



Enhanced Originating
Line Screening
(EOLS)

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ENHANCED ORIGINATING LINE SCREENING (EOLS)

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Enhanced Originating Line Screening (EOLS)

1. Introduction

1.1 General

BellSouth has designed an Enhanced Originating Line Screening (EOLS) service. This service is intended for carriers and operator services providers which need detailed information about a screened calling number. Screening is used to identify calls from a telephone that may have billing restrictions, such as an Independent Payphone Provider phone, or an inmate phone.

Typically, screened calls are delivered to an operator services switch via a Feature Group D trunk with the Automatic Number Identification Information Indicator (ANI II) digits set to "07." A carrier who has subscribed to EOLS can send a TCAP query via an SS7 connection to BellSouth. BellSouth will send a response containing, if available, a number which indicates the nature of the service associated with the queried number. This allows the subscribing carrier to determine subsequent call treatment.

This service has been designed to meet the requirements established by the FCC Orders released April 5, 1996, and December 20, 1996, in CC Docket 91-35.

1.2 Purpose

The purpose of this document is to provide information required for interconnecting with BellSouth company networks. This includes the interface specification, the protocols and messages used, and recommended operations and testing procedures.

1.3 Related Documents

This document is based on information contained in the following Bellcore document:

- (1) Bellcore Generic Requirement GR-1158-CORE, OSSGR Section 22.3, Line Information Database, Issue 2, October, 1995; (especially section 10.4 and related sections)

The following BellSouth technical reference provides information for interconnecting to BellSouth's SS7 network.

- (2) BellSouth TR 73554, BellSouth Guidelines to Technical Publication TR-TSV-000905, September, 1990.

