



Direct Telephone Service Provider Data Management Guide

Wireline ALI Data Provisioning Processes

Version 2018.02.28



Notice

West Direct Telephone Service Provider Data Management Guide and Documentation

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Support Plan Introduction

This support plan represents West’s commitment to the ongoing support by the Direct Data Integrity Unit (DIU) provided to Telephone Service Providers (TSPs). The following pages provides useful information for effective and efficient data management services support. This support plan includes:

- Hours of Operation
- Support Plan Activities
- TSP Support Contact List

Hours of Operation

The West Direct DIU provides data management support 7:00am – 4:00pm MT, 5-days a week (Monday – Friday). For emergency situations occurring outside of these business days and hours, West provides support services 24-hours a day, 7 days a week, and 365 days a year, through its Emergency Call Relay Center (ECRC). The ECRC support-staff is available in the Longmont ECRC facility for emergency services.

Support Plan Activities

For assistance with data management and processing matters, the TSP may contact the West Direct DIU Analysts for problem resolution, communication, and operational matters. For all other issues, including new TSP setups, connectivity issues, SOI file processing questions or issues, contact a Direct DIU Service Delivery Project Specialist.

TSP Support Contact List

Description	Contact Information
During Business Hours, Contact the Direct DIU Analysts for the Following: 9-1-1 NET® Access Address Verification Requests Data Provisioning Questions Function of Code R (FoCR) Questions/Issues MSAG Distribution Inquiries TN Error Resolution Assistance	DirectAnalysts.SafetyServices@West.com
For Urgent Issues Occurring After Business Hours, or on Holidays and Weekends, Contact the Emergency Call Relay Center (ECRC)	Phone: (800) 357-4911



<p>For 9-1-1 NET® and Connect:Enterprise Login Issues, Password Resets or SOI File Submission Assistance, Contact West's Service Desk</p>	<p>Phone: (877) 856-7504</p>
<p>During Business Hours, Contact a Service Delivery Project Specialist for the Following:</p> <p>Connect:Enterprise Issues New TSP Setups SOI File Processing Inquiries TN Extract Requests</p>	<p>Brian Scattergood (Sr. Project Specialist) (720) 864-5259 BScattergood@West.com</p> <p>Sophia Lucero (Sr. Project Specialist) (720) 494-5848 SLucero@West.com</p> <p>DirectPjS.SafetyServices@West.com</p>
<p>To Escalate Any Unresolved Issues, Contact the Direct DIU Supervisor or Manager</p>	<p>Steve Daquino (Direct DIU Supervisor) (720) 864-6881 (720) 938-2916 (Cell) SDaquino@West.com</p> <p>Terri Bhatt (Direct DIU Manager) (720) 494-6266 (303) 619-3162 (Cell) TBhatt@West.com</p>



Data Provisioning Overview

Processing 9-1-1 data requires a sequence of events that the TSP and West perform in collaboration to ensure data quality.

1. The TSP sends data to West through an electronic transfer process to allow record processing.
2. West processes the SOI files submitted by the TSP 24x7x365. MSAG-related errors that the West Direct DIU is responsible for is addressed on the next business day, excluding company holidays.

Data Provisioning Activities

In order for the TSP's data to be processed in the 9-1-1 database, the TSP sends their service order input (SOI) records to West via electronic data transfer. Electronic data transfer can be one of the following file transfer methods:

- **Dial-up Connectivity**
- **Hyper-Text Transfer Protocol (HTTP)** – Accessing Connect:Enterprise (C:E) via HTTP requires an internet connection and a standard web browser. West provides – and retains ownership of – an EnTrust token (aka keyfob). In addition to the token's six-character numeric code, a valid username and password must be provided to the TSP by West, in order to log in to C:E. If using HTTP to access C:E, the TSP will be given a copy of the *Connect:Enterprise HTTP User Guide*, which provides detailed instructions for logging in to send and retrieve files.
- **Secure File Transfer Protocol (sFTP)** – Accessing Connect:Enterprise (C:E) via sFTP requires an internet connection and an sFTP client. Setup involves collaboration between the TSP and West and includes establishing site names, ports, and generating a private and public key. Once setup has been completed, data exchange over the internet to West's C:E server is a matter of simply opening an sFTP session.
- **Network Data Manager (NDM)** – NDM allows for data transmissions to be established using a dedicated circuit for host-to-host connectivity. Data communication through this method requires compatible communications equipment. West provides the associated data communications hardware at West's Longmont, CO headquarters. The TSP provides similar equipment, support personnel and all network components to achieve connectivity from the TSP's system. When a TSP chooses NDM, the TSP deposits a SOI file onto the West system each day. This produces outputs, such as Error and Statistics files. These files and Delta MSAGs are automatically sent back to the TSP.



