



**9-1-1 Public Emergency Reporting Service
(9-1-1 PERS)**

ATID-0004

September 1997

**Network-to-Network Interfaces
Between Competitive Local Exchange
Carriers (CLECs) and NBTel's Network**

This document may not be reproduced without the express permission of Aliant Telecom Inc.
Any reproduction, without authorization, is an infringement of Aliant Telecom's copyright.

**Copyright ©
Aliant Telecom Inc.
1997
All Rights Reserved**

TABLE OF CONTENTS

1.0 INTRODUCTION	4
1.1 PURPOSE	4
1.2 GENERAL	4
2.0 SERVICE DESCRIPTION	5
2.1 SERVICE OVERVIEW	6
2.2 VOICE NETWORK OVERVIEW	7
3.0 Voice Network Interface	8
3.1 PHYSICAL TRUNK INTERFACE	8
3.2 SIGNALLING REQUIREMENTS	9
3.2.1 9-1-1 SIGNALLING PROTOCOL	9
3.2.2 9-1-1 SELECTIVE ROUTER SWITCH SIGNALLING	9
4.0 Data Network Interface	11
4.1 GENERAL	11
4.2 DATA COMMUNICATION WITH THE 9-1-1 PERS DATA SYSTEM	11
4.2.1 ACCESS	11
4.2.2 COMMUNICATIONS PROCESS	11
5.0 Customer Record Information Files and Records	12
5.1 FILE EXCHANGE PROTOCOL	12
5.2 FILE NAMING CONVENTION	12
5.3 INITIAL LOAD AND UPDATE FILES	13
5.4 FILE FORMAT	13
5.5 TYPES OF RECORDS	13
5.6 TYPES OF TRANSACTION RECORDS	13
5.7 SORTING OF TRANSACTION RECORDS	14
5.8 RECORD FORMATS	15
5.8.1 HEADER RECORD	15
5.8.2 TRANSACTION RECORD	16
5.8.3 TRAILER RECORD	17
6.0 Error Return Files	18
6.1 GENERAL	18
6.2 CONDITIONS AND FREQUENCY	19
6.3 FILE NAMING STANDARDS	19
6.4 FILE FORMAT	19
6.5 RECORD FORMAT	19
6.6 RECORD CONTENT	19
6.7 FILE VALIDATION ERROR	20
6.7.1 RETURN STATUS	20
Appendix 1: Glossary	21

DOCUMENT HISTORY

--

1	September 1997	Initial issue
---	----------------	---------------

--

Renamed as Aliant Telecom Inc. Interface Document ATID-0004 from Stentor ID-0027

--

DISCLAIMER

Aliant Telecom Inc. reserves the right to modify the interface described in this document for any reason including, but not limited to, ensuring that it conforms with standards promulgated by various agencies from time to time, utilization of advances in the state of the technical arts, or the reflection of changes in the design of any equipment, techniques or procedures described or referred to herein.

ALIANTELECOM INC. SHALL NOT BE LIABLE FOR ANY DAMAGES OR INJURIES INCURRED BY ANY LEGAL PERSON OR PERSONS, INCLUDING BUT NOT LIMITED TO CORPORATIONS, ARISING DIRECTLY OR INDIRECTLY FROM ANY INCOMPATIBILITY WITH THE NETWORK, OR ANY CAUSE WHATSOEVER.

Readers are specially advised that the technical requirements contained herein may change.

If further information is required, please contact:

Telephony Standards

Suite 640

160 Elgin Street

Ottawa, Ontario

K1G 3J4

In Canada: 1-877-77-TELCO (83526)

Worldwide: 613-781-7393

Fax: 613-781-1658

E-mail: disclosure@aliant.cdn-telco.comWeb-site: aliant.cdn-telco.com

1.0 INTRODUCTION

1.1 PURPOSE

This document describes the interfaces between Competitive Local Exchange Carriers (CLECs) and the NBTel Network for the purpose of providing **9-1-1 Public Emergency Reporting Service (9-1-1 PERS)**. These interfaces allow 9-1-1 calls originating from CLEC customers to be passed through the NBTel network to the appropriate 9-1-1 service bureau. These interfaces also allow CLECs to update NBTel's 9-1-1 PERS Data System with the pertinent calling number and location information of their customers.

This document covers only CLEC interconnection with NBTel's 9-1-1 PERS. Interconnection to Basic 9-1-1 Emergency Service, where provided, is outside of the scope of this document.

The Terminal-to-Network interfaces between NBTel's network and a 9-1-1 Service Bureau are outside of the scope of this document.

