

This behavior seems like a bug.

I'm using USBX CDC ACM on a H723 nucleo board. I'm trying to work with the blocking nature of the `ux_device_class_cdc_acm_read`. For my application, I would like to get notified as soon as up to 256 characters are received but the length will be variable. I've tried a few things and found this behavior that seems wrong. My application currently just loops back any strings received.

The endpoint is set to 64 bytes. That was the setting from the example and seems ok. I've set the `requested_length` to 256 and have a buffer allocated to this. This is 4 times the size of the endpoint.

I'm using Hterm 0.8.9 on Windows 10.

STM32CubeIDE 1.13.2, STM32CubeMX 6.9.2-RC4, STM32Cube MCU Package for H7 1.11.1, X-CUBE-AZRTOS-H7 3.2.0.

ThreadX and USBX is 6.2.1.

When I send a 63 byte string, the read call returns with a length of 63. Data and length are good.

When I send a 65 byte string, the read call returns with a length of 65. Everything is ok.

However, when I send a 64 byte string, the call does not return. I am monitoring the USB traffic with a Beagle 480 USB protocol analyzer. I get an error T which is "Capture for transaction timed out while waiting for additional data." If I send an additional single byte, the read call returns with 65 characters. The original 64 and the additional byte.

This certainly seems like a bug as it works at 63 and 65 characters and doesn't return at 64.

The PDF of this has capture information.

63 byte string capture. Note the data is echoed back immediately.

The screenshot shows the Total Phase Data Center v7.02.000 interface. The main table displays the following records:

Sp	Index	ms.ms.us	Len	Err	Dev	Ep	Record	Summary
LF	1251	0:00.000.799	1.99 s		12	01	[250 ORPHANED]	[Periodic Timeout]
FS	1253	0:02.905.694	63 B		45	01	CDC OUT Data	36 33 5F 33 34 35 36 37 38 39 30 31 32 33 34 35 36 37 38 39 30 31 32 33...
FS	1254	0:02.905.694	63 B		45	01	OUT btn	36 33 5F 33 34 35 36 37 38 39 30 31 32 33 34 35 36 37 38 39 30 31 32 33...
FS	1255	0:02.905.694	3 B		45	01	OUT packet	E1 AD 98
FS	1256	0:02.905.697	66 B		45	01	DATA0 packet	C3 36 33 5F 33 34 35 36 37 38 39 30 31 32 33 34 35 36 37 38 39 30 31 32...
FS	1257	0:02.905.742	1 B		45	01	ACK packet	D2
FS	1258	0:02.000.103	63 B		45	01	CDC IN Data	36 33 5F 33 34 35 36 37 38 39 30 31 32 33 34 35 36 37 38 39 30 31 32 33...
FS	1259	0:02.000.103	63 B		45	01	IN btn [18918 POLL]	36 33 5F 33 34 35 36 37 38 39 30 31 32 33 34 35 36 37 38 39 30 31 32 33...
FS	1260	0:02.000.103	906 ms		45	01	[18918 IN-NAK]	
FS	1261	0:02.906.565	3 B		45	01	IN packet	69 AD 98
FS	1262	0:02.906.568	66 B		45	01	DATA0 packet	C3 36 33 5F 33 34 35 36 37 38 39 30 31 32 33 34 35 36 37 38 39 30 31 32...
FS	1263	0:02.906.613	1 B		45	01	ACK packet	D2
FS	1264	0:02.001.017	1.99 s		45	02	[500 IN-NAK]	[Periodic Timeout]

The details pane shows the following data:

Offset	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	ASCII
0x0000	36	33	5F	33	34	35	36	37	38	39	30	31	32	33	34	35	63_3456789012345
0x0010	36	37	38	39	30	31	32	33	34	35	36	37	38	39	30	31	6789012345678901
0x0020	32	33	34	35	36	37	38	39	30	31	32	33	34	35	36	37	2345678901234567
0x0030	38	39	30	31	32	33	34	35	36	37	38	39	30	31	32		890123456789012

65 byte string capture. 2 packets as expected and data is echoed back. Working correctly.

