

地址ACI故障代码F0467: invalid-vlan , invalid-path , encap-already-in-use

目录

[简介](#)

[背景信息](#)

[Intersight Connected ACI交换矩阵](#)

[ACI故障F0467场景](#)

[无效的VLAN配置 : invalid-vlan](#)

[场景](#)

[潜在原因 : 关联的VLAN池不包含所需的VLAN](#)

[潜在原因 : 具有未与域关联的所需VLAN的VLAN池](#)

[路径配置无效 : 路径无效](#)

[场景](#)

[快速入门隔离](#)

[潜在原因 : 缺少域与AAEP的关联](#)

[潜在原因 : 缺少AAEP到IPG的关联](#)

[潜在原因 : 缺少IPG与接口选择器的关联](#)

[潜在原因 : 缺少接口选择器与接口配置文件关联](#)

[潜在原因 : 缺少接口配置文件与交换机配置文件关联](#)

[Encap Already Used in Another EPG \(已在另一个EPG中使用 \) : encap-already-in-use](#)

[场景](#)

[快速入门隔离](#)

[补救选项](#)

[其他详细信息](#)

[成功配置参考](#)

[EPG与静态路径关联](#)

[EPG与AAEP关联](#)

[EPG到域的关联](#)

[域与AAEP和vlan池的关联](#)

[要封装块和域关联的VLAN池](#)

[AAEP到域的关联](#)

[IPG与AAEP关联](#)

[枝叶配置文件与接口选择器关联](#)

[接口选择器与接口策略组关联](#)

[Vlan部署验证](#)

[场景](#)

[通过APIC检查ACI交换矩阵VLAN部署](#)

[通过交换机CLI检查VLAN部署](#)

[通过交换机CLI检查平台无关的VLAN部署](#)

[检查SVI VLAN部署](#)

[参考图](#)

[静态路径绑定的高级编程序列](#)
[访问策略关系框图](#)
[映射到访问策略的独立NXOS命令](#)
[VLAN验证命令工作表](#)
[相关信息](#)

简介

本文档介绍补救ACI故障F0467的后续步骤；invalid-vlan、invalid-path或encap-already-in-use。

背景信息

ACI故障F0467会在不同的场景中标记，但将为每个场景显示不同的“原因”。

ACI故障F0467最常见的“原因”值包括：

- invalid-vlan
- 无效路径
- encap-already-in-use

ACI故障F0467的所有原因都可能影响交换机节点接口上的vlan部署。

Intersight Connected ACI交换矩阵

此故障作为主动ACI活动的一部分进行主动监控。

如果您有与Intersight连接的ACI交换矩阵，则会代表您生成服务请求，以指明在Intersight连接的ACI交换矩阵中找到了此故障的实例。

ACI故障F0467场景

无效的VLAN配置：invalid-vlan

场景

- 使用封装VLAN 421配置的新EPG
- 分配给EPG的物理域
- EPG上VLAN 421的静态端口绑定
- 故障F0467 — 使用指向EPG的指针针对交换机节点进行标记
- 故障调试消息包含：invalid-vlan:vlan-x :EpG未与域关联，或者域未分配此vlan

EPG - lc_EPG

Fault Properties

General Troubleshooting History

Fault Code: F0467
 Severity: minor
 Last Transition: 2023-06-04T14:35:08.407+00:00
 Lifecycle: Raised
 Affected Object: [topology/pod-1/node-103/local/svc-policyelem-id-0/uni/epp/fv-\[uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG\]/node-103/stpathatt-\[eth1/13\]/nwissues](#)
 Description: Fault delegate: Configuration failed for uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG node 103 eth1/13 due to Invalid VLAN Configuration, debug message: invalid-vlan: vlan-421 :Either the EpG is not associated with a domain or the domain does not have this vlan assigned to it;
 Type: Config
 Cause: configuration-failed
 Change Set: configQual:invalid-vlan, configSt:failed-to-apply, debugMessage:invalid-vlan: vlan-421 :Either the EpG is not associated with a domain or the domain does not have this vlan assigned to it;, temporaryError:no
 Created: 2023-06-04T14:33:00.796+00:00
 Code: F0467
 Number of Occurrences: 1
 Original Severity: minor
 Previous Severity: minor
 Highest Severity: minor

故障说明明确表明“EpG未与域关联，或者域未分配此vlan”。

<#root>

```
APIC# moquery -c faultInst -f 'fault.Inst.code=="F0467"' | grep lc_EPG
descr : Configuration failed for uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG
```

```
node 103 eth1/13
```

```
due to Invalid VLAN Configuration, debug message:
```

```
invalid-vlan:
```

```
vlan-421
```

```
:
```

```
Either the EpG is not associated with a domain or the domain does not have this vlan assigned to it
```

```
;
```

```
dn : topology/pod-1/node-103/local/svc-policyelem-id-0/uni/epp/fv-[uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG]/n
```

潜在原因：关联的VLAN池不包含所需的VLAN

枝叶节点上未部署访问封装VLAN 421。

<#root>

Node-103#

```
show vlan encap-id
```

```
421
```

```
extended
```

```
<<< Empty >>>
```

未创建EPG关联的静态路径。

```
<#root>
```

```
APIC#
```

```
moquery -c l2RtDomIfConn | grep lc_EPG | grep dn
```

```
<<< Empty >>>
```

域lc_phys_dom将其与lc_EPG EPG关联。

```
<#root>
```

```
APIC#
```

```
moquery -c fvRsDomAtt | grep -A 25 lc_EPG | grep rn
```

```
rn : rsdomAtt-[uni/
```

```
phys-lc_phys_dom
```

```
]
```

存在域到VLAN池的关联。

```
<#root>
```

```
APIC# moquery -c infraRsVlanNs | grep -A 15
```

```
lc_phys_dom
```

```
| grep tDn
```

```
tDn : uni/infra/vlanns-[
```

```
lc_vlan_pool
```

```
]-static
```

Vlan池lc_vlan_pool的范围仅包括VLAN 420。

```
<#root>
```

```
APIC# moquery -c fvnsEncapBlk | grep
```

```
lc_vlan_pool
```

```
dn : uni/infra/vlanns-[lc_vlan_pool]-static/from-[
```

```
vlan-420
```

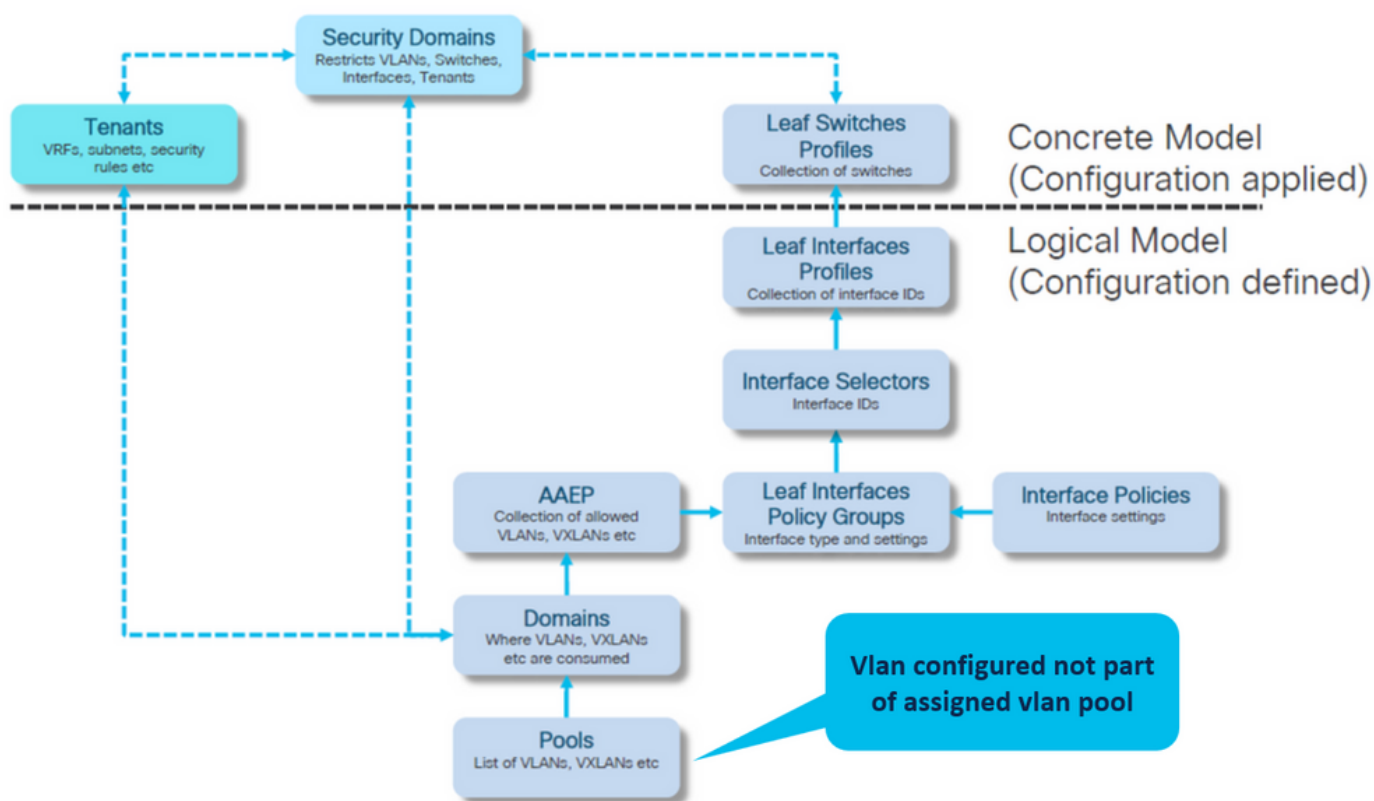
```
]-to-[
```

```
vlan-420
```

```
]
```

vlan 421不在上述池中，因此出现错误“invalid-vlan: vlan-421 : Epg未与域关联或域未分配此vlan”

