

Guide Contents
<u>Main Article</u>
<u>Overview of ACE Troubleshooting</u>
<u>Understanding the ACE Module Architecture and Traffic Flow</u>
<u>Preliminary ACE Troubleshooting</u>
<u>Troubleshooting ACE Boot Issues</u>
<u>Troubleshooting with ACE Logging</u>
<u>Troubleshooting Connectivity</u>
<u>Troubleshooting ACE Appliance Ethernet Ports</u>
<u>Troubleshooting Remote Access</u>
<u>Troubleshooting Access Control Lists</u>
<u>Troubleshooting Network Address Translation</u>
<u>Troubleshooting ACE Health Monitoring</u>
<u>Troubleshooting Layer 4 Load Balancing</u>
<u>Troubleshooting Layer 7 Load Balancing</u>
<u>Troubleshooting Redundancy</u>
<u>Troubleshooting SSL</u>
<u>Troubleshooting Compression</u>
<u>Troubleshooting Performance Issues</u>
<u>ACE Resource Limits</u>
<u>Managing ACE Resources</u>
<u>Show Counter Reference</u>

Contents

- [1 show probe detail](#)
- [2 show proc](#)
- [3 show processes cpu](#)
- [4 show processes memory](#)
- [5 show resource allocation](#)
- [6 show resource usage all](#)
- [7 show rserver detail](#)
- [8 show scp stats](#)
- [9 show serverfarm detail](#)
- [10 show service-policy detail](#)
- [11 show stats loadbalance](#)
- [12 show stats crypto client](#)
- [13 show stats crypto server](#)
- [14 show stats loadbalance radius](#)
- [15 show stats probe](#)
- [16 show syn-cookie](#)
- [17 show system internal mts buffers details](#)
- [18 show system internal mts memory](#)
- [19 show system internal sysmgr service all details](#)
- [20 show system kcache](#)
- [21 show system kmem](#)
- [22 show system kmemtrack](#)
- [23 show system resources](#)
- [24 show system skbtrack](#)
- [25 show xlate](#)

show probe detail

Displays configuration information and statistics for a probe.

Sample Output

```
ACE30001/rlb_ssg# show probe detail
```

```
probe      : generic-https-probe
type       : HTTPS
state      : ACTIVE
description :
-----
port       : 443      address      : 0.0.0.0      addr type   : -
interval  : 30      pass intvl  : 30          pass count  : 3
fail count: 3      rcv timeout: 10
http method : GET
http url    : /index.html
conn termination : GRACEFUL
expect offset : 0      , open timeout : 10
expect regex : -
send data   : -

----- probe results -----
probe association  probed-address  probes  failed  passed  health
-----+-----+-----+-----+-----+-----
serverfarm : https-test
  real      : FC8-server[0]
              192.168.2.165  19634    0      19634    SUCCESS

Socket state      : CLOSED
No. Passed states : 1      No. Failed states : 0
No. Probes skipped : 0      Last status code  : 0
No. Out of Sockets : 0      No. Internal error: 0
Last disconnect err : -
Last probe time   : Fri Sep 25 09:40:39 2009
Last fail time    : Never
Last active time  : Fri Sep 18 14:03:15 2009
```

Notes

For a description of the output fields, see chapter "Configuring Health Monitoring" in the *Cisco Application Control Engine Module Server Load-Balancing Configuration Guide*.

show proc

Displays general information about all processes running on the ACE. This command and "show processes" are identical.

Sample Output

```
ACE30001/Admin# show proc
```

```
PID    State  PC          Start_cnt  TTY  Process
-----
  1     S     2ac1964c    1          -    init
  2     S           0          1     -    keventd
  3     S           0          1     -    ksoftirqd_CPU0
```

show probe detail

Cisco_Application_Control_Engine_(ACE)_Troubleshooting_Guide_--_Show_Counter_Reference_--_Command_Set_5

4	S	0	1	-	ksoftirqd_CPU1
5	S	0	1	-	kswapd
6	S	0	1	-	bdflush
7	S	0	1	-	kupdated
72	S	2ac2968c	1	-	cron
116	S	0	1	-	loop0
117	S	0	1	-	kjournald
123	S	0	1	-	loop1
124	S	0	1	-	kjournald
130	S	0	1	-	loop2
131	S	0	1	-	kjournald
137	S	0	1	-	loop3
138	S	0	1	-	kjournald
144	S	0	1	-	loop4
145	S	0	1	-	kjournald
306	S	0	1	-	mts_kutil
385	S	0	1	-	Pkt_Fifo_Tx
386	S	0	1	-	Pkt_Fifo_Rx
387	S	0	1	-	Pkt_Fifo_Util
400	S	0	1	-	Netio_Encap
556	S	2ac5b64c	1	-	telnetd
557	S	2b650f64	1	1	vsh
612	S	2c9f6fb0	1	-	lcpfw
625	S	0	1	-	cavium
733	S	2abe068c	1	-	n2_perf_stats
742	S	0	1	-	ipcp_pci_rx
759	S	0	1	-	keventd
784	S	801010b4	1	-	insmod
839	S	2b68364c	1	-	httpd
854	S	2b2d364c	1	-	sysmgr
872	S	2ceb56b4	1	-	syslogd
873	S	2aebd64c	1	-	sdwrapd
877	S	2afffffb0	1	-	pfmgr
881	S	2cd8e64c	1	-	ntp
882	S	2acf064c	1	-	lmgrd
883	S	2b0a564c	1	-	fs-daemon
884	S	2ceb3020	1	-	syslogd
885	S	2ceb56b4	1	-	syslogd
886	S	2afb264c	1	-	confcheck
888	S	2b14d984	1	-	licmgr
895	S	2acf064c	1	-	cisco
896	S	2b174984	1	-	vshd
898	S	2ceb3020	1	-	syslogd
899	S	2aec664c	1	-	ntpd
901	S	2b68f8e4	1	-	httpd
902	S	2b680fb0	1	-	httpd
906	S	2d4f364c	1	-	xinetd
907	S	2cb1afb0	1	-	vacd
908	S	2ae7664c	1	-	ttyd
909	S	2ae4e87c	1	-	sysinfo
910	S	2dd956b4	1	-	snmpd
911	S	2aec0fb0	1	-	sme
912	S	2b1a364c	1	-	scripted_hm
913	S	2cf6064c	1	-	radiusd
914	S	2ae2afb0	1	-	pktpcap
915	S	2adfafb0	1	-	nat_dnld
916	S	2cdb9020	1	-	itasca_ssl
917	S	2afabfb0	1	-	itasca_route_mgr
918	S	2af5cfb0	1	-	itasca_fm
919	S	2aff1fb0	1	-	ifmgr
920	S	2b019fb0	1	-	hsrp_track
921	S	2b43a6b4	1	-	hm
922	S	2ca2f64c	1	-	ha_mgr
923	S	2af8164c	1	-	ha_dp_mgr

924	S	2b01064c	1	-	gslb_proto
925	S	2b0ae64c	1	-	dhcrelay
926	S	2af5a64c	1	-	core-dmon
927	S	2c9be6b4	1	-	config_cntlrl
928	S	2e2bee58	1	-	cfgmgr
929	S	2ae69fb0	1	-	bpdu
930	S	2aed4984	1	-	ascii-cfg
931	S	2cecb020	1	-	arp_mgr
932	S	2adf0020	1	-	aclmerged
933	S	2ce9364c	1	-	tacacs
934	S	2cf1264c	1	-	ldap
935	S	2cf0f984	1	-	aaa
939	S	2b438020	1	-	hm
941	S	2c9bc020	1	-	config_cntlrl
942	S	2c9be6b4	1	-	config_cntlrl
943	S	2cecb020	1	-	arp_mgr
944	S	2cecb020	1	-	arp_mgr
945	S	2b43a6b4	1	-	hm
946	S	2b43a6b4	1	-	hm
947	S	2cecb020	1	-	arp_mgr
948	S	2b43a6b4	1	-	hm
949	S	2e3a0020	1	-	cfgmgr
951	S	2b43a6b4	1	-	hm
952	S	2ce9464c	1	-	securityd
953	S	2ab15024	1	-	cfgmgr
954	S	2cdb9020	1	-	itasca_ssl
955	S	2cdbb6b4	1	-	itasca_ssl
956	S	2cdba984	1	-	itasca_ssl
957	S	2cdbb6b4	1	-	itasca_ssl
960	S	2e2bee58	1	-	cfgmgr
961	S	2e3696dc	1	-	cfgmgr
962	S	2adf0020	1	-	aclmerged
963	S	2e3a0020	1	-	cfgmgr
964	S	2adb96dc	1	-	aclmerged
965	S	2e3a0020	1	-	cfgmgr
966	S	2dd93020	1	-	snmpd
967	S	2dd94984	1	-	snmpd
968	S	2dd956b4	1	-	snmpd
1132	S	0	1	-	Peer
1146	S	2ac0f87c	1	-	klogd
1794	S	2ac5b64c	1	-	telnetd
1795	S	2b68a64c	1	0	vsh
1858	S	0	1	-	Peer
4866	S	2b689984	1	1	vsh
4867	S	2ac9f87c	1	1	more
4868	R	2ac6087c	1	-	ps
20999	S	2b68a64c	1	S00	vsh
-	NR	-	0	-	installer
-	NR	-	0	-	session_agent

Notes

The process state value can be one of:

- D ? Uninterruptible sleep (usually I/O related)
- ER ? Error while running
- NR ? Not running
- R ? Running or runnable (on run queue)
- S ? Interruptible sleep (waiting for an event to complete)
- T ? Stopped, either by a job control signal or because it is being traced
- W ? Paging

- X ? Process is dead
- Z ? Defunct ("zombie") process; terminated but not reaped by its parent

show processes cpu

Displays CPU information for the Intel Pentium processor. This command is used for troubleshooting high CPU issues, slow response times on the CLI and performance issues.

