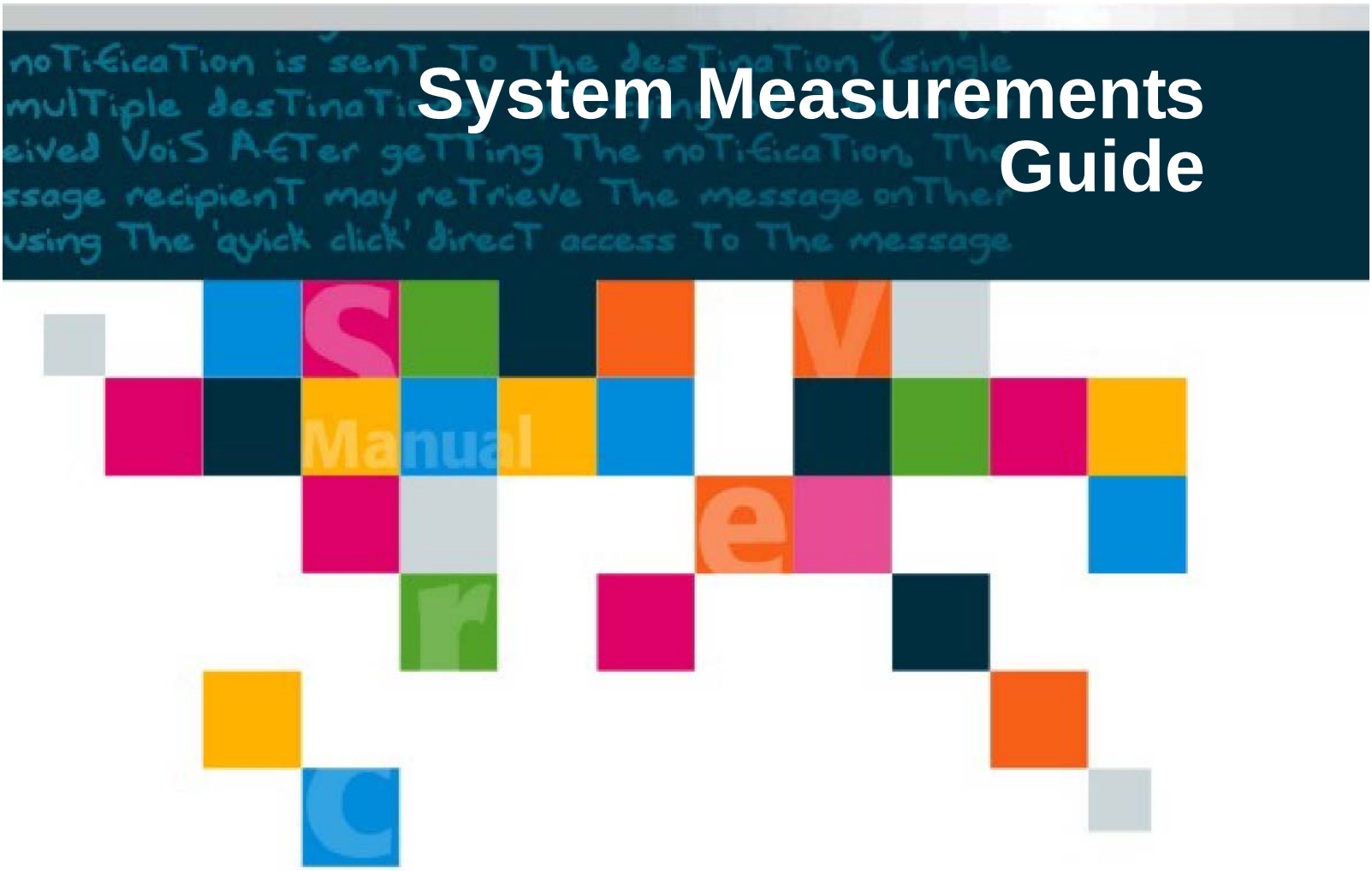
COMVERSE

ComverseONE™

3.5.50

System Measurements Guide



ComONE-3.5.50-SMG-2010-10-15

Updated 2010-10-27

Notice

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Revision History

The following table lists the document changes since the initial publication:

Date	Chapter	Description
10/15/2010		Initial publication.
10/27/2010	1	Revised Tables 5, 14, 25, 26 and added new ECI Set table per Surendra Mone. Revised Tables 6,9,12, 56, 58, 60 per Santosh Kotgire.

Contents

Tables

Notational Conventions

Useful information appears in this format.

Provides direction to important information

Important information appears in this format.

Indicates possible risk of damage to data, software, or hardware.

Indicates serious risk of damage to data, software, or hardware.

Table 1 Notational Conventions

Notation	Explanation of Convention
References to printed documents	*Helvetica italic* **Example:** See *Database Reference Volume 2*.
<KEYS>	UPPERCASE HELVETICA, in angle brackets **Example:** Press <CTRL><Q><SHIFT><P> to create an em dash.
`User-entered text`	**`Courier bold`** **Example:** Enter **`Total Charges`** in the field.
`Placeholders for user-determined text`	*`Courier italic`*, in angle brackets **Example:** Enter your <*`password`*>.
`Code samples, TABLE_NAMES, field_names, file and directory names, file contents, user names, passwords, UNIX ENVIRONMENT_VARIABLES`	`Courier`
Placeholders for system-generated text	*Helvetica italic* **Example:** Messages appear in this form: *timestamp messageID >> text.*
Buttons, Icon Names, and Menu items	**Helvetica bold** **Example:** Choose **Reports** from the main menu.

Special Markers

The Comverse ONE Billing and Active Customer Management solution has the three derivatives shown in Table 2, "Labels in Markers." For user convenience, any content that is specifically included in a derivative is highlighted with special markers so that it can readily be distinguished.

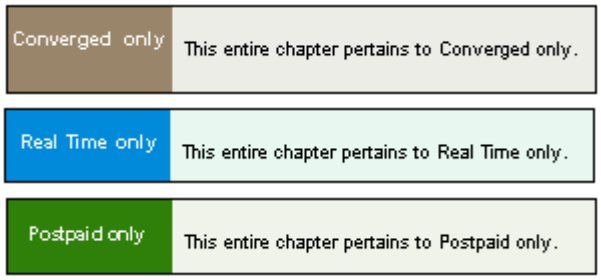
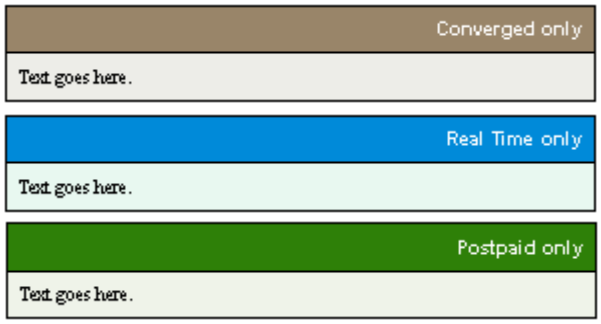
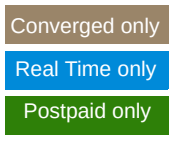
Table 2 Labels in Markers

Derivative	Label Shown in Markers
Comverse ONE Converged Billing derivative	**Converged only**
Comverse ONE Real-Time Charging derivative	**Real Time only**
Comverse ONE Postpaid Billing derivative	**Postpaid only**

Each derivative has a set of three color-coded markers, as shown in Table 3, "Types of Markers." The markers are used individually or in combination to highlight derivative-specific content by:

- Entire chapters
- Selected portions of chapters
- Tables, either entire or partial

Table 3 Types of Markers

Marker	Example	Description
Alert		■ Placed at the beginning of an entire chapter that pertains only to a specific derivative. ■ Placed just before a table that partially or entirely pertains only to a specific derivative.
Block		A shaded box that encloses sections of documentation that pertain only to a specific derivative.
Flag		■ Designates a shaded table row whose contents pertain only to a specific derivative. ■ In a bulleted list, designates an item that pertains only to a specific derivative.

Comverse ONE Documentation List

this is a comprehensive list. As such, it may include documentation for products which you have not licensed.

The documents described below reference the Comverse ONE solution products. All documentation available with the Comverse ONE solution is described in the following pages, organized by the following categories:

- Infrastructure Domain
- Rating, Charging, and Promotions Domain
- Billing and Financials Domain (Converged only)
- Customer and Order Management Domain (Converged only)
  - Customer Relationship Management
    (Sale Force Automation, Case Management, Campaign Management)
- Mediation and Roaming Solutions Domain
- Self-Service Solutions Domain

Read the relevant Solution Description first to get an overview of your Comverse ONE solution. It gives an overview of the functionality in each product domain and also includes cross-references to the user documentation that provides more detailed information about the functionality.
There are two such documents and they are listed under the Infrastructure Domain heading below.

- *Converged Billing & Active Customer Management Solution Description*
- *Real-Time Billing & Active Customer Management Solution Description*

Infrastructure Domain

Download every document in the Infrastructure domain if you purchase the Comverse ONE solution. Documentation for this domain includes the following (in alphabetical order):

- *Alarms Reference*
  Contains tables of alarm IDs, descriptions, likely causes, and recommended resolutions for systems and components.

- *Back Office Administration GUI Guide*
  Provides information about the BackOffice subsystems for Inventory Administration, Address Management and Bulk Operations.
- *Converged Billing & Active Customer Management Solution Description*
  General overview of the Comverse ONE Converged Offer and the functionality available in each domain.
- *Database Reference*
  Describes all database tables and fields in detail.
- *Disaster Recovery Operations Guide* (Optional Module)
  The Disaster Recovery Operations Guide serves as both a technical overview of the optional Disaster Recovery solution and as a guide which details the operational procedures for failover, switchover and switchback provided by the solution.
- *Glossary*
  Provides a list of terms used specifically for the Comverse ONE solution
- *Investigation Units and Financial GUIs Guide*
  Describes the GUI-based tools used for investigating and troubleshooting various financials related processes: payments, bill invoices, refunds, and incomplete data work entries
- *Operation Reference*
  Describes the processes in the Comverse ONE solution.
- *Platform Operations Guide*
  Describes the back-end operations and maintenance functionality of the core Comverse ONE solution components. Includes AIX/HACMP platform and cluster operations, Linux/Veritas platform and cluster operations, backup/recovery, shared storage and fiber switch operations, and tape backup operations.
- *Product Catalog Overview*
  Provides a high-level description of the Comverse ONE solution Product Catalog, which is the primary mechanism for creating, configuring, managing, and propagating Product Catalog versions.
- *Product Catalog User Guide*
  Instructions on using the Product Catalog application to define and manage all aspects of Service provisioning.
- *Real-Time Billing & Active Customer Management Description*
  General overview of the Comverse ONE Real-Time Offer and the functionality available in each domain.
- *Schedulable Entity Reference Manual*
  Documents all the jobs, monitors, and workflows, for each component.
- *Security Platform Operations Guide*
  Technical overview of the security platform and information on how to provision and administer the platform.
- *Security Server API Guide*
  Provides an overview of the interfaces exposed by the Java-based Security SDK API, which client applications can leverage to access various security services, such as authentication, authorization, auditing, key management, and credentials management. Also provides information on the Security Web Services API, which provides interfaces to a subset of Security Server commands (Identity Management commands).
- *Signaling Gateway Unit Guide*
  Describes the hardware, installation, configuration, and maintenance of the Signaling Gateway Unit (SGU) used to connect Comverse real-time systems to the SS7 signaling network using either traditional SS7 protocols or Sigtran (SS7 over IP).
- *System Measurements Guide*
  The Comverse ONE Solution automatically collects statistical data from the Service Logic Unit (SLU) and the Service Gateway Unit (SGU). This includes service statistics on the SLF layer and

platform data on the IPF layer.
This guide describes the format and location of this measurement information and provides a description of the meaning of the data.The measurement data can be used to create reports. It can also be imported into other applications (such as Excel) to be viewed.

- *Unified API Guide*
  General overview of the Unified API, a brief description of its architecture, and information about:
  - Framework classes and the functionality they provide
  - Two standard interfaces provided with the Unified API (client SDK and web services)
  - A subset of Unified API business methods most commonly used
- *Unified Platform Guide*
  Technical overview of the Unified Platform and information on the procedures to manage core systems operations in the Comverse ONE solution.

Rating, Charging, and Promotions Domain

Documentation for this domain includes the following (in alphabetical order):

- *Batch Provisioning Utility Guide*
  - The *CC Batch* utility enables bulk creation of recharge vouchers and subscribers.
  - The *Bulk Provisioning* Utility enables bulk creation of anonymous accounts to support the pre-activation of pre-paid SIM cards.
- *Call Flows Reference*
  Call flows detail the logic flow of specific scenarios. Multiple access numbers can map to the same call flow. Different resellers have the option to publish different numbers but share the same logic.
- *Charging Interfaces Guide*
  Describes the four interfaces that enable external services to support real-time authorization, rating, and charging for transactional usage: (1) the Event Charging Interface, a simple TCP/IP-based interface, (2) Open Services Access (OSA), (3) a Diameter-based interface version enhanced to take advantage of features of the Comverse ONE solution, and (4) a Diameter-based interface packet-switched version.
- *Customer Care Client Provisioning Guide* — Real-Time
  Detailed task-oriented instructions for using Customer Care Client.
- *Diameter Gateway Unit Guide*
  Describes the hardware, installation, configuration and maintenance of the Diameter Gateway Unit (DGU) used to connect Comverse real-time systems to external services, using the diameter protocol over IP.
- *Network Interfaces and Notifications Guide*
  Describes the operation, features, and provisioning of notifications, CAMEL-enabled services, and USSD-enabled services.
- *Network Self-Care Guide*
  Describes the configuration, structure, and features.
- *Rating Technical Reference*
  Describes the Unified Rating Engine, which is the subsystem responsible for gathering incoming CDRs and processing them for billing.
- *Reports and Data Extracts Guide* — Real-Time
  Describes the real-time Operational Reports Interface (ORI) and the Data Warehouse Extract Utility.
- *Recurring–Non-Recurring Charges Server Guide*
  Describes all processes commonly available through the Recurring —Non-Recurring Charges Server.
- *Voucher and Recharge Guide*
  Describes the process by which subscribers add funds to accounts using recharge vouchers through IVR, interaction with Customer Service, and other methods. Provides details of the Recharge Control

Table, which allows resellers to provision the effects of recharges so that bonuses, discounts, and other changes to offers can result from a successful recharge. Also describes the Card Generator software used to create batches of vouchers and calling cards.

Billing and Financials Domain (*Converged* only)

Documentation for this domain includes the following (in alphabetical order):

- *Advanced Statement Numbering Guide*
  Describes how to configure and use Advanced Statement Numbering.
- *Billing Reports and File Layouts User Guide*
  Describes control reports and other file formats.
- *Billing Technical Reference*
  High-level descriptions of billing architecture, administration, bill generation and formatting, and system parameters
- *Collections Guide*
  Contains information on configuring Collections database tables, running the Collections module, and using the Collections interface.
- *Configurator Guide*
  Describes how to install and use the Configurator.
- *Invoice Designer Strings and Filters Reference*
  Describes the static strings, dynamic strings, and filters in the Invoice Designer.
- *Invoice Designer Technical Reference*
  Describes how to configure and run Invoice Designer.
- *Invoice Designer User Guide*
  Describes the Invoice Designer and how to perform the tasks needed to create an invoice template.
- *Journals Guide*
  Describes the theory, configuration, and running of Journals processes.
- *Miscellaneous Configurable Entities*
  Instructions for configuring late fees, adjustments, and several other database entities used in postpaid and converged billing.
- *Process Workflow Orchestration Guide*
  Describes the command-line entries and the default queries for running billing-related processes via the Unified Platform.
- *Taxation Guide*
  Describes the configuration, operation, structure, and features of Taxation.

Customer and Order Management Domain (*Converged* only)

Documentation for this domain includes the following (in alphabetical order):

- *Application Integrator Adapter Developer Kit User Guide*
  Provides information necessary for the development of custom Application Integrator adapters.
- *Application Integrator Add/Copy Header User Guide*
  Describes the adapter that adds or copies header information in messages.
- *Application Integrator Aggregator Adapter User Guide*
  Describes the adapter that aggregates multiple input messages as a single composite output message.
- *Application Integrator File Adapter User Guide*
  Describes the configuration process and rules for the file adapter.
- *Application Integrator CORBA Adapter (JacORB) User Guide*
  Describes the elements and uses of the Application Integrator client and server Common Object Request Broker Architecture (CORBA) adapters for JacORB.
- *Application Integrator Filemover Adapter User Guide*
  Describes the use and configuration of the adapter, which is used to copy or move files from one machine to another.
- *Application Integrator Generic Services User Guide*
  Describes the Null adapter, Trash adapter, and Initiator adapter generic services.
- *Application Integrator HTTP Adapter User Guide*
  Describes the use and configuration of the adapter which provides an interface between HTTP clients and the ApplicationIntegrator.
- *Application Integrator IPDR Adapter User Guide*
  Describes use and configuration of the I adapter which converts the “compact encoding” form of IPDR billing record documents into a form easily parsed by the ApplicationIntegrator message broker.
- *Application Integrator JMS Adapter User Guide*
  Describes the use and configuration of the adapter, which is used with edge systems that transmit or receive JMS messages.
- *Application Integrator KSI Adapter User Guide*
  Describes the use and configuration of the adapter, which is used with edge systems that transmit or receive data formatted according to the Kenan Standard Interface (KSI) protocol.
- *Application Integrator Operator Guide*
  Describes the commands that operate the Application Integrator at creation and runtime.
- *Application Integrator Python Adapter User Guide*
  Describes the use and configuration of the adapter, which enables a user to run a *Python* script from within an integration.
- *Application Integrator Retry Adapter User Guide*
  Describes the use of the a dapter to resend messages in case of failed transmissions.
- *Application Integrator SAS Adapter User Guide*
  Describes the use and configuration of the adapter, which is used with edge systems that transmit or receive data formatted according to the *Comptel* Mediation Device Solutions/Subscriber Administration System (MDS/SAS) protocol.
- *Application Integrator Sequence Adapter User Guide*
  Describes the use of the adapter to generate unique sequence numbers for messages.
- *Application Integrator System Administrator Guide*
  Outlines installation, sizing, operation, and administration of the Application Integrator and logging. Describes configuration of the user environment and commands for creation and operation of the Application Integrator.

- *Application Integrator Unified API Client Adapter User Guide*
  Describes the adapter which is used for interfaces based on the Unified API Client.
- *Application Integrator Unified API Server Adapter User Guide*
  Describes the adapter ehich is used for interfaces based on the Unified API Server.
- *Application Integrator URL Client Adapter User Guide*
  Describes the use and confoguration of the adapter which makes it possible for a client to gain access to many kinds of network-accessible resources that are identified by a URL.
- *Application Integrator User Guide*
  Describes creating integration specifications, creating instances of the Application Integrator, and commands for operation of the Application Integrator. Provides a complete user guide for the iMaker compiler.
- *Application Integrator XSLT User Guide*
  Describes the use and configuration of the adapter which is usedwith applications (sometimes called edge systems) that transmit or receive XML- formatted data.
- *Customer Center User Guide*
  Detailed task-oriented instructions for using Customer Center.
- *Inventory Guide*
  Describes the configuration, operation, structure, and features of Inventory.
- *Inventory Replenishment Guide*
  Describes the operation, structure, and features of Inventory Replenishment.
- *Orders Services Guide*
  Describes the structure and features of Orders Services.
- *Request Handling and Tracking and Service Fulfillment User Guide*
  Describes the configuration, operation, structure and features of Request Handling and Tracking and Service Fulfillment.
- *Workflow Developers Guide*
  Helps new users understand the rules-based business process management system so users can create solutions and integrate Workpoint within those solutions.
- *Workflow User Guide*
  Describes the configuration, operation, structure, and features of Workpoint.

