# RAK8213 With Mini PCIe EVB User Manual

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# 1. Required materials(hardware,tools)

- RAK8213 x1
- Mini PCle EVB x1
- PC x1







### 2. Introduction

This document mainly describes how to use the Mini PCIe EVB to test the RAK8213. This document may involve some information about the BG96 module. Please check the BG96 related documentation for this information.

The main contents of this document include:

- 1. How to use the USB interface to send commands to the BG96 module?
- 2. How to use the UART serial port to send commands to the BG96 module?
- 3. How to use the Hologram SIM card to connect to the network?



## 3. Use USB Control RAK8213

Plug the RAK8213 into the corresponding interface of the Mini PCIe EVB. Then use a Micro USB cable to connect the EVB to your computer. (Currently only supports Windows), Then, in your computer device management you can see the device shown below.



If your computer does not have this device, you may need to install the BG96 USB driver. Driver download address see official website:

http://docs.rakwireless.com/en/WisLTE/Tools/Quectel\_BG96\_Windows\_USB\_Driver\_V1.0.zip

Open the serial port tool and select the serial port number of AT Port. This tool can be downloaded here: <u>http://docs.rakwireless.com/en/WisLTE/Tools/QCOM\_V1.6.zip</u>

out											
	COM Port	Setting		17			Command List				
COM Port:	Baudrate: 115200 -	StopBits: 1	Pari	ty: None 🔻	Choo	se All Comman	ds	HEX	∏ E	nter	Delay (mS
			_		<b>▼</b> 1:	AT+QCFG="NWSC.	ANSEQ", 03	Г	$\overline{\mathbf{v}}$	1	
ByteSize: 8 🔻	Flow Control: No Ctrl	Flow -		Open Port	<b>▼</b> 2:	AT+QCFG="IOTO:	PMODE", 1	Г	1	2	
					<b>▼</b> 3:	AT+QCFG="BAND	", 0, 10, 10	Г	•	3	
					<b>▼</b> 4:	AT+QCFG="NBSI	BSCRAMBLE", O	Г		4	10000
					<b>▼</b> 5:	AT+CSQ		Г	•	5	1 í
					<b>▼</b> 6:	AT+QICSGP=1, 1	"JTM2M", "", "", 1		1	6	
					7:	AT+QIACT=1		Г	•	7	
					8:	AT+QIACT?		Г		8	
					9:	AT+CGPADDR=1		Г	•	9	
					10:	AT+QGPSCFG=?		Г		10	
					<b>[</b> 11:]	AT+QGPS=1		Г		11	
					12:	AT+QGPSLOC?		Г		12	
					□ 13:	AT+QGPSEND			~	13	1 í
					□ 14:	AT+CIMI		Г		14	
					T 15:	AT+CGATT?			~	15	í –
					T 16:	AT+CREG?		Г	1	16	
					17:	AT+CGREG?		Г	•	17	l í
					T 18:	AT+QICLOSE=0		Г	1	18	
					19:	AT+COPS?		Г	•	19	
					20:	AT+QIOPEN=1, 0	"TCP", "116.247.104.27"	Г		20	
					21:	AT+QIOPEN=1,0	"TCP", "23. 253. 146. 203"	Г	•	21	1 i
					22:	AT+QISTATE=0,	1		₹	22	
					23:	AT+QNWINFO		Г	•	23	
					24:	AT+QISENDEX=0	"db0011fa0000587f0009(	Г		24	
	Opera	tion			25:	AT+QISEND=0,4	3	Г	~	25	
Clear Information	🗖 DTR 🥅 RTS	🔲 View File	🔽 Show	v Time	26:	AT+QIRD=11, 15	00	Г	<b>V</b>	26	
fanut Stuing:	HEX String	Show In HEX	🔽 Send	d With Enter	27:	AT+QIOPEN=1, 1	"TCP LISTENER", "127.0.	Г		27	
input string.				E F	28:	AT+QPING=1, "1	17.60.157.30″	Г	•	28	
			<u>^</u>	Send Command	29:	AT+COPS=1, 0, "	CHINA MOBILE", O		~	29	
			*						Rur	Times	1
Select File				Send File	Load 7	fest Script	Clear All Commands		nun	ines.	1.
								Dela	ay Tim	ne(mS):	2000



Send AT, the device returns OK to prove that the device is normal, detailed AT commands refer to BG96's AT manual.

