Meridian 1

Meridian SL-100 Translations, part 2

Student Guide

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120197

N✪RTEL
NORTHERN TELECOM

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Student guide

Revision history

March 1998

This course is updated to incorporate MSL07 software and hardware.

December 1997

This course is updated to incorporate MSL05 software and hardware. The update provides assistance when reviewing previous issues of hardware still in use at a customer site. Furthermore, this course is now consistent with other MSL course formats where the following are stated:

- why the lesson is important
- the objective of the lesson
- what to do
- what resources to use
- lesson content
- practice sessions

Notes:

Table of Contents

Major steps in Translations II

With the information presented in Translations I, you now can learn about the following:

- Trunk groups, line screening codes, and terminal restriction codes

- Conditional routing and network speed calling

- Authorization codes and direct inward system access (DISA)

- Conferencing features and uniform call distribution (UCD)

- And optionally, emergency standalone translations

Lesson 1, Trunk tables, line screening codes, and terminating restriction codes

Meridian SL-100 translations often route calls to various trunk groups. You may have to modify the datafill for the tables supporting trunk groups, restrict subscribers or incoming trunks from using certain outgoing trunk groups, such as WATS or DODs, or datafill specific tables with line screening codes or terminating restriction codes. This lesson presents tables needed to set up these capabilities.

Lesson 2, Conditional routing and network speed calling

Conditional routing allows cost-effective use of facilities available by route choices based on the conditions met or the time of day. Routes can vary based on the day of the week or the day of the year to account for weekends and holidays. These routes vary because of call characteristics such as percentage of calls directed to a trunk or if the call came from a satellite trunk.

Network Speed Calling is when the subscriber dials a conveniently abbreviated code which represents a standard directory number. These called directory numbers may be located within a customer's private network or in a connecting private or public network.

Network Speed Calling lets a Meridian SL-100 subscriber, normally restricted from making specific types of network calls, place such calls if the destination is a company-approved number.

This lesson presents those tables needed to enable conditional routing and network speed calling.

Lesson 3, Authorization codes and direct inward system access (DISA)

Authorization codes allow users to perform certain specified privileges and also can be used for billing records.

DISA lets selected outside callers dial from the public switched network directly into the Meridian SL-100 and gain access to network facilities (such as ESN) without attendant assistance.

Lesson 4, Conferencing features and uniform call distribution (UCD)

Conferencing is supported by six-port (and three-port) conference circuits provisioned at the customer's request. The type of conferencing and maximum number of conferees allowed in a conference depends on the features loaded in your site. Several Feature Packages are discussed in this lesson. As a database technician, you must be prepared to order the correct feature package and subsequently datafill to support requested conferencing types.

Additionally, this lesson introduces you to Uniform Call Distribution (UCD). UCD is an optional Meridian SL-100 feature allowing a large volume of calls to be answered by a group of stations. If your site has the appropriate feature package, and upon completion of this lesson, you can datafill for UCD.

Lesson 5, Emergency stand alone tables and translations (optional)

If communication between a remote and the host (Meridian SL-100) is lost, the Emergency Stand Alone (ESA) feature supplies local, basic intracalling service to remote stations until the connection with the host is restored. This is an optional feature and requires additional hardware and software if the feature is elected. This lesson introduces the basics of ESA translations, ESA tools, as well as an overview of the Remote Switching Center (RSC).

Course procedures

The following are the procedures by which this course is operated.

Northern Telecom Training Facility

1. Be sure you know the location of the all the equipment and resources you use in class.

2. Many classes have additional resources to help you develop the skill taught in the course. Your instructor will let you know which of these resources are yours to keep.

3. Be sure to practice each skill before going to the skill checks.

4. Take time to think, talk to others, see how others are applying the procedures to their own areas. This is not a race. Use the opportunity to sharpen your skills.

Lessons

1. It is important for you to understand the objective and how you will show your competence before you begin practicing the skill.

2. Work through the practice at your own rate.

3. Spend as much, or as little, time as you desire working with others.

Resources

1. There are at least three resources for each lesson: (a) the lesson itself, (b) other course participants, and (c) the instructor. Additional resources may also be available; if so, they are listed on the first page of the lesson.

2. Work with a colleague whenever you wish.

Skill checks

1. Each lesson has a skill check the instructor asks you to complete to demonstrate mastery of the objective.

2. If you do not perform adequately on a skill check, you may, after further study and at the instructor's discretion, be asked to take the same skill check again or to complete a similar test.

Glossary and abbreviations

Numerical entries

A

ACD

Automatic Call Distribution. A set of MSL100 features assigning answering priorities to incoming calls and then queues and distributes the calls to a predetermined group of telephone sets designated as agent positions.

ACR

Account code restriction.

agent position

An Automatic Call Distribution (ACD) set that is a member of an ACD group and designated to answer incoming ACD calls.

ambiguous code (AMBI)

A universal translations system used whenever knowing the total number of digits dialed will make a difference to the outcome of the translation.

area code

(See also numbering plan area (NPA)) Any of the designated geographical divisions of the United States, Canada, Bermuda, Caribbean, Northwestern Mexico, and Hawaii within which no two telephones have the same seven-digit number. Each NPA is assigned a unique three-digit area code.

B

BLDN

Blank directory number. A call treatment required for routing unassigned directory numbers.

C

call

Any demand to set up a connection through the switch. Also used as a unit of telephone traffic. Also known as a cue.

Call Detail Recording (CDR)

A system collecting and records data on all its calls processed by the DMS switch. Call detail recording information is stored on a recording device and used to compile studies on traffic and equipment service, division of revenue, engineering, and fraud.

calling number

The number of the party initiating a call. This number can identify the origin of the call to the called party. Also known as the calling party number.

call park (PRK)

A feature permitting the user to hold an incoming call. A parked call can be retrieved from any station within the customer group by dialing a specific code.

call processing block

The data tables used in translating calls--Lines, Screening, Routing, and Trunks.

call transfer (CXR)

A feature permitting a subscriber to instruct the switching equipment or operator to transfer any incoming calls to another station.

CAMA

Centralized automatic message accounting. A system producing itemized billing details for subscriber-dialed long distance calls. Details are recorded at a central facility serving a number of exchanges. In exchanges not equipped for automatic number identification (ANI), calls are routed to a CAMA operator who obtains the calling number and enters it into the computer for billing.

card

A plug-in circuit pack containing components. In a Meridian switch, card is the preferred term for a printed circuit pack or printed circuit board.

card pair

In the enhanced network (ENET), a combination of cards consisting of an ENET card and its mate card.

CDR

See Call Detail Recording (CDR).

central office (CO)

A switching office (SO) arranged for terminating subscriber lines and provided with switching equipment and trunks for establishing connections to and from other SOs. Also known as local office.

centrex

Centralized private branch exchange (PBX). A service providing a business telephone subscriber with direct inward dialing (DD) to extensions on the same system and direct outward dialing (DOD) from all extensions. Centrex switching equipment can be at the central office (CO) or on the operating company client's premises.

CI

Command Interpreter. A component in the Supporting Operating System (SOS) functioning as the main interface between machine and user. Its principal roles include the following:

- reading lines entered by a terminal user

- breaking each line into recognizable units

- analyzing the units

- recognizing command-item numbers on the input lines

- activating these commands

class of service

The categorization of telephone subscribers according to the specific types of service extended. Telephone service distinctions include such items as rate differences between individual and party lines, flat rate and message rate, and restricted and extended area service.

CLLI

Common Language Location Identifier. A standard identification method for trunk groups in the following form:

aaaa bb xx yyyy

where:

aaaa	is the city code
bb	is the province or state code
xx	is the trunk group identifier
yyyy	is the trunk member

code blocking

Restriction of calls to specific DOD numbers, Electronic Switched Network, OUTWATS, or private network numbers.

customer data schema

A complete and detailed description of the datafill tables associated with the Meridian SL-100 family switches. It lists the table contents and data ranges controlling office operation.

customer group

A group of partitions in a switch, each partition supporting customers' individual needs. Customer groups can be private, public, or family types.

customer translator

Translates all access codes having a leading digit of 0 to 9 (mandatory) and is used where the majority of customer groups desire a particular feature.

D

datafill

(v) The entry of data into tables.

(n) The data entered into tables.

DD

Direct Dial. Also Delay Dial.

Digital Multiplex System (DMS)

A central office (CO) switching system in which all external signals are converted to digital data and stored in assigned time slots. Switching is performed by reassigning the original time slots.

Digitone (DGT)

A service-related telephony feature allowing address information to be generated from a telephone set in the form of dual-tone multifrequency (DTMF) signals by manually pressing nonlocking buttons. Also known as dual-tone multifrequency dialing.

direct dial (DD)

A call origination type applying to calls requiring no operator intervention.

direct dial overseas (DDO)

Dialing of calls to an overseas destination without operator assistance. To use DDO, the call dials 011 followed by a country code and a city code.

direct distance dialing (DDD)

A telephone exchange service permitting subscribers to call a number outside their local area without operator assistance.

direct inward dialing (DID)

A service allowing an incoming exchange network call (not foreign exchange (FX) or wide area telephone service (WATS)) to reach a specific private branch exchange (PBX) station line without attendant assistance. When DID is available, central offices (CO) can provide specific station identification to the PBX.

direct inward system access (DISA)

A service allowing authorized callers to dial from switched networks directly into a Meridian SL-100 office. DISA also allows the caller to gain access to network facilities without the assistance of an attendant.

directory assistance (DA)

A service allowing a subscriber to ask an operator to look up information from a telephone listing database.

directory number (DN)

The full complement of digits required to designate a subscriber's station within one numbering plan area (NPA)--usually a three-digit central office (CO) code followed by a four-digit station number.

direct outward dialing (DOD)

A feature allowing the private branch exchange (PBX) or centrex system user to access the exchange network without attendant assistance.

DISA

See direct inward system access (DISA).

DMS

See Digital Multiplex System (DMS).

DMS-100

A member of a family of digital multiplexed switching systems. The DMS-100 is a local switch.

DN

See directory number (DN).

DOD

See direct outward dialing (DOD).

E

Emergency Technical Assistance Service (ETAS)

Nortel's technical support provided to operating companies in Canada for emergencies, cutovers, software updates, and product verification.

ERWT

See expensive route warning tone (ERWT).

ETAS

See Emergency Technical Assistance Service (ETAS).

expensive route warning tone (ERWT)

An optional calling service providing a warning tone to indicate the selection of an expensive route for the completion of a call.

F

FDN

Foreign Exchange Toll Denied

FDV

Foreign Exchange Toll Diverted

feature translator

Translates all access codes having a star (*) (asterisk) as the leading digit (optional).

field

The vertical column of a table.

foreign exchange (FX)

A service allowing a telephone or a private branch exchange (PBX) to be served by a distant central office (CO), rather than by the CO in the immediate geographical area.

G

GNCT

Generalized No Circuit Treatment. A procedure followed when no circuits are available.

H

Helmsman

A software package, previously called COMPASS, processing electronically-produced documents into a format allowing text and graphics to be viewed on a computer or printed. Such documents are often stored on compact disc-read-only memory (CD-ROM). The documents are processed into a cohesive volume with a single index allowing comprehensive information retrieval.

I

IBN

See Integrated Business Network (IBN).

Incoming

The direction of a signal with respect to the module or unit being described. An IC signal is on the receiving path to the unit.

Integrated Business Network

Now known as Meridian Digital Centrex. A special DMS business services package using the data-handling capabilities of DMS-100 family offices to provide centralized telephone exchange service.

inter-LATA

Telecommunications services, revenues, and functions originating in one local access and transport area (LATA) and terminate either outside that LATA or inside another LATA.

intra-LATA

Telecommunications services, revenues, and functions that originate in one local access and transport area (LATA) and terminate within that LATA.

intraswitch

A call completed between subscribers connected to the same central office (CO) or remote unit, such as the remote switching center.

J

journal file (JF)

A utility recording changes made to the datafill tables of the Meridian SL-100 Family switches. The JF provides a means of restoring the tables if it's necessary to reload office software from a backup source.

K

key

Information by which a particular tuple in the logical and customer schema is uniquely identified. Keys have an ordering and a validity property. As a result, the user can ask for a specific key (such as the first, next, or last key) from the set of used keys.

KLD

Key Lamp Display

L

LATA

See local access and transport area (LATA)

LCC

See line class code (LCC).

LEN

See line equipment number (LEN).

line class code (LCC)

An alphanumeric code identifying the class of service assigned to a line.

line equipment number (LEN)

A seven-digit functional reference identifying line circuits (LC). The LEN provides physical location information on equipment such as site, frame number, unit number, line subgroup (shelf), and circuit pack.

line screening code (LSC)

Software defining the outgoing side of two-way Meridian SL-100 trunk groups to which the network class of service (NCOS) has access.

local access and transport area (LATA)

A geographic area within which an operating company may offer telecommunications-related services.

LSC

See line screening code (LSC).

M

MAP

Maintenance and administrative position. A group of components providing a user interface between operating company personnel and the Meridian SL-100 Family switches. The interface consists of a video display unit (VDU) and keyboard, a voice communications module, test facilities, and special furniture.

MAPCI

MAP command interpreter.

N

NCOS

See network class of service (NCOS).

network

- An organization of stations able to intercommunicate but not necessarily on the same channel.

- Two or more interrelated circuits.

- A combination of terminals and circuits in which transmission facilities interconnect user stations directly.

- A combination of circuits and terminals serviced by a single switching or processing center.

network class of service (NCOS)

Values used to determine call privileges for calls using the network. NCOS values, which are encoded as part of network signals, are transmitted as part of the calls between the nodes of a Meridian switched network.

Northern Telecom Publication (NTP)

A technical document intended to assist operating company personnel with the operations, administration, maintenance, and provisioning of Nortel products, including both hardware and software. NTPs contain descriptive and procedural information. They are usually supplied to an operating company as part of the purchased product. Each NTP is uniquely identified by a ten-digit number including a three-digit division number to denote the system, a four-digit layer number to denote the product, and a three-digit key number to denote the document type.

numbering plan area (NPA)

Any of the designated geographical divisions of the United States, Canada, Bermuda, Caribbean, Northwestern Mexico, and Hawaii within which no two telephones have the same seven-digit number. Each NPA is assigned a unique three-digit area code.

Nxx

The three-digit office code, often called exchange code. For example, the Nxx of (972) 555-1234 is 555.

O

OA

Operator-assisted. Subscriber dialed calls needing the help of the operator.

octothorpe

The symbol #. Also known as hash mark or pound sign.

octothorpe translator

Translates all access codes having an octothorpe (#) as the leading digit (optional).

off-hook

The condition existing in telephone operations when the receiver or handset is removed from its hookswitch.

One of two possible signaling states such as tone or no-tone, or ground connection or battery connection.

office code

The three-digit code (the left most three digits of a seven-digit telephone number) designating as central office (CO) within a numbering plan area (NPA). A switching machine frequently handles more than one office code. The office code is often called the exchange code.

on-hook

The condition existing in telephone operation when the receiver or handset is resting on its hookswitch.

One of two possible signaling states, such as tone or no-tone, or ground connection or battery connection.

operational measurements (OM)

The hardware and software resources of the Meridian SL-100 Family switches controlling the collection and display of measurements taken on an operating system. The OM subsystem organizes the measurement data and manages its transfer to displays and records. The OM data is used for maintenance, traffic, accounting, and provisioning decisions.

operator-assisted (OA) calls

Subscriber dialed calls requiring help from the operator.

originator

An agent in Meridian SL-100 call processing starting a call by detecting an origination request.

outgoing (OG)

The direction of a signal with respect to the module or unit being described. An OG signal is on the transmit path from the unit.

P

PBX

See private branch exchange (PBX).

peg count

The number of times an event occurs, for example, the number of telephone calls originated during a specified period of time.

peripheral module (PM)

Any hardware module in the Meridian SL-100 Family switches providing an interface between external line, trunk, or service facilities. A PM contains peripheral processors (PP), which perform local routines, thus relieving the load on the CPU.

plain old telephone service *or* plain old telephone system (POTS)

Basic telephone service with no frills or special facilities.

Plug Up (PLP)

A feature preventing calls from terminating to a specific line.

PM

See peripheral module (PM).

POTS

See plain old telephone service *or* plain old telephone system (POTS).

preliminary translator

Translates all access codes having a numeric leading digit of 0 to 9 (optional). Allows only a certain NCOS to use its tuple in Table IBNXLA.

pretranslator

A translator screening on the first digit following the access code.

private branch exchange (PBX)

A private telephone exchange, either automatic or attendant operated, serving extensions in an organization and providing access to the public network.

product engineering code (PEC)

An eight-character unique identifier for each marketable hardware item manufactured by Nortel.

R

RAG

See Ring Again (RAG).

Ring Again (RAG)

A feature allowing a calling party encountering a busy station to be connected automatically with that station when it becomes available.

S

schema

The representation of data in an Meridian SL-100 switch as seen by various users. It includes both tables and associated operations.

screening

A telephony function determining the eligibility to complete a call as dialed based upon class of service information associated with the line.

selector

An identifier in a Meridian SL-100 switch reflecting a particular agency associated with a gate utility. A unique selector value is associated with each agency. Depending on the gate utility, the selection can be allocated either automatically or manually.

The selectors route to the next translator in the step. Route element selectors direct you to the next translator step.

Service Order System (SERVORD)

A user interface consisting of commands used to change, add, or delete subscriber lines. The format used for commands in the SERVORD complies with the standard telephone industry command format. For example, 3WC is three-way calling, ADO is add option, DEL is delete, and CWT is call waiting.

Station Message Detail Recording (SMDR)

In Meridian Digital Centrex (MDC), a system providing recording facilities for the details of billable and nonbillable calls for each MDC customer group.

subfield

The additional information elements of a field.

subtable

Specific additional datafill to support a tuple in the main table.

Suspended Service (SUS)

A feature allowing no calls to originate or terminate from a line.

T

table

Two-dimensional entities storing data associated with hardware and software in the Meridian SL-100 Family switches.

Table Editor (TE)

In a Meridian SL-100 switch, software supporting an enhanced set of table control functions at the user interface, using data dictionary, formatter, and table control. Operating company personnel can modify or add tuples to a table.

Technical Assistance Services (TAS)

Nortel's technical services organization for operating companies in the United States. TAS handles all emergency and nonemergency support, technical queries not related to pricing and produce availability, cutovers, and software updates including patches.

Three-way Calling (3WC)

A feature allowing a subscriber to add a third party to an active call without operator assistance.

Toll Denied (TDN)

A feature preventing toll calls from originating on a line.

translation

The process whereby dialed digits are converted into the system information necessary to route the call to its destination.

translation verification (TRAVER)

A diagnostic tool allowing the operating company to access and simulate a telephone call in software and display the tables and tuples used to establish the lines, trunks, or positions to which a call is routed.

translator

A Meridian SL-100 call processing function procedure used to coordinate the translation of dialed digits. See customer translator, feature translator, octothorpe translator, preliminary translator, and pretranslator.

treatment

A procedure determining how a sequence of dialed digits is handled.

TRKGRP

Trunk Group.

TRKSGRP

Trunk Subgroup.

TRKMEM

Trunk Member.

tuple

Table Update Line Entry.   A horizontal row in a data table.

W

wide area telephone service (WATS)

A special direct distance dialing service for a flat monthly charge or a charge based on accumulated usage permits either inward or outward dialing between a subscriber and specified areas.

wink (WK)

A method of signaling between idle trunk circuits whereby trunks signal off-hook towards each other. A WK signal consists of timed off-hook signals transmitted to the calling end after a connection is made.

Wink Start

A service providing control for address signaling. Wink Start is used to inform the calling office the called office is prepared to receive address signals. The Wink Start signal consists of an on-off-on-hook transition, with the off-hook to on-hook transition representing the start dial signal.

Z

zero-minus dialing

Dialing the long distance operator: 9+0. This is not the same as operator assisted dialing (9+0+4571212).

Notes:

Trunk tables, line screening codes, and terminating restriction

Why this lesson is important

Meridian SL-100 translations often routes calls to various trunk groups. You may be called upon to modify the datafill for the tables supporting trunk groups. You may also want to restrict subscribers or incoming trunks from using certain outgoing trunk groups, such as WATS or DODs. You may datafill specific tables with line screening codes or terminating restriction codes. This lesson presents tables needed to set up trunk groups as well as line screening codes and terminating restriction codes.

Objective

Upon completion of this module, you can:

- define the components of a trunk group;

- describe and datafill the tables and fields supporting trunk groups;

- describe the function of Line Screening Codes and this feature's related data tables;

- describe the function of Terminating Restriction Codes and this feature's related data tables; and

- invoke and analyze TRAVERs; if the resultant TRAVER is unsuccessful, correct the datafill error and re-run the TRAVER

What to do

1. Read Lesson 1: Trunk groups, line screening codes, and terminating restriction codes.

2. Obtain NTPs *555-4031-851* and *555-4031-350* and read about the tables presented in this lesson.

3. Work through the lesson including all practices. You may practice as many times as you like.

4. There is no skill check for this lesson; your correctly completed practices serve as your skill check.

5. Have the instructor check this lesson, and go to the next lesson.

What resources to use

Resources	Resource number
Commercial Systems Customer Data Schema	NTP 555-4031-851
Commercial Systems Translations Guide	NTP 555-4031-350

Trunk groups and associated tables

Introduction to trunks and how they are referenced

Meridian SL-100 translations often route calls to various trunk groups. Because of this fact, you may be called upon to modify the datafill for the tables supporting trunk groups. This module will prepare you to do just that.

But, before we go any further, let's briefly define the term "trunk". A trunk (also referred to as a "circuit") is usually defined **as a pair of paths** (channels) **between switches allowing for voice and data transmission.**

People refer to trunks in several different ways as discussed in the following sections.

Physical location

A trunk can be referred to by its physical location in the switch. For example, a trunk "housed" inside a DTC (Digital Trunk Controller) has a physical location including these three elements:

- the number of the DTC to which it is assigned;

- the port on that DTC where the trunk terminates; and

- the specific time slot the trunk always uses.

Assigned number

A trunk can also be referred to by the one four-digit number assigned to it. For example, trunk number 1, 2, 3, 4, and so forth.

Group associations

A trunk can also be referred to by the group of other trunks with which it shares things in common. For example, suppose trunk numbers 1, 2, 3, and 4 all connect a switch to the same far-end switch. Since the trunks have a common destination (and other common characteristics which are be discussed later), it is more convenient for us to generalize them into a "group" of trunks rather than individual circuits. Now each trunk not only has a trunk **number** but it also has a trunk **group name** (for example, TRKGRP1) shared by other similar trunks.

Subgroup association

A trunk can also be referenced by a more select group of (or subgroup) trunks **within its trunk group**. Trunks in a subgroup have more in common with each other than they do with the other trunks in the trunk group. For instance, let's say in TRKGRP1, trunks 1 and 2 are analog trunks while trunks 3 and 4 are digital trunks. Since trunks 1 and 2 are analog, we put them in one subgroup (for example, subgroup 0), and since trunks 3 and 4 are digital, we put them in another subgroup (for example, sub-group 1). Now, whenever someone wants to refer to all the digital trunks in trunk group TRKGRP1, they could simply refer to subgroup 1 of TRKGRP1. Now that you understand what a trunk is, let's prepare you for building a trunk group. The purpose of this module is to familiarize you with the various tables used to establish a trunk. The tables covered in this module include Table CLLI, Table TRKGRP, Table TRKSGRP, Table TRKMEM, and Table CLLIMTCE.

Table CLLI

Common Language Location Identification (CLLI) codes uniquely identify the far-end of each trunk group, announcement, and tone. Table CLLI lists each of these codes. Four fields comprise Table CLLI as shown in the example below. These fields are shown below and described in the following the paragraphs.

CLLI	ADNUM	TRKGRSIZ	ADMINIF
DOD2W	1	24	2WTRK

CLLI (Common Language Location Identification)

This field contains the CLLI code. A CLLI code can consist of one to 16 alphanumeric characters. The first character, however, must be alphabetic. Also, CLLI codes can not contain special characters such as *, -, +, etc. Examples of a CLLI code include DOD2W, DODIC, and DODOG.

ADNUM (Administrative Trunk Group Number) ⟩50

This field associates the Trunk Group Name with a UNIQUE number used by downstream processors for SMDR purposes. The field range is from 0 - 819⟩; however, number "0" is usually avoided since some downstream processors do not accept zero as an identifier.

TRKGRSIZ (Trunk Group Size)

This four character field identifies the <u>maximum</u> quantity of trunk members allowed in the trunk group. This field is used to allocate storage. Consequently, it may be greater than the number of initial working trunks (0-2047).

ADMINIF (Administrative Information)

This 32 character field records administrative information for the operating company. The information in this field is not used by the Meridian SL-100.

Table TRKGRP

Table TRKGRP (trunk group) defines the data associated with each trunk group existing in the Meridian SL-100 (refer to Table 1-1.) Up to 2,047 trunk groups can be defined in this table.

Each trunk group in the Meridian SL-100 performs a basic function. This function is defined to the system by its trunk group type and other fields (determined by the trunk group type). There are several types of trunk groups available to the Meridian SL-100; however, in this course, we look specifically at the three IBN trunk groups (that is, IBNT0, IBNT1, and IBNT2.)

OUT   *IN*

2 WAY

Table 1-1 describes the entries for tuples relating to each of these three IBN trunk groups. Now, let's look at each field and its function in Table TRKGRP.

CLLI (Common Language Location Identifier)

This field is the key field. It lists the common language location identification (CLLI) codes used to uniquely identify every trunk group, tone, announcement, test line, and service circuit.

Hint: To locate a CLLI name if a peripheral module is known, use the TRKQUERY command. The system displays the CLLI code for assigned circuits as well as the Product Engineering Code (PEC) of equipped circuit cards, and the current trunk state.

Table 1-1
TRKGRP Datafill For IBN trunk types

FIELDS/ SUBFIELDS	MEANING	VARIABLES	TWO-WAY	INCOMING	OUTGOING
CLLI	Links a group of trunks together.	Up to 16 Characters	DOD2W	DODIC	DODOC
GRPTYP	Type of trk group is used to determine what additional info is needed about this trunk group.	IBNT2, IBNTI, IBNTO, and so forth.	IBNT2	IBNTI	IBNTO
TRAFSNO	OM info	0 - 127	0	0	0
PADGRP	Volume adjustment	NPDGP, and so forth.	NPDGP	NPDGP	NPDGP
NCCLS	OM info.	NCRT, etc.	NCRT	NCRT	NCRT
CARD	What is the PEC of the card required for specified maintenance?	PEC code (1-6 characters) or NIL_CC	??	??	??
CUSTNAME	Which tuples in Table IBNXLA can incoming trunks in this group use? Also limits the use of outgoing trunks to only certain originating stations or NCOS's	Up to 16 characters.	DALIBN	DALIBN	DALIBN
SUBGRPNO	If necessary, which attendant consoles should their calls be sent to?	0 - 7	0	0	0
SELSEQ	Which method of selecting their circuits should the switch use?	MIDL, LIDL, and so forth.	MIDL		MIDL
NCOS	Which tuples in Table IBNXLA can these incoming trunks use?	0 - 255	1	1	
BILLDN	Prefixing Digits onto incoming calls.	A number up to 11 digits long.	N	N	
SUPV	Method of receiving notification of answer (for OG or 2W) or disconnect (for OG, IC, or 2W) from the far-end switch?	ANSDISC, DISCONLY, NODISC, FAKEANS.	ANSDISC	ANSDISC	ANSDISC
DISCTSEL	When to idle trunks in special circumstances	0 - 3	0	0	0
INTRAGRP	Activate features across these trunks across customer groups?	N, Y.	N	N	N

Table 1-1 (Continued)
TRKGRP datafill for IBN trunk types

FIELDS/ SUBFIELDS	MEANING	VARIABLES	TWO-WAY	INCOMING	OUTGOING
DIGIT0	Prefixing a digit onto incoming calls?	N, 0-9, B-F.	N	N	
DIGIT1	Prefixing a digit onto incoming calls?	N, 0-9, B-F.	N	N	
DTI	Should these trunks send second dial tone to the far-end switch?	N, Y.	N	N	
TES	Are these trunks considered toll essential?	N, Y.	N	N	
CDR	Make a detail record of each incoming call on these trunks?	N, Y.	N	N	
SMDR	Be selective and only make a detail record of certain incoming calls on these trunks?	N, Y.	Y	Y	
TRC	Limit incoming calls on these trunks to terminate only on certain stations?	0 - 7	0	0	
ALTNCOS	Which tuples in Table IBNXLA can these incoming trks use under special circumstances.	0 - 255	0	0	
TRKDSR	Should their incoming calls generate a distinctive ring?	N, Y	Y	Y	
LSCFN	Limit the use of these outgoing trunks to only certain originating stations or NCOS's.	0 - 255	0		0
ALTLSCFN	(Same as above, only under special circumstances)	0 - 255	0		0
LSCINCPT	Treatments used in limiting the use of these outgoing trunks to only certain originating stations or NCOS's.	0 - 63	0		0

Table 1-1 (Continued)
TRKGRP datafill for IBN trunk types

FIELDS/ SUBFIELDS	MEANING	VARIABLES	TWO-WAY	INCOMING	OUTGOING
ALSCINP	(Same as above, only under special circumstances)	0 - 63	0		0
IGA	Should these outgoing trunks ignore a message someone at the far-end switch has answered?	N, Y.	N		N
FDN	Restricting the use ("hopping off") on these outgoing FX trunks?	N, Y.	N		N
FDV	Restricting the use ("hopping off") on these outgoing FX trunks?	N, Y.	N		N
FLASH	Autovon usage of these outgoing trunks?	N, Y.	N		N
DPX	Will these two-way trunks be used for a Data Path Loop Extension?	N, Y.	N		N
PREEMPT	Autovon usage of these trunks?	N, Y.	N	N	N
AIODOPT	Automatic identification of outward dialing?	N, Y	N,	N,	
REORIG	Call origination allowed on calls incoming on this trunk?		N,	N	
OFFNET	Off network access allowed?	N, Y	N	N	
COFFTYP	Connected office type?	NATL			
CALLCHR	Special conditions in the use of these incoming trunks (for example, digital data, previous satellite use)?	N, Y.		N	
MTR	Meter reception	Y, N	leave blank		Y, N
AIODGRP	AIOD CLLI; if field AIOD is Y, enter the CLLI ID for the datalink for the IBN trunk group as datafilled in Table AIODGRP; if field AIODGRP is N; leave this field blank	Y, N	Y	Y	
OPTION	Special conditions in the use of these outgoing trunks (for example, special billing, digital data, previous satellite use)?	CALLCHR, SPCLSLG.	$		$

GRPTYP (Group Type)

This field defines the type of trunk group being described. (As stated earlier, IBNTO, IBNTI, and IBNT2 are the three IBN trunk groups with which we concern our study.) The type of trunk group used determines what remaining Table TRKGRP fields need to be datafilled.

TRAFSNO (Traffic Separation Number)

This field provides information on the operational measurement (OM) feature called traffic separation. Traffic separation is a feature according to the type of call made (for example, direct dial, operator assisted, or no prefix). For a call to be pegged, a traffic separation number (from 0 to 127) must be assigned to both the originating and terminating ends of the call. These traffic separation numbers are then put into a Traffic Separation Intersection Table by the system. When a call is made, the system uses the appropriate numbers to index into the Traffic Separation Intersection Table. For example, if a DD call is made from a line with a traffic separation number of 5 to a trunk with a traffic separation number of 7, the system indexes to tuple 57 of the Traffic Separation Intersection Table. This tuple then gives instructions on how to handle the operational measurements for that particular call. If you do __not__ wish to use the traffic separation feature, enter 0 in this field.

PADGRP (Pad Group) Volume Control

One aspect of transmission controllable from the trunking tables is volume control. The volume on a trunk can be adjusted ("padded") up or down, depending on what the trunk connects to. This adjustment can be made by assigning an index name to the trunk in field **PADGRP** of Table TRKGRP. This index name refers to a tuple in Table PADDATA which provides the system with padding instructions.

NCCLS (No Circuit Class)

This field is used to specify which operational measurement (OM) register is to be incremented when treatment GNCT (Generalized No Circuit) occurs. Treatment GNCT occurs when a trunk group is the last route in a route list and an all circuits busy condition is encountered on the route list. An example of an OM register used for this is **NCOT** (which means test or maintenance trunks). When IBN trunks are used, enter **NCRT** (which means no circuit class).

CUSTNAME (Customer Name)

The CUSTNAME is the name of the customer group to which the trunk group belongs. A CUSTNAME can be comprised of 1 to 16 characters.

SUBGRPNO (Subgroup Number)

To enable your system to route calls to an attendant console, you must assign the subgroup number of the attendant console to which you want calls routed from the trunk group. Subgroup numbers can range from 0 to 7.

SELSEQ (Selection Sequence)

This field allows you to control the method used for selecting outgoing ·trunks. For IBN trunks, the selection can be either on a "most idle basis" (MIDL), a "least idle basis" (LIDL), an "ascending sequence basis" (ASEQ), or a "descending sequence basis" (DSEQ). Remember to use the opposite selector of the far-end switch for two-way trunks.

NCOS (Network Class of Service)

This field indicates the NCOS number (0-255) assigned to the incoming or two-way trunk group. NCOSs are not assigned to outgoing trunks.

BILLDN (Billing Directory Number)

When an incoming trunk group is set up for immediate start, no pulsing, you must indicate the number to which the call is to be billed. Up to 10 digits can be indicated for a number.

SUPV AND DISCTSEL (Supervision and Disconnect Timing Selector)

This field indicates how a switch is notified by the far-end switch when a call was answered or disconnected. There are varying degrees of notification as described below.

- <u>Full notification</u> by the far-end switch. The far-end switch notifies <u>both</u> when a call was answered by a party <u>and</u> when that party disconnects. Electrical signals are used to communicate this status. Full notification is called answer disconnect and is indicated by the entry **ANSDISC.**

- <u>Partial notification</u> by the far-end switch. The far-end switch notifies the Meridian SL-100 <u>only</u> when a party disconnects. This notification is called disconnect only and is indicated by the entry **DISCONLY.** Electrical signals are sent to communicate a disconnect, but no notification is sent when a call has been answered. Instead, Audio Tone Detectors are used to detect an answer.

- <u>No Notification</u> by the far-end switch of <u>either</u> answer <u>or</u> disconnect. This notification is indicated by the entry **NODISC.** Audio Tone Detectors are used to detect an answer. Since the far-end switch does not send notification when their party has disconnected, the trunk does not return to an idle state when the parties involved go back on on-hook. Instead, the trunk continues to "stay up." To return this type of trunk back to an idle state, you must specify how long, after the party on our end of the trunk goes back on-hook, the system should keep a particular trunk type idle. This length of time is specified on a <u>trunk</u> group basis in field **DISCTSEL** (Disconnect Timing Selector).

Oms Only ⟶ - <u>Fake Answer</u> by the far-end switch is indicated by the entry **FAKEANS.** This entry must be matched with an entry of **FAKEANS** in your switch. This feature is not used with Meridian SL-100, but is commonly found with NSS loads in a DMS-250 environment.

DISCTSEL (Disconnect Timing Selector)

This field specifies how long the trunk is to wait for information before disconnecting. Entries for this field are 0-3 with each successive number representing a 200 millisecond increase (that is, an entry of 0 equals 200 milliseconds, or an entry of 3 equals 800 milliseconds).

INTRAGRP (Intragroup)

If a trunk group is the member of a public customer group or a family of customer groups then intragroupness must be defined. Enter Y (yes) if the trunk is intragroup or N (no) if the trunk is not intragroup.

If Family or Public Must Be Yes

DIGIT0 and DIGIT1 (Digit 0 and Digit 1)

When one or two digits are to be prefixed on incoming digits, enter the first prefix digit in the DIGIT0 field. If no digits are to be prefixed, enter N (no) in DIGIT0.

When two digits are to be prefixed on incoming digits, enter the second prefix digit in the DIGIT1 field. If only one or no digits are to be prefixed, enter N (no) in DIGIT1.

DTI (Dial Tone Incoming) Oms -

This field determines whether or not a second dial tone should be sent to the far-end switch. This field is more applicable for a DMS-100 and, therefore, is often filled with N (no) for a Meridian SL-100.

TES (Toll Essential Service) Oms

This field defines whether or not an incoming trunk group or the incoming side of a two-way trunk group has toll essential service. This field does not pertain to outgoing trunks. This feature is rarely used for Meridian SL-100; therefore, N (no) is entered in this field.

CDR AND SMDR (Call Detail Recording and Station Message Detail Recording)

Some of the fields in the trunk tables are used for billing and SMDR purposes when trunk group usage is analyzed by "down-stream" processing. These fields include **CDR** (that is, an SMDR record made of all incoming calls on this trunk) and SMDR (that is, an **SMDR** record made of **only certain** incoming calls). Enter Y (yes) in these fields if CDR and SMDR are to be used.

TRC (Terminating Restriction Code) O - 1

This field limits the trunk group to terminating phones only in certain NCOSs by assigning a Terminating Restriction Code (**TRC**) to the trunk group.

LSCFN, LSCINCPT, ALTLSCFN, ALSCINCP, AND ALTNCOS,

The Meridian SL-100 provides you with the ability to control the usage of outgoing trunks. One control method uses the fields ALTNCOS, LSCFN, ALTLSCFN, LSCINCPT, AND ALSCINCP as described below.

To limit which NCOSs can use a particular trunk group, you must assign a Line Screening Code Flag Number (**LSCFN**) and a Line Screening Code Flexible Intercept Number (**LSCINCPT**) to the trunk group. The LSCINCPT number is the number of the tuple in Table IBNTREAT to which the phone is to be routed if it is blocked by the Line Screening Code feature. Additional limits can be imposed by assigning an Alternate Line Screening Code (**ALTLSCFN**) and an Alternate Line Screening Code Flexible Number (**ALSCINCP**) to outgoing trunks. These codes are used only when the attendant console activates the Trunk Group Access Control (TAC) feature. An alternate Line Screening Code (LSC) can also be indirectly assigned to incoming trunks by assigning them an alternate NCOS (**ALTNCOS**) only used when the TAC feature is activated. Thus, if the TAC feature was activated against an outgoing trunk group, tandem incoming trunk calls can use this alternative NCOS so they can be assigned (through another tuple in Table NCOS) an alternate LSC. If this alternate LSC is compatible with the alternate LSC of the outgoing trunk, the tandem call is permitted.

TRKDSR (Trunk Distinctive Ringing)

Distinctive Ringing is a feature enabling the ringing made by an incoming trunk to be distinct from that of an internal call. Distinctive ringing is assigned on a trunk group basis in field **TRKDSR** (Trunk Distinctive Ringing).

IGA (Ignore Answer) *Not used For IBN Trunks*

This field determines whether or not outgoing trunks should ignore a message from the far-end switch someone has answered.

FDN and FDV (FX Toll denied and FX Toll diverted)

These fields allow you to prevent FX trunks to be used for toll calls. (Users often access an FX trunk to another city and then try to "hop off" to make a billable call on the public network.) To prevent this, you can deny toll calls on an FX trunk through field **FDN** (FX Toll Denied) or field **FDV** (FX Toll Diverted). Both fields allow you to block toll calls, but FDN sends the caller to a treatment, while FDV sends the caller to the attendant's "intercept" key.

Auto von only → FLASH AND PREEMPT (Flash and Preemption Capability)

IBN trunks can be assigned certain AUTOVON features including flash privileges (**FLASH**) and preemption capability (**PREEMPT**). If the preemption feature is assigned, then you must designate the mode of preemption (**PMODE**): the automatic (**A**) mode, the manual (**M**) mode, or no mode (**N**).

DPX (Datapath Loop Extension)

This field determines whether or not two-way trunks (IBNT2) are used for a Datapath Loop Extension.

AIOD (Automatic Identification of Outward Dialing)

Default is "**N**". If "**Y**," then you are pointed to Table AIODGRP where data links can be identified for this trunk group. Data Lines are not discussed in this course.

AIODGRP

Datafill for this field is dependent on the type of trunk.

For IBNTI and IBNT2

If field AIOD is Y, enter the CLLI of the datalink for the IBN trunk group as datafilled in Table AIODGRP; if field AIODGRP is N, then leave this field blank.

REORIG (REORIGINATION)

If call origination is allowed on calls incoming on this trunk group, enter Y (yes) if not, enter N (no).

OFFNET (OFFNET)

If trunk is to be used for offnet access, then enter Y (yes) if not, enter N (no).

COFFTYP (IBN Connected Office Type)

Enter the type of switching office at the connecting end of the trunk. For a national switching office, enter "NATL."

CALLCHR and OPTION (Call Characteristics and Option)

One way to control the use of incoming trunks is to assign special conditions through the use of "call characteristics" (**CALLCHR**) options of either:

- "Digital Data" (**DIGDATA**) for digital trunk connections to an Electronic Tandem Network (ETN) switching unit. This must be specified on a trunk group basis.

- "Previous Satellite Connection" (**SAT**) for trunk connections with a satellite trunk involved. You may specify this characteristic on either a trunk group or a trunk subgroup basis.

MTR (Meter Reception)

Datafill for this field is dependent on the type of trunk.

For IBNTO

If meter reception is required on outgoing trunks with entry MFESCP in field CARDCODE of TRKSGRP, then you would enter Y. If meter reception is not required on outgoing trunks with entry MFESCP in field CARDCODE or the cardcode for trunk is other than MFESCP in field CARDCODE of TRKSGRP, then you would enter N.

For IBNT2

Leave this field blank.

Table TRKSGRP (Trunk Subgroup)

TRKSGRP lists the special characteristics of the subgroups belonging to a trunk group. Subgroups define the types and functions of trunk circuits contained in a trunk group. For example, an outgoing trunk group might contain digital and analog circuits, necessitating grouping each circuit type into separate subgroups. As a requirement, each trunk group must have one trunk subgroup name assigned to it; a trunk group can designate a maximum of two subgroups.

The information about trunk subgroups contained in Table TRKSGRP is quite detailed, listing data such as circuit card codes, timing, echo suppression, signaling, and so forth. Table 1-2 describes the TRKSGRP fields for the three IBN trunk group types. The following paragraphs describe the fields and their function.

CLLI (Common Language Location Identifier)

This is the key field of Table TRKSGRP. It identifies the CLLI of the trunk group involved.

SGRPKEY (Subgroup)

This field identifies the numbering of the trunk subgroup being described. A subgroup number can be 0 or 1.

CARDCODE

One of the CPU's responsibilities is to communicate the near-end status of the trunk to the far-end switch. There are various methods (such as protocols and signaling bits) used to accomplish this communication.

The specific method used is defined on a trunk <u>subgroup</u> basis in field **CARDCODE**. The following are excerpts of rules regarding the assignment of signaling type.

1. If the trunk group is analog, then the trunk card's Product Engineering Code (PEC) is entered. Examples are PEC2X82AA and 5X25AA.

2. If the trunk is digital, then there are other rules to follow in completing this field. Examples are listed below:

    *   Use code **DS1SIG** for a digital (non-FX) trunk.

    *   Use code **DS1FX0** for a digital FX trunk.

SGRPVAR (Signaling Data Selector Area Refinements)

~~This field identifies whether or not standard data signaling is used to communicate to the far-end switch.~~

Refer to Pg. 19
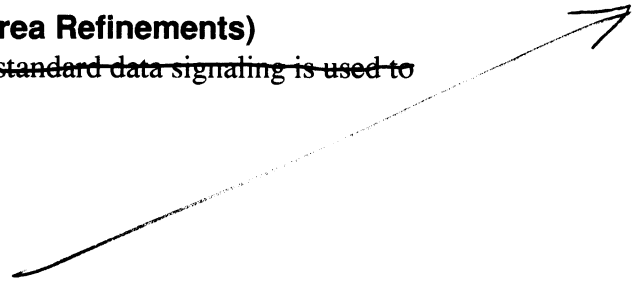
Table 1-2
TRKSGRP datafill for IBN trunk types

FIELDS/ SUBFIELDS	MEANING	VARIABLES	TWO WAY	INCOMING	OUTGOING
CLLI	Links a group of trunks together.	Up to 16 characters.	DOD2W	DODIC	DODOG
SGRP	Links a selected group of trunks (within a trunk group) together.	0-1	0	0	0
CARDCODE	Protocol method used by these trunks to keep far end switch informed of their status?	DS1SIG, DS1FXO, or PEC#	DS1SIG	DS1SIG	DS1SIG
SIGRPVAR	Will standard data signaling be used by them to communicate to the far-end switch?	STD	STD	STD	STD
DIR	Direction of these trunks?	2W,IC,OG.	2W	IC	OG
IPULSTYP	Their method of receiving digits?	MF, DP	MF	MF	
ISTARTSG	Their method of letting far-end switch know your switch is ready to receive incoming digits ("start-to-dial" signal)?	WK, IM, DD, etc.	WK	WK	
OVLP	Will cut-through dialing be permitted?	N, Y.	N	N	
PSPDSEIZ	When to time-out in waiting for far-end switch to send digits if no digits or less than expected minimum digits are received?	2 - 30	8	8	
PARTDIAL	When to time-out in waiting for far-end switch to send digits if the minimum number of digits have already been received?	2 - 30	12	12	
OPULSTYP	The method of these outgoing trunks will use to send their digits to the far-end switch?	MF, DP, NP, DT	MF		MF

Table 1-2 (Continued)
TRKSGRP datafill for IBN trunk types

FIELDS/ SUBFIELDS	MEANING	VARIABLES	TWO WAY	INCOMING	OUTGOING
OSTARTSG	The method the far-end switch uses to let your switch know it's ready to receive digits on these outgoing trunks?	WK, IM, DD, etc.	WK		WK
IDGTIME	Amount of time to wait in between sending each digit on these outgoing trunks?	0 - 100	7		7
NUMSTOPS	Maximum number of "stop-sending-digits" signals these outgoing trunks could receive from a step-by-step switch?	0 - 3	0		0
GLAREYD	Should outgoing calls on these two-way trunks back down ("yield") to glare (that is, to an incoming call on the same trunk)?	N, Y.	Y		
CCONT	Coin control signal for pay phones?	NO, etc.	NO	NO	NO
RNGBCK	Should the trunks in this subgroup send ringback to the far-end switch?	NO, WK, etc.	NO	NO	NO
ESUPR	Control of heading "feedback" on these trunks?	N, H, F.	N	N	N
SAT	Satellite use of these trunks?	N, Y.	N	N	N
REMBSY	Inform far-end switch you've manual busied your end of the incoming trunks in this subgroup?	N, Y.	Y	Y	Y
DIALMODE	OM information about incoming calls on these trunks.	M, C.	M	M	
TRKGRDTM	When to update the "busy-idle" map about the status of these trunks if they are connected to older-type switches?	1 - 255	160		160
ECSTAT	Echo canceller status?	INTERNAL, INNOTONE, EXTERNAL, UNEQ			
NSMATCH	Need noise match control? Y is ECSTAT is INTERNAL or INNOTONE (internal with inbound no tone.)	N,Y			
AUTOON	Need auto re-enable control? Y if ECSTAT is INTERNAL.	N,Y			

~~SIGRPVAR (Signaling Data Selector Area Refinements)~~

This field indicates the type of data signaling used to communicate to the far-end switch. Enter **STD** (standard) in this field.

DIR (Direction)

This field indicates the direction of the trunk group; that is, two-way (2W), incoming (IC), or outgoing (OG).

IPULSTYP (Incoming Pulse Type) and OPULSTYP (Outgoing Pulse Type)

Once the originating switch receives a "ready-to-receive" message from the far-end switch, the originating switch can send the digits (refer to Figure 1-1). However, there are several methods in which the originating switch can send digits. One method is called **dial-pulse (DP)**. With dial pulse, the originating switch sends actual pulses in place of the digits. Another method is called **multi-frequency (MF)**. Multi-Frequency consists of two simultaneous tones for each digit. These tones can be produced only by a trunk. The third type of pulsing is called **Digitone (DT)**. DT also consists of two simultaneous tones for each digit. DT tones can be produced by either a trunk or station. This is especially important if the Central Office classifies the trunks as "line appearances."

The type of trunk outpulsing used is specified on a trunk subgroup basis, using two fields in Table TRKSGRP. As shown in Figure 1-1, outgoing trunks is specified in field **OPULSTYP** (Outgoing Type of Pulsing) while the type of inpulsing for incoming trunks is defined in field **IPULSTYP** (Incoming Type of Pulsing). The type of pulsing must be compatible on both ends of a trunk subgroup.

Figure 1-1
IPULSTYP (Incoming Pulse Type) and OPULSTYP (Outgoing Pulse Type)
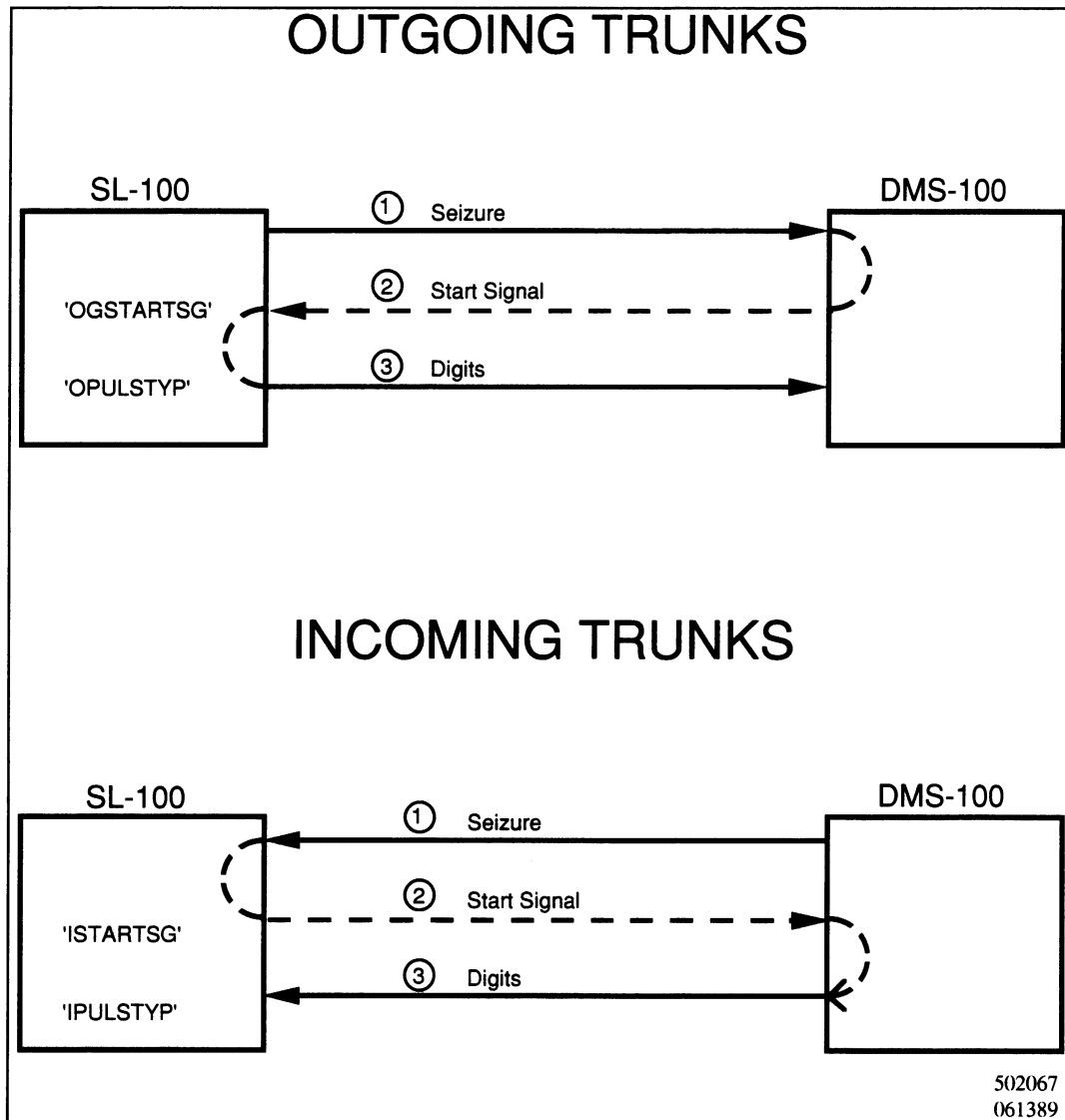
ISTARTSG (Incoming Start Signaling) and OSTARTSG (Outgoing Start Signaling)

Not only must switches inform each other about the current status of their ends of the same trunk, but they also must coordinate sending the dialed digits over that trunk. In the following paragraphs, we discuss how a switch originating a call knows when the other switch is ready to receive the digits.

