Working with Translation Routes

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Cisco Systems, Inc.
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Customer Contact Business Unit

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To optimize cradle-to-grave call tracking, comprehensive reporting and Computer Telephony Integration (CTI), the ICM utilizes a process called translation routing. Translation routing ensures that the association between a call and its related data is maintained throughout the life of the call, enabling administrators to improve call center management and agents to enhance customer service. Translation Routing also enables the IP environment to transfer calls from IPIVR/CVP to CCM.

This document provides general information, configuration detail and testing procedures that will help customers effectively leverage and troubleshoot translation routes.

What is a translation route?
A translation route is a temporary destination for a call that allows other information to be delivered with the call. This is done by first delivering the call to the translation route. While the routing client (i.e. the carrier network or an IVR) is processing the call, the ICM delivers the final destination for the call, along with any call-related data, to the Peripheral Gateway (PG). The peripheral (i.e. an ACD) then works with the PG to reroute the call to the ultimate peripheral target and ensure that the appropriate information is also delivered.

When the ICM returns a translation route label to the routing client, it also sends a message directly to the Peripheral Gateway (PG) at the targeted peripheral. This message alerts the PG that a call will be arriving that requires route translation and contains the following information:

- The trunk group on which the call will arrive and the DNIS value associated with it.
- A label to be used by the PG to determine the ultimate skill target of the call.
- Instructions for further processing – such as a database lookup – to be performed by the PG.

When the peripheral sees the call arrive on the specified trunk group and with the specified DNIS value, it passes this information to the PG. The PG then combines this information with data it has received from the ICM and sends it, with the call, to the skill target specified by the received label. At the same time, the peripheral might, for example, send a message to a host computer that controls the display on an agent's workstation. This allows data, such as the caller's account information, to be displayed on the screen when the call arrives. The PG coordinates communication among the network, the peripheral, and the computer application that controls the display.

A single translation route can be used to send information to any number of different targets. However, the PG must uniquely identify the call in order to ensure that the call information is accurately delivered with the call. As a result, translation routing cannot be performed on two calls to the same peripheral target simultaneously. To avoid this, a set of peripheral targets, and routes, are typically defined for each translation route.

Translation routes can be defined within the Configure ICM application. The Translation Route Wizard included with the ICM automates these processes and will ensure that the correct associations are made among peripheral targets, labels and routes.

In a translation route application, the Route (❶) references a Post-*Routing* destination, and indicates that the call has been delivered to a peripheral (ACD, IVR, etc.) which will subsequently deliver a route request to the ICM.

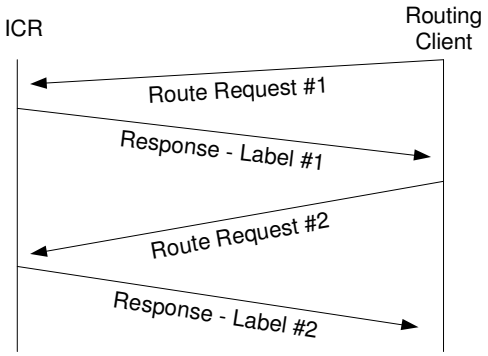
The Translation Route (❷) provides the **initial** route response to the originating routing client and is executed by the ICM prior to the Route (❶).

After the Translation Route is executed, the ICM then executes the Route, thereby sending the call to the actual Skill Target.

