由於NTP而排除DHCP監聽資料庫完整性故障

目錄

簡介

本文檔介紹NTP和DHCP監聽資料庫之間的關係，突出顯示了記錄和還原DHCP繫結中的時間同步。

必要條件

需求

思科建議您瞭解以下主題：

基本瞭解：

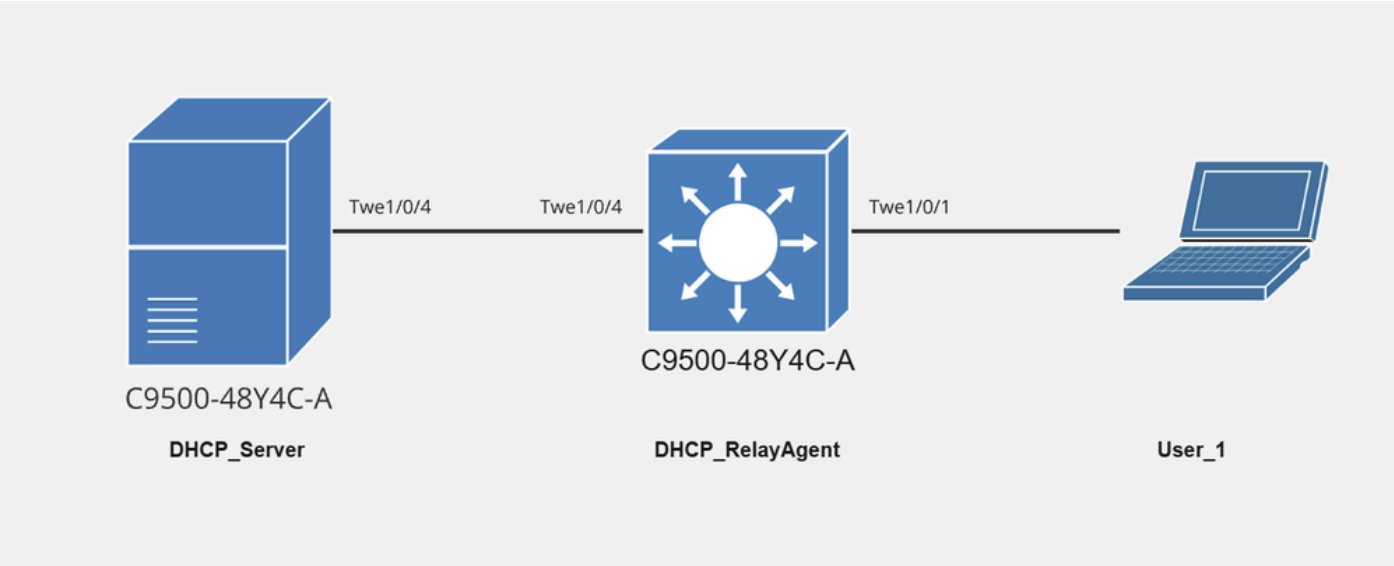
- Catalyst 9000系列交換器架構
- Cisco IOS® XE軟體和命令列
- DHCP（動態主機設定通訊協定）、DHCP窺探和相關功能
- NTP（網路時間協定）

採用元件

本檔案中的資訊是根據適用於Cisco IOS®軟體版本17.12.4的Cisco Catalyst C9500。

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。如果您的網路運作中，請確保您瞭解任何指令可能造成的影響。

拓撲



使用User_1的Network_Diagram

NTP和NTP可達性在DHCP監聽資料庫填充中的作用

在啟用DHCP監聽的交換機或網路裝置中，繫結表儲存有關IP地址、MAC地址、VLAN和租用到期時間的即時動態資訊。此資訊對於驗證DHCP客戶端和保護網路免受非法DHCP伺服器攻擊至關重要。

但是，監聽資料庫通常旨在為此資訊提供永續性，以便在重新啟動後恢復它。可以定期備份資料庫，並且資訊儲存在永久檔案中（例如，flash:backup.text）。為了讓此備份過程正常運行，需要精確的系統時間，特別是對於租約到期時間戳和其他時間敏感型資料。