COM Port Setting	Command List			
	Choose All Commands	нех Г	Enter	Delay (mS
com fort. 23 V Baudrate: 115200 V Stoppits. 1 V Farity. None	▼ 1: AT+9CFG="NWSCANSE9".03		7 1	
ByteSize: 8 - Flow Control: No Ctrl Flow - Close Po	t Z: AT+OCFG="TOTOPMODE" 1		2 2	1 i
	✓ 3: AT+9CFG="BAND", 0, 10, 10		7 3	
	4: AT+OCFG="NBSIBSCRAMBLE".0		4	10000
010-06-28_10:52:11:442]0K	▼ 5: AT+CS9	EF	7 5	
010 00 20_10.02.11. H2J0K	✓ 6: AT+0ICSGP=1.1. "ITM2M". "" 1		6	1'
	▼ 7: AT+0TACT=1		7 7	11
	✓ 8: [AT+0TACT?]	- F	7 8	1;
	9 AT+CGPADDR=1	EF	7 9	1
	10: AT+0GPSCFG=?		7 10	11
	11: AT+0GPS=1	E	7 11	1;
	12: AT+0GPSLOC?		12	1i
	13: AT+QGPSEND	FF	7 13	11
	14: AT+CIMI	FF	7 14	1
	15: AT+CGATT?	FF	7 15	1í
	16: AT+CREG?	EF	16	1i
	T 17: AT+CGREG?	FF	7 17	1
	18: AT+QICLOSE=0	EF	7 18	1
	19: AT+COPS?	EF	7 19	1
	20: AT+QIOPEN=1, 0, "TCP", "116.247.104.27"	FF	20	1
018-06-28_18:52:06:638] Open COM Port Success	21: AT+QIOPEN=1, 0, "TCP", "23. 253. 146. 203"	FF	21	
	22: AT+QISTATE=0, 1		22	1
	23: AT+QNWINFO	F	23	
	24: AT+QISENDEX=0, "db0011fa0000587f00090	FF	24	] [
Operation	25: AT+QISEND=0, 48	EF	7 25	
Clear Information   🗍 DTR 🦳 RTS 🦳 View File 🔽 Show Time	C 26: AT+QIRD=11, 1500		26	1
nunt String 🔽 Show In HEX 🔽 Send With Ent	r 27: AT+QIOPEN=1, 1, "TCP_LISTENER", "127.0.	Πp	7 27	
	28: AT+QPING=1, "117.60.157.30"	FF	28	
AI Send Com	and 29: AT+COPS=1,0, "CHINA MOBILE",0		7 29	
		F	un Times	1
Select File Send Fi	e Load lest Script Clear All Commands	Delay	Time(mS)	2000



## 4. Use UART Control RAK8213

Use a USB to RS232 serial cable to connect the Mini PCIe EVB to your computer.( Computer supports Windows and MAC, Linux)

This device will appear in your computer's device management interface at this time.( Different computers, different serial line drivers may not be the same, this time the user needs to follow Google's own environment to search for the corresponding driver installation)

Ports (COM & LPT)
 ELTIMA Virtual Serial Port (COM2->COM4)
 ELTIMA Virtual Serial Port (COM4->COM2)
 USB Serial Port (COM66)

After your computer recognizes the serial port, open the serial port tool. The serial port tool can be downloaded here: <u>http://docs.rakwireless.com/en/WisLTE/Tools/QCOM\_V1.6.zip</u>. This tool is limited to Windows, MAC users recommend CoolTerm.

