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Communication Server 2000 Performance Management

The main goal of performance management is to monitor switch performance to identify any problems, analyze their cause, and resolve the problems.

Performance management strategy

The act of monitoring switch performance involves the use of operational measurements (OM) and log reports. These tools are essential information sources for performing preventive and corrective maintenance, as well as identifying provisioning problems. The OM system controls the collection, display, and report generation of OM data.

Traffic provisioning

Operational measurements collect information on how to load equipment. The OMs allow the calculation of the load process for each unit. (A unit is a mainstation or a trunk.) This data forecasts future equipment loading and determines future equipment requirements.

Service monitoring

Operational measurements can indicate switch service levels. If reduction in service occurs, the analysis of additional data helps to determine the corrective action. Corrective action can include equipment repair, balance again, or support. Corrective action can occur in near-real time. Network management activities are an example of corrective action that occurs in near-real time. Corrective action can occur over a long period of time.

Division of revenue

Operational measurements provide information to support decisions on how operating company personnel can separate traffic. The division of traffic volumes to different switch components allows the best division of revenues to occur.

Feature activation

Specified measurements provide information on how often features are active in the switch. Operating companies or subscribers can use this information to determine the requirement for additional equipment or capabilities.

Subscriber line usage studies

Subscriber line usage (SLU) OMs provide operating companies with detailed information on the use of subscriber lines. The operating company collects SLU data for marketing studies, class of service studies, and load balance studies. Originating peg counts, terminating peg counts, and combined use data are available on lines that use option SLU. The SLU OM groups are assigned to accumulating classes in the same way as other OM groups.

Problem identification

Operational measurements display the results of machine diagnostic and testing activity. This information identifies possible problem areas in the switch.

Operational measurement terminology

The following paragraphs describe OM terms.

Register

A register is a memory location that stores counts. Each register has a name that contains a maximum of eight alphanumeric characters.

The following categories of registers exist:

- Peg registers increase each time the event associated with the register occurs. (Most registers are peg registers.)
- Usage registers increase when a scan or sample indicates that an item or resource is in a specified state. (The in-use state is an example of a specified state.)

Group

An OM group is a logical collection that contains a maximum of 32 related OM registers. Each OM register can be in one OM group.

Another name for the registers of an OM group is fields. The software defines the OM groups and the fields. Different software versions and releases contain different sets of OM groups. The OM group names contain a maximum of eight alphanumeric characters.

To request registers for most OM reporting mechanisms and commands, specify the OM group to which the registers belong.

Multiple tuple OM group

The registers of many OM groups occur more than one time. Each time the register occurs, the register provides data for each agent or switch part.

For example, the OM group TRK provides event counts and use information for each trunk group that is present. Each data instance is a tuple. A number identifies each tuple. Each tuple can have a key and/or info field.

Key field

A key is an optional field that associates with a tuple of an OM group. Keys normally identify the switch part that associates with the tuples of an OM group.

For example, the OM group TRK has a key that identifies the trunk group with which the tuple associates. The keys of an OM group are normally different. Specified keys can be the same. The tuple numbers of an OM group are always different.

Info field

The optional information field associates tuples of an OM group. An information field can help identify a tuple. This field can provide data to process or examine measurements. The information field of OM group TRK indicates the following information:

- the direction of the trunk group
- the total number of trunk members
- the number of trunk members available for service

Class

An OM class is a collection of OM groups. An OM class contains measurements that the system collects during a specified time interval. This interval is the reporting interval. A switch can have a maximum of 32 OM classes. To provide measurements for different reporting intervals, OM groups can belong to more than one class.

An OM group can belong to more than one class. Each class maintains a set of the registers of the OM group.

The OM class names are like group and field names. These class names contain a maximum of eight alphanumeric characters.

Transfer period

The OM information must apply to a specified and consistent time period. To comply with this requirement, the system collects OM data

during a specified time interval. After this interval, the system stores the collected data in a static state in holding registers. The collected data is available for reports or additional processing. The fixed time interval is the transfer period. The transfer period available in each office is 5, 15, or 30 minutes. The alignment of the transfer period is always to the hour. The OM reporting intervals are multiples of the transfer period.

Active and Holding classes, and OM transfer

Two OM classes are always present, Active and Holding. These classes contain the OM groups that are correct in a specified software load.

The software applications that run in the switch increase the registers in the Active class. For example, log buffer overflow can prevent the output of a log. If this condition occurs, the log system increases register LOSTREC of OM group LOGS in the Active class. This condition in other classes does not affect register LOSTREC.

At the end of each transfer period, the counts in Active class registers transfer to Holding class registers. The software applications clear (zero) the Active class registers to prepare the registers to receive pegs in the next transfer period. The Active class registers always contain counts for the current transfer period. The Holding class registers always contain counts from the previous transfer period.

After transfer to the Holding class registers, the data does not change for the duration of the transfer period. Another name for the transfer period is the holding period.

Accumulation classes

A maximum of 30 Accumulation (accumulating register) classes can be present in addition to the Active and Holding classes. The operating company can configure the accumulation classes. The operating company configures the classes according to parameters like the reporting interval, and the OM groups that the accumulation class contains. The system can reserve accumulation classes for OM reporting mechanisms like the Engineering and Administrative Data Acquisition System (EADAS).

The data in Accumulation class registers is available in Holding class registers. The system copies or adds the contents of Holding class registers to Accumulation class registers at the end of each transfer period. This process is accumulation.

Register precision

Registers in the Active and Holding classes are always16-bit registers. These registers are single precision registers. These registers have a capacity of 65 535 or (2^{16} - 1) counts.

To control the capacity of Accumulating registers, set the register precision to single or double. Set the register precision to double if you expect the accumulating register count to exceed 65 535 counts. (The capacity of double precision registers is 4 294 967 295 or 2^{32} - 1 counts.)

Extension register

Nortel provides extension registers if the count of a register in an Active class exceeds 65 535 in a transfer period. The maximum duration of a transfer period is 30 m. When the base register count in a transfer period exceeds 65 535, the extension register increases by one count. The active register increases from zero again. The counts from the active and extension registers must be available to determine the measurement value.

Use the following equation to calculate the total register count.

Total register count = (extension register count) ¥ (65 536) + base register count

Example

Register TFANPEG2 is the extension register for TFANPEG. If the count in an active register, like TFANPEG, is 19 and the associated extension register is 5, the count is

(5 ¥ 65 536) + 19 or 327 699

The use of double precision accumulation classes does not remove the requirement for extension registers. When Accumulation class registers have double precision assigned, Active and Holding class registers in the OM group remain single precision. If Active class register counts exceed 65 535 during a transfer period, the calculation of accurate counts requires extension registers.

Scan rate

The system scans items and resources at equal intervals. Usage registers increase when the system detects that an item or resource is in a specified state. The system performs the scanning process as a

background task. The system uses the following scanning intervals to collect use data:

- the slow rate provides use data. Scans that occur at an interval of 100 s determine the data.
- the fast scan rate provides use data. Scans that occur at intervals of 10 s determine the data.

Note: The slow sample counts do not always equal ten times the fast sample counts. Processes that require higher priority can delay OM processes and cause the loss of fast samples. This condition can occur in an accumulation class with a long interval.

Operational measurement management tables

Operational measurement datafill tables control the acquisition, collection, accumulation, and distribution functions of the OM system.

The relationships between the management tables appear in the following figure.

OM linkage flowchart

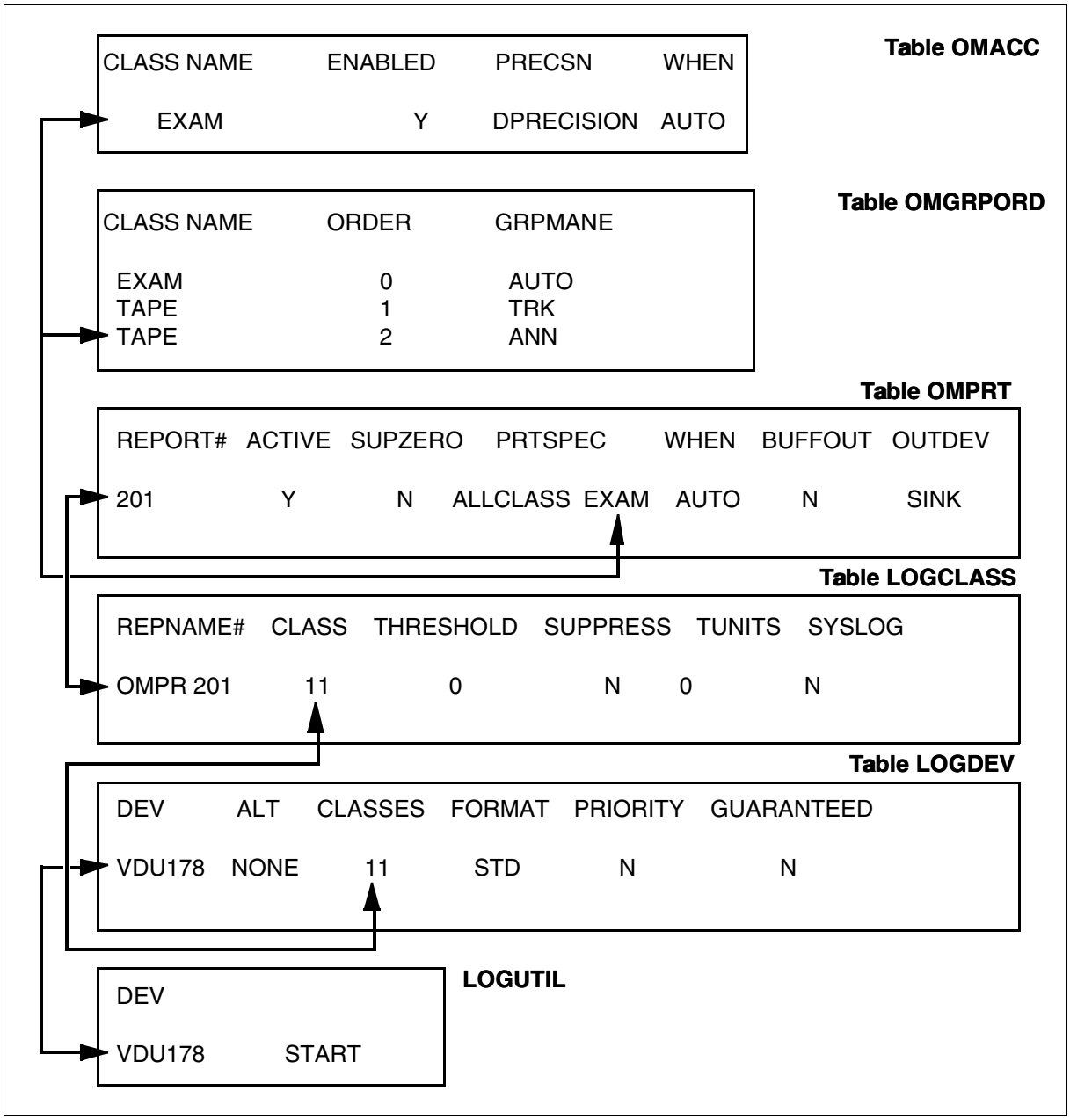

Table OMACC

Use table OMACC (Operational Measurement Accumulation) to control the period of time over which the accumulating class registers accumulate data. Information reporting occurs when the class is enabled in table OMACC. The system allocates memory for 30 entries in the table.

An example of table OMACC appears in the following figure.

Table OMACC

```
TOP
   CLASS   ENABLED    PRECSN                          WHEN
-------------------------------------------------------------
 MTC_DAY         Y   DPRECISION     DAILY  0  C00 23 C15
    TAPE         Y   DPRECISION     HALFHOURLY C00
FACS_HHR         Y   DPRECISION     HALFHOURLY C00
  CCS7_D         Y   DPRECISION     DAILY  0 C00  0 C00
 MTCE_CO         Y   DPRECISION     DAILY  0 C00 23 C45
 MTCE_HR         Y   DPRECISION     HOURLY C00
RDISTUDY         Y   DPRECISION     DAILY  8  C00  8 C00
 TRK_DAY         Y   DPRECISION     DAILY  0  C00  0 C00
 FACS_HR         Y   DPRECISION     HOURLY C00
FACS_ORP         Y   DPRECISION     DAILY  9 C00  9 C00
FACS_SLU         Y   DPRECISION     HOURLY COO
FACS_CDS         Y   DPRECISION     HOURLY C00
  C7ANAL         Y   DPRECISION     DAILY  0 C00 22 C00
CMS_CRTC         Y   DPRECISION     DAILY  8 C00 22 C00
BOTTOM
```

Nortel creates the following measurement classes and associated OM groups and files as part of the base commissioning load build for new installations:

- HALFHOUR
- OFCBSYHR
- DAY
- TRUNKHR
- MONTH
- TAPE

The operating company can assign most of the 30 tuples, as well as rename the measurement classes that Nortel had preassigned.

The commands OMSHOW, OMDUMP, and OMCLASS associate with table OMACC.

Table OMGRPORD

Use table OMGRPORD (Operational Measurement Group Order) to define the order of OM group output in each accumulating class. The operating company arranges OM output according to the priority of interest through the entry of data in table OMGRPORD.

If an OM does not appear in the associated class in table OMGRPORD, the system outputs the OM. The system outputs these OMs after the OMs that appear in the table. If the complete class is not in the table, the system defines the order of OM group output.

Table OMPRT

Table OMPRT (Operational Measurements Printer) controls which accumulating or holding classes, OM groups, or groups in an OM class the system must output. The system outputs these data to a printer (or similar output device) at specified times during the calendar month. The system allocates memory for 32 report numbers.

The system activates a report number in table OMRPT before the system prints data. The class is enabled in table OMACC. To establish printing periods for data, enter the OM class in table OMACC.

The system directs output to a printer through the facilities of the DMS-100 log and routing subsystems. The log subsystem, LOGUTIL, collects output reports for each part of the DMS-100 switch. The subsystem files reports in order of log report number. For OM reports, this number associates with the accumulating class in the table OMPRT.

The system can suppress data entries of zero (0) selectively for each report. To activate this feature, set the field SUPZERO in table OMPRT to Y. If the data in a data line (tuple) is zero, the system suppresses the data line.

Table LOGCLASS

Table LOGCLASS (Log Class) includes the following information for each report name (REPNAME)

- the class assignment of the log name and report number
- the threshold that specifies which messages the terminal prints or display
- if the system generates log messages
- the time (in minutes) when the register count associated with a threshold report resets to 0
- if a log is a system log (SYSLOG)

Table LOGDEV

Table LOGDEV (Log Device) lists the log classes the system prints or displays at each terminal or data device. Table LOGDEV also defines the alternate terminal or data device to which the system sends messages when the main terminal device is not operational.

Table OMTAPE

Table OMTAPE (Operational Measurements Output Recording) schedules the transfer of OM data to the DIRP subsystem. Through DIRP, the system can direct data to a disk drive or a magnetic tape drive.

Table OMREPORT

Table OMREPORT (Operational Measurements Report) schedules the output of OM special reports (OMRS).

Operational measurement group totals

The OM reports that contain raw register readings (OMPR reports) can result in multiple conditions of the same OM. This process occurs when more than one equipment component of the same type exists. This condition occurs for OM groups TRK and PM. This condition is present when the system presents measurements across different service types; for example, OM group DTSR. The OMTOTAL provides the ability to add or combine similar measurements over equipment components or service types. This feature is enabled for each measurement group. When enabled, every OMPR report for that group contains an additional line of data, the total measurement. A dashed line separates the total measurement from the normal display. The system adds a totals tuple for the designated OM group and accumulating class.

Measurement totals appear for each field except where the user removes fields from the OMPR report. Access command OMACCFLD to remove fields.

Totals include values in lines of data that the user omits. Access command OMACCKEY to omit values.

The OM totalling capability reduces the OMPR report volume. Access command OMACCTOT to output measurement totals for each class.

Operational measurement information output

The system can output OM information to a designated printing or terminal device through the log subsystem to control report distribution. A group of tables in the switch controls the designation of the output device to which the system sends OM data.

There are three categories of OM reports:

- **Operational Measurement Print** (OMPR) reports contain raw OM register readings. The report content, data quantity, and output

times are variable. and are defined by the operating company personnel in a group of tables.

- **Operational Measurement Reports System** (OMRS) reports contain register readings and calculations. The system derives the readings and calculations through OMs and information fields as raw data. The report format is set to accommodate a specified administrative need.
- **Operational Measurement 2** (OM2) reports indicate the status of the OM system. The system outputs problems with data collection or report production. The system outputs these problems when the OM system detects trouble or when the number of reports exceeds a report threshold.

Operational measurement administration

The following basic groups of activities occur in order to generate OM data.

