

Tekelec EAGLE[®] 5

Measurements

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Table of Contents

Chapter 1: Introduction.....	11
Overview.....	12
Scope and Audience.....	12
Related Publications.....	12
Documentation Availability, Packaging, and Updates.....	12
Documentation Admonishments.....	13
Customer Care Center.....	13
Emergency Response.....	16
Locate Product Documentation on the Customer Support Site.....	16
Chapter 2: Measurements.....	17
Introduction	18
OAM Based Measurements.....	19
Measurements Platform.....	20
E5-OAM Integrated Measurements.....	22
Optional 15-Minute Measurements.....	23
Reports.....	25
Measurements Platform/E5-OAM Integrated Measurements Feature Reports.....	27
Chapter 3: Reports.....	31
Report Tables.....	32
STP System Totals (SYSTOT) Measurements.....	32
enttype=stp.....	32
enttype=tt.....	43
enttype=cggt.....	46
enttype=stplan.....	50
Component Measurements (COMP).....	54
enttype=link.....	54
enttype=lnkset.....	69
enttype=sctpasoc.....	76
enttype=sctpcard.....	81
enttype=ua.....	86
Network Management Measurements (NM).....	90

enttype=stp.....	90
enttype=lnkset.....	97
enttype=link.....	100
Daily Availability Measurements (AVLD).....	110
enttype=link.....	110
Day-To-Hour Availability Measurements (AVLDTH).....	117
enttype=link.....	117
Availability Measurements (AVL).....	124
enttype=link.....	125
enttype=stplan.....	133
Daily Maintenance Measurements (MTCDD).....	137
enttype=stp.....	137
enttype=link.....	145
enttype=lnkset.....	162
enttype=lnp.....	164
enttype=np.....	172
enttype=stplan.....	182
enttype=eir.....	186
enttype=mapscrn.....	188
enttype=sctpasoc.....	194
enttype=sctpcard.....	200
enttype=ua.....	205
enttype=vflex.....	209
enttype=atinpq.....	211
enttype=aiq.....	213
enttype=gttapath.....	216
Day-to-Hour Maintenance Measurements (MTCDDTH).....	221
enttype=stp.....	221
enttype=link.....	229
enttype=lnkset.....	246
enttype=stplan.....	249
enttype=sctpasoc.....	253
enttype=sctpcard.....	258
enttype=ua.....	263
Hourly Maintenance Measurements (MTCH).....	267
enttype=lnp.....	267
enttype=np.....	276
enttype=eir.....	286
enttype=mapscrn.....	287
enttype=vflex.....	294
enttype=atinpq.....	297

enttype=aiq.....	299
enttype=gttapath.....	301
Gateway Measurements (GTWY).....	307
enttype=stp.....	307
enttype=origni.....	310
enttype=origninc.....	312
enttype=lnkset.....	314
enttype=lsdestni.....	317
enttype=lsorigni.....	319
enttype=lsonismt.....	322
Record Base Measurements (RBASE).....	324
enttype=stp.....	324
enttype=link.....	329
enttype=lnkset.....	336
Maintenance Status Reports (MTCS).....	337
enttype=link.....	338
enttype=lnkset.....	344
Glossary.....	347

List of Tables

Table 1: Admonishments.....	13
Table 2: Demand and Scheduled Reporting.....	19
Table 3: Enabling 15-Minute Measurements - Impacts.....	24
Table 4: Measurements Platform and E5-OAM Integrated Measurements Feature System Header.....	28
Table 5: STP System Total STP Measurements.....	33
Table 6: Typical File Size: systot-stp.csv.....	43
Table 7: STP System Total Translation Type Measurements.....	44
Table 8: Typical File Size: systot-tt.csv.....	46
Table 9: Calling Party GTT Measurements.....	47
Table 10: Typical File Size: systot-cgtt.csv.....	50
Table 11: STP System Total STPLAN Measurements.....	51
Table 12: Typical File Size: systot-stplan.csv.....	54
Table 13: Registers Reported per LINK CLASS for Component Links.....	54
Table 14: Component Link Measurements.....	57
Table 15: MP and E5-OAM COMP LINK Column Headers.....	68
Table 16: Typical File Size: comp-link.csv.....	69
Table 17: Registers Reported Per LINKSET CLASS.....	69
Table 18: Component Linkset Measurements.....	70
Table 19: MP and E5-OAM COMP LINKSET Column Headers.....	76
Table 20: Typical File Size: comp-lnkset.csv.....	76
Table 21: Component SCTPASOC Measurements.....	77
Table 22: MP and E5-OAM COMP SCTPASOC Column Headers.....	81
Table 23: Typical File Size: comp-sctpasoc.csv.....	81
Table 24: Component SCTPCARD Measurements.....	82
Table 25: MP and E5-OAM COMP SCTPCARD Column Header.....	85
Table 26: Typical File Size: comp-sctpcard.csv.....	86
Table 27: Component UA Measurements.....	86
Table 28: MP and E5-OAM COMP UA Column Headers.....	89
Table 29: Typical File Size: comp-ua.csv.....	90
Table 30: Network Management STP Measurements.....	90
Table 31: Typical File Size: nm-stp.csv.....	96
Table 32: Network Management Linkset Measurements.....	97
Table 33: MP and E5-OAM NM LNKSET Column Headers.....	99
Table 34: Typical File Size: nm-lnkset.csv.....	100
Table 35: HSL LSL Differences for Network Management Links.....	100
Table 36: Network Management Link Measurements.....	100

Table 37: MP and E5-OAM NM LINK Column Headers.....	109
Table 38: Typical File Size: nm-link.csv	110
Table 42: Availability Link Measurements.....	118
Table 40: MP and E5-OAM AVLD LINK Command Headers.....	116
Table 41: Typical File Size: avld-link.csv.....	117
Table 42: Availability Link Measurements.....	118
Table 43: MP and E5-OAM AVLDTH LINK Command Headers.....	124
Table 44: Typical File Size: avldth-link.csv.....	124
Table 45: Availability Link Register Usage By LINK Class.....	125
Table 46: Availability Link Measurements.....	126
Table 47: MP and E5-OAM AVL LINK Column Headers.....	132
Table 48: Typical File Size: avl-link.csv.....	132
Table 49: Availability STPLAN Measurements.....	133
Table 50: Typical File Size: avl-stplan.csv.....	137
Table 51: Daily Maintenance (MTCD) and Day-To-Hour Maintenance (MTCDDTH) Measurements.....	137
Table 52: Typical File Size: mtcd-stp.csv.....	145
Table 53: Registers Reported per LINK CLASS for Daily (MTCD) and Day-To-Hour (MTCDDTH) Link Measurements.....	145
Table 54: Maintenance Daily (MTCD) and Maintenance Day-to-Hour (MTCDDTH) Link Measurements.....	148
Table 55: Typical File Size: mtcd-link.csv.....	161
Table 56: Daily Maintenance (MTCD) and Day-to-Hour Maintenance (MTCDDTH) Linkset Measurements.....	162
Table 57: Typical File Size: mtcd-lnkset.csv.....	163
Table 58: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) LNP System Wide Measurements.....	164
Table 59: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) LNP Per SSP Measurements.....	166
Table 60: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) LNP LRN Measurements.....	168
Table 61: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) LNP NPA Measurements.....	168
Table 62: Typical File Size: mtcd-lnp.csv.....	170
Table 63: Typical File Size: mtcd-ssp.csv.....	171
Table 64: Typical File Size: mtcd-lrn.csv.....	171
Table 65: Typical File Size: mtcd-npa.csv.....	172
Table 66: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) System-Wide Registers.....	173
Table 67: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) SSP Registers.....	177
Table 68: Typical File Size: mtcd-np.csv.....	181

Table 69: MP and E5-OAM Daily Maintenance (MTCD) SSP Column Header.....	181
Table 70: Typical File Size: mtcd-ssp.csv.....	182
Table 71: Typical File Size: mtcd-ssp.csv.....	182
Table 72: Daily Maintenance (MTCD) and Day-to-Hour Maintenance (MTCDDTH) STPLAN Measurements.....	182
Table 73: Typical File Size: mtcd-stplan.csv	186
Table 74: Daily Maintenance (MCTD) and Hourly Maintenance (MTCH) EIR Measurements.....	186
Table 75: Typical File Size: mtcd-eir.csv.....	187
Table 76: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) MAP Screening System Wide Measurements.....	188
Table 77: Server Entity Identification.....	190
Table 78: Path Entity Identification.....	190
Table 79: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) MAP Screening Per Server Measurements.....	192
Table 80: Typical File Size: mtcd-map.csv.....	194
Table 81: Typical File Size: mtcd-path.csv.....	194
Table 82: Daily Maintenance (MTCD) and Day-to-Hour (MTCDDTH) SCTPASOC Measurements.....	195
Table 83: MP and E5-OAM MTCD/MTCDDTH SCTPASOC Column Header.....	199
Table 84: Typical File Size: mtcd-sctpasoc.csv.....	200
Table 85: Daily Maintenance (MTCD) and Day-to-Hour Maintenance (MTCDDTH) SCTPCARD Measurements.....	200
Table 86: Typical File Size: mtcd-sctpcard.csv.....	205
Table 87: Daily Maintenance (MTCD) and Day-to-Hour Maintenance (MTCDDTH) UA Measurements.....	205
Table 88: Typical File Size: mtcd-ua.csv.....	208
Table 89: Daily Maintenance V-Flex System Wide Measurements.....	209
Table 90: Daily Maintenance V-Flex Per SSP Measurements.....	209
Table 91: Typical File Size: mtcd-vflex.csv.....	210
Table 92: Typical File Size: mtcd-vflex-ssp.csv.....	211
Table 93: Typical File Size: mtcd-vflexssp.csv.....	211
Table 94: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) ATINPQ Registers.....	211
Table 95: Typical File Size: mtcd-atinpq.csv.....	213
Table 96: Typical File Size: mtcd-atinpq.csv.....	213
Table 97: Typical File Size: atinpq 200 SSPs.....	213
Table 98: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) AIQ Registers.....	214
Table 99: Typical File Size: mtcd-atinpq.csv.....	215
Table 100: Typical File Size: mtcd-aiq.csv.....	215

Table 101: Typical File Size: aiq 200 SSPs.....	216
Table 102: MTCN/MTCH GTT Actions System-Wide Measurements.....	217
Table 103: MTCN/MTCH GTT Actions Per-Path Measurements.....	217
Table 104: Typical File Size: mtcn-gttasys.csv.....	219
Table 105: Entity Identification (PATH-CDSN-SCDGTA-CGSN-SCGGTA-OPSN-PKG-OPCODE-<A>/F).....	219
Table 106: Typical File Size: mtcn-gttapath.csv.....	221
Table 107: Daily Maintenance (MTCN) and Day-To-Hour Maintenance (MTCNTH) Measurements.....	222
Table 108: Typical File Size: mtcn-th-stp.csv.....	229
Table 109: Registers Reported per LINK CLASS for Daily (MTCN) and Day-To-Hour (MTCNTH) Link Measurements.....	229
Table 110: Maintenance Daily (MTCN) and Maintenance Day-to-Hour (MTCNTH) Link Measurements.....	232
Table 111: MP and E5-OAM MTCNTH LINK Command Headers.....	245
Table 112: Typical File Size: mtcn-th-link.csv.....	246
Table 113: Maintenance Day-to-Hour Linkset Measurements.....	247
Table 114: Daily Maintenance (MTCN) and Day-to-Hour Maintenance (MTCNTH) Linkset Measurements.....	247
Table 115: Typical File Size: mtcn-th-linkset.csv.....	249
Table 116: Daily Maintenance (MTCN) and Day-to-Hour Maintenance (MTCNTH) STPLAN Measurements.....	249
Table 117: Typical File Size: mtcn-th-stplan.csv.....	253
Table 118: Daily Maintenance (MTCN) and Day-to-Hour (MTCNTH) SCTPASOC Measurements.....	253
Table 119: Typical File Size: mtcn-th-sctpasoc.csv.....	258
Table 120: Daily Maintenance (MTCN) and Day-to-Hour Maintenance (MTCNTH) SCTPCARD Measurements.....	259
Table 121: Typical File Size: mtcn-th-sctpasoc.csv.....	263
Table 122: Daily Maintenance (MTCN) and Day-to-Hour Maintenance (MTCNTH) UA Measurements.....	264
Table 123: Typical File Size: mtcn-th-ua.csv.....	267
Table 124: Daily Maintenance (MTCN) and Hourly Maintenance (MTCH) LNP System Wide Measurements.....	268
Table 125: Daily Maintenance (MTCN) and Hourly Maintenance (MTCH) LNP Per SSP Measurements.....	269
Table 126: Daily Maintenance (MTCN) and Hourly Maintenance (MTCH) LNP LRN Measurements.....	271
Table 127: Daily Maintenance (MTCN) and Hourly Maintenance (MTCH) LNP NPA Measurements.....	272
Table 128: Typical File Size: mtch-lnp.csv.....	274

Table 129: Typical File Size: mtch-ssp.csv.....	274
Table 130: Typical File Size: mtch-lrn.csv.....	275
Table 131: Typical File Size: mtch-npa.csv.....	275
Table 132: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) System-Wide Registers.....	276
Table 133: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) SSP Registers.....	280
Table 134: Typical File Size: mtch-np.csv.....	285
Table 135: Typical File Size: mtch-ssp.csv.....	285
Table 136: Typical File Size: mtch-ssp.csv.....	285
Table 137: Daily Maintenance (MCTD) and Hourly Maintenance (MTCH) EIR Measurements.....	286
Table 138: Typical File Size: mtch-eir.csv.....	287
Table 139: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) MAP Screening System Wide Measurements.....	288
Table 140: Server Entity Identification.....	290
Table 141: Path Entity Identification.....	290
Table 142: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) MAP Screening Per Server Measurements.....	292
Table 143: Typical File Size: mtch-map.csv.....	294
Table 144: Typical File Size: mtch-path.csv.....	294
Table 145: Daily Maintenance V-Flex System Wide Measurements.....	295
Table 146: Daily Maintenance V-Flex Per SSP Measurements.....	295
Table 147: Typical File Size: mtch-vflex.csv.....	296
Table 148: Typical File Size: mtch-vflexssp.csv.....	296
Table 149: Typical File Size: mtch-vflexssp.csv.....	297
Table 150: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) ATINPQ Registers.....	297
Table 151: Typical File Size: mtch-atinpq.csv.....	298
Table 152: Typical File Size: mtch-atinpq.csv.....	299
Table 153: Typical File Size: atinpq 200 SSPs.....	299
Table 154: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) AIQ Registers.....	300
Table 155: Typical File Size: mtcd-atinpq.csv.....	301
Table 156: Typical File Size: mtcd-aiq.csv.....	301
Table 157: Typical File Size: aiq 200 SSPs.....	301
Table 158: MTCD/MTCH GTT Actions System-Wide Measurements.....	302
Table 159: MTCD/MTCH GTT Actions Per-Path Measurements.....	303
Table 160: Typical File Size: mtcd-gttasys.csv.....	305
Table 161: Entity Identification (PATH-CDSN-SCDGTA-CGSN-SCGGTA-OPSN-PKG-OPCODE-<A>/F).....	305

Table 162: Typical File Size: mtcd-gttapath.csv.....	307
Table 163: Gateway STP Measurements.....	308
Table 164: Typical File Size: gtwy-stp.csv.....	310
Table 165: Gateway ORIGNI Measurements.....	310
Table 166: Typical File Size: gtwy-origni.csv.....	312
Table 167: Gateway ORIGNINC Measurements.....	312
Table 168: Typical File Size: gtwy-origninc.csv.....	314
Table 169: Gateway Linkset Measurements.....	314
Table 170: Typical File Size: gtwy-lnkset.csv.....	317
Table 171: Gateway LSDESTNI Measurements.....	318
Table 172: Typical File Size: gtwy-lsdestni.csv.....	319
Table 173: Gateway LSORGINI Measurements.....	320
Table 174: Typical File Size: gtwy-lsorigni.csv.....	322
Table 175: Gateway LSONISMT Measurements.....	323
Table 176: Typical File Size: gtwy-lsonismt.csv.....	324
Table 177: Record Base STP Measurements.....	324
Table 178: Typical File Size: rbase-stp.csv.....	329
Table 179: Registers reported LINK Measurements.....	329
Table 180: Record Base Link Measurements.....	330
Table 181: Typical File Size: rbase-link.csv.....	335
Table 182: Record Base Linkset Measurements.....	336
Table 183: Typical File Size: rbase-lnkset.csv.....	337
Table 184: Maintenance Status Link Measurements.....	338
Table 185: Typical File Size: mtcs-link.csv.....	344
Table 186: Maintenance Status Linkset Measurements.....	345
Table 187: Typical File Size: mtcs-lnkset.csv.....	346

Chapter 1

Introduction

Topics:

- *Overview.....12*
- *Scope and Audience.....12*
- *Related Publications.....12*
- *Documentation Availability, Packaging, and Updates.....12*
- *Documentation Admonishments.....13*
- *Customer Care Center.....13*
- *Emergency Response.....16*
- *Locate Product Documentation on the Customer Support Site.....16*

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](#) provides general information about the organization of this manual
- [Measurements](#) describes traffic measurements used in the EAGLE 5 ISS.
- [Reports](#) describes the reports that can be requested.
- 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.

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, including the latest versions of Feature Notices.

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 separately. Exceptions to printed documentation are:

- Hardware or Installation manuals are printed 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 Problem Reports (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.

Documentation Admonishments

Admonishments are icons and text throughout this manual that alert the reader to assure personal safety, to minimize possible service interruptions, and to warn of the potential for equipment damage.

Table 1: Admonishments

	DANGER: (This icon and text indicate the possibility of <i>personal injury</i> .)
	WARNING: (This icon and text indicate the possibility of <i>equipment damage</i> .)
	CAUTION: (This icon and text indicate the possibility of <i>service interruption</i> .)

Customer Care Center

The Tekelec Customer Care Center is your initial point of contact for all product support needs. A representative takes your call or email, creates a Customer Service Request (CSR) and directs your

requests to the Tekelec Technical Assistance Center (TAC). Each CSR includes an individual tracking number. Together with TAC Engineers, the representative will help you resolve your request.

The Customer Care Center is available 24 hours a day, 7 days a week, 365 days a year, and is linked to TAC Engineers around the globe.

Tekelec TAC Engineers are available to provide solutions to your technical questions and issues 7 days a week, 24 hours a day. After a CSR is issued, the TAC Engineer determines the classification of the trouble. If a critical problem exists, emergency procedures are initiated. If the problem is not critical, normal support procedures apply. A primary Technical Engineer is assigned to work on the CSR and provide a solution to the problem. The CSR is closed when the problem is resolved.

Tekelec Technical Assistance Centers are located around the globe in 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:

8:00 a.m. through 5:00 p.m. (GMT minus 5 hours), Monday through Friday, excluding holidays

- **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)

TAC Regional Support Office Hours:

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

- **Chile**

Phone:

1230-020-555-5468

- **Colombia**

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**

Phone:

0800-176-6497

- **Europe, Middle East, and Africa**

Regional Office Hours:

8:30 a.m. through 5:00 p.m. (GMT), Monday through Friday, excluding holidays

- **Signaling**

Phone:

+44 1784 467 804 (within UK)

- **Software Solutions**

Phone:

+33 3 89 33 54 00

- **Asia**

- **India**

Phone:

+91 124 436 8552 or +91 124 436 8553

TAC Regional Support Office Hours:

10:00 a.m. through 7:00 p.m. (GMT plus 5 1/2 hours), Monday through Saturday, excluding holidays

- **Singapore**

Phone:

+65 6796 2288

TAC Regional Support Office Hours:

9:00 a.m. through 6:00 p.m. (GMT plus 8 hours), Monday through Friday, excluding holidays

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.

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 Customer Support](#) site.

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**.

Chapter 2

Measurements

Topics:

- *Introduction18*
- *OAM Based Measurements.....19*
- *Measurements Platform.....20*
- *E5-OAM Integrated Measurements.....22*
- *Optional 15-Minute Measurements.....23*
- *Reports.....25*

Introduction

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

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

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

Measurements can be collected and reported with the following collection methods:

- [OAM Based Measurements](#)
- [Measurements Platform](#)
- [E5-OAM Integrated Measurements](#)

The primary functions of Measurements are as follows:

- **Collection**

Measurements are collected in 5-minute, 30-minute, and 60-minute intervals. An option exists for the default 30-minute measurements to be collected every 15 minutes. Many 30-minute measurements intervals are accumulated into daily intervals.

- **Storage**

Measurements are stored in dedicated RAM tables and/or disks after collection. Most are retained for 24 hours. Measurements for some features (LNP, INP, G-Port, MAP Screening, EIR, and VFLEX) 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 shown in [Table 2: Demand and Scheduled Reporting](#).

Table 2: Demand and Scheduled Reporting

Reporting Interval	OAM		Measurements Platform		E5-OAM Integrated Measurements	
	Demand	Scheduled	Demand	Scheduled	Demand	Scheduled
5-minute	Yes	No	Yes	Yes	Yes	Yes
15-minute (optional)	No	No	Yes	Yes	Yes	Yes
30-minute	Yes	Yes	Yes	Yes	Yes	Yes
Day-to-hour	Yes	No	Yes	No	Yes	No
Hourly	Yes	No	Yes	Yes	Yes	Yes
Daily	Yes	Yes	Yes	Yes	Yes	Yes

Scheduled measurements are directed to the Traffic Unsolicited Output Message group. No other unsolicited output is sent to this output group.

Note that 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, unless the Measurements Platform, whereas the information is collected and stored by the dedicated MPCM cards.

Refer to the *Commands Manual* for descriptions of commands used to generate, schedule, and transfer measurements reports.

Refer to the *Database Administration Manual - System Management* for information and procedures to provision OAM-based measurements, the Measurements Platform feature, and E5-OAM Integrated Measurements feature.

OAM Based Measurements

For EAGLE 5 ISS nodes with up to 700 links, OAM-based measurements can be generated either to a User Interface (UI) serial terminal or through the File Transfer Area (FTA), depending on the feature or function.

OAM-based measurements are collected by a GPSM-II control card or E5-MCAP control card, and are stored on the fixed disk on a TDM control card or an E5-TDM control card.

OAM-based measurements are available when the E5-OAM Integrated Measurements feature and the Measurements Platform feature are not used in the system.

When the E5-OAM Integrated Measurements feature or the Measurements Platform feature is *not* used in the system, the `rept-meas` command sends measurements reports for the INP, GSM MAP screening, LNP, G-Port, A-Port, and IS41 GSM Migration (IGM) features to the file transfer area (FTA) rather than to an EAGLE 5 ISS terminal.

When the E5-OAM Integrated Measurements feature is used, the `rept-meas` command and FTA function cannot be used to generate measurements reports for the INP, GSM MAP screening, LNP, G-Port, A-Port, and IS41 GSM Migration (IGM) features.

OAM-based measurements are not available for the EIR, ATINP, AIQ, EGMS, and GTT Actions features..

Reports can be scheduled or generated on demand using the following commands:

- `chg-meas`: Used to turn OAM-based measurement collection on and off, and to schedule automatic generation of measurements reports to a UI terminal.
- `rept-meas`: Used to generate measurements reports on demand.
- `rtv-meas-sched`: Used to display the OAM-based measurements collection status and the list of OAM-based measurements reports currently scheduled to be automatically generated to a UI terminal.
- `rept-stat-meas`: Reports the status of the Measurements Subsystem for the Measurements Platform or E5-OAM Integrated Measurements feature, including card location and status, Alarm Level, and Subsystem State.

The File Transfer Area function supports the transfer of file data between an EAGLE 5 ISS and a remote computer. The function provides the capability to download files from the EAGLE 5 ISS using a data communications link and the following commands:

- Activate File Transfer: `act-file-trns`
- Copy to or from Transfer Area: `copy-fta`
- Delete Entry from File Transfer Area: `dlt-fta`
- Display File Transfer Area: `disp-fta-dir`

Extracting measurements from the FTA requires:

- A computer with a VT320 or KSR connection to the system
- A communication program that both emulates VT terminals and supports Kermit file transfer
- A spreadsheet program that can import Comma Separated Value (CSV) text files

A personal computer running ProComm[®] for Windows and Microsoft Excel[®] meets these requirements.

Measurements Platform

For an EAGLE 5 ISS node with more than 700 links, either the Measurements Platform or the E5-OAM Integrated Measurements feature must be used to collect measurements. The Measurements Platform must be used to collect measurements for an EAGLE 5 ISS node with more than 1200 links. It provides a dedicated processor for collecting and reporting measurements data for EAGLE 5 ISS functions, EPAP-related features that collect measurements, GSM MAP Screening, and LNP.

The Measurements Platform feature requires the following hardware and provisioning in the system:

- At least two MCPM cards

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.

- The Measurements Platform feature turned on
- The Measurements Platform collection option turned on in the MEASOPTS table
- A provisioned customer FTP server
- The EAGLE OA&M IP Security feature, and Secure Shell FTP (SFTP) as a client, if secure transfer is used

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 Measurements Platform. After 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 one time. 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.

After collection of the measurements, scheduled reports are automatically generated and transferred from an MCPM card to a customer FTP server using the FTP interface.

