Tekelec EAGLE® 5 Integrated Signaling System

Measurements

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Patents

This product is covered by one or more of the following U.S. and foreign patents:
U.S. Patent Numbers:
5,732,213; 5,953,404; 6,115,746; 6,167,129; 6,324,183; 6,327,350; 6,456,845; 6,606,379; 6,639,981; 6,647,113; 6,662,017; 6,735,441; 6,745,041; 6,765,990; 6,795,546; 6,819,932; 6,836,477; 6,839,423; 6,885,872; 6,901,262; 6,914,973; 6,940,866; 6,944,184; 6,954,526;6,954,794; 6,959,076; 6,965,592; 6,967,956; 6,968,048; 6,970,542; 6,987,781; 6,987,849; 6,990,089; 6,990,347; 6,993,038; 7,002,988; 7,020,707; 7,031,340; 7,035,239; 7,035,387; 7,043,000; 7,043,001; 7,043,002; 7,046,667; 7,050,456; 7,050,562; 7,054,422; 7,068,773; 7,072,678; 7,075,331; 7,079,524; 7,088,728; 7,092,505; 7,108,468; 7,110,780; 7,113,581; 7,113,781; 7,117,411; 7,123,710; 7,127,057; 7,133,420; 7,136,477; 7,139,388; 7,145,875; 7,146,181; 7,155,206; 7,155,243; 7,155,505; 7,155,512; 7,181,194; 7,190,702; 7,190,772; 7,190,959; 7,197,036; 7,206,394; 7,215,748; 7,219,264; 7,222,192; 7,227,927; 7,231,024; 7,242,695; 7,254,391; 7,260,086; 7,260,207; 7,283,969; 7,286,516; 7,286,647; 7,286,839; 7,295,579; 7,299,050; 7,301,910; 7,304,957; 7,318,091; 7,319,857; 7,327,670
Foreign Patent Numbers:
EP1062792; EP1308054; EP1247378; EP1303994; EP1252788; EP1161819; EP1177660; EP1169829; EP1135905; EP1364520; EP1192758; EP1240772; EP1173969; CA2352246

Ordering Information

Your Tekelec Sales Representative can provide you with information about how to order additional discs.

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Chapter 1

Introduction

Topics:

Overview

The *Measurements Manual* describes EAGLE 5 ISS measurements. Measurements provide support for:

- STP performance management
- SS7 traffic monitoring and engineering
- Specific feature performance analysis (STPLAN)

The manual is organized as follows:

- *Introduction* on page 1 provides general information about the organization of this manual
- *Measurements* on page 9 describes traffic measurements used in the EAGLE 5 ISS.
- *Reports* on page 21 describes the reports that can be requested.
- *X.25/SS7 Message Conversion* on page 299 information about the protocol envelopes used by X.25 and SS7 networks
- Glossary that provides a list of acronyms and abbreviations

Note: EAGLE 5 ISS supporting ANSI networks make use of the LNP and SEAS features. EAGLE 5 ISS supporting ITU networks do not include these systems.

Scope and Audience

This manual is intended for maintenance personnel who must maintain the EAGLE 5 ISS. The technician should be familiar with SS7 protocols. The manual provides preventive and corrective procedures that will aid maintenance personnel in maintaining the EAGLE 5 ISS.

Preventive maintenance procedures are routines to be carried out on a scheduled basis to help prevent system failures. These routines are industry-standard recommendations and may be adopted to fit any company maintenance plan.

The corrective maintenance procedures are those used in response to a system alarm or output message. These procedures are EAGLE 5 ISS-specific and aid in the detection, isolation, and repair of faults.

Related Publications

For information about additional publications that are related to this document, refer to the *Related Publications* document. The *Related Publications* document is published as a part of the *Release Documentation* and is also published as a separate document on the Tekelec Customer Support Site.

Documentation Availability, Packaging, and Updates

Tekelec provides documentation with each system and in accordance with contractual agreements. For General Availability (GA) releases, Tekelec publishes a complete EAGLE 5 ISS documentation set. For Limited Availability (LA) releases, Tekelec may publish a documentation subset tailored to specific feature content or hardware requirements. Documentation Bulletins announce a new or updated release.

The Tekelec EAGLE 5 ISS documentation set is released on an optical disc. This format allows for easy searches through all parts of the documentation set.

The electronic file of each manual is also available from the Tekelec Customer Support site. This site allows for 24-hour access to the most up-to-date documentation.

Printed documentation is available for GA releases on request only and with a lead time of six weeks. The printed documentation set includes pocket guides for commands and alarms. Pocket guides may also be ordered as a set or individually. Exceptions to printed documentation are:

- Hardware or Installation manuals are printed only without the linked attachments found in the electronic version of the manuals.
- The Release Notice is available only on the Customer Support site.

Note:

Customers may print a reasonable number of each manual for their own use.

Documentation is updated when significant changes are made that affect system operation. Updates resulting from Severity 1 and 2 PRs are made to existing manuals. Other changes are included in the documentation for the next scheduled release. Updates are made by re-issuing an electronic file to the customer support site. Customers with printed documentation should contact their Sales Representative for an addendum. Occasionally, changes are communicated first with a Documentation Bulletin to provide customers with an advanced notice of the issue until officially released in the documentation. Documentation Bulletins are posted on the Customer Support site and can be viewed per product and release.

Locate Product Documentation on the Customer Support Site

Access to Tekelec's Customer Support site is restricted to current Tekelec customers only. This section describes how to log into the Tekelec Customer Support site and locate a document. Viewing the document requires Adobe Acrobat Reader, which can be downloaded at www.adobe.com.

1. Log into the Tekelec **new** Customer Support site at *support.tekelec.com*.

   Note: If you have not registered for this new site, click the **Register Here** link. Have your customer number available. The response time for registration requests is 24 to 48 hours.

2. Click the **Product Support** tab.
3. Use the Search field to locate a document by its part number, release number, document name, or document type. The Search field accepts both full and partial entries.
4. Click a subject folder to browse through a list of related files.

5. To download a file to your location, right-click the file name and select **Save Target As**.

Customer Care Center

The Tekelec Customer Care Center offers a point of contact for product and service support through highly trained engineers or service personnel. When a call is received, a Customer Service Request (CSR) is issued to record the request for service. Each CSR includes an individual tracking number.

After a CSR is issued, the Customer Care Center determines the classification of the trouble. If a critical problem exists, emergency procedures are initiated. If the problem is not critical, information regarding the serial number of the system, Common Language Location Identifier (CLLI), initial problem symptoms (includes outputs and messages) is recorded. A primary Customer Care Center engineer is also assigned to work on the CSR and provide a solution to the problem. The CSR is closed when the problem is resolved.

The Tekelec Customer Care Center is available 24 hours a day, 7 days a week at the following locations:

Tekelec - Global

Email (All Regions): *support.tekelec.com*

- **USA and Canada**

  Phone:

  1-888-FOR-TKLC or 1-888-367-8552 (toll-free, within continental USA and Canada)

  1-919-460-2150 (outside continental USA and Canada)

  TAC Regional Support Office Hours:

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- **Central and Latin America (CALA)**

  Phone:

  USA access code +1-800-658-5454, then 1-888-FOR-TKLC or 1-888-367-8552 (toll-free)

  TAC Regional Support Office Hours (except Brazil):

  10:00 a.m. through 7:00 p.m. (GMT minus 6 hours), Monday through Friday, excluding holidays

  - **Argentina**

    Phone:

    0-800-555-5246 (toll-free)

  - **Brazil**

    Phone:

    0-800-891-4341 (toll-free)

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    8:30 a.m. through 6:30 p.m. (GMT minus 3 hours), Monday through Friday, excluding holidays

- **Chile**

  Phone:

  1230-020-555-5468
- **Columbia**

  Phone:

  01-800-912-0537
- **Dominican Republic**

  Phone:

  1-888-367-8552
- **Mexico**

  Phone:

  001-888-367-8552
- **Peru**

  Phone:

  0800-53-087
- **Puerto Rico**

  Phone:

  1-888-367-8552 (1-888-FOR-TKLC)
- **Venezuela**

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  0800-176-6497

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  Phone:

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Problem Report (PR)

The assigned Technical Support engineer opens a problem report (PR) using problem criteria as defined in "TL-9000 Quality System Metrics (Book Two, Release 3.0" and the following sections.

Critical

Critical problems severely affect service, capacity/traffic, billing, and maintenance capabilities and requires immediate corrective action, regardless of time of day or day of the week, as viewed by a customer upon discussion with the supplier. For example:

- A loss of service that is comparable to the total loss of effective functional capacity of an entire switching or transport system.
- A reduction in capacity or traffic handling capacity such that expected loads cannot be handled.
- Any loss of safety or emergency capability (for example, 911 calls).

Major

Major problems cause conditions that seriously affect system operations, maintenance, and administration, etc., and require immediate attention as viewed by the customer upon discussion with the supplier. The urgency is less than in a critical situations because of a lesser immediate or impending effect on system performance, customer, and the customer's operation and review. For example:

- Reduction in any capacity/traffic measurement function
- Any loss of functional visibility and/or diagnostic capability
- Short outage equivalent to system or subsystem outages, with accumulated duration of greater than two minutes in any 24-hour period, or that continue to repeat during longer periods
- Repeated degradation of DS1 or higher rate spans or connections
- Prevention of access for routine administrative activity
- Degradation of access for maintenance or recovery operations
- Degradation of the system's ability to provide any required critical or major trouble notification
- Any significant increase in product related customer trouble reports

- Billing error rates that exceed specifications
- Corruption of system or billing databases

Minor

Other problems that a customer does not view as critical or major are considered minor. Minor problems do not significantly impair the functioning of the system and do not significantly affect service to customers. These problems are tolerable during system use.

Engineering complaints are classified as minor unless otherwise negotiated between the customer and supplier.

Emergency Response

In the event of a critical service situation, emergency response is offered by the Tekelec Customer Care Center 24 hours a day, 7 days a week. The emergency response provides immediate coverage, automatic escalation, and other features to ensure that the critical situation is resolved as rapidly as possible.

A critical situation is defined as a problem with an EAGLE 5 ISS that severely affects service, traffic, or maintenance capabilities, and requires immediate corrective action. Critical problems affect service and/or system operation resulting in:

- A total system failure that results in loss of all transaction processing capability
- Significant reduction in system capacity or traffic handling capability
- Loss of the system's ability to perform automatic system reconfiguration
- Inability to restart a processor or the system
- Corruption of system databases that requires service affecting corrective actions
- Loss of access for maintenance or recovery operations
- Loss of the system ability to provide any required critical or major trouble notification

Any other problem severely affecting service, capacity/traffic, billing, and maintenance capabilities may be defined as critical by prior discussion and agreement with the Tekelec Customer Care Center.

Chapter 2

Measurements

Topics:

Introduction

This section describes EAGLE 5 ISS measurements. Measurements provide support for:

- STP performance management
- SS7 traffic monitoring and engineering
- Specific feature performance analysis (STPLAN)

Measurements provide operations and maintenance personnel with network performance and STP performance data in accordance with:

- Telcordia GR-82-CORE
- Telcordia GR-310-CORE
- Telcordia GR-478-CORE
- Telcordia GR-778-CORE
- Telcordia GR-2878-CORE

The primary functions of Measurements are as follows:

- **Collection**

  Measurements are collected at 5, 30, and 60-minute intervals.

- **Storage**

  Measurements are stored in dedicated RAM tables and/or disks after collection. Most are retained for 24 hours. LNP, INP, G-Port, MAP Screening, and Daily EIR measurements are retained for 7 days.

- **Retrieval**

  Measurements data is retrieved from the RAM storage area and/or disk. ACTIVE measurement data is retrieved and reported from the application cards.

- **Reporting**

  Measurement reports are available on-demand/scheduled as follows:

  - 30-minute intervals (scheduled and on-demand)
  - cumulative day-to-hour (on-demand)
  - daily (scheduled and on-demand)
  - hourly LNP and INP (scheduled and on-demand)
  - active 5 minute data (on-demand)
  - optional 15-minute interval (refer to *Optional 15-Minute Measurements* on page 11)

Measurements Platform

The Measurements Platform is reqiured for an EAGLE 5 ISS with more than 700 links. It provides a dedicated processor for collecting and reporting STP, LNP, INP, G-FLEX, G-PORT, and EIR measurements data. The platform consists of multiple Measurement Collection and Polling Module (MCPM) cards in a primary/secondaries configuration, in which a single primary MCPM performs all collection and reporting functions. The secondary MCPM cards serve as backup for the primary. The EAGLE 5 ISS interface is via the standard IMT bus and allows communications with the network elements and the OAM. The interface to the customer's network supports the FTP transfer of Measurements reports to an FTP server.

The Primary MCPM maintains constant communication with all Secondary cards as a way of each monitoring the health status of the other. If the primary MCPM fails before or during collection, a secondary MCPM card assumes the Primary role and begins/continues collection.

Enabling the Measurements Platform feature (feature bit is turned on), allows the Measurements Platform to be provisioned and tested without transferring measurement functionality from the OAM to the Platform. Once the Platform hardware, software, and ethernet connections have been provisioned and verified, the transfer of measurements functionality from the OAM to the Measurement Platform is initiated by setting the *Measurements Platform Installed* bit, which is set by the system only once. From the point that the *Measurements Platform Installed* bit is set and initial data transfer has occurred, the measurements functionality of the OAM is limited to operator interface for measurement configuration and on-demand report requests. The Measurements Platform assumes the collection duties and stores the collected data in MCPM RAM. Following collection, scheduled reports are automatically generated and transferred to the customer's FTP server via the FTP interface.

Note: Existing FTP file server reports are overwritten by subsequent requests that produce the identical file name.

Refer to the *Commands Manual* for more information on how to use measurement commands.

Optional 15-Minute Measurements

The Measurements Platform has the capability to collect and report STP, link, and linkset measurements on a 15-minute basis. All of the measurements available for 30-minute collection are available every 15 minutes when the feature option is operational.

The feature is controlled by a feature access key and a measurement option. Turning on the feature requires a part number. The feature cannot be turned off once turned on. It is a Permanently ON feature. Upon turn on, the collection period defaults to the 30-minute option. Refer to the Database *Administration Manual - System Management* for details on implementing the 15-minute measurements feature.

The feature becomes operational when the collection period has been changed to 15 minutes. The collection period is changed from 30 minutes to 15 minutes (and vice versa) by using the `chg-measopts:enable15mincollect` command. Refer to the *Commands Manual* for detailed usage information. When the 30-minute option is selected, measurements data is collected and reported each half-hour at hh:00 and hh:30. When the 15-minute option is selected, measurements data is collected and reported four times each hour at hh:00, hh:15, hh:30, and hh:45. The current state of the option is displayed with the Measurements Platform options. Report types supported by 15-minute measurements are:

- systot
- comp
- gtwy
- avl

After 15-minute measurements collection and reporting is operational, 15-minute reports are retrieved using `rept-meas` or `rept-ftp-meas` commands. Refer to the *Commands Manual* for detailed usage information.

Data Collection

The various scenarios for making 15-minute collection operational, and the impact on data collection are shown in *Table 1: Enabling 15-Minute Measurements - Impacts* on page 12. The first column specifies the four quarter-hour intervals during which 15-minute collection could be made operational. The second column identifies the impact of making 15-minute collection operational during the specified time window. If 15-minute collection is made operational during the first or third quarter hour, there is no impact on the collected data. If 15-minute collection is made operational during the second or fourth quarter hour, the data that is collected and stored for that quarter-hour actually represents 30 minutes of data. This is not an error and no measurements data is lost. Rather it is a side effect of making 15-minute collection operational after the previous quarter-hour boundary has already passed.

Table 1: Enabling 15-Minute Measurements - Impacts

Time Window for Making 15-Minute Measurements Operational	Impact on Data Collection	Data Loss
xx00 to xx15	15 minutes of data will be collected for the quarter-hour *xx15*	*None*
xx15 to xx30	The *xx15* interval will contain no data. The *xx30* interval will contain 30 minutes of data	None
xx30 to xx45	15 minutes of data will be collected for the quarter-hour *xx45*	None
xx45 to xx00	The *xx45* interval will contain no data. The *xx00* interval will contain 30 minutes of data	None

Some quarter-hour measurements data may not be available for 24 hours after making 15-minute collection operational. This condition exists for quarter-hour intervals for which 15-minute collection has not yet occurred. Data that was collected on a 30-minute basis is available for reporting for up to 24 hours after it is collected. Once the 15-minute collection option is enabled, this data

remains available on a half-hour basis (*xx00* and *xx30*) but is not available on a quarter-hour basis (*xx15* and *xx45*). After the 15-minute collection option has been enabled for 24 hours, all 15-minute measurements data is available on a quarter-hour basis (*xx00*, *xx15*, *xx30*, and *xx45*).

In addition, full 30-minute data coverage will not be available until 24 hours after making 15-minute collection not operational. Reports for specific periods will always contain the amount of data collected for that period. If SEAS reporting is enabled, for 24 hours after 15-min measurements are made not operational, 30-minute demand SEAS reports for time periods prior to feature status change will only contain 15 minutes of data, and SEAS will not support reporting at the *xx15* and *xx45* times.

Also note that in the exception case of making 15-minute collection not operational, if the feature is made not operational in the first 15 minutes of a half-hour (*xx00-xx15* or *xx30-xx45*) and a demand report is requested in the second 15 minutes of a half-hour (*xx15-xx30* or *xx45-xx60*) for period=last (or period unspecified), the report given will be the last 15-minute interval (*xx00-xx15* or *xx30-xx45*), not the last collected 15-minute interval (*xx45-xx00* or *xx15-xx30*). Note that collection did not occur during this 15-minute period, and Measurements data not current will be issued. To get a report for the last collected 15-minute interval, period=specific has to issued with the command with the correct QH/HH value.

If the feature control status of 15-minute measurements is turned on and a report is requested for the active interval (*period=active*) prior to the next scheduled measurements collection (based on the current 15-minute measurements status), then the data will be correct but the starting time for the period shown in the report will be incorrect. As soon as the next scheduled collection occurs, then active reports will show the correct data and the correct starting time.

A similar limitation also exists for *period=last*. If the feature control status of 15-minute measurements is turned on and a report is requested for the last interval prior to the next scheduled measurements collection (based on the current 15-minute measurements status), then the start and end times for the period shown in the report will be incorrect. The data presented in the report will correspond to the start and end times. As soon as the next scheduled collection occurs, then *period=last* reports will show the correct start and end times and the corresponding data for that interval.

If collection has not occurred since changing the operation status, then *period=specific* needs to be issued to get the last period collected.

OAM Based Measurements

The collection of measurements is a separate task from reporting. Measurements collection is activated automatically upon system power-up, or through administrative commands. Collection is organized by ENTTYPE and reporting period. Collection occurs per link every 5 minutes, and separately every 30 minutes. Measurements are generated on the application cards and periodically collected by the OAM and stored for later retrieval on the TDMs. The command related to measurements collection is `chg-meas`.

Reports can be scheduled or printed on-demand. Scheduled measurements are directed to the Traffic Unsolicited Output Message group. No other unsolicited output is sent to this output group. Scheduled and on-demand reports are accessible by the following administrative commands:

- `chg-meas` -Turns collection on/off and schedules automatic report generation.
- `rtrv-meas-sched` -Verifies collection state and automatic report schedules.

- `rept-meas` - Generates individual measurement reports for schedule-enttype-entid combinations.
- `chg-trm` - Used to configure terminals to collect measurement reports on a system that contains less than 700 links.

Refer to the *System Administration Manual - System Management* for information on configuring the measurements terminal.

Before a report is printed, measurement collection must be activated. Refer to the *Commands Manual* for more information on how to use measurement commands.

Reports

Reports can be scheduled or printed on-demand. Scheduled and on-demand reports are accessible by the following administrative commands:

- `chg-measopts` - Used to enable or disable the automatic generation and FTP transfer of scheduled measurement reports to the FTP server.
- `rept-stat-meas` - Reports the status of the measurements subsystem including card location and state, Alarm level, and Subsystem State.
- `rept-ftp-meas` - Manually initiates generation and FTP transfer of a measurements report from the MCPM to the FTP server.
- `rtrv-measopts` - Generates a user interface display showing the enabled/disabled status of all FTP scheduled reports.

Refer to the *Commands Manual* for more information on how to use measurement commands.

Characteristics

Reports have the following characteristics.

- Categories

  The following are the categories and types of measurement reports collected by the EAGLE 5 ISS:

  - Traffic Engineering Reports
    - STP system totals (SYSTOT)
    - Component measurements (COMP)
    - Network management (NM)
  - Error Tracking/Troubleshooting Reports
    - Daily availability (AVLD)
    - Day-to-hour availability (AVLDTH)
    - Availability (AVL)
  - Daily Maintenance Reports

    - Daily maintenance measurements (MTCD)
    - Day-to-hour maintenance measurements (MTCDTH)
    - Hourly maintenance measurements (MTCH)
  - Network Usage Reports
    - Gateway (GTWY)
    - Record Base (RBASE)
  - Maintenance Status Reports
    - Maintenance Status Indicators (MTCS)

- Entity Types

  The following entity types may be reported for a particular category type.

  - ATINPQ - Any-Time Interrogation Number Portability Query
  - EIR - Equipment Identity Register
  - LINK - Signaling link
  - LNKSET - Linkset
  - LNP - Local number portability
  - LSDESTNI - Linkset destination network identifier
  - LSONISMT - Per link set, per originating NI, per ISUP message type measurements
  - LSORIGNI - Linkset originating network identifier
  - MAPSCRN - Global Systems for Mobile Communications Mobile Application Part Screening Measurements
  - NP - Intelligent network application part based number portability
  - ORIGNI - Originating network identifier
  - ORIGNINC - Originating network identifier for network cluster
  - STP - All nodes
  - TT - Translation type
  - STPLAN - TCP-IP links
  - SCTPASOC - Per association SCTP layer
  - SCTPCARD - Per card SCTP layer
  - UA - Per Application Server/Association UA layer
  - VFLEX - Voice Mail Router measurements

- Accessible Periods

  There are four accessible periods for which measurements may be reported:

  1. *Last* is used to access the previous collection interval.
  2. *Specific* is used to access a specific interval (one of the previous 48 half hour intervals).

3. *Active* is used to access measurements for the current collection interval.
4. *All* is used to access measurements for all collection intervals retained.

MP Report Characteristics

MP Reports have the following characteristics.

Report Files

Report files are divided into three sections:

1. System header

   The system header size varies depending on embedded data. A typical size of 250 bytes is used in all calculations in the examples in this manual.

2. Individual report header

   The report header size varies depending on the report type, but is always the same size for an individual report type. The size of the report data section varies depending on the number of entities being reported, and the particular data items being reported for each entity (i.e., a count of 0 versus a large count).

3. Report data

   For the estimates given in this manual, 6 characters are assumed for each data item, including the comma delimiter. Other variable quantities, such as the number of entities in the report, are stated with each example.

The output file sizes calculated in this manual are rough estimates only. They are not intended to be an exact representation of output file size, which could vary significantly depending on the configuration of a particular system.

Table 2: Measurements Platform System Header

Field Name	Description	Unit
CLLI	The Common Language Location Identifier for the STP	ASCII Text
SWREL	The software release currently running on the STP	ASCII Text
RPTDATE	The date on which the report was generated	YYYY-MM-DD
RPTIME	The time at which the report was generated (24 hour clock)	HH:MM:SS
TZ	An abbreviation for the time zone	ASCII Text

Field Name	Description	Unit
RPTTYPE	The type of report being generated	ASCII Text
RPTPD	The period of the report	ASCII Text
IVALDATE	The date for the report interval	YYYY-MM-DD
IVALSTART	The starting time of the report interval	HH:MM:SS
IVALEND	The ending time of the report interval	HH:MM:SS
NUMENTIDS	The number of entities contained in the report	Integer

Example header format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","31.3.0-39.1.0","1999-01-17","15:51:37","EST",
"STP SYSTEM TOTAL MEASUREMENTS ON
STP","LAST","1999-01-17","15:00:00","15:30:00",1<cr><lf>
<cr><lf>
```

File Naming Conventions

File names consist of fields separated by underscores and followed by the **.csv** extension. This format allows the files to be readily identified as a comma-seperated variable format. Due to the overall length of the file names, long file names (beyond 8.3 format) are utilized.

- *CLLI-based Names Disabled*

  These file names consist of three fields identified as follows:

  1. Up to 13 characters for the report type (sched-entity, i.e. systot-stp, mtcdth-lnkset)
  2. 8 characters for the report date (yyyymmdd). This reflects the date the data is generated.
  3. 4 characters for the ending report time (hhmm). This is defined as the common boundary between the end of the last period and the beginning of the next period. For example, the half hour from 2:00PM to 2:30PM would end at 1430. A day-to-hour period ends on the hour. A daily period or specific request for the final hour or half-hour of a day ends at 2400, midnight.

  Examples of output file names:

  - Half hourly STP system totals generated 1999-02-24 at 15:22:00 for the last period would be (the period from 1430 to 1500 on 02/24/99):

    `systot-stp_19990224_1500.csv`

- Maintenance daily linkset report generated 2001-07-17 at any time would be (the period from 0000 to 2400 on 07/16/01):

  mtcd-lnkset_20010716_2400.csv

- Maintenance day-to-hour link report generated 2003-04-29 at 08:32:00 would be (the period from 0000 to 0800 on 04/29/03):

  mtcdth-link_20030429_0800.csv

- Half hourly STP system totals generated 1999-02-23 at 00:15:20 for the specific end time 0030 would be (the period from 0000 to 0030 on 02/23/99):

  systot-stp_19990223_0030.csv

- Half hourly STP system totals generated 1999-02-24 at 00:15:30 for the specific end time 2330 would be (the period from 2300 to 2330 on 02/23/99):

  systot-stp_19990223_2330.csv

- Half hourly STP system totals generated 1999-02-24 at any time for the specific end time 2400 or 0000 would be (the period from 2330 to 2400 on 02/23/99):

  systot-stp_19990223_2400.csv

Some applications will reformat fields when opening the .csv file. Use a text editor when opening .csv files to examine file content as presented in the output file examples in this document.

- *CLLI-based Names Enabled*

  These file names consist of four fields identified as follows:

  1. Up to 11 characters for the CLLI of the EAGLE 5 ISS.
  2. Up to 13 characters for the report type (sched-entity, i.e. systot-stp, mtcdth-lnkset)
  3. 4 characters for the report date (mmdd) .This reflects the date the data is generated.
  4. 4 characters for the ending report time (hhmm). This is defined as the common boundary between the end of the last period and the beginning of the next period. For example, the half hour from 2:00PM to 2:30PM would end at 1430. A day-to-hour period ends on the hour. A daily period or specific request for the final hour or half-hour of a day ends at 2400, midnight.

  Examples of output file names:

  - Half hourly STP system totals generated 02-24 at 15:22:00 for the last period would be (the period from 1430 to 1500 on 02/24:

    wnrtpaah01w_systot-stp_0224_1500.csv

  - Maintenance daily linkset report generated 07-17 at any time would be (the period from 0000 to 2400 on 07/16:

    wnrtpaah01w_mtcd-lnkset_0716_2400.csv

  - Maintenance day-to-hour link report generated 04-29 at 08:32:00 would be (the period from 0000 to 0800 on 04/29:

    wnrtpaah01w_mtcdth-link_0429_0800.csv

  - Half hourly STP system totals generated 02-23 at 00:15:20 for the specific end time 0030 would be (the period from 0000 to 0030 on 02/23):

wnrtpaah01w_systot-stp_0223_0030.csv

- Half hourly STP system totals generated 02-24 at 00:15:30 for the specific end time 2330 would be (the period from 2300 to 2330 on 02/23):

  wnrtpaah01w_systot-stp_0223_2330.csv

- Half hourly STP system totals generated 1999-02-24 at any time for the specific end time 2400 or 0000 would be (the period from 2330 to 2400 on 02/23/99):

  wnrtpaah01w_systot-stp_0223_2400.csv

Some applications will reformat fields when opening the .csv file. Use a text editor when opening .csv files to examine file content as presented in the output file examples in this document.

Report Tables

The tables that follow in this chapter define the parameters used in the measurement reports. Included in the tables are the event name, description and unit of measurement as described in Telcordia GR-82-CORE.

The Example Commands and the Example Outputs are separated according to the collection method used to collect and report measurements.

- OAM - Indicates measurements are collected by the OAM and stored for retrieval on the TDMs.
- MP - Indicates measurements are collected and stored by the Measurements Platform. Scheduled reports are automatically generated and transferred to the customer's FTP server via the FTP interface.

Note: The Status Event Name appearing in the Measurement Tables only appears when using the Measurements Platform. The Example Outputs and the Example Inputs are examples. Variations exist and are likely. Refer to the *Commands Manual* for complete (options, variables) information on command usage.

The Measurements Platform is required for systems with more than 700 links. In this case, the `chg-meas:collect=off` can be used to disable the output without affecting the actual collection. If OAM based scheduled reported are disabled via this mechanism, then the TRAF output group may be turned-off since there is no output directed to it.

Chapter 3

Reports

Topics:

STP System Totals (SYSTOT) Measurements

These measurements are used to monitor the overall performance of the STP.

Entity types: STP, Translation Type (TT), STPLAN

Accumulation interval: Every 30 minutes

Optional MP Accumulation Interval: Every 15 minutes

STP retention period: 24 hours

Reporting modes: Scheduled, On-Demand

Accessible collection periods: Last, Specific (MP)

enttype=stp

Example Commands:

OAM: `rept-meas:type=systot:enttype=stp`

MP: `rept-ftp-meas:type=systot:enttype=stp`

Table 3: STP System Total STP Measurements

Event Name	Description	Unit
CRSYSAL	**Number of Critical System Alarms** - The total number of critical system alarms.	peg count
DTAMSULOST	**DTA MSUs Lost** - The total number of MSUs that were discarded because the original MSU was too large to be encapsulated.	peg count
DURINTFL	**Duration of Internal Node Failure** - Total time that messages could not be switched to outgoing link (apart from any link interface failure).	milli-seconds
GFGTMATCH	**G-Flex GTTs with Match** - The total number of G-Flex Global Title Translations successfully completed.	peg count

Event Name	Description	Unit
GFGTNOMCH	**G-Flex GTTs No Match** - The total number of G-Flex Global Title Translations completed that did not match an entry in the GSM database.	peg count
GFGTNOLKUP	**G-Flex GTTs No Look-up** - The total number of G-Flex Global Title Translations that could not be looked up in the GSM database because of some error.	peg count
GTTPERFD	**GTTs Performed -** The total number of MSUs that successfully completed global title translation (GTT). This includes all GTT modes as well as translations on Global Title (digits), on CgPA PC and OPC (Point Codes), and on CgPA SSN (Subsystem) and GFGTMATCH.	peg count
GTTUN0NS	**GTTs Unable to Perform - Diagnostic 0: No Translation for Address of Such Nature –** The sum total of times that the specified type of translation in an MSU was not supported by the STP. This register contains the sum of the GTTUN0NS register in the `systot-tt` report and the CGGTTUN0NS register in the `systot-cgtt` report.	peg count
GTTUN1NT	**GTTs Unable to Perform - Diagnostic 1: No Translation for This Address –** The sum total of times that SCCP could not find a translation in the translation table. This includes Global Title translations, Point Code translations, and Subsystem translations.	peg count

Event Name	Description	Unit
	This register contains the sum of the GTTUN1NT register in the `systot-tt` report and the CGGTTUN1NT register in the `systot-cgtt` report.	
IDPRMSERR	The total number of MSUs selected for IDPR service which could not be processed due to errors in encoding, decoding, or formatting.	peg count
IDPRMSFAIL	Total number of MSUs selected for IDPR service which fell through to GTT due to (1) no match on MSISDN in MNPDB, or (2) match on MSISDN but no association to RN or SP.	peg count
IDPRMSRCV	Total number of MSUs received and selected for IDPR service. This register includes counts for MSUs that resulted in both successful and unsuccessful MNPDB lookups.	peg count
IDPRMSSUCC	Number of MSUs selected for IDPR service for which the MNPDB lookup resulted in a match on MSISDN with association to an RN or SP.	peg count
MASYSAL	**Number of Major System Alarms** - The total number of major system alarms.	peg count
MISYSAL	**Number of Minor System Alarms** - The total of minor system alarms.	peg count
MOSMSSEGER	Total number of TC_CONTINUE messages (with Component Portion) discarded by the Portability Check for MO SM feature.	peg count

Event Name	Description	Unit
MOSMSSEGOK	Total number of TC_CONTINUE messages (with Component Portion) relayed successfully by the Portability Check for MO SMS and/or MO-based SMS NP feature.	peg count
MSIDPNOMCH	Total number of IDP messages that did not fully meet the criteria of the IDP Screening for Prepaid feature. These messages are relayed to their destination by GTT.	peg count
MSIDPMATCH	Total number of IDP messages that did meet the criteria of the IDP Screening for Prepaid feature. Instead of sending the IDP message onward, a Continue message is sent to the originating MSC. The criteria involves matching the following TCAP fields with Eagle Common Screening Lists: 1. CgPA and CdPA are provisioned in the In-Network Subscriber List. 2. The Teleservice and Service Key values are in the Service Key/Teleservice List.	peg count
MSINVDPC	**MSUs Rcvd – Invalid DPC -** Number of MSUs received and discarded because the DPC could not be found in the STP routing table.	peg count
MSINVLNK	**MSUs Discarded – Invalid Link** - Number of MSUs discarded because of an incorrect SLC. (The SLC refers to a nonexistent link or the same link.)	peg count

Event Name	Description	Unit
MSINVSIF	**MSUs Discarded – Invalid SIF** - Number of MSUs that have been received and discarded because of an invalid SIF.	peg count
MSINVSIO	**MSUs Rcvd – Invalid service indicator octet (SIO) -** Number of MSUs received and discarded because the service requested in the service indicator octet (SIO) was not supported by the STP.	peg count
MSINVSLC	**MSUs Discarded – Invalid SLC** - Number of MSUs discarded because of an invalid SLC code in the ECO/COO.	peg count
MSNACDPC	**MSUs Discarded – Inaccessible DPC -** The total number of MSUs discarded because of an inaccessible DPC.	peg count
MSSCCPDISC	MSUs Discarded - Translation found, but provisioned ACTION caused the MSU to be discarded.	peg count
MSSCCPFL	**MSUs Discarded – Routing Failure -** Number of MSUs discarded due to an SCCP routing failure.	peg count
MSUDSCRD	**MSUs Discarded – Gateway Screening** - The total number of MSUs that failed gateway screening and were discarded. See linkset report for individual peg counts.	peg count
MSULOST1	**MSUs Discarded – Level 2/Level 3 Queue Full** - Number	peg count

Event Name	Description	Unit
	of MSUs discarded because the level 2 to level 3 queue was full.	
MSULOST2	**MSUs Discarded – Route On Hold Buffer Overflow** - Number of MSUs discarded because the routing buffer was in overflow.	peg count
MSULOST3	**MSUs Discarded –** 1. **LS On Hold Buffer Overflow** - The number of MSUs discarded because the linkset-on-hold buffer was in overflow. The On Hold Buffer is used during changeover/changeback situations to ensure that traffic is sequenced correctly. During changeover and changeback, MSUs that were originally sent over links which are now failed (not IS-NR) are buffered while the changeover/changeback procedures are carried out. Once those procedures are completed, the traffic in the on-hold buffer is routed based on the current configuration. 2. **LSL** LIM does not have SCCP assignment for received SCCP traffic. 3. **HSL** – • All Class 1 (sequenced) GTT traffic addressed to Eagle • A Class 0 GTT message for Eagle arrives when the SCCP TVG queue is full	peg count

Event Name	Description	Unit
	• A GTT message in the SCCP TVG queue is more than 2 seconds old.	
MSULOST4	**MSUs Discarded – Rcvd Queue Full** - Number of MSUs discarded because the receive queue was full.	peg count
MSULOST5	**MSUs Discarded – LIM Init** - Number of MSUs discarded while the LIM card was initializing.	peg count
MSULOST6	**MSUs Discarded** – The number of MSUs discarded due to an error encountered during internal (IMT) transfer of MSU between cards.	peg count
MSUSCCPFLR	**MSU SCCP Failure** - Total MSUs Discarded Due to SCCP Conversion Failure.	peg count
NMSCCPMH	The current daily system-wide peak SCCP message handling load in transactions per second.	xact per second
OMSINVDPC	**MSUs Originated – Invalid DPC -** Number of MSUs with an invalid DPC.	peg count
ORIGMSUS	**Originated MSUs -** The total number of outgoing MSUs successfully passed to MTP level 2 for transmission, while carrying the STP point code in the OPC field.	peg count
ORMSUOCT	**Originate MSU Octets -** The total number of outgoing octets associated with MSUs carrying the STP point code in the OPC	octets

Event Name	Description	Unit
	field. This includes octets added in MTP level 2 processing.	
OVSZMSG	**Oversized MTP 3 Messages** - Number of messages received by an HSL that exceeds 272 octets (level 3) and is discarded.	peg count
PKSCCPMH	The overall system-wide peak SCCP message handling load in transactions per second. Value is the highest recorded since it was last reset using the rept-stat-sccp:mode=peakreset command.	xact per second
SCCPLOOP	The total number of times that a **GTT translation matched a Point Code in the STP's loopset** entries resulting in either a notify or discard of an SCCP message.	peg count
THRSWMSU	**Through-Switched MSUs -** The total number of MSUs that did not carry the STP point code in the OPC or the DPC, and were successfully passed to MTP level 2 for transmission.	peg count
TRMDMSUS	**Terminated MSUs -** The total number of incoming MSUs carrying the STP point code in the DPC.	peg count
TRMSUOCT	**Terminated MSU Octets -** The total number of octets associated with incoming MSUs carrying the STP point code in the DPC. Includes octets removed in MTP level 2 processing.	octets
TSMSUOCT	**Through-Switched MSU Octets -** The total number of octets associated with MSUs	octets

Event Name	Description	Unit
	that did not carry the STPs point code in the OPC or the DPC, and were successfully passed to MTP level 2 for transmission.	
XLXTELEI	**X-List Entry Not Created** - The total number of times that an x-list was not created because the Exception List Exclusion Indicator (ELEI) for the cluster is set to *yes*.	peg count
XLXTSPACE	**X-List Entry Not Created** - The total number of times an x-list entry was not created because there is no more space in the route/destination table.	peg count

OAM Example Output:

```
    eagle10706 08-07-08 10:30:09 EST  EAGLE5 39.0.0
    TYPE OF REPORT: STP SYSTEM TOTAL MEASUREMENTS ON STP
    REPORT PERIOD: LAST
    REPORT INTERVAL:  08-07-08  10:00:00 THRU 10:29:59

    STP-SYSTOT MEASUREMENTS

    ORIGMSUS   =       425, TRMDMSUS   =       420, THRSWMSU   =    730980,
    ORMSUOCT   =      8490, TRMSUOCT   =      8400, TSMSUOCT   =  14619600,
    DURINTFL   =         0, DTAMSULOST =         0, MSINVDPC   =         5,
    MSINVSIO   =         0, OMSINVDPC  =         0, MSINVLNK   =         0,
    MSINVSIF   =         0, MSNACDPC   =         5, MSINVSLC   =         0,
    GTTPERFD   =         0, GTTUN0NS   =         0, GTTUN1NT   =         0,
    MSSCCPFL   =         0, MSULOST1   =         0, MSULOST2   =         0,
    MSULOST3   =         0, MSULOST4   =         0, MSULOST5   =         0,
    CRSYSAL    =         1, MASYSAL    =         2, MISYSAL    =         9,
    XLXTSPACE  =         0, XLXTELEI   =         0, MSUDSCRD   =         0,
    OVSZMSG    =         0, GFGTMATCH  =         0, GFGTNOMCH  =         0,
    GFGTNOLKUP =         0, MSUSCCPFLR =         0, NMSCCPMH   =      4567,
    PKSCCPMH   =     38495, MSSCCPDISC =        23, IDPRMSERR  =         2,
    IDPRMSFAIL =        12, IDPRMSRCV  =      8374, IDPRMSSUCC =      8360,
    MSIDPNOMCH =         0, MSIDPMATCH =         0, SCCPLOOP   =         3,
    MSULOST6   =         0, MOSMSSEGOK =         0, MOSMSSEGER =         0
;

    eagle10706 08-07-08 10:30:10 EST  EAGLE5 39.0.0
    END OF HALF-HOURLY STP-SYSTOT MEASUREMENT REPORT
;
```

MP Example Output File Name: *systot-stp_20070101_1530.csv*

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","35.6.0-56.34.0",”2007-01-01","15:51:37","EST",
"STP SYSTEM TOTAL MEASUREMENTS ON
STP","LAST",”2007-01-01","15:00:00","15:30:00",1<cr><lf>
<cr><lf>
"STATUS","ORIGMSUS","TRMDMSUS","THRSWMSU","ORMSUOCT","TRMSUOCT","TSMSUOCT","DURINTFL",
"DTAMSULOST","MSINVDPC","MSINVSIO","OMSINVDPC","MSINVLNK","MSINVSIF","MSNACDPC","MSINVSLC",
"GTTPERFD","GTTUN0NS","GTTUN1NT","MSSCCPFL","MSULOST1","MSULOST2","MSULOST3","MSULOST4",
"MSULOST5","CRSYSAL","MASYSAL","MISYSAL","XLXTSPACE","XLXTELEI","MSUDSCRD","OVSZMSG",
"GFGTMATCH","GFGTNOMCH","GFGTNOLKUP",“MSUSCCPFLR”,”NMSCCPMH”,”PKSCCPMH”,”MSUSCCPDISC”,
"IDPRMSERR","IDPRMSFAIL","IDPRMSRCV","IDPRMSSUCC",”MSIDPNOMCH”,”MSIDPMATCH”,"SCCPLOOP",
"MSULOST6","MOSMSSEGOK","MOSMSSEGER"<cr><lf>
"K",425,420,730980,8490,8400,14619600,0,0,5,0,0,0,0,5,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,1,2,9,0,0,0,0,0,9658,82379,39,2,12,8374,0,8360,0,0<cr><lf>
```

Assuming the data line will be:

48*(avg. 6 chars per field) + 2 = 290 chars

Typical file size:

Table 4: Typical File Size: `systot-stp.csv`

System Header	+	Report Header	+	Report Data	=	File Size
250	+	560	+	290	=	1100 bytes

enttype=tt

Example Commands:

OAM: `rept-meas:type=systot:enttype=tt`

MP: `rept-ftp-meas:type=systot:enttype=tt`

Table 5: STP System Total Translation Type Measurements

Event Name	Description	Unit
AGTTPERFD	Advanced CdPA GTTs Performed - The total number of MSUs that successfully passed Advanced CdPA Global Title Translation (AGTT). This register appears in the SYSTOT-TT report ONLY.	peg count
GTTPERFD	`GTTs Performed` - The total number of MSUs that successfully completed global title translation (GTT). Also	peg count

Event Name	Description	Unit
	includes G-Port and INP MSUs that got a match in either the G-Port, INP or GTT DB.	
GTTUN0NS	`GTTs Unable to Perform - Diagnostic 0: No Translation for Address of Such Nature` - Total number of times that the specified translation type in an MSU was not supported by the STP or the form of the GTT was incorrect for the given translation type. Also includes G-Port, INP and GTT MSUs that did not match on new selectors (GTI,NP,NAI) in addition to ones not matching on TT.	peg count
GTTUN1NT	**GTTs Unable to Perform - Diagnostic 1: No Translation for This Address -** Number of times that a match for the global title could not be found in the translation table. Also includes G-Port, INP MSUs that fell through to GTT, got a selector match, but still did not get a match on the GTA.	peg count
STATUS	**Indication of Data Validity** **K** – indicates good data **I** – indicates incomplete interval; **N** – indicates data not current.	status

OAM Example Output:

```
> rept-meas:type=systot:enttype=tt:tt=xxx
Command Accepted - Processing
    eagle10706 05-08-11 14:29:40 EST Rel 34.0.0-0.0.0
    rept-meas:type=systot:enttype=tt:tt=xxx
    Command entered at terminal #5.
;
    eagle10706 05-08-11 14:29:40 EST Rel 34.0.0-0.0.0
    Measurements Report will be generated.
```

```
;
    eagle10706 05-08-11 14:29:40 EST Rel 34.0.0-0.0.0
    TYPE OF REPORT: STP SYSTEM TOTAL MEASUREMENTS ON TT
    REPORT PERIOD: LAST
    REPORT INTERVAL:  05-08-11,  13:30:00 THROUGH 13:59:59
    TT-SYSTOT MEASUREMENTS
    TT-SYSTOT MEASUREMENTS: xxx
    These measurements are from 05-08-11, 13:30:00 through 13:59:59.
    GTTPERFD   =         0, GTTUN0NS   =         0, GTTUN1NT   =         0,
    AGTTPERFD  =         0
;
    eagle10706 05-08-11 14:29:41 EST Rel 34.0.0-0.0.0
    END OF ON-DEMAND TT-SYSTOT MEASUREMENT REPORT
;
```

MP Example Output File Name: `systot-tt_19990117_1530.csv`

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-55.1.0",”2005-01-17","15:51:37","EST",
"STP SYSTEM TOTAL MEASUREMENTS ON CDPA
TT","LAST",”2005-01-17","15:00:00","15:30:00",256<cr><lf>
<cr><lf>
"STATUS","TT","GTTPERFD","GTTUN0NS","GTTUN1NT","AGTTPERFD"<cr><lf>
"K",xxx,0,0,0,0<cr><lf>
. . . . .
"K",yyy,0,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 4 char TT + 4*(6 char data) + 2 = 34 chars

For a report of 256 TTs, example typical file size:

Table 6: Typical File Size: `systot-tt.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	60	+	8704	=	9014 bytes

enttype=cgtt

Example Commands:

OAM: `rept-meas:type=systot:enttype=cgtt`

MP: `rept-ftp-meas:type=systot:enttype=cgtt`

Table 7: Calling Party GTT Measurements

Event Name	Description	Unit
CGTTPERFD	**CgPA GTTs Performed** - The total number of MSUs that	peg count

Event Name	Description	Unit
	successfully passed CgPA global title translation (GTT)(CgPA GTA, CgPA PC, or OPC). This register is pegged only when the CgPA TT is present in the MSU. Since GTT can be done on the CgPA PC or on the OPC, the CgPA GTA is not a pre-requisite to perform GTT. This register appears in the SYSTOT-CGTT report ONLY, which is only generated if the Origin Based SCCP Routing feature is enabled and turned on..	
GTTUN0NS	**CgPA GTTs Unable to Perform - Diagnostic 0: CgPA selectors not found** - The total number of times that the specified type of translation in an MSU was not supported by the STP. This register counts MSUs for which CgPA selectors were not found. This register appears in the SYSTOT-CGTT report ONLY, which is only generated if the Origin Based SCCP Routing feature is enabled and turned on.	peg count
GTTUN1NT	**Origin Based GTTs Unable to Perform - Diagnostic 1:** - The number of times that a match for the global title or point code could not be found in the translation table because:. Translation not found in CgPA GTA GTTSET or in CgPA PC GTTSET or in OPC GTTSET. GTT on CgPA PC is required, but CgPA PC is not present in the MSU.	peg count

Event Name	Description	Unit
	Default CgPA PC set in SCCPOPTS table is required but is not provisioned. This register appears in the SYSTOT-CGTT report ONLY, which is only generated if the Origin Based SCCP Routing feature is enabled and turned on.	
STATUS	**Indication of Data Validity** **K** – indicates good data **I** – indicates incomplete interval; **N** – indicates data not current.	status

OAM Example Output:

```
eagle10706 05-08-11 14:29:42 EST Rel 35.0.0-0.0.0
TYPE OF REPORT: STP SYSTEM TOTAL MEASUREMENTS ON CGTT
REPORT PERIOD: LAST
REPORT INTERVAL:  05-08-11,  13:30:00 THROUGH 13:59:59
CGTT-SYSTOT MEASUREMENTS
CGTT-SYSTOT MEASUREMENTS: xxx
These measurements are from 05-08-11, 13:30:00 through 13:59:59.
CGGTTPERFD   =       0, CGGTTUN0NS   =       0, CGGTTUN1NT   =       0
;
eagle10706 05-08-11 14:29:42 EST Rel 34.0.0-0.0.0
END OF ON-DEMAND CGTT-SYSTOT MEASUREMENT REPORT
;
eagle10706 05-08-11 14:29:41 EST Rel 34.0.0-0.0.0
END OF ON-DEMAND TT-SYSTOT MEASUREMENT REPORT
;
```

MP Example Output File Name: `systot-cgtt_20050117_1530.csv`

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-55.1.0",”2005-01-17","15:51:37","EST",
"STP SYSTEM TOTAL MEASUREMENTS ON CGPA
TT","LAST",”2005-01-17","15:00:00","15:30:00",256<cr><lf>
<cr><lf>
"STATUS","TT","CGGTTPERFD","CGGTTUN0NS","CGGTTUN1NT"<cr><lf>
"K",xxx,0,0,0<cr><lf>
. . . . .
"K",yyy,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 4 char TT + 3*(6 char data) + 2 = 28 chars

For a report of 256 TTs, example typical file size:

Table 8: Typical File Size: `systot-cgtt.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	55	+	7168	=	7473 bytes

enttype=stplan

Note:

The peg counts for STPLAN measurements have the possibility of rolling over during periods of high STPLAN message transmit and receive. On the measurement reports, these measurements show up as negative numbers. This indicates that STPLAN transmit-and-receive measurements have values greater than four gigabytes of data.