- Define measurement class. Define the accumulation classes to which OM groups are assigned. Each measurement class can have different data collection parameters. Parameters can be start and stop times.
- Assign measurement class. Assign the OMs to a minimum of one defined measurement class. Scheduling and output definition must occur for each class, and not for each register field or group.
- Schedule data. After you have assigned each OM to a measurement class, define the data collection schedule for each class. These schedules allow you to identify data collection start and stop times. The definition of the data transfer and report output times can occur.
- Assign output devices.Assign OM data output to a specified output device. An output device can be a terminal, printer or storage device.
- Schedule periodic reporting. The special purpose reports (OMRS series) require the use of additional commands and software tables for scheduling.
- Request reports. After the OM registers start data collection and schedule the reports, use commands at the destination I/O device to request OM information.

Note: Nortel sets up some of the OM classes as part of the base commissioning load build for new switch installations. An operating company cannot delete a pre-defined measurement class, only rename or redefine a measurement class.

Operational measurement commands

Use the commands in the following table to manipulate OM data.

Operational measurement commands

OM command	Description
>CLRINVREG	Clears invalid INWATS registers after a restart. (Use it before reading or resetting INWATS registers after a restart.)
>OMACCFLD	Assigns or deletes OM register fields to the accumulating classes in table OMACC (Operational Measurements Accumulator).
>OMACCGRP	Assigns or deletes OM groups to the accumulating classes that defined by command OMCLASS.
>OMACCKEY	Displays specific tuples in a named OM group and class.
>OMACCTOT	Turns the totalling-only feature on or off for a specified class and OM group. (To activate OMACCTOT, use command OMTOTAL to turn on the OM group totals feature, and designate the OM class. Use command OMACCGRP to assign the group to the class.)
>OMBR	Provides control for buffered OMs. (Used in combination with parameters stops, starts, and displays.)
>OMDUMP	Displays assigned OM groups fields in table OMACC.
>OMCLASS	Defines or changes a class for table OMACC. ***Note:*** You can only rename, not delete, a defined class name.
>OMDUMP	Displays assigned class(es) and their OM groups and OM register fields.
>OMFORMAT	Similar to command OMSHOW, but displays only one OM group

Operational measurement commands

OM command	Description
>OMGETGD	Processes the header (H), class (C), group (G), field (F), and key (K) records stored at the beginning of the data file. This command also builds a translation database. ***Note:*** Before you use command OMGETGD, close the requested file in the Device Independent Recording Package (DIRP).
>OMMASTER	Enables user to configure a node as the central collector for billing. (This command is executed on the CM.) ***Note 1:*** Use of command OMMASTER causes loss of currently defined accumulation classes and their data. ***Note 2:*** Do not use the Break key during command OMMASTER. Instead use command HX.
>OMPRDUMP	Generates OM special reports (OMPRSPEC) for the OM data stored on the tape or disk in standard recording format (OMTAPE).
>OMPRTREP	Prints the OMPRSPEC report.
>OMPRTSET	Sets or queries the time and date parameters for report generation.
>OMREPORT	Queries a list of all report names in OMREPORT system, and request an OM report by SCHEDNO in table OMREPORT.
>OMRESET	Resets the record count only on reload restarts.
>OMSHOW	Displays all or part of the specified key structure of an OM group, and all or part of the contents.

Operational measurement commands

OM command	Description
>OMTOTAL	Turns the totalling feature on or off for a specified OM group, and adds totals by register for selected OM groups. (Totals appear as an extra tuple for OMPR reports and outputs using command OMSHOW.)
>Q OMSHOW	Lists OM groups and classes defined by command OMCLASS.
>Q SLU	Lists all commands in the SLU directory.
>READ	Queries the register content of specified lines and displays line information.
>READPX	Displays information for INWATS registers associated with options INW and 2WW for PX trunks.
>READRESET	Queries the register content of specified lines, displays line information, and resets the register to 0.
>READRESETPX	Displays information for INWATS registers associated with options INW and 2WW for PX trunks. Resets registers to 0.
>READRESETVFG	Displays information for INWATS VFGs. Resets registers to 0.
>READVFG	Displays information for INWATS VFGs.
>SETDBDEV <device>	Designates a disk file for the storage of KEY and INFO values from the input data file.
>SLU	Accesses the subscriber line usage (SLU) system.
>SLUADD	Adds line identifiers for SLU input tables. (Entries are added to the bottom of the table.)
>SLU_DEINSTALL	Stops all OMs on lines in the specified OM group but does not affect the entries in the associated input table.
>SLUDEL	Deletes line identifiers for SLU input tables.

Operational measurement commands

OM command	Description
>SLUDUMP	Except for command SLU_DEINSTALL, SLUDUMP lists the commands issued for SLU input tables that were installed.
>SLUFINDI	Finds and displays the specified line identifier in an SLU input table. If associated with a hunt group, then all members display.
>SLUFINDO	Finds and displays the register counts for a specified line identifier in an OM group. (This command is more effective if you command SLU_DEINSTALL to make the OM group inactive so that the register counts are held.)
>SLU_INSTALL	Looks for errors in the SLU input tables before filling the OM group with new data. Lines not previously installed are set to 0 while the installed lines are retained.
>SLU_LMINSTALL	For LMs and their associated lines, removes all lines from OM group ENG650M1 and creates OM group ENG640M1. (Does not affect SLU input table.)
>SLUSET	Establishes a default table for commands SLUADD, SLUDEL, SLUFINDO, and SLUFINDI.
>SLU_TABLE_STATUS	Displays a list of active and inactive tables.
>SLU_TEST	Verifies that command SLU_INSTALL can be used in the SLU input table with no errors present.
>ZEROSUP	Turns the zero suppression on or off. (This command is part of the OMPRDUMP directory.)

Operational measurement class procedures

This section contains the following procedures for defining and manipulating OM classes:

- specifying an OM transfer period
- designating an accumulating class
- setting up history registers

- specifying single or double precision for classes
- assigning OM groups to an accumulating class
- deleting OM groups from an accumulating class
- deleting OM registers from an accumulating class
- adding OM registers to an accumulating class
- selecting specified tuples for output
- specifying output order of OM groups within a class
- enabling a class

Specifying an OM transfer period

Use the following procedure to change the interval for data transfer from active and holding registers.

ATTENTION

Execute a cold restart or a maintenance SWACT to activate the OMXFR tuple change described in this procedure. Command OMHISTORYON overwrites the OMXFR tuple setting and activates a 5-minute transfer period.

Procedure 1 Specifying an OM transfer period from data accumulation

At the MAP terminal

1 To access table OFCENG, type

```
>TABLE OFCENG
```

Press the Enter key.

Example of a MAP response:

```
TABLE: OFCENG
```

2 To determine if the OMXFR parameter is set to the time you require, type

```
>POS OMXFR
```

Press the Enter key.

where

OMXR
is the OM data transfer parameter

Example of a MAP response

```
OMXFR x15
```

where

x15
is the is the current setting for data transfer time

If the data transfer time is	Do
not correct	3
correct	5

3 To access the data transfer time tuple, type

>CHA

Press the Enter key.

Example of a MAP response:

```
PARMVAL: x15
```

4 To enter the OM transfer period, type

>Xnumber

Press the Enter key.

where

number
is the time you require for the transfer period in minutes (15 or 30)

Example input

>X30

Example of a MAP response

```
OMXFR         ¥30
 Enter Y to confirm, N to reject or E to edit.
```

5 To confirm the command, type

>Y

Press the Enter key.

Example of a MAP response

```
TUPLE CHANGED
  WRITTEN TO JOURNAL FILE AS JF NUMBER 579.
```

6 To exit table OFCENG, type:

>QUIT

Press the Enter key.

7 You have completed this procedure.

Designating an accumulating class

Use the following procedure to list the available accumulating classes and to rename a current accumulating class.

Procedure 2 Designating an accumulating class

At the MAP terminal

1 To access table OMACC, type

```
>TABLE OMACC
```

Press the Enter key.

Example of a MAP response:

```
TABLE: OMACC
```

2 To list the available accumulating classes, type

```
>LIST ALL
```

Press the Enter key.

Example of a MAP response:

```
TOP CLASS          ENABLED        PRECSN      WHEN

-----------------------------------------------
 HALFHOUR           N             DPRECISION  AUTO
 OFCBSYHR           N             DPRECISION  AUTO
 DAY                N             DPRECISION  AUTO
 WEEK               N             DPRECISION  AUTO
 MONTH              N             DPRECISION  AUTO
 SPECIAL1           Y             DPRECISION  AUTO
 SPECIAL2           N             DPRECISION  AUTO
 SPECIAL3           N             DPRECISION  AUTO
 SPECIAL4           N             DPRECISION  AUTO
 SPECIAL5           N             DPRECISION  AUTO
 SPECIAL6           N             DPRECISION  AUTO
 SPECIAL7           N             DPRECISION  AUTO
 SPECIAL8           N             DPRECISION  AUTO
 SPECIAL9           N             DPRECISION  AUTO
 BOTTOM
```

3 To start the procedure for the accumulating class, type

```
>OMCLASS
```

Press the Enter key.

Example of a MAP response:

```
Next par is:  <class name> STRING
  ENTER:  <class name> <precision/function>
```

4 To enter the accumulating class name, type

>class_name

Press the Enter key.

where

class_name
is the name of the accumulating class to rename

Example of a MAP response:

```
Next par is: <precision/function>{SINGLE
DOUBLE
HOLDING
RENAME} new classname
HISTORY
<snapshots>
<transfer>
Enter: <precision/function>
```

5 To enter the function, type

>RENAME

Press the Enter key.

Example of a MAP response:

```
Next par is:  <new class name> STRING
  ENTER:  <new class name>
```

6 To enter the new accumulating class name, type

>new_class_name

Press the Enter key.

where

new_class_name
is the new name for the accumulating class

Example of a MAP response:

```
OM class renamed.
```

7 To verify the change, type

>LIST ALL

Press the Enter key.

8 To exit table OMACC, type

>QUIT

Press the Enter key.

9 You have completed this procedure.

Setting up history registers

Use the following procedure to define the parameters for the transfer of data to history registers.

Note 1: Engineering and Administrative Data Acquisition System (EADAS) users must check local policies before setting office parameter OMHISTORYON to Y in table OFCOPT. If you set OMHISTORYON to Y, the system suppresses office parameter OMXFR in table OFCENG, and a 5-minute OM transfer period occurs.

Note 2: You can configure a maximum of 30 accumulating and history classes.

ATTENTION
Execute a cold restart after you have completed this procedure to activate the changes.

Procedure 3 Setting up history registers

At the MAP terminal

1 To access table OFCOPT, type

>TABLE OFCOPT

Press the Enter key.

Example of a MAP response:

```
TABLE: OFCOPT
```

2 To determine if parameter OMHISTORYON is set to Y, type

>POS OMHISTORYON

Press the Enter key.

Example of a MAP response:

```
OMHISTORYON N
```

If the OMHISTORYON parameter is set to	Do
N	3
Y	6

3 To access the OMHISTORYON parameter, type

>CHA

Press the Enter key.

Example of a MAP response:

```
PARMVAL: N
```

4 To set the parameter to Y, type

>Y

Press the Enter key.

Example of a MAP response:

```
OMHISTORYON   Y
 Enter Y to confirm, N to reject or E to edit.
```

5 To confirm the command, type

>Y

Press the Enter key.

Example of a MAP response:

```
TUPLE CHANGED
 WRITTEN TO JOURNAL FILE AS JF NUMBER 579.
```

6 To exit table OFCOPT, type

>QUIT

Press the Enter key.

7 Access table OMACC.

>TABLE OMACC

Press the Enter key.

Example of a MAP response:

```
TABLE: OMACC
```

8 To list the available accumulating classes, type

>LIST ALL

Press the Enter key.

Example of a MAP response:

```
CLASSENABLEDPRECSNWHEN
----------------------------------------

HALFHOURNDPRECISIONAUTO
OFCBSYHRNDPRECISIONAUTO
DAYNDPRECISIONAUTO
WEEKNDPRECISIONAUTO
MONTHNDPRECISIONAUTO
SPECIAL1YDPRECISIONAUTO
SPECIAL2NDPRECISIONAUTO
SPECIAL3NDPRECISIONAUTO
SPECIAL4NDPRECISIONAUTO
SPECIAL5NDPRECISIONAUTO
SPECIAL6NDPRECISIONAUTO
SPECIAL7NDPRECISIONAUTO
SPECIAL8NDPRECISIONAUTO
SPECIAL9NDPRECISIONAUTO
BOTTOM
```

9 To start the procedure to set up history registers, type

>OMCLASS

Press the Enter key.

Example of a MAP response:

```
Next par is: <class name >  STRING AUTO
  ENTER: <class name > <precision/function>
```

10 To enter the accumulating class name, type

>class_name

Press the Enter key.

where

class_name
is the name of the accumulating class for which you must define the parameters

Example of a MAP response:

```
Next par is: <precision/function> single
  DOUBLE
  HOLDING
  RENAME new class
         name
  HISTORY
         snapshots
         transfer
 Enter:  <precision/function>
```

11 To enter the register function, type

>HISTORY

Press the Enter key.

Example of a MAP response:

```
Next par is:  STRING
 Enter: <snapshots>
```

12 To enter the number of history registers for each measurement, type

>snapshots

Press the Enter key.

where

snapshots
is the number of history registers (1 to 6) for each measurement

Example of a MAP response:

```
Next par is:
 Enter: <transfer>
```

13 To enter the time interval that the history register collects data, type

>transfer

Press the Enter key.

where

transfer
is the time in minutes a history register collects data. For example, if the value is 5, data accumulates every 5 minutes. The possible entries are 5, 10, 20, or 30.

Example of a MAP response:

```
OK
```

14 To exit table OMACC, type

>QUIT

Press the Enter key.

15 You have completed this procedure.

Specifying single or double precision for classes

Use the following procedure to change accumulating register precision. If an accumulating register exceeds 65 536, assign double precision to the accumulating class that contains the register.

Note: Verify that double precision registers are compatible with downstream data processing systems (for example, DOMUS and EADAS).

Procedure 4 Specifying single or double precision for classes

At the MAP terminal

1 To start the procedure to determine register precision, type

>OMDUMP CLASS

Press the Enter key.

Example of a MAP response:

```
Next par is: <class>
Enter: <class>
<function>
```

2 To specify the accumulating class, type

>class

Press the Enter key.

where

class
is the name of the accumulating class. Specify the precision for the class.

Example of a MAP response:

```
Next par is: <function> COMMANDS
 FORMAT
 Enter: <function>
```

3 To specify the parameter COMMANDS, type

>COMMANDS

Press the Enter key.

Example of a MAP response:

```
OMCLASS   SPECIAL   DOUBLE
```

If the register precision	Do
is set correctly	8
is not set correctly	4

4 To start the procedure for how to specify precision, type

>OMCLASS

Press the Enter key.

Example of a MAP response:

```
Next par is: <class name> STRING
Enter: <class name> <precision/function>
```

5 To specify the accumulating class, type

>class

Press the Enter key.

where

class
is the name of the accumulating class. Specify the precision for the class.

Example of a MAP response:

```
Next par is: lt;precision/function> SINGLE
 DOUBLE
 HOLDING
 RENAME new class
             name
 HISTORY
             <snapshots>
             <transfer>
 Enter: <precision/function>
```

6 To set the precision, type

>precision

Press the Enter key.

where

precision
is single or double

Example of a MAP response:

```
OK
```

7 Repeat Procedure 2 and 3 to verify the change to the precision.

8 You have completed this procedure.

Assigning OM groups to an accumulating class

Use the following procedure to assign OM groups to an accumulating class.

Procedure 5 Assigning OM groups to an accumulating class

At the MAP terminal

1 To list the correct OM parameters, type

```
>Q OMSHOW
```

Press the Enter key.

Example of a MAP response:

```
Parms: <group> {CP,
                EXT,
                CP2,
                PCMCARR
                PM2
                -
                -
                -
                SCPOTS
                TWCPOTS
                CWTPOTS
```

2 To start the procedure to add the OM group to an accumulating class, type

```
>OMACCGRP
```

Press the Enter key.

Example of a MAP response:

```
Next par is: <class>
Enter: <class> <function> <groups>
```

3 To specify the accumulating class, type

```
>class
```

Press the Enter key.

where

class
is the name of the accumulating class of the assigned OM

Example of a MAP response:

```
Next par is: <function> (ADD
                         DELETE
  Enter:  <function> <groups>
```

4 To specify the function, type

>ADD

Press the Enter key.

Example of a MAP response:

```
Next par is: <group>
 Enter: <group>
```

5 To specify the OM group, type

>GROUP group

Press the Enter key.

where

group
is the added OM group

Example of a MAP response:

```
OK
```

6 To start the procedure to verify the assignment of the OM group to the accumulating class, type

>OMDUMP CLASS

Press the Enter key.

Example of a MAP response:

```
Next par is: <class>
  Enter: <class>
<function>
```

7 To specify the accumulating class, type

>class

Press the Enter key.

where

class
is the name of the accumulating class of the assigned OM

Example of a MAP response:

```
Next par is: <function> (COMMANDS
                                    FORMAT
  Enter: <function>
```

8 To specify the parameter FORMAT, type

>FORMAT

Press the Enter key.

