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DECUS-München Symposium 2003

Steuerung Cluster LAN-Geräte

Mgmt u. Diagnose Cluster Kommn

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SCACP & AM SCA Management Overview

SCACP & AM SCS Communications Management:

- SCS Display Commands
- SCS Control

SCACP & AM LAN ci Management:

- LAN ci Problem Symptoms
- Display Commands
- VC Control
- Channel Control
- LAN Device Control
- Trace Functions

SCACP Miscellaneous functions

SCACP & AM Futures

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SCA Management

ci Problem Symptoms

Displaying counters to determine SCS Port & Circuit state & performance

Control of Circuit priority, for multi-ci clusters.

Control SCS Port priority

ci Problem Symptoms

Communication trouble in OpenVMS Cluster systems may be indicated by symptoms such as the following:

- Poor or erratic/fluctuating application performance
- Console messages:
 - “Connection loss” OPCOM messages
 - “%PNA0 ...Virtual circuit closed by port” messages
 - “%PEA0 ...Excessive packet losses on LAN Path ...” messages (NEW in V7.3 & higher)
- Repeated loss of connections or one or more circuits over a short period of time (fewer than 10 minutes)
- CLUEXIT bugchecks

Is it Really a ci Problem?

Before you initiate complex diagnostic procedures, do not overlook the obvious.

Always make sure:

- The hardware is configured and connected properly
- The network is started.
- SCS_, NISCA_, & PA... System parameters are set correctly & consistently on all nodes in the OpenVMS Cluster.

SCACP & AM to the RESCUE!!

NEW & IMPROVED ci MANAGEMENT TOOLS:

- **SCACP is a CLI Utility for managing SCA cluster interconnects.**
 - Complements SHOW CLUSTER
 - Note: Initially (V7.3) SCACP was only usable with PEdriver & Required SYSPRV
- **Availability Manager(AM) provides equivalent GUI displays, & fixes (a.k.a.:commands).**
 - Use AM for continuous run-time monitoring, & control.
 - Use SCACP for quick checks. Remote access, & .COM files.

SCA Display functions

Command

SHOW CIRCUIT

SHOW PORT

SHOW commands are unprivileged just like **SHOW CLUSTER**.

Note: Initially (V7.3) SCACP required SYSPRV for all commands.

Function

SCS CIRCUIT(s) info

SCS PORT(s) info

SHOW CIRCUIT

**SHOW CIRCUIT [nodename[/PORT=device]]
[,nodename,nodename...]**

Can use * instead of 1st nodename.

Also blank is considered an *

/PORT – Allows restricting display to circuits to a node or nodes from a specific port.

/EXCLUDE=(nodename,...)

/INTERVAL -- Changes to counters since last SHOW command.

/OUTPUT=filename

CIRCUIT Information Display

**SHOW CIRCUIT [nodename [/PORT=device] –
[, nodename [/PORT=device],...] /EXCLUDE=
[nodename [/PORT=device]**

```
SCACP> SHOW CIRC *  
Circuit data for LARRY at 02-OCT 13:48:43.32
```

Remote Node	LPort Name	Circuit State	Priority Cur	Mgt	Load Class	RPort Number	RPort Type
CURLY	PEA0	Open	0	0	100	DE	NI
CURLY	PNA0	Open	0	0	140	F	CIPCA
HSC951	PNA0	Open	0	0	140	1	HSC

Displayed info is the same as SHOW CLUSTER's CIRCUITS class, provided here for convenience in controlling CIRCUITS.

SHOW PORT

**SHOW PORT [portname][,...]
/EXCLUDE=(portname,portname,...)
/ALL -- include all data for chosen ports
/COUNTERS -- port counter data
/INTERVAL -- counters since last SHOW
/OUTPUT=filespec -- direct output to file
/SDA -- display in SDA format
/SUMMARY -- include summary data**

SHOW PORT device [,device,...] – /EXCLUDE=device

```
SCACP> SHOW PORT *
```

```
Port data for RAWHI2 at 02-OCT 17:50:33.59
```

Port Name	Mgt Prio	Load Clas	Msgs Sent	Msgs Rcvd	DGs Sent	DGs Rcvd
PEA0	0	10	2920	3481	0	0
PNA0	0	140	37454	33776	0	0

SCA Control functions

Command

SET CIRCUIT

SET PORT

Function

Both Control SCS Circuit selection
& operation

Note: SCACP SET commands require SYSPRV.

