

Xn-C TNL Address Discovery

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Xn-C TNL address discovery

AMF support for Xn-C transport network layer (TNL) address discovery enables an NG-RAN node to obtain a neighboring node's Xn-C transport address through the 5G Core. The source node uses this procedure when it knows the target NG-RAN node's identity but does not know its Xn-C transport address.

AMF relays non-UE-associated NG Application Protocol (NGAP) RAN Configuration Transfer messages between the nodes. The NG-RAN nodes remain responsible for establishing direct Xn-C connectivity.

Table 1: Feature History Table

Feature Name	Release Information	Feature Description
Xn-C TNL address discovery	2026.03.0	Enables the AMF to relay NGAP RAN configuration transfer requests and responses between NG-RAN nodes to support Xn-C address discovery.

How Xn-C TNL address discovery works

Summary

1. The source NG-RAN node sends an uplink RAN configuration transfer to the AMF. The message includes SON configuration transfer information identifying the source and target nodes.
2. The AMF validates the required information, resolves the target by its Global NG-RAN Node ID, and checks for an active target NGAP association.
3. The AMF sends a downlink RAN configuration transfer to the target node. It does not modify the RAN-owned SON information.

4. The target node can return an uplink RAN configuration transfer containing SON Information reply and, when available, Xn TNL configuration information.
5. The AMF resolves the destination association and relays the reply to the source node in a downlink RAN configuration transfer.
6. The NG-RAN nodes use the discovery information to establish direct Xn-C Stream Control Transmission Protocol (SCTP) connectivity and perform Xn Application Protocol (XnAP) XN SETUP. The AMF does not participate in these procedures.

Xn-C TNL address discovery monitoring

Use the `amf_ngap_message_total` metric to monitor NGAP RAN Configuration Transfer messages. The following samples from the source specification show inbound uplink and outbound downlink messages:

- Inbound Uplink RAN Configuration Transfer:

```
amf_ngap_message_total{app_name="AMF",cluster="clu1",data_center="dc1",instance_id="0",message_direction="inbound",
message_type="N2UplinkRanConfigurationTransfer",service_name="amf-protocol-ep"}2
```

- Outbound Downlink RAN Configuration Transfer:

```
amf_ngap_message_total{app_name="AMF",cluster="clu1",data_center="dc1",instance_id="0",
message_direction="outbound",message_type="N2DownlinkRanConfigurationTransfer",service_name="amf-protocol-ep"}
 2
```