使用FlexConfig在FTD上配置DHCP IPv4保留

目录

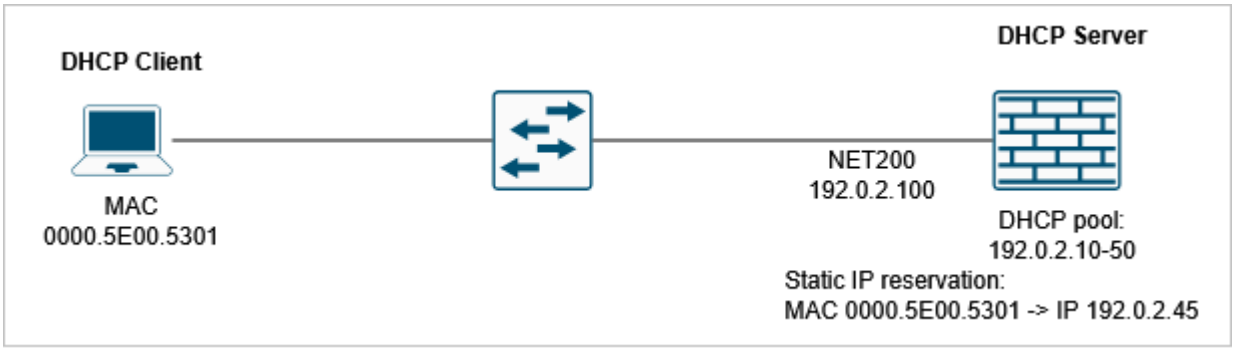
问题

- 管理员希望将防火墙威胁防御(FTD)设备配置为工作站的DHCP服务器，并为终端设备设置DHCP地址保留。
- 配置包括在防火墙管理中心(FMC)本地配置FTD的DHCP服务器，并使用FlexConfig添加DHCP IP保留。

环境

- 防火墙威胁防御(FTD)版本10.x。其他软件版本也会受到影响。
- 防火墙管理中心(FMC)10.x。其他软件版本也会受到影响。

拓扑



特定DHCP环境包括：

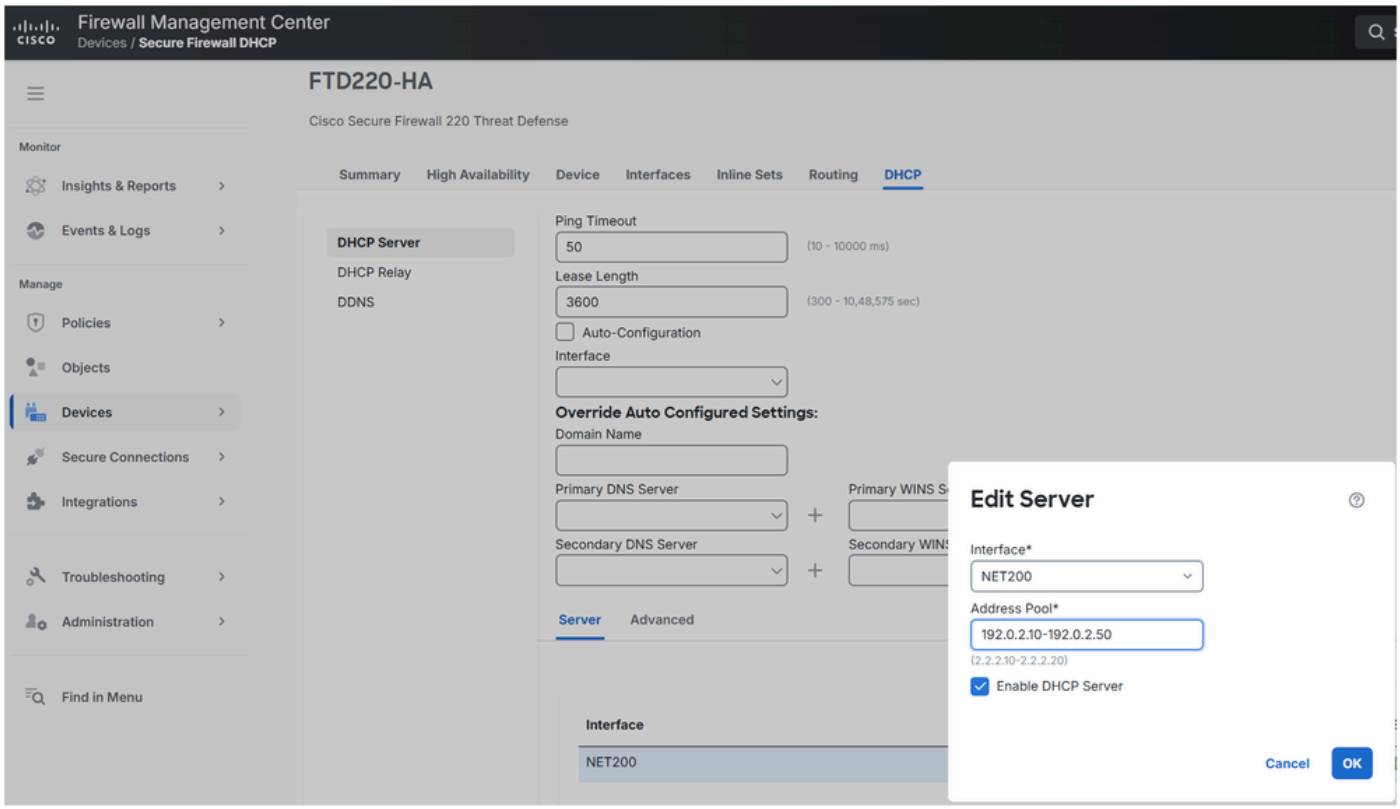
- DHCP服务器接口为NET200。
- DHCP服务器池为192.0.2.10 - 50。

