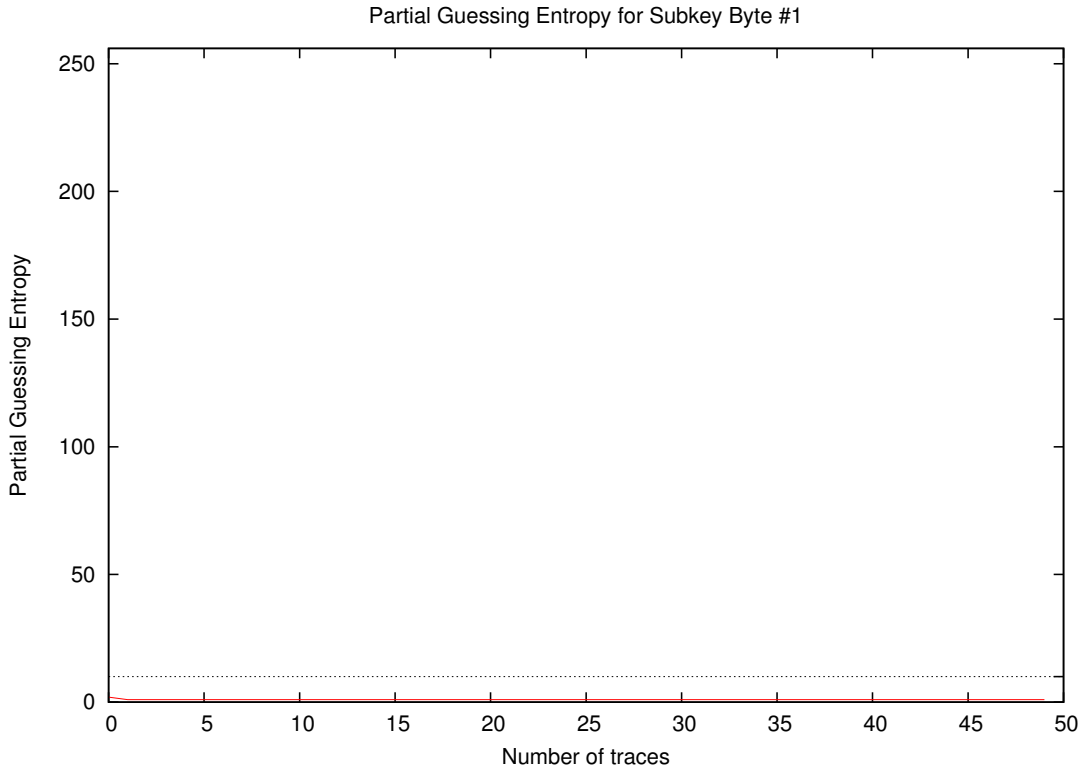

Partial Success Rate for Subkey Byte #16
Partial Success Rate
Number of traces
0
0.2
0.4
0.6
0.8
1
0
5
10
15
20
25
30
35
40
45
50

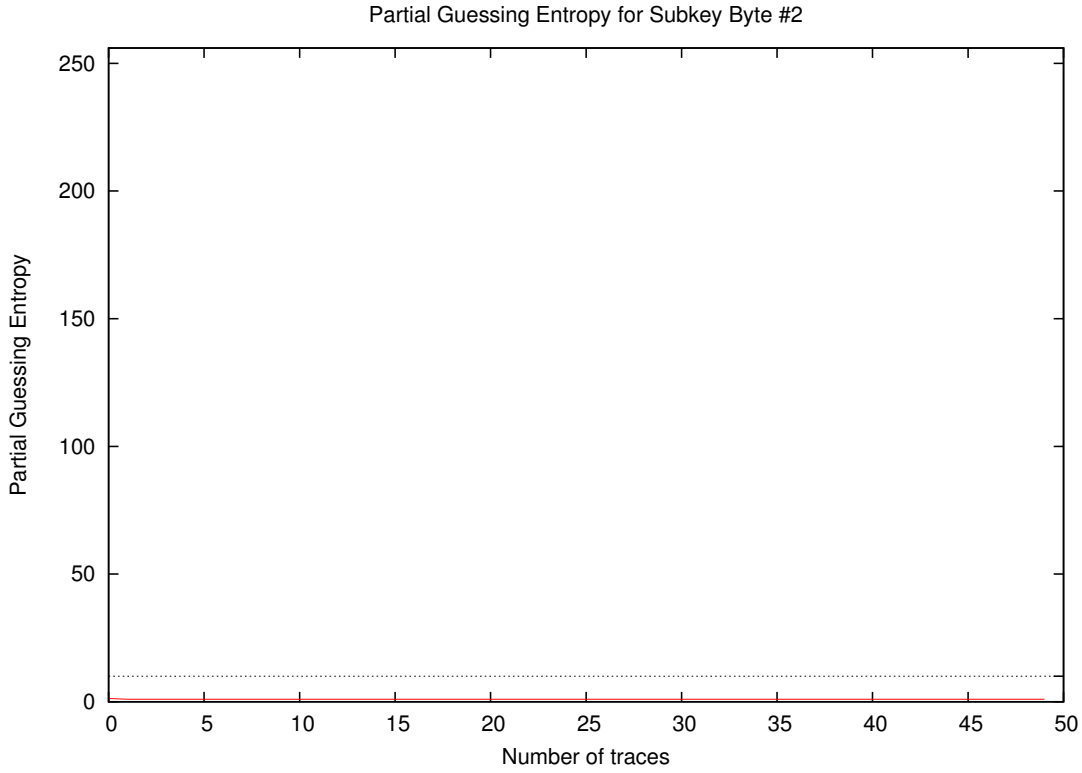

Partial Success Rate for Subkey Bytes #1 to #8
Partial Success Rate
Number of traces
0
0.2
0.4
0.6
0.8
1
0
5
10
15
20
25
30
35
40
45
50
01
02
03
04
05
06
07
08