Customer Relationship Management

- *Billing Reports and File Layouts User Guide*
  Describes control reports and other file formats.
- *Campaign Management Data Mapping Reference*
  Describes how the data in DataMart is mapped to information in the Comverse ONE Customer database, the Comverse ONE ODS, and the Comverse ONE Sales and Service database.
- *Campaign Management DataMart Reference*
  Contains in-depth technical information on how to configure and populate the data mart used by all Campaign Management applications.
- *Campaign Management Outbound Marketing Manager Reference*
  Describes how to use the Campaign Management Outbound Marketing Manager features and guides you through the program's basic functionality.
- *Campaign Management Quick Implementation Guide*
  Helps novice users get started with implementing Campaign Management. It contains an overview of the product architecture, information on data mart design and creation, an explanation of how extraction works, and procedures for creating web pages, reports, lists, and campaigns.
- *Campaign Management Topic Implementation Guide*
  Provides information for implementers and professional services personnel who are creating applications that will run on an Campaign Management EpiCenter. Summarizes the Campaign Management functionality, architecture, and administration and contains in-depth technical information for configuring the Campaign Management topics required for Campaign Management and analysis.
- *Campaign Management User Guide*
  Provides you with basic information about the Campaign Management applications.
- *Case Management User and Administration Guide*
  Contains detailed information about GUI screens and form fields that appear in the Case Management application. Also provides information on performing general procedures in the GUI and administrative tasks.
- *Customer Center User Guide*
  Detailed task-oriented instructions for using Customer Center.
- *Sales and Service Admin Console User Guide*
  Provides supervisors, managers, and executives with the information to use the Case Management and Sales Force Automation Admin Console application.
- *Sales and Service Application Reference* Contains technical reference information relevant to implementers involved in implementing and customizing CRM applications at customer sites. This book provides the reference context for the procedural information available in the Implementation Guide.
- *Sales and Service Architecture Reference*
  Provides technical information relevant to individuals involved in implementing the Open Architecture and the applications built on the architecture
- *Sales and Service Data Dictionary Reference*
  Includes a listing and description of the tables and columns used to store CRM operational business data. It also includes a description of the naming conventions for the tables. The target audience includes database administrators, application developers, and implementers.
- *Sales and Service IBR Designer User Guide*
  Describes how to use the IBR Designer to create Intelligent Business Rules, which can be used to implement rule-based behavior within your CRM applications.
- *Sales and Service Implementation Guide*
  Provides procedural information relevant to individuals involved in implementing and customizing the core and the Sales and Service applications built on the core.

- *Sales and Service Integration Guide*
  Provides overview and configuration information for the set of tools used to exchange data with a variety of back-end data sources, including generic SQL sources, Java and EJB-based sources, Web services, and other database types.
- *Sales and Service Workflow Designer*
  Explains how to use Workflow Designer, a web-based graphical tool for defining and editing workflows
- *Sales Force Automation User and Administration Guide*
  Contains detailed information about GUI screens and form fields that appear in the Sales Force Automation application. Also provides information on performing general procedures in the GUI and administrative tasks.

Mediation and Roaming Solutions Domain

Documentation for this domain is subdivided into Mediation/Roaming and Revenue Settlements.

Mediation and Roaming

Mediation and Roaming documentation includes the following (in alphabetical order):

- *Collection API Guide*
  Provides the concepts and functions for the Collection Application Programming Interface (CAPI).
- *Data Manager GUI Reference*
  Contains detailed information about GUI screens and form fields that appear in the Data Manager interface
- *GRID Mapping Language Developer Guide*
  Describes the mediation feature components, semantics, and general syntax of the GRID Mapping Language (GML).
- *Installation Guide for HP*
  Describes how to install and configure the application, components, and some third-party applications associated with the HP platform.
- *Installation Guide for HP Itanium*
  Describes how to install and configure the application, components, and some third-party applications associated with the HP Itanium platform.
- *Installation Guide for HP PA-RISC*
  Describes how to install and configure the application, components, and some third-party applications associated with the HP PA-RISC platform.
- *Installation Guide for IBM*
  Describes how to install and configure the application, components, and some third-party applications associated with the IBM platform.
- *Installation Guide for SUN*
  Describes how to install and configure the application, components, and some third-party applications associated with the SUN platform.
- *Mediation and Roaming User Guide*
  Provides information on how to use the GUI interface, including information on using the Data System Manager application pages.
- *Mediation API Guide*
  Contains reference information on using the Mediation API.
- *Roaming Database Reference*
  Provides reference information on the Roaming database.

- *Roaming Setup Guide*
  Describes how to configure the Roaming Setup application pages. It also provides information on working with TAP, RAP, and CIBER statistics.
- *Scripts Guide*
  Provides information on script files, which contain additional instructions on functions for data collection and transmission.
- *Socket-Based API Guide*
  Explains the building applications using the Socket-Based Record Transmission API. Programmers can use the guide to use the records received from the Data system for their own customized downstream application solutions.
- *System Manager GUI Reference*
  Contains detailed information about GUI screens and form fields that appear in the System Manager interface
- *Variable-Length GRID Guide*
  Provides information on how to configure the control files for variable-length GRID.

Revenue Settlements

Revenue Settlements documentation includes the following (in alphabetical order):

- *Comverse Revenue Settlements Billing System Adapter Guide*
  Describes the configuration, operation, and installation for the Billing System adapter.
- *Comverse Revenue Settlements Data Model Guide*
  Overview of data model entities (such as partners, accounts, revenue sharing, and rate schedules) and how to configure them in the database.
- *Comverse Revenue Settlements Database Reference*
  Detailed descriptions of fields and tables in the database.
- *Comverse Revenue Settlements Technical Reference*
  Instructions for installing and operating Revenue Settlements. Also contains processing descriptions.
- *Comverse Revenue Settlements User Guide*
  Instructions for using the Revenue Settlements GUI.

Self-Service Solutions Domain

The Comverse ONE Self-Service Solutions domain consists of the core products plus the optional separately licensed premium products. The core products consist of the following:

- Self-Service Solutions Platform
- Self-Service Solutions Applications

Self-Service Solutions Platform Documentation

The Self-Service Solutions Platform has a comprehensive set of documentation covering the installation, configuration, and use of our products. The documentation set is divided into the following categories:

- **Manuals**: These manuals cover installing and using the platform.
- **Reference**: These reference documents contain information about APIs, databases, configuration files, and so on. These documents are delivered in HTML.

Self-Service Solutions Platform Manuals

Self-Service Solutions Platform manuals include the following (in alphabetical order):

- *Administration Guide*
  Provides operations and maintenance instructions for Web applications using the Self-Service Solutions Platform.
- *Communications Billing and Usage Reference*
  Provides detailed descriptions of the data models and structure of the Self-Service Solutions Platform Communications Billing and Usage (CBU) database.
- *Connectors Development Guide*
  Provides instructions for developing and customizing Connectors of the Self-Service Solutions Platform.
- *Core Module Development Guide*
  Provides instructions for configuring and developing features of the core module of the Self-Service Solutions Platform.
- *Customer Interaction Datastore Reference*
  Provides detailed descriptions of the data models and the structure of the Self-Service Solutions Platform Customer Interaction Datastore (CID).
- *Database Modules Development Guide*
  Provides instructions for configuring, customizing, and developing features of the database module of the Self-Service Solutions Platform.
- *Platform Installation Guide*
  Provides installation and configuration instructions for the Self-Service Solutions Platform.
- *Platform Services Guide*
  Provides instructions for configuring, customizing, and developing features that use the services provided by the Self-Service Solutions Platform.
- *Processors Development Guide*
  Provides instructions for developing and customizing Processors of the Self-Service Solutions Platform.
- *Reports Development Guide*
  Provides instructions for developing and customizing Reports of the Self-Service Solutions Platform.
- *Self-Service Solutions Overview Guide*
  Provides a high-level architectural and functional description of the Comverse ONE Self-Service Solutions. It also includes a detailed description of the concepts and development process to create and deploy Self-Service Solutions.
- *Web Applications Development Guide*
  Provides instructions for configuring, developing, and deploying Web applications that use the Self-Service Solutions Platform.

Self-Service Solutions Platform Reference

Self-Service Solutions Platform reference documentation includes the following (in alphabetical order):

- *Base Logic Manager Reference*
  Describes usage syntax and configuration files for the Base Logic Manager (BLM) APIs. These APIs are the core services of the Self-Service Solutions Platform.
- *CID2CBU Object Mapping Reference*
  Describes the default mapping of Customer Interaction Datastore (CID) and Communications Billing and Usage (CBU) objects.
- *Communications Billing and Usage Reference*
  Provides detailed descriptions of fields and tables in the Communications Billing and Usage (CBU) database.

- *Customer Interaction Datastore Reference*
  Provides detailed descriptions of fields and tables in the Customer Interaction Datastore (CID).
- *Integration Services Framework API Reference*
  Describes usage syntax of the set of APIs to program connectors and other components of the Intelligent Synchronization Framework (ISF).
- *Integration Services Framework Message Cache Reference*
  Provides detailed descriptions of fields and tables in the Intelligent Synchronization Framework (ISF) Message Cache.
- *Integration Services Framework Script API Reference*
  Describes usage syntax of the Intelligent Synchronization Framework (ISF) script APIs to program the ISF connectors.
- *JavaServer Page Framework for Internet Application API Reference*
  Describes usage syntax for the JavaServer Page Framework for Internet Application (JFN) APIs. These APIs are used to build JSPs using the JFN. This framework provides basic application functions and services as the foundation of user interfaces.
- *Logger Message Reference*
  Provides detailed descriptions of the Self-Service Solutions Platform log messages.
- *QRA API Reference*
  Describes usage syntax for the Query, Reporting, and Analysis (QRA) Engine APIs. These APIs are used to build reports.
- *UTIL API Reference*
  Describes usage syntax for the UTIL package used by different components of the Self-Service Solutions Platform. This package contains a set of utilities including the logger.Self-Service Solutions Applications Documentation

Each Self-Service Solutions Application comes with a comprehensive set of documentation covering the installation, configuration, and use of the product. The application documentation expands and complements the Self-Service Solutions Platform documentation.

The documentation set is divided into the following categories:

- **Manuals**: These manuals cover installing and using the application.
- **Reference**: These reference documents contain information about APIs, databases, configuration files, and so on. These documents are delivered in HTML.

Self-Service Solutions Application Manuals

A full set of these manuals is available for each Self-Service Solutions Application. The documentation set includes the following (in alphabetical order):

- *Business Objects Model Reference*
  Provides a detailed description of the models and entities that make up the Self-Service Solutions Application.
- *Catalog Loader Reference*
  Provides information about the Catalog Loader, including a functional description as well as installation, configuration, and use instructions.
- *Configuration and Development Guide*
  Provides instructions for configuring and developing Self-Service Solutions Application features.
- *Feature Reference*
  Describes the logic and provides use cases for the functional domains of the application.
- *Out-of-the-Box Reference Guide*
  Describes the Self-Service Solutions Application Out-of-the-Box release.
- *Self-Service Installation Guide for Comverse ONE*
  Provides detailed installation, configuration, and deployment instructions for the Self-Service Solutions Application alongside other elements of the Comverse ONE solution.

- *Self-Service Installation and Deployment Guide*
  Provides detailed installation, configuration, and deployment instructions for the Self-Service Solutions Application.
- *Introduction*
  Provides a high-level architectural and functional description of the Self-Service Solutions Application. It covers common features, order management, account management, and bill presentment.

Self-Service Solutions Application References

A full set of these references is available for each Self-Service Solutions Application.The reference documentation set includes the following (in alphabetical order):

- *API Reference*
  Describes usage syntax for the Self-Service Solutions Application APIs. These APIs are used to program the user interface and manage data.
- *Invoice Schema Reference*
  Describes the invoice schema reference of the Self-Service Solutions Application.
- *Presentation Layer Page Flow Reference*
  Describes the page flows of the Self-Service Solutions Application.
- *Specification Entity Relationship Diagrams*
  Provides diagrams describing the actors, use cases, user activity, and storyboard in IBM Rational Rose format.

Self-Service Solutions - Separately Licensed Products

Documentation available with optional, separately-licensed premium products in the Comverse Self-Service Solutions is listed below.

Online Catalog Manager

Online Catalog Manager (OCM) documentation includes the following (in alphabetical order):

- *Introduction to the Online Catalog Manager*
  Provides a high-level architectural and functional description of the Online Catalog Manager.
- *Online Catalog Manager Getting Started Guide*
  Describes the best way to build product catalogs in the Online Catalog Manager. This manual is a template for creating end-user documentation.
- *Online Catalog Manager Installation and Configuration Guide*
  Provides installation and configuration instructions for the Online Catalog Manager.
- *Online Catalog Manager User Documentation Template*
  Describes the use of the Online Catalog Manager. This manual is a template for creating end-user documentation. This manual covers many common concepts and procedures of the OCM.
- *Online Catalog Manager User Guide*
  Provides a detailed description of the concepts and use of the Online Catalog Manager. The topics include:
  - Managing Media Files
  - Managing Offers
  - Managing Prices
  - Managing Products
  - Managing Properties
  - Managing Reference Data
  - Publishing

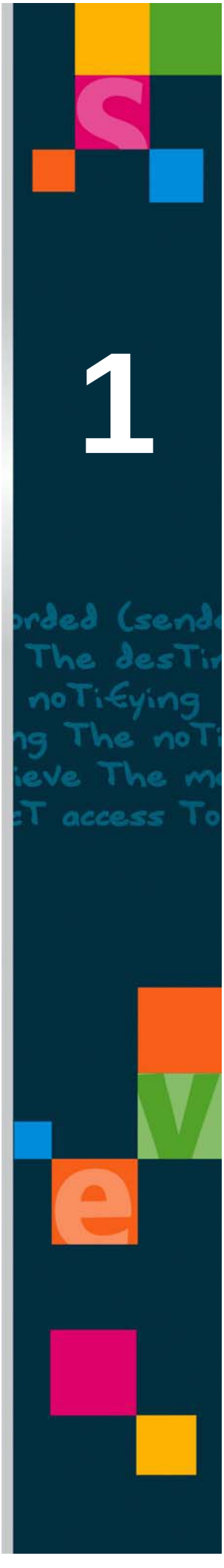
CSR Portal

The CSR Portal product includes the standard Application documentation, plus the following manual:

- *CSR Portal User Guide*
  A guide to using the CSR Portal UI.

Chapter 1

ComONE System Measurements



New Features for This Release

The following is a list of new features in the Comverse ONE 3.5.50 release that impacts the System Measurements Guide:

- There are no new features for this document in this release.

Measurements Overview

The Comverse ONE solution automatically collects statistical data from the Service Logic Unit (SLU). This includes service statistics on the Service Logic Function (SLF) layer and platform data on the IP Core Function (IPF) layer.

It also automatically collects Distributed Transactional Capabilities Application Part (DTCAP) measurements generated by the DTCAP router that provide information on the TCAP inbound and outbound traffic flows through the Service Gateway Unit (SGU).

Finally, Comverse ONE solution collects traffic monitoring data that supports the reporting and analyzing of traffic statistics on both the SLU and the Service Data Point (SDP).

This guide describes the format and location of this measurement information and provides a description of the meaning of the data.

The measurement data is used to create reports and can be imported into other applications (such as Excel) to be viewed.

Each day, a new SLU measurement file is opened shortly after midnight. Measurement data is collected either at 5, 30 or 60 minutes intervals, depending on the particular measurement set. These time intervals are configured through Man Machine Language (MML). The collected measurements are appended to the open measurement file. The measurement file is closed at midnight and is then available to be transferred to a host processor.

Measurements may be simple counters, averages or maximum values. Averages and maximums generally represent averages or maximums for the measurement time period.

The following options are available to the user through MML:

- Adjust the measurement period for a measurement set.
- Adjust the specific number of days after which old measurement files are purged.
- Specify that the duration of the first measurement time period should be adjusted so that the measurement is taken at an even multiple of the measurement set time.
- Define thresholds for a measurement counter and allow alteration to the thresholds. When a measurement counter exceeds a threshold, an alarm is generated. When a measurement counter drops below the threshold, the pending threshold alarm is cleared.

The SLU automatically sets threshold alarms for disk, CPU, and memory usage, whether or not thresholds are specified by the user.

SLU Measurement File Description

Measurements are written to files that are part of the Distributed File System (dffiles) and are located in the **$OMNI_HOME/<CE_Name>/dffile** directory on each Computer Element (CE).

The SLU measurement file name has the following format:

```
IPmeas.<shm>.<xxxx>
```

where: . <shm> is the value of UNIX environment variable SHM. . <xxxx> is a multiple digit number.

At the end of each time interval, measurements are taken and the measurement sets are written to the measurement file. Each measurement set is preceded by a header line which has the format:

```
/<scope>/<set name>/<schedule>/<start time>/<end time>
```

The components of the measurement set header line are described in table 1, “Format of Measurement Set Header Line.”

Table 4 Format of Measurement Set Header Line

Component	Description
/	The field delimiter. If it appears as the first character of a line, it indicates the beginning of a measurement set.
scope	Values may be: A (application, ie.SLF), P (platform, i.e. IPF), C (CE), N (Node).
set name	The name of the measurement set category.
schedule	A two-digit collection schedule representing 05, 30, or 60 minutes.
start time	The starting time of the measurement period in hh:mm format where hh is a two-digit number representing the hour (01-24) and mm is a two-digit number representing the minute (01-60).
end time	The ending time of the measurement period in hh:mm format.

The individual measurements follow the measurement set header, and have the format:

```
<name>/<counter>
```

where <name> is the name of the measurement and <counter> is its value.

Service Statistics (SLF Layer)

Service statistics are measurements generated by the SLUs on the performance of Comverse ONE solution. Service statistics are grouped in the following sets:

- Active Account Set
- Call Processing Sampling Set
- Initial Processing Set
- Outgoing Call Set
- Revenue Assurance Set
- Recharge Server Set
- USSD Set
- SMS Set
- GPRS Set
- Number Portability Query (NPQ) Set
- OSA Set
- Balance Transfer Set
- Other Set

The following sections describe the measurements collected in each set. Within the system, there are Measurement IDs associated with each measurement. The following tables include the measurement IDs (ID column) and associated measurement names and descriptions for all of the measurements in each measurement set. Individual measurements are recorded by the system in three fields: node, date/time, and value.

A non-billable event is an activity for which the service does not look up any tariffs. For example, a call to the recharge server is non-billable, as the service automatically does not charge for it. An Info server IVR call can be defined non-billable or billable. Also, anything that the network marks as not chargeable is also considered a non-billable event. All other activities are considered billable regardless of the actual charge calculated via the tariffs. So, even if an activity ends up with a 0-charge based on the application of the tariff (including support of the grace period), it is still considered a billable activity.

Active Account Set

The Active Account set includes measurements related to active Comverse ONE solution subscriber accounts.

Measurements with the name **Accepted** account for activities initiated by, or terminated to, a subscriber account that is enabled to perform such activities and that has sufficient funds to initiate the activity (or the activity is marked unbillable). This is an activity that is allowed for this account at this time.

Measurements with the name **Rejected** account for activities initiated by, or terminated to, a subscriber account that is disabled from performing such activities. This could be because the account state is disabled, the account doesn't have enough funds to perform the activity, or the activity is not allowed in the COS. This is an activity that is not allowed for this account at this time.

Table 5 Active Account Set

ID	Measurement Name	Description
200	NumInfoServerAttemptsAccepted	Number of successful Information Server access attempts.
201	NumInfoServerAttemptsRejected	Number of Information Server access attempts rejected.
202	NumCustomerCareAttemptsAccepted	Number of successful Customer Care access attempts.
203	NumCustomerCareAttemptsRejected	Number of Customer Care access attempts rejected.
204	NumRechargeServerAttemptsAccepted	Number of successful Recharging Server access attempts.
205	NumAdminMenuAttemptsAccepted	Number of successful administrative function (IVRU) menu access attempts.
206	NumOutCallAttemptsAccepted	Number of successful OPPS call attempts.
207	NumOPPSCallAttemptsRejects	Number of OPPS call attempts rejected.
208	TotalOPPSCallDuration	Total OPPS call duration.
209	NumTPPSCallAttemptsAccepted	Number of successful TPPS call attempts.
210	NumTPPSCallAttemptsRejected	Number of TPPS call attempts rejected.
211	NumBillableCallRejectedOwnerMemberCosMismatchTariffPlanSetting	Number of group accounts calls rejected because an activity was not allowed in both the member and owner COS.
212	TotalTPPSCallDuration	Total TPPS call duration.
213	NumActiveCall	Number of successful call attempts

Table 5 Active Account Set

ID	Measurement Name	Description
214	GarbageCollectedCalls	Number of garbage information collected
215	NumPIsRcvd	Number of Provide Instructions received
216	NumAccValid	Number of valid subscriber account received
217	NumAccInvalid	Number of invalid subscriber account received
218	NumFirstAuthSent	Number of First authorization request sent
219	NumFirstAuthOk	Number of First Authorization ok response
220	NumFirstAuthNotOk	Number of First Authorization failed response
221	NumLastConsSent	Number of Last Consumption sent
222	NumLastConsRcvd	Number of Finish authorization response received
223	NumResourceClearSent	Number of ResourceClear sent
224	NumResourceClearRcvd	Number of ResourceClear received
225	NumOrigBridgeSent	Number of OriginalAndBridged message sent
226	NumCallAnswered	Number of Call get Answered

Call Processing Sampling Set

The Call Processing Sampling set includes measurements related to the processing of calls to specific locations such as the information server and emergency numbers at the moment that the measurement set is collected. Basically, it is a snapshot.

