了解模拟 E&M 起动拨号监督信令以及故障排除

目录

简介

本文档讨论模拟接收和传输(E&M)启动拨号监控信令。Start Dial Supervision（起动拨号监督）是线路协议，定义设备是如何抓住E&M 中继，如何发送地址信令信息得(发送Dual Tone Multi-frequency (DTMF)数字)。 E&M电路上使用的三种主要启动拨号监控协议是立即启动、Wink启动和延迟拨号。

先决条件

要求

本文档没有任何特定的要求。

使用的组件

本文档中的信息基于以下硬件版本：

- Cisco 1750、2600、2800、3600、3800和VG200路由器

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您使用的是真实网络，请确保您已经了解所有命令的潜在影响。

规则

有关文件规则的更多信息请参见"Cisco技术提示规则"。

背景信息

您可以将本文档用作Cisco路由器/网关和专用分支交换机(PBX)/电信设备之间开始拨号监控问题的故障排除参考。
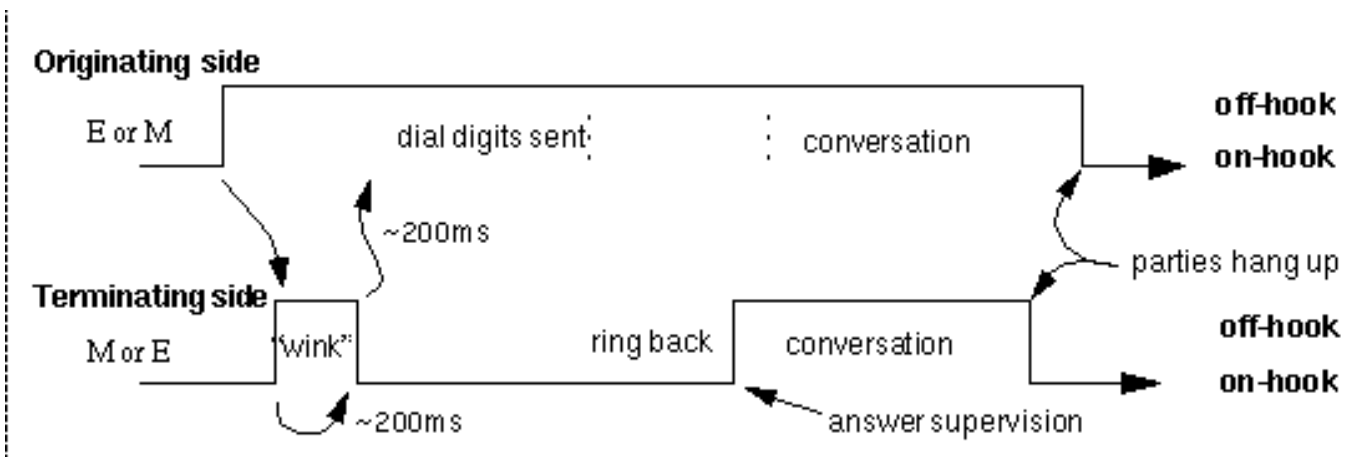
有关模拟E&M的概述，请参阅语音 — 模拟E&M信令概述。

有关模拟E&M接口类型(I - V)和布线问题的信息，请参阅了解模拟E&M接口类型和布线安排并排除故障。

WINK启动 信令

Wink是最常用的协议。这是Wink Start操作过程(请参见图):

1. 始发端通过摘机夺取中继。
2. 端接端保持空闲（挂机），直到连接数字采集设备。
3. 终端端准备就绪后，它会发送闪烁。闪烁是挂机到摘机到挂机的过渡。此过渡期为100至350毫秒(请参见图)。
4. 一旦发起方收到传情动漫（被解释为要继续的指示），它就会发送地址（数字）信息。
5. 然后，呼叫将路由到其目的地。
6. 当远端应答时，终端侧通过摘机向始发侧发出应答监督的信号。
7. 在呼叫期间，两端保持摘机状态。
8. 任一端都可以通过挂机断开呼叫。

Wink Start（通过Immediate Start）的主要原因是确保接收DTMF数字的端准备好接收它们。对于PBX和中心局(CO)产品，DTMF接收器是共享资源，其中可能少于总线路和中继。另一个原因是眩光减少。当中继的两端同时尝试占用中继时，会发生眩光。

