

# [FAQ13063]如何在手机端显示蓝牙耳机电量

[DESCRIPTION]

连接蓝牙耳机后，如何在状态栏显示蓝牙耳机电量

[SOLUTION]

phone或者小米手机，连接蓝牙耳机后，会在状态栏显示蓝牙耳机电量，下面是小米手机连接蓝牙耳机的截图！



通过抓取蓝牙耳机和手机连接的Virtual Sniffer log，可以看到其中有一条AT Command为：  
AT+IPHONEACCEV=1,1,7 。 Hands-Free Spec并没有规定此AT命令，此AT命令为自定义AT命令。

Bluetooth								
HCI UART	HCI	L2CAP	SDP	RFCOMM	AVDTP	AVDTP Signaling	Hands-Free	Data
B...	Frame#	Role	Addr.	Hands-Free data	AT Cmd			
	244	* Slave	* 2	* AT+XAPL=0000-0000-000...	* Enable Custom AT Commands			
	247	Master	2	..+XAPL=iPhone,1..	Enable Custom AT Commands			
	303	Slave	2	AT+IPHONEACCEV=1,1,7.	AT+IPHONEACCEV=1,1,7			
	304	Master	2	..OK..				
	307	Slave	2	AT+VGS=15.	Current speaker gain: 15			
	308	Master	2	..OK..				
	311	Slave	2	AT+CCWA=1.	Enable call waiting notification			
	312	Master	2	..OK..				
	315	Slave	2	AT+BTRH?	Query the current "response and hold" ...			
	316	Master	2	..ERROR..				
	319	Slave	2	AT+CLCC.	Query List of Current calls			
	320	Master	2	..OK..				
	323	Slave	2	AT+CSRSF=0,0,0,1,0,0,0.	AT+CSRSF=0,0,0,1,0,0,0			
	324	Master	2	..ERROR..				
<div>01000001 00000000 00010001 11101111 00101011 01000001 01010100</div> <div><div>S S S G N E N A N D E</div><div>X X P S U M U A U I F</div></div> <div>AT+IPHONEACCEV=1,1,7</div> <div>C H A</div>								

通过Google搜索发现在：

<https://developer.apple.com/hardwaredrivers/BluetoothDesignGuidelines.pdf>  
 这个文件中有规定此AT命令。

## 5. Bluetooth Headset Battery Level Indication

Any Hands-Free Bluetooth headset accessory can show its battery level to the user as an indicator icon in the iOS device status bar. This feature is supported on all iOS devices that support the Hands-Free Profile, including iPhone, iPod touch, and iPad.

Headset battery indication is implemented by two Apple-specific Bluetooth HFP AT commands, “4.1 HFP Command AT+XAPL” (page 26) and “5.1 HFP Command AT+IPHONEACCEV” (page 28)