SET CIRCUIT

(Intended direction)
SET CIRCUIT nodename [,nodename,...]/PRIORITY=n
/PORT=portname
(if not used, default port will be used)
/ID=nn -- Used to resolve multiple CIRCUIT/port case
/EXCLUDE=(nodename,nodename,...)
/ALL
/PRIORITY=N -- port priority value

CIRCUIT Operation Control

SET CIRCUIT [nodename [/PORT=device] -
[, nodename [/PORT=device],...] /PRIORITY=n
/EXCLUDE=nodename

```
SCACP> SET CIRC TSTDOS /PORT=PEA0/PRIORITY=4  
SCACP> SHOW CIRC *
```

Circuit data for RAWHI2 at 02-OCT 17:51:19.09

Remote Node	LPort Name	Circuit State	Priority Cur	Priority Mgt	Load Class	RPort Number	RPort Type
TSTDOS	PEA0	Open	4	4	100	DE	NI
TSTDOS	PNA0	Open	0	0	140	F	CIPCA
HSC951	PNA0	Open	0	0	140	1	HSC

SET PORT

(Intended direction)

SET PORT [portname][,...]/PRIORITY=n

/EXCLUDE=(portname, portname,...)

/ALL

/PRIORITY=N -- port priority value

SET PORT device [,device,...] /PRIORITY=n /EXCLUDE=device

```
SCACP> SET PORT PNA0/PRIORITY=2
```

```
SCACP> SHOW PORT *
```

Port data for RAWHI2 at 02-OCT 18:07:24.72

Port Name	Mgt Prio	Load Clas	Msgs Sent	Msgs Rcvd	DGs Sent	DGs Rcvd
PEA0	0	10	2967	3528	0	0
PNA0	2	140	38236	34576	0	0

```
SCACP> SHOW CIRC *
```

Circuit data for RAWHI2 at 02-OCT 18:07:34.18

Remote Node	LPort Name	Circuit State	Priority Cur	Priority Mgt	Load Class	RPort Number	RPort Type
TSTDOS	PEA0	Open	0	0	100	DE	NI
TSTDOS	PNA0	Open	2	0	140	F	CIPCA
HSC951	PNA0	Open	2	0	140	1	HSC

LAN ci Management

LAN ci (PEdriver/NI-SCA) Problem Symptoms

Displaying counters to determine VC and Channel state & performance

Control of channel priority, for multi-channel Virtual Circuits.

Control LAN adapter priority

Start, Stop LAN adapter use.

Start, Stop, control, and display PEdriver tracing

LAN ci Problem Symptoms

LAN Communication trouble in OpenVMS Cluster systems may be indicated by symptoms such as the following:

Poor or erratic/fluctuating application performance

Console messages from device PEA0:

- “Connection loss” OPCOM messages
- “%PEA0 ...Virtual circuit closed by port” messages
- “%PEA0 ...Excessive packet losses on LAN Path ...” messages (NEW in V7.3)
- CLUEXIT bugchecks
- Repeated loss of connections or VCs to a LAN-connected node over a short period of time (fewer than 10 minutes)

(YES, these are essentially the same as the generalized ci problems discussed earlier.)

Is it Really A LAN ci Problem?

Before you initiate complex diagnostic procedures, do not overlook the obvious!

Always make sure:

- The hardware is configured and connected properly
- The network is started.
- System parameters are set correctly on all nodes in the OpenVMS Cluster.

LANci Display functions

<u>Command</u>	<u>Function</u>
SHOW VC	PEDRIVER VC info
SHOW CHANNEL	PEDRIVER channel (LAN path) info
SHOW LAN_DEVICE	LAN device info

SHOW VC

SHOW VC [nodename] [,nodename,nodename]...

/ALL -- include all VC data

/EXCLUDE=(nodename,...)

