

帶有兩個內部網路的ASA 8.3(x)動態PAT和網際網路配置示例

目錄

[簡介](#)

[必要條件](#)

[需求](#)

[採用元件](#)

[慣例](#)

[組態](#)

[網路圖表](#)

[ASA CLI配置](#)

[ASDM配置](#)

[驗證](#)

[檢驗通用PAT規則](#)

[驗證特定PAT規則](#)

[疑難排解](#)

[相關資訊](#)

簡介

本文檔提供運行軟體版本8.3(1)的思科自適應安全裝置(ASA)上的動態PAT配置示例。 [通過將實際源地址和源埠轉換為對映地址和唯一對映埠](#)，動態PAT將多個實際地址轉換為單個對映IP地址。由於每個連線的源埠不同，因此每個連線都需要單獨的轉換會話。

必要條件

需求

嘗試此組態之前，請確保符合以下要求：

- 確保內部網路在ASA內部有兩個網路：192.168.0.0/24 — 直接連線到ASA的網路。
192.168.1.0/24 — 位於ASA內部、但在其他裝置（例如路由器）之後的網路。
- 確保內部使用者按如下方式獲得PAT:192.168.1.0/24子網上的主機將獲得PAT到ISP(10.1.5.5)提供的備用IP地址。ASA內部的任何其他主機都將將PAT獲取到ASA的外部介面IP地址(10.1.5.1)。

採用元件

本文中的資訊係根據以下軟體和硬體版本：

- 思科調適型安全裝置(ASA)版本8.3(1)
- ASDM版本6.3(1)

註：請參閱[允許ASDM進行HTTPS訪問](#)，以便允許ASDM配置ASA。

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除（預設）的組態來啟動。如果您的網路正在作用，請確保您已瞭解任何指令可能造成的影響。

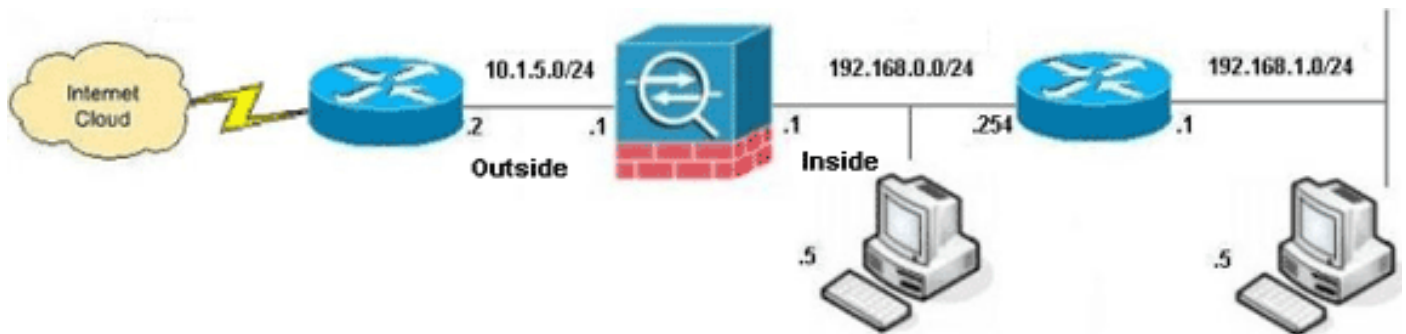
慣例

請參閱[思科技術提示慣例](#)以瞭解有關檔案慣例的資訊。

組態

網路圖表

本檔案會使用以下網路設定：



注意：此配置中使用的IP編址方案在Internet上不能合法路由。它們是[RFC 1918](#)位址，已在實驗室環境中使用。

- [ASA CLI配置](#)
- [ASDM配置](#)

ASA CLI配置

本文檔使用如下所示的配置。

ASA動態PAT配置

```
ASA#configure terminal
Enter configuration commands, one per line.  End with
CNTL/Z.

!--- Creates an object called OBJ_GENERIC_ALL. !--- Any
host IP not already matching another configured !---
object will get PAT to the outside interface IP !--- on
the ASA (or 10.1.5.1), for internet bound traffic.
ASA(config)#object network OBJ_GENERIC_ALL
ASA(config-obj)#subnet 0.0.0.0 0.0.0.0
ASA(config-obj)#exit
ASA(config)#nat (inside,outside) source dynamic
OBJ_GENERIC_ALL interface
```

```

!--- The above statements are the equivalent of the !---
nat/global combination (as shown below) in v7.0(x), !---
v7.1(x), v7.2(x), v8.0(x), v8.1(x) and v8.2(x) ASA code:
nat (inside) 1 0.0.0.0 0.0.0.0
global (outside) 1 interface

!--- Creates an object called OBJ_SPECIFIC_192-168-1-0.
!--- Any host IP facing the the 'inside' interface of
the ASA !--- with an address in the 192.168.1.0/24
subnet will get PAT !--- to the 10.1.5.5 address, for
internet bound traffic. ASA(config)#object network
OBJ_SPECIFIC_192-168-1-0
ASA(config-obj)#subnet 192.168.1.0 255.255.255.0
ASA(config-obj)#exit
ASA(config)#nat (inside,outside) source dynamic
OBJ_SPECIFIC_192-168-1-0 10.1.5.5

!--- The above statements are the equivalent of the
nat/global !--- combination (as shown below) in v7.0(x),
v7.1(x), v7.2(x), v8.0(x), !--- v8.1(x) and v8.2(x) ASA
code: nat (inside) 2 192.168.1.0 255.255.255.0
global (outside) 2 10.1.5.5

```

ASA 8.3(1)運行配置

```

ASA#show run
: Saved
:
ASA Version 8.3(1)
!
hostname ASA
enable password 8Ry2YjIyt7RRXU24 encrypted
passwd 2KFQnbNIdI.2KYOU encrypted
names
!
!--- Configure the outside interface. ! interface
GigabitEthernet0/0 nameif outside security-level 0 ip
address 10.1.5.1 255.255.255.0 !--- Configure the inside
interface. ! interface GigabitEthernet0/1 nameif inside
security-level 100 ip address 192.168.0.1 255.255.255.0
! interface GigabitEthernet0/2 shutdown no nameif no
security-level no ip address ! interface
GigabitEthernet0/3 shutdown no nameif no security-level
no ip address ! interface Management0/0 shutdown no
nameif no security-level no ip address management-only !
boot system disk0:/asa831-k8.bin ftp mode passive object
network OBJ_SPECIFIC_192-168-1-0
subnet 192.168.1.0 255.255.255.0
object network OBJ_GENERIC_ALL
subnet 0.0.0.0 0.0.0.0

pager lines 24
no failover
icmp unreachable rate-limit 1 burst-size 1
asdm image disk0:/asdm-631.bin
no asdm history enable
arp timeout 14400

nat (inside,outside) source dynamic OBJ_GENERIC_ALL
interface
nat (inside,outside) source dynamic OBJ_SPECIFIC_192-

