

Ni|eside

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BKP2015

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by:Tito

# PCAP

<http://goo.gl/9kXHyW>

Open with

Wireshark or tshark



# first look

# > tshark -r challenge.pcap

1	host	->	1.0	USBHUB	64	GET_STATUS	Request
2	1.0	->	host	USBHUB	68	GET_STATUS	Response
3	host	->	12.0	USB	64	GET_DESCRIPTOR	Request
4	12.0	->	host	USB	82	GET_DESCRIPTOR	Response
5	host	->	1.0	USBHUB	64	GET_STATUS	Request
6	host	->	1.0	USBHUB	64	GET_STATUS	Request
7	1.0	->	host	USBHUB	68	GET_STATUS	Response
8	host	->	1.0	USBHUB	64	GET_STATUS	Request
9	1.0	->	host	USBHUB	68	GET_STATUS	Response
10	1.0	->	host	USBHUB	68	GET_STATUS	Response
11	host	->	1.0	USBHUB	64	GET_STATUS	Request
12	host	->	1.0	USBHUB	64	GET_STATUS	Request
13	1.0	->	host	USBHUB	68	GET_STATUS	Response
14	1.0	->	host	USBHUB	68	GET_STATUS	Response
15	.	.	.				

# > tshark -r challenge.pcap

1	host	->	1.0	USBHUB	64	GET_STATUS	Request
2	1.0	->	host	USBHUB	68	GET_STATUS	Response
3	host	->	12.0	USB	64	GET_DESCRIPTOR	Request
4	12.0	->	host	USB	82	GET_DESCRIPTOR	Response
5	host	->	1.0	USBHUB	64	GET_STATUS	Request
6	host	->	1.0	USBHUB	64	GET_STATUS	Request
7	1.0	->	host	USBHUB	68	GET_STATUS	Response
8	host	->	1.0	USBHUB	64	GET_STATUS	Request
9	1.0	->	host	USBHUB	68	GET_STATUS	Response
10	1.0	->	host	USBHUB	68	GET_STATUS	Response
11	host	->	1.0	USBHUB	64	GET_STATUS	Request
12	host	->	1.0	USBHUB	64	GET_STATUS	Request
13	1.0	->	host	USBHUB	68	GET_STATUS	Response
14	1.0	->	host	USBHUB	68	GET_STATUS	Response
15	.	.	.				

```
> tshark -r challenge.pcap  
usb.bDescriptorType and  
usb.urb_type==urb_complete
```

4	12.0	->	host	USB	82	GET DESCRIPTOR Response
24	1.0	->	host	USB	82	GET DESCRIPTOR Response
60	2.0	->	host	USB	82	GET DESCRIPTOR Response
75	1.0	->	host	USB	82	GET DESCRIPTOR Response
94	3.0	->	host	USB	82	GET DESCRIPTOR Response
96	2.0	->	host	USB	82	GET DESCRIPTOR Response
98	1.0	->	host	USB	82	GET DESCRIPTOR Response

```
> tshark -r challenge.pcap
```

**usb.bDescriptorType and  
usb.urb\_type==urb\_complete**

4	12.0	->	host	USB	82	GET DESCRIPTOR Response
24	1.0	->	host	USB	82	GET DESCRIPTOR Response
60	2.0	->	host	USB	82	GET DESCRIPTOR Response
75	1.0	->	host	USB	82	GET DESCRIPTOR Response
94	3.0	->	host	USB	82	GET DESCRIPTOR Response
96	2.0	->	host	USB	82	GET DESCRIPTOR Response
98	1.0	->	host	USB	82	GET DESCRIPTOR Response

```
> tshark -r challenge.pcap
```

```
usb.bDescriptorType and  
usb.urb_type==urb_complete
```

