

检查在Cisco ASR 1000 Series Aggregation Services Routers的内存使用

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简介

本文提供信息关于怎样维护和检查在Cisco ASR 1000系列汇聚服务路由器(ASR)的系统存储容量。本文应用对所有Cisco IOS XE软件支持Cisco ASR 1000系列汇聚服务路由器的版本。

先决条件

要求

本文档没有任何特定的要求。

使用的组件

本文档中的信息基于以下软件和硬件版本：

- 所有Cisco ASR 1000系列汇聚服务路由器，包括1002，1004和1006路由器。
- 支持Cisco ASR 1000系列汇聚服务路由器的所有Cisco IOS XE软件版本。

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。

规则

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

内存使用概述

Cisco ASR 1000系列聚合服务路由器的路由处理器(RP)有同步动态RAM (SDRAM), 提供代码、数据和数据包的存储设备。RP提供内存可扩展性ASR1000-RP1的4 GB和ASR1000-RP2的16 GB。

Cisco ASR 1000系列汇聚服务路由器介绍Cisco IOS XE软件作为他们的软件体系结构。凭Cisco IOS软件, Cisco IOS XE软件是在路由处理器的Linux内核建立的一个模块化操作系统。IOS守护程序(IOSd)运行作为一标准的用户级进程在Linux下并且提供Cisco IOS功能集, 包括路由协议。在启动, IOSd是授权访问到在RP的一定量的物理存储器典型地50百分比或1 GB在2 GB系统和2 GB在4 GB系统。双重IOS操作作用2/4RU有主存储器4GB的机箱软件冗余的其中每一个消耗1 GB。

为了显示内存容量, 软件、硬件和Web接口版本信息, 使用**show version**命令。

```
Router#show version
Cisco IOS Software, IOS-XE Software (PPC_LINUX_IOSD-ADVIPSERVICESK9-M),
Version 12.2(33)XNB, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2008 by Cisco Systems, Inc.
Compiled Fri 05-Sep-08 08:56 by mcpre
```

```
Cisco IOS-XE software, Copyright (c) 1986-2008 by Cisco Systems, Inc.
All rights reserved. Certain components of Cisco IOS-XE software are
licensed under the GNU General Public License ("GPL") Version 2.0. The
software code licensed under GPL Version 2.0 is free software that comes
with ABSOLUTELY NO WARRANTY. You can redistribute and/or modify such
GPL code under the terms of GPL Version 2.0. For more details, see the
documentation or "License Notice" file accompanying the IOS-XE software,
or the applicable URL provided on the flyer accompanying the IOS-XE
software.
```

```
ROM: IOS-XE ROMMON
```

```
ASR1006b uptime is 6 days, 21 hours, 49 minutes
Uptime for this control processor is 6 days, 21 hours, 51 minutes
System returned to ROM by reload at 15:35:57 JST Thu Feb 5 2009
System restarted at 15:40:15 JST Thu Feb 5 2009
System image file is "bootflash:packages.conf"
Last reload reason: Reload command
```

```
This product contains cryptographic features and is subject to United
States and local country laws governing import, export, transfer and
use. Delivery of Cisco cryptographic products does not imply
third-party authority to import, export, distribute or use encryption.
Importers, exporters, distributors and users are responsible for
compliance with U.S. and local country laws. By using this product you
agree to comply with applicable laws and regulations. If you are unable
to comply with U.S. and local laws, return this product immediately.
```

```
A summary of U.S. laws governing Cisco cryptographic products may be found at:
http://www.cisco.com/wvl/export/crypto/tool/stqrg.html
```

```
If you require further assistance please contact us by sending email to
export@cisco.com.
```

```
cisco ASR1006 (RP1) processor with 1779130K/6147K bytes of memory.
!--- total memory allocated to IOSd. 16 Gigabit Ethernet interfaces 21 Gigabit Ethernet
interfaces 2 Ten Gigabit Ethernet interfaces 32768K bytes of non-volatile configuration memory.
4194304K bytes of physical memory.
!--- IOS-XE total memory size. 955063K bytes of eUSB flash at bootflash:. 39004543K bytes of
SATA hard disk at harddisk:. Configuration register is 0x2102
```

