

部署在ISR、ASR和Catalyst网络设备的诊断签名

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简介

本文描述如何部署一个诊断签名(DS)为了自动地收集要求排除故障问题用Cisco集成服务路由器的诊断数据(ISR)，Cisco聚合服务路由器(ASR)和Cisco Catalyst 6500系列交换机和7600系列路由器。

先决条件

要求

本文档没有任何特定的要求。

使用的组件

使用在本文中的显示命令从运行Cisco IOS版本15.4(2)T3的Cisco ISR 3945系列路由器捕获。

DS支持有在此表里列出的Cisco IOS版本：

平台	软件版本
ISR 1900年，2900，3900系列路由器	Cisco IOS 15.4(2)T和以后
ISR 4300，4400系列路由器	Cisco IOS 15.5(2)S，IOS XE 3.15及以后
ASR 1000系列路由器	Cisco IOS 15.5(2)S，IOS XE 3.15及以后
思科Cloud服务路由器1000V系列	Cisco IOS 15.5(2)S，IOS XE 3.15及以后
7600系列路由器	Cisco IOS 15.3(3)S和以后
Catalyst 6500系列交换机	Cisco IOS 15.1(2)SY3和以后

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。

背景信息

DS是包含关于问题触发事件和操作的信息被采取了为了修正或排除故障的XML文件。他们由Cisco技术支持中心(TAC)创建，并且可以通过[聪明的Call Home](#)部署，或者您能手工装载在设备上的文件。您能使用[诊断签名查找工具](#)(DSLTT)为了查找问题的给的权利DS。

在本文中，您将学习如何查找，并且部署DS为了排除故障PVDM-3 DSP失败。此DS进行这些操作：

1. 配置路由器为了生成数字信号信号处理器(DSP)故障转储。
2. 通过写出的DSP转储检测DSP失败对文件<文件名>系统消息。
3. 收集相关显示命令。
4. 通过电子邮件发送收集的数据对attach@cisco.com。

在安装时，提示您输入用于电子邮件主题的将通知的DSP崩溃转储文件将创建的，案例编号和电子邮件地址最大DSP失败出现。

部署

此部分描述如何部署DS。

配置

注意：DS是打住宅电话功能的部分在Cisco IOS的。

您必须完成为了部署DS的第一步将配置打住宅电话功能。一旦打住宅电话功能启用，默认情况下DS支持自动地启用并且配置为使用CiscoTAC-1配置文件。

这是聪明的Call Home的一配置示例Cisco IOS的：

```
service call-home
call-home
contact-email-addr router@cisco.com
mail-server 192.0.2.33 priority 1
http-proxy "192.0.2.60" port 3128
no syslog-throttling profile "CiscoTAC-1"
active destination transport-method http
no destination transport-method email Router#show call-home diagnostic-signature
Current diagnostic-signature settings:
Diagnostic-signature: enabled
Profile: CiscoTAC-1 (status: ACTIVE)
Environment variable:
Not yet set up
```

```
Downloaded DSes:
Last Update
DS ID DS Name Revision Status (GMT+00:00)
-----
```

Router#

下载

第二步将查找签名ID或下载DS XML文件。为了执行此，请提供平台、产品、问题范围、问题类型和软件版本在[诊断签名查找工具](#)如显示此处：

Diagnostic Signature Lookup Tool **BETA** [Contributors](#)

This tool makes it easier to find the "most relevant" Diagnostic Signatures (DS) to automate debug enablement and data collection for a given type of UC related problem. The data collected by DS will enable the TAC Engineer to resolve your problem faster and efficiently. [details](#) v

Platform	Cisco 1900, 2900, 3900 ISR Series	▼
Product	Cisco IOS Gateway	▼
Problem Scope	Digital Signal Processor (DSP)	▼
Problem Type	DSP Crash	▼
Software Version	IOS 15.4(2)T, 15.4(3)S, 15.5(2)S and higher	

[Submit](#)

DS ID: 10492

Description: This DS configures DSP crash dump generation, identifies crash event and collects relevant show commands required to troubleshoot and identify root cause. Show commands outputs are sent to Cisco TAC via email and DSP crashdump file is copied to the FTP server provided at the time of DS installation.

[View](#) [Download](#)

请使用此信息为了通过有DS ID的聪明的Call Home下载DS：

```
call-home diagnostic-signature download 10492
```

请使用此信息为了手工装载在设备上的DS文件：

```
Router#copy ftp://192.0.2.10/DS_10492.xml flash:
Destination filename [DS_10492.xml]?
Accessing ftp://192.0.2.10/DS_10492.xml...!
[OK - 3804/4096 bytes]
```

```
3804 bytes copied in 0.476 secs (7992 bytes/sec)
```

```
Router#
Router#call-home diagnostic-signature load flash:DS_10492.xml
Load file flash:DS_10492.xml success
Router#
```

这是各自的块高级观点在DS文件内的：

```
Router#show call-home diagnostic-signature 10492
ID                : 10492
Name              : DS_PVDM3_DSP_Crash_Event_1
```

Functionality:

This DS configures DSP crash dump generation, identifies crash event and collects show commands required to troubleshoot and identify root cause.