DM Fort: 66 V Baudrate: 115200 V StopBits: 1 V Parity: None V yteSize: 8 V Flow Control: No Ctrl Flow V Open Port	Command List Choose All Commands 1: AT+QCFG="INNSCANSEQ", 03 2: AT+QCFG="INNSCANSEQ", 03 2: AT+QCFG="INNSCANSEQ", 03 3: AT+QCFG="INSLESCRAMBLE", 0 4: AT+QCFG="INSLESCRAMBLE", 0 5: AT+CSQ 5: AT+CSQ 5: AT+QISCF=1, 1, "JTM2M", "", "", 1 5: AT+QIACT=1 5: AT+QIACT=1 5: AT+QIACT=1 5: AT+QGFSCFG=? 11: AT+QGFSCFG=? 12: AT+QGFSCFG=? 13: AT+QFSEND 14: AT+CIMI 5: AT+CI	ПППППППП Н	Enter 1 2 3 4 5 6 7 8 9 10	Delay (mS)
COM Fort Setting OM Fort: 66 • Baudrate: 115200 • StopBits: 1 • Parity: None • yteSize: 8 • Flow Control: No Ctrl Flow • Open Port	Command List Choose All Commands 1: AT+QCFG="NWSCANSEQ", 03 2: AT+QCFG="IOTOPMODE", 1 3: AT+QCFG="BAND", 0, 10, 10 4: AT+QCFG="MBSIESCRAMBLE", 0 5: AT+CSQ 5: AT+CSQ 5: AT+CSQ 5: AT+GCSGP=1, 1, "JTM2M", "", "", 1 7: AT+QIACT=1 5: AT+QGFADDR=1 10: AT+QGFSCFG=? 11: AT+QGFSCFG=? 12: AT+QGFSLOC? 13: AT+QGFSEND 14: AT+CIMI 14: AT+CIMI	Н Н Н Н Н Н Н Н Н Н Н Н Н Н	Enter 1 2 3 4 5 6 7 8 9 10	Delay (mS)
DM Fort: 56 V Baudrate: 115200 V StopBits: 1 V Parity: None V yteSize: 8 V Flow Control: No Ctrl Flow V Open Port	□ Choose All Commands           ▼ 1:         AT+QCFG="NHSCANSEQ", 03           ▼ 2:         AT+QCFG="IOTOFMODE", 1           ▼ 3:         AT+QCFG="IOTOFMODE", 1           ▼ 3:         AT+QCFG="BAND", 0, 10, 10           ▼ 4:         AT+QCFG="BSIESCRAMBLE", 0           ▼ 5:         AT+QCFG="NBSIESCRAMBLE", 0           ▼ 5:         AT+QCSGP=1, 1, "JTM2M", "", "", 1           ▼ 7:         AT+QIACT=1           ▼ 8:         AT+QIACT?           9:         AT+QGFSCFG=?           11:         AT+QGFSCFG=?           12:         AT+QGFSL0C?           13:         AT+QFSEND           14:         AT+CIMI	щ         щ	Enter 1 2 3 4 5 6 7 8 9 10	Delay (mS)
yteSize: 8 • Flow Control: No Ctrl Flow • Open Port	▼       1:       AT+QCFG="NHSCANSEQ", 03         ▼       2:       AT+QCFG="IOTOFMODE", 1         ▼       3:       AT+QCFG="IOTOFMODE", 1         ▼       3:       AT+QCFG="BAND", 0, 10, 10         ▼       4:       AT+QCFG="BAND", 0, 10, 10         ▼       5:       AT+QCFG="NBSIESCRAMBLE", 0         ▼       5:       AT+QCFG="NBSIESCRAMBLE", 0         ▼       5:       AT+QCSGP=1, 1, "JTM2M", "", "", 1         ▼       7:       AT+QIACT=1         ▼       8:       AT+QIACT=1         ▼       8:       AT+QIACT=1         ▼       8:       AT+QGRSENE         10:       AT+QGPSCFG=?       11:         11:       AT+QGPSCIOC?       13:         12:       AT+QGPSEND       14:         14:       AT+CIMI       14:	। । । । । । । । । । । । । ।	1 2 3 4 5 6 7 7 8 9 10	
yteSize: 8 • Flow Control: No Ctrl Flow • Open Port	✓       2:       AT+QCFG="IOTOFMODE", 1         ✓       3:       AT+QCFG="BAND", 0, 10, 10         ✓       4:       AT+QCFG="BAND", 0, 10, 10         ✓       5:       AT+QCFG="BAND", 0, 10, 10         ✓       7:       AT+QCFG="BAND", 0, 10, 10         ✓       7:       AT+QICSGP=1, 1, "JTM2M", "", "", 1         ✓       7:       AT+QIACT=1         ✓       8:       AT+QGACT=1         ✓       8:       AT+QGFSCFG=?         11:       AT+QGFSCFG=?       11:         12:       AT+QGFSLOC?       13:         13:       AT+QGFSEND       14:         14:       AT+CIMI       14:	ि ि ि ि ि ि ि ि ि ि ि ि ि ि ि ि ि ि ि	2 3 4 5 7 8 9 10	
	▼ 3:         AT+QCFG="BAND", 0, 10, 10           ▼ 4:         AT+QCFG="NBSIBSCRAMBLE", 0           ▼ 5:         AT+QCFG="NBSIBSCRAMBLE", 0           ▼ 5:         AT+QCFG="NBSIBSCRAMBLE", 0           ▼ 5:         AT+QICSGP=1, 1, "JTM2M", "", "", 1           ▼ 7:         AT+QIACT=1           ▼ 8:         AT+QIACT?           9:         AT+QGFSCFG=?           11:         AT+QGFSCFG=?           12:         AT+QGFSL0C?           13:         AT+QGFSEND           14:         AT+CIMI           10:         AT+QGFSEND	L     L	3 4 5 6 7 8 9 10	
	✓       4: AT+QCFG="NBSIESCRAMBLE", 0         ✓       5: AT+CSQ         ✓       6: AT+QICSGP=1, 1, "JTM2M", "", 1         ✓       7: AT+QIACT=1         ✓       8: AT+QIACT=1         ✓       9: AT+QGADDR=1         □0: AT+QGPSCFG=?         □11: AT+QGPSCFG=?         □12: AT+QGPSLOC?         □13: AT+QGPSEND         □4: AT+CIMI         □2: AT+CGP		4 5 7 8 9 10	
	▼ 5:         AT+CSQ           ▼ 6:         AT+QICSGP=1, 1, "JTM2M", "", 1           ▼ 7:         AT+QIACT=1           ▼ 7:         AT+QIACT?           9:         AT+CGPADDR=1           10:         [AT+QGPSCFG=?           11:         [AT+QGPSCIC?]           13:         [AT+QGPSEND]           14:         [AT+CIM1]		5 6 7 8 9	
	▼       6:       AT+QICSGP=1, 1, "JTM2M", "", "", 1         ▼       7:       AT+QIACT=1         ▼       8:       AT+QIACT?         □       9:       AT+CGPADDR=1         □10:       AT+CGPADDR=1         □11:       AT+CGPADDR=1         □12:       AT+CGPADDR=1         □13:       AT+CGPSEND         □14:       AT+CIMI		6 7 8 9 10	
	<ul> <li>▼ 7: [AT+QIACT=1</li> <li>▼ 8: [AT+QIACT?]</li> <li>9: [AT+CGPADDR=1</li> <li>10: [AT+QGPSCFG=?]</li> <li>11: [AT+QGPSE1</li> <li>12: [AT+QGPSLOC?]</li> <li>13: [AT+QGPSEND</li> <li>14: [AT+CIMI]</li> <li>14: [AT+CIMI]</li> </ul>		7 8 9 10	
	V         8:         AT+GIACT?           9:         AT+CGFADDR=1           10:         AT+CGFADDR=1           11:         AT+QGFSCFG=?           11:         AT+QGFSCFC           12:         AT+QGFSLOC?           13:         AT+QGFSEND           14:         AT+CIMI	। । । । । । । । । । । ।	8 9 10	
	9:         AT+CGPADDR=1           10:         AT+QGFSCFG=?           11:         AT+QGFSCFG=?           12:         AT+QGFSL0C?           13:         AT+QGFSEND           14:         AT+CIMI	। । । य य य य	9	
	10: [AT+QGFSCFG=?     11: [AT+QGFS=1     12: [AT+QGFSLDC?     13: [AT+QGFSEND     14: [AT+CIMI     14: [AT+CIMI     14: [AT+CIMI     14: [AT+CIMI     14: [AT+CIMI		10	
	I1: [AT+QGPS=1     I2: [AT+QGPSLOC?     I3: [AT+QGPSEND     I4: [AT+CIMI     I4: [AT+C	L 1		
	12: AT+QGPSLOC?     13: AT+QGPSEND     14: AT+CIMI     14: AT+CIMI		11	
	13: AT+QGPSEND     14: AT+CIMI	100 million	12	
	14: AT+CIMI		13	
	re la lancasana		14	
	15: AT+UGATT?		15	
	16: AT+CREG?		16	
	T 17: AT+CGREG?		17	1
	T 18: AT+QICLOSE=0		18	
	19: AT+COPS?		19	
	20: AT+QIOPEN=1, 0, "TCP", "116. 247. 104. 27"		20	
	21: AT+QIOPEN=1, 0, "TCP", "23. 253. 146. 203"		21	
	22: AT+QISTATE=0, 1		22	
	23: AT+QNWINFO		23	
	24: AT+QISENDEX=0, "db0011fa0000587f00090		24	1
Operation	25: AT+QISEND=0, 48		25	1
lear Information 🗌 🗖 DTR 🦳 RTS 🦷 View File 🔽 Show Time	26: AT+QIRD=11, 1500		26	1 i
HEX String Show In HEX Send With Enter	27: AT+QIOPEN=1, 1, "TCP LISTENER", "127.0.		27	1
put String:	28: AT+QPING=1, "117.60.157.30"		28	1
* Send Command	29: AT+COPS=1, 0, "CHINA MOBILE", 0		29	1
·		1.122.022		
Salant File	Load Test Script   Clear All Commands	Kur	L limes:	1
Send File		Delay Ti	.me(mS):	2000
Save Log D:\RAKProductFile\IOT模块文档\WisLIE\BG96\Tools\QCOM_V1.6\QCOM_LOG.ty	Save As Script	Run		Stop