NTP是確保系統時鐘精確同步的關鍵。系統依靠準確的時間實現以下目標：

- 計算DHCP繫結的租用期限。
- 確保在儲存繫結表時，將正確的時間戳寫入監聽資料庫。

如果NTP伺服器無法訪問，或者系統無法同步其時鐘，則系統不能有準確的時間參考來正確處理DHCP租約的過期時間戳。這會導致以下問題：

1.租約到期時間問題

錯誤的時間戳可能會導致以下問題：

- 租約到期或續期不正確。
- 監聽資料庫中過時或過時的DHCP繫結資訊。

2.對繫結表備份的影響

當NTP伺服器可訪問時，系統可以為每個DHCP租用生成準確的時間戳，並將繫結表正確備份到監聽資料庫中。

如果NTP伺服器無法訪問，裝置將無法確定正確的當前時間，導致0次嘗試將有效繫結資訊寫入資料庫。

3.不可靠的資料庫備份

監聽資料庫永久儲存繫結資訊，包括每個租約的到期時間。

如果沒有NTP提供的準確系統時間，裝置在儲存到資料庫時無法寫入準確的租約過期時間戳。

如果NTP伺服器可以間歇性地訪問，則會導致DHCP繫結表和DHCP監聽資料庫表之間的完整性問題。因此，監聽資料庫資料被視為不完整或不正確。

基本組態

步驟1.在中繼代理上全域性啟用和VLAN下的DHCP監聽。在這種情況下，中繼代理和接入交換機是相同的。

```
DHCP_RelayAgent#configure terminal
DHCP_RelayAgent(config)#ip dhcp snooping
DHCP_RelayAgent(config)#ip dhcp snooping vlan 10
```

步驟2.在接收來自正版DHCP伺服器的DHCP提供的交換機的所有介面上配置DHCP監聽信任。此類介面的數量取決於DHCP伺服器的網路設計和位置。這些介面正流向正版DHCP伺服器。

<#root>

```
DHCP_RelayAgent# show running-configuration interface TwentyFiveGigE1/0/4
```

```
Building configuration...
Current configuration : 84 bytes
!
interface TwentyFiveGigE1/0/4
 switchport mode trunk
 ip dhcp snooping trust
end
```

步驟3.將DHCP監聽資料庫配置為某個位置，以監視DHCP監聽繫結表、跟蹤資料庫操作的運行狀況並驗證資料庫是否正確更新和傳輸。

<#root>

```
DHCP_RelayAgent#configure terminal
DHCP_RelayAgent(config)#ip dhcp snooping database bootflash:dhcpsnoopingdatabase.txt
```

```
DHCP_RelayAgent(config)#ip dhcp snooping database timeout 300
DHCP_RelayAgent(config)#ip dhcp snooping database write-delay 15
```

```
DHCP_RelayAgent#show running-configuration | include database
```

```
ip dhcp snooping database bootflash:dhcpsnoopingdatabase.txt
ip dhcp snooping database write-delay 15
```

案例1 - NTP伺服器無法連線

<#root>

```
DHCP_RelayAgent# ping vrf Mgmt-vrf 10.81.254.131
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.81.254.131, timeout is 2 seconds:
……
Success rate is 0 percent (0/0)
```

現在我們可以看到User_1在vlan 10中收到了IP 10.10.10.1。

以下是DHCP監聽繫結表，顯示TwentyFigE1/0/1上User_1的IP地址、MAC地址和介面

<#root>

```
DHCP_RelayAgent#show ip dhcp snooping binding
```

```
MacAddress          IpAddress        Lease(sec)    Type           VLAN   Interface
------------------  ---------------  ----------   --------------  ----   --------------------
78:BC:1A:0B:D5:1F   10.10.10.1       86372        dhcp-snooping   10     TwentyFiveGigE1/0/1

Total number of bindings: 1
```

通常，一旦使用者收到IP地址，動態地建立監聽繫結表，並且隨後將相應資訊新增到監聽資料庫中。但是，在這種情況下，由於NTP伺服器無法訪問，更新繫結資訊或將繫結資訊傳輸到資料庫的總嘗試次數為0次。

<#root>

```
DHCP_RelayAgent#show ip dhcp snooping database
```

Agent URL : bootflash:dhcpsnoopingdatabase.txt
Write delay Timer : 15 seconds
Abort Timer : 300 seconds

Agent Running : No
Delay Timer Expiry : Not Running
Abort Timer Expiry : Not Running

Last Succeded Time : 18:37:38 UTC Mon Mar 17 2025
Last Failed Time : None
Last Failed Reason : No failure recorded.

Total Attempts : 0

Startup Failures : 0

Successful Transfers : 0

Failed Transfers : 0
Successful Reads : 0 Failed Reads : 0

Successful Writes : 0

Failed Writes : 0
Media Failures : 0

<#root>

DHCP_RelayAgent#more flash:dhcpsnoopingdatabase.txt

%Error opening bootflash:dhcpsnoopingdatabase.txt (No such file or directory)