This DS will have no impact on the performance of the router.

Prompts:

```
Variable: ds_number_of_files          Prompt: Number of crashdump files
to be stored in the flash      (1-5)
Type: integer      Range: 1..5
```

```
Variable: ds_case_number          Prompt: Enter TAC Case Number
(Case number to which diagnostics data need to be uploaded)
Type: regexp   Pattern: 6[0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9]
Variable: ds_user_email          Prompt: Enter Notification Email-Address
(Email address to which problem occurrence needs to be notified)
Type: regexp   Pattern: [a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]+
```

Prerequisite:

```
Type          : CMD
Element List   :
  CMD : config t
  CMD : voice dsp crash-dump destination flash:dsp_crashdump
  CMD : voice dsp crash-dump file-limit $ds_number_of_files
```

Event:

```
Action Tag     : a1
Event Tag      : e1
Type          : syslog
Syslog Pattern : .*writing out DSP dump to file ([^[:space:]]+).*
```

Includes action steps that may impact device state: No

Action:

```
Action Tag     : a1
Type          : EMAILTO
Email To       : attach@cisco.com,$ds_user_email
Subject       : DSP Crashdump
Attach SR     : $ds_case_number
Element List   :
  DATA&colon: show version
  DATA&colon: show voice dsp group all
  DATA&colon: show call active voice brief
  DATA&colon: show call active video brief
  DATA&colon: show call active fax brief
  DATA&colon: show sccp connection
  DATA&colon: show dspfarm all
  DATA&colon: dir $ds_dsp_crashdump_file
  DATA&colon: show run
```

Postrequisite:

```
Type          : CMD
Element List   :
  CMD : config t
  CMD : no voice dsp crash-dump destination flash:dsp_crashdump
  CMD : no voice dsp crash-dump file-limit $ds_number_of_files
  CMD : end
```

Router#

安装

注意：此步骤为在待定状态在下载以后的签名仅要求。

在您配置并且下载DS后，您必须然后安装它：

```
Router#show call-home diagnostic-signature
Current diagnostic-signature settings:
Diagnostic-signature: enabled
Profile: CiscoTAC-1 (status: ACTIVE)
Environment variable:
  Not yet set up
```

Downloaded DSes:

DS ID	DS Name	Revision	Status	Last Update (GMT-04:00)
10492	DS_PVDM3_DSP_Crash_Event_1	1.0	pending	2015-06-04 20:01:24

Router#

在安装过程中，您用在提示符部分定义的问题提示：

```
Router#call-home diagnostic-signature install 10492
Number of crashdump files to be stored in the flash (1-5) 5
Enter TAC Case Number (Case number to which diagnostics data need to be uploaded)
600000001
Enter Notification Email-Address (Email address to which problem occurrence needs
to be notified) attach@cisco.com
All prompt variables are configured successfully.
```

Router#

```
Router#show call-home diagnostic-signature
Current diagnostic-signature settings:
Diagnostic-signature: enabled
Profile: CiscoTAC-1 (status: ACTIVE)
Environment variable:
    Not yet set up
```

Downloaded DSes:

DS ID	DS Name	Revision	Status	Last Update (GMT-04:00)
10492	DS_PVDM3_DSP_Crash_Event_1	1.0	registered	2015-06-04 20:01:24

Router#

一旦DS注册，在前提条件部分指定的操作被执行。在本例中，与DSP故障转储生成涉及的操作配置：

```
Router#show run | section voice dsp
voice dsp crash-dump file-limit 3
voice dsp crash-dump destination flash:dsp_crashdump
Router#
```

验证

此部分描述如何验证DS安装并且正确地运行。

触发事件

思科建议您模拟问题触发为了保证DS正确地运作。例如，您能通过**test voice driver**命令模拟DSP失败，如显示此处：

```
Router#test voice driver
Enter Voice NM slot number : 0
```

C29xx/C39xx Debugging Section:

- 1 - FPGA Registers Read/Write
- 2 - 5510 DSP test
- 3 - DSPRM test
- 5 - IOCTRL TDM Registers Read/Write

- 6 - IOCTRL HDLC Registers Read/Write
- 7 - IOCTRL TDM Memory Read/Write
- 8 - get conn store address
- 9 - TDM PLL Read/Wrire
- 10 - SP2600 DSP test**
- 11 - Quit

Select option : 10

SP2600 DSP Testing Section:

- 1 - Display Device Information
- 2 - Reset 1 DSP
- 3 - Reset All DSPs
- 4 - Download DSP Firmware
- 5 - JTAG Read DSP Memory
- 6 - JTAG Write DSP Memory
- 7 - Keepalive Enable/Disable
- 8 - Display DSP Keepalive Status
- 9 - Simulate DSP Crash**
- 10 - ACK Testing
- 11 - Set Mbrd_dsp_debug Value
- 12 - PLD watch dog timers Enable/Disable
- 13 - Send Status_Request DSP Message
- 14 - Display Host and DSP MAC Address
- 15 - Display PLD and BOOTLOADER Version
- 16 - GigE enable/disable port
- 17 - Reset TDM port
- 18 - Show ports receiving oversubscription tone
- 19 - Display firmware build string
- 20 - Simulate All ARM Crash
- 21 - Simulate All ARM Crash after All DSS Crash
- 22 - Read PVDM PLD register
- 23 - Write PVDM PLD register
- 24 - Import DSP command file
- 25 - Switch DSP application between HR image and Streamware
- 26 - Show video capabilities of a DSP
- 27 - QUIT

Select option : 9

(1=DSP, 2=ARM) :1

Enter DSP id : 1

Enter Mode:

Mode 1: Simulates Assert Condition

Mode 2: Simulates Endless loop

Mode 3: Stop High Level Responses to Commands

Enter Mode: 1

SP2600 DSP Testing Section:

- 1 - Display Device Information
- 2 - Reset 1 DSP
- 3 - Reset All DSPs
- 4 - Download DSP Firmware
- 5 - JTAG Read DSP Memory
- 6 - JTAG Write DSP Memory
- 7 - Keepalive Enable/Disable
- 8 - Display DSP Keepalive Status
- 9 - Simulate DSP Crash
- 10 - ACK Testing
- 11 - Set Mbrd_dsp_debug Value
- 12 - PLD watch dog timers Enable/Disable
- 13 - Send Status_Request DSP Message

- 14 - Display Host and DSP MAC Address
- 15 - Display PLD and BOOTLOADER Version
- 16 - GigE enable/disable port
- 17 - Reset TDM port
- 18 - Show ports receiving oversubscription tone
- 19 - Display firmware build string
- 20 - Simulate All ARM Crash
- 21 - Simulate All ARM Crash after All DSS Crash
- 22 - Read PVDM PLD register
- 23 - Write PVDM PLD register
- 24 - Import DSP command file
- 25 - Switch DSP application between HR image and Streamware
- 26 - Show video capabilities of a DSP
- 27 - QUIT**

Select option : 27

C29xx/C39xx Debugging Section:

- 1 - FPGA Registers Read/Write
- 2 - 5510 DSP test
- 3 - DSPRM test
- 5 - IOCTRL TDM Registers Read/Write
- 6 - IOCTRL HDLC Registers Read/Write
- 7 - IOCTRL TDM Memory Read/Write
- 8 - get conn store address
- 9 - TDM PLL Read/Wrire
- 10 - SP2600 DSP test
- 11 - Quit**

Select option : 11

Router#

这是从show log命令的输出 :

```
032517: Jun  5 00:02:46.300: writing out DSP dump to file
flash:dsp_crashdump-1433462566-1
032517: Jun  5 00:02:46.300: writing out DSP dump to file
flash:dsp_crashdump-1433462566-1, sequence
032517: Jun  5 00:02:46.300: writing out DSP dump to file
flash:dsp_crashdump-1433462566-1, timestamp
032532: Jun  5 00:02:46.344: DS-ACT-TRACE: call_home_ds_regexp_paren_str_get[2571],
run regular expression once with pattern .*writing out DSP dump to file
([^\[:space:]]+).*
032534: Jun  5 00:02:46.344: DS-ACT-TRACE: : writing out DSP dump to file flash:
dsp_crashdump-1433462566-1
032551: Jun  5 00:02:46.348: CALL-HOME-TRACE: Event 41 description <032517:
Jun  5 00:02:46.300: writing out DSP dump to file flash:dsp_crashdump-1433462566-1>
```

输入statistics命令显示呼叫到家的诊断签名为了验证问题事件触发是否由DS检测 :

Router#show call-home diagnostic-signature statistics

DS ID	DS Name	Triggered/ Max/Deinstall	Average Run Time(sec)	Max Run Time(sec)
10492	DS_PVDM3_DSP_Crash_Event_1	0/0/N	0.000	0.000

3900-12#

3900-12#

3900-12#

3900-12#show call-home diagnostic-signature statistics

Triggered/	Average Run	Max Run
------------	-------------	---------

DS ID	DS Name	Max/Deinstall	Time(sec)	Time(sec)
10492	DS_PVDM3_DSP_Crash_Event_1	1/0/N	15.152	15.152

Router#

验证操作

您必须完成了验证DS部署的最后一步将验证操作例如这些是否正确地进行：

- 命令执行
 - 脚本执行
 - 收集的数据传输通过电子邮件或有收集的数据的聪明的Call Home
- 在本例中，电子邮件被发送对与与DSP相关的输出的attach@cisco.com显示命令。