

## How to debug a HTTP POST request

In some applications the System-on-Module eSOM/9263 acts as a HTTP-based data source. In this case the eSOM/9263 captures data from external devices over a UART, CAN, SPI, or I2C interface and transfers these data with a HTTP POST request to an external web server or a cloud-based web service.

Under some debugging circumstances it can be necessary to visualize the data fields of the HTTP POST request which goes from the eSOM/9263 Ethernet LAN interface to the external web server or the cloud-based web service.

- **1. Step**: Make sure that your PC runs a HTTP server (e.g. *Apache* form the Apache Software Foundation, please see <u>http://www.apache.org/</u>). Then change the IP address of the eSOM/9263 HTTP POST requester software to the IP address of your PC.
- **2. Step**: Run the *Wireshark* network protocol analyzer on your PC system. Then enter the following filter rule

## ip.addr == 192.168.0.240 && http

to the *Wireshark* filter bar (192.168.0.240 is in this sample the IP address of the PC – replace this address with the IP address of your PC). The filter bar allows you to enter a filter string that restricts which packets are displayed in the *Wireshark* summary window.



• **3. Step**: Activate the *Wireshark* capture mode and capture some eSOM/9263 HTTP POST request packets. Then stop the capture mode.



R Bro	adcom NetXtreme Gigabit Etherr	net Driver (Microsoft's Packet S	cheduler) : Capturing - W	/ireshark		
<u>File</u> E	dit <u>V</u> iew <u>G</u> o <u>C</u> apture <u>A</u> nalyze S	tatistics Telephony Tools Help				
		L			🖥 💥 🛙 🛱	Sec. Sec.
Filter:	p.addr == 192.168.0.240 && http	<b>T</b>	Expression Clear Apply			
No	Time	Source	Destination	Protocol	Info	
3	70 16:21:54.403857	192.168.0.125	192.168.0.240	HTTP	POST / HTTP/1.1 (application/json)	
	/1 16:21:54.40442/	192.168.0.240	192.108.0.125	HIIP	HIIP/I.I 200 OK (text/ntml)	E
I						
🗄 Fra	me 370 (1471 bytes on wir	re, 1471 bytes captured)				
🗄 Eth	ernet II, Src: CadmusCo_7	72:65:9a (08:00:27:72:65	:9a), Dst: SamsungE_	_02:dc:5e (00:	13:77:02:dc:5e)	
∃ Int	ernet Protocol, Src: 192.	.168.0.125 (192.168.0.12	5), Dst: 192.168.0.2	240 (192.168.0	.240)	
⊞ Tra Tra	nsmission Control Protoco	DI, Src Port: 361// (361	//), Dst Port: http	(80), Seq: 19	0, Ack: 1, Len: 1405	
± [Ke	assembled TCP Segments ()	194 bytes): #308(189),	#570(1405)]			
± ny⊧ ≡ ir	e-based text data: applic	ration/ison				
	\n	caciony joon				
1	data":{\n					
	"device":{ \n					
	"0":{\n					
	"type":"INVERTER",\n					
	"name":"WR1",\n					
	"info":"Wechselrichter	",∖n				
	"vendor":"SMA Solar Teo	chnology", \n				
	model : wk/00-0/ ,(n					
	"chappel":{ \p					
	"O":{"name":"E-Total"	"value"."5294_500251" "	nit"∙"kwh"}∖n			
	"1":{"name":"Ipv"."va	lue":"43646.000000"."uni	t":"mA"}.\n			
	"2":{"name":"Upv","va	lue":"106.000000","unit"	"V"}\n			
	}\n					
	},∖n					
	"2":{\n					
	"type":"INVERTER",\n					
	"name":"WR3",\n					
	"info": "Wechselrichter"	", \n				
	vendor : SMA Solar leo	cnnology , \n				
	"co"."0200025" \o					~
00b0	67 74 68 3a 20 31 34 30	35 Od Oa Od Oa 7b Oa 2	qth: 140 5			
00c0	64 61 74 61 22 3a 7b 0a	20 22 64 65 76 69 63 6	data":{. "devic	e		
0000	22 3a 7b 20 0a 20 20 22 22 74 70 70 65 22 25 25	30 22 3a 70 0a 20 20 20 40 40 56 45 53 54 45 5	"tyme"," typepte			~
Frame (	1471 bytes) Reassembled TCP (1594 by	/tes)				
🔾 Line-	based text data (data-text-lines), 1405 b	ytes Packet:	:: 555 Displayed: 2 Marked: 0			Profile: Default .:

