

飞燕SDK的MQTT通道压测指导文档

MQTT通道压测要求：

MQTT通道压测问题的分析方法：

日志分析工具

错误码errno的值

MQTT通道压测要求：

1. 设备端log级别必须是DEBUG级别，出现问题方便分析；
2. 压测的物模型使用模组认证的标准物模型；
3. 同时至少要有两个设备连接同一个路由器进行对比压测，最好还能有一个稳定可靠的陪测设备，用于排除网络环境问题；
4. 设备要保存完整压测过程的日志，方便出现问题之后分析定位；

MQTT通道压测问题的分析方法：

1. 查看压测工具后台是否有离线情况；
2. 搜索设备端日志，关键字：disconnect 不匹配大小写进行搜索；
3. 查看disconnect附件的日志信息，主要三个原因出现disconnect
 - 第一种是网络异常，查看errno的值，类似下面的日志信息，可以查看errno.h文件或者查看本文后面的errno的内容来分析错误码的意思

```
[02-27 10:26:47]mbedtls_net_send 384: net send failed - errno: 11
[02-27 10:26:58]mbedtls_net_send 384: net send failed - errno: 11
[02-27 15:05:12]mbedtls_net_send 384: net send failed - errno: 103
[02-27 17:35:49]mbedtls_net_send 384: net send failed - errno: 11
[02-25 18:45:29]mbedtls_net_recv 352: net recv failed - errno: 103
[02-25 18:45:29]mbedtls_net_send 384: net send failed - errno: 103
[02-25 18:45:28]mbedtls_net_recv 352: net recv failed - errno: 103
[02-25 18:45:28]mbedtls_net_send 384: net send failed - errno: 103
[02-27 10:26:48]mbedtls_net_send 384: net send failed - errno: 11
[02-27 10:26:59]mbedtls_net_send 384: net send failed - errno: 11
[02-27 17:23:40]mbedtls_net_send 384: net send failed - errno: 11
[02-27 17:35:49]mbedtls_net_send 384: net send failed - errno: 11
[02-25 18:45:31]mbedtls_net_recv 352: net recv failed - errno: 103
[02-25 18:45:31]mbedtls_net_send 384: net send failed - errno: 103
[02-27 18:40:03]mbedtls_net_recv 352: net recv failed - errno: 103
[02-27 18:40:03]mbedtls_net_send 384: net send failed - errno: 103
```