Operational issues that deal with interconnection between CLECs and NBTel are also outside of the scope of this document. Those issues are dealt with in NBTel's Implementation Support documentation and in special agreements with a particular CLEC.

1.2 GENERAL

9-1-1 PERS provides the transport of all 9-1-1 calls between callers' locations and primary Public Safety Answering Points (P-PSAPs), and between the primary PSAP and associated police, fire and ambulance dispatch centres (referred to as secondary PSAPs). The municipalities and the various agencies are responsible for answering and responding to the emergency calls.

When a CLEC's end customer dials 9-1-1, the call is switched and transported to NBTel's designated 9-1-1 Selective Router switch. The 9-1-1 call is then routed from the 9-1-1 Selective Router switch to the appropriate PSAP, where the subscriber's telephone number, name and address are delivered to the 9-1-1 call-taker terminal.

To enable appropriate response to 9-1-1 calls from CLEC end customers, each CLEC must transmit the Customer Record Information (ANI and ALI) of its end customers to the NBTel 9-1-1 PERS Data System.

Interconnection facilities and functions include the following:

- Appropriate dedicated trunk-side connections between the CLEC's end-office switch and NBTel's receiving 9-1-1 Selective Router switch.
- Multi-Frequency signalling (MF) on 9-1-1 trunks, to enable the operation of call control features.
- An appropriate data entry facility to enable data transfer between the CLEC Customer Record Information System (CRIS) and NBTel's 9-1-1 PERS Data System.

Note: *Please note that the information contained in this document covers the complete set of features that will be available for interconnection with CLECs by January 1998. The following features that are intended to accommodate LNI/NCU and LNP functionalities will not be available until 1998:*

- *“LSP ID” field in the incoming record*
Before 1998, all incoming records must be 310 characters long.
- *“Unlock” transaction type*
CLEC Portability (migration of TNs from one CLEC to another) is not supported before 1998. Any “Unlock” transaction type received in 1997 will be rejected as invalid.

2.0 SERVICE DESCRIPTION

2.1 *SERVICE OVERVIEW*

Following is a brief description of the activities performed by the 9-1-1 PERS network:

The **9-1-1 PERS Data System** receives data from the CLEC Customer Record Information System, to create and maintain the 9-1-1 centralized databases. A matching procedure is performed between the Customer Record Information (CRI) data and the 9-1-1 Street Address Guide (9-1-1 SAG) to create a database containing subscribers' name, address, telephone number and Emergency Service Number (ESN). This database is used to provide the Automatic Location Identifier (ALI) and the Selective Routing features.

The **9-1-1 SAG** is a database, which contains addresses in a given area, listed as street names and corresponding civic number ranges.

The **ALI** feature is the capability to display the caller's service address at the 9-1-1 call-taker position.

Selective Routing is the capability of routing 9-1-1 calls to the correct PSAP based on the caller's location.

An **ESN** corresponds to a geographical area where all residents are served by the same set of primary and secondary PSAPs.

When a subscriber located in a 9-1-1 PERS served area dials 9-1-1, the call is answered at the primary PSAP associated with that location. The caller's address and phone number are automatically displayed to the 9-1-1 call-taker screen, when available. The call-taker determines which public service is required (fire, police or ambulance) and transfers the call to the appropriate secondary PSAP.

2.2 VOICE NETWORK OVERVIEW

The voice network is based on the Nortel E9-1-1 DMS-100 Selective Router switches. The 9-1-1 Selective Router switches are paired for redundancy purposes; end-offices connect to the primary and secondary Selective Router switches with dedicated 9-1-1 trunks (i.e., 9-1-1 interconnection service arrangement trunks).

