MG 9000 Performance Management

Performance management strategy

The MG 9000 measures performance management through operational measurement (OM) statistics designed to track performance and activity. These performance and activity statistics are displayed at the MG 9000 Manager at the Performance Statistics Browser. OM statistics are also sent to the Operations Support System (OSS) through the OM Collector for use by network engineers reviewing OMs from the entire network.

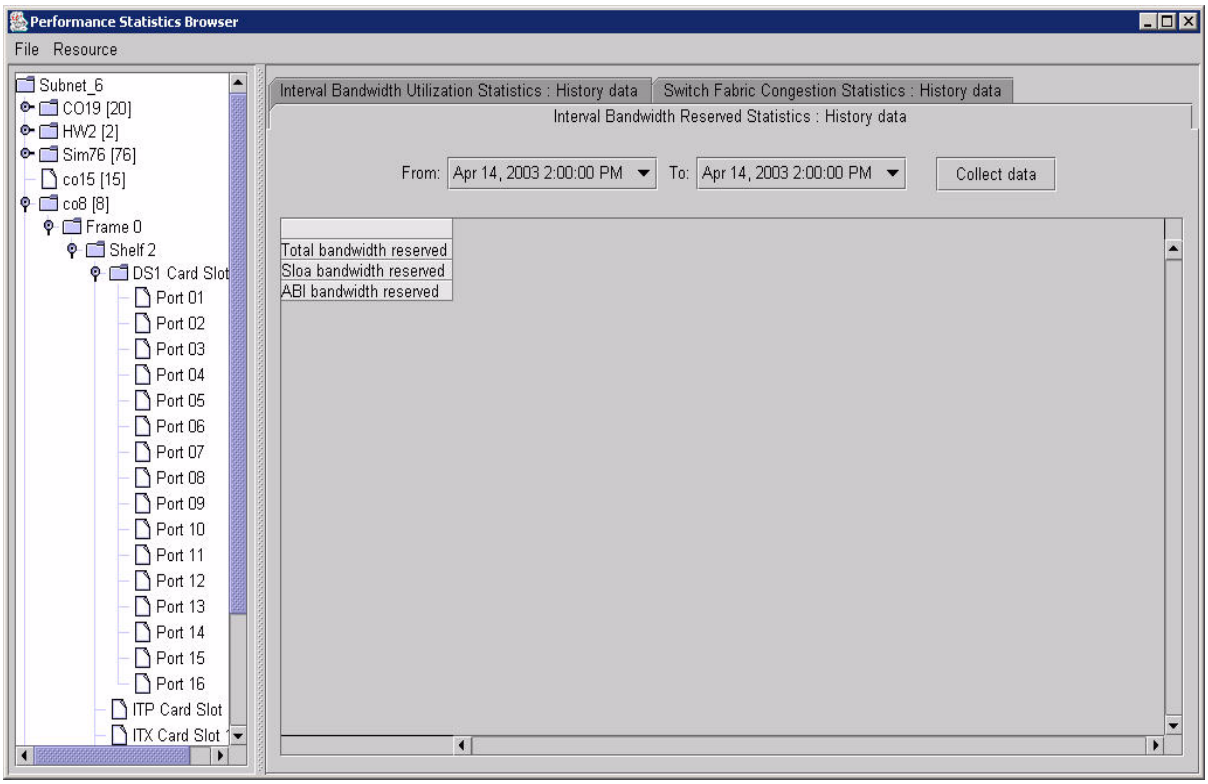
OMs reported to the Performance Browser

The operational measurements for the MG 9000 are presented through the Performance Browser and are accessed by selecting the statistics tab for each OM category. When a resource is selected in the Performance Statistics Browser, all the statistics that are accumulated for that resource are presented in the various statistics tabs available for selection.

Performance management procedures

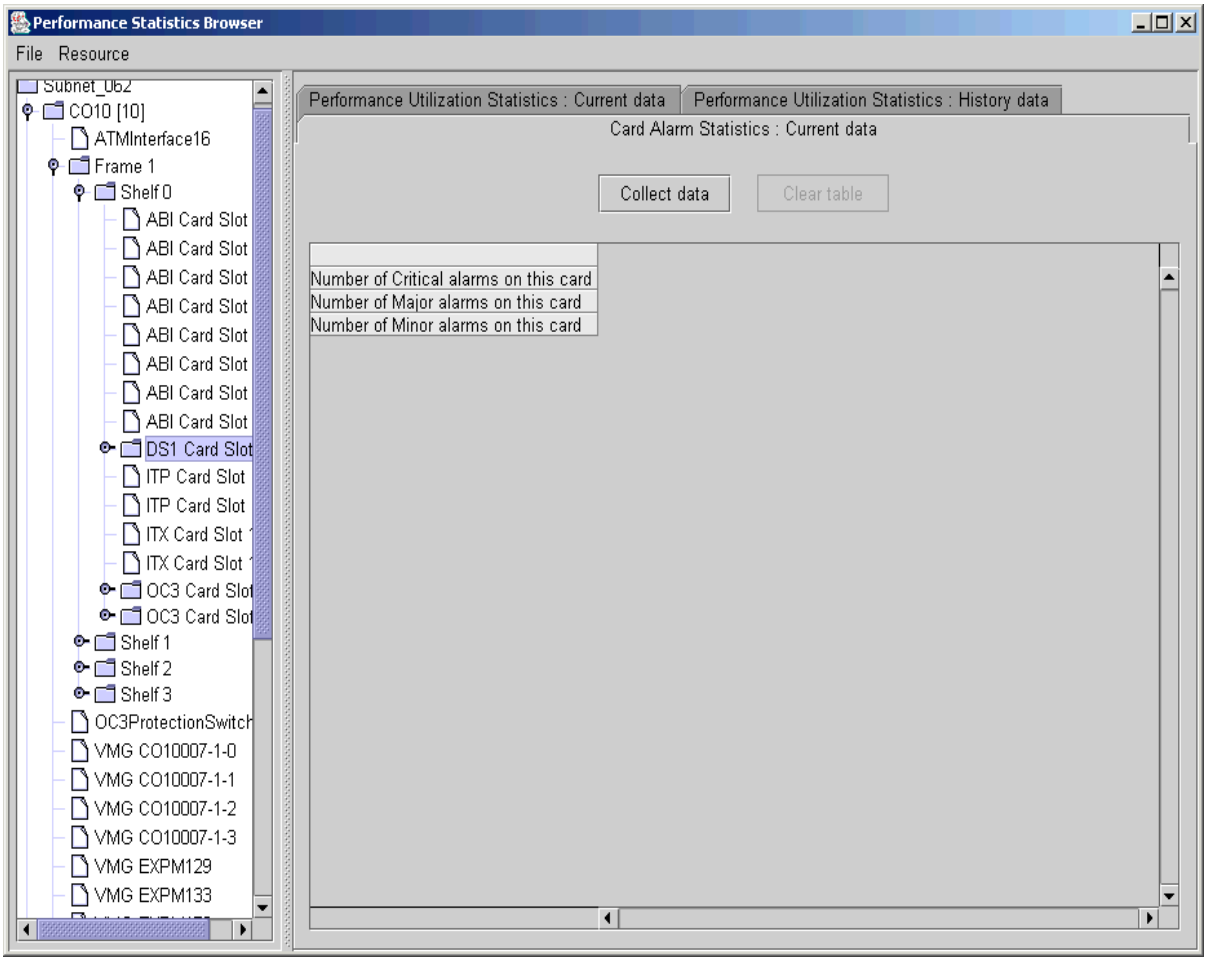
Operational measurements are statistics collected real time on a specific resource and then saved for later viewing. This information may be used to evaluate network performance or identify resource imbalance. OMs for a specific resource are displayed through the Performance Statistics Browser. The following figure shows the Performance Statistics Browser.

Performance Statistics Browser



The following figure shows the Performance Statistics Browser with a resource selected, in this case the DS1 card. The only statistics tab available shows the OM statistics collected for the DS1 card.

Performance Statistics Browser showing DS1 card selected and available OMs



The following procedures describe how to retrieve history and current history performance statistics.

Retrieving current performance data

Use the following procedure to retrieve current performance data. Current data is performance data that is continually being updated on the resource. The data are either reset at the start of each collection period or it continues to increase until either reset or rollover occur.

Retrieving current performance data

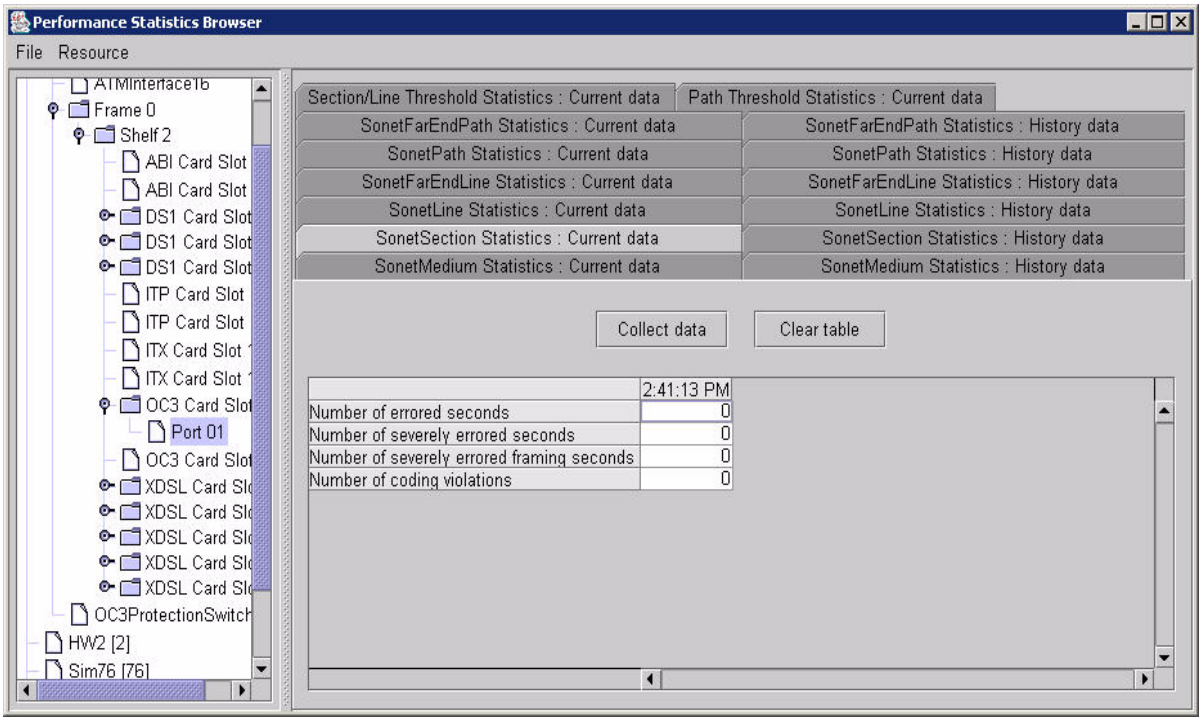
At the MG 9000 Manager

1 From the Subnet View, select Performance->Performance browser from the menu bar. The Performance Statistics Browser appears.

2 In the Performance Statistics Browser, select the resource to be monitored from the tree in the left frame of the browser.

3 Choose from the Current data tabs that appear at the top of the browser to obtain the current performance statistics. The following figure shows the Performance Statistics Browser with a current data tab selected.

Performance Statistics Browser showing current data



4 Click on the Collect data button, and the performance data for the selected statistics tab will appear.

5 This procedure is complete

Retrieving history performance data

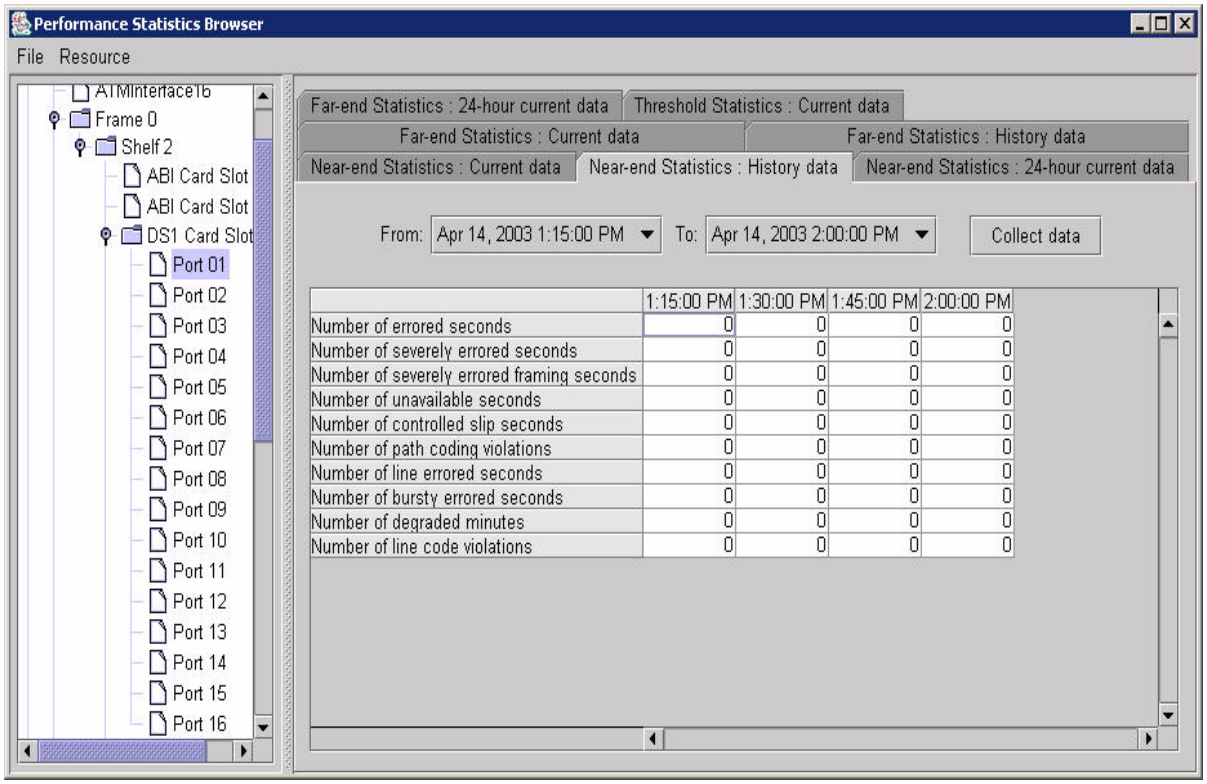
Use the following procedure to retrieve historical performance data. History data is performance data collected over a fixed period of time, such as 15 minutes. This data is made available when each collection period ends and remains available for a given length of time, such as 24 hours. At the end of the 24 period, the oldest data interval (15 minutes) is dropped and replaced by the most current.

Retrieving history performance data

At the MG 9000 Manager

1. From the Subnet View, select Performance->Performance Browser from the menu bar. The Performance Statistics Browser appears.
2. In the Performance Statistics Browser, select the resource to be monitored from the tree in the left frame of the browser.
3. Choose from the History data tabs that appear at the top of the browser to obtain the historical performance statistics. The following figure shows the Performance Statistics Browser with a history data tab selected.

Performance Statistics Browser showing history data



4 Enter the time frame to be monitored by choosing the start and end time frame in the From and To fields.

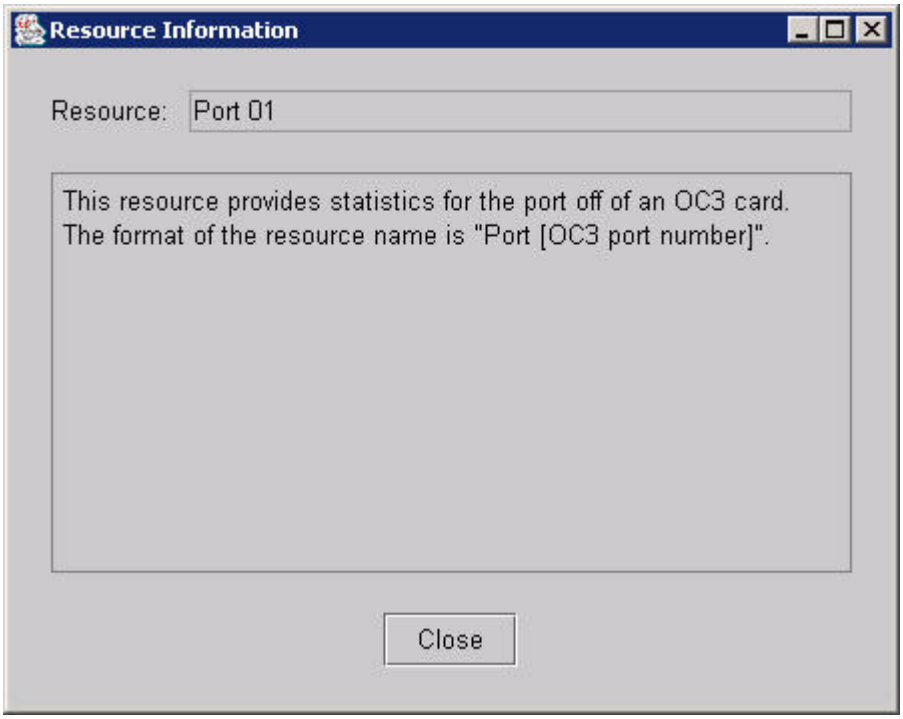
5 Click on the Collect data button, and the performance data for the selected statistics tab will appear.