- 第二种是MQTT Client里面连续两次以上没有收到MQTT的心跳回复（通常30秒一次心跳），SDK会主动断线重连，出现类似下面的日志，这种问题的原因通常是设备端出现了接收数据异常，云端发送的数据上层已经接收不到，原因通常可能是lwip层异常，可能需要厂家抓包分析：

```

0      10      20      30      40      50      60      70      80      90      100
51 [17:11:49.808] [0m[1;33m[inf] _iotx_linkkit_event_callback(237): Receive Message: {"devid":0,"payload":
52 [17:11:49.808] [0m[1;36m[dbg] _iotx_linkkit_event_callback(435): Current Devid: 0
53 [17:11:49.827] [0m[1;36m[dbg] _iotx_linkkit_event_callback(436): Current Payload: {"LightSwitch":0}
54 [17:11:49.827] [0m03-03 17:11:50.103 D/linkk[17:11:49.869] it: Property Set Received, Devid: 0, Reques
55 [17:11:49.869] 03-03 17:11:50.113 D/linkkit: Post Property Message ID: 10021
56 [17:11:49.869] [17:11:59.979] [1;33m[inf] _iotx_linkkit_event_callback(235): Receive Message Type: 30
57 [17:11:59.979] [0m[1;33m[inf] _iotx_linkkit_event_callback(237): R[17:12:00.007] eceive Message: {"ic
58 [17:12:00.007] [0m[1;36m[dbg] _iotx_linkkit_event_callback(525): Current Id: 10021
59 [17:12:00.007] [0m[1;36m[dbg] _iotx_linkkit_event_callback(526): Current Code: 100000
60 [17:12:00.007] [0m[1;36m[dbg] _iotx_linkkit_event_callback(527): Current Devid: 0
61 [17:12:00.007] [0m[17:12:00.063] 03-03 17:12:00.285 D/linkkit: Message Post Reply Received, Devid: 0,
62 [17:12:00.063] [17:12:05.940] [1;36m[dbg] MQTTKeepalive(396): len = MQTTSerialize_pingreq() = 2
63 [17:12:05.940] [0m[1;33m[inf] iotx_mc_keepalive_sub(3033): send MQTT ping...
64 [17:12:05.957] [0m[17:12:36.120] [1;36m[dbg] MQTTKeepalive(396): len = MQTTSerialize_pingreq() = 2
65 [17:12:36.120] [0m[1;33m[inf] iotx_mc_keepalive_sub(3033): send MQTT ping...
66 [17:12:36.120] [0m[17:13:06.287] [1;36m[dbg] MQTTKeepalive(396): len = MQTTSerialize_pingreq() = 2
67 [17:13:06.287] [0m[1;33m[inf] iotx_mc_keepalive_sub(3033): send MQTT ping...
68 [17:13:06.308] [0m[1;36m[dbg] iotx_mc_cycle(1852): keepalive_probes more than 2, disconnected
69 [17:13:06.308] [0m[17:13:06.582] [1;31m[err] iotx_mc_keepalive(2653): network is disconnected!
70 [17:13:06.582] [0m[1;33m[inf] iotx_cloud_conn_mqtt_event_handle(87): disconnected,fd = 0
71 [17:13:06.582] [0m[32m03-03 17:13:06.786 I/linkkit.tls: ssl disconnect
72 [17:13:06.582] [0m[1;31m[err] IOT_MQTT_Yield(3249): error occur rc=-27
73 [17:13:06.582] [0m[17:13:06.658] [1;31m[err] IOT_MQTT_Yield(3249): error occur rc=-27
74 [17:13:06.658] [0m[17:13:06.754] [1;33m[inf] _iotx_linkkit_event_callback(235): Receive Message Type:
75 [17:13:06.754] [0m03-03 17:13:07.028 D/linkkit: Cloud Disconnected

```

- 第三种是网络驱动层异常，不同的模组厂家有不同的错误日志

日志分析工具

参考tools文件夹里面的log_extract.sh日志提取脚本

错误码errno的值

```

1
2 #define EPERM          1 /* Operation not permitted */
3 #define ENOENT         2 /* No such file or directory */
4 #define ESRCH          3 /* No such process */
5 #define EINTR          4 /* Interrupted system call */
6 #define EIO            5 /* I/O error */
7 #define ENXIO          6 /* No such device or address */
8 #define E2BIG          7 /* Arg list too long */
9 #define ENOEXEC        8 /* Exec format error */
10 #define EBADF          9 /* Bad file number */
11 #define ECHILD         10 /* No child processes */
12 #define EAGAIN         11 /* Try again */
13 #define ENOMEM         12 /* Out of memory */
14 #define EACCES         13 /* Permission denied */
15 #define EFAULT         14 /* Bad address */
16 #define ENOTBLK        15 /* Block device required */
17 #define EBUSY          16 /* Device or resource busy */
18 #define EEXIST          17 /* File exists */