Let's first describe the methods switches use to communicate "readiness" to send and receive digits. There are several kinds of "start-to-dial" signals switches can send each other. The more common types are listed below:

1. Wink Start (WK). With the wink start method, only one signal (a wink) is sent by the receiving switch, signifying it's ready to receive digits from the originating switch.

2. Delay Dial (DD). With the delay dial method, two signals must be sent by the receiving switch to signify it's ready to receive the originating switch's digits. The first signal the receiving switch sends simply is a recognition it sees the originating switch's request. It is not an OK signal for the other switch to start sending digits. The second signal the receiving switch sends signifies it is ready (for example, has obtained a UTR receiver for the digits, and so forth) to receive digits.

3. Immediate Start (IM). Instead of waiting for any signal from the receiving switch to signify it's ready to receive digits, the originating switch simply delays a specified period of time and then automatically begins sending digits.

The method used to communicate "readiness" is defined on a trunk subgroup basis. As shown in Figure 1-2, field **OSTARTSG** (Outgoing Start Signaling) specifies which method the far-end switch uses to signify to the outgoing trunks it is ready to receive digits. **ISTARTSG** (Incoming Start Signaling), specifies which method the incoming trunk should use to send the far-end switch a message they are ready to receive digits.

Figure 1-2
Types of start signals (WK, DD, IM)

OUTGOING TRUNKS

SL-100   DMS-100

Seizure

Wink   Start Signal

'OSTARTSG' -- What we expect from the far-end switch
(for example, DMS-100) upon our request

INCOMING TRUNKS

SL-100   DMS-100

Seizure

Delay Dial   Start Signal   Delay Dial

502066
102589

'ISTARTSG' -- What we send back to far-end switch
(for example, DMS-100) upon their request
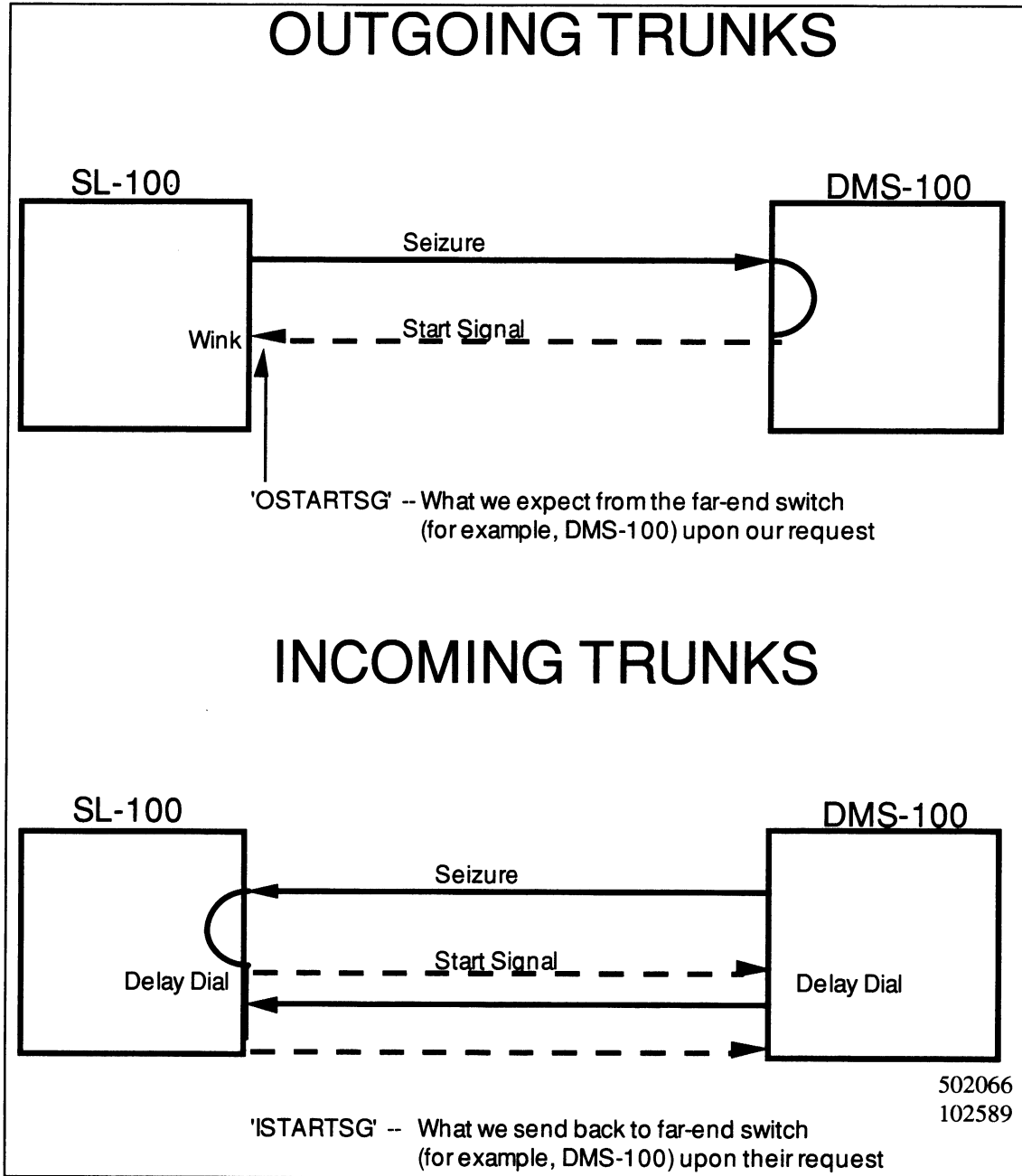
OVLP (Overlap)

An unusual situation arises when the Meridian SL-100 is used as a tandem switch and overlap outpulsing is required. When overlap outpulsing is used, the following conditions exist:

- After only a minimum number of incoming digits are received, an outgoing trunk group is immediately selected by the Meridian SL-100.

- These minimum incoming digits are immediately outpulsed on the selected outgoing trunk.

- This initial outpulsing of digits is followed (overlapped) by the remaining digits as they are received.

The Overlap outpulsing must be specified on a trunk subgroup basis in field OVLP.

PSPDSEIZ (Permanent Signal Or Partial Dial On Seizure Timing), PARTDIAL (Partial Dial), and IDGTIME (Interdigital Timing)

There are several issues relating to "digit timing" that must be defined before a trunk can be placed into service. These issues are described below.

- How close together in time should outgoing digits be sent to the far-end switch? As shown in Figure 1-3, this is defined on a trunk subgroup basis in field **IDGTIME** (Interdigital Timing).

- How long should the Meridian SL-100 wait after an incoming seizure for incoming digits from the far-end switch? As shown in Figure 1-4, this is defined on a trunk subgroup basis in field **PSPDSEIZ** (Permanent Signal/Partial Dial Seizure).

- How long should the Meridian SL-100 wait between digits if at least one and up to the "minimum amount of digits" were received? Again, as shown in Figure 1-4, this is defined on a trunk subgroup basis in field **PSPDEIZ** (Permanent Signal/Partial Dial Seizure). The "minimum amount of digits" is defined in several places including subfield DIGINEXT of Table IBNXLA and subfield CD of subtable HNPACODE.

- How long should the Meridian SL-100 wait between digits after the specified minimum number of digits has been received? This is also defined on a trunk subgroup basis in field **PARTIAL** (Partial Dial).

Figure 1-3
Outgoing trunks

OUTGOING TRUNKS

SL-100 — DMS-100

① Seizure

② Start Signal

DGT   DGT   DGT   DGT

IDGTIME

502065
061389
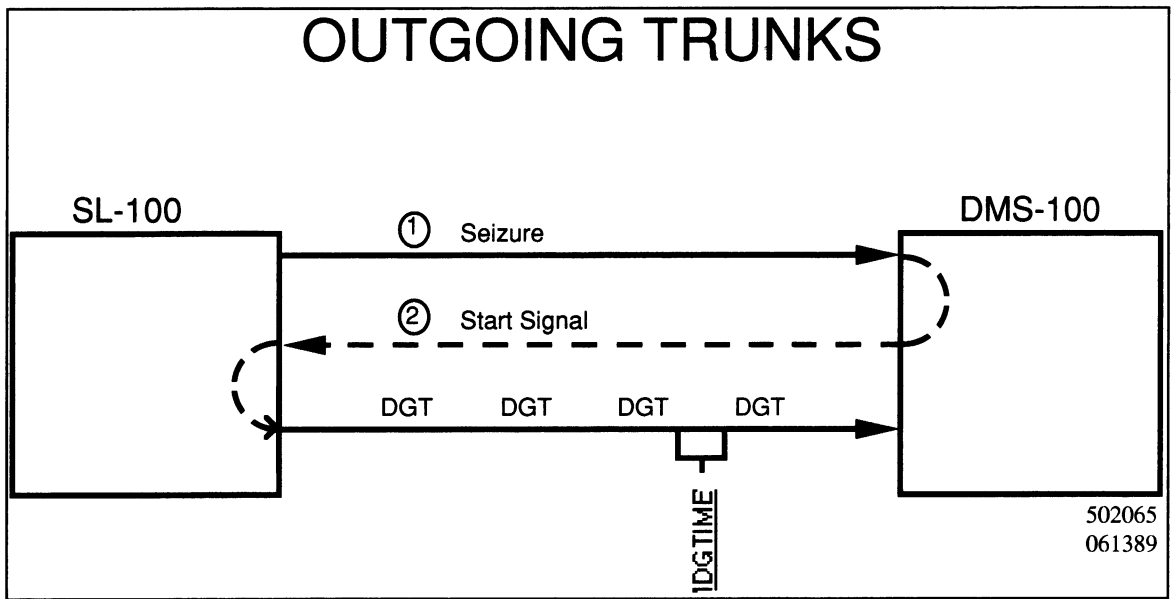
Figure 1-4
Incoming trunks

INCOMING TRUNKS

SL-100   DMS-100

① Seizure

② Start Signal

③ No Digits ("permanent signal")

'PSPDSEIZ'

INCOMING TRUNKS

SL-100   DMS-100

① Seizure

② Start Signal

③ Partial Digits

Digits Received 7893_
(Min. digits
expected = 5

'PSPDSEIZ'

502064
061389
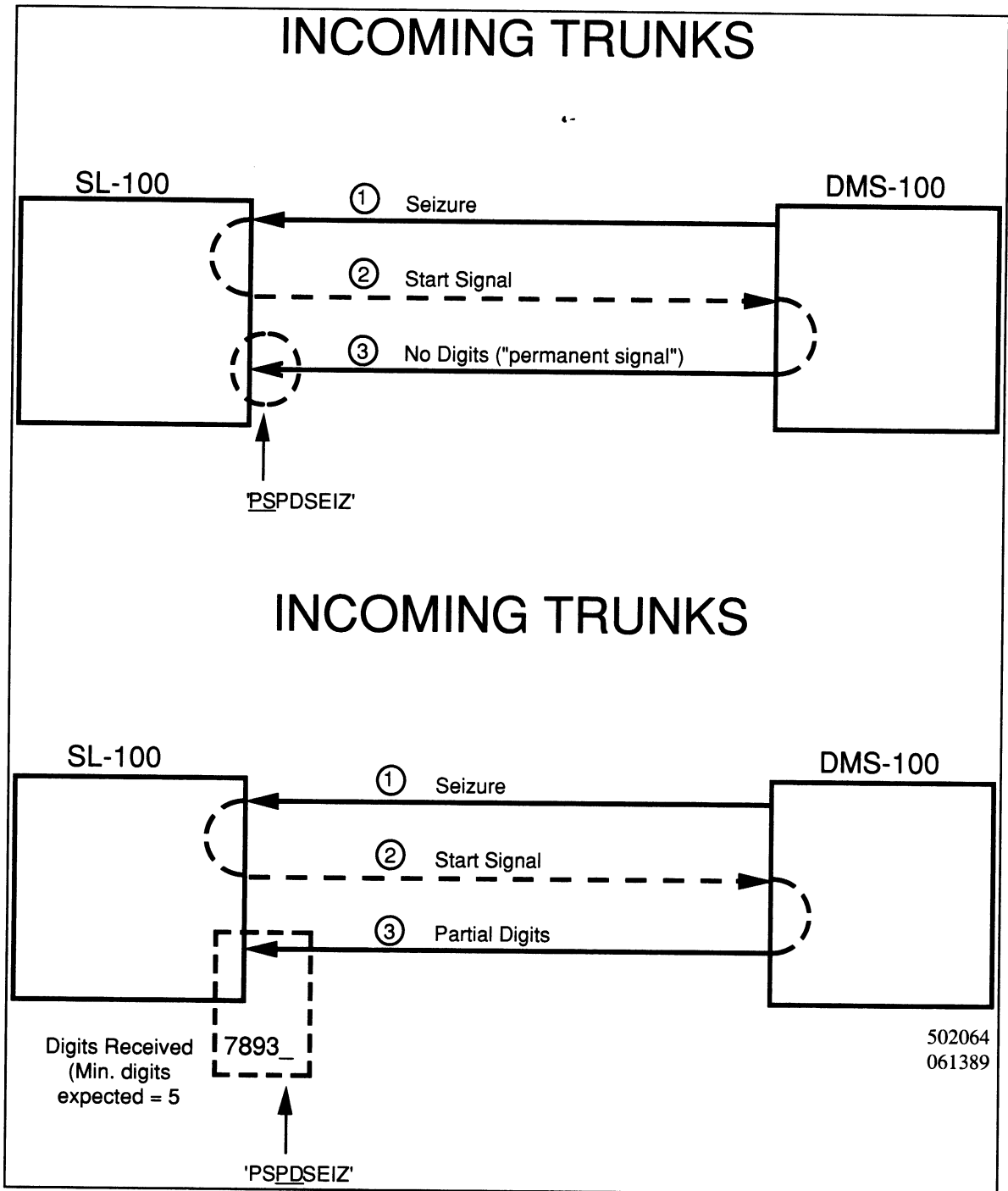
IDGTIME (Interdigital Timing)

This field controls how close together the switch sends digits to the far-end switch. If the switch uses dial pulse (DP) pulsing the time between pulses is in intervals of 10 milliseconds. If the type of pulsing is multi-frequency then the interval is 7 milliseconds. If there is no pulsing (NP), then the entry is 0.

NUMSTOPS (Number Of Stops/Goes)

When the far-end switch is an older generation switch (for example, common control switch) and can accept only a limited amount of digits at one time, it must send the Meridian SL-100 a series of "stop" and "start" signals while the Meridian SL-100 is out-pulsing to it. When this situation exists, we must specify the maximum number of stop and go signals the Meridian SL-100 could receive while outpulsing digits (0-3). This is specified on a trunk <u>subgroup</u> basis in field **NUMSTOPS** .

GLAREYD (Glare Yield)

This field controls whether or not a two-way trunk should yield to glare. Glare is a condition created when the far-end and near-end switches try to originate a call on the same trunk and seize it simultaneously. One end of the trunk must "yield" to glare to keep the trunk from being blocked. This is signified by either a "Y" for yes or "N" for no.

CCONT (Coin Control)

This field sets up the coin control signal for pay phones. Since this field is not applicable to Meridian SL-100, enter No.

RNGBCK (Ringback)

This field determines whether or not the trunks in a particular subgroup send ringback to the far-end switch. Enter No in this field.

ESUPR (Echo Suppressor)

Another element of transmission is the control of hearing feedback (or echo) over the trunk. This is controlled by echo suppressors which must be indicated in field **ESUPR**. Enter N in this field.

SAT (Satellite)

This field indicates whether or not the trunks in a particular subgroup are used for satellite transmission. Enter N in this field.

REMBSY (Remote Make Busy)

This field makes the "remote" end of the trunk appear busy. The feature **REMBSY** (Remote Make Busy) enables you to make the far-end of the trunk go into a lockout state when you have manual-busied your end of that trunk. This prevents the far-end switch from attempting to use the trunk while you have your end manual-busied. If the far-end switch is in the DMS family and has assigned this feature to their end, their end shows to be in a RMB (remote make busy) state, instead of lockout, while your end is manual-busied. This feature is assigned on a trunk <u>subgroup</u> basis in field **REMBSY**.

DIALMODE (Dial Mode)

Operational measurements can keep peg counts on the number of times a particular "type" of incoming trunk abandoned an incoming attempt. The type C (customer dialed) or M (machine dialed) is assigned on a trunk <u>subgroup</u> basis in field **DIALMODE**.

TRKGRDTM (Trunk Guard Time)

Since a trunk is used for communication, its state is constantly changing. One moment it might be in an idle (on-hook) state, and the next moment in a talking state. There are other states (for example, off-hook, pre-seize, ringing, and so forth) the trunk could also be in. As you know, one role of the Peripheral Processors (PP) is to continually scan trunks for a change in status. When the PP detects a change in a trunk, the Peripheral Processor reports that change to the CPU so the "busy-idle map" (Terminal State Map) can be updated to reflect the trunk's new state. However, you may not always want to busy-idle map immediately updated when a trunk goes on-hook. For example, consider the situation where a Meridian SL-100's outgoing trunks are connected to step-by-step switch. When the Meridian SL-100 idles these outgoing trunks, it cannot immediately reuse them since the step-by-step switch takes time to break the physical connection down. Therefore, the busy-idle map must wait before it is updated.

To ensure the busy-idle map is not immediately updated when a trunk goes on-hook, you can specify a delay time. This delays updating the busy-idle map until the specified time has expired. This delay time is known as "guard time" and is specified on a trunk <u>subgroup</u> basis in field **TRKGRDTM** (Trunk Guard Time).

ECSTAT (echo canceller Status)

This field indicates the status of the echo canceller on the trunk subgroup when the DTC frame is equipped with the NT6X50EC card. If the DTC frame is equipped then the entry is INTERNAL. If the DTC frame is unequipped with the NT6X50EC card the entry is UNEQ.

NSMATCH (noise match control)

The background noise levels are maintained when the internal echo canceller is actively canceling echoes. Enter N (the default) for no noise matching. Use when ECSTAT is INTERNAL or INNOTONE.

AUTOON (auto re-enabler)

Enter Y (the default) to show auto re-enable is ON. Echo canceller is automatically turned on after the 2100 Hz tone is removed upon absence of energy. Enter N to show echo canceller is not automatically turned on after the 2100 Hz tone is removed.

Table TRKMEM

This table assigns each trunk to a trunk group name, a trunk subgroup number, and a physical location in the switch. In the example below, trunk #1 is assigned to trunk group name DOD2W, subgroup 0, and is physically located in Digital Trunk Controller number two, port number 18 (CKTNO), and time slot number 24 (CKTTS).

Table TRKMEM

				MEMVAR		
CLLI	EXTRKNM	SGRP	PMTYPE	DTCNO	DTCCKTNO	DTCCKTTS
DOD2W	1	1	DTC	2	18	24

CLLI (Common Language Location Identifier)

Again, the key field is the CLLI which uniquely identifies the trunk group involved.

EXTRKNM (External Trunk Number)

This field identifies the external trunk number assigned to a particular trunk in the trunk group (0-9999).

SGRP (Subgroup)

This field identifies the subgroup to which the trunk is assigned (0 or 1).

MEMVAR (Member Variance)

This field is comprised of several subfields which described the physical location of the trunk.

- PMTYPE. This subfield identifies the peripheral module type on which the trunk is mounted. Examples of PM types include **DTC**, **LTC**, **MTM**, and **TM**.

- DTCNO. This subfield identifies the module number to which the trunk is assigned (0-63 for DTC).

- **DTCCKTNO**. This subfield identifies the circuit board number to which the trunk is assigned (DTC 0-19).

- **DTCCKTTS**. This subfield identifies the time slot number to which the trunk is assigned (1-24).

Table CLLIMTCE *Dynamic Data Fill, — The default values may be changed*

This table is a maintenance-related table which contains information for each CLLI code. Entries include CLLI abbreviations, percent of trunks or service circuits which can be removed from service before alarms activate, and testing equipment and parameters available for each CLLI code. When a trunk group name is added to Table CLLI, it is also added automatically to Table CLLIMTCE, with default values (these values can be changed manually).

Table CLLIMTCE

CLLI	SCLLI	MINALM	MAJALM	CRITALM	SYNCTYPE
CLS52W	GRP12W	25	50	75	SYN

TSTNOIND	MWIDX	SIGTST	PREFXDIGS	DIAGDATA
0	0	Y	8	(0)

When a trunk group is built, a subtable of CLLIMTCE, DIAGDATA, is also **automatically** filled with default values. Subtable DIAGDATA lists trunk data, such as dB levels (in .25 dB increments) on which the switch on the trunk is set, loop and resistor types, type of balance network, and so forth. A tuple with standard defaults would look like this:

Subtable DIAGDATA

EXTRKNUM	DBREC	DBTRANS	DIGDBRCV	DIGDBTRN
1	48 (12dB)	36 (9dB)	0	0

PRECBAL	COMPRES	LOOP	CABLE	CABLEPR
2X77AA	LO	SH	xxxx	0

ZONEEML	NML	NIAL	INSVCE	
0	0	50	50	Y

Table relationships

Figure 1-5 shows the relationships among the trunk related tables. (For the sake of simplicity, the tuple entries are abbreviated.) Notice each table starts with the CLLI name of the trunk group. This chart also indicates the order of tables required in datafill.

TRAVER 1 shows the output for a trunk to line call into a Meridian SL-100. The TRAVER proceeds as follows:

- Two-way trunk group, DOD2W, transmits a call to station extension 78930,

- Table TRKGRP assigns a NCOS of 3 and a customer name of GRP1,

- Table NCOS assigns no preliminary translator,

- Table DIGCOL instructs the Peripheral Module to collect four digits after the "7,"

- Since no preliminary translators were assigned, Table IBNXLA uses customer translator CTN1 to position on 7, which identifies the call's destination as being directed to an extension,

- Table TOFCNAME locates the NPA and office code and directs the TRAVER to Table DNINV, and

- Table DNINV identifies the extension as a valid DN in the site.

Figure 1-5
Tables CLLI, TRKGRP, TRKSGRP, TRKMEM, CLLIMTCE

TABLE CLLI

CLLI	ADNUM	TRKGRSIZ	ADMININF
DOD2W	1	100	TELCO_2W_TRK

· TABLE TRKGRP

GRPKEY (CLLI)	GRPVAR
DOD2W	....

TABLE TRKSGRP

SGRPKEY (CLLI) (SGRP)	CARDCODE	SGRPVAR
DOD2W 0		....

TABLE LTCPSINV.
TABLE TRKMEM

CLLI	EXTRKNM	SGRP	MEMVAR
DOD2W	10	0	....

TABLE CLLIMTCE

CLLI	SCLLI	MIN ALM	MAJ ALM	CRIT ALM	SYNC TYPE	TSTNO IND	PRFX DIGS	DIAGDATA
DOD2W	DOD2W	25	50	75	SYN	0	0	(6)

502063
061389
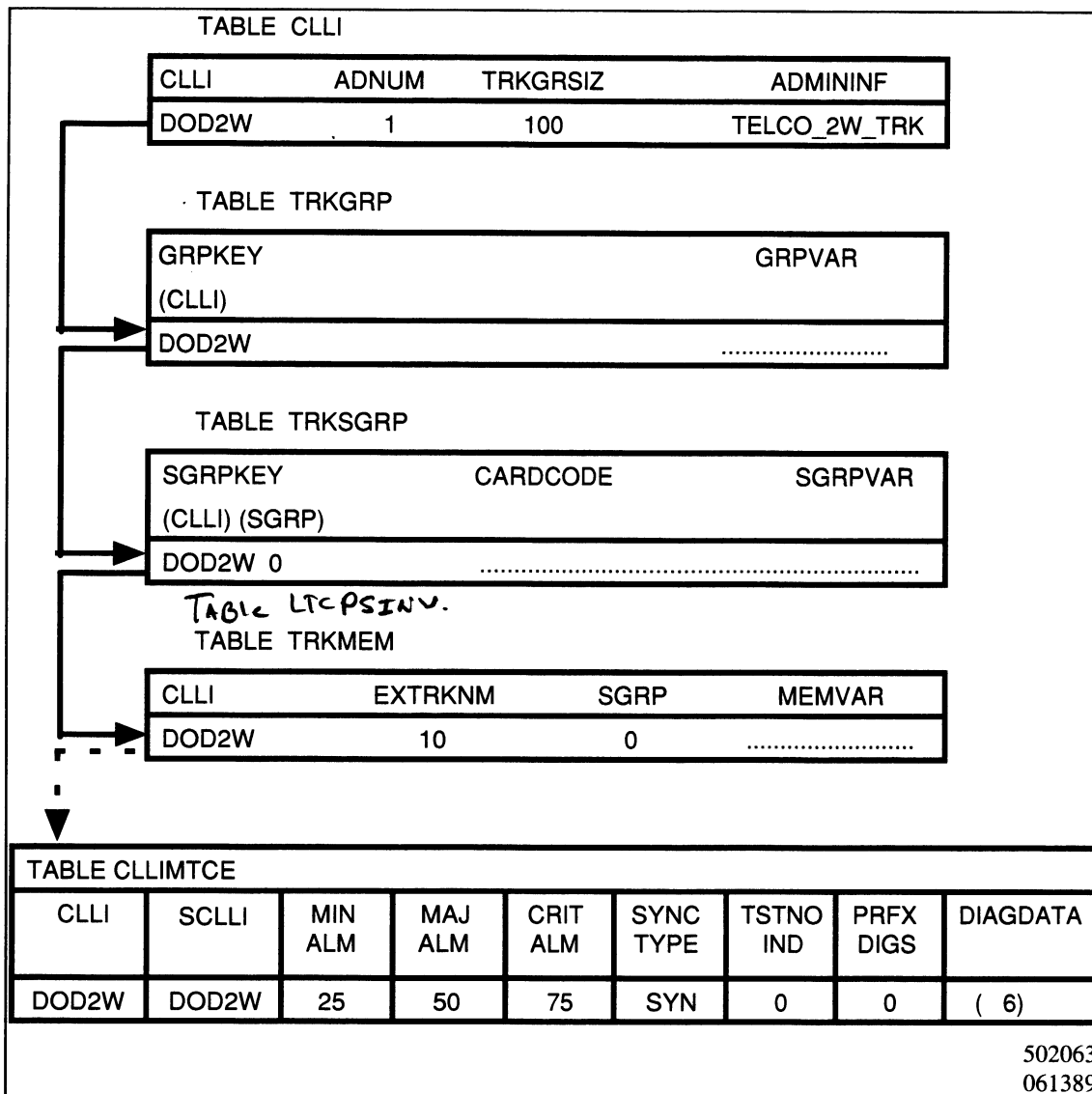
TRAVER 1 – Trunk to line TRAVER

```
TRAVER   TR   DOD2W   78930   T                        NCOS
TABLE    TRKGRP                                          ↑
DOD2W  1  IBNT2  0  NPDGP  NCRT  GRP1   0   MIDL   3   N   ANSDISC   3
Y N N N N N Y 0 4 Y 0 0 0 0 N N N N N $ $
TABLE NCOS
GRP1  3  0  NCOS3  $
TABLE  CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, VACTRMT, AND
DIGCOL
GRP1  NXLA  CTN1  FTN1  0  DCN1
DCN1  7  COL  L  4
NCOS  PRELIM  XLA  name is NIL.   Go to next XLA name.
CUST  PRELIM  XLA  name is NIL.    Go to next XLA name.
TABLE  IBNXLA: XLANAME  CTN1
CTN1  7  EXTN  N  Y  N  214  237  5  $
TABLE  TOFCNAME
214  237
TABLE  DNINV
214   237  8930  L  HOST  00 0  00  28
```

Datafilling trunk group tables
Adding a trunk group

When you wish to add a trunk group to the Meridian SL-100 or DMS-250 data base, simply follow the steps indicated in Figure 1-6. Each data table listed must be datafilled in the sequences presented – if you get the data table sequence out of order, Table Editor rejects your entries.

The sequence in Figure 1-6 is to be followed, no matter what type of trunk group you are adding.

Figure 1-6
Datafill sequence for adding a trunk group
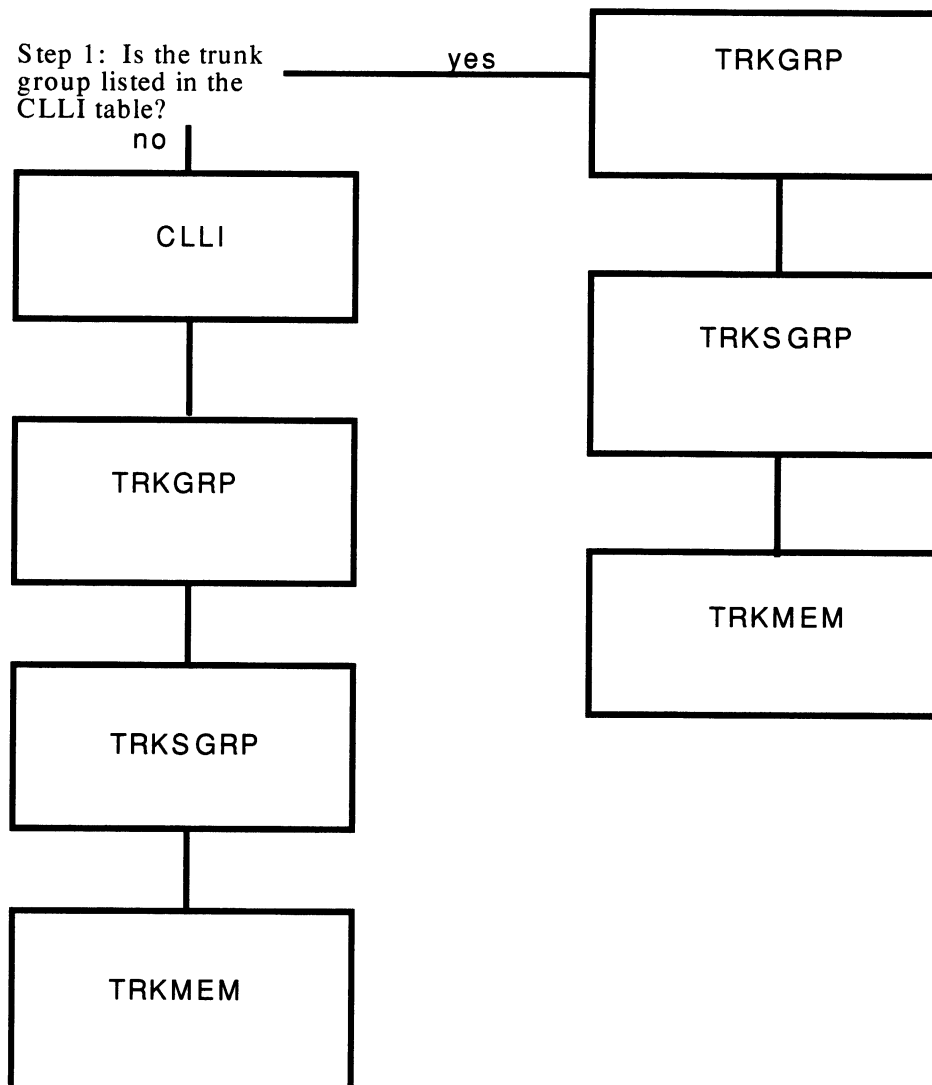
Deleting a trunk group

When deleting trunk groups from the Meridian SL-100 data base, you must do more than reverse the steps used in adding trunk groups. You must also consider when these trunk groups are used as route references to routing tables (for example, Tables OFRT, HNPACONT.RTEREF, and so forth). Deletions of trunk groups must take place first in these routing tables.

One facet to consider in looking at the trunk group table relationships is when you go into Table TRKMEM to change the location of a circuit, for example, you must inform the Meridian SL-100 (through a maintenance procedure) the circuit is to be made busy. This step must be performed to prevent Table TRKGRP from "allowing" calls to inadvertently seize this trunk circuit for an application no longer desired.

Changes made to an established trunk group in Table TRKGRP must be preceded by busying **all** circuits belonging to that trunk group. The implications for making changes in trunk group tables, therefore, are wide-reaching.

Practice 1: Answer questions about trunk groups

Instructions:

Read the following sentences and fill-in the missing blanks using the information provided in the lesson; if you need additional information, refer to NTP *555-4031-851*.

1. A trunk is usually defined as a pair of channels between switches allowing for _____ Voice _____ and _____ Data _____transmission.

2. Trunks in the same trunk group may be divided into two groups, _____ Analog _____ and _____ Digital _____, to allow for different types of signaling.

3. Table _____ TRKGRP _____ provides the switch with the customer name and the NCOS of the trunk group.

4. Table _____ TRKMEM _____ provides the switch with the physical location of the circuits.

5. On an incoming trunk, the field named _____ BillON _____ indicates the number to which the call is to be billed.

6. Before completing the trunk group tables, Table _____ CLLI _____ must provide the switch with the trunk group name.

7. Table _____ CLLIMTCE _____ identifies percentage values of service circuits which can be removed before activating the switch alarms.

8. Circuits found in Table _____ TRKMEM _____ must be made "busy" by a maintenance procedure before deleting that circuit from the trunk group.

9. Start signals, such as IM, DD, and WK are identified to the switch in Table _____ TRKSGRP _____.

10. When a trouble is found in the "volume" aspect of a trunk group, a field named _____ PadGRP _____ found in Table TRKGRP should be checked.

Practice 1 Feedback

1. voice and data
2. analog and digital
3. TRKGRP
4. TRKMEM
5. BILLDN
6. CLLI
7. CLLIMTCE
8. TRKMEM
9. TRKSGRP
10. PADGRP

Practice 2: Datafilling trunk groups and TRAVERs

Instructions:

In this practice, you build a trunk group. The name of the trunk group you build and the trunk group's characteristics are defined on this page and the pages to follow.

1. Using this information, complete the forms by filling in the datafill for each table, and then enter this information into the system. Before beginning, obtain your Customer Group Name and Trunk Group Name from your instructor. If you need additional information, refer to NTPs *555-4031-851* and *555-4031-350*.

Tables in Order of Datafill

(1) CLLI
(2) TRKGRP
(3) TRKSGRP
(4) TRKMEM

Administrative number associated with Trunk Group for
Downstream Processing: **"XXX"**

Trunk Group Name: **GRP"X"TRK**

# of Trunks in this Group: **24**

Type of Trunk: **IBNT2**

Direction of Trunk: **2-Way**

Will traffic separation OMs be kept?   **No**

Is padding required for volume control?   **No**

OM trunk group classification: **NCRT**

Customer group to which the trunk group belongs: **GRP'X'**

Attendant console subgroup to which the trunk group belongs: **0**

How trunks will be selected for outgoing calls?   **Most Idle**

The NCOS to which incoming calls are assigned: **1**

Are digits prefixed onto incoming seizures when
no digits are received (through Billing DN)?   **No**

Is notice given when a call is answered or disconnected?   **Both**

Duration of near-end on-hook before far-end
disconnection is assumed: **1 (400 msec)**

Are features to be activated across the customer group?   **No**

Are digits prefixed onto incoming calls
on the trunk group (DIGIT0; DIGIT1)?   **No**

Is second dial tone required before digits are inpulsed
to the far-end switch?   **No**

Are calls on this trunk group toll essential?   **No**

Should calls be recorded on CDR? <u>**No**</u>

Is a SMDR record to be made of those calls which
use Table IBNXLA tuples flagged with SMDR=Y? <u>**Yes**</u>

Does this trunk group use terminating restriction codes? 0 =No <u>**0**</u>

When this trunk group is under the attendant
console's control, to what alternate NCOS are
the incoming calls assigned? <u>**0**</u>

Is distinctive ringing used on incoming calls? <u>**Yes**</u>

What line screening code (or alternate line screening
code) restrictions should be placed on outgoing calls? 0 = No <u>**0**</u>

When the trunk is seized and a call is placed that
was restricted through line screening codes, what
tuple in IBNTREAT should the caller be sent to? <u>**0**</u>

What is the alternate interception code in IBNTREAT to be used? <u>**0**</u>

The next four characteristics are line screening code characteristics.

Should the outgoing portion of this trunk group
ignore answer (IGA) from the distant end?   <u>No</u>

If this trunk group is used as an FX trunk,
should outgoing toll calls be denied (FDN) or
diverted (FDV)?   <u>No</u>

Is the AUTOVON FLASH feature used?   <u>No</u>

Is the trunk used for Datapath interfacement?   <u>No</u>

Is preemption used on this trunk?   <u>No</u>

Are there Data Links used by this trunk group?   <u>No</u>

Are there any other options to be
assigned to the trunk group as a whole?   <u>No</u>

The following characteristics refer to the trunk group itself.

# of subgroups in this trunk group:	**1 (Subgroup 0)**
Method used by trunk group to inform the far-end of its near-end status:	**DS1SIG**
Is signaling standard?	**Yes**
Subgroup direction:	**2-Way**
Pulsing type used for the incoming side of trunk?	**Digitone**
Method used by near-end to signify "ready-to-receive":	**Wink Start**
Is overlap pulsing used?	**No**
Length of time the near-end continues to wait if no digits are received after the far-end has seized the incoming side:	**8 seconds**
Length of time the system continues to wait once the minimum # of digits are received:	**12 seconds**
Method used to transmit digits to far-end:	**Multifrequency**
Method used by far-end to signify "ready-to-receive":	**Wink Start**

Amount of time that should elapse between outgoing digits: **7 (~~70~~ 49 msec)**

10 (70 msec)

Number of STOPS/STARTS	**0**

Does the far-end send stop and start signals? <u>**No**</u>

Does the two-way trunk group outgoing calls
yield to incoming seizures? <u>**Yes**</u>

Is coin control used? <u>**No**</u>

Is ringback sent on the incoming side to the far-end? <u>**No**</u>

Is echo control used? <u>**No**</u>

Is the trunk group used in with satellite? <u>**No**</u>

Does the far-end switch go into a lockout state
when the near-end of the trunk is manual busied? <u>**Yes**</u>

Trunk group dial mode: <u>**Machine**</u>

Length of time the CPU should wait before
updating the busy-idle map after the trunk
group's state has changed: <u>**70 (700 msec)**</u>

Echo canceller status <u>**UNEQ**</u>

What peripheral module should this trunk member be located in? <u>**DTC**</u>

Use the following DTC assignments:
DTC 1 7 X
1 8 X
1 9 X
1 10 X
1 11 X
1 12 X

What Digital Trunk Controller? **1**

What circuit number in this DTC? **see above list.**

What slot is available? **"X"**

      "X" = your Group Number

2. Run TRAVERs to verify the datafill you performed.

    •   To start the printer, type

        RECORD START ONTO PRT* (* = Room Number)

    •   TRAVER TR <u>GRP"X" TRK</u> 915164585218 B

3. To <u>stop</u> the printer, type

    •   RECORD STOP ONTO PRT*

4. Analyze the resultant TRAVER and be prepared to explain it to your instructor or to the class

After you have analyzed your TRAVERs, be sure and remove (delete) the entire trunk group from the system. (All members)

Line screening codes

Done on Ncos Basis.

Suppose your Meridian SL-100 included subscribers or incoming trunks you wish to restrict from using certain outgoing trunk groups, such as WATS or DODs. Instead of using WATS or DODs, you prefer these same users get routed on less expensive or less frequently used trunks, such as Tie trunks or FX lines.

One way of accomplishing this is by using a feature called Line Screening Codes (refer to Figure 1-7). This type of line screening is achieved by the assignment of line screening codes to selected NCOSs. Those line screening codes, in turn, are then matched with a line screening flag number assigned to the outgoing trunk group.

If the code in Table NCOS matches the flag in Table TRKGRP, the call is allowed to route out on that trunk (provided another type of screening, such as Codeblock, doesn't block the call). If the code in Table NCOS does not match any of the trunk groups in the route list, then the call goes to the specified treatment in Table IBNTREAT.

Figure 1-7
Line screening codes

LSC # (Table NCOS)

LSC FLAG # (Table TRKGRP) For IBNT0s/IBNT2s

Does the LSC # appear in the LSC Flag # list?

- subscriber telephone/incoming trunk

221061
061389
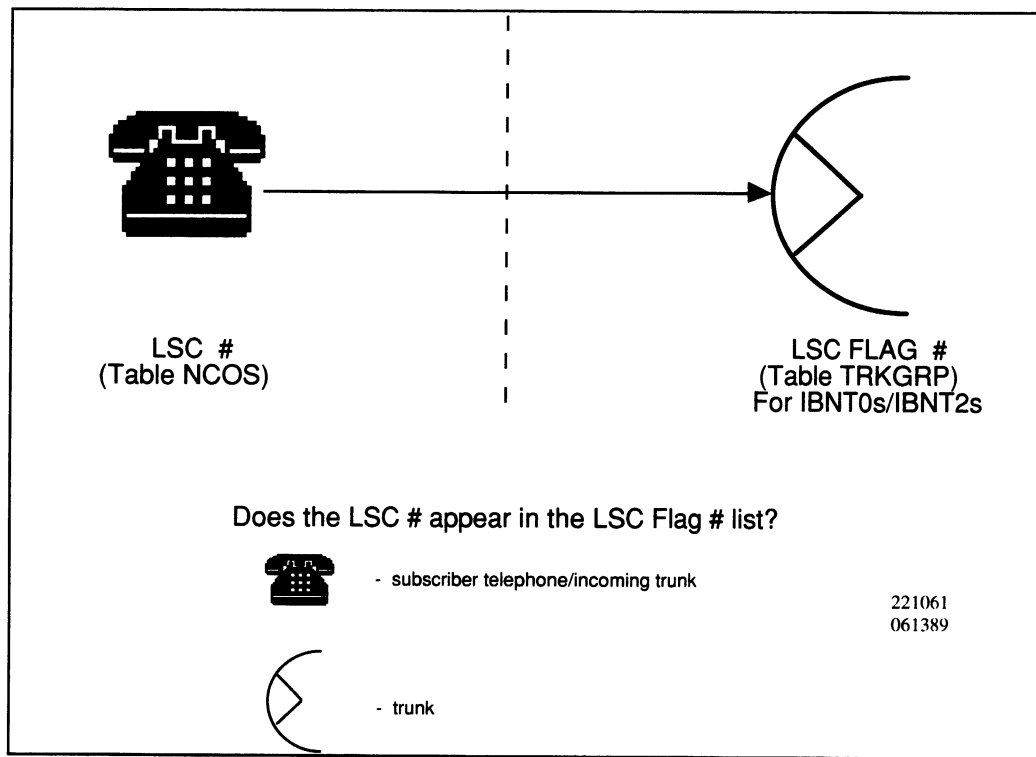
- trunk

Here are the data tables which support this function:

- **NCOS.** The Network Class of Service table, as described in the basic translations course, is used to group telephones, incoming trunks, and attendant consoles according to specific dialing privileges or limitations. One of these dialing limitations, Line Screening Codes, is established by the field LSC in Table NCOS.

Table NCOS

0-31 (handwritten, pointing to LSC)

CUSTGRP	NCOS	NCOSNAME	LSC	TRAFSNO	OPTIONS
GRP1	0	NCOS_0	2	0	$

This NCOS was assigned a line screening code of 2. This code number can be in the range of 0-31. It is looked at after referencing Table LSCFLAGS to determine if a call from this NCOS can terminate to a specific outgoing trunk group which was tagged with a Line Screening Flag Number.

- **TRKGRP.** Table Trunk Group assigns attributes to the trunk group selected for the call from one of the routing tables/subtables. Table TRKGRP assigns a line screening flag number to the outgoing trunk group. This flag number can be any number, 0-255. When a line screening flag number is assigned to an outgoing trunk (or the outgoing side of a two-way trunk) a treatment must also be specified to which calls may route if line screening fails on this trunk group, and it is the final route choice in the list. This treatment is indexed into Table IBNTREAT by the customer group name and the treatment number in field names CUSTNAME and LSCINCPT, respectively.

Table TRKGRP

Points to Table IBN Treat (handwritten) — *key* — *Custname Lscincpt* (handwritten)

	GRPKEY				GRPINFO	
CLLI	GRPTYP	TRAFSNO	PADGRP	NCCLS	CUSTNAME	SUBGRP
IBNCLS5OG	IBNTO	0	NPDGP	NCRT	GRP1	0

(0-255) (handwritten, pointing to LSCFN) — *0-63* (handwritten, pointing to LSCINCPT)

SELSEQ	SUPV	DISCTSEL	INTRAGRP	LSCFN	ALTLSCFN	LSCINCPT
MIDL	NODISC	0	Y	3	0	0

Lscflags (handwritten, pointing to LSCFN)

ALSCINCP	IGA	FDN	FDV	FLASH	PREEMPT	MTR	COFFTYPE	OPTION
0	N	N	N	N	N	N	NATL	$

For purposes of line screening, this trunk group has a line screening flag number of 3 assigned to it. This number is used to index to Table LSCFLAGS, to find out what line screening codes (from Table NCOS) have been assigned to this flag. If it fails screening on all trunk groups in the route list, the call goes to Table IBNTREAT, tuple GRP1 0.

- **LSCFLAGS.** Table Line Screening Code Flag is indexed by the LSCFN number (3) assigned to the trunk group in Table TRKGRP.

Table LSCFLAGS

<u>KEY</u>   <u>LSCFLAGL</u>

3 |(B1)   (B2)| $

Flag list

The line screening code flag list, LSCFLAGL, indicates any subscriber or incoming trunk whose NCOS is assigned a line screening code of 1 or 2 (B1, B2, respectively) is allowed to terminate on any trunk group with a line screening flag number (LSCFN) of three.

- **IBNTREAT.** This table is required for the routing of calls (failing screening on all trunks in the route list) to tones, announcements, or lamps on an attendant console. Here's an example tuple:

Table IBNTREAT

<u>CUSTGRP</u>	<u>IBNTRTMT</u>	<u>ITDATA</u>			
		LOG	RTESEL	RTEID	
GRP1	0	Y	T	OFRT	8

For calls from this customer group failing line screening, the route is to Table OFRT. A log message is generated whenever a call is routed through this tuple.

Although Figure 1-8 may appear to you to be a TRAVER, TRAVER does not report on line screening, as far as showing screened routes and Table LSCFLAGS.

NCOS assigns the line screening code number of 2 to the originator (an IBN station or incoming trunk)

- RTEREF has trunk group IBNCLS5OG selected as the outgoing trunk group on which the call is to tentatively terminate,

- TRKGRP indicates the line screening flag number for this trunk group is 3, and

- LSCFLAGS is indexed by this line screening flag number. Table LSCFLAGS determines the originating line or incoming trunk must have a line screening code number of 1 or 2 to be allowed to use the outgoing trunk group, IBNCLS5OG. Since our originator in NCOS 0 has an LSC of 2, this trunk group can be accessed.

Figure 1-8
Tables supporting line screening codes

Table NCOS

CUSTGRP	NCOS	NCOSNAME	LSC	TRAFSNO	OPTIONS
GRP1	0	NCOS 0	**2**	0	$

Subtable RTEREF

RTE			RTELIST
2	S	D	**IBNCLS5OG**

Table TRKGRP

GRPKEY							GRPINFO
IBNCLS5OG	IBNTO	0	NPDGP	NCRT	GRP1	0	MIDL

LSCFN

| NODISC | 0 | Y | **3** | 0 | **0** | 0 | N | N | N | N | N | $ |

Table LSCFLAGS

KEY	LSCFLAGL		
3	(B1)	**(B2)**	$

Find
Match
?

No

Yes

Skip trunk
group

Check for
available
trunk circuits

502060
061389
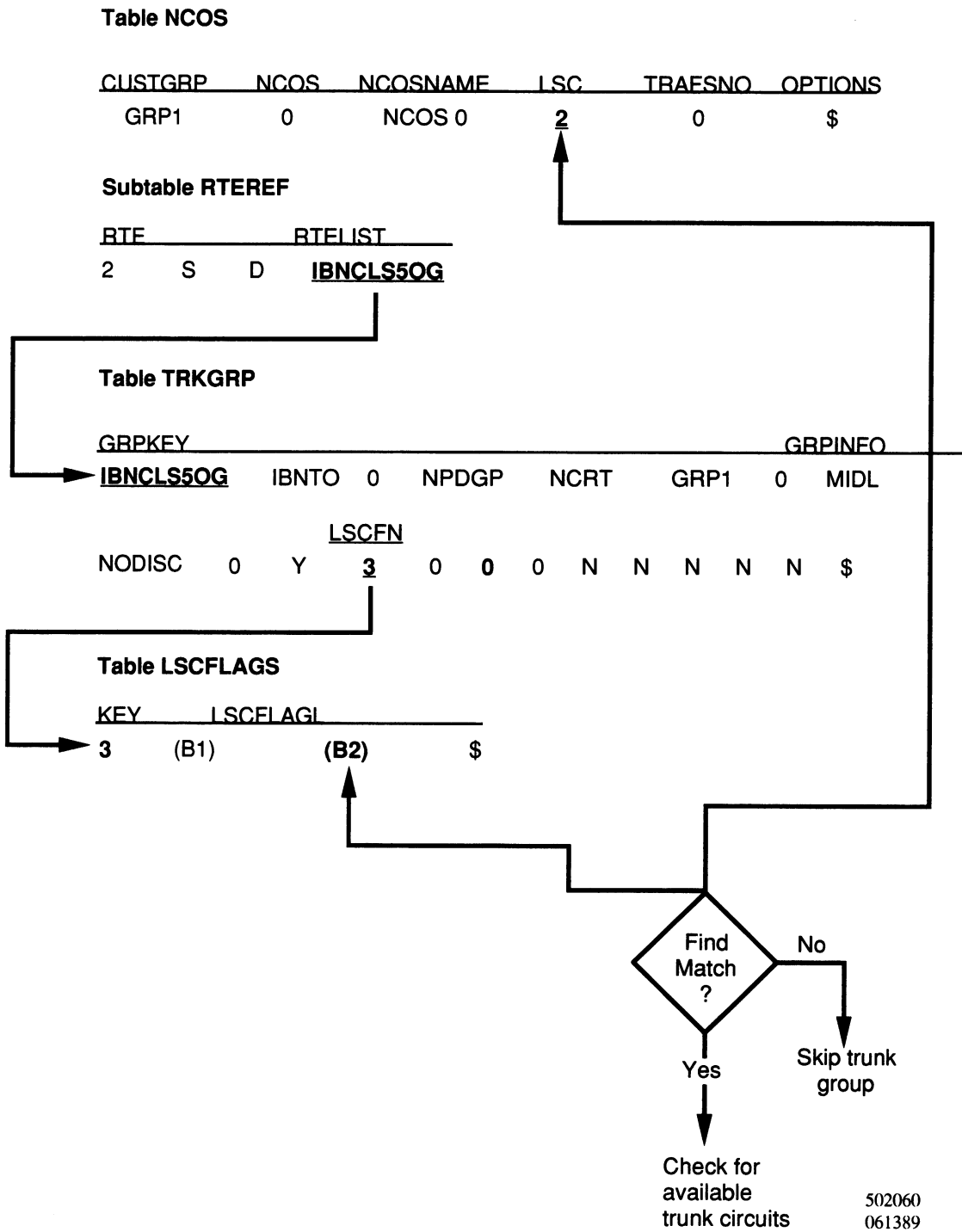
Now, let's suppose we have a situation in which we want the originator to be denied from using the above trunk group. This screening is accomplished by not including his line screening code number (established in Table NCOS) in the flag list in Table LSCFLAGS. Figure 1-9 depicts such a case. Notice the originator's LSC, 2, is not found in the list under the field LSCFLAGL, in Table LSCFLAGS.

