



# Performance management

## Performance management strategy

SPM performance management parameters are configured using several data schema tables. Operational measurements (OMs) are used to view performance data and are summarized in the table below.

**Table 1 Summary of performance management indicators**

OM name	OM register	Purpose
DSPRMAN		Contains resource utilization information for DSP resources
	COTDENY	Counts the number of denied COT requests.
	COTFAIL	Counts the CCS7 COT failures seen for trunks on each SPM node.
	COTHI	Counts the highest number of COT resources allocated from the node-level pool during a collection/transfer period.
	COTLOST	Counts the COT resources taken away from or lost by resource management users (such as call processing).
	COTLOW	Counts the low-water-mark threshold violations on the SPM node-level pool of COT resources since the last collection period.

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**Table 1 Summary of performance management indicators**

OM name	OM register	Purpose
	COTUTIL	Calculates the percentage of the total COT resources in the node-level pool allocated to users of resource management (such as call processing).
	DTMFDENY	Counts the number of denied DTMF requests
	DTMFHI	Counts the highest number of DTMF resources allocated from the node-level pool during a collection/transfer period.
	DTMFLOST	Counts the DTMF resources taken away from users of SPM resource management (such as call processing) due to sparing actions.
	DTMFLOW	Counts the low-water-mark threshold violations on the SPM node-level pool of DTMF resources since the last collection period.
	DTMFUTIL	Calculates the percentage of the total DTMF resources in the node-level pool allocated to users of resource management (such as call processing).
	MFDENY	Counts the number of denied MF requests.
	MFHI	Counts the highest number of MF resources allocated from the node-level pool during a collection/transfer period.
	MFLOST	Counts the MF resources taken away from users of SPM resource management (such as call processing) due to sparing actions.

Table 1 Summary of performance management indicators

OM name	OM register	Purpose
	MFLOW	Counts the low-water-mark threshold violations on the SPM node-level pool of MF resources since the last collection period.
	MFUTIL	Calculates the percentage of the total MF resources in the node-level pool allocated to users of resource management (such as call processing).
	TONEDENY	Counts the number of denied TONESYN requests.
	TONELOST	Counts the TONE resources taken away from users of SPM resource management (such as call processing) due to sparing actions.
	TONELOW	Counts the low-water-mark threshold violations on the SPM node-level pool of TONE resources since the last collection period.
	TONEUTIL	Calculates the percentage of the total TONE resources in the node-level pool allocated to users of resource management (such as call processing).
	TONHI	Counts the highest number of TONE resources allocated from the node-level pool during a collection/transfer period.
ECANRMAN		Contains echo cancellation statistics.
	ATMPTS	Counts the total number of attempts to allocate an echo canceller resource from the ECAN pool on the SPM.

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**Table 1 Summary of performance management indicators**

OM name	OM register	Purpose
	ATMPTSOV	Counts the total number of times during the collection period (OM transfer period) the register ATMPTS has overflowed.
	ECANDENY	Count the number of denied ECAN requests.
	ECANFAIL	Counts the number of ECAN failures to converge SOS events
	ECANHI	Counts the highest number of ECAN resources allocated from the node-level pool during a collection/transfer period.
	ECANLOST	Counts the ECAN resources taken away from users of SPM resource management (such as call processing) due to sparing actions.
	ECANLOW	Counts the low-water-mark threshold violations on the SPM node-level pool of ECAN resources since the last collection period.
	ECANUTIL	Calculates the percentage of the total ECAN resources in the node-level pool allocated to users of resource management (such as call processing).
	USGSECS	Counts the total of seconds during the collection period for which at least one ECAN was allocated.
SPMACT		SPM activity counting. Primarily measures the occupancy of the CEM processor in a given SPM.
	AVGCEMAP	CEM Average Application Class Occupancy (average per time interval).

Table 1 Summary of performance management indicators

OM name	OM register	Purpose
	AVGCSEMBK	CEM Average Background Class Occupancy (average per time interval).
	AVGCESY	CEM Average System Class Occupancy (average per time interval).
	AVGORIG	Average Originations (average per time interval).
	AVGTERM	Average Terminations (average per time interval).
	CEMAPPHI	CEM Application Occupancy Highwater Mark Displays the largest value of the samples taken during the collection interval.
	CEMBAKHI	CEM Background Class Highwater Mark Displays the largest value of the samples taken during the collection interval.
	CEMSYSHI	CEM System Class Occupancy Highwater Mark Displays the largest value of the samples taken during the collection interval.
	COTDENY	Counts the number of denied COT requests.
	COTFAIL	Counts the CCS7 COT failures seen for trunks on each SPM node.
	COTHI	Counts the highest number of COT resources allocated from the node-level pool during a collection/transfer period.

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**Table 1 Summary of performance management indicators**

OM name	OM register	Purpose
	COTLOST	Counts the COT resources taken away from or lost by resource management users (such as call processing).
	COTLOW	Counts the low-water-mark threshold violations on the SPM node-level pool of COT resources since the last collection period.
	COTUTIL	Calculates the percentage of the total COT resources in the node-level pool allocated to users of resource management (such as call processing).
	DTMFDENY	Counts the number of denied DTMF requests
	DTMFHI	Counts the highest number of DTMF resources allocated from the node-level pool during a collection/transfer period.
	DTMFLOST	Counts the DTMF resources taken away from users of SPM resource management (such as call processing) due to sparing actions.
	DTMFLOW	Counts the low-water-mark threshold violations on the SPM node-level pool of DTMF resources since the last collection period.
	DTMFUTIL	Calculates the percentage of the total DTMF resources in the node-level pool allocated to users of resource management (such as call processing).
	ECANDENY	Count the number of denied ECAN requests.
	ECANFAIL	Counts the number of ECAN failures to converge SOS events

Table 1 Summary of performance management indicators

OM name	OM register	Purpose
	ECANHI	Counts the highest number of ECAN resources allocated from the node-level pool during a collection/transfer period.
	ECANLOST	Counts the ECAN resources taken away from users of SPM resource management (such as call processing) due to sparing actions.
	ECANLOW	Counts the low-water-mark threshold violations on the SPM node-level pool of ECAN resources since the last collection period.
	ECANUTIL	Calculates the percentage of the total ECAN resources in the node-level pool allocated to users of resource management (such as call processing).
	MFDENY	Counts the number of denied MF requests.
	MFHI	Counts the highest number of MF resources allocated from the node-level pool during a collection/transfer period.
	MFLOST	Counts the MF resources taken away from users of SPM resource management (such as call processing) due to sparing actions.
	MFLOW	Counts the low-water-mark threshold violations on the SPM node-level pool of MF resources since the last collection period.
	MFUTIL	Calculates the percentage of the total MF resources in the node-level pool allocated to users of resource management (such as call processing).

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**Table 1 Summary of performance management indicators**

OM name	OM register	Purpose
	NUMREPTS	Number of Reports Increments each time a new report is received.
	ORIGHI	Originations Highwater Mark Displays the largest value of the samples taken during the collection interval.
	TERMHI	Terminations Highwater Mark Displays the largest value of the samples taken during the collection interval.
	TONEDENY	Counts the number of denied TONESYN requests.
	TONELOST	Counts the TONE resources taken away from users of SPM resource management (such as call processing) due to sparing actions.
	TONELOW	Counts the low-water-mark threshold violations on the SPM node-level pool of TONE resources since the last collection period.
	TONEUTIL	Calculates the percentage of the total TONE resources in the node-level pool allocated to users of resource management (such as call processing).
	TONHI	Counts the highest number of TONE resources allocated from the node-level pool during a collection/transfer period.
	TOTLORIG	Total Originations (summation of the total originations data collected during the time interval).
	TOTLTERM	Total Terminations (summation of the total terminations data collected during the time interval).

Table 1 Summary of performance management indicators

OM name	OM register	Purpose
SPMUSAGE		SPM UniverSal Activity Gauging Element. Collects call processing event information.
	ABDN	Call processing (Callp) abandon messages (average per time interval).
	CONF	Callp confusion messages (average per time interval).
	COTDENY	Counts the number of denied COT requests.
	ECANDENY	Count the number of denied ECAN requests.
	EXIT	Callp exit messages (average per time interval).
	NETFND	Callp network integrity found (average per time interval).
	NETINTG	Callp integrity lost (average per time interval).
	NETNFND	Callp network integrity not found (average per time interval).
	NETPAR	Callp parity errors (average per time interval).
	NUMREPTS	Number of Reports Increments each time a new report is received.
	RELCAL	Callp release call messages (average per time interval).
	TONEDENY	Counts the number of denied TONESYN requests.
	TXFAIL	Callp deny messages (average per time interval).

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### Tools and utilities

Data schema tables and OMs are accessed using the MAP display commands.



## Performance management procedures

### Setting threshold values

Threshold values are set via datafill. The following procedure provide an example for setting a COT resource with a low watermark threshold of 75%. This is done by provisioning the COT threshold in table MNNODE and provisioning a DSP RM with COT resources in table MNCKTPAK.

#### Example of setting COT threshold values

##### *At the MAP level*

- 1 Access table MNNODE by typing  
`>TABLE MNNODE`  
and pressing the Enter key.
- 2 Begin the table addition by typing  
`>ADD`  
and pressing the Enter key.
- 3 Answer each of the prompts with the required datafill provided by the table range.

