SMTP和ESMTP与Cisco IOS防火墙配置示例的连接检查配置示例

目录

简介

本文档提供使用 Cisco IOS 中的 Cisco IOS® 防火墙检查入站简单邮件传输协议 (SMTP) 或简单扩展邮件传输协议 (ESMTP) 连接的示例配置。这种检查类似于在 Cisco PIX 500 系列安全设备中的邮箱保护功能。

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软件和硬件版本：

- Cisco IOS 软件版本 12.3(4)T 或更高版本
- Cisco 3640 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

有关文档约定的更多信息，请参考 Cisco 技术提示约定。

背景信息

SMTP 检查导致 SMTP 命令受到非法命令检查。将具有非法命令的数据包修改为“xxxx”模式并转发到服务器。此过程导致服务器发送否定回复，这会强制客户端发出有效命令。非法 SMTP 命令是除以下命令以外的其他命令：

• 数据 • HELO • 帮助 • 邮件 • NOOP • 退出	• RCPT • RSET • SAML • 发送 • SOML • VRFY

ESMTP 检查与 SMTP 检查的运行方式相同。将具有非法命令的数据包修改为“xxxx”模式并转发到服务器，这会触发否定回复。非法 ESMTP 命令是除以下命令以外的其他命令：

• AUTH • 数据 • EHLO • ETRN • HELO • 帮助 • 帮助 • 邮件	• NOOP • 退出 • RCPT • RSET • SAML • 发送 • SOML • VRFY

ESMTP 检查也通过更深的命令检查检查这些扩展：

- 消息大小声明 (SIZE)
- 处理声明的远程队列 (ETRN)
- 二进制 MIME (BINARYMIME)
- 命令管道传输
- 身份验证
- 传送状态通知 (DSN)
- 增强状态代码 (ENHANCEDSTATUSCODE)
- 8 位 MIMEtransport (8BITMIME)

注意： SMTP 和 ESMTP 检查无法同时配置。尝试配置两者会导致出现错误消息。

注意：在Cisco IOS软件版本12.3(4)T及更高版本中，Cisco IOS防火墙不再创建动态访问列表条目以允许流量。Cisco IOS 防火墙现在维护会话状态表以控制检查连接的安全。