Table 6 Call Processing Sampling Set

ID	Measurement Name	Description
600	NumberActiveCallsToEmergencyCall	Number of Active Calls to Emergency Calls
601	NumberActiveCallsToAdminFunctionMenu	Number of Active Calls to Administrative Function Menu
602	NumberActiveCallsToInfoServer	Number of Active Calls to Info Server
603	NumberActiveCallsToRechargeServer	Number of Active Calls to Recharge Server
604	NumberActiveCallsToCustomerCare	Number of Active Calls to Customer Care
605	NumberOtherNonBillableOPPSCalls	Number of Active NonbillableOPPSCalls.
606	NumberOtherBillableOPPSCalls	Number of Active BillableOPPSCalls.
607	NumberActiveNonBillableTPPSCalls	Number of Active Nonbillable TPPS Calls
608	NumberActiveBillableTPPSCalls	Number of Active Billable TPPS Calls

Initial Processing Set

Initial processing set accounts for activities that may not require any rating/charging treatment. These are emergency numbers, routing errors, and unknown subscribers.

Table 7 Initial Processing Set

ID	Measurement Name	Description
100	NumEmerCalls	Number of emergency calls

101	NumInCallsWithInvalidNetworkRoutingPrefixes	Number of incoming calls with invalid network routing prefixes.
102	NumCallsWithNonExistentAccounts	Number of calls associated with non-existent Comverse ONE solution accounts.

Outgoing Call Set

The Call set includes measurements related to all call information.

Table 8 Call Set

ID	Measurement Name	Description
400	NumPreCallThresholdAnncPlayed	Number of pre-call threshold announcements played.
401	NumSuccessNonBillableCalls	Number of successfully completed non-billable outgoing calls.
402	TotalDurationSuccessNonBillableCallsSec	Total duration of non-billable calls (in call-seconds).
403	NumSuccessBillableCalls	Number of successfully completed billable calls.
404	TotalDurationAllSuccessBillableCallsSecs	Total duration of all successfully completed billable calls, in seconds.

Revenue Assurance Set

The Revenue Assurance set includes measurements related to the Revenue Assurance feature.

Table 9 Revenue Assurance Set

ID	Measurement Name	Description
7000	RamtNumberOutageRecordsProcessed	Number of outage records processed, from internal sources
7001	RamtTotalCurrency1Recovered	Sum of call charges from internal outage records, for CURRENCY UNIT 1
7002	RamtTotalCurrency2Recovered	Sum of call charges from internal outage records, for CURRENCY UNIT 2
7003	RamtTotalCurrency3Recovered	Sum of call charges from internal outage records, for CURRENCY UNIT 3
7004	RamtTotalCurrency4Recovered	Sum of call charges from internal outage records, for CURRENCY UNIT 4
7005	RamtTotalCurrency5Recovered	Sum of call charges from internal outage records, for CURRENCY UNIT 5
7006	RamtTotalCurrency6Recovered	Sum of call charges from internal outage records, for CURRENCY UNIT 6
7007	RamtTotalCurrency7Recovered	Sum of call charges from internal outage records, for CURRENCY UNIT 7
7008	RamtTotalCurrency8Recovered	Sum of call charges from internal outage records, for CURRENCY UNIT 8
7009	RamtTotalCurrency9Recovered	Sum of call charges from internal outage records, for CURRENCY UNIT 9
7010	RamtTotalCurrency10Recovered	Sum of call charges from internal outage records, for CURRENCY UNIT 10

Table 9 Revenue Assurance Set (Continued)

ID	Measurement Name	Description
7011	RamtTotalCurrency11Recovered	Sum of call charges from internal outage records, for CURRENCY UNIT 11
7012	RamtTotalCurrency12Recovered	Sum of call charges from internal outage records, for CURRENCY UNIT 12
7013	RamtTotalCurrency13Recovered	Sum of call charges from internal outage records, for CURRENCY UNIT 13
7014	RamtTotalCurrency14Recovered	Sum of call charges from internal outage records, for CURRENCY UNIT 14
7015	RamtTotalCurrency15Recovered	Sum of call charges from internal outage records, for CURRENCY UNIT 15
7016	RamtTotalCurrency16Recovered	Sum of call charges from internal outage records, for CURRENCY UNIT 16
7017	RamtTotalCurrency17Recovered	Sum of call charges from internal outage records, for CURRENCY UNIT 17
7018	RamtTotalCurrency18Recovered	Sum of call charges from internal outage records, for CURRENCY UNIT 18
7019	RamtTotalCurrency19Recovered	Sum of call charges from internal outage records, for CURRENCY UNIT 19
7020	RamtTotalCurrency20Recovered	Sum of call charges from internal outage records, for CURRENCY UNIT 20
7021	RamtNumberExternalRecordsProcessed	Number of outage records processed from external sources
7022	RamtTotalCurrency1RecoveredForExternalRecords	Sum of call charges from external outage records for CURRENCY UNIT 1
7023	RamtTotalCurrency2RecoveredForExternalRecords	Sum of call charges from external outage records for CURRENCY UNIT 2
7024	RamtTotalCurrency3RecoveredForExternalRecords	Sum of call charges from external outage records for CURRENCY UNIT 3
7025	RamtTotalCurrency4RecoveredForExternalRecords	Sum of call charges from external outage records for CURRENCY UNIT 4
7026	RamtTotalCurrency5RecoveredForExternalRecords	Sum of call charges from external outage records for CURRENCY UNIT 5
7027	RamtTotalCurrency6RecoveredForExternalRecords	Sum of call charges from external outage records for CURRENCY UNIT 6
7028	RamtTotalCurrency7RecoveredForExternalRecords	Sum of call charges from external outage records for CURRENCY UNIT 7
7029	RamtTotalCurrency8RecoveredForExternalReco rds	Sum of call charges from external outage records, for CURRENCY UNIT 8
7030	RamtTotalCurrency9RecoveredForExternalReco rds	Sum of call charges from external outage records, for CURRENCY UNIT 9
7031	RamtTotalCurrency10RecoveredForExternalRec ords	Sum of call charges from external outage records, for CURRENCY UNIT 10
7032	RamtTotalCurrency11RecoveredForExternalRec ords	Sum of call charges from external outage records, for CURRENCY UNIT 11
7033	RamtTotalCurrency12RecoveredForExternalRec ords	Sum of call charges from external outage records, for CURRENCY UNIT 12
7034	RamtTotalCurrency13RecoveredForExternalRec ords	Sum of call charges from external outage records, for CURRENCY UNIT 13

Table 9 Revenue Assurance Set (Continued)

ID	Measurement Name	Description
7035	RamtTotalCurrency14RecoveredForExternalRecords	Sum of call charges from external outage records, for CURRENCY UNIT 14
7036	RamtTotalCurrency15RecoveredForExternalRecords	Sum of call charges from external outage records, for CURRENCY UNIT 15
7037	RamtTotalCurrency16RecoveredForExternalRecords	Sum of call charges from external outage records, for CURRENCY UNIT 16
7038	RamtTotalCurrency17RecoveredForExternalRecords	Sum of call charges from external outage records, for CURRENCY UNIT 17
7039	RamtTotalCurrency18RecoveredForExternalRecords	Sum of call charges from external outage records, for CURRENCY UNIT 18
7040	RamtTotalCurrency19RecoveredForExternalRecords	Sum of call charges from external outage records, for CURRENCY UNIT 19
7041	RamtTotalCurrency20RecoveredForExternalRecords	Sum of call charges from external outage records, for CURRENCY UNIT 20

Recharge Server Set

The Recharge Server set includes measurements related to the IVR recharge server.

Table 10 Recharge Server Set

ID	Measurement Name	Description
300	NumRechargeCardsAccepted	Number of recharge cards accepted via IVR recharge.
301	NumRechargeCardsRejectedForInvalidCardNumber	Number of recharge cards rejected via IVR: Invalid card number.
302	NumRechargeCardsRejectedForExpired	Number of recharge cards rejected via IVR: Expired.
303	NumRechargeCardsRejectedForUsed	Number of recharge cards rejected via IVR because they are already used.
304	NumRechargeCardsRejectedForMaxSessionRechargeLimitExceeded	Number of recharge cards rejected via IVR: Maximum session recharge limit exceeded.
305	NumRechargeCardsRejectedForMaxAccountBalanceExceeded	Number of recharge cards rejected via IVR: Maximum account balance exceeded.

USSD Set

The USSD measurement set provides information related to the USSD feature.

USSD is a value-added option that is available with Comverse ONE solution.

Table 11 USSD Set

ID	Num String Name	Description
800	NumberSuccessfulUssdRecharge	Number of successful USSD Recharges.
801	NumberFailedUssdRecharge	Number of failed USSD Recharges due to various reasons such as invalid recharge code or reaching a session limit.
802	NumberSuccessfulUssdInfo	Number of successful USSD info query attempts.
803	NumberFailedUssdInfo	Number of failed USSD info query attempts.
804	NumberSuccessfulUssdCallback	Number of successful USSD Callback attempts.
805	NumberFailedUssdCallback	Number of failed USSD Callback attempts due to USSD Callback not allowed.
806	NumberUnknownUssdTransaction	Number of unknown USSD Transactions
807	NumberTotalUssdTransaction	Number of total USSD transactions
808	NumberUssdPreCallThreshAnnc Played	Number of USSD Callback calls which used a precall threshold announcement (this parallels behavior in OPPS).
809	NumberUssdCbAttemptsFailedIn suffBal	Number of failed USSD Callback attempts due to low balance.
810	NumberUssdCbAttemptsFailedB arredNum	Number of failed USSD Callback attempts due to barred number.
811	NumberUssdCallbackNonBillable	Number of non-billable USSD Callback attempts.
812	NumberUssdCbAttemptsFailedC bNotAllowed	Number of failed USSD Callback attempts due to callbacks not allowed.
813	NumberUssdCbAttemptsFailedIn validSubId	Number of failed USSD Callback attempts due to unknown subscriber ID.
814	NumberUssdCbAttemptsFailedU nclassified	Number of failed USSD Callback attempts due to any other failure
815	NumberUssdIdentityChanges	Number of infocus identity switches performed using the USSD interface -- Multiple Identities.

SMS Set

The SMS set includes measurements related to the CAMEL 3 SMS feature.

CAMEL 3 SMS is a value-added option available with Comverse ONE solution.

Table 12 SMS Set

ID	Measurement Name	Description
900	InitDpSms	Number of SMS-initiated events
901	InitDpSmsOk	Number of successful SMS-initiated events

GPRS Set

The GPRS set includes measurements related to the CAMEL 3 GPRS feature.

CAMEL 3 GPRS is a value-added option that is available with Comverse ONE solution.

Table 13 GPRS Set

ID	Measurement Name	Description
1000	GPRSNewlyActivatedPdpCont ext	Number of newly activated PDP contexts
1001	GRPSClosedPdpContext	Number of closed PDP contexts
1002	GRPSActivePdpContext	Number of active PDP contexts
1003	GRPSPeakActivePdpContext	Maximum number of simultaneously active PDP contexts
1004	GRPSRequestedReservation	Number of requested reservations
1005	GRPSGrantedReservation	Number of granted reservations
1006	GRPSCancelledReservation	Number of cancelled reservations
1007	GRPSActiveReservation	Number of active reservations
1008	GRPSPeakActiveReservation	Maximum number of simultaneously active reservations
1009	GRPSRequestedDebits	Number of requested debits
1010	GRPSConfirmedDebits	Number of confirmed debits

Number Portability Query (NPQ) Set

The Number Portability Query (NPQ) set includes measurements related to the Number Portability Query feature.

Table 14 Number Portability Query Set

ID	Name	Description
6100	SuccessfulPortedNumberQuer ies	Number of successful queries that returned from external system within allocated time interval.
6101	FailedPortedNumberQueries	Number of failed queries that did not get any valid response within allocated time.
6102	NumberOfPortedNumbers	Number of queries that returned a ported number different from the B Number passed in.

Due to differences in national regulations and service provider network capabilities, each implementation of Number Portability could be different.

OSA Set

The OSA set includes measurements related to the OSA feature.

Operations Measurement Set

OSA is a value-added option that is available with Comverse ONE solution.

The Comverse ONE solution does not support the OSA *directCreditUnitReq* method. Measurements for *directCreditUnitReq* and *directCreditUnitReqExcpt* should never increment or decrement.

Table 15 Session

ID	Name	Description
0	createChargingSession	Number of createChargingSession operations
1	sessionAborted	Number of sessionAborted operations
2	sessionEnded	Number of sessionEnded operations
3	setCallback	Number of setCallback operations
4	setCallbackWithSessionID	Number of setCallbackWithSessionID operations

Table 16 Requests Received

ID	Name	Description
5	creditAmtReq	Number of creditAmtReq requests
6	creditUnitReq	Number of creditUnitReq requests
7	debitAmtReq	Number of debitAmtReq requests
8	debitUnitReq	Number of debitUnitReq requests
9	directCreditAmtReq	Number of directCreditAmtReq requests
10	directCreditUnitReq	Number of directCreditUnitReq requests
11	directDebitAmtReq	Number of directDebitAmtReq requests
12	directDebitUnitReq	Number of directDebitUnitReq requests
13	extendLifeTimeReq	Number of extendLifeTimeReq requests
14	getAmountLeft	Number of getAmountLeft requests
15	getLifeTimeLeft	Number of getLifeTimeLeft requests
16	getUnitLeft	Number of getUnitLeft requests
17	release	Number of release requests
18	rsrvUnitReq	Number of rsrvUnitReq requests
19	rsrvAmtReq	Number of rsrvAmtReq requests

Table 17 Exceptions

ID	Name	Description
20	createChargingSessionExcpt	Number of createChargingSessionExcpt messages
21	createSplitChargingSessionExcpt	Number of createSplitChargingSessionExcpt messages
22	creditAmtReqExcpt	Number of creditAmtReqExcpt messages
23	creditUnitReqExcpt	Number of creditUnitReqExcpt messages
24	debitAmtReqExcpt	Number of debitAmtReqExcpt messages
25	debitUnitReqExcpt	Number of debitUnitReqExcpt messages
26	directCreditAmtReqExcpt	Number of directCreditAmtReqExcpt messages
27	directCreditUnitReqExcpt	Number of directCreditUnitReqExcpt messages
28	directDebitAmtReqExcpt	Number of directDebitAmtReqExcpt messages
29	directDebitUnitReqExcpt	Number of directDebitUnitReqExcpt messages
30	extendLifeTimeReqExcpt	Number of extendLifeTimeReqExcpt messages
31	getAmountLeftExcpt	Number of getAmountLeftExcpt messages
32	getLifeTimeLeftExcpt	Number of getLifeTimeLeftExcpt messages
33	getUnitLeftExcpt	Number of getUnitLeftExcpt messages
34	rateReqExcpt	Number of rateReqExcpt messages
35	releaseExcpt	Number of releaseExcpt messages
36	rsrvUnitReqExcpt	Number of rsrvUnitReqExcpt messages
37	rsrvAmtReqExcpt	Number of rsrvAmtReqExcpt messages
38	setCallbackExcpt	Number of setCallbackExcpt messages
39	setCallbackWithSessionIDExcpt	Number of setCallbackWithSessionIDExcpt messages

Table 18 Responses

ID	Name	Description
40	creditAmtRsp	Number of creditAmtRsp responses
41	creditUnitRsp	Number of creditUnitRsp responses
42	debitAmtRsp	Number of debitAmtRsp responses
43	debitUnitRsp	Number of debitUnitRsp responses
44	directCreditAmtRsp	Number of directCreditAmtRsp responses
45	directDebitAmtRsp	Number of directDebitAmtRsp responses
46	directDebitUnitRsp	Number of directDebitUnitRsp responses
47	extendLifeTimeRsp	Number of extendLifeTimeRsp responses
48	rsrvUnitRsp	Number of rsrvUnitRsp responses
49	rsrvAmtRsp	Number of rsrvAmtRsp responses

Table 19 Error Responses

ID	Name	Description
50	creditAmtErr	Number of creditAmtErr error responses
51	creditUnitErr	Number of creditUnitErr error responses
52	debitAmtErr	Number of debitAmtErr error responses
53	debitUnitErr	Number of debitUnitErr error responses
54	directCreditAmtErr	Number of directCreditAmtErr error responses
55	directDebitAmtErr	Number of directDebitAmtErr error responses
56	directDebitUnitErr	Number of directDebitUnitErr error responses
57	extendLifeTimeErr	Number of extendLifeTimeErr error responses
58	rsrvUnitErr	Number of rsrvUnitErr error responses
59	rsrvAmtErr	Number of rsrvAmtErr error responses
60	maxOsaOperationMeas	Maximum of operations

Maximum Measurement Set

Table 20 Maximum Measurement Set

ID	Name	Description
0	maxActiveChargingSession	Maximum number of active charging sessions
1	maxAmountRsrvActive	Maximum number of active amount based reservations
2	maxUnitRsrvActive	Maximum number of active unit based reservations
3	MaxOsaMaximumMeas	Maximum number of maximum measures

Table 21 StateEvent Measure Set

ID	Name	Description
0	sessionStateTimeouts	Number of transaction state timeouts within a session
1	AmountRsrvLifeTimeExpiries	Number of expired timers for amount based reservation lifetime
2	UnitRsrvLifeTimeExpiries	Number of expired timers for unit based reservation lifetime
3	SDSResponseTimeouts	Number of timeouts waiting for SDS responses
4	ResponseRetransmissions	Number of retransmissions response
5	releaseOnLastReqNum	Number of release on last reqnum
6	MaxOsaStateEventMeas	Maximum number of state event measurement

Security Measurement Set

The security measurement set allows the operator to identify hacking by counting specific failed attempts to create a session.

Table 22 Security Measurement Set

ID	Name	Description
0	unknownManager	Number of unknown manager
1	unknownAcctId	Number of unknown account ID
2	invalidRange	Number of invalid range
3	unknownSubId	Number of unknown subscriber ID
4	inactiveSubId	Number of inactive subscriber ID
5	activityNotAllwd	Number of activity not allowed
6	MaxOsaSecurityMeas	Maximum number of security measurement

HTTP Interface Measurement Set

Table 23 HTTP Interface Measurement Set

ID	Name	Description
0	httpRequests	Number of HTTP request
1	httpRequestErrors	Number of HTTP request errors
2	httpOkResponses	Number of HTTP ok response
3	httpOtherResponses	Number of HTTP other response
4	httpNotices	Number of HTTP notice
5	MaxOsaHttpInterfaceMeas	Maximum number of HTTP interface measurements

Diagnostic Measurement Set

Table 24 Diagnostic Measurement Set

ID	Name	Description
0	SdsRspUnknwnRsp	Number of unknown responses from sds response
1	SdsRspOk	Number of ok responses for sds
2	SdsRspPartial	Number of partial responses from sds
3	SdsRspNotOk	Number of not ok responses from sds
4	SdsRspTariffNotFnd	Number of response of tariff not found
5	SdsRspTariffProvErr	Number of response of tariff provision error
6	SdsRspBcoProvErr	Number of response of bco provision error
7	SdsRspPrimTariffProvErr	Number of response of prim tariff provision error
8	SdsRspNoSuchSub	Number of response of invalid subscriber
9	SdsRspSubInact	Number of response of subscriber inactive
10	SdsRspInsuffBal	Number of response of insufficient balance
11	SdsRspDataBaseErr	Number of response of database error
12	SdsRspCallNotStart	Number of response of call not startable
13	SdsRspNcfTpps	Number of response of ncf tpps call
14	SdsRspConsmFail	Number of response of consume failed
15	SdsRspOvrRsrvd	Number of response of over reserved

Table 24 Diagnostic Measurement Set

ID	Name	Description
16	SdsRspUndef	Number of response of undefined
17	SdpFailure	Number of sds failure
18	TooManySess	Number of too many session
19	OutOfSubRange	Number of response of subscriber id out of range
20	MsgSendFailed	Number of message send failed
21	TariffFailed	Number of tariff failed
22	MaxReservExceed	Maximum number of reservation exceed
23	MaxOsaDiagnosticMeas	Maximum

Balance Transfer Set

The balance transfer set includes measurements related to the balance transfer feature.