Example of a MAP response:

```
HOUR
    LMD NTERMATT NORIGATT LMTRU  TERMBLK
    LMD ORIGFAIL PERCLFL  STKCOINS REVERT
    LMD MADNTATT ORIGBLK  ORIGABN LMD
```

9 You have completed this procedure.

Deleting OM groups from an accumulating class

Use the following procedure to delete OM groups from an accumulating class.

Procedure 6 Deleting OM groups from an accumulating class

At the MAP terminal

1 To start the procedure to determine the OM groups associated with the accumulating class, type

>OMDUMP CLASS

Press the Enter key.

Example of a MAP response:

```
Next par is: <class>
 Enter: <class>
      <function>
```

2 To specify the accumulating class, type

>class

Press the Enter key.

where

class
is the name of the accumulating class of the deleted OM

Example of a MAP response:

```
Next par is: <function> {COMMANDS,
                         FORMAT}
 Enter: <function>
```

3 To specify the parameter FORMAT, type

>FORMAT

Press the Enter key.

Example of a MAP response:

```
SPECIAL1
   LMD  NTERMATT NORIGATT LMTRU  TERMBLK
   LMD  ORIGFAIL PERCLFL STKCOINS REVERT
   LMD  MADNTATT ORIGBLK ORIGABN
   LMD
   OFZ  INANN    INKLT   INOUT    INOUT2
   OFZ  INTONE   NIN     NIN2     OUTNWAT
```

4 To start the procedure to delete the OM group, type

>OMACCGRP

Press the Enter key.

Example of a MAP response:

```
Next par is: <class>
 Enter: <class> <function> <group>
```

5 To specify the accumulating class, type

>class

Press the Enter key.

where

class
is the name of the accumulating class from which the OM group is to be deleted

Example of a MAP response:

```
Next par is: <function> {ADD,
                         DELETE}
 Enter: <function> <groups>
```

6 To enter the delete command, type

>DELETE

Press the Enter key.

Example of a MAP response:

```
Next par is: <group>
 Enter: <group>
```

7 To specify the OM group to delete, type

>GROUP group

Press the Enter key.

where

group
is the OM group to delete

Example of a MAP response:

```
OK.
```

8 Repeat 1 through 3 to verify the deletion of the OM group.

9 You have completed this procedure.

Deleting OM registers from an accumulating class

Use the following procedure to delete OM registers from an accumulating class.

Note: Before you begin this procedure, designate an accumulating class and assign the OM group to the class where the register belongs. Refer to the following procedures for details:

- "Designating an accumulating class"
- "Assigning an OM group to an accumulating class"

Procedure 7 Deleting OM registers from an accumulating class

At the MAP terminal

1 To start the procedure to determine the OM groups and registers associated with the accumulating class, type

>OMDUMP CLASS

Press the Enter key.

Example of a MAP response:

```
Next par is: <class>
   Enter:  <class>
         <function>
```

2 To specify the accumulating class, type

>class

Press the Enter key.

where

class
is the name of the accumulating class of the deleted OM register

Example of a MAP response:

```
Next par is: <function> {COMMANDS,
                         FORMAT}
 Enter: <function>
```

3 To specify the parameter FORMAT, type

>FORMAT

Press the Enter key.

Example of a MAP response:

```
SPECIAL1
    LMD  NTERMATT NORIGATT LMTRU  TERMBLK
    LMD  ORIGFAIL PERCLFL   STKCOINS REVERT
    LMD  MADNTATT ORIGBLK      ORIGABN
    LMD
    OFZ  INANN    INKLT   INOUT  INOUT2
    OFZ  INTONE   NIN     NIN2   OUTNWAT
```

If	Do
you want to delete one register from the OM group	Procedure 4
you want to delete all registers from the OM group	Procedure 9

4 To start the deletion of the OM register, type

>OMACCFLD

Press the Enter key.

Example of a MAP response:

```
Next par is: <class>
Enter: <class> <group> <function> <fields>
```

5 To specify the accumulating class, type

>class

Press the Enter key.

where

class
is the name of the accumulating class of the deleted OM register

Example of a MAP response:

```
Next par is: <group> <function> <fields>
Enter: <group> <function> <fields>
```

6 To specify the OM group, type

>group

Press the Enter key.

where

group
is the name of the OM group that contains the register to delete

Example of a MAP response:

```
Next par is: <function> <fields>
Enter: <function>
```

7 To enter the delete command, type

>DELETE

Press the Enter key.

Example of a MAP response:

```
Next par is: <fields>
Enter: <fields>
```

8 To specify the register to delete, type

>FIELD field

Press the Enter key.

where

field
is the name of the register to delete

Example of a MAP response:

```
OK
```

Go to Procedure 15.

9 To start the procedure for deletion of registers, type

>OMACCFLD

Press the Enter key.

Example of a MAP response:

```
Next par is: <class>
 Enter: <class> <group> <function> <fields>
```

10 To specify the accumulating class, type

>class

Press the Enter key.

where

class
is the name of the accumulating class containing the registers

Example of a MAP response:

```
Next par is: <group> <function> <fields>
Enter: <group> <function> <fields>
```

11 To specify the OM group, type

>group

Press the Enter key.

where

group
is the name of the OM group that contains the registers to delete

Example of a MAP response:

```
Next par is: <function> <fields>
Enter: <function>
```

12 To enter the delete command, type

>DELETE

Press the Enter key.

Example of a MAP response:

```
Next par is: <fields>
Enter: <fields>
```

13 To specify that all registers in the group are to delete, type

>ALL

Press the Enter key.

Example of a MAP response:

```
OK.
```

14 Repeat Procedure 1 through 3 to verify the deletion of the registers.

15 You have completed this procedure.

Adding OM registers to an accumulating class

Use the following procedure to add OM registers to an accumulating class.

Note: Before you begin this procedure, designate an accumulating class and assign the OM group to the calls where the register belongs. To add selected registers from an OM group to a report, first delete all the fields and add separate fields. You can delete the fields that are not needed one at a time.

Procedure 8 Adding OM registers to an accumulating class

At the MAP terminal

1 To start the procedure to determine the OM groups and registers assigned to the accumulating class, type

```
>OMDUMP CLASS
```

Press the Enter key.

Example of a MAP response:

```
Next par is: <class>
 Enter: <class>
        <function>
```

2 To specify the accumulating class, type

```
>class
```

Press the Enter key.

where

class
is the name of the accumulating class to which you are adding a register

Example of a MAP response:

```
Next par is: <function> {COMMANDS,
                         FORMAT}
Enter: <function>
```

3 To enter the format parameter, type

```
>FORMAT
```

Press the Enter key.

Example of a MAP response:

```
SPECIAL1
   LMD  NTERMATT NORIGATT LMTRU TERMBLK
   LMD  ORIGFAIL PERCLFL STKCOINS REVERT
   LMD  MADNTATT ORIGBLK ORIGABN
   LMD
   OFZ  INANN    INKLT   INOUT   INOUT2
   OFZ  INTONE   NIN     NIN2    OUTNWAT
```

If	Do
the addition is one register from the OM group	Procedure 4
the addition is all registers from the OM group	Procedure 9

4 To start the procedure for register addition, type

>OMACCFLD

Press the Enter key.

Example of a MAP response:

```
Next par is: <class>
 Enter: <class> <group> <function> <fields>
```

5 To specify the accumulating class, type

>class

Press the Enter key.

where

class
is the name of the accumulating class to which you are adding a register

Example of a MAP response:

```
Next par is: <group> <function> <fields>
 Enter: <group> <function> <fields>
```

6 To specify the OM group, type

>group

Press the Enter key.

where

group
is the name of the OM group that contains the register

Example of a MAP response:

```
Next par is: <function> <fields>
 Enter: <function>
```

7 To enter the add command, type

>ADD

Press the Enter key.

Example of a MAP response:

```
Next par is: <fields>
   Enter: <fields>
```

8 To specify the register for addition, type

>FIELD field

Press the Enter key.

where

field
is the name of the register for addition

Example of a MAP response:

```
OK.
```

Go to Procedure 15.

9 To start the procedure for addition of registers, type

>OMACCFLD

Press the Enter key.

Example of a MAP response:

```
Next par is: <class>
   Enter: <class> <group> <function> <fields>
```

10 To specify the accumulating class, type

>class

Press the Enter key.

where

class
is the name of the accumulating class to which you are adding a register

Example of a MAP response:

```
Next par is: <group> <function> <fields>
   Enter: <group> <function> <fields>
```

11 To specify the OM group, type

>group

Press the Enter key.

where

group
is the name of the OM group that contains the registers

Example of a MAP response:

```
Next par is: <function> <fields>
   Enter: <function>
```

12 To enter the add command, type

>ADD

Press the Enter key.

Example of a MAP response:

```
Next par is: <fields>
   Enter: <fields>
```

13 To specify that all registers in the OM group are added, type

>ALL

Press the Enter key.

Example of a MAP response:

```
OK.
```

14 Repeat Procedure 1 through 3 to verify the addition of the registers.

15 You have completed this procedure.

Selecting specified tuples for output

Use the following procedure to select output exact tuples in a named group and class.

Note 1: Before you begin this procedure, designate an accumulating class.

Note 2: Engineering and Administrative Data Acquisition System (EADAS) users must check with an EADAS coordinator before selecting tuples for output.

Procedure 9 Selecting specified tuples for output

At the MAP terminal

1 To start the deletion of tuples from the requested class and group, type

>OMACCKEY

Press the Enter key.

Example of a MAP response:

```
Next par is: <class>
Enter: <class> <group> <function> <keys>
```

2 To specify the accumulating class, type

>class

Press the Enter key.

where

class
is the name of the accumulating class for which you are displaying information

Example of a MAP response:

```
Next par is: <group>
 Enter: <group> <function> <keys>
```

3 To specify the OM group, type

>group

Press the Enter key.

where

group
is the name of the OM group that contains the registers identified by an exact tuple

Example of a MAP response:

```
Next par is: <function>
Enter: <function> <keys>
```

4 To enter the delete command, type

>DELETE

Press the Enter key.

Example of a MAP response:

```
Next par is: <keys>
Enter: <keys> {ALL
            KEY [<key> {0 to 9999}]
                [<key> STRING}
```

5 To specify the deletion of all tuples in the OM group, type

>ALL

Press the Enter key.

Example of a MAP response:

```
OK.
```

6 To start the addition of the new tuples, type

>OMACCKEY

Press the Enter key.

Example of a MAP response:

```
Next par is: <class>
Enter: <class> <group> <function> <keys>
```

7 To specify the accumulating class, type

>class

Press the Enter key.

where

class
is the name of the accumulating class for which you are displaying information

Example of a MAP response:

```
Next par is: <group>
Enter: <group> <function> <keys>
```

8 To specify the OM group, type

>group

Press the Enter key.

where

group
is the name of the OM group that contains the registers identified by an exact tuple

Example of a MAP response:

```
Next par is: <function>
 Enter: <function> <keys>
```

9 To enter the ADD command, type

>ADD

Press the Enter key.

Example of a MAP response:

```
Next par is: <keys>
Enter:  <keys> (ALL
          KEY [<keys> {0 to 9999}]
              [<keys> STRING}
```

10 To specify the tuple to add, type

>KEY keynum or **keyname**

Press the Enter key.

where

keynum
is the number of the tuple to add. The range is 0 to 9999.

keyname
is the name of the tuple to add. The range is eight characters. The characters must begin with a letter.

Example of a MAP response:

```
OK.
```

11 You have completed this procedure.

Specifying output order of OM groups within a class

Use the following procedure to change the output order for OM groups in an accumulating class.

Note 1: If table OMGPORD (Operational Measurement Group Order) is empty, OM groups in an accumulating class are output according to a default order. The system generates this default order.

Note 2: To change the output order for an OM group, delete the existing tuple for the group. Overwrite the tuple for the OM group that contains the desired group order number. Use datafill for the deleted OM group to overwrite this tuple. You must enter the remaining tuples in the accumulating tuples in the accumulating class with the required output order.

Procedure 10 Specifying output order of OM groups within a class

At the MAP terminal

1 To access table OMGRPORD, type

```
>TABLE OMGRPORD
```

Press the Enter key.

Example of a MAP response:

```
TABLE: OMGRPORD
```

2 To determine the type (established, not established) of the desired group order, type

```
>LIST ALL
```

Press the Enter key.

Example of a MAP response:

```
CLASSORDERGRPNAME
 ----------------------------
HALFHOUR1OFZ
HALFHOUR2TRKS
HALFHOUR3LMD
HALFHOUR4TONES
HALFHOUR5ANNS
```

If the OM groups	Do
are in the wrong order	Procedure 3
are in the correct order	Procedure 18

3 Record the order number and group name entered for each tuple in the accumulating class.

4 To change the position on the tuple, type

```
>POS class   order_number
```

Press the Enter key.

where

class
is the name of the accumulating class affected

order_number
is the order number of the tuple changes

Example input:

>POS HALFHOUR 4

5 To delete the tuple, type

>DEL

Press the Enter key.

6 To confirm the command, type

>Y

Press the Enter key.

7 To confirm the deletion of the tuple, type

>LIST ALL

Press the Enter key.

Example of a MAP response:

```
CLASSORDERGRPNAME
----------------------------------------
HALFHOUR1OFZ
HALFHOUR2TRKS
HALFHOUR3LMD
HALFHOUR5ANNS
```

8 To position on the tuple that contains the desired group order number, type

>POS class order_number

Press the Enter key.

where

class
is the name of the accumulating class

order_number
is the desired group order number

Example input:

>POS halfhour 2

9 To change the tuple, type

>CHA

Press the Enter key.

Example of a MAP response:

```
Next par is: (group)
Enter:(group)
```

10 To enter the new group name for the tuple, type

>group

Press the Enter key.

where

group
is the OM group for which output order changes; TONES, for example

Example of a MAP response:

```
Tuple changes:
 HALFHOUR    2    TONES
 Enter Y to confirm, N to reject or E to edit.
```

11 To ensure the datafill is correct and to confirm the command, type

>Y

Press the Enter key.

Example of a MAP response:

```
Tuple changed
 Written to journal file as JF number 68
```

12 Determine if the output order for other OM groups in the accumulating class changes.

If the output order	Do
is changed	Procedure 17
is not changed	Procedure 13

13 To overwrite the tuples following the overwritten tuple, repeat Procedure 8 through 11 for each of the tuples. Do not repeat Procedure 8 through 11 for the last tuple in the accumulating class.

Note 1: You recorded the required tuple information in Procedure 3.

Note 2: You must enter the tuples in order from the lowest to the highest group number.

14 To add the last tuple to the accumulating class, type

>ADD class order_number group

Press the Enter key.

where

class
is the accumulating class

order_number
is the order number for the last tuple that you recorded in Procedure 3

group
is the group name for the last tuple that you recorded in Procedure 3

Example input

```
>ADD HALFHOUR 5 ANNS
```

Press the Enter key.

Example of a MAP response:

```
Tuple to be changed:
 HALFHOUR5ANNS
 Enter Y to confirm, N to reject or E to edit.
```

15 To confirm, type

```
>Y
```

Press the Enter key.

16 Go to Procedure 18.

17 Repeat Procedure 4 to 11 to for each of the OM groups for which you want to change the output order.

18 To exit table OMGRPORD, type

```
>QUIT
```

Press the Enter key.

19 You have completed this procedure.

Enabling a class

Use the following procedure to enable an accumulating class. This procedure initiates data accumulation for the specified time period.

Procedure 11 Enabling the class

At the MAP terminal

1 To access table OMACC, type

>TABLE OMACC

Press the Enter key.

Example of a MAP response:

```
TABLE: OMACC
```

2 To determine if the class is enabled, type

>POS class

Press the Enter key.

where

class
is the name of the accumulating class to be enabled

Example of a MAP response:

```
CLASSENABLEDPRECSNWHEN
------------------------------
SPECIALNDPRECISIONAUTO
```

If the class	Do
is not enabled	Procedure 3
is enabled	Procedure 7

3 To start the procedure to enable the class, type

>CHA

Press the Enter key.

Example of a MAP response:

```
ENABLED: N
```

4 To confirm the command, type

>Y

Press the Enter key.

Example of a MAP response:

```
REP: AUTO
```

5 To specify the collection interval, type

>interval

Press the Enter key.

where

interval
is one of the following parameters:

HALFHOURLY
specifies half hourly OM data accumulation is made. This time also depends on OMXFR.

HOURLY
specifies hourly OM data accumulation is made. This time also depends on OMXFR.

MONTHLY
specifies required OM data accumulation on a monthly base

DAYTIME
specifies that OM data accumulates for selected days on a weekly base

DAILY
specifies required that one accumulation of OM data each day of the week

WEEKLY
specifies required accumulation of OM data each week

DEVWEEK
indicates that OM data accumulates on a specified day of the week, at a specified hour and minute

AUTO
specifies that the accumulating period is set by OMXFR in table OFCENG. (This read-only field is for holding classes only and cannot bee changed.)

Note: Some parameter values display subfields that you must enter.