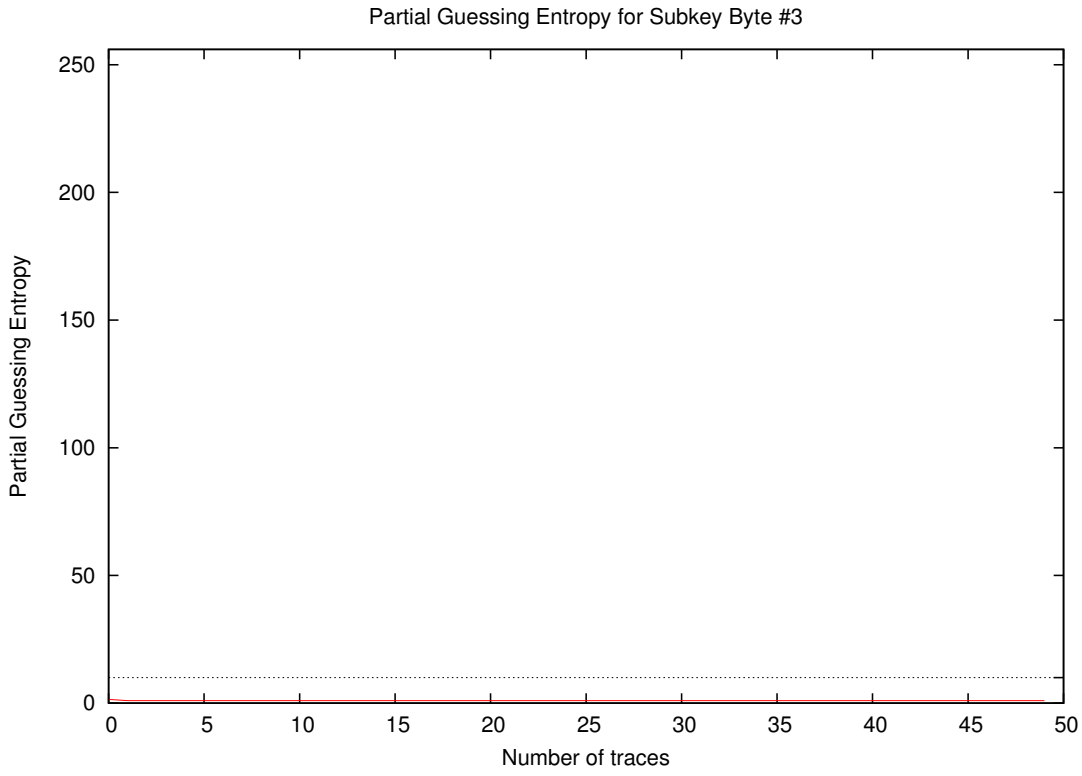

Partial Success Rate for Subkey Bytes #9 to #16
Partial Success Rate
Number of traces
0
0.2
0.4
0.6
0.8
1
0
5
10
15
20
25
30
35
40
45
50
09
10
11
12
13
14
15
16

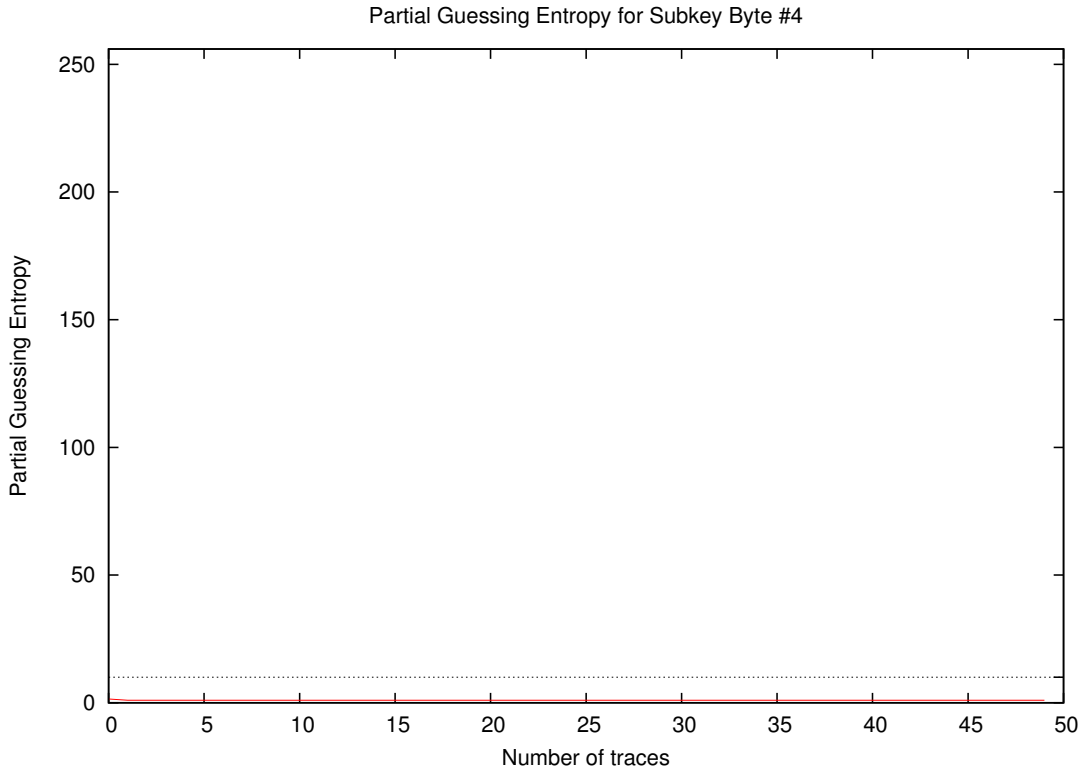
Traces	Partial Success Rate / Byte																Min	Max	Mean
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16			
10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
30	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

4 Partial Guessing Entropy






Partial Guessing Entropy for Subkey Byte #3
Partial Guessing Entropy
Number of traces
0
50
100
150
200
250
0
5
10
15
20
25
30
35
40
45
50


