Lucent Technologies
Bell Labs Innovations

1A ESS™ Switch
Customer Originated Trace
Local Area Signaling Services
Feature Document

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1. Overview

Definition

1.01 The Customer Originated Trace (COT) feature allows the terminating party (called party) to initialize an automatic trace of the calling line directory number (CLDN). After the COT activation, the CLDN is transmitted on an input/output (I/O) channel to a designated agency, for example, the local telephone company or law enforcement agency. The customer can call the agency after activating the trace to determine any appropriate further action.

1.02 This practice is being reissued to include information for the Advanced Intelligent Network (AIN) Release 0.1 Protocol and Capabilities feature impacting Customer Originated Trace.

1.03 This practice does not contain admonishments.

1.04 Lucent Technologies welcomes your comments on this practice. Your comments aid us in improving the quality and usefulness of Lucent Technologies documentation. Please use the Feedback Form provided in this practice or call the Lucent Technologies Documentation Preparation Group at 708-224-7053.

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1.07 This practice is issued by:

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Lucent Technologies Inc.
Network Software Center
2600 Warrenville Road
Lisle, IL 60532

1.08 Part 7 lists the abbreviations and acronyms with applicable terms used in this practice.

Economic Worth

1.09 The COT feature allows a customer to trace the last calling party at any time, day or night. For example, random nuisance calls can be identified by COT. The customer and the designated agency receiving the CLDN

can determine appropriate action to stop the nuisance calls. The COT feature can reduce the number of customers who complain to the local telephone company about nuisance calls.

1.10 For the telephone company, cost reductions and time saved can be recognized when this automatic system for tracing nuisance calls is implemented. The COT feature can reduce the intervention of telephone company personnel during the trace, for example, the CLDN can be transmitted to the law enforcement agency instead of the switching office.

Availability

1.11 The COT feature is available with the 1AE9 and later generic programs. The COT feature is one of the features provided by Local Area Signaling Services (LASS).

1.12 The LASS Office Option Feature (LOOF) is available with the 1AE10 and later generic programs.

Feature Group

1.13 For COT to be operational, the 9SLASS feature group or 9SLASA feature group must be loaded. The Screen List Editing (SLE) feature package (9FSLE) must also be loaded for two level activation of COT.

Feature Assignment

1.14 The COT feature can be offered on a multiple office basis within a Common Channel Signaling System 7 (CCS7) network or on a single office basis without CCS7. Refer to Part 6 A(5) for a general description of CCS7 and to Part 6 A(7) for a general description of Network Interconnect. This feature is available to all lines with a unique line equipment number (LEN) assigned in the office.

2. User Perspective

User Profile

2.01 Two users are involved in the COT feature. The first user is the customer who receives the call and initializes the trace. The second is the agency that receives the message containing the trace results. The following paragraphs describe how each user interacts with the feature.

  (a) The first user is the customer who receives the call and initializes the trace.

    (1) The customer can activate the COT trace by dialing the COT activation access code. In 1AE11 and earlier offices that have the one line history block (LHB) structure, the access code must be dialed before another incoming call is received or an outgoing call is dialed. In 1AE10 and 1AE11 offices that have the two LHB structure and in all 1AE12 and later offices, the access code must be dialed before another incoming call is received. Refer to Part 6 A(6) for information about LHBs.

    (2) For single level activation, if the CLDN is available (that is, within the LASS area), the trace is implemented and the trace results are sent to a designated agency. The customer receives a confirmation announcement that indicates the trace was successful. If the CLDN is not available, or if the trace attempt fails, the customer is given an error announcement instead.

    (3) Two level activation of COT is available as a custom feature (FF053) in the 1AE10 and later generic programs. For two level activation of COT, if the CLDN is available, the customer is connected to the

announcement service circuit (ASC) and given interactive announcements which identify the feature, optionally state the cost of a trace, and prompt the user for confirmation of the trace. The user is alternatively instructed to hang up to terminate the trace attempt. The COT customer is given four attempts to dial the confirmation code; if the customer fails to do so, an error announcement is played and the customer is returned to dial tone. If the customer confirms the trace, and the trace is successful, a confirmation announcement is given. If the trace can not be performed, the user is given an error announcement.

(4) If the ASC is unavailable to provide the interactive activation announcements, then the single level processing procedure is followed. The trace is performed, if possible, without prompting for activation confirmation.

(b) The second user, the designated agency, receives a TTY-type format message containing the following information:

(1) Time the COT was requested by the subscriber.

(2) The date (month and day) and time the nuisance call was received (1AE10 and later generic programs).

