

ASA : DHCPv6中继配置示例和故障排除

目录

[简介](#)

[先决条件](#)

[要求](#)

[使用的组件](#)

[有状态的与无状态的DHCPv6](#)

[网络图](#)

[DHCPv6与DHCPv4消息类型](#)

[无状态的DHCPv6中继](#)

[配置](#)

[数据包流](#)

[验证](#)

[调试](#)

[Wireshark快照](#)

[有状态的DHCPv6](#)

[配置](#)

[数据包流](#)

[验证](#)

[调试](#)

[Wireshark快照](#)

[故障排除](#)

[DHCP中继输出](#)

[版本地址](#)

[调试](#)

[相关信息](#)

[相关的思科支持社区讨论](#)

简介

本文描述如何配置思科可适应安全工具(ASA)，DHCPv6中继代理并且包括那些基本故障排除。在ASA代码版本9.0中及以后，ASA支持

先决条件

要求

Cisco 建议您了解以下主题：

- IPv6基本概念
- 寻址的IPv6机制
- DHCPv6数据包流

- DHCP中继概念

使用的组件

本文档中的信息根据ASA 5500版本9.1.2。

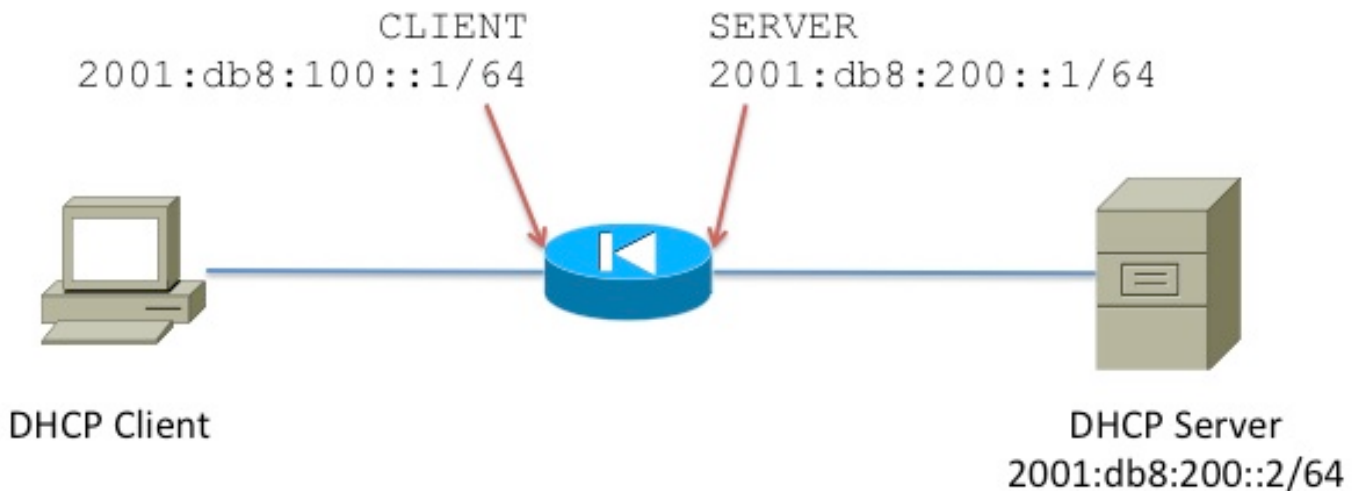
本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您使用的是真实网络，请确保您已经了解所有命令的潜在影响。

有状态的与无状态的DHCPv6

如果了解地址分配不同的说法在IPv6的，帮助您知道DHCPv6中继功能如何在ASA运作。对[动态地址分配的Refre在IPv6使用SLAAC和DHCP](#)简介的无状态的地址自动配置(SLAAC)和DHCPv6。

网络图

此配置示例描述如何配置ASA作为DHCPv6中继代理。在此配置中，**客户端**是IPv6客户端连接的接口。**服务器**是DHCPv6服务器2001:db8:200::2/64是可达的接口。



DHCPv6与DHCPv4消息类型

DHCPv6 Message Type	DHCPv4 Message Type
Solicit (1)	DHCPDISCOVER
Advertise (2)	DHCPOFFER
Request (3), Renew (5), Rebind (6)	DHCPREQUEST
Reply (7)	DHCPACK / DHCPNAK
Release (8)	DHCPRELEASE
Information-Request (11)	DHCPINFORM
Decline (9)	DHCPDECLINE
Confirm (4)	none
Reconfigure (10)	DHCPFORCERENEW
Relay-Forw (12), Relay-Reply (13)	none