4	12.0	->	host	USB	82	GET DESCRIPTOR Response
24	1.0	->	host	USB	82	GET DESCRIPTOR Response
60	2.0	->	host	USB	82	GET DESCRIPTOR Response
75	1.0	->	host	USB	82	GET DESCRIPTOR Response
94	3.0	->	host	USB	82	GET DESCRIPTOR Response
96	2.0	->	host	USB	82	GET DESCRIPTOR Response
98	1.0	->	host	USB	82	GET DESCRIPTOR Response

Filter: [usb.bDescriptorType and usb.urb_type==urb ▾]			Expression...	Clear	Apply	Save
No.	Time	Source	Destination	Protocol	Length	Info
4	0.075077000	12.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
24	0.150578000	1.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
60	0.047392000	2.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
75	0.074061000	1.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
94	0.150211000	3.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
96	0.150419000	2.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
98	0.150447000	1.0	host	USB	82	GET_DESCRIPTOR Response DEVICE

► Frame 24: 82 bytes on wire (656 bits), 82 bytes captured (656 bits) on interface 2

► USB URB

▼ DEVICE DESCRIPTOR

```
bLength: 18
bDescriptorType: 0x01 (DEVICE)
bcdUSB: 0x0300
bDeviceClass: Hub (0x09)
bDeviceSubClass: 0
bDeviceProtocol: 3
bMaxPacketSize0: 9
idVendor: Linux Foundation (0x1d6b)
idProduct: 3.0 root hub (0x0003)
bcdDevice: 0x0316
iManufacturer: 3
iProduct: 2
iSerialNumber: 1
bNumConfigurations: 1
```

0000	40 93 52 52 00 88 ff ff	43 02 80 01 03 00 2d 00	@.RR.... C.....
0010	7a 99 ea 54 00 00 00 00	bc 54 0a 00 00 00 00 00	z..T.... .T.....
0020	12 00 00 00 12 00 00 00	00 00 00 00 00 00 00 00	..... ......
0030	00 00 00 00 00 00 00 00	00 02 00 00 00 00 00 00	..... ......
0040	12 01 00 03 09 00 03 09	6b 1d 03 00 16 03 03 02	..... k.....
0050	01 01		..

```
> tshark -r challenge.pcap  
usb.bDescriptorType and  
usb.urb_type==urb_complete  
-T fields -e usb.device_address  
-e usb.idVendor -e usb.idProduct
```