Serial port settings see below ,Send AT, the device returns OK to prove that the device is normal, detailed AT commands refer to BG96's AT manual.

COM Port Setting		-					
COM Port: 66 - Baudrate: 115200 - StopBits: 1 -	Parity: None v	T Cho	ose All Commands	HEX	∏ E	nter	Delay (mS
		<b>▼</b> 1:	AT+QCFG="NWSCANSEQ", 03	Г	•	1	
ByteSize: 8 💌 Flow Control: No Ctrl Flow 💌	Close Port	<b>V</b> 2:	AT+QCFG="IOTOPMODE", 1	Г		2	
		🔽 3:	AT+QCFG="BAND", 0, 10, 10	Г	•	3	
2018-06-28 19:11:50:142]AT		▼ 4:	AT+QCFG="NBSIBSCRAMBLE", 0	Г		4	10000
2018-06-28_19:11:50:142]OK		<b>▼</b> 5:	AT+CSQ	Г	•	5	
		✓ 6:	AT+QICSGP=1, 1, "JTM2M", "", "", 1		•	6	
		7:	AT+QIACT=1	Г	◄	7	
		<b>▼</b> 8:	AT+QIACT?	Г		8	
		9:	AT+CGPADDR=1	Г	$\overline{\mathbf{v}}$	9	
		10:	AT+QGPSCFG=?	Г	₹	10	
		<b>11</b> :	AT+QGPS=1	Γ	$\overline{\mathbf{v}}$	11	
		<b>12</b> :	AT+QGPSLOC?	Γ	•	12	
		13:	AT+QGPSEND		₹	13	
		<b>1</b> 4:	AT+CIMI	Г	•	14	
		T 15:	AT+CGATT?	Г	₹.	15	
		<b>16</b> :	AT+CREG?	Γ	•	16	
		<b>1</b> 7:	AT+CGREG?	Г	₹.	17	
		<b>1</b> 8:	AT+QICLOSE=0	Г	◄	18	
		19:	AT+COPS?	Ε	₹.	19	
		20:	AT+QIOPEN=1, 0, "TCP", "116. 247. 104. 27"	Γ	•	20	
2018-06-28_19:11:46:058] Open COM Port Success		21:	AT+QIOPEN=1, 0, "TCP", "23. 253. 146. 203"	Г		21	
		22:	AT+QISTATE=0, 1		•	22	
		23:	AT+QNWINFO	Γ		23	
0		24:	AT+QISENDEX=0, "db0011fa0000587f00090	Г	2	24	
		25:	AT+QISEND=0, 48	Г	₹.	25	
Clear Information   DIK   KIS   View File	Show lime	26:	AT+QIRD=11, 1500	Г	▼	26	
Input String: 🗌 HEX String 🦳 Show In HEX 🔽	Send With Enter	27:	AT+QIOPEN=1, 1, "TCP LISTENER", "127.0.	E		27	
AT		28:	AT+QPING=1, "117.60.157.30"	Г	•	28	
	+ Send Command	29:	AT+COPS=1, 0, "CHINA MOBILE", 0		₹.	29	
200					Run	Times:	1
Select File	Send File	Load	Test ScriptClear All Commands	Dels	v Tim	e (mS):	2000
							1



## 5. Use Hologram SIM Card Connrct Network

#### 5.1 Region Hologram

Hologram is the Connectivity Platform for the Internet of Things. You can connect devices, capture data, and manage your fleet through their complete IoT platform. Here is their official website: <u>https://hologram.io/</u>

Visit the official website of Hologram. Click on "DASHBOARD" in the upper right corner.