6 This procedure is complete.

Resource information

To identify what is measured by each performance statistic, click on the resource in the left pane of the Performance Browser. From the menu bar at the top of the Performance Browser, select Resource->Resource Info. The Resource Information view appears. The selected resource is identified and the resource statistic is described. The following figure shows the Resource Information view.

Resource Information view



ABI card OMs

The OM statistics collected and reported for the ABI (DS-512) card are listed in the following table.

Note: The DS-512 card is not used in the UA-IP solution.

ABI card OMs reported by the Performance Browser

Statistics tab	Field name
Bandwidth Reserved Statistics - Current data	Current bandwidth reserved Capacity bandwidth reserved
Interval Bandwidth Reserved Statistics - History data	Amount of bandwidth reserved
Performance Utilization Statistics - Current data	Peak CPU occupancy Average CPU occupancy Peak RAM usage Average RAM usage Peak flash usage Average flash usage Peak channel usage Average channel usage
Performance Utilization Statistics - History data	Peak CPU occupancy Average CPU occupancy Peak RAM usage Average RAM usage Peak flash usage Average flash usage Peak channel usage Average channel usage

ABI card OMs reported by the Performance Browser

Statistics tab	Field name
Circuit Emulation Day Total Statistics - Current data	Intra maximum simultaneous number of channels in use
	Intra total number of channel allocation requests
	Intra total number of failed channel allocation requests
	Inter maximum simultaneous number of channels in use
	Inter total number of channel allocation requests
	Inter total number of failed channel allocation requests
Circuit Emulation Day Total Statistics - History data	Intra maximum simultaneous number of channels in use
	Intra total number of channel allocation requests
	Intra total number of failed channel allocation requests
	Inter maximum simultaneous number of channels in use
	Inter total number of channel allocation requests
	Inter total number of failed channel allocation requests

DS1 card OMs

The OM statistics collected and reported for the DS1 card are listed in the following table.

Note: The DS1 card is not used in the UA-IP solution.

DS1 card OMs reported by the Performance Browser

Statistics tab	Field name
Card Alarm Statistics - Current data	Number of Critical alarms currently on this node Number of Major alarms currently on this node Number of Minor alarms currently on this node
Performance Utilization Statistics - Current data	Peak CPU occupancy Average CPU occupancy Peak RAM usage Average RAM usage Peak flash usage Average flash usage Peak channel usage Average channel usage
Performance Utilization Statistics - History data	Peak CPU occupancy Average CPU occupancy Peak RAM usage Average RAM usage Peak flash usage Average flash usage Peak channel usage Average channel usage

DS1 port OMs

The OM statistics collected and reported for the DS1 port are listed in the following table. Each statistics tab selected from the Performance Browser lists the various statistics collected for the current or 24 hour period.

DS1 port OMs reported by the Performance Browser

Statistics tab	Field name	Field value	Description
Near-end Statistics - Current data	Number of errored seconds	N/A	N/A
	Number of severely errored seconds		
	Number of severely errored framing seconds		
	Number of unavailable seconds		
	Number of controlled slip seconds		
	Number of path coding violations		
	Number of line errored seconds		
	Number of bursty errored seconds		
	Number of degraded minutes		
	Number of line code violations		
Near-end Statistics - History data ***Note:*** Near-end Statistics History data will be displayed in red if the data is invalid.	Number of errored seconds	N/A	N/A
	Number of severely errored seconds		
	Number of severely errored framing seconds		
	Number of unavailable seconds		
	Number of controlled slip seconds		
	Number of path coding violations		
	Number of line errored seconds		
	Number of bursty errored seconds		
	Number of degraded minutes		
	Number of line code violations		

DS1 port OMs reported by the Performance Browser

Statistics tab	Field name	Field value	Description
Near-end Statistics - 24-hour current data	Number of errored seconds	N/A	N/A
	Number of severely errored seconds		
	Number of severely errored framing seconds		
	Number of unavailable seconds		
	Number of controlled slip seconds		
	Number of path coding violations		
	Number of line errored seconds		
	Number of bursty errored seconds		
	Number of degraded minutes		
	Number of line code violations		
Far-end Statistics - Current data	Number of errored seconds	N/A	N/A
	Number of severely errored seconds		
	Number of severely errored framing seconds		
	Number of unavailable seconds		
	Number of controlled slip seconds		
	Number of path coding violations		
	Number of line errored seconds		
	Number of bursty errored seconds		
	Number of degraded minutes		

DS1 port OMs reported by the Performance Browser

Statistics tab	Field name	Field value	Description
Far-end Statistics - History data ***Note:*** Far-end Statistics history data will be displayed in red if the data is invalid.	Number of errored seconds	N/A	N/A
	Number of severely errored seconds		
	Number of severely errored framing seconds		
	Number of unavailable seconds		
	Number of controlled slip seconds		
	Number of path coding violations		
	Number of line errored seconds		
	Number of bursty errored seconds		
	Number of degraded minutes		
Far-end Statistics - 24-hour current data	Number of errored seconds	N/A	N/A
	Number of severely errored seconds		
	Number of severely errored framing seconds		
	Number of unavailable seconds		
	Number of controlled slip seconds		
	Number of line errored seconds		
	Number of path coding violations		
	Number of bursty errored seconds		
	Number of degraded minutes		

DS1 port OMs reported by the Performance Browser

Statistics tab	Field name	Field value	Description
Threshold Statistics - Current data	Errored seconds Severely errored seconds Severely errored framing seconds Unavailable seconds Controlled slip seconds Path coding violations	15M 24H	Threshold to cross for a 15 minute performance measure Threshold to cross for a 24 hour performance measure
	Line errored seconds Bursty errored seconds Line code violations Far-end errored seconds Far-end severely errored seconds Far-end severely errored framing seconds Far-end unavailable seconds Far-end controlled slip seconds Far-end path coding violations Far-end line errored seconds Far-end bursty errored seconds	Notify Default	Indicates whether a notification should be generated if the thresholds are breached for this performance measurement Indicates whether default values for this threshold are set or not. It also acts as a trigger, setting this field to defaultValues resets the 15 m, 24 h, and Notify fields to agent defaults.
	Note: The statistics in the Threshold Statistics tab are not OMs, instead they are high water marks used to gauge OMs. If the threshold value is exceeded, an action or notification occurs. The threshold values are not alterable.		

DS1-IMA card OMs

The OM statistics collected and reported for the MG 9000 DS1-IMA card are listed in the following table.

Note: The DS1-IMA card OMs appear only if DS1-IMA cards are provisioned in the master shelf.

DS1-IMA card OMs reported by the Performance Browser

Statistics tab	Field name
Card Alarm Statistics - Current data	Number of Critical alarms
	Number of Major alarms
	Number of Minor alarms
Performance Utilization Statistics - Current data	Peak CPU occupancy
	Average CPU occupancy
	Peak RAM usage
	Average RAM usage
	Peak flash usage
	Average flash usage
	Peak channel usage
	Average channel usage
Performance Utilization Statistics - History data	Peak CPU occupancy
	Average CPU occupancy
	Peak RAM usage
	Average RAM usage
	Peak flash usage
	Average flash usage
	Peak channel usage
	Average channel usage
SNMP Messaging Statistics - Current data	Peak number of SNMP requests
	Average number of SNMP requests
	Peak number of SNMP notifications
	Average number of SNMP notifications

DS1-IMA card OMs reported by the Performance Browser

Statistics tab	Field name
SNMP Messaging Statistics - History data	Peak number of SNMP requests
	Average number of SNMP requests
	Peak number of SNMP notifications
	Average number of SNMP notifications
Circuit Emulation Day Total Statistics - Current data	Intra maximum simultaneous number of channels in use
	Intra total number of channel allocation requests
	Intra total number of failed channel allocation requests
	Inter maximum simultaneous number of channels in use
	Inter total number of channel allocation requests
	Inter total number of failed channel allocation requests
DCC Overload Interval Statistics - History Data	Peak number of received AAL5 PDUs per second
	Average number of received AAL5 PDUs per second
	Peak received connection request messages per second
	Average connection request messages per second
	Peak time in milliseconds a connection request is pending in its queue
	Average time in milliseconds a connection request is pending in its queue
	Peak CPU occupancy
	Average CPU occupancy

DS1-IMA card OMs reported by the Performance Browser

Statistics tab	Field name
DCC Overload Conn Deny Statistics - History Data	Number of connection requests denied
Circuit Emulation Statistics - History data	Intra maximum simultaneous number of channels in use
	Intra total number of channel allocation requests
	Intra total number of failed channel allocation requests
	Inter maximum simultaneous number of channels in use
	Inter total number of channel allocation requests
	Inter total number of failed channel allocation requests

DS1-IMA group OMs

The OM statistics collected and reported for the DS1-IMA group are listed in the following table. Each statistics tab selected from the Performance Browser lists the various statistics collected for the current or 24 hour period.

Note: The DS1-IMA OMs appear only if DS1-IMA cards are provisioned in the master shelf.

DS1-IMA group OMs reported by the Performance Browser

Statistics tab	Field name
DS1 IMA Group Statistics - Current data	Group Unavailable seconds Group Near end number of failures Group Far end number of failures
DS1 IMA Group Statistics - History data ***Note:*** DS1 IMA Group Statistics History data will be displayed in red if the data is invalid.	Group Unavailable seconds Group Near end number of failures Group Far end number of failures
DS1 IMA Group Statistics - 24 hour current data	Group Unavailable seconds Group Near end number of failures Group Far end number of failures

DS1-IMA port OMs

The OM statistics collected and reported for the DS1-IMA port are listed in the following table. Each statistics tab selected from the Performance Browser lists the various statistics collected for the current or 24 hour period.

Note: The DS1-IMA OMs appear only if DS1-IMA cards are provisioned in the master shelf.

DS1-IMA port OMs reported by the Performance Browser

Statistics tab	Field name	Field value	Description
Near-end Statistics - Current data	Number of errored seconds	N/A	N/A
	Number of severely errored seconds		
	Number of severely errored framing seconds		
	Number of unavailable seconds		
	Number of controlled slip seconds		
	Number of path coding violations		
	Number of line errored seconds		
	Number of bursty errored seconds		
	Number of degraded minutes		
	Number of line code violations		
Near-end Statistics - History data ***Note:*** Near-end Statistics history data will be displayed in red if the data is invalid.	Number of errored seconds	N/A	N/A
	Number of severely errored seconds		
	Number of severely errored framing seconds		
	Number of unavailable seconds		
	Number of controlled slip seconds		
	Number of path coding violations		
	Number of line errored seconds		
	Number of bursty errored seconds		
	Number of degraded minutes		
	Number of line code violations		

DS1-IMA port OMs reported by the Performance Browser

Statistics tab	Field name	Field value	Description
Near-end Statistics - 24-hour current data	Number of errored seconds	N/A	N/A
	Number of severely errored seconds		
	Number of severely errored framing seconds		
	Number of unavailable seconds		
	Number of controlled slip seconds		
	Number of path coding violations		
	Number of line errored seconds		
	Number of bursty errored seconds		
	Number of degraded minutes		
	Number of line code violations		
Threshold Statistics - Current data	Errored seconds	15M	Threshold to cross for a 15 minute performance measure
	Severely errored seconds		
	Severely errored framing seconds		
	Unavailable seconds	24H	Threshold to cross for a 24 hour performance measure
	Controlled slip seconds		
	Path coding violations		
	Line errored seconds		
	Bursty errored seconds	Notify	Indicates whether a notification should be generated if the thresholds are breached for this performance measurement
	Line code violations		
	Note: The statistics in the Threshold Statistics tab are not OMs, instead they are high water marks used to gauge OMs. If the threshold value is exceeded, an action or notification occurs. The threshold values are not alterable.	Default	Indicates whether default values for this threshold are set or not. It also acts as a trigger, setting this field to defaultValues resets the 15 m, 24 h, and Notify fields to agent defaults.

DS1-IMA link OMs

The OM statistics collected and reported for the DS1-IMA link are listed in the following table. Each statistics tab selected from the Performance Browser lists the various statistics collected for the current or 24 hour period.

Note: The DS1-IMA OMs only appear if DS1-IMA cards are provisioned in the master shelf.

DS1-IMA link OMs reported by the Performance Browser

Statistics tab	Field name
DS1 IMA Link Statistics - Current data	Link IMA violations
	Link Oif anomalies
	Link NE severe errored seconds
	Link FE severe errored seconds
	Link NE unavailable seconds
	Link FE unavailable seconds
	Link NE transmit unusable seconds
	Link NE receive unusable seconds
	Link FE transmit unusable seconds
	Link FE receive unusable seconds
	Link NE transmit number of failures
	Link NE receive number of failures
	Link FE transmit number of failures
	Link FE receive number of failures
	Link transmit stuff events
	LInk receive stuff events

DS1-IMA link OMs reported by the Performance Browser

Statistics tab	Field name
DS1 IMA Link Statistics - 24 hour current data	Link IMA violations Link Oif anomalies Link NE severe errored seconds Link FE severe errored seconds Link NE unavailable seconds Link FE unavailable seconds Link NE transmit unusable seconds Link NE receive unusable seconds Link FE transmit unusable seconds Link FE receive unusable seconds Link NE transmit number of failures Link NE receive number of failure Link FE transmit number of failures Link FE receive number of failures Link transmit stuff events LInk receive stuff events

DS1-IMA link OMs reported by the Performance Browser

Statistics tab	Field name
DS1 IMA Link Statistics - History data	Link IMA violations
	Link Oif anomalies
	Link NE severe errored seconds
	Link FE severe errored seconds
	Link NE unavailable seconds
	Link FE unavailable seconds
	Link NE transmit unusable seconds
	Link NE receive unusable seconds
	Link FE transmit unusable seconds
	Link FE receive unusable seconds
	Link NE transmit number of failures
	Link NE receive number of failure
	Link FE transmit number of failures
	Link FE receive number of failures
	Link transmit stuff events
	LInk receive stuff events

OC-3 card OMs

The OM statistics collected and reported for the OC-3 card are listed in the following table.

Note: The OC-3 card OMs appear only if OC-3 cards are provisioned in the master shelf.

OC-3 card OMs reported by the Performance Browser

Statistics tab	Field name
Card Alarm Statistics - Current data	Number of Critical alarms currently on this card
	Number of Major alarms currently on this card
	Number of Minor alarms currently on this card
Performance Utilization Statistics - Current data	Peak CPU occupancy
	Average CPU occupancy
	Peak RAM usage
	Average RAM usage
	Peak flash usage
	Average flash usage
	Peak channel usage
	Average channel usage
Performance Utilization Statistics - History data	Peak CPU occupancy
	Average CPU occupancy
	Peak RAM usage
	Average RAM usage
	Peak flash usage
	Average flash usage
	Peak channel usage
	Average channel usage
SNMP Messaging Statistics - Current data	Peak number of SNMP requests
	Average number of SNMP requests. Precision is in tenths, therefore a value such as 816 is 81.6.
	Peak number of SNMP notifications
	Average number of SNMP notifications. Precision is in tenths, therefore a value such as 816 is 81.6.

OC-3 card OMs reported by the Performance Browser

Statistics tab	Field name
SNMP Messaging Statistics - History data	Peak number of SNMP requests
	Average number of SNMP requests. Precision is in tenths, therefore a value such as 816 is 81.6.
	Peak number of SNMP notifications
	Average number of SNMP notifications. Precision is in tenths, therefore a value such as 816 is 81.6.
Circuit Emulation Day Total Statistics - Current data	Intra maximum simultaneous number of channels in use
	Intra total number of channel allocation requests
	Intra total number of failed channel allocation requests
	Inter maximum simultaneous number of channels in use
	Inter total number of channel allocation requests
	Inter total number of failed channel allocation requests
Circuit Emulation Statistics - History data	Intra maximum simultaneous number of channels in use
	Intra total number of channel allocation requests
	Intra total number of failed channel allocation requests
	Inter maximum simultaneous number of channels in use
	Inter total number of channel allocation requests
	Inter total number of failed channel allocation requests

OC-3 card OMs reported by the Performance Browser

Statistics tab	Field name
DCC Overload Interval Statistics - History Data	Peak number of received AAL5 PDUs per second Average number of received AAL5 PDUs per second Peak received connection request messages per second Average connection request messages per second Peak time in milliseconds a connection request is pending in its queue Average time in milliseconds a connection request is pending in its queue Peak CPU occupancy Average CPU occupancy
DCC Overload Conn Deny Statistics - History Data	Number of connection requests denied

Concatenated OC-3 port OMs

The OM statistics collected and reported for the OC-3 port are listed in the following table. Each statistics tab selected from the Performance Browser lists the various statistics collected for the current or 24 hour period.

