

ISR 4000系列路由器上的ISR-WAAS安裝指南

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簡介

本文檔介紹Cisco整合多業務路由器(ISR)上Cisco ISR-WAAS的安裝指南。它是在思科ISR上實施虛擬廣域應用服務(vWAAS)。

ISR-WAAS部署在IOS-XE容器中。此處所指的容器是指在思科ISR 4000系列路由器上運行虛擬化應用的虛擬機器監控程式。

ISR-WAAS安裝前提條件

每個WAAS軟體版本可能有不同的資源要求 (記憶體、CPU和固態硬碟[SSD]) ，如果不滿足這些要求，則可能導致效能問題甚至安裝過程中出錯。

請透過以下連結檢視配置指南：

<https://www.cisco.com/c/en/us/support/routers/virtual-wide-area-application-services-waas/products-installation-and-configuration-guides-list.html>

此表總結了每個ISR型號的資源需求和支援的ISR平台。

| ISR-WAAS Model | CPUs | Memory | Disk Storage | Supported ISR Platform |
|---|------|--------|--------------|--|
| ISR-WAAS-200 (for WAAS 5.x and 6.2.1) | 1 | 3 GB | 151 GB | ISR-4321 |
| ISR-WAAS-200 (for WAAS 6.2.3x and later) | 1 | 4 GB | 151 GB | ISR-4321 |
| ISR-WAAS-750 | 2 | 4 GB | 151 GB | ISR-4351, ISR-4331, ISR-4431, ISR-4451 |
| ISR-WAAS-1300 | 4 | 6 GB | 151 GB | ISR-4431, ISR-4451 |
| ISR-WAAS-2500 | 6 | 8 GB | 338 GB | ISR-4451 |

NIM-SSD與ISR-SSD之間的差異

NIM-SSD

NIM-SSD是位於ISR外部且可熱插拔的固態硬碟。

```
NAME: "NIM subslot 0/3", DESCR: "NIM SSD Module"
PID: NIM-SSD , VID: V01, SN: F0C1915299D
```

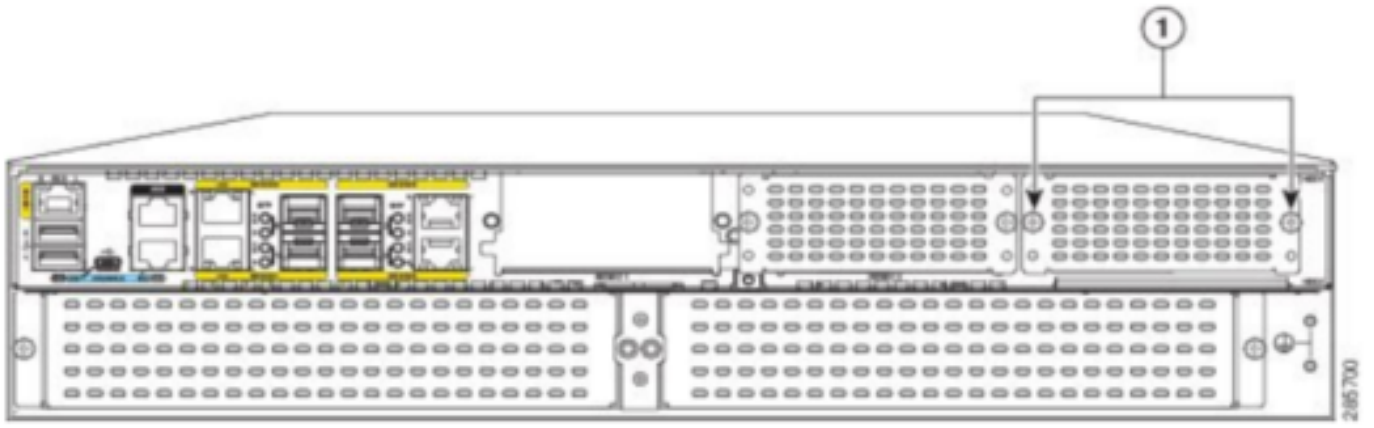
此模組安裝在ISR路由器的一個可用網路介面模組(NIM)中。

以下是可用於提升RMA的NIM-SSD和SSD產品識別符號(PID)：

NIM-SSD(=)NIM Carrier Card for SSD drives
 SSD-SATA-200G(=)200 GB, SATA Solid State Disk for NIM-SSD

