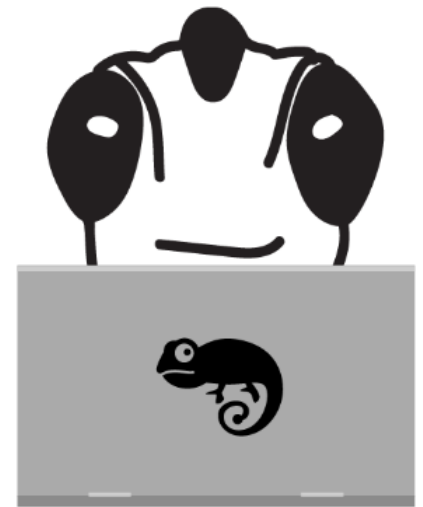




Hacking an NFC Toy with the ChameleonMini







```
fptrs@vm:~$ python3 ~/git/ChameleonMiniCeres/Software/chamlog.py -f log
```

Note: If parityBit check failed, '!' is appended to the decoded data and raw data with parity bit is displayed.

```
17200 ms <+17200 ms>:CODEC RX (5 bytes) [02b2048e3c]
17447 ms < +247 ms>:CODEC RX (5 bytes) [02b2048e3c]
17693 ms < +246 ms>:CODEC RX (5 bytes) [02b2048e3c]
17696 ms < +3 ms>:CODEC RX (5 bytes) [02b2048e3c]
17943 ms < +247 ms>:CODEC RX (5 bytes) [02b2048e3c]
17969 ms < +26 ms>:CODEC RX (5 bytes) [260100f60a]
17982 ms < +13 ms>:CODEC RX (10 bytes) [02b304040480a291d62a]
18009 ms < +27 ms>:CODEC RX (5 bytes) [260100f60a]
18033 ms < +24 ms>:CODEC RX (13 bytes) [2220523a9610500304e0006150]
18062 ms < +29 ms>:CODEC RX (13 bytes) [2220523a9610500304e001e841]
18092 ms < +30 ms>:CODEC RX (13 bytes) [2220523a9610500304e0027373]
18121 ms < +29 ms>:CODEC RX (13 bytes) [2220523a9610500304e003fa62]
18150 ms < +29 ms>:CODEC RX (13 bytes) [2220523a9610500304e0044516]
18180 ms < +30 ms>:CODEC RX (13 bytes) [2220523a9610500304e005cc07]
18209 ms < +29 ms>:CODEC RX (13 bytes) [2220523a9610500304e0065735]
18238 ms < +29 ms>:CODEC RX (13 bytes) [2220523a9610500304e007de24]
18268 ms < +30 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
18298 ms < +30 ms>:CODEC RX (17 bytes) [22ba04523a9610500304e07698d0892806]
18543 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
18788 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
19033 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
19279 ms < +246 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
19524 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
19769 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
20014 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
20259 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
```



```
fptrs@vm:~$ python3 ~/git/ChameleonMiniCeres/Software/chamlog.py -f log
```

Note: If parityBit check failed, '!' is appended to the decoded data and raw data with parity bit is displayed.

```
17200 ms <+17200 ms>:CODEC RX (5 bytes) [02b2048e3c ]
17447 ms < +247 ms>:CODEC RX (5 bytes) [02b2048e3c ]
17693 ms < +246 ms>:CODEC RX (5 bytes) [02b2048e3c ]
17696 ms < +3 ms>:CODEC RX (5 bytes) [02b2048e3c ]
17943 ms < +247 ms>:CODEC RX (5 bytes) [02b2048e3c ]
17969 ms < +26 ms>:CODEC RX (5 bytes) [260100f60a ]
17982 ms < +13 ms>:CODEC RX (10 bytes) [02b304040480a291d62a]
18009 ms < +27 ms>:CODEC RX (5 bytes) [260100f60a ]
18033 ms < +24 ms>:CODEC RX (13 bytes) [2220523a9610500304e0006150]
18062 ms < +29 ms>:CODEC RX (13 bytes) [2220523a9610500304e001e841]
18092 ms < +30 ms>:CODEC RX (13 bytes) [2220523a9610500304e0027373]
18121 ms < +29 ms>:CODEC RX (13 bytes) [2220523a9610500304e003fa62]
18150 ms < +29 ms>:CODEC RX (13 bytes) [2220523a9610500304e0044516]
18180 ms < +30 ms>:CODEC RX (13 bytes) [2220523a9610500304e005cc07]
18209 ms < +29 ms>:CODEC RX (13 bytes) [2220523a9610500304e0065735]
18238 ms < +29 ms>:CODEC RX (13 bytes) [2220523a9610500304e007de24]
18268 ms < +30 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
18298 ms < +30 ms>:CODEC RX (17 bytes) [22ba04523a9610500304e07698d0892806]
18543 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
18788 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
19033 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
19279 ms < +246 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
19524 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
19769 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
20014 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
20259 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
```

```
fptrs@vm:~$ python3 ~/git/ChameleonMiniCeres/Software/chamlog.py -f log
```

