

WizFi360

Application – Throughput

Version 1.1
WIZnet Co.,Ltd
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History

Ver	Date	Description
1.0	Aug.2019	Initial version
1.1	Sep.2019	Add command mode throughput test result



Contents

1.	Test environment	.4
_	Using Serial command	
	The result of UART Throughput	
	(1	



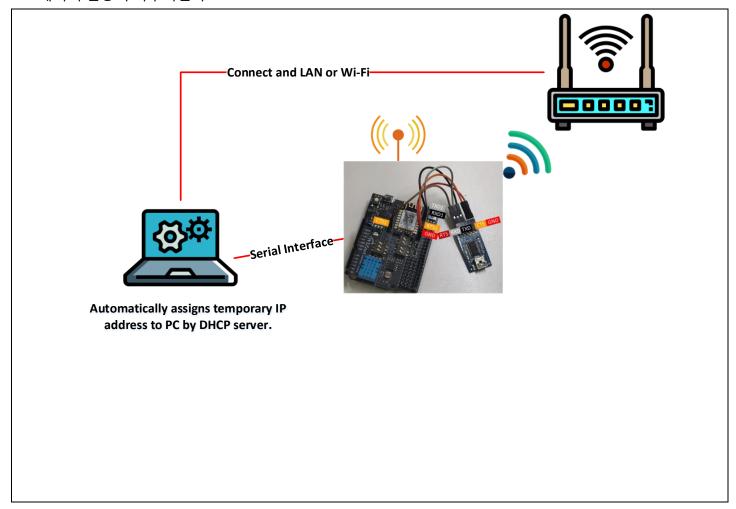
1. Test environment

UART Throughput Test 를 하기 위해서는 CTS/RTS 를 이용한 제어가 필요하다.

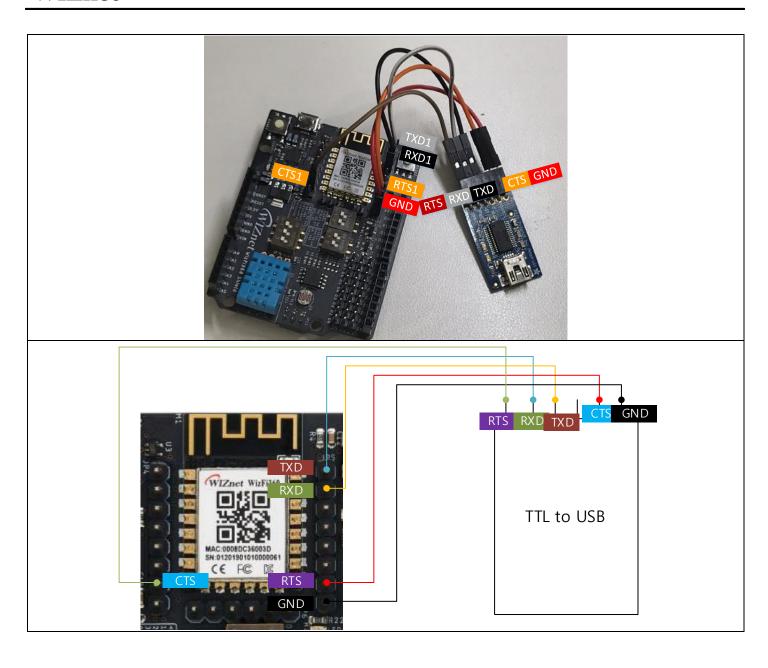
- WizFi360 EVB or WizFi360io
- PC
- Serial Tool
 - YAT Serial Tool(Data Mode)
 - Python(Command Mode)
- 1Mbyte data file
- WiFi Router(SoftAP mode 를 사용할 경우 제외)

Data Mode 일 경우에는 YAT Serial Tool 를 이용하여 RTS/CTS 를 설정하고, DTR 로 Data Read 신호 설정해준다. 그런 후 RTS/CTS 가 제어하면서 데이터 전송이 이루어진다.

Command Mode 일 경우에는 AT+CIPSENDBUF command 를 이용하여 한번에 최대 보낼 수 있는 데이터 Byte 수인 2048 을 설정한 후 2048 Byte 크기의 Data 를 보내고, 또다시 AT+CIPSENDBUF 와 데이터를 반복해가면서 데이터 전송이 이루어진다.