Example Commands:

OAM: `rept-meas:type=systot:enttype=stplan`

MP: `rept-ftp-meas:type=systot:enttype=stplan`

Table 9: STP System Total STPLAN Measurements

Event Name	Description	Unit
ENETALNERR	**Ethernet Alignment Error** - Number of packets not received over the STPLAN interface because of ethernet alignment errors.	peg count
ENETBUSBSY	**Ethernet Bus Busy -** Number of transmissions attempted when the STPLAN ethernet bus was busy.	peg count
ENETCOLERR	**Ethernet Collision Error -** Number of packets not transmitted by STPLAN because of excessive collisions on the STPLAN ethernet bus.	peg count
ENETCRCERR	**Ethernet CRC Error** - Number of packets not received on the STPLAN ethernet due to CRC errors.	peg count

Event Name	Description	Unit
ENETOCTRCV	**Ethernet Octets Received** - The total number of octets received on the STPLAN ethernet interface.	peg count
ENETOCTXMT	**Ethernet Octets Transmitted** - The total number of octets transmitted on the STPLAN ethernet interface.	peg count
ENETOVRERR	**Ethernet Receive Buffer Overflow Errors** - Number of packets not received by STPLAN because of a receive buffer overflow.	peg count
IPADDRERR	**IP Address Error**- The total number of inbound IP datagrams discarded on the STPLAN interface due to a bad destination address.	peg count
IPHDRERR	**IP Header Errors** - The total number of inbound IP datagrams discarded on the STPLAN interface due to header errors.	peg count
IPPROTERR	**IP Protocol Error** - Number of inbound IP datagrams discarded by STPLAN due to an error in the packet (invalid protocol).	peg count
SLANDISC1	**STPLAN Discarded 1** - Number of indicated messages not copied to the host due to the STPLAN feature being disabled.	peg count
SLANDISC2	**STPLAN Discarded 2** - Number of MSUs discarded due to the host being unreachable.	peg count

Event Name	Description	Unit
SLANDSBLD	**STPLAN Disabled** - The duration that the STPLAN screening/copy feature was disabled.	msecs
SLANSCRND	**STPLAN Screened** - Number of MSUs that were copied to the STPLAN interface after passing gateway screening.	peg count
SLANXMIT	**STPLAN Transmit** - Number of MSUs sent to the host destination.	peg count
STATUS	**Indication of Data Validity** **K** – indicates good data **I** – indicates incomplete interval; **N** – indicates data not current.	status
TCPCONNFLD	**TCP Connections Failed -** The total number of TCP connections that have failed on the STPLAN interface.	peg count
TCPRCVERR	**TCP Receive Error** - The total number of TCP segments received on the STPLAN interface in error.	peg count
TCPRSTSENT	**TCP Reset Sent** - The total number of TCP segments sent containing the reset (RST) flag on the STPLAN interface.	peg count
TCPSEGRCVD	**TCP Segment Received -** The total number of TCP segments received on the STPLAN interface.	peg count
TCPSEGSENT	**TCP Segment Sent -** The total number of TCP segments sent on the STPLAN interface.	peg count

Event Name	Description	Unit
TCPSEGXMT2	**TCP Segment Retransmitted -** The total number of TCP segments retransmitted on the STPLAN interface.	peg count

OAM Example Output:

```
    tekelecstp 01-08-23 11:00:11 EST EAGLE 34.0.0
    TYPE OF REPORT: STP SYSTEM TOTAL MEASUREMENTS ON STPLAN
    REPORT PERIOD: LAST
    REPORT INTERVAL:  01-08-23  10:30:00 THRU 10:59:59
    STPLAN-SYSTOT MEASUREMENTS
    Measurement data represents an incomplete interval.
    SLANDSBLD  =         0, SLANDISC1  =         0, SLANDISC2  =         0,
    SLANSCRND  =         0, SLANXMIT   =         0, ENETALNERR =         0,
    ENETCRCERR =         0, ENETCOLERR =         0, ENETBUSBSY =         0,
    ENETOVRERR =         0, ENETOCTXMT =         0, ENETOCTRCV =         0,
    TCPCONNFLD =         0, TCPSEGRCVD =         0, TCPSEGSENT =         0,
    TCPSEGXMT2 =         0, TCPRCVERR  =         0, TCPRSTSENT =         0,
    IPHDRERR   =         0, IPADDRERR  =         0, IPPROTERR  =         0
;
    tekelecstp 01-08-23 11:00:12 EST EAGLE 34.0.0
    END OF HALF-HOURLY STPLAN-SYSTOT MEASUREMENT REPORT
;
```

MP Example Output File Name: systot-stplan_19990117_1530.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"STP SYSTEM TOTAL MEASUREMENTS ON
STPLAN","LAST","1999-01-17","15:00:00","15:30:00",1<cr><lf>
<cr><lf>
"STATUS","SLANDSBLD","SLANDISC1","SLANDISC2","SLANSCRND","SLANXMIT","ENETALNERR","ENETCRCERR",
"ENETCOLERR","ENETBUSBSY","ENETOVRERR","ENETOCTXMT","ENETOCTRCV","TCPCONNFLD","TCPSEGRCVD",
"TCPSEGSENT","TCPSEGXMT2","TCPRCVERR","TCPRSTSENT","IPHDRERR","IPADDRERR","IPPROTERR"<cr><lf>
"K",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
```

Example typical file size:

Table 10: Typical File Size: `systot-stplan.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	275	+	132	=	657 bytes

Component Measurements (COMP)

Component Measurements provides performance data related to links and linksets.

Entity Types: Link, Lnkset , SCTPASOC, SCTPCARD, UA

Accumulation Interval: 30 minutes

Optional MP Accumulation Interval: Every 15 minutes

STP Retention Period: 24 hours

Reporting Modes: Scheduled, On-Demand

Accessible Collection Periods: Last, Specific, Active (OAM)

enttype=link

Certain registers are reported for MTP2, SAAL, IPVL, and IPVHSL classes. These registers are summarized in *Table 11: Registers Reported per LINK CLASS for Component Links* on page 40.

Table 11: Registers Reported per LINK CLASS for Component Links

Event Name	MTP2 Class	SAAL Class	IPVL/IPVLGW Class	IPVHSL Class
DURLKOTG	X	X	X	X
ECCNGLV1	X	X	X	X
ECCNGLV2	X	X	X	X
ECCNGLV3	X	X	X	X
ECLNKCB				X
ECLNKCB				X
ECLNKXCO				X
INCCELLS		X		
LMSUOCTRCV			X	X
LMSUOCTTRN			X	X
LMSURCV			X	X

Event Name	MTP2 Class	SAAL Class	IPVL/IPVLGW Class	IPVHSL Class
LMSURCVDSC			X	X
LMSUTRN			X	X
LMSUTRNDSC			X	X
LNKAVAIL	X	X	X	X
M2PLKNIS				X
M2PUDMRC				X
M2PUDMTR				X
M2PUDOCR				X
M2PUDOCT				X
MSGDISC0	X	X	X	X
MSGDISC1	X	X	X	X
MSGDISC2	X	X	X	X
MSGDISC3	X	X	X	X
MSGSRCVD	X	X	X	X
MSURETRN	X			
MSGSRGTT	X	X	X	X
MSGSTRAN	X	X	X	X
MTCEUSG	X	X	X	X
MOCTRGTT	X	X	X	X
MOCTRCVD	X	X	X	X

Event Name	MTP2 Class	SAAL Class	IPVL/IPVLGW Class	IPVHSL Class
MOCTTRAN	X	X	X	X
NMGWSDSABL	X	X	X	X
OCTRETRN	X			
OUTCELLS		X		
SDPDURCV		X		
SDPDURTR		X		
SDPDUTRN		X		
TDCNGLV1	X	X	X	X
TDCNGLV2	X	X	X	X
TDCNGLV3	X	X	X	X

Command Examples

- OAM:

```
rept-meas:type=comp:enttype=link:loc=xxxx:link=x
```

- MP :

```
rept-ftp-meas:type=comp:enttype=link
```

Measurement Events

Table 12: Component Link Measurements

Event Name	Description	Unit
DURLKOTG	**Duration of Link Outage** - The total time a link was unavailable to MTP level 3 for any reason.	seconds

Event Name	Description	Unit
ECCNGLV1	**Event Count for Entering Level 1 Link Congestion** - The total number of times that link congestion level 1 was entered.	peg count
ECCNGLV2	**Event Count for Entering Level 2 Link Congestion** - The total number of times that link congestion level 2 was entered.	peg count
ECCNGLV3	**Event Count for Entering Level 3 Link Congestion** - The total number of times that link congestion level 3 was entered.	peg count
ECLNKCB	Number of times the link performed ChangeBack procedures.	peg count
ECLNKXCO	Number of times the link performed Extended ChangeOver procedure, including time-controlled ChangeOvers.	peg count
INCCELLS	Total incoming NDC-valid ATM cells on the HSL's VCL, including UI and OAM cells but excluding idle/unassigned cells.	octets
LMSUOCTRCV	The number of **octets received in large MSUs**. This register is pegged in addition to MOCTRCVD when the Large BICC MSU Support for IP Signaling feature status is on and a large MSU is successfully received.	octets
LMSUOCTTRN	The number of **octets transmitted in large MSUs.**	octets

Event Name	Description	Unit
	This register is pegged in addition to MOCTTRAN when the Large BICC MSU Support for IP Signaling feature status is on and a large MSU is successfully transmitted.	
LMSURCV	The number of **large MSUs received**. This register is pegged in addition to MSURECVD when the Large BICC MSU Support for IP Signaling feature status is on and a large MSU is successfully received.	peg count
LMSURCVDSC	The number of **large MSUs discarded** in the receive path. This can occur when the Large BICC MSU Support for IP Signaling feature is not on or when the MSU is larger than 4095 bytes or when a routing failure occurs.	peg count
LMSUTRN	The number of **large MSUs transmitted.** This register is pegged in addition to MSGSTRAN when the Large BICC MSU Support for IP Signaling feature status is on and a large MSU is successfully transmitted.	peg count
LMSUTRNDSC	The number of **large MSUs discarded in the transmit path**..	peg count
LNKAVAIL	**Link Available Time** - The total time the link was available to MTP level 3.	seconds
M2PLKNIS	**M2PA Link Not-in-Service Duration**The duration the link was not in the in-service (INS) state at the M2PA layer (in	msec

Event Name	Description	Unit
	seconds), i.e., during which the link was in any of the other defined M2PA states (such as IDLE, OOS, AIP, PROVING, ALIGNED READY, or RETRIEVAL).	
M2PUDMRC	The number of **M2PA UDMs received**.	peg count
M2PUDMTR	The number of **M2PA User Data Messages (UDMs) transmitted**.	peg count
M2PUDOCR	The number of **M2PA UDM octets received.**	octets
M2PUDOCT	The number of **M2PA User Data Message (UDM) octets transmitted**.	octets
MOCTRCGTT	**MSU Octets Received for MSUs Requiring GTT** - Total number of octets received associated with incoming MSUs requiring global title translation (GTT), including octets removed in MTP level 2 processing. • For SAAL class links, applies to MTP level 3 messages.	octets
MOCTRECVD	**MSU Octets Received** - Total number of octets associated with MSUs received, including those removed for MTP level 2 processing and those for which retransmission has been requested. • For SAAL class links, applies to MTP level 3 messages.	octets

Event Name	Description	Unit
MOCTTRAN	**MSU Octets Transmitted** - Total number of octets associated with MSUs transmitted to the far-end, including those added in MTP level 2 processing and retransmissions. • For MTP2 class links, MSUs transmitted AND acknowledged by level 2. • For SAAL class links, MTP level 3 messages offered to SAAL level for transmission.	octets
MSGDISC0	For ANSI links: **Priority 0 MSUs Discarded Due to Congestion** - The total number of priority 0 MSUs discarded due to congestion (any level). • For SAAL class links, applies to MTP level 3 messages . For ITU links: this register is not applicable. **Note:** The MSUs or Messages may be discarded on the transmit/outbound link, which indicates congestion via the ECCNGLVLx or TDCNGLVx registers or it may appear on inbound links routing traffic to those congested links. The latter will not indicate either ECCNGLVLx or TDCNGLVx.	peg count
MSGDISC1	For ANSI links: **Priority 1 MSUs Discarded Due to Congestion** - The total number of priority 1 MSUs discarded due to congestion (any level).	peg count

Event Name	Description	Unit
	• For SAAL class links, applies to MTP level 3 messages . For ITU links: this register is not applicable. **Note:** The MSUs or Messages may be discarded on the transmit/outbound link, which indicates congestion via the ECCNGLVLx or TDCNGLVx registers or it may appear on inbound links routing traffic to those congested links. The latter will not indicate either ECCNGLVLx or TDCNGLVx.	
MSGDISC2	For ANSI links: **Priority 2 MSUs Discarded Due to Congestion** - The total number of priority 2 MSUs discarded due to congestion (any level). • For SAAL class links, applies to MTP level 3 messages . For ITU links: this register is not applicable. **Note:** The MSUs or Messages may be discarded on the transmit/outbound link, which indicates congestion via the ECCNGLVLx or TDCNGLVx registers or it may appear on inbound links routing traffic to those congested links. The latter will not indicate either ECCNGLVLx or TDCNGLVx.	peg count
MSGDISC3	For ANSI links: **Priority 3 MSUs Discarded Due to Congestion** - The total number of priority 3 MSUs discarded due to congestion (any level).	peg count

Event Name	Description	Unit
	• For SAAL class links, applies to MTP level 3 messages . For ITU links: this register is not applicable. **Note:** The MSUs or Messages may be discarded on the transmit/outbound link, which indicates congestion via the ECCNGLVLx or TDCNGLVx registers or it may appear on inbound links routing traffic to those congested links. The latter will not indicate either ECCNGLVLx or TDCNGLVx.	
MSGRECVD	**MSUs Received** - Total number of MSUs received, including those for which retransmission has been requested. • For SAAL class links, applies to MTP level 3 messages.	peg count
MSGSRGTT	**MSUs Received Requiring GTT** - Total number of incoming MSUs requiring global title translation (GTT). • For SAAL class links, applies to MTP level 3 messages.	peg count
MSGSTRAN	**MSUs Transmitted** - Total number of MSUs transmitted to the far-end, including retransmissions. • For MTP2 class links, MSUs transmitted AND acknowledged by level 2.	peg count

Event Name	Description	Unit
	• For SAAL, IPVL, IPVHSL, and IPVLGW class linksets, MTP level 3 messages offered for transmission after any required conversion from their respective M2PA, M3UA, or SUA formats.	
MSURETRN	**MSUs Retransmitted** - Number of MSUs retransmitted from the STP on this link. • For MTP2 class links, MSUs retransmitted by level 2.	peg count
MTCEUSG	**Link Maintenance Usage** - The total time the link was manually made unavailable to MTP level 3. This includes locally blocked (LPO), locally inhibited, or de-activated. **Note:** MTCEUSG may be less than DURLKOTG due to link recovery time following canc-slk, act-slk command sequence	seconds
NMGWSDSABL	**Number of Times GWS Disabled** -Number of times that gateway screening was disabled because of a processor overload.	peg count
OCTRETRN	**MSU Octets Retransmitted** - The total number of MSU octets retransmitted. This register is NOT reported for HSLs.	octets
OUTCELLS	**Total outgoing NDC-valid ATM cells on the HSL's VCL**, including UI and OAM cells but excluding idle/unassigned cells.	peg count

Event Name	Description	Unit
SDURECVD	**SSCOP SD PDUs Received** - The number of SSCOP sequenced data (SD) PDUs that were received during the indicated interval.	peg count
SDURETRN	**SSCOP SD PDUs Retransmitted** - The number of SSCOP SD PDUs that were retransmitted, based on an accumulated count of such retransmissions conveyed to layer management.	peg count
SDUSTRAN	**SSCOP SD PDUs Transmitted** - The number of SSCOP SD PDUs that were transmitted, including retransmissions.	peg count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval **N** - indicates data not current	status
TDCNGLV1	**Total Duration of Level 1 Link Congestion** - The total time the link was in level 1 congestion.	seconds
TDCNGLV2	**Total Duration of Level 2 Link Congestion** - The total time the link was in level 2 congestion.	seconds
TDCNGLV3	**Total Duration of Level 3 Link Congestion** - The total time the link was in level 3 congestion.	seconds

OAM Output Examples

- `rept-meas:type=comp:enttype=link:loc=xxxx:link=x`

```
    stdcfg2b 07-11-15 01:00:04 EST  UNKNOWN 37.5.0-58.25.0
    TYPE OF REPORT: COMPONENT MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-11-15  00:30:00 THRU 00:59:59

    LINK-COMP MEASUREMENTS: LOC: 1201, PORT: A  , LSN: e2m1s1   (MTP2)

    These measurements are from 07-11-15, 00:30:00 through 00:59:59.
    MSGSTRAN   =        20, MSGSRCVD   =        20, MSURETRN   =         0,
    OCTRETRN   =         0, MOCTTRAN   =       400, MOCTRCVD   =       400,
    MTCEUSG    =         0, DURLKOTG   =         0, MSGSRGTT   =         0,
    MOCTRGTT   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSGDISC0   =         0, MSGDISC1   =         0,
    MSGDISC2   =         0, MSGDISC3   =         0, LNKAVAIL   =       183,
    NMGWSDSABL =         0, ECLNKCB    =         0, ECLNKEXO   =         0

;

    stdcfg2b 07-11-15 01:00:05 EST  UNKNOWN 37.5.0-58.25.0
    LINK-COMP MEASUREMENTS: LOC: 1201, PORT: B  , LSN: e2m1s2   (MTP2)

    These measurements are from 07-11-15, 00:30:00 through 00:59:59.
    MSGSTRAN   =        20, MSGSRCVD   =        20, MSURETRN   =         0,
    OCTRETRN   =         0, MOCTTRAN   =       400, MOCTRCVD   =       400,
    MTCEUSG    =         0, DURLKOTG   =         0, MSGSRGTT   =         0,
    MOCTRGTT   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSGDISC0   =         0, MSGDISC1   =         0,
    MSGDISC2   =         0, MSGDISC3   =         0, LNKAVAIL   =       183,
    NMGWSDSABL =         0, ECLNKCB    =         0, ECLNKEXO   =         0

;

    stdcfg2b 07-11-15 01:00:05 EST  UNKNOWN 37.5.0-58.25.0
    LINK-COMP MEASUREMENTS: LOC: 1202, PORT: B  , LSN: e2m1s3   (SAAL)


    These measurements are from 07-11-15, 00:30:00 through 00:59:59.
    MSGSTRAN   =         5, MSGSRCVD   =         1, MOCTTRAN   =        89,
    MOCTRCVD   =        17, MTCEUSG    =         0, DURLKOTG   =       117,
    MSGSRGTT   =         0, MOCTRGTT   =         0, TDCNGLV1   =         0,
    TDCNGLV2   =         0, TDCNGLV3   =         0, ECCNGLV1   =         0,
    ECCNGLV2   =         0, ECCNGLV3   =         0, MSGDISC0   =         0,
    MSGDISC1   =         0, MSGDISC2   =         0, MSGDISC3   =         0,
    LNKAVAIL   =      1684, NMGWSDSABL =         0, OUTCELLS   =     16845,
    INCCELLS   =     16841, SDPDUTRN   =     16845, SDPDURCV   =     16841,
    SDPDURTR   =         0, LMSUTRN    =         5, LMSURCV    =         3,
    LMSUOCTTRN =      2035, LMSUOCTRCV =      1248, LMSUTRNDSC =         0,
    LMSURCVDSC =         1, ECLNKCB    =         0, ECLNKEXO   =         0




;

    stdcfg2b 07-11-15 01:00:05 EST  UNKNOWN 37.5.0-58.25.0
    LINK-COMP MEASUREMENTS: LOC: 1204, PORT: A  , LSN: ipls01   (IPVL)

    These measurements are from 07-11-15, 00:30:00 through 00:59:59.
    MSGSTRAN   =        20, MSGSRCVD   =        20, MOCTTRAN   =       400,
```

```
    MOCTRCVD   =       400, MTCEUSG    =         0, DURLKOTG   =         0,
    MSGSRGTT   =         0, MOCTRGTT   =         0, TDCNGLV1   =         0,
    TDCNGLV2   =         0, TDCNGLV3   =         0, ECCNGLV1   =         0,
    ECCNGLV2   =         0, ECCNGLV3   =         0, MSGDISC0   =         0,
    MSGDISC1   =         0, MSGDISC2   =         0, MSGDISC3   =         0,
    LNKAVAIL   =       183, NMGWSDSABL =         0, ECLNKCB    =         0,
    ECLNKEXO   =         0

;


    stdcfg2b 07-11-15 01:00:05 EST  UNKNOWN 37.5.0-58.25.0
    LINK-COMP MEASUREMENTS: LOC: 1205, PORT: A  , LSN: ipls02   (IPVHSL)

    These measurements are from 07-11-15, 00:30:00 through 00:59:59.
    MSGSTRAN   =        20, MSGSRCVD   =        20, MOCTTRAN   =       400,
    MOCTRCVD   =       400, MTCEUSG    =         0, DURLKOTG   =         0,
    MSGSRGTT   =         0, MOCTRGTT   =         0, TDCNGLV1   =         0,
    TDCNGLV2   =         0, TDCNGLV3   =         0, ECCNGLV1   =         0,
    ECCNGLV2   =         0, ECCNGLV3   =         0, MSGDISC0   =         0,
    MSGDISC1   =         0, MSGDISC2   =         0, MSGDISC3   =         0,
    LNKAVAIL   =       183, LMSUTRN    =         5, LMSURCV    =         3,
    LMSUOCTTRN =      2035, LMSUOCTRCV =      1248, LMSUTRNDSC =         0,
    LMSURCVDSC =         1, NMGWSDSABL =         0, M2PUDMTR   =         0,
    M2PUDOCT   =         0, M2PUDMRC   =         0, M2PUDOCR   =         0,
    M2PLKNIS   =         0, ECLNKCB    =         0, ECLNKEXO   =         0

;

    stdcfg2b 07-11-15 01:00:06 EST  UNKNOWN 37.5.0-58.25.0
    END OF HALF-HOURLY LINK-COMP MEASUREMENT REPORT
;
```

- `rept-meas:type=comp:enttype=link:lsn=ls3:period=active`

```
    tekelecstp 02-12-19 17:14:52 **** UNKNOWN 38.0.0
    rept-meas:type=comp:enttype=link:lsn=ls3:period=active
;
    tekelecstp 02-12-19 17:00:00 **** UNKNOWN 38.0.0
    TYPE OF REPORT: COMPONENT MEASUREMENTS ON LINK
    REPORT PERIOD: ACTIVE
    REPORT INTERVAL:  02-12-19,  16:00:00 THROUGH CURRENT

    LINK-COMP MEASUREMENTS FOR LINKSET ls3:

    LINK-COMP MEASUREMENTS: LOC: 1202, LINK: A  , LSN: ls3            (MTP2)

    MSUTRAN    =         0, MSURECVD   =         0, MSURETRN   =         0,
    OCTRETRN   =         0, OCTTRAN    =         0, OCTRECVD   =         0,
    MTCEUSG    =         0, DURLKOTG   =         0, MSUSRGTT   =         0,
    OCTRCGTT   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSUDISC0   =         0, MSUDISC1   =         0,
    MSUDISC2   =         0, MSUDISC3   =         0, LNKAVAIL   =         1,
    NMGWSDSABL =         0

;

    tekelecstp 02-12-19 17:00:03 **** UNKNOWN 38.0.0
    LINK-COMP MEASUREMENTS: LOC: 1202, LINK: A1 , LSN: ls3            (MTP2)

    MSUTRAN    =         0, MSURECVD   =         0, MSURETRN   =         0,
    OCTRETRN   =         0, OCTTRAN    =         0, OCTRECVD   =         0,
    MTCEUSG    =         0, DURLKOTG   =         0, MSUSRGTT   =         0,
```

```
    OCTRCGTT   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSUDISC0   =         0, MSUDISC1   =         0,
    MSUDISC2   =         0, MSUDISC3   =         0, LNKAVAIL   =         3,
    NMGWSDSABL =         0

;

    tekelecstp 02-12-19 17:00:05 **** UNKNOWN 38.0.0
    LINK-COMP MEASUREMENTS: LOC: 1202, LINK: A2 , LSN: ls3           (MTP2)

    MSUTRAN    =         0, MSURECVD   =         0, MSURETRN   =         0,
    OCTRETRN   =         0, OCTTRAN    =         0, OCTRECVD   =         0,
    MTCEUSG    =         0, DURLKOTG   =         0, MSUSRGTT   =         0,
    OCTRCGTT   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSUDISC0   =         0, MSUDISC1   =         0,
    MSUDISC2   =         0, MSUDISC3   =         0, LNKAVAIL   =         4,
    NMGWSDSABL =         0

;

    tekelecstp 02-12-19 17:00:06 **** UNKNOWN 38.0.0
    LINK-COMP MEASUREMENTS: LOC: 1202, LINK: A3 , LSN: ls3           (MTP2)

    MSUTRAN    =         0, MSURECVD   =         0, MSURETRN   =         0,
    OCTRETRN   =         0, OCTTRAN    =         0, OCTRECVD   =         0,
    MTCEUSG    =         0, DURLKOTG   =         0, MSUSRGTT   =         0,
    OCTRCGTT   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSUDISC0   =         0, MSUDISC1   =         0,
    MSUDISC2   =         0, MSUDISC3   =         0, LNKAVAIL   =         6,
    NMGWSDSABL =         0

;

    tekelecstp 02-12-19 17:00:08 **** UNKNOWN 38.0.0
    LINK-COMP MEASUREMENTS: LOC: 1202, LINK: B  , LSN: ls3           (MTP2)

    MSUTRAN    =         0, MSURECVD   =         0, MSURETRN   =         0,
    OCTRETRN   =         0, OCTTRAN    =         0, OCTRECVD   =         0,
    MTCEUSG    =         0, DURLKOTG   =         0, MSUSRGTT   =         0,
    OCTRCGTT   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSUDISC0   =         0, MSUDISC1   =         0,
    MSUDISC2   =         0, MSUDISC3   =         0, LNKAVAIL   =         8,
    NMGWSDSABL =         0

;

    tekelecstp 02-12-19 17:00:09 **** UNKNOWN 38.0.0
    END OF ON-DEMAND LINK-COMP MEASUREMENT REPORT
;
```

MP Output Examples

Table 13: MP COMP LINK Column Headers

Field Name	Description
LSN	Linkset name
LOC	Card location
LINK	Link port
LNKTYPE	Link type

MP Example Output File Name: `comp-link_20070115_1530.csv`

MP Example Output File Format (showing optional 15 minute interval):

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp",”38.0.0-XX.XX.0”,”2007-12-31”,"15:51:37","EST",
"COMPONENT MEASUREMENTS ON
LINK","LAST",”2007-12-31”,"15:00:00","15:15:00",500<cr><lf>
<cr><lf>
"STATUS","LSN","LOC","LINK","LNKTYPE","MSGSTRAN","MSGSRCVD","MSURETRN","OCTRETRN","MOCTTRAN",
"MOCTRCVD","MTCEUSG","DURLKOTG","MSGSRGTT","MOCTRGTT","TDCNGLV1","TDCNGLV2","TDCNGLV3",
"ECCNGLV1","ECCNGLV2","ECCNGLV3","MSGDISC0","MSGDISC1","MSGDISC2","MSGDISC3","LNKAVAIL",
"NMGWSDSABL","OUTCELLS","INCCELLS","SDPDUTRN","SDPDURCV","SDPDURTR","LMSUTRN","LMSURCV",
"LMSUOCTTRN","LMSUOCTRCV","LMSUTRNDSC","LMSURCVDSC","M2PUDMTR","M2PUDOCT","M2PUDMRC",
"M2PUDOCR","M2PLKNIS","ECLNKCB","ECLNKXCO"<cr><lf>
"K","lsn004","1201","B","MTP2",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1800,0,0,0,0,0,0,0,
0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","lsn030","1202","B","MTP2",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1800,0,0,0,0,0,0,0,
0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","lsn122","1203","A","SAAL",5,1,0,89,0,17,0,117,0,0,0,0,0,0,0,0,0,0,0,1684,0,16845,16841,
16845,16841,0,5,3,2035,1248,0,1,0,0,0,0,0,0,0<cr><lf>
. . . . .
"K","lsnxxx","5314","B1","MTP2",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1800,0,0,0,0,0,0,
0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","LSN300","2104","A","IPVL",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,900,0,0,0,0,0,0,0,
0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","LSN301","2204","A1","IPVLGW",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,900,0,0,0,0,0,0,0,
0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","LSN400","3101","A","IPVHSL",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,900,0,0,0,0,0,0,0,
0,0,0,0,0,0,0,0,0,0,3,4<cr><lf>
```

Assuming each data line will be:

4 char status + 9 char LSN + 6 char LOC + 4 char LINK + 7 char LKNTYPE + 40*(6 char data) + 2 = 272 chars

For a report of 500 linksets, the typical file size is:

Table 14: Typical File Size: `comp-link.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	414	+	136000	=	136664 bytes

enttype=lnkset

Certain registers are reported for MTP2, SAAL, IPVL, and IPVHSL classes. These registers are summarized in the following table.

Table 15: Registers Reported Per LINKSET CLASS

Register Name	MTP2	SAAL	IPVL	IPVHSL
GTTMSCNVTD	X	X	X	X
INCCELLS		X		
MSGWSDSLIM	X	X	X	X
MSGSRCVD	X	X	X	X
MSGSRGTT	X	X	X	X
MSGSTRAN	X	X	X	X
MTPMSCNVTD	X	X	X	X
MOCTRGTT	X	X	X	X
MOCTRCVD	X	X	X	X
MOCTTRAN	X	X	X	X
OUTCELLS		X		
SCCPLOOP	X	X	X	X
SDPDURCV		X		
SDPDURTR		X		

Register Name	MTP2	SAAL	IPVL	IPVHSL
SDPDUTRN		X		
TDLSINAC	X	X	X	X
ZTTMAPI	X	X	X	X
ZTTMAPO	X	X	X	X

Command Examples

- OAM

```
rept-meas:type=comp:enttype=lnkset:lsn=xy212
```

- MP:

```
rept-ftp-meas:type=comp:enttype=lnkset
```

Measurement Events

Table 16: Component Linkset Measurements

Event Name	Description	Unit
GTTMSCNVTD	Total GT Routed SCCP MSUs Converted.	peg count
INCCELLS	Total incoming NDC-valid ATM cells on the HSL's VCL, including UI and OAM cells but excluding idle/unassigned cells.	peg count
MOCTRGTT	**MSU Octets Received for MSUs Requiring GTT** - Total number of octets received associated with incoming MSUs requiring global title translation (GTT), including octets removed in MTP level 2 processing. • For SAAL class linksets, applies to MTP level 3 message bytes .	octets

Event Name	Description	Unit
MOCTRCVD	**MSU Octets Received** - Total number of octets associated with MSUs received, including those removed for MTP level 2 processing and those for which retransmission has been requested. • For SAAL class linksets, applies to MTP level 3 message bytes.	octets
MOCTTRAN	**MSU Octets Transmitted** - Total number of octets associated with MSUs transmitted to the far-end, including those added in MTP level 2 processing and retransmissions. • For MTP2 class linksets, Octets associated with MSUs transmitted AND acknowledge by level 2. • For SAAL class linksets, Bytes/octets associated with MTP level 3 messages offered to the SAAL level for transmission.	octets
MSGSRCVD	**MSUs Received** - Total number of MSUs received, including those for which retransmission has been requested. • For SAAL class linksets, applies to MTP level 3 messages .	peg count
MSGSRGTT	**MSUs Received Requiring GTT** - Total number of incoming MSUs requiring global title translation (GTT). • For SAAL class linksets, applies to MTP level 3 messages.	peg count

Event Name	Description	Unit
MSGSTRAN	**MSUs Transmitted** - Total number of MSUs transmitted to the far-end, including retransmissions. • For MTP2 class links, MSUs transmitted AND acknowledged by level 2. • For SAAL, IPVL, IPVHSL, and IPVLGW class linksets, MTP level 3 messages offered for transmission after any required conversion from their respective M2PA, M3UA, or SUA formats.	peg count
MSGWSDSLIM	**MSUs lost due to Gateway Screening being Disabled on a LIM** - These MSUs were discarded because the gateway screening function was disabled. Gateway screening may have been disabled due to "load shedding" indicating high traffic volume in the system, or because the screen set was unavailable. This condition can also occur if the screen set data is invalid or gateway screening disabled is on.	peg count
MTPMSCNVTD	Total MTP Routed SCCP MSUs Converted.	peg count
OUTCELLS	Total outgoing NDC-valid ATM cells on the HSL's VCL, including UI and OAM cells but excluding idle/unassigned cells.	peg count
SCCPLOOP	The total number of times that a GTT translation matched a Point Code in the STP's loopset entries resulting in either a	peg count

Event Name	Description	Unit
	notify or discard of an SCCP message.	
SDPDURCV	**SSCOP SD PDUs received** - The number of SSCOP SD PDUs that were received during the indicated interval.	peg count
SDPDURTR	**SSCOP SD PDUs Retransmitted** - The number of SSCOP sequenced Data PDUs that were retransmitted, based on an accumulated count of such retransmissions conveyed to LM.	peg count
SDPDUTRN	**SSCOP SD PDUs Transmitted** - The number of SSCOP sequenced Data (SD) PDUs that were transmitted, including retransmissions.	peg count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval **N** - indicates data not current	status
TDLSINAC	**Total Duration of Link Set Inactivity** - The total time that all links in the linkset were unavailable to MTP level 3, regardless if they were made unavailable manually or automatically.	seconds
ZTTMAPI	**Translation Type mapping translation performed** - MSUs received on the gateway linkset - The total number of Translation Type Mapping translations performed for Message Signal Units (MSUs) received on the gateway link set (i.e. incoming).	peg count

Event Name	Description	Unit
ZTTMAPO	**Translation Type Mapping Translation Performed** - MSUs Transmitted on the Gateway Link Set - The total number of Translation Type Mapping translations performed for Message Signal Units(MSUs) transmitted on the gateway link set (i.e. outgoing).	peg count

OAM Output Examples

- `rept-meas:type=comp:enttype=lnkset:lsn=xy212`

```
    stdcfg2b 07-11-15 01:00:04 EST  UNKNOWN 37.5.0-58.25.0
    TYPE OF REPORT: COMPONENT MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-11-15  00:30:00 THRU 00:59:59

    LINK-COMP MEASUREMENTS: LOC: 1201, PORT: A  , LSN: e2m1s1   (MTP2)

    These measurements are from 07-11-15, 00:30:00 through 00:59:59.
    MSGSTRAN   =        20, MSGSRCVD   =        20, MSURETRN   =         0,
    OCTRETRN   =         0, MOCTTRAN   =       400, MOCTRCVD   =       400,
    MTCEUSG    =         0, DURLKOTG   =         0, MSGSRGTT   =         0,
    MOCTRGTT   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSGDISC0   =         0, MSGDISC1   =         0,
    MSGDISC2   =         0, MSGDISC3   =         0, LNKAVAIL   =       183,
    NMGWSDSABL =         0, ECLNKCB    =         0, ECLNKEXO   =         0

;

    stdcfg2b 07-11-15 01:00:05 EST  UNKNOWN 37.5.0-58.25.0
    LINK-COMP MEASUREMENTS: LOC: 1201, PORT: B  , LSN: e2m1s2   (MTP2)

    These measurements are from 07-11-15, 00:30:00 through 00:59:59.
    MSGSTRAN   =        20, MSGSRCVD   =        20, MSURETRN   =         0,
    OCTRETRN   =         0, MOCTTRAN   =       400, MOCTRCVD   =       400,
    MTCEUSG    =         0, DURLKOTG   =         0, MSGSRGTT   =         0,
    MOCTRGTT   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSGDISC0   =         0, MSGDISC1   =         0,
    MSGDISC2   =         0, MSGDISC3   =         0, LNKAVAIL   =       183,
    NMGWSDSABL =         0, ECLNKCB    =         0, ECLNKEXO   =         0

;

    stdcfg2b 07-11-15 01:00:05 EST  UNKNOWN 37.5.0-58.25.0
    LINK-COMP MEASUREMENTS: LOC: 1202, PORT: B  , LSN: e2m1s3   (SAAL)


    These measurements are from 07-11-15, 00:30:00 through 00:59:59.
    MSGSTRAN   =         5, MSGSRCVD   =         1, MOCTTRAN   =        89,
    MOCTRCVD   =        17, MTCEUSG    =         0, DURLKOTG   =       117,
    MSGSRGTT   =         0, MOCTRGTT   =         0, TDCNGLV1   =         0,
    TDCNGLV2   =         0, TDCNGLV3   =         0, ECCNGLV1   =         0,
```

```
    ECCNGLV2   =         0, ECCNGLV3   =         0, MSGDISC0   =         0,
    MSGDISC1   =         0, MSGDISC2   =         0, MSGDISC3   =         0,
    LNKAVAIL   =      1684, NMGWSDSABL =         0, OUTCELLS   =     16845,
    INCCELLS   =     16841, SDPDUTRN   =     16845, SDPDURCV   =     16841,
    SDPDURTR   =         0, LMSUTRN    =         5, LMSURCV    =         3,
    LMSUOCTTRN =      2035, LMSUOCTRCV =      1248, LMSUTRNDSC =         0,
    LMSURCVDSC =         1, ECLNKCB    =         0, ECLNKEXO   =         0




;

    stdcfg2b 07-11-15 01:00:05 EST  UNKNOWN 37.5.0-58.25.0
    LINK-COMP MEASUREMENTS: LOC: 1204, PORT: A  , LSN: ipls01   (IPVL)

    These measurements are from 07-11-15, 00:30:00 through 00:59:59.
    MSGSTRAN   =        20, MSGSRCVD   =        20, MOCTTRAN   =       400,
    MOCTRCVD   =       400, MTCEUSG    =         0, DURLKOTG   =         0,
    MSGSRGTT   =         0, MOCTRGTT   =         0, TDCNGLV1   =         0,
    TDCNGLV2   =         0, TDCNGLV3   =         0, ECCNGLV1   =         0,
    ECCNGLV2   =         0, ECCNGLV3   =         0, MSGDISC0   =         0,
    MSGDISC1   =         0, MSGDISC2   =         0, MSGDISC3   =         0,
    LNKAVAIL   =       183, NMGWSDSABL =         0, ECLNKCB    =         0,
    ECLNKEXO   =         0

;


    stdcfg2b 07-11-15 01:00:05 EST  UNKNOWN 37.5.0-58.25.0
    LINK-COMP MEASUREMENTS: LOC: 1205, PORT: A  , LSN: ipls02   (IPVHSL)

    These measurements are from 07-11-15, 00:30:00 through 00:59:59.
    MSGSTRAN   =        20, MSGSRCVD   =        20, MOCTTRAN   =       400,
    MOCTRCVD   =       400, MTCEUSG    =         0, DURLKOTG   =         0,
    MSGSRGTT   =         0, MOCTRGTT   =         0, TDCNGLV1   =         0,
    TDCNGLV2   =         0, TDCNGLV3   =         0, ECCNGLV1   =         0,
    ECCNGLV2   =         0, ECCNGLV3   =         0, MSGDISC0   =         0,
    MSGDISC1   =         0, MSGDISC2   =         0, MSGDISC3   =         0,
    LNKAVAIL   =       183, LMSUTRN    =         5, LMSURCV    =         3,
    LMSUOCTTRN =      2035, LMSUOCTRCV =      1248, LMSUTRNDSC =         0,
    LMSURCVDSC =         1, NMGWSDSABL =         0, M2PUDMTR   =         0,
    M2PUDOCT   =         0, M2PUDMRC   =         0, M2PUDOCR   =         0,
    M2PLKNIS   =         0, ECLNKCB    =         0, ECLNKEXO   =         0

;

    stdcfg2b 07-11-15 01:00:06 EST  UNKNOWN 37.5.0-58.25.0
    END OF HALF-HOURLY LINK-COMP MEASUREMENT REPORT
;
```

MP Output Examples

MP Example Output File Name: comp-lnkset_19990117_1530.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","37.5.0-58.25.0",”2007-11-15","15:51:37","EST",
"COMPONENT MEASUREMENTS ON
LNKSET","LAST",”2007-11-15","15:00:00","15:30:00",100<cr><lf>
<cr><lf>
```

```
"STATUS","LSN","LNKTYPE","MSGSTRAN","MSGSRCVD","MOCTTRAN","MOCTRCVD","MSGSRGTT","MOCTRGTT",
"TDLSINAC","MSGWSDSLIM","ZTTMAPO","ZTTMAPI","OUTCELLS","INCCELLS","SDPDUTRN",
"SDURECVD","SDPDURCV","MTPMSCNVTD","GTTMSCNVTD","SCCPLOOP"<cr><lf>
"K","lsn001","SAAL",120755,147190,2415100,2943800,0,0,0,0,0,0,0,0,0,0,0,0,2<cr><lf>
"K","lsn002","MTP2",120740,147196,2414790,2943920,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","lsn003","MTP2",144895,147190,2897900,2943800,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","lsn004","SAAL",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1<cr><lf>
"K","lsn004","IPVL",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","lsn005","IPVHSL",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
. . . . .

"K","lsnxxx","MTP2",144895,147190,2897900,2943800,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 8 char LSN + 7 char LKNTYPE + 18*(6 char data) + 2 = 129 chars

For a report of 500 linksets, typical file size is:

Table 17: Typical File Size: `comp-lnkset.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	220	+	64500	=	64,970 bytes

enttype=sctpasoc

The per association SCTP layer measurements and reports are shown below.

Command Examples

- OAM: `rept-meas:type=comp:enttype=sctpasoc:aname=assoc1`
- MP: `rept-ftp-meas:type=comp:enttype=sctpasoc`

Measurement Events

Table 18: Component SCTPASOC Measurements

Event Name	Description	Unit
ASMAXRTO	**SCTP Association Maximum Observed Retransmission Timeout** - The maximum observed value of the SCTP state variable Retransmission Timeout (RTO) in milliseconds (ms) for SCTP packets transmitted (but not retransmitted) to the remote peer endpoint's destination	msec

Event Name	Description	Unit
	transport address during the measurement interval.	
ASOCABTD	**SCTP Aborted Associations** - The number of times that SCTP associations have made a direct transition to the CLOSED state from any state using the primitive "Abort" (AnyState --Abort--> CLOSED), conveying an ungraceful termination of the association.	peg count
ASOCSHTD	**SCTP Association Shutdowns** - The number of times that SCTP associations have made a direct transition to the CLOSED state from either the SHUTDOWN-SENT state or the SHUTDOWN-ACK-SENT state, conveying graceful termination of the association.	peg count
CNTLCHKR	**SCTP Control Chunks Received** - The number of SCTP control chunks received from the remote peer (excluding duplicates).	peg count
CNTLCHKS	**SCTP Control Chunks Sent** - The number of SCTP control chunks sent to the remote peer (excluding retransmissions) .	peg count
DATCHKRC	Number of S**CTP DATA chunks received** from the remote SCTP peer (excluding duplicates and discards).	peg count
DATCHKSN	Number of **SCTP DATA chunks sent** to the remote SCTP peer (excluding retransmissions).	peg count
DURASNEST	Duration the association was not in the Established state.	seconds

Event Name	Description	Unit
ECASNEST	Number of times the association transitioned out of the Established state.	peg count
GAPACKSR	**SCTP Gap Acknowledgements Received** - The number of Gap Acknowledgement blocks in Selective Acknowledgement (SACK) control chunks received from the remote SCTP peer, indicating gaps in the peer's received subsequences of DATA chunks as represented by their Transport Sequence Numbers (TSNs). (The inclusion of this measurement is intended to allow network personnel to assess the message-delivery performance of the IPVHSL relative to gap acknowledgment limits, if used as performance criteria for link proving and in-service monitoring.)	peg count
ORDCHKRC	**SCTP Ordered Data Chunks Received** - The number of SCTP ordered data chunks received from the remote peer (excluding duplicates).	peg count
ORDCHKSN	**SCTP Ordered Data Chunks Sent** - The number of SCTP ordered data chunks sent to the remote peer (excluding retransmissions).	peg count
PEERFAIL	**SCTP Association Peer Endpoint Failures** - The number of peer endpoint failure detection events for the association as triggered by the crossing of threshold the association maximum retransmissions.	peg count

Event Name	Description	Unit
RTXCHNKS	**SCTP Association Retransmitted Chunks** - The number of SCTP data chunks retransmitted to the remote SCTP peer. When T3-rtx expires, the DATA chunks that triggered the T3 timer will be re-sent according with the retransmissions rules. Every DATA chunk that was included in the SCTP packet that triggered the T3-rtx timer must be added to the value of this counter.	peg count
SCOCTRCV	**SCTP Packet Octets Received** - The number of octets comprising valid SCTP packets received from the remote peer.	octets
SCOCTSNT	**SCTP Packet Octets Sent** - The total number of octets comprising SCTP packets submitted to the IP layer for transmittal to the remote peer.	octets
SCPKTRCV	**SCTP Packets Received** - The total number of SCTP packets received from the remote peer that had a valid checksum. Duplicates are included.	peg count
SCPKTSNT	**SCTP Packets Sent** - The total number of SCTP packets sent to the remote peer, i.e., submitted by the local SCTP instance to the IP layer for transmission. Retransmissions are included.	peg count

OAM Output Examples

```
rept-meas:type=comp:enttype=sctpasoc:aname=assoc1
```

```
    stdcfg2b 07-12-31 01:00:04 EST  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: COMPONENT MEASUREMENTS ON SCTPASOC
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31  00:30:00 THRU 00:59:59
```

```
   SCTPASOC-COMP MEASUREMENTS: ASSOC: assoc1

   These measurements are from 07-12-31, 00:30:00 through 00:59:59.
   ECASNEST   =         0, DURASNEST  =         0, DATCHKSN   =         0,
   RTXCHNKS   =         0, DATCHKRC   =         0, SCPKTSNT   =        20,
   SCPKTRCV   =        20, SCOCTSNT   =         0, SCOCTRCV   =         0,
   CNTLCHKS   =       400, ORDCHKSN   =       400, CNTLCHKR   =         0,
   ORDCHKRC   =         0, GAPACKSR   =         0, ASOCABTD   =         0,
   ASOCSHTD   =         0, PEERFAIL   =         0, ASMAXRTO   =         0,
```

MP Output Examples

MP Example Output File Name: `comp-sctpasoc_20071115_1200.csv`

MP Example Output File Format (showing optional 15 minute interval):

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE","IVALSTART",
"IVALEND","NUMENTIDS"<cr><lf>
"ipmeas","UNKNOWN ??.?.?-58.21.0","2007-08-17","19:30:03","****",
"COMPONENT MEASUREMENTS ON SCTPASOC","LAST","2007-08-17",
"19:15:00","19:30:00",3<cr><lf>
"STATUS","ASSOC","ECASNEST","DURASNEST","DATCHKSN","RTXCHNKS","DATCHKRC","SCPKTSNT",
"SCPKTRCV","SCOCTSNT","SCOCTRCV","CNTLCHKS","ORDCHKSN","CNTLCHKR","ORDCHKRC","GAPACKSR",
"ASOCABTD","ASOCSHTD","PEERFAIL","ASMAXRTO"<cr><lf>
"K","A1101",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","A1102",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","A1103",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 18 char association + 18*(6 char data) + 2 = 132 char

For a report of 1000 associations, the typical file size is:

Table 19: Typical File Size: `comp-sctpasoc.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	175	+	132000	=	132425 bytes

enttype=sctpcard

The per card SCTP layer measurements and reports are shown below.

Command Examples

- OAM: `rept-meas:type=comp:enttype=sctpcard:loc=1204`
- MP: `rept-ftp-meas:type=comp:enttype=sctpcard`

Measurement Events

Table 20: Component SCTPCARD Measurements

Event Name	Description	Unit
ASOCABTD	**SCTP Aborted Associations** - The number of times that SCTP associations have made a direct transition to the CLOSED state from any state using the primitive "Abort" (AnyState --Abort--> CLOSED), conveying an ungraceful termination of the association.	peg count
ASOCSHTD	**SCTP Association Shutdowns** - The number of times that SCTP associations have made a direct transition to the CLOSED state from either the SHUTDOWN-SENT state or the SHUTDOWN-ACK-SENT state, conveying graceful termination of the association.	peg count
CNTLCHKR	**SCTP Control Chunks Received** - The number of SCTP control chunks received from the remote peer (excluding duplicates).	peg count
CNTLCHKS	**SCTP Control Chunks Sent** - The number of SCTP control chunks sent to the remote peer (excluding retransmissions) .	peg count
DATCHKRC	Number of S**CTP DATA chunks received** from the remote SCTP peer (excluding duplicates and discards).	peg count
DATCHKSN	Number of **SCTP DATA chunks sent** to the remote SCTP peer (excluding retransmissions).	peg count

Event Name	Description	Unit
ORDCHKRC	**SCTP Ordered Data Chunks Received** - The number of SCTP ordered data chunks received from the remote peer (excluding duplicates).	peg count
ORDCHKSN	**SCTP Ordered Data Chunks Sent** - The number of SCTP ordered data chunks sent to the remote peer (excluding retransmissions).	peg count
RTXCHNKS	**SCTP Association Retransmitted Chunks** - The number of SCTP data chunks retransmitted to the remote SCTP peer. When T3-rtx expires, the DATA chunks that triggered the T3 timer will be re-sent according with the retransmissions rules. Every DATA chunk that was included in the SCTP packet that triggered the T3-rtx timer must be added to the value of this counter.	peg count
SCOCTRCV	**SCTP Packet Octets Received** - The number of octets comprising valid SCTP packets received from the remote peer.	octets
SCOCTSNT	**SCTP Packet Octets Sent** - The total number of octets comprising SCTP packets submitted to the IP layer for transmittal to the remote peer.	octets
SCPKTRCV	**SCTP Packets Received** - The total number of SCTP packets received from the remote peer that had a valid checksum. Duplicates are included.	peg count
SCPKTRER	**SCTP Packets Received With Checksum Error**The number	peg count

Event Name	Description	Unit
	of SCTP packets received from remote peers with an invalid checksum	
SCPKTSNT	**SCTP Packets Sent** - The total number of SCTP packets sent to the remote peer, i.e., submitted by the local SCTP instance to the IP layer for transmission. Retransmissions are included.	peg count
UNASCTPK	**Unassociated (Out-of-the-Blue) SCTP Packets**The number of "out-of-the-blue" SCTP packets received by the host, i.e., SCTP packets correctly formed with the correct checksum value, but for which the receiver (local SCTP) was not able to identify the association to which the packet belongs.	peg count

OAM Output Examples

```
    stdcfg2b 07-12-31 01:00:04 EST  UNKNOWN 47
    TYPE OF REPORT: COMPONENT MEASUREMENTS ON SCTPCARD
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31  00:30:00 THRU 00:59:59

    SCTPCARD-COMP MEASUREMENTS: LOC: 1204

    These measurements are from 07-12-31, 00:30:00 through 00:59:59.
    DATCHKSN   =         0, RTXCHNKS   =         0, DATCHKRC   =         0,
    SCPKTSNT   =        20, SCPKTRCV   =        20, SCPKTRER   =         0,
    UNASCTPK   =         0, SCOCTSNT   =         0, SCOCTRCV   =         0,
    CNTLCHKS   =       400, ORDCHKSN   =       400, CNTLCHKR   =         0,
    ORDCHKRC   =         0, ASOCABTD   =         0, ASOCSHTD   =         0
```

MP Output Examples

MP Example Output File Name: `comp-sctpcard_20071115_1200.csv`

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE","IVALSTART","IVALEND",
"NUMENTIDS"<cr><lf>
"tekelecstp",”38.0.0-XX.XX.0”,”2007-12-31”,"12:11:37","EST","COMPONENT
MEASUREMENTS ON
SCTPCARD","LAST",”2007-12-31”,"11:45:00","12:00:00",3<cr><lf>
<cr><lf>
"STATUS","LOC","DATCHKSN","RTXCHNKS","DATCHKRC","SCPKTSNT","SCPKTRCV","SCPKTRER",
```

```
"UNASCTPK","SCOCTSNT","SCOCTRCV","CNTLCHKS","ORDCHKSN","CNTLCHKR","ORDCHKRC",
"ASOCABTD","ASOCSHTD"<cr><lf>
"K","1101",0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","1102",0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","1103",0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 7 char location + 15*(6 char data) + 2 = 103 chars

For a report of 80 cards, the typical file size is:

Table 21: Typical File Size: `comp-sctpcard.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	160	+	8240	=	8650 bytes

enttype=ua

The per Application Server/Association UA layer measurements and reports are shown below.

Command Examples

- OAM: `rept-meas:type=comp:enttype=ua:asname=appsrvr1:aname=assoc1`
- MP: `rept-ftp-meas:type=comp:enttype=ua`

Measurement Events

Table 22: Component UA Measurements

Event Name	Description	Unit
RXDATAMS	For M3UA, this register represents the number of DATA messages received from the ASP. For SUA, this register represents the total of CLDT and CLDR messages received from the ASP.	peg count
RXDATAOC	For M3UA, this register represents the number of DATA octets received from the ASP. For SUA, this register represents the total of CLDT and CLDR octets received from the ASP.	octets

Event Name	Description	Unit
RXMLRCMS	Number of messages received with multiple routing contexts (always pegged against the default AS).	peg count
TXDATAMS	• For M3UA, this register represents the number of DATA messages sent to the ASP. • For SUA, this register represents the total of CLDT and CLDR messages sent to the ASP.	peg count
TXDATAOC	• For M3UA, this register represents the number of DATA octets sent to the ASP. • For SUA, this register represents the total of CLDT and CLDR octets sent to the ASP.	octets
UAASPMRX	Total ASPM messages received from the ASP (including ASPSM and ASPTM messages).	peg count
UAASPMTX	Total ASPM messages sent to the ASP (including ASPSM and ASPTM messages).	peg count
UAASPNAC	The number of times the ASP transitioned out of the ASP-Active state.	peg count
UAASPNAT	The duration that the ASP was not in the ASP-Active state.	seconds
UACNGCNT	The number of times an AS-ASSOC experienced congestion (this may include the AS entering congestion as a result of the ASSOC entering congestion).	peg count

Event Name	Description	Unit
UACNGTIM	The duration that an AS-ASSOC experienced congestion (this may include the AS entering congestion as a result of the ASSOC entering congestion).	seconds
UAMGMTRX	Total MGMT messages received from the ASP.	peg count
UAMGMTTX	Total MGMT messages sent to the ASP.	peg count
UANMOCTR	**Total Network Management octets received from the ASP** - The total number of non-DATA UA octets received from the ASP (i.e. sum of the ASPM, ASPTM, SSNM, MGMT, and RKM).	peg count
UANMOCTT	**Total Network Management octets sent to the ASP** - The total number of non-DATA UA octets sent to the ASP (i.e. sum of the ASPM, ASPTM, SSNM, MGMT, and RKM).	peg count
UANMMSGR	**Total Network Management messages received from the ASP** - The total number of non-DATA UA messages received from the ASP (i.e. sum of the ASPM, ASPTM, SSNM, MGMT, and RKM).	peg count
UANMMSGT	**Total Network Management messages sent to the ASP** - The total number of non-DATA UA messages sent to the ASP (i.e. sum of the ASPM, ASPTM, SSNM, MGMT, and RKM).	peg count
UASSNMRX	Total SSNM messages received from the ASP.	peg count

Event Name	Description	Unit
UASSNMTX	Total SSNM messages sent to the ASP.	peg count

OAM Output Examples

```
    stdcfg2b 07-12-31 01:00:04 EST  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: COMPONENT MEASUREMENTS ON UA
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31  00:30:00 THRU 00:59:59

    UA-COMP MEASUREMENTS: AS: appsrvr1           ASSOC: assoc1

    These measurements are from 07-12-31, 00:30:00 through 00:59:59.
    RXDATAMS   =       100, RXDATAOC   =      4000, TXDATAMS   =       200,
    TXDATAOC   =      8000, UANMMSGT   =         0, UANMOCTT   =         0,
    UANMMSGR   =         0, UANMOCTR   =         0, UAASPMTX   =         0,
    UAASPMRX   =         0, UASSNMTX   =         0, UASSNMRX   =         0,
    UAMGMTTX   =         0, UAMGMTRX   =         0, UACNGCNT   =         0,
    UACNGTIM   =         0, UAASPNAC   =         0, UAASPNAT   =         0,
    RXMLRCMS   =         0


;
```

MP Output Examples

MP Example Output File Name: `comp-ua_20071115_1200.csv`

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE","IVALSTART","IVALEND",
"NUMENTIDS"<cr><lf>
"tekelecstp","”38.0.0-XX.XX.0”,”2007-12-31”,"12:11:37","EST","COMPONENT
MEASUREMENTS ON
UA","LAST",”2007-12-31”,"11:45:00","12:00:00",3<cr><lf>
<cr><lf>
"STATUS","AS","ASSOC","RXDATAMS","RXDATAOC","TXDATAMS","TXDATAOC","UANMMSGT","UANMOCTT",
"UANMMSGR","UANMOCTR","UAASPMTX","UAASPMRX","UASSNMTX","UASSNMRX","UAMGMTTX","UAMGMTRX",
"UACNGCNT","UACNGTIM","UAASPNAC","UAASPNAT","RXMLRCMS"<cr><lf>
"K","as1101","a1101",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","as1102","a1102",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","as1103","a1103",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 15 char AS + 15 char ASSOC + 19*(6 char data) + 2 = 150 chars

For a report of 1000 AS/ASSOC pairs, typical file size is:

Table 23: Typical File Size: `comp-ua.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	280	+	150000	=	150530 bytes

Network Management Measurements

Network Management Reports provide measurement data on STP traffic, Global Title Translations, and MTP Network Management.

Entity Types: STP, Lnkset, and Link

Accumulation Interval: 5 minutes

STP Retention Period: 5 minutes

Reporting Mode: Scheduled, On-demand, SEAS autonomous

Accessible Collection Period: Last (STP, Lnkset, and Link), Active [OAM (Lnkset and Link)]

enttype=stp

enttype=stp

Example Commands:

OAM: `rept-meas:type=nm:enttype=stp`
MP: `rept-ftp-meas:type=nm:enttype=stp`

Table 24: Network Management STP Measurements

Event Name	Description	Unit
GTTPERFD	**GTTs Performed** -The total number of MSUs that successfully completed global title translation (GTT).	peg count
GTTUN0NS	**GTTs Unable to Perform - Diagnostic 0: No Translation for Address of Such Nature –** Total number of times that the specified translation type in an MSU was not supported by the STP or the form of the GTT was incorrect for the given translation type.	peg count
GTTUN1NT	**GTTs Unable to Perform - Diagnostic 1: No Translation for This Address –** Number of times that a match for the global title could not be found in the translation table.	peg count

Event Name	Description	Unit
MSINVSIF	**MSUs Discarded – Invalid SIF** - Number of MSUs that have been received and discarded because of an invalid SIF.	peg count
MSINVDPC	**MSUs Rcvd – Invalid DPC -** Number of MSUs received and discarded because the DPC could not be found in the STP routing table.	peg count
MSINVLNK	**MSUs Discarded – Invalid Link** - Number of MSUs discarded because of an incorrect SLC. (The SLC refers to a nonexistent link or the same link.)	peg count
MSINVSIO	**MSUs Rcvd – Invalid Service Indicator Octet (SIO)** - Number of MSUs received and discarded because the service requested in the service indicator octet (SIO) was not supported by the STP.	peg count
MSINVSLC	**MSUs Discarded – Invalid SLC -** Number of MSUs discarded because of an invalid SLC code in the ECO/COO.	peg count
MSNACDPC	**MSUs Discarded – Inaccessible DPC -** The total number of MSUs discarded because of an inaccessible DPC.	peg count
MSSCCPFL	**MSUs Discarded – Routing Failure -** Number of MSUs discarded due to a routing failure.	peg count
MSUDSCRD	**MSUs Discarded – Gateway Screening** -	peg count

Event Name	Description	Unit
	The total number of MSUs that failed gateway screening and have been discarded.	
MSULOST1	**MSUs Discarded – Level 2/Level 3 Queue Full** - Number of MSUs discarded because the level 2 to level 3 queue was full.	peg count
MSULOST2	**MSUs Discarded – Route On Hold Buffer Overflow** - Number of MSUs discarded because the routing buffer was in overflow.	peg count
MSULOST3	**MSUs Discarded –** 1. **LS On Hold Buffer Overflow** - The number of MSUs discarded because the linkset-on-hold buffer was in overflow. The On Hold Buffer is used during changeover/changeback situations to ensure that traffic is sequenced correctly. During changeover and changeback, MSUs that were originally sent over links which are now failed (not IS-NR) are buffered while the changeover/changeback procedures are carried out. Once those procedures are completed, the traffic in the on-hold buffer is routed based on the current configuration. 2. **LSL** LIM does not have SCCP assignment for received SCCP traffic. 3. **HSL** –	peg count

Event Name	Description	Unit
	• All Class 1 (sequenced) GTT traffic addressed to Eagle • A Class 0 GTT message for Eagle arrives when the SCCP TVG queue is full • A GTT message in the SCCP TVG queue is more than 2 seconds old.	
MSULOST4	**MSUs Discarded – Rcv Queue Full** - Number of MSUs discarded because the receive queue was full.	peg count
NMTSKDSC0	**Network Management Task Discard from Processor Overload** - The total number of network management tasks (messages) discarded because of a processor overload (task priority = 0).	peg count
NMTSKDSC1	**Network Management Task Discard from Processor Overload** - The total number of network management tasks (messages) discarded because of a processor overload (task priority = 1).	peg count
NMTSKDSC2	**Network Management Task Discard from Processor Overload** - The total number of network management tasks (messages) discarded because of a processor overload (task priority = 2).	peg count
NMTSKDSC3	**Network Management Task Discard from Processor Overload** - The total number of network management tasks	peg count

Event Name	Description	Unit
	(messages) discarded because of a processor overload (task priority = 3).	
OMSINVDPC	**MSUs Originated – Invalid DPC** - Number of MSUs originated with an invalid DPC.	peg count
ORIGMSUS	**Originated MSUs** - The total number of outgoing MSUs successfully passed to MTP level 2 for transmission, while carrying the STP point code in the OPC field.	peg count
ORMSUOCT	**Originate MSU Octets** - The total number of outgoing octets associated with MSUs carrying the STP point code in the OPC field. This includes octets added in MTP level 2 processing.	octets
OVSZMSG	**Oversized MTP 3 Messages** - Oversized MTP 3 messages exceeding 272 octets (level 3) that are received by an HSL and are discarded.	peg count
STATUS	**Indication of Data Validity** **K** – indicates good data **I** – indicates incomplete interval; **N** – indicates data not current.	status
THRSWMSU	**Through-Switched MSUs** - The total number of MSUs that did not carry the STP point code in the OPC or the DPC, and were successfully passed to MTP level 2 for transmission.	peg count

Event Name	Description	Unit
TRMDMSUS	**Terminated MSUs** - The total number of incoming MSUs carrying the STP point code in the DPC.	peg count
TRMSUOCT	**Terminated MSU Octets** - The total number of octets associated with incoming MSUs carrying the STP point code in the DPC. Includes octets removed in MTP level 2 processing.	octets
TSMSUOCT	**Through-Switched MSU Octets** - The total number of octets associated with MSUs that did not carry the STP point code in the OPC or the DPC, and were successfully passed to MTP level 2 for transmission	octets

OAM Example Output:

```
    eagle10506 03-04-15 17:13:02 EST EAGLE 34.0.0
    TYPE OF REPORT: NETWORK MANAGEMENT MEASUREMENTS ON STP
    REPORT PERIOD: LAST
    REPORT INTERVAL:  03-04-15,  17:05:00 THROUGH 17:09:59
    STP-NM MEASUREMENTS
    These measurements are from 03-04-15, 17:05:00 through 17:09:59.
    ORIGMSUS   =        80, TRMDMSUS   =        80, THRSWMSU   =         0,
    ORMSUOCT   =      1540, TRMSUOCT   =      1540, TSMSUOCT   =         0,
    MSINVDPC   =         0, MSINVSIO   =         0, OMSINVDPC  =         0,
    MSINVLNK   =         0, GTTPERFD   =         0, GTTUN0NS   =         0,
    GTTUN1NT   =         0, MSSCCPFL   =         0, MSINVSIF   =         0,
    MSNACDPC   =         0, MSINVSLC   =         0, MSUDSCRD   =         0,
    MSULOST1   =         0, MSULOST2   =         0, MSULOST3   =         0,
    MSULOST4   =         0, NMTSKDSC0  =         0, NMTSKDSC1  =         0,
    NMTSKDSC2  =         0, NMTSKDSC3  =         0, OVSZMSG    =         0
;
    eagle10506 03-04-15 17:13:03 EST EAGLE 34.0.0
    END OF ON-DEMAND STP-NM MEASUREMENT REPORT
;
```

MP Example output file name: nm-stp_19990117_1550.csv

MP Example output file format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"NETWORK MANAGEMENT MEASUREMENTS ON
```

```
STP","LAST","1999-01-17","15:45:00","15:50:00",1<cr><lf>
<cr><lf>
"STATUS","ORIGMSUS","TRMDMSUS","THRSWMSU","ORMSUOCT","TRMSUOCT","TSMSUOCT",
"MSINVDPC","MSINVSIO","OMSINVDPC","MSINVLNK","GTTPERFD","GTTUN0NS","GTTUN1NT",
"MSSCCPFL","MSINVSIF","MSNACDPC","MSINVSLC","MSUDSCRD","MSULOST1","MSULOST2",
"MSULOST3","MSULOST4","NMTSKDSC0","NMTSKDSC1","NMTSKDSC2","NMTSKDSC3","OVSZMSG"<cr><lf>
"K",80,80,0,1540,1540,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
```

Typical file size is:

Table 25: Typical File Size: `nm-stp.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	315	+	477	=	1042 bytes

enttype=lnkset

Command Examples

- OAM

  ```
  rept-meas:type=nm:enttype=lnkset:lsn=xxxx
  ```

- MP

  ```
  rept-ftp-meas:type=nm:enttype=link
  ```

Measurement Events

Table 26: Network Management Linkset Measurements

Event Name	Description	Unit
OCTTRAN	**MSU Octets Transmitted** - The total number of octets associated with MSUs transmitted to the far-end, including those added in MTP{ level 2 processing and retransmissions.	octets
OCTRECVD	`MSU Octets Received` - The total number of octets associated with MSUs received, including those removed for MTP level 2 processing and	octets

Event Name	Description	Unit
	those for which retransmission has been requested.	
MSUTRAN	**MSUs Transmitted** - Total number of MSUs transmitted to the far-end, including retransmissions.	peg count
MSURECVD	**MSUs Received** - The total number of MSUs received, including those for which retransmission has been requested.	peg count
STATUS	**Indication of Data Validity** **K** – indicates good data **I** – indicates incomplete interval; **N** – indicates data not current.	status

OAM Reports

OAM Example Output:

- Example of `rept-meas:type=nm:enttype=lnkset:lsn=xxxx`

