



IP Office - Job Aid

Least Cost Routing for T1/PRI Lines & Lines Using Secondary Dial Tone

Summary

This document show by example how to achieve Least Cost Routing when using T1/PRI lines or secondary dial tone.

Note: If the above does not apply, refer to the Job Aid "Least Cost Routing Menu Examples".

Least Cost Routing

Overview

Least Cost Routing allows calls to be routed making the best use of system resources. This document show by example how to achieve Least Cost Routing when using T1/PRI lines or secondary dial tone.

- If you are using T1/PRI lines, you must include the “;” at the end of the Shortcode entry.
- If you want to provide secondary dialtone to users, the dial access number must be surrounded by “[]”.

These characters are not supported in the shortcodes entered in IP Office Least Cost Route forms. Least cost routing functionality instead is achieved through system shortcodes. The rest of this document gives various examples. In all the examples, the number “9” is used to get access to outside lines.

- Note: If the above does not apply, you refer to the Job Aid "Least Cost Routing Menu Examples". When not using the ; or [] in shortcodes, least cost routing can be done through the Least Cost Route form in the IP Office configuration.

Example: Fallback Carrier Routing

In this example the customer has lines from two separate providers.

The required routing is:

- Local and national calls should go via the standard provider's lines.
- International calls should go via the alternate provider's lines.
- "900" calls should be blocked
- The dial access code must be the same for both national and international lines

The first thing to do is to change the **Outgoing Line Group ID** (On the Line Form). Put all the lines that will be used for local and national calls in one group (10 for this example). The lines that are going to be used for international dialing should be in a second group (20 for this example).

Configure the following Shortcodes on the Shortcode Form.

T1 or PRI Shortcode	Secondary Dialtone Shortcode	Explanation
	Shortcode: 9 Telephone Number: . Line Group ID: 0 Feature: SecondaryDialTone	Secondary Dial Tone
Shortcode: 9001N; Telephone Number: 001N Line Group ID: 10 Feature: Dial	Shortcode: [9]001N Telephone Number: 001N Line Group ID: 10 Feature: Dial	Matches international number
Shortcode: 91N; Telephone Number: N Line Group ID: 20 Feature: Dial	Shortcode: [9]1N Telephone Number: N Line Group ID: 20 Feature: Dial	Matches Long Distance (national) number
Shortcode: 9xxxxxxxxxx; Telephone Number: N Line Group ID: 20 Feature: Dial	Shortcode: [9]xxxxxxxxxx Telephone Number: N Line Group ID: 20 Feature: Dial	Matches local number
Shortcode: 91900N; Telephone Number: . Line Group ID: . Feature: Busy	Shortcode: [9]1900N Telephone Number: . Line Group ID: . Feature: Busy	Matches 900 numbers

Example: Using an Alternate Carrier

In this example the customer's lines are all from the same provider. However they want calls other than local calls to go via an alternate carrier.

The required routing is:

- All calls go via the same set of lines.
- Any national or international calls should be prefixed with the alternate carrier's access code (123), a pause and a customer ID number (123456).
- The alternate carrier also provides billing by extension number, so insertion of the dialing extension number is desired.
- Local numbers dialed in full (ie. with the local area code) should not go via the alternate carrier.
- Toll free numbers provided by the line provide should not go via the alternate carrier.

Configure the following Shortcodes on the Shortcode Form.

