

297-2621-305

Digital Switching Systems

# UCS DMS-250

## MCCS Application Guide

UCS12 Standard 05.01 February 2000

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# UCS DMS-250

## MCCS Application Guide

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# Publication history

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## February 2000

Standard version, 05.01, for UCS12 software release.

### ATTENTION

The UCS12 software release does not support Enhanced Operator Position System (EOPS) functionality. The UCS software continues to support operator-assisted calls through other platforms such as Enhanced Services Provider (ESP). Refer to Appendix A in the *UCS DMS-250 Feature Change Reference Guide* for additional information about EOPS removal.

Removed references to EOPS in Table 3-7, “Field codes for the Generic Digits Parameter.”

Globally changed the 2631 NTP numbering scheme to 2621,

Added Called (CLD)/ Calling (CLG) Number Query, (CRDS0004) information to Chapters 1, 3, 4, and 10.

- added the “Enhanced call screening” header to Chapter 4 that includes information about the CLD/CLG Number Query enhancement for remote validation.
- added CLD/CLG Number Query parameters to the TCNTEST command.

## November 1998

Standard version, 04.02, for software release UCS09.

## October 1998

Preliminary version, 04.01, for software release UCS09. The modifications are as follows:

- globally changed number of announcement sets in table VPROMPTS and text to 1024

- globally changed value of VPIDX field in subtable STDPRT to 1023
- added subsection for ANI screening for FGD UA MCCA calls to chapter 2
- added table OFCENG information to “Implementation of Basic Service” subsection in chapter 2, and to “Remote validation settings” subsection in chapter 4
- modified Figures 4-2, 4-3, 4-4, and 4-9 and associated text to incorporate TCN subsystem SCP information
- added LEC\_CC\_TCAP office parameter to Appendix B

**August 1998**

Standard version 03.02 for software release UCS08.

**May 1998**

Preliminary version 03.01 for software release UCS08. OPCHOICE operator routing for Voice Prompt service was added this release.

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## About this document

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This manual provides information about Mechanized Calling Card Service (MCCS). MCCS is a long distance calling feature available for purchase and activation with the UCS DMS-250 switch. This manual includes descriptions of the service and call flows, and information on implementation, maintenance, and administration.

### Who needs this manual?

This manual is for personnel who are responsible for setting up, administering, and maintaining the UCS DMS-250 switch.

