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DMS-100 Family

North American DMS-100

Automatic Message Accounting Bulletin

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Contents

About this document

When to use this document

This bulletin provides a preliminary summary of DMS activities in LET0016 and LET0017 that impact automatic message accounting (AMA). The information contained in this bulletin is intended to raise awareness of billing changes among operating company personnel preparing for a LET0017 software upgrade. It provides high-level information on all activities in LET0016 and LET0017 that impact AMA billing. This information is also intended to alert operating company personnel responsible for the processing, administering, and maintenance of AMA data of expected changes to DMS AMA in LET0017.

How to check the version and issue of this document

The version and issue of the document are indicated by numbers, for example, 01.01.

The first two digits indicate the version. The version number increases each time the document is updated to support a new software release. For example, the first release of a document is 01.01. In the next software release cycle, the first release of the same document is 02.01.

The second two digits indicate the issue. The issue number increases each time the document is revised but re-released in the same software release cycle. For example, the second release of a document in the same software release cycle is 01.02.

To determine which version of this document applies to the software in your office and how documentation for your product is organized, check the release information in *Product Documentation Directory,* 297-8991-001.

1 Introduction

This bulletin provides *preliminary* information on all LEC0016, LET0016, LEC0017 and LET0017 features that affect automatic message accounting (AMA) in DMS-100, DMS-100/200, and DMS-200 offices in the United States and Canada. The intent of this bulletin is to alert operating company personnel responsible for AMA data of changes to expect in AMA for their DMS-100, DMS-100/200, and DMS-200 offices in North America. This bulletin provides a complete list of all LEC0016, LET0016, LEC0017 and LET0017 activities that affect AMA, a brief summary of each activity and its affect on AMA, and a preliminary view of the AMA documentation that will be affected by each activity.

Chapter 2 provides a list of all LEC0016, LET0016, LEC0017 and LET0017 activities that affect AMA and for each activity includes: the product area to which the activity (and the resulting AMA change) applies, the number of the Functional Group order code and Function order code that will contain the activity (if applicable), the activity number and title, and a reference to the activity description in Chapter 3.

Chapter 3 provides a description of each activity listed in Chapter 2. For each activity, Chapter 3 provides:

- the title of the activity impacting AMA
- the AMA format affected by the activity. Possible formats are: Bellcore (BC), Nortel Networks (NT), station message detail recording (SMDR), or ALL.
- the DMS system application to which the AMA activity applies. Possible applications are: DMS-100 (local), DMS-200 (toll), DMS-200/200 (local/toll), equal access (EA), integrated services digital network (ISDN),

Meridian Digital Centrex (MDC), or Traffic Operator Position System (TOPS).

- a brief summary of the activity, including its function and its specific impact on AMA
- a summary of the AMA changes introduced by the activity, including structure codes, module codes, call codes, and fields
- a summary of other changes related to the maintenance and administration of AMA, including data schema, user interface (MMI), logs, operational measurements, service orders, and memory requirements

Note: The information contained within this document is preliminary and is subject to change.

Finally, Chapter 4 provides a preliminary view of the AMA documentation that will be affected by the AMA activities described in this bulletin.

2 List of LEC0016, LEC0017, and LET0017 activities affecting AMA

The following table provides a list of the LEC0016 activities that affect AMA.

Table 2-1 LEC0016 activities affecting AMA

Product area	Functional group code	Function code	Activity ID	Activity title	Description
DMS-100			A59028643 and A59031410	Carrier Support for Send To Resource and Send To Resource Response Translations Modifications	Page 3-1

The following table provides a list of the LEC0017 activities that affect AMA.

Table 2-2 LEC0017 activities affecting AMA

Product area	Functional group code	Function code	Activity ID	Activity title	Description
DMS-100			A59037140	AIN: Connect To Resource	Page 3-2

The following table provides a list of the LET0017 activities that affect AMA.

Table 2-3 LET0017 activities affecting AMA

Product area	Functional group code	Function code	Activity ID	Activity title	Description
DMS-100			A59028609	AIN: Timeout Requested Event	Page 3-3
DMS-100			A59028631	AIN: O_Disconnect and O_Disconnect_ Called Events	Page 3-4
DMS-100			A59037100 and A59037082	AIN Timeout Phase II and AIN Disconnect Phase II	Page 3-5
DMS-100			A59037120	Office Public Feature Code Trigger Implementation	Page 3-5

3 AMA activity summary

LEC0016 Activities

Following is a summary of the LEC0016 activities that affect AMA. To locate a specific activity, refer to Table 2-1.