• **4. Step:** Select in the summary window one packet with a eSOM/9263 HTTP POST request. Then use the *Wireshark* menu item *File* => *Export* => *Selected Packet Bytes*.

🗖 Broadcom Ne	tXtreme Gigal	bit Etl	nernet Driv	er (Micros	oft's Pa	cket Sc	heduler) : Cap	turing - Wires	hark					
<u>Eile Edit View</u>	<u>Go</u> <u>C</u> apture	Analyz	e Statistics	Telephony	Tools	Help								
Dpen	Ctr	1+0	28	Q 🗢 i	⇒ 😜	<b>7 2</b>				3 %	1			
Open <u>R</u> ecent <u>M</u> erge						•	Expression C	ear Apply						
K Close	Ctri	+-W	2	Source			Destination		Protocol	Info				
ave <u>S</u> ave	Ct	rl+S	1	192.168.	0.125		192.168.0	0.240	HTTP	POST /	HTTP/1.1	(application/json)		
Save <u>A</u> s	Shift+Ct	rl+S	1	L92.168.	0.240		192.168.0	).125 ).240	HTTP	POST /	.1 200 OK HTTP/1.1	(text/html) (application/ison)		
File Set		•	1	192.168.	0.240		192.168.0	0.125	HTTP	HTTP/1	.1 200 OK	(text/html)		
Export		•	File	192.108.	0.125		192.168.0	).125	HTTP	HTTP/1	.1 200 OK	(text/html)		
C. Duint	0	4.0	Selected I	Packet <u>B</u> ytes	(	trl+H								
= en		п+Р	Objects			• :	9a), Dst: 5	amsungE_02:	dc:5e (00:	13:77:02	2:dc:5e)			
🐔 Quit	Ctr	1+Q 1	92.168.0	.125 (19	2.168	0.125	), Dst: 192	.168.0.240	(192.168.0	.240)				
🗑 Transmission Control Protocol, Src Port: 36177 (36177), Dst Port: http (80), Seq: 190, Ack: 1, Len: 1405														
🗄 [Reassemb]	ed TCP Segn	nents	(1594 bj	ytes):#	368(1	39), #	370(1405)]							
⊞ Hypertext	Transfer Pr	otoc	:01											
🔲 Line-based	E Line-based text data: application/json													

• **5. Step:** Save the HTTP request data to an external file (*Wireshark Export Raw Data*).

Wireshark: Exp	ort Raw Data						? 🛛
Speichern in:	C temp			•	(÷	r 🖬	
Zuletzt verwendete D Desktop Eigene Dateien	CORIVER Google-appeng MSI E test	ne-docs-20090508					
Arbeitsplatz						_	
	Dateiname:	"test.txt"				-	Speichern
Netzwerkumgeb	Dateityp:	Raw data (".bin, ".d	lat, ".raw)			-	Abbrechen
ung							Hilfe
1405 bytes of raw I	binary data will be w	itten					



• **6. Step:** View the new data file. If the file contains plain text the *Wireshark* export data file can be viewed with any text editor. Otherwise use an editor with hex output (e. g. *PSPad Hex*).



**Please note:** In this sample the eSOM/9263 HTTP POST request contains JSON-based data of a photovoltaic system.

That's all.