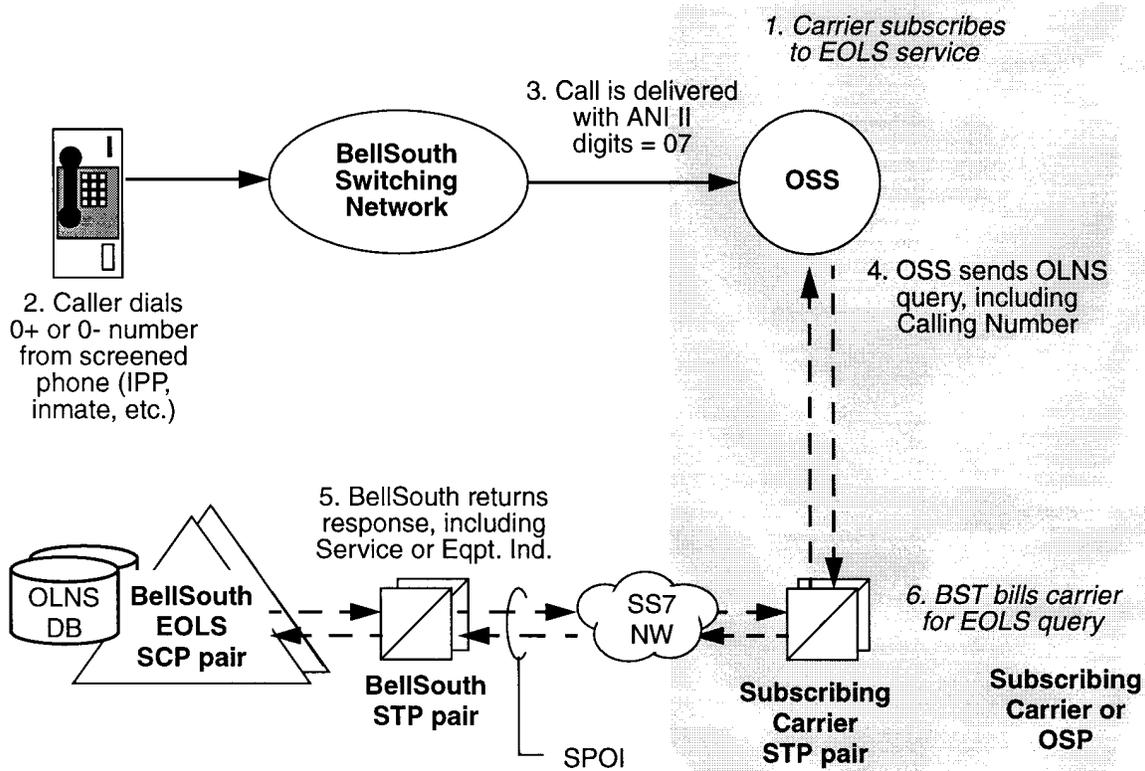
2. Architecture Overview

BellSouth has elected to provide the EOLS service through the use of the OLSN screening messages defined in the OSSGR LIDB requirements document. A carrier or operator services provider desiring to utilize the EOLS service must configure their operator services switch and SS7 network to send an OLSN query to BellSouth as described below. BellSouth will provide a response to the query. Valid responses are described below.

Arrangements for the EOLS service are described in BellSouth's tariff F.C.C. No.1.

3. Architectural Configuration

The following diagram shows an overview of the architectural configuration. The original call is carried across a network interconnection trunk to the subscribing carrier Operator Services Switch (OSS). The OSS sends an OLSN query to the subscribing carrier's Signal Transfer Point (STP). The query is routed through a Signaling System 7 network (SS7 NW) to BellSouth's STP, where it is routed to the mated SCP pair providing the EOLS service. The EOLS service application utilizes the EOLS database of screened telephone numbers to determine the proper response. The EOLS SCP returns the response message to the originating OSS. EOLS screening information may be used by the OSS operator to determine subsequent call treatment..



The Signaling System 7 interconnection utilizes BellSouth's tariffed Transaction Capabilities Application Part (TCAP) transport service. New SS7 capability to support the EOLS service

is only necessary if the subscribing carrier does not already have sufficient SS7 interconnection capacity with the BellSouth SS7 network.

The EOLS service provides support for new messages over the TCAP interconnection as described below.

The remainder of this document is based on this network configuration. Other network configurations are feasible. Contact a BellSouth Interconnection Services Account Representative to discuss alternative network arrangements .

4. Interconnection

4.1 Interconnecting Node – STP

EOLS carrier customers will interconnect at the designated BellSouth Signal Transfer Point (STP) pair, known as the EOLS location. The STP pair provides the correct routing of EOLS SS7 messages. In addition, the STP provides screening functions so that EOLS queries from subscribing carrier customers will be routed by the STP. The EOLS location is further defined as the capability code (i.e., alias point code) in the BellSouth SS7 network which identifies the STP pair used for EOLS queries.

5. OLNS capabilities supported by BellSouth

5.1 Message format and content

The format of the query and response used for the EOLS service is the OLNS query as defined in Bellcore GR-1158-CORE, (OSSGR 22.3) section 10.4. The Service or Equipment (SOE) indicator field will be used to identify the nature of the queried number.

Three TCAP messages will be supported for the EOLS service.

- (1) INVOKE – this message is sent from the subscribing OSS to the EOLS SCP; it contains, in the service key field of the message, the 10-digit directory number for which information is requested.
- (2) RETURN RESULT– This message is sent in response to the OLNS query message when a valid Service Or Equipment indicator (SOE) value for the calling number is found in the EOLS database. The following table shows the valid list of SOE values, based on BellSouth's current mapping of screened services. One of these SOE values will be returned in the Return Result message.

SOE value	OLNS definition
1	Invalid SOE value (should not happen)
3	POTS residential – Message rate 1
4	POTS residential – Message rate 2
6	POTS Line – business, flat rate
7	POTS line – business – Message rate 1
11	POTS line – business – Message rate 2
16	POTS line – residential – flat rate
19	IPP – standard interface
20	IPP – alternate interface
21	Hospital
22	Prison (non-IPP)
25	Dormitory line
26	Centrex line
27	PBX line
28	Prison (IPP)
30	Cellular
31	Pager
33	Feature Group A

- (3) RETURN ERROR – This message is sent in response to the OLNS query message when a valid SOE value for the calling number is not found. This can happen if the number is not found in the EOLS table, or if the number does not have a valid SOE associated with it. See EOLS Database Scope for a description of the numbers included in the EOLS database.