Table 25 Balance Transfer Set

ID	Name	Description
6200	RejectedBalTransfers	Number of rejected transfer
6201	FailedBalTransfers	Number of failed balance transfer
6202	SuccBalTransfers	Number of successful balance transfer.

ECI Set

Table 26 ECI Set

Id	Measurement Name	Description
6300	ECITotalMessageReceived	Accumulates number of messages received from the client.
6301	ECITotalMessageDropped	Accumulates number of message dropped in case of maximum throttle count is reached.
6302	ECITotalMessageProcessedOK	Accumulates number of message processed successfully.
6303	ECITotalMessageProcessedNOK	Increments counter when Error case is met such as Service unavailable, Rating Error, etc.
6304	ECITotalAlarmRaised	Alarm counter is increment when alarm is raised.
6305	ECISubsValidRequest	Counter is incremented when SUBSVALID_MSG message is received.
6306	ECISubsValidResponse	Counter is incremented when response to the SUBSVALID_ MSG message is received.
6307	ECIApplyChargeRequest	Counter is incremented when APPLYCHARGE_MSG message is received.
6308	ECIApplyChargeResponse	Counter is incremented when response to the APPLYCHARGE_MSG message is received.
6309	ECIApplyTariffRequest	Counter is incremented when APPLYTARIFF_MSG message is received.
6310	ECIApplyTariffResponse	Counter is incremented when response to the APPLYTARIFF_ MSG message is received.

Table 26 ECI Set (Continued)

6311	ECIApplyTariffVolumeRequest	Counter is incremented when APPLYTARIFFVOLUME_ MSG message is received.
6312	ECIApplyTariffVolumeResponse	Counter is incremented when response to the APPLYTARIFFVOLUME_MSG message is received.
6313	ECIApplyCurrencyChargeRequest	Counter is incremented when APPLY_CURRENCY_ CHARGE _MSG message is received.
6314	ECIApplyCurrencyChargeResponse	Counter is incremented when response to the APPLY_ CURRENCY_CHARGE _MSG message is received.
6315	ECIReverseChargeRequest	Counter is incremented when REVERSECHARGE message is received.
6316	ECIReverseChargeOK	Counter is incremented when Client is responded with successful response for an external or internal REVERSAL request.
6317	ECIReverseChargeNOK	Counter is incremented when Client is responded with unsuccessful response for an external or internal REVERSAL request.
6318	ECICallingCircleRequest	This counter is incremented when we send CallingCircle Request to URE.
6319	ECICallingCircleResponse	This counter is incremented when we receive CallingCircle Response from the URE.
6320	ECINumberPortabilityRequest	Counter is incremented when a request for external DB number portability is sent.
6321	ECINumberPortabilityResponse	Counter is incremented when a response to the ECI_NPQ_ REQ request is received in case of external DB number portability.
6322	ECIMobileTerminateValidationRequest	Counter is incremented when request for B# account validation is sent.
6323	ECIMobileTerminateValidationResponse	Counter is incremented when successful B# account validation is received from URE.
6324	ECISdpDown	Counter is incremented when SDPDOWN message is received from URE.
6325	ECIUreQTimeout	Counter to count the number of Time out in case of URE_Q Response.
6326	ECIUreUTimeout	Counter to count the number of Time outs in case of URE_U Response.
6327	ECINpqTimeout	Counter to count the number of Time outs in case of NPQ Response.
6328	ECITransIdAckTimeout	Counter to count the number of Time outs in case of TransIdAck Response.
6329	ECICallingCircleTimeout	Counter to count the number of Time outs in case of CallingCircle Response.
6330	ECITransIdPositive	Number of positive ACKs received from client.
6331	ECITransIdNegative	Number of negative ACKs received from client.
6332	ECIConfirmationPositive	Number of positive CONFIRMs received from client.
6333	ECIConfirmationNegative	Number of negative CONFIRMs received from client

Other Set

Table 27 Other Set

ID	Name	Description
500	TotalDurationAllInCallAttempts	Total duration of all incoming successful call attempts

Platform Statistics

Platform statistics are measurements generated by the SLUs on the operator use of the system. Platform statistics are grouped in the following sets:

- Computing Element Measurement Set
- CE_ICMP_MEAS_SLU_NAME Set
- CE_IGMP_MEAS_SLU_NAME Set
- CE_IP_MEAS_SLU_NAME Set
- CE_KERN_IF_TAB_SLU_NAME Set
- CE_TCP_MEAS_SLU_NAME Set
- CE_UDP_MEAS_SLU_NAME Set
- CE_SLU_NAME Set
- CDR_FTP Set
- USSD Set
- IS826 (WINA) Set
- TCAP
- CAMEL Measurements

Call Control Measurement Set

The Call Control measurement set contains statistical information relevant to Call Control processing.

These measurements are collected at 30-minute intervals. Except for the "Available" measurement, all are reset to zero at the start of each interval.

Table 28 Call Control Measurement Set

Name	Description	Explanation
Offered	Calls offered to the service application.	The number of calls received by Comverse ONE solution via the specified resource platform and offered to the service application.
Originated	Calls originated by Comverse ONE solution service.	The number of calls originated by Comverse ONE solution via the specified resource platform.
Accepted	Calls received by Comverse ONE solution service.	The number of calls received by Comverse ONE solution via the specified resource platform and accepted by the service application.
Answered	Calls originated by Comverse ONE solution.	The number of calls originated by Comverse ONE solution via the specified resource platform and answered by the called party.

Table 28 Call Control Measurement Set (Continued)

Name	Description	Explanation
OrgFailed	Calls originated by Comverse ONE solution that failed when attempting to send the outbound call.	The number of calls originated by Comverse ONE solution via the specified resource platform that failed because an internal error occurred while attempting to send the outbound call.
NetFail	Calls originated by Comverse ONE solution that had a reorder tone detected received by Comverse ONE solution.	The number of calls originated by Comverse ONE solution via the specified resource platform, for which a call status message indicating "reorder tone detected" was received by Comverse ONE solution.
DestBusy	Calls originated by Comverse ONE solution that had a status message indicating busy received by Comverse ONE solution.	The number of calls originated by Comverse ONE solution via the specified resource platform, for which a status message indicating "busy" was received by Comverse ONE solution service.
OrgTimeout	Calls originated by Comverse ONE solution that had no answer from the called party.	The number of calls originated by Comverse ONE solution via the specified resource platform, for which no answer was received from the called party within the call originate time-out period.
UsrDisc	Calls disconnected when the application initiated the disconnect sequence.	The number of calls associated with the specified resource platform which were disconnected when the application initiated the disconnect sequence.
PgmDisc	Calls disconnected by Comverse ONE solution due to a port out of service or a reset message.	The number of calls associated with the specified resource platform that were disconnected by Comverse ONE solution service when a port was taken out of service or a reset message caused the call to be aborted.
NetDisc	Calls disconnected when the network initiated the normal disconnect protocol sequence.	The number of calls associated with the specified resource platform that were disconnected when the network initiated the normal disconnect protocol sequence. In the ISUP protocol, for example, the network sent a RELEASE message to initiate the disconnect sequence.
NetRel	Calls disconnected when the network initiated an unexpected disconnect protocol sequence.	The number of calls associated with the specified resource platform which were disconnected when the network initiated an unexpected (not normal) disconnect protocol sequence. In the ISUP protocol, for example, the network sent a RELEASE COMPLETE message to trigger the disconnect.
NoUsr	Calls rejected because no application was registered to receive the call.	The number of calls received by Comverse ONE solution via the specified resource platform, which were rejected because no application was registered to receive the call.
Rejected	Calls rejected because the specified port is not available to receive calls.	The number of calls received by Comverse ONE solution via the specified resource platform, which were rejected because the specified port was not available to receive calls.
Queued	Calls that were queued while the specified port was in the process of becoming available.	The number of calls received by Comverse ONE solution via the specified resource platform, that were queued while the specified port was in the process of becoming available.
Retrieved	Calls that were queued and then offered to the application when the specified port became available.	The number of calls received by Comverse ONE solution via the specified resource platform, which were queued and then offered to the application when the specified port became available.
Dequeued	Calls that were queued while the specified port was in the process of becoming available, then disconnected by the network before being offered to the application.	The number of calls received by Comverse ONE solution via the specified resource platform, which were queued while the specified port was in the process of becoming available, then disconnected by the network before being offered to the application.

Table 28 Call Control Measurement Set (Continued)

Name	Description	Explanation
Glare	Calls received on a port selected to originate an outbound call.	The number of calls received by Comverse ONE solution via the specified resource platform, on a port currently selected by Comverse ONE solution to originate an outbound call.
RspTimeout	Number of times a response was not received within the expected time period.	The number of times a response was not received within the expected time period (from either the network or the application) while the SLU was processing calls associated with the specified resource platform.
Available	Number of ports that are available for calls.	The number of ports belonging to the specified resource platform and that are available for calls.
Available Outgoing	Number of ports available for outbound calls.	The number of ports belonging to the specified resource platform that are available for outbound calls. An available port is one that is not in use and is not outbound blocked. Meaningful for TUP protocol only.
AvailableI ncoming	Number of ports available for inbound calls.	The number of ports belonging to the specified resource platform that are available for inbound calls. An available port is one that is not in use and is not inbound blocked. Meaningful for TUP protocol only.
Ports	Number of ports configured.	The number of ports configured for the specified resource platform.
InCalls	Number of inbound calls currently connected.	The number of inbound calls currently connected on a port belonging to the specified resource platform.
OutCalls	Number of outbound calls currently connected.	The number of outbound calls currently connected on a port belonging to the specified resource platform.
InBlock	Number of ports blocked for inbound calls.	The number of ports belonging to the specified resource platform that are blocked for inbound calls. For protocols other than TUP, ports are not blocked by direction, and InBlock will equal OutBlock.
OutBlock	Number of ports blocked for outbound calls.	The number of ports belonging to the specified resource platform that are blocked for outbound calls. For protocols other than TUP, ports are not blocked by direction and OutBlock equals InBlock.
Received	Number of calls received by platform	Number of calls received by platform
Congestion	Number of rejects for congestion	Number of rejects for congestion

Call Control measurements are given for the two components with which Call Control communicates (NIU and CCS).

The measurement name includes the IP node name, the Resource Platform name, and the name of the interfacing process.

```
<Name> + " " + <Node Name of P> + " " + <Process Name>/<value>
```

Resource Measurement Set

The Resource measurement set contains statistical information about the ports of Comverse ONE solution resource platforms. These measurements are collected at 30-minute intervals.

Table 29 Resource Measurement Set

Name	Description	Explanation
NUM_ PORTS	Number of NIU ports provisioned.	The total number of ports provisioned for the resource.
PORT_ ALL	Number of NIU ports allocated.	The number of ports that are allocated at the time the measurement is taken. Ports are allocated for connecting calls, playing announcements, collecting digits, etc.
MAXP_ ALL	Maximum number of NIU ports allocated.	The maximum number of ports that have been allocated during the time the system has been running.

The measurements in this category are given for each port resource type. The measurement line includes the resource name and type, as follows:

```
<name> + " " + <Port Resource Name> + " " + <Port Resource Type>/<value>
```

Trunk Group Measurement Set

The Trunk Group measurement set contains statistical information about trunk groups. These measurements are collected at 30-minute intervals. These measurements are not supported in a loop-around configuration.

Table 30 Trunk Group Measurement Set

Name	Description	Explanation
NUM_ PORTS	Number of ports configured.	The number of ports configured for the named trunk group via the MML commands ADD-TRUNK and REMOVE-TRUNK. This measurement is not reset at the end of the measurement period.
PORT_ USE	Number of ports used for calls during the measurement period.	The number of times that ports within the named trunk group were used for incoming or outgoing calls during the measurement period. Equal to the sum of "Number of calls received" and "Number of calls made." This measurement is reset at the end of the measurement period.
MAXP_ USE	Not implemented.	Not implemented.
PORT_ OOS	Number of ports that are blocking calls.	The number of ports in the named trunk group for which calls are blocked in at least one direction. The measurement is incremented when a port becomes blocked and decremented when a port becomes unblocked. This measurement is not reset at the end of the measurement period.
TIME_ OOS	Not implemented.	Not implemented.
TIME_ ANS	The average answer times for outgoing calls.	The average of all answer times for outgoing calls on the named trunk group during the measurement period. Answer time for a given call is computed as the difference between the time the call was originated by Comverse ONE solution and the time an answer was received from the network. The measurement unit is seconds. The measurement is reset at the end of the measurement period.
CALLS_ IN	Number of calls received by Comverse ONE solution.	The number of calls received by Comverse ONE solution from the network on the named Trunk Group and offered to the client during the measurement period. This measurement is reset at the end of the measurement period.

Table 30 Trunk Group Measurement Set

Name	Description	Explanation
CALLS_ OUT	Number of calls originated by Comverse ONE solution.	The number of calls originated by Comverse ONE solution on the named Trunk Group during the measurement period. This measurement is reset at the end of the measurement period.
PORT_SIM	Number of ports actively engaged in call processing.	The number of ports in the named trunkgroup which are actively engaged in call processing at the time the measurements were collected at the end of the measurement period. This measurement is incremented when a port is used to receive or originate a call and decremented when that call is released. This measurement is not reset at the end of the measurement period.
MAXP_SIM	Not implemented.	Not implemented.

Trunk Group measurements are given for each trunk group. The measurement line includes the trunk group name and Trunk ID, as follows:

```
<name> + " " + <Trunk Group Name> + " " + <Trunk Group ID>/<value>
```

Computing Element Measurement Set

The Computing Element measurement set contains statistical information about the disk, CPU, and memory utilization. These measurements are collected at five-minute intervals.

All disk usage measurements are for the active partition.

Table 31 CE Measurement Set

Name	Description	Explanation
CPU_ IDLE	Percent of time the CPU was not executing system or user processes.	The percentage of time during the measurement period when the CPU was not executing system or user processes. Used only with single CPU systems.
CPU_ SYSTEM	Percent of time the CPU was running in system mode plus the time that any process was waiting for I/O.	The percentage of time during the measurement period when the CPU was running in system mode plus the time that any process was waiting for I/O. Used only with single CPU systems.
CPU_ USER	Percent of time the CPU was running in user mode.	The percentage of time during the measurement period when the CPU was running in user mode (i.e., performing any IPF or SLF processing). Used only with single CPU systems.
CPU_0_ IDLE	Percent of time the CPU 0 was not executing system or user processes.	The percentage of time during the measurement period when the CPU 0 was not executing system or user processes. Used only with dual CPU systems.
CPU_0_ SYS	Percent of time the CPU 0 was running in system mode plus the time that any process was waiting for I/O.	The percentage of time during the measurement period when the CPU 0 was running in system mode plus the time that any process was waiting for I/O. Used only with dual CPU systems.
CPU_0_ USER	Percent of time the CPU 0 was running in user mode.	The percentage of time during the measurement period when the CPU 0 was running in user mode (i.e., performing any IPF or SLF processing). Used only with dual CPU systems.

Table 31 CE Measurement Set (Continued)

Name	Description	Explanation
CPU_1_ IDLE	Percent of time the CPU 1 was not executing system or user processes.	The percentage of time during the measurement period when the CPU 1 was not executing system or user processes. Used only with dual CPU systems.
CPU_1_ SYS	Percent of time the CPU 1 was running in system mode plus the time that any process was waiting for I/O.	The percentage of time during the measurement period when the CPU 1 was running in system mode plus the time that any process was waiting for I/O. Used only with dual CPU systems.
CPU_1_ USER	Percent of time the CPU 1 was running in user mode.	The percentage of time during the measurement period when the CPU 1 was running in user mode (i.e., performing any IPF or SLF processing). Used only with dual CPU systems.
DISK_ ALL	Total number of disk blocks.	The total number of disk blocks of all of the mounted file systems.
DISK_ FREE	Number of free disk blocks.	The number of disk blocks that were available at the time the measurement was taken.
DISK_%_ USED	Percent of blocks in use.	The percentage of blocks in use at the time the measurement was taken. This is a calculated as 100 minus the number of free blocks, divided by the total blocks.
MEM_ AVP	Number of active virtual pages.	The number of active virtual pages of memory at the time the measurement is taken.
MEM_FL	Number of virtual pages available.	The number of virtual pages that were available (not being used) at the time the measurement was taken.

CE_ICMP_MEAS_SLU_NAME Set

Table 32 CE_ICMP_MEAS_SLU_NAME Set

Name	Description
ERR	Number of calls to icmp_error
ERR_NGEN	Number of errors not generated because the old message was icmp
BAD_CODE	Number of messages with bad code fields
MIN_LENG	Number of messages with less than minimum length
BCKSUM	Number of bad checksums
BLENG	Number of messages with bad length
BMASK	Number of bad netmasks received
MSG_RESP	Number of message responses generated
MSG_RECVD	Number of messages received
MSG_SENT	Number of messages sent
MSG_NSENT	Number of messages not sent due to bad source address
OUT_ERR	Number of system errors during output

CE_IGMP_MEAS_SLU_NAME Set

Table 33 CE_IGMP_MEAS_SLU_NAME Set

Name	Description
MSG_RCVD	Number of messages received
TOO_FEWB	Number of messages received with too few bytes
BAD_CKSUM	Number of messages received with bad checksum
MEM_QUERY	Number of membership queries received
MEM_QUERYI	Number of membership queries received with invalid field(s)
MEMREP	Number of membership reports received
MEMREPI	Number of membership reports received with invalid field(s)
MEMREPB	Number of membership reports received for groups to which we belong
OMEMREP	Number of membership reports sent
OUT_PKTS	Number of total packets sent
OUT_ERROR	Number of output errors

CE_IP_MEAS_SLU_NAME Set

Table 34 CE_IP_MEAS_SLU_NAME Set

Name	Description
PCKT_RCVD	Number of packets received
BAD_HCHKSM	Number of bad header checksums
IP_VER	Number of messages with bad IP version number
SIZ_SMALL	Number of messages with size smaller than minimum
DSZ_DLNG	Number of messages with data size less than data length
HLNG_DSZ	Number of messages with header length less than data size
DLNG_HLNG	Number of messages with data length less than header length
UN_PROT	Number of messages with unknown protocol
BCST_UCST	Number of messages with link layer broadcast addr but unicast IP addr
FRAG_RCVD	Number of fragments received
FRAG_DRP	Number of fragments dropped (duplicate or out of space)
FRA_DRP_TO	Number of fragments dropped after timeout
PKT_REASM	Number of packets reassembled
PKT_FWD	Number of packets forwarded
CANT_FWD	Number of packets not forwardable
NO_ROUTE	Number of no routes
REDIR_SNT	Number of redirects sent
IN_ERR	Number of system errors during input
PKT_DELIV	Number of packets delivered
PKT_SENT	Number of total packets sent
OUT_ERR	Number of system errors during output

Table 34 CE_IP_MEAS_SLU_NAME Set

Name	Description
PKT_FRAG	Number of packets fragmented
NOT_FRAG	Number of packets not fragmentable
FRAG_CREAT	Number of fragments created
PCBS_FAIL	Number of PCBs failed connect due to bad source address

CE_KERN_IF_TAB_SLU_NAME Set

Table 35 CE_KERN_IF_TAB_SLU_NAME Set

Name	Description
net0:IPKTS	Number of input packets on interface net0
net0:IERRS	Number of input packet errors on interface net0
net0:OPKTS	Number of output packets on interface net0
net0:OERRS	Number of output packet errors on interface net0
net0:COLL	Number of collisions on interface net0
net1:IPKTS	Number of input packets on interface net1
net1:IERRS	Number of input packet errors on interface net1
net1:OPKTS	Number of output packets on interface net1
net1:OERRS	Number of output packet errors on interface net1
net1:COLL	Number of collisions on interface net1

CE_TCP_MEAS_SLU_NAME Set

Table 36 CE_TCP_MEAS_SLU_NAME Set

Name	Description
OUT_PKT	Number of packets sent
OUT_FASTP	Number of packets that used fast path
OUT_DATA	Number of data packets
DATA_RTR	Number of data packets retransmitted
OUT_ACK	Number of ack-only packets
OUT_URG	Number of URG only packets
OUT_PROBE	Number of window probe packets
OUT_WINUP	Number of window update packets
OUT_CTRL	Number of control packets
OUT_RESET	Number of resets
IN_PKT	Number of packets received
IN_ACK	Number of acks
IN_ACKDUP	Number of duplicate acks
IN_ACKU	Number of acks for unsent data
IN_SEQ	Number of packets received in sequence

Table 36 CE_TCP_MEAS_SLU_NAME Set (Continued)

Name	Description
DUP	Number of completely duplicate packets
SOME_DUP	Number of packets with some duplicate data
OOO	Number of out of order packets
AFT_WIN	Number of packets of data after window
WIN_PROBE	Number of window probes
PKT_UPD	Number of window update packets
PKT_AFTER	Number of packets received after close
DIS_CKS	Number of discarded packets for bad checksums
DIS_OFF	Number of discarded packets for bad header offset fields
DIS_SHORT	Number of discarded packets because packets are too short
ERR_IN	Number of system errors encountered during processing
CONN_REQ	Number of connection requests
CONN_ACPT	Number of connection accepts
CONN_ESTAB	Number of connections established
CON_CLOSED	Number of connections closed
ECONN_DROP	Number of embryonic connections dropped
FCON_ACPT	Number of failed connect and accept requests
RST_EST	Number of reset received while established
UPD_RTT	Number of segments updated rtt
RETR_TO	Number of retransmit timeouts
DRETR_TO	Number of connections dropped by rexmit timeout
PERS_TO	Number of persist timeouts
RESCH	Number of alloc failures that caused reschedule
ALIVE_TO	Number of keepalive timeouts
ALIVEP	Number of keepalive probes sent
DALIVE	Number of connections dropped by keepalive
SEG_PRED	Number of segments predicted
ACK_PRED	Number of acks predicted
DRP_PAWS	Number of segment dropped due to PAWS
BOG_SYN	Number of bogus SYN packets
QUE_OVF	Number of listen queue overflows

CE_UDP_MEAS_SLU_NAME Set

Table 37 CE_UDP_MEAS_SLU_NAME Set

Name	Description
IN_HDR	Number of incomplete headers
BAD_LNG	Number of bad data length fields
BAD_CKS	Number of bad checksums

Table 37 CE_UDP_MEAS_SLU_NAME Set

Name	Description
BAD_PORT	Number of bad ports
PKT_DELIV	Number of input packets delivered
IN_ERR	Number of system errors during input
OUT_PKT	Number of packets sent
STM_FAIL	Number of streams allocation failures

CE_SLU_NAME Set

Table 38 CE_SLU_NAME Set

Name	Description
DISK_ALL	Total amount of disk space
DISK_FREE	Amount of disk space free
DISK_%_USED	Amount of disk space used
DATA_ALL	Total amount of data
DATA_FREE	Amount of data Free
DATA_%_USED	Amount of data Used
CPU_0_IDLE	Portion of time, Processor 0 running in Idle mode
CPU_0_SYS	Portion of time, Processor 0 running in System mode
CPU_0_USER	Portion of time, Processor 0 running in User mode
CPU_1_IDLE	Portion of time, Processor 1 running in Idle mode
CPU_1_SYS	Portion of time, Processor 1 running in System mode
CPU_1_USER	Portion of time, Processor 1 running in User mode
MEM_AVP	Total memory available
MEM_FL	Total memory faults/failures

CDR_FTP Set

Table 39 CDR_FTP Set

Name	Description
FILE_SNT_OK	Number of FTP files sent OK
FILE_SNT_FA	Number of FTP files sent Ack
RESEND_REQ	Number of FTP files resend requests
RESEND_FAIL	Number of FTP files resend failed
KB_XFER	Number of KiloBytes transferred

USSD Set

The USSD measurement set provides information related to the USSD feature.

Table 40 USSD Measurement Set

Name	Description	Explanation
USSD_IND	USSD Indication	Number of USSD indications (incoming) received
USSD_RESP	USSD response	Number of USSD responses (outgoing) sent
USSD_T_ OUT	USSD timeout	Number of timeouts that occurred waiting for SLF to respond
USSD_UA_ AO	USSD abort – all other	Number of failures that occurred for any other reason, such as: Unexpected message Missing or invalid parameter A1129 encode / decode errors Message sending failures.
USSD_UA_ DID	USSD abort – dialog id not found	Number of failures that occurred trying to allocate or find a call context
USN_SNT	USSD notification sent	Invoke sent
USN_RCVD	USSD notification confirmation received	Return result received
USN_INV_ TO	USSD notification – invoke timeout	No response to invoke sent
USN_ SYSFAIL	USSD notification – system failure	Return Error (system failure) received
USN_ DATMIS	USSD notification – data missing	Return Error (data missing) received
USN_ UDATVAL	USSD notification – unexpected data value	Return Error (unexpected data value) received
USN_ABS_ SUB	USSD notification – absent subscriber	Return Error (absent subscriber) received
USN_ILL_ SUB	USSD notification – illegal subscriber	Return Error (illegal subscriber) received
USN_ILL_ EQU	USSD notification – illegal equipment	Return Error (illegal equipment) received
USN_UNK_ ALP	USSD notification – unknown alphabet	Return Error (unknown alphabet) received
USN_BUSY	USSD notification – ussd busy	Return Error (ussd busy) received
USN_ OTHERR	USSD notification – other error	Return Error (other) received

IS826 (WINA) Set

These measurements provide information related to the IS826 feature.

IS826

Table 41 IS826 Set

Name	Description	Explanation
ORREQ_ORIG_ ATT_RX	ORREQ - ORIGINATION_ ATTEMPT trigger	Origination Attempt Triggers received by SCP.
ANALYZ_ INFO_ INIT_ TRM_RX	ANALYZ_INFO - INITIAL TERMINATION trigger	Analyze Info Triggers received by SCP for TPPS Call.
ANALYZ_ INFO_ CGRAA_ RX	ANALYZ_INFO - CGRAA trigger	OPPS Call Request received by SCP

Table 41 IS826 Set (Continued)

Name	Description	Explanation
ANALYZ_ INFO_ CDRAA_ RX	ANALYZ_INFO - CDRAA trigger	TPPS Call Request received by SCP
O_ANSWER_ RX	O_ANSWER	OPPS Answered message received by SCP
T_ANSWER_ RX	T_ANSWER	TPPS Answered message received by SCP
O_DISC_RX	O_DISCONNECT	OPPS Disconnect message received by SCP
T_DISC_RX	T_DISCONNECT	TPPS Disconnect message received by SCP
U_ABORT_RX	UABORT	TCAP User aborts received by SCP
P_ABORT_RX	PABORT	TCAP Provider aborts received by SCP
BULK_DISC_ RX	BULK_DISC	When the MSC goes down and comes up, it sends a bulk disconnect to all SGUs connected to it, which in turn send the message to all SLUs. This field is not to be added between the different SLUs.
CONN_FAIL_ RPT_ RX	CONN_FAIL_RPT	When SCP sends an establish temporary connection message to the MSC and it is not able to honor the request, the Connection Failure is sent.
ccdir_RX	CCDIR	CCDIR responses received by the SCP.
orreq_AD_ DISC_TX	ORREQ W/ ACTION CODE = DISCONNECT	Not Used in Release 4.113. To be used in 4.119.
orreq_AC_ CON_TX	ORREQ W/ ACTION CODE = CONTINUE	Normal response to Origination request.
analyz_info_ REDIR_ TX	ANALYZ_INFO W/ REDIRECTION	Redirection sent for Connect to Customer Care.
analyz_info_ AD_ DISC_TX	ANALYZ_INFO W/ ACTION CODE = DISCONNECT	The Service Logic does not accept the call after checking all the information for reasons such as not enough money or no LI relation.
analyz_info_ AC_ CON_TX	ANALYZ_INFO W/ ACTION CODE = CONTINUE	OPPS/TPPS calls are accepted and continue the outbound call.
o_disc_TX	O_DISCONNECT	Response sent by SCP for OPPS Disconnect message.
t_disc_TX	T_DISCONNECT	Response sent by SCP for TPPS Disconnect message.
bulk_disc_TX	BULK_DISC	Response to Bulk disconnect message received by SCP.
rtn_err_TX	RETURN_ERROR	Catch-all response to errors such as protocol errors, badly formed messages, non-standard parameters, not-understood messages, etc.
CONN_RES_TX	CONN_RES	Message sent to establish IVR session.
CCDIR_AC_ CON_ TX	CCDIR W/ ACTION CODE = CONTINUE	Message sent periodically to check if the call is still up or, conversely, to keep it up.
CCDIR_AC_ DISC_ TX	CCDIR W/ ACTION CODE = DISCONNECT	When service disconnects the call for reasons of max-call duration, balance, etc.
rtn_err_RX	RETURN_ERROR	Number of Return Errors received from the network.
orreq_REDIR_ TX	ORREQ W/ ACTION CODE = REDIRECTION	Number of redirecting Orig Request responses sent to the network.
ANALYZ_ INFO_RX	ANALYZ_INFO_RX	Number of ANALYZ_INFO indications received.

IS826_State Event

Table 42 IS826_State Event Set

Name	Description	Explanation
activityTestT mo	ACTIVITY_TEST_TIMEOUT	Timer for the Activity Test
activityTestR espTmo	ACTIVITY_TEST_RESP_ TIMEOUT	
waitInstructi onTmo	WAIT_INSTUCTIONS_ TIMEOUT	Once the call is passed to the Service Logic this timer is started.
waitTempCo nnTmo	WAIT_TEMP_CONN_ TIMEOUT	A message for “establish temporary connection is started”. It waits for a success or failure response.
waitAnswer Tmo	WAIT_ANSWER_TIMEOUT	If no answer is received in the answer timeout interval then the call is torn down
waitReleaseT mo	WAIT_RELEASE_TIMEOUT	If a release is sent and if no answer is received then termination starts.
waitTerminat ionTmo	WAIT_TERMINATION_ TIMEOUT	If the Termination timeout is exceeded then the call is forcibly torn down.

return_error Responses

The following are counts of the various user_error reasons sent to the network as return_error responses for various incoming messages.

Table 43 return_error Responses

Name	Description
re_UNREC_MIN_TX	Not supported
re_UNREC_ESN_TX	Not supported
re_MSID_HLR_MIS_TX	Not supported
re_OPER_SEQ_PROB_TX	Unexpected message for WINA state
re_RSRC_SHORT_TX	Could not allocate/find call context
re_OPER_NOT_SUP_TX	Unknown ‘indication’ message
re_TRK_UNVAL_TX	Not supported
re_PAR_ERR_TX	Not supported
re_SYS_FAIL_TX	Not supported
re_UNREC_PAR_VAL_TX	Not supported
re_FEAT_INACT_TX	Unrecognized trigger received
re_MISS_PAR_TX	Mandatory parameter missing
re_UNREC_IMSI_TX	Not supported

cc_dir_cnf Messages

The following are counts of various user_error reasons received from the network in cc_dir_cnf messages.

Table 44 cc_dir_cnf Messages

Name	Description
re_UNREC_MIN_RX	Unrecognized MIN
re_UNREC_ESN_RX	Unrecognized ESN
re_MSID_HLR_MIS_RX	MSID/HLR mismatch
re_OPER_SEQ_PROB_RX	Operation Sequence Problem
re_RSRC_SHORT_RX	Resource Shortage
re_OPER_NOT_SUP_RX	Operation Not Supported
re_TRK_UNVAL_RX	Trunk Unavailable
re_PAR_ERR_RX	Parameter Error
re_SYS_FAIL_RX	System Failure
re_UNREC_PAR_VAL_RX	Unrecognized Parameter Value
re_FEAT_INACT_RX	Feature Inactive
re_MISS_PAR_RX	Missing Parameter
re_UNREC_IMSI_RX	Unrecognized IMSI

WINA-SLF Counters

Table 45 WINA-SLF Counters

Name	Description
SLF_PI_tx	Number of Provide Instructions -> SLF
SLF_CIFR_tx	Number of Call Info From Resource
SLF_SIFR_tx	Number of Switch Info From Resource
SLF_RC_tx	Number of Resource Clear
SLF_CITR_rx	Number of Call Info To Resource <-SLF
SLF_SITR_rx	Number of Switch Info To Resource
SLF_CRE_rx	Number of Cancel Resource Event
TRT_PI_rx	Number of Provide Instructions <- TREATMENT
TRT_SIFR_rx	Number of Switch Info From Resource
TRT_CIFR_rx	Number of Call Info From Resource
TRT_EIFR_rx	Number of Extended Info From Resource
TRT_RC_rx	Number of Resource Clear
TRT_CITR_tx	Number of Call Info To Resource -> TREATMENT
TRT_EITR_tx	Number of Extended Info To Resource
TRT_CRE_tx	Number of Cancel Resource Event
MID_CALL	Number of mid-call announcements/tones -> MSC
NET_ANNC	Number of announcements/tones -> MSC in message resp

Trigger Counters

Table 46 Trigger Counters

Parameter Name	Trigger Name	CT	Default Action	IS-826 Message
TRG_ALLCALL	All_Calls	MO	Reject	ORREQ
TRG_DIS	Double_ Introducing_Star	MO	Reject	ORREQ
TRG_SIS	Single_ Introducing_Star	MO	Reject	ORREQ
TRG_DIP	Double_ Introducing_ Pound	MO	Reject	ORREQ
TRG_SIP	Single_ Introducing_ Pound	MO	Reject	ORREQ
TRG_REVCALL	Revertive_Call	MO	Reject	ORREQ
TRG_0_DGT	0_Digit	MO	Reject	ORREQ
TRG_1_DGT	1_Digit	MO	Reject	ORREQ
TRG_2_DGT	2_Digit	MO	Reject	ORREQ
TRG_3_DGT	3_Digit	MO	Reject	ORREQ
TRG_4_DGT	4_Digit	MO	Reject	ORREQ
TRG_5_DGT	5_Digit	MO	Reject	ORREQ
TRG_6_DGT	6_Digit	MO	Reject	ORREQ
TRG_7_DGT	7_Digit	MO	Reject	ORREQ
TRG_8_DGT	8_Digit	MO	Reject	ORREQ
TRG_9_DGT	9_Digit	MO	Reject	ORREQ
TRG_10_DGT	10_Digit	MO	Reject	ORREQ
TRG_11_DGT	11_Digit	MO	Reject	ORREQ
TRG_12_DGT	12_Digit	MO	Reject	ORREQ
TRG_13_DGT	13_Digit	MO	Reject	ORREQ
TRG_14_DGT	14_Digit	MO	Reject	ORREQ
TRG_15_DGT	15_Digit	MO	Reject	ORREQ
TRG_LOCCALL	Local_Call	MO	Reject	ORREQ
TRG_INTRA_ LATA	Intra-LATA_Toll_ Call	MO	Reject	ORREQ
TRG_INTER_ LATA	Inter-LATA_Toll_ Call	MO	Reject	ORREQ
TRG_WZCALL	World_Zone_Call	MO	Reject	ORREQ
TRG_INTCALL	International_Call	MO	Reject	ORREQ
TRG_UNREC	Unrecognized_ Number	MO	Reject	ORREQ
TRG_PRIAGR	Prior_Agreement	MO	Reject	ORREQ
TRG_SCPDS	Specific_Called_ Party_Digit_String	MO	Reject	ANLYZD
TRG_ ADVTERM	Advanced_ Termination	MT	Reject	ANLYZD
TRG_LASDS	Locally_Allowed_ Specific_Digit_ String	MO	Reject	ORREQ
TRG_OAA	Origination_ Attempt_ Authorized	MO	Ignore	ORREQ
TRG_CDRAA	Calling_Routing_ Address_ Available	MO	Accept	ANLYZD
TRG_INTTERM	Initial_ Termination	MT		ANLYZD
TRG_CGRAA	Called_Routing_ Address_ Available	MT		ANLYZD
TRG_Rejected	Rejection in the IS826 config file	Both	Reject	N/A

TCAP

The TCAP measurement set provides information related to the TCAP protocol layer and DTCAP. The logical name of the process (such as INA, WINA or USSD_IPF) is used as the name of the measurement set. These measurements are collected at 30-minute intervals.

The following table is the list of TCAP measurements collected:

Table 47 TCAP Measurements

Name	Description
UNI_SENT	UNI messages sent
B_OR_Q_SENT	BEGIN messages sent
C_OR_C_SENT	CONTINUE messages sent
E_OR_R_SENT	END messages sent
ABORT_SENT	ABORT messages sent
UNI_RCVD	UNI messages received
B_OR_Q_RCVD	BEGIN messages received
C_OR_C_RCVD	CONTINUE messages received
E_OR_R_RCVD	END messages received
ABORT_RCVD	ABORT messages received
COMP_SENT	Components sent
COMP_RCVD	Components received
ACT_TRANS	Active TC transactions
USED_TID	Used TC transactions
PA_UNR_MTR	Unrecognized message type received
PA_IC_TPR	Incorrect transaction portion received
PA_BF_TPR	Badly formatted transaction portion received
PA_UR_TIDR	Unrecognized transaction id received
PA_RLR	Resource limitation received
PA_UR_DPID	Unrecognized dialog portion id
PA_BS_DP	Badly structured dialog
PA_MISS_DP	Missing dialog portion
PA_INC_DP	Inconsistent dialog portion
GP_UNR_CR	Unrecognized component (general problem) received
GP_MT_CR	Mistyped component (general problem) received
GP_BS_CR	Badly structured component (general problem) received
IP_UR_LIDR	Unrecognized linked id (invoke problem) received
RRP_UR_IIDR	Unrecognized invoke id (return result problem) received
RRP_UX_RRR	Unexpected return result (return result problem) received
REP_UR_IIDR	Unrecognized invoke id (return error problem) received
REP_UX_RER	Unexpected return error (return error problem) received
IP_DUP_IIDR	Duplicate invoke id (invoke problem) received
IP_UR_OPRR	Unrecognized operation (invoke problem) received
IP_MT_PR	Mistyped parameter (invoke problem) received
IP_RLR	Resource limitation (invoke problem) received

Table 47 TCAP Measurements (Continued)

Name	Description
IN_IRR	Initiating release (invoke problem) received
IP_UX_LRR	Unexpected linked response (invoke problem) received
IP_UX_LOR	Unexpected linked operation (invoke problem) received
REP_UR_ER	Unrecognized error (return error problem) received
REP_UX_ER	Unexpected error (return error problem) received
RRP_MT_PR	Mistyped parameter (return result problem) received
REP_MT_PR	Mistyped parameter (return error problem) received
PA_UR_MTS	Unrecognized message type sent
PA_IC_TPS	Incorrect transaction portion sent
PA_BF_TPS	Badly formatted transaction portion sent
PA_UR_TIDS	Unrecognized transaction id sent
PA_RL_S	Resource limitation sent
GP_URCS	Unrecognized component (general problem) sent
GP_MTCS	Mistyped component (general problem) sent
GP_BSCS	Badly structured component (general problem) sent
IP_URLIDS	Unrecognized linked id (invoke problem) sent
RRP_URIIDS	Unrecognized invoke id (return result problem) sent
RRP_UXRRS	Unexpected return result (return result problem) sent
REP_URIIDS	Unrecognized invoke id (return error problem) sent
REP_UXRES	Unexpected return error (return error problem) sent
IP_DIIDS	Duplicate invoke id (invoke problem) sent
IP_UOS	Unrecognized operation (invoke problem) sent
IP_MTPS	Mistyped parameter (invoke problem) sent
IP_RLS	Resource limitation (invoke problem) sent
IP_IRS	Initiating release (invoke problem) sent
IP_UXLRS	Unexpected linked response (invoke problem) sent
IP_UXLOS	Unexpected linked operation (invoke problem) sent
REP_URES	Unrecognized error (return error problem) sent
REP_UXES	Unexpected error (return error problem) sent
RRP_MTPS	Mistyped parameter (return result problem) sent
REP_MTPS	Mistyped parameter (return error problem) sent
LPDU_CE1	Lost incoming DTCAP PDUs from SGU CE1
LPDU_CE2	Lost incoming DTCAP PDUs from SGU CE2
LPDU_CE3	Lost incoming DTCAP PDUs from SGU CE3
LPDU_CE4	Lost incoming DTCAP PDUs from SGU CE4

CAMEL Measurements

CAP

The CAP measurement set provides information related to the CAMEL protocol layer. These measurements are collected at 30-minute intervals.

The following table shows the list of CAMEL measurements collected:

Table 48 CAMEL Measurements

Name	Description
ACH_SNT	Apply Charging messages sent
AT_SNT	Activity Test messages sent
CAN_SNT	Cancel messages sent
CON_SNT	Connect messages sent
CTR_SNT	Connect To Resource messages sent
CUE_SNT	Continue messages sent
DFC_SNT	Disconnect Forward Connection messages sent
ETC_SNT	Establish Temporary Connection messages sent
PA_SNT	Play Announcement messages sent
PAC_SNT	PromptAndCollectUserInfo messages sent
RC_SNT	Release Call messages sent
RRB_SNT	Request Report BCSM Event messages sent
RT_SNT	Reset Timer messages sent
IDP_RCV	Initial DP messages received
ERB_RCV	Event Report BCSM messages received
ACR_RCV	Apply Charging Report messages received
AT_RCV	Activity Test Result messages received
ARI_RCV	AssistRequestInstructions messages received
RI_RCV	ReceivedInformation messages received
SRR_RCV	Specialized Resource Report messages received
ORIG_AUTH	origAttemptAuthorized events received
COLCT_INFO	collectedInfo events received
ANAL_INFO	analyzedInfo events received
RT_SEL_FAIL	routeSelectFailure events received
O_CPRTY_BSY	oCalledPartyBusy events received
O_NOANSWER	oNoAnswer events received
O_ANSWER	oAnswer events received
O_MIDCALL	oMidCall events received
O_DISC	oDisconnect events received
O_ABANDON	oAbandon events received
TERM_AUTH	termAttemptAuthorized events received
T_CPRTY_BSY	tBusy events received
T_NOANSWER	tNoAnswer events received
T_ANSWER	tAnswer events received

Table 48 CAMEL Measurements (Continued)

Name	Description
T_MIDCALL	tMidCall events received
T_DISC	tDisconnect events received
T_ABANDON	tAbandon events received
ACH_MISPARM	Apply Charging Missing Parameter
ACH_PARMOOR	Apply Charging Parameter Out Of Range
ACH_SYSFAIL	Apply Charging System Failure
ACH_TASKREF	Apply Charging Task Refused
ACH_UCMPSEQ	Apply Charging Unexpected Component Sequence
ACH_UDATVAL	Apply Charging Unexpected Data Value
ACH_UPARM	Apply Charging Unexpected Parameter
ACH_ULEGID	Apply Charging Unknown Leg ID
ACH_OTHERR	Apply Charging Other Error
CAN_FAIL	Cancel Failed
CAN_OTHERR	Cancel Other Error
CON_MISPARM	Connect Missing Parameter
CON_SYSFAIL	Connect System Failure
CON_TASKREF	Connect Task Refused
CON_UCMPSEQ	Connect Unexpected Component Sequence
CON_UDATVAL	Connect Unexpected Data Value
CON_UPARM	Connect Unexpected Parameter
CON_OTHERR	Connect Other Error
CTR_MISPARM	Connect To Resource Missing Parameter
CTR_SYSFAIL	Connect To Resource System Failure
CTR_TASKREF	Connect To Resource Task Refused
CTR_UCMPSEQ	Connect To Resource Unexpected Component Sequence
CTR_UDATVAL	Connect To Resource Unexpected Data Value
CTR_UPARM	Connect To Resource Unexpected Parameter
CTR_OTHERR	Connect To Resource Other Error
DFC_SYSFAIL	Disconnect Forward Connection System Failure
DFC_TASKREF	Disconnect Forward Connection Task Refused
DFC_UCMPSEQ	Disconnect Forward Connection Unexpected Component Sequence
DFC_OTHERR	Disconnect Forward Connection Other Error
ETC_FAIL	Establish Temporary Connection Failed
ETC_MISPARM	Establish Temporary Connection Missing Parameter
ETC_SYSFAIL	Establish Temporary Connection System Failure
ETC_TASKREF	Establish Temporary Connection Task Refused
ETC_UCMPSEQ	Establish Temporary Connection Unexpected Component Sequence
ETC_UDATVAL	Establish Temporary Connection Unexpected Data Value
ETC_UPARM	Establish Temporary Connection Unexpected Parameter
ETC_OTHERR	Establish Temporary Connection Other Error
PA_CANCEL	Play Announcement Cancelled
PA_MISPARM	Play Announcement Missing Parameter

Table 48 CAMEL Measurements (Continued)

Name	Description
PA_SYSFAIL	Play Announcement System Failure
PA_URES	Play Announcement Unavailable Resource
PA_UCMPSEQ	Play Announcement Unexpected Component Sequence
PA_UDATVAL	Play Announcement Unexpected Data Value
PA_UPARM	Play Announcement Unexpected Parameter
PA_OTHERR	Play Announcement Other Error
PAC_CANCEL	PromptAndCollect Cancelled
PAC_IMPCRSP	PromptAndCollect Improper Caller Response
PAC_MISPARM	PromptAndCollect Missing Parameter
PAC_SYSFAIL	PromptAndCollect System Failure
PAC_TASKREF	PromptAndCollect Task Refused
PAC_URES	PromptAndCollect Unavailable Resource
PAC_UCMPSEQ	PromptAndCollect Unexpected Component Sequence
PAC_UDATVAL	PromptAndCollect Unexpected Data Value
PAC_UPARM	PromptAndCollect Unexpected Parameter
PAC_OTHERR	PromptAndCollect Other Error
RRB_MISPAR	Request Report BCSM Event Missing Parameter
RRB_SYSFAIL	Request Report BCSM Event System Failure
RRB_TASKREF	Request Report BCSM Event Task Refused
RRB_UCMPSEQ	Request Report BCSM Event Unexpected Component Sequence
RRB_UDATVAL	Request Report BCSM Event Unexpected Data Value
RRB_UPARM	Request Report BCSM Event Unexpected Parameter
RRB_ULEGID	Request Report BCSM Event Unknown Leg ID
RRB_OTHERR	Request Report BCSM Event Other Error
RT_MISPARM	Reset Timer Missing Parameter
RT_TASKREF	Reset Timer Task Refused
RT_UCMPSEQ	Reset Timer Unexpected Component Sequence
RT_UDATVAL	Reset Timer Unexpected Data Value
RT_UPARM	Reset Timer Unexpected Parameter
RT_OTHERR	Reset Timer Other Error

CAPSMS

The CAPSMS measurement set provides information related to the CAMEL SMS protocol layer. These measurements are collected at 30-minute intervals.

The following table shows the list of CAMEL 3 SMS measurements collected.

Table 49 CAMEL 3 SMS Measurements

Name	Description
CUES_SNT	ContinueSMS messages sent
RCS_SNT	ReleaseSMS messages sent
RRS_EVT_SNT	RequestReportSMSEvent messages sent
RTS_SNT	ResetTimerSMS messages sent
IDPS_RCV	InitalDPSMS messages received
ERS_RCV	EventReportSMS messages received
SCOLCT_INFO	smsCollectedInfo events received
O_SFAIL	oSmsFailure events received
O_SSUBMIT	oSmsSubmitted events received
RRS_MISPARM	RequestReportSMSEvent Missing Parameter
RRS_PARMOOR	RequestReportSMSEvent Parameter Out Of Range
RRS_SYSFAIL	RequestReportSMSEvent System Failure
RRS_TASKREF	RequestReportSMSEvent Task Refused
RRS_UCMPSEQ	RequestReportSMSEvent Unexpected Component Sequence
RRS_UDATVAL	RequestReportSMSEvent Unexpected Data Value
RRS_UPARM	RequestReportSMSEvent Unexpected Parameter
RRS_OTHERR	RequestReportSMSEvent Other Error
RTS_MISPARM	ResetTimerSMS Missing Parameter
RTS_PARMOOR	ResetTimerSMS Parameter Out Of Range
RTS_TASKREF	ResetTimerSMS Task Refused
RTS_UCMPSEQ	ResetTimerSMS Unexpected Component Sequence
RTS_UDATVAL	ResetTimerSMS Unexpected Data Value
RTS_UPARM	ResetTimerSMS Unexpected Parameter
RTS_OTHERR	ResetTimerSMS Other Error

CAPGPRS

The CAPGPRS measurement set provides information related to the CAMEL GPRS protocol layer. These measurements are collected at 30-minute intervals.

The following table shows the list of CAMEL 3 GPRS measurements collected.

Table 50 CAMEL 3 GPRS Measurements

Name	Description
ATG_SNT	ActivityTestTimerGPRS messages sent
ACHG_SNT	ApplyChargingGPRS messages sent
ACRGA_SNT	ApplyChargingReportAckGPRS messages sent
CUEG_SNT	ContinueGPRS messages sent
ERLGA_SNT	EntityReleasedAckGPRS messages sent
ERGA_SNT	EventReportAckGPRS messages sent

Table 50 CAMEL 3 GPRS Measurements

Name	Description
RLG_SNT	ReleaseGPRS messages sent
RRGE_SNT	RequestReportGPRSEvent messages sent
RTG_SNT	ResetTimerGPRS messages sent
ATGA_RCV	ActivityTestTimerAckGPRS messages received
ACRG_RCV	ApplyChargingReportGPRS messages received
IDPG_RCV	InitalDPGPRS messages received
ERLG_RCV	EntityReleasedGPRS messages received
ERG_RCV	EventReportGPRS messages received
GE_PC_COP	GprsEventPdpContextChangeOfPosition
GE_PC_EST	GprsEventPdpContextEstablishment
GE_PC_ESTA	GprsEventPdpContextEstablishmentAck
GE_DISC	GprsEventPdpContextDisconnect
ACG_MISPARM	ApplyCharging Missing Parameter
ACG_PARMOOR	ApplyCharging Parameter Out Of Range
ACG_SYSFAIL	ApplyCharging System Failure
ACG_TASKREF	ApplyCharging Task Refused
ACG_UCMPSEQ	ApplyCharging Unexpected Component Sequence
ACG_UDATVAL	ApplyCharging Unexpected Data Value
ACG_UPARM	ApplyCharging Unexpected Parameter
ACG_UPDPID	ApplyCharging Unknown PDP ID
ACG_OTHERR	ApplyCharging Other Error
CUG_MISPARM	ContinueGprs Missing Parameter
CUG_UDATVAL	ContinueGprs Unexpected Data Value
CUG_UPDPID	ContinueGprs Unknown PDP ID
CUG_OTHERR	ContinueGprs Other Error
RRG_MISPARM	RequestReportGPRSEvent Missing Parameter
RRG_PARMOOR	RequestReportGPRSEvent Parameter Out Of Range
RRG_SYSFAIL	RequestReportGPRSEvent System Failure
RRG_TASKREF	RequestReportGPRSEvent Task Refused
RRG_UCMPSEQ	RequestReportGPRSEvent Unexpected Component Sequence
RRG_UDATVAL	RequestReportGPRSEvent Unexpected Data Value
RRG_UPARM	RequestReportGPRSEvent Unexpected Parameter
RRG_UPDPID	RequestReportGPRSEvent Unknown PDP ID
RRG_OTHERR	RequestReportGPRSEvent Other Error
RTG_MISPARM	ResetTimerGPRS Missing Parameter
RTG_PARMOOR	ResetTimerGPRS Parameter Out Of Range
RTG_TASKREF	ResetTimerGPRS Task Refused
RTG_UCMPSEQ	ResetTimerGPRS Unexpected Component Sequence
RTG_UDATVAL	ResetTimerGPRS Unexpected Data Value
RTG_UPARM	ResetTimerGPRS Unexpected Parameter
RTG_UPDPID	ResetTimerGPRS Unknown PDP ID
RTG_OTHERR	ResetTimerGPRS Other Error

SIPA

The SIPA measurement set provides information related to the SIP protocol layer. These measurements are collected at 30-minute intervals.

The following table shows the list of SIPA measurements collected.

Table 51 SIPA Measurements

SIPA Measurement Name	Measurement Description
Setup Ind	Received INVITE messages
Setup Req	Sent INVITE messages
Setup Resp	Sent 200 OK (INVITE) messages
Setup Conf	Sent 200 OK (INVITE) messages
Alert Ind	Received 18x messages
Alert Req	Sent 18x messages
Alert Resp	Sent PRACK messages
Alert Conf	Received PRACK messages
Release Ind	Received BYE/CANCEL/4xx/5xx/6xx (INVITE) messages
Release Req	Sent BYE/CANCEL/4xx/5xx/6xx (INVITE) messages
Release Resp	Sent 200 OK (BYE) or 4xx/5xx/6xx (cancelled INVITE) messages
Release Conf	Received 200 OK (BYE) or 4xx/5xx/6xx (cancelled INVITE) messages
Setup Ack Ind	Received ACK messages
Setup Ack Req	Sent ACK messages
Media Info Ind	Received re-INVITE/UPDATE/200 OK (re-INVITE) messages (SDP offer)
Media Info Req	Sent re-INVITE/UPDATE/200 OK (re-INVITE) messages (SDP offer)
Media Info Resp	Sent 200 OK (re-INVITE/UPDATE) or ACK (re-INVITE) messages (SDP answer)
Media Info Conf	Received 200 OK (re-INVITE/UPDATE) or ACK (re-INVITE) messages (SDP answer)
Media Info Ack Ind	Received ACK (re-INVITE) messages (no SDP)
Media Info Ack Req	Sent ACK (re-INVITE) messages (no SDP)
Media Info Get Ind	Received re-INVITE messages (no SDP)
Media Info Get Req	Sent re-INVITE messages (no SDP)
Media Info Release Ind	Received 4xx/5xx/6xx (UPDATE/re-INVITE) or CANCEL (re-INVITE)
Media Info Release Req	Sent 4xx/5xx/6xx (UPDATE/re-INVITE) or CANCEL (re-INVITE)
Media Info Release Resp	Sent responses
Media info release Conf	Received confirmations
App_Info Ind	Received INFO messages
App_Info Req	Sent INFO messages
App_Info Resp	Sent 2/3/4/5/6xx (INFO) messages
App_Info Conf	Received 2/3/4/5/6xx (INFO) messages
Options Ind	Received OPTIONS messages
Options Req	Sent OPTIONS messages

Table 51 SIPA Measurements (Continued)

SIPA Measurement Name	Measurement Description
Options Resp	Sent 2/3/4/5/6xx (OPTIONS) messages
Options Conf	Received 2/3/4/5/6xx (OPTIONS) messages
Subscribe Ind	Received SUBSCRIBE messages
Subscribe Req	Sent SUBSCRIBE messages
Subscribe Resp	Sent SUBSCRIBE message responses
Subscribe Conf	Received SUBSCRIBE message confirmations
Message Ind	Received MESSAGE messages
Message Req	Sent MESSAGE messages
Message Resp	Sent MESSAGE responses
Message Conf	Received MESSAGE confirmations
Notify Ind	Received SUBSCRIBE messages
Notify Req	Sent SUBSCRIBE messages
Notify Resp	Sent SUBSCRIBE message responses
Notify Conf	Received SUBSCRIBE message confirmations
Refer Ind	Received REFER messages
Refer Req	Sent REFER messages
Refer Resp	Sent REFER message responses
Refer Conf	Received REFER message confirmations
Transfer Req	Sent 3rd party REFER messages
Transfer Conf	Received 3rd party REFER messages
Unknown SCA	Received unknown message types
Measurements to/from SLF	
PI SLF	New calls requests sent to the applications
CITR SLF	Announcement requests received from the applications
CIFR SLF	Announcement responses sent to the applications
SITR SLF	Allow the call to continue' responses from the applications
SIFR SLF	Call information messages sent to the applications
CRE SLF	Application request to take a call leg down
RC SLF	'take down request' responses sent to the applications
Measurements to/from IVR platform	
Setup Req IVR	INVITE messages sent to the IVR platform
PI IVR	INVITE responses received from the IVR platform
CITR IVR	Announcement request sent to the IVR platform
CIFR IVR	Announcement responses received for the IVR platform
CRE IVR	Request sent to take the IVR call down
RC IVR	'take down' request/responses from the IVR platform
Unknown IVR	Unknown messages received from the IVR platform
SIPA call measurements	
Active Entry Count	Current number of active calls at SIPA

Table 51 SIPA Measurements (Continued)

SIPA Measurement Name	Measurement Description
Peak Entry Count	Highest active call count achieved
SIPA timeouts	
Wait Instructions Timeout	Number of timeouts waiting for the application to respond to a new call request
Wait Temp Conn Timeout	Number of timeouts waiting for the IVR platform to respond to a call request
Wait Answer Timeout	Number of timeouts waiting for an ‘answer’ message from the network
Wait Release Timeout	Number of timeouts waiting for the network to respond to a release request
Wait Termination Timeout	Number of timeouts waiting for the applications to respond to a ‘take down’ request

DTCAP Router Measurements

The DTCAP Router measurements accumulate over one 30-minute measurement period. At the end of each period, all counters are cleared and individual measurements begin accumulating again from zero. The measurement counts accumulated at the end of the measurement period are recorded in the current IPmeas.204… file in the Distributed File System. IPmeas.204… files are maintained for the preceding thirty days of operation.

The current values of the measurement accumulators maintained by the DTCAP Router are displayed by the DISPLAY-DTCAP:MEAS; command. Measurements are listed under one of several categories.

The measurements displayed by the DISPLAY-DTCAP:MEAS; command represent the accumulators maintained in the DTCAP Router. These accumulators reset to zero every 30 minutes. Separate counts are displayed for each measurement as recorded on CEa and CEb. The report generated by DISPLAY-DTCAP:MEAS; actually displays two separate reports, one for each CE. The report for the Active CE is displayed first, immediately followed by the report for the Standby CE. The measurements displayed in the IPmeas.204… file are formed as the sum of the CEa and the CEb counts.