2. Using Serial command

- Station Mode

AT command	Terminal
AT	AT <cr><lf></lf></cr>
AT CHANGE CUE 4	<pre><cr><lf></lf></cr></pre>
AT+CWMODE_CUR=1	AT+CWMODE CUR=1 <cr><lf></lf></cr>
AT+CWDHCP_CUR=1,1	<cr><lf></lf></cr>
AT+CWLAP	OK <cr><lf></lf></cr>
ATTOWLAP	AT+CWDHCP_CUR=1,1 <cr><lf> <cr><lf></lf></cr></lf></cr>
AT+CWJAP_CUR="wizms1","maker0701"	0K <cr><lf></lf></cr>
AT+CIPSTA CUR?	AT+CWLAP <cr><lf></lf></cr>
ATTEN STA_COR.	+CWLAP:(4,"DIR-815_Wiznet",-59,"
	+CWLAP:(0, ESP_5/4935 ,-/1,
	+CWLAP:(3,"Matthew2.4",-63," ",2) <cr><lf></lf></cr>
	+CWLAP:(3,"rena",-46,"",3) <cr><lf></lf></cr>
	+CWLAP:(0,"iptime",-67," ",4) <cr><lf></lf></cr>
	+CWLAP:(3,"Dap",-63,"
	+CWLAP:(3,"wizms1",-63," ",6) <cr><lf></lf></cr>
	+CWLAP:(0,"Wizfi360",-69," ",6) <cr><lf></lf></cr>
	+CWLAP:(4,"DLINK-IPv6",-55," ",10) <cr><lf></lf></cr>
	+CWLAP: (0, "iptime", -59, "",11) <cr><lf></lf></cr>
	+CWLAP:(3,"WIZnet_Scott",-51,"",11) <cr><lf> +CWLAP:(0,"WizFi360 A1B2D1",-69,"",11)<cr><lf></lf></cr></lf></cr>
	+CWLAP:(0, WI2F1300 A10201 ,-09,,11) <cr><lf></lf></cr>
	<cr><lf></lf></cr>
	OK <cr><lf></lf></cr>
	AT+CWJAP_CUR="wizms1", "maker0701" <cr><lf></lf></cr>
	WIFI DISCONNECT <cr><lf> WIFI CONNECTED<cr><lf></lf></cr></lf></cr>
	WIFI GOT IP <cr><lf></lf></cr>
	<cr><lf></lf></cr>
	0K <cr><lf></lf></cr>
	AT+CIPSTA_CUR? <cr><lf></lf></cr>
	+CIPSTA_CUR:ip:"192.168.1.120" <cr><lf> +CIPSTA_CUR:gateway:"192.168.1.1"<cr><lf></lf></cr></lf></cr>
	+CIPSTA_COR:gateway: 192.100.1.1 <cr><lf></lf></cr>
	<cr><lf></lf></cr>
	0K <cr><lf></lf></cr>

UART CTS/RTS Setting

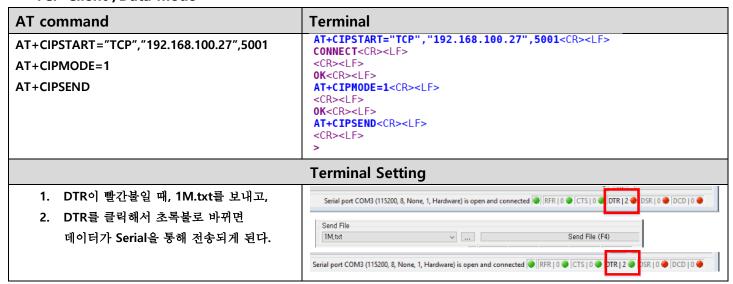
AT command	Terminal
AT+CWUART_CUR = 115200,8,1,0,1	AT+UART_CUR=115200,8,1,0,1 <cr><lf> <cr><lf> OK<cr><lf></lf></cr></lf></cr></lf></cr>
	Terminal Setting



