Router de tres interfaces sin configuración NAT Cisco IOS Firewall

Contenido

Introducción

Este documento contiene un ejemplo de una configuración típica para una pequeña empresa que está conectada a Internet y ejecuta sus propios servidores. La conexión a Internet se produce en una línea serial. Ethernet 0 se conecta a la red interna (una sola LAN). Ethernet 1 está conectada a una red DMZ, la cual solo usa un nodo para prestar servicios al exterior. El ISP ha asignado a la compañía el netblock 192.168.27.0/24. Se divide equitativamente entre la DMZ y la LAN interna con la máscara de subred 255.255.255.128. La política básica es la siguiente:

- Permitir que los usuarios de la red interna se conecten a cualquier servicio de Internet pública.
- Permita que cualquiera en Internet se conecte a los servicios de WWW, FTP y Protocolo simple de transferencia de correo (SMTP) en el servidor DMZ, y permita hacerle consultas acerca del Sistema de nombre de servicio (DNS). Esto permite a las personas externas ver las páginas web de la empresa, recoger los archivos que la empresa ha publicado para consumo externo y enviar correo a la empresa.
- Permitir a los usuarios internos conectarse al servicio POP en el servidor DMZ (para acceder a su correo) y comunicarse al mismo a través de Telnet (para administrarlo).
- Sin permitir que algún elemento del DMZ inicie actividad alguna, ya sea con la red privada o con Internet.
- Audite todas las conexiones que cruzan el firewall a un servidor SYSLOG en la red privada. Las máquinas de la red interna utilizan el servidor DNS en la DMZ. Las listas de acceso de entrada se utilizan en todas las interfaces para evitar la suplantación. Las listas de acceso de salida se utilizan para controlar qué tráfico se puede enviar a cualquier interfaz dada.

Consulte [Router de Dos Interfaces sin NAT Usando la Configuración de Firewall de Cisco IOS](#)

para configurar un router de dos interfaces sin NAT usando el Firewall de Cisco IOS®.

Consulte Router de Dos Interfaces con Configuración de Firewall de Cisco IOS NAT para configurar un router de dos interfaces con NAT usando un Firewall de Cisco IOS.

Prerequisites

Requirements

No hay requisitos específicos para este documento.

Componentes Utilizados

La información que contiene este documento se basa en las versiones de software y hardware.

- Versión 12.2(15)T13 del software del IOS de Cisco con conjunto de funciones de firewall
- Router Cisco 7204 VXR

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Convenciones

Consulte Convenciones de Consejos Técnicos de Cisco para obtener más información sobre las convenciones sobre documentos.