### 5.1 HFP Command AT+IPHONEACCEV

**Description:** Reports a headset state change.

**Initiator:** Headset accessory

**MediaTek**

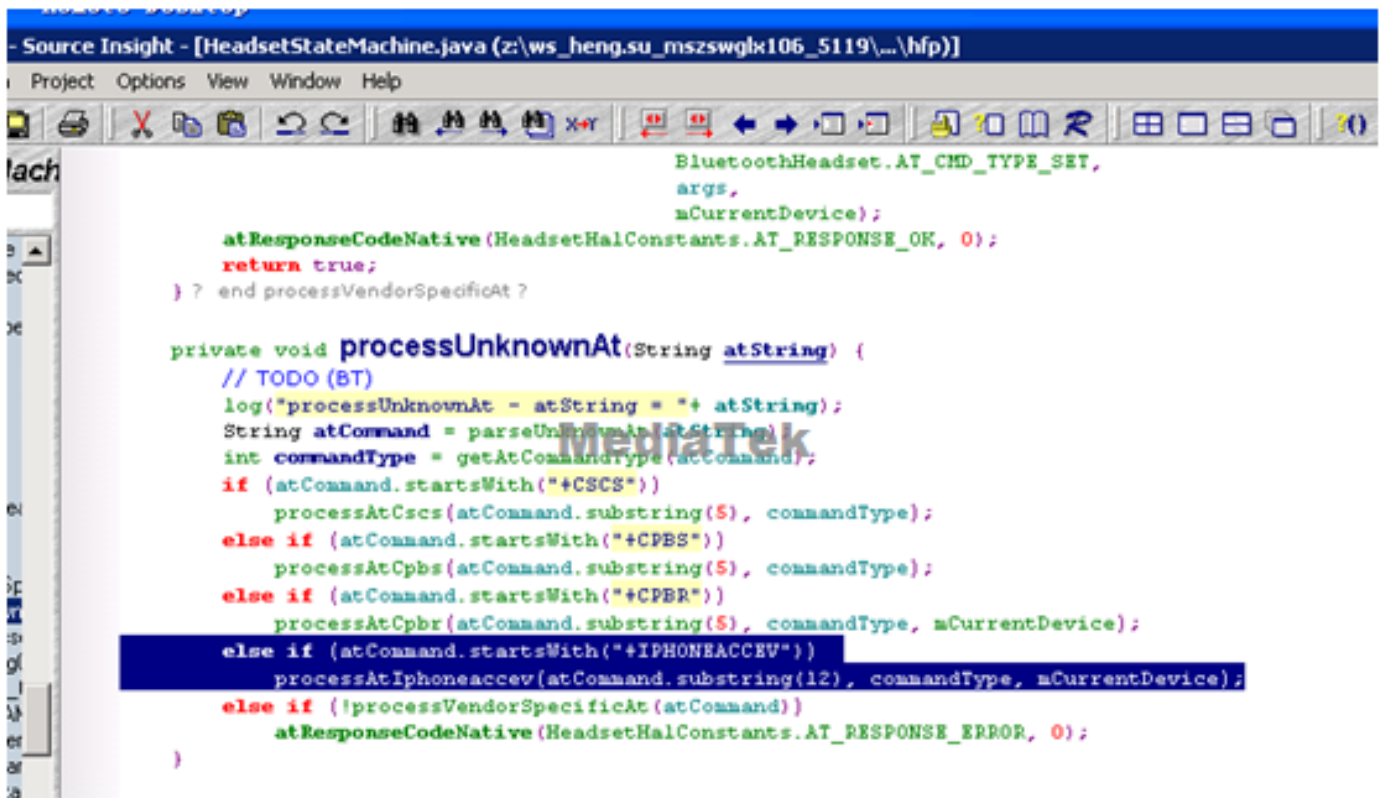
**Format:** AT+IPHONEACCEV=Number of key/value pairs,*key1,val1,key2,val2,...*

**Parameters:**

- *Number of key/value pairs*: The number of parameters coming next.
- *key*: the type of change being reported:
  - 1 = Battery Level
  - 2 = Dock State
- *val*: the value of the change:
  - Battery Level: string value between '0' and '9'
  - Dock State: 0 = undocked, 1 = docked

**Example:** AT+IPHONEACCEV=1,1,3

那为了实现耳机电量显示即是实现此AT Command即可。在HeadsetStateMachine.java文件中processUnknownAt方法中添加对此AT命令的处理函数如下图：

