配置ISE 2.0 TrustSec SXP监听程序和扬声器

目录

简介

本文描述如何配置和排除故障功能思科身份服务引擎(ISE)版本2.0支持TrustSec SGT交换协议(SXP)在制表人和扬声器模式。

先决条件

要求

Cisco 建议您了解以下主题：

- Cisco Catalyst交换机配置
- 身份服务引擎(ISE)和TrustSec服务

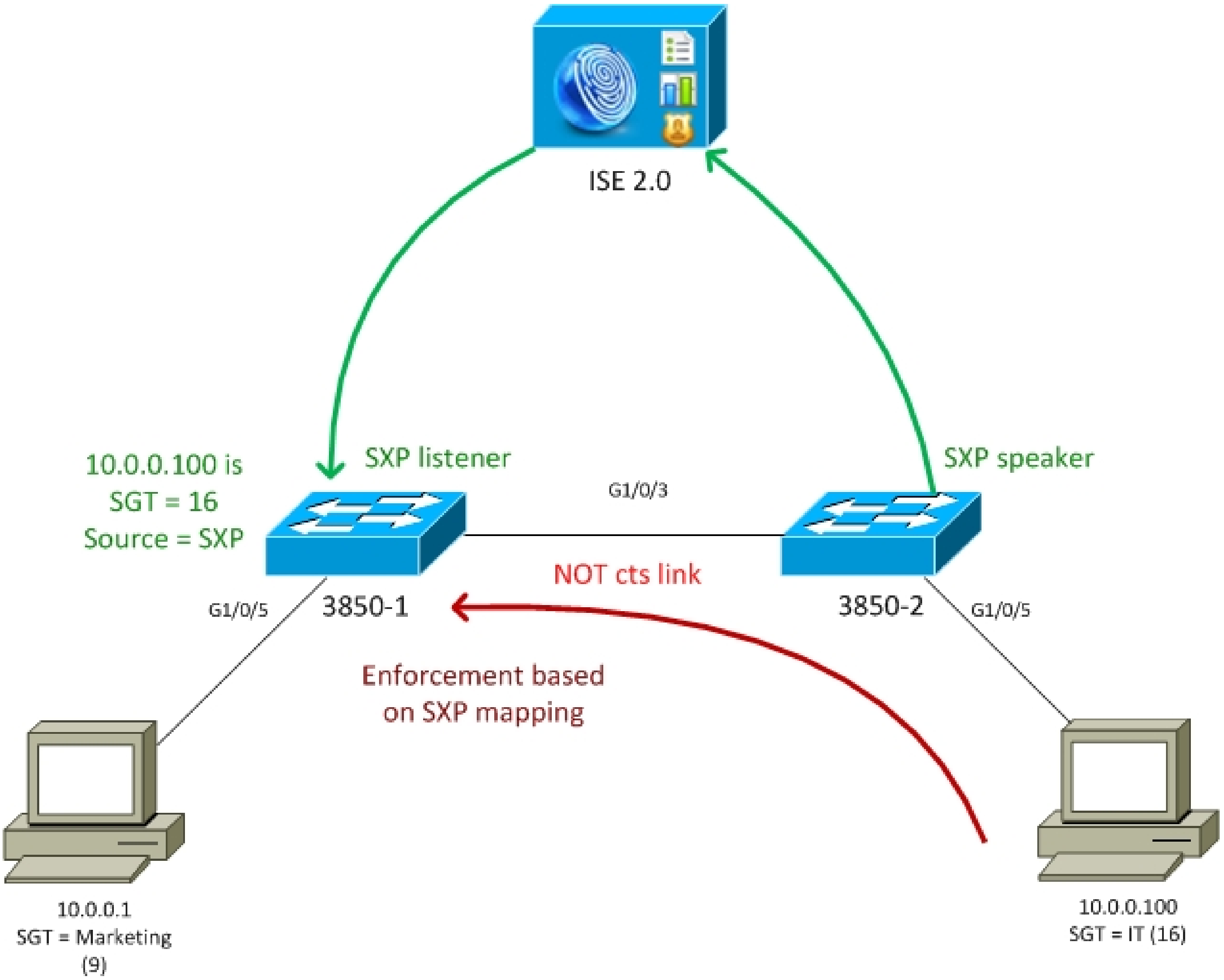
使用的组件

本文档中的信息基于以下软件版本：

- 思科有软件的IOS-XE 3.7.2 Catalyst 3850交换机及以后
- 思科ISE，版本2.0及以后

配置

网络图



通信流

- 3850-2是10.0.0.100的802.1x验证器-返回安全组标记(SGT) 16的ISE (IT)成功认证的
- 3850-2交换机学习请求方IP地址(跟踪的IP设备)并且发送映射信息(IP-SGT)使用SXP协议，对ISE
- 3850-1是10.0.0.1的802.1x验证器-返回成功认证的ISE SGT标记9 (营销)
- 3850-1获得从ISE的SXP映射信息(10.0.0.100是SGT 16)，下载从ISE的策略
- 从10.0.0.100发送的流量到10.0.0.1由3850-2转发(没有下载的特定策略)到是点击策略IT (16)的实施者的3850-1 - >营销(9)

请注意交换机之间的链路不是cts连接-，因此在交换机的所有远程映射通过SXP协议安装。

> **Note**:不是所有的交换机有准许的硬件通过从ISE接收的策略被编程根据已接收SXP映射。总是请参考最新的TrustSec兼容性矩阵的验证或联系方式Cisco系统。

配置

关于关于基本TrustSec配置的详细信息，参考在References部分的条款。

交换机3850-1

交换机终止802.1x会话有SGT分配的并且作为往ISE的SXP扬声器。

```
aaa authentication dot1x default group ISE_mgarcarz
aaa authorization network default group ISE_mgarcarz
aaa authorization network ISE_mgarcarz group ISE_mgarcarz
aaa accounting dot1x default start-stop group ISE_mgarcarz
aaa accounting update newinfo

radius server ISE_mgarcarz
 address ipv4 10.48.17.235 auth-port 1645 acct-port 1646
 pac key cisco

aaa group server radius ISE_mgarcarz
 server name ISE_mgarcarz

interface GigabitEthernet1/0/3
 switchport mode trunk

interface GigabitEthernet1/0/5
 description mgarcarz
 switchport access vlan 100
 switchport mode access
 ip flow monitor F_MON input
 ip flow monitor F_MON output
 authentication order dot1x mab
 authentication priority dot1x mab
 authentication port-control auto
 mab
 dot1x pae authenticator

cts authorization list ISE_mgarcarz
cts role-based enforcement
cts role-based enforcement vlan-list 1-4094
cts sxp enable
cts sxp default password cisco
cts sxp connection peer 10.48.17.235 password default mode local listener hold-time 0
```

