Pesquise defeitos falhas do hardware do 5500 Series ASR 5000 e ASR

Índice

Introdução

Este documento descreve o procedimento para pesquisar defeitos edições em placas de linha do 5000 Series e do 5500 Series do roteador dos serviços da agregação de Cisco (ASR). Este procedimento destaca alguns dos comandos e as palavras-chaves, obtidas do arquivo SSD (detalhe do apoio da mostra) geraram no chassi ASR 5000 ou ASR 5500. A saída de cada comando fornece sintomas de uma placa falha e ajuda-os a localizar o problema. O objetivo aqui não é endereçar edições específicas em uma placa de linha particular, porque há uns problemas de hardware diferentes numerosos. Além disso, as situações individuais puderam variar apenas bastante que faz todo o guia de Troubleshooting generalizado problemático.

Procedimento

1. Incorpore o comando **proeminente do alarme da mostra**.A saída deste comando indica a placa falha. Esta informação pode ser encontrada no SSD.
```
******** show alarm outstanding *******
Sev Object Event
--- ------- ------------------------------------------------------------------------
------
CR Card 7 Card Failure Detected on card 7 Device CPU_0 failure reason
CARD_BOOT_TIMEOUT_EXPIRED
```
2. Inscreva o **comando verbose da história da armadilha SNMP da mostra**.O dependente em cima da edição, armadilhas é gerado na falha do hardware que ocorreu. Esta informação é parte do SSD.
```
******** show snmp trap history verbose *******
Timestamp Trap Information
------------------------ ------------------------------------------------------
Tue Jan 28 08:24:18 2014 Internal trap notification 9 (CardBootFailed) card 7 type Packet
Services Card
```
3. Inscreva o **comando error nivelado dos logs da mostra**.O dependente em cima da edição, logs é gerado na falha do hardware que ocorreu. Esta informação pode ser encontrada no SSD.
```
******** show logs level error *******
2014-Jan-28+08:39:35.669 [hat 3018 critical] [8/0/4429 <hatsystem:0> atsystem_fail.c:1192]
[hardware internal system syslog] Card Failure Detected on card 7 Device CPU_0
failure reason CARD_BOOT_TIMEOUT_EXPIRED
```
4. Incorpore o comando do **hardware da placa da mostra**.A saída do comando tem a

informação de versão no cartão. Esta informação é incluída no SSD.

```
******** show card hardware *******
Card 7:
Card Type : Packet Services Card (R01)
Description : PSC
Starent Part Number : 530-02-0030 09
Starent Serial Num : PLB43074818
Switch Fabric Modes : control plane, switch fabric
(Version Information Unavailable) <--- Missing information due to card not accessible
```

5. Inscreva o **comando diag do cartão da mostra**.A saída do comando inclui a falha atual e última do cartão assim como se o cartão é útil. Esta informação é incluída no SSD.

```
******** show card diag *******
Card 7:
Counters:
Successful Warm Boots : 2
(last at Friday March 02 15:02:37 EST 2012)
Successful Cold Boots : 21
(last at Monday December 16 14:09:24 EST 2013)
Total Boot Attempts : 0
In Service Date : Fri Jan 20 15:26:25 2012 (Estimated)
Status:
IDEEPROM Magic Number : Good
Boot Mode : Normal
Card Diagnostics : Pass
Current Failure : Failure: Device=CPU_0, Reason=CARD_BOOT_TIMEOUT_EXPIRED,
(0x03001000)
(last at Tuesday January 28 08:39:35 EST 2014)
Last Failure : Failure: Device=CPU_0, Reason=CARD_BOOT_TIMEOUT_EXPIRED,
(0x03001000)
(last at Tuesday January 28 08:39:35 EST 2014)
Card Usable : No (Current Failure)
Current Environment:
Temperature: Card : 23 C (limit 101 C)
Temperature: CPU0 : 23 C (limit 101 C)
Temperature: CPU1 : 25 C (limit 101 C)
Temperature: LM93 : 25 C (limit 101 C)
Voltage: 3.3V STANDBY : 3.285 V (min 3.130 V, max 3.458 V)
```

6. Incorpore o comando dos **recursos de tarefa da mostra**.A saída do comando não indica nenhuma informação na placa falha. Esta informação pode ser encontrada no SSD.

```
******** show task resources *******
task cputime memory files sessions
cpu facility inst used allc used alloc used allc used allc S status
---------------------- --------- ------------ --------- ------------ ------
6/1 rmmgr 61 3.6% 10% 4.5M 23.0M 15 500 -- -- - good
6/1 npumgr 6 1.5% 100% 81.4M 278.0M 26 1000 -- -- - good
6/1 sitreap 6100841 0.0% 5.0% 0.1M 15.0M 4 100 -- -- - good
6/1 msgd 6100839 0.8% 7.0% 0.8M 15.0M 6 500 -- -- - good
6/1 nscontrol 6123706 0.2% 5.0% 1.4M 15.0M 9 500 -- -- - good
<<<<<<<<7/1 missing due to card 7 not running >>>>>>>>>
8/0 sitmain 80 0.0% 15% 10.9M 16.0M 14 1000 -- -- - good
8/0 sitparent 80 0.1% 20% 10.5M 14.0M 11 500 -- -- - good
8/0 evlogd 0 0.1% 95% 12.4M 70.0M 16 4000 -- -- - good
8/0 drvctrl 0 2.7% 15% 14.7M 20.0M 19 500 -- -- - good
8/0 hatsystem 0 0.4% 10% 10.2M 15.0M 13 500 -- -- - good
8/0 hatcpu 80 0.1% 10% 10.1M 15.0M 12 500 -- -- - good
```

