

# Cisco ASR9000, IOS XR 5.3.4 Denial of Service (DoS) via IPv6



**Severity:** High  
**Product:** Cisco ASR9000, IOS XR 5.3.4  
**Version:** 5.3.4  
**CVSS:** 8.6  
**Workarounds:** No workarounds available  
**Cisco ID:** CSCvg46800

[CVE-2018-0136](#)

**Summary:** Cisco ASR9000, IOS XR 5.3.4 is vulnerable to a Denial of Service (DoS) attack via IPv6.

## Details

Cisco ASR9000, IOS XR 5.3.4 is vulnerable to a Denial of Service (DoS) attack via IPv6. The vulnerability is caused by a buffer overflow in the IPv6 Neighbor Discovery (ND) process. An attacker can send a specially crafted IPv6 Neighbor Solicitation (NS) packet to the target device, which will cause the device to crash and become unavailable. This attack can be performed against any ASR9000 device running IOS XR 5.3.4.

The attack is triggered by sending a Neighbor Solicitation (NS) packet to the target device. The packet is crafted to contain a large number of malformed Neighbor Advertisement (NA) packets, which causes the target device to process them and eventually crash. The attack can be performed against any ASR9000 device running IOS XR 5.3.4.

The attack is triggered by sending a Neighbor Solicitation (NS) packet to the target device. The packet is crafted to contain a large number of malformed Neighbor Advertisement (NA) packets, which causes the target device to process them and eventually crash. The attack can be performed against any ASR9000 device running IOS XR 5.3.4.

**References:** [Cisco Security Advisory: Denial of Service \(DoS\) via IPv6](#)

ã“ã®ã,ćãf%ãfã,ãã,¶ãfããã€ãæ¬ã®ãfããfãã,ã,ã,Šćç°èªãšãããããã™ã€, <https://sec.cloudapps.cisco.com/security/center/content/CiscoSecurityAdvisory/cisco-sa-20180131-ipv6>

è²ã½“è£½ã“

è,†ã¼±æ€šã®ã,ã,«è£½ã“

æœ¬è,†ã¼±æ€šãã€ã,ã,ã,ã,³ã,ćã,°ãfãã,²ãf¼ã,ãfšãf³ã,µãf¼ãf“ã,¹

ãf«ãf¼ã,¿¼^ASR¼%9000

ã,ãfãf¼ã,ã«ãšã,,ã|ã€æ¬ã®æ¬ã»¶ãĈæ°ãŸã•ã,ĈãŸã´ã^ã«ã½±éŸ¿ã,

- ãf«ãf¼ã,¿ãš Cisco IOS XR ã,½ãfãfã,ã,ã,šã,ćãfããfãf¼ã,¹ 5.3.4  
ãĈĈãŸèĈĈã,Ĉã|ã,,ã,ã€,
- ãf«ãf¼ã,¿ã« Trident ãf™ãf¼ã,¹ãfĈã,ããf³  
ã,«ãf¼ãf%ãĈæ€è¼%ã,ã,Ĉã|ãšã,šã€IPv6  
ãšèãšã,ã,Ĉã|ã,,ã,ã€,