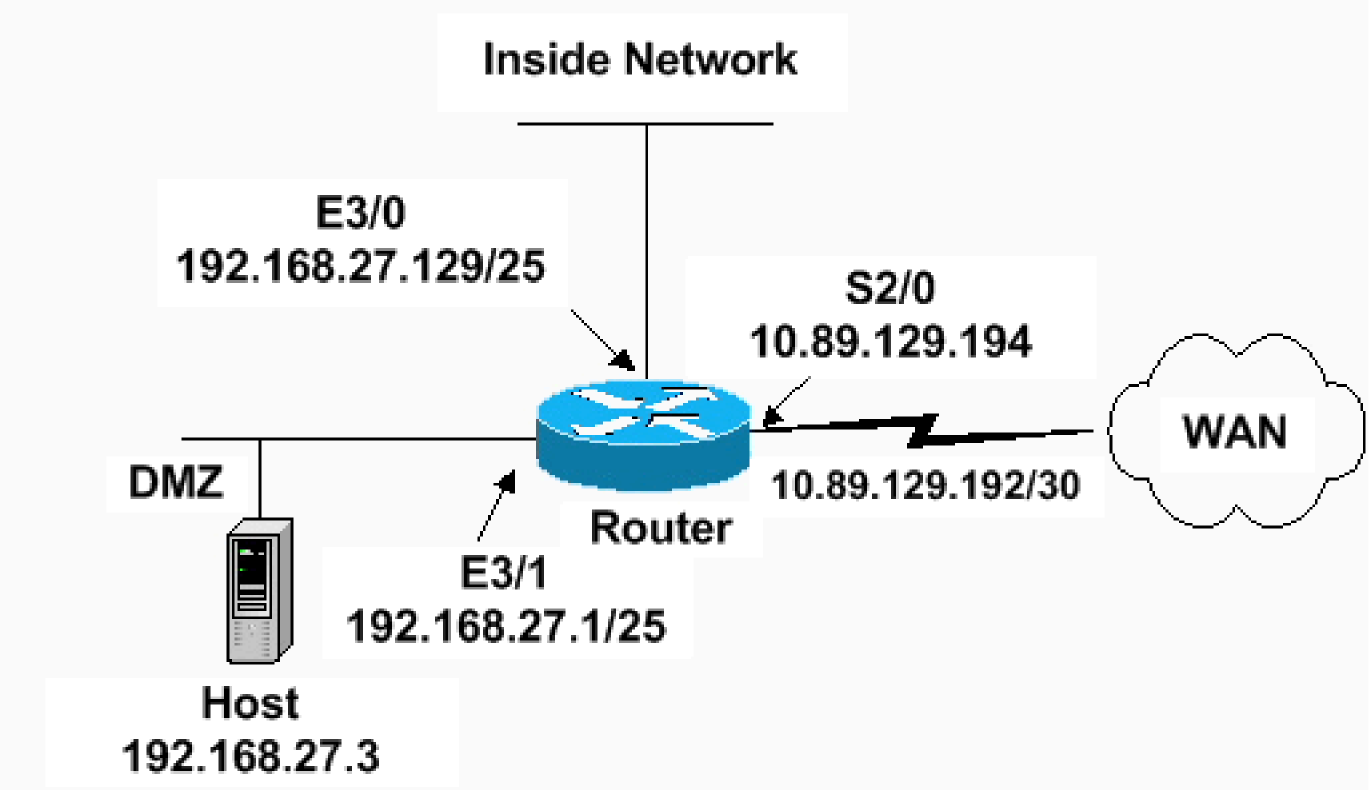
Configurar

En esta sección encontrará la información para configurar las funciones descritas en este documento.

Nota: Utilice la herramienta Command Lookup (sólo para clientes registrados) para obtener más información sobre los comandos utilizados en esta sección.

Diagrama de la red

En este documento, se utiliza esta configuración de red:



Configuraciones

Este documento usa esta configuración.