7. Incorpore o comando da **tabela processador central da mostra**.A saída do comando não indica nenhuma informação na placa falha. Esta informação é parte do SSD.

```
******** show cpu table *******
--------Load-------- ------CPU-Usage----- ---------Memory--------
cpu state now 5min 15min now 5min 15min now 5min 15min total
---- ----- ------ ------ ------ ------ ------ ------ ----- ----- ----- -----
```

```
1/0 Actve 0.02 0.02 0.05 0.6% 0.5% 0.5% 842M 842M 842M 16.0G
1/1 Actve 2.39 2.48 2.59 11.7% 7.9% 7.9% 138M 137M 137M 512M
2/0 Actve 0.02 0.07 0.11 0.5% 0.5% 0.5% 887M 885M 885M 16.0G
2/1 Actve 2.83 2.78 2.66 10.4% 7.9% 8.0% 138M 137M 137M 512M
3/0 Actve 0.02 0.06 0.11 0.4% 0.4% 0.4% 824M 823M 823M 16.0G
3/1 Actve 3.71 2.96 2.80 13.4% 8.0% 7.8% 139M 137M 137M 512M
4/0 Actve 0.03 0.10 0.13 0.5% 0.5% 0.5% 845M 845M 845M 16.0G
4/1 Actve 2.34 2.55 2.61 11.8% 7.7% 7.7% 138M 137M 137M 512M
5/0 Actve 0.14 0.11 0.13 0.6% 0.5% 0.5% 887M 886M 885M 16.0G
5/1 Actve 2.49 2.84 2.75 12.7% 8.4% 7.9% 138M 137M 137M 512M
6/0 Actve 0.18 0.16 0.14 0.5% 0.4% 0.4% 824M 823M 822M 16.0G
6/1 Actve 2.85 2.78 2.74 12.5% 8.0% 8.0% 138M 137M 137M 512M
<<<<<<<< 7/1 missing due to card 7 not running >>>>>>>>>>
8/0 Actve 0.20 0.09 0.12 18.9% 6.4% 5.2% 1045M 1011M 1009M 4096M
9/0 Sndby 0.02 0.03 0.08 2.0% 0.7% 0.7% 605M 604M 604M 4096M
```

8. Inscreva o **comando all da tabela de cartão da mostra**.A saída do comando indica que o cartão é autônomo. Esta informação é parte do SSD.

```
******** show card table all *******
Slot Card Type Oper State SPOF Attach
---------- ------------------------------- ------------ ---- ------
1: PSC Packet Services Card Active Yes 17 -
2: PSC Packet Services Card A Active Yes 18 -
3: PSC Packet Services Card A Active Yes 19 -
4: PSC Packet Services Card A Active Yes 20 -
5: PSC Packet Services Card A Active Yes 21 -
6: PSC Packet Services Card A Active Yes 22 -
7: PSC Packet Services Card Offline - - -
8: SMC System Management Card Active No 24 25
9: SMC System Management Card Standby Yes - -
10: PSC None - - - -
11: PSC None - - - -
12: PSC None - - - -
13: PSC None - - - -
14: PSC None - - - -
15: PSC None - - - -
16: PSC None - - - -
17: LC 10 Gig Ethernet Line Card Active Yes 1
18: LC 10 Gig Ethernet Line Card Active Yes 2
19: LC 10 Gig Ethernet Line Card Active Yes 3
20: LC 10 Gig Ethernet Line Card Active Yes 4
21: LC 1000 Ethernet Line Card Standby - 5
22: LC 1000 Ethernet Line Card Standby - 6
23: LC None - - -
24: SPIO Switch Processor I/O Card Active No 8
25: SPIO Switch Processor I/O Card Standby - 8
26: LC None - - -
27: LC None - - -
28: LC None - - -
29: LC None - - -
30: LC None - - -
31: LC None - - -
32: LC None - - -
33: LC None - - -
34: LC None - - -
35: LC None - - -
36: LC None - - -
37: LC None - - -
38: LC None - - -
39: LC None - - -
40: RCC Redundancy Crossbar Card Standby -
41: RCC Redundancy Crossbar Card Standby -
42: LC None - - -
43: LC None - - -
```

```
44: LC None - - -
45: LC None - - -
46: LC None - - -
47: LC None - - -
48: LC None
```

9. Incorpore o comando da **versão de hardware da mostra**.A saída do comando não indica “nenhum dados disponível” porque o cartão é autônomo. Esta informação é parte do SSD.

```
******** show hardware version *******
Slot Type SSCB PSR PSR2 BIOS A BIOS B DT DT2
---- ---- ------- --- ---- -------- -------- ------- --------
1: PSC 1.6 2 - 9.2.13 7.8.14 3.16 --
2: PSCA 1.6 - 0 1.1.10 1.0.14 -- 3.20
3: PSCA 1.6 - 0 1.1.10 1.0.14 -- 3.20
4: PSCA 1.6 - 0 1.1.10 1.0.20 -- 3.20
5: PSCA 1.6 - 0 1.1.10 1.0.14 -- 3.20
6: PSCA 1.6 - 0 1.1.10 1.0.14 -- 3.20
7: PSC (no data available)
10: None -- - - -- -- -- --
11: None -- - - -- -- -- --
12: None -- - - -- -- -- --
13: None -- - - -- -- -- --
14: None -- - - -- -- -- --
15: None -- - - -- -- -- --
16: None -- - - -- -- -- --
```

10. Incorpore o comando dos **eventos do npuctrl da mostra**.A saída do comando indica o estado das placas falha como off line, carreg (se no laço), e assim por diante. Esta informação é parte do SSD.

```
******** show npuctrl events *******
[41]@01-28-2014 08:26:15.892 e/i=0/0 evt=exporter-done transition=await-exporter->normal
spc=no
inst| npumgr-sta| card-state| card-inser inst|npumgr-sta| card-state| card-inser
1| normal| standby| yes 2| normal| standby| yes
3| normal| standby| yes 4| normal| standby| yes
5| export-db| standby| yes 6| import-db| initializi| yes
7| absent| booting| no 8| normal| active| no
9| normal| standby| yes 10| absent| empty| no
11| absent| empty| no 12| absent| empty| no
13| absent| empty| no 14| absent| empty| no
15| absent| empty| no 16| absent| empty| no

[42]@01-28-2014 08:54:08.041 e/i=6/1 evt=start-recovery transition=normal->await-importer-
ack spc=no
inst| npumgr-sta| card-state| card-inser inst|npumgr-sta| card-state| card-inser
1| power-up| initializi| no 2| normal| active| yes
3| normal| active| yes 4| normal| active| yes
5| normal| active| yes 6| normal| active| yes
7| absent| offline| no 8| normal| active| no
9| normal| standby| yes 10| absent| empty| no
11| absent| empty| no 12| absent| empty| no
13| absent| empty| no 14| absent| empty| no
15| absent| empty| no 16| absent| empty| no
```