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

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

- `chg-measopts`: Used to:
 - Enable Measurements Platform collection
 - Turn on or turn off the 15 Minute Measurements collection function
 - Enable or disable the automatic generation and FTP transfer of scheduled measurements reports to the FTP server
 - Turn on or off the CLLI-based file name option for measurements reports files.
- `chg-mtc-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 card to the FTP server.
- `rtrv-measopts`: Displays the status of Measurements Platform collection, scheduled reports, 15-Minute Measurements collection, and CLLI-based file names.

- `rtrv-mtc-measopts`: Displays the enabled or disabled status of hourly and daily maintenance scheduled reports.

E5-OAM Integrated Measurements

The E5-OAM Integrated Measurements feature provides full measurements support for an EAGLE 5 ISS node with up to 1200 links without requiring dedicated cards. The Measurements Platform is required for support of more than 1200 links.

The E5-OAM Integrated Measurements feature requires the following hardware and provisioning in the system:

- E5-based control cards (E5-MASP cards and E5-MDAL cards)
- Ethernet port A provisioned on the E5-MCAP card portions of the E5-MASP cards
- The E5-OAM Integrated Measurements feature enabled and turned on
- The E5-OAM Integrated Measurements collection option turned on in the MEASOPTS table
- A provisioned customer FTP server

To mitigate network failures that could cause lost reports, it is recommended that you provision up to three FTP servers for E5-OAM Integrated Measurements. Refer to the *Database Administration Manual - System Management* for information about configuring the FTP servers for E5-OAM Integrated Measurements. If a network failure is on or near the EAGLE 5 ISS OAM IP link, then a loss of reports on the server is possible. The E5-OAM card will not switch activity if the IP link is unavailable on the active MASP. An alarm is generated, but the role change is a manual action. You can run on-demand reports to retrieve the data.

- The EAGLE OA&M IP Security feature, and Secure Shell FTP (SFTP) as a client, if secure transfer is used

After collection of the measurements, scheduled reports are automatically generated and transferred from an E5-MASP card to a customer FTP server using the FTP interface. Existing FTP file server reports are overwritten by subsequent requests that produce the identical file name.

Reports can be scheduled or generated on demand using the following commands:

- `chg-measopts`:
 - Turns on the E5-OAM Integrated Measurements collection option
 - Turns on or turn off the 15 Minute Measurements collection function
 - Enables or disables the automatic generation and FTP transfer of scheduled measurements reports to the FTP server
 - Turns on or off the CLLI-based file name option for measurements reports files.
- `chg-meas`: Enables report generation. The complete command that you must enter so that measurement reports are generated is `chg-meas:collect=on`.
- `chg-mtc-measopts`: Enables or disables the automatic generation and FTP transfer of scheduled daily and hourly measurement reports to the FTP server.
- `rept-stat-meas`: Reports the status of the measurements subsystem including card location and state, E5-MASP and IP link state, Alarm level, and Subsystem State.

- `rept-ftp-meas`: Manually initiates generation and FTP transfer of a measurements report from the E5-MASP card to the FTP server.
- `rtrv-measopts`: Displays the status of E5-OAM Integrated Measurements collection, scheduled reports, 15-Minute Measurements collection, and CLI-based file names.
- `rtrv-mtc-measopts`: Displays the enabled or disabled status of all FTP scheduled measurements reports.

When the E5-OAM Integrated Measurements feature is used in the system,

- The `rept-meas` command cannot be used for the `lnp`, `npand` and `mapscrn` entity types, because the file transfer area (FTA) is disabled. Use the `rept-ftp-meas` command for those entity types.
- Scheduled OAM-based measurement reports are allowed if the system has up to 700 links, and are disabled if the system has more than 700 links.

Optional 15-Minute Measurements

Optional 15-minute measurements are available when the 15-minute measurement option is on and either the Measurements Platform is configured or the E5-OAM Integrated Measurements feature is turned on. This option can change the duration for 30-minute reports to 15 minutes. The Measurements Platform and the E5-OAM Integrated Measurements feature have 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 (FAK) 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:collect15min` 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 and E5-OAM Integrated Measurements feature options. Report types supported by 15-minute measurements are:

- `systot` (STP system totals)
- `comp` (Component)
- `gtwy` (Gateway)
- `avl` (Availability)

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 3: Enabling 15-Minute Measurements - Impacts](#). 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 3: Enabling 15-Minute Measurements - Impacts

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

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-ftp-meas*: Manually initiates generation and FTP transfer of a measurements report from the MCPM to the FTP server (Measurements Platform) or from the E5-MASP to the FTP server (E5-OAM Integrated Measurements).
- *rtrv-measopts*: Generates a user interface display showing the enabled/disabled status of all FTP scheduled reports.
- *chg-mtc-measopts*: Enables or disables the automatic generation and FTP transfer of scheduled maintenance measurements reports to the FTP server.
- *rtrv-mtc-measopts*: Shows the enabled/disabled status of all hourly and daily scheduled maintenance measurements 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)
- 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.

 - AIQ: ANSI41 AIQ
 - ATINPQ: Any-Time Interrogation Number Portability Query
 - EIR: Equipment Identity Register
 - GTTAPATH: GTT Actions per path
 - LINK: Signaling link
 - LNKSET: Linkset
 - LNP: Local number portability
 - LSDESTNI: Linkset destination network identifier
 - LSONISMT: Per link set, per originating network identifier, 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

- STPLAN: TCP/IP links
 - SCTPASOC: Per association SCTP layer
 - TT: Translation type
 - 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 (for example, 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.

Measurements Platform/E5-OAM Integrated Measurements Feature Reports

Measurements Platform and E5-OAM Integrated Measurements 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 (for example, 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 4: Measurements Platform and E5-OAM Integrated Measurements Feature 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
RPTTYPE	The type of report being generated	ASCII Text
RPTPD	The period of the report	ASCII Text
IVALIDDATE	The date for the report interval	YYYY-MM-DD
IIVALSTART	The starting time of the report interval	HH:MM:SS
IIVALEND	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-separated value (CSV) 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:

- Up to 13 characters for the report type (sched-entity, for example, systot-stp or mtcnth-lnkset)
- 8 characters for the report date (yyyymmdd). This reflects the date the data is generated.
- 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:

- Up to 11 characters for the CLLI of the EAGLE 5 ISS.
- Up to 13 characters for the report type (sched-entity, for example, systot-stp or mtcnth-lnkset)

- 4 characters for the report date (mmdd). This reflects the date the data is generated.
- 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_mtc_dth-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.

Chapter 3

Reports

Topics:

- *Report Tables.....32*
- *STP System Totals (SYSTOT) Measurements...32*
- *Component Measurements (COMP).....54*
- *Network Management Measurements (NM).....90*
- *Daily Availability Measurements (AVLD).....110*
- *Day-To-Hour Availability Measurements (AVLDTH).....117*
- *Availability Measurements (AVL).....124*
- *Daily Maintenance Measurements (MTCD)...137*
- *Day-to-Hour Maintenance Measurements (MTCDTH).....221*
- *Hourly Maintenance Measurements (MTCH).267*
- *Gateway Measurements (GTWY).....307*
- *Record Base Measurements (RBASE).....324*
- *Maintenance Status Reports (MTCS).....337*

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.
- E5-OAM - Indicates measurements are collected and stored by the E5-OAM Integrated Measurements feature. If this feature is not turned on, then the E5-OAM Integrated Measurements feature operates in the same manner as the OAM. Typically, the E5-OAM and MP command examples and example output are identical.

Note: The Status Event Name appearing in the Measurement Tables only appears when using the Measurements Platform or E5-OAM Integrated Measurements. 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 or E5-OAM Integrated Measurements 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 reports are disabled via this mechanism, then the Traffic Unsolicited Output Message Group may be turned off since there is no output directed to it.

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 and E5-OAM Accumulation Interval: Every 15 minutes

STP retention period: 24 hours

Reporting modes: Scheduled, On-Demand

Accessible collection periods: Last, Specific

enttype=stp

Example Commands:

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

MP or E5-OAM: rept-ftp-meas:type=systot:enttype=stp

Table 5: 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
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 an error, i.e., when the G-Flex SCCP CdPA verification fails.	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	peg count

Event Name	Description	Unit
	(Point Codes), and on CgPA SSN (Subsystem) and GFGTMATCH.	
GTTUN0NS	<p>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.</p> <p>This register contains the sum of the GTTUN0NS register in the <code>systot-tt</code> report and the CGGTTUN0NS register in the <code>systot-cggtt</code> report.</p>	peg count
GTTUN1NT	<p>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.</p> <p>This register contains the sum of the GTTUN1NT register in the <code>systot-tt</code> report and the CGGTTUN1NT register in the <code>systot-cggtt</code> report.</p>	peg count
IARFAILD	The number of messages counted by IARTOTAL that were dismissed due to one of the problems reported by the UIMs that are specific to the IAR Base feature (i.e. UIM 1020..1021 and 1427..1431).	peg count
IARNOTAP	The number of messages counted by IARTOTAL that were not counted by IAR PASSD or IARFAILD; they were dismissed because modification was determined to be inappropriate (i.e. not applicable).	peg count

Event Name	Description	Unit
IARPASSD	The number of messages counted by IARTOTAL that were modified by the IAR base feature. The IAR Base must have changed the CdPN parameter, CgPN parameter, or both.	peg count
IARTOTAL	The total number of messages received by the IAR Base feature from TTR Service Selection; the total number to which IAR pre-processing is applied.	peg count
IDPAPTYGTT	Total number of IDP/IDPSMS messages that were selected for A-Party Routing service, but fell through to GTT (with or without having attempted SK routing first).	peg count
IDPAPTYRTD	Total number of IDP/IDPSMS messages that were selected for A-Party Routing service, and were successfully routed based on A-Party PPSOPTS routing data (i.e. routing data associated with the RTDB PT assigned to the A-Party digits).	peg count
IDPAPTYSKR	Total number of IDP/IDPSMS messages that were selected for A-Party Routing service, but fell through to Service Key Routing, and were successfully routed based on SK/BCSM PPSOPTS data (i.e. routing data associated with the RTDB PT assigned to the SK/BCSM entry).	peg count
IDPBKLCONN	Total number of IDP/IDPSMS messages received that matched the blacklist criteria and a CONNECT response was generated.	peg count
IDPBKLCONT	Total number of IDP/IDPSMS messages received that did not match the blacklist criteria and a CONTINUE response was generated.	peg count

Event Name	Description	Unit
IDPRMSERR	The total number of MSUs selected for IDPR service which could not be processed due to errors in encoding, decoding, or formatting, or IDP A-Party routing, or IDP SK Routing.	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 for CDPNNP or CGPNNP, (3) no match for IDP A-Party Blacklist query-response criteria or, (4) IDP Blacklist relay resulted in falling through to GTT for routing, or (5) IDP A-Party or SK Routing resulted in falling through to GTT routing (due to no-match on MSISDN or insufficient data).	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 requested IDPR feature set functionalities were executed successfully. This includes pegs to IDPAPTYRTD, IDPSKRTD, IDPBKLCNN, and IDPBKLCONT registers.	peg count
IDPSKGTT	Total number of IDPs that were selected for Service Key Routing (without having first gone to A-Party Routing), but fell through to GTT.	peg count
IDPSKRTD	Total number of IDP/IDPSMS messages that were selected for	peg count

Event Name	Description	Unit
	Service Key Routing (without having first gone to A-Party Routing), and were successfully routed based on SK/BCSM PPSOPTS data.	
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
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:	peg count

Event Name	Description	Unit
	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.	
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
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

Event Name	Description	Unit
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 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.	peg count

Event Name	Description	Unit
	<p>2. LSL LIM does not have SCCP assignment for received SCCP traffic.</p> <p>3. HSL –</p> <ul style="list-style-type: none"> • 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 – 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	peg count

Event Name	Description	Unit
	successfully passed to MTP level 2 for transmission, while carrying the STP point code in the OPC field.	
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 - 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
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	peg count

Event Name	Description	Unit
	carrying the STP point code in the DPC.	
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 STPs point code in the OPC or the DPC, and were successfully passed to MTP level 2 for transmission.	octets
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 <i>yes</i> .	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 09-03-19 10:30:09 EST EAGLE5 42.0.0-63.32.0
TYPE OF REPORT: STP SYSTEM TOTAL MEASUREMENTS ON STP
REPORT PERIOD: LAST
REPORT INTERVAL: 09-03-19 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, GTTUNONS = 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,
    
```


Table 7: 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
FCDGTTPRFD	FLOBR CDPA GTTs Performed - The total number of MSUs that successfully completed Flexible CdPA Global Title Translation. This register appears in the SYSTOT-TT report ONLY.	peg count
GTTADISC0	GTT Actions – MSUs Discarded - The total number of messages discarded by the DISCARD GTT Action.	peg count
GTTADISC1	GTT Actions – MSUs Discarded - The total number of messages discarded by the UDTS GTT Action.	peg count
GTTADISC2	GTT Actions – MSUs Discarded - The total number of messages discarded by the TCAP Error GTT Action	peg count
GTTADUP	GTT Actions – MSUs Duplicated - The total number of messages for which Duplicate MSU was sent. Multiple duplicate actions in an action set shall also increment this register only once.	peg count
GTTAFWD	GTT Actions – MSUs Forwarded - The total number of messages <i>forwarded</i> by Forward GTT Action.	peg count

Event Name	Description	Unit
GTTASET	GTT Actions - The total number of messages <i>receiving</i> any GTT action.	peg count
GTTPERFD	GTTs Performed - The total number of MSUs that successfully completed global title translation (GTT). Also includes G-Port and INP MSUs that got a match in either the G-Port, INP or GTT DB.	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-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=1
```


Example Commands:

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

MP and E5-OAM: `rept-ftp-meas:type=systot:enttype=tt`

Table 9: Calling Party GTT Measurements

Event Name	Description	Unit
CGTTPERFD	<p>CgPA GTTs Performed - The total number of MSUs that 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.</p> <p>This register appears in the SYSTOT-CGTT report ONLY, which is only generated if the Origin Based SCCP Routing feature is enabled or FLOBR feature is turned on.</p>	peg count
GTTADISC0	<p>GTT Actions – MSUs Discarded - The total number of messages discarded by the DISCARD GTT Action.</p>	peg count
GTTADISC1	<p>GTT Actions – MSUs Discarded - The total number of messages discarded by the UDTS GTT Action.</p>	peg count
GTTADISC2	<p>GTT Actions – MSUs Discarded - The total number of messages discarded by the TCAP Error GTT Action</p>	peg count
GTTADUP	<p>GTT Actions – MSUs Duplicated - The total number of messages for which Duplicate MSU was sent. Multiple duplicate actions in an action set</p>	peg count

Event Name	Description	Unit
	shall also increment this register only once.	
GTTAFWD	GTT Actions – MSUs Forwarded - The total number of messages <i>forwarded</i> by Forward GTT Action.	peg count
GTTASET	GTT Actions - The total number of messages <i>receiving</i> any GTT action.	peg count
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 or FLOBR feature is turned on.	peg count
CGGTTUN1NT	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. This register is pegged 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.	peg count

Event Name	Description	Unit
	<p>This register shall also be pegged, if FLOBR CgPA gttmode is used, and translation is not successful for any of the following reasons:</p> <ul style="list-style-type: none"> • maximum search depth is reached • duplicate GTTSET type is encountered • translation not found (any GTTSET type) • CdPA SSN required, but not present in the MSU • CgPA SSN required, but not present in the MSU • CgPA PC required, but not present in the MSU • Default CgPA PC Set is required, but not provisioned (ANSI or ITU) <p>This register appears in the SYSTOT-CGTT report ONLY, which is only generated if the Origin Based SCCP Routing feature is enabled or FLOBR feature is turned on.</p>	
FCGGTTPRFD	<p>FLOBR CGPA GTTs Performed - The total number of MSUs that successfully completed Flexible CgPA Global Title Translation. This register appears in the SYSTOT-CGTT report ONLY, which is only generated if the Origin Based SCCP Routing feature is enabled or FLOBR feature is turned on.</p>	peg count
STATUS	<p>Indication of Data Validity K – indicates good data I – indicates incomplete interval; N – indicates data not current.</p>	status

Table 11: 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
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

Event Name	Description	Unit
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; 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

Event Name	Description	Unit
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
TCPSEGRDVD	TCP Segment Received - The total number of TCP segments received on the STPLAN interface.	peg count
TCPSEGSNT	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 01-08-23 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,
ENETOVRRERR = 0, ENETOCTXMT = 0, ENETOCTRCV = 0,
TCPCONNFLD = 0, TCPSEGRDVD = 0, TCPSEGSNT = 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",
    
```


Event Name	MTP2 Class	SAAL Class	IPVL/IPVLGW Class	IPVHSL Class
ECLNKCB				X
ECLNKXCO				X
INCCELLS		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
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

Event Name	MTP2 Class	SAAL Class	IPVL/IPVLGW Class	IPVHSL Class
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
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
rept-meas:type=comp:enttype=link:lsn=ls3
```

- MP and E5-OAM:

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

Measurement Events

Table 14: Component Link Measurements

Event Name	Description	Unit
DURLKOTG	Duration of Link Unavailable (Outage) - 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
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, including time-controlled ChangeBacks.	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	octets

Event Name	Description	Unit
	MOCTRCVD when the Large MSU Support for IP Signaling feature status is on and a large MSU is successfully received.	
LMSUOCTTRN	The number of octets transmitted in large MSUs . This register is pegged in addition to MOCTTRAN when the Large 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 MSURECVD when the Large 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 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 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	msec

Event Name	Description	Unit
	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).	
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	<p>Message Octets Received -</p> <p>Total number of octets associated with Messages received, including those removed for MTP level 2 processing and those for which retransmission has been requested.</p> <ul style="list-style-type: none"> • For SAAL, IPVL, IPVHSL, and IPVLGW class linksets - applies to MTP level 3 message bytes. 	octets
MOCTRGTT	<p>Message Octets Received for Messages Requiring GTT -</p> <p>Total number of octets received associated with incoming Messages requiring global title translation (GTT), including octets removed in MTP level 2 processing, e.g., CRC and flag.</p>	octets

Event Name	Description	Unit
	<ul style="list-style-type: none"> For SAAL class linksets, applies to MTP level 3 message bytes. 	
MOCTTRAN	<p>Message Octets Transmitted - Total number of octets associated with Messages transmitted to the far end. For all linkset classes, this includes octets for MTP level 3 SIO and SIF.</p> <ul style="list-style-type: none"> For MTP2 class linksets, octets included are those associated with Messages transmitted AND acknowledged by level 2, as well as any retransmitted Messages. Additional octets included are MTP level 2 flag, BSN/BIB, FSN/BIB, LI, and CRC octets. For SAAL and IPVHSL class linksets, octets are not included until the Message is acknowledged by level 2. For IPVL and IPVLGW class links, octets are not included until the Message is transmitted by level 2. For IPVLGW class linksets, SNMs (Messages with SI=0) are NOT included. 	octets
MSGDISC0	<p>For ANSI links: Priority 0 MSUs Discarded Due to Congestion - The total number of priority 0 MSUs discarded due to congestion (any level).</p> <ul style="list-style-type: none"> For SAAL class links, applies to MTP level 3 messages . For ITU links, the total number of MSUs discarded due to congestion. <p>Note: The EAGLE only supports this one ITU discard counter.</p>	peg count

Event Name	Description	Unit
	<p>When the discard threshold is reached, all MSUs are discarded and counted in this register. Prior to the discard threshold being reached, no MSUs are discarded.</p> <p>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.</p>	
MSGDISC1	<p>For ANSI links: Priority 1 MSUs Discarded Due to Congestion - The total number of priority 1 MSUs discarded due to congestion (any level).</p> <ul style="list-style-type: none"> • For SAAL class links, applies to MTP level 3 messages . <p>For ITU links: this register is not applicable.</p> <p>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.</p>	peg count
MSGDISC2	<p>For ANSI links: Priority 2 MSUs Discarded Due to Congestion - The total number of priority 2 MSUs discarded due to congestion (any level).</p> <ul style="list-style-type: none"> • For SAAL class links, applies to MTP level 3 messages . 	peg count

Event Name	Description	Unit
	<p>For ITU links: this register is not applicable.</p> <p>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.</p>	
MSGDISC3	<p>For ANSI links: Priority 3 MSUs Discarded Due to Congestion - The total number of priority 3 MSUs discarded due to congestion (any level).</p> <ul style="list-style-type: none"> • For SAAL class links, applies to MTP level 3 messages . <p>For ITU links: this register is not applicable.</p> <p>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.</p>	peg count
MSGSRCVD	<p>MSUs Received - Total number of MSUs received, including those for which retransmission has been requested.</p> <ul style="list-style-type: none"> • For SAAL, IPVL, IPVHSL, and IPVLGW class links, applies to MTP level 3 messages. 	peg count

Event Name	Description	Unit
MSGSRGTT	<p>MSUs Received Requiring GTT -</p> <p>Total number of incoming MSUs requiring global title translation (GTT).</p> <ul style="list-style-type: none"> • For SAAL class links, applies to MTP level 3 messages. 	peg count
MSGSTRAN	<p>MSUs Transmitted -</p> <p>Total number of MSUs transmitted to the far-end, including retransmissions.</p> <ul style="list-style-type: none"> • 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
MSURETRN	<p>MSUs Retransmitted - Number of MSUs retransmitted from the STP on this link.</p> <ul style="list-style-type: none"> • For MTP2 class links, MSUs retransmitted by level 2. 	peg count
MTCEUSG	<p>Link Maintenance Usage - The total time the link was manually made unavailable to MTP level 3.</p> <p>This includes locally blocked (LPO), locally inhibited, or de-activated.</p> <p>Note: MTCEUSG may be less than DURLKOTG due to link recovery time following canc-slk, act-slk command sequence</p>	seconds

Event Name	Description	Unit
NMGWSDSABL	Number of Times GWS Disabled - The number of times that the GWS subsystem on the LIM card supporting the link was disabled because of a receive overload condition on the card. When this occurs, the GWS subsystem is disabled for all links on the card and this register is pegged for all links on the card regardless of whether GWS is enabled for that link. Gateway screening is disabled on the card to allow recovery from the receive overload condition and is re-enabled when the receive overload condition abates.	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
SDPDURCV	SSCOP SD PDUs Received - The number of SSCOP sequenced data (SD) PDUs that were received during the indicated interval.	peg count
SDPDURTR	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
SDPDUTRN	SSCOP SD PDUs Transmitted - The number of SSCOP SD PDUs that were transmitted, including retransmissions.	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
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 07-12-31 01:00:04 EST UNKNOWN 38.0.0-XX.XX.0
TYPE OF REPORT: COMPONENT MEASUREMENTS ON LINK
REPORT PERIOD: LAST
REPORT INTERVAL: 07-12-31 00:30:00 THRU 00:59:59

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

These measurements are from 07-12-31, 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

;

stdcfg2b 07-12-31 01:00:05 EST UNKNOWN 38.0.0-XX.XX.0
LINK-COMP MEASUREMENTS: LOC: 1201, LINK: B , LSN: e2m1s2 (MTP2)

These measurements are from 07-12-31, 00:30:00 through 00:59:59.
MSGSTRAN = 20, MSGSRCVD = 20, MSURETRN = 0,

```

Measurements

Reports

```
OCTRETRN = 0, MOCTTRAN = 400, MOCTRCVD = 400,
MTCEUSG = 0, DURLKOTG = 0, MSGSRGTT = 0,
MOCTRGTG = 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
```

;

```
stdcfg2b 07-12-31 01:00:05 EST UNKNOWN 38.0.0-XX.XX.0
LINK-COMP MEASUREMENTS: LOC: 1202, LINK: B , LSN: e2m1s3 (SAAL)
```

```
These measurements are from 07-12-31, 00:30:00 through 00:59:59.
MSGSTRAN = 5, MSGSRCVD = 1, MOCTTRAN = 89,
MOCTRCVD = 17, MTCEUSG = 0, DURLKOTG = 117,
MSGSRGTT = 0, MOCTRGTG = 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
```

;

```
stdcfg2b 07-12-31 01:00:05 EST UNKNOWN 38.0.0-XX.XX.0
LINK-COMP MEASUREMENTS: LOC: 1204, LINK: A , LSN: ipls01 (IPVL)
```

```
These measurements are from 07-12-31, 00:30:00 through 00:59:59.
MSGSTRAN = 20, MSGSRCVD = 20, MOCTTRAN = 400,
MOCTRCVD = 400, MTCEUSG = 0, DURLKOTG = 0,
MSGSRGTT = 0, MOCTRGTG = 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, LMSUTRN = 5,
LMSURCV = 3, LMSUOCTTRN = 2035, LMSUOCTRCV = 1248,
LMSUTRNDSC = 0, LMSURCVDSC = 1
```

;

```
stdcfg2b 07-12-31 01:00:05 EST UNKNOWN 38.0.0-XX.XX.0
LINK-COMP MEASUREMENTS: LOC: 2204, LINK: A5 , LSN: ipgwls01 (IPVLGW)
```