无状态的DHCPv6中继

配置

这是无状态的DHCPv6中继配置的基本配置在ASA：

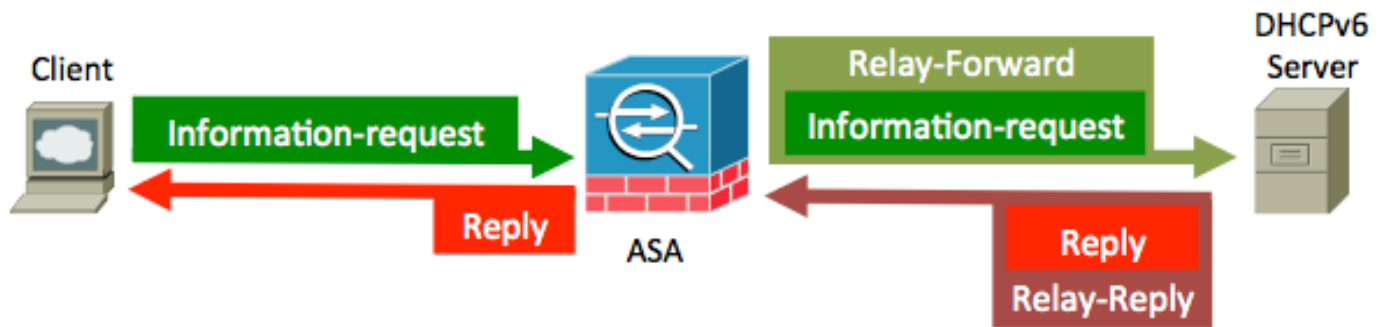
```
interface GigabitEthernet0/1
 nameif CLIENT
 security-level 100
 ipv6 address 2001:db8:100::1/64
 ipv6 enable
 ipv6 nd other-config-flag
!
interface GigabitEthernet0/0
 nameif SERVER
 security-level 0
 ipv6 address 2001:db8:200:1/64
 ipv6 enable
!
ipv6 dhcprelay server 2001:db8:200:2 inside
ipv6 dhcprelay enable outside
```

数据包流

使用无状态的DHCPv6，这是从客户端的数据包流：



ASA截断这些数据包并且包裹他们到DHCP中继格式：



验证

调试

如果启用dhcprelay调试的IPv6并且调试IPv6 dhcp，则相关输出打印对屏幕。此输出从一个工作的方案被采取：

```
IPv6 DHCP: Received INFORMATION-REQUEST from fe80::c671:feff:fe93:b51a on CLIENT
```

```
IPv6 DHCP: detailed packet contents
src fe80::c671:feff:fe93:b51a (CLIENT)
dst ff02::1:2
type INFORMATION-REQUEST(11), xid 1588088
option ELAPSED-TIME(8), len 2
  elapsed-time 0
option CLIENTID(1), len 10
  00030001c471fe93b516
option ORO(6), len 6
  DNS-SERVERS, DOMAIN-LIST, UNKNOWN
```

```
IPv6 DHCP_RELAY: Relaying INFORMATION-REQUEST from fe80::c671:feff:fe93:b51a on CLIENT
IPv6 DHCP_RELAY: Creating relay binding for fe80::c671:feff:fe93:b51a at interface CLIENT
IPv6 DHCP_RELAY:   to 2001:db8:200::2 via 2001:db8:200::2 using SERVER
IPv6 DHCP: Sending RELAY-FORWARD to 2001:db8:200::2 on SERVER
```

```
IPv6 DHCP: detailed packet contents
src 2001:db8:200::1
dst 2001:db8:200::2 (SERVER)
type RELAY-FORWARD(12), hop 0
link 2001:db8:100::1
peer fe80::c671:feff:fe93:b51a
option RELAY-MSG(9), len 34
  type INFORMATION-REQUEST(11), xid 1588088
  option ELAPSED-TIME(8), len 2
    elapsed-time 0
  option CLIENTID(1), len 10
```

```
    00030001c471fe93b516
option ORO(6), len 6
    DNS-SERVERS,DOMAIN-LIST,UNKNOWN
option INTERFACE-ID(18), len 4
0x00000015
IPv6 DHCP: Received RELAY-REPLY from 2001:db8:200::2 on SERVER
```

IPv6 DHCP: detailed packet contents

```
src 2001:db8:200::2 (SERVER)
dst 2001:db8:200::1
type RELAY-REPLY(13), hop 0
link 2001:db8:100::1
peer fe80::c671:feff:fe93:b51a
option RELAY-MSG(9), len 67
type REPLY(7), xid 1588088
option SERVERID(2), len 10
    00030001002414a33c94
option CLIENTID(1), len 10
    00030001c471fe93b516
option DNS-SERVERS(23), len 16
    2001:db8:1000::1
option DOMAIN-LIST(24), len 11
    cisco.com
option INTERFACE-ID(18), len 4
0x00000015
```

