

# IPv6に関するVRRPv3関連の問題のトラブルシューティング

## 内容

---

[はじめに](#)

[前提条件](#)

[要件](#)

[使用するコンポーネント](#)

[背景説明](#)

[トポロジ](#)

[確認](#)

[トラブルシューティング](#)

[関連情報](#)

---

## はじめに

このドキュメントでは、Nexus 9000でIPv6を使用して仮想ルータ冗長プロトコルバージョン3(VRRPv3)をトラブルシューティングする手順について説明します。

## 前提条件

### 要件

Cisco NXOS®では、次の項目に関する知識があることが推奨されます。

- VRRP
- Ethalyzer
- IPv6
- ファーストホップ冗長プロトコル(FHRP)

### 使用するコンポーネント

このドキュメントは、Nexus 9000などの特定のハードウェアに限定されます。

このドキュメントの情報は、特定のラボ環境にあるデバイスに基づいて作成されました。このドキュメントで使用するすべてのデバイスは、クリアな(デフォルト)設定で作業を開始しています。本稼働中のネットワークでは、各コマンドによって起こる可能性がある影響を十分確認してください。

## 背景説明

VRRPバージョン2はIPv4アドレスファミリーのみをサポートしますが、VRRPバージョン3(VRRP3)はIPv4とIPv6の両方のアドレスファミリーをサポートします。NX-OSでは、VRRPとVRRPv3の両方を同じデバイスで有効にすることはできません。機能VRRPがNexusスイッチですでに有効になっている場合、機能VRRPv3を有効にすると、VRRPv2がすでに有効であることを示すエラーが表示されます。したがって、VRRPからVRRPv3への移行を実行する必要があります。これにより、サービスへの影響を最小限に抑えることができます。

## トポロジ

X:X:X:X::70a

X:X:X:X::70c



Virtual Mac Address: 0000.5e00.0201

VRRP3 IPV6 address: X:X:X:X::70b

---

注：仮想ポートチャネル(VPC)環境はありません。

---

## 確認

1)両側の設定が一致していることを確認します。

スイッチ 1:

```
Switch1# show run interface vlan 209
```

```
interface Vlan209
no shutdown
no ip redirects
ipv6 address X:X:X:X::70a/125
vrrpv3 1 address-family ipv6
priority 200
```

```
address X::X:X:X:297 primary
```

```
Switch1#
```

Switch 2:

```
Switch2# show run interface v1an 209
```

```
interface V1an209
no shutdown
no ip redirects
ipv6 address X:X:X:X::70c/125
no ipv6 redirects
vrrpv3 1 address-family ipv6
address X::X:X:X:297 primary
```

```
Switch2#
```

2) MACアドレステーブルにデータが正しく取り込まれていることを確認します。

スイッチ 1:

```
Switch1# show mac address-table v1an 209
```

```
Legend:
```

```
* - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC
```

```
age - seconds since last seen,+ - primary entry using vPC Peer-Link,
```

```
(T) - True, (F) - False, C - ControlPlane MAC, ~ - vsan
```

```
VLAN MAC Address Type age Secure NTFY Ports
```

```
-----+-----+-----+-----+-----+-----+-----
```

```
G 209 0000.5e00.0201 static - F F sup-eth1(R)
```

```
G 209 689e.0baa.dea7 static - F F sup-eth1(R)
```

```
Switch1#
```

```
module-1# show hardware internal tah rmac
```

```
Instance : 0
```

```
=====
```

```
Mac-Address Vlan Flag
```

```
-----
```

```
68:9e:0b:aa:de:a7 0 SYSTEM
```

```
00:00:5e:00:02:01 209 VRMAC
```

```
module-1#
```