```
    tekelecstp 99-02-15 14:15:17 EST EAGLE 34.0.0
    TYPE OF REPORT: NETWORK MANAGEMENT MEASUREMENTS ON LNKSET
    REPORT PERIOD: LAST
    REPORT INTERVAL:  99-02-15,  14:10:00 THROUGH 14:14:59
    LNKSET-NM MEASUREMENTS: lsnxxx    (MTP2)
    These measurements are from 99-02-15, 14:10:00 through 14:14:59.
    OCTTRAN    =         0, OCTRECVD   =         0, MSUTRAN    =         0,
    MSURECVD   =         0
;
    tekelecstp 99-02-15 14:15:18 EST EAGLE 34.0.0
    END OF ON-DEMAND LNKSET-NM MEASUREMENT REPORT
;
```

MP Reports

MP Example Output File Name: nm-lnkset_19990117_1550.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"NETWORK MANAGEMENT MEASUREMENTS ON
LINKSET","LAST","1999-01-17","15:45:00","15:50:00",200<cr><lf>
```

```
<cr><lf>
"STATUS","LSN","LNKTYPE","OCTTRAN","OCTRECVD","MSUTRAN","MSURECVD"<cr><lf>
"K","lsnxxx","SAAL",0,0,0,0<cr><lf>
. . . . .
"K","lsnxxx","MTP2",0,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 8 char LSN + 7 char LNKTYPE + 4*(6 char data) + 2 = 45 chars

For a report of 200 linksets, the typical file size is:

Table 27: Typical File Size: `nm-lnkset.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	69	+	9000	=	9319 bytes

enttype=link

Certain registers are reported for HSLs or LSLs only. Other registers have different interpretations for HSLs than for LSLs. These registers are summarized in *Table 28: HSL LSL Differences for Network Management Links* on page 82.

Table 28: HSL LSL Differences for Network Management Links

Event Name	LSL Usage	HSL Usage
DRFEPRO	As described	N/A - Not reported
DRBSYLNK	As described	N/A - Not reported
DRLCLPRO	As described	Initiated by MAAL - REPORT_LOCAL_PROCESSOR_OUTAGE

Command Examples

- OAM

```
rept-meas:type=nm:enttype=link:loc=xxxx:link=x
rept-meas:type=nm:enttype=link:lsn=ls3
```

- MP

```
rept-ftp-meas:type=nm:enttype=link
```

Measurement Events

Table 29: Network Management Link Measurements

Event Name	Description	Unit
DRFEPRO	**Duration of Far-End Processor Outage** - The cumulative duration that a link was unavailable to MTP level 3 because of a processor outage at the far-end network element (SIPO received).	seconds
DRBSYLNK	**Cumulative Duration of Busy Link Status**- The total elapsed time between the receipt of a busy LSSU, and when the next message was acknowledged. This is the sum of all occurrences of busy link status.	seconds
DRLCLPRO	**Duration of Local Processor Outage** - The cumulative duration that a link was unavailable to MTP level 3 because of a processor outage at the near-end network element. For HSLs, this is initiated by MAALREPORT_LOCAL_PROCESSOR_OUTAGE	seconds
DRLNKUNV	**Duration of Links Unavailable** - The total time a link was unavailable to MTP level 3 for any reason.	seconds
ECCNGLV1	**Event Count for Entering Level 1 Link Congestion -** The total number of times that link congestion level 1 was entered.	peg count
ECCNGLV2	**Event Count for Entering Level 2 Link Congestion -** The total number of times that link congestion level 2 was entered.	peg count

Event Name	Description	Unit
ECCNGLV3	**Event Count for Entering Level 3 Link Congestion -** The total number of times that link congestion level 3 was entered.	peg count
MSGDISC0	For ANSI links: **Priority 0 MSUs Discarded Due to Congestion** - The total number of priority 0 MSUs discarded due to congestion (any level). • For SAAL class links, applies to MTP level 3 messages . For ITU links: this register is not applicable. **Note:** The MSUs or Messages may be discarded on the transmit/outbound link, which indicates congestion via the ECCNGLVLx or TDCNGLVx registers or it may appear on inbound links routing traffic to those congested links. The latter will not indicate either ECCNGLVLx or TDCNGLVx.	peg count
MSGDISC1	For ANSI links: **Priority 1 MSUs Discarded Due to Congestion** - The total number of priority 1 MSUs discarded due to congestion (any level). • For SAAL class links, applies to MTP level 3 messages . For ITU links: this register is not applicable. **Note:** The MSUs or Messages may be discarded on the transmit/outbound link, which indicates congestion via the ECCNGLVLx or TDCNGLVx registers or it may appear on inbound links routing traffic to those congested links. The	peg count

Event Name	Description	Unit
	latter will not indicate either ECCNGLVLx or TDCNGLVx.	
MSGDISC2	For ANSI links: **Priority 2 MSUs Discarded Due to Congestion** - The total number of priority 2 MSUs discarded due to congestion (any level). • For SAAL class links, applies to MTP level 3 messages . For ITU links: this register is not applicable. **Note:** The MSUs or Messages may be discarded on the transmit/outbound link, which indicates congestion via the ECCNGLVLx or TDCNGLVx registers or it may appear on inbound links routing traffic to those congested links. The latter will not indicate either ECCNGLVLx or TDCNGLVx.	peg count
MSGDISC3	For ANSI links: **Priority 3 MSUs Discarded Due to Congestion** - The total number of priority 3 MSUs discarded due to congestion (any level). • For SAAL class links, applies to MTP level 3 messages . For ITU links: this register is not applicable. **Note:** The MSUs or Messages may be discarded on the transmit/outbound link, which indicates congestion via the ECCNGLVLx or TDCNGLVx registers or it may appear on inbound links routing traffic to those congested links. The latter will not indicate either ECCNGLVLx or TDCNGLVx.	peg count

Event Name	Description	Unit
NMGWSDSABL	**Number of Times GWS Disabled** - Number of times that gateway screening was disabled because of a processor overload.	peg count
STATUS	**Indication of Data Validity** **K**– indicates good data **I** – indicates incomplete interval; **N** – indicates data not current.	status
TDCNGLV1	**Total Duration of Level 1 Link Congestion -** The total time the link was in level 1 congestion.	seconds
TDCNGLV2	**Total Duration of Level 2 Link Congestion -** The total time the link was in level 2 congestion.	seconds
TDCNGLV3	**Total Duration of Level 3 Link Congestion -** The total time the link was in level 3 congestion.	seconds

OAM Reports

OAM Example Output:

- Example of `rept-meas:type=nm:enttype=link:loc=xxxx:link=x`

```
    eagle10506 07-12-31 14:15:17 EST UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: NETWORK MANAGEMENT MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31,  14:10:00 THROUGH 14:14:59

    LINK-NM MEASUREMENTS: LOC: 1201, LINK: A  , LSN: lsn123        (MTP2)

    These measurements are from 07-12-31, 14:10:00 through 14:14:59.
    DRLNKUNV   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSGDISC0   =         0, MSGDISC1   =         0,
    MSGDISC2   =         0, MSGDISC3   =         0, DRFEPRO    =         0,
    DRBSYLNK   =         0, NMGWSDSABL =         0, DRLCLPRO   =         0

;

    eagle10506 07-12-31 14:15:17 EST UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-NM MEASUREMENT REPORT
;
```

```
    eagle10506 07-12-31 14:15:17 EST UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: NETWORK MANAGEMENT MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31,  14:10:00 THROUGH 14:14:59

    LINK-NM MEASUREMENTS: LOC: 1204, LINK: A  , LSN: lsn123        (SAAL)

    These measurements are from 07-12-31, 14:10:00 through 14:14:59.
    DRLNKUNV   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSGDISC0   =         0, MSGDISC1   =         0,
    MSGDISC2   =         0, MSGDISC3   =         0, NMGWSDSABL =         0,
    DRLCLPRO   =         0

;

    eagle10506 07-12-31 14:15:17 EST UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-NM MEASUREMENT REPORT
;



    eagle10506 07-12-31 14:15:17 EST UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: NETWORK MANAGEMENT MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31,  14:10:00 THROUGH 14:14:59

    LINK-NM MEASUREMENTS: LOC: 2204, LINK: A  , LSN: ipls1         (IPVL)

    These measurements are from 07-12-31, 14:10:00 through 14:14:59.
    DRLNKUNV   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSGDISC0   =         0, MSGDISC1   =         0,
    MSGDISC2   =         0, MSGDISC3   =         0, NMGWSDSABL =         0,
    DRLCLPRO   =         0

;

    eagle10506 07-12-31 14:15:17 EST UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-NM MEASUREMENT REPORT
;

    eagle10506 07-12-31 14:15:17 EST UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: NETWORK MANAGEMENT MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31,  14:10:00 THROUGH 14:14:59

    LINK-NM MEASUREMENTS: LOC: 2204, LINK: A  , LSN: ipls1         (IPVLGW)

    These measurements are from 07-12-31, 14:10:00 through 14:14:59.
    DRLNKUNV   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSGDISC0   =         0, MSGDISC1   =         0,
    MSGDISC2   =         0, MSGDISC3   =         0, NMGWSDSABL =         0,
    DRLCLPRO   =         0

;

    eagle10506 07-12-31 14:15:17 EST UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-NM MEASUREMENT REPORT
;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: NETWORK MANAGEMENT MEASUREMENTS ON LINK
```

```
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31,  14:10:00 THROUGH 14:14:59

    LINK-NM MEASUREMENTS: LOC: 2205, LINK: A  , LSN: ipls2          (IPVHSL)

    These measurements are from 07-12-31, 14:10:00 through 14:14:59.
    DRLNKUNV   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSGDISC0   =         0, MSGDISC1   =         0,
    MSGDISC2   =         0, MSGDISC3   =         0, NMGWSDSABL =         0,
    DRLCLPRO   =         0

;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-NM MEASUREMENT REPORT
;
```

- Example of `rept-meas:type=nm:enttype=link:lsn=ls3`

```
    tekelecstp 02-12-19 17:14:52 **** UNKNOWN 38.0.0
    rept-meas:type=nm:enttype=link:lsn=ls3
;
    tekelecstp 02-12-19 17:08:52 **** UNKNOWN 38.0.0
    TYPE OF REPORT: NETWORK MANAGEMENT MEASUREMENTS ON LINK
    REPORT PERIOD: ACTIVE
    REPORT INTERVAL:  02-12-19,  17:05:00 THROUGH CURRENT

    LINK-NM MEASUREMENTS FOR LINKSET ls3:

    LINK-NM MEASUREMENTS: LOC: 1202, LINK: A  , LSN: ls3            (MTP2)

    DRLNKUNV   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSUDISC0   =         0, MSUDISC1   =         0,
    MSUDISC2   =         0, MSUDISC3   =         0, DRFEPRO    =         0,
    DRBSYLNK   =         0, NMGWSDSABL =         0, DRLCLPRO   =         0

;

    tekelecstp 02-12-19 17:08:55 **** UNKNOWN 38.0.0
    LINK-NM MEASUREMENTS: LOC: 1202, LINK: A1 , LSN: ls3            (MTP2)

    DRLNKUNV   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSUDISC0   =         0, MSUDISC1   =         0,
    MSUDISC2   =         0, MSUDISC3   =         0, DRFEPRO    =         0,
    DRBSYLNK   =         0, NMGWSDSABL =         0, DRLCLPRO   =         0

;

    tekelecstp 02-12-19 17:08:56 **** UNKNOWN 38.0.0
    LINK-NM MEASUREMENTS: LOC: 1202, LINK: A2 , LSN: ls3            (MTP2)

    DRLNKUNV   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSUDISC0   =         0, MSUDISC1   =         0,
    MSUDISC2   =         0, MSUDISC3   =         0, DRFEPRO    =         0,
    DRBSYLNK   =         0, NMGWSDSABL =         0, DRLCLPRO   =         0

;

    tekelecstp 02-12-19 17:08:57 **** UNKNOWN 38.0.0
    LINK-NM MEASUREMENTS: LOC: 1202, LINK: A3 , LSN: ls3            (MTP2)
```

```
    DRLNKUNV   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSUDISC0   =         0, MSUDISC1   =         0,
    MSUDISC2   =         0, MSUDISC3   =         0, DRFEPRO    =         0,
    DRBSYLNK   =         0, NMGWSDSABL =         0, DRLCLPRO   =         0

;

    tekelecstp 02-12-19 17:08:58 **** UNKNOWN 38.0.0
    LINK-NM MEASUREMENTS: LOC: 1202, LINK: B  , LSN: ls3           (MTP2)

    DRLNKUNV   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSUDISC0   =         0, MSUDISC1   =         0,
    MSUDISC2   =         0, MSUDISC3   =         0, DRFEPRO    =         0,
    DRBSYLNK   =         0, NMGWSDSABL =         0, DRLCLPRO   =         0

;

    tekelecstp 02-12-19 17:09:00 **** UNKNOWN 38.0.0
    END OF ON-DEMAND LINK-NM MEASUREMENT REPORT
;
```

MP Reports

MP Example Output File Name: nm-link_20070115_1550.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp",”38.0.0-XX.XX.0”,”2007-12-31”,"15:51:37","EST",
"NETWORK MANAGEMENT MEASUREMENTS ON
LINK","LAST",”2007-12-31”,"15:45:00","15:50:00",200<cr><lf>
"NUMBER OF ENTIDS: 200"<cr><lf>
<cr><lf>
"STATUS","LSN","LOC","LINK","LNKTYPE","DRLNKUNV","TDCNGLV1","TDCNGLV2","TDCNGLV3",
"ECCNGLV1","ECCNGLV2","ECCNGLV3","MSGDISC0","MSGDISC1","MSGDISC2","MSGDISC3",
"DRFEPRO","DRBSYLNK","NMGWSDSABL","DRLCLPRO"<cr><lf>
"K","LSN27A","1201","A3","MTP2",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>

. . . . .

"K","LSN27B","1304","A","SAAL",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","LSN27B","1204","A","IPVL",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","LSN27B","2204","A","IPVLGW",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","LSN27B","1205","A","IPVHSL",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
```

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","37.5.0-58.25.0",”2007-11-15”,"15:51:37","EST",
"NETWORK MANAGEMENT MEASUREMENTS ON
LINK","LAST",”2007-11-15”,"15:45:00","15:50:00",200<cr><lf>
"NUMBER OF ENTIDS: 200"<cr><lf>
<cr><lf>
"STATUS","LSN","LOC","LINK","LNKTYPE","DRLNKUNV","TDCNGLV1","TDCNGLV2","TDCNGLV3",
"ECCNGLV1","ECCNGLV2","ECCNGLV3","MSGDISC0","MSGDISC1","MSGDISC2","MSGDISC3",
"DRFEPRO","DRBSYLNK","NMGWSDSABL","DRLCLPRO"<cr><lf>
"K","LSN27A","1201","A3","MTP2",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>

. . . . .
```

```
"K","LSN27B","1304","A","SAAL",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","LSN27B","1204","A","IPVL",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","LSN27B","1205","A","IPVHSL",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 8 char LSN + 7 char LOC + 5 char LINK + 7 char LNKTYPE + 15*(6 char data) + 2 = 123 chars

For a report of 200 links, the typical file size is:

Table 30: Typical File Size: `nm-link.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	208	+	24600	=	25058 bytes

Daily Availability Measurements

Daily Availability (AVLD) Reports provide measurements pertaining to link management.

Entity Types: Link

Accumulation Interval: 24 hours

STP Retention Period: 24 hours

Reporting Mode: On-demand, scheduled (MP only)

Accessible Collection Period: Last

enttype=link

Command Examples

- OAM

  ```
  rept-meas:type=avld:enttype=link:loc=xxxx:link=x:nzo=no
  ```

- MP

  ```
  rept-ftp-meas:type=avld:enttype=link
  ```

Measurement Events

Table 31: Daily Availability Link Measurements

Event Name	Description	Unit
DRDCLFLR	**Cumulative Duration of Signaling Link Declared Failures All Types -** The cumulative duration of all link failures.	seconds
DRFEPRO	**Duration of Far-End Processor Outage** - The cumulative duration that a link was unavailable to MTP level 3 because of a processor outage at the far-end network element (SIPO received). Reported for non-SAAL links only.	seconds
DRLCLPRO	**Duration of Local Processor Outage** - he cumulative duration that a link was unavailable to MTP level 3 because of a processor outage at the near-end network element.	seconds
DRLKINHB	**Duration of Signaling Link Mgmt Inhibit** - The duration that a signaling link was unavailable because a signaling link was inhibited. Not reported for IPVL and IPVLGW links.	seconds
FARMGINH	**Number of Far-End Management Inhibits** - Number of times that a link was successfully inhibited from the far-end. Not reported for IPVL and IPVLGW links.	peg count
NEARMGIH	**Number of Near-End Management Inhibits** -	peg count

Event Name	Description	Unit
	Number of times a link was unavailable to MTP level 3 because it was locally inhibited. Not reported for IPVL and IPVLGW links.	
NMDCLFLR	**Number of Signaling Link Declared Failures All Types -** The cumulative total of all link failures.	peg count
SURCVERR	**Number of Signal Units Received In Error -** The number of signal units received with checksum errors, indicating transmission errors. For SAAL class links, this register reflects the number of SSCOP PDUs received with any errors.	peg count

OAM Reports

OAM Example Output:

```
    eagle10506 98-04-15 13:10:34 EST Rel 30.0.0
    TYPE OF REPORT: DAILY AVAILABILITY MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  98-04-15,  00:00:00 THROUGH 23:59:59

    LINK-AVLD MEASUREMENTS: LOC: 1201, LINK: A  , LSN: lsn123         (MTP2)

    These measurements are from 98-04-15, 00:00:00 through 23:59:59.
    NEARMGIH   =         0, FARMGINH   =         0, NMDCLFLR   =         0,
    DRDCLFLR   =         0, SURCVERR   =         0, DRLKINHB   =         0,
    DRFEPRO    =         0, DRLCLPRO   =         0

;

    eagle10506 98-04-15 13:10:35 EST Rel 30.0.0
    END OF ON-DEMAND LINK-AVLD MEASUREMENT REPORT
;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: DAILY AVAILABILITY MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31,  00:00:00 THROUGH 23:59:59

    LINK-AVLD MEASUREMENTS: LOC: 1204, LINK: A  , LSN: ipls1          (IPVL)

    These measurements are from 06-12-15, 00:00:00 through 23:59:59.
    NMDCLFLR   =         0, DRDCLFLR   =         0, SURCVERR   =         0,
    DRFEPRO    =         0, DRLCLPRO   =         0
;
```

```
    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-AVLD MEASUREMENT REPORT
;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: DAILY AVAILABILITY MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31,  00:00:00 THROUGH 23:59:59

    LINK-AVLD MEASUREMENTS: LOC: 1204, LINK: A  , LSN: ipls1          (IPVLGW)

    These measurements are from 06-12-15, 00:00:00 through 23:59:59.
    NMDCLFLR   =         0, DRDCLFLR   =         0, SURCVERR   =         0,
    DRFEPRO    =         0, DRLCLPRO   =         0
;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-AVLD MEASUREMENT REPORT
;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: DAILY AVAILABILITY MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31,  00:00:00 THROUGH 23:59:59

    LINK-AVLD MEASUREMENTS: LOC: 1205, LINK: A  , LSN: ipls2          (IPVHSL)

    These measurements are from 07-12-31, 00:00:00 through 23:59:59.
    NEARMGIH   =         0, FARMGINH   =         0, NMDCLFLR   =         0,
    DRDCLFLR   =         0, SURCVERR   =         0, DRLKINHB   =         0,
    DRFEPRO    =         0, DRLCLPRO   =         0

;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-AVLD MEASUREMENT REPORT
;

    eagle10506 07-12-31 13:10:44  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: DAILY AVAILABILITY MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31,  00:00:00 THROUGH 23:59:59

    LINK-AVLD MEASUREMENTS: LOC: 1204, LINK: A  , LSN: lsn123         (SAAL)

    These measurements are from 07-12-31, 00:00:00 through 23:59:59.
    NEARMGIH   =         0, FARMGINH   =         0, NMDCLFLR   =         0,
    DRDCLFLR   =         0, SURCVERR   =         0, DRLKINHB   =         0,
    DRLCLPRO   =         0

;

    eagle10506 07-12-31 13:10:45 UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-AVLD MEASUREMENT REPORT
;
```

MP Reports

MP Example Output File Name: avld-link_19990116_2400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp",”38.0.0-XX.XX.0”,”2007-12-31”,"15:51:37","EST",
"DAILY AVAILABILITY MEASUREMENTS ON LINK","LAST",
“2007-12-31”,"00:00:00","15:00:00",600<cr><lf>
<cr><lf>
"STATUS","LSN","LOC","LINK","LNKTYPE","NEARMGIH","FARMGINH","NMDCLFLR","DRDCLFLR",
"SURCVERR","DRLKINHB","DRFEPRO","DRLCLPRO"<cr><lf>
"K","lsn234","1201","A","SAAL",0,0,0,0,0,0,0,0<cr><lf>

. . . . .

"K","lsn789","5201","B3","MTP2",0,0,0,0,0,0,0,0<cr><lf>
"K","ipls1","1204","A","IPVL",0,0,0,0,0,0,0,0<cr><lf>
"K","ipls1","2204","A","IPVLGW",0,0,0,0,0,0,0,0<cr><lf>
"K","ipls2","1205","A","IPVHSL",0,0,0,0,0,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 8 char LSN + 7 char LOC + 5 char LINK + 7 char LNKTYPE + 8*(6 char data) + 2 = 81 chars

For a report of 600 links, the typical file size is:

Table 32: Typical File Size: `avld-link.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	128	+	48600	=	48978 bytes

Day-To-Hour Availability Measurements

Day-To-Hour Availability (AVLDTH) Reports provide measurements pertaining to link management accumulating through the day.

Entity Types: Link

Accumulation Interval: Daily total to the last full hour

STP Retention Period: 1 hour

Reporting Mode: On-demand

Accessible Collection Period: Last

enttype=link

Command Examples

- OAM

```
rept-meas:type=avldth:enttype=link:loc=xxxx:link=x:nzo=no
```

- MP

```
rept-ftp-meas:type=avldth:enttype=link
```

Measurement Events

Table 33: Day-To-Hour Availability Link Measurements

Event Name	Description	Unit
DRDCLFLR	**Cumulative Duration of Signaling Link Declared Failures All Types -** The cumulative duration of all link failures.	seconds
DRFEPRO	**Duration of Far-End Processor Outage** - The cumulative duration that a link was unavailable to MTP level 3 because of a processor outage at the far-end network element (SIPO received). Reported for non-SAAL links only.	seconds
DRLCLPRO	**Duration of Local Processor Outage** - The cumulative duration that a link was unavailable to MTP level 3 because of a processor outage at the near-end network element.	seconds
DRLKINHB	**Duration of Signaling Link Mgmt Inhibit** - The duration that a signaling link was unavailable because a signaling link was inhibited. Not reported for IPVL and IPVLGW links.	seconds
FARMGINH	**Number of Far-End Management Inhibits** - Number of times that a link	peg count

Event Name	Description	Unit
	was successfully inhibited from the far-end. Not reported for IPVL and IPVLGW links.	
NEARMGIH	**Number of Near-End Management Inhibits** - Number of times a link was unavailable to MTP level 3 because it was locally inhibited. Not reported for IPVL and IPVLGW links.	peg count
NMDCLFLR	**Number of Signaling Link Declared Failures All Types -** The cumulative total of all link failures.	peg count
SURCVERR	**Number of Signal Units Received In Error -** The number of signal units received with checksum errors, indicating transmission errors. For SAAL class links, this register reflects the number of SSCOP PDUs received with any errors.	peg count

OAM Reports

OAM Example Output:

```
    eagle10506 98-04-15 13:10:34 EST Rel 30.0.0
    TYPE OF REPORT: DAY-TO-HOUR AVAILABILITY MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  98-04-15,  00:00:00 THROUGH 23:59:59

    LINK-AVLDTH MEASUREMENTS: LOC: 1201, LINK: A  , LSN: lsn123         (MTP2)

    These measurements are from 98-04-15, 00:00:00 through 23:59:59.
    NEARMGIH   =         0, FARMGINH   =         0, NMDCLFLR   =         0,
    DRDCLFLR   =         0, SURCVERR   =         0, DRLKINHB   =         0,
    DRFEPRO    =         0, DRLCLPRO   =         0

;

    eagle10506 98-04-15 13:10:35 EST Rel 30.0.0
    END OF ON-DEMAND LINK-AVLDTH MEASUREMENT REPORT
;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: DAY-TO-HOUR AVAILABILITY MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
```

```
    REPORT INTERVAL:  07-12-31,  00:00:00 THROUGH 23:59:59

    LINK-AVLDTH MEASUREMENTS: LOC: 1204, LINK: A  , LSN: ipls1          (IPVL)

    These measurements are from 06-12-15, 00:00:00 through 23:59:59.
    NMDCLFLR   =         0, DRDCLFLR   =         0, SURCVERR   =         0,
    DRFEPRO    =         0, DRLCLPRO   =         0
;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-AVLDTH MEASUREMENT REPORT
;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: DAY-TO-HOUR AVAILABILITY MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31,  00:00:00 THROUGH 23:59:59

    LINK-AVLDTH MEASUREMENTS: LOC: 1204, LINK: A  , LSN: ipls1         (IPVLGW)


    These measurements are from 06-12-15, 00:00:00 through 23:59:59.
    NMDCLFLR   =         0, DRDCLFLR   =         0, SURCVERR   =         0,
    DRFEPRO    =         0, DRLCLPRO   =         0
;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-AVLDTH MEASUREMENT REPORT
;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: DAY-TO-HOUR AVAILABILITY MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31,  00:00:00 THROUGH 23:59:59

    LINK-AVLDTH MEASUREMENTS: LOC: 1205, LINK: A  , LSN: ipls2         (IPVHSL)


    These measurements are from 07-12-31, 00:00:00 through 23:59:59.
    NEARMGIH   =         0, FARMGINH   =         0, NMDCLFLR   =         0,
    DRDCLFLR   =         0, SURCVERR   =         0, DRLKINHB   =         0,
    DRFEPRO    =         0, DRLCLPRO   =         0

;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-AVLDTH MEASUREMENT REPORT
;

    eagle10506 07-12-31 13:10:44  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: DAY-TO-HOUR AVAILABILITY MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31,  00:00:00 THROUGH 23:59:59

    LINK-AVLDTH MEASUREMENTS: LOC: 1204, LINK: A  , LSN: lsn123         (SAAL)

    These measurements are from 07-12-31, 00:00:00 through 23:59:59.
    NEARMGIH   =         0, FARMGINH   =         0, NMDCLFLR   =         0,
    DRDCLFLR   =         0, SURCVERR   =         0, DRLKINHB   =         0,
    DRLCLPRO   =         0

;

    eagle10506 07-12-31 13:10:45 UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-AVLDTH MEASUREMENT REPORT
```

```
;
```

MP Reports

MP Example Output File Name: avldth-link_19990117_1500.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp",”38.0.0-XX.XX.0”,”2007-12-31”,"15:51:37","EST",
"DAY-TO-HOUR AVAILABILITY MEASUREMENTS ON LINK","LAST",
“2007-12-31”,"00:00:00","15:00:00",600<cr><lf>
<cr><lf>
"STATUS","LSN","LOC","LINK","LNKTYPE","NEARMGIH","FARMGINH","NMDCLFLR","DRDCLFLR",
"SURCVERR","DRLKINHB","DRFEPRO","DRLCLPRO"<cr><lf>
"K","lsn234","1201","A","SAAL",0,0,0,0,0,0,0,0<cr><lf>

. . . . .

"K","lsn789","5201","B3","MTP2",0,0,0,0,0,0,0,0<cr><lf>
"K","ipls1","1204","A","IPVL",0,0,0,0,0,0,0,0<cr><lf>
"K","ipls1","2204","A","IPVLGW",0,0,0,0,0,0,0,0<cr><lf>
"K","ipls2","1205","A","IPVHSL",0,0,0,0,0,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 8 char LSN + 7 char LOC + 5 char LINK + 7 char LNKTYPE + 8*(6 char data) + 2 = 81 chars

For a report of 600 links, the typical file size is:

Table 34: Typical File Size: `avldth-link.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	128	+	48600	=	48978 bytes

Availability Measurements

Availability Measurements (AVL) provide measurements relating to the availability of signaling links.

Entity Types: Link, STPLAN

Accumulation Interval: 30 minutes

Optional MP Accumulation Interval: Every 15 minutes

STP Retention Period: 24 hours

Reporting Mode: On-demand, scheduled (MP)

Accessible Collection Period: Last, active (OAM), or specific

enttype=link

Certain registers are reported for HSLs or LSLs only. Other registers have different interpretations for HSLs than for LSLs. These registers are summarized in *Table 35: Availability Link Register Usage By LINK Class* on page 99.

Table 35: Availability Link Register Usage By LINK Class

Event Name	MTP2 Usage	SAAL Usage	IPVL and IPVLGW Usage	IPVHSL Usage
DRFEPRO	As described	N/A - not reported	As described	As described
DRLKINHB	As described	As described	N/A - not reported	As described
FARMGINH	As described	As described	N/A - not reported	As described
NDCFLABN	As described	N/A - not reported	N/A - not reported	N/A - not reported
NDCFLXDA	Level 2 timer t7 expired	Timer NO_RESPONSE expired for POLL/STAT response	Level 2 timer t7 expired	Level 2 timer t7 expired
NDCFLXDC	Level 2 timer t6 expired	Timer NO_CREDIT expired	Level 2 timer t6 expired	Level 2 timer t6 expired
NDCLFALP	As described	N/A - not reported	As described	As described
NDCLFSYNC	No data received on the line	DS1: LOS, LOF, or LCD indications	No data received on the line	No data received on the line
NEARMGIH	As described	As described	N/A - not reported	As described
NMFEPRO	As described	N/A - not reported	As described	As described

Event Name	MTP2 Usage	SAAL Usage	IPVL and IPVLGW Usage	IPVHSL Usage
PCRN1N2EXC	As described	N/A - not reported	N/A - not reported	N/A - not reported
SURCVERR	Level 2 signaling units (all types) received with errors	SSCOP PDUs (all types) received with errors	Level 2 signaling units (all types) received with errors	Level 2 signaling units (all types) received with errors
SUSRECVD	Level 2 signaling units (all types) received	SSCOP PDUs (all types) received	Level 2 signaling units (all types) received	Level 2 signaling units (all types) received
SUSTRAN	Level 2 signaling units (all types) transmitted	SSCOP PDUs (all types) transmitted	Level 2 signaling units (all types) transmitted	Level 2 signaling units (all types) transmitted

Command Examples

- OAM

```
rept-meas:type=avl:enttype=link:loc=xxxx:link=x
```

- MP

```
rept-ftp-meas:type=avl:enttype=link
```

Measurement Events

Table 36: Availability Link Measurements

Event Name	Description	Unit
DRDCLFLR	**Cumulative Duration of Signaling Link Declared Failures All Types -** The cumulative duration of all link failures.	seconds
DRFEPRO	**Duration of Far-End Processor Outage** - The cumulative duration that a link was unavailable to MTP level 3 because of a processor	seconds

Event Name	Description	Unit
	outage at the far-end network element (SIPO received). Not reported for SAAL class links.	
DRLCLPRO	**Duration of Local Processor Outage** - The cumulative duration that a link was unavailable to MTP level 3 because of a processor outage at the near-end network element.	seconds
DRLKINHB	**Duration of Signaling Link Mgmt Inhibit** - The duration that a signaling link was unavailable because a signaling link was inhibited. Not reported for SAAL class links.	seconds
FARMGINH	**Number of Far-End Management Inhibits** - The total number of times that a link was inhibited by far-end management. Not reported for SAAL class links.	peg count
NDCLFLABN	**Number of Signaling Link Failures – Abnormal FIB/BSN** - Number of times the signaling link was taken out-of-service because of abnormal FIB/BSN received. A count was accumulated if two backward sequence number values in three consecutively received MSUs or FISUs are not the same as the previous one or any of the forward sequence numbers of the signal units in the retransmission buffer at the time they are retransmitted.Reported for MTP2 Links only. Occurrences of this condition while the link is not in-service are not accumulated in this register.	peg count

Event Name	Description	Unit
NDCLFALP	**Link Failure – Alignment or Proving Failure** - Number of times a signaling link was returned to out-of-service because of the excessive error rate detected by the alignment error rate monitor (AERM).. Not reported for SAAL class links.	peg count
NDCLFINTR	**Link Failure – Too Many Interrupts** - The number of times a signaling link was out-of-service because an excessive number of link interrupts occurred.	peg count
NDCLFSYNC	**Link Failure - Loss of Synchronization** - Number of times that the link was taken out-of-service because of a loss of synchronization.	peg count
NDCFLXDA	**Number of Signaling Link Failures – Excessive Delay of Acknowledgment** - Number of times a signaling link was out-of-service due to an excessive delay in acknowledgments. For SAAL class links, timer NO_RESPONSE expired for POLL/STAT response.	peg count
NDCFLXDC	**Number of Signaling Link Failures – Excessive Duration of Congestion** - Number of times a signaling link was out-of-service because the timer T6 (remote congestion) expired. For SAAL	peg count

Event Name	Description	Unit
	class links, timer NO_CREDIT expired.	
NDCFLXER	**Number of Signaling Link Failures – Excessive Error Rate** - Number of times a signaling link was out-of-service because it reached the signal unit error rate monitor (SUERM) threshold.	peg count
NEARMGIH	**Number of Near-End Management Inhibits** - Number of times a link was unavailable to MTP level 3 because it was locally inhibited. Not reported for IPVL, IPVLGW, or IPVHSL links.	peg count
NMDCLFLR	**Number of Signaling Link Declared Failures All Types -** The cumulative total of all link failures.	peg count
NMFEPRO	**Number of Far-End Processor Outages** - The total number of far-end processor outages. Reported for MTP2 links only.	peg count
NMLCLPRO	**Number of Local Processor Outages** - The total number of local processor outages.	peg count
PCRN1N2EXC	**PCR N1 or N2 Count Exceeded** - The total number of forced retransmissions when preventive cyclic retransmission (PCR) is used as the error correction method on a link. Reported for MTP2 links only.	peg count
SURCVERR	**Number of SUs Received in Error** - SUs received in which	peg count

Event Name	Description	Unit
	errors were detected. (For ATM HSLs this register reflects the number of SSCOP PDUs received with errors.)	
SUSRECVD	**Signaling Units Received** - The total number of signaling units received. (For ATM HSLs this register reflects the number of SSCOP PDUs received.)	peg count
SUSTRAN	**Signaling Units Transmitted** - The total number of signaling units transmitted. (For ATM HSLs this register reflects the number of SSCOP PDUs transmitted.)	peg count

OAM Reports

OAM Example Output:

Note: Only non-zero measurements are shown in the OAM reports. The examples will show all registers with non-zero values.

```
    ipmeas 08-05-27 17:18:05 EST  EAGLE 39.0
    TYPE OF REPORT: AVAILABILITY MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  08-05-27,  16:30:00 THROUGH 16:59:59

    LINK-AVL MEASUREMENTS: LOC: 1201, LINK: A  , LSN: e2m1s1         (MTP2)

    These measurements are from 08-05-27, 16:30:00 through 16:59:59.
    NEARMGIH   =         0, FARMGINH   =         0, NMDCLFLR   =         0,
    DRDCLFLR   =         0, SURCVERR   =         0, DRLKINHB   =         0,
    NDCFLABN   =         0, NDCLFSYNC  =         0, NDCFLXDA   =         0,
    NDCFLXER   =         0, NDCFLXDC   =         0, NDCLFALP   =       146,
    NDCLFINTR  =         0, NMFEPRO    =         0, NMLCLPRO   =         0,
    DRFEPRO    =         0, DRLCLPRO   =         0, SUSRECVD   =   1504478,
    SUSTRAN    =   1504477, PCRN1N2EXC =         0

;

    ipmeas 08-05-27 17:18:07 EST  EAGLE 39.0
    END OF ON-DEMAND LINK-AVL MEASUREMENT REPORT
;

    ipmeas 08-05-27 17:19:30 EST  EAGLE 39.0
    TYPE OF REPORT: AVAILABILITY MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  08-05-27,  16:30:00 THROUGH 16:59:59

    LINK-AVL MEASUREMENTS: LOC: 1217, LINK: A  , LSN: atmls          (SAAL)
```

```
    These measurements are from 08-05-27, 16:30:00 through 16:59:59.
    NEARMGIH   =         0, FARMGINH   =         0, NMDCLFLR   =         0,
    DRDCLFLR   =         0, SURCVERR   =         0, DRLKINHB   =         0,
    NDCLFSYNC  =         0, NDCFLXDA   =         0, NDCFLXER   =         0,
    NDCFLXDC   =         0, NDCLFINTR  =         0, NMLCLPRO   =         0,
    DRLCLPRO   =         0, SUSRECVD   =         0, SUSTRAN    =      1565

;

    ipmeas 08-05-27 17:19:32 EST  EAGLE 39.0
    END OF ON-DEMAND LINK-AVL MEASUREMENT REPORT
;


    ipmeas 08-05-27 17:31:37 EST  EAGLE 39.0
    TYPE OF REPORT: AVAILABILITY MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  08-05-27,  17:00:00 THROUGH 17:29:59

    LINK-AVL MEASUREMENTS: LOC: 1211, LINK: A3 , LSN: ipsg2          (IPVL)

    These measurements are from 08-05-27, 17:00:00 through 17:29:59.
    NMDCLFLR   =         0, DRDCLFLR   =         0, SURCVERR   =         0,
    NDCLFSYNC  =         0, NDCFLXDA   =         0, NDCFLXER   =         0,
    NDCFLXDC   =         0, NDCLFALP   =         0, NDCLFINTR  =         0,
    NMFEPRO    =         0, NMLCLPRO   =         0, DRFEPRO    =         0,
    DRLCLPRO   =         0, SUSRECVD   =         0, SUSTRAN    =         0

;

    ipmeas 08-05-27 17:31:39 EST  EAGLE 39.0
    END OF ON-DEMAND LINK-AVL MEASUREMENT REPORT
;

    ipmeas 08-05-27 17:25:36 EST  EAGLE 39.0
    TYPE OF REPORT: AVAILABILITY MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  08-05-27,  16:30:00 THROUGH 16:59:59

    LINK-AVL MEASUREMENTS: LOC: 1213, LINK: A  , LSN: m3uals         (IPVLGW)

    These measurements are from 08-05-27, 16:30:00 through 16:59:59.
    NMDCLFLR   =         0, DRDCLFLR   =         0, SURCVERR   =         0,
    NDCLFSYNC  =         0, NDCFLXDA   =         0, NDCFLXER   =         0,
    NDCFLXDC   =         0, NDCLFALP   =         0, NDCLFINTR  =         0,
    NMFEPRO    =         0, NMLCLPRO   =         0, DRFEPRO    =         0,
    DRLCLPRO   =         0, SUSRECVD   =         0, SUSTRAN    =         0

;

    ipmeas 08-05-27 17:25:38 EST  EAGLE 39.0
    END OF ON-DEMAND LINK-AVL MEASUREMENT REPORT
;

    ipmeas 08-05-27 17:28:38 EST  EAGLE 39.0
    TYPE OF REPORT: AVAILABILITY MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  08-05-27,  16:30:00 THROUGH 16:59:59

    LINK-AVL MEASUREMENTS: LOC: 1214, LINK: A  , LSN: m2pals         (IPVHSL)

    These measurements are from 08-05-27, 16:30:00 through 16:59:59.
    NEARMGIH   =         0, FARMGINH   =         0, NMDCLFLR   =         0,
    DRDCLFLR   =         0, SURCVERR   =         0, DRLKINHB   =         0,
    NDCLFSYNC  =         0, NDCFLXDA   =         0, NDCFLXER   =         0,
```

```
    NDCFLXDC   =         0, NDCLFALP   =         0, NDCLFINTR  =         0,
    NMFEPRO    =         0, NMLCLPRO   =         0, DRFEPRO    =         0,
    DRLCLPRO   =         0, SUSRECVD   =         0, SUSTRAN    =         0

;

    ipmeas 08-05-27 17:28:40 EST  EAGLE 39.0
    END OF ON-DEMAND LINK-AVL MEASUREMENT REPORT
;
```

MP Reports

MP Example Output File Name: `avl-link_20070117_1530.csv`

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp",”38.0.0-XX.XX.0”,”2007-12-31”,"15:51:37","EST",
"AVAILABILITY MEASUREMENTS ON
LINK","LAST",”2007-12-31”,"15:00:00","15:30:00",600<cr><lf>
<cr><lf>
"STATUS","LSN","LOC","LINK","LNKTYPE","NEARMGIH","FARMGINH","NMDCLFLR","DRDCLFLR",
"SURCVERR","DRLKINHB","NDCFLABN","NDCLFSYNC","NDCFLXDA","NDCFLXER","NDCFLXDC",
"NDCLFALP","NDCLFINTR","NMFEPRO","NMLCLPRO","DRFEPRO","DRLCLPRO","SUSRECVD",
"SUSTRAN","PCRN1N2EXC"<cr><lf>
"K","LS027A","1201","B2","MTP2",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,3300944,3299200,0<cr><lf>

. . . . .

"K","LS288B","1204","A","SAAL",0,0,0,0,0,0,0,1,0,0,0,0,0,0,0,0,0,0,110,<cr><lf>
"K","ipls1","1205","A","IPVL",0,0,0,0,0,0,0,1,0,0,0,0,0,0,0,0,0,0,110,<cr><lf>
"K","iplsx","1208","A","IPVLGW",0,0,0,0,0,0,0,1,0,0,0,0,0,0,0,0,0,0,110,<cr><lf>
"K","ipls2","1206","A","IPVHSL",0,0,0,0,0,0,0,1,0,0,0,0,0,0,0,0,0,0,110,<cr><lf>
```

Assuming each data line will be:

4 char status + 8 char LSN + 7 char LOC + 5 char LINK + 7 char LNKTYPE + 20*(6 char data) + 2 = 153 chars

For a report of 600 links, the typical file size is:

Table 37: Typical File Size: `avl-link.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	272	+	91800	=	92322 bytes

enttype=stplan

This enttype consists of measurements for LIM, TSM, and ACM cards. The outputs are separate for the OAM based measurements and combined for the MP based measurements. The MP based measurements appear after the OAM measurements for the ACM cards. The Status Event appears with the ACM measurements.

Note: The peg counts for STPLAN measurements have the possibility of rolling over during periods of high STPLAN message transmit and receive. On the measurement reports these measurements show up as negative numbers. This indicates STPLAN transmit and receive measurements have values greater than four gigabytes of data.

Command Examples

- OAM

```
rept-meas:type=avl:enttype=stplan
```

- MP

```
rept-ftp-meas:type=avl:enttype=stplan
```

Link Interface Module (LIM) measurements

Table 38: Availability STPLAN LIM Measurements

Event Name	Description	Unit
SLANDISC1	**STPLAN Discarded 1** - Number of indicated messages not copied to the host due to the STPLAN feature being disabled.	peg count
SLANDSBLD	**STPLAN Disabled** - The duration that the STPLAN screening/copy feature was disabled.	msecs
SLANSCRND	**STPLAN Screened** - Number of MSUs that were copied to the STPLAN interface after passing gateway screening.	peg count

OAM Example Output:

```
   tekelecstp 03-02-06 11:02:07 WET EAGLE 34.0.0
   TYPE OF REPORT: AVAILABILITY MEASUREMENTS ON STPLAN
   REPORT PERIOD: LAST
   REPORT INTERVAL:  03-02-06,  10:30:00 THROUGH 10:59:59
   STPLAN-AVL MEASUREMENTS: LOC: 1201
   These measurements are from 03-02-06, 10:30:00 through 10:59:59.
   SLANDSBLD  =         0, SLANDISC1  =         0, SLANSCRND  =         0
;
   tekelecstp 03-02-06 11:02:09 WET EAGLE 34.0.0
```

```
    END OF ON-DEMAND STPLAN-AVL MEASUREMENT REPORT
;
```

Transaction Service Module (TSM) measurements

Table 39: Availability STPLAN TSM Measurements

Event Name	Description	Unit
SLANDSBLD	**STPLAN Disabled** - The duration that the STPLAN screening/copy feature was disabled.	msecs
SLANSCRND	**STPLAN Screened** - Number of MSUs that were copied to the STPLAN interface after passing gateway screening.	peg count

OAM Example Output:

```
    tekelecstp 03-02-06 11:02:21 EST EAGLE 34.0.0
    TYPE OF REPORT: AVAILABILITY MEASUREMENTS ON STPLAN
    REPORT PERIOD: LAST
    REPORT INTERVAL:  03-02-06,  10:30:00 THROUGH 10:59:59
    STPLAN-AVL MEASUREMENTS: LOC: 1208
    These measurements are from 03-02-06, 10:30:00 through 10:59:59.
    SLANDSBLD  =         0, SLANSCRND  =         0
;
    tekelecstp 03-02-06 11:02:22 EST EAGLE 34.0.0
    END OF ON-DEMAND STPLAN-AVL MEASUREMENT REPORT
;
```

Application Communications Module (ACM) Measurements

Table 40: Availability STPLAN ACM Measurements

Event Name	Description	Unit
ENETALNERR	**Ethernet Alignment Error** - Number of packets not received over the STPLAN interface because of ethernet alignment errors.	peg count
ENETBUSBSY	**Ethernet Bus Busy -** Number of transmissions attempted when the STPLAN ethernet bus was busy.	peg count

Event Name	Description	Unit
ENETCOLERR	**Ethernet Collision Error -** Number of packets not transmitted by STPLAN because of excessive collisions on the STPLAN ethernet bus.	peg count
ENETCRCERR	**Ethernet CRC Error** - Number of packets not received on the STPLAN ethernet due to CRC errors.	peg count
ENETOCTRCV	**Ethernet Octets Received** - The total number of octets received on the STPLAN ethernet interface.	peg count
ENETOCTXMT	**Ethernet Octets Transmitted** - The total number of octets transmitted on the STPLAN ethernet interface.	peg count
ENETOVRERR	**Ethernet Receive Buffer Overflow Errors** - Number of packets not received by STPLAN because of a receive buffer overflow.	peg count
IPADDRERR	**IP Address** *Error*- The total number of inbound IP datagrams discarded on the STPLAN interface due to a bad destination address.	peg count
IPHDRERR	**IP Header Errors** - The total number of inbound IP datagrams discarded on the STPLAN interface due to header errors.	peg count
IPPROTERR	**IP Protocol Error** - Number of inbound IP datagrams discarded by STPLAN due to an error in the packet (invalid protocol).	peg count

Event Name	Description	Unit
SLANDISC2	**STPLAN Discarded 2** - Number of MSUs discarded due to the host being unreachable.	peg count
SLANXMIT	**STPLAN Transmit** - Number of MSUs sent to the host destination.	peg count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status
TCPCONNFLD	**TCP Connections Failed -** The total number of TCP connections that have failed on the STPLAN interface.	peg count
TCPSEGRCVD	**TCP Segment Received -** The total number of TCP segments received on the STPLAN interface.	peg count
TCPSEGSENT	**TCP Segment Sent -** The total number of TCP segments sent on the STPLAN interface.	peg count
TCPSEGXMT2	**TCP Segment Retransmitted -** The total number of TCP segments retransmitted on the STPLAN interface.	peg count
TCPRCVERR	**TCP Receive Error** - The total number of TCP segments received on the STPLAN interface in error.	peg count
TCPRSTSENT	**TCP Reset Sent** - The total number of TCP segments sent containing the reset (RST) flag on the STPLAN interface.	peg count

OAM Example Output:

```
    tekelecstp 03-02-06 11:02:34 EST EAGLE 34.0.0
    TYPE OF REPORT: AVAILABILITY MEASUREMENTS ON STPLAN
    REPORT PERIOD: LAST
    REPORT INTERVAL:  03-02-06,  10:30:00 THROUGH 10:59:59
    STPLAN-AVL MEASUREMENTS: LOC: 1101
    These measurements are from 03-02-06, 10:30:00 through 10:59:59.
    SLANDISC2  =         0, SLANXMIT   =         0, ENETALNERR =         0,
    ENETCRCERR =         0, ENETCOLERR =         0, ENETBUSBSY =         0,
    ENETOVRERR =         0, ENETOCTXMT =         0, ENETOCTRCV =    124804,
    TCPCONNFLD =         0, TCPSEGRCVD =         0, TCPSEGSENT =         0,
    TCPSEGXMT2 =         0, TCPRCVERR  =         0, TCPRSTSENT =         0,
    IPHDRERR   =         0, IPADDRERR  =         0, IPPROTERR  =         0
;
    tekelecstp 03-02-06 11:02:36 EST EAGLE 34.0.0
    END OF ON-DEMAND STPLAN-AVL MEASUREMENT REPORT
;
```

MP Example Output File Name: avl-stplan_19990117_1530.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"AVAILABILITY MEASUREMENTS ON
STPLAN","LAST","1999-01-17","15:00:00","15:30:00",3<cr><lf>
<cr><lf>
"STATUS","TYPE","LOC","SLANDSBLD","SLANDISC1","SLANDISC2","SLANSCRND","SLANXMIT",
"ENETALNERR","ENETCRCERR","ENETCOLERR","ENETBUSBSY","ENETOVRERR","ENETOCTXMT",
"ENETOCTRCV","TCPCONNFLD","TCPSEGRCVD","TCPSEGSENT","TCPSEGXMT2","TCPRCVERR",
"TCPRSTSENT","IPHDRERR","IPADDRERR","IPPROTERR"<cr><lf>
"K","LIM","1201",0,0,0,,,,,,,,,,,,,,,,,<cr><lf>
"K","TSM","2201",0,,0,,,,,,,,,,,,,,,,,<cr><lf>
"K","ACM","4101",,,,0,0,0,0,0,0,0,0,124804,0,0,0,0,0,0,0,0,0<cr><lf>
```

Typical file size is:

Table 41: Typical File Size: `avl-stplan.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	53	+	30	=	333 bytes

Daily Maintenance Measurements

The Daily Maintenance (MTCD) reports provide measurements useful in determining STP performance based on traffic.

Entity Types: STP, LINK, LNKSET, STPLAN, LNP, NP, EIR, MAPSCRN, SCTPASOC, SCTPCARD, UA , VFLEX , ATINPQ

Default Accumulation Interval: 24 hours

STP Retention Period: 24 hours (STP, Link, Lnkset, STPLAN) 7 days (LNP, NP, EIR, MAPSCRN, VFLEX (MCP only) , ATINPQ)

Reporting Modes: Scheduled and On-Demand

Note: V-Flex, ATINPQ is MCP only.