Partial Guessing Entropy for Subkey Byte #4
Partial Guessing Entropy
Number of traces
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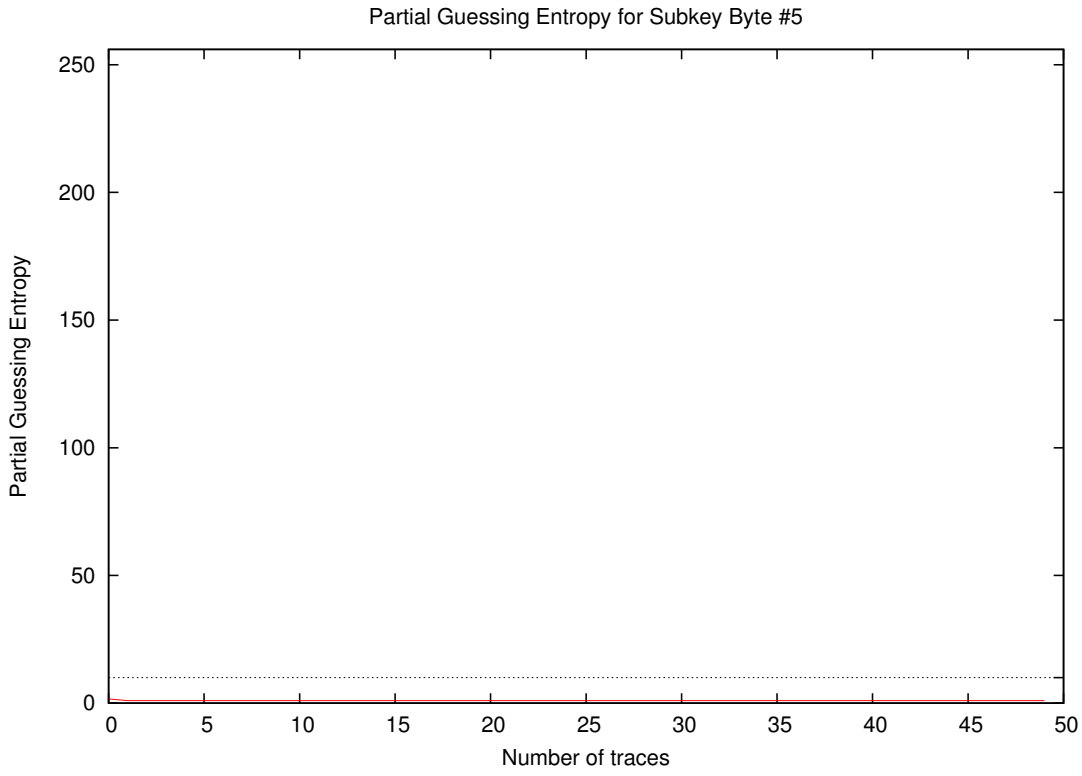
50
100
150
200
250
0
5
10
15
20
25
30
35
40
45
50


Partial Guessing Entropy for Subkey Byte #5
Partial Guessing Entropy
Number of traces
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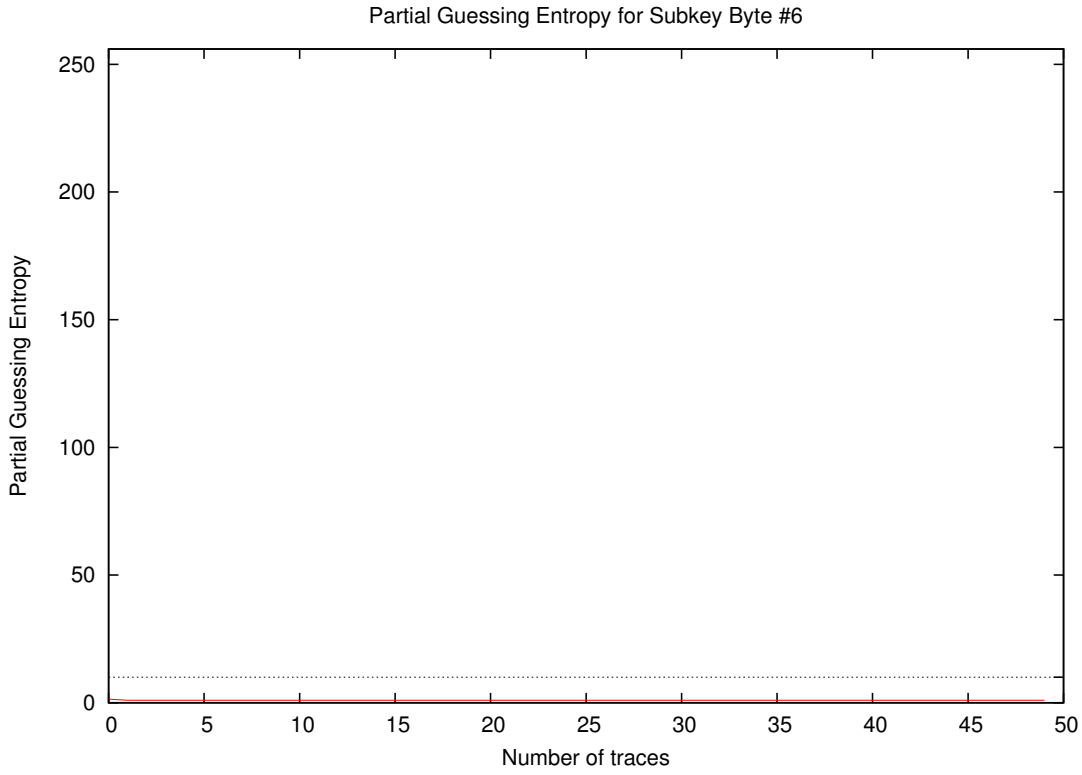
50
100
150
200
250
0
5
10
15
20
25
30
35
40
45
50


Partial Guessing Entropy for Subkey Byte #6
Partial Guessing Entropy
Number of traces
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100
150
200
250
0
5
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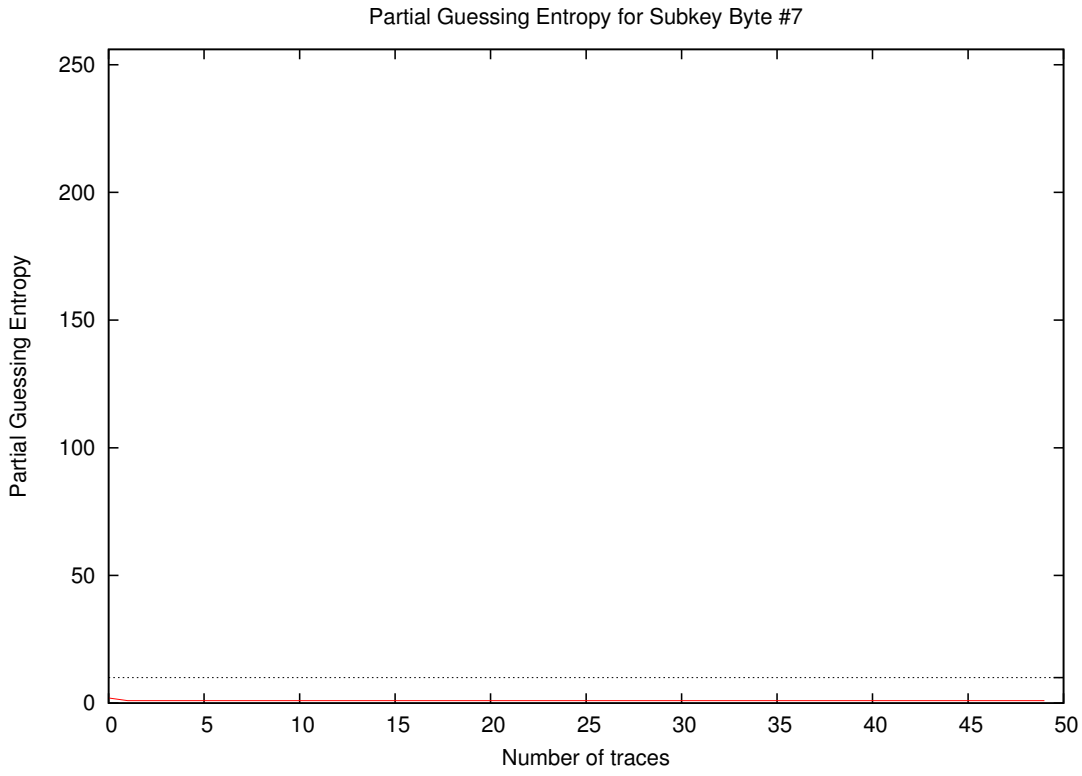
15
20
25
30
35
40
45
50