检查内存使用

检查在IOSd内的内存使用

show processes 命令显示有关活动进程的信息。发出show processes memory显示在IOSd内使用的内存数量。

```
Router#show processes memory
```

```
Processor Pool Total: 1821391588 Used: 218319000 Free: 1603072588  
lsmapi_io Pool Total: 6295088 Used: 6294116 Free: 972
```

PID	TTY	Allocated	Freed	Holding	Getbufs	Retbufs	Process
0	0	174405308	8586260	134742552	811	137870	*Init*
0	0	65688	393404	152	0	0	*Sched*
0	0	21603272	48285960	274932	3	1	*Dead*
0	0	0	0	406304	0	0	*MallocLite*
1	0	431576	0	448716	0	0	Chunk Manager
2	0	236	236	11140	0	0	Load Meter
3	0	2785880	2782996	32092	0	0	Exec
4	0	0	0	17140	0	0	Retransmission o
5	0	34360	0	17140	0	0	IPC ISSU Dispatc
6	0	3336	236	20240	0	0	Check heaps
7	0	32780	32780	17140	45	0	Pool Manager
8	0	236	236	17140	0	0	Timers
9	0	206550924	206496084	71980	9326586	9326586	ARP Input
10	0	24356	24356	17140	111	111	ARP Background
11	0	236	236	17140	0	0	ATM Idle Timer
12	0	0	0	17140	0	0	ATM ASYNC PROC
13	0	0	0	17140	0	0	AAA_SERVER_DEADT
14	0	0	0	29140	0	0	Policy Manager
15	0	59092	692	74972	172	172	Entity MIB API

检查在IOS XE的内存使用

为了看到在Cisco IOS XE的当前系统内存使用情况，请使用显示平台软件状态控制处理器摘要命令。

```
Router#show platform software status control-processor brief
```

```
Load Average
```

Slot	Status	1-Min	5-Min	15-Min
RP0	Healthy	0.20	0.23	0.19
RP1	Healthy	0.19	0.19	0.12
ESP0	Healthy	0.65	0.54	0.47
SIP1	Healthy	0.17	0.07	0.01
SIP2	Healthy	0.02	0.06	0.01

```
Memory (kB)
```

Slot	Status	Total	Used (Pct)	Free (Pct)	Committed (Pct)
RP0	Healthy	3919872	2710788 (65%)	1209084 (29%)	2327484 (56%)
RP1	Healthy	3919872	2377136 (57%)	1542736 (37%)	2320964 (56%)
ESP0	Healthy	2030444	1112344 (53%)	918100 (43%)	3409068 (162%)
SIP1	Healthy	484452	293408 (55%)	191044 (36%)	244180 (46%)
SIP2	Healthy	484452	293408 (55%)	191044 (36%)	244020 (46%)

```
CPU Utilization
```

Slot	CPU	User	System	Nice	Idle	IRQ	SIRQ	Iowait
RP0	0	10.91	1.88	0.00	86.67	0.38	0.13	0.00
RP1	0	8.06	1.22	0.00	90.11	0.00	0.03	0.55
ESP0	0	5.78	3.61	0.00	90.51	0.02	0.05	0.00
SIP1	0	4.32	0.45	0.00	95.20	0.00	0.01	0.00

```
SIP2 0 3.95 0.44 0.00 95.57 0.00 0.01 0.00
```

为了显示运行在Cisco IOS XE的每进程的内存使用，请使用监视器平台软件进程{fp|RP} {激活|待机}。在屏幕出现后，您能选择"shift + M"为了排序与内存使用的显示的进程。