Switch 2:

```
Switch2# show mac address-table vlan 209
Legend:
* - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC
age - seconds since last seen,+ - primary entry using vPC Peer-Link,
(T) - True, (F) - False, C - ControlPlane MAC, ~ - vsan
VLAN MAC Address Type age Secure NTFY Ports
-----+-----+-----+-----+-----+-----+-----+-----+-----+
* 209 0000.5e00.0201 dynamic 0 F F Eth1/51
G 209 689e.0baa.de07 static - F F sup-eth1(R)
Switch2#
```

```
Switch2# show hardware mac address-table 1 address 0000.5e00.0201
FE | VLAN | MAC | Dynamic | Port |Location Index|
| | | | | |
-----+-----+-----+-----+-----+-----+
0 209 0000.5e00.0201 dynamic Eth1/51

Switch2#
```

```
module-1# show hardware internal tah rmac
Instance : 0
=====
Mac-Address Vlan Flag
-----
68:9e:0b:aa:de:07 0 SYSTEM

module-1#
```

3)グループに参加しているデバイスのステータスを確認します。

スイッチ 1:

```
Switch1# show vrrpv3 vlan 209

Vlan209 - Group 1 - Address-Family IPv6
State is Primary
State duration 15 hours 43 mins 44 secs
Virtual IP address is X::X:X:X:297
Virtual MAC address is 0000.5e00.0201
Advertisement interval is 1000 msec
Preemption enabled
Priority is 200, (Configured 200)
Primary Router is X::X:X:X:dea7 (local), priority is 200
Primary Advertisement interval is 1000 msec (expires in 813 msec)
Primary Down interval is unknown

Switch1#
```

Switch 2:

```
Switch2# show vrrpv3 vlan 209
```

```
Vlan209 - Group 1 - Address-Family IPv6
State is BACKUP
State duration 3 mins 57.928 secs
Virtual IP address is X::X:X:X:297
Virtual MAC address is 0000.5e00.0201
Advertisement interval is 1000 msec
Preemption enabled
Priority is 100, (Configured 100)
Primary Router is X::X:X:X:dea7, priority is 200
Primary Advertisement interval is 1000 msec (learned)
Primary Down interval is 3609 msec (expires in 3422 msec)
```

```
Switch2#
```

## トラブルシューティング

壊れたシナリオ。

show vrrpv3 brief コマンドオプションは、グループ番号、アドレスファミリ、プライオリティ、プリエンプション、状態、プライマリアドレス、グループアドレス (仮想グループIP) など、グループに関する簡単な情報を表示します。この例と上記で説明したように、両方のスイッチはプライマリであり、正しくありません。

スイッチ 1:

```
Switch1# show vrrpv3 brief
```

```
Interface Grp A-F Pri Time Own Pre State Primary addr/Group addr
Vlan209 1 IPv6 200 0 N Y Primary X::X:X:X:dea7(local) X::X:X:X:297
Switch1#
```

Switch 2:

```
Switch2# show vrrpv3 brief
```

```
Interface Grp A-F Pri Time Own Pre State Primary addr/Group addr
Vlan209 1 IPv6 100 0 N Y Primary X::X:X:X:de07(local) X::X:X:X:297
Switch2#
```

2) show vrrpv3 detailコマンドは、VRRPv3に対して送受信されたアドバタイズメント、仮想MACアドレス、エラーや遷移状態に関連するその他の統計情報など、追加情報を表示します。たとえば、受信されたVRRPv3アドバタイズメントは増加しません。