<#root>

*Mar 18 11:12:21.264: DHCP_SNOOPING: process new DHCP packet, message type: DHCPACK, input interface: Vl
*Mar 18 11:12:21.264: DHCP_SNOOPING: binary dump of option 82, length: 20 data:
0x52 0x12 0x1 0x6 0x0 0x4 0x0 0xA 0x1 0x1 0x2 0x8 0x0 0x6 0x78 0xBC 0x1A 0xB 0xC2 0x60
*Mar 18 11:12:21.264: DHCP_SNOOPING: binary dump of extracted circuit id, length: 8 data:
0x1 0x6 0x0 0x4 0x0 0xA 0x1 0x1
*Mar 18 11:12:21.264: DHCP_SNOOPING: binary dump of extracted remote id, length: 10 data:
0x2 0x8 0x0 0x6 0x78 0xBC 0x1A 0xB 0xC2 0x60
*Mar 18 11:12:21.264: actual_fmt_cid OPT82_FMT_CID_VLAN_MOD_PORT_INTF global_opt82_fmt_rid OPT82_FMT_RID
*Mar 18 11:12:21.264: DHCP_SNOOPING: opt82 data indicates local packet
*Mar 18 11:12:21.264: DHCP_SNOOPING: opt82 data indicates local packet
*Mar 18 11:12:21.264: DHCP_SNOOPING opt82_fmt_cid_intf OPT82_FMT_CID_VLAN_MOD_PORT_INTF opt82_fmt_cid_gl
*Mar 18 11:12:21.264: DHCP_SNOOPING: vlan_id 10 VNI 0 mod 1 port 1
*Mar 18 11:12:21.264: DHCP_SNOOPING: mod 1 port 1 idb Twe1/0/1 found for 78bc.1a0b.d51f
*Mar 18 11:12:21.264: DHCP_SNOOPING: add binding on port TwentyFiveGigE1/0/1 ckt_id 0 TwentyFiveGigE1/0/
*Mar 18 11:12:21.264: DHCP_SNOOPING: dhcp binding entry already exists, update binding lease time to (86

*Mar 18 11:12:21.264: ipaddr: 10.10.10.1, hwidb: TwentyFiveGigE1/0/1, type: 1, phyidb: TwentyFiveGigE1/0

```
*Mar 18 11:12:21.264: DHCP_SNOOPING: Reroute dhcp pak, message type: DHCPACK
*Mar 18 11:12:21.264: DHCP_SNOOPING: remove relay information option.
*Mar 18 11:12:21.264: DHCP_SNOOPING opt82_fmt_cid_intf OPT82_FMT_CID_VLAN_MOD_PORT_INTF opt82_fmt_cid_gl
*Mar 18 11:12:21.264: DHCP_SNOOPING: vlan_id 10 VNI 0 mod 1 port 1
*Mar 18 11:12:21.264: DHCP_SNOOPING: mod 1 port 1 idb Twe1/0/1 found for 78bc.1a0b.d51f
*Mar 18 11:12:21.264: DHCP_SNOOPING: calling forward_dhcp_reply
*Mar 18 11:12:21.264: platform lookup dest vlan for input_if: Vlan10, is NOT tunnel, if_output: Vlan10,
*Mar 18 11:12:21.264: DHCP_SNOOPING opt82_fmt_cid_intf OPT82_FMT_CID_VLAN_MOD_PORT_INTF opt82_fmt_cid_gl
*Mar 18 11:12:21.264: DHCP_SNOOPING: vlan_id 10 VNI 0 mod 1 port 1
*Mar 18 11:12:21.264: DHCP_SNOOPING: mod 1 port 1 idb Twe1/0/1 found for 78bc.1a0b.d51f
*Mar 18 11:12:21.264: DHCP_SNOOPING: vlan 10 after pvlan check
*Mar 18 11:12:21.264: DHCP Memory dump is printed for direct forward reply

765DFA772750: FFFF FFFFFFFF 78BC1A0B C2FF0800
765DFA772760: 4500015E 00230000 FF11A64E 0A0A0A14
765DFA772770: FFFFFFFF 00430044 014A36A8 02010600
765DFA772780: BAF1E48A 00008000 00000000 0A0A0A01
765DFA772790: 00000000 0A0A0A14 78BC1A0B D51F0000
765DFA7727A0: 00000000 00000000 00000000 00000000
765DFA7727B0: 00000000 00000000 00000000 00000000
765DFA7727C0: 00000000 00000000 00000000 00000000
765DFA7727D0: 00000000 00000000 00000000 00000000
765DFA7727E0: 00000000 00000000 00000000 00000000
765DFA7727F0: 00000000 00000000 00000000 00000000
765DFA772800: 00000000 00000000 00000000 00000000
765DFA772810: 00000000 00000000 00000000 00000000
765DFA772820: 00000000 00000000 00000000 00000000
765DFA772830: 00000000 00000000 00000000 00000000
765DFA772840: 00000000 00000000 00000000 00000000
765DFA772850: 00000000 00000000 00000000 00000000
765DFA772860: 00000000 00000000 63825363 3501053D
765DFA772870: 1A006369 73636F2D 37386263 2E316130
765DFA772880: 622E6435 31662D56 6C313036 040A0A0A
765DFA772890: 0A330400 0151803A 040000A8 C03B0400
765DFA7728A0: 01275001 04FFFFFF 00FF0000 00000000
765DFA7728B0: 00000000 00000000 00000000 00FF
*Mar 18 11:12:21.273: DHCP_SNOOPING: direct forward dhcp replyto output port: TwentyFiveGigE1/0/1.

*Mar 18 11:12:38.546: Write delay timer expired


*Mar 18 11:12:38.546: Restarting write delay timer.


*Mar 18 11:13:38.546: Write delay timer expired


*Mar 18 11:13:38.546: Restarting write delay timer.


*Mar 18 11:14:08.547: Write delay timer expired


*Mar 18 11:14:08.547: Restarting write delay timer.


*Mar 18 11:14:14.266: %SYS-5-CONFIG_I: Configured from console by admin on vty0 (10.110.129.206)
```