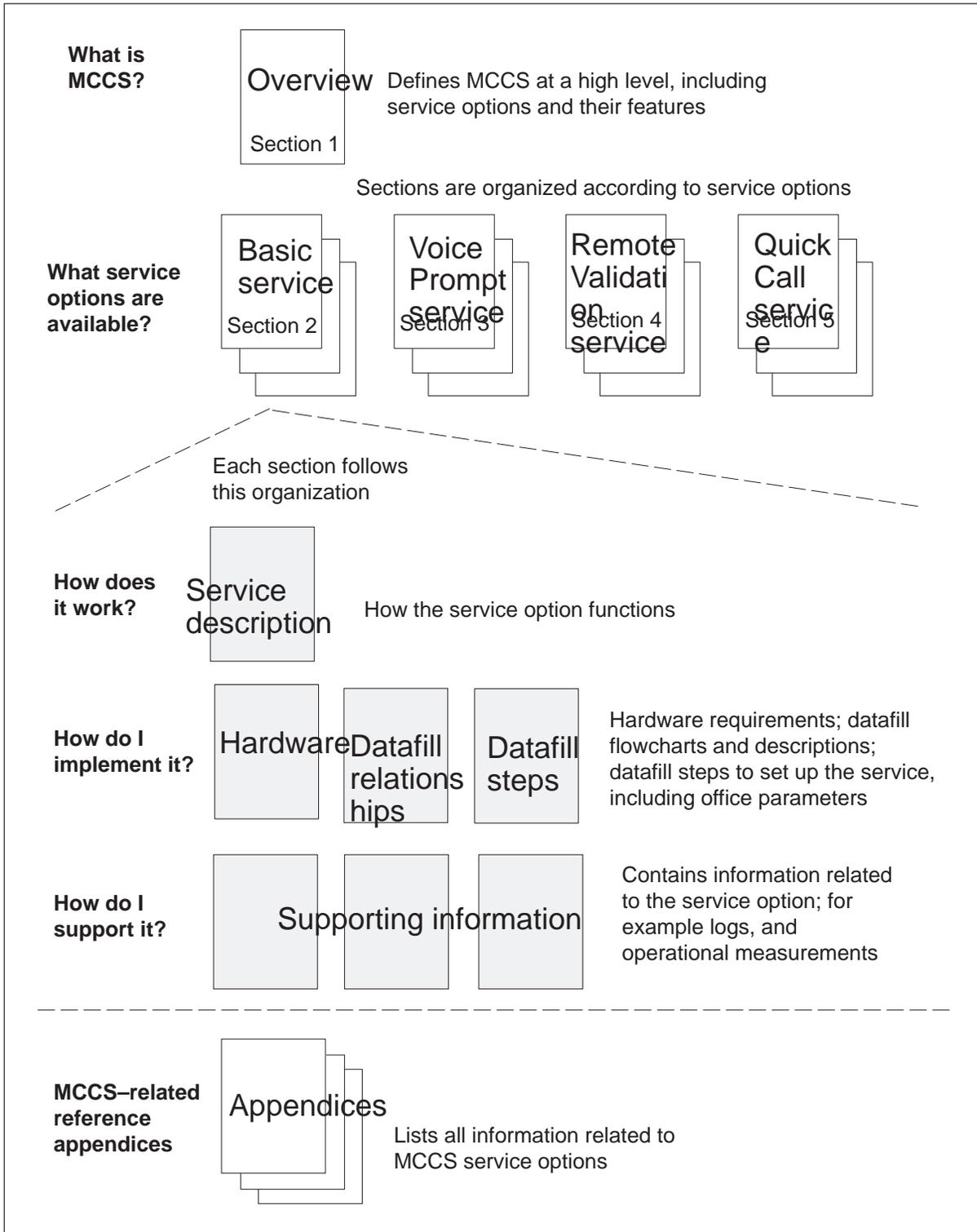
To use this manual fully:

- Ensure the UCS DMS-250 switch you are working with is installed, commissioned, and active.
- Receive Nortel Networks-approved training for Table Editor, datafill, translations, and maintenance.

### How does this manual work?

The information in this manual is arranged as follows.

## Organization of MCCS Application Guide



## What does this manual include and not include?

This manual includes the information required to understand, implement, and maintain M CCS. Specifically, it includes the following:

- feature description
- call flows
- hardware requirements
- operational measurements
- log reports
- call detail information

Although some of the previous items also relate to other switch functions, this manual covers only the functions that directly impact M CCS. For example, a data field that has many entry options shows only those options that pertain to M CCS.

## Where does this feature fit?

M CCS is a long distance feature that can be optionally purchased for use with the long distance capabilities of the UCS DMS-250 switch.

The UCS DMS-250 switch is part of Nortel Networks DMS family of digital multiplex switching products. The phrase “DMS family” means DMS products use a common operational and hardware platform. The UCS DMS-250 shares similar architecture with other DMS products; for example, the DMS family shares the same processing, messaging, and hardware. In addition to this common architecture, the UCS DMS-250 switch has functions and operations specific only to it.

## Where does this manual fit in the document suite?

This manual is written specifically for the UCS DMS-250 switch and is part of a suite of documents for the UCS DMS-250 switch. The documentation suite for DMS products reflect the common architecture of the DMS software. This suite includes application guides and reference guides. Application guides provide information on specific UCS DMS-250 features and products. Technical reference guides contain information about logs, commands, operational measurements, and office parameters that are common to the DMS family. The *UCS DMS-250 Master Index of Publications* explains how the documentation suite for the switch is organized.

## What software release does this manual apply to?

This manual applies to UCS DMS-250 offices that have software release UCS12. Unless revised, this document also applies to offices with software releases later than UCS12.