The Role of the Translation Route

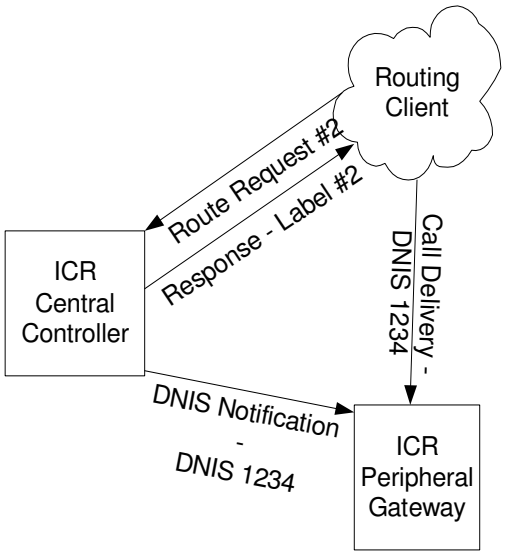
- Provide a unique response to a requesting routing client.
- Notify the targeted PG that a call will arrive on a specific DNIS.
- Verify the call has arrived by handling the post-route request from the peripheral.
- Provide the call data and Route (❶) to the peripheral.

When a routing client sends a route request to the ICM, a Label is returned from which the routing client determines a targeted peripheral and DNIS that will be provided to the peripheral upon call arrival. When translation routing is utilized, the ICM must be provided with a unique ID for each call to determine what data goes with each call once it arrives at the targeted peripheral. To ensure a unique ID, the ICM selects from a Label "pool" for each route request, and returns the Labels, one after the other, to the requesting routing client (*see illustration at right*). Each Label represents a different DNIS on the targeted peripheral, thereby providing each call with unique identification. The routing client then uses the Label to deliver the call to the targeted peripheral.



The ICM has an inherent relationship with the targeted DNIS via the Label's association with its peripheral target. The accuracy of this relationship is imperative, since this DNIS is used by the ICM to identify the call once it arrives at its targeted peripheral. (*Network Trunk Group and Trunk Group values that are associated with the peripheral target are NOT used for call identification, but should be accurate for reporting purposes*.)

The Translation Route has an inherent relationship with the targeted PG (Logical Interface Controller). This association allows the ICM to "notify" the PG that a call will be arriving on the DNIS associated with the peripheral target used in the Translation Route.



The notification message sent by the Central Controller to the PG includes the call data, DNIS (via the peripheral target number) and the ultimate destination for the call, or the Route (❶). The PG and the Central Controller then wait for notification – a route request – that the call has arrived from the peripheral. Failure to receive this request will cause the PG and Call*Router* to "time-out" the Translation Route. If the ICM receives the post-route request from the peripheral, it will then direct the peripheral to deliver the call to the destination indicated by the Label associated with the Route (❶).

Common Translation Route Errors

Translation Route Time-Out

The most common of translation route errors, **the time-out**, signifies that the ICM did not receive the post-route request from the targeted peripheral. It is possible to have "legitimate" time-outs since callers may disconnect before the call is delivered to the targeted peripheral.
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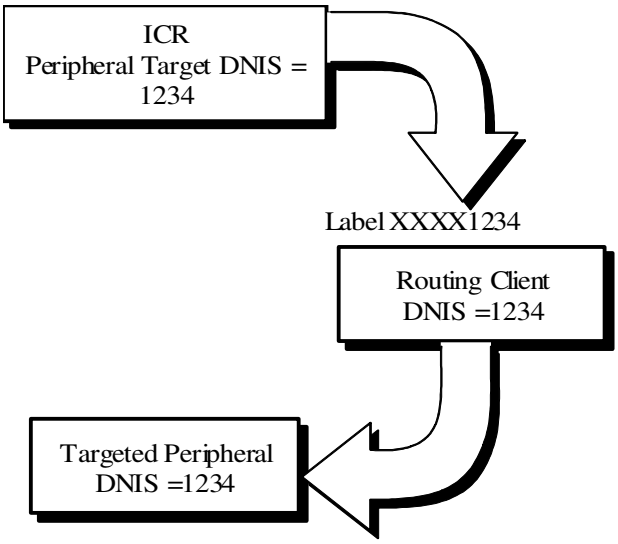
However, other issues – most involving platforms other than the ICM – can exist that will result in translation route time-outs. The most common scenarios are as follows:

Routing Client's Routing Plan

When routing clients send route requests to the ICM, they receive a Label as a response. This Label must represent to the routing client the same DNIS termination that the Label references in its association with its peripheral target.