スイッチ 1:

```
Switch1# show vrrpv3 detail vlan 209
```

```
Vlan209 - Group 1 - Address-Family IPv6
State is Primary
State duration 12 hours 47 mins 40 secs
Virtual IP address is X::X:X:X:297
Virtual MAC address is 0000.5e00.0201
Advertisement interval is 1000 msec
Preemption enabled
Priority is 200, (Configured 200)
Primary Router is X::X:X:X:dea7 (local), priority is 200
Primary Advertisement interval is 1000 msec (expires in 284 msec)
Primary Down interval is unknown
VRRPv3 Advertisements: sent 57138 (errors 2) - rcvd 177          <-----
VRRPv2 Advertisements: sent 0 (errors 0) - rcvd 0
Group Discarded Packets: 0
VRRPv2 incompatibility: 0
IP Address Owner conflicts: 0
Invalid address count: 0
IP address configuration mismatch : 0
Invalid Advert Interval: 0
Adverts received in Init state: 0
Invalid group other reason: 0
Group State transition:
Init to Primary: 0
Init to backup: 4 (Last change Thu Apr 11 01:01:46.418 UTC)
Backup to Primary: 4 (Last change Thu Apr 11 01:01:49.637 UTC)
Primary to backup: 0
Primary to init: 3 (Last change Thu Apr 11 00:57:37.107 UTC)
Backup to init: 0
```

```
Switch1#
```

```
Switch1# show vrrpv3 detail vlan 209
```

```
Vlan209 - Group 1 - Address-Family IPv6
State is Primary
State duration 12 hours 51 mins 29 secs
Virtual IP address is fX::X:X:X:297
Virtual MAC address is 0000.5e00.0201
Advertisement interval is 1000 msec
Preemption enabled
Priority is 200, (Configured 200)
Primary Router is X::X:X:X:dea7 (local), priority is 200
Primary Advertisement interval is 1000 msec (expires in 667 msec)
Primary Down interval is unknown
VRRPv3 Advertisements: sent 57393 (errors 2) - rcvd 177          <-----
VRRPv2 Advertisements: sent 0 (errors 0) - rcvd 0
Group Discarded Packets: 0
```

```
VRRPv2 incompatibility: 0
IP Address Owner conflicts: 0
Invalid address count: 0
IP address configuration mismatch : 0
Invalid Advert Interval: 0
Adverts received in Init state: 0
Invalid group other reason: 0
Group State transition:
Init to Primary: 0
Init to backup: 4 (Last change Thu Apr 11 01:01:46.418 UTC)
Backup to Primary: 4 (Last change Thu Apr 11 01:01:49.637 UTC)
Primary to backup: 0
Primary to init: 3 (Last change Thu Apr 11 00:57:37.107 UTC)
Backup to init: 0
```

Switch1#

Switch 2:

Switch2# show vrrpv3 detail vlan 209

```
Vlan209 - Group 1 - Address-Family IPv6
State is Primary
State duration 12 hours 51 mins 49 secs
Virtual IP address is X::X:X:X:297
Virtual MAC address is 0000.5e00.0201
Advertisement interval is 1000 msec
Preemption enabled
Priority is 100, (Configured 100)
Primary Router is X::X:X:X:de07 (local), priority is 100
Primary Advertisement interval is 1000 msec (expires in 412 msec)
Primary Down interval is unknown
VRRPv3 Advertisements: sent 51764 (errors 0) - rcvd 6032 <-----
VRRPv2 Advertisements: sent 0 (errors 0) - rcvd 0
Group Discarded Packets: 0
VRRPv2 incompatibility: 0
IP Address Owner conflicts: 0
Invalid address count: 0
IP address configuration mismatch : 0
Invalid Advert Interval: 0
Adverts received in Init state: 0
Invalid group other reason: 0
Group State transition:
Init to Primary: 0
Init to backup: 1 (Last change Wed Apr 10 23:21:09.604 UTC)
Backup to Primary: 4 (Last change Thu Apr 11 00:57:40.229 UTC)
Primary to backup: 3 (Last change Thu Apr 11 00:54:11.758 UTC)
Primary to init: 0
Backup to init: 0
```

Switch2#

Switch2# show vrrpv3 detail vlan 209

```
Vlan209 - Group 1 - Address-Family IPv6
```



```
State is Primary
State duration 12 hours 55 mins 38 secs
Virtual IP address is fx::X:X:X:297
Virtual MAC address is 0000.5e00.0201
Advertisement interval is 1000 msec
Preemption enabled
Priority is 100, (Configured 100)
Primary Router is X:X:X:X:de07 (local), priority is 100
Primary Advertisement interval is 1000 msec (expires in 479 msec)
Primary Down interval is unknown
VRRPv3 Advertisements: sent 52019 (errors 0) - rcvd 6032 <-----
VRRPv2 Advertisements: sent 0 (errors 0) - rcvd 0
Group Discarded Packets: 0
VRRPv2 incompatibility: 0
IP Address Owner conflicts: 0
Invalid address count: 0
IP address configuration mismatch : 0
Invalid Advert Interval: 0
Adverts received in Init state: 0
Invalid group other reason: 0
Group State transition:
Init to Primary: 0
Init to backup: 1 (Last change Wed Apr 10 23:21:09.604 UTC)
Backup to Primary: 4 (Last change Thu Apr 11 00:57:40.229 UTC)
Primary to backup: 3 (Last change Thu Apr 11 00:54:11.758 UTC)
Primary to init: 0
Backup to init: 0
```