Terminal Settings 1. Ctrl+Shift+S > Open the Settings 2. Flow Control안에 Hardware(RFR/CTS)로 Terminal Type: Text Text Settings,... 0K Port Type: Serial COM Port Cancel 변경 Port Settings Serial Port:

COM3 - USB Serial Port - (in use by this termin V Defaults... Bits per Second: 115200 Help Data Bits: Parity: None Stop Bits: Hardware (RFR/CTS) When connected, detect disconnect by monitoring the port every 500 ms When disconnected, try to reopen the port every Advanced Settings... 3. Terminal창 아래에 오면 CTS/DTR이 2048.txt ted 🍩 RFR | 0 🍩 CTS | 0 🍩 DTR | 0 🍩 초록으로 들어온 것을 확인할 수 있다.

TCP Client /Data mode



- TCP Client / Command mode

AT command	Terminal
AT+CIPSTART="TCP","192.168.100.27",5001	AT+CIPSTART="TCP","192.168.100.27",5001 <cr><lf> CONNECT-CR><lf></lf></lf></cr>
AT+CIPMODE=0	<cr><lf> 0K<cr><lf></lf></cr></lf></cr>
AT+CIPSENDBUF=2048	AT+CIPMODE=0 <cr><lf> AT+CIPMODE=0<cr><lf> <rp><if></if></rp></lf></cr></lf></cr>
Send the 1Mbyte.txt	OK <cr><lf> AT+CIPSENDBUF=2048<cr><lf> AT+CIPSENDBUF=2048<cr><lf> 1,0<cr><lf> <cr><lf> OK<cr><lf> 0K<cr><lf></lf></cr></lf></cr></lf></cr></lf></cr></lf></cr></lf></cr></lf></cr>
	>

3. The result of UART Throughput

1Mbyte를 PC에서 WizFi360의 Serial(UART1)로 데이터를 보내고, TCP Server로 데이터를 전송한다.



Baud rate	aud rate Data mode		Command mode	
	Time	Speed(bit/s)	Time	Speed(bit/s)
115200	123s	66K	93.9s	87.2K
921600	16.3s	502K	14.0s	585.1K
1000000	14.9s	550K	13.0s	630.2K
1250000	12.7s	645K	11.0s	744.7K
1500000	10.5s	780K	10.0s	819.2K
2000000	9.7s	845K	8.0s	1.0M

해당 속도는 Wireshark를 이용하여, 데이터 전송시작부터 완료되는 시점까지의 시간을 측정한 것은 Appendix 1을 보면 된다.