```
These measurements are from 07-12-31, 00:30:00 through 00:59:59.
MSGSTRAN = 20, MSGSRCVD = 20, MOCTTRAN = 400,
MOCTRCVD = 400, MTCEUSG = 0, DURLKOTG = 0,
MSGSRGTT = 0, MOCTRGTG = 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, LMSUTRN = 5,
LMSURCV = 3, LMSUOCTTRN = 2035, LMSUOCTRCV = 1248,
LMSUTRNDSC = 0, LMSURCVDSC = 1
```

;

```
stdcfg2b 07-12-31 01:00:05 EST UNKNOWN 38.0.0-XX.XX.0
LINK-COMP MEASUREMENTS: LOC: 1205, LINK: A , LSN: ipls02 (IPVHSL)
```

```

These measurements are from 07-12-31, 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   =    1800, NMGWSDSABL =      0, LMSUTRN    =      5,
LMSURCV    =      3, LMSUOCTTRN =    2035, LMSUOCTRCV =    1248,
LMSUTRNDSC =      0, LMSURCVDSC =      1, M2PUDMTR   =      0,
M2PUDOCT   =      0, M2PUDMRC   =      0, M2PUDOCR   =      0,
M2PLKNIS   =      0, ECLNKCB    =      0, ECLNKXCO   =      0
;
stdcfg2b 07-12-31 01:00:06 EST UNKNOWN 38.0.0-XX.XX.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: 1s3 (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: 1s3 (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 and E5-OAM Output Examples

Table 15: MP and E5-OAM COMP LINK Column Headers

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

MP and E5-OAM Example Output File Name: comp-link_20070115_1530.csv

MP and E5-OAM Example Output File Format:

```
"CLLI", "SWREL", "RPTDATE", "RPTIME", "TZ", "RPTTYPE", "RPTPD", "IVALDATE", "IVALSTART", "IVALEND", "NUMENTIDS"
"e1061001", "EAGLE5 42.0.0-63.32.0", "2010-08-16", "18:58:07", "EST", "COMPONENT"
```


Register Name	MTP2	SAAL	IPVL	IPVHSL
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		
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 and E5-OAM:

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

Measurement Events

Table 18: Component Linkset Measurements

Event Name	Description	Unit
GTTMSCNVTD	Total GT Routed SCCP MSUs Converted.	peg count

Event Name	Description	Unit
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	<p>Message Octets Received for Messages Requiring GTT -</p> <p>Total number of octets received associated with incoming Messages requiring global title translation (GTT), including octets removed in MTP level 2 processing, e.g. CRC and flag.</p> <ul style="list-style-type: none"> • For SAAL class linksets, applies to MTP level 3 message bytes. 	octets
MOCTRCVD	<p>Message Octets Received -</p> <p>Total number of octets associated with Messages received, including those removed for MTP level 2 processing and those for which retransmission has been requested.</p> <ul style="list-style-type: none"> • For SAAL, IPVL, IPVHSL, and IPVLGW class linksets - applies to MTP level 3 message bytes. 	octets
MOCTTRAN	<p>Message Octets Transmitted -</p> <p>Total number of octets associated with Messages transmitted to the far-end. For all linkset classes, this includes octets for MTP level 3 SIO and SIF.</p> <ul style="list-style-type: none"> • For MTP2 class linksets, octets included are those associated with Messages transmitted AND acknowledged by level 2, as well as any retransmitted Messages. Additional octets included are MTP level 2 flag, 	octets

Event Name	Description	Unit
	<p>BSN/BIB, FSN/BIB, LI, and CRC octets.</p> <ul style="list-style-type: none"> For SAAL and IPVHSL class linksets, octets are not included until the Message is acknowledged by level 2. For IPVL and IPVLGW class links, octets are not included until the Message is transmitted by level 2. For IPVLGW class linksets, SNMs (Messages with SI=0) are NOT included. 	
MSGSRCVD	<p>MSUs Received - Total number of MSUs received, including those for which retransmission has been requested.</p> <ul style="list-style-type: none"> For SAAL, IPVL, IPVHSL, and IPVLGW class linksets - applies to MTP level 3 messages 	peg count
MSGSRGTT	<p>MSUs Received Requiring GTT - Total number of incoming MSUs requiring global title translation (GTT).</p> <ul style="list-style-type: none"> For SAAL class linksets, applies to MTP level 3 messages. 	peg count
MSGSTRAN	<p>MSUs Transmitted - Total number of MSUs transmitted to the far-end, including retransmissions.</p> <ul style="list-style-type: none"> 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 	peg count

Event Name	Description	Unit
	their respective M2PA, M3UA, or SUA formats.	
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 because the screen set was unavailable. This condition can also occur if the screen set data is invalid or gateway screening discard 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 notify or discard of an SCCP message. This register is reported as zero in ACTIVE, "period=active", measurement linkset reports.	peg count
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

Event Name	Description	Unit
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
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

```
eagle10706 07-12-31 10:30:11 EST EAGLE5 38.0.0
TYPE OF REPORT: COMPONENT MEASUREMENTS ON LNKSET
REPORT PERIOD: LAST
```

```

REPORT INTERVAL: 07-12-31 10:00:00 THRU 10:29:59

LNKSET-COMP MEASUREMENTS: lsn1      (SAAL)

MSGSTRAN   = 120755, MSGSRCVD   = 147190, MOCTTRAN   = 2415100,
MOCTRCVD   = 2943800, MSGSRGTT  = 0, MOCTRGTT   = 0,
TDLSINAC   = 0, MSGWSDSLIM  = 0, ZTTMAPO    = 0,
ZTTMAPI    = 0, OUTCELLS    = 0, INCCELLS    = 0,
SDPDUTRN   = 0, SDPDURCV    = 0, SDPDURTR    = 0,
MTPMSCNVTD = 0, GTTMSCNVTD   = 0, SCCPLOOP    = 2

;

eagle10706 07-12-31 10:30:12 EST EAGLE5 38.0.0
LNKSET-COMP MEASUREMENTS: lsn2      (MTP2)

MSGSTRAN   = 120740, MSGSRCVD   = 147196, MOCTTRAN   = 2414790,
MOCTRCVD   = 2943920, MSGSRGTT  = 0, MOCTRGTT   = 0,
TDLSINAC   = 0, MSGWSDSLIM  = 0, ZTTMAPO    = 0,
ZTTMAPI    = 0, MTPMSCNVTD   = 0, GTTMSCNVTD   = 0,
SCCPLOOP   = 0

;

eagle10706 07-12-31 10:30:12 EST EAGLE5 38.0.0
LNKSET-COMP MEASUREMENTS: lsn2a     (IPVL)

MSGSTRAN   = 120740, MSGSRCVD   = 147196, MOCTTRAN   = 2414790,
MOCTRCVD   = 2943920, MSGSRGTT  = 0, MOCTRGTT   = 0,
TDLSINAC   = 0, MSGWSDSLIM  = 0, ZTTMAPO    = 0,
ZTTMAPI    = 0, MTPMSCNVTD   = 0, GTTMSCNVTD   = 0,
SCCPLOOP   = 0

;

eagle10706 07-12-31 10:30:13 EST EAGLE5 38.0.0
LNKSET-COMP MEASUREMENTS: lsn3      (IPVHSL)

MSGSTRAN   = 120740, MSGSRCVD   = 147196, MOCTTRAN   = 2414790,
MOCTRCVD   = 2943920, MSGSRGTT  = 0, MOCTRGTT   = 0,
TDLSINAC   = 0, MSGWSDSLIM  = 0, ZTTMAPO    = 0,
ZTTMAPI    = 0, MTPMSCNVTD   = 0, GTTMSCNVTD   = 0,
SCCPLOOP   = 0

;

eagle10706 07-12-31 10:30:14 EST EAGLE5 38.0.0
LNKSET-COMP MEASUREMENTS: lsn4      (SAAL)

MSGSTRAN   = 0, MSGSRCVD   = 0, MOCTTRAN   = 0,
MOCTRCVD   = 0, MSGSRGTT  = 0, MOCTRGTT   = 0,
TDLSINAC   = 0, MSGWSDSLIM  = 0, ZTTMAPO    = 0,
ZTTMAPI    = 0, OUTCELLS    = 0, INCCELLS    = 0,
SDPDUTRN   = 0, SDPDURCV    = 0, SDPDURTR    = 0,
MTPMSCNVTD = 0, GTTMSCNVTD   = 0, SCCPLOOP    = 1

;

eagle10706 07-12-31 10:30:14 EST Rel 38.0.0
END OF HALF-HOURLY LNKSET-COMP MEASUREMENT REPORT
;
    
```


Measurement Events

Table 21: 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 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). CNTLCHKR register excludes initial SCTP association set-up messages (INIT and COOKIE-ECHO).	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.	seconds
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

Event Name	Description	Unit
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
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

Event Name	Description	Unit
	SCPKTRCV register excludes the pegging of SCTP Packets received when no instance exists on the card for any of the links; i.e., the association parameter "OPEN" has value "NO" for all the links configured on the card. Also, excludes pegging of set up messages (INIT and COOKIE-ECHO) that are part of association establishment procedure.	
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. SCPKTSNT register excludes initial SCTP association set-up messages (INIT-ACK and COOKIE-ACK). For M2PA association INIT packet is never pegged.	peg count
STATUS	Indication of Data Validity: K indicates good data I indicates incomplete interval N indicates data not current	status

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,
    
```


Measurement Events

Table 24: 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 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	peg count

Event Name	Description	Unit
	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
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. SCPKTRCV register excludes the pegging of SCTP Packets received when no instance exists on the card for any of the associations , i.e., the association parameter "OPEN" has value "NO" for all the associations	peg count

Event Name	Description	Unit
	configured on the card. Also, excludes pegging of set up messages (INIT and COOKIE-ECHO) that are part of association establishment procedure. (See UNASCTPK register.)	
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. SCPKTSNT register excludes initial SCTP association set-up messages (INIT-ACK and COOKIE-ACK). For M2PA association INIT packet is never pegged.	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 the association to which the packet belongs. UNASCTPK register includes the pegging of SCTP Packets	peg count

Table 26: 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 and E5-OAM: rept-ftp-meas:type=comp:enttype=ua

Measurement Events

Table 27: 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
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	status

Event Name	Description	Unit
	N indicates data not current	
TXDATAMS	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	seconds

Event Name	Description	Unit
	congestion as a result of the ASSOC entering congestion).	
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

Table 29: Typical File Size: comp-ua.csv

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

Network Management Measurements (NM)

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, LINK, LNKSET), Active (LINK, LNKSET)

enttype=stp

enttype=stp

Example Commands:

OAM: rept-meas:type=nm:enttype=stp

MP and E5-OAM: rept-ftp-meas:type=nm:enttype=stp

Table 30: 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	peg count

Event Name	Description	Unit
	incorrect for the given translation type.	
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
MSIDPMATCH	MSUs Returned – Total number of IDP messages returned to originating MSC. These messages bypass the prepaid engine since it has been determined that they meet the criteria for subscribers with unlimited prepaid calling plan.	peg count
MSIDPNOMCH	MSUs Relayed - Total number of IDP messages relayed to their destination.	peg count
MSINVDPC	MSUs Rcvd – Invalid DPC - The 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
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
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 - The total number of MSUs that failed gateway screening and have been discarded.	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	<p>MSUs Discarded –</p> <ol style="list-style-type: none"> 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 – <ul style="list-style-type: none"> • 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	<p>MSUs Discarded – Rcv Queue Full -</p> <p>Number of MSUs discarded because the receive queue was full.</p>	peg count
NMTSKDSC0	<p>Network Management Task Discard from Processor</p>	peg count

Event Name	Description	Unit
	Overload - The total number of network management tasks (messages) discarded because of a processor overload (task priority = 0).	
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 (messages) discarded because of a processor overload (task priority = 3).	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 carrying the STP point code in the OPC field.	peg count
ORMSUOCT	Originate MSU Octets - The total number of outgoing octets associated with MSUs	octets

Event Name	Description	Unit
	carrying the STP point code in the OPC field. This includes octets added in MTP level 2 processing.	
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
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
TSMUOCT	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	octets

enttype=lnkset

Command Examples

- OAM

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

- MP and E5-OAM

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

Measurement Events

Table 32: Network Management Linkset Measurements

Event Name	Description	Unit
MOCTRCVD	<p>MSU Octets Received - Total number of octets associated with MSUs received, including those removed and those for which retransmission has been requested.</p> <ul style="list-style-type: none"> • For SAAL, IPVL, IPVHSL, and IPVLGW class linksets - applies to MTP level 3 message bytes. 	octets
MOCTTRAN	<p>MSU Octets Transmitted - Total number of octets associated with MSUs transmitted to the far-end. For all linkset classes, this includes octets for MTP level 3 SIO and SIF.</p> <ul style="list-style-type: none"> • For MTP2 class linksets, octets included are those associated with MSUs transmitted AND acknowledged by level 2, as well as any retransmitted MSUs. Additional octets included are MTP level 2 flag, BSN/BIB, FSN/BIB, LI, and CRC octets. • For SAAL and IPVHSL class linksets, octets are not 	octets

Event Name	Description	Unit
	<p>included until the MSU is acknowledged by level 2.</p> <ul style="list-style-type: none"> For IPVL and IPVLGW class linksets, octets are not included until the MSU is transmitted by level 2. For IPVLGW class linksets, SNMs (MSUs with SI=0) are NOT included. 	
MSGSTRAN	<p>MSUs Transmitted - Total number of MSUs transmitted to the far-end, including retransmissions.</p> <ul style="list-style-type: none"> For MTP2 class links, MSUs transmitted AND acknowledged by level 2 For SAAL, IPVL, IPVHSL, and IPVLGW class links, MTP level 3 messages offered for transmission after any required conversion from their respective M2PA, M3UA, or SUA formats 	peg count
MSGSRCVD	<p>MSUs Received - The total number of MSUs received, including those for which retransmission has been requested.</p> <ul style="list-style-type: none"> For SAAL, IPVL, IPVHSL, and IPVLGW class linksets - applies to MTP level 3 messages 	peg count
STATUS	<p>Indication of Data Validity:</p> <p>K indicates good data I indicates incomplete interval N indicates data not current</p>	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 and E5-OAM Reports

Table 33: MP and E5-OAM NM LNKSET Column Headers

Field Name	Description
LSN	Linkset name
LNKTYPE	Link type

MP and E5-OAM Example Output File Name: `nm-lnkset_19990117_1550.csv`

MP and E5-OAM 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 LINKSET", "LAST", "2007-12-31",
"15:45:00", "15:50:00", 200<cr><lf>
<cr><lf>
"STATUS", "LSN", "LNKTYPE", "MOCTTRAN", "MOCTRCVD", "MSGSTRAN", "MSGSRCVD"<cr><lf>
"K", "lsnxxx", "SAAL", 0, 0, 0, 0<cr><lf>
. . . . .
"K", "lsnxxx", "IPVL", 0, 0, 0, 0<cr><lf>
"K", "lsnxxx", "IPVHSL", 0, 0, 0, 0<cr><lf>
"K", "lsnxxx", "MTP2", 0, 0, 0, 0<cr><lf>
```

Assuming each data line will be:

$$4 \text{ char status} + 8 \text{ char LSN} + 7 \text{ char LNKTYPE} + 4*(6 \text{ char data}) + 2 = 45 \text{ chars}$$

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

Table 34: 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 35: HSL LSL Differences for Network Management Links](#).

Table 35: HSL LSL Differences for Network Management Links

Event Name	LSL Usage	HSL Usage
DRBSYLNK	As described	N/A - Not reported
DRFEPRO	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 and E5-OAM

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

Measurement Events

Table 36: Network Management Link Measurements

Event Name	Description	Unit
DRFEPRO	Duration of Far-End Processor Outage -	seconds

Event Name	Description	Unit
	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). <i>Not</i> reported for HSLs.	
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. (MTP 2 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. For HSLs, this is initiated by MAAL-REPORT_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
ECCNGLV3	Event Count for Entering Level 3 Link Congestion - The total number of times that link congestion level 3 was entered.	peg count

Event Name	Description	Unit
MSGDISC0	<p>For ANSI links: Priority 0 MSUs Discarded Due to Congestion - The total number of priority 0 MSUs discarded due to congestion (any level).</p> <ul style="list-style-type: none"> For SAAL class links, applies to MTP level 3 messages . <p>For ITU links: this register is not applicable.</p> <p>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.</p>	peg count
MSGDISC1	<p>For ANSI links: Priority 1 MSUs Discarded Due to Congestion - The total number of priority 1 MSUs discarded due to congestion (any level).</p> <ul style="list-style-type: none"> For SAAL class links, applies to MTP level 3 messages . <p>For ITU links: this register is not applicable.</p> <p>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.</p>	peg count
MSGDISC2	<p>For ANSI links: Priority 2 MSUs Discarded Due to Congestion - The total number of priority 2</p>	peg count

Event Name	Description	Unit
	<p>MSUs discarded due to congestion (any level).</p> <ul style="list-style-type: none"> For SAAL class links, applies to MTP level 3 messages . <p>For ITU links: this register is not applicable.</p> <p>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.</p>	
MSGDISC3	<p>For ANSI links: Priority 3 MSUs Discarded Due to Congestion - The total number of priority 3 MSUs discarded due to congestion (any level).</p> <ul style="list-style-type: none"> For SAAL class links, applies to MTP level 3 messages . <p>For ITU links: this register is not applicable.</p> <p>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.</p>	peg count
NMGWSDSABL	<p>Number of Times GWS Disabled – The number of times that the GWS subsystem on the LIM card supporting the link was disabled because of a receive overload condition on the card. When this occurs, the GWS</p>	peg count

Event Name	Description	Unit
	subsystem is disabled for all links on the card and this register is pegged for all links on the card regardless of whether GWS is enabled for that link. Gateway screening is disabled on the card to allow recovery from the receive overload condition and is re-enabled when the receive overload condition abates.	
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
;

```

- Example of rept-meas:type=nm:enttype=link:rsn=rs2

```

REPORT PERIOD: ACTIVE
REPORT INTERVAL: 02-12-19, 17:10:00 THROUGH CURRENT

LINK-NM MEASUREMENTS FOR LINKSET ls1:

LINK-NM MEASUREMENTS: LOC: 1204, LINK: A , LSN: ls1 (SAAL)

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
;

tekelecstp 02-12-19 17:13:16 **** UNKNOWN 38.0.0
LINK-NM MEASUREMENTS FOR LINKSET ls3:

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

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
;

tekelecstp 02-12-19 17:13:23 **** UNKNOWN 38.0.0
END OF ON-DEMAND LINK-NM MEASUREMENT REPORT
;

```

- Example of rept-meas:type=nm:enttype=link:rsn=rs1

```

tekelecstp 02-12-19 17:13:16 **** UNKNOWN 38.0.0
LINK-NM MEASUREMENTS FOR LINKSET ls3:

```

```

LINK-NM MEASUREMENTS: LOC: 1202, LINK: A , LSN: 1s3 (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 17:13:18 **** UNKNOWN 38.0.0
LINK-NM MEASUREMENTS: LOC: 1202, LINK: A1 , LSN: 1s3 (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 17:13:19 **** UNKNOWN 38.0.0
LINK-NM MEASUREMENTS: LOC: 1202, LINK: A2 , LSN: 1s3 (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 17:13:20 **** UNKNOWN 38.0.0
LINK-NM MEASUREMENTS: LOC: 1202, LINK: A3 , LSN: 1s3 (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 17:13:21 **** UNKNOWN 38.0.0
LINK-NM MEASUREMENTS: LOC: 1202, LINK: B , LSN: 1s3 (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 17:13:23 **** UNKNOWN 38.0.0
END OF ON-DEMAND LINK-NM MEASUREMENT REPORT
;

```


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

Table 38: Typical File Size: nm-link.csv

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

Daily Availability Measurements (AVLD)

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 and E5-OAM only)

Accessible Collection Period: Last

enttype=link

Command Examples

- OAM

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

- MP and E5-OAM

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

Measurement Events

Table 39: 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

Event Name	Description	Unit
DRFEPRO	<p>Duration of Far-End Processor Outage -</p> <p>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). Not reported for SAAL, IPVL class or IPVLGW class links.</p>	seconds
DRLCLPRO	<p>Duration of Local Processor Outage -</p> <p>The cumulative duration that a link was unavailable to MTP level 3 because of a processor outage at the near-end network element.</p>	seconds
DRLKINHB	<p>Duration of Signaling Link Mgmt Inhibit - The duration that a signaling link was unavailable because a signaling link was inhibited. Not reported for IPVL, IPVLGW, or IPVHSL links.</p>	seconds
FARMGINH	<p>Number of Far-End Management Inhibits - The total number of times that a link was inhibited by far-end management. Not reported for IPVL, IPVLGW, or IPVHSL links.</p>	peg count
NDCLFLABN	<p>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</p>	peg count

Event Name	Description	Unit
	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.	
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
NDCLESYNC	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 - The number of times a signaling link was out-of-service due to an excessive delay in acknowledgments. For SAAL and IPVHSL class links, timer NO_RESPONSE expired for POLL/STAT response. Not reported for IPVL and IPVLGW class links.	peg count

Event Name	Description	Unit
NDCFLXDC	<p>Number of Signaling Link Failures - Excessive Duration of Congestion - The number of times a signaling link was out-of-service because the timer T6 (remote congestion) expired.</p> <ul style="list-style-type: none"> • For SAAL and IPVHSL class links, timer NO_CREDIT expired for POLL/STAT response. • Not reported for IPVL and IPVLGW class links. 	peg count
NDCFLXER	<p>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.</p>	peg count
NEARMGIH	<p>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.</p>	peg count
NMDCLFLR	<p>Number of Signaling Link Declared Failures All Types - The cumulative total of all link failures.</p>	peg count
NMFEPRO	<p>Number of Far-End Processor Outages -</p> <p>The total number of far-end processor outages. Reported for MTP2 links only.</p>	peg count
NMLCLPRO	<p>Number of Local Processor Outages - The total number of local processor outages.</p>	peg count

Event Name	Description	Unit
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
STATUS	Indication of Data Validity: K indicates good data I indicates incomplete interval N indicates data not current	status
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

Example Output:

- OAM Example 1

```

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 12:59:59

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

These measurements are from 98-04-15, 00:00:00 through 12:59:59.
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 13:59:59

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

```
These measurements are from 06-12-15, 00:00:00 through 13:59:59.
NMDCLFLR = 0, DRDCLFLR = 0, SURCVERR = 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 13:59:59

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

```
These measurements are from 06-12-15, 00:00:00 through 13:59:59.
NMDCLFLR = 0, DRDCLFLR = 0, SURCVERR = 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 13:59:59

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

```
These measurements are from 07-12-31, 00:00:00 through 13:59:59.
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 12:59:59

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

```
These measurements are from 07-12-31, 00:00:00 through 12:59:59.
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
;
```

- OAM Example 2

```
tekelecstp 02-12-19 17:12:52 **** UNKNOWN 38.0.0
rept-meas:type=avld:enttype=link:rsn=rs2
;

tekelecstp 02-12-19 17:12:52 **** UNKNOWN 38.0.0
Measurements Report will be generated.
;

tekelecstp 02-12-19 17:12:52 **** UNKNOWN 38.0.0
TYPE OF REPORT: DAILY AVAILABILITY MEASUREMENTS ON LINK
REPORT PERIOD: LAST
REPORT INTERVAL: 07-06-22, 00:00:00 THROUGH 23:59:59

LINK-AVLD MEASUREMENTS LOC: 1201, LINK: A , LSN: ls1 (MTP2)

These measurements are from 07-06-22, 00:00:00 through 23:59:59.