/COUNTERS -- counter data

/INTERVAL -- recent changes to counters

/OUTPUT=filename

/SDA -- use SDA formatting

/SUMMARY -- display only summary data (default)

SHOW VC

```
SCACP> show vc
```

```
LARRY PEA0 VC Summary 20-MAR-2001 16:50:00.48:
```

Remote Node	Total State Errors	Channels	ECS	MaxPkt	ReXmt	MaxMinPkt	Xmt	Total Pkts(S+R)	VC Opened Time	Most Recent VC Closed Time			
		Max:TMO	Open	ECS	Pri	Size	TMO(uSec)	Cur	Max	Options			
CURLY	Closed	3940952	150	1	1	0	7534	910396.4	4	31	13001129	20-MAR 14:01:01.83	20-MAR 14:03:00.83
LARRY	Open	0	Infinite	1	1	0	1426	3000000.0	1	8	5	20-MAR 14:01:01.67	(No Time)

SHOW CHANNEL

SHOW CHANNEL [nodename
[/LOCAL_DEVICE=locdev]
[/REMOTE_DEVICE=remdev]],...

/LOCAL_DEVICE -- Local LAN device

/REMOTE_DEVICE -- Remote LAN device

/EXCLUDE=(nodename,)

/ALL -- include all channel data

/COUNTERS -- channel counter data

/INTERVAL -- counters since last SHOW

/OUTPUT=filespec -- direct output to file

/SDA -- display in SDA format

/SUMMARY -- display only summary data (default)

SHOW CHANNEL

SCACP> SHOW CHAN

LARRY PEAO Channel Summary 20-MAR-2001 16:50:12.51:

Remote Node	LAN Dev Loc Rmt	Channel State	Total Errors	NCI State	Priority Cur Mgt	Buffer Hopse	Size	Delay (ms)	Load Class	Total Pkts(S+R)	CH Opened Time	CH Closed Time
CURLY	ELA ELA	Open	144	N(T,P,F)	0 0	2	7534	9738.5	622	13014794	20-MAR 14:01:37.11	(No time)
CURLY	EMF EMF	Open	4	N(T,I,S)	0 0	2	1426	18208.3	100	817	20-MAR 14:01:04.88	20-MAR 13:10:58.32
CURLY	EMC EMD	Clos	4	N(T,I,F)	0 0	2	1426	208.3	100	809	20-MAR 14:01:04.88	20-MAR 14:08:58.32
CURLY	EMB EMB	Clos	4	N(T,I,F)	0 0	2	1426	209.9	10	798	20-MAR 14:01:05.90	20-MAR 14:08:57.30
CURLY	FWA FWA	Clos	4	N(T,I,F)	0 0	2	4396	208.3	100	785	20-MAR 14:01:15.05	20-MAR 14:08:56.28
LARRY	LCL LCL	Open	1	Y(T,P,F)	0 0	2	1426	208.3	0	17597	20-MAR 14:01:01.67	(No time)

SHOW CHANNEL/COUNTERS

SCACP> SHOW CHANNEL /COUNTERS

LARRY PEAO Channel Counters and Errors 20-MAR-2001 17:04:12.49:

Remote Node	LAN Loc	Dev Rat	-- Transmit --		-- Receive --		Retransmit Errors	TransmitFail Penalties	Receive Errors	Other Errors
			Messages	Bytes	Messages	Bytes				
CURLY	ELA	ELA	6391138	1616227833	6625807	2014425272	143	0	0	1
CURLY	ENF	BWF	306	33204	511	54524	2	0	0	2
CURLY	ENF	BWD	306	33204	503	53692	2	0	0	2
CURLY	ENB	BWB	304	32996	494	52756	2	0	0	2
CURLY	FWA	FWA	298	35342	487	54998	2	0	0	2
LARRY	LCL	LCL	7214	751534	11836	1232222	0	0	0	1

LARRY PEAO Channel Errors 20-MAR-2001 17:04:12.49:

Remote Node	LAN Loc	Dev Rat	Receive							-- Timeouts --		No MSCP Server	Disk Not Served	Topology Change	Path Restart
			Bad Rat	Auth	Bad ECD	Bad MCA	Short	Incompat	Old Chan	Handshake	Listen				
CURLY	ELA	ELA	0	0	0	0	0	0	0	0	0	0	0	1	0
CURLY	ENF	BWF	0	0	0	0	0	0	0	1	0	0	0	1	0
CURLY	ENF	BWD	0	0	0	0	0	0	0	1	0	0	0	1	0
CURLY	ENB	BWB	0	0	0	0	0	0	0	1	0	0	0	1	0
CURLY	FWA	FWA	0	0	0	0	0	0	0	1	0	0	0	1	0
LARRY	LCL	LCL	0	0	0	0	0	0	0	0	0	0	0	1	0

SHOW CHANN/COU/INT

SCACP> SHOW CHANNEL/COUNTERS /INTERNAL

LARRY PEAO Channel Counters and Errors 20-MAR-2001 17:07:52.17 (00:03:39.68):

Remote Node	LAN Loc	Dev Rat	-- Transmit --		-- Receive --		Retransmit Errors	TransmitFail Penalties	Receive Errors	Other Errors
			Messages	Bytes	Messages	Bytes				
CURLY	ELA	ELA	6391336	1616254335	6626096	2014454892	143	0	0	1
			198	26502	289	29620	0	0	0	0
CURLY	ENF	BWF	306	33204	511	54524	2	0	0	2
			0	0	0	0	0	0	0	0
CURLY	ENF	BWD	306	33204	503	53692	2	0	0	2
			0	0	0	0	0	0	0	0
CURLY	ENB	BWB	304	32996	494	52756	2	0	0	2
			0	0	0	0	0	0	0	0
CURLY	FWA	FWA	298	35342	487	54998	2	0	0	2
			0	0	0	0	0	0	0	0
LARRY	LCL	LCL	7358	766510	12072	1256766	0	0	0	1
			144	14976	236	24544	0	0	0	0

LARRY PEAO Channel Errors 20-MAR-2001 17:07:52.17 (00:03:39.68):

Remote Node	LAN Loc	Dev Rat	Receive							-- Timeouts --		No MSCP Server	Disk Not Served	Topology Change	Path Restart
			Bad Rat	Auth	Bad ECD	Bad MCA	Short	Incompat	Old Chan	Handshake	Listen				
CURLY	ELA	ELA	0	0	0	0	0	0	0	0	0	0	0	1	0
CURLY	ENF	BWF	0	0	0	0	0	0	0	1	0	0	0	1	0
CURLY	ENF	BWD	0	0	0	0	0	0	0	1	0	0	0	1	0
CURLY	ENB	BWB	0	0	0	0	0	0	0	1	0	0	0	1	0
CURLY	FWA	FWA	0	0	0	0	0	0	0	1	0	0	0	1	0
LARRY	LCL	LCL	0	0	0	0	0	0	0	0	0	0	0	1	0
			0	0	0	0	0	0	0	0	0	0	0	0	0

SHOW LAN_DEVICE

SHOW LAN_DEVICE devname,...

/EXCLUDE=(device,...)

/OUTPUT=filename

/ALL

SHOW LAN_DEVICE

SCACP> SHOW LAN

LARRY PEA0 Device Summary 20-MAR-2001 17:10:35.45:

Device	Device Type	Errors + Events	Status	Mgt Priority	Buffer Size	MgtMax BufSiz	Line Speed	Total Pkts(S+R)	Current LAN Address
LCL		0	Run Online Local Restart	0	1426	0	N/A	24496	00-00-00-00-00-00
FWA	DEFFA	0	Run Online Restart	1	4396	0	100	5677	08-00-2B-B7-6D-4E
EWB	DE435	0	Run Online Restart	-10	1426	0	10	4683	AA-00-04-00-42-FF
EMC	DE500	0	Run Online Restart	2	1426	0	100	5026	00-06-2B-01-71-3A
EMD	DE500	447090	Run Online Restart	2	1426	0	100	0	00-06-2B-01-71-3B
EME	DE500	402	Run Online Restart	0	1426	0	10	2523	00-06-2B-01-71-3C
EMF	DE500	0	Run Online Restart	0	1426	0	100	7377	00-06-2B-01-71-3D
ELA	ELAN	0	Run Online Restart	0	7534	0	622	13022713	00-20-48-2D-7C-C3
EWA	DEGPA	0	Run Online Restart	0	7460	0	1000	827	00-60-6D-21-00-C6