Appendi	ix 1	
Baud rate	Data mode	Command mode
115200	123s : 66Kbit/s	93.9s : 87.2Kbit/s
	3823 122.566989 192.166.109.27 192.166.109.28 TCP 54 5001 + 2216.1 [ACK] Sept-1 Ack-1023058 Nim-95355 (sem-0 3826 122.5665199 192.166.109.27 192.166.109.28 TCP 409 2516.1 5001 [TP Nim	5 1.88944 1 992.168.0.2 192.168.0.4 CP 1078 51009 > 8000 [ACK] Sept-1 Ack-2 Min-6144 (em-1024 files) 192.168.0.4 192.168.0.2 TP 1078 51009 > 8000 [PSH, ACK] Sept-1 Ack-2 Min-6144 (em-1024 files) 192.168.0.4 192.168.0.2 TP 1078 51009 > 8000 [PSH, ACK] Sept-2 Ack-2009 Min-64512 Lem-0 files 192.168.0.2 192.168.0.4 TP 1078 51009 > 8000 [ACK] Sept-2 Ack-2009 Min-64512 Lem-0 files 192.168.0.2 192.168.0.4 TP 1078 51009 > 8000 [PSH, ACK] Sept-2 Ack-2009 Min-64512 Lem-0 files 192.168.0.2 TP 1078 51009 > 8000 [PSH, ACK] Sept-2 Ack-2006579 Min-64512 Lem-0 files 192.168.0.2 TP 1078 51009 > 8000 [PSH, ACK] Sept-2 Ack-2006579 Min-64512 Lem-0 files 192.168.0.2 TP 1078 51009 > 8000 [PSH, ACK] Sept-2 Ack-2006579 Min-64512 Lem-0 files 192.168.0.2 TP 1078 51009 > 8000 [ACK] Sept-2 Ack-2006579 Min-64512 Lem-0 files 192.168.0.2 TP 1078 51009 > 8000 [ACK] Sept-2 Ack-2006579 Min-64512 Lem-0 files 192.168.0.2 TP 1078 51009 > 8000 [ACK] Sept-2 Ack-2006579 Min-64512 Lem-0 files 192.168.0.2 TP 1078 51009 > 8000 [ACK] Sept-2 Ack-2006579 Min-6512 Lem-0 files 192.168.0.2 TP 1078 51009 > 8000 [ACK] Sept-2 Ack-2006579 Min-6512 Lem-0 files 192.168.0.2 TP 1078 51009 > 8000 [ACK] Sept-2 Ack-2006579 Min-6512 Lem-0 files 192.168.0.2 TP 1078 51009 > 8000 [ACK] Sept-2 Ack-2006579 Min-6512 Lem-0 files 192.168.0.2 TP 1078 51009 > 8000 [ACK] Sept-2 Ack-2006579 Min-6512 Lem-0 files 192.168.0.2 TP 1078 51009 > 8000 [ACK] Sept-2 Ack-2006579 Min-6512 Lem-0 files 192.168.0.2 TP 1078 51009 > 8000 [ACK] Sept-2 Ack-2006579 Min-6512 Lem-0 files 192.168.0.2 TP 1078 51009 > 8000 [ACK] Sept-2 Ack-2006579 Min-6512 Lem-0 files 192.168.0.2 TP 1078 51009 > 8000 [ACK] Sept-2 Ack-2006579 Min-6512 Lem-0 files 192.168.0.2 TP 1078 51009 > 8000 [ACK] Sept-2 Ack-2006579 Min-6512 Lem-0 files 192.168.0.2 TP 1078 51009 > 8000 [ACK] Sept-2 Ack-2006579 Min-6512 Lem-0 files 192.168.0.2 TP 1078 51009 > 8000 [ACK] Sept-2 Ack-2006579 Min-6512 Lem-0 files 192.168.0.2 TP 1078 51009 > 8000 [ACK] Sept-2 Ack-2006579 Min-6512 Lem-0 files 192.168.0.2 TP 1078 51009 > 8000 [ACK] Sept-2 Ack-20
921600	16.3s :502Kbit/s	14.0s : 585.1Kbit/s
	2947 56.27722 192.166.180.28 29 242.166.180.27 107 2978 53255 - 980 [ACS] Sec-1002256 63-62-18 1076-6426 [TC segment of 2559 16.357729 192.166.180.28 292.166.180.28 107 55.981 - 32165 [ACS] Sec-10.28255 108-04 [TC segment of 2559 16.357729 192.166.180.28 107 25.981 - 32165 [ACS] Sec-10.28255 108-04 [TC segment of 2559 16.357729 192.166.180.28 107 55.981 - 32165 [ACS] Sec-1 Ack-1824801 Min-6479 Len-08 [TCP segment of 2559 16.357729 192.166.180.28 107 55.981 - 32165 [ACS] Sec-1 Ack-1824801 Min-6479 Len-08 [TCP segment of 2559 16.357729 192.166.180.28 107 55.981 - 32165 [ACS] Sec-1 Ack-1824801 Min-6479 Len-08 [TCP segment of 2559 16.357729 192.166.180.28 107 55.981 - 32165 [ACS] Sec-1 Ack-1824801 Min-6479 Len-08 [TCP segment of 2559 16.357729 192.166.180.28 107 55.981 - 32165 [ACS] Sec-1 Ack-1824801 Min-6479 Len-08 [TCP segment of 2559 16.357729 192.166.180.28 107 55.981 - 32165 [ACS] Sec-1 Ack-1824801 Min-6479 Len-08 [TCP segment of 2559 16.357729 192.166.180.28 107 55.981 - 32165 [ACS] Sec-1 Ack-1824801 Min-6479 Len-08 [TCP segment of 2559 16.357729 192.166.180.28 107 55.981 - 32165 [ACS] Sec-1 Ack-1824801 Min-6479 Len-08 [TCP segment of 2559 16.357729 192.166.180.28 107 55.981 - 32165 [ACS] Sec-1 Ack-1824801 Min-6479 Len-08 [TCP segment of 2559 16.357729 192.166.180]	\$151,047736 192,168.0.2 192,168.0.4 CP 1078 50155 + 3000 [ACK] Seq-1 & Ack-2 & Lin-6144 Len-1024 1571,04757 192,168.0.4 192,168.0.4 CP 1078 50155 + 3000 [ACK] Seq-2 & Ack-2003 & Lin-6144 Len-1024 1593,047816 192,168.0.4 192,168.0.4 CP 1078 50155 + 3000 [ACK] Seq-2 & Ack-2003 & Lin-6144 Len-1024 1593,04786 192,168.0.2 192,168.0.4 CP 1078 50155 + 3000 [ACK] Seq-2 & Ack-2003 & Lin-6144 Len-1024 1593,0478 102,168.0.2 192,168.0.4 CP 1078 50155 + 3000 [ACK] Seq-2 & Ack-2003 & Lin-6144 Len-1024 1593,0478 102,168.0.2 192,168.0.4 CP 1078 50155 - 3000 [ACK] Seq-2 & Ack-200529 & Lin-6144 Len-1024 1593,0478 102,168.0.2 TP 1078 50155 - 3000 [ACK] Seq-2 & Ack-200529 & Lin-6144 Len-1024 1593,0478 102,168.0.2 TP 1078 50155 - 3000 [ACK] Seq-2 & Ack-200529 & Lin-6144 Len-1024 1593,0478 102,168.0.2 TP 1078 50155 - 3000 [ACK] Seq-2 & Ack-200529 & Lin-6144 Len-1024 1593,0478 102,168.0.2 TP 1078 50155 - 3000 [ACK] Seq-2 & Ack-200529 & Lin-6144 Len-1024 1593,0478 102,168.0.2 TP 1078 50155 - 3000 [ACK] Seq-2 & Ack-200529 & Lin-6144 Len-1024 1593,0478 102,168.0.2 TP 1078 50155 - 3000 [ACK] Seq-2 & Ack-200529 & Lin-6144 Len-1024 1593,0478 102,168.0.2 TP 1078 50155 - 3000 [ACK] Seq-2 & Ack-200529 & Lin-6144 Len-1024 1593,0478 102,168.0.2 TP 1078 50155 - 3000 [ACK] Seq-2 & Ack-200529 & Lin-6144 Len-1024 1593,0478 102,168.0.2 TP 1078 50155 - 3000 [ACK] Seq-2 & Ack-200529 & Lin-6144 Len-1024 1593,0478 102,168.0.2 TP 1078 50155 - 3000 [ACK] Seq-2 & Ack-200529 & Lin-6144 Len-1024 1593,0478 102,168.0.2 TP 1078 50155 - 3000 [ACK] Seq-2 & Ack-200529 & Lin-6144 Len-1024 1593,0478 102,168.0.2 TP 1078 50155 - 3000 [ACK] Seq-2 & Ack-200529 & Lin-6144 Len-1024 1593,0478 102,168.0.2 TP 1078 50155 - 3000 [ACK] Seq-2 & Ack-200529 & Lin-6144 Len-1024 1593,0478 102,168.0.2 TP 1078 50155 - 3000 [ACK] Seq-2 & Ack-200529 & Lin-6144 Len-1024 1593,0478 102,168.0.2 TP 1078 50155 - 3000 [ACK] Seq-2 & Ack-200529 & Lin-6144 Len-1024 1593,0478 102,168.0.2 TP 1078 50155 - 3000 [ACK] Seq-2 & Ack-200529 & Lin-6144 Len-1024 1593,0478
1000000	14.9s: 550Kbit/s	13.0s : 630.2Kbit/s