交换机3850-2

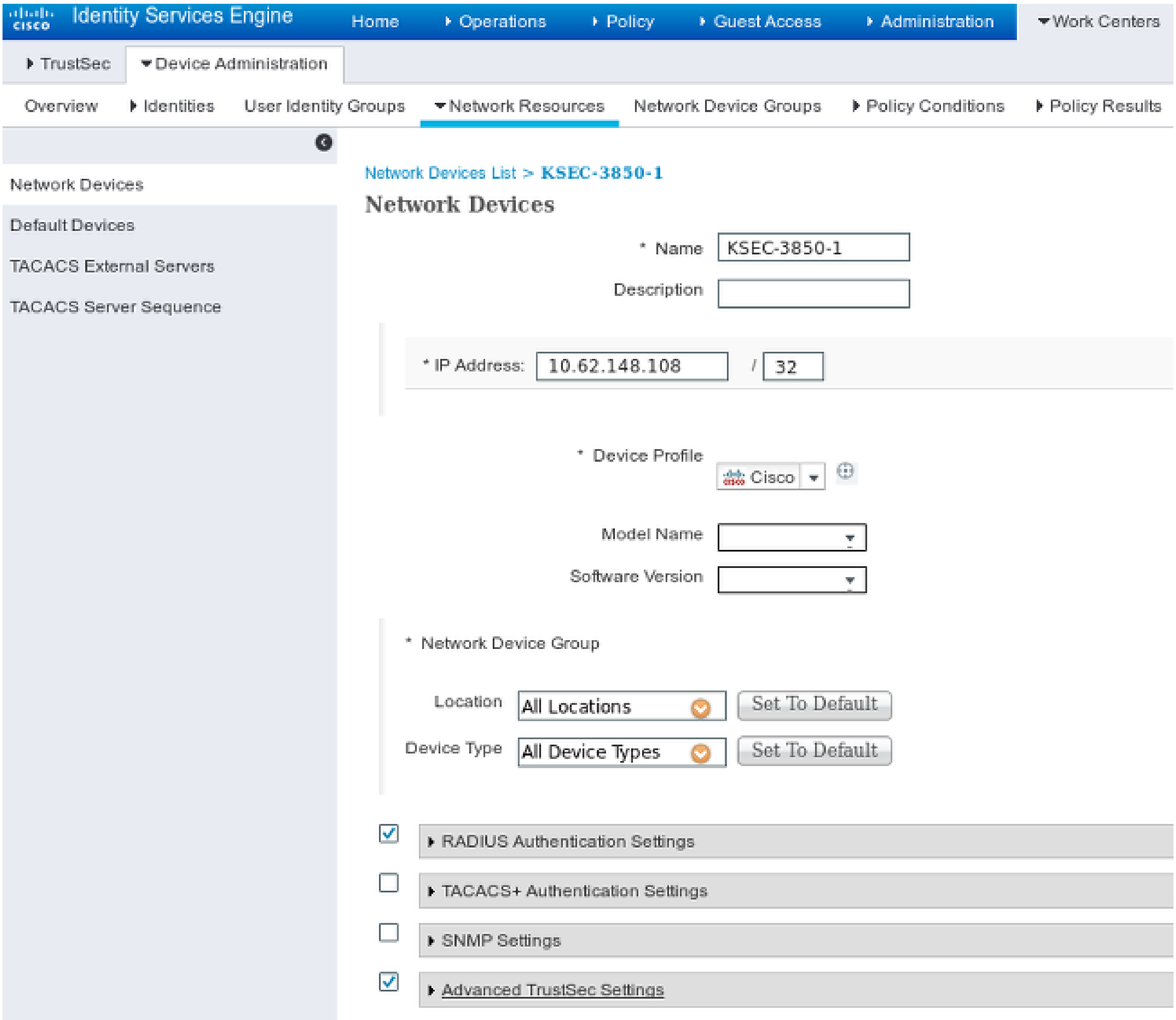
交换机终止802.1x会话有SGT分配的并且作为获得映射的SXP监听程序从ISE。

```
aaa authentication dot1x default group ISE_mgarcarz
aaa authorization network default group ISE_mgarcarz
aaa authorization network ISE_mgarcarz group ISE_mgarcarz
aaa accounting dot1x default start-stop group ISE_mgarcarz
aaa accounting update newinfo

radius server ISE_mgarcarz
 address ipv4 10.48.17.235 auth-port 1645 acct-port 1646
 pac key cisco

aaa group server radius ISE_mgarcarz
 server name ISE_mgarcarz

interface GigabitEthernet1/0/3
 switchport mode trunk

interface GigabitEthernet1/0/5
 description mgarcarz
 switchport access vlan 100
 switchport mode access
 authentication order dot1x mab
 authentication priority dot1x mab
 authentication port-control auto
 mab
 dot1x pae authenticator

cts authorization list ISE_mgarcarz
cts role-based enforcement
cts role-based enforcement vlan-list 1-4094
cts sxp enable
cts sxp default password cisco
cts sxp connection peer 10.48.17.235 password default mode local speaker hold-time 0
```

ISE

步骤1.网络访问设备

导航对**工作区>设备Administration >网络资源**，添加两交换机用共享秘密cisco和TrustSec密码Krakow123。



Network Devices

* Name: KSEC-3850-1

Description:

* IP Address: 10.62.148.108 / 32

* Device Profile: Cisco

Model Name:

Software Version:

