

一、实验步骤。

1. 计算机连接蓝牙收发模块;
2. 虚拟机上添加该模块;
3. 启动后查看设置中是否有蓝牙选项, 若没有则可插拔蓝牙模块或重启直到有蓝牙模块为止;
4. 获取 Eddystone 使用 advertise-url 来传送网址广播;

```
wget
https://raw.githubusercontent.com/google/eddystone/master/eddystone-url/implementations/linux/advertise-url
```

5. 开始广播查看讯息;

```
chmod +x advertise-url (新增執行權限)
sudo ./advertise-url -u http://ptt.cc (開始廣播)
sudo ./advertise-url -s (停止廣播)
```

或使用蓝牙自带的命令传送网址广播

```
sudo hciconfig hci0 leadv 3 //启用蓝牙的低耗能广播 (LE advertising) 模式
sudo hciconfig hci0 noscan //关闭扫描
sudo hciotool -i hci0 cmd 0x08 0x0008 14 02 01 1a 03 03 aa fe 0c 16
aa fe 10 ed 02 70 74 74 2e 63 63 00 00 00 00 00 00 00 00 00 00 00 00
↑ http://ptt.cc 傳送Eddystone frame
```

```
sudo hciconfig hci0 noleadv //停止广播
```

6. 手机端安装 app 查看讯息;

二、实验原理。

1. Eddystone 讯息

```
sudo hciotool -i hci0 cmd 0x08 0x0008 14 02 01 1a 03 03 aa fe 0c 16 aa fe 10 ed
02 70 74 74 2e 63 63 00 00 00 00 00 00 00 00 00 00 00 00 00
```

0x08 0x0008: set the ad package

14: the ENTIRE following data packet in bytes (16 進位的 14 = 20 byte)

02 01 1a: Eddystone Adv Flags

03 03 aa fe: Eddystone service adv

0c: length (12 byte)

16: type (data)

aa fe: Eddystone UUID

10: URL frame type

ed: TX power

02 70 74 74 2e 63 63: http://ptt.cc, 共 7 byte, 传输不同的地址, 仅更改此数值就可以了

00 00 00 00 00 00 00 00 00 00 00 00: 共 10 byte

2. 网址转换为 Eddystone 形式

Decimal	Hex	Expansion
0	0x00	http://www.
1	0x01	https://www.
2	0x02	http://
3	0x03	https://

其他对应 ASCII table 值

USASCII code chart

<div> <div> b7b6b5b4b3b2b1 </div> <div> Column Row </div> </div>					0	1	2	3	4	5	6	7
0	0	0	0	0	0	NUL	DLE	SP	@	P	\	p
0	0	0	0	1	1	SOH	DC1	!	A	Q	a	q
0	0	0	1	0	2	STX	DC2	"	B	R	b	r
0	0	1	1	1	3	ETX	DC3	#	C	S	c	s
0	1	0	0	0	4	EOT	DC4	\$	D	T	d	t
0	1	0	1	1	5	ENQ	NAK	%	E	U	e	u
0	1	1	0	0	6	ACK	SYN	&	F	V	f	v
0	1	1	1	1	7	BEL	ETB	'	G	W	g	w
1	0	0	0	0	8	BS	CAN	(	H	X	h	x
1	0	0	1	1	9	HT	EM	)	I	Y	i	y
1	0	1	0	0	10	LF	SUB	*	J	Z	j	z
1	0	1	1	1	11	VT	ESC	+	K	[	k	{
1	1	0	0	0	12	FF	FS	,	L	\	l	|
1	1	0	1	1	13	CR	GS	-	M	]	m	}
1	1	1	0	0	14	SO	RS	.	N	^	n	~
1	1	1	1	1	15	SI	US	/	O	_	o	DEL

三、实验结果。

1. Generate Eddystone advertisement



convert the URL to Eddystone format

02: http//

70: p

74: t

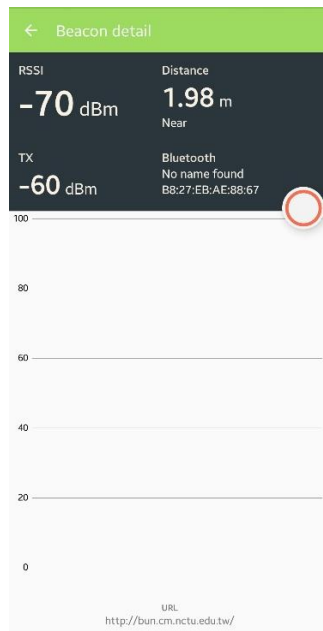
74: t

2e: .

63: c

63: c

2. Use hcitool to send the same Eddystone advertisement



Meaning of value 在实验原理的第一部分中解释过了。