Hologram Pla	tform Developers	• Resources •	Pricing C	Community	SHOP NOW D	ASHBOARD
				1		
					A A	
NEW Accelerate your	r product development with the Da	sh, available in store now >		-	Nov	
The Co	nnectivity	Platforr	n /		and the second	# 3
for the	Internet	f Things				
TOT LITE	internete	n mings	, <u> </u>	\$ 1		
Connect devic	es, capture data, ai	nd manage		✓ §		
your fleet with	n our complete IoT	platform.	/	Hol		
			$\sim$			
Get Starte	d		100	)		
Users a lawse dealers			(@)			
Contact sales ->	ent?		~			
						DEVICE
						Sur. (
						14
						0.

Then click on "sign up" at the bottom of the page. Enter the registration interface. Follow the prompts to fill in the information to register.

Company California Constant Station Stationers	
😵 Cellular Connectivity fo 🗙 🔅 Hologram Dashboard 🗙 🔄	
そ → C ● 安全   https://dashboard.hologram.io/account/login	∽ 🗟 ☆ 🖾 🕑 🚺 🧿 🗄
	388
× ×	
LOG IN TO HOLOGRAM	
EMAIL ADDRESS	
PASSWORD Enrol password?	
Remember me	
Log in	
Don't have an account? Size up	
Don thave an account: Sign up	
Privacy Terms Contact	



#### 5.2 Activate SIM card

After successful registration, log into your Hologram account and enter your Dashboard interface. Next you need to activate your purchased Hologram SIM card. Click on "Activate you first SIM" in the upper right.

Cellular Con	nectivity fo 🗙 🙀 Hold	ogram Dashboard 🗙			4152		3 ×	
← → C 🔒	安全   https://dashbo	ard.hologram.io		ዮ 🗟 🏠		٥	<b>@</b> :	
S T								
DEVICES								
÷		You haven	t added any devices yet.					
ROUTES		Get a device up ar featur	nd running with a SIM card to unlock the es of the Hologram platform.					
CONSOLE		+ Activate yo	+ Add promo code					
		Don't have a SIM card yet?	Purchase one from our store	>				
		Working with a team?	A Create an organization	>				
STORE DOCS COMMUNIT		Just getting started?	🕅 Learn more about using Hologra	im >				
v2.5.8 Report an issue	🖏 All activity	Errors		<b>∑</b> Filter	Ъ			

Enter the activation interface, according to the given prompts, fill in the information, you can complete the activation of the SIM card.





After successful registration, enter the SIM card information interface. After waiting for a period of time, you will see the "Live" status.





#### 5.3 Send Data

Insert the card into the RAK8213's SIM card slot. Note that the default SIM card connection is the RAN8213's own card slot.

Find the port number of the AT Port and use the QCOM serial port tool to connect. Then send the following AT command.( For AT command details, see the AT command manual)

AT+COPS=?	// Find nearby network information
AT+COPS=1,0,"CHINA MOBILE",0	// Manually set up a connected network
AT+CREG?	// Check whether the device is registered on the network
AT+QNWINFO	// Query connected network information
AT+COPS?	// Query the connected web server information
AT+QICSGP=1,1,"hologram","","",1	// Set APN network to hologram
AT+QIACT=1	// Activate the APN network
AT+QIACT?	// Query the APN assigned IP address
AT+QIOPEN=1,0,"TCP","23.253.146	.203",9999,0,1 // Create a TCP, connection hologram test server
AT+QISEND=0,48	// Send data, send data length is 48

{"k":"bZmmdbAg","d":"Hello,World!","t":"TOPIC1"} //Send Packets.The data format is a hologram-defined format.( For details, please see: <u>https://hologram.io/docs/reference/cloud/embedded/</u>)

AT+QISEND=0,0

// Query data is sent successfully

CON D. L. C. LL	6 J.V. J			
COM Fort Setting	Command List	HEX	E Ente	. Deler(nS
COM Port: 50 💌 Baudrate: 115200 💌 StopBits: 1 💌 Parity: None 💌		-		
Parte Size: [0 ] [] [] [] [] [] [] [] [] [] [] [] [] [	V I. KITQUTG- MISCANSEQ, 05	-		
	V 2. KITQUIG- INTOMODE, I	-	<u> </u>	
	✓ 3: [AI+QUFG= BAND , 0, 10, 10	-		
2018-03-19_17:09:23:303]AT+COPS=?	✓ 4: [AT+QUFG="NBSIBSURAMBLE", U	1	Ľ _	10000
2018-03-19_17:09:38:818]+COPS: (1, "CHIN-UNICOM", "UNICOM", "46001", 0), (2, "CHINA	IV 5: JAT+CSQ	1	Ľ _	
BILLE", "UMCU", "46000",0), (1, "UHN-UT", "UT", "46011",9),, (0,1,2,3,4), (0,1,2)	✓ 6: AT+QICSGP=1, 1, "hologram", "", ", 1	5	✓ €	
2018-03-19 17:09:38:818]08	▼ 7:  AT+QIACT=1			
2018-03-19_17:09:55:234]AT+COPS=1,0, "CHINA MOBILE",0	▼ 8: AT+QIACT?	Ε	V 8	
2018-03-19_17:09:55:241]0K	9: AT+CGPADDR=1	Γ	2 1	
2018-03-19_17:10:03:331]AT+CREG?	T 10: AT+QGPSCFG=?	Г	✓ 1	
2018-03-19_17:10:03:331]+CREG: 0,5	11: AT+QGPS=1	Γ	▼ 1	1
010 00 10 17 10 00 001 low	12: AT+QGPSLOC?	Γ	▼ 1	2
UIG-U3-19_17:10:03:331JUK 2018-03-19_17:10:21:577]AT+0WWTWF0	13: AT+QGPSEND		✓ 1	3
2018-03-19 17:10:21:577]+ONWINFO: "EDGE", "46000", "GSM 1800", 567	14: AT+NBAND?	Г	▼ 1	4
	T 15: AT+CGATT?	Г	▼ 1	5
2018-03-19_17:10:21:577]OK	16: AT+CREG?	Г	V 1	3
2018-03-19_17:10:26:889]AT+COPS?	T 17: AT+CGREG?	Ē		
2018-03-19_17:10:26:890]+COPS: 1,0,"CHINA MOBILE Hologram",0	T 18: AT+CEREG2	E		
2012-03-10 17·10·26·200]0X	19: AT+COPS2	Ē		
2018-03-19 17:10:44:645]AT+9ICSGP=1.1. "hologram". "". "".1	20: AT+OTOPEN=1 0 "TCP" "116 247 104 27"	F	2	
	21: AT+OTSTATE2	-		
		-		
	CO. ATTOINTYPO	-	2	
		-	<u> </u>	<u></u>
Operation	24: AT+QISENDEX=0, "db0011fa0000587f00090	-	✓ 2 - 2	4
	25: AT+QISEND=0,0	5	✓ 2	<u> </u>
Liear Information   Dik   Ki5   View File   Show Hime	26: AT+QIRD=11, 1500	5	2	3
input String: 🗌 HEX String 🔽 Show In HEX 🔽 Send With Enter	27: [AT+QIOPEN=1, 1, "TCP LISTENER", "127.0.	Г	✓ 2	
AT LCODE - 1.0 "CHINA MORTLE" 0	28: AT+QPING=1, "117.60.157.30"	E	2 2	<u> </u>
Send Command	29: AT+COPS=1, 1, "UNICOM", 0		2 2	9
			Bun Tim	ss: 1
Select File Send File	Load Test Script Clear All Commands			12. 0000
		nerah	r 11 melm	5). [2000