Partial Guessing Entropy for Subkey Byte #7
Partial Guessing Entropy
Number of traces
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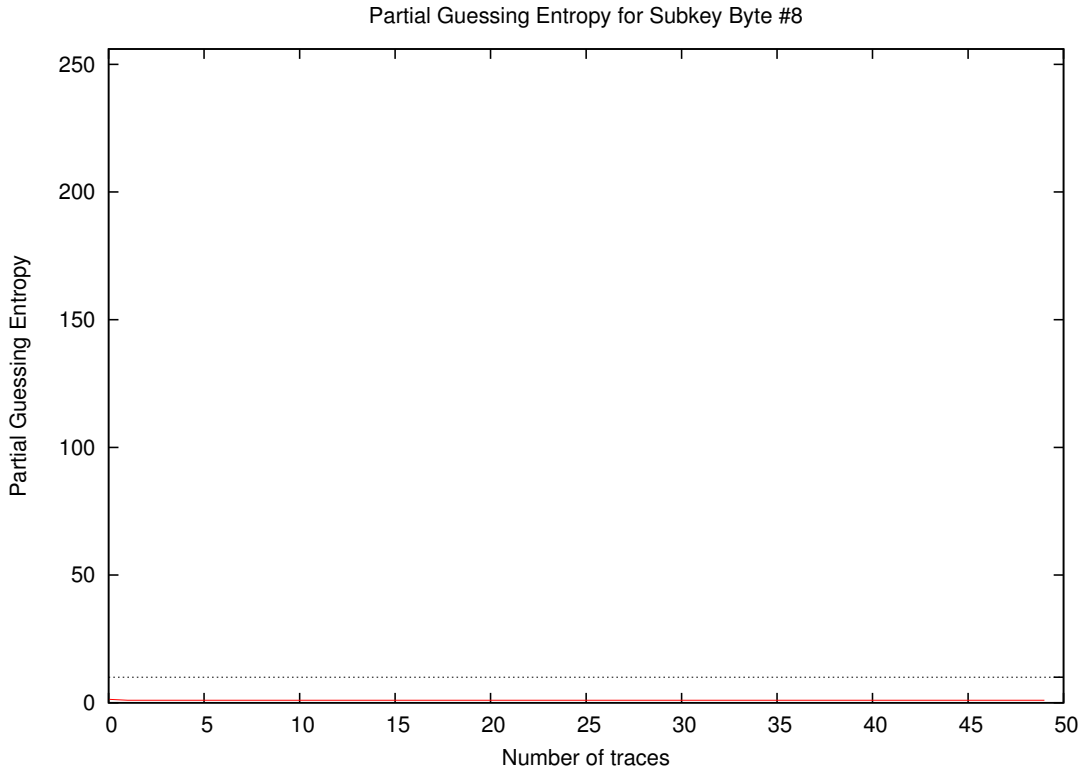
50
100
150
200
250
0
5
10
15
20
25
30
35
40
45
50


Partial Guessing Entropy for Subkey Byte #8
Partial Guessing Entropy
Number of traces
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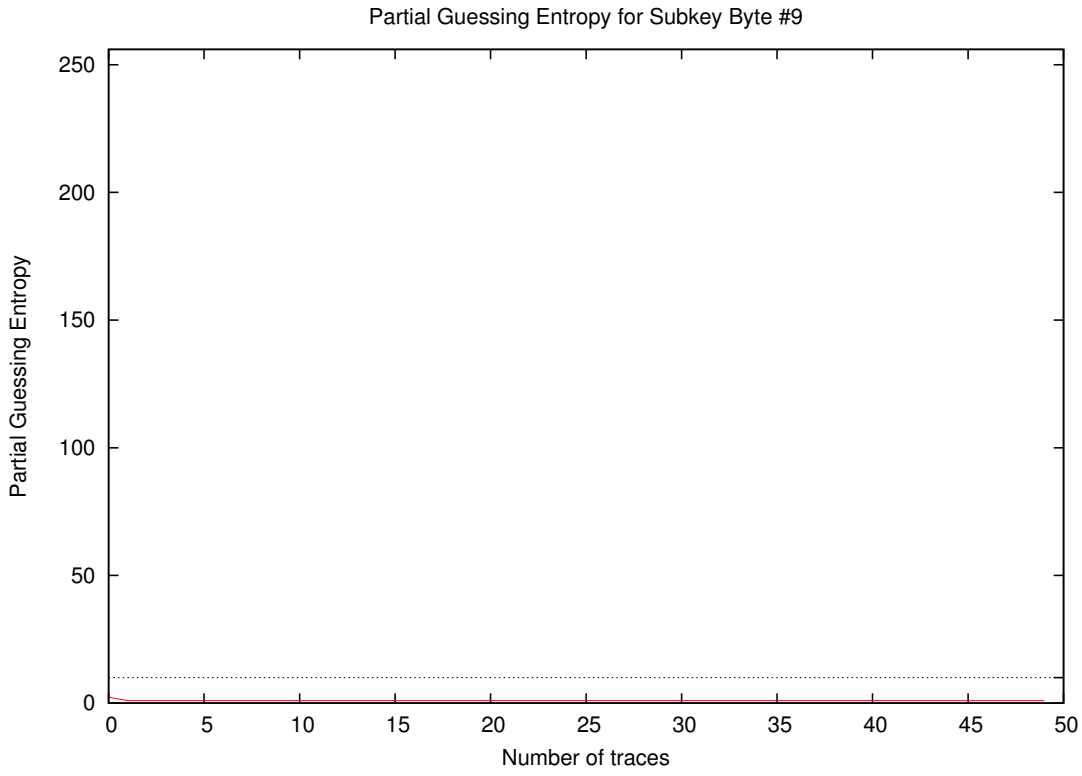
50
100
150
200
250
0
5
10
15
20
25
30
35
40
45
50


