

排除故障在Catalyst 3650/3850交换机的柏吾Imax错误

目录

[简介](#)

[什么是Imax错误？](#)

[与更旧的设备的比较](#)

[排除故障Imax错误](#)

[供给协商动力](#)

[摘要](#)

简介

本文描述如何排除故障在Catalyst 3650/3850交换机的柏吾(在以太网的电源) Imax错误。Catalyst 3650/3850交换机用于柏吾为了提供电源给外部设备例如无线接入点(AP)， IP电话，等等通过以太网电缆attches他们对交换机。

什么是Imax错误？

Imax错误出现，当交换机的一个柏吾有能力端口比它协商画更多电源。当IEEE电源设备(PD)出现获得分级到类。从属在什么A类设备，作为电源设备的交换机分配它一定数量的瓦特(PSE)。这可以重新协商的以后由使用思科设备发现协议(CDP)或链路层发现协议的设备(LLDP)请求更多或较少电源。这是为了允许预算电源。

PD比分配保证它不画更多电源。交换机通过设置Icutoff值控制此。这是该的值在控制器设置的获得作为高分。当设备超过Icutoff值时交换机停止提供电源并且记录指示的Imax错误连接的设备超出了经过协商的瓦数。

与更旧的设备的比较

Catalyst 3650/3850使用更多增强版柏吾控制器。那里更旧的设备类似Catalyst 3750不支持粒度关于设置Icutoff值， Catalyst 3650和3850。这经常导致征收Catalyst 3650/3850遇到更旧的设备不的问题。在任何情况下，然而，这是征收。更旧的设备比协商有较少粒度在电源的管制并且允许PD画更多电源。Catalyst 3650/3850在Catalyst 3650/3850更加严格修正拉长的电源，以及同样，Imax错误也许发生同一个设备的连接对一更旧的交换机不会显示任何问题的地方。

排除故障Imax错误

确定的多少电源PD在字段确实画不是容易。当交换机的电源控制器检测时有在端口被画的更多电源，关闭端口并且通知事实的Cisco IOS PD超出了最大数量分配的电源。在Cisco IOS您能看到当前被画的电源使用情况每个有detail命令show power轴向的<interface>的端口。

```
3850_4#sh power inline Te 3/0/44 detail
Interface: Te3/0/44
Inline Power Mode: auto
```

```
Operational status: on
Device Detected: yes
Device Type: Ieee PD
IEEE Class: 3
Discovery mechanism used/configured: Ieee and Cisco
Police: off
Power Allocated
Admin Value: 60.0
Power drawn from the source: 15.0
Power available to the device: 15.0
```

Actual consumption

```
Measured at the port: 6.1
Maximum Power drawn by the device since powered on: 6.2
```

```
Absent Counter: 0
Over Current Counter: 0
Short Current Counter: 0
Invalid Signature Counter: 0
Power Denied Counter: 0
```

Power Negotiation Used: IEEE 802.3at LLDP

```
LLDP Power Negotiation --Sent to PD--      --Rcvd from PD--
Power Type:                Type 2 PSE        Type 1 PD
Power Source:              Primary          PSE
Power Priority:            low              high
Requested Power(W):       12.7              12.7
Allocated Power(W):       12.7              12.7
```

```
Four-Pair PoE Supported: Yes
Spare Pair Power Enabled: No
Four-Pair PD Architecture: Shared
```

测量值显示在端口在此输出中由控制器测量。此信息每隔几秒钟收集并且给予关于拉长的电源的某个征兆。以最大功率表示的值被画看上去有用的排除故障Imax错误，但是不幸地那是什么的一历史显示设备画的最大功率是。如果Imax错误出现，那时被画的电源没有报告回到Cisco IOS，并且不会显示那里。

和在示例能被看到，值配置到端口是15W。这是获得编程在接口上的截止值。在Cisco Bug ID [CSCuy7423之前](#)，lcutoff值在端口有规律地被编程。在CDP数据包接收时候值将被重编程序。在Cisco Bug ID [CSCuy74231以后](#)(修复在Cisco IOS XE 3.6.5E和3.7.5)编程的这优化。这减少一“失败的”可能性重编程序的导致Imax错误的lcutoff值。

编程lcutoff值可以通过两命令显示。二者之一通过日志可以历史上被采集的trace或调试可以启用记录调试消息，当发生时。命令获得此是：

```
show mgmt-infra trace message platform-mgr-poe <switch x>
debug platform poe
```