SOI Processing

The following outline provides the general process flow and timeline of SOI records:

1. Error-free records are sent through West's TSS system and updated in ALI within 24 hours.
2. West provides an Error file that itemizes all updates sent to West within a SOI file which resulted in an error. The Error file is returned to the TSP's Connect:Enterprise inbox or NDM folder. The Error files returned by West contain the NENA 2 version formatted record, which includes fields for up to three (3) error codes.

Note: The error file is only generated when a SOI file has passed the pre-processing stage. Files that fail pre-processing will not receive an Error file until the issue causing the failure is corrected by the TSP and the updated SOI file is submitted for processing.

3. The West Direct DIU attempts to correct all MSAG errors (701s/709s). If West needs additional information to resolve an MSAG-related SOI error, the West DIU Analyst refers the error to the appropriate party for additional assistance in correcting the error.
4. West provides a Statistics file that itemizes the total number of updates sent to West within a SOI file and, of those, how many updates were successfully applied to the 9-1-1 database and how many erred. The Statistics file also includes a list of all valid error codes and their definitions.

Note: The Statistics file is only generated when a SOI file has passed the pre-processing stage. Files that fail pre-processing will not receive a Statistics file until the issue causing the failure is corrected by the TSP and the updated SOI file is submitted for processing.

5. West provides a Daily MSAG Delta file, which itemizes all daily MSAG updates for the regions in which the TSP operates. Any expansion into a new region requires notification by the TSP to West to update the Daily MSAG Delta report the TSP receives.



Error Correction Overview

West Direct DIU receives daily service order input (SOI) files throughout the day from multiple TSPs. The SOI files are loaded into West’s TSS system for processing. The SOI updates validate against the different databases and tables of TSS and, if a SOI update passes all of the validations, the update is applied to the ALI database. If the SOI update does not successfully pass all required validations, the TN update posts to the error database and the update is not applied to the ALI database until the error is resolved.

Function Codes

Function codes on the service order update indicate the action to be taken on the TN. It is important to compare the order type and function code to determine the intended action of the service order.

The function codes accepted by West’s TSS system are:

C	Change – Applies Changes to the TN Record
D	Delete – Deletes Only the Subline TN Listed on the SOI Update
E	Error Delete – Removes TN Error Record from the Error Database
I	Insert – Inserts the TN Record into the Database
M	Migrate – Migrates an Unlocked TN Record to the Recipient Company’s ID
P	Pilot Delete – Deletes the Pilot TN Record and All Attached Subline TNs
U	Unlock – Unlocks the TN Record for Migration by the Recipient Company

MSAG Related TN Errors

The street names and address ranges in the TSP’s address validation database should mirror the street names and address ranges listed in the Direct MSAG.

MSAG Error Codes (Managed by West Analyst)

701	House Number Does Not Fit MSAG Range
709	Street Not in MSAG File
738	MSAG Update Caused a TN Error



Error Codes Written and Retained for CSEC Regions

The Direct DIU writes and retains all error codes to its error database for SOI files submitted that are associated with a CSEC managed region, all of which can be viewed via the 9-1-1 NET application.

Error Codes Written and Retained for A9-1-1 Regions

The Direct DIU writes and retains the following list of error codes to its error database for SOI files submitted that are associated with an A9-1-1 region, all of which can be viewed via the 9-1-1 NET application. These are not all of the possible error codes that can be generated during SOI processing which would require TSP action.

101	Prefix is Not in the Prefix Table
701	House Number Does Not Fit MSAG Range
703	Pilot Record Not Found
709	Street Not in MSAG File
738	MSAG Update Caused a TN Error
755	Unable to Migrate a Locked Record
760	Lock Exceeded Number of Retries

Local Number Portability (LNP) Errors

Depending on the Direct ALI customer, West may provide automatic LNP verification and validation; however, LNP error correction is the responsibility of the TSP and West provides daily LNP reports to assist the TSPs with their LNP error resolution. When appropriate, West will use information from Neustar to determine the correct ownership of a TN and, if an LNP error occurs, it may be automatically corrected by West.

West will accept “Migrate” (M) and “Unlock” (U) function codes on service order activity. West will age migrated TN records based on time limits specified by its customer.