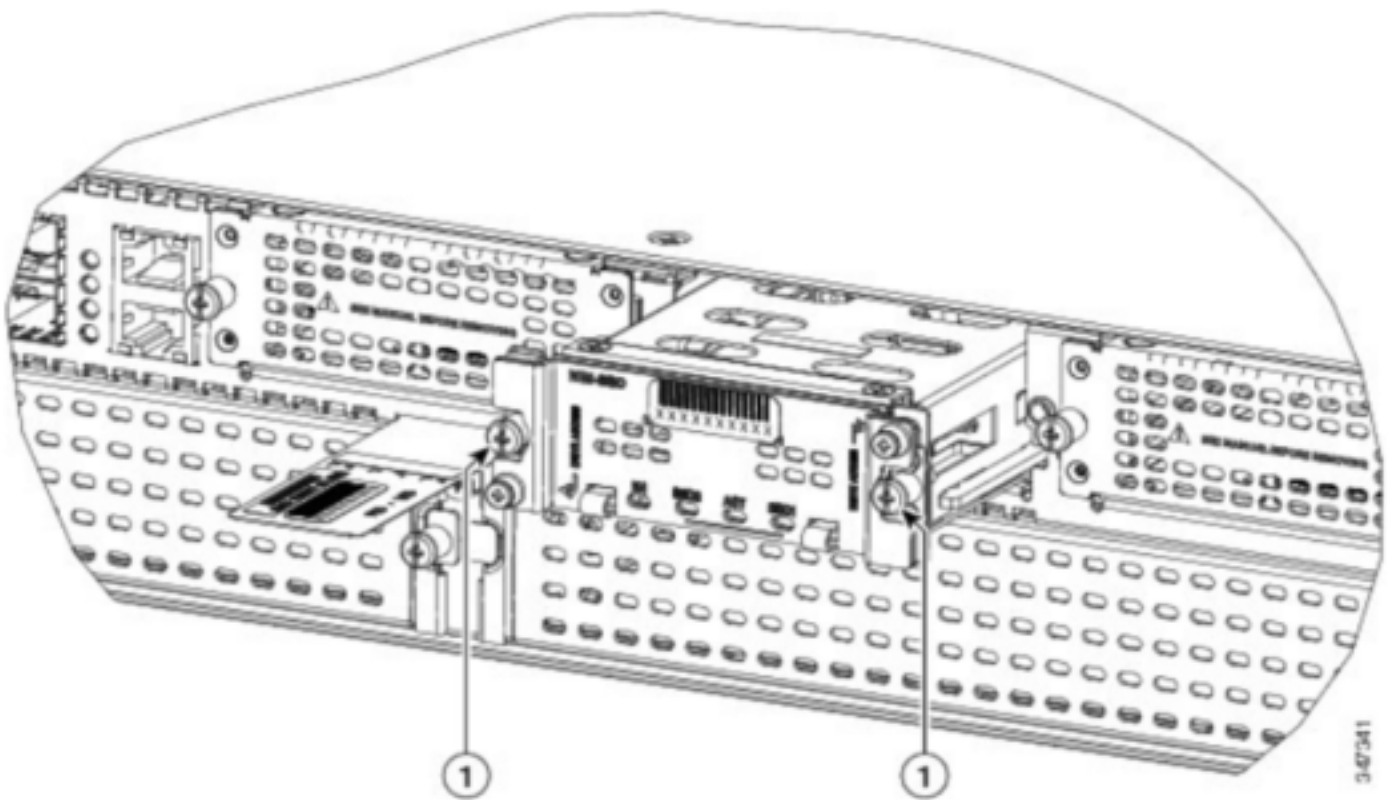
要從路由器上卸下NIM-SSD或NIM-HDD，請執行以下步驟：

步驟 1.使用十字螺絲起子鬆開任一側的固定螺釘，如下圖所示：



1 Captive screws holding the NIM-SSD to the router

步驟 2. 從路由中刪除NIM-SSD或NIM-HDD，如下圖所示：



1 Captive screws holding the NIM-SSD to the router

ISR-SSD

另一方面，ISR-SSD安裝在路由器機箱內部，您需要關閉路由器電源，打開其蓋以找到ISR-SSD。

ISR-SSD不可熱插拔。

這是可用於提升RMA的ISR 4300系列上ISR-SSD的PID：