In a Pre-*Routing*/Translation Route application, the network's routing plan must interpret the ICM Label into a call center ACD location and DNIS. The DNIS that is provided to the ACD must match the ICM DNIS represented in the ICM's configuration of the peripheral target (*see illustration at right*).



In a Post-*Routing*/Translation Route application, this Label may represent a routing client's call treatment. This treatment may include a transfer of the call to a local DNIS that, in turn, will transfer the call to the remote DNIS at the targeted peripheral.

To avoid translation route time-outs, it is essential that the routing client's routing plan is identical to the configuration of the ICM translation route configuration and delivers the call in a timely manner.

Targeted Peripheral Call Treatment

The peripheral targeted for a translation route is responsible for:

- Producing the Call Delivery Event of the call arriving on the targeted Translation Route DNIS.
- Making a route request to the ICM. This route request must identify the DNIS in the expected variable.
- Handling the Route selected by the ICM. The call will need to be moved to the location indicated via the ICM Label contained in the Route.

The ICM PG processes contain clues necessary for determining the cause of the translation route time-out and correcting the problem. Common issues occurring on the peripheral that could cause a time-out are:

- The peripheral call treatment changed or moved the call to a different DNIS.
- The call treatment failed to send the route request to the peripheral's PG.
- The route request failed to identify the DNIS in the expected variable for the translation route.
- The peripheral failed to honor the route response from the PG.
- The call disconnected during the processing of the peripheral's route request and the peripheral failed to send a disconnect message (see Translation Route Abort section below).

Latency of Pre-Route Message

A Call Delivery Event occurring prior to a Pre-Route message arriving at the targeted peripheral can also cause a time-out. This is typically caused by network latency. More information relative to network latency requirements can be found in the Cisco *ICM Installation Manual*.

<u>Translation Route Abort</u>

Translation route **abort** errors occur when a call disconnects while the call is still with the routing client. Consequently, translation route aborts will not occur in a Pre-*Routing* scenario since there is no event feed from the network notifying the ICM that a call has disconnected. It will occur, however, in instances where the routing client is a peripheral (called a "Post-Route" translation route).

Since the ICM relies on event messaging from the various peripherals, it is important to understand that the "event message" generates the call termination. Receiving an event message causes the ICM system to abort the translation route. This doesn't necessarily mean that the call has ended, but rather, the event is raised and sent to the ICM system. To avoid translation route abort errors, peripherals should be implemented in accordance with ICM specifications and must correctly implement call-flow messaging to ensure accurate translation routing and subsequent log messages.

How to Avoid Translation Route Issues

To minimize translation route issues and to more expeditiously resolve those that do occur, the following procedures are recommended:

1. Test thoroughly prior to implementation
2. Research and understand translation routing procedures
3. Provide complete information to the Cisco Customer Support Center during issue resolution

Translation Route Implementation Testing
To ensure the successful utilization of translation routing, we recommend thorough system testing at both the network and ACD levels prior to implementation. "Load testing" is also recommended, since it is possible for peripheral processes to become loaded down such that call and data movements are affected. The following testing procedures can significantly reduce the frequency of translation route errors.

Testing of Routing Client:

1. Create an identification "message" for each DNIS in the peripheral's DNIS pool. (i.e. – "This is DNIS 1234").
2. Create an ICM script that returns all Labels in the Translation Route.
3. Associate one of your own phone numbers (ANI or CLID) as part of the Call Type in the ICM. This will allow the use of a Production 800 Number for testing purposes.
4. Call the Production Number and verify that the call is delivered to the DNIS configured in the ICM peripheral target table.
5. Note any specific DNIS failures to compare against the routing client's routing plan.