T1 or PRI Shortcode	Secondary Dialtone Shortcode	Explanation
	Shortcode: 9 Telephone Number: . Line Group ID: 0 Feature: SecondaryDialTone	Provides secondary dial tone after dialing 9.
Shortcode: 91N; Telephone Number: 123,123456E1N Line Group ID: 10 Feature: Dial	Shortcode: [9]1N Telephone Number: 123,123456E1N Line Group ID: 10 Feature: Dial	Matches national number
Shortcode: 9001N; Telephone Number: 123,123456E1N Line Group ID: 10 Feature: Dial	Shortcode: [9]001N Telephone Number: 123,123456E1N Line Group ID: 10 Feature: Dial	Matches International number
Shortcode: 91800N; Telephone Number: 1800N Line Group ID: 10 Feature: Dial	Shortcode: [9]1800N Telephone Number: 1800N Line Group ID: 10 Feature: Dial	Matches toll free number
Shortcode: 91888N; Telephone Number: 1888N Line Group ID: 10 Feature: Dial	Shortcode: [9]1888N Telephone Number: 1888N Line Group ID: 10 Feature: Dial	Matches toll free number
Shortcode: 91866N; Telephone Number: 1866N Line Group ID: 10 Feature: Dial	Shortcode: [9]1866N Telephone Number: 1866N Line Group ID: 10 Feature: Dial	Matches toll free number
Shortcode: 91877N; Telephone Number: 1877N Line Group ID: 10 Feature: Dial	Shortcode: [9]1877N Telephone Number: 1877N Line Group ID: 10 Feature: Dial	Matches toll free number
Shortcode: 9xxxxxxxxxx; Telephone Number: N Line Group ID: 1 Feature: Dial	Shortcode: [9]xxxxxxxxxx Telephone Number: N Line Group ID: 10 Feature: Dial	Matches local number
Shortcode: 91900N; Telephone Number: Line Group ID: Feature: Busy	Shortcode: [9]1900N; Telephone Number: Line Group ID: Feature: Busy	Matches 900 numbers

In the above table, the shortcodes 9001N and 91N match long distance and international dialing. The alternate carrier's access code (123), a pause (" ") and the customer's identification number (123456) followed by the user dialing (E), followed by the dialed number (1N) are sent out to the line.

Example: International Call Restriction

In this example the customer wants to restrict who can make international calls.

The required routing is:

- The customer has an overseas office to which all users should be able to make calls.
- Certain users can make international calls.

To achieve this the following configuration changes are done in the System Shortcode form:

T1 or PRI Shortcode	Secondary Dialtone Shortcode	Explanation
	Shortcode: 9 Telephone Number: . Line Group ID: 0 Feature: SecondaryDialTone	Provides secondary dial tone after dialing 9.
Shortcode: 9011441707364N; Telephone Number: 0014417017369N Line Group ID: 10 Feature: Dial	Shortcode: [9]011441707364N Telephone Number: 011441707364N Line Group ID: 10 Feature: Dial	Matches DID numbers to the overseas office
Shortcode: 9011N; Telephone Number: . Line Group ID: 10 Feature: Busy	Shortcode: [9]011N Telephone Number: . Line Group ID: 10 Feature: Busy	Matches international calls and returns busy to the user.
Shortcode: *80 Telephone Number: 00144392200 Line Group ID: 10 Feature: Dial	Shortcode: *80 Telephone Number: 00144392200 Line Group ID: 10 Feature: Dial	Allows users to call main overseas number

To achieve this the following configuration changes are done in the Shortcode Tab of the User Form. This needs to be done for each user that can override the international call restriction.

T1 or PRI Shortcode	Secondary Dialtone Shortcode	Explanation
Shortcode: 9011N; Telephone Number: 01N Line Group ID: 10 Feature: Dial	Shortcode: [9]011N Telephone Number: 01N Line Group ID: 10 Feature: Dial	Matches international calls and allows the call.

Example: Small Community Network Routing

In this example the customer has two IP Office systems. These are linked by a VoIP connection and use IP Office Small Community Networking.

System A has extensions and groups numbered from 200 upwards. System B has its extensions and groups numbered from 500 upwards.

- The customer wants anyone dialing the external DID of an extension on the remote system to have the call routed via the VoIP connection.

To achieve this the following configuration changes were made on System A. Similar changes would also be implemented on System B.

- The VoIP VPN lines from System A to System B were put into Outgoing Group ID 5.

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The following System Shortcodes are added:

Shortcode	Explanation
Shortcode: 9011441707392200 Telephone Number: 500 Line Group ID: 5 Feature: Dial	Routes the call via VoIP to Site B's reception group (500).
Shortcode: 9011441707364N; Telephone Number: N Line Group ID: 5 Feature: Dial	Matches users dialing the DID of a Site B user. It routes the call via VoIP directly to the remote extension.
Shortcode: 5N Telephone Number: 5N Line Group ID: 5 Feature: Dial	Matches any user dialing a Site B extension or group number.

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Avaya
Sterling Court
15-21 Mundells
Welwyn Garden City
Hertfordshire
AL7 1LZ
United Kingdom

Tel: +44 (0) 1707 392200
Fax: +44 (0) 1707 376933
Email: contact@avaya.com
Web: <http://www.avaya.com>