

# vManage가 디바이스에 보안 앱 컨테이너를 설치하지 못하는 이유는 무엇입니까?

## 목차

[소개](#)

[문제](#)

[솔루션](#)

[참조](#)

## 소개

이 문서에서는 보안 정책이 장치 템플릿에서 사용되는 경우 보안 앱 컨테이너 설치 문제를 설명하고 이를 해결하는 방법에 대해 설명합니다.

## 문제

사용자가 vManage에서 다음 오류로 인해 보안 앱 컨테이너를 설치해야 하는 보안 정책에 장치 템플릿을 연결할 수 없습니다.

```
Failed to install 1/1 Security App container (app-hosting-UTD-Snort-Feature-aarch64_be-1.0.8_SV2.9.11.1_XE16.10). Failed to enabled iox: null
05 Apr 2019 11:46:09 AM IST
[5-Apr-2019 6:16:09 UTC] Total number of Security App containers to be installed: 1. Security App containers to be installed are following: [app-hosting-UTD-Snort-Feature-aarch64_be-1.0.8_SV2.9.11.1_XE16.10]
[5-Apr-2019 6:16:09 UTC] Started 1/1 Security app container (app-hosting-UTD-Snort-Feature-aarch64_be-1.0.8_SV2.9.11.1_XE16.10) installation
[5-Apr-2019 6:16:10 UTC] Checking if iox is enabled on device
[5-Apr-2019 6:16:18 UTC] Failed to install 1/1 Security App container (app-hosting-UTD-Snort-Feature-aarch64_be-1.0.8_SV2.9.11.1_XE16.10).
Failed to enabled iox: null
```

vManage 컨트롤러의 `/var/log/nms/vmanage-server.log`에서 다음 오류가 표시됩니다.

```
05-Apr-2019 08:41:54,488 UTC ERROR [vManage] [AppHostingTemplateProcessor] (device-action-lxc_install-10) |default| Error while enabling iox on device-C1111X-8P-FGL230513Y0-1.1.1.1: rpc-reply error: <rpc-reply xmlns="urn:ietf:params:xml:ns:netconf:base:1.0" xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0" message-id="5">
<rpc-error>
  <error-type>application</error-type>
  <error-tag>invalid-value</error-tag>
  <error-severity>error</error-severity>
  <error-message unknown:lang="en">inconsistent value: Device refused one or more commands</error-message>
  <error-info>
    <severity xmlns=" http://cisco.com/yang/cisco-ia">error_cli</severity>;
    <detail xmlns=" http://cisco.com/yang/cisco-ia">;
    <bad-cli>
      <bad-command>iox</bad-command>
```

```
<error-location>1</error-location>
<parser-response/>      </bad-cli>
</detail>
</error-info>
</rpc-error>
</rpc-reply>
```

```
at com.tailf.jnc.NetconfSession.recv_rpc_reply_ok(Unknown Source) [JNC-1.2.jar:]
at com.tailf.jnc.NetconfSession.recv_rpc_reply_ok(Unknown Source) [JNC-1.2.jar:]
at com.tailf.jnc.NetconfSession.commit(Unknown Source) [JNC-1.2.jar:]
at
com.viptela.vmanage.server.device.common.NetConfClient.commitAndUnlock(NetConfClient.java:458)
[classes:]
at
com.viptela.vmanage.server.deviceaction.processor.config.AppHostingTemplateProcessor.checkAndEnableIox(AppHostingTemplateProcessor.java:358) [classes:]
at
com.viptela.vmanage.server.deviceaction.processor.config.AppHostingTemplateProcessor.preTemplatePushCheck(AppHostingTemplateProcessor.java:173) [classes:]
at
com.viptela.vmanage.server.deviceaction.processor.service.lxc.LxcInstallActionProcessor$LxcInstallActionWorker.startMaintenanceDeviceActions(LxcInstallActionProcessor.java:340) [classes:]
at
com.viptela.vmanage.server.deviceaction.DefaultActionWorker.startDeviceAction(DefaultActionWorker.java:82) [classes:]
at
com.viptela.vmanage.server.deviceaction.AbstractActionWorker.call(AbstractActionWorker.java:117) [classes:]
at
com.viptela.vmanage.server.deviceaction.AbstractActionWorker.call(AbstractActionWorker.java:35) [classes:]
at java.util.concurrent.FutureTask.run(FutureTask.java:266) [rt.jar:1.8.0_162]
at java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.java:1149) [rt.jar:1.8.0_162]
at java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecutor.java:624) [rt.jar:1.8.0_162]
at java.lang.Thread.run(Thread.java:748) [rt.jar:1.8.0_162]
```

```
05-Apr-2019 08:41:54,496 UTC ERROR [vManage] [LxcInstallActionProcessor] (device-action-lxc_install-10) |default| On device C1111X-8P-FGL230513Y0-1.1.1.1, Failed to install 1/1 Security App container (app-hosting-UTD-Snort-Feature-aarch64_be-1.0.8_SV2.9.11.1_XE16.10). Failed to enabled iox: null
05-Apr-2019 08:41:54,524 UTC INFO [vManage] [DeviceActionStatusDAO] (device-action-lxc_install-10) |default| End task lxc_install
05-Apr-2019 08:41:54,533 UTC INFO [vManage] [DeviceActionStatusDAO] (device-action-lxc_install-10) |default| Publish client event: ACTIVITY
05-Apr-2019 08:41:54,533 UTC INFO [vManage] [DeviceActionStatusDAO] (device-action-lxc_install-10) |default| Publish client event: DEVICE_ACTION
```