Figure 1-9
Tables supporting line screening codes

Table NCOS

CUSTGRP	NCOS	NCOSNAME	LSC	TRAFSNO	OPTIONS
GRP1	0	NCOS_0	2	0	$

Subtable RTEREF

RTE	RTELIST		
2	S	D	IBNCLS5OG

Table TRKGRP

GRPKEY							GRPINFO
IBNCLS5OG	IBNTO	0	NPDGP	NCRT	GRP1	0	MIDL

LSCFN

| NODISC | 0 | Y | **3** | 0 | **0** | 0 | N | N | N | N | N | $ |

Table LSCFLAGS

KEY	LSCFLAGL	
3	(B1)	$

"2" not in list

Find Match ?

No → Skip trunk group

Yes → Check for available trunk circuits

502059
061389
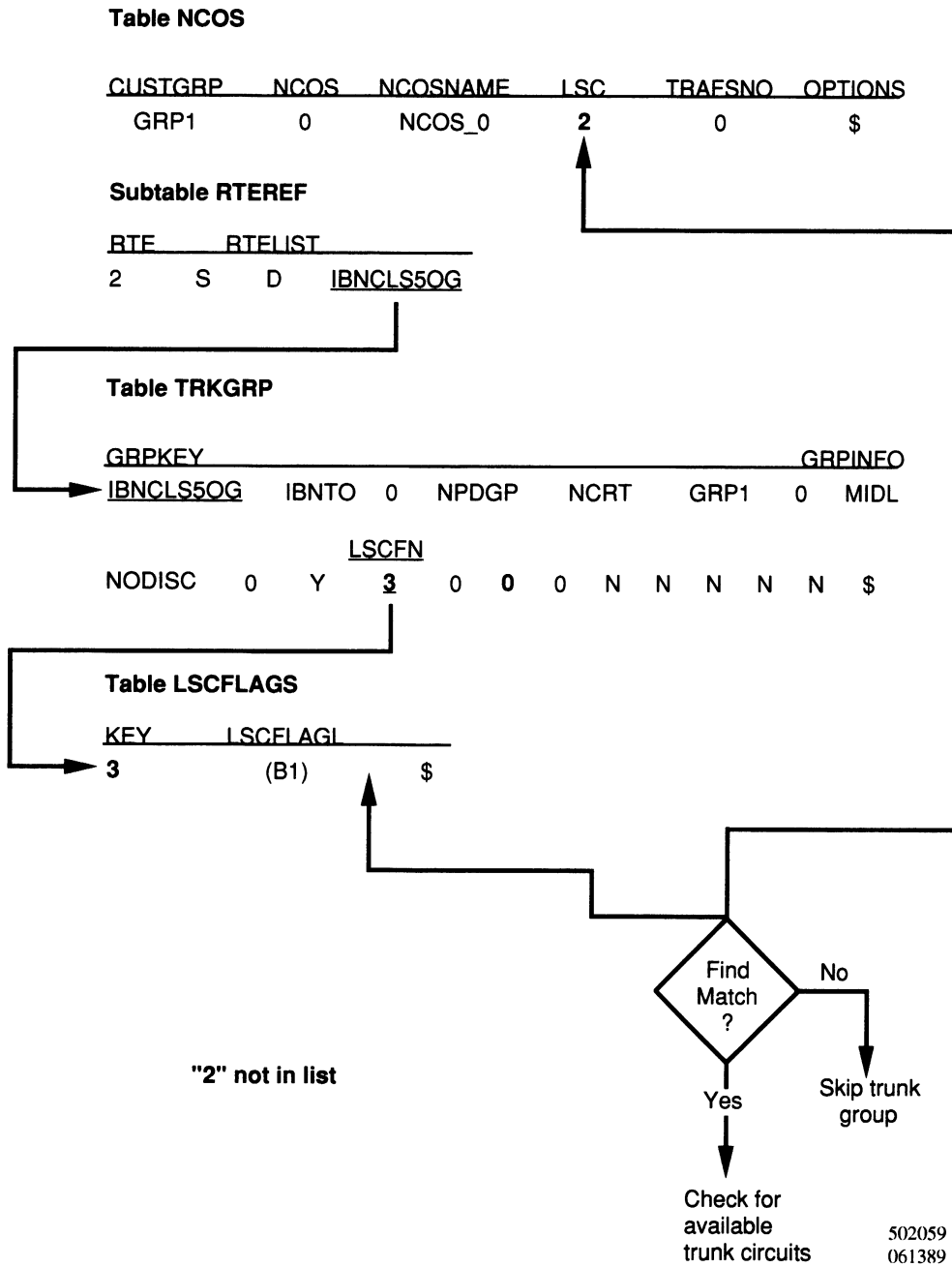
What happens to the caller whose call fails to locate a "compatible" trunk group in the route list? The call does not immediately go to a treatment; rather, it goes back to the route reference subtable from which the first trunk group was selected. At this point, the next route element from the list is selected and the same line screening sequence (Tables TRKGRP, LSCFLAGS) is performed. Figure 1-10 shows our originator was screened (failed the line screening test) for the next two route elements until he passed on the last element.

Figure 1-10
Trunks screened by line screening code

SUBTABLE RTEREF				
2 S	D	IBNCLS5OG	(failed)
S	D	NYFX	(failed)
S	D	NYWATS	(failed)
S	D	NYDOD	(passed)

Remember, an "originator" can be any one of the following, with the corresponding table(s) that assigns its NCOS (and accompanying line screening code number):

- a line (IBNLINES/KSETLINE), or

- an incoming trunk (TRKGRP).

   NOTE: Attendant Consoles are not subjected to Line Screening.

What advantage do you get by implementing line screening codes? The use of line screening codes saves you from having to set up different route lists for different NCOSs; instead, you can set up one route list and screen your different NCOSs within this route list. Military users of Meridian SL-100 find this application particularly useful when base housing units are required to use DOD trunks rather than WATS or TIE trunks.

Another interesting aspect of the line screening code feature is it is included in the Basic Integrated Business Network Software Feature Package (NTX100).

TRAVER descriptions for line screening codes

Refer to Figure 1-11 and TRAVER 2 when reading the following points:

- KSETLINE assigns a NCOS of 0,

- NCOS assigns a LSC of 0,

- the routing and pretranslation tables then translate the call to route index #1 in Subtable RTEREF,

- the first tentative trunk group selected for routing, IBNCLS5OG, is assigned a line screening flag number of 2,

- Table LSCFLAGS keys on the flag number, 2, from trunk group IBNCLS5OG, and looks to see what LSC codes (assigned by NCOS to the originator) are allowed to terminate on trunk groups with a flag number of 2. LSC code 0 is not found in this tuple,

- The first selection of IBNCLS5OG as an outgoing route **fails.** The next trunk group, IBNCLS52W, undergoes a similar check for a match.

- IBNCLS52W has a flag number of 0 in Table TRKGRP; therefore, Table LSCFLAGS keys on this and locates the LSC code, 0, in the tuple.

- Although the TRAVER reports both trunk groups as translations routes, only IBNCLS52W passes the line screening codes test for this call.

Figure 1-11
Line screening code - related tables

```
Table TRKGRP
GRPKEY
                                                               GRPINFO
IBNCLS5OG                                             LSCFN
  IBNTO 0 NPDGP  NCRT  DALIBN 0 MIDL  NODISC 0 Y 2  0 0 0 Y N N
  N N $


IBNCLS52W
 IBNT2  0 NPDGP NCRT DALIBN 0 MIDL 0 N ANSDISC 1 Y N N N N N N
         LSCFN
 1 1 N 0 0 0 0 N N N N N $
```

Table LSCFLAGS				
KEY	LSCFLAGL			
0	(B0)	(B1)	(B2)	$
2		(B1)	(B2)	$

Table IBNTREAT			
CUSTGRP	IBNTRTMT		ITDATA
DALIBN	0	Y T	OFRT 8
DALIBN	1	Y	C 8
GRP1	0	Y	C 8

TRAVER 2

TRAVER L 2454003 99262114 B
TABLE KSETLINE
HOST 01 0 03 06 1 DN Y 2454003 DALIBN 0 0 214 $

Cut GRP   *Ncos*

TABLE NCOS
DALIBN 0 0 0 NCOS_0 (XLAS PTN1 NXLA NDGT) (AVP 0)
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,AND
DIGCOL
DALIBN NXLA CTN1 FTN1 0 NDGT
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N Y N 1 N NDGT N Y DOD N 4 NONE
TABLE LINEATTR
4 IBN NONE NT NSCR 0 214 SPN2 LAS1 AMRX N 0 NIL NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN2 (0)
        SUBTABLE STDPRT
        9 9 N NP 0 NA
TABLE HNPACONT

Ncos -LSC   *LSC Flags*

214 21 0 (1) (1) (0)
        SUBTABLE HNPACODE
        926 926 LRTE 1
        SUBTABLE RTEREF
                1 S D IBNCLS5OG
                S D IBNCLS52W
TABLE LCASCRCN
214 LAS1 (3) MAND N
        SUBTABLE LCASCR
        926 926
TABLE PFXTREAT
MAND NP Y NP UNDT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 IBNCLS5OG   9262114   ST
2 IBNCLS52W   9262114   ST

TREATMENT ROUTES. TREATMENT IS: GNCT
1 ANNMEM1
2 IDLE

Practice 3: Line screening codes

Instructions:

Identify the tables and fields used for troubleshooting Line Screening Codes by using the TRAVERs provided to determine which routes will fail and pass line screening code testing. If both routes fail screening, indicate which tuple in IBNTREAT will be indexed.

Use the information from the Line Screening Code - Related Tables Form, Table 1-3, on the following page to help you analyze these TRAVERs.

Table 1-3
Line screening code - related tables form

```
Table TRKGRP
GRPKEY      GRPINFO
IBNCLS5OG                                        LCSFN    LSCINCPT
  IBNTO  0  NPDGP  NCRT  DALIBN  0  MIDL  NODISC  0  Y  2   0  1  1  Y  N  N
  N  N  N  N  $

IBNCLS52W
  IBNT2W  0  NPDGP  NCRT  DALIBN  0  MIDL  0  N  ANSDISC  1  Y N N N  N  N  N
  1  1  N  0  0  0  0  N N N N N N N N N  $
       UW  LSIFMT
Table LSCFLAGS
KEY  LSCFLAGL
0      (B0) ,  (B1)   $
2      (B1)   (B2)   $

Table IBNTREAT
CUSTGRP      IBNTRTMT                   ITDATA
DALIBN           0                  Y   T   OFRT  8
DALIBN           1                  Y   C   8
DEMOROOM         0                  Y   C   8
```

TRAVER 3

TRAVER L 2454024   99262114 B
TABLE KSETLINE
HOST 01 0 03 01 1 DN Y 2454024 DALIBN 0 1 214 $
TABLE NCOS   LSU
DALIBN 1   161   0 NCOS 1 (XLAS PLM1 NXLA NDGT) (AVP 0)
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,AND DIGCOL
DALIBN NXLA GRP1 FET1 0 NDGT
TABLE IBNXLA: XLANAME PLM1
PLM1 9 NET N Y 1 N NDGT N Y DOD N 4 NONE
TABLE LINEATTR
4   IBN NONE NT NSCR 0 214 IBN2 LOC1 AMRX N 0 NIL NILLATA 0 NIL NIL
TABLE STDPRTCT
IBN2   (0)
         . SUBTABLE STDPRT
            9   9   N   NP   0   NA
TABLE HNPACONT
214   21   0   (1)   (1)   (0)
         . SUBTABLE HNPACODE
            926 926 LRTE 1
         . SUBTABLE RETREF
         .   1 S   D   IBNCLS5OG
         .   S   D   IBNCLS52W
TABLE LCASCRCN
214 LOC1   (3) MAND N
      . SUBTABLE LCASCR
      . 926 926
TABLE PFXTREAT
MAND NP Y NP UNDT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES				Pass or fail line screening?	If fail, what is the treatment?
1	IBNCLS5OG	9262114	ST	*Pass*	_____
2	IBNCLS52W	9262114	ST	*Pass*	_____

TREATMENT ROUTES. TREATMENT IS: GNCT

1   ANNMEM1

.2   IDLE

TRAVER 4

TRAVER L 24524024 99262114 B
TABLE KSETLINE
HOST 01 0 03 01 1 DN Y 2454003 DALIBN 0 1 214 $
TABLE NCOS
DALIBN 1   0 NCOS 1 (XLAS PLM1 NXLA NDGT) (AVP 0)
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,AND DIGCOL
DALIBN NXLA GRP1 FET1 0 NDGT
TABLE IBNXLA: XLANAME PLM1
PLM1 9 NET N Y N 1 N NDGT N Y DOD N 4 NONE
TABLE LINEATTR
4 IBN NONE NT NSCR 0 214 IBN2 LOC1 AMRX N 0 NIL NILLATA 0 NIL NIL
TABLE STDPRTCT
IBN2   (0)
    . SUBTABLE STDPRT
        9 9 N NP 0 NA
TABLE HNPACONT
214   21   0 (1)   (1)   (0)
    . SUBTABLE HNPACODE
        926 926 LRTE 1
    . SUBTABLE RETREF
    .   1 S   D   IBNCLS5OG
    .   S   D   IBNCLS52W
TABLE LCASCRCN
214 LOC1 (3)   MAND N
    . SUBTABLE LCASCR
    . 926 926
TABLE PFXTREAT
MAND NP Y NP   UNDT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES				Pass or fail line screening?	If fail, what is the treatment?
1	IBNCLS5OG	9262114	ST	*Pass*	_____
2	IBNCLS52W	9262114	ST	*Fail*	*YT OF RT 8*

TREATMENT ROUTES. TREATMENT IS: GNCT

1 ANNMEM1

2 IDLE

TRAVER 5

TRAVER L 2454003 99262114 B
TABLE KSETLINE
HOST 01 0 03 06 1 DN Y 2454003 DALIBN 0 1 214 $
TABLE NCOS
DALIBN 1   0   0 NCOS 1 (XLAS PLM1 NXLA NDGT) (AVP 0)
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,AND DIGCOL
DALIBN NXLA GRP1 FET1 0 NDGT
TABLE IBNXLA: XLANAME PLM1
PLM1 9 NET N Y N 1 N NDGT N Y DOD N 4 NONE
TABLE LINEATTR
4 IBN NONE NT NSCR 0 214 IBN2 LOC1 AMRX N 0 NIL NILLATA 0 NIL NIL
TABLE STDPRTCT
IBN2   (0)
        . SUBTABLE STDPRT
        9 9 N NP 0 NA
TABLE HNPACONT
214   21   0 (1)   (1)   (0)
        . SUBTABLE HNPACODE
        926 926 LRTE 1
        . SUBTABLE RETREF
        .   1   S   D   IBNCLS5OG
        .   S   D   IBNCLS52W
TABLE LCASCRCN
214 LOC1 (3) MAND N
        . SUBTABLE LCASCR
        . 926 926
TABLE PFXTREAT
MAND NP Y NP UNDT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES				Pass or fail line screening?	If fail, what is the treatment?
1	IBNCLS5OG	9262114	ST		
2	IBNCLS52W	9262114	ST		

TREATMENT ROUTES. TREATMENT IS: GNCT

1 ANNMEM1

2 IDLE

Practice 3 Feedback

TRAVER 1	IBNCLS5OG > pass
	IBNCLS52W > pass
TRAVER 2	IBNCLS52W > pass
	IBNCLS52W > fail; Table OFRT 8
TRAVER 3	IBNCLS5OG > fail; ICI 8
	IBNCLS52W > pass

Terminating restriction codes

Introduction

Terminating Restriction Codes (TRC) place restrictions on calls incoming to stations on a Meridian SL-100. In the earlier discussion about Line Screening Codes, you studied about restrictions that can be placed on outgoing calls. For TRCs to work, these stations must have the Denied Incoming (DIN) feature assigned to them. DIN can be assigned to a station during a SERVORD session.

Terminating Restriction Codes (TRC) are single digit (0-7) codes which can be assigned to either trunk-to-station or station-to-station (intragroup) type calls. More than one TRC can be assigned a station.

Feature DIN - Denied Incoming in Servord -

> TRC - 0 - 7 (1)

> AIT TRC - 0 - 7 (2)

> DinCpT (No, Dine)

Trunk-to-station calls

For this type of call, the TRC for the incoming trunk call is assigned in Table TRKGRP. If this trunk's TRC matches that of the called station's TRC, assigned in Tables KSETFEAT or IBNFEAT, the call is allowed to terminate on the called station. If the TRCs of the trunk and the station do not match and the INTRAGRP field in Table TRKGRP for the calling trunk has the entry, "N," the call is blocked and is routed to a BLDN treatment (refer to Figure 1-12).

The following data tables support the TRC application for trunk-to-station calls:

Table TRKGRP

In support of TRC, this table assigns a TRC to the incoming call and determines if it is considered an intragroup type call.

Incoming calls on this trunk group are assigned a TRC of "0." Any nonmatching TRC condition results in the call's being routed (since INTRAGRP = N) to a BLDN treatment.

Table TRKGRP

GRPKEY					GRPINFO	

CLLI	GRPTYP	TRAFSNO	PADGRP	NCCLS	CUSTNAME	SUBGRP
IBNCLS5IC	IBNTI	0	NPDGP	NCRT	GRP1	0

NCOS	BILLDN	SUPV	DISCTSEL	**INTRAGRP**	DIGIT0	DIGIT1	DTI	TES	CDR	SMDR
0	N	ANSDISC	1	**N**	N	N	Y	N	Y	Y

TRC	ALTNCOS	TRKDSR	PREEMPT	AIOD	REORIG	OFFNET	CALLCHR
0	7	N	N	N	N	N	SAT

COFFTYP	OPTION
NATL	$

Must Match Tec in Servord. For Set.
↓
Opt Din.

Figure 1-12
TRCs: Trunk-to-station-calls
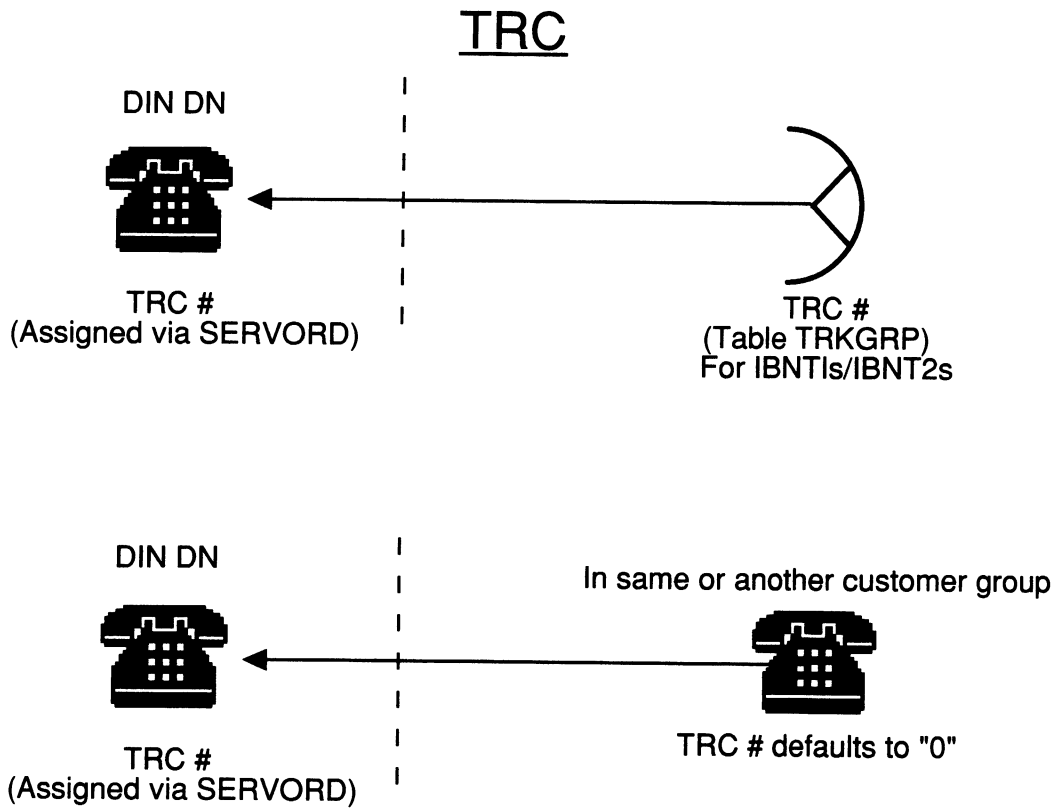
Tables KSETFEAT or IBNFEAT

Depending on the type of telephone, these tables supply the TRCs for the
<u>called</u> station.

Table KSETFEAT (for P-Phones)

SITE	FRAME	UNIT	LSG	CIRCUIT	FEATKEY KEY	FEAT	FEATURE	KVAR TRC	ALTTRC	DINOPT
HOST	01	0	02	02	1	DIN	**DIN**	2	1	N

Table IBNFEAT (for 500/2500 sets)

SITE	FRAME	UNIT	LSG	CIRCUIT	LEN DF	FEATURE	DATA TRC	ALTTRC	DINOPT
HOST	01	0	02	01	DIN	**DIN**	2	1	N

You can see the entries for these two tables are essentially the same, except
for Table KSETFEAT's field, KEY, which is the key number on the P-
Phone to which the DN appearance is assigned for the DIN feature.

TRAVER 6 shows the relationship between Tables TRKGRP and
KSETFEAT and a call respectively. A caller incoming on trunk group
IBNCLS5IC is assigned a TRC of 0 and INTRAGRP = N. The called
number, 2454024, has a TRC of 1 assigned with the DIN feature. Although
the TRAVER indicates the call traced successfully, the call in this case was
sent to BLDN treatment, because the TRCs, 0 and 1, did not match.

Interestingly enough, if the INTRAGRP field for the trunk group is set to
"Y," all calls to stations then look at the INTRAGRP field in Table
IBNXLA with the EXTN selector. Figure 1-13 shows what effect this
INTRAGRP field has on the call with the TRC (DIN) option. Figure 1-14
depicts the flow and decisions involved in the TRC application.

TRAVER 6

Introducing (handwritten annotation)
TRC (handwritten annotation)

```
TRAVER TR IBNCLS5IC  2454024   B
TABLE TRKGRP
IBNCLS5IC IBNTI 0 NPDGP NCRT DALIBN1 0 0 N ANSDISC 0 N N N N
N N N 0 0 N N N N N $ $
TABLE NCOS
DALIBN1 0 0 0 NCOS_0 ( XLAS PTN1 NXLA NDGT) ( AVP 0) $
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,AND
DIGCOL
DALIBN1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 2 RPT
TABLE IBNXLA: XLANAME PTN1
TUPLE NOT FOUND
Default is to go to next XLA name.
CUST PRELIM XLA name is NIL.  Go to next XLA name.
TABLE IBNXLA: XLANAME CTN1
CTN1 245 EXTN N Y  214 245 7 $
TABLE TOFCNAME
214 245
```
intragrp (handwritten annotation)
```
TABLE DNINV
214 245 4024 L HOST 01 0 03 01
```

Table KSETFEAT

FEATKEY	KVAR		
HOST 01 0 03 01 1 DIN	DIN	1	2
		TRC	ALTTRC

1. Assign DIN Servord

2. Set (TRC / Intragrp) in Table TRKGRP

3. Set Intragrp in table IBNXLA (EXTN Tuple)

4. Domain in CustGrp? (public or private)

Figure 1-13
Impact of "INTRAGRP" field in TRKGRP and TRC

DIN DN

TRC # 3

TRC # 2

I----- If INTRGRP "Y" in
Table TRKGRP... then
refer to chart on
Figure 1-14.

In same or another customer group

TRC # 3

TRC # 2

I----- If INTRGRP "N" in
Table TRKGRP...do
the TRC's match? Do
the ALTTRC match?

(refer to Figure 1-14)   221057
061389
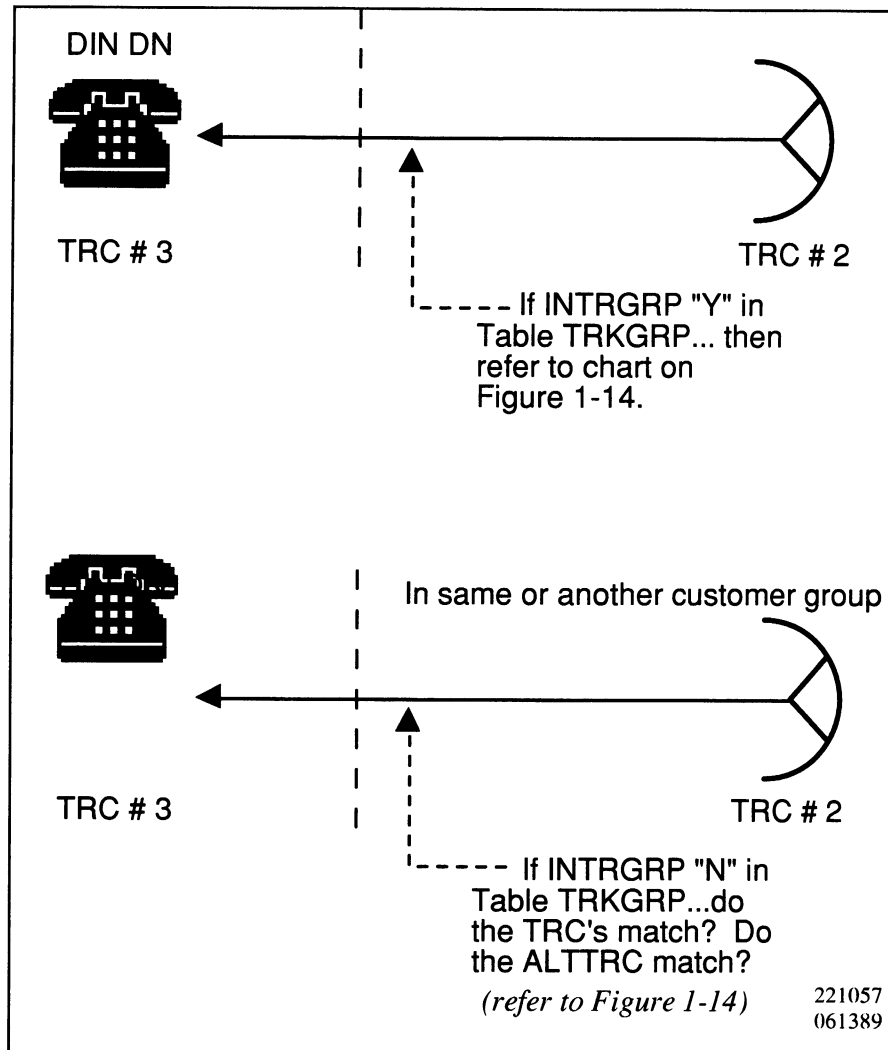
Figure 1-14
Flowchart for the TRC process
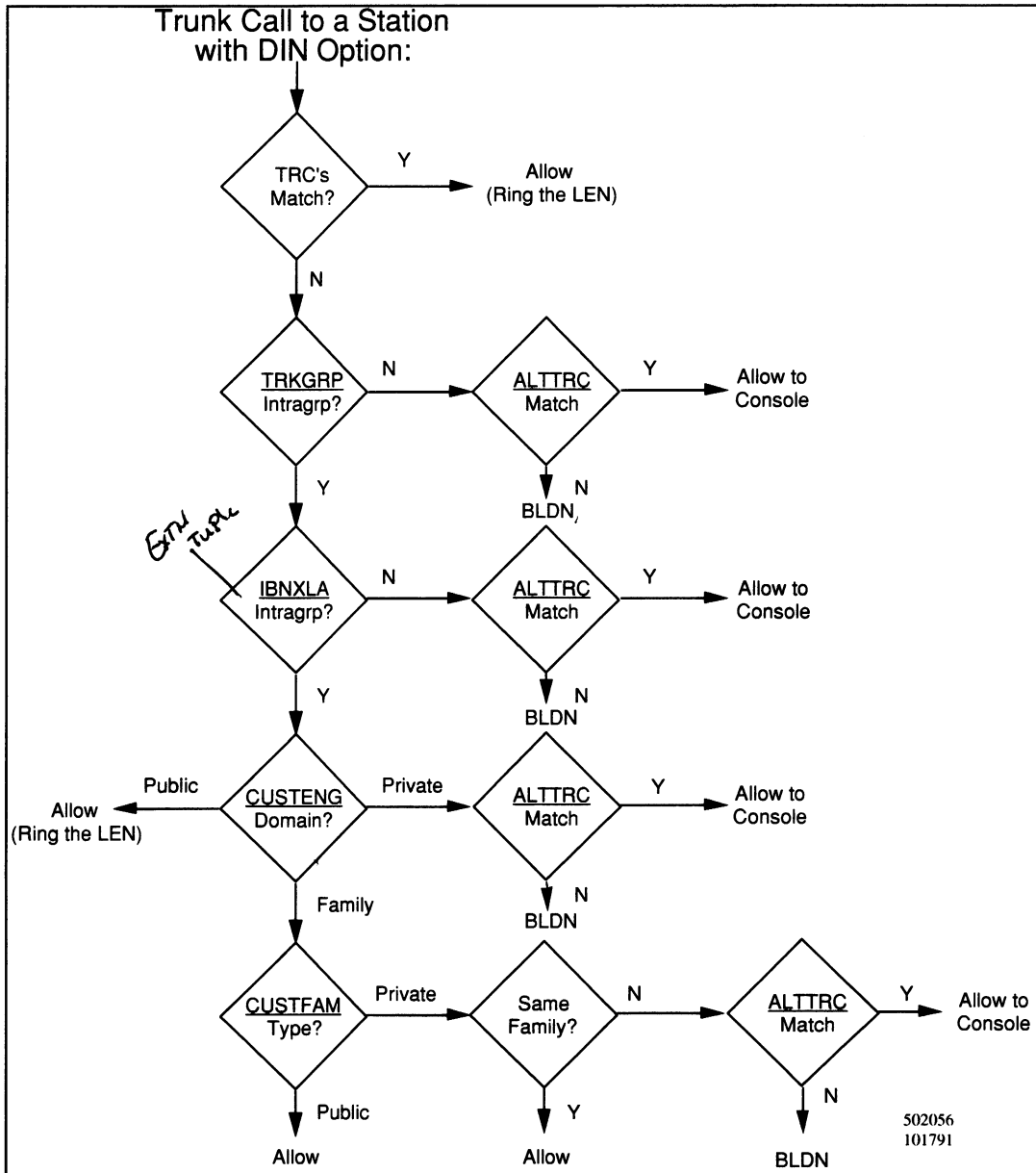
The last field, ALTTRC, in Tables KSETFEAT and IBNFEAT, lists the alternate terminating restriction code for the called station. When there is a "no match" condition for the TRCs (for both trunk-to-station and station-to-station intergroup calls), the ALTTRC is examined for a potential match between it and the caller's TRC. If there is a match, the call routes directly to the serving attendant console, on ICI code 8 (intercept). The attendant can then extend the call to the station. When the ALTTRC doesn't match the caller's TRC, the call reverts to BLDN treatment.

Station-to-station calls

TRCs can be applied to calls to a station (assigned the DIN feature) from a station in another customer group. In this application, the calling station defaults to a TRC of 0. If the called station does not have a TRC of 0, the call is routed (with some exceptions) to a BLDN treatment (refer to Figure 1-15).

Let's take a look at the data tables involved in this type of station-to-station TRC application:

- **Tables KSETFEAT or IBNFEAT.** These tables supply the TRCs for the called station, just as they do for trunk-to-station calls involving TRCs.

- **Table IBNXLA.** This table is used to assign the intragroup characteristic for an inter-customer group call to an extension.

Table IBNXLA

XLANAME	DGLIDX	TRSEL	SMDR	INTRAGRP	SNPA	NXX	DIGINEXT	FILLDIGS
PLM1	245	EXTN	Y	N	214	245	7	$

- When a call positions on this tuple, the selector, EXTN, is assigned and the INTRAGRP characteristic is turned off (N). Station calls from other customer groups which do not have matching TRCs with the called station do not terminate on the called station.

Figure 1-15
Flowchart for the TRC process

Station Call to a Station
with DIN Option:

502073
041691
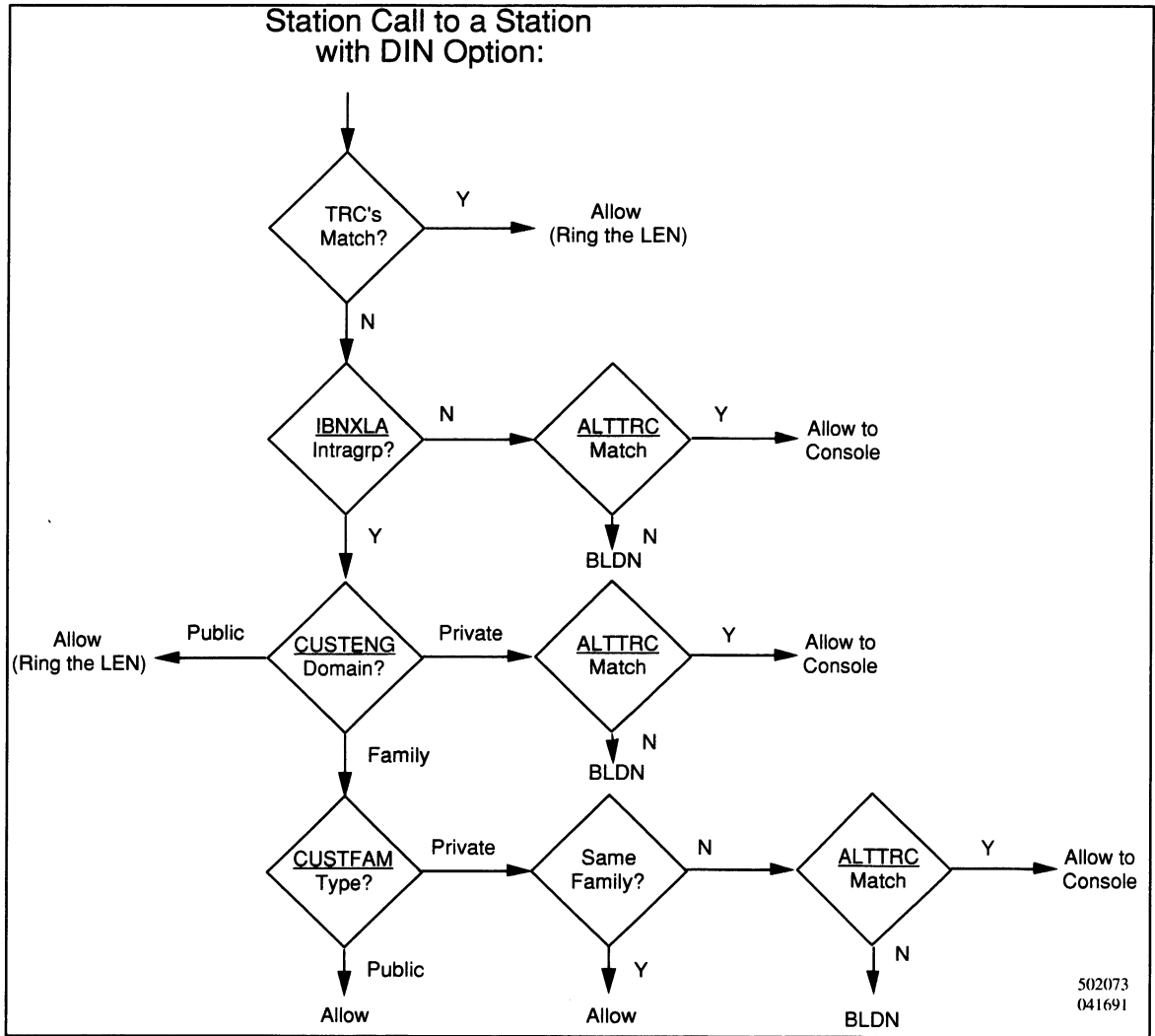
If INTRAGRP = Y, an intergroup call is to be considered an intragroup call (refer to Figure 1-16); therefore, even a condition of nonmatching TRCs would not prevent the termination of the call on the called station (unless the following condition exists in Table CUSTENG).

Figure 1-16
Impact of "INTRAGRP" field on IBNXLA and TRC

221055
061389
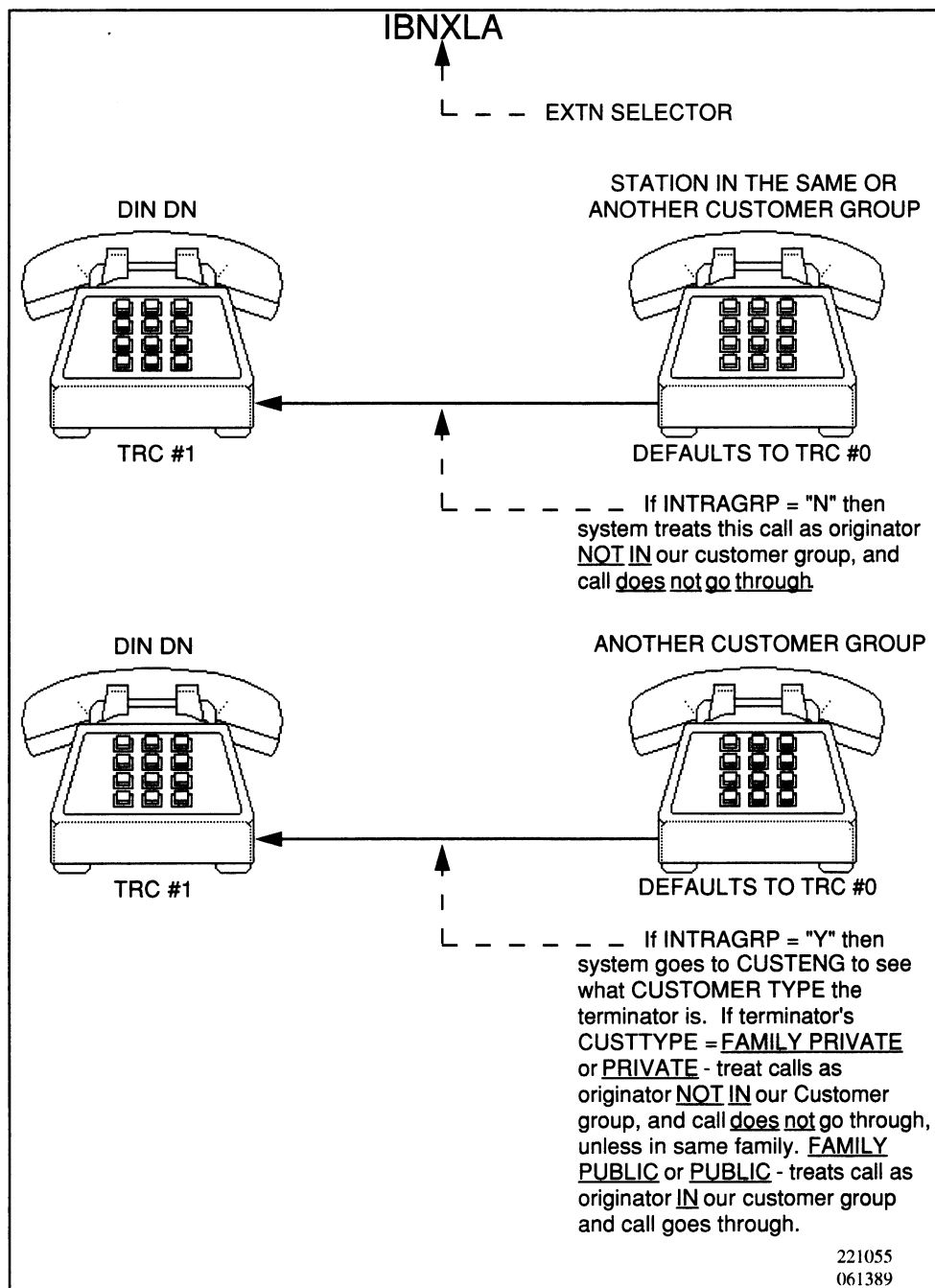
- **Table CUSTENG.** This is the table that, with an entry of "Y" in Table IBNXLA's INTRAGRP field, can still restrict station-to-station calls when TRCs don't match. A tuple in CUSTENG supporting TRCs would appear like this:

Table CUSTENG

CUSTNAME	ADNUM	NONCOS	NOIBNTMT	CONSOLES	MASCON	DOMAIN
GRP1	57	1	10	N	N	**PRIVATE**

GROUPID	OPTIONS
0	$

The customer group type, when entered as "PRIVATE", would block the call if TRCs didn't match, even when INTRAGRP (in Table IBNXLA) is set to "Y." The customer group type, "public" would allow the call even if TRC's didn't match. If the customer group is "family" then the call goes to Table CUSTFAM to see if PRIVATE or PUBLIC and results in either allowing or blocking the call.

For an example of station-to-station TRCs, take a look at the associated data table contents and call TRAVER found in TRAVER 7. Here's how it goes:

- The caller's TRC defaults (not shown) to 0.

- Table KSETFEAT assigns a TRC of 2 to the called station.

- Table IBNXLA indicates the call is not (N) an intragroup call.

- The call fails the TRC match. The ALTTRC (1) in Table KSETFEAT does not match the caller's TRC, either; therefore, the call routes to BLDN treatment.

TRAVER 7

TRAVER L 2505555 2454003 B
TABLE KSETLINE
HOST 01 0 03 02 1 DN Y 2505555 DALIBN 0 0 214 (PRK) (RAG) $
TABLE NCOS
DALIBN 0 0 0 TRAF $
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,AND DIGCOL
DALIBN NXLA CTN1 NXLA 0 DCN1
TABLE DIGCOL
DCN1 2 RPT
TABLE IBNXLA: XLANAME CTN1
CTN1 245   EXTN Y   ▰   N   214 245 7 $
TABLE TOFCNAME   └─ intragrp
214 245
TABLE DNINV
214 245 4003 L HOST 01 0 03 01
        +++ TRAVER: SUCCESSFUL CALL TRACE +++
TABLE: KSETFEAT

FEATKEY			KVAR
HOST 01 0 03 01 1 DIN	DIN	2	1
		TRC	ALTTRC

Practice 4: Terminating restriction codes

Instructions:.

Determine whether or not the trunk-to-station or station-to-station calls pass TRC testing. The terminating station is identified in TABLE DNINV and the customer group type (that is, PRIVATE, PUBLIC) is located in the NOTE following each TRAVER.

TRAVER 8

TRAVER TR IBNCLS5IC 2454024 B   *Intro grp*
TABLE TRKGRP
IBNCLS5IC IBNTI 0 NPDGP NCRT GRP1 0 0 N ANSDISC 0 N N N N
N N N 1 0 N N N N N $ $
TABLE NCOS   *TRC*
GRP1 0 0 0 NCOS_0 (XLAS PLM1 NXLA NDGT) (AVP 0) $
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,AND DIGCOL
GRP1 NXLA CTN1 FET1 0 DIG1
TABLE DIGCOL
DIG1 2 COL L 6
TABLE IBNXLA: XLANAME PLM1
TUPLE NOT FOUND
Default is to go to next XLA name.
CUST PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME CTN1
CTN1 245 EXTN N Y N 214 245 7 $
TABLE TOFCNAME
214 245
TABLE DNINV
214 245 4024 L HOST 01 0 03 01

+++ TRAVER: SUCCESSFUL CALL TRACE +++

Pass or fail TRC screening?	If pass, what allowed it?	If fail, what happened to call?
Pass	*TRC match.*	

Table KSETFEAT

FEATKEY		KVAR	
HOST 01 0 02 02 1 DIN	DIN	2	1
HOST 01 0 03 01 1 DIN	DIN	1	2
HOST 01 0 03 06 1 DIN	DIN	3	2
	TRC	ALTTRC	

NOTE: Assume the three LENS in KSETFEAT belong to GRP6 customer group and this group is **PUBLIC**.

TRAVER 9

TRAVER TR IBNCLS5IC 2454003 B
TABLE TRKGRP
IBNCLS5IC IBNTI 0 NPDGP NCRT GRP1 0 0 N ANSDISC 0 Y N N N
N N N 1 0 N N N N N $ $
TABLE NCOS
GRP1 0 0 0 NCOS_0 (XLAS PLM1 NXLA NDGT) (AVP 0) $
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,AND DIGCOL
GRP1 NXLA CTN1 FET1 0 DIG1
TABLE DIGCOL
DIG1 2 RPT
TABLE IBNXLA: XLANAME PLM1
TUPLE NOT FOUND
Default is to go to next XLA name.
CUST PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME CTN1
CTN1 245 EXTN N Y Y 214 245 7 $
TABLE TOFCNAME
214 245
TABLE DNINV
214 245 4003 L HOST 01 0 03 06

+++ TRAVER: SUCCESSFUL CALL TRACE +++

Pass or fail TRC screening?	If pass, what allowed it?	If fail, what happened to call?
Pass.	Cust Eng domain public	

Table KSETFEAT

FEATKEY	KVAR	
HOST 01 0 02 02 1 DIN	DIN 2	1
HOST 01 0 03 01 1 DIN	DIN 1	2
HOST 01 0 03 06 1 DIN	DIN 3	2
	TRC	ALTTRC

NOTE: Assume the three LENS in KSETFEAT belong to GRP6 customer group and this group is **PUBLIC**.

TRAVER 10

TRAVER L 2505555 2454023 B
TABLE KSETLINE
HOST 01 0 03 02 1 DN Y 2505555 TRAFFIC 0 0 214 (PRK) (RAG) $
TABLE NCOS
TRAFFIC 0 0 0 TRAF $
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,AND DIGCOL
TRAFFIC NXLA TRAF NXLA 0 DIG1
TABLE DIGCOL
DIG1 2 RPT
TABLE IBNXLA: XLANAME TRAF
TRAF 245 EXTN N N 214 245 7 $
TABLE TOFCNAME ⌐ intragrp
214 245
TABLE DNINV
214 245 4023 L HOST 01 0 02 02

+++ TRAVER: SUCCESSFUL CALL TRACE +++

| Pass or fail | If pass, what | If fail, what |
| TRC screening? | allowed it? | happened to call? |

fail _____ _____ _____

Table KSETFEAT

FEATKEY		KVAR	
HOST 01 0 02 02 1 DIN	DIN	2	1
HOST 01 0 03 01 1 DIN	DIN	0	2
HOST 01 0 03 06 1 DIN	DIN	3	2
		TRC	ALTTRC

NOTE: Assume the three LENS in KSETFEAT belong to GRP6 customer group and this group is **PUBLIC.**

Practice 4 Feedback

TRAVER 8 – pass; TRC match

TRAVER 9 – pass; TRCs do not match; INTRAGROUP=Y and group 6 is PUBLIC; therefore, the call passes

TRAVER 10 – fail; TRCs do not match; ALTTRCs do not match; INTRAGROUP=N, BLDN

Abbreviations

CDR	Call Detail Recording
CLLI	Common Language Location Identification
CLLIMTCE	Common Language Location Identification Maintenance
DD	Delay Dial
DOD	Direct Outward Dial
DTC	Digital Trunk Controller
FDN	FX Toll Denied
FDV	FX Toll Diverted
GNCT	Generalized No Circuit Treatment
IBN	Integrated Business Network
IC	Incoming
IM	Immediate Start
LIDL	Least Idle
LSC	Line Screening Code
MIDL	Most Idle
NCOT	No Test Circuit Class
NCRT	No Circuit Class
OG	Outgoing
OM	Operational Measurement
PEC	Product Engineering Code
PM	Peripheral Module
SMDR	Station Message Detail Recording
TAC	Trunk Group Access Control
TRKGRP	Trunk Group
TRKSGRP	Trunk Subgroup
TRKMEM	Trunk Member
WK	Wink Start
2W	Two-way

Notes:

Lesson 2

Conditional routing and network speed calling

Why this lesson is important

Methods of conditional routing allow cost-effective use of facilities available by allowing or denying route choices based on the conditions met or the time of day. The routes can also be varied based on the day of the week or the day of the year, to account for weekends and holidays. These routes can also vary because of call characteristics such as percentage of calls directed to a trunk or if the call came from a satellite trunk.

Network Speed Calling involves the subscriber's dialing a conveniently abbreviated code which represents a standard directory number. These called directory numbers may be located within a customer's private network or in a connecting private or public network.

Network Speed Calling allows a Meridian SL-100 which is normally restricted from making specific types of network calls to place such calls if the destination is a company-approved number. This number(s) must be defined in a speed call list, contained in a data control table (REPLCODE).

This lesson presents those tables needed to enable conditional routing and network speed calling.

Objective

Upon completion of this module, you can:

- describe the function of supporting tables for the following features:
  - time of day routing,
  - time of day NCOS, and
  - network speed call; then
- datafill the tables necessary for supporting the above features; and
- correct any errors found in the above datafills.

What to do

1. Read Lesson 2: Conditional routing and network speed calling.
2. Obtain NTPs *555-4031-851* and *555-4031-350* and read about the tables presented in this lesson.
3. Work through the lesson including all practices. You may practice as many times as you like.
4. There is no skill check for this lesson; your correctly completed practices serves as your skill check.
5. Have a course manager check this lesson, and go to the next lesson.

What resources to use

Resources	Resource number
Commercial Systems Customer Data Schema	NTP 555-4031-851
Commercial Systems Translations Guide	NTP 555-4031-350

Special types of routing

Introduction

The Time-of-Day Routing System can make your use of trunks more cost effective, for example, with certain WATS trunk groups which become more expensive at certain times of the day. By using Time-of-Day, you can prevent the use of this (and others) type of trunk group(s) as a route choice or place it last in the list of route elements during expensive hours. With conditional routing, you can prevent a call's being sent out on a satellite trunk if it has already been on one. Also, you can make better use of trunks, through conditional routing, directing calls to certain trunks when a percent traffic threshold is met. There are two Time of Day Software Feature Packages which are available for the Meridian SL-100 — both are described in this module.

Before we get into these features, we describe the topic of conditional routing, since it is related to both Time-of-Day Routing Feature Packages.