Example of a MAP response:

```
Tuple to be changed:
     TEST   Y     AUTO
 Enter Y to confirm, N to reject or E to edit.
```

6 To confirm the command, type

>Y

Press the Enter key.

Example of a MAP response:

```
TUPLE CHANGED
  WRITTEN TO JOURNAL FILE AS JF NUMBER 579.
```

7 To exit table OMACC, type

>QUIT

Press the Enter key.

8 You have completed this procedure.

Operational measurement scheduling and routing report procedures

This section contains the following procedures for manipulating OM reports:

- scheduling reports
- routing reports to the device independent recording package (DIRP)
- assigning a class number to a report
- setting OM totals for all classes
- setting OM totals for a specific group and class
- specifying reports and the format of the report
- starting or stopping the device
- printing OM files with OMPRDUMP
- printing reports

Scheduling reports

Use the following procedure to associate a class name with a report number. Use this procedure to determine which OM information you must route to the output device.

Note: Before you begin this procedure, you must have an assigned report number between 200 and 231.

Procedure 12 Scheduling reports

At the MAP terminal

1 To access table OMPRT, type

>TABLE OMPRT

Press the Enter key.

Example of a MAP response:

```
TABLE: OMPRT
```

2 To determine if the data associated with a report is correct, type

>POS report_number

Press the Enter key.

where

report_number
is the number of the OM report

Example of a MAP response:

```
REPNO     ACTIVE    SUPZERO
PRTSPEC
                              WHEN          BUFFOUT
OUTDEV

-------------------------------------------------
--------
 200       Y         N                    ALLCLASS
HALFHOURLY
                            AUTO         N         SINK
```

If the data associated with the report number	Do
is not correct	Procedure 3
is correct	Procedure 12

3 To start the procedure to change the datafill associated with the report number, type

>CHA

Press the Enter key.

4 To indicate if the report must be active or inactive, type

>Y or **N**

Press the Enter key.

where

Y
specifies that the report is active

N
specifies that the report is inactive

Example of a MAP response:

```
SUPZERO: N
```

5 To specify if zero suppression is active, type

>Y or **N**

Press the Enter key.

where

Y
specifies that only tuples that contain values other than zero are output

N
all tuples are output

Example of a MAP response:

```
ID: ALLCLASS
```

6 To specify the type of output report (field PRTSPEC, subfield ID), type

>ALLGROUP group, ALLCLASS class, ONETAB group class, or ALL.

Press the Enter key.

where

ALLGROUP
specifies that data for all registers in the specified OM group is output

group
indicates specific OM group

ALLCLASS
specifies that all data is output for OM groups in the specified class

class
is the specified accumulating or history class

ONETAB
specifies that data is output for one OM group in the specified accumulating class

group
is the specified OM group

class
is the specified accumulating or history class

ALL
specifies that data for all OMs is output

Example of a MAP response:

```
REP: AUTO
```

7 To specify when the report is output (field WHEN, subfield REP), type

>when

Press the Enter key.

where

when is one of the following parameters:

AUTO	schedules reports to be output when the holding registers are updated or when the accumulating period table that OMACC ends.
HALFHOURLY	schedules reports to be output each half-hour. Commences at the time that refinement STARTUP defines.
HOURLY	Schedules reports to be output each hour. Commences at the time you define in refinement STARTUP.
DAILY	Schedules reports to be output each day during the time period that you define in refinements FROMTIME and TOTIME.
WEEKLY	Schedules reports to be output each week during the period that you define in refinements FROMDAYOFM, FROMTIME, TODAYOFM, and TOTIME.
MONTHLY	Schedules reports to be output each month during the period that you define in refinements FROMDAYOFM, FROMTIME, TODAYOFM, and TOTIME.
DEVDAY	Schedules reports to be output each day at the time that you define in refinement WHEN. If associated with a weekly accumulating class, DEVDAY provides a daily display of the accumulating count for OMs in the class during the period set in table OMACC.

DAYTIME	Schedules reports to be output each day of the block of days that you define in refinements FROMDAYOFW and TODAYOFW. This output occurs during the period that refinements FROMTIME and TOTIME defines.
DEVWEEK	Schedules reports to be output each week at the time that refinements DOW and WHEN define. If associated with a monthly accumulating class, DEVDAY provides a weekly display of the accumulating count. The display is for OMs in the class during the period set in table OMACC.

Example of a MAP response:

```
BUFFOUT: N
```

8 To specify if the report must be buffered on disk (field BUFFOUT), type

>Y or **N**

Press the Enter key.

where

Y specifies that the report is buffered on disk

N specifies that the report is not buffered on disk (default value)

Example of a MAP response:

```
OUTDEV: SINK
```

9 To specify the output device, type

>SINK or **OUTDEV**

Press the Enter key.

where

SINK
is the null device. Enter only if field BUFFOUT was set to Y (default value)

OUTDEV
is the output device entered earlier in table OMDEV. Enter only if field BUFFOUT is set to Y

Example of a MAP response:

```
TUPLE TO BE CHANGED:
 200      Y   N       ALLCLASS      ALL
                AUTO      N     SINK
 Enter Y to confirm, N to reject, or E to edit.
```

10 To confirm the tuple changes, type

```
>Y
```

Press the Enter key.

Example of a MAP response:

```
TUPLE CHANGED
WRITTEN TO JOURNAL FILE AS JF NUMBER 637
```

11 To exit table OMPRT, type

```
>QUIT
```

Press the Enter key.

12 You have completed this procedure.

Routing reports to the DIRP

Use the following procedure to schedule the transfer of OM data to the device independent recording package (DIRP) or another recording device.

Note 1: Before you begin this procedure, designate an accumulating class and assign the OM group to the class where the register belongs. Refer to the following procedures for details:

- "Designating an accumulating class"
- "Assigning an OM group to an accumulating class"

Note 2: Activate each tape number in table OMTAPE (Operational Measurements Output Recording) to transfer the data. Enable the class in table OMACC (Operational Measurements Accumulator). To establish the periods for transfer of data, consider the periods already set in table OMACC.

Procedure 13 Routing reports to the DIRP

At the MAP terminal

1 To access table OMTAPE, type

```
>TABLE OMTAPE
```

Press the Enter key.

Example of a MAP response:

```
TABLE: OMTAPE
```

2 To verify if the data associated with a tape schedule is correct, type

```
>POS tape schedule number
```

Press the Enter key.

where

tape schedule number
is a number from 0 to 31. There are 32 tuples available for each table. Each tuple has a tape schedule number and a class assigned to it.

Example of a MAP response:

```
15NSPECIAL1MONTHLY10C0010C00
```

If the data associated with a tape schedule	Do
is not correct	Procedure 3
is correct	Procedure 10

3 To verify the correct output times on the virtual display unit (VDU), type

>RAN WHEN

Press the Enter key.

Example of a MAP response:

```
4  WHEN       OMTIMESPEC
 TYPE IS       OMTOMESPEC     MUTIPLE WITH
            REP                 OMREPSELECTO
RREFINEMENTS:
           {AUTO}              OMTOMEAUTO
           {HISTORY}           MUTIPLE WITH
                SNAPSHOTS       {1TO 6}
               XFER            {T10, T15, T20,T30}
           {HALFHOURLY}       MULTIPLE WITH
                STARTUP         {C00 C15, C30, C45}
 -
 -
 -
           {DEVDAY}            MULTIPLE WITH
               WHEN            MULTIPLE WITH
               HR              {0 TO 23}
               MIN             {C15, C30, C45}
```

4 To change the data associated with a tape schedule, type

>CHA

Press the Enter key.

Example of a MAP response:

```
Enter Y to continuing processing or N to quit:
```

5 To continue the process, type

>Y

Press the Enter key.

Example of a MAP response:

```
ACTIVE: Y
```

where

active
indicates if the report is active or inactive. A Y indicates data accumulation for a specified class occurs each transfer period.

N
indicates data accumulation does not occur

6 To continue the process, type

>Y or N

Press the Enter key.

7 To display the class information, type

>class name

Press the Enter key.

Example of a MAP response:

```
CLASS:
```

where

class
specifies to display information that relates to only one accumulating class

8 To enter the time frame, type

>timeframe

Press the Enter key.

where

HALFHOURLY
schedules OM data to be output every half hour

HOURLY
schedules OM data to be output every hour

DAILY
specifies that OM data is output each day of the week

DAYTIME
specifies that OM data is output for selected days each week

WEEKLY
specifies that OM data is output once each week

DEVWEEK
schedules OM data to be output on a specified day of the week, at a specified hour and minute

AUTO
specifies that OMXFR in table OFCENG sets the schedule period. (Use this field for holding classes only.)

Note: Some parameter values display subfields that require data entry.

Example of a MAP response:

```
TUPLE TO BE CHANGED:
 15YSPECIAL1DAILY
 Enter Y to confirm, N to reject, or E to edit.
```

9 To confirm the tuple changes, type

>Y

Press the Enter key.

Example of a MAP response:

```
TUPLE CHANGED
 WRITTEN TO JOURNAL FILE AS JF NUMBER 579
```

10 To exit table OMTAPE, type

>QUIT

Press the Enter key.

11 You have completed this procedure.

Assigning a class number to a report

Use the following procedure to assign a log utility (logutil) class number to the report that table OMPRT (Operational Measurement Printer) defines.

Note 1: Before you begin this procedure, complete the Scheduling Reports procedure. Define the report number in table OMPRT. Identify the report name and the class number to complete this procedure.

Note 2: The log utility system can direct outputs to a printer or a device like a printer. Not all parameters of the log utility system can establish output reports. If parameters do not require adjustment, press the Enter key.

Procedure 14 Assigning a class number to a report

At the MAP terminal

1 To access table LOGCLASS, type

```
>TABLE LOGCLASS
```

Press the Enter key.

Example of a MAP response:

```
TABLE: LOGCLASS
```

2 To verify if the class number belongs to the report, type

```
>LIST ALL
```

Press the Enter key.

Example of a MAP response:

```
 TOP
 REPNAME   CLASS   THRESHOLD   SUPPRESS   TUNITS
SYSLOG

-------------------------------------------------
 OMPR    200       10        0 N        0 N
 OMPR    201       11        0 N        0 N
 OMPR    202       12        0 N        0 N
 OMPR    203       13        0 N        0 N
 .
 .
 .
 .
 OMPR    231       31        O N        0 N
 BOTTOM
```

If the class number	Do
is not assigned to the report	Procedure 3
is assigned to the report	Procedure 12

3 To add the class number to a report, type

```
>ADD
```

Press the Enter key.

Example of a MAP response:

```
Enter Y to continue processing, N to quit
```

4 To continue the process, type

>Y

Press the Enter key.

Example of a MAP response:

```
REPNAME:
```

5 To enter the report name, type

>OMPR <200-231>

Press the Enter key.

where

repname
is the report name defined earlier in table OMPRT. The value is OMPR <200-231>

Example of a MAP response:

```
CLASS:
```

6 To enter the logutil class number, type

>0-31

Press the Enter key.

where

class
is the logutil class number from 0 to 31. Nortel does not recommend the use of class 0 because 0 is the default class number.

Example of a MAP response:

```
THRESHOLD:
```

7 To enter the threshold value, type

>0-255

Press the Enter key.

where

threshold
is the value from 0 to 255. Assignment of a class number to a report does not require this parameter. Set to 0.

Example of a MAP response:

```
SUPPRESS:
```

8 To continue the process, type

>Y or N

Press the Enter key.

where

suppress
allows the user to suppress the report. Assignment of a class number to a report does not require this parameter. Set to N.

Example of a MAP response:

```
TUNITS:
```

9 To enter the traffic units that identify the reset time, type

>0000-9999

Press the Enter key.

where

tunits
are traffic units that identify the reset time for thresholds. Assignment of a class number to a report does not require this parameter. Set to 0.

Example of a MAP response:

```
SYSLOG:
```

10 To continue the process, type

>Y or N

Press the Enter key.

where

syslog
allows the user to specify if a system log must generate if a count exceeds a threshold. This parameter is not used for OM input. Set to N.

Example of a MAP response:

```
TUPLE TO BE ADDED: OMPR  231 31 0  N  0   N
 ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

11 To confirm the tuple changes, type

>Y

Press the Enter key.

Example of a MAP response:

```
TUPLE ADDED
 WRITTEN TO JOURNAL FILE AS JF NUMBER 71
```

12 To exit table LOGCLASS, type

>QUIT

Press the Enter key.

13 You have completed this procedure.

Setting OM totals for all classes

Use the following procedure to generate an OM total for a named OM group for all accumulating classes.

Note 1: When feature OMTOTAL is on, a tuple totals to the end of the designated OM group for all accumulating classes.

Note 2: To complete totals, the OM group you are requesting must have multiple appearances.

Procedure 15 Setting OM total for all classes

At the MAP terminal

1 To activate the OM total feature, type

>OMTOTAL

Press the Enter key.

Example of a MAP response:

```
GROUP:
```

2 To continue the process, type

>group

Press the Enter key.

where

group
specifies the OM group for which you require a total (or for which you no longer require a total)

Example of a MAP response:

```
ON or OFF
```

3 To continue the process, type

>ON or OFF

Press the Enter key.

where

ON
turns the OM total feature on for a specified OM group

OFF
turns the OM total feature off for a specified OM group

Example of a MAP response:

```
OK.
```

4 You have completed this procedure.

Setting OM totals for a specific group and class

Use the following procedure to control OM totals for a specific OMPR (Operational Measurement Print) report. When OMACCTOT is set to ON, the system prints the total tuple for the selected OM group and measurement class.

Note 1: Before you begin this procedure, select an accumulating class and assign the OM group to the class for which you are requesting a total. (Refer to the procedure “Designating an accumulating class” for details.)

Note 2: Ensure that the OM group total feature is ON. (Refer to the procedure “Setting OM totals for all classes” for details. Also refer to this procedure to generate totals for a selected OM group.)

Note 3: This procedure does not affect the output of command OMSHOW. Add keyname TOTAL to OMSHOW to display the total tuple for the selected OM group and measurement class.

Procedure 16 Setting OM totals for a specified group and class

At the MAP terminal

1 To activate the OM total feature for an OM group and an accumulating class, type

```
>OMACCTOT
```

Press the Enter key.

Example of a MAP response:

```
CLASS:
```

2 To enter the class name, type

```
>class
```

Press the Enter key.

where

class
is the name of the accumulating class

Example of a MAP response:

```
GROUP:
```

3 To continue the process, type

>group

Press the Enter key.

where

group
identifies the OM group for which the total only option is active or inactive

Example of a MAP response:

```
ON or OFF
```

4 To continue the process, type

>ON or OFF

Press the Enter key.

where

ON
turns the total tuple only feature on for the selected OM group in the selected class

OFF
turns the total tuple only feature off for the selected OM group in the selected class

Example of a MAP response:

```
OK.
```

5 You have completed this procedure.

Specifying reports and the format of the report

Use the following procedure to add a device to table LOGDEV (Log Device) and to change specifications about the report.

Note 1: Before you begin this procedure, identify the device name to which you must route the report. Identify the class number assigned in table LOGCLASS (Log Class).

Note 2: If parameters do not require adjustment, press the Enter key.

Procedure 17 Specifying reports and the format of the report

At the MAP terminal

1 To access table LOGDEV, type

```
>TABLE LOGDEV
```

Press the Enter key.

Example of a MAP response:

```
TABLE: LOGDEV
```

2 To verify the data associated with a report, type

```
>LIST ALL
```

Press the Enter key.

Example of a MAP response:

```
TOP
 DEV   ALT   CLASSES
FORMAT   PRIORITY
 ----------------------------------
TRM2   NIL    (0,31)
>STD     N   PRT2   NIL   (0, 3-9)
STD     N   MAP   NIL   (4)
STD     N
TRAF1   NIL(5)
STD     N
BOTTOM
```

If the device	Do
is not present in the table	Procedure 3
is present in the table but the data associated with the report is not correct	Procedure 12
is present in the table and the data associated with the report is correct	Procedure 21

3 To add the device name to table LOGDEV, type

```
>ADD
```

Press the Enter key.

Example of a MAP response:

```
Enter Y to continue processing or N to quit
```

4 To confirm the table adjustment, type

>Y

Press the Enter key.

Example of a MAP response:

```
DEV:
```

where

dev
is the device to which the report must route

5 To enter the device name, type

>device name

Press the Enter key.

Example of a MAP response:

```
ALT:
```

where

alt
allows the user to specify an alternate device name. Type nil or press return.

6 To continue the process, type

>NIL

Press the Enter key.

Example of a MAP response:

```
CLASSES:>
```

where

classes
is a number from 0 to 31. Use the same number that belongs to the OMPR report in table LOGCLASS. This parameter identifies the LOGUTIL class number that associated with the output device.

7 To enter the LOGUTIL class number, type

>'(class number)

Press the Enter key.

Example of a MAP response:

```
FORMAT:
```

where

format
identifies the report to be STD or SCC2. The SCC2 format modifies the formula for polling by downstream devices. The STD format outputs in the standard Nortel format.

8 To specify the report formula required, type

>STD

or

SCC2

Press the Enter key.

Example of a MAP response:

```
PRIORITY:
```

where

priority
must be set to N to indicate that you require in order output. If this parameter is set to Y, the user indicates that output for this log class must relate to alarm levels. This feature is not associated with standard OM report output.

9 To continue the process, type

>NIL

Press the Enter key.

Example of a MAP response:

```
GUARANTEED:
```

where

guaranteed
must be set to N to make sure the output of logs to this device occurs at times when only priority outputs can occur.

10 To set the guaranteed, type

>N

Press the Enter key.

Example of a MAP response:

```
TUPLE TO BE ADDED:
NWM1   NIL
STD    N     (6)
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

11 The confirm the tuple adjustment, type

>Y

Press the Enter key.