IPv6 DHCP_RELAY: Relaying RELAY-REPLY from 2001:db8:200::2 on SERVER

IPv6 DHCP_RELAY: relayed msg: REPLY

IPv6 DHCP_RELAY: to fe80::c671:feff:fe93:b51a

IPv6 DHCP: Sending REPLY to fe80::c671:feff:fe93:b51a on CLIENT

IPv6 DHCP: detailed packet contents

```
src fe80::219:7ff:fe24:2e44
dst fe80::c671:feff:fe93:b51a (CLIENT)
type REPLY(7), xid 1588088
option SERVERID(2), len 10
    00030001002414a33c94
option CLIENTID(1), len 10
    00030001c471fe93b516
option DNS-SERVERS(23), len 16
    2001:db8:1000::1
option DOMAIN-LIST(24), len 11
    cisco.com
```

在INFORMATION-REQUEST请求包中，客户端仅请求dns-server和域，预计，因为client为无状态的DHCPv6配置。

Wireshark快照

DHCP客户端请求

No.	Time	Source	Destination	Protocol	Length	Identification	Info
1	0.000000	fe80::c671:feff:fe93:b51a	ff02::1:2	DHCPv6	100		Information-request XID: 0xfc3adf CID: 00030001c471fe93b516
2	0.005584	fe80::219:7ff:fe24:2e44	fe80::c671:feff:fe93:b51a	DHCPv6	133		Reply XID: 0xfc3adf CID: 00030001c471fe93b516


```

Payload length: 42
Next header: UDP (17)
Hop limit: 255
Source: fe80::c671:feff:fe93:b51a (fe80::c671:feff:fe93:b51a)
[Source SA MAC: c4:71:fe:93:b5:1a (c4:71:fe:93:b5:1a)]
Destination: ff02::1:2 (ff02::1:2)
[Source GeoIP: Unknown]
[Destination GeoIP: Unknown]
User Datagram Protocol, Src Port: dhcpv6-client (546), Dst Port: dhcpv6-server (547)
DHCPv6
  Message type: Information-request (11)
  Transaction ID: 0xfc3adf
  Elapsed time
    Option: Elapsed time (8)
    Length: 2
    Value: 0000
    Elapsed-time: 0 ms
  Client Identifier
    Option: Client Identifier (1)
    Length: 10
    Value: 00030001c471fe93b516
    DUID: 00030001c471fe93b516
    DUID Type: link-layer address (3)
    Hardware type: Ethernet (1)
    Link-layer address: c4:71:fe:93:b5:16
  Option Request
    Option: Option Request (6)
    Length: 6
    Value: 001700180020
    Requested option code: DNS recursive name server (23)
    Requested option code: Domain Search List (24)
    Requested option code: Lifetime (32)
  
```

Src. Address field set to link-local IPv6 address assigned to the sending interface.

Dst. Address set to link-local scope all-routers Multicast address (FF02::2).

UDP ports used for DHCPv6.

Requested options.

ASA中继的DHCP请求

No.	Time	Source	Destination	Protocol	Length	Identification	Info
1	0.000000	2001:db8:200::1	2001:db8:200::2	DHCPv6	146		Relay-forward L: 2001:db8:100::1 Information-request XID: 0xfc3adf CID: 00030001c471fe93b516
2	0.004836	2001:db8:200::2	2001:db8:200::1	DHCPv6	179		Relay-reply L: 2001:db8:100::1 Reply XID: 0xfc3adf CID: 00030001c471fe93b516


```

User Datagram Protocol, Src Port: dhcpv6-server (547), Dst Port: dhcpv6-server (547)
DHCPv6
  Message type: Relay-forward (12)
  Hopcount: 0
  Link address: 2001:db8:100::1 (2001:db8:100::1)
  Peer address: fe80::c671:feff:fe93:b51a (fe80::c671:feff:fe93:b51a)
  Relay Message
    Option: Relay Message (9)
    Length: 34
    Value: 0bf3c3adf0008000200000001000a00030001c471fe93b516...
  DHCPv6
    Message type: Information-request (11)
    Transaction ID: 0xfc3adf
    Elapsed time
      Option: Elapsed time (8)
      Length: 2
      Value: 0000
      Elapsed-time: 0 ms
    Client Identifier
      Option: Client Identifier (1)
      Length: 10
      Value: 00030001c471fe93b516
      DUID: 00030001c471fe93b516
      DUID Type: link-layer address (3)
      Hardware type: Ethernet (1)
      Link-layer address: c4:71:fe:93:b5:16
    Option Request
      Option: Option Request (6)
      Length: 6
      Value: 001700180020
      Requested option code: DNS recursive name server (23)
      Requested option code: Domain Search List (24)
  
```

Ports used for DHCPv6 Relay

从服务器的DHCP回复

No.	Time	Source	Destination	Protocol	Length	Identification	Info
1	0.000000	2001:db8:200::1	2001:db8:200::2	DHCPv6	146		Relay-Forw L: 2001:db8:100::1 Information-request XID: 0xfc3adf CID: 00030001
2	0.004836	2001:db8:200::2	2001:db8:200::1	DHCPv6	179		Relay-reply 1: 2001:db8:100::1 Reply XID: 0xfc3adf CID: 00030001c471fe93b516

DHCPv6

Message type: Relay-reply (13)

Hopcount: 0

Link address: 2001:db8:100::1 (2001:db8:100::1)

Peer address: fe80::c671:feff:fe93:b51a (fe80::c671:feff:fe93:b51a)

Relay Message

Option: Relay Message (9)

Length: 67

Value: 07fc3adf0002000a00030001002414a33c940001000a0003...