11. Incorpore o comando da **temperatura da mostra**.A saída do comando indica a temperatura somente de alguns componentes da placa falha. Esta informação é parte do SSD.

```
******** show temperature *******
Note:
Cards 6 and 7 are identical PSC cards but more components of good card are
shown than that of failed card.

Card 6: 29/101 C (LM94 )
58/115 C (NPU )
43/101 C (NPU PCB )
```

```
44/101 C (DT )
30/101 C (Midplane)
41/101 C (CPU-N1 )
43/110 C (IOH )
30/100 C (DDR-N1C0)
31/100 C (DDR-N1C1)
Card 7: 23/101 C (CPU0 )
25/101 C (CPU1 )
25/101 C (LM93 )
```

12. Inscreva o **comando list do impacto da mostra**.A saída do comando indica um impacto que ocorra na placa falha. Procure a palavra-chave “erro de hardware” nos detalhes do impacto. Esta informação é parte do SSD.

```
******** show crash list *******
== ==== ======= ========== ========== ================
# Time Process Card/CPU/ SW HW_SER_NUM
PID VERSION SMC / Crash Card
== ==== ======= ========== ========== ================

1 2014-Feb-20+03:26:14 kernel 02/0/NA 14.0(NA) SAD1726000V/SAD17010035
2 2014-Feb-20+09:24:38 kernel 02/0/NA 14.0(NA) SAD1726000V/SAD17010035


********** CRASH #01 **********
2.6.38-staros-v3-hw-64 #1 SMP PREEMPT Fri May 24 16:25:55 EDT 2013 1 0
SAD17010035 50083
.0 MMIO=90800000 MSI-X=32..63
<4>[ 4.542816] > Module image device Init
<4>[ 4.546668] --> Found components:
<6>[ 4.821670] Refined TSC clocksource calibration: 2000.071 MHz.
<6>[ 4.827687] Switching to clocksource tsc
<4>[ 4.833859] 0,28,29,30,31,37,38,39,40,63,67,69
<6>[ 4.838984] Starfile Build Number: 50083
------- truncated --------
<7>[ 38.972206] dt_fpga 0000:01:00.0: restoring config space at offset 0x3
(was 0x0, writing 0x8)
<7>[ 38.972214] dt_fpga 0000:01:00.0: restoring config space at offset 0x1
(was 0x100000, writing 0x100547)
<6>[ 38.972269] DT reset complete after 0 retries
<6>[ 42.565842] DT is now online
<4>[ 157.055594] svc: failed to register lockdv1 RPC service (errno 97).
<6>[2128512.375560] [Hardware Error]: Machine check events logged
<6>[2193364.461636] [Hardware Error]: Machine check events logged
<0>[2196785.508632] [Hardware Error]: CPU 6: Machine Check Exception: 4
Bank 8: be0000000001009f
<0>[2196785.516865] [Hardware Error]: TSC fa3eb2f263a8b ADDR 106fefd5c0
MISC 1da0600000046343
<0>[2196785.524998] [Hardware Error]: PROCESSOR 0:206c2 TIME 1392846844
SOCKET 1 APIC 20
<0>[2196785.532533] [Hardware Error]: CPU 19: Machine Check Exception: 4
Bank 8: be0000000001009f
<0>[2196785.540840] [Hardware Error]: TSC fa3eb2f2640b7 ADDR 106fefd5c0
MISC 1da0600000046343
<0>[2196785.548976] [Hardware Error]: PROCESSOR 0:206c2 TIME 1392846844
SOCKET 1 APIC 23
----- truncated -------
<0>[2196785.756359] [Hardware Error]: TSC fa3eb2f271a7d ADDR 106fefd5c0
MISC 1da0600000046343
<0>[2196785.764488] [Hardware Error]: PROCESSOR 0:206c2 TIME 1392846844
SOCKET 1 APIC 32
<0>[2196785.772020] [Hardware Error]: CPU 18: Machine Check Exception: 4
Bank 8: be0000000001009f
<0>[2196785.780335] [Hardware Error]: TSC fa3eb2f263a95 ADDR 106fefd5c0
MISC 1da0600000046343
```

```
<0>[2196785.788464] [Hardware Error]: PROCESSOR 0:206c2 TIME 1392846844
SOCKET 1 APIC 21
<0>[2196785.795991] [Hardware Error]: Machine check: Processor context
corrupt
<0>[2196785.802660] Kernel panic - not syncing: Fatal machine check on
current CPU
<4>[2196785.809681] Pid: 0, comm: kworker/0:1 Tainted: P M
2.6.38-staros-v3-hw-64 #1
<4>[2196785.817648] Call Trace:
<4>[2196785.820265] <#MC> [<ffffffff8104d444>] ? panic+0xd4/0x210
<4>[2196785.826025] [<ffffffff8104e6ac>] ? printk+0x6c/0x70
<4>[2196785.831148] [<ffffffff810726c4>] ? __atomic_notifier_call_chain+0x54/0x70
<4>[2196785.838162] [<ffffffff810726f6>] ? atomic_notifier_call_chain+0x16/0x20
<4>[2196785.845008] [<ffffffff81016da8>] ? mce_panic+0x208/0x210
<4>[2196785.850564] [<ffffffff810176d4>] ? do_machine_check+0x604/0x890
<4>[2196785.856723] [<ffffffff815a8dbb>] ? machine_check+0x1b/0x20
<4>[2196785.862449] [<ffffffff8129fbaf>] ? intel_idle+0x9f/0x130
<4>[2196785.867993] <<EOE>> [<ffffffff81072e83>] ? pm_qos_request+0x43/0x80
<4>[2196785.874605] [<ffffffff8145e64f>] ? cpuidle_idle_call+0xbf/0x2f0
<4>[2196785.880763] [<ffffffff81001506>] ? cpu_idle+0x56/0xa0
<4>[2196785.886059] [<ffffffff818edcd4>] ? start_secondary+0x1b4/0x230
<4>[2196785.892442] Logging crash to boot flash...
```