SHOW LAN_DEVICE/ALL

SCACP> SHOW LAN/ALL

LARRY PEA0 Device Summary 20-MAR-2001 17:10:40.57:

Device	Device Type	Errors + Events	Status	Mgt Priority	Buffer Size	MgtMax BufSiz	Line Speed	Total Pkts(S+R)	Current LAN Address
LCL		0	Run Online Local Restart	0	1426	0	N/A	24506	00-00-00-00-00-00
FWA	DEFPA	0	Run Online Restart	0	4396	0	100	5679	08-00-2B-B7-6D-4E
EWB	DE435	0	Run Online Restart	0	1426	0	10	4684	AA-00-04-00-42-FF
EWB	DE500	0	Run Online Restart	0	1426	0	100	5028	00-06-2B-01-71-3A
EWB	DE500	447290	Run Online Restart	0	1426	0	100	0	00-06-2B-01-71-3B
EWB	DE500	402	Run Online Hello Busy Restart	0	1426	0	10	2523	00-06-2B-01-71-3C
EWB	DE500	0	Run Online Restart	0	1426	0	100	7380	00-06-2B-01-71-3D
ELA	ELAN	0	Run Online Restart	0	7534	0	622	13022727	00-20-48-2D-7C-C3
EWA	DEGPA	0	Run Online Restart	0	7460	0	1000	828	00-60-6D-21-00-C6

LARRY PEA0 Device Counters and Errors 20-MAR-2001 17:10:40.57:

Device	Messages	Bytes	Errors	Messages	Bytes	Errors	Port Usable	Port Open	Addr Change	Restart Failed	*Last Event Time
LCL	12253	1594168	0	12253	1447132	0	1*	0	0	0	20-MAR 14:01:01.67
FWA	5192	736422	0	487	61816	0	1*	0	0	0	20-MAR 14:01:01.71
EWB	4190	562840	0	494	59672	0	1	0	1*	0	20-MAR 14:02:11.76
EWB	4525	607730	0	503	60734	0	1*	0	0	0	20-MAR 14:01:01.67
EWB	0	0	447290	0	0	0	1*	0	0	0	20-MAR 14:01:01.67
EWB	2523	338082	402	0	0	0	1*	0	0	0	20-MAR 14:01:01.67
EWB	6869	921826	0	511	61678	0	1*	0	0	0	20-MAR 14:01:01.67
ELA	6396402	912795605	0	6626325	2107246990	0	1*	0	0	0	20-MAR 14:01:01.67
EWA	828	110952	0	0	0	0	1*	0	0	0	20-MAR 16:28:57.66

(Cont'd on next slide)

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SHOW LAN_DEVICE/ALL

(Cont'd from previous slide)

LARRY PEA0 Device Errors 20-MAR-2001 17:10:40.57:

Device	Generic Errors	Hello Errors	Last Transmit Error	With Bad SYSTMID	Moast TM Message	Short CC Msg	Short DX Msg	On Wrong Port	Discard PortBias	Allocation Failures On CH	Failures On VC
LCL	0	0	(No time)	0	0	0	0	0	0	0	0
FWA	0	0	(No time)	0	0	0	0	0	0	0	0
EWB	0	0	(No time)	0	0	0	0	0	0	0	0
EWB	0	0	(No time)	0	0	0	0	0	0	0	0
EWB	223645	223645	20-MAR 17:10:40.93	0	0	0	0	0	0	0	0
EWB	201	201	20-MAR 17:10:45.35	0	0	0	0	0	0	0	0
EWB	0	0	(No time)	0	0	0	0	0	0	0	0
ELA	0	0	(No time)	0	0	0	0	0	0	0	0
EWA	0	0	(No time)	0	0	0	0	0	0	0	0

LARRY LAN Counters and Errors 20-MAR-2001 17:10:40.57:

Device	Packets	Bytes	Errors	Packets	Bytes	Errors	Buffer System	Unavailable User	-- Unrecognized Individual Multicast	Events
LCL	0	0	0	0	0	0	0	0	0	0
FWA	5230	742388	0	487	66686	0	0	0	0	2
EWB	6745	1256683	0	5067	917196	0	0	0	0	1
EWB	4563	549700	0	503	61740	0	0	0	0	0
EWB	0	0	223683	0	0	0	0	0	0	0
EWB	2553	306960	205	0	0	0	0	0	0	0
EWB	6907	830980	0	511	62700	0	0	0	0	0
ELA	6396440	10398619243	0	6626363	6545525745	0	0	0	0	38
EWA	6581	892681	0	701	94187	0	0	0	0	0

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Channel Operation

**SET CHANNEL [nodename [/LOC=device]
[/REM=device]][, nodename.....]**

/PRIORITY=n

```
ACP> SET CHAN CURLY/LOC=EWA/REM=EWA/PRIORITY=1
```

```
ACP> SHOW CHAN
```

```
RRY PEA0 Channel Summary 20-MAR-2001 17:27:08.21:
```

Remote Node	LAN Loc	Dev Rmb	Channel State	Total Errors	BCS State	Priority Cur Mgt	Hops	Buffer Size	Delay (uSec)	Load Class	Total Pkts(\$+R)	CH Opened Time	Most Recent CH Closed Time
CURLY	EMF	EMF	Open	6	N(T,I,F)	0 0	2	1426	208.3	100	937	20-MAR 17:25:58.59	20-MAR 14:08:58.32
CURLY	EMC	EMD	Open	6	N(T,I,F)	0 0	2	1426	208.3	100	930	20-MAR 17:25:58.59	20-MAR 14:08:58.32
CURLY	EWA	EWA	Open	2	Y(T,P,F)	1 3	2	1426	208.3	1000	124	20-MAR 17:25:57.52	(No time)
CURLY	EWB	EWB	Open	6	N(T,I,F)	0 0	2	1426	217.3	10	922	20-MAR 17:25:56.50	20-MAR 14:08:57.30
CURLY	FWA	FWA	Open	6	N(T,I,F)	0 0	2	4396	217.3	100	909	20-MAR 17:25:56.50	20-MAR 14:08:56.28
CURLY	ELA	ELA	Open	144	N(T,I,F)	0 0	2	7534	10878.5	622	13020333	20-MAR 14:01:37.11	(No time)
LARRY	LCL	LCL	Open	1	Y(T,P,F)	0 0	2	1426	208.3	0	21432	20-MAR 14:01:01.67	(No time)

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LAN_DEVICE Operation

START LAN_DEVICE device,...

STOP LAN device,...

/EXCLUDE=device,...

Note: STOP LAN /EXCLUDE=EWA is equivalent to:

STOP LAN /ALL/EXCLUDE=EWA

SET LAN device,...