Note: The OC-3 port OMs appear only if OC-3 cards are provisioned in the master shelf.

Concatenated OC-3 port OMs reported by the Performance Browser

Statistics tab	Field name	Field value	Description
Sonet Medium Statistics - Current data	Optical Tx Power percentage Laser Bias Current percentage	N/A	Snapshot of current values, interpreted as a percentage
Sonet Medium Statistics - History data ***Note:*** Sonet Medium Statistics History data will be displayed in red if the data is invalid.	Optical Tx Power percentage Laser Bias Current percentage	15 M	Up to 24 hours of history
Sonet Section Statistics - Current data	Number of errored seconds Number of severely errored seconds Number of severely errored framing seconds Number of coding violations	N/A	Snapshot of current values

Concatenated OC-3 port OMs reported by the Performance Browser

Statistics tab	Field name	Field value	Description
Sonet Section Statistics - History data ***Note:*** Sonet Section Statistics History data will be displayed in red if the data is invalid.	Number of errored seconds Number of severely errored seconds Number of severely errored framing seconds Number of coding violations	15 M	Up to 24 hours of history
Sonet Line Statistics - Current data	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	N/A	Snapshot of current values
Sonet Line Statistics - History data ***Note:*** Sonet Line Statistics History data will be displayed in red if the data is invalid.	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	15 M	Up to 24 hours of history
Sonet Far End Line Statistics - Current data	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	N/A	Snapshot of current values

Concatenated OC-3 port OMs reported by the Performance Browser

Statistics tab	Field name	Field value	Description
Sonet Far End Line Statistics - History data ***Note:*** Sonet far end Line Statistics History data will be displayed in red if the data is invalid.	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	15 M	Up to 24 hours of history
Sonet Path Statistics - Current data	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	N/A	Snapshot of current values
Sonet Path Statistics - History data ***Note:*** Sonet Path Statistics History data will be displayed in red if the data is invalid.	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	15 M	Up to 24 hours of history
Sonet Far End Path Statistics - Current data	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	N/A	Snapshot of current values

Concatenated OC-3 port OMs reported by the Performance Browser

Statistics tab	Field name	Field value	Description
Sonet Far End Path Statistics - History data ***Note:*** Sonet Far-end Path Statistics History data will be displayed in red if the data is invalid.	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	N/A	Up to 24 hours of history
Section / Line Threshold Statistics - Current data	Section errored seconds Section severely errored seconds Section severely errored framing seconds Section code violations Line errored seconds Line severely errored seconds Line code violations Line unavailable seconds Line far-end errored seconds Line far-end severely errored seconds Line far-end code violations Line far-end unavailable seconds ***Note:*** The statistics in the Threshold Statistics tab are not OMs; instead they are high water marks used to gauge OMs. If the threshold value is exceeded, an action or notification occurs. The threshold values are not alterable.	15 M 24 H Notify Default	Threshold to cross for a 15 minute performance measure Threshold to cross for a 24 hour performance measure Indicates whether a notification should be generated if the thresholds are breached for this performance measurement Indicates whether default values for this threshold are set or not. It also acts as a trigger, setting this field to defaultValues resets the 15 m, 24 h, and Notify fields to agent defaults.

Concatenated OC-3 port OMs reported by the Performance Browser

Statistics tab	Field name	Field value	Description
Path Threshold Statistics - Current data	Path errored seconds Path severely errored seconds Path code violations	15 M	Threshold to cross for a 15 minute performance measure
	Path unavailable seconds Path far-end errored seconds Path far-end severely errored seconds	24 H	Threshold to cross for a 24 hour performance measure
	Path far-end code violations Path far-end unavailable seconds ***Note:*** The statistics in the Threshold Statistics tab are not OMs; instead they are high water marks used to gauge OMs. If the threshold value is exceeded, an action or notification occurs. The threshold values are not alterable.	Notify	Indicates whether a notification should be generated if the thresholds are breached for this performance measurement
		Default	Indicates whether default values for this threshold are set or not. It also acts as a trigger, setting this field to defaultValues resets the 15 m, 24 h, and Notify fields to agent defaults.

Channelized OC-3 port OMs

The OM statistics collected and reported for the OC-3 port are listed in the following table. Each statistics tab selected from the Performance Browser lists the various statistics collected for the current or 24 hour period.

Note: The OC-3 port OMs appear only if OC-3 cards are provisioned in the master shelf.

Channelized OC-3 port OMs reported by the Performance Browser

Statistics tab	Field name	Field value	Description
Sonet Medium Statistics - Current data	Optical Tx Power percentage Laser Bias Current percentage	N/A	Snapshot of current values, interpreted as a percentage
Sonet Medium Statistics - History data ***Note:*** Sonet Medium Statistics History data will be displayed in red if the data is invalid.	Optical Tx Power percentage Laser Bias Current percentage	15 M	Up to 24 hours of history
Sonet Section Statistics - Current data	Number of errored seconds Number of severely errored seconds Number of severely errored framing seconds Number of coding violations	N/A	Snapshot of current values

Channelized OC-3 port OMs reported by the Performance Browser

Statistics tab	Field name	Field value	Description
Sonet Section Statistics - History data ***Note:*** Sonet Section Statistics History data will be displayed in red if the data is invalid.	Number of errored seconds Number of severely errored seconds Number of severely errored framing seconds Number of coding violations	15 M	Up to 24 hours of history
Sonet Line Statistics - Current data	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	N/A	Snapshot of current values
Sonet Line Statistics - History data ***Note:*** Sonet Line Statistics History data will be displayed in red if the data is invalid.	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	15 M	Up to 24 hours of history
Sonet Far End Line Statistics - Current data	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	N/A	Snapshot of current values

Channelized OC-3 port OMs reported by the Performance Browser

Statistics tab	Field name	Field value	Description
Sonet Far End Line Statistics - History data ***Note:*** Sonet far end Line Statistics History data will be displayed in red if the data is invalid.	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	15 M	Up to 24 hours of history
Section / Line Threshold Statistics - Current data	Section errored seconds Section severely errored seconds Section severely errored framing seconds Section code violations Line errored seconds Line severely errored seconds Line code violations Line unavailable seconds Line far-end errored seconds Line far-end severely errored seconds Line far-end code violations Line far-end unavailable seconds ***Note:*** The statistics in the Threshold Statistics tab are not OMs, instead they are high water marks used to gauge OMs. If the threshold value is exceeded, an action or notification occurs. The threshold values are not alterable.	15 M 24 H Notify Default	Threshold to cross for a 15 minute performance measure Threshold to cross for a 24 hour performance measure Indicates whether a notification should be generated if the thresholds are breached for this performance measurement Indicates whether default values for this threshold are set or not. It also acts as a trigger, setting this field to defaultValues resets the 15 m, 24 h, and Notify fields to agent defaults.

Channelized OC-3 port (STS1 Path) OMs

The OM statistics collected and reported for the OC-3 port are listed in the following table. Each statistics tab selected from the Performance Browser lists the various statistics collected for the current or 24 hour period.

Note: The OC-3 port OMs appear only if OC-3 cards are provisioned in the master shelf.

Channelized OC-3 port (STS1 Path) OMs reported by the Performance Browser

Statistics tab	Field name	Field value	Description
Sonet Path Statistics - Current data	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	N/A	Snapshot of current values
Sonet Path Statistics - History data ***Note:*** Sonet Path Statistics History data will be displayed in red if the data is invalid.	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	15 M	Up to 24 hours of history
Sonet Far End Path Statistics - Current data	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	N/A	Snapshot of current values

Channelized OC-3 port (STS1 Path) OMs reported by the Performance Browser

Statistics tab	Field name	Field value	Description
Sonet Far End Path Statistics - History data ***Note:*** Sonet Far-end Path Statistics History data will be displayed in red if the data is invalid.	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	N/A	Up to 24 hours of history
Path Threshold Statistics - Current data	Path errored seconds Path severely errored seconds	15 M	Threshold to cross for a 15 minute performance measure
	Path code violations Path unavailable seconds Path far-end errored seconds Path far-end severely errored seconds Path far-end code violations Path far-end unavailable seconds	24 H	Threshold to cross for a 24 hour performance measure
		Notify	Indicates whether a notification should be generated if the thresholds are breached for this performance measurement
	Note: The statistics in the Threshold Statistics tab are not OMs; instead they are high water marks used to gauge OMs. If the threshold value is exceeded, an action or notification occurs. The threshold values are not alterable.	Default	Indicates whether default values for this threshold are set or not. It also acts as a trigger, setting this field to defaultValues resets the 15 m, 24 h, and Notify fields to agent defaults.

Channelized OC-3 port (STS1-DS3 Path) OMs

The OM statistics collected and reported for the OC-3 port are listed in the following table. Each statistics tab selected from the Performance Browser lists the various statistics collected for the current or 24 hour period.

Note: The OC-3 port OMs appear only if OC-3 cards are provisioned in the master shelf.

Channelized OC-3 port (STS1-DS3) OMs reported by the Performance Browser

Statistics tab	Field name	Field value	Description
Sonet Path Statistics - Current data	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	N/A	Snapshot of current values
Sonet Path Statistics - History data ***Note:*** Sonet Path Statistics History data will be displayed in red if the data is invalid.	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	15 M	Up to 24 hours of history
Sonet Far End Path Statistics - Current data	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	N/A	Snapshot of current values

Channelized OC-3 port (STS1-DS3) OMs reported by the Performance Browser

Statistics tab	Field name	Field value	Description
Sonet Far End Path Statistics - History data ***Note:*** Sonet Far-end Path Statistics History data will be displayed in red if the data is invalid.	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	N/A	Up to 24 hours of history
DS3 Path Statistics - Current data ***Note:*** This tab appears if the OC3 carrier is channelized and the path is set to support a DS3 payload.	P - bit number of errored seconds P - bit number of severely errored seconds Severely errored seconds Number of unavailable seconds P - bit number of coding violations C - bit number of coding violations C - bit number of errored seconds C - bit number of severely errored seconds	N/A	Snapshot of current values

Channelized OC-3 port (STS1-DS3) OMs reported by the Performance Browser

Statistics tab	Field name	Field value	Description
DS3 Path Statistics - History data ***Note:*** This tab appears if the OC3 carrier is channelized and the path is set to support a DS3 payload.	P - bit number of errored seconds P - bit number of severely errored seconds Severely errored seconds Number of unavailable seconds P - bit number of coding violations C - bit number of coding violations C - bit number of errored seconds C - bit number of severely errored seconds	15 M	Up to 24 hours of history
DS3 Far End Path Statistics - Current data ***Note:*** This tab appears if the OC3 carrier is channelized and the path is set to support a DS3 payload.	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	N/A	Snapshot of current values

Channelized OC-3 port (STS1-DS3) OMs reported by the Performance Browser

Statistics tab	Field name	Field value	Description
DS3 Far End Path Statistics - History data ***Note:*** This tab appears if the OC3 carrier is channelized and the path is set to support a DS3 payload.	Number of errored seconds Number of severely errored seconds Number of coding violations Number of unavailable seconds	15 M	Up to 24 hours of history
Path Threshold Statistics - Current data	Path errored seconds Path severely errored seconds Path code violations Path unavailable seconds Path far-end errored seconds Path far-end severely errored seconds Path far-end code violations Path far-end unavailable seconds ***Note:*** The statistics in the Threshold Statistics tab are not OMs; instead they are high water marks used to gauge OMs. If the threshold value is exceeded, an action or notification occurs. The threshold values are not alterable.	15 M 24 H Notify Default	Threshold to cross for a 15 minute performance measure Threshold to cross for a 24 hour performance measure Indicates whether a notification should be generated if the thresholds are breached for this performance measurement Indicates whether default values for this threshold are set or not. It also acts as a trigger, setting this field to defaultValues resets the 15 m, 24 h, and Notify fields to agent defaults.

OC-3 APS OMs

The OM statistics collected and reported for the OC-3 automatic protection switch (APS) are listed in the following table.

Note: The OC-3 APS OMs appear only if OC-3 cards are provisioned in the master shelf.

OC-3 APS OMs reported by the Performance Browser

Statistics tab	Field name
APS Status Statistics - Current data	A count of Mode Mismatch conditions
Active APS Channel Status Statistics - Current data	Number of Signal Degrade conditions Number of Signal Failure conditions Number of times this channel was switched to the protection line
Inactive APS Channel Status Statistics - Current data	Number of Signal Degrade conditions Number of Signal Failure conditions Number of times this channel was switched to the protection line

ITP card OMs

The OM statistics collected and reported for the ITP card are listed in the following table. Each statistics tab selected from the Performance Browser lists the various statistics collected for the current or 24 hour period.

ITP card OMs reported by the Performance Browser

Statistics tabs	Field name
Card Alarm Statistics - Current data	Number of Critical alarms currently on this node
	Number of Major alarms currently on this node
	Number of Minor alarms currently on this node
Class Modem Statistics - History data	Maximum simultaneous number of CND requests
	Total number of CND requests
	Number of CND requests that completed
	Maximum simultaneous number of ADSI requests
	Total number of ADSI requests
	Number of ADSI requests that completed
	Maximum simultaneous number of BCLID request
	Total number of BCLID requests
	Number of BCLID requests that completed
	Maximum simultaneous number of SCWID requests
	Total number of SCWID requests
	Number of SCWID requests that completed

ITP card OMs reported by the Performance Browser

Statistics tabs	Field name
Class Modem Day Total Statistics - Current data	Maximum simultaneous number of CND requests
	Total number of CND requests
	Number of CND requests that completed
	Maximum simultaneous number of ADSI request
	Total number of ADSI requests
	Number of ADSI requests that completed
	Maximum simultaneous number of BCLID requests
	Total number of BCLID requests
	Number of BCLID requests that completed
	Maximum simultaneous number of SCWID requests
	Total number of SCWID requests
	Number of SCWID requests that completed
Digital Signal Statistics - History data	Maximum simultaneous number of tone receivers in use
	Number of tone receiver requests
	Number of tone receiver requests which failed
	Maximum simultaneous number of tone generators in use
	Number of tone generators requests
	Number of tone generator requests which failed
	Maximum simultaneous number of CMR modems in use
	Number of CMR modem requests
	Number of CMR modem requests which failed

ITP card OMs reported by the Performance Browser

Statistics tabs	Field name
Digital Signal Day Total Statistics - Current data	Maximum simultaneous number of tone receivers in use
	Number of tone receiver requests
	Number of tone receiver requests which failed
	Maximum simultaneous number of tone generators in use
	Number of tone generator requests
	Number of tone generator requests which failed
	Maximum simultaneous number of CMR modems in use
	Number of CMR modem requests
	Number of CMR modem requests which failed
Circuit Emulation Statistics - History data	Intra maximum simultaneous number of channels in use
	Intra total number of channel allocation requests
	Intra total number of failed channel allocation requests
	Inter maximum simultaneous number of channels in use
	Inter total number of channel allocation requests
	Inter total number of failed channel allocation requests
Circuit Emulation Day Total Statistics - Current data	Intra maximum simultaneous number of channels in use
	Intra total number of channel allocation requests
	Intra total number of failed channel allocation requests
	Inter maximum simultaneous number of channels in use
	Inter total number of channel allocation requests
	Inter total number of failed channel allocation requests

ITP card OMs reported by the Performance Browser

Statistics tabs	Field name
Echo Cancellation Statistics - HIstory data	Maximum simultaneous number of ECAN resources in use
	Total number of ECAN resource request attempts
	Total number of ECAN resource request attempts that failed
Echo Cancellation Day Total Statistics - Current data	Maximum simultaneous number of ECAN resources in use
	Total number of ECAN resource request attempts
	Total number of ECAN resource request attempts that failed
Performance Utilization Statistics - Current data	Peak CPU occupancy
	Average CPU occupancy
	Peak RAM usage
	Average RAM usage
	Peak flash usage
	Average flash usage
	Peak channel usage
	Average channel usage
Performance Utilization Statistics - History data	Peak CPU occupancy
	Average CPU occupancy
	Peak RAM usage
	Average RAM usage
	Peak flash usage
	Average flash usage
	Peak channel usage
	Average channel usage

ITP card OMs reported by the Performance Browser

Statistics tabs	Field name
Clock Sync Left ITX Reference Statistics - Current data	Peak CPU occupancy Average CPU occupancy Peak RAM usage Average RAM usage Peak flash usage Average flash usage Peak channel usage Average channel usage
Clock Sync Right ITX Reference Statistics - Current data	Peak CPU occupancy Average CPU occupancy Peak RAM usage Average RAM usage Peak flash usage Average flash usage Peak channel usage Average channel usage

ITP card OMs reported by the Performance Browser

Statistics tabs	Field name
Clock Sync Left OC3 Reference Statistics - Current data	Peak CPU occupancy Average CPU occupancy Peak RAM usage Average RAM usage Peak flash usage Average flash usage Peak channel usage Average channel usage
Clock Sync Right OC3 Reference Statistics - Current data	Peak CPU occupancy Average CPU occupancy Peak RAM usage Average RAM usage Peak flash usage Average flash usage Peak channel usage Average channel usage

ITX card OMs

The OM statistics collected and reported for the MG 9000 ITX card are listed in the following table.