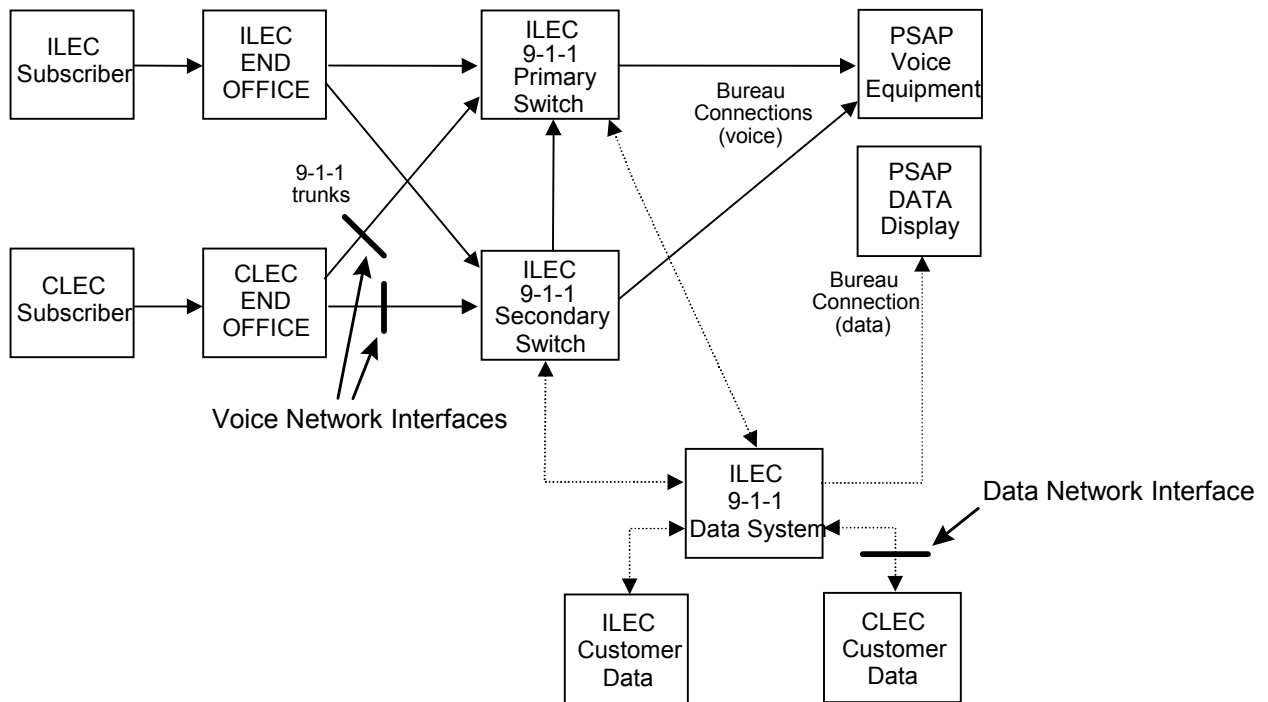
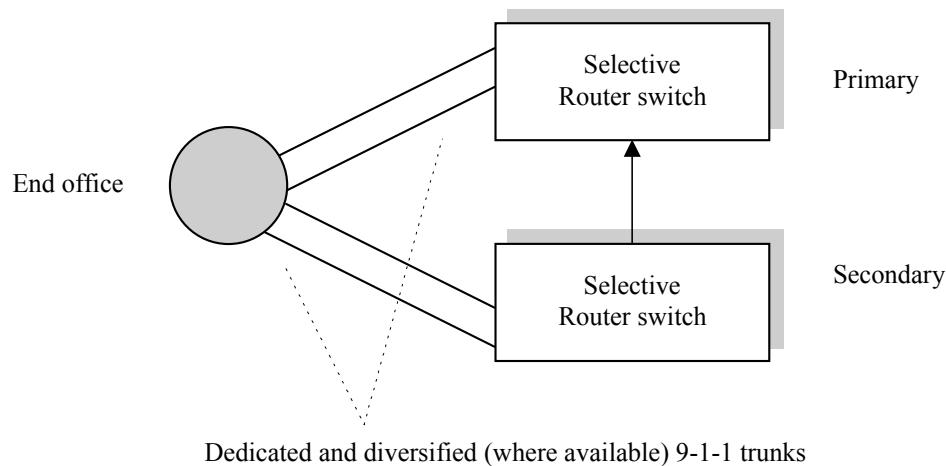


Figure 1 - Trunk-side interconnection to NBTel 9-1-1 PERS Network

3.0 Voice Network Interface

This section provides details of the interface requirements to interconnect with NBTel's 9-1-1 PERS voice sub-network.

Each Selective Router switch is paired with a backup unit; they are designated as primary and secondary Selective Router switch, based on a NBTel assignment. Dedicated 9-1-1 interconnection service arrangement trunks link all end-offices in the served area to both Selective Router switches. 9-1-1 calls are routed using the trunks that connect the end-office to the primary Selective Router switch. In the event of a primary trunk failure or a primary Selective Router switch failure, 9-1-1 calls will be re-directed to the secondary Selective Router switch.