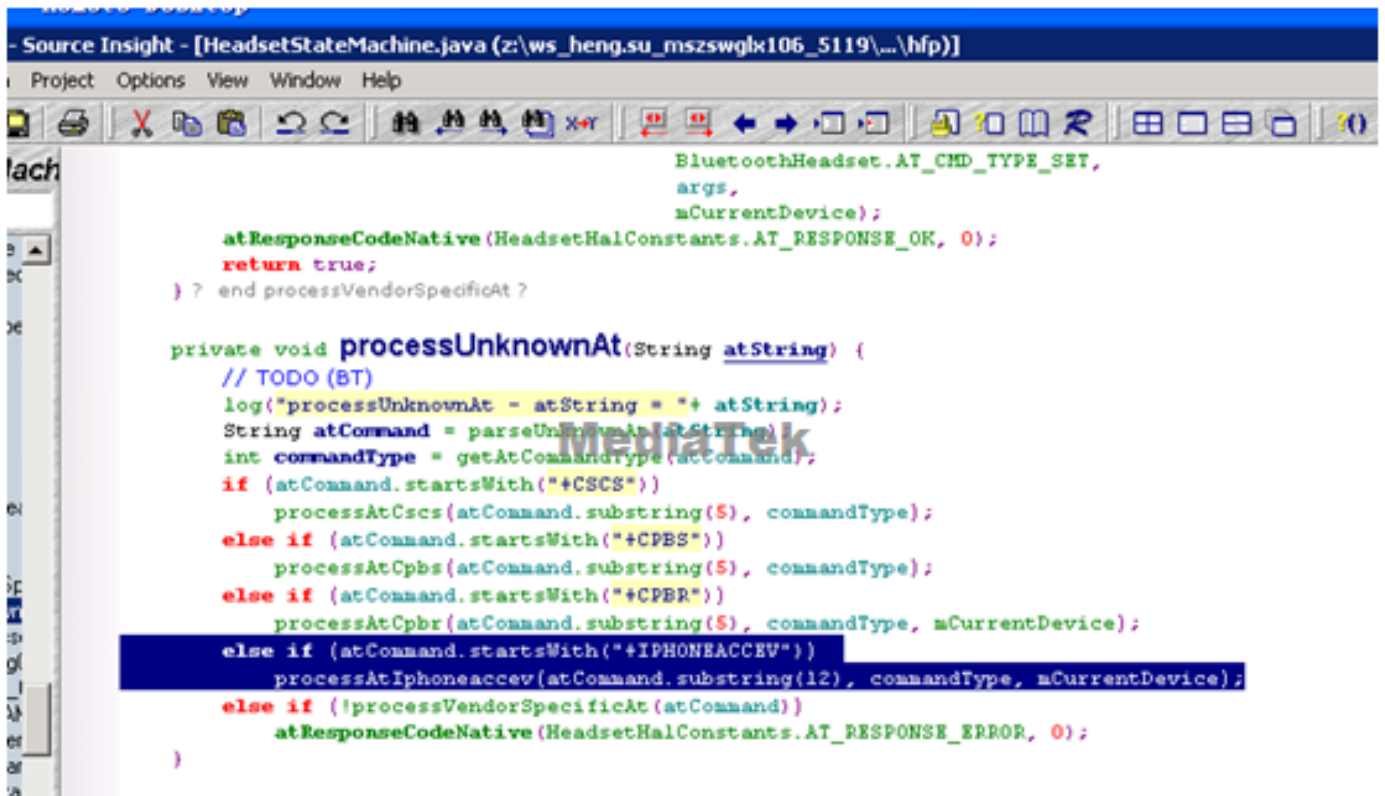


```
- Source Insight - [HeadsetStateMachine.java (z:\ws_heng.su_ms2swglx106_5119\...\hfp)]
Project Options View Window Help

BluetoothHeadset.AT_CMD_TYPE_SET,
args,
mCurrentDevice);
atResponseCodeNative(HeadsetHalConstants.AT_RESPONSE_OK, 0);
return true;
} ? end processVendorSpecificAt ?

private void processUnknownAt(String atString) {
// TODO (BT)
log("processUnknownAt - atString = "+ atString);
String atCommand = parseUnknownAt(atString);
int commandType = getAtCommandType(atCommand);
if (atCommand.startsWith("+CSCS"))
processAtCscs(atCommand.substring(5), commandType);
else if (atCommand.startsWith("+CPBS"))
processAtCpbs(atCommand.substring(5), commandType);
else if (atCommand.startsWith("+CPBR"))
processAtCpbr(atCommand.substring(5), commandType, mCurrentDevice);
else if (atCommand.startsWith("+IPHONEACCEV"))
processAtIphoneaccev(atCommand.substring(12), commandType, mCurrentDevice);
else if (!processVendorSpecificAt(atCommand))
atResponseCodeNative(HeadsetHalConstants.AT_RESPONSE_ERROR, 0);
}
```

实现此AT命令的处理函数processAtIphoneaccev(), 并在此函数中对此AT命令的参数做解析, 并按照电池电量的参数来发出Notification更新状态栏的电量图片信息即可。UI显示部分需自己实现。



```
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Project Options View Window Help

BluetoothHeadset.AT_CMD_TYPE_SET,
args,
mCurrentDevice);
atResponseCodeNative(HeadsetHalConstants.AT_RESPONSE_OK, 0);
return true;
} ? end processVendorSpecificAt ?

private void processUnknownAt(String atString) {
// TODO (BT)
log("processUnknownAt - atString = "+ atString);
String atCommand = parseUnknownAt(atString);
int commandType = getAtCommandType(atCommand);
if (atCommand.startsWith("+CSCS"))
processAtCscs(atCommand.substring(5), commandType);
else if (atCommand.startsWith("+CPBS"))
processAtCpbs(atCommand.substring(5), commandType);
else if (atCommand.startsWith("+CPBR"))
processAtCpbr(atCommand.substring(5), commandType, mCurrentDevice);
else if (atCommand.startsWith("+IPHONEACCEV"))
processAtIphoneaccev(atCommand.substring(12), commandType, mCurrentDevice);
else if (!processVendorSpecificAt(atCommand))
atResponseCodeNative(HeadsetHalConstants.AT_RESPONSE_ERROR, 0);
}
```

在此AT命令处理函数中发出Notification即可在状态栏显示蓝牙耳机电量。