DHCPv6

Message type: Reply (7)

Transaction ID: 0xfc3adf

Server Identifier

Option: Server Identifier (2)

Length: 10

Value: 00030001002414a33c94

DUID: 00030001002414a33c94

DUID Type: link-layer address (3)

Hardware type: Ethernet (1)

Link-layer address: 00:24:14:a3:3c:94

Client Identifier

DNS recursive name server

Option: DNS recursive name server (23)

Length: 16

Value: 20010db8100000000000000000000001

DNS server address: 2001:db8:1000::1 (2001:db8:1000::1) **DNS Server Provided by DHCPv6 Server**

Domain Search List

Option: Domain Search List (24)

Length: 11

Value: 05636973636f03636f6d00

DNS Domain Search List

Domain: cisco.com **Domain name**

转发的回复对客户端

No.	Time	Source	Destination	Protocol	Length	Identification	Info
1	0.000000	fe80::c671:feff:fe93:b51a	ff02::1:2	DHCPv6	100		Information-request XID: 0xfc3adf CID: 00030001c471fe93b516
2	0.005584	fe80::219:7ff:fe24:2e44	fe80::c671:feff:fe93:b51a	DHCPv6	133		Reply XID: 0xfc3adf CID: 00030001c471fe93b516

Internet Protocol Version 6, Src: fe80::219:7ff:fe24:2e44 (fe80::219:7ff:fe24:2e44), Dst: fe80::c671:feff:fe93:b51a (fe80::c671:feff:fe93:b51a)

User Datagram Protocol, Src Port: dhcpv6-server (547), Dst Port: dhcpv6-client (546) **Ports used to reply clients**

DHCPv6

Message type: Reply (7)

Transaction ID: 0xfc3adf

Server Identifier

Option: Server Identifier (2)

Length: 10

Value: 00030001002414a33c94

DUID: 00030001002414a33c94

DUID Type: link-layer address (3)

Hardware type: Ethernet (1)

Link-layer address: 00:24:14:a3:3c:94

Client Identifier

Option: Client Identifier (1)

Length: 10

Value: 00030001c471fe93b516

DUID: 00030001c471fe93b516

DUID Type: link-layer address (3)

Hardware type: Ethernet (1)

Link-layer address: c4:71:fe:93:b5:16

DNS recursive name server

Option: DNS recursive name server (23)

Length: 16

Value: 20010db8100000000000000000000001

DNS server address: 2001:db8:1000::1 (2001:db8:1000::1) **Information forwarded to client**

Domain Search List

Option: Domain Search List (24)

Length: 11

Value: 05636973636f03636f6d00

DNS Domain Search List

Domain: cisco.com

有状态的DHCPv6

配置

这是有状态的DHCPv6中继配置的基本配置在ASA :

```

interface GigabitEthernet0/1
 nameif CLIENT
 security-level 100
 ipv6 address 2001:db8:100::1/64
 ipv6 enable
!
interface GigabitEthernet0/0
 nameif SERVER
 security-level 0
 ipv6 address 2001:db8:200:1/64
 ipv6 enable
!

```

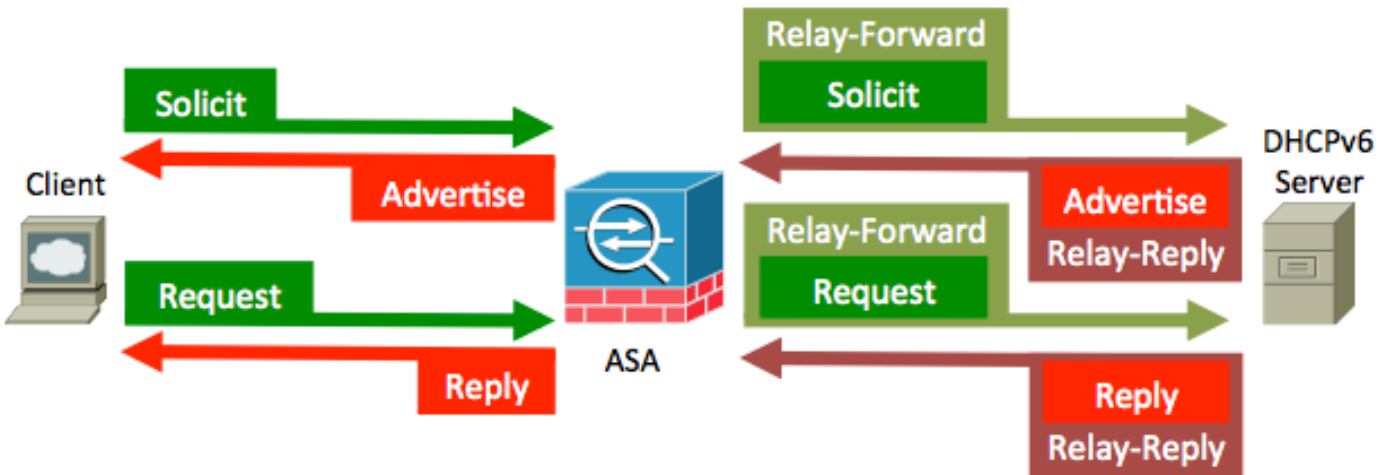
```
ipv6 dhcprelay server 2001:db8:200:2 inside
ipv6 dhcprelay enable outside
```