bolit				
COM Port Setting	Command List			
COM Port: 50 x Bandrate: 115200 x StonBits: 1 x Parity: None x	🔽 Choose All Commands	HEX	🕅 Enter	Delay(mS)
	▼ 1: AT+QCFG="NWSCANSEQ", 03	Г	▼ 1	
ByteSize: 8 - Flow Control: No Ctrl Flow - Close Port	Z: AT+QCFG="IOTOPMODE", 1	Г	2	1 ii
	3: AT+QCFG="BAND", 0, 10, 10	F	3	1;
	4: AT+OCEG="NESTESCRAMBLE" 0	F	V 4	10000
<pre>[2018-03-19_18:00:40:556]&gt; {"k":"bZmmdbAg", "d":"Hello,World!", "t":"TOPIC1"} [2018-03_10_10:00:40:740]ZDD0D</pre>	5 ATHOSE	Ē	V 5	
[2010-03-19_10.00.42.149]AANDA [2018-03-19_18:01:00:088]AT+0TSENT-0_48	✓ 6: AT+OTESCP=1, 1, "belowers", "", "", 1	E	F 6	1/
<pre>[2018 03 13_10.01:03:300]#f.glbinb=0, 40 [2018-03-19 18:01:09:988]&gt; {"k":"bZmmdbAg". "d":"Hello.World!". "t":"TOPIC1"}</pre>	7: AT+OTACT=1	-	7	11
[2018-03-19_18:01:11:383]ERROR		-		
[2018-03-19_18:01:36:015]AT+QICLOSE=0	0. AT+CCPADDP-1	-		
[2018-03-19_18:01:36:017]0K		-	F 10	
[2018-03-19_18:01:39:346]AT+QIOPEN=1, 0, "TCP", "23.253.146.203", 9999, 0, 1	To: kittgerscreer	-	₩ <u>10</u>	
[2010-03-19_10:01:39:340]0A [2018-03-19_18:01:40:195]		-		
[2018-03-19 18:01:40:195]+QIOPEN: 0.0	12: AT+QGPSLOC?	1	12	
[2018-03-19_18:01:42:421]AT+QISEND=0,48	13: AT+QGPSEND	<u> </u>	✓ 13	
[2018-03-19_18:01:42:421]> {"k":"bZmmdbAg", "d":"Hello,World!", "t":"TOPIC1"}	14: AT+NBAND?	Е	✓ 14	
[2018-03-19_18:01:44:385]SEND OK	T 15: AT+CGATT?	Г	✓ 15	
2018-03-19_18:01:55:856]	16: AT+CREG?	Γ	✓ 16	
2018-03-19_18:01:55:856jfQ10KC: "recv",0,5	T17: AT+CGREG?	Г	✓ 17	
[2010 05 18_10.01.05.000][0,0]	T 18: AT+QICLOSE=0	Γ	▼ 18	
[2018-03-19 18:02:00:878]+QIURC: "closed".0	19: AT+COPS?	Г	▼ 19	
1 17 30302 17	- 20: AT+QIOPEN=1, 0, "TCP", "116.247.104.27"	Г	✓ 20	
[2018-03-19 18:01:55:975] DCD:0 CTS:1 RI:0	21: AT+QIOPEN=1, 0, "TCP", "23. 253. 146. 203"	Г	21	
[2018-03-19_18:02:00:888] DCD:0 CTS:1 RI:1	22: AT+QISTATE=0, 1	Г	22	1
[2018-03-19_18:02:00:999] DCD:0 CTS:1 RI:0	23: AT+ONWINFO	Г	23	
	24: 1000000000000000000000000000000000000	F	24	1/
Operation	25: AT+0TSEND=0.48	F	25	1;
Clear Information 🛛 🗖 DTR 🗂 RTS 🔽 View File 🔽 Show Time	26: AT+0TRD=11 1500	F	26	-1'
	27: AT+OTOPEN=1 1 "TCP LISTENER" "127.0	F	20	1/
Input String:   JEA String   Show in JEA 9 Send with Enter	29: ATIONTWOIL "117 60 157 20"	-		
{"k":"bZmmdbAg","d":"Hello,World!","t":"TOPIC1"}	20. ATTOREN 1 1 "INTCOM" 0	-	28	
- Send Lommand	1 29: ALTCOPS=1, 1, UNICOM , 0	1	I <b>∨</b> 29	
			Run Times	: 1
Select File Send File	Load lest Script Liear All Commands	Dela	y Time(mS)	: 2000
	• A	67/12/200		and a second second