Table 52 DTCAP Measurements Characteristics

Mnemonic in IPmeas	Description in DTCAP Measurements Report	Measurements Category
TOT_PDUS	Total Inbound DTCAP PDUs received	Per SGU
LOST_PDUS	Inbound DTCAP PDUs lost in transit	Per SGU
OOS_PDUS	Inbound DTCAP PDUs rcvd out of sequence	Per SGU
DUP_PDUS	Duplicate inbound DTCAP PDUs	Per SGU
CONT_OVR	DTCAP Continuity sequence number overrun	Per SGU
LARGE_DIS	Largest discrepancy for OOS_PDUS	Per SGU
AVG_DIS	Average discrepancy for OOS_PDUS	Per SGU
BAD_MSG_IN	Message received from SS7 not decodable	Per SGU
OINV_IGN	Invalid message received from SLU	Per SGU
OBEGIN_FAIL	Failure to xmit TCAP BEGIN to SS7	Per SGU
OCONT_FAIL	Failure to xmit TCAP CONTINUE to SS7	Per SGU
OEND_FAIL	Failure to xmit TCAP END to SS7	Per SGU

Table 52 DTCAP Measurements Characteristics (Continued)

Mnemonic in IPmeas	Description in DTCAP Measurements Report	Measurements Category
OABORT_FAIL	Failure to xmit TCAP ABORT to SS7	Per SGU
SBY_PDU	Inbound SS7 PDUs refused in Standby Mode	Per SGU
BEGIN_IN	TCAP BEGIN received from SS7 for SSN	Per SSN
CONTINUE_IN	TCAP CONTINUE received from SS7 for SSN	Per SSN
END_IN	TCAP END received from SS7 for SSN	Per SSN
ABORT_IN	TCAP ABORT received from SS7 for SSN	Per SSN
BEGIN_OUT	TCAP BEGIN transmitted to SS7 from SSN	Per SSN
CONT_OUT	TCAP CONTINUE transmitted to SS7 from SSN	Per SSN
END_OUT	TCAP END transmitted to SS7 from SSN	Per SSN
ABORT_OUT	SLU generated TCAP ABORT from SSN	Per SSN
BAD_IBEGIN	Not fully decodable TCAP BEGIN from SS7 for SSN	Per SSN
BAD_ICONT	Not fully decodable TCAP CONTINUE from SS7 for SSN	Per SSN
BAD_IEND	Not fully decodable TCAP END from SS7 for SS	Per SSN
BAD_IABORT	Not fully decodable TCAP ABORT from SS7 for SSN	Per SSN
IBEGIN_ABRT	Transaction aborted by SGU: Undeliverable to SSN	Per SSN
IBEGIN_IGN	Transaction ignored by SGU: Undeliverable to SSN	Per SSN
ICONT_ABRT	TCAP CONTINUE aborted by SGU: Undeliverable to SSN	Per SSN
IEND_IGN	TCAP END ignored by SGU: Undeliverable to SSN	Per SSN
IABORT_IGN	TCAP ABORT ignored by SGU: Undeliverable to SSN	Per SSN
SLU_SFAIL	Can't forward valid TCAP msg to SLU for SSN	Per SSN
TCAP_TO_SLU	BEGIN, CONTINUE, END, or ABORT forwarded to SLU for SSN	Per SSN
TOT_SSN_SEL	Total Round Robin Selections of SSN	Per SSN
SAMP_KNOWN	Number of samples Local DTCAP Dest is known	Per Local DTCAP Destination
SAMP_IS_SEL	Number of samples Local DTCAP Dest is selectable	Per Local DTCAP Destination
SAMP_IS_TO	Number of samples Local DTCAP Dest is timed out	Per Local DTCAP Destination
SAMP_IS_CNG	Number of samples Local DTCAP Dest is congested	Per Local DTCAP Destination
SAMP_IS_GD	Number of samples Local DTCAP Dest is going down	Per Local DTCAP Destination
TOT_DST_SEL	Total round robin selections of this Local DTCAP Dest	Per Local DTCAP Destination

Per SGU Measurements

In the DTCAP Measurements Report, the Per SGU Measurements are presented as a list of lines with the measurement description on the left and the corresponding numeric measurement value on the right.

In IPmeas, measurements in this category are preceded by a line in the form of:

```
/C/DTCAP_PER_SGU/30/00:00/00:30
```

where:

- DTCAP_PER_SGU identifies the following measurements as Per SGU.
- 30 indicates that the measurement interval is 30 minutes.
- 00:00/00:30 indicates the begin and end time of the interval.

In IPmeas, individual measurements in this category are presented as:

```
TOT_PDUS/4537
```

where:

- TOT_PDUS is the measurement mnemonic.
- 4537 is the cumulative measurement value for the entire interval.

All Per SGU Measurements are described following:

- Total Inbound DTCAP PDUs received (TOT_PDUS)

This is the total count of PDUs received from the SS7 network in the reported interval. This count includes TCAP Begin, TCAP Continue, TCAP End, and TCAP Abort.

- Inbound DTCAP PDUs lost in transit (LOST_PDUS)

DTCAP PDUs are transmitted between the SGU and the SLUs over SCTP. This count indicates the number of DTCAP PDUs transmitted from the SLUs that were never received at the SGU.

In general, this count is zero, or near zero. If a significant number of lost PDUs are consistently reported, a problem with the HSBN is the most likely cause. The most common problem occurs when the LAN speed is misconfigured on a physical device on the HSBN.

- Inbound DTCAP PDUs received out of sequence (OOS_PDUS)

This measurement tracks the behavior of SCTP. The Linux SCTP stack can sort the order of inbound SCTP PDUs. For this reason the DTCAP Router accommodates DTCAP PDUs received out of order.

- Duplicate inbound DTCAP PDUs (DUP_PDUS)

This count must not increment. If this count consistently increments, an HSBN problem is indicated. Refer to Inbound DTCAP PDUs lost in transit, above.

- DTCAP Continuity sequence number overrun (CONT_OVR)

This count must not increment. If this count consistently increments, an HSBN problem is indicated. Refer to Inbound DTCAP PDUs lost in transit, above.

- Largest discrepancy for OOS_PDUS (LARGE_DIS)
- Average discrepancy for OOS_PDUS (AVG_DIS)

These two measurements qualify Inbound DTCAP PDUs received out of sequence, described above.

- Message received from SS7 not decodable (BAD_MSG_IN)

This counts malformed or unrecognized messages received from SS7. Ideally this measurement is zero. If it increments for a significant number of the Total Inbound DTCAP PDUs, there is an interworking problem with the MSC. If it increments occasionally, the SGU is probably receiving messages that are outside of the protocol required to support the registered IN Applications. Bring the issue to the attention of R&D.

- Invalid message received from SLU (OINV_IGN)

This count must always be zero. If it increments, there is a mismatch between the SLU and the SGU software.

- Failure to xmit TCAP BEGIN to SS7 (OBEGIN_FAIL) and
- Failure to xmit TCAP CONTINUE to SS7 (OCONT_FAIL) and
- Failure to xmit TCAP END to SS7 (OEND_FAIL) and
- Failure to xmit TCAP ABORT to SS7 (OABORT_FAIL).

These counts must not increment. If they do start counting, OMNI is compromised. The immediate action must be a CE restart.

- Inbound SS7 PDUs refused in Standby Mode (SBY_PDU)

If the SGU is in Standby Mode, this count increments for every inbound PDU. If the SGU is not in Standby Mode, this count does not increment.

Per SSN Measurements

In the DTCAP Measurements Report, the Per SSN Measurements are presented as a list of lines with the measurement description on the left and the corresponding numeric measurement value on the right. A list of all Per SSN measurements is reported for each registered SSN.

In IPmeas, measurements in this category are preceded by a line in the form of

```
/C/DTCAP_PER_SSN/30/15:22/15:30
```

where:

- DTCAP_PER_SSN identifies the following measurements as Per SSN.
- 30 indicates that the measurement interval is 30 minutes.
- 15:22/15:30 indicates the begin and end time of the interval. In this case, the SSN was not registered until 22 minutes had already expired in the current measurement interval.

In IPmeas, individual measurements in this category are presented as:

```
BEGIN_IN_146/63953
```

where:

- TOT_PDUS is the measurement mnemonic.
- The reported SSN is appended to the measurement mnemonic as _146.
- 63953 is the cumulative measurement value for the entire interval.

All Per SSN Measurements are described as follows:

- TCAP BEGIN received from SS7 for SSN (BEGIN_IN)

  TCAP Begin is the first PDU received in a TCAP transaction. For the ITU protocols, this measurement counts the number of customer transactions (for example, phone calls) initiated. For WIN, each customer transaction has many TCAP transactions, so this measurement does not translate directly to a metric for customer transaction volume.
- TCAP CONTINUE received from SS7 for SSN (CONTINUE_IN)

  For ITU, TCAP CONTINUE messages are received following TCAP Begin. For WIN, TCAP CONTINUE is only received in connection with a dialogue with an IS826 External IP.
- TCAP END received from SS7 for SSN (END_IN) &

  TCAP ABORT received from SS7 for SSN (ABORT_IN) All transactions are ended by TCAP End or TCAP abort. These messages can be sent by either the SLU or the MSC. These measurements count these PDUs as transmitted by the MSC.
- TCAP BEGIN transmitted to SS7 from SSN (BEGIN_OUT) .
- TCAP CONTINUE transmitted to SS7 from SSN (CONT_OUT) .

- TCAP END transmitted to SS7 from SSN (END_OUT)
- SLU generated TCAP ABORT from SSN (ABORT_OUT)

  These measurements count the indicated TCAP PDUs as originated at the SLU and forwarded by the SGU outbound to SS7.
- Transaction aborted by SGU: Undeliverable to SSN (IBEGIN_ABRT) .
- Transaction ignored by SGU: Undeliverable to SSN (IBEGIN_IGN)

  One or the other of these measurements increments if the initial PDU in a customer transaction (for example, a phone call) cannot be routed to an SLU. Specifically:
  - If the destination SSN is not registered at the SGU, the DTCAP Router sends outbound Abort and the abort measurement is incremented.
  - If the destination SSN is registered, but all SLU DTCAP Entities registered for that SSN are timed out, congested, or in graceful shutdown, then:
  - If the congestion strategy is Abort If Congested, the DTCAP Router sends outbound Abort and the abort measurement is incremented.
  - If the congestion strategy is Ignore, the DTCAP Router silently drops the unrouteable PDU and the ignore measurement is incremented.

- CONTINUE aborted by SGU: Undeliverable to SSN (ICONT_ABRT TCAP) Increments when the SLU assigned for a transaction has gone down at the time that a Continue is received for that transaction.
- TCAP END ignored by SGU: Undeliverable to SSN (IEND_IGN) &.
- TCAP ABORT ignored by SGU: Undeliverable to SSN (IABORT_IGN)

  These measurements increment when the SLU assigned for a transaction has gone down at the time that an Abort or End is received for that transaction. Because both of these PDUs end a transaction, the PDU is dropped silently.
- Can't forward valid TCAP msg to SLU for SSN (SLU_SFAIL)

  This measurement must never increment.
- BEGIN, CONTINUE, END, or ABORT forwarded to SLU for SSN (TCAP_TO_SLU) Counts all PDUs forwarded to any SLU for the indicated SSN.
- Total Round Robin Selections of SSN (TOT_SSN_SEL)

  Counts the number of times an SLU DTCAP Entity is selected to handle a customer transaction.There is a one-to-one correspondence between customer transactions and ITU TCAP transactions. For ITU, if all SLUs are operating normally with no congestion, Total Round Robin Selections of SSN tracks TCAP BEGIN received from SS7 for SSN. For WIN, this correspondence does not apply.

Per Local DTCAP Destination Measurements

The Per Local DTCAP Destination Measurements appear in the DISPLAY-DTCAP report in a specialized format. Furthermore, these measurements are highly interrelated. These measurements fall under the following three topics:

- Meaning and Rationale
- DISPLAY-DTCAP Report Format
- IPmeas format

Per Local DTCAP Destination Measurements – Meaning and Rationale

A Local Dtcap Destination is defined by the following triplet:

```
{SLU ID, Entity ID, SSN}
```

where:

- The SLU ID identifies one SLU registered with the SGU.
- The Entity ID identifies one SLU DTCAP Protocol Entity instantiated in the identified SLU.
- The SSN is qualified with an Application Context.

The round robin distribution lists are formed from the union of all Local DTCAP Destinations for each unique SSN (which can be qualified by an Application Context).

The Per Local DTCAP Destination Measurements show message distribution across the members of the various round robin distribution lists. These measurements show if the distribution is even or uneven. If the distribution is uneven, these measurements show why.

In order to improve the presentation, the DISPLAY-DTCAP report uses neither the short, nonintuitive mnemonics, or the descriptive phrases defined for each mnemonic. Instead the DISPLAY-DTCAP report uses a one-or two-word phrase that unambiguously identifies the measurement. In subsequent discussion, Per Local DTCAP Destination Measurements are referenced in terms of the DISPLAY-DTCAP report terminology. The following table correlates this terminology with the mnemonics used in the IPmeas files.

Table 53 Per Local DTCAP Destination Measurement Terminology

Mnemonic	Report Terminology
SAMP_KNOWN	Known
SAMP_IS_SEL	Selectable
SAMP_IS_TO	Timed out
SAMP_IS_CNG	Congested
SAMP_IS_GD	Going down
TOT_DST_SEL	Total Round Robin Selections

These measurements are accumulated for each Local DTCAP Destination; that is, for each entry in each round robin distribution list. The distribution of transactions for a given SSN is determined by scanning the Total Round Robin Selections measurement recorded for each DTCAP Destination registered for that SSN. If the distribution is even, all reported Total Round Robin Selections are equal. If there is a divergence in the values displayed for Total Round Robin Selections, then distribution of traffic is unequal. If this is the case, the other Per Local DTCAP Destination Measurements show the reasons for the reported distribution. These other measurements are all accumulated as samples.

All Local DTCAP Destinations are scanned once every second. This scan records the values of certain binary status conditions at the instant of the scan. These values are recorded as counts. Each time a status is observed to be true, its corresponding count is incremented. The counts are:

- **Known**: Counts the number of samples (seconds) in which the indicated Local DTCAP Destination is registered at the SGU.
- **Selectable**: Counts the number of samples (seconds) in which the indicated Local DTCAP Destination is eligible for round robin selection.
- **Timed out**: Counts the number of samples (seconds) in which the indicated Local DTCAP Destination is registered, but it has timed out on its heartbeat.
- **Congested**: Counts the number of samples (seconds) in which the indicated Local DTCA Destination is registered, but it is reporting congestion (flow control is on).
- **Going down**: Counts the number of samples (seconds) in which the indicated Local DTCAP Destination is registered, but it is in the Graceful Shutdown state.

The individual distribution of traffic to the Local DTCAP Destinations in any round robin list are proportionate to their selectable counts. If selectable is less than the interval reported in the current measurement period, then the other sample counts indicate why the indicated Local DTCAP Destination was not continuously able to accept new traffic.

Per Local DTCAP Destination Measurements – DISPLAY-DTCAP Presentation

The following MML command is submitted to request Per Local DTCAP Measurements for SSN 146 qualified by Application Context CAP2:

```
display-dtcap:distribution,SSN=146,APPLICATION_CONTEXT="CAP2",SAMP;
```

The returned report appears as follows:

```
CE = hsgu3a, Designated State = ACTIVE DISTRIBUTION FOR SSN = 146, CONTEXT
= CAP2, Elapsed Seconds = 1126 Client ID = 0105, Total Round Robin
Selections = 0001671 *** Last Selected By

hsgu3a ***     known  = 1126     selectable = 1126     timed out  = 0000
congested  = 0000     going down = 0000

   ******** DISPLAY-DTCAP REPORT ********   CE = hsgu3b, Designated State =
STANDBY

DISTRIBUTION FOR SSN = 146, CONTEXT = CAP2, Elapsed Seconds = 1126 Client
ID = 0105, Total Round Robin Selections = 0001669 *** Last Selected By

hsgu3b ***     known  = 1126     selectable = 1126     timed out  = 0000
congested  = 0000     going down = 0000

M COMPLETED
```

Some important aspects of this report are:

- Only one Local DTCAP Destination is registered for the qualified SSN.
- A separate set of measurements is given for each SGU CE.
- The Last Selected By flag is useful for performing end-to-end system diagnosis when single test messages are being sent one at a time.

Per Local DTCAP Destination Measurements – IPmeas Format

In IPmeas, measurements in this category are preceded by a line of the form:

```
/C/DTCAP_PER_LOCAL_DTCAP_DEST/30/14:00/14:30
```

where:

- DTCAP_PER_LOCAL_DTCAP_DEST identifies the measurements category
- 30 indicates that the measurement interval is 30 minutes
- 14:00/14:30 indicates the begin and end time of the interval

In IPmeas, individual measurements in this category are presented as:

```
SAMP_KNOWN_hsgu3a_0105_SSN_146:CAP2/1800
```

where:

- SAMP_KNOWN is the measurement mnemonic.
- The SLU ID is reported symbolically and numerically as hsgu3a_01.
- The Entity ID is 05.
- The reported SSN is appended as _146:CAP2.

- 1800 is the measurement value for the entire interval.

Unlike other measurements, the Per Local DTCAP Destination Measurements are not summed from both CEs. They are reported individually in IPmeas for each SGU CE.

The following measurements are in addition to the normal platform measurements.

Diameter Measurements

The following Diameter measurements are in addition to the normal platform measurements.

Diameter DGU Measurements

DGU Peer Measurements

The following table lists the peer measurement counters maintained on a peer connection basis by the DGU.

Table 54 DGU Peer Measurements

Measurement Counter	Description
MSG_RX	Messages received
MSG_TX	Messages transmitted
OCT_RX	Octets received
OCT_TX	Octets transmitted
ACR_RX	ACR received (all). Includes ACR discarded later in the process.
ACR_RX_DISCARDED	ACR received and discarded.
ACA_TX_SUCCESS	ACA sent with result-code of SUCCESS.
ACA_TX_NOT_SUCCESS	ACA sent with result-code of NOT_SUCCESS.
ACR_TX	ACR sent.
ACR_TMO	ACR timed out.
ACA_RX_DISCARDED	ACA received and discarded.
ACA_RX_SUCCESS	ACA received with result-code of SUCCESS.
ACA_RX_NOT_SUCCESS	ACA received with result-code of NOT_SUCCESS.
ASR_RX	ASR received (all). Includes ASR discarded later in the process.
ASR_RX_DISCARDED	ASR received and discarded.
ASA_TX_SUCCESS	ASA sent with result-code of SUCCESS.
ASA_TX_NOT_SUCCESS	ASA sent with result-code of NOT_SUCCESS.
ASR_TX	ASR sent.
ASR_TMO	ASR timed out.
ASA_RX_DISCARDED	ASA received and discarded.
ASA_RX_SUCCESS	ASA received with result-code of SUCCESS.
ASA_RX_NOT_SUCCESS	ASA received with result-code of NOT_SUCCESS.
CCR_RX	CCR received (all). Includes CCR discarded later in the process.
CCR_RX_DISCARDED	CCR received and discarded.

Table 54 DGU Peer Measurements (Continued)

Measurement Counter	Description
CCA_TX_SUCCESS	CCA sent with result-code of SUCCESS.
CCA_TX_NOT_SUCCESS	CCA sent with result-code of NOT_SUCCESS.
CCR_TX	CCR sent.
CCR_TMO	CCR timed out.
CCA_RX_DISCARDED	CCA received and discarded.
CCA_RX_SUCCESS	CCA received with result-code of SUCCESS.
CCA_RX_NOT_SUCCESS	CCA received with result-code of NOT_SUCCESS.
CER_RX	CER received (all). Includes CER discarded later in the process.
CER_RX_DISCARDED	CRE received and discarded.
CEA_TX_SUCCESS	CEA sent with result-code of SUCCESS.
CEA_TX_NOT_SUCCESS	CEA sent with result-code of NOT_SUCCESS.
CER_TX	CER sent.
CER_TMO	CER timed out.
CEA_RX	CEA received (all).
CEA_RX_DISCARDED	CEA received and discarded. Missing AVP or result-code not SUCCESS.
DPR_RX	DPR received (all). Includes DPR discarded later in the process.
DPR_RX_DISCARDED	DPR received and discarded.
DPA_TX	DPA sent.
DPR_TX	DPR sent.
DPR_TMO	DPR timed out.
DPA_RX	DPA received.
DWR_RX	DWR received.
DWA_TX	DWA sent.
DWR_TX	DWR sent.
DWR_TMO	DWR timed out.
DWA_RX	DWA received.
RAR_RX	RAR received (all). Includes RAR discarded later in the process.
RAR_RX_DISCARDED	RAR received and discarded.
RAA_TX_SUCCESS	RAA sent with result-code of SUCCESS.
RAA_TX_NOT_SUCCESS	RAA sent with result-code of NOT_SUCCESS.
RAR_TX	RAR sent.
RAR_TMO	RAR timed out.
RAA_RX_DISCARDED	RAA received and discarded.
RAA_RX_SUCCESS	RAA received with result-code of SUCCESS.
RAA_RX_NOT_SUCCESS	RAA received with result-code of NOT_SUCCESS.
STR_RX	STR received (all). Includes STA discarded later in the process.
STR_RX_DISCARDED	STR received and discarded.
STA_TX_SUCCESS	STA sent with result-code of SUCCESS.

Table 54 DGU Peer Measurements (Continued)

Measurement Counter	Description
STA_TX_NOT_SUCCESS	STA sent with result-code of NOT_SUCCESS.
STR_TX	STR sent.
STR_TMO	STR timed out.
STA_RX_DISCARDED	STA received and discarded.
STA_RX_SUCCESS	STA received with result-code of SUCCESS.
STA_RX_NOT_SUCCESS	STA received with result-code of NOT_SUCCESS.
RAR_TMO	
RAA_RX_DISCARDED	Minimum request/answer delay.
RAA_RX_SUCCESS	Maximum request/answer delay.
RAA_RX_NOT_SUCCESS	Average request/answer delay.

DGU DSLU Measurements

The following table lists the SLU measurement counters maintained by the DGU for each SLU.