```

168-1-0 10.1.5.5

```
route inside 192.168.1.0 255.255.255.0 192.168.0.254 1
route outside 0.0.0.0 0.0.0.0 10.1.5.2
timeout xlate 3:00:00
timeout conn 1:00:00 half-closed 0:10:00 udp 0:02:00
icmp 0:00:02
timeout sunrpc 0:10:00 h323 0:05:00 h225 1:00:00 mgcp
0:05:00 mgcp-pat 0:05:00
timeout sip 0:30:00 sip_media 0:02:00 sip-invite 0:03:00
sip-disconnect 0:02:00
timeout sip-provisional-media 0:02:00 uauth 0:05:00
absolute
timeout tcp-proxy-reassembly 0:01:00
dynamic-access-policy-record DfltAccessPolicy
http server enable
http 192.168.0.0 255.255.254.0 inside
no snmp-server location
no snmp-server contact
snmp-server enable traps snmp authentication linkup
linkdown coldstart
crypto ipsec security-association lifetime seconds 28800
crypto ipsec security-association lifetime kilobytes
4608000
telnet timeout 5
ssh timeout 5
console timeout 0
threat-detection basic-threat
threat-detection statistics access-list
no threat-detection statistics tcp-intercept
!
class-map inspection_default
 match default-inspection-traffic
!
!
policy-map type inspect dns preset_dns_map
 parameters
  message-length maximum client auto
  message-length maximum 512
policy-map global_policy
 class inspection_default
  inspect dns preset_dns_map
  inspect ftp
  inspect h323 h225
  inspect h323 ras
  inspect rsh
  inspect rtsp
  inspect esmtp
  inspect sqlnet
  inspect skinny
  inspect sunrpc
  inspect xdmcp
  inspect sip
  inspect netbios
  inspect tftp
  inspect ip-options
!
service-policy global_policy global
prompt hostname context
Cryptochecksum:6ffffbd3dc9cb863fd71c71244a0ecc5f
: end
```

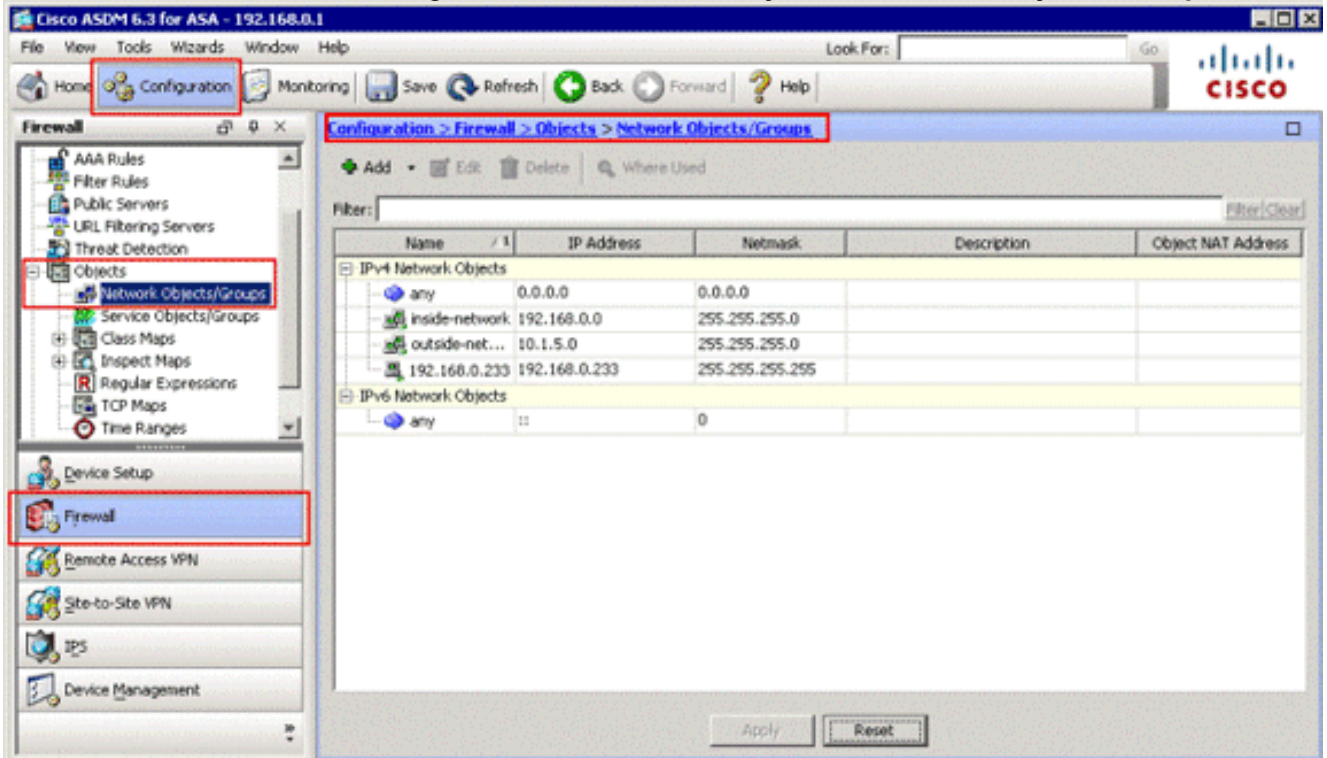
為了通過ASDM介面完成此配置，您必須：

1. 新增三個網路對象；此範例新增以下網路對象：OBJ_GENERIC_ALLOBJ_SPECIFIC_192-168-1-010.1.5.5
2. 建立兩個NAT/PAT規則；以下示例為這些網路對象建立NAT規則：OBJ_GENERIC_ALLOBJ_SPECIFIC_192-168-1-0