3.1 *PHYSICAL TRUNK INTERFACE*

The primary function of the trunks connecting the end-offices to the 9-1-1 Selective Router switches is to provide the signalling capabilities. These can be grouped into two main areas:

- protocol between the end-office and the 9-1-1 Selective Router switches for call set-up,
- 9-1-1 features set support

Any wink-start trunk outgoing from a CLEC end-office conforming to "Feature Group C" signalling and capable of spilling ANI can be used to interface with an incoming 9-1-1 trunk at a 9-1-1 Selective Router switch.

The ANI information is always received as MF signals, and uses Bellcore Standard Format with a single information digit.

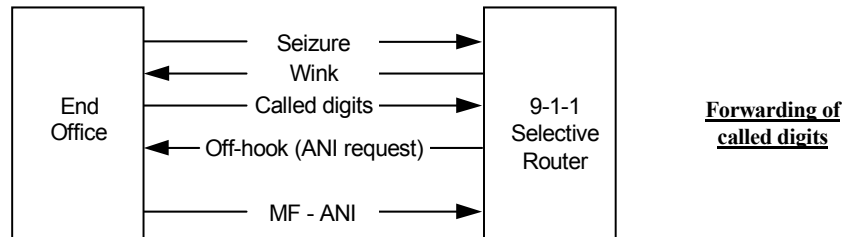
The signalling is described in Section 6 of Bellcore Technical Reference TR-TSY-000540, Issue 2, July 1987, (Tandem Supplement to LSSGR), and in Revision 2, June 1990.

The trunks that are required to interconnect a CLEC end-office to NBTel's Selective Router switches are available per Stentor's National Services Tariff CRTC 7400, Item 635 as filed on July 30, 1997.

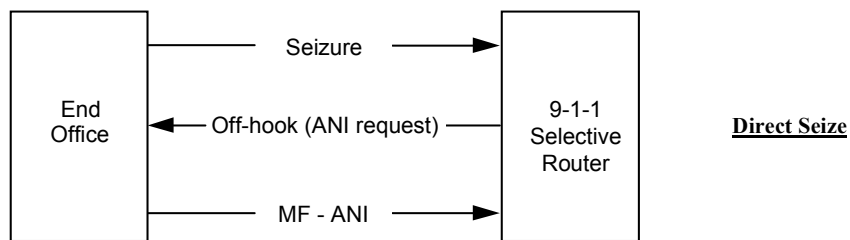
3.2 *SIGNALLING REQUIREMENTS*

3.2.1 9-1-1 SIGNALLING PROTOCOL

CLEC sends 9-1-1 digits:



CLEC send ANI only:



3.2.2 9-1-1 SELECTIVE ROUTER SWITCH SIGNALLING

The 9-1-1 Selective Router switches use specific signalling on the trunk from the end-offices, to support following 9-1-1 PERS features:

Ringback

This feature enables the PSAP call-taker, via the end-office, to:

- ring the phone of the 9-1-1 caller, if it is “on-hook”, or
- apply Receiver Off-Hook (ROH) treatment to the line if the phone is “off-hook”.

Called Party Forced Disconnect

Allows the PSAP call-taker to force the disconnection of a 9-1-1 call, and thus release the 9-1-1 trunk (in the case the originator fails to return the phone to the “on-hook” state).

When the PSAP attendant goes “on-hook”, the 9-1-1 Selective Router switch sends a disconnect signal to the end-office.

Called Party Disconnect Signal

This feature provides the PSAP call-taker with a distinctive tone to indicate that the 9-1-1 caller has returned the phone to the “on-hook” position.

When the caller goes “on-hook”, the end-office provides a distinctive tone to the PSAP attendant.

Called Party Control

Gives the PSAP attendant sole control over the disconnection of a 9-1-1 call. The end-to-end connection is maintained until a valid on-hook signal is sent by the call-taker. This prevents the 9-1-1 caller from terminating the call.

The Selective Router switch requires an “on-hook” signal from the PSAP to initiate disconnection of the call.

If the caller goes “on-hook”, then “off-hook”, and the PSAP attendant has remained “off-hook”, the call must remain connected. The end-office cannot release the call.

The end-office must indicate to the 9-1-1 Selective Router switch that the caller has gone “on-hook”, and waits for a disconnect signal from the Selective Router switch before dropping the call. The Selective Router switch will provide the disconnect signal when the PSAP attendant goes “on-hook”, or when the Selective Router switch’s PSAP-disconnect timer expires, whichever comes first.

4.0 Data Network Interface

4.1 GENERAL

This interface is intended to transport the CLEC customers' ANI and ALI information for the purpose of updating the 9-1-1 PERS Data System.