• /PRIORITY=n

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SET LAN_DEVICE/PRIORITY

```

SCACP> SET LAN EWA/PRI=3
SCACP> SHOW LAN

RAWHI2 PEA0 Device Summary 21-MAR-2001 13:18:58.68:

Device      Device  Errors +      Status      Mgt  Buffer  MgtMax  Line  Total  Current
Type        Events          Status      Priority Size  Bufsiz  Speed  Pkts(S+R) LAN Address
-----
LCL          0  Run Online Local Restart      0  1426      0  N/A    9834  00-00-00-00-00-00
FWA  DEFFA    6  Run Online Restart           0  4396     0  100   6358  08-00-2B-B7-6D-4E
EWB  DE435    0  Run Online Restart           0  1426     0   10   6669  AA-00-04-00-42-FF
EWC  DE500   38930  Run Online Restart           0  1426     0  100   6326  00-06-2B-01-71-3A
EWD  DE500  179462  Run Online Restart           0  1426     0  100     0  00-06-2B-01-71-3B
EWE  DE500    202  Run Online Restart           0  1426     0   10  1062  00-06-2B-01-71-3C
EWF  DE500   38888  Run Online Restart           0  1426     0  100   6380  00-06-2B-01-71-3D
ELA  ELAN     0  Run Online Restart           0  7534     0  622  1659  00-20-48-2D-7C-C3
EWA  DEGFA     0  Run Online Restart           0  1426     0  1000    58  00-60-6D-21-00-C6

SCACP> SHOW CHAN

RAWHI2 PEA0 Channel Summary 21-MAR-2001 13:19:07.64:

Remote  LAN Dev Channel  Total  ECS  Priority  Buffer  Delay  Load  Total  ---- Most Recent ----
Node    Loc Rmt State  Errors State  Cur Mgt Hops  Size  (uSec) Class  Pkts(S+R)  CH Opened Time  CH Closed
Time
-----
LARRY  EWA EWA  Open    2  Y(T,P,F)  3  0  2  1426  208.3  1000    62  21-MAR 13:18:31.32 (No time)
LARRY  ELA ELA  Open    2  N(T,I,F)  0  0  2  7534  208.3  622   1352  21-MAR 13:06:11.21 (No time)
LARRY  FWA FWA  Open    2  N(T,I,F)  0  0  2  4396  208.3  100   4908  21-MAR 12:32:10.58 (No time)
LARRY  EWB EWB  Open    2  N(T,I,F)  0  0  2  1426  208.3  10   4907  21-MAR 12:32:03.09 (No time)
LARRY  EWC EWC  Open    2  N(T,I,S)  0  0  2  1426  208.3  100   4901  21-MAR 12:32:00.65 (No time)
LARRY  EWF EWF  Open    2  N(T,I,F)  0  0  2  1426  208.3  100   4926  21-MAR 12:32:00.42 (No time)
RAWHI2 LCL LCL  Open    1  Y(T,P,F)  0  0  2  1426  205.2  0   7931  21-MAR 12:02:56.09 (No time)

```

STOP LAN_DEVICE

```

SCACP> STOP LAN EWA
SCACP> SHOW LAN

RAWHI2 PEA0 Device Summary 21-MAR-2001 13:18:10.44:

Device      Device  Errors +      Status      Mgt  Buffer  MgtMax  Line  Total  Current
Type        Events          Status      Priority Size  Bufsiz  Speed  Pkts(S+R) LAN Address
-----
LCL          0  Run Online Local Restart      0  1426      0  N/A    9730  00-00-00-00-00-00
FWA  DEFFA    6  Run Online Restart           0  4396     0  100   6251  08-00-2B-B7-6D-4E
EWB  DE435    0  Run Online Restart           0  1426     0   10   6566  AA-00-04-00-42-FF
EWC  DE500   38930  Run Online Restart           0  1426     0  100   6224  00-06-2B-01-71-3A
EWD  DE500  177564  Run Online Restart           0  1426     0  100     0  00-06-2B-01-71-3B
EWE  DE500    202  Run Online Restart           0  1426     0   10  1046  00-06-2B-01-71-3C
EWF  DE500   38888  Run Online Restart           0  1426     0  100   6275  00-06-2B-01-71-3D
ELA  ELAN     0  Run Online Restart           0  7534     0  622  1553  00-20-48-2D-7C-C3
EWA  DEGFA     0  Not in use by SGA           0     0     0  1000     0  00-00-00-00-00-00

```

Trace functions

Reserved for OpenVMS Engineering & HP Service Use.

Commands & Output are subject to change from release to release.

(i.e.: DON'T USE THEM IN .COM FILES)

SHOW TRACE

SET TRACE

START TRACE

STOP TRACE

SHOW TRACE

SHOW TRACE channel,...

/CONTEXT -- parameters

/EVENT -- select events

/INPUT=filename

/OUTPUT=filename[.DMP]

/SORT -- trace entry sequence number sort (the default is a VC & channel sort)

SHOW TRACE/CONTEXT

```

SCADP> show trace/context
LARRY Trace Context 20-MAR-2001 18:23:53.46:

Trace buffer size requested 512 bytes
Trace buffer total allocated 5120 bytes
Trace buffer allocations 11 successful
Trace buffer allocations 0 failed
Current trace sequence number 151278
System cycle counter 404196 cps
Stop tracing 0 events after stop event

Trace Stop Default Event
-----
Active Y Error
Penalize_ch
Timer
Listen_timr
Handsh_timr
Size_probe
Delay_msmt
Verf_vack

Active Y CC_event
Active Y CC_state
Active Y Path_state
Active Y ECS_state
ACK_process
Active Y Chan update
Rcvd_CC_msg
Rcvd_TR_msg
Send_TR_msg
Xmt_failed

Active Y VC_state
ACK_timeout
Active Y TMO_listen
Active Y No_path

Channel Selection:
Local Dev Remote Dev Remote Node Name Selection
-----
All channels and VCs selected