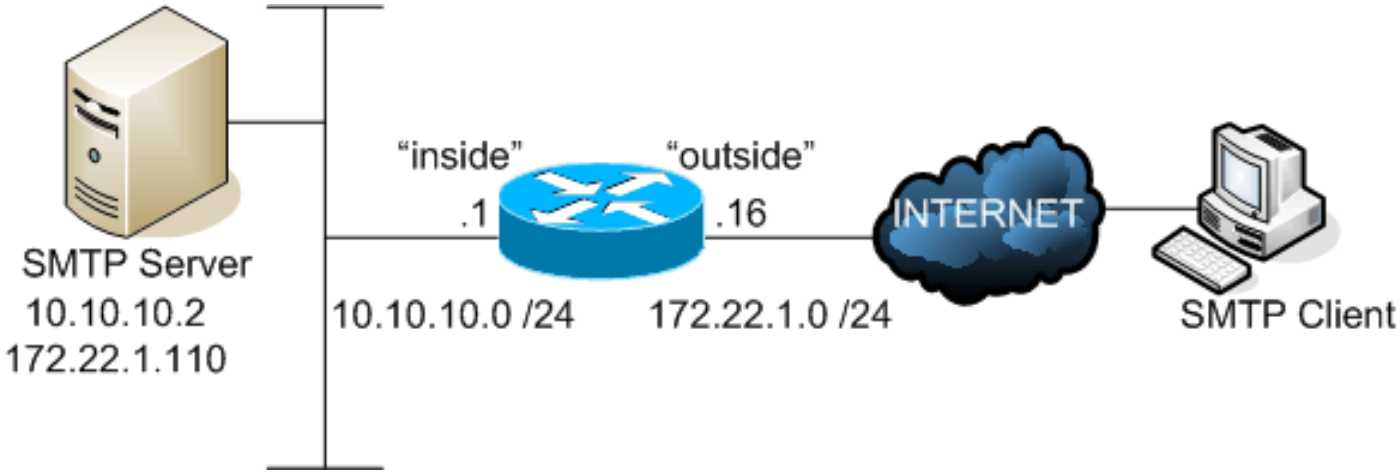
配置

本部分提供有关如何配置本文档所述功能的信息。

注意：使用命令查找工具(仅限注册客户)可获取有关本节中使用的命令的详细信息。

网络图

本文档使用以下网络设置：



配置

本文档使用以下配置：

3640路由器

```
3640-123#show running-config
Building configuration...

Current configuration : 1432 bytes
!
version 12.3
service config
service timestamps debug datetime msec
service timestamps log datetime msec
service password-encryption
!
hostname 3640-123
!
boot-start-marker
boot-end-marker
!
enable password 7 02050D4808095E731F
!
no aaa new-model
!
resource policy
!
voice-card 3
!
ip subnet-zero
!
!
ip cef
no ip dhcp use vrf connected
!
!
!--- This is the Cisco IOS Firewall configuration. !---
IN-OUT is the inspection rule for traffic that flows !--
- from the inside interface of the router to the outside
interface. ip inspect name IN-OUT tcp ip inspect name
```

```
IN-OUT udp ip inspect name IN-OUT ftp ip inspect name
IN-OUT http ip inspect name IN-OUT icmp !--- OUT-IN is
the inspection rule for traffic that flows !--- from the
outside interface of the router to the inside interface.
!--- This rule is where SMTP/ESMTP inspection is
specified. ip inspect name OUT-IN smtp ! no ip ips deny-
action ips-interface ! no ftp-server write-enable ! ! !
! controller T1 3/0 framing sf linecode ami ! ! ! ! ! !-
-- The outside interface. interface Ethernet2/0 ip
address 172.22.1.16 255.255.255.0 !--- Apply the access
list to permit SMTP/ESMTP connections !--- to the mail
server. This also allows Cisco IOS Firewall !--- to
inspect SMTP or ESMTP commands. ip access-group 101 in
ip nat outside !--- Apply the inspection rule OUT-IN
inbound on this interface. This is !--- the rule that
defines SMTP/ESMTP inspection. ip inspect OUT-IN in ip
virtual-reassembly half-duplex ! interface Serial2/0 no
ip address shutdown ! !--- The inside interface.
interface Ethernet2/1 ip address 10.10.10.1
255.255.255.0 ip nat inside !--- Apply the inspection
rule IN-OUT inbound on this interface. ip inspect IN-OUT
in ip virtual-reassembly half-duplex ! ip http server no
ip http secure-server ip classless ip route 0.0.0.0
0.0.0.0 172.22.1.1 ! ! !--- The static translation for
the mail server. ip nat inside source static 10.10.10.2
172.22.1.110 ip nat inside source static 10.10.10.5
172.22.1.111 ! !--- The access list to permit SMTP and
ESMTP to the mail server. !--- Cisco IOS Firewall
inspects permitted traffic. access-list 101 permit tcp
any host 172.22.1.110 eq smtp ! ! ! control-plane ! ! !
voice-port 1/0/0 ! voice-port 1/0/1 ! voice-port 1/1/0 !
voice-port 1/1/1 ! ! ! ! ! ! ! ! line con 0 line aux 0
line vty 0 4 password 7 121A0C0411045D5679 login ! ! end
```