After the device is sent successfully, you can see the sent information on your interface of the Hologram Dashboard

Cellular Conne	ctivity fc 🗙 🚯 Hologram Dashboard 🗙 🎲 Embedded APIs   Cellul 🗴	
← → C • ≇	全   https://dashboard.hologram.io/device/163454/message/inbound?drawer=full	© ☆ № 🕑 🚺 👰 :
S T	All activity Errors	🍸 Filter 🖹 🛛 🛛
	Device 16345( 🏷 No tags selected. Tags can be added on devices 🎬 Most recent logs	Q. Search by topics public
	Message sent from Unnamed         DATA         TOPICS           BKEY         Device (44247)         Hello, World!	Mar 19 2018, 17:47:15 SIMULATE VIEW RAW
	2 more	
() ACCOUNT		
STORE DOCS Communit Support		
v2.5.8 Report an issue		



#### 5.4 Receive Data

Receiving data is similar to sending data, except that the established socket is different. The receiving data is established as a TCP server. The AT commands sent are shown below:

AT+COPS=? // Find nearby network information AT+COPS=1,0,"CHINA MOBILE",0 // Manually set up a connected network AT+CREG? // Check whether the device is registered on the network AT+QNWINFO // Query connected network information AT+COPS? // Query the connected web server information AT+QICSGP=1,1,"hologram","",",1 // Set APN network to hologram AT+QIACT=1 // Activate the APN network AT+QIACT? // Query the APN assigned IP address AT+QIOPEN=1,1,"TCP LISTENER","127.0.0.1",0,2020,0 // Create a TCP server, use local IP, port 2020

AT+QIRD=11,1500

// Read the received data, 11 is the returned Socket identifier

CUM Fort Setting	Command List	-			
COM Port: 50 - Baudrate: 115200 - StonBits: 1 - Parity: Worker	🦵 Choose All Commands	HEX	E	nter	Delay (mS)
	▼ 1: AT+QCFG="NWSCANSEQ", 03	Г		1	
ByteSize: 8 💌 Flow Control: No Ctrl Flow 💌 Close Port	▼ 2: AT+QCFG="IOTOPMODE", 1	Г	•	2	
	▼ 3: AT+QCFG="BAND", 0, 10, 10	Г	•	3	
2018-03-19 18:15:40:464]4T+CREC2	✓ 4: AT+QCFG="NBSIBSCRAMBLE", 0	Г	1	4	10000
2018-03-19_18:15:40:464]+CREG: 0,5	▼ 5: AT+CSQ	Г	•	5	
	✓ 6: AT+QICSGP=1, 1, "hologram", "", ", 1		•	6	
2018-03-19_18:15:40:464]OK	▼ 7: AT+QIACT=1	Г	•	7	
2018-03-19_18:15:44:295]AT+QICSGP=1,1,"hologram","",",1	▼ 8: AT+QIACT?	Г		8	
2018-03-19_18:15:48:672]AT+0IACT=1	9: AT+CGPADDR=1	Г	•	9	
2018-03-19_18:15:49:684]OK	10: AT+QGPSCFG=?	Г		10	
2018-03-19_18:15:51:029]AT+QIACT?	11: AT+QGPS=1	Г	•	11	
2018-03-19_18:15:51:029]+QIACT: 1,1,1,"10.52.96.150"	12: AT+QGPSLOC?	Г	•	12	
2018-03-19 18:15:51:029]08	13: AT+QGPSEND		•	13	
2018-03-19_18:16:23:274]AT+QIOPEN=1, 1, "TCP LISTENER", "127.0.0.1", 0, 2020, 0	T 14: AT+NBAND?	Г		14	
2018-03-19_18:16:23:274]0K	T 15: AT+CGATT?	Г	~	15	
2018-03-19_18:16:23:278]	16: AT+CREG?	Г	<b>v</b>	16	
2018-03-19_18:16:23:278]+QIOPEN: 1,0	T 17: AT+CGREG?	Г	<b>v</b>	17	
	T 18: AT+QICLOSE=0	Г		18	
	19: AT+COPS?	Г	1	19	
	20: AT+QIOPEN=1, 0, "TCP", "116. 247. 104. 27"	Г	5	20	
2018-03-19_18:15:35:898] Open COM Port Success	T 21: AT+QIOPEN=1, 0, "TCP", "23. 253. 146. 203"	Г	•	21	
2018-03-19_18:16:23:279] DCD:0 CTS:1 RI:1	22: AT+QISTATE=0, 1		5	22	
2018-03-19_18:16:23:399] DCD:0 CTS:1 RI:0	23: AT+QNWINFO	Г	~	23	
	☐ 24: 00000000000000000000000000000000000		1	24	
Operation	C 25: AT+QISEND=0, 48	Г	•	25	
Clear Information 🛛 DTR 🕅 RTS 🦳 View File 🔽 Show Time	C 26: AT+QIRD=11, 1500	Г		26	
Termet Staring T Show In HEX 🔽 Send With Enter	T 27: AT+QIOPEN=1, 1, "TCP LISTENER", "127.0.	Г	•	27	
input string.	C 28: AT+QPING=1, "117.60.157.30"	Г		28	
AT+COPS=1,0,"CHINA MOBILE",0 Send Command	29: AT+COPS=1, 0, "CHINA MOBILE", 0		•	29	
Select File Send File	Load Test Script Clear All Commands	Dela	Run y Tim	Times: e(mS):	1

After creating a successful TCP server, the user needs to return to the Hologram Dashboard interface, click on the "send to device" button, and then fill in the data to be sent. PORT is the TCP server port of the device. Fill in and click "Send data message".