DRDCLFLR = 0, DRFEPRO = 0, DRLCLPRO = 0,
DRLKINHB = 0, FARMGINH = 0, NEARMGIN = 0,
;

tekelecstp 02-12-19 17:13:01 **** UNKNOWN 38.0.0
END OF ON-DEMAND LINK-AVLD MEASUREMENT REPORT
;
```

MP and E5-OAM Reports

Table 40: MP and E5-OAM AVLD LINK Command Headers

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

MP and E5-OAM Example Output File Name: avld-link_20071115_2400.csv

MP and E5-OAM 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", 0,0,0,0,0,0,0,0,0<cr><lf>
. . . . .
"K", "lsn789", "5201", "B3", "MTP2", 0,0,0,0,0,0,0,0,0<cr><lf>
```

```
"K","ipls1","1204","A","IPVL",0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","ipls1","2204","A","IPVLGW",0,0,0,0,0,0,0,0,0,0<cr><lf>
"K","ipls2","1205","A","IPVHSL",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 + 8*(6 char data) + 2 = 81 chars

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

Table 41: Typical File Size: avld-link.csv

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

Day-To-Hour Availability Measurements (AVLDTH)

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 and E5-OAM

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

Measurement Events

Table 42: 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). Not reported for SAAL, IPVL class or IPVLGW class links.	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, IPVLGW, or IPVHSL 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 IPVL, IPVLGW, or IPVHSL links.	peg count

Event Name	Description	Unit
NDCLFLABN	<p>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.</p>	peg count
NDCLFALP	<p>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.</p>	peg count
NDCLFINTR	<p>Link Failure – Too Many Interrupts - The number of times a signaling link was out-of-service because an excessive number of link interrupts occurred.</p>	peg count
NDCLESYNC	<p>Link Failure - Loss of Synchronization - Number of times that the link was taken out-of-service because of a loss of synchronization.</p>	peg count
NDCFLXDA	<p>Number of Signaling Link Failures – Excessive Delay of</p>	peg count

Event Name	Description	Unit
	<p>Acknowledgment - The number of times a signaling link was out-of-service due to an excessive delay in acknowledgments. For SAAL and IPVHSL class links, timer NO_RESPONSE expired for POLL/STAT response. Not reported for IPVL and IPVLGW class links.</p>	
NDCFLXDC	<p>Number of Signaling Link Failures - Excessive Duration of Congestion - The number of times a signaling link was out-of-service because the timer T6 (remote congestion) expired.</p> <ul style="list-style-type: none"> • For SAAL and IPVHSL class links, timer NO_CREDIT expired for POLL/STAT response. • Not reported for IPVL and IPVLGW class links. 	peg count
NDCFLXER	<p>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.</p>	peg count
NEARMGIH	<p>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.</p>	peg count
NMDCLFLR	<p>Number of Signaling Link Declared Failures All Types - The cumulative total of all link failures.</p>	peg count
NMFEPRO	<p>Number of Far-End Processor Outages -</p>	peg count

Event Name	Description	Unit
	The total number of far-end processor outages. Reported for MTP2 links only.	
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
STATUS	Indication of Data Validity: K indicates good data I indicates incomplete interval N indicates data not current	status
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

Example Output:

- OAM Example 1

```
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 12:59:59

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

```

These measurements are from 98-04-15, 00:00:00 through 12:59:59.
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-AVLDTM 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 13:59:59

LINK-AVLDTM MEASUREMENTS: LOC: 1204, LINK: A , LSN: ip1s1 (IPVL)

These measurements are from 06-12-15, 00:00:00 through 13:59:59.
NMDCLFLR   =          0, DRDCLFLR   =          0, SURCVERR   =          0,
DRLCLPRO   =          0

;

eagle10506 07-12-31 14:15:17 UNKNOWN 38.0.0-XX.XX.0
END OF ON-DEMAND LINK-AVLDTM 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 13:59:59

LINK-AVLDTM MEASUREMENTS: LOC: 1204, LINK: A , LSN: ip1s1 (IPVLGW)

These measurements are from 06-12-15, 00:00:00 through 13:59:59.
NMDCLFLR   =          0, DRDCLFLR   =          0, SURCVERR   =          0,
DRLCLPRO   =          0

;

eagle10506 07-12-31 14:15:17 UNKNOWN 38.0.0-XX.XX.0
END OF ON-DEMAND LINK-AVLDTM 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 13:59:59

LINK-AVLDTM MEASUREMENTS: LOC: 1205, LINK: A , LSN: ip1s2 (IPVHSL)

These measurements are from 07-12-31, 00:00:00 through 13:59:59.
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-AVLDTM 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 12:59:59

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

These measurements are from 07-12-31, 00:00:00 through 12:59:59.
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-AVLDTM MEASUREMENT REPORT
;

```

- OAM Example 2

```

tekelecstp 02-12-19 17:12:52 **** UNKNOWN 38.0.0
rept-meas:type=avldth:enttype=link:rsn=rs1
;

tekelecstp 02-12-19 17:12:52 **** UNKNOWN 38.0.0
Measurements Report will be generated.
;

tekelecstp 02-12-19 17:12:52 **** UNKNOWN 38.0.0
TYPE OF REPORT: DAY-TO-HOUR AVAILABILITY MEASUREMENTS ON LINK
REPORT PERIOD: LAST
REPORT INTERVAL: 02-12-19, 17:12:52 THROUGH CURRENT

LINK-AVLDTM MEASUREMENTS FOR LINKSET ls1:

LINK-AVLDTM MEASUREMENTS: LOC: 1204, LINK: A , LSN: ls1 (MTP2)

NEARMGIH = 0, FARMGINH = 0, NMDCLFLR = 0,
DRDCLFLR = 0, SURCVERR = 0, DRLKINHB = 0,
DRFEPRO = 0, DRLCLPRO = 0

;

tekelecstp 02-12-19 17:12:56 **** UNKNOWN 38.0.0
LINK-AVLDTM MEASUREMENTS: LOC: 1204, LINK: A3 , LSN: ls1 (MTP2)

NEARMGIH = 0, FARMGINH = 0, NMDCLFLR = 0,
DRDCLFLR = 0, SURCVERR = 0, DRLKINHB = 0,
DRFEPRO = 0, DRLCLPRO = 0

;

tekelecstp 02-12-19 17:12:57 **** UNKNOWN 38.0.0
LINK-AVLDTM MEASUREMENTS FOR LINKSET ls3:

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

NEARMGIH = 0, FARMGINH = 0, NMDCLFLR = 0,
DRDCLFLR = 0, SURCVERR = 0, DRLKINHB = 0,
DRFEPRO = 0, DRLCLPRO = 0

;

tekelecstp 02-12-19 17:13:01 **** UNKNOWN 38.0.0
END OF ON-DEMAND LINK-AVLDTM MEASUREMENT REPORT
;

```

MP and E5-OAM Reports

Table 43: MP and E5-OAM AVLDTH LINK Command Headers

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

MP and E5-OAM Example Output File Name: avldth-link_20070117_1500.csv

MP and E5-OAM 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", 0,0,0,0,0,0,0,0,0,0<cr><lf>
. . . . .
"K", "lsn789", "5201", "B3", "MTP2", 0,0,0,0,0,0,0,0,0,0<cr><lf>
"K", "ip1s1", "1204", "A", "IPVL", 0,0,0,0,0,0,0,0,0,0<cr><lf>
"K", "ip1s1", "2204", "A", "IPVLGW", 0,0,0,0,0,0,0,0,0,0<cr><lf>
"K", "ip1s2", "1205", "A", "IPVHSL", 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 + 8*(6 char data) + 2 = 81 chars

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

Table 44: Typical File Size: avldth-link.csv

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

Availability Measurements (AVL)

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

Entity Types: Link, STPLAN

Accumulation Interval: 30 minutes

Optional MP and E5-OAM Accumulation Interval: Every 15 minutes

STP Retention Period: 24 hours

Reporting Mode: On-demand, scheduled (MP and E5-OAM)

Accessible Collection Period: Last, active, specific, or all

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 45: Availability Link Register Usage By LINK Class](#).

Table 45: 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	N/A - not reported	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

Event Name	MTP2 Usage	SAAL Usage	IPVL and IPVLGW Usage	IPVHSL Usage
NMFEPRO	As described	N/A - not reported	As described	As described
PCRN1N2EXC	As described	N/A - not reported	N/A - not reported	N/A - not reported
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 and E5-OAM

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

Measurement Events

Table 46: 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). Not	seconds

Event Name	Description	Unit
	reported for SAAL, IPVL class or IPVLGW class links.	
DRLCLPRO	<p>Duration of Local Processor Outage -</p> <p>The cumulative duration that a link was unavailable to MTP level 3 because of a processor outage at the near-end network element.</p>	seconds
DRLKINHB	<p>Duration of Signaling Link Mgmt Inhibit - The duration that a signaling link was unavailable because a signaling link was inhibited. Not reported for IPVL, IPVLGW, or IPVHSL links.</p>	seconds
FARMGINH	<p>Number of Far-End Management Inhibits - The total number of times that a link was inhibited by far-end management. Not reported for IPVL, IPVLGW, or IPVHSL links.</p>	peg count
NDCLFLABN	<p>Number of Signaling Link Failures – Abnormal FIB/BSN -</p> <p>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.</p> <p>Occurrences of this condition while the link is not in-service are not accumulated in this register.</p>	peg count

Event Name	Description	Unit
NDCLEFALP	<p>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.</p>	peg count
NDCLFINTR	<p>Link Failure – Too Many Interrupts -</p> <p>The number of times a signaling link was out-of-service because an excessive number of link interrupts occurred.</p>	peg count
NDCLEFSYNC	<p>Link Failure - Loss of Synchronization -</p> <p>Number of times that the link was taken out-of-service because of a loss of synchronization.</p>	peg count
NDCFLXDA	<p>Number of Signaling Link Failures – Excessive Delay of Acknowledgment - The number of times a signaling link was out-of-service due to an excessive delay in acknowledgments. For SAAL and IPVHSL class links, timer NO_RESPONSE expired for POLL/STAT response. Not reported for IPVL and IPVLGW class links.</p>	peg count
NDCFLXDC	<p>Number of Signaling Link Failures - Excessive Duration of Congestion - The number of times a signaling link was out-of-service because the timer T6 (remote congestion) expired.</p> <ul style="list-style-type: none"> • For SAAL and IPVHSL class links, timer NO_CREDIT expired for POLL/STAT response. 	peg count

Event Name	Description	Unit
	<ul style="list-style-type: none"> Not reported for IPVL and IPVLGW class links. 	
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
STATUS	Indication of Data Validity: K indicates good data	status

Event Name	Description	Unit
	I indicates incomplete interval N indicates data not current	
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 41.0
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 41.0
END OF ON-DEMAND LINK-AVL MEASUREMENT REPORT
;

ipmeas 08-05-27 17:19:30 EST EAGLE 41.0
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 41.0
END OF ON-DEMAND LINK-AVL MEASUREMENT REPORT
;

ipmeas 08-05-27 17:31:37 EST EAGLE 41.0
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, NDCLFALP = 0, NDCLFINTR = 0,
NMLCLPRO = 0, DRLCLPRO = 0, SUSRECVD = 0,
SUSTRAN = 0
;

ipmeas 08-05-27 17:31:39 EST EAGLE 41.0
END OF ON-DEMAND LINK-AVL MEASUREMENT REPORT
;

ipmeas 08-05-27 17:25:36 EST EAGLE 41.0
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, NDCLFALP = 0, NDCLFINTR = 0,
NMLCLPRO = 0, DRLCLPRO = 0, SUSRECVD = 0,
SUSTRAN = 0
;

ipmeas 08-05-27 17:25:38 EST EAGLE 41.0
END OF ON-DEMAND LINK-AVL MEASUREMENT REPORT
;

ipmeas 08-05-27 17:28:38 EST EAGLE 41.0
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, NDCFLXDC = 0,
NDCLFALP = 0, NDCLFINTR = 0, NMFEPRO = 0,
NMLCLPRO = 0, DRFEPRO = 0, DRLCLPRO = 0,
SUSRECVD = 0, SUSTRAN = 0

```


enttype=stplan

This enttype consists of measurements for LIM and DSM cards. The outputs are separate for the OAM based measurements and combined for the MP and E5-OAM based measurements. The MP and E5-OAM based measurements appear after the OAM measurements for the DSM cards.

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:loc=xxxx
```

- MP and E5-OAM

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

Table 49: Availability STPLAN Measurements

Event Name	Description	Unit
ENETALNERR	Ethernet Alignment Error - The number of packets not received over the STPLAN interface because of Ethernet alignment errors.	peg count
ENETBUSBSY	Ethernet Bus Busy - The number of transmissions attempted when the STPLAN Ethernet bus was busy.	peg count
ENETCOLERR	Ethernet Collision Error - The number of packets not transmitted by STPLAN because of excessive collisions on the STPLAN Ethernet bus. MCP/OAMHC Reports will display this register as zero for card types other than ACM cards.	peg count
ENETCRCERR	Ethernet CRC Error - The 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 - The 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. MCP/OAMHC Reports will display this register as zero for card types other than ACM cards.	peg count
IPPROTERR	IP Protocol Error - The number of inbound IP datagrams discarded by STPLAN due to an error in the packet (invalid protocol). MCP/OAMHC Reports will display this register as zero for card types other than ACM cards.	peg count
SLANDISC1	STPLAN Discarded 1 - Number of indicated messages not copied to the host due to the STPLAN feature being disabled.	peg count

Event Name	Description	Unit
SLANDISC2	STPLAN Discarded 2 - The number of MSUs discarded due to the host being unreachable. MCP/OAMHC Reports will display this register as zero for card types other than ACM cards.	peg count
SLANDSBLD	STPLAN Disabled – The duration that the STPLAN screening/copy feature was disabled.	msec
SLANSCRND	STPLAN Screened – Number of MSUs that were copied to the STPLAN interface after passing gateway screening.	peg count
SLANXMIT	STPLAN Transmit - The number of MSUs sent to the host destination. MCP/OAMHC Reports will display this register as zero for card types other than ACM cards.	peg count
SLANXMIT	STPLAN Transmit - The number of MSUs sent to the host destination.	peg count
TCPCONNFLD	TCP Connections Failed - The total number of TCP connections that have failed on the STPLAN interface. MCP/OAMHC Reports will display this register as zero for card types other than ACM cards.	peg count
TCPSEGRCVD	TCP Segment Received - The total number of TCP segments received on the STPLAN interface. MCP/OAMHC Reports will display this register as zero for card types other than ACM cards.	peg count

Table 50: Typical File Size: av1-stplan.csv

System header	+	Report header	+	Report data	=	File Size
250	+	284	+	145	=	679 bytes

Daily Maintenance Measurements (MTCD)

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, GTTAPATH, AIQ

Default Accumulation Interval: 24 hours

STP Retention Period:

- 24 hours: STP, Link, Lnkset, STPLAN
- 7 days: LNP, NP, EIR, MAPSCRN, VFLEX, ATINPQ, AIQ, GTTAPATH

Reporting Modes: Scheduled and On-Demand

Note: ATINPQ, AIQ, EIR, GTTAPATH are MP and E5-OAM only.

Accessible Collection Periods: Last, Specific

enttype=stp

Example Commands:

OAM: rept-meas:type=mtcd:enttype=stp

MP and E5-OAM: rept-ftp-meas:type=mtcd:enttype=stp

Table 51: Daily Maintenance (MTCD) and Day-To-Hour Maintenance (MTCDTH) 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

Event Name	Description	Unit
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 an error, i.e., when the G-Flex SCCP CdPA verification fails.	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	peg count

Event Name	Description	Unit
	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.	
GTTUN1NT	<p>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.</p> <p>In general, this register contains the sum of the GTTUN1NT register in the systot-tt report and the CGGTTUN1NT</p>	peg count
MSIDPNOMCH	MSUs Relayed - Total number of IDP messages relayed to their destination.	peg count
MSIDPMATCH	MSUs Returned – Total number of IDP messages returned to originating MSC. These messages bypass the prepaid engine since it has been determined that they meet the criteria for subscribers with unlimited prepaid calling plan.	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

Event Name	Description	Unit
MSINVSIO	<p>MSUs Rcvd – Invalid Service Indicator Octet (SIO) -</p> <p>Number of MSUs received and discarded because the service requested in the service indicator octet (SIO) was not supported by the STP.</p>	peg count
MASYSAL	<p>Major system alarms - The total number of major system alarms.</p>	peg count
MISYSAL	<p>Minor system alarms - The total number of minor system alarms.</p>	peg count
MSINVLNK	<p>MSUs Discarded – Invalid Link - Number of MSUs discarded because of an incorrect SLC. (The SLC refers to a nonexistent link or the same link.)</p>	peg count
MSINVSLC	<p>MSUs Discarded – Invalid SLC -</p> <p>Number of MSUs discarded because of an invalid SLC code in the ECO/COO.</p>	peg count
MSNACDPC	<p>MSUs Discarded – Inaccessible DPC -</p> <p>The total number of MSUs discarded because of an inaccessible DPC.</p>	peg count
MSSCCPFL	<p>MSUs Discarded – Routing Failure -</p> <p>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.</p>	peg count

Event Name	Description	Unit
MSUSCCPFLR	MSU SCCP Failure - Total MSUs Discarded Due to SCCP Conversion 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 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	peg count

Event Name	Description	Unit
	<p>based on the current configuration.</p> <p>2. LSL LIM does not have SCCP assignment for received SCCP traffic.</p> <p>3. HSL –</p> <ul style="list-style-type: none"> • 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	<p>MSUs Discarded – Rcv Queue Full -</p> <p>Number of MSUs discarded because the receive queue was full.</p>	peg count
MSULOST5	<p>MSUs Discarded – LIM Init -</p> <p>Number of MSUs discarded while the LIM card was initializing.</p>	peg count
MSULOST6	<p>MSUs Discarded – The number of MSUs discarded due to an error encountered during internal (IMT) transfer of MSU between cards.</p>	peg count
MTPRESTS	<p>MTP Restarts Initiated -</p> <p>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.</p>	peg count
OMSINVDPC	<p>MSUs Originated - Invalid DPC - The number of MSUs originated with an invalid DPC.</p>	peg count

Event Name	Description	Unit
ORIGMSUS	<p>Originated MSUs -</p> <p>The total number of outgoing MSUs successfully passed to MTP level 2 for transmission, while carrying the STP point code in the OPC field. For IPGW links, this register includes counts for management messages such as RST messages. This register is not an aggregate of link or linkset registers.</p>	peg count
OVSZMSG	<p>Oversized MTP 3 Messages -</p> <p>Oversized MTP 3 messages exceeding 272 octets (level 3) that are received by an HSL and are discarded.</p>	peg count
SCCPLOOP	<p>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.</p>	peg count
STATUS	<p>Indication of Data Validity:</p> <p>K indicates good data</p> <p>I indicates incomplete interval</p> <p>N indicates data not current</p>	status
THRSWMSU	<p>Through-Switched MSUs -</p> <p>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.</p>	peg count
TRMDMSUS	<p>Terminated MSUs - The total number of incoming MSUs carrying the STP point code in the DPC.</p>	peg count
TTMAPPF	<p>Translation Type Mapping Translations Performed - The</p>	peg count

Event Name	Description	Unit
	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).	
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

OAM Example Output:

```

e1061001 10-08-17 00:14:04 EST EAGLE5 42.0.0-63.32.0
TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON STP
REPORT PERIOD: LAST
REPORT INTERVAL: 10-08-16, 00:00:00 THROUGH 23:59:59

STP-MTCD MEASUREMENTS

These measurements are from 10-08-16, 00:00:00 through 23:59:59.
Measurement data represents an incomplete interval.
ORIGMSUS = 0, TRMDMSUS = 0, THRSWMSU = 0,
MTPRESTS = 0, DTAMSULOST = 0, MSINVDPC = 0,
MSINVSIO = 0, OMSINVDPC = 0, MSINVLNK = 0,
MSINVSIF = 0, MSNACDPC = 0, MSINVSLC = 0,
GTPPERFD = 0, GTTUN0NS = 0, GTTUN1NT = 0,
MSSCCPFL = 0, MSULOST1 = 0, MSULOST2 = 0,
MSULOST3 = 0, MSULOST4 = 0, MSULOST5 = 0,
DRDCLFLR = 0, DURLKOTG = 11400, CRSYSAL = 21,
MASYSAL = 49, MISYSAL = 182, XLXTSPACE = 0,
XLXTELEI = 0, TTMAPPF = 0, MSUDSCRD = 0,
OVSZMSG = 0, GFGTMATCH = 0, GFGTNOMCH = 0,
GFGTNOLKUP = 0, MSUSCCPFLR = 0, MSSCCPDISC = 0,
MSIDPNOMCH = 0, MSIDPMATCH = 0, MSULOST6 = 0,
SCCLOOP = 0

;

e1061001 10-08-17 00:14:07 EST EAGLE5 42.0.0-63.32.0
END OF ON-DEMAND STP-MTCD MEASUREMENT REPORT
;
    
```

MP and E5-OAM Example Output

MP and E5-OAM Example Output File Name: mtcd-stp_19990116_2400.csv

Event Name	MTP2 Class	SAAL Class	IPVL Class	IPVLGW Class	IPVHSL Class
ECCNGLV3	X	X	X	X	X
ECLNKCB					X
ECLNKXCO					X
FARMGINH	X	X			X
LMSUOCTRCV			X	X	X
LMSUOCTTRN			X	X	X
LMSURCV			X	X	X
LMSURCVDSC			X	X	X
LMSUTRN			X	X	X
LMSUTRNDSC			X	X	X
LNKAVAIL	X	X	X	X	X
M2PLKNIS					X
M2PUDMRC					X
M2PUDMTR					X
M2PUDOCR					X
M2PUDOCT					X
MOCTRCVD	X	X	X	X	X
MOCTTRAN	X	X	X	X	X
MSGDISC0	X	X	X	X	X
MSGDISC1	X	X	X	X	X
MSGDISC2	X	X	X	X	X

Event Name	MTP2 Class	SAAL Class	IPVL Class	IPVLGW Class	IPVHSL Class
MSGDISC3	X	X	X	X	X
MSGSRCVD	X	X	X	X	X
MSGSTRAN	X	X	X	X	X
MSURCERR	X				
MSURETRN	X		X	X	X
NDCFLABN	X				
NDCFLXDA	X	X			X
NDCFLXDC	X	X			X
NDCFLXER	X	X			
NEARMGIH	X	X			X
NEGACKS	X				
NMLCLPRO	X	X	X	X	X
NMDCLFLR	X	X	X	X	X
NMFEPRO	X				X
OCTRETRN	X		X	X	X
PCRN1N2EXC	X				
SDPDURTR		X			
TDCNGLV1	X	X	X	X	X
TDCNGLV2	X	X	X	X	X
TDCNGLV3	X	X	X	X	X
TLNKACTV	X	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 and E5-OAM

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

Measurement Events

Table 54: Maintenance Daily (MTCD) and Maintenance Day-to-Hour (MTCPTH) 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 BusyLink 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).	seconds

Event Name	Description	Unit
	Reported for MTP2 and IPVHSL class links ONLY.	
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	DurationLink Inhibited - The cumulative duration that a link was inhibited at the local or far-end network element.	seconds
ECCNGLV1	Event Count for Entering Level 1Link Congestion - The total number of times that link congestion level 1 was entered.	peg count
ECCNGLV2	Event Count for Entering Level 2Link Congestion - The total number of times that link congestion level 2 was entered.	peg count
ECCNGLV3	Event Count for Entering Level 3Link Congestion - The total number of times that link congestion level 3 was entered.	peg count
ECLNKCB	Number of times the link performed ChangeBack procedures, including time-controlled ChangeBacks.	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	peg count

Event Name	Description	Unit
	of times a link was inhibited successfully from the far-end.	
LMSUOCTRCV	The number of octets received in large MSUs . This register is pegged in addition to MOCTRCVD when the Large 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 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 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 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 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

Event Name	Description	Unit
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	Message Octets Received - Total number of octets associated with Messages received, including those removed for MTP level 2 processing and those for which retransmission has been requested. <ul style="list-style-type: none">• For SAAL, IPVL, IPVHSL, and IPVLGW class linksets - applies to MTP level 3 message bytes.	octets
MOCTTRAN	Message Octets Transmitted - Total number of octets associated with MSUs transmitted to the far-end. For all linkset classes,	octets

Event Name	Description	Unit
	<p>this includes octets for MTP level 3 SIO and SIF.</p> <ul style="list-style-type: none"> • For MTP2 class linksets, octets included are those associated with Messages transmitted AND acknowledged by level 2, as well as any retransmitted Messages. Additional octets included are MTP level 2 flag, BSN/BIB, FSN/BIB, LI, and CRC octets. • For SAAL and IPVHSL class linksets, octets are not included until the Message is acknowledged by level 2. • For IPVL and IPVLGW class links, octets are not included until the Message is transmitted by level 2. For IPVLGW class linksets, SNMs (Messages with SI=0) are NOT included. 	
MSGDISC0	<p>For ANSI links: Priority 0 MSUs Discarded Due to Congestion - The total number of priority 0 MSUs discarded due to congestion (any level).</p> <ul style="list-style-type: none"> • For SAAL class links, applies to MTP level 3 messages . <p>Note: EAGLE 5 ISS supports this one ITU discard counter only. When the discard threshold is reached, all MSUs are discarded and counted in this register. Prior to the discard threshold being reached, no MSUs are discarded.</p> <p>Note: The MSUs or Messages may be discarded on the transmit/outbound link, which indicates congestion via the ECCNGLVLx or TDCNGLVx</p>	peg count

Event Name	Description	Unit
	registers or it may appear on inbound links routing traffic to those congested links. The latter will not indicate either ECCNGLVLx or TDCNGLVx.	
MSGDISC1	<p>For ANSI links: Priority 1 MSUs Discarded Due to Congestion - The total number of priority 1 MSUs discarded due to congestion (any level).</p> <ul style="list-style-type: none"> • For SAAL class links, applies to MTP level 3 messages . <p>For ITU links: this register is not applicable.</p> <p>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.</p>	peg count
MSGDISC2	<p>For ANSI links: Priority 2 MSUs Discarded Due to Congestion - The total number of priority 2 MSUs discarded due to congestion (any level).</p> <ul style="list-style-type: none"> • For SAAL class links, applies to MTP level 3 messages . <p>For ITU links: this register is not applicable.</p> <p>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</p>	peg count

Event Name	Description	Unit
	will not indicate either ECCNGLVLx or TDCNGLVx.	
MSGDISC3	<p>For ANSI links: Priority 3 MSUs Discarded Due to Congestion - The total number of priority 3 MSUs discarded due to congestion (any level).</p> <ul style="list-style-type: none"> For SAAL class links, applies to MTP level 3 messages . <p>For ITU links: this register is not applicable.</p> <p>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.</p>	peg count
MSGSRCVD	<p>MSUs Received - Total number of MSUs received, including those for which retransmission has been requested.</p> <ul style="list-style-type: none"> For SAAL, IPVL, IPVHSL, and IPVLGW class linksets - applies to MTP level 3 messages. 	peg count
MSGSTRAN	<p>MSUs Transmitted - Total number of MSUs transmitted to the far-end, including retransmissions.</p> <ul style="list-style-type: none"> 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 	peg count

