



**ATIS-0300065**

**LOCATION ROUTING NUMBER (LRN) ASSIGNMENT  
PRACTICES**

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## Location Routing Number Assignment Practices

These practices are intended to assist Service Providers<sup>1</sup> as to why Location Routing Numbers (LRNs) are necessary and how to ~~select~~ establish their own LRNs from their numbering inventories. The use of LRNs is covered in the ATIS Packet Technology Systems Committee (~~formerly Committee T1S1PTSC~~) standards and the FCC North American Numbering Council (NANC) Local Number Portability Administration Working Group (LNPA WG) best practices,<sup>2</sup> 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 that have been ported or to numbers or pooled blocks that have been pooled ported to a different switch or POI than their underlying NPA-NXX.~~

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

1. A unique LRN will shall be provisioned to identify each recipient switch or POI in the number portability capable network.<sup>3</sup> LRNs ~~are to 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.<sup>4</sup>
2. A service provider will 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 ~~assigned established to for~~ every LNP equipped switch or POI (and potentially to each CLLI<sup>TM</sup> Code<sup>5</sup> listed in the iconectiv® LERG<sup>TM</sup> 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. Once the a non-pooled NXX Code is assigned, the Code Holder must shall return any blocks not justified for retention in its inventory. The Code Holder shall specify the blocks it will retain when a

<sup>1</sup> 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)).

<sup>2</sup> See the LNPA WG pages at [www.numberportability.com](http://www.numberportability.com).

<sup>3</sup> ATIS PTSC Standard: ATIS-100002, *Number Portability for Switching Systems*. ~~(d) Documents are available to ATIS members at the ATIS Document Center Public Documents site at [https://access.atis.org/apps/group\\_public/](https://access.atis.org/apps/group_public/), or to non-members at the ATIS Techstreet store at <https://www.techstreet.com/atis/www.atis.org> (may have an associated fee).~~

<sup>4</sup> See footnote 2.

<sup>5</sup> CLLI Code and LERG are trademarks of ~~Telcordia Technologies, Inc. dba~~ iconectiv®, LLC.

~~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.
3. Remote switches that have a unique, assigned NPA-NXX also may have a unique LRN ~~assigned established to the remote switches~~.<sup>6</sup>
4. The LRN ~~must shall~~ be selected and ~~assigned established~~ from a valid NPA/\_NXX that has been uniquely assigned to the service provider by the ~~Central Office Code Administrator~~ North American Numbering Plan Administrator (NANPA) and published in the LERG Routing Guide. An LRN should be selected and ~~assigned established~~ with the following considerations:
- Do not select and ~~assign establish~~ the LRN from an NPA/\_NXX that is planned to be re-homed to another switch or POI.
  - Do not select and ~~assign establish~~ the LRN from an NPA/\_NXX that has a majority of the NXX's numbers assigned to a single customer.
  - Do not ~~assign select and establish~~ the LRN from an NPA/\_NXX that is assigned to the local choke network.
  - Do not ~~assign establish~~ the same telephone number as both an LRN for a switch and an ~~Assigned~~ working number (Assigned status) for a customer.<sup>7</sup>
  - Do not ~~assign 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 ~~assign establish~~ the LRN from a block that otherwise may be eligible for ~~disconnect/donation or return~~ to the thousands-block industry inventory number pool.<sup>8</sup>
5. An LRN may have to be changed due to any of the following:
- ~~s~~Switch replacements
  - ~~e~~Code moves or LERG Routing Guide reassignments
  - NPA Splits (aA as a result of an NPA-NXX split, ~~a service provider may have to change their its assigned LRN)~~
  - Donation or return of the thousands-block containing the LRN

<sup>6</sup> See footnote 3.

<sup>7</sup> It should be recognized that there are some numbers that have been ~~assigned 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*.

<sup>8</sup> An SP can avoid the donation of blocks containing administrative numbers [e.g., LRNs, ~~Temporary Local Directory Numbers (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.

6. If a switch serves multiple NPA/~~NXXs~~, wherever possible, do not select and ~~assign~~ establish the LRN from an NPA that has been identified for an area code relief split if a switch serves multiple NPAs, wherever possible.
7. The LRN ~~will~~ shall be published in the LERG Routing Guide.<sup>9</sup> ~~LERG Routing Guide~~-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 ~~assigned~~ established from an NXX already in an SP's inventory, the SP ~~should~~ 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).
- ~~8.~~ Service providers must 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)).
- ~~9.8.~~ Shared service provider NPA-NXXs should not be used for LRN assignments.
- ~~10.9.~~ For Where thousands-block number pooling is implemented, ~~t~~The LRN shall only be selected and ~~used~~ established by the Code Holder from its assigned ~~/ or~~ retained thousand-~~block(s)~~ where thousands-block number pooling is implemented..

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<sup>9</sup> At a minimum LRNs that are associated with ported and/or pooled records in the NPAC ~~should~~ 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.