7204 Router VXR

```
version 12.2
service timestamps debug datetime msec
service timestamps log datetime msec
service password-encryption
!
hostname Router
!
logging queue-limit 100
enable secret 5 <something>
!
ip subnet-zero
ip cef
no ip domain lookup
!
ip inspect audit-trail
!
 !--- Sets the length of time a TCP session !--- is
still managed after no activity. ! ip inspect tcp idle-
time 14400
!
!--- Sets the length of time a UDP session !--- is still
managed after no activity. ! ip inspect udp idle-time
1800
!
!--- Sets the length of time a DNS name lookup session
!--- is still managed after no activity. ! ip inspect
dns-timeout 7
!
!--- Sets up inspection list "standard" !--- to be used
for inspection of inbound Ethernet 0 !--- and inbound
```

```
serial (applied to both interfaces). ! ip inspect name
standard cuseeme
ip inspect name standard ftp
ip inspect name standard h323
ip inspect name standard http
ip inspect name standard rcmd
ip inspect name standard realaudio
ip inspect name standard smtp
ip inspect name standard sqlnet
ip inspect name standard streamworks
ip inspect name standard tcp
ip inspect name standard tftp
ip inspect name standard udp
ip inspect name standard vdolive
ip audit notify log
ip audit po max-events 100
!
no voice hpi capture buffer
no voice hpi capture destination
!
mta receive maximum-recipients 0
!


interface ethernet 3/0
ip address 192.168.27.129 255.255.255.128
!
!--- Apply the access list to allow all legitimate !---
traffic from the inside network and prevent spoofing. !
ip access-group 101 in
!
!--- Apply inspection list "standard" for inspection !--
- of inbound Ethernet traffic. This inspection opens !--
- temporary entries on access lists 111 and 121. ! ip
inspect standard in
duplex full

interface ethernet 3/1
ip address 192.168.27.1 255.255.255.128

!
!--- Apply the access list to permit DMZ traffic (except
spoofing) !--- on the DMZ interface inbound. The DMZ is
not permitted to initiate !--- any outbound traffic
except Internet Control Message Protocol (ICMP). ! ip
access-group 111 in
!
!--- Apply inspection list "standard" for inspection of
outbound !--- traffic from e1. This adds temporary
entries on access list 111 !--- to allow return traffic,
and protects servers in DMZ from !--- distributed denial
of service (DDoS) attacks. ip inspect standard out
duplex full
!
interface serial 2/0
ip address 10.89.129.194 255.255.255.252
!--- Apply the access list to allow legitimate traffic.
! ip access-group 121 in
serial restart_delay 0
!
ip classless
no ip http-server

!--- A syslog server is located at this address. logging
```

```
192.168.27.131 !--- This command enables the logging of
session !--- information (addresses and bytes). !---
Access list 20 is used to control which !--- network
management stations can access via SNMP. ! access-list
20 permit 192.168.27.5
!
!--- Use an access list to allow all legitimate traffic
from !--- the inside network and prevent spoofing. The
inside !--- network can only connect to the Telnet and
POP3 !--- service of 192.168.27.3 on DMZ, and can ping
(ICMP) to the DMZ. !--- Additional entries can be added
to permit SMTP, WWW, and !--- so forth, if necessary. In
addition, the inside network can !--- connect to any
service on the Internet. ! access-list 101 permit tcp
192.168.27.128 0.0.0.127 host 192.168.27.3 eq pop3
access-list 101 permit tcp 192.168.27.128 0.0.0.127 host
192.168.27.3 eq telnet
access-list 101 permit icmp 192.168.27.128 0.0.0.127
192.168.27.0 0.0.0.127
access-list 101 deny ip 192.168.27.128 0.0.0.127
192.168.27.0 0.0.0.127
access-list 101 permit ip 192.168.27.128 0.0.0.127 any
access-list 101 deny ip any any
!
!
!--- The access list permits ping (ICMP) from the DMZ
and denies all !--- traffic initiated from the DMZ.
Inspection opens !--- temporary entries to this list. !
access-list 111 permit icmp 192.168.27.0 0.0.0.127 any
access-list 111 deny ip any any
!
!
!
!--- Access list 121 allows anyone on the Internet to
connect to !--- WWW, FTP, DNS, and SMTP services on the
DMZ host. It also !--- allows some ICMP traffic. access-
list 121 permit udp any host 192.168.27.3 eq domain
access-list 121 permit tcp any host 192.168.27.3 eq
domain
access-list 121 permit tcp any host 192.168.27.3 eq www
access-list 121 permit tcp any host 192.168.27.3 eq ftp
access-list 121 permit tcp any host 192.168.27.3 eq smtp
access-list 121 permit icmp any 192.168.27.0 0.0.0.255
administratively-prohibited
access-list 121 permit icmp any 192.168.27.0 0.0.0.255
echo
access-list 121 permit icmp any 192.168.27.0 0.0.0.255
echo-reply
access-list 121 permit icmp any 192.168.27.0 0.0.0.255
packet-too-big
access-list 121 permit icmp any 192.169.27.0 0.0.0.255
time-exceeded
access-list 121 permit icmp any 192.168.27.0 0.0.0.255
traceroute
access-list 121 permit icmp any 192.168.27.0 0.0.0.255
unreachable
access-list 121 deny ip any any

 !
!--- Apply access list 20 for SNMP process. ! snmp-
server community secret RO 20 snmp-server enable traps
tty ! call rsvp-sync ! mgcp profile default ! dial-peer
cor custom ! gatekeeper shutdown ! line con 0 exec-
timeout 5 0 password 7 14191D1815023F2036 login local
```

```
line vty 0 4 exec-timeout 5 0 password 7
14191D1815023F2036 login local length 35 end
```

Verificación

Use esta sección para confirmar que su configuración funciona correctamente.

La herramienta Output Interpreter Tool (clientes registrados solamente) (OIT) soporta ciertos comandos show. Utilice la OIT para ver un análisis del resultado del comando show.

- **show access-list**: verifica la configuración correcta de las listas de acceso configuradas en la configuración en ejecución.

```
Router#show access-list
Standard IP access list 20
       10 permit 192.168.27.5
Extended IP access list 101
       10 permit tcp 192.168.27.128 0.0.0.127 host 192.168.27.3 eq pop3
       20 permit tcp 192.168.27.128 0.0.0.127 host 192.168.27.3 eq telnet
       30 permit icmp 192.168.27.128 0.0.0.127 192.168.27.0 0.0.0.127
       40 deny ip 192.168.27.128 0.0.0.127 192.168.27.0 0.0.0.127
       50 permit ip 192.168.27.128 0.0.0.127 any
       60 deny ip any any
Extended IP access list 111
       10 permit icmp 192.168.27.0 0.0.0.127 any
       20 deny ip any any (9 matches)
Extended IP access list 121
       10 permit udp any host 192.168.27.3 eq domain
       20 permit tcp any host 192.168.27.3 eq domain
       30 permit tcp any host 192.168.27.3 eq www
       40 permit tcp any host 192.168.27.3 eq ftp
       50 permit tcp any host 192.168.27.3 eq smtp
       60 permit icmp any 192.168.27.0 0.0.0.255 administratively-prohibited
       70 permit icmp any 192.168.27.0 0.0.0.255 echo
       80 permit icmp any 192.168.27.0 0.0.0.255 echo-reply
       90 permit icmp any 192.168.27.0 0.0.0.255 packet-too-big
       100 permit icmp any 192.169.27.0 0.0.0.255 time-exceeded
       110 permit icmp any 192.168.27.0 0.0.0.255 traceroute
       120 permit icmp any 192.168.27.0 0.0.0.255 unreachable
       130 deny ip any any (4866 matches)
Router#
```