Accessible Collection Periods: Last, Specific

enttype=stp

Example Commands:

OAM : `rept-meas:type=mtcd:enttype=stp`
MP : `rept-ftp-meas:type=mtcd:enttype=stp`

Table 42: Daily Maintenance STP Measurements

Event Name	Description	Unit
CRSYSAL	**Critical System Alarms** - The total number of critical system alarms.	peg count
DRDCLFLR	**Cumulative Duration of Signaling Link Declared Failures All Types** - The cumulative duration of all link failures.	seconds
DURLKOTG	**Duration of Link Outage** - The total time a link was unavailable to MTP level 3 for any reason.	seconds
DTAMSULOST	**DTA MSUs Lost** - The total number of MSUs that were discarded because the redirect function was turned off or the original MSU was too large to be encapsulated.	peg count
GFGTMATCH	**G-Flex GTTs with Match** - The total number of G-Flex Global Title Translation successfully completed.	peg count
GFGTNOMCH	**G-Flex GTTs No Match** - The total number of G-Flex Global	peg count

Event Name	Description	Unit
	Title Translations completed that did not match an entry in the GSM database.	
GFGTNOLKUP	**G-Flex GTTs No Look-up** - The total number of G-Flex Global Title Translations that could not be looked up in the GSM database because of some error.	peg count
GTTPERFD	**GTTs Performed** - The total number of MSUs that successfully completed global title translation (GTT). Also includes G-Flex and INP MSUs that got a match in either the G-Flex, INP or GTT DB (GFGTMATCH).	peg count
GTTUN0NS	**GTTs Unable to Perform - Diagnostic 0: No Translation for Address of Such Nature –** Total number of times that the specified translation type in an MSU was not supported by the STP or the form of the GTT was incorrect for the given translation type. Also includes G-Flex, INP and GTT MSUs that did not match on new selectors (GTI,NP,NAI) in addition to ones not matching on TT.	peg count
GTTUN1NT	**GTTs Unable to Perform - Diagnostic 1: No Translation for This Address –** The sum total of times that SCCP could not find a translation in the translation table. This includes Global Title translations, Point Code translations, and Subsystem translations. In general, this register contains the sum of the GTTUN1NT	peg count

Event Name	Description	Unit
	register in the systot-tt report and the CGGTTUN1NT	
MSINVDPC	**MSUs Rcvd – Invalid DPC** - Number of MSUs received and discarded because the DPC could not be found in the STP routing table.	peg count
OMSINVDPC	**MSUs Originated – Invalid DPC** - Number of MSUs originated with an invalid DPC.	peg count
MSINVSIF	**MSUs Discarded – Invalid SIF** - Number of MSUs that have been received and discarded because of an invalid SIF.	peg count
MSINVSIO	**MSUs Rcvd – Invalid Service Indicator Octet (SIO)** - Number of MSUs received and discarded because the service requested in the service indicator octet (SIO) was not supported by the STP.	peg count
MASYSAL	**Major system alarms** - The total number of major system alarms.	peg count
MISYSAL	**Minor system alarms** - The total number of minor system alarms.	peg count
MSINVLNK	**MSUs Discarded – Invalid Link** - Number of MSUs discarded because of an incorrect SLC. (The SLC refers to a nonexistent link or the same link.)	peg count
MSINVSLC	**MSUs Discarded – Invalid SLC** -	peg count

Event Name	Description	Unit
	Number of MSUs discarded because of an invalid SLC code in the ECO/COO.	
MSNACDPC	**MSUs Discarded – Inaccessible DPC** - The total number of MSUs discarded because of an inaccessible DPC.	peg count
MSSCCPFL	**MSUs Discarded – Routing Failure** - Number of MSUs discarded due to an SCCP routing failure. Also includes G-Flex, INP MSUs that got a match from either the G-Flex, INP or GTT DB but cannot be routed due to PC or SS congestion, PC or SS unavailable, SS unequipped, or an unqualified error.	peg count
MSUDSCRD	**MSUs Discarded – Gateway Screening -** The total number of MSUs that failed gateway screening and were discarded. See linkset report for individual peg counts.	peg count
MSULOST1	**MSUs Discarded – Level 2/Level 3 Queue Full** - Number of MSUs discarded because the level 2 to level 3 queue was full.	peg count
MSULOST2	**MSUs Discarded – Route On Hold Buffer Overflow** - Number of MSUs discarded because the routing buffer was in overflow.	peg count

Event Name	Description	Unit
MSULOST3	**MSUs Discarded –** 1. **LS On Hold Buffer Overflow** - The number of MSUs discarded because the linkset-on-hold buffer was in overflow. The On Hold Buffer is used during changeover/changeback situations to ensure that traffic is sequenced correctly. During changeover and changeback, MSUs that were originally sent over links which are now failed (not IS-NR) are buffered while the changeover/changeback procedures are carried out. Once those procedures are completed, the traffic in the on-hold buffer is routed based on the current configuration. 2. **LSL** LIM does not have SCCP assignment for received SCCP traffic. 3. **HSL** – • All Class 1 (sequenced) GTT traffic addressed to Eagle • A Class 0 GTT message for Eagle arrives when the SCCP TVG queue is full • A GTT message in the SCCP TVG queue is more than 2 seconds old.	peg count
MSULOST4	**MSUs Discarded – Rcv Queue Full** - Number of MSUs discarded because the receive queue was full.	peg count

Event Name	Description	Unit
MSULOST5	**MSUs Discarded – LIM Init** - Number of MSUs discarded while the LIM card was initializing.	peg count
MSULOST6	**MSUs Discarded** – The number of MSUs discarded due to an error encountered during internal (IMT) transfer of MSU between cards.	peg count
MTPRESTS	**MTP Restarts Initiated** - Number of times MTP restart was initiated by the STP. The count does not include the number of MTP restarts initiated as a result of messages from adjacent nodes.	peg count
ORIGMSUS	**Originated MSUs** - The total number of outgoing MSUs successfully passed to MTP level 2 for transmission, while carrying the STP point code in the OPC field.	peg count
OVSZMSG	**Oversized MTP 3 Messages** - Oversized MTP 3 messages exceeding 272 octets (level 3) that are received by an HSL and are discarded.	peg count
SCCPLOOP	The total number of times that a **GTT translation matched a Point Code in the STP's loopset** entries resulting in either a notify or discard of an SCCP message.	peg count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status

Event Name	Description	Unit
THRSWMSU	**Through-Switched MSUs** - The total number of MSUs that did not carry the STP point code in the OPC or the DPC, and were successfully passed to MTP level 2 for transmission.	peg count
TRMDMSUS	**Terminated MSUs** - The total number of incoming MSUs carrying the STP point code in the DPC.	peg count
TTMAPPF	**Translation Type Mapping Translations Performed** - The total number of Translation Type Mapping translations performed (that is, a mapped SS7 message translation type was found for the existing SS7 message translation type).	peg count
XLXTELEI	**X-List Entry Not Created** - The total number of times that an X-List entry was not created because the ELEI for the cluster was set to 'yes'.	peg count
XLXTSPACE	**X-List Entry Not Created** - The total number of times an X-List entry was not created due to lack of space in the route/destination table.	peg count
MSUSCCPFLR	**MSU SCCP Failure** - Total MSUs Discarded Due to SCCP Conversion Failure.	peg count

OAM Example Output:

```
tekelecstp 97-01-02 15:51:37 EST EAGLE 34.0.0
    TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON STP
    REPORT PERIOD: LAST
    REPORT INTERVAL:  97-01-01,  00:00:00 THROUGH 23:59:59

    STP-MTCD MEASUREMENTS
    These measurements are from 03-08-01, 00:00:00 through 23:59:59.
    ORIGMSUS   =  36102314, TRMDMSUS   =         0, THRSWMSU   =   6055635,
```

```
    MTPRESTS   =         0, DTAMSULOST =         0, MSINVDPC   =         1,
    MSINVSIO   =         0, OMSINVDPC  =         0, MSINVLNK   =         0,
    MSINVSIF   =         0, MSNACDPC   =         1, MSINVSLC   =         0,
    GTTPERFD   =         0, GTTUN0NS   =         0, GTTUN1NT   =         0,
    MSSCCPFL   =         0, MSUDSCRD   =         0, MSULOST1   =         0,
    MSULOST2   =         0, MSULOST3   =         0, MSULOST4   =         0,
    MSULOST5   =         0, DRDCLFLR   =     86400, DURLKOTG   =     86400,
    CRSYSAL    =       288, MASYSAL    =       600, MISYSAL    =       960,
    XLXTSPACE  =         0, XLXTELEI   =         0, TTMAPPF    =         0,
    OVSZMSG    =         0, GFGTMATCH  =         0, GFGTNOMCH  =         0,
    GFGTNOLKUP =         0, MSUSCCPFLR =         0
;
    tekelecstp 97-01-02 15:51:39 EST EAGLE 34.0.0
    END OF ON-DEMAND STP-MTCD MEASUREMENT REPORT
;
```

MP Example Output

MP Example Output File Name: mtcd-stp_19990116_2400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-51.0.0","3003-08-17","15:51:37","EST",
"DAILY MAINTENANCE MEASUREMENTS ON
STP","LAST","2003-08-16","00:00:00","24:00:00",1<cr><lf>
<cr><lf>
"STATUS","ORIGMSUS","TRMDMSUS","THRSWMSU","MTPRESTS","DTAMSULOST","MSINVDPC",
"MSINVSIO","OMSINVDPC","MSINVLNK","MSINVSIF","MSNACDPC","MSINVSLC","GTTPERFD",
"GTTUN0NS","GTTUN1NT","MSSCCPFL","MSULOST1","MSULOST2","MSULOST3","MSULOST4",
"MSULOST5","DRDCLFLR","DURLKOTG","CRSYSAL","MASYSAL","MISYSAL",
"XLXTSPACE",
"XLXTELEI","TTMAPPF","MSUDSCRD","OVSZMSG","GFGTMATCH","GFGTNOMCH","GFGTNOLKUP",

"MSUSCCPFLR"<cr><lf>
"K",36102314,0,6055635,0,0,1,0,0,0,0,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,86400,86400,
 288,600,960,0,0,0,0,0<cr><lf>
```

Typical file size:

Table 43: Typical File Size: `mtcd-stp.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	405	+	220	=	885 bytes

enttype=link

Certain registers are reported for MTP2, SAAL, IPVL, and IPVHSL classes. These registers are summarized in *Table 44: Registers Reported per LINK CLASS for Daily Link Measurements* on page 120.

Table 44: Registers Reported per LINK CLASS for Daily Link Measurements

Event Name	MTP2 Class	SAAL Class	IPVL/IPVLGW Class	IPVHSL Class
ACHGOVRS	X	X	X	X
DRBSYLNK	X			X
DRDCLFLR	X	X	X	X
DRFEPRO	X		X	X
DRLCLPRO	X	X	X	X
DRLKINHB	X	X		X
ECCNGLV1	X	X	X	X
ECCNGLV2	X	X	X	X
ECCNGLV3	X	X	X	X
ECLNKCB				X
ECLNKXCO				X
FARMGINH	X	X		X
LMSUOCTRCV			X	X
LMSUOCTTRN			X	X
LMSURCV			X	X
LMSURCVDSC			X	X
LMSUTRN			X	X
LMSUTRNDSC			X	X
LNKAVAIL	X	X	X	X
M2PLKNIS				X

Event Name	MTP2 Class	SAAL Class	IPVL/IPVLGW Class	IPVHSL Class
M2PUDMRC				X
M2PUDMTR				X
M2PUDOCR				X
M2PUDOCT				X
MOCTRCVD	X	X	X	X
MOCTTRAN		X	X	X
MSGDISC0	X	X	X	X
MSGDISC1	X	X	X	X
MSGDISC2	X	X	X	X
MSGDISC3	X	X	X	X
MSGSRCVD	X	X	X	X
MSGSTRAN	X	X	X	X
MSURCERR	X			
MSURETRN	X		X	X
NDCFLABN	X			
NDCFLXDA	X	X	X	X
NDCFLXDC	X	X	X	X
NDCFLXER	X	X		
NEARMGIH	X	X		X
NEGACKS	X			

Event Name	MTP2 Class	SAAL Class	IPVL/IPVLGW Class	IPVHSL Class
NMLCLPRO	X	X	X	X
NMDCLFLR	X	X	X	X
NMFEPRO	X		X	X
OCTRETRN	X		X	X
PCRN1N2EXC	X			
SDPDURTR		X		
SURCVERR	X	X	X	X
TDCNGLV1	X	X	X	X
TDCNGLV2	X	X	X	X
TDCNGLV3	X	X	X	X
TLNKACTV	X	X	X	X

Command Examples

- OAM

```
rept-meas:type=mtcd:enttype=link:loc=xxxx:link=x
rept-meas:type=mtcd:enttype=link:lsn=lsn123
```

- MP

```
rept-ftp-meas:type=mtcd:enttype=link
```

Measurement Events

Table 45: Maintenance Daily Link Measurements

Event Name	Description	Unit
ACHGOVRS	**Number of Automatic Changeovers -** Number of times that a changeover	peg count

Event Name	Description	Unit
	procedure was used to divert traffic from one link to alternative links.	
DRBSYLNK	**Cumulative Duration of Busy Link Status-** The total elapsed time between the receipt of a busy LSSU, and when the next message was acknowledged. This is the sum of all occurrences of busy link status. Reported for MTP2 Links only.	seconds
DRDCLFLR	**Cumulative Duration of Signaling Link Declared Failures All Types -** The cumulative duration of all link failures.	seconds
DRFEPRO	**Duration of Far-End Processor Outage** - The cumulative duration that a link was unavailable to MTP level 3 because of a processor outage at the far-end network element (SIPO received). Reported for MTP2 link only.	seconds
DRLCLPRO	**Duration of Local Processor Outage** - The cumulative duration that a link was unavailable to MTP level 3 because of a processor outage at the near-end network element.	seconds
DRLKINHB	**Duration Link Inhibited -** The cumulative duration that a link was inhibited at the local or far-end network element.	seconds
ECCNGLV1	**Event Count for Entering Level 1 Link Congestion -** The	peg count

Event Name	Description	Unit
	total number of times that link congestion level 1 was entered.	
ECCNGLV2	**Event Count for Entering Level 2 Link Congestion -** The total number of times that link congestion level 2 was entered.	peg count
ECCNGLV3	**Event Count for Entering Level 3 Link Congestion -** The total number of times that link congestion level 3 was entered.	peg count
ECLNKCB	Number of times the link performed ChangeBack procedures.	peg count
ECLNKXCO	Number of times the link performed Extended ChangeOver procedure, including time-controlled ChangeOvers.	peg count
FARMGINH	**Number of Far-End Management Inhibits -** Number of times a link was inhibited successfully from the far-end.	peg count
LMSUOCTRCV	The number of **octets received in large MSUs**. This register is pegged in addition to MOCTRCVD when the Large BICC MSU Support for IP Signaling feature status is on and a large MSU is successfully received	octets
LMSUOCTTRN	The number of **octets transmitted in large MSUs**. This register is pegged in addition to MOCTTRAN when the Large BICC MSU Support for IP Signaling feature status is on and a large MSU is successfully transmitted.	octets

Event Name	Description	Unit
LMSURCV	The number of **large MSUs received**. This register is pegged in addition to MSGSRCVD when the Large BICC MSU Support for IP Signaling feature status is on and a large MSU is successfully received.	peg count
LMSURCVDSC	The number of **large MSUs discarded in the receive path**. This can occur when the Large BICC MSU Support for IP Signaling feature is not on or when the MSU is larger than 4095 bytes or when a routing failure occurs.	peg count
LMSUTRN	**The number of large MSUs transmitted**. This register is pegged in addition to MSGSTRAN when the Large BICC MSU Support for IP Signaling feature status is on and a large MSU is successfully transmitted.	peg count
LMSUTRNDSC	The number of large MSUs discarded in the transmit path.	peg count
LNKAVAIL	**Link Available Time** - The total time the link was available to MTP level 3.	seconds
M2PLKNIS	**M2PA Link Not-in-Service Duration**The duration the link was not in the in-service (INS) state at the M2PA layer (in seconds), i.e., during which the link was in any of the other defined M2PA states (such as IDLE, OOS, AIP, PROVING, ALIGNED READY, or RETRIEVAL).	msec

Event Name	Description	Unit
M2PUDMRC	The number of M2PA UDMs received.	peg count
M2PUDMTR	The number of M2PA User Data Messages (UDMs) transmitted.	peg count
M2PUDOCR	The number of M2PA UDM octets received.	octets
M2PUDOCT	The number of M2PA User Data Message (UDM) octets transmitted.	octets
MOCTRCVD	**MSU Octets Received -**Total number of octets associated with MSUs received, including those removed for MTP level 2 processing and those for which retransmission has been requested.	octets
MOCTTRAN	**MSU Octets Transmitted -**Total number of octets associated with MSUs transmitted to the far-end, including those added in MTP level 2 processing and retransmissions	octets
MSGDISC0	For ANSI links: **Priority 0 MSUs Discarded Due to Congestion** - The total number of priority 0 MSUs discarded due to congestion (any level). • For SAAL class links, applies to MTP level 3 messages . For ITU links: this register is not applicable. **Note:** The MSUs or Messages may be discarded on the transmit/outbound link, which indicates congestion via the	peg count

Event Name	Description	Unit
	ECCNGLVLx or TDCNGLVx registers or it may appear on inbound links routing traffic to those congested links. The latter will not indicate either ECCNGLVLx or TDCNGLVx.	
MSGDISC1	For ANSI links: **Priority 1 MSUs Discarded Due to Congestion** - The total number of priority 1 MSUs discarded due to congestion (any level). • For SAAL class links, applies to MTP level 3 messages . For ITU links: this register is not applicable. **Note:** The MSUs or Messages may be discarded on the transmit/outbound link, which indicates congestion via the ECCNGLVLx or TDCNGLVx registers or it may appear on inbound links routing traffic to those congested links. The latter will not indicate either ECCNGLVLx or TDCNGLVx.	peg count
MSGDISC2	For ANSI links: **Priority 2 MSUs Discarded Due to Congestion** - The total number of priority 2 MSUs discarded due to congestion (any level). • For SAAL class links, applies to MTP level 3 messages . For ITU links: this register is not applicable. **Note:** The MSUs or Messages may be discarded on the transmit/outbound link, which indicates congestion via the ECCNGLVLx or TDCNGLVx registers or it may appear on	peg count

Event Name	Description	Unit
	inbound links routing traffic to those congested links. The latter will not indicate either ECCNGLVLx or TDCNGLVx.	
MSGDISC3	For ANSI links: **Priority 3 MSUs Discarded Due to Congestion** - The total number of priority 3 MSUs discarded due to congestion (any level). • For SAAL class links, applies to MTP level 3 messages . For ITU links: this register is not applicable. **Note:** The MSUs or Messages may be discarded on the transmit/outbound link, which indicates congestion via the ECCNGLVLx or TDCNGLVx registers or it may appear on inbound links routing traffic to those congested links. The latter will not indicate either ECCNGLVLx or TDCNGLVx.	peg count
MSGSRCVD	**MSUs Received -** Total number of MSUs received, including those for which retransmission has been requested.	peg count
MSGSTRAN	**MSUs Transmitted** - Total number of MSUs transmitted to the far-end, including retransmissions. • For MTP2 class links, MSUs transmitted AND acknowledged by level 2. • For SAAL, IPVL, IPVHSL, and IPVLGW class linksets, MTP level 3 messages offered for transmission after any required conversion from their	peg count

Event Name	Description	Unit
	respective M2PA, M3UA, or SUA formats.	
MSURCERR	Number of **Message signal Units received in error - bad CRC**. This register applies to MTP2 links only.	peg count
MSURETRN	**MSUs Retransmitted** - Number of MSUs retransmitted because of errors.	peg count
NDCFLABN	**Number of Signaling Link Failures - Abnormal FIB/BSN** - The number of times the signaling link was taken out-of-service because of abnormal FIB/BSN received. A count was accumulated if two backward sequence number values in three consecutively received MSUs or FISUs are not the same as the previous one or any of the forward sequence numbers of the signal units in the retransmission buffer at the time they are retransmitted. Reported for MTP2 links only. Occurrences of this condition while the link is not in-service are not accumulated in this register.	peg count
NDCFLXDA	**Number of Signaling Link Failures - Excessive Delay of Acknowledgment** - Number of times a signaling link was out-of-service due to an excessive delay in acknowledgments. • For MTP2 class links, Level 2 timer T7 expired level • For SAAL class links, timer NO_RESPONSE expired for POLL/STAT response	peg count

Event Name	Description	Unit
NDCFLXDC	**Number of Signaling Link Failures - Excessive Duration of Congestion** • For MTP2 class links, the number of times a signaling link was out-of-service because the Level 2 timer T6 (remote congestion) expired • For SAAL class links, the number of times timer NO_CREDIT expired	peg count
NDCFLXER	**Number of Signaling Link Failures - Excessive Error Rate** - Number of times a signaling link was out-of-service because it reached the signal unit error rate monitor (SUERM) threshold.	peg count
NEARMGIH	**Number of Near-End Management Inhibits** - Number of times a link was unavailable to MTP level 3 because it was locally inhibited.	peg count
NEGACKS	**Number of Negative Acknowledgments Received -**Number of times the BSN in an MSU was inverted, indicating a retransmission request. Reported for MTP2 links only.	peg count
NMLCLPRO	**Number of Local Processor Outages -** The total number of local processor outages in this STP.	peg count
NMDCLFLR	**Number of Signaling Link Declared Failures All Types -** The cumulative total of all link failures.	peg count

Event Name	Description	Unit
NMFEPRO	**Number of Far-End Processor Outages** - Number of far-end processor outages that have occurred. Reported for MTP2 links only	peg count
OCTRETRN	**Number of MSU octets retransmitted.** This register is NOT reported for SAAL class links.	peg count
PCRN1N2EXC	**PCR N1 or N2 Count Exceeded** - The total number of forced retransmissions when preventive cyclic retransmission (PCR) is used as the error correction method on a link. Reported for MTP2 links only.	peg count
SDURETRN	**SSCOP SD PDUs Retransmitted** - The number of SSCOP sequenced Data PDUs that were retransmitted, based on an accumulated count of such retransmissions conveyed to LM. This measurement replaces the MTP level 2 negative acknowledgments.	peg count
SURCVERR	**Number of Signal Units Received In Error -**Number of Signal Units Received In Error - The number of signal units received with checksum errors, indicating transmission errors. • For SAAL class links, this register reflects the number of SSCOP PDUs received with any errors • For all other link classes, applies to FISUs, LSSUs, and MSUs	peg count

Event Name	Description	Unit
TDCNGLV1	**Total Duration of Level 1 Link Congestion -** The total time the link was in level 1 congestion.	seconds
TDCNGLV2	**Total Duration of Level 2 Link Congestion -** The total time the link was in level 2 congestion.	seconds
TDCNGLV3	**Total Duration of Level 3 Link Congestion -** The total time the link was in level 3 congestion.	seconds
TLNKACTV	**Link active time** - total time the link is active and transmitting MSUs. • For SAAL class links, the time the link is active and giving MSUs to SAAL for transmission. • For IP7 links, TLNKACTV is based on 10MB Ethernet link speed. Hence the report will be relative to 10MB/sec.	seconds

OAM Reports

- Example of `rept-meas:type=mtcd:enttype=link:loc=xxxx:link=x`

```
eagle10506 07-12-31 13:11:17 EST UNKNOWN 38.0.0-XX.XX.0
TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON LINK
REPORT PERIOD: LAST
REPORT INTERVAL:  07-12-31,  00:00:00 THROUGH 23:59:59

LINK-MTCD MEASUREMENTS: LOC: 1201, LINK: A  , LSN: lsn123        (MTP2)

These measurements are from 07-12-31, 00:00:00 through 23:59:59.
MSGSTRAN   =        95, MSGSRCVD   =        95, MSURETRN   =         0,
OCTRETRN   =         0, MOCTTRAN   =      1900, MOCTRCVD   =      1900,
TDCNGLV1   =         0, TDCNGLV2   =         0, TDCNGLV3   =         0,
ECCNGLV1   =         0, ECCNGLV2   =         0, ECCNGLV3   =         0,
MSGDISC0   =         0, MSGDISC1   =         0, MSGDISC2   =         0,
MSGDISC3   =         0, TLNKACTV   =         0, LNKAVAIL   =      3159,
ACHGOVRS   =         0, NEARMGIH   =         0, FARMGINH   =         0,
NMDCLFLR   =         0, DRDCLFLR   =         0, SURCVERR   =         0,
NEGACKS    =         0, DRLKINHB   =         0, NDCFLABN   =         0,
NDCFLXDA   =         0, NDCFLXER   =         0, NDCFLXDC   =         0,
NMFEPRO    =         0, NMLCLPRO   =         0, DRFEPRO    =         0,
DRLCLPRO   =         0, MSURCERR   =         0, DRBSYLNK   =         0,
PCRN1N2EXC =         0
```

```
;

    eagle10506 07-12-31 13:11:17 EST UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-MTCD MEASUREMENT REPORT
;

    eagle10506 07-12-31 13:11:17 EST UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31,  00:00:00 THROUGH 23:59:59

    LINK-MTCD MEASUREMENTS: LOC: 1204, LINK: A  , LSN: lsn123        (SAAL)

    These measurements are from 07-12-31, 00:00:00 through 23:59:59.
    MSGSTRAN   =         0, MSGSRCVD   =         0, MOCTTRAN   =         0,
    MOCTRCVD   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSGDISC0   =         0, MSGDISC1   =         0,
    MSGDISC2   =         0, MSGDISC3   =         0, TLNKACTV   =         0,
    LNKAVAIL   =         0, ACHGOVRS   =         0, NEARMGIH   =         0,
    FARMGINH   =         0, NMDCLFLR   =         0, DRDCLFLR   =         0,
    SURCVERR   =         0, DRLKINHB   =         0, NDCFLXDA   =         0,
    NDCFLXER   =         0, NDCFLXDC   =         0, NMLCLPRO   =         0,
    DRLCLPRO   =         0, SDPDURTR   =         0

;

    eagle10506 07-12-31 13:11:19 EST UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-MTCD MEASUREMENT REPORT
;

    eagle10506 07-12-31 13:11:17 EST UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31,  00:00:00 THROUGH 23:59:59

    LINK-MTCD MEASUREMENTS: LOC: 1206, LINK: A  , LSN: lsn1234567     (IPVL)

    These measurements are from 07-12-31, 00:00:00 through 23:59:59.
    MSGSTRAN   =        95, MSGSRCVD   =        95, MOCTTRAN   =      1900,
    MOCTRCVD   =      1900, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSGDISC0   =         0, MSGDISC1   =         0,
    MSGDISC2   =         0, MSGDISC3   =         0, TLNKACTV   =         0,
    LNKAVAIL   =      3159, ACHGOVRS   =         0, NMDCLFLR   =         0,
    DRDCLFLR   =         0, SURCVERR   =         0, NDCFLXDA   =         0,
    NDCFLXDC   =         0, NMFEPRO    =         0, NMLCLPRO   =         0,
    DRFEPRO    =         0, DRLCLPRO   =         0, LMSUTRN    =         0,
    LMSURCV    =         0, LMSUOCTTRN =         0, LMSUOCTRCV =         0,
    LMSUTRNDSC =         0, LMSURCVDSC =         0

;

    eagle10506 07-12-31 13:11:19 EST UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-MTCD MEASUREMENT REPORT

;

    eagle10506 07-12-31 13:11:17 EST UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31,  00:00:00 THROUGH 23:59:59

   LINK-MTCD MEASUREMENTS: LOC: 2206, LINK: A  , LSN: lsn1234567    (IPVLGW)
```

```
    These measurements are from 07-12-31, 00:00:00 through 23:59:59.
    MSGSTRAN   =        95, MSGSRCVD   =        95, MOCTTRAN   =      1900,
    MOCTRCVD   =      1900, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSGDISC0   =         0, MSGDISC1   =         0,
    MSGDISC2   =         0, MSGDISC3   =         0, TLNKACTV   =         0,
    LNKAVAIL   =      3159, ACHGOVRS   =         0, NMDCLFLR   =         0,
    DRDCLFLR   =         0, SURCVERR   =         0, NDCFLXDA   =         0,
    NDCFLXDC   =         0, NMFEPRO    =         0, NMLCLPRO   =         0,
    DRFEPRO    =         0, DRLCLPRO   =         0, LMSUTRN    =         0,
    LMSURCV    =         0, LMSUOCTTRN =         0, LMSUOCTRCV =         0,
    LMSUTRNDSC =         0, LMSURCVDSC =         0

;

    eagle10506 07-12-31 13:11:19 EST UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-MTCD MEASUREMENT REPORT

;


    eagle10506 07-12-31 13:11:17 EST UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31,  00:00:00 THROUGH 23:59:59

   LINK-MTCD MEASUREMENTS: LOC: 1206, LINK: A  , LSN: lsn1234567    (IPVHSL)


    These measurements are from 07-12-31, 00:00:00 through 23:59:59.
    MSGSTRAN   =         0, MSGSRCVD   =         0, MOCTTRAN   =         0,
    MOCTRCVD   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSGDISC0   =         0, MSGDISC1   =         0,
    MSGDISC2   =         0, MSGDISC3   =         0, TLNKACTV   =         0,
    LNKAVAIL   =         0, ACHGOVRS   =         0, NEARMGIH   =         0,
    FARMGINH   =         0, NMDCLFLR   =         0, DRDCLFLR   =         0,
    SURCVERR   =         0, DRLKINHB   =         0, NDCFLXDA   =         0,
    NDCFLXDC   =         0, NMFEPRO    =         0, NMLCLPRO   =         0,
    DRFEPRO    =         0, DRLCLPRO   =         0, DRBSYLNK   =         0,
    LMSUTRN    =         0, LMSURCV    =         0, LMSUOCTTRN =         0,
    LMSUOCTRCV =         0, LMSUTRNDSC =        60, LMSURCVDSC =         0,
    M2PUDMTR   =         0, M2PUDOCT   =         0, M2PUDMRC   =         0,
    M2PUDOCR   =         0, M2PLKNIS   =         0, ECLNKCB    =         0,
    ECLNKXCO   =         0

;

    eagle10506 07-12-31 13:11:19 EST UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-MTCD MEASUREMENT REPORT
;
```

- Example of rept-meas:type=mtcd:enttype=link:lsn=ls1

```
    tekelecstp 02-12-19 17:14:52 **** UNKNOWN 38.0.0
    rept-meas:type=mtcd:enttype=link:lsn=ls1
;
    tekelecstp 02-12-19 17:00:00 **** UNKNOWN 38.0.0
    TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  02-12-19,  00:00:0 THROUGH 23:59:59

    LINK-MTCD MEASUREMENTS LINK: LOC=1201:LINK=A ,LSN: ls1            (MTP2)
```

```
    MSGSTRAN   =        95, MSGSRCVD   =        95, MSURETRN   =         0,
    OCTRETRN   =         0, MOCTTRAN   =      1900, MOCTRCVD   =      1900,
    TDCNGLV1   =         0, TDCNGLV2   =         0, TDCNGLV3   =         0,
    ECCNGLV1   =         0, ECCNGLV2   =         0, ECCNGLV3   =         0,
    MSGDISC0   =         0, MSGDISC1   =         0, MSGDISC2   =         0,
    MSGDISC3   =         0, TLNKACTV   =         0, LNKAVAIL   =      3159,
    ACHGOVRS   =         0, NEARMGIH   =         0, FARMGINH   =         0,
    NMDCLFLR   =         0, DRDCLFLR   =         0, SURCVERR   =         0,
    NEGACKS    =         0, DRLKINHB   =         0, NDCFLABN   =         0,
    NDCFLXDA   =         0, NDCFLXER   =         0, NDCFLXDC   =         0,
    NMFEPRO    =         0, NMLCLPRO   =         0, DRFEPRO    =         0,
    DRLCLPRO   =         0, MSURCERR   =         0, DRBSYLNK   =         0,
    PCRN1N2EXC =         0

;

    tekelecstp 02-12-19 17:00:09 **** UNKNOWN 38.0.0
    END OF ON-DEMAND LINK-MTCD MEASUREMENT REPORT
;
```

MP Reports

MP Example Output File Name: mtcd-link_20071115_2400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp",”38.0.0-XX.XX.0”,”2007-12-31”,"15:51:37","EST",
"DAILY MAINTENANCE MEASUREMENTS ON
LINK","LAST",”2007-12-30”,"00:00:00","24:00:00",5<cr><lf>
<cr><lf>
"STATUS","LSN","LOC","LINK","LNKTYPE","MSGSTRAN","MSGSRCVD","MSURETRN","OCTRETRN",
"MOCTTRAN","MOCTRCVD","TDCNGLV1","TDCNGLV2","TDCNGLV3","ECCNGLV1","ECCNGLV2",
"ECCNGLV3","MSGDISC0","MSGDISC1","MSGDISC2","MSGDISC3","TLNKACTV","LNKAVAIL",
"ACHGOVRS","NEARMGIH","FARMGINH","NMDCLFLR","DRDCLFLR","SURCVERR","NEGACKS",
"DRLKINHB","NDCFLABN","NDCFLXDA","NDCFLXER","NDCFLXDC","NMFEPRO","NMLCLPRO",
"DRFEPRO","DRLCLPRO","MSURCERR","DRBSYLNK","PCRN1N2EXC","SDPDURTR",”LMSUTRN”,
”LMSURCV”,”LMSUOCTTRN”,“LMSUOCTRCV”,”LMSUTRNDSC”,”LMSURCVDSC”,"M2PUDMTR","M2PUDOCT",
"M2PUDMRC","M2PUDOCR","M2PLKNIS","ECLNKCB","ECLNKXCO"<cr><lf>
"K","LSN100","1201","A","MTP2",95,95,0,0,1900,1900,0,0,0,0,0,0,0,0,0,0,3159,0,0,0,0,
0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","LSN200","5304","A","SAAL",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","LSN300","2112","A","IPVL",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","LSN301","2114","A","IPVLGW",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","LSN400","3201","A","IPVHSL",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 9 char LSN + 6 char LOC + 4 char LINK + 7 char LKNTYPE + 51*(5 char data) + 2 = 287 char

For a report of 500 links, the typical file size is:

Table 46: Typical File Size: `mtcd-link.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	460	+	143500	=	144210 bytes

enttype=lnkset

Command Examples

- OAM

```
rept-meas:type=mtcd:enttype=lnkset:lsn=ayyyyyyy
```

- MP

```
rept-ftp-meas:type=mtcd:enttype=lnkset
```

Measurement Events

Table 47: Daily Maintenance Linkset Measurements

Event Name	Description	Unit
SCCPLOOP	The total number of times that a **GTT translation matched a Point Code in the STP's loopset** entries resulting in either a notify or discard of an SCCP message.	peg count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status
ZTTMAPI	**Translation Type Mapping Translation Performed** - MSUs Received on the Gateway Linkset - The total number of Translation Type Mapping translations performed for incoming Message Signal Units	peg count

Event Name	Description	Unit
	(MSUs) received on the specified linkset.	
ZTTMAPO	**Translation Type Mapping Translation Performed** - MSUs Transmitted on the Gateway Linkset - The total number of translations performed on outgoing Message Signal Units (MSUs) for the specified linkset.	peg count

OAM Reports

- `Example of rept-meas:type=mtcd:enttype=lnkset:lsn=ls1`

```
    tekelecstp 07-01-02 17:16:46 **** UNKNOWN 38.0.0
    rept-meas:type=mtcd:enttype=lnkset:lsn=ls1
;
    tekelecstp 07-01-02 12:01:47 EST Rel 38.0.0
    TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON LNKSET
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-01-02,  00:00:00 through 23:59:59
    LNKSET-MTCD MEASUREMENTS LSN: ls1    (MTP2)
    These measurements are from 07-01-02, 00:00:00 through 23:59:59.
    ZTTMAPI   =        0, ZTTMAPO   =         0

;

    tekelecstp 07-01-02 12:01:49 EST Rel 38.0.0
    END OF ON-DEMAND LNKSET-MTCD MEASUREMENT REPORT
;
```

MP Reports

MP Example Output File Name: mtcd-lnkset_19990116_2400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","37.5.0-58.25.0",”2007-11-15","15:51:37","EST",
"DAILY MAINTENANCE MEASUREMENTS ON
LINKSET","LAST",”2007-11-14","00:00:00","24:00:00",500<cr><lf>
<cr><lf>
"STATUS","LSN","LNKTYPE","ZTTMAPO","ZTTMAPI",”SCCPLOOP”<cr><lf>
"K","lsn100","SAAL",196611,3,0<cr><lf>
"K","lsn200","IPVHSL",1911,8923,0<cr><lf>
. . . . .

"K","lsn600","MTP2",123456,98374,0<cr><lf>
```

Assuming each data line will be:

4 char status + 9 char LSN + 7 char LNKTYPE + 3*(6 char data) + 2 = 40 chars

For a report of 500 linksets, the typical file size is:

Table 48: Typical File Size: `mtcd-lnkset.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	46	+	20000	=	20296 bytes

enttype=lnp

The enttype=lnp entity generates four separate reports per period. These reports for OAM based measurements are generated to CSV files in the FTA. The command example will generate the following daily reports:

- Daily LNP System Wide Measurements
- Daily LNP Measurements Per SSP
- Daily LNP Measurements Per LRN
- Daily LNP Measurements Per NPA

All the OAM reports are listed together as are the MP reports.

Example Commands:

OAM: `rept-meas:type=mtcd:enttype=lnp[:day=xxx:period=yyyyyyyy]`

MP: `rept-ftp-meas:type=mtcd:enttype=lnp[:day=xxx:period=yyyyyyyy]`

Table 49: Daily Maintenance LNP System Wide Measurements

Event Name	Description	Unit
LNPQRCV	*Trigger Based* The total number of queries received by LNPQS.	peg count
	Triggerless Number of encapsulated IAM messages received by LNPQS	peg count
LNPQDSC	*Trigger Based* The number of invalid queries that are discarded because no reply can be generated.	peg count
	Triggerless	not applicable

Event Name	Description	Unit
	All invalid IAM messages are routed without LNP; LNPQTCPE is pegged.	
LNPQTCPE	*Trigger Based* The number of error replies with TCAP error codes.	peg count
	Triggerless The number of invalid encapsulated IAM messages received by LNPQS. Note that these messages are routed to their destinations with no LNP lookup.	peg count
LNPSREP	*Trigger Based* The number of successful replies.	peg count
	Triggerless The number of successful IAM messages.	peg count
LNPQUNPA	*Trigger Based* The number of correct queries received for non-ported DN when NPA-NXX is not provisioned.	peg count
	Triggerless The number of correct encapsulated IAM messages received for a non-ported DN, when the NPA-NXX is not provisioned.	peg count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status

Table 50: Daily Maintenance LNP Per SSP Measurements

Event Name	Description	Unit
SSPQRCV	Trigger Based Number of correct queries received per originating SSP.	peg count
	Triggerless The number of correct encapsulated IAM messages received by LNPQS per OPC.	peg count
CLASSGTRQ	Number of valid CLASS GTT received per originating SSP.	peg count
LIDBGTRQ	Number of valid LIDB GTT received per originating SSP.	peg count
SSPQRCVP	Number of correct queries received for ported TNs, per originating SSP.	peg count
SSPQRCVNP	Number of correct queries received for non-ported TNs, per originating SSP.	peg count
CLASSGTRQP	Number of CLASS Global Title Translation received for ported TNs, per originating SSP.	peg count
CLASSGTRQNP	Number of CLASS Global Title Translation received for non-ported TNs, per originating SSP.	peg count
LIDBGTRQP	Number of LIDB Global Title Translation received for ported TNs, per originating SSP.	peg count
LIDBGTRQNP	Number of LIDB Global Title Translation received for non-ported TNs, per originating SSP.	peg count

Event Name	Description	Unit
CNAMGTRQP	Number of CNAM Global Title Translation received for ported TNs, per originating SSP.	peg count
CNAMGTRQNP	Number of CNAM Global Title Translation received for non-ported TNs, per originating SSP.	peg count
ISVMGTRQP	Number of ISVM Global Title Translation received for ported TNs, per originating SSP.	peg count
ISVMGTRQNP	Number of ISVM Global Title Translation received for non-ported TNs, per originating SSP.	peg count
WSMSCGTRQP	Number of WSMSC Global Title Translations received for ported TNs, per originating SSP	peg count
WSMSCGTRQNP	Number of WSMSC Global Title Translations received for non-ported TNs, per originating SSP	peg count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status

The following equations apply:

SSPQRCV = SSPQRCVP + SSPQRCVNP

CLASSGTRQ = CLASSGTRQP + CLASSGTRQNP

LIDBGTRQ = LIDBGTRQP + LIDBGTRQNP

Table 51: Daily Maintenance LNP LRN Measurements

Event Name	Description	Unit
LRNQRCV	*Trigger Based* The number of correct queries received per LRN.	peg count
	Triggerless The number of correct encapsulated IAM messages received per LRN.	peg count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status

Table 52: Daily Maintenance LNP NPA Measurements

Event Name	Description	Unit
NPAQRCV	The number of correct queries received per NPANXX for non-ported DN.	peg count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status

OAM Reports

Daily LNP System Wide Measurements

OAM Example Output File Name: M60_LNP.csv

OAM Example Output File Format:

```
"tekelecstp 01-08-02 15:51:37 EST EAGLE 34.0.0 "<cr><lf>
"TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON LNP SYSTEM"<cr><lf>
"REPORT PERIOD: LAST"<cr><lf>
```

```
"REPORT INTERVAL:  01-08-02,  00:00:00 THROUGH 23:59:59 "<cr><lf>
<cr><lf>
"LNPQRCV","LNPQDSC","LNPQTCPE","LNPSREP","LNPQUNPA"<cr><lf>
4294967295,4294967295,4294967295,4294967295,4294967295<cr><lf>
```

MP Reports

Daily LNP Measurements Per SSP

OAM Example output File Name: M60_SSP.csv

OAM Example Output File Format:

```
"tekelecstp 99-01-02 15:51:37 EST EAGLE 34.0.0 "<cr><lf>
"TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON LNP SSP"<cr><lf>
"REPORT PERIOD: LAST"<cr><lf>
"REPORT INTERVAL:  99-01-01,  00:00:00 THROUGH 23:59:59 "<cr><lf>
"NUMBER OF ENTIDS: 2"<cr><lf>
<cr><lf>
"SSP","SSPQRCV","CLASSGTRQ","LIDBGTRQ""SSPQRCVP","SSPQRCVNP","CLASSGTRQP",
"CLASSGTRQNP","LIDBGTRQP","LIDBGTRQNP","CNAMGTRQP","CNAMGTRQNP","ISVMGTRQP","
ISVMGTRQNP","WSMSCGTRQP","WSMSCGTRQNP" <cr><lf>
"002-002-100",123456789,456789,99999,123456789,456789,99999,
123456789,456789,99999,123456789,456789,99999,123456789,456789,99999<cr><lf>
"002-002-123",123456789,456789,99999,123456789,456789,99999,
123456789,456789,99999,123456789,456789,99999,123456789,456789,99999<cr><lf>
```

Daily LNP Measurements Per LRN

OAM Example Output File Name: M60_LRN.csv

OAM Example Output File Format:

```
"tekelecstp 97-01-02 15:51:37 EST EAGLE 34.0.0 "<cr><lf>
"TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON LNP LRN"<cr><lf>
"REPORT PERIOD: LAST"<cr><lf>
"REPORT INTERVAL:  97-01-01,  00:00:00 THROUGH 23:59:59 "<cr><lf>
"NUMBER OF ENTIDS: 6"<cr><lf>
<cr><lf>
"LRN","LRNQRCV"<cr><lf>
9194560000,123456789<cr><lf>
4087550001,23456789<cr><lf>
5155550000,456789<cr><lf>
3022330001,345<cr><lf>
7032110002,99999<cr><lf>
8123048059,4294967295<cr><lf>
```

Daily LNP Measurements Per NPA

OAM Example Output File Name: M60_NPA.csv

OAM Example Output File Format:

```
"tekelecstp 97-01-02 15:51:37 EST EAGLE 34.0.0 "<cr><lf>
"TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON LNP NPXNXX"<cr><lf>
"REPORT PERIOD: LAST"<cr><lf>
"REPORT INTERVAL:  97-01-01,  00:00:00 THROUGH 23:59:59 "<cr><lf>
"NUMBER OF ENTIDS: 6"<cr><lf>
<cr><lf>
"NPANXX","NPAQRCV"<cr><lf>
919456,123456789<cr><lf>
408755,23456789<cr><lf>
515555,456789<cr><lf>
302233,345<cr><lf>
```

```
703211,99999<cr><lf>
812304,4294967295<cr><lf>
```

MP Reports

Daily LNP System Wide Measurements

MP Example Output File Name: mtcd-lnp_19990116_2400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"DAILY MAINTENANCE MEASUREMENTS ON LNP SYSTEM","LAST",
"1999-01-16","00:00:00","24:00:00",1<cr><lf>
<cr><lf>
"STATUS","LNPQRCV","LNPQDSC","LNPQTCPE","LNPSREP","LNPQUNPA"<cr><lf>
"K",429496729,429496729,429496729,429496729,429496729<cr><lf>
```

Typical file size is:

Table 53: Typical File Size: `mtcd-lnp.csv`

System header		Report header		Report data	=	File Size
250	+	63	+	34	=	347 bytes

Daily LNP Measurements Per SSP

MP Example Output File Name: mtcd-ssp_19990116_2400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE","IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"DAILY MAINTENANCE MEASUREMENTS ON LNP
SSP","LAST","1999-01-16","00:00:00","24:00:00",200<cr><lf>
<cr><lf>
"STATUS","SSP","SRQRCV","LASGRQ","LDBGRQ","SRQCVP","SRQCVNP","LASGRQP","LASGRQNP","LDBGRQP","LDBGRQNP","VMGRQP","VMGRQNP","ISVMGRQP",
"ISVMGTRQNP","WSMSCGTRQP","WSMSCGTRQNP"<cr><lf>
"K","002-002-100",123456789,456789,99999,123456789,456789,99999,123456789,456789,
99999,123456789,456789,99999,123456789,456789,99999<cr><lf>
. . . . .
"K","002-005-123",123456789,456789,99999,123456789,456789,99999,123456789,456789,
99999,123456789,456789,99999,123456789,456789,99999<cr><lf>
```

Assuming each data line will be:

4 char status + 14 char SSP + 15*(6 char data) + 2 = 110 chars

For a report of 200 SSPs, the typical file size is:

Table 54: Typical File Size: `mtcd-ssp.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	160	+	22000	=	22410 bytes

Daily LNP Measurements Per LRN

MP Example Output File Name: mtcd-lrn_19990116_2400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"DAILY MAINTENANCE MEASUREMENTS ON LNP
LRN","LAST","1999-01-16","00:00:00","24:00:00",600<cr><lf>
<cr><lf>
"STATUS","LRN","LRNQRCV"<cr><lf>
"K",9194560000,123456789<cr><lf>
"K",4087550001,23456789<cr><lf>
"K",5155550000,456789<cr><lf>
. . . . .
"K",3022330001,345<cr><lf>
"K",7032110002,99999<cr><lf>
"K",8123048059,4294967295<cr><lf>
```

Assuming each data line will be:

4 char status + 11 char LRN + 6 char data + 2 = 23 chars

For a report of 600 LRNs, the typical file size is:

Table 55: Typical File Size: `mtcd-lrn.csv`

System header	+	Report header	+	Report data		
250	+	27	+	13800	=	14077 bytes

Daily LNP Measurements Per NPA

MP Example Output File Name: mtcd-npa_19990116_2400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"DAILY MAINTENANCE MEASUREMENTS ON LNP NPANXX","LAST",
"1999-01-16","00:00:00","24:00:00",600<cr><lf>
<cr><lf>
"STATUS","NPANXX","NPAQRCV"<cr><lf>
"K",919456,123456789<cr><lf>
"K",408755,23456789<cr><lf>
"K",515555,456789<cr><lf>
```

```
. . . . .
"K",302233,345<cr><lf>
"K",703211,99999<cr><lf>
"K",812304,4294967295<cr><lf>
```

Assuming each data line will be:

4 char status + 7 char NPANXX + 6 char data + 2 = 19 chars

For a report of 600 LRNs, the typical file size is:

Table 56: Typical File Size: `mtcd-npa.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	30	+	11400	=	11680 bytes

enttype=np

The daily INP/GPORT/APORT/TINP/IGM/MO-based GSM SMS NP/MO-based IS41 SMS NP/MT-Based GSM SMS NP/MT-Based IS41 SMS NP measurements specify the entity type NP (`enttype=np`) which generates two separate reports per period. These reports for OAM based measurements are generated to CSV files in the FTA. The command example will generate the following daily reports:

- Daily System Wide Measurements
- Daily Measurements Per SSP

All the OAM reports are listed together as are the MP reports.

Command Examples

- OAM

  ```
  rept-meas:type=mtcd:enttype=np:period=specific:day=xxx
  ```

- MP

  ```
  rept-ftp-meas:type=mtcd:enttype=np[:period=specific:day=xxx]
  ```

Measurement Events

- System Wide Measurements

  indicates system registers that may be pegged. Register counts for features not turned on will always be zero.

Table 57: Daily Maintenance System Wide Registers

Event Name	Description	Unit
INPQRCV	Number of total queries received by INPQS.	peg count
INPQDSC	Number of invalid queries that are discarded as no reply can be generated.	peg count
INPQTCPE	Number of error replies with TCAP error code.	peg count
INPSREP	Number of successful replies to INP non-queried queries. These replies will be either INP Connect or INP Continue:	peg count

The following equations apply:

INPQRCV = INPQDSC + INPQTCPE + INPSREP

The following registers are applicable to features G-Port/A-Port/TINP/IGM/MO-based GSM SMS NP/MO-based IS41 SMS NP/MT-Based GSM SMS NP/MT-Based IS41 SMS NP.

Table 58: Daily Maintenance System Wide Feature Registers

Event Name	Description	Unit
APSMRQERR	Number of SMSREQ messages resulting in error.	peg count
APSMRQREP	Number of SMSREQ messages resulting in SMSREQ_ACK or SMSREQ_NACK.	peg count
APSMSRCV	Number of SMS Request messages received.	peg count
APSMSREL	Number of SMS Request messages relayed.	peg count
GPNOCL	Number of non-call related messages relayed by G-Port.	peg count

Event Name	Description	Unit
GPNOCLGT	Number of non-call related messages that fell through to GTT.	peg count
GPSRSMERR	Number of SRI_SM messages resulting in error.	peg count
GPSRSMRCV	Number of SRI_SM messages received.	peg count
GPSRSMREP	Number of SRI_SM messages resulting in SRI_SM_ACK or SRI_SM_NACK.	peg count
IS41LRERR	Number of IS-41 location request - error response messages sent.	peg count
IS41LRMRCV	Number of IS-41 location request messages received.	peg count
IS41LRRTRN	Number of IS-41 location request - return result messages sent.	peg count
SMSMOGRCV	Number of MO_SMS messages received that result in a modification of the outgoing MO_SMS.	peg count
SMSMOGERR	Number of MO_SMS messages received that result in an error.	peg count
SMSMOIRCV	Number of SMDPP messages received that result in a modification of the outgoing SMDPP.	peg count
SMSMOIERR	Number of SMDPP messages received that result in an error.	peg count

Event Name	Description	Unit
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status
TINPERR	Number of IAM messages received that required TINP processing but resulted in execution of an error case.	peg count
TINPMGEN	Number of IAM messages received that required TINP processing and resulted in the modification of the IAM message or the generation of a REL message.	peg count
TINPMRCV	Number of IAM messages received that require TINP processing.	peg count

The following equations apply:

GPSRRCV = GPSRGTT + GPSRREP + GPSRERR

- Per SSP Measurements

  These measurements are available on a per SSP PC basis where SSP PC is the CGPA PC, if it exists, or it is the MTP OPC.

Table 59: Daily Maintenance SSP Registers

Event Name	Description	Unit
INPQSCONN	Number of non-errored QS messages with QS Connect responses, per originating SSP.	peg count
INPQSCONT	Number of non-errored QS messages with QS Continue responses, per originating SSP.	peg count

Event Name	Description	Unit
INPMRTR	Number of messages sent to MR service that receive MR translation, per originating SSP.	peg count
INPMRGTT	Number of messages sent to MR service that fall through to GTT, per originating SSP.	peg count

The following registers are applicable to features - G-Port/A-Port/TINP/IGM/MO-based GSM SMS NP/MO-based IS41 SMS NP/MT-Based GSM SMS NP/MT-Based IS41 SMS NP

Table 60: Daily Maintenance INP and G-Port Per SSP Measurements

Event Name	Description	Unit
APLRACK	Number of call related LOCREQ messages acknowledged.	peg count
APLRRLY	Number of call related LOCREQ messages relayed.	peg count
APNOCL	Number of non-call non-LOCREQ related messages relayed.	peg count
APNOCLGT	Number of non-call non-LOCREQ related messages that fell through to GTT.	peg count
APSMRQERR	Number of SMSREQ messages resulting in error.	peg count
APSMRQREP	Number of SMSREQ messages resulting in SMSREQ_ACK or SMSREQ_NACK	peg count
APSMSRCV	Number of SMSREQ messages received	peg count
GPSRRLY	Number of call related (SRI-Send Routing	peg count

Event Name	Description	Unit
	Information) messages relayed.	
GPNOCL	Number of non-call related messages relayed by G-Port.	peg count
GPNOCLGT	Number of non-call related messages that fell through to GTT.	peg count
GPSRSMERR	Number of SRI_SM messages resulting in error.	peg count
GPSRSMRCV	Number of SRI_SM messages received.	peg count
GPSRSMREP	Number of SRI_SM messages resulting in SRI_SM_ACK or SRI_SM_NACK	peg count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status
SMSMOGRCV	Number of MO_SMS messages received that result in a modification of the outgoing MO_SMS	peg count
SMSMOGERR	Number of MO_SMS messages received that result in an error	peg count
SMSMOIRCV	Number of SMDPP messages received that result in a modification of the outgoing SMDPP	peg count
SMSMOIERR	Number of SMDPP messages received that result in an error	peg count

Event Name	Description	Unit
TINPERR	Number of IAM messages received that required TINP processing but resulted in execution of an error case.	peg count
TINPMGEN	Number of IAM messages received that required TINP processing and resulted in the modification of the IAM message or the generation of a REL message.	peg count
TINPMRCV	Number of IAM messages received that require TINP processing.	peg count

The following equation applies:

GPSRREP = Â GPSRACK + Â GPSRRLY

OAM Reports

- Daily System Wide Measurements

  OAM Example Output File Name: xxx_NP.CSV

  OAM Example Output File Format:

```
"tekelecstp 08-01-25 12:31:00 EST Rel 38.0.0-XX.XX.0"<cr><lf>
"TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON NP SYSTEM"<cr><lf>
"REPORT PERIOD: LAST"<cr><lf>
"REPORT INTERVAL:  08-01-24,  00:00:00 THROUGH 23:59:59 "<cr><lf>
<cr><lf>


”INPQRCV”,”INPQDSC”,”INPQTCPE”,”INPSREP”,”GPSRRCV”,”GPSRGTT”,”GPSRREP”,
”GPSRERR”,”GPNOCL”,”GPNOCLGT”,”IS41LRERR”,”IS41LRMRCV”,”IS41LRRTRN”,
”APSMSRCV”,”APSMSREL”,“SMSMOGRCV”,“SMSMOGERR”,“SMSMOIRCV”,“SMSMOIERR”,
“GPSRSMREP”,“GPSRSMERR”,“GPSRSMRCV”,“APSMRQREP”,“APSMRQERR”<cr><lf>
4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,
4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,
4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,
4294967295,4294967295,4294967295,4294967295,4294967295<cr><lf>
```

- Daily Measurements Per SSP

  OAM Example output File Name: xxx_SSP.CSV_

  OAM Example Output File Format:

```
"tekelecstp 08-01-25 12:31:00 EST Rel 38.0.0-XX.XX.0 "<cr><lf>
"TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON NP SSP"<cr><lf>
"REPORT PERIOD: LAST"<cr><lf>
"REPORT INTERVAL:  08-01-24,  00:00:00 THROUGH 23:59:59"<cr><lf>
“NUMBER OF ENTIDS: 2”<cr><lf>
```

```
<cr><lf>
“SSP”,“INPQSCONN”,”INPQSCONT”,”INPMRTR”,”INPMRGTT”,”GPSRACK”,”GPSRRLY”,
”GPNOCL”,”GPNOCLGT”,”APLRACK”,”APLRRLY”,”APNOCL”,”APNOCLGT”,“SMSMOGRCV”,
“SMSNOGERR”,“SMSMOIRCV”,“SMSNOIERR”,“GPSRSMREP”,“GPSRSMERR”,“GPSRSMRCV”,
“APSMRQREP”,“APSMRQERR”,“APSMSRCV”<cr><lf>
001-101-001,4294967295,429495,4294967295,429495,429495,429495,429495,
429495,429495,429495,429495,429495,429495,429495,429495,429495,429495,
429495,429495,429495,429495,429495,429495<cr><lf>
001-101-002,4294967295,429495,4294967295,429495,429495,429495,429495,
429495,429495,429495,429495,429495,429495,429495,429495,429495,429495,
429495,429495,429495,429495,429495,429495<cr><lf>
```

MP Reports

- Daily System Wide Measurements

  MP Example Output File Name: mtcd-np_20080125_2400.csv

  MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp",”38.0.0-XX.XX.0”,”2008-01-25","11:40:07","EST",
"DAILY MAINTENANCE MEASUREMENTS ON NP
SYSTEM","LAST",”2008-01-24","00:00:00","24:00:00",1<cr><lf>
<cr><lf>
"STATUS",”INPQRCV”,”INPQDSC”,”INPQTCPE”,”INPSREP”,”GPSRRCV
”,”GPSRGTT”,”GPSRREP”,
”GPSRERR”,”GPNOCL”,”GPNOCLGT”,”IS41LRERR”,”IS41LRMRCV”,”IS41LRRTRN”,”APSMSRCV”,”APSMSREL”,
“SMSMOGRCV”,“SMSMOGERR”,“SMSMOIRCV”,“SMSMOIERR”,“GPSRSMREP”,“GPSRSMERR”,“GPSRSMRCV”,“APSMRQREP”,
 “APSMRQERR”<cr><lf>
"K",4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,
4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,

4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,
 4294967295<cr><lf>
```

  Assuming each data line will be: 4 char status + 24 * (6 char data) + 2 = 150 chars

  Typical file size is:

  Table 61: Typical File Size: `mtcd-np.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	279	+	150	=	679 bytes

- Daily Measurements Per SSP

  MP Example Output File Name: **mtcd-ssp_20080125_2400.csv**

  MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp",”38.0.0-XX.XX.0”,”2008-01-25","11:40:07","EST",
"DAILY MAINTENANCE MEASUREMENTS ON NP
SSP","LAST",”2008-01-24","00:00:00","24:00:00",1<cr><lf>
<cr><lf>
```

```
"STATUS","SSP","INPQSCONN","INPQSCONT","INPMRTR","INPMRGTT","GPSRACK","GPSRRLY","GPNOCL",
"GPNOCLGT","APLRACK","APLRRLY","APNOCL","APNOCLGT","SMSMOGRCV","SMSNOGERR","SMSMOIRCV",
"SMSNOIERR","GPSRSMREP","GPSRSMERR","GPSRSMRCV","APSMRQREP","APSMRQERR","APSMSRCV"<cr><lf>
"K",001-001-002,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,
4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,

4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295<cr><lf>
```

Assuming each data line will be: 4 char status + 14 char SSP + 22 * (6 char data) + 2 = 152 chars

Typical file size is:

Table 62: Typical File Size: mtcd-ssp.csv

System header	+	Report header	+	Report data	=	File Size
250	+	263	+	(152 * #Point Codes)	=	513 + (152 * #Point Codes) bytes

For a report of 200 SSPs, typical file size is:

Table 63: Typical File Size: mtcd-ssp.csv

System header	+	Report header	+	Report data	=	File Size
250	+	263	+	(152 * 200)	=	30913 bytes

enttype=stplan

Example Commands:

OAM: `rept-meas:type=mtcd:enttype=stplan`

MP: `rept-ftp-meas:type=mtcd:enttype=stplan`

Table 64: Daily Maintenance STPLAN Measurements

Event Name	Description	Unit
ENETALNERR	**Ethernet Alignment Error** - Number of packets not received over the STPLAN interface because of ethernet alignment errors.	peg count

Event Name	Description	Unit
ENETBUSBSY	**Ethernet Bus Busy -** Number of transmissions attempted when the STPLAN ethernet bus was busy.	peg count
ENETCRCERR	**Ethernet CRC Error** - Number of packets not received on the STPLAN ethernet due to CRC errors.	peg count
ENETCOLERR	**Ethernet Collision Error -** Number of packets not transmitted by STPLAN because of excessive collisions on the STPLAN ethernet bus.	peg count
ENETOCTRCV	**Ethernet Octets Received** - The total number of octets received on the STPLAN ethernet interface.	peg count
ENETOCTXMT	**Ethernet Octets Transmitted** - The total number of octets transmitted on the STPLAN ethernet interface.	peg count
ENETOVRERR	**Ethernet Receive Buffer Overflow Errors** - Number of packets not received by STPLAN because of a receive buffer overflow.	peg count
IPADDRERR	**IP Address Error**- The total number of inbound IP datagrams discarded on the STPLAN interface due to a bad destination address.	peg count
IPHDRERR	**IP Header Errors** - The total number of inbound IP datagrams discarded on the STPLAN interface due to header errors.	peg count

Event Name	Description	Unit
IPPROTERR	**IP Protocol Error** - Number of inbound IP datagrams discarded by STPLAN due to an error in the packet (invalid protocol).	peg count
SLANDISC1	**STPLAN Discarded 1** - Number of indicated messages not copied to the host due to the STPLAN feature being disabled.	peg count
SLANDISC2	**STPLAN Discarded 2** - Number of MSUs discarded due to the host being unreachable.	peg count
SLANDSBLD	**STPLAN Disabled** - The duration that the STPLAN screening/copy feature was disabled.	msecs
SLANSCRND	**STPLAN Screened** - Number of MSUs that were copied to the STPLAN interface after passing gateway screening.	peg count
SLANXMIT	**STPLAN Transmit** - Number of MSUs sent to the host destination.	peg count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status
TCPCONNFLD	**TCP Connections Failed -** The total number of TCP connections that have failed on the STPLAN interface.	peg count
TCPRCVERR	**TCP Receive Error** - The total number of TCP segments	peg count

Event Name	Description	Unit
	received on the STPLAN interface in error.	
TCPRSTSENT	**TCP Reset Sent** - The total number of TCP segments sent containing the reset (RST) flag on the STPLAN interface.	peg count
TCPSEGRCVD	**TCP Segment Received -** The total number of TCP segments received on the STPLAN interface.	peg count
TCPSEGSENT	**TCP Segment Sent -** The total number of TCP segments sent on the STPLAN interface.	peg count
TCPSEGXMT2	**TCP Segment Retransmitted -** The total number of TCP segments retransmitted on the STPLAN interface.	peg count

OAM Example Output:

```
    tekelecstp 01-08-18 00:00:21 EST EAGLE 34.0.0
    TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON STPLAN
    REPORT PERIOD: LAST
    REPORT INTERVAL:  01-08-17  00:00:00 THRU 23:59:59
    STPLAN-MTCD MEASUREMENTS
    SLANDSBLD  =         0, SLANDISC1  =         0, SLANDISC2  =         0,
    SLANSCRND  =         0, SLANXMIT   =         0, ENETALNERR =         0,
    ENETCRCERR =         0, ENETCOLERR =         0, ENETBUSBSY =         0,
    ENETOVRERR =         0, ENETOCTXMT =         0, ENETOCTRCV =         0,
    TCPCONNFLD =         0, TCPSEGRCVD =         0, TCPSEGSENT =         0,
    TCPSEGXMT2 =         0, TCPRCVERR  =         0, TCPRSTSENT =         0,
    IPHDRERR   =         0, IPADDRERR  =         0, IPPROTERR  =         0
;
    tekelecstp 01-08-18 00:00:22 EST EAGLE 34.0.0
    END OF DAILY STPLAN-MTCD MEASUREMENT REPORT
;
```

MP Example Output File Name: mtcd-stplan_19990116_2400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"DAILY MAINTENANCE MEASUREMENTS ON
STPLAN","LAST","1999-01-16","00:00:00","24:00:00",1<cr><lf>
<cr><lf>
"STATUS","SLANDSBLD","SLANDISC1","SLANDISC2","SLANSCRND","SLANXMIT","ENETALNERR",
"ENETCRCERR","ENETCOLERR","ENETBUSBSY","ENETOVRERR","ENETOCTXMT","ENETOCTRCV",
```

```
"TCPCONNFLD","TCPSEGRCVD","TCPSEGSENT","TCPSEGXMT2","TCPRCVERR","TCPRSTSENT",
"IPHDRERR","IPADDRERR","IPPROTERR"<cr><lf>
"K",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
```

Typical file size is:

Table 65: Typical File Size: `mtcd-stplan.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	282	+	260	=	792 bytes

enttype=eir

The EIR measurements specify the entity type EIR, and generate one daily report. The commands are specified with xxx as a three-letter abbreviation for a day of the week (MON, TUE, WED, THU, FRI, SAT, or SUN). The retention period for daily measurement records is seven days.

MP Example Commands:

```
rept-ftp-meas:type=mtcd:enttype=eir[:day=xxxx:period=specific]
```

Table 66: Daily Maintenance EIR Measurements on page 158 lists the EIR events and their descriptions.

Table 66: Daily Maintenance EIR Measurements

Event Name	Description	Unit
IMEIRCV	Total number of MAP_CHECK_IMEI messages received	peg count
WHITEIMEI	Total number of searches that resulted in a match with a “white listed” IMEI	peg count
GRAYIMEI	Total number of searches that resulted in a match with a “gray listed” IMEI	peg count
BLACKIMEI	Total number of searches that resulted in a match with a “black listed” IMEI	peg count
BLKALIMEI	Total number of searches that resulted in a match with a “black listed” IMEI, but were	peg count

Event Name	Description	Unit
	allowed due to IMSI Check match	
BLKNALIMEI	Total number of searches that resulted in a match with a "black listed" IMEI, and the IMSI in the database did not match the IMSI in the message	peg count
UNKNIMEI	Total number of searches that resulted in a match with an "unknown" IMEI	peg count
NOMTCHIMEI	Total number of searches that resulted in no match in the database. NOMTCHIMEI is pegged whenever an IMEI is not found in the database.	peg count

The following equation applies:

IMEIRCV = WHITEIMEI + GRAYIMEI + UNKNIMEI

MP Example Output File Name: mtcd-eir_20030816_2400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-51.1.0","2003-08-17","15:51:37","EST",
"DAILY MAINTENANCE MEASUREMENTS ON EIR SYSTEM","LAST","2003-08-16",
"00:00:00","24:00:00",1<cr><lf>
<cr><lf>
"IMEIRCV","WHITEIMEI","GRAYIMEI","BLACKIMEI","BLKALIMEI","BLKNALIMEI","UNKNIMEI","NOMTCHIMEI"<cr><lf>
4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,
4294967295<cr><lf>
```

Typical file size is:

Table 67: Typical File Size: `mtcd-eir.csv`

System header		Report header		Report data	=	File Size
256	+	95	+	89	=	440 bytes

enttype=mapscrn

The enttype=mapscrn entity generates two separate reports per period.