Partial Guessing Entropy for Subkey Byte #9
Partial Guessing Entropy
Number of traces
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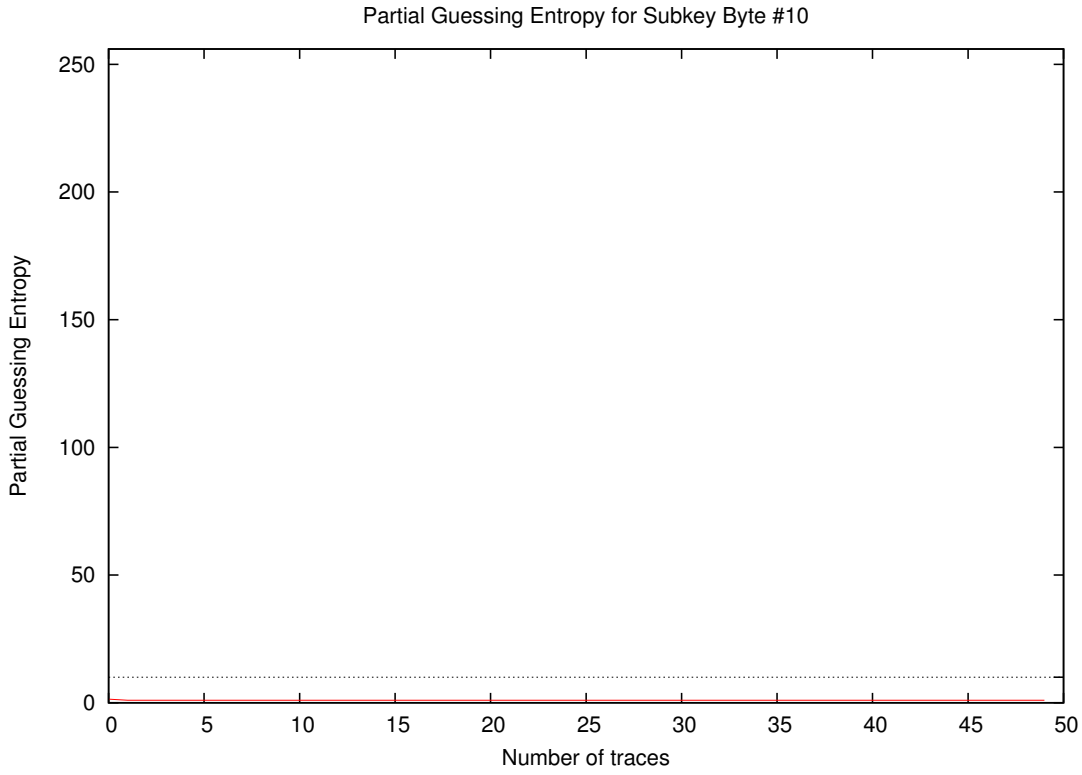
50
100
150
200
250
0
5
10
15
20
25
30
35
40
45
50