Note: If parityBit check failed, '!' is appended to the decoded data and raw data with parity bit is displayed.

```
17200 ms <+17200 ms>:CODEC RX (5 bytes) [02b2048e3c ]
17447 ms < +247 ms>:CODEC RX (5 bytes) [02b2048e3c ]
17693 ms < +246 ms>:CODEC RX (5 bytes) [02b2048e3c ]
17696 ms < +3 ms>:CODEC RX (5 bytes) [02b2048e3c ]
17943 ms < +247 ms>:CODEC RX (5 bytes) [02b2048e3c ]
17969 ms < +26 ms>:CODEC RX (5 bytes) [260100f60a ]
17982 ms < +13 ms>:CODEC RX (10 bytes) [02b304040480a291d62a]
18009 ms < +27 ms>:CODEC RX (5 bytes) [260100f60a ]
18033 ms < +24 ms>:CODEC RX (13 bytes) [2220523a9610500304e0006150]
18062 ms < +29 ms>:CODEC RX (13 bytes) [2220523a9610500304e001e841]
18092 ms < +30 ms>:CODEC RX (13 bytes) [2220523a9610500304e0027373]
18121 ms < +29 ms>:CODEC RX (13 bytes) [2220523a9610500304e003fa62]
18150 ms < +29 ms>:CODEC RX (13 bytes) [2220523a9610500304e0044516]
18180 ms < +30 ms>:CODEC RX (13 bytes) [2220523a9610500304e005cc07]
18209 ms < +29 ms>:CODEC RX (13 bytes) [2220523a9610500304e0065735]
18238 ms < +29 ms>:CODEC RX (13 bytes) [2220523a9610500304e007de24]
18268 ms < +30 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
18298 ms < +30 ms>:CODEC RX (17 bytes) [22ba04523a9610500304e07698d0892806]
18543 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
18788 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
19033 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
19279 ms < +246 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
19524 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
19769 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
20014 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
20259 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
```

```
fptrs@vm:~$ python3 ~/git/ChameleonMiniCeres/Software/chamlog.py -f log
```

Note: If parityBit check failed, '!' is appended to the decoded data and raw data with parity bit is displayed.

```
17200 ms <+17200 ms>:CODEC RX (5 bytes) [02b2048e3c ]
17447 ms < +247 ms>:CODEC RX (5 bytes) [02b2048e3c ]
17693 ms < +246 ms>:CODEC RX (5 bytes) [02b2048e3c ]
17696 ms < +3 ms>:CODEC RX (5 bytes) [02b2048e3c ]
17943 ms < +247 ms>:CODEC RX (5 bytes) [02b2048e3c ]
17969 ms < +26 ms>:CODEC RX (5 bytes) [260100f60a ]
17982 ms < +13 ms>:CODEC RX (10 bytes) [02b304040480a291d62a]
18009 ms < +27 ms>:CODEC RX (5 bytes) [260100f60a ]
18033 ms < +24 ms>:CODEC RX (13 bytes) [2220523a9610500304e0006150]
18062 ms < +29 ms>:CODEC RX (13 bytes) [2220523a9610500304e0001e841]
18092 ms < +30 ms>:CODEC RX (13 bytes) [2220523a9610500304e0027373]
18121 ms < +29 ms>:CODEC RX (13 bytes) [2220523a9610500304e003fa62]
18150 ms < +29 ms>:CODEC RX (13 bytes) [2220523a9610500304e0044516]
18180 ms < +30 ms>:CODEC RX (13 bytes) [2220523a9610500304e005cc07]
18209 ms < +29 ms>:CODEC RX (13 bytes) [2220523a9610500304e0065735]
18238 ms < +29 ms>:CODEC RX (13 bytes) [2220523a9610500304e007de24]
18268 ms < +30 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
18298 ms < +30 ms>:CODEC RX (17 bytes) [22ba04523a9610500304e07698d0892806]
18543 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
18788 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
19033 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
19279 ms < +246 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
19524 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
19769 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
20014 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
20259 ms < +245 ms>:CODEC RX (13 bytes) [22b204523a9610500304e089a6]
```





```
fptrs@vm:~$ python3 ~/git/ChameleonMiniCeres/Software/chamlog.py -f log
```