Sample Output

```
ACE30001/Admin# show proc cpu
```

```
CPU utilization for five seconds: 2%; one minute: 5%; five minutes: 5%
PID      Runtime(ms)   Invoked    uSecs   1Sec    5 Sec    1 Min    5 Min    Process
-----
   1         13737      120542     113     0.0     0.0 %    0.0 %    0.0 %    init
   2           0         32        17     0.0     0.0 %    0.0 %    0.0 %    keventd
   3          172      10815     15     0.0     0.0 %    0.0 %    0.0 %    ksoftirqd_CPU0
   4           0         12         9     0.0     0.0 %    0.0 %    0.0 %    ksoftirqd_CPU1
   5           0          1        10     0.0     0.0 %    0.0 %    0.0 %    kswapd
   6           0          1        11     0.0     0.0 %    0.0 %    0.0 %    bdflush
   7      567639     294614    1926     0.0     0.0 %    0.2 %    0.10%    kupdated
  72        1154     10005     115     0.0     0.0 %    0.0 %    0.0 %    cron
 116         109        185     591     0.0     0.0 %    0.0 %    0.0 %    loop0
 117          20        188     108     0.0     0.0 %    0.0 %    0.0 %    kjournald
 123          90        247     367     0.0     0.0 %    0.0 %    0.0 %    loop1
 124         755        285    2650     0.0     0.0 %    0.0 %    0.0 %    kjournald
 130         148       1900     78     0.0     0.0 %    0.0 %    0.0 %    loop2
 131          83       1990     41     0.0     0.0 %    0.0 %    0.0 %    kjournald
 137          27         46     590     0.0     0.0 %    0.0 %    0.0 %    loop3
 138           1         33         44     0.0     0.0 %    0.0 %    0.0 %    kjournald
 144         391       9856     39     0.0     0.0 %    0.0 %    0.0 %    loop4
 145         435       9912     43     0.0     0.0 %    0.0 %    0.0 %    kjournald
 306      27264     718916     37     0.0     0.0 %    0.0 %    0.0 %    mts_kutil
 385      9627     558762     17     0.0     0.0 %    0.0 %    0.0 %    Pkt_Fifo_Tx
 386     278879     8841533     31     0.0     0.6 %    0.2 %    0.1 %    Pkt_Fifo_Rx
 387           0          1         5     0.0     0.0 %    0.0 %    0.0 %    Pkt_Fifo_Util
 400          1         20         68     0.0     0.0 %    0.0 %    0.0 %    Netio_Encap
 556         516       7287     70     0.0     0.5 %    0.1 %    0.0 %    telnetd
 557        1511       2040     741     0.0     0.9 %    0.1 %    0.0 %    vsh
 612     372224    1315018     283     0.0     0.1 %    0.2 %    0.1 %    lcpfw
 625     461272    58972997     7     0.0     0.4 %    0.3 %    0.0 %    cavium
 733     242945     584082     415     0.0     0.1 %    0.1 %    0.1 %    n2_perf_stats
 742         160        1901     84     0.0     0.0 %    0.0 %    0.0 %    ipcp_pci_rx
 759           0          1         7     0.0     0.0 %    0.0 %    0.0 %    keventd
 784     33075     117935     280     0.0     0.0 %    0.0 %    0.0 %    insmod
 839     21434     589851     36     0.0     0.0 %    0.0 %    0.0 %    httpd
 854     108727    1192089     91     0.0     0.10%    0.2 %    0.0 %    sysmgr
 872     3863585    58964891     65     0.0     0.31%    0.32%    0.29%    syslogd
 873          97         39    2504     0.0     0.0 %    0.0 %    0.0 %    sdwrapd
 877        1368       9864     138     0.0     0.0 %    0.0 %    0.0 %    pfmgr
 881     20740    127451     162     0.0     0.0 %    0.0 %    0.0 %    ntp
 882         108         13    8353     0.0     0.0 %    0.0 %    0.0 %    lmgrd
 883          95         47    2029     0.0     0.0 %    0.0 %    0.0 %    fs-daemon
 884         4394     293365     14     0.0     0.0 %    0.0 %    0.0 %    syslogd
 885     59625     604007     98     0.0     0.0 %    0.0 %    0.0 %    syslogd
 886         173         24    7222     0.0     0.0 %    0.0 %    0.0 %    confcheck
 888         8246    117982     69     0.0     0.0 %    0.0 %    0.0 %    licmgr
 895         3726     9845     378     0.0     0.0 %    0.0 %    0.0 %    cisco
```

Cisco_Application_Control_Engine_(ACE)_Troubleshooting_Guide_--_Show_Counter_Reference_--_Command_Set_5

896	10652	74169	143	0.0	0.0 %	0.0 %	0.0 %	vshd
898	64927	9827441	6	0.0	0.0 %	0.0 %	0.0 %	syslogd
899	60989	589699	103	0.0	0.0 %	0.0 %	0.0 %	ntpd
901	43	48	896	0.0	0.0 %	0.0 %	0.0 %	httpd
902	23	47	508	0.0	0.0 %	0.0 %	0.0 %	httpd
906	11593	118067	98	0.0	0.0 %	0.0 %	0.0 %	xinetd
907	50695	61125	829	0.0	0.0 %	0.0 %	0.0 %	vacd
908	12475	294862	42	0.0	0.0 %	0.0 %	0.0 %	ttyd
909	4088	60169	67	0.0	0.90%	0.13%	0.2 %	sysinfo
910	113389	1188841	95	0.0	0.0 %	0.0 %	0.0 %	snmpd
911	19414	293510	66	0.0	0.0 %	0.0 %	0.0 %	sme
912	124	59	2103	0.0	0.0 %	0.0 %	0.0 %	scripted_hm
913	18147	589714	30	0.0	0.0 %	0.0 %	0.0 %	radiusd
914	63	34	1858	0.0	0.0 %	0.0 %	0.0 %	pktpcap
915	160	291	553	0.0	0.0 %	0.0 %	0.0 %	nat_dnld
916	732	10171	72	0.0	0.0 %	0.0 %	0.0 %	itasca_ssl
917	6675	118193	56	0.0	0.0 %	0.0 %	0.0 %	itasca_route_mgr
918	280	9878	28	0.0	0.0 %	0.0 %	0.0 %	itasca_fm
919	43134235	355623	121292	38.5	0.0 %	3.57%	3.68%	ifmgr
920	265	9840	26	0.0	0.0 %	0.0 %	0.0 %	hsrp_track
921	3966	39373	100	0.0	0.0 %	0.0 %	0.0 %	hm
922	55367	254374	217	0.0	0.0 %	0.0 %	0.0 %	ha_mgr
923	5570	59293	93	0.0	0.0 %	0.0 %	0.0 %	ha_dp_mgr
924	77	44	1752	0.0	0.0 %	0.0 %	0.0 %	gslb_proto
925	10551	118031	89	0.0	0.0 %	0.0 %	0.0 %	dhcrelay
926	95	49	1949	0.0	0.0 %	0.0 %	0.0 %	core-dmon
927	5270	59172	89	0.0	0.0 %	0.0 %	0.0 %	config_cntl
928	711	96	7406	0.0	0.0 %	0.0 %	0.0 %	cfgmgr
929	4460	541616	8	0.0	0.0 %	0.0 %	0.0 %	bpdu
930	6203	73746	84	0.0	0.0 %	0.0 %	0.0 %	ascii-cfg
931	8678273	9613436	902	1.3	0.82%	0.73%	0.72%	arp_mgr
932	2340	10199	229	0.0	0.0 %	0.0 %	0.0 %	aclmerged
933	29562	590176	50	0.0	0.4 %	0.0 %	0.0 %	tacacs
934	21326	589708	36	0.0	0.0 %	0.0 %	0.0 %	ldap
935	33096	591425	55	0.0	0.2 %	0.0 %	0.0 %	aaa
939	5541	293370	18	0.0	0.0 %	0.0 %	0.0 %	hm
941	5812	293361	19	0.0	0.0 %	0.0 %	0.0 %	config_cntl
942	79	44	1805	0.0	0.0 %	0.0 %	0.0 %	config_cntl
943	4725	293357	16	0.0	0.0 %	0.0 %	0.0 %	arp_mgr
944	55097	1111282	49	0.0	0.0 %	0.0 %	0.0 %	arp_mgr
945	13398	40204	333	0.0	0.0 %	0.0 %	0.0 %	hm
946	13377	39867	335	0.0	0.0 %	0.0 %	0.0 %	hm
947	70507	338432	208	0.0	0.0 %	0.0 %	0.0 %	arp_mgr
948	0	3	59	0.0	0.0 %	0.0 %	0.0 %	hm
949	5412	293367	18	0.0	0.0 %	0.0 %	0.0 %	cfgmgr
951	0	3	41	0.0	0.0 %	0.0 %	0.0 %	hm
952	21731	589850	36	0.0	0.0 %	0.0 %	0.0 %	securityd
953	0	1	395	0.0	0.0 %	0.0 %	0.0 %	cfgmgr
954	5859	293372	19	0.0	0.0 %	0.0 %	0.0 %	itasca_ssl
955	0	2	107	0.0	0.0 %	0.0 %	0.0 %	itasca_ssl
956	0	1	385	0.0	0.0 %	0.0 %	0.0 %	itasca_ssl
957	0	1	174	0.0	0.0 %	0.0 %	0.0 %	itasca_ssl
960	2312	1521	1520	0.0	0.0 %	0.0 %	0.0 %	cfgmgr
961	18032	583809	30	0.0	0.0 %	0.0 %	0.0 %	cfgmgr
962	5054	293360	17	0.0	0.0 %	0.0 %	0.0 %	aclmerged
963	154	147	1052	0.0	0.0 %	0.0 %	0.0 %	cfgmgr
964	9595	293365	32	0.0	0.0 %	0.0 %	0.0 %	aclmerged
965	53701	16022	3351	0.0	0.0 %	0.0 %	0.0 %	cfgmgr
966	4743	293360	16	0.0	0.0 %	0.0 %	0.0 %	snmpd
967	4023	7706	522	0.0	0.0 %	0.0 %	0.0 %	snmpd
968	199527	5897126	33	0.0	0.1 %	0.1 %	0.1 %	snmpd
1132	0	4	119	0.0	0.0 %	0.0 %	0.0 %	Peer
1146	13	26	514	0.0	0.0 %	0.0 %	0.0 %	klogd
1794	38	127	299	0.0	0.0 %	0.0 %	0.0 %	telnetd

1795	355	103	3454	0.0	0.0 %	0.0 %	0.0 %	vsh
1858	16111	118034	136	0.0	0.0 %	0.0 %	0.0 %	Peer
4898	9	5	1873	0.0	0.0 %	0.0 %	0.0 %	vsh
4899	20	5	4127	0.0	0.0 %	0.0 %	0.0 %	more
4900	122	6	20451	0.0	0.0 %	0.0 %	0.0 %	ps
20999	2150	65452	32	0.0	0.0 %	0.0 %	0.0 %	vsh

Notes

This command output format is:

CPU utilization for five seconds: 12%; one minute: 4%; five minutes: 4%

PID	Runtime(ms)	Invoked	uSecs	1Sec	5 Sec	1 Min	5 Min	Process
864	14560628	141874354	102	0.0	0.25%	0.25%	0.24%	syslog

The noteworthy statistics are the CPU averages for the last 1 second, 5 seconds, 1 minute and 5 minutes, as shown in the first line of the display are the CPU averages for all processes running on the ACE:

"CPU utilization for five seconds: 12%; one minute: 4%; five minutes: 4%"

Thereafter, each task is listed individually with its CPU averages.

show processes memory

Displays current memory allocation per process.