4.2 DATA COMMUNICATION WITH THE 9-1-1 PERS DATA SYSTEM

4.2.1 ACCESS

To communicate with the NBTel 9-1-1 PERS Data System, the following access arrangement and software are required:

- access to the Internet, either direct or via an internet access provider (ISP);
- an e-mail address;
- an e-mail application supporting Multipurpose Internet Mail Extension (MIME) encoding;
- a subscription to **OnWatch™ Service**; and
- an **Entrust/Client™** software application allowing digital signatures and file encryption and compression (included in **OnWatch™ Service**).

*NOTE: **OnWatch™ Service** and **Entrust/Client™** are required to maintain security and to protect confidential customer record information during transit over the Internet. The encryption and digital signature provide data confidentiality, data access control, data integrity, data origin authentication, and non-repudiation. The **Entrust/Client™** complete configuration details (compression and encryption algorithms, etc.) will be provided to the CLEC at the time of interconnection.*

4.2.2 COMMUNICATIONS PROCESS

Customer Record files from the CLEC to the 9-1-1 Data System as well as Error Return files from the 9-1-1 Data System to the CLEC are sent as attachments to e-mail messages, using MIME encoding.

Each e-mail message shall contain one, and only one, file.

The SUBJECT field of the messages sent by the CLEC to NBTel shall contain the unique identifier: "CRI" (for Customer Record Information). The 9-1-1 PERS Data System will send back Error Return files to the CLEC the same way, but the SUBJECT field of the message will contain the following unique identifier: "FILE ERROR" (in the case of an invalid file (CLEC shall return same FSN) or "RECORD ERROR" (in the case of error on single records).

Each file attachment must be digitally signed, encrypted, and compressed using the **Entrust/Client™** before attaching it to the e-mail message.

Each file attachment must be detached and decoded by the recipient upon reception of the e-mail message.

5.0 Customer Record Information Files and Records

This section defines the CLEC end customers' identification and service location information to be transmitted by the CLEC to NBTel 9-1-1 PERS Data System.

After processing the received data, the 9-1-1 PERS Data System will generate an Error Return file (serving as a processing acknowledgement as well as for returning any file or record error to the CLEC). Details of Error Return files are discussed in Section 6.

5.1 FILE EXCHANGE PROTOCOL

The Customer Record Information files and Error Return files will be exchanged, between the CLEC and the ILEC, using e-mail as described in Section 4.2 of this document.

5.2 FILE NAMING CONVENTION

The Customer Record Information files must be named according to the file naming convention described below.

The filename must be 8 characters long and conform to this format:

CO99999T

where:

“CO” is the Company Code (uniquely assigned to each sender company by NBTel's 9-1-1 CLEC Administrator).
“99999” is the File Sequence Number (FSN). It is right justified and zero filled.
“T” is the file type. The only valid value for incoming CLEC files is “I” (Incoming file).

The **Company Code** is provided by the NBTel CLEC Administrator, and is used to determine and validate the origin of the file. It is different from the LSP ID.

The **File Sequence Number** (FSN) is used to determine if files have been lost in transit. It starts at “00001” (first file transferred) and must be incremented by 1 for each subsequent file transfer, unless the previous file was rejected. When “99999” is reached, the File Sequence Number must be reset to “00001”.

The 9-1-1 PERS Data System maintains and keeps track of a separate File Sequence Number for each company. Each time the 9-1-1 PERS Data System successfully processes a CLEC file, it increments the next expected FSN by one, except in the case where the file was rejected, in which case the FSN remains the same.

If the File Sequence Number sent by a specific CLEC and the File Sequence Number expected by the 9-1-1 PERS Data System do not match, the system will generate an “Out of Sequence” error return file, which will contain the missing File Sequence Number. The 9-1-1 PERS Data System will not process nor keep any other file received from that company until the problem is resolved.

The **File Type** is used by the PERS Data System and the CLEC to distinguish between incoming Customer Location “I”nformation files and outgoing “E”rror Return files.

5.3 *INITIAL LOAD AND UPDATE FILES*

An Initial Load file is the first file generated by a CLEC, and contains the information necessary to update the 9-1-1 PERS Data System with the CLEC data. The Initial Load file contains only “Add” records.

Update files should contain all subsequent changes, additions and deletions that occur on the CLEC’s served TNs; they contain “Add”, “Delete” and “Unlock” records. Changes are sent as “Add” records, and TN migrations to other CLECs as “Unlock” records.

The two types of files (Initial Load and Update) have exactly the same file and record formats.

