

## GII TDRC

# MEMORIA Práctica 3

### Configuración de NAT

Autor: Jorge Navarro Ortiz (basado en el trabajo de Miguel Ángel López Gordo)

Duración: 1 sesión

NOMBRE Y APELLIDOS	Carlos Garcia Segura				
OPCIÓN	D	ISLA X	3	ISLA Y	7

**IMPORTANTE:** En base a los valores X e Y tendrá que calcular la opción de respuesta del guión de prácticas.  
Para ello, tendrá que seguir la siguiente tabla:

OPCIÓN	VALOR X	VALOR Y
A	PAR	PAR
B	PAR	IMPAR
C	IMPAR	PAR
D	IMPAR	IMPAR

#### INSTRUCCIONES:

- Debe reemplazar por la respuesta correcta todo texto que aparezca de color rojo.
- Incluya capturas de pantalla de las configuraciones donde aparezca el símbolo de imagen (reemplace dicha imagen por la captura o capturas que necesite):



- Puede emplear la herramienta recortes en windows para realizar las capturas de pantalla o emplear el atajo **WINDOWS+IMPRIMIR\_PANTALLA** y posteriormente pegar la captura en el documento.
- Puede emplear la herramienta Shutter en linux para realizar las capturas de pantalla.
- Puede emplear el atajo **COMANDO+MAYUSCULAS+4+BARRA\_ESPACIADORA** en MAC para realizar las capturas de pantalla.

## 1. PUESTA EN FUNCIONAMIENTO

### 3. Conectividad entre PCs de la misma y diferente isla

The image displays two side-by-side screenshots of a Windows Command Prompt window, illustrating a network connectivity test. Both windows have tabs for 'Physical', 'Config', 'Desktop', 'Programming', and 'Attributes', with 'Desktop' selected.

**Left Screenshot:** The Command Prompt shows a successful ping to 10.3.2.103. The output indicates that the ping was successful with 32 bytes of data and a TTL of 126. The statistics show 4 packets sent and received, with 0% loss.

```

Packet Tracer PC Command Line 1.0
C:\>ping 10.3.2.103

Pinging 10.3.2.103 with 32 bytes of data:

Reply from 10.3.2.103: bytes=32 time=1ms TTL=126
Reply from 10.3.2.103: bytes=32 time=1ms TTL=126
Reply from 10.3.2.103: bytes=32 time=1ms TTL=126
Reply from 10.3.2.103: bytes=32 time=1ms TTL=126

Ping statistics for 10.3.2.103:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
  
```

**Right Screenshot:** The Command Prompt shows a failed ping to 10.7.2.103. The output indicates that the ping failed with a 'Request timed out' error. The statistics show 4 packets sent and received, with 100% loss.

```

C:\>ping 10.7.2.103

Pinging 10.7.2.103 with 32 bytes of data:

Request timed out.
Reply from 10.7.2.103: bytes=32 time=1ms TTL=124
Reply from 10.7.2.103: bytes=32 time=1ms TTL=124
Reply from 10.7.2.103: bytes=32 time=1ms TTL=124
Reply from 10.7.2.103: bytes=32 time=1ms TTL=124

Ping statistics for 10.7.2.103:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 12ms, Average = 4ms

C:\>
  
```

## 2. CONFIGURACIÓN NAT: ESTÁTICO

## 2. Comandos necesarios para configurar Rx\_A

```
enable
configure terminal
ip nat inside source static 10.3.1.102 172.16.3.51
ip nat inside source static 10.3.1.103 172.16.3.52
interface FastEthernet0/1
ip nat inside
interface FastEthernet0/0
ip nat outside
```

## 2. Comandos necesarios para configurar Rx\_B

```
enable
configure terminal
ip nat inside source static 10.3.2.102 172.16.3.53
ip nat inside source static 10.3.2.103 172.16.3.54
interface FastEthernet0/1
ip nat inside
interface FastEthernet0/0
ip nat outside
```