Note: If parityBit check failed, '!' is appended to the decoded data and raw data with parity bit is displayed.

```
37513 ms <+37513 ms>:CONFIG SET      (9 bytes) [ICODE_SLI      ]
51253 ms <+13740 ms>:UID SET          (8 bytes) [e004035010963a52    ]
56018 ms < +4765 ms>:CODEC RX        (5 bytes) [02b2048e3c      ]
56018 ms <    +0 ms>:CODEC TX        (5 bytes) [000000ccc6      ]
56045 ms <    +27 ms>:CODEC RX        (5 bytes) [260100f60a      ]
56058 ms <    +13 ms>:CODEC RX        (10 bytes) [02b304045b6efd7fcc0a]
56058 ms <    +0 ms>:CODEC TX        (3 bytes) [0078f0          ]
56077 ms <    +19 ms>:CODEC RX        (5 bytes) [260100f60a      ]
56077 ms <    +0 ms>:CODEC TX        (12 bytes) [0000523a9610500304e03738]
56103 ms <    +26 ms>:CODEC RX        (13 bytes) [2220523a9610500304e0006150]
56103 ms <    +0 ms>:CODEC TX        (7 bytes) [000000000077cf   ]
56132 ms <    +29 ms>:CODEC RX        (13 bytes) [2220523a9610500304e001e841]
56132 ms <    +0 ms>:CODEC TX        (7 bytes) [000000000077cf   ]
56161 ms <    +29 ms>:CODEC RX        (13 bytes) [2220523a9610500304e0027373]
56162 ms <    +1 ms>:CODEC TX        (7 bytes) [000000000077cf   ]
56191 ms <    +29 ms>:CODEC RX        (13 bytes) [2220523a9610500304e003fa62]
56191 ms <    +0 ms>:CODEC TX        (7 bytes) [000000000077cf   ]
56220 ms <    +29 ms>:CODEC RX        (13 bytes) [2220523a9610500304e0044516]
56220 ms <    +0 ms>:CODEC TX        (7 bytes) [000000000077cf   ]
56249 ms <    +29 ms>:CODEC RX        (13 bytes) [2220523a9610500304e005cc07]
56250 ms <    +1 ms>:CODEC TX        (7 bytes) [000000000077cf   ]
56279 ms <    +29 ms>:CODEC RX        (13 bytes) [2220523a9610500304e0065735]
56279 ms <    +0 ms>:CODEC TX        (7 bytes) [000000000077cf   ]
56308 ms <    +29 ms>:CODEC RX        (13 bytes) [2220523a9610500304e007de24]
56308 ms <    +0 ms>:CODEC TX        (7 bytes) [000000000077cf   ]
```

```
fptrs@vm:~$ python3 ~/git/ChameleonMiniCeres/Software/chamlog.py -f log
```