Event Name	Description	Unit
	required conversion from their 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. <ul style="list-style-type: none"> • For MTP2and IPVHSL class links, level 2 t7 expired level • For SAAL class links, timer NO_RESPONSE expired for POLL/STAT response 	peg count

Event Name	Description	Unit
	<ul style="list-style-type: none"> Not reported for IPVL and IPVLGW class links 	
NDCFLXDC	<p>Number of Signaling Link Failures - Excessive Duration of Congestion</p> <ul style="list-style-type: none"> For MTP2 and IPVHSL 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 Not reported for IPVL and IPVLGW class links 	peg count
NDCFLXER	<p>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. Reported for MTP2 and SAAL links only.</p>	peg count
NEARMGIH	<p>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 class links.</p>	peg count
NEGACKS	<p>Number of Negative Acknowledgments Received -Number of times the BSN in an MSU was inverted, indicating a retransmission request. This register is NOT applicable to HSLs.</p>	peg count
NMLCLPRO	<p>Number of Local Processor Outages - The total number of</p>	peg count

Event Name	Description	Unit
	local processor outages in this STP.	
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 on a link. This register is not applicable to HSLs.	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. This measurement replaces the MTP level 2 negative acknowledgments.	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
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	<p>Link active time - total time the link is active and transmitting MSUs.</p> <ul style="list-style-type: none"> 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 12:59:59

LINK-MTCD 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-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 12:59:59

LINK-MTCD 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-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 12:59:59

LINK-MTCD 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, NMLCLPRO = 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 12:59:59

LINK-MTCD 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, NMLCLPRO = 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 12:59:59

LINK-MTCD 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-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,

```


enttype=lnkset**Command Examples**

- OAM

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

- MP and E5-OAM

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

Measurement Events

Table 56: Daily Maintenance (MTCD) and Day-to-Hour Maintenance (MTCATH) 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 (MSUs) received on the specified linkset.	peg count
ZTTMAPO	Translation Type Mapping Translation Performed - MSUs Transmitted on the Gateway Linkset - The total number of translations performed on	peg count

Event Name	Description	Unit
	outgoing Message Signal Units (MSUs) for the specified linkset.	

OAM Reports

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

```
e1061001 10-08-17 00:29:23 EST EAGLE5 42.0.0-63.32.0
TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON LNKSET
REPORT PERIOD: LAST
REPORT INTERVAL: 10-08-16, 00:00:00 THROUGH 23:59:59

LNKSET-MTCD MEASUREMENTS: ls1 (MTP2)

These measurements are from 10-08-16, 00:00:00 through 23:59:59.
Measurement data represents an incomplete interval.
ZTTMAPO = 0, ZTTMAPI = 0, SCCPLOOP = 0

;

e1061001 10-08-17 00:29:24 EST EAGLE5 42.0.0-63.32.0
END OF ON-DEMAND LNKSET-MTCD MEASUREMENT REPORT

;
```

MP and E5-OAM Reports

MP and E5-OAM Example Output File Name: mtcd-lnkset_19990116_2400.csv

MP and E5-OAM 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 57: 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 and E5-OAM reports.

Note: The E5-OAM Integrated Measurements feature deprecates the use of the FTA for measurements, so "lnp" is not a valid argument for the rept-meas command "enttype" parameter when the feature is turned on.

Example Commands:

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

MP and E5-OAM: rept-ftp-meas:type=mtcd:enttype=lnp[:day=xxx:period=specific]

Table 58: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) LNP System Wide Measurements

Event Name	Description	Unit
LNPQRCV	<i>Trigger Based</i> The total number of queries received by LNPQS.	peg count
	<i>Triggerless</i> Number of encapsulated IAM messages received by LNPQS	peg count
LNPQDSC	<i>Trigger Based</i> The number of invalid queries that are discarded because no reply can be generated.	peg count
	<i>Triggerless</i> All invalid IAM messages are routed without LNP; LNPQTCPE is pegged.	not applicable

Event Name	Description	Unit
LNPQTCPE	<i>Trigger Based</i> The number of error replies with TCAP error codes.	peg count
	<i>Triggerless</i> 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	<i>Trigger Based</i> The number of successful replies.	peg count
	<i>Triggerless</i> The number of successful IAM messages.	peg count
LNPQUNPA	<i>Trigger Based</i> The number of correct queries received for non-ported DN when NPA-NXX is not provisioned.	peg count
	<i>Triggerless</i> 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 59: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) 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 60: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) LNP LRN Measurements

Event Name	Description	Unit
LRNQRCV	<i>Trigger Based</i> The number of correct queries received per LRN.	peg count
	<i>Triggerless</i> 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 61: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) 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 and E5-OAM 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, 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 and E5-OAM Reports

Daily LNP System Wide Measurements

MP and E5-OAM Example Output File Name: mtcd-lnp_19990116_2400.csv

MP and E5-OAM 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", "LNPQTCE", "LNPSREP", "LNPQUNPA"<cr><lf>
"K", 429496729, 429496729, 429496729, 429496729, 429496729<cr><lf>
```

Typical file size is:

Table 62: 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 and E5-OAM Example Output File Name: mtcd-ssp_19990116_2400.csv

MP and E5-OAM 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", "SSPQRCV", "CLASSGTRQ", "LIDBGTRQ", "SSPQRCVP", "SSPQRCVNP", "CLASSGTRQP",
"CLASSGTRQNP", "LIDBGTRQP", "LIDBGTRQNP", "CNAMGTRQP", "CNAMGTRQNP", "ISVMGTRQP",
"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:

$$4 \text{ char status} + 14 \text{ char SSP} + 15 \times (6 \text{ char data}) + 2 = 110 \text{ chars}$$

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

Table 63: 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 and E5-OAM Example Output File Name: mtcd-lrn_19990116_2400.csv

MP and E5-OAM 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 64: Typical File Size: mtcd-lrn.csv

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

Daily LNP Measurements Per NPA

MP and E5-OAM Example Output File Name: mtcd-mpa_19990116_2400.csv

MP and E5-OAM 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 65: Typical File Size: mtcd-mpa.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 and E5-OAM reports.

Command Examples

- OAM

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

- MP and E5-OAM

```
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 66: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) System-Wide 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
GPNOCLGT	Number of non-call related messages that fell through to GTT.	Peg Count
GPSRERR	Number of call related messages that cause an error response message(SRI-Send Routing Information NEGATIVE ACK) because of G-Port service failure. This does not include peg counts to register GPSRERRPP.	Peg Count
GPSRERRPP	Number of call related messages that cause an error response message (SRI-Send Routing Information NEGATIVE ACK) specifically for feature: G-Port SRI query for Prepaid. This does not include peg counts to register GPSRERR.	Peg Count
GPSRGTT	Number of call related (SRI-Send Routing Information) messages that fell through to	Peg Count

Event Name	Description	Unit
	GTT. This does not include peg counts to register GPSRGTTTPP.	
GPSRGTTTPP	Number of call related (SRI-Send Routing Information) messages that fell through to GTT specifically for feature: G-Port SRI query for Prepaid. This does not include peg counts to register GPSRGTT.	Peg Count
GPSRRCV	Number of call related (SRI-Send Routing Information) messages received. This does not include peg counts to register GPSRRCVPP.	Peg Count
GPSRRCVPP	Number of call related (SRI-Send Routing Information) messages received specifically for feature: G-Port SRI query for Prepaid. This does not include peg counts to register GPSRRCV.	Peg Count
GPSRREP	Number of call related (SRI-Send Routing Information) messages that received G-Port service. This does not include peg counts to register GPSRREPPP.	Peg Count
GPSRREPPP	Number of call related (SRI-Send Routing Information) messages that received G-Port service specifically for feature: G-Port SRI query for Prepaid. This does not include peg counts to register GPSRREP.	Peg Count
GPSRSMERR	Number of SRI_SM messages resulting in error.	peg count
GPSRSMRCV	Number of SRI_SM messages received.	peg count

Event Name	Description	Unit
GPSRSMREP	Number of SRI_SM messages resulting in SRI_SM_ACK or SRI_SM_NACK.	peg count
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, INP Continue, or INP ReleaseCall (every time an INAP RELEASECALL response is generated due to circular route dection by INPQS).	peg count
INPQSCRD	Number of queries received by INPQS that meet the condition for circular route detection.	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
MNPCRCD	Number of times Circular Route is Detected.	peg count
SMSMOGERR	Number of MO_SMS messages received that result in an error.	peg count

Event Name	Description	Unit
SMSMOGRCV	Number of MO_SMS messages received that result in a modification of the outgoing MO_SMS.	peg count
SMSMOIERR	Number of SMDPP 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
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:

$$\text{INPQRCV} = \text{INPQDSC} + \text{INPQTCPE} + \text{INPSREP}$$

$$\text{GPSRRCV} = \text{GPSRGTT} + \text{GPSRREP} + \text{GPSRERR}$$

$$\text{GPSRRCVPP} = \text{GPSRGTTTP} + \text{GPSRREPPP} + \text{GPSRERRPP}$$

$$\text{GPSRSMRCV} = \text{GPSRSMREP} + \text{GPSRSMERR}$$

- 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 67: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) SSP Registers

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
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
GPSRACK	Number of call related (SRI-Send Routing Information ACK) responses. This does not include peg counts to register GPSRACKPP.	peg count
GPSRACKPP	Number of call related (SRI-Send Routing Information	peg count

Event Name	Description	Unit
	ACK) responses specifically for feature 61544: G-Port SRI query for Prepaid. This does not include peg counts to register GPSRACK.	
GPSRNACK	Number of call related SRI Negative ACK responses in case of successful G-Port service.	peg count
GPSRRLY	Number of call related (SRI-Send Routing Information) messages relayed.	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
INPMRCRD	Number of messages sent to MR service that fall through to GTT due to circular route detection.	peg count
INPMRGTT	Number of messages sent to MR service that fall through to GTT. This includes the number of messages sent to MR service that fall through to GTT due to circular route detection.	peg count
INPMRTR	Number of messages sent to MR service that receive MR translation.	peg count
INPQSCONN	Number of non-errored QS messages with QS Connect responses, per originating SSP.	peg count

Event Name	Description	Unit
INPQSCONT	Number of non-errored QS messages with QS Continue responses, per originating SSP.	peg count
INPQSCRD	Number of messages sent to INP QS that meet the condition for circular route detection.	peg count
INPQSREL	Number of messages sent to INP QS that result in successful generation of INAP RELEASECALL response due to circular route detection by INPQS.	peg count
MNPCRCD	Number of times Circular Route is Detected.	peg count
SMSMOGERR	Number of MO_SMS messages received that result in an error	peg count
SMSMOGRVCV	Number of MO_SMS messages received that result in a modification of the outgoing MO_SMS	peg count
SMSMOIERR	Number of SMDPP messages received that result in an error	peg count
SMSMOIRVCV	Number of SMDPP messages received that result in a modification of the outgoing SMDPP	peg count
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

Typical file size is:

Table 70: Typical File Size: mtcd-ssp . csv

System header	+	Report header	+	Report data	=	File Size
250	+	356	+	(206 * #Point Codes)	=	606 + (206 * #Point Codes) bytes

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

Table 71: Typical File Size: mtcd-ssp . csv

System header	+	Report header	+	Report data	=	File Size
250	+	263	+	(170 * 200)	=	34513 bytes

enttype=stplan

Example Commands:

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

MP and E5-OAM: rept-ftp-meas:type=mtcd:enttype=stplan

Table 72: Daily Maintenance (MTCD) and Day-to-Hour Maintenance (MTCPTH) 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
ENETCRCERR	Ethernet CRC Error - Number of packets not received on the	peg count

Event Name	Description	Unit
	STPLAN ethernet due to CRC errors.	
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
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	peg count

Event Name	Description	Unit
	to the host due to the STPLAN feature being disabled.	
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 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	peg count

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

System header	+	Report header	+	Report data	=	File Size
250	+	271	+	130	=	651 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 and E5-OAM Example Commands:

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

[Table 74: Daily Maintenance \(MCTD\) and Hourly Maintenance \(MTCH\) EIR Measurements](#) lists the EIR events and their descriptions.

Table 74: Daily Maintenance (MCTD) and Hourly Maintenance (MTCH) 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	peg count

Event Name	Description	Unit
	database did not match the IMSI in the message	
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
STATUS	Indication of Data Validity: K indicates good data I indicates incomplete interval N indicates data not current	status

The following equation applies:

$$\text{IMEIRCV} = \text{WHITEIMEI} + \text{GRAYIMEI} + \text{UNKNIMEI}$$

MP and E5-OAM Example Output File Name: mtcd-eir_20030816_2400.csv

MP and E5-OAM 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 75: 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 and E5-OAM 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 and E5-OAM reports.

Example Commands:

- OAM: `rept-meas:type=mtcd:enttype=mapscrn`
- MP and E5-OAM: `rept-ftp-meas:type=mtcd:enttype=mapscrn`

Note: When MTP MAP Screening is enabled and on, the registers in [Table 76: Daily Maintenance \(MTCD\) and Hourly Maintenance \(MTCH\) MAP Screening System Wide Measurements](#) and [Table 79: Daily Maintenance \(MTCD\) and Hourly Maintenance \(MTCH\) MAP Screening Per Server Measurements](#) include the sum total of MTP-routed and GTT-routed messages for the particular event.

Table 76: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) 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

Event Name	Description	Unit
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 that were selected by MAP Screening for the Forward screening action.	count
MSCRNDAD	Total number of messages that 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 77: Server Entity Identification](#) is used to clarify the server. The Maintenance MAP Screening Per Server Measurements are applicable.

Table 77: 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 78: Path Entity Identification](#) is used to clarify the path. The Maintenance MAP Screening Per Path Measurements are applicable.

Table 78: Path Entity Identification

Entity Name	Description
PATH	<p>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.</p> <p>The possible fields within the path are delimited as follows to allow for efficient sorting:</p> <ul style="list-style-type: none"> • 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 caret (^) and the destination address is preceded by a "greater than" sign (>): <p>^CGPA-NP-NAI>CDPA-NP-NAI</p>

Entity Name	Description
	<ul style="list-style-type: none"> 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.
<p>Measurements does not report entries created for a range of addresses.</p> <p>Measurements does not report default wildcard CDPA address in entries containing them.</p> <p>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.</p> <p>The string formats were designed to allow efficient automated post processing of measurements</p>	

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

Table 79: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) 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: SAT_MAP.csv

OAM Example Output File Format:

```
"e1061001 10-08-22 00:01:03 EST EAGLE5 42.0.0-63.33.0 "
"TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON MAPSCRN SYSTEM"
"REPORT PERIOD: LAST"
"REPORT INTERVAL: 10-08-21, 00:00:00 THROUGH 23:59:59 "
"Measurement data represents an incomplete interval."

"MSCRNPASS", "MSCRNRJOP", "MSCRNRJNE", "MSCRNRJFP", "MSCRNPAPF", "MSCRNPANE", "MSCRNFOR", "MSCRNDUP", "MSCRNDAD",
0,0,0,0,0,0,0,0,0,0,
```

Daily MAP Screening Measurements Per Server

OAM Example output File Name: SAT_SERV.csv

OAM Example Output File Format:

```
"e1061001 10-08-22 00:01:03 EST EAGLE5 42.0.0-63.33.0 "
"TYPE OF REPORT: DAILY MAINTENANCE MEASUREMENTS ON MAPSCRN PER-SERVER"
"REPORT PERIOD: LAST"
"REPORT INTERVAL: 10-08-21, 00:00:00 THROUGH 23:59:59 "
"Measurement data represents an incomplete interval."
"NUMBER OF ENTIDS: 14"

"SERVER-NP-NAI-OPCODE", "MSCRNPASS", "MSCRNRJFP", "MSCRNFOR", "MSCRNDUP", "MSCRNDAD", MSCRNPAPF
"123456789012345-*-*-0", 0,0,0,0,0,0
"234567890123456-*-*-0", 0,0,0,0,0,0
"345678901234567-*-*-0", 0,0,0,0,0,0
"456789012345678-*-*-0", 0,0,0,0,0,0
"567890123456789-*-*-0", 0,0,0,0,0,0
"678901234567890-*-*-0", 0,0,0,0,0,0
"789012345678901-*-*-0", 0,0,0,0,0,0
"123456789012345-*-*-1", 0,0,0,0,0,0
"234567890123456-*-*-1", 0,0,0,0,0,0
"345678901234567-*-*-1", 0,0,0,0,0,0
"456789012345678-*-*-1", 0,0,0,0,0,0
"567890123456789-*-*-1", 0,0,0,0,0,0
"678901234567890-*-*-1", 0,0,0,0,0,0
"789012345678901-*-*-1", 0,0,0,0,0,0
```

MP and E5-OAM Reports

Daily MAP Screening System Wide Measurements

MP and E5-OAM Example Output File Name: mtcd-map_19990116_2400.csv

MP and E5-OAM Example Output File Format:

```
"CLLI", "SWREL", "RPTDATE", "RPTIME", "TZ", "RPTTYPE", "RPTPD", "IVALDATE", "IVALSTART",
"IVALEND", "NUMENTIDS"
"e1061001", "EAGLE5 42.0.0-63.33.0", "2010-08-21", "00:00:58", "EST", "DAILY MAINTENANCE
MEASUREMENTS ON MAPSCRN SYSTEM", "LAST", "2010-08-20", "00:00:00", "24:00:00", 1

"STATUS", "MSCRNPASS", "MSCRNRJOP", "MSCRNRJNE", "MSCRNRJFP", "MSCRNPAPF", "MSCRNPANE",
"MSCRNFOR", "MSCRNDUP", "MSCRNDAD"
"K", 0,0,0,0,0,0,0,0,0,0,
```

Typical file size is:

Table 80: 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 and E5-OAM Example Output File Name: `mtcd-path_19990116_2400.csv`

MP and E5-OAM Example Output File Format:

```
"CLLI", "SWREL", "RPIDATE", "RPTIME", "TZ", "RPTTYPE", "RPTPD", "IVALDATE", "IVALSTART", "IVALEND", "NUMENTIDS"
"e1061001", "EAGLE5 42.0.0-63.33.0", "2010-08-21", "00:00:59", "EST ", "DAILY MAINTENANCE
MEASUREMENTS ON MAPSCRN PER-SERVER", "LAST", "2010-08-20", "00:00:00", "24:00:00", 11

"For a path containing CGPA only, PATH-OPCODE = <CGPA-NP-NAI-OPCODE"
"For a path containing both CGPA and CDPA, PATH-OPCODE =
^CGPA-NP-NAI>CDPA-NP-NAI-OPCODE"

"STATUS", "PATH-OPCODE", "MSCRNPASS", "MSCRNRFJP", "MSCRNFOR", "MSCRNDUP", "MSCRNDAD", "MSCRNPAFP"
"K", "<123456789012345--*-0", 0, 0, 0, 0, 0, 0
"K", "<234567890123456--*-0", 0, 0, 0, 0, 0, 0
"K", "<345678901234567--*-0", 0, 0, 0, 0, 0, 0
"K", "<456789012345678--*-0", 0, 0, 0, 0, 0, 0
"K", "<567890123456789--*-0", 0, 0, 0, 0, 0, 0
"K", "<678901234567890--*-0", 0, 0, 0, 0, 0, 0
"K", "<789012345678901--*-0", 0, 0, 0, 0, 0, 0
"K", "<123456789012345--*-1", 0, 0, 0, 0, 0, 0
"K", "<234567890123456--*-1", 0, 0, 0, 0, 0, 0
"K", "<345678901234567--*-1", 0, 0, 0, 0, 0, 0
"K", "<456789012345678--*-1", 0, 0, 0, 0, 0, 0
```

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 81: Typical File Size: `mtcd-path.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	251	+	1640	=	2141 bytes

enttype=sctpasoc

Command Examples

- **OAM:** `rept-meas:type=mtcd:enttype=sctpasoc:aname=assoc1`
- **MP and E5-OAM:** `rept-ftp-meas:type=mtcd:enttype=sctpasoc`

Measurement Events

Table 82: Daily Maintenance (MTCD) and Day-to-Hour (MTC DTH) SCTPASOC Measurements lists the SCTPASOC events and their descriptions.

Table 82: Daily Maintenance (MTCD) and Day-to-Hour (MTC DTH) 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 the	peg count

Event Name	Description	Unit
	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). CNTLCHKR register excludes initial SCTP association set-up messages (INIT and COOKIE-ECHO).	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	peg count

Event Name	Description	Unit
	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).	
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 retransmissions rules. Every	peg count

Event Name	Description	Unit
	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. SCPKTRCV register excludes the pegging of SCTP Packets received when no instance exists on the card for any of the links, i.e., the association parameter "OPEN" has value "NO" for all the links configured on the card. Also, excludes pegging of set up messages (INIT and COOKIE-ECHO) that are part of association establishment procedure.	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. SCPKTSNT register excludes initial SCTP association set-up messages (INIT-ACK and COOKIE-ACK). For M2PA association INIT packet is never pegged.	peg count

Assuming each data line will be:

$$4 \text{ char status} + 18 \text{ char association} + 20 \times (6 \text{ char data}) + 2 = 144 \text{ chars}$$

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

Table 84: Typical File Size: mtcd-sctpasoc.csv

System header		Report header		Report data	=	File Size
250	+	195	+	144000	=	144445 bytes

enttype=sctpcard

Command Examples

- **OAM:** rept-meas:type=mtcd:enttype=sctpcard:loc=1201
- **MP and E5-OAM:** rept-ftp-meas:type=mtcd:enttype=sctpcard

Measurement Events

Table 85: Daily Maintenance (MTCD) and Day-to-Hour Maintenance (MTCPTH) SCTPCARD Measurements lists the SCTPCARD events and their descriptions.

Table 85: Daily Maintenance (MTCD) and Day-to-Hour Maintenance (MTCPTH) 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	peg count

Event Name	Description	Unit
	primitive "Abort" (AnyState --Abort--> CLOSED), conveying an ungraceful termination of the association.	
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
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

Event Name	Description	Unit
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 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. SCPKTRCV register excludes the pegging of SCTP Packets received when no instance exists on the card for any of the associations, i.e., the association parameter "OPEN" has value	peg count

Event Name	Description	Unit
	"NO" for all the associations configured on the card. Also, excludes pegging of set up messages (INIT and COOKIE-ECHO) that are part of association establishment procedure.	
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. SCPKTSNT register excludes initial SCTP association set-up messages (INIT-ACK and COOKIE-ACK). For M2PA association INIT packet is never pegged.	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 the association to which the packet belongs. UNASCTPK register includes the pegging of SCTP Packets	peg count

Table 86: 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:aname=appsrvr1`
- **MP and E5-OAM:** `rept-ftp-meas:type=mtcd:enttype=ua`

Measurement Events

[Table 87: Daily Maintenance \(MTCD\) and Day-to-Hour Maintenance \(MTC DTH\) UA Measurements](#) lists the UA events and their descriptions.

Table 87: Daily Maintenance (MTCD) and Day-to-Hour Maintenance (MTC DTH) 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 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

enttype=vflex

The enttype=vflex entity generates two separate reports per period. These reports for MP and E5-OAM 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 and E5-OAM: rept-ftp-meas:type=mtcd:enttype=vflex[:period=specific:day=xxx]

Table 89: Daily Maintenance V-Flex System Wide Measurements

Event Name	Description	Unit
STATUS	Indication of Data Validity: K indicates good data I indicates incomplete interval N indicates data not current	status
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 90: Daily Maintenance V-Flex Per SSP Measurements

Event Name	Description	Unit
STATUS	Indication of Data Validity: K indicates good data I indicates incomplete interval N indicates data not current	status

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 and E5-OAM Reports

Daily V-Flex System Wide Measurements

MP and E5-OAM Example Output File Name: *mtcd-vflex_20070816_2400.csv*

MP and E5-OAM Example Output File Format:

```
"CLLI", "SMREL", "RPIDATE", "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 91: 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 and E5-OAM Example Output File Name: *mtcd-vflexssp_20070816_2400.csv*

MP and E5-OAM Example Output File Format:

```
"CLLI", "SMREL", "RPIDATE", "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 92: 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 93: 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 and E5-OAM 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 and E5-OAM

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

Measurement Events

Table 94: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) 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
STATUS	Indication of Data Validity: K indicates good data I indicates incomplete interval N indicates data not current	status

Daily ATINPQ MP and E5-OAM Reports

System Wide Report

- Example Output File Name:

```
mtcd-atinpq_20080616_2400.csv
```

- Example Output File Format:

```
"CLI", "SAREL", "RPIDATE", "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 95: 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:

```
"CLI", "SWREL", "RPIDATE", "RPTIME", "TZ", "RPTYPE", "RPIED", "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 96: 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 97: Typical File Size: `atinpq 200 SSPs`

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

enttype=aiq

The entity type for ANSI41 AIQ measurements is "AIQ", which generates two reports per period. The commands to generate the daily on-demand measurement report can be specified with an optional day parameter, xxx, providing a three-letter abbreviation for a day of the week (MON, TUE, WED,

THU, FRI, SAT, or SUN). The specific period, period=specific, parameter is required when the optional day parameter is used.

The measurements reports supported are:

- Per System Totals
- Per SSP Totals

The measurement report types supported are:

- Daily measurement report type "mtcd"
- Hourly measurement report type "mtch"

The on demand reports and scheduled reports are rejected until the AIQ feature is enabled. The command `chg-mtc-measopts:mtchaiq=on:mtcdaiq=on` starts scheduled reports generation. Both on-demand and scheduled reports at hourly and daily boundary (MTCH and MTCD) generate two reports, namely Per System totals and Per SSP totals.

Example Commands:

- OAM: Not applicable.
- MP and E5-OAM: `rept-ftp-meas:type=mtcd:enttype=aiq[:period=specific:day=xxx]`
This command creates both the Per System and Per SSP Totals daily reports.

Measurement Events

Table 98: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) AIQ Registers

Event Name	Description	Unit
AIQRCV	Total number of AnalyzedInformation messages received for AIQ service. This peg is incremented only if ANSI41 AIQ feature is enabled.	peg count
AIQSUC	Total number of Return Result sent by the AIQ service. This peg is incremented only if the ANSI41 AIQ feature is enabled.	peg count
AIQERR	Total number of ANSI41 AIQ queries resulting in a negative response (Return Error or Reject) generation by AIQ service. This peg is incremented only if the ANSI41 AIQ feature is enabled.	peg count

Daily AIQ MP and E5-OAM Reports

System Wide Report

- Example Output File Name:

mtcd-aiq_20090820_2400.csv

- Example Output File Format:

```
"CLI", "SWREL", "RPIDATE", "RPTIME", "TZ", "RPTYPE", "RPTID", "IVALDATE", "IVALSTART", "IVALEND", "NUMENTIDS"<cr><lf>
"tekelecstp", "41.0.0-62.34.51", "2009-08-20", "11:32:53", "EST", "DAILY MAINTENANCE
MEASUREMENTS ON AIQ SYSTEM", "LAST", "2009-08-20", "00:00:00", "24:00:00", 1<cr><lf>
<cr><lf>
"STATUS", "AIQRCV", "AIQSUC", "AIQERR"<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 99: Typical File Size: mtcd-atinpq.csv

System header	+	Report header	+	Report data	=	File Size
260	+	38	+	24	=	322

Per SSP Report

- Example Output File Name:

mtcd-aiqssp_20090820_2400.csv

- Example Output File Format:

```
"CLI", "SWREL", "RPIDATE", "RPTIME", "TZ", "RPTYPE", "RPTID", "IVALDATE", "IVALSTART", "IVALEND", "NUMENTIDS"<cr><lf>
"tekelecstp", "41.0.0-62.34.51", "2009-08-20", "11:32:58", "EST", "DAILY MAINTENANCE
MEASUREMENTS ON AIQ SSP", "LAST", "2009-08-19", "00:00:00", "24:00:00", 1<cr><lf>
<cr><lf>
"STATUS", "SSP", "AIQRCV", "AIQSUC", "AIQERR"<cr><lf>
"K", "001-101-002", 20, 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 100: Typical File Size: mtcd-aiq.csv

System header	+	Report header	+	Report data	=	File Size
257	+	44	+	(38 * #Point codes)	=	301 + (38 * #Point

System header	+	Report header	+	Report data	=	File Size
						Codes) bytes

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

Table 101: Typical File Size: aiq 200 SSPs

System header	+	Report header	+	Report data	=	File Size
257	+	44	+	(38 * 200)	=	7901 bytes

enttype=gttapath

The entity type for GTT Actions Per-Path measurements is “gttapath”, which generates two reports per period. The commands to generate the daily on-demand measurement report can be specified with an optional day parameter, xxx, providing a three-letter abbreviation for a day of the week (MON, TUE, WED, THU, FRI, SAT, or SUN). The specific period, period=specific, parameter is required when the optional day parameter is used.

The measurement report supported are:

- Per System Totals
- Per Path Totals

The measurement report types supported are:

- Daily measurement report type “mtcd”
- Hourly measurement report type “mtch”

The on-demand reports and scheduled reports are rejected until the GTT Duplicate and/or Discard and/or Forward Action feature is enabled. Turning ON the feature is not required, because one of the register “GTTACTNA” might get pegged in case GTT action fails because of the feature not being in the ON state.

The command `chg-mtc-measopts:mtchgttapath=on:mtcdgttapath=on` starts scheduled reports generation. Both on-demand and scheduled reports at hourly and daily boundary (MTCH and MTCD) generate two reports: Per System Totals and Per-Path.

Example Commands:

OAM: Not applicable.

MP and E5-OAM:

`rept-ftp-meas:type=mtcd:enttype=gttapath[:period=specific:day=xxx]` where `[:period=specific:day=xxx]` is optional.

This example command creates *both* the Per-Path System Totals and the Per-Path Totals daily reports (the report date corresponds to the day entered in the command).

Table 102: MTCD/MTCH GTT Actions System-Wide Measurements

Event Name	Description	Unit
GTTADISC0	GTT Actions – MSUs Discarded - The total number of messages discarded by the DISCARD GTT Action.	peg count
GTTADISC1	GTT Actions – MSUs Discarded - The total number of messages discarded by the UDTs GTT Action.	peg count
GTTADISC2	GTT Actions – MSUs Discarded - The total number of messages discarded by the TCAP Error GTT Action	peg count
GTTADUP	GTT Actions – MSUs Duplicated - The total number of messages for which Duplicate MSU was sent. Multiple duplicate actions in an action set shall also increment this register only once.	peg count
GTTAFWD	GTT Actions – MSUs Forwarded - The total number of messages <i>forwarded</i> by Forward GTT Action.	peg count
GTTASET	GTT Actions - The total number of messages <i>receiving</i> any GTT action.	peg count

Table 103: MTCD/MTCH GTT Actions Per-Path Measurements

Event Name	Description	Unit
GTTACTNA	GTT Actions - The total number of messages for which no GTT action was successfully performed.	peg count

Event Name	Description	Unit
	<p>This register shall be pegged for a message if either of these occurs:</p> <ul style="list-style-type: none"> • No GTT Action set was associated with the final GTT translation • No GTT Action in the associated GTT Action set could be executed successfully (for any reason). 	
GTTADISC0	GTT Actions – MSUs Discarded - The total number of messages discarded by the DISCARD GTT Action.	peg count
GTTADISC1	GTT Actions – MSUs Discarded - The total number of messages discarded by the UDTS GTT Action.	peg count
GTTADISC2	GTT Actions – MSUs Discarded - The total number of messages discarded by the TCAP Error GTT Action	peg count
GTTADUP	<p>GTT Actions – MSUs Duplicated - The total number of messages for which Duplicate MSU was sent.</p> <p>This register shall be pegged for a message only once for which either a single or multiple duplicate GTT Actions were performed.</p>	peg count
GTTAFWD	GTT Actions – MSUs Forwarded - The total number of messages forwarded by Forward GTT Action.	peg count

Daily GTTAPATH MP and E5-OAM Reports

The command `rept-ftp-meas:type=mtcd:enttype=gttapath` produces the system-wide report and the per-path report shown here.

System Wide Report

- Example Output File Name: `mtcd-gttasys_20090820_2400.csv`
- Example Output File Format:

```
"CLLI", "SWREL", "RPTDATE", "RPTIME", "TZ", "RPTTYPE", "RPTPD", "IVALDATE",
"IVALSTART", "IVALEND", "NUMENTIDS" <cr><lf>
"tekelecstp", "42.0.0- XX.XX.0", "2010-02-04", "15:51:37", "EST",
"DAILY MAINTENANCE MEASUREMENTS ON GTTACTION SYSTEM", "LAST",
"2010-02-03", "00:00:00", "24:00:00", 1<cr><lf>
<cr><lf>
"STATUS", "GTTADISC0", "GTTADISC1", "GTTADISC2", "GTTADUP", "GTTAFWD", "GTTASET" <cr><lf>
"K", 2, 0, 0, 0, 0, 0<cr><lf>
```

Assuming each data line will be: 4 char status + 6*(6 char data) + 2 = 42 chars, the typical file size is:

Table 104: Typical File Size: `mtcd-gttasys.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	76	+	42	=	368 bytes

Per Path Report

- Example Output File Name: `mtcd-gttapath_20090820_2400.csv`

**Table 105: Entity Identification
(PATH-CDSN-SCDGTA-CGSN-SCGGTA-OPSN-PKG-OPCODE-<A>/F)**

String Format	Definition
PATH	The GTT path name assigned when GTTACT path was entered.
CDSN	The called party global title translations set name assigned when GTTACT path was entered.
SCDGTA	The called party start global title address (SCDGTA) assigned when GTTACT path entered for a non-ranged entry <i>or</i>

String Format	Definition
SCDGTA->ECDGTA	The ranged called party start global title address (SCDGTA) and End global title address (ECDGTA) assigned when the GTTACT path was entered.
CGSN	The calling party global title translations set name assigned when GTTACT path was entered.
SCGGTA	The calling party start global title address assigned when GTTACT path entered for a non-ranged entry <i>or</i>
SCDGTA->ECDGTA	The ranged calling party start global title address (SCGGTA) and End global title address (ECGGTA) assigned when the GTTACT path was entered.
OPSN	The global title translations set name of TCAP operation code assigned when GTTACT path was entered
PKG	The ANSI/ITU TCAP package type assigned when GTTACT Path was entered.
OPCODE	TCAP operation code assigned when GTTACT path was entered.
<A>/F	'<A>' stands for Application Context Name (ACN) assigned when GTTACT path entered if package type is ITU TCAP. It is preceded by a "less than" sign(<) and followed by a "greater than" sign (>). 'F' stands for ANSI TCAP family field assigned if package type is ANSI TCAP when GTTACT Path was entered. Backslash '/' will not be displayed in the report data. Its only signifies that either <A> or F will be displayed at a time based on the package type displayed in the PKG entry.

Note:

- If any entry has no value assigned then default value "#" will be displayed for it.

- These string formats allow efficient automated post processing of measurements reports; they are not designed to be easily readable. A brief note explaining the format is included in the report.
- Example Output File Format:

```
"CLLI", "SWREL", "RPTDATE", "RPTIME", "TZ", "RPTTYPE", "RPTPD", "IVALDATE",
"IVALSTART", "IVALEND", "NUMENTIDS"<cr><lf>
"tekelecstp", "42.0.0- XX.XX.0", "2010-02-04", "15:51:37", "EST",
"DAILY MAINTENANCE MEASUREMENTS ON GTTACTION PER-PATH", "LAST",
"2010-02-03", "00:00:00", "24:00:00", 6<cr><lf>
<cr><lf>
For a path containing GTA ranges, PATH-CDSN-SCDGTA-CGSN-CGGTA-OPSN-PKG-OPCODE-<A>/F
= PATH-CDSN-SCDGTA->ECDGTA-CGSN-SCGGTA->ECGTA-OPSN-PKG-OPCODE-<A>/F<cr><lf>
"STATUS", "PATH-CDSN-SCDGTA-CGSN-CGGTA-OPSN-PKG-OPCODE-<A>/F",
"GTTACTNA", "GTTADISC0", "GTTADISC1", "GTTADISC2", "GTTADUP", "GTTAFWD"<cr><lf>
"K", "path1-cdlim1-12345-cglim2-123-oplim3-ituuni-<1-1-1-1-1-1-1>", 0, 0, 0, 0, 0, 0<cr><lf>
"K", "p2-cdname1-12345-cgname2-123->126-opname3-bgn-12", 15, 10, 0, 0, 0, 5<cr><lf>
"K", "p3-cdname2-1234->1237-cglim2-126-opname3-bgn-10", 6, 0, 2, 4, 0, 0<cr><lf>
"K", "p4-cdname3-989898->989999-cglim3-123456->345678-opname3-bgn-10", 6, 0, 2, 4, 0, 0<cr><lf>
"K", "gttp5-#-#-cglim2-126-opname3-bgn-10", 0, 0, 0, 0, 0, 0<cr><lf>
"K", "p6-#-#-cglim6-1234-#-#-#", 0, 0, 0, 0, 0, 0<cr><lf>
```

Assuming each data line will be: 4 char status + 169 char
(PATH-CDSN-SCDGTA-CGSN-CGGTA-OPSN-PKG-OPCODE-<A>/F)+ 6*(6 char data) + 2 = 211
chars, the typical file size is:

Table 106: Typical File Size: mtc-d-gttapath.csv

System header	+	Report header	+	Report data	=	File Size
250	+	283	+	211	=	744

Day-to-Hour Maintenance Measurements (MTC DTH)

The Maintenance Day-to-Hour (MTC DTH) 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 and E5-OAM: rept-ftp-meas:type=mtcdth:enttype=stp

Table 107: Daily Maintenance (MTCD) and Day-To-Hour Maintenance (MTCDTH) 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 an error, i.e., when the G-Flex SCCP CdPA verification fails.	peg count

Event Name	Description	Unit
GTTPERFD	<p>GTTs Performed -</p> <p>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).</p>	peg count
GTTUN0NS	<p>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.</p>	peg count
GTTUN1NT	<p>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.</p> <p>In general, this register contains the sum of the GTTUN1NT register in the systot-tt report and the CGGTTUN1NT</p>	peg count
MSIDPNOMCH	<p>MSUs Relayed - Total number of IDP messages relayed to their destination.</p>	peg count
MSIDPMATCH	<p>MSUs Returned – Total number of IDP messages returned to originating MSC. These messages bypass the prepaid</p>	peg count

Event Name	Description	Unit
	engine since it has been determined that they meet the criteria for subscribers with unlimited prepaid calling plan.	
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
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 - Number of MSUs discarded because of an invalid SLC code in the ECO/COO.	peg count
MSNACDPC	MSUs Discarded – Inaccessible DPC -	peg count

Event Name	Description	Unit
	The total number of MSUs discarded because of an inaccessible DPC.	
MSSCCPFL	<p>MSUs Discarded – Routing Failure -</p> <p>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.</p>	peg count
MSUSCCPFLR	<p>MSU SCCP Failure - Total MSUs Discarded Due to SCCP Conversion Failure.</p>	peg count
MSUDSCRD	<p>MSUs Discarded – Gateway Screening -</p> <p>The total number of MSUs that failed gateway screening and were discarded. See linkset report for individual peg counts.</p>	peg count
MSULOST1	<p>MSUs Discarded – Level 2/Level 3 Queue Full -</p> <p>Number of MSUs discarded because the level 2 to level 3 queue was full.</p>	peg count
MSULOST2	<p>MSUs Discarded – Route On Hold Buffer Overflow -</p> <p>Number of MSUs discarded because the routing buffer was in overflow.</p>	peg count
MSULOST3	<p>MSUs Discarded –</p> <p>1. LS On Hold Buffer Overflow - The number of MSUs discarded because the linkset-on-hold buffer was in</p>	peg count

Event Name	Description	Unit
	<p>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.</p> <p>2. LSL LIM does not have SCCP assignment for received SCCP traffic.</p> <p>3. HSL –</p> <ul style="list-style-type: none"> • 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	<p>MSUs Discarded – Rcv Queue Full -</p> <p>Number of MSUs discarded because the receive queue was full.</p>	peg count
MSULOST5	<p>MSUs Discarded – LIM Init -</p> <p>Number of MSUs discarded while the LIM card was initializing.</p>	peg count
MSULOST6	<p>MSUs Discarded – The number of MSUs discarded due to an</p>	peg count

Event Name	Description	Unit
	error encountered during internal (IMT) transfer of MSU between cards.	
MTPPRESTS	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
OMSINVDPC	MSUs Originated - Invalid DPC - The 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. For IPGW links, this register includes counts for management messages such as RST messages. This register is not an aggregate of link or linkset registers.	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

OAM Reports

OAM Example Output:

```
e1061001 10-08-17 16:33:15 EST EAGLE5 42.0.0-63.32.0
TYPE OF REPORT: DAY-TO-HOUR MAINTENANCE MEASUREMENTS ON STP
REPORT PERIOD: LAST
REPORT INTERVAL: 10-08-17, 00:00:00 THROUGH 15:59:59

STP-MTCDTH MEASUREMENTS

These measurements are from 10-08-17, 00:00:00 through 15:59:59.
ORIGMSUS = 0, TRMDMSUS = 0, THRSWMSU = 0,
MTPRESTS = 0, DTAMSULOST = 0, MSINVDPC = 0,
MSINVSIO = 0, OMSINVDPC = 0, MSINVLNK = 0,
MSINVSIF = 0, MSNACDPC = 0, MSINVSLC = 0,
```


Event Name	MTP2 Class	SAAL Class	IPVL Class	IPVLGW Class	IPVHSL Class
DRBSYLNK	X				X
DRDCLFLR	X	X	X	X	X
DRFEPRO	X				X
DRLCLPRO	X	X	X	X	X
DRLKINHB	X	X			X
ECCNGLV1	X	X	X	X	X
ECCNGLV2	X	X	X	X	X
ECCNGLV3	X	X	X	X	X
ECLNKCB					X
ECLNKXCO					X
FARMGINH	X	X			X
LMSUOCTRCV			X	X	X
LMSUOCTTRN			X	X	X
LMSURCV			X	X	X
LMSURCVDSC			X	X	X
LMSUTRN			X	X	X
LMSUTRNDSC			X	X	X
LNKAVAIL	X	X	X	X	X
M2PLKNIS					X
M2PUDMRC					X
M2PUDMTR					X

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

Event Name	MTP2 Class	SAAL Class	IPVL Class	IPVLGW Class	IPVHSL Class
OCTRETRN	X		X	X	X
PCRN1N2EXC	X				
SDPDURTR		X			
TDCNGLV1	X	X	X	X	X
TDCNGLV2	X	X	X	X	X
TDCNGLV3	X	X	X	X	X
TLNKACTV	X	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 and E5-OAM

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

Measurement Events

Table 110: Maintenance Daily (MTCD) and Maintenance Day-to-Hour (MTCPTH) 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 BusyLink Status The total elapsed time between the receipt of a busy LSSU, and when the next message was	seconds

Event Name	Description	Unit
	acknowledged. This is the sum of all occurrences of busy link status. Reported for MTP2 Links only.	
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 and IPVHSL class 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 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

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
ECLNKCB	Number of times the link performed ChangeBack procedures, including time-controlled ChangeBacks.	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 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 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 MSU Support for IP Signaling feature status is on and a large MSU is successfully received.	peg count

Event Name	Description	Unit
LMSURCVDSC	The number of large MSUs discarded in the receive path . This can occur when the Large 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 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

Event Name	Description	Unit
M2PUDOCT	The number of M2PA User Data Message (UDM) octets transmitted.	octets
MOCTRCVD	<p>Message Octets Received - Total number of octets associated with Messages received, including those removed for MTP level 2 processing and those for which retransmission has been requested.</p> <ul style="list-style-type: none"> • For SAAL, IPVL, IPVHSL, and IPVLGW class linksets - applies to MTP level 3 message bytes. 	octets
MOCTTRAN	<p>Message Octets Transmitted - Total number of octets associated with MSUs transmitted to the far-end. For all linkset classes, this includes octets for MTP level 3 SIO and SIF.</p> <ul style="list-style-type: none"> • For MTP2 class linksets, octets included are those associated with Messages transmitted AND acknowledged by level 2, as well as any retransmitted Messages. Additional octets included are MTP level 2 flag, BSN/BIB, FSN/BIB, LI, and CRC octets. • For SAAL and IPVHSL class linksets, octets are not included until the Message is acknowledged by level 2. • For IPVL and IPVLGW class links, octets are not included until the Message is transmitted by level 2. For IPVLGW class linksets, SNMs (Messages with SI=0) are NOT included. 	octets

Event Name	Description	Unit
MSGDISC0	<p>For ANSI links: Priority 0 MSUs Discarded Due to Congestion - The total number of priority 0 MSUs discarded due to congestion (any level).</p> <ul style="list-style-type: none"> For SAAL class links, applies to MTP level 3 messages . <p>Note: EAGLE 5 ISS supports this one ITU discard counter only. When the discard threshold is reached, all MSUs are discarded and counted in this register. Prior to the discard threshold being reached, no MSUs are discarded.</p> <p>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.</p>	peg count
MSGDISC1	<p>For ANSI links: Priority 1 MSUs Discarded Due to Congestion - The total number of priority 1 MSUs discarded due to congestion (any level).</p> <ul style="list-style-type: none"> For SAAL class links, applies to MTP level 3 messages . <p>For ITU links: this register is not applicable.</p> <p>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</p>	peg count

Event Name	Description	Unit
	will not indicate either ECCNGLVLx or TDCNGLVx.	
MSGDISC2	<p>For ANSI links: Priority 2 MSUs Discarded Due to Congestion - The total number of priority 2 MSUs discarded due to congestion (any level).</p> <ul style="list-style-type: none"> For SAAL class links, applies to MTP level 3 messages . <p>For ITU links: this register is not applicable.</p> <p>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.</p>	peg count
MSGDISC3	<p>For ANSI links: Priority 3 MSUs Discarded Due to Congestion - The total number of priority 3 MSUs discarded due to congestion (any level).</p> <ul style="list-style-type: none"> For SAAL class links, applies to MTP level 3 messages . <p>For ITU links: this register is not applicable.</p> <p>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.</p>	peg count

Event Name	Description	Unit
MSGSRCVD	<p>MSUs Received - Total number of MSUs received, including those for which retransmission has been requested.</p> <ul style="list-style-type: none"> • For SAAL, IPVL, IPVHSL, and IPVLGW class linksets - applies to MTP level 3 messages. 	peg count
MSGSTRAN	<p>MSUs Transmitted - Total number of MSUs transmitted to the far-end, including retransmissions.</p> <ul style="list-style-type: none"> • 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	<p>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</p>	peg count

Event Name	Description	Unit
	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	<p>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.</p> <ul style="list-style-type: none"> • For MTP2 and IPVHSL class links, level 2 t7 expired level • For SAAL class links, timer NO_RESPONSE expired for POLL/STAT response • Not reported for IPVL and IPVLGW class links 	peg count
NDCFLXDC	<p>Number of Signaling Link Failures - Excessive Duration of Congestion</p> <ul style="list-style-type: none"> • For MTP2 and IPVHSL 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 • Not reported for IPVL and IPVLGW class links 	peg count
NDCFLXER	<p>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</p>	peg count

Event Name	Description	Unit
	rate monitor (SUERM) threshold. Reported for MTP2 and SAAL links only.	
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 class links.	peg count
NEGACKS	Number of Negative Acknowledgments Received -Number of times the BSN in an MSU was inverted, indicating a retransmission request. This register is NOT applicable to HSLs.	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	peg count

Event Name	Description	Unit
	method on a link. This register is not applicable to HSLs.	
SDPDURTR	SSCOP SD PDUsRetransmitted - 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
STATUS	Indication of Data Validity: K indicates good data I indicates incomplete interval N indicates data not current	status
TDCNGLV1	Total Duration of Level 1Link Congestion - The total time the link was in level 1 congestion.	seconds
TDCNGLV2	Total Duration of Level 2Link Congestion - The total time the link was in level 2 congestion.	seconds
TDCNGLV3	Total Duration of Level 3Link 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. <ul style="list-style-type: none"> • 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=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, NMLCLPRO   =      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, NMLCLPRO   =      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 and E5-OAM Reports

Table 111: MP and E5-OAM MTCDTH LINK Command Headers

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

MP and E5-OAM Example Output File Name: mtcnth-link_20071115_2400.csv

Table 113: 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

Measurement Events

Table 114: Daily Maintenance (MTCD) and Day-to-Hour Maintenance (MTCPTH) 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

Event Name	Description	Unit
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 (MSUs) received on the specified linkset.	peg count
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

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 and E5-OAM Reports

MP and E5-OAM Example Output File Name: `mtcdth-lnkset_19990117_1500.csv`

MP and E5-OAM 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 115: Typical File Size: mtcnth-lnkset.csv

System header	+	Report header	+	Report data	=	File Size
250	+	47	+	20000	=	20297 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=mtcnth:enttype=stplan

MP and E5-OAM: rept-ftp-meas:type=mtcnth:enttype=stplan

Table 116: Daily Maintenance (MTCNTH) and Day-to-Hour Maintenance (MTCNTH) 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	peg count

Event Name	Description	Unit
	the STPLAN ethernet bus was busy.	
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
IPPROTERR	IP Protocol Error - Number of inbound IP datagrams discarded	peg count

Event Name	Description	Unit
	by STPLAN due to an error in the packet (invalid protocol).	
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 received on the STPLAN interface in error.	peg count
TCPRSTSENT	TCP Reset Sent - The total number of TCP segments sent	peg count

Event Name	Description	Unit
	containing the reset (RST) flag on the STPLAN interface.	
TCPSEGRCVD	TCP Segment Received - The total number of TCP segments received on the STPLAN interface.	peg count
TCPSESENT	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, TCPSESENT = 0,
TCPSEGXMT2 = 0, TCPCVRR = 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 and E5-OAM Reports

MP and E5-OAM Example Output File Name: mtcnth-stplan_19990117_1500.csv

MP and E5-OAM 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", "TCPSESENT", "TCPSEGXMT2", "TCPCVRR", "TCPRSTSENT",