在Cisco 1750、2600、2800、3600、3800和VG200路由器（使用E&M语音接口卡[VIC]）中（使用E&M模拟个性化模块[APM]），默认延迟为200毫秒有关如何验证和修改闪烁延迟参数的详细信息，请参阅"验证闪烁启动信令延迟"输出。

验证WINK启动信令延迟

```
3660-2#show voice port 1/0/0
```

recEive And transMit 1/0/0 Slot is 1, Sub-unit is 0, Port is 0
 Type of VoicePort is E&M
 Operation State is DORMANT
 Administrative State is UP
 No Interface Down Failure
 Description is not set
 Noise Regeneration is enabled
 Non Linear Processing is enabled
 Non Linear Mute is disabled
 Non Linear Threshold is -21 dB
 Music On Hold Threshold is Set to -38 dBm
 In Gain is Set to 0 dB
 Out Attenuation is Set to 0 dB
 Echo Cancellation is enabled
 Echo Cancellation NLP mute is disabled
 Echo Cancellation NLP threshold is -21 dB
 Echo Cancel Coverage is set to 8 ms
 Playout-delay Mode is set to adaptive
 Playout-delay Nominal is set to 60 ms
 Playout-delay Maximum is set to 200 ms
 Playout-delay Minimum mode is set to default, value 40 ms
 Playout-delay Fax is set to 300 ms
 Connection Mode is normal
 Connection Number is not set
 Initial Time Out is set to 10 s
 Interdigit Time Out is set to 10 s
 Call Disconnect Time Out is set to 3 s
 Ringing Time Out is set to 180 s
 Wait Release Time Out is set to 30 s
 Companding Type is u-law
 Region Tone is set for US

 Analog Info Follows:
 Currently processing none
 Maintenance Mode Set to None (not in mtc mode)
 Number of signaling protocol errors are 0
 Impedance is set to 600r Ohm
 Station name None, Station number None
 Translation profile (Incoming):
 Translation profile (Outgoing):

 Voice card specific Info Follows:
 Operation Type is 2-wire
 E&M Type is 1
 Signal Type is wink-start
 Dial Out Type is dtmf
 In Seizure is inactive
 Out Seizure is inactive
 Digit Duration Timing is set to 100 ms
 InterDigit Duration Timing is set to 100 ms
 Pulse Rate Timing is set to 10 pulses/second
 InterDigit Pulse Duration Timing is set to 750 ms
 Clear Wait Duration Timing is set to 400 ms
 Wink Wait Duration Timing is set to 200 ms
 Wait Wink Duration Timing is set to 550 ms
 Wink Duration Timing is set to 200 ms
 Delay Start Timing is set to 300 ms
 Delay Duration Timing is set to 2000 ms
 Dial Pulse Min. Delay is set to 140 ms
 Percent Break of Pulse is 60 percent
 Auto Cut-through is disabled
 Dialout Delay is 70 ms