### 3. Configuración de NAT en Rx\_A

R3\_A

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#inter
Router(config)#interface FA
Router(config)#interface Fa
Router(config)#interface FastEthernet
Router(config)#interface FastEthernet
Router(config)#interface FastEthernet 0
Router(config)#interface FastEthernet 0
Router(config)#interface FastEthernet0/1
Router(config-if)#ip nat inside so
Router(config-if)#ip nat inside source static 10.3.1.102 172.16.3.51
Router(config)#ip nat inside source static 10.3.1.103 172.16.3.52
Router(config)#
Router(config)#ip nat inside source static 10.3.1.102 172.16.3.51
Router(config)#interface FastEthernet0/1
Router(config-if)#
Router(config-if)#
Router(config-if)#ip nat inside source static 10.3.1.103 172.16.3.52
Router(config)#interface FastEthernet0/1
Router(config-if)#
Router#
%SYS-5-CONFIG_I: Configured from console by console
config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/1
Router(config-if)#ip nat inside
Router(config-if)#
Router#
%SYS-5-CONFIG_I: Configured from console by console
config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip nat outside
Router(config-if)#
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

Ctrl+F6 to exit CLI focus

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### 3. Configuración de NAT en Rx\_B

R3\_B

Physical Config CLI Attributes

IOS Command Line Interface

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip nat inside 10.3.2.102 172.16.3.53
      ^
% Invalid input detected at '^' marker.

Router(config)#ip nat inside source 10.3.2.102 172.16.3.53
      ^
% Invalid input detected at '^' marker.

Router(config)#ip nat inside source static 10.3.2.102 172.16.3.53
Router(config)#ip nat inside source static 10.3.2.103 172.16.3.54
Router(config)#interface Fas
Router(config)#interface FastEthernet0/1
Router(config-if)#ip nat inside
Router(config-if)#
Router#
%SYS-5-CONFIG_I: Configured from console by console
configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Fas
Router(config)#interface FastEthernet0/1
Router(config-if)#interface Fad
Router(config-if)#interface Fas
Router(config-if)#interface Fas
Router(config-if)#exit
Router(config)#interface F
Router(config)#interface FastEthernet0/0
Router(config-if)#ip nat outside
Router(config-if)#
```

Ctrl+F6 to exit CLI focus

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#### 4. Comprobación de NAT en Rx\_A

R3\_A

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Router(config-if)#ip nat inside so
Router(config-if)#ip nat inside source static 10.3.1.102 172.16.3.51
Router(config)#ip nat inside source static 10.3.1.103 172.16.3.52
Router(config)#
Router(config)#ip nat inside source static 10.3.1.102 172.16.3.51
Router(config)#interface FastEthernet0/1
Router(config-if)#
Router(config-if)#
Router(config-if)#ip nat inside source static 10.3.1.103 172.16.3.52
Router(config)#interface FastEthernet0/1
Router(config-if)#
Router#
%SYS-5-CONFIG_I: Configured from console by console
config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/1
Router(config-if)#ip nat inside
Router(config-if)#
Router#
%SYS-5-CONFIG_I: Configured from console by console
config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip nat outside
Router(config-if)#
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#
Router#
Router#show ip nat tra
Router#show ip nat translations
Pro  Inside global      Inside local      Outside local      Outside global
---  172.16.3.51           10.3.1.102        ---                ---
---  172.16.3.52           10.3.1.103        ---                ---

Router#
```

Ctrl+F6 to exit CLI focus

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#### 4. Explicación

Lo que ahí nos esta comentando es que cuando el router reciba la ip Inside Global la traducira a la ip Inside local y viceversa.

#### 4. Comprobación de NAT en Rx\_B

R3\_B

Physical Config **CLI** Attributes

IOS Command Line Interface

```
% Invalid input detected at '^' marker.
Router(config)#ip nat inside source 10.3.2.102 172.16.3.53
^
% Invalid input detected at '^' marker.

Router(config)#ip nat inside source static 10.3.2.102 172.16.3.53
Router(config)#ip nat inside source static 10.3.2.103 172.16.3.54
Router(config)#interface Fas
Router(config)#interface FastEthernet0/1
Router(config-if)#ip nat inside
Router(config-if)#
Router#
%SYS-5-CONFIG_I: Configured from console by console
configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Fas
Router(config)#interface FastEthernet0/1
Router(config-if)#interface Fad
Router(config-if)#interface Fas
Router(config-if)#interface Fas
Router(config-if)#exit
Router(config)#interface F
Router(config)#interface FastEthernet0/0
Router(config-if)#ip nat outside
Router(config-if)#
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show ip nat
Router#show ip nat tr
Router#show ip nat translations
Pro  Inside global      Inside local      Outside local      Outside global
---  172.16.3.53           10.3.2.102        ---                ---
---  172.16.3.54           10.3.2.103        ---                ---

Router#
```

Ctrl+F6 to exit CLI focus

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#### 4. Explicación

Lo que ahí nos esta comentando es que cuando el router reciba la ip Inside Global la traducira a la ip Inside local y viceversa.