* Network Device Group

Location: All Locations — Set To Default

Device Type: All Device Types — Set To Default

☑ RADIUS Authentication Settings

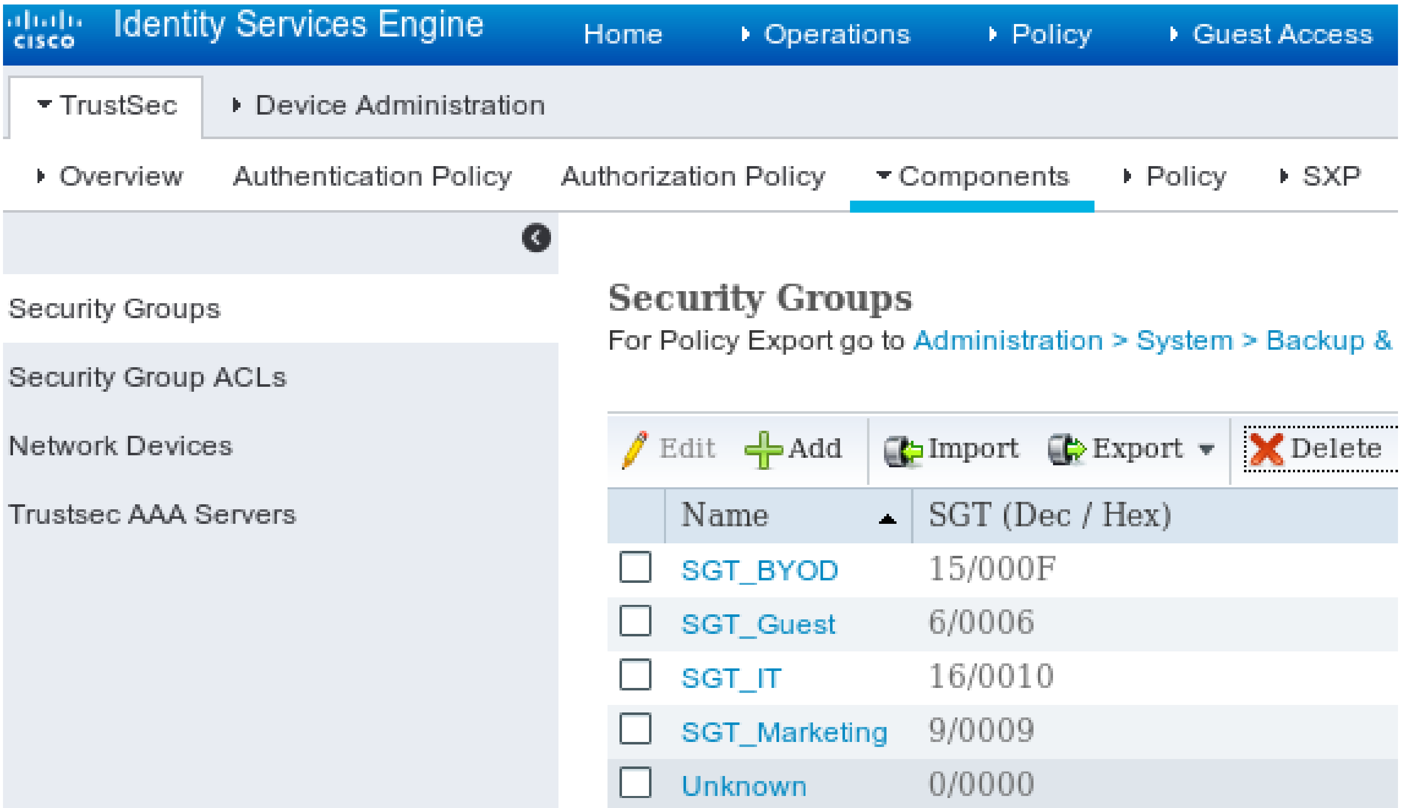
□ TACACS+ Authentication Settings

□ SNMP Settings

☑ Advanced TrustSec Settings

步骤2.安全组

为了添加IT和营销的SGT，请导航对**工作区> TrustSec >组件> Security组。**



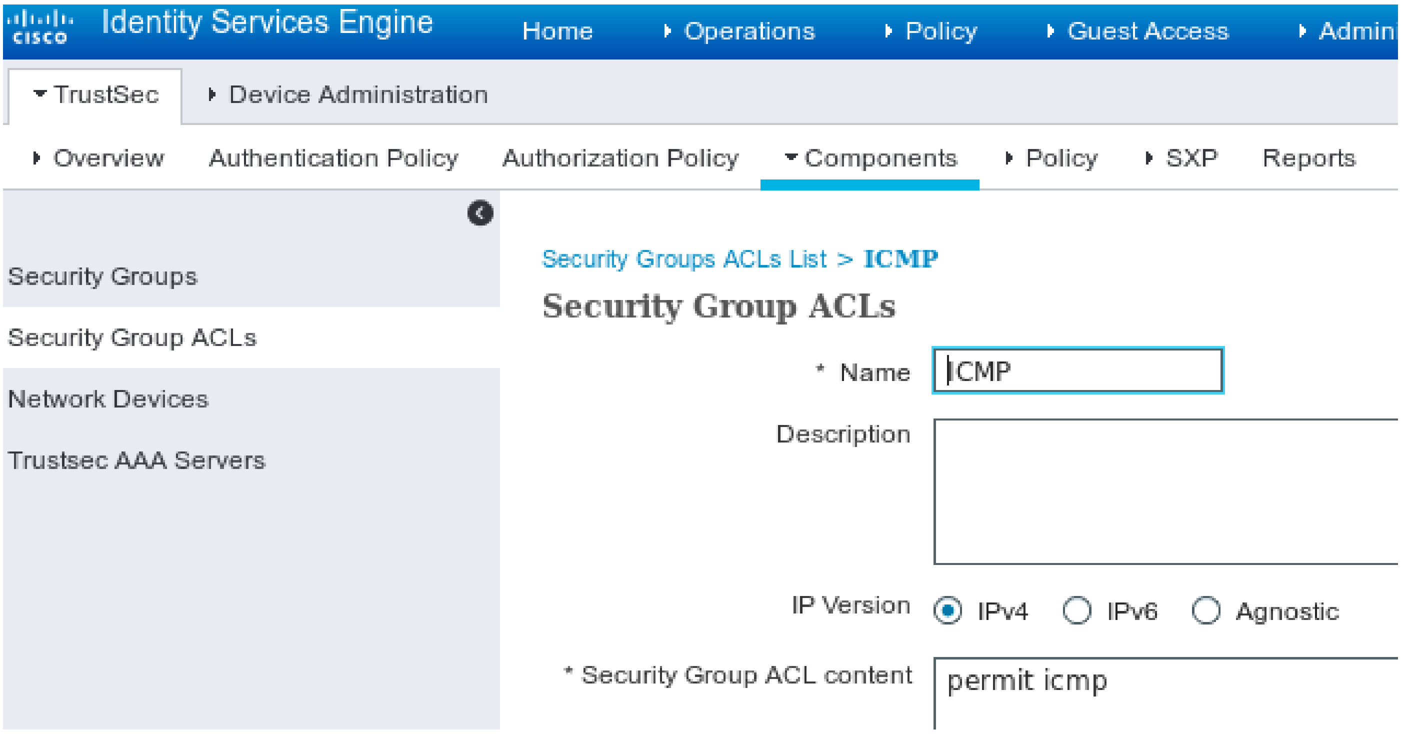
Security Groups

For Policy Export go to Administration > System > Backup &

	Name	SGT (Dec / Hex)
□	SGT_BYOD	15/000F
□	SGT_Guest	6/0006
□	SGT_IT	16/0010
□	SGT_Marketing	9/0009
□	Unknown	0/0000

步骤3.安全组ACL

为了添加安全组ACL，请导航对**工作区> TrustSec >组件> Security组ACL。**



Security Groups ACLs List > ICMP

Security Group ACLs

* Name: ICMP

Description:

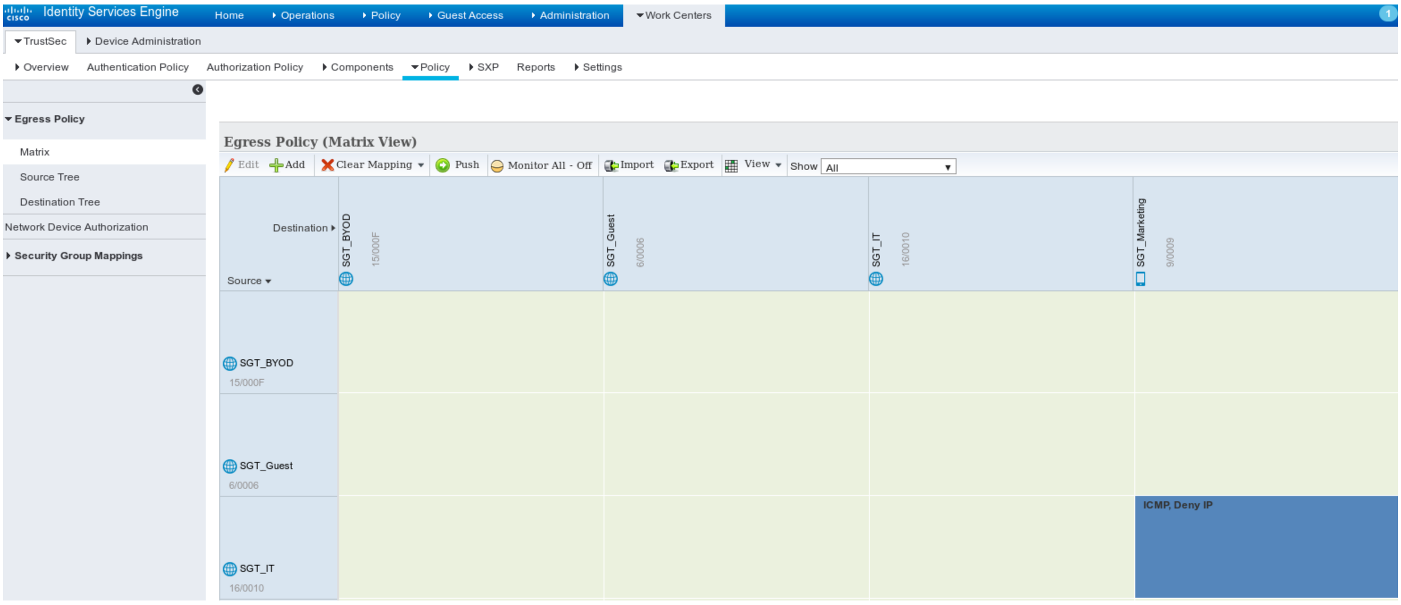
IP Version: ● IPv4 ○ IPv6 ○ Agnostic

* Security Group ACL content: permit icmp

允许仅ICMP流量。

步骤4. TrustSec策略

为了从IT添加控制流量的策略到销售，请导航对**工作区> TrustSec >组件>出口策略>矩阵。**



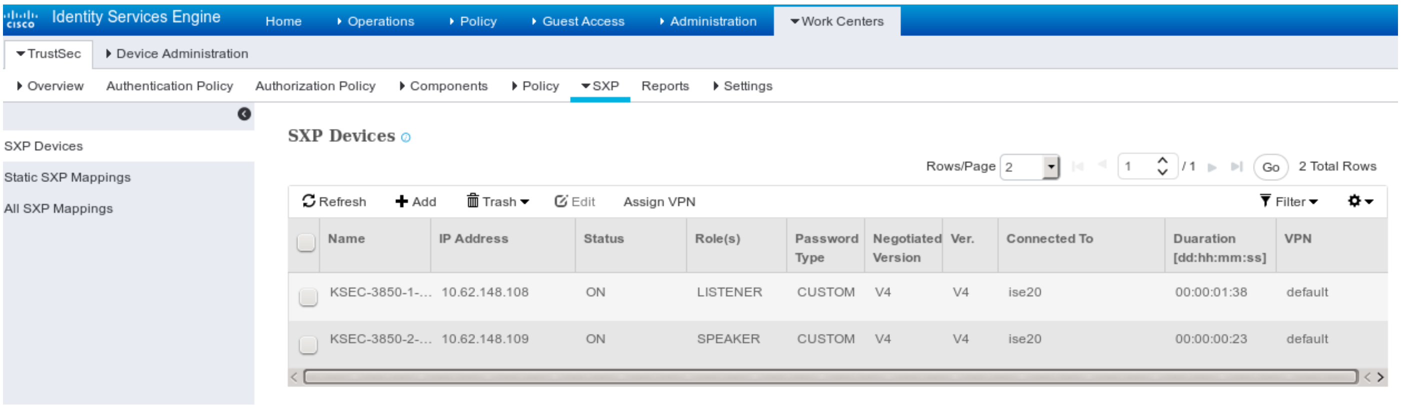
Egress Policy (Matrix View)