SSD-MSATA-200G(=)200 GB, mSATA Solid State Disk

此影像顯示快閃記憶體卡和SSD mSATA儲存裝置位置：

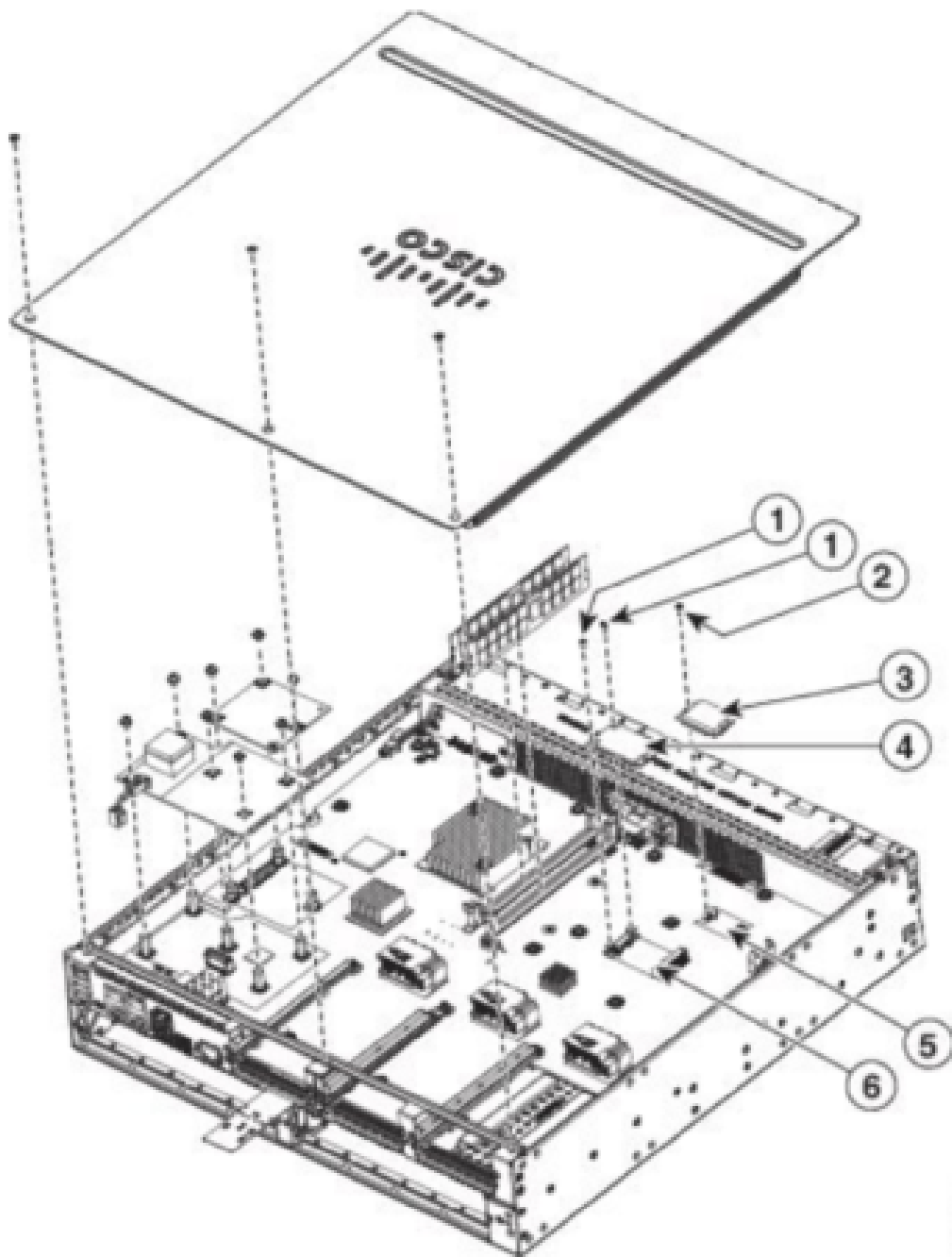


圖 10-1

| | | | |
|---|-----------------------------|---|--------------------------|
| 1 | Supplied screw | 2 | Supplied screw |
| 3 | Flash memory card | 4 | SSD mSATA storage device |
| 5 | Flash memory card connector | 6 | SSD mSATA connector |