```

```

19 #define EXDEV          18 /* Cross-device link */
20 #define ENODEV         19 /* No such device */
21 #define ENOTDIR        20 /* Not a directory */
22 #define EISDIR         21 /* Is a directory */
23 #define EINVAL         22 /* Invalid argument */
24 #define ENFILE         23 /* File table overflow */
25 #define EMFILE         24 /* Too many open files */
26 #define ENOTTY         25 /* Not a typewriter */
27 #define ETXTBSY        26 /* Text file busy */
28 #define EFBIG          27 /* File too large */
29 #define ENOSPC         28 /* No space left on device */
30 #define ESPIPE         29 /* Illegal seek */
31 #define EROFS          30 /* Read-only file system */
32 #define EMLINK         31 /* Too many links */
33 #define EPIPE          32 /* Broken pipe */
34 #define EDOM           33 /* Math argument out of domain of func */
35 #define ERANGE         34 /* Math result not representable */
36 #define EDEADLK        35 /* Resource deadlock would occur */
37 #define ENAMETOOLONG   36 /* File name too long */
38 #define ENOLCK         37 /* No record locks available */
39 #define ENOSYS         38 /* Function not implemented */
40 #define ENOTEMPTY      39 /* Directory not empty */
41 #define ELOOP          40 /* Too many symbolic links encountered */
42 #define EWOULDBLOCK    EAGAIN /* Operation would block */
43 #define ENOMSG         42 /* No message of desired type */
44 #define EIDRM          43 /* Identifier removed */
45 #define ECHRNG         44 /* Channel number out of range */
46 #define EL2NSYNC       45 /* Level 2 not synchronized */
47 #define EL3HLT         46 /* Level 3 halted */
48 #define EL3RST         47 /* Level 3 reset */
49 #define ELNRNG         48 /* Link number out of range */
50 #define EUNATCH        49 /* Protocol driver not attached */
51 #define ENOCSI         50 /* No CSI structure available */
52 #define EL2HLT         51 /* Level 2 halted */
53 #define EBADE          52 /* Invalid exchange */
54 #define EBADR          53 /* Invalid request descriptor */
55 #define EXFULL         54 /* Exchange full */
56 #define ENOANO         55 /* No anode */
57 #define EBADRQC        56 /* Invalid request code */
58 #define EBADSLT        57 /* Invalid slot */

```

```

59
60 #define EDEADLOCK EDEADLK
61
62 #define EBFONT 59 /* Bad font file format */
63 #define ENOSTR 60 /* Device not a stream */
64 #define ENODATA 61 /* No data available */
65 #define ETIME 62 /* Timer expired */
66 #define ENOSR 63 /* Out of streams resources */
67 #define ENONET 64 /* Machine is not on the network */
68 #define ENOPKG 65 /* Package not installed */
69 #define EREMOTE 66 /* Object is remote */
70 #define ENOLINK 67 /* Link has been severed */
71 #define EADV 68 /* Advertise error */
72 #define ESRMNT 69 /* Srmount error */
73 #define ECOMM 70 /* Communication error on send */
74 #define EPROTO 71 /* Protocol error */
75 #define EMULTIHOP 72 /* Multihop attempted */
76 #define EDOTDOT 73 /* RFS specific error */
77 #define EBADMSG 74 /* Not a data message */
78 #define EOVERFLOW 75 /* Value too large for defined data type
    */
79 #define ENOTUNIQ 76 /* Name not unique on network */
80 #define EBADFD 77 /* File descriptor in bad state */
81 #define EREMCHG 78 /* Remote address changed */
82 #define ELIBACC 79 /* Can not access a needed shared library
    */
83 #define ELIBBAD 80 /* Accessing a corrupted shared library
    */
84 #define ELIBSCN 81 /* .lib section in a.out corrupted */
85 #define ELIBMAX 82 /* Attempting to link in too many shared
    libraries */
86 #define ELIBEXEC 83 /* Cannot exec a shared library directly
    */
87 #define EILSEQ 84 /* Illegal byte sequence */
88 #define ERESTART 85 /* Interrupted system call should be rest
    arted */
89 #define ESTRPIPE 86 /* Streams pipe error */
90 #define EUSERS 87 /* Too many users */
91 #define ENOTSOCK 88 /* Socket operation on non-socket */
92 #define EDESTADDRREQ 89 /* Destination address required */