```


Event Name	Description	Unit
	not retransmitted) to the remote peer endpoint's destination 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). CNTLCHKR register excludes initial SCTP association set-up messages (INIT and COOKIE-ECHO).	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
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 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	peg count

Event Name	Description	Unit
	have made a direct transition to the ESTABLISHED state from the CLOSED state (CLOSED --> ESTABLISHED), indicating that the remote peers initiated association establishment.	
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 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

Event Name	Description	Unit
	SCPKTRCV register excludes the pegging of SCTP Packets received when no instance exists on the card for any of the links, i.e., the association parameter "OPEN" has value "NO" for all the links configured on the card. Also, excludes pegging of set up messages (INIT and COOKIE-ECHO) that are part of association establishment procedure.	
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. SCPKTSNT register excludes initial SCTP association set-up messages (INIT-ACK and COOKIE-ACK). For M2PA association INIT packet is never pegged.	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,
    
```


Table 120: Daily Maintenance (MTCD) and Day-to-Hour Maintenance (MTCPTH) SCTPCARD Measurements

Event Name	Description	Unit
ACTVESTB	<p>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.</p>	peg count
ASOCABTD	<p>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.</p>	peg count
ASOCSHTD	<p>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.</p>	peg count
CNTLCHKR	<p>SCTP Control Chunks Received - The number of SCTP control chunks received from the remote peer (excluding duplicates).</p>	peg count
CNTLCHKS	<p>SCTP Control Chunks Sent - The number of SCTP control chunks sent to the remote peer (excluding retransmissions).</p>	peg count

Event Name	Description	Unit
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 in the SCTP packet that triggered the T3-rtx timer must be added to the value of this counter.	peg count

Event Name	Description	Unit
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. SCPKTRCV register excludes the pegging of SCTP Packets received when no instance exists on the card for any of the associations, i.e., the association parameter "OPEN" has value "NO" for all the associations configured on the card. Also, excludes pegging of set up messages (INIT and COOKIE-ECHO) that are part of association establishment procedure.	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. SCPKTSNT register excludes initial SCTP association set-up messages (INIT-ACK and COOKIE-ACK). For M2PA	peg count

Event Name	Description	Unit
	association INIT packet is never pegged.	
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 the association to which the packet belongs. UNASCTPK register includes the pegging of SCTP Packets received when no instance exists on the card for any of the associations, i.e., the association parameter "OPEN" has value "NO" for all the associations configured on the card (See SCPKTRCV register).	peg count

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,
CNTLCHKSN = 400, ORDCHKSN = 400, CNTLCHKR = 0,
ORDCHKRC = 0, ACTVESTB = 0, PASVESTB = 0,
ASOCABTD = 0, ASOCSHTD = 0
    
```


Table 122: Daily Maintenance (MTCD) and Day-to-Hour Maintenance (MTCPTH) 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 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

Event Name	Description	Unit
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
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	peg count

Event Name	Description	Unit
	ASPM, ASPTM, SSNM, MGMT, and RKM).	
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 and E5-OAM Reports

MP and E5-OAM Example Output File Name: mtccth-ua_20071115_1200.csv

MP and E5-OAM 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

```


The E5-OAM Integrated Measurements feature deprecates the use of the FTA for measurements, so "lnp" is not a valid argument for the rept-meas command "enttype" parameter when the feature is turned on.

Example Commands:

OAM: rept-meas:type=mtch:enttype=lnp:period=last

MP and E5-OAM:rept-ftp-meas:type=mtch:enttype=lnp:period=last

Table 124: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) LNP System Wide Measurements

Event Name	Description	Unit
LNPQRVCV	<i>Trigger Based</i> The total number of queries received by LNPQS.	peg count
	<i>Triggerless</i> Number of encapsulated IAM messages received by LNPQS	peg count
LNPQDSC	<i>Trigger Based</i> The number of invalid queries that are discarded because no reply can be generated.	peg count
	<i>Triggerless</i> All invalid IAM messages are routed without LNP; LNPQTCPE is pegged.	not applicable
LNPQTCPE	<i>Trigger Based</i> The number of error replies with TCAP error codes.	peg count
	<i>Triggerless</i> 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

Event Name	Description	Unit
LNPSREP	<i>Trigger Based</i> The number of successful replies.	peg count
	<i>Triggerless</i> The number of successful IAM messages.	peg count
LNPQUNPA	<i>Trigger Based</i> The number of correct queries received for non-ported DN when NPA-NXX is not provisioned.	peg count
	<i>Triggerless</i> 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 125: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) 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

Event Name	Description	Unit
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
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

Event Name	Description	Unit
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 126: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) LNP LRN Measurements

Event Name	Description	Unit
LRNQRCV	<i>Trigger Based</i> The number of correct queries received per LRN.	peg count
	<i>Triggerless</i> The number of correct encapsulated IAM messages received per LRN.	peg count
STATUS	Indication of Data Validity: K indicates good data	status

Event Name	Description	Unit
	I indicates incomplete interval N indicates data not current	

Table 127: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) 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",
"WMSMCGTP", "WMSMCGTNP" <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 and E5-OAM Reports

Hourly LNP System Wide Measurements

MP and E5-OAM Example Output File Name: mtch-lnp_19990116_2400.csv

MP and E5-OAM 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 128: 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 and E5-OAM Example Output File Name: mtch-ssp_19990116_2400.csv

MP and E5-OAM 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", "SSPQRCV", "CLASSGIRQ", "LIDBGIRQ", "SSPQRCVP", "SSPQRCVNP", "CLASSGIRQP", "CLASSGIRQNP", "LIDBGIRQP",
"LIDBGTRQNP", "CNAMGTRQP", "CNAMGTRQNP", "ISVMGTRQP",
"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:

$$4 \text{ char status} + 14 \text{ char SSP} + 15 \times (6 \text{ char data}) + 2 = 110 \text{ chars}$$

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

Table 129: 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 and E5-OAM Example Output File Name: mtch-lrn_19990116_2400.csv

MP and E5-OAM 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", "LRNQRVCV"<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 130: Typical File Size: mtch-lrn.csv

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

Hourly LNP Measurements Per NPA

MP and E5-OAM Example Output File Name: mtch-npa_19990116_2400.csv

MP and E5-OAM 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", "NPAQRVCV"<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 131: 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 and E5-OAM reports.

Command Examples

- OAM

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

- MP and E5-OAM

```
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 132: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) System-Wide 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
GPSRERR	Number of call related messages that cause an error response message(SRI-Send Routing Information NEGATIVE ACK) because of G-Port service failure. This does not include peg counts to register GPSRERRPP.	Peg Count
GPSRERRPP	Number of call related messages that cause an error response message (SRI-Send Routing Information NEGATIVE ACK) specifically for feature: G-Port SRI query for Prepaid. This does not include peg counts to register GPSRERR.	Peg Count
GPSRGTT	Number of call related (SRI-Send Routing Information) messages that fell through to GTT. This does not include peg counts to register GPSRGTTTPP.	Peg Count
GPSRGTTTPP	Number of call related (SRI-Send Routing Information) messages that fell through to GTT specifically for feature: G-Port SRI query for Prepaid. This does not include peg counts to register GPSRGTT.	Peg Count
GPSRRCV	Number of call related (SRI-Send Routing Information) messages received. This does not include peg counts to register GPSRRCVPP.	Peg Count
GPSRRCVPP	Number of call related (SRI-Send Routing Information) messages received specifically	Peg Count

Event Name	Description	Unit
	for feature: G-Port SRI query for Prepaid. This does not include peg counts to register GPSRRCV.	
GPSRREP	Number of call related (SRI-Send Routing Information) messages that received G-Port service. This does not include peg counts to register GPSRREPPP.	Peg Count
GPSRREPPP	Number of call related (SRI-Send Routing Information) messages that received G-Port service specifically for feature: G-Port SRI query for Prepaid. This does not include peg counts to register GPSRREP.	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
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, INP Continue, or INP ReleaseCall (every time an	peg count

Event Name	Description	Unit
	INAP RELEASECALL response is generated due to circular route dection by INPQS).	
INPQSCRD	Number of queries received by INPQS that meet the condition for circular route detection.	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
MNPCRCD	Number of times Circular Route is Detected.	peg count
SMSMOGERR	Number of MO_SMS messages received that result in an error.	peg count
SMSMOGRCV	Number of MO_SMS messages received that result in a modification of the outgoing MO_SMS.	peg count
SMSMOIERR	Number of SMDPP 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
STATUS	Indication of Data Validity: K indicates good data I indicates incomplete interval N indicates data not current	status

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 equations apply:

$$\text{INPQRCV} = \text{INPQDSC} + \text{INPQTCPE} + \text{INPSREP}$$

$$\text{GPSRRCV} = \text{GPSRGTT} + \text{GPSRREP} + \text{GPSRERR}$$

$$\text{GPSRRCVPP} = \text{GPSRGTPP} + \text{GPSRREPP} + \text{GPSRERRPP}$$

$$\text{GPSRSMRCV} = \text{GPSRSMREP} + \text{GPSRSMERR}$$

- 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 133: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) SSP Registers

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

Event Name	Description	Unit
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
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
GPSRACK	Number of call related (SRI-Send Routing Information ACK) responses. This does not include peg counts to register GPSRACKPP.	peg count
GPSRACKPP	Number of call related (SRI-Send Routing Information ACK) responses specifically for feature 61544: G-Port SRI query for Prepaid. This does not include peg counts to register GPSRACK.	peg count
GPSRNACK	Number of call related SRI Negative ACK responses in case of successful G-Port service.	peg count
GPSRRLY	Number of call related (SRI-Send Routing Information) messages relayed.	peg count

Event Name	Description	Unit
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
INPMRCRD	Number of messages sent to MR service that fall through to GTT due to circular route detection.	peg count
INPMRGTT	Number of messages sent to MR service that fall through to GTT. This includes the number of messages sent to MR service that fall through to GTT due to circular route detection.	peg count
INPMRTR	Number of messages sent to MR service that receive MR translation.	peg count
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
INPQSCRD	Number of messages sent to INP QS that meet the condition for circular route detection.	peg count
INPQSREL	Number of messages sent to INP QS that result in successful generation of INAP RELEASECALL response due to circular route detection by INPQS.	peg count

Event Name	Description	Unit
MNPCRCD	Number of times Circular Route is Detected.	peg count
SMSMOGERR	Number of MO_SMS messages received that result in an error	peg count
SMSMOGRVCV	Number of MO_SMS messages received that result in a modification of the outgoing MO_SMS	peg count
SMSMOIERR	Number of SMDPP messages received that result in an error	peg count
SMSMOIRVCV	Number of SMDPP messages received that result in a modification of the outgoing SMDPP	peg count
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 equation applies to NP registers:

$$\text{GPSRREP} = \sum \text{GPSRACK} + \sum \text{GPSRRLY} + \sum \text{GPSRNACK}$$

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 and E5-OAM: rept-ftp-meas:type=mtch:enttype=eir:[hh=yy:period=specific]

[Table 137: Daily Maintenance \(MCTD\) and Hourly Maintenance \(MTCH\) EIR Measurements](#) lists the EIR events and their descriptions.

Table 137: Daily Maintenance (MCTD) and Hourly Maintenance (MTCH) 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

Event Name	Description	Unit
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
STATUS	Indication of Data Validity: K indicates good data I indicates incomplete interval N indicates data not current	status

The following equation applies:

$$\text{IMEIRCV} = \text{WHITEIMEI} + \text{GRAYIMEI} + \text{UNKNIMEI}$$

MP and E5-OAM Reports

MP and E5-OAM Example Output File Name: mtch-eir_20030818_2300.csv

MP and E5-OAM 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 138: 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 and E5-OAM 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 and E5-OAM reports.

Example Commands:

OAM: `rept-meas:type=mtch:enttype=mapscrn`

MP and E5-OAM: `rept-ftp-meas:type=mtch:enttype=mapscrn`

Note: When MTP MAP Screening is enabled and on, the registers in [Table 139: Daily Maintenance \(MTCD\) and Hourly Maintenance \(MTCH\) MAP Screening System Wide Measurements](#) and [Table 142: Daily Maintenance \(MTCD\) and Hourly Maintenance \(MTCH\) MAP Screening Per Server Measurements](#) include the sum total of MTP-routed and GTT-routed messages for the particular event.

Table 139: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) 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
MSCRNPAPF	Total number of messages that contained the forbidden parameter but were not rejected due to Screening action set as PASS.	count

Event Name	Description	Unit
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 that were selected by MAP Screening for the Forward screening action.	count
MSCRNDAD	Total number of messages that 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 140: Server Entity Identification](#) is used to clarify the server. The Maintenance MAP Screening Per Server Measurements are applicable.

Table 140: 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 141: Path Entity Identification](#) is used to clarify the path. The Maintenance MAP Screening Per Path Measurements are applicable.

Table 141: Path Entity Identification

Entity Name	Description
PATH	<p>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.</p> <p>The possible fields within the path are delimited as follows to allow for efficient sorting:</p> <ul style="list-style-type: none"> • 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 (>): <p>^CGPA-NP-NAI>CDPA-NP-NAI</p>

Entity Name	Description
	<ul style="list-style-type: none"> 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.
<p>Measurements does not report entries created for a range of addresses.</p> <p>Measurements does not report default wildcard CDPA address in entries containing them.</p> <p>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.</p> <p>The string formats were designed to allow efficient automated post processing of measurements</p>	

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

Table 142: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) 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

Hourly MAP Screening System Wide Measurements

OAM Example Output File Name: M60_MAP.csv

OAM Example Output File Format:

```
"e1061001 10-08-22 00:00:58 EST EAGLE5 42.0.0-63.33.0 "
"TYPE OF REPORT: HOURLY MAINTENANCE MEASUREMENTS ON MAPSCRN SYSTEM"
"REPORT PERIOD: LAST"
"REPORT INTERVAL: 10-08-21, 23:00:00 THROUGH 23:59:59 "
"Measurement data represents an incomplete interval."

"MSCRNPASS", "MSCRNRJOP", "MSCRNRJNE", "MSCRNRJFP", "MSCRNPAPF", "MSCRNPANE", "MSCRNFOR", "MSCRNDUP", "MSCRNDAD",
0,0,0,0,0,0,0,0,0,0,
```

Hourly MAP Screening Measurements per Server

OAM Example output File Name: M60_SERV.csv

OAM Example Output File Format:

```
"e1061001 10-08-22 00:00:58 EST EAGLE5 42.0.0-63.33.0 "
"TYPE OF REPORT: HOURLY MAINTENANCE MEASUREMENTS ON MAPSCRN PER-SERVER"
"REPORT PERIOD: LAST"
"REPORT INTERVAL: 10-08-21, 23:00:00 THROUGH 23:59:59 "
"Measurement data represents an incomplete interval."
"NUMBER OF ENTIDS: 14"

"SERVER-NP-NAI-OPCODE", "MSCRNPASS", "MSCRNRJFP", "MSCRNFOR", "MSCRNDUP", "MSCRNDAD", "MSCRNPAPF"
"123456789012345-*--0", 0,0,0,0,0,0
"234567890123456-*--0", 0,0,0,0,0,0
"345678901234567-*--0", 0,0,0,0,0,0
"456789012345678-*--0", 0,0,0,0,0,0
"567890123456789-*--0", 0,0,0,0,0,0
"678901234567890-*--0", 0,0,0,0,0,0
"789012345678901-*--0", 0,0,0,0,0,0
"123456789012345-*--1", 0,0,0,0,0,0
"234567890123456-*--1", 0,0,0,0,0,0
"345678901234567-*--1", 0,0,0,0,0,0
"456789012345678-*--1", 0,0,0,0,0,0
"567890123456789-*--1", 0,0,0,0,0,0
"678901234567890-*--1", 0,0,0,0,0,0
"789012345678901-*--1", 0,0,0,0,0,0
```

MP and E5-OAM Reports

Hourly MAP Screening System Wide Measurements

MP and E5-OAM Example Output File Name: mtch-map_19990116_2400.csv

MP and E5-OAM Example Output File Name: mtch-map_19990116_2400.csv

```
"CLLI", "SWREL", "RPTDATE", "RPTIME", "TZ", "RPTTYPE", "RPTPD", "IVALDATE", "IVALSTART", "IVALEND", "NUMENTIDS"
"e1061001", "EAGLE5 42.0.0-63.33.0", "2010-08-21", "00:00:52", "EST ", "HOURLY MAINTENANCE
MEASUREMENTS ON MAPSCRN SYSTEM", "LAST", "2010-08-20", "23:00:00", "24:00:00", 1

"STATUS", "MSCRNPASS", "MSCRNRJOP", "MSCRNRJNE", "MSCRNRJFP", "MSCRNPAPF", "MSCRNPANE", "MSCRNFOR", "MSCRNDUP", "MSCRNDAD"
"K", 0,0,0,0,0,0,0,0,0,0,
```

Typical file size is:

Table 143: 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 and E5-OAM Example Output File Name: mtch-path_19990116_2400.csv

MP and E5-OAM Example Output File Format:

```
"CLLI", "SWREL", "RPTDATE", "RPTIME", "TZ", "RPTTYPE", "RPTPD", "IVALDATE", "IVALSTART", "IVALEND", "NUMENTIDS"
"e1061001", "EAGLE5 42.0.0-63.33.0", "2010-08-21", "00:00:53", "EST", "HOURLY MAINTENANCE
MEASUREMENTS ON MAPSCRN PER-SERVER", "LAST", "2010-08-20", "23:00:00", "24:00:00", 11

"For a path containing CGPA only, PATH-OPCODE = <CGPA-NP-NAI-OPCODE"
"For a path containing both CGPA and CDPA, PATH-OPCODE =
^CGPA-NP-NAI>CDPA-NP-NAI-OPCODE"

"STATUS", "PATH-OPCODE", "MSCRNPASS", "MSCRNRJFP", "MSCRNFOR", "MSCRNDUP", "MSCRNDAD", "MSCRNPAPF"
"K", "<123456789012345--*-0", 0, 0, 0, 0, 0, 0
"K", "<234567890123456--*-0", 0, 0, 0, 0, 0, 0
"K", "<345678901234567--*-0", 0, 0, 0, 0, 0, 0
"K", "<456789012345678--*-0", 0, 0, 0, 0, 0, 0
"K", "<567890123456789--*-0", 0, 0, 0, 0, 0, 0
"K", "<678901234567890--*-0", 0, 0, 0, 0, 0, 0
"K", "<789012345678901--*-0", 0, 0, 0, 0, 0, 0
"K", "<123456789012345--*-1", 0, 0, 0, 0, 0, 0
"K", "<234567890123456--*-1", 0, 0, 0, 0, 0, 0
"K", "<345678901234567--*-1", 0, 0, 0, 0, 0, 0
"K", "<456789012345678--*-1", 0, 0, 0, 0, 0, 0
```

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 144: Typical File Size: mtch-path.csv

System header	+	Report header	+	Report data	=	File Size
250	+	251	+	1640	=	2141 bytes

enttype=vflex

The enttype=vflex entity generates two separate reports per period. These reports for MP and E5-OAM 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 and E5-OAM: rept-ftp-meas:type=mtch:enttype=vflex[:period=specific:day=xxx]

Table 145: Daily Maintenance V-Flex System Wide Measurements

Event Name	Description	Unit
STATUS	Indication of Data Validity: K indicates good data I indicates incomplete interval N indicates data not current	status
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 146: Daily Maintenance V-Flex Per SSP Measurements

Event Name	Description	Unit
STATUS	Indication of Data Validity: K indicates good data I indicates incomplete interval N indicates data not current	status
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 and E5-OAM Reports

Hourly V-Flex System Wide Measurements

MP and E5-OAM Example Output File Name: *mtch-vflex_20070816_2400.csv*

MP and E5-OAM Example Output File Format:

```
"CLLI", "SWREL", "RPIDATE", "RPTIME", "TZ", "RPTTYPE", "RPIPD", "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 147: 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", "RPIDATE", "RPTIME", "TZ", "RPTTYPE", "RPIPD", "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 148: 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 149: 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 and E5-OAM 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 and E5-OAM

```
rept-ftp-meas:type=mtch:enttype=atinpq[:period=specific:hh=xxx]
```

Measurement Events

Table 150: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) 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.	
STATUS	Indication of Data Validity: K indicates good data I indicates incomplete interval N indicates data not current	status

Hourly ATINPQ MP Reports

System Wide Report

- Example Output File Name:

mtch-atinpq_20080616_2400.csv

- Example Output File Format:

```
"CLLI", "SWREL", "RPIDATE", "RPTIME", "TZ", "RPTTYPE", "RPTID", "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 151: 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", "RPIDATE", "RPTIME", "TZ", "RPTTYPE", "RPTID", "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 152: 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 153: Typical File Size: atinpq 200 SSPs

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

enttype=aiq

The entity type for ANSI41 AIQ measurements is "AIQ", which generates two reports per period. The commands to generate the hourly on-demand measurement report can be specified with an optional hour parameter, xxxx, providing a four-digit hour (0100, 0200, 2300, and so on). The specific period, period=specific, parameter is required when the optional hour parameter is used.

The measurements reports supported are:

- Per System Totals
- Per SSP Totals

The measurement report types supported are:

- Daily measurement report type "mtcd"
- Hourly measurement report type "mtch"

The on demand reports and scheduled reports are rejected until the AIQ feature is enabled. The command `chg-mtc-measopts:mtchaiq=on:mtcdaiq=on` starts scheduled reports generation. Both on-demand and scheduled reports at hourly and daily boundary (MTCH and MTCD) generate two reports, namely Per System totals and Per SSP totals.

Example Commands:

- OAM: Not applicable.

- MP and E5-OAM: `rept-ftp-meas:type=mtcd:enttype=aiq[:period=specific:hh=xxxx]`
This command creates both the Per System and Per SSP Totals hourly reports.

Measurement Events

Table 154: Daily Maintenance (MTCD) and Hourly Maintenance (MTCH) AIQ Registers

Event Name	Description	Unit
AIQRCV	Total number of AnalyzedInformation messages received for AIQ service. This peg is incremented only if ANSI41 AIQ feature is enabled.	peg count
AIQSUC	Total number of Return Result sent by the AIQ service. This peg is incremented only if the ANSI41 AIQ feature is enabled.	peg count
AIQERR	Total number of ANSI41 AIQ queries resulting in a negative response (Return Error or Reject) generation by AIQ service. This peg is incremented only if the ANSI41 AIQ feature is enabled.	peg count

Daily AIQ MP and E5-OAM Reports

System Wide Report

- Example Output File Name:

`mtcd-aiq_20090820_2400.csv`

- Example Output File Format:

```
"CLLI", "SAREL", "RPIDATE", "RPTIME", "TZ", "RPTTYPE", "RPTID", "IVALDATE", "IVALSTART", "IVALEND", "NUMENTIDS"<cr><lf>
"tekelecstp", "41.0.0-62.34.51", "2009-08-20", "11:32:53", "EST", "DAILY MAINTENANCE
MEASUREMENTS ON AIQ SYSTEM", "LAST", "2009-08-20", "00:00:00", "24:00:00", 1<cr><lf>
<cr><lf>
"STATUS", "AIQRCV", "AIQSUC", "AIQERR"<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 155: Typical File Size: mtc-d-at-inp-q.csv

System header	+	Report header	+	Report data	=	File Size
260	+	38	+	24	=	322

Per SSP Report

- Example Output File Name:

mtcd-aiqssp_20090820_2400.csv

- Example Output File Format:

```
"CLI", "SWREL", "RPIDATE", "RPTIME", "TZ", "RPITYPE", "RPIED", "IVALDATE", "IVALSTART", "IVALEND", "NUMENTIDS"<cr><lf>
"tekelecstp", "41.0.0-62.34.51", "2009-08-20", "11:32:58", "EST", "DAILY MAINTENANCE
MEASUREMENTS ON AIQ SSP", "LAST", "2009-08-19", "00:00:00", "24:00:00", 1<cr><lf>
<cr><lf>
"STATUS", "SSP", "AIQRCV", "AIQSUC", "AIQERR"<cr><lf>
"K", "001-101-002", 20, 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 156: Typical File Size: mtc-d-ai-q.csv

System header	+	Report header	+	Report data	=	File Size
257	+	44	+	(38 * #Point codes)	=	301 + (38 * #Point Codes) bytes

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

Table 157: Typical File Size: aiq 200 SSPs

System header	+	Report header	+	Report data	=	File Size
257	+	44	+	(38 * 200)	=	7901 bytes

enttype=gttapath

The entity type for GTT Actions Per-Path measurements is "gttapath", which generates two reports per period. The commands to generate the hourly on-demand measurement report can be specified

with an optional hour parameter, xxxx, providing a four-digit hour (0100, 0200, 2300, and so on). The specific period, period=specific, parameter is required when the optional hour parameter is used.

The measurement report supported are:

- Per System Totals
- Per Path Totals

The measurement report types supported are:

- Daily measurement report type “mtcd”
- Hourly measurement report type “mtch”

The on-demand reports and scheduled reports are rejected until the GTT Duplicate and/or Discard and/or Forward Action feature is enabled. Turning ON the feature is not required, because one of the register “GTTACTNA” might get pegged in case GTT action fails because of the feature not being in the ON state.