13. Inscreva o **comando card do console debugar**.Este parte de SSD indica os detalhes do erro de hardware na placa falha. Esta informação pode ser encontrada no SSD.

```
******** debug console card 2 cpu 0 tail 4000 only *******

1392847108.339 card 2-cpu0: <4>[ 162.266071] svc: failed to register lockdv1 RPC
service (errno 97).
1392847187.138 card 2-cpu0: <4>[ 241.063929] mce_notify_irq: 1 callbacks suppressed
1392847187.138 card 2-cpu0: <6>[ 241.068719] [Hardware Error]: Machine check events
logged
1392852796.521 card 2-cpu0: <6>[ 5850.625815] [Hardware Error]: Machine check events
logged
1392860403.004 card 2-cpu0: <6>[13457.344535] [Hardware Error]: Machine check events
logged
1392867612.569 card 2-cpu0: <0>[20667.120164] [Hardware Error]: CPU 9: Machine Check
Exception: 4 Bank 8: be0000000001009f
1392867612.569 card 2-cpu0: <0>[20667.128234] [Hardware Error]: TSC 25c13cfe4d7c ADDR
1045a9d5c0 MISC 1da0600000041281
1392867612.569 card 2-cpu0: <0>[20667.136123] [Hardware Error]: PROCESSOR 0:206c2
TIME 1392867612 SOCKET 1 APIC 30
1392867612.669 card 2-cpu0: <0>[20667.143504] [Hardware Error]: CPU 18: Machine Check
Exception: 4 Bank 8: be0000000001009f
---- truncated -----
1392867612.770 card 2-cpu0: <0>[20667.315270] [Hardware Error]: TSC 25c13d0097e4 ADDR
1045a9d5c0 MISC 1da0600000041281
1392867612.770 card 2-cpu0: <0>[20667.323160] [Hardware Error]: PROCESSOR 0:206c2
TIME 1392867612 SOCKET 1 APIC 24
1392867612.770 card 2-cpu0: <0>[20667.330533] [Hardware Error]: CPU 11: Machine
Check Exception: 4 Bank 8: be0000000001009f
1392867612.870 card 2-cpu0: <0>[20667.338688] [Hardware Error]: TSC 25c13d0099f6 ADDR
1045a9d5c0 MISC 1da0600000041281
1392867612.870 card 2-cpu0: <0>[20667.346574] [Hardware Error]: PROCESSOR 0:206c2 TIME
1392867612 SOCKET 1 APIC 34
1392867612.870 card 2-cpu0: <0>[20667.353947] [Hardware Error]: CPU 23: Machine Check
Exception: 4 Bank 8: be0000000001009f
1392867612.870 card 2-cpu0: <0>[20667.362100] [Hardware Error]: TSC 25c13d0099ec ADDR
1045a9d5c0 MISC 1da0600000041281
1392867612.870 card 2-cpu0: <0>[20667.369992] [Hardware Error]: PROCESSOR 0:206c2 TIME
1392867612 SOCKET 1 APIC 35
1392867612.870 card 2-cpu0: <0>[20667.377359] [Hardware Error]: CPU 21: Machine Check
Exception: 4 Bank 8: be0000000001009f
1392867612.870 card 2-cpu0: <0>[20667.385506] [Hardware Error]: TSC 25c13cfe4d68 ADDR
```

```
1045a9d5c0 MISC 1da0600000041281
1392867612.870 card 2-cpu0: <0>[20667.393395] [Hardware Error]: PROCESSOR 0:206c2 TIME
1392867612 SOCKET 1 APIC 31
1392867612.870 card 2-cpu0: <0>[20667.400765] [Hardware Error]: Machine check:
Processor context corrupt
1392867612.870 card 2-cpu0: <0>[20667.407275] Kernel panic - not syncing: Fatal
machine check on current CPU
1392867612.870 card 2-cpu0: <4>[20667.414136] Pid: 0, comm: kworker/0:1 Tainted:
P M 2.6.38-staros-v3-hw-64 #1
1392867612.870 card 2-cpu0: <4>[20667.421945] Call Trace:
1392867612.870 card 2-cpu0: <4>[20667.424399] <#MC> [<ffffffff8104d444>]
? panic+0xd4/0x210
1392867612.870 card 2-cpu0: <4>[20667.430005] [<ffffffff8104e6ac>]
? printk+0x6c/0x70
1392867612.870 card 2-cpu0: <4>[20667.434966] [<ffffffff810726c4>]
? __atomic_notifier_call_chain+0x54/0x70
*1392867660.394 card 2-cpu0:
1392867660.394 card 2-cpu0:
1392867660.394 card 2-cpu0: CFE version 2.2.9 (34401) for BOXER_FROM_FLASH
(32bit,SP,LE,X86)
1392867660.394 card 2-cpu0: Build Date: Wed Jun 30 10:38:21 EDT 2010
(builds@releng7)
1392867660.394 card 2-cpu0: Copyright (C) 2001-2010 Starent Networks Corporation.
1392867660.394 card 2-cpu0:
1392867660.394 card 2-cpu0: Initializing Arena.
1392867660.394 card 2-cpu0: Initializing PCI. [normal]
1392867660.394 card 2-cpu0: Initializing Devices.
1392867660.394 card 2-cpu0: Ophir 82571 Ethernet controller 0x10608086
(Serdes) on 2/0/0
1392867660.394 card 2-cpu0: WARNING: Memory size 49152 MB for cpu0 not
matching with
value 65536 MB in IDEEPROM
1392867660.394 card 2-cpu0:
1392867660.394 card 2-cpu0: CPU type 0x0: 2000MHz
1392867660.394 card 2-cpu0: Total memory: 0xC00000000 bytes (49152MB)
1392867660.394 card 2-cpu0: Total memory used by CFE:
1392867660.394 card 2-cpu0: realmode: 0x00080000 -
0x00087140 (28992 bytes)
1392867660.394 card 2-cpu0: protectedmode: 0x0C800000 -
0x0CC86A6C (4745836 bytes)
1392867660.394 card 2-cpu0: Done board_final_init...
1392867660.394 card 2-cpu0: Booting CFE ROM...
1392867660.394 card 2-cpu0: PID: ASR5K-PSC-64G-K9 , VID: V02, SN: SAD17010035
1392867660.394 card 2-cpu0:
1392867660.394 card 2-cpu0: ERROR: Memory size 49152 MB for cpu0 not matching
with value 65536 MB in IDEEPROM
1392867660.394 card 2-cpu0:
1392867660.394 card 2-cpu0: ERROR: Bus 254 CPU 1 Chan 1 DIMM 0 NotPresent
1392867660.394 card 2-cpu0: Calling managementplane_init()
1392867660.394 card 2-cpu0: Calling managementplane_init() complete
1392867660.394 card 2-cpu0: Calling InitDPManagementPlaneEthernet()
1392867660.399 card 2-cpu0: Calling InitDPManagementPlaneEthernet() complete
1392867660.404 card 2-cpu0: CRITICAL: BIOS Failed to properly Size System
Memory aborting boot
1392867660.405 card 2-cpu0:
1392867660.410 card 2-cpu0: 2/0:cli> Boot Failure Detected. Press Ctrl-C for cli
```

