# BOA – TN Porting

Sample Order : 304100337

TN Servers :

zlpv7953.vci.att.com : cd /opt/app/athena/tnmgt/logs

zlpv7951.vci.att.com : cd /opt/app/athena/tnplatform/logs

Database :

Hostname : zlpv7955.vci.att.com

Port : 1524

Service Name/SID : p1c1d669

The TN Porting Platform provides services to support Number Porting where one or more telephone numbers from a Local Exchange Carrier (LEC) to the target service provider (AT&T)

To troubleshoot, we need to identify which of these flows have got impacted by checking the activity which is stuck in OMX WF – PND.

1. **Foreign Port LSR – invokeForeignPortLsr (Initiate LSR)**

* TN Porting receives invokeForeignPortLsr request from OMX WF.
* OCX GOD/IOD is called by TN Porting and success ack is sent back to OMX.
* If Ported TNs exists, then TN Porting triggers different requests to OCX GOD/IOD to get information :

inquireLSRInformationOrderDataRequest

inquireATTTNOrderDataRequest

inquirePortedTNOrderDataRequest

inquirePortingDetailsOrderDataRequest

inquireDirectoryListingOrderDataRequest

inquireLIDBCARECNAMOrderDataRequest

* TN Porting sends SendLSROrderDataRequest to LSRV with information received from OCX IOD. LSRV creates an LSR for a LEC BTN which will eventually be sent to the LEC to drive a carrier change for the port.
* In response, LSRV sends back lsrUpdateStatusRequest with different statuses – Created, Submitted, SLNPCreated, SLNPSubmitted.

1. **Create Foreign Port LNP – invokeForeignPortLnpPortIn (INITIATE LEC PPRQ)**

* Retrieve Ported TNs from OCX GOD
* Check if Ported TNs exists with action ‘AD’
* These TNs are required to be added and activated in LNPSOA.
* Send Create (to create subscription version) request to LNPSOA (backed by Nuestar – telephone number administration system in US).
* If Ported TNs already exist in TN Porting system as part of another order, Send Modify Request to LNPSOA to change some properties of these TNs. OPSubscriptionService.ModifySv, OPSubscriptionService.CreateSv, OPSubscriptionService.ModifySvResult
* If Ported TNs (which are not active) comes with action ‘CA’, then TN Porting sends Cancel Svc request to LNPSOA. OPSubscriptionService.CancelSv.
* TN Porting receives LNP status notifications from LNPSOA with different status of TNs – PENDING, FAILURE ( OPSubscriptionNotifyService.NotifySvActivityFailure) e.g. due date is passed.
* In case of a Failure from LNPSOA, TN Porting will stage CTH task ‘Resolve LNP issues for LEC TNs’.

ManageNetworkOrderUserTaskRequest is sent to CTH.

* User can opt to Retry, Skip or Complete the CTH task. SKIP will skip the activities and mark the WF COMPLETE in TN Porting. RETRY will re-rigger the create, modify and complete requests to LNPSOA.
* On receiving COMPLETE, TN Porting will inquire LNPTOOL for PENDNG STATUS of TNs. For this, TN Porting will send getLnpSoaSVsRequest to LNPTOOL and wait for the response from LNPTOOL.
* Once Pending statuses are received for all TNs, this flow will be completed in TN Porting and complete response will be sent to OMX.
* LNPSOA and LNPTOOL share the underlying databases and hence have the same data.

1. **Pending Port Status Check – invokePendingPortStatusCheck (CHECK PENDING PORT STATUS)**

* TN Platform verifies the statuses of all Ported TNs within LNPTOOL by sending getLnpSoaSVsRequest. In most of the cases, the statuses would be PENDING in LNPTOOL.
* Only in rare scenarios, If User has already activated the TNs, the TN status will be ACTIVATED in LNPTOOL.
* If LNPTOOL responds with System Error, CTH will stage ‘Resolve LNP Status System Errors’ task in CTH. User has an option to Complete or Retry this task. This will retrigger getLnpSoaSVsRequest to LNPTOOL.
* If Invalid status is received from LNPTOOL, CTH will stage ‘Resolve LNP Status Validation Failures’ task. User has an option to Skip,Complete or Retry this task.

Note : This trigger checks the following details:

1. Whether the status of TNs is PENDING in LNPTOOL.
2. Whether the NewServiceProviderDueDate is in future and not yet passed.
3. Whether the NewServiceProviderDaueDate matched the FOC Due Date from LSR flow.
4. **Activate Foreign Port LNP - invokeForeignPortLnpActivate**

* TN Porting will retrieve Ported TNs from OCX and checks if TNs needs Activation.
* If yes, TN Porting will stage ‘Select LEC TNs for Activation’ task for LNP Users. User can go to the system and select the TNs they want to be activated.
* Once User submits the TNs for Activation, TN Porting triggers the request to LNPSOA to issue activation requests. LNPSOA sends back Activation Notifications.
* Once activation notifications are received from LNPSOA, TN Porting sets the PONR and notifies OMX about Porting\_PONR through an interim notification.
* In case of any failures, TN Porting stages ‘Resolve LNP Issues for LEC TN activation’ task. User need to enter LNPSOA and make the corrections.