```

SHOW TRACE/EVENT=event

Show Trace/Event=(Error)

```

SCADP> show trace/event=error
LARRY Trace Results 20-MAR-2001 18:19:46.58

EntryTimeStamp Sequence VC/Channel State/Status Addl Data Event/SubType
-----
112295343.844005 00000739 ---- Global buffer ---- EWB = 00000000 00000000 00000000 Error/BUS offline event
112295359.690316 00002D9D CURLY 005 PSts = 00000023 00000000 00000000 Error/Rcvd TR msg, no FQE avail
112295359.690316 00002D9E CURLY 005 PSts = 00000023 00000000 00000000 Error/Rcvd TR msg, no FQE avail
112295360.919880 00002E75 CURLY 005 PSts = 00000023 00000000 00000000 Error/Rcvd TR msg, no FQE avail
112295360.919880 00002E76 CURLY 005 PSts = 00000023 00000000 00000000 Error/Rcvd TR msg, no FQE avail
112295360.924255 00002E77 CURLY 005 PSts = 00000023 00000000 00000000 Error/Rcvd TR msg, no FQE avail
112295360.924275 00002E78 CURLY 005 PSts = 00000023 00000000 00000000 Error/Rcvd TR msg, no FQE avail
112295360.924275 00002E79 CURLY 005 PSts = 00000023 00000000 00000000 Error/Rcvd TR msg, no FQE avail
112295360.924275 00002E7A CURLY 005 PSts = 00000023 00000000 00000000 Error/Rcvd TR msg, no FQE avail
112295360.924317 00002E7B CURLY 005 PSts = 00000023 00000000 00000000 Error/Rcvd TR msg, no FQE avail
112295360.928463 00002E7C CURLY 005 PSts = 00000023 00000000 00000000 Error/Rcvd TR msg, no FQE avail
112295360.928463 00002E7D CURLY 005 PSts = 00000023 00000000 00000000 Error/Rcvd TR msg, no FQE avail
112295360.928463 00002E7E CURLY 005 PSts = 00000023 00000000 00000000 Error/Rcvd TR msg, no FQE avail
112295360.928525 00002E7F CURLY 005 PSts = 00000023 00000000 00000000 Error/Rcvd TR msg, no FQE avail
112295563.440941 0000DEDB ---- Global buffer ---- EWA = 00000000 00000000 00000000 Error/BUS offline event

VC status legend:
005 - Open Path

```

SET or START TRACE

SET TRACE channel,...

(SET and START TRACE are identical)

/EVENT=([NO]event,...)

/STOP=([NO]event,...)– Event to trigger stopping trace data collection.

/DEFAULT -- restore defaults

/AFTER=n -- stop tracing n events after 'stop trigger' event

/SIZE=nbytes -- set trace buffer size

STOP TRACE

STOP TRACE

Stops all tracing.

To restart, use

SET TRACE/DEFAULT

or set specific desired tracing options

SCACP Miscellaneous Commands

@procedurename -- execute a file of SCACP commands

EXIT or ^Z

HELP

SPAWN

INTENDED DIRECTION

Default Port Selection

(Intended direction)

SET/SHOW DEFAULT_PORT portname

SET DEFAULT_PORT PEA0 sets the port to the PEdriver port.

SHOW DEFAULT_PORT

SHOW DEFAULT_PORT/OUTPUT=file

SCA Management

Intended Directions:

- **Provide Override of SCS automatic circuit selection:**

```
SCACP> SET CONNECTION sysap /CIRCUIT=node -  
/PORT=device
```

- **Add tracing to other SCS ports, extend it to sysap-sysap connections:**

```
SCACP> SHOW TRACE [/PORT=device] [/CIRCUIT=node]  
- /CONNECTION=sysap
```

?What else would be useful?

Questions? Discussion? Issues?

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