ITX card OMs reported by the Performance Browser

Statistics tab	Field name
Card Alarm Statistics - Current data	Number of Critical alarms on this card
	Number of Major alarms on this card
	Number of Minor alarms on this card
Performance Utilization Statistics - Current data	Peak CPU occupancy
	Average CPU occupancy
	Peak RAM usage
	Average RAM usage
	Peak flash usage
	Average flash usage
	Peak channel usage
	Average channel usage
Performance Utilization Statistics - History data	Peak CPU occupancy
	Average CPU occupancy
	Peak RAM usage
	Average RAM usage
	Peak flash usage
	Average flash usage
	Peak channel usage
	Average channel usage

VMG OMs

The OM statistics collected and reported for the MG 9000 virtual media gateway (VMG) are listed in the following table. Each statistics tab selected from the Performance Browser lists the various statistics collected for the current or 24 hour period.

VMG OMs reported by the Performance Browser

Statistics tab	Field name
VMG Statistics - History data	Total number of messages received on the link
	Total number of octets received on the link
	Average message rate for received messages
	Total number of messages sent on the link
	Total number of octets sent on the link
	Average message rate for sent messages
VMG Day Total Statistics - Current data	Total number of messages received on the link
	Total number of octets received on the link
	Average message rate for received messages
	Total number of messages sent on the link
	Total number of octets sent on the link
	Average message rate for sent messages

VMG OMs reported by the Performance Browser

Statistics tab	Field name
VMG QoS Interval Statistics - Current Interval QoS data	Number of calls Number of bad calls Number of packets sent Number of packets lost Percentage of packets lost. Precision is in 10000ths, therefore a value such as 95 is .0095. Average jitter Average latency ***Note:*** This OM applies to VMGs in the UA-IP solution only.
VMG Total Day QoS - Current Day Total QoS data	Number of calls Number of bad calls Number of packets sent Number of packets lost Percentage of packets lost. Precision is in 10000ths, therefore a value such as 95 is .0095. Average jitter Average latency ***Note:*** This OM applies to VMGs in the UA-IP solution only.

Shelf OMs

The OM statistics collected and reported for the MG 9000 shelf are listed in the following table. Each statistics tab selected from the Performance Browser lists the various statistics collected for the current or 24 hour period.

Shelf OMs reported by the Performance Browser

Statistics tab	Field name
Bandwidth Reserved Statistics - Current data	Current bandwidth reserved Capacity bandwidth reserved
Interval Bandwidth Reserved Statistics - History data	Amount of bandwidth reserved

Network element OMs

The OM statistics collected and reported for the MG 9000 network element (NE) are listed in the following table. Each statistics tab selected from the Performance Browser lists the various statistics collected for the current or 24 hour period.

Network element OMs reported by the Performance Browser

Statistics tab	Field name
Interval Bandwidth Reserved Statistics - History data	Total bandwidth reserved SLoA bandwidth reserved ABI bandwidth reserved
Interval Bandwidth Utilization Statistics - History data	Cell rate in Cell rate out DSL cell rate in DSL cell rate out
Switch Fabric Congestion Statistics - History data	Fill percentage of the input cell queue Fill percentage of the CBR VCs input queue Fill percentage of the rt-VBR VCs input queue Fill percentage of the nrt-VBR VCs input queue Fill percentage of the UBR VCs input queue Fill percentage of the UBR+ VCs input queue Fill percentage of all Control VCs input queue

XDSL data OMs

The OM statistics collected and reported for XDSL are listed in the following table. Each statistics tab selected from the Performance Browser lists the various statistics collected for the current or 24 hour period.

XDSL data OMs reported by the Performance Browser

Statistics tab	Field name
ATUC Performance - Current data	Count of seconds in the current 15 minute interval when there was Loss of Framing.
	Count of seconds in the current 15 minute interval when there was Loss of Signal.
	Count of seconds in the current 15 minute interval when there was Loss of Link.
	Count of seconds in the current 15 minute interval when there was Loss of Power.
	Count of Errored Seconds in the current 15 minute interval. The errored second parameter is a count of one-second intervals containing one or more CRC anomalies or one or more LOS or SEF defects.
	Count of the line initialization attempts in the current 15 minute interval. Includes both successful and failed attempts.
ATUR Performance - Current data	Count of seconds in the current 15 minute interval when there was Loss of Framing.
	Count of seconds in the current 15 minute interval when there was Loss of Signal.
	Count of seconds in the current 15 minute interval when there was Loss of Power.
	Count of Errored Seconds in the current 15 minute interval. The errored second parameter is a count of one-second intervals containing one or more CRC anomalies, or one or more LOS or SEF defects.

XDSL data OMs reported by the Performance Browser

Statistics tab	Field name
ATUC Interval - History data	Count of seconds in the interval when there was Loss of Framing.
	Count of seconds in the interval when there was Loss of Signal.
	Count of seconds in the interval when there was Loss of Link.
	Count of seconds in the interval when there was Loss of Power.
	Count of Errored Seconds in the interval. The errored second parameter is a count of one-second intervals containing one or more CRC anomalies or one or more LOS or SEF defects.
	Count of the line initialization attempts during the interval. Includes both successful and failed attempts.
ATUR Interval - History data	Count of seconds in the interval when there was Loss of Framing.
	Count of seconds in the interval when there was Loss of Signal.
	Count of seconds in the interval when there was Loss of Power.
	Count of Errored Seconds in the interval. The errored second parameter is a count of one-second intervals containing one or more CRC anomalies, or one or more LOS or SEF defects.
ATUC Channel Performance - Current data	Count of all encoded blocks received on this channel within the current 15 minute interval.
	Count of all encoded blocks transmitted on this channel within the current 15 minute interval.
	Count of all blocks received with errors that were corrected on this channel within the current 15 minute interval.
	Count of all blocks received with uncorrectable errors on this channel within the current 15 minute interval.

XDSL data OMs reported by the Performance Browser

Statistics tab	Field name
ATUR Channel Performance - Current data	Count of all encoded blocks received on this channel within the current 15 minute interval. Count of all encoded blocks transmitted on this channel within the current 15 minute interval. Count of all blocks received with errors that were corrected on this channel within the current 15 minute interval. Count of all blocks received with uncorrectable errors on this channel within the current 15 minute interval.
ATUC Channel Interval - History data	Count of all encoded blocks received on this channel during this interval. Count of all encoded blocks transmitted on this channel during this interval. Count of all blocks received with errors that were corrected on this channel during this interval. Count of all blocks received with uncorrectable errors on this channel during this interval.
ATUR Channel Interval - History data	Count of all encoded blocks received on this channel during this interval. Count of all encoded blocks transmitted on this channel during this interval. Count of all blocks received with errors that were corrected on this channel during this interval. Count of all blocks received with uncorrectable errors on this channel during this interval.

XDSL data OMs reported by the Performance Browser

Statistics tab	Field name
nnATUC Performance - Current data	Number of Forward Error Correction anomalies on the ATUC channel in the current 15 min interval. Number of Cyclical Redundancy Check anomalies on the ATUC channel in the current 15 min interval. Number of No Cell Delineation anomalies on the ATUC channel in the current 15 min interval. Number of Out of Cell Delineation anomalies on the ATUC channel in the current 15 min interval. Number of Header Error Check anomalies which on the ATUC channel in the current 15 min interval. Number of Loss of Cell Delineation anomalies on the ATUC channel in the current 15 min interval.
nnATUR Performance - Current data	Number of Forward Error Correction anomalies on the ATUR channel in the current 15 min interval. Number of Block Error anomalies which occurred on the ATUR channel in the current 15 min interval. Number of No Cell Delineation anomalies on the ATUR channel in the current 15 min interval. Number of Out of Cell Delineation anomalies on the ATUR channel in the current 15min interval. Number of Header Error Check anomalies which on the ATUR channel in the current 15min interval. Number of Loss of Cell Delineation anomalies on the ATUR channel in the current 15 min interval.

XDSL data OMs reported by the Performance Browser

Statistics tab	Field name
nnATUC Interval - History data	Number of Forward Error Correction anomalies on the ATUC channel during this interval. Number of Cyclical Redundancy Check anomalies on the ATUC channel during this interval. Number of No Cell Delineation anomalies which on the ATUC channel during this interval. Number of Out of Cell Delineation anomalies which on the ATUC channel during this interval. Number of Header Error Check anomalies which on the ATUC channel during this interval. Number of Loss of Cell Delineation anomalies on the ATUC channel during this interval.
nnATUR Interval - History data	Number of Forward Error Correction anomalies on the ATUC channel during this interval. Number of Block Error anomalies which occurred on the ATUC channel during this interval. Number of No Cell Delineation anomalies which on the ATUC channel during this interval. Number of Out of Cell Delineation anomalies which on the ATUC channel during this interval. Number of Header Error Check anomalies which on the ATUC channel during this interval. Number of Loss of Cell Delineation anomalies on the ATUC channel during this interval.

ATM interface OMs

The OM statistics collected and reported for the ATM interface are listed in the following table. Each statistics tab selected from the Performance Browser lists the various statistics collected for the current or 24 hour period.

ATM interface OMs reported by the Performance Browser

Statistics tab	Field name or description
Interface Statistics - Current data	Incoming total cells X 53
	Outgoing total cells X 53
	Uncorrectable HEC errors
	Outbound discarded
	Invalid cell headers
	Incoming OAM cells
	Outgoing OAM cells
	Cumulative out of cell delineation (OCD) anomalies
Interface Statistics - History data	Incoming total cells X 53
	Outgoing total cells X 53
	Uncorrectable HEC errors
	Outbound discarded
	Invalid cell headers
	Incoming OAM cells
	Outgoing OAM cells
	Cumulative OCD anomalies

ATM interface OMs reported by the Performance Browser

Statistics tab	Field name or description
Signaling statistics - Current data	SSCOP connection events counter which counts the sum of the following errors 1. SSCOP connection disconnect counter The abnormal occurrence of this event is characterized by the expiry of timer_NO_RESPONSE. 2. SSCOP connection initiation failure This condition indicates the inability to establish an SSCOP connection. This event occurs whenever the number of expiries of the connection control timer (timer_CC) equals or exceeds the MaxCC, or upon receipt of a connection reject message BGREJ PDU. 3. SSCOP connection Re-establ/Resynch SSCOP errored PDUs counter. This counter counts the sum of the following errors 1. Invalid PDUs These are defined in SSCOP and consist of PDUs with an incorrect length (MAA-ERROR code U), an undefined PDU type code, or that are not 32-bit aligned. 2. PDUs that result in MAA-ERROR codes and are not discarded. Incoming call/connection attempts Outgoing call/connection attempts

ATM interface OMs reported by the Performance Browser

Statistics tab	Field name or description
Signaling statistics - Current data (continued)	Unavailable outgoing routes This counter is incremented when a RELEASE, RELEASE COMPLETE (only when not preceded by a RELEASE message for the same call), ADD PARTY REJECT, or STATUS message that contains one of the following cause code values is received • Cause code value 1 - unallocated (unassigned number). • Cause code value 2 - no route to specified transit network. • Cause code value 3 - no route to destination. ***Note:*** For this counter, RELEASE COMPLETE messages that are a reply to a previous RELEASE message and contain the same cause value, are redundant (for counting purposes) and should not be counted. Unavailable incoming routes This counter is incremented when a RELEASE, RELEASE COMPLETE (only when not preceded by a RELEASE message for the same call), ADD PARTY REJECT, or STATUS message that contains one of the following cause code values is received • Cause code value 1 - unallocated (unassigned number). • Cause code value 2 - no route to specified transit network. • Cause code value 3 - no route to destination. ***Note:*** For this counter, RELEASE COMPLETE messages that are a reply to a previous RELEASE message and contain the same cause value, are redundant (for counting purposes) and should not be counted.

ATM interface OMs reported by the Performance Browser

Statistics tab	Field name or description
Signaling statistics - Current data (continued)	Resources unavailable messages received This counter is incremented when a RELEASE, RELEASE COMPLETE (only when not preceded by a RELEASE message for the same call), ADD PARTY REJECT, or STATUS message that contains one of the following cause code values is received: • Cause code value 35 - requested VPI/VCI not available • Cause code value 37 - user cell rate not available • Cause code value 38 - network out of order • Cause code value 41 - temporary failure • Cause code value 45 - no VPI/VCI available • Cause code value 47 - resource unavailable, unspecified • Cause code value 49 - Quality of Service unavailable • Cause code value 51 - user cell rate not available • Cause code value 58 - bearer capability not presently available • Cause code value 63 - Service or option not available, unspecified • Cause code value 92 - too many pending add party requests ***Note:*** For this counter, RELEASE COMPLETE messages that are a reply to a previous RELEASE message and contain the same cause code value, are redundant (for counting purposes) and should not be counted.

ATM interface OMs reported by the Performance Browser

Statistics tab	Field name or description
Signaling statistics - Current data (continued)	Resources unavailable messages transmitted This counter is incremented when a RELEASE, RELEASE COMPLETE (only when not preceded by a RELEASE message for the same call), ADD PARTY REJECT, or STATUS message that contains one of the following cause code values is transmitted: • Cause code value 35 - requested VPI/VCI not available • Cause code value 37 - user cell rate not available • Cause code value 38 - network out of order • Cause code value 41 - temporary failure • Cause code value 45 - no VPI/VCI available • Cause code value 47 - resource unavailable, unspecified • Cause code value 49 - Quality of Service unavailable • Cause code value 51 - user cell rate not available • Cause code value 58 - bearer capability not presently available • Cause code value 63 - Service or option not available, unspecified • Cause code value 92 - too many pending add party requests ***Note:*** For this counter, RELEASE COMPLETE messages that are a reply to a previous RELEASE message and contain the same cause code value, are redundant (for counting purposes) and should not be counted.

ATM interface OMs reported by the Performance Browser

Statistics tab	Field name or description
Signaling statistics - Current data (continued)	Called party events received This counter is incremented when a RELEASE, RELEASE COMPLETE (only when not preceded by a RELEASE message for the same call), ADD PARTY REJECT, or STATUS message that contains one of the following cause code values is received: • Cause code value 17 - user busy • Cause code value 18 - no user responding • Cause code value 21 - call rejected • Cause code value 22 - number changed • Cause code value 23 - user rejects all calls with calling line identification restriction (CLIR) • Cause code value 27 - destination out of order • Cause code value 31 - normal, unspecified • Cause code value 88 - incompatible destination ***Note 1:*** For this counter, RELEASE COMPLETE messages that are a reply to a previous RELEASE message and contain the same cause value, are redundant (for counting purposes) and should not be counted. ***Note 2:*** Cause code value 30 is not included here since it does not apply to a hard failure.

ATM interface OMs reported by the Performance Browser

Statistics tab	Field name or description
Signaling statistics - Current data (continued)	Called party events transmitted This counter is incremented when a RELEASE, RELEASE COMPLETE (only when not preceded by a RELEASE message for the same call), ADD PARTY REJECT, or STATUS message that contains one of the following cause code values is transmitted: • Cause code value 17 - user busy • Cause code value 18 - no user responding • Cause code value 21 - call rejected • Cause code value 22 - number changed • Cause code value 23 - user rejects all calls with calling line identification restriction (CLIR) • Cause code value 27 - destination out of order • Cause code value 31 - normal, unspecified • Cause code value 88 - incompatible destination ***Note 1:*** For this counter, RELEASE COMPLETE messages that are a reply to a previous RELEASE message and contain the same cause value, are redundant (for counting purposes) and should not be counted. ***Note 2:*** Cause code value 30 is not included here since it does not apply to a hard failure.