The following error value is used:

Error Value	Used for
4	Missing customer record

5.2 EOLS database scope and updates

The initial database load for EOLS will include all BellSouth directory numbers which are translated to produce an ANI II of 07.

The EOLS database will be updated at least once per business day to reflect changes in the screening status of BellSouth numbers.

In addition, BellSouth will load and maintain screened numbers for other local exchange carriers (LECs) as business agreements are established. The update interval will depend on the capabilities of each LEC.

Other numbers and other SOE values may be added to the EOLS database for other uses.

5.3 Other OLNS fields

The initial EOLS database load will only include SOE values. The remaining mandatory OLNS fields will be returned zero-filled as described in GR-1158.

BellSouth may populate additional fields in the EOLS database for other uses.

6. Message routing

6.1 Message routing information

BellSouth's initial version of EOLS requires routing of OLNS messages to a new, non-LIDB, capability code. Later versions may allow routing OLNS and LIDB messages to the same capability code.

EOLS screening query messages must be routed to BellSouth using the following routing information:

Translation Type	253
STP Capability Code	252.202.190 (note: this is different from BellSouth's standard LIDB capability code)
Subsystem Number (SSN)	0
Global Title Indicator	Route on Global Title or RI = 0
Global Title Address	10 digit Calling Number

6.2 Representative OSS and STP translations for interim routing

This section describes two methods which may be used to accomplish the interim BellSouth EOLS routing described above. These methods are provided as representative suggestions only; all configurations are the responsibility of the subscribing carrier. This list is not exhaustive. For further information regarding these or other suggestions, please contact a BellSouth Interconnection Services Account Representative.

Both of the following suggestions utilize the OSS switch capability to route OLNS messages to an OLNS-specific routing address, or using an OLNS-specific translation type. For OSS translation guidelines to accomplish this routing, the OSS manufacturer should be consulted.

Method 1 uses an STP pair in the subscribing carrier's network to provide OLNS-specific global title translation table.