Table 3-1 ACTID—applicability to AMA

Activity ID	Activity ID	Format affected	Application
A59028643 and A59031410	Carrier Support for Send To Resource and Send To Resource Response Translations Modifications	BC	DMS-100, DMS-200

A59028643—Carrier Support for Send To Resource and A59031410 Send To Resource Translations Modifications

Prior to NA016, STR-IP connectivity functionality did not support Equal Access routing to the Remote IP. Hence, every LATA needed to have an IP for Send_To_Resource connectivity. Activity 59028643 removes this need by introducing Equal Access support for Send_To_Resource-IP interaction. Activity 59028643 introduces on the SSP, the support for Carrier, Alternate Carrier, and Second Alternate Carrier in the Send_To_Resource message.

Activity 59031410 implements a new translation pattern for processing the Destination Address. Previously, the Destination Address sent in the Send_To_Resource message was translated using triggering agent's attributes. Activity 59031410 introduces STR-specific Line Attributes to override the originator attributes, if required. This removes Originator Toll Restriction on Send_To_Resource routing to remote IP over a Carrier.

AMA changes

There are no structure code, module code, or call code changes as a result of this activity.

Other changes

The Carrier Access record generation is controlled by the BILLING option provided while the Send_To_Resource-specific Destination Address-based

line attributes are available in Table STRATTRS. When the BILLING option is set to 'N' in the corresponding tuple, no Carrier Access Record (Switch-based or AIN AMA record) will be generated. When the corresponding tuple is not available, the Carrier Access record will be generated as default.

LEC0017 Activities

Following is a summary of the LEC0017 activities that affect AMA. To locate a specific activity, refer to Table 2-2.

Table 3-2 ACTID—applicability to AMA

Activity ID	Activity ID	Format affected	Application
A59037140	AIN: Connect To Resource	BC	DMS-100, DMS-200

A59037140—AIN: Connect To Resource

Activity 59037140 implements the functionality for the Service Switching Point (DMS-100 SSP) to process the Connect_To_Resource (CTR) message. The Connect_To_Resource message is returned in response to a midcall trigger or event to connect a user (in talking state) to a resource.

AMA changes

There are no structure code, module code, or call code changes as a result of this activity.

Other changes

When the SSP receives a Connect To Resource message from the SCP/Adjunct containing an AMAslpID parameter, an AMAAlternateBillingNumber parameter, and no AMASequenceNumber parameter, the SSP will generate the Module Code of 029.

The SSP will generate a Structure Code 0220/0221, and append Module Code 290, for a transaction using the AMAslpID parameter value "900000050" in the structure and a Call Type Code '047' in the structure when all the conditions below hold:

- A Resource Timing Module (Code 290) is generated (regardless of the Package type)
- Either the final response message from the SCP/Adjunct following the completion of a CTR connection does not contain an *AMAslpID* parameter, the CTR itself is the final response message, or the call terminates (for example, the caller abandons) before the final response is received

When the SSP receives a Connect To Resource message from the SCP/Adjunct that does not contain a *Destination Address* parameter, but does contain an

AMAMeasure parameter (whose value indicates that a duration time must be recorded) the SSP will measure the duration time associated with the user's actual connection to that internal SSP resource, and the SSP will generate a module code of 290. Module 290, Resource Timing Module, records the resource (internal or IP) usage measurements.

When the SSP receives a CTR message from the SCP/Adjunct containing an AMAslpID parameter, an AMAAlternateBillingNumber parameter, and an AMASequenceNumber parameter, the SSP will generate the module code of 229. The existing AIN and switch-based records will be closed as in a normal user-exit after the call has been answered when the Disconnect response is received for the CTR message.

LET0017 Activities

Following is a summary of the LET0017 activities that affect AMA. To locate a specific activity, refer to Table 2-3.

Table 3-3 ACTID—applicability to AMA

Activity ID	Activity ID	Format affected	Application
A59028609	AIN: Timeout Requested Event	BC	DMS-100, DMS-200
A59028631	AIN: O_Disconnect and O_Disconnect_Called	BC	DMS-100, DMS-200
A59037100 and A59037082	AIN: Timeout Phase II and AIN: Disconnect Phaes II	BC	DMS-100, DMS-200
A59037120	Office Public Feature Code Trigger Implementation	BC	DMS-100, DMS-200

A59028609—AIN: Timeout Requested Event

Activity 59028609 implements the functionality for the DMS SSP to detect the Timeout call party handling event as an EDP-Request and process the response provided by the SCP. When speech path is established for the call segment in which the event is armed, the Timeout timer is started. The Timeout EDP-Request is sent to the SCP when the timer expires. The message returned by the SCP (only Disconnect is supported by this activity) is processed. The Disconnect response processing provides AIN Disconnect (AIND) treatment to the controller and the call leg is taken down.