在前面引用的方框图中，此特定VLAN池引用突出显示



将缺少的vlan 421添加到特定vlan范围

Vlan池与封装和域关联(Fabric > Access Policies > Pool > VLAN > lc_vlan_pool)

Properties

Name: lc_vlan_pool

Description: optional

Alias:

Allocation Mode: Static Allocation

Encap Blocks:

VLAN Range	Description	Allocation Mode	Role
[420]		Static Allocation	External or On the wire encapsulations
[421]		Static Allocation	External or On the wire encapsulations

Domains:

Name	Type
lc_phys_dom	Physical Domain

添加VLAN 421后的VLAN池范围验证

```
<#root>
```

```
APIC#
```

```
moquery -c fvnsEncapBlk | grep lc_vlan_pool
```

```
dn : uni/infra/vlanns-[lc_vlan_pool]-static/from-[
```

```
vlan-420
```

```
]-to-[
```

```
vlan-420
```

```
]
```

```
dn : uni/infra/vlanns-[lc_vlan_pool]-static/from-[
```

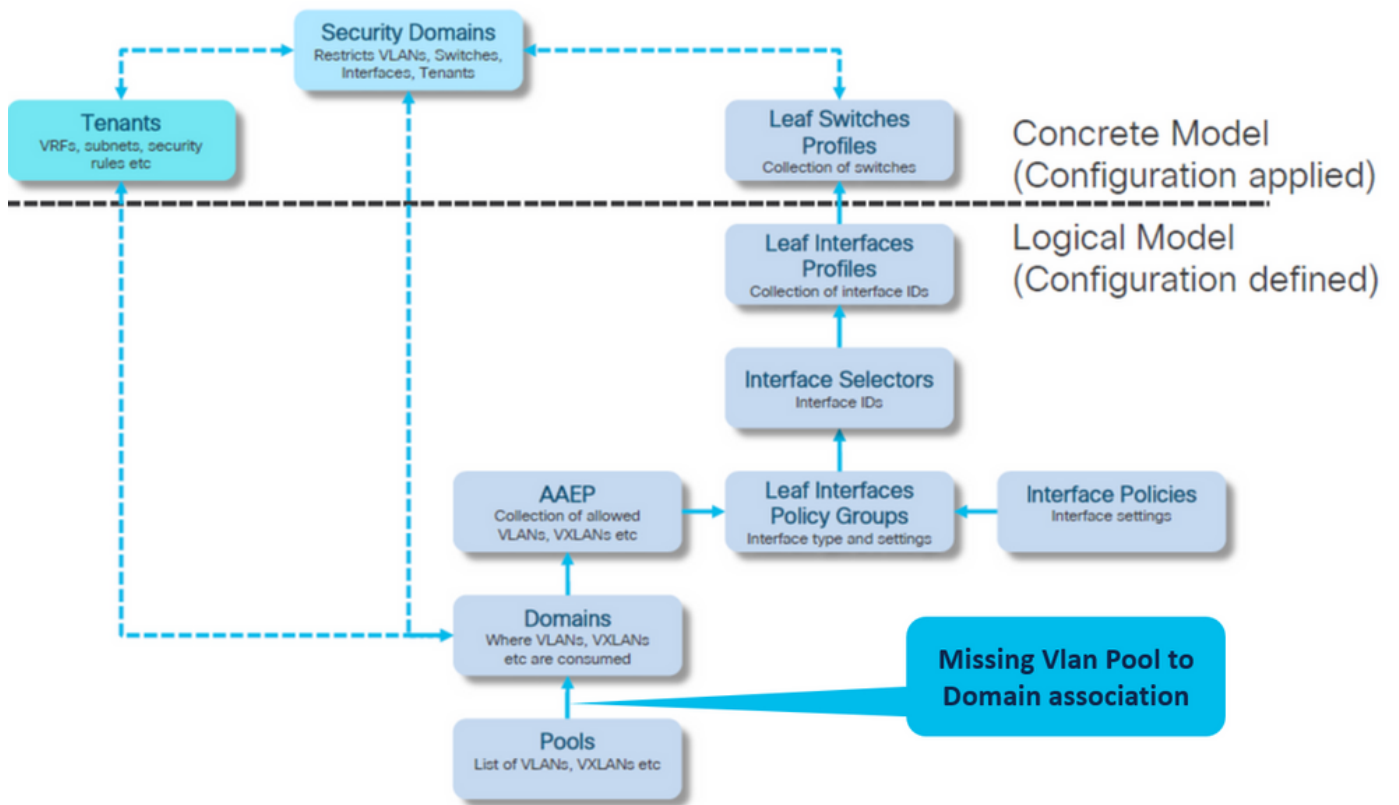
```
vlan-421
```

```
]-to-[
```

```
vlan-421
```

```
]
```

潜在原因：具有未与域关联的所需VLAN的VLAN池



Fabric > Access Policies > Physical and External Domains > Physical Domains > lc_phys_dom



[+]域与Vlan池的关联

<#root>

```
APIC# moquery -c infraRsVlanNs | grep -A 15
```

```
lc_phys_dom
```

```
| grep tDn
```

```
<< EMPTY >>
```

修复：包括丢失的VLAN关联



路径配置无效：路径无效

场景

- 已配置EPG
- 分配给EPG的域
- 在EPG上为VLAN 420创建静态端口绑定，节点103 eth 1/13
- 故障F0467 — 使用指向EPG的指针针对交换机节点进行标记
- 故障调试消息包含：invalid-path:EpG/L3Out未与域关联，或者域未向其分配此接口

当在没有相应的访问策略允许正确应用该配置的情况下进行交换机/端口/VLAN声明时，会引发此故障。

根据对此故障的描述，访问策略关系的另一个元素可能丢失。

EPG - lc_EPG到租户的故障关联> lc_TN > lc_AP > lc_EPG >故障>故障

EPG - lc_EPG

Fault Properties

General Troubleshooting History

Fault Code: F0467
 Severity: minor
 Last Transition: 2023-06-04T21:39:12.971+00:00
 Lifecycle: Raised
 Affected Object: [topology/pod-1/node-103/local/svc-policyelem-id-0/uni/epp/fv-\[uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG\]/node-103/stpathatt-\[eth1/13\]/nwissues](#)
 Description: Fault delegate: Configuration failed for uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG node 103 eth1/13 due to Invalid Path Configuration, debug message: invalid-path: Either the EpG/L3Out is not associated with a domain or the domain does not have this interface assigned to it;
 Type: Config
 Cause: configuration-failed
 Change Set: configQual:invalid-path, configSt:failed-to-apply, debugMessage:invalid-path: Either the EpG/L3Out is not associated with a domain or the domain does not have this interface assigned to it;, temporaryError:no
 Created: 2023-06-04T21:36:56.851+00:00
 Code: F0467
 Number of Occurrences: 1
 Original Severity: minor
 Previous Severity: minor
 Highest Severity: minor

受影响的EPG、交换机节点ID和端口号在故障描述和DN中：

<#root>

```
APIC# moquery -c faultInst -f 'fault.Inst.code=="F0467"' | grep
```

```
lc_EPG
```

```
descr          : Configuration failed for
```

```
uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG
```

```
node 103 eth1/13
```

```
due to Invalid Path Configuration, debug message:
```

```
invalid-path:
```

```
Either the EpG/L3Out is not associated with a domain or the domain does not have this interface assigned to it;  

dn          : topology/pod-1/node-103/local/svc-policyelem-id-0/uni/epp/fv-[
```

```
uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG
```

```
]/
```

```
node-
```

```
103
```

```
/stpathatt-[
```

```
eth1/
```

```
13
```

]/nwissues/fault-F0467

快速入门隔离

确认是否已部署vlan。如果不是，可以运行这些命令来隔离配置错误。

在下面的cmds中，lc_EPG是用于输出过滤的EPG名称。

枝叶节点上未部署Encap-vlan

```
Node-103# show vlan encap-id 420 extended
<<< Empty >>>
```

[1] EPG关联策略的静态路径为空。

```
<#root>
```

```
APIC#
```

```
moquery -c l2RtDomIfConn | grep lc_EPG | grep dn
```

```
<<< Empty >>>
```

[2]域与EPG的关联

```
<#root>
```

```
APIC#
```

```
moquery -c fvRsDomAtt | grep -A 25 lc_EPG | grep rn
```

```
rn : rsdomAtt-[uni/
```

```
phys-lc_phys_dom
```

```
]
```

[3]域与Vlan池的关联

```
<#root>
```

```
APIC#
```

```
moquery -c infraRsVlanNs | grep -A 15 lc_phys_dom | grep tDn
```

```
tDn : uni/infra/vlanns-[  
lc_vlan_pool  
]-static
```