Sample Output

ACE30001/Admin# show proc memory

PID	MemAlloc	StackBase/Ptr	Process
1	14592	7fff7f40/7fff77d0	init
2	0	0/0	keventd
3	0	0/0	ksoftirqd_CPU0
4	0	0/0	ksoftirqd_CPU1
5	0	0/0	kswapd
6	0	0/0	bdflush
7	0	0/0	kupdated
72	20928	7fff7e10/7fff7b90	cron
116	0	0/0	loop0
117	0	0/0	kjournald
123	0	0/0	loop1
124	0	0/0	kjournald
130	0	0/0	loop2
131	0	0/0	kjournald
137	0	0/0	loop3
138	0	0/0	kjournald
144	0	0/0	loop4
145	0	0/0	kjournald
306	0	0/0	mts_kutil
385	0	0/0	Pkt_Fifo_Tx
386	0	0/0	Pkt_Fifo_Rx
387	0	0/0	Pkt_Fifo_Util
400	0	0/0	Netio_Encap

556	17824	7fff7ce0/7fff7870	telnetd
557	190628	7fff7e30/7fff6ab8	vsh
612	184064	7fff7e70/7fff7a00	lcpfw
625	0	0/0	cavium
733	8144	7fff7e40/7fff6ac8	n2_perf_stats
742	0	0/0	ipcp_pci_rx
759	0	0/0	keventd
784	105880	7fff7e40/801010c4	insmod
839	838336	7fff7df0/7fff7c70	httpd
854	892560	7fff7e70/7fff7c98	sysmgr
872	250656	7fff7cb0/7fff7aa8	syslogd
873	13960	7fff7ce0/7fff6dd0	sdwrapd
877	112460	7fff7ce0/7fff7990	pfmgr
881	220544	7fff7d00/7fff7840	ntp
882	96472	7fff7c30/7fff6980	lmgrd
883	96656	7fff7d00/7fff7508	fs-daemon
884	250656	7fff7cb0/135d0658	syslogd
885	250656	7fff7cb0/7f7ff4e8	syslogd
886	30768	7fff7d00/7fff7b98	confcheck
888	236140	7fff7ce0/7fff7770	licmgr
895	125720	7fff7c10/7fff7ab8	cisco
896	2896768	7fff7d10/7fff7778	vshd
898	250656	7fff7cb0/7f5ff850	syslogd
899	43888	7fff7cd0/7fff7b90	ntpd
901	973504	7fff7df0/7fff7b60	httpd
902	989888	7fff7df0/7fff7b90	httpd
906	113648	7fff7cb0/7fff7b10	xinetd
907	310484	7fff7ce0/7fff7990	vacd
908	112252	7fff7d10/7fff7660	ttyd
909	30772	7fff7d00/7fff7910	sysinfo
910	1649136	7fff7ce0/7fff6520	snmpd
911	70024	7fff7ce0/7fff7960	sme
912	56676	7fff7cc0/7fff77b0	scripted_hm
913	343360	7fff7cd0/7fff68b0	radiusd
914	21856	7fff7ce0/7fff7990	pktcap
915	457212	7fff7cd0/7fff76a8	nat_dnld
916	224108	7fff7cc0/7fff7978	itasca_ssl
917	2379776	7fff7ca0/7fff7720	itasca_route_mgr
918	55728	7fff7cd0/7fff7988	itasca_fm
919	252336	7fff7ce0/7fff7948	ifmgr
920	23968	7fff7cc0/7fff7938	hsrp_track
921	99112	7fff7cf0/7fff7070	hm
922	78720	7fff7ce0/7fff7740	ha_mgr
923	66848	7fff7cd0/7fff7738	ha_dp_mgr
924	71488	7fff7cc0/7fff7750	gslb_proto
925	96384	7fff7cf0/7fff7968	dhcrelay
926	93168	7fff7cf0/7fff7730	core-dmon
927	409888	7fff7cc0/7fff7718	config_cntlr
928	8482640	7fff7cd0/7fff64a8	cfgmgr
929	56416	7fff7ce0/7fff77a0	bpdu
930	51856	7fff7cf0/7fff78d8	ascii-cfg
931	672272	7fff7cd0/7fff7310	arp_mgr
932	347152	7fff7cd0/7fff7760	aclmerged
933	328636	7fff7cd0/7fff66a0	tacacs
934	267072	7fff7ce0/7fff6af8	ldap
935	182544	7fff7ce0/7fff7b18	aaa
939	99112	7fff7cf0/10039e90	hm
941	409888	7fff7cc0/1005a678	config_cntlr
942	409888	7fff7cc0/7f7ff7e8	config_cntlr
943	672272	7fff7cd0/127557c0	arp_mgr
944	672272	7fff7cd0/7f7ff328	arp_mgr
945	99112	7fff7cf0/7f7ff400	hm
946	99112	7fff7cf0/7f5ff400	hm
947	672272	7fff7cd0/7f5ff828	arp_mgr


```

948      99112  7fff7cf0/7f3ff400  hm
949      8482640 7fff7cd0/105b6f98  cfgmgr
951      99112  7fff7cf0/7f1ff400  hm
952      153864  7fff7cd0/7fff6b60  securityd
953      8482640 7fff7cd0/7f7ffa68  cfgmgr
954      224108  7fff7cc0/1001baf8  itasca_ssl
955      224108  7fff7cc0/7f7ff340  itasca_ssl
956      224108  7fff7cc0/7f5ff180  itasca_ssl
957      224108  7fff7cc0/7f3ff338  itasca_ssl
960      8482640 7fff7cd0/7f5f5550  cfgmgr
961      8482640 7fff7cd0/7f3fa690  cfgmgr
962      347152  7fff7cd0/10029da0  aclmerged
963      8482640 7fff7cd0/7f1fa870  cfgmgr
964      347152  7fff7cd0/7f7ff8d8  aclmerged
965      8482640 7fff7cd0/7eff0600  cfgmgr
966      1649136 7fff7ce0/10846c4c  snmpd
967      1649136 7fff7ce0/7f7ffa70  snmpd
968      1649136 7fff7ce0/7f5ff7d8  snmpd
1132     0          0/0              Peer
1146     59632  7fff7ca0/7fff7be8  klogd
1794     17824  7fff7ce0/7fff7870  telnetd
1795     170148 7fff7e30/7fff6a60  vsh
1858     0          0/0              Peer
4912     190628 7fff7e30/7fff56d8  vsh
4913     5400   7fff7e10/7fff7b20  more
4914     0          7fff7c80/7fff7ad8  ps
20999   198820  7fff7e70/7fff6aa0  vsh

```

Notes

A statistic that is relevant to troubleshooting in this output is the MemAlloc column. MemAlloc shows the amount of fixed memory allocated by each process. By watching this value, you can discover processes that are using an increasing amount of memory, possibly indicative of a memory usage problem. This would be done by issuing the command at fixed intervals checking for large increases in the allocated memory.

show resource allocation

This output shows resource allocation.

Sample Output

```
ace19/Admin# sho resource allocation
```

```

-----
Parameter                Min      Max      Class
-----
acl-memory                0.00%   100.00%  default
syslog buffer             0.00%   100.00%  default
conc-connections         0.00%   100.00%  default
mgmt-connections         0.00%   100.00%  default
proxy-connections        0.00%   100.00%  default
bandwidth                 0.00%   100.00%  default

```

connection rate	0.00%	100.00%	default
inspect-conn rate	0.00%	100.00%	default
syslog rate	0.00%	100.00%	default
regex	0.00%	100.00%	default
sticky	0.00%	100.00%	default
xlates	0.00%	100.00%	default
ssl-connections rate	0.00%	100.00%	default
mgmt-traffic rate	0.00%	100.00%	default
mac-miss rate	0.00%	100.00%	default
acc-connections	0.00%	100.00%	default
http-comp rate	0.00%	100.00%	default
throughput	0.00%	100.00%	default

Notes

For more information, see the [Managing Resources](#) section of the Troubleshooting Guide.

show resource usage all

When executed from the Admin context, this command displays the resource usage for all other contexts.

Sample Output

```
ACE30001/Admin# show resource usage all
```

Resource	Current	Peak	Allocation		Denied
			Min	Max	

Context: Admin					
conc-connections	9	339	80000	2000000	0
mgmt-connections	18	28	1000	25000	0
proxy-connections	0	118	10486	262144	0
xlates	0	0	10486	262144	0
bandwidth	2072	6920309	5000000	250000000	0
throughput	1058	6907078	5000000	125000000	0
mgmt-traffic rate	1014	13231	0	125000000	0
connections rate	0	2896	10000	250000	0
ssl-connections rate	0	0	10	250	0
mac-miss rate	0	1	20	500	0
inspect-conn rate	0	0	60	1500	0
acl-memory	33920	33920	784000	19652608	0
sticky	1	2	41942	0	0
regex	0	0	10486	262144	0
syslog buffer	272384	272384	40960	1007616	0
syslog rate	0	14	1000	25000	0
Context: rlb_csg					
conc-connections	24	114	2000000	2000000	0
mgmt-connections	0	0	25000	25000	0
proxy-connections	0	11	262144	262144	0

```
show resource usage all
```

xlates	0	0	262144	262144	0
bandwidth	164	3630	125000000	250000000	0
throughput	164	3630	125000000	125000000	0
mgmt-traffic rate	0	0	0	125000000	0
connections rate	0	32	250000	250000	0
ssl-connections rate	0	0	250	250	0
mac-miss rate	0	0	500	500	0
inspect-conn rate	0	0	1500	1500	0
acl-memory	5520	5520	19650480	0	0
sticky	0	0	1048576	0	0
regexp	14	14	262144	0	0
syslog buffer	0	0	1048576	0	0
syslog rate	0	0	25000	0	0
Context: rlb_ssg					
conc-connections	0	11	2000000	2000000	0
mgmt-connections	0	0	25000	25000	0
proxy-connections	0	11	262144	262144	0
xlates	0	0	262144	262144	0
bandwidth	842	12402	125000000	250000000	0
throughput	842	12402	125000000	125000000	0
mgmt-traffic rate	0	0	0	125000000	0
connections rate	10	42	250000	250000	0
ssl-connections rate	0	2	250	250	0
mac-miss rate	10	11	500	500	0
inspect-conn rate	0	0	1500	1500	0
acl-memory	11096	11096	19650480	0	0
sticky	0	0	838	0	0
regexp	18	18	262144	0	0
syslog buffer	1046528	1046528	1048576	0	0
syslog rate	0	10	25000	0	0
Context: spirent_ssg					
conc-connections	0	4	2000000	2000000	0
mgmt-connections	0	0	25000	25000	0
proxy-connections	0	4	262144	262144	0
xlates	0	0	262144	262144	0
bandwidth	82	2378	125000000	250000000	0
throughput	82	2378	125000000	125000000	0
mgmt-traffic rate	0	0	0	125000000	0
connections rate	0	25	250000	250000	0
ssl-connections rate	0	0	250	250	0
mac-miss rate	0	0	500	500	0
inspect-conn rate	0	0	1500	1500	0
acl-memory	9456	9456	19650480	0	0
sticky	0	0	838	0	0
regexp	14	14	262144	0	0
syslog buffer	0	0	1048576	0	0
syslog rate	0	0	25000	0	0

Notes

Note the mac-miss rate. Mac-miss messages are sent when the dataplane does not find an encap-entry on a route/mac-lookup and ratelimited is 2k/sec. It's possible to see denied messages if incoming traffic rate is higher than that, since CP can take some time to resolve and program the encap entries. The "mac-miss rate" value then is the number of times ACE got a packet from an unknown mac-address, which the CP needs to learn from these packets to populate the neighbors

show rserver detail

The rserver stats fields are similar to those from **show serverfarm detail**; the only difference is that "total conn-failures" value appears at the bottom of the output.