12	0x046d	0xc00e
1	0x1d6b	0x0003
2	0x8087	0x8000
1	0x1d6b	0x0002
3	0x5986	0x0268
2	0x8087	0x07dc
1	0x1d6b	0x0002

```
> tshark -r challenge.pcap  
usb.bDescriptorType and  
usb.urb_type==urb_complete  
-T fields -e usb.device_address  
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12	0x046d	0xc00e
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12	0x046d	0xc00e
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1	0x1d6b	0x0002
3	0x5986	0x0268
2	0x8087	0x07dc
1	0x1d6b	0x0002

Filter: [usb.bDescriptorType and usb.urb_type==urb] ▾			Expression...	Clear	Apply	Save
No.	Time	Source	Destination	Protocol	Length	Info
4	0.075077000	12.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
24	0.150578000	1.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
60	0.047392000	2.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
75	0.074061000	1.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
94	0.150211000	3.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
96	0.150419000	2.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
98	0.150447000	1.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
.....						
▶ Frame 24: 82 bytes on wire (656 bits), 82 bytes captured (656 bits) on interface 2						
▶ USB URB						
▽ DEVICE DESCRIPTOR						
bLength: 18						
bDescriptorType: 0x01 (DEVICE)						
bcdUSB: 0x0300						
bDeviceClass: Hub (0x09)						
bDeviceSubClass: 0						
bDeviceProtocol: 3						
bMaxPacketSize0: 9						
idVendor: Linux Foundation (0x1d6b)						
idProduct: 3.0 root hub (0x0003)						
bcdDevice: 0x0316						
iManufacturer: 3						
iProduct: 2						
iSerialNumber: 1						
bNumConfigurations: 1						
.....						
0000	40 93 52 52 00 88 ff ff	43 02 80 01 03 00 2d 00	@.RR.... C.....			
0010	7a 99 ea 54 00 00 00 00	bc 54 0a 00 00 00 00 00	z..T.... .T.....			
0020	12 00 00 00 12 00 00 00	00 00 00 00 00 00 00 00	..... . . . . . . . .			
0030	00 00 00 00 00 00 00 00	00 02 00 00 00 00 00 00	..... . . . . . . . .			
0040	12 01 00 03 09 00 03 09	6b 1d 03 00 16 03 03 02	..... k.....			
0050	01 01		..			

Filter: [usb.bDescriptorType and usb.urb_type==urb ▾]			Expression...	Clear	Apply	Save
No.	Time	Source	Destination	Protocol	Length	Info
4	0.075077000	12.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
24	0.150578000	1.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
60	0.047392000	2.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
75	0.074061000	1.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
94	0.150211000	3.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
96	0.150419000	2.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
98	0.150447000	1.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
.....						
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idVendor: Linux Foundation (0x1d6b)						
idProduct: 3.0 root hub (0x0003)						
bcdDevice: 0x0316						
iManufacturer: 3						
iProduct: 2						
iSerialNumber: 1						
bNumConfigurations: 1						
.....						
0000	40 93 52 52 00 88 ff ff	43 02 80 01 03 00 2d 00	@.RR.... C.....			
0010	7a 99 ea 54 00 00 00 00	bc 54 0a 00 00 00 00 00	z..T.... .T.....			
0020	12 00 00 00 12 00 00 00	00 00 00 00 00 00 00 00	..... . . . . . . . .			
0030	00 00 00 00 00 00 00 00	00 02 00 00 00 00 00 00	..... . . . . . . . .			