Conditional routing

Conditional routing allows you the flexibility of directing translations through a number of options, such as:

- ST - tuple number   string to another route list within the same table

- SK - skip number   skip a number of elements in the same route list

- T - table name   transfer a call to a route list in a separate table, depending on whether or not that call meets specific conditions

You can also change class of service based on Time-of-Day.

The selector you use for conditional routing in Table IBNRTE is "CND," which is entered under the IBNRTSEL field. By entering this selector under the IBNRTSEL field, you set up several conditions that can be applied to a call:

- Always

- Call Characteristic

- Random

- Class of Service

- Time-of-Day Routing

Another condition discussed, Time-of-Day NCOS, is also time-relevant but **not** controlled by Table IBNRTE.

Conditional selectors

We look at each of these conditions above and their application in your translation system. We begin with the "always" selector.

Selector ALWAYS

This condition is always true, and the instruction following must be executed. One application of ALWAYS is when you need more than eight route elements in a list, to link two related route lists. The last element in your original route list contains the conditional selector, "ALWAYS." Here's a group of route elements in Table IBNRTE involving the linking of a route list:

Table IBNRTE

RTE	IBNRTSEL	OHQ	CBQ	EXP	MBG	CLLI
1	(S	N	N	N	N	FXTRK)

(this is the 1st route element of the tuple, RTE=1.)

IBNRTSEL	CONDSEL	RTETYPE	RTEREF
(CND	ALWAYS	ST	3 $)

(this is the last route element of the tuple, RTE=1.)

In this example, the last element of route list #1 sends any call which makes it through the end of the list to another tuple (#3) within the same table (ST) Table IBNRTE. Other RTETYPE entries **applicable to all five conditional selectors** include T (route to another table), and SK (skip a specified number of elements).

Selector CALL CHARACTERISTIC

This condition set up by the conditional selector, "CALLCHR," can be applied to calls with the characteristics of DIGDATA - required for digital trunk connections to an Electronic Tandem Network (AT&T's designation) and SAT - whether or not a satellite is involved in the connection. An example tuple for both Tables <u>IBNRTE</u> and <u>CALLCHR</u> appear below:

Table IBNRTE

IBNRTSEL	CONDSEL	CALLCHR	RTETYPE	TABNAME	INDEX
CND	CALLCHR	SAT	T	OFRT	30

Table CALLCHR

CHRNAME
SAT

If this call was previously connected over a satellite link, go to route index 30 in Table OFRT (which might route the call over land lines to avoid satellite "hopping"); otherwise, advance to the next route element.

Selector RANDOM

This condition is used to randomly distribute calls over trunk groups. Set up by the conditional selector, "RND," this method is a bit of a misnomer since you designate how you will distribute calls.

Let's say you want to distribute calls equally over two trunk groups. Here's one way to do it:

Table	IBNRTE							
RTE	IBNRTSEL		CONSEL					
1	CND		RND		50	ST	2	
	CND		ALWAYS			ST	3	$
2	S	N	N	N	N	TRUNK1		
	S	N	N	N	N	TRUNK2		$
3	S	N	N	N	N	TRUNK2		
	S	N	N	N	N	TRUNK1		$

Here's what happens: Of all the calls that route to route list #1 in Table IBNRTE, 50 percent are routed to route list #2; the rest route to list #3. TRUNK1 and TRUNK2 receive equal distribution of calls, because route list #2 attempts to use TRUNK1 first; if that fails, it tries TRUNK2. Route list #3 reverses the order of trunk attempts from that of route list #2.

Let's suppose now you have more than two trunk groups over which you wish to <u>evenly</u> distribute calls. Here's what you'd do:

Table IBNRTE

1	CND	RND	10	ST	2
	CND	RND	10	ST	3
	CND	RND	10	ST	4
	....				
	....				
	CND	ALWAYS ST 6			

In this example, route list #2 (1st RND) would get 10 percent of the calls, route list #3 (2nd RND) would get 10 percent, route list #4 (3rd RND) would get 10 percent, and so on. In reality, route list #3 gets 9 percent of the calls (10 percent of 90 percent) and so on. The last route element picks up the remaining trunks, because you can never reach 100 percent.

Class of Service

The call can be routed based on its passing a class of service screening "examination" in Tables COSMAP and COSDATA. These tables are indexed when the conditional selector, "COSMAP," is entered in Table IBNRTE. Those NCOSs assigned against the COSMAP name pass screening and follow the directions of the RTETYPE field in Table IBNRTE. Those NCOSs failing screening advance to the next route element in the route list. Here's an example tuple for the Class of Service conditional route:

Table IBNRTE

(Is your NCOS assigned (in COSDATA) against this COSMAP name?)

RTE	IBNRTSEL	CONDSEL	COSMAP	RTETYPE	SKIPNUM
4	CND	COSMAP	MAP1	SK	5

If a call passes NCOS screening in Tables COSMAP and COSDATA, it is instructed by the "SK" entry to skip the next five route elements in route list #4. To fully understand Conditional Routing based on Class of Service (**NOT Time-of-Day**), you need to examine the relationship between two tables which are used extensively in Conditional Routing, Network Speed Calling (NSC) and Electronic Switched Network (ESN). These tables are COSMAP and COSDATA.

- **Table COSMAP.** The Network Class of Service Mapping table defines the screening characteristics applying to the corresponding COSDATA table.

Table COSMAP

~~NAME~~ →	MAX	SCREEN	VALTYPE
MAP1	255	ALLOW	ANYTHING

Cannot find this map? *Disallow* */same / Constant*

Let's review each field above. The mapping name comes from Table IBNRTE because the CONDSEL = COSMAP. The MAX field indicates the maximum number of entries allowed in COSDATA. Since the highest allowable NCOS value is 256 (0-255), we could put 256 entries against this COSMAP name in Table COSDATA. The next two fields, SCREEN and VALTYPE, work together to determine how COSDATA is referenced. In our example, ALLOW ANYTHING means if your NCOS is found in COSDATA, to allow this conditional selector to pass; therefore, SK, ST or T take effect in Table IBNRTE. Before discussing other examples, let's look at Table COSDATA.

- **Table COSDATA.** The Network Class of Service Data table is used extensively in many features of the Meridian SL-100. For our purpose of Conditional Routing based on Class of Service, we are only concerned with the key field. The second field (RESULT) is used later for Time-of-Day NCOS, ESN, and NSC.

Table COSDATA

COSMAP	COS	RESULT
MAP1	0	0

The key field is made up of COSMAP and COS, where COSMAP is referenced from IBNRTE and COS is the original NCOS (assigned in SERVORD) of the user. Remember CND, based on Class of Service, allows us to restrict users based on their NCOS. The original question we asked in Table IBNRTE was: "Is your NCOS assigned against this name in COSDATA?" Let's look at all the tuples involved using Figure 2-1. Assume NCOS 0 made a call and was routed to tuple # 4 in Table IBNRTE.

Figure 2-1
Tables associated with class of service routing


```
Table IBNRTE

RTE   IBNRTSEL   CONDSEL   COSMAP   RTETYPE   SKIPNUM
4     CND        COSMAP    MAP1     SK        5

Table COSMAP

NAME    MAX    SCREEN    VALTYPE
MAP1    256    ALLOW     ANYTHING

Table COSDATA

COSMAP   COS   RESULT
MAP1     0     0

        IF NCOS IS FOUND ...THEN SKIP !
```

221069
071489
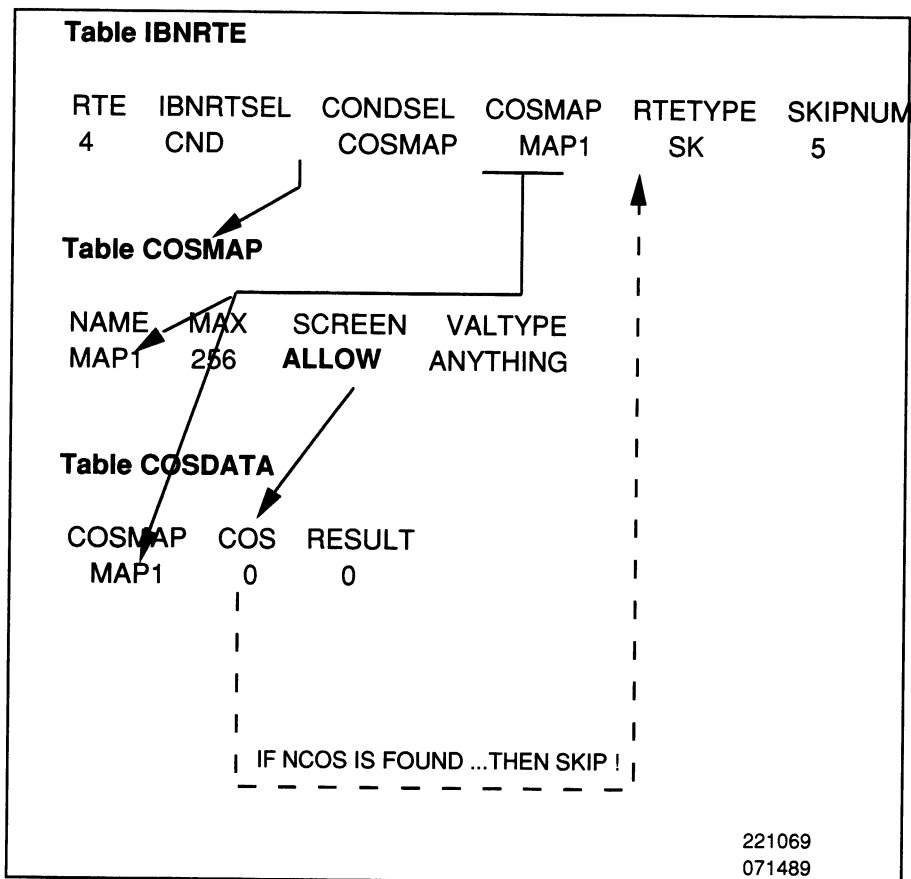
In Figure 2-2, COSMAP instructs the system to allow (RTETYPE in Table IBNRTE is true) skipping five routes if the NCOS is found in Table COSDATA (the RESULT field is never referenced). What would happen if the NCOS was 1? The system is to allow the skipping of five routes if, and only if, the NCOS is found in Table COSDATA. Since it isn't, then this would route advance to the next route element in the route list and NOT skip five elements. Figure 2-2 shows another way of setting up the tables.

Figure 2-2
Tables associated with class of service routing


```
Table IBNRTE

RTE    IBNRTSEL    CONDSEL    COSMAP    RTETYPE    SKIPNUM
14      CND         COSMAP     MAP2       SK         3  ...


Table COSMAP

NAME      MAX      SCREEN      VALTYPE
MAP2      256      DISALLOW    ANYTHING


Table COSDATA

COSMAP    COS    RESULT
MAP2       0      0



         IF NCOS IS FOUND ...DO NOT SKIP


                                221068
                                071489
```
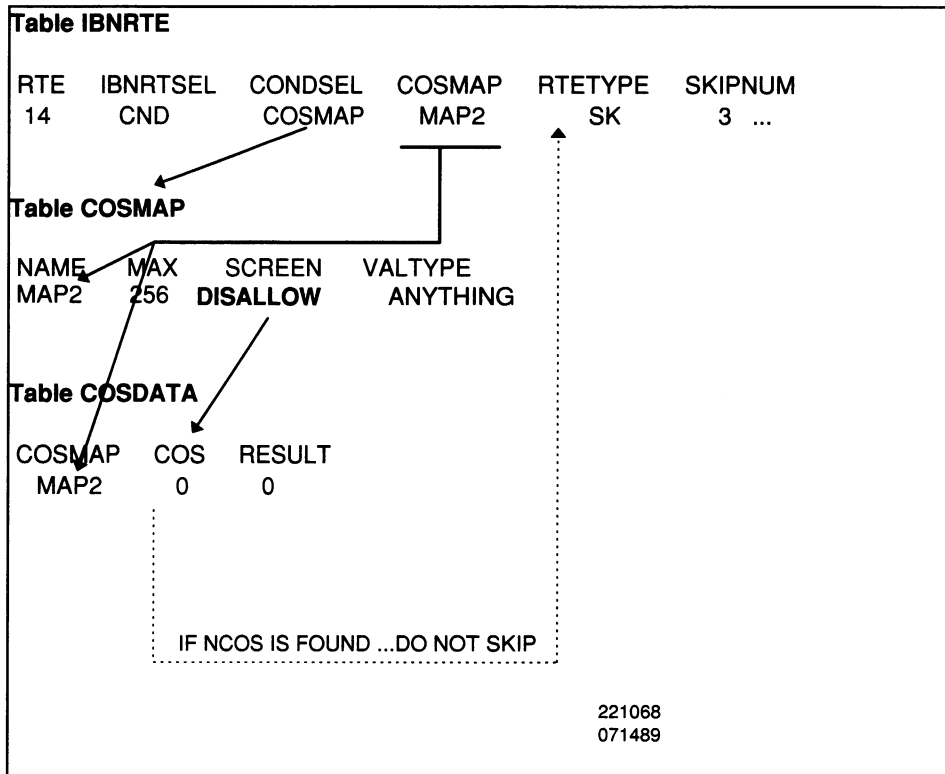
In this example, DISALLOW instructs the system NOT to skip elements if the NCOS is found. Thus, it is just the opposite of ALLOW. In our example above, NCOS 0 being in COSDATA tells the system not to skip 3. What would happen if the NCOS was 1? It would skip three elements because the system would skip elements if, and only if, the NCOS is not found in COSDATA and NCOS 1 isn't there. Here is how you can determine if the RTETYPE in Table IBNRTE is true or false.

If COSMAP is **ALLOW** and your NCOS is in COSDATA, then the RTETYPE in IBNRTE is **true,** therefore, the system skips or string, and so forth. If COSMAP is **ALLOW** and your NCOS is not in COSDATA, then the RTETYPE in IBNRTE is **false**; therefore, the system advances to the next route element and does not skip or string, and so on.

If COSMAP is **DISALLOW** and your NCOS is in COSDATA, then the RTETYPE in IBNRTE is **false** and the system does **not** skip or string, and so forth. If COSMAP is **DISALLOW** and your NCOS is **not** in COSDATA, then the RTETYPE in IBNRTE is **true** and the system skips or ~ strings, and so forth.

REMINDER:

ALLOW   =   If found do it; If not found, don't do it.
DISALLOW   =   If found, don't do it; If not found, do it.

Use the following truth table to help you remember the logic.

A=Allow

D=Disallow

T=True   *Found NCOS*

F=False   *NCOS Not Found*

AT=T	AF=F
DT=F	DF=T

Allow or disallow was NCOS present.

Using these three tables (IBNRTE, COSMAP and COSDATA), you can allow certain restrictions (or privileges) for your NCOS users when routing out on a network. Let's look at a few TRAVERS. COSMAP TRAVER 1 shows a call **not** subjected to Conditional Routing. Notice there is **not** a CND selector in Table IBNRTE; therefore, this user could use all four trunks, as shown on the bottom of the TRAVER.

TRAVER 1

```
TRAVER L 2454024 99262114 B
TABLE KSETLINE
HOST 01 0 03 01 1 DN Y 2454024 DALIBN 0 1 214 $
TABLE NCOS
DALIBN 1 0 0 NCOS_1 ( XLAS PTN1 NXLA NDGT)   ( AVP 1)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N Y N  1 N NDGT N Y DOD N 4 NONE
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
4 IBN NONE NT NSCR 0 214 SPN2 LAS1 AMRX N 0 NIL NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN2 ( 1)
 SUBTABLE STDPRT
 9 9 N NP 0 NA
TABLE HNPACONT
214 20 0 ( 8) ( 1) ( 0)
 SUBTABLE HNPACODE
 926 926 LRTE 1
  SUBTABLE RTEREF
        1 T IBNRTE 100
        TABLE IBNRTE
          100 S N N N N FX1
             S N N N N WATS1
             S N N N N MCI1
             S N N N N DOD1
        EXIT TABLE IBNRTE
   EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
214 LAS1 ( 3) MAND N
SUBTABLE LCASCR
 926 926
```

TABLE PFXTREAT
MAND NP Y NP UNDT

+++ TRAVER: SUCCESSFUL CALL TRACE +++   TREATMENT ROUTES.TREATMENT IS: GNCT
                                                  1 ANNMEM1
                                                  2 IDLE

DIGIT TRANSLATION ROUTES
1 FX1   9262114ST
2 WATS1   .   9262114ST
3 MCI1   9262114ST
4 DOD1   9262114ST

Now, let's start looking at some TRAVERS subjected to Conditional Routing based upon NCOS. On the following TRAVERs, we've inserted Tables COSMAP and COSDATA because they are not part of the TRAVER display, but are extremely necessary in determining the final routing elements. (Be sure to use the "B" selector with TRAVER to get the Translation Routes at the bottom of TRAVER.)

TRAVER 2

In TRAVER 2, NCOS 0 is found in COSDATA against the MAP1 name datafilled in Table IBNRTE; therefore, the system skipped 1 element, which was DOD1.

```
TRAVER L 2454004 99262114 B
TABLE KSETLINE
HOST 01 0 03 07 1 DN Y 2454004 DALIBN 0 0 214 $
TABLE NCOS
DALIBN 0 0 0 NCOS_1 (XLAS, PTN2 NXLA NDGT) ( AVP 0 ) $
TABLE CUSTHEAD: CUSTGROUP, PRELIMXLA, CUSTXLA, FEATXLA, VACRMT, AND DIGCOL
DALIBN NXLA CTN1 FTN1 P DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE   IBNXLA: XLANAME PTN2
PTN2 9 NET N N N 1 N NDGT N N DOD Y 2 NONE
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
2 IBN NONE NT CSS1 0 214 SPN1 LAS1 AMRX N 0 NIL NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN2 (1)
. SUBTABLE STDPRT
. 9 9 N NP 0 NA
TABLE HNPACONT
214 20 0 (8) (1) (0)
. SUBTABLE HNPACODE
. 926 926 LRTE 1
. SUBTABLE RTEREF
.     1 T IBNRTE
.       TABLE IBNRTE
. .     100 S N N N N FX1
. .         S N N N N WATS 1
. .         S N N N N MCI 1
. .         CND COSMAP  MAP1  SK 1
. .         S N N N N DOD 1
.       EXIT TABLE IBNRTE
    EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
214 LAS1 (3) MAND N
. SUBTABLE LCASCR
. 926 926
TABLE PFXTREAT
MAND NP Y NP UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 FX1      9262114
2 WATS1  / 9262114
3 MCL1   / 9262114
4 DOD1     9262114


TREATMENT ROUTES. TREATMENT IS: GNCT
1 ANNMEN1
2 IDLE
+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

TABLE: COSMAP

NAME	MAX	SCREEN	VALTYPE
NIL	0	DISALLOW	SAME
MAP1	10	ALLOW	ANYTHING

If found= **TRUE**
If not found= **FALSE**

TABLE: COSDATA

COSMAP	COS	RESULT
MAP1	0	0

Answer was TRUE, therefore, DOD1 was skipped.

502072
071489

TRAVER 3

In TRAVER 3, NCOS 1 is not found in COSDATA against the MAP1 name datafilled in Table IBNRTE; therefore, the system does not skip DOD.

```
TRAVER L 2454024 99262114 B
TABLE KSETLINE
HOST 01 0 03 01 1 DN Y 2454024 DALIBN 0 1 214 $
TABLE NCOS
DALIBN 1 0 0 NCOS_1 (XLAS, PTN1 NXLA NDGT) ( AVP 1 ) $
TABLE CUSTHEAD: CUSTGROUP, PRELIMXLA, CUSTXLA, FEATXLA, VACRMT, AND DIGCOL
DALIBN NXLA CTN1 FTN1 P DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N Y N 1 N NDGT N Y DOD N 4
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
4 IBN NONE NT NSCR 0 214 SPN2 LAS1 AMRX N 0 NIL NILLATA 0 NIL
TABLE STDPRTCT
SPN2 (1)
 . SUBTABLE STDPRT
 . 9 9 N NP 0 NA
TABLE HNPACONT
214 20 0 (8) (1) (0)
 . SUBTABLE HNPACODE
 . 926 926 LRTE 1
 . SUBTABLE RTEREF
 .      1 T IBNRTE 100
 .      TABLE IBNRTE
 . .    100 S N N N N FX1
 . .        S N N N N WATS
 . .        S N N N N MCI
 . .        CND COSMAP  MAP1  SK 1
 . .        S N N N N
 .      EXIT TABLE IBNRTE
    EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
214 LAS1 (3) MAND N
 . SUBTABLE LCASCR
 . 926 926
TABLE PFXTREAT
MAND NP Y NP UNDT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 FX1       9262114    ST
2 WATS1     9262114    ST
3 MCL1      9262114    ST
4 DOD1      9262114    ST

TREATMENT ROUTES. TREATMENT IS: GNCT
1 ANNMEN1
2 IDLE

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

TABLE: COSMAP

NAME	MAX	SCREEN	VALTYPE
NIL	0	DISALLOW	SAME
MAP1	10	ALLOW	ANYTHING

If found= **TRUE**
If not found= **FALSE**

TABLE: COSDATA

COSMAP	COS	RESULT
MAP1	0	0

'1' . . . not found

Answer was FALSE, therefore, DOD1 was not skipped.

NCOS Does Not match.

502070
071489

The final conditional selector to talk about is Time-of-Day (TOD). There are two time of day features: TOD Routing and TOD NCOS. Both of these are based upon the day of week and time within the day. Since these are two separate features dealing with the condition of time, we are going to explain them separately. We describe TOD routing in the next section following Practice 1.

Practice 1: TRAVER analysis

Instructions:

Read and analyze the following TRAVERs. Answer the questions in the spaces provided; if you need additional information, refer to NTPs *555-4031-851* or *555-4031-350*.

TRAVER 4

TRAVER L 2454004 99262114 B
TABLE KSETLINE
HOST 01 0 03 07 1 DN Y 2454004 DALIBN 0 0 214 $
TABLE NCOS
DALIBN 0 0 0 NCOS_0 (XLAS PTN2 NXLA NDGT)   (AVP 0)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN2
PTN2 9 NET N N N 1 N NDGT N N DOD Y 2 NONE
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
2 IBN NONE NT CSS1 0 214 SPN1 LAS1 AMRX N 0 NIL NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN1 (1)

SUBTABLE STDPRT			
9 9 N NP 0 NA			

Table COSMAP

NAME	MAX	SCREEN	VALTYPE
NIL	0	DISALLOW	SAME
MAP1	10	ALLOW	ANYTHING
MAP2	5	ALLOW	ANYTHING

TABLE HNPACONT
214 20 0 (8) (1) (0)
. SUBTABLE HNPACODE
. 926 926 LRTE 1
. SUBTABLE RTEREF

Table COSDATA

COSMAP	COS	RESULT
MAP1	0	0
MAP2	2	2

```
.          1 T IBNRTE 100
.          TABLE IBNRTE
.          100 CND COSMAP MAP2 SK 4
.          .     S N N N N FX1
.                S N N N N WATS1
.                S N N N N MCI1
.                CND COSMAP MAP1  SK 1
.                S N N N N DOD1
.          . EXIT TABLE IBNRTE
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
```

Since NCOS∅ is assigned against MAP1, (not MAP2) which TRKGRP(s) get(s) skipped? _DOD1_

TABLE LCASRCN
214 LAS1 (3) MAND N
. SUBTABLE LCASCR
. 926 926
TABLE PFXTREAT
MAND NP Y NP UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES
1 FX1   9262114 ST
2 WATS1   9262114 ST
3 MCI1   9262114 ST

TREATMENT ROUTES.   TREATMENT IS: GNCT
1 ANNMEM1
2 IDLE

TRAVER 5

TRAVER L 2454024 99262114 B
TABLE KSETLINE
HOST 01 0 03 01 1 DN Y 2454024 DALIBN 0 1 214 $
TABLE NCOS
DALIBN 1 0 0 NCOS_1 (XLAS PTN1 NXLA NDGT)   (AVP 1)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N Y N 1 N NDGT N Y DOD N 4 NONE
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
4 IBN NONE NT NSCR 0 214 SPN2 LAS1 AMRX N 0 NIL NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN2 (1)

. SUBTABLE STDPRT
. 9 9 N NP 0 NA
TABLE HNPACONT
214 20 0 (8) (1) (0)
. SUBTABLE HNPACODE
. 926 926 LRTE 1
. SUBTABLE RTEREF
.   1 T IBNRTE 100
. . TABLE IBNRTE
. . 100 CND COSMAP MAP2 SK 4
..   S N N N N FX1
..   S N N N N WATS1
..   S N N N N MCI1
..   CND COSMAP **MAP1**   SK 1
..   S N N N N DOD1
. EXIT TABLE IBNRTE
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
214 LAS1 (3) MAND N
. SUBTABLE LCASCR
. 926 926
TABLE PFXTREAT
MAND NP Y NP UNDT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

Table COSMAP

NAME	MAX	SCREEN	VALTYPE
NIL	0	DISALLOW	SAME
MAP1	10	ALLOW	ANYTHING
MAP2	5	ALLOW	ANYTHING

Table COSDATA

COSMAP	COS	RESULT
MAP1	0	0
MAP2	2	2

A F
A F

**What are the final trunk routes
that could be used by this NCOS?**

Fx 1

Wats1

MCI 1

DOD1

TRAVER 6

TRAVER L 2454005 99262114 B
TABLE KSETLINE
HOST 01 0 03 05 1 DN Y 2454005 DALIBN 0 2 214 $
TABLE NCOS
DALIBN 2 0 0 NCOS2 (XLAS PTN2 NXLA NDGT)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN2
PTN2 9 NET N N   N 1 N NDGT N N DOD Y 2 NONE
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
2 IBN NONE NT CSS1 0 214 SPN1 LAS1 AMRX N 0 NIL NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN1 (1)

SUBTABLE STDPRT	Table COSMAP			
9 9 N NP 0 NA	NAME	MAX	SCREEN	VALTYPE
TABLE HNPACONT	NIL	0	DISALLOW	SAME
214 20 0 (8) (1) (0)	MAP1	10	ALLOW	ANYTHING
SUBTABLE HNPACODE	MAP2	5	ALLOW	ANYTHING
926 926 LRTE 1				

SUBTABLE RTEREF

Table COSDATA $A\Gamma$

1 T IBNRTE 100	COSMAP	COS	RESULT
TABLE IBNRTE	MAP1	0	0
100 CND COSMAP MAP2 SK 4	MAP2	2 ·	2

   S N N N N FX1
   S N N N N WATS1
   S N N N N MCI1
   CND COSMAP **MAP1**   SK 1
   S N N N N DOD1

**What are the final trunk routes
that could be used by this NCOS?**

EXIT TABLE IBNRTE
EXIT TABLE RTEREF

DoD1 _____

EXIT TABLE HNPACONT
TABLE LCASCRCN
214 LAS1 (3) MAND N
 SUBTABLE LCASCR
 926 926

_____

TABLE PFXTREAT
MAND NP Y NP UNDT
TABLE CLSVSCRC
KEY NOT FOUND

_____

DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
+++ TRAVER: SUCCESSFUL CALL TRACE +++

_____

TRAVER 7

TRAVER L 2454004 99262114 B
TABLE KSETLINE
HOST 01 0 03 07 1 DN Y 2454004 DALIBN 0 0 214 $
TABLE NCOS
DALIBN 0 0 0 NCOS_0 (XLAS PTN2 NXLA NDGT)   (AVP 0)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN2
PTN2 9 NET N N   N   1 N NDGT N N DOD Y 2 NONE
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
2 IBN NONE NT CSS1 0 214 SPN1 LAS1 AMRX N 0 NIL NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN1 (1)

SUBTABLE STDPRT			
9 9 N NP 0 NA			

Table COSMAP

NAME	MAX	SCREEN	VALTYPE
NIL	0	DISALLOW	ANYTHING
MAP1	10	ALLOW	ANYTHING
MAP2	5	ALLOW	ANYTHING
MAP3	5	DISALLOW	ANYTHING

TABLE HNPACONT
214 20 0 (8) (1) (0)
  SUBTABLE HNPACODE
  926 926 LRTE 1
  SUBTABLE RTEREF
    1 T IBNRTE 100

Table COSDATA

COSMAP	COS	RESULT
MAP1	0	0
MAP2	2	2
MAP3	1	1

    TABLE IBNRTE
      100 CND COSMAP MAP2 SK 2
        S N N N N FX1
        S N N N N WATS1
        S N N N N MCI1
        CND COSMAP **MAP3**   SK 1
        S N N N N DOD1
      EXIT TABLE IBNRTE

*** NOTE ***

    EXIT TABLE RTEREF

"ALLOW"	-> If found= TRUE
	-> If not found= FALSE

EXIT TABLE HNPACONT
TABLE LCASCRCN
214 LAS1 (3) MAND N

"DISALLOW"	-> If found= FALSE
	-> If not found= TRUE

  SUBTABLE LCASCR
  926 926
TABLE PFXTREAT
MAND NP Y NP UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED

+++ TRAVER: SUCCESSFUL CALL TRACE +++

What are the final routes that could be used by this NCOS?

FX1 _____

WATS1 _____

MCI1 _____

_____

AF
DF

TRAVER 8

TRAVER L 2454024 99262114 B
TABLE KSETLINE
HOST 01 0 03 01 1 DN Y 2454024 DALIBN 0 1 214 $
TABLE NCOS
DALIBN 1 0 0 NCOS_1 (XLAS PTN1 NXLA NDGT)   (AVP 1)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N Y N 1 N NDGT N Y DOD N 4 NONE
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
4 IBN NONE NT NSCR 0 214 SPN2 LAS1 AMRX N 0 NIL NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN2 (1)

. SUBTABLE STDPRT
. 9 9 N NP 0 NA
TABLE HNPACONT
214 20 0 (8) (1) (0)
  SUBTABLE HNPACODE
  926 926 LRTE 1
SUBTABLE RTEREF
  1 T IBNRTE 100
    TABLE IBNRTE
      100 CND COSMAP MAP2 SK 2
      S N N N N FX1
      S N N N N WATS1
      S N N N N MCI1
      CND COSMAP **MAP3** SK 1
      S N N N N DOD1
    EXIT TABLE IBNRTE
  EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
214 LAS1 (3) MAND N
. SUBTABLE LCASCR
. 926 926
TABLE PFXTREAT
MAND NP Y NP UNDT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

Table COSMAP

NAME	MAX	SCREEN	VALTYPE
NIL	0	DISALLOW	ANYTHING
MAP1	10	ALLOW	ANYTHING
MAP2	5	ALLOW	ANYTHING
MAP3	5	DISALLOW	ANYTHING

Table COSDATA

COSMAP	COS	RESULT
MAP1	0	0
MAP2	2	2
MAP3	1	1

A F
DT = False

**What are the final trunk routes
that could be used by this NCOS?**

FX1

WATS1

MCI1

DOD1

TRAVER 9

TRAVER L 2454005 99262114 B
TABLE KSETLINE
HOST 01 0 03 05 1 DN Y 2454005 DALIBN 0 2 214 $
TABLE NCOS
DALIBN 2 0 0 NCOS_2 (XLAS PTN2 NXLA NDGT)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN2
PTN2 9 NET N N   N 1 N NDGT N N DOD Y 2 NONE
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
2 IBN NONE NT CSS1 0 214 SPN1 LAS1 AMRX N 0 NIL NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN1 (1)
  SUBTABLE STDPRT
  9 9 N NP 0 NA
TABLE HNPACONT
214 21 0 (8) (1) (0)
  SUBTABLE HNPACODE
  926 926 LRTE 1
  SUBTABLE RTEREF
    1 T IBNRTE 100
    TABLE IBNRTE
        100 CND COSMAP MAP2 SK 2
        ,S N N-N N N FX1
        S N N N N WATS1
        S N N N N MCI1
        CND COSMAP MAP3 SK 1
        S N N N N DOD1
    EXIT TABLE IBNRTE
  EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
214 LAS1 (3) MAND N
. SUBTABLE LCASCR
. 926 926
TABLE PFXTREAT
MAND NP Y NP UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
+++ TRAVER: SUCCESSFUL CALL TRACE +++

Table COSMAP

NAME	MAX	SCREEN	VALTYPE
NIL	0	DISALLOW	ANYTHING
MAP1	10	ALLOW	ANYTHING
MAP2	5	ALLOW	ANYTHING
MAP3	5	DISALLOW	ANYTHING

Table COSDATA

COSMAP	COS	RESULT
MAP1	0	0
MAP2	2	2
MAP3	1	1

AT = True
DF = True

**What are the final trunk routes
that could be used by this NCOS?**

MCI 1

_____

_____

_____

_____

Practice 1 Feedback

TRAVER 4 – DOD1

TRAVER 5 – FX1, WATS1, MCI1, DOD1

TRAVER 6 – DOD1

TRAVER 7 – FX1, WATS1, MCI1

TRAVER 8 – FX1, WATS1, MCI1, DOD1

TRAVER 9 – MCI1

Time-of-day routing

This feature allows or denies route choices based upon the Time-of-Day (TOD) data tables. For the TOD System to work, there are numerous tables required to be datafilled. Before getting into these tables, let's briefly describe how TOD routing works.

The TOD Routing System is a three-part screening system. A day runs from 00:00 through 23:59. For a given call, TOD looks at the type of day (for example, WEEKDAY, WEEKEND, HOLIDAY), the hour of day (0-23), and the minute of the hour (0-59). If, for this call, the Meridian SL-100 finds a type of day, hour, and minute are defined in the TOD System, it will changeover to the routing scheme designated by the TOD System.

Figure 2-3
Time-of-day routing

TOD System   Meridian SL-100
        TIME   Routing table w/TOD defined.
WEEKDAY   8am0 = 0

WEEKDAY 18   0 = 1

WEEKDAY 23   0 = 2

                      Changeover routing instructions in
                      Table IBNRTE (SK, ST, or T)
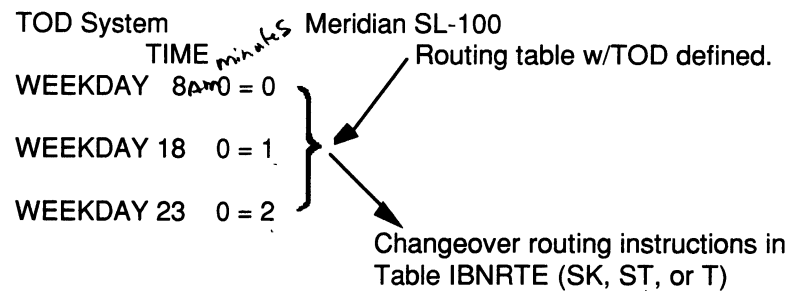
502071
071589

As depicted in Figure 2-3, the first part of TOD routing involves the Meridian SL-100's knowing its system time and looking into the TOD system to see if a changeover is to occur. If a changeover is to occur, the routing tables' (for example, IBNRTE) route choices are selected in a different pattern depending on what route time (0-9, or A-F) has been activated. Route times in Figure 2-3 are 0, for weekday calls after 8:00 AM;1, for weekday calls after 6:00 PM (18 0); and 2, for weekday calls after eleven p.m. (23 0). Route choices may be skipped, or may index to an entirely new tuple or table.

We define, to the TOD System, the days of the week and which type of day each day is.

Example:

Day		Type of Day
MON	=	WEEKDAY
TUE	=	WEEKDAY
WED	=	WEEKDAY
SAT	=	WEEKEND

The Meridian SL-100 can now match its system date to a particular type of day. This type of day (for example, WEEKDAY), is screened for calls to see at what time (system time = 24 hour clock) a possible "changeover" in routing should take place.

The changeovers are defined by tagging the routing table, such as IBNRTE, with a changeover range which is customer-definable. This time range is one of 16 different characters, numbered 0-9, and A-F (as shown in Figure 2-3.)

Data tables

The data tables controlling the TOD System are presented **in order of datafill**. Before datafilling the routing table or the table controlling changeovers, you must first define to the TOD System what your days are and perhaps special days; therefore, the first table we look at is DAYTYPES.

Table DAYTYPES

This table is used to define the names of all the DAYTYPES used in TOD routing. Just as a trunk group must be first added to Table CLLI before it is entered in other trunk tables, a DAYTYPE must be entered here (that is, given a "birth certificate") before it can be used in any of the TOD tables. The range of values for this field is up to eight characters. Typical entries would be WEEKEND, WEEKDAY, HOLIDAY, or any other day or set of days which is to be treated in a different manner by the Telco for route costs. Here's an example tuple:

Table DAYTYPES
DAYTYPE
WEEKDAY
WEEKEND
HOLIDAY

Table TODHEAD

This is the "head" table for the time-of-day system. It is used to define how the next three tables are used. Let's look at some example tuples:

Table TODHEAD
DAYTYPES

TODNAME	TODTYPE	DAYTYPES1	DAYTYPES2	DAYTYPES3
CUST01	RTE	1	(WEEKDAY)	(WEEKEND)	(HOLIDAY)

The TODTYPE field contains the default range. The default range (RTE: 0-9, and A-F) is for any time the TOD System has not been defined. This default range should cover a 24 hour period, 365 days a year (refer to Figure 2-4). If we want routing to change at 8:00 AM every weekday to allow for all types of trunks, but at 5:00 PM, the routing changes to only FXs and WATs and then proceed to an announcement. Then, on Saturday and Sunday, the weekend routes should allow only DOD trunks. The weekend ends at 23:59 on Sunday night; however, there is no changeover defined for this period. What happens to the system? It defaults to RTE 1 routing on FXs and WATs because of this default in Table TODHEAD. Then at 8:00 AM a changeover would occur and allow access to "ALL TRUNKS" again. The time of day system is defined for the entire day, but if there isn't a changeover defined at midnight for any night, the system uses the default value (RTE 1, in our example).

Figure 2-4
Time of day routing time periods

changeover

Weekdays at 8:00 AM ⟶ RTE 0 = All trunks

Weekdays at 5:00 PM ⟶ RTE 1 = FXs and WATs

Weekends at midnight ⟶ RTE 2 = DOD
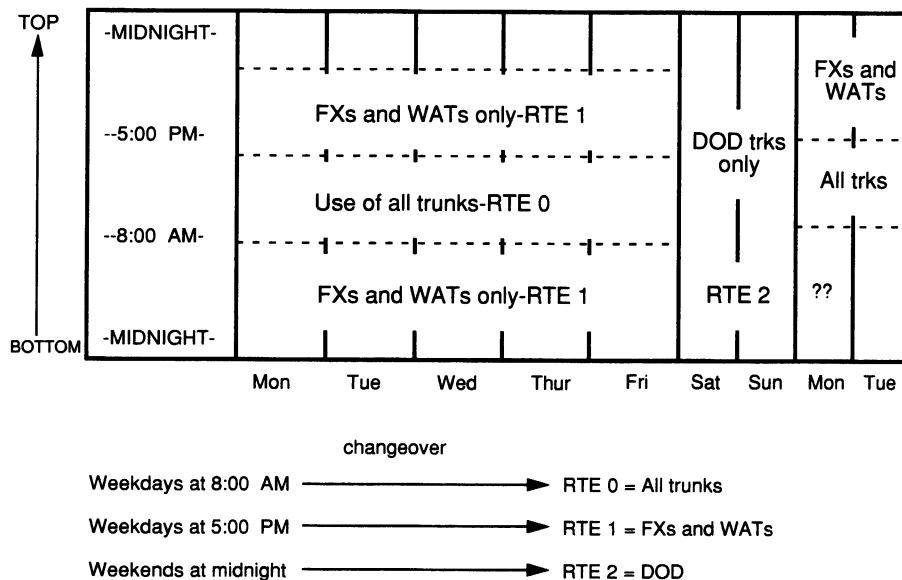
502047
061289

Table DAYOWEEK

This is the table used to define the Time-of-Day system to be used for each day of the week. The data in this table is used only if the DAYOYEAR table is **not** datafilled for the current day of the year. This makes it possible to put in standard results for each day of the week and set up special holidays in the DAYOYEAR table.

Table DAYOWEEK

TODNAME	WEEKDAY	DAYTYPE
CUST01	MON	WEEKDAY
CUST01	TUE	WEEKDAY
CUST01	WED	WEEKDAY
CUST01	THU	WEEKDAY
CUST01	FRI	WEEKDAY
CUST01	SAT	WEEKEND
CUST01	SUN	WEEKEND

This table, based on your specific entries, can really "fine tune" your Time-of-Day routing down to a daily basis. The next table, DAYOYEAR, further refines your time-of-day system.

Table DAYOYEAR

This is the table used to define the Time-of-Day system to be used for any special days of the year when you wish to override the day of the week. You may define the special days for any time.

Table DAYOYEAR

TODNAME	MONTH	DAY	DAYTYPE
CUST01	JAN	1	HOLIDAY
CUST01	JUL	4	HOLIDAY
CUST01	NOV	28	HOLIDAY
CUST01	DEC	25	HOLIDAY

Notice we are datafilling for the time-of-day system named CUST01. Remember, all DAYTYPEs to be used here must be entered, first, in Table DAYTYPES.

If a call comes in to Table IBNRTE and is not affected by the Time-of-Day Conditions, the normal routing search occurs. The Time-of-Day Tables require extreme care when datafilling; these tables are difficult to change after the initial input.

Table TIMEODAY

This table is indexed by the data in either DAYOYEAR (if datafilled for this day) or DAYOWEEK. It is used to subdivide the day into a possible time range(s) (0-9, and A-F). Here are example tuples:

Table TIMEODAY

TODNAME	DAYTYPE	TIME (HOUR	MINUTE)	DATA TODTYPE	TIME
CUST01	WEEKDAY	8	0	RTE	0
CUST01	WEEKDAY	1⧸	0	RTE	1
CUST01	WEEK~~DAY~~ END	~~23~~ 0	0	RTE	2

The times in this table indicate the starting hour and minute each DAYTYPE is applied to TOD routing.

Table IBNRTE

As you might recall, Table IBNRTE can be indexed from the route reference subtables particularly when a more flexible route selection is preferred. By the use of the conditional selector, CND, Table IBNRTE indicates a route is subject for "changeover" to TOD routing. Remember, this table is datafilled after the TOD tables are datafilled. Let's look at some example tuples:

TABLE IBNRTE

S	N	N	N	FX1	
S	N	N	N	WATS1	
CND	**TOD**	**CUST01**	**1**	**SK**	**1**
S	N	N	N	DOD1	

In the example tuples for Table IBNRTE, if the Meridian SL-100 time is equal to the time specified in the TOD tables and the time of day name is CUST01, then the next element in Table IBNRTE, DOD1, would be skipped (SK 1).

Refer to Table 2-1 on the following page for a summary of order of datafill requirements.

CND   TCD   Custo1   ᵇ⧸ Sk   1
CND   TCD   Custc1   2   Sk   3

Table 2-1
Time-of-day datafill order and description

DAYTYPES	Gives "birth certificate" to day names (for example, WEEKDAY, WEEKEND, and so forth).
TODHEAD	Gives "birth certificate" to TODname, specifies default mapping name, defines DAYTYPES used by this TODname.
DAYOWEEK	Assigns weekdays (Mon - Sun) to types of days (DAYTYPES) for your TODname.
DAYOYEAR	Assigns special days to types of days for your TODname.
TIMEODAY	Defines changeovers in routing.
IBNRTE	Sets up strategy for skipping routes or stringing tuples for each route list.

Use of table IBNRTE

As you can see, Time-of-Day Routing can get fairly involved. Those Meridian SL-100s which use Time-of-Day Routing most effectively include IBNRTE tables with extensive lists of routes and conditional selectors for Time-of-Day changeovers.

The conditional selector, CND, in Table IBNRTE allows you to specify a TODNAME and a time range. With this information, you must specify the desired results during this time period. The CND selector is input as a route choice directly <u>before</u> the route choice affected by the Time-of-Day changeover. The results vary based upon the condition of the change; the following reflects possible results and the selectors required for each result:

- **ST.** If a call is to be transferred to another route list index in the IBNRTE Table upon passing the condition, ST is specified with a route list index number. This index number **must always be higher than the index with the condition selector.**

- **SK.** If a call is to skip one or more elements in the route list upon passing the Time-of-Day Condition, SK is specified with the number of elements to be skipped.

- **T.** If a call is to be transferred to a route list index in the Office Route Table upon passing the Time-of-Day condition, selector T is specified with the table name and index (OFRT, AUTDATA, IBNRTE).

Now, for TRAVER analysis. Let's set the first scene:

- The time/date is 18:00:00 24/Dec/91 (Monday).

- The caller is in customer group, DALIBN, NCOS 1, with a DN = 245-4024.

- The number dialed = 9 + 1 + (713) 926-2114.

Look first at the TIMEODAY table contents in Table 2-2. You'll be looking for the RTE range (0-9, and A-F) that are active. Next, check to see if this RTE was defined in Table IBNRTE. Notice there are two elements with the CND-TOD selector — which one is active? (Remember RTE 1.) The first CND selector is ignored, because RTE 2 is inactive at the time of the call. The next three trunk groups are allowed for this subscriber's use. But, when routing to the second CND, translations knows RTE 1 is active; therefore, the call routes to tuple #9 in Table OFRT, where the call receives an announcement (ANNMEM1) and is then idled (IDLE). Notice, without looking in the TOD tables first, to determine which RTEs are active, you can be misled by the TRAVER's report.

The TRAVERS in Practice 2 are included to reinforce your knowledge of the TOD System.

Table 2-2
TOD Tables

① Decide time and Active RTE

Table DAYOWEEK			Table DAYOYEAR			
TODNAME	WEEKDAY		DAYTYPE	TODNAME	MONTH	DAY DAYTYPE
CUST01	MON		WEEKDAY	CUST01	DEC	25 HOLIDAY
CUST01	TUE		WEEKDAY	CUST01	JAN	01 HOLIDAY
CUST01	WED		WEEKDAY			
CUST01	THU		WEEKDAY			
CUST01	FRI ③		WEEKDAY		②	
CUST01	SAT ②		WEEKEND			
CUST01	SUN		WEEKEND			

Table TODHEAD		
TODNAME	TODTYPE	DAYTYPES
CUST01	RTE 3	(WEEKDAY)(WEEKEND)(HOLIDAY) $

⑤ Only go to TODHead if nothing is defined TOD

Table TIMEODAY				
TODNAME	DAYTYPE	TIME	DATA	
CUST01	WEEKDAY	8	0	RTE 0
CUST01	WEEKDAY	18	0	RTE 1
CUST01	WEEKDAY	23	0	RTE 2
CUST01	WEEKEND	0	0	RTE 4
CUST01	HOLIDAY	18	0	RTE 5

④

TRAVER 10

DATE Date is MON.   24/DEC/1991 18:00:00 (*i*)

TRAVER L 2454024 917139262114 B
TABLE KSETLINE
HOST 01 0 03 01 1 DN Y 2454024 DALIBN 0 1 214 $
TABLE NCOS
DALIBN 1 0 0 NCOS_1 (XLAS PTN1 NXLA NDGT) $
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N Y N 1 N NDGT N Y DOD N 4 NONE
TABLE DIGCOL
NDGT specified: digits collected individually,
TABLE LINEATTR
4 IBN NONE NT NSCR 0 214 SPN2 LAS1 AMRX   N   O NIL NILLATA O NIL NIL
TABLE STDPRTCT SPN2 (0)
  SUBTABLE STDPRT
  1 1 N DD 1 NA
TABLE HNPACONT
214 20   0 (1) (1) (0)
  SUBTABLE HNPACODE
  713 713 FRTE 1
  SUBTABLE RTEREF
        1 T IBNRTE 100
        TABLE IBNRTE
              100 CND TOD CUST01 2 SK 2
                    S N N N N TRKGRP1
                    S N N N N TRKGRP2
                    S N N N N TRKGRP3
                    CND TOD CUST01 1 T OFRT 9
                    TABLE OFRT
                          9 S D ANNMEM1
                             S D IDLE
        EXIT TABLE OFRT
                    S Y Y N N TRKDOD1
                    S Y Y N N TRKDOD2
                    CND ALWAYS ST 101
              TABLE IBNRTE
              101 S N Y N N TRKDOD3
                    S Y Y N N TRKDOD4
              EXIT TABLE IBNRTE
        EXIT TABLE IBNRTE
        EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
214 LAS1 (3) MAND N
    .   SUBTABLE LCASCR
    .   926 926
TABLE PFXTREAT
MAND NP Y NP UNDT
+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 TRKGRP1   7139262114
2 TRKGRP2   7139262114
3 TRKGRP3   7139262114
4 ANNMEM1
5 IDLE

Notes:

Practice 2: TRAVER analysis

Instructions:

Read and analyze the following TRAVERs. Answer the questions in the spaces provided; if you need additional information, refer to NTPs *555-4031-851* or *555-4031-350*.

TRAVER 11

DATE Date is TUES.   25/DEC/1990 17:01:00
TRAVER L 2454024   99262114 B
TABLE KSETLINE
HOST 01 0 03 01 1 DN Y 2454024 DALIBN 0 1 214 $
TABLE NCOS
DALIBN 1 0 0 NCS_1 (XLAS PTN1 NXLA NDGT) $
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,and DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE INBXLA: XLANAME PTN1
PTN1 9 NET N Y N 1 N NDGT N Y DOD N 4 NONE
TABLE LINEATTR
4 IBN NONE NT NSCR 0 214 SPN2 LAS1 AMRX N O NIL NILLATA O NIL NIL
TABLE STDPRTCT
SPN2 (0)
  SUBTABLE STDPRT
  9 9 N DD 0 NA
TABLE HNPACONT
214 20 0 (1) (1) (0)
  SUBTABLE HNPACODE
  926 926 LRTE 1
  SUBTABLE RTEREF
        1 T IBNRTE 100
        TABLE IBNRTE
          100 CND TOD CUST01 3 SK 2
              S N N N N IBNCLS5OG
              S N N N N IBNCL552W
              S Y Y N N TRK1
              S Y Y N NTRK2
            CND TOD CUST01 1 T OFRT 9
            TABLE OFRT
                9 S D ANNMEM1
                  S D IDLE
        .   . EXIT TABLE OFRT
            EXIT TABLE IBNRTE
  . EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRN
214 LAS 1 (3) MAND N
. SUBTABLE LCASCR
. 926 926
TABLE PFXTREAT
MAND NP Y NP UNDT

** TRAVER: SUCCESSFUL CALL TRACE ***

DIGIT TRANSLATION ROUTES
1 TRK1 9262114 ST
2 TRK2 9262114 ST

TREATMENT ROUTES.   TREATMENT IS: GNCT
1 ANNMEM1
2 IDLE

What routes are used?