案例2 - NTP伺服器可連線

<#root>

DHCP_RelayAgent# ping vrf Mgmt-vrf 10.81.254.131

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.81.254.131, timeout is 2 seconds:
!!!!!
```

Success rate is 100 percent (5/5), round-trip min/avg/max = 175/175/176 ms

<#root>

DHCP_RelayAgent#show ip dhcp snooping binding

```
MacAddress          IpAddress        Lease(sec)    Type          VLAN   Interface
------------------  ---------------  ----------   -------------  ----   --------------------
```

78:BC:1A:0B:D5:1F   10.10.10.1   86372   dhcp-snooping 10   TwentyFiveGigE1/0/1

```
Total number of bindings: 1
```

一旦使用者收到IP地址，就會動態建立監聽繫結表，隨後將相應資訊新增到監聽資料庫中。因此，更新或傳輸資料庫的總嘗試為1次，所有嘗試都成功。沒有失敗的寫入、讀取或傳輸。

<#root>

DHCP_RelayAgent#show ip dhcp snooping database

```
Agent URL : bootflash:dhcpsnoopingdatabase.txt
Write delay Timer : 15 seconds
Abort Timer : 300 seconds

Agent Running : No
Delay Timer Expiry : 29 (00:00:29)
Abort Timer Expiry : Not Running

Last Succeded Time : 18:39:27 UTC Mon Mar 17 2025
Last Failed Time : None
Last Failed Reason : No failure recorded.
```

Total Attempts : 1

```
         Startup Failures : 0
```

Successful Transfers : 1

Failed Transfers : 0
Successful Reads : 0 Failed Reads : 0

Successful Writes : 1

Failed Writes : 0
Media Failures : 0

<#root>

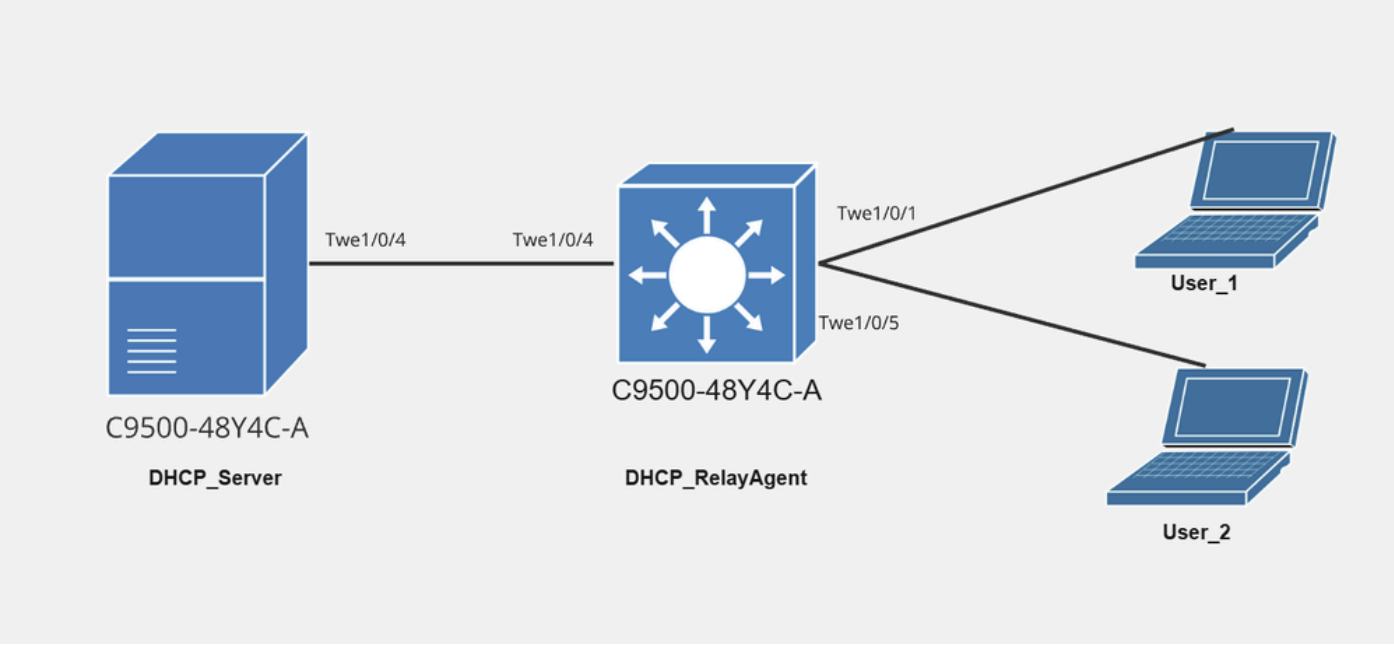
DHCP_RelayAgent#more flash:dhcpsnoopingdatabase.txt

67d86a58
TYPE DHCP-SNOOPING
VERSION 1
BEGIN

10.10.10.1 10 78bc.1a0b.d51f 67D9BBCA Twe1/0/1 8b21f6ef

END

案例3 - NTP伺服器可間歇式連線



使用User_1和User_2的網路圖

<#root>

DHCP_RelayAgent# ping vrf Mgmt-vrf 10.81.254.131

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.81.254.131, timeout is 2 seconds:
!!!!!
```