The reports for OAM based measurements are generated to CSV files in the FTA. The command example generates the following daily OAM-based measurement reports when the GSM MAP Screening feature is activated:

- Daily MAP Screening System Wide Measurements
- Daily MAP Screening Measurements Per Server

The command example generates the following daily MP-based measurement reports when the GSM MAP/Enhanced GSM MAP Screening feature is activated:

- Daily MAP Screening System Wide Measurements
- Daily MAP Screening Measurements Per Path

All the OAM reports are listed together as are the MP reports.

Note: When MTP MAP Screening is enabled and on, the registers in *Table 68: Daily Maintenance MAP Screening System Wide Measurements* on page 160 and *Table 71: Daily Maintenance MAP Screening Per Server Measurements* on page 164 include the sum total of MTP-routed and GTT-routed messages for the particular event.

Example Commands:

- OAM: `rept-meas:type=mtcd:enttype=mapscrn`
- MP: `rept-ftp-meas:type=mtcd:enttype=mapscrn`

Table 68: Daily Maintenance MAP Screening System Wide Measurements

Event Name	Description	Unit
MSCRNPASS	Total number of messages that Passed MAP screening	count
MSCRNRJNE	Total number of messages that got Rejected by MAP screening because an entry was not found in the MAP screening table (i.e. rejected as System wide MAP Opcode action is DISCARD)	count
MSCRNRJFP	Total number of messages that got Rejected by MAP screening due to forbidden parameters in the message.	count
MSCRNPAFP	Total number of messages that contained the forbidden	count

Event Name	Description	Unit
	parameter but were not rejected due to Screening action set as PASS.	
MSCRNPANE	Total number of messages, where an entry was not found in the MAP screening table but the Message was not rejected as screening action was marked as PASS (i.e. not rejected as System wide MAP Opcode action is PASS)	count
MSCRNRJOP	Total number of message that got rejected as Message MAP Opcode was not found in the MAP Opcode table (system wide action - DISCARD for the non matching OPCODEs)	count
MSCRNDUP	Total number of messages that were selected by MAP Screening for the Duplicate screening action.	count
MSCRNFOR	Total number of messages thate were selected by MAP Screening for the Forward screening action.	count
MSCRNDAD	Total number of messages thate were selected by MAP Screening for the Duplicate and Discard screening action.	count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status

Server Entity Identification information in *Table 69: Server Entity Identification* on page 162 is used to clarify the server the Maintenance MAP Screening Per Server Measurements are applicable.

Table 69: Server Entity Identification

Entity Name	Description
SERVER	The screened origination address of the calling party address (CGPA) assigned when the GSM MAP screen was entered.
NP	The screened number plan value (NPV) assigned to the server address when the GSM MAP screen was entered. This field is filled with the default identifier * if no value was assigned.
NAI	The screened nature of address value (NAIV) assigned to the server address when the GSM MAP screen was entered. This field is filled with the default identifier * if no value was assigned.
OPCODE	The operation code number assigned when the GSM MAP opcode was entered.
Measurements does not report entries created for a range of addresses.	

Server Path Entity Identification information in *Table 70: Path Entity Identification* on page 162 is used to clarify the path the Maintenance MAP Screening Per Path Measurements are applicable.

Table 70: Path Entity Identification

Entity Name	Description
PATH	The screened origination address of the calling party address (CGPA-NP-NAI), or a combination of screened destination address of the called party address (CDPA-NP-NAI) and the screened origination addresses assigned when the GSM MAP screen was entered. The possible fields within the path are delimited as follows to allow for efficient sorting: • When both the origination and destination addresses are present (as either single server entries or provisioned wildcard entries) the origination address is preceded by a carat (^) and the destination address is preceded by a "greater than" sign (>): `^CGPA-NP-NAI>CDPA-NP-NAI`

Entity Name	Description
	• When only the origination address is present (occurs when the CDPA is a default wildcard) it is preceded by a "less than" sign (<): `<CGPA-NP-NAI`
CGPA	The calling party global title address assigned when the GSM MAP screen was entered. Any or all of the three fields (GTA, NP, NAI) can be filled with the identifier (*) if a wildcard value is assigned for that field. There is no default wildcard value for the CGPA.
CDPA	The called party global title address assigned when the GSM MAP screen was entered. Any or all of the three fields (GTA, NP, NAI) can be filled with the identifier (*) if a wildcard value is assigned for that field. If the CDPA value is not assigned, the default wildcard value, which is not printed, is assumed.
NP	The screened number plan value (NPV) assigned to the path address when the GSM MAP screen was entered. The identifier (*) is used to signify a wildcard NP.
NAI	The screened nature of address value (NAIV) assigned to the path address when the GSM MAP screen was entered. The identifier (*) is used to signify a wildcard NAI.
OPCODE	The operation code number assigned when the GSM MAP opcode was entered. The identifier (*) is used to signify a wildcard opcode.
Measurements does not report entries created for a range of addresses. Measurements does not report default wildcard CDPA address in entries containing them. There can never be a default wildcard CGPA entry. All wildcard CGPA entries must be explicitly provisioned. There can never be an entry with only a CDPA path listed. The string formats were designed to allow efficient automated post processing of	

Entity Name	Description
measurements reports. A brief note explaining the format is included in the report.	

Table 71: Daily Maintenance MAP Screening Per Server Measurements

Event Name	Description	Unit
MSCRNPASS	Total number of messages that Passed MAP screening	count
MSCRNRJFP	Total number of messages that got Rejected by MAP screening due to forbidden parameters in the message.	count
MSCRNDUP	Total number of messages per server that were selected by MAP Screening for the Duplicate screening action.	count
MSCRNFOR	Total number of messages per server that were selected by MAP Screening for the Forward screening action.	count
MSCRNDAD	Total number of messages per server that were selected by MAP Screening for the Duplicate screening action.	count
MSCRNPAFP	Total number of messages that contained the forbidden parameter but were not rejected due to Screening action set as PASS.	count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status

OAM Reports

Daily MAP Screening System Wide Measurements

OAM Example Output File Name: M60_MAP.csv

OAM Example Output File Format:

```
"tekelecstp 97-01-02 15:51:37 EST EAGLE 34.0.0 "<cr><lf>
"TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON MAP Screening SYSTEM"<cr><lf>
"REPORT PERIOD: LAST"<cr><lf>
"REPORT INTERVAL:  00-04-01,  00:00:00 THROUGH 23:59:59 "<cr><lf>
<cr><lf>
"MSCRNPASS","MSCRNRJNE","MSCRNRJFP","MSCRNPAFP","MSCRNPANE","MSCRNRJOP","MSCRNDUP","MSCRNFOR","MSCRNDAD"<cr><lf>
4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,
4294967295,4294967295<cr><lf>
```

Daily MAP Screening Measurements Per Server

OAM Example output File Name: M60_SERV.csv

OAM Example Output File Format:

```
"tekelecstp 00-04-02 15:51:37 EST EAGLE 34.0.0-30.9.0 "<cr><lf>
"TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON MAP Screening Server"<cr><lf>
"REPORT PERIOD: LAST"<cr><lf>
"REPORT INTERVAL:  00-04-01,  00:00:00 THROUGH 23:59:59 "<cr><lf>
"NUMBER OF ENTIDS: 2"<cr><lf>
<cr><lf>
"SERVER-NP-NAI-OPCODE",
"MSCRNPASS","MSCRNRJFP","MSCRNDUP","MSCRNFOR","MSCRNDAD","MSCRNPAFP"<cr><lf>
"123456789012345-0-0-0",
1234567890,1234567890,1234567890,1234567890,1234567890,1234567890<cr><lf>
"098765432154321-15-127-1",
5555555555,6666666666,1234567890,1234567890,1234567890,1234567890<cr><lf>
"919468-*-*-255",
1234567890,1234567890,1234567890,1234567890,1234567890,1234567890<cr><lf>
```

MP Reports

Daily MAP Screening System Wide Measurements

MP Example Output File Name: mtcd-map_19990116_2400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"DAILY MAINTENANCE MEASUREMENTS ON MAP SCREENING SYSTEM","LAST",
"1999-01-16","00:00:00","24:00:00",1<cr><lf>
<cr><lf>
"STATUS","MSCRNPASS","MSCRNRJOP","MSCRNRJNE","MSCRNRJFP","MSCRNPAFP","MSCRNPANE","MSCRNFOR","MSCRNDUP","MSCRNDAD"<cr><lf>
"K",4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295<cr><lf>
```

Typical file size is:

Table 72: Typical File Size: `mtcd-map.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	116	+	60	=	426 bytes

Daily MAP Screening Measurements Per Path

MP Example Output File Name: mtcd-path_19990116_2400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-53.8.0","1999-01-17","15:51:37","EST",
"DAILY MAINTENANCE MEASUREMENTS ON MAP SCREENING PATH","LAST",
"1999-01-16","00:00:00","24:00:00",2<cr><lf>
<cr><lf>
For a path containing CGPA only, PATH-OPCODE = <CGPA-NP-NAI-OPCODE<cr><lf>
For a path containing both CGPA and CDPA, PATH-OPCODE =
^CGPA-NP-NAI>CDPA-NP-NAI-OPCODE
<cr><lf>
"STATUS","PATH-OPCODE","MSCRNPASS","MSCRNRJFP","MSCRNFOR","MSCRNDUP", "MSCRNDAD",
 "MSCRNPAFP"<cr><lf>
"K","<123456789012345-0-0-0",1234567890,1234567890,1234567890,1234567890,1234567890,
 1234567890<cr><lf>
"K","<919468-*-*-120",1234567890,1234567890,1234567890,1234567890,1234567890,1234567890<cr><lf>
"K","^919468-5-63>919575-12-100-25",1234567890,1234567890,1234567890,1234567890,
 1234567890,1234567890<cr><lf>
"K","^540992-14-45-125>919468-*-*-*",1234567890,1234567890,1234567890,1234567890,
 1234567890,1234567890<cr><lf>
```

Assuming each data line will be:

4 char status + 40 char PATH-OPCODE + 6*(6 char data) + 2 = 82 chars

For a report of 20 paths, the typical file size is:

Table 73: Typical File Size: `mtcd-path.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	244	+	1640	=	2134 bytes

enttype=sctpasoc

Command Examples

- **OAM:** `rept-meas:type=mtcd:enttype=sctpasoc:aname=assoc1`
- **MP:** `rept-ftp-meas:type=mtcd:enttype=sctpasoc`

Measurement Events

The following table lists the SCTPASOC events and their descriptions.

Table 74: Daily Maintenance SCTPASOC Measurements

Event Name	Description	Unit
ACTVESTB	**SCTP Association Active Establishments** - The number of times that SCTP associations have made a direct transition to the ESTABLISHED state from the COOKIEECHOED state (COOKIE-ECHOED --> ESTABLISHED). In this case the upper layer (i.e., the local M2PA) was the initiator of the association establishment between the SCTP peers.	peg count
ASMAXRTO	**SCTP Association Maximum Observed Retransmission Timeout** - The maximum observed value of the SCTP state variable Retransmission Timeout (RTO) in milliseconds (ms) for SCTP packets transmitted (but not retransmitted) to the remote peer endpoint's destination transport address during the measurement interval.	msec
ASOCABTD	**SCTP Aborted Associations** - The number of times that SCTP associations have made a direct transition to the CLOSED state from any state using the primitive "Abort" (AnyState --Abort--> CLOSED), conveying an ungraceful termination of the association.	peg count
ASOCSHTD	**SCTP Association Shutdowns** - The number of times that SCTP associations have made a direct transition to the CLOSED state from either the SHUTDOWN-SENT state or	peg count

Event Name	Description	Unit
	the SHUTDOWN-ACK-SENT state, conveying graceful termination of the association.	
CNTLCHKR	**SCTP Control Chunks Received** - The number of SCTP control chunks received from the remote peer (excluding duplicates).	peg count
CNTLCHKS	**SCTP Control Chunks Sent** - The number of SCTP control chunks sent to the remote peer (excluding retransmissions).	peg count
DATCHKRC	Number of **SCTP DATA chunks received** from the remote SCTP peer (excluding duplicates and discards).	peg count
DATCHKSN	Number of **SCTP DATA chunks sent** to the remote SCTP peer (excluding retransmissions).	peg count
DURASNEST	Duration the association was not in the Established state.	peg count
ECASNEST	Number of times the association transitioned out of the Established state.	peg count
GAPACKSR	**SCTP Gap Acknowledgements Received** - The number of Gap Acknowledgement blocks in Selective Acknowledgement (SACK) control chunks received from the remote SCTP peer, indicating gaps in the peer's received subsequences of DATA chunks as represented by their Transport Sequence Numbers (TSNs) (The inclusion of this measurement is intended to allow network	peg count

Event Name	Description	Unit
	personnel to assess the message-delivery performance of the IPVHSL relative to gap acknowledgment limits, if used as performance criteria for link proving and in-service monitoring).	
ORDCHKRC	**SCTP Ordered Data Chunks Received** - The number of SCTP ordered data chunks received from the remote peer (excluding duplicates).	peg count
ORDCHKSN	**SCTP Ordered Data Chunks Sent** - The number of SCTP ordered data chunks sent to the remote peer (excluding retransmissions).	peg count
PASVESTB	**SCTP Association Passive Establishments** - The number of times that SCTP associations have made a direct transition to the ESTABLISHED state from the CLOSED state (CLOSED --> ESTABLISHED), indicating that the remote peers initiated association establishment.	peg count
PEERFAIL	**SCTP Association Peer Endpoint Failures** - The number of peer endpoint failure detection events for the association as triggered by the crossing of threshold Assoc. Max. Retrans.	peg count
RTXCHNKS	**SCTP Association Retransmitted Chunks** - The number of SCTP data chunks retransmitted to the remote SCTP peer. When T3-rtx expires, the DATA chunks that triggered the T3 timer will be re-sent according with the	peg count

Event Name	Description	Unit
	retransmissions rules. Every DATA chunk that was included in the SCTP packet that triggered the T3-rtx timer must be added to the value of this counter.	
SCOCTRCV	**SCTP Packet Octets Received** - The number of octets comprising valid SCTP packets received from the remote peer.	octets
SCOCTSNT	**SCTP Packet Octets Sent** - The total number of octets comprising SCTP packets submitted to the IP layer for transmittal to the remote peer.	octets
SCPKTRCV	**SCTP Packets Received** - The total number of SCTP packets received from the remote peer that had a valid checksum. Duplicates are included.	peg count
SCPKTSNT	**SCTP Packets Sent** - The total number of SCTP packets sent to the remote peer, i.e., submitted by the local SCTP instance to the IP layer for transmission. Retransmissions are included.	peg count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status

OAM Reports

OAM Example Output:

```
    stdcfg2b 07-12-31 06:07:04 EST  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON SCTPASOC
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31  00:00:00 THRU 23:59:59
```

```
    SCTPASOC-MTCD MEASUREMENTS: ASSOC: assoc1

    These measurements are from 07-12-31, 00:00:00 through 23:59:59.
    ECASNEST   =         0, DURASNEST  =         0, DATCHKSN   =         0,
    RTXCHNKS   =         0, DATCHKRC   =         0, SCPKTSNT   =        20,
    SCPKTRCV   =        20, SCOCTSNT   =         0, SCOCTRCV   =         0,
    CNTLCHKS   =       400, ORDCHKSN   =       400, CNTLCHKR   =         0,
    ORDCHKRC   =         0, GAPACKSR   =         0, ACTVESTB   =         0,
    PASVESTB   =         0, ASOCABTD   =         0, ASOCSHTD   =         0,
    PEERFAIL   =         0, ASMAXRTO   =         0


;
```

MP Reports

MP Example Output File Name: mtcd-sctpasoc_20071115_2400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE","IVALSTART",
"IVALEND","NUMENTIDS"<cr><lf>
"ipmeas","UNKNOWN ??.?.?-58.21.0","2007-08-18","00:00:18","****",
"DAILY MAINTENANCE MEASUREMENTS ON SCTPASOC","LAST","2007-08-17",
"00:00:00","24:00:00",3<cr><lf>
"STATUS","ASSOC","ECASNEST","DURASNEST","DATCHKSN","RTXCHNKS","DATCHKRC","SCPKTSNT",
"SCPKTRCV","SCOCTSNT","SCOCTRCV","CNTLCHKS","ORDCHKSN","CNTLCHKR","ORDCHKRC",
"GAPACKSR","ACTVESTB","PASVESTB","ASOCABTD","ASOCSHTD","PEERFAIL","ASMAXRTO"<cr><lf>


 "K","A1101",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","A1102",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","A1103",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 18 char association + 20*(6 char data) + 2 = 144 chars

For a report of 1000 associations, typical file size is:

Table 75: Typical File Size: `mtcd-sctpasoc.csv`

System header		Report header		Report data	=	File Size
250	+	195	+	120000	=	144445 bytes

enttype=sctpcard

Command Examples

- **OAM:** `rept-meas:type=mtcd:enttype=sctpcard:loc=1201`
- **MP:** `rept-ftp-meas:type=mtcd:enttype=sctpcard`

Measurement Events

The following table lists the SCTPCARD events and their descriptions.

Table 76: Daily Maintenance SCTPCARD Measurements

Event Name	Description	Unit
ACTVESTB	**SCTP Association Active Establishments** - The number of times that SCTP associations have made a direct transition to the ESTABLISHED state from the COOKIEECHOED state (COOKIE-ECHOED --> ESTABLISHED). In this case the upper layer (i.e., the local M2PA) was the initiator of the association establishment between the SCTP peers.	peg count
ASOCABTD	**SCTP Aborted Associations** - The number of times that SCTP associations have made a direct transition to the CLOSED state from any state using the primitive "Abort" (AnyState --Abort--> CLOSED), conveying an ungraceful termination of the association.	peg count
ASOCSHTD	**SCTP Association Shutdowns** - The number of times that SCTP associations have made a direct transition to the CLOSED state from either the SHUTDOWN-SENT state or the SHUTDOWN-ACK-SENT state, conveying graceful termination of the association.	peg count
CNTLCHKR	**SCTP Control Chunks Received** - The number of SCTP control chunks received from the remote peer (excluding duplicates).	peg count
CNTLCHKS	**SCTP Control Chunks Sent** - The number of SCTP control	peg count

Event Name	Description	Unit
	chunks sent to the remote peer (excluding retransmissions).	
DATCHKRC	Number of **SCTP DATA chunks received** from the remote SCTP peer (excluding duplicates and discards).	peg count
DATCHKSN	Number of **SCTP DATA chunks sent** to the remote SCTP peer (excluding retransmissions).	peg count
ORDCHKRC	**SCTP Ordered Data Chunks Received** - The number of SCTP ordered data chunks received from the remote peer (excluding duplicates).	peg count
ORDCHKSN	**SCTP Ordered Data Chunks Sent** - The number of SCTP ordered data chunks sent to the remote peer (excluding retransmissions).	peg count
PASVESTB	**SCTP Association Passive Establishments** - The number of times that SCTP associations have made a direct transition to the ESTABLISHED state from the CLOSED state (CLOSED --> ESTABLISHED), indicating that the remote peers initiated association establishment.	peg count
RTXCHNKS	**SCTP Association Retransmitted Chunks** - The number of SCTP data chunks retransmitted to the remote SCTP peer. When T3-rtx expires, the DATA chunks that triggered the T3 timer will be re-sent according with the retransmissions rules. Every DATA chunk that was included	peg count

Event Name	Description	Unit
	in the SCTP packet that triggered the T3-rtx timer must be added to the value of this counter.	
SCOCTRCV	**SCTP Packet Octets Received** - The number of octets comprising valid SCTP packets received from the remote peer.	octets
SCOCTSNT	**SCTP Packet Octets Sent** - The total number of octets comprising SCTP packets submitted to the IP layer for transmittal to the remote peer.	octets
SCPKTRCV	**SCTP Packets Received** - The total number of SCTP packets received from the remote peer that had a valid checksum. Duplicates are included.	peg count
SCPKTRER	**SCTP Packets Received With Checksum Error** - The number of SCTP packets received from remote peers with an invalid checksum	peg count
SCPKTSNT	**SCTP Packets Sent** - The total number of SCTP packets sent to the remote peer, i.e., submitted by the local SCTP instance to the IP layer for transmission. Retransmissions are included.	peg count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status
UNASCTPK	**Unassociated (Out-of-the-Blue) SCTP**	peg count

Event Name	Description	Unit
	Packets - The number of "out-of-the-blue" SCTP packets received by the host, i.e., SCTP packets correctly formed with the correct checksum value, but for which the receiver (local SCTP) was not able to identify the association to which the packet belongs.	

OAM Reports

OAM Example Output:

```
    stdcfg2b 07-12-31 EST  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON SCTPCARD
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31  00:00:00 THRU 23:59:59

    SCTPCARD-MTCD MEASUREMENTS: LOC: 1201

    These measurements are from 07-12-31, 00:00:00 through 23:59:59.
    DATCHKSN   =         0, RTXCHNKS   =         0, DATCHKRC   =         0,
    SCPKTSNT   =        20, SCPKTRCV   =        20, SCPKTRER   =         0,
    UNASCTPK   =         0, SCOCTSNT   =         0, SCOCTRCV   =         0,
    CNTLCHKS   =       400, ORDCHKSN   =       400, CNTLCHKR   =         0,
    ORDCHKRC   =         0, ACTVESTB   =         0, PASVESTB   =         0,
    ASOCABTD   =         0, ASOCSHTD   =         0

;
```

MP Reports

MP Example Output File Name: mtcd-sctpcard_20071115_2400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE","IVALSTART","IVALEND",
"NUMENTIDS"<cr><lf>
"tekelecstp","38.0.0-XX.XX.0","2007-12-31","12:12:10","EST",
"DAILY MAINTENANCE MEASUREMENTS ON SCTPCARD","LAST","2007-12-30",
"00:00:00","24:00:00",3<cr><lf>
<cr><lf>
"STATUS","LOC","DATCHKSN","RTXCHNKS","DATCHKRC","SCPKTSNT","SCPKTRCV","SCPKTRER",
"UNASCTPK","SCOCTSNT","SCOCTRCV","CNTLCHKS","ORDCHKSN","CNTLCHKR","ORDCHKRC","ACTVESTB",
"PASVESTB","ASOCABTD","ASOCSHTD"<cr><lf>
"K","1101",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","1102",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","1103",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 7 char location + 17*(6 char data) + 2 = 115 chars

For a report of 80 cards, typical file size is:

Table 77: Typical File Size: `mtcd-sctpcard.csv`

System header		Report header		Report data	=	File Size
250	+	185	+	9200	=	9635 bytes

enttype=ua

Command Examples

- **OAM:** rept-meas:type=mtcd:enttype=ua:aname=assoc1:asname=appsrvr1
- **MP:** `rept-ftp-meas:type=mtcd:enttype=ua`

Measurement Events

The following table lists the UA events and their descriptions.

Table 78: Daily Maintenance UA Measurements

Event Name	Description	Unit
RXDATAMS	For M3UA, this register represents the number of **DATA messages received from the ASP**. For SUA, this register represents the total of **CLDT and CLDR messages received from the ASP**.	peg count
RXDATAOC	For M3UA, this register represents the number of **DATA octets received from the ASP**. For SUA, this register represents the total of **CLDT and CLDR octets received from the ASP**.	octets
RXMLRCMS	Number of **messages received with multiple routing contexts** (always pegged against the default AS).	peg count

Event Name	Description	Unit
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status
TXDATAMS	For M3UA, this register represents the number of **DATA messages sent to the ASP**. For SUA, this register represents the total of **CLDT and CLDR messages sent to the ASP**.	peg count
TXDATAOC	For M3UA, this register represents the number of **DATA octets sent to the ASP**. For SUA, this register represents the total of **CLDT and CLDR octets sent to the ASP**.	octets
UAASPMRX	Total **ASPM messages received from the ASP** (including ASPSM and ASPTM messages).	peg count
UAASPMTX	Total **ASPM messages sent to the ASP** (including ASPSM and ASPTM messages).	peg count
UAASPNAC	The number of times the **ASP transitioned out of the ASP-Active state**.	peg count
UAASPNAT	The duration that the ASP was not in the ASP-Active state.	seconds
UACNGCNT	The number of times an **AS-ASSOC experienced congestion** (this may include the AS entering congestion as	peg count

Event Name	Description	Unit
	a result of the ASSOC entering congestion).	
UACNGTIM	The duration that an **AS-ASSOC experienced congestion** (this may include the AS entering congestion as a result of the ASSOC entering congestion).	seconds
UAMGMTRX	Total MGMT messages received from the ASP.	peg count
UAMGMTTX	Total MGMT messages sent to the ASP.	peg count
UANMOCTR	**Total Network Management octets received from the ASP** - The total number of non-DATA UA octets received from the ASP (i.e. sum of the ASPM, ASPTM, SSNM, MGMT, and RKM).	peg count
UANMOCTT	**Total Network Management octets sent to the ASP** - The total number of non-DATA UA octets sent to the ASP (i.e. sum of the ASPM, ASPTM, SSNM, MGMT, and RKM).	peg count
UANMMSGR	**Total Network Management messages received from the ASP** - The total number of non-DATA UA messages received from the ASP (i.e. sum of the ASPM, ASPTM, SSNM, MGMT, and RKM).	peg count
UANMMSGT	**Total Network Management messages sent to the ASP** - The total number of non-DATA UA messages sent to the ASP (i.e. sum of the ASPM, ASPTM, SSNM, MGMT, and RKM).	peg count

Event Name	Description	Unit
UASSNMRX	Total SSNM messages received from the ASP.	peg count
UASSNMTX	Total SSNM messages sent to the ASP.	peg count

OAM Reports

```
    stdcfg2b 07-12-31 06:07:04 EST  UNKNOWN 38.0.0-XX.XX.0
    UA-MTCD MEASUREMENTS: AS: appsrvr1            ASSOC: assoc1

    These measurements are from 07-12-31, 00:00:00 through 23:59:59.
    RXDATAMS   =       100, RXDATAOC   =      4000, TXDATAMS   =       200,
    TXDATAOC   =      8000, UANMMSGT   =         0, UANMOCTT   =         0,
    UANMMSGR   =         0, UANMOCTR   =         0, UAASPMTX   =         0,
    UAASPMRX   =         0, UASSNMTX   =         0, UASSNMRX   =         0,
    UAMGMTTX   =         0, UAMGMTRX   =         0, UACNGCNT   =         0,
    UACNGTIM   =         0, UAASPNAC   =         0, UAASPNAT   =         0,
    RXMLRCMS   =         0


;
```

MP Reports

MP Example Output File Name: mtcd-ua_20071114_2400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE","IVALSTART","IVALEND",
"NUMENTIDS"<cr><lf>
"tekelecstp","37.5.0-58.25.0","2007-11-15","02:01:10","EST","DAILY MAINTENANCE
MEASUREMENTS ON
UA","LAST","2007-11-14","00:00:00","24:00:00",3<cr><lf>
<cr><lf>
"STATUS","AS","ASSOC","RXDATAMS","TXDATAMS","RXDATAOC","TXDATAOC","RXMLRCMS",
"UAASPMRX","UAASPNAC","UAASPNAT","UACNGCNT","UACNGTIM","UAMGMTRX","UAMGMTTX",
"UANMOCTR","UANMOCTT","UANMMSGR","UANMMSGT","UASSNMRX","UASSNMTX","RXMLRCMS"<cr><lf>
"K","as1101","a1101",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","as1102","a1102",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","as1103","a1103",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 15 char AS + 15 char ASSOC + 19*(6 char data) + 2 = 150 chars

For a report of 1000 Application Servers, typical file size is:

Table 79: Typical File Size: `mtcd-ua.csv`

System header		Report header		Report data	=	File Size
250	+	280	+	150000	=	150000 bytes

enttype=vflex

The enttype=vflex entity generates two separate reports per period. These reports for MP based measurements are generated to CSV files in the FTA. The command example will generate the following daily reports:

- Daily V-Flex System Wide Measurements
- Daily V-Flex Measurements Per SSP

Example Commands:

MP: `rept-ftp-meas:type=mtcd:enttype=vflex[:period=specific:day=xxx]`

Table 80: Daily Maintenance V-Flex System Wide Measurements

Event Name	Description	Unit
VFCNCTRSP	Total number of IDP Connect responses sent by VFLEX service.	peg count
VFERRRSP	Total number of IDP queries received with errors (those resulted in TCAP Error response from VFLEX).	peg count
VFIDPQRCV	Total number of IDP queries received for VFLEX service.	peg count

Table 81: Daily Maintenance V-Flex Per SSP Measurements

Event Name	Description	Unit
VFIMSISDN	Total number of IDP queries received for VFLEX service with invalid MSISDN.	peg count
VFVMSISDN	Total number of IDP queries received for VFLEX service with valid MSISDN.	peg count

MP Reports

Daily V-Flex System Wide Measurements

MP Example Output File Name: *mtcd-vflex_20070816_2400.csv*

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE","IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","37.6.0-58.20.0","2007-08-17","11:32:53","EST","DAILY MAINTENANCE
MEASUREMENTS ON VFLEX SYSTEM","LAST","2007-08-16","00:00:00","24:00:00",1<cr><lf>
<cr><lf>
"STATUS","VFIDPQRCV","VFCNCTRSP","VFERRRSP"<cr><lf>
"K", 20,10,10<cr><lf>
```

Assuming each data line will be: 4 char status + 3*(6 char data) + 2 = 24 chars, the typical file size is:

Table 82: Typical File Size: `mtcd-vflex.csv`

System header	+	Report header	+	Report data	=	File Size
260	+	45	+	24	=	347

Daily V-Flex Measurements Per SSP

MP Example Output File Name: **mtcd-vflexssp_20070816_2400.csv**

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE","IVALSTART","IVALEND","NUMENTIDS""<cr><lf>
"tekelecstp","37.6.0-58.20.0","2007-08-17","11:32:58","EST","DAILY MAINTENANCE
MEASUREMENTS ON VFLEX SSP","LAST","2007-08-16","00:00:00","24:00:00",1<cr><lf>
<cr><lf>
"STATUS","SSP","VFVMSISDN","VFIMSISDN"<cr><lf>
"K", "001-101-002",10,10<cr><lf>
```

Note: The field identifier SSP designates the Service Switching Point.

Assuming each data line will be: 4 char status + 14 char SSP + 2*(6 char data) + 2 = 32 chars, the typical file size is:

Table 83: Typical File Size: `mtcd-vflex-ssp.csv`

System header	+	Report header	+	Report data	=	File Size
257	+	40	+	32 * #Point Codes	=	297 + (32 * #Point Codes) bytes

For a report of 200 SSPs, typical file size is:

Table 84: Typical File Size: `mtcd-vflexssp.csv`

System header	+	Report header	+	Report data	=	File Size
257	+	40	+	32 * 200	=	6697 bytes

enttype=atinpq

The enttype=atinpq entity generates two separate reports per period. These reports for MP based measurements are generated as CSV files and FTP'd to the customer FTP server. The command example will generate the following daily reports:

- Daily ATINPQ System Wide Measurements
- Daily ATINPQ Per SSP Measurements

Example Commands:

- MP

```
rept-ftp-meas:type=mtcd:enttype=atinpq[:period=specific:day=xxx]
```

Measurement Events

Table 85: ATINPQ Registers

Event Name	Description	Unit
ATINPQRCV	Total number of ATINP queries received for ATINPQ service. This peg is incremented only if ATINP feature is enabled and the incoming message opcode is ATI.	peg count
ATINPQACK	Total number of ATI ACK messages sent by the ATINPQ service. This peg is incremented only if the ATINP feature is enabled.	peg count
ATINPQERR	Total number of incoming ATI messages that did not result in either ATI ACK or ATI NACK with error code of either Unknown Subscriber or ATI Not Allowed. This peg is	peg count

Event Name	Description	Unit
	incremented only if the ATINP feature is enabled.	

Daily ATINPQ MP Reports

System Wide Report

- Example Output File Name:

  ```
  mtcd-atinpq_20080616_2400.csv
  ```

- Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE","IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","39.0.0-61.5.0","2008-06-17","11:32:53","EST","DAILY MAINTENANCE
 MEASUREMENTS ON ATINPQ
SYSTEM","LAST","2008-06-17","00:00:00","24:00:00",1<cr><lf>
<cr><lf>
"STATUS","ATINPQRCV","ATINPQACK","ATINPQERR"<cr><lf>
"K", 20,10,10<cr><lf>
```

Assuming each data line will be: 4 char status + 3*(6 char data) + 2 = 24 chars, the typical file size is:

Table 86: Typical File Size: `mtcd-atinpq.csv`

System header	+	Report header	+	Report data	=	File Size
260	+	45	+	24	=	347

Per SSP Report

- Example Output File Name:

  ```
  mtcd-atinpqssp_20080616_2400.csv
  ```

- Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE","IVALSTART","IVALEND","NUMENTIDS""<cr><lf>
"tekelecstp","39.0.0-61.5.0","2008-06-17","11:32:58","EST","DAILY MAINTENANCE
 MEASUREMENTS ON ATINPQ
SSP","LAST","2008-06-16","00:00:00","24:00:00",1<cr><lf>
<cr><lf>
"STATUS","SSP","ATINPQRCV","ATINPQACK","ATINPQERR"<cr><lf>
"K", "001-101-002",10,10,10<cr><lf>
```

Assuming each data line will be: 4 char status + 14 char SSP + 3*(6 char data) + 2 = 38 chars, the typical file size is:

Table 87: Typical File Size: `mtcd-atinpq.csv`

System header	+	Report header	+	Report data	=	File Size
257	+	40	+	(38 * #Point Codes)	=	297 + (38 * #Point Codes) bytes

For a report of 200 SSPs, typical file size is:

Table 88: Typical File Size: `atinpq 200 SSPs`

System header	+	Report header	+	Report data	=	File Size
257	+	40	+	(38 * 200)	=	7897 bytes

Day-to-Hour Maintenance Measurements

The Maintenance Day-to-Hour (MTCDTH) report provides the current value of various maintenance measurements accumulating during the day.

Entity Types: STP, Link, Lnkset, STPLAN , SCTPASOC, SCTPCARD, UA

Accumulation Interval: Cumulative Daily Total to the last full hour.

STP Retention Period: 1 hour

Reporting Mode: On-demand

Accessible Collection Periods: Last

enttype=stp

Example Commands:

OAM: `rept-meas:type=mtcdth:enttype=stp`
MP: `rept-ftp-meas:type=mtcdth:enttype=stp`

Table 89: Maintenance Day-to-Hour STP Measurements

Event Name	Description	Unit
CRSYSAL	**Critical System Alarms** - The total number of critical system alarms.	peg count
DRDCLFLR	**Cumulative Duration of Signaling Link Declared Failures All Types -** The cumulative duration of all link failures.	seconds
DURLKOTG	**Duration of Link Outage** - The total time a link was unavailable to MTP level 3 for any reason.	seconds
DTAMSULOST	**DTA MSUs Lost** - The total number of MSUs that were discarded because the redirect function was turned off or the original MSU was too large to be encapsulated.	peg count
GFGTMATCH	**G-Flex GTTs with Match** - The total number of G-Flex Global Title Translation successfully completed.	peg count
GFGTNOMCH	**G-Flex GTTs No Match** - The total number of G-Flex Global Title Translations completed that did not match an entry in the GSM database.	peg count
GFGTNOLKUP	**G-Flex GTTs No Look-up** - The total number of G-Flex Global Title Translations that could not be looked up in the GSM database because of some error.	peg count
GTTPERFD	**GTTs Performed** - The total number of MSUs that successfully completed global title translation (GTT). Also	peg count

Event Name	Description	Unit
	includes G-Flex and INP MSUs that got a match in either the G-Flex, INP or GTT DB (GFGTMATCH).	
GTTUN0NS	**GTTs Unable to Perform - Diagnostic 0: No Translation for Address of Such Nature –** Total number of times that the specified translation type in an MSU was not supported by the STP or the form of the GTT was incorrect for the given translation type. Also includes G-Flex, INP and GTT MSUs that did not match on new selectors (GTI,NP,NAI) in addition to ones not matching on TT.	peg count
GTTUN1NT	**GTTs Unable to Perform - Diagnostic 1: No Translation for This Address –** Number of times that a match for the global title could not be found in the translation table. Also includes G-Flex, INP MSUs that fell through to GTT, got a selector match, but still did not get a match on the GTA.	peg count
MSINVDPC	**MSUs Rcvd – Invalid DPC -** Number of MSUs received and discarded because the DPC could not be found in the STP routing table.	peg count
MSINVSIF	**MSUs Discarded – Invalid SIF** - Number of MSUs that have been received and discarded because of an invalid SIF.	peg count
MASYSAL	**Major system alarms** - The total number of major system alarms.	peg count

Event Name	Description	Unit
MISYSAL	**Minor system alarms** - The total number of minor system alarms.	peg count
MSINVSIO	**MSUs Rcvd – Invalid Service Indicator Octet (SIO) -** Number of MSUs received and discarded because the service requested in the service indicator octet (SIO) was not supported by the STP.	peg count
MSINVLNK	**MSUs Discarded – Invalid Link** - Number of MSUs discarded because of an incorrect SLC. (The SLC refers to a nonexistent link or the same link.)	peg count
MSINVSLC	**MSUs Discarded – Invalid SLC -** Number of MSUs discarded because of an invalid SLC code in the ECO/COO.	peg count
MSNACDPC	**MSUs Discarded – Inaccessible DPC -** The total number of MSUs discarded because of an inaccessible DPC.	peg count
MSSCCPFL	**MSUs Discarded – Routing Failure -** Number of MSUs discarded due to an SCCP routing failure. Also includes G-Flex, INP MSUs that got a match from either the G-Flex, INP or GTT DB but cannot be routed due to PC or SS congestion, PC or SS unavailable, SS unequipped, or an unqualified error.	peg count
MSUDSCRD	MSUs Discarded – Gateway Screening -	peg count

Event Name	Description	Unit
	The total number of MSUs that failed gateway screening and were discarded. See linkset report for individual peg counts.	
MSULOST1	**MSUs Discarded – Level 2/Level 3 Queue Full -** Number of MSUs discarded because the level 2 to level 3 queue was full.	peg count
MSULOST2	**MSUs Discarded – Route On Hold Buffer Overflow -** Number of MSUs discarded because the routing buffer was in overflow.	peg count
MSULOST3	**MSUs Discarded –** 1. **LS On Hold Buffer Overflow** - The number of MSUs discarded because the linkset-on-hold buffer was in overflow. The On Hold Buffer is used during changeover/changeback situations to ensure that traffic is sequenced correctly. During changeover and changeback, MSUs that were originally sent over links which are now failed (not IS-NR) are buffered while the changeover/changeback procedures are carried out. Once those procedures are completed, the traffic in the on-hold buffer is routed based on the current configuration. 2. **LSL** LIM does not have SCCP assignment for received SCCP traffic. 3. **HSL** –	peg count

Event Name	Description	Unit
	• All Class 1 (sequenced) GTT traffic addressed to Eagle • A Class 0 GTT message for Eagle arrives when the SCCP TVG queue is full • A GTT message in the SCCP TVG queue is more than 2 seconds old.	
MSULOST4	**MSUs Discarded – Rcv Queue Full -** Number of MSUs discarded because the receive queue was full.	peg count
MSULOST5	**MSUs Discarded – LIM Init** - Number of MSUs discarded while the LIM card was initializing.	peg count
MSULOST6	**MSUs Discarded** – The number of MSUs discarded due to an error encountered during internal (IMT) transfer of MSU between cards.	peg count
MTPRESTS	**MTP Restarts Initiated** - Number of time MTP restart was initiated by the STP. The count does not include the number of times MTP restart was initiated as a result of messages from adjacent nodes.	peg count
OMSINVDPC	**MSUs Originated – Invalid DPC** -Number of MSUs originated with an invalid DPC.	peg count
ORIGMSUS	**Originated MSUs** -The total number of outgoing MSUs successfully passed to MTP level 2 for transmission, while	peg count

Event Name	Description	Unit
	carrying the STP point code in the OPC field.	
OVSZMSG	**Oversized MTP 3 Messages** - Oversized MTP 3 messages exceeding 272 octets (level 3) that are received by an HSL and are discarded.	peg count
SCCPLOOP	The total number of times that a **GTT translation matched a Point Code in the STP's loopset** entries resulting in either a notify or discard of an SCCP message.	peg count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status
THRSWMSU	**Through-Switched MSUs** -The total number of MSUs that did not carry the STP point code in the OPC or the DPC, and were successfully passed to MTP level 2 for transmission.	peg count
TRMDMSUS	**Terminated MSUs** - The total number of incoming MSUs carrying the STP point code in the DPC.	peg count
TTMAPPF	**Translation Type Mapping Translations Performed** - The total number of Translation Type Mapping translations performed (that is, a mapped SS7 message translation type was found for the existing SS7 message translation type).	peg count
XLXTELEI	**X-List Entry not Created** - The total number of times that an	peg count

Event Name	Description	Unit
	X-List entry was not created because the ELEI for the cluster was set to 'yes'.	
XLXTSPACE	**X-List Entry not Created** - The total number of times an X-List entry was not created due to lack of space in the route/destination table.	peg count
MSUSCCPFLR	**MSU SCCP Failure** - Total MSUs Discarded Due to SCCP Conversion Failure.	peg count

OAM Reports

OAM Example Output:

```
    tekelecstp 03-08-02 15:51:37 EST  EAGLE 34.0.3
    TYPE OF REPORT: DAY-TO-HOUR MAINTENANCE MEASUREMENTS ON STP
    REPORT PERIOD: LAST
    REPORT INTERVAL:  03-08-01,  00:00:00 THROUGH 23:59:59
    STP-MTCDTH MEASUREMENTS
    These measurements are from 03-08-01, 00:00:00 through 23:59:59.
    ORIGMSUS   =  36102314, TRMDMSUS   =         0, THRSWMSU   =   6055635,
    MTPRESTS   =         0, DTAMSULOST =         0, MSINVDPC   =         1,
    MSINVSIO   =         0, OMSINVDPC  =         0, MSINVLNK   =         0,
    MSINVSIF   =         0, MSNACDPC   =         1, MSINVSLC   =         0,
    GTTPERFD   =         0, GTTUN0NS   =         0, GTTUN1NT   =         0,
    MSSCCPFL   =         0, MSUDSCRD   =         0, MSULOST1   =         0,
    MSULOST2   =         0, MSULOST3   =         0, MSULOST4   =         0,
    MSULOST5   =         0, DRDCLFLR   =     86400, DURLKOTG   =     86400,
    CRSYSAL    =       288, MASYSAL    =       600, MISYSAL    =       960,
    XLXTSPACE  =         0, XLXTELEI   =         0, TTMAPPF    =         0,
    OVSZMSG    =         0, GFGTMATCH  =         0, GFGTNOMCH  =         0,
    GFGTNOLKUP =         0, MSUSCCPFLR =         0
;
    tekelecstp 03-08-02 15:51:39 EST  EAGLE5 34.0.0
    END OF ON-DEMAND STP-MTCDTH MEASUREMENT REPORT
;
```

MP Reports

MP Example Output File Name: mtcdth-stp_19990117_1500.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"DAY-TO-HOUR MAINTENANCE MEASUREMENTS ON
STP","LAST","1999-01-17","00:00:00","15:00:00",1<cr><lf>
<cr><lf>
"STATUS","ORIGMSUS","TRMDMSUS","THRSWMSU","MTPRESTS","DTAMSULOST","MSINVDPC", "
```

```
MSINVSIO","OMSINVDPC","MSINVLNK","MSINVSIF","MSNACDPC","MSINVSLC",
"GTTPERFD",
"GTTUN0NS","GTTUN1NT","MSSCCPFL","MSULOST1","MSULOST2","MSULOST3","MSULOST4",
"MSULOST5","DRDCLFLR","DURLKOTG","CRSYSAL","MASYSAL","MISYSAL","XLXTSPACE",
"XLXTELEI","TTMAPPF","MSUDSCRD","OVSZMSG","GFGTMATCH","GFGTNOMCH","GFGTNOLKUP",

"MSUSCCPFLR"<cr><lf>
"K",36102314,0,6055635,0,0,1,0,0,0,0,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,86400,86400,

288,600,960,0,0,0,0,0<cr><lf>
```

Typical file size:

Table 90: Typical File Size: `mtcdth-stp.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	405	+	220	=	875 bytes

enttype=link

Certain registers are reported for MTP2, SAAL, IPVL, and IPVHSL classes. These registers are summarized in *Table 91: Registers Reported per LINK CLASS for Day-to-Hour Link Measurements* on page 192.

Table 91: Registers Reported per LINK CLASS for Day-to-Hour Link Measurements

Event Name	MTP2 Class	SAAL Class	IPVL/IPVLGW Class	IPVHSL Class
ACHGOVRS	X	X	X	X
DRBSYLNK	X			X
DRDCLFLR	X	X	X	X
DRFEPRO	X		X	X
DRLCLPRO	X	X	X	X
DRLKINHB	X	X		X
ECCNGLV1	X	X	X	X
ECCNGLV2	X	X	X	X
ECCNGLV3	X	X	X	X

Event Name	MTP2 Class	SAAL Class	IPVL/IPVLGW Class	IPVHSL Class
ECLNKCB				X
ECLNKXCO				X
FARMGINH	X	X		X
LMSUOCTRCV			X	X
LMSUOCTTRN			X	X
LMSURCV			X	X
LMSURCVDSC			X	X
LMSUTRN			X	X
LMSUTRNDSC			X	X
LNKAVAIL	X	X	X	X
M2PLKNIS				X
M2PUDMRC				X
M2PUDMTR				X
M2PUDOCR				X
M2PUDOCT				X
MOCTRCVD	X	X	X	X
MOCTTRAN		X	X	X
MSGDISC0	X	X	X	X
MSGDISC1	X	X	X	X
MSGDISC2	X	X	X	X

Event Name	MTP2 Class	SAAL Class	IPVL/IPVLGW Class	IPVHSL Class
MSGDISC3	X	X	X	X
MSGSRCVD	X	X	X	X
MSGSTRAN	X	X	X	X
MSURCERR	X			
MSURETRN	X		X	X
NDCFLABN	X			
NDCFLXDA	X	X	X	X
NDCFLXDC	X	X	X	X
NDCFLXER	X	X		
NEARMGIH	X	X		X
NEGACKS	X			
NMLCLPRO	X	X	X	X
NMDCLFLR	X	X	X	X
NMFEPRO	X		X	X
OCTRETRN	X		X	X
PCRN1N2EXC	X			
SDPDURTR		X		
SURCVERR	X	X	X	X
TDCNGLV1	X	X	X	X
TDCNGLV2	X	X	X	X

Event Name	MTP2 Class	SAAL Class	IPVL/IPVLGW Class	IPVHSL Class
TDCNGLV3	X	X	X	X
TLNKACTV	X	X	X	X

Command Examples

- OAM

```
rept-meas:type=mtcdth:enttype=link:loc=xxxx:link=x
rept-meas:type=mtcdth:enttype=link:lsn=lsn123
```

- MP

```
rept-ftp-meas:type=mtcdth:enttype=link
```

Measurement Events

Table 92: Maintenance Day-to-Hour Link Measurements

Event Name	Description	Unit
ACHGOVRS	**Number of Automatic Changeovers -** Number of times that a changeover procedure was used to divert traffic from one link to alternative links.	peg count
DRBSYLNK	**Cumulative Duration of Busy Link Status-** The total elapsed time between the receipt of a busy LSSU, and when the next message was acknowledged. This is the sum of all occurrences of busy link status. Reported for MTP2 Links only.	seconds
DRDCLFLR	**Cumulative Duration of Signaling Link Declared Failures All Types -** The cumulative duration of all link failures.	seconds

Event Name	Description	Unit
DRFEPRO	**Duration of Far-End Processor Outage** - The cumulative duration that a link was unavailable to MTP level 3 because of a processor outage at the far-end network element (SIPO received). Reported for MTP2 link only.	seconds
DRLCLPRO	**Duration of Local Processor Outage** - The cumulative duration that a link was unavailable to MTP level 3 because of a processor outage at the near-end network element.	seconds
DRLKINHB	**Duration Link Inhibited -** The cumulative duration that a link was inhibited at the local or far-end network element.	seconds
ECCNGLV1	**Event Count for Entering Level 1 Link Congestion -** The total number of times that link congestion level 1 was entered.	peg count
ECCNGLV2	**Event Count for Entering Level 2 Link Congestion -** The total number of times that link congestion level 2 was entered.	peg count
ECCNGLV3	**Event Count for Entering Level 3 Link Congestion -** The total number of times that link congestion level 3 was entered.	peg count
ECLNKCB	Number of times the link performed ChangeBack procedures.	peg count
ECLNKXCO	Number of times the link performed Extended ChangeOver procedure,	peg count

Event Name	Description	Unit
	including time-controlled ChangeOvers.	
FARMGINH	**Number of Far-End Management Inhibits -** Number of times a link was inhibited successfully from the far-end.	peg count
LMSUOCTRCV	The number of **octets received in large MSUs**. This register is pegged in addition to MOCTRCVD when the Large BICC MSU Support for IP Signaling feature status is on and a large MSU is successfully received	octets
LMSUOCTTRN	The number of **octets transmitted in large MSUs**. This register is pegged in addition to MOCTTRAN when the Large BICC MSU Support for IP Signaling feature status is on and a large MSU is successfully transmitted.	octets
LMSURCV	The number of **large MSUs received**. This register is pegged in addition to MSGSRCVD when the Large BICC MSU Support for IP Signaling feature status is on and a large MSU is successfully received.	peg count
LMSURCVDSC	The number of **large MSUs discarded in the receive path**. This can occur when the Large BICC MSUSupport for IP Signaling feature is not on or when the MSU is larger than 4095 bytes or when a routing failure occurs.	peg count

Event Name	Description	Unit
LMSUTRN	**The number of large MSUs transmitted**. This register is pegged in addition to MSGSTRAN when the Large BICC MSU Support for IP Signaling feature status is on and a large MSU is successfully transmitted.	peg count
LMSUTRNDSC	The number of large MSUs discarded in the transmit path.	peg count
LNKAVAIL	**Link Available Time** - The total time the link was available to MTP level 3.	seconds
M2PLKNIS	**M2PA Link Not-in-Service Duration**The duration the link was not in the in-service (INS) state at the M2PA layer (in seconds), i.e., during which the link was in any of the other defined M2PA states (such as IDLE, OOS, AIP, PROVING, ALIGNED READY, or RETRIEVAL).	msec
M2PUDMRC	The number of M2PA UDMs received.	peg count
M2PUDMTR	The number of M2PA User Data Messages (UDMs) transmitted.	peg count
M2PUDOCR	The number of M2PA UDM octets received.	octets
M2PUDOCT	The number of M2PA User Data Message (UDM) octets transmitted.	octets
MOCTRCVD	**MSU Octets Received -**Total number of octets associated with MSUs received, including those removed for MTP level 2	octets

Event Name	Description	Unit
	processing and those for which retransmission has been requested.	
MOCTTRAN	**MSU Octets Transmitted -**Total number of octets associated with MSUs transmitted to the far-end, including those added in MTP level 2 processing and retransmissions	octets
MSGDISC0	For ANSI links: **Priority 0 MSUs Discarded Due to Congestion** - The total number of priority 0 MSUs discarded due to congestion (any level). • For SAAL class links, applies to MTP level 3 messages . For ITU links: this register is not applicable. **Note:** The MSUs or Messages may be discarded on the transmit/outbound link, which indicates congestion via the ECCNGLVLx or TDCNGLVx registers or it may appear on inbound links routing traffic to those congested links. The latter will not indicate either ECCNGLVLx or TDCNGLVx.	peg count
MSGDISC1	For ANSI links: **Priority 1 MSUs Discarded Due to Congestion** - The total number of priority 1 MSUs discarded due to congestion (any level). • For SAAL class links, applies to MTP level 3 messages . For ITU links: this register is not applicable.	peg count

Event Name	Description	Unit
	Note: The MSUs or Messages may be discarded on the transmit/outbound link, which indicates congestion via the ECCNGLVLx or TDCNGLVx registers or it may appear on inbound links routing traffic to those congested links. The latter will not indicate either ECCNGLVLx or TDCNGLVx.	
MSGDISC2	For ANSI links: **Priority 2 MSUs Discarded Due to Congestion** - The total number of priority 2 MSUs discarded due to congestion (any level). • For SAAL class links, applies to MTP level 3 messages . For ITU links: this register is not applicable. **Note:** The MSUs or Messages may be discarded on the transmit/outbound link, which indicates congestion via the ECCNGLVLx or TDCNGLVx registers or it may appear on inbound links routing traffic to those congested links. The latter will not indicate either ECCNGLVLx or TDCNGLVx.	peg count
MSGDISC3	For ANSI links: **Priority 3 MSUs Discarded Due to Congestion** - The total number of priority 3 MSUs discarded due to congestion (any level). • For SAAL class links, applies to MTP level 3 messages . For ITU links: this register is not applicable. **Note:** The MSUs or Messages may be discarded on the	peg count

Event Name	Description	Unit
	transmit/outbound link, which indicates congestion via the ECCNGLVLx or TDCNGLVx registers or it may appear on inbound links routing traffic to those congested links. The latter will not indicate either ECCNGLVLx or TDCNGLVx.	
MSGSRCVD	**MSUs Received -** Total number of MSUs received, including those for which retransmission has been requested.	peg count
MSGSTRAN	**MSUs Transmitted** - Total number of MSUs transmitted to the far-end, including retransmissions. • For MTP2 class links, MSUs transmitted AND acknowledged by level 2. • For SAAL, IPVL, IPVHSL, and IPVLGW class linksets, MTP level 3 messages offered for transmission after any required conversion from their respective M2PA, M3UA, or SUA formats.	peg count
MSURCERR	Number of **Message signal Units received in error - bad CRC**. This register applies to MTP2 links only.	peg count
MSURETRN	**MSUs Retransmitted** - Number of MSUs retransmitted because of errors.	peg count
NDCFLABN	**Number of Signaling Link Failures - Abnormal FIB/BSN** - The number of times the signaling link was taken out-of-service because of abnormal FIB/BSN received. A	peg count

Event Name	Description	Unit
	count was accumulated if two backward sequence number values in three consecutively received MSUs or FISUs are not the same as the previous one or any of the forward sequence numbers of the signal units in the retransmission buffer at the time they are retransmitted. Reported for MTP2 links only. Occurrences of this condition while the link is not in-service are not accumulated in this register.	
NDCFLXDA	**Number of Signaling Link Failures - Excessive Delay of Acknowledgment** - Number of times a signaling link was out-of-service due to an excessive delay in acknowledgments. • For MTP2 class links, Level 2 timer T7 expired level • For SAAL class links, timer NO_RESPONSE expired for POLL/STAT response	peg count
NDCFLXDC	**Number of Signaling Link Failures - Excessive Duration of Congestion** • For MTP2 class links, the number of times a signaling link was out-of-service because the Level 2 timer T6 (remote congestion) expired • For SAAL class links, the number of times timer NO_CREDIT expired	peg count
NDCFLXER	**Number of Signaling Link Failures - Excessive Error Rate** - Number of times a signaling link was out-of-service because it reached the signal unit error	peg count

Event Name	Description	Unit
	rate monitor (SUERM) threshold.	
NEARMGIH	**Number of Near-End Management Inhibits** - Number of times a link was unavailable to MTP level 3 because it was locally inhibited.	peg count
NEGACKS	**Number of Negative Acknowledgments Received -**Number of times the BSN in an MSU was inverted, indicating a retransmission request. Reported for MTP2 links only.	peg count
NMLCLPRO	**Number of Local Processor Outages -** The total number of local processor outages in this STP.	peg count
NMDCLFLR	**Number of Signaling Link Declared Failures All Types -** The cumulative total of all link failures.	peg count
NMFEPRO	**Number of Far-End Processor Outages** - Number of far-end processor outages that have occurred. Reported for MTP2 links only	peg count
OCTRETRN	**Number of MSU octets retransmitted.** This register is NOT reported for SAAL class links.	peg count
PCRN1N2EXC	**PCR N1 or N2 Count Exceeded** - The total number of forced retransmissions when preventive cyclic retransmission (PCR) is used as the error correction method	peg count

Event Name	Description	Unit
	on a link. This register is not applicable to HSLs.	
SDURETRN	**SSCOP SD PDUs Retransmitted** - The number of SSCOP sequenced Data PDUs that were retransmitted, based on an accumulated count of such retransmissions conveyed to LM. This measurement replaces the MTP level 2 negative acknowledgments.	peg count
SURCVERR	**Number of Signal Units Received In Error -**Number of Signal Units Received In Error - The number of signal units received with checksum errors, indicating transmission errors. • For SAAL class links, this register reflects the number of SSCOP PDUs received with any errors • For all other link classes , applies to FISUs, LSSUs, and MSUs	peg count
TDCNGLV1	**Total Duration of Level 1 Link Congestion -** The total time the link was in level 1 congestion.	seconds
TDCNGLV2	**Total Duration of Level 2 Link Congestion -** The total time the link was in level 2 congestion.	seconds
TDCNGLV3	**Total Duration of Level 3 Link Congestion -** The total time the link was in level 3 congestion.	seconds
TLNKACTV	**Link active time** - total time the link is active and transmitting MSUs. • For SAAL class links, the time the link is active and	seconds

Event Name	Description	Unit
	giving MSUs to SAAL for transmission. • For IP7 links, TLNKACTV is based on 10MB Ethernet link speed. Hence the report will be relative to 10MB/sec.	

OAM Reports

- Example of `rept-meas:type=mtcdth:enttype=link:loc=xxxx:link=x`