TRK1

TRK2

_____

_____

TRAVER 12

Date is TUE.   **18DEC/1990 10:00:37**
TRAVER L 2454024 99262114
TABLE KSETLINE
HOST 01 0 03 01 1 DN Y 2454024 DALIBN 0 1 214 $
TABLE NCOS
DALIBN 1 0 0 NCOS_1 (XLAS PTN1 NXLA NDGT) (AVP 1) $
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,and DIGCOL
DALIBN NXLA CTN1 FET1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N Y N 1 N NDGT N Y DOD N 4 NONE
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
4 IBN NONE NT NSCR 0 214 SPN2 LAS1 AMRX N O NIL NILLATA O NIL NIL
TABLE STDPRTCT
SPN2 (1)
  SUBTABLE STDPRT
  9 9 N NP 0 NA
TABLE HNPACONT
214 20 0 (8) (1) (0)
  SUBTABLE HNPACODE
  926 926 LRTE 1
  SUBTABLE RTEREF
      1 T IBNRTE 100
       TABLE IBNRTE
      . 100 CND TOD CUST01 2 SK 2
          S N N N N FX1
          S N N N N WATS1
          S Y Y N N MCI1
          CND TOD CUST01 1 T OFRT 9
        TABLE OFRT
          9 S D A N N MEM1
          8 D IDLE
      EXIT TABLE OFRT
          S N N N N DOD1
          S N N N N DOD2
          CND ALWAYS ST 101

SAME TABLE   101 S N N N N DOD3
          S N N N N DOD4
          S N N N N DOD5
EXIT SAME TABLE
        EXIT TABLE IBNRTE
  EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRN
214 LAS1 (3) MAND N
 SUBTABLE LCASCR
 926 926
TABLE PFXTREAT
MAND NP Y NP UNDT
+++ TRAVER: SUCCESSFUL CALL TRACE +++

**What are the routes
for this call ?**

FX1

WATS2

MCI1

_____

_____

_____

_____

_____

TRAVER 13

Date is WED.   24/DEC/1986 18:00:11
TRAVER L 2454024   99262114 B
TABLE KSETLINE
HOST 01 0 03 01 1 DN Y 2454024 DALIBN 0 1 214 $
TABLE NCOS
DALIBN 1 0 0 NCOS_1 (XLAS PTN1 NXLA NDGT) (AVP 1) $
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,and DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N Y   N 1 N NDGT N Y DOD N 4 NONE
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
4 IBN NONE NT NSCR 0 214 SPN2 LAS1 AMRX N O NIL NILLATA O NIL NIL
TABLE STDPRTCT
SPN2 (1)
  SUBTABLE STDPRT
  9 9 N NP 0 NA
TABLE HNPACONT
214 21 0 (8) (1) (0)
  SUBTABLE HNPACODE
  926 926 LRTE 1
  SUBTABLE RTEREF
        1 T IBNRTE 100
        TABLE IBNRTE
        100   S N N N N FX1
                     S N N N N WATS1
                     S Y Y N N MCI1
                     CND TOD CUST01 1 T OFRT 9
                 TABLE OFRT
                     9 S D ANNMEM1
                       S D IDLE
                 EXIT TABLE OFRT
                     S N N N N DOD1
                     S N N N N DOD2
                     CND ALWAYS ST 101
. SAME TABLE
.   101 S N N N N DOD3
.   S N N N N DOD4
.   S N N N N DOD5
. EXIT SAME TABLE
.   . EXIT TABLE IBNRTE
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRN
214 LAS1 (3) MAND N
. SUBTABLE LCASCR
. 926 926
TABLE PFXTREAT
MAND NP Y NP UNDT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

**What are the routes
for this call ?**

FX/ _____

WATS/ _____

MCI1 _____

_____

_____

_____

_____

_____

TRAVER 14

Date is SAT.   2/DEC/1990 18:07:01
TRAVER L 2454024   99262114 B
TABLE KSETLINE
HOST 01 0 03 01 1 DN Y 2454024 DALIBN 0 1 214 $
TABLE NCOS
DALIBN 1 0 0 NCOS_1 (XLAS PTN1 NXLA NDGT) (AVP 1) $
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,and DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL   .
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N Y   N 1 N NDGT N Y DOD N 4 NONE
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
4 IBN NONE NT NSCR 0 214 SPN2 LAS1 AMRX N O NIL NILLATA O NIL NIL
TABLE STDPRTCT
SPN2 (1)
.SUBTABLE STDPRT
.9 9 N NP 0 NA
TABLE HNPACONT
214 21 0 (8) (1) (0)
  SUBTABLE HNPACODE
  926 926 LRTE 1
  SUBTABLE RTEREF
      1 T IBNRTE 100
       TABLE IBNRTE
        100 CND TOD CUST01 2 SK 2
         S N N N N FX1
         S N N N N WATS1
         S Y Y N N MCI1
         CND TOD CUST01 T OFRT 9
       TABLE OFRT
         9 S D ANNMEM1
          S D IDLE
        EXIT TABLE OFRT
         S N N N N DOD1
         S N N N N DOD2
         CND ALWAYS ST 101
  SAME TABLE
   101 S N N N N DOD3
      S N N N N DOD4
      S N N N N DOD5
  EXIT SAME TABLE
        EXIT TABLE IBNRTE
  EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRN
214 LAS1 (3) MAND N
 SUBTABLE LCASCR
 926 926
TABLE PFXTREAT
MAND NP Y NP UNDT
+++ TRAVER: SUCCESSFUL CALL TRACE +++

What are the routes for this call ?

FX1

WATS1

MCI1

DOD1

DOD2

DOD3

DOD4

DOD5

Practice 2 Feedback

TRAVER 11 – TRK1, TRK2

TRAVER 12 – FX1, WATS1, MCI1, DOD1, DOD2, DOD3, DOD4, DOD5

TRAVER 13 – FX1, WATS1, MCI1

TRAVER 14 – FX1, WATS1, MCI1, DOD1, DOD2, DOD3, DOD4, DOD5

Time-of-day NCOS

The Time of Day NCOS option maps the subscriber's usual NCOS into new class of service values based on the time of day (or day of week or year). This option applies when a time-dependent NCOS is required, for example, when a more restrictive NCOS is to be assigned to a subscriber after regular hours or on weekends. This type of routing allows flexible screening of NCOSs so calls having a more restrictive NCOS would be routed to treatments, while calls having a less restrictive NCOS would route over specific trunk groups. To establish Time-of-Day NCOS, Table IBNRTE is **NOT** used. The following tables, however, are used:

Table CUSTHEAD

In Table CUSTHEAD, you must enter an option allowing this feature to work for the given customer group.

Table CUSTHEAD

CUSTNAME	CUSTXLA	DGCOLNM	IDIGCOLNM	OPTIONS
DALIBN	GRP1	DCN1	NIL	(TODNCOS CUST02)

The DALIBN customer group is now able to use the Time-of-Day system with the Time-of-Day name, CUST02.

Time-of-Day Tables

All TOD tables (DAYTYPES, DAYOWEEK, DAYOYEAR) are datafilled in the same way you datafill for TOD routing, **with the exception of Tables TODHEAD and TIMEODAY**. Here's what you would see in Table TODHEAD:

Table TODHEAD

TODNAME	TODTYPE	COSMAP	DAYTYPES
CUST02	NCOS	MAP2	(WEEKDAY)
			(WEEKEND)
			(HOLIDAY)

In Table TODHEAD you must add your TOD name (CUST02) which is the same entry in Table CUSTHEAD. The TODTYPE in this case is NCOS, as opposed to RTE. You must also add a default COSMAP name (MAP2), which the TOD System uses when it ends a changeover period and the next one is undefined. For example, Christmas is on a Thursday (refer to Figure 2-5). Since you've defined this day in DAYOYEAR as a holiday, at 00:00 Dec. 25th, the TOD NCOS changes over to MAP4. At 00:00 on Dec. 26th, there is no TOD entry for a changeover-what happens (**Remember, the day**

goes from 00:00 to 23:59)? The TOD System defaults to the COSMAP name in Table TODHEAD which is MAP2.

The time frame noted by **s in Figure 2-5 indicates the time frame of midnight to 8:00 AM on Dec. 26th is in question because the TOD System has ended with the holiday MAP of 4. What does the TOD System do? It changes over to the default value defined in Table TODHEAD for the .TODNAME (assigned in Table CUSTHEAD).

Figure 2-5
Time of day NCOS time periods

| DECEMBER | SUN 21 | MON 22 | TUE 23 | WED 24 | THUR 25 | FRI 26 | SAT 27 |

MIDNIGHT / 5:00 PM / 8:00 AM / MIDNIGHT

MAP2 (MON, TUE, WED, FRI top); MAP3 (SUN); MAP1 (MON, TUE, WED, FRI mid); MAP4 (THUR); MAP3 (SAT); ??** (MON bottom); MAP2 (TUE, WED bottom); ** (FRI bottom)
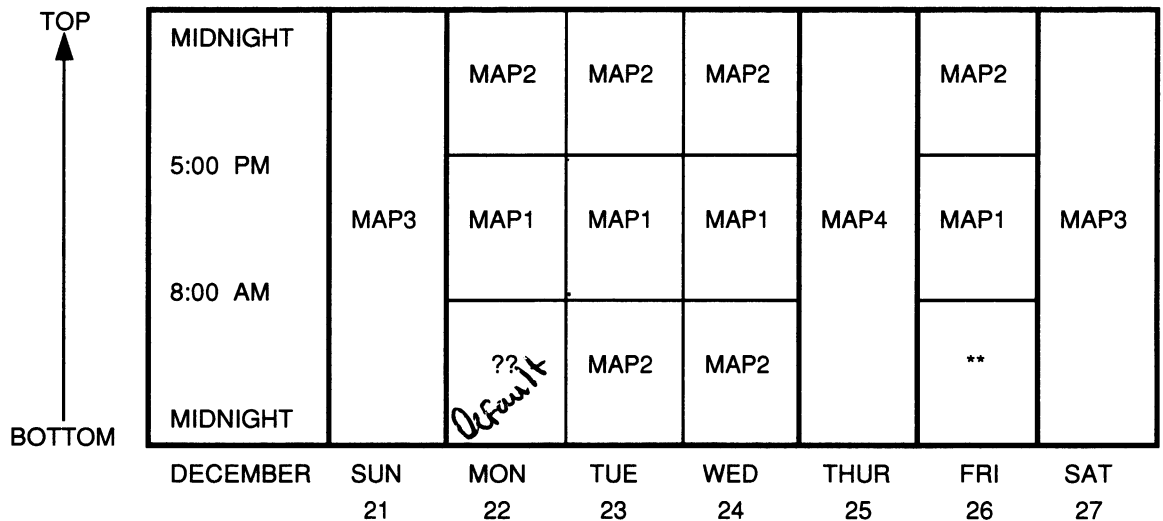
CHANGEOVER

WEEKDAYS AT 8:00 AM $\longrightarrow$ NCOS MAP1

WEEKDAYS AT 5:00 PM $\longrightarrow$ NCOS MAP2

WEEKENDS AT MIDNIGHT $\longrightarrow$ NCOS MAP3

HOLIDAYS AT MIDNIGHT $\longrightarrow$ NCOS MAP4

** MIDNIGHT -- 8:00 AM DEFAULTS TO MAP2

502046
061289

✱ The time frame noted by ??s indicates the time frame of midnight to 8:00 ✱ AM on Dec. 22nd is in question. What does the TOD System do for this time frame? Note if you want your NCOSs not to change over at midnight, you can enter the word "NIL" in the COSMAP entry. This means the NCOS retains its original NCOS (assigned through SERVORD) during this undefined time period.

Also defined in Table TODHEAD are all the DAYTYPES definable in Tables DAYOWEEK, DAYOYEAR, and TIMEODAY. Now let's see what is different in the TIMEODAY table with TOD NCOS.

Table TIMEODAY

		TIME	DATA		
TODNAME	DAYTYPE	HOUR	MINUTE	TODTYPE	COSMAP
CUST02	WEEKDAY	8	0	**NCOS**	**MAP1**

Do you see the difference between this tuple and the tuple contained in Table TIMEODAY for TOD routing? The field, DATA, is different. This time, NCOS is entered in the TODTYPE subfield which then prompts for the COSMAP name, MAP1. (For standard Time-of-Day Routing, the entries would have been "RTE" and a time range number, respectively.) The entry of MAP1 under the COSMAP field takes us to the next table, COSMAP.

Table COSMAP

We have already discussed this table when talking of Conditional Routing based solely on Class of Service. Now, we are going to use this table and **change** our NCOS based upon the time-of-day. Here's an example of a tuple, again:

Table COSMAP

NAME	MAX	SCREEN	VALTYPE
MAP1	255	ALLOW	ANYTHING

Disallow

Remember this? This table gave a "birth certificate" to our MAP1 name (field NAME), allocated Table COSDATA (field MAX) to allow 256 entries with the MAP1 name and determined **how** COSDATA was going to act (fields SCREEN and VALTYPE). Before we go on, let's look briefly at Table COSDATA again.

Table COSDATA

This was the table where we assigned our NCOS against the MAP1 name to subject it to conditional routing based upon NCOS. But, with Time-of-Day NCOS, we need to **change** our NCOS based upon the time of day. To do this, the last field, called RESULT, is referenced by the system and **results** in the changeover of our NCOSs. Let's look at a tuple:

Table COSDATA

COSMAP	COS	RESULT
MAP1	1	4 _New NCos_
MAP1	2	4

Callers NCOS

In the example above, if the system indicates MAP1 is active (based upon Table TIMEODAY) and your NCOS is either 1 or 2, _then_ at this point your NCOS changes over to NCOS 4 and be subjected to NCOS 4's dialing privileges and restrictions. Something you need to keep in mind, however, is what was set up in Table COSMAP, specifically fields SCREEN and VALTYPE. Let's put the tables together. **Assume it's a Weekday at 8:00 AM, and your NCOS is 1** (refer to Figure 2-6).

Look for active MAP's name

Figure 2-6
Tables associated with time of day NCOS routing

Table TIMEODAY

TODNAME	DAYTYPE	HOUR	MINUTE	TODTYPE	COSMAP
CUST01	WEEKDAY	8	0	NCOS	MAP1

(Changeover Time)

Table COSMAP

NAME	MAX	SCREEN	VALTYPE
MAP1	256	ALLOW	ANYTHING

If found
then TRUE,
(change NCOS)

System allows you to put any NCOS you want as the result

221045
061289

Table COSDATA

COSMAP	COS	RESULT
MAP1	1	4

Look to match Callers NCOS
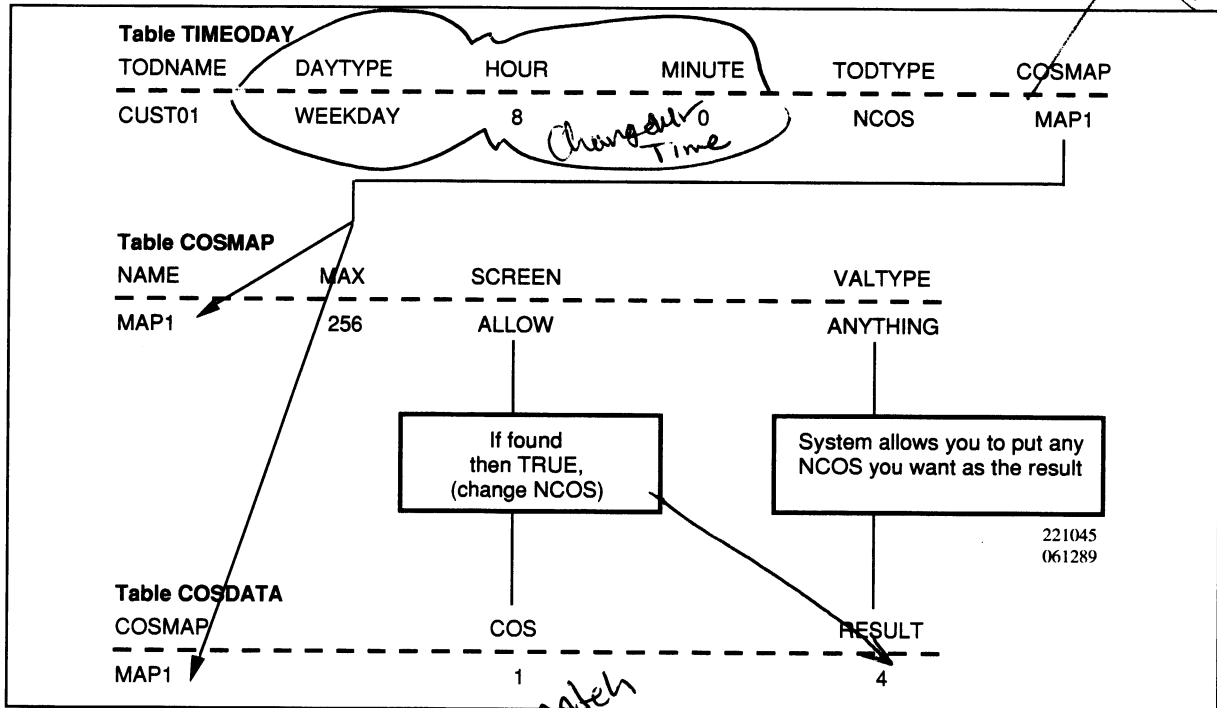
In Figure 2-6, if the NCOS is found, then a changeover to the new class of service which is in the RESULT field takes place. So, at 8:00 AM on weekdays, NCOS 1 changes over to NCOS 4. Let's look at another way to set up the tables in Figure 2-7:

Figure 2-7
Tables associated with time of day NCOS routing
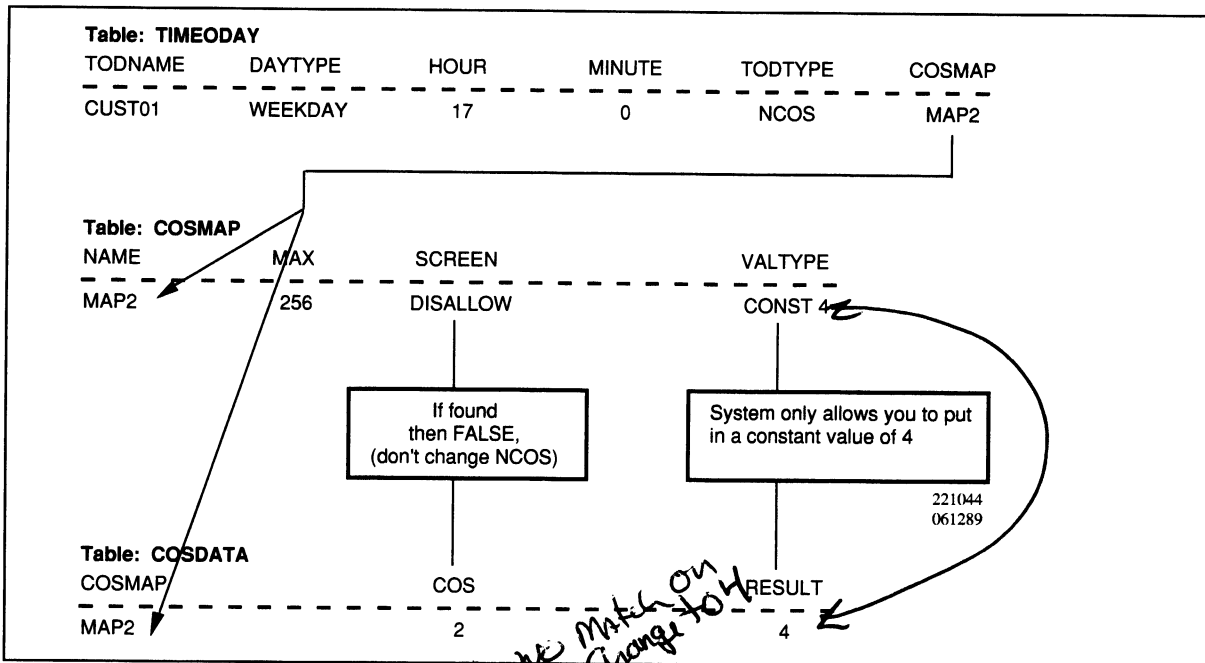
In Figure 2-7, if the NCOS is found, then **do not change over** to NCOS 4. If your NCOS is not found, then you change over to NCOS 4.

There are many variables you can set up in Table COSMAP in fields SCREEN and VALTYPE. Refer to NTP *555-4031-851* for more examples and explanations. Please keep in mind this table is used in more applications, such as ESN and NSC. Table 2-3 summarizes the variances allowed by the SCREEN and VALTYPE fields.

Table 2-3
Table COSMAP description

SCREEN		
ALLOW	=	If NCOS is found in Table COSDATA then **TRUE**, change over to new NCOS.
	=	If NCOS is not found in Table COSDATA the **FALSE**, retain original NCOS.
DISALLOW	=	If NCOS is found in Table COSDATA then **FALSE**, retain original NCOS.
	=	If NCOS is not found in Table COSDATA then **TRUE**, change over to new NCOS.
DEFAULT #	=	If NCOS is found in Table COSDATA, the result specified is used.
	=	If NCOS is not found in Table COSDATA, the default is used.
VALTYPE		
ANYTHING	=	Result field can be any NCOS.
CONST #	=	Result field can only be the constant # specified. This is always used with disallowed
SAME	=	Result field can only be the same number as what appears in field COS.

Now, let's look at some TRAVERS. Here's a user in NCOS 4 making a successful call to a 9 + number outside the system. The call translates without any NCOS changeovers to one of the idle circuits in the four trunks listed. The user placed this call at 16:00, or 4:00 PM on Wednesday the 19th. No changeover occurred because MAP1 is active and NCOS 4 **is not** defined in Table COSDATA to changeover to a new NCOS.

TRAVER 15

Date is WED. 19/DEC/90 16:00:00
TRAVER L 2454999 99262114 B
TABLE KSETLINE
HOST 00 1 00 08 DT STN 2454999 DALIBN 0 4 214 $
TABLE NCOS
DALIBN 4 0 0 NCOS_4 (XLAS PTN1 NXLA NDGT) (AVP 1)$
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET Y Y Y 1 N NDGT N Y DOD N 4 NONE
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
4 IBN NONE NT NSCR 0 214 SPN2 LAS1 AMRX N 0 NIL NILLATA 0 NIL NIL
TABLE STDPRTCT

SPN2 (0)	**Table CUSTHEAD**
SUBTABLE STDPRT	DALIBN GRP1 ... (TODNCOS CUST01)
9 9 N NP 0 NA	
TABLE HNPACONT	**Table DAYOWEEK**
214 20 0 (1) (1) (0)	CUST01 WED WEEKDAY
SUBTABLE HNPACODE	
926 926 LRTE 1	**Table TIMEODAY**
SUBTABLE RTEREF	CUST01 WEEKDAY 8 0 NCOS MAP1
1 T IBNRTE 100	CUST01 WEEKDAY 17 0 NCOS MAP2
TABLE IBNRTE	
100	**Table COSMAP**
S N N N N FX1	MAP1 255 ALLOW ANYTHING
S N N N N WATS1	MAP2 255 ALLOW ANYTHING
S N N N N MCI1	
S N N N N DOD1	**Table COSDATA**
EXIT TABLE IBNRTE	MAP1 1 4
EXIT TABLE RTEREF	MAP2 4 5
EXIT TABLE HNPACONT	
TABLE LCASCRN	
214 LAS 1 (3) MAND N	
SUBTABLE LCASCR	
926 926	**DIGIT TRANSLATION ROUTES**
TREATMENT ROUTES. TREATMENT IS: GNCT	1 FX1 9262114 ST
1 ANNMEM1	2 WATS1 9262114 ST
2 IDLE	3 MCI1 9262114 ST
TABLE PFXTREAT	4 DOD1 9262114 ST
MAND NP Y NP UNDT	
*** TRAVER: SUCCESSFUL CALL TRACE ***	

In TRAVER 16, let's run a hypothetical call for a NCOS subject to TOD NCOS. As you can see, NCOS 4, which may include, for example, station-to-station and 9+ dialing privileges, places a call at 17:00, or 5:00 PM. The call with NCOS 4 translates through these steps:

- Table IBNLINES assigns NCOS 4 to the originator.

- Table CUSTHEAD. Although not reported in the TRAVER before entering Table NCOS, translations looks into CUSTHEAD, spots the TODNCOS option and heads to the Time-of-Day tables.

- Table DAYOWEEK defines the day of the call, Wednesday, as a WEEKDAY.

- Table TIMEODAY, which indicates on a weekday at 17:00 hours (5:00 PM), that MAP2 is active. In other words, if MAP2 is defined in Table COSDATA, do whatever changeover Table COSMAP indicates.

- Table COSMAP, which tells us to allow the MAP2 entry(s) in Table COSDATA to change over to its new NCOS(s).

- Table COSDATA, which defines the map name, the original NCOS and the NCOS value to be mapped. Since NCOS 4 passes the screening, it "collapses" (changes over) to NCOS 5.

- Table NCOS. Now, see how the new NCOS, 5, gets its privileges. The TRAVER shows us the call eventually went to an announcement, indicating the original NCOS 4, when dialing outside (9+) numbers after 5:00 PM on weekdays, is prevented from completing the call. The simple act of mapping the less privileged NCOS, 5, onto NCOS 4 achieves this condition.

TRAVER 16

Date is WED. 19/DEC/90   17:00:00
TRAVER L 2454999 99262114 B
TABLE IBNLINES
HOST 00 1 00 08 DT STN 2454999 DALIBN 0 4 214 $
TABLE NCOS
DALIBN 5 0 0 NCOS_5 $
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT, AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
NCOS PRELIM XLA name is NIL.   Go to next XLA name.
CUST PRELIM XLA name is NIL.   Go to next XLA name.
TABLE IBNXLA: XLANAME CTN1
TUPLE NOT FOUND
Default is to use Trmt VACTREAT from CUSTHEAD
TABLE IBNTREAT
DALIBN 0 Y T OFRT 8
TABLE OFRT
         8 S D ANNMEM5
           S D LKOUT
EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

ASSUME WED IS WEEKDAY   TODNAME IS CUST01

Table TIMEODAY

CUST01	WEEKDAY	8	0	NCOS	MAP1
CUST01	WEEKDAY	17	0	NCOS	MAP2

Table COSMAP

MAP1	255	ALLOW	ANYTHING
MAP2	255	ALLOW	ANYTHING

Table COSDATA

MAP1	1	4
MAP2	4	5

Table 2-4 summarizes the sequence for datafilling Time-of-Day NCOS.

Table 2-4
Order of datafill for time-of-day NCOS

TABLE NAME	FUNCTION
DAYTYPES	Gives "birth certificate" to day names (for example, WEEKDAY, WEEKEND).
COSMAP	Gives a "birth certificate" to mapping names and determines how changeovers occur in COSDATA (that is, ALLOW CONST 9).
COSDATA	Defines NCOS changes. *in the result field*
TODHEAD	Gives a "birth certificate" to TODname, specifies default mapping name, defines DAYTYPES used by this TODNAME.
DAYOWEEK	Assigns weekdays (Monday - Sunday) to types of days (DAYTYPES) for your TODNAME.
DAYOYEAR	Assigns special days to types of days for your TODname.
TIMEODAY	Defines changeovers in *NCOS*
CUSTHEAD	Specifies TODNAME through TODNCOS option to your CUSTGRP.

Using Table 2-5, analyze TRAVER 17 depicted on the following pages.

Table 2-5
Tables CUSTHEAD/TIMEODAY/COSMAP/COSDATA tuples

Date is MON 6/MAY/91   8:00:01
Table CUSTHEAD

CUSTNAME	CUSTXLA	DGCOLNM	OPTIONS
DALIBN .	CTN1	DCN1	TODNCOS TOD1

TABLE TIMEODAY

TODNAME	DAYTYPE	TIME	DATA
TOD1	WEEKDAY	8 0	NCOS MAP1
TOD1	WEEKDAY	17 0	NCOS MAP2

TABLE COSMAP

NAME	MAX	SCREEN	VALTYPE
MAP1	255	ALLOW	ANYTHING
MAP2	255	ALLOW	ANYTHING

TABLE COSDATA

COSMAP	COS	RESULT
MAP1	0	2
MAP1	2	0
MAP2	0	1
MAP2	1	0

NOTE: Refer to this information when analyzing TRAVER #1.

TRAVER 17

DATE Date is MON. 6/MAY/91 8:00:01

TRAVER L 2454024   99262114 B
TABLE KSETLINE
HOST 01 0 03 01 1 DN Y 2454024 DALIBN 0 1 214 $
TABLE NCOS
DALIBN 1 0 NCOS_1 (XLAS PTN1 NXLA NDGT) (AVP 1)$
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET Y Y N   1 N NDGT N Y DOD N 4 NONE
TABLE LINEATTR
4 IBN NONE NT NSCR 0 214 SPN2 LAS1 AMRX N 0 NIL NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN2 (0)
  SUBTABLE STDPRT
  9 9 N NP 0 NA
TABLE HNPACONT
214 21 0 (1) (1) (0)
  SUBTABLE HNPACODE
  926 926 LRTE 1
  SUBTABLE RTEREF
    1 T IBNRTE 100
TABLE IBNRTE
        100 **CND COSMAP MAP1 SK 2**
             S N N N N IBNCLS5OG
             S N N N N IBNCLS52W
                CND COSMAP MAP2 SK 4
             S N N N N TRK1
             S N N N N TRK2
             S N N N N TRK3
             S N N N N TRK4
        EXIT TABLE IBNRTE
   EXIT TABLE IBNRTE
   EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRN
214 LAS 1 (3) MAND N
  SUBTABLE LCASCR
  926 926
TABLE PFXTREAT
MAND NP Y NP UNDT
*** TRAVER: SUCCESSFUL CALL TRACE ***

DIGIT TRANSLATION ROUTES

1 IBNCLS5OG 9262114 ST
2 IBNCLS52W 9262114 ST

TREATMENT ROUTES.   TREATMENT IS: GNCT
1 ANNMEM1
2 IDLE

- <u>TRAVER 17</u>. The call is dialed in the time range indicated by the first tuple in Table TIMEODAY. Table TIMEODAY assigns the COSMAP/COSDATA name, MAP1. Table COSDATA finds there is no tuple for NCOS 1 (the originator's NCOS from the TRAVER) under field COS; therefore, the NCOS mapping does not take place and the original NCOS, 1, is returned.

Look down the TRAVER at Table IBNRTE. The two highlighted elements instruct translations to look back at Table COSDATA to see which MAP defines NCOS 1. Since MAP2 defines NCOS 1, translations follows the instructions to skip the four elements under the element with <u>MAP2</u> in Table IBNRTE. Consequently, the SK 2 command is ignored for the element containing MAP1 in Table IBNRTE. Notice the digit translation routes are those listed under the element with MAP1 for Table IBNRTE.

- Using Table 2-6, analyze TRAVER 18. For this call, its NCOS of 0 "qualifies" (timewise) for MAP1. In Table COSDATA, MAP1 collapses NCOS 0 to 2. Translating to Table IBNRTE, the system looks back at COSDATA to find out which MAP1 defines <u>NCOS 2</u>, the **new** NCOS. Since MAP1 defines NCOS 2, we follow the first SK command (that is, IBNCLS5OG and IBNCLS52W are skipped). Notice the treatment routes. Can you see the dual functioning of Time-of-Day NCOS? Here it is again:

  - Depending on the time of day, NCOS values can be "collapsed" (with their resulting dialing privileges) on original NCOS values, and

  - Depending on the presence or absence of MAPs for specific NCOSs (in Table COSDATA), routes can be assigned or skipped in Table IBNRTE.

    NOTE: The map name is not required to be "active" for this type of conditional routing to take place.

Practice 3 provides you a TRAVER analysis opportunity for TOD NCOS. Be sure to answer the questions on each TRAVER.

Table 2-6
Tables TIMEODAY/COSDATA

Date is FRI 17/SEP/91   9:00:15

Table   CUSTHEAD

CUSTNAME	CUSTXLA	DGCOLNM	OPTIONS
DALIBN	CTN1	DCN1	TODNCOS TOD1

Table TIMEODAY

TODNAME	DAYTYPE	TIME	DATA
TOD1	WEEKDAY	8 0	NCOS MAP1
TOD1	WEEKDAY	17 0	NCOS MAP2

Table COSMAP

NAME	MAX	SCREEN	VALTYPE
MAP1	255	ALLOW	ANYTHING
MAP2	255	ALLOW	ANYTHING

Table COSDATA

COSMAP	COS	RESULT
MAP1	0	2
MAP1	2	0
MAP2	0	1
MAP2	1	0

NOTE: Refer to this information when analyzing TRAVER #2.

TRAVER 18

DATE Date is FRI. 17/SEP/91 9:00:15

TRAVER L 2454024   992621114   B
TABLE KSETLINE
HOST 01 0 03 01 1 DN Y 2454024 DALIBN 0 0 214 $
TABLE NCOS
DALIBN 2 0 0 NCOS_2 (XLAS PTN1 NXLA NDGT) (AVP 1)$
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET Y Y   N 1 N NDGT N Y DOD N 4 NONE
TABLE LINEATTR
4 IBN NONE NT NSCR 0 214 SPN2 LAS1 AMRX N 0 NIL NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN2 (0)
  SUBTABLE STDPRT
  9 9 N NP 0 NA
TABLE HNPACONT
214 20 0 (1) (1) (0)
  SUBTABLE HNPACODE
  926 926 LRTE 1
  SUBTABLE RTEREF
      1 T IBNRTE 100
      TABLE IBNRTE
          100 **CND COSMAP MAP1 SK 2**
              S N N N N IBNCLS5OG
              S N N N N IBNCLS52W
              CND COSMAP MAP2 SK 4
              S N N N N TRK1
              S N N N N TRK2
              S N N N N TRK3
              S N N N N TRK4
          EXIT TABLE IBNRTE
EXIT TABLE HNPACONT
TABLE LCASCRCN
        214 LAS1 (3) MAND N
        SUBTABLE LCASCR
        926 926
TABLE PFXTREAT
        MAND NP Y NP UNDT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES
1 TRK1 9262114 ST
2 TRK2 9262114 ST
3 TRK3 9262114 ST
4 TRK4 9262114 ST

TREATMENT ROUTES. Treatment is: GNCT
1. ANNMEM1
2. IDLE

Notes:

Practice 3: TRAVER analysis

Instructions:

Read and analyze the following TRAVERs. Answer the questions in the spaces provided; if you need additional information, refer to NTPs *555-4031-851* or *555-4031-350*.

TRAVER 19

Date is THU.   11/APR/1991   08:02:23

TRAVER L 2454004 99262114 B
TABLE KSETLINE
HOST 01 0 03 07 1 DN Y 2454004 DALIBN 0 0 214 $
TABLE NCOS
DALIBN 20 0 NCOS $
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT, AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
NCOS PRELIM XLA name is NIL.Go to next XLA name.
CUST PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME CTN1
TUPLE NOT FOUND
Default is to use Trmt VACTREAT from CUSTHEAD
TABLE IBNTREAT
DALIBN 0 Y T OFRT 8
TABLE OFRT
      8 S D ANNMEM5
        S D LKOUT
EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

What MAP name is active ?__MAP 1____

What NCOS will this user change to ?____2____

1 ANNMEM5
2 LKOUT

TREATMENT ROUTES. TREATMENT IS: GNCT
1 ANNMEM1
2 IDLE

+++ TRAVER: SUCCESSFUL CALL TRACE +++

Table TIMEODAY

TODNAME	DAYTYPE	TIME		DATA	
TOD1	WEEKDAY	8	0	NCOS	MAP1
TOD1	WEEKDAY	17	0	NCOS	MAP2
TOD1	WEEKDAY	22	0	NCOS	NIL

Table COSMAP

NAME	MAX	SCREEN	VALTYPE	
NIL	0	DISALLOW	ANYTHING	
MAP1	10	ALLOW	ANYTHING	
MAP2	5	DISALLOW	CONST	2

Table COSDATA

COSMAP	COS	RESULT
MAP1	0	2

TRAVER 20

Date is THU.   11/APR/1991   08:04:04

TRAVER L 2454024 99262114 B
TABLE KSETLINE
HOST 01 0 03 01 1 DN Y 2454024 DALIBN 0 1 214 $
TABLE NCOS
DALIBN ? 0 0 NCOS   (XLAS PTN1 NXLA NDGT) (AVP 1)$
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT, AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N Y   N 1 N NDGT N Y DOD N 4 NONE
TABLE DIGCOL
TUPLE NOT FOUND.
TABLE LINEATTR
4 IBN NONE NT NSCR 0 214 SPN2 LAS1 AMRX N 0 NIL NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN2 (1)
   SUBTABLE STDPRT
   9 9 N NP 0 NA
TABLE HNPACONT
214 20 0 (8) (1) (0)
   SUBTABLE HNPACODE
   926 926 LRTE 1
   SUBTABLE RTEREF
      1 S D IBNCLS50G
       S D IBNCLS52W
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
214 LAS1 (3) MAND N
   SUBTABLE LCASCR
   926 926
TABLE PFXTREAT
MAND NP Y NP UNDT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 IBNCLS50G   9262114ST
2 IBNCLS52W   9262114ST

TREATMENT ROUTES.   TREATMENT IS: GNCT
1 ANNMEM1
2 IDLE

+++ TRAVER: SUCCESSFUL CALL TRACE +++

Table CUSTHEAD

DALIBN (TODNCOS   TOD1)

Table TIMEODAY

TODNAME	DAYTYPE	TIME		DATA
TOD1	WEEKDAY	8	0	NCOS MAP1
TOD1	WEEKDAY	17	0	NCOS MAP2
TOD1	WEEKDAY	22	0	NCOS NIL

Table COSMAP

NAME	MAX	SCREEN	VALTYPE
NIL	0	DISALLOW	ANYTHING
MAP1	10	ALLOW	ANYTHING
MAP2	5	DISALLOW	CONST 2

Table COSDATA

COSMAP	COS	RESULT
MAP1	0	2

What MAP name is active ?

MAP1

What NCOS will this user change to?

Stays Same

TRAVER 21

Date is THU.   11/APR/1991   17:33:09

TRAVER L 2454004 99262114 B
TABLE KSETLINE
HOST 01 0 03 07 1 DN Y 2454004 DALIBN 0 0 214 $
TABLE NCOS
DALIBN ? 0 0 NCOS $
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT, AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
NCOS PRELIM XLA name is NIL.Go to next XLA name.
CUST PRELIM XLA name is NIL.Go to next XLA name.
TABLE IBNXLA: XLANAME CTN1
TUPLE NOT FOUND
Default is to use Trmt VACTREAT from CUSTHEAD
TABLE IBNTREAT
DALIBN 0 Y T OFRT 8
TABLE OFRT
        8 S D ANNMEM5
          S D LKOUT
EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

What MAP name is active ? MAP 2

DIGIT TRANSLATION ROUTES

What NCOS will this user change to ?   2

1 ANNMEM5
2 LKOUT

TREATMENT ROUTES. TREATMENT IS: GNCT
1 ANNMEM1
2 IDLE

+++ TRAVER: SUCCESSFUL CALL TRACE +++

Table TIMEODAY

TODNAME	DAYTYPE	TIME		DATA	
TOD1	WEEKDAY	8	0	NCOS	MAP1
TOD1	WEEKDAY	17	0	NCOS	MAP2
TOD1	WEEKDAY	22	0	NCOS	NIL

Table CUSTHEAD

DALIBN (TODNCOS   TOD1)

Table COSMAP

NAME	MAX	SCREEN	VALTYPE
NIL	0	DISALLOW	ANYTHING
MAP1	10	ALLOW	ANYTHING
MAP2	5	DISALLOW	CONST 2

Table COSDATA

COSMAP	COS	RESULT
MAP1	0	2

TRAVER 22

Date is THU.   11/APR/1991   17:33:38

TRAVER L 2454024   99262114 B
TABLE KSETLINE
HOST 01 0 03 01 1 DN Y 2454004 DALIBN 0 1 214 $
TABLE NCOS
DALIBN ? 0 0 NCOS $
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT, AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
NCOS PRELIM XLA name is NIL.Go to next XLA name.
CUST PRELIM XLA name is NIL.Go to next XLA name.
TABLE IBNXLA: XLANAME CTN1
TUPLE NOT FOUND
Default is to use Trmt VACTREAT from CUSTHEAD
TABLE IBNTREAT
DALIBN 0 Y T OFRT 8
TABLE OFRT   **What MAP name is active?** _MAP2_
    8 S D ANNMEM5
     S D LKOUT   **What NCOS will this user change to?** _Stays Same_
EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 ANNMEM5
2 LKOUT

TREATMENT ROUTES.   TREATMENT IS: GNCT
1 ANNMEM1
2 IDLE

+++ TRAVER: SUCCESSFUL CALL TRACE +++

Table TIMEODAY

TODNAME	DAYTYPE	TIME	DATA	
TOD1	WEEKDAY	8	0	NCOS MAP1
TOD1	WEEKDAY	17	0	NCOS MAP2
TOD1	WEEKDAY	22	0	NCOS NIL

Table CUSTHEAD

DALIBN (TODNCOS   TOD1)

Table COSMAP

NAME	MAX	SCREEN	VALTYPE	
NIL	0	DISALLOW	ANYTHING	
MAP1	10	ALLOW	ANYTHING	
MAP2	5	DISALLOW	CONST	2

Table COSDATA

COSMAP	COS	RESULT
MAP1	0	2
MAP2	1	2

TRAVER 23

Date is THU.   11/APR/1991   20:00:26

TRAVER L 2454004   99262114 B
TABLE KSETLINE
HOST 01 0 03 07 1 DN Y 2454004 DALIBN 0 0 214 $
TABLE NCOS
DALIBN ? 0 0 NCOS   (XLAS PTN2 NXLA NDGT) (AVP 0)$
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT, AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN2
PTN2 9 NET N N N 1 N NDGT N N DOD Y 2 NONE
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
2 IBN NONE NT CSS1 0 214 SPN1 LAS1 AMRX N 0 NIL NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN1 (1)
   SUBTABLE STDPRT
   9 9 N NP 0 NA
TABLE HNPACONT
214 20 0 (8) (1) (0)
   SUBTABLE HNPACODE
   926 926 LRTE 1
   SUBTABLE RTEREF
         1 S D IBNCLS50G
         S D IBNCLS52W
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
214 LAS1 (3) MAND N
. SUBTABLE LCASCR
. 926 926 TABLE PFXTREAT
MAND NP Y NP UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES

1 IBNCLS50G   9262114ST
2 IBNCLS52W   9262114ST

TREATMENT ROUTES.   TREATMENT IS: GNCT
1 ANNMEM1
2 IDLE

+++ TRAVER: SUCCESSFUL CALL TRACE +++

..

Table CUSTHEAD
DALIBN (TODNCOS   TOD1)

Table TIMEODAY

TODNAME	DAYTYPE	TIME		DATA
TOD1	WEEKDAY	8	0	NCOS MAP1
TOD1	WEEKDAY	17	0	NCOS MAP2
TOD1	WEEKDAY	22	0	NCOS NIL

Table COSMAP

NAME	MAX	SCREEN	VALTYPE
NIL	0	DISALLOW	ANYTHING
MAP1	10	ALLOW	ANYTHING
MAP2	5	DISALLOW	CONST 2

Table COSDATA

COSMAP	COS	RESULT
MAP1	0	2

What MAP name is active ?

<u>MAP2</u>

What NCOS will this user change to?

<u>NCOS 2 ?</u>

TRAVER 24

Date is THU.   11/APR/1991   22:00:52

```
TRAVER L 2454024  99262114 B
TABLE KSETLINE
HOST 01 0 03 01 1 DN Y 2454024 DALIBN 0 1 214 $
TABLE NCOS
DALIBN ? 0 0 NCOS     ( XLAS PTN1 NXLA NDGT) ( AVP 1)$
TABLE CUSTHEAD:     CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT, AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA:  XLANAME PTN1
PTN1 9 NET N Y   N  1 N NDGT N Y DOD N 4 NONE
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
4 IBN NONE NT NSCR 0 214 SPN2 LAS1 AMRX N 0 NIL NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN2 ( 1)
  SUBTABLE STDPRT
  9 9 N NP 0 NA
TABLE HNPACONT
214 20 0 ( 8) ( 1) ( 0)
  SUBTABLE HNPACODE
  926 926 LRTE 1
  SUBTABLE RTEREF
       1 S D IBNCLS50G
       S D IBNCLS52W
. EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
214 LAS1 ( 3) MAND N
  SUBTABLE LCASCR
  926 926
TABLE PFXTREAT
MAND NP Y NP UNDT

+++ TRAVER:   SUCCESSFUL CALL TRACE +++
```

Table CUSTHEAD

DALIBN (TODNCOS   TOD1)

Table TIMEODAY

TODNAME	DAYTYPE	TIME	DATA
TOD1	WEEKDAY	8 0	NCOS MAP1
TOD1	WEEKDAY	17 0	NCOS MAP2
TOD1	WEEKDAY	22 0	NCOS NIL

Table COSMAP

NAME	MAX	SCREEN	VALTYPE
NIL	0	DISALLOW	ANYTHING
MAP1	10	ALLOW	ANYTHING
MAP2	5	DISALLOW	CONST 2

Table COSDATA

COSMAP	COS	RESULT
MAP1	0	2

DIGIT TRANSLATION ROUTES

1 IBNCLS50G	9262114ST
2 IBNCLS52W	9262114ST

TREATMENT ROUTES.   TREATMENT IS: GNCT
1 ANNMEM1
2 IDLE

+++ TRAVER: SUCCESSFUL CALL TRACE +++

What MAP name is active ?

_N.1_

What NCOS will this user change to?

Same -1

Practice 3 Feedback

TRAVER 19 – MAP1 is active; NCOS changes to 2

TRAVER 20 – MAP1 is active; NCOS doesn't change

TRAVER 21 – MAP2 is active; NCOS changes to 2

TRAVER 22 – MAP2 is active; NCOS remains 1

TRAVER 23 – MAP2 is active; NCOS changes to 2

TRAVER 24 – NIL is active; NCOS remains 1

Network speed calling

Introduction

Network Speed Calling involves the subscriber's dialing a conveniently abbreviated code which represents a standard directory number (seven, ten, and so forth, digits). These called directory numbers may be located within a customer's private network or in a connecting private or public network.

Network Speed Calling allows a Meridian SL-100, which is normally restricted from making specific types of network calls, to place such calls if the destination is a company-approved number. This number(s) must be defined in a speed call list contained in a data control table (REPLCODE).

Datafilling for Network Speed Call

Access to the Network Speed Call feature is allowed after the network access code is dialed. Upon receipt of network dial tone (optional), the subscriber dials a customer defined network speed call access code of 1-3 digits. The network speed call access code must be different from all other codes such as NPAs, NXXs, node and main LOCs, and the network access code.

The network speed call access code is associated with a previously defined system speed call list. Each speed call list is assigned an NCOS (through Tables COSMAP/COSDATA), which is applied to that particular call. If the subscriber's original NCOS is not datafilled in the COSMAP/COSDATA tables, any NSC call by the subscriber results in his call's being routed to VACT treatment. Even if this subscriber is normally allowed 9 + dialing, his NSC does not succeed. A subscriber may be allowed access to all or selected network speed call lists.

Access Code to Network
Speed Code → to Speed Call list.

As you can see, the use of a network speed call list temporarily **(for the call's duration only)** changes a station's NCOS restrictions to those of the Network Speed Call's NCOS. The station's original NCOS, of course, must allow the subscriber access to the Network Speed Call feature. Let's look at the data control tables used in supporting Network Speed Calling.

① Table IBNXLA

Table IBNXLA requires the Network Speed Call selector, NSC. When the digits dialed represent the access code to the network speed call list, data in tuples with the NSC selector instruct translations to delete the access code and to assign the name of the block of data containing the network speed call list in the next table discussed. Let's say a subscriber dials the Network Speed Call digits, 10812. Here's an example of a tuple in Table IBNXLA enabling Network Speed Calling:

Table IBNXLA

XLANAME	DGLIDX	TRSEL	NOACCODEDIGITS	SDT	REPLNAME
PTN1	108	NSC	3	Y	SPEED1

A station user who dials 108 gains access to the network speed call list named SPEED1. This is assuming his NCOS is allowed (in a later table) to use the Network Speed Calling Feature. Second dial tone (SDT) is provided the station user, so he may then enter the speed call's code number. The 3 under field, NOACDIGS, indicates translations delete the 108 access digits. As you may be able to see, you can screen an NCOS from using Network Speed Calling by not providing it with a translator name to be used for speed calling.

② Table REPLNAME

The table predefines all the valid names, one per customer group, for access codes used in the REPLCODE table. This table may contain a maximum of 1024 tuples. For each predefined name, Table REPLNAME indicates the maximum number of speed calls used in the block named by the predefined name with a maximum of 1000. Here's an example tuple:

Table REPLNAME

REPLNMKY	REPLSEL	NOITEMS
SPEED1	NSC	150

The block name, SPEED1, for Table REPLCODE is predefined as being a Network Speed Call feature whose list in Table REPLCODE has a maximum of 150 telephone numbers. As you can see, Table REPLNAME serves as a head table for Table REPLCODE.

③ Table REPLCODE

This is the table containing the telephone numbers (1-18 digits) to replace a one, two, or three-digit "cell" number (0-999) dialed by the station subscriber. This cell number represents the telephone number that would normally be dialed if Network Speed Calling weren't available. So, as its name implies, Table REPLCODE does the replacing of cell numbers with telephone numbers. Table REPLCODE also sends the call to Table COSMAP (and COSDATA, as well) to screen the originator's NCOS and to map the new NCOS for the Network Speed Call.

Table REPLCODE

REPLNAME	REPLNO	REPLDIGS	REPLSEL	COSMAP
SPEED1	12	92347500	NSC	MAPNSC1
SPEED1	15	912138812000	NSC	MAPNSC
SPEED2	200	64421000	NSC	MAPNSC

In the tuples above, the network speed call list for SPEED1 includes two cell numbers, 12 and 15. The authorized network speed call user dials either of these cell numbers (after dialing the network speed call access code), which are then replaced by the corresponding telephone numbers. Then, this call proceeds to Tables COSMAP/COSDATA to check if the originator can map into a new NCOS. If a new NCOS is mapped, the newly replaced telephone number is retranslated using the dialing privileges provided by the newly mapped NCOS.

④ Table COSMAP

This table defines screening characteristics that are a part of Table COSDATA. Table COSMAP was indexed by the COSMAP field's entry in Table REPLCODE. Here's the tuple that sends the call to Table COSDATA:

Table COSMAP

NAME	MAX	SCREEN	VALTYPE
MAPNSC1	255	ALLOW	ANYTHING

Table COSDATA

This table does the mapping of Network Speed Call NCOSs onto the originator's NCOS.

Table COSDATA

COSMAP	COS	RESULT
MAPNSC1	7	2

For this call, if the originator's NCOS is 7, the call picks up the new NCOS of 2. The newly replaced telephone number retranslates with the NCOS 2's dialing privileges.

You may be confused as to the reason for bothering to map a Network Speed Calling NCOS onto the original NCOS when the real NCOS screening took place way back in Table IBNXLA. This step into the COSMAP and COSDATA tables is necessary because of the variety in NCOSs of originators. These originators may have different preliminary translators and calling privileges; therefore, it is necessary to override the originator's NCOS so his network speed call is processed with an adequate level of call privileges. Once the new digits are replaced in the call, the call is retranslated using the NCOS returned from Tables COSMAP/COSDATA.

In TRAVER 25, the datafill for Tables COSMAP/COSDATA is listed. Here's the scenario for the originator, 2454206, who dials a NSC of 22212:

- Table IBNLINES assigns the call a NCOS of 0,

- Table NCOS assigns a preliminary translator name of PTN2,

- Table CUSTHEAD assigns a customer translator of CTN1, and

- Table IBNXLA uses the translator to position on the first three digits, 222, which are the NSC access code. The call is typed as "NSC," with an index of SPEED1 to Table REPLCODE, and the three digits, 222, are stripped.

- Table REPLCODE positions on the replacement name and cell number, SPEED1 12. The digits, 99262112, will replace the originally dialed digits, if mapping of MAP1 is successful in the mapping tables.