修改闪烁计时参数

要调整传情动漫信号在发送捕捉后等待的最大时间量，请使用voice-port命令timing wait-wink <msec>。默认值为550毫秒。

要调整闪烁的持续时间，请使用voice-port命令timing wink-duration *<msec>*。默认值为200毫秒。

要调整语音端口等待来自已连接系统的闪烁的时间量，请使用voice-port命令timing wink-wait <msec>。默认值为200毫秒。

```
3660-2#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
3660-2(config)#voice-port 1/0/0
3660-2(config-voiceport)#timing ?
  clear-wait          time of inactive seizure signal to declare call cleared in
                      milliseconds
  delay-duration      Max delay signal duration for delay dial signaling in
                      milliseconds
  delay-start         Timing of generation of delay start sig from detect
                      incoming seizure in milliseconds
  dial-pulse          dial pulse
  dialout-delay       delay before sending out digit or cut-thru
  digit               DTMF digit duration in milliseconds
  hookflash-in        Hookflash input duration in milliseconds
  inter-digit         DTMF inter-digit duration in milliseconds
  percentbreak        the break period of a dialing pulse
  pulse               pulse dialing rate in pulses per second
  pulse-inter-digit   pulse dialing inter-digit timing in milliseconds
  wait-wink           Max time to wait for wink signal after sending outgoing
                      seizure in milliseconds
  wink-duration       Max wink duration for wink start signaling in
                      milliseconds
  wink-wait           Time to wait before sending wink signal after detecting
                      incoming seizure in milliseconds

3660-2(config-voiceport)#timing wait-wink ?
  <100-5000>  milliseconds
3660-2(config-voiceport)#timing wait-wink 300
3660-2(config-voiceport)#timing wink-duration ?
  <50-3000>  milliseconds
3660-2(config-voiceport)#timing wink-duration 250
3660-2(config-voiceport)#timing wink-wait ?
  <100-5000>  milliseconds
3660-2(config-voiceport)#timing wink-wait 350
```
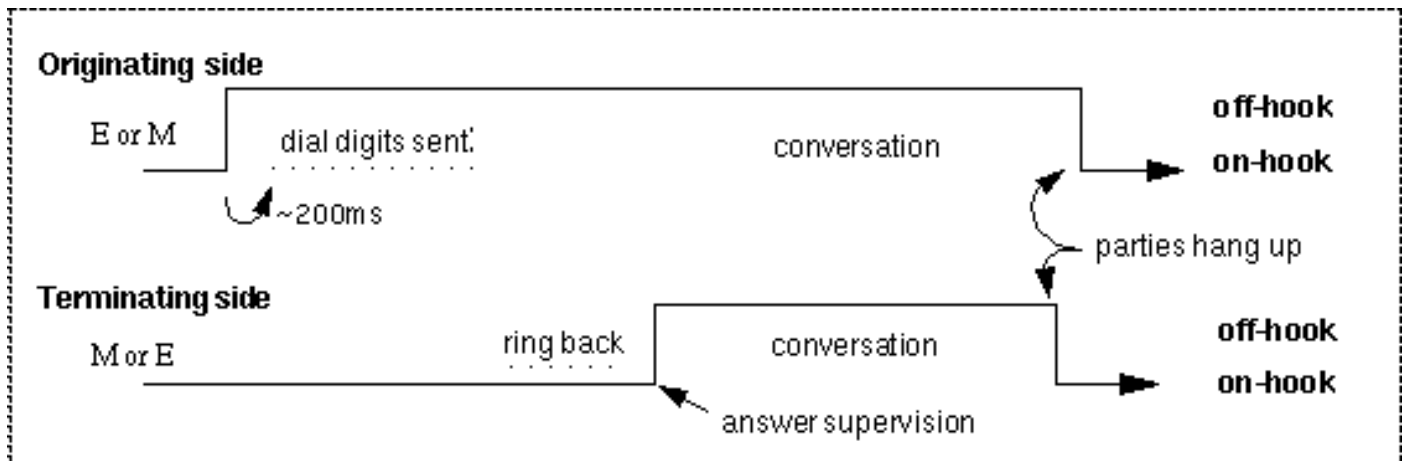
有关timing命令的详细信息，请参阅多服务应用命令。