```
    eagle10506 07-12-31 13:11:17 EST UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: DAY-TO-HOUR MAINTENANCE MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31,  00:00:00 THROUGH 12:59:59

    LINK-MTCDTH MEASUREMENTS: LOC: 1201, LINK: A  , LSN: lsn123       (MTP2)


    These measurements are from 07-12-31, 00:00:00 through 12:59:59.
    MSGSTRAN   =        95, MSGSRCVD   =        95, MSURETRN   =         0,
    OCTRETRN   =         0, MOCTTRAN   =      1900, MOCTRCVD   =      1900,
    TDCNGLV1   =         0, TDCNGLV2   =         0, TDCNGLV3   =         0,
    ECCNGLV1   =         0, ECCNGLV2   =         0, ECCNGLV3   =         0,
    MSGDISC0   =         0, MSGDISC1   =         0, MSGDISC2   =         0,
    MSGDISC3   =         0, TLNKACTV   =         0, LNKAVAIL   =      3159,
    ACHGOVRS   =         0, NEARMGIH   =         0, FARMGINH   =         0,
    NMDCLFLR   =         0, DRDCLFLR   =         0, SURCVERR   =         0,
    NEGACKS    =         0, DRLKINHB   =         0, NDCFLABN   =         0,
    NDCFLXDA   =         0, NDCFLXER   =         0, NDCFLXDC   =         0,
    NMFEPRO    =         0, NMLCLPRO   =         0, DRFEPRO    =         0,
    DRLCLPRO   =         0, MSURCERR   =         0, DRBSYLNK   =         0,
    PCRN1N2EXC =         0

;

    eagle10506 07-12-31 13:11:17 EST UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-MTCDTH MEASUREMENT REPORT
;

    eagle10506 07-12-31 13:11:17 EST UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: DAY-TO-HOUR MAINTENANCE MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31,  00:00:00 THROUGH 12:59:59

    LINK-MTCDTH MEASUREMENTS: LOC: 1204, LINK: A  , LSN: lsn123       (SAAL)


    These measurements are from 07-12-31, 00:00:00 through 12:59:59.
    MSGSTRAN   =         0, MSGSRCVD   =         0, MOCTTRAN   =         0,
    MOCTRCVD   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSGDISC0   =         0, MSGDISC1   =         0,
    MSGDISC2   =         0, MSGDISC3   =         0, TLNKACTV   =         0,
    LNKAVAIL   =         0, ACHGOVRS   =         0, NEARMGIH   =         0,
    FARMGINH   =         0, NMDCLFLR   =         0, DRDCLFLR   =         0,
    SURCVERR   =         0, DRLKINHB   =         0, NDCFLXDA   =         0,
```

```
    NDCFLXER   =         0, NDCFLXDC   =         0, NMLCLPRO   =         0,
    DRLCLPRO   =         0, SDPDURTR   =         0

;

    eagle10506 07-12-31 13:11:19 EST UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-MTCDTH MEASUREMENT REPORT
;

    eagle10506 07-12-31 13:11:17 EST UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: DAY-TO-HOUR MAINTENANCE MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31,  00:00:00 THROUGH 12:59:59

   LINK-MTCDTH MEASUREMENTS: LOC: 1206, LINK: A  , LSN: lsn1234567    (IPVL)


    These measurements are from 07-12-31, 00:00:00 through 12:59:59.
    MSGSTRAN   =        95, MSGSRCVD   =        95, MOCTTRAN   =      1900,
    MOCTRCVD   =      1900, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSGDISC0   =         0, MSGDISC1   =         0,
    MSGDISC2   =         0, MSGDISC3   =         0, TLNKACTV   =         0,
    LNKAVAIL   =      3159, ACHGOVRS   =         0, NMDCLFLR   =         0,
    DRDCLFLR   =         0, SURCVERR   =         0, NDCFLXDA   =         0,
    NDCFLXDC   =         0, NMFEPRO    =         0, NMLCLPRO   =         0,
    DRFEPRO    =         0, DRLCLPRO   =         0, LMSUTRN    =         0,
    LMSURCV    =         0, LMSUOCTTRN =         0, LMSUOCTRCV =         0,
    LMSUTRNDSC =         0, LMSURCVDSC =         0

;

    eagle10506 07-12-31 13:11:19 EST UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-MTCDTH MEASUREMENT REPORT

;

    eagle10506 07-12-31 13:11:17 EST UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: DAY-TO-HOUR MAINTENANCE MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31,  00:00:00 THROUGH 12:59:59

    LINK-MTCDTH MEASUREMENTS: LOC: 2206, LINK: A  , LSN: lsn1234567
(IPVLGW)

    These measurements are from 07-12-31, 00:00:00 through 12:59:59.
    MSGSTRAN   =        95, MSGSRCVD   =        95, MOCTTRAN   =      1900,
    MOCTRCVD   =      1900, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSGDISC0   =         0, MSGDISC1   =         0,
    MSGDISC2   =         0, MSGDISC3   =         0, TLNKACTV   =         0,
    LNKAVAIL   =      3159, ACHGOVRS   =         0, NMDCLFLR   =         0,
    DRDCLFLR   =         0, SURCVERR   =         0, NDCFLXDA   =         0,
    NDCFLXDC   =         0, NMFEPRO    =         0, NMLCLPRO   =         0,
    DRFEPRO    =         0, DRLCLPRO   =         0, LMSUTRN    =         0,
    LMSURCV    =         0, LMSUOCTTRN =         0, LMSUOCTRCV =         0,
    LMSUTRNDSC =         0, LMSURCVDSC =         0

;

    eagle10506 07-12-31 13:11:19 EST UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-MTCDTH MEASUREMENT REPORT

;
```

```
    eagle10506 07-12-31 13:11:17 EST UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: DAY-TO-HOUR MAINTENANCE MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31,  00:00:00 THROUGH 12:59:59

   LINK-MTCDTH MEASUREMENTS: LOC: 1206, LINK: A  , LSN: lsn1234567   (IPVHSL)


    These measurements are from 07-12-31, 00:00:00 through 12:59:59.
    MSGSTRAN   =         0, MSGSRCVD   =         0, MOCTTRAN   =         0,
    MOCTRCVD   =         0, TDCNGLV1   =         0, TDCNGLV2   =         0,
    TDCNGLV3   =         0, ECCNGLV1   =         0, ECCNGLV2   =         0,
    ECCNGLV3   =         0, MSGDISC0   =         0, MSGDISC1   =         0,
    MSGDISC2   =         0, MSGDISC3   =         0, TLNKACTV   =         0,
    LNKAVAIL   =         0, ACHGOVRS   =         0, NEARMGIH   =         0,
    FARMGINH   =         0, NMDCLFLR   =         0, DRDCLFLR   =         0,
    SURCVERR   =         0, DRLKINHB   =         0, NDCFLXDA   =         0,
    NDCFLXDC   =         0, NMFEPRO    =         0, NMLCLPRO   =         0,
    DRFEPRO    =         0, DRLCLPRO   =         0, DRBSYLNK   =         0,
    LMSUTRN    =         0, LMSURCV    =         0, LMSUOCTTRN =         0,
    LMSUOCTRCV =         0, LMSUTRNDSC =        60, LMSURCVDSC =         0,
    M2PUDMTR   =         0, M2PUDOCT   =         0, M2PUDMRC   =         0,
    M2PUDOCR   =         0, M2PLKNIS   =         0, ECLNKCB    =         0,
    ECLNKXCO   =         0

;

    eagle10506 07-12-31 13:11:19 EST UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-MTCDTH MEASUREMENT REPORT
;
```

- Example of rept-meas:type=mtcdth:enttype=link:lsn=ls1

```
    tekelecstp 02-12-19 17:14:52 **** UNKNOWN 38.0.0
    rept-meas:type=mtcdth:enttype=link:lsn=ls1
;
    tekelecstp 02-12-19 17:00:00 **** UNKNOWN 38.0.0
    TYPE OF REPORT: DAY-TO-HOUR MAINTENANCE MEASUREMENTS ON LINK
    REPORT PERIOD: LAST
    REPORT INTERVAL:  02-12-19,  00:00:0 THROUGH 23:59:59

   LINK-MTCDTH MEASUREMENTS LINK: LOC=1201:LINK=A ,LSN: ls1           (MTP2)


    MSGSTRAN   =        95, MSGSRCVD   =        95, MSURETRN   =         0,
    OCTRETRN   =         0, MOCTTRAN   =      1900, MOCTRCVD   =      1900,
    TDCNGLV1   =         0, TDCNGLV2   =         0, TDCNGLV3   =         0,
    ECCNGLV1   =         0, ECCNGLV2   =         0, ECCNGLV3   =         0,
    MSGDISC0   =         0, MSGDISC1   =         0, MSGDISC2   =         0,
    MSGDISC3   =         0, TLNKACTV   =         0, LNKAVAIL   =      3159,
    ACHGOVRS   =         0, NEARMGIH   =         0, FARMGINH   =         0,
    NMDCLFLR   =         0, DRDCLFLR   =         0, SURCVERR   =         0,
    NEGACKS    =         0, DRLKINHB   =         0, NDCFLABN   =         0,
    NDCFLXDA   =         0, NDCFLXER   =         0, NDCFLXDC   =         0,
    NMFEPRO    =         0, NMLCLPRO   =         0, DRFEPRO    =         0,
    DRLCLPRO   =         0, MSURCERR   =         0, DRBSYLNK   =         0,
    PCRN1N2EXC =         0

;

    tekelecstp 02-12-19 17:00:09 **** UNKNOWN 38.0.0
    END OF ON-DEMAND LINK-MTCDTH MEASUREMENT REPORT
;
```

MP Reports

MP Example Output File Name: mtcdth-link_20071115_2400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp",”38.0.0-XX.XX.0”,”2007-12-31”,"15:51:37","EST",
"DAY-TO-HOUR AVAILABILITY MEASUREMENTS ON LINK","LAST",
“2007-12-31”,"00:00:00","15:00:00",600<cr><lf>
<cr><lf>
"STATUS","LSN","LOC","LINK","LNKTYPE","NEARMGIH","FARMGINH","NMDCLFLR","DRDCLFLR",
"SURCVERR","DRLKINHB","DRFEPRO","DRLCLPRO"<cr><lf>
"K","lsn234","1201","A","SAAL",0,0,0,0,0,0,0,0<cr><lf>

. . . . .

"K","lsn789","5201","B3","MTP2",0,0,0,0,0,0,0,0<cr><lf>
"K","ipls1","1204","A","IPVL",0,0,0,0,0,0,0,0<cr><lf>
"K","ipls1","2204","A","IPVLGW",0,0,0,0,0,0,0,0<cr><lf>
"K","ipls2","1205","A","IPVHSL",0,0,0,0,0,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 9 char LSN + 6 char LOC + 4 char LINK + 7 char LKNTYPE + 51*(5 char data) + 2 = 287 chars

For a report of 500 links, the typical file size is:

Table 93: Typical File Size: `mtcdth-link.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	460	+	130000	=	130710 bytes

enttype=lnkset

Command Examples

- OAM

  ```
  rept-meas:type=mtcdth:enttype=lnkset:lsn=ayyyyyyy
  ```

- MP

  ```
  rept-ftp-meas:type=mtcdth:enttype=lnkset
  ```

Measurement Events

Table 94: Maintenance Day-to-Hour Linkset Measurements

Event Name	Description	Unit
SCCPLOOP	The total number of times that a **GTT translation matched a Point Code in the STP's loopset** entries resulting in either a notify or discard of an SCCP message.	peg count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status
ZTTMAPI	**Translation Type Mapping Translation Incoming** - The total number of Translation Type Mapping translations performed on incoming Message Signal Units (MSUs) for the specified linkset.	peg count
ZTTMAPO	**Translation Type Mapping Translation Outgoing** - The total number of Translation Type Mapping translations performed on outgoing Message Signal Units (MSUs) for the specified linkset.	peg count

OAM Reports

OAM Example Output:

- `Example of rept-meas:type=mtcdth:enttype=lnkset:lsn=ls1201a`

```
   tekelecstp 07-01-02 12:01:47 EST Rel 35.6.0
   TYPE OF REPORT: DAY-TO-HOUR MAINTENANCE MEASUREMENTS ON LINKSET
   REPORT PERIOD: LAST
   REPORT INTERVAL:  07-01-02,  00:00:00 THROUGH 11:59:59

   LNKSET-MTCDTH MEASUREMENTS: ls1201a   (IPVL)

   These measurements are from 07-01-02, 00:00:00 through 11:59:59.
   ZTTMAPO    =    196611, ZTTMAPI    =         3, SCCPLOOP  =         5
```

```
;

    tekelecstp 07-01-02 12:01:49 EST Rel 35.6.0
    END OF ON-DEMAND LNKSET-MTCDTH MEASUREMENT REPORT
;
```

MP Reports

MP Example Output File Name: mtcdth-lnkset_19990117_1500.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","37.5.0-58.25.0",”2007-11-15","15:51:37","EST",
"DAY-TO-HOUR MAINTENANCE MEASUREMENTS ON LINKSET","LAST",
“2007-11-15","00:00:00","15:00:00",500<cr><lf>
<cr><lf>
"STATUS","LSN","LNKTYPE","ZTTMAPO","ZTTMAPI",”SCCPLOOP”<cr><lf>
"K","ls100","SAAL",196611,3,0<cr><lf>
"K","lsn200","IPVHSL",1911,8923,0<cr><lf>
. . . . .

"K","ls600","MTP2",123456,98374,0<cr><lf>
```

Assuming each data line will be:

4 char status + 9 char LSN + 7 char LKNTYPE + 2*(6 char data) + 2 = 34 chars

For a report of 500 linksets, the typical file size is:

Table 95: Typical File Size: `mtcdth-lnkset.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	47	+	17000	=	17297 bytes

enttype=stplan

Note: The peg counts for STPLAN measurements have the possibility of rolling over during periods of high STPLAN message transmit and receive. On the measurement reports these measurements show up as negative numbers. This indicates STPLAN transmit and receive measurements have values greater than four gigabytes of data.

Example Commands:

OAM: `rept-meas:type=mtcdth:enttype=stplan`
MP: `rept-ftp-meas:type=mtcdth:enttype=stplan`

Table 96: Maintenance Day-to-Hour STPLAN Measurements

Event Name	Description	Unit
ENETALNERR	**Ethernet Alignment Error** - Number of packets not received over the STPLAN interface because of ethernet alignment errors.	peg count
ENETBUSBSY	**Ethernet Bus Busy** - Number of transmissions attempted when the STPLAN ethernet bus was busy.	peg count
ENETCOLERR	**Ethernet Collision Error** - Number of packets not transmitted by STPLAN because of excessive collisions on the STPLAN ethernet bus.	peg count
ENETCRCERR	**Ethernet CRC Error** - Number of packets not received on the STPLAN ethernet due to CRC errors.	peg count
ENETOCTRCV	**Ethernet Octets Received** - The total number of octets received on the STPLAN ethernet interface.	peg count
ENETOCTXMT	**Ethernet Octets Transmitted** - The total number of octets transmitted on the STPLAN ethernet interface.	peg count
ENETOVRERR	**Ethernet Receive Buffer Overflow Errors** - Number of packets not received by STPLAN because of a receive buffer overflow.	peg count
IPADDRERR	**IP Address Error**- The total number of inbound IP datagrams discarded on the	peg count

Event Name	Description	Unit
	STPLAN interface due to a bad destination address.	
IPHDRERR	**IP Header Errors** - The total number of inbound IP datagrams discarded on the STPLAN interface due to header errors.	peg count
IPPROTERR	**IP Protocol Error** - Number of inbound IP datagrams discarded by STPLAN due to an error in the packet (invalid protocol).	peg count
SLANDISC1	**STPLAN Discarded 1** - Number of indicated messages not copied to the host due to the STPLAN feature being disabled.	peg count
SLANDISC2	**STPLAN Discarded 2** - Number of MSUs discarded due to the host being unreachable.	peg count
SLANDSBLD	**STPLAN Disabled** - The duration that the STPLAN screening/copy feature was disabled.	msecs
SLANSCRND	**STPLAN Screened** - Number of MSUs that were copied to the STPLAN interface after passing gateway screening.	peg count
SLANXMIT	**STPLAN Transmit** - Number of MSUs sent to the host destination.	peg count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval;	status

Event Name	Description	Unit
	N - indicates data not current.	
TCPCONNFLD	**TCP Connections Failed** - The total number of TCP connections that have failed on the STPLAN interface.	peg count
TCPRCVERR	**TCP Receive Error** - The total number of TCP segments received on the STPLAN interface in error.	peg count
TCPRSTSENT	**TCP Reset Sent** - The total number of TCP segments sent containing the reset (RST) flag on the STPLAN interface.	peg count
TCPSEGRCVD	**TCP Segment Received** - The total number of TCP segments received on the STPLAN interface.	peg count
TCPSEGSENT	**TCP Segment Sent -** The total number of TCP segments sent on the STPLAN interface.	peg count
TCPSEGXMT2	**TCP Segment Retransmitted** - The total number of TCP segments retransmitted on the STPLAN interface.	peg count

OAM Reports

OAM Example Output:

```
tekelecstp 01-08-18 00:00:21 EST EAGLE 34.0.0
TYPE OF REPORT: DAY-TO-HOUR MAINTENANCE MEASUREMENTS ON STPLAN
REPORT PERIOD: LAST
REPORT INTERVAL:  01-08-17  00:00:00 THRU 23:59:59
STPLAN-MTCD MEASUREMENTS
SLANDSBLD  =         0, SLANDISC1  =         0, SLANDISC2  =         0,
SLANSCRND  =         0, SLANXMIT   =         0, ENETALNERR =         0,
ENETCRCERR =         0, ENETCOLERR =         0, ENETBUSBSY =         0,
ENETOVRERR =         0, ENETOCTXMT =         0, ENETOCTRCV =         0,
TCPCONNFLD =         0, TCPSEGRCVD =         0, TCPSEGSENT =         0,
TCPSEGXMT2 =         0, TCPRCVERR  =         0, TCPRSTSENT =         0,
IPHDRERR   =         0, IPADDRERR  =         0, IPPROTERR  =         0
```

```
;
    tekelecstp 01-08-18 00:00:22 EST EAGLE 34.0.0
    END OF ON-DEMAND STPLAN-MTCDTH MEASUREMENT REPORT
;
```

MP Reports

MP Example Output File Name: mtcdth-stplan_19990117_1500.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"DAY-TO-HOUR MAINTENANCE MEASUREMENTS ON STPLAN","LAST",
"1999-01-17","00:00:00","15:00:00",1<cr><lf>
<cr><lf>
"STATUS","SLANDSBLD","SLANDISC1","SLANDISC2","SLANSCRND","SLANXMIT","ENETALNERR",
"ENETCRCERR","ENETCOLERR","ENETBUSBSY","ENETOVRERR","ENETOCTXMT","ENETOCTRCV",
"TCPCONNFLD","TCPSEGRCVD","TCPSEGSENT","TCPSEGXMT2","TCPRCVERR","TCPRSTSENT",
"IPHDRERR","IPADDRERR","IPPROTERR"<cr><lf>
"K",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
```

Typical file size is:

Table 97: Typical File Size: `mtcdth-stplan.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	282	+	260	=	792 bytes

enttype=sctpasoc

Command Examples

- **OAM:** rept-meas:type=mtcdth:enttype=sctpasoc:aname=assoc1
- **MP:** `rept-ftp-meas:type=mtcdth:enttype=sctpasoc`

Measurement Events

The following table lists the SCTPASOC events and their descriptions.

Table 98: Daily Maintenance SCTPASOC Measurements

Event Name	Description	Unit
ACTVESTB	**SCTP Association Active Establishments** - The number of times that SCTP associations have made a direct transition to the ESTABLISHED state	peg count

Event Name	Description	Unit
	from the COOKIEECHOED state (COOKIE-ECHOED --> ESTABLISHED). In this case the upper layer (i.e., the local M2PA) was the initiator of the association establishment between the SCTP peers.	
ASMAXRTO	**SCTP Association Maximum Observed Retransmission Timeout** - The maximum observed value of the SCTP state variable Retransmission Timeout (RTO) in milliseconds (ms) for SCTP packets transmitted (but not retransmitted) to the remote peer endpoint's destination transport address during the measurement interval.	msec
ASOCABTD	**SCTP Aborted Associations** - The number of times that SCTP associations have made a direct transition to the CLOSED state from any state using the primitive "Abort" (AnyState --Abort--> CLOSED), conveying an ungraceful termination of the association.	peg count
ASOCSHTD	**SCTP Association Shutdowns** - The number of times that SCTP associations have made a direct transition to the CLOSED state from either the SHUTDOWN-SENT state or the SHUTDOWN-ACK-SENT state, conveying graceful termination of the association.	peg count
CNTLCHKR	**SCTP Control Chunks Received** - The number of SCTP control chunks received from the remote peer (excluding duplicates).	peg count

Event Name	Description	Unit
CNTLCHKS	**SCTP Control Chunks Sent** - The number of SCTP control chunks sent to the remote peer (excluding retransmissions).	peg count
DATCHKRC	Number of **SCTP DATA chunks received** from the remote SCTP peer (excluding duplicates and discards).	peg count
DATCHKSN	Number of **SCTP DATA chunks sent** to the remote SCTP peer (excluding retransmissions).	peg count
DURASNEST	Duration the association was not in the Established state.	peg count
ECASNEST	Number of times the association transitioned out of the Established state.	peg count
GAPACKSR	**SCTP Gap Acknowledgements Received** - The number of Gap Acknowledgement blocks in Selective Acknowledgement (SACK) control chunks received from the remote SCTP peer, indicating gaps in the peer's received subsequences of DATA chunks as represented by their Transport Sequence Numbers (TSNs) (The inclusion of this measurement is intended to allow network personnel to assess the message-delivery performance of the IPVHSL relative to gap acknowledgment limits, if used as performance criteria for link proving and in-service monitoring).	peg count
ORDCHKRC	**SCTP Ordered Data Chunks Received** - The number of	peg count

Event Name	Description	Unit
	SCTP ordered data chunks received from the remote peer (excluding duplicates).	
ORDCHKSN	**SCTP Ordered Data Chunks Sent** - The number of SCTP ordered data chunks sent to the remote peer (excluding retransmissions).	peg count
PASVESTB	**SCTP Association Passive Establishments** - The number of times that SCTP associations have made a direct transition to the ESTABLISHED state from the CLOSED state (CLOSED --> ESTABLISHED), indicating that the remote peers initiated association establishment.	peg count
PEERFAIL	**SCTP Association Peer Endpoint Failures** - The number of peer endpoint failure detection events for the association as triggered by the crossing of threshold Assoc. Max. Retrans.	peg count
RTXCHNKS	**SCTP Association Retransmitted Chunks** - The number of SCTP data chunks retransmitted to the remote SCTP peer. When T3-rtx expires, the DATA chunks that triggered the T3 timer will be re-sent according with the retransmissions rules. Every DATA chunk that was included in the SCTP packet that triggered the T3-rtx timer must be added to the value of this counter.	peg count
SCOCTRCV	**SCTP Packet Octets Received** - The number of octets	octets

Event Name	Description	Unit
	comprising valid SCTP packets received from the remote peer.	
SCOCTSNT	**SCTP Packet Octets Sent** - The total number of octets comprising SCTP packets submitted to the IP layer for transmittal to the remote peer.	octets
SCPKTRCV	**SCTP Packets Received** - The total number of SCTP packets received from the remote peer that had a valid checksum. Duplicates are included.	peg count
SCPKTSNT	**SCTP Packets Sent** - The total number of SCTP packets sent to the remote peer, i.e., submitted by the local SCTP instance to the IP layer for transmission. Retransmissions are included.	peg count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status

OAM Reports

OAM Example Output:

```
    stdcfg2b 07-12-31 06:07:04 EST  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: DAY-TO-HOUR MAINTENANCE MEASUREMENTS ON SCTPASOC
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31  00:00:00 THRU 05:59:59

    SCTPASOC-MTCDTH MEASUREMENTS: ASSOC: assoc1

    These measurements are from 07-12-31, 00:00:00 through 05:59:59.
    ECASNEST   =         0, DURASNEST  =         0, DATCHKSN   =         0,
    RTXCHNKS   =         0, DATCHKRC   =         0, SCPKTSNT   =        20,
    SCPKTRCV   =        20, SCOCTSNT   =         0, SCOCTRCV   =         0,
    CNTLCHKS   =       400, ORDCHKSN   =       400, CNTLCHKR   =         0,
    ORDCHKRC   =         0, GAPACKSR   =         0, ACTVESTB   =         0,
    PASVESTB   =         0, ASOCABTD   =         0, ASOCSHTD   =         0,
    PEERFAIL   =         0, ASMAXRTO   =         0
```

```
;
```

MP Reports

MP Example Output File Name: mtcdth-sctpasoc_20071115_0200.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE","IVALSTART",
"IVALEND","NUMENTIDS"<cr><lf>
"ipmeas","UNKNOWN ??.?.?-58.21.0","2007-08-18","00:00:18","****",
"DAY-TO-HOUR MAINTENANCE MEASUREMENTS ON SCTPASOC","LAST","2007-08-17",
"00:00:00","02:00:00",3<cr><lf>
"STATUS","ASSOC","ECASNEST","DURASNEST","DATCHKSN","RTXCHNKS","DATCHKRC","SCPKTSNT",
"SCPKTRCV","SCOCTSNT","SCOCTRCV","CNTLCHKS","ORDCHKSN","CNTLCHKR","ORDCHKRC",
"GAPACKSR","ACTVESTB","PASVESTB","ASOCABTD","ASOCSHTD","PEERFAIL","ASMAXRTO"<cr><lf>


 "K","A1101",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","A1102",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","A1103",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 18 char association + 16*(6 char data) + 2 = 144 chars

For a report of 1000 associations, typical file size is:

Table 99: Typical File Size: `mtcdth-sctpasoc.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	195	+	120000	=	144445 bytes

enttype=sctpcard

Command Examples

- **OAM:** `rept-meas:type=mtcdth:enttype=sctpcard:loc=1202`
- **MP:** `rept-ftp-meas:type=mtcdth:enttype=sctpcard`

Measurement Events

Table 100: Maintenance Day-to-Hour SCTPCARD Measurements

Event Name	Description	Unit
ACTVESTB	**SCTP Association Active Establishments** - The number of times that SCTP associations	peg count

Event Name	Description	Unit
	have made a direct transition to the ESTABLISHED state from the COOKIEECHOED state (COOKIE-ECHOED --> ESTABLISHED). In this case the upper layer (i.e., the local M2PA) was the initiator of the association establishment between the SCTP peers.	
ASOCABTD	**SCTP Aborted Associations** - The number of times that SCTP associations have made a direct transition to the CLOSED state from any state using the primitive "Abort" (AnyState --Abort--> CLOSED), conveying an ungraceful termination of the association.	peg count
ASOCSHTD	**SCTP Association Shutdowns** - The number of times that SCTP associations have made a direct transition to the CLOSED state from either the SHUTDOWN-SENT state or the SHUTDOWN-ACK-SENT state, conveying graceful termination of the association.	peg count
CNTLCHKR	**SCTP Control Chunks Received** - The number of SCTP control chunks received from the remote peer (excluding duplicates).	peg count
CNTLCHKS	**SCTP Control Chunks Sent** - The number of SCTP control chunks sent to the remote peer (excluding retransmissions).	peg count
DATCHKRC	Number of **SCTP DATA chunks received** from the remote SCTP peer (excluding duplicates and discards).	peg count

Event Name	Description	Unit
DATCHKSN	Number of **SCTP DATA chunks sent** to the remote SCTP peer (excluding retransmissions).	peg count
ORDCHKRC	**SCTP Ordered Data Chunks Received** - The number of SCTP ordered data chunks received from the remote peer (excluding duplicates).	peg count
ORDCHKSN	**SCTP Ordered Data Chunks Sent** - The number of SCTP ordered data chunks sent to the remote peer (excluding retransmissions).	peg count
PASVESTB	**SCTP Association Passive Establishments** - The number of times that SCTP associations have made a direct transition to the ESTABLISHED state from the CLOSED state (CLOSED --> ESTABLISHED), indicating that the remote peers initiated association establishment.	peg count
RTXCHNKS	**SCTP Association Retransmitted Chunks** - The number of SCTP data chunks retransmitted to the remote SCTP peer. When T3-rtx expires, the DATA chunks that triggered the T3 timer will be re-sent according with the retransmissions rules. Every DATA chunk that was included in the SCTP packet that triggered the T3-rtx timer must be added to the value of this counter.	peg count
SCOCTRCV	**SCTP Packet Octets Received** - The number of octets	octets

Event Name	Description	Unit
	comprising valid SCTP packets received from the remote peer.	
SCOCTSNT	**SCTP Packet Octets Sent** - The total number of octets comprising SCTP packets submitted to the IP layer for transmittal to the remote peer.	octets
SCPKTRCV	**SCTP Packets Received** - The total number of SCTP packets received from the remote peer that had a valid checksum. Duplicates are included.	peg count
SCPKTRER	**SCTP Packets Received With Checksum Error** - The number of SCTP packets received from remote peers with an invalid checksum	peg count
SCPKTSNT	**SCTP Packets Sent** - The total number of SCTP packets sent to the remote peer, i.e., submitted by the local SCTP instance to the IP layer for transmission. Retransmissions are included.	peg count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status
UNASCTPK	**Unassociated (Out-of-the-Blue) SCTP Packets** - The number of "out-of-the-blue" SCTP packets received by the host, i.e., SCTP packets correctly formed with the correct checksum value, but for which the receiver (local SCTP) was not able to identify	peg count

Event Name	Description	Unit
	the association to which the packet belongs.	

OAM Reports

OAM Example Output:

```
    stdcfg2b 07-12-31 EST  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: DAY-TO-HOUR MAINTENANCE MEASUREMENTS ON SCTPCARD
    REPORT PERIOD: LAST
    REPORT INTERVAL:  07-12-31  00:00:00 THRU 03:59:59

    SCTPCARD-MTCDTH MEASUREMENTS: LOC: 1201

    These measurements are from 07-12-31, 00:00:00 through 03:59:59.
    DATCHKSN   =         0, RTXCHNKS   =         0, DATCHKRC   =         0,
    SCPKTSNT   =        20, SCPKTRCV   =        20, SCPKTRER   =         0,
    UNASCTPK   =         0, SCOCTSNT   =         0, SCOCTRCV   =         0,
    CNTLCHKS   =       400, ORDCHKSN   =       400, CNTLCHKR   =         0,
    ORDCHKRC   =         0, ACTVESTB   =         0, PASVESTB   =         0,
    ASOCABTD   =         0, ASOCSHTD   =         0

;
```

MP Reports

MP Example Output File Name: mtcdth-sctpcard_20071115_0400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE","IVALSTART","IVALEND",
"NUMENTIDS"<cr><lf>
"tekelecstp",”38.0.0-XX.XX.0”,”2007-12-31”,"12:12:10","EST",
"DAY-TO-HOUR MAINTENANCE MEASUREMENTS ON SCTPCARD","LAST",”2007-12-30”,
"00:00:00","04:00:00",3<cr><lf>
<cr><lf>
"STATUS","LOC","DATCHKSN","RTXCHNKS","DATCHKRC","SCPKTSNT","SCPKTRCV","SCPKTRER",
"UNASCTPK","SCOCTSNT","SCOCTRCV","CNTLCHKS","ORDCHKSN","CNTLCHKR","ORDCHKRC","ACTVESTB",
"PASVESTB","ASOCABTD","ASOCSHTD"<cr><lf>
"K","1101",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","1102",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","1103",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 7 char location + 15*(6 char data) + 2 = 103 chars

For a report of 80 cards, typical file size is:

Table 101: Typical File Size: `mtcdth-sctpasoc.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	185	+	8240	=	8675 bytes

enttype=ua

Command Examples

- **OAM:** rept-meas:type=mtcdth:enttype=ua:aname=assoc1:asname=appsrvr1
- **MP:** `rept-ftp-meas:type=mtcdth:enttype=ua`

Measurement Events

Table 102: Maintenance Day-to-Hour UA Measurements

Event Name	Description	Unit
RXDATAMS	For M3UA, this register represents the number of **DATA messages received from the ASP**. For SUA, this register represents the total of **CLDT and CLDR messages received from the ASP**.	peg count
RXDATAOC	For M3UA, this register represents the number of **DATA octets received from the ASP**. For SUA, this register represents the total of **CLDT and CLDR octets received from the ASP**.	octets
RXMLRCMS	Number of **messages received with multiple routing contexts** (always pegged against the default AS).	peg count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status
TXDATAMS	For M3UA, this register represents the number of	peg count

Event Name	Description	Unit
	DATA messages sent to the ASP. For SUA, this register represents the total of **CLDT and CLDR messages sent to the ASP**.	
TXDATAOC	For M3UA, this register represents the number of **DATA octets sent to the ASP**. For SUA, this register represents the total of **CLDT and CLDR octets sent to the ASP**.	octets
UAASPMRX	Total **ASPM messages received from the ASP** (including ASPSM and ASPTM messages).	peg count
UAASPMTX	Total **ASPM messages sent to the ASP** (including ASPSM and ASPTM messages).	peg count
UAASPNAC	The number of times the **ASP transitioned out of the ASP-Active state**.	peg count
UAASPNAT	The duration that the ASP was not in the ASP-Active state.	seconds
UACNGCNT	The number of times an **AS-ASSOC experienced congestion** (this may include the AS entering congestion as a result of the ASSOC entering congestion).	peg count
UACNGTIM	The duration that an **AS-ASSOC experienced congestion** (this may include the AS entering congestion as a result of the ASSOC entering congestion).	seconds

Event Name	Description	Unit
UAMGMTRX	Total MGMT messages received from the ASP.	peg count
UAMGMTTX	Total MGMT messages sent to the ASP.	peg count
UANMOCTR	**Total Network Management octets received from the ASP** - The total number of non-DATA UA octets received from the ASP (i.e. sum of the ASPM, ASPTM, SSNM, MGMT, and RKM).	peg count
UANMOCTT	**Total Network Management octets sent to the ASP** - The total number of non-DATA UA octets sent to the ASP (i.e. sum of the ASPM, ASPTM, SSNM, MGMT, and RKM).	peg count
UANMMSGR	**Total Network Management messages received from the ASP** - The total number of non-DATA UA messages received from the ASP (i.e. sum of the ASPM, ASPTM, SSNM, MGMT, and RKM).	peg count
UANMMSGT	**Total Network Management messages sent to the ASP** - The total number of non-DATA UA messages sent to the ASP (i.e. sum of the ASPM, ASPTM, SSNM, MGMT, and RKM).	peg count
UASSNMRX	Total SSNM messages received from the ASP.	peg count
UASSNMTX	Total SSNM messages sent to the ASP.	peg count

OAM Reports

OAM Example Output:

```
    stdcfg2b 07-12-31 06:07:04 EST  UNKNOWN 38.0.0-XX.XX.0
    UA-MTCD MEASUREMENTS: AS: appsrvr1           ASSOC: assoc1

    These measurements are from 07-12-31, 00:00:00 through 23:59:59.
    RXDATAMS   =       100, RXDATAOC   =      4000, TXDATAMS   =       200,
    TXDATAOC   =      8000, UANMMSGT   =         0, UANMOCTT   =         0,
    UANMMSGR   =         0, UANMOCTR   =         0, UAASPMTX   =         0,
    UAASPMRX   =         0, UASSNMTX   =         0, UASSNMRX   =         0,
    UAMGMTTX   =         0, UAMGMTRX   =         0, UACNGCNT   =         0,
    UACNGTIM   =         0, UAASPNAC   =         0, UAASPNAT   =         0,
    RXMLRCMS   =         0


;
```

MP Reports

MP Example Output File Name: mtcdth-ua_20071115_1200.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE","IVALSTART","IVALEND",
"NUMENTIDS"<cr><lf>
"tekelecstp","37.5.0-58.25.0","2007-11-15","12:59:10","EST","DAY-TO-HOUR
MAINTENANCE MEASUREMENTS
ON UA","LAST","2007-11-15","00:00:00","12:00:00",3<cr><lf>
<cr><lf>
"STATUS","AS","ASSOC","RXDATAMS","TXDATAMS","RXDATAOC","TXDATAOC","RXMLRCMS",
"UAASPMRX","UAASPNAC","UAASPNAT","UACNGCNT","UACNGTIM","UAMGMTRX","UAMGMTTX",
"UANMOCTR","UANMOCTT","UANMMSGR","UANMMSGT","UASSNMRX","UASSNMTX","RXMLRCMS"<cr><lf>
"K","as1101","a1101",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","as1102","a1102",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","as1103","a1103",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 15 char AS + 15 char ASSOC + 19*(6 char data) + 2 = 150 chars

For a report of 1000 Application Servers, typical file size is:

Table 103: Typical File Size: `mtcdth-ua.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	280	+	150000	=	150530 bytes

Hourly Maintenance Measurements

The Maintenance Hour (MTCH) report provides the value of various maintenance measurements accumulated during a specific hour.

Entity Types: LNP, NP, EIR, MAPSCRN, VFLEX (MCP only) , ATINPQ (MCP only)

Accumulation Interval: 60 minutes

STP Retention Period: 24 hours

Reporting Modes: On-demand, Scheduled (MCP only)

Accessible Collection Periods: Last, Specific

enttype=lnp

The enttype=lnp entity generates four separate reports per period. These reports for OAM based measurements are generated to CSV files in the FTA. The command example will generate the following hourly reports:

- Hourly LNP System Wide Measurements
- Hourly LNP Measurements Per SSP
- Hourly LNP Measurements Per LRN
- Hourly LNP Measurements Per NPA

All the OAM reports are listed together as are the MP reports.

Example Commands:

OAM: `rept-meas:type=mtch:enttype=lnp:period=last`
MP :`rept-ftp-meas:type=mtch:enttype=lnp:period=last`

Table 104: Hourly Maintenance LNP System Wide Measurements

Event Name	Description	Unit
LNPQRCV	*Trigger Based* The total number of queries received by LNPQS.	peg count
	Triggerless Number of encapsulated IAM messages received by LNPQS	peg count
LNPQDSC	*Trigger Based* The number of invalid queries that are discarded because no reply can be generated.	peg count
	Triggerless All invalid IAM messages are routed without LNP; LNPQTCPE is pegged.	not applicable

Event Name	Description	Unit
LNPQTCPE	*Trigger Based* The number of error replies with TCAP error codes.	peg count
	Triggerless The number of invalid encapsulated IAM messages received by LNPQS. Note that these messages are routed to their destinations with no LNP lookup.	peg count
LNPSREP	*Trigger Based* The number of successful replies.	peg count
	Triggerless The number of successful IAM messages.	peg count
LNPQUNPA	*Trigger Based* The number of correct queries received for non-ported DN when NPA-NXX is not provisioned.	peg count
	Triggerless The number of correct encapsulated IAM messages received for a non-ported DN, when the NPA-NXX is not provisioned.	peg count
STATUS	**Indication of Data Validity** **K** – indicates good data **I** – indicates incomplete interval; **N** – indicates data not current.	status

Table 105: Hourly Maintenance LNP Per SSP Measurements

Event Name	Description	Unit
SSPQRCV	*Trigger Based* Number of correct queries received per originating SSP.	peg count
	Triggerless The number of correct encapsulated IAM messages received by LNPQS per OPC.	peg count
CLASSGTRQ	Number of valid CLASS GTT received per originating SSP.	peg count
LIDBGTRQ	Number of valid LIDB GTT received per originating SSP.	peg count
SSPQRCVP	Number of correct queries received for ported TNs, per originating SSP.	peg count
SSPQRCVNP	Number of correct queries received for non-ported TNs, per originating SSP.	peg count
CLASSGTRQP	Number of CLASS Global Title Translation received for ported TNs, per originating SSP.	peg count
CLASSGTRQNP	Number of CLASS Global Title Translation received for non-ported TNs, per originating SSP.	peg count
LIDBGTRQP	Number of LIDB Global Title Translation received for ported TNs, per originating SSP.	peg count
LIDBGTRQNP	Number of LIDB Global Title Translation received for non-ported TNs, per originating SSP.	peg count

Event Name	Description	Unit
CNAMGTRQP	Number of CNAM Global Title Translation received for ported TNs, per originating SSP.	peg count
CNAMGTRQNP	Number of CNAM Global Title Translation received for non-ported TNs, per originating SSP.	peg count
ISVMGTRQP	Number of ISVM Global Title Translation received for ported TNs, per originating SSP.	peg count
ISVMGTRQNP	Number of ISVM Global Title Translation received for non-ported TNs, per originating SSP.	peg count
WSMSCGTP	Number of WSMSC Global Title Translations received for ported TNs, per originating SSP	peg count
WSMSCGTNP	Number of WSMSC Global Title Translations received for non-ported TNs, per originating SSP	peg count
STATUS	**Indication of Data Validity** **K** – indicates good data **I** – indicates incomplete interval; **N** – indicates data not current.	status

The following equations apply:

SSPQRCV = SSPQRCVP + SSPQRCVNP
CLASSGTRQ = CLASSGTRQP + CLASSGTRQNP
LIDBGTRQ = LIDBGTRQP + LIDBGTRQNP

Table 106: Hourly Maintenance LNP LRN Measurements

Event Name	Description	Unit
LRNQRCV	*Trigger Based* The number of correct queries received per LRN.	peg count
	Triggerless The number of correct encapsulated IAM messages received per LRN.	peg count
STATUS	**Indication of Data Validity** **K** – indicates good data **I** – indicates incomplete interval; **N** – indicates data not current.	status

Table 107: Hourly Maintenance LNP NPA Measurements

Event Name	Description	Unit
NPAQRCV	The number of correct queries received per NPANXX for non-ported DN.	peg count
STATUS	**Indication of Data Validity** **K** – indicates good data **I** – indicates incomplete interval; **N** – indicates data not current.	status

OAM Reports

Hourly LNP System Wide Measurements

OAM Example Output File Name: M60_LNP.csv

OAM Example Output File Format:

```
"tekelecstp 01-08-02 15:51:37 EST EAGLE 34.0.0 "<cr><lf>
"TYPE OF REPORT: HOURLY MAINTENANCE MEASUREMENTS ON LNP SYSTEM"<cr><lf>
"REPORT PERIOD: LAST"<cr><lf>
```

```
"REPORT INTERVAL:  01-08-02,  00:00:00 THROUGH 23:59:59 "<cr><lf>
<cr><lf>
"LNPQRCV","LNPQDSC","LNPQTCPE","LNPSREP","LNPQUNPA"<cr><lf>
4294967295,4294967295,4294967295,4294967295,4294967295<cr><lf>
```

Hourly LNP Measurements Per SSP

OAM Example output File Name: M60_SSP.csv

OAM Example Output File Format:

```
"tekelecstp 99-01-02 15:51:37 EST EAGLE 34.0.0 "<cr><lf>
"TYPE OF REPORT: HOURLY MAINTENANCE MEASUREMENTS ON LNP SSP"<cr><lf>
"REPORT PERIOD: LAST"<cr><lf>
"REPORT INTERVAL:  99-01-01,  00:00:00 THROUGH 23:59:59 "<cr><lf>
"NUMBER OF ENTIDS: 2"<cr><lf>
<cr><lf>
"SSP","SSPQRCV","CLASSGTRQ","LIDBGTRQ""SSPQRCVP","SSPQRCVNP","CLASSGTP",
"CLASSGTNP","LIDBGTP","LIDBGTNP","CNAMGTP","CNAMGTNP","ISVMGTP","ISVMGTNP",
"WSMSCGTP","WSMSCGTNP" <cr><lf>
"002-002-100",123456789,456789,99999,123456789,456789,99999,
123456789,456789,99999,123456789,456789,99999,123456789,456789,99999<cr><lf>
"002-002-123",123456789,456789,99999,123456789,456789,99999,
123456789,456789,99999,123456789,456789,99999,123456789,456789,99999<cr><lf>
```

Hourly LNP Measurements Per LRN

OAM Example Output File Name: M60_LRN.csv

OAM Example Output File Format:

```
"tekelecstp 97-01-02 15:51:37 EST EAGLE 34.0.0 "<cr><lf>
"TYPE OF REPORT: HOURLY MAINTENANCE MEASUREMENTS ON LNP LRN"<cr><lf>
"REPORT PERIOD: LAST"<cr><lf>
"REPORT INTERVAL:  97-01-01,  00:00:00 THROUGH 23:59:59 "<cr><lf>
"NUMBER OF ENTIDS: 6"<cr><lf>
<cr><lf>
"LRN","LRNQRCV"<cr><lf>
9194560000,123456789<cr><lf>
4087550001,23456789<cr><lf>
5155550000,456789<cr><lf>
3022330001,345<cr><lf>
7032110002,99999<cr><lf>
8123048059,4294967295<cr><lf>
```

Hourly LNP Measurements Per NPA

OAM Example Output File Name: M60_NPA.csv

OAM Example Output File Format:

```
"tekelecstp 97-01-02 15:51:37 EST EAGLE 34.0.0 "<cr><lf>
"TYPE OF REPORT: HOURLY MAINTENANCE MEASUREMENTS ON LNP NPXNXX"<cr><lf>
"REPORT PERIOD: LAST"<cr><lf>
"REPORT INTERVAL:  97-01-01,  00:00:00 THROUGH 23:59:59 "<cr><lf>
"NUMBER OF ENTIDS: 6"<cr><lf>
<cr><lf>
"NPANXX","NPAQRCV"<cr><lf>
919456,123456789<cr><lf>
408755,23456789<cr><lf>
515555,456789<cr><lf>
302233,345<cr><lf>
```

```
703211,99999<cr><lf>
812304,4294967295<cr><lf>
```

MP Reports

Hourly LNP System Wide Measurements

MP Example Output File Name: mtch-lnp_19990116_2400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"HOURLY MAINTENANCE MEASUREMENTS ON LNP SYSTEM","LAST",
"1999-01-16","00:00:00","24:00:00",1<cr><lf>
<cr><lf>
"STATUS","LNPQRCV","LNPQDSC","LNPQTCPE","LNPSREP","LNPQUNPA"<cr><lf>
"K",429496729,429496729,429496729,429496729,429496729<cr><lf>
```

Typical file size is:

Table 108: Typical File Size: `mtch-lnp.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	63	+	34	=	347 bytes

Hourly LNP Measurements Per SSP

MP Example Output File Name: mtch-ssp_19990116_2400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE","IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"HOURLY MAINTENANCE MEASUREMENTS ON LNP
SSP","LAST","1999-01-16","00:00:00","24:00:00",200<cr><lf>
<cr><lf>
"STATUS","SSP","SRQRCV","LASGRQ","LIBGRQ","SRQRCVP","SRQRCVNP","LASGRQP","LASGRQNP","LIBGRQP","LIBGRQNP","ISVMGRQ","ISVMGRQNP","ISVMGRQ",
 "ISVMGTRQNP","WSMSCGTP","WSMSCGTNP"<cr><lf>
"K","002-002-100",123456789,456789,99999,123456789,456789,99999,123456789,456789,
99999,123456789,456789,99999,123456789,456789,99999<cr><lf>
. . . . .
"K","002-005-123",123456789,456789,99999,123456789,456789,99999,123456789,456789,
99999,123456789,456789,99999,123456789,456789,99999<cr><lf>
```

Assuming each data line will be:

4 char status + 14 char SSP + 15*(6 char data) + 2 = 110 chars

For a report of 200 SSPs, the typical file size is:

Table 109: Typical File Size: `mtch-ssp.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	160	+	22000	=	22410 bytes

Hourly LNP Measurements Per LRN

MP Example Output File Name: mtch-lrn_19990116_2400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"HOURLY MAINTENANCE MEASUREMENTS ON LNP
LRN","LAST","1999-01-16","00:00:00","24:00:00",600<cr><lf>
<cr><lf>
"STATUS","LRN","LRNQRCV"<cr><lf>
"K",9194560000,123456789<cr><lf>
"K",4087550001,23456789<cr><lf>
"K",5155550000,456789<cr><lf>
. . . . .
"K",3022330001,345<cr><lf>
"K",7032110002,99999<cr><lf>
"K",8123048059,4294967295<cr><lf>
```

Assuming each data line will be:

4 char status + 11 char LRN + 6 char data + 2 = 23 chars

For a report of 600 LRNs, the typical file size is:

Table 110: Typical File Size: `mtch-lrn.csv`

System header	+	Report header	+	Report data		
250	+	27	+	13800	=	14077 bytes

Hourly LNP Measurements Per NPA

MP Example Output File Name: mtch-npa_19990116_2400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"HOURLY MAINTENANCE MEASUREMENTS ON LNP NPANXX","LAST",
"1999-01-16","00:00:00","24:00:00",600<cr><lf>
<cr><lf>
"STATUS","NPANXX","NPAQRCV"<cr><lf>
"K",919456,123456789<cr><lf>
"K",408755,23456789<cr><lf>
"K",515555,456789<cr><lf>
```

```
. . . . .
"K",302233,345<cr><lf>
"K",703211,99999<cr><lf>
"K",812304,4294967295<cr><lf>
```

Assuming each data line will be:

4 char status + 7 char NPANXX + 6 char data + 2 = 19 chars

For a report of 600 LRNs, the typical file size is:

Table 111: Typical File Size: `mtch-npa.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	30	+	11400	=	11680 bytes

enttype=np

The hourly INP/GPORT/APORT/TINP/IGM/MO-based GSM SMS NP/MO-based IS41 SMS NP/MT-Based GSM SMS NP/MT-Based IS41 SMS NP measurements specify the entity type NP (`enttype=np`) which generates two separate reports per period. These reports for OAM based measurements are generated to CSV files in the FTA. The command example will generate the following hourly reports:

- Hourly System Wide Measurements
- Hourly Measurements Per SSP

All the OAM reports are listed together as are the MP reports.

Command Examples

- OAM

  ```
  rept-meas:type=mtch:enttype=np:period=specific:day=xxx
  ```

- MP

  ```
  rept-ftp-meas:type=mtch:enttype=np[:period=specific:day=xxx]
  ```

Measurement Events

- System Wide Measurements

  indicates system registers that may be pegged. Register counts for features not turned on will always be zero.

Table 112: Daily Maintenance System Wide Registers

Event Name	Description	Unit
INPQRCV	Number of total queries received by INPQS.	peg count
INPQDSC	Number of invalid queries that are discarded as no reply can be generated.	peg count
INPQTCPE	Number of error replies with TCAP error code.	peg count
INPSREP	Number of successful replies to INP non-queried queries. These replies will be either INP Connect or INP Continue:	peg count

The following equations apply:

INPQRCV = INPQDSC + INPQTCPE + INPSREP

The following registers are applicable to features G-Port/A-Port/TINP/IGM/MO-based GSM SMS NP/MO-based IS41 SMS NP/MT-Based GSM SMS NP/MT-Based IS41 SMS NP.

Table 113: Daily Maintenance System Wide Feature Registers

Event Name	Description	Unit
APSMRQERR	Number of SMSREQ messages resulting in error.	peg count
APSMRQREP	Number of SMSREQ messages resulting in SMSREQ_ACK or SMSREQ_NACK.	peg count
APSMSRCV	Number of SMS Request messages received.	peg count
APSMSREL	Number of SMS Request messages relayed.	peg count
GPNOCL	Number of non-call related messages relayed by G-Port.	peg count

Event Name	Description	Unit
GPNOCLGT	Number of non-call related messages that fell through to GTT.	peg count
GPSRSMERR	Number of SRI_SM messages resulting in error.	peg count
GPSRSMRCV	Number of SRI_SM messages received.	peg count
GPSRSMREP	Number of SRI_SM messages resulting in SRI_SM_ACK or SRI_SM_NACK.	peg count
IS41LRERR	Number of IS-41 location request - error response messages sent.	peg count
IS41LRMRCV	Number of IS-41 location request messages received.	peg count
IS41LRRTRN	Number of IS-41 location request - return result messages sent.	peg count
SMSMOGRCV	Number of MO_SMS messages received that result in a modification of the outgoing MO_SMS.	peg count
SMSMOGERR	Number of MO_SMS messages received that result in an error.	peg count
SMSMOIRCV	Number of SMDPP messages received that result in a modification of the outgoing SMDPP.	peg count
SMSMOIERR	Number of SMDPP messages received that result in an error.	peg count

Event Name	Description	Unit
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status
TINPERR	Number of IAM messages received that required TINP processing but resulted in execution of an error case.	peg count
TINPMGEN	Number of IAM messages received that required TINP processing and resulted in the modification of the IAM message or the generation of a REL message.	peg count
TINPMRCV	Number of IAM messages received that require TINP processing.	peg count

The following equations apply:

GPSRRCV = GPSRGTT + GPSRREP + GPSRERR

- Per SSP Measurements

  These measurements are available on a per SSP PC basis where SSP PC is the CGPA PC, if it exists, or it is the MTP OPC.

Table 114: Daily Maintenance SSP Registers

Event Name	Description	Unit
INPQSCONN	Number of non-errored QS messages with QS Connect responses, per originating SSP.	peg count
INPQSCONT	Number of non-errored QS messages with QS Continue responses, per originating SSP.	peg count

Event Name	Description	Unit
INPMRTR	Number of messages sent to MR service that receive MR translation, per originating SSP.	peg count
INPMRGTT	Number of messages sent to MR service that fall through to GTT, per originating SSP.	peg count

The following registers are applicable to features - G-Port/A-Port/TINP/IGM/MO-based GSM SMS NP/MO-based IS41 SMS NP/MT-Based GSM SMS NP/MT-Based IS41 SMS NP

Table 115: Daily Maintenance INP and G-Port Per SSP Measurements

Event Name	Description	Unit
APLRACK	Number of call related LOCREQ messages acknowledged.	peg count
APLRRLY	Number of call related LOCREQ messages relayed.	peg count
APNOCL	Number of non-call non-LOCREQ related messages relayed.	peg count
APNOCLGT	Number of non-call non-LOCREQ related messages that fell through to GTT.	peg count
APSMRQERR	Number of SMSREQ messages resulting in error.	peg count
APSMRQREP	Number of SMSREQ messages resulting in SMSREQ_ACK or SMSREQ_NACK	peg count
APSMSRCV	Number of SMSREQ messages received	peg count
GPSRRLY	Number of call related (SRI-Send Routing	peg count

Event Name	Description	Unit
	Information) messages relayed.	
GPNOCL	Number of non-call related messages relayed by G-Port.	peg count
GPNOCLGT	Number of non-call related messages that fell through to GTT.	peg count
GPSRSMERR	Number of SRI_SM messages resulting in error.	peg count
GPSRSMRCV	Number of SRI_SM messages received.	peg count
GPSRSMREP	Number of SRI_SM messages resulting in SRI_SM_ACK or SRI_SM_NACK	peg count
STATUS	**Indication of Data Validity** **K** - indicates good data **I** - indicates incomplete interval; **N** - indicates data not current.	status
SMSMOGRCV	Number of MO_SMS messages received that result in a modification of the outgoing MO_SMS	peg count
SMSMOGERR	Number of MO_SMS messages received that result in an error	peg count
SMSMOIRCV	Number of SMDPP messages received that result in a modification of the outgoing SMDPP	peg count
SMSMOIERR	Number of SMDPP messages received that result in an error	peg count

Event Name	Description	Unit
TINPERR	Number of IAM messages received that required TINP processing but resulted in execution of an error case.	peg count
TINPMGEN	Number of IAM messages received that required TINP processing and resulted in the modification of the IAM message or the generation of a REL message.	peg count
TINPMRCV	Number of IAM messages received that require TINP processing.	peg count

The following equation applies:

GPSRREP = *Â*GPSRACK + *Â*GPSRRLY

OAM Reports

- Hourly System Wide Measurements

  OAM Example Output File Name: M60_NP.csv

  OAM Example Output File Format:

```
"tekelecstp 08-01-25 12:31:00 EST Rel 38.0.0-XX.XX.0"<cr><lf>
"TYPE OF REPORT: HOURLY MAINTENANCE MEASUREMENTS ON NP SYSTEM"<cr><lf>
"REPORT PERIOD: LAST"<cr><lf>
"REPORT INTERVAL:  08-01-24,  00:00:00 THROUGH 01:59:59 "<cr><lf>
<cr><lf>


”INPQRCV”,”INPQDSC”,”INPQTCPE”,”INPSREP”,”GPSRRCV”,”GPSRGTT”,”GPSRREP”,
”GPSRERR”,”GPNOCL”,”GPNOCLGT”,”IS41LRERR”,”IS41LRMRCV”,”IS41LRRTRN”,
”APSMSRCV”,”APSMSREL”,“SMSMOGRCV”,“SMSMOGERR”,“SMSMOIRCV”,“SMSMOIERR”,
“GPSRSMREP”,“GPSRSMERR”,“GPSRSMRCV”,“APSMRQREP”,“APSMRQERR”<cr><lf>
4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,
4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,
4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,
4294967295,4294967295,4294967295,4294967295,4294967295<cr><lf>
```

- Hourly Measurements Per SSP

  OAM Example output File Name: M60_SSP.CSV_

  OAM Example Output File Format:

```
"tekelecstp 08-01-25 12:31:00 EST Rel 38.0.0-XX.XX.0 "<cr><lf>
"TYPE OF REPORT: HOURLY MAINTENANCE MEASUREMENTS ON NP SSP"<cr><lf>
"REPORT PERIOD: LAST"<cr><lf>
"REPORT INTERVAL:  08-01-24,  00:00:00 THROUGH 01:59:59"<cr><lf>
“NUMBER OF ENTIDS: 2”<cr><lf>
```

```
<cr><lf>
“SSP”,“INPQSCONN”,”INPQSCONT”,”INPMRTR”,”INPMRGTT”,”GPSRACK”,”GPSRRLY”,
”GPNOCL”,”GPNOCLGT”,”APLRACK”,”APLRRLY”,”APNOCL”,”APNOCLGT”,“SMSMOGRCV”,
“SMSNOGERR”,“SMSMOIRCV”,“SMSNOIERR”,“GPSRSMREP”,“GPSRSMERR”,“GPSRSMRCV”,
“APSMRQREP”,“APSMRQERR”,“APSMSRCV”<cr><lf>
001-101-001,4294967295,429495,4294967295,429495,429495,429495,429495,
429495,429495,429495,429495,429495,429495,429495,429495,429495,429495,
429495,429495,429495,429495,429495,429495<cr><lf>
001-101-002,4294967295,429495,4294967295,429495,429495,429495,429495,
429495,429495,429495,429495,429495,429495,429495,429495,429495,429495,
429495,429495,429495,429495,429495,429495<cr><lf>
```

MP Reports

- Hourly System Wide Measurements

  MP Example Output File Name: mtch-np_20080125_2400.csv

  MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp",”38.0.0-XX.XX.0”,”2008-01-25","11:40:07","EST",
"HOURLY MAINTENANCE MEASUREMENTS ON NP
SYSTEM","LAST",”2008-01-24","00:00:00","01:00:00",1<cr><lf>
<cr><lf>
"STATUS",”INPQRCV”,”INPQDSC”,”INPQTCPE”,”INPSREP”,”GPSRRCV
”,”GPSRGTT”,”GPSRREP”,
”GPSRERR”,”GPNOCL”,”GPNOCLGT”,”IS41LRERR”,”IS41LRMRCV”,”IS41LRRTRN”,”APSMSRCV”,”APSMSREL”,
“SMSMOGRCV”,“SMSMOGERR”,“SMSMOIRCV”,“SMSMOIERR”,“GPSRSMREP”,“GPSRSMERR”,“GPSRSMRCV”,“APSMRQREP”,
 “APSMRQERR”<cr><lf>
"K",4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,
4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,

4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,
 4294967295<cr><lf>
```

  Assuming each data line will be: 4 char status + 24 * (6 char data) + 2 = 150 chars

  Typical file size is:

  Table 116: Typical File Size: `mtch-np.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	279	+	150	=	679 bytes

- Hourly Measurements Per SSP

  MP Example Output File Name: **mtch-ssp_20080125_2400.csv**

  MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp",”38.0.0-XX.XX.0”,”2008-01-25","11:40:07","EST",
"HOURLY MAINTENANCE MEASUREMENTS ON NP
SSP","LAST",”2008-01-24","00:00:00","01:00:00",1<cr><lf>
<cr><lf>
```

```
"STATUS","SSP","INPQSCONN","INPQSCONT","INPMRTR","INPMRGTT","GPSRACK","GPSRRLY","GPNOCL",
"GPNOCLGT","APLRACK","APLRRLY","APNOCL","APNOCLGT","SMSMOGRCV","SMSNOGERR","SMSMOIRCV",
"SMSNOIERR","GPSRSMREP","GPSRSMERR","GPSRSMRCV","APSMRQREP","APSMRQERR","APSMSRCV"<cr><lf>
"K",001-001-002,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,
4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,

4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295<cr><lf>
```

Assuming each data line will be: 4 char status + 14 char SSP + 22 * (6 char data) + 2 = 152 chars

Typical file size is:

Table 117: Typical File Size: `mtch-ssp.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	263	+	(152 * #Point Codes)	=	513 + (152 * #Point Codes) bytes

For a report of 200 SSPs, typical file size is:

Table 118: Typical File Size: `mtch-ssp.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	263	+	(152 * 200)	=	30913 bytes

enttype=eir

The EIR measurements specify the entity type EIR, and generate one report per period. The commands are specified with yy as a two-number abbreviation for any hour of a 24-hour day (00 through 23 for the hours 0000 through 2300). The retention period for hourly measurement records is 24 hours.

Example Commands:

MP: `rept-ftp-meas:type=mtch:enttype=eir:[hh=yy:period=specific]`

Table 119: Hourly Maintenance EIR Measurements on page 245 lists the EIR events and their descriptions.

Table 119: Hourly Maintenance EIR Measurements

Event Name	Description	Unit
IMEIRCV	Total number of MAP_CHECK_IMEI messages received	peg count
WHITEIMEI	Total number of searches that resulted in a match with a "white listed" IMEI	peg count
GRAYIMEI	Total number of searches that resulted in a match with a "gray listed" IMEI	peg count
BLACKIMEI	Total number of searches that resulted in a match with a "black listed" IMEI	peg count
BLKALIMEI	Total number of searches that resulted in a match with a "black listed" IMEI, but were allowed due to IMSI Check match	peg count
BLKNALIMEI	Total number of searches that resulted in a match with a "black listed" IMEI, and the IMSI in the database did not match the IMSI in the message	peg count
UNKNIMEI	Total number of searches that resulted in a match with an "unknown" IMEI	peg count
NOMTCHIMEI	Total number of searches that resulted in no match in the database. NOMTCHIMEI is pegged whenever an IMEI is not found in the database.	peg count

The following equation applies:

IMEIRCV = WHITEIMEI + GRAYIMEI + UNKNIMEI

MP Reports

MP Example Output File Name: mtch-eir_20030818_2300.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-51.1.0","2003-08-19","15:51:37","EST",
"HOURLY MAINTENANCE MEASUREMENTS ON EIR SYSTEM","LAST","2003-08-18",
"23:00:00","24:00:00",1<cr><lf>
<cr><lf>
"IMEIRCV","WHITEIMEI","GRAYIMEI","BLACKIMEI","BLKALIMEI","BLKNALIMEI","UNKNIMEI","NOMTCHIMEI"<cr><lf>
4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,
4294967295<cr><lf>
```

Typical file size is:

Table 120: Typical File Size: `mtch-eir.csv`

System header	+	Report header	+	Report data	=	File Size
256	+	95	+	89	=	440 bytes

enttype=mapscrn

The enttype=mapscrn entity generates two separate reports per period.