- Refer in this TRAVER to the datafill in Tables COSMAP/COSDATA. In Table COSMAP, MAP1 is allowed to be used for mapping any associated NCOS contained under the MAP1 name in Table COSDATA. Table COSDATA indicates if the call is dialed by an originator with NCOS 0, this NCOS is to collapse to a 1.

- Following this **successful** mapping, the digits, 99262112, are translated using the new NCOS 1's dialing privileges (translators, and so forth), and the call goes out as a 9 + call.

TRAVER 25

TRAVER L 2454206 22212 B
TABLE IBNLINES HOST 00 1 00 04 DT STN 2454206 DALIBN 0 0 214 $
TABLE NCOS
DALIBN 0 0 0 NCOS_0 (XLAS PTN2 NXLA NDGT) (AVP 0) $
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE IBNXLA: XLANAME CTN1
CTN1 222 NSC 3 Y SPEED1
TABLE REPLCODE
SPEED1 12 99262112 NSC MAP1
New NCOS: 1
TABLE NCOS
DALIBN 1 0 0 NCOS_1 (XLAS PTN1 NXLA NDGT) (AVP 1)$
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N N   N 1 N NDGT N N DOD Y 2 NONE
TABLE DIGCOL
NDGT specified: digits collected individually,
TABLE LINEATTR
2 IBN NONE NT CSS1 0 214 SPN1 LAS1 AMRX N O NIL NILLATA O NIL NIL
TABLE STDPRTCT
SPN1 (1)
　SUBTABLE STDPRT
　9 9 N NP 0 NA
TABLE HNPACONT   TOP
214 20   0 (8) (1) (0)
　SUBTABLE HNPACODE
　926 926 LRTE 1
　SUBTABLE RTEREF
　　1 S D IBNCLS50G
　EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
214 LAS1 (3) MAND N
　　SUBTABLE LCASCR
　　926 926
TABLE PFXTREAT
MAND NP Y NP UNDT

Table COSMAP

NAME	MAX	SCREEN	VALTYE
NIL	0	DISALLOW	SAME
MAP1	10	ALLOW	ANYTHING

Table COSDATA
TOP

COSMAP	COS	RESULT
MAP1	0	1
BOTTOM		

+++ TRAVER: SUCCESSFUL CALL TRACE +++

For TRAVER 26, the originator's NCOS is 1. He dials the digits, 22212 (the same as those for TRAVER 25). This time, though, **mapping <u>does</u> <u>not</u> succeed, because there is no datafill in Table COSDATA for mapping NCOS1**. This call gets VACT treatment.

TRAVER 26

TRAVER L 2454205   22212   B
TABLE IBNLINES
HOST 00 0 14 26 DT STN 2454205 DALIBN 0 1 214 $
TABLE NCOS
DALIBN 1 0 0 NCOS_1 (XLAS PTN1 NXLA NDGT) (AVP 1) $
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE IBNXLA: XLANAME PTN1
PTN1 222 NSC 3 Y SPEED1
TABLE REPLCODE
SPEED1 12 99262112 NSC MAP1 TOP
TABLE TMTCNTL
LNT (27)
  SUBTABLE TREAT
  VACT N T OFRT 14
TABLE OFRT
      14 S D ANNMEM10
       S D IDLE
  EXIT TABLE OFRT

Table COSMAP

NAME	MAX	SCREEN	VALTYE
NIL	0	DISALLOW	SAME
MAP1	10	ALLOW	ANYTHING

Table COSDATA
TOP

COSMAP	COS	RESULT
MAP1	0	2

BOTTOM

+++ TRAVER: SUCCESSFUL CALL TRACE +++

TREATMENT ROUTES.   TREATMENT IS: VACT
1 ANNMEM10
2 IDLE

+++ TRAVER: SUCCESSFUL CALL TRACE +++

Table 2-7 describes the order in which the data tables should be filled for supporting Network Speed Calling. The mapping tables must be filled first, since Table REPLCODE refers to a map name.

Table 2-7
Network speed call datafill order and description

COSMAP	Birth certificate for MAP name / PARAMETERS FOR COSDATA
COSDATA	Mapping of original NCOS to new NCOS
REPLNAME	Birth certificate for REPLNAME / Parameters for REPLCODE
REPLCODE	Speed call list and map name to proceed to
IBNXLA	Access code for NSC

Notes:

Practice 4: Time of day routing

Instructions:

1. Position CND elements for TOD routing in the appropriate locations in TABLE IBNRTE for effective and efficient trunking utilization. Using the information listed on the TOD Strategy Sheet and TUPLE 80 in TABLE IBNRTE, complete the following steps.

   a. Position on each CND element in the CND datafill column on the TOD STRATEGY SHEET.

   b. Using the information from the CND datafill column complete the TABLE IBNRTE form.

   c. **DO NOT DATAFILL IN THE SWITCH.**

2. Complete the appropriate data table forms to activate the Time-of-Day Routing System. Using the completed columns on the TOD Strategy Sheet, complete the appropriate TOD forms:

   a. TABLE DAYTYPES

   b. TABLE TODHEAD

   c. TABLE DAYOWEEK

   d. TABLE TIMEODAY

   e. **DO NOT DATAFILL IN THE SWITCH.**

   f. You can validate the entries on your forms by logging into the system and positioning on the appropriate tuple in each table.

   If you need additional information, refer to NTPs *555-4031-851* or *555-4031-350*.

TOD STRATEGY SHEET

SPECIAL DAY IN YEAR	DAY OF WEEK	TYPE OF DAY	CHANGE-OVER START	CHANGE-OVER STOP	SEQUENCE OF TRUNK SELECTION	TIMES (0-9 A-F)	IBNRTE ---------- RTE INDX #		WHERE DOES THE "CND" SELECTOR GO?	CND DATAFILL IBNRTSEL CNDSEL TODNAME TIMES RTETYPE SKIPNUM
	MON-FRI	WEEKDAY	8 AM	5 PM	FX1, WATS1, MCI1 AND DOD1	0	80			
	MON-FRI	WEEKDAY	5 PM	(MID) 12 AM	FX1, WATS1, AND MCI1	1	80			
	SAT-SUN	WEEKEND	(MID) 12 AM	(MID-OF NEXT NIGHT) 12 AM	MCI1 AND DOD1	2	80			
	DEFAULT	-	-	-	DOD1	3	80			

22!
061.

a.   TODNAME   <u>TOD1</u>

b.   TABLE   IBNRTE   TUPLE 80 (NYYN FX1 50) (NYYN WATS1 51)
                                   (NYYN MCI1 51) (QH5) (N N Y Y DOD1 51)

Abbreviations

CALLCHR	Call Characteristic
CLLI	Common Language Location Identifier
CND	Conditional
COSMAP	Class of Service Map
DMS	Digital Multiplex System
IBN	Integrated Business Network
NCOS	Network Class of Service
NT	Northern Telecom
NPA	Numbering Plan Area
NSC	Network Speed Call
RND	Random
RTE	Route
SK	Skip
ST	Same Table
TOD	Time-of-Day
WATS	Wide Area Telephone Service

Notes:

Lesson 3

Authorization codes and direct inward system access (DISA)

Why this lesson is important

Authorization codes not only allow users to perform certain specified privileges, but they also can be used for billing records. Authorization codes range from 2 to 14 digits in length and are composed of an authorization code and a security code. Four tables support authorization codes: Table IBNXLA, Table CUSTHEAD, Table AUTHPART, and Table AUTHCDE. This lesson covers these four tables as they relate to authorization codes.

Additionally, this lesson covers direct inward system access, or DISA. DISA permits selected outside callers to dial from the public switched network directly into the Meridian SL-100 and gain access to network facilities (such as ESN) without attendant assistance. This lesson covers those tables necessary to datafill for DISA.

Objective

Upon completion of this module, you can:

- Define the purpose of an authorization code.
- Define the purpose of DIRECT INWARD SYSTEM ACCESS
- Datafill the tables required to support authorization codes.
- Datafill the tables required to support DISA

What to do

1. Read Lesson 3: Authorization codes and direct inward system access (DISA).

2. Work through the lesson, including the practices. You may practice as many times as you like.

3. There is no skill check for this lesson; your correctly completed practices serve as your skill checks.

4. Have a course manager check this lesson, and go to the next lesson.

What resources to use

Resources	Resource number
Commercial Systems Customer Data Schema	NTP 555-4031-851
Commercial Systems Translations Guide	NTP 555-4031-350

Authorization codes

Introduction

Authorization codes are a set of digits, dialed by a user, serving the following purposes:

- identify an authorized user of the network and exclude unauthorized users; and

- identify a user for billing purposes.

Authorization codes can be used with two features:

- Authcode First *Changes user NCOS*

- Authcode Last *Doesn't Change user NCOS.*

Which feature they are used with determines whether the dialer is assigned the NCOS associated with the authorization code or whether they retain the NCOS of the station or incoming trunk group. Four tables support authorization codes: Table IBNXLA, Table CUSTHEAD, Table AUTHPART, and Table AUTHCDE.

Authorization codes allow users to perform certain specified privileges. Also, authorization codes can be used for billing records. Authorization codes can be 2 to 14 digits in length and are composed of two parts:

- **Authorization Code.** This is a 2 to 10-digit code. The length of the authorization code is fixed on a customer group basis.

- **Security Code.** This optional code is one to four digits in length. This code is optional on a per authorization code basis. Security digits make an authorization code more secure because it varies the total code length for a customer group.

Authcode First

When used with this feature, authorization codes, once dialed on a phone, assign an NCOS (with corresponding dialing privileges) to the call. A network class of service is assigned to each authorization code. Once a user inputs an authorization code for a call, the attributes of the authorization code NCOS override the attributes of the line or incoming trunk NCOS. Therefore, the user of an authorization code can conveniently obtain the dialing privileges of the NCOS assigned to the authorization code regardless of the station from which he dials.

When using this feature, a user must first dial a feature code before dialing the desired number or the authorization code. This feature code tells the Meridian SL-100 an Authcode First call is being made and the Meridian SL-100 will receive authorization code.

Authcode first tables

Four tables control the Authcode First feature: Table IBNXLA, Table CUSTHEAD, Table AUTHPART, and Table AUTHCDE. Below are descriptions of each of these tables. (Since Tables IBNXLA and CUSTHEAD previously were described in detail, we discuss only the fields pertaining to authorization codes).

- **Table IBNXLA.** IBNXLA lists the authorization access code with its appropriate feature or customer translator name. This code (digits) is then defined as the authorization (access) feature. An IBNXLA example tuple follows:

XLANAME	DGLIDX	TRSEL	ACR	SMDR	FEAT
FTN1	79	FEAT	N	Y	AUTH

The above tuple sets up the access code of "79," so when a "*79" is dialed, the translations software recognizes the following digits as an authorization code.

- **Table CUSTHEAD.** CUSTHEAD assigns a partition name to customer group. This partition stores the assigned authorization codes. Here is an example of a CUSTHEAD tuple assigning a partition.

CUSTHEAD	CUSTXLA	DIGCOLNM	OPTION		
GRP1	CTN1	DCN1	(PARTNM)	(SEC)	(COMB)
			(AUTH PARTNM1 Y	N)	

The preceding tuple identifies the partition name, PARTNM1, under which all the authorization codes for the customer group are stored in Table AUTHCDE. The "Y" is placed under the SEC field to indicate an octothorpe (#) does not have to be dialed after the authorization code.

The "N" is placed under the field <u>COMB</u> to indicate the code is not a combined authorization and account code.

- **Table AUTHPART.** This table defines the properties of the authorization code partition (length, format, and maximum size) stored under a specific partition name. Four fields make up Table AUTHPART. These fields are described below.

  - <u>PARTNM.</u> This is the key field of the table. This field lists the partition name under which the authorization codes are stored.

  - <u>FORMAT.</u> This field defines the format of the customer group. Enter IBN in this field.

  - <u>LENGTH.</u> This field identifies the number of digits each authorization code within the partition has.

  - <u>MAXSIZE.</u> This field identifies the maximum number of authorization codes which allowed in the partition.

An example of a tuple in Table AUTHPART follows.

<u>PARTNM</u>	<u>FORMAT</u>	<u>LENGTH</u>	<u>MAXSIZE</u>
PARTNM1	IBN	5 of code	100

In this example, **PARTNM1** is the partition name, IBN is the format, **5** digits make up the authorization code, and **100** is the maximum number of authorization codes assignable to the partition name.

- **Table AUTHCDE.** This table lists the authorization codes available for assignment to the customer group's users and their corresponding new NCOSs. Three fields comprise Table AUTHCDE. These fields are described below.

  - <u>AUTHPART.</u> This is the first part of the key for this table. This field identifies the partition to which the authorization code is assigned.

  - <u>AUTHCODE.</u> This is the second part of the key for this table. This field identifies the particular authorization code being defined.

  - <u>INFO.</u> This field is comprised of the following five subfields:

    * <u>FORMAT.</u> Enter EXEMPT when the authorization code is assigned to a customer group but is not usable. When format is EXEMPT, enter the date when the authcode became exempt. Enter IBN when the authorization code is assigned to a customer group and is usable. When IBN is entered, the following three subfields must be datafilled: NCOS, ACCT, and SECDIGS.

    * <u>NCOS.</u> This subfield identifies the NCOS associated with the authorization code.

* <u>ACCT.</u> This field indicates whether or not an account code is required for billing purposes.

* <u>SECDIGS.</u> This field indicates whether or not a security code is required for the authorization code. If a security code is required, enter the one to four-digit code. If a security code is not required, enter $.

* <u>AUTHTYPE.</u> There are three authorization types as described below.

  1) **System-Wide Authorization Codes (SW)** are by station users who must be able to access their telephone privileges from phones in other areas. System-Wide Authorization Codes can be accessed from all stations EXCEPT those with SSAC assigned.

  2) **Super Authorization Codes (SUPAC)** allow users to access privileges from any station. Super Authorization Codes OVERRIDE authorization codes with SSAC.

  3) **Station-Specific Authorization Codes (SSAC)** are valid only when accessed from the station to which the authcode is assigned. To assign a specific authorization code to a station, an option must be given in SERVORD. This entry connects the authorization code to a LEN.

The following is an example of a **Table AUTHCDE** tuple.

<u>AUTHPART</u>	<u>AUTHCODE</u>	<u>INFO</u>					
		(FORMAT)	(NCOS)	(ACCT)	(SECDIGS)	(AUTHTYPE)	(OPTION)
PARTNM1	67626	IBN	0	N	$	SW	$

In this example, authcode 67626 is stored in partition PARTNM1, has an IBN format, NCOS 0, no account code or security digits are required, and an <u>AUTHTYPE</u> of SW (system wide).

Datafilling the authcode first tables

Table 3-1shows the steps necessary for datafilling the tables required to support Authcode First authorization codes.

TRAVER 1 depicts the translations on a call using an Authcode First authorization code. Starting with the second pass through Table IBNXLA, you can see that:

* IBNXLA uses translator FTN1 to position on digits "79" and identifies these digits as being an authorization access feature.

- CUSTHEAD assigns the associated auth partition name to the user in this customer group. This points the call to Table AUTHPART.

- AUTHPART screens the auth partition name to determine if the partition name is "turned on or off" (field EXEMPT) and to determine how many digits to screen for in Table AUTHCODE.

- AUTHCDE validates the authorization code dialed (67626), assigns a new NCOS (0), and reflects the AUTHTYPE of SW.

- Table NCOS assigns the translators associated with the new NCOS.

- Another pass through IBNXLA sets the dialed number up for a NET DOD translations sequence.

Table 3-1
Order of datafill and description for authorization codes

AUTHPART	Enter Table AUTHPART
-	Add partition name and its parameters.
AUTHCDE	Enter Table AUTHCDE
-	Add authorization codes with new NCOS.
CUSTHEAD	Enter Table CUSTHEAD
-	Position on customer group name.
-	Add option "AUTH" with partition name.
IBNXLA	Enter Table IBNXLA
-	Add a feature or customer translator name and the access code digit(s).
-	Use FEAT as the translator selector (TRSEL) and AUTH for FEAT field.

TRAVER 1

```
TRAVER L 2375443 B796662694551234 B
TABLE IBNLINES
HOST 00 1 00 10 DT STN 2375443 GRP1 0 2 214 $
TABLE NCOS
GRP1 2 0 NCOS2 ( XLAS PTN3 NXLA NDGT) $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, DIGOL
GRP1 NXLA     CTN1    FTN1    0       DCN7
TABLE DIGCOL
DCN7 STAR COL S 2
TABLE IBNXLA: XLANAME FTN1
FTN1 79 FEAT N N AUTH
```

If the TRAVER software could trace the remainder of the call progression in this example, it would resemble the following:

```
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, DIGOL
GRP1 NXLA .... (AUTH PARTNM1 Y N) $
TABLE AUTHPART
```

PARTNM1 IBN 5 100
TABLE AUTHCDE
PARTNM1 66626 IBN 0 N $ SW
TABLE NCOS
GRP1 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) $
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N N N 1 N NDGT N DOD N 27 NONE

Authcode Last

With the Authcode Last feature, the user retains the NCOS assigned to the station. NCOSs are <u>not</u> assigned to authorization codes used with the Authcode Last feature. Also, a feature activation code is <u>not</u> used with the Authcode Last feature. Instead, the user simply dials the desired number and the authorization code.
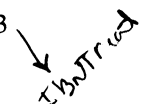
Authcode last tables

Two tables control the Authcode Last feature: Table IBNXLA and Table CUSTHEAD. The use of these tables is described below.

- **Table IBNXLA.** Field ACR for Table IBNXLA "turns on" the Authcode Last feature. Two examples of this field's use are shown below.

	TRSEL	ACR	SMDR	FEAT
FTN1 78	FEAT	Y	N	RAG

	TRSEL	ACR	SMDR	NOACDIGS	SDT	DGCOLNM ...
CTN1 9	NET	Y	N	1	Y	NDGT

- **Table CUSTHEAD.** Field ACR also exists in Table CUSTHEAD. When setting up the Authcode Last feature, you must enter ACR in the OPTION field. Once you enter ACR in this field, you must identify to the Meridian SL-100 whether it receives an authorization code (this is specified by entering AUTH in field AUAC) or whether it receives an account code (this is specified by entering ACCT in field AUAC). Also, a Table IBNTREAT index number must be indicated in field FLEXINO. This number (0-63) tells the system what treatment in Table IBNTREAT it should send a call to in the event an INVALID authorization or account code is dialed. Below is an example of a Table CUSTHEAD tuple setting up the Authcode Last feature.

CUSTNAME	CUSTXLA	DGCOLNM	OPTION	AUAC	FLEXINO
GRP1	CTN1	DCN1	ACR	AUTH AccT	3

When the Authcode Last feature is used, either a tone or an announcement is given to prompt the dialer to enter the authorization code. If an announcement is to be used, this must also be datafilled in Table CUSTHEAD.

The DEFAULT prompt is TONE. When choosing an announcement, the option AUTHCODE LAST ANNOUNCEMENT (ACRANN) must be datafilled in Table CUSTHEAD under the OPTION field. With this option, you also must identify the CLLI of the announcement to be used. An example setting up the Authcode Last feature to use an announcement follows.

CUSTNAME	CUSTXLA	DGCOLNM	OPTION	AUAC	FLEXINO
GRP1	CTN1	DCN1	ACR	AUTH	3

OPTION	**ANNCLLI**
ACRANN $\rightarrow$	ANN1

Table Ncos

Ncosopt = ACR
|
Ann Required y or N

Notes:

Practice 1: Authorization codes

Instructions:

In this work project, you build one authorization code. The authcode you build is associated with the **Authcode First Feature**. The partition names to which the authcodes are assigned, and the authcodes themselves are described below and on the following pages. Using this information, complete the forms for each table. Then, enter this information into the system; if you need additional information, refer to NTPs *555-4031-851* or *555-4031-350.*

1. Correctly datafill the appropriate tables to support authorization codes in a Meridian SL-100 by following the prompts on the following pages.

   Tables in Order of Datafill

   (1) AUTHPART

   (2) AUTHCDE

   (3) CUSTHEAD

   (4) IBNXLA

2. Verify the datafill you performed.

Table AUTHPART

(NOTE: X is equal to your customer group number.)

Create a tuple in this table for your customer group.

- Do you use your authorization codes in an AUTOVON environment or an IBN environment?   **IBN**

- What is the length of digit string for your authorization codes?   **6**

- How many authorization codes are you using?   **10**

- What partition name does your customer group use? **PARTNM'X'**

Table AUTHCDE

Create a tuple in this table for your customer group.

- What authcode number should be used for this group?   **123442**

- What NCOS should this number be assigned? **1**

- Are account codes used?   **NO**

- Are security digits used?   **NO**

- What authorization type should be assigned?   **SYSTEMWIDE**

Table CUSTHEAD

Position on your customer group name and change the information to include the following:

- Feature Translator Name   **FTN'X'**

- Does an octothorpe need to be dialed after the authorization code?   **NO**

- Options **AUTH**

- Customer Translator Name   **CTN'X'**

- Digit Collection Name **DCN'X'**

Table IBNXLA

Create a tuple to ensure the authcode feature can be activated by telephones belonging to your customer group.

- Authcode Access Code   ***85**

- Are account codes required for this feature?   **NO**

- Is SMDR required when this feature is activated?   **NO**

- Is VCDR required when this feature is activated?   **NO**

Now, verify your datafill.

To verify your datafill, perform the following steps.

If not set up already, place two phones into service at your table (for review, refer to NTP *555-4031-808*). Give these phones NCOS0, SNPA 214, and your Customer Group Name (for example, GRP1, GRP2, and so forth).

1. First station dials second station through 5-digit extension number.

2. Caller hears Tone/Announcement to reflect station restriction.

3. Caller hangs up receiver.

4. Caller then dials * 85123442 + EXT number again.

5. Call processes.

Notes:

Direct inward system access

Introduction

Direct Inward System Access (DISA) permits selected outside callers to dial from the public switched network directly into the Meridian SL-100 and gain access to network facilities (such as ESN) without attendant assistance. The caller dials a 7-digit or 10-digit directory number (or an INWATS number for an automatic answer), then enters an optional authorization code and the called number which are part of NTX103AA.

A DISA directory number can be any of the following:

- A 7-digit number within the switch's exchange,

- A Direct Inward Dialing (DID) number received on a trunk group (IBNTI). The Meridian SL-100 typically receives 4, 5, or 6 digits, then translates the digits received into a DISA directory number.

- An INWATS number (1-800-NXX-XXXX) assigned to DISA.

- An incoming trunk group dedicated to DISA. The Meridian SL-100 detects seizure and ringing. (The trunk group must provide disconnect supervision.)

- Digits received on a tie trunk. The Meridian SL-100 translates the digits received into a DISA directory number. The tie trunk can be a one-way incoming trunk or a 2-way incoming trunk. (The trunk group must provide disconnect supervision.)

With the DISA feature, the Station Message Detail Recording (SMDR) **and** Authorization Code features are optional.

DISA-related data tables

Let's look at the string of numbers for a DISA call to a called number with the related data tables adjacent to each part of the digit string:

7-digit DISA number +	**authcode (optional)** +	**called number**
		CUSTHEAD
		NCOS
IBNXLA,	CUSTHEAD, and	IBNXLA,
TOFCNAME, and	AUTHCDE.	HNPACONT,
DNROUTE.		HNPACODE,
		COSMAP/COSDATA (if
		ESN or NSC), and so
		forth.

To describe the translations sequence for a DISA call, we use a series of TRAVERs which incorporate all the DISA-type calls allowed. TRAVER 2 describes how translations works on the first part of any DISA call. As mentioned earlier, a DISA directory number can be numbers incoming on DID (IBNTI) trunks, INWATS numbers, incoming trunk groups dedicated to DISA, and digits received on tie trunks. Generally, by the time the Meridian SL-100 receives the DISA number, it's 4, 5, or 6 digits in length. For TRAVER 2, we use 5 digits. Here's the explanation:

- The digits, 48001, come into the Meridian SL-100 over trunk group, GRP10TRK1 (incoming trunk group).

- Table TRKGRP assigns NCOS 6 to the call.

- Table NCOS verifies the assignment of NCOS 6 to customer group, CUSTGRP1.

- Table CUSTHEAD assigns customer translator, CTN1.

- Using the customer translator, Table IBNXLA positions on the "4" digit and assigns the selector of EXTN. IBNXLA also adds the NPA and NXX to which this extension (8001) belongs.

- Table TOFCNAME locates the NPA and OFCCODE.

- Table DNROUTE assigns the feature of DISA to this call. The contents of Table DNROUTE in the TRAVER have their respective headings displayed for you. The DISA directory number is assigned to customer group,CUSTGRP1, subgroup, 0. These two fields screen the remainder of the dialed digits, which contain an authorization code/DN, or just the DN.

- The "Y" after the subgroup field indicates authorization codes are required after the DISA number was dialed. If the AUTHREQ = "N," the subscriber would be required to dial the directory number immediately after dialing the DISA number.

- The next field, SMDRTO, specifies whether or not a billing record is required when a subscriber dials to a DISA number. The field, SMDRFROM, also a Y or N prompt, determines if a billing record is to be generated from the DISA number (that is, to the directory number dialed after the DISA number) (refer to Figure 3-1).

- The last field, INTRAGRP, is looked at if Terminating Restriction Codes are to be applied. DISA calls are from outside the customer group; therefore, if the called number is a station directory number, completion to the station is subject to terminating restrictions. In addition, other features may be sensitive to the INTRAGRP entry in DNROUTE.

Figure 3-1
SMDR for DISA
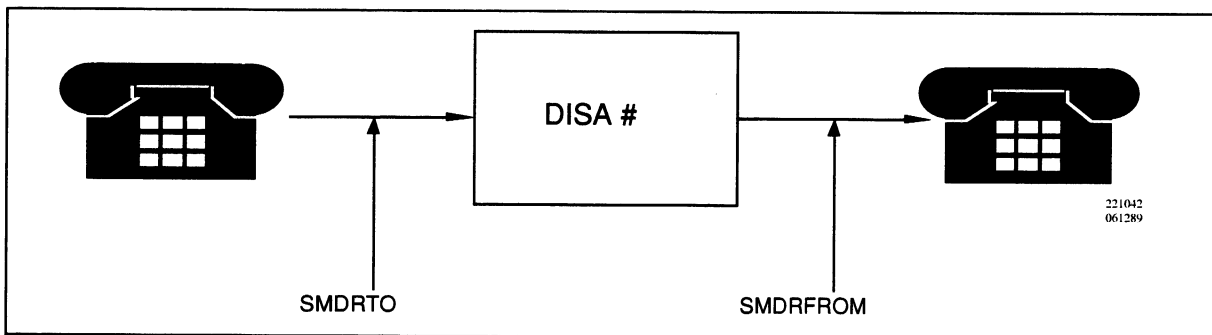
TRAVER 2

TRAVER TR GRP10TRK1 48001 T

TABLE TRKGRP
GRP10TRK1 IBNTI 0 ACO NCRT CUSTGRP1 0 6 N ANSDISC 1 N 7 N Y Y Y N 1 7 N N SAT
TABLE NCOS
CUSTGRP1 6 0 0 NCOS_6 $
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,AND DIGCOL
CUSTGRP1 NXLA CTN1 FTN1 0 DCN1
TABLE IBNXLA: XLANAME CTN1
CTN1 4 EXTN N Y N 214 234 5 $
TABLE TOFCNAME
214 234

TABLE DNROUTE	CUSTGRP	SUBGRP	AUTHREQ	SMDRTO	SMDRFROM	INTRAGRP
214 234 8001 FEAT DISA	CUSTGRP1 0		Y	N	Y	N

Types of DISA calls

There are several ways for a subscriber to dial a DISA-type call (refer to Figure 3-2). These ways are described in more detail in later paragraphs:

- **DISA # + Authcode + called number (auth code req'd).** The authorization code may be any valid code followed by the directory number .

- **DISA # + called number (no auth code req'd).** This method allows the subscriber to dial any number that is allowed without the need for an authorization code as specified by the External NCOS in Table CUSTHEAD .

- **DISA # + wait for timeout (timeout to attendant).** This DISA type dialing involves the subscriber entering no digits after the DISA #. Instead, the call defaults to the attendant console (ICI=14) after a predetermined time (for example, 11 seconds).

Figure 3-2
Types of DISA calls
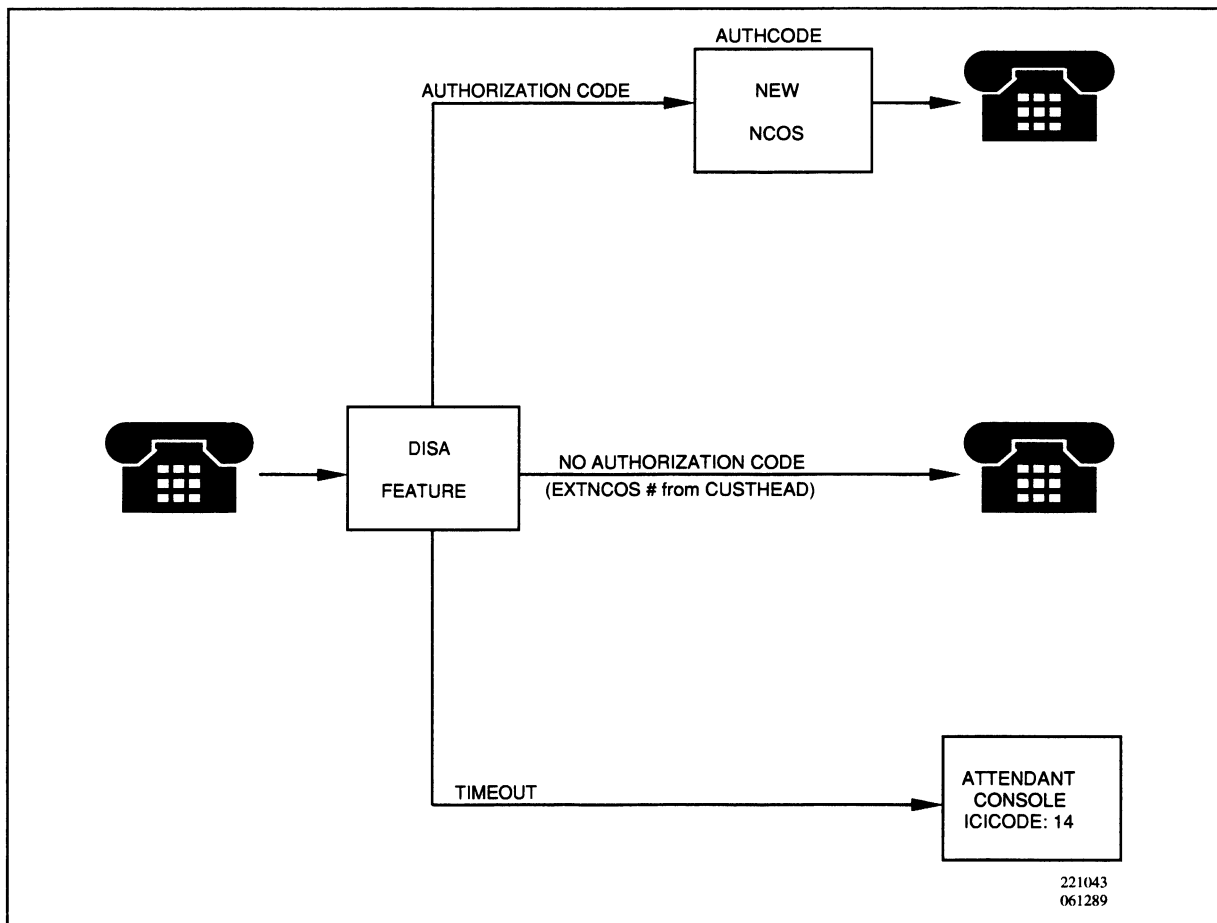
Authorization code required

If required, the caller dials an authorization code. Take a look at TRAVER 3 describing this part of the DISA call. (We use an authorization code of 4001.)

- If the AUTHREQ field in Table DNROUTE is set to "Y," the DISA software knows the next series of digits are authorization code digits. After dialing the DISA number, the subscriber would be prompted, with stutter dial tone, for authorization code digits. Note this DISA number was assigned customer group name, CUSTGRP1.

- Table CUSTHEAD, lists the authorization code name to be defined in the authorization code tables. Now the system can proceed to Table AUTHCDE to verify the 4001 authorization code.

- Table AUTHCDE verifies the 4001 digits as an authorization code. AUTHCDE assigns a NCOS of 3 to the call. This NCOS is used in screening the called directory number.

- Table NCOS assigns preliminary translator, PTN3, to NCOS 3.

- DISA software returns a dial tone to the caller prompting the caller to enter the terminating directory number he wishes to dial.

- The caller dials the terminating directory number he wishes to reach. Table IBNXLA, using PTN3, grabs the first digit, "9" which is the NET DOD access code. The call then translates through the remaining tables (LINEATTR, STDPRTCT, HNPACONT, and so forth) for eventual routing to the public network.

TRAVER 3

TABLE DNROUTE
214 234 8001 FEAT DISA CUSTGRP1 0 Y N N N $

TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT, AND DIGCOL
CUSTGRP1 NXLA CTN1 FTN2 0 DCN2 (AUTH AUTH1 N N)

TABLE AUTHCDE
AUTH1 4001 IBN 3 N $

TABLE NCOS
CUSTGRP1 3 0 0 NCOS_3 (XLAS PTN3 NXLA NDGT) $

Caller dials the 9 + number

TABLE IBNXLA
PTN3 9 NET N N N 1 Y NDGT N N DOD Y 10 NONE

No authorization code required

If the AUTHREQ field in Table DNROUTE is set to "N," the DISA software knows the next series of digits are the terminating directory number. The subscriber would be prompted, with normal dial tone, to enter this DN after dialing the DISA number. Again, the system would know the subscriber's customer group name and subgroup number. TRAVER 4 starts at Table CUSTHEAD.

- Table DNROUTE assigns NCOS 8 to be used by the caller. If DNROUTE had not used NCOSOPT, the caller would use NCOS 0 found in the field EXTNCOS in Table CUSTHEAD.

- Table NCOS assigns the preliminary translator, PTN8, to NCOS 8.

- DISA software returns <u>normal</u> dial tone to prompt the subscriber to dial the terminating directory number.

- The subscriber dials the terminating directory number, which is a 9 + DOD number. Table IBNXLA, using PTN8, types the call as DOD.

- This call then translates and routes from the Meridian SL-100 through the usual tables (STDPRTCT/STDPRT, HNPACONT, RTEREF, and so forth).

TRAVER 4

TABLE DNROUTE
214 234 8001 FEAT DISA GRP1 0 N N N N **NCOSOPT 8 $**

TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,AND DIGCOL
GRP1 NXLA CTN1 FTN2 0 DCN2 (EXTNCOS 0)

TABLE NCOS
CUSTGRP1 8 0 NCOS_8 (XLAS PTN8 NXLA NDGT) $

_____ _____ _____ _____ _____ _____ _____ _____ _____

Caller dials the 9 + number

TABLE IBNXLA
PTN8 9 NET N N N 1 Y NDGT N N DOD Y 4 NONE

Timeout -- route caller to attendant

In this last DISA option, the subscriber enters his DISA number, waits for the 4-second timeout, then routes to the attendant console on an idle loop key or to the programmed ICICODE #14. The system knows which customer group name and subgroup number to route to because of the datafill in Table DNROUTE. The system also knows which ICICODE to use because this ICICODE is programmed for DISA. However, the system must rely on the datafill from Tables FNMAP and ICIDATA to know which attendant consoles have this ICICODE to route calls to within the subgroup.

NOTE: If there are consoles without ICICODE #14, these attendants still receive timeout calls from DISA on their idle loop keys. The attendants do not have an indication on the KLD of this DISA call— nor does it come in on an ICI key.

TRAVER 5 depicts the routing for a "timeout" DISA call including the following tables (assume all consoles have ICICODE #14 datafilled):

- DNROUTE assigns the customer group name and subgroup number to the DISA number and a timeout value of 4 to 40 seconds.

- Table ATTCONS lists all the attendant consoles within CUSTGRP1, Subgroup 0. The system now knows the names of the consoles within the customer group and subgroup.

- Table FNMAP searches its list for the names of consoles which use ICICODE #14. FNMAP's list includes consoles CONS1 and CONS2. These two consoles have assigned the ICICODE #14 to key (lamp) 12 on console 1 and 2.

- When a DISA call is to route to these consoles, Table ICIDATA provides the word, "DISA," on the most idle console KLD. The corresponding lamps would light indicating the ICI from the DISA software.

TRAVER 5

TABLE DNROUTE
214 245 8001 FEAT DISA **CUSTGRP1 0** N N N N **TIMEOUT 4** $

(Wait for timeout ... in FNMAP, look for ICICODE #14 assigned to any console in CUSTGRP1, Subgroup 0.)

TABLE ATTCONS
CONS1 **CUSTGRP1 0** N 4X08AB HOST 00 0 00 07 HOST 00 0 00 08
CONS2 **CUSTGRP1 0,** etc. ...
TABLE FNMAP
 CONS1 12   ICICODE 14
 CONS2 12   ICICODE 14
TABLE ICIDATA
CUSTGRP1 14 DISA $

DISA call prompter feature

The Call Prompter feature is part of the NTX103 Feature Package (SMDR - Enhanced) and can be added to existing recorded announcement hardware. The Call Prompter feature provides a customer defined recorded announcement, before returning a DISA tone, to the incoming DISA caller. This recorded announcement may be used to instruct callers to dial a specific digit(s) to direct their call to a specific department, (for example, dial 61 for service, dial 62 for repairs, or 63 for credit). If the incoming caller does not wish to speak with any of these departments, he may proceed with the normal DISA application. The Call Prompter enhances the DISA feature by providing a fourth option, in addition to DISA + authcode + DN, DISA + DN, and DISA + timeout:

• Dial a digit(s) to direct the call to a specific department, as specified within the Call Prompter announcement.

> *NOTE: These digits must be identified in the translation data for the External NCOS so an authorization code is not required by the incoming caller.*

The following description includes the tables enabling the Call Prompter:

> *NOTE: Two directory numbers (the Call Prompter and DISA) are required in Table DNROUTE.*

• **Table DNROUTE.** This table includes the first number (number to be dialed) with selector, T, to send translations to Table IBNRTE. This is the number sending the call to the call prompter.

- **Table IBNRTE.** Indexed by Table DNROUTE, Table IBNRTE includes:

  - First route choice: Selector S with the CLLI name of the Call Prompter Announcement trunk.

  - Second route choice: Selector RX, which indicates retranslations is to take place, using a digit manipulation index to which the second number (the actual DISA number) is identified.

- **Table DIGMAN.** Next to the respective index number from the second route choice in Table IBNRTE, Table DIGMAN includes:

  - First choice: Selector REM to remove the quantity of digits received on the first directory number.

  - Second choice: Selector INC to include the actual DN of the second directory number for DISA.

- **Table DNROUTE.** Table DNROUTE includes the second directory number (the DISA directory number) using the FEAT/DISA selector.

- The call prompter access code(s) is included in **Table IBNXLA**, for the External NCOS translator to route to the appropriate DN of each department identified in the Call Prompter Announcement. Call Prompter is compatible with Automatic Call Distribution (ACD); therefore, the call prompter access code(s) may route to an ACD DN.

An example of the operation of the Call Prompter is depicted, in abbreviated form, in TRAVER 6 .

- A caller dials the DID number, 235-4446, which gets the caller into the Meridian SL-100. The system receives the last five digits, 54446.

- Table TRKGRP assigns NCOS 0 to the call.

- Table CUSTHEAD assigns a customer translator, CTN1, to the call.

- Table IBNXLA positions on the key, PTN2 5, and types the call as a call to an extension (EXTN).

- Table DNROUTE identifies the digits for directory number, 54446, as belonging to extension 4446 and routes the call to the next table, IBNRTE, index #102.

- IBNRTE index #102 provides the call prompter announcement (ANNMEM6) to the incoming caller. The second route choice allows the call to be retranslated with this new number (54445, from DIGMAN) assigned to Customer Group, DALIBN. The call then indexes to Table DIGMAN (DMI = 10).

- Table DIGMAN replaces the digits 54446 of (235-4446) with 54445 (235-4445).

- Table DNROUTE has this new directory number set up for the DISA feature; therefore, a DISA tone is returned to the incoming caller. At this point, the caller may select one of these four options:

  - dial nothing and default to an attendant;

  - dial any number allowed without an authorization code;

  - dial an authorization code and directory number; or

  - dial digits to direct the call to a specific department.

The following list includes the sequence of data tables to be datafilled for enabling the DISA with Call Prompter feature:

- DIGMAN,

- IBNRTE, and

- DNROUTE.

Note the above list differs from the order of tables used in the actual translations of such a DISA call.

TRAVER 6

```
TRAVER TR IBNCLS51C  54446  B
TABLE TRKGRP
IBNCLS51C IBNTI 0 NPDGP NCRT DALIBN 0 0 N ANSDISC 0 Y N N N N N N 0 0 N N  $
TABLE NCOS
DALIBN 0 0 0 NCOS_0 ( XLAS PTN2 NXLA NDGT) ( AVP 0)$
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT,AND DIGCOL
DALIBN NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 5 COL L 4
TABLE IBNXLA: XLANAME PTN2
PTN2 5 EXTN Y Y 214 245 5 $
TABLE TOFCNAME
214 245
TABLE DNROUTE
214  245  4446 T IBNRTE 102
TABLE IBNRTE
 102 S N N N ANNMEM6
         RX DALIBN 0 1 10
 . TABLE DIGMAN
 .       10 (REM 5) (INC 54445)
 . EXIT TABLE DIGMAN
EXIT TABLE IBNRTE

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES
1 ANNMEM6
2 LINE  2142454445

TREATMENT ROUTES. TREATMENT IS: GNCT
1 ANNMEM5
2 LKOUT
```

Abbreviations

DID	Direct Inward Dialing
DISA	Direct Inward System Access
DMI	Digit Manipulation Index
DN	Directory Number
DOD	Direct Outward Dialing
EXTN	Extension
FEAT	Feature
INC	Include
INWATS	Inwards Wide Area Telephone Service
LEN	Line Equipment Number
LOC	Location Code
NCOS	Network Class of Service
NET	Network
NSC	Network Speed Call
NTP	Northern Telecom Practices
PBX	Private Branch Exchange
REM	Remove
SMDR	Station Message Detail Recording
SSAC	Station Specific Authorization Code
SUPAC	Super Authorization Code
SW	System-Wide
TRAVER	Translation Verification

4

Lesson 4

Conferencing features and uniform call distribution

Why this lesson is important

Conferencing is supported by six-port (and three-port) conference circuits provisioned at the customer's request. The type of conferencing and maximum number of conferees allowed in a conference is dependent on the features loaded in your site. There are several Feature Packages discussed in this lesson. As a database technician, you must be prepared to order the correct feature package and subsequently datafill to support requested conferencing types.

Additionally, this lesson introduces you to Uniform Call Distribution (UCD). UCD is an optional Meridian SL-100 feature allowing a large volume of calls to be answered by a group of stations. If your site has the appropriate feature package, and upon completion of this lesson, you can datafill for UCD.

Objective

Upon completion of this module you can:

- describe the following features and their supporting tables:
  - Meet Me Conferencing
  - Preset Conferencing
- describe the purpose of the UCD feature
- describe and datafill the tables necessary to set up UCD

What to do

1. Read Lesson 4: Conferencing features and uniform call distribution (UCD).

2. Work through the lesson, including the practices. You may practice as many times as you like.

3. There is no skill check for this lesson; your correctly completed practice serves as your skill check.

4. Have a course manager check this lesson, and go to the next lesson.

What resources to use

Resources	Resource number
Commercial Systems Customer Data Schema	NTP 555-4031-851
Commercial Systems Translation Guide	NTP 555-4031-350

Conferencing features

Introduction to conferencing

Conferencing through the Meridian SL-100, equipped only with the Basic Integrated Business Network Software Feature Package NTX100AA, is limited to six conferees per conference. (Conference users are referred to as "conferees.")

Conferencing is supported by six-port (and three-port) conference circuits provisioned at the customer's request. The type of conferencing and maximum number of conferees allowed in a conference is dependent on the features loaded in your site. There are several Feature Packages discussed in the following pages.

IBN Basic (NTX100AA)

This Feature Package includes these conferencing features:

- Attendant Conferencing (maximum six conferees)

- Three-Way Conferencing (3WC, a form of call transfer)

- Station-Controlled Conference (maximum six conferees activated by the command CNF in SERVORD) (refer to Figure 4-1 on the following page)

- Meet Me Conference (maximum six conferees).

IBN Large Conference (NTX111AA)

This is the "enhanced" conferencing Feature Package. "Large" means up to 30 conferees. This Feature Package includes these features:

- Attendant Conference (Large)

- Meet Me Conference (Large)

- Station-Controlled Conference (Large)

IBN Preset Conference (NTX260AA)

This feature allows a conference initiator to dial a number which rings and engages a preset selection of conferees (maximum **25** conferees). Executive Conference (**NTXE74AA**) allows a maximum of 48 conferees.

50

Figure 4-1
Station controlled conference (CNF)

- trunk

- subscriber line

UP TO 30 CONFEREES/CNF

221040
061289
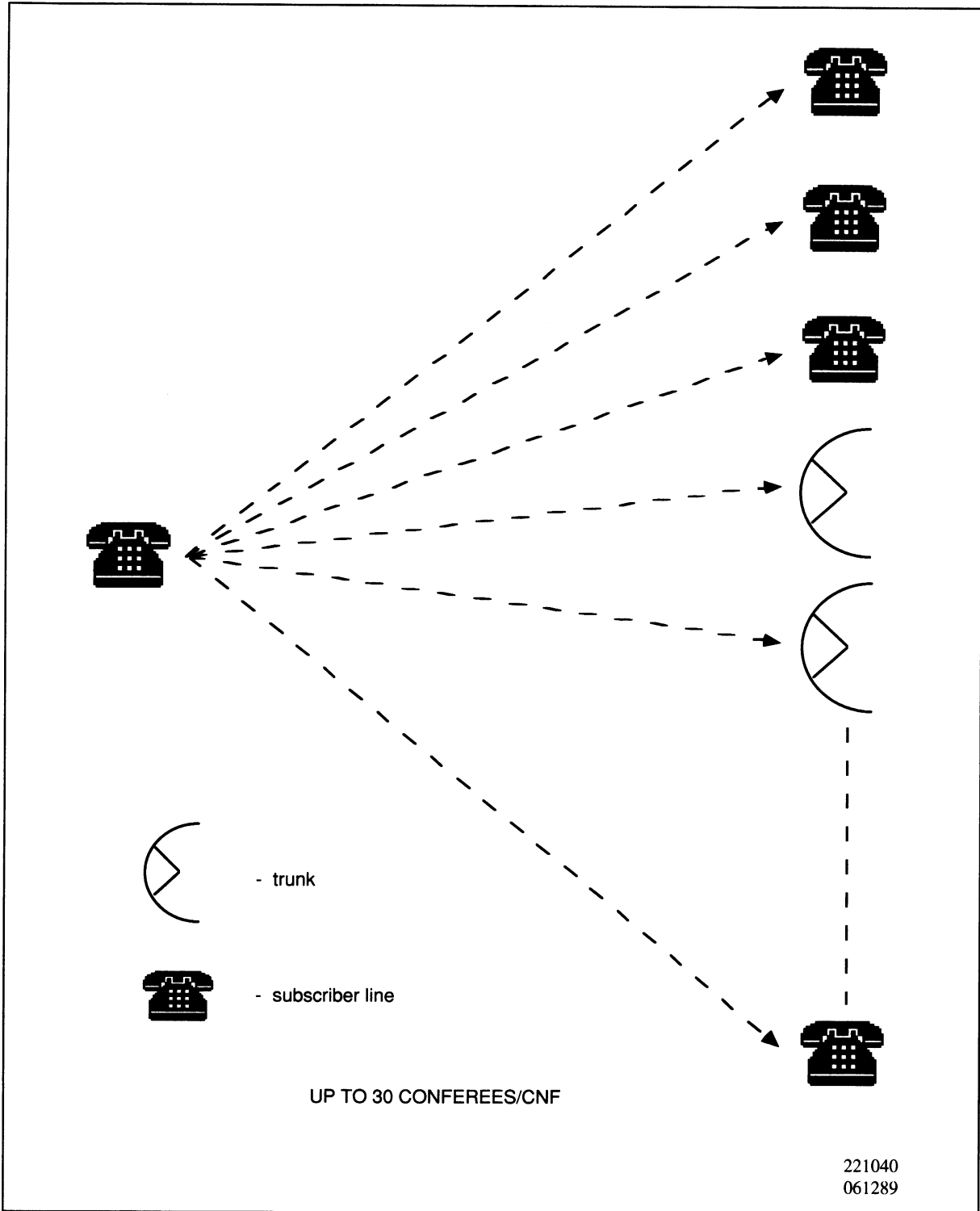
Meet me conferencing

The Meet Me Conference Feature identifies a directory number, such as 245-4444 in Figure 4-2, conferees dial simultaneously to create a conference. The individual requesting the conference informs all members of the scheduled conference's time and directory number. Conferees, at the conference's scheduled time, dial into the conference directory number. Enhanced Conferencing extends the maximum number of conferees from **6** to **30**. When Executive Conference is used, the maximum number of Meet Me Conference members is extended to **150** conferees.