数据包流

使用有状态的DHCPv6，这是从客户端的数据包流：



ASA截断这些数据包并且包裹他们到DHCP中继格式：



验证

调试

```
IPv6 DHCP: Received SOLICIT from fe80::c671:feff:fe93:b51a on CLIENT
```

```
IPv6 DHCP: detailed packet contents
src fe80::c671:feff:fe93:b51a (CLIENT)
dst ff02::1:2
type SOLICIT(1), xid 2490681
option ELAPSED-TIME(8), len 2
elapsed-time 0
option CLIENTID(1), len 10
00030001c471fe93b516
option ORO(6), len 4
DNS-SERVERS, DOMAIN-LIST
option IA-NA(3), len 12
IAID 0x00040001, T1 0, T2 0
```

```
IPv6 DHCP_RELAY: Relaying SOLICIT from fe80::c671:feff:fe93:b51a on CLIENT
```

```
IPv6 DHCP_RELAY: Creating relay binding for fe80::c671:feff:fe93:b51a at interface CLIENT
```

```
IPv6 DHCP_RELAY: to 2001:db8:200::2 via 2001:db8:200::2 using SERVER
```


IPv6 DHCP: Sending RELAY-FORWARD to 2001:db8:200::2 on SERVER

IPv6 DHCP: detailed packet contents

```
src 2001:db8:200::1
dst 2001:db8:200::2 (SERVER)
type RELAY-FORWARD(12), hop 0
link 2001:db8:100::1
peer fe80::c671:feff:fe93:b51a
option RELAY-MSG(9), len 48
type SOLICIT(1), xid 2490681
option ELAPSED-TIME(8), len 2
  elapsed-time 0
option CLIENTID(1), len 10
  00030001c471fe93b516
option ORO(6), len 4
  DNS-SERVERS,DOMAIN-LIST
option IA-NA(3), len 12
  IAID 0x00040001, T1 0, T2 0
option INTERFACE-ID(18), len 4
  0x00000015
```

IPv6 DHCP: Received RELAY-REPLY from 2001:db8:200::2 on SERVER

IPv6 DHCP: detailed packet contents

```
src 2001:db8:200::2 (SERVER)
dst 2001:db8:200::1
type RELAY-REPLY(13), hop 0
link 2001:db8:100::1
peer fe80::c671:feff:fe93:b51a
option RELAY-MSG(9), len 111
type ADVERTISE(2), xid 2490681
option SERVERID(2), len 10
  00030001002414a33c94
option CLIENTID(1), len 10
  00030001c471fe93b516
option IA-NA(3), len 40
  IAID 0x00040001, T1 43200, T2 69120
option IAADDR(5), len 24
  IPv6 address 2001:db8:300:0:48ae:5f5d:8290:e926
  preferred INFINITY, valid INFINITY
option DNS-SERVERS(23), len 16
  2001:db8:1000::1
option DOMAIN-LIST(24), len 11
  cisco.com
option INTERFACE-ID(18), len 4
  0x00000015
```

IPv6 DHCP_RELAY: Relaying RELAY-REPLY from 2001:db8:200::2 on SERVER

IPv6 DHCP_RELAY: relayed msg: ADVERTISE

IPv6 DHCP_RELAY: to fe80::c671:feff:fe93:b51a

IPv6 DHCP: Sending ADVERTISE to fe80::c671:feff:fe93:b51a on CLIENT

IPv6 DHCP: detailed packet contents

```
src fe80::219:7ff:fe24:2e44
dst fe80::c671:feff:fe93:b51a (CLIENT)
type ADVERTISE(2), xid 2490681
option SERVERID(2), len 10
  00030001002414a33c94
option CLIENTID(1), len 10
  00030001c471fe93b516
option IA-NA(3), len 40
  IAID 0x00040001, T1 43200, T2 69120
option IAADDR(5), len 24
  IPv6 address 2001:db8:300:0:48ae:5f5d:8290:e926
  preferred INFINITY, valid INFINITY
option DNS-SERVERS(23), len 16
```

```
2001:db8:1000::1
option DOMAIN-LIST(24), len 11
cisco.com
```