Partial Guessing Entropy for Subkey Byte #10
Partial Guessing Entropy
Number of traces
0
50
100
150
200
250
0
5
10
15
20
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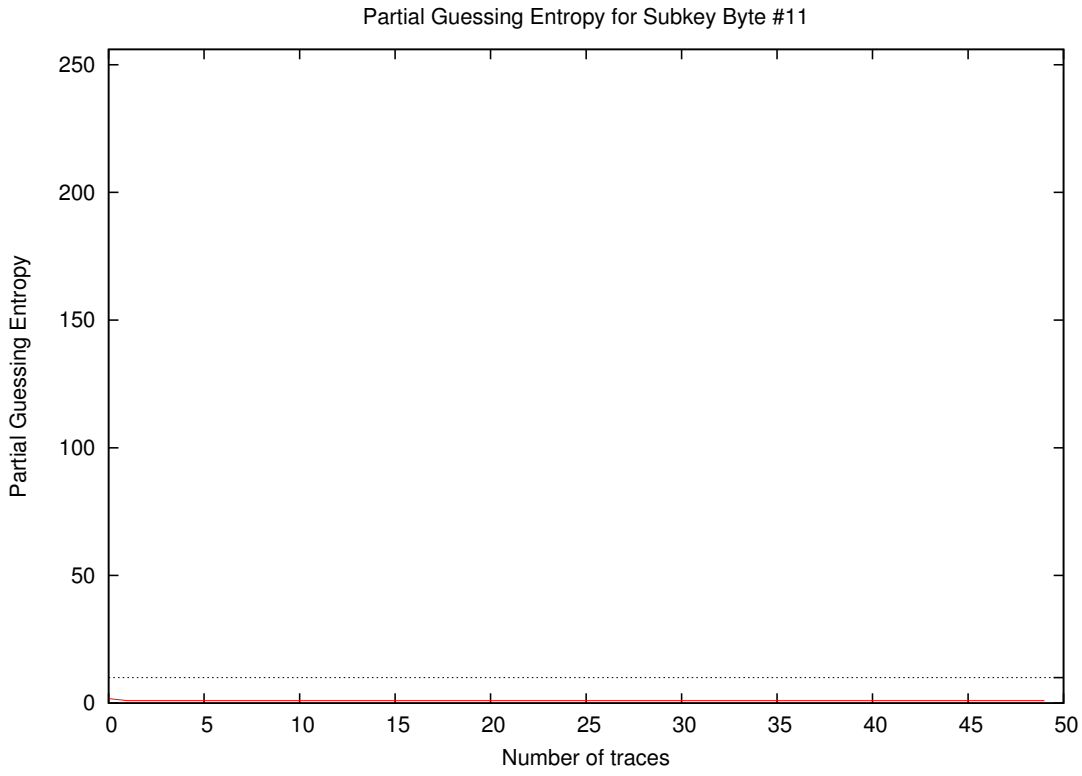
Partial Guessing Entropy for Subkey Byte #11
Partial Guessing Entropy
Number of traces
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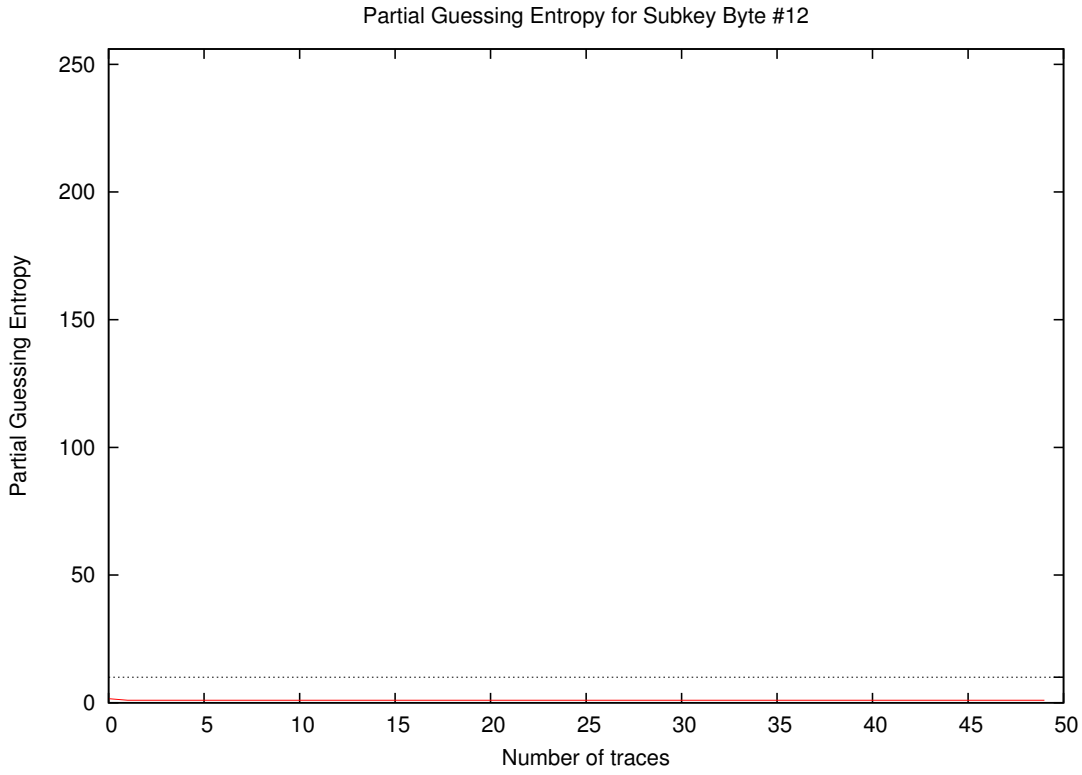
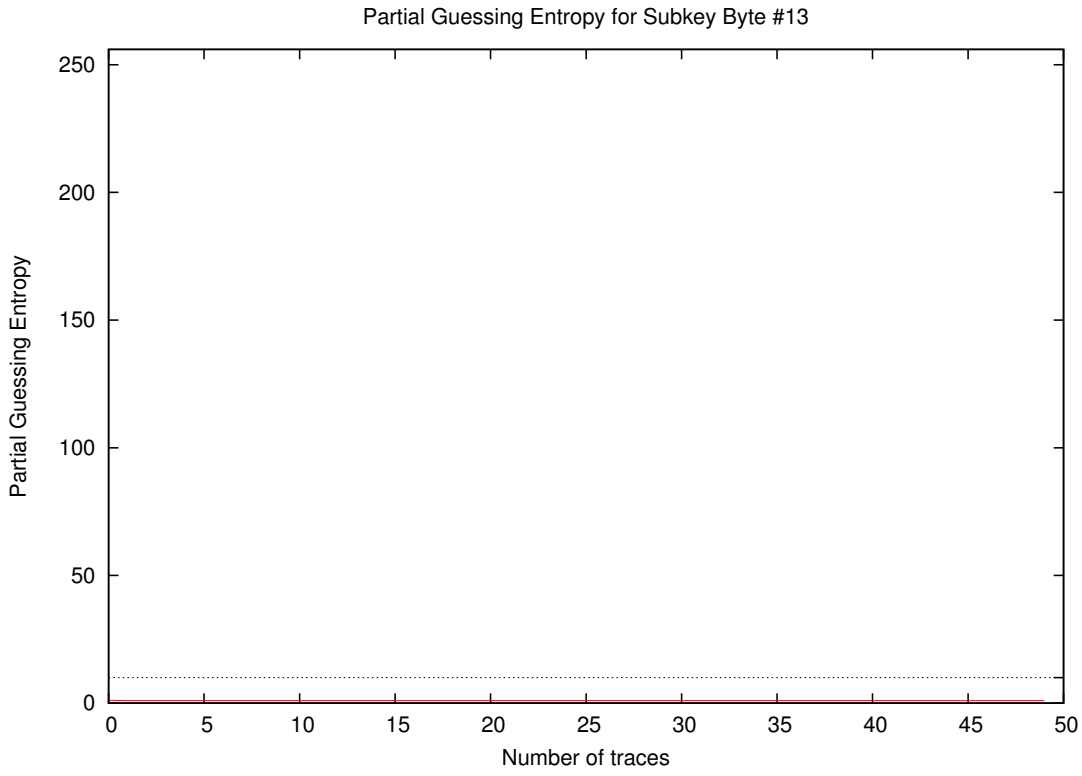
50
100
150
200
250
0
5
10
15
20
25
30
35
40
45
50


Partial Guessing Entropy for Subkey Byte #12
Partial Guessing Entropy
Number of traces
0
50
100
150
200
250
0
5
10
15
20
25
30
35
40
45
50