Switch2#

3) show vrrpv3 internal event-history debugs コマンドは、VRRPv3参加者が経ったさまざまな段階に関する情報を表示します。

スイッチ 1:

```
Switch1# show vrrpv3 internal event-history debugs
```

```
2024 Apr 11 01:01:49.642985: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Current MAC Sta
2024 Apr 11 01:01:49.642974: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Current MAC Sta
2024 Apr 11 01:01:49.642963: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Pathway MAC Ever
2024 Apr 11 01:01:49.642952: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Notifying Pathw
2024 Apr 11 01:01:49.642941: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: L2fm Alloc Resp
2024 Apr 11 01:01:49.642898: E_DEBUG vrrpv3 [23795]: VRRP-MTS: L2fm Alloc Response: RRToken=0x2f9a22, N
2024 Apr 11 01:01:49.637478: E_DEBUG vrrpv3 [23795]: VRRS Vlan209: [vrrpVlan209v61 tag] Installing ICMP
2024 Apr 11 01:01:49.637453: E_DEBUG vrrpv3 [23795]: VRRS Vlan209: [vrrpVlan209v61 tag] Activating VIP6
2024 Apr 11 01:01:49.637367: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Current MAC Sta
2024 Apr 11 01:01:49.637306: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Current MAC Sta
```

```
2024 Apr 11 01:01:49.637295: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Pathway MAC Ever
2024 Apr 11 01:01:47.421619: E_DEBUG vrrpv3 [23795]: VRRP-MTS: Handling IPv6 Change 7: Ifindex=0x90100d
2024 Apr 11 01:01:46.421957: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Current MAC Sta
2024 Apr 11 01:01:46.421950: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Current MAC Sta
2024 Apr 11 01:01:46.421944: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Pathway MAC Ever
2024 Apr 11 01:01:46.421938: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Notifying Pathw
2024 Apr 11 01:01:46.421932: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: L2fm Alloc Resp
2024 Apr 11 01:01:46.421911: E_DEBUG vrrpv3 [23795]: VRRP-MTS: L2fm Alloc Response: RRToken=0x2f99cd, N
2024 Apr 11 01:01:46.419597: E_DEBUG vrrpv3 [23795]: VRRS Vlan209: [vrrpVlan209v61 tag] Installing ICMP
2024 Apr 11 01:01:46.419574: E_DEBUG vrrpv3 [23795]: VRRS Vlan209: [vrrpVlan209v61 tag] Deactivating VI
2024 Apr 11 01:01:46.419515: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Current MAC Sta
2024 Apr 11 01:01:46.419463: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Current MAC Sta
2024 Apr 11 01:01:46.419454: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Pathway MAC Ever
Switch1#
```