ATM interface OMs reported by the Performance Browser

Statistics tab	Field name or description
Signaling statistics - Current data (continued)	Incorrect messages received This counter increments when any incorrect information is received in a message, including: • Ignored messages which are dropped because the message was so damaged that it could not be further processed. A list of dropped messages includes: — RELEASE, RELEASE COMPLETE, ADD PARTY REJECT, and STATUS messages transmit, that contain any of the Cause code values listed. — Message with invalid protocol discriminator — Message with errors in the call reference, such as – bits 5-8 of the first octet not equal to '0000' – bits 1-4 of the first octet indicating a length other than 3 octets – RELEASE COMPLETE message received with a call reference that does not relate to a call that is active or in progress – SETUP message received with call reference flag incorrectly set to 1 – SETUP message received with a call reference for a call that is already active or in progress — Message too short

ATM interface OMs reported by the Performance Browser

Statistics tab	Field name or description
Signaling statistics - Current data (continued)	Incorrect messages received (continued) The following cause code values are monitored by this counter: • Cause code value 10 - VPI/VCI unacceptable • Cause code value 36 - VPI/VCI assignment failure • Cause code value 81 - invalid call reference value • Cause code value 82 - identified channel does not exist • Cause code value 89 - invalid channel does not exists • Cause code value 96 - mandatory information element missing • Cause code value 97 - message type non-existent or not implemented • Cause code value 99 - information element non-existent or not implemented • Cause code value 100 - invalid information element contents • Cause code value 101 - message not compatible will call state • Cause code value 104 - incorrect message length • Cause code value 111 - protocol error, unspecified ***Note:*** For this counter, RELEASE COMPLETE messages that are a reply to a previous RELEASE message and contain the same cause code value, are redundant (for counting purposes) and should not be counted.

ATM interface OMs reported by the Performance Browser

Statistics tab	Field name or description
Signaling statistics - Current data (continued)	Incorrect messages transmitted This counter increments when any incorrect information is transmitted in a message, including: • Ignored messages which are dropped because the message was so damaged that it could not be further processed. A list of dropped messages includes: — RELEASE, RELEASE COMPLETE, ADD PARTY REJECT, and STATUS messages transmitted, that contain any of the Cause code values listed. — Message with invalid protocol discriminator — Message with errors in the call reference, such as – bits 5-8 of the first octet not equal to '0000' – bits 1-4 of the first octet indicating a length other than 3 octets – RELEASE COMPLETE message received with a call reference that does not relate to a call that is active or in progress – SETUP message received with call reference flag incorrectly set to 1 – SETUP message received with a call reference for a call that is already active or in progress — Message too short

ATM interface OMs reported by the Performance Browser

Statistics tab	Field name or description
Signaling statistics - Current data (continued)	Incorrect messages transmitted (continued) The following cause code values are monitored by this counter: • Cause code value 10 - VPI/VCI unacceptable • Cause code value 36 - VPI/VCI assignment failure • Cause code value 81 - invalid call reference value • Cause code value 82 - identified channel does not exist • Cause code value 89 - invalid channel does not exists • Cause code value 96 - mandatory information element missing • Cause code value 97 - message type non-existent or not implemented • Cause code value 99 - information element non-existent or not implemented • Cause code value 100 - invalid information element contents • Cause code value 101 - message not compatible will call state • Cause code value 104 - incorrect message length • Cause code value 111 - protocol error, unspecified ***Note:*** For this counter, RELEASE COMPLETE messages that are a reply to a previous RELEASE message and contain the same cause code value, are redundant (for counting purposes) and should not be counted.

ATM interface OMs reported by the Performance Browser

Statistics tab	Field name or description
Signaling statistics - Current data (continued)	Calling party events received This counter monitors error events that occur due to the originating user doing something wrong. This counter increments when a RELEASE, RELEASE COMPLETE, (only when not preceded by a RELEASE message for the same call), ADD PARTY REJECT, or STATUS message that contains one of the following cause code values is transmitted: • Cause code value 28 - invalid number format (address incomplete) • Cause code value 43 - access information discarded • Cause code value 57 - bearer capability not authorized • Cause code value 65 - bearer capability not implemented • Cause code value 73 - unsupported combination of traffic parameters • Cause code value 78 - AAL parameters cannot be supported • Cause code value 91 - invalid transit network selection • Cause code value 93 - AAL parameters cannot be supported ***Note:*** For this counter, RELEASE COMPLETE messages that are a reply to a previous RELEASE message and contain the same cause code value, are redundant (for counting purposes) and should not be counted.

ATM interface OMs reported by the Performance Browser

Statistics tab	Field name or description
Signaling statistics - Current data (continued)	Calling party events transmitted This counter monitors error events that occur due to the originating user doing something wrong. This counter increments when a RELEASE, RELEASE COMPLETE, (only when not preceded by a RELEASE message for the same call), ADD PARTY REJECT, or STATUS message that contains one of the following cause code values is transmitted: • Cause code value 28 - invalid number format (address incomplete) • Cause code value 43 - access information discarded • Cause code value 57 - bearer capability not authorized • Cause code value 65 - bearer capability not implemented • Cause code value 73 - unsupported combination of traffic parameters • Cause code value 78 - AAL parameters cannot be supported • Cause code value 91 - invalid transit network selection • Cause code value 93 - AAL parameters cannot be supported ***Note:*** For this counter, RELEASE COMPLETE messages that are a reply to a previous RELEASE message and contain the same cause code value, are redundant (for counting purposes) and should not be counted.

ATM interface OMs reported by the Performance Browser

Statistics tab	Field name or description
Signaling statistics - Current data (continued)	Timer expiry events received The timer expiries counter provides a count of network timer expiries, and to some extent, host or switch timer expiries. The conditions for incrementing this counter are: • expiry of any network timer • receipt of a RELEASE or RELEASE COMPLETE message with cause code value 102 (recovery on timer expiry) ***Note:*** For this counter, RELEASE COMPLETE messages that are a reply to a previous RELEASE message and contain the same cause code value, are redundant (for counting purposes) and should not be counted. Timer expiry events transmitted The timer expiries counter provides a count of network timer expiries, and to some extent, host or switch timer expiries. The conditions for incrementing this counter are: • expiry of any network timer • receipt of a RELEASE or RELEASE COMPLETE message with cause code value 102 (recovery on timer expiry) ***Note:*** For this counter, RELEASE COMPLETE messages that are a reply to a previous RELEASE message and contain the same cause code value, are redundant (for counting purposes) and should not be counted. DSS2 restarts received This counter counts the number of Restart Activity errors detected on this interface. This counter provides a count of host, switch, or network restart activity. This counter is incremented when receiving a RESTART message.

ATM interface OMs reported by the Performance Browser

Statistics tab	Field name or description
Signaling statistics - Current data (continued)	DSS2 restarts transmitted This counter counts the number of Restart Activity errors transmitted from this interface. This counter provides a count of host, switch, or network restart activity. This counter is incremented when receiving a RESTART message. InEstabls Number of SVC VCCs established at this signalling entity for incoming connections. OutEstabls Number of SVC VCCs established at this signaling entity for outgoing connections.

Private lines over ATM services AAL1OMs

The OM statistics collected and reported for private lines over ATM services AAL1 are listed in the following table. Each statistics tab selected from the Performance Browser lists the various statistics collected for the current or 24 hour period.

AAL1 OMs reported by the Performance Browser

Statistics tab	Field name
AAL1 Statistics - Current data	Number of header errors
	Number of lost cells
	Number of misinserted cells
	Number of reassembly buffer underflows
	Number of reassembly buffer overflows
	Number of parity check failures
	Number of SDT pointer errors
ATM VCL Statistics - History data	Total incoming cells
	Total incoming cells discarded
	Total outgoing cells
	Total outgoing cells tagged
	Total incoming CLP0 cells
	Total incoming CLP0 cells discarded
	Total outgoing CLP0 cells
ATM VCL Statistics - Current data	Total incoming cells
	Total incoming cells discarded
	Total outgoing cells
	Total outgoing cells tagged
	Total incoming CLP0 cells
	Total incoming CLP0 cells discarded
	Total outgoing CLP0 cells

OMs sent to OSS

Certain OMs sent to the Performance Browser are also sent to the operations support system (OSS) using an OM collection tool. The OMs are collected in comma separated value (CSV) format in an MG 9000 repository (MG 9000 mid-tier [on T1400 configuration] or mid-tier/server [on N240 configuration]). The OMs are forwarded to a network level repository called the OM Collector and retrieved by the OSS. The collected MG 9000 OMs, along with others from throughout the network, are used for network engineering.

OMs sent to the OSS

Hardware	OM table name	OM name	Description
Network element	nnBwIntervalBandwUtilTable	nnBwBandwUtilIntervalInCellRate	The ith 15min measure of the inbound bandwidth utilization.
Network element	nnBwIntervalBandwUtilTable	nnBwBandwUtilIntervalOutCellRate	The ith 15min measure of the outBound bandwidth utilization.
Network element	nnBwIntervalBandwUtilTable	nnBwBandwUtilIntervalInDslCellRate	The ith 15min measure of the inbound DSL bandwidth utilization.
Network element	nnBwIntervalBandwUtilTable	nnBwBandwUtilIntervalOutDslCellRate	The ith 15min measure of the outBound DSL bandwidth utilization.
Network element	nnBwIntervalQueueFillTable	nnBwQueueFillIntervalTotal	ith 15-minute value % fill of the entire input cell queue associated with the central switching fabric.

OMs sent to the OSS

Hardware	OM table name	OM name	Description
Network element	nnBwIntervalQueueFillTable	nnBwQueueFillIntervalCbr	ith 15-minute value % fill of the entire input queue associated with the aggregate of all CBR VCs.
Network element	nnBwIntervalQueueFillTable	nnBwQueueFillIntervalRtVbr	ith 15-minute value % fill of the entire input queue associated with the aggregate of all rt-VBR VCs.
Network element	nnBwIntervalQueueFillTable	nnBwQueueFillIntervalNrtVbr	ith 15-minute value % fill of the entire input queue associated with the aggregate of all nrt-VBR VCs.
Network element	nnBwIntervalQueueFillTable	nnBwQueueFillIntervalUbr	ith 15-minute value % fill of the entire input queue associated with the aggregate of all UBR VCs.
Network element	nnBwIntervalQueueFillTable	nnBwQueueFillIntervalUbrPlus	ith 15-minute value % fill of the entire input queue associated with the aggregate of all UBR+ VCs.
Network element	nnBwIntervalQueueFillTable	nnBwQueueFillIntervalControl	ith 15-minute value % fill of the entire input queue associated with the aggregate of all Control VCs.

OMs sent to the OSS

Hardware	OM table name	OM name	Description
Shelf	nnBwShelfCurrentSloaBandwReservdTable	nnBwShelfCapacitySloaBandwReserved	Current amount of reserved bandwidth Capacity for the aggregate of all Switched Lines over ATM VCs on This UEMG shelf.
Shelf	nnBwShelfIntervalSloaBandwReservdTable	nnBwShelfIntervalSloaBandwReserved	The ith 15-minute measure amount of reserved band width allocated for the aggregate of all Switched Lines over ATM VCs on This UEMG shelf.
Node	SNMP Table	snmpInvalidMsgs	The total number of packets received by the SNMP engine which were dropped because there were invalid or inconsistent components in the SNMP message.
Node	NnClkSyncRefTable	SourcennClkSyncRefId	Identifies reference timing resource. The possible values for this field are: • itx0_bits = 1 • itx1_bits = 2 • netw0 = 3 • netw1 = 4 • host0 = 5 • host1 = 6 • dcc0_bits = 7 • dcc1_bits = 8

OMs sent to the OSS

Hardware	OM table name	OM name	Description
Node	NnClkSyncRefTable	nnClkSyncRefLossOfSignalCount	Contains the count of the number of onsets of timing source signal loss. Range is from 0 to 255.
Node	NnClkSyncRefTable	nnClkSyncRefLossOfFrameCount	Contains the count of the number of frames. Range is from 0 to 255.
Node	NnClkSyncSignalTable	nnClkSyncSignalId	Identifies signal source. The possible values for this field are: • itxbitsA_0 = 1 • itxbitsB_0 = 2 • itxbitsA_1 = 3 • itxbitsB_1 = 4 • network_0 = 5 • network_1 = 6 • dccbitsA_0 = 7 • dccbitsB_0 = 8 • dccbitsA_1 = 9 • dccbitsB_1 = 10
Node	NnClkSyncSignalTable	nnClkSyncSignalLossOfFrameCount	Contains the count of the number of loss of frames.
Node	NnClkSyncSignalTable	nnClkSyncSignalLossOfSignalCount	Contains the count of the number of onsets of timing source signal loss.

OMs sent to the OSS

Hardware	OM table name	OM name	Description
ABI Card	nnBwAbiCurrentBandwResrvdTable	nnBwAbiCapacityBandwReserved ***Note:*** Appears only if DS-512 cards are provisioned in the master shelf.	Current amount of reserved bandwidth capacity for the aggregate of all ABI VCs on this ABI interface.
ABI Card	nnBwAbiIntervalBandwResrvdEntry	nnBwAbiIntervalBandwReserved ***Note:*** Appears only if DS-512 cards are provisioned in the master shelf.	ith 15-minute measure amount of reserved bandwidth allocated for the aggregate of all VCs on this ABI interface.
ITP Card	nnMegacoOMDSPIntervalTable	nnMegacoOMDSPnumToneRcvrReq	The number of tone receiver requests during this interval.
ITP Card	nnMegacoOMDSPIntervalTable	nnMegacoOMDSPnumToneRcvrReqFail	The number of tone receiver requests that failed during this interval.
ITP Card	nnMegacoOMDSPIntervalTable	nnMegacoOMDSPnumToneGenReq	The number of tone generator requests during this interval.
ITP Card	nnMegacoOMDSPIntervalTable	nnMegacoOMDSPnumToneGenReqFail	The number of tone generator requests that failed during this interval.
ITP Card	nnMegacoOMDSPIntervalTable	nnMegacoOMDSPnumCMRmodemReq	The number of CMR modem requests during this interval.

OMs sent to the OSS

Hardware	OM table name	OM name	Description
ITP Card	nnMegacoOMDSPIntervalTable	nnMegacoOMDSPnumCMRmodemReqFail	The number of CMR modem requests that failed during this interval.
ITP Card	nnMegacoOMECANIntervalTable	nnMegacoOMECANnumResrceReq	The total number of ECAN resource request attempts during this interval.
ITP Card	nnMegacoOMECANIntervalTable	nnMegacoOMECANnumResrceReqFail	The total number of ECAN resource request attempts that failed during this interval.
ITP card	NnClkSyncRefTable	nnClkSyncRefId	ITX 0 (1), reference coming from the left ITX. ITX 1 (2), reference coming from the right ITX. DCC-0 (3), reference coming from the left DCC (DCC-0). DCC-1 (4), reference coming from the right DCC (DCC-1). Host 0 (5), reference cabled into the ITP ATM-25 phy 0 Host 1 (6), reference cabled into the ITP ATM-25 phy 1

OMs sent to the OSS

Hardware	OM table name	OM name	Description
ITP card	NnClkSyncSignalTable	nnClkSyncSignalId	bits A-0 (1), BITS A signal coming into the left ITX of the BITS ITX connected pair. bits B-0 (2), BITS B signal coming into the left ITX of the BITS ITX connected pair. bits A-1 (3), BITS A signal coming into the right ITX of the BITS ITX connected pair. bits B-1 (4), BITS B signal coming into the right ITX of the BITS ITX connected pair. DCC-0 (5), Network traffic signal coming into DCC-0. DCC-1 (6), Network traffic signal coming into DCC-1.
ITP card (VMG)	nnMegacoOMMedGwyIntervalTable	nnMegacoOMMedGwyNumInMessages	Number of messages received from the Gateway Controller (GWC) during this interval.
ITP card (VMG)	nnMegacoOMMedGwyIntervalTable	nnMegacoOMMedGwyNumInOctets	Number of octets received from the GWC during this interval.

OMs sent to the OSS

Hardware	OM table name	OM name	Description
ITP card (VMG)	nnMegacoOMMedGwyIntervalTable	nnMegacoOMMedGwyAvrgInMsgRate	Average message rate (per minute) for messages received from the GWC during this interval.
ITP card (VMG)	nnMegacoOMMedGwyIntervalTable	nnMegacoOMMedGwyMaxInMsgRate	Maximum message rate (per minute) for messages received from the GWC during this interval.
ITP card (VMG)	nnMegacoOMMedGwyIntervalTable	nnMegacoOMMedGwyNumOutMessages	Number of messages sent to the GWC during this interval.
ITP card (VMG)	nnMegacoOMMedGwyIntervalTable	nnMegacoOMMedGwyNumOutOctets	Number of octets sent to the GWC during this interval.
ITP card (VMG)	nnMegacoOMMedGwyIntervalTable	nnMegacoOMMedGwyAvrgOutMsgRate	Average message rate (per minute) for messages sent to the GWC during this interval.
ITP card (VMG)	nnMegacoOMMedGwyIntervalTable	nnMegacoOMMedGwyMaxOutMsgRate	Maximum message rate (per minute) for messages sent to the GWC during this interval.
ITP, OC-3, DS1-IMA, and ABI cards	nnMegacoOMCESIntervalTable	nnMegacoOMCESnumChnlAllocIntra	The total number of channel allocation requests for intra-switched calls during this interval.