0040	12 01 00 03 09 00 03 09	6b 1d 03 00 16 03 03 02	..... k.....			
0050	01 01		..			

# HELP

<http://goo.gl/qP4SDL>

Look More

Filter:		Expression... Clear Apply Save					
No.	Time	Source	Destination	Protocol	Length	Info	
100	2.538058000	1.0	host	USB	64	URB_CONTROL out	
101	4.854856000	12.1	host	USB	68	URB_INTERRUPT in	
102	4.854895000	host	12.1	USB	64	URB_INTERRUPT in	
103	4.894857000	12.1	host	USB	68	URB_INTERRUPT in	
104	4.894893000	host	12.1	USB	64	URB_INTERRUPT in	
105	5.078857000	12.1	host	USB	68	URB_INTERRUPT in	
106	5.078892000	host	12.1	USB	64	URB_INTERRUPT in	
107	5.086857000	12.1	host	USB	68	URB_INTERRUPT in	
108	5.086890000	host	12.1	USB	64	URB_INTERRUPT in	
109	5.094857000	12.1	host	USB	68	URB_INTERRUPT in	
110	5.094890000	host	12.1	USB	64	URB_INTERRUPT in	
111	5.102857000	12.1	host	USB	68	URB_INTERRUPT in	
112	5.102895000	host	12.1	USB	64	URB_INTERRUPT in	
113	5.110856000	12.1	host	USB	68	URB_INTERRUPT in	
114	5.110891000	host	12.1	USB	64	URB_INTERRUPT in	
115	5.118857000	12.1	host	USB	68	URB_INTERRUPT in	
116	5.118892000	host	12.1	USB	64	URB_INTERRUPT in	
117	5.126858000	12.1	host	USB	68	URB_INTERRUPT in	
118	5.126895000	host	12.1	USB	64	URB_INTERRUPT in	
119	5.134862000	12.1	host	USB	68	URB_INTERRUPT in	
120	5.134911000	host	12.1	USB	64	URB_INTERRUPT in	
121	5.142861000	12.1	host	USB	68	URB_INTERRUPT in	
122	5.142900000	host	12.1	USB	64	URB_INTERRUPT in	
123	5.150805000	12.1	host	USB	68	URB_INTERRUPT in	
124	5.150847000	host	12.1	USB	64	URB_INTERRUPT in	
125	5.158860000	12.1	host	USB	68	URB_INTERRUPT in	
126	5.158900000	host	12.1	USB	64	URB_INTERRUPT in	
127	5.174858000	12.1	host	USB	68	URB_INTERRUPT in	
128	5.174893000	host	12.1	USB	64	URB_INTERRUPT in	
129	5.182858000	12.1	host	USB	68	URB_INTERRUPT in	
130	5.182890000	host	12.1	USB	64	URB_INTERRUPT in	
131	5.190859000	12.1	host	USB	68	URB_INTERRUPT in	
132	5.190892000	host	12.1	USB	64	URB_INTERRUPT in	
133	5.198858000	12.1	host	USB	68	URB_INTERRUPT in	
134	5.198893000	host	12.1	USB	64	URB_INTERRUPT in	
135	5.206858000	12.1	host	USB	68	URB_INTERRUPT in	

► Frame 101: 68 bytes on wire (544 bits), 68 bytes captured (544 bits) on interface 1

► USB URB

Software: Wireshark Version 0.9.10.1 (0.9.10.1) (Build 2009-09-10)

No.	Time	Source	Destination	Protocol	Length	Info	
1	0.000000000	host	1.0	USBHUB	64	GET_STATUS Request	[Port 1]
2	0.000011000	1.0	host	USBHUB	68	GET_STATUS Response	[Port 1]
3	0.074167000	host	12.0	USB	64	GET_DESCRIPTOR Request	DEVICE
4	0.075077000	12.0	host	USB	82	GET_DESCRIPTOR Response	DEVICE
5	0.150556000	host	1.0	USBHUB	64	GET_STATUS Request	[Port 1]
6	0.000015000	host	1.0	USBHUB	64	GET_STATUS Request	[Port 2]
7	0.150560000	1.0	host	USBHUB	68	GET_STATUS Response	[Port 2]
8	0.150562000	host	1.0	USBHUB	64	GET_STATUS Request	[Port 2]
9	0.000019000	1.0	host	USBHUB	68	GET_STATUS Response	[Port 2]
10	0.150565000	1.0	host	USBHUB	68	GET_STATUS Response	[Port 2]
11	0.000021000	host	1.0	USBHUB	64	GET_STATUS Request	[Port 3]
12	0.150566000	host	1.0	USBHUB	64	GET_STATUS Request	[Port 3]
13	0.000023000	1.0	host	USBHUB	68	GET_STATUS Response	[Port 3]

Frame 4: 82 bytes on wire (656 bits), 82 bytes captured (656 bits) on interface 1

## ▷ USB URB

## ▼ DEVICE DESCRIPTOR