Cisco IOS XR ã,½ãfãfã,ã,šã,ćãfããfãf¼ã,ã®ã^ããŸ

ãfãã,ã,ã,¹ã,šãšãŸèĈĈã,Ĉã|ã,,ã,ć Cisco IOS XR ã,½ãfãfã,ã,ã,šã,ć

ãfããfãf¼ã,¹ããã,Ĉã,ãŸèĈĈã—ã|ã,,ã,ãfããfãã,ã,ã,ã®ããã%ããŸãçĈç

ãš show version

ã,³ãfžãfãf%ã,‘ã½¿ç”ã™ã,ã€ã”ãã«ã,ã,šćç°èªãšãããããã™ã€,ãfããfãã,ã,ã,¹ãĈĈ

Cisco IOS XR ã,½ãfãfã,ã,ã,šã,ćã,ãŸèĈĈã—ã|ã,,ã,ã,ã´ã^ã€ã,ã,ãfããf

ãfãfšãf¼ã«ãĈĈCisco IOS XR Software

ã€ãããĈã®ãfãã,ã,ãfããĈĈèĈçããã,Ĉããããã™ã€,ãfããfãã,ã,ã,¹ãšćã¼ãœãŸèĈĈã

ã,ããfãf¼ã,ãfã,ã,ãããã®ã´æ%ãããããããã€ãĈĈSystem image file

isããããã”ãã«èĈçãããã,Ĉããããã™ã€,ãfããfãf¼ãf%ã,ã,šã,ćè£½ã“ã®ãããã%ããã

ã,ããfãf¼ã,ãfã,ã,ãããããã®æ¬ã®èĈĈãã,Ĉããããã™ã€,

æ¬ã«ã€Cisco IOS XR ã,½ãfãfã,ã,ã,šã,ćãfããfãf¼ã,¹ 5.3.4

ãĈĈãŸèĈĈã,Ĉã|ã,,ã,ãfããfãã,ã,ã,ãšã® show version

ã,³ãfžãfãf%ããšãã¼ã,‘çããã—ããããã™ã€,

<#root>

RP/0/RSP0/CPU0:ASR9001#

show version

Wed Jan 24 01:32:32.751 EST

Cisco IOS XR Software, Version 5.3.4

[Default]  
Copyright (c) 2017 by Cisco Systems, Inc.

ROM: System Bootstrap, Version 2.04(20140227:092320) [ASR9K ROMMON],

ASR9001 uptime is 6 hours, 17 minutes  
System image file is "bootflash:disk0/asr9k-os-mpi-5.3.4.sp4-1.0.0/0x100000/mbiasr9k-rp.vm"

cisco ASR9K Series (P4040) processor with 8388608K bytes of memory.  
P4040 processor at 1500MHz, Revision 2.0  
ASR-9001 Chassis

2 Management Ethernet  
8 TenGigE  
20 GigabitEthernet  
8 DWDM controller(s)  
8 WANPHY controller(s)  
44 GigabitEthernet/IEEE 802.3 interface(s)  
219k bytes of non-volatile configuration memory.  
2880M bytes of hard disk.  
3932144k bytes of disk0: (Sector size 512 bytes).

Configuration register on node 0/RSP0/CPU0 is 0x2102

**Trident**

Cisco ASR 9000

Trident

Trident

Trident

Trident

Trident

Trident

- A9K-40GE-L
- A9K-40GE-B
- A9K-40GE-E
- A9K-4T-L
- A9K-4T-B
- A9K-4T-E
- A9K-8T/4-L
- A9K-8T/4-B
- A9K-8T/4-E
- A9K-2T20GE-L

- A9K-2T20GE-B
- A9K-2T20GE-E
- A9K-8T-L
- A9K-8T-B
- A9K-8T-E
- A9K-16/8T-B

ASR 9000 **show diag**  
 Trident **show diag** | **include**

**PID:** A9K-36X10GE-SE, A9K-MOD160-TR, A9K-MPA-8X10GE, A9K-MPA-8X10GE  
 Trident **show diag** | **include** PID: A9K-8T-L  
 A9K-8T-L, A9K-8T-E, A9K-16/8T-B

<#root>

RP/0/RSP0/CPU0:ASR9006-B#show diag | include PID:  
 Tue Jan 26 00:07:09.406 EST  
 PID: A9K-RSP440-SE  
 PID: A9K-RSP440-SE  
 PID: A9K-8X100GE-SE

**PID: A9K-8T-L**

PID: A9K-36X10GE-SE  
 PID: A9K-MOD160-TR  
 PID: A9K-MPA-8X10GE  
 PID: A9K-MPA-8X10GE  
 RP/0/RSP0/CPU0:ASR9006-B#

Trident **show diag** | **include** PID: A9K-8T-L  
 9000 Series Line Card Types  
<https://www.cisco.com/c/en/us/support/docs/routers/asr-9000-series-aggregation-services-routers/116726-qanda-product-00.html>