[4] Vlan池范围验证

```
<#root>  
APIC#  
moquery -c fvnsEncapBlk | grep lc_vlan_pool  
  
dn : uni/infra/vlanns-[lc_vlan_pool]-static/from-[  
vlan-420  
]-to-[  
vlan-420  
]
```

[5]域与AAEP的关联

```
<#root>  
APIC#  
moquery -c infraRtDomP | grep lc_phys_dom  
  
dn : uni/phys-lc_phys_dom/rtdomP-[uni/infra/attentp-  
lc_AAEP  
]
```

[6] AAEP到接口策略组关联(IPG)

```
<#root>  
rtp-aci08-apic1#  
moquery -c infraRtAttEntP | grep lc_AAEP  
  
dn : uni/infra/attentp-lc_AAEP/rtattEntP-[uni/infra/funcprof/accportgrp-  
lc_IPG  
]
```

[7] IPG与接口选择器关联

<#root>

APIC#

```
moquery -c infraRsAccBaseGrp | grep -B 15 lc_IPG | grep dn
```

dn : uni/infra/accportprof-leaf103_IP/hports-

lc_Interface_Selector

-typ-range/rsaccBaseGrp

[8]接口配置文件与交换机配置文件关联

<#root>

APIC#

```
moquery -c infraRsAccPortP | grep leaf103_IP | grep dn
```

dn : uni/infra/nprof-

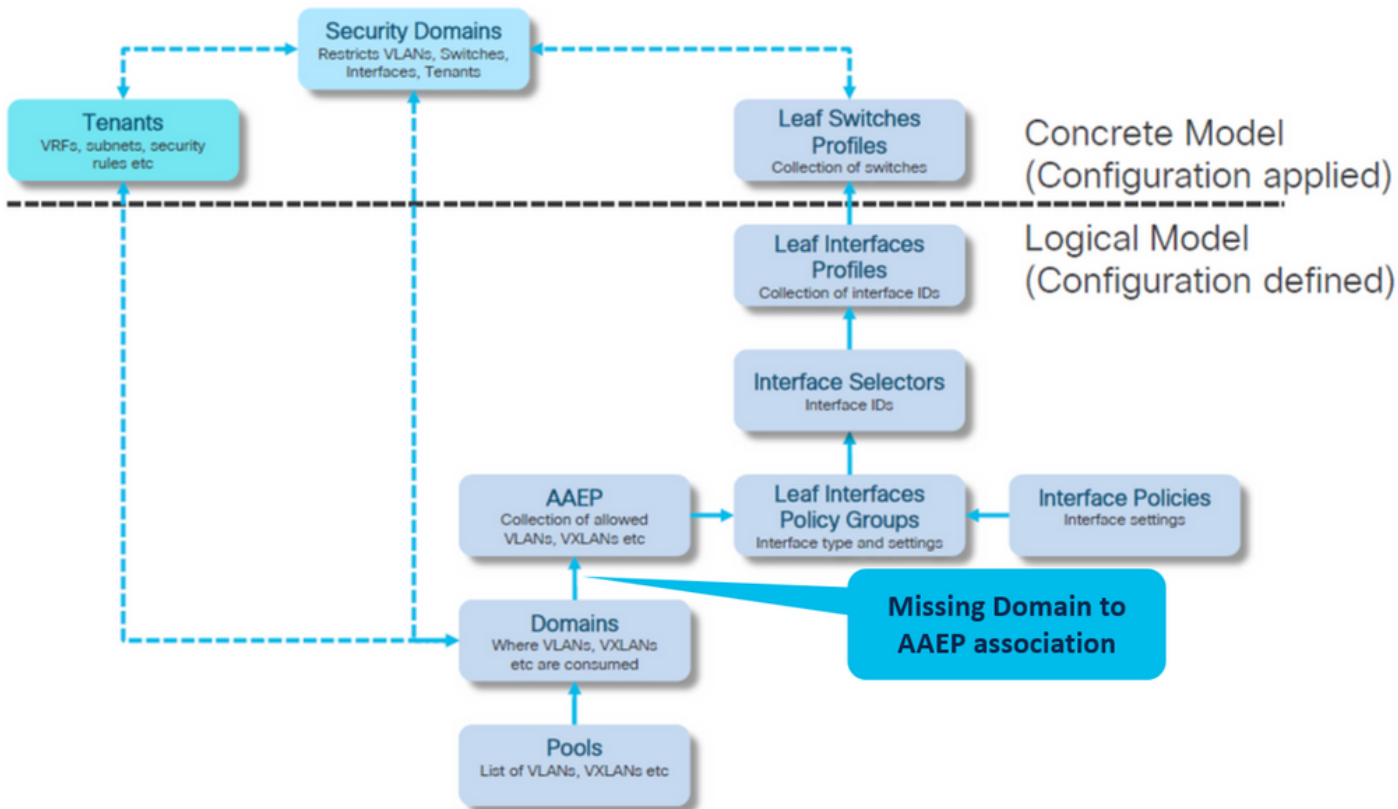
leaf103_SP

/rsaccPortP-[uni/infra/accportprof-leaf103_IP]

如果给定静态路径配置，缺少任何关联的所需访问策略，则会出现无效路径原因。浏览潜在原因，逐跳验证访问策略。

1. 缺少域与AAEP的关联
2. 缺少AAEP到IPG的关联
3. 缺少IPG与接口选择器的关联
4. 缺少接口选择器与接口配置文件关联
5. 缺少接口配置文件与交换机配置文件关联

潜在原因：缺少域与AAEP的关联



交换矩阵>访问策略>策略>全局> AAEP > lc_AAEP

Attachable Access Entity Profile - lc_AAEP



[+] EPG关联策略的静态路径为空

<#root>

```
APIC# moquery -c l2RtDomIfConn | grep lc_EPG | grep dn
```

<< EMPTY >>

[+]域与AAEP关联

<#root>

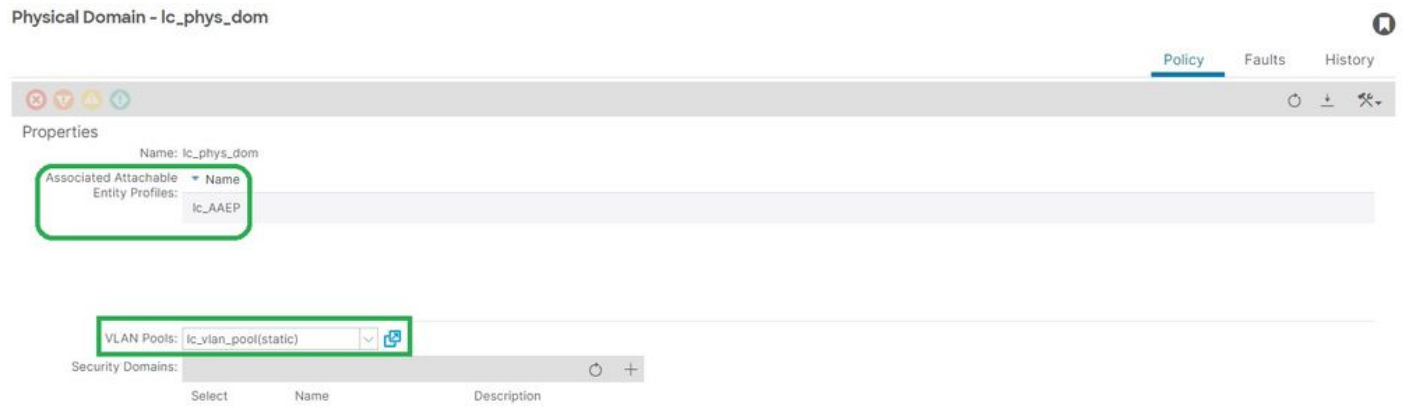
```
APIC# moquery -c infraRtDomP | grep
```