OMs sent to the OSS

Hardware	OM table name	OM name	Description
ITP, OC-3, DS1-IMA, and ABI cards	nnMegacoOMCESIntervalTable	nnMegacoOMCESnumChnlAllocIntraFail	The total number of channel allocation requests for intra-switched calls that failed during this interval.
ITP, OC-3, DS1-IMA, and ABI cards	nnMegacoOMCESIntervalTable	nnMegacoOMCESnumChnlAllocInter	The total number of channel allocation requests for inter-switched calls during this interval.
ITP, OC-3, DS1-IMA, and ABI cards	nnMegacoOMCESIntervalTable	nnMegacoOMCESnumChnlAllocInterFail	The total number of channel allocation requests for inter-switched calls that failed during this interval.
ITP, ITX, OC-3, DS1-IMA, DS1, and ABI cards	nnPmUtilOmIntervTable	nnPmUtilIntervCpuPeak	Peak CPU occupancy, as a percentage of usage/Peak CPU occupancy in most recent 15 minutes. These are accumulated on 1 minute cycles.

OMs sent to the OSS

Hardware	OM table name	OM name	Description
ITP, ITX, OC-3, DS1-IMA, DS1, and ABI cards	nnPmUtilOmIntervTable	nnPmUtilIntervCpuAvg	Average CPU occupancy, as a percentage of usage/Average CPU occupancy in the most recent 15 minutes. These are accumulated on 1 minute cycles. Therefore, the average is the average of the last 15x 1-minute cycles.
ITP, ITX, OC-3, DS1-IMA, DS1, and ABI cards	nnPmUtilOmIntervTable	nnPmUtilIntervRamPeak	Peak RAM usage, as a percentage of usage/Peak RAM usage in most recent 15 minutes. These are accumulated on 1 minute cycles.
ITP, ITX, OC-3, DS1-IMA, DS1, and ABI cards	nnPmUtilOmIntervTable	nnPmUtilIntervRamAvg	Average RAM usage, as a percentage of usage/Average RAM usage in the most recent 15 minutes. These are accumulated on 1 minute cycles. Therefore, the average is the average of the last 15x 1-minute cycles.

OMs sent to the OSS

Hardware	OM table name	OM name	Description
ITP, ITX, OC-3, DS1-IMA, DS1, and ABI cards	nnPmUtilOmIntervTable	nnPmUtilIntervFlashPeak	Peak flash memory usage, as a percentage of usage/Peak flash usage in most recent 15 minutes. These are accumulated on 1 minute cycles.
ITP, ITX, OC-3, DS1-IMA, DS1, and ABI cards	nnPmUtilOmIntervTable	nnPmUtilIntervFlashAvg	Average flash memory usage, as a percentage of usage/Average flash usage in the most recent 15 minutes. These are accumulated on 1 minute cycles. Therefore, the average is the average of the last 15x 1-minute cycles.
ITP, ITX, OC-3, DS1-IMA, DS1, and ABI cards	nnPmUtilOmIntervTable	nnPmUtilIntervChanPeak	Peak number of channels used in most recent 15 minutes. These are accumulated on 1 minute cycles.

OMs sent to the OSS

Hardware	OM table name	OM name	Description
ITP, ITX, OC-3, DS1-IMA, DS1, and ABI cards	nnPmUtilOmIntervTable	nnPmUtilIntervChanAvg	Average channel usage, as a percentage of usage/Average number of channels used in the most recent 15 minutes. These are accumulated on 1 minute cycles. Therefore, the average is the average of the last 15x 1-minute cycles.
OC3 protection switch	apsChanStatusTable	apsChanSignalDegrades ***Note:*** Appears only if OC-3 cards are provisioned in the master shelf.	A count of Signal Degrade conditions. This condition occurs when the line Bit Error Rate exceeds the currently configured threshold.
OC3 protection switch	apsChanStatusTable	apsChanSignalFailures ***Note:*** Appears only if OC-3 cards are provisioned in the master shelf.	A count of Signal Failure conditions that have been detected on the incoming signal. This condition occurs when a loss of signal, loss of frame, AIS-L or a Line bit error rate exceeding 10^-3 is detected on an incoming line.

OMs sent to the OSS

Hardware	OM table name	OM name	Description
OC3 protection switch	apsChanStatusTable	apsChanSwitchovers ***Note:*** Appears only if OC-3 cards are provisioned in the master shelf.	The number of times this channel has switched to the protection line. When queried with index value apsChanNumber set to 0, which is the protection line, this object will return 0.
OC3 port	norCarrSonetMediumIntervalTable	norCarrSonetMedIntervalOpt ***Note:*** Appears only if OC-3 cards are provisioned in the master shelf.	Optical Power Transmitted. This is interpreted as a percentage.
OC3 port	norCarrSonetMediumIntervalTable	norCarrSonetMedIntervalLBC ***Note:*** Appears only if OC-3 cards are provisioned in the master shelf.	Laser Bias Current.
OC3 port, STS1	sonetSectionIntervalTable	sonetSectionIntervalESs ***Note:*** Appears only if OC-3 cards are provisioned in the master shelf.	The counter associated with the number of Errored Seconds encountered by a SONET/SDH Section in a particular 15-minute interval in the past 24 hours.

OMs sent to the OSS

Hardware	OM table name	OM name	Description
OC3 port, STS1	sonetSectionIntervalTable	sonetSectionIntervalSESs ***Note:*** Appears only if OC-3 cards are provisioned in the master shelf.	The counter associated with the number of Severely Errored Seconds encountered by a SONET/SDH Section in a particular 15-minute interval in the past 24 hours.
OC3 port, STS1	sonetSectionIntervalTable	sonetSectionIntervalSEFSs ***Note:*** Appears only if OC-3 cards are provisioned in the master shelf.	The counter associated with the number of Coding Violations encountered by a SONET/SDH Section in a particular 15-minute interval in the past 24 hours.
OC3 port, STS1	sonetSectionIntervalTable	sonetSectionIntervalCVs ***Note:*** Appears only if OC-3 cards are provisioned in the master shelf.	The counter associated with the number of Coding Violations encountered by a SONET/SDH Section in a particular 15-minute interval in the past 24 hours.

OMs sent to the OSS

Hardware	OM table name	OM name	Description
OC3 port, STS1	sonetLineIntervalTable	sonetLineIntervalESs ***Note:*** Appears only if OC-3 cards are provisioned in the master shelf.	The counter associated with the number of Errored Seconds encountered by a SONET/SDH Line in a particular 15-minute interval in the past 24 hours.
OC3 port, STS1	sonetLineIntervalTable	sonetLineIntervalSESs ***Note:*** Appears only if OC-3 cards are provisioned in the master shelf.	The counter associated with the number of Severely Errored Seconds encountered by a SONET/SDH Line in a particular 15-minute interval in the past 24 hours.
OC3 port, STS1	sonetLineIntervalTable	sonetLineIntervalCVs ***Note:*** Appears only if OC-3 cards are provisioned in the master shelf.	The counter associated with the number of Coding Violations encountered by a SONET/SDH Line in a particular 15-minute interval in the past 24 hours.
OC3 port, STS1	sonetLineIntervalTable	sonetLineIntervalUASs ***Note:*** Appears only if OC-3 cards are provisioned in the master shelf.	The counter associated with the number of Unavailable Seconds encountered by a SONET/SDH Line in a particular 15-minute interval in the past 24 hours.

OMs sent to the OSS

Hardware	OM table name	OM name	Description
OC3 port, STS1	sonetPathIntervalTable	sonetPathIntervalESs ***Note:*** Appears only if OC-3 cards are provisioned in the master shelf.	The counter associated with the number of Errored Seconds encountered by a SONET/SDH Path in a particular 15-minute interval in the past 24 hours.
OC3 port, STS1	sonetPathIntervalTable	sonetPathIntervalSESs ***Note:*** Appears only if OC-3 cards are provisioned in the master shelf.	The counter associated with the number of Severely Errored Seconds encountered by a SONET/SDH Path in a particular 15-minute inter val in the past 24 hours.
OC3 port, STS1	sonetPathIntervalTable	sonetPathIntervalCVs ***Note:*** Appears only if OC-3 cards are provisioned in the master shelf.	The counter associated with the number of Coding Violations encountered by a SONET/SDH Path in a particular 15-minute inter val in the past 24 hours.
OC3 port, STS1	sonetPathIntervalTable	sonetPathIntervalUASs ***Note:*** Appears only if OC-3 cards are provisioned in the master shelf.	The counter associated with the number of Unavailable Seconds encountered by a Path in a particular 15-minute interval in the past 24 hours.

OMs sent to the OSS

Hardware	OM table name	OM name	Description
OC-3 or DS1-IMA cards	nnPmSnmpOmIntervTable	nnPmSnmpIntervReqPeak	The peak number of SNMP requests/PDUs in the most recent 15 minutes. These are accumulated on 1-minute cycles.
OC-3 or DS1-IMA cards	nnPmSnmpOmIntervTable	nnPmSnmpIntervReqAvg	The average number of SNMP requests/PDUs in the most recent 15 minutes. These are accumulated on 1-minute cycles. Therefore, the average is the average of the last 15x 1-minute cycles. Precision is in tenths, thus 816 is 81.6.
OC-3 or DS1-IMA cards	nnPmSnmpOmIntervTable	nnPmSnmpIntervNotifPeak	The peak number of SNMP notifications in the most recent 15 minutes. These are accumulated on 1-minute cycles.

OMs sent to the OSS

Hardware	OM table name	OM name	Description
OC-3 or DS1-IMA cards	nnPmSnmpOmIntervTable	nnPmSnmpIntervNotifAvg	The average number of SNMP notifications in the most recent 15 minutes. These are accumulated on 1-minute cycles. Therefore, the average is the average of the last 15x 1-minute cycles. Precision is in tenths, thus 816 is 81.6.
OC-3 or DS1-IMA cards	nnPmOvldRscDccIntervTable	nnPmOvldRscDccIntervPduRatePeak	Peak number of received AAL5 PDUs per second for this 15 minute interval.
OC-3 or DS1-IMA cards	nnPmOvldRscDccIntervTable	nnPmOvldRscDccIntervPduRateAvg	Average number of received AAL5 PDUs per second for this 15 minute interval.
OC-3 or DS1-IMA cards	nnPmOvldRscDccIntervTable	nnPmOvldRscDccIntervCbvMsgRPeak	Peak number of received connection request messages per second for this 15 minute interval.
OC-3 or DS1-IMA cards	nnPmOvldRscDccIntervTable	nnPmOvldRscDccIntervCbvMsgRAvg	Average number of received connection request messages per second for this 15 minute interval.

OMs sent to the OSS

Hardware	OM table name	OM name	Description
OC-3 or DS1-IMA cards	nnPmOvldRscDccIntervTable	nnPmOvldRscDccIntervConQDelPeak	Peak time in milliseconds a connRequest is pending in its queue for this 15 minute interval.
OC-3 or DS1-IMA cards	nnPmOvldRscDccIntervTable	nnPmOvldRscDccIntervConQDelAvg	Average time in milliseconds a connRequest is pending in its queue for this 15 minute interval.
OC-3 or DS1-IMA cards	nnPmOvldRscDccIntervTable	nnPmOvldRscDccIntervCpuUtilPeak	Peak CPU occupancy for this 15 minute interval.
OC-3 or DS1-IMA cards	nnPmOvldRscDccIntervTable	nnPmOvldRscDccIntervCpuUtilAvg	Average CPU occupancy for this 15 minute interval.
OC-3 or DS1-IMA cards	nnPmOvldConnDenyIntervConn	nnPmOvldConnDenyIntervConn	Count of the number of connection requestions denied for this 15 minute interval.
DS1-IMA group	imaGroupIntervalTable	imaGroupIntervalUnavailSecs ***Note:*** Appears only if DS1-IMA cards are provisioned in the master shelf.	Count of one second intervals where the IMA Group Traffic Stat Machine is down in one of the previous 96, individual 15 minute intervals

OMs sent to the OSS

Hardware	OM table name	OM name	Description
DS1-IMA group	imaGroupIntervalTable	imaGroupIntervalNeNumFailures ***Note:*** Appears only if DS1-IMA cards are provisioned in the master shelf.	The number of times a near-end group failure (Config-Aborted, Insufficient-Links) has been reported in one of the previous 96, individual 15 minute, intervals.
DS1-IMA link	imaLinkIntervalTable	imaLinkIntervalImaViolations ***Note:*** Appears only if DS1-IMA cards are provisioned in the master shelf.	ICP violations: count of errored, invalid, or missing ICP cells, except during SES-IMA or UAS-IMA conditions, in one of the previous 96, individual 15 minute, intervals.
DS1-IMA link	imaLinkIntervalTable	imaLinkIntervalOifAnomalies ***Note:*** Appears only if DS1-IMA cards are provisioned in the master shelf.	The number of OIF anomalies, except during SES-IMA or UAS-IMA conditions, at the near-end in one of the previous 96 individual, 15 minute intervals. This is an optional attribute.

OMs sent to the OSS

Hardware	OM table name	OM name	Description
DS1-IMA link	imaLinkIntervalTable	imaLinkIntervalNeSevErroredSecs ***Note:*** Appears only if DS1-IMA cards are provisioned in the master shelf.	Count of one second intervals containing ≥ 30 % of the ICP calls counted as IV-IMAs, or one or more link defects (for example, LOS, OOF/LOF, AIS, or LCD), LIF defects, or LODS defects, except during UAS-IMA condition, in one of the previous 96, individual 15 minute, intervals.
DS1-IMA link	imaLinkIntervalTable	imaLinkIntervalNeUnavailSecs ***Note:*** Appears only if DS1-IMA cards are provisioned in the master shelf.	Count of unavailable seconds at near-end in one of the previous 96, individual 15 minute, intervals; unavailability begins at the onset of 10 contiguous SES-IMA and ends at the onset of 10 contiguous seconds with no SES-IMA.
DS1-IMA link	imaLinkIntervalTable	imaLinkIntervalNeTxUnusableSecs ***Note:*** Appears only if DS1-IMA cards are provisioned in the master shelf.	Tx Unusable seconds; count of Unusable seconds at the near-end Tx LSM in one of the previous 96, individual 15 minute intervals.

OMs sent to the OSS

Hardware	OM table name	OM name	Description
DS1-IMA link	imaLinkIntervalTable	imaLinkIntervalNeRxUnusableSecs ***Note:*** Appears only if DS1-IMA cards are provisioned in the master shelf.	Rx Unusable seconds; count of Unusable seconds at the near-end Rx LSM in one of the previous 96, individual 15 minute intervals.
DS1-IMA link	imaLinkIntervalTable	imaLinkIntervalNeTxNumFailures ***Note:*** Appears only if DS1-IMA cards are provisioned in the master shelf.	The number of times a near-end transmit failure alarm condition has been entered on this link (that is, some from of implementation specific transmit fault) in one of the previous 96, individual, 15 minute, intervals.
DS1-IMA link	imaLinkIntervalTable	imaLinkIntervalNeRxNumFailures ***Note:*** Appears only if DS1-IMA cards are provisioned in the master shelf.	The number of times a near-end receive failure alarm condition has been entered on this link (that is, LIF, LODS, RFI-IMA, Mis-connected, or some form of implementation specific receive fault) in one of the previous 96, individual 15 minute intervals.

OMs sent to the OSS

Hardware	OM table name	OM name	Description
DS1-IMA link	imaLinkIntervalTable	imaLinkIntervalTxStuffs ***Note:*** Appears only if DS1-IMA cards are provisioned in the master shelf.	Count of stuff events inserted in the transmit direction in one of the previous 96, individual 15 minute, intervals. This is an optional attribute.
DS1-IMA link	imaLinkIntervalTable	imaLinkIntervalRxStuffs ***Note:*** Appears only if DS1-IMA cards are provisioned in the master shelf.	Count of stuff events inserted in the receive direction in one of the previous 96, individual 15 minute, intervals. This is an optional attribute.
ABI cards	nnRelMsgSctpAssocOmCurrTable	nnRelMsgSctpAscCurrClosed	Counts the number of times that this association closed (both aborts and shutdowns).
ABI cards	nnRelMsgSctpAssocOmCurrTable	nnRelMsgSctpAscCurrAbort	Counts the number of times that this association aborted.
ABI cards	nnRelMsgSctpAssocOmCurrTable	nnRelMsgSctpAscCurrOutPacks	Counts the number of packets transmitted.
ABI cards	nnRelMsgSctpAssocOmCurrTable	nnRelMsgSctpAscCurrInPacks	Counts the number of packets received, this association.
ABI cards	nnRelMsgSctpAssocOmCurrTable	nnRelMsgSctpAscCurrDiscPacks	Counts the number of packets discarded by this association.