**show ipv6 interface brief**

**show ipv6 interface brief**

**show ipv6 interface brief**

**show ipv6 interface brief**

**show ipv6 interface brief**

```
RP/0/RP0/CPU0:router# show ipv6 interface brief
GigabitEthernet0/2/0/0 [Up/Up]
fe80::212:daff:fe62:c150
202::1
.
.
.
```

```
show ipv6 interface brief
Cisco IOS XR
IPv6
IPv6
```

```
Virtual Routing and Forwarding
IPv6
```

```
show ipv6 interface brief
```

```
show ipv6 vrf all interface
IPv6
```

```
RP/0/RP0/CPU0:Router#show ipv6 vrf all interface
```

```
.
.
Bundle-Ether4.765 is Up, ipv6 protocol is Up, Vrfid is FDA (0x60000001)
IPv6 is enabled, link-local address is fe80::21d:a2ff:aabb:ccdd
Global unicast address(es):
  2001:db8:1:1::1, subnet is 2001:db8:1:1::/64
Joined group address(es): ff02::1:ff00:0 ff02::1:aabb:ccdd ff02::2
  ff02::1
MTU is 1518 (1500 is available to IPv6)
ICMP redirects are disabled
ICMP unreachable are enabled
ND DAD is enabled, number of DAD attempts 1
ND reachable time is 0 milliseconds
ND advertised retransmit interval is 0 milliseconds
Hosts use stateless autoconfig for addresses.
Outgoing access list is not set
Inbound access list is not set
Table Id is 0xe0800001
```

è,†å¼±æ€šã,'å«ã,"ãšã,,ãªã,,ã"ã"ã Ççç°èªã•ã,Œãÿè½å"

ä»-ã®ã,ã,¹ã,³è½å"ã«ãšã,,ã|ã€ã"ã®ã,çãf%ãã,ã,¶ã,¶ãã®å½±éÿã,'å-ã

Cisco ã,çã,ªãfªã,²ãf¼ã,ãfšãf³ã,¶ãf¼ãfªã,¹ãf«ãf¼ã,¿¼^ASRi¼%9000

ã,ãfªãf¼ã,ªãšã€Trident ãf™ãf¼ã,¹ãf©ã,ããf³

ã,«ãf¼ãf%ãŒæè¼%ã•ã,Œã|ã,,ãªã,,ã'ã^ã€Cisco IOS XR

ã,½ãf•ãf^ã,|ã,šã,çãfªãfªãf¼ã,¹5.3.4ã,'ã®ÿè;Œã-ã|ã,,ãªã,,ã'ã^ã€IPv6

ã,'æœ%ãš¹ã«ã-ã|ã,,ãªã,,ã'ã^ã-ã½±éÿã,'ã-ã'ã¾ã>ã,"ã€,

ä»-ã®ãfªãfã,ãã,¹ãšã€Cisco IOS XR

ã,½ãf•ãf^ã,|ã,šã,çã,'ã®ÿè;Œã-ã|ã,,ã,ã'ã^ã-ã½±éÿã,'ã-ã'ã¾ã>ã,"ã€,

## ã,»ã,ãfÿãfªãfªã,£ã¾®³ã®ç-•è;ì

æœ-è,†å¼±æ€šã,'ãæfã^ç""ã™ã,ãã"ã"ãšã€Trident ãf™ãf¼ã,¹ãf©ã,ããf³

ã,«ãf¼ããf%ãŒãfªãfªãf¼ããf%ã•ã,Œã€æ-ããççªã™ã,^ãtãªé;žã¼¼ã®ã,"ãf©ãf¼ã

ãfªãfªã,»ãf¼ã,ãŒç"ÿæ^ã•ã,Œã¾ã™ã€,

```
LC/0/6/CPU0:pfm_node_lc[285]: %PLATFORM-DIAGS-0-LC_NP_LOOPBACK_FAILED_RX_PATH : Set|online_diag_lc[16392]
LC/0/6/CPU0:prm_server_tr[296]: %PLATFORM-NP-0-INIT_ERR : *** Error 0xA0003F03 : prm_np_fast_reset : Cha
LC/0/6/CPU0:prm_server_tr[296]: %PLATFORM-NP-4-FAULT : Line card needs to be reloaded, a reboot is being
```

```
LC/0/5/CPU0:prm_server_tr[296]: %PLATFORM-NP-0-INIT_ERR : *** Error 0xA0003F03 : prm_np_fast_reset : Cha
LC/0/5/CPU0:prm_server_tr[296]: %PLATFORM-NP-4-FAULT : Line card needs to be reloaded, a reboot is being
LC/0/5/CPU0:syslog_dev[88]: prm_server_tr[296] PID-163922: reboot internal start: cause code 27 cause Fa
```