如果在堆叠的主控交换机是有能力的PoE **show trace**命令可能只被执行。否则，此命令是需要的为了首先连接对柏吾在堆叠的成员交换机执行它：

```
session switch <x>
*May 20 00:34:04.445:CDP-PA: Packet received from AP2 on interface TenGigabitEthernet3/0/44
**Entry found in cache**
*May 20 00:34:04.445: %IOSXE-7-PLATFORM: MEMBER: 3 process platform_mgr: PoE Info: Dequeued POE
SPI msg ver 1 if_id 73003723793629284
num_ports 1 req_id 650 msg_type 20
*May 20 00:34:04.452: %IOSXE-7-PLATFORM: MEMBER: 3 process platform_mgr: PoE Info:
E_ILP_SET_CUTOFF if_id 73003723793629284
*May 20 00:34:04.452: %IOSXE-7-PLATFORM: MEMBER: 3 process platform_mgr: PoE Info:port 44
icutoff power 15000
*May 20 00:34:04.452: %IOSXE-7-PLATFORM: MEMBER: 3 process platform_mgr: PoE Info:
re_poe_set_icutoff_current port 44 power 15000
```

```
*May 20 00:34:04.452: %IOSXE-7-PLATFORM: MEMBER: 3 process platform_mgr: PoE Info: scale factor 22 for power 15000
```

```
*May 20 00:34:04.452: %IOSXE-7-PLATFORM: MEMBER: 3 process platform_mgr: PoE Info: POE_SET_CUTOFF_CURRENT_SCALE_FACTOR sent for port 44 (e:11)
```

如前面提到，它是诊断lmax错误的复杂过程。在lmax错误出现时候，没有被记录的信息。控制器关闭端口，并且PD将典型地丢失对什么的所有登录方面比分配当时执行它画了更多电源。拉长的电源的测量由端口的在字段不是容易，但是与静态分配的电源确定可能做。通过静态分配更多电源比将动态地请求，确定是可能的多少更多电源将触发将被超出的lcutoff阈值的PD将画。静态最大功率电力消费在有命令**电源轴向静态最大<value>**的一交换机端口可以配置。

```
3850_4#sh run int te 3/0/44
interface TenGigabitEthernet3/0/44
  power inline static max 20000
end
```

```
3850_4#sh power inline te 3/0/44 detail
Interface: Te3/0/44
Inline Power Mode: static
Operational status: on
Device Detected: yes
Device Type: Ieee PD
IEEE Class: 3
Discovery mechanism used/configured: Ieee and Cisco
Police: off
Power Allocated Admin Value: 20.0
Power drawn from the source: 20.0
Power available to the device: 20.0
```

电源协商

多种IEEE类定义级别电源使用情况。电源的进一步协商完成在PD和PSE之间与CDP或LLDP。当您查看lmax错误时，电源协商起重要部分。PD请求应该分配多少电源到它，但是应该也保证不会超过请求的值。

中集集团PSE PD

中集集团0/Default 15.4W 12.95W

等级1 4.0W 3.84W

等级2 7.0W 6.49W

等级3 15.4W 12.95W

等级4 30.0W 25.50W

根据此表，从属在什么类检测，交换机(PSE)允许有些最大功率被画。请注意标准也定义了PD应该能消耗的电源。标准为电源预算分配由在PSE和PD之间的布线使用。这也突出显示多么重要是知道使用什么类型的电缆，当您在时什么情况调查lmax错误和确定他们在其他也许发生更比。

在分类顶部，电源的协商完成与CDP或LLDP协议。这允许交换机分配更多或较少电源比什么类设置作为最大数量。

和在下一个示例能被看到，PD (接入点在这种情况下)出现。在电源协商发生了前，分配了为类设置它的默认15.4W。

```
3850_4#sh cdp neigh te 3/0/44 detail
```

```
-----  
Device ID: AP2  
Entry address(es):  
  IPv6 address: FE80::CEEF:48FF:FEC2:1B9B (link-local)  
Platform: cisco AIR-CAP3501I-E-K9, Capabilities: Router Trans-Bridge Source-Route-Bridge IGMP  
Interface: TenGigabitEthernet3/0/44, Port ID (outgoing port): GigabitEthernet0  
Holdtime : 163 sec  
Version :  
Cisco IOS Software, C3500 Software (AP3G1-K9W8-M), Version 15.3(3)JNB3, RELEASE SOFTWARE (fc1)  
Technical Support: http://www.cisco.com/techsupport  
Copyright (c) 1986-2016 by Cisco Systems, Inc.  
Compiled Tue 05-Jan-16 00:44 by prod_rel_team  
advertisement version: 2  
Duplex: full  
Total cdp entries displayed : 1
```

```
3850_4#sh power inline te 3/0/44
```

Interface	Admin	Oper	Power (Watts)	Device	Class	Max
Te3/0/44	auto	on	15.4	AIR-CAP3501I-E-K9	3	60.0

现在，当电源协商发生交换机分配较少电源。要注释，在detail命令show cdp neig的<if>的输出中是请求的多种功率电平。当一些设备也许有一个需求时，有将请求多功率电平的设备。如果他们不会授权全功率，AP，例如，有能力供给动力在无线电上下。在本例中，PD请求15000或14500兆瓦。

```
3850_4#sh cdp neigh te 3/0/44 detail
```

```
-----  
Device ID: AP2  
Entry address(es):  
  IP address: 10.1.200.2  
  IPv6 address: FE80::CEEF:48FF:FEC2:1B9B (link-local)  
Platform: cisco AIR-CAP3501I-E-K9, Capabilities: Trans-Bridge Source-Route-Bridge IGMP  
Interface: TenGigabitEthernet3/0/44, Port ID (outgoing port): GigabitEthernet0  
Holdtime : 172 sec  
Version :  
Cisco IOS Software, C3500 Software (AP3G1-K9W8-M), Version 15.3(3)JNB3, RELEASE SOFTWARE (fc1)  
Technical Support: http://www.cisco.com/techsupport  
Copyright (c) 1986-2016 by Cisco Systems, Inc.  
Compiled Tue 05-Jan-16 00:44 by prod_rel_team  
advertisement version: 2  
Duplex: full  
Power drawn: 15.000 Watts  
Power request id: 15079, Power management id: 2  
Power request levels are: 15000 14500 0 0 0  
Management address(es):  
  IP address: 10.1.200.2
```

```
3850_4#sh power inline te 3/0/44 detail
```

```
Interface: Te3/0/44  
Inline Power Mode: auto  
Operational status: on  
Device Detected: yes  
Device Type: cisco AIR-CAP3501I-  
IEEE Class: 3  
Discovery mechanism used/configured: Ieee and Cisco  
Police: off  
Power Allocated  
Admin Value: 60.0
```

```
Power drawn from the source: 15.0
Power available to the device: 15.0
Actual consumption
Measured at the port: 6.1
Maximum Power drawn by the device since powered on: 6.2
Absent Counter: 0
Over Current Counter: 0
Short Current Counter: 0
Invalid Signature Counter: 0
Power Denied Counter: 0
Power Negotiation Used: CDP
LLDP Power Negotiation --Sent to PD--      --Rcvd from PD--
  Power Type:          -                    -
  Power Source:        -                    -
  Power Priority:       -                    -
  Requested Power(W): -                    -
  Allocated Power(W): -                    -
Four-Pair PoE Supported: Yes
Spare Pair Power Enabled: No
Four-Pair PD Architecture: Shared
```

使用而不是CDP的LLDP显示同样结果。供给动力的PD获得，设备根据类接收全双工15.4W。

```
3850_4#sh lldp neighbors te 3/0/44 detail
```

```
-----
Local Intf: Te3/0/44
Chassis id: 2c3f.387e.91d0
Port id: Gi0
Port Description: GigabitEthernet0
System Name: AP2.cisco.com
System Description:
Cisco IOS Software, C3500 Software (AP3G1-K9W8-M), Version 15.3(3)JNB3, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2016 by Cisco Systems, Inc.
Compiled Tue 05-Jan-16 00:44 by prod_rel_team
Time remaining: 64 seconds
System Capabilities: B
Enabled Capabilities: B
Management Addresses:
  IP: 10.1.200.2
Auto Negotiation - supported, enabled
Physical media capabilities:
  1000baseT(FD)
  1000baseT(HD)
  100base-TX(FD)
  100base-TX(HD)
  10base-T(FD)
  10base-T(HD)
Media Attachment Unit type: 30
Vlan ID: - not advertised
```

```
Total entries displayed: 1
```

```
3850_4#sh power inline te 3/0/44 detail
```

```
Interface: Te3/0/44
Inline Power Mode: auto
Operational status: on
Device Detected: yes
Device Type: Ieee PD
IEEE Class: 3
Discovery mechanism used/configured: Ieee and Cisco
Police: off
Power Allocated
```

Admin Value: 60.0
Power drawn from the source: 15.4
Power available to the device: 15.4
Actual consumption
Measured at the port: 5.2
Maximum Power drawn by the device since powered on: 5.3
Absent Counter: 0
Over Current Counter: 0
Short Current Counter: 0
Invalid Signature Counter: 0
Power Denied Counter: 0
Power Negotiation Used: None
LLDP Power Negotiation --Sent to PD-- --Rcvd from PD--
 Power Type: - -
 Power Source: - -
 Power Priority: - -
 Requested Power(W): - -
 Allocated Power(W): - -
Four-Pair PoE Supported: Yes
Spare Pair Power Enabled: No
Four-Pair PD Architecture: N/A
一旦它启动，分配获得降低。