Table 55 DGU DSLU Measurements

Measurement Counter	Description
MSG_RX	Messages received.
MSG_TX	Messages transmitted.
OCT_RX	Octets received.
OCT_TX	Octets transmitted.
ACR_RX	ACR received (all). Includes ACR discarded later in the process.
ACR_RX_DISCARDED	ACR received and discarded.
ACA_TX_SUCCESS	ACA sent with result-code of SUCCESS.
ACA_TX_NOT_SUCCESS	ACA sent with result-code of NOT_SUCCESS.
ACR_TX	ACR sent.
ACR_TMO	ACR timed out.
ACA_RX_DISCARDED	ACA received and discarded.
ACA_RX_SUCCESS	ACA received with result-code of SUCCESS.
ACA_RX_NOT_SUCCESS	ACA received with result-code of NOT_SUCCESS.
ASR_RX	ASR received (all). Includes ASR discarded later in the process.
ASR_RX_DISCARDED	ASR received and discarded.
ASA_TX_SUCCESS	ASA sent with result-code of SUCCESS.
ASA_TX_NOT_SUCCESS	ASA sent with result-code of NOT_SUCCESS.
ASR_TX	ASR sent.
ASR_TMO	ASR timed out.
ASA_RX_DISCARDED	ASA received and discarded.
ASA_RX_SUCCESS	ASA received with result-code of SUCCESS.
ASA_RX_NOT_SUCCESS	ASA received with result-code of NOT_SUCCESS.
CCR_RX	CCR received (all). Includes CCR discarded later in the process.

Table 55 DGU DSLU Measurements (Continued)

Measurement Counter	Description
CCR_RX_DISCARDED	CCR received and discarded.
CCA_TX_SUCCESS	CCA sent with result-code of SUCCESS.
CCA_TX_NOT_SUCCESS	CCA sent with result-code of NOT_SUCCESS.
CCR_TX	CCR sent.
CCR_TMO	CCR timed out.
CCA_RX_DISCARDED	CCA received and discarded.
CCA_RX_SUCCESS	CCA received with result-code of SUCCESS.
CCA_RX_NOT_SUCCESS	CCA received with result-code of NOT_SUCCESS.
CER_RX	CER received (all). Includes CER discarded later in the process.
CER_RX_DISCARDED	CRE received and discarded.
CEA_TX_SUCCESS	CEA sent with result-code of SUCCESS.
CEA_TX_NOT_SUCCESS	CEA sent with result-code of NOT_SUCCESS.
CER_TX	CER sent.
CER_TMO	CER timed out.
CEA_RX	CEA received (all).
CEA_RX_DISCARDED	CEA received and discarded. Missing AVP or result-code not SUCCESS.
DPR_RX	DPR received (all). Includes DPR discarded later in the process.
DPR_RX_DISCARDED	DPR received and discarded.
DPA_TX	DPA sent.
DPR_TX	DPR sent.
DPR_TMO	DPR timed out.
DPA_RX	DPA received.
DWR_RX	DWR received.
DWA_TX	DWA sent.
DWR_TX	DWR sent.
DWR_TMO	DWR timed out.
DWA_RX	DWA received.
RAR_RX	RAR received (all). Includes RAR discarded later in the process.
RAR_RX_DISCARDED	RAR received and discarded.
RAA_TX_SUCCESS	RAA sent with result-code of SUCCESS.
RAA_TX_NOT_SUCCESS	RAA sent with result-code of NOT_SUCCESS.
RAR_TX	RAR sent.
RAR_TMO	RAR timed out.
RAA_RX_DISCARDED	RAA received and discarded.
RAA_RX_SUCCESS	RAA received with result-code of SUCCESS.
RAA_RX_NOT_SUCCESS	RAA received with result-code of NOT_SUCCESS.
STR_RX	STR received (all). Includes STA discarded later in the process.
STR_RX_DISCARDED	STR received and discarded.
STA_TX_SUCCESS	STA sent with result-code of SUCCESS.

Diameter DSLU Measurements

Table 56 SDLU Diameter Application Measurements

Measurement Counter	Description
CCR_rx	Credit-Control-Request received
CCA_OK_tx	Credit-Control-Answer transmitted
CCA_ERR_tx	Credit-Control-Answer with error code transmitted
ACR_rx	Accounting-Request received
ACA_OK_tx	Accounting-Answer transmitted
ACA_ERR_tx	Accounting-Answer with error result code transmitted
RAR_tx	Re-Auth-Request transmitted
RAA_rx	Re-Auth-Answer received
STR_rx	Session-Termination-Request received
STA_OK_tx	Session-Termination-Answer transmitted
STA_ERR_tx	Session-Termination-Answer with error result code transmitted
ASR_tx	Abort-Session-Request transmitted
ASA_rx	Abort-Session-Answer received
AOR_rx	Abort Operation request received.

Table 57 DSLU Base Diameter Measurements

Measurement Counter	Description
CER_rx	Capabilities-Exchange-Request received
CER_tx	Capabilities-Exchange-Request transmitted
CEA_rx	Capabilities-Exchange-Answer received
CEA_tx	Capabilities-Exchange-Answer transmitted
DWR_rx	Device-Watchdog-Request received
DWA_rx	Device-Watchdog-Answer received
DWR_tx	Device-Watchdog-Request transmitted
DWA_tx	Device-Watchdog-Answer transmitted
DPR_rx	Disconnect-Peer-Request received
DPA_rx	Disconnect-Peer-Answer received
DPR_tx	Disconnect-Peer-Request transmitted
DPA_tx	Disconnect-Peer-Answer transmitted
RxOctets	Number of octets received
TxOctets	Number of octets transmitted

Table 58 DSLU Transaction Measurements

Measurement Counter	Description
MAX_tr	Max transactions received or transmitted
MIN_tr	Min transactions received or transmitted
AVE_tr	Average transactions received or transmitted

Table 59 DSLU Usage Measurements

Measurement Counter	Description
MAX_RX_tps	Max open receive transactions
AVE_RX_tps	Average receive transactions rate
MAX_sessions	Max number of open sessions
MAX_session_duration	Max duration of an open session
AVE_session_duration	Max duration of an open session
Opened_sessions	Number of sessions opened
Closed_sessions	Number of sessions closed

Table 60 DSLU Response Times Measurements

Measurement Counter	Description
Zero_to	Zero to one hundred milliseconds
One_hundred_one_to	One-hundred-one to two hundred milliseconds
Two_hundred_one_to	Two-hundred-one to four hundred milliseconds
Four_hundred_one_to	Four-hundred-one to six-hundred-fifty milliseconds
Six_hundred_fifty_one_to	Six-hundred-fifty-one to one thousand milliseconds
One_thousand_one_to	One-thousand-one to two thousand milliseconds
Two_thousand_one_to	Two-thousand-one to four thousand milliseconds
Four_thousand_one_to	Four-thousand-one to sixty-five hundred
Over_sixty_five_hundred	Sixty-five-hundred-one milliseconds and above
Maximum_response_time_in_ms	Maximum response time in ms this collection
Average_response_time_in_ms	Average response time in ms this collection

Table 61 DSLU SDS Message Statistics

Measurement Counter	Description
SDS_inv_sdp	Cannot retrieve SdpId from account
SDS_ipc_fail	Ipc msg sent failed
SDS_inv_sub	Invalid subscriber state
SDS_unkwn_sub	Subscriber not found in database
SDS_act_not_allowed	Activity not allowed
SDS_tmo	Time out

The DSLU Per SLU measurement set, shown in table 57, “DSLU Per SLE Measurements,” is replicated for each Diameter Service Logic Element (SLE) configured in the system.

The string SLE_ name is prefixed to each set of Per SLE measurements to identify SLE instances when reporting measurements. If two OCS services are configured, (for example, Comverse-OCS and PS-OCS), two sets of the measurements are returned in reports, one identified as SLE_ Comverse-OCS and the other as SLE_PS-OCS as in the following code:

```
/A/SLE_Comverse-OCS/30/14:55/15:00 INITIAL_OK/1 INITIAL_SLE_ERR/0 ....
/A/SLE_PS-OCS/30/14:55/15:00 INITIAL_OK/1 INITIAL_SLE_ERR/0
```

Table 62 DSLU Per SLE Measurements

Measurement Counter	Description
INITIAL_OK	Counts number of OCS_INITIAL events for this SLE
INITIAL_SLE_ERR	Counts number of OCS_INITIAL event errors from the SLE
INITIAL_ERR	Counts number of OCS_INITIAL event errors for this SLE from OCS
UPDATE_OK	Counts number of OCS_UPDATE events for this SLE
UPDATE_SLE_ERR	Counts number of OCS_UPDATE event errors from the SLE
UPDATE_ERR	Counts number of OCS_UPDATE event errors for this SLE from OCS
TERMINATE_OK	Counts number of OCS_TERMINATE events for this SLE
TERMINATE_SLE_ERR	Counts number of OCS_TERMINATE event errors from the SLE
TERMINATE_ERR	Counts number of OCS_TERMINATE event errors for this SLE from OCS
IMMED_EVENT_OK	Counts number of OCS_EVENT events for this SLE
IMMED_EVENT_SLE_ERR	Counts number of OCS_EVENT event errors for this SLE
IMMED_EVENT_ERR	Counts number of OCS_EVENT event errors for this SLE from OCS
REFUND_OK	Counts number of OCS_REFUND events for this SLE
REFUND_SLE_ERR	Counts number of OCS_REFUND event errors from the SLE
REFUND_ERR	Counts number of OCS_REFUND event errors for this SLE
PRICE_ENQUIRY_OK	Counts number of OCS_PRICE_ENQUIRY events for this SLE
PRICE_ENQUIRY_SLE_ERR	Counts number of OCS_PRICE_ENQUIRY event errors from the SLE
PRICE_ENQUIRY_ERR	Counts number of OCS_PRICE_ENQUIRY event errors for this SLE
STR	Counts number of OCS_STR events for this SLE
ABORT_REQ	Counts number of OCS_ABORT_REQ events for this SLE
ABORT_ANS	Counts number of OCS_ABORT_ANS events for this SLE
REAUTH_REQ	Number of OCS_REAUTH_REQ events for this SLE
REAUTH_ANS	Counts number of OCS_REAUTH_ANS events for this SLE
EV_NOT_BOUND	Counts number of events not handled by this SLE

Diameter Traffic Router Measurements

The Base Diameter set contains counters for messages received by the Diameter interface. This set is replicated for each Diameter peer connection. There is also a measurement set for the total number of messages for all peer connections. The name of the measurement set for total counts is DTA-BaseDiameter. For measurements sets created for the peer connection, the format of the measurement set name is DTA-Peer-<peer-host> where <peer-host> is the peer-hostname assigned to the peer-connection in the Diameter configuration.

Example:

DTA-Peer-kdpm314.site-a.comverse-in.com

Table 63 DTA-BaseDiameter Scope: MeasScopeAppl

Name	Counter Type	Description
CER_rx	MeasTypeSimple	Capabilities-Exchange-Request received
CER_tx	MeasTypeSimple	Capabilities-Exchange-Request transmitted
CEA_rx	MeasTypeSimple	Capabilities-Exchange-Request received
CEA_tx	MeasTypeSimple	Capabilities-Exchange-Request transmitted
DWR_rx	MeasTypeSimple	Device-Watchdog-Request received
DWA_rx	MeasTypeSimple	Device-Watchdog-received
DWR_tx	MeasTypeSimple	Device-Watchdog-transmitted
DWA_tx	MeasTypeSimple	Device-Watchdog-transmitted
DPR_rx	MeasTypeSimple	Disconnect-Peer-Request received
DPA_rx	MeasTypeSimple	Disconnect-Peer-Answer received
DPR_tx	MeasTypeSimple	Disconnect-Peer-Request transmitted
DPA_tx	MeasTypeSimple	Disconnect-Peer-Answer transmitted
APP_REQ_rx	MeasTypeSimple	Number of Application Requests received
APP_REQ_tx	MeasTypeSimple	Number of Application Requests transmitted
APP_REQ_rx	MeasTypeSimple	Number of Application Requests received
APP_REQ_tx	MeasTypeSimple	Number of Application Requests transmitted
TxOctets	MeasTypeSimple	Number of octets received
TxOctets	MeasTypeSimple	Number of octets transmitted
NET_Trans_tmo	MeasTypeSimple	Number of timed out transactions to the network
APP_Trans_tmo	MeasTypeSimple	Number of timed out transactions submitted to the application

The DTA-DtaMessage measurement set counts Diameter application messages received by the DTR system. This set contains messages that are part of a Diameter Application Id other than zero.

Table 64 DTA-DtaMessage Scope: MeasScopeAppl

Name	Counter Type	Description
CCR_rx	MeasTypeSimple	Credit-Control-Request received
CCR_tx	MeasTypeSimple	Credit-Control-Request transmitted
CCA_rx	MeasTypeSimple	Credit-Control-Answer received
CCA_tx	MeasTypeSimple	Credit-Control-Answer transmitted
ACR_rx	MeasTypeSimple	Accounting-Request received
ACR_tx	MeasTypeSimple	Accounting-Request transmitted
ACA_rx	MeasTypeSimple	Accounting-Answer received
ACA_tx	MeasTypeSimple	Accounting-Answer transmitted
RAR_rx	MeasTypeSimple	Re-Auth-Request received
RAR_tx	MeasTypeSimple	Re-Auth-Request transmitted
RAA_rx	MeasTypeSimple	Re-Auth-Answer received
RAA_tx	MeasTypeSimple	Re-Auth-Answer transmitted
STR_rx	MeasTypeSimple	Session-Termination-Request received
STR_tx	MeasTypeSimple	Session-Termination-Request transmitted
STA_rx	MeasTypeSimple	Session-Termination-Answer received

Table 64 DTA-DtaMessage Scope: MeasScopeAppl

Name	Counter Type	Description
STA_tx	MeasTypeSimple	Session-Termination-Answer transmitted
ASR_rx	MeasTypeSimple	Abort-Session-Request received
ASR_tx	MeasTypeSimple	Abort-Session-Request transmitted
ASA_rx	MeasTypeSimple	Abort-Session-Answer received
ASA_tx	MeasTypeSimple	Abort-Session-Answer transmitted
UKNR_rx	MeasTypeSimple	Unknown Request received
UKNR_tx	MeasTypeSimple	Unknown Request transmitted
UKNA_rx	MeasTypeSimple	Unknown Answer received
UKNA_tx	MeasTypeSimple	Unknown Answer transmitted

The DTA-DtaTransaction measurement set provides statistics on the number of Diameter transactions processed by the DTR system. The Transaction Per Second (TPS) measurements sample the number of transactions received on a per-second basis. The Max and Average value are supplied for the measurement period.

A Canceled transaction is a transaction that the DTR does not see completed. This is a situation where the CCR is received and forwarded but a corresponding CCA is not received.

A Rejected transaction is where a Diameter Request is rejected by the DTR system. A typical example of this situation is when there is no available outbound route for transmitting a message.

Table 65 DTA-DtaTranmsaction Scope: MeasScopeAppl

Name	Counter Type	Description
MAX_RX_tps	MeasTypeMax	Maximum sample of transactions per second
AVE_RX_tps	MeasTypeAverage	Average transactions per second
Canceled_Trans	MeasTypeSimple	Number of transactions canceled
Rejected_Trans	MeasTypeSimple	Number of transactions rejected

The DTA-DtrResponseTimes measurement set contains counters that indicate the number of transactions that fall within a specific response time range. For every completed Diameter transaction that is forwarded from the DTR system (CCR/CCA), the system calculates the response time. The response time is compared to a set of ranges of response times and the counter is incremented for the range that matches the response time. This set can then be used to produce a histogram of the overall response time of the system.

Table 66 DTA-DtrResponseTimes Scope: MeasScopeAppl

Name	Counter Type	Description
_0_to_100	MeasTypeSimple	Zero to one hundred milliseconds
_101_to_250	MeasTypeSimple	One hundred one to two hundred fifty milliseconds
_251_to_400	MeasTypeSimple	Two hundred fifty one to four hundred milliseconds
_401_to_650	MeasTypeSimple	Four hundred one to six hundred fifty milliseconds
_651_to_1000	MeasTypeSimple	Six hundred fifty one to one thousand milliseconds
_1001_to_2500	MeasTypeSimple	One thousand one to two thousand five hundred milliseconds
_2501_to_4000	MeasTypeSimple	Two thousand five hundred one to four thousand milliseconds
_4001_to_6500	MeasTypeSimple	Four thousand one to six thousand five hundred milliseconds

Table 66 DTA-DtrResponseTimes Scope: MeasScopeAppl

Name	Counter Type	Description
Over_6500	MeasTypeSimple	Six thousand five hundred one milliseconds and above
Maximum_response_time_in_ms	MeasTypeMax	Maximum response time in ms this collection
Average_response_time_in_ms	MeasType Average	Average response time in ms this collection

The DTA-DTRApplication measurement set contains the counters based on the type of treatment applied to a received Diameter Request/Answer.

Table 67 DTA-DtrApplication Scope: MeasScopeAppl

Name	Counter Type	Description
Route_Virt_Realm	MeasTypeSimple	Number of transactions routed using virtual realm
Route_Real_Realm	MeasTypeSimple	Number of transactions routed using the realm received from the message
Invalid_Req	MeasTypeSimple	Number of transactions failed due to format problems in the request
Route_Fail	MeasTypeSimple	Number of transactions failed due to route failure
No_Realm_Found	MeasTypeSimple	Number of transactions failed because the virtual realm could not be resolved
Request_failed	MeasTypeSimple	Number of transactions failed due to a timeout while waiting for a response from the network
Answer_failed	MeasTypeSimple	Number of answer messages failed due to a problem sending to the network

Comverse IPF Measurement Collection

Overall Description

A generic script (collect-ipf-measurements) and two support files (collect-ipf-measurements.cfg and ipf-meas-filetransfer.cfg) will be used on each SLU, SGU, and DGU of the Comverse SCP. These support files (.cfg) are installed as jobs under the control of the UPA. The UPA will activate these jobs minutes after midnight to collect yesterday's measurements into a temporary measurement file to be used as input to the perl script *formatMeas_pl* called from inside the generic script. The perl script's output .csv file will be transferred to the UPM. This .csv file can be imported into an Excel spreadsheet.

Once on the UPM, the .csv file can be processed locally or passed along to another system for remote processing.

Delivery and Installation

The perl and generic script and its support files will be delivered to each SCP unit, in the /home/omni/conf directory, via the IPF package associated with that unit. The UPA will move the .cfg jobs to its proper directory and install the jobs into its workflow.

Measurement File Collection

At 5 minutes after midnight, on every day of the year, the UPA will activate the collect-ipf-measurements job to execute the collect-ipf-measurements script. This script will read and save the $SHM and $MYHOST system variables and determine yesterday's date, in the form of mmdd, using the 'date' command. It will then concatenate and/or copy, via the DFcat command, all IPmeas.$SHM.mmdd.* file(s) in the DF file system into the temporary measurement file IPmeas.$SHM.mmdd.$MYHOST. The script will not alter or remove any file in the DF file system. The collected measurements will then be run through the *formatMeas_pl* to create a IPmeas.$SHM.mmdd.$MYHOST.csv file.

Activation of the collect-ipf-measurements job will remove all previously created files before creating new files. This means the file hold-time at the SCP unit is one day.

This collection process must be run as *root*, if not the script will exit. Both the $SHM and $MYHOST variables must be specified through the unit configuration process and their values available to the script or the script will exit. If there are no measurement files in the DF file system for yesterday the script will exit.

Measurement File Transfer

At 10 minutes after midnight, on every day of the year, the UPA will activate the ipf-meas-filetransfer job to transfer the IPmeas.$SHM.mmdd.$MYHOST.csv file to the UPM. This .cfg file contains four properties that must be provided at the site:

user.1.name	the username for the UPM login
user.1.password	the password for the UPM login
remote.1.host	the IP address of the UPM
remote.1.name	the directory path for the file on the UPM

These properties can be provided through the 'mshell' command (see the Unified Platform Guide):

set_job_property –g log –j ipf-meas-filetransfer –p *name* –v *value*

where *name* is the property name and *value* is the new value for that property.

Based on the disc space allocated on the UPM to these .csv files, they can be kept x number of days before being purged. A purge script on the UPM has been written.

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