Note that this command displays rserver information followed by a separate set of information on every serverfarm (that is, every sfarm-real instance).

Sample Output

```
ACE30001/Admin# show rserver detail
```

```
rserver          : 165, type: HOST
state            : OPERATIONAL (verified by arp response)
description      : -
max-conns        : -          , out-of-rotation count : -
min-conns        : -
conn-rate-limit  : 350000     , out-of-rotation count : 0
bandwidth-rate-limit : 300000000 , out-of-rotation count : 0
weight           : 8
```

```
-----connections-----
      real          weight state      current  total
-----+-----+-----+-----+-----+
serverfarm: IPSEC_GWs
  192.168.2.165:0   8      OPERATIONAL  0        2437322
    max-conns       : -          , out-of-rotation count : -
    min-conns       : -
    conn-rate-limit : -          , out-of-rotation count : -
    bandwidth-rate-limit : -        , out-of-rotation count : -
    total conn-failures : 16062
```

```
rserver          : 231, type: HOST
state            : OPERATIONAL (verified by arp response)
description      : -
max-conns        : -          , out-of-rotation count : -
min-conns        : -
conn-rate-limit  : 350000     , out-of-rotation count : 0
bandwidth-rate-limit : 300000000 , out-of-rotation count : 0
weight           : 8
```

```
-----connections-----
      real          weight state      current  total
-----+-----+-----+-----+-----+
serverfarm: IPSEC_GWs
  192.168.2.231:0   8      OPERATIONAL  0        1188792
    max-conns       : -          , out-of-rotation count : -
    min-conns       : -
    conn-rate-limit : -          , out-of-rotation count : -
    bandwidth-rate-limit : -        , out-of-rotation count : -
    total conn-failures : 6156
```

```
rserver          : 233, type: HOST
state            : OPERATIONAL (verified by arp response)
description      : -
max-conns        : -          , out-of-rotation count : -
min-conns        : -
conn-rate-limit  : 350000     , out-of-rotation count : 0
bandwidth-rate-limit : 300000000 , out-of-rotation count : 0
```

show rserver detail

```

weight                : 8
-----
real                  weight state      current  total
-----+-----+-----+-----+-----
serverfarm: IPSEC_GWs
  192.168.2.233:0      8      OPERATIONAL  0      233321
  max-conns           : -              , out-of-rotation count : -
  min-conns           : -
  conn-rate-limit     : -              , out-of-rotation count : -
  bandwidth-rate-limit : -              , out-of-rotation count : -
  total conn-failures : 1217

```

show scp stats

Displays information related to the Switch Module Control Protocol (SCP) statistics. SCP is the protocol that the SUP (IOS) and ACE communicate on over the EOBC channel.

Sample Output

```

ACE30001/Admin# show scp stats
SCP statistics:
Tx packets                773704
Rx packets                773704
Tx bytes                  195106600
Rx packets                48449378
TX Stats
TX Errors                 0
TX Timeout                0
Not Connected             0
Tx No memory              0
RX Stats
Rx Error                  1
Rx No memory              0
Rx no buffers             0
Rx offline                0
Rx message size           0
Rx Kthread enqueue       606026
Rx Kthread dequeue       606026
Rx unknown SAP           0
Rx MTS alloc fail        0
Rx MTS enqueue           606026
Rx MTS enqueue fail      0

```

Notes

The error-related counters are for the most part self explanatory (see below). In general these errors incrementing would be cause for concern and could be a hardware issue.

There are two main types of errors shown, transmit errors and receive errors. Of note are the following.

- Transmit (TX) Errors:
 - ◆ timeout ? Message sent to SUP timed out and the message was discarded.
 - ◆ not connected ? The EOBC channel between the ACE/SUP is dead. This is a serious error that would most likely result in the ACE not coming up or rebooting without a core.
 - ◆ no memory ? There is no fixed memory available and the message was discarded.

- Receive (RX) Errors:

- ◆ no memory ? There is no fixed memory available and the message was discarded.
- ◆ no buffers ? There was no buffer available to receive packets from the SUP and the incoming message is discarded.
- ◆ offline ? The EOBC channel between the ACE/SUP is dead. This is a serious error that would most likely result in the ACE not coming up or rebooting without a core.
- ◆ message size ? The incoming message from the SUP exceeded the maximum for the EOBC channel. This indicates a serious communication issue between the SUP and ACE.

show serverfarm detail

Displays statistics for an entire serverfarm, followed by stats for the individual rservers in the serverfarm.

Sample Output

```
ACE30001/Admin# show serverfarm detail
serverfarm      : IPSEC_GWs, type: HOST
total rservers : 3
active rservers: 3
description     : -
state          : ACTIVE
predictor      : LEASTCONNS
  slowstart    : 0 secs
failaction     : -
back-inservice : 0
partial-threshold : 0
num times failover      : 0
num times back inservice : 1
total conn-dropcount   : 0
-----
```

real	weight	state	current	total	failures
-----connections-----					
rsrver: 165					
192.168.2.165:0	8	OPERATIONAL	0	2437322	16062
max-conns	: -				, out-of-rotation count : -
min-conns	: -				
conn-rate-limit	: -				, out-of-rotation count : -
bandwidth-rate-limit	: -				, out-of-rotation count : -
retcode out-of-rotation count	: -				
load value	: 0				
rsrver: 231					
192.168.2.231:0	8	OPERATIONAL	0	1188792	6156
max-conns	: -				, out-of-rotation count : -
min-conns	: -				
conn-rate-limit	: -				, out-of-rotation count : -
bandwidth-rate-limit	: -				, out-of-rotation count : -
retcode out-of-rotation count	: -				
load value	: 0				
rsrver: 233					
192.168.2.233:0	8	OPERATIONAL	0	233321	1217
max-conns	: -				, out-of-rotation count : -
min-conns	: -				
conn-rate-limit	: -				, out-of-rotation count : -
bandwidth-rate-limit	: -				, out-of-rotation count : -
retcode out-of-rotation count	: -				

```
load value          : 0
```

Notes

The serverfarm-related stats are:

Field	Description
serverfarm	Name of the serverfarm and the configured server farm type, HOST or REDIRECT.
total rservers	Total number of real servers associated with the server farm.
active rservers	Number of real servers that are active in the server farm.
description	User-entered text description of the server farm with a maximum of 240 alphanumeric characters.
state	Current state of the server farm. Possible values are ACTIVE or INACTIVE.
predictor	Configured load-balancing method and values for various fields associated with the predictor. Possible predictor values are: <ul style="list-style-type: none"> • HASH-ADDRSRC • HASH-ADDRDEST • HASH-COOKIE • HASH-HEADER • HASH-HTTP-CONTENT • HASH-LAYER4-PAYLOAD • HASH-URL • LEASTBANDWIDTH • LEASTCONNS • LEASTLOADED • RESPONSE • ROUNDROBIN
slowstart	Configured slowstart value.
failaction	Action that the ACE takes for connections if a real server fails in a server farm. Possible actions are purge or none.
back-inservice	Configured value of the back-inservice keyword of the partial-threshold command. Specifies the minimum percentage of real servers in the primary server farm that must be active again for the ACE to place the server farm back in service.
partial-threshold	Configured value of the partial-threshold command. Specifies the minimum percentage of real servers in the primary server farm that must remain active for the server farm to stay up.
num times failover	Number of times that the server farm failed over to the backup server farm.
num times back inservice	Number of times that the ACE placed the server farm back in service after a failover.
total conn-dropcount	Total number of connections that the ACE discarded because the number of connections exceeded the configured conn-limit max value.

The rserver-related stats are:

Field	Description
Rserver	Name of the real server associated with the server farm.

IP Address:Port	IP address and port of the real server.
Weight	Weight assigned to the real server in the server farm.
State	Current state of the real server. Possible states are OPERATIONAL or OUTFSERVICE.
Current Connections	Number of active connections to the real server.
Total Connections	Total number of connections to the specified server farm.
Maxconns	Configured maximum allowable number of active connections to a real server.
Minconns	Configured minimum number of connections that the number of connections must fall below before sending more connections to a server after it has exceeded the maximum connections threshold.
Out-of-rotation-count	Number of times that the real server was not considered for load balancing because the number of connections, connection rate, or bandwidth rate exceeded the configured limits of the server.
Conn-rate-limit	Configured connection rate limit of the real server in connections per second.
Bandwidth-rate-limit	Configured bandwidth rate limit of the real server in bytes per second.
Connections failures	<p>This is incremented if the connection is closed for the following reasons:</p> <ul style="list-style-type: none"> • SYN timeout • RST received • Internal exception <p>An internal exception event can happen for a variety of reasons, such as failure to start or restart a timer, destination NAT failure, redundant connection, etc.</p>

show service-policy detail

There are two forms of the command:

- **show service-policy detail**
- **show service-policy [name] details**

The second displays detailed service-policy counters. The **show service-policy [name]** command gives a similar though less verbose output for the named service policies.

Sample Output

```
ACE30001/Admin# show service-policy detail
```

```
Policy-map : LB
Status      : ACTIVE
Description: -----
Interface:  vlan 101
  service-policy: LB
    class: IPSEC-CLASS
      nat:
        nat dynamic 1 vlan 102
        curr conns      : 0           , hit count          : 3882870
        dropped conns   : 388
        client pkt count : 23025431  , client byte count: 1548137256
        server pkt count : 23003930  , server byte count: 9373406823
        conn-rate-limit : -           , drop-count       : -
```

show service-policy detail


```

    bandwidth-rate-limit : -          , drop-count : -
VIP Address:    Protocol:  Port:
192.168.219.150 udp        eq      500
192.168.219.150 udp        eq      4500
192.168.219.150 50
192.168.219.150 tcp        eq      80
loadbalance:
  L7 loadbalance policy: IPSEC-GW
  VIP Route Metric      : 77
  VIP Route Advertise   : DISABLED
  VIP ICMP Reply        : ENABLED
  VIP State: INSERVICE
  curr conns            : 0          , hit count          : 3882870
  dropped conns         : 388
  client pkt count      : 23025431  , client byte count: 1548137256
  server pkt count      : 23003930  , server byte count: 9373406823
  conn-rate-limit       : -          , drop-count : -
  bandwidth-rate-limit : -          , drop-count : -
  L7 Loadbalance policy : IPSEC-GW
    class/match : class-default
    LB action: :
      sticky group: SeGW_GRP
      primary serverfarm: IPSEC_GWs
      state: UP
      backup serverfarm : -
    hit count      : 3882870
    dropped conns  : 0
  Parameter-map(s):
    UDP-TIMEOUT

```

Notes

Field	Description
Status	Current operational state of the service policy. Possible states are ACTIVE or INACTIVE.
Description	User-entered description of the policy map.
Interface	VLAN ID of the interface to which the policy map has been applied
Service Policy	Unique identifier of the policy map.
Class	Name of the class map associated with the service policy. There can be many classes associated with one service-policy.
NAT Dynamic Pool	Identifier of the NAT dynamic pool and the associated VLAN.
NAT curr conns	Number of active connections in this NAT Pool.
NAT hit count	Number of times a connection was established through this NAT Pool.
NAT dropped conns	Number of connections that the ACE discarded because the NAT Pool was out of resources.
NAT client pkt count	Number of packets received from the network through this NAT Pool.
NAT client byte count	Number of bytes received from the client side network through this NAT Pool.
NAT server pkt count	Number of packets received from the service side network through this NAT Pool.
NAT server byte count	Number of bytes received from the service side network through this NAT Pool.