Error Code Descriptions

Error Code	Error Code Description
100 Customer Code Not Numeric	The customer code on the incoming SOI record is not numeric and the Run Time Parameter (RUNP) is set to validate for this condition. Contact DIU Analyst.
101 Prefix Not in Prefix Table	The Prefix (NPA-NXX) on the incoming SOI record does not match a record in the West Direct prefix table. Fill out a Prefix Build Request Form and send to NPANXXDirectOperations.SafetyServices@West.com
103 Pilot Number is Not Numeric	The incoming SOI record contains a pilot TN that is non-numeric.
105 Customer Name is Missing	The incoming SOI record does not contain the customer name and the Run Time Parameter (RUNP) is set to validate for this condition. Contact DIU Analyst.
107 House Number Contains Invalid Characters	The incoming SOI record contains invalid characters in the house number field.
110 Street Directional is Invalid	The incoming SOI record contains invalid characters in the street directional field.
112 Street Name is Invalid	The incoming SOI record contains invalid or unknown characters in the street name field, or the street name field is blank.
114 Community Name is Missing or Invalid	The incoming SOI record contains invalid or unknown characters in the community name field, or the community name field is blank.
115 Class of Service is Invalid	The incoming SOI record has a class of service that is not defined as valid for the Company ID associated with that record within the SOI file.
116 House Suffix is Invalid	The incoming SOI record has invalid or unknown characters in the house suffix field.
120 TN Incorrectly Formatted	The TN on the incoming SOI record is not numeric or it is not properly formatted.
126 Invalid Type of Service	The service type on an incoming SOI record contains a type of service that has not been defined in the Run Time Parameter (RUNP). Contact DIU Analyst.
701	The street name and community on an incoming SOI record matches a street name and community in the MSAG, but the house number is not within the MSAG house number range.

House Number Does Not Fit MSAG Range	
702 Insert Not Allowed, Record Already Exists in Database	The TN on an incoming SOI record with an insert function already exists in the database. Correction of this error can be automated by changing the Run Time Parameter (RUNP) flat to "Y." Contact a Direct DIU Project Specialist for assistance.
703 Pilot Record Not Found	Either the pilot TN on an incoming SOI record is not found in the database, or the pilot TN is found in the database but it is not a pilot TN (that is, the pilot TN is currently loaded as a subline on another pilot TN and therefore cannot have sublines attached to it).
704 Record Does Not Exist for Deletion	The subline TN on an incoming SOI record with a delete function does not exist in the database. Correction of this error can be automated by changing the Run Time Parameter (RUNP) flag to "Y." Contact a Direct DIU Project Specialist for assistance.
705 Pilot Not Found for Deletion	The pilot TN on an incoming SOI record with a delete function does not exist in the database. Correction of this error can be automated by changing the Run Time Parameter (RUNP) flag to "Y." Contact a Direct DIU Project Specialist for Assistance.
709 Street Not in MSAG File	The street name and community on an incoming SOI record does not match a street name and community in the MSAG.
710 Customer Code Does Not Match on Change	The customer code on an incoming SOI record with a change function does not match the customer code on an established TN record. This error only occurs if the Run Time Parameter (RUNP) flag is set to validate customer code on this activity. Contact a Direct DIU Project Specialist if this validation should be removed.
711 Customer Code Does Not Match on Delete	The customer code on an incoming SOI record with a delete function does not match the customer code on an established TN record. This error only occurs if the Run Time Parameter (RUNP) flag is set to validate customer code on this activity. Contact a Direct DIU Project Specialist if this validation should be removed.
712 Record Does Not Exist for Change	The TN on an incoming SOI record with a change function is not found in the database. Correction of this error can be automated by setting the "Change-to-Insert" flag on the Run Time Parameter (RUNP). Contact a Direct DIU Project Specialist for assistance.
713 Pilot Does Not Match on Change	The pilot TN on an incoming SOI record with a change function does not match the pilot TN on an exist record.
729 Completion Date Error, Date Conflict	The completion date listed on an incoming SOI record is in conflict with the completion date listed on the existing TN record in the database.
733	The TN on a pilot change incoming SOI record already exists in the database.