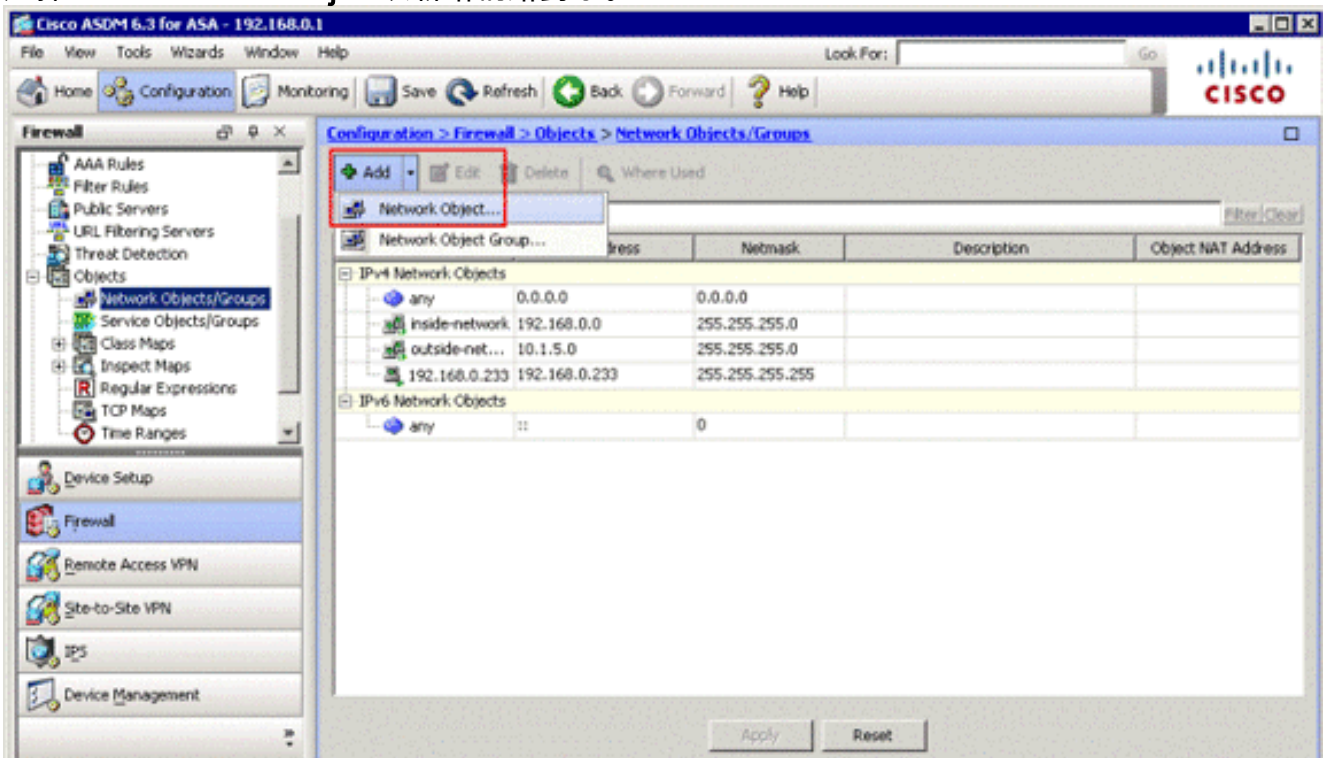
新增網路對象

完成以下步驟以新增網路對象：

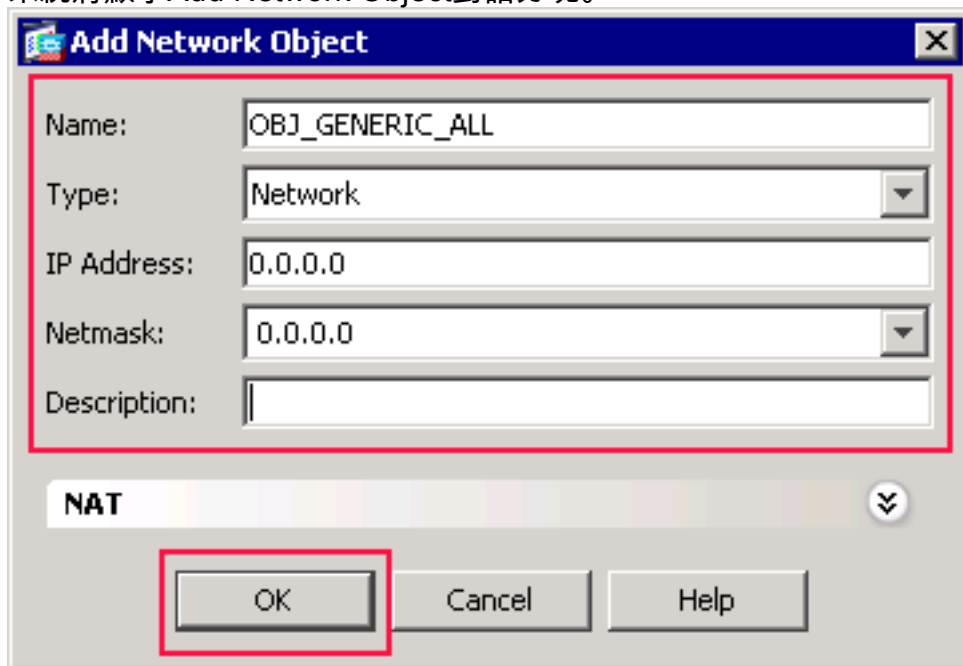
1. 登入到ASDM，然後選擇Configuration > Firewall > Objects > Network Objects/Groups。