验证

使用本部分可确认配置能否正常运行。

命令输出解释程序（仅限注册用户）(OIT) 支持某些 show 命令。使用 OIT 可查看对 show 命令输出的分析。

- **show ip inspect all — 验证 Cisco IOS 防火墙检查规则配置及其在接口的应用。**

```
3640-123#show ip inspect all
Session audit trail is disabled
Session alert is enabled
one-minute (sampling period) thresholds are [400:500] connections
max-incomplete sessions thresholds are [400:500]
max-incomplete tcp connections per host is 50. Block-time 0 minute.
tcp synwait-time is 30 sec -- tcp finwait-time is 5 sec
tcp idle-time is 3600 sec -- udp idle-time is 30 sec
dns-timeout is 5 sec
Inspection Rule Configuration
 Inspection name IN-OUT
    tcp alert is on audit-trail is off timeout 3600
    udp alert is on audit-trail is off timeout 30
    ftp alert is on audit-trail is off timeout 3600
    http alert is on audit-trail is off timeout 3600
    icmp alert is on audit-trail is off timeout 10
 Inspection name OUT-IN
    smtp max-data 20000000 alert is on audit-trail is off timeout 3600
```

```
Interface Configuration
 Interface Ethernet2/1
  Inbound inspection rule is IN-OUT
    tcp alert is on audit-trail is off timeout 3600
    udp alert is on audit-trail is off timeout 30
    ftp alert is on audit-trail is off timeout 3600
    http alert is on audit-trail is off timeout 3600
    icmp alert is on audit-trail is off timeout 10
  Outgoing inspection rule is not set
  Inbound access list is not set
  Outgoing access list is not set
 Interface Ethernet2/0
  Inbound inspection rule is OUT-IN
    smtp max-data 20000000 alert is on audit-trail is off timeout 3600
  Outgoing inspection rule is not set
  Inbound access list is 101
  Outgoing access list is not set
```