NAT conn-rate-limit drop-count	Number of connections that the ACE discarded because the rservers were at max connections through the NAT Pool.
NAT bandwidth-rate-limit drop-count	Number of connections that the ACE discarded because the allocated bandwidth was exceeded through the NAT Pool.
Virtual IP (VIP)	The VIP address associated with this class. The VIP is specified by VIP, Protocol and Port. There can be multiple VIPs associated with each class.
L7 Policy	Name of the Layer 7 policy map associated with the service policy.
VIP Route Metric	Specifies the distance metric for the route as specified with the loadbalance vip advertise command. The ACE writes the value configured to its routing table. Possible values are integers from 1 to 254.
VIP Route Advertise	Operational state of the loadbalance vip advertise command: ENABLED or DISABLED. This command is used with Route Health Injection (RHI) to allow the ACE to advertise the availability of a VIP address throughout the network.
VIP ICMP Reply	Operational state of the loadbalance vip icmp-reply command. Possible states are: ENABLED, DISABLED, ENABLED-WHEN-ACTIVE, or ENABLED-WHEN-PRIMARY-SF-UP.
VIP State	Operational state of the virtual server: INSERVICE or OUTOFSERVICE.
Curr Conns	Number of active connections to the VIP.
Dropped Conns	<p>Number of connections that the ACE discarded to this VIP. This is incremented whenever a connection hitting that VIP gets dropped/rejected. Common reasons that the connection hitting the VIP will be dropped are:</p> <ul style="list-style-type: none"> • if all the rservers in the serverfarm associated to VIP goes down, then the VIP also will go down. So all the incoming connections will be dropped. • if a request in the connection requests some unknown URL to the VIP, then the connection will be rejected. • if the server which is picked up by the LB to load-balance the connection won't respond to the request, then after max retries, the connection will be dropped. <p>The counter itself is cumulative and that the value could be made up of entries from the following counters:</p> <ol style="list-style-type: none"> 1. sh stats loadbalance <ul style="list-style-type: none"> ◆ Total Layer4 rejections ◆ Total Layer7 rejections ◆ Total Layer4 LB policy misses ◆ Total Layer7 LB policy misses ◆ Total times rserver was unavailable 2. sh stats connection <ul style="list-style-type: none"> ◆ Total Connections Timed-out ◆ Total Connections Failed 3. The "failures" counter from show serverfarm <serverfarm>. 4. sh stats inspect <ul style="list-style-type: none"> ◆ Total drop decisions
Client Pkt Count	Number of packets received from the client side network to the VIP.
Server Pkt Count	Number of packets received from the server side network to the VIP.
Hit Count	Number of times a connection was established with this VIP.

Client Byte Count	Number of bytes received from the client side network to the VIP.
Server Byte Count	Number of bytes received from the server side network to the VIP.
Conn-rate-limit drop-count	Number of connections that the ACE discarded to this VIP because the rservers where at max connections
Bandwidth-rate-limit drop-count	Number of connections that the ACE discarded to this VIP because the allocated bandwidth was exceeded.
Primary server farm	The name of the primary server farm.
Current state of the primary server farm	The serverfarm can be either operational UP or DOWN.
Hit Count (Primary Server Farm)	Cumulative number of connections to the primary server farm.
Dropped Conns (Primary Server Farm)	Number of attempted connections to the primary server farm that the ACE discarded.
Backup server farm	The name of the backup server farm.
Current state of the backup server farm	The backup serverfarm can be either operational UP or DOWN.
Hit Count (Backup Server Farm)	Cumulative number of connections to the primary server farm.
Dropped Conns (Backup Server Farm)	Number of attempted connections to the primary server farm that the ACE discarded.
Parameter-map(s)	The name of any configured parameter maps which have been associated with this class.

show stats loadbalance

Displays statistics related to load balancing activities of both np1 and np2. That is, it represents the sum of the values shown in **show np 1 me-stats -slb** and **show np 2 me-stats -slb**.

Sample Output

```
ACE/Admin# show stats loadbalance
+-----+
+----- Loadbalance statistics -----+
+-----+
Total version mismatch           : 0
Total Layer4 decisions           : 0
Total Layer4 rejections          : 0
Total Layer7 decisions           : 0
Total Layer7 rejections          : 0
Total Layer4 LB policy misses    : 0
Total Layer7 LB policy misses    : 0
Total times rserver was unavailable : 0
Total ACL denied                 : 0
Total IDMap Lookup Failures      : 0
```

Notes

show stats loadbalance

Field	Description
Total version mismatch	Vserver version on the proxy info or in the vservers state does not match that expected for the L7 connection. This occurs when new (reconfigured) vservers info is passed to the dataplane. LB is unable to return a decision, and the connection is close or not formed.
Total Layer4 decisions	LB loadBalanced, stuck, or forwarded an L4 connection.
Total Layer4 rejections	LB rejected an L4 connection. This is often in conjunction with other counters telling why.
Total Layer7 decisions	LB loadBalanced, stuck, or forwarded an L7 connection.
Total Layer7 rejections	<p>LB rejected an L7 decision for any of a multitude of reasons, including:</p> <ul style="list-style-type: none"> • no available real server • acl deny • VIP not inservice • VIP config version mismatch (similar to HTTP below, but for LB) • any of the http errors below <ul style="list-style-type: none"> ◆ connection invalid ◆ no valid policy ◆ error receiving sticky info from other IXP ◆ exceed max capacity on rserver <p>For RADIUS traffic, if the client-side UDP connection and resulting pmap entry is removed before the RADIUS response is received by the ACE, ACE will not know where to forward the response. It therefore drops the packet and increments this counter.</p>
Total Layer4 LB policy misses	LB was unable to find a policy which satisfies all the conditions of the L7 connection.
Total Layer7 LB policy misses	LB was unable to find a policy which satisfies all the conditions of the L7 connection.
Total times rserver was unavailable	Policy and vservers were OK, but there was no acceptable rserver available for LB to send the connection to.
Total ACL denied	The configured policy associated with this connection indicates it should be dropped. This can occur for either an L4 or an L7 policy.
Total IDMap Lookup Failures	Fault Tolerant (FT) ID MAP lookup failures.

show stats crypto client

Sample Output

```
ACE30001/Admin# show stats crypto client
SSL Client Statistics:
-----
SSL alert CLOSE_NOTIFY rcvd:           0
SSL alert UNEXPECTED_MSG rcvd:         0
```

show stats crypto client

```

SSL alert BAD_RECORD_MAC rcvd: 0
SSL alert DECRYPTION_FAILED rcvd: 0
SSL alert RECORD_OVERFLOW rcvd: 0
SSL alert DECOMPRESSION_FAILED rcvd: 0
SSL alert HANDSHAKE_FAILED rcvd: 0
SSL alert NO_CERTIFICATE rcvd: 0
SSL alert BAD_CERTIFICATE rcvd: 0
SSL alert UNSUPPORTED_CERTIFICATE rcvd: 0
SSL alert CERTIFICATE_REVOKED rcvd: 0
SSL alert CERTIFICATE_EXPIRED rcvd: 0
SSL alert CERTIFICATE_UNKNOWN rcvd: 0
SSL alert ILLEGAL_PARAMETER rcvd: 0
SSL alert UNKNOWN_CA rcvd: 0
SSL alert ACCESS_DENIED rcvd: 0
SSL alert DECODE_ERROR rcvd: 0
SSL alert DECRYPT_ERROR rcvd: 0
SSL alert EXPORT_RESTRICTION rcvd: 0
SSL alert PROTOCOL_VERSION rcvd: 0
SSL alert INSUFFICIENT_SECURITY rcvd: 0
SSL alert INTERNAL_ERROR rcvd: 0
SSL alert USER_CANCELED rcvd: 0
SSL alert NO_RENEGOTIATION rcvd: 0
SSL alert CLOSE_NOTIFY sent: 0
SSL alert UNEXPECTED_MSG sent: 0
SSL alert BAD_RECORD_MAC sent: 0
SSL alert DECRYPTION_FAILED sent: 0
SSL alert RECORD_OVERFLOW sent: 0
SSL alert DECOMPRESSION_FAILED sent: 0
SSL alert HANDSHAKE_FAILED sent: 0
SSL alert NO_CERTIFICATE sent: 0
SSL alert BAD_CERTIFICATE sent: 0
SSL alert UNSUPPORTED_CERTIFICATE sent: 0
SSL alert CERTIFICATE_REVOKED sent: 0
SSL alert CERTIFICATE_EXPIRED sent: 0
SSL alert CERTIFICATE_UNKNOWN sent: 0
SSL alert ILLEGAL_PARAMETER sent: 0
SSL alert UNKNOWN_CA sent: 0
SSL alert ACCESS_DENIED sent: 0
SSL alert DECODE_ERROR sent: 0
SSL alert DECRYPT_ERROR sent: 0
SSL alert EXPORT_RESTRICTION sent: 0
SSL alert PROTOCOL_VERSION sent: 0
SSL alert INSUFFICIENT_SECURITY sent: 0
SSL alert INTERNAL_ERROR sent: 0
SSL alert USER_CANCELED sent: 0
SSL alert NO_RENEGOTIATION sent: 0
SSLv2 client hello received: 0
SSLv3 client hello received: 0
TLSv1 client hello received: 0
SSLv3 negotiated protocol: 0
TLSv1 negotiated protocol: 19855
SSLv3 full handshakes: 0
SSLv3 resumed handshakes: 0
Cipher sslv3_rsa_rc4_128_md5: 0
Cipher sslv3_rsa_rc4_128_sha: 0
Cipher sslv3_rsa_des_cbc_sha: 0
Cipher sslv3_rsa_3des_edc_cbc_sha: 0
Cipher sslv3_rsa_exp_rc4_40_md5: 0
Cipher sslv3_rsa_exp_des40_cbc_sha: 0
Cipher sslv3_rsa_exp1024_rc4_56_md5: 0
Cipher sslv3_rsa_exp1024_des_cbc_sha: 0
Cipher sslv3_rsa_exp1024_rc4_56_sha: 0
Cipher sslv3_rsa_aes_128_cbc_sha: 0
Cipher sslv3_rsa_aes_256_cbc_sha: 0