Cellular Connec		t X Sephedded ABIr I Cellu X			
	全 https://dashboard.hologram.	io/device/163454/message/inbou	und		<b>0</b> :
S T				PAUSE DATA	
DEVICES	Messaging	Send a message			
	Send to device Simulate from device Configuration	via Cloud Data	a	via SMS	
CONSOLE	Plan & coverage Usage reports Routes COS	DATA	123456		
		PORT	2020		
		PROTOCOL	ТСР	•	
CONT STORE DOCS COMMUNIT		Learn about device messaging	Send data message	2	
SUPPORT v2.5.8 Report an issue	All activity Errors			🝸 Filter 🤒 🚺	×

After the Hologram Dashboard is sent, the device will receive a message of "recv, 11" indicating that the device received the data. At this time, the AT+QIRD=11,1500 command is sent to obtain the received data.

QCOM_V1.6					_ 🗆 🗙
About					
COM Port Setting		Command List			
COM Port 50 - Bandrate 115200 - StopBits 1 - Parity D	None T	🗌 Choose All Commands	нех 🥅	Enter	Delay(mS)
		✓ 1: AT+QCFG="NWSCANSEQ", 03		1	
ByteSize: 8 👻 Flow Control: No Ctrl Flow 💌 Clos	se Port	2: AT+QCFG="IOTOPMODE", 1		2	
		▼ 3: AT+QCFG="BAND", 0, 10, 10		3	
[2018-03-19_18:15:51:029]AT+DTACT?		✓ 4: AT+QCFG="NBSIBSCRAMBLE", 0		4	10000
[2018-03-19_18:15:51:029]+QIACT: 1, 1, 1, "10. 52. 96. 150"	1	▼ 5: AT+CSQ		5	
	1	✓ 6: AT+QICSGP=1, 1, "hologram", "", 1		6	
[2018-03-19_18:15:51:029]OK	1	▼ 7: AT+QIACT=1		7	
[2018-03-19_18:16:23:274]AT+QIOPEN=1,1, "TCP_LISTENER", "127.0.0.1",0,2020,0	1	▼ 8: AT+QIACT?		8	1
[2010-03-19_10.10.23.214]0K [2018-03-19_18:16:23:278]		9: AT+CGPADDR=1		9	1
[2018-03-19_18:16:23:278]+QIOPEN: 1,0		10: AT+QGPSCFG=?		10	
[2018-03-19_18:17:46:457]	1	11: AT+QGPS=1		11	1
[2018-03-19_18:17:46:457]+QIVRC: "incoming",11,1,"10.176.100.3",39018		12: AT+QGPSLOC?		12	
2010-03-10 10·17·46·457]+0130C· "****** 11		13: AT+QGPSEND		13	1î
2018-03-19 18:18:13:188]AT+0IRD=11.1500	= 1	14: AT+NBAND?		14	1
[2018-03-19_18:18:13:188]+QIRD: 6		15: AT+CGATT?		15	
[2018-03-19_18:18:13:188]123456		16: AT+CREG?		16	1
		17: AT+CGREG?		17	1 i
[2018-03-19_18:18:13:188]0K	1	18: AT+QICLOSE=0		18	1;
[2018-03-19 18:18:13:188]+QIURC: "closed".11		19: AT+COPS?		19	
	- 1	20: AT+QIOPEN=1, 0, "TCP", "116. 247. 104. 27"		20	1;
[2018-03-19 18:17:46:577] DCD:0 CTS:1 RT:0		21: AT+QIOPEN=1, 0, "TCP", "23. 253. 146. 203"		21	1
[2018-03-19_18:18:13:192] DCD:0 CTS:1 RI:1		22: AT+QISTATE=0, 1		22	11
[2018-03-19_18:18:13:309] DCD:0 CTS:1 RI:0		23: AT+QNWINFO		23	1
	-	24: 000000000000000000000000000000000000		24	11
Operation		25: AT+QISEND=0. 48		25	1
Clear Information 🛛 🗖 DTR 🔽 RTS 🔽 View File 🔽 Show Tim	ne	26: AT+9IRD=11, 1500		26	1;
THEX String Show In HEX Send Wit	th Enter	27: AT+QIOPEN=1, 1, "TCP LISTENER", "127.0.		27	11
Input String:		28: AT+0PING=1. "117.60.157.30"		28	1í
Sen	nd Command	29: AT+COPS=1, 0, "CHINA MOBILE", 0		29	11
		II	Ru	n Times	1
Select File Se	end File	Load Test Script Clear All Commands	Delay T	ime(mS)	: 2000
Save Log D:\RAKFroductFile\IOT模块文档\WisLTE\BG96\Tools\QCOM V1.6\Q	COM LOG. to	Save As Script	Run	1	Stop



## 6. Contact information

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# 7. Change Note