- **debug ip inspect smtp — 显示有关 Cisco IOS 防火墙 SMTP 检查事件的消息。注意：**在使用 debug命令之前，请参阅有关Debug命令的重要信息。

```
ausnml-3600-02#debug ip inspect smtp
INSPECT SMTP Inspection debugging is on
ausnml-3600-02#
*Oct 18 21:51:35.886: CBAC SMTP: reply_type OTHERS
*Oct 18 21:51:35.886: CBAC SMTP: OTHER REPLY - Reply len: 64, match_len:64,
reply_re_state:18
*Oct 18 21:51:35.886: CBAC SMTP: OTHER REPLY match id:13
*Oct 18 21:51:35.886: CBAC SMTP: OTHER REPLY match id:10
*Oct 18 21:51:35.886: CBAC SMTP: End Of Reply Line - index:0 ,len:64

!--- The client issues a command. *Oct 18 21:51:40.810: CBAC SMTP: VERB - Cmd len:1,
match_len:1, cmd_re_state:9 *Oct 18 21:51:40.994: CBAC SMTP: VERB - Cmd len:2, match_len:1,
cmd_re_state:24 *Oct 18 21:51:41.190: CBAC SMTP: VERB - Cmd len:3, match_len:1,
cmd_re_state:40 *Oct 18 21:51:41.390: CBAC SMTP: VERB - Cmd len:4, match_len:1,
cmd_re_state:56 *Oct 18 21:51:41.390: CBAC SMTP: VERB - match id:5 *Oct 18 21:51:42.046:
CBAC SMTP: CMD PARAM - Cmd len:5, match_len:1, cmd_re_state:7 *Oct 18 21:51:43.462: CBAC
SMTP: CMD PARAM - Cmd len:6, match_len:1, cmd_re_state:2 *Oct 18 21:51:43.594: CBAC SMTP:
CMD PARAM - Cmd len:7, match_len:1, cmd_re_state:2 *Oct 18 21:51:43.794: CBAC SMTP: CMD
PARAM - Cmd len:9, match_len:2, cmd_re_state:2 *Oct 18 21:51:43.994: CBAC SMTP: CMD PARAM -
Cmd len:10, match_len:1, cmd_re_state:2 *Oct 18 21:51:44.194: CBAC SMTP: CMD PARAM - Cmd
len:12, match_len:2, cmd_re_state:3 *Oct 18 21:51:44.194: CBAC SMTP: CMD PARAM - match id:6
*Oct 18 21:51:44.194: CBAC SMTP: End Of Command Line - index:1, len:12 !--- The server
replies. *Oct 18 21:51:44.198: CBAC SMTP: reply_type OTHERS *Oct 18 21:51:44.198: CBAC SMTP:
OTHER REPLY - Reply len: 11, match_len:11, reply_re_state:18 *Oct 18 21:51:44.198: CBAC
SMTP: OTHER REPLY match id:13 *Oct 18 21:51:44.198: CBAC SMTP: OTHER REPLY match id:10 *Oct
18 21:51:44.198: CBAC SMTP: End Of Reply Line - index:1 ,len:11 !--- The client issues a
command. *Oct 18 21:51:49.482: CBAC SMTP: VERB - Cmd len:1, match_len:1, cmd_re_state:3 *Oct
18 21:51:50.222: CBAC SMTP: VERB - Cmd len:2, match_len:1, cmd_re_state:15 *Oct 18
21:51:50.618: CBAC SMTP: VERB - Cmd len:3, match_len:1, cmd_re_state:31 *Oct 18
21:51:50.954: CBAC SMTP: VERB - Cmd len:4, match_len:1, cmd_re_state:46 *Oct 18
21:51:50.954: CBAC SMTP: VERB - match id:15 *Oct 18 21:51:51.642: CBAC SMTP: CMD PARAM - Cmd
len:5, match_len:1, cmd_re_state:7 *Oct 18 21:51:51.914: CBAC SMTP: CMD PARAM - Cmd len:6,
match_len:1, cmd_re_state:2 *Oct 18 21:51:52.106: CBAC SMTP: CMD PARAM - Cmd len:7,
match_len:1, cmd_re_state:2 *Oct 18 21:51:54.754: CBAC SMTP: CMD PARAM - Cmd len:8,
match_len:1, cmd_re_state:4 *Oct 18 21:51:55.098: CBAC SMTP: CMD PARAM - Cmd len:9,
match_len:1, cmd_re_state:2 *Oct 18 21:51:55.322: CBAC SMTP: CMD PARAM - Cmd len:11,
match_len:2, cmd_re_state:3 *Oct 18 21:51:55.322: CBAC SMTP: CMD PARAM - match id:6 *Oct 18