IPv6 DHCP: Received REQUEST from fe80::c671:feff:fe93:b51a on CLIENT

IPv6 DHCP: detailed packet contents

```
src fe80::c671:feff:fe93:b51a (CLIENT)
dst ff02::1:2
type REQUEST(3), xid 2492842
option ELAPSED-TIME(8), len 2
elapsed-time 0
option CLIENTID(1), len 10
00030001c471fe93b516
option ORO(6), len 4
DNS-SERVERS,DOMAIN-LIST
option SERVERID(2), len 10
00030001002414a33c94
option IA-NA(3), len 40
IAID 0x00040001, T1 0, T2 0
option IAADDR(5), len 24
IPv6 address 2001:db8:300:0:48ae:5f5d:8290:e926
preferred INFINITY, valid INFINITY
```

IPv6 DHCP_RELAY: Relaying REQUEST from fe80::c671:feff:fe93:b51a on CLIENT

IPv6 DHCP_RELAY: to 2001:db8:200::2 via 2001:db8:200::2 using SERVER

IPv6 DHCP: Sending RELAY-FORWARD to 2001:db8:200::2 on SERVER

IPv6 DHCP: detailed packet contents

```
src 2001:db8:200::1
dst 2001:db8:200::2 (SERVER)
type RELAY-FORWARD(12), hop 0
link 2001:db8:100::1
peer fe80::c671:feff:fe93:b51a
option RELAY-MSG(9), len 90
type REQUEST(3), xid 2492842
option ELAPSED-TIME(8), len 2
elapsed-time 0
option CLIENTID(1), len 10
00030001c471fe93b516
option ORO(6), len 4
DNS-SERVERS,DOMAIN-LIST
option SERVERID(2), len 10
00030001002414a33c94
option IA-NA(3), len 40
IAID 0x00040001, T1 0, T2 0
option IAADDR(5), len 24
IPv6 address 2001:db8:300:0:48ae:5f5d:8290:e926
preferred INFINITY, valid INFINITY
option INTERFACE-ID(18), len 4
0x00000015
```

IPv6 DHCP: Received RELAY-REPLY from 2001:db8:200::2 on SERVER

IPv6 DHCP: detailed packet contents

```
src 2001:db8:200::2 (SERVER)
dst 2001:db8:200::1
type RELAY-REPLY(13), hop 0
link 2001:db8:100::1
peer fe80::c671:feff:fe93:b51a
option RELAY-MSG(9), len 111
type REPLY(7), xid 2492842
option SERVERID(2), len 10
00030001002414a33c94
option CLIENTID(1), len 10
00030001c471fe93b516
option IA-NA(3), len 40
```

```

IAID 0x00040001, T1 43200, T2 69120
option IAADDR(5), len 24
  IPv6 address 2001:db8:300:0:48ae:5f5d:8290:e926
  preferred INFINITY, valid INFINITY
option DNS-SERVERS(23), len 16
  2001:db8:1000::1
option DOMAIN-LIST(24), len 11
  cisco.com
option INTERFACE-ID(18), len 4
  0x00000015

```

IPv6 DHCP_RELAY: Relaying RELAY-REPLY from 2001:db8:200::2 on SERVER

IPv6 DHCP_RELAY: relayed msg: REPLY

IPv6 DHCP_RELAY: to fe80::c671:feff:fe93:b51a

IPv6 DHCP: Sending REPLY to fe80::c671:feff:fe93:b51a on CLIENT

IPv6 DHCP: detailed packet contents

```

src fe80::219:7ff:fe24:2e44
dst fe80::c671:feff:fe93:b51a (CLIENT)
type REPLY(7), xid 2492842
option SERVERID(2), len 10
00030001002414a33c94
option CLIENTID(1), len 10
00030001c471fe93b516
option IA-NA(3), len 40
IAID 0x00040001, T1 43200, T2 69120
option IAADDR(5), len 24
  IPv6 address 2001:db8:300:0:48ae:5f5d:8290:e926
  preferred INFINITY, valid INFINITY
option DNS-SERVERS(23), len 16
2001:db8:1000::1
option DOMAIN-LIST(24), len 11
  cisco.com

```

Wireshark快照

恳求(1)

DHCPv6客户端传送请求信息为了找出DHCPv6服务器。

The screenshot displays a network traffic capture in Wireshark. The top section shows the packet list with three DHCPv6 packets. The first packet is a Solicit message from the client to the multicast address ff02::1:2. The details pane for this packet shows the following information:

- Message type:** Solicit (1) - DHCPv6 client sends a solicit message.
- Transaction ID:** 0x260139
- Elapsed time:** 0 ms
- Client Identifier (1):**
 - DUID:** 00030001c471fe93b516
 - DUID Type:** link-layer address (3) - Each DHCP client and server has a DUID. DHCP servers use DUIDs to identify clients for the selection of configuration parameters and in the association of IAs with clients.
 - Hardware type:** Ethernet (1)
 - Link-layer address:** c4:71:fe:93:b5:16
- Option Request:** Option Request (6)
- Requested Option code:** DNS recursive name server (23)
- Requested Option code:** Domain search List (24)
- Identity Association for Non-temporary Address (3):**
 - Option:** Identity Association for Non-temporary Address (3) - The client is responsible for creating IAs and requesting that a server assign IPv6 address to IA.
 - Length:** 12
 - Value:** 00040001000000000000000000
 - IAID:** 00040001
 - T1:** 0
 - T2:** 0

ASA中继请求消息。


```

Source          Destination      Protocol Length Identification Info
fe80::c671:feff:fe93:b51a ff02::1:2      DHCPv6 114      Solicit XID: 0x260139 CID: 00030001c471fe93b516
fe80::219:7ff:fe24:2e44   fe80::c671:feff:fe93:b51a DHCPv6 177      Advertise XID: 0x260139 CID: 00030001c471fe93b516 IAA: 2001:db8:300:0:48ae:5f5d:8290:e926
fe80::c671:feff:fe93:b51a ff02::1:2      DHCPv6 156      Request XID: 0x2609aa CID: 00030001c471fe93b516 IAA: 2001:db8:300:0:48ae:5f5d:8290:e926

```

```

DHCPv6
Message type: Request (3)
Transaction ID: 0x2609aa
Elapsed time
Option: Elapsed time (8)
Length: 2
Value: 0000
Elapsed-time: 0 ms
Client Identifier
Option Request
Option: Option Request (6)
Length: 4
Value: 00170018
Requested option code: DNS recursive name server (23)
Requested option code: Domain Search List (24)
Server Identifier
Identity Association for Non-temporary Address
Option: Identity Association for Non-temporary Address (3)
Length: 40
Value: 000400010000000000000000000000005001820010db803000000...
IAID: 00040001
T1: 0
T2: 0
IA Address
Option: IA Address (5)
Length: 24
Value: 20010db803000000048ae5f5d8290e926ffffffffffffffff
IPv6 address: 2001:db8:300:0:48ae:5f5d:8290:e926 (2001:db8:300:0:48ae:5f5d:8290:e926)
Preferred lifetime: infinity
Preferred lifetime: infinity

```

Client request for IPv6 Address, DNS Server, Domain name.

回复(7)

服务器传送包含已分配地址和配置参数以回应请求的回复信息，请求，更新或者重新绑定从客户端接收的消息。服务器传送包含配置参数以回应Information-request消息的回复信息。服务器传送回复信息以回应确认的确认消息或拒绝地址分配到客户端是适当的对客户端连接的链路。服务器传送回复信息为了确认版本的收据或拒绝消息。

```

Source          Destination      Protocol Length Identification Info
2001:db8:200::1 2001:db8:200::2 DHCPv6 160      Relay-forw L: 2001:db8:100::1 Solicit XID: 0x260139 CID: 00030001c471fe93b516
2001:db8:200::2 2001:db8:200::1 DHCPv6 223      Relay-reply L: 2001:db8:100::1 Advertise XID: 0x260139 CID: 00030001c471fe93b516
2001:db8:200::1 2001:db8:200::2 DHCPv6 202      Relay-forw L: 2001:db8:100::1 Request XID: 0x2609aa CID: 00030001c471fe93b516
2001:db8:200::2 2001:db8:200::1 DHCPv6 223      Relay-reply L: 2001:db8:100::1 Reply XID: 0x2609aa CID: 00030001c471fe93b516

```

```

DHCPv6
Message type: Reply (7)
Transaction ID: 0x2609aa
Server Identifier
Client Identifier
Identity Association for Non-temporary Address
Option: Identity Association for Non-temporary Address (3)
Length: 40
Value: 000400010000a8c000010e000005001820010db803000000...
IAID: 00040001
T1: 43200
T2: 69120
IA Address
Option: IA Address (5)
Length: 24
Value: 20010db803000000048ae5f5d8290e926ffffffffffffffff
IPv6 address: 2001:db8:300:0:48ae:5f5d:8290:e926 (2001:db8:300:0:48ae:5f5d:8290:e926)
Preferred lifetime: infinity
Preferred lifetime: infinity
DNS recursive name server
Option: DNS recursive name server (23)
Length: 16
Value: 20010db8100000000000000000000001
DNS server address: 2001:db8:1000::1 (2001:db8:1000::1)
Domain Search List
Option: Domain Search List (24)
Length: 11
Value: 05636973636f03636fd00
DNS Domain Search List
Domain: cisco.com