1. **Internal Port LNP- invokeInternalPort**

* This workflow is for ATT TNs . Both Creation and Activation occur at the same step.
* TN Porting interacts with LERG (where ATT TNs information is stored) to retrieve data for ATT assigned TNs.
* If TNs are already activated, this flow is completed.
* If Ports are required to be created, then TN Porting follows the same flow we have for Ported TNs to create and activate TNs in LNPSOA.
* If any failure is received from LNPSOA, ‘Resolve Internal Port Failures’ task is staged. User then need to go to LNPSOA and make the corrections.
* At the end of this flow all ATT TNs must be in ACTIVATED state in LNPSOA.

1. **Directory List Updates – invokeDirectoryUpdate (after TTU)**

* This workflow comes after Test and Turn Up. There are two flows based on the type of LSR: NPDL and DL.
* If LSR Type is DL, TN Porting triggers a request (ManageDirectoryListingRequest) LOMT for both WORKLISTTYPE : USER and SYSTEM.
* If LSR Type is NPDL, TN Porting triggers a request to LOMT for WORKLISTTYPE : USER only. This is because WORKLISTTYPE : SYSTEM request had already been sent to LOMT during LSR flow.
* TN Porting then waits for lomtCallbackRequest from LOMT.
* If any Error is received, TN Porting will stage ‘CTH-HIR System Error task’.

Next two triggers are mainly for MACD Orders

1. **Release Ported TNs - releasePortedTNs**

* TN Porting receives releasePortedTNs request from OMX.
* Retrieve TN data from OCX.
* Check if Ported TNs exists with action ‘RM’
* If no such TNs exists, then COMPLETE response is sent to OMX.
* If we have TNs to be removed, then TN Porting inquires LNPTOOL for TN statuses.
* If TN is ACTIVE (Sv is found) in LNPSOA, DEFERRED DISCONECT request to LNPSOA.

As part of this trigger, due date is also received. This due is also sent to LNPSOA and disconnect must happen on that due date only.

* TN Porting then waits for LNP status notifications from LNPSOA.
* If any failure is received, TN Porting stages ‘Resolve LNP Failures for Disconnect TNs’ in CTH.

User need to enter LNPSOA to manually disconnect the TNs.

User can Retry, Skip and Complete this task. In case of Retry and Skip, TN Porting will again inquire LNPSOA for TN Status (DISCONNECT-PENDING status if due date is in future).

1. **Port Out LEC Disconnect - InvokeProcessLECPortOut**

* TN Porting gets InvokeProcessLECPortOut request from OMX.
* TN Porting calls OCX GOD/IOD to identifies if there are Ported TNs on the order with action as ‘RM’.
* If PortOut TNs exists, TN Porting initiates a timer (configurable time ??) and waits.

TN Porting doesn’t manage Port Out activities, it is done in some external system.

* After the timer expires, TN Porting checks LNPSOA for activation or Disconnect notifications.
* If we receive Disconnect, then it confirms we have disconnected the PortOut TNs from our end.
* We might also get next level notification – Activation, where external LEC has already ported in the TNs and activated it at their end.
* In either cases, TN Porting stops the timer and inquires LNPTOOL to check the status of TNs.
* If any Port Out still left, TN Porting stages ‘APRQ Receipt’ task in CTH.
* If all is well 😊 then TN Porting will send back COMPLETE to OMX.

# Database Queries

* If the error is in any of the LNP Porting related flows (Create Foreing Port LNP, Activate Foreign Port LNP, Invoke Internal Port LNP, Invoke Pending Port Status Check)
  + the Primary Context table is the PORTING\_LNP table and the primary context record can be retrieved as below :

                    select \*  
                    from TNPORTING.porting\_lnp pl  
                    where pl.ORDERNUMBER in ('300061489')  
                    order by pl.ORDERNUMBER;

* If the ERROR is in the LSR Flow (Invoke Foreign Port LSR)the Primary Context table is the PORTING\_LSR table and the primary context record can be retrieved as below -

select \*  
from TNPORTING.porting\_lsr pl  
where pl.ORDERNUMBER = '300061489';

* select \* from tnporting.externalinterfacehistory eh where Eh.Ordernumber='304100339'

order by eh.created\_date asc; -- to check requests/responses.

* select \* from TNPORTING.porting\_dl where ORDERNUMBER = '304100337'
* select \* from tnporting.LOMT\_REQUEST where ordernumber='304100339' order by created\_date desc;

# END