立即启动信令

立即开始信令是最基本的协议。始发端摘机，等待一段有限的时间（例如200毫秒），然后发送拨号数字而不考虑远端(请参见图)。

即时启动信令方法比Wink Start不可靠。在"立即开始"(Immediate Start)中，从收到呼叫的终端没有闪烁表示它已准备好接受数字。在某些情况下，PBX可能负载过重，无法足够快地交换DTMF接收器以接收来自思科产品的数字。在这种情况下，呼叫无法完成，因为思科产品在PBX准备好接受DTMF数字之前会发送DTMF数字。因此，为了获得最高可靠性，Wink Start优先于Immediate
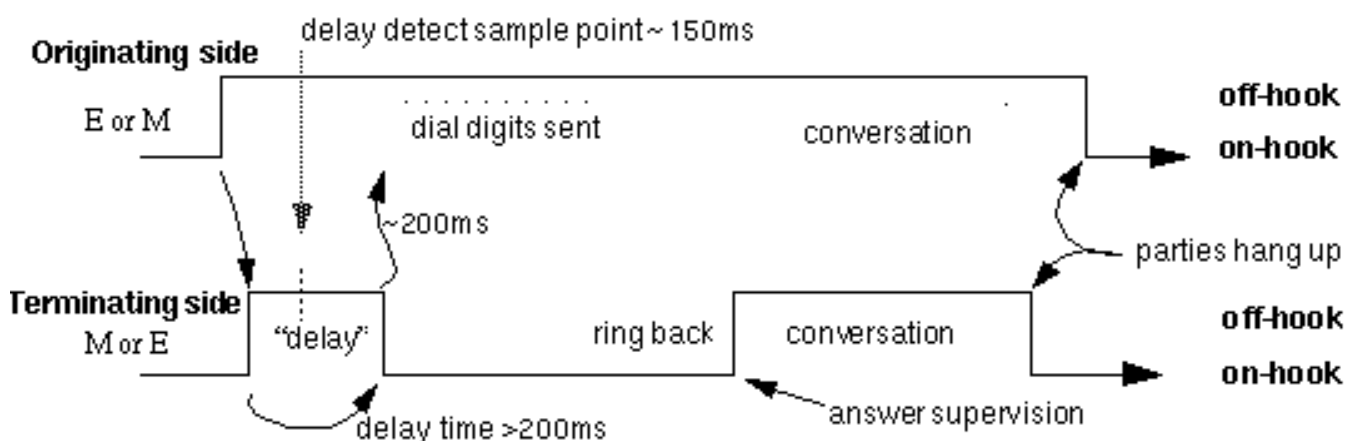
Start。

延迟拨号信令

延迟拨号操作过程如下所示(请参阅图):

1. 始发端通过摘机来夺取中继。
2. 端接侧通过摘机响应卡扣。
3. 终端端保持摘机状态，直到它准备好接收地址信息。
4. 当端接端准备就绪时，它会挂机。摘机间隔是延迟拨号信号。
5. 始发端开始发送地址信息。
6. 呼叫将路由到其目的地。
7. 当远端应答时，终端侧通过摘机向始发侧发出应答监督的信号。
8. 在呼叫期间，两端保持摘机状态。
9. 任一端都可以通过挂机断开呼叫。

创建延迟拨号，因为使用Wink Start的字段中仍有问题。字段中有设备发送传情动漫，但在发送传情动漫后，它尚未准备好立即接收数字。

在Cisco 1750、2600、2800、3600、3800和VG200（使用E&M VIC）中，默认闪烁延迟为200毫秒。有关如何验证和修改延迟拨号信令参数的详细信息，请参阅验证延迟拨号信令延迟示例输出。

验证延迟拨号信令延迟

```
3660-2#show voice port 1/0/1
```

```
recEive And transMit 1/0/1 Slot is 1, Sub-unit is 0, Port is 1
 **Type of VoicePort is E&M**
 Operation State is DORMANT
 Administrative State is UP
 No Interface Down Failure
 Description is not set
 Noise Regeneration is enabled
 Non Linear Processing is enabled
 Non Linear Mute is disabled
 Non Linear Threshold is -21 dB
 Music On Hold Threshold is Set to -38 dBm
 In Gain is Set to 0 dB
 Out Attenuation is Set to 0 dB
 Echo Cancellation is enabled
 Echo Cancellation NLP mute is disabled
 Echo Cancellation NLP threshold is -21 dB
 Echo Cancel Coverage is set to 8 ms
 Playout-delay Mode is set to adaptive
 Playout-delay Nominal is set to 60 ms
 Playout-delay Maximum is set to 200 ms
 Playout-delay Minimum mode is set to default, value 40 ms
 Playout-delay Fax is set to 300 ms
 Connection Mode is normal
 Connection Number is not set
 Initial Time Out is set to 10 s
 Interdigit Time Out is set to 10 s
 Call Disconnect Time Out is set to 3 s
 Ringing Time Out is set to 180 s
 Wait Release Time Out is set to 30 s
 Companding Type is u-law
 Region Tone is set for US

 Analog Info Follows:
 Currently processing none
 Maintenance Mode Set to None (not in mtc mode)
 Number of signaling protocol errors are 0
 Impedance is set to 600r Ohm
 Station name None, Station number None
 Translation profile (Incoming):
 Translation profile (Outgoing):

 Voice card specific Info Follows:
 Operation Type is 2-wire
 E&M Type is 1
 **Signal Type is delay-dial**
 Dial Out Type is dtmf
 In Seizure is inactive
 Out Seizure is inactive
 Digit Duration Timing is set to 100 ms
 InterDigit Duration Timing is set to 100 ms
 Pulse Rate Timing is set to 10 pulses/second
 InterDigit Pulse Duration Timing is set to 750 ms
 Clear Wait Duration Timing is set to 400 ms
 Wink Wait Duration Timing is set to 200 ms
 Wait Wink Duration Timing is set to 550 ms
 Wink Duration Timing is set to 200 ms
 **Delay Start Timing is set to 300 ms**
 **Delay Duration Timing is set to 2000 ms**
 Dial Pulse Min. Delay is set to 140 ms
 Percent Break of Pulse is 60 percent
 Auto Cut-through is disabled
 Dialout Delay is 300 ms
```