```
bLength: 18
bDescriptorType: 0x01 (DEVICE)
bcdUSB: 0x0200
bDeviceClass: Device (0x00)
bDeviceSubClass: 0
bDeviceProtocol: 0 (Use class code info from Interface Descriptors)
bMaxPacketSize0: 8
idVendor: Logitech, Inc. (0x046d)
idProduct: M-BJ58/M-BJ69 Optical Wheel Mouse (0xc00e)
bcdDevice: 0x1100
iManufacturer: 1
iProduct: 2
iSerialNumber: 0
bNumConfigurations: 1
```

No.	Time	Source	Destination	Protocol	Length	Info
94	0.150211000	3.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
95	0.150247000	host	2.0	USB	64	GET_DESCRIPTOR Request DEVICE
96	0.150419000	2.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
97	0.150443000	host	1.0	USB	64	GET_DESCRIPTOR Request DEVICE
98	0.150447000	1.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
99	2.522065000	host	1.0	USBHUB	64	SET_FEATURE Request [Port 8]
100	2.538058000	1.0	host	USB	64	URB_CONTROL out
101	4.854856000	12.1	host	USB	68	URB_INTERRUPT in
102	4.854895000	host	12.1	USB	64	URB_INTERRUPT in
103	4.894857000	12.1	host	USB	68	URB_INTERRUPT in
104	4.894893000	host	12.1	USB	64	URB_INTERRUPT in
105	5.078857000	12.1	host	USB	68	URB_INTERRUPT in
106	5.078892000	host	12.1	USB	64	URB_INTERRUPT in

# HELP

<http://goo.gl/60RTXP>

USB Mouse

HID