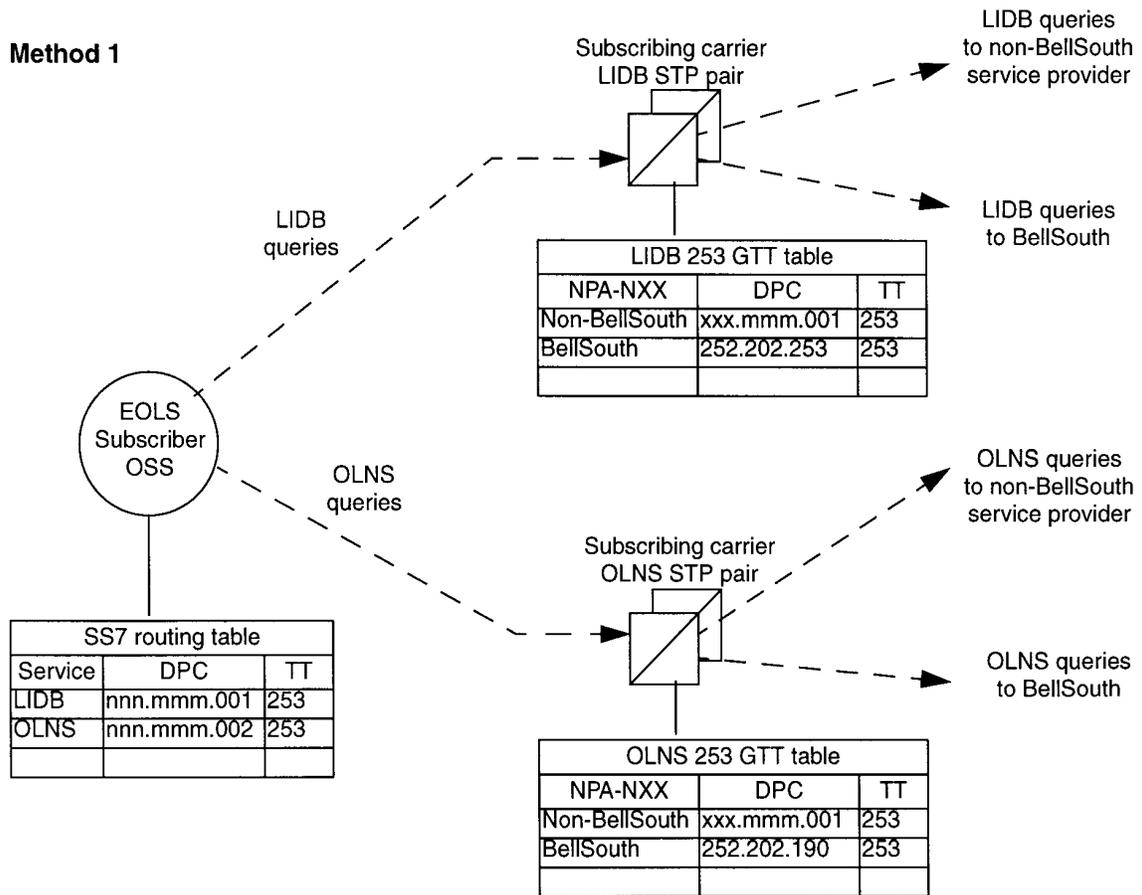
Method 2 uses a Translation Type mapping in the subscribing carrier's LIDB STP pair to access the OLNS-specific global title translation table.

6.2.1 Method 1

For this configuration, the OSS is configured to send the OLNS message to an STP capability code which is different from the one used to route LIDB validation queries. The LIDB Translation Type of 253 can be used.

Within the OSS STP, published LARG NPA–NXXs are used for Global Title Translation of the query. For NPA–NXXs in the BellSouth region, the GTT should translate to the Destination Point Code equal to the EOLS Capability Code listed above.

The following diagram depicts this method.



