Origination Date: 08/22 /08

Originator: NeuStar

### Change Order Number: NANC 436

### Description: Optional Data – alternative End User Location and alternative Billing ID

### Cumulative SP Priority, Weighted Average: N/A

Functionally Backwards Compatible: Yes

## IMPACT/CHANGE ASSESSMENT

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| FRS | IIS | GDMO | ASN.1 | NPAC | SOA | LSMS |
| Y | Y | N | N | Y | Y | Y |

**Business Need:**

**Alternative End User Location and Alternative Billing ID Fields:**

The End User Location Value, End User Location Type, and Billing ID fields in the NPAC's Subscription Version records are supported only for LNP types 0 and 1 (LSPP, LISP). LNP type 2 (POOL) does not offer these fields and thus pooled block records cannot have information contained in these fields.

Carriers have used these “future use” fields for various purposes. When the telephone numbers involved are in pooled blocks, however, the carrier must intra-SP port the numbers in order to create entries in any of the three fields. This defeats the purpose of EDR, where up to a thousand pooled numbers can be represented as a single pooled block record in the industry's LNP databases. That is, when pooled numbers are to have End User Location Value, End User Location Type, or Billing ID information associated with them, the LNP database records storage requirement for each pooled block involved can increase up to a thousand-fold. This adverse impact on record storage requirements is unnecessary if pooled blocks can be made to support the three fields.

As a result of recent unanticipated activity involving the population of these records for numbers that were in pooled blocks, many carriers' LNP databases are reaching their storage limits before planned storage capacity expansions are scheduled. Thus a method to accommodate the population of the three unsupported fields for pooled numbers is urgently needed.

Because adding the three unsupported fields to the pooled block record requires many changes in the NPAC SMS and is an interface change affecting local systems as well, the addition of three more parameters in the Optional Data field is proposed. This can be accommodated in an NPAC maintenance window and has no impact on local systems that do not wish to receive these parameters in NPAC downloads. The parameters would parallel the specifications for the three existing fields and be named Alt-End User Location Value, Alt-End User Location Type, and Alt-Billing ID.

**Description of Change:**

The NPAC/SMS will provide the ability to provision Alt-End User Location Value, Alt-End User Location Type, and Alt-Billing ID as Optional Data field parameters for each Pooled Block record and associated Pooled Subscription Version records.

This information will be provisioned by the SOA and broadcast to the LSMS upon activation of the Pooled Block and upon modification for those SOA and LSMS associations optioned “on” to send and receive this data. Pooled SVs are sent to non-EDR LSMSs.

This field shall be added to the Bulk Data Download file, and be available to a Service Provider’s SOA/LSMS.

This field will be supported across the interface on an opt-in basis only and will be functionally backward compatible.

The OptionalData CMIP attribute will be populated with an XML string. The string is defined by the schema documented in the XML section below. XML is used to provide future flexibility to add additional fields to the SV records and Pooled Block records when approved by the NAPM LLC.

**Major points/processing flow/high-level requirements:**

This change order proposes to add new fields to the subscription version and number pool block objects. Hence, the FRS, IIS, GDMO, and ASN.1 will need to reflect the addition of these fields. These new fields will cause changes to the NPAC CMIP interface, however they will be functionally backward compatible and optional by service provider. Although the current subscription version object contains the End User Location and Billing ID fields, these three alternate fields are added to maintain consistency between a number pool block and it’s associated pooled SVs.

**Requirements:**

Section 1.2, NPAC SMS Functional Overview

Add a new section that describes the functionality of the Alt-End User Location Value, Alt-End User Location Type, and Alt-Billing ID Fields (Optional Data). See description of Change above.

Section 3.1, NPAC SMS Data Models

Add new attribute for the Alt-End User Location Value, Alt-End User Location Type, and Alt-Billing ID Fields (Optional Data). See below:

| **NPAC CUSTOMER DATA MODEL** |
| --- |
| **Attribute Name** | **Type (Size)**  | **Required** | **Description** |
| [snip] |  |  |  |
| NPAC Customer SOA Alt-End User Location Value Indicator | B | √ | A Boolean that indicates whether the NPAC Customer supports Alt-End User Location Value information from the NPAC SMS to their SOA.The default value is False. |
| NPAC Customer LSMS Alt-End User Location Value Indicator | B | √ | A Boolean that indicates whether the NPAC Customer supports Alt-End User Location Value information from the NPAC SMS to their LSMS.The default value is False. |
| NPAC Customer SOA Alt-End User Location Type Indicator | B | √ | A Boolean that indicates whether the NPAC Customer supports Alt-End User Location Type information from the NPAC SMS to their SOA.The default value is False. |
| NPAC Customer LSMS Alt-End User Location Type Indicator | B | √ | A Boolean that indicates whether the NPAC Customer supports Alt-End User Location Type information from the NPAC SMS to their LSMS.The default value is False. |
| NPAC Customer SOA Alt-Billing ID Indicator | B | √ | A Boolean that indicates whether the NPAC Customer supports Alt-Billing ID information from the NPAC SMS to their SOA.The default value is False. |
| NPAC Customer LSMS Alt-Billing ID Indicator | B | √ | A Boolean that indicates whether the NPAC Customer supports Alt-Billing ID information from the NPAC SMS to their LSMS.The default value is False. |
| [snip] |  |  |  |

Table 3-2 NPAC Customer Data Model

| **Subscription Version Data MODEL** |
| --- |
| **Attribute Name** | **Type (Size)** | **Required** | **Description** |
| [snip] |  |  |  |
| Alt-End User Location Value | N (12) |  | Alt-End User Location Value for Subscription Version.This field may only be specified if the service provider SOA supports Alt-End User Location Value. |
| Alt-End User Location Type | N (2) |  | Alt-End User Location Type for Subscription Version.This field may only be specified if the service provider SOA supports Alt-End User Location Type. |
| Alt-Billing ID | C (4) |  | Alt-Billing ID for Subscription Version.This field may only be specified if the service provider SOA supports Alt-Billing ID. |
| [snip] |  |  |  |

Table 3‑6 Subscription Version Data Model

| **number pooling block hoder information Data MODEL** |
| --- |
| **Attribute Name** | **Type (Size)** | **Required** | **Description** |
| [snip] |  |  |  |
| Alt-End User Location Value | N (12) |  | Alt-End User Location Value for Number Pool Block.This field may only be specified if the service provider SOA supports Alt-End User Location Value. |
| Alt-End User Location Type | N (2) |  | Alt-End User Location Type for Number Pool Block.This field may only be specified if the service provider SOA supports Alt-End User Location Type. |
| Alt-Billing ID | C (4) |  | Alt-Billing ID for Number Pool Block.This field may only be specified if the service provider SOA supports Alt-Billing ID. |
| [snip] |  |  |  |

Table 3‑8 Number Pooling Block Holder Information Data Model

RR3-210 Block Holder Information Mass Update – Update Fields

NPAC SMS shall allow NPAC Personnel, via a mass update, to update the block holder default routing information (LRN, DPC(s), and SSN(s), Alt-End User Location Value (if the requesting SOA supports Alt-End User Location Value data), Alt-End User Location Type (if the requesting SOA supports Alt-End User Location Type data), Alt-Billing ID (if the requesting SOA supports Alt-Billing ID data), for a 1K Block as stored in the NPAC SMS. (Previously B-762)

R3‑8 Off-line batch updates for Local SMS Disaster Recovery

NPAC SMS shall support an off‑line batch download (via 4mm DAT tape and FTP file download) to mass update Local SMSs with Subscription Versions, NPA-NXX-X Information, Number Pool Block and Service Provider Network data.

The contents of the batch download are:

1. Block Data
2. [snip]
3. Alt-End User Location Value (for Local SMSs that support Alt-End User Location Value)
4. Alt-End User Location Type (for Local SMSs that support Alt-End User Location Type)
5. Alt-Billing ID (for Local SMSs that support Alt-Billing ID)
6. [snip]

RR3-79.1 Number Pool NPA-NXX-X Holder Information – Routing Data Field Level Validation

NPAC SMS shall perform field-level data validations to ensure that the value formats for the following input data, are valid according to the formats specified in the Block Data Model upon Block creation scheduling for a Number Pool, or when re-scheduling a Block Create Event: (Previously N-75.1).

[snip]

Alt-End User Location Value (if supported by the Block Holder SOA)

Alt-End User Location Type (if supported by the Block Holder SOA)

Alt-Billing ID (if supported by the Block Holder SOA)

RR3-149 Addition of Number Pooling Block Holder Information – Field-level Data Validation

NPAC SMS shall perform field-level data validations to ensure that the value formats for the following input data, is valid according to the formats specified in the Subscription Version Data Model upon Block creation for a Number Pool: (Previously B-250)

[snip]

Alt-End User Location Value (if supported by the Block Holder SOA)

Alt-End User Location Type (if supported by the Block Holder SOA)

Alt-Billing ID (if supported by the Block Holder SOA)

RR3-157 Modification of Number Pooling Block Holder Information – Routing Data

NPAC SMS shall allow NPAC personnel, Service Provider via the SOA to NPAC SMS Interface, or Service Provider via the NPAC SOA Low-tech Interface, to modify the block holder default routing information (LRN, DPC(s), and SSN(s)), Alt-End User Location Value (if supported by the Block Holder SOA), Alt-End User Location Type (if supported by the Block Holder SOA), and Alt-Billing ID (if supported by the Block Holder SOA), for a 1K Block as stored in the NPAC SMS. (Previously B-320)

R4-8 Service Provider Data Elements

NPAC SMS shall require the following data if there is no existing Service Provider data:

[snip]

NPAC Customer SOA Alt-End User Location Value Support Indicator

NPAC Customer LSMS Alt-End User Location Value Support Indicator

NPAC Customer SOA Alt-End User Location Type Support Indicator

NPAC Customer LSMS Alt-End User Location Type Support Indicator

NPAC Customer SOA Alt-Billing ID Support Indicator

NPAC Customer LSMS Alt-Billing ID Support Indicator

R5‑16 Create Subscription Version - New Service Provider Optional input data

NPAC SMS shall accept the following optional fields from NPAC personnel or the new Service Provider upon Subscription Version creation for an Inter-Service Provider port:

1. [snip]
2. Alt-End User Location Value (if supported by the Service Provider SOA)
3. Alt-End User Location Type (if supported by the Service Provider SOA)
4. Alt-Billing ID (if supported by the Service Provider SOA)

R5‑18.1 Create Subscription Version - Field-level Data Validation

NPAC SMS shall perform field-level data validations to ensure that the value formats for the following input data, if supplied, is valid according to the formats specified in Table 3-6 upon Subscription Version creation for an Inter-Service Provider port:

1. [snip]
2. Alt-End User Location Value (if supported by the Service Provider SOA)
3. Alt-End User Location Type (if supported by the Service Provider SOA)
4. Alt-Billing ID (if supported by the Service Provider SOA)

RR5-5 Create “Intra-Service Provider Port” Subscription Version - Current Service Provider Optional Input Data

NPAC SMS shall accept the following optional fields from the NPAC personnel or the Current Service Provider upon a Subscription Version Creation for an Intra-Service Provider port:

1. [snip]
2. Alt-End User Location Value (if supported by the Service Provider SOA)
3. Alt-End User Location Type (if supported by the Service Provider SOA)
4. Alt-Billing ID (if supported by the Service Provider SOA)

RR5-6.1 Create “Intra-Service Provider Port” Subscription Version - Field-level Data Validation

NPAC SMS shall perform field-level data validations to ensure that the value formats for the following input data, if supplied, is valid according to the formats specified in Table 3-6 upon Subscription Version creation for an Intra-Service Provider port:

1. [snip]
2. Alt-End User Location Value (if supported by the Service Provider SOA)
3. Alt-End User Location Type (if supported by the Service Provider SOA)
4. Alt-Billing ID (if supported by the Service Provider SOA)

R5‑27.1 Modify Subscription Version - New Service Provider Data Values

NPAC SMS shall allow the following data to be modified in a pending or conflict Subscription Version for an Inter-Service Provider or Intra-Service Provider port by the new/current Service Provider or NPAC personnel:

1. [snip]
2. Alt-End User Location Value (if supported by the Service Provider SOA)
3. Alt-End User Location Type (if supported by the Service Provider SOA)
4. Alt-Billing ID (if supported by the Service Provider SOA)

R5‑28 Modify Subscription Version - New Service Provider Optional input data.

NPAC SMS shall accept the following optional fields from the NPAC personnel or the new Service Provider upon modification of a pending or conflict Subscription version:

1. [snip]
2. Alt-End User Location Value (if supported by the Service Provider SOA)
3. Alt-End User Location Type (if supported by the Service Provider SOA)
4. Alt-Billing ID (if supported by the Service Provider SOA)

R5‑29.1 Modify Subscription Version - Field-level Data Validation

NPAC SMS shall perform field-level data validations to ensure that the value formats for the following input data, if supplied, is valid according to the formats specified in Table 3-6 upon Subscription Version modification.

1. [snip]
2. Alt-End User Location Value (if supported by the Service Provider SOA)
3. Alt-End User Location Type (if supported by the Service Provider SOA)
4. Alt-Billing ID (if supported by the Service Provider SOA)

R5‑36 Modify Active Subscription Version - Input Data

NPAC SMS shall allow the following data to be modified for an active Subscription Version:

1. [snip]
2. Alt-End User Location Value (if supported by the Service Provider SOA)
3. Alt-End User Location Type (if supported by the Service Provider SOA)
4. Alt-Billing ID (if supported by the Service Provider SOA)

R5‑37 Active Subscription Version - New Service Provider Optional input data.

NPAC SMS shall accept the following optional fields from the new Service Provider or NPAC personnel for an active Subscription Version to be modified:

1. [snip]
2. Alt-End User Location Value (if supported by the Service Provider SOA)
3. Alt-End User Location Type (if supported by the Service Provider SOA)
4. Alt-Billing ID (if supported by the Service Provider SOA)

R5‑38.1 Modify Active Subscription Version - Field-level Data Validation

NPAC SMS shall perform field-level data validations to ensure that the value formats for the following input data, if supplied, is valid according to the formats specified in Table 3-6 upon Subscription Version modification of an active version:

1. [snip]
2. Alt-End User Location Value (if supported by the Service Provider SOA)
3. Alt-End User Location Type (if supported by the Service Provider SOA)
4. Alt-Billing ID (if supported by the Service Provider SOA)

R5-74.3 Query Subscription Version - Output Data

NPAC SMS shall return the following output data for a Subscription Version query request initiated by NPAC personnel or a SOA to NPAC SMS interface user:

1. [snip]
2. Alt-End User Location Value (if supported by the Service Provider SOA)
3. Alt-End User Location Type (if supported by the Service Provider SOA)
4. Alt-Billing ID (if supported by the Service Provider SOA)

R5-74.4 Query Subscription Version - Output Data

NPAC SMS shall return the following output data for a Subscription Version query request initiated over the NPAC SMS to Local SMS interface:

1. [snip]
2. Alt-End User Location Value (if supported by the Service Provider SOA)
3. Alt-End User Location Type (if supported by the Service Provider SOA)
4. Alt-Billing ID (if supported by the Service Provider SOA)

RR5-91 Addition of Number Pooling Subscription Version Information – Create “Pooled Number” Subscription Version

NPAC SMS shall automatically populate the following data upon Subscription Version creation for a Pooled Number port: (Previously SV-20)

1. [snip]
2. Alt-End User Location Value (Value set to same field as Block)
3. Alt-End User Location Type (Value set to same field as Block)
4. Alt-Billing ID (Value set to same field as Block)

Req 1 – Service Provider SOA Alt-End User Location Value Edit Flag Indicator

NPAC SMS shall provide a Service Provider SOA Alt-End User Location Value Edit Flag Indicator tunable parameter which defines whether a SOA supports Alt-End User Location Value.

Req 2 – Service Provider SOA Alt-End User Location Value Edit Flag Indicator Default

NPAC SMS shall default the Service Provider SOA Alt-End User Location Value Edit Flag Indicator tunable parameter to FALSE.

Req 3 – Service Provider SOA Alt-End User Location Value Edit Flag Indicator Modification

NPAC SMS shall allow NPAC Personnel, via the NPAC Administrative Interface, to modify the Service Provider SOA Alt-End User Location Value Edit Flag Indicator tunable parameter.

Req 4 – Service Provider LSMS Alt-End User Location Value Edit Flag Indicator

NPAC SMS shall provide a Service Provider LSMS Alt-End User Location Value Edit Flag Indicator tunable parameter which defines whether an LSMS supports Alt-End User Location Value.

Req 5 – Service Provider LSMS Alt-End User Location Value Edit Flag Indicator Default

NPAC SMS shall default the Service Provider LSMS Alt-End User Location Value Edit Flag Indicator tunable parameter to FALSE.

Req 6 – Service Provider LSMS Alt-End User Location Value Edit Flag Indicator Modification

NPAC SMS shall allow NPAC Personnel, via the NPAC Administrative Interface, to modify the Service Provider LSMS Alt-End User Location Value Edit Flag Indicator tunable parameter.

Req 7 Activate Number Pool Block - Send Alt-End User Location Value to Local SMSs

NPAC SMS shall, for a Service Provider that supports Alt-End User Location Value, send the Alt-End User Location Value attribute for an activated Number Pool Block via the NPAC SMS to Local SMS Interface to the Local SMSs.

Req 1.1 through 7.1 same as Req 1 through 7. Replace “Alt-End User Location Value” with “Alt-End User Location Type”.

Req 1.2 through 7.2 same as Req 1 through 7. Replace “Alt-End User Location Value” with “Alt-Billing ID”.

**Appendix E – Bulk Data Download File Examples.**

NOTE: If a Service Provider supports Alt-End User Location Value, Alt-End User Location Type, or Alt-Billing ID, the format of the Bulk Data Download file will contain delimiters for the attribute.

| **Explanation of the fields in the subscription download file** |
| --- |
| **Field Number** | **Field Name** | **Value in Example** |
| 1 | Version Id  | 0000000001 |
| [snip] |  |  |
| 999 | Alt-End User Location Value | Not present if LSMS or SOA does not support the Alt-End User Location Value as shown in this example. If it were present the value would be as defined in the SV Data Model. |
| 999 | Alt-End User Location Type | Not present if LSMS or SOA does not support the Alt-End User Location Type as shown in this example. If it were present the value would be as defined in the SV Data Model. |
| 999 | Alt-Billing ID | Not present if LSMS or SOA does not support the Alt-Billing ID as shown in this example. If it were present the value would be as defined in the SV Data Model. |
|  |  |  |

Table E- 1 -- Explanation of the Fields in The Subscription Download File

| **Explanation of the fields in the Block download file** |
| --- |
| **Field Number** | **Field Name** | **Value in Example** |
| 1 | Block Id  | 1 |
| [snip] |  |  |
| 999 | Alt-End User Location Value | Not present if LSMS or SOA does not support the Alt-End User Location Value as shown in this example. If it were present the value would be as defined in the NPB Data Model. |
| 999 | Alt-End User Location Type | Not present if LSMS or SOA does not support the Alt-End User Location Type as shown in this example. If it were present the value would be as defined in the NPB Data Model. |
| 999 | Alt-Billing ID | Not present if LSMS or SOA does not support the Alt-Billing ID as shown in this example. If it were present the value would be as defined in the NPB Data Model. |
|  |  |  |

Table E- 6 -- Explanation of the Fields in The Subscription Download File

# IIS

Addition to the current IIS flow descriptions that relate to Pooled SV and NPB attributes.

Flow B.4.4.1 – Number Pool Block Create/Activate by SOA

Flow B.4.4.2 – Number Pool Block Create by NPAC SMS

Flow B.4.4.12 – Number Pool Block Modify by NPAC SMS

Flow B.4.4.13 – Number Pool Block Modify by Block Holder SOA

If the “SOA Supports Alt-End User Location Value Indicator” is set in the service provider’s profile on the NPAC SMS, the following attributes may optionally be included:

Alt-End User Location Value

If the “SOA Supports Alt-End User Location Type Indicator” is set in the service provider’s profile on the NPAC SMS, the following attributes may optionally be included:

Alt-End User Location Type

If the “SOA Supports Alt-Billing ID Indicator” is set in the service provider’s profile on the NPAC SMS, the following attributes may optionally be included:

Alt-Billing ID

Flow B.5.1.2 – Subscription Version Create by the Initial SOA (New Service Provider)

Flow B.5.1.3 – Subscription Version Create by Second SOA (New Service Provider)

Flow B.5.1.11 – Subscription Version Create for Intra-Service Provider Port

[snip]

The following items may optionally be provided unless subscriptionPortingToOriginal-SP is true:

[snip]

Alt-End User Location Value (if supported by the Service Provider SOA)

Alt-End User Location Type (if supported by the Service Provider SOA)

Alt-Billing ID (if supported by the Service Provider SOA)

Flow B.5.2.1 – Subscription Version Modify Active Version Using M-ACTION by a Service Provider SOA

Flow B.5.2.3 – Subscription Version Modify Prior to Activate Using M-ACTION

Flow B.5.2.4 – Subscription Version Modify Prior to Activate Using M-SET

[snip]

The current service provider can only modify the following attributes:

[snip]

Alt-End User Location Value (if supported by the Service Provider SOA)

Alt-End User Location Type (if supported by the Service Provider SOA)

Alt-Billing ID (if supported by the Service Provider SOA)

Flow B.5.6 – Subscription Version Query

[snip]

The query return data includes:

[snip]

Alt-End User Location Value (if supported by the Service Provider SOA)

Alt-End User Location Type (if supported by the Service Provider SOA)

Alt-Billing ID (if supported by the Service Provider SOA)

**GDMO:**

No Change Required.

**ASN.1:**

No Change Required.

**XML:**

Note – the XML shown below is existing NANC 399 and new NANC TBD.

<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="<http://www.w3.org/2001/XMLSchema>" elementFormDefault="qualified"

attributeFormDefault="unqualified">

 <xs:simpleType name="NumberString">

 <xs:restriction base="xs:string">

 <xs:pattern value="[0-9]{0,}"/>

 </xs:restriction>

 </xs:simpleType>

 <xs:simpleType name="SPID">

 <xs:restriction base="xs:string">

 <xs:length value="4"/>

 </xs:restriction>

 </xs:simpleType>

 **<xs:simpleType name="EULV\_DATATYPE">**

 **<xs:restriction base="NumberString">**

 <xs:MinLength value="1"/>

 <xs:MaxLength value="12"/>

 **</xs:restriction>**

 **</xs:simpleType>**

 **<xs:simpleType name="EULT\_DATATYPE">**

 **<xs:restriction base="NumberString">**

 <xs:length value="2"/>

 **</xs:restriction>**

 **</xs:simpleType>**

 **<xs:simpleType name="BID\_DATATYPE">**

 **<xs:restriction base="xs:string">**

 **<xs:minLength value="1"/>**

 **<xs:maxLength value="4"/>**

 **</xs:restriction>**

 **</xs:simpleType>**

 <xs:complexType name="OptionalData">

 <xs:all>

 <xs:element name="ALTSPID" type="SPID" nillable="true" minOccurs="0"/>

 **<xs:element name="ALTEULV" type="EULV\_DATATYPE" nillable="true" minOccurs="0"/>**

 **<xs:element name="ALTEULT" type="EULT\_DATATYPE" nillable="true" minOccurs="0"/>**

 **<xs:element name="ALTBID" type="BID\_DATATYPE" nillable="true" minOccurs="0"/>**

 </xs:all>

 </xs:complexType>

 <xs:element name="OptionalData" type="OptionalData"/>

</xs:schema>