The reports for OAM based measurements are generated to CSV files in the FTA. The command example generates the following hourly OAM-based measurement reports when the GSM MAP Screening feature is activated:

- Hourly MAP Screening System Wide Measurements
- Hourly MAP Screening Measurements Per Server

The command example will generate the following hourly MP-based measurement reports when the GSM MAP/Enhanced GSM MAP Screening feature is activated:

- Hourly MAP Screening System Wide Measurements
- Hourly MAP Screening Measurements Per Path

All the OAM reports are listed together as are the MP reports.

Note: When MTP MAP Screening is enabled and on, the registers in *Table 121: Hourly Maintenance MAP Screening System Wide Measurements* on page 247 and *Table 124: Hourly Maintenance MAP Screening Per Server Measurements* on page 250 include the sum total of MTP-routed and GTT-routed messages for the particular event.

Example Commands:

OAM: `rept-meas:type=mtch:enttype=mapscrn`
MP: `rept-ftp-meas:type=mtch:enttype=mapscrn`

Table 121: Hourly Maintenance MAP Screening System Wide Measurements

Event Name	Description	Unit
MSCRNPASS	Total number of messages that Passed MAP screening	count
MSCRNRJNE	Total number of messages that got Rejected by MAP screening because an entry was not found in the MAP screening table (i.e. rejected as System wide MAP Opcode action is DISCARD)	count
MSCRNRJFP	Total number of messages that got Rejected by MAP screening due to forbidden parameters in the message.	count
MSCRNPAFP	Total number of messages that contained the forbidden parameter but were not rejected due to Screening action set as PASS.	count
MSCRNPANE	Total number of messages, where an entry was not found in the MAP screening table but the Message was not rejected as screening action was marked as PASS (i.e. not rejected as System wide MAP Opcode action is PASS)	count
MSCRNRJOP	Total number of message that got rejected as Message MAP Opcode was not found in the MAP Opcode table (system wide action - DISCARD for the non matching OPCODEs)	count
MSCRNDUP	Total number of messages that were selected by MAP Screening for the Duplicate screening action.	count
MSCRNFOR	Total number of messages thate were selected by MAP	count

Event Name	Description	Unit
	Screening for the Forward screening action.	
MSCRNDAD	Total number of messages thate were selected by MAP Screening for the Duplicate and Discard screening action.	count
STATUS	**Indication of Data Validity** **K** – indicates good data **I** – indicates incomplete interval; **N** – indicates data not current.	status

Server Entity Identification information in *Table 122: Server Entity Identification* on page 248 is used to identify which server the Maintenance MAP Screening Per Server Measurements are applicable.

Table 122: Server Entity Identification

Entity Name	Description
SERVER	The screened origination address of the calling party address (CGPA) assigned when the GSM MAP screen was entered.
NP	The screened number plan value (NPV) assigned to the server address when the GSM MAP screen was entered. This field is filled with the default identifier * if no value was assigned.
NAI	The screened nature of address value (NAIV) assigned to the server address when the GSM MAP screen was entered. This field is filled with the default identifier * if no value was assigned.
OPCODE	The operation code number assigned when the GSM MAP opcode was entered.
Measurements does not report entries created for a range of addresses.	

Server Path Entity Identification information in *Table 123: Path Entity Identification* on page 249 is used to clarify the path the Maintenance MAP Screening Per Path Measurements are applicable.

Table 123: Path Entity Identification

Entity Name	Description
PATH	The screened origination address of the calling party address (CGPA-NP-NAI), or a combination of screened destination address of the called party address (CDPA-NP-NAI) and the screened origination addresses assigned when the GSM MAP screen was entered. The possible fields within the path are delimited as follows to allow for efficient sorting: • When both the origination and destination addresses are present (as either single server entries or provisioned wildcard entries) the origination address is preceded by a carat (^) and the destination address is preceded by a "greater than" sign (>): ^CGPA-NP-NAI>CDPA-NP-NAI • When only the origination address is present (occurs when the CDPA is a default wildcard) it is preceded by a "less than" sign (<): <CGPA-NP-NAI
CGPA	The calling party global title address assigned when the GSM MAP screen was entered. Any or all of the three fields (GTA, NP, NAI) can be filled with the identifier (*) if a wildcard value is assigned for that field. There is no default wildcard value for the CGPA.
CDPA	The called party global title address assigned when the GSM MAP screen was entered. Any or all of the three fields (GTA, NP, NAI) can be filled with the identifier (*) if a wildcard value is assigned for that field. If the CDPA value is not assigned, the default wildcard value, which is not printed, is assumed.
NP	The screened number plan value (NPV) assigned to the path address when the GSM MAP screen was entered. The identifier (*) is used to signify a wildcard NP.
NAI	The screened nature of address value (NAIV) assigned to the path address when the GSM

Entity Name	Description
	MAP screen was entered. The identifier (*) is used to signify a wildcard NAI.
OPCODE	The operation code number assigned when the GSM MAP opcode was entered. The identifier (*) is used to signify a wildcard opcode.
Measurements does not report entries created for a range of addresses. Measurements does not report default wildcard CDPA address in entries containing them. There can never be a default wildcard CGPA entry. All wildcard CGPA entries must be explicitly provisioned. There can never be an entry with only a CDPA path listed. The string formats were designed to allow efficient automated post processing of measurements reports. A brief note explaining the format is included in the report.	

Table 124: Hourly Maintenance MAP Screening Per Server Measurements

Event Name	Description	Unit
MSCRNPASS	Total number of messages that Passed MAP screening	count
MSCRNRJFP	Total number of messages that got Rejected by MAP screening due to forbidden parameters in the message.	count
MSCRNDUP	Total number of messages per server that were selected by MAP Screening for the Duplicate screening action.	count
MSCRNFOR	Total number of messages per server that were selected by MAP Screening for the Forward screening action.	count
MSCRNDAD	Total number of messages per server that were selected by	count

Event Name	Description	Unit
	MAP Screening for the Duplicate screening action.	
MSCRNPAFP	Total number of messages that contained the forbidden parameter but were not rejected due to Screening action set as PASS.	count
STATUS	**Indication of Data Validity** **K** – indicates good data **I** – indicates incomplete interval; **N** – indicates data not current.	status

OAM Reports

Hourly MAP Screening System Wide Measurements

OAM Example Output File Name: M60_MAP.csv

OAM Example Output File Format:

```
"tekelecstp 97-01-02 15:51:37 EST EAGLE 34.0.0 "<cr><lf>
"TYPE OF REPORT: HOURLY MAINTENANCE MEASUREMENTS ON MAP Screening SYSTEM"<cr><lf>
"REPORT PERIOD: LAST"<cr><lf>
"REPORT INTERVAL:  00-04-01,  00:00:00 THROUGH 23:59:59 "<cr><lf>
<cr><lf>
"MSCRNPASS","MSCRNRJNE","MSCRNRJFP","MSCRNPAFP","MSCRNPANE","MSCRNRJOP","MSCRNDUP","MSCRNFOR","MSCRNDAD"<cr><lf>
4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,
4294967295,4294967295<cr><lf>
```

Hourly MAP Screening Measurements per Server

OAM Example output File Name: M60_SERV.csv

OAM Example Output File Format:

```
"tekelecstp 00-04-02 15:51:37 EST EAGLE 34.0.0-30.9.0 "<cr><lf>
"TYPE OF REPORT: HOURLY MAINTENANCE MEASUREMENTS ON MAP Screening Server"<cr><lf>
"REPORT PERIOD: LAST"<cr><lf>
"REPORT INTERVAL:  00-04-01,  00:00:00 THROUGH 23:59:59 "<cr><lf>
"NUMBER OF ENTIDS: 2"<cr><lf>
<cr><lf>
"SERVER-NP-NAI-OPCODE",
"MSCRNPASS","MSCRNRJFP","MSCRNDUP","MSCRNFOR","MSCRNDAD","MSCRNPAFP"<cr><lf>
"123456789012345-0-0-0",
1234567890,1234567890,1234567890,1234567890,1234567890,1234567890<cr><lf>
"098765432154321-15-127-1",
5555555555,6666666666,1234567890,1234567890,1234567890,1234567890<cr><lf>
```

```
"919468-*-*-255",
1234567890,1234567890,1234567890,1234567890,1234567890,1234567890<cr><lf>
```

MP Reports

Hourly MAP Screening System Wide Measurements

MP Example Output File Name: mtch-map_19990116_2400.csv

MP Example Output File Name: mtch-map_19990116_2400.csv

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"HOURLY MAINTENANCE MEASUREMENTS ON MAP SCREENING SYSTEM","LAST",
"1999-01-16","00:00:00","24:00:00",1<cr><lf>
<cr><lf>
"STATUS","MSCRNPASS","MSCRNRJOP","MSCRNRJNE","MSCRNRJFP","MSCRNPAFP","MSCRNPANE","MSCRNFOR","MSCRNDUP","MSCRNDAD"<cr><lf>
"K",4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295,4294967295<cr><lf>
```

Typical file size is:

Table 125: Typical File Size: `mtch-map.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	116	+	60	=	426 bytes

Hourly MAP Screening Measurements Per Path

MP Example Output File Name: mtch-path_19990116_2400.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-53.8.0","1999-01-17","15:51:37","EST",
"HOURLY MAINTENANCE MEASUREMENTS ON MAP SCREENING PATH","LAST",
"1999-01-16","00:00:00","24:00:00",2<cr><lf>
<cr><lf>
For a path containing CGPA only, PATH-OPCODE = <CGPA-NP-NAI-OPCODE<cr><lf>
For a path containing both CGPA and CDPA, PATH-OPCODE =
^CGPA-NP-NAI>CDPA-NP-NAI-OPCODE
<cr><lf>
"STATUS","PATH-OPCODE","MSCRNPASS","MSCRNRJFP","MSCRNFOR","MSCRNDUP", "MSCRNDAD",
 "MSCRNPAFP"<cr><lf>
"K","<123456789012345-0-0-0",1234567890,1234567890,1234567890,1234567890,1234567890,
 1234567890<cr><lf>
"K","<919468-*-*-120",1234567890,1234567890,1234567890,1234567890,1234567890,1234567890<cr><lf>
"K","^919468-5-63>919575-12-100-25",1234567890,1234567890,1234567890,1234567890,
 1234567890,1234567890<cr><lf>
"K","^540992-14-45-125>919468-*-*-*",1234567890,1234567890,1234567890,1234567890,
 1234567890,1234567890<cr><lf>
```

Assuming each data line will be:

4 char status + 40 char PATH-OPCODE + 5*(6 char data) + 2 = 76 chars

For a report of 20 paths, the typical file size is:

Table 126: Typical File Size: `mtch-path.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	244	+	1640	=	2134 bytes

enttype=vflex

The enttype=vflex entity generates two separate reports per period. These reports for MP based measurements are generated to CSV files in the FTA. The command example will generate the following daily reports:

- Hourly V-Flex System Wide Measurements
- Hourly V-Flex Measurements Per SSP

Example Commands:

MP: `rept-ftp-meas:type=mtch:enttype=vflex[:period=specific:day=xxx]`

Table 127: Daily Maintenance V-Flex System Wide Measurements

Event Name	Description	Unit
VFCNCTRSP	Total number of IDP Connect responses sent by VFLEX service.	peg count
VFERRRSP	Total number of IDP queries received with errors (those resulted in TCAP Error response from VFLEX).	peg count
VFIDPQRCV	Total number of IDP queries received for VFLEX service.	peg count

Table 128: Daily Maintenance V-Flex Per SSP Measurements

Event Name	Description	Unit
VFIMSISDN	Total number of IDP queries received for VFLEX service with invalid MSISDN.	peg count

Event Name	Description	Unit
VFVMSISDN	Total number of IDP queries received for VFLEX service with valid MSISDN.	peg count

MP Reports

Hourly V-Flex System Wide Measurements

MP Example Output File Name: *mtch-vflex_20070816_2400.csv*

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE","IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","37.6.0-58.20.0","2007-08-17","11:32:53","EST","HOURLY MAINTENANCE
 MEASUREMENTS ON VFLEX SYSTEM","LAST","2007-08-16","00:00:00","24:00:00",1<cr><lf>
<cr><lf>
"STATUS","VFIDPQRCV","VFCNCTRSP","VFERRRSP"<cr><lf>
"K", 20,10,10<cr><lf>
```

Assuming each data line will be: 4 char status + 3*(6 char data) + 2 = 24 chars, the typical file size is:

Table 129: Typical File Size: `mtch-vflex.csv`

System header	+	Report header	+	Report data	=	File Size
260	+	45	+	24	=	347

Hourly V-Flex Measurements Per SSP

MP Example Output File Name: **mtch-vflexssp_20070816_2400.csv**

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE","IVALSTART","IVALEND","NUMENTIDS""<cr><lf>
"tekelecstp","37.6.0-58.20.0","2007-08-17","11:32:58","EST","HOURLY MAINTENANCE
 MEASUREMENTS ON VFLEX SSP","LAST","2007-08-16","00:00:00","24:00:00",1<cr><lf>
<cr><lf>
"STATUS",“SSP”,“VFVMSISDN”,“VFIMSISDN”<cr><lf>
“K”, “001-101-002”,10,10<cr><lf>
```

Note: The field identifier SSP designates the Service Switching Point.

Assuming each data line will be: 4 char status + 14 char SSP + 2*(6 char data) + 2 = 32 chars, the typical file size is:

Table 130: Typical File Size: `mtch-vflexssp.csv`

System header	+	Report header	+	Report data	=	File Size
257	+	40	+	32 * #Point Codes	=	297 + (32 * #Point Codes) bytes

For a report of 200 SSPs, typical file size is:

Table 131: Typical File Size: `mtch-vflexssp.csv`

System header	+	Report header	+	Report data	=	File Size
257	+	40	+	32 * 200	=	6697 bytes

enttype=atinpq

The enttype=atinpq entity generates two separate reports per period. These reports for MP based measurements are generated as CSV files and FTP'd to the customer FTP server. The command example will generate the following daily reports:

- Hourly ATINPQ System Wide Measurements
- Hourly ATINPQ Per SSP Measurements

Example Commands:

- MP

```
rept-ftp-meas:type=mtch:enttype=atinpq[:period=specific:hh=xxx]
```

Measurement Events

Table 132: ATINPQ Registers

Event Name	Description	Unit
ATINPQRCV	Total number of ATINP queries received for ATINPQ service. This peg is incremented only if ATINP feature is enabled and the incoming message opcode is ATI.	peg count

Event Name	Description	Unit
ATINPQACK	Total number of ATI ACK messages sent by the ATINPQ service. This peg is incremented only if the ATINP feature is enabled.	peg count
ATINPQERR	Total number of incoming ATI messages that did not result in either ATI ACK or ATI NACK with error code of either Unknown Subscriber or ATI Not Allowed. This peg is incremented only if the ATINP feature is enabled.	peg count

Hourly ATINPQ MP Reports

System Wide Report

- Example Output File Name:

  ```
  mtch-atinpq_20080616_2400.csv
  ```

- Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE","IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","39.0.0-61.5.0","2008-06-17","11:32:53","EST","HOURLY MAINTENANCE
 MEASUREMENTS ON ATINPQ
SYSTEM","LAST","2008-06-17","00:00:00","24:00:00",1<cr><lf>
<cr><lf>
"STATUS","ATINPQRCV","ATINPQACK","ATINPQERR"<cr><lf>
"K", 20,10,10<cr><lf>
```

  Assuming each data line will be: 4 char status + 3*(6 char data) + 2 = 24 chars, the typical file size is:

  Table 133: Typical File Size: `mtch-atinpq.csv`

System header	+	Report header	+	Report data	=	File Size
260	+	45	+	24	=	347

Per SSP Report

- Example Output File Name:

  ```
  mtch-atinpqssp_20080616_2400.csv
  ```

- Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE","IVALSTART","IVALEND","NUMENTIDS""<cr><lf>
"tekelecstp","39.0.0-61.5.0","2008-06-17","11:32:58","EST","HOURLY MAINTENANCE
 MEASUREMENTS ON ATINPQ
SSP","LAST","2008-06-16","00:00:00","24:00:00",1<cr><lf>
<cr><lf>
"STATUS","SSP","ATINPQRCV","ATINPQACK","ATINPQERR"<cr><lf>
"K", "001-101-002",10,10,10<cr><lf>
```

Assuming each data line will be: 4 char status + 14 char SSP + 3*(6 char data) + 2 = 38 chars, the typical file size is:

Table 134: Typical File Size: `mtch-atinpq.csv`

System header	+	Report header	+	Report data	=	File Size
257	+	40	+	(38 * #Point Codes)	=	297 + (38 * #Point Codes) bytes

For a report of 200 SSPs, typical file size is:

Table 135: Typical File Size: `atinpq 200 SSPs`

System header	+	Report header	+	Report data	=	File Size
257	+	40	+	(38 * 200)	=	7897 bytes

Gateway Measurements

The GTWY measurement report collects and reports gateway-related data from the STP. The gateway related data collected for this report is the network management and global title translation load on the EAGLE 5 ISS, and the source of this load. The level and source of pass through TCAP traffic is also collected. The MTP cards measure this data which is reported when requested.

Entity Types: STP, ORIGNI, ORIGNINC, LNKSET, LSDESTNI, LSORIGINI, and LSONISMT

Accumulation Interval: 30 minutes

Optional MP Accumulation Interval: Every 15 minutes

STP Retention Period: 24 hours

Reporting Mode: Scheduled, On-demand

Accessible Collection Period: Last, Specific

enttype=stp

Command Examples

- OAM

```
rept-meas:type=gtwy:enttype=stp
```

- MP

```
rept-ftp-meas:type=gtwy:enttype=stp
```

Measurement Events

Table 136: Gateway STP Measurements

Event Name	Description	Unit
GTTPFDIC	Number of Global Title Translations (GTTs) performed on messages received from an interconnecting network.	peg count
MSUDSCRD	Number of MSUs discarded due to screening failure.	peg count
MSURJOPC	Number of MSUs rejected due to screening - disallowed OPC.	peg count
MSURJDPC	Number of MSUs rejected due to screening - disallowed DPC.	peg count
MSURJSIO	Number of MSUs rejected due to screening - invalid service information octet (SIO).	peg count
MSURJCPA	Number of MSUs rejected due to screening - invalid calling party address.	peg count
MSURJAPC	Number of subsystem prohibited (SSP) and subsystem allowed (SSA) MSUs rejected due to screening - invalid affected point code.	peg count

Event Name	Description	Unit
MSURJPCS	Number of subsystem status test (SST) MSUs rejected due to screening - invalid affected point code and SSN.	peg count
MSURJDST	Number of MTP-NM MSUs rejected due to screening - invalid affected destination field.	peg count
MSURJTT	Number of SCCP MSUs rejected due to screening - invalid translation type.	peg count
MSURJDSN	Number of SCCP MSUs rejected due to screening - disallowed DPC/SSN in called party address.	peg count
MSURJTFC	Number of transfer controlled (TFC) MSUs rejected due to screening - invalid affected destination field.	peg count
MSURJSRT	Number of signaling routeset test (SRST) MSUs rejected due to screening - invalid affected destination field.	peg count
STATUS	**Indication of Data Validity** **K** — indicates good data **I** — indicates incomplete interval; **N** — indicates data not current.	status
TTMAPPF	Number of translation type mapping translations performed. For example, a mapped SS7 message translation type was found for the existing SS7 message translation type.	peg count

OAM Reports

OAM Example Output:

```
    tekelecstp 03-12-19 12:51:24 EST EAGLE 34.0.0
    TYPE OF REPORT: GATEWAY MEASUREMENTS ON STP
    REPORT PERIOD: LAST
    REPORT INTERVAL:  03-12-19,  12:00:00 THROUGH 12:29:59

    STP-GTWY MEASUREMENTS

    These measurements are from 03-12-19, 12:00:00 through 12:29:59.
    TTMAPPF    =         0, GTTPFDIC   =         0, MSUDSCRD   =         0,
    MSURJOPC   =         0, MSURJDPC   =         0, MSURJSIO   =         0,
    MSURJCPA   =         0, MSURJAPC   =         0, MSURJPCS   =         0,
    MSURJDST   =         0, MSURJTT    =         0, MSURJDSN   =         0,
    MSURJTFC   =         0, MSURJSRT   =         0

;
    tekelecstp 03-12-19 12:51:26 EST EAGLE 34.0.0
    END OF ON-DEMAND STP-GTWY MEASUREMENT REPORT
;
```

MP Reports

MP Example Output File Name: gtwy-stp_19990117_1530.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"GATEWAY MEASUREMENTS ON STP","LAST","1999-01-17","15:00:00","15:30:00",1<cr><lf>
<cr><lf>
"STATUS","TTMAPPF","GTTPFDIC","MSUDSCRD","MSURJOPC","MSURJDPC","MSURJSIO",
"MSURJCPA","MSURJAPC","MSURJPCS","MSURJDST","MSURJTT","MSURJDSN","MSURJTFC",
"MSURJSRT"<cr><lf>
"K",0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
```

Typical file size is:

Table 137: Typical File Size: `gtwy-stp.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	164	+	90	=	504 bytes

enttype=origni

Command Examples

- OAM

```
rept-meas:type=gtwy:enttype=origni:ni=200
```

- MP

```
rept-ftp-meas:type=gtwy:enttype=origni
```

Measurement Events

Table 138: Gateway ORIGNI Measurements

Event Name	Description	Unit
GTTPFDPC	Number of global title translations (GTTs) performed - result is a DPC of an interconnecting network.	peg count
GTTUNTT	Number of GTTs unable to perform on messages received from an interconnecting network - no translation table for the translation type.	peg count
GTTPFDIC	Number of GTTs performed on messages received from an interconnecting network.	peg count
GTTUNADR	Number of GTTs unable to perform on messages received from an interconnecting network - no translation for this address.	peg count
STATUS	**Indication of Data Validity** **K**– indicates good data **I** – indicates incomplete interval; **N** – indicates data not current.	status

OAM Reports

OAM Example Output:

```
tekelecstp 03-12-19 12:31:12 EST EAGLE 34.0.0
TYPE OF REPORT: GATEWAY MEASUREMENTS ON ORIGNI
REPORT PERIOD: LAST
REPORT INTERVAL:  03-12-19, 12:00:00 THROUGH 12:29:59

ORIGNI-GTWY MEASUREMENTS: NI: 5
```

```
    These measurements are from 03-12-19, 12:00:00 through 12:29:59.
    GTTPFDPC   =         0, GTTUNTT    =         0, GTTPFDIC   =    834033,
    GTTUNADR   =    834034

;
    tekelecstp 03-12-19 12:31:13 EST EAGLE 34.0.0
    END OF ON-DEMAND ORIGNI-GTWY MEASUREMENT REPORT
;
```

MP Reports

MP Example Output File Name: gtwy-origni_19990117_1530.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"GATEWAY MEASUREMENTS ON
ORIGNI","LAST","1999-01-17","15:00:00","15:30:00",100<cr><lf>
<cr><lf>
"STATUS","NI","GTTPFDPC","GTTUNTT","GTTPFDIC","GTTUNADR"<cr><lf>
"K",100,0,0,834033,834034<cr><lf>
. . . . .
"K",200,0,0,834033,834034<cr><lf>
```

Assuming each data line will be:

4 char status + 4 char NI + 4*(6 char data) + 2 = 34 chars

For a report of 100 NIs, typical file size is:

Table 139: Typical File Size: `gtwy-origni.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	59	+	3400	=	3709 bytes

enttype=origninc

Command Examples

- OAM

  ```
  rept-meas:type=gtwy:enttype=origninc:ni=4:nc=200
  ```

- MP

  ```
  rept-ftp-meas:type=gtwy:enttype=origninc
  ```

Measurement Events

Table 140: Gateway ORIGNINC Measurements

Event Name	Description	Unit
GTTPFDPC	Number of global title translations (GTTs) performed - result is a DPC of an interconnecting network.	peg count
GTTUNTT	Number of GTTs unable to perform on messages received from an interconnecting network - no translation table for the translation type.	peg count
GTTPFDIC	Number of GTTs performed on messages received from an interconnecting network.	peg count
GTTUNADR	Number of GTTs unable to perform on messages received from an interconnecting network - no translation for this address.	peg count
STATUS	**Indication of Data Validity** **K**– indicates good data **I** – indicates incomplete interval; **N** – indicates data not current.	status

OAM Reports

OAM Example Output:

```
   tekelecstp 03-12-19 12:31:37 EST EAGLE 34.0.0
   TYPE OF REPORT: GATEWAY MEASUREMENTS ON ORIGNINC
   REPORT PERIOD: LAST
   REPORT INTERVAL:  03-12-19, 12:00:00 THROUGH 12:29:59

   ORIGNINC-GTWY MEASUREMENTS: NI: 5, NC: 5

   These measurements are from 03-12-19, 12:00:00 through 12:29:59.
   GTTPFDPC   =         0, GTTUNTT    =         0, GTTPFDIC   =    834033,
   GTTUNADR   =    834034

;
   tekelecstp 03-12-19 12:31:38 EST EAGLE 34.0.0
```

```
    END OF ON-DEMAND ORIGNINC-GTWY MEASUREMENT REPORT
;
```

MP Reports

MP Example Output File Name: gtwy-origninc_19990117_1530.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"GATEWAY MEASUREMENTS ON
ORIGNINC","LAST","1999-01-17","15:00:00","15:30:00",100<cr><lf>
<cr><lf>
"STATUS","NI","NC","GTTPFDPC","GTTUNTT","GTTPFDIC","GTTUNADR"<cr><lf>
"K",4,200,0,0,834033,834034<cr><lf>
. . . . .
"K",25,200,0,0,834033,834034<cr><lf>
```

Assuming each data line will be:

4 char status + 4 char NI + 4 char NC + 4*(6 char data) + 2 = 38 chars

For a report of 100 NI/NCs, the typical file size is:

Table 141: Typical File Size: `gtwy-origninc.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	64	+	3800	=	4114 bytes

enttype=lnkset

Note: The determination of which linksets are included in this report is controlled by the state of the gtwylsfltr field in the measurement control table. By default, only gateway linksets are included. This can be changed with the `chg-meas:gtwylsfltr={ both | stp | seas | none }` command. See the *Commands Manual* for details on using this command.

Command Examples

- OAM

  ```
  rept-meas:type=gtwy:enttype=lnkset:lsn=ls1201a
  ```

- MP

  ```
  rept-ftp-meas:type=gtwy:enttype=lnkset
  ```

Measurement Events

Table 142: Gateway Linkset Measurements

Event Name	Description	Unit
TFPTRAN	The number of transfer prohibited (TFP) and transfer cluster prohibited (TCP) MSUs transmitted.	peg count
TFPRECD	The number of TFP and TCP MSUs received.	peg count
TFRTRAN	The number of transfer restricted (TFR) and transfer cluster restricted (TCR) MSUs transmitted.	peg count
TFRRECD	The number of TFR and TCR MSUs received.	peg count
TFATRAN	The number of transfer allowed (TFA) and transfer cluster allowed (TCA) MSUs transmitted.	peg count
TFARECD	The number of TFA and TCA MSUs received.	peg count
SRSTTRAN	The number of signaling routeset test (SRST) and cluster signaling routeset test (CSRST) MSUs transmitted.	peg count
SRSTRECD	The number of SRST and CSRST MSUs received.	peg count
SRSCTRAN	The number of signaling routeset congestion test (SRSCT) MSUs transmitted.	peg count
SRSCTRCD	The number of SRSCT MSUs received.	peg count

Event Name	Description	Unit
TSTMTRCD	The number of testing and maintenance (T&M) MSUs received.	peg count
SSPTRAN	The number of subsystem prohibited (SSP) MSUs transmitted.	peg count
SSPRECD	The number of SSP MSUs received.	peg count
SSATRAN	The number of subsystem allowed (SSA) MSUs transmitted.	peg count
SSARECD	The number of SSA MSUs received.	peg count
SSTTRAN	The number of subsystem status test (SST) MSUs transmitted.	peg count
SSTRECD	The number of SST MSUs received.	peg count
SLTRECD	The number of signaling link tests received.	peg count
STATUS	**Indication of Data Validity** **K** – indicates good data **I**– indicates incomplete interval; **N** – indicates data not current.	status

OAM Reports

- Example of `rept-meas:type=gtwy:enttype=lnkset:lsn=ls1201`

```
tekelecstp 03-12-19 13:35:08 EST EAGLE 34.0.0
TYPE OF REPORT: GATEWAY MEASUREMENTS ON LINKSET
REPORT PERIOD: LAST
REPORT INTERVAL:  03-12-19,  13:00:00 THROUGH 13:29:59

LINKSET-GTWY MEASUREMENTS: ls1201
```

```
    These measurements are from 03-12-19, 13:00:00 through 13:29:59.
    TFPTRAN    =         0, TFPRECD    =         0, TFRTRAN    =         0,
    TFRRECD    =         0, TFATRAN    =         0, TFARECD    =         0,
    SRSTTRAN   =         0, SRSTRECD   =         0, SLTRECD    =         0,
    SRSCTRAN   =         0, SRSCRECD   =         0, TSTMTRCD   =         0,
    SSPTRAN    =         0, SSPRECD    =         0, SSATRAN    =         0,
    SSARECD    =         0, SSTTRAN    =         0, SSTRECD    =         0

;
    tekelecstp 03-12-19 13:35:10 EST EAGLE 34.0.0
    END OF ON-DEMAND LINKSET-GTWY MEASUREMENT REPORT
;
```

MP Reports

MP Example Output File Name: gtwy-lnkset_19990117_1530.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"GATEWAY MEASUREMENTS ON
LINKSET","LAST","1999-01-17","15:00:00","15:30:00",600<cr><lf>
<cr><lf>
"STATUS","LSN","LNKTYPE","TFPTRAN","TFPRECD","TFRTRAN","TFRRECD","TFATRAN","TFARECD",
 "SRSTTRAN","SRSTRECD","SLTRECD","SRSCTRAN","SRSCRECD","TSTMTRCD","SSPTRAN",
"SSPRECD","SSATRAN","SSARECD","SSTTRAN","SSTRECD"<cr><lf>
"K","ls1201","SAAL",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
. . . . .
"K","ls5307","MTP2",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 8 char LSN + 7 char LNKTYPE + 18*(6 char data) + 2 = 129 chars

For a report of 600 linksets, typical file size is:

Table 143: Typical File Size: `gtwy-lnkset.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	214	+	77400	=	77864 bytes

enttype=lsdestni

Note:

The determination of which linksets are included in this report is controlled by the state of the gtwylsfltr field in the measurement control table. By default, only gateway linksets are included. This can be changed with the `chg-meas:gtwylsfltr={ both | stp | seas | none }` command. See the *Commands Manual* for details on using this command. The NI parameter is not part of the output for ITU GTWY linksets.

Command Examples

- OAM

```
rept-meas:type=gtwy:enttype=lsdestni:lsn=ls1201:ni=5
```

- MP

```
rept-ftp-meas:type=gtwy:enttype=lsdestni
```

Measurement Events

Table 144: Gateway LSDESTNI Measurements

Event Name	Description	Unit
MSURCVNA	The number of MSUs received from another network - not addressed to the BCC network.	peg count
OCTRCVNA	The number of MSU octets received from another network - not addressed to the BCC network.	octets
MSUTRNNA	The number of MSUs transmitted - addressed to a network other than the adjacent receiving network.	peg count
OCTTRNNA	The number of MSU octets transmitted - addressed to a network other than the adjacent receiving network.	octets
STATUS	**Indication of Data Validity** **K** – indicates good data **I** – indicates incomplete interval; **N** – indicates data not current.	status
TFCGTRAN	The number transfer controlled (TFC) MSUs transmitted - originated by the gateway STP.	peg count

OAM Reports

OAM Example Output:

```
    tekelecstp 03-12-19 12:30:16 EST EAGLE 34.0.0
    TYPE OF REPORT: GATEWAY MEASUREMENTS ON LSDESTNI
    REPORT PERIOD: LAST
    REPORT INTERVAL:  03-12-19,  12:00:00 THROUGH 12:29:59

    LSDESTNI-GTWY MEASUREMENTS: LSN: ls1201, NI: 5

    These measurements are from 03-12-19, 12:00:00 through 12:29:59.
    MSURCVNA   =   5040000, OCTRCVNA   =   201600K, MSUTRNNA   =    834033,
    OCTTRNNA   =  14757021, TFCGTRAN   =         0

;
    tekelecstp 03-12-19 12:30:18 EST EAGLE 34.0.0
    END OF ON-DEMAND LSDESTNI-GTWY MEASUREMENT REPORT
;
```

MP Reports

MP Example Output File Name: gtwy-lsdestni_19990117_1530.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"GATEWAY MEASUREMENTS ON
LSDESTNI","LAST","1999-01-17","15:00:00","15:30:00",400<cr><lf>
<cr><lf>
"STATUS","LSN","LSTYPE","NI","MSURCVNA","OCTRCVNA","MSUTRNNA","OCTTRNNA","TFCGTRAN"<cr><lf>
"K","ls1201","ANSI",5,5040000,201600K,834033,14757021,0<cr><lf>
. . . . .
"K","lsitu","ITU",,5040000,201600K,834033,14757021,0<cr><lf>
```

Assuming each data line will be:

4 char status + 8 char LSN + 6 char LSTYPE + 4 char NI + 5*(6 char data) + 2 = 54 chars

For a report of 400 LSDESTNIs, the typical file size is:

Table 145: Typical File Size: `gtwy-lsdestni.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	86	+	21600	=	21936 bytes

enttype=lsorigni

Note:

The determination of which linksets are included in this report is not controlled by the state of the gtwylsfltr field in the measurement control table. LSONISMT register MSUISPMT counts are

rolled into the MSUDSCRD register. . It is possible to have counts for MSUDSCRD, but no counts for any other registers in this report due to the MSUISPMT register count in the LSONISMT report.

The NI parameter is not part of the output for ITU GTWY linksets.

The NI parameter is not part of the output for ITU GTWY linksets.

Command Examples

- OAM

```
rept-meas:type=gtwy:enttype=lsorigni:lsn=ls1201:ni=12
```

- MP

```
rept-ftp-meas:type=gtwy:enttype=lsorigni
```

Measurement Events

Table 146: Gateway LSORGINI Measurements

Event Name	Description	Unit
TFCGRECD	The number of transfer controlled (TFC) MSUs received	peg count
MSURJOPC	The number of MSUs rejected due to screening - disallowed OPC.	peg count
MSURJDPC	The number of MSUs rejected due to screening - disallowed DPC.	peg count
MSURJCPA	The number of MSUs rejected due to screening - invalid calling party address.	peg count
MSURJAPC	The number of subsystem prohibited (SSP) and subsystem allowed (SSA) MSUs rejected due to screening - invalid affected point code.	peg count
MSURJPCS	The number of subsystem status test (SST) MSUs rejected due to screening - invalid affected point code and SSN.	peg count

Event Name	Description	Unit
MSURJHC	Number of MSUs discarded due to screening H0H1	peg count
MSURJTFC	The number of TFC MSUs rejected due to screening - invalid affected destination field.	peg count
MSURJSRT	The number of signaling routeset test (SRST) MSUs rejected due to screening - invalid affected destination field.	peg count
MSUDSCRD	The number of MSUs rejected due to screening failure.	peg count
MSURJSIO	The number of MSUs rejected due to screening - invalid service information octet (SIO).	peg count
MSURJDST	The number of MTP-NM MSUs rejected due to screening - invalid affected destination field.	peg count
MSURJTT	The number of SCCP MSUs rejected due to screening - invalid translation type.	peg count
MSURJDSN	The number of SCCP MSUs rejected due to screening - disallowed DPC/SSN.	peg count
STATUS	**Indication of Data Validity** **K** – indicates good data **I** – indicates incomplete interval; **N** – indicates data not current.	status

OAM Reports

OAM Example Output:

```
    tekelecstp 03-12-19 12:29:26 EST EAGLE 34.0.0
    TYPE OF REPORT: GATEWAY MEASUREMENTS ON LSORIGNI
    REPORT PERIOD: LAST
    REPORT INTERVAL:  03-12-19,  11:30:00 THROUGH 11:59:59

    LSORIGNI-GTWY MEASUREMENTS: LSN: ls1201, NI: 5

    These measurements are from 03-12-19, 11:30:00 through 11:59:59.
    TFCRECD    =         0, MSURJOPC   =    834033, MSURJDPC   =    834034,
    MSURJCPA   =  14757021, MSURJAPC   =  14757039, MSURJPCS   =         0,
    MSURJTFC   =         0, MSURJSRT   =         0, MSUDSCRD   =         0,
    MSURJSIO   =         0, MSURJDST   =         0, MSURJTT    =         0,
    MSURJDSN   =         0

;
    tekelecstp 03-12-19 12:29:27 EST EAGLE 34.0.0
    END OF ON-DEMAND LSORIGNI-GTWY MEASUREMENT REPORT
```

MP Reports

MP Example Output File Name: gtwy-lsorigni_19990117_1530.csv

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"GATEWAY MEASUREMENTS ON
LSORIGNI","LAST","1999-01-17","15:00:00","15:30:00",400<cr><lf>
<cr><lf>
"STAT","LSN","LSTYPE","NI","TFCRECD","MSURJOPC","MSURJDPC","MSURJPCA","MSURJAPC","MSURJPCS","MSURJTFC","MSURJSRT","MSUDSCRD","MSURJSIO","MSURJDST",
"MSURJTT","MSURJDSN"<cr><lf>
"K","ls1201","ANSI",5,0,834033,834034,14757021,14757039,0,0,0,0,0,0,0,0,0<cr><lf>
. . . . .
"K","lsitu","ITU",,0,834033,834034,14757021,14757039,0,0,0,0,0,0,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 8 char LSN + 6 char LSTYPE + 4 char NI + 14*(6 char data) + 2 = 108 chars

For a report of 400 LSORIGNIs, typical file size is:

Table 147: Typical File Size: `gtwy-lsorigni.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	173	+	43200	=	43623 bytes

enttype=lsonismt

Note:

The determination of which linksets are included in this report is not controlled by the state of the gtwylsfltr field in the measurement control table. MSUISPMT counts are rolled into the MSUDSCRD register of the LSORIGNI and STP reports.

The NI parameter is not part of the output for ITU GTWY linksets.

The NI parameter is not part of the output for ITU GTWY linksets.

Command Examples

- OAM

```
rept-meas:type=gtwy:enttype=lsonismt:lsn=ls1201a:ni=43
```

- MP

```
rept-ftp-meas:type=gtwy:enttype=lsonismt
```

Measurement Events

Table 148: Gateway LSONISMT Measurements

Event Name	Description	Unit
MSUISPMT	Number of ISDNUP MSUs rejected due to screening -- invalid ISUP message type	peg count

OAM Reports

OAM Example Output:

```
    tekelecstp 03-12-19 12:29:26 EST EAGLE 34.0.0
    TYPE OF REPORT: GATEWAY MEASUREMENTS ON LSONISMT
    REPORT PERIOD: LAST
    REPORT INTERVAL:  02-12-19,  12:00:00 THROUGH 12:29:59

    LSONISMT-GTWY MEASUREMENTS: LSN: ls1201a, NI: 43, ISMT: 6

    These measurements are from 02-12-19, 12:00:00 through 12:29:59.
    MSUISPMT   =     45397

;
    LSONISMT-GTWY MEASUREMENTS: LSN: ls1201a, NI: 43, ISMT: 7

    These measurements are from 02-12-19, 12:00:00 through 12:29:59.
    MSUISPMT   =     61423
;
    tekelecstp 02-12-19 12:41:21 EST EAGLE 34.0.0
    END OF ON-DEMAND LSONISMT-GTWY MEASUREMENT REPORT
;
```

MP Reports

MP Example Output File Name: gtwy-lsonismt_20021217_1530.csv

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","30.0.0-48.1.0","2002-12-17","15:51:37","EST",
```

```
"GATEWAY MEASUREMENTS ON
LSONISMT","LAST","2002-12-17","15:00:00","15:30:00",400<cr><lf>
<cr><lf>
"STATUS","LSN","LSTYPE","NI","ISMT","MSUISPMT"<cr><lf>
"K","ls1201","ANSI",5,6,34033<cr><lf>
. . . . .
"K","lsitu","ITU",,7,57021<cr><lf>
```

Assuming each data line will be:

4 char status + 8 char LSN + 6 char LSTYPE + 4 char NI + 4 char ISMT + 1*(6 char data) + 2 = 34 chars

For a report of 400 LSONISMT, typical file size is:

Table 149: Typical File Size: `gtwy-lsonismt.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	49	+	13600	=	13899 bytes

Record Base Measurements

The RBASE measurements report various data related to the configuration or status of the EAGLE 5 ISS's major configurable components. The data in this measurement report is obtained from either the database or from maintenance tasks performed on the EAGLE 5 ISS. The data is not periodically collected and stored in the manner of other measurements data, but it is collected on demand when a RBASE measurement report is requested.

Entity Types: STP, Lnkset, and Link

Accumulation Interval: Snapshot

STP Retention Period: None

Reporting Mode: Scheduled-Polled (SEAS only), On-demand

Accessible Collection Period: Active

enttype=stp

Command Examples

- OAM

  ```
  rept-meas:type=rbase:enttype=stp
  ```

- MP

  ```
  rept-ftp-meas:type=rbase:enttype=stp
  ```

Measurement Events

Table 150: Record Base STP Measurements

Event Name	Description	Unit
BUSS	The number of IS-NR or IS-ANR IMT buses	peg count
CTSDLSST	The value of the SCCP Management: subsystem status test (SS7) delay timer (level 3 T32 timer). This value of this timer is fixed at 30 seconds and is not configurable.	seconds
LINKS	The number of configured signaling links.	peg count
LNKSETS	The number of configured linksets.	peg count
NT1TDCHO	The value of the delay to avoid mis-sequencing on changeover timer (level 3 T1 timer).	seconds
NT2CHOAK	The value of the waiting for changeover acknowledgment timer (level 3 T2 timer).	seconds
NT3TDCHB	The value of the delay to avoid mis-sequencing on changeback timer (level 3 T3 timer).	seconds
NT4CHBK1	The value of the waiting for changeover acknowledgment (first attempt) timer (level 3 T4 timer).	seconds
NT5CHBK2	The value of the waiting for changeover acknowledgment (second attempt) timer (level 3 T5 timer).	seconds
NT6TDCRR	The value of the delay to avoid mis-sequencing on controlled	seconds

Event Name	Description	Unit
	rerouting timer (level 3 T6 timer).	
NT7SLKCN	The value of the waiting for signaling link connection acknowledgment timer (level 3 T7 timer).	seconds
NT8TRPRH	The value of the transfer prohibited inhibited timer (level 3 T8 timer).	seconds
NT10SRST	The value of the waiting to repeat signaling routeset test timer (level 3 T10 timer).	seconds
NT11TFRS	The value of the transfer restricted timer (level 3 T11 timer).	seconds
NT12UNAK	The value of the waiting for uninhibit timer (level 3 T12 timer).	seconds
NT13FUNH	The value of the waiting for force uninhibit timer (level 3 T13 timer).	seconds
NT14INAK	The value of the waiting for inhibition acknowledgment timer (level 3 T14 timer).	seconds
NT15RSCT	The value of the waiting for repeat signaling routeset congestion test timer (level 3 T15 timer).	seconds
NT16RSCS	The value of the waiting for routeset status update timer (level 3 T16 timer).	seconds
NT17REAL	The value of the delay to avoid oscillation of initial alignment failure and restart timer (level 3 T17 timer).	seconds

Event Name	Description	Unit
NT18TCLR	The value of the transfer cluster restricted interval timer (level 3 T18 timer).	seconds
NT19FLKR	The value of the failed link craft referral timer (level 3 T19 timer).	seconds
NT20RLIH	The value of the waiting to repeat local inhibit test timer (level 3 T20 timer).	seconds
NT21RRIH	The value of the waiting to repeat remote inhibit test timer (level 3 T21 timer).	seconds
NT22RSTL	The value of the restarting SP waiting for links to become available timer (level 3 T22 timer).	seconds
NT23WTRA	The value of the waiting after T22 to receive all TRAs timer (level 3 T23 timer).	seconds
NT24BTRA	The value of the restarting: waiting to broadcast all TRAs timer (level 3 T24 timer).	seconds
NT25WTRA	The value of the adjacent and restarting: waiting for TRA timer (level 3 T25 timer).	seconds
NT26RTRW	The value of the restarting: waiting to repeat TRW timer (level 3 T26 timer).	seconds
NT28WTRW	The value of the adjacent: waiting for TRW timer (level 3 T28 timer).	seconds
NT29RSUX	The value of the TRA sent, unexpected TRA, TRW, resumption timer (level 3 T29 timer).	seconds

Event Name	Description	Unit
NT30LMTF	The value of the limit TFPs/TFRs for unexpected TRAs/TRWs timer (level 3 T30 timer).	seconds
NT31FLCD	The value of the false link congestion detection timer (level 3 T31 timer).	seconds
NT32OSCA	The value of the link oscillation filter - procedure A timer (level 3 T32 timer).	seconds
PROCS	The number of configured cards that are in service normal (IS-NR) or in-service abnormal (IS-ANR).	peg count
STATUS	**Indication of Data Validity** **K** – indicates good data **I** – indicates incomplete interval; **N** – indicates data not current.	status
STLOOP	The value of the supervision timer for circular route detection test timer (the value of the mtpltst parameter of the chg-stpopts command).	seconds

OAM Reports

OAM Example Output:

```
tekelecstp 03-12-11 10:18:36 EST EAGLE 34.0.0
TYPE OF REPORT: RECORD BASE MEASUREMENTS ON STP
REPORT PERIOD: ACTIVE
REPORT INTERVAL:  03-12-11,  10:18:36 THROUGH CURRENT
STP-RBASE MEASUREMENTS
PROCS      =         0, LNKSETS    =         0, LINKS      =         0,
BUSS       =         0, NT1TDCHO   =         0, NT2CHOAK   =         0,
NT3DCHB    =         0, NT4CHBK1   =         0, NT5CHBK2   =         0,
NT6DCRR    =         0, NT7SLKCN   =         0, NT8TRPRH   =         0,
NT10SRST   =         0, NT11TFRS   =         0, NT12UNAK   =         0,
NT13FUNH   =         0, NT14NAK    =         0, NT15RSCT   =         0,
NT16RSCS   =         0, NT17REAL   =         0, NT18TCLR   =         0,
NT19FLKR   =         0, NT20RLIH   =         0, NT21RRIH   =         0,
NT22RSTL   =         0, NT23WTRA   =         0, NT24BTRA   =         0,
```

```
    NT25WTRA   =         0, NT26RTRW   =         0, NT28WTRW   =         0,
    NT29RSUX   =         0, NT30LMTF   =         0, NT31FLCD   =         0,
    NT32OSCA   =         0, STLOOP     =         0, CTSDLSST   =         0
;
```

MP Reports

MP Example Output File Name: rbase-stp_19990117_1551.csv

Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","34.0.0-39.1.0","1999-01-17","15:51:37","EST",
"RECORD BASE MEASUREMENTS ON
STP","ACTIVE","1999-01-17","15:51:32","15:51:32",1<cr><lf>
<cr><lf>
"STATUS","PROCS","LNKSETS","LINKS","BUSS","NT1TDCHO","NT2CHOAK","NT3DCHB",
"NT4CHBK1","NT5CHBK2","NT6DCRR","NT7SLKCN","NT8TRPRH","NT10SRST","NT11TFRS",
"NT12UNAK","NT13FUNH","NT14NAK","NT15RSCT","NT16RSCS","NT17REAL","NT18TCLR",
"NT19FLKR","NT20RLIH","NT21RRIH","NT22RSTL","NT23WTRA","NT24BTRA","NT25WTRA",
"NT26RTRW","NT28WTRW","NT29RSUX","NT30LMTF","NT31FLCD","NT32OSCA","STLOOP",
"CTSDLSST"<cr><lf>
"K",50,100,340,2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
 <cr><lf>
```

Typical file size is:

Table 151: Typical File Size: `rbase-stp.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	390	+	222	=	862 bytes

enttype=link

Certain registers are reported for MTP2, SAAL, IPVL, and IPVHSL classes. These registers are summarized in

Table 152: Registers reported LINK Measurements

Register	MTP2, IPVL, IPVLGW, & IPVHSL usage	SAAL usage
LT1ALNRD	as described	not reported
LT2NOALN	as described	not reported
LT3ALIND	as described	not reported
LT4NMLPV	as described	not reported

Register	MTP2, IPVL, IPVLGW, & IPVHSL usage	SAAL usage
LT4EMGPV	as described	not reported
LT5SDSIB	as described	not reported
LT6RMCNG	as described	not reported
LT7XDLAK	as described	not reported

Command Examples

- OAM

```
rept-meas:type=rbase:enttype=link:loc=1201:link=a
rept-meas:type=rbase:enttype=link:lsn=ls3
```

- MP

```
rept-ftp-meas:type=rbase:enttype=link
```

Measurement Events

Table 153: Record Base Link Measurements

Event Name	Description	Unit
CNGONTH1	The level 1 congestion onset threshold for link transmit buffers	MSUs
CNGDITH1	The level 1 congestion discard threshold for link transmit buffers	MSUs
CNGABTH1	The level 1 congestion abatement threshold for link transmit buffers	MSUs
CNGONTH2	The level 2 congestion onset threshold for link transmit buffers	MSUs

Event Name	Description	Unit
CNGDITH2	The level 2 congestion discard threshold for link transmit buffers	MSUs
CNGABTH2	The level 2 congestion abatement threshold for link transmit buffers	MSUs
CNGONTH3	The level 3 congestion onset threshold for link transmit buffers	MSUs
CNGDITH3	The level 3 congestion discard threshold for link transmit buffers	MSUs
CNGABTH3	The level 3 congestion abatement threshold for link transmit buffers	MSUs
STATUS	**Indication of Data Validity** **K** – indicates good data **I** – indicates incomplete interval; **N** – indicates data not current.	status
The following registers are applicable to MTP level 2 links ONLY. These registers are omitted from reports for ATM based links on EAGLE 5 ISS HMI output. On SEAS reports these registers are reported as ZERO-valued.		
LT1ALNRD	The value of the aligned/ready timer (level 2 T1 timer).	seconds
LT2NOALN	The value of the not aligned timer (level 2 T2 timer).	seconds
LT3ALIND	The value of the aligned timer (level 2 T3 timer).	seconds

Event Name	Description	Unit
LT4NMLPV	The value of the proving period (normal) timer (level 2 T4npp timer).	seconds
LT4EMGPV	The value of the proving period (emergency) timer (level 2 T4epp timer).	seconds
LT5SDSIB	The value of the sending SIB timer (level 2 T5 timer).	seconds
LT6RMCNG	The value of the remote congestion timer (level 2 T6 timer).	seconds
LT7XDLAK	The value of the excessive delay of acknowledgment timer (level 2 T7 timer).	seconds