lc_phys_dom

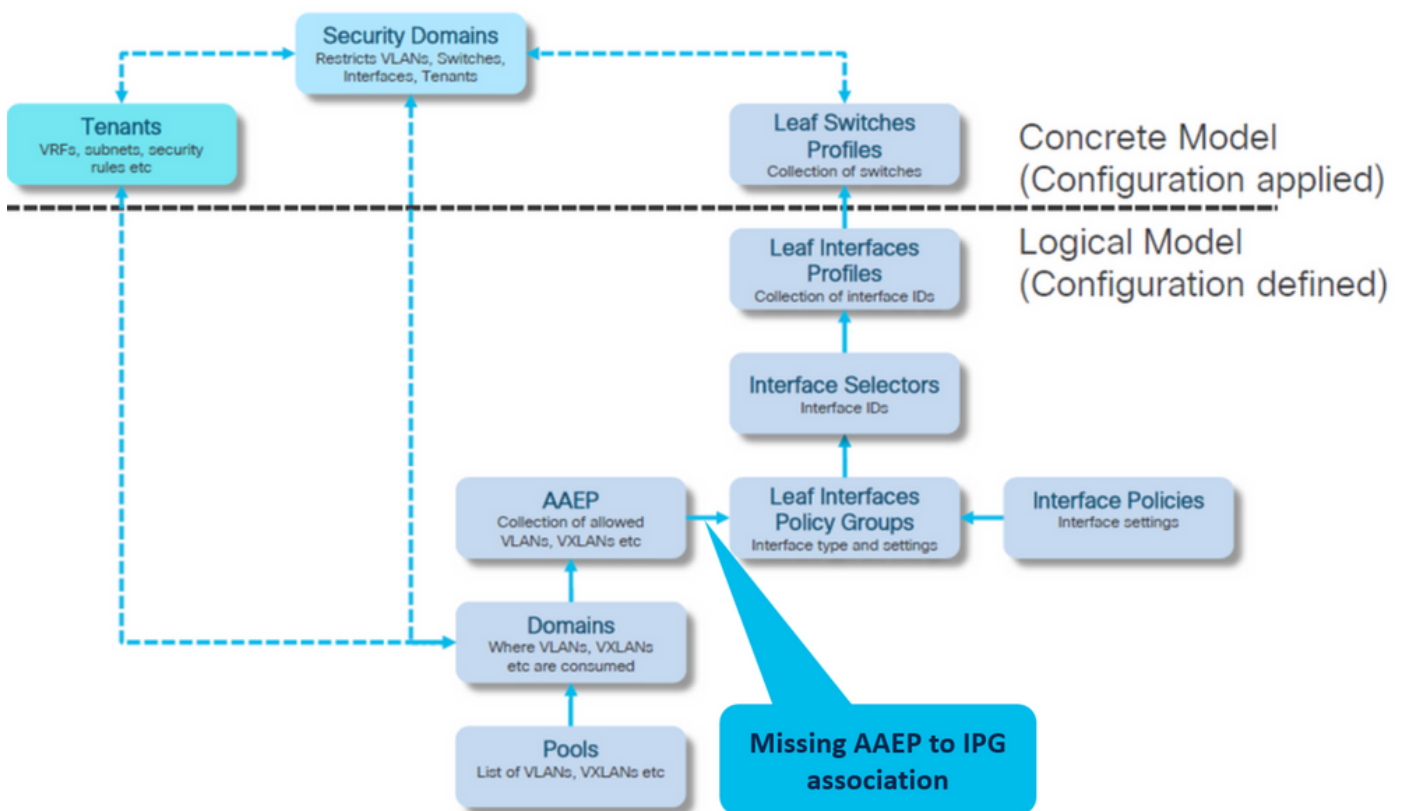
<< EMPTY >>

修复：包括缺少的域关联

Fabric > Access Policies > Physical and External Domains > Physical Domains > lc_phys_dom



潜在原因：缺少AAEP到IPG的关联



IPG与AAEP关联

Fabric > Access Policies > Interfaces > Leaf Interfaces > Policy Groups > Leaf Access Port > lc_IPG

Properties

Name: lc_IPG

Description: optional

Alias:

Attached Entity Profile: select an option

CDP Policy: select a value

Link Level Policy: select a value

LLDP Policy: select a value

[+] EPG关联策略的静态路径为空

<#root>

```
APIC# moquery -c l2RtDomIfConn | grep lc_EPG | grep dn
```

```
<< EMPTY >>
```

[+] IPG到AAEP的关联为空

<#root>

```
APIC# moquery -c infraRsAttEntP | grep -A 15
```

```
lc_IPG
```

```
| grep tDn
```

```
<< EMPTY >>
```

修复：缺少AAEP到IPG的关联

Fabric > Access Policies > Interfaces > Leaf Interfaces > Policy Groups > Leaf Access Port > lc_IPG

Properties

Name: lc_IPG

Description: optional

Alias:

Attached Entity Profile: lc_AAEP

CDP Policy: select a value

Link Level Policy: select a value

LLDP Policy: select a value

[+] IPG与AAEP关联

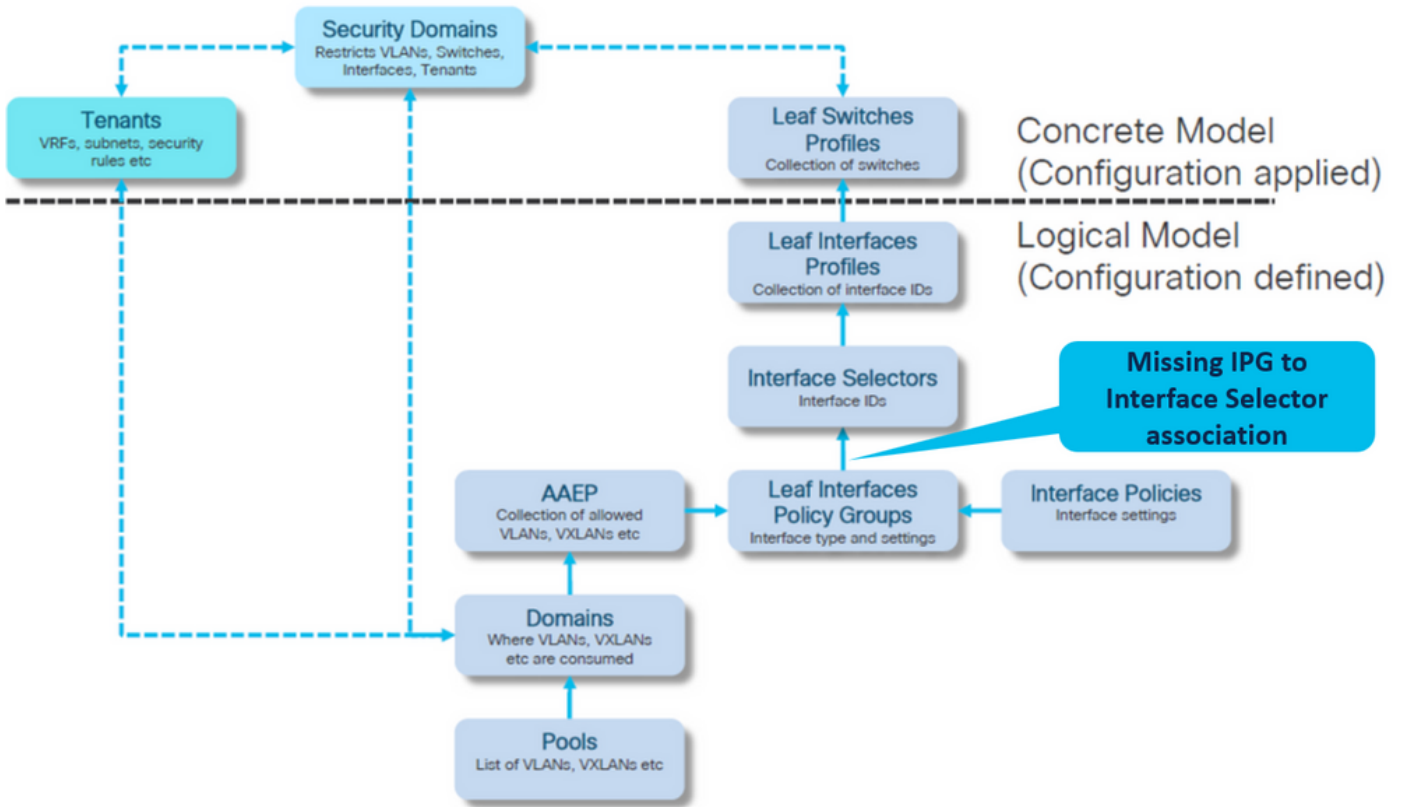
<#root>

```
APIC# moquery -c infraRsAttEntP | grep -A 15
```

```
lc_IPG
```

```
| grep tDn
tDn : uni/infra/attentp-
lc_AAEP
```

潜在原因：缺少IPG与接口选择器的关联



接口选择器与接口策略组关联

交换矩阵>访问策略>接口>枝叶接口>配置文件>枝叶103_IP > lc_Interface_Selector



[+] IPG与接口选择器关联

<#root>

```
APIC# moquery -c infraRsAccBaseGrp | grep -B 15
```

```
lc_IPG
```



```
| grep dn
```

```
<< EMPTY >>
```

修复：接口选择器与接口策略组关联



[+] IPG与接口选择器关联

```
<#root>
```

```
APIC# moquery -c infraRsAccBaseGrp | grep -B 15
```

```
lc_IPG
```