Number Change Cannot be Completed, New Number Already Exists	
735 Delete Not Allowed, Record in the Database With Same Completion Date	The incoming SOI record with a delete function has a completion date that is later or the same as the existing TN.
738 MSAG Update Caused a TN Error	This error occurs if an Analyst shortens or deletes an MSAG range that has associated TN records. The TNs that are affected remain in the ALI and TN databases but post to the error database as well. These errors are worked daily by the Direct DIU Analysts.
742 Class of Service Does Not Match Pilot	The class of service on an incoming SOI record for a subline TN does not match the pilot class of service. This error only occurs if the Run Time Parameter (RUNP) flag is set to validate for this condition. Contact DIU Analyst.
743 Type of Service Does Not Match Pilot	The type of service on an incoming SOI record for a subline TN does not match the pilot type of service. This error only occurs if the Run Time Parameter (RUNP) flag is set to validate for this condition. Contact DIU Analyst.
744 Customer Name Does Not Match Pilot	The customer name on an incoming SOI record for a subline TN does not match the customer name on the pilot TN record. This error only occurs if the Run Time Parameter (RUNP) flag is set to validate for this condition. Contact a Direct DIU Project Specialist for assistance.
745 Multiple Community / Exchange Matches Found	The house number, street name, and exchange on the incoming SOI record match more than one MSAG range. This error only occurs if the Run Time Parameter (RUNP) flag is set to validate for this condition. When this is activated, the SOI validation process attempts to validate a SOI record without a community name against the MSAG by populating the community field with each community within the exchange. Contact DIU Analyst.
746 Community and Exchange are Blank	The incoming SOI record's community name and exchange fields are blank.
748 Loc Does Not Match Pilot	The location on an incoming SOI record for a subline TN does not match the pilot location. The error only occurs if the Run Time Parameter (RUNP) flag is set to validate for this condition. Contact DIU Analyst.
749 Customer Code Does Not Match Pilot	The customer code on an incoming SOI record for a subline TN does not match the pilot customer code. This error only occurs if the Run Time Parameter (RUNP) flag is set to validate for this condition. Contact DIU Analyst.

751 Invalid Function Code	An incoming SOI record contains an invalid function code. Valid function codes are C for Change, D for Delete, E for Error Delete, I for Insert, M for Migrate, and U for Unlock.
752 Invalid Company ID	The incoming SOI record contains an invalid or unrecognized company id.
753 No Record Exists on Unlock	The TN on an incoming SOI record with an unlock function does not exist in the database to unlock.
754 No Record Exists to Lock	The TN on an incoming SOI record with a migration function does not exist in the database to migrate. Correction of this error can be automated by changing the Run Time Parameter (RUNP) flag to "Y." Contact a Direct DIU Project Specialist for Assistance.
755 Unable to Migrate a Locked Record	The TN on an incoming SOI record with a migrate function exists in the database in a locked status because the donor company's corresponding unlock order has not been received or successfully processed.
756 Company Code Mismatch on Change	The company code on an incoming SOI record with a change function does not match the company code on the existing TN record.
757 Company Code Mismatch on Delete	The company code on an incoming SOI record with a delete function does not match the company code on the existing TN record.
758 Company ID Mismatch on Unlock	The company code on an incoming SOI record with an unlock function does not match the company code on the existing TN record.
759 Company ID Mismatch on Lock	The company id on an incoming SOI record with a lock function does not match the company id on the existing TN record.
760 Lock Exceeded Number of Retries	This occurs after 755 error has reprocessed for the set number of days. Once the set number of days has elapsed, the TN will no longer be reprocessed.
761 Subline Company Code Does Not Match Pilot	The company code on an incoming SOI record for a subline does not match the company code on the pilot record.
762 Required NENA ID Missing From M or U Function	The incoming SOI record indicates an M or a U function code and the company's NENA ID is missing.



763 Delete Failed, Pilot Has Subline(s)	A delete function on an incoming SOI record for a pilot TN is processed but there are sublines attached to the pilot. Until the sublines are removed from pilot TN, the pilot cannot be deleted from the database.
781 Error Does Not Exist for Deletion	The TN on an incoming SOI record with a “delete error” function code (E) does not exist in the error database for deletion.
782 Unlock Failed, Pilot Has Subline(s)	The pilot TN on an incoming SOI record with an unlock function exists with sublines attached to it. Until the sublines are unlocked, the pilot cannot be unlocked.
792 Record Exists for Another Company	The company id on an incoming SOI record does not match the company id listed on the existing TN record in the database.
798 Company ID Does Not Match File ID	The company id on an incoming SOI record does not match the valid company ids associated with the File ID used on the incoming SOI file. Contact a Direct DIU Project Specialist for assistance.



Data Provisioning Input and Output File Descriptions

This section describes the following input and output files used in the data exchange between the West Direct DIU and Telephone Service Providers (TSPs).

- Service Order Interface Record File – SOI File (Input)
- Error File (Output)
- Statistics File (Output)

Service Order Interface Record File – SOI File (Input)

The SOI file uses the NENA version 2.1 data format shown in tables 4 through 6 below. Files must adhere to the following file specifications:

- All Files Contain a File Header
- All Files Contain a File Trailer
- All Data Must be in ASCII Format
- All Data Must be Uppercase
- All Fields Not in Use Should be Space Filled

The following table describes the NENA version 2.1 format:

Table 1: Version 2.1 Header Format for Data Exchange

Field Name	Start Byte	End Byte	# of Bytes	Description
Header Indicator	1	5	5	Appears as “UHL”
Extract Date	6	11	6	Format is MMDDYY
Company Name	12	61	50	New File IDs Start With “001”
Cycle Counter	62	67	6	
County ID	68	71	4	
State	72	73	2	
General Use	74	93	20	
Release Number	94	96	3	
Format Version	97	97	1	
Expanded Date	98	105	8	
Reserved	106	511	406	
End of Record	512	512	1	Always Appears as an Asterisk *

Note: All fields are left justified with trailing spaces, except the cycle counter field which is right justified with leading spaces. Header records use cycle counting to ensure a cycle of updates is not missed and files are processed in sequential order.