```

故障排除

确认连接用DHCPv6服务器。

```
ciscoasa# show ipv6 neighbor
```

```

IPv6 Address                               Age Link-layer Addr State Interface
2001:db8:200::2                           0 0024.14a3.3c98 REACH SERVER

```

确认您收到从客户端的数据包，当它请求IPv6地址。客户端发送的数据包将取决于地址分配设置(即有状态的与无状态)。

当客户端开始DHCPv6进程时，发送路由器恳求消息为了发现IPv6路由器在线状态链路的。它传送

组播路由器是请信息为了提示IPv6路由器响应。在路由器是请消息的以太网报头，这些字段显示：

- 源地址域是请求IPv6地址主机的MAC地址。
- 目的地址字段设置到33-33-00-00-00-02。

在路由器是请消息的IPv6报头，这些字段显示。

- 源地址域设置为链路本地IPv6地址分配到发送的接口或IPv6未指定的地址(：：)。
- 目的地址字段设置为链路本地范围所有路由器组播地址(FF02::2)。
- 跳Limit字段设置到255。

合情合理IPv6路由器发送未经请求的路由器通告消息路由器通告消息由主机包含需的信息为了确定链路前缀、链路最大传输单元(MTU)和特定路由。

```
ciscoasa(config)# show capture capin detail
```

```
fe80::c671:feff:fe93:b51a.546 > ff02::1:2.547: [udp sum ok] udp 42  
[hlim 255] (len 100)---->Request from client
```

```
fe80::219:7ff:fe24:2e44.547 > fe80::c671:feff:fe93:b51a.546: [udp sum ok]  
udp 75 [class 0xe0] (len 133, hlim 255)
```

```
ciscoasa(config)# show capture capout detail
```

```
2 packets captured
```

```
1: 12:06:52.700799      2001:db8:200:1.547 > 2001:db8:200:2.547:  udp 88  
[class 0xe0]---->ASA forwards request to DHCPv6 router
```

```
2: 12:06:53.289047      2001:db8:200:2.547 > 2001:db8:200:1.547:  udp 121  
[class 0xe0]----> Reply from DHCPv6 server.
```

DHCP中继输出

```
ciscoasa# show ipv6 dhcprelay binding
```

```
1 in use, 1 most used
```

```
Client: fe80::c671:feff:fe93:b51a (CLIENT)
```

```
DUID: 00030001c471fe93b516, Timeout in 56 seconds
```

注意：捆绑由ASA删除在短期之后。这在dhcprelay调试的IPv6被看到。

```
ciscoasa# show ipv6 dhcprelay binding
```

```
1 in use, 1 most used
```

```
Client: fe80::c671:feff:fe93:b51a (CLIENT)
```

```
DUID: 00030001c471fe93b516, Timeout in 56 seconds
```

```
ciscoasa# show ipv6 dhcprelay statistics
```

```
Relay Messages:
```

SOLICIT	2
ADVERTISE	2
REQUEST	2
CONFIRM	0
RENEW	0
REBIND	0
REPLY	9
RELEASE	1
DECLINE	0
RECONFIGURE	0
INFORMATION-REQUEST	6
RELAY-FORWARD	11

```

RELAY-REPLY 11

Relay Errors:
Malformed message: 0
Block allocation/duplication failure: 0
Hop count limit exceeded: 0
Forward binding creation failure: 0
Reply binding lookup failure: 0
No output route: 0
Conflict relay server route: 0
Failed to add server input rule: 0
Unit or context is not active: 0

Total Relay Bindings Created: 8

```

版本地址

在他们执行使用它为网络后，客户端能发布他们的分配的DHCPv6地址。下一部分显示用在有状态的DHCPv6的地址版本关联的debug输出。

调试

```

ciscoasa# show ipv6 dhcprelay statistics

Relay Messages:
SOLICIT 2
ADVERTISE 2
REQUEST 2
CONFIRM 0
RENEW 0
REBIND 0
REPLY 9
RELEASE 1
DECLINE 0
RECONFIGURE 0
INFORMATION-REQUEST 6
RELAY-FORWARD 11
RELAY-REPLY 11

Relay Errors:
Malformed message: 0
Block allocation/duplication failure: 0
Hop count limit exceeded: 0
Forward binding creation failure: 0
Reply binding lookup failure: 0
No output route: 0
Conflict relay server route: 0
Failed to add server input rule: 0
Unit or context is not active: 0

Total Relay Bindings Created: 8

```

相关信息

[了解多种DHCP选项](#)

[ASA DHCP中继配置示例](#)

[配置ASA通过IPv6流量](#)

[有CLI和ASDM配置示例的ASA数据包捕获](#)