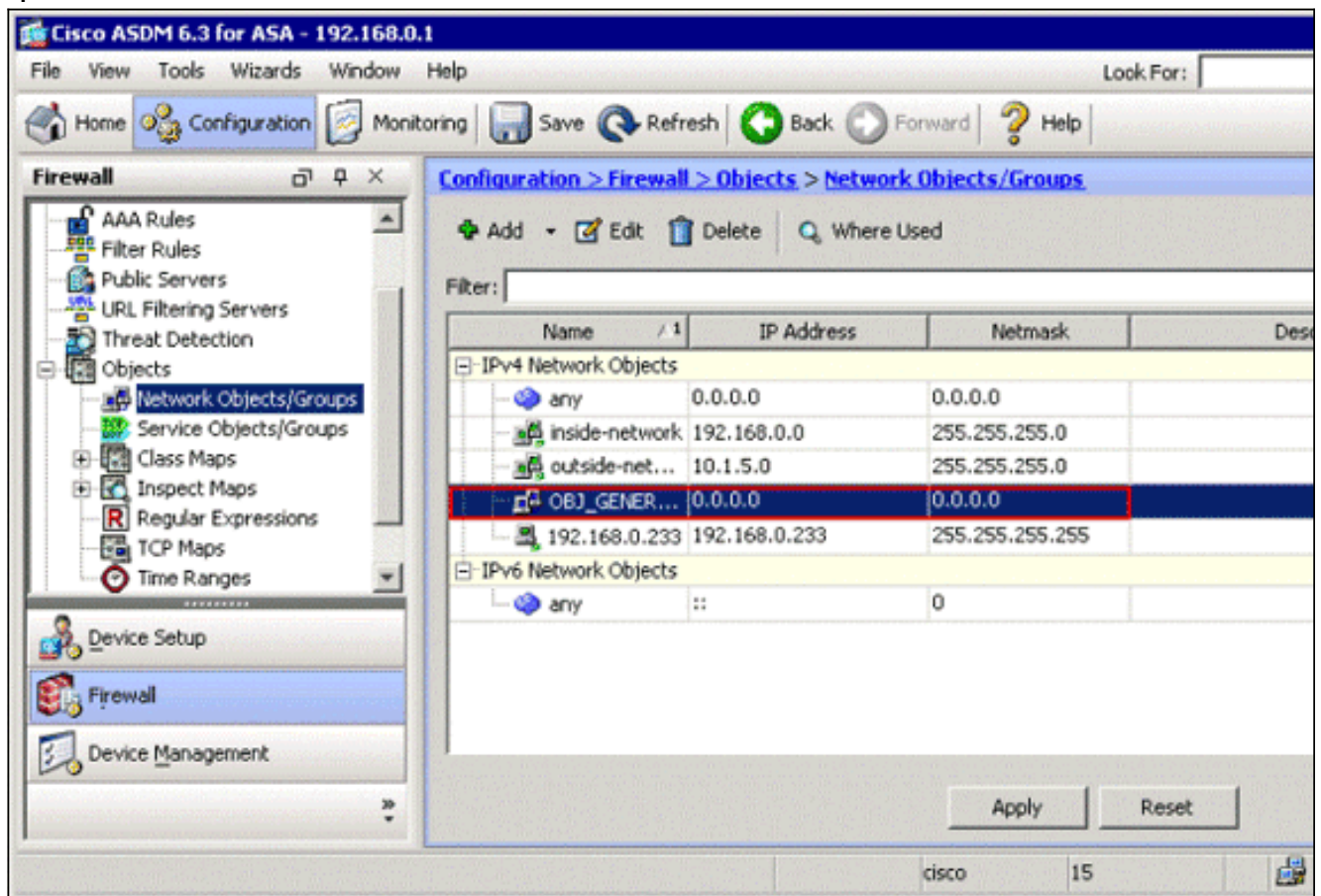
2. 選擇Add > Network Object以新增網路對象。



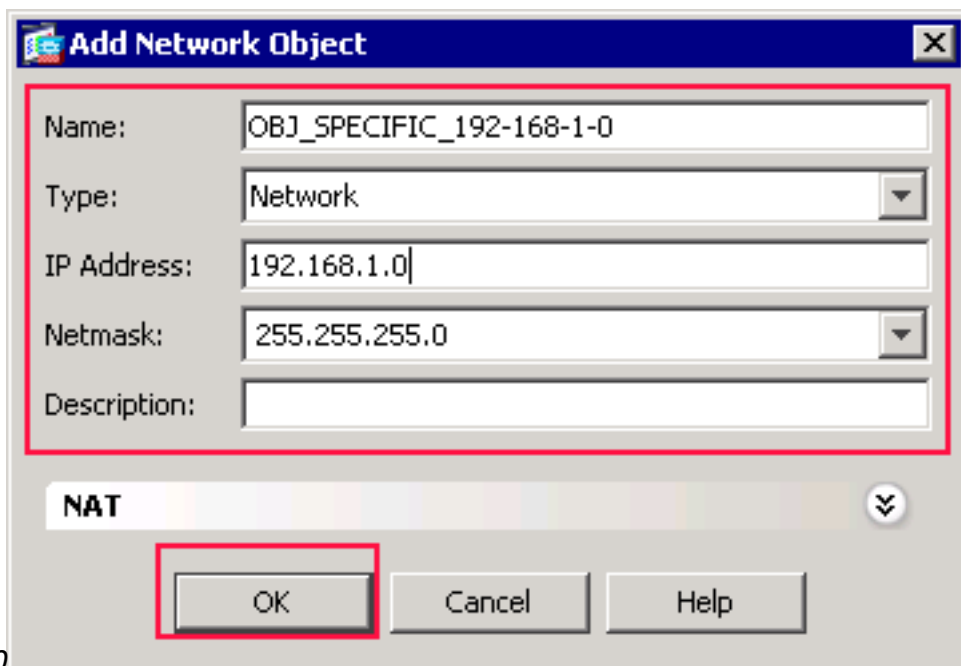
系統將顯示Add Network Object對話方塊。



3. 在新增網路對象對話方塊中輸入以下資訊：網路對象的名稱。(此示例使用 *OBJ_GENERIC_ALL*。)網路對象的型別。(此示例使用 *Network*。)網路對象的IP地址。(此示例使用 *0.0.0.0*。)網路對象的網路掩碼。(此示例使用 *0.0.0.0*。)
4. 按一下「OK」（確定）。網路對象即建立並顯示在「網路對象/組」清單中，如下圖所示：



5. 重複前面的步驟以新增第二個網路對象，然後按一下**確定**。此示例使用以下值：名稱：*OBJ_SPECIFIC_192-168-1-0* 型別：*網路IP* 位址：*192.168.1.0* 網路掩碼

