

# BLF原理

1. 分机向PBX发送SUBSCRIBE，要求订阅某个分机的状态，如下是分机8886发送的SUBSCRIBE，订阅分机8887的状态：

```
Session Initiation Protocol (SUBSCRIBE)
Request-Line: SUBSCRIBE sip:8887@172.18.1.88 SIP/2.0
Message Header
  Via: SIP/2.0/UDP 172.18.2.96:5060;branch=z9hg4bk53428294522581320464;rport
  From: Mark <sip:8886@172.18.1.88:5060>;tag=1828741271
  To: "8887" <sip:8887@172.18.1.88>
  Call-ID: 649817985485-31629541437780@172.18.2.96
  CSeq: 1 SUBSCRIBE
  Contact: <sip:8886@172.18.2.96:5060>
  Max-Forwards: 70
  User-Agent: Mark
  Expires: 3600
  Supported: eventlist
  Event: dialog
  Accept: application/dialog-info+xml,application/rfcm+xml,multipart/related
  Content-Length: 0
```

2. PBX回复401要求验证，8886发送带验证信息的SUBSCRIBE：

```
Session Initiation Protocol (SUBSCRIBE)
Request-Line: SUBSCRIBE sip:8887@172.18.1.88 SIP/2.0
Message Header
  Via: SIP/2.0/UDP 172.18.2.96:5060;branch=z9hg4bk71389783977115052;rport
  From: Mark <sip:8886@172.18.1.88:5060>;tag=1828741271
  To: "8887" <sip:8887@172.18.1.88>
  Call-ID: 649817985485-31629541437780@172.18.2.96
  CSeq: 2 SUBSCRIBE
  Contact: <sip:8886@172.18.2.96:5060>
  Authorization: Digest username="8886", realm="asterisk", nonce="0961429a", ur
  Max-Forwards: 70
  User-Agent: Mark
  Expires: 3600
  Supported: eventlist
  Event: dialog
  Accept: application/dialog-info+xml,application/rfcm+xml,multipart/related
  Content-Length: 0
```

带验证信息

3. PBX验证通过后回复200 OK，并发送notify给分机8887，并带有订阅结果：

```
Session Initiation Protocol (NOTIFY)
Request-Line: NOTIFY sip:8886@172.18.2.96:5060 SIP/2.0
Message Header
  Via: SIP/2.0/UDP 172.18.1.88:5060;branch=z9hg4bk39eb14cf;rport
  Max-Forwards: 70
  From: "8887" <sip:8887@172.18.1.88>;tag=as0c70a87c
  To: Mark <sip:8886@172.18.1.88:5060>;tag=1828741271
  Contact: <sip:8887@172.18.1.88:5060>
  Call-ID: 649817985485-31629541437780@172.18.2.96
  CSeq: 102 NOTIFY
  User-Agent: FPBX-2.11.0(11.13.0)
  Subscription-State: active
  Event: dialog
  Content-Type: application/dialog-info+xml
  Content-Length: 204
Message Body
<?xml version="1.0"?>\n
<dialog-info xmlns="urn:ietf:params:xml:ns:dialog-info" version="0" state="full" entity="sip:8887@172.18.1.88">\n
<dialog id="8887">\n
<state>terminated</state>\n
</dialog>\n
</dialog-info>\n
```

active: 订阅信息被接受并通过了验证。  
pending: 不接受或者拒绝订阅。  
terminate: 订阅信息终结

分机的状态，现在分机8887的状态是空闲状态。

4. 分机8886回复PBX 200 OK，表示接收到订阅信息；当有其他分机拨打8887的时候，PBX主动发送NOTIFY给分机8886：

```
Request-Line: NOTIFY sip:8886@172.18.2.96:5060 SIP/2.0
Message Header
  Via: SIP/2.0/UDP 172.18.1.88:5060;branch=z9hg4bk474256e2;rport
  Max-Forwards: 70
  From: "8887" <sip:8887@172.18.1.88>;tag=as0c70a87c
  To: Mark <sip:8886@172.18.1.88:5060>;tag=1828741271
  Contact: <sip:8887@172.18.1.88:5060>
  Call-ID: 649817985485-31629541437780@172.18.2.96
  CSeq: 103 NOTIFY
  User-Agent: FPBX-2.11.0(11.13.0)
  Subscription-State: active
  Event: dialog
  Content-Type: application/dialog-info+xml
  Content-Length: 221
Message Body
<?xml version="1.0"?>\n
<dialog-info xmlns="urn:ietf:params:xml:ns:dialog-info" version="1" state="full" entity="sip:8887@172.18.1.88">\n
<dialog id="8887" direction="recipient">\n
<state>early</state>\n
</dialog>\n
</dialog-info>\n
```

有其他分机拨打8887，处于振铃状态。

5. 8886收到NOTIFY后回复200 OK；当分机8887接通电话，PBX发送NOTIFY给分机8887:

```
Message Header
  Via: SIP/2.0/UDP 172.18.1.88:5060;branch=z9hG4bK0fb4328c;rport
  Max-Forwards: 70
  From: "8887" <sip:8887@172.18.1.88>;tag=as0c70a87c
  To: Mark <sip:8886@172.18.1.88:5060>;tag=1828741271
  Contact: <sip:8887@172.18.1.88:5060>
  Call-ID: 649817985485-31629541437780@172.18.2.96
  CSeq: 105 NOTIFY
  User-Agent: FPBX-2.11.0(11.13.0)
  Subscription-State: active
  Event: dialog
  Content-Type: application/dialog-info+xml
  Content-Length: 203
Message Body
  <?xml version="1.0"?>\n
  <dialog-info xmlns="urn:ietf:params:xml:ns:dialog-info" version="3" state="full" entity="sip:8887@172.18.1.88">\n
  <dialog id="8887">\n
  <state>confirmed</state>\n
  </dialog>\n
  </dialog-info>\n
```

分机8887接通电话，正在通话中。

6. 8886收到NOTIFY后回复200 OK；分机8887挂机后，话机处于空闲状态，PBX发送NOTIFY给分机8886。

```
Request-Line: NOTIFY sip:8886@172.18.2.96:5060 SIP/2.0
Message Header
  Via: SIP/2.0/UDP 172.18.1.88:5060;branch=z9hG4bK43a7bb49;rport
  Max-Forwards: 70
  From: "8887" <sip:8887@172.18.1.88>;tag=as0c70a87c
  To: Mark <sip:8886@172.18.1.88:5060>;tag=1828741271
  Contact: <sip:8887@172.18.1.88:5060>
  Call-ID: 649817985485-31629541437780@172.18.2.96
  CSeq: 106 NOTIFY
  User-Agent: FPBX-2.11.0(11.13.0)
  Subscription-State: active
  Event: dialog
  Content-Type: application/dialog-info+xml
  Content-Length: 204
Message Body
  <?xml version="1.0"?>\n
  <dialog-info xmlns="urn:ietf:params:xml:ns:dialog-info" version="4" state="full" entity="sip:8887@172.18.1.88">\n
  <dialog id="8887">\n
  <state>terminated</state>\n
  </dialog>\n
  </dialog-info>\n
```

分机8887挂机后，话机处于空闲状态。

7. 8886收到NOTIFY后回复200 OK。