5.4 *FILE FORMAT*

Customer Record Information files must always contain at least three records: a Header record, one or more Transaction records, and a Trailer record. Files that do not conform to this format will be rejected.

Each record is 315 characters long; they are separated by one Carriage Return (CR) character.

IMPORTANT:

Customer Record Information records must only contain standard ASCII upper case characters, digits and symbolic characters (i.e., ASCII codes between 32 and 101 inclusively). No other character will be accepted. Any record containing one or more invalid characters (e.g., control character, lower case character, accented character, etc.) will result in rejection of the entire file.

5.5 *TYPES OF RECORDS*

The first record of a file must always be a valid Header record; it must be followed by one or more valid Transaction records. The last record of the file must always be a valid Trailer record.

The Header record contains information about the CLEC, along with a time stamp.

The Transaction record contains the actual Customer Record Information.

The Trailer Records contains a record count (number of Transaction records in the file) and a time stamp.

5.6 *TYPES OF TRANSACTION RECORDS*

There are only three types of valid Transaction records:

- “Add” records will add the CRI record in the 9-1-1 PERS Data System, unless a matching TN record already exists in the database; in that case, the new CRI record will completely overwrite the existing one.
- “Delete” records will delete the corresponding TN record from the 9-1-1 PERS Data System. The CRI record must exactly match the TN record kept in the 9-1-1 PERS Data System, i.e. the exact same information that was previously sent and /or updated).
-
- “Unlock” records are used in place of “Delete” records when and only when a TN migrates from one CLEC to another CLEC. They must contain the same information as normal Delete

records. This type of record will trigger the unlocking of the matching TN record in the 9-1-1 PERS Data System, so that it can be updated by the new CLEC.

The LSP ID of the Transaction record always need to match that of the existing CRI record, unless the record is in an unlock state. If there is no match, the Transaction record will be posted to a waiting file until such time that the existing TN record is unlocked.

Any change or update to an existing Customer Record Information must be sent as an Add record, which will completely overwrite the existing record. It must thus contain all the information an Add record would contain, and not only the information that has changed.

Examples:

- *Situation 1:*
A customer moves to a new location, keeping the same CLEC and telephone number.
Transaction records 1:
The CLEC sends an “Add” record, containing the complete customer information. This record will overwrite the existing record (provided there is an LSP ID match).
- *Situation 2:*
A customer changes telephone number only, without changing location nor migrating to another CLEC.
Transaction records 2:
The CLEC first sends a “Delete” record for the old TN, followed by an “Add” record for the new TN; the records must be sent in the right sequential order, and in the same file (to avoid any service interruption).
- *Situation 3:*
A customer migrates to another CLEC, while retaining the same telephone number.
Transaction records 3:
The donor CLEC sends an “U”nlock record, and the recipient CLEC sends an “A”dd record. If the “U” arrives before the “A”, the existing TN record will be unlocked, so that the “A” will be applied as soon as it arrives. But if the “A” arrives before the “U”, it will be posted to a waiting file until the “U” has been applied.

5.7 SORTING OF TRANSACTION RECORDS

The CLEC must sort the Transaction records in each Customer Record Information file, first by TN, then in chronological order. The Transaction records will be processed sequentially, in the order in which they are received. For example, an “Add” followed by a “Delete” on the same TN will result in the TN no longer existing in the 9-1-1 PERS Data System.

5.8 RECORD FORMATS

5.8.1 HEADER RECORD

The Header record is used for administrative and file validation purposes.

The following layout is to be used for the Header record, i.e., the first record of every Customer Record Information and Error Return file.

Field Name	Starting Position	Length	Type	Value
Record Type	01	1	Alphabetic	"H" for Header
Company Code	02	2	Alphabetic	Assigned by the CLEC Administrator
Contact Name	04	15	Alphabetic	Name of the person to contact for file related problem resolution
Contact Telephone Number	19	12	Numeric (see Note 1)	Contact's telephone number, for file related problem resolution
Date and time	31	14	Numeric (see Note 2)	Date and time of the beginning of the file preparation
Return Status (to be used by the 9-1-1 PERS Data System in Error Return files only)	45	21	Alphanumeric	"I" files: Blank. "E" files: Blank if no file transmission or validation error. Otherwise, "Record Count Mismatch", "File Out of Sequence", "Invalid Format" or "Invalid character(s)" depending on the problem.
Error Feedback (to be used by the 9-1-1 PERS Data System in Error Return files only)	66	13	Alphanumeric	For Incoming file: spaces For Error Return file: Additional error information
Filler	79	237	Blank	Spaces

Note 1: Format: NPA-NXX-LINE

Note 2: Format: YY:MM:DD:HH:MM using a 24 hour clock,

5.8.2 TRANSACTION RECORD

The following layout is to be used for the Transaction records, i.e., for all records between the Header and the Trailer of every Customer Record Information and Error Return file.