Testing of Targeted Peripheral Call Treatment
Similar to the routing client, the targeted peripheral will invoke a routing plan or call treatment. The first call treatment must be a route request to the ICM. The DNIS pool will point to this one call treatment.

Check ICM Translation Route Configuration:

1. Modify the test scripting to now include Skill Targets with Translation and Route.
2. Use Check Routes to validate the Translation Route and Route configuration.
3. Use Call Tracer to verify outcome of simulated route request to the Call*Router*. This step is necessary to verify that the Database Server and Call*Router* are synchronized.

Test Targeted Peripheral Call Treatment:

1. Point the peripheral's DNIS pool to the Post-*Routing* call treatment.
2. Call again to test all DNIS call and post-route treatments, and to use each service incrementally by route request.
3. Note failures to verify peripheral post-route call treatment.

Understand Translation Routing Procedures and Issues
In many cases, translation route errors occur due to configuration and/or peripheral and routing client issues. Use the following to gather information that will help assist the Cisco Customer Support Center in determining translation route error causes and solutions.

- If a translation routing error occurs, determine the type of the error by looking in the Monitor ICM Event Viewer and the Router Log Viewer.

- Use “Check Routes,” “Call Tracer” and “ICM Configuration – Route Association” to ensure that the error is not due to a configuration problem. An error in any of these applications means that the Translation Route is configured incorrectly.
- Determine the abandon rate of your callers relative to translation route applications. Although it is normal to have a certain percentage of timeouts, contact the Customer Support Center if your translation route timeout percentage falls outside of that parameter.
- Determine the average time of call movement during your peak periods, particularly relative to post-route translation route applications. Query the peripheral provider for report data and testing methods and provide this detail to the Customer Support Center.
- Determine if the error is specific to a:
  1. translation route
  2. translation route DNIS
  3. particular routing client
  4. peripheral and determine if the issues are consistent.

Provide the Customer Support Center with Complete Information

If you need to work with Cisco Customer Support Center to resolve translation route issues, in addition to any information discovered during translation route testing and research (as outlined above), be sure to provide the Customer Support Center with the following detail:

- Error type (timeouts, aborts, etc.) – check the Router Log Viewer for this information.
- The translation route(s) that is failing and the Logical Controller (PG) involved.
- The DNIS and Network Target ID associated with the failing route. This information is located in the Peripheral Target table located in Configure ICM.
- Scripts and Versions using the translation route(s).
- If possible, have the peripherals supply ANI (CLID) in their event messaging.

Understanding Translation Routes in a UCC IPCC Environment:

• IVR CTI Ports and CTI Route Points are configured in Cisco CallManager, IVR, and ICM.
• IVR CTI Ports and CTI Route Points are associated with IVR user in Cisco CallManager global directory.
• Service Control check box is checked in IVR ICM configuration.
• Script names in IVR script definitions match network VRU script names in ICM.
TIP: Use the exact same name in all four (4) places so that there is no confusion or typo’s.
• Trunk group number in VRU PG matches CTI port group number in IP IVR.

For Trouble Shooting use the link below:
http://www.cisco.com/application/pdf/paws/23843/ipcc_trouble.pdf

Understanding Translation Routes in a System IPCC Environment:

System IPCC does not require the use of Translation route to VRU nodes in ICM scripting. It is done in the CRS (IPIVR) with a series of scripting.

- Unified CMTelephony => CM Telephony Triggers => Triggers Point to Application
- Application => Points to (Translation Route) Script and Local Route Point => Local Route Point is Trigger for Application which identifies the Script. If the Translation Route fails the Local Route Point will be used and keep the call locally.

Summary

By understanding translation routing, thoroughly testing translation routing configurations prior to implementation, and providing complete information to the Cisco Customer Support Center when errors occur, users can avoid a majority of translation route issues and can better utilize this functionality for reporting, CTI and cradle-to-grave call tracking and transferring calls from IVR's to CCM.