The command `chg-mtc-measopts:mtchgttpath=on:mtcdgttpath=on` starts scheduled reports generation. Both on-demand and scheduled reports at hourly and daily boundary (MTCH and MTCD) generate two reports: Per System Totals and Per-Path.

Example Commands:

OAM: Not applicable.

MP and E5-OAM:

`rept-ftp-meas:type=mtch:enttype=gttpath[:period=specific:hh=xxxx]` where `[:period=specific:hh=xxxx]` is optional.

This example command creates *both* the Per-Path System Totals and the Per-Path Totals daily reports (the report date corresponds to the day entered in the command).

Table 158: MTCD/MTCH GTT Actions System-Wide Measurements

Event Name	Description	Unit
GTTADISC0	GTT Actions – MSUs Discarded - The total number of messages discarded by the DISCARD GTT Action.	peg count
GTTADISC1	GTT Actions – MSUs Discarded - The total number of messages discarded by the UDTS GTT Action.	peg count
GTTADISC2	GTT Actions – MSUs Discarded - The total number of messages discarded by the TCAP Error GTT Action	peg count

Event Name	Description	Unit
GTTADUP	GTT Actions – MSUs Duplicated - The total number of messages for which Duplicate MSU was sent. Multiple duplicate actions in an action set shall also increment this register only once.	peg count
GTTAFWD	GTT Actions – MSUs Forwarded - The total number of messages <i>forwarded</i> by Forward GTT Action.	peg count
GTTASET	GTT Actions - The total number of messages <i>receiving</i> any GTT action.	peg count

Table 159: MTCB/MTCH GTT Actions Per-Path Measurements

Event Name	Description	Unit
GTTACTNA	GTT Actions - The total number of messages for which no GTT action was successfully performed. This register shall be pegged for a message if either of these occurs: <ul style="list-style-type: none"> • No GTT Action set was associated with the final GTT translation • No GTT Action in the associated GTT Action set could be executed successfully (for any reason). 	peg count
GTTADISC0	GTT Actions – MSUs Discarded - The total number of messages discarded by the DISCARD GTT Action.	peg count
GTTADISC1	GTT Actions – MSUs Discarded - The total number of messages	peg count

Event Name	Description	Unit
	discarded by the UDTS GTT Action.	
GTTADISC2	GTT Actions – MSUs Discarded - The total number of messages discarded by the TCAP Error GTT Action	peg count
GTTADUP	GTT Actions – MSUs Duplicated - The total number of messages for which Duplicate MSU was sent. This register shall be pegged for a message only once for which either a single or multiple duplicate GTT Actions were performed.	peg count
GTTAFWD	GTT Actions – MSUs Forwarded - The total number of messages forwarded by Forward GTT Action.	peg count

Daily GTTAPATH MP and E5-OAM Reports

The command `rept-ftp-meas:type=mtch:enttype=gttapath` produces the system-wide report and the per-path report shown here.

System Wide Report

- Example Output File Name: `mtch-gttasys_20090820_2400.csv`
- Example Output File Format:

```
"CLLI", "SWREL", "RPTDATE", "RPTIME", "TZ", "RPTTYPE", "RPTPD", "IVALDATE",
"IVALSTART", "IVALEND", "NUMENTIDS"<cr><lf>
"tekelecstp", "42.0.0- XX.XX.0", "2010-02-04", "15:51:37", "EST",
"HOURLY MAINTENANCE MEASUREMENTS ON GTTACTION SYSTEM", "LAST",
"2010-02-03", "23:00:00", "23:59:59", 1<cr><lf>
<cr><lf>
"STATUS", "GTTADISC0", "GTTADISC1", "GTTADISC2", "GTTADUP", "GTTAFWD", "GTTASET"<cr><lf>
"K", 2, 0, 0, 0, 0, 0<cr><lf>
```

Assuming each data line will be: 4 char status + 6*(6 char data) + 2 = 42 chars, the typical file size is:

Table 160: Typical File Size: mtcd-gttasys.csv

System header	+	Report header	+	Report data	=	File Size
250	+	76	+	42	=	368 bytes

Per Path Report

- Example Output File Name: mtch-gttapath_20090820_2400.csv

Table 161: Entity Identification
(PATH-CDSN-SCDGTA-CGSN-SCGGTA-OPSN-PKG-OPCODE-<A>/F)

String Format	Definition
PATH	The GTT path name assigned when GTTACT path was entered.
CDSN	The called party global title translations set name assigned when GTTACT path was entered.
SCDGTA	The called party start global title address (SCDGTA) assigned when GTTACT path entered for a non-ranged entry <i>or</i>
SCDGTA->ECDGTA	The ranged called party start global title address (SCDGTA) and End global title address (ECDGTA) assigned when the GTTACT path was entered.
CGSN	The calling party global title translations set name assigned when GTTACT path was entered.
SCGGTA	The calling party start global title address assigned when GTTACT path entered for a non-ranged entry <i>or</i>
SCDGTA->ECGGTA	The ranged calling party start global title address (SCGGTA) and End global title address (ECGGTA) assigned when the GTTACT path was entered.

String Format	Definition
OPSN	The global title translations set name of TCAP operation code assigned when GTTACT path was entered
PKG	The ANSI/ITU TCAP package type assigned when GTTACT Path was entered.
OPCODE	TCAP operation code assigned when GTTACT path was entered.
<A>/F	<p>'<A>' stands for Application Context Name (ACN) assigned when GTTACT path entered if package type is ITU TCAP. It is preceded by a "less than" sign(<) and followed by a "greater than" sign (>).</p> <p>'F' stands for ANSI TCAP family field assigned if package type is ANSI TCAP when GTTACT Path was entered.</p> <p>Backslash '/' will not be displayed in the report data. Its only signifies that either <A> or F will be displayed at a time based on the package type displayed in the PKG entry.</p>

Note:

- If any entry has no value assigned then default value “#” will be displayed for it.
- These string formats allow efficient automated post processing of measurements reports; they are not designed to be easily readable. A brief note explaining the format is included in the report.
- Example Output File Format:

```

"CLLI", "SWREL", "RPTDATE", "RPTIME", "TZ", "RPTTYPE", "RPTPD", "IVALDATE",
"IVALSTART", "IVALEND", "NUMENTIDS"<cr><lf>
"tekelecstp", "42.0.0- XX.XX.0", "2010-02-04", "15:51:37", "EST",
"HOURLY MAINTENANCE MEASUREMENTS ON GTTACTION PER-PATH", "LAST",
"2010-02-03", "23:00:00", "23:59:59", 6<cr><lf>
<cr><lf>
For a path containing GTA ranges, PATH-CDSN-SCDGTA-CGSN-CGGTA-OPSN-PKG-OPCODE-<A>/F
= PATH-CDSN-SCDGTA->ECDGTA-CGSN-SCGGTA->ECGTA-OPSN-PKG-OPCODE-<A>/F<cr><lf>
"STATUS", "PATH-CDSN-SCDGTA-CGSN-CGGTA-OPSN-PKG-OPCODE-<A>/F",
"GTTACTNA", "GTTADISCO", "GTTADISC1", "GTTADISC2", "GTTADUP", "GTTAFWD"<cr><lf>
"K", "path1-cdlim1-12345-cglim2-123-oplim3-ituuni-<1-1-1-1-1-1>", 0, 0, 0, 0, 0, 0<cr><lf>
"K", "p2-cdname1-12345-cgname2-123->126-opname3-bgn-12", 15, 10, 0, 0, 0, 5<cr><lf>
"K", "p3-cdname2-1234->1237-cglim2-126-opname3-bgn-10", 6, 0, 2, 4, 0, 0<cr><lf>
"K", "p4-cdname3-989898->989999-cglim3-123456->345678-opname3-bgn-10", 6, 0, 2, 4, 0, 0<cr><lf>
"K", "gttp5-#-#-cglim2-126-opname3-bgn-10", 0, 0, 0, 0, 0, 0<cr><lf>
"K", "p6-#-#-cglim6-1234-#-#-#", 0, 0, 0, 0, 0, 0<cr><lf>
    
```

Assuming each data line will be: 4 char status + 169 char
(PATH-CDSN-SCDGTA-CGSN-CGGTA-OPSN-PKG-OPCODE-<A>/F)+ 6*(6 char data) + 2 = 211
chars, the typical file size is:

Table 162: Typical File Size: mtc-d-gttapath.csv

System header	+	Report header	+	Report data	=	File Size
250	+	283	+	211	=	744

Gateway Measurements (GTWY)

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 and E5-OAM 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 and E5-OAM

```
rept-ftp-meas:type=gtwy:enttype=stp
```

Measurement Events

Table 163: Gateway STP Measurements

Event Name	Description	Unit
GTPFDIC	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
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

Event Name	Description	Unit
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

```


Event Name	Description	Unit
GTTUNTT	Number of GTTs unable to perform on messages received from an interconnecting network - no translation table for the translation type.	peg count
GTPFDIC	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.
GTPFDPC = 0, GTTUNTT = 0, GTPFDIC = 834033,
GTTUNADR = 834034

;
tekelecstp 03-12-19 12:31:13 EST EAGLE 34.0.0
END OF ON-DEMAND ORIGNI-GTWY MEASUREMENT REPORT
;

```

MP and E5-OAM Reports

MP and E5-OAM Example Output File Name: gtwy-origni_19990117_1530.csv

MP and E5-OAM 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", "GTTTDFPC", "GTTTUNT", "GTTTDFIC", "GTTTUNADR" <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 166: 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 and E5-OAM

```
rept-ftp-meas:type=gtwy:enttype=origninc
```

Measurement Events

Table 167: Gateway ORIGNINC Measurements

Event Name	Description	Unit
GTTTDFPC	Number of global title translations (GTTs) performed - result is a DPC of an interconnecting network.	peg count
GTTTUNT	Number of GTTs unable to perform on messages received from an interconnecting network - no translation table for the translation type.	peg count

Event Name	Description	Unit
GTPFDIC	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.
GTPFDPC = 0, GTTUNTT = 0, GTPFDIC = 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 and E5-OAM Example Output File Name: gtwy-origninc_19990117_1530.csv

MP and E5-OAM 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", "GTPFDPC", "GTTUNTT", "GTPFDIC", "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:

$$4 \text{ char status} + 4 \text{ char NI} + 4 \text{ char NC} + 4*(6 \text{ char data}) + 2 = 38 \text{ chars}$$

For a report of 100 NI/NCs, the typical file size is:

Table 168: 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 and E5-OAM

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

Measurement Events

Table 169: 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	peg count

Event Name	Description	Unit
	restricted (TCR) MSUs transmitted.	
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
SRSCTRC	The number of SRSCT MSUs received.	peg count
STATUS	Indication of Data Validity: K indicates good data I indicates incomplete interval N indicates data not current	status
TSTMTRCD	The number of testing and maintenance (T&M) MSUs received.	peg count
SSPTRAN	The number of subsystem prohibited (SSP) MSUs transmitted.	peg count

Event Name	Description	Unit
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
;
    
```


Measurement Events

Table 171: 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 and E5-OAM Reports

MP and E5-OAM Example Output File Name: gtwy-lsdestni_19990117_1530.csv

MP and E5-OAM 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 172: 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 and E5-OAM

rept-ftp-meas:type=gtwy:enttype=lsorigni

Measurement Events

Table 173: 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
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

Event Name	Description	Unit
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
;

```


Measurement Events

Table 175: 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 and E5-OAM Reports

MP and E5-OAM 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 176: Typical File Size: `gtwy-1sonismt.csv`

System header	+	Report header	+	Report data	=	File Size
250	+	49	+	13600	=	13899 bytes

Record Base Measurements (RBASE)

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 and E5-OAM

```
rept-ftp-meas:type=rbase:enttype=stp
```

Measurement Events

Table 177: Record Base STP Measurements

Event Name	Description	Unit
BUSS	The number of IS-NR or IS-ANR IMT buses	peg count

Event Name	Description	Unit
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 rerouting timer (level 3 T6 timer).	seconds
NT7SLKCN	The value of the waiting for signaling link connection acknowledgment timer (level 3 T7 timer).	seconds

Event Name	Description	Unit
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
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

Event Name	Description	Unit
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
NT30LMTF	The value of the limit TFPs/TFRs for unexpected TRAs/TRWs timer (level 3 T30 timer).	seconds

Event Name	Description	Unit
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,

```


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 and E5-OAM

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

Measurement Events

Table 180: 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: 1s3 (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 and E5-OAM Reports

MP and E5-OAM Example Output File Name: rbase-link_19990117_1551.csv

MP and E5-OAM 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", "1sn4", "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", "1sn4403", "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 181: 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 and E5-OAM

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

Measurement Events**Table 182: 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 and E5-OAM Reports

MP and E5-OAM Example Output File Name: rbase-lnkset_20071115_1551.csv

MP and E5-OAM 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", "ip1s1", "IPVL", 4, 3, 0, 0<cr><lf>
"K", "ip1s2", "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 183: Typical File Size: rbase-lnkset.csv

System header	+	Report header	+	Report data	=	File Size
250	+	67	+	27000	=	27317 bytes

Maintenance Status Reports (MTCS)

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 IPSM.

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 and E5-OAM

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

Measurement Events**Table 184: Maintenance Status Link Measurements**

Event Name	Description	Unit
LKMTCST	Maintenance State	<p>ACT – link primary state is IS-NR and is or can be used to carry traffic.</p> <p>UNAV - link has been made unavailable by local or centralized maintenance personnel (inhibited or canceled link or active local processor outage).</p> <p>OOS – link out-of-service but can be made available by the STP.</p>
PROSTAT	Indication of processor outage status units being received.	<p>Y – link failure reason of remote processor outage exists.</p> <p>N - link failure reason of remote processor outage does not exist.</p>
PROTRAN	Indication of processor outage status units being transmitted.	<p>Y – link failure reason of local processor outage exists.</p> <p>N - link failure reason of local processor outage does not exist.</p>
MGMTINHB	Indication of link management inhibit status	L (Local) - link is deactivated or inhibited or link failure reason of local processor outage exists.

Event Name	Description	Unit
		<p>R (remote) - link failure reason of remote processor outage exists or remote management initiated exists.</p> <p>B (Both) –both local and remote failure reasons exist.</p> <p>N (Not/Neither) no local or remote failure reasons exists.</p>
CGSTLEVL	Current link transmit congestion level	<p>Congestion level:</p> <p>0 – no link congestion</p> <p>1, 2, or 3 - link congestion level exists.</p>
CGSTSTAT	Current link transmit congestion state	<p>N – none (congestion level 0)</p> <p>O – onset (congestion level 1, 2, or 3)</p>
DCLRFAIL	Indication of link declared failure state (last known cause)	<p>N – not failed.</p> <p>LSL: Link is available to send and receive MSUs (in-service normal state).</p> <p>HSL: Same</p> <p>ABN – link failed due to receiving too many abnormal FIBR/BNSR.</p> <p>LSL: Link received 2 out of 3 invalid BSNs.</p> <p>Link received 2 out of 3 invalid FIBs.</p> <p>HSL: N/A</p> <p>XDA – Excessive delay of acknowledgment</p> <p>LSL: MSU not acknowledged within level 2 -T7 timer expiration. T7 configurable between .5 and 2.0 seconds.</p> <p>HSL: Timer no response or timer no credit expired.</p> <p>XER – Excessive error rate.</p>

Event Name	Description	Unit
		<p>Received 64 out of 256 signaling units in error.</p> <p>LSL: Signaling Unit Error Rate Monitor</p> <p>HSL: Signaling Unit-Error-Rate-Monitor threshold exceeded.</p> <p>XDC – Excessive duration of congestion</p> <p>LSL: Level-2 T6 timed-out</p> <p>HSL: N/A.</p> <p>APF – alignment/proving failure</p> <p>LSL: Link not aligned. Link state control aligned not ready or aligned ready timeout (T1), initial alignment control timeout (T2,T3), initial alignment control abort proving – maximum proving period, or initial alignment control received SIOS.</p> <p>HSL: N/A.</p>
STATUS	<p>Indication of Data Validity:</p> <p>K indicates good data</p> <p>I indicates incomplete interval</p> <p>N indicates data not current</p>	status

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)

LKMT CST = 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)

LKMTTCST =          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 ip1s1:

LINK-MTCS MEASUREMENTS: LOC: 1205, LINK: A , LSN: ip1s1          (IPVL)

LKMTTCST =          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 ip1s1:

LINK-MTCS MEASUREMENTS: LOC: 1205, LINK: A , LSN: ip1s1          (IPVLGW)

LKMTTCST =          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 ip1s2:

LINK-MTCS MEASUREMENTS: LOC: 1206, LINK: A , LSN: ip1s2          (IPVHSL)

LKMTTCST =          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)

LKMTCSST = '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)

LKMTCSST = '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)

LKMTCSST = '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)

LKMTCSST = '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)

LKMTCSST = '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 and E5-OAM Reports

MP and E5-OAM 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)

LKMTCSST =      ACT, PROSTAT =      N, PROTRAN =      N,
DCLRFAIL =      N, MGMTINHB =      N, CGSTLEVL =      0,
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)

LKMTCSST =      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 ip1s1:

LINK-MTCS MEASUREMENTS: LOC: 1205, LINK: A , LSN: ip1s1 (IPVL)

LKMTCSST =      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 ip1s1:

LINK-MTCS MEASUREMENTS: LOC: 1205, LINK: A , LSN: ip1s1          (IPVLGW)

LKMTCSST =          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 ip1s2:

LINK-MTCS MEASUREMENTS: LOC: 1206, LINK: A , LSN: ip1s2          (IPVHSL)

LKMTCSST =          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 185: 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 and E5-OAM

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

Measurement Events

Table 186: Maintenance Status Linkset Measurements

Event Name	Description	Unit
LKMTCS	Maintenance State	<p>ACT – link primary state is IS-NR and is or can be used to carry traffic.</p> <p>UNAV - link has been made unavailable by local or centralized maintenance personnel (inhibited or canceled link or active local processor outage).</p> <p>OOS – link out-of-service but can be made available by the STP.</p>
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	<p>Indication of Data Validity:</p> <p>K indicates good data</p> <p>I indicates incomplete interval</p> <p>N indicates data not current</p>	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
```


Glossary

A

ACT	Activate
AERM	Alignment Error Rate Monitor
AIQ	Analyzed Information Query Name for the local subsystem and service for the ANSI41 AIQ feature.
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
------	----------------------

C

The field in the SCCP 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 in the SCCP 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.

CSV

Comma-separated value

The comma-separated value file format is a delimited data format that has fields separated by the comma character and records separated by newlines (a newline is a special character or sequence of characters signifying the end of a line of text).

D

DB

Database

Daughter Board

Documentation Bulletin

DD

Detailed Design

D

DN	<p>Directory number</p> <p>A DN can refer to any mobile or wireline subscriber number, and can include MSISDN, MDN, MIN, or the wireline Dialed Number.</p>
DPC	<p>Destination Point Code</p> <p>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.</p>
DS1	<p>Digital Signal Level-1 (1.544Mbits/sec)</p> <p>A widely used standard in telecommunications in North America and Japan to transmit voice and data between devices. The data transmitted over a physical T1 line.</p>
DSM	<p>Database Service Module.</p> <p>The DSM provides large capacity SCCP/database functionality. The DSM is an application card that supports network specific functions such as EAGLE Provisioning Application Processor (EPAP), Global System for Mobile Communications (GSM), EAGLE Local Number Portability (ELAP), and interface to Local Service Management System (LSMS).</p>
DTA	<p>Database Transport Access</p> <p>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</p>

D

translation. The EAGLE 5 ISS uses gateway screening to determine which MSUs are used by the DTA feature.

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.

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

FAK

Feature Access Key

The feature access key allows the user to enable a controlled feature in the system by entering either a permanent feature access key or a temporary feature access key. The feature access key is supplied by Tekelec.

FIB

Forward Indicator Bit

F

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).

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

G

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

IAM

Initial Address Message

IDP

Initial Detection Point

IDPR

Service for the Prepaid IDP Query Relay feature

IGM

See IS41 GSM Migration

IMEI

International Mobile Equipment Identifier

I

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.
INAP	Intelligent Network Application Part
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, 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].

I

IPSM	<p>IP Services Module</p> <p>A card that provides an IP connection for the IPUI (Telnet) and FTP-based Table Retrieve features. The IPSM is a GPSM-II card with a one Gigabyte (UD1G) expansion memory board in a single-slot assembly running the IPS application.</p>
IS-41	<p>Interim Standard 41</p> <p>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.</p>
IS-ANR	<p>In Service - Abnormal</p> <p>The entity is in service but only able to perform a limited subset of its normal service functions.</p>
IS-NR	<p>In Service - Normal</p>
ISDNUP	<p>ISDN User Part</p>
ISUP	<p>ISDN User Part</p>
ITU	<p>International Telecommunications Union</p>

K

Key	<p>For the ICNP feature, a unique DS value used to access a table entry, consisting of a number length and number type.</p>
-----	---

L

L

LCD	Liquid Crystal Display
LIDB	Line Information Database
LIM	<p>Link Interface Module</p> <p>Provides access to remote SS7, IP and other network elements, such as a Signaling Control Point (SCP) through a variety of signaling interfaces (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.</p>
Link	<p>Signaling Link</p> <p>Signaling Link</p> <p>Carries signaling within a Link Set using a specific Association. A Link can belong to only one Link Set and one Association. There is generally one Link per Association in a Link Set.</p>
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	<p>Location Request Message</p> <p>A TDMA/CDMA MSC query to an HLR for retrieving subscription/location information</p>

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

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 Measurements data. The Measurement Platform collection function cannot be disabled once it is enabled in the system.

M

MP	<p>Measurement Platform</p> <p>Message Processor</p> <p>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 Signaling OAM's database and generate faults to a Fault Management System.</p>
MR	<p>Message Relay</p>
MSC	<p>Mobile Switching Center</p>
MSISDN	<p>Mobile Station International Subscriber Directory Number</p> <p>The MSISDN is the network specific subscriber number of a mobile communications subscriber. This is normally the phone number that is used to reach the subscriber.</p>
MSU	<p>Message Signal Unit</p> <p>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:</p> <ul style="list-style-type: none">• 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.

M

- 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

Network Code

Not Compliant

NI

Network Indicator

N

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-or 1, 0-to-9. Middle digit to expand soon).

NPV

Numbering Plan Value

O

OAM

Operations, Administration, and Maintenance

The application that operates the Maintenance and Administration Subsystem which controls the operation of the EAGLE 5 ISS.

OOS-MT

Out of Service - Maintenance

The entity is out of service and is not available to perform its normal service function. The maintenance

O

system is actively working to restore the entity to service.

OPC

Originating Point Code

P

PC

Point Code

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**).

PCR

A method of error correction used for the SS7 protocol. PCR is an error correction method that keeps a copy

S

SCCP	Signaling Connection Control Part
SEAS	<p>Signaling Engineering and Administration System</p> <p>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.</p>
SIF	<p>Service Information Field</p> <p>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.</p>
SIF	Signaling Information Field
Signaling Link	The transmission path connecting the EAGLE 5 ISS to other signaling points in the network and providing access to ANSI SS7 and ITU SS7 network elements. The signaling link is connected to the EAGLE 5 ISS at the link interface module (LIM).
SIO	<p>Service Information Octet.</p> <p>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.</p>

S

SIPO	Status Indicator - Processor Outage
SLC	Signaling Link Code
SLTA	Signaling Link Test Acknowledgment
SMS	Short Message Service
SP	Signaling Point A set of signaling equipment represented by a unique point code within an SS7 domain.
SRI	Send_Route_Information Message
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.

S

SSN	<p>Subsystem Number</p> <p>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 the LNP subsystem of the EAGLE 5 ISS.</p> <p>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.</p>
SSP	<p>Subsystem Prohibited network management message.</p> <p>Subsystem Prohibited SCCP (SCMG) management message. (CER)</p>
SST	<p>Secondary State</p> <p>The secondary state of the specified entity.</p> <p>Subsystem Status Test network management message.</p>
STP	<p>Signal Transfer Point</p> <p>The STP is a special high-speed switch for signaling messages in SS7 networks. The STP routes core INAP communication between the Service Switching Point (SSP) and the Service Control Point (SCP) over the network.</p>
STPLAN	<p>Signaling Transfer Point Local Area Network</p> <p>The application used by the SLAN card and E5-SLAN card to support the STP LAN feature. This application does not support 24-bit ITU-N point codes.</p>

S

SUERM Signal Unit Error Rate Monitor

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

TCP/IP Transmission Control Protocol/Internet Protocol

TCR Transfer Cluster Restricted

TDM Terminal Disk Module
 Time Division Multiplexing

TFA TransFer Allowed (Msg)

TFC Transfer Control
 TransFer Controlled (Msg)
 Transfer Congested

TFP TransFer Prohibited (Msg)

T

A procedure included in the signaling route management (functionality) used to inform a signaling point of the unavailability of a signaling route.

TFR

Transfer Restricted

TRA

Traffic Restarting Allowed

Translation Type

See TT.

TRW

Traffic Restarting Waiting

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

V

V-Flex

Voicemail Flexible Routing

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