Example of a MAP response:

```
WRITTEN TO JOURNAL FILE AS JF NUMBER 947.
```

12 To change the data associated with a report, type

>CHA

Press the Enter key.

Example of a MAP response:

```
Enter Y to continue processing or N to quit
```

13 To continue the process, type

>Y

Press the Enter key.

Example of a MAP response:

```
DEV:
```

where

dev
is the device to which the report routes

14 To enter the device name, type

>device name

Press the Enter key.

Example of a MAP response:

```
ALT:
```

where

alt
allows the user to specify an alternate device name. Type nil or press return.

15 To continue the process, type

>NIL

Press the Enter key.

Example of a MAP response:

```
CLASSES:
```

where

classes
is a number from 0 to 31. Use the same number that belongs to the OMPR report in table LOGCLASS. This parameter identifies the LOGUTIL class number that associates with the output device.

16 To enter the class number, type

```
>'(class number)
```

Press the Enter key.

Example of a MAP response:

```
FORMAT:
```

where

format
identifies the report to be STD or SCC2. The SCC2 format modifies the format for polling by downstream devices. The STD format outputs in the standard Nortel formula.

17 To enter the report formula, type

```
>STD
```

or

```
>SCC2
```

Press the Enter key.

Example of a MAP response:

```
PRIORITY:
```

where

priority
is set to N to indicate that you require in order output. If this parameter is set to Y, the user indicates that output for this log class must relate to alarm levels. This feature is not associated with standard OM report output.

18 To continue the process, type

```
>NIL
```

Press the Enter key.

Example of a MAP response:

```
GUARANTEED:
```

where

guaranteed
is set to N to make sure the output of logs to this device occurs at times when only priority outputs are allowed.

19 To set the guaranteed, type

>N

Press the Enter key.

Example of a MAP response:

```
TUPLE TO BE ADDED:
 NWM1  NIL
STD    N   (6)
 ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

20 To confirm the tuple change, type

>Y

Press the Enter key.

Example of a MAP response:

```
WRITTEN TO JOURNAL FILE AS JF NUMBER 948.
```

21 To exit table LOGDEV, type

>QUIT

Press the Enter key.

22 You have completed this procedure.

Starting or stopping the device

Use the following procedure to activate the output device to which the reports route. Also use this procedure to stop an active output device.

Note: Before you begin this procedure, identify the device and format of the report in table LOGDEV (Log Device).

Procedure 18 Start or stopping the device

At the MAP terminal

1 To access the LOGUTIL utility, type

>LOGUTIL

Press the Enter key.

Example of a MAP response:

```
LOGUTIL:
```

2 To verify if the output device where the report routes is active, type

>LISTDEVS

Press the Enter key.

Example of a MAP response:

```
NUMBERDEVICESTATUSREROUTEDFORMAT


-------------------------------------------
 0MAPPRTOINACTIVENOSTD
 1 VDU031ACTIVENOSTD
 2 VDU031ACTIVENOSTD
 3 VDU032INACTIVENOSTD
 4 VDU133INACTIVENOSTD
 5 VDU140INACTIVENOSTD
 6 VDU033ACTIVENOSTD
 7 VDU043INACTIVENOSTD
 8 VDU041INACTIVENOSTD
 9 VDU130INACTIVENOSTD
 10 VDU040INACTIVENOSTD
 11 NETWORKINACTIVENOSTD
```

To	Do
activate the device	Procedure 3
stop the device	Procedure 4

3 To activate the output device, type

>STARTDEV device name

Press the Enter key.

Example of a MAP response:

```
Log device VDU032 has been started.
 Number of devices started: 1
```

Go to Procedure 5.

4 To stop the output device, type

>STOPDEV device name

Press the Enter key.

Example of a MAP response:

```
Log device VDU032 has been stopped.
 Number of devices stopped: 1
```

5 Repeat Procedure 2 to verify if the device is active or inactive.

6 To exit the LOGUTIL utility, type

>QUIT

Press the Enter key.

7 You have completed this procedure.

Printing OM files with OMPRDUMP

Use the following procedure to print OM information.

Note: Before you begin this procedure, ensure that table OMTAPE (Operational Measurements Output Recording) has field CLASS activated, and includes datafill for classes.

Procedure 19 Printing OM files with OMPRDUMP

At the MAP terminal

1 To activate the disk utility, type

>DISKUT

Press the Enter key.

Example of a MAP response:

```
DISKUT:
```

Note: To display help for all the commands, type **>Q DISKUT**

Press the Enter key.

2 To display information on all volumes on the disk, type

>LISTVOLS

Press the Enter key.

Example of a MAP response:

```
NAMETYPETOTALFREETOTALOPENITOCLARGEST
BLOCKSBLOCKS
================================================
unallocd45724655350
JF56610000165
AMA7410000386
DLOG7820000716
OM3420000113
:
SMDR25810000443
```

3 To list all files on a disk volume, type

>LISTFL diskvol

Press the Enter key.

where

diskvol
is the name of the disk volume

An example of diskvol is F02LJF.

where

02
is the IOP slot number

JF
is the volume name

Example of a MAP response:

```
566 files in the volume
ListVol command may take up 284 seconds.
P980625003265JF
:
p981229160909JF
```

4 To enter the OMPRDUMP directory and access its commands, type

>OMPRDUMP

Press the Enter key.

5 To display the file you want to dump, type

>OMGETGD filename

Press the Enter key.

where

filename
is the name of the file defined in DIRP where the OM information is located.

Example of a MAP response:

```
Classes scheduled to tape are:
DAILYOM
MONDAY
TUESDAY

The first class found on file is:
Class name  :  DAILYOM
```

```
Start time  :  1999 07 06 00 00
Stop time   :  1999 07 07 00 00
```

6 To print the OMPRSPEC report for a given class and the OM groups that belong to the class, type

>OMPRTREP CLASS classname ALLGROUP

Press the Enter key.

where

class name
is the name of the class for which you want the report

Example of a MAP response:

```
Specified time period ignored for this class

Class and group data must be retrieved in
sequential order. Use OMDUMP or table OMGRPORD
to check group ordering. Do you wish to
continue?
Please confirm ("YES", "Y", "NO", or "N")
```

7 To continue the report generation, type

>YES

Press the Enter key.

Example of a MAP response:

```
OMPRSPEC 1999/07/12 16:36:12 (from OMTAPE
format)

Class: DAILYOM
Start:1999/07/10 00:00; Stop: 1999/07/11 00:00;
Slowsamples:       864; Fastsamples       8640;

TRK
   Key (Common_Language_Name)
   INFO (OM2TRKINFO)

   INCATOT   PRERTEAB  INFAIL   NATTMPT
   NOVGLATB  GLARE     OUTFAIL  DEFLDCA
   :         :         :        :
   ACCCONG   NOANSWER

ATTAMA
   AMORIGS   AMTRMT    AMNOTRMT AMANS
   :         :         :        :
   AMRC555   AMLT555   AMED555  AMNA555
```

```
249431     39923      0          0
:          :          :          :
0          0          0          0

END OF FILE REACHED.
GROUP DESCRIPTION DATABASE DEALLOCATED.
{CONTINUE OR LOGOUT}
```

8 To log out, type

>QUIT ALL

Press the Enter key.

9 Determine the next action.

If	Do
you are satisfied with the report	step 10
you want to assign OM groups to an accumulating class or to see which groups are assigned to an accumulating class	refer to procedure “Assigning OM groups to an accumulating class”
you want to add all fields in the group to a class or determine which groups are in a class	refer to procedure “Adding OM registers to an accumulating class”
set the time or date for report generation	use command OMPRTSET

10 You have completed this procedure.

Printing reports

Use the following procedure to print an OM report.

Procedure 20 Printing reports

At the CI level of the MAP display

1 Enter command OMSHOW to print a report for an OM group.

>OMSHOW TRK ACTIVE

where

TRK
is the designated OM group

ACTIVE
is the class parameter

The following output shows an example report for designated OM group TRK.

```
TRK (GROUP name)

CLASS:ACTIVE (CLASS name)
START:2000/11/18 10:00:00 TUE; STOP: 2000/04/12
10:03:01
TUE
SLOWSAMPLES2 ; FASTSAMPLES18 ;

KEY (COMMON_LANGUAGE_NAME)
INFO (OM2TRKINFO)
INCATOTPRERTEABINFAILNATTEMPT
NOVFLATBGLAREOUTFAILDEFLDCA
DREUPREUTRUSBU
MBUOUTMTCHFCONNECTTANDEM
AOFANFTOTU
```

In the preceding output, the section identifies the location of the information and register fields for the report. In the example, the section contains the following information:

- Key. The report contains information for many trunk groups. The identification requires a key field. The common language location identifier (CLLI) for the trunk group is the method to identify the trunk.
- Info. The information field that associates with each trunk group.

OM thresholding

The purpose of OM thresholding is to provide real-time switch surveillance by measuring key OM maintenance registers against pre-set bogeys and a scan time interval. OM thresholding can be a powerful tool for real-time troubleshooting, or when there is a need to be alerted to a potential problem.

A threshold represents the number of times an OM register increases before the system activates an associated alarm. You can select any OM and assign a threshold to it.

Table administration

Two tables control OM thresholding: tables ALARMTAB (Threshold Alarms Table) and OMTHRESH (Operational Measurement Threshold). These OM thresholding tables share identical functions, except table ALARMTAB is a read-only table, which Nortel datafills in

advance. Changes or additions to table ALARMTAB must be arranged through your technical support organization.

Datafill table OMTHRESH to specify the OM register, alarm level, threshold count, and scan time.

Procedure 21 Setting OM thresholds

From the CI level of the MAP display

1 Access table OMTHRESH through table editor.

```
>TABLE OMTHRESH
```

Press the Enter key.

The MAP displays the following prompt.

```
Table OMTHRESH:
```

2 Enter datafill in table OMTHRESH by adding a tuple.

```
>ADD
```

Press the Enter key.

The system prompts you to enter data in the first field of the table.

```
KEY:
```

3 Enter data for an OM register in one of the following formats:

- <name of OM register>$<name of tuple>
- <name of OM register>$<<number of tuple>
- <name of OM register>$<total>

Note: All input in this procedure is strictly for example purposes.

```
>CCBOVFL$0
```

Press the Enter key.

The MAP displays the following prompt.

```
ENABLED:
```

4 Enter Y if the OM is to have a threshold. Otherwise, enter N.

```
>Y
```

Press the Enter key.

The MAP displays the following prompt.

```
ALMLEVEL:
```

5 Enter the type of alarm to be activated

- CR (critical)
- MJ (major)
- MN (minor)
- NA (no alarm)

```
>MJ
```

Press the Enter key.

The MAP displays the following prompt.

```
THRESHLD:
```

6 Enter the maximum number (between 1 and 32767) of events that can occur during a specified time interval (scan time) without activating an alarm.

```
>20
```

Press the Enter key.

The MAP displays the following prompt.

```
SCANTIME:
```

7 Enter the time interval, in minutes, to specify the length in thresholding lasts.

```
>10
```

Press the Enter key.

The MAP displays the following prompt.

```
TUPLE TO BE ADDED:
CCBOVFL$0
YMJ2010
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

8 Confirm the command.

```
>Y
```

Press the Enter key.

Example of a MAP response:.

```
TUPLE ADDED
WRITTEN TO JOURNAL FILE AS JF NUMBER 1716
```

9 You have completed this procedure to assign a threshold to an OM register.

OM thresholding logs and alarms

Logs Log reports track when the register exceeds the specified alarm threshold. The system routes the log reports to specified output devices. When the system generates an alarm for a specified entry in table OMTHRESH, the system suppresses alarm generation.

The system generates log OM2200 whenever a specified threshold in table OMTHRESH or table ALARMTAB is reached or exceeded. Visual and audible alarms are also generated with the log message, based upon the value in field ALMLEVEL. The visual-alarm indicator appears under the EXT status display.

Alarm scanning The four levels of alarms are as follows:

- critical
- major
- minor
- no alarm

To clear a visual or audible alarm, access the EXT level of the MAP display.

Maintenance and administration position

The MAP level system is the primary interface that enables end users to monitor and maintain real-time information of the XA-Core. Use the MAP terminal to perform the following system functions:

- data modification
- general maintenance
- line test
- network management
- operational measurements (OM)
- service analysis
- trunk test

For more information about the MAP level interface, refer to *DMS-100 Family XA-Core Reference Manual*, 297-8991-810.

Tools and utilities

To provide a more efficient method of monitoring system performance, specialized tools are installable on the switch, including the following

- Switch performance monitoring system (SPMS)
- DMS monitoring system (DMSMON)
- Flexible Advanced Capacity Engineering Tool (FACET)

SPMS

The switch performance monitoring system (SPMS) is a tool that provides a series of index values that measure how well the system is operating. The SPMS tool is available for use if option SPMS (software package NTX738) exists in the system.

Performance results display in a report. The reports consist of detailed and summary data, based on a range of index values computed from OMs. Index values are computed from on a daily basis, or customer defined on a monthly basis. Use the daily SPMS results to identify and correct trouble spots in the switch. Customers can use the monthly results for administration plans to evaluate the quality of switch performance, and for the maintenance and provisioning effort that underlies that performance.

This section contains the following procedures for manipulating the SPMS tool:

- setting the day of the month
- setting up the SPMS automatic report
- assigning an OMRS report in table LOGCLASS
- defining a printer for SPMS (whether the device exists or not in table LOGDEV [Log Device])
- using the SET command
- using indices in the SET command
- using the SETREP command
- using the DISPLAY command
- using the DESCRIBE command
- using the EXCEPTION command

Setting the day of the month

The end user need only to set the date for the start of the report month in office parameter SPMS_START_OF_MONTH in table OFCENG (Office Engineering).

Procedure 22 Setting the day of the month

At the MAP display

1 Access the CI level of the MAP display.

```
>QUIT ALL
```

Press the Enter key.

2 Access table OFCENG.

```
>TABLE OFCENG
```

Press the Enter key.

The MAP displays the following prompt:

Table OFCENG:

3 Position on the desired tuple by typing the following command.

```
>POS SPMS_START_OF_MONTH
```

Press the Enter key.

4 Enter a number to represent the day for the start of the report month. The values range from 1 to 28. The default value is 1.

Press the Enter key.

5 You have completed this procedure.

Now add the SPMS report to the list of automatically generated reports in table OMREPORT (Operational Measurements Report).

Setting up the SPMS automatic report

After you have set the day of the month for the start of the report month in table OFCENG, add the SPMS report to the list of automatically generated reports in table OMREPORT. The reports are called OMRS reports.

The system stores OM reports in the log system central buffer, against log name OMRS. The stem system stores the OM reports until it routes the report to the correct devices.

Procedure 23 Setting up the SPMS automatic report

At the CI level of the MAP display

1 Access table OMREPORT.

```
>Table OMREPORT
```

Press the Enter key.

The MAP screen displays

```
Table OMREPORT
```

2 Within table OMREPORT, select a spare report to be assigned the name SPMSREP.

Note: Any listed report containing *SPARE* in the Data field is available for use.

3 Position on the tuple associated with the report to change the following information.

```
>POS nn
```

where: nn is the tuple or report number

Press the Enter key.

4 Change the existing tuple.

```
>CHA
```

Press the Enter key.

The MAP screen displays the status of the report.

```
ACTIVE: N
```

5 Enter Y for the schedule number to be active.

```
 >Y
```

Press the Enter key.

The MAP screen displays

```
WHEN:
```

6 Enter DEVDAY for the report to be output daily at a specified time.

```
>DEVDAY
```

Press the Enter key.

7 Enter the time of the report, specifying the hour (from 0 to 23), and the minute of the hour when the active report is to stop printing (within 15-minute increments).

Note: The input below is strictly for example purposes.

```
>8 C30
```

Press the Enter key.

The MAP screen displays

```
CLASS:
```

8 Enter the class name for the OM accumulating class or history that the CI OMCLASS commands define.

```
>HOLDING
```

Press the Enter key.

The MAP screen displays the name of the report.

```
NAME:*SPARE*
```

9 Enter the new name for the report.

```
>SPMSREP
```

Press the Enter key.

The MAP screen displays the tuple to be changed.

```
TUPLE TO BE CHANGED
SCHEDNOACTIVEDATAWHENCLASS
23YDEVDAY 8 C30 HOLDING
SPMSREP
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
```

10 Confirm the command.

```
>Y
```

Press the Enter key.