14. Inscreva o comando all diodo emissor de luz da mostra.O diodo emissor de luz da corrida/falha deve ser toda verde e o diodo emissor de luz à espera deve ser toda verde também.

```
[local]st40-1# show leds all
Slot 02: Run/Fail: Green | Active: Green | Standby: Off
Slot 04: Run/Fail: Green | Active: Green | Standby: Off
Slot 06: Run/Fail: Green | Active: Green | Standby: Off
```

```
Slot 08: Run/Fail: Green | Active: Green | Standby: Off
Status: Green | Service: Amber |
Slot 09: Run/Fail: Green | Active: Off | Standby: Green
Status: Green | Service: Amber |
Slot 11: Run/Fail: Green | Active: Off | Standby: Green
Slot 13: Run/Fail: Green | Active: Green | Standby: Off
Slot 15: Run/Fail: Green | Active: Off | Standby: Green
Slot 18: Run/Fail: Red | Active: Off | Standby: Off <<hardware failure
Slot 22: Run/Fail: Green | Active: Green | Standby: Off
Slot 24: Run/Fail: Green | Active: Green | Standby: Off
Slot 25: Run/Fail: Green | Active: Off | Standby: Green
Slot 27: Run/Fail: Green | Active: Off | Standby: Off
Slot 34: Run/Fail: Green | Active: Off | Standby: Green
Slot 38: Run/Fail: Green | Active: Off | Standby: Green
Slot 40: Run/Fail: Green | Active: Off | Standby: Green
Slot 41: Run/Fail: Green | Active: Off | Standby: Green
```

15. Inscreva o **comando all da tabela do show port**.A saída do comando indica o estado das placas de linha e de suas portas ativa. Esta informação é parte do SSD.**Chassi ASR 5000**

```
******** show port table all *******
Port  Type                       Admin     Oper Link State              Redundant
----- ------------------------  --------  ---- ---- ----------------  ---------
22/1  10/100 Ethernet           Enabled   -    Up   -                    38/1
     Untagged                  Enabled   Down -    Active      -
     Tagged VLAN    11         Enabled   Up   -    Active      -
     Tagged VLAN    12         Enabled   Up   -    Active      -
     Tagged VLAN    13         Enabled   Up   -    Active      -
     Tagged VLAN    15         Enabled   Up   -    Active      -
     Tagged VLAN    16         Enabled   Up   -    Active      -
     Tagged VLAN    14         Enabled   Up   -    Active      -
     Tagged VLAN    17         Enabled   Up   -    Active      -
22/2  10/100 Ethernet           Disabled  Down Up   Standby             38/2
22/3  10/100 Ethernet           Disabled  Down Down Standby             38/3
22/4  10/100 Ethernet           Disabled  Down Down Standby             38/4
22/5  10/100 Ethernet           Disabled  Down Down Standby             38/5
22/6  10/100 Ethernet           Disabled  Down Down Standby             38/6
22/7  10/100 Ethernet           Disabled  Down Down Standby             38/7
22/8  10/100 Ethernet           Enabled   Down Down Active              38/8
24/1  1000 Ethernet Dual Media  Enabled   Up   Up   Active              25/1
24/2  1000 Ethernet Dual Media  Disabled  Down Down Active              25/2
24/3  RS232 Serial Console      Enabled   Up   Up   Active              25/3
24/4  BITS T1/E1 Timing         Disabled  Down Down Active              25/4
25/1  1000 Ethernet Dual Media  Enabled   Down Up   Standby             24/1
25/2  1000 Ethernet Dual Media  Disabled  Down Down Standby             24/2
25/3  RS232 Serial Console      Enabled   Down Up   Standby             24/3
25/4  BITS T1/E1 Timing         Disabled  Down Down Standby             24/4
34/1  1000 Ethernet             Enabled   Down Down Active              None
34/2  1000 Ethernet             Disabled  Down Down Active              None
34/3  1000 Ethernet             Disabled  Down Down Active              None
34/4  1000 Ethernet             Disabled  Down Down Active              None
38/1  10/100 Ethernet           Enabled   -    Down -                   22/1
     Untagged                  Enabled   Down -    Standby     -
     Tagged VLAN    11         Enabled   Down -    Standby     -
     Tagged VLAN    12         Enabled   Down -    Standby     -
     Tagged VLAN    13         Enabled   Down -    Standby     -
     Tagged VLAN    15         Enabled   Down -    Standby     -
     Tagged VLAN    16         Enabled   Down -    Standby     -
     Tagged VLAN    14         Enabled   Down -    Standby     -
     Tagged VLAN    17         Enabled   Down -    Standby     -
38/2  10/100 Ethernet           Disabled  Down Down Active              22/2
38/3  10/100 Ethernet           Disabled  Down Down Active              22/3
38/4  10/100 Ethernet           Disabled  Down Down Active              22/4
38/5  10/100 Ethernet           Disabled  Down Down Active              22/5
38/6  10/100 Ethernet           Disabled  Down Down Active              22/6
```

```
38/7  10/100 Ethernet           Disabled  Down Down Active              22/7
38/8  10/100 Ethernet           Enabled   Down Down Standby             22/8
```