Source \ Destination	SGT_BYOD 15/000F	SGT_Guest 6/0006	SGT_IT 16/0010	SGT_Marketing 9/0009
SGT_BYOD 15/000F				
SGT_Guest 6/0006				
SGT_IT 16/0010				ICMP, Deny IP

设置DEFAULT条目抓住所有规则否决所有流量。

步骤5. SXP设备

为了配置SXP监听程序和扬声器对应的交换机的，请导航到**工作区> TrustSec > SXP设备。**



SXP Devices

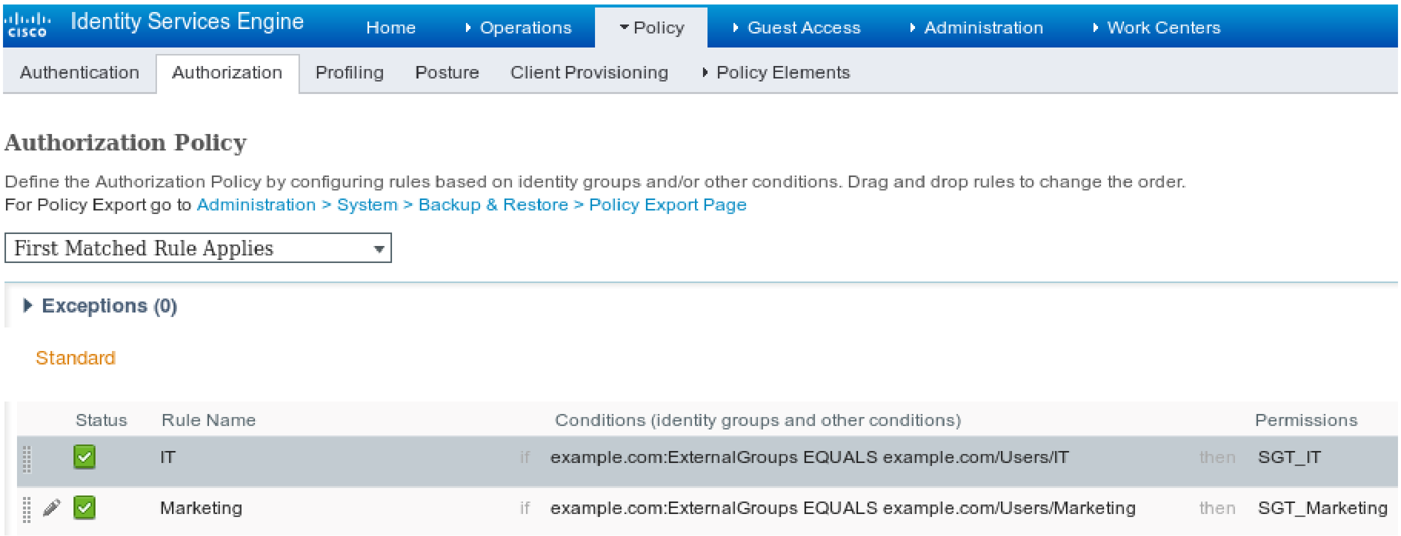
Rows/Page 2 | 1 /1 | 2 Total Rows

□	Name	IP Address	Status	Role(s)	Password Type	Negotiated Version	Ver.	Connected To	Duaration [dd:hh:mm:ss]	VPN
□	KSEC-3850-1-...	10.62.148.108	ON	LISTENER	CUSTOM	V4	V4	ise20	00:00:01:38	default
□	KSEC-3850-2-...	10.62.148.109	ON	SPEAKER	CUSTOM	V4	V4	ise20	00:00:00:23	default

请使用密码cisco (或为在交换机的sxp配置的任何其他)。

步骤6.授权策略

保证授权策略回归更正每个用户的SGT标记，请导航对**策略>授权。**



Authorization Policy

Define the Authorization Policy by configuring rules based on identity groups and/or other conditions. Drag and drop rules to change the order.
For Policy Export go to Administration > System > Backup & Restore > Policy Export Page

First Matched Rule Applies

Exceptions (0)

Standard

Status	Rule Name		Conditions (identity groups and other conditions)		Permissions
✓	IT	if	example.com:ExternalGroups EQUALS example.com/Users/IT	then	SGT_IT
✓	Marketing	if	example.com:ExternalGroups EQUALS example.com/Users/Marketing	then	SGT_Marketing

验证

步骤1.加入cts的交换机ISE

从每交换机请提供TrustSec凭证(配置在ISE/Step1)获得PAC。

```
KSEC-3850-2#cts credentials id KSEC-3850-2 password Krakow123
CTS device ID and password have been inserted in the local keystore. Please make sure that the
same ID and password are configured in the server database.
```

保证PAC下载。

```
KSEC-3850-2#show cts pacs
 AID: 65D55BAF222BBC73362A7810A04A005B
 PAC-Info:
   PAC-type = Cisco Trustsec
   AID: 65D55BAF222BBC73362A7810A04A005B
   I-ID: KSEC-3850-2
   A-ID-Info: Identity Services Engine
   Credential Lifetime: 20:42:37 UTC Nov 13 2015
 PAC-Opaque:
000200B80003000100040010650D55BAF222BBC73362A7810A04A005B0006009C00030100B26D8DDC125B6595067D64F9
17DA624C0000001355CB2E1C00093A800E567155E0DE76419D2F3B97D890F34F109C4C42F586B29050CEC7B441E0CA60
FC6684D4F6E8263FA2623A6E450927815A140CD3B9D68988E95D8C1E65544E222E187C647B9F7F3F230F6DB4F80F3C20
1ACD623B309077E27688EDF7704740A1CD3F18CE8485788054C19909083ED303BB49A6975AC0395D41E1227B
 Refresh timer is set for 12w4d
```

并且环保政策刷新。

```
KSEC-3850-2#show cts environment-data
CTS Environment Data
====================
Current state = COMPLETE
Last status = Successful
Local Device SGT:
 SGT tag = 0-00:Unknown
Server List Info:
Installed list: CTSServerList1-0001, 1 server(s):
 *Server: 10.48.17.235, port 1812, A-ID 65D55BAF222BBC73362A7810A04A005B
         Status = ALIVE
         auto-test = FALSE, keywrap-enable = FALSE, idle-time = 60 mins, deadtime = 20 secs
Multicast Group SGT Table:
Security Group Name Table:
   0-00:Unknown
 6-00:SGT_Guest
   9-00:SGT_Marketing
   15-00:SGT_BYOD
   16-00:SGT_IT
   255-00:SGT_Quarantine
Environment Data Lifetime = 86400 secs
Last update time = 20:47:04 UTC Sat Aug 15 2015
Env-data expires in   0:08:09:13 (dd:hr:mm:sec)
Env-data refreshes in 0:08:09:13 (dd:hr:mm:sec)
Cache data applied           = NONE
State Machine is running
```

重复3850-1的同一进程

步骤2. 802.1x会话

在IT用户验证后，正确标记分配。

```
KSEC-3850-2#show authentication sessions interface g1/0/5 details
            Interface:  GigabitEthernet1/0/5
               IIF-ID:  0x107E700000000C4
          MAC Address:  0050.b611.ed31
         IPv6 Address:  Unknown
          IPv4 Address:  10.0.0.100
            User-Name:  cisco
               Status:  Authorized
               Domain:  DATA
       Oper host mode:  single-host
     Oper control dir:  both
      Session timeout:  N/A
    Common Session ID:  0A3E946D00000FF214D18E36
      Acct Session ID:  0x00000FDC
               Handle:  0xA4000020
       Current Policy:  POLICY_Gi1/0/5

Local Policies:
       Service Template: DEFAULT_LINKSEC_POLICY_SHOULD_SECURE (priority 150)
      Security Policy:  Should Secure
      Security Status:  Link Unsecure

Server Policies:
            SGT Value:  16

Method status list:
      Method           State
      dot1x            Authc Success
```

映射在本地SGT-IP表里安装。

```
KSEC-3850-2#show cts role-based sgt-map all
Active IPv4-SGT Bindings Information

IP Address              SGT     Source
============================================
10.0.0.100              16      LOCAL
```