```

```

TLSv1 full handshakes:                19855
TLSv1 resumed handshakes:             0
Cipher tlsv1_rsa_rc4_128_md5:         19855
Cipher tlsv1_rsa_rc4_128_sha:         0
Cipher tlsv1_rsa_des_cbc_sha:         0
Cipher tlsv1_rsa_3des_edc_cbc_sha:    0
Cipher tlsv1_rsa_exp_rc4_40_md5:      0
Cipher tlsv1_rsa_exp_des40_cbc_sha:   0
Cipher tlsv1_rsa_exp1024_rc4_56_md5: 0
Cipher tlsv1_rsa_exp1024_des_cbc_sha: 0
Cipher tlsv1_rsa_exp1024_rc4_56_sha:  0
Cipher tlsv1_rsa_aes_128_cbc_sha:     0
Cipher tlsv1_rsa_aes_256_cbc_sha:     0
Total SSL client authentications:      0
Failed SSL client authentications:     0
SSL client authentication cache hits:  19841
SSL static CRL lookups:                0
SSL best effort CRL lookups:           0
SSL CRL lookup cache hits:            0
SSL revoked certificates:              0
Total SSL server authentications:      19855
Failed SSL server authentications:     0
Internal error:                        0
Handshake FlushRX operations:          0
Handshake FlushTX operations:          0
Xscale messages rcvd from ME:          99275
Xscale messages sent to ME:            119130
Finish msg split across ssl recs:      0
Fasttx msg ring full:                  0
SSL_ME tx msg ring full:               0
N2 encrypt_record:                     0
N2 decrypt_record:                     19855
N2 random:                              39710
N2 handshake_hash:                     19855
N2 hash:                                0
N2 gpop_master:                         19855
N2 gpop_import_master_secret:           0
N2 gpop_pkcs1v15enc:                   19855
N2 gpop_pkcs1v15enc_crt:               0
N2 gpop_finish:                         19855
N2 gpop_verify:                         0
N2 gpop_pkcs1v15dec:                   0
N2 gpop_pkcs1v15dec_crt:               0
N2 rsa_server_full:                    0
N2 resume:                              0

```

Notes

See [show stats crypto server](#) for a description of these counters.

show stats crypto server

Sample Output

```

ACE30001/Admin# show stats crypto server
SSL Server Statistics:
-----

```

```
show stats crypto server
```

```

SSL alert CLOSE_NOTIFY rcvd: 0
SSL alert UNEXPECTED_MSG rcvd: 0
SSL alert BAD_RECORD_MAC rcvd: 0
SSL alert DECRYPTION_FAILED rcvd: 0
SSL alert RECORD_OVERFLOW rcvd: 0
SSL alert DECOMPRESSION_FAILED rcvd: 0
SSL alert HANDSHAKE_FAILED rcvd: 0
SSL alert NO_CERTIFICATE rcvd: 0
SSL alert BAD_CERTIFICATE rcvd: 0
SSL alert UNSUPPORTED_CERTIFICATE rcvd: 0
SSL alert CERTIFICATE_REVOKED rcvd: 0
SSL alert CERTIFICATE_EXPIRED rcvd: 0
SSL alert CERTIFICATE_UNKNOWN rcvd: 0
SSL alert ILLEGAL_PARAMETER rcvd: 0
SSL alert UNKNOWN_CA rcvd: 0
SSL alert ACCESS_DENIED rcvd: 0
SSL alert DECODE_ERROR rcvd: 0
SSL alert DECRYPT_ERROR rcvd: 0
SSL alert EXPORT_RESTRICTION rcvd: 0
SSL alert PROTOCOL_VERSION rcvd: 0
SSL alert INSUFFICIENT_SECURITY rcvd: 0
SSL alert INTERNAL_ERROR rcvd: 0
SSL alert USER_CANCELED rcvd: 0
SSL alert NO_RENEGOTIATION rcvd: 0
SSL alert CLOSE_NOTIFY sent: 0
SSL alert UNEXPECTED_MSG sent: 0
SSL alert BAD_RECORD_MAC sent: 0
SSL alert DECRYPTION_FAILED sent: 0
SSL alert RECORD_OVERFLOW sent: 0
SSL alert DECOMPRESSION_FAILED sent: 0
SSL alert HANDSHAKE_FAILED sent: 0
SSL alert NO_CERTIFICATE sent: 0
SSL alert BAD_CERTIFICATE sent: 0
SSL alert UNSUPPORTED_CERTIFICATE sent: 0
SSL alert CERTIFICATE_REVOKED sent: 0
SSL alert CERTIFICATE_EXPIRED sent: 0
SSL alert CERTIFICATE_UNKNOWN sent: 0
SSL alert ILLEGAL_PARAMETER sent: 0
SSL alert UNKNOWN_CA sent: 0
SSL alert ACCESS_DENIED sent: 0
SSL alert DECODE_ERROR sent: 0
SSL alert DECRYPT_ERROR sent: 0
SSL alert EXPORT_RESTRICTION sent: 0
SSL alert PROTOCOL_VERSION sent: 0
SSL alert INSUFFICIENT_SECURITY sent: 0
SSL alert INTERNAL_ERROR sent: 0
SSL alert USER_CANCELED sent: 0
SSL alert NO_RENEGOTIATION sent: 0
SSLv2 client hello received: 0
SSLv3 client hello received: 0
TLSv1 client hello received: 0
SSLv3 negotiated protocol: 0
TLSv1 negotiated protocol: 0
SSLv3 full handshakes: 0
SSLv3 resumed handshakes: 0
Cipher sslv3_rsa_rc4_128_md5: 0
Cipher sslv3_rsa_rc4_128_sha: 0
Cipher sslv3_rsa_des_cbc_sha: 0
Cipher sslv3_rsa_3des_edc_cbc_sha: 0
Cipher sslv3_rsa_exp_rc4_40_md5: 0
Cipher sslv3_rsa_exp_des40_cbc_sha: 0
Cipher sslv3_rsa_exp1024_rc4_56_md5: 0
Cipher sslv3_rsa_exp1024_des_cbc_sha: 0
Cipher sslv3_rsa_exp1024_rc4_56_sha: 0

```

```

Cipher sslv3_rsa_aes_128_cbc_sha: 0
Cipher sslv3_rsa_aes_256_cbc_sha: 0
TLSv1 full handshakes: 0
TLSv1 resumed handshakes: 0
Cipher tlsv1_rsa_rc4_128_md5: 0
Cipher tlsv1_rsa_rc4_128_sha: 0
Cipher tlsv1_rsa_des_cbc_sha: 0
Cipher tlsv1_rsa_3des_edc_cbc_sha: 0
Cipher tlsv1_rsa_exp_rc4_40_md5: 0
Cipher tlsv1_rsa_exp_des40_cbc_sha: 0
Cipher tlsv1_rsa_exp1024_rc4_56_md5: 0
Cipher tlsv1_rsa_exp1024_des_cbc_sha: 0
Cipher tlsv1_rsa_exp1024_rc4_56_sha: 0
Cipher tlsv1_rsa_aes_128_cbc_sha: 0
Cipher tlsv1_rsa_aes_256_cbc_sha: 0
Total SSL client authentications: 0
Failed SSL client authentications: 0
SSL client authentication cache hits: 0
SSL static CRL lookups: 0
SSL best effort CRL lookups: 0
SSL CRL lookup cache hits: 0
SSL revoked certificates: 0
Total SSL server authentications: 0
Failed SSL server authentications: 0
Internal error: 0
Handshake FlushRX operations: 0
Handshake FlushTX operations: 0
Xscale messages rcvd from ME: 99285
Xscale messages sent to ME: 119142
Finish msg split across ssl recs: 0
Fasttx msg ring full: 0
SSL_ME tx msg ring full: 0
N2 encrypt_record: 0
N2 decrypt_record: 19857
N2 random: 39714
N2 handshake_hash: 19857
N2 hash: 0
N2 gpop_master: 19857
N2 gpop_import_master_secret: 0
N2 gpop_pkcs1v15enc: 19857
N2 gpop_pkcs1v15enc_crt: 0
N2 gpop_finish: 19857
N2 gpop_verify: 0
N2 gpop_pkcs1v15dec: 0
N2 gpop_pkcs1v15dec_crt: 0
N2 rsa_server_full: 0
N2 resume: 0

```

Notes

Field	Description
SSL alert [type] rcvd/sent	Number of times that the particular SSL alert message was received or sent.
SSLv2/v3 client hello received	Number of ClientHello message received.
SSLv3/TLSv1 negotiated protocol	Number of the times that the version used in the connection.
SSLv3 full handshakes	Number of handshakes completed without errors.
SSLv3 resumed handshakes	Number of handshakes resumed by using a session ID.
Cipher sslv3...	Number of times that the cipher suite is used in the connection.

TLsv1 full handshakes	Number of handshakes completed without errors.
TLsv1 resumed handshakes	Number of handshakes resumed by using a session ID.
Cipher tlsv1...	Number of times that the cipher suite is used in the connection.
Total SSL client authentications	Number of authenticated client connections. This field increments only when displaying server statistics.
Failed SSL client authentications	Number of client connections that failed authentication. This field increments only when displaying server statistics.
SSL client authentication cache hits	Number of times that an authenticated client reconnects and a cache entry is found. This field increments only when displaying server statistics.
SSL static CRL lookups	Number of lookups against a statically defined CRL.
SSL best effort CRL lookups	Number of lookups using the best effort.
SSL CRL lookup cache hits	Number of CRL lookups where the cache result was used.
SSL revoked certificates	Number of revoked certificates encountered.
SSL CRL download failed	Number of CRL downloads that failed.
Total SSL server authentications	Number of server certificate authentications that the ACE attempted to perform. This field increments only when displaying client statistics.
Failed SSL server authentications	Number of server certificate authentications that failed. This field increments only when displaying client statistics.
Handshake FlushRX/TX operations	Number of times that the SSL handshake finished.
Xscale messages rcvd/sent for ME	Number of messages passed between the SSL processors during the SSL handshake.
Xscale rcvd abort msg before hdshk	Number of times that the SSL handshake was aborted.
Finish msg split across ssl recs	Number of times that the SSL Finished message was split by the client into multiple SSL records.
SSLv3 client hello received	Number of SSL V3 client hello messages received.
SSLv3 negotiated protocol	Number of times the the SSL v3 protocol was selected in the handshake.
Cipher sslv3_rsa_rc4_128_md5	Number of times this cipher suite was selected.
N2 rsa_server_full	N2 rsa_server_full is called as a normal part of the SSL handshake.

Notes

If "SSLv3 full handshakes" is less than `rsa_server_full`, then the difference is the number of connections that did not complete the SSL handshake. This should be close to the value of "Handshake failure alert".

The sum of "SSLv3 client hello received" and "TLsv1 client hello received", less "N2 rsa_server_full" gives you the number of handshakes that failed prior to getting to "N2 rsa_server_full".