(3) The directory number (DN) of the calling party.

(4) A calling line multiline indicator.

(5) A call waiting DN indicator for 1AE10 and later generic programs [FF056 must be set in the office for this option. If FF056 is not set, this bit will always be a blank space].

(6) The DN and LEN of the customer requesting the trace.

(7) The date and time the TTY message was printed.

Customer Premises Equipment

2.02 The customer only needs to have POTS to activate the COT feature. Centrex customers may also access the COT feature.

2.03 The designated agent (other than the telephone company) is required to purchase a display device capable of receiving and printing the trace results. The type of equipment utilized will be determined by the local telephone company.

Feature Description

2.04 The COT feature uses the retrieval of calling line directory number (RCLDN) primitive and the line history (LH) primitive. The RCLDN primitive provides the CLDN on origination of the call. The LH primitive updates the incoming LHB (ILHB) with the received CLDN. For most intraoffice calls, the CLDN will be available when the ILHB is updated. For interoffice calls, the CLDN will be available if the call completes using the CCS7 signaling network. Refer to Part 6 A(6) for information about the RCLDN and LH primitives and to Part 6 A(5) for information about the CCS7 feature.

2.05 The COT activation access code *XX (where XX is determined by the telephone company) initializes the trace. The access code for POTS is identified by the prefixed access code translator (PACT) while the access code for centrex is identified by the digit interpreter tables. A special service error announcement is given to the customer if the customer is not allowed COT activation. A different special service error announcement is given if the last CLDN is not available or if the customer has already activated COT using the existing contents of the ILHB. Reorder tone is given in 1AE12 and later generics if the ILHB cannot be retrieved because of switch resource problems. Reorder tone is also given if an output message register is not available when the trace is activated by the single level version of COT. Refer to Part 6 A(6) for

information about when the CLDN or ILHB may not be available.

2.06   If the COT activation is allowed, the COT output message is printed over a designated channel to the telephone company's TTY or to a law enforcement agency's display device.

Activation

A. Customer

2.07   To activate COT, after receiving a call the customer wants traced, the customer must do the following steps:

(1) Go on-hook and wait approximately 10 seconds before going off-hook.

(2) Dial the COT activation access code. The POTS access code is determined by the local telephone company. The centrex access codes are specified on a per centrex group basis.

(3) For single level activation, a successful activation is followed by a confirmation announcement, and an AMA record is written for the trace. An unsuccessful activation is followed by an error announcement or tone and no AMA record is written.

(4) For two level activation, the customer is optionally told the cost of the trace and is prompted to confirm the trace activation (by dialing a 1) or to hang up to cancel the trace. When a customer confirms a trace, a successful activation is followed by a confirmation announcement which includes instructions on following up on the trace, and an AMA record is written for the trace. For an unsuccessful activation, an error announcement is given and no AMA record is written. If the customer abandons the trace attempt without dialing the confirmation code, no AMA record is written.

B. Telephone Company/Designated Agency

2.08   The telephone company or designated agency receives the following output message in response to a customer activated trace:

(a) In the 1AE9 generic program:

CUST ORIG TRACE aa bb cc ddd-ddd-dddd e fff-ffff gggggggg ii/jj/kk:ll

where:

aa = Hour of COT request
bb = Minute of COT request
cc = Second of COT request
ddd-ddd-dddd = DN of calling line
e = Calling line multiline indicator
    0 = The actual DN is listed.
      1 = The DN listed is the main DN
         of a multiline group or multiparty line.
fff-ffff = DN of the customer (COT originator)
gggggggg = LEN of the customer
ii/jj kk:ll = Date and time of printing.

(b) On 1AE10 and later generic programs:

CUST ORIG TRACE aa:bb:cc dd:ee ff/gg hhh-hhh-hhhh i * jjj-jjjj kkkkkkkk ll/mm nn:oo

where:

aa = Hour of COT request
bb = Minute of COT request
cc = Second of COT request
dd = Hour of nuisance call
ee = Minute of nuisance call
ff = Month of nuisance call
gg = Day of nuisance call
hhh-hhh-hhhh = DN of calling line
i = Calling line multiline indicator
      0 = The actual DN is listed.
      1 = The DN listed is the main DN
         of a multiline group.
* = Call waiting DN indicator if the COT Call Waiting Indicator special feature (FF056) is active
      0 = CLDN is not a call waiting DN
      1 = CLDN is a call waiting DN
  = Blank space if the COT Call Waiting Indicator special feature is not active.
jjj-jjjj = DN of the customer (COT originator)
kkkkkkkk = LEN of the customer
ll/mm nn:oo = Date and time of printing.