步骤3. SXP扬声器

3850-2发送映射对ISE， cts sxp的交换机调试。

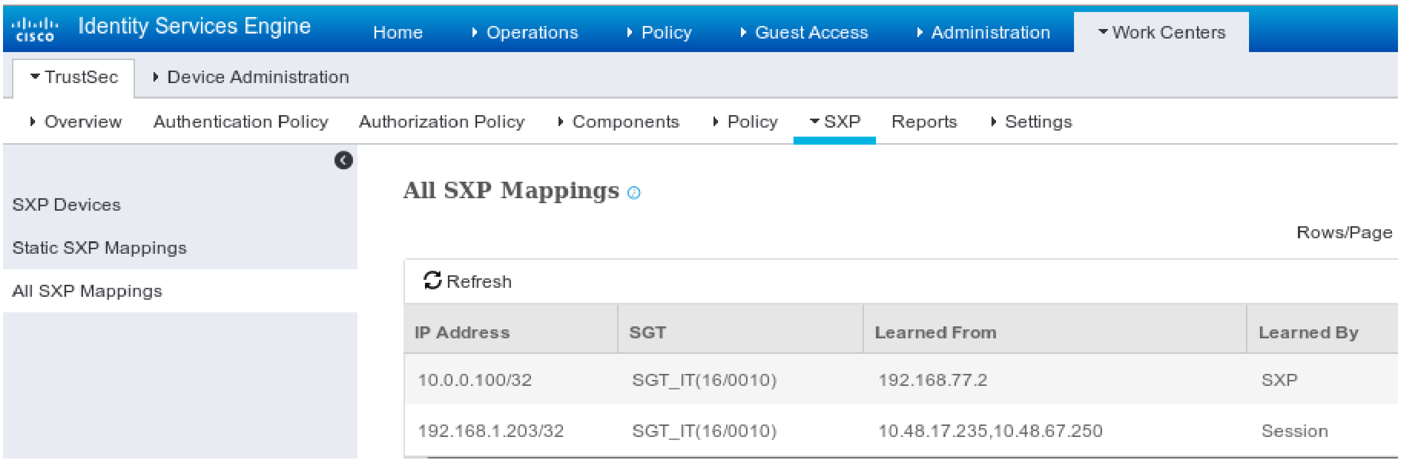
```
KSEC-3850-2(config)#do show debug
CTS:
 CTS SXP message debugging is on

*Aug 16 12:48:30.173: CTS-SXP-MSG:trp_send_msg <1>, <10.48.17.235, 10.62.148.109>
*Aug 16 12:48:30.173: CTS-SXP-MSG:trp_socket_write fd<1>, cdbp->ph_sock_pending<1>,
<10.48.17.235, 10.62.148.109>
*Aug 16 12:48:30.226: CTS-SXP-MSG:trp_process_read_sock <1>, <10.48.17.235, 10.62.148.109>
*Aug 16 12:48:30.226: CTS-SXP-MSG:trp_process_read_sock socket_recv result:-1 errno:11;
<10.48.17.235, 10.62.148.109>
*Aug 16 12:48:30.226: CTS-SXP-MSG:trp_process_read_sock socket_conn is accepted; <10.48.17.235,
10.62.148.109>
*Aug 16 12:48:30.226: CTS-SXP-MSG:trp_socket_write fd<1>, <10.48.17.235, 10.62.148.109>
*Aug 16 12:48:30.226: CTS-SXP-MSG:trp_socket_write freeing tx_msgq_entry, <10.48.17.235,
10.62.148.109>
*Aug 16 12:48:30.227: CTS-SXP-MSG:after socket_send, wlen=28, slen=0, tot_len=28, <10.48.17.235,
10.62.148.109>
*Aug 16 12:48:30.227: CTS-SXP-MSG:trp_socket_write freeing tx_buf, <10.48.17.235, 10.62.148.109>
*Aug 16 12:48:30.227: CTS-SXP-MSG:trp_socket_read <1>, <10.48.17.235, 10.62.148.109>
*Aug 16 12:48:30.227: CTS-SXP-MSG:trp_socket_read readlen = -1; errno = 11, <10.48.17.235,
10.62.148.109>
*Aug 16 12:48:30.278: CTS-SXP-MSG:trp_process_read_sock <1>, <10.48.17.235, 10.62.148.109>
*Aug 16 12:48:30.278: CTS-SXP-MSG:trp_socket_read <1>, <10.48.17.235, 10.62.148.109>
*Aug 16 12:48:30.278: CTS-SXP-MSG:RCVD peer 10.48.17.235 readlen:32, datalen:0 remain:4096 bufp
=
*Aug 16 12:48:30.278: CTS-SXP-MSG:sxp_handle_rx_msg_v2 <1>, <10.48.17.235, 10.62.148.109>
*Aug 16 12:48:30.279: CTS-SXP-MSG:imu_sxp_conn_cr <1>, <10.48.17.235, 10.62.148.109>
*Aug 16 12:48:30.279: CTS-SXP-MSG:wrt_sxp_opcode_info_v4 cdbp 0x3D541160
*Aug 16 12:48:30.279: CTS-SXP-MSG:trp_send_msg <1>, <10.48.17.235, 10.62.148.109>
*Aug 16 12:48:30.279: CTS-SXP-MSG:trp_socket_write fd<1>, <10.48.17.235, 10.62.148.109>
*Aug 16 12:48:30.279: CTS-SXP-MSG:trp_socket_write freeing tx_msgq_entry, <10.48.17.235,
10.62.148.109>
*Aug 16 12:48:30.279: CTS-SXP-MSG:after socket_send, wlen=28, slen=0, tot_len=28, <10.48.17.235,
10.62.148.109>
*Aug 16 12:48:30.279: CTS-SXP-MSG:trp_socket_write freeing tx_buf, <10.48.17.235, 10.62.148.109>
*Aug 16 12:48:30.280: CTS-SXP-MSG:trp_socket_read readlen = 32; errno = 11, <10.48.17.235,
10.62.148.109>
```