OMs sent to the OSS

Hardware	OM table name	OM name	Description
ABI cards	nnRelMsgSctpAssocOmCurrTable	nnRelMsgSctpAscCurrRetranPacks	Counts the number of packets retransmitted by this association, this interval.
ABI cards	nnRelMsgSctpAssocOmCurrTable	nnRelMsgSctpAscCurrT1expires	Counts the number of T1 expires.
ABI cards	nnRelMsgSctpAssocOmCurrTable	nnRelMsgSctpAscCurrT2expires	Counts the number of T2 expires.
ABI cards	nnRelMsgSctpAssocOmCurrTable	nnRelMsgSctpAscCurrT3expires	Counts the number of T3 expires.
ABI cards	nnRelMsgSctpAssocOmCurrTable	nnRelMsgSctpAscCurrCongCount	Counts the number of times this assoc entered congestion.
ABI cards	nnRelMsgSctpAssocOmCurrTable	nnRelMsgSctpAscCurrCongCleared	Counts the number of times congestion cleared by audit.

OMs reported to the CS 2000

The OMs in the following table record information on MG 9000, but report the information to the Gateway Controller (GWC) which then forwards the reports to the Call Server 2000 (CS 2000). To retrieve these OM statistics on the MG 9000, refer to *ATM/IP Performance Management*, NN10401-700.

Operational measurements reported to the CS 2000

OM name	OM register	Purpose
DTSRPM (Dial tone speed recording - peripheral module)	DTMF originations	Pegged when a DTMF line goes off hook
	DTMF delays	Pegged when dial tone is applied more than 3 seconds after the off hook
	DP originations	Not supported
	DP delays	Not supported
	Keyset originations	Pegged when a P-phone line goes off hook
	Keyset delays	Pegged when dial tone is applied more than 3 seconds after the off hook
GWOVLOM	OVERLOAD	Pegged when connections are denied because the MG 9000 is in overload.
LMD (line traffic)		Is provided per shelf. If an MG 9000 frame contains one master shelf and three subtending shelves, LMD has three entries, one for each shelf based on the ADMIN number of the shelf.
XPMLNK (XMS-based peripheral module link)		Is supported on the XPM that are subtending the ABI DS-512 interface on the MG 9000.
SITE (traffic and DTSR for remote sites)		Is provided on an MG 9000 node basis and provides intrasite call attempts, line originations leaving the site, line terminations coming into the site, along with DTSR information on the MG 9000 node. This does not displace DTSRPM but can be used to supplement it.
SITE2 (traffic and DTSR for remote sites 2)		Provides DTSR information on the remote digital terminals (RDT) subtending from an ESMA on the ABI DS-512 interface.

OC-3 laser performance

The values for optical transmission and laser bias show the health of the transmit laser on the OC-3 card. When the OC-3 carrier administration status is Unlocked and the operational status is Up, the readings show the optical transmit power and the laser bias current as a percentage of nominal measurements captured during manufacturing. The readings indicate the laser health compared to the initial readings and indicate a degradation of transmit power if they are out of range. The following are the acceptable values for laser bias seen at the LCI or reported to the element manager using OMs

- typical reading for Optical Tx is 100% ±25%
- typical reading for Laser bias is 0 to 150%

Readings outside these ranges may indicate a degradation of the transmit laser strength. These readings are also captured by carrier performance monitoring statistics at the element manager to track carrier performance. Any carrier degradation is reported to the element manager.

Note: If the carrier is Locked or Offline, both readings will be 0%.

The receive optical statistics are covered by carrier maintenance performance monitoring and defect monitoring (for example, ES, SES, LOS, LOF, BERSF, BERSD). The laser bias current of the receive signal cannot be tracked since that is a parameter of the transmit laser diode from the far end. The optical Rx signal is tracked by the local optical transceiver and detects when the optical Rx signal falls below a certain threshold and reports a loss of signal (LOS). These signal fail parameters are reported through carrier maintenance at the LCI and the element manager.

The technician must monitor the transceiver parameters directly and look for a degradation to determine if the transmit laser health is beginning to fail.

In performance monitoring, if these values fall outside of the ranges listed earlier, a threshold crossing alert is raised to the MG 9000 Manager.

If the OC-3 carriers are offline, the transmit laser will be disabled and the readings will read 0% or close to 0%. If both readings read 0% or close to 0%, then the technician should check to make sure the carriers are unlocked.

With the OC-3 carriers unlocked, these values should read within the above ranges. If they fall outside of the ranges, the transmit laser may

be defective or other hardware problems may exist. At this point the technician should

- Check for OC-3 carrier alarms such as RDI-L (which indicates far end is having trouble with this signal).
- Consider replacing the OC-3 card. To replace the DCC card, refer to “Replacing a DCC card” in *MG 9000 Fault Management*, NN10074-911

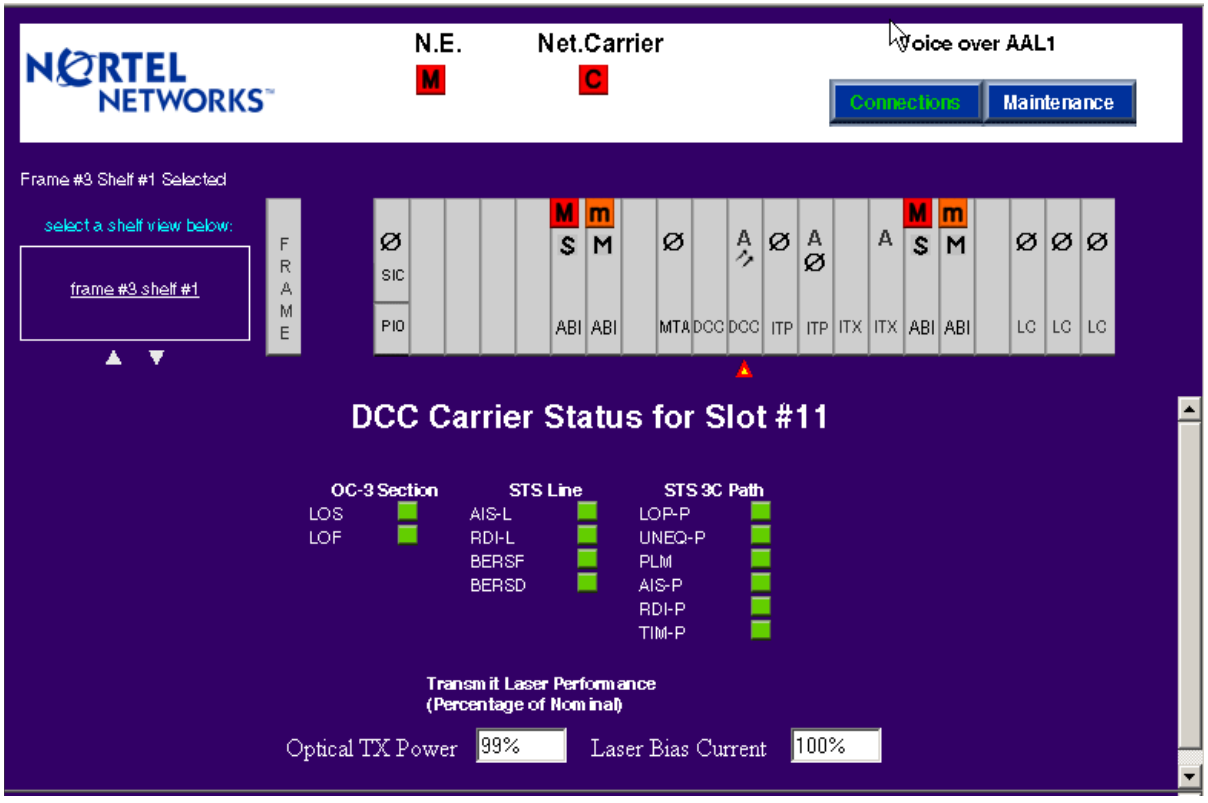
> ***Note:*** Checking or replacing the optical fiber has no effect on this problem.

If the receive optical signals are out of range, the MG 9000 Manager shows the carrier alarms and failed receive signals.

Obtaining laser health data from the LCI

The following figure shows the DCC Carrier Status LCI screen. From this screen the technician can obtain the Optical TX and Laser Bias values. When the screen is displayed, a query is issued and the screen is updated every 5 seconds.

DCC Carrier Status LCI screen

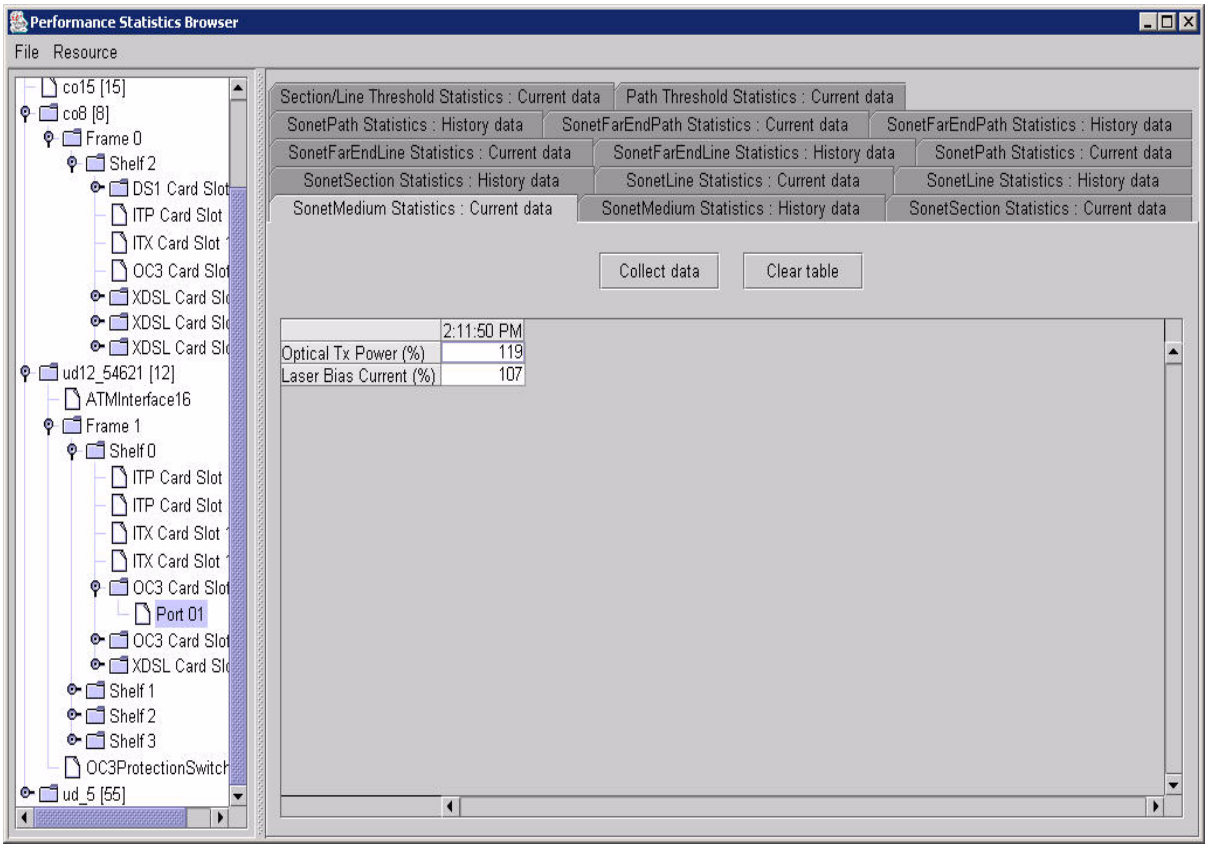


Obtaining laser health information from the MG 9000 Manager

The following figure shows the Performance Statistics Browser at the MG 9000 Manager. From the Sonet Medium Statistics tab, the technician can obtain the Optical TX and Laser Bias values. The screen is updated when the Collect Data button is clicked.

Note: The following example depicts a concatenated carrier. The tabs for a channelized carrier differ from those of a concatenated carrier.

Figure 80 Performance Statistics Browser showing Sonet Medium Statistics tab



Tools and utilities

Operational measurements are available from the MG 9000 Manager, using the Performance Statistics Browser which is accessed from the Subnet View.

Operational measurements forwarded to the OSS are collected and formatted into comma separated value (CSV) format using the Succession Operational Measurement Collector (OM Collector). The OM Collector is described next.

OM Collector

The OM Collector is a CSV OM collection application. The user interface and configuration is text based, however, after initial configuration, little user interaction is required. The collection frequency for OSS data retrieval is configurable from every 15 minute to 24 hours. An OMC600 log is output every 15 minutes giving a summary report of OM data collected. The following is a sample OMC600 log report

```
OMC600 Oct 24 14:15:00 0001 INFO OMCollectionSummary
  ***OM Collection Summary***
  Total number of configured devices 5
  OM data collection succeeded:      5
  OM data collection failures:       0
  General comment : <none>
```

Collected OM Data files are available in the following directories:

- /data/oms/1
- /data/oms/2
- /data/oms/3
- /data/oms/4
- /data/oms/5
- /data/oms/6
- /data/oms/7

Note: The Collected OM Data files are located in the server where the mid-tier application is installed. New files are always stored into the ‘1’ directory. Files are rotated to the next directory every 24 hours.

The PCF software installation and configuration procedures follow.

Installing OM collector software

At the MG 9000 Manager Mid-tier server

1 Login as root (superuser) and insert the CD containing the MG 9000 Manager software into the CD-ROM drive.

Note: If the system is:

- a T1400, log into the mid-tier server.
- an N240, log into the master/mid-tier server.

2 At the prompt (#) use pkgadd to install the OM Collector portion of the software. If you are directly installing from the CD-ROM use the following command to read the CD-ROM, and list the contents to read the release number:

```
# cd /cdrom/cdrom0/
# ls
# pkgadd -d /cdrom/cdrom0/NTOMCLTR_7_##_0.pkg
```

where ## is the release number.