Table 2: Version 2.1 Trailer Format for Data Exchange

Field Name	Start Byte	End Byte	# of Bytes	Description
Trailer Indicator	1	5	5	Appears as "UTL"
Extract Date	6	11	6	Format is MMDDYY
Company Name	12	61	50	
Record Count	62	70	9	Number of TN Records in File
Expanded Date	71	78	7	
Reserved	79	511	433	
End of Record	512	512	1	Always Appears as an Asterisk *

Note: All fields are left justified with trailing spaces, except the record count field which is right justified with leading spaces. Trailer records use record counting to ensure a record within an update file is not missed.

Table 3: Version 2.1 Format for Data Exchange

Field Name	Start Byte	End Byte	# of Bytes	Description
Function Code	1	1	1	Valid Function Codes Are: C, D, E, I, M and U
NPA	2	4	3	Three-Digit Area Code of the Calling Number
NXX-NXXX	5	11	7	Seven-Digit TN of the Calling Number
House Number	12	21	10	This Field Should be Space Filled, if No House Number Exists
House Number Suffix	22	25	4	This Field Should be Space Filled, if No House Number Suffix Exists
Pre-Directional	26	27	2	Valid Entries Are: E, N, S, W, NE, NW, SE, SW
Street Name	28	87	60	Valid Service Address of the Calling Number
Street Suffix	88	91	4	Street-Type or Thoroughfare (i.e. Ave, Blvd, Cir, Dr, etc.)
Post-Directional	92	93	2	Valid Entries Are: E, N, S, W, NE, NW, SE, SW
Community	94	125	32	Valid Service Community of the Calling Number
State	126	127	2	Two-Character Alpha State Abbreviation (i.e. CO)
Location	128	187	60	Additional Address Information Describing the Exact Location of the Calling Number (i.e. Apt 7103)
Customer Name	188	219	32	Subscriber Name Associated with Calling Number
Class of Service	220	220	1	Valid Classes of Service Are: 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, G, V and W
Type of Service	221	221	1	Valid Types of Service Are: 0, 1, 2, 3, 4, 5, 6 and 7



Exchange	222	225	4	LEC's Four-Character Identifier for the Exchange Serving the Calling Number
ESN	226	230	5	ESN Field May be Space Filled, if Unknown, and ESN Will be Assigned Upon MSAG Validation
Pilot NPA	231	233	3	Three-Digit Area Code of the Main Number Associated with the Calling Number
Pilot NXX-NXXX	234	240	7	Seven-Digit TN of the Main Number Associated with the Calling Number
Order Number	241	250	10	The Service Order Number for the Activity Establishing this Record
Extract Date	251	256	6	Date on Which the Record Was Created in the Format: MMDDYY
County ID	257	260	4	Four-Character ID Used to Identify the County of Call Origination
Company ID	261	265	5	NENA Registered Company Identification Code
Source ID	266	266	1	N/A
Zip Code	267	271	5	Five-Digit Postal Zip Code
Zip+4	272	275	4	Four-Digit Postal Zip Code Extension
General Use	276	286	11	This field is used by data exchange providers to pass info not defined in previous fields
Customer Code	287	289	3	3-Digit Code to Uniquely Identify a Customer
Comments	290	319	30	Optional Notes that May be Displayed at PSAP
X Coordinate	320	328	9	Longitude/X Coordinate
Y Coordinate	329	337	9	Latitude/Y Coordinate
Z Coordinate	338	342	5	Structure Elevation/Z Coordinate
Cell ID	343	348	6	ID Indicating a Geographic Region of Cellular Coverage
Sector ID	349	349	1	Subset/Section of a Call
Tar Code	350	355	6	Taxing Area Rate Code
Reserved	356	511	156	This Field is Reserved for the Host Provider's Use
End of Record	512	512	1	Always Appears as an Asterisk *

Note: All fields are left justified, with trailing spaces.



Error File (Output)

The Error file consists of the returned NENA version 2.1 SOI record(s) with a confirmation code populating three (3) bytes of the “Reserved” field (bytes 378 – 380). Not all incoming information is used in processing service orders. The confirmation file returns only the information that was used to process the service order.

The following table details data fields used in Error records.