ISE报告(sxp_appserver/sxp.log)

```
2015-08-16 14:44:07,029 INFO  [nioEventLoopGroup-2-3]
opendaylight.sxp.core.behavior.Strategy:473 -
[ISE:10.48.17.235][10.48.17.235:21121/10.62.148.109:64999][O|Lv4/Sv4 192.168.77.2] PURGEALL
processing
2015-08-16 14:44:07,029 WARN  [nioEventLoopGroup-2-3]
opendaylight.sxp.core.handler.MessageDecoder:173 -
[ISE:10.48.17.235][10.48.17.235:21121/10.62.148.109:64999] Channel inactivation
2015-08-16 14:44:07,029 INFO  [pool-3-thread-1] sxp.util.database.spi.MasterDatabaseProvider:721
- SXP_PERF:BINDINGS_PER_SXP_UPDATE_MESSAGE(CHUNK)=1, onlyChanged=true
2015-08-16 14:44:07,030 INFO  [pool-3-thread-1] sxp.util.database.spi.MasterDatabaseProvider:725
- SXP_PERF:NUM_OF_CHUNKS=1, onlyChanged=true
2015-08-16 14:44:07,030 INFO  [pool-3-thread-9]
opendaylight.sxp.core.service.UpdateExportTask:93 - SXP_PERF:SEND_UPDATE_BUFFER_SIZE=16
2015-08-16 14:44:07,030 INFO  [pool-3-thread-9]
opendaylight.sxp.core.service.UpdateExportTask:119 - SENT_UPDATE to
[ISE:10.48.17.235][10.48.17.235:57719/10.62.148.108:64999][O|Sv4]
2015-08-16 14:44:07,030 INFO  [pool-3-thread-9]
opendaylight.sxp.core.service.UpdateExportTask:140 - SENT_UPDATE SUCCESSFUL to
[ISE:10.48.17.235][10.48.17.235:57719/10.62.148.108:64999][O|Sv4]:false
2015-08-16 14:44:07,030 INFO  [pool-3-thread-1]
opendaylight.sxp.core.service.BindingDispatcher:198 -
SXP_PERF:MDB_PARTITON_AND_SXP_DISPATCH:DURATION=1 milliseconds, NUM_CONNECTIONS=1
2015-08-16 14:44:07,031 INFO  [pool-3-thread-1] sxp.util.database.spi.MasterDatabaseProvider:725
- SXP_PERF:NUM_OF_CHUNKS=0, onlyChanged=true
2015-08-16 14:44:12,534 INFO  [nioEventLoopGroup-2-4]
opendaylight.sxp.core.behavior.Strategy:232 -
[ISE:10.48.17.235][10.48.17.235:64999/10.62.148.109:1035][X|Lv4/Sv4 192.168.77.2] received
Message  Open
2015-08-16 14:44:12,535 INFO  [nioEventLoopGroup-2-4]
opendaylight.sxp.core.behavior.Strategy:358 -
[ISE:10.48.17.235][10.48.17.235:64999/10.62.148.109:1035][O|Lv4/Sv4 192.168.77.2] Sent RESP 0 0
0 32 0 0 0 2 | 0 0 0 4 0 0 0 2 80 6 6 3 0 2 0 1 0 80 7 4 0 120 0 180
2015-08-16 14:44:12,585 INFO  [nioEventLoopGroup-2-4]
opendaylight.sxp.core.behavior.Strategy:451 -
[ISE:10.48.17.235][10.48.17.235:64999/10.62.148.109:1035][O|Lv4/Sv4 192.168.77.2] received
Message  Update
2015-08-16 14:44:12,586 INFO  [pool-3-thread-2]
opendaylight.sxp.core.service.SimpleBindingHandler:663 - PERF_SXP_PROCESS_UPDATE from
[ISE:10.48.17.235][10.48.17.235:64999/10.62.148.109:1035][O|Lv4/Sv4 192.168.77.2]
```

```
2015-08-16 14:44:12,586 INFO  [pool-3-thread-2]
opendaylight.sxp.core.service.SimpleBindingHandler:666 - PERF_SXP_PROCESS_UPDATE_DONE from
[ISE:10.48.17.235][10.48.17.235:64999/10.62.148.109:1035][O|Lv4/Sv4 192.168.77.2]
2015-08-16 14:44:12,586 INFO  [pool-3-thread-1] sxp.util.database.spi.MasterDatabaseProvider:721
- SXP_PERF:BINDINGS_PER_SXP_UPDATE_MESSAGE(CHUNK)=1, onlyChanged=true
2015-08-16 14:44:12,587 INFO  [pool-3-thread-1] sxp.util.database.spi.MasterDatabaseProvider:725
- SXP_PERF:NUM_OF_CHUNKS=1, onlyChanged=true
2015-08-16 14:44:12,587 INFO  [pool-3-thread-11]
opendaylight.sxp.core.service.UpdateExportTask:93 - SXP_PERF:SEND_UPDATE_BUFFER_SIZE=32
2015-08-16 14:44:12,587 INFO  [pool-3-thread-11]
opendaylight.sxp.core.service.UpdateExportTask:119 - SENT_UPDATE to
[ISE:10.48.17.235][10.48.17.235:57719/10.62.148.108:64999][O|Sv4]
2015-08-16 14:44:12,587 INFO  [pool-3-thread-11]
opendaylight.sxp.core.service.UpdateExportTask:140 - SENT_UPDATE SUCCESSFUL to
[ISE:10.48.17.235][10.48.17.235:57719/10.62.148.108:64999][O|Sv4]:false
2015-08-16 14:44:12,587 INFO  [pool-3-thread-1]
opendaylight.sxp.core.service.BindingDispatcher:198 -
SXP_PERF:MDB_PARTITON_AND_SXP_DISPATCH:DURATION=1 milliseconds, NUM_CONNECTIONS=1
```

并且请通过GUI提交所有映射(10.0.0.100的包括映射从3850-2接收)如此镜像所显示。



All SXP Mappings

IP Address	SGT	Learned From	Learned By
10.0.0.100/32	SGT_IT(16/0010)	192.168.77.2	SXP
192.168.1.203/32	SGT_IT(16/0010)	10.48.17.235,10.48.67.250	Session

192.168.77.2是SXP连接标识符在3850-2的(定义的最高的IP地址)。

```
KSEC-3850-2#show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0     unassigned      YES unset  down                  down
Vlan1                  unassigned      YES NVRAM  administratively down down
Vlan100                10.0.0.2        YES manual up                    up
Vlan480                10.62.148.109   YES NVRAM  up                    up
Vlan613                unassigned      YES NVRAM  administratively down down
Vlan666                192.168.66.2    YES NVRAM  down                  down
Vlan777                192.168.77.2    YES NVRAM  down                  down
```