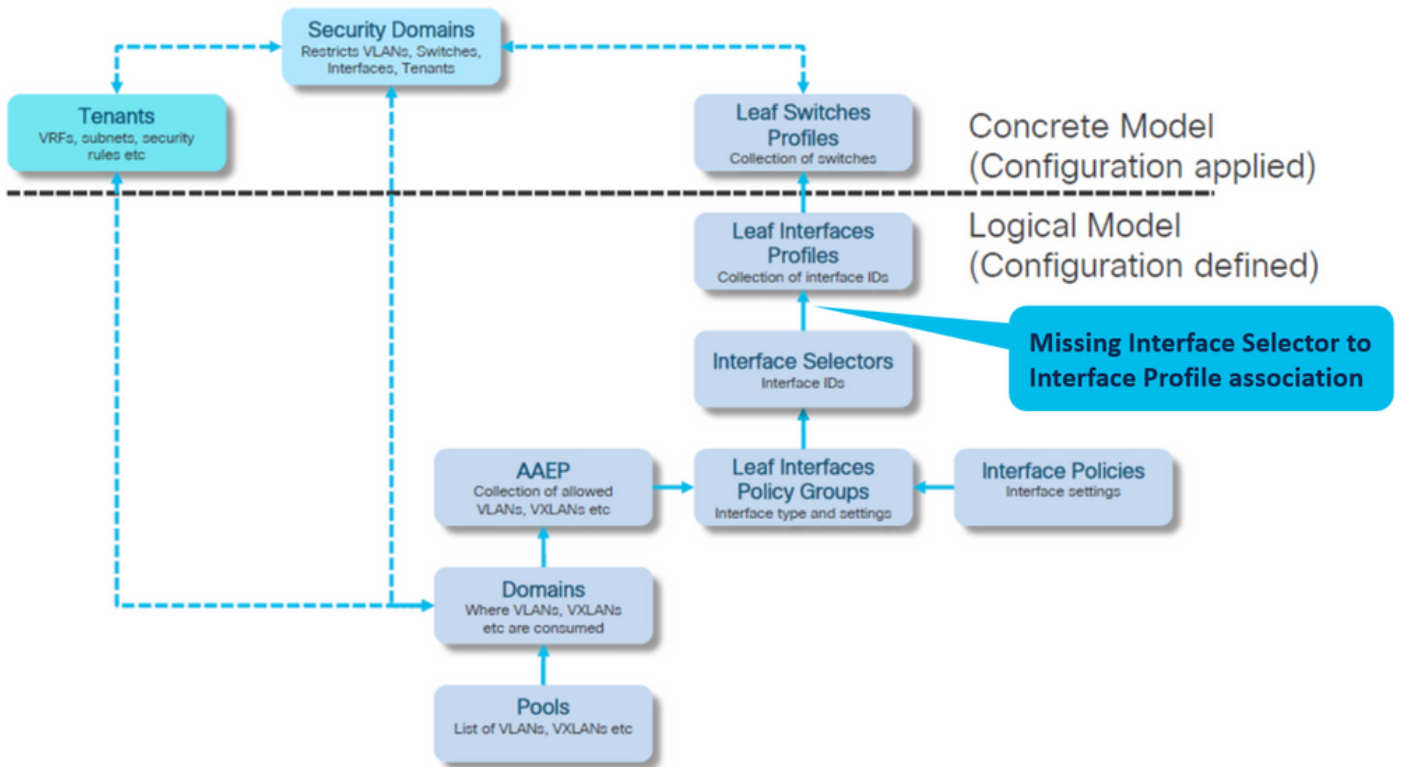
```
| grep dn
```

```
dn : uni/infra/accportprof-lead103_IP/hports-
```

```
lc_Interface_Selector
```

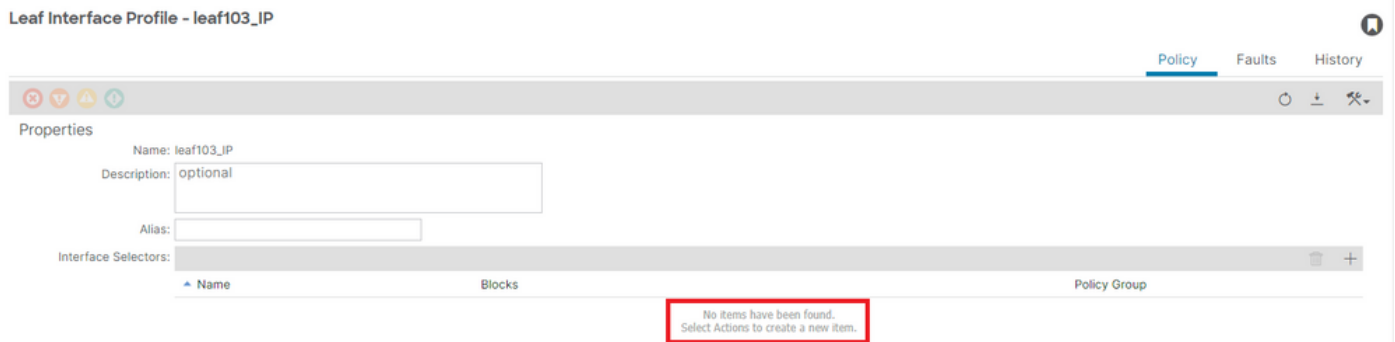
```
-typ-range/rsaccBaseGrp
```

潜在原因：缺少接口选择器与接口配置文件关联



接口配置文件与接口选择器关联

Fabric > Access Policies > Interfaces > Leaf Interfaces > Profiles > leaf103_IP



故障排除：

<#root>

```
APIC# moquery -c infraHPortS | grep leaf103_IP
```

```
<< EMPTY >>
```

将接口配置文件与接口选择器关联

Properties

Name: leaf103_IP
 Description: optional
 Alias:

Name	Blocks	Policy Group
lc_Interface_Selector	1/13	lc_IPG

<#root>

```
APIC# moquery -c infraHPorts | grep
```

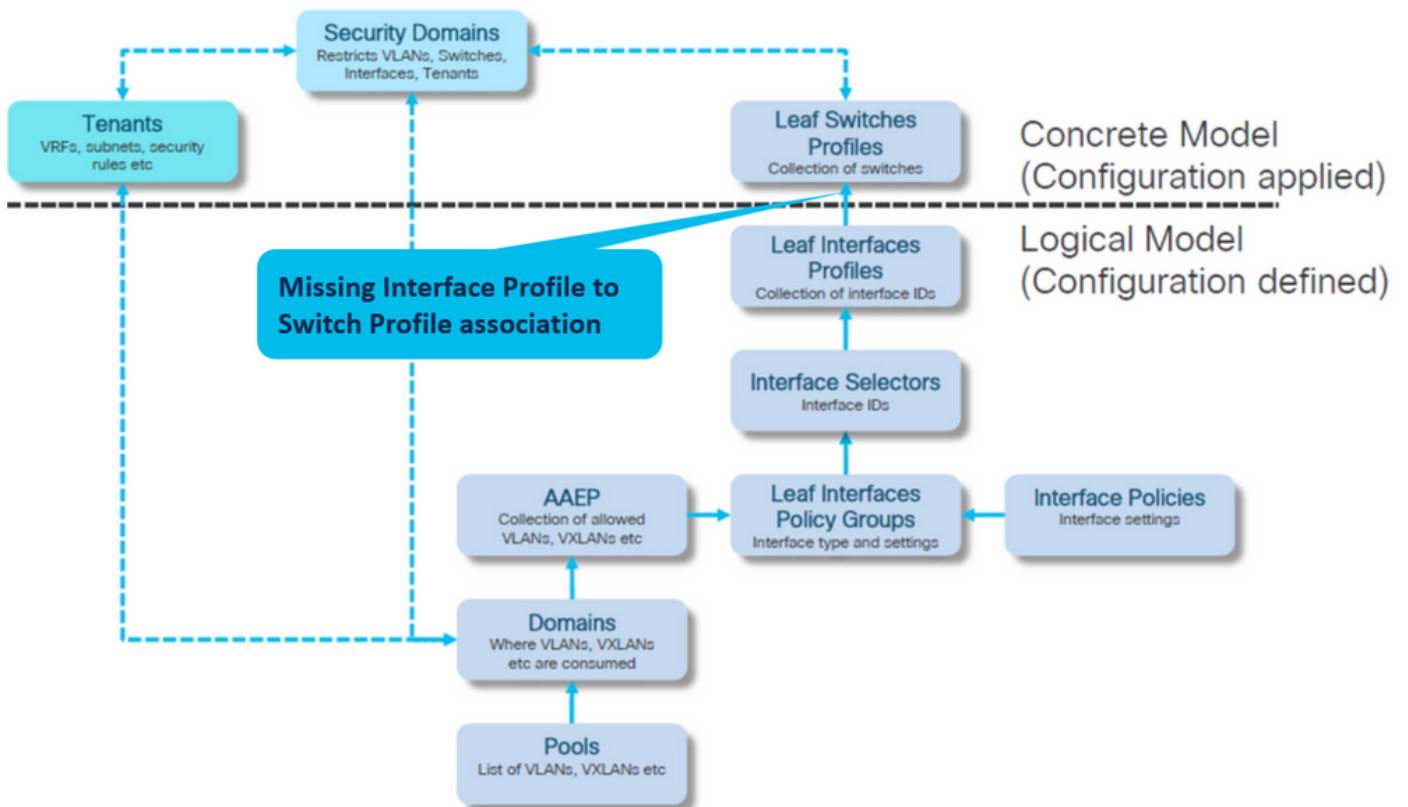
```
leaf103_IP
```

```
dn : uni/infra/accportprof-leaf103_IP/hports-
```

```
lc_Interface_Selector
```

```
-typ-range
```

潜在原因：缺少接口配置文件与交换机配置文件关联



接口配置文件与交换机配置文件关联

交换矩阵>访问策略>交换机>枝叶交换机>配置文件>枝叶103_SP

Policy Faults History

Properties

Name: leaf103_SP
Description: optional

Leaf Selectors:

Name	Blocks	Policy Group
leaf103_SP	103	leaf103_SPG

Associated Interface Selector Profiles:

Name	Description	State
No items have been found. Select Actions to create a new item.		