```
struct  
mouse_report_t  
{  
    uint8_t buttons;  
    int8_t x;  
    int8_t y;  
    int8_t wheel;  
}
```

```
struct  
mouse_report_t  
{  
    uint8_t buttons;  
    int8_t x;  
    int8_t y;  
    int8_t wheel;  
}
```

Byte	B <sub>7</sub>	B <sub>6</sub>	B <sub>5</sub>	B <sub>4</sub>	B <sub>3</sub>	B <sub>2</sub>	B <sub>1</sub>	B <sub>0</sub>
1						M	R	L
2					X-axis relative movement			
3					Y-axis relative movement			
4					Wheel			

**Extract**

**gap data**

```
> tshark -r challenge.pcap  
usb.data_len==4 and  
usb.device_address==12  
-T fields -e usb.capdata
```

00:01:00:00

00:02:00:00

00:02:ff:00

...

```
> tshark -r challenge.pcap  
usb.data_len==4 and  
usb.device_address==12  
-T fields -e usb.capdata
```

00:01:00:00  
00:02:00:00  
00:02:ff:00

### Filter:

▼ Expression... Clear Apply Save

1

## Expression.

clie

ar

pply

Save

No.	Time	Source	Destination	Protocol	Length	Info
94	0.150211000	3.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
95	0.150247000	host	2.0	USB	64	GET_DESCRIPTOR Request DEVICE
96	0.150419000	2.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
97	0.150443000	host	1.0	USB	64	GET_DESCRIPTOR Request DEVICE
98	0.150447000	1.0	host	USB	82	GET_DESCRIPTOR Response DEVICE
99	2.522065000	host	1.0	USBHUB	64	SET_FEATURE Request [Port 8:
100	2.538058000	1.0	host	USB	64	URB_CONTROL out
101	4.854856000	12.1	host	USB	68	URB_INTERRUPT in
102	4.854895000	host	12.1	USB	64	URB_INTERRUPT in
103	4.894857000	12.1	host	USB	68	URB_INTERRUPT in
104	4.894893000	host	12.1	USB	64	URB_INTERRUPT in
105	5.078857000	12.1	host	USB	68	URB_INTERRUPT in
106	5.078892000	host	12.1	USB	64	URB_INTERRUPT in

► Frame 105: 68 bytes on wire (544 bits), 68 bytes captured (544 bits) on interface 1

▶ USB URB

Leftover Capture Data: 00010

## Expand Subtrees

## Collapse Subtrees

[Expand All](#)

[Collapse All](#)

**Apply as Column**

**Apply as Filter**

### Prepare a Filter

## Colorize with Filter

## Follow TCP Stream

## Follow UDP Stream

Copy

**Export Selected Packet Bytes...**

## Edit Packet

Wiki Protocol Page

## Filter Field Reference

0000	c0	44	a9	c7	00	88	ff	ff
0010	7f	99	ea	54	00	00	00	00
0020	04	00	00	00	04	00	00	00
0030	08	00	00	00	00	00	00	00
0040	00	01	00	00				

Filter: [ ]				▼	Expression...	Clear	Apply	Save
No.	Time	Source	Destination	Protocol	Length	Leftover	Capture Data	Info
100	2.538058000	host	1.0	USB	64			URB_CONTROL out
101	4.854856000	12.1	host	USB	68	00010000		URB_INTERRUPT in
102	4.854895000	host	12.1	USB	64			URB_INTERRUPT in
103	4.894857000	12.1	host	USB	68	00010000		URB_INTERRUPT in
104	4.894893000	host	12.1	USB	64			URB_INTERRUPT in
105	5.078857000	12.1	host	USB	68	00010000		URB_INTERRUPT in
106	5.078892000	host	12.1	USB	64			URB_INTERRUPT in
107	5.086857000	12.1	host	USB	68	00010000		URB_INTERRUPT in
108	5.086890000	host	12.1	USB	64			URB_INTERRUPT in
109	5.094857000	12.1	host	USB	68	00010000		URB_INTERRUPT in
110	5.094890000	host	12.1	USB	64			URB_INTERRUPT in
111	5.102857000	12.1	host	USB	68	00020000		URB_INTERRUPT in
112	5.102895000	host	12.1	USB	64			URB_INTERRUPT in
113	5.110856000	12.1	host	USB	68	0002ff00		URB_INTERRUPT in