The Transaction records contains customer identification and related location information. It is used to populate and update the 9-1-1 databases.

Field Name	Starting Position	Length	Type	Value
Transaction Code	01	1	Alphabetic	"A", "D" or "U"
NPA	02	3	Numeric	
NXX	05	3	Numeric	
LINE	08	4	Numeric	
Client Account ID	12	3	Numeric	
Service Class	15	3	Alphanumeric	
Postal Code	18	6	Alphanumeric	(first letter must be alphabetic)
Municipality Code	24	3	Alphanumeric	
Pilot NXX	27	3	Numeric	(same as NXX)
Pilot LINE	30	4	Numeric	(same as LINE)
Class of Service	34	5	Alphanumeric	
System Source	39	1	Alphabetic	
Language Indicator	40	1	Alphabetic	"F" for French or Français, "A" for Anglais and "E" for English
Subscriber Name	41	75	Alphanumeric	
Civic Number	116	6	Numeric	
Civic Number Suffix	122	4	Alphanumeric (see Note)	
Street Name	126	75	Alphanumeric	
Street Direction	201	2	Alphabetic	"N", "S", "E", "W", "O", "NE", "NW", "NO", "SE", "SW", "SO" or blank
Street Suffix	203	2	Alphanumeric	
Location Type	205	15	Alphanumeric	
Location Number	220	6	Alphanumeric	
Additional Information	226	22	Alphanumeric	For Incoming file: additional location information (no validation) For Error Return file: one to three error codes (000 to 999)
Service Municipality	248	35	Alphanumeric	
Extended Municipality Name	283	28	Alphabetic	
LSP ID	311	5	Alphanumeric	(LSP ID assigned to the CLEC providing local telephone service to the customer)

Note: Format: -XXX (ex.: -A, -1/2)

The dash ("-") must be present only if the rest of the field is not blank.

5.8.3 TRAILER RECORD

The Trailer record is used for administrative and file validation purposes.

The following layout is to be used for the Trailer record, i.e., the last record of every Customer Record Information and Error Return file.

Field Name	Starting Position	Length	Type	Value
Record Type	01	1	Alphabetic	"T" for Trailer
Filler	02	29	Blank	Spaces
Date and time	31	14	Numeric (see Note 1)	Date and time of the end of the file preparation
Number of Transaction Records	45	6	Numeric	Number of records, excluding Header and Trailer records
Filler	51	265	Blank	Spaces

Note 1: Format: YY:MM:DD:HH:MM using a 24 hour clock,

6.0 Error Return Files

6.1 GENERAL

The Error Return file is intended to be used by the CLEC to validate the complete and proper sequential transmission as well as error-free storing of customer records.

After receiving a Customer Record Information file, the 9-1-1 PERS Data System validates it and generates a corresponding Error Return file. That Error Return file must be retrieved and analyzed by the CLEC in order to ensure proper file and record sequence.

The 9-1-1 PERS Data System first validates the file based on the following criteria:

- File name is valid.
- The File Sequence Number is the one expected.
- File contains only valid ASCII characters.
- Header and Trailer records are present and valid.
- The record count is valid.

If the file does not completely validate, it will be rejected. The records in it will not be processed and the Error Return file will contain a message indicating the problem. The Error Return file will be sent back to the CLEC as an attachment to an e-mail message whose subject is "FILE ERROR". In such case, the CLEC must correct the file and re-submit it using the same File Sequence Number (since the records were never actually processed), before sending any other file.

If the file is valid, the 9-1-1 PERS Data System processes the records contained in the file, validating each one.

If a record does not completely validate, it will be written to the Error Return file, along with the appropriate Error Code(s) in the Additional Information field (up to three codes may be indicated). The Error Return file will be sent back to the CLEC as an attachment to an e-mail message whose subject is "RECORD ERROR". In such case, the CLEC must submit a new file, containing corrections for erroneous records along with updates, if any, using the next File Sequence Number (i.e., previous one + 1).