ã"ã,Œã,%ã®ãfªãfªã,»ãf¼ã,ãŒã®ÿésã®ã,æfã^ç""ã,çªã™ã,,ã®ããããtã<æ

## ã>žéç-

ã"ã®è,†å¼±æ€šã«ã¾ã!ã™ã,ã>žéç-ãã,ã,šã¾ã>ã,"ã€,

## ä;®æ£æ,^ãçã,½ãf•ãf^ã,|ã,šã,ç

ã,ã,¹ã,³ã"ã"ã®ã,çãf%ãã,ã,¶ã,¶ãã«è"è¼%ã•ã,Œãÿè,,†å¼±æ€šã«ã¾ã!ã™ã,çç,ìãfãf¼ã,ãfšãf³ã"ãf•ã,£ãf¼ããfãf£

ã,»ãfªãfªã«ã¾ã-ã|ã®ãçãã"ãªã,šã¾ã™ã€,ããã®ã,^ãtãªªã,½ãf•ãf^ã,|ã,šã,



Service Packs-5.3.4

ä, æfå^©ç" ä°<ä¼<ã " å...-å¼ç™èj

Cisco Product Security Incident Response

Teami¼^PSIRTi¼%ã -ã€ æœ-ã, çãf%ãfã, ðã, ¶ãfãã «è ~è¼%ã •ã, Çã |ã, ã, è, †å¼±æ€šã

å†°å...

ã"ã®è,, †å¼±æ€šã Cisco TAC

ã, µãfãf¼ãf^ã, ±ãf¼ã, 1ã®èš£æ±°ã,ã «ç™è |ã •ã, Çã¼ã -ãŸã€,

### URL

<https://sec.cloudapps.cisco.com/security/center/content/CiscoSecurityAdvisory/cisco-sa-20180131-ipv6>

æ”¹è, å±Ÿæ´

ãfãf¼ã,ãfšãf³	èª-æŸ	ã,»ã,ã,ãfšãf³	ã,1ãf†ãf¼ã,çã,1	æ—Ÿã»~
1.0	å^å>žã...-é-ãfãfãf¼ã,1	-	Final	2018 å¹´ 1 æœ^ 31 æ—Ÿ

å^©ç"è! ç´,,

æœ-ã, çãf%ãfã, ðã, ¶ãfãã ç, jãç è ¼ã®ã,,ã®ã "ã -ã |ã "æãã¼ãã -ã |ã Šã,Šã€  
æœ-ã, çãf%ãfã, ðã, ¶ãfãã®æf...å ±ã Šã, ^ã³ãfããfã,ã®ã¼çç"ã «é-çã™ã, <è²-ã»ã®ã,€  
ã¼ãŸã€ã,ã,1ã,³ã æœ-ãf%ã,ãfãfãfãfã®ã†...ã®1ã,'ã°ãŠããã -ã «ã%ãæ´ã -ã  
æœ-ã, çãf%ãfã, ðã, ¶ãfãã®è ~èç°†...ã®1ã «é-çã -ã |æf...å ±é...ãçãã® URL  
ã,'çœçç•Ÿã -ã€ãã ç<-ã®è»çè¼%ã,,æ,,è³ã,'æ-½ã -ãŸã 'ã^ã€ã¼"ç¼ã Çç®çç  
ã"ã®ãf%ã,ãfãfãfãfã®æf...å ±ã æã,ã,1ã,³è£½ã"ã®ã, "ãfãf%ãf!ãf¼ã,¶ã,ã¼è±jã



## 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。