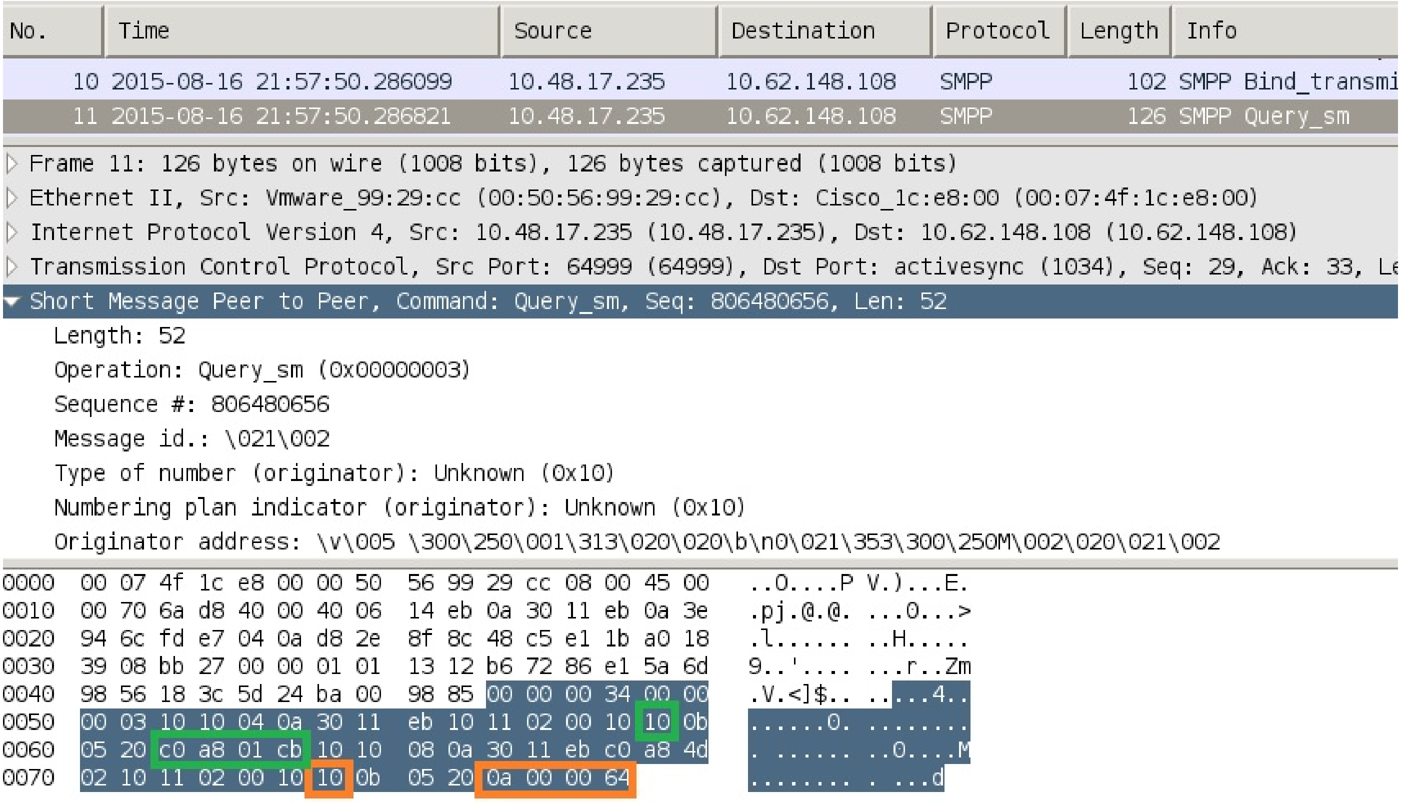
步骤4. SXP监听程序

然后ISE再发出该映射到3850-1，交换机调试。

```
*Aug 16 05:42:54.199: CTS-SXP-MSG:trp_send_msg <1>, <10.48.17.235, 10.62.148.108>
*Aug 16 05:42:54.199: CTS-SXP-MSG:trp_socket_write fd<1>, cdbp->ph_sock_pending<1>,
<10.48.17.235, 10.62.148.108>
*Aug 16 05:42:54.248: CTS-SXP-MSG:trp_process_read_sock <1>, <10.48.17.235, 10.62.148.108>
*Aug 16 05:42:54.248: CTS-SXP-MSG:trp_process_read_sock socket_recv result:-1 errno:11;
<10.48.17.235, 10.62.148.108>
*Aug 16 05:42:54.248: CTS-SXP-MSG:trp_process_read_sock socket_conn is accepted; <10.48.17.235,
10.62.148.108>
*Aug 16 05:42:54.248: CTS-SXP-MSG:trp_socket_write fd<1>, <10.48.17.235, 10.62.148.108>
```

```
*Aug 16 05:42:54.248: CTS-SXP-MSG:trp_socket_write freeing tx_msgq_entry, <10.48.17.235,
10.62.148.108>
*Aug 16 05:42:54.248: CTS-SXP-MSG:after socket_send, wlen=32, slen=0, tot_len=32, <10.48.17.235,
10.62.148.108>
*Aug 16 05:42:54.248: CTS-SXP-MSG:trp_socket_write freeing tx_buf, <10.48.17.235, 10.62.148.108>
*Aug 16 05:42:54.249: CTS-SXP-MSG:trp_socket_read <1>, <10.48.17.235, 10.62.148.108>
*Aug 16 05:42:54.249: CTS-SXP-MSG:trp_socket_read readlen = -1; errno = 11, <10.48.17.235,
10.62.148.108>
*Aug 16 05:42:54.300: CTS-SXP-MSG:trp_process_read_sock <1>, <10.48.17.235, 10.62.148.108>
*Aug 16 05:42:54.300: CTS-SXP-MSG:trp_socket_read <1>, <10.48.17.235, 10.62.148.108>
*Aug 16 05:42:54.300: CTS-SXP-MSG:RCVD peer 10.48.17.235 readlen:28, datalen:0 remain:4096 bufp
=
*Aug 16 05:42:54.301: CTS-SXP-MSG:sxp_handle_rx_msg_v2 <1>, <10.48.17.235, 10.62.148.108>
*Aug 16 05:42:54.301: CTS-SXP-MSG:imu_sxp_conn_cr ci<1> cdbp->ph_conn_state<2>, <10.48.17.235,
10.62.148.108>
*Aug 16 05:42:54.301: CTS-SXP-MSG:trp_socket_read readlen = 28; errno = 11, <10.48.17.235,
10.62.148.108>
*Aug 16 05:42:54.301: CTS-SXP-MSG:trp_process_read_sock <1>, <10.48.17.235, 10.62.148.108>
*Aug 16 05:42:54.302: CTS-SXP-MSG:trp_socket_read <1>, <10.48.17.235, 10.62.148.108>
*Aug 16 05:42:54.302: CTS-SXP-MSG:RCVD peer 10.48.17.235 readlen:52, datalen:0 remain:4096 bufp
=
*Aug 16 05:42:54.302: CTS-SXP-MSG:sxp_handle_rx_msg_v2 <1>, <10.48.17.235, 10.62.148.108>
*Aug 16 05:42:54.302: CTS-SXP-MSG:sxp_recv_update_v4 <1> peer ip: 10.48.17.235
*Aug 16 05:42:54.302: CTS-SXP-MSG:1. msg type:3, total len:52,  payl len:44, opc_ptr:0x3DFC7308,
<10.48.17.235, 10.62.148.108>
*Aug 16 05:42:54.302: CTS-SXP-MSG:1. msg type:3, total len:52,  payl len:37, opc_ptr:0x3DFC730F,
<10.48.17.235, 10.62.148.108>
*Aug 16 05:42:54.302: CTS-SXP-MSG:1. msg type:3, total len:52,  payl len:32, opc_ptr:0x3DFC7314,
<10.48.17.235, 10.62.148.108>
*Aug 16 05:42:54.302: CTS-SXP-MSG:1. msg type:3, total len:52,  payl len:24, opc_ptr:0x3DFC731C,
<10.48.17.235, 10.62.148.108>
*Aug 16 05:42:54.302: CTS-SXP-MSG:1. msg type:3, total len:52,  payl len:13, opc_ptr:0x3DFC7327,
<10.48.17.235, 10.62.148.108>
*Aug 16 05:42:54.302: CTS-SXP-MSG:1. msg type:3, total len:52,  payl len:8, opc_ptr:0x3DFC732C,
<10.48.17.235, 10.62.148.108>
*Aug 16 05:42:54.303: CTS-SXP-MSG:1. msg type:3, total len:52,  payl len:0, opc_ptr:0x3DFC7334,
<10.48.17.235, 10.62.148.108>
```

从流量的ISE采取的数据包捕获往3850-1确认SXP映射发送。



```
No.  Time                              Source          Destination     Protocol  Length  Info
  10 2015-08-16 21:57:50.286099        10.48.17.235    10.62.148.108   SMPP         102  SMPP Bind_transmi
  11 2015-08-16 21:57:50.286821        10.48.17.235    10.62.148.108   SMPP         126  SMPP Query_sm

▷ Frame 11: 126 bytes on wire (1008 bits), 126 bytes captured (1008 bits)
▷ Ethernet II, Src: Vmware_99:29:cc (00:50:56:99:29:cc), Dst: Cisco_1c:e8:00 (00:07:4f:1c:e8:00)
▷ Internet Protocol Version 4, Src: 10.48.17.235 (10.48.17.235), Dst: 10.62.148.108 (10.62.148.108)
▷ Transmission Control Protocol, Src Port: 64999 (64999), Dst Port: activesync (1034), Seq: 29, Ack: 33, Le
▼ Short Message Peer to Peer, Command: Query_sm, Seq: 806480656, Len: 52
    Length: 52
    Operation: Query_sm (0x00000003)
    Sequence #: 806480656
    Message id.: \021\002
    Type of number (originator): Unknown (0x10)
    Numbering plan indicator (originator): Unknown (0x10)
    Originator address: \v\005 \300\250\001\313\020\020\b\n0\021\353\300\250M\002\020\021\002
0000  00 07 4f 1c e8 00 00 50  56 99 29 cc 08 00 45 00   ..O....P V.)...E.
0010  00 70 6a d8 40 00 40 06  14 eb 0a 30 11 eb 0a 3e   .pj.@.@. ...0...>
0020  94 6c fd e7 04 0a d8 2e  8f 8c 48 c5 e1 1b a0 18   .l...... ..H.....
0030  39 08 bb 27 00 00 01 01  13 12 b6 72 86 e1 5a 6d   9..'.... ...r..Zm
0040  98 56 18 3c 5d 24 ba 00  98 85 00 00 00 34 00 00   .V.<]$.. ....4..
0050  00 03 10 10 04 0a 30 11  eb 10 11 02 00 10 10 0b   ......0. ........
0060  05 20 c0 a8 01 cb 10 10  08 0a 30 11 eb c0 a8 4d   . ...... ..0....M
0070  02 10 11 02 00 10 10 0b  05 20 0a 00 00 64         ........ . ...d
```

Wireshark用途标准的SMPP编码器。检查有效负载：

10 (SGT = 16) "c0 a8 01钶的” (192.168.1.203)

10 (SGT = 16) "0a的00 00 64" (10.0.0.100)

3850-1安装从ISE接收的所有映射。

```
KSEC-3850-1# show cts sxp sgt-map
SXP Node ID(generated):0xC0A84D01(192.168.77.1)
IP-SGT Mappings as follows:
IPv4,SGT: <10.0.0.100 , 16:SGT_IT>
source  : SXP;
Peer IP : 10.48.17.235;
Ins Num : 2;
Status  : Active;
Seq Num : 439
Peer Seq: 0A3011EB,C0A84D02,
IPv4,SGT: <192.168.1.203 , 16:SGT_IT>
source  : SXP;
Peer IP : 10.48.17.235;
Ins Num : 6;
Status  : Active;
Seq Num : 21
Peer Seq: 0A3011EB,
Total number of IP-SGT Mappings: 2
```

```
KSEC-3850-1# show cts role-based sgt-map all
Active IPv4-SGT Bindings Information

IP Address              SGT     Source
============================================
10.0.0.100              16      SXP
192.168.1.203           16      SXP
```

```
IP-SGT Active Bindings Summary
============================================
Total number of CLI      bindings = 1
Total number of SXP      bindings = 2
Total number of active   bindings = 3
```