## 5. Tabla NAT en RX\_A tras ping

```
R3_A
Physical Config CLI Attributes
IOS Command Line Interface
Router(Config-11)#
Router#
%SYS-5-CONFIG_I: Configured from console by console
config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/1
Router(config-if)#ip nat inside
Router(config-if)#
Router#
%SYS-5-CONFIG_I: Configured from console by console
config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#ip nat outside
Router(config-if)#
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#
Router#
Router#show ip nat tra
Router#show ip nat translations
Pro Inside global Inside local Outside local Outside global
--- 172.16.3.51 10.3.1.102 ---
--- 172.16.3.52 10.3.1.103 ---

Router#show ip nat translations
Pro Inside global Inside local Outside local Outside global
icmp 172.16.3.51:27 10.3.1.102:27 10.7.2.102:27 10.7.2.102:27
icmp 172.16.3.51:28 10.3.1.102:28 10.7.2.102:28 10.7.2.102:28
icmp 172.16.3.51:29 10.3.1.102:29 10.7.2.102:29 10.7.2.102:29
icmp 172.16.3.51:30 10.3.1.102:30 10.7.2.102:30 10.7.2.102:30
icmp 172.16.3.52:10 10.3.1.103:10 172.16.3.54:10 172.16.3.54:10
icmp 172.16.3.52:11 10.3.1.103:11 172.16.3.54:11 172.16.3.54:11
--- 172.16.3.51 10.3.1.102 ---
--- 172.16.3.52 10.3.1.103 ---

Router#
```

Ctrl+F6 to exit CLI focus

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## 5. Explicación

En el primer ping que hemos hecho desde la maquina X2 a la X4 podemos ver que nos ha generado dos nuevas líneas, una por cada mensaje del ping que ha enviado (solo ha enviado 2 porque lo he cortado antes de que terminara) por 2 puertos diferentes. Los mensajes los ha recibido la ip publica y no podemos ver cual es la outside local de verdad que seria (10.3.2.103) en cambio solo vemos la outside global.

En el segundo ping vemos que como no esta la nat configurada en la isla Y el outside global y el outside local se corresponden con la ip del PC Y3.

## 5. Tabla NAT en RX\_B tras ping

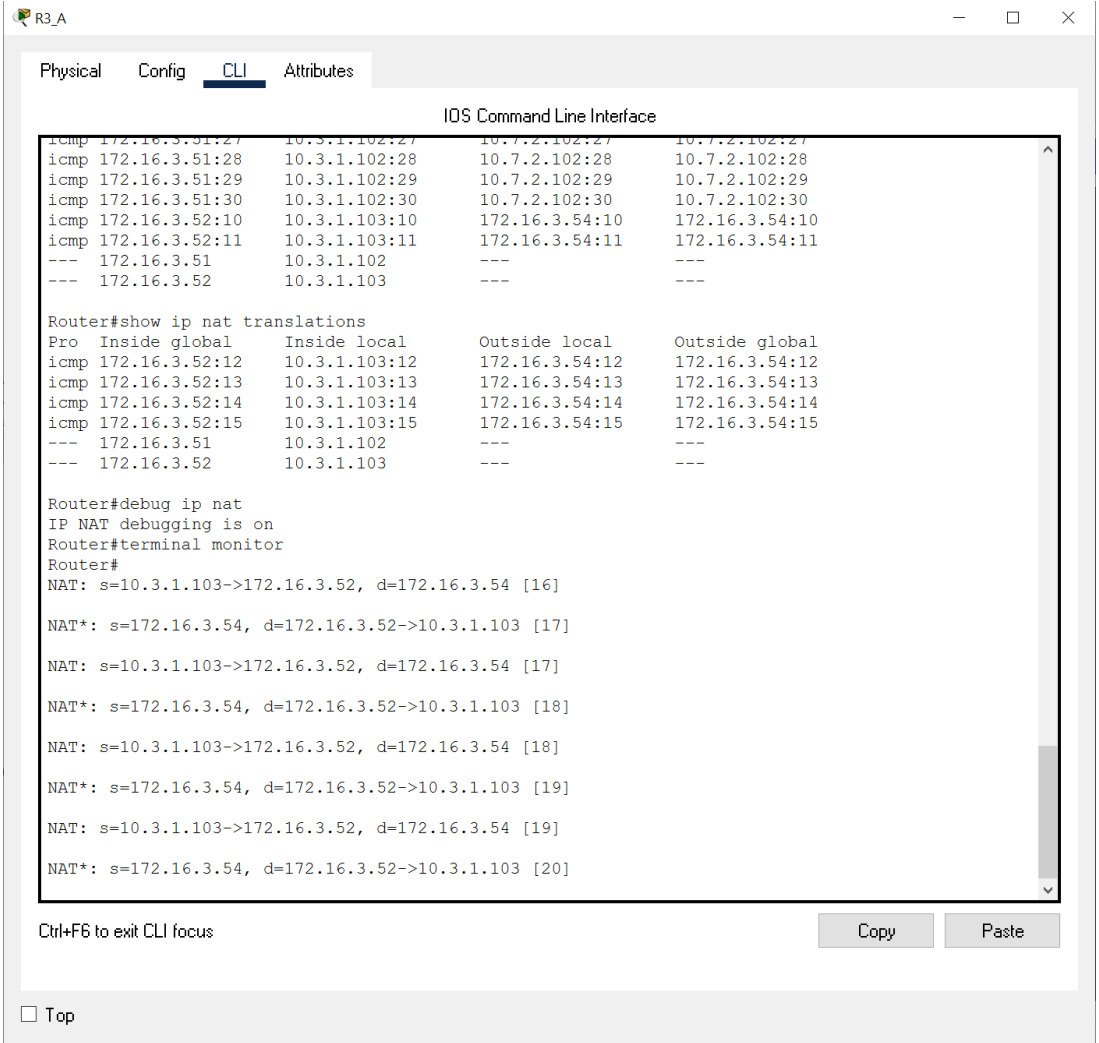
```
R3_B
Physical Config CLI Attributes
IOS Command Line Interface
--- 172.16.3.53 10.3.2.102 ---
--- 172.16.3.54 10.3.2.103 ---
Router#show ip nat translations
Pro Inside global Inside local Outside local Outside global
--- 172.16.3.53 10.3.2.102 ---
--- 172.16.3.54 10.3.2.103 ---
Router#show ip nat translations
Pro Inside global Inside local Outside local Outside global
--- 172.16.3.53 10.3.2.102 ---
--- 172.16.3.54 10.3.2.103 ---
Router#show ip nat translations
Pro Inside global Inside local Outside local Outside global
icmp 172.16.3.54:20 10.3.2.103:20 172.16.3.52:20 172.16.3.52:20
icmp 172.16.3.54:21 10.3.2.103:21 172.16.3.52:21 172.16.3.52:21
--- 172.16.3.53 10.3.2.102 ---
--- 172.16.3.54 10.3.2.103 ---
Router#show ip nat translations
Pro Inside global Inside local Outside local Outside global
icmp 172.16.3.54:20 10.3.2.103:20 172.16.3.52:20 172.16.3.52:20
icmp 172.16.3.54:21 10.3.2.103:21 172.16.3.52:21 172.16.3.52:21
icmp 172.16.3.54:22 10.3.2.103:22 172.16.3.52:22 172.16.3.52:22
--- 172.16.3.53 10.3.2.102 ---
--- 172.16.3.54 10.3.2.103 ---
Router#show ip nat translations
Pro Inside global Inside local Outside local Outside global
icmp 172.16.3.54:20 10.3.2.103:20 172.16.3.52:20 172.16.3.52:20
icmp 172.16.3.54:21 10.3.2.103:21 172.16.3.52:21 172.16.3.52:21
icmp 172.16.3.54:22 10.3.2.103:22 172.16.3.52:22 172.16.3.52:22
icmp 172.16.3.54:23 10.3.2.103:23 172.16.3.52:23 172.16.3.52:23
--- 172.16.3.53 10.3.2.102 ---
--- 172.16.3.54 10.3.2.103 ---
Router#
Ctrl+F6 to exit CLI focus
Copy Paste
Top
```

## 5. Explicación

Fijandonos en la ultima vez que he ejecutado el comando vemos que ha generado una fila por cada mensaje que ha recibido del ping y cada linea con un puerto distinto, en el inside vemos la traduccion del PCX4 y en el outside podemos ver que el router solo tiene acceso a la ip outside global y no a la outside local que seria la ip original del PCX1 (10.3.1.102)



## 6. Mensajes en modo *debug* en Rx\_A



```

R3_A
Physical Config CLI Attributes
IOS Command Line Interface

icmp 172.16.3.51:27 10.3.1.102:27 10.7.2.102:27 10.7.2.102:27
icmp 172.16.3.51:28 10.3.1.102:28 10.7.2.102:28 10.7.2.102:28
icmp 172.16.3.51:29 10.3.1.102:29 10.7.2.102:29 10.7.2.102:29
icmp 172.16.3.51:30 10.3.1.102:30 10.7.2.102:30 10.7.2.102:30
icmp 172.16.3.52:10 10.3.1.103:10 172.16.3.54:10 172.16.3.54:10
icmp 172.16.3.52:11 10.3.1.103:11 172.16.3.54:11 172.16.3.54:11
--- 172.16.3.51 10.3.1.102 ---
--- 172.16.3.52 10.3.1.103 ---

Router#show ip nat translations
Pro Inside global Inside local Outside local Outside global
icmp 172.16.3.52:12 10.3.1.103:12 172.16.3.54:12 172.16.3.54:12
icmp 172.16.3.52:13 10.3.1.103:13 172.16.3.54:13 172.16.3.54:13
icmp 172.16.3.52:14 10.3.1.103:14 172.16.3.54:14 172.16.3.54:14
icmp 172.16.3.52:15 10.3.1.103:15 172.16.3.54:15 172.16.3.54:15
--- 172.16.3.51 10.3.1.102 ---
--- 172.16.3.52 10.3.1.103 ---

Router#debug ip nat
IP NAT debugging is on
Router#terminal monitor
Router#
NAT: s=10.3.1.103->172.16.3.52, d=172.16.3.54 [16]

NAT*: s=172.16.3.54, d=172.16.3.52->10.3.1.103 [17]

NAT: s=10.3.1.103->172.16.3.52, d=172.16.3.54 [17]

NAT*: s=172.16.3.54, d=172.16.3.52->10.3.1.103 [18]

NAT: s=10.3.1.103->172.16.3.52, d=172.16.3.54 [18]

NAT*: s=172.16.3.54, d=172.16.3.52->10.3.1.103 [19]

NAT: s=10.3.1.103->172.16.3.52, d=172.16.3.54 [19]

NAT*: s=172.16.3.54, d=172.16.3.52->10.3.1.103 [20]

Ctrl+F6 to exit CLI focus
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```

## 6. Explicación

Podemos observar que por cada mensaje que envía ping el router genera dos filas, una de las traducciones realizadas a la ida y otra de las de la vuelta. En la línea de ida tenemos el origen, su traducción y el destino, y en la de vuelta tenemos el origen, el destino y su transformación

## 3. CONFIGURACIÓN NAT: DINÁMICO OVERLOAD

### 2. Comandos necesarios para configurar Rx\_A

```

enable
configure terminal
access-list 1 permit 10.3.1.102 0.0.0.255
ip nat pool simple-nat-pool 172.16.3.51 172.16.3.52 netmask 255.255.255.0
ip nat inside source list 1 pool simple-nat-pool
interface FastEthernet0/1
ip nat inside
interface FastEthernet0/0
ip nat outside
  
```

### 2. Comandos necesarios para configurar Rx\_B

```

enable
configure terminal
access-list 1 permit 10.3.2.102 0.0.0.255
ip nat pool simple-nat-pool 172.16.3.53 172.16.3.54 netmask 255.255.255.0
ip nat inside source list 1 pool simple-nat-pool
interface FastEthernet0/1
ip nat inside
interface FastEthernet0/0
ip nat outside
  
```



### 3. Configuración de NAT en Rx\_A

R3\_A

Physical Config CLI Attributes

IOS Command Line Interface

```
Cisco 1841 (revision 5.0) with 114688K/16384K bytes of memory.
Processor board ID FTX0947Z18E
M860 processor: part number 0, mask 49
2 FastEthernet/IEEE 802.3 interface(s)
191K bytes of NVRAM.
63488K bytes of ATA CompactFlash (Read/Write)
Cisco IOS Software, 1841 Software (C1841-ADVIPSERVICESK9-M), Version 12.4(15)T1, RELEASE
SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Wed 18-Jul-07 04:52 by pt_team

Press RETURN to get started!

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router>
Router>
Router>
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#acc
Router(config)#access-list 1 permit 10.3.1.102 0.0.0.255
Router(config)#ip nat pool simple-nat-pool 172.16.3.51 172.16.3.52 netmask 255.255.255.0
Router(config)#ip nat inside source list 1 pool simple-nat-pool
Router(config)#interface FastEthernet0/1
Router(config-if)#ip nat inside
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#ip nat outside
Router(config-if)#
```

Ctrl+F6 to exit CLI focus

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### 3. Configuración de NAT en Rx\_B

R3\_B

Physical Config CLI Attributes

IOS Command Line Interface

```
Cisco 1841 (revision 5.0) with 114688K/16384K bytes of memory.
Processor board ID FTX0947Z18E
M860 processor: part number 0, mask 49
2 FastEthernet/IEEE 802.3 interface(s)
191K bytes of NVRAM.
63488K bytes of ATA CompactFlash (Read/Write)
Cisco IOS Software, 1841 Software (C1841-ADVIPSERVICESK9-M), Version 12.4(15)T1, RELEASE
SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Wed 18-Jul-07 04:52 by pt_team

Press RETURN to get started!

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

Router>
Router>
Router>
Router>
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#access-list 1 permit 10.3.2.102 0.0.0.255
Router(config)#ip nat pool simple-nat-pool 172.16.3.53 172.16.3.54 netmask 255.255.255.0
Router(config)#ip nat inside source list 1 pool simple-nat-pool
Router(config)#interface FastEthernet0/1
Router(config-if)#ip nat inside
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#ip nat outside
Router(config-if)#
```

Ctrl+F6 to exit CLI focus

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#### 4. Comprobación de NAT en Rx\_A

PC3\_2

Physical Config **Desktop** Programming Attributes

Command Prompt

```
Packet Tracer PC Command Line 1.0
C:\>ping 10.3.2.103

Pinging 10.3.2.103 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.3.2.103:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 10.3.2.103

Pinging 10.3.2.103 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.3.2.103:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 10.3.2.103

Pinging 10.3.2.103 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.3.2.103:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

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#### 4. Explicación

Podemos observar que no ha recibido ningún paquete. Esto se debe a que al llegar el mensaje al router de destino este no sabe a qué dispositivo va dirigido.



#### 4. Comprobación de NAT en Rx\_B

PC3\_1

Physical Config Desktop Programming Attributes

Command Prompt

```
Packet Tracer PC Command Line 1.0
C:\>ping 10.7.2.102

Pinging 10.7.2.102 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.7.2.102:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 10.7.2.102

Pinging 10.7.2.102 with 32 bytes of data:

Request timed out.
Reply from 10.7.2.102: bytes=32 time<1ms TTL=124
Reply from 10.7.2.102: bytes=32 time=124ms TTL=124
Reply from 10.7.2.102: bytes=32 time<1ms TTL=124

Ping statistics for 10.7.2.102:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 124ms, Average = 41ms

C:\>|
```

☐ Top

#### 4. Explicación

En este caso podemos observar que el ping funciona perfectamente.

## 5. Tabla NAT en RX\_A tras ping

```
R3_A
Physical Config CLI Attributes
IOS Command Line Interface
Router(config)#access-list 1 permit 10.3.1.102 0.0.0.255
Router(config)#ip nat pool simple-nat-pool 172.16.3.51 172.16.3.52 netmask 255.255.255.0
Router(config)#ip nat inside source list 1 pool simple-nat-pool
Router(config)#interface FastEthernet0/1
Router(config-if)#ip nat inside
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#ip nat outside
Router(config-if)#exit
Router(config)#show ip translations
^
% Invalid input detected at '^' marker.

Router(config)#
Router#
%SYS-5-CONFIG_I: Configured from console by console
show ip translations
^
% Invalid input detected at '^' marker.

Router#show ip nat translations
Router#show ip nat translations
Router#show ip nat translations
Pro Inside global      Inside local      Outside local      Outside global
icmp 172.16.3.52:10     10.3.1.102:10     10.7.2.102:10     10.7.2.102:10
icmp 172.16.3.52:11     10.3.1.102:11     10.7.2.102:11     10.7.2.102:11
icmp 172.16.3.52:12     10.3.1.102:12     10.7.2.102:12     10.7.2.102:12
icmp 172.16.3.52:9      10.3.1.102:9      10.7.2.102:9      10.7.2.102:9

Router#show ip nat translations
Pro Inside global      Inside local      Outside local      Outside global
icmp 172.16.3.51:13     10.3.1.103:13     10.3.2.103:13     10.3.2.103:13
icmp 172.16.3.52:13     10.3.1.102:13     10.7.2.102:13     10.7.2.102:13
icmp 172.16.3.52:14     10.3.1.102:14     10.7.2.102:14     10.7.2.102:14
icmp 172.16.3.52:15     10.3.1.102:15     10.7.2.102:15     10.7.2.102:15
icmp 172.16.3.52:16     10.3.1.102:16     10.7.2.102:16     10.7.2.102:16

Router#
```

Ctrl+F6 to exit CLI focus

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## 5. Explicación

Vemos que en el momento de ejecutar el comando se han generado 5 filas, una por cada mensaje del ping, cada mensaje sale por un puerto distinto que será utilizado para que se pueda identificar a que mensaje responden las respuestas que lleguen al router. Además, como tenemos 2 ip asignadas a la traducción cada PC recibe una ip inside global distinta.

## 5. Tabla NAT en RX\_B tras ping

R3\_B

Physical Config CLI Attributes

IOS Command Line Interface

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

Router>
Router>
Router>
Router>
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#access-list 1 permit 10.3.2.102 0.0.0.255
Router(config)#ip nat pool simple-nat-pool 172.16.3.53 172.16.3.54 netmask 255.255.255.0
Router(config)#ip nat inside source list 1 pool simple-nat-pool
Router(config)#interface FastEthernet0/1
Router(config-if)#ip nat inside
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#ip nat outside
Router(config-if)#
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#show ip nat translations
Router#
Router#
Router#
Router#
Router#
Router#
Router#
Router#show ip nat translation
Pro  Inside global      Inside local      Outside local      Outside global
icmp 172.16.3.53:17       10.3.2.103:17     172.16.3.51:17     172.16.3.51:17
icmp 172.16.3.53:18     10.3.2.103:18     172.16.3.51:18     172.16.3.51:18
icmp 172.16.3.53:19     10.3.2.103:19     172.16.3.51:19     172.16.3.51:19
icmp 172.16.3.53:20     10.3.2.103:20     172.16.3.51:20     172.16.3.51:20

Router#
```

Ctrl+F6 to exit CLI focus

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## 5. Explicación

Podemos observar que se han generado 4 filas, una por cada mensaje del ping recibido desde PC1, ha usado una de las 2 ip asignadas a la traduccion y varios puertos para identificar cada mensaje.

## 6. Mensajes en modo *debug* en Rx\_A

R3\_A

Physical Config CLI Attributes

IOS Command Line Interface

```
Router#
Router#
Router#
Router#
Router#
Router#
Router#
Router#
Router#
Router#
NAT: s=10.3.1.102->172.16.3.51, d=10.7.2.102 [21]
NAT*: s=10.7.2.102, d=172.16.3.51->10.3.1.102 [17]
NAT: s=10.3.1.102->172.16.3.51, d=10.7.2.102 [22]
NAT*: s=10.7.2.102, d=172.16.3.51->10.3.1.102 [18]
NAT: s=10.3.1.102->172.16.3.51, d=10.7.2.102 [23]
NAT*: s=10.7.2.102, d=172.16.3.51->10.3.1.102 [19]
NAT: s=10.3.1.102->172.16.3.51, d=10.7.2.102 [24]
NAT*: s=10.7.2.102, d=172.16.3.51->10.3.1.102 [20]
Router#
NAT: s=10.3.1.103->172.16.3.52, d=10.3.2.103 [24]
NAT: s=10.3.1.103->172.16.3.52, d=10.3.2.103 [25]
NAT: s=10.3.1.103->172.16.3.52, d=10.3.2.103 [26]
NAT: s=10.3.1.103->172.16.3.52, d=10.3.2.103 [27]
NAT: expiring 172.16.3.51 (10.3.1.102) icmp 17 (17)
NAT: expiring 172.16.3.52 (10.3.1.103) icmp 21 (21)
```

Ctrl+F6 to exit CLI focus

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## 6. Explicación

Vemos que en los primeros 4 pares se hace referencia al ping hecho al PCY\_3 mientras que los siguiente 4 mensajes son las tranformaciones que ha hecho el router para el ping a PC4 sin respuesta alguna.