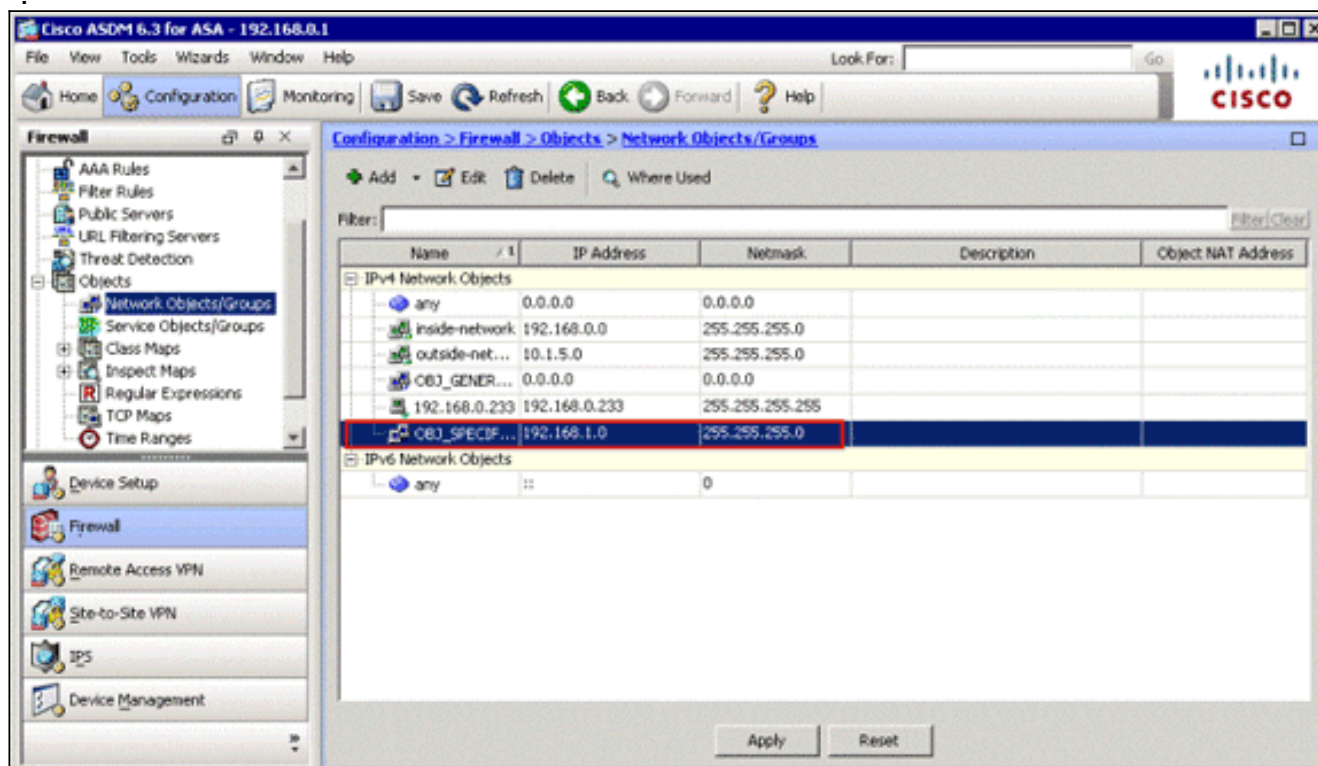


: 255.255.255.0

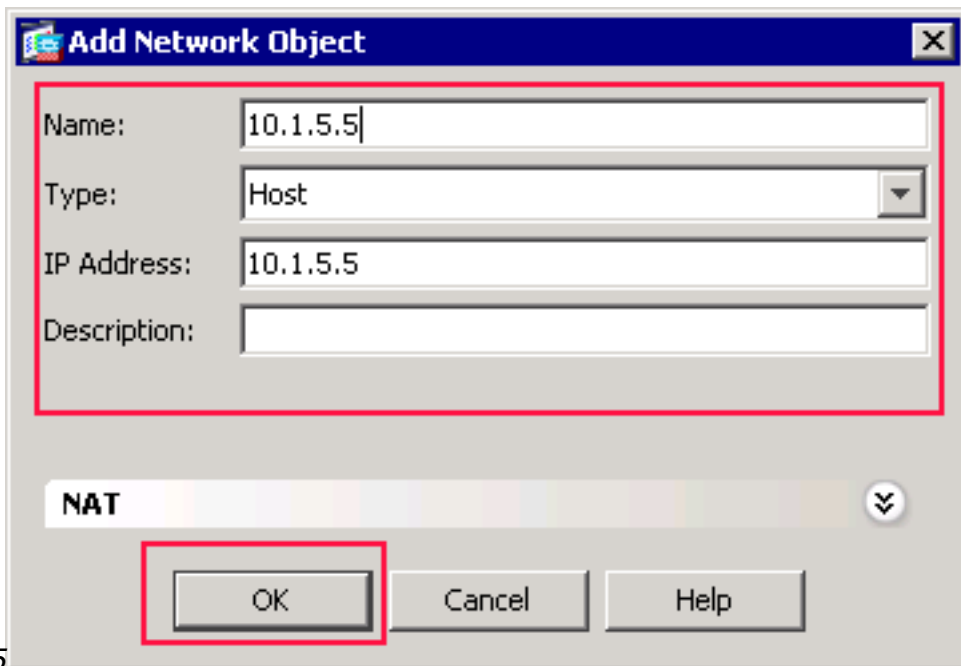
第二個

對象即建立並顯示在「網路對象/組」清單中，如下圖所示

:



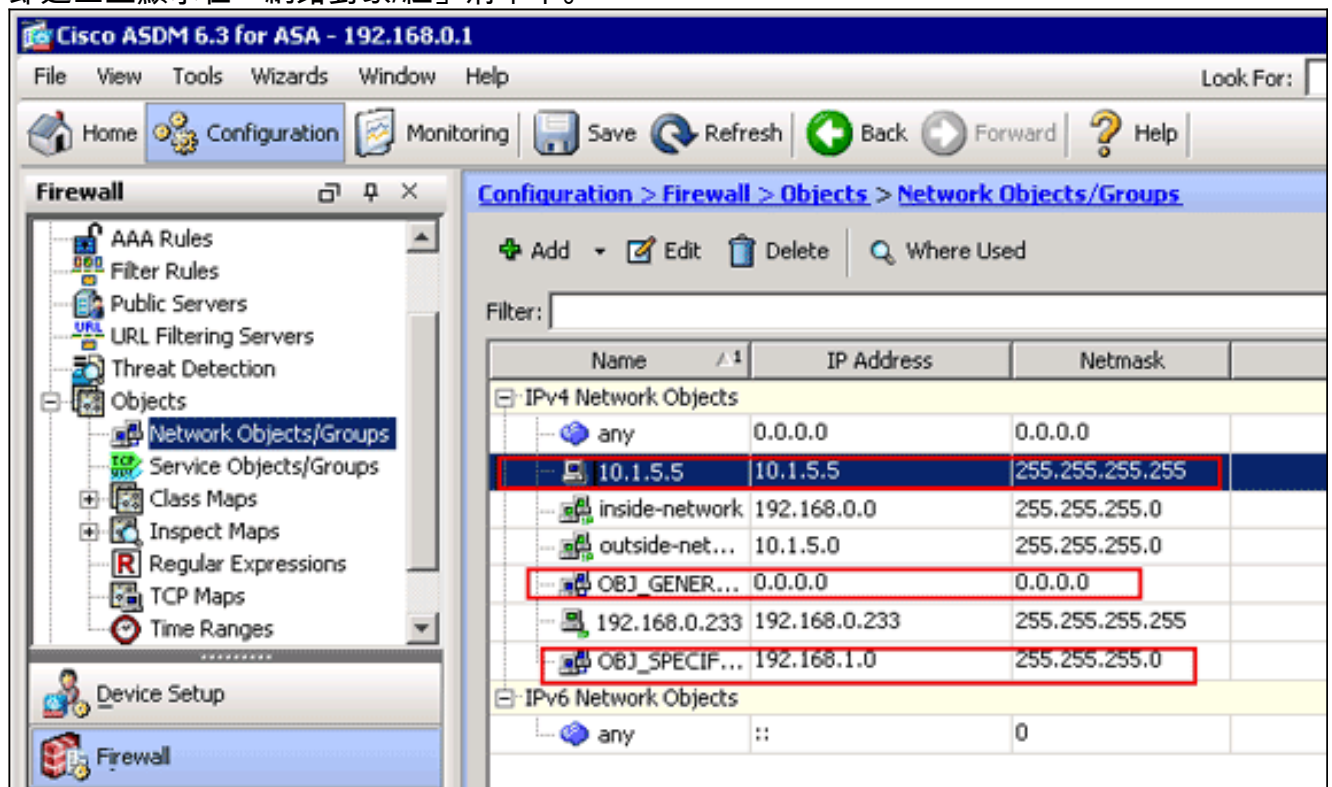
6. 重複前面的步驟以新增第三個網路對象，然後按一下**確定**。此示例使用以下值：名稱：10.1.5.5 Type:主機IP 位址



:10.1.5.5

第三個網路對象

即建立並顯示在「網路對象/組」清單中。



Network Objects/Groups清單現在應包括NAT規則需要參考的三個必要對象。

建立NAT/PAT規則

完成以下步驟以建立NAT/PAT規則：

1. 建立第一個NAT/PAT規則：在ASDM中，選擇Configuration > Firewall > NAT Rules，然後按一下Add。

在匹配條件中：在Add NAT Rule對話方塊的Original Packet區域，從Source Interface下拉選單中選擇inside。

Add NAT Rule

Match Criteria: Original Packet

Source Interface: inside Destination Interface: -- Any --

Source Address: any Destination Address: any

Service: any

Action: Translated Packet

Source NAT Type: Static

Source Address: -- Original -- Destination Address: -- Original --

Fall through to interface PAT Service: -- Original --

Options

Enable rule

Translate DNS replies that match this rule

Direction: Both

Description:

OK Cancel Help

按一下位於「源地址」文本欄位右側的瀏覽(...)按鈕。將出現「瀏覽原始源地址」對話方塊。

Browse Original Source Address

+ Add Edit Delete Where Used

Filter: Filter Clear

Name	IP Address	Netmask	Description	Object NAT Addr...
IPv4 Network Objects				
10.1.5.5	10.1.5.5	255.255.255.255		
OBJ_GENERIC_ALL	0.0.0.0	0.0.0.0		
OBJ_SP...	192.168.1.0	255.255.255.0		
any	0.0.0.0	0.0.0.0		

Selected Original Source Address

Original Source Address -> OBJ_GENERIC_ALL

OK Cancel

在「瀏覽原始源地址」對話方塊中，選擇您建立的第一個網路對象。(在本例中，選擇

OBJ_GENERIC_ALL。)按一下Original Source Address，然後按一下OK。
OBJ_GENERIC_ALL網路對象現在出現在「匹配條件」的「源地址」欄位中：Add NAT Rule對話方塊的Original Packet區域。

Add NAT Rule

Match Criteria: Original Packet

Source Interface: Destination Interface:

Source Address: Destination Address:

Service:

Action: Translated Packet

Source NAT Type:

Source Address: Destination Address:

Fall through to interface PAT Service:

Options

Enable rule

Translate DNS replies that match this rule

Direction:

Description:

OK Cancel Help

在Action:在Add NAT Rule對話方塊的Translated Packet區域中，從Source NAT Type對話方塊中選擇Dynamic PAT(Hide)。

Add NAT Rule

Match Criteria: Original Packet

Source Interface: Destination Interface:

Source Address: Destination Address:

Service:

Action: Translated Packet

Source NAT Type:

Source Address:

Destination Address:

Service:

Fall through to Dynamic

Options

Enable rule

Translate DNS replies that match this rule

Direction:

Description:

OK Cancel Help

按一下位於「源地址」欄位右側的瀏覽(...)按鈕。

Add NAT Rule

Match Criteria: Original Packet

Source Interface: Destination Interface:

Source Address: Destination Address:

Service:

Action: Translated Packet

Source NAT Type:

Source Address: Destination Address:

Fall through to interface PAT Service:

Options

Enable rule

Translate DNS replies that match this rule

Direction:

Description:

OK Cancel Help

將出現Browse Translated Source Address對話方塊。

Browse Translated Source Address

+ Add Edit Delete Where Used

Filter: Filter Clear

Name	IP Address	Netmask	Description	Object NAT Addr...
-- Original --				
IPv4 Network Objects				
10.1.5.5	10.1.5.5	255.255.255.255		
Interfaces				
inside				
outside				

Selected Translated Source Address

OK Cancel

在Browse Translated Source Address對話方塊中，選擇**outside**介面對象。（已建立此介面，因為它是原始配置的一部分。）按一下**Translated Source Address**，然後按一下**OK**。外部介面現在顯示在Action:Translated Packet區域。

Add NAT Rule

Match Criteria: Original Packet

Source Interface: Destination Interface:

Source Address: Destination Address:

Service:

Action: Translated Packet

Source NAT Type:

Source Address: Destination Address:

Fall through to interface PAT Service:

Options

Enable rule

Translate DNS replies that match this rule

Direction:

Description:

OK Cancel Help

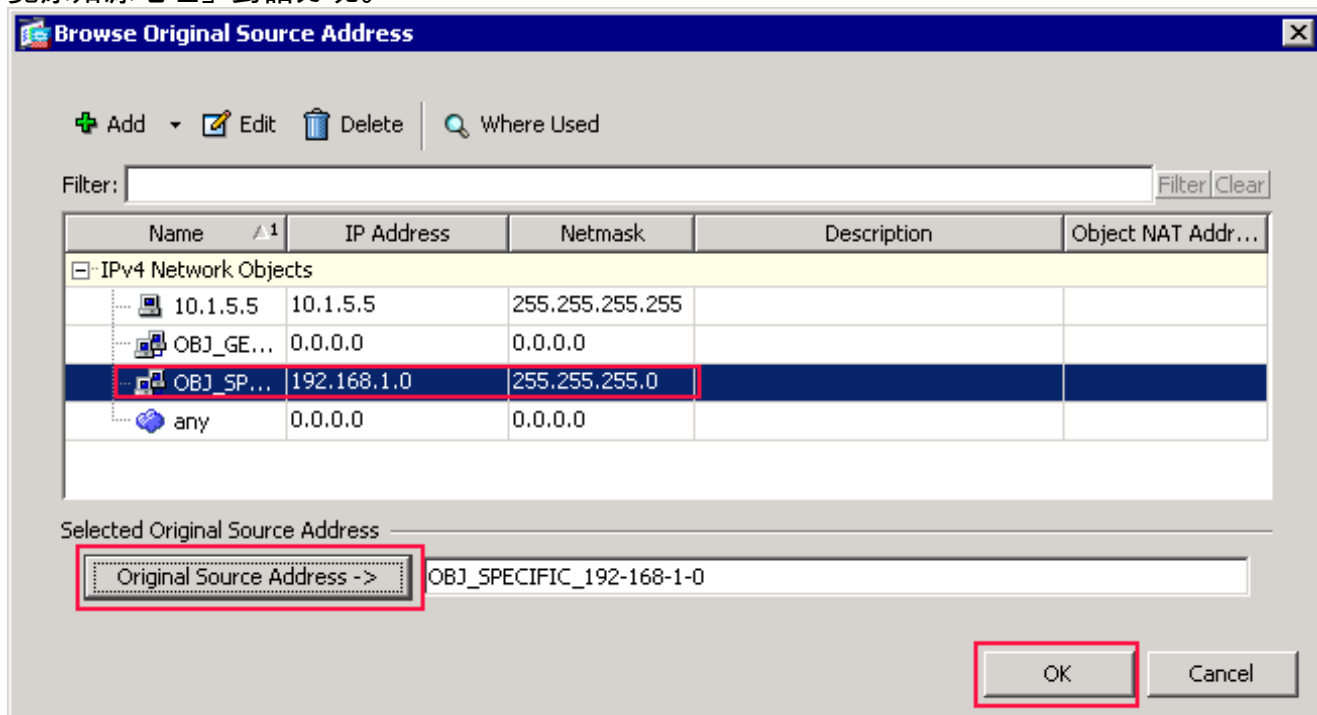
注意：*Destination Interface*欄位也會更改為外部介面。驗證第一個完成的PAT規則是否如下所示：在匹配條件中：Original Packet area，驗證以下值：源介面=內部源地址=OBJ_GENERIC_ALL目的地地址=任意服務=任意在Action:Translated Packet area，驗證以下值：源NAT型別=動態PAT（隱藏）源地址=外部目的地地址=原始服務=原始按一下「OK」（確定）。第一個NAT規則出現在ASDM中，如下圖所示：