114	5.110891000	host	12.1	USB	64			URB_INTERRUPT in
115	5.118857000	12.1	host	USB	68	00020000		URB_INTERRUPT in
116	5.118892000	host	12.1	USB	64			URB_INTERRUPT in
117	5.126858000	12.1	host	USB	68	0003ff00		URB_INTERRUPT in
118	5.126895000	host	12.1	USB	64			URB_INTERRUPT in
119	5.134862000	12.1	host	USB	68	00010000		URB_INTERRUPT in
120	5.134911000	host	12.1	USB	64			URB_INTERRUPT in
121	5.142861000	12.1	host	USB	68	0001ff00		URB_INTERRUPT in
122	5.142900000	host	12.1	USB	64			URB_INTERRUPT in
123	5.150805000	12.1	host	USB	68	00010000		URB_INTERRUPT in
124	5.150847000	host	12.1	USB	64			URB_INTERRUPT in
125	5.158860000	12.1	host	USB	68	0000ff00		URB_INTERRUPT in
126	5.158900000	host	12.1	USB	64			URB_INTERRUPT in
127	5.174858000	12.1	host	USB	68	0001fe00		URB_INTERRUPT in
128	5.174893000	host	12.1	USB	64			URB_INTERRUPT in
129	5.182858000	12.1	host	USB	68	0001fe00		URB_INTERRUPT in
130	5.182890000	host	12.1	USB	64			URB_INTERRUPT in
131	5.190859000	12.1	host	USB	68	0002fe00		URB_INTERRUPT in
132	5.190892000	host	12.1	USB	64			URB_INTERRUPT in
133	5.198858000	12.1	host	USB	68	0001fd00		URB_INTERRUPT in
134	5.198893000	host	12.1	USB	64			URB_INTERRUPT in
135	5.206858000	12.1	host	USB	68	0002fd00		URB_INTERRUPT in
136	5.206893000	host	12.1	USB	64			URB_INTERRUPT in
137	5.214859000	12.1	host	USB	68	0002fc00		URB_INTERRUPT in

Filter: [usb.data_len==4 and usb.device_address==1] Expression... Clear Apply Save								
No.	Time	Source	Destination	Protocol	Length	Leftover	Capture Data	Info
101	4.854856000	12.1	host	USB	68	00010000		URB_INTERRUPT in
103	4.894857000	12.1	host	USB	68	00010000		URB_INTERRUPT in
105	5.078857000	12.1	host	USB	68	00010000		URB_INTERRUPT in
107	5.086857000	12.1	host	USB	68	00010000		URB_INTERRUPT in
109	5.094857000	12.1	host	USB	68	00010000		URB_INTERRUPT in
111	5.102857000	12.1	host	USB	68	00020000		URB_INTERRUPT in
113	5.110856000	12.1	host	USB	68	0002ff00		URB_INTERRUPT in
115	5.118857000	12.1	host	USB	68	00020000		URB_INTERRUPT in
117	5.126858000	12.1	host	USB	68	0003ff00		URB_INTERRUPT in
119	5.134862000	12.1	host	USB	68	00010000		URB_INTERRUPT in
121	5.142861000	12.1	host	USB	68	0001ff00		URB_INTERRUPT in
123	5.150805000	12.1	host	USB	68	00010000		URB_INTERRUPT in
125	5.158860000	12.1	host	USB	68	0000ff00		URB_INTERRUPT in
127	5.174858000	12.1	host	USB	68	0001fe00		URB_INTERRUPT in
129	5.182858000	12.1	host	USB	68	0001fe00		URB_INTERRUPT in
131	5.190859000	12.1	host	USB	68	0002fe00		URB_INTERRUPT in
133	5.198858000	12.1	host	USB	68	0001fd00		URB_INTERRUPT in
135	5.206858000	12.1	host	USB	68	0002fd00		URB_INTERRUPT in
137	5.214859000	12.1	host	USB	68	0002fc00		URB_INTERRUPT in
139	5.222858000	12.1	host	USB	68	0002fd00		URB_INTERRUPT in
141	5.230858000	12.1	host	USB	68	0003fc00		URB_INTERRUPT in
143	5.238857000	12.1	host	USB	68	0003fb00		URB_INTERRUPT in
145	5.246858000	12.1	host	USB	68	0004fc00		URB_INTERRUPT in
147	5.254858000	12.1	host	USB	68	0003fc00		URB_INTERRUPT in
149	5.262858000	12.1	host	USB	68	0003fd00		URB_INTERRUPT in
151	5.270857000	12.1	host	USB	68	0006fa00		URB_INTERRUPT in
153	5.278858000	12.1	host	USB	68	0006fb00		URB_INTERRUPT in
155	5.286705000	12.1	host	USB	68	0007f~00		URB_INTERRUPT in