Success rate is 100 percent (5/5), round-trip min/avg/max = 175/175/176 ms

現在我們可以看到User_1在vlan 10中收到了IP 10.10.10.1。

以下是DHCP監聽繫結表，顯示TwentyFigE1/0/1上User_1的IP地址、MAC地址和介面

<#root>

DHCP_RelayAgent#show ip dhcp snooping binding

```
MacAddress IpAddress Lease(sec) Type VLAN Interface
------------------ -------------- ---------- ------------ ---- --------------------
```

78:BC:1A:0B:D5:1F 10.10.10.1 86372 dhcp-snooping 10 TwentyFiveGigE1/0/1

```
Total number of bindings: 1
```

<#root>

DHCP_RelayAgent#show ip dhcp snooping database

```
Agent URL : bootflash:dhcpsnoopingdatabase.txt
Write delay Timer : 15 seconds
Abort Timer : 300 seconds

Agent Running : No
Delay Timer Expiry : 29 (00:00:29)
Abort Timer Expiry : Not Running

Last Succeded Time : 18:40:20 UTC Mon Mar 17 2025
Last Failed Time : None
Last Failed Reason : No failure recorded.
```

Total Attempts : 1

```
         Startup Failures : 0
```

Successful Transfers : 1

```
   Failed Transfers : 0
Successful Reads : 0       Failed Reads : 0
```

Successful Writes : 1

```
      Failed Writes : 0
Media Failures : 0
```

<#root>

DHCP_RelayAgent#more flash:dhcpsnoopingdatabase.txt

```
67d86a58
TYPE DHCP-SNOOPING
VERSION 1
BEGIN
```

10.10.10.1 10 78bc.1a0b.d51f 67D9BBCA Twe1/0/1 8b21f6ef

```
END
```

過了一會兒，NTP無法訪問，但User_2在vlan 10中獲得其IP地址10.10.10.2，它在繫結表中更新，但未推入監聽資料庫表中。

<#root>

DHCP_RelayAgent# ping vrf Mgmt-vrf 10.81.254.131

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.81.254.131, timeout is 2 seconds:
……
```

Success rate is 0 percent (0/0)

以下是DHCP監聽繫結表，顯示了TwentyFiveGigE1/0/5上User_2的IP地址、MAC地址和介面

<#root>

DHCP_RelayAgent#show ip dhcp snooping binding

MacAddress	IpAddress	Lease(sec)	Type	VLAN	Interface
78:BC:1A:0B:D5:1F	**10.10.10.1**	**86217**	**dhcp-snooping**	**10**	**TwentyFiveGigE1/0/1**
F8:E5:7E:75:04:46	**10.10.10.2**	**85336**	**dhcp-snooping**	**10**	**TwentyFiveGigE1/0/5**

```
Total number of bindings: 2
```

監聽資料庫上的條目不會遞增，成功寫入的總數仍為1。

<#root>

DHCP_RelayAgent#show ip dhcp snooping database

```
Agent URL : bootflash:dhcpsnoopingdatabase.txt
Write delay Timer : 15 seconds
Abort Timer : 300 seconds

Agent Running : No
Delay Timer Expiry : 29 (00:00:29)
Abort Timer Expiry : Not Running

Last Succeded Time : 18:41:38 UTC Mon Mar 17 2025
Last Failed Time : None
Last Failed Reason : No failure recorded.
```

Total Attempts : 1

```
         Startup Failures : 0
```

Successful Transfers : 1

```
   Failed Transfers : 0
Successful Reads : 0       Failed Reads : 0
```

Successful Writes : 1

```
      Failed Writes : 0
Media Failures : 0
```

<#root>

DHCP_RelayAgent#more flash:dhcpsnoopingdatabase.txt

```
67d86a58
TYPE DHCP-SNOOPING
VERSION 1
BEGIN
```

10.10.10.1 10 78bc.1a0b.d51f 67D9BBCA Twe1/0/1 8b21f6ef

```
END
```

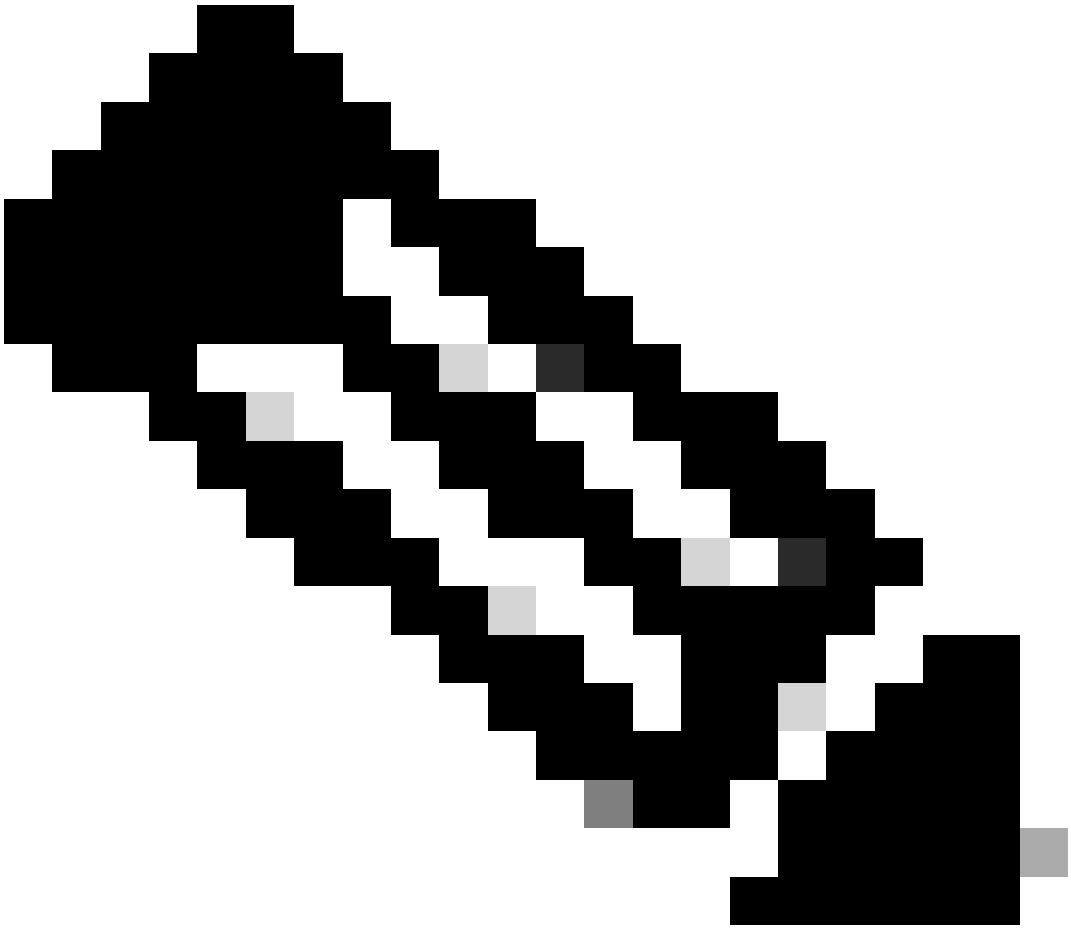
當NTP伺服器變得可訪問時，系統將同步DHCP監聽繫結表和DHCP監聽資料庫。此處不顯示此情境。但是，通過刪除NTP伺服器配置也可以實現類似的結果。

刪除NTP配置後，User_2條目將新增到監聽資料庫表中。
在這種情況下，交換器會使用系統的時鐘時間。

<#root>

```
DHCP_RelayAgent#configure terminal
```

DHCP_RelayAgent(config)# no ntp server 10.81.254.131



附註：出於演示目的，我們刪除了NTP伺服器配置。從技術上講，NTP伺服器可訪問和未配置NTP伺服器的結果是類似的。

```
*Mar 17 17:26:26.475: %DHCP_SNOOPING-4-NTP_NOT_RUNNING: NTP is not running; reloaded binding lease expir
*Mar 17 17:26:26.486: %DHCP_SNOOPING-6-AGENT_OPERATION_SUCCEEDED: DHCP snooping database Write succeeded
```

<#root>

DHCP_RelayAgent#show ip dhcp snooping binding

```
MacAddress          IpAddress        Lease(sec)   Type           VLAN   Interface
```

```
-----------------   --------------  ----------   -------------   ----   --------------------
```

78:BC:1A:0B:D5:1F 10.10.10.1 86217 dhcp-snooping 10 TwentyFiveGigE1/0/1

F8:E5:7E:75:04:46 10.10.10.2 85336 dhcp-snooping 10 TwentyFiveGigE1/0/5

```
Total number of bindings: 2
```

<#root>

DHCP_RelayAgent#show ip dhcp snooping database

```
Agent URL : bootflash:dhcpsnoopingdatabase.txt
Write delay Timer : 15 seconds
Abort Timer : 300 seconds

Agent Running : No
Delay Timer Expiry : 29 (00:00:29)
Abort Timer Expiry : Not Running

Last Succeded Time : 18:42:16 UTC Mon Mar 17 2025
Last Failed Time : None
Last Failed Reason : No failure recorded.
```

Total Attempts : 2

```
         Startup Failures : 0
```

Successful Transfers : 2

```
    Failed Transfers : 0
Successful Reads : 0        Failed Reads : 0
```

Successful Writes : 2

```
       Failed Writes : 0
Media Failures : 0
```

<#root>

DHCP_RelayAgent#more flash:dhcpsnoopingdatabase.txt

```
67d86a58
TYPE DHCP-SNOOPING
VERSION 1
```

BEGIN

10.10.10.1 10 78bc.1a0b.d51f 67D9BBCA Twe1/0/1 8b21f6ef

10.10.10.2 10 f8e5.7e75.0446 67D9B6DC Twe1/0/5 bef43442

END

<#root>

```
*Mar 18 11:36:38.283: DHCP_SNOOPING: Reroute dhcp pak, message type: DHCPACK
*Mar 18 11:36:38.283: DHCP_SNOOPING: remove relay information option.
*Mar 18 11:36:38.283: DHCP_SNOOPING opt82_fmt_cid_intf OPT82_FMT_CID_VLAN_MOD_PORT_INTF opt82_fmt_cid_gl
*Mar 18 11:36:38.283: DHCP_SNOOPING: vlan_id 10 VNI 0 mod 1 port 1
*Mar 18 11:36:38.283: DHCP_SNOOPING: mod 1 port 1 idb Twe1/0/5 found for f8e5.7e75.0446
*Mar 18 11:36:38.283: DHCP_SNOOPING: calling forward_dhcp_reply
*Mar 18 11:36:38.283: platform lookup dest vlan for input_if: Vlan10, is NOT tunnel, if_output: Vlan10,
*Mar 18 11:36:38.283: DHCP_SNOOPING opt82_fmt_cid_intf OPT82_FMT_CID_VLAN_MOD_PORT_INTF opt82_fmt_cid_gl
*Mar 18 11:36:38.283: DHCP_SNOOPING: vlan_id 10 VNI 0 mod 1 port 1
*Mar 18 11:36:38.283: DHCP_SNOOPING: mod 1 port 1 idb Twe1/0/5 found for f8e5.7e75.0446
*Mar 18 11:36:38.283: DHCP_SNOOPING: vlan 10 after pvlan check
*Mar 18 11:36:38.283: DHCP Memory dump is printed for direct forward reply
765DFA80B990: FFFF FFFFFFFF 78BC1A0B C2FF0800
765DFA80B9A0: 4500015E 002B0000 FF11A646 0A0A0A14
765DFA80B9B0: FFFFFFFF 00430044 014A51AD 02010600
765DFA80B9C0: ED9296E4 00008000 00000000 0A0A0A01
765DFA80B9D0: 00000000 0A0A0A14 78BC1A0B D51F0000
765DFA80B9E0: 00000000 00000000 00000000 00000000
765DFA80B9F0: 00000000 00000000 00000000 00000000
765DFA80BA00: 00000000 00000000 00000000 00000000
765DFA80BA10: 00000000 00000000 00000000 00000000
765DFA80BA20: 00000000 00000000 00000000 00000000
765DFA80BA30: 00000000 00000000 00000000 00000000
765DFA80BA40: 00000000 00000000 00000000 00000000
765DFA80BA50: 00000000 00000000 00000000 00000000
765DFA80BA60: 00000000 00000000 00000000 00000000
765DFA80BA70: 00000000 00000000 00000000 00000000
765DFA80BA80: 00000000 00000000 00000000 00000000
765DFA80BA90: 00000000 00000000 00000000 00000000
765DFA80BAA0: 00000000 00000000 63825363 3501053D
765DFA80BAB0: 1A006369 73636F2D 37386263 2E316130
765DFA80BAC0: 622E6435 31662D56 6C313036 040A0A0A
765DFA80BAD0: 0A330400 0151803A 040000A8 C03B0400
765DFA80BAE0: 01275001 04FFFFFF 00FF0000 00000000
765DFA80BAF0: 00000000 00000000 00000000 00FF
*Mar 18 11:36:38.291: DHCP_SNOOPING: direct forward dhcp replyto output port: TwentyFiveGigE1/0/5.
*Mar 18 11:37:25.795: DHCP_SNOOPING: checking expired snoop binding entries
*Mar 18 11:37:36.694: %SYS-5-CONFIG_I: Configured from console by admin on vty0 (10.110.129.206)
*Mar 18 11:37:38.956: DHCPD: Reload workspace interface GigabitEthernet0/0 tableid 1.
*Mar 18 11:37:38.956: DHCPD: Sending notification of DISCOVER:
*Mar 18 11:37:38.956: DHCPD: htype 1 chaddr 7c21.0e1e.59b6
*Mar 18 11:37:38.956: DHCPD: table id 1 = vrf Mgmt-vrf
*Mar 18 11:37:38.956: DHCPD: interface = GigabitEthernet0/0
*Mar 18 11:37:38.956: DHCPD: class id 436973636f204e394b2d433933333243
*Mar 18 11:37:38.956: DHCPD: FSM state change INVALID
```