	3889 14.774321 192,164.180-28 192,163.180-27 TCP 499 53128 -590 [795, ACC] Seeq-282225 Acc1-3 Min-6444 (Leve-405 [TCP 5389] 14.813945 192,164.180-28 192,164.180-27 TCP 494 53128 -5901 [796, ACC] Seeq-282235 Acc1-3 Min-6444 (Leve-405 [TCP 548] 192,164.180-28 192,164.180-28 TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-6444 (Leve-406 [TCP 3877 14.859281 192,164.180-27 192,164.180-28 TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-6444 (Leve-406 [TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-64459 (Leve-40 [TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-64459 (Leve-40 [TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-64459 (Leve-40 [TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-64459 (Leve-40 [TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-64459 (Leve-40 [TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-64459 (Leve-40 [TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-64459 (Leve-40 [TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-64459 (Leve-40 [TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-64459 (Leve-40 [TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-64459 (Leve-40 [TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-64459 (Leve-40 [TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-64459 (Leve-40 [TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-64459 (Leve-40 [TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-64459 (Leve-40 [TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-64459 (Leve-40 [TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-64459 (Leve-40 [TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-64459 (Leve-40 [TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-64459 (Leve-40 [TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-64459 (Leve-40 [TCP 494 53128 -5901 [796, ACC] Seeq-1202561 Acc1-3 Min-64459 (Leve-40 [TCP 494 53128 -5901 [TCP 494 53128 -	15 9, 855125 192, 186, 0-2 192, 186, 0-8. TCP 1978 60999 + 8000 [FA/C] Seq-1 AC/C2 Viime5144 Lenn-1924 179, 855207 192, 186, 0-4 192, 186, 0-8. TCP 1978 60999 - 8000 [FSI, AC/C] Seq-2 AC/C-2409 Viim-64512 Lenn-0 199, 880881 192, 186, 0-2 192, 186, 0-8. TCP 1978 60999 - 8000 [FSI, AC/C] Seq-2 AC/C-2409 Viim-64512 Lenn-0 199, 880881 192, 186, 0-2 192, 186, 0-8. TCP 1978 60999 - 8000 [FSI, AC/C] Seq-2 AC/C-2409 Viim-64514 Lenn-1924 1553 122, 852225 192, 186, 0-8. TCP 1978 60999 - 8000 [FSI, AC/C] Seq-2 AC/C-24095 Viim-64512 Lenn-0 1978 60999 - 8000 [FSI, AC/C] Seq-2 AC/C-24095 Viim-64512 Lenn-0 1978 60999 - 8000 [FSI, AC/C] Seq-2 AC/C-24095 Viim-64512 Lenn-0 1978 60999 - 8000 [FSI, AC/C] Seq-2 AC/C-24095 Viim-64512 Lenn-0 1978 60999 - 8000 [FSI, AC/C] Seq-2 AC/C-24095 Viim-64512 Lenn-0 1978 60999 - 8000 [FSI, AC/C] Seq-2 AC/C-24095 VIIm-64512 Lenn-0 1978 60999 - 8000 [FSI, AC/C] Seq-2 AC/C-24095 VIIm-64512 Lenn-0 1978 60999 - 8000 [FSI, AC/C] Seq-2 AC/C-24095 VIIm-64512 Lenn-0 1978 60999 AC/C Seq-2 AC/C-24095 VIIIm-64512 Lenn-0 1978 60999 AC/C Seq-2 AC
1250000	12.7s : 645Kbit/s	11.0s : 744.7Kbit/s