3850_4#sh lldp neighbors te 3/0/44 detail

```
-----  
Local Intf: Te3/0/44  
Chassis id: 2c3f.387e.91d0  
Port id: Gi0  
Port Description: GigabitEthernet0  
System Name: AP2.cisco.com  
System Description:  
Cisco IOS Software, C3500 Software (AP3G1-K9W8-M), Version 15.3(3)JNB3, RELEASE SOFTWARE (fc1)  
Technical Support: http://www.cisco.com/techsupport  
Copyright (c) 1986-2016 by Cisco Systems, Inc.  
Compiled Tue 05-Jan-16 00:44 by prod_rel_team  
Time remaining: 108 seconds  
System Capabilities: B  
Enabled Capabilities: B  
Management Addresses:  
  IP: 10.1.200.2  
Auto Negotiation - supported, enabled  
Physical media capabilities:  
  1000baseT(FD)  
  1000baseT(HD)  
  100base-TX(FD)  
  100base-TX(HD)  
  10base-T(FD)  
  10base-T(HD)  
Media Attachment Unit type: 30  
Vlan ID: - not advertised  
PoE+ Power-via-MDI TLV:  
  Power Pair: Signal  
Power Class: Class 3  
  Power Device Type: Type 1 PD  
  Power Source: PSE  
  Power Priority: high  
  Power Requested: 12700 mW  
  Power Allocated: 12700 mW  
Total entries displayed: 1
```

3850_4#sh power inline te 3/0/44 detail

Interface: Te3/0/44

```

Inline Power Mode: auto
Operational status: on
Device Detected: yes
Device Type: Ieee PD
IEEE Class: 3
Discovery mechanism used/configured: Ieee and Cisco
Police: off
Power Allocated
Admin Value: 60.0
Power drawn from the source: 15.0
Power available to the device: 15.0
Actual consumption
Measured at the port: 6.1
Maximum Power drawn by the device since powered on: 6.2
Absent Counter: 0
Over Current Counter: 0
Short Current Counter: 0
Invalid Signature Counter: 0
Power Denied Counter: 0
Power Negotiation Used: IEEE 802.3at LLDP
LLDP Power Negotiation --Sent to PD--      --Rcvd from PD--
Power Type:                Type 2 PSE          Type 1 PD
Power Source:              Primary            PSE
Power Priority:            low                high
Requested Power(W):      12.7                12.7
Allocated Power(W):      12.7                12.7
Four-Pair PoE Supported: Yes
Spare Pair Power Enabled: No
Four-Pair PD Architecture: Share

```

从detail命令show power轴向的<interface>的输出关于比的协商显示更多信息什么完成由CDP显示。也有CDP和LLDP之间的另一个主要区别关于电源协商。CDP协商电量提供在端口(15W)。然而使用LLDP，您看到PD不协商端口应该提供的电源。它请求PD希望有的电量。在这种情况下它是12.7W。交换机(PSE)必须补偿在布线的损耗并且分配15W到端口。因为电源协商发生也是关键确定什么请求的电源是在失败时。知识设备多久启用了和什么事件也许在错误时已经发生了能在根本原因附近提供更多细节。例如，IP电话从睡眠出来并且打开其屏幕也许一瞬间充分地画更多电源。

摘要

对于Imax错误，确定确切的原因是难。在任何情况下发现这些与画更多电源的PD的一个问题，并且PD供应商需要订婚为了调查用交换机协商的为什么超出电源。

因为这更改电子特性并且影响在端口，得出的电量调查布线的种类和长度也是关键的。是重要是调查电源协商和确认设备请求的电源也是得到分配的电量。一旦LLDP，缚住的另外的预算在PD之间和PSE是需要的。有时，与使用静态分配的电源，在Imax错误附近工作是可能的并且/或者确定设备在端口透支的电量。确认PD透支电量它得到分配可以用测量和测试设备的电源仅完成。

在Cisco IOS XE版本3.6.5和3.7.5中及以后，一些改进在Imax错误附近被做了：

- 对端口的Icutoff值减少了相当数量重编程序。
- 在端口的折让透支的电源的增加，这也许在某些情况下是防止Imax错误的足够。
- 一些稀有案例方案是解决的Imax错误也许已经出现作为假告警的地方。