Sp	Index	ms.ms.us	Len	Err	Dev	Ep	Record	Summary
FS	1282	0:10.001.911	1.99 s		45	02	[500 IN-NAK]	[Periodic Timeout]
LF	1283	0:10.001.916	1.99 s		12	01	[250 ORPHANED]	[Periodic Timeout]
FS	1285	0:12.266.817	65 B		45	01	CDC OUT Data	36 35 5F 33 34 35 36 37 38 39 30 31 32 33 34 35 36 37 38 39 30 31 32 33...
FS	1286	0:12.266.817	64 B		45	01	OUT btn	36 35 5F 33 34 35 36 37 38 39 30 31 32 33 34 35 36 37 38 39 30 31 32 33...
FS	1290	0:12.266.891	1 B		45	01	OUT btn	34
FS	1294	0:10.906.827	65 B		45	01	CDC IN Data	36 35 5F 33 34 35 36 37 38 39 30 31 32 33 34 35 36 37 38 39 30 31 32 33...
FS	1295	0:10.906.827	64 B		45	01	IN btn [28405 POLL]	36 35 5F 33 34 35 36 37 38 39 30 31 32 33 34 35 36 37 38 39 30 31 32 33...
FS	1296	0:10.906.827	1.36 s		45	01	[28405 IN-NAK]	
FS	1297	0:12.267.731	3 B		45	01	IN packet	69 AD 98
FS	1298	0:12.267.734	67 B		45	01	DATA1 packet	4B 36 35 5F 33 34 35 36 37 38 39 30 31 32 33 34 35 36 37 38 39 30 31 32...
FS	1299	0:12.267.780	1 B		45	01	ACK packet	D2
FS	1300	0:12.267.799	1 B		45	01	IN btn	34
FS	1301	0:12.267.799	3 B		45	01	IN packet	69 AD 98
FS	1302	0:12.267.802	4 B		45	01	DATA0 packet	C3 34 41 68
FS	1303	0:12.267.806	1 B		45	01	ACK packet	D2
FS	1304	0:12.002.135	1.99 s		45	02	[500 IN-NAK]	[Periodic Timeout]

Text: LiveSearch
No filter: 1356 records.
Protocol Lens: USB

Details: ASCII
Offset 0 1 2 3 4 5 6 7 8 9 A B C D E F
0x0000 36 35 5F 33 34 35 36 37 38 39 30 31 32 33 34 35 65_3456789012345
0x0010 36 37 38 39 30 31 32 33 34 35 36 37 38 39 30 31 6789012345678901
0x0020 32 33 34 35 36 37 38 39 30 31 32 33 34 35 36 37 2345678901234567
0x0030 38 39 30 31 32 33 34 35 36 37 38 39 30 31 32 33 8901234567890123
0x0040

The 64 byte string shows an error with the Beagle 480 and the call does not return. There is no echo back because it is still blocked in the read call. Error T is described as “Capture for transaction timed out while waiting for additional data.”

Sp	Index	ms.ms.us	Len	Err	Dev	Ep	Record	Summary
FS	1318	0:18.002.805	1.99 s		45	02	[500 IN-NAK]	[Periodic Timeout]
LF	1319	0:18.002.811	1.99 s		12	01	[250 ORPHANED]	[Periodic Timeout]
FS	1322	0:18.267.966	1.99 s		45	01	[41742 IN-NAK]	[Periodic Timeout]
FS	1323	0:20.003.029	1.99 s		45	02	[500 IN-NAK]	[Periodic Timeout]
LF	1324	0:20.003.034	1.99 s		12	01	[250 ORPHANED]	[Periodic Timeout]
FS	1327	0:20.268.058	1.99 s		45	01	[41743 IN-NAK]	[Periodic Timeout]
FS	1328	0:21.691.868	64 B	T	45	01	CDC OUT Data	36 34 5F 33 34 35 36 37 38 39 30 31 32 33 34 35 36 37 38 39 30 31 32 33...
FS	1329	0:21.691.868	64 B		45	01	OUT btn	36 34 5F 33 34 35 36 37 38 39 30 31 32 33 34 35 36 37 38 39 30 31 32 33...
FS	1330	0:21.691.868	3 B		45	01	OUT packet	E1 AD 98
FS	1331	0:21.691.872	67 B		45	01	DATA1 packet	4B 36 34 5F 33 34 35 36 37 38 39 30 31 32 33 34 35 36 37 38 39 30 31 32...
FS	1332	0:21.691.918	1 B		45	01	ACK packet	D2
FS	1333	0:22.003.252	1.99 s		45	02	[500 IN-NAK]	[Periodic Timeout]
LF	1334	0:22.003.258	1.99 s		12	01	[250 ORPHANED]	[Periodic Timeout]
FS	1336	0:22.268.097	1.99 s		45	01	[41747 IN-NAK]	[Periodic Timeout]
FS	1337	0:24.003.476	1.99 s		45	02	[500 IN-NAK]	[Periodic Timeout]
LF	1338	0:24.003.481	1.99 s		12	01	[250 ORPHANED]	[Periodic Timeout]

Text: LiveSearch
No filter: 1356 records.
Protocol Lens: USB

Details: ASCII
Offset 0 1 2 3 4 5 6 7 8 9 A B C D E F
0x0000 36 34 5F 33 34 35 36 37 38 39 30 31 32 33 34 35 64_3456789012345
0x0010 36 37 38 39 30 31 32 33 34 35 36 37 38 39 30 31 6789012345678901
0x0020 32 33 34 35 36 37 38 39 30 31 32 33 34 35 36 37 2345678901234567
0x0030 38 39 30 31 32 33 34 35 36 37 38 39 30 31 32 33 8901234567890123
0x0040

Data: Ready
SN: 1126-661473 HW: 1