Partial Guessing Entropy for Subkey Byte #13
Partial Guessing Entropy
Number of traces
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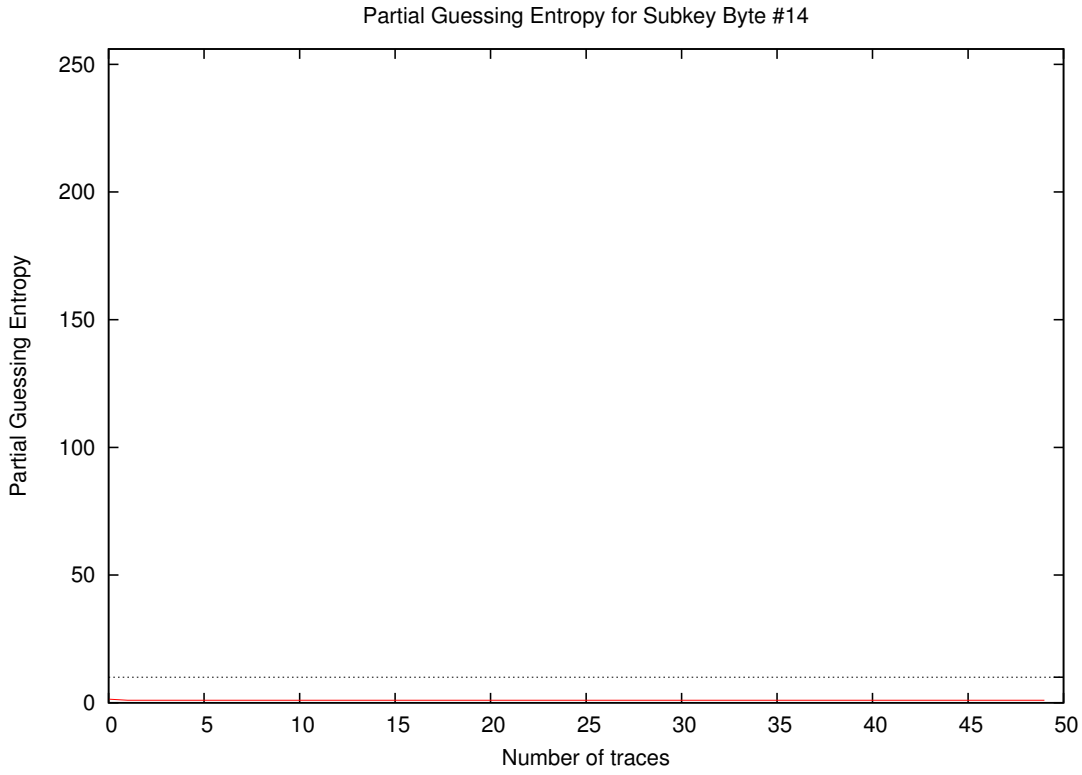
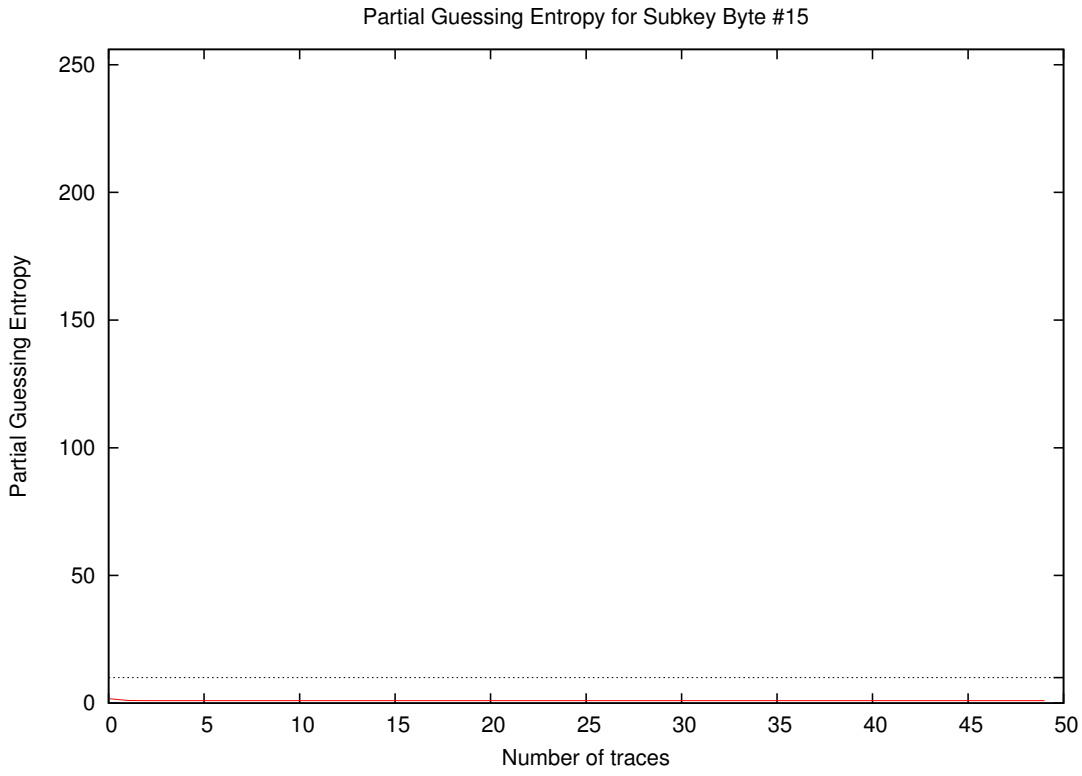
50
100
150
200
250
0
5
10
15
20
25
30
35
40
45
50


Partial Guessing Entropy for Subkey Byte #14
Partial Guessing Entropy
Number of traces
0
50
100
150
200
250
0
5
10
15
20
25
30
35
40
45
50