步骤5.策略下载和实施

下载从ISE的正确策略。(与SGT 16)的矩阵行

```
KSEC-3850-1#show cts role-based permissions
IPv4 Role-based permissions default:
       Permit IP-00
IPv4 Role-based permissions from group 16:SGT_IT to group 9:SGT_Marketing:
        ICMP-10
        Deny IP-00
RBACL Monitor All for Dynamic Policies : FALSE
RBACL Monitor All for Configured Policies : FALSE
```

从10.0.0.100 (SGT IT)的ICMP流量对10.0.0.1 (SGT营销)允许，计数器增加。

```
KSEC-3850-1#show cts role-based counters from 16
Role-based IPv4 counters
#Hardware counters are not available for specific SGT/DGT
#Use this command without arguments to see hardware counters
From    To      SW-Denied       SW-Permitted
16      9       0               0               11              0
```

当尝试使用Telnet连接时出故障，丢弃计数器增加。

```
KSEC-3850-1#show cts role-based counters from 16
Role-based IPv4 counters
#Hardware counters are not available for specific SGT/DGT
#Use this command without arguments to see hardware counters
From    To      SW-Denied       SW-Permitted
16      9       3               0               11              0
```

请注意没有在3850-2的特定策略，所有流量允许。

```
KSEC-3850-2#show cts role-based permissions
IPv4 Role-based permissions default:
        Permit IP-00
RBACL Monitor All for Dynamic Policies : FALSE
RBACL Monitor All for Configured Policies : FALSE
```

在ISE的正在修改的SG ACL以后，添加permit tcp和cts刷新策略在3850-1 - Telnet流量然后接受。

其可能也使用灵活NetFlow (从IOS-XE 3.7.2开始它是意识的SGT)本地缓存确认行为。

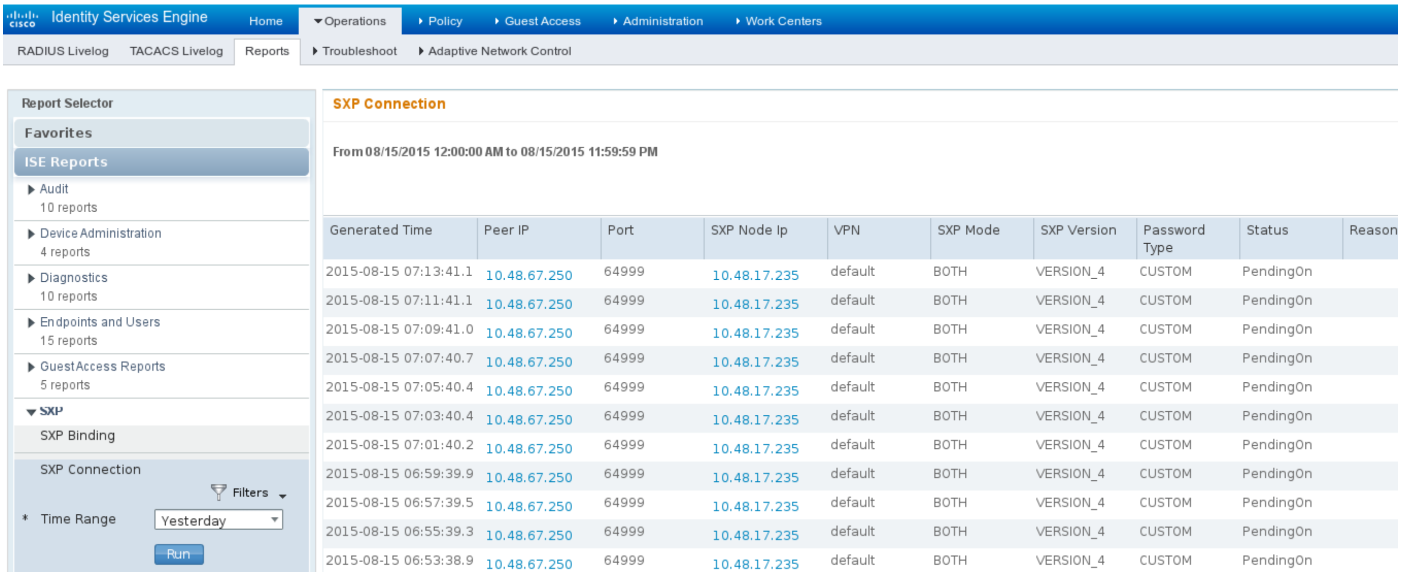
```
KSEC-3850-2#show cts role-based permissions
IPv4 Role-based permissions default:
        Permit IP-00
RBACL Monitor All for Dynamic Policies : FALSE
RBACL Monitor All for Configured Policies : FALSE
```

结果显示从3850-2接收的流量。来源SGT是0，因为接收的流量没有任何SGT (没有cts链路)，但是目的地组标记自动地替换根据本地映射表。

```
KSEC-3850-1#show flow monitor F_MON cache
 Cache type:                               Normal (Platform cache)
 Cache size:                              Unknown
 Current entries:                               6

 Flows added:                                1978
 Flows aged:                                 1972
   - Active timeout      (  1800 secs)         30
   - Inactive timeout    (    15 secs)       1942

IPV4 SRC ADDR    IPV4 DST ADDR    TRNS SRC PORT  TRNS DST PORT  FLOW DIRN  FLOW CTS SRC GROUP
TAG  FLOW CTS DST GROUP TAG  IP PROT             pkts long
===============  ===============  =============  =============  =========
======================  ======================  =======  ====================
150.1.7.1        224.0.0.10                   0              0  Output
0                       0       88                    57
10.62.148.1      224.0.0.13                   0           8192  Output
0                       0      103                     0
7.7.4.1          224.0.0.10                   0              0  Output
0                       0       88                    56
10.0.0.1         10.0.0.100                   0              0  Output
0                       0        1                  1388
150.1.7.105      224.0.0.5                    0              0  Output
0                       0       89                    24
150.1.7.1        224.0.0.5                    0              0  Output
0                       0       89                    24
10.0.0.100       10.0.0.1                     0           2048  Input
0                       9        1                  1388
```

Netflow本地缓存可以用于确认接收的流量。如果该流量接受或丢弃，那由以前被提交的cts计数器确认。

ISE也准许生成SXP绑定和连接报告，如此镜像所显示。



SXP Connection

From 08/15/2015 12:00:00 AM to 08/15/2015 11:59:59 PM

Generated Time	Peer IP	Port	SXP Node Ip	VPN	SXP Mode	SXP Version	Password Type	Status	Reason
2015-08-15 07:13:41.1	10.48.67.250	64999	10.48.17.235	default	BOTH	VERSION_4	CUSTOM	PendingOn	
2015-08-15 07:11:41.1	10.48.67.250	64999	10.48.17.235	default	BOTH	VERSION_4	CUSTOM	PendingOn	
2015-08-15 07:09:41.0	10.48.67.250	64999	10.48.17.235	default	BOTH	VERSION_4	CUSTOM	PendingOn	
2015-08-15 07:07:40.7	10.48.67.250	64999	10.48.17.235	default	BOTH	VERSION_4	CUSTOM	PendingOn	
2015-08-15 07:05:40.4	10.48.67.250	64999	10.48.17.235	default	BOTH	VERSION_4	CUSTOM	PendingOn	
2015-08-15 07:03:40.4	10.48.67.250	64999	10.48.17.235	default	BOTH	VERSION_4	CUSTOM	PendingOn	
2015-08-15 07:01:40.2	10.48.67.250	64999	10.48.17.235	default	BOTH	VERSION_4	CUSTOM	PendingOn	
2015-08-15 06:59:39.9	10.48.67.250	64999	10.48.17.235	default	BOTH	VERSION_4	CUSTOM	PendingOn	
2015-08-15 06:57:39.5	10.48.67.250	64999	10.48.17.235	default	BOTH	VERSION_4	CUSTOM	PendingOn	
2015-08-15 06:55:39.3	10.48.67.250	64999	10.48.17.235	default	BOTH	VERSION_4	CUSTOM	PendingOn	
2015-08-15 06:53:38.9	10.48.67.250	64999	10.48.17.235	default	BOTH	VERSION_4	CUSTOM	PendingOn	

参考

- ASA与ISE配置示例的版本9.2.1 VPN状态
- ASA和Catalyst 3750X系列交换机TrustSec配置示例和排除故障指南
- 思科TrustSec交换机配置指南：了解思科TrustSec
- 思科TrustSec部署和规划图

- 思科Catalyst 3850 TrustSec配置指南
- 思科TrustSec兼容性矩阵
- 技术支持和文档 - Cisco Systems