```

```

93 #define EMSGSIZE      90  /* Message too long */
94 #define EPROTOTYPE    91  /* Protocol wrong type for socket */
95 #define ENOPROTOOPT   92  /* Protocol not available */
96 #define EPROTONOSUPPORT 93  /* Protocol not supported */
97 #define ESOCKTNOSUPPORT 94  /* Socket type not supported */
98 #define EOPNOTSUPP     95  /* Operation not supported on transport endpoint */
99 #define EPFNOSUPPORT   96  /* Protocol family not supported */
100 #define EAFNOSUPPORT   97  /* Address family not supported by protocol */
101 #define EADDRINUSE     98  /* Address already in use */
102 #define EADDRNOTAVAIL  99  /* Cannot assign requested address */
103 #define ENETDOWN       100  /* Network is down */
104 #define ENETUNREACH    101  /* Network is unreachable */
105 #define ENETRESET      102  /* Network dropped connection because of reset */
106 #define ECONNABORTED   103  /* Software caused connection abort */
107 #define ECONNRESET     104  /* Connection reset by peer */
108 #define ENOBUFS        105  /* No buffer space available */
109 #define EISCONN        106  /* Transport endpoint is already connected */
110 #define ENOTCONN       107  /* Transport endpoint is not connected */
111 #define ESHUTDOWN      108  /* Cannot send after transport endpoint shutdown */
112 #define ETOOMANYREFS   109  /* Too many references: cannot splice */
113 #define ETIMEDOUT      110  /* Connection timed out */
114 #define ECONNREFUSED   111  /* Connection refused */
115 #define EHOSTDOWN      112  /* Host is down */
116 #define EHOSTUNREACH   113  /* No route to host */
117 #define EALREADY       114  /* Operation already in progress */
118 #define EINPROGRESS    115  /* Operation now in progress */
119 #define ESTALE         116  /* Stale NFS file handle */
120 #define EUCLEAN        117  /* Structure needs cleaning */
121 #define ENOTNAM        118  /* Not a XENIX named type file */
122 #define ENAVAIL        119  /* No XENIX semaphores available */
123 #define EISNAM         120  /* Is a named type file */
124 #define EREMOTEIO      121  /* Remote I/O error */
125 #define EDQUOT         122  /* Quota exceeded */

```

```

126
127 #define ENOMEDIUM      123 /* No medium found */
128 #define EMEDIUMTYPE    124 /* Wrong medium type */
129
130
131 #define ENSR0K           0 /* DNS server returned answer w
    ith no data */
132 #define ENSRNOData      160 /* DNS server returned answer w
    ith no data */
133 #define ENSRFORMERR     161 /* DNS server claims query was
    misformatted */
134 #define ENSRSERVFAIL    162 /* DNS server returned general
    failure */
135 #define ENSRNOTFOUND    163 /* Domain name not found */
136 #define ENSRNOTIMP      164 /* DNS server does not implemen
    t requested operation */
137 #define ENSRREFUSED     165 /* DNS server refused query */
138 #define ENSRBADQUERY    166 /* Misformatted DNS query */
139 #define ENSRBADNAME     167 /* Misformatted domain name */
140 #define ENSRBADFAMILY   168 /* Unsupported address family
    */
141 #define ENSRBADRESP     169 /* Misformatted DNS reply */
142 #define ENSRCONNREFUSED 170 /* Could not contact DNS server
    s */
143 #define ENSRTIMEOUT     171 /* Timeout while contacting DNS
    servers */
144 #define ENSR0F          172 /* End of file */
145 #define ENSRFILE        173 /* Error reading file */
146 #define ENSRNOMEM       174 /* Out of memory */
147 #define ENSRDESTRUCTION 175 /* Application terminated looku
    p */
148 #define ENSRQUERYDOMAINTOOLONG 176 /* Domain name is too long */
149 #define ENSRCNAMELOOP   177 /* Domain name is too long */

```