- MAC地址为0000.5E00.5301的终端设备。目标是为此终端保留IP地址192.0.2.45。

分辨率

DHCP 服务器配置

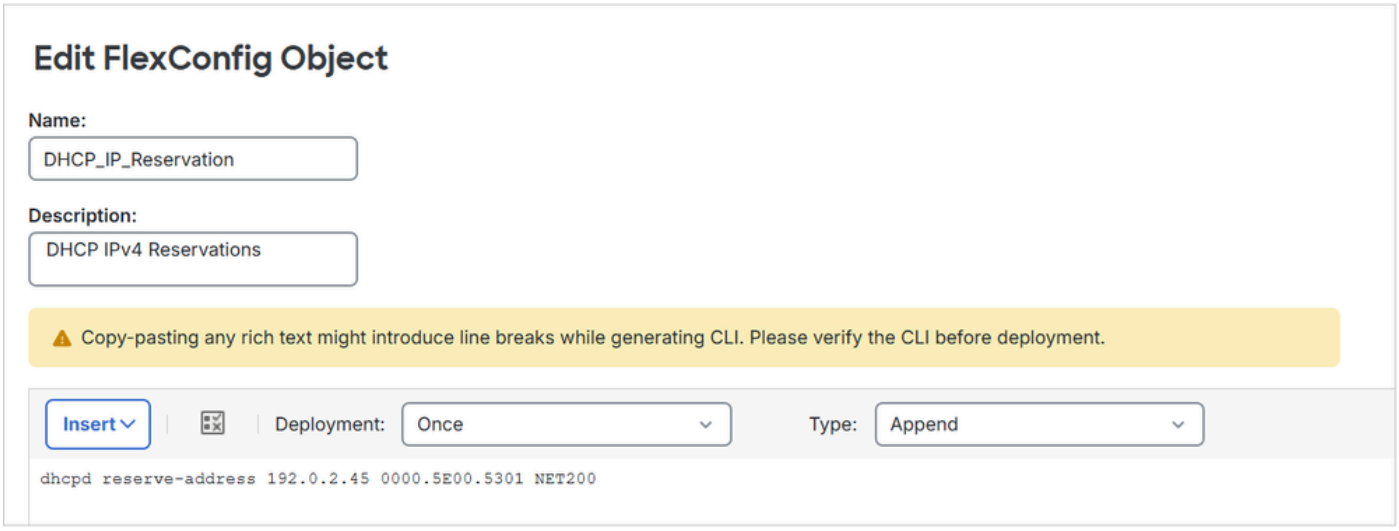
池192.0.2.10 - 50在FTD接口NET200上配置：



FlexConfig配置

对于DHCP IP地址保留，请使用FlexConfig:

- 部署类型:设置为“一次”。
- 配置类型:设置为“Append”（这是默认值）。也可以使用“预置”。



配置验证

已部署的配置：

<#root>

device#

show run dhcpd

dhcpd address 192.0.2.10-192.0.2.50 NET200
dhcpd enable NET200
dhcpd reserve-address 192.0.2.45 0000.5E00.5301 NET200

后台操作

要捕获DHCP数据包，请使用以下命令：

<#root>

device#

capture CAPI interface NET200 match udp any any eq bootpc

device#

```
capture CAPI interface NET200 match udp any any eq bootps
```

- DHCP客户端侦听UDP端口68。
- DHCP服务器侦听UDP端口67。

DHCP调试：

<#root>

```
device#
```

```
debug dhcpd event 255
```

```
debug dhcpd event enabled at level 255
device#
```

```
debug dhcpd packet 255
```

```
debug dhcpd packet enabled at level 255
```