Abnormal Interactions

2.09   The following types of calls cannot be traced:

• An interoffice call that does not use the CCS7 signaling network for all legs of the

call.

- A call in which the CLDN is not available in the ILHB.

If a call cannot be traced, the customer will be given a special service announcement.

2.10   Under the following circumstances, the COT trace may be temporarily denied:

- When the ILHB cannot be retrieved because of switch resource problems (1AE12 and later generics) - reorder tone will be given to the customer.

- When an output message register is unavailable - an announcement will be given if two level activation of COT is used; otherwise, reorder tone will be given.

The customer can retry the COT activation after a few seconds.

2.11   If COT is activated after the call waiting tone, the call waiting call will be traced. If the COT call waiting special feature is loaded in the office (FF056), an indicator will be printed in the COT output message telling if the traced call was a call waiting call.

Interactions

2.12   The Call Waiting feature results in the ILHB being updated with the CLDN associated with the call waited party. If the call waiting tone is heard during the call the customer wants to trace, the CLDN associated with the call waited party will be put in the COT output message and not the CLDN of the call the customer wants to trace.

2.13   The COT Call Waiting Indicator Special Feature maintains indication in the ILHB that the CLDN is associated with the call waited call. The COT output message reflects the value of this ILHB indicator (refer to paragraph 2.08 (b)).

2.14   The AIN Release 0.1 Protocol Feature has the ability to provide new calling party identification information for triggered calls. The Service Control Point (SCP) database may optionally provide Calling Party ID information that will supersede all prior calling party information for the call. In the case where the SCP supplies new calling party

information, the latest information provided by the SCP will be used for a COT request, and not the original calling party information. For more information about the AIN Release 0.1 Protocol and Capabilities, refer to Part 6 A(8).

Operational Limitations

2.15   For interoffice calls, the CLDN can be traced only if CCS7 exists between the originating and terminating offices.

2.16   In offices with the one LHB structure (1AE11 and earlier generics), the customer must dial the COT activation access code before another call alerts the customer or a new call is originated. In offices with the two LHB structure (1AE10 and later generics), the customer must dial the COT activation access code before another call alerts the customer. A customer can only activate COT once for the last incoming call unless the COT activation is temporarily denied (refer to paragraph 2.10).

2.17   If a trace is activated with a CLDN that is a member of a multiline group, the actual CLDN may not be identified. The multiline indicator is set to indicate that only the main DN of the group or line is printed via the CUST ORIG TRACE output message. If the multiline indicator is a 0 (unique), the CLDN printed in the trace is the actual calling DN; if the multiline indicator is a 1 (nonunique), the CLDN printed in the trace is not the actual calling DN.

Restriction Capability

2.18   Each of the LASS features can be denied to certain classes of lines (paragraph 4.02). The telephone company determines the features that are included in each service class. On a class of service basis, the **RC:CCOL** message can be used to restrict access to COT.

2.19   The LASS features can also be denied to specific access code restriction group (ACRG)/centrex access treatment (CAT) code groups. On a per line basis, the ACRG/CAT code field in the line equipment number class 2 (LENCL2) word is used to

determine if a LASS feature can be accessed.

2.20 In addition to the ACRG/CAT code mechanism of feature denial, option word L of the LEN supplementary auxiliary block can be used to deny COT on a per line basis. Option word L is built for lines that have access to certain LASS features (subscription or usage-sensitive), but are denied access to others.

2.21 The **RC:LINE** message is used to allow or deny access to COT for a specific line. Refer to Part 6 A(1) for the keywords associated with **RC:CCOL** and **RC:LINE** messages.

2.22 An alternative mechanism to restricting all lines access to LASS features is to implement the LASS Office Option Feature (LOOF). LOOF eliminates the need for ACRG/CAT codes in offices implementing the LASS features on a subscription only basis by allowing all lines to dial the LASS feature access codes. After the access code is dialed, normal ACRG/CAT screening still applies but is not required. The second level of screening is performed on a class of service basis. The final level of restriction is the option word L check. LOOF, if loaded, will provide all lines without an option word L a default option word L from word 19 of the office options table. Word 19 of the office options table is the recent change default and, if LOOF is loaded, will also be the call processing default for all lines without an option word L. If a line has been assigned LASS features and has an LEN option word L, then the individual LEN option word L is used instead of the office default option word L. LOOF is controlled by fast feature 069.