위에서 볼 수 있듯이, 일부 정보에는 별로 유용한 메시지가 없습니다. "Failed to enabled iox:null"은 두 출력에서 모두 표시되며, 이는 경우에 따라 디바이스에 연결된 선택한 보안 앱 호스팅 프로필에 메모리가 부족하다는 것을 의미합니다.

## 솔루션

Security App Hosting 프로필로 인해 메모리 문제가 의심되었으므로 이 프로필을 확인한 다음 기본 프로필이 사용되었음을 발견했습니다.

## SECURITY POLICY PARAMETERS

NAT

On  Off

Resource Profile

이 장치의 메모리가 부족할 때 문제가 발생하는 것으로 알려진 높은 프로파일과 대조적으로.

다음 단계로, 메모리 소비량이 디바이스 자체에서 확인되었으며 8Gb RAM이 포함된 C1111X 라우터에 약 1Gb의 여유 메모리만 있는 것으로 확인되었습니다(무료 참고).

```
cEdge10#show memory platform
Virtual memory : 11512180736
Pages resident : 730200
Major page faults: 2501
Minor page faults: 114581800

Architecture : aarch64_be
Memory (kB)
  Physical : 3758804
  Total : 3758804
  Used : 2620884
  Free : 1137920
  Active : 2191472
  Inactive : 807536
  Inact-dirty : 0
  Inact-clean : 0
  Dirty : 0
  AnonPages : 1473636
  Bounce : 0
  Cached : 1212660
  Commit Limit : 1813864
  Committed As : 3224504
  High Total : 0
  High Free : 0
  Low Total : 3758804
  Low Free : 1137920
  Mapped : 416524
  NFS Unstable : 0
  Page Tables : 17160
  Slab : 170624
  Writeback : 0

Swap (kB)
  Total : 0
  Used : 0
  Free : 0
  Cached : 0

Buffers (kB) : 312844

Load Average
  1-Min : 0.60
  5-Min : 0.66
```

15-Min : 0.86

동시에 **show version** 출력에서 디바이스에 8Gb RAM이 있음을 확인했습니다(물리적 메모리 참고).

```
cisco C1111X-8P (1RU) processor with 1453914K/6147K bytes of memory.
Processor board ID FGL230513Y0
1 Virtual Ethernet interface
10 Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
8388608K bytes of physical memory.
6336511K bytes of flash memory at bootflash:.
```

메모리 부족이 보안 앱 컨테이너를 설치할 수 없는 이유입니다. 따라서 IOS-XE SD-WAN 지원 플랫폼에 대한 최소 ROMmon 요구 사항이 존재하기 때문에 ROMmon 버전이 검사됩니다. 이 버전은 디바이스에서 찾을 수 있습니다.

```
cEdge10#show platform | b Firmware
Slot      CPLD Version      Firmware Version
-----
0         17100501         16.8(1r)
R0        17100501         16.8(1r)
F0        17100501         16.8(1r)
```