```
*Mar 18 11:37:38.956: DHCPD: Workspace state changed from INIT to INVALID
*Mar 18 11:37:39.957: DHCPD: Reload workspace interface GigabitEthernet0/0 tableid 1.
*Mar 18 11:37:39.957: DHCPD: Sending notification of DISCOVER:
*Mar 18 11:37:39.957: DHCPD: htype 1 chaddr 7c21.0e1e.59b6
*Mar 18 11:37:39.957: DHCPD: table id 1 = vrf Mgmt-vrf
*Mar 18 11:37:39.957: DHCPD: interface = GigabitEthernet0/0
*Mar 18 11:37:39.957: DHCPD: class id 436973636f204e394b2d433933333243
*Mar 18 11:37:39.957: DHCPD: FSM state change INVALID
*Mar 18 11:37:39.957: DHCPD: Workspace state changed from INIT to INVALID
```

***Mar 18 11:37:50.819: Write delay timer expired**

***Mar 18 11:37:50.819: Restarting write delay timer.**

***Mar 18 11:37:50.819: %DHCP_SNOOPING-4-NTP_NOT_RUNNING: NTP is not running; reloaded binding lease expir**

***Mar 18 11:37:50.827: to string : 10.10.10.1 10 78bc.1a0b.d51f 67DAAC45 Twe1/0/1**

***Mar 18 11:37:50.827: to string : 10.10.10.2 10 f8e5.7e75.0446 67D9B6DC Twe1/0/5**

***Mar 18 11:37:50.832: %DHCP_SNOOPING-6-AGENT_OPERATION_SUCCEEDED: DHCP snooping database Write succeeded**

***Mar 18 11:37:50.832: Resetting fail log parameters.**

結論

- 如果NTP伺服器IP存在且可訪問，則會填充DHCP監聽繫結表和監聽資料庫。必須使用來自NTP伺服器的同步時間為條目準確設定時間戳。
- 如果NTP伺服器IP存在但無法訪問，則仍會填充DHCP監聽繫結表，但無法在監聽資料庫中填充條目，因為系統無法同步時間進行準確的租用管理。
- 如果NTP伺服器IP未配置或不存在，則DHCP監聽繫結表和監聽資料庫仍包含條目，但監聽資料庫中的時間戳不可靠，因為它們可以基於本地系統時間。
- 總之，為了準確可靠地管理DHCP監聽資料庫，NTP至關重要。

關於此翻譯

思科已使用電腦和人工技術翻譯本文件，讓全世界的使用者能夠以自己的語言理解支援內容。請注意，即使是最佳機器翻譯，也不如專業譯者翻譯的內容準確。Cisco Systems, Inc. 對這些翻譯的準確度概不負責，並建議一律查看原始英文文件（提供連結）。