修改延迟拨号参数

要调整延迟信号持续时间，请使用voice-port命令**timing delay-duration *<msec>***。默认值为2000毫秒。

要调整出站呼叫线路占用前的最小延迟，请使用voice-port命令**timing delay-start<msec>**。默认值为300毫秒。

```
3660-2(config)#voice-port 1/0/1
3660-2(config-voiceport)#timing ?
  clear-wait          time of inactive seizure signal to declare call cleared in
                      milliseconds
  delay-duration      Max delay signal duration for delay dial signaling in
                      milliseconds
  delay-start         Timing of generation of delay start sig from detect
                      incoming seizure in milliseconds
  dial-pulse          dial pulse
  dialout-delay       delay before sending out digit or cut-thru
  digit               DTMF digit duration in milliseconds
  hookflash-in        Hookflash input duration in milliseconds
  inter-digit         DTMF inter-digit duration in milliseconds
  percentbreak        the break period of a dialing pulse
  pulse               pulse dialing rate in pulses per second
  pulse-inter-digit   pulse dialing inter-digit timing in milliseconds
  wait-wink           Max time to wait for wink signal after sending outgoing
                      seizure in milliseconds
  wink-duration       Max wink duration for wink start signaling in
                      milliseconds
  wink-wait           Time to wait before sending wink signal after detecting
                      incoming seizure in milliseconds

3660-2(config-voiceport)#timing delay-duration ?
  <100-5000>  milliseconds
3660-2(config-voiceport)#timing delay-duration 1000

3660-2(config-voiceport)#timing delay-start ?
  <20-2000>  milliseconds
3660-2(config-voiceport)#timing delay-start 100
```

有关timing命令的详细信息，请参阅多服务应用命令。

开始拨号监督不匹配

有时，PBX对入站和出站呼叫有不同的开始拨号监控协议。如果远端未配置为正确处理此情况，这可能导致行为不稳定。此一般规则集适用：

- 即时启动接口通常可以发起对Wink Start接口的呼叫。
- 如果延迟脉冲短于立即开始延迟，则立即开始接口通常可以向延迟拨号接口发出呼叫。否则，操作将不稳定。
- 如果存在延迟脉冲，Wink Start接口通常可以向延迟拨号*接口*发起呼叫。否则，呼叫挂断，工作或不工作的可能性为50%。
- 延迟拨号接口可以发起呼叫进入即时启动或闪烁启动接口。

相关信息

- [语音- 模拟E&M 信令概述](#)
- [了解和排除模拟E&M接口类型和布线故障](#)
- [多服务应用命令](#)
- [语音端口配置](#)
- [连接 Cisco 1750/2600/3600 E&M VIC 与 Lucent PBX G3R E&M Trunk的 E&M 电缆引脚排列](#)
- [连接 Cisco 1750/2600/3600 E&M VIC 与 Nortel PBX Option 11 E&M Trunk的 E&M 电缆引脚排列](#)
- [语音技术支持](#)
- [语音和 IP 通信产品支持](#)
- [Cisco IP 电话故障排除](#)
- [技术支持 - Cisco Systems](#)