ISR-WAAS安裝

一旦您滿足安裝ISR-WAAS的所有要求，下一步就是下載您要部署的ISR-WAAS版本的開放式虛擬化裝置(OVA)檔案。您可以從以下連結下載軟體：

<https://software.cisco.com/download/home/280484571/type/280836712>

下載軟體後，您需要將檔案傳輸到路由器的bootflash：

```
BR1-ISR4451#dir bootflash: | in .ova
81929  -rw-      986142720   Feb 1 2016 18:21:13 +12:00  ISR-WAAS-5.5.5a.9.ova
540682 -rw-      1057904640  May 10 2018 16:55:58 +11:00  ISR-WAAS-6.4.1a.6.ova
147457 -rw-      1002700800  Aug 20 2018 16:27:43 +11:00  ISR-WAAS-6.2.3e.45.ova
278534 -rw-      1009551360  Aug 8 2018 17:56:57 +11:00  ISR-WAAS-6.2.3d.68.ova
BR1-ISR4451#
```

在路由器CLI上，請按照以下步驟使用EZConfig程式部署ISR-WAAS：

1. 運行Service WAAS enable命令。
2. 為要部署的WAAS版本選擇之前傳輸的.ova映像。
3. 選擇要部署的WAAS配置檔案。
4. 配置ISR-WAAS IP地址。
5. 配置WAAS中央管理器IP地址。

```
BR1-ISR4451#service waas enable
*****
****  Entering WAAS service interactive mode.          ****
****  You will be asked a series of questions, and your answers  ****
****  will be used to modify this device's configuration to      ****
****  enable a WAAS Service on this router.                ****
*****
Continue? [y]: y
At any time: ? for help, CTRL-C to exit.
Select a WAAS image to install:
1. bootflash:/ISR-WAAS-5.5.5a.9.ova
2. bootflash:/ISR-WAAS-6.4.1a.6.ova
3. bootflash:/ISR-WAAS-6.2.3e.45.ova
4. bootflash:/ISR-WAAS-6.2.3d.68.ova
5. Enter your own image
Select option [3]: 3
Extracting profiles from bootflash:/ISR-WAAS-6.2.3e.45.ova, this may take a couple of minutes ...
These are the available profiles
1. ISR-WAAS-2500
2. ISR-WAAS-1300
3. ISR-WAAS-750
Select option [1]: 3
An internal IP interface and subnet is required to deploy a WAAS service on this router.
This internal subnet must contain two usable IP addresses that can route and communicate with the WAAS Central Manager (WCM).
The following ip address type supported for ISR-WAAS
1) ipv4
2) ipv6
Select ip address type (1 or 2):1
Enter the IPV4 address to be configured on the WAAS service: 10.66.86.44
The following ip address type supported for Host on Router
1) ipv4
2) ipv6
Select ip address type (1 or 2):1
The following ip address type for WCM
1) ipv4
2) ipv6
Select ip address type (1 or 2):1
Enter the IP address of the WAAS Central Manager (WCM): 10.66.86.106
```

6. 在路由器上選擇您要啟用WAAS攔截的廣域網(WAN)介面。
7. 完成後儲存配置。這是成功安裝的映像。

```

*****
** Configuration Summary: **
*****
a) WAAS Image and Profile Size:
  bootflash:/ISR-WAAS-6.2.3e.45.ova (1002700800) bytes
  ISR-WAAS-750

b) Router IP/mask:
  Using ip unnumbered from interface GigabitEthernet0/0/2

  WAAS Service IP:
  10.66.86.44

c) WAAS Central Manager:
  10.66.86.106

d) Router WAN Interfaces:
  GigabitEthernet0/0/0

Choose one of the letter from 'a-d' to edit, 'v' to view config script, 's' to apply config [s]: s
The configuration will be applied and the status of the WAAS service will be displayed after deployment

Installing bootflash:/ISR-WAAS-6.2.3e.45.ova

Installing!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

% Activating virtual-service 'AUTOWAAS', this might take a few minutes. Use 'show virtual-service list' for progress.

System is attempting to deploy and activate WAAS image, this may take up to 10 minutes
activating!!!!!!!!!!

Waiting for WAAS application to be at a stage to accept WCM IP configuration.

Waiting!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
management services enabled

WAAS service activated!
Note:Please issue "copy running-config startup-config" command to save changes!