The MAP screen displays the response

```
TUPLE CHANGED
```

11 You have completed this procedure.

Continue to the procedures in “Assigning OMRS report to table LOGCLASS” to print the report.

Assigning an OMRS report in table LOGCLASS

After you have set up the SPMS automatic report, assign the OMRS report to a log class in table LOGCLASS (Log Class). Also ensure that a printer is assigned.

Note: Table OMREPORT supports 24 provisionable reports. Only 23 entries can be assigned. The remaining entry must be designated with the report name “Spare.”

Procedure 24 Assigning an OMRS report in table LOGCLASS

At the CI level of the MAP display

1 Access table LOGCLASS.

```
>Table LOGCLASS
```

Press the Enter key.

The MAP screen displays

```
Table LOGCLASS
```

2 Add a report to table LOGCLASS.

```
>ADD
```

Press the Enter key.

The MAP screen displays

```
>REPNAME:
```

3 Enter the OMRS report name, which consists of a log name and report number.

Note: The input below is strictly for example purposes.

```
>OMRS 23
```

Press the Enter key.

The MAP screen displays

```
>CLASS:
```

4 Enter the class number assigned to the report name.

Note: The input below is strictly for example purposes.

```
>15
```

Press the Enter key.

The MAP screen displays

```
>THRESHOLD:
```

5 Enter a number from 0 to 255 to specify which messages the system prints or displays. (Enter 0 to generate all messages. If the threshold is 1 to 255, office parameter THRESHOLD_IS_SAMPLING in table OFCVAR [Office Variable] controls the action for log thresholding.)

>0

Press the Enter key.

The MAP screen displays

```
>SUPPRESS:
```

6 Enter N if the system generates a report or log. (This entry is tied to the entry in field THRESHOLD. If THRESHOLD = 1 to 255, then the system can generate a report.)

>N

Press the Enter key.

The MAP screen displays

```
>TUNITS:
```

7 Enter the time, in minutes, when the register count associated with a threshold reports resets to 0. The range of values is from -32768 to 32768. Zero (0) or a negative value prints all reports. A maximum of 100 unique TUNITS is allowed.

>-1

Press the Enter key.

The MAP screen displays

```
>SYSLOG
```

8 Enter Y if the log is a system log. Enter N if the log is not a system log.

Press the Enter key.

The MAP screen displays

```
>TUPLE TO BE ADDED:
OMRS 231150 N-1N
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

9 Confirm the command.

>Y

Press the Enter key.

The MAP screen displays the response.

```
TUPLE CHANGED
```

10 You have completed this procedure.

Continue to the procedures in “Defining a printer for SPMS.”

Defining a printer for SPMS

To print the log assigned to the OMRS report, route the log to a printer.

Use one of the following procedures for defining a printer depending on whether a printer device exists.

- Continue to the following procedure to define a printer if the device exist in table LOGDEV (Log Device)
- Skip to the procedure “Defining a printer when the devices do not exist in table LOGDEV” if the devices do not exist in table LOGDEV

Procedure 25 Defining a printer when the device exists in table LOGDEV

At the CI level of the MAP display

1 Access table LOGDEV.

```
>Table LOGDEV
```

Press the Enter key.

The MAP screen displays

```
Table LOGDEV
```

2 Display all the devices.

```
>LIST ALL
```

Press the Enter key.

The MAP screen displays the following output.

Note: *The below output is strictly for example purposes.*

```
>TOP
DEVALTCLASSES
FORMATPRIORITYGUAR
-----------------------------------------
```

```
MAPPRTNONE
(0-2, 4-7)
STDYY
SCCLOG NONE
(0-7, 17, 20, 22, 23, 25, 26)
SCC2NN
TTPPRT NONE (18, 20, 23, 26)
BOTTOM
```

3 Identify the desired printer name (from table TERMDEV [Terminal Device]) and position on that device.

>POS MAPPRT

Press the Enter key.

The MAP screen displays

```
MAPPRTNONE
(0-2, 4-7)
STDYY
```

4 Add the log assigned to the OMRS report to the desired printer.

>CHA

Press the Enter key.

The MAP screen displays

```
ALT: NONE
```

5 Press the Enter key.

The MAP screen displays

```
CLASSES: (0-2, 4-7)
```

6 Enter the log class number the system assigned to the OMRS report.

Note: The input below is strictly for example purposes.

>`(0-2, 4-7, 15)'

Press the Enter key.

The MAP screen displays

```
FORMAT: STD
```

7 Enter STD for standard format. Enter SCC2 for the AT&T #2 format.

Note: Enter SCC2 only if office parameter SCC2_LOGS = Y in table OFCOPT (Office Option).

>STD

Press the Enter key.

The MAP screen displays

```
PRIORITY: Y
```

8 Press Y if the alarm level sets the message prioritization of the reports. Or enter N to turn off message prioritization for each device, and the system generates the reports in order.

Note: Enter Y only if office parameter LOGS_PRIORITIZATION = Y in table OFCENG (Office Engineering).

>N

Press the Enter key.

The MAP screen displays

```
GUAR: N
```

9 Enter Y if the system guarantees the printing device. Otherwise, press the Enter key.

>Y

Press the Enter key.

The MAP screen displays

```
TUPLE TO BE CHANGED:
MAPPRTNONE
(0-2, 4-7, 15)
STDNY
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

10 Confirm the command.

>Y

Press the Enter key.

Example of a MAP response:

```
TUPLE CHANGED
WRITTEN TO JOURNAL FILE AS JF NUMBER 1716
```

11 You have completed this procedure to define a printer.

Continue by customizing the report using the SETREP command.

Procedure 26 Defining a printer when the devices do not exist in table LOGDEV

At the CI level of the MAP display

1 Access table LOGDEV.

```
>Table LOGDEV
```

Press the Enter key.

The MAP screen displays

```
Table LOGDEV
```

2 Add the printer device.

```
>ADD
```

Press the Enter key.

The MAP screen displays

```
DEV:
```

3 Enter the printer name from table TERMDEV.

Note: The below input is strictly for example purposes.

```
>MAPPRT
```

Press the Enter key.

The MAP screen displays

```
ALT:
```

4 Enter the name of the alternate printer device, if available.

```
>NIL
```

Press the Enter key.

The MAP screen displays

```
CLASSES:
```

5 Enter the log class number assigned to the OMRS report.

Note: The input below is strictly for example purposes.

```
>'(15)
```

Press the Enter key.

The MAP screen displays

```
FORMAT: STD
```

6 Enter STD for standard format. Enter SCC2 for the AT&T #2 format.

Note: Enter SCC2 only if office parameter SCC2_LOGS = Y in table OFCOPT (Office Option).

>STD

Press the Enter key.

The MAP screen displays

```
PRIORITY: Y
```

7 Enter Y if the alarm level sets the message prioritization of the reports. Or enter N to turn off message prioritization for each device, and the system generates the reports in order.

Note: Enter Y only if office parameter LOGS_PRIORITIZATION = Y in table OFCENG (Office Engineering).

>N

Press the Enter key.

The MAP screen displays

```
GUAR: N
```

8 Enter Y if the system guarantees the printing device. Otherwise, press the Enter key.

>Y

Press the Enter key.

The MAP screen displays

```
TUPLE TO BE CHANGED:
MAPPRTNONE
(0-2, 4-7, 15)
STDNY
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
```

9 Confirm the command.

>Y

Press the Enter key.

Example of a MAP response:

```
TUPLE CHANGED
WRITTEN TO JOURNAL FILE AS JF NUMBER 1716
```

10 You have completed this procedure to define a printer.

Continue by accessing the SPMS commands, as appropriate.

SPMS commands
The table below lists the SPMS commands. The paragraphs that follow this table describe the formats and options available for each SPMS command.

SPMS commands

SPMS command	Command description
>SPMS	Enters the SPMS utility at the CI level
>SET	Sets the parameters for the DISPLAY command
>SETREP	Sets the parameters for the automatically generated SPMS report
>DISPLAY	Displays the index values over the last “N” days or date
>DESCRIBE	Describes the selected indexes
>EXCEPTION	Displays the critical index values over the last “N” days
>HELP	Along with another SPMS command, displays detailed parameters

The SET command The SET command allows you to set the format and content of a manually generated SPMS report. The command format is as follows:

```
SET<option><argument>
PAGEWIDTH<numchars>{50 to 131}
TREEDEPTH<level> {0 to 10}
FORMFEED<format> {DMS|IBM}
TREETOPS[<indexnamel>][<indexnamek>] | ALL
EXCEPTVAL<indexname> {0 to 1001}
FORMAT <output> {SHORT | LONG}
INDICES<indices> {AVAIL | ALL}
UNSATLEVEL[<indexvalue> {0 to 1001}],
UNACCLEVEL [<indexvalue> {0 to 1001}]}]
```

The following paragraphs describe each option associated with this command.

PAGEWIDTH is the width of the output page in characters. The default value is 80 characters for each page.

TREEDEPTH indicates how many levels are included below the indicated TREETOPS indices. Level 0 includes the TREETOPS indices only, level 1 adds their child indices in the tree, level 2 adds the children of the children, and so on. The default value of TREEDEPTH is 10. This value includes all lower-level indices contributing to the selected TREETOPS indices.

FORMFEED is one of two arguments available with this option (DMS or IBM). The selected argument depends on the hardware. The default value is DMS.

TREETOPS indicates the highest level of the report within the SPMS tree structure. Data is gathered from the level indicated in the TREETOPS command to the level indicated in TREEDEPTH.

EXCEPTVAL indicates which indices to suppress and which to include in the trees selected by TREETOPS. Divide this value by ten to calculate the index value it represents (for example, 950 represents 95.0). With the DISPLAY command, only those indices with values less than the exception value display. All other indices, including NA indices, are suppressed. The default value of EXCEPTVAL is 1001 (that is, 100.1). This value ensures that all indices in the trees selected by TREETOPS display.

Setting EXCEPTVAL to its default value disables exception reporting.

The SET commands includes the use of indices.

UNSATLEVEL is the upper limit of unsatisfactory performance for an index. Values below this number, but higher than UNACCLEVEL, are marked with an asterisk (*) in SPMS reports. This value must be divided by ten to arrive at the index value it represents (for example, 750 represents 75.0). The default value of UNSATLEVEL is 900 (90.0). The value of UNSATLEVEL must be greater than the value of UNACCLEVEL.

UNACCLEVEL is the upper limit of unacceptable performance for an index. Values below this number are marked with double asterisks (**) in SPMS reports. This value must be divided by ten to arrive at the index value it represents (for example, 750 represents 75.0). The default value of UNACCLEVEL is 800 (80.0). The value of UNACCLEVEL must be less than the value of UNSATLEVEL.

The following procedure shows examples for entering the SET command with some of its associated options.

Procedure 27 Using the SET command

From the SPMS

1 To set any of the options to a specific value, enter

```
>SET <option> <value>
```

Press the Enter key.

2 To display the current settings of each option, enter

```
>SET
```

Press the Enter key.

3 To change each option to its default value, enter

```
>SET <option>
```

Press the Enter key.

4 To include the “WT R_95 R_80” column when displaying the SPMS report, enter

```
>SET FORMAT LONG
```

Press the Enter key.

Use of the LONG parameter and the DISPLAY command produces a report similar to the one in the following figure.

Long format of SPMS report

```
01/07/12 <<*>>F04314_00          SITENAME      BCS29ZIRTM  041289 <<*>>

2000/12/08 15:24:30.825 FRI.


                L   WT   R_95   R_80   001207      00 DEC          00 NOV
                                                   TODATE
TOTATT(K)                                 51          739            1298

                                                     *R*


SERVICE         A  ---                  88.4*        93.6            98.0
..MTCESERV      A  60                   81.4*        90.1            98.0
....MTCACCS     A  30                   44.5**       73.0**          98.9
......CCRESET   B  35   0   6  23000     0.0**       51.3**         100.0
......ORGLNOUT  B  20 22   5    1172    92.6         96.9            97.0
......ORGPMBLK  B  20   0   7  15043    74.2**       87.1*           99.0
....INSIGFL     A  10                   92.5         93.7            97.0
......TINSIGFL  B  60 58   5    1860    95.5         96.8            99.0
```

5 To exclude the “WT R_95 R_80” column when displaying the SPMS report, enter

`>SET FORMAT SHORT`

Press the Enter key.

Use of the SHORT parameter and the DISPLAY command produces a report similar to the one in the following figure.

Short format of SPMS report

```
01/07/12 <<*>>F04314_00          SITENAME

2000/12/08 15:24:30.825 FRI.


                L       001207          00 DEC          00 NOV
                                        TODATE
TOTATT(K)                 51              739            1298

                                          *R*


SERVICE         A       88.4*           93.6             98.0
..MTCESERV      A       81.4*           90.1             98.0
....MTCACCS     A       44.5**          73.0**           98.9
......CCRESET   B        0.0**          51.3**          100.0
......ORGLNOUT  B       92.6            96.9             97.0
......ORGPMBLK  B       74.2**          87.1*            99.0
....INSIGFL     A       92.5            93.7             97.0
......TINSIGFL  B       95.5            96.8             99.0
```

Procedure 28 Using indices in the SET command

From the SPMS

1 To remove the display of “NA” indices from your SPMS report, enter

`>SET INDICES AVAIL`

Press the Enter key.

Note: Any “NA” indicates with a corresponding numeric value are displayed.

2 To include all indices in your report, enter

`>SET INDICES ALL`

Press the Enter key.

Note: If exception reporting is enabled, those indices covered by exception do not display.

The SETREP command The SETREP command allows you to set the format and content of your automatically generated SPMS report. The command format is as follows:

```
SETREP<option><argument>
TREEDEPTH<level> {0 to 10}
TREETOPS[<indexname>]  [<indexnamek>] | ALL
EXCEPTVAL<indexname>{0 to 1001}
UNSATLEVEL<indexvalue>{0 to 1001}
UNACCLEVEL<indexvalue>{0 to 1001}
```

The following paragraphs describe each option associated with this command.

TREEDEPTH indicates how many levels are included below the indicated TREETOPS indices. Level 0 includes the TREETOPS indices only, level 1 adds their child indices in the tree, level 2 adds the children of the children, and so on. The default value of TREEDEPTH is 10. This value includes all lower-level indices contributing to the selected TREETOPS indices.

TREETOPS indicates the highest level of the report within the SPMS tree structure. Data is gathered from the level indicated in the TREETOPS command to the level indicated in TREEDEPTH.

EXCEPTVAL indicates which indices to suppress and which to include in the trees selected by TREETOPS. Divide this value by ten to calculate the index value it represents (for example, 950 represents 95.0). With the DISPLAY command, only those indices with values less than the exception value display. All other indices, including NA indices, are suppressed. The default value of EXCEPTVAL is 1001 (that is, 100.1). This value ensures that all indices in the trees selected by TREETOPS display.

Setting EXCEPTVAL to its default value disables exception reporting.

UNSATLEVEL is the upper limit of unsatisfactory performance for an index. Values below this number, but higher than UNACCLEVEL, include an asterisk (*) in SPMS reports. Divide this value by ten to calculate the index value it represents (for example, 750 represents 75.0). The default value of UNSATLEVEL is 900 (90.0). The value of UNSATLEVEL must be greater than the value of UNACCLEVEL.

UNACCLEVEL is the upper limit of unacceptable performance for an index. Values below this number include double asterisks (**) in SPMS reports. Divide this value by ten to arrive at the index value it represents (for example, 750 represents 75.0). The default value of UNACCLEVEL

is 800 (80.0). The value of UNACCLEVEL must be less than the value of UNSATLEVEL.

The following procedure shows how to use the SETREP command with some of its associated options.

Procedure 29 Using the SETREP command

From the SPMS

1 To set any of the options to a specific value, enter

```
>SETREP <option> <value>
```

Press the Enter key.

2 To display the current settings of each option, enter

```
>SETREP
```

Press the Enter key.

3 To change each option to its default value, enter

```
>SETREP <option>
```

Press the Enter key.

Use of the SETREP command with default settings produces an automatically generated SPMS report similar to the following figure.

Automatically generated SPMS report

```
01/07/12<<*>>F04314_00          SITENAME        BCS29ZIRTM  041289 <<*>>

2000/12/08 15:24:30.825 FRI.


                    L       001207          00 DEC          00 NOV
                                            TODATE
TOTATT(K)                     51            739             1298
                                                *R*


SERVICE             A       88.4*           93.6            98.0
..MTCESERV          A       81.4*           90.1            98.0
....MTCACCS         A       44.5**          73.0**          98.9
......CCRESET       B        0.0**          51.3**         100.0
......ORGLNOUT      B       92.6            96.9            97.0
......ORGPMBLK      B       74.2**          87.1*           99.0
....INSIGFL         A       92.5            93.7            97.0
......TINSIGFL      B       95.5            96.8            99.0
```

The DISPLAY command The DISPLAY command allows you to display a specific day's indices or a specified number of previous days in your SPMS report. The default of the DISPLAY command is to display the previous day's indices, the average of the current month, and the average of the previous month. The command format is as follows:

```
DISPLAY<option>
DAYS <number> {0 to 30}
DATE <yy> {0 to 99}
<yyyy>{1976 to 9999}
<MM>{1 to 12}
<DD> {1 to 31}
```

Note: Enter a 2- or 4-digit year only.

The following procedure shows examples for entering the DISPLAY command with some of its associated options.

Procedure 30 Using the DISPLAY command

From the SPMS

1 To display index values for certain days, enter

>DISPLAY DAYS <number>

where <number> = 0 to 30

Press the Enter key.

2 The following input shows the use of the DISPLAY command.

>SET TREETOPS SERVICE

Press the Enter key.

3 Enter the DISPLAY command.

>DISPLAY

Press the Enter key.

The SPMS displays every aggregate and basic index for the latest day, beginning with the SERVICE index, and provides a report similar to the one in the following figure.

Manually-generated SPMS report

```
01/07/12 <<*>>F04314_00          SITENAME      BCS29ZIRTM  041289 <<*>>

2000/12/08 15:24:30.825 FRI.


              L   WT   R_95   R_80   001207       00 DEC          00 NOV
                                                  TODATE
TOTATT(K)                               51          739            1298

                                                    *R*


SERVICE        A  ---                  88.4*        93.6            98.0
..MTCESERV     A  60                   81.4*        90.1            98.0
....MTCACCS    A  30                   44.5**       73.0**          98.9
......CCRESET  B  35   0   6  23000     0.0**       51.3**         100.0
......ORGLNOUT B  20 22   5    1172    92.6         96.9            97.0
......ORGPMBLK B  20   0   7  15043    74.2**       87.1*           99.0
....INSIGFL    A  10                   92.5         93.7            97.0
......TINSIGFL B  60 58   5    1860    95.5         96.8            99.0
```

4 To display a specific date, enter the digits for the year, month, and day as in the following sample input for 2 December 2000, enter

```
>DISPLAY DATE 2000 12 02
```

Press the Enter key.

Or enter the following input.

```
>DISPLAY DATE 00 12 02
```

Indices display in a stepped format that represents their hierarchical relationship. Basic indices always appear to the far right in a report.

The DISPLAY command generates exception reports when EXCEPTVAL is set to less than its default values. Exception reports differ from regular SPMS reports in three ways:

1. An extra line prints in the report heading, indicating the exception level and the number of days in the report.
2. A line of three dots in the report indicates that at least one index at this point in the tree has been suppressed.
3. An index is printed only if its value on one of the last N days (where N is the selected number of days) or its month-to-date value is less than the exception value.

The following figure shows part of a sample report obtained by entering the following sequence of commands.

```
>SET TREETOPS SERVICE

>SET EXCEPTVAL 800

>DISPLAY 1
```

SPMS report produced with EXCEPTVAL set less than default

```
01/07/12 <<*>>F04314_00          SITENAME      BCS29ZIRTM  041289 <<*>>

2000/12/08  15:24:30.825  FRI.
  PRINTINGINDICES<90.0  FOR LAST1  DAY(S).

                L   WT    R_95   R_80 | 001207        00 DEC          00 NOV
                                       |                TODATE
TOTATT(K)                              |   51           739             1298
                                       |                 *R*
                                       |
...                                    | 44.5    **     73.0    **      98.9
....MTCACCS     A  30                  |  0.0    **     51.3    **     100.0
......CCRESET   B  35  0   6   23000  |
...                                    |
......ORGPMBLK  B  20  0   7   15043  | 74.2    **     87.1    *       99.0
```

The DESCRIBE command The DESCRIBE command provides brief descriptions of specified indices. The description of a basic index includes the OMs that are monitored by the index.

The following procedure shows examples of how to enter the DESCRIBE command with some of its associated options.

Procedure 31 Using the DESCRIBE command

From the SPMS

1 To activate the help facility, enter

`>DESCRIBE <list of SPMS index names>`

Press the Enter key.

2 For example, enter

`>DESCRIBE SERVICE`

Press the Enter key.

The SPMS screen displays

```
SERVICE
Aggregate Index
Summary of call processing performance
```

3 Or, enter

`>DESCRIBE CCRESET`

Press the Enter key.

The SPMS screen displays

```
Basic Index
Calls denied origination during a CC restart
OM: CP INITDENY
```

4 If you enter the following indices and press the Enter key,

>DESCRIBE CCCTO PMDNY

The SPMS screen displays

```
CCCTO
Basic index
Call cutoffs because of CC cold restarts
OMs: CP CINITC
PMDNY Basic index
Originating calls denied because of PM overload
OMs: PMOVLD PORGDENY
```

The EXCEPTION command The EXCEPTION command displays indices containing values less than or equal to 90.0. You can attain the same output by setting the EXCEPTVAL parameter of the SET command to 900.

When you enter the EXCEPTION command, the displayed report includes a description of each index in the report, but does not include the “WT R_95 R_80” column.

The default setting for the EXCEPTION command displays the following information:

- the previous day's indices
- the current month's average
- the last month's average for indices less than or equal to 90.0

The following procedure shows examples of how to enter the EXCEPTION command with some of its associated options.

Procedure 32 Using the EXCEPTION command

From the SPMS

1 To activate the EXCEPTION command, enter

>EXCEPTION <days>

Press the Enter key.

2 To display a report using the EXCEPTION command, enter

>EXCEPTION

Press the Enter key.

The SPMS screen displays a report similar to the one in the following figure.

SPMS response to EXCEPTION command

01/07/12 <<*>> F04314_00 SITE NAME

2001/12/08 15:24:30.825 FRI.
PRINTING INDICES<90.0 FOR LAST 1 DAY(S).

	L	001207	00 DEC TO DATE	00 NOV
TOTATT (K)		51	739 *R*	1298
OFCPERF	A	86.4*	92.7	98.7
..SERVICE	A	69.3**	84.1	99.5
...				
....MTCACCS	A	44.5**	73.0**	98.9
......CCRESET	B	0.0**	51.3**	100.0
...				
......ORGPMBLK	B	74.2**	87.1*	99.0
...				
..MTCEPERF	A	96.9	96.2	95.2
...				
..PROVRES	B	100.0	90.0	99.4

TOTATT = Total call attempts

OFCPERF
Composite Index
Summary of overall office performance.

SERVICE
Aggregate Index
Summary of call processing performance.

MTCACCS
Aggregate Index
Summary of maintenance contribution to switch access.

... (see note)

R = Reboot or reload restart occurred

NOTE: The EXCEPTION report provides a description of each index listed.

DMS monitoring system

The DMS monitoring system (DMSMON) tool provides information about the hardware and software configurations, and data for accessing the performance of the system.

You can also use DMSMON to compare your current software with the previous version. Each product CM load (PCL) contains new features as well as changes to existing features. These changes in the software that runs the system can affect service indicators. Unless you are aware of the differences, your service monitoring plan can produce skewed results even though there is nothing wrong with the system. To ensure the accuracy of your reports (and to avoid possible hours of troubleshooting problems), use DMSMON to manually compare the new software with the previous version.

DMSMON features

The DMSMON tool displays information about patches, restarts, switch downtime, memory usage, high water mark values, and counts of logs, traps, software errors, and mismatches. If required, you can also obtain reports on the configuration of peripherals, the types and numbers of memory cards, and counts of hardware and other fixed items in your office.

With one command, you can produce an office performance report (OPR) that monitors switch performance and highlights potential trouble areas. (If the switch performance monitoring system [SPMS] feature exists in your system, DMSMON includes SPMS data in office performance reports.)

To obtain counts of events, DMSMON polls the software registers used for OMs and transfers the data it obtains into special accumulating registers. These registers continue to accumulate until either they are reset manually or a system reload restart occurs. You can print the data obtained over fixed periods of time for comparison of DMSMON data on a range of parameters with data from monitoring the previous PCL.

DMSMON operation

The following procedure shows how to access DMSMON from the CI level of the MAP display.

Procedure 33 Accessing DMSMON

At the CI level of the MAP display

1 Enter the DMSMON level.

```
>DMSMON
```

2 Enter any of the commands listed in the following table for DMSMON use. For example,

```
> COUNT
```

DMSMON commands

Command	Description
>ASSESS	Displays normalized peg counts
>COUNT	Executes the count procedures
>DBLOCKS	Displays digit block counts
>DUMPALL	Dumps the following information: • configuration of PMs • counts of major OMs • digit block counts • equipment counts • high water CP occupancy • high water mark for office parameters • log counts • memory usage • new patches • number of restarts and associated downtime • PM loads on the switch • traps, software error, and mismatches
>EQPCOUNTS	Displays the office equipment counts ***Note:*** Always use command COUNT before using command EQPCOUNT.
>HIGHCAP	Displays B-type reduced instruction set computer (BRISC) high water CP occupancy
>HIGHLOGS	Displays the 20 logs most frequently issued
>HIGHPARMS	Displays the high water marks for office parameters
Note: Enter the reset commands in the form: >RESET [parameter]. For example, >RESET OMS.	

DMSMON commands

Command	Description
>IBNEXPCT	Finds the number of free tuple spaces available in the four internal tuple expansion tables for table IBNXLA
>LOGBUFFER	Dumps the TRAP, SWERR, and MISC buffers
>LOGCOUNT	Counts log occurrences
>MEMORY	Displays memory usage
>NEWPATCH	Lists the new patches applied to the switch
>OMS	Counts major OMs
>OPR	Creates an office performance report
>PMCONFIG	Displays the office PM configuration
>PMLOADS	Displays the PM loads currently available
>RESET	Used in combination with any of the following parameters:
ALL (Note)	Resets OMs, log counts, and restarts to zero, and sets the new patch date to the current date
LOGCOUNT (Note)	Resets the log counts to zero
NEWPATCH (Note)	Sets the new patch date to the current date
OMS (Note)	Resets the OMs to zero
RESTARTINFO (Note)	Resets the number of restarts to zero
>QUIT	Exits the DMSMON level
>RESTARTINFO	Reports number of restarts and associated downtime

Note: Enter the reset commands in the form: >RESET [parameter]. For example, >RESET OMS.

CAUTION
Loss of data
When you use the RESET command, all accumulated data in the specified DMSMON registers are permanently deleted.

DMSMON commands
The following paragraphs provide a brief description of each command associated with the DMSMON tool.

ASSESS The ASSESS command produces a printout of performance peg counts, including all PM types, that have been normalized for each10 000 calls.

Use of the command ASSESS produces a report similar to the one in the following figure. (This figure shows just a portion of the actual output.)

Example of the DMSMON command ASSESS display

```
DMSMON:
>
>ASSESS


 Office CLLI: RTPT
 PCL Release: LET00016
 Polled from: 2001/08/20 15:30 to 2001/08/21 09:30
 Duration   : 0 days 18 hr. 00 min.

************************
*        ASSESS        *
************************

 Trunk Originated Calls  52,  Line Originated Calls  247.

Notes:
 1. Peg Count are Normalized Per 10000 Calls
 2. Target Peg Count are Normalized Per 10000 Calls
 3. Faults are not normalized.
 4. NM  is composed of NMC, NMMSG and NMSPCH.
 5. CMC Err is composed of CMC and CMCLINK.

      TM8  Err   TM8  Flt   MTM  Err   MTM  Flt   LGC  Err   LGC  Flt

Peg Counts:             0          1          0          0  1 0
Normalized:           0.0        ---        0.0        ---       33.4
Targets   :           1.0        0.0        1.0        0.0        1.0
0.0

      LCM  Err   LCM  Flt   DTC  Err   DTC  Flt   LTC  Err   LTC  Flt

Peg Counts:             3          8          2          0          9 0
Normalized:         100.3        ---       66.8        ---      301.0
Targets   :          1.0        0.0        1.0        0.0        1.0
0.0

      SMU  Err   SMU  Flt   RMM  Err   RMM  Flt   RCU  Err   RCU  Flt

Peg Counts:             5          0          0          0        403 0
Normalized:         167.2        ---        0.0        ---    13478.2
Targets   :           1.0        0.0        1.0        0.0        1.00.0
```

COUNT The COUNT command counts various switch equipment.

DBLOCKS The DBLOCKS command displays the digit block counts for various digilator2 tables.

The display provides the following information:

- the table name
- the pool number indicates the exact digilator2 pool
- the number of digit blocks being used
- the number of digit blocks allocated
- the percent used
- and the percent available

This information helps to determine how many digilator or digilator2 blocks remain in certain critical tables.

Example of the DMSMON command DBLOCKS display

```
Number of digit blocks being used by DNINV:Pool 0:   151
 Number of digit blocks allocated for DNINV:Pool 0: 32766
 Percent Used: 0.5    Percent Available: 99.5

 Number of digit blocks being used by DNINV:Pool 1:   155
 Number of digit blocks allocated for DNINV:Pool 1: 32766
 Percent Used: 0.5    Percent Available: 99.5

 Number of digit blocks being used by DNINV:Pool 2:   180
 Number of digit blocks allocated for DNINV:Pool 2: 32766
 Percent Used: 0.6    Percent Available: 99.4

 Number of digit blocks being used by DNINV:Pool 3:   186
 Number of digit blocks allocated for DNINV:Pool 3: 32766
 Percent Used: 0.6     Percent Available: 99.4
 >
```

DUMPALL The DUMPALL command dumps all the data in the DMS monitoring system since the counts were last reset to zero, either manually with the RESET parameter or automatically following a system reload restart.

EQPCOUNTS The EQPCOUNTS command lists all the peripherals, other hardware and fixed items, including the various types of lines, trunks, and receivers in the office. For peripherals, the counts indicate whether each is in-service or commissioned, as in the following example.

Example of the DMSMON command EQPCOUNTS display

```
Number of MTM PMs:     Insv:     4  Comm:     0
 Number of STM PMs:     Insv:     10 Comm:     0
 Number of LGC PMs:     Insv:     0  Comm:     1
```

Note: Always use command COUNT before accessing command EQPCOUNTS.

HIGHCAP Using a scan rate of 60 times an hour, the HIGHCAP command provides the hourly peak percentage of time that the control component (CC) spent on call processing (CP) and input/output (I/O) for each of the past 30 days. The following example shows a partial printout.

Example of the DMSMON command HIGHCAP display

```
>HIGHCAP
*************************************************
*                      HIGH WATER CAPACITY      *
*************************************************
                                        TIME
DATE | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 00
-------------------------------------------------------------------
08/09| 2 2 2 2 2 2 2 2 2  3  3  3  3  0  0  0  3

08/08|26 23 23 23 22 20 20 18 17 16 17 10 3 0 2 0 2 2 2 5 6 2 2 2

08/07| 9 9 0 0 0 0 0 0 0 0 3 3 3 7 18 14 33 30 33 33 29 29 27 26

08/06|30 27 28 28 28 25 22 19 19 19 18 8 5 7 8 16 14 14 11 9 9 9 9

08/05|35 1 28 27 22 22 20 19 15 15 15 15 15 13 33 33 33 55 42 56 44 39 37 33

08/04|52 52 51 51 51 50 48 48 49 48 49 48 49 49 48 49 45 45 41 41 35 35 35 35

08/03|23 25 30 32 38 21 16 15 15 12 13 14 13 13 13 13 12 17 17 25 45 54 43 54

08/02|15 15 13 8 8 8 8 10 10 15 15 15 12 11 9 18 18 20 20 19 22 25 24 24

08/01|       5 6 6 6 6 6 6 6 6 2 2 2 3 6 4 7 7 5 5 5 15 15
2001/07/30 16:58 RTP4 IP-Cable SN03BI
```

Use this information to monitor the daily CP and I/O usage of the switch.

HIGHLOGS The HIGHLOGS command displays the 20 logs that have occurred most often in the switch since the last time the RESET LOGCOUNT command was entered, or since the last reload restart. (Knowing which logs are occurring most frequently often provides an early indication of potential trouble areas in the switch.)

Use of the command HIGHLOGS produces a report similar to the one in the following figure.

Example of the DMSMON command HIGHLOGS display

```
>HIGHLOGS

****************************
*     High Runner Logs     *
****************************

 Last reset : 2001/08/20 15:01:32
 Data dumped: 2001/08/21 09:38:29

 1) DCH..600: 27322             11) ROS..901: 358
 2) PM...110: 15924             12) NOP..112: 285
 3) PM...181: 2742              13) NOP..113: 284
 4) PM...114: 1835              14) RO...104: 227
 5) PM...109: 1697              15) LINE.138: 173
 6) IBN..104: 1115              16) PM...128: 161
 7) TRK..103: 754               17) AUDT.111: 150
 8) PM...117: 670               18) PM...111: 135
 9) TRK..104: 665               19) RO...102: 130
10) RO...101: 359               20) ROS..902: 130
```

HIGHPARMS The HIGHPARMS command prints out tables of daily usage for critical office parameters indicating high water marks for the previous 30 days. The reports print in reverse order, starting with the previous day's figures. If there is no data for a particular parameter on any day, it is not displayed.

Use of the command HIGHPARMS produces a report similar to the one in the following figure. (This figure shows just a portion of the actual output.)