2.23 Word 18 in the office options table translator contains the office AMA mode indicator for the COT feature. The indicator is used to specify when AMA records should be written. The options per feature are:

(a) Never write AMA records.

(b) Always write AMA records.

(c) Write AMA records for usage-sensitive customers only.

2.24 Word 19 of the office options table contains a default LEN supplementary auxiliary block option word L. The default

option word L indicates the type of LASS feature billing access that is assigned to new LASS customers. The default option word L is consulted by RC when building a customer's LEN supplementary auxiliary block option word L for the first time. When a LASS feature is added to a line for the first time, the default option word L is used by RC to build out the remaining fields of the customer's option word L. If the default option word L is set to deny all LASS features, RC builds all unspecified feature fields the same as the default option word L which, in this case, is denied access. If LOOF is loaded, word 19 of the office options table is used as the default option word L by call processing if the LEN supplementary auxiliary block option word L does not exist.

3. Engineering

3.01 The following guidelines are for planning purposes only. The Central Office Equipment Engineering System (COEES) Information System Engineering Document, Index 38, should be used to manually order and engineer the 1A ESS switch. The standard recommended automated procedure is COEES-Mechanized Ordering (MO).

Hardware

3.02 The COT feature requires additional use of the following hardware:

(a) Customer digit receivers (CDRs) to receive the 3-digit COT activation access code

(b) A special service error announcement circuit used to route the customer to a LASS instruction announcement

(c) Reorder-tone circuits

(d) Two level activation of COT requires ASC firmware to provide the . interactive prompt announcements. Hardware J-drawing 6A007EA-1 should be checked to ensure that the office has an issue of the firmware which supports this feature. In order to provide the optional trace cost announcement for two level activation, a customized announcement is recorded for segment 214. For information on ordering a customized

ASC announcement, refer to Part 6 A(2) and B(3).

Software

A. Base Generic Program

3.03 The COT feature uses some base program store memory. For further information concerning memory usage, refer to Part 6 B(2).

B. Optionally Loaded Feature Groups

3.04 The COT feature code is provided in the optionally loaded LASS feature package required by the LASS or LASA feature group. Refer to Part 6 B(6) for feature package word size information.

C. Parameters/Call Store Areas

3.05 The COT feature requires ILHBs to store the last CLDN. Refer to Part 6 A(6) for details about the LHB call store and parameter options and requirements for each generic.

3.06 For Two Level COT, set card NSLR defines the number of screen list editing call registers (SLR) in duplicated call store. The length of the SLR is 28 words.

3.07 The following set cards provide optional enhancements for COT:

- Set card **FF053** defines the Two Level Activation of COT feature. This feature provides an interactive activation sequence for the COT feature if FF053 is set to 1. If FF053 is set to 0, the standard single level version of COT is used.

- Set card **FF056** defines the COT Call Waiting Indicator feature. If FF056 is set to 1, then indication that the CLDN is associated with a call waited call is maintained in the ILHB and displayed in the COT output message. If FF056 is set to 0, the COT output message will display a blank space where the call waiting DN indicator should be.

- Set card **FF069** defines the LOOF optional feature. If FF069 is set to 1, then all lines without an individual option word L in the supplementary auxiliary block will use the office default option word L. The office options table word 19 defines the call processing/recent change default option word L. LOOF eliminates the need to

restrict nonsubscribers access to LASS features by using the ACRG/CAT codes in the PACT/CTXDIT translators thus simplifying recent change procedures required to implement the LASS features. If set card FF069 is set to 0, LASS feature access defaults to usage-sensitive access if no option word L exists in the LEN supplementary auxiliary block.

- Set card **FF137** defines the Unique COT Denied Announcement (UCDA) Enhancement. If FF is set to 1, then a unique announcement is provided for the Customer Originated Trace (COT) feature via PRI 213 in place of the general announcement, PRI 168, used by the COT, AR and AC features. This new announcement will be used when the customer dials the COT activation code and the COT service cannot be provided. The cases where this announcement is given are: (a) no ILHB contents, (b) COT service already activated, (c) office has no LHBs. Upon loading FF137, PRI 168 will still provide announcements for COT until PRI 213 is populated with an RI other than RI 199.

D. Translations

3.08 The following pseudo route indexes (PRIs) provide confirmation and error announcements for COT:

- PRI 167 - LASS feature access denial announcement - given when the customer is not allowed to use the COT activation access code.

- PRI 168 - Long term denial announcement - given when the CLDN is not available, when the customer has already activated COT for the current ILHB, and when the ILHB is not available (1AE12 and later generics).