21:51:55.322: CBAC SMTP: End Of Command Line - index:2, len:11 !--- The server replies. *Oct
18 21:51:55.326: CBAC SMTP: reply_type OTHERS *Oct 18 21:51:55.326: CBAC SMTP: OTHER REPLY -
Reply len: 19, match_len:19, reply_re_state:3 *Oct 18 21:51:55.326: CBAC SMTP: OTHER REPLY
match id:13 *Oct 18 21:51:55.326: CBAC SMTP: End Of Reply Line - index:2 ,len:19 *Oct 18
21:51:57.070: CBAC SMTP: VERB - Cmd len:1, match_len:1, cmd_re_state:3 *Oct 18 21:51:57.402:
CBAC SMTP: VERB - Cmd len:2, match_len:1, cmd_re_state:15 *Oct 18 21:51:58.162: CBAC SMTP:
```

```
VERB - Cmd len:3, match_len:1, cmd_re_state:31 *Oct 18 21:51:58.462: CBAC SMTP: VERB - Cmd
len:4, match_len:1, cmd_re_state:46 *Oct 18 21:51:58.466: CBAC SMTP: VERB - match id:15 *Oct
18 21:51:58.746: CBAC SMTP: CMD PARAM - Cmd len:5, match_len:1, cmd_re_state:7 *Oct 18
21:51:59.006: CBAC SMTP: CMD PARAM - Cmd len:6, match_len:1, cmd_re_state:2 *Oct 18
21:51:59.234: CBAC SMTP: CMD PARAM - Cmd len:7, match_len:1, cmd_re_state:2 *Oct 18
21:51:59.418: CBAC SMTP: CMD PARAM - Cmd len:9, match_len:2, cmd_re_state:2 *Oct 18
21:51:59.618: CBAC SMTP: CMD PARAM - Cmd len:10, match_len:1, cmd_re_state:2 *Oct 18
21:51:59.818: CBAC SMTP: CMD PARAM - Cmd len:12, match_len:2, cmd_re_state:3 *Oct 18
21:51:59.818: CBAC SMTP: CMD PARAM - match id:6 *Oct 18 21:51:59.818: CBAC SMTP: End Of
Command Line - index:3, len:12 *Oct 18 21:51:59.818: CBAC SMTP: reply_type OTHERS *Oct 18
21:51:59.818: CBAC SMTP: OTHER REPLY - Reply len: 19, match_len:19, reply_re_state:3 *Oct 18
21:51:59.822: CBAC SMTP: OTHER REPLY match id:13 *Oct 18 21:51:59.822: CBAC SMTP: End Of
Reply Line - index:3 ,len:19 *Oct 18 21:52:04.974: CBAC SMTP: VERB - Cmd len:1, match_len:1,
cmd_re_state:9 *Oct 18 21:52:05.170: CBAC SMTP: VERB - Cmd len:2, match_len:1,
cmd_re_state:24 *Oct 18 21:52:05.326: CBAC SMTP: VERB - Cmd len:3, match_len:1,
cmd_re_state:40 *Oct 18 21:52:05.526: CBAC SMTP: VERB - Cmd len:4, match_len:1,
cmd_re_state:55 *Oct 18 21:52:05.526: CBAC SMTP: VERB - match id:6 *Oct 18 21:52:05.742:
CBAC SMTP: CMD PARAM - Cmd len:6, match_len:2, cmd_re_state:3 *Oct 18 21:52:05.742: CBAC
SMTP: CMD PARAM - match id:6 *Oct 18 21:52:05.742: CBAC SMTP: End Of Command Line - index:4,
len:6 *Oct 18 21:52:05.746: CBAC SMTP: reply_type OTHERS *Oct 18 21:52:05.746: CBAC SMTP:
OTHER REPLY - Reply len: 54, match_len:54, reply_re_state:3 *Oct 18 21:52:05.746: CBAC SMTP:
OTHER REPLY match id:13 *Oct 18 21:52:05.746: CBAC SMTP: End Of Reply Line - index:4 ,len:54
*Oct 18 21:52:05.746: CBAC SMTP: reply_type OTHERS *Oct 18 21:52:05.746: CBAC SMTP: OTHER
REPLY - Reply len: 15, match_len:15, reply_re_state:3 *Oct 18 21:52:05.746: CBAC SMTP: OTHER
REPLY match id:13 *Oct 18 21:52:05.746: CBAC SMTP: End Of Reply Line - index:5 ,len:15 *Oct
18 21:52:05.746: CBAC SMTP: reply_type OTHERS *Oct 18 21:52:05.746: CBAC SMTP: OTHER REPLY -
Reply len: 15, match_len:15, reply_re_state:3 *Oct 18 21:52:05.746: CBAC SMTP: OTHER REPLY