Figure 4-2
Meet me conferencing

MMCONF

2454444

UP TO 30 CONFEREES/MMCONF CONF

- trunk

- subscriber line

221039
061289
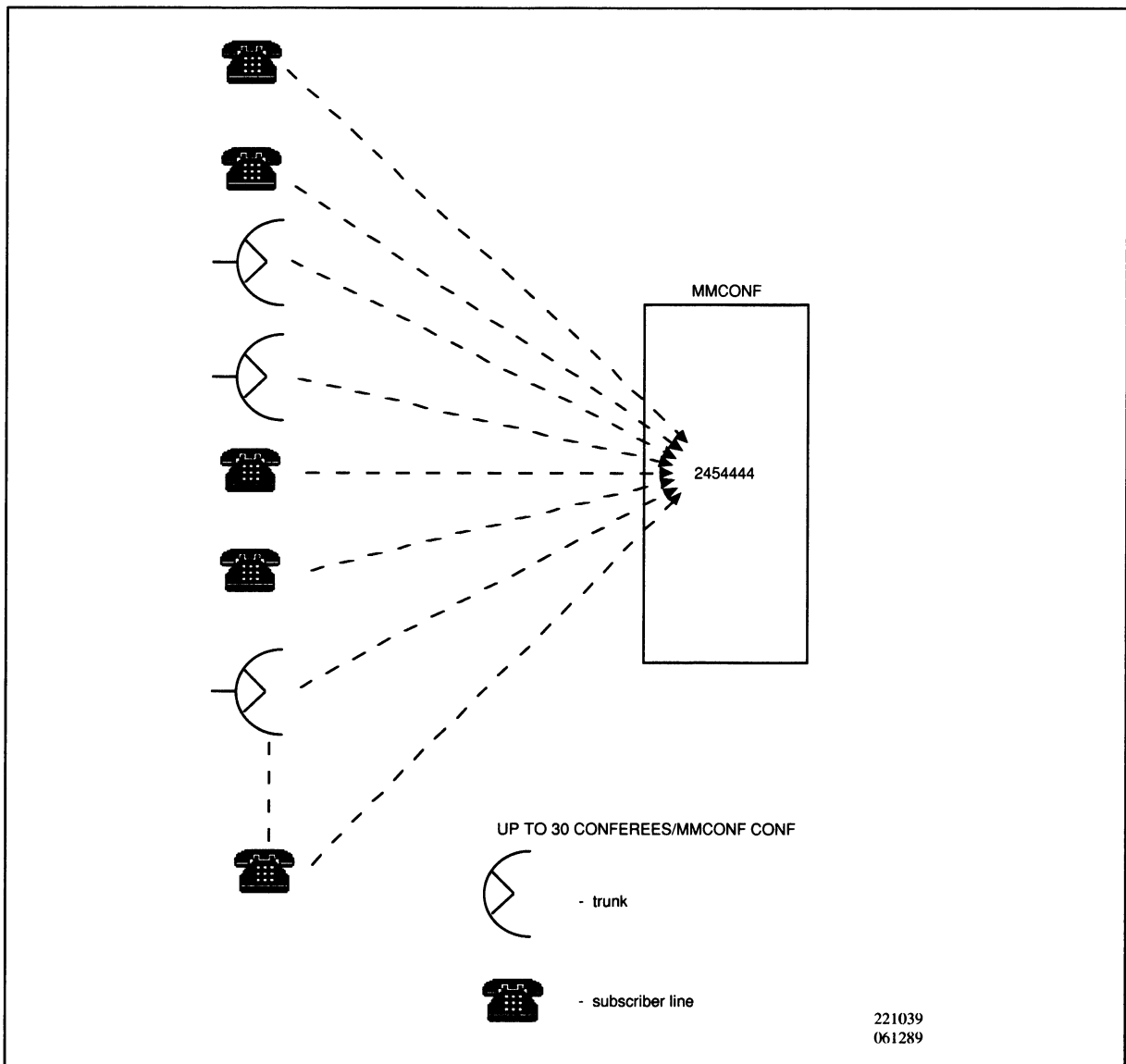
A maximum of 16 conference numbers per customer group can be dedicated to the Meet Me Conference Feature. The 16 conference directory numbers represent **software** numbers; they are not assigned a Line Equipment Number. As each conferee enters and leaves a conference, a tone notifies all existing members there was a change in the number of participants. This allows for a "roll call" type of conference control.

Meet Me Conferencing requires at least one member active in the conference has disconnect supervision. For example, conferees on trunk groups expected to have disconnect supervision must have the field SUPV in TRKGRP filled with the answer disconnection (ANSDISC) entry. Conferees on lines have answer disconnection automatically assigned by the Meridian SL-100.

If a member tries to enter a Meet Me Conference number and there are no six-port conference bridges available, this member receives a fast busy (T120) tone. Conferees can include stations in the same customer group, in another customer group, and external users through Direct Inward Dial trunks.

Meet Me Conferencing allows the customer, through datafill, to decide whether a Direct Inward Dialed call can be allowed to enter a conference. Stations also have the capability of locking out all future conferees by momentarily pressing the switchhooks of the telephone set. The first conferee to press the switchhook locks the conference; any subsequent switchhook pressings summon the attendant on the Conference Recall Key (ICI 12) so more members can be added through the Attendant Console's Conference feature.

Meet me conference data tables

To datafill for Meet Me Conferencing, the following tables must be used:

- **Table MMCONF.** This table contains the conference directory numbers to which the customer group is assigned.

Table MMCONF

	LKEY									
CUSTNAME	CONF	SNPA	NXX	DEFGDIGS	LSCOMB	DID	DIDORIG	SIZE	CONFTYPE	OPTIONS
GRP1	0	214	245	4444	2	Y	N	30	STD	$

This customer group, GRP1, is assigned conference number 0 whose conference directory number is (214) 245-4444. Remember, each customer group can set up 16 (0-15) Meet Me conference numbers. The maximum number of people who can connect to this Directory number is 30. The conference type is standard.

This conference directory number has a line screening code flag number of 2. This line screening code flag number (0-255) in Table MMCONF acts like the line screening code number in Table TRKGRP in that it points to Table LSCFLAGS. If a subscriber (incoming trunk or incoming side of a two-way trunk) dials into this Meet Me conference number (245-4444), and his line screening code number is not in the flags list in Table LSCFLAGS, then that subscriber can't dial into the Meet Me conference, **even** if that subscriber is within the defined customer group in Table MMCONF. Figure 4-3 shows this line screening function for the related tuples.

The next field in Table MMCONF, DID, is filled to indicate incoming trunks can dial into the conference (only if line screening passes).

Figure 4-3
Line screening for meet me conferences

Table MMCONF

LKEY	SNPA	NXX	DEFGDIGS	LSCOMB	DID	DIDORIG	SIZE	CONFTYPE
GRP1	0	214	2454444	2	Y	N	30	STD

Table LSCFLAGS

KEY				LSCFLAGL
0	(B0)	(B1)	(B2)	$
1			(B1)	$
2			**(B12)**	$

Table NCOS

CUSTGRP	NCOS	NCOSNAME	LSC	TRAFSNO	OPTIONS	
GRP1	0	NCOS_0	1	0	(XLAS PTN0 NXLA NDGT)(AVP 0)	$
GRP1	1	NCOS_1	**12**	0	(XLAS PTN1 NXLA NDGT)(AVP 1)	$

NOTE: This originator could be:

- an incoming trunk (Table TRKGRP assigns its NCOS), or
- a line (Table IBNLINES or KSETLINES assigns its NCOS).

- **Table DNINV.** Table Directory Number Inventory is a read-only table. It contains all directory numbers which are assigned or unassigned to line equipment numbers. DNs unassigned to LENs could include attendant consoles (LDNs or direct ICIs), conference directory numbers, DISA, and so forth. Meet Me Conference numbers are an example of directory numbers in this table. Datafill in Table MMCONF automatically fills Table DNINV. Here's an example of a tuple in Table DNINV, using the datafill example for Table MMCONF:

Table DNINV

DNNM			DNRESULT		
AREACODE	OFCCODE	STNCODE	DNSEL	CUSTGRP	CONF
214	245	4444	MM	GRP1	0

Can you trace these tuple contents back to Table MMCONF?

- **Table CUSTHEAD.** This table enables the set up of a "super" conference, in which more than six conferees are involved. Examples of such conferences are Meet-Me Conferencing and attendant-established conferencing. To enable super-conferencing, the option SUPERCNF is added to the designated customer group. Here's an example tuple:

Table CUSTHEAD

CUSTNAME	CUSTXLA	DGCOLNM	IDIGCOLNM	OPTIONS
GRP1	CUST1	DIG1	NIL	SUPERCNF

TRAVER 1

TRAVER 1 depicts datafill for the Meet Me Conferencing feature (Figure 4-4 lists the relevant tuples in the Meet Me, Line Screening, and NCOS tables).

- The originating line, 2454024, is assigned to GRP1.

- Its NCOS, 1, was assigned a LSC of 12.

- Notice the call is a station-to-station call (EXTN in Table IBNXLA).

- The call terminates, not to a LEN, but to a Meet Me conference (MM) number (0) in Customer Group, GRP1.

- According to the TRAVER, this call reaches the terminator; however, this may or may not be true. To determine if this call was allowed to join this Meet Me conference, look at the corresponding tuples in Figure 4-4.

```
TRAVER L 2454024 54444 T
TABLE KSETLINE
HOST 01 0 03 01 1 DN Y 2454024 GRP1 0 1 214 (PRK) $
TABLE NCOS
GRP1 1 12 0 NCOS_1 ( XLAS PTN1 NXLA  NDGT) (AVP 1) $
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT, & DIGCOL
GRP1  NXLA  CTN1  FTN1  0  DCN1
TABLE DIGCOL
DCN1 5 COL L 4
TABLE IBNXLA: XLANAME PTN1
TUPLE NOT FOUND
Default is to go to next XLA name.
CUST PRELIM XLA name is NIL.  Go to next XLA name.
TABLE IBNXLA: XLANAME CTN1
CTN1 5 EXTN Y Y 214 245 5 $
TABLE TOFCNAME
214 245
TABLE DNINV
214 245 4444 MM GRP1 0

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

- **Table MMCONF.** Directory Number (214) 245-4444, which was dialed through five-digit dialing (54444), was assigned an LSC flag #2 (this field has a range of 0-255). This field indexes Table LSCFLAGS.

- **Table LSCFLAGS.** LSC flag #2 was assigned B12, which indicates the originating LSC code(s) allowed to terminate to LSC flag #2. To see what LSC code the originator has, you must look in Table NCOS.

- **Table NCOS.** The originator (2454024) belongs in NCOS 1, which was assigned a LSC code of 12. This call, therefore, would be allowed to terminate on the Meet Me conference.

Figure 4-4
Line screening for meet me conferences

Table MMCONF

LKEY	SNPA	NXX	DEFGDIGS	LSCOMB	DID	DIDORIG	SIZE	CONFTYPE
GRP1	0	214	2454444	2	Y	N	30	STD

Table LSCFLAGS

KEY	LSCFLAGL
0	(B0) (B1) (B2) $
1	(B1) $
2	**(B12)** $

Table NCOS

CUSTGRP	NCOS	NCOSNAME	LSC	TRAFSNO	OPTIONS
GRP1	0	NCOS_0	1	0	(XLAS PTN0 NXLA NDGT) (AVP 0) $
GRP1	1	NCOS_1	12	0	(XLAS PTN1 NXLA NDGT) (AVP 1) $

NOTE: This originator could be:
- an incoming trunk (Table TRKGRP assigns its NCOS), or
- a line (Table IBNLINES or KSETLINES assigns its NCOS).

Figure 4-5 and TRAVER 2 show a station failing line screening when attempting to join the same Meet Me conference. Notice how this failure takes place.

- The caller, NCOS_2, is assigned a LSC of 3 in Table NCOS.

- The Meet Me conference's LSCCOMB, 2, is keyed in Table LSCFLAGS, where the field, LSCFLAGL, is searched in vain for a B3. As a result, the station is not allowed to join the Meet Me conference.

Figure 4-5
Line screening for meet me conferences

```
Table MMCONF
LKEY   SNPA   NXX   DEFGDIGS      LSCOMB      DID
GRP1   0      214   2454444       3  2        Y


Table LSCFLAGS
       KEY    LSCFLAGL
       0      ( B0) ( B1) ( B2)
       1      ( B1)
       2      (B12)


Table NCOS
CUSTGRP NCOS NCOSNAME LSC TRAFSNOOPTIONS
GRP1    0    NOCS_0    1    0    (XLAS PTN0 NXLA NDGT) $
GRP1    1    NOCS_1    12   0    (XLAS PTN1 NXLA NDGT) $
GRP1    2    NOCS_2    3    0    (XLAS PTN2 NXLA NDGT) $