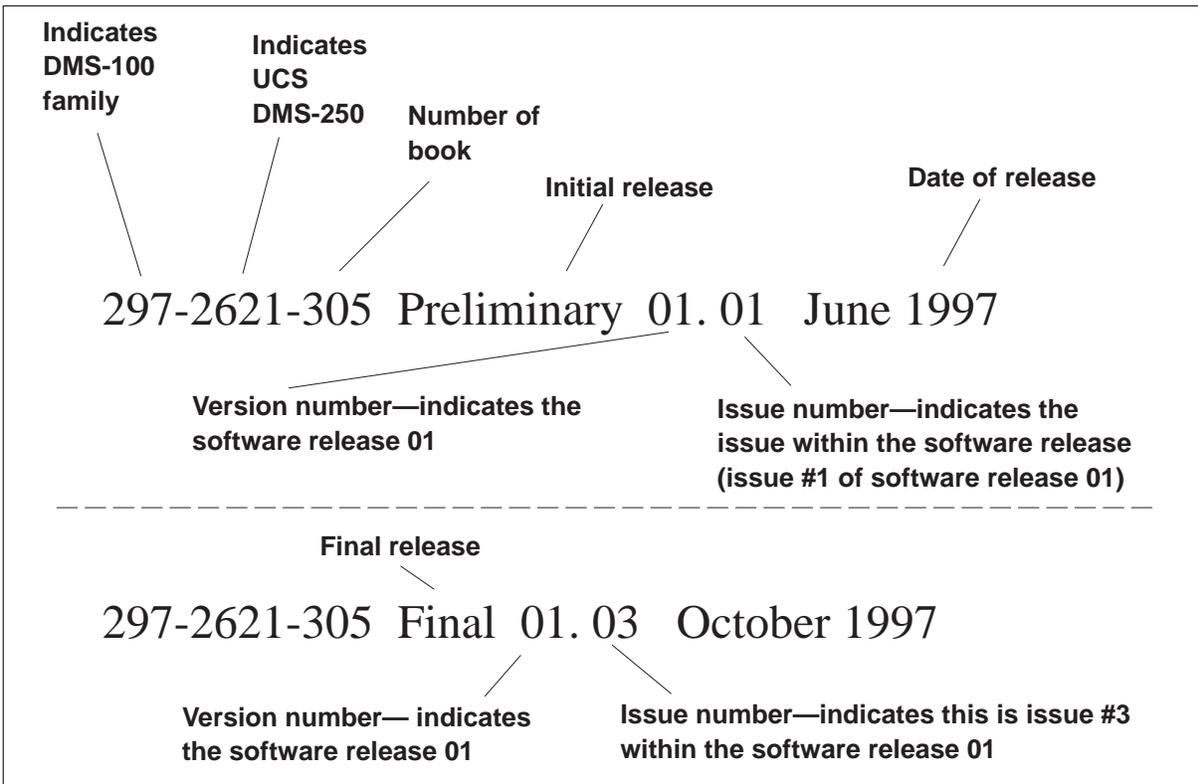
## How to understand manual numbers

The *UCS DMS-250 Master Index of Publications* lists the latest issue of this document and its software release.

## Document names and numbering

As shown in the following graphic, the document naming and numbering indicates:

- the document number consisting of the family (297—for DMS family), the product (2621—for UCS), and the type of book (305—for MCCS Application Guide)
- the release (preliminary or final)
- the software release version and the issue number within that release (01.01)
- the date the document was released



**How to determine the latest version**

This document is written for all UCS DMS-250 offices, and more than one version of this document may exist. To determine whether you have the latest version of this document, check the release information in *UCS DMS-250 Master Index of Publications*. This publication also explains how documentation for products is organized.

## What documents relate to this manual?

The following Northern Telecom documents provide information that relate to the subjects in this manual:

<b>For more information about...</b>	<b>See the manual...</b>	<b>Manual #</b>
The DMS family and the UCS DMS-250 switch	<i>UCS DMS-250 General Description</i>	297-2621-100
The content and organization of the DMS technical library	<i>UCS DMS-250 Master Index of Publications</i>	297-2621-001
Software optionality control and control codes	<i>UCS DMS-250 Software Optionality Control (SOC) User's Manual</i>	297-2621-301
	<i>Software Optionality Control User Manual</i>	297-8991-901
Remote validation TCAP messages	<i>UCS DMS-250 Transaction Capabilities Application Part (TCAP) Application Guide</i>	297-2621-355
Detailed information on datafill	<i>UCS DMS-250 Data Schema Reference Manual</i>	297-2621-851
Billing-related information	<i>UCS DMS-250 Billing Records Application Guide</i>	297-2621-395
	<i>UCS DMS-250 Billing Server Application Guide</i>	297-2621-320
Feature Group D information	<i>UCS DMS-250 Feature Group D (FGD) Application Guide</i>	297-2621-385
SS7-related information	<i>UCS DMS-250 SS7 RLT Application Guide</i>	297-2621-345
Operational measurements	<i>UCS DMS-250 Operational Measurements Reference Manual</i>	297-2621-814
	<i>Basic Administration Procedures</i>	297-1001-300
	<i>DMS-100 Family Memory Administration Manual</i>	297-1001-305
	<i>DMS-100 Family Capacity Administration Manual</i>	297-1001-304
Logs	<i>UCS DMS-250 Logs Reference Manual</i>	297-2621-840
Commands	<i>UCS DMS-250 Commands Reference Manual</i>	297-2621-819

For more information about...	See the manual...	Manual #
	<i>Menu Commands Reference Manual</i>	297-1001-821x
Commands, continued	<i>Non-Menu Commands Reference Manual</i>	297-1001-820x
Office parameters	<i>UCS DMS-250 Office Parameters Reference Manual</i>	297-2621-855
Announcement-related information	<i>DRAM–EDRAM Guide</i>	297-1001-527

## Document conventions

This document conforms to the following conventions.

### MAP terminal commands

Commands you enter at the MAP terminal are in the format as follows.

#### Input prompt (>)

An input prompt (>) indicates that the information that follows is a command:

>BSY

#### Commands and fixed parameters

Commands and fixed parameters that are entered at a MAP terminal are shown in uppercase letters:

>BSY CTRL

#### Variables

Command parameters that vary are shown in angle brackets.

>BSY CTRL <CTRL\_NO>

Variables are then listed and explained in a list following the command.

#### Responses

Responses correspond to the MAP display and are shown in a different type:

```
FP 3 Busy CTRL 0: Command request has been submitted.
FP 3 Busy CTRL 0: Command passed.
```

**Example**

The following example information on a command shows the format.

Enter the CLLIREF SEARCH command with these parameters:

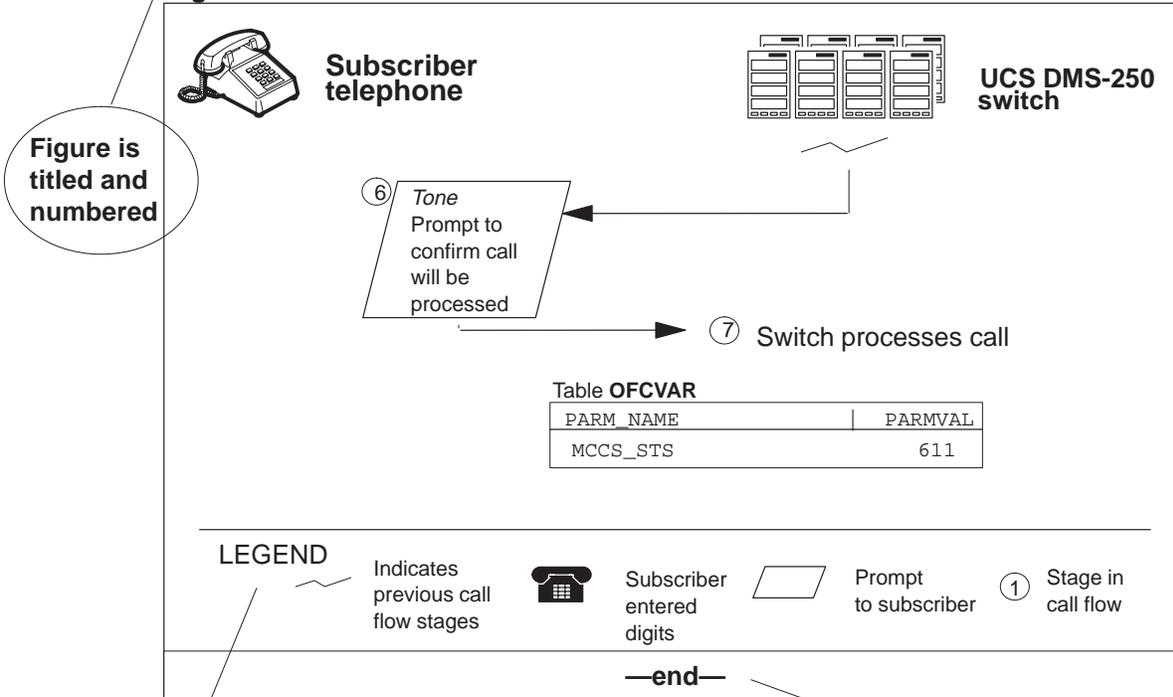
**>CLLIREF SEARCH <CLLI\_NAME>**

**CLLI\_NAME**—the name of the CLLI you wish to search for

**Illustrations in figures**

The following shows the figure conventions.

**Figure 1-1**  
**Figure title**



### **Numbering ranges for dialing plans**

The following numbering ranges apply for any dialing plan listed in this manual.

- N = 2-9
- W = 0-1
- X = 0-9
- Z = 2-8



# Overview

---

## **This section includes...**

**MCCS, its benefits, and how subscribers use it—page 1-2**

**MCCS service options—page 1-4**

**Deciding which service options to use—page 1-5**

**Using service options together—page 1-9**

**Hardware requirements—page 1-10**

## What is MCCS?

Welcome to Mechanized Calling Card Service (MCCS). MCCS is an optional travel card service that works with the basic long distance features of the UCS DMS-250 switch.

With MCCS, subscribers receive a travel card (much like a credit card) with a number assigned to it. The subscriber can place a long distance call from any location and charge the call to their travel card number (also called a calling card number). Each MCCS 14-digit travel card number is unique and consists of a telephone number (for example the subscriber's home or business telephone number) and a personal identification number.

### Benefits

MCCS travel cards provide subscribers with the freedom to charge their long distance calls to one number. Subscribers often find travel cards especially helpful during travel or emergencies.

MCCS offers a variety of service options and features that you can customize for subscribers. You can offer your subscribers varied levels of travel card service based on the service options you configure (such as the type of prompt). If your system configuration includes a remote database, you can also use Remote Validation service for travel card numbers.

### Activation with software optionality control

After purchase, MCCS service options can be activated with software optionality control (SOC) order codes. SOC order codes allow you to activate the features immediately.

**For more information** on software optionality control, see the instructions for activating service options in each "Datafill steps" section of this manual; or see the *UCS DMS-250 Software Optionality Control (SOC) User's Manual*, or the *Software Optionality Control User Manual*.

## Using a travel card

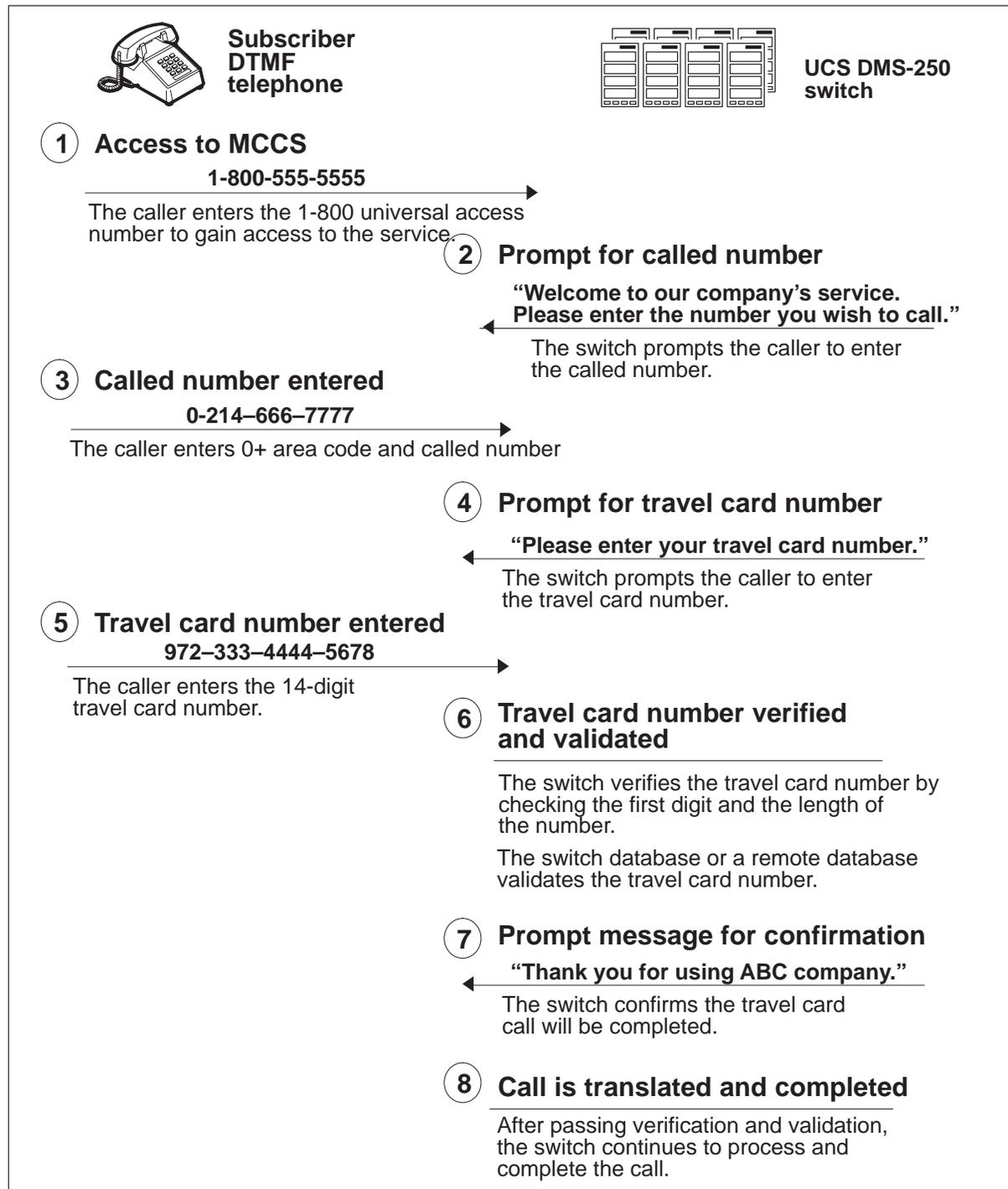
MCCS subscribers can make travel card calls by dialing an access number (such as a universal access number) and then either:

- directly entering their travel card number with a DTMF (touchtone) telephone
- placing the call through an operator

With MCCS, you can provide tones or recorded voice announcements to guide a caller through the process of making a call. Figure 1-1 shows one example of a travel card call that you may be familiar with. In this example,

recorded announcements (called “voice prompts”) guide a caller through the call.

**Figure 1-1**  
Using a travel card—voice announcement example



## Service options

MCCS functionality depends upon the service options, as listed in Table 1-1.

**Table 1-1**  
**MCCS service options and software optionality control codes**

MCCS service option	SOC order code
<p><b>Basic service—required for MCCS implementation</b></p> <ul style="list-style-type: none"> <li>• Tones signal callers to enter information to place the call.</li> <li>• A universal access number can be dedicated to accept MCCS calls exclusively.</li> <li>• Subscribers can use reset dialing when they make dialing mistakes.</li> <li>• Class of service screening can block or allow international and direct dial calls.</li> <li>• The UCS DMS-250 switch validates the travel card number.</li> <li>• Logs indicate a failed attempt to enter a valid travel card number.</li> <li>• Three announcements are available for use during the call sequence.</li> <li>• Subscribers can manually reoriginate.</li> </ul> <p>Basic service is required for activation of MCCS. Basic service works with any of the optional MCCS service options.</p>	<p>CRDS Card Services</p> <p>CRDS0001</p>
<p><b>Voice Prompt service (Mechanized Voice Prompts)—optional</b></p> <ul style="list-style-type: none"> <li>• Recorded voice announcements provide callers with instructions that guide them through call placement.</li> <li>• Announcement sets can be customized for each universal access number. This allows call branding to vary for each universal access number.</li> <li>• Operator routing can be customized for each universal access number.</li> </ul> <p>Voice Prompt service works with any of the other MCCS service options, but requires Basic service.</p>	<p>CRDS MVP Card Services</p> <p>CRDS0003</p>
<p><b>Remote Validation service (TCAP)—optional</b></p> <ul style="list-style-type: none"> <li>• A remote database (instead of the switch) validates travel card numbers.</li> <li>• Account code validation is possible.</li> </ul> <p>Remote Validation service works with any of the other MCCS service options, but requires Basic service.</p>	<p>CRDS TCAP Card Services</p> <p>CRDS0002</p>
<p>—continued—</p>	

**Table 1-1**  
**MCCS service options and software optionality control codes** (continued)

MCCS service option	SOC order code
<p><b>Quick Call service—optional</b></p> <ul style="list-style-type: none"> <li>Subscribers can dial a 4-digit number instead of the entire 14-digit travel card number when calling their home or office number.</li> </ul> <p>Quick Call works with any of the other MCCS service options, but requires Basic service.</p>	<p>CRDS Quick Call Services</p> <p>CRDS0005</p>
<p><b>MCCS TCAP Enhancements CLD, CLG</b></p> <ul style="list-style-type: none"> <li>A TCAP validation “invoke” message makes the calling number, called number, and call type available to the remote database for validation screening purposes.</li> </ul> <p>Called (CLD)/Calling (CLG) Number Query works with the Remote Validation service.</p>	<p>CLD/CLG Number Query</p> <p>CRDS0004</p>
—end—	

## Deciding on service options to use

Your implementation of MCCS to your subscribers depends on the level of travel card service you wish to offer and the capabilities of your system. To implement MCCS, you must purchase and activate Basic service. The additional service options you choose to purchase will increase the levels of service you can offer to subscribers.

The following explains the three major choices you have when creating different levels of travel card service for subscribers.

- *type of prompt*—Prompts guide a subscriber through use of the service.
- *type of dialing*—Three factors impact the type of dialing subscribers have:
  - The type of trunk on which the subscriber’s call comes into the switch causes the dialing plan to vary.
  - Subscribers may not be required to dial 0 before the address if the universal access number they dial is “dedicated” to MCCS calls.
  - Subscribers may be able to dial a four-digit number instead of the full travel card number when calling their home or office number.
- *type of validation*—Travel card numbers can be validated internally or externally.

## Determining type of prompt to subscriber

You can choose to offer tones or voice announcements.

### Tones

Tone prompts are a feature of MCCS Basic service features (CRDS0001 listed in Table 1-1.) Tones signal the caller to perform the next step in the process of making a travel card call.

**For more information** on Basic service, see the “Basic service” section of this manual.

### Voice announcements

Voice announcements are a feature of the MCCS Voice Prompt service option (CRDS0003 listed in Table 1-1). With this service option, the caller hears recorded messages instead of tones when placing a call. Benefits of voice announcements include:

- *user friendliness*—provide a more user-friendly service by giving more information and instructions to subscribers
- *customizing capabilities*—customize the recorded messages to suit your subscriber and operating company needs
- *call branding*—“brand” the service by mentioning your company name on customized announcements

**For more information** on Voice Prompt service, see the “Voice Prompt service” section of this manual.

## Determining type of subscriber dialing

The type of dialing your subscriber must perform depends on

- the originating trunk
- for universal access calls, the universal access number dialed
- “dedicated dialing” with a particular universal access number (a feature of Basic service)
- “quick call” dialing of the travel card number (a feature of Quick Call service)

### Originating trunk capability

Originating trunks affect the dialing plan subscribers must follow. The types of MCCS services you can provide also depend on the trunk type.