match id:13 *Oct 18 21:52:05.746: CBAC SMTP: End Of Reply Line - index:6 ,len:15 *Oct 18
21:52:05.746: CBAC SMTP: reply_type OTHERS *Oct 18 21:52:05.750: CBAC SMTP: OTHER REPLY -
Reply len: 6, match_len:6, reply_re_state:3 *Oct 18 21:52:05.750: CBAC SMTP: OTHER REPLY
match id:13 *Oct 18 21:52:05.750: CBAC SMTP: End Of Reply Line - index:7 ,len:6 *Oct 18
21:52:05.750: CBAC SMTP: reply_type OTHERS *Oct 18 21:52:05.750: CBAC SMTP: OTHER REPLY -
Reply len: 19, match_len:19, reply_re_state:3 *Oct 18 21:52:05.750: CBAC SMTP: OTHER REPLY
match id:13 *Oct 18 21:52:05.750: CBAC SMTP: End Of Reply Line - index:8 ,len:19 *Oct 18
21:52:05.750: CBAC SMTP: reply_type OTHERS *Oct 18 21:52:05.750: CBAC SMTP: OTHER REPLY -
Reply len: 17, match_len:17, reply_re_state:3 *Oct 18 21:52:05.750: CBAC SMTP: OTHER REPLY
match id:13 *Oct 18 21:52:05.750: CBAC SMTP: End Of Reply Line - index:9 ,len:17 *Oct 18
21:52:05.750: CBAC SMTP: reply_type OTHERS *Oct 18 21:52:05.750: CBAC SMTP: OTHER REPLY -
Reply len: 6, match_len:6, reply_re_state:3 *Oct 18 21:52:05.750: CBAC SMTP: OTHER REPLY
match id:13 *Oct 18 21:52:05.754: CBAC SMTP: End Of Reply Line - index:10 ,len:6 *Oct 18
21:52:05.754: CBAC SMTP: reply_type OTHERS *Oct 18 21:52:05.754: CBAC SMTP: OTHER REPLY -
Reply len: 6, match_len:6, reply_re_state:3 *Oct 18 21:52:05.754: CBAC SMTP: OTHER REPLY
match id:13 *Oct 18 21:52:05.754: CBAC SMTP: End Of Reply Line - index:11 ,len:6 *Oct 18
21:52:05.754: CBAC SMTP: reply_type OTHERS *Oct 18 21:52:05.754: CBAC SMTP: OTHER REPLY -
Reply len: 6, match_len:6, reply_re_state:3 *Oct 18 21:52:05.754: CBAC SMTP: OTHER REPLY
match id:13 *Oct 18 21:52:05.754: CBAC SMTP: End Of Reply Line - index:12 ,len:6 *Oct 18
21:52:05.754: CBAC SMTP: reply_type OTHERS *Oct 18 21:52:05.754: CBAC SMTP: OTHER REPLY -
Reply len: 3, match_len:3, reply_re_state:3 *Oct 18 21:52:05.754: CBAC SMTP: OTHER REPLY
match id:13 *Oct 18 21:52:05.754: CBAC SMTP: End Of Reply Line - index:13 ,len:3 *Oct 18
21:52:15.646: CBAC SMTP: VERB - Cmd len:1, match_len:1, cmd_re_state:6 *Oct 18 21:52:15.838:
CBAC SMTP: VERB - Cmd len:3, match_len:2, cmd_re_state:37 *Oct 18 21:52:16.206: CBAC SMTP:
VERB - Cmd len:4, match_len:1, cmd_re_state:52 *Oct 18 21:52:16.206: CBAC SMTP: VERB - match
id:9 *Oct 18 21:52:18.954: CBAC SMTP: CMD PARAM - Cmd len:6, match_len:2, cmd_re_state:3
*Oct 18 21:52:18.958: CBAC SMTP: CMD PARAM - match id:6 *Oct 18 21:52:18.958: CBAC SMTP: End
Of Command Line - index:5, len:6 *Oct 18 21:52:18.958: CBAC SMTP: reply_type OTHERS *Oct 18
21:52:18.958: CBAC SMTP: OTHER REPLY - Reply len: 21, match_len:21, reply_re_state:18 *Oct
18 21:52:18.958: CBAC SMTP: OTHER REPLY match id:13 *Oct 18 21:52:18.958: CBAC SMTP: OTHER
REPLY match id:10 *Oct 18 21:52:18.958: CBAC SMTP: End Of Reply Line - index:14 ,len:21
```

故障排除

目前没有针对此配置的故障排除信息。

相关信息

- Cisco IOS 防火墙特性集的常见问题
- IOS防火墙支持页面
- 技术支持和文档 - Cisco Systems