Table 4: Error File Record Format

Field Name	Start Byte	End Byte	# of Bytes	Description
TN Record Details	1	377	377	Record Details Are in NENA 2 Version Format Detailed Above
Primary Error Code	378	380	3	This Field Indicates the Primary Error Code; “000” = No Error
(Blank Field)	381	382	2	Empty Spaces
Error Indicator	383	383	1	“E” to Indicate an Error Occurred
(Blank Field)	384	399	16	Empty Spaces
Additional Error Codes	400	406	7	Indicates up-to Two Additional Error Codes
(Blank Field)	407	511	105	Empty Spaces
End of Record	512	512	1	Always Appears as an Asterisk *

Sample Error File (Opened in MS Word)

C72086452591601	DRY CREEK DR				
LONGMONT	CO				
WEST CORP	20CLMS001237208645259BS040781	080516	ICOMM		
658		0007200000000000			
701 E					
*					
C72086452581601	DRY CREEK DR				
LONGMONT	CO				
WEST CORP	20CLMS001237208645258BS040781	080516	ICOMM		
452		0007200000000000			
701 E					
*					

Sample Error File (Opened in Notepad)

20CLMS001237208645259BS040781	080516	ICOMM	658	0007200000000000	701 E
20CLMS001237208645258BS040781	080516	ICOMM	452	0007200000000000	701 E
20CLMS001237208645257BS040781	080516	ICOMM	542	0007200000000000	701 E
20CLMS001237208645256BS040781	080516	ICOMM	646	0007200000000000	701 E
20CLMS001237208645255BS040781	080516	ICOMM	025	0007200000000000	701 E
20CLMS001237208645254BS040781	080516	ICOMM	435	0007200000000000	701 E
20CLMS001237208645253BS040781	080516	ICOMM	210	0007200000000000	701 E
20CLMS001237208645252BS040781	080516	ICOMM	442	0007200000000000	701 E
20CLMS001237208645251BS040781	080516	ICOMM	359	0007200000000000	701 E
20CLMS001237208645250BS040781	080516	ICOMM	658	0007200000000000	703 E
20CLMS001237208645249BS040781	080516	ICOMM	658	0007200000000000	703 E
20CLMS001237208645248BS040781	080516	ICOMM	359	0007200000000000	703 E

Note: When editing an error file for resubmission, the error indicator and error code must be removed and replaced with blank spaces.



Statistics File (Output)

The Statistics file provides information about the processed SOI records in an 80-column ASCII text file. The example below shows the information contained in a Statistics file.

PAGE	1	E911 DATABASE UPDATE STATISTICS	RUN DATE 2016-04-07
			RUN TIME 10:59:00
TOTAL NUMBER OF UPDATES RECEIVED:			12
NUMBER OF UPDATES IN ERROR:			2
NUMBER OF INSERTS APPLIED:			5
NUMBER OF CHANGES APPLIED:			2
NUMBER OF DELETES APPLIED:			1
NUMBER OF UNLOCKS APPLIED:			2
NUMBER OF MIGRATES APPLIED:			0
NUMBER OF DELETE ERRORS APPLIED:			0
NUMBER OF ERRORS BY TYPE			
1	100	CUS CODE NOT NUMERIC	
	101	NPANXX RECORD NOT FOUND	
	103	PILOT NUMBER NOT NUMERIC	
	105	NAME MISSING	
	107	HOUSE NUMBER IS INVALID	
	110	STREET DIR IS INVALID	
	112	STREET NAME IS INVALID	
	114	CITY NAME IS MISSING OR INVALID	
	115	USOC/CLASS OF SERVICE NOT IN TBL	
	116	HOUSE SUFFIX INVALID	
	120	TN,CX OR PX INCORRECTLY FORMATED	
	126	INVALID TYPE OF SERVICE	
1	701	RANGE NOT FOUND	
	702	RECORD EXISTS NO INSERT	
	703	PILOT RECORD NOT FOUND	
	704	NO RECORD EXISTS FOR DELETE	
	705	PILOT NOT FOUND FOR DELETE	
	709	STREET NOT FOUND	
	710	CUS CODE MISMATCH ON CHANGE	
	711	CUS CODE MISMATCH ON DELETE	
	712	RECORD DOES NOT EXIST FOR CHANGE	
	713	TN AND PILOT NUMBER MISMATCH	
	729	CD ERROR DATE CONFLICT	
	733	NEW NUMBER ALREADY EXISTS	
	735	NO DELETE SAME COMPLETION DATE	
	738	MSAG UPDATE CAUSED ERROR	
	742	SERVICE CLASS DOESNT MATCH PILOT	
	743	SERVICE TYPE DOESNT MATCH PILOT	
	744	CUS NAME DOES NOT MATCH PILOT	
	745	RANGE FITS IN MUTILPLE CITY EXCH	
	746	COMMUNITY AND EXCH ARE BLANK	
	748	LOCATION DOESNT MATCH PILOT	
	749	CUS CODE DOESNT MATCH PILOT	
	751	INVALID FUNCTION CODE	
	752	INVALID COMPANY CODE	
	753	NO RECORD EXISTS ON UNLOCK	
	754	NO RECORD EXISTS ON LOCK	
	755	UNABLE TO MIGRATE LOCKED REC	
	756	COMPANY CODE MISMATCH ON CHANGE	
	757	COMPANY CODE MISMATCH ON DELETE	
	758	COMPANY CODE MISMATCH ON UNLOCK	
	759	COMPANY CODE MISMATCH ON LOCK	
	760	LOCK EXCEED NUMBER OF RETRIES	
	761	PILOT COMPANY CODE MISMATCH	
	762	LNP REQUIRED ON U OR M FUNCTION	
	763	PILOT DELETE ORPHANED SUBLINES	
	781	DELETE-ERROR RECORD NO TN MATCH	
	782	DELETE-ERROR RECORD NO COMPANY MATCH	
	792	REC EXISTS FOR ANOTHER COMPANY	
	798	COMPANY CODE DOES NOT MATCH FILE ID	
12	TOTAL ERROR(S)		



MSAG Management

Overview

The TSPs will have the ability through 9-1-1 NET® to view the MSAG database. West’s MSAG management processes also include daily MSAG delta notifications, which provide TSPs with electronic MSAG changes.

MSAG Distribution

West can produce annual MSAG files for distribution upon request. TSPs can contact the West Direct DIU for further details or to request an MSAG distribution setup.

Daily MSAG Delta

West provides a daily MSAG delta file to TSPs for the region(s) in which the TSP operates. Any expansion into a new region requires notification from the TSP to West to update the daily MSAG delta report they receive. When the 9-1-1 Agencies submit MSAG Change Requests (MSAG CRs) to the West DIU Analysts via 9-1-1 NET® - and once the MSAG is updated – and audit record of the transaction is saved into a daily MSAG delta file for TSPs to extract on a daily basis. The daily MSAG delta files are received electronically.

MSAG Delta File Format

The following table details the NENA version 2.1 format for Delta MSAG Data Exchange Header and Trailer records.

Table 5: Daily MSAG Delta Data Exchange Header Record, NENA Version 2.1

Field Name	Start Byte	End Byte	# of Bytes	Description
Header Indicator	1	5	5	Appears as “UHL”
Extract Date	6	11	6	Format is MMDDYY
Company Name	12	61	50	Blank
Cycle Counter	62	67	6	
County ID	68	71	4	Blank
State	72	73	2	Blank
General Use	74	93	20	
Release Number	94	96	3	
Reserved	97	199	103	
End of Record	200	200	1	Always Appears as an Asterisk *



Note: All fields are left justified with trailing spaces, except the cycle counter field which is right justified with leading spaces. Header records use cycle counting to ensure a cycle of updates is not missed and files are processed in sequential order.

Table 6: Daily MSAG Delta Data Exchange Trailer Record, NENA Version 2.1

Field Name	Start Byte	End Byte	# of Bytes	Description
Trailer Indicator	1	5	5	Appears as "UTL"
Extract Date	6	11	6	Format is MMDDYY
Company Name	12	61	50	Blank
Record Count	62	70	9	
Reserved	71	199	129	
End of Record	200	200	1	Always Appears as an Asterisk *

Note: All fields are left justified with trailing spaces, except the record county field which is right justified with leading spaces. Trailer records use record counting to ensure a record within an update file is not missed.

The following table details NENA Version 2.1 modified format for MSAG Changes, Deletes and Inserts. Refer to the bulleted information below the table for specifics on changes.

Table 7: MSAG Changes, Deletes, and Inserts, NENA Version 2.1

Field Name	Start Byte	End Byte	# of Bytes	Description
Prefix Directional	1	2	2	
Street Name	3	62	60	
Street Suffix	63	66	4	
Post Directional	67	68	2	
Low Range	69	78	10	
High Range	79	88	10	
Community	89	120	32	
State	121	122	2	
Odd/Even Indicator	123	123	1	O, E, B
ESN	124	128	5	
Extract Date	129	134	6	MMDDYY
PSAP ID	135	138	4	
County ID	139	142	4	
Exchange	143	146	4	
General Use	147	166	20	
Tar Code	167	172	6	
Reserved	173	191	19	
Expanded Date	192	199	8	YYYYMMDD
End of Record	200	200	1	Always Appears as an Asterisk *

General Use field should only contain the following values:

- From MSAG audit record, when identified as "B," populate "Before."
- From MSAG audit record, when identified as "A," populate "After."
- From MSAG audit record, when identified as "I," populate "Insert."
- From MSAG audit record, when identified as "D," populate "Delete."



Appendix A: Glossary (Terms and Definitions)

9-1-1

9-1-1 is the three-digit number reserved for use as an emergency telephone number throughout the United States.

ALI

Automatic Location Identification (ALI) refers to 1) a feature of enhanced 9-1-1 service that provides the display of the name, address, telephone number, and emergency service agencies associated with the telephone equipment from which 9-1-1 is dialed, and 2) the database that stores this information for retrieval during a 9-1-1 call.

ANI

Automatic Number Identification refers to the telephone number of equipment from which 9-1-1 was dialed. It also refers to the feature of enhanced 9-1-1 that allows this telephone number to display at the PSAP when a 9-1-1 call is placed. For wireless callers, this is the "MIN" for the calling party.

West Direct DIU

The Direct Data Integrity Unit (DIU) is responsible for managing data associated with all regions that are directly hosted by West Safety Services.

ECRC

Emergency Call Relay Center is West's Longmont, CO computer operation center that provides 24x7x365 emergency services support.

ESN

Emergency Service Number is a three-to-five-digit numeric code that represents an emergency service zone. This number is used by the selective router to route E9-1-1 calls to a particular PSAP.

FTP

File Transfer Protocol is a communications protocol used to transfer files over a TCP/IP network (Internet, sFTP, UNIX, etc.), which allows communications between a PC and a workstation for the rapid transfer of data to and from distant or local PCs.

ILEC

Incumbent Local Exchange Carrier is the dominate phone carrier within a geographic area as determined by the FCC.

LNP

Local Number Portability is a circuit-switched network that allows an end-user to change service provider, location, and/or service type without having to change their TN. LNP offers the customer the option to take their current TN to a new carrier. In this case the company that owns that TN is not the same company that owns the prefix.

MSAG



Master Street Address Guide is a database that contains all valid addresses within an E9-1-1 service area. Each address range in an MSAG is associated with an Emergency Service Number (ESN) to enable proper routing of 9-1-1 calls.

NENA

National Emergency Number Association is a U.S.-specific organization of 9-1-1 service providers.

NENA ID

NENA ID is a two-to-five character code used to identify a specific Telephone Service Provider company, which is assigned by NENA. The NENA ID is also known as Company ID.

NPA/NXX

Number Plan Area/Prefix is the area code and the first three digits of a local seven-digit phone number. This number identifies the central office out of which the phone number originates.

No Record Found

An NRF is a 9-1-1 call that reaches a PSAP and results in the display of no customer information. An NRF is the result of a 9-1-1 call that's made by a TN for which there is no ALI record provisioned in the 9-1-1 host provider's ALI database.

PSAP

Public Safety Answering Point is an agency in the United States, typically county or city controlled, responsible for answering 9-1-1 calls for emergency assistance from police, fire, and ambulance services. A Primary PSAP receives the calls directly. If the call is relayed or transferred, the next receiving PSAP is designated a Secondary PSAP.

RUNP

Run Time Parameter is a screen/table in West's TSS database which is used to set customer SOI processing parameters for a specific telephone company.

sFTP

Secure File Transfer Protocol is a protocol used for transmitting files from company-to-company as well as receiving file deliveries. This is the most common method used by Telephone Service Providers for submitting daily SOI files and receiving daily reports.

SOI

Service Order Input is the process of sending an electronic file of a designated pANI range for a PSAP by matching the PSAP's MSAG to the range. This will be sent electronically to the 9-1-1 host's selective router so it is able to route the range to the correct PSAP.

TN

Telephone Number is a unique combination of ten digits that identifies the equipment used to place and receiving phone calls.

TSP

Telephone Service Provider is a company which provides telephony services to end-users.



Appendix B: Revision History

Version	Summary of Version Changes
V2008.06.11	Initial Release
V2008.07.07	Revised "TSP Support Contact List" section to reflect current contact information
V2012.03.21	<ol style="list-style-type: none">1) Revised "TSP Support Contact List" section2) Revised "SOI Processing" section to add two (2) qualifying notes3) Added "Error Codes Written and Retained in Error Database" table to "TN Errors" section4) Revised "Local Number Portability Errors" section5) Updated "Error Code Descriptions" section to add new error codes6) Revised "SAG Distribution Medium" section7) Updated Appendix A
V2018.02.28	<ol style="list-style-type: none">1) Updated "Intrado" to "West"2) Updated page numbering3) Updated all screenshots within document4) Updated Error Codes and Definitions5) Updated Appendix A Definitions