```

排除ISR-WAAS故障

WAAS安裝失敗場景

如果沒有SSD，ISR-WAAS安裝將失敗，因此首先檢查是否存在SSD。

```

GigabitEthernet0/1/0 unassigned YES unset down down
GigabitEthernet0/1/1 unassigned YES unset down down
GigabitEthernet0/1/2 unassigned YES unset down down
GigabitEthernet0/1/3 unassigned YES unset down down
ucse1/0/0 10.66.86.34 YES unset administratively down down
ucse1/0/1 unassigned YES NVRAM administratively down down
GigabitEthernet0 unassigned YES NVRAM administratively down down
Dialer0 unassigned YES unset up up
Dialer1 unassigned YES unset up up
Loopback200 unassigned YES unset up up
Tunnel0 10.66.86.61 YES unset up up
VirtualPortGroup31 10.66.86.41 YES unset down down
Vlan1 unassigned YES NVRAM administratively down down
Enter a WAN interface to enable WAAS interception (blank to skip) []: GigabitEthernet0/0/0
Enter additional WAN interface (blank to finish) []:
*****
** Configuration Summary: **
*****
a) WAAS Image and Profile Size:
  bootflash:/ISR-WAAS-6.2.3e.45.ova (1002700800) bytes
  ISR-WAAS-750

b) Router IP/mask:
  Using ip unnumbered from interface GigabitEthernet0/0/2
  WAAS Service IP:
  10.66.86.44

c) WAAS Central Manager:
  10.66.86.106

d) Router WAN Interfaces:
  GigabitEthernet0/0/0

Choose one of the letter from 'a-d' to edit, 'v' to view config script, 's' to apply config [s]: s
The configuration will be applied and the status of the WAAS service will be displayed after deployment
installation failure decision to exit
R01 ISR4451#

```

ISR-WAAS啟用失敗場景

在某些情況下，在您更換路由器並將SSD安裝到新機箱後，ISR-WAAS將無法啟用。

在ISR路由器上可看到以下錯誤：

```
09/16 11:44:08.946 [vman]: [31298]: (note): VM (AUTOWAAS) State Transition: next_state: LIFECYCLE_DEACTI
09/16 11:44:17.613 [vman]: [31298]: (ERR): Loading of machine definition (/vol/harddisk/virtual-instan
09/16 11:44:17.613 [vman]: [31298]: (ERR): Failed to load machine definition
09/16 11:44:17.613 [vman]: [31298]: (note): Setting failure response (1)
09/16 11:44:17.613 [vman]: [31298]: (ERR): Virtual Service failure log[AUTOWAAS]::Validation::Package v
09/16 11:44:17.613 [errmsg]: [31298]: (ERR): %VMAN-3-PROCESS_PKG_DEF: Virtual Service[AUTOWAAS]::Valida
09/16 11:44:17.613 [vman]: [31298]: (note): VM (AUTOWAAS) State Transition: next_state: LIFECYCLE_WAIT_
09/16 11:44:17.613 [vman]: [31298]: (note): IF MTU message received:
09/16 11:44:17.613 [vman]: [31298]: (ERR): Invalid bridge ID or the bridge(31) has not been created yet
09/16 11:44:17.614 [vman]: [31298]: (ERR): Failed to set DP IF mtu for DP bridge 31
09/16 11:44:17.614 [vman]: [31298]: (note): vman IF MTU message processed
09/16 11:44:24.725 [vman]: [31298]: (note): Get local RP location rp/0/0
09/16 11:44:27.758 [vman]: [31298]: (note): Get local RP location rp/0/0
09/16 11:44:27.759 [vman]: [31298]: (note): Get local RP location rp/0/0
09/16 11:44:27.772 [vman]: [31298]: (note): Get local RP location rp/0/0
09/16 11:44:27.779 [vman]: [31298]: (note): Get local RP location rp/0/0
09/16 11:44:27.779 [vman]: [31298]: (note): Successfully removed VM init ctx for VM [AUTOWAAS]
09/16 11:44:27.780 [vman]: [31298]: (note): Per-VM message marshalled successfully into persistent DB
09/16 11:44:27.780 [vman]: [31298]: (note): Successfully reset per-VM mac address binding into TDL msg
09/16 11:44:28.063 [vman]: [31298]: (ERR): vman_libvirt_err: code=1
09/16 11:44:28.063 [vman]: [31298]: (ERR): internal error '/usr/sbin/lvremove -f /dev/lvm_raid/vdc.AUTOWAAS
/dev/harddisk1: read failed after 0 of 4096 at 21474828288: Input/output error
/dev/harddisk1: read failed after 0 of 4096 at 0: Input/output error
/dev/harddisk1: read failed after 0 of 4096 at 4096: Input/output error
/dev/dm-1: read failed after 0 of 4096 at 4429119488: Input/output error
```