- **show ip audit all**: verifica la configuración de los comandos de registro.

```
Router#show ip audit all
Event notification through syslog is enabled
Event notification through Net Director is disabled
Default action(s) for info signatures is alarm
Default action(s) for attack signatures is alarm
Default threshold of recipients for spam signature is 250
PostOffice:HostID:0 OrgID:0 Msg dropped:0
          :Curr Event Buf Size:0 Configured:100
Post Office is not enabled - No connections are active

Router#
```

- **show ip inspect all**: verifica la configuración de las reglas de inspección de Cisco IOS Firewall por interfaz.

```
Router#show ip inspect all
    Session audit trail is enabled
    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 14400 sec -- udp idle-time is 1800 sec
    dns-timeout is 7 sec
    Inspection Rule Configuration
     Inspection name standard
       cuseeme alert is on audit-trail is on timeout 14400
       ftp alert is on audit-trail is on timeout 14400
       h323 alert is on audit-trail is on timeout 14400
       http alert is on audit-trail is on timeout 14400
       rcmd alert is on audit-trail is on timeout 14400
       realaudio alert is on audit-trail is on timeout 14400
       smtp alert is on audit-trail is on timeout 14400
       sqlnet alert is on audit-trail is on timeout 14400
       streamworks alert is on audit-trail is on timeout 1800
       tcp alert is on audit-trail is on timeout 14400
       tftp alert is on audit-trail is on timeout 1800
       udp alert is on audit-trail is on timeout 1800
       vdolive alert is on audit-trail is on timeout 14400
Interface Configuration
     Interface Ethernet3/0
       Inbound inspection rule is standard
         cuseeme alert is on audit-trail is on timeout 14400
         ftp alert is on audit-trail is on timeout 14400
         h323 alert is on audit-trail is on timeout 14400
         http alert is on audit-trail is on timeout 14400
         rcmd alert is on audit-trail is on timeout 14400
         realaudio alert is on audit-trail is on timeout 14400
         smtp alert is on audit-trail is on timeout 14400
         sqlnet alert is on audit-trail is on timeout 14400
         streamworks alert is on audit-trail is on timeout 1800
         tcp alert is on audit-trail is on timeout 14400
         tftp alert is on audit-trail is on timeout 1800
         udp alert is on audit-trail is on timeout 1800
         vdolive alert is on audit-trail is on timeout 14400
       Outgoing inspection rule is not set
       Inbound access list is 101
       Outgoing access list is not set
     Interface Ethernet3/1
       Inbound inspection rule is not set
       Outgoing inspection rule is standard
         cuseeme alert is on audit-trail is on timeout 14400
         ftp alert is on audit-trail is on timeout 14400
         h323 alert is on audit-trail is on timeout 14400
         http alert is on audit-trail is on timeout 14400
         rcmd alert is on audit-trail is on timeout 14400
         realaudio alert is on audit-trail is on timeout 14400
         smtp alert is on audit-trail is on timeout 14400
         sqlnet alert is on audit-trail is on timeout 14400
         streamworks alert is on audit-trail is on timeout 1800
         tcp alert is on audit-trail is on timeout 14400
         tftp alert is on audit-trail is on timeout 1800
         udp alert is on audit-trail is on timeout 1800
         vdolive alert is on audit-trail is on timeout 14400
       Inbound access list is 111
       Outgoing access list is not set
Router#
```

Troubleshoot

Después de configurar el router de firewall del IOS, si las conexiones no funcionan, asegúrese de haber habilitado la inspección con el comando **ip inspect (nombre definido) in o out** en la interfaz.

En esta configuración, **ip inspect standard in** se aplica para la interfaz ethernet 3/0 y **ip inspect standard out** se aplica para la interfaz ethernet 3/1.

Refiérase a Troubleshooting de Configuraciones de Firewall de Cisco IOS para obtener más información sobre la resolución de problemas.

Información Relacionada

- **Página de soporte de Cisco IOS Firewall**
- **Soporte Técnico y Documentación - Cisco Systems**