Partial Guessing Entropy for Subkey Byte #15
Partial Guessing Entropy
Number of traces
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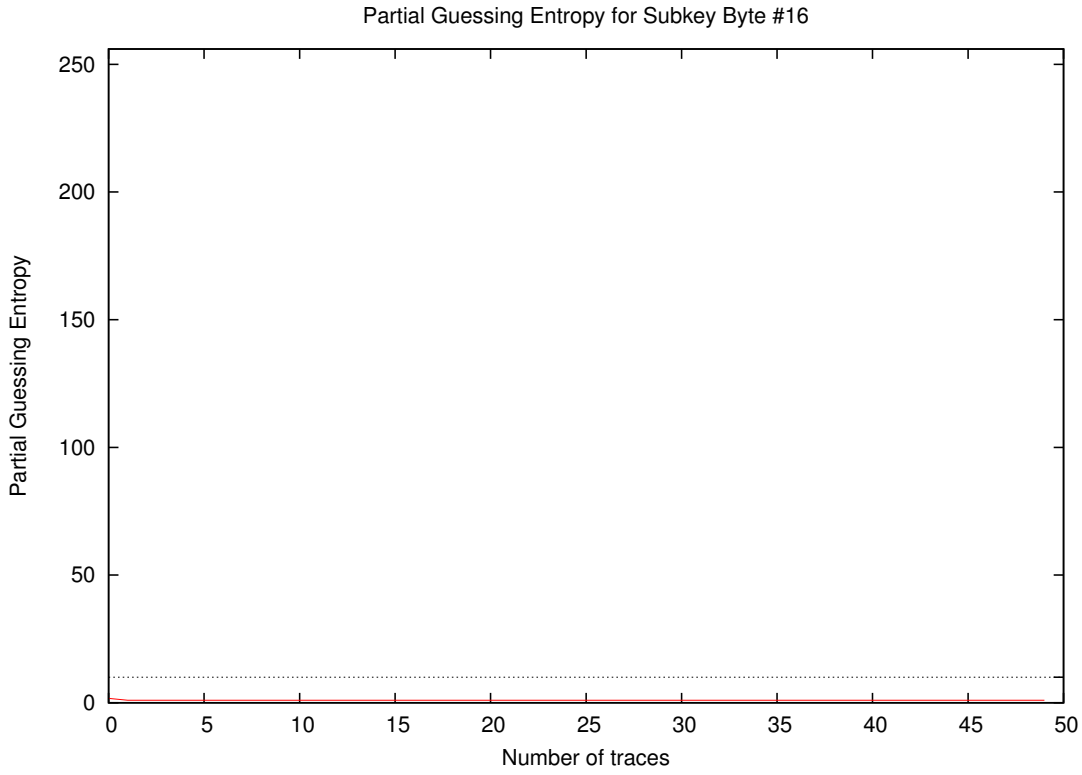
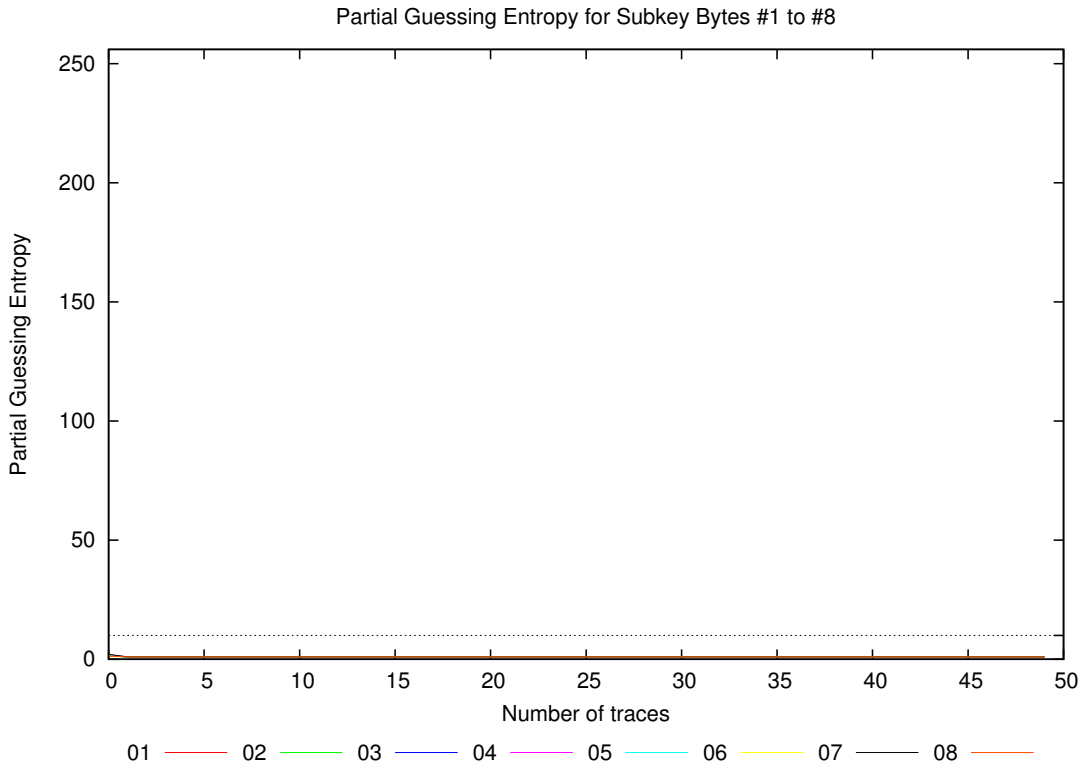
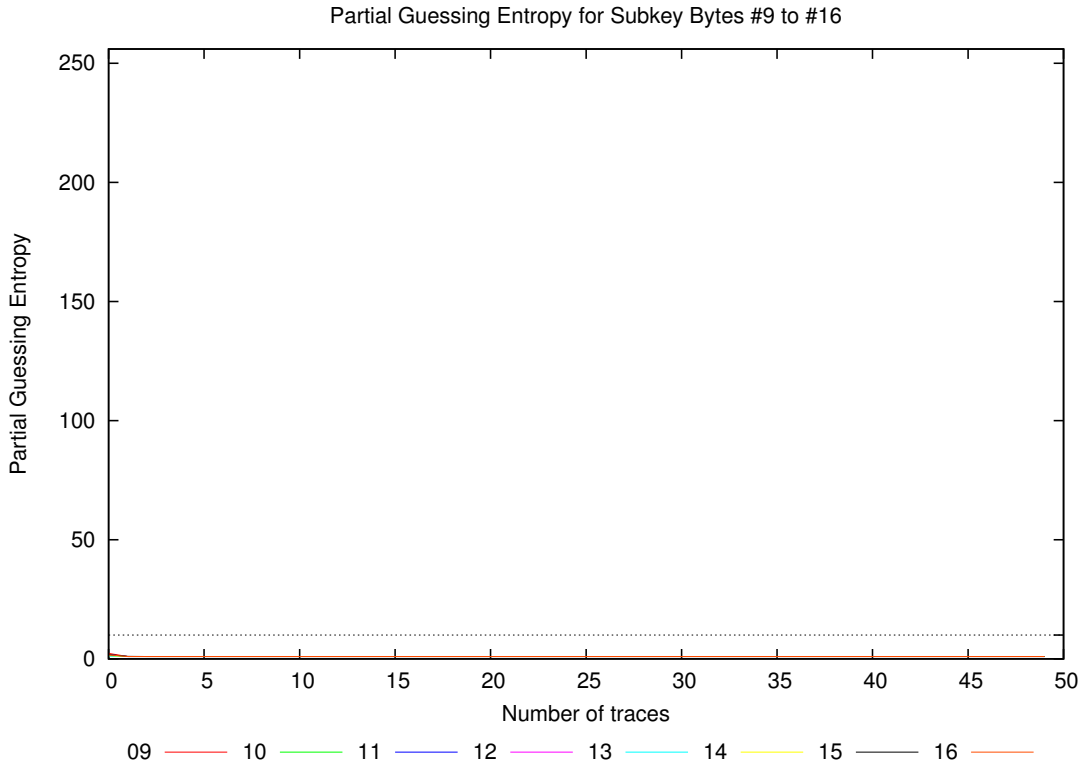
50
100
150
200
250
0
5
10
15
20
25
30
35
40
45
50


Partial Guessing Entropy for Subkey Byte #16
Partial Guessing Entropy
Number of traces
0
50
100
150
200
250
0
5
10
15
20
25
30
35
40
45
50


Partial Guessing Entropy for Subkey Bytes #1 to #8
Partial Guessing Entropy
Number of traces
0
50
100
150
200
250
0
5
10
15
20
25
30
35
40
45
50
01
02
03
04
05
06
07
08


Partial Guessing Entropy for Subkey Bytes #9 to #16
Partial Guessing Entropy
Number of traces
0
50
100
150
200
250
0
5
10
15
20
25
30
35
40
45
50
09
10
11
12
13
14
15
16

Traces	Partial Guessing Entropy / Byte																Min	Max	Mean
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16			
10	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
20	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
30	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
40	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0