<#root>

```
APIC# moquery -c infraRsAccPortP | grep leaf103_IP | grep dn
```

```
<< EMPTY >>
```

将枝叶配置文件修复到接口选择器配置文件关联

Policy Faults History

Properties

Name: leaf103_SP
Description: optional

Leaf Selectors:

Name	Blocks	Policy Group
leaf103_SP	103	leaf103_SPG

Associated Interface Selector Profiles:

Name	Description	State
leaf103_IP		formed

[+]接口配置文件与交换机配置文件关联

<#root>

```
APIC# moquery -c infraRsAccPortP | grep
```

```
leaf103_IP
```

```
| grep dn  
dn : uni/infra/nprof-
```

```
leaf103_SP
```

```
/rsaccPortP-[uni/infra/accportprof-leaf103_IP]
```

Encap Already Used in Another EPG (已在另一个EPG中使用) : encap-already-in-use

场景

默认情况下，VLAN具有全局范围。给定的VLAN ID只能用于给定枝叶交换机上的单个EPG。

任何在给定枝叶交换机内的多个EPG上重复使用同一VLAN的尝试都会导致encap-already-in-use F467故障。

EPG到租户的故障关联 > lc_TN > lc_AP > lc_EPG >故障 >故障

EPG - lc_EPG

Fault Properties

General Troubleshooting History

Fault Code: F0467
Severity: minor
Last Transition: 2023-07-03T15:02:06.354+00:00
Lifecycle: Soaking
Affected Object: topology/pod-1/node-103/local/svc-policyelem-id-0/uni/epp/fv-[uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG]/node-103/stpathatt-[eth1/13]/nwissues
Description: Fault delegate: Configuration failed for uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG node 103 eth1/13 due to Encap Already Used in Another EPG, debug message: encap-already-in-use: Encap (vlan-420) is already in use by lc_TN_Dup:lc_APP:lc_EPG;
Type: Config
Cause: configuration-failed
Change Set: configQual:encap-already-in-use, configSt:failed-to-apply, debugMessage:encap-already-in-use: Encap (vlan-420) is already in use by lc_TN_Dup:lc_APP:lc_EPG;, temporaryError:no
Created: 2023-07-03T15:02:06.354+00:00
Code: F0467
Number of Occurrences: 1
Original Severity: minor
Previous Severity: minor
Highest Severity: minor

```
APIC# moquery -c faultInst -f 'fault.Inst.code=="F0467"' | grep lc_EPG
changeSet : configQual:encap-already-in-use, configSt:failed-to-apply, debugMessage:encap-already-in-use
descr : Configuration failed for uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG node 103 eth1/13 due to Encap Already Used in Another EPG
dn : topology/pod-1/node-103/local/svc-policyelem-id-0/uni/epp/fv-[uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG]/node-103/stpathatt-[eth1/13]/nwissues
```

快速入门隔离

[+]您可以确认已在其他租户lc_TN_Dup上使用的封装

```
Node-103# show vlan extended | egrep "Encap|----|vlan-420"
VLAN Name          Encap          Ports
-----
```

补救选项

选项 1：

在枝叶或VPC对上使用不同的VLAN编号。

选项 2：

在没有尝试部署Vlan的不同枝叶或VPC对上使用相同的VLAN。

选项 3：

删除重复的EPG上的静态端口关联，这将允许新部署。

选项 4：

在v1.1版本之前的ACI版本中，给定VLAN封装只映射到枝叶交换机上的单个EPG。如果同一枝叶交换机上有第二个EPG具有相同的VLAN封装，则ACI会引发此故障。

从v1.1版本开始，您可以在Per Port VLAN配置中，在给定的枝叶交换机（或FEX）上部署多个EPG和相同的VLAN封装

每端口VLAN配置指南

https://www.cisco.com/c/en/us/td/docs/switches/datacenter/aci/apic/sw/2-x/L2_config/b_Cisco_APIC_Layer_2_Configuration_Guide/b_Cisco_APIC_Layer_2_Configuration_Guide_c

其他详细信息

成功配置参考

本部分可用作功能设置完整配置的参考指南。

EPG与静态路径关联

租户 > 1c_TN > 1c_AP > 1c_EPG > 静态端口



[+]静态端口到EPG关联策略

<#root>

```
APIC# moquery -c l2RtDomIfConn | grep lc_EPG | grep dn
dn : topology/pod-1/node-103/sys/ctx-[vlan-2195458]/bd-[vlan-16416666]/vlan-[
vlan-420
]/rtfvDomIfConn-[uni/epg/fv-[uni/tn-lc_TN/ap-lc_APP/epg-
lc_EPG
]/
node-103
/stpathatt-[
eth1/13
]/conndef/conn-[vlan-420]-[0.0.0.0]]
```

EPG与AAEP关联

交换矩阵>访问策略>策略>全局>AAEP > lc_AAEP

Attachable Access Entity Profile - lc_AAEP

Policy Operational Faults History

Properties

Name: lc_AAEP
Description: optional

Enable Infrastructure VLAN:

Domains (VMM, Physical or External) Associated to Interfaces:

name	State
lc_phys_dom (Physical)	formed

Application EPGs

Application EPGs	Encap	Primary Encap	Mode
lc_TN/lc_APP/lc_EPG	vlan-420	unknown	Access (802.1P)

Show Usage Reset Submit

<#root>

```
APIC# moquery -c fvIfConn -f 'fv.IfConn.encap=="
vlan-420
"' | grep dn
dn : uni/epg/fv-[uni/tn-lc_TN/ap-lc_APP/epg-lc_EPG]/node-103/attEntitypathatt-[lc_AAEP]/conndef/conn-[
```

vlan-420

]-[0.0.0.0]

EPG到域的关联

租户> lc_TN > lc_AP > lc_EPG >域

Domains (VMs and Bare-Metals)

Domain	Type	Deployment	Resolution	Allow Micro-Segmentation	Primary VLAN	Port Encap	Switching Mode	Encap Mode	Cos Value	Enhanced Lag Policy	Custom EPG Name
lc_phys_dom	Physical Domain						native	Auto	Cos0		

[+]域lc_phys_dom已将其关联到EPG。

<#root>

```
APIC# moquery -c fvRsDomAtt | grep -A 25
```

```
lc_EPG
```

```
| grep rn  
rn : rsdomAtt-[uni/
```

```
phys-lc_phys_dom
```

```
]
```

域与AAEP和vlan池的关联

Fabric > Access Policies > Physical and External Domains> Physical Domains > lc_phys_dom

Physical Domain - lc_phys_dom

Policy | Faults | History

Properties

Name: lc_phys_dom

Associated Attachable Entity Profiles: lc_AAEP

VLAN Pools: lc_vlan_pool(static)

Security Domains:

Select	Name	Description
--------	------	-------------

[+]域与AAEP关联

<#root>


```
APIC# moquery -c infraRtDomP | grep
```

```
lc_phys_dom
```

```
dn : uni/phys-lc_phys_dom/rtdomP-[uni/infra/attentp-
```

```
lc_AAEP
```

```
]
```

[+]域与Vlan池的关联

<#root>

```
APIC# moquery -c infraRsVlanNs | grep -A 15
```

```
lc_phys_dom
```

```
 | grep tDn  
tDn : uni/infra/vlanns-[
```

```
lc_vlan_pool
```

```
]-static
```

要封装块和域关联的VLAN池

Fabric > Access Policies > Pool > VLAN > lc_vlan_pool

The screenshot displays the configuration page for the VLAN Pool 'lc_vlan_pool' in a static allocation mode. The page is titled 'VLAN Pool - lc_vlan_pool (Static Allocation)' and has tabs for Policy, Operational, Faults, and History. The 'Policy' tab is active. Under the 'Properties' section, the Name is 'lc_vlan_pool', Description is 'optional', and Alias is empty. The 'Allocation Mode' is 'Static Allocation'. Below this, there is a table for 'Encap Blocks' with one entry: 'VLAN Range' with a value of '[420]', 'Static Allocation' mode, and 'External or On the wire encapsulations' role. At the bottom, there is a 'Domains' section with one entry: 'lc_phys_dom' of type 'Physical Domain'. Red boxes highlight the 'Encap Blocks' table and the 'Domains' table.

Encap Blocks:	VLAN Range	Description	Allocation Mode	Role
	[420]		Static Allocation	External or On the wire encapsulations

Domains:	Name	Type
	lc_phys_dom	Physical Domain

[+] Vlan池范围验证

<#root>

```
APIC# moquery -c fvnsEncapBlk | grep
```

```
lc_vlan_pool
```

```
dn : uni/infra/vlanns-[lc_vlan_pool]-static/from-[  
vlan-420  
]-to-[  
vlan-420  
]
```

[+]已使用lc_vlan_pool的域

<#root>

```
APIC# moquery -c fvnsRtVlanNs | grep  
lc_vlan_pool
```

```
dn : uni/infra/vlanns-[lc_pool]-dynamic/rtinfraVlanNs-[uni/  
phys-lc_phys_dom  
]
```

AAEP到域的关联

交换矩阵>访问策略>策略>全局> AAEP > lc_AAEP



<#root>

```
APIC# moquery -c infraRsDomP | grep  
lc_AAEP
```

```
dn : uni/infra/attentp-lc_AAEP/rsdomP-[uni/phys-  
lc_phys_dom  
]
```

IPG与AAEP关联

Fabric > Access Policies > Interfaces > Leaf Interfaces > Policy Groups > Leaf Access Port > Ic_IPG