16.10.2 소프트웨어를 실행할 때 릴리스 정보에 따라 필요한 최소 ROMmon 버전은 16.9(1r)이므로 ROMmon이 업그레이드되고 사용 가능한 메모리가 다시 검사됩니다.

```
cEdge10#sh memory platform
Virtual memory : 11516805120
Pages resident : 708276
Major page faults: 2303
Minor page faults: 1705306
```

```
Architecture : aarch64_be
Memory (kB)
Physical      : 8143440
Total        : 8143440
Used         : 2571908
Free         : 5571532
Active       : 2213868
Inactive     : 1128140
Inact-dirty  : 0
Inact-clean  : 0
Dirty        : 8
AnonPages    : 1410328
Bounce       : 0
Cached       : 1619664
Commit Limit : 4006184
Committed As : 3136948
High Total   : 0
High Free    : 0
Low Total    : 8143440
Low Free     : 5571532
Mapped       : 397692
NFS Unstable : 0
Page Tables  : 17216
Slab         : 158776
Writeback    : 0
```

위의 출력에서 Free(여유) 및 Physical memory (5Gb 이상 및 8Gb 이상 해당) 를 참조하십시오.

이 보안 앱 컨테이너 설치가 다시 트리거된 후 장치 템플릿이 분리되어 다시 연결되고 설치에 대한 메시지가 표시됩니다.

```
%IOSXE-5-PLATFORM: R0/0: VCONFD_NOTIFIER: Install status: cc761b3b-cb3b-4070-81de-9b842fd68b27
download-start. Message Downloading http://10.10.10.100:8080/software/package/lxc/app-
hosting_UTD-Snort-Feature-x86_64_1.0.8_SV2.9.11.1_XE16.10_secapp-
ucmk9.16.10.2.1.0.8_SV2.9.11.1_XE16.10.x86_64.tar?deviceId=10.10.10.10
%Cisco-SDWAN-cEdge10-action_notifier-6-INFO-1400002: R0/0: VCONFD_NOTIFIER: Notification:
4/5/2019 09:54:4 system-software-install-status severity-level:minor host-name:cEdge10 system-
ip:10.10.10.10 status:download-start install-id:cc761b3b-cb3b-4070-81de-9b842fd68b27
message:Downloading http://10.10.10.100:8080/software/package/lxc/app-hosting_UTD-Snort-Feature-
x86_64_1.0.8_SV2.9.11.1_XE16.10_secapp-
ucmk9.16.10.2.1.0.8_SV2.9.11.1_XE16.10.x86_64.tar?deviceId=10.10.10.10
%IOSXE-5-PLATFORM: R0/0: VCONFD_NOTIFIER: Install status: cc761b3b-cb3b-4070-81de-9b842fd68b27
download-complete. Message Downloaded app image to /bootflash/.UTD_IMAGES/app-hosting_UTD-Snort-
Feature-x86_64_1.0.8_SV2.9.11.1_XE16.10_secapp-ucmk9.16.10.2.1.0.8_SV2.9.11.1_XE16.10.x86_64.tar
%Cisco-SDWAN-cEdge10-action_notifier-6-INFO-1400002: R0/0: VCONFD_NOTIFIER: Notification:
4/5/2019 09:54:5 system-software-install-status severity-level:minor host-name:cEdge10 system-
ip:10.10.10.10 status:download-complete install-id:cc761b3b-cb3b-4070-81de-9b842fd68b27
message:Downloaded app image to /bootflash/.UTD_IMAGES/app-hosting_UTD-Snort-Feature-
x86_64_1.0.8_SV2.9.11.1_XE16.10_secapp-ucmk9.16.10.2.1.0.8_SV2.9.11.1_XE16.10.x86_64.tar
%IOSXE-5-PLATFORM: R0/0: VCONFD_NOTIFIER: Install status: 9fd36cd6-f601-4fac-a5b0-1a36f06ba18a
verification-complete. Message NOOP
%Cisco-SDWAN-cEdge10-action_notifier-6-INFO-1400002: R0/0: VCONFD_NOTIFIER: Notification:
4/5/2019 9:54:5 system-software-install-status severity-level:minor host-name:cEdge10 system-
ip:10.10.10.10 status:verification-complete install-id:cc761b3b-cb3b-4070-81de-9b842fd68b27
message:NOOP
%VMAN-5-PACKAGE_SIGNING_LEVEL_ON_INSTALL: R0/0: vman: Package 'iox-
utd_1.0.8_SV2.9.11.1_XE16.10.tar' for service container 'utd' is 'Cisco signed', signing level
cached on original install is 'Cisco signed'
%VIRT_SERVICE-5-INSTALL_STATE: Successfully installed virtual service utd
%IOSXE-5-PLATFORM: R0/0: VCONFD_NOTIFIER: Install status: cc761b3b-cb3b-4070-81de-9b842fd68b27
install-start. Message Success, App state: DEPLOYED
%Cisco-SDWAN-cEdge10-action_notifier-6-INFO-1400002: R0/0: VCONFD_NOTIFIER: Notification:
4/5/2019 09:54:5 system-software-install-status severity-level:minor host-name:ISR-4331 system-
ip:10.10.10.10 status:install-start install-id:cc761b3b-cb3b-4070-81de-9b842fd68b27
message:Success, App state: DEPLOYED
```

다음은 vManage 측면의 성공적인 설치 모습을 보여줍니다.

```
[6-Apr-2019 12:38:13 CEST] Total number of Security App containers to be installed: 1. Security
App containers to be installed are following: [app-hosting-UTD-Snort-Feature-x86_64-
1.0.8_SV2.9.11.1_XE16.10]
[6-Apr-2019 12:38:13 CEST] Started 1/1 Security app container (app-hosting-UTD-Snort-Feature-
x86_64-1.0.8_SV2.9.11.1_XE16.10) installation
[6-Apr-2019 12:38:14 CEST] Checking if iox is enabled on device
[6-Apr-2019 12:38:17 CEST] Waiting for iox to be enabled on device
[6-Apr-2019 12:40:05 CEST] iox enable
[6-Apr-2019 12:40:05 CEST] Iox enabled on device
[6-Apr-2019 12:40:11 CEST] Security App container image: app-hosting_UTD-Snort-Feature-
x86_64_1.0.8_SV2.9.11.1_XE16.10_secapp-ucmk9.16.10.2.1.0.8_SV2.9.11.1_XE16.10.x86_64.tar
[6-Apr-2019 12:40:19 CEST] Connection Instance: 0, Color: biz-internet
[6-Apr-2019 12:40:19 CEST] Downloading http://10.10.10.100:8080/software/package/lxc/app-
hosting_UTD-Snort-Feature-x86_64_1.0.8_SV2.9.11.1_XE16.10_secapp-
ucmk9.16.10.2.1.0.8_SV2.9.11.1_XE16.10.x86_64.tar?deviceId=10.10.10.10
[6-Apr-2019 12:56:45 CEST] Downloaded app image to /bootflash/.UTD_IMAGES/app-hosting_UTD-Snort-
Feature-x86_64_1.0.8_SV2.9.11.1_XE16.10_secapp-ucmk9.16.10.2.1.0.8_SV2.9.11.1_XE16.10.x86_64.tar
[6-Apr-2019 12:56:48 CEST]
[6-Apr-2019 12:57:19 CEST] Success, App state: DEPLOYED
[6-Apr-2019 12:57:27 CEST] utd installed successfully
Current state is deployed
```

[6-Apr-2019 12:57:27 CEST] app-hosting-UTD-Snort-Feature-x86\_64 installed in DEPLOYED state  
[6-Apr-2019 12:57:27 CEST] Finished 1/1 Security app container (app-hosting-UTD-Snort-Feature-x86\_64-1.0.8\_SV2.9.11.1\_XE16.10) installation

## 참조

- [https://sdwan-docs.cisco.com/Product\\_Documentation/vManage\\_Help/Release\\_18.4/Security/Configuring\\_Security\\_Virtual\\_Image\\_for\\_IPS%2F%2FIDS\\_and\\_URL\\_Filtering](https://sdwan-docs.cisco.com/Product_Documentation/vManage_Help/Release_18.4/Security/Configuring_Security_Virtual_Image_for_IPS%2F%2FIDS_and_URL_Filtering)
- [https://sdwan-docs.cisco.com/Product\\_Documentation/Software\\_Features/Release\\_18.4/Release\\_Notes/Release\\_Notes\\_for\\_IOS\\_XE\\_SD-WAN\\_Release\\_16.10\\_and\\_SD-WAN\\_Release\\_18.4#ROMmon\\_Requirements\\_Matrix](https://sdwan-docs.cisco.com/Product_Documentation/Software_Features/Release_18.4/Release_Notes/Release_Notes_for_IOS_XE_SD-WAN_Release_16.10_and_SD-WAN_Release_18.4#ROMmon_Requirements_Matrix)