Chassi ASR 5500

```
******** show port table all *******
Port Role Type Admin Oper Link State Pair Redundant
----- ---- ----------------------- -------- ---- ---- ------- ----- ---------
5/1 Mgmt 1000 Ethernet Enabled Up Up Active 6/1 L2 Link
5/2 Mgmt 1000 Ethernet Disabled Down Down Active 6/2 L2 Link
5/3 Mgmt RS232 Serial Console Enabled Down Unkn Standby 6/3 L2 Link
5/10 Srvc 10G Ethernet Enabled - Up - 6/10 LA+ 5/10
Untagged Enabled Up - Active - -
Tagged VLAN 101 Enabled Up - Active - -
Tagged VLAN 102 Enabled Up - Active - -
Tagged VLAN 104 Enabled Up - Active - -
Tagged VLAN 105 Enabled Up - Active - -
Tagged VLAN 103 Enabled Up - Active - -
5/11 Srvc 10G Ethernet Enabled Up Up Active 6/11 LA+ 5/10
5/12 Srvc 10G Ethernet Disabled Down Down Active 6/12 L2 Link
5/13 Srvc 10G Ethernet Disabled Down Down Active 6/13 L2 Link
5/14 Srvc 10G Ethernet Disabled Down Down Active 6/14 L2 Link
5/15 Srvc 10G Ethernet Enabled Up Up Active 6/15 LA+ 5/10
5/16 Srvc 10G Ethernet Enabled Up Up Active 6/16 LA+ 5/10
5/17 Srvc 10G Ethernet Disabled Down Down Active 6/17 L2 Link
5/18 Srvc 10G Ethernet Disabled Down Down Active 6/18 L2 Link
5/19 Srvc 10G Ethernet Disabled Down Down Active 6/19 L2 Link
5/20 Srvc 10G Ethernet Enabled Up Up Active 6/20 LA+ 5/10
5/21 Srvc 10G Ethernet Enabled Up Up Active 6/21 LA+ 5/10
5/22 Srvc 10G Ethernet Disabled Down Down Active 6/22 L2 Link
5/23 Srvc 10G Ethernet Disabled Down Down Active 6/23 L2 Link
5/24 Srvc 10G Ethernet Disabled Down Down Active 6/24 L2 Link
5/25 Srvc 10G Ethernet Enabled Up Up Active 6/25 LA+ 5/10
5/26 Srvc 10G Ethernet Enabled Up Up Active 6/26 LA+ 5/10
5/27 Srvc 10G Ethernet Disabled Down Down Active 6/27 L2 Link
5/28 Srvc 10G Ethernet Disabled Down Down Active 6/28 L2 Link
5/29 Srvc 10G Ethernet Disabled Down Down Active 6/29 L2 Link
6/1 Mgmt 1000 Ethernet Enabled Down Up Standby 5/1 L2 Link
6/2 Mgmt 1000 Ethernet Disabled Down Down Standby 5/2 L2 Link
6/3 Mgmt RS232 Serial Console Enabled Down Unkn Standby 5/3 L2 Link
6/10 Srvc 10G Ethernet Enabled - Up - 5/10 LA! 5/10
Untagged Enabled Up - Active - -
Tagged VLAN 101 Enabled Up - Active - -
Tagged VLAN 102 Enabled Up - Active - -
Tagged VLAN 104 Enabled Up - Active - -
Tagged VLAN 105 Enabled Up - Active - -
Tagged VLAN 103 Enabled Up - Active - -
6/11 Srvc 10G Ethernet Enabled Up Up Active 5/11 LA! 5/10
6/12 Srvc 10G Ethernet Disabled Down Down Standby 5/12 L2 Link
6/13 Srvc 10G Ethernet Disabled Down Down Standby 5/13 L2 Link
6/14 Srvc 10G Ethernet Disabled Down Down Standby 5/14 L2 Link
6/15 Srvc 10G Ethernet Enabled Up Up Active 5/15 LA! 5/10
6/16 Srvc 10G Ethernet Enabled Up Up Active 5/16 LA! 5/10
6/17 Srvc 10G Ethernet Disabled Down Down Standby 5/17 L2 Link
6/18 Srvc 10G Ethernet Disabled Down Down Standby 5/18 L2 Link
6/19 Srvc 10G Ethernet Disabled Down Down Standby 5/19 L2 Link
6/20 Srvc 10G Ethernet Enabled Up Up Active 5/20 LA! 5/10
6/21 Srvc 10G Ethernet Enabled Up Up Active 5/21 LA! 5/10
6/22 Srvc 10G Ethernet Disabled Down Down Standby 5/22 L2 Link
6/23 Srvc 10G Ethernet Disabled Down Down Standby 5/23 L2 Link
6/24 Srvc 10G Ethernet Disabled Down Down Standby 5/24 L2 Link
6/25 Srvc 10G Ethernet Enabled Up Up Active 5/25 LA! 5/10
6/26 Srvc 10G Ethernet Enabled Up Up Active 5/26 LA! 5/10
6/27 Srvc 10G Ethernet Disabled Down Down Standby 5/27 L2 Link
6/28 Srvc 10G Ethernet Disabled Down Down Standby 5/28 L2 Link
```

```
6/29 Srvc 10G Ethernet Disabled Down Down Standby 5/29 L2 Link
```

16. Incorpore o comando do **[<slot->/<port->] dos contadores da ligação de dados do show port**.A saída do comando indica as estatísticas de uma porta. A informação pôde variar o dependente em cima do tipo de porta. Note que as estatísticas mostradas aqui puderam somente dar a informação parcial. Você precisa de fazer investigações adicionais antes que você faça uma conclusão na porta suspeita. Esta informação não é parte do SSD.

```
Counters for port 5/15:

Line Card 10 Gigabit Ethernet Port

Rx Counter Data | Tx Counter Data

---------------------- ------------- + ---------------------- -------------

RX Bytes 929593433281710 | TX Bytes 980010533492940

RX Unicast frames 2622395473 | TX Unicast frames 1156468032

RX Multicast frames 6819022 | TX Multicast frames 6883788

RX Broadcast frames 0 | TX Broadcast frames 0

RX Size 64 frames 1072853571 | TX Size 64 frames 2180897214

RX Size 65 .. 127 fr 4229387075 | TX Size 65 .. 127 fr 3889237141

RX Size 128 .. 255 fr 2650809484 | TX Size 128 .. 255 fr 711064618

RX Size 256 .. 511 fr 1361009593 | TX Size 256 .. 511 fr 2349224327

RX Size 512 .. 1023 fr 3559787799 | TX Size 512 .. 1023 fr 1444113684

RX Size 1024 .. 1518 fr 448089039 | TX Size 1024 .. 1518 fr 474195217

RX Size 1519 .. 1522 fr 2185019476 | TX Size 1519 .. 1522 fr 2999521504

RX OverSize frames 0 | TX OverSize frames 0

RX UnderSize frames 0 | TX UnderSize frames 0

RX ExceedMaxSize frames 0

RX Fragment frames 69829 | TX Fragment frames 0

RX Jabber frames 7090511 | TX Jabber frames 0

RX Control frames 0 | TX Control frames 882

RX Pause frames 0 | TX Pause frames 882

RX FCS Error frames 828050684 | TX FCS Error frames 0

RX Length Error frames 0 | TX Length Error frames 0

RX Code Error frames 38410621

RX ExMaxSize Err frames 1362770

---------------------- ------------- + ---------------------- -------------
```