Leaf Access Port Policy Group - Ic_IPG



[+] IPG与AAEP关联

<#root>

```
APIC# moquery -c infraRsAttEntP | grep -A 15
```

```
Ic_IPG
```

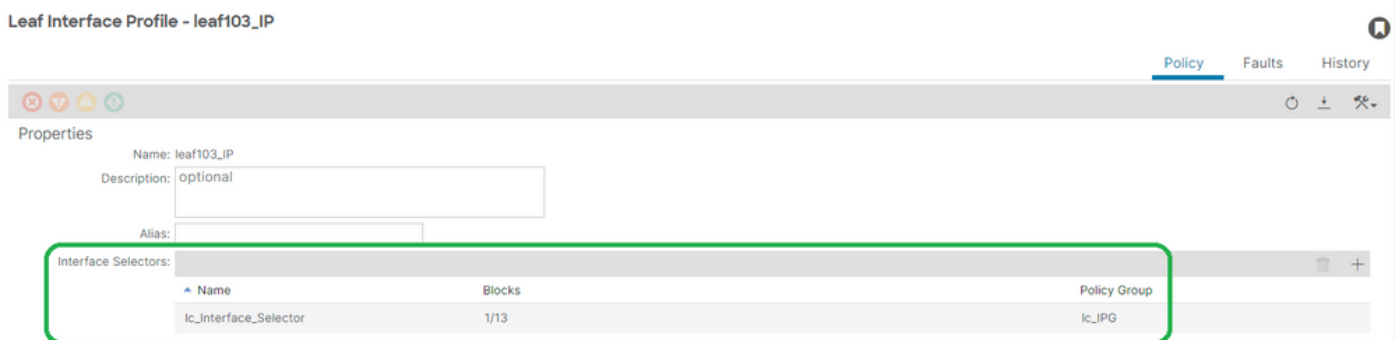
```
| grep tDn  
tDn : uni/infra/attentp-
```

```
Ic_AAEP
```

枝叶配置文件与接口选择器关联

Fabric > Access Policies > Interfaces > Leaf Interfaces > Profiles > leaf103_IP

Leaf Interface Profile - leaf103_IP



<#root>

```
APIC# moquery -c infraHPortS | grep
```

```
leaf103_IP
```

```
dn : uni/infra/accportprof-leaf103_IP/hports-
```

```
Ic_Interface_Selector
```

-typ-range

接口选择器与接口策略组关联

交换矩阵>访问策略>接口>枝叶接口>配置文件>枝叶103_IP > Ic_Interface_Selector



[+] IPG与接口选择器关联

<#root>

```
APIC# moquery -c infraRsAccBaseGrp | grep -B 15
```

```
lc_IPG
```

```
| grep dn  
dn : uni/infra/accportprof-
```

```
lead103_IP
```

```
/hports-
```

```
lc_Interface_Selector
```

```
-typ-range/rsaccBaseGrp
```

枝叶接口配置文件与接口选择器和枝叶交换机配置文件关联

交换矩阵>访问策略>交换机>枝叶交换机>配置文件>枝叶103_SP

Properties

Name: leaf103_SP
Description: optional

Leaf Selectors:

Name	Blocks	Policy Group
leaf103_SP	103	leaf103_SPG

Associated Interface Selector Profiles:

Name	Description	State
leaf103_IP		formed

[+]枝叶接口配置文件与交换机配置文件关联

<#root>

```
APIC# moquery -c infraRsAccPortP | grep
```

```
leaf103_IP
```

```
| grep dn  
dn : uni/infra/nprof-
```

```
leaf103_SP
```

```
/rsaccPortP-[uni/infra/accportprof-
```

```
leaf103_IP
```

```
]
```

[+]交换机配置文件与交换机端口组关联

<#root>

```
APIC# moquery -c infraRsAccNodePGrp | grep -A 8
```

```
leaf103_SP
```

```
| grep tDn  
tDn : uni/infra/funcprof/accnodepgrp-
```

```
leaf103_SPG
```

Vlan部署验证

场景

- 接入封装VLAN 420部署在节点103 - E1/13上

- 部署所有相关访问策略和EPG配置

通过APIC检查ACI交换矩阵VLAN部署

可以根据相关的VLAN封装过滤对fvIfConn类的查询，以显示已部署VLAN的每个EPG/交换机/接口组合。

```
<#root>
```

```
APIC#
```

```
moquery -c fvIfConn -f
```

```
'fv.IfConn.encap=="vlan-420"' | grep dn
```

```
dn                : uni/epp/fv-[uni/tn-1c_TN/ap-1c_APP/epg-1c_EPG]/
```

```
node-
```

```
103
```

```
/stpathatt-[
```

```
eth1/
```

```
13
```

```
]/conndef/conn-[
```

```
vlan-
```

```
420
```

```
]-[0.0.0.0]
```

通过交换机CLI检查VLAN部署

可以在任何交换机上运行“show vlan extended”，以检查交换机上当前部署了哪些VLAN，以及VLAN所绑定的EPG和接口。

“encap-id xx”过滤器在ACI版本4.2及更高版本上可用。

```
<#root>
```

```
Node-103#
```

```
show vlan encap-id
```

```
420
```

```
extended
```

VLAN Name	Encap	Ports
2	vlan-420	Eth1/13

通过交换机CLI检查平台无关的VLAN部署

ACI交换机节点中的每个VLAN都映射到某个独立于平台(PI)的VLAN，该VLAN是每个交换机节点的本地值。

接入封装映射到称为“FD VLAN”的PI VLAN，而网桥域映射到称为“BD VLAN”的PI Vlan。

可以在交换机上运行“show system internal epm vlan all”以显示枝叶上部署的vlan列表。

```
<#root>
```

```
Node-103#
```

```
show vlan extended | egrep
```

```
"Encap|----|1/13"
```

VLAN Name	Encap	Ports
2	vlan-420	Eth1/13
		--> FD vlan 2
18	vlan-16416666	Eth1/13
		--> BD vlan 18

可以使用“show interface”命令验证FD vlan和BD vlan到接口的规划。

```
<#root>
```

```
Node-103#
```

```
show interface eth
```

```
1/13 trunk | grep -A 2
```

```
Allowed
```

```
Port          Vlans Allowed on Trunk
```

Eth1/13

2,18

检查SVI VLAN部署

如果使用BD SVI验证第3层VLAN，则使用moquery class fvSubnet获取子网的IP地址。

<#root>

APIC#

```
moquery -c fvSubnet | grep lc_BD
```

```
dn : uni/tn-lc_TN/BD-lc_BD/subnet-[201.201.201.254/24]
```

然后对照检查“show ip interface brief”并检查匹配的IP地址以验证VLAN和预期的VRF。

在本示例中，验证来自上一个CLI输出示例的BD Vlan 18。

<#root>

Node-103#

```
show ip interface brief
```

...

```
IP Interface Status for VRF "
```

```
lc_TN:lc_VR
```

```
F"(16)
```

Interface	Address	Interface Status
-----------	---------	------------------

```
vlan18
```

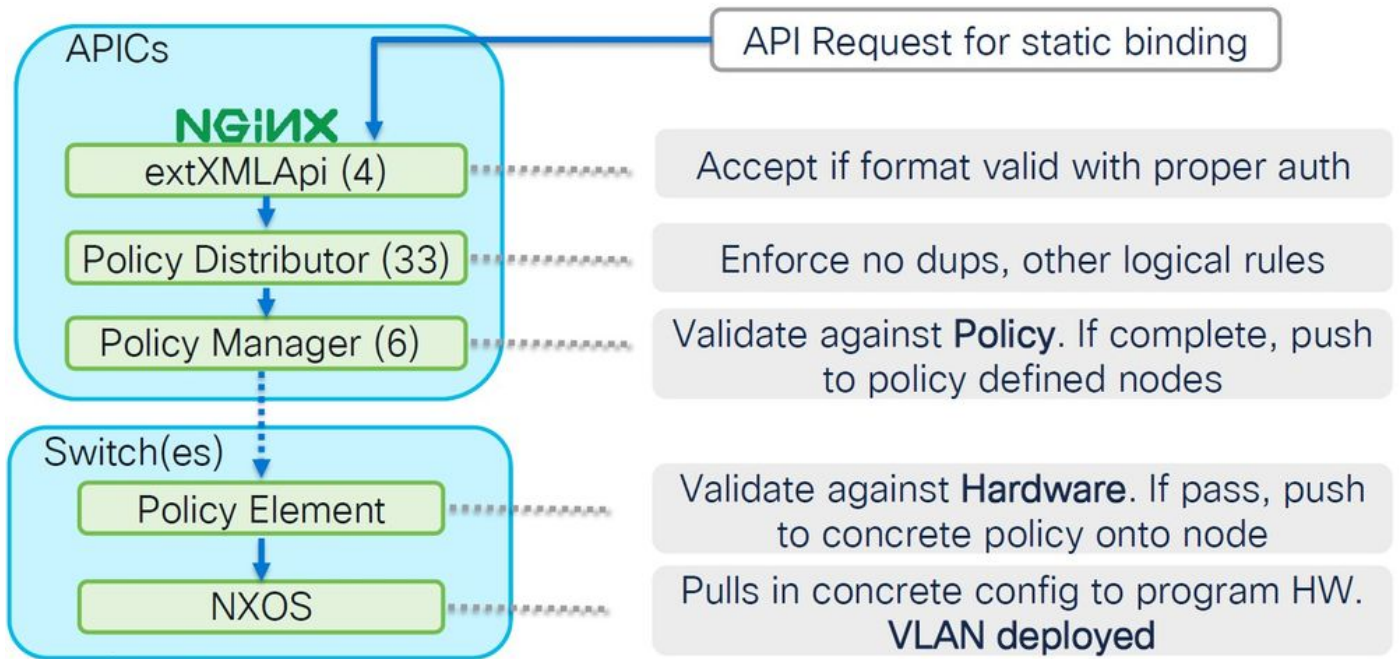
```
201.201.201.254/24
```

```
protocol-up/link-up/admin-up
```