OAM Reports

- Example of `rept-meas:type=rbase:enttype=link:loc=1201:link=a`

```
    eagle10706 07-11-16 02:44:58 UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: RECORD BASE MEASUREMENTS ON LINK
    REPORT PERIOD: ACTIVE
    REPORT INTERVAL:  07-11-16,  02:44:58 THROUGH CURRENT

    LINK-RBASE MEASUREMENTS FOR LINKSET lsn4:


    eagle10706 07-11-16 02:45:00 UNKNOWN 38.0.0-XX.XX.0
    LINK-RBASE MEASUREMENTS: LOC: 1202, LINK: B  , LSN: lsn4          (MTP2)


    CNGONTH1   =        80, CNGDITH1   =        99, CNGABTH1   =        60,
    CNGONTH2   =       101, CNGDITH2   =       109, CNGABTH2   =        81,
    CNGONTH3   =       111, CNGDITH3   =       120, CNGABTH3   =       101,
    LT1ALNRD   =         5, LT2NOALN   =        30, LT3ALIND   =         5,
    LT4NMLPV   =       2.3, LT4EMGPV   =       0.6, LT5SDSIB   =       0.5,
    LT6RMCNG   =         4, LT7XDLAK   =       1.5

;

    eagle10706 07-12-31 02:45:00  UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-RBASE MEASUREMENT REPORT

;

    eagle10506 07-11-16 02:45:00 UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: RECORD BASE MEASUREMENTS ON LINK
    REPORT PERIOD: ACTIVE
    REPORT INTERVAL:  06-12-15,  14:15:17 THROUGH CURRENT
```

```
    LINK-RBASE MEASUREMENTS: LOC: 1203, LINK: A  , LSN: ipls1          (IPVL)


    CNGONTH1   =        80, CNGDITH1   =        99, CNGABTH1   =        60,
    CNGONTH2   =       101, CNGDITH2   =       109, CNGABTH2   =        81,
    CNGONTH3   =       111, CNGDITH3   =       120, CNGABTH3   =       101,
    LT1ALNRD   =         5, LT2NOALN   =        30, LT3ALIND   =         5,
    LT4NMLPV   =       2.3, LT4EMGPV   =       0.6, LT5SDSIB   =       0.5,
    LT6RMCNG   =         4, LT7XDLAK   =       1.5

;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-RBASE MEASUREMENT REPORT

;

    eagle10506 07-11-16 02:45:00 UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: RECORD BASE MEASUREMENTS ON LINK
    REPORT PERIOD: ACTIVE
    REPORT INTERVAL:  06-12-15,  14:15:17 THROUGH CURRENT

   LINK-RBASE MEASUREMENTS: LOC: 1203, LINK: A  , LSN: ipls1         (IPVLGW)


    CNGONTH1   =        80, CNGDITH1   =        99, CNGABTH1   =        60,
    CNGONTH2   =       101, CNGDITH2   =       109, CNGABTH2   =        81,
    CNGONTH3   =       111, CNGDITH3   =       120, CNGABTH3   =       101,
    LT1ALNRD   =         5, LT2NOALN   =        30, LT3ALIND   =         5,
    LT4NMLPV   =       2.3, LT4EMGPV   =       0.6, LT5SDSIB   =       0.5,
    LT6RMCNG   =         4, LT7XDLAK   =       1.5

;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-RBASE MEASUREMENT REPORT

;


    eagle10506 07-11-16 02:45:00 UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: RECORD BASE MEASUREMENTS ON LINK
    REPORT PERIOD: ACTIVE
    REPORT INTERVAL:  06-12-15,  14:15:17 THROUGH CURRENT

   LINK-RBASE MEASUREMENTS: LOC: 1203, LINK: A  , LSN: ipls1         (IPVHSL)


    CNGONTH1   =        80, CNGDITH1   =        99, CNGABTH1   =        60,
    CNGONTH2   =       101, CNGDITH2   =       109, CNGABTH2   =        81,
    CNGONTH3   =       111, CNGDITH3   =       120, CNGABTH3   =       101,
    LT1ALNRD   =         5, LT2NOALN   =        30, LT3ALIND   =         5,
    LT4NMLPV   =       2.3, LT4EMGPV   =       0.6, LT5SDSIB   =       0.5,
    LT6RMCNG   =         4, LT7XDLAK   =       1.5

;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-RBASE MEASUREMENT REPORT


;

    eagle10506 07-11-16 02:45:00 UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: RECORD BASE MEASUREMENTS ON LINK
```

```
    REPORT PERIOD: ACTIVE
    REPORT INTERVAL:  06-12-15,  14:15:17 THROUGH CURRENT

    LINK-RBASE MEASUREMENTS: LOC: 1204, LINK: A  , LSN: lsn4          (SAAL)


    CNGONTH1   =       930, CNGDITH1   =      2490, CNGABTH1   =       780,
    CNGONTH2   =      2790, CNGDITH2   =      4350, CNGABTH2   =      2640,
    CNGONTH3   =      4560, CNGDITH3   =      5250, CNGABTH3   =      4500

;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-RBASE MEASUREMENT REPORT
;
```

- Example of `rept-meas:type=rbase:enttype=link:lsn=ls3`

```
    tekelecstp 02-12-19 17:13:40 **** UNKNOWN 38.0.0
    rept-meas:type=rbase:enttype=link:lsn=ls3
;
    tekelecstp 02-12-19 17:10:00 **** UNKNOWN 38.0.0
    TYPE OF REPORT: RECORD BASE MEASUREMENTS ON LINK
    REPORT PERIOD: ACTIVE
    REPORT INTERVAL:  02-12-19,  17:10:00 THROUGH CURRENT

    LINK-RBASE MEASUREMENTS FOR LINKSET ls3:

    LINK-RBASE MEASUREMENTS: LOC: 1202, LINK: A  , LSN: ls3           (MTP2)


    CNGONTH1   =        80, CNGDITH1   =        99, CNGABTH1   =        60,
    CNGONTH2   =       101, CNGDITH2   =       109, CNGABTH2   =        81,
    CNGONTH3   =       111, CNGDITH3   =       120, CNGABTH3   =       102,
    LT1ALNRD   =        13, LT2NOALN   =      11.5, LT3ALIND   =      11.5,
    LT4NMLPV   =       2.3, LT4EMGPV   =       0.6, LT5SDSIB   =       0.1,
    LT6RMCNG   =         4, LT7XDLAK   =       1.5

;

    tekelecstp 02-12-19 17:10:02 **** UNKNOWN 38.0.0
    LINK-RBASE MEASUREMENTS: LOC: 1202, LINK: A1 , LSN: ls3           (MTP2)


    CNGONTH1   =        80, CNGDITH1   =        99, CNGABTH1   =        60,
    CNGONTH2   =       101, CNGDITH2   =       109, CNGABTH2   =        81,
    CNGONTH3   =       111, CNGDITH3   =       120, CNGABTH3   =       102,
    LT1ALNRD   =        13, LT2NOALN   =      11.5, LT3ALIND   =      11.5,
    LT4NMLPV   =       2.3, LT4EMGPV   =       0.6, LT5SDSIB   =       0.1,
    LT6RMCNG   =         4, LT7XDLAK   =       1.5

;

    tekelecstp 02-12-19 17:10:04 **** UNKNOWN 38.0.0
    LINK-RBASE MEASUREMENTS: LOC: 1202, LINK: A2 , LSN: ls3           (MTP2)


    CNGONTH1   =        80, CNGDITH1   =        99, CNGABTH1   =        60,
    CNGONTH2   =       101, CNGDITH2   =       109, CNGABTH2   =        81,
    CNGONTH3   =       111, CNGDITH3   =       120, CNGABTH3   =       102,
    LT1ALNRD   =        13, LT2NOALN   =      11.5, LT3ALIND   =      11.5,
    LT4NMLPV   =       2.3, LT4EMGPV   =       0.6, LT5SDSIB   =       0.1,
    LT6RMCNG   =         4, LT7XDLAK   =       1.5
```

```
;

    tekelecstp 02-12-19 17:10:05 **** UNKNOWN 38.0.0
    LINK-RBASE MEASUREMENTS: LOC: 1202, LINK: A3 , LSN: ls3           (MTP2)


    CNGONTH1   =        80, CNGDITH1   =        99, CNGABTH1   =        60,
    CNGONTH2   =       101, CNGDITH2   =       109, CNGABTH2   =        81,
    CNGONTH3   =       111, CNGDITH3   =       120, CNGABTH3   =       102,
    LT1ALNRD   =        13, LT2NOALN   =      11.5, LT3ALIND   =      11.5,
    LT4NMLPV   =       2.3, LT4EMGPV   =       0.6, LT5SDSIB   =       0.1,
    LT6RMCNG   =         4, LT7XDLAK   =       1.5

;

    tekelecstp 02-12-19 17:10:06 **** UNKNOWN 38.0.0
    LINK-RBASE MEASUREMENTS: LOC: 1202, LINK: B  , LSN: ls3           (MTP2)


    CNGONTH1   =        80, CNGDITH1   =        99, CNGABTH1   =        60,
    CNGONTH2   =       101, CNGDITH2   =       109, CNGABTH2   =        81,
    CNGONTH3   =       111, CNGDITH3   =       120, CNGABTH3   =       102,
    LT1ALNRD   =        13, LT2NOALN   =      11.5, LT3ALIND   =      11.5,
    LT4NMLPV   =       2.3, LT4EMGPV   =       0.6, LT5SDSIB   =       0.1,
    LT6RMCNG   =         4, LT7XDLAK   =       1.5

;

    tekelecstp 02-12-19 17:10:07 **** UNKNOWN 38.0.0
    END OF ON-DEMAND LINK-RBASE MEASUREMENT REPORT
;
```

MP Reports

MP Example Output File Name: rbase-link_19990117_1551.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp",”38.0.0-XX.XX.0”,”2007-12-31”,"15:51:37","EST",
"RECORD BASE MEASUREMENTS ON
LINK","ACTIVE",”2007-12-31”,"15:51:32","15:51:32",120<cr><lf>
<cr><lf>
"STATUS","LSN","LOC","LINK","LNKTYPE","CNGONTH1","CNGDITH1","CNGABTH1","CNGONTH2","CNGDITH2",
"CNGABTH2","CNGONTH3","CNGDITH3","CNGABTH3","LT1ALNRD","LT2NOALN","LT3ALIND","LT4NMLPV",
"LT4EMGPV","LT5SDSIB","LT6RMCNG","LT7XDLAK"<cr><lf>
"K","lsn4","1202","B2","MTP2",80,99,60,101,109,81,111,120,101,5,30,5,2.3,0.6,0.5,4,1.5<cr><lf>

. . . . .

"K","ipls1","1206","A","IPVL",80,99,60,101,109,81,111,120,101,5,30,5,2.3,0.6,0.5,4,1.5<cr><lf>
"K","ipls1","2206","A","IPVLGW",80,99,60,101,109,81,111,120,101,5,30,5,2.3,0.6,0.5,4,1.5<cr><lf>
"K","ipls2","1207","A","IPVHSL",80,99,60,101,109,81,111,120,101,5,30,5,2.3,0.6,0.5,4,1.5<cr><lf>
"K","lsn4403","1204","A","SAAL",930,2490,780,2790,4350,2640,4560,5250,4500,
0,0,0,0,0,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 8 char LSN + 7 char LOC + 5 char PORT + 7 char LNKTYPE + 17*(6 char data) + 2 = 135 chars

For a report of 600 linksets, the typical file size is:

Table 154: Typical File Size: `rbase-link.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	226	+	81000	=	81476 bytes

enttype=lnkset

Command Examples

- OAM

```
rept-meas:type=rbase:enttype=lnkset:lsn=1201a
```

- MP

```
rept-ftp-meas:type=rbase:enttype=lnkset
```

Measurement Events

Table 155: Record Base Linkset Measurements

Event Name	Description	Unit
LINKS	The number of configured signaling links.	peg count
RCLKBFRS	The number of receiving link buffers. The number of receiving link buffers is always 1 for each signaling link, so a value of 1 is always reported for this register.	peg count
ST01SLTA	Supervision timer for SLTA.	seconds
ST02SLTI	SLT interval timer.	seconds
STATUS	**Indication of Data Validity** **K** – indicates good data **I** – indicates incomplete interval; **N** – indicates data not current.	status

OAM Reports

- Example of `rept-meas:type=nm:enttype=lnkset:lsn=xxxx`

```
    tekelecstp 99-02-15 14:15:17 EST EAGLE 34.0.0
    TYPE OF REPORT: NETWORK MANAGEMENT MEASUREMENTS ON LNKSET
    REPORT PERIOD: LAST
    REPORT INTERVAL:  99-02-15,  14:10:00 THROUGH 14:14:59
    LNKSET-NM MEASUREMENTS: lsnxxx
    These measurements are from 99-02-15, 14:10:00 through 14:14:59.
    OCTTRAN    =         0, OCTRECVD   =         0, MSUTRAN    =         0,
    MSURECVD   =         0
;
    tekelecstp 99-02-15 14:15:18 EST EAGLE 34.0.0
    END OF ON-DEMAND LNKSET-NM MEASUREMENT REPORT
;
```

MP Reports

MP Example Output File Name: rbase-lnkset_20071115_1551.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","37.5.0-58.25.0",”2007-11-15","15:51:37","EST",
"RECORD BASE MEASUREMENTS ON
LNKSET","ACTIVE",”2007-11-15","15:51:32","15:51:32",120<cr><lf>
<cr><lf>
"STATUS","LSN","LNKTYPE","LINKS","RCLKBFRS","ST01SLTA","ST02SLTI"<cr><lf>
"K","ls1201","SAAL",4,3,0,0<cr><lf>

. . . . .

"K","ls5204","MTP2",6,2,0,0<cr><lf>
"K","ipls1","IPVL",4,3,0,0<cr><lf>
"K","ipls2","IPVHSL",4,3,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 8 char LSN + 7 char LNKTYPE + 4*(6 char data) + 2 = 45 chars

For a report of 600 linksets, the typical file size is:

Table 156: Typical File Size: `rbase-lnkset.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	67	+	27000	=	27317 bytes

Maintenance Status Reports

The Maintenance Status (MTCS) report is a snapshot of the maintenance status indicators. It supports entity types LINK and LNKSET. The report is available through the EAGLE 5 ISS terminal interface and through the SEAS interface via the OAP.

Entity Types: Lnkset and Link

Accumulation Interval: Snapshot

STP Retention Period: None

Reporting Mode: On-demand (EAGLE 5 ISS/SEAS)

Accessible Collection Period: Active (snapshot)

enttype=link

Command Examples

- OAM

```
rept-meas:type=mtcs:enttype=link:loc=1201:link=a
rept-meas:type=mtcs:enttype=link:lsn=ls3:period=active
```

- MP

```
rept-ftp-meas:type=mtcs:enttype=link
```

Measurement Events

Table 157: Maintenance Status Link Measurements

Event Name	Description	Unit
LKMTCST	Maintenance State	**ACT –** link primary state is IS-NR and is or can be used to carry traffic. **UNAV** - link has been made unavailable by local or centralized maintenance personnel (inhibited or canceled link or active local processor outage). **OOS** – link out-of-service but can be made available by the STP.

Event Name	Description	Unit
PROSTAT	Indication of processor outage status units being received.	**Y –** link failure reason of remote processor outage exists. **N** - link failure reason of remote processor outage does not exist.
PROTRAN	Indication of processor outage status units being transmitted.	**Y** – link failure reason of local processor outage exists. **N** - link failure reason of local processor outage does not exist.
MGMTINHB	Indication of link management inhibit status	**L** (Local) - link is deactivated or inhibited or link failure reason of local processor outage exists. **R** (remote) - link failure reason of remote processor outage exists or remote management initiated exists. **B** (Both) –both local and remove failure reasons exist. **N** (Not/Neither) no local or remote failure reasons exists.
CGSTLEVL	Current link transmit congestion level	Congestion level: **0 –** no link congestion **1, 2, or 3** - link congestion level exists.
CGSTSTAT	Current link transmit congestion state	**N –** none (congestion level 0) **O** – onset (congestion level 1, 2, or 3)
STATUS	**Indication of Data Validity** **K** – indicates good data **I** – indicates incomplete interval; **N** – indicates data not current.	status

Event Name	Description	Unit
DCLRFAIL	Indication of link declared failure state (last known cause)	**N** – not failed. LSL: Link is available to send and receive MSUs (in-service normal state). HSL: Same **ABN** – link failed due to receiving too many abnormal FIBR/BNSR. LSL: Link received 2 out of 3 invalid BSNs. Link received 2 out of 3 invalid FIBs. HSL: N/A **XDA** – Excessive delay of acknowledgment LSL: MSU not acknowledged within level 2 -T7 timer expiration. T7 configurable between .5 and 2.0 seconds. HSL: Timer no response or timer no credit expired. **XER** – Excessive error rate. Received 64 out of 256 signaling units in error. LSL: Signaling Unit Error Rate Monitor HSL: Signaling Unit-Error-Rate-Monitor threshold exceeded. **XDC** – Excessive duration of congestion LSL: Level-2 T6 timed-out HSL: N/A. **APF** – alignment/proving failure LSL: Link not aligned. Link state control aligned not ready or aligned ready timeout (T1), initial alignment control

Event Name	Description	Unit
		timeout (T2,T3), initial alignment control abort proving – maximum proving period, or initial alignment control received SIOS. HSL: N/A.

OAM Reports

- Example of `rept-meas:type=mtcs:enttype=link:loc=1201:link=a`

```
    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: MAINTENANCE STATUS INDICATORS ON LINK
    REPORT PERIOD: ACTIVE
    REPORT INTERVAL:  07-12-31,  14:17:17 THROUGH CURRENT

    LINK-MTCS MEASUREMENTS FOR LINKSET lsn4:


    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    LINK-MTCS MEASUREMENTS: LOC: 1202, LINK: B  , LSN: lsn4           (SAAL)

    LKMTCST  =       ACT, PROSTAT  =         N, PROTRAN  =         N,
    DCLRFAIL =         N, MGMTINHB =         N, CGSTLEVL =         O,
    CGSTSTAT =         N
;
    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    LINK-MTCS MEASUREMENTS: LOC: 1204, LINK: A  , LSN: lsn4          (SAAL)

    LKMTCST  =      UNAV, PROSTAT  =         N, PROTRAN  =         Y,
    DCLRFAIL =       MMR, MGMTINHB =         L, CGSTLEVL =         0,
    CGSTSTAT =         N
;
    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-RBASE MEASUREMENT REPORT

;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: MTCS MEASUREMENTS ON LINK
    REPORT PERIOD: ACTIVE
    REPORT INTERVAL:  07-12-31,  14:17:17 THROUGH CURRENT

    LINK-MTCS MEASUREMENTS FOR LINKSET ipls1:

    LINK-MTCS MEASUREMENTS: LOC: 1205, LINK: A  , LSN: ipls1          (IPVL)

    LKMTCST  =      UNAV, PROSTAT  =         N, PROTRAN  =         Y,
    DCLRFAIL =       MMR, MGMTINHB =         L, CGSTLEVL =         0,
    CGSTSTAT =         N

;
    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-RBASE MEASUREMENT REPORT

;
```

```
    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: MTCS MEASUREMENTS ON LINK
    REPORT PERIOD: ACTIVE
    REPORT INTERVAL:  07-12-31,  14:17:17 THROUGH CURRENT

    LINK-MTCS MEASUREMENTS FOR LINKSET ipls1:

   LINK-MTCS MEASUREMENTS: LOC: 1205, LINK: A  , LSN: ipls1         (IPVLGW)


    LKMTCST  =      UNAV, PROSTAT  =         N, PROTRAN  =         Y,
    DCLRFAIL =       MMR, MGMTINHB =         L, CGSTLEVL =         0,
    CGSTSTAT =         N

;
    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-RBASE MEASUREMENT REPORT

;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: MAINTENANCE STATUS INDICATORS ON LINK
    REPORT PERIOD: ACTIVE
    REPORT INTERVAL:  07-12-31,  14:17:17 THROUGH CURRENT

    LINK-MTCS MEASUREMENTS FOR LINKSET ipls2:

   LINK-MTCS MEASUREMENTS: LOC: 1206, LINK: A  , LSN: ipls2         (IPVHSL)


    LKMTCST  =      UNAV, PROSTAT  =         N, PROTRAN  =         Y,
    DCLRFAIL =       MMR, MGMTINHB =         L, CGSTLEVL =         0,
    CGSTSTAT =         N

;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-MTCS MEASUREMENT REPORT
```

- Example of `rept-meas:type=mtcs:enttype=link:lsn=ls3:period=active`

```
    tekelecstp 02-12-19 17:08:33 **** UNKNOWN 38.0.0
    rept-meas:type=mtcs:enttype=link:lsn=ls3:period=active
;

    tekelecstp 02-12-19 17:08:33 **** UNKNOWN 38.0.0
    Measurements Report will be generated.
;

    tekelecstp 02-12-19 17:08:33 **** UNKNOWN 38.0.0
    TYPE OF REPORT: MAINTENANCE STATUS INDICATORS ON LINK
    REPORT PERIOD: ACTIVE
    REPORT INTERVAL:  02-12-19,  17:08:33 THROUGH CURRENT

    LINK-MTCS MEASUREMENTS FOR LINKSET ls3:

    LINK-MTCS MEASUREMENTS: LOC: 1202, LINK: A  , LSN: ls3           (MTP2)

    LKMTCST    =    'ACT', PROSTAT    =      'N', PROTRAN    =      'N',
    DCLRFAIL   =      'N', MGMTINHB   =      'N', CGSTLEVL   =      '0',
    CGSTSTAT   =      'N'

;
```

```
    tekelecstp 02-12-19 17:08:35 **** UNKNOWN 38.0.0
    LINK-MTCS MEASUREMENTS: LOC: 1202, LINK: A1 , LSN: ls3           (MTP2)

    LKMTCST    =    'ACT', PROSTAT    =      'N', PROTRAN    =      'N',
    DCLRFAIL   =      'N', MGMTINHB   =      'N', CGSTLEVL   =      '0',
    CGSTSTAT   =      'N'

;

    tekelecstp 02-12-19 17:08:36 **** UNKNOWN 38.0.0
    LINK-MTCS MEASUREMENTS: LOC: 1202, LINK: A2 , LSN: ls3           (MTP2)

    LKMTCST    =    'ACT', PROSTAT    =      'N', PROTRAN    =      'N',
    DCLRFAIL   =      'N', MGMTINHB   =      'N', CGSTLEVL   =      '0',
    CGSTSTAT   =      'N'

;

    tekelecstp 02-12-19 17:08:36 **** UNKNOWN 38.0.0
    LINK-MTCS MEASUREMENTS: LOC: 1202, LINK: A3 , LSN: ls3           (MTP2)

    LKMTCST    =    'ACT', PROSTAT    =      'N', PROTRAN    =      'N',
    DCLRFAIL   =      'N', MGMTINHB   =      'N', CGSTLEVL   =      '0',
    CGSTSTAT   =      'N'

;

    tekelecstp 02-12-19 17:08:37 **** UNKNOWN 38.0.0
    LINK-MTCS MEASUREMENTS: LOC: 1202, LINK: B  , LSN: ls3           (MTP2)

    LKMTCST    =    'ACT', PROSTAT    =      'N', PROTRAN    =      'N',
    DCLRFAIL   =      'N', MGMTINHB   =      'N', CGSTLEVL   =      '0',
    CGSTSTAT   =      'N'

;

    tekelecstp 02-12-19 17:08:38 **** UNKNOWN 38.0.0
    END OF ON-DEMAND LINK-MTCS MEASUREMENT REPORT
;
```

MP Reports

MP Example Output File Name: mtcs-link_20070117_1551.csv

```
    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: MAINTENANCE STATUS INDICATORS ON LINK
    REPORT PERIOD: ACTIVE
    REPORT INTERVAL:  07-12-31,  14:17:17 THROUGH CURRENT

    LINK-MTCS MEASUREMENTS FOR LINKSET lsn4:


    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    LINK-MTCS MEASUREMENTS: LOC: 1202, LINK: B  , LSN: lsn4           (SAAL)

    LKMTCST  =       ACT, PROSTAT  =         N, PROTRAN  =         N,
    DCLRFAIL =         N, MGMTINHB =         N, CGSTLEVL =         O,
    CGSTSTAT =         N
;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    LINK-MTCS MEASUREMENTS: LOC: 1204, LINK: A  , LSN: lsn4          (SAAL)
```

```
    LKMTCST  =      UNAV, PROSTAT  =         N, PROTRAN  =         Y,
    DCLRFAIL =       MMR, MGMTINHB =         L, CGSTLEVL =         0,
    CGSTSTAT =         N
;
    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-RBASE MEASUREMENT REPORT

;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: MTCS MEASUREMENTS ON LINK
    REPORT PERIOD: ACTIVE
    REPORT INTERVAL:  07-12-31,  14:17:17 THROUGH CURRENT

    LINK-MTCS MEASUREMENTS FOR LINKSET ipls1:

    LINK-MTCS MEASUREMENTS: LOC: 1205, LINK: A  , LSN: ipls1          (IPVL)

    LKMTCST  =      UNAV, PROSTAT  =         N, PROTRAN  =         Y,
    DCLRFAIL =       MMR, MGMTINHB =         L, CGSTLEVL =         0,
    CGSTSTAT =         N

;
    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-RBASE MEASUREMENT REPORT

;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: MTCS MEASUREMENTS ON LINK
    REPORT PERIOD: ACTIVE
    REPORT INTERVAL:  07-12-31,  14:17:17 THROUGH CURRENT

    LINK-MTCS MEASUREMENTS FOR LINKSET ipls1:

    LINK-MTCS MEASUREMENTS: LOC: 1205, LINK: A  , LSN: ipls1          (IPVLGW)

    LKMTCST  =      UNAV, PROSTAT  =         N, PROTRAN  =         Y,
    DCLRFAIL =       MMR, MGMTINHB =         L, CGSTLEVL =         0,
    CGSTSTAT =         N

;
    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-RBASE MEASUREMENT REPORT

;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    TYPE OF REPORT: MAINTENANCE STATUS INDICATORS ON LINK
    REPORT PERIOD: ACTIVE
    REPORT INTERVAL:  07-12-31,  14:17:17 THROUGH CURRENT

    LINK-MTCS MEASUREMENTS FOR LINKSET ipls2:

    LINK-MTCS MEASUREMENTS: LOC: 1206, LINK: A  , LSN: ipls2          (IPVHSL)

    LKMTCST  =      UNAV, PROSTAT  =         N, PROTRAN  =         Y,
    DCLRFAIL =       MMR, MGMTINHB =         L, CGSTLEVL =         0,
    CGSTSTAT =         N

;

    eagle10506 07-12-31 14:15:17  UNKNOWN 38.0.0-XX.XX.0
    END OF ON-DEMAND LINK-MTCS MEASUREMENT REPORT
```

Assuming each data line will be:

4 char status + 8 char LSN + 7 char LOC + 5 char LINK + 7 char LNKTYPE + 7*(6 char data) + 2 = 75 chars

For a report of 600 linksets, the typical file size is:

Table 158: Typical File Size: `mtcs-link.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	113	+	45000	=	45363 bytes

enttype=lnkset

Command Examples

- OAM

```
rept-meas:type=mtcs:enttype=lnkset:lsn=ls1201
```

- MP

```
rept-ftp-meas:type=mtcs:enttype=lnkset
```

Measurement Events

Table 159: Maintenance Status Linkset Measurements

Event Name	Description	Unit
LKMTCST	Maintenance State	**ACT –** link primary state is IS-NR and is or can be used to carry traffic. **UNAV** - link has been made unavailable by local or centralized maintenance personnel (inhibited or canceled link or active local processor outage). **OOS** – link out-of-service but can be made available by the STP.

Event Name	Description	Unit
ACTLINKS	Number of currently active links.	Number of links in the IS-NR (ACT) state.
UAVLINKS	Number of links in the unavailable maintenance state.	Number of links in the OOS-MT-DSBLD (UNAV) state.
OOSLINKS	Number of out-of-service links	Number of links in a maintenance state other than IS-NR and OOS-MT-DSBLD.
STATUS	**Indication of Data Validity** **K** – indicates good data **I** – indicates incomplete interval; **N** – indicates data not current.	status

OAM Reports

OAM Example output:

- Example of `rept-meas:type=nm:enttype=lnkset:lsn=xxxx`

```
    tekelecstp 03-12-19 13:35:08 EST EAGLE 34.0.0
    TYPE OF REPORT: MTCS MEASUREMENTS ON LINKSET
    REPORT PERIOD: ACTIVE
    REPORT INTERVAL:  03-12-19,  13:00:00 THROUGH CURRENT

    LINKSET-MTCS MEASUREMENTS: ls1201

    These measurements are from 03-12-19, 13:00:00 through 13:29:59.
    LSMTCST =       ACT, ACTLINKS =         1, UAVLINKS =         1,
    OOSLINKS =        0,
;
    tekelecstp 03-12-19 13:35:10 EST EAGLE 34.0.0
    END OF ON-DEMAND LINKSET-MTCS MEASUREMENT REPORT
;
```

MP Reports

MP Example Output File Name: mtcs-lnkset_20070117_1551.csv

MP Example Output File Format:

```
"CLLI","SWREL","RPTDATE","RPTIME","TZ","RPTTYPE","RPTPD","IVALDATE",
"IVALSTART","IVALEND","NUMENTIDS"<cr><lf>
"tekelecstp","37.5.0-58.25.0",”2007-11-15","15:51:37","EST",
"GATEWAY MEASUREMENTS ON
LNKSET","LAST",”2007-11-15","15:00:00","15:30:00",600<cr><lf>
<cr><lf>
```

```
"STATUS","LSN","LNKTYPE","TFPTRAN","TFPRECD","TFRTRAN","TFRRECD","TFATRAN","TFARECD","SRSTTRAN",
"SRSTRECD","SLTRECD","SRSCTRAN","SRSCTRCD","TSTMTRCD","SSPTRAN","SSPRECD","SSATRAN",
"SSARECD","SSTTRAN","SSTRECD"<cr><lf>
"K","ls1201","SAAL",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>

. . . . .

"K","ipls1","IPVL",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","ipls2","IPVHSL",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","ls5307","MTP2",0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0<cr><lf>
```

Assuming each data line will be:

4 char status + 8 char LSN + 7 char LNKTYPE + 4*(6 char data) + 2 = 45 chars

For a report of 600 linksets, the typical file size is:

Table 160: Typical File Size: `mtcs-lnkset.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	69	+	27000	=	27319 bytes

Appendix A

X.25/SS7 Message Conversion

Topics:

Introduction

The X.25/SS7 gateway feature connects X.25 and SS7 networks. The EAGLE 5 ISS STP acts as a gateway between the two networks, with both X.25 and SS7 links terminating to specific cards within the EAGLE 5 ISS.

Message conversion involves removing and adding the protocol envelopes used by X.25 and SS7 networks. The MSU must have the following fields set to specific values:

Table 161: MSU Fields

Field	Value
MSU Service Indicator Octet (SIO)	SCCP
SCCP Message Type	UDT
SCCP Called Party Address Indicator	- SSN included - No GTT - Route by PC or SSN
SCCP Called Party SSN	Not equal to 1

If the SCCP message type is other than UDT (UDTS, for example) it is discarded and counted.

If the above format is present, but the SSN is equal to"1" (subsystem management messages), or the MSU SIO is equal to SNM (0000) or SNT (0001 and 0010), the MSUs are handled by network management. The EAGLE 5 ISS discards all other types of MSUs and issues an event message.

The following information is an overview of the conversion process. The subsequent section in this appendix, shows the details of the MSU and the X.25 packets that are built. The definitions for the message elements are as follows:

- Control - The portion of each message that is relevant only to the specific protocol.
- Routing Label - The SS7 portion that contains the OPC, DPC and SLS.
- SCCP - The envelope in SS7 that carries the TCAP.
- TCAP - The envelope that carries the IS.41 message.
- Logical Channel - The identification of the virtual circuit used by the X.25 network.

Conversion is closely tied to routing. The view of the origination and the destination is different on the X.25 side from the SS7 side. In format conversion, the origination and destination are known and the connection has been defined in the gateway routing table.

Conversion from X.25 to SS7

Following is an overview of the message conversion from the X.25 to SS7 network:

Table 162: MSU Fields

Field	Value
Control	1 Parameter is set to length indicator field (and internal DMA length) from received data packet length. 2 SIO set as follows:. • Sub-service field equal to 1000. • National network (10xx) and Priority of 0 (xx00). • Service indicator equal to 0011 (SCCP)
X.25 Data Network Address	1 OPC value is set from the X.25 point code field in the gateway routing table. 2 DPC value is set from SS7 point code field in the gateway routing table. 3 SLS value is set from the local variable that is incremented for each SS7-bound message. Traffic is generated evenly across all messages sent to the SS7 network.
TCAP	No conversion

If the packet type is designated as a a data packet (containing an IS41 message) following is the information appended to the level 3 SCCP header that is generated by the EAGLE 5 ISS:

Table 163: Packet Type

X.25 Data Packets	1. Message type set to UDT 2. Protocol class value set to 0. 3. Called party indicator is set equal to: • SSN included • PC not included • GTT not included

	• Route on routing label and SSN • National address 4. Called party SSN is set from the SS7 SSN field of gateway routing table. 5. Calling party indicator is set equal to the following: • SSN included • PC not included • GTT not included • Route on routing label and SSN • National address 6. Calling party SSN is set from X.25 SSN field in the gateway routing table

Conversion from SS7 to X.25

Following is the message conversion from the SS7 network to the X.25 network:

Table 164: MSU Field

Field	Value
Control	GFI is set equal to the following:8 • no Dbit • no Qbit • P(s)/P(r) modulo
Logical Channel	Set from logical channel field of the gateway routing table.
TCAP	No conversion.

Note: If the total message is larger than the default packet size, the message is discarded and the STP generates an unsolicited information message (UIM).

Detailed Message Conversion

This section shows the X.25 to SS7 message conversion in detail.

Table 165: Detailed Message Conversion

Offset	Binary	Hex	Field Description	Value
		MTP Level 2		
00	01111110	7E		
	x1111111		Backward Sequence Number	127 (dummy data)
	0xxxxxxx		Backward Indicator Bit	0 (dummy data)
01	10000000	80		
	x0000000		Forward Sequence Number 0	(dummy data)
	1xxxxxxx		Forward Indicator Bit 1	(dummy data)
02	1000 0000	80		
	xxbbbbbb		Length Indicator	Equal to 24 plus TCAP message length (TCAP message is the user data portion of the X.25 data packet)
	00xxxxxx		Spare	0
		MTP Level 3		
03	10000011	83	SIO	
	xxxx0011		Service Indicator	0011= SCCP
	xx00xxxx		Network Priority	Equal to 00

Offset	Binary	Hex	Field Description	Value
	10xxxxxx		Network Indicator	10 = National Network
04	bbbbbbbb	Pm	Destination Point Code	Connection determination finds this value in the gateway routing table SS7 point code field.
05	bbbbbbbb	Pc		
06	bbbbbbbb			
07 (#5)	bbbbbbbb			Connection determination locates this value in the gateway routing table (GWT) X.25 point code field.
08	bbbbbbbb		Origination Point Code	Connection determination locates this value in the gateway routing table (GWT) X.25 point code field.
09	bbbbbbbb			Connection determination locates this value in the gateway routing table (GWT) X.25 point code field.
10	000bbbbb			
	xxxbbbbb		Signaling Link Selection	SLS subsystem provides.
	000xxxxx		Spare	
SCCP (No Global Title Translation requested)				
11	00001001	09	Message Type	09 = Unitdata
12	00000000	00		
	xxxx0000		Protocol Class	0 = Class 0
	0000xxxx		Message Handling	0000 = discard message on error

Offset	Binary	Hex	Field Description	Value
13	00000011	03	Called Party Address Pointer	@ offset 13 + 3(03) = 16
14	00000101	05	Calling Party Address Pointer	@ offset 14 + 5(0b) = 19
15	00000111	07	Data Portion Pointer	@ offset 15 + 7(0d) = 22
16	00000011	03	Called Party Address Length	3
17	11000001	c1	Called party Address Indicator	
	xxxxxxx1		Subsystem Number Indicator	1 = SSN included
	xxxxxx0x		Point Code Indicator	0 = PC not included
	xx0000xx		Global Title Indicator	0000=no global title
	x1xxxxxx		Routing Indicator	1 = route by point code or SSN
	1xxxxxxx		National/ International	1 = National address
18	xxxxxxxx	SS	Subsystem Number	SS7 SSN from Gateway Routing Table.
19	00000011	03	Calling Party Address Length	3

Offset	Binary	Hex	Field Description	Value
20	11000001	c1	Calling Party Address Indicator	
	xxxxxxx1		Subsystem Number Indicator	1= SSN included
	xxxxxx0x		Point Code Indicator	0 = PC not included
	xx0000xx		Global Title indicator	0000 = No global title included
	x1xxxxxx		Routing indicator	1 = Route by point code or SSN
	1xxxxxxx		National/ International	1 = National address
21	xxxxxxxx		Subsystem Number	X.25 SSN from Gateway Routing Table
		TCAP		
22	bbbbbbbb		Data Portion Length	Length of TCAP message received from X.25 network.
23	Variable		TCAP Data	
		X.25 Level 2		
00	000000bb		Address Field	03=DTE, 01=DCE
01	rrrpsss0		Control Field	
	rrrxxxxx		Receive sequence number, n(r)	
	xxxpxxxx		Poll/Final bit	

Offset	Binary	Hex	Field Description	Value
	xxxxsssx		Send sequence number, n(s)	
	xxxxxxx0		Frame type	0 = I-frame
	X.25 Level 3 (Call Request Packet)			
02	00010000		General Format Indicator	
	0xxxxxxx		Q-bit	0 = not used
	x0xxxxxx		D-bit	0 = not used
	xx01xxxx		Modulo bits	01 = modulo 8 for P(r), P(s)
	xxxx0000		Logical Channel Group number	
03	xxxxxxxx		Logical channel number	Connection determination locates this value in the GRT logical channel field.
04	00001011	0B	Packet type	0B= Call Request
05	ttttcccc		Address lengths	
	ttttxxxx		Calling party address length	Connection determination calculates these values from the GRT X.25 called address and SS7 calling address fields
	xxxxcccc		Called party address length	Connection determination calculates these values from the GRT X.25 called address and SS7 calling address fields

Offset	Binary	Hex	Field Description	Value
06	dddddddd		Called party address	Connection determination locates this value in the GRT X.25 address field
n	dddddddd		Called party address	Connection determination locates this value in the GRT X.25 address field
n+1	00000000		Calling party address	Connection determination locates this value in the GRT SS7 address field.
m	00000000		Calling party address	Connection determination locates this value in the GRT SS7 address field.
		X.25 Level 3 (Data Packet)		
02	00010000		General Format Indicator	
	0xxxxxxx		Q-bit	0 = not used
	x0xxxxxx		D-bit	0 = not used
	xx01xxxx		Modulo bits	01 = modulo 8 for P(r), P(s)
	xxxx0000		Logical Channel Group number	0 = Group 0
03	xxxxxxxx		Logical channel number	PVC or SVC number
04	rrrmsss0		Packet type	xxxxxxx0 = Data
	rrrxxxxx		Receive sequence number, P(r)	

Offset	Binary	Hex	Field Description	Value
	xxx0xxxx		More bit	0 = single, stand-alone packet
	xxxxsssx		Send sequence number, P(s)	
		TCAP		
29	xxxxxxxx		TCAP Data	

Glossary

A

ACM	Application Communications Module A card in the EAGLE 5 ISS that provides a communications interface to a remote host across an Ethernet LAN.
ACT	Activate
AERM	Alignment Error Rate Monitor
ASCII	American Standard Code for Information Interchange
ATINPQ	ATI Number Portability Query (Name of the local subsystem)
ATM	Asynchronous Transfer Mode A packet-oriented transfer mode that uses an asynchronous time division multiplexing technique to multiplex information flow in fixed blocks, called cells. A high-bandwidth, low-delay switching, and multiplexing technology to support applications that include high-speed data, local area network interconnection, multimedia application and imaging, and residential applications such as video telephony and other information-based services.

B

BSN	Backward Sequence Number

C

CdPA

Called Party Address

The portion of the MSU that contains the additional addressing information of the destination of the MSU. Gateway screening uses this additional information to determine if MSUs that contain the DPC in the routing label and the subsystem number in the called party address portion of the MSU are allowed in the network where the EAGLE 5 ISS is located.

CgPA

Calling Party Address

The point code and subsystem number that originated the MSU. This point code and subsystem number are contained in the calling party address portion of the signaling information field of the MSU. Gateway screening uses this information to determine if MSUs that contain this point code and subsystem number area allowed in the network where the EAGLE 5 ISS is located.

CLASS

Custom Local Area Signaling Service

Custom Local Area Subscriber Services

CLLI

Common Language Location Identifier

The CLLI uniquely identifies the STP in terms of its physical location. It is usually comprised of a combination of identifiers for the STP's city (or locality), state (or province), building, and traffic unit identity. The format of the CLLI is:

The first four characters identify the city, town, or locality.

C

	The first character of the CLLI must be an alphabetical character. The fifth and sixth characters identify state or province. The seventh and eighth characters identify the building. The last three characters identify the traffic unit.
CNAM	Calling Name Delivery Service
COO	Changeover Order
CRC	Cyclic Redundancy Check A number derived from, and stored or transmitted with, a block of data in order to detect corruption. By recalculating the CRC and comparing it to the value originally transmitted, the receiver can detect some types of transmission errors.
CSR	Customer Service Request
CSV	Comma-separated value File format where values are separated by commas.

D

Database	All data that can be administered by the user, including cards, destination point codes, gateway screening tables, global title translation tables, links, LNP services, LNP service providers, location routing numbers, routes, shelves, subsystem applications, and 10 digit telephone numbers.

D

DB	Database Daughter Board Documentation Bulletin
DCE	Data Communication Equipment The data communication equipment associated with the transmission of data from one device to another. Examples of data communication equipment are modems, remote terminals, and communications processors.
DD	Detailed Design
DMA	Direct Memory Access
DN	Directory number A DN can refer to any mobile or wireline subscriber number, and can include MSISDN, MDN, MIN, or the wireline Dialed Number.
DPC	Destination Point Code DPC refers to the scheme in SS7 signaling to identify the receiving signaling point. In the SS7 network, the point codes are numeric addresses which uniquely identify each signaling point. This point code can be adjacent to the EAGLE 5 ISS, but does not have to be.
DS1	Digital Signal Level-1 (1.544Mbits/sec) A widely used standard in telecommunications in North America and Japan to transmit voice and data between devices.

D

	The data transmitted over a physical T1 line.
DTA	Database Transport Access A feature in the EAGLE 5 ISS that encapsulates specific MSUs into the data portion of SCCP within a new SS7 MSU and sends the new MSU to the destination using global title translation. The EAGLE 5 ISS uses gateway screening to determine which MSUs are used by the DTA feature.
DTE	Data Terminal Equipment The equipment associated with the entering and retrieving data from a computer system or a data communications system. A video display terminal is an example of data terminal equipment.

E

ECO	Engineering Change Order
EIR	Equipment Identity Register A network entity used in GSM networks, as defined in the 3GPP Specifications for mobile networks. The entity stores lists of International Mobile Equipment Identity (IMEI) numbers, which correspond to physical handsets (not subscribers). Use of the EIR can prevent the use of stolen handsets because the network operator can enter the IMEI of these handsets into a 'blacklist' and prevent them from being registered on the network, thus making them useless.

E

ELEI	Exception List Exclusion Indicator Indicates whether entries made to the exception list for each cluster point code are added to or changed in the destination point code table.

F

FIB	Forward Indicator Bit
FTA	File Transfer Area A special area that exists on each OAM hard disk, used as a staging area to copy files to and from the EAGLE 5 ISS using the Kermit file-transfer protocol.
FTP	File Transfer Protocol A client-server protocol that allows a user on one computer to transfer files to and from another computer over a TCP/IP network.

G

G-Flex	GSM Flexible numbering A feature that allows the operator to flexibly assign individual subscribers across multiple HLRs and route signaling messages, based on subscriber numbering, accordingly.
G-Port	GSM Mobile Number Portability A feature that provides mobile subscribers the ability to change the GSM subscription network within a portability cluster, while retaining their original MSISDN(s).
GRT	Gateway Routing Table

G

GSM	Global System for Mobile Communications
GTA	Global Title Address
GTI	Global Title Indicator
GTT	Global Title Translation A feature of the signaling connection control part (SCCP) of the SS7 protocol that the EAGLE 5 ISS uses to determine which service database to send the query message when an MSU enters the EAGLE 5 ISS and more information is needed to route the MSU. These service databases also verify calling card numbers and credit card numbers. The service databases are identified in the SS7 network by a point code and a subsystem number.
GWS	Gateway Screening Used at gateway STPs to limit access into the network to authorized users. A gateway STP performs inter-network routing and gateway screening functions. GWS controls access to nonhome SS7 networks. Only an MSU that matches predefined criteria in the EAGLE 5 ISS's database is allowed to enter the EAGLE 5 ISS.

H

HMI	Human-to-Machine Interface
HSL	High-Speed Link

I

I

IAM	Initial Address Message
IDP	Initial Detection Point
IDPR	Prepaid IDP Query Relay
IMEI	International Mobile Equipment Identifier
IMSI	International Mobile Subscriber Identity
IMT	Inter-Module-Transport The communication software that operates the inter-module-transport bus on all cards except the LIMATM, DCM, DSM, and HMUX.
INP	INAP-based Number Portability Tekelec's INP can be deployed as a stand-alone or an integrated signal transfer point/number portability solution. With Tekelec's stand-alone NP server, no network reconfiguration is required to implement number portability. The NP server delivers a much greater signaling capability than the conventional SCP-based approach. Intelligent Network (IN) Portability
IP	Internet Protocol IP specifies the format of packets, also called datagrams, and the addressing scheme. The network layer for the TCP/IP protocol suite widely used on Ethernet networks,

I

	defined in STD 5, RFC 791. IP is a connectionless, best-effort packet switching protocol. It provides packet routing, fragmentation and re-assembly through the data link layer.
IP Address	The location of a device on a TCP/IP network. The IP Address is a number in dotted decimal notation which looks something like [192.168.1.1].
IS	Information Services
IS-41	Interim Standard 41, same as and interchangeable with ANSI-41. A standard for identifying and authenticating users, and routing calls on mobile phone networks. The standard also defines how users are identified and calls are routed when roaming across different networks.
IS-ANR	In Service - Abnormal The entity is in service but only able to perform a limited subset of its normal service functions.
IS-NR	In Service - Normal
ISDNUP	ISDN User Part
ISUP	ISDN User Part
ITU	International Telecommunications Union

K

Key	For the ICNP feature, a unique DS value used to access a table entry, consisting of a number length and number type.

L

LCD	Liquid Crystal Display
LIDB	Line Information Database
LIM	Link Interface Module Provides access to remote SS7, X.25, IP and other network elements, such as a Signaling Control Point (SCP) through a variety of signaling interfaces (V.35, OCU, DS0, MPL, E1/T1 MIM, LIM-ATM, E1-ATM, IPLIMx, IPGWx). The LIMs consist of a main assembly and possibly, an interface appliqué board. These appliqués provide level one and some level two functionality on SS7 signaling links.
Link	Signaling Link
LNP	Local Number Portability
LNPQS	LNP Query Service
LOC	The primary function of the LOC server is to locate subscribers on GSM and IS-41 networks.
LOCREQ	Location Request Message A TDMA/CDMA MSC query to an HLR for retrieving subscription/location information

L

	about a subscriber to terminate a voice call.
LRN	Location Routing Number A 10-digit number in a database called a Service Control Point (SCP) that identifies a switching port for a local telephone exchange. LRN is a technique for providing Local Number Portability.
LSL	Low-speed Link
LSN	Link Set Name The name of the link set.
LSSU	Link Status Signaling Unit

M

MAAL	Management ATM Application Layer
MAP	Mobile Application Part
MCPM	Measurement Collection and Polling Module The Measurement Collection and Polling Module (MCPM) provides comma delimited core STP measurement data to a remote server for processing. The MCPM is an EDSM with 2 GB of memory running the MCP application.
Measurement Platform	A feature that supports the EAGLE 5 ISS beyond 700 links by providing a dedicated processor for collecting and reporting STP, LNP, INP, G-Flex, and G-Port Measurements data. The

M

	Measurement Platform collection function cannot be disabled once it is enabled in the system.
MP	Measurement Platform Message Processor The role of the Message Processor is to provide the application messaging protocol interfaces and processing. However, these servers also have OAM&P components. All Message Processors replicate from their System OAM's database and generate faults to a Fault Management System.
MR	Message Relay
MSC	Mobile Switching Center
MSISDN	Mobile Station International Subscriber Directory Number The MSISDN is thenetwork specific subscriber number of a mobile communications subscriber. This is normally the phone number that is used to reach the subscriber.
MSU	Message Signaling Unit The SS7 message that is sent between signaling points in the SS7 network with the necessary information to get the message to its destination and allow the signaling points in the network to set up either a voice or data connection between themselves. The message contains the following information:

M

- The forward and backward sequence numbers assigned to the message which indicate the position of the message in the traffic stream in relation to the other messages.
- The length indicator which indicates the number of bytes the message contains.
- The type of message and the priority of the message in the signaling information octet of the message.
- The routing information for the message, shown in the routing label of the message, with the identification of the node that sent message (originating point code), the identification of the node receiving the message (destination point code), and the signaling link selector which the EAGLE 5 ISS uses to pick which link set and signaling link to use to route the message.

MTP — The levels 1, 2, and 3 of the SS7 protocol that control all the functions necessary to route an SS7 MSU through the network.

N

NAI — Nature of Address Indicator

Standard method of identifying users who request access to a network.

NAIV — NAI Value

NC — Network Cluster

N

	Network Code
NI	Network Indicator
NM	Network Management The execution of the set of functions required for controlling, planning, allocating, deploying, coordinating and monitoring the resources of a telecommunications network, including performing functions such as initial network planning, frequency allocation, predetermined traffic routing to support load balancing, cryptographic key distribution authorization, configuration management, fault management, security management, performance management, and accounting management. Note: Network management does not include user-terminal equipment.
NP	Number Plan
NPA	Number Plan Area The North American "Area Codes." (3 digits: 2- to-9, 0-or1, 0-to-9. Middle digit to expand soon).
NPV	Numbering Plan Value

O

OAM	Operations, Administration, and Maintenance The generic load program (application) that operates the Maintenance and Administration

O

	Subsystem which controls the operation of the EAGLE 5 ISS.
OAP	A stand-alone processor that acts as an interface between: • The EAGLE 5 ISS and OSS (operation support system) devices using standard interfaces and converting the communications to the EAGLE 5 ISS proprietary serial interface. • The EAGLE 5 ISS LNP and the SEAC (Signaling Engineering and Administration Center), for the SEAS feature, converting SEAS commands into EAGLE 5 ISS LNP commands and EAGLE 5 ISS LNP commands into SEAS commands. • The EAGLE 5 ISS LNP and the SMS (Service Management System), for the LNP feature, receiving LNP data and commands from the SMS and converting the SMS commands into EAGLE 5 ISS LNP commands and loading the LNP data onto the EAGLE 5 ISS LNP.
OOS-MT	Out of Service - Maintenance The entity is out of service and is not available to perform its normal service function. The maintenance system is actively working to restore the entity to service.
OPC	Originating Point Code

P

PC	Point Code

P

The identifier of a signaling point or service control point in a network. The format of the point code can be one of the following types:

- ANSI point codes in the format network indicator-network cluster-network cluster member (**ni-nc-ncm**).
- Non-ANSI domestic point codes in the format network indicator-network cluster-network cluster member (**ni-nc-ncm**).
- Cluster point codes in the format network indicator-network cluster-* or network indicator-*-*.
- ITU international point codes in the format **zone-area-id**.
- ITU national point codes in the format of a 5-digit number (**nnnnn**), or 2, 3, or 4 numbers (members) separated by dashes (**m1-m2-m3-m4**) as defined by the Flexible Point Code system option. A group code is required (**m1-m2-m3-m4-gc**) when the ITUDUPPC feature is turned on.
- 24-bit ITU national point codes in the format main signaling area-subsignaling area-service point (**msa-ssa-sp**).

The EAGLE 5 ISS LNP uses only the ANSI point codes and Non-ANSI domestic point codes.

PCR

A method of error correction used for the SS7 protocol. PCR is an error correction method that keeps a copy of each message signal unit transmitted on a signaling link in a retransmission buffer. If the

P

receiving end of the signaling link receives the MSU with no errors, positive acknowledgment message is sent to the transmitting end of the signaling link. The MSU is then discarded from the retransmission buffer. If the transmitting end of the signaling link does not receive positive acknowledgment from the receiving end of the signaling link, the MSU is retransmitted until positive acknowledgment is received. The PCR error correction method is assigned to SS7 signaling links using the `ent-slk` command. The PCR method of error correction cannot be assigned to X.25 signaling links.

PR — Problem Report

PVC — Permanent Virtual Circuit

A direct connection to an X.25 node that is configured in the EAGLE 5 ISS's database and can only be changed through database administration.

Q

QS — Query Server

Query Service

R

RAM — Random Access Memory

A type of computer memory that can be accessed randomly; that is, any byte of memory can be accessed without touching the preceding bytes.

RN — Routing Number

R

Route	A path to another signaling point.
RST	Route Set Test

S

SAT	Supervisory Audio Tone
SCCP	Signaling Connection Control Part
SEAS	Signaling Engineering and Administration System An interface defined by Bellcore and used by the Regional Bell Operating Companies (RBOCs), as well as other Bellcore Client Companies (BCCs), to remotely administer and monitor the signaling points in their network from a central location.
SIF	Service Information Field MTP Service Information Field is the payload field of an SS7 MSU header. The first byte of the SIF is the start of the MTP3 routing label. For MTP3-variant networks, the maximum SIF size is 272 bytes. For MTP3b-variant networks, the maximum SIF size is 4095 bytes.
Signaling Link	The transmission path connecting the EAGLE 5 ISS to other signaling points in the network and providing access to ANSI SS7, ITU SS7, and X.25 network elements. The signaling link is connected to the EAGLE 5 ISS at the link interface module (LIM). A generic program load application that is loaded on the

S

	LIM to allow the LIM to access a particular network element.
SIO	Service Information Octet. The network indicator code (NIC), priority (PRI), and service indicator (SI) in the SIO field in the message signaling unit (MSU). This information identifies the type of MSU (ISUP, TCAP, and so forth) that is allowed in the network where the EAGLE 5 ISS is located.
SIPO	Status Indicator - Processor Outage
SLC	Signaling Link Code
SLS	Signaling Link Selector
SLTA	Signaling Link Test Acknowledgment
SMS	Short Message Service
SNM	Signaling Network Management. The set of networking cards and the shared database of dynamic network status information that they collectively maintain. The messages that maintain MTP status level 3 of SS7.
SP	Service Provider Signaling Point
SRI	Send_Route_Information Message

S

SS	Subsystem
SS7	Signaling System #7
SSA	Subsystem Allowed
SSCOP	Service Specific Connection Oriented Protocol. The primary task of the SSCOP (Service Specific Connection Oriented Protocol) is to provide assured data delivery between AAL connection endpoints. Breaking the SSCS into 2 sublayers allows a common connection oriented protocol with error recovery (the SSCOP) to provide a generic reliable data transfer service for different AAL interfaces defined by different SSCF layers.
SSN	Subsystem Number The subsystem number of a given point code. The subsystem number identifies the SCP application that should receive the message or the subsystem number of the destination point code to be assigned to an X.25 address or the LNP subsystem of the EAGLE 5 ISS. A value of the routing indicator portion of the global title translation data commands indicating that no further global title translation is required for the specified entry.
SSP	Subsystem Prohibited network management message.

S

	Subsystem Prohibited SCCP (SCMG) management message. (CER)
SST	Secondary State The secondary state of the specified entity. Subsystem Status Test network management message.
STP	Signal Transfer Point STPs are ultra-reliable, high speed packet switches at the heart of SS7 networks, which terminate all link types except F-links. STPs are nearly always deployed in mated pairs for reliability reasons. Their primary functions are to provide access to SS7 networks and to provide routing of signaling messages within and among signaling networks.
STPLAN	Signaling Transfer Point Local Area Network The generic program load and application used by the ACM card to support the STP LAN application. This GPL does not support 24-bit ITU-N point codes.
Subsystem Number	See SSN.
SUERM	Signal Unit Error Rate Monitor
SVC	Switched Virtual Circuit A temporary virtual circuit that is set up and used only as long as data is being transmitted. Once the communication between the two

S

hosts is complete, the SVC disappears. In contrast, a permanent virtual circuit (PVC) remains available at all times.

T

T1	Transmission Level 1 A T1 interface terminates or distributes T1 facility signals for the purpose of processing the SS7 signaling links carried by the E1 carrier. A leased-line connection capable of carrying data at 1,544,000 bits-per-second.
TCA	Transfer Cluster Allowed
TCAP	Transaction Capabilities Application Part
TCP	Transfer Control Protocol
TCR	Transfer Cluster Restricted
TFA	TransFer Allowed (Msg)
TFC	Transfer Control TransFer Controlled (Msg)
TFR	Transfer Restricted
TFP	TransFer Prohibited (Msg) A procedure included in the signaling route management (functionality) used to inform a signaling point of the

T

	unavailability of a signaling route.
TRA	Traffic Restarting Allowed
TRW	Traffic Restarting Waiting
TSM	Translation Services Module Provides SCCP functionality or GLS functionality for Local Number Portability (LNP)/SCCP (GTT). The SCCP software allows the TSM to be used as a memory board for Global Title Translation (GTT).
TT	Translation Type. Resides in the Called Party Address (CdPA) field of the MSU and determines which service database is to receive query messages. The translation type indicates which Global Title Translation table determines the routing to a particular service database.

U

UA	ETF User Adaptation Layers
UDT	Unit Data Transfer
UDTS	Unit Data Transfer Service
UIM	Unsolicited Information Message

V

V-Flex	Voicemail Flexible Routing

V

	An advanced database application based on the industry proven EAGLE 5 ISS. Deployed as a local subsystem on the EAGLE platform, V-Flex centralizes voicemail routing.

W

WSMSC	Wireless Short Message Service Center

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