[local]ASR5K-1# **show port datalink counters 17/1**

Counters for port 17/1:

Line Card 10 Gigabit Ethernet Port

Rx Counter Data | Tx Counter Data

---------- ---------- + ---------- ----------

RX Unicast frames 19873 | TX Unicast frames 0

RX Multicast frames 19873 | TX Multicast frames 0

RX Broadcast frames 0 | TX Broadcast frames 0

RX Size 64 frames 0 | TX Size 64 frames 0

RX Size 65 .. 127 fr 0 | TX Size 65 .. 127 fr 0

RX Size 128 .. 255 fr 0 | TX Size 128 .. 255 fr 0

RX Size 256 .. 511 fr 19873 | TX Size 256 .. 511 fr 0

RX Size 512 .. 1023 fr 0 | TX Size 512 .. 1023 fr 0

RX Size 1024 .. 1518 fr 0 | TX Size 1024 .. 1518 fr 0

RX Size > 1518 frames 0 | TX Size > 1518 frames 0

RX Bytes OK 8326787 | TX Bytes OK 0

RX Bytes BAD 0 | TX Bytes BAD 0

RX SHORT OK 0 | TX PAUSE 0

RX SHORT CRC 0 | TX ERR 0

RX OVF 0 |

RX NORM CRC 0 |

RX LONG OK 0 |

RX LONG CRC 0 |

RX PAUSE 0 |

RX FALS CRS 0 |

RX SYM ERR 0 |

RX SPI FRAME COUNT 19873 | TX SPI FRAME COUNT 0

RX SPI LEN ERR 0 | TX SPI LEN ERR 0

RX SPI DIP 2 ERR 0 | TX SPI DIP 4 ERR 0

RX SPI STATUS OOF ERR 0 | TX SPI DATA OOF ERR 0

RX FIFO OVERFLOW 0 | TX FIFO FULL DROP 0

RX PAUSE COUNT 0 | TX DIP 4 PACKET DROP 0

SPI EOP/ABORT 0 |

RX FRAGMENTS COUNT 0 |

RX MAC ERR 0 |

RX JABBER COUNT 0 |

[local]st40-1# **show port datalink counters 22/2**

Counters for port 22/2:

Line Card Fast Ethernet Port

Rx Counter Data | Tx Counter Data

RX Unicast frames 13773 | TX Unicast frames 0

RX Multicast frames 126510 | TX Multicast frames 0

RX Broadcast frames 54954 | TX Broadcast frames 0

RX Size 64 frames 109874 | TX Size 64 frames 0

RX Size 65 .. 127 fr 81230 | TX Size 65 .. 127 fr 0

RX Size 128 .. 255 fr 2384 | TX Size 128 .. 255 fr 0

RX Size 256 .. 511 fr 1670 | TX Size 256 .. 511 fr 0

RX Size 512 .. 1023 fr 79 | TX Size 512 .. 1023 fr 0

RX Size 1024 .. 1518 fr 0 | TX Size 1024 .. 1518 fr 0

RX Size > 1518 frames 0 | TX Size > 1518 frames 0

RX Bytes OK 13824764 | TX Bytes OK 0

RX Bytes BAD 0 | TX Bytes BAD 0

RX OVF 0 | TX DEFER 0

RX SHORT OK 0 | TX COL 0

RX SHORT CRC 0 | TX SCOL 0

RX NO SFD 0 | TX MCOL 0

RX NORM CRC 0 | TX XCOL 0

RX NORM ALI 0 | TX LCOL 0

RX LONG OK 0 | TX PAUSE 0

RX LONG CRC 0 | TX ERR 0

RX PAUSE 0 |

RX FALS CRS 0 |

RX SYM ERR 0 |

---------- ---------- + ---------- ----------

[local]st40-1# **show port datalink counters 24/1**

Counters for port 24/1:

SPIO 10/100/1000 Ethernet port

Rx Counter Data | Tx Counter Data

---------- ---------- + ---------- ----------

RX Bytes 148501169 | TX Bytes 138116037

RX BAD frames 0 | TX BAD frames 0

RX Runt frames 0 | TX Runt frames 0

RX Oversize frames 0 | TX Oversize frames 0

RX Good frames 1590640 | TX Good frames 1258465

RX Multicast frames 4393 | TX Collisions 0

RX Broadcast frames 365063 | TX Excessive collis 0

RX Code ERROR 0 | TX Late Collisions 0

RX CRC ERROR 0 | TX CRC ERROR 0

RX length ERROR 0 | TX ABORT 0

RX Align ERROR 0 |

---------- ---------- + ---------- ----------

show port datalink counters 5/15

Counters for port 5/15:

Line Card 10 Gigabit Ethernet Port

Rx Counter Data | Tx Counter Data

---------- ---------- + ---------- ----------

RX OverSize frames 0 |

RX Bytes OK 1558209913 | TX Bytes OK 840628

```
RX Bytes BAD 0 | TX Bytes BAD 0

RX SHORT OK 0 | TX PAUSE 0

RX SHORT CRC 0 | TX ERR 0

RX OVF 0 |

RX NORM CRC 0 |

RX LONG OK 0 |

RX LONG CRC 82233 |

RX PAUSE 0 |

RX FALS CRS 0 |

RX SYM ERR 0 |

---------------------- ------------- + ---------------------- -------------
```

17. Incorpore o comando dos **contadores do npu do show port**.A saída do comando indica as estatísticas de uma porta. As estatísticas mostram que a porta 31/1 não envia tantos dados como recebe. O SSD fornece duas estatísticas desmontadas em horas diferentes 15 minutos. Você pode usar as duas estatísticas a fim determinar o delta.

```
Counters for port 5/15:

Line Card 10 Gigabit Ethernet Port

Rx Counter Data | Tx Counter Data

---------------------- ------------- + ---------------------- -------------

RX Bytes 929593433281710 | TX Bytes 980010533492940

RX Unicast frames 2622395473 | TX Unicast frames 1156468032

RX Multicast frames 6819022 | TX Multicast frames 6883788

RX Broadcast frames 0 | TX Broadcast frames 0

RX Size 64 frames 1072853571 | TX Size 64 frames 2180897214

RX Size 65 .. 127 fr 4229387075 | TX Size 65 .. 127 fr 3889237141

RX Size 128 .. 255 fr 2650809484 | TX Size 128 .. 255 fr 711064618

RX Size 256 .. 511 fr 1361009593 | TX Size 256 .. 511 fr 2349224327

RX Size 512 .. 1023 fr 3559787799 | TX Size 512 .. 1023 fr 1444113684

RX Size 1024 .. 1518 fr 448089039 | TX Size 1024 .. 1518 fr 474195217

RX Size 1519 .. 1522 fr 2185019476 | TX Size 1519 .. 1522 fr 2999521504

RX OverSize frames 0 | TX OverSize frames 0

RX UnderSize frames 0 | TX UnderSize frames 0

RX ExceedMaxSize frames 0

RX Fragment frames 69829 | TX Fragment frames 0
```