Configuration > Firewall > NAT Rules

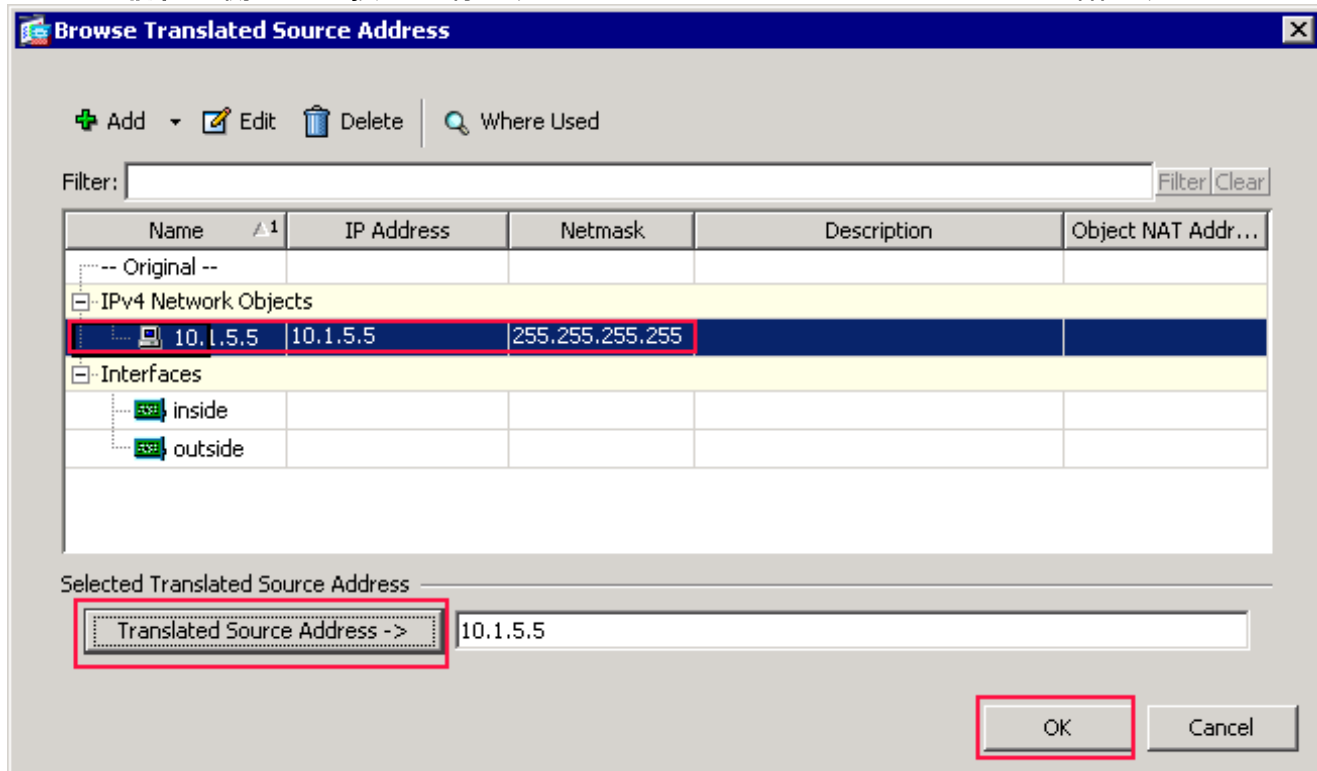
#	Match Criteria: Original Packet					Action: Translated Packet		
	Source Intf	Dest Intf	Source	Destination	Service	Source	Destination	Service
1	inside	outside	OBJ_GENERIC...	any	any	outside (P)	-- Original --	-- Original --
"Network Object" NAT (No rules)								

Apply Reset

2. 建立第二個NAT/PAT規則：在ASDM中，選擇**Configuration > Firewall > NAT Rules**，然後按一下**Add**。在匹配條件中：在Add NAT Rule對話方塊的Original Packet區域，從Source Interface下拉選單中選擇**inside**。按一下位於「源地址」欄位右側的瀏覽(...)按鈕。將出現「瀏覽原始源地址」對話方塊。



在「瀏覽原始源地址」對話方塊中，選擇建立的第二個對象。(在本例中，選擇**OBJ_SPECIFIC_192-168-1-0**。)按一下**Original Source Address**，然後按一下**OK**。**OBJ_SPECIFIC_192-168-1-0**網路對象將出現在「匹配條件」的「源地址」欄位中：Add NAT Rule對話方塊的Original Packet區域。在Action:在Add NAT Rule對話方塊的Translated Packet區域中，從Source NAT Type對話方塊中選擇**Dynamic PAT(Hide)**。按一下**Source Address**欄位右側的.....按鈕。將出現Browse Translated Source Address對話方塊。



在Browse Translated Source Address對話方塊中，選擇**10.1.5.5**對象。(已建立此介面，因為它是原始配置的一部分)。按一下**Translated Source Address**，然後按一下**OK**。**10.1.5.5**網

路對象出現在Action:「新增NAT規則」對話方塊的「轉換的資料包」區域。在匹配條件中：Original Packet area，從Destination Interface下拉選單中選擇outside。註：如果不為此選項選擇outside，則目標介面將引用Any。

Edit NAT Rule

Match Criteria: Original Packet

Source Interface: inside Destination Interface: outside

Source Address: _SPECIFIC_192-168-1-0 Destination Address: any

Service: any

Action: Translated Packet

Source NAT Type: Dynamic PAT (Hide)

Source Address: 10.1.5.5 Destination Address: -- Original --

Fall through to interface PAT Service: -- Original --

Options

Enable rule

Translate DNS replies that match this rule

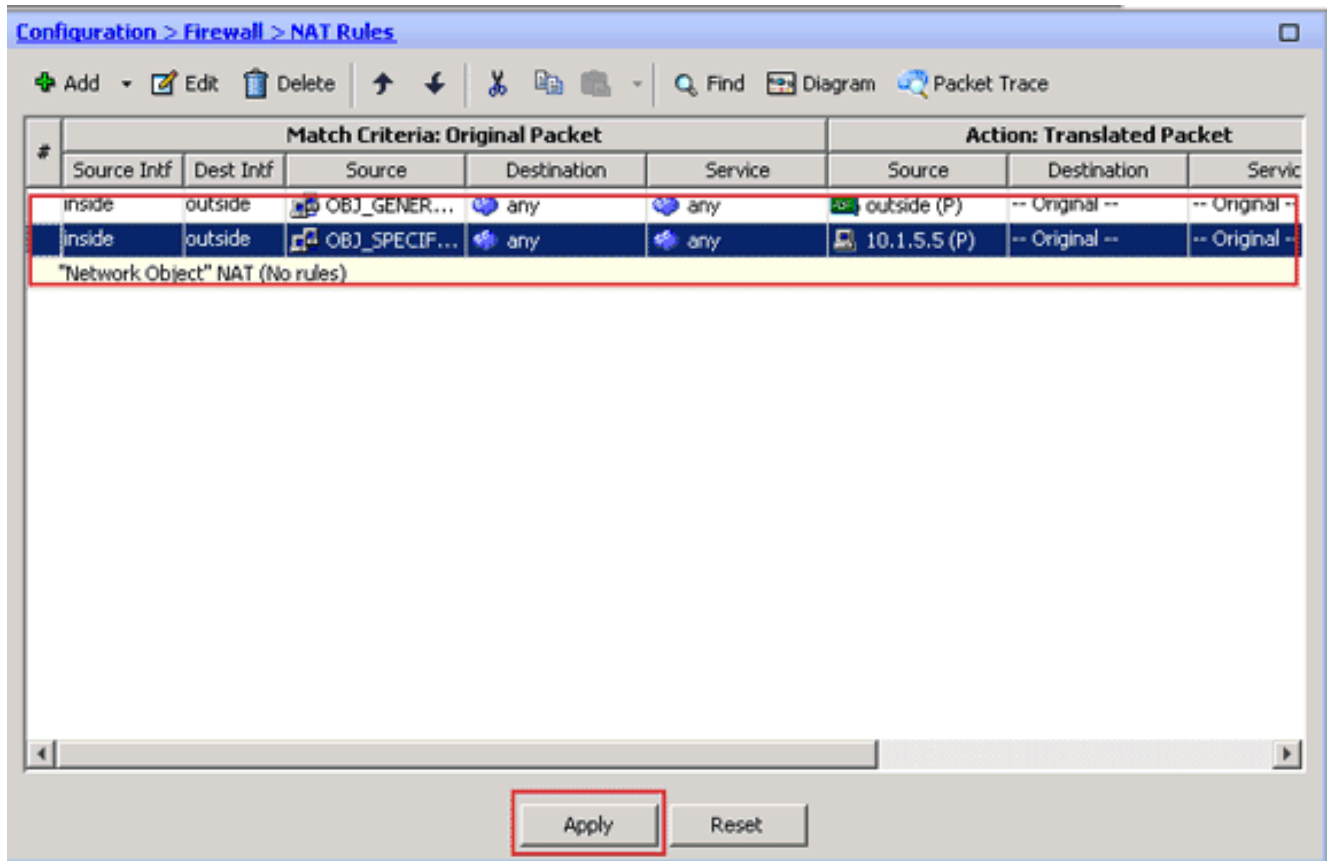
Direction: Both

Description:

OK Cancel Help

驗證第二個完成的NAT/PAT規則是否如下所示：在匹配條件中：Original Packet area，驗證以下值：源介面=內部源地址= OBJ_SPECIFIC_192-168-1-0目的地址=外部服務=任意在Action:Translated Packet area，驗證以下值：源NAT型別=動態PAT（隱藏）源地址=10.1.5.5目的地位址=原始服務=原始按一下「OK」（確定）。完整的NAT配置將出現在ASDM中，如下圖所示

:



3. 按一下「Apply」按鈕，將變更應用到運行配置。
這將完成思科自適應安全裝置(ASA)上的動態PAT配置。

驗證

使用本節內容，確認您的組態是否正常運作。

[輸出直譯器工具](#)(僅供已註冊客戶使用)(OIT)支援某些show命令。使用OIT檢視show命令輸出的分析。

檢驗通用PAT規則

- [show local-host](#) — 顯示本地主機的網路狀態。

```
ASA#show local-host
```

```
Interface outside: 1 active, 2 maximum active, 0 denied
local host: <125.252.196.170>,
  TCP flow count/limit = 2/unlimited
  TCP embryonic count to host = 0
  TCP intercept watermark = unlimited
  UDP flow count/limit = 0/unlimited
  !--- The TCP connection outside address corresponds !--- to the actual destination of
125.255.196.170:80 Conn: TCP outside 125.252.196.170:80 inside 192.168.0.5:1051,
  idle 0:00:03, bytes 13758, flags UIO
  TCP outside 125.252.196.170:80 inside 192.168.0.5:1050, idle 0:00:04,
  bytes 11896, flags UIO
Interface inside: 1 active, 1 maximum active, 0 denied
local host: <192.168.0.5>,
  TCP flow count/limit = 2/unlimited
  TCP embryonic count to host = 0
  TCP intercept watermark = unlimited
  UDP flow count/limit = 0/unlimited
```

```
!--- The TCP PAT outside address corresponds to the !--- outside IP address of the ASA -
10.1.5.1. Xlate: TCP PAT from inside:192.168.0.5/1051 to outside:10.1.5.1/32988 flags
    ri idle 0:00:17 timeout 0:00:30
TCP PAT from inside:192.168.0.5/1050 to outside:10.1.5.1/17058 flags
    ri idle 0:00:17 timeout 0:00:30
```

Conn:

```
TCP outside 125.252.196.170:80 inside 192.168.0.5:1051, idle 0:00:03,
    bytes 13758, flags UIO
TCP outside 125.252.196.170:80 inside 192.168.0.5:1050, idle 0:00:04,
    bytes 11896, flags UIO
```

- **show conn** — 顯示指定連線型別的連線狀態。

```
ASA#show conn
```

```
2 in use, 3 most used
TCP outside 125.252.196.170:80 inside 192.168.0.5:1051, idle 0:00:06,
    bytes 13758, flags UIO
TCP outside 125.252.196.170:80 inside 192.168.0.5:1050, idle 0:00:01,
    bytes 13526, flags UIO
```

- **show xlate** — 顯示有關轉換插槽的資訊。

```
ASA#show xlate
```

```
4 in use, 7 most used
Flags: D - DNS, I - dynamic, r - portmap, s - static, I - identity,
    T - twice
TCP PAT from inside:192.168.0.5/1051 to outside:10.1.5.1/32988 flags
    ri idle 0:00:23 timeout 0:00:30
TCP PAT from inside:192.168.0.5/1050 to outside:10.1.5.1/17058 flags
    ri idle 0:00:23 timeout 0:00:30
```

驗證特定PAT規則

- **show local-host** — 顯示本地主機的網路狀態。

```
ASA#show local-host
```

```
Interface outside: 1 active, 2 maximum active, 0 denied
local host: <125.252.196.170>,
    TCP flow count/limit = 2/unlimited
    TCP embryonic count to host = 0
    TCP intercept watermark = unlimited
    UDP flow count/limit = 0/unlimited
```

```
!--- The TCP connection outside address corresponds to !--- the actual destination of
125.255.196.170:80. Conn: TCP outside 125.252.196.170:80 inside 192.168.1.5:1067,
    idle 0:00:07, bytes 13758, flags UIO
```

```
TCP outside 125.252.196.170:80 inside 192.168.1.5:1066,
    idle 0:00:03, bytes 11896, flags UIO
```

```
Interface inside: 1 active, 1 maximum active, 0 denied
```

```
local host: <192.168.0.5>,
    TCP flow count/limit = 2/unlimited
    TCP embryonic count to host = 0
    TCP intercept watermark = unlimited
    UDP flow count/limit = 0/unlimited
```

```
!--- The TCP PAT outside address corresponds to an !--- outside IP address of 10.1.5.5.
Xlate: TCP PAT from inside:192.168.1.5/1067 to outside:10.1.5.5/35961 flags
    ri idle 0:00:17 timeout 0:00:30
TCP PAT from inside:192.168.1.5/1066 to outside:10.1.5.5/23673 flags
    ri idle 0:00:17 timeout 0:00:30
```

Conn:

```
TCP outside 125.252.196.170:80 inside 192.168.1.5:1067, idle 0:00:07,
    bytes 13758, flags UIO
TCP outside 125.252.196.170:80 inside 192.168.1.5:1066, idle 0:00:03,
```


bytes 11896, flags UIO

- [show conn](#) — 顯示指定連線型別的連線狀態。

```
ASA#show conn
```

```
2 in use, 3 most used
```

```
TCP outside 125.252.196.170:80 inside 192.168.1.5:1067, idle 0:00:07,  
bytes 13653, flags UIO
```

```
TCP outside 125.252.196.170:80 inside 192.168.1.5:1066, idle 0:00:03,  
bytes 13349, flags UIO
```

- [show xlate](#) — 顯示有關轉換插槽的資訊。

```
ASA#show xlate
```

```
3 in use, 9 most used
```

```
Flags: D - DNS, I - dynamic, r - portmap, s - static, I - identity,  
T - twice
```

```
TCP PAT from inside:192.168.1.5/1067 to outside:10.1.5.5/35961 flags  
ri idle 0:00:23 timeout 0:00:30
```

```
TCP PAT from inside:192.168.1.5/1066 to outside:10.1.5.5/29673 flags  
ri idle 0:00:23 timeout 0:00:30
```

[疑難排解](#)

目前尚無適用於此組態的具體疑難排解資訊。

[相關資訊](#)

- [思科調適型資安裝置管理員](#)
- [Cisco ASA 5500系列調適型安全裝置](#)
- [要求建議 \(RFC\)](#)
- [技術支援與文件 - Cisco Systems](#)