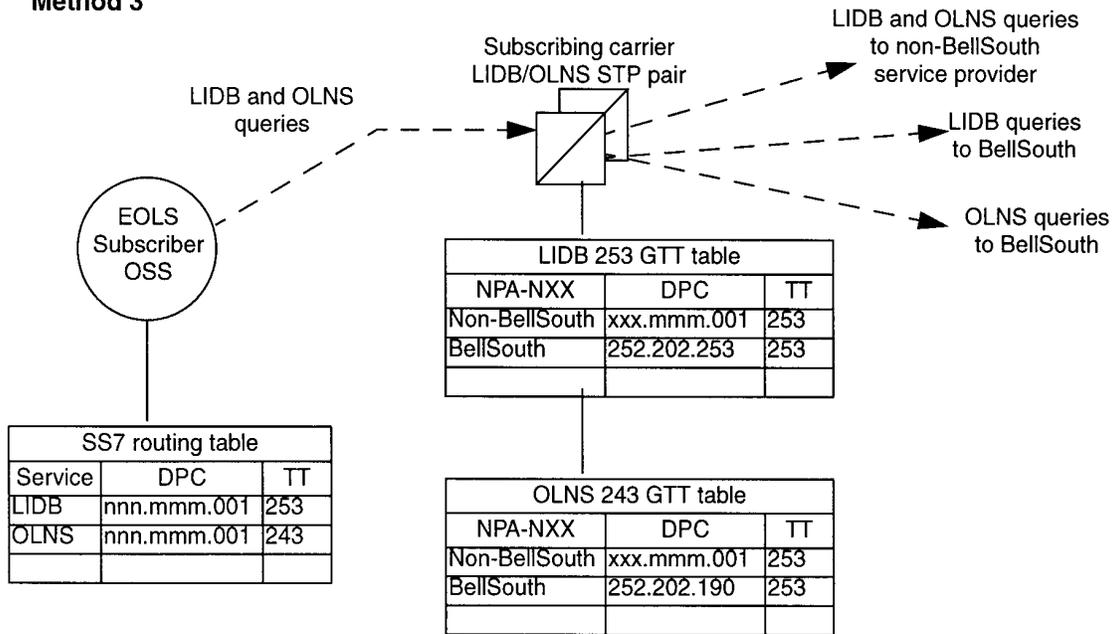
6.2.2 Method 2

For this configuration, the OSS is configured to send the OLS message to the STP using an OLS-specific Translation Type (e.g., 243).

Within the STP, the Translation Type uses an EOLS-specific Translator Table to perform the Global Title Translation. After the Global Title Translation has been performed, and before the STP transmits the query, the STP changes (“maps”) the outgoing Translation Type to 253.

Note that not all STPs are capable of this type of Translation Type mapping.

Method 3



7. Performance, reliability, and anticipated traffic

7.1 Performance and reliability

The performance and reliability parameters within which the EOLS service can be expected operate are shown in the table below. These inclusion of these values in these specifications does not constitute a performance guarantee.

Parameter	Expected value
Response time measurement point	Measured from the time the query hits the BellSouth STP until the response leaves the BellSouth STP (point labelled SPOI in the architecture diagram)
Typical query response time	700–900 milliseconds
Time within which 99% of queries are returned	1400 milliseconds
Maximum expected down time for the EOLS service (assuming mated SCPs)	2–3 minutes per year

7.2 Anticipated traffic

In order to achieve the performance parameters listed above, the subscribing carrier must provide BellSouth with anticipated traffic load characteristics, including total queries anticipated per year for the next three years, the number of queries expected during the busy hour, and at what time of day the busy hour can be expected.

8. Pre–service Testing

Before revenue service is initiated, the subscribing carrier and BellSouth will cooperatively test to verify that EOLS service is operating properly.

8.1 Configuration

The test configuration will consist of the actual network equipment planned for use with the EOLS service, with additional trunks and translations as follows.

- (1) The subscribing carrier will configure its network, including the OSS translations, the STP translations, and any required interconnecting network translations.
- (2) BellSouth will configure its network, including the STP translations and any interconnecting network translations required on BellSouth's part.
- (3) BellSouth will have previously verified correct operation of the EOLS service within its own network.
- (4) The subscribing carrier and BellSouth will configure a trunk for EOLS test purposes,

- (5) BellSouth will configure at least two test lines with two different screening features provisioned on each line.
- (6) The test lines and corresponding SOEs will be included in the EOLS database.
- (7) The test lines will be provisioned to route 0+ calls to the subscribing carrier Feature Group D test trunk.

8.2 Test equipment

The subscribing carrier will be responsible for providing any network and protocol test equipment used in its network.

8.3 Test procedure

BellSouth and the subscribing carrier will jointly perform the testing. The following tests should be performed as a minimum. Other testing may be performed by mutual agreement.

Description of test	Anticipated result
Normal query and response for each test line	Should return correct SOE
Query to a number not found in EOLS database	Should return error message, with value of 4

8.4 Load testing

By mutual agreement and at a time selected by BellSouth, the subscribing carrier may, at its option, perform load testing of EOLS messages. BellSouth may choose to do any of the following, prior to or during the load testing:

- (1) establish the maximum acceptable load test rate;
- (2) terminate the test at any time.

9. Ongoing operations procedures

On-going operations will be handled using existing BellSouth Interconnection Services procedures.

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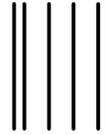
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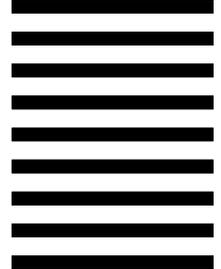
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