The system responds with the following information

```
The following packages are available:
  1  NTomclt07 Succession Operational
Measurement Collector
                    (sparc) 7.19a
Select package(s) you wish to process (or 'all'
to process all packages). (default: all)
[?,??,q]:
```

3 Press Return to install the OM Collection Application.

The package is processed and the following information is displayed.

```
Processing package instance <NTomclt07> from
</NTomclt07.pkg>

Succession Operational Measurement Collector
(sparc) NTOMCLTR_7_##_0

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All Rights Reserved

This product is protected by copyright and
distributed under licenses restricting copying,
distribution and decompilation.
```

```
## Executing checkinstall script.
Using </opt> as the package base directory.
## Processing package information.

## Processing system information.
   1 package pathname is already properly
installed.
## Verifying disk space requirements.
## Checking for conflicts with packages already
installed.
## Checking for setuid/setgid programs.

This package contains scripts which will be
executed with super-user permission during the
process of installing this package.

Do you want to continue with the installation of
<NTomclt07> [y,n,?]
```

4 Enter y to continue the installation of the OM Collection Application.

```
Installing Succession Operational Measurement
Collector as <NTomclt07>

## Installing part 1 of 1.
/opt/nortel/omcltr_07/License.txt

/opt/nortel/omcltr_07/bin/OMCollector

/opt/nortel/omcltr_07/bin/OMCollector_config.s
h

/opt/nortel/omcltr_07/bin/OMCollector_health.s
h

/opt/nortel/omcltr_07/bin/OMCollector_start.sh

/opt/nortel/omcltr_07/bin/OMCollector_stop.sh

/opt/nortel/omcltr_07/bin/OMimpl

/opt/nortel/omcltr_07/classes/FwComp_all.jar

/opt/nortel/omcltr_07/classes/PSEEXTINF.jar

/opt/nortel/omcltr_07/classes/bsh-1.2b6.jar

/opt/nortel/omcltr_07/classes/bshFunctions/inv
okeCmd.bsh

/opt/nortel/omcltr_07/classes/omcollector.jar

/opt/nortel/omcltr_07/classes/patching.jar

/opt/nortel/omcltr_07/config/omc.cuip
```

```
/opt/nortel/omcltr_07/config/omcollector.prope
rties

/opt/nortel/omcltr_07/config/patching.db

[ verifying class ]

## Executing postinstall script.

**********************************************

Package Installation Def (PDGINST) : NTomclt07

Package Install Dir (INST_DATADIR) :
/var/tmp/dstreAAAQZaGBK

**********************************************

**********************************************

SUCCESSION OPERATIONAL MEASUREMENT COLLECTOR
INSTALLATION

PATH :
/sbin:/usr/sbin:/usr/bin:/usr/sadm/install/bin
OMCollector Location : /opt/nortel/omcltr_07

**********************************************

Configuring system, please wait ...

WARNING: CUIPMessaging.pm[516] -> Unable to
connect to the PSE.

Connection refused

Installation of <NTomclt07> was successful.
```

5 This procedure is complete. Go to the Configuring OM Collector software procedure.

Configuring OM Collector software

At the MG 9000 Manager Mid-tier server

1 Issue the following change directory command to enter the appropriate directory:

 # cd /opt/nortel/omcltr_07/bin

Note: When information on commands is needed, type the following command:

 # ./OMCollector help

The system responds:

```
Recognized commands are: ./OMCollector
<command>
```

```
start    - Starts OM Collector.
stop     - Stops OM Collector.
restart  - Stops and Restarts OM Collector.
config   - Configuration tool.
status   - Displays status information.
version  - Display product version information.
help     - Displays help.
```

2 Use the following table to select the configuration option:

If	Do
configuring the OMCollector for the first time	step 3
reconfiguring an existing configuration of the OMCollector	step 5
retaining an existing configuration of the OMCollector	step 7
changing the configuration of the OMCollector using menu options	step 9

3 If configuring the OMCollector for the first time, enter the following command:

 # ./OMCollector_config.sh

The system responds:

```
Starting OM Configuration...

Please enter the IP Address/Hostname of the MG9K
server?

Press the enter key to accept the default ?

Default: []=->##.###.###.###

Please enter the IP Address/Hostname of Oracle
Server?

Press the enter key to accept the default ?

Default:[]=->##.###.###.###

Please enter the IP Address/Hostname of CS2M
Server?

Press the enter key to accept the default ?

Default:[]=->##.###.###.###

*****************************************
```

```
EM Server IP Address :##.###.###.###
Oracle IP Address ##.###.###.###
CS2M IP Address: ##.###.###.###
*****************************************
Is the above information correct?
Press the enter key to accept the default (y/n)?
Default: [n]=>
```

Enter y.

The system responds:

```
Configuring system, please wait...
Configuration complete...
```

4 Go to step 19 to start the collection application.

5 If reconfiguring an existing configuration of the OMCollector, enter the following command:

`# ./OMCollector_config.sh`

The system responds:

```
Setup has detected configuration settings from
a previous installation.
```

```
*****************************************
EM Server IP Address :##.###.###.###
Oracle IP Address :##.###.###.###
CS2M IP Address :##.###.###.###
*****************************************
Is the above information correct?
Press the enter key to accept the default (y/n)?
Default: [n]=>
```

Press the Enter key.

The system responds:

```
Please enter the IP Address/Hostname of MG9K
server?
Press the enter key to accept the default ?
Default: [##.###.###.###]=>
```

Enter the IP address.

The system responds:

```
Please enter the IP Address/Hostname of Oracle
Server?
Press the enter key to accept the default ?
Default: [##.###.###.###]=>
```

Enter the IP address.

The system responds:

```
Please enter the IP Address/Hostname of CS2M
Server?
Press the enter key to accept the default ?
Default: [##.###.###.###]=>
```

Enter the IP address.

The system responds:

```
*****************************************
EM Server IP Address :##.###.##.##
Oracle IP Address: ##.###.###.#
CS2M IP Address: ##.###.###.###
*****************************************
```

```
Is the above information correct?
Press the enter key to accept the default (y/n)?
Default: [n]=>
```

Enter y.

The system responds:

```
Configuring system, please wait...
Configuration complete...
```

6 Go to step 19 to start the collection application.

7 If retaining an existing configuration of the OMCollector, enter the following command:

```
# ./OMCollector_config.sh
```

The system responds:

```
Setup has detected configuration settings from
a previous installation.
*****************************************
EM Server IP Address :##.###.##.##
Oracle IP Address: ##.###.###.#
CS2M IP Address :###.###.###.###
*****************************************
Is the above information correct?
Press the enter key to accept the default (y/n)?
Default:[n]=>
```

Enter y to accept current values.

The system responds:

```
Configuring system, please wait...
Configuration complete...
```

8 Go to step 19 to start the collection application.

9 If changing the configuration of the OMCollector using menu options, enter the following command:

```
# ./OMCollector config
```

The system responds:

```
Starting OM Configuration...

Main Configuration Menu

1) Change IP Address of EM Server
2) Change Oracle IP Address
3) Change CS2M IP Address
4) Display current settings
5) Exit from Main Menu

Please make a selection =>
```

10 Use the following table to determine the next step.

If you want to	Do
change the IP address of the EM Server	step 11
change the Oracle IP address	step 13
change the CS2M IP address	step 15
display current settings	step 17
exit from the Main Menu	step 18

11 From the Main Configuration Menu, select **1** to change the IP address of the EM server.

The system responds:

```
EM Server IP Address Configuration Menu

1) Enter new EM Server IP Address

2) Exit to Main Menu

Please make a selection
[Current:##.###.##.##]=->1

Please enter the IP Address of EM Server?

Default:[##.###.##.##]=> ##.###.###.###

Please wait...trying to contact server.
```

12 From the EM Server IP Address Configuration Menu, select **2** to exit to the Main Configuration Menu.

13 From the Main Configuration Menu, select **2** to change the Oracle IP address, or go to step 18 to exit.

The system responds:

```
Oracle IP Address Configuration Menu

1) Enter new Oracle IP Address

2) Exit to Main Menu

Please make a selection
[Current:##.###.###.#]=->1

Please enter the IP Address of Oracle Server?

Default:[##.###.###.#]=> ##.###.###.###

Please wait...trying to contact server.
```

14 From the Oracle IP Address Configuration Menu, select **2** to exit to the Main Configuration Menu.

15 From the Main Configuration Menu, select **3** to change the CS2M IP address, or go to step 18 to exit.

The system responds:

```
CS2M IP Address Configuration Menu

1) Enter new CS2M IP Address

2) Exit to Main Menu

Please make a selection
[Current:##.###.###.#]=->1

Please enter the IP Address of Oracle Server?

Default:[##.###.###.#]=> ##.###.###.###

Please wait...trying to contact server.
```

16 From the CS2M IP Address Configuration Menu, select **2** to exit to the Main Configuration Menu.

17 From the Main Configuration Menu, select **4** to display the current settings, or go to step 18 to exit.

The system responds:

```
CURRENT SETTINGS

Package Name :NTomclt07

Version :NTOMCLTR_7_16_0

EM Server IP Address :##.###.###.###

Oracle Server IP :##.###.###.###

CS2M IP Address :##.###.###.###
```

18 From the Main Configuration Menu, select **5** to exit from the Main Menu.

19 To start the collection application, issue the following command:

```
# servstart MG9KOMC_07
```

The system responds:

```
================================================
Succession Operational Measurement Collector -
NTOMCLTR_7_291_0
Copyright (c) 1998-2003 Nortel Networks
All Rights Reserved
================================================
Starting OM Collector ...

.....

MG9KOMC_07 Started
```

20 At any time the status command can be issued:

```
# servquery -status -g MG9KOMC_07
```

Process information will be displayed:

```
The OM Collector is Running
Running OM Collector Processes:

   PID TT S  TIME COMMAND
23394 ? S  0:00 /usr/bin/logger -p local7.info
-t omcltr
23397 ? S 0:16 java -verbose:gc
com.nortelnetworks.omCollector.OMCollector
```

21 To restart the application at any time issue the following command:

```
# servrestart MG9KOMC_07
```

Process information will be displayed, followed by startup info:

```
The OM Collector is Running

Running OM Collector Processes:

 PID TT S  TIME COMMAND
23394 ? S  0:00 /usr/bin/logger -p local7.info
-t omcltr
23397 ? S 0:16 java -verbose:gc
com.nortelnetworks.omCollector.OMCollector

# servrestart MG9KOMC_07

Stopping MG9KOMC_07
```

```
Starting MG9KOMC_07
MG9KOMC_07 re-started successfully#
```

22 To stop the application at any time issue the following command:

```
# servstop MG9KOMC_07
```

Process information will be displayed:

```
Stopping group using servstop
Shutting OM Collector down ...
OM Collector shutdown complete
MG9KOMC_07 Stopped
```

23 Customer logs are available at:

/var/log/customerlog

24 This procedure is complete.

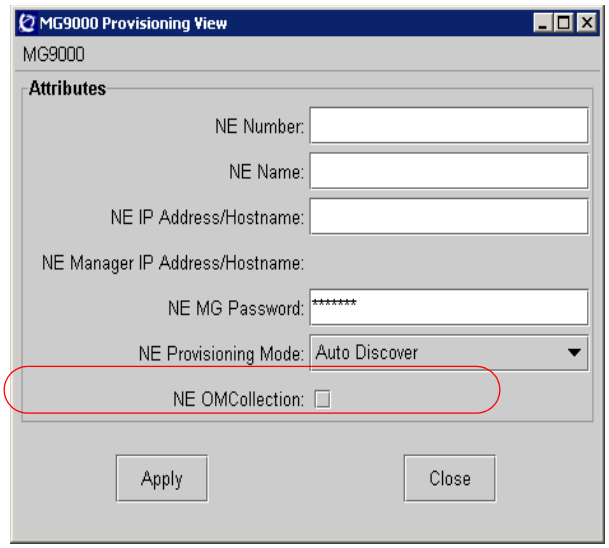
Enabling and disabling OM collection for individual NEs

To enable or disable OM collection for individual NEs by checking/unchecking the NE OMCollection checkbox, use any of the following GUIs in the MG 9000 Manager:

- MG 9000 Provisioning View, which is accessed from Configuration->Add New MG9000 NE from the menu bar of the Subnet View when provisioning a new MG 9000 Network Element.

The following figure shows the MG9000 Provisioning View and the NE OMCollection field.

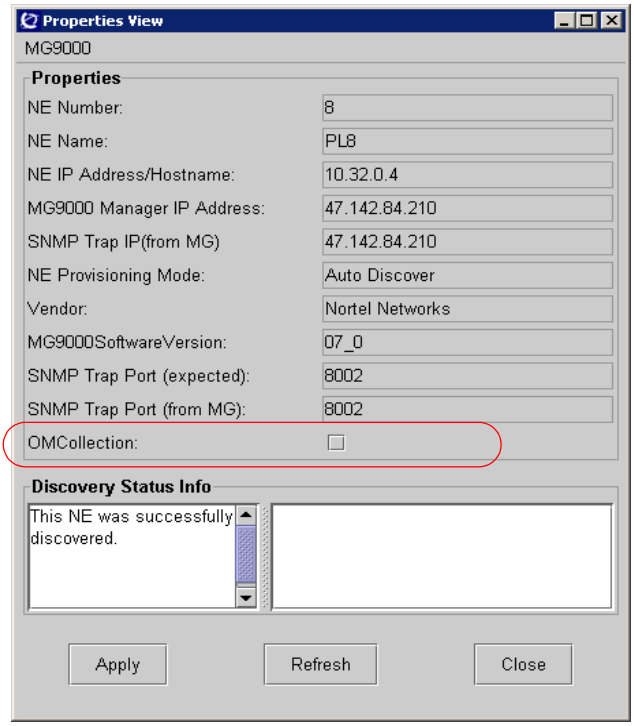
MG9000 Provisioning View, showing NE OMCollection checkbox



- Properties View, which is access from Configuration->View/Modify NE Properties from the menu bar of the Subnet View after the NE is

provisioned. The following figure shows the Properties View and the OMCollection field.

Properties View, showing OM Collection checkbox



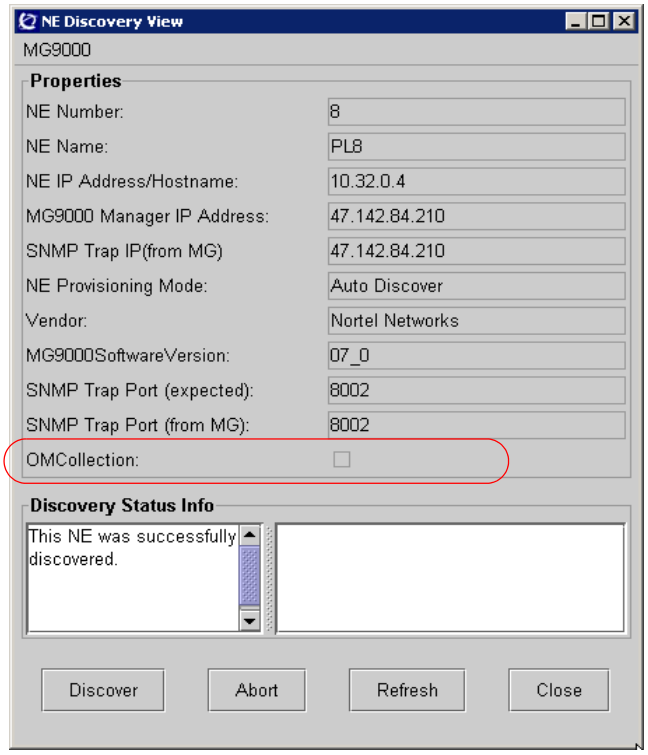
Viewing OM Collector status

To view the status of the OM Collector for a specific NE, enabled or disabled, use the following:

- Configuration->Discover NE which is accessed from the menu bar of the Subnet View. The following figure shows the Discover NE GUI

with the OMCollection field. The box is greyed out meaning the user cannot change the status of the OM Collector from this GUI.

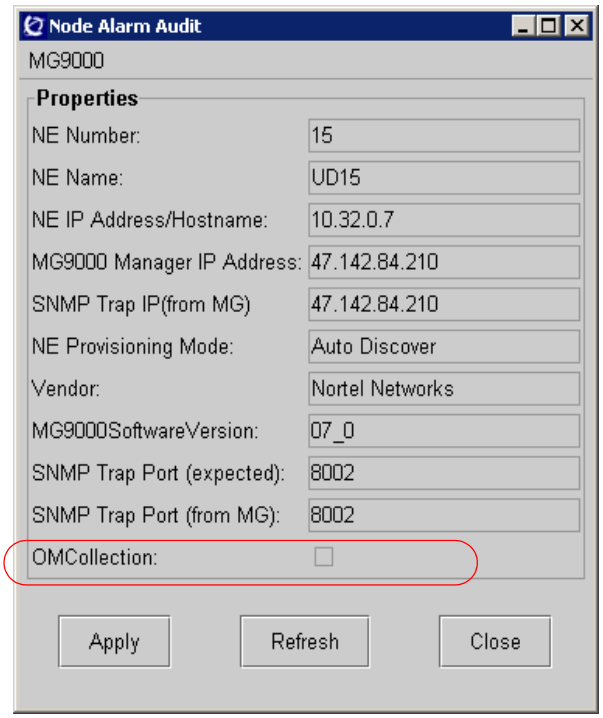
Discover NE GUI, showing NE OMCollector checkbox



- Alarm->Audit Alarms which is accessed from the menu bar of the Subnet View. The following figure shows the Discover NE GUI with

the OMCollection field. The box is greyed out meaning the user cannot change the status of the OM Collector from this GUI.

Audit Alarm Audit GUI, showing OMCollection checkbox



OM Push application

The OM Push application (OMPUSH) is a tool that runs in SSPFS and transfers MG 9000 OM files generated by the OM Collector to predefined remote servers using FTP or SSH FTP (SFTP). OMPUSH runs in SSPFS on the same server as that running the MG 9000 OM Collector.

OMPUSH supports up to six file push sessions. Each session is responsible for sending OM files to one destination periodically. Each session has its own destination server, destination directory, login user, password, push interval, source of OM files, and file transfer mode. Information on the OMPUSH application is available from the following documents:

- to obtain basic information on the OMPUSH application is available in *ATM/IP Basics*, NN10320-100
- to configure and use the OMPUSH application, refer to *ATM/IP Configuration Management*, NN10409-500
- to start and stop the OMPUSH application, refer to *ATM/IP Security and Administration*, NN10402-600
- to view OMPUSH logs in Syslog, refer to *ATM/IP Fault Management,* NN10408-900

Note: When referring to these documents, remember that when installation, configuring and using OMPUSH, references to the CS 2000 Management Tools server must be replaced with MG 9000 Manager server on which the OMPUSH application is installed.