## Switch 2:

```
Switch2# show vrrpv3 internal event-history debugs
```

```
2024 Apr 11 00:57:40.234767: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 state
2024 Apr 11 00:57:40.234752: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 State
2024 Apr 11 00:57:40.234744: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] pw id val is(983043)

2024 Apr 11 00:57:40.234736: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Notifying pathway mac of async e
2024 Apr 11 00:57:40.234728: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] fx_macdb_handle_l2fm_alloc :: A
2024 Apr 11 00:57:40.234694: E_DEBUG VRRP-MTS: L2FM alloc resp: rrtoken 0x3ba768, msgs 1, overall statu
2024 Apr 11 00:57:40.229355: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] installing icmpv6 entry for vip
2024 Apr 11 00:57:40.229329: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] activating vip6 X::X:X:X:297, th
2024 Apr 11 00:57:40.229251: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 state
2024 Apr 11 00:57:40.229195: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 State
2024 Apr 11 00:57:40.229184: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] pw id val is(983043)

2024 Apr 11 00:57:36.813093: E_DEBUG VRRP-MTS: Received IM_PHY_LINK_STATE_CHANGE(down) for 0x1a006400
2024 Apr 11 00:54:11.763596: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 state
```

```
2024 Apr 11 00:54:11.763587: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 State
2024 Apr 11 00:54:11.763580: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] pw id val is(983043)

2024 Apr 11 00:54:11.763572: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Notifying pathway mac of async e
2024 Apr 11 00:54:11.763564: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] fx_macdb_handle_l2fm_alloc :: A
2024 Apr 11 00:54:11.763533: E_DEBUG VRRP-MTS: L2FM alloc resp: rrtoken 0x3b791e, msgs 1, overall statu
2024 Apr 11 00:54:11.758782: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] installing icmpv6 entry for vip
2024 Apr 11 00:54:11.758757: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] de-activating vip6 X::X:X:X:297,
2024 Apr 11 00:54:11.758685: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 state
2024 Apr 11 00:54:11.758637: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 State
2024 Apr 11 00:54:11.758626: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] pw id val is(983043)

2024 Apr 11 00:54:06.643584: E_DEBUG VRRP-MTS: L2_PROTO_CHANGE: intf 0x1a006400 entering L2
2024 Apr 11 00:54:06.616851: E_DEBUG VRRP-MTS: Received IM_PHY_LINK_STATE_CHANGE(up) for 0x1a006400

2024 Apr 11 00:52:11.216190: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 state
2024 Apr 11 00:52:11.216182: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 State
2024 Apr 11 00:52:11.216174: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] pw id val is(983043)

2024 Apr 11 00:52:11.216167: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Notifying pathway mac of async e
2024 Apr 11 00:52:11.216159: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] fx_macdb_handle_l2fm_alloc :: A
2024 Apr 11 00:52:11.216125: E_DEBUG VRRP-MTS: L2FM alloc resp: rrtoken 0x3b3bc5, msgs 1, overall statu
2024 Apr 11 00:52:11.210932: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] installing icmpv6 entry for vip
2024 Apr 11 00:52:11.210906: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] activating vip6 X::X:X:X:297, th
2024 Apr 11 00:52:11.210828: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 state
2024 Apr 11 00:52:11.210773: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 State
2024 Apr 11 00:52:11.210762: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] pw id val is(983043)

2024 Apr 11 00:52:08.025681: E_DEBUG VRRP-MTS: Received IM_PHY_LINK_STATE_CHANGE(down) for 0x1a006400
```

Switch2#

4) EthalyzerがVRRPアナウンスを表示します。VRRPアナウンスはプライマリスイッチによってのみ実行されます。VRRPv3のマルチキャストアドレスはff02::12です。

## スイッチ 1:

```
Switch1# ethanalyzer local interface inband display-filter "vrrp.adver_int" limit-captured-frames 0
Capturing on inband
2024-04-11 14:07:50.050745 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:07:50.967333 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:07:51.861690 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:07:52.809845 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:07:53.700778 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:07:54.693008 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)

6 packets captured
Switch1#
```

## スイッチ 2:

```
Switch2# ethanalyzer local interface inband display-filter "vrrp.adver_int" limit-captured-frames 0
Capturing on inband
2024-04-11 14:07:49.946663 X::X:X:X:de07 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:07:50.829985 X::X:X:X:de07 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:07:51.728800 X::X:X:X:de07 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:07:52.720034 X::X:X:X:de07 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:07:53.571038 X::X:X:X:de07 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:07:54.386109 X::X:X:X:de07 -> ff02::12 VRRP Announcement (v3)

6 packets captured
Switch2#
```

上記の出力から、両方のスイッチが自身のアドバタイズメント ( dea7およびde07 ) を送信しています。これは、同じVRRPv3グループに参加している2つのスイッチ間に接続がないことを示しています。

