

# 了解模拟 E&M 启动拨号监督信令以及故障排除

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## 简介

本文讨论模拟接收和传输(E&M)启动拨号监督信令。Start Dial Supervision ( 启动拨号监督 ) 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)。在E&M电路使用的三个主要启动拨号监督协议是立即启动、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

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

## 背景信息

您能使用本文，故障排除参考启动拨号在Cisco路由器/网关和内部交换机(PBX) /Telco设备之间的监督问题。

对于模拟E&M概述，参考 [语音-模拟E&M信令概述](#)。

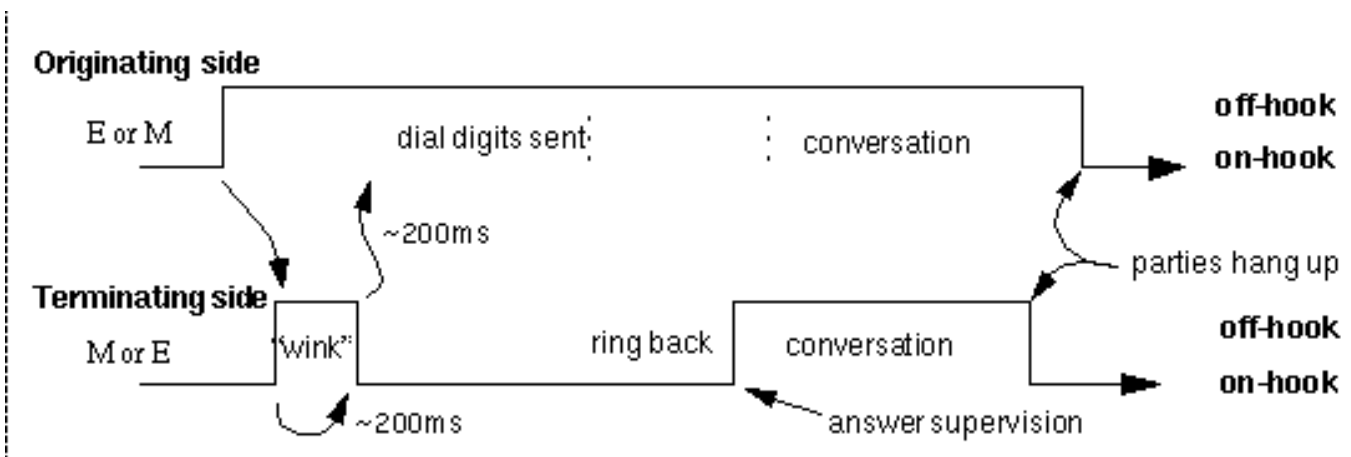
关于模拟E&M接口类型(I的信息- V)和布线问题，参考 [了解和排除故障模拟E & M接口类型和布线](#)。

## WINK启动 信令

闪烁是最常用的协议。这是WINK启动操作进程(请参阅[图表](#))：

1. 始发端通过去占用中继摘机。
2. 终止端依然是空闲(挂机)，直到数字收集设备附加。
3. 一旦终止端准备好，它发送闪烁。闪烁挂机对摘机对挂机转换。此过渡周期周期行列自100到350毫秒(请参阅[图表](#))。
4. 一旦起源侧接收闪烁，(解释作为征兆继续)，发送地址(位)信息。
5. 呼叫然后路由对其目的地。
6. 当远端回答时，终止端通过去发信号往始发端的应答监督挂机。
7. 两端依然是摘机处于呼叫的。
8. 任一个末端能通过去断开呼叫挂机。

WINK启动的主要原因(在立即启动)是保证收到DTMF位的侧准备接收他们。对于PBX和中心局产品，DTMF接收方是共享资源，并且比总线路和中继可能有无足轻重他们。另一个原因是强光减少。当中继的两端尝试同时时，占用中继强光发生。



在Cisco 1750， 2600， 2800， 3600， 3800和VG200路由器中(使用E&M语音接口卡[VIC])， (与E&M模拟个性模块[APM])， 默认瞬间延迟是200毫秒。请参阅[验证瞬间启动信令延迟输出](#)关于如何确认并修正Wink延迟参数的更多信息。

## 验证瞬间启动信令延迟

```
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

## [修改瞬间计时参数](#)

要调节最大数量时刻等待闪烁信号，在发送捕捉后，请使用voice-port命令定时**wait-wink <msec>**。默认是550毫秒。

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

要调节语音端口等待从连接的系统的闪烁的时间，请使用voice-port命令定时**wink-wait <msec>**。默认是200毫秒。

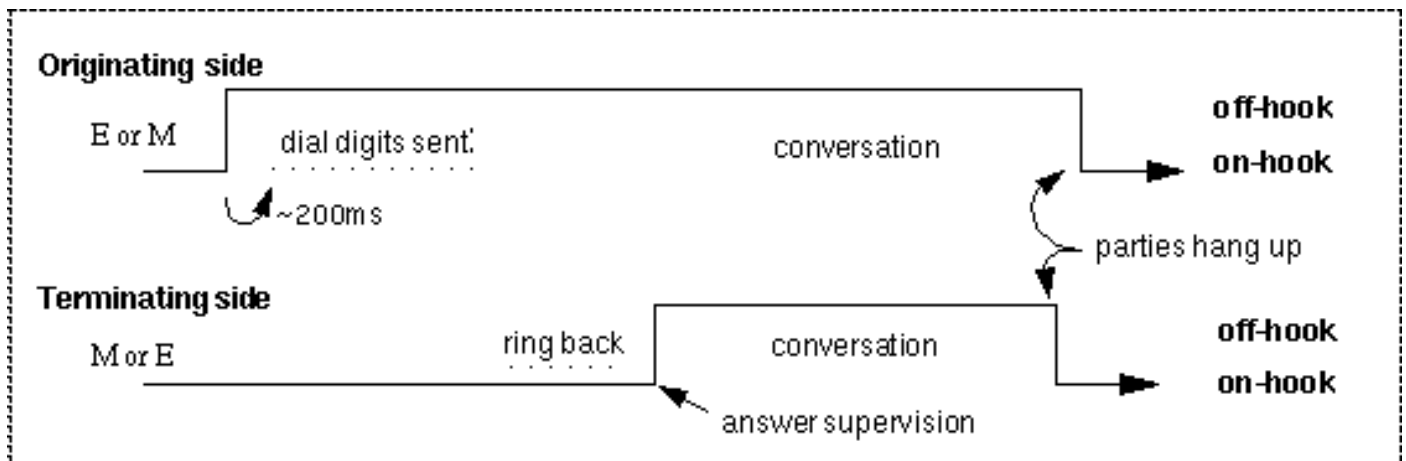
```
3660-2#configure terminal Enter configuration commands, one per line. End with CNTL/Z. 3660-2(config)#voice-port 1/0/0 3660-2(config-voiceport)#timing ? clear-wait time of inactive seizure signal to declare call cleared in milliseconds delay-duration Max delay signal duration for delay dial signaling 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
```

关于定时命令的更多信息，参考[多业务应用命令](#)。

## [立即启动信令](#)

立即启动起动脉信号是多数基本协议。始发端去摘机，等待一个有限的时期(例如200毫秒)，然后发送拨号数位不考虑远端(参考[图表](#))。

立即启动信令方法比WINK启动较不可靠。在立即启动，没有收到呼叫表示从未端的闪烁准备接受位。在某些状况下，PBX可能到位在重载下和不能对交换机A DTMF接收方足够迅速收到从Cisco产品的位。在那种情况下，呼叫不能完成，因为Cisco产品发送DTMF位，在PBX准备接纳他们前。所以，对于最大可靠性，WINK启动在立即启动更喜欢。