AMA changes

There are no structure code, module code, or call code changes as a result of this activity.

Other changes

The following additional changes are related to the administration and maintenance of AMA in the DMS.

- The SSP will generate an AMA record containing Structure code 0220, when an AMAslpID parameter is correctly received in the Disconnect response and Timeout was armed in either Collect_Info or Analyze_Route Message.
- The SSP will generate Structure 0221 when an AMAslpID parameter is correctly received in the Disconnect response and Timeout was armed in an Offer_Call Response.
- The AMA record generated for the AMASlpid received in the Disconnect response for the Timeout event will have a Completion Indicator value of "Not Completed-AIN Disconnect message received", and the Elapsed Time will be set to zero. The other AMA records in the call will remain unchanged.

A59028631—AIN: O_Disconnect and O_Disconnect_Called

Activity 59028631 enhances the AIN Service Enablers functionality to support the detection of O_Disconnect (Calling) and O_Disconnect_Called event.

AMA changes

There are no structure code, module code, or call code changes as a result of this activity.

Other changes

The following additional changes are related to the administration and maintenance of AMA in the DMS.

- The SSP generates an AMA record containing Structure code 0220, when an AMAslpID parameter is correctly received in an SCP response arming the O_Disconnect or O_Disconnect_Called event, or, an SCP response that is being sent in response to a O_Disconnect query message is launched because one of those two events were detected.
- The Completion Indicator (BAF Table 280) of the generated AMA record will be set to 001, and the elapsed time will be set to the duration of the call when the received SCP response is Analyze Route, Collect Information, Forward Call, Continue, or Send To Resource. If there were any existing AMA records open, they are closed and a new record is started upon receipt of the response.
- When the received response is a Disconnect response, the completion indicator will be 011, and the elapsed time will be set to zero.

A59037100—AIN: Timeout Phase II and A59031410 AIN: Disconnect Phase II

Activities 59037100 and 59037082 enhance the NA016 Timeout (59028609) and Disconnect (59028631) features based on the enhancements in GR1298 Issue-6.

AMA changes

There are no structure code, module code, or call code changes as a result of this activity.

Other changes

The AMA record generated for AMAsLpID received in a Continue response for Timeout event will have the elapsed time calculated when the Continue message is received until the end of the call.

A59037120—Office Public Feature Code Trigger Implementation

AIN Office Public Feature Code (OFCPFC) Trigger feature is implemented on the Originating Call Model (OCM) and is an enhancement to the AIN trigger processing functionality.

AMA changes

There are no structure code, module code, or call code changes as a result of this activity.

Other changes

The DMS-100 SSP currently produces BAF records for AIN calls as specified by the service control point (SCP) and switch-based translations. The presence of an AMA service logic program identification (AMAslpID) parameter in a response message overrides switch-based AMA, and invokes AIN AMA recording. That is, switch-based call type is mapped into the AIN AMA structure (structure codes 0220 and 0221). Additional AMA information provided by the SCP as well as AMA information encountered in service switching point (SSP) translations can be appended to the base AMA structure in the form of modular codes. When the SCP response message does not contain an AMAslpID parameter, normal switch-based AMA recording applies to the call. When translations do not determine a base AMA call type, the default AIN call type (047) is used.

4 Affected AMA documents

There are no AMA documents affected by the activities described in this bulletin.

List of terms

This chapter explains the terms used in this document.

ACCS

Automatic calling card service

Advanced intelligent network

A set of software feature packages that enhances switch call processing capabilities to use centralized databases. These databases determine how AIN calls should proceed for further call processing. AIN also allows operating companies to design and deploy their own features and to make these features available across private and public networks.

AIN

Advanced Intelligent Network

AMA

Automatic Message Accounting

Automatic calling card service (ACCS)

A feature in which the subscriber dials a call and bills it to a calling card number provided by the operating company. In Canada, ACCS is known as custom charge calling.

Automatic Message Accounting (AMA)

An automatic recording system that documents all the necessary billing data of subscriber-dialed long distance calls.

BAF

Bellcore AMA format

BC

Formerly Bellcore, now known as Telcordia Technologies

Bellcore AMA format

BAF

Bell Communications Research (Bellcore/ Telcordia Technologies)

A group responsible for coordinating Bell operating-company projects and setting guidelines for switching systems.