See also `show np 1 me-stats -snitrox` and `show np 1 me-stats -scrypto`.

show stats loadbalance radius

Sample Output

```
slot3/radius# show stats loadbalance radius
+-----+
+----- Radius Loadbalance statistics -----+
+-----+
Total requests received           : 0
Total responses received          : 0
Total retry packets received      : 0
Total header parse results received : 0
Total body parse results received  : 0
Total data parse results received  : 0
Total packets sent out            : 0
Total sessions allocated          : 0
Total sessions deleted            : 0
Total username sticky added       : 0
Total calling-station sticky added : 0
Total framed-ip sticky added      : 0
Total end-user packet sticky success : 0
Total end-user packet sticky failure : 0
Total Acct-On/Off requests received : 0
Total Acct-On/Off responses received : 0
Total Acct-On/Off with no rules    : 0
Total Acct-On/Off req processing done: 0
Total NULL packet received errors  : 0
Total parse errors                 : 0
```

Notes

While most of the counters are self-explanatory, note the following points regarding several of the counters:

Field	Description
Total proxy mapper errors	This counter increments if there is no Radius header in the Radius message or if in other ways the message is malformed in such as way as to affect the header.
Total memory allocation failures	<p>This counter increments when a pmap entry cannot be allocated for the Radius transaction. There are 32K pmap entries for each IXP. A pmap entry is created for each Radius transaction. Note that there can be multiple radius transactions per UDP connection. If this stat is incrementing, then radius messages are being dropped, and the recommended workaround is to reduce the UDP inactivity timeout. (Make it UDP ports 1812 and 1813 for minimal impact on other connections).</p> <p>WARNING: If the timeout is too short, the client-side connection and resulting pmap entry might be removed before the radius response message is received by the ACE. In this case, the response is dropped and "Total Layer7 rejections" counter will be incremented under show stats loadbalance radius.</p>
Total end-user packet sticky failure	<p>This counter is incremented every time a Radius end-user packet is received which does not hit any sticky entry. In this case the pkt will be forwarded (routed) to the server and this counter will be incremented. To help clarify, this would happen with a config such as:</p> <pre>sticky radius framed-ip GRP1 replicate sticky serverfarm sfl</pre>

```

class-map match-all catch_all_vip
  2 match virtual-address 0.0.0.0 0.0.0.0 any

policy-map type loadbalance first-match L7_P
  class class-default
    sticky-serverfarm GRP1

policy-map multi-match RAD_L7_VIP
  class RAD_L7-VIP
    loadbalance vip inservice
    loadbalance policy RAD_L7_pmap
    loadbalance vip icmp-reply
  class catch_all_vip
    loadbalance vip inservice
    loadbalance policy L7_P
    loadbalance vip icmp-reply

interface vlan 440
  ip address 44.44.44.149 255.255.255.0
  service-policy input RAD_L7_VIP
  no shutdown

```

In this scenario, if there were no Radius FIP sticky entry, and then an end-user sent a packet to a server that matched the catch_all_vip (for example using directly the server IP address, not the VIP), it will match the catch_all_vip and the L7_P. A sticky lookup will be done but no sticky entry is found. Then this counter is incremented.

Total Valid Sticky Key	This will increase every time an access-accept hits a pmap entry that has a valid sticky key in it (which basically means that the previous access-request was a retransmission).
------------------------	---

show stats probe

Displays probe-related statistics.

Sample Output

```
ace-1/Admin# show stats probe
```

```

+-----+
+----- Probe statistics -----+
+-----+
----- icmp probe -----
Total probes sent      : 0          Total send failures  : 0
Total probes passed    : 0          Total probes failed   : 0
Total connect errors   : 0          Total conns refused  : 0
Total RST received     : 0          Total open timeouts  : 0
Total receive timeout  : 0

----- tcp probe -----
Total probes sent      : 0          Total send failures  : 0
Total probes passed    : 0          Total probes failed   : 0
Total connect errors   : 0          Total conns refused  : 0
Total RST received     : 0          Total open timeouts  : 0
Total receive timeout  : 0

----- udp probe -----
Total probes sent      : 0          Total send failures  : 0
Total probes passed    : 0          Total probes failed   : 0

```

show stats probe

Cisco_Application_Control_Engine_(ACE)_Troubleshooting_Guide_--_Show_Counter_Reference_--_Command_Set_5

```

Total connect errors      : 0          Total conns refused      : 0
Total RST received       : 0          Total open timeouts     : 0
Total receive timeout    : 0

```

----- http probe -----

```

Total probes sent        : 0          Total send failures     : 0
Total probes passed      : 0          Total probes failed     : 0
Total connect errors     : 0          Total conns refused     : 0
Total RST received       : 0          Total open timeouts     : 0
Total receive timeout    : 0

```

----- https probe -----

```

Total probes sent        : 0          Total send failures     : 0
Total probes passed      : 0          Total probes failed     : 0
Total connect errors     : 0          Total conns refused     : 0
Total RST received       : 0          Total open timeouts     : 0
Total receive timeout    : 0

```

----- ftp probe -----

```

Total probes sent        : 0          Total send failures     : 0
Total probes passed      : 0          Total probes failed     : 0
Total connect errors     : 0          Total conns refused     : 0
Total RST received       : 0          Total open timeouts     : 0
Total receive timeout    : 0

```

----- telnet probe -----

```

Total probes sent        : 0          Total send failures     : 0
Total probes passed      : 0          Total probes failed     : 0
Total connect errors     : 0          Total conns refused     : 0
Total RST received       : 0          Total open timeouts     : 0
Total receive timeout    : 0

```

----- smtp probe -----

```

Total probes sent        : 0          Total send failures     : 0
Total probes passed      : 0          Total probes failed     : 0
Total connect errors     : 0          Total conns refused     : 0
Total RST received       : 0          Total open timeouts     : 0
Total receive timeout    : 0

```

----- pop probe -----

```

Total probes sent        : 0          Total send failures     : 0
Total probes passed      : 0          Total probes failed     : 0
Total connect errors     : 0          Total conns refused     : 0
Total RST received       : 0          Total open timeouts     : 0
Total receive timeout    : 0

```

----- dns probe -----

```

Total probes sent        : 0          Total send failures     : 0
Total probes passed      : 0          Total probes failed     : 0
Total connect errors     : 0          Total conns refused     : 0
Total RST received       : 0          Total open timeouts     : 0
Total receive timeout    : 0

```

----- echo probe -----

```

Total probes sent        : 0          Total send failures     : 0
Total probes passed      : 0          Total probes failed     : 0
Total connect errors     : 0          Total conns refused     : 0
Total RST received       : 0          Total open timeouts     : 0
Total receive timeout    : 0

```

----- imap probe -----

```

Total probes sent        : 0          Total send failures     : 0
Total probes passed      : 0          Total probes failed     : 0
Total connect errors     : 0          Total conns refused     : 0

```

```

Total RST received      : 0          Total open timeouts   : 0
Total receive timeout   : 0

----- radius probe -----
Total probes sent       : 0          Total send failures    : 0
Total probes passed     : 0          Total probes failed    : 0
Total connect errors    : 0          Total conns refused    : 0
Total RST received      : 0          Total open timeouts    : 0
Total receive timeout   : 0

----- finger probe -----
Total probes sent       : 0          Total send failures    : 0
Total probes passed     : 0          Total probes failed    : 0
Total connect errors    : 0          Total conns refused    : 0
Total RST received      : 0          Total open timeouts    : 0
Total receive timeout   : 0

----- script probe -----
Total probes sent       : 0          Total send failures    : 0
Total probes passed     : 0          Total probes failed    : 0
Total connect errors    : 0          Total conns refused    : 0
Total RST received      : 0          Total open timeouts    : 0
Total receive timeout   : 0

```

Notes

For a description of the fields, see the "Displaying Probe Information" chapter of the *Application Control Engine Module Server Load-Balancing Configuration Guide*.

show syn-cookie

Displays the SYN cookie-related statistics for each configured interface. A TCP SYN cookie is an initial sequence number calculated in response to a SYN request from a client and inserted in the SYN-ACK response. It provides an authentication mechanism of sorts for preventing SYN floods from a rogue client.

Sample Output

```

ACE30001/Admin# show syn-cookie

Interface vlan23
  Configured TCP Embryonic Connection Limit: 0
  Current number of Embryonic Connections: 0
  Number of TCP Sns Intercepted by SYN COOKIE: 0
  Number of TCP Acks Successfully Processed by SYN COOKIE: 0
  Failed Number of TCP Acks Processed by SYN COOKIE: 0
Interface vlan101
  Configured TCP Embryonic Connection Limit: 0
  Current number of Embryonic Connections: 0
  Number of TCP Sns Intercepted by SYN COOKIE: 0
  Number of TCP Acks Successfully Processed by SYN COOKIE: 0
  Failed Number of TCP Acks Processed by SYN COOKIE: 0
Interface vlan102
  Configured TCP Embryonic Connection Limit: 0
  Current number of Embryonic Connections: 0
  Number of TCP Sns Intercepted by SYN COOKIE: 0
  Number of TCP Acks Successfully Processed by SYN COOKIE: 0
  Failed Number of TCP Acks Processed by SYN COOKIE: 0

```

show system internal mts buffers details

Provides detailed information on MTS buffers. MTS Buffers are used for internal communications between processes and threads with the ACE. In general a buffer is allocated, sent, processed and freed quickly.

Sample Output

```
ACE30001/Admin# show system internal mts buffers details
Node/Sap/queue  Age(ms)      SrcNode      SrcSAP  DstNode      DstSAP  OPC      MsgId  Ms
sup/1106/nper   26497        0x601        1085   0x601        1106    4001    927650 30
sup/1085/nper   26497        0x601        1085   0x601        1106    4001    927650 30
```

Notes

It would be normal to see a handful of buffers in the output; however, it is most likely a problem when many are observed or the "Age" is very large. This would indicate that the buffer has been leaked. Once the ACE runs low on these MTS buffer, the ACE can reboot without a core, possibly making the Control Plane (CP) become unreachable which would lead to management access problems or other unusual issues.

In general, if there are a lot of buffers on this output with a large age you should notify Cisco TAC.

show system internal mts memory

Sample Output

```
ACE30001/Admin# show system internal mts memory
mts buffer manager statistics

shared memory pool at c111b000-c211b000 (size: 16777216 bytes)
request_hi:      41476
request_lo:      0
mem_in_use:      0
mem_free:        16777216
num_buffers:     0
mem_in_use_hi:   131328
num_allocs:      1655510
num_frees:       1655510
num_successes:   1655510
num_failures:    0
frag_waste:      0
frag_high:       55308
```

Notes

Field	Description
request_hi	Highest sized memory block requested
request_lo	Lowest sized memory block requested

mem_in_use	Total memory allocated
mem_free	Total memory free
num_buffers	Total number of buffers allocated currently
mem_in_use_hi	Highest level of memory in use ever
num_alloc	Number of allocation requests
num_frees	Number of free requests
num_successes	Number of successful alloc requests
num_failures	Number of failures
frag_waste	Space currently wasted in internal fragmentation
frag_high	Highest level of fragmentation ever reached

show system internal sysmgr service all details

Displays all the available services that have started on the ACE. Some examples of a service (or more accurately, "daemon") that run on ACE are: TACACS or RADIUS.