```

URB sec: 1424660863
URB usec: 381330
URB status: Success (0)
URB length [bytes]: 4
Data length [bytes]: 4
[bInterfaceClass: Unknown (0xffff)]
Unused Setup Header
Interval: 8
Start frame: 0

```

Open... Ctrl+O

Open Recent

Merge...

Import from Hex Dump...

**Close** Ctrl+W

---

Save Ctrl+S

Save As... Shift+Ctrl+S

---

File Set ▶

Export Specified Packets...

---

Export Packet Dissections ▶

Export Selected Packet Bytes... Ctrl+H

Export PDUs to File...

Export SSL Session Keys...

Export Objects ▶

---

Print... Ctrl+P

---

Quit Ctrl+Q

		Protocol	Length	Leftover	Capture Data	Info
139	5.222858000	host	USB	68	00010000	URB_INTERRUPT in
141	5.230858000	host	USB	68	00010000	URB_INTERRUPT in
143	5.238857000	host	USB	68	00010000	URB_INTERRUPT in
145	5.246858000	host	USB	68	00010000	URB_INTERRUPT in
147	5.254858000	host	USB	68	00020000	URB_INTERRUPT in
149	5.262858000	host	USB	68	0002ff00	URB_INTERRUPT in
151	5.270857000	host	USB	68	00020000	URB_INTERRUPT in
153	5.278858000	host	USB	68	00020000	URB_INTERRUPT in
155	5.286706000	host	USB	68	0007f~00	URB_INTERRUPT in

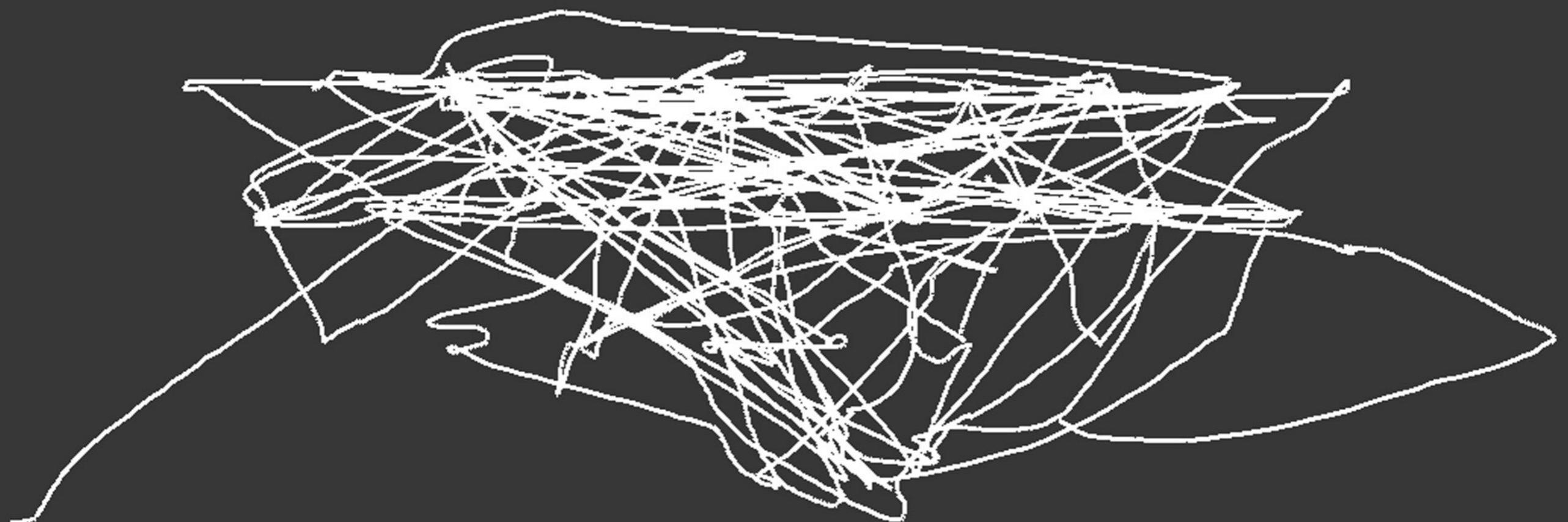
- as "Plain Text" file...
  - as "PostScript" file...
  - as "CSV" (Comma Separated Values packet summary) file...**
  - as "C Arrays" (packet bytes) file...
- 
- as XML - "PSML" (packet summary) file...
  - as XML - "PDML" (packet details) file...

```
URB sec: 1424660863
URB usec: 381330
URB status: Success (0)
URB length [bytes]: 4
Data length [bytes]: 4
[bInterfaceClass: Unknown (0xffff)]
```

# HELP

<http://goo.gl/ICZPS8>

Plot



clicks?

5 14 66 820 418 504 62 549 423 24

57 25 53 42 17 824 79 21 69 83

39 19 728 28 11 85 23

20 41 426 610  
32

# HELP

<http://goo.gl/pCdASq>

on screen

Keyboard

5 14 66 180 418 504 62 549 413 24

57 25 53 42 17 824 79 21 69 63

39 19 72 28 11 85 23

20 41 426 610  
32

5  
Q

14  
W

66  
E

80  
R

48  
T

50  
Y

62  
U

54  
9

43  
O

24  
P

58  
889

25  
53

52  
D

17  
F

844

79  
H

21  
J

69  
K

63  
L

"



39  
Z

19  
X

78  
C

28  
V

11  
B

85  
N

23  
M

:

&123

Ctrl



20  
41  
32  
426  
610



# HELP

<http://goo.gl/HSoiMa>

the quick brown fox  
jumps over the  
lazy dog the key is  
i heard you liked sketching  
last year

the quick brown fox  
jumps over the  
lazy dog the key is  
i heard you liked sketching  
last year

the quick brown fox  
jumps over the  
lazy dog the key is  
i heard you liked sketching last year

the quick brown  
fox jumps over the  
lazy dog the key is  
i heard you liked sketching last year

Thanks

<http://goo.gl/N55rTR>