Example of the DMSMON command HIGHPARMS display

```
>HIGHPARMS

 Office CLLI: RTPT
 PCL Release: LET00016
 Polled from: 2001/08/20 15:30 to 2001/08/21 09:30
 Duration   : 0 days 18 hr. 00 min.

*****************************************************************
*     TABLES OF DAILY USAGE FOR CRITICAL OFFICE PARAMETERS      *
*****************************************************************

 30 days of high water mark values are printed with
 the most current one (yesterday) being printed first
 A -1 means that no data is collected yet for that day

 DATE       NUMCPLETTERS    NCCBS    NUMCALLPROCES   NUMOUTBUF
NMULTIBLKS
NUMCPWAKE

2001/08/20 MON          4     11    3    0        1           3
 DATE          NUMPERMEXT            NUM_OF_CCIS_INWATS_BLOCKS
NUM_OF_NT_RECORDING_UNITS TOPS_NUM_RU          CFW_EXT_BLOCKS

2001/08/20  MON    6               0                    0
0                     0
 DATE          NO_OF_SC_EXT_BLOCKS  TOPS_NUM_CAMA_RU
NUMIBNCQEXTBLK             INTL_FTR_EXT_BLOCKS  CFD_EXT_BLOCKS
2001/08/20  MON    0               0                    1
0                     0
 DATE          NO_OF_FTR_CONTROL_BL NO_LOCAL_COIN_EXT_BLKS
KSHUNT_EXT_BLOCKS          NUM_OF_NSC_EXT_BLKS  NUM_DCR_EXT_BLKS

2001/08/20  MON    4               0                    0
0                     0

  DATE          NUM_ISUP_EXT_BLKS    NO_OF_FTR_XLA_BLKS
CRS_SUBRU_POOL1_SIZE       CRS_SUBRU_POOL2_SIZE CRS_SUBRU_POOL3_SIZE

2001/08/20  MON    0               2                    0
2                     1
```

IBNEXPCT The IBNEXPCT command finds the number of free tuple spaces in each of the four internal tuple expansion tables for table IBNXLA. Use this command to gather statistical information about the use of the internal tuple expansion tables for table IBNXLA. The

IBNEXPCT command does not change existing data. Refer to the following table for an example of the IBNEXPCT command.

Example of the DMSMON command IBNEXPCT

```
>IBNEXPCT

------------------------------------------------------------
The number of free tuple spaces available in the internal
expanded tables of table IBNXLA
------------------------------------------------------------
Tuple expansion table corresponding to 10-digit digilator
pool1:12
Tuple expansion table corresponding to 10-digit digilator
pool2:10
Tuple expansion table corresponding to 12-digit digilator
pool :21
Tuple expansion table corresponding to 16-digit digilator
pool :20
```

LOGBUFFER The LOGBUFFER command produces a report indicating the number and type of traps, software errors, and mismatches that have been recorded since the last reload restart, or reset. The following figure shows an example of a partial LOGBUFFER report output.

Example of the DMSMON command LOGBUFFER display

```
****************************************
*     Traps, SWERRs, and MM buffers    *
****************************************

************************
*          Traps       *
************************

Trap number 282, Write to Protected Data Store
At 52536A=FTRPCEVT.AQ01:FTR_PCCONFE+#00EE
PTA= 40B5D5=FTRUTLUI.AQ01:MAKECONN+#072D
PROCID= #211F #C003: IOANP, Entry Module: IOANP SSTI: #034B
Current count of this trap type: 13
Traceback:
  2608CA=IOANP.DI01:RTS_ROUT+#00B0
  260613=IOANP.DI01:IOAN_PRO+#0077
  01D6C1=MODULES.BX22:INITIALIZEP+#0009
  001C0B=PROCS.EB04:LIVEANDD+#0007

DS hold register: 000061 (No Owner)
FIR= #0004
TRAP on active CPU.
CPU number 1, CMC 0 OFFLINE, CMC 1 ONLINE

************************
*        SWERRs        *
************************

  SWER   MAY28 01:38:55 7300 DATA
      REASON=0000, PROCID= #6102 #8003: ABEL, TEXT=LOG: PROC 1
      03C12D=LOGS.DT05:BIND_PRO+#0029
      AF3BC4=TCAPTSTD.AG01:TCAPTST_+#03BC
      0200B7=SYSINIT.EC19:ABELCODE+#00B7
      007EDC=ABEL.AC01:ABELPROC+#0006
      01D6C1=MODULES.BX22:INITIALIZEP+#0009
      011C0B=PROCS.EB04:LIVEANDD+#0007

************************
*       Mismatches     *
************************

Log Buffer Empty.
```

In this example, the “Traps” section is identical to the information contained in the CC subsystem number 103 log reports.

LOGCOUNT The LOGCOUNT command produces a list of log reports output since the last restart or reset, sorted by report type and report number. The following figure shows an example of a log report output.

Example of the DMSMON command LOGCOUNT display

```
*****************************
*    Log Report Counts      *
*****************************


Last reset:  2001/05/28  00:00
Date dumped: 2001/05/28  01:54


SOS..105: 1  LOST.101: 3   CC...115: 4  CC...116: 4  CC...107: 1
CMC..100: 2  IOD..304: 3   IOD..305: 6  IOD..306: 6  IOD..308: 3
```

In this example, SOS is the name of the log report subsystem. The periods (..) serve as separators. The numeral 105 is the number of the log report, and the numeral 1 is the number of reports of this type accumulated since the date indicated at the top of the report. SWER.000 reports the number of PROTOLOGS, which includes SWERR, TRAP and INIT.

MEMORY The MEMORY command provides information on each card in the XA-Core, as in the following figure of a partial card listing display.

Example of the DMSMON command MEMORY display

```
>MEMORY
*****************************
*            Memory         *
*****************************
-------------------------------------------------------------------------
EQP|SHLF|SLOT |EQPEC    |REL|SERIAL NO.      |MODULES | MEGS    |MEGS FAULTY
   |    |     |         |   |                |PER CARD|PER MOD|     OR ISTB
-------------------------------------------------------------------------
YES   3   7 F  NTLX14CA CA   NNTM6441DT1N        12     32       384   NO
YES   3   8 F  NTLX14CA CA   NNTM6441MSKN        12     32       384   NO
YES   3  10 F  NTLX14CA CA   NNTM6441N36S        12     32       384   NO
YES   3   7 R  NTLX14CA CA   NNTM17232BX5        12     32       384   NO
YES   3  11 F  NTLX14CA CA   NNTM6441DV9J        12     32       384   NO
-------------------------------------------------------------------------
5                                                                1920    0

Memory: Total 1920M bytes, Available 0M bytes.
```

NEWPATCH The NEWPATCH command displays all patches that have been applied to the switch since one of the following events occurred:

- the initial program load
- the last reload restart
- the last time the RESET NEWPATCH command was entered

Use of the command NEWPATCH produces a report similar to the one in the following figure.

Example of the DMSMON command NEWPATCH display

```
>NEWPATCH

************************
*      New Patches     *
************************

 Last reset : 2001/08/20 00:00:00
 Data dumped: 2001/08/21 09:39:35

PRSUID
-------------------------
  MODULE   EDIT APPDATE  APPTIME CAT CL RESTART FREE ST DESTID
  -------- ---- -------- ------- --- -- ------- ---- -- --------------
SOCBASE
  SOCBASE  AU01 20010821 09:07   ??? -  NONE    NA   R  CM
```

OMS The OMS command uses information from the OM system to produce a printout of event information. Only OMs for which at least one event was recorded are displayed. Following is a sample of a partial report obtained with the OMS command.

Example of the DMSMON command OMS display

```
 Office CLLI:
 BCS Release:
 Polled from 2001/05/28 01:45 to 2001/05/28 04:11
 Duration: 0 days 02 hr.  26 min.
 ************************
 *  Major OMs           *
 ************************
 AVN$ORIG =5  AVN$TERM =1    AVN$NOUT  =1   CMC$ERRR  =12
 CMC$LERR =4  CP1$LPOV =123  CP1$ODEN  =12  CP1$CCB0  =5
 CP1$WAKO =44 CPU$MTCH =51   CPU$SYNC  =12  CPU$WARM  =53
 CPU$COLD =13 EXT$OVFL =29   NMC$MERRR =11  NMC$SERR  =24
 NMC$SFLT =86 OFZ$ORIG =460  OFZ$OTRM  =289

LCM

 PMT$ERRR =5  PMT$FULT =7  PMT$SBPM =1  PMT$SBTO =2  PMT$PSER =9
 PMT$RGER =1  PMT$RGTF =1
```

The counts of events are based on information from the OM system. Each item consists of a prefix for the name of the OM group associated with the register, and a suffix for the associated OM field. The dollar ($) sign serves as a separator. The number following the equals (=) sign indicates the number of events recorded during the monitoring period.

The first block consists of items that are not associated with PMs. The subsequent sections are counts based on OM registers associated with individual PMs. They are grouped according to the type of PM, for example LCM, MTM, SCM.

OPR The OPR command provides a quick and simple way to obtain a comprehensive report on overall office performance. If the SPMS feature package exists on your switch, use the OPR command to produce a report comprising the following information:

- overall office configuration, including
  - — equipment counts
  - — total memory available
  - — restart history
  - — new patches applied
- overall office performance using SPMS data
- unacceptable SPMS indices (below 80%) based on the month-to-date field

- unsatisfactory SPMS indices (between 80% and 90%) based on the month-to-date field
- high runner logs

If the SPMS feature package does not exist in your switch, the report does not include SPMS results.

Use of the command OPR produces a report similar to the one in the following figure. (This figure shows just a portion of the actual output.)

Example of the DMSMON command OPR display

```
>OPR
                          OFFICE PERFORMANCE REPORT
                          =========================

CONFIGURATION DATA
==================

 Office CLLI: RTPT
 PCL Release: LET00016
 Polled from: 2001/08/20 15:01 to 2001/08/21 09:41
 Duration   : 0 days 18 hr. 40 min.

EQUIPMENT COUNTS
----------------

Number of DP_POTS lines: 13
Number of DGT_POTS lines: 279
Number of DP IBN/RES lines: 2
Number of DGT IBN/RES lines: 121
Number of trunk groups: 476
Number of trunks: 474
Number of nodes: 233
Number of networks: 1
Number of TM8 PMs:        Insv: 3     Comm: 0
Number of MTM PMs:        Insv: 6     Comm: 0
Number of LGC PMs:        Insv: 2     Comm: 0
Number of LCM PMs:        Insv: 4     Comm: 0
Number of DTC PMs:        Insv: 1     Comm: 0
Number of LTC PMs:        Insv: 1     Comm: 0
Number of SMU PMs:        Insv: 1     Comm: 0
Number of RMM PMs:        Insv: 3     Comm: 0
Number of RCU PMs:        Insv: 2     Comm: 0
Number of LIM PMs:        Insv: 1     Comm: 0
Number of LIU7 PMs:       Insv: 8     Comm: 0
Number of LDT PMs:        Insv: 4     Comm: 0
Number of EIU PMs:        Insv: 1     Comm: 0
Number of LCME PMs:       Insv: 7     Comm: 0
Number of SDM Nodes:      Insv: 1     Comm: 0
Number of attendant consoles: 4

Memory : Total = 524288K       Avail = 228288K Bytes
```

PMCONFIG The PMCONFIG command prints the configuration of the following equipment in your office:

- line concentrating modules (LCM)
- line group controllers (LGC)

- line trunk controllers (LTC)
- remote switching centres (RSC)

Use of the command produces a report similar to the one in the following figure. (This figure shows just a portion of the actual output.)

Example of the DMSMON command PMCONFIG display

```
>PMCONFIG

**********************************
*       Office Configuration       *
**********************************

The configuration of (I)LTC/(I)LGC, RSC, (I)LCM,
PLGC, DLM, IPE, GPP and SMA(2) ONLY is displayed

-------------             -------------
|LTC HOST  0| Links 5,3   |RCC REM2  0| Links 14,16  LCM REM2 00 0
-------------             -------------

means: LTC P-side link 5 is connected to RCC C-side link 0
       LTC P-side link 3 is connected to RCC C-side link 1
       RCC P-side link 14 is connected to LCM C-side link 0

Note: For the SMA, the IDT is displayed as a logical entity
      within the SMA.  Also, the SMA P-side links do not
      neccesarily connect sequentially (0,1,2,etc.) to the C-side
      of the RDT.

HOST XPM        LINKS             PSIDE PM(S)    LINKS          PSIDE PM(S
--------        -----             -----------    -----          ----------
|LGC  HOST   0|
|             | 0,1,2,3           LCM HOST 0 1
---------------
|LGC  HOST   1|
|             | 0,2,1,3           LCM HOST 5 0
|             | 4,6,5,7           LCM HOST 5 1
---------------
---------------
|LTCI HOST   0|
|             | 8,10,9,11         LCME HOST 2 0
---------------

|LTCI HOST   1|
|             | 5,7,6,8           LCME HOST 1 0
|             | 9,11,10,12        LCME HOST 1 1
--------------
|LTC  HOST   2|
|             |                   --------------
|             | 0,1,2,3,4,5       |RCC2 SRSC  0|
|             | 6,7,8,9,10,11     |            |
|             | 12,13,14,15       |            |
|             |                   |            |30,31,32,33     LCME SRCM
|             |                   |            |34,35
|             |                   |            |36,37,38,39     LCME SRCM
|             |                   |            |40,41
|             |                   --------------
```

PMLOADS The PMLOADS command prints a listing of the PM loads in the office.

Use of the command produces a report similar to the one in the following figure.

Example of the DMSMON command PMLOADS display

```
>PMLOADS

************************
*        PM Loads       *
************************

PM LOADS IN THIS OFFICE:
  RMM10A
  BTMKA02
  MTMKA02
  EDRMAD05
  QLI16AY
  QD716AY
  ECL14BC
  ESI13BB
  ESU13BB
  XLCM16AK
  LCME16AK
  XRI16AY
  LPC16BH
  LRS16BH
  ETC16BH
  ENC16BH
END OF PM LOADS.
```

QUIT The QUIT command exits the DMSMON tool.

RESET The RESET command resets the specified parameter(s) to zero, and permanently deletes all accumulated data in the process. Use the following parameters with the RESET command:

- > RESET ALL resets the OM, log, and restart counts to zero, and sets the new patch date to the current date.
- > RESET LOGCOUNT resets the log counts to zero.
- > RESET NEWPATCH resets the new patch date to the current date.
- > RESET OMS resets the OM counts to zero.
- > RESET RESTARTINFO resets the restart count to zero.

RESTARTINFO The RESTARTINFO command provides a breakdown of the number and type of restarts - system or manual, warm or cold - since the last reload restart or reset command. The printout also indicates total downtime.

Capacity

Port limits

Release SN03 supports the following port capacity limitations:

- 50,000 residential lines (maximum) in combination with 13,000 trunks for cable; or up to 112,000 trunks for packet trunking
- 25,000 multimedia terminal adapters (MTA)
- 13,000 trunk circuits (maximum)

Busy hour call attempts

The baseline computing module (CM) processor for release SN03 is 3+1 XA-Core. For a cable solution, the 3+1 XA-Core supports at least 150,000 busy hour call attempts (BHCA) that can have been generated by the 50,000 lines and 13,000 trunks.

FACET

The Flexible Advanced Capacity Engineering Tool (FACET) is an off-switch tools that enables an end user to determine if the switch is performing at the expected level. FACET includes the following tools for measuring system capacity:

- computing module (CM) memory capacity planning (MEMCALC)
- Traffic tool - traffic provisioning
- REAL:TIME - CM and peripheral module (PM) capacity planning and alignment of traffic

Using FACET This procedure briefly explains how to access FACET from a Windows PC environment.

Note: This procedure varies depending on the type of computer being used.

Procedure 34 Accessing FACET from a Windows PC

At the PC

1 Load the FACET program.

The FACET window displays on screen.

2 Login in to the Nortel server by inputting the Nortel-specified login and password, and press OK.

The FACET window displays on screen.

3 From the Tools pull-down menu, select Menu options.

4 For the selected capacity tool, select the desired software release.

An input sheet for the selected capacity option displays on screen.

5 Refer to the help instructions to fill out the input sheets.

6 Click the Calculate button when you have completed the input sheet.

FACET calculates and validates the capacity results in an output sheet. If you had entered values that were below or over the limits, FACET prompts you to correct the values.

7 Optionally, you can save, print, or delete the input or output sheets.

8 You have completed this procedure.

Additional information For details on FACET operation, refer to the following Nortel website:

http://rtpcapacitytools/index.html

From the FACET home page, access the FACET User Client Application & Documents link. Then scroll down to the Documentation category and select the desired documentation.

SCAPET

For memory calculations, use the Succession Network Capacity Tool (SCAPET) as an alternative to FACET. SCAPET automatically derives memory-related information from Polaris, a tool for collecting, storing, and reporting polling data.

Note: SCAPET use does not supply an automatic feed from Polaris for traffic and CM real-time calculations. End users must manually derive these measurements from the switch.