- PRI 191 - COT confirmation announcement - given when two level activation of COT is not available or temporarily cannot be used.

- PRI 213 - replaces PRI 168 which is also shared with AR and AC. Use of this PRI requires FF137.

3.09 The COT TTY channel number is assigned by each individual office. The value of 0 to 95 is assigned in word 2 of the

office options table instead of being hard coded to one particular value. Effective with 1AE11 and later generic programs, COT messages will also print out on the TRACE message class channels.

4. Implementation

4.01 The COT feature is installed with the other LASS features. For details of the procedures used to initially install COT, refer to Part 6 A(1).

Assignment Restriction

4.02 Customers with the following types of lines are denied access to the COT feature:

- Two-party/multiparty
- Manual (POTS and centrex)
- Private branch exchange (PBX)
- Remote Switching System (RSS)
- Centrex attendant with console.

4.03 Customers with the following types of lines should be denied access to the COT feature:

- Coin lines
- Coinless public lines
- Denied terminating treatment lines
- Hotel/Motel.

5. Administration

Measurements

5.01 Traffic measurement code (TMC) 148 collects traffic counts for the COT feature. These counts define the COT total office traffic counts and are available on the H, C, DA15, S1, S2, and S3 traffic schedules. The COT office counts are as follows:

EGO	Definition
000	**COT Successful Activation Peg Count:** This counts the number of times that a customer activates COT successfully.
001	**COT Calling DN Unavailable Peg Count:** This counts the number of times that a calling DN is unavailable.
002	**COT Denial Peg Count:** This counts the number of times that a customer is denied access to COT.

Automatic Message Accounting

5.02 An automatic message accounting (AMA) record is written for each successful activation of the COT feature. Refer to Part 6 A(3) or B(4) for the AMA format applicable to COT.

6. Supplementary Information

References

A. LT Practices

(1) 231-318-340 – *Local Area Signaling Services Recent Change Implementation Procedures*

(2) 231-365-005 – *Intelligent Simplex Peripheral Interface Implementation Procedures*

(3) 231-390-063 – *Automatic Message Accounting*

(4) 231-390-239 – *Automatic Recall/Automatic Callback*

(5) 231-390-500 – *Common Channel Signaling System 7 General Description*

(6) 231-390-515 – *Local Area Signaling Services Common Channel Signaling System 7 General Description*

(7) 231-390-521 – *Network Interconnect Common Channel Signaling System 7 Feature*

(8) 231-390-522 – *Advanced Intelligent Network (AIN) Release 0.1 Protocol and Capabilities Feature Document*

B. Other Documentation

(1) *Call Store Data Layout Manual PK-6A006*

(2) *COEES Information System Engineering Document Index 38*

(3) *COEES Information System Engineering Document Index 61*

(4) *TR-TSY-000508 LSS-GR-AMA, Section 8.01*

(5) *Office Parameter Specification PA-6A001*

(6) *Parameter Guide PG-1A*

(7) *Translation Guide TG-1A*

(8) *Translation Output Configuration PA-6A002*

7. Abbreviations and Acronyms

A

ACRG
Access Code Restriction Group

AIN
Advanced Intelligent Network

AMA
Automatic Message Accounting

ASC
Announcement Service Circuit

C

CAT
Centrex Access Treatment

CCS
Common Channel Signaling

CCS7
Common Channel Signaling System 7

CDR
Customer Digit Receiver

CLDN
Calling Line Directory Number

COEES
Central Office Equipment Engineering System

COEES-MO
COEES-Mechanized Ordering

COT
Customer Originated Trace

D

DN
Directory Number

E

EGO
Equipment Group or Office Count Number

I

I/O
Input/Output

ILHB
Incoming Line History Block

L

LASS
Local Area Signaling Services

LEC
Local Exchange Carrier

LEN
Line Equipment Number

LENCL2
Line Equipment Number Class 2

LH
Line History

LHB
Line History Block

LOOF
LASS Office Option Feature

P

PACT
Prefixed Access Code Translator

PBX
Private Branch Exchange

POTS
Plain Old Telephone Service

PRI
Pseudo Route Index

PS
Program Store

R

RCLDN
Retrieval of Calling Line Directory Number

RSS
Remote Switching System

S

SCP
Service Control Point

SLE
Screen List Editing

SLR
Screen List Editing Call Register

T

TIRM
Technical Information Resource
Management

TMC
Traffic Measurement Code

TTY
Teletypewriter

U

UCDA
Unique COT Denied Announcement

FEEDBACK FORM

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Customer Originated Trace
Local Area Signaling Services
Feature Document

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