#### Example

This is an example of datafilling table MNNODE.

```
>ADD
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
>Y
NODEKEY:
>SPM 1
ALIAS:
>COT75
```

```
CLASS :
>DMSCP
FLOOR :
>0
CLKMODE :
>SYNC
CLKREF :
>INTERNAL
LEDTIMER :
>15
RSRUTLIM :
>COT 75
RSRUTLIM :
>$
ALRMCTRL :
>COTLOW MJ RPT
ALRMCTRL :
>$
EXECTAB :
>$
TUPLE TO BE ADDED :
SPM 1 COT75 DMSCP 0 SYNC INTERNAL 15 (COT 75)
$ (COTLOW MJ RPT) $ $
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
>Y
TUPLE ADDED
```

- 4 Exit table MNNODE by typing  
>QUIT  
and pressing the Enter key.
- 5 Access table MNCKTPAK by typing  
>TABLE MNCKTPAK  
and pressing the Enter key.

- 6 Begin the table addition by typing  
**>ADD**  
and pressing the Enter key.
- 7 Answer each of the prompts with the required datafill provided by the table range.

### Example

This is an example of datafilling table MNCKTPAK.

**>ADD**

ENTER Y TO CONTINUE PROCESSING OR N TO QUIT

**>Y**

CPKKEY:

**>SPM 1 1 9**

CPKTYPE:

**>DSP**

UNITNO:

**>0**

DSPGRPID:

**>1**

WRKSPR:

**>WORKING**

RSRTYPE:

**>COT**

NUM:

**>8**

RSRTYPE:

**>\$**

ALRMCTRL:

**>\$**

PEC:

**>NLTX65BA**

RELEASE:

**>01**

---

LOAD:

>DSP15BD

TUPLE TO BE ADDED:

SPM 1 1 9 DSP 0 1 WORKING (COT 8) \$ \$ NLTX65BA  
01 DSP15BD

ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.

>Y

TUPLE ADDED

**8** Exit table MNCKTPAK by typing

>QUIT

and pressing the Enter key.



## Performance management procedures

### Retrieving/viewing current performance data

OM data can be viewed using the OMSHOW command. Both active and holding counts can be viewed. Counts remain in active registers until the end of the holding period. At the end of the holding period, the counts are transferred to the holding registers.

The following procedure illustrates the use of the OMSHOW command for active ECANRMAN counts.

#### Viewing performance data

##### *At the MAP level*

- 1 View OM counts by typing

```
>OMSHOW <om_name> <class>
```

and pressing the Enter key.

where

**om\_name**

is the name of the OM (DSPRMAN, ECANRMAN, SPMACT, or SPMUSAGE)

**class**

is the name of the class to appear (ACTIVE or HOLDING)

*Example of a MAP screen:*

```
>OMSHOW ECANRMAN ACTIVE
ECANRMAN
CLASS: ACTIVE
START:1976/01/01 19:30:00 THU; STOP: 2001/07/26 19:57:47 THU;
SLOWSAMPLES: 17 ; FASTSAMPLES: 167 ;

INFO (SOTS_NODE_INFO_TYPE)
  ECANLOW  ECANLOST  ECANDENY  ECANFAIL
  ECANUTIL  ECANHI    ATMPTSOV  ATMPTS
  USGSECS
0
  SPM 0
      0      0      0      0
      0      0      0      0
      0
```

*Example of the SPERFORM level MAP screen:*

**Note:** It is recommended that the SPERFORM\_OM\_CONTROL parameter in table OFCVAR *not be* changed from the default value of "Y". Changing this tuple from "Y" to "N" turns off the data collection for OMs SPMACT and SPMUSAGE.

XAC	MS	IOD	Net	PM	CCS	Lns	Trks	Ext	APPL
.	.	.	.	4 SPM	.	.	17CCP	2Crit	DRMPM2
				*C*			*C*	*C*	M
SPERFORM				SysB	ManB	OffL	CBSy	ISTb	InSv
0 Quit	PM			0	1	5	0	12	21
2 SPMAct	SMP			0	1	4	0	11	0
3 SPMUSAGE									
4	SPM 30	ISTb	Loc: Site	HOST	Floor	1	Row C	FrPos	41
5	LOAD NAME	:	MG416CI						
6	STATUS:		RESAON:			LOGS:		TIME:	
7									
8									
9 PFQuery	DMSCP and SMG4 performance data is available in the SPMACT and SPMUSAGE OMs. (The parameter, sperform_om_control, in table OFCVAR turns the OM data collection on and off. for SPMACT and SPMUSAGE.)								
10									
11									
12									
13									
14	ECAN and DSP	data is available in the ECANRMAN and DSPRMAN							
15 OMInfo	OMs.								
16									
17									
18									
	TEAM26								
	Time 11:28								> OMInfo