RES指示非交换的物理存储器进程用途和SHR指示共享内存量由进程使用了。RES + SHR是进程的总量，并且%MEM指示可用的物理存储器当前使用的共享进程的。

```
Router#monitor platform software process rp active
top - 05:18:46 up 14 days, 17:33, 0 users, load average: 0.00, 0.01, 0.00
Tasks: 119 total, 1 running, 118 sleeping, 0 stopped, 0 zombie
Cpu(s): 0.4% us, 0.4% sy, 0.0% ni, 99.1% id, 0.0% wa, 0.0% hi, 0.0% si
Mem: 3714760k total, 1454344k used, 2260416k free, 97952k buffers
Swap: 0k total, 0k used, 0k free, 875376k cached
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
17385	root	20	0	1874m	338m	75m	S	0.2	9.3	65:59.18	ppc_linux_iosd-
18098	root	20	0	71880	59m	6324	S	0.2	1.6	10:48.84	smmand
16521	root	20	0	87868	51m	47m	S	0.0	1.4	0:02.80	fman_rp
16903	root	20	0	27788	16m	14m	S	0.0	0.5	15:41.61	imand
15957	root	20	0	24776	9696	6880	S	0.2	0.3	12:49.67	cmmand
17697	root	20	0	19504	6160	4544	S	0.0	0.2	0:00.95	psd
16316	root	20	0	18232	5972	3736	S	0.0	0.2	12:43.32	emd
16732	root	20	0	16184	5556	3900	S	0.4	0.1	21:22.61	hman
17237	root	20	0	15892	5456	3088	S	0.0	0.1	0:00.99	plogd
15166	root	20	0	4056	2396	1248	S	0.0	0.1	0:00.72	pvp.sh
16937	root	9	-11	3992	2308	1232	S	0.0	0.1	0:00.13	pman.sh
15559	root	9	-11	3992	2304	1228	S	0.0	0.1	0:00.13	pman.sh
17978	root	9	-11	3992	2304	1228	S	0.0	0.1	0:00.13	pman.sh

万一此消息出现，当您发出监视器平台软件进程on命令控制台，您需要设置一种终端类型以terminal terminal-type命令为了合适，例如VT100。

```
Router#monitor platform software process rp active
Terminal type 'network' unsupported for command
Change the terminal type with the 'terminal terminal-type' command.
```

```
Router#terminal terminal-type VT100
```

[检查在QFP的内存使用](#)

为了显示关于QFP内存使用的信息，请使用显示平台硬件qfp statistics命令活动基础设施的exmem。Exmem包含IRAM、DRAM、SRAM和BQS涉及的内存。

```
Router#show platform hardware qfp active infrastructure exmem statistics
QFP exmem statistics
```

```
Type: Name: IRAM, CPP: 0
Total: 134217728
InUse: 5372928
Free: 127926272
Free protected: 918528
Free unprotected: 0
Lowest free water mark: 128844800
Largest free block: 99505152
Type: Name: DRAM, CPP: 0
Total: 402653184
InUse: 124705792
Free: 275775488
Free protected: 1041408
Free unprotected: 1130496
Lowest free water mark: 275587072
Largest free block: 273415168
```

<snip>

为了显示每个用户的内存使用，添加用户时选项，如显示。

```
Router#show platform hardware qfp active infrastructure exmem statistics user
```

```
Type: Name: IRAM, CPP: 0
```

Allocations	Bytes-Alloc	Bytes-Total	User-Name
1	115200	115712	CPP_FIA

```
Type: Name: DRAM, CPP: 0
```

Allocations	Bytes-Alloc	Bytes-Total	User-Name
4	1248	4096	P/I
22	11567884	11585536	SBC
9	270600	276480	CEF
1	1138256	1138688	QM RM
3	528	3072	CFM
4	262144	262144	Qm 16
34	8405116	8436736	ING_EGR_UIDB
1	655360	655360	ING EGR INPUT CHUNK_Config_0

<snip>

为了显示QFP TCAM使用情况，请使用显示平台硬件qfp usage命令活动TCAM的资源管理器。

```
Router#show platform hardware qfp active tcam resource-manager usage
```

```
QFP TCAM Usage Information
```

```
80 Bit Region Information
```

```
-----  
Name : Leaf Region #0  
Number of cells per entry : 1  
Current 80 bit entries used : 0  
Current used cell entries : 0  
Current free cell entries : 0  
:  
:
```

```
Total TCAM Cell Usage Information
```

```
-----  
Name : TCAM #0 on CPP #0  
Total number of regions : 3  
Total tcam used cell entries : 0  
Total tcam free cell entries : 131072  
Threshold status : below critical limit
```

相关信息

- [排除Cisco ASR 1000 Series Aggregation Services Routers失败故障](#)
- [Cisco ASR 1000系列汇聚服务路由器支持页面](#)
- [技术支持和文档 - Cisco Systems](#)