/dev/dm-1: read failed after 0 of 4096 at 4429176832: Input/output error
/dev/dm-1: read failed after 0 of 4096 at 0: Input/output error
/dev/dm-1: read failed after 0 of 4096 at 4096: Input/output error
/dev/dm-2: read failed after 0 of 4096 at 11072897024: Input/output error
/dev/dm-2: read failed after 0 of 4096 at 11072954368: Input/output error
/dev/dm-2: read failed after 0 of 4096 at 0: Input/output error
/dev/dm-2: read failed after 0 of 4096 at 4096: Input/output error
/dev/dm-3: read failed after 0 of 4096 at 1630
09/16 11:44:28.063 [vman]: [31298]: (ERR): Failed to delete volume vdc.AUTOWAAS in pool virt_strg_pool_
09/16 11:44:28.241 [vman]: [31298]: (ERR): vman_libvirt_err: code=1
09/16 11:44:28.241 [vman]: [31298]: (ERR): internal error '/usr/sbin/lvremove -f /dev/lvm_raid/vdb.AUTOWAAS'
/dev/dm-1: read failed after 0 of 4096 at 0: Input/output error
/dev/dm-2: read failed after 0 of 4096 at 0: Input/output error
/dev/dm-3: read failed after 0 of 4096 at 0: Input/output error
/dev/harddisk1: read failed after 0 of 4096 at 21474770944: Input/output error
/dev/harddisk1: read failed after 0 of 4096 at 21474828288: Input/output error
/dev/harddisk1: read failed after 0 of 4096 at 4096: Input/output error
/dev/dm-1: read failed after 0 of 4096 at 4429119488: Input/output error
/dev/dm-1: read failed after 0 of 4096 at 4429176832: Input/output error
/dev/dm-1: read failed after 0 of 4096 at 4096: Input/output error
/dev/dm-2: read failed after 0 of 4096 at 11072897024: Input/output error
/dev/dm-2: read failed after 0 of 4096 at 11072954368: Input/output error
/dev/dm-2: read failed after 0 of 4096 at 4096: I
09/16 11:44:28.241 [vman]: [31298]: (ERR): Failed to delete volume vdb.AUTOWAAS in pool virt_strg_pool_
09/16 11:44:28.418 [vman]: [31298]: (ERR): vman_libvirt_err: code=1
09/16 11:44:28.418 [vman]: [31298]: (ERR): internal error '/usr/sbin/lvremove -f /dev/lvm_raid/vda.AUTOWAAS'
/dev/dm-1: read failed after 0 of 4096 at 0: Input/output error
/dev/dm-2: read failed after 0 of 4096 at 0: Input/output error
/dev/dm-3: read failed after 0 of 4096 at 0: Input/output error
/dev/harddisk1: read failed after 0 of 4096 at 21474770944: Input/output error
/dev/harddisk1: read failed after 0 of 4096 at 21474828288: Input/output error

```
/dev/harddisk1: read failed after 0 of 4096 at 4096: Input/output error
/dev/dm-1: read failed after 0 of 4096 at 4429119488: Input/output error
/dev/dm-1: read failed after 0 of 4096 at 4429176832: Input/output error
/dev/dm-1: read failed after 0 of 4096 at 4096: Input/output error
/dev/dm-2: read failed after 0 of 4096 at 11072897024: Input/output error
/dev/dm-2: read failed after 0 of 4096 at 11072954368: Input/output error
/dev/dm-2: read failed after 0 of 4096 at 4096: I
09/16 11:44:28.418 [vman]: [31298]: (ERR): Failed to delete volume vda.AUTOWAAS in pool virt_strg_pool_
09/16 11:44:28.420 [vman]: [31298]: (note): Found orphaned volume(vda.AUTOWAAS) in pool(virt_strg_pool_
```

硬碟可能已損毀，您可以執行下列動作：

```
# show platform hardware subslot <ssd subslot> module device filesystem
# request platform hardware filesystem harddisk: destroy
# hw-module subslot 0/5 reload
```

SSD故障場景

在某些情況下，如果SSD出現故障，當您運行與硬碟和檔案系統相關的命令時，您會看到這些錯誤。

```
“request platform hardware filesystem harddisk: destroy”
%This operation can take some time, please be patient
%Harddisk not present. Destroy filesystem aborted.
```

若要解決此問題，您可以嘗試以下步驟：

步驟 1.嘗試重新拔插SSD。

步驟 2.重新啟動路由器。

步驟 3.如果這些步驟失敗，則僅對SSD進行RMA。

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）。