The Error Return file also contains information about the processing of each and every record sent by the CLEC:

Condition	Indication in the Error Return file
Record valid and posted to the 9-1-1 PERS Database	None (normal processing, no error)
Invalid record	Same record as in the input file, except that the "Additional Information" value is replaced with up to three error codes specifying the problem(s) with the CLEC Customer Record Information record.
Record cannot be processed immediately because TN is currently locked by another CLEC; record is kept in a special waiting file for processing when the TN will be unlocked. The CLEC need not re-send the record. (This processing ensures timely processing of records even when there is no synchronization between the reception of Customer Record Files from the donor and the recipient CLEC).	Same record as in the input file, except that the "Additional Information" value is replaced with a special error code indicating that the record has been posted to or taken out of the special waiting file.

6.2 ***CONDITIONS AND FREQUENCY***

NBTel's 9-1-1 PERS Data System produces one Error Return file for each Customer Record Information file processed.

6.3 ***FILE NAMING STANDARDS***

The file naming convention for Error Return files is the same as the one for the Customer Record Information files, except that file type is "E" (for Error) instead of I.

The filename must be 8 characters long and conform to this format: ***CO99999T***

where:

"CO" is the Company Code (uniquely assigned to each sender company by NBTel's 9-1-1 CLEC Administrator).

"99999" is the File Sequence Number (FSN). It is right justified and zero filled.

"T" is the file type. The only valid value for outgoing files is "E" (Error file).

6.4 ***FILE FORMAT***

The format of the Error Return file is the same as the Customer Record Information file, described in Section 5.

If there were absolutely no error on any of the Transaction records, the Error Return file would contain, in addition to the normal Header and Trailer records, only one special Transaction record containing the following message: "No errors found".

6.5 ***RECORD FORMAT***

The formats of the Error Return file's records are the same as the Customer Record Information file, described in Section 5.

6.6 ***RECORD CONTENT***

The content of each Error Return record is the same as the Customer Record Information file, as described in Section 5, except for the following fields (that are specific or different for Error Return files):

Header Record:

"Return Status"

"Error Code"

Transaction Record:

"Additional Information": Up to three error codes, each separated by a space.

Note: The complete list of Error Codes and their significance will be provided to the CLEC at the time of interconnection.

6.7 FILE VALIDATION ERROR

6.7.1 RETURN STATUS

The "Return Status" field in the Header record will contain one of the following status and associated error feedback values:

Return Status	Error Feedback
"File OK"	Nil
"No Header record"	Nil
"No Trailer record"	Nil
"Invalid Character"	Nil
"File Out of Sequence"	<p>Format: 999999 999999</p> <p>First 6 digits: FSN of the file received</p> <p>Last 6 digits: FSN expected by 9-1-1 PERS</p> <p>The two numbers are separated by a space; they are right justified and zero filled.</p> <p><i>Example:</i></p> <p><i>FSN Received:</i> 000020</p> <p><i>Expected FSN:</i> 000019</p> <p><i>Error Feedback Field:</i> "000020 000019"</p>
"Record Count Mismatch"	<p>Format: 999999 999999</p> <p>First 6 digits: Number of Transaction records actually received in the file.</p> <p>Last 6 digits: Record count, retrieved from the Trailer record.</p> <p>The two numbers are separated by a space; they are right justified and zero filled.</p> <p><i>Example:</i></p> <p><i>Trailer record:</i> 75</p> <p><i>Records received:</i> 74</p> <p><i>Error Feedback Field:</i> "000074 000075"</p>

Appendix 1: Glossary

ALI	Automatic Location Identification Information regarding the location associated with the caller's telephone number.
ANI	Automatic Number Identification Caller's telephone number.
CLEC	Competitive Local Exchange Carriers
CSG	Carrier Services Group
ESN	Emergency Service Number Number of the emergency service zone defined by a unique set of one primary PSAP and three secondary PSAPs (police, fire and ambulance).
FSN	File Sequence Number Number assigned to Customer Record Information and Error Return files.
ILEC	Incumbent Local Exchange Carrier
LNI/NCU	Local Network Interconnection/ Network Component Unbundling
LNP	Local Number Portability
9-1-1 SAG	9-1-1 Street Address Guide A list of valid street names and address ranges, within a given area.
NPA	Number Plan Area The three-digit area code.
NXX	Network Exchange (prefix) The first 3 digits of the 7-digit TN.
PSAP	Public Safety Answering Point The answering location for 9-1-1 calls originating within a specified area.
9-1-1 PERS	9-1-1 Public Emergency Reporting Service NBTel's 9-1-1 system that provides Automatic Location Identification (ALI), Automatic Number Identification (ANI) and Selective Routing.
9-1-1 PERS Data System	Complete set of processes, databases and supportive hardware that form the data sub-network of the NBTel's 9-1-1 PERS.