Note: If parityBit check failed, '!' is appended to the decoded data and raw data with parity bit is displayed.

```
37513 ms <+37513 ms>:CONFIG SET      (9 bytes) [ICODE_SLI      ]
51253 ms <+13740 ms>:UID SET          (8 bytes) [e004035010963a52  ]
56018 ms < +4765 ms>:CODEC RX        (5 bytes) [02b2048e3c      ]
56018 ms < +0 ms>:CODEC TX           (5 bytes) [000000ccc6      ]
56045 ms < +27 ms>:CODEC RX          (5 bytes) [260100f60a      ]
56058 ms < +13 ms>:CODEC RX          (10 bytes) [02b304045b6efd7fcc0a]
56058 ms < +0 ms>:CODEC TX           (3 bytes) [0078f0          ]
56077 ms < +19 ms>:CODEC RX          (5 bytes) [260100f60a      ]
56077 ms < +0 ms>:CODEC TX           (12 bytes) [0000523a9610500304e03738]
56103 ms < +26 ms>:CODEC RX          (13 bytes) [2220523a9610500304e0006150]
56103 ms < +0 ms>:CODEC TX           (7 bytes) [000000000077cf  ]
56132 ms < +29 ms>:CODEC RX          (13 bytes) [2220523a9610500304e001e841]
56132 ms < +0 ms>:CODEC TX           (7 bytes) [000000000077cf  ]
56161 ms < +29 ms>:CODEC RX          (13 bytes) [2220523a9610500304e0027373]
56162 ms < +1 ms>:CODEC TX           (7 bytes) [000000000077cf  ]
56191 ms < +29 ms>:CODEC RX          (13 bytes) [2220523a9610500304e003fa62]
56191 ms < +0 ms>:CODEC TX           (7 bytes) [000000000077cf  ]
56220 ms < +29 ms>:CODEC RX          (13 bytes) [2220523a9610500304e0044516]
56220 ms < +0 ms>:CODEC TX           (7 bytes) [000000000077cf  ]
56249 ms < +29 ms>:CODEC RX          (13 bytes) [2220523a9610500304e005cc07]
56250 ms < +1 ms>:CODEC TX           (7 bytes) [000000000077cf  ]
56279 ms < +29 ms>:CODEC RX          (13 bytes) [2220523a9610500304e0065735]
56279 ms < +0 ms>:CODEC TX           (7 bytes) [000000000077cf  ]
56308 ms < +29 ms>:CODEC RX          (13 bytes) [2220523a9610500304e007de24]
56308 ms < +0 ms>:CODEC TX           (7 bytes) [000000000077cf  ]
```

```
fptrs@vm:~$ python3 ~/git/ChameleonMiniCeres/Software/chamlog.py -f log
```

Note: If parityBit check failed, '!' is appended to the decoded data and raw data with parity bit is displayed.

```
37513 ms <+37513 ms>:CONFIG SET          (9 bytes) [ICODE_SLI          ]
51253 ms <+13740 ms>:UID SET              (8 bytes) [e004035010963a52      ]
56018 ms < +4765 ms>:CODEC RX             (5 bytes) [02b2048e3c          ]
56018 ms < +0 ms>:CODEC TX                (5 bytes) [000000ccc6          ]
56045 ms < +27 ms>:CODEC RX               (5 bytes) [260100f60a          ]
56058 ms < +13 ms>:CODEC RX               (10 bytes) [02b304045b6efd7fc0a]
56058 ms < +0 ms>:CODEC TX                (3 bytes) [0078f0              ]
56077 ms < +19 ms>:CODEC RX               (5 bytes) [260100f60a          ]
56077 ms < +0 ms>:CODEC TX                (12 bytes) [0000523a9610500304e03738]
56103 ms < +26 ms>:CODEC RX               (13 bytes) [2220523a9610500304e0006150]
56103 ms < +0 ms>:CODEC TX                (7 bytes) [000000000077cf      ]
56132 ms < +29 ms>:CODEC RX               (13 bytes) [2220523a9610500304e001e841]
56132 ms < +0 ms>:CODEC TX                (7 bytes) [000000000077cf      ]
56161 ms < +29 ms>:CODEC RX               (13 bytes) [2220523a9610500304e0027373]
56162 ms < +1 ms>:CODEC TX                (7 bytes) [000000000077cf      ]
56191 ms < +29 ms>:CODEC RX               (13 bytes) [2220523a9610500304e003fa62]
56191 ms < +0 ms>:CODEC TX                (7 bytes) [000000000077cf      ]
56220 ms < +29 ms>:CODEC RX               (13 bytes) [2220523a9610500304e0044516]
56220 ms < +0 ms>:CODEC TX                (7 bytes) [000000000077cf      ]
56249 ms < +29 ms>:CODEC RX               (13 bytes) [2220523a9610500304e005cc07]
56250 ms < +1 ms>:CODEC TX                (7 bytes) [000000000077cf      ]
56279 ms < +29 ms>:CODEC RX               (13 bytes) [2220523a9610500304e0065735]
56279 ms < +0 ms>:CODEC TX                (7 bytes) [000000000077cf      ]
56308 ms < +29 ms>:CODEC RX               (13 bytes) [2220523a9610500304e007de24]
56308 ms < +0 ms>:CODEC TX                (7 bytes) [000000000077cf      ]
```





Fabian Peters – fptrs

Federico Cerutti – ceres-c



<https://github.com/emsec/ChameleonMini/>