NOTE: This originator could be:
       •    an incoming trunk (Table TRKGRP assigns its NCOS), or
       •    a line (Table IBNLINES or KSETLINES assigns its NCOS).
```

TRAVER 2

TRAVER L 2454024 54444 T
TABLE KSETLINE HOST 01 0 03 01 1 DN Y 2454024 GRP1 0 2 14 (PRK) $
TABLE NCOS
GRP1 2 3 2 NCOS_2 (XLAS PTN1 NXLA NDGT) $
TABLE CUSTHEAD: CUSTGRP,PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT, & DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 5 COL L 4
TABLE IBNXLA: XLANAME PTN1
TUPLE NOT FOUND
Default is to go to next XLA name.
CUST PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME CTN1
CTN1 5 EXTN N N N 214 245 5 $
TABLE TOFCNAME
214 245
TABLE DNINV
214 245 4444 MM GRP1 0

+++ TRAVER: SUCCESSFUL CALL TRACE +++

Not allowed

Preset conferencing

Preset Conferencing allows a station, trunk, or attendant console to establish a Preset Conference with up to 25 conferees (refer to Figure 4-6). Executive Conferencing may be used to extend the number of conferees to 46. This is achieved by dialing a specific Preset Conference directory number. These features are used frequently for regularly scheduled conferences or for security reasons - telephones in several locations can be rung in the event of an emergency.

Figure 4-6
Preset conferencing
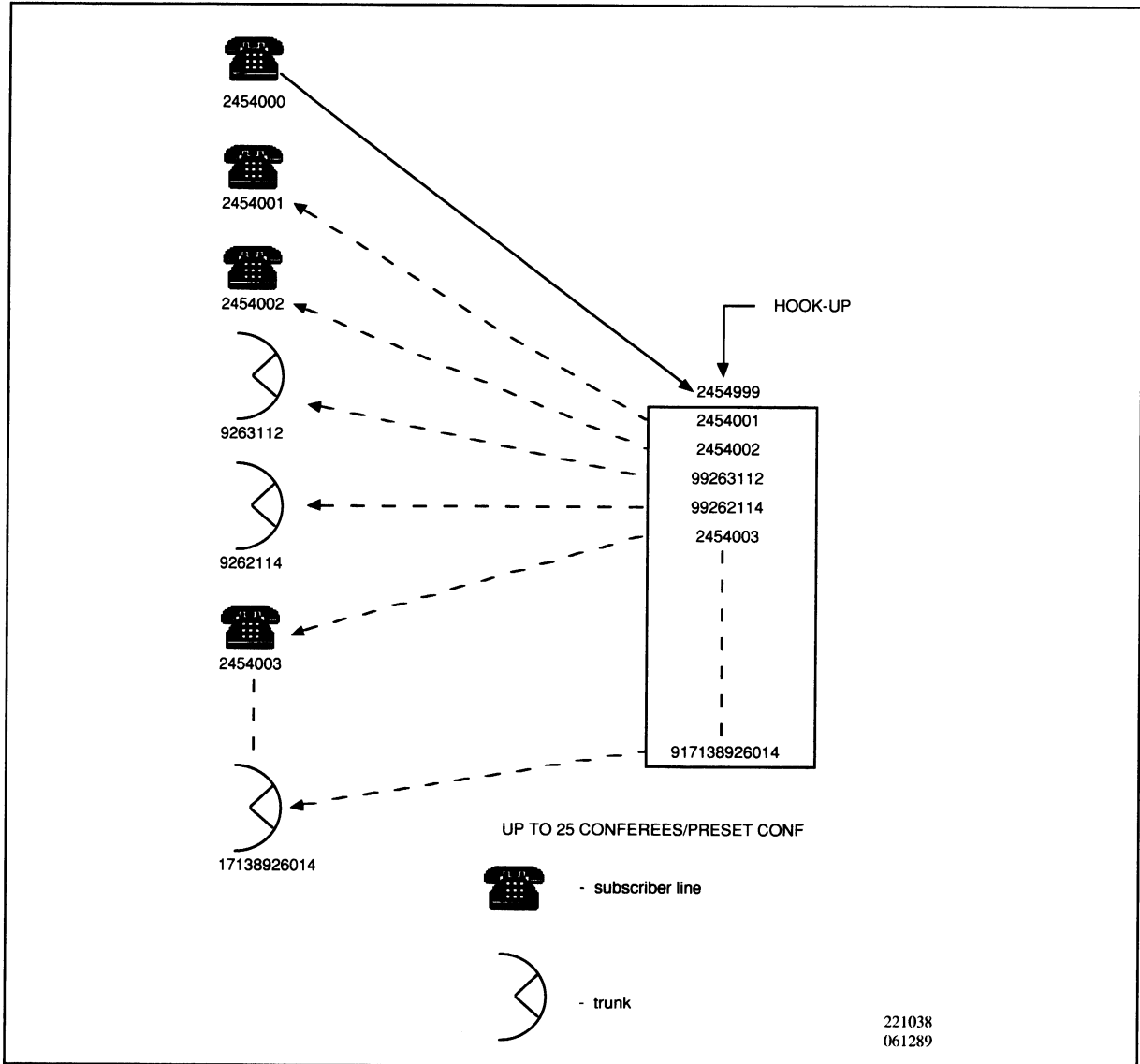
Dialing the Preset Conference directory number invokes simultaneous ringing of the preselected conferees. As shown in Figure 4-6, station 245-4000 dials Preset Conference DN 245-4999. This causes simultaneous ringing of all DNs (conferees) enclosed in the box in Figure 4-6. The conferees are specified in advance through the use of a data table indexed by the Preset Conference directory number.

When the first conferee answers, the conference begins. When the other conferees answer, they are added to the conference. When all conferees disconnect, the conference is terminated.

At all times during the conference, at least one member of the conference must be a station terminating on the Meridian SL-100 or a trunk capable of returning disconnect supervision. Each time a conferee disconnects, the switch checks to make sure this condition is still met. If the remaining conferees do not meet these requirements, the conference is terminated. The conference can also be datafilled so the conference originator is the conference controller. In this case, when the conference originator goes on-hook, the entire conference is terminated. A Meridian SL-100 station not permitted to establish a Preset Conference must dial the attendant. The attendant can then dial the preset conference directory number. On hearing an audible ringback, the attendant transfers (by pressing the release key) the call back to the station.

A Preset Conference can also be originated by a Direct Inward Dialing (DID) caller. (This is dependent on the datafill of the Preset Conference.)

If the originator is a trunk, the trunk must be capable of returning disconnect supervision. Disconnect supervision is necessary for the originator of the Preset Conference to be able to control the conference (that is, the conference is terminated when the originator hangs up). Disconnect supervision is provided for a trunk group in the TRKGRP data table by entering "ANSDISC" under the field, SUPV. If the caller's trunk is not capable of returning trunk supervision, the caller is routed to reorder tone.

A 10-digit directory number is assigned to each Preset Conference. Access from the customer is made by dialing the conference extension number. For each Preset Conference, you may datafill 1-49 primary directory numbers (conferees). A conferee's primary directory number, referred to as "CONFADDR" in the PRECONF data table, can be a maximum of 18 digits.

A timeout interval and an optional alternate directory number may be associated with each conferee. If the conferee does not answer within the

specified time (timeout x 2), the call attempt ends. An attempt is then made to complete the call to the alternate directory number.

Conference datafill can be set to enable the conference to start when the first conferee answers. Ringing to the nonanswering conferee continues, but with no audible ringback to the caller. As the other conferees answer, they are connected into the conference following the sending of a conference warning tone (440 + 480 Hz) to the existing conferees.

When a conferee disconnects, a conference exit tone (350 + 440 Hz) is sent to all remaining conferees.

A maximum of **64** different preconference numbers can be datafilled, each of which can serve a maximum of 25 or 49 conferees depending upon the feature package implemented.

Preset conferencing data tables

The following data tables support the Preset Conference features:

- **Table PRECONF.** Table Preset Conference establishes a maximum of 64 preset conferences, and assigns the directory numbers (18 digits maximum) for each preset conferee. Tuples in this table are arranged according to the conference's one/two-digit identity number (field = PRECONF), and then by the conferee's one/two-digit identifier (field = CONFEREE). There are four "classes" of conferees found in this table:

  - Class D. The tuple with this class is the Preset Conference directory number; this tuple is always conferee #0.

Table PRECONF

PRECONF	CONFEREE	CONFADDR	CLASS	CONFTYPE	CUSTGRP	NCOS	ORIGCONT
3	0	2142454999	D	IBN	GRP1	1	Y
ADDON	DIDORIG	EMERG	ATDREQ	IMMSTART	NOTICLLI		PCNFOPTN
Y	Y	Y	N	N	PCNOR		$

The directory number 245-4999 is the Preset Conference number assigned to Conference 3, Conferee 0. When this number (assigned to software, not hardware) is dialed, all other conferees (up to 25) in Conference 3 are dialed. This Preset Conference is an **IBN** conference, as opposed to an AUTOVON (**AVON**) arranged conference. This Preset Conference belongs to Customer Group GRP1 in NCOS 1.

This NCOS <u>and</u> its privileges is assigned to <u>all</u> conferees in the Preset Conference. The conference originator, who can be a line or trunk, controls the conference (ORIGCONT = Y). This means if the conference originator hangs up, the conference ports drop (go idle). If the ORIGCONT field = N, then the conference would remain active, even when the originator disconnects. The conference originator may also add conferees to the conference after it was established (maximum total conferees, original conference + added conferees = 30). Conferees are added by pressing the Conference key on the station, dialing the new conferee's DN, then pressing the Conference key again. Direct Inward Dialing conference originators are allowed (DIDORIG = Y).

The next field, EMERG, presents a flexible option, which works like this: when EMERG = Y, a Preset Conference can be originated <u>even</u> if all the six-port conference circuits allotted for this customer group (in Table CUSTENG) are occupied. The system does this by searching for an idle six-port circuit allotted to other customer groups. Otherwise, when EMERG = N, and all six-port conference circuits are occupied, the conference originator is routed to a busy tone. The conference starts as soon as the first conferee answers (IMMSTART = Y); otherwise, when IMMSTART = N, the originator and answering conferees receive a tone ("PCNOR" in Table STN) or announcement (NOTICCLI) until two seconds after all conferees have answered <u>or</u> timeouts have expired. The <u>originator only</u> may force the conference by pressing the octothorpe (#), in which case the announcement or tone stops. At this point, the originator may talk with all answering conferees. As the remaining conferees answer, a 400 ms burst of conference warning tone is provided to the existing conferees.

The Class D conferee serves the purpose of "triggering" the fields specifying the preset conference's overall characteristics (for example, ORIGCONT, ADDON, and so forth). This Class D tuple is also used as the locator key in the data table for a given preset conference (that is, a conference number can be located by this tuple and all the conferees for this conference can be deleted automatically by deleting the Class D tuple).

- Class P. This class is assigned to all preset conferees (except conferee #0) who have a primary directory number only (no alternate). Here's an example tuple and corresponding subfields for a Class P conferee:

Table PRECONF

PRECONF	CONFEREE	CONFADDR	CLASS	TIMEOUT	PCNFOPTN
3	1	2454001	P	60	$

This conferee (1) has the indicated primary (CLASS = P) directory number 2454001. Be sure this number conforms to your dialing plan. Example: If you are using a 5 digit dialing plan, this should only be 5 digits. When a preset conference is initiated, this conferee's telephone rings for 60 seconds; if no answer, the system retries for an additional 60 seconds, after which time, if there is no answer the conferee will not be in the conference. The timeout parameter can be from 15-60 seconds.

- Class A. This class designates conferees who have an alternate (18-digit maximum) directory number to which ringing is applied if the primary directory number doesn't answer. This alternate can be in the subscriber's customer group, another customer group, or another switch location. A tuple example with its corresponding subfields appears below:

Table PRECONF

PRECONF	CONFEREE	CONFADDR	CLASS	ALTADDR	TIMEOUT	PCNFOPTN
3	2	2454002	A	912341001	45	$

For this conferee, if his phone at 2454002 is unanswered after 45 seconds, it redials 2454002 for another 45 seconds, after which the number, 912341001 is dialed. If, after 45 seconds, this alternate number goes unanswered, the call is placed a second time to the alternate number. Ringing continues for this additional 45 seconds; if no answer, the conferee is in the conference. Remember, the timeout parameter in either Class A or Class P is tried twice on the primary and alternate (if applicable) before the system routes the call to a treatment.

- Class C. This class applies to the directory number of a secondary conference located at another switch. Secondary conferencing is the ability to connect with remote conference bridges. Here's an example of its subfields:

Table PRECONF

PRECONF	CONFEREE	CONFADDR	CLASS
3	3	92783112	C

Now, we combine these four tuple types into Table PRECONF so you can see them as they would appear in real life. The PCNFKEY consists of the PRECONF and CONFEREE subfields and the CONFADDR field is the same as the CONFADDR subfield. The PCNFVAR heading is the control heading for the various subfields for each class.

Table PRECONF

PCNFKEY		CONFADDR		PCNFVAR	
3	0	2142454999	D	IBN GRP1 1 Y Y Y Y N N PCNOR	
3	1	2454001	P	60	
3	2	2454002	A	912341001	45
3	3	99263112	C		

- **Table DNROUTE.** This table is used to list all Preset Conference directory numbers - one directory number is required for each Preset Conference group (PRECONF) assigned in Table PRECONF. Here's a tuple example in which the Preset Conference feature is named PC:

Table DNROUTE

<u>DNNM</u>			<u>DNRESULT</u>				
<u>AREACODE</u>	<u>OFCCODE</u>	<u>STNCODE</u>	<u>DN SEL</u>	<u>FEATURE</u>	<u>AUTOVON</u>	<u>CUSTGRP</u>	<u>PCNFNO</u>
214	245	4999	FEAT	PC	N	GRP1	3

Entries in Table PRECONF automatically datafill Table DNROUTE.

- **Table CLLI.** This table has to include the conferencing tone name (or announcement name, if used instead of a tone).

Table CLLI

<u>CLLI</u>	<u>ADNUM</u>	<u>TRKGRSIZ</u>	<u>ADMININF</u>
PCNOR	12	10	PSETCONF_TONE

This tuple in Table CLLI links to the entry for conferencing tones in Table STN.

- **Table STN.** This Special Tone table requires a tuple for the Preset Conference Normal Notification Tone (PCNOR) received when IMMSTART in Table PRECONF is N and an announcement is not selected. This tone alternates frequencies of 852/1336 Hz at a 300 ms rate. This tone continues for two seconds, after which all conferees have answered or timeout occurs. Here's an example:

Table STN

<u>TONE</u>	<u>MEMBER</u>	<u>TMTYPE</u>	<u>TMNO</u>	<u>TMCKTNO</u>	<u>CARDCODE</u>	<u>MAXCONN</u>	<u>TRAFSNO</u>
PCNOR	1	MTM	0	1	3X68AA	15	0

As you can see, this is a hardware-oriented table which lists the location and card type for the conferencing tones. Notice NT3X68AA circuits are required for the conferencing tones and a maximum of 15 simultaneous connections are allowed to be made to the tone trunk circuit.

Preventing unauthorized use of preset conferencing

Having the feature of Preset Conference presents one problem: how do you prevent unauthorized subscribers from activating a Preset Conference? You can prevent unauthorized use of Preset Conferencing in several ways. Let's use an example in which four NCOSs comprise a customer group:

NCOS 1 has station, 9 + 7-digit, 9 + 1 + 7-digit, and 9 + 1 + 10-digit dialing.

NCOS 2 has station, 9 + 7-digit, and 9 + 1 + 7-digit dialing.

NCOS 3 has station, and 9 + 7-digit dialing.

NCOS 4 has station dialing.

In this example, we could project the privilege of originating a Preset Conference would be limited to those NCOSs (1-3) who have 9+ and station dialing. If you wanted NCOS 4 to be prevented from originating a Preset Conference, you could block the conference number through Table IBNXLA (that is, NCOS 4 would have a tuple in IBNXLA routing the call made to the Preset Conference to a treatment).

Conferencing hardware tables

Since all conferencing basic and large features (for example, Station/Attendant-controlled, Meet Me, and Preset) require NT3X67AA six-port conference circuits, these hardware related tables are also datafilled:

- **Table DATASIZE.** By specifying the table size of the six-port conference circuit table (CONF6PR), this hardware table records the maximum number of six-port conference circuit cards we can datafill. Here's an example tuple:

  Table DATASIZE

DATSKEY	SIZE
CONF6PR	100

- **Table CLLL.** Under the field, TRKGRSIZ, the number of provided six-port conference circuit members is entered. Remember each 3X67AA circuit card has six members. The following is an example of a tuple contained in Table CLLI:

  Table CLLI

CLLI	ADNUM	TRKGRSIZ	ADMININF
CF6P	192	120	SIX_PORT_CONF_CIRCUITS

Notice the pseudo name, CF6P, is used for this entry, per Northern Telecom's guidelines.

• **Table CONF6PR.** This table indicates the physical location of each six-port conference circuit card and loss pad settings. Here's an example:

Table CONF6PR

CNFCKTNO	EXTRKNM	TMTYPE	TMNO	TMCKTNO	CARDCODE	PADGRP
0	0	STM	4	1	3X67AA	CONF
1	6	STM	4	16	3X67AA	CONF
2	12	STM	0	16	3X67AA	CONF

• **Table CUSTENG.** The Customer Engineering data table allots the maximum amount of six-port conference circuits each customer group can use at one time. Once this number is met, no more conference circuits are bridged, or used to provide this customer group with conferencing abilities. An example tuple would resemble this:

Table CUSTENG

CUSTNAME	ADNUM	NONCOS	NOIBNTMT	CONSOLES	MASCON	DOMAIN	GROUPID	OPTIONS
GRP1	53	100	63	Y	N	PUBLIC	0	(CONF6C 2)$

For this customer group (GRP1), two (2) circuit cards are assigned for conferencing. These kinds of tuples need to be entered in Table CUSTENG when the number of six-port conference circuits allocable to a customer group is less than the total number of six-port circuits in the switch. This table can control the allocation of CF6P cards when multiple customer groups are in the same Meridian SL-100.

Entries to these hardware tables usually are handled by NT database technicians.

Uniform call distribution (UCD)
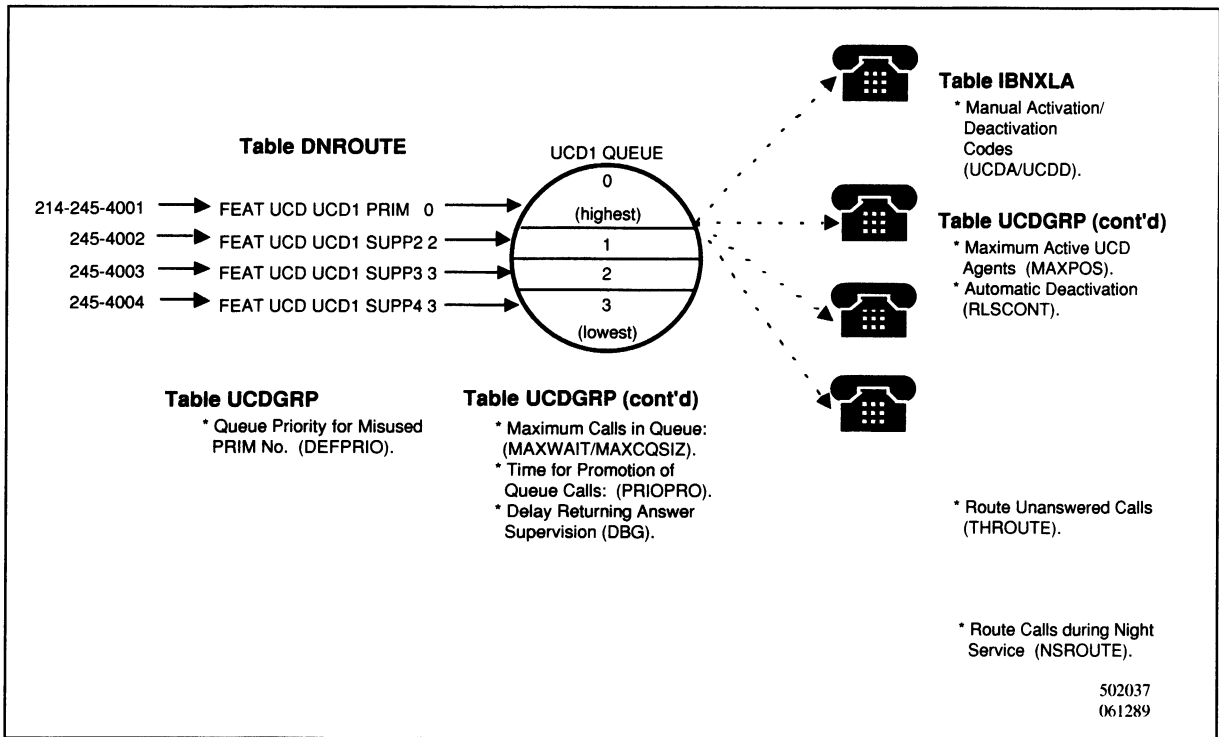
Introduction

Uniform Call Distribution (UCD) is an optional Meridian SL-100 feature allowing a large volume of calls to be answered by a group of stations. As shown in Figure 4-7, a UCD group contains a Primary UCD Directory Number and a maximum of four Supplementary UCD Directory Numbers. These Supplementary Directory Numbers are assigned a priority of 0 to 3 (highest to lowest, respectively). Higher priority calls are routed to agents before lower priority calls.

Each UCD group has four incoming call queue levels with priorities of 0 to 3 (highest to lowest). Calls to a UCD Directory Number are placed in the order of their arrival, with each call being directed to the "most idle" agent. If all agent stations are busy, a call is placed in a queue (depending on its priority). When a call is placed in a queue, the caller receives ringback, tone, announcement, or music. (AUTOVON users are subject to preemption while in one of these queues.)

A station can be activated in only one UCD group at a time and no more than 1,024 stations can be assigned to one UCD group at a given time period. Each customer group may define a maximum of 128 UCD directory numbers. A Meridian SL-100 system can have a maximum of 4096 UCD groups.

The purpose of the module is to describe the tables that must be datafilled to set up UCD feature.

Figure 4-7
Uniform call distribution

Table DNROUTE

214-245-4001 ──▶ FEAT UCD UCD1 PRIM 0 ──▶
245-4002 ──▶ FEAT UCD UCD1 SUPP2 2 ──▶
245-4003 ──▶ FEAT UCD UCD1 SUPP3 3 ──▶
245-4004 ──▶ FEAT UCD UCD1 SUPP4 3 ──▶

UCD1 QUEUE
0 (highest)
1
2
3 (lowest)

Table IBNXLA
* Manual Activation/
  Deactivation
  Codes
  (UCDA/UCDD).

Table UCDGRP (cont'd)
* Maximum Active UCD
  Agents (MAXPOS).
* Automatic Deactivation
  (RLSCONT).

Table UCDGRP
* Queue Priority for Misused
  PRIM No. (DEFPRIO).

Table UCDGRP (cont'd)
* Maximum Calls in Queue:
  (MAXWAIT/MAXCQSIZ).
* Time for Promotion of
  Queue Calls: (PRIOPRO).
* Delay Returning Answer
  Supervision (DBG).

* Route Unanswered Calls
  (THROUTE).

* Route Calls during Night
  Service (NSROUTE).

502037
061289

UCD tables

UCD is established by datafilling the following tables:

- UCDGRP,

- AUDIO,

- DNROUTE, and

- IBNXLA.

Table UCDGRP

This table defines the UCD group name and values for call priorities, thresholds, routes, and associated options. Here's an example of a tuple from UCDGRP:

UCDNAME	ACD	CUSTGRP	UCDRNGTH	THROUTE		NSROUTE		PRIOPRO
				(TABNAME)	(INDEX)	(TABNAME)	(INDEX)	60
UCD1	N	GRP1	10	OFRT	1	IBNRTE	5	

MAXPOS	DBG	DEFPRIO	RLSCNT	MAXWAIT	MAXCQSIZ	OPTIONS
100	N	3	2	5	25	AUDIO 24 Y AUDIO1

Below is a brief discussion of each field:

- **UCDNAME (Uniform Call Distribution Name).** Since a Meridian SL-100 can have more than one UCD group, you must name each UCD group. This key field is the name of the particular UCD group being focused on. The UCD group name can consist of up to 16 characters long.

- **ACD (Automatic Call Distribution).** This field is not used by UCD groups and should always be input with N (No).

- **UCDRNGTH (UCD Ringing Threshold).** This field specifies the **maximum** amount of time (in one second intervals) an unanswered call is allowed to ring at an agent's phone. If 0 is specified, the call is allowed to ring at the agent's position for an infinite amount of time. Any whole number from 1 to 63 specifies the number of seconds a call is allowed to ring before it is sent to the table specified in field THROUTE .

- **THROUTE (Threshold Route).** This field specifies the name of the table and the specific tuple to which a call is routed when either of the following happens:

  1. There is no room in the UCD queue for an incoming call, or

  2. The timeout in field UCDRNGTH has occurred.

Field THROUTE is composed of the two subfields described below:

- TABNAME (Table NAME). This subfield indicates the name of the table chosen. Options include Table IBNRTE or Table OFRT.

- INDEX. This subfield indicates the tuple number to which you want the calls routed.

- **NSROUTE (Night Service Route).** This field indicates where incoming UCD calls are to be routed (that is, the table's name and its tuple number) when there are no active agents available. This field includes two subfields described below:

  - TABNAME (Table Name). This subfield indicates the name of the table chosen. Options include Table IBNRTE or Table OFRT.

  - INDEX. This subfield indicates the tuple number to which you want the calls routed.

- **PRIOPRO (Priority Promotion Timeout).** All incoming UCD calls are assigned (in Table DNROUTE) a starting UCD queue priority level. After a certain period of time has expired, if the call still was not serviced, it can move to a higher queue priority if you so desire.

  This field specifies the maximum time in seconds (0-255) a call waits to be promoted. Zero (0) means the calls is never promoted.

- **MAXPOS (Maximum Number of Positions).** This field specifies the maximum number of agent positions that can be activated at any one time. The maximum amount is 1,023. Zero disallows all agents from activating into the UCD group.

- **DBG (Delayed Billing).** This field determines how billing is made. When a caller places a long distance call to a UCD number, the long distance carrier usually begins billing once the call is answered either by a delay announcement or an idle agent. (The Meridian SL-100 sends and answer supervision to the originating switch which indicates when the call was received.) Thus, the long distance carrier begins billing the caller even if he is waiting in a queue for a UCD agent to become available. If you do not want the caller to be charged while in queue, you must specify Y (Yes) in this field. Answering Y causes the Meridian SL-100 to return an answer supervision message only after the caller is answered by an idle agent. For a Y (Yes) in this field to work correctly, the tuple "TOLL_OFFICE_ DELAYED_BILLING BOOLEAN" in Table OFCENG must be answered Y (Yes). Also, before you set this field to Y (Yes), you must be sure Telco tariffs permit answer supervision being delayed while the caller is in queue. The local operating company may have tariffs requiring a PBX return answer even when the caller is connected to an announcement. In this case, the use of the delayed billing option would be a violation of tariffs.

- **DEFPRIO (Default Priority).** As we mentioned earlier, all incoming UCD calls are assigned a queue priority number (by Table DNROUTE). Usually, the highest priority number in queue is reserved for those callers who have dialed the primary UCD directory number. Many times this primary number is a number given to local dialers who dial it through long distance or by "1-800."

  This field is an optional field used when local callers are allowed to directly dial the primary number or be transferred to the number. This field identifies the default priority number applicable to local calls terminating on the terminating UCD directory number.

- **RLSCNT (Release Count).** This field specifies the maximum number of calls that can terminate on a UCD station and not be answered because either: (1) the UCDRNGTH time (field number four) has expired or (2) the caller has abandoned. After this number is reached, the agent is automatically deactivated from the UCD group. The range for this field is 1-31 calls. If 0 is specified, the UCD agent is never automatically deactivated. When deactivated, log report IBN125 is generated identifying which agent was deactivated.

- **MAXWAIT (Maximum Wait).** This field specifies the maximum time (in seconds) a call may wait before subsequent calls deflect to the THROUTE field. The MAXWAIT range is 0 - 1800 seconds.

- **MAXCQSIZ (Maximum Calls Queue Size).** This field specifies the maximum number of calls that can be in the queue for an UCD-DN. When this parameter is reached, newly arriving calls deflect to the THROUTE field. The range of values for MAXCQSIZ is 0 - 511 calls.

- **OPTIONS.** This last field is used if you want the callers to receive a recorded announcement or music while they are in queue. If an announcement or music is desired, enter AUDIO as the option. After entering AUDIO, the switch prompts you for the three subfields described below.

    - RANTH (Recorded Announcement Threshold). This subfield specifies the amount of time (in seconds) an incoming call waiting in queue hears ringback before a recorded announcement is given. The range for this field is 1 to 63.

    - ANNMUSIC (Announcement/Music). If a caller in queue is to be given an announcement or music, this field must indicate Y (Yes). If you state N (No), the switch does not prompt you for the next subfield.

    - AUDIOGRP (Audio Group). This field indicates the audio group number (AUDIO1 to AUDIO15) in Table AUDIO, to which the calls be routed for a specific announcement or music.

    Let's look once again at the tuple from Table UCDGRP.

UCDNAME	ACD	CUSTGRP	UCDRNGTH	THROUTE (TABNAME)	(INDEX)	NSROUTE (TABNAME)	(INDEX)	PRIOPRO 60
UCD1	N	GRP1	10	OFRT	1	IBNRTE	5	

MAXPOS	DBG	DEFPRIO	RLSCNT	MAXWAIT	MAXCQSIZ
100	N	3	2	5	25

OPTION
(RANTH) (ANNMUSIC) (AUDIOGRP)
AUDIO 24   Y   AUDIO1

In the tuple in our earlier example, UCD group "UCD1" allows any unanswered calls after ten seconds of ringing at an agent position to be sent to a tuple one in Table OFRT. Calls during night service go to tuple five of Table IBNRTE. Calls in queue elevate to a higher priority after 10 seconds. A maximum of 100 agents are allowed to belong to UCD group UCD1. Local calls to the UCD primary directory number default to priority three. Two unanswered calls at most are allowed to be abandoned or sent to tuple one in Table OFRT from an idle agent's station before that agent is automatically deactivated from the UCD group. The fields MAXWAIT and MAXQSIZ indicate the queuable maximum number of calls is 25 and the maximum time they are in queue is 5 seconds. Queued calls hear audio group number one.

Table AUDIO

Table AUDIO is used for offering incoming callers one of the following three choices in audio feedback while they're waiting in the UCD queue:

- Continuous Ringing,

- An Announcement, or

- Music.

Below is an example of a tuple in Table AUDIO:

AUDIOKEY		ROUTES				
(GROUP)	(FTRINDEX)	(CHOICE)	(AR)	(CYCLE)	(ANNCLLI)	(CHOICE)
AUDIO1	UCDQ	ANN	Y	2	ANNMEM1	$

The following is a brief explanation of the fields/subfields:

- **AUDIOKEY (Audio Key).** This is the key field. It is composed of two subfields, GROUP and FTRINDEX.

- **GROUP (Audio Group Name).** The audio group name (AUDIO1 in our example) must be input here. This name was also referenced in the OPTIONS field of Table UCDGRP.

- **FTRINDEX (Feature Index).** As the second part of the key field, Feature Index references the feature (UCDQ) for which the Audio Group Name is used. Since an Audio Group Name can be used for several features (for example, UCDQ, ACDQ, ATTQ, and so forth), it can be part of several key fields in this table.

- **ROUTES.** This field specifies what the caller hears (that is , ringing, announcement, or music). Its subfields are dependent on your answer to its first subfield "CHOICE." Table 4-1 summarizes the datafilling process. The following is an explanation of each subfield.

  CHOICE. This subfield defines which choice is selected for the caller to hear. Depending upon which entry is put into this field, a series of subfields define the parameters of the particular choice.

  - If "ANN" (Announcement) is specified as your choice, the following subfields must be defined:

    > AR (Audible Ringback). This subfield specifies whether or not audible ringback for the dialer is to continue until the beginning of the next announcement cycle.

    > CYCLE. This subfield specifies the number of recorded announcement cycles provided before moving to the next choice.

> ANNCLLI (Announcement CLLI Name). This subfield defines the specific announcement name (from Table ANNS) the caller is to hear.

- *If "SILENCE" is specified as your choice*, the following subfield must be defined:

> TIME. This subfield defines how many seconds of silence (1-1800) are provided before moving on to the next choice. Enter 0 if this is the last entry.

- *If "MUSIC" is specified as your choice*, the following subfield must be defined:

> MUSICCLLI (Music CLLI Name). This subfield specifies the code assigned to the announcement providing the music for the caller.

> RINGING. This subfield defines how long to apply ringing (0-1800) before moving to the next choice.

> REPEAT. This subfield defines how many times to repeat the selection in the field ROUTES (2 to 4) after the cycle was completed.

Table 4-1
Datafill for audible feedback in UCD queue

I. Datafill Procedure for **Immediate Silence** (No Ringback Given to the Caller):
Step 1:   Enter a "$" in field OPTION of Table UCDGRP.

II. Datafill Procedure for Continuous Ringing:
Step 1:   Enter "AUDIO" in field OPTION of Table UCDGRP.
Step 2:   Subfield RANTH (Recorded Announcement Threshold) of Table UCDGRP must be datafilled (1-63) but is not used in this application.
Step 3:   Specify the Audio Group Name (AUDIO1 - AUDIO15) referencing the call to the correct tuple in Table AUDIO.
Step 4:   Enter "Y" in subfield ANN/MUSIC of Table UCDGRP.

Step 5:   Create the key field of a tuple in Table AUDIO this call may use. The key field consists of two parts:
        - The Audio Group (GROUP) Name (AUDIO1 - AUDIO15) you referenced in Table UCDGRP.
        - The Feature Index (FTRINDEX) of "UCDQ."

Step 6:   Specify "SILENCE" in subfield CHOICE of Table AUDIO.

Table 4-1 (continued)

III.	Datafill Procedure for Offering An <u>Announcement(s)</u> **While in Queue:**
Step 1:	Enter "AUDIO" in field OPTION of Table UCDGRP.
Step 2:	Specify in subfield RANTH (Recorded Announcement Threshold) of Table UCDGRP how long (in seconds) you want the caller to hear ringing in queue before he is sent to an announcement. The range is 1-63. However, this is typically set at 24 seconds which provides enough time for at least four rings before an announcement is given.
Step 3:	Specify the Audio Group Name (AUDIO1 - AUDIO15) referencing the call to the correct tuple in Table AUDIO.
Step 4:	Enter "Y" in subfield ANN/MUSIC of Table UCDGRP.
Step 5:	Create the key field of a tuple in Table AUDIO this call can use. The key field consists of two parts: — The Audio Group (GROUP) Name (AUDIO1 - AUDIO15) you referenced in Table UCDGRP. — The Feature Index (FTRINDEX) of "UCDQ."
Step 6:	Specify "ANN" in subfield CHOICE of Table AUDIO.
Step 7:	Specify whether or not you want audible ringback to continue until the beginning of the announcement cycle by entering "Y" (Yes) or "N" (No) in subfield AR (Audible Ringback) in Table AUDIO. Thus, the total ringback time is equal to the number of seconds specified in subfield RANTH of Table UCDGRP <u>plus</u> the number of seconds to the beginning of the announcement cycle (if "Y" is specified for subfield AR in Table AUDIO).
Step 8:	Specify, in subfield CYCLE of Table AUDIO, the number of cycles (1-30) of recorded announcement the caller should hear.
Step 9:	Specify the name of the announcement to be given in subfield ANNCLLI of Table AUDIO.

Table 4-1 (continued)

> **IV. Datafill Procedure for Offering <u>Music</u> While in Queue:**
>
> Step 1:   Enter "AUDIO" in field OPTION of Table UCDGRP.
>
> Step 2:   Specify in subfield RANTH (Recorded Announcement Threshold) of Table UCDGRP how long (in seconds) you want the caller to hear ringing in queue before he hears music. This range is 1-63. Typically, this is set at 24 seconds which provides enough time for four rings before music is heard.
>
> Step 3:   Specify the Audio Group Name (AUDIO1 - AUDIO15) that references the call to the correct tuple in Table AUDIO.
>
> Step 4:   Enter "Y" in subfield ANN/MUSIC of Table UCDGRP.
>
> Step 5:   Create the key field of a tuple in Table AUDIO this call may use. The key field consists of two parts:
>
> -   The Audio Group (GROUP) Name (AUDIO1 - AUDIO15) you referenced in Table UCDGRP.
>
> -   The Feature Index (FTRINDEX) of "UCDQ."
>
> Step 6:   Specify "MUSIC" in subfield CHOICE of Table AUDIO.
>
> Step 7:   Specify the code assigned to the announcement providing the music to the caller in subfield MUSICLLI of Table AUDIO.

Table DNROUTE

Table DNROUTE contains special directory numbers dialed by callers who are not calling a specific person or station. These special numbers they are dialing have no line card (LEN) assigned to them. Instead, these DNs are dialed by callers who want to be routed to special places or groups (for example, attendant consoles, UCD groups, ACD groups, conferences, DISA, and so forth). Let's look at an example of how Table DNROUTE routes incoming calls to these special DNs on to the appropriate UCD group as UCD Primary and Supplementary Directory Numbers when they are dialed.

DNNM			DNRESULT						
			(DNSEL)	(FEAT)	(UCDGRP)	(DNTYPE)	(TOLLPRIO)	(MEMNO)	(DNPRIO)
214	245	4000	FEAT	UCD	UCD1	PRIM	0		
214	245	4001	FEAT	UCD	UCD1	SUPP		1	2

The following is a brief explanation of the fields:

- **DNNM (Directory Number).** This first field is identical to the key field of Table DN. It contains the complete listing of directory numbers that might be dialed for special purposes. In addition to containing our listed directory numbers, this key field contains our two numbers we want to route to our UCD group. This field is comprised of the three subfields described below.

  - SVGNPA (Serving NPA). This part of the key field lists the area code of your switch.

  - NXX (NXX Code). The second part of the key field is the first three digits of the seven-digit number.

  - DEFGDIGS (DEFG Digits). The third part of the key field is the last four digits of the seven-digit number.

- **DNRESULT (Directory Number Result).** The second field tells the switch what should happen if someone calls the directory number listed in the first field. This field is comprised of the following subfields:

  - DNSEL (Directory Number Selector). This field designates what is to happen to a caller who dials the number in field one. If the call is to be routed to the UCD group, the selector FEAT should be entered here. If FEAT is used, the following subfields are requested:

- **FEAT (Feature).** This subfield states whether a call placed to this directory number should be routed to a **UCD** or **ACD** group. Specify UCD here.

- **UCDGRP (Uniform Call Distribution Group).** The name of the specific UCD group which is to receive the call is specified here (in case more than one UCD group exists in the switch).

- **DNAREA (Directory Number Area).** This subfield furnishes even more detailed information about this particular UCD group, as described below:

  - <u>DNTYPE (Directory Number Type).</u> As previously stated, numbers dialed to access UCD groups are classified as either Primary or Supplementary numbers. When a caller dials a Primary number, his queue priority number is usually higher than if he had dialed one of the Supplementary numbers. If the DN in the key field of this tuple is to be treated as a Primary UCD DN, enter PRIM in this field and also complete field TOLLPRIO (below). If this number is considered Supplementary, enter SUPP and complete fields MEMNO and DNPRIO.

- **TOLLPRIO (Toll Priority).** The priority to be assigned to calls who dial the Primary UCD number should be designated here. The range is from 0 to 3, with 0 being the highest priority in the queue.

- **MEMNO (Member number).** This subfield should only be completed for Supplementary DNs that are dialed to access the UCD group. There can only be four Supplementary DNs.

  This subfield controls the number of DNs called by people to access the UCD group.

- **DNPRIO (Directory Number Priority).** As subfield TOLLPRIO assigned a priority number to callers who dial the Primary UCD number, this subfield assigns the priority number to the callers who dial a specific Supplementary DN to access the UCD group.

Table IBNXLA

To activate themselves, UCD agents must dial a UCD activation code followed by the Primary DN of the UCD group they want to receive calls from. When they want to deactivate themselves from the UCD group, they must dial the deactivation code. These activation (UCDA) and deactivation (UCDD) codes must be listed in Table IBNXLA. If the agents are to dial a star before dialing the codes, the tuples would look similar to the examples below.

DGLIDX	RESULT (TRSEL)	(ACR)	(SMDR)	(FEAT)
FTN1 78	FEAT	N	N	UCDA
FTN1 79	FEAT	N	N	UCDD

Abbreviations

ACD	Automatic Call Distribution
CLLI	Common Language Location Identifier
DID	Direct Inward Dialing
DMS	Digital Multiplex System
DN	Directory Number
FEAT	Feature
Hz	Hertz (cycles per second)
IBN	Integrated Business Network
ICI	Incoming Call Identification
LDN	Listed Directory Number
LEN	Line Equipment Number
MM	Meet Me Conference
NCOS	Network Class of Service
NT	Northern Telecom
PBX	Private Branch Exchange
PC	Preset Conference
UCD	Uniform Call Distribution

Notes:

Practice 1: Uniform call distribution (UCD)

Instructions:

In this work project, you set up a UCD group. The name of the UCD group and its characteristics are listed below.

1. Using this information, complete the forms by filling in the datafill for each table. Then, enter this information into the system; if you need additional information, refer to NTPs *555-4031-851-451* or *555-4031-350*.

   Tables in Order of Datafill
   (1) Table Audio
   (2) Table UCDGRP
   (3) Table DNROUTE

- The UCD Name (1-16 characters) ("X"= Your Group Number): <u>UCD"X</u>

- Is ACD (automatic call distribution) be used?
  <u>N</u>

- What Customer Group is the UCD group assigned?
  <u>GRP'X'</u> (group number = X)

- The length of time (in one second increments) an answered call is be allowed to ring an idle agent's phone before it is forwarded to a treatment (0-63 secs, 0=infinite) (A ring cycle is 6 seconds.):
  <u>18</u>

- The treatment given to callers that cannot terminate to the UCD Group because 1) the queue register is full or 2) the ringing threshold has expired. (It is possible to route these calls to another station or trunk group within the customer group. However, if the UCD Group has this route set to its own UCD Directory Number, the caller hears busy.)
  <u>ANNOUNCEMENT</u>

- If an announcement is to be given when a caller cannot terminate to a UCD group, enter the announcement CLLI name.
  UCDANN
  *OFRT 22 is already built indicating UCDANN.
  *(OFRT 22)

- The name of the treatment providing an incoming caller when there are no active agents in the group (that is, night serviced): **Announcement**

- If the treatment name is "announcement," provide the announcement CLLI name:
  NSANN
  *OFRT 23 is already built indicating NSANN.
  * (OFRT 23)

- The maximum amount of time (in seconds) a caller waits in a queue priority level before advancing to the next highest priority level (0-255 secs, 0=infinite):
  60 secs

- The maximum number of agents activatable at one time (0-1,023):
  100

- Should billing start when the call is answered by a UCD agent? If not, billing starts when the caller receives an announcement.
  No

- The default priority local calls enter when dialing the primary UCD number.
  3

- The maximum number of times an agent's phone rings and go unanswered (either because the ring threshold has expired or because the caller has abandoned). After this maximum number of times is reached, the agent is automatically deactivated from the group (0-31, 0=infinite):
  2 times

- The maximum waiting time (in seconds) before a call is presented to an idle agent when this timer expires, subsequent calls deflect to THROUTE (0 to 1800 is the field range).
  15 Secs

- The maximum number of calls which can be allowed in Queue for a UCD_DN when this parameter is reached, subsequent calls deflect to THROUTE (0 to 511 is the field range).
  25 calls

- Should an announcement and/or music be applied to calls in the UCD queue?
  Announcement (Audio)

- Length of time a caller should hear ringing before the recorded announcement is given (1-63 secs):
  12

- If ANNOUNCEMENT or MUSIC was selected as your option, indicate "YES."
  Yes

- How Many Cycles of the Announcement should be heard?
  2

- Name of Announcement
  UCDANN

- To what AUDIO Group would you like to route this announcement?
  AUDIO"X" (X=Group #)

- The UCD primary number:
  214-248-"X"000 (X=Group#)

- The toll priority of the primary number:
  0

- The UCD supplementary numbers:
  214-248-"X"001 (X=Group#)

- The member number to which the UCD group is assigned:
  0 _

- The priority to which the UCD supplementary number is assigned:
  1 _

2. Run TRAVERs to verify the datafill you performed. After you have received permission from your instructor, run TRAVERs on your datafill and check it to ensure you correctly datafilled the tables. Use a directory number at your table to run the TRAVERs. Turn this TRAVER into your instructor.

• Start Printer

    TRAVER L _____ '8*000' B (* = Group #)

    TRAVER L _____ '8*001' B (* = Group #)

• Stop Printer

Lesson 5

Emergency stand alone tables and translations

Why this lesson is important

Northern Telecom has many remote peripherals; in the event communication between a remote and the host (Meridian SL-100) is lost, the Emergency Stand Alone (ESA) feature supplies local, basic intracalling service to remote stations until the connection with the host is restored. This is an optional feature and requires additional hardware and software if the feature is elected.

This lesson introduces the basics of ESA translations, ESA tools, as well as an overview of the Remote Switching Center (RSC).

> *Note: Because this training center currently does not have a physical remote, we are taking this opportunity to introduce these basics. If you would like more information on this topic, please refer to the NTPs listed on the next page.*

Objective

Given appropriate documentation, identify tables and ESA tools necessary to datafill a standard RSC remote.

What to do

1. Read Lesson 5: Emergency stand alone tables and translations.

2. If you have further questions on ESA, please refer to the resources listed below.

Again, this lesson is provided as seminar-type overview. If you do not deal directly with the datafill or maintenance of remotes, you do not need to read this lesson.

What resources to use

Resources	Resource number
Commercial Systems Customer Data Schema	NTP 555-4031-851
Commercial Systems Translations Guide, Vol. 13	NTP 555-4031-350
Meridian SL-100 Remote Peripherals General Description	NTP 555-4001-104
RSC Maintenance Manual	NTP 297-8221-550

Emergency stand alone

Introduction

Emergency Stand Alone (ESA) is an optional feature providing the remote peripherals with the intelligence to allow continued service for intraswitched calls, when communication to the Meridian SL-100 host is lost. This includes support of basic station-to-station calls within the remote. An example of ESA mode switching is shown in Figure 5-1 (note the host peripheral is an LGC; it could be an LTC or a DTC; also note this is a sample set-up and other configurations exist).

Figure 5-1
Emergency stand alone switching

G502-177
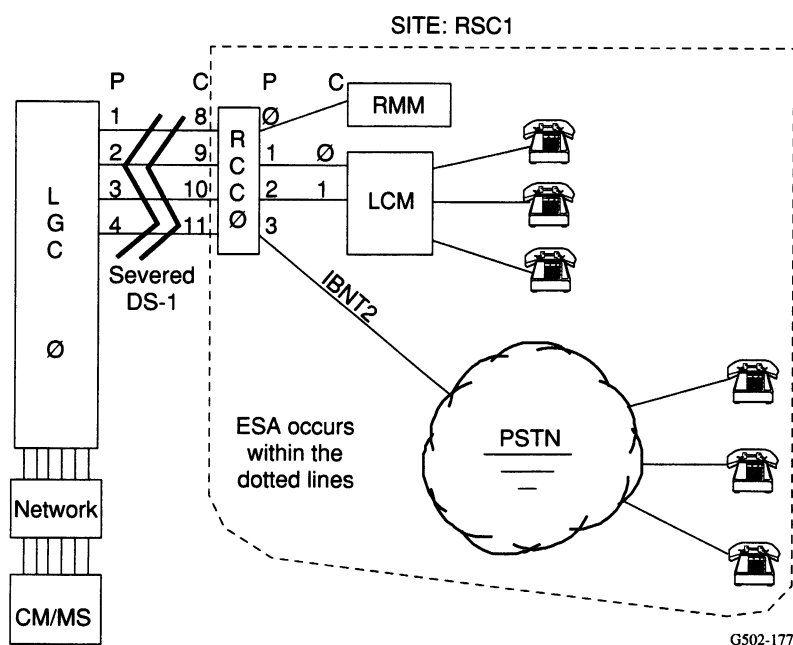
When communication is lost on the primary DS-1 link to the Meridian SL-100 host office, the remote automatically enters the ESA mode. ESA operation continues until communications are restored over at least one of the primary DS-1 links. During entry or exit of the ESA mode, established calls within the remote are lost. Calls in the process of being established are also lost.

During ESA, calls to subscribers outside the remote site receive overflow tone. Emergency and operator calls are routed to telephone company-specified lines in the remote. Requests for special features are ignored or receive reorder tone. Calls to subscribers within the remote site from outside receive reorder or busy tone.

ESA operation can be manually activated/deactivated by using a Maintenance and Administration Position (MAP) workstation at the host Meridian SL-100. During ESA operation, there is no indication at the MAP workstation of the emergency condition. The remote is shown as "SysB" at the MAP.

The ESA feature requires additional hardware and software. The required hardware consists of one ESA processor card, ESA clock and tone card, a master processor memory card, and at least one Digitone receiver, if Digitone service is provided (for the MCRU only). The ESA software performs functions such as digit accumulation, directory number translation, and call supervision. (Refer to the documentation for specific feature packages for certain remotes).

Services supported during ESA

The following services are supported during ESA:

- services for single party, multiparty and PBX lines
- up to 16 prefixes or special numbers of up 15 digits each for special termination (0, 1, 411, 911)
- 3- to 7-digit local dialing plan
- invalid or vacant termination routing to reorder

IBN features supported during ESA

The following IBN features are supported during ESA:

- up to 32 customer groups per remote
- up to 640 stations in a customer group
- up to 8 prefix or special numbers of up to 15 digits for each customer group (0+, 411, 9+)
- station-to-station dialing for 1- to 7-digit extension numbers
- denied incoming call for a station
- direct outward dialing with/without second dial tone for termination to another customer group or line within the MCRU/MCRM

- intercustomer-group calling by the same dialing plan (except lines with denied incoming option)

Additional features supported during ESA

The following additional features are supported during ESA:

- dial pulse, Digitone reception
- all ringing types supported by the ELCM/DLM
- all ringing types supported by the MCLME/MCDM
- ground/loop start line
- automatic lines
- hunt group services (sequential only)
- local dialing plans

Features not supported during ESA

The following features are **not** supported during ESA:

- attendant consoles
- Local Automatic Message Accounting (LAMA)
- Multiple Appearance Directory Number (MDN) group operation
- recorded announcements
- maintenance and administration features

Meridian cabinet remotes

Introduction

For customers needing a distributed campus-style switching system with one or more remote sites, the remote peripherals provide the capability for serving analog and digital telephone sets and data terminals at a physical location remote to the host Meridian SL-100. This method of private local networking provides the customer with the most cost-effective means of serving multiple smaller remote sites while still retaining all the features and services of the larger host.

Remote switching can be routed to the host Meridian SL-100 through one or more Meridian Cabinet Remote Unit (MCRU) (shown in Figure 5-1), through one or more Meridian Cabinet Remote Module-ISDN (MCRM-I), through one or more MCRM-S, through one or more MCDR, or through MCRU or MCDR connected to an MCRM-I or to a MCRM-S (refer to Figure 5-2).

Figure 5-2
Table flow for basic call processing
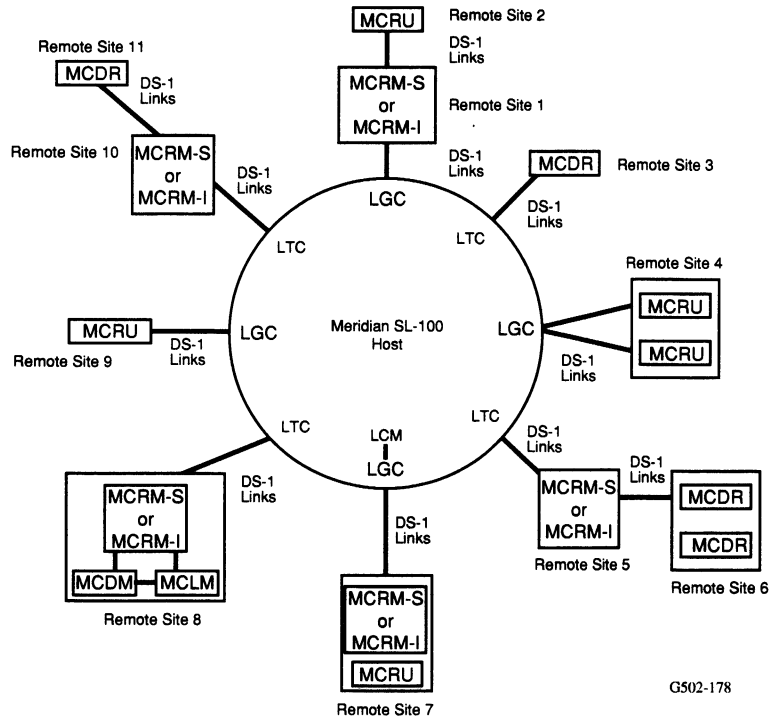
The interface between the remotes and the host Meridian SL-100 is through standard DS-1 links: 2 to 6 primary links for the MCRU and MCDR, and 2 to 16 primary links for the MCRM-I (ISDN cabinet) or MCRM-S (SONET cabinet).

The DS-1 links are terminated on a Line Group Controller (LGC), LGC ISDN (LGC-I), or Line Trunk Controller (LTC) or LTC ISDN (LTC-I) at the host Meridian SL-100. All links from a MCRU, MCRM-I or MCRM-S must terminate on the same LGC (Figure 5-1 shows an LGC/MCRU configuration). All links from a MCDR must terminate on the same LTC. Peripherals at remote sites transform the DS-1 signals back to DS-30A link format.

The Host Extended Peripheral Module (XPM) can be an LTC, LTC-I, LGC or LGC-I. The following definitions apply to the Host XPM:

- terminates DS-1 links from the Remote Cluster Controller (RCC), RCC-Integrated Services Digital Network (RCC-I), or RCC-2 and switches them through the network

- optionally can terminate Meridian Cabinet Line Modules (MCLM)s directly. The Host LGC/LTC need not be upgraded to LGC-I/LTC-I unless it supports a separate, local MCLM in addition to the RCC-I or RCC-2.

- must be LTC or LTC-I if there are trunks off the RCC-I or RCC-2

  Note: When an MCRM-I or MCRM-S requires trunking off remotes, the MCRM-I or MCRM-S must be connected to an LTC at the host.

The maximum distance from the remotes to the Meridian SL-100 host is 150 miles (240 km).

Maintenance and administration of the remotes are performed using Maintenance and Administration Position (MAP) workstations located at either the host or the remote site. MAP workstations at the remote site communicate with the host through dial-up lines, except during ESA mode.
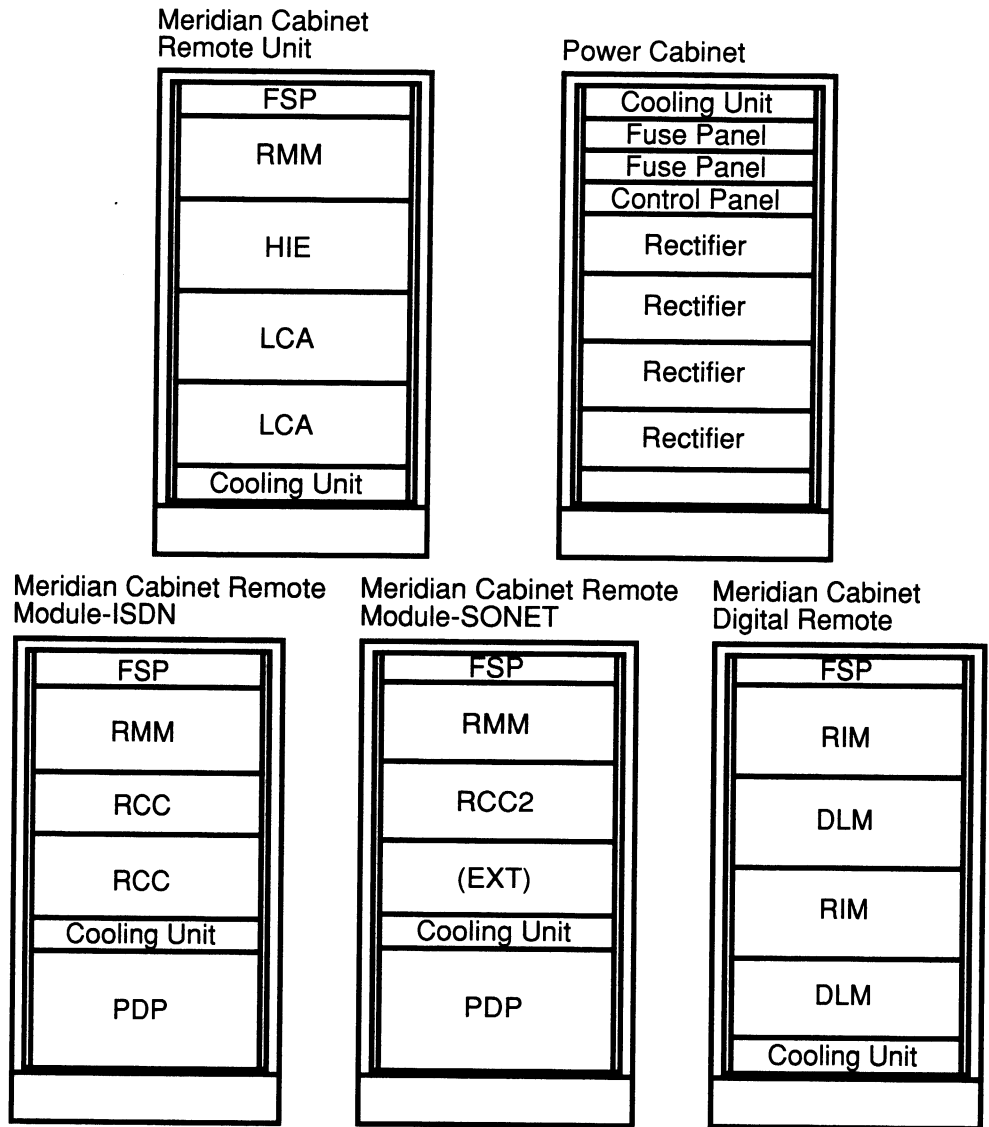
Cabinet concept

The remotes are housed in cabinets to provide the same efficiency and design improvements afforded by the cabinetized Meridian SL-100, as described in Cabinetized General Description, NTP *555-4001-103*.

The MCRM-I or MCRM-S, MCRU, and MCDR are remote hardware switching modules mounted in 6-ft (1.8-m), Meridian gray product cabinets (refer to Figure 5-3). This modularity gives the system flexibility in physical capability, allowing easy system expansion.

Because a majority of Meridian SL-100 applications fall within identified capacity parameters, the remotes have pre-engineered hardware modules. The modules are packaged in cabinets as off-the-shelf products to enable configurations to be determined quickly, and implemented at shorter intervals.

Figure 5-3
Remote cabinets layouts

Meridian Cabinet
Remote Unit

FSP
RMM
HIE
LCA
LCA
Cooling Unit

Power Cabinet

Cooling Unit
Fuse Panel
Fuse Panel
Control Panel
Rectifier
Rectifier
Rectifier
Rectifier

Meridian Cabinet Remote
Module-ISDN

FSP
RMM
RCC
RCC
Cooling Unit
PDP

Meridian Cabinet Remote
Module-SONET

FSP
RMM
RCC2
(EXT)
Cooling Unit
PDP

Meridian Cabinet
Digital Remote

FSP
RIM
DLM
RIM
DLM
Cooling Unit

G502-179

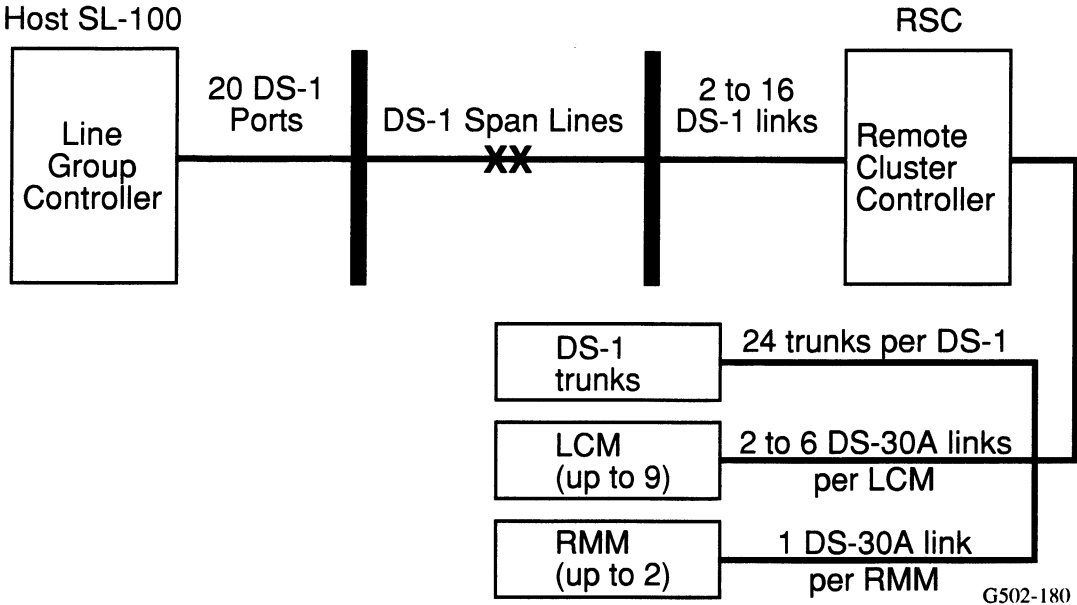|	
EXT	Extension shelf
DLM	Digital Line Module
FSP	Frame Supervisory Panel
HIE	Host Interface Equipment
LCA	Line Concentrating Array
PDP	Power Distribution Panel
RCC	Remote Cluster Controller
RIM	Remote Interface Module
RMM	Remote Maintenance Module

Introduction to RLCM/RSC

The Meridian SL-100 family of remotes consists of the Remote Line Concentrating Module (RLCM) and the Remote Switching Center (RSC). Types of RSCs include the Meridian Cabinet Remote Module-ISDN (MCRM-I) and the Meridian Cabinet Remote Module-SONET (MCRM-S). These remote modules home onto a Meridian SL-100 host switch. One Meridian SL-100 host can accommodate up to 64 remote sites.

The design of the remotes is based on the Line Concentrating Module (LCM). Therefore, commonality of hardware between the RLCM, Meridian Cabinet Line Module (MCLM), Meridian Cabinet Digital Module (MCDM), and the LCM exists. Commonality of hardware also exists between the RSC/Remote Cluster Controller (RCC), the remote Cluster Controller-ISDN (RCC-I), the enhanced Remote Cluster Controller (RCC-2), and the Line Group Controller (LGC), Line Trunk Controller (LTC), and the Digital Trunk Controller (DTC). The MCLM is an adaptation of the LCM for MCRM-I or MCRM-S applications.

The RLCM/RSC, MCRM-I or the MCRM-S allow the customer to offer sophisticated Meridian SL-100 features and services to locations beyond the host serving area. Subscribers served by the any of these remotes are provided the same grade of service as those served by the host Meridian SL-100. The RLCM supports the same line cards as the LCM in the host Meridian SL-100. The RSC supports the Extended Peripheral Module (XPM) and LCM line cards. It is possible to assign mixed combinations of Electronic Telephone Set (ETS) and data line cards to the same Line Drawer in the remote configurations.

The largest member of the remote family is the RSC. It provides interfacing capabilities for a large number of analog lines or digital trunking or both at a remote location. An RSC configuration is shown in Figure 5-4.

Figure 5-4
RSC configuration

Host SL-100   RSC

Line Group Controller — 20 DS-1 Ports — ‖ — DS-1 Span Lines **XX** — ‖ — 2 to 16 DS-1 links — Remote Cluster Controller

DS-1 trunks	24 trunks per DS-1
LCM (up to 9)	2 to 6 DS-30A links per LCM
RMM (up to 2)	1 DS-30A link per RMM

G502-180

Advantages of the RLCM/RSC

The various types of RLCM/RSCs each satisfy the following objectives:

- provide growth capability with a small footprint

- provide intraswitching capabilities

- provide for Emergency Stand Alone (ESA) operation

- extend sophisticated Integrated Business Network (IBN) features and services beyond the immediate service area of the host Meridian SL-100

- serve, if necessary, as a viable remote Private Branch Exchange (PBX)

- eliminate the need for feeder cables

Host interface

Interface between the various types of RLCM/RSC and the host Meridian SL-100 is through standard DS-1 links. A maximum of two time slots are reserved for call processing, administration and maintenance functions. There is full access from any line card in the remote to any channel on any of the DS-1 links. A minimum of two primary links for the RLCM and two for the RSC are required. Depending on traffic requirements, the quantity of links may be increased to a maximum of six for the RLCM and 16 for the RSC.

The DS-1 links are terminated on a Line Group Controller (LGC) at the host Meridian SL-100. All links from a given RLCM/RSC must terminate on the same LGC. To facilitate efficient engineering, it is possible to mix LCM and remotes on the same LGC. The maximum distance of the RLCM/RSC from the Meridian SL-100 host office is 150 miles (240 km).

At the RLCM, the links are terminated on DS-1 interface cards (NT6X50) located in the Host Interface Equipment (HIE) shelf. At the RSC, the links are DS-1 interface cards found in the RCC. At the MCRM-S, the links are DS-1 interface cards found in the RCC-2. Messaging links are terminated on different DS-1 interface cards at both the host Meridian SL-100 and remote locations, thereby increasing reliability.

Two DS-1 channels for the RLCM and two for the RSC are required for signaling to the Meridian SL-100 host. The two message channels occupy channel 1 on each of the two primary DS-1 links. If the system is equipped with the ESA option, the ESA processor requires two additional message channels. These additional channels occupy channel 2 on each of the two primary DS-1 links. All other channels are available to the subscribers.

Remote Switching Center (RSC) configurations

Excluding the MCRM-S, the RSC consists of the following seven bays:

- Remote Controller Equipment (RCE) bay

- Remote Power Distribution Control (RPDC) bay

- up to five Line Concentrating Equipment (LCE) bays

Each LCE has two LCMs of 640 lines each. The RCE bay contains the following:

- one or two RMM shelves, depending on the quantity of maintenance circuits required. The RMM supports all circuits supported by the RLCM-RMM.

- a two-shelf Remote Cluster Controller (RCC) containing Meridian SL-100 host-to-remote DS-1 interface cards, and DS-1 and DS30A interface cards for the Peripheral-side (P-Side) of the RSC. The RCC contains the RSC processor/memory cards for both normal and ESA modes and supports Universal Tone Receivers (UTR) for trunking in normal and ESA modes.

All RSC-Sonets are equipped with a UTR and enhanced messaging facilities for enhanced capacity purposes. The Meridian SL-100 host Line Group Controller (LGC) also contains the enhanced messaging facility.

Host interface

The RSC connects to the Meridian SL-100 host LGC through 2 to 16 DS-1 links.

The common Central-side (C-side) of the RSC has 384 channels that connect to the Meridian SL-100 host LGC (16 ports by 24 DS-1 links). There are an additional 96 voice channels (16 ports, 30 channels) from the LGC to the network.

The P-Side of the RCC consists of 20 ports able to support any combination of the following:

- Line Concentrating Module (LCM): up to nine LCMs, each using two to six DS30A links

- DS-1 trunks: 24 trunks per DS-1

- RMM: up to two RMMs, each using one DS30A link

RCC

The Remote Cluster Controller (RCC) or in an MCRM-S configuration, the RCC-2, is the Central Control (CC) of a RSC and performs the following functions:

- termination of DS-1 links from the Meridian SL-100 host LGC

- termination of peripheral DS30A and DS-1 links, used for digital trunking

- reception of control messages from the host LGC

- control of associated LCM and RMM, as well as digital trunks; and

- local switching

Local switching includes Meridian SL-100 host directed calls, connecting LCM and RMM link channels to channels on the host directed DS-1 links. Calls internal to the RSC, as well as those internal to LCM, RMM and DS-1 trunk channels are also included. Local switching includes provisions for local, high level control during ESA, if the additional required software is installed in the RCC control processors.

A maximum of 16 DS-1 links provide the interface between an RSC and an LGC in the Meridian SL-100 host office. The RSC requires a minimum of two links to the Meridian SL-100 host. However, four links are recommended. All DS-1 links from one RSC must terminate on the same LGC on the host Meridian SL-100.

Physically, only two DS-1 Central-side (C-side) links are necessary, link 0 and link 2. These two links are necessary for any dual or single RCC configuration.

The RCC receives all commands and requests for information through nailed connections to the LGC. All dynamic allocation of channels is done in the RCC. With this direct connection between an RCC and the Central Control (CC), common Peripheral Module (PM) software can be used for CC-RSC communication and control. This includes maintenance communication and control as a subset. This direct communication is achieved by directly connecting, through software, any P-Side ports on the LGC connecting to C-side links off the RCC.

Each RCC shelf array contains the following:

- one unit of the duplex RCC processor and speech bus complex

- one to four DS-1 interface cards, supporting one half of the host Meridian

- Meridian SL-100 directed DS-1 links

- one to five additional peripheral port DS-1 interface cards

- a maximum of 20 peripheral ports in any mixture of DS-1 and DS30A, provided that two DS30A ports are dedicated to an RMM

- two DS30A interface cards per RCC unit, for interfacing to LCM and RMM located at the RSC

- The RCC-2 is an enhanced version of the RCC used in the MCRM-S configuration

Remote maintenance module

The RMM is a shelf module derived from the Maintenance Trunk Module (MTM).

It contains the following:

- a single control card

- optional group Coder/Decoder (CODEC) card

- two power converters

Notes:

Emergency stand alone translations

Introduction

The ESA tables provide a subset of call processing capabilities to allow remote modules to function independently of the switch in the event of communication loss with the host. Figure 5-5 illustrates the hardware equipment inventory tables for setting up remotes. For a complete list of datafill sequence for these tables, refer to Table 5-1.

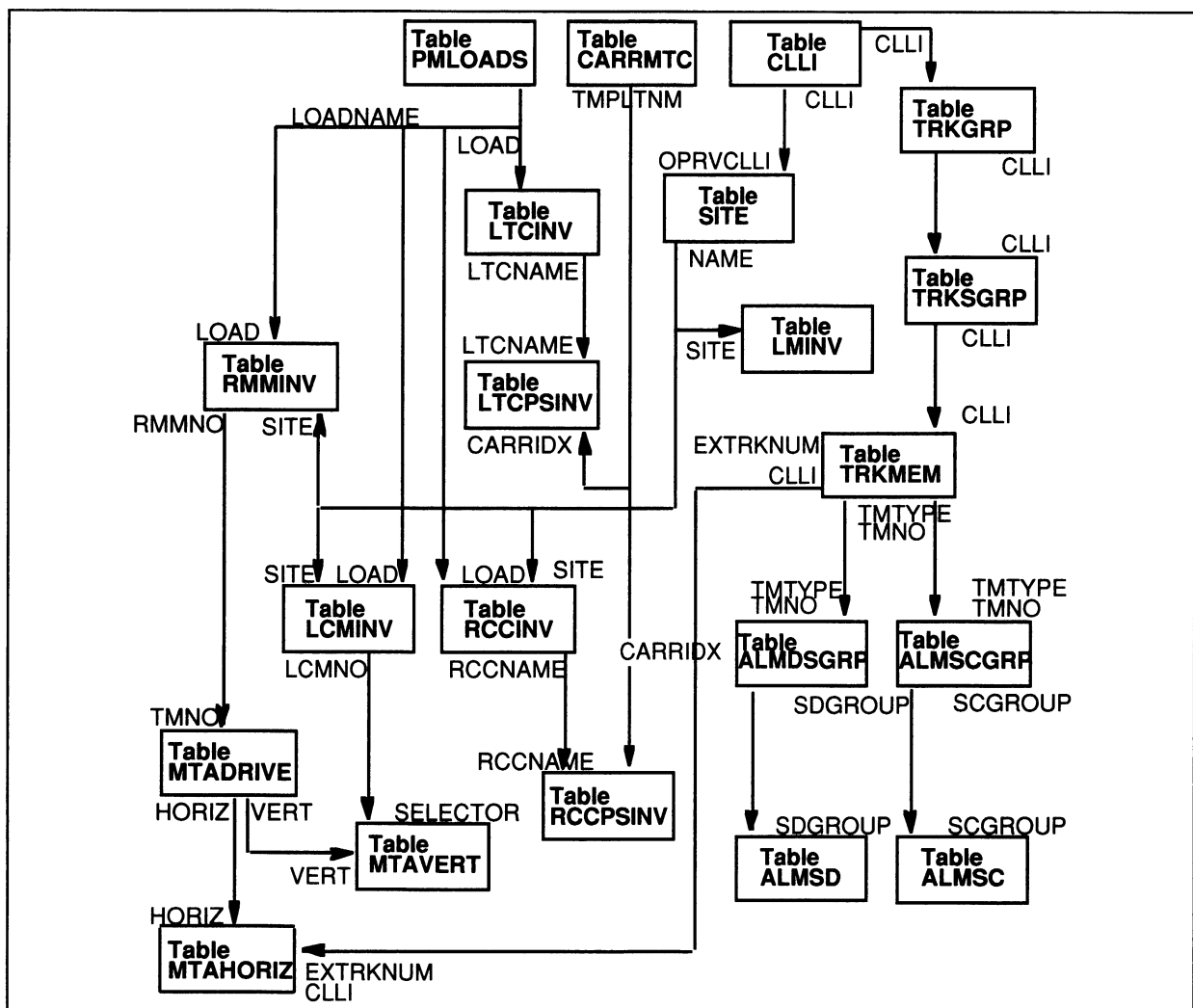**Figure 5-5**
Table flow for basic call processing datafill sequence

Table 5-1
Remote equipment inventory tables

Table	Form	Purpose of table
CLLI	2100A-B	Common Language Location Identifier (CLLI) codes are used to uniquely identify the far end of each announcement, tone, trunk group, test trunk, national milliwatt test lines, and service circuit.
SITE	2644A-B	Table SITE contains data allowing the DMS system to recognize the equipment for the switching unit and for all remote locations that home on to it.
PMLOADS	2037	Table PMLOADS stores the device location of every PM load file to map between the load names and devices on which the loads reside. This permits autoload to locate load files without the intervention of personnel. The expanded peripheral module (XPM) load files must be datafilled in Table PMLOADS before they can be used in the XPM inventory tables.
LTCINV	2018A-B	Table Line Trunk Controller Inventory (LTCINV) contains the inventory data, except the peripheral side (P-side) link assignment, for PM types. This table is used to define the line trunk controller (LTC)/line group controller (LGC) on the central side (C-side) of the RCC.
CARRMTC	2161A-B	Table CARRMTC allows the DMS switch administration to datafill maintenance control information in peripherals, OOS limits for alarms, and system return-to-service (RTS) occurrences.
LTCPSINV	2021A-B	Table Line Trunk Controller P-side link Inventory (LTCPSINV) contains the assignment of the P-side links for XPM-type peripherals.
RCCINV	2226A-B	The Remote Cluster Controller Inventory table contains inventory data (except P-side link assignments) for the RCC. C-side DS-1 assignments for the RCC are datafilled in Table RCCINV.
RCCPSINV	2029A-B	Table Remote Cluster Controller P-side link Inventory (RCCPSINV) contains only the P-side link assignments for the RCC.

-continued-

Table 5-1 (continued)
Remote equipment inventory tables datafill sequence

Table	Form	Purpose of table
LCMINV	2017A-B	Table Line Concentrating Module Inventory (LCMINV) lists data assignments for each bay associated with a local Enhanced Line Module (ELM) or Remote Line Concentrating Module (RLCM) unit.
RMMINV	2224A-B	Table Remote Maintenance Module Inventory (RMMINV) identifies an RLCM or MCRM-S with the frame type, frame number, floor, row, frame position, product equipment engineering code (PEC) code, PM load and executive program loaded, and C-side PM attached to each Remote Maintenance Module (RMM).
TRKGRP	The form required depends on trunk group type.	Table Trunk Group (TRKGRP) defines data for each trunk group associated with the switching unit.
TRKSGRP	The form required depends on trunk group type.	Table Trunk Subgroup (TRKSGRP) lists the supplementary information for each subgroup assigned to one of the trunk groups listed in Table TRKGRP.
TRKMEM	2152A-B	Table Trunk Member (TRKMEM) lists the data associated with each trunk assigned to one of the trunk groups and subgroups specified in Tables TRKGRP and TRKSGRP. This table identifies the circuits associated with static trunks, dynamic trunks, and the test equipment used to test lines and trunks.
ALMSCGRP	2045A-B, C,D	Table Alarm Scan Group (ALMSCGRP) records the circuit equipment, location, and type of circuit pack containing scan points.
ALMSDGRP	2046A-B,C,D	Table Alarm Signal Distributor Group (ALMSDGRP) records the circuit equipment, location, and type of circuit pack containing Signal Distribution (SD) points.
ALMSD	2050A-B, C,D,E	Table Alarm Signal Distributor Point (ALMSD) identifies the function to be performed by each of the assigned signal distribution points in the alarm signal distributor groups.
ALMSC	2103A-B,C,D, E,F,G,H,I,J,K, L,M,N,O,P,Q R,S,T	Table Alarm Scan (ALMSC) identifies the function to be performed by each of the assigned scan points in the alarm scan groups.
MTAMDRVE	2640A-B	The Metallic Test Access (MTA) network is a matrix of vertical and horizontal crosspoints, comparable to a minibar, connecting specified verticals to horizontals within the network. MTA is used to connect test equipment to a circuit requiring testing.

-continued-

Table 5-1 (continued)
Remote equipment inventory tables datafill sequence

Table	Form	Purpose of table
MTAVERT	2639A-B	The Metallic Test Across Vertical (MTAVERT) connection table identifies the vertical connectivity to the MTA matrix.
MTAHORIZ	2638A-B	Table Metallic Test Access Horizontal (MTAHORIZ) lists the assignment of horizontal agents to a horizontal and a horizontal group of MTAs.

As you can see from Figure 5-5, there are several hardware-related tables involved in ESA translations; there are also several call processing tables involved. Next, you are introduced to a partial list of these call processing tables. You should research all other tables depicted in Figure 5-5 and in Table 5-1 pursuant to your individual needs.

You learn about the following tables relevant to ESA call processing:

- Table ESAPXLA;

- Table CUSTHEAD;

- Table ESAHNPA; and

- Table ESARTE.

If you are wanting to datafill for ESA **lines only**, then you would need to datafill these tables in the following order (assuming the equipment inventory tables are already datafilled):

- Table ESAPXLA; and

- Table CUSTHEAD.

On the other hand, if you wanted to datafill for ESA **trunks only**, you must datafill these tables in the following order (assuming the equipment inventory tables are already datafilled) (this lesson only coverx the last four in the list):

- Tables TRKGRP, TRKSGRP, **ISTRKGRP**, and TRKMEM;

- Table ESARTE;

- Table ESAPXLA;

- Table ESAHNPA; and

- Table CUSTHEAD.

Datafilling for ESA -- lines

Tables ESAPXLA and CUSTHEAD are the required tables for ESA -- lines. Refer to NTPs *555-4031-851* and *555-4031-350*.

Table ESAPXLA

The ESAPXLA tables are used to support line-to-trunk, trunk-to-line, and trunk-to-trunk processing in the remote during ESA and contain special prefix translation data for POTS and IBN customer groups.

There are two parts to ESAPXLA: the prefix translations key (PXLAKEY) and the translations result (RESULT). PXLAKEY defines a set of prefix digits on a specific remote for a particular IBN customer group. RESULT specifies what action to take when a member of that customer group on that site dials those digits.

Table ESAPXLA

PXLAKEY				RESULT			
ESAPXLA1	RCC	RCH	0	9411	L	RSC0 0	0
0	2	Y	1				

There are six different types of actions the translation can take: line (L), treatment (T), huntgroup (H), standard route (R), directed route (D), and access code (A). If the L option is entered and the information uniquely identifies the required call destination line is datafilled, the required connection is made to the line on the remote when the digits are dialed. Refer to the NTP for sample tuple entries and discussions pertaining to the remaining action options.

> The key field for ESAPXLA is PXLAKEY and is comprised of XLANAME, NODE and PREFIX.

Table CUSTHEAD

Datafill for CUSTHEAD is same as what you learned in Course 500; the way to datafill for ESA is to enter ESAPXLA into one of the option fields as shown in the following example.

Table CUSTHEAD

CUSTNAME	CUSTXLA	DGCOLNM	OPTIONS
COMMON	CTN2	NDGT	(VACTRMT 0) **(ESAPXLA ESAPXLA1)** $

Datafilling for ESA -- trunks

In addition to the trunking tables (TRKGRP, TRKSGRP, and TRKMEM) learned in Lesson 1 of this course, you must datafill Table ISTRKGRP (refer to the datafill order presented earlier).

Table ESARTE

Table ESARTE identifies trunks to which a call may be routed during ESA. The format of Table ESARTE is similar to Tables OFRT and IBNRTE.

RTEKEY				RESULT			
PMTYPE	SITE	RCCNO	RTE	RTESEL	CLLI	DELDIGS	PRFXDIGS
RCC	RCH	1	1	S	RCHTRN	3	321

Table ESAHNPA (ESA Home Numbering Plan)

ESAHNPA contains special prefix translations data used to select outgoing trunks. This tables handles normal prefix translations for trunks and exceptions are handled by Table ESAPXLA. While ESAHNPA table exists in memory at both the host and remote sites, it can be changed at the host site only.

There are two parts to ESAHNPA: the prefix translations key (HNPAKEY) and the translations result (RESULT). HNPA key defines a set of prefix digits on a specific remote for a particular IBN customer group (or all POTS lines). The RESULT field specifies what action to take when those digits are dialed.

Table ESAHNPA

HNPAKEY					RESULT			
(XLANAME)	(PMTYPE)	(SITE)	(RCCNO)	(PREFIX)	(SEL)	(RR)	(NUMDIG)	(AMBIG)
ESAPXLA1	RCC	RCH	1	321	S	1	7	N

One of the subfields of HNPAKEY is XLANAME. If the prefix translations is to be executed when a certain IBN customer group dials those digits, an alphanumeric name of up to eight characters is datafilled in XLANAME. This same name must be associated with a particular IBN customer group with an entry in CUSTHEAD.

> The key field for ESAHNPA is HNPAKEY and is comprised of XLANAME, NODE, and PREFIX.

Verification tools

The ESA TOOLS facility allows the operating company to obtain information on the various aspects of ESA trunking, such as the presence of trunking capability, information on trunks on a specific RCC, and the translation and routing data used for a particular call during ESA.

To access ESATOOLS, enter the following command from the CI level of the MAP:

> ESATOOLS

This facility uses the following nonmenu commands executed within ESATOOLS.

- ESATRUNK

- SETRCC

- QUERYRCC

- ESATRAVER

A description of each command follows.

ESATRUNK

The ESATRUNK command allows the operating company to query the presence of trunking capability in ESA and determine whether or not it is supported.

ESATRUNK responses

- System response 1:

  ESA TRUNKS ARE SUPPORTED

  User action:

  None.

- System response 2:

  ESA TRUNKS ARE NOT SUPPORTED

  User action:

  None.

User input

- To query the status of ESA trunking, enter:

  > ESATRUNK

  System response:

ESA TRUNKS ARE SUPPORTED

SETRCC

The SETRCC command allows the operating company to collect data on the trunks residing on a specific RCC.

When the parameters are entered, the internal identification of the specified RCC is evaluated and data about every trunk is collected. This data includes the ESA group to which the trunk belongs, its direction, the external trunk name, its subgroup, and whether or not it is supported in ESA. If it is not supported, a reason is provided.

SETRCC	rem_name	rem_num	

SETRCC parameters

SETRCC parameters are as follows:

- rem_name
  identifies the RCC on which the information is to be collected

- rem_num
  indicates the number of the specified RCC. Range: 0 to 32767

SETRCC responses

- System response 1:
  THE RCC MUST BE REMOTE

  Explanation:
  The specified RCC must be remote.

  User action:
  Ensure the specified RCC is remote.

- System response 2:
  COULD NOT COLLECT ANY INFORMATION

  Explanation:
  The attempt to collect information on the specified RCC failed.

  User action:
  Ensure the specified RCC is valid and there are supported trunks on that RCC.

- System response 3:
INVALID SITE NAME

Explanation:
The specified remote is not valid.

User action:
Check the RCC name and number, and re-enter the command with correct values.

- System response 4:
RCC NUMBER DOES NOT EXIST

Explanation:
A nonexistent RCC number was specified.

User action:
Check the RCC name and number, and re-enter the command with a valid RCC number.

- System response 5:
RCC NUMBER MUST BE UNIQUE BY OFFICE

Explanation:
The specified RCC number is not unique to this office.

User action:
Check the unique RCC number for the office, and reenter the command.

- User input example
To collect trunk data for the specified RCC, enter:

> SETRCC REM3 1

System response:
TRUNK INFO COLLECTED

QUERYRCC

The QUERYRCC command specifies whether or not a trunk or trunk group is supported during ESA. The SETRCC command must be entered first, since the QUERYRCC command uses information collected by SETRCC.

QUERYCC	TR GR QUIT ABORT	ALL S DETAIL SP clli QUIT ABORT	

QUERYRCC parameters

QUERYRCC parameters are as follows:

- TR
  verifies the status of the trunk(s)

- GR
  verifies the status of the trunk group(s)

- QUIT
  quits the ESATOOLS directory

- ABORT
  aborts the specified command

- ALL
  displays all trunks or trunk groups on a given remote cluster controller (RCC)

- S
  displays a list of supported trunks or trunk groups

- NS
  displays a list of unsupported trunks or trunk groups

- DETAIL
  displays detailed information on a given RCC, including why a trunk or a trunk group is not supported

- SP clli
  displays the status of a specified trunk or trunk group, identified by its CLLI (common language location identifier). For more information on CLLI, refer to Customer Data Schema, NTP *555-4031-851*

- QUIT
  quits the ESATOOLS directory

- ABORT
  aborts the command

QUERYRCC responses

- System response:
  NO DATA HAS BEEN COLLECTED. PLEASE USE THE SETRCC
  TOOL

- Explanation:
  The QUERYRCC command was entered before the SETRCC command.

- User action:
  Enter the SETRCC command to collect trunk information before
  entering the QUERYRCC command.

- User input example
  To verify the status of all trunks of RCC Rem3 1, enter:

> QUERYRCC TR DETAIL

```
INFORMATION ON REM3 OF RCC 1
CLLI          TRUNK NO   ESA STATUS      REASON NOT SUPPORTED

_____         _____  _____     _____

RC1DPDDDPDD   12         SUPPORTED
RC1MFDDDTWK   5          NOT SUPPORTED   OG PULSE OR START SIGNAL
RC1MFDDDTWK   6          NOT SUPPORTED   OG PULSE OR START SIGNAL
RC1MFDDDTWK   7          NOT SUPPORTED   OG PULSE OR START SIGNAL
RC1MFDDDTWK   8          NOT SUPPORTED   OG PULSE OR START SIGNAL
RC1MFWKDPWK   5          SUPPORTED
```

ESATRAVER

The ESATRAVER command allows the operating company to check the ESA translation and routing data for a particular call. The data on the queried RCC needs to be collected previously with the SETRCC command. For a given originator and dialed digits, ESATRAVER traverses the translation and routing tables unique to ESA (ESAPXLA, ESAHNPA, and ESARTE), displays the entries referenced by the call being simulated, and provides the results on the termination of the call.

ESATRAVER simulates a call but does not execute the routing or termination of that call. It supports the following call originations and terminations:

- line-to-trunk
- trunk-to-line
- trunk-to-trunk
- line-to-line
- line-to-treatment (reorder)
- trunk-to-treatment (reorder)

Note: ESATRAVER uses data from the DMS CC, and is used when the RCC is not InSv.

ESATRAVER requires the originator reside on the RCC. The call terminates successfully only if it routes to an ESA-supported line or trunk residing on the same RCC as the originator. Otherwise, the outcome is ESA end of translation.

This command also displays the ESA translation and routing data for a particular call. Enter the ESATOOLS and SETRCC commands, in that order, before entering this command. ESATRAVER also uses the data collected by the SETRCC command.

ESATRAVER	TR *clli* L *dn digits*	T NT B	

ESATRAVER parameters

ESATRAVER parameters are as follows:

- TR clli
  identifies a trunk as the call originator by its common language location identifier (CLLI). Refer to Customer Data Schema, *555-4031-851*, for more information on CLLI.

- L dn
  identifies a line as the call originator by its directory number (DN) digits

- digits
  identifies the digits to be translated

- T
  specifies all table entries referenced by the displayed call

- NT
  specifies information only on the displayed call termination

- B
  specifies both trace and treatment outcomes are displayed

ESATRAVER responses

- System response 1:
  NO DATA HAS BEEN COLLECTED. PLEASE USE THE SETRCC TOOL

  Explanation:
  You did not enter SETRCC before entering ESATRAVER.

  User action:
  Enter SETRCC before entering ESATRAVER.

- System response 2:
  THE ORIGINATOR IS NOT OFF AN RCC.

  Explanation:
  The originator does not reside on an RCC.

  User action:
  Ensure the originator is RCC-resident, and re-enter the command.

- System response 3:
  THE ORIGINATOR IS NOT SUPPORTED IN ESA.

  Explanation:
  The originator line or trunk is not supported in ESA.

  User action:
  Check for an ESA-supported line or trunk, and re-enter the command.

Note: In the case of translation digits, strings of five digits or less must be enclosed in quotes.

Example:

User action: To obtain translation on directory number 7225213 for an MDC line to line call, enter:

> ESATRAVER L 7224105 7225213 T

- System response:
  ORIGINATION INFORMATION

TABLE IBNLINES

REM3 03 0 08 04 DT STN 7224105 COMKODAK 0 0 613 $

NO PRELIMINARY TRANSLATION

DN TRANSLATION

MATCH ON DN : 7225213

+++ESATRAVER : SUCCESSFUL AT TRACING THE CALL +++

Notes:

Pre-test

Introduction

This pre-test samples your retention of information provided from the prerequisite course. The results of your completed survey do <u>not</u> affect your performance score for this course.

The prerequisite for the #502 Translations course is:

*   Meridian SL-100 Translations (#500)

Directions

Select the letter of the response which answers each question. Mark this answer on this sheet; you go over this pre-test as a group.

The questions are on the back of this page.

1. Which type of translator is used when the (*) is dialed first?
   A. preliminary
   B. authorization
   C. customer
   D. feature

2. Which selector in Table HNPACONT is used for six-digit translations?
   A. HNPA
   B. FRTE
   C. FNPA
   D. HRTE

3. When a Network DOD call is dialed, what happens to the access code (usually a "9")?
   A. It indexes to Table HNPACONT.
   B. It passes to the connecting CO.
   C. It is positioned or used in Table RTEREF.
   D. It is stripped in the IBN Translation table.

4. In what table is a call typed as a Network DOD call?
   A. IBNXLA
   B. INBCALL
   C. NETTAB
   D. STRPRTCT

5. Which table assigns the customer group name to a call?
   A. IBNLINES
   B. CUSTHEAD
   C. CUSTGRP
   D. NCOS

6. Which Table assigns the NCOS number to a caller?
   A. IBNLINES
   B. CUSTHEAD
   C. CUSTGRP
   D. NCOS

7. What is one function of Table CLLI?
   A. It routes calls.
   B. It translates digits.
   C. It collects digits.
   D. It names trunks groups.

8. Which NTP describes data tables?
   A. 297-1001-100
   B. 297-7001-450
   C. 555-4031-851
   D. 555-4031-540

Notes: