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LOCATION ROUTING NUMBER (LRN) ASSIGNMENT PRACTICES

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Location Routing Number Assignment Practices

These practices are intended to assist Service Providers¹ as to why Location Routing Numbers (LRNs) are necessary and how to establish LRNs from their numbering inventories. The use of LRNs is covered in the ATIS Packet Technology Systems Committee (PTSC) standards and the FCC North American Numbering Council (NANC) Local Number Portability Administration Working Group (LNPA WG) best practices,² and some of that direction is incorporated in these practices.

An LRN is a 10-digit number, in the format NPA-NXX-XXXX, that uniquely identifies a switch or point of interconnection (POI) per LATA. The NPA-NXX portion of the LRN is used to route calls to numbers or pooled blocks that have been ported to a different switch or POI than their underlying NPA-NXX.

The following criteria should be considered when a service provider selects and establishes an LRN:

1. A unique LRN shall be provisioned to identify each recipient switch or POI in the number portability capable network.³ LRNs shall be used for routing and not for rating or billing calls. Calls are rated and billed to an end-user based on the dialed digits and not on the LRN. There is, however an Automated Message Accounting feature that records the LRN that a call is routed to in order to determine the appropriate service provider serving that number for access billing purposes.⁴
2. A service provider shall establish one (1) LRN per LATA from an assigned NXX for each of its recipient switches or POIs in the number portability capable network. Additional LRNs may be used for internal purposes. Further, additional LRNs are not required to identify US wireline rate centers. A unique LRN may be established for every LNP equipped switch or POI (and potentially to each CLLITM Code⁵ listed in the iconectiv® LERGTM Routing Guide).

Requesting an additional NXX to establish an LRN in certain instances may be justified but precautions need to be taken to ensure number resource optimization. The following points should be considered prior to requesting a new NPA-NXX for the purpose of establishing an LRN:

- The requesting service provider uses an existing code already homed to the tandem where the LRN is needed for the switch or POI.
- The Code Holder shall specify the blocks it will retain when a pooled NXX Code is requested for LRN purposes, and the remaining blocks shall be added to the industry inventory pool.
- When there are multiple tandems owned by different SPs in a single LATA, the requesting SP may obtain a new NXX in order to establish an LRN for each subtending switch or POI.
- Regulatory waivers granted to ILECs to carry local calls across a LATA boundary may exist. In such instances, SPs may be justified in establishing an additional LRN to properly route calls.

¹ The term "service provider" refers to a telecommunications carrier or other entity that receives numbering resources from the NANPA, a Pooling Administrator or a telecommunications carrier for the purpose of providing or establishing telecommunications service. For the purposes of this part, the term "service provider" includes an interconnected VoIP service provider (47 CFR § 52.5 (e)).

² See the LNPA WG pages at www.numberportability.com.

³ ATIS PTSC Standard: ATIS-1000002, *Number Portability for Switching Systems*. Documents are available to ATIS members at the ATIS Public Documents site at https://access.atis.org/apps/group_public/, or to non-members at the ATIS Techstreet store at <https://www.techstreet.com/atis/> (may have an associated fee).

⁴ See footnote 2.

⁵ CLLI Code and LERG are trademarks of iconectiv®, LLC.

3. Remote switches that have a unique, assigned NPA-NXX also may have a unique LRN established.⁶
4. The LRN shall be selected and established from a valid NPA-NXX that has been uniquely assigned to the service provider by the North American Numbering Plan Administrator (NANPA) and published in the LERG Routing Guide. An LRN should be selected and established with the following considerations:
 - Do not select and establish the LRN from an NPA-NXX that is planned to be re-homed to another switch or POI.
 - Do not select and establish the LRN from an NPA-NXX that has a majority of the NXX's numbers assigned to a single customer.
 - Do not select and establish the LRN from an NPA-NXX that is assigned to the local choke network.
 - Do not establish the same telephone number as both an LRN for a switch and a working number (Assigned status) for a customer.⁷
 - Do not establish any Temporary Location Directory Number (TLDN) or Emergency Services Routing Digit (ESRD)/Emergency Services Routing Key (ESRK) wireless administrative number as an LRN.
 - Do not establish any Emergency Services Query Key (ESQK) VoIP administrative number as an LRN.
 - Do not select and establish the LRN from a block that otherwise may be eligible for disconnect/donation or return to the thousands-block industry inventory pool.⁸
5. An LRN may have to be changed due to any of the following:
 - Switch replacements
 - Code moves or LERG Routing Guide reassignments
 - As a result of an NPA-NXX split
 - Donation or return of the thousands-block containing the LRN
6. If a switch serves multiple NPA-s, wherever possible, do not select and establish the LRN from an NPA that has been identified for an area code split if a switch serves multiple NPAs, wherever possible.
7. The LRN shall be published in the LERG Routing Guide.⁹ LRN records in the LERG Routing Guide are used by some SPs for trouble shooting and network engineering purposes. Within five business days of the assignment of an NXX that is to be used for LRN purposes, or when an LRN is established from an NXX already in an SP's inventory, the SP shall forward a CO Code Part 2 Form 7 to its AOCN for input into iconectiv's Business Integrated Routing and Rating Database System (BIRRDS).

⁶ See footnote 3.

⁷ It should be recognized that there are some numbers that have been established as both a LRN and a working customer number, which is technically feasible. There is no requirement that those assignments be discontinued, including instances when the customer has ported the number to another service provider. See ATIS-1000002, *Number Portability Switching Systems*.

⁸ An SP can avoid the donation of blocks containing administrative numbers [e.g., LRNs, TLDNs, Mobile Station Roaming Numbers (MSRN)], by consolidating these numbers within blocks it intends to retain. The porting of an LRN can cause call delivery failures.

⁹ At a minimum LRNs that are associated with ported and/or pooled records in the NPAC shall be published in the LERG Routing Guide. Failure to publish LRNs in the LERG Routing Guide leads to confusion and more investigation time during the resolution process to determine to whom the LRN belongs.

8. Service providers shall maintain internal records of LRNs as a separate sub-category of “Administrative” in their TN inventories (FCC 00-104 ¶¶36 and ¶¶62, see also 47 CFR § 52.15 (f) (1) (i)).
9. The LRN shall only be selected and established by the Code Holder from its assigned or retained thousand-block(s) where thousands-block number pooling is implemented..