注意：请谨慎使用调试！

IP地址分配过程中的调试输出：

<#root>

```
DHCPD/RA:  Server msg received, fip=ANY, fport=0 on NET200 interface
DHCPD:
```

```
 DHCPDISCOVER received from client 0100.5056.885f.d1 on interface NET200.
```

```
DHCPD:IP 248.57.222.26 ARP entry removed from the cache
DHCPD: send ping pkt to 192.0.2.45
DHCPD: ping got no response for ip: 192.0.2.45
DHCPD:
```

```
MAC 0000.5E00.5301 is reserved for IP 192.0.2.45, allocating it
```

```
DHCPD: Add binding 192.0.2.45 to radix tree
DHCPD/RA: Binding successfully added to hash table
dhcpd_create_automatic_binding() adding NP rule for client 192.0.2.45
DHCPD:
```

assigned IP address 192.0.2.45 to client 0100.5056.885f.d1.

DHCPD:

Sending DHCPOFFER to client 0100.5056.885f.d1 (192.0.2.45).

```
DHCPD: Total # of raw options copied to outgoing DHCP message is 0.
DHCPD/RA: creating ARP entry (192.0.2.45, 0000.5E00.5301).
DHCPD: unicasting BOOTREPLY to client 0000.5E00.5301(192.0.2.45).
DHCPD/RA:  Server msg received, fip=ANY, fport=0 on NET200 interface
DHCPD: DHCPDISCOVER received from client 0100.5056.885f.d1 on interface NET200.
DHCPD: Sending DHCPOFFER to client 0100.5056.885f.d1 (192.0.2.45).
DHCPD: Total # of raw options copied to outgoing DHCP message is 0.
DHCPD/RA: creating ARP entry (192.0.2.45, 0000.5E00.5301).
DHCPD: unicasting BOOTREPLY to client 0000.5E00.5301(192.0.2.45).
DHCPD/RA:  Server msg received, fip=ANY, fport=0 on NET200 interface
DHCPD: DHCPDISCOVER received from client 0100.5056.885f.d1 on interface NET200.
DHCPD: Sending DHCPOFFER to client 0100.5056.885f.d1 (192.0.2.45).
DHCPD: Total # of raw options copied to outgoing DHCP message is 0.
DHCPD/RA: creating ARP entry (192.0.2.45, 0000.5E00.5301).
DHCPD: unicasting BOOTREPLY to client 0000.5E00.5301(192.0.2.45).
DHCPD/RA:  Server msg received, fip=ANY, fport=0 on NET200 interface
DHCPD: DHCPREQUEST received from client 0100.5056.885f.d1.
DHCPD: Extracting client address from the message
DHCPD: State = DHCPS_REBOOTING
DHCPD: State = DHCPS_REQUESTING
DHCPD: Client 0100.5056.885f.d1 specified it's address 192.0.2.45
DHCPD: Client is on the correct network
DHCPD:
```

Client accepted our offer

DHCPD:

Client and server agree on address 192.0.2.45

```
DHCPD: Renewing client 0100.5056.885f.d1 lease
DHCPD: Client lease can be renewed
DHCPD: Sending DHCPACK to client 0100.5056.885f.d1 (192.0.2.45).
DHCPD: Including FQDN option name 'DESKTOP-VQ7968K' rcode1=0, rcode2=0 flags=0x0
DHCPD: Total # of raw options copied to outgoing DHCP message is 0.
DHCPD/RA: creating ARP entry (192.0.2.45, 0000.5E00.5301).
DHCPD: unicasting BOOTREPLY to client 0000.5E00.5301(192.0.2.45).
```

DHCP绑定的验证：

<#root>

device#

show dhcpd binding

```
IP address       Client Identifier        Lease expiration        Type

192.0.2.45

0100.005e.0053.01

           3589 seconds    Automatic
```

原因

- FMC本身不支持DHCP IP地址预留的配置。因此，必须使用FlexConfig来配置IP地址保留。
- 相关增强缺陷：思科漏洞ID CSCwn24229。

相关内容

- https://www.cisco.com/c/en/us/td/docs/security/asa/asa-cli-reference/A-H/asa-command-ref-A-H/m_dh-dm.html#wp1603069952
- https://bst.cloudapps.cisco.com/bugsearch/bug/CSCwn24229
- 思科技术支持和下载

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