RX Jabber frames 7090511 | TX Jabber frames 0

RX Control frames 0 | TX Control frames 882

RX Pause frames 0 | TX Pause frames 882

RX FCS Error frames 828050684 | TX FCS Error frames 0

RX Length Error frames 0 | TX Length Error frames 0

RX Code Error frames 38410621

RX ExMaxSize Err frames 1362770

---------- ---------- + ---------- ----------

[local]ASR5K-1# **show port datalink counters 17/1**

Counters for port 17/1:

Line Card 10 Gigabit Ethernet Port

Rx Counter Data | Tx Counter Data

---------- ---------- + ---------- ----------

RX Unicast frames 19873 | TX Unicast frames 0

RX Multicast frames 19873 | TX Multicast frames 0

RX Broadcast frames 0 | TX Broadcast frames 0

RX Size 64 frames 0 | TX Size 64 frames 0

RX Size 65 .. 127 fr 0 | TX Size 65 .. 127 fr 0

RX Size 128 .. 255 fr 0 | TX Size 128 .. 255 fr 0

RX Size 256 .. 511 fr 19873 | TX Size 256 .. 511 fr 0

RX Size 512 .. 1023 fr 0 | TX Size 512 .. 1023 fr 0

RX Size 1024 .. 1518 fr 0 | TX Size 1024 .. 1518 fr 0

RX Size > 1518 frames 0 | TX Size > 1518 frames 0

RX Bytes OK 8326787 | TX Bytes OK 0

RX Bytes BAD 0 | TX Bytes BAD 0

RX SHORT OK 0 | TX PAUSE 0

RX SHORT CRC 0 | TX ERR 0

RX OVF 0 |

RX NORM CRC 0 |

RX LONG OK 0 |

RX LONG CRC 0 |

RX PAUSE 0 |

RX FALS CRS 0 |

RX SYM ERR 0 |

RX SPI FRAME COUNT 19873 | TX SPI FRAME COUNT 0

RX SPI LEN ERR 0 | TX SPI LEN ERR 0

RX SPI DIP 2 ERR 0 | TX SPI DIP 4 ERR 0

RX SPI STATUS OOF ERR 0 | TX SPI DATA OOF ERR 0

RX FIFO OVERFLOW 0 | TX FIFO FULL DROP 0

RX PAUSE COUNT 0 | TX DIP 4 PACKET DROP 0

SPI EOP/ABORT 0 |

RX FRAGMENTS COUNT 0 |

RX MAC ERR 0 |

RX JABBER COUNT 0 |

---------- ---------- + ---------- ----------

[local]st40-1# **show port datalink counters 22/2**

Counters for port 22/2:

Line Card Fast Ethernet Port

Rx Counter Data | Tx Counter Data

---------- ---------- + ---------- ----------

RX Unicast frames 13773 | TX Unicast frames 0

RX Multicast frames 126510 | TX Multicast frames 0

RX Broadcast frames 54954 | TX Broadcast frames 0

RX Size 64 frames 109874 | TX Size 64 frames 0

RX Size 65 .. 127 fr 81230 | TX Size 65 .. 127 fr 0

RX Size 128 .. 255 fr 2384 | TX Size 128 .. 255 fr 0

RX Size 256 .. 511 fr 1670 | TX Size 256 .. 511 fr 0

RX Size 512 .. 1023 fr 79 | TX Size 512 .. 1023 fr 0

RX Size 1024 .. 1518 fr 0 | TX Size 1024 .. 1518 fr 0

RX Size > 1518 frames 0 | TX Size > 1518 frames 0

```
RX Bytes OK 13824764 | TX Bytes OK 0

RX Bytes BAD 0 | TX Bytes BAD 0

RX OVF 0 | TX DEFER 0

RX SHORT OK 0 | TX COL 0

RX SHORT CRC 0 | TX SCOL 0

RX NO SFD 0 | TX MCOL 0

RX NORM CRC 0 | TX XCOL 0

RX NORM ALI 0 | TX LCOL 0

RX LONG OK 0 | TX PAUSE 0

RX LONG CRC 0 | TX ERR 0

RX PAUSE 0 |

RX FALS CRS 0 |

RX SYM ERR 0 |

---------------------- ------------- + ---------------------- ------------



[local]st40-1# show port datalink counters 24/1

Counters for port 24/1:

SPIO 10/100/1000 Ethernet port

Rx Counter Data | Tx Counter Data

---------------------- ------------- + ---------------------- ------------

RX Bytes 148501169 | TX Bytes 138116037

RX BAD frames 0 | TX BAD frames 0

RX Runt frames 0 | TX Runt frames 0

RX Oversize frames 0 | TX Oversize frames 0

RX Good frames 1590640 | TX Good frames 1258465

RX Multicast frames 4393 | TX Collisions 0

RX Broadcast frames 365063 | TX Excessive collis 0

RX Code ERROR 0 | TX Late Collisions 0

RX CRC ERROR 0 | TX CRC ERROR 0

RX length ERROR 0 | TX ABORT 0

RX Align ERROR 0 |
```

```
---------------------- ------------- + ---------------------- -------------


# show port datalink counters 5/15

Counters for port 5/15:

Line Card 10 Gigabit Ethernet Port

Rx Counter Data | Tx Counter Data

---------------------- ------------- + ---------------------- -------------

RX OverSize frames 0 |

RX Bytes OK 1558209913 | TX Bytes OK 840628

RX Bytes BAD 0 | TX Bytes BAD 0

RX SHORT OK 0 | TX PAUSE 0

RX SHORT CRC 0 | TX ERR 0

RX OVF 0 |

RX NORM CRC 0 |

RX LONG OK 0 |

RX LONG CRC 82233 |

RX PAUSE 0 |

RX FALS CRS 0 |

RX SYM ERR 0 |

---------------------- ------------- + ---------------------- -------------
```