参考图

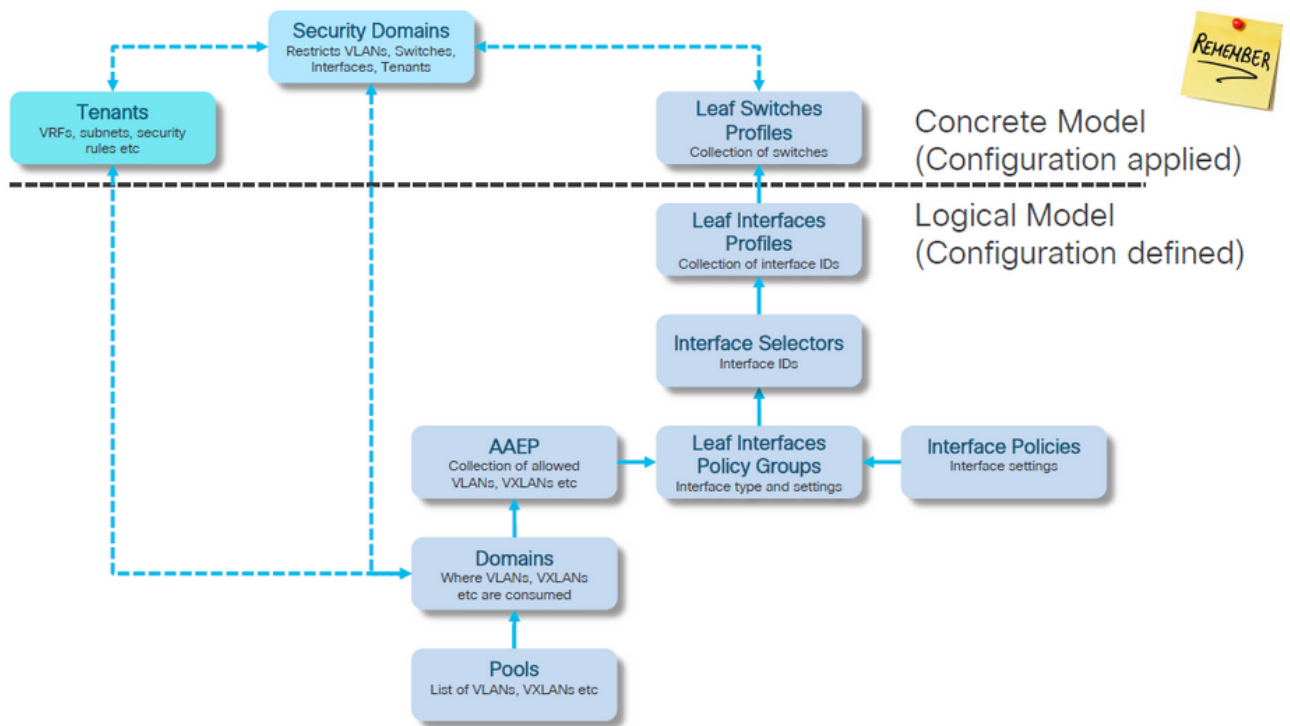
静态路径绑定的高级编程序列

此高级序列汇总了从VLAN静态路径API调用到交换机节点VLAN部署所涉及的步骤。



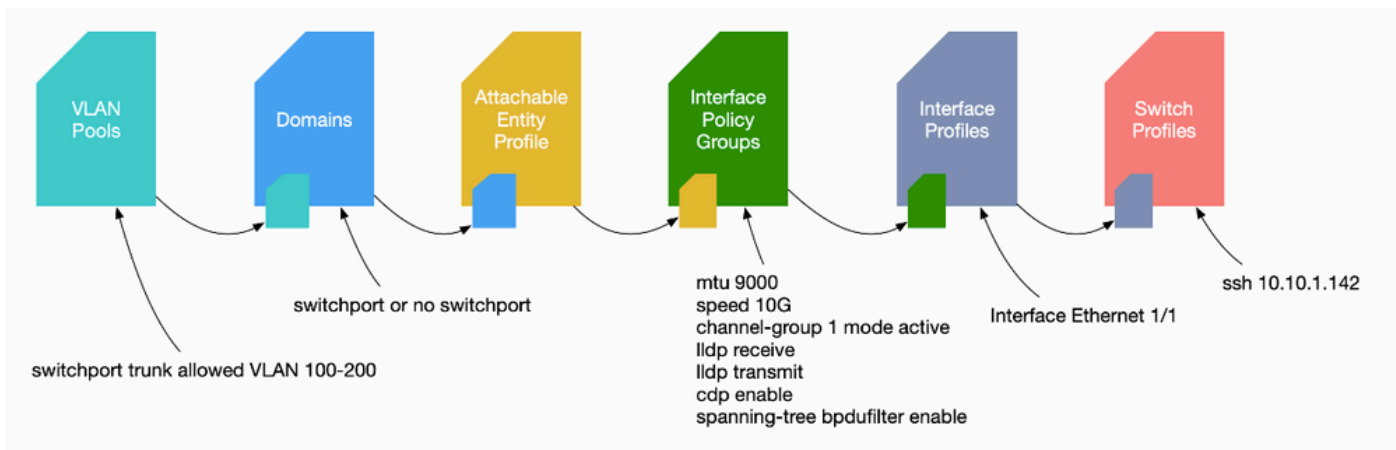
访问策略关系框图

此方框图显示访问策略之间的关系，以确保成功部署交换机节点VLAN。



映射到访问策略的独立NXOS命令

实际上，每个网络工程师都采用了访问策略的思想；只有访问策略通过独立设备的CLI界面在文件中定义为文本。



当发现故障F0467时，必须首先了解访问策略并确保其配置正确。

VLAN验证命令工作表

每个命令输出都将提供一个变量，该变量将用于列表中的下一个命令。

本文档中引用了这些命令来排除不同场景故障。

节点	命令	目的
APIC	moquery -c faultInst -f 'fault.Inst.code=="F0467"'	列出交换矩阵中当前处于活动状态的所有F0467故障
	moquery -c l2RtDomIfConn grep <epg_name> grep dn	显示与特定epg关联的静态/动态路径。
	moquery -c fvRsDomAtt grep -A 25<epg_name> grep rn	显示与EPG关联的域
	moquery -c infraRsVlanNs grep -A 15 <dom_name> grep tDn	显示与域关联的vlan池名称。域名是从上一个命令中提取的
	moquery -c fvnsEncapBlk grep <vlan_pool_name>	显示与特定vlan池关联的vlan编号
	moquery -c infraRtDomP grep <dom_name>	显示与域关联的AEP
	moquery -c infraRtAttEntP grep <AEP_name>	显示与域关联的接口配置文件组(IPG)
	moquery -c infraRsAccBaseGrp grep -B 15 <IPG_name> grep dn	显示接口配置文件组(IPG)与接口选择器的关联
	moquery -c infraRsAccPortP grep <Interface_Sector> grep dn	显示接口配置文件与交换机配置文件的关联
	moquery -c fvIfConn -f 'fv.IfConn.encap=="<encap_vlan>" grep dn	显示在交换矩阵上部署特定封装vlan的所有接口
	moquery -c fvnsRtVlanNs grep <vlan_pool_name> grep dn	显示与vlan池关联的域

	moquery -c fvSubnet grep <BD_name>	显示与域关联的svi IP
交换机	show vlan encap-id <encap_vlan> extended	显示PI vlan和租户、应用配置文件和EPG名称的详细信息
	show vlan extended egrep "Encap -- <port:example 1/13>"	显示特定端口上vlan的详细信息。
	show int eth <port> trunk grep -A 2允许	显示在特定端口上转发的vlan。请注意，vlan编号是内部vlan编号。
	show ip int bri vrf <vrf>	显示为特定vrf部署的第3层接口
	show vpc brief	显示此交换机是VPC对的一部分时的vpc相关信息。

相关信息

- <https://www.ciscolive.com/on-demand/on-demand-library.html?¤tTab=session&search=BRKDCN-3900>
- <https://www.ciscolive.com/on-demand/on-demand-library.html?¤tTab=session&search=BRKACI-2770>
- https://www.cisco.com/c/dam/en/us/td/docs/switches/datacenter/aci/apic/sw/4-x/troubleshooting/Cisco_TroubleshootingApplicationCentricInfrastructureSecondEdition.pdf

关于此翻译

思科采用人工翻译与机器翻译相结合的方式将此文档翻译成不同语言，希望全球的用户都能通过各自的语言得到支持性的内容。

请注意：即使是最好的机器翻译，其准确度也不及专业翻译人员的水平。

Cisco Systems, Inc. 对于翻译的准确性不承担任何责任，并建议您总是参考英文原始文档（已提供链接）。