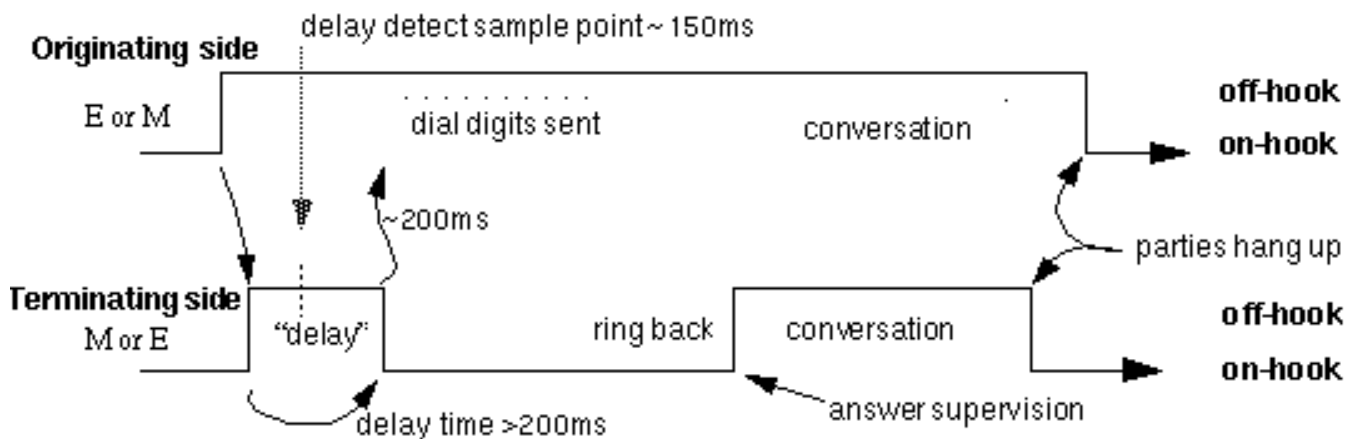


## 延迟拨号信令

延迟拨号操作进程显示此处(参考图表)：

1. 始发端通过去占用中继摘机。
2. 终止端响应对捕捉通过去摘机。
3. 终止端依然是摘机，直到准备获得地址信息。
4. 当终止端准备好时，它去挂机。摘机间隔是延迟拨号信号。
5. 始发端开始发送地址信息。
6. 呼叫路由对其目的地。
7. 当远端回答时，终止端通过去发信号往始发端的应答监督摘机。
8. 两端依然是摘机处于呼叫的。
9. 任一个末端能通过去断开呼叫挂机。

因为仍有问题在有WINK启动的，字段延迟拨号创建。有设备在发送闪烁的字段，但是没有准备收到位非常即时，在发送闪烁后。



在Cisco 1750, 2600, 2800, 3600, 3800和VG200 (使用E&M VIC), 默认瞬间延迟是200毫秒。请参阅[验证延迟拨号信令延迟输出示例](#)关于如何确认并修正延迟拨号信令参数的更多信息。

## 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**定时delay duration <msec>**。默认是2000毫秒。

在呼出的线路捕捉前要调整最小延时，请使用voice-port命令**timing delay-start <msec>**。默认是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
```

关于定时命令的更多信息，参考[多业务应用命令](#)。

## [开始拨号监督不匹配](#)

通常，PBX有呼入和呼出电话的一个不同的启动拨号监督协议。如果远端没有配置适当地处理此情况，这可能导致不稳定行为。此一般规则集适用：

- 直接启动接口能通常发起呼叫到WINK启动接口。
- 直接启动接口能通常发出呼叫到一个延迟拨号接口，如果延迟脉冲比立即启动延迟短。否则，操作是古怪的。
- 如果有延迟脉冲，WINK启动接口能通常发起呼叫到延迟拨号接口。否则，呼叫暂停以工作的50百分比机会。
- 延迟拨号接口能发起呼叫到立即启动或WINK启动接口。

## [相关信息](#)

- [语音-模拟E&M信令概述](#)

- [了解和排除故障模拟E&M接口类型和布线](#)
- [多业务应用命令](#)
- [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](#)