Bellcore (BC)

Bell Communications Research

Bellcore AMA format (BAF)

The standard format for automatic message accounting (AMA) data that the Bell operating companies use. The format consists of the following: (see also Expanded Bellcore AMA format).

- a structure code that identifies the format of the data fields in the call record
- a call code that identifies the type of call recorded in the call record
- other data fields that define the attributes of the call, and if needed, one or more module codes that identify the format of any additional data appended to the call record

calling name display (CNAMD)

A service that allows the name of the calling party to be delivered to the called subscriber's set when that set is provisioned with a display window capable of receiving calling party identification. Also known as calling name delivery.

calling number delivery (CND)

CLASS software that shows the ten-digit calling number.

cc

central control

central control (CC)

A part of the NT40 processor that consists of the data processing functions with the associated data store (DS) and program store (PS).

CNAMD

calling name delivery, preferred term is calling name display

CND

calling number delivery

Digital Multiplex System (DMS)

A central office switching system in which all external signals are converted to digital data and stored in assigned time slots. Switching is performed by reassigning the original time slots.

DMS

Digital Multiplex System

E800

Enhanced 800

E800 service

Enhanced 800 service

EA

equal access

EBAF

expanded Bellcore AMA format

Enhanced 800 service (E800 service)

A Common Channel Signaling 7 (CCS7) feature that allows 7 carriers equal access to the Basic 800 service. E800 service presents network intelligence at an access tandem office or an end office (EO) using an on-line database query system. Also known as E800.

Enhanced network (ENET)

A channel-matrixed time switch that provides pulse code modulated voice and data connections between peripheral modules (PM). ENET also provides message paths to the DMS-based components.

Expanded Bellcore AMA format (EBAF)

The ability to append additional data in modular form to Bellcore AMA format (BAF) automatic message accounting (AMA) call records. Module codes are used to identify the format of the data appended to the BAF call record. One or more modules can be appended to a BAF call record. See also Bellcore AMA format.

Equal access (EA)

An operating telephone company tariff offering for local access and transport area (LATA) access that is equal in type, quality, and price for all connected interLATA and international carriers.

Integrated Services Digital Network (ISDN)

A set of standards proposed by the International Telegraph and Telephone Consultative Committee (CCITT) to establish compatibility between the telephone network and various data terminals and devices. ISDN provides a path for transmission of voice, data, and images.

ISDN

Integrated Services Digital Network

OM

operational measurement

Operational measurements

The hardware and software resources of the DMS-100 Family systems that control the collection and display of measurements taken on an operating system. OMs organize the measurement data and manage its transfer to displays and records on which maintenance, traffic, accounting, and provisioning decisions are based.

point-to-point (PTP)

An operating company-designated single-rate step applied to calls from a specified point in the originating serving area to a specified terminating point. The PTP is used in calculating rate steps.

PRI

primary rate interface

primary rate interface (PRI)

An interface that carries nB+D channels over a digital DS-1 facility (23B+D in North America and 30B+D in Europe). PRI is used to link private networking facilities, such as private branch exchanges (PBX), local area networks (LAN), and host computers with a standardized architecture acting as the bridge between private switching equipment and the public network. Formerly known as primary rate access.

private virtual network (PVN)

A service that uses the public and private switched networks to provide private network features and capabilities.

PTP

point-to-point

PVN

private virtual network

SCP

service control point

service control point (SCP)

A node in a Common Channel Signaling 7 (CCS7) network that supports application databases. The function of an SCP is to accept a query for information, retrieve the requested information from one of its application databases, and send a response message to the originator of the request.

service switching point (SSP)

A Common Channel Signaling 7 (CCS7) node that interacts with the service control point (SCP) to implement special service code features.

SMDR

station message detail recording (system)

SSP

service switching point

Station Message Detail Recording (SMDR) system

In MDC, a system that provides recording facilities for the details of billable and non-billable calls for each MDC customer group.

TCAP

transaction capability application part

TOPS

Traffic Operator Position System

Traffic Operator Position System (TOPS)

A call processing system made up of a number of operator positions. Each operator position consists of a visual display unit (VDU), a controller, a keyboard, and a headset. TOPS is a trademark of Nortel Networks.

Transaction capability application part (TCAP)

A layer of the Common Channel Signaling No. 7 (CCS7) protocol. TCAP provides the ability for the service switching point (SSP) to communicate with a service control point (SCP).

UI

User interface

User interface (UI)

The series of commands and responses that are used by operating company personnel to communicate with the DMS-100 Family system machines. UI is achieved through the MAP (maintenance and administration position) and other input/output devices.

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