Sample Output

```
switch/Admin# show system internal sysmgr service all details
```

```
Service "Tacacs Daemon" ("tacacs", 2):
  UUID = 0xB6, PID = 923, SAP = 112
  State: SRV_STATE_HANDSHAKED (entered at time Fri Dec 28 20:12:25 2007).
  Restart count: 1
  Time of last restart: Fri Dec 28 20:12:23 2007.
  The service never crashed since the last reboot.
```

Notes

The fields of interest are:

- "Restart count" ? This should always be a value of one on a customer ACE. In production environments if a service were to crash it would bring down ACE and generate a core dump.
- "Time of last restart" ? On a customer ACE this will be the time of the last core dump for this server if it has ever caused the ACE to crash and reboot. The reboot reason will be on the second line.

A process core will contain this output for the service that cored. On a running ACE this command would not be of interest.

show system kcache

Displays information on the cache used by various processes.

Sample Output

```
ACE30001/Admin# show system kcache
slabinfo - version: 1.1 (SMP)
```

```
show system internal mts memory
```

Cisco_Application_Control_Engine_(ACE)_Troubleshooting_Guide_--_Show_Counter_Reference_--_Command_Set_5

kmem_cache	80	80	244	5	5	1	:	252	126
ipcp_pp_req_cache	118	118	64	2	2	1	:	252	126
ipcp_qentry_cache	213	339	32	3	3	1	:	252	126
mts-qentry-cache	213	339	32	3	3	1	:	252	126
mts-sapinfo-cache	14	14	1152	2	2	2	:	60	30
tl_mts_cache	339	339	32	3	3	1	:	252	126
scp_mts_cache	328	404	16	2	2	1	:	252	126
tcp_tw_bucket	280	280	96	7	7	1	:	252	126
tcp_bind_bucket	213	339	32	3	3	1	:	252	126
tcp_open_request	118	118	64	2	2	1	:	252	126
inet_peer_cache	59	59	64	1	1	1	:	252	126
ip_fib_hash	226	226	32	2	2	1	:	252	126
ip_dst_cache	260	260	192	13	13	1	:	252	126
arp_cache	30	30	128	1	1	1	:	252	126
blkdev_requests	160	160	96	4	4	1	:	252	126
nfs_write_data	0	0	416	0	0	1	:	124	62
nfs_read_data	0	0	384	0	0	1	:	124	62
nfs_page	0	0	96	0	0	1	:	252	126
journal_head	186	312	48	4	4	1	:	252	126
revoke_table	252	253	12	1	1	1	:	252	126
revoke_record	226	226	32	2	2	1	:	252	126
dnotify cache	0	0	20	0	0	1	:	252	126
file lock cache	120	120	96	3	3	1	:	252	126
fasync cache	0	0	16	0	0	1	:	252	126
uid_cache	226	226	32	2	2	1	:	252	126
skbuff_head_cache	1474	1600	192	80	80	1	:	252	126
sock	496	496	896	124	124	1	:	124	62
sigqueue	261	261	132	9	9	1	:	252	126
cdev_cache	118	118	64	2	2	1	:	252	126
bdev_cache	118	118	64	2	2	1	:	252	126
mnt_cache	118	118	64	2	2	1	:	252	126
inode_cache	2254	2254	512	322	322	1	:	124	62
dentry_cache	2880	2880	128	96	96	1	:	252	126
filp	3150	3150	128	105	105	1	:	252	126
names_cache	22	22	4096	22	22	1	:	60	30
buffer_head	18698	28400	96	468	710	1	:	252	126
mm_struct	312	312	160	13	13	1	:	252	126
vm_area_struct	8788	9040	96	222	226	1	:	252	126
fs_cache	354	354	64	6	6	1	:	252	126
files_cache	198	198	416	22	22	1	:	124	62
signal_act	80	87	4128	27	29	4	:	0	0
size-131072 (DMA)	0	0	131072	0	0	32	:	0	0
size-131072	3	4	131072	3	4	32	:	0	0
size-65536 (DMA)	0	0	65536	0	0	16	:	0	0
size-65536	20	20	65536	20	20	16	:	0	0
size-32768 (DMA)	0	0	32768	0	0	8	:	0	0
size-32768	15	15	32768	15	15	8	:	0	0
size-16384 (DMA)	0	0	16384	0	0	4	:	0	0
size-16384	12	12	16384	12	12	4	:	0	0
size-8192 (DMA)	0	0	8192	0	0	2	:	0	0
size-8192	22	25	8192	22	25	2	:	0	0
size-4096 (DMA)	0	0	4096	0	0	1	:	60	30
size-4096	31	31	4096	31	31	1	:	60	30
size-2048 (DMA)	0	0	2048	0	0	1	:	60	30
size-2048	1210	1210	2048	605	605	1	:	60	30
size-1024 (DMA)	0	0	1024	0	0	1	:	124	62
size-1024	462	524	1024	118	131	1	:	124	62
size-512 (DMA)	0	0	512	0	0	1	:	124	62
size-512	1696	1696	512	212	212	1	:	124	62
size-256 (DMA)	0	0	256	0	0	1	:	252	126
size-256	324	450	256	26	30	1	:	252	126
size-128 (DMA)	0	0	128	0	0	1	:	252	126
size-128	1890	1890	128	63	63	1	:	252	126
size-64 (DMA)	0	0	64	0	0	1	:	252	126

show system kcache


```

size-64                641    767    64   12   13    1 : 252 126
size-32 (DMA)          0      0     32   0    0    1 : 252 126
size-32                2938   2938   32   26   26    1 : 252 126

```

Notes

This is the same as the linux command 'cat /proc/slabinfo'.

show system kmem

Displays system kernel memory statistics. Using this command to monitor memory use over the course of several hours can help identify memory leaks in the system.

Sample Output

```

ACE30001/Admin# show system kmem
      total:   used:   free:  shared: buffers:  cached:
Mem:  847564800 591683584 255881216      0 3371008 168300544
Swap:      0      0      0
MemTotal:      827700 kB
MemFree:       249884 kB
MemShared:      0 kB
Buffers:       3292 kB
Cached:       164356 kB
SwapCached:    0 kB
Active:       4436 kB <<<
Inactive:     514964 kB
HighTotal:    655360 kB
HighFree:     166460 kB
LowTotal:     172340 kB
LowFree:      83424 kB
SwapTotal:    0 kB
SwapFree:     0 kB
Committed_AS: 948556 kB

```

Notes

This output displays is the same information that is displayed via the linux command **cat /proc/meminfo**.

Memory values are in units of kBytes.

Field	Description
MemTotal	Total usable RAM: physical memory minus reserved memory and the kernel binary code.
MemFree	The amount of physical RAM left unused by the system.
Buffers	The amount of physical RAM used for file buffers.
Cached	The amount of physical RAM used as cache memory. Memory in the pagecache (diskcache) minus SwapCache.
SwapCache	The amount of Swap used as cache memory. Memory that once was swapped out, is swapped back in, but is still in the swapfile.
Active	The total amount of buffer or page cache memory, that is active. This part of the memory is used recently and usually not reclaimed unless absolutely necessary.

Inactive	The total amount of buffer or page cache memory that are free and available. This is memory that has not been recently used and can be reclaimed for other purposes by the paging algorithm.
HighTotal	The total amount of memory in the high region. This can vary based on the type of kernel used. Kernel uses indirect tricks to access the high memory region. Data cache can go in this memory region.
LowTotal	The total amount of non-highmem memory.
LowFree	The amount of free memory of the low memory region. This is the memory the kernel can address directly. All kernel datastructures need to go into low memory.
SwapTotal	Total amount of physical swap memory.
SwapFree	Total amount of swap memory free.
Dirty	The total amount of memory waiting to be written back to the disk.
Writeback	The total amount of memory actively being written back to the disk.
Committed_AS	An estimate of how much RAM you would need to make a 99.99% guarantee that there never is Out of Memory (OOM) for this workload. Normally the kernel will overcommit memory. This parameter represents the worst case scenario value and also includes swap memory.

show system kmemtrack

Enables you to track memory allocations and frees in the kernel loadable modules (drivers).

Sample Output

```
ACE30001/Admin# show system kmemtrack
```

```
Kernel Module Memory Tracking
```

```
-----
Module          kmalloc      kfree        diff
klm_cpu_util    00000008    00000008    00000000
klm_ipcp        00001811    00001811    00000000
n2_drv         00000339    00000227    00000112
klm_bf_nvram    00000016    00000016    00000000
klm_idprom      00000071    00000071    00000000
klm_encdec      00000011    00000000    00000011
klm_modlock     00000001    00000001    00000000
klm_sysmgr-hb   00000002    00000000    00000002
klm_utaker      00006656    00006656    00000000
klm_mts         00248775    00247519    00001256
klm_scp         00000001    00000000    00000001
klm_tl          00119846    00119843    00000003
klm_sdwrap     00001838    00000018    00001820
klm_resdrv     00000001    00000001    00000000
klm_klib        00000004    00000000    00000004
```

Notes

The "diff" field is useful if you suspect that there is a memory leak in the kernel. Not just the absolute value in the diff column but continuously increasing value across successive invocations of this command.

- **show proc memory** is for the user space processes
- **show proc kmemtrack** is for drivers alone
- **show proc kmem** is for whole system.

The operator should start with **show system kmem** to see if system is running low on memory. If it is one of the other two commands can shows who process or driver is taking up too much memory.

show system resources

Sample Output

```
ACE30001/Admin# show system resources
Load average:  1 minute: 0.06   5 minutes: 0.09   15 minutes: 0.09
Processes   :  116 total, 3 running
CPU states  :  50.5% user,   2.0% kernel,   47.5% idle
Memory usage: 827700K total,  587560K used,  240140K free
              3332K buffers, 173304K cache
```

Notes

- Load average: These stats correspond to the load averages from the linux "w" command
- Processes: Total number of processes - do 'show proc cpu' for details
- CPU states: CPU Percentages
- Memory usage: These stats correspond to the linux command **cat /proc/meminfo**

show system skbtrack

This command displays the socket buffer (network buffer, or skbuffs) allocations in the kernel loadable modules. Skbuffs are the buffers in which the OS kernel handles network packets. The packet is received by the network card, put into an skbuff and then passed to the network stack, which uses the skbuff.

Sample Output

```
ACE30001/Admin# show system skbtrack

Kernel Module skbuff Tracking
-----
Module          alloc          free          diff
n2_drv          00001090      00000000      00001090
klm_pseudo      00397987      00397987      00000000
klm_mts         00779257      00779257      00000000
```

Notes

- Module: kernel loadable module (KLM) name
- alloc: network buffer allocations

- free: network buffer frees
- diff: memory allocated minus free

show xlate

Sample Output

```
ACE30001/Admin# show xlate
TCP PAT from vlan32:10.25.49.131/14311 to vlan32:172.16.182.170/1304
NAT from vlan32:192.168.25.73 to vlan55:172.16.183.33 count:1
```

Notes

In the PAT line, the listed elements are as follows:

- The client IP is 10.25.49.131
- TCP port is 14311
- Client VLAN is 32
- Server VLAN is 32
- PAT address is 172.16.182.170
- PAT port = 1304

Similarly, in the NAT line, the client IP and VLAN is on the left and the server IP and VLAN is on the right.