	286.12.592480 192.166.100.28 192.168.100.27 TCP 409.58156 - 5901 [FSH, ACK] Seg-1023285 Act-1 kin-6454 Len-d 266.12.674856 192.168.100.28 TCP 54 5001 - 5813 (KK, Seg-1 Act-1204201 kin-6599 (Len-d 266.12.674856 192.168.100.28 192.168.100.28 TCP 44.58136 - 5801 [FSH, ACK] Seg-10232821 Act-1 kin-6144 Len-d 266.12.674856 192.168.100.27 TCP 44.58136 - 5801 [FSH, ACK] Seg-10232621 Act-1 kin-6144 Len-d 266.12.674856 192.168.100.27 TCP 54.5801 [FSH, ACK] Seg-1 Act-1024001 kin-64779 Len-d 266.12.674856 192.168.100.27 TCP 54.5801 [FSH, ACK] Seg-1 Act-1024001 kin-64779 Len-d 266.12.674856 192.168.100.28 TCP 54.5801 [FSH, ACK] Seg-1 Act-1024001 kin-64779 Len-d 266.12.674856 192.168.100.28 TCP 54.5801 [FSH, ACK] Seg-1 Act-1024001 kin-64779 Len-d 266.12.674856 192.168.100.28 TCP 54.5801 [FSH, ACK] Seg-1 Act-1024001 kin-64779 Len-d 266.12.674856 192.168.100.28 TCP 54.5801 [FSH, ACK] Seg-1 Act-1024001 kin-64779 Len-d 266.12.674856 192.168.100.28 TCP 54.5801 [FSH, ACK] Seg-1 Act-1024001 kin-64779 Len-d 266.12.674856 192.168.100.28 TCP 54.5801 [FSH, ACK] Seg-1 Act-1024001 kin-64779 Len-d 266.12.674856 192.168.100.28 TCP 54.5801 [FSH, ACK] Seg-1 Act-1024001 kin-64779 Len-d 266.12.674856 192.168.100.28 TCP 54.5801 [FSH, ACK] Seg-1 Act-1024001 kin-64779 Len-d 266.12.674856 192.168.100.28 TCP 54.5801 [FSH, ACK] Seg-1 Act-1024001 kin-64779 Len-d 266.12.674856 192.168.100.28 TCP 54.5801 [FSH, ACK] Seg-1 Act-1024001 kin-64779 Len-d 266.12.674856 192.168.100.28 TCP 54.5801 [FSH, ACK] Seg-1 Act-1024001 kin-64779 Len-d 266.12.674856 192.168.100.28 TCP 54.5801 [FSH, ACK] Seg-1 Act-1024001 kin-64779 Len-d 266.12.674856 192.168.100.28 TCP 54.5801 [FSH, ACK] Seg-1 Act-1024001 kin-64779 Len-d 266.12.674856 192.168.100.28 TCP 54.5801 [FSH, ACK] Seg-1 Act-1024001 kin-64779 [FSH	6 [T 10 11 12 13 14 15 15 15 15 15 15 15
1500000	10.5s: 780Kbit/s	10.0s : 819.2Kbit/s
	2242 10.389973 192.166.109.28 192.166.109.27 TCP 490 65221 - 5001 [PSH, ACC] Seq-9232974 Ack-s1 Him-6544 2244 10.489942 192.166.109.28 TCP 54 5001 - 65021 [ACK] Seq-1 Ack-1023201 Him-65994 2245 10.445997 192.166.109.28 192.166.109.27 TCP 545 65922 - 5001 [PSH, ACC] Seq-1023510 Ack-s1 Him-6144 2247 10.486915 192.166.109.27 192.166.109.28 TCP 54 5001 - 65021 [ACK] Seq-1 Ack-1024601 Him-646608 Len-	0 41.958012 192.168.0.2 192.168.0.4 TCP 1078 60368 → 8000 [PSH, ACK] Seq=1025 Ack=2 Win=6144 Len=1024
2000000	9.7s : 845Kbit/s	8.0s : 1.0Mbit/s
	6319 9.546337 192.183.109.28 192.188.109.27 TCP 496.6391 - 5901 [FS], ACK] Seq-192.2245 Ack-1 kin-ef. 6317 9.685546 192.183.109.27 192.188.109.28 TCP 45.5001 - 65931 [ACK] Seq-1 Ack-1023681 kin-65995 6318 9.699489 192.183.109.28 192.188.109.27 TCP 374.65931 - 5901 [FS], ACK] Seq-192.25631 Ack-1 kin-ef. 6319 9.731538 192.188.109.27 192.168.109.28 TCP 54.5001 - 65931 [ACK] Seq-1 Ack-1024001 kin-64779 L	en-4 2.496860 192.168.0.2 192.168.0.4 TCP 1078 63635 → 8000 [PSH, ACK] Seq=1025 ACk=2 Win=6144 Len=1024 44 5 2.496029 192.168.0.4 192.168.0.2 TCP 54 8000 → 63635 [ACK] Seq=2 Ack=2049 Win=64512 Len=0