VRRPv3によって生成されたパケットを詳しく調べると、MACアドレス、プライオリティ、バージョン、およびIPに関する詳細が見つかります。

## スイッチ 1:

```
Ethernet II, Src: ICANNIAN_00:02:01 (00:00:5e:00:02:01), Dst: IPv6mcast_12 (33:33:00:00:00:12)

Frame 206: 82 bytes on wire (656 bits), 82 bytes captured (656 bits)
Ethernet II, Src: ICANNIAN_00:02:01 (00:00:5e:00:02:01), Dst: IPv6mcast_12 (33:33:00:00:00:12)
Internet Protocol Version 6, Src: X::X:X:X:dea7, Dst: ff02::12
Virtual Router Redundancy Protocol
Version 3, Packet type 1 (Advertisement)
Virtual Rtr ID: 1
Priority: 200 (Default priority for a backup VRRP router)
```

```
Addr Count: 1
0000 .... = Reserved: 0
.... 0000 0110 0100 = Adver Int: 100
Checksum: 0xb912 [correct]
[Checksum Status: Good]
IPv6 Address: X::X:X:X:297
```

## Switch 2:

Frame 82: 78 bytes on wire (624 bits), 78 bytes captured (624 bits)

Ethernet II, Src: ICANNIAN\_00:02:01 (00:00:5e:00:02:01), Dst: IPv6mcast\_12 (33:33:00:00:00:12)

```
Frame 82: 78 bytes on wire (624 bits), 78 bytes captured (624 bits)
Ethernet II, Src: ICANNIAN_00:02:01 (00:00:5e:00:02:01), Dst: IPv6mcast_12 (33:33:00:00:00:12)
Internet Protocol Version 6, Src: X::X:X:X:de07, Dst: ff02::12
Virtual Router Redundancy Protocol
Version 3, Packet type 1 (Advertisement)
Virtual Rtr ID: 1
Priority: 100 (Default priority for a backup VRRP router)
Addr Count: 1
0000 .... = Reserved: 0
.... 0000 0110 0100 = Adver Int: 100
Checksum: 0xb912 [correct]
[Checksum Status: Good]
IPv6 Address: X::X:X:X:297
```

5)接続の問題が解決した場合 ( この場合、SVIがアップ状態であってもレイヤ2インターフェイスはシャットダウン状態でした )、スイッチは正しい状態 ( プライマリおよびバックアップ ) を示す必要があり、アドバタイズメントはプライマリスイッチによってのみ送信されます。

## スイッチ 1:

```
Switch1# show vrrpv3
```

```
Vlan209 - Group 1 - Address-Family IPv6
State is Primary
State duration 13 hours 42 mins 46 secs
Virtual IP address is X::X:X:X:297
Virtual MAC address is 0000.5e00.0201
Advertisement interval is 1000 msec
Preemption enabled
Priority is 200, (Configured 200)
Primary Router is X::X:X:X:dea7 (local), priority is 200
Primary Advertisement interval is 1000 msec (expires in 118 msec)
```

Primary Down interval is unknown

Switch1#

Switch1#

Switch1# ethanalyzer local interface inband display-filter "vrrp" limit-captured-frames 0

Capturing on inband

2024-04-11 14:48:48.125754 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)

2024-04-11 14:48:48.125794 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)

2024-04-11 14:48:49.002998 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)

2024-04-11 14:48:49.003035 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)

2024-04-11 14:48:49.983749 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)

2024-04-11 14:48:49.983782 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)

6 packets captured

Switch1#

ELAMは、VRRPv3のマルチキャストアドレスを指すときに正しいMACアドレスを示すプライマリスイッチでトリガーされます。

Switch1(TAH-elam-insel6)# set outer ipv6 src\_ip fe80::6a9e:bff:feaa:dea7 dst\_ip ff02::12

Switch1(TAH-elam-insel6)# start

Switch1(TAH-elam-insel6)# report

HOMEWOOD ELAM REPORT SUMMARY

slot - 1, ASIC - 0, slice - 0

=====

Incoming Interface: sup-eth

Src Idx : 0x0, Src BD : 209

Outgoing Interface Info: met\_ptr 0

Packet Type: IPv6

Dst MAC address: 33:33:00:00:00:12

Src MAC address: 00:00:5E:00:02:01

Dst IPv6 address: FF02:0000:0000:0000:0000:0000:0000:0012

Src IPv6 address: FE80:0000:0000:0000:6A9E:0BFF:FEAA:DEA7

Ver = 6, Pkt len = 40, Payload\_length = 4

L4 Protocol : 112

Drop Info:

-----

LUA:

LUB:

LUC:

LUD:

Final Drops:

vntag:

vntag\_valid : 0

vntag\_vir : 0

vntag\_svif : 0

Switch1(TAH-elam-insel6)#

Switch 2:

```
Switch2# show vrrpv3
```

```
Vlan209 - Group 1 - Address-Family IPv6
State is BACKUP
State duration 1.538 secs
Virtual IP address is X::X:X:X:297
Virtual MAC address is 0000.5e00.0201
Advertisement interval is 1000 msec
Preemption enabled
Priority is 100, (Configured 100)
Primary Router is X::X:X:X:dea7, priority is 200
Primary Advertisement interval is 1000 msec (learned)
Primary Down interval is 3609 msec (expires in 2886 msec)
```

```
Switch2#
```

```
Switch2# ethanalyzer local interface inband display-filter "vrrp" limit-captured-frames 0
```

```
Capturing on inband
```

```
2024-04-11 14:48:48.082516 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)
```

```
2024-04-11 14:48:48.959735 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)
```

```
2024-04-11 14:48:49.940504 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)
```

```
3 packets captured
```

```
Switch2#
```

アドバタイズメントは、ELAMの実行時にバックアップデバイスで確認できます。アドバタイズメントはプライマリスイッチ(X::X:X:X:dea7)から送信され、正しい着信インターフェイス(イーサネット1/51)で受信されています

```
Switch2# show hardware internal tah interface e1/51
```

```
#####
```

```
IfIndex: 0x1a006400
```

```
DstIndex: 5944
```

```
IfType: 26
```

```
Asic: 0
```

```
Asic: 0
```

```
AsicPort: 60
```

```
SrcId: 120
```

```
Slice: 0
```

```
PortOnSlice: 60
```

```
Table entries for interface Ethernet1/51
```

```
Switch2(TAH-elam)# trigger init asic 0 slice 0 in-select 6 out-select 0 use-src-id 120
```

```
Switch2(TAH-elam-insel6)# set outer ipv6 src_ip X::X:X:X:dea7
```

```
Switch2(TAH-elam-insel6)# start
```

```
Switch2(TAH-elam-inse16)# report
HOMEWOOD ELAM REPORT SUMMARY
slot - 1, asic - 0, slice - 0
=====
```

```
Incoming Interface: Eth1/51
Src Idx : 0xc9, Src BD : 209
Outgoing Interface Info: met_ptr 0
```

```
Packet Type: IPv6
```

```
Dst MAC address: 33:33:00:00:00:12
Src MAC address: 00:00:5E:00:02:01
.1q Tag0 VLAN: 209, cos = 0x6
```

```
Sup hit: 1, Sup Idx: 3344
```

```
Dst IPv6 address: FF02:0000:0000:0000:0000:0000:0012
Src IPv6 address: X:X:X:X:X:X:DEA7
Ver = 6, Pkt len = 24, Payload_length = 4
```

```
L4 Protocol : 112
```

```
Drop Info:
```

```
-----
```

```
LUA:
LUB:
LUC:
LUD:
Final Drops:
```

```
vntag:
vntag_valid : 0
vntag_vir : 0
vntag_svif : 0
```

```
Switch2(TAH-elam-inse16)#
```

## 関連情報

[VRRPv3の設定](#)

[Ethanalyzer](#)



## 翻訳について

シスコは世界中のユーザにそれぞれの言語でサポート コンテンツを提供するために、機械と人による翻訳を組み合わせて、本ドキュメントを翻訳しています。ただし、最高度の機械翻訳であっても、専門家による翻訳のような正確性は確保されません。シスコは、これら翻訳の正確性について法的責任を負いません。原典である英語版（リンクからアクセス可能）もあわせて参照することを推奨します。