DAL, DALTIE	FGA (ONAL)—PTS	FGB (ONAT)—PTS	FGC UA—PTS	FGD		IMT UA—SS7	PRI	Service options
				UA—PTS/SS7	Trans—PTS			
X	X	X	X	X	X	X	X	Basic service— tone prompts
			X	X		X		Basic service— dedicated dialing (no 0+ required)
X	X	X	X	X	X	X	X	Basic service— in-switch validation
X	X	X	X	X	X	X		Basic service— reset; reorigination
X	X	X	X	X	X	X	X	Remote Validation service
			X	X		X		Voice Prompt service
X		X	X	X	X	X		Quick Call service with tone prompts
			X	X				Quick Call service with voice prompts
X	X	X	X	X	X	X	X	CLD/CLG number query

**For more information** on dialing plans, see “Appendix A: Dialing plans” in this manual.

### “Dedicated” dialing

Dedicated dialing is a feature of Basic service (CRDS0001 listed in Table 1-1). You can dedicate a universal access number to receive MCCS calls

exclusively. This means subscribers calling nationally do not need to dial a 0 before dialing the address. (Normally callers dial a 0 when entering the address. This 0 indicates to the UCS DMS-250 switch the call is an MCCS call.)

Dedicated dialing limitations are:

- For international calls, callers must dial 01 or 011.
- The option of no 0+ address dialing is only available with Basic service tone prompts. (This option is not available with Voice Prompt service.)

**For more information** on 0+ address dialing and dedicated dialing, refer to the “Basic service” section of this manual.

### **Dialing four digits for travel card number**

Dialing four digits instead of the complete travel card number is a feature of Quick Call service (CRDS0005 listed in Table 1-1). Subscribers who are calling their home or office number may dial a four-digit number (the last four digits of the 14-digit travel card number) instead of the complete travel card number. The switch then builds the 14-digit travel card number by combining the called number and the PIN. The switch then processes the call as normal.

**For more information** on Quick Call, refer to the “Quick Call service” section in this manual.

### **Determining type of validation for travel card number**

Travel card numbers require validation during the processing of a travel card call. Travel card numbers can be validated internally by the switch or externally by a remote database.

#### **Switch validation (internal)**

Internal validation is a feature of Basic service (CRDS0001 listed in Table 1-1). Using the UCS DMS-250 switch to validate travel card numbers is a simple, low cost method of validation.

**For more information** on internal validation, refer to the “Basic service” section of this manual.

**Remote validation (external)**

Remote Validation is a feature of Remote Validation service (CRDS0002 listed in Table 1-1). The switch sends information to a remote database to process and validate travel card numbers. The benefits of remote validation include:

- *account code use*—Subscribers can use account codes that will be validated by the remote database.
- *flexibility*—The switch is not required to store validation information. This increases the switch flexibility. More MCCS subscribers are able to access the system.
- *increased capacity*—The capacity for travel card numbers is limited only by the capacity of the remote database.
- *efficiency*—In networks with multiple UCS DMS-250 switches, you datafill validation information once in one database instead of every switch.
- *security*—Fraud detection is easier with one database.

**For more information** on remote validation, refer to the “Remote validation service” section of this manual.

**Using service options together**

The following lists examples of possible service levels available with the different MCCS service options.

Service level and pricing	Function of service	Type of dialing	MCCS service option
Basic travel card; entry level pricing	Tone prompts only	For national calls, 0+ address + 14-digit travel card number	Basic service, universal access number dedicated to accept MCCS calls only
Enhanced travel card; intermediate pricing	Voice announcements with company name mentioned in recording (for example, "Welcome to XYZ Company travel card services.")	0+ address + 14-digit travel card number	Basic and Voice Prompt services with call branding
Top of the line travel card; premium pricing	Voice announcements with company name (For example, "Welcome to XYZ Company travel card services.")	0+ address + 14-digit travel card number	Basic and Voice Prompt services with call branding
	Subscriber dials 4 digits instead of full travel card number	When calling home or office: 0+ address + 4-digit Quick Call PIN	Quick Call service

**For more information** on using service options together, see one of the optional service sections ("Remote Validation service," "Voice Prompt service," or "Quick Call service").

### Hardware requirements

Hardware requirements depend on the service options as listed in Tables 1-2 through 1-5.

**Table 1-2**  
**Hardware requirements—Basic service**

Service option	Function	Explanation	Hardware requirements
Basic, CRDS0001	Dialing without operator assistance	The subscriber can complete the call sequence without an operator.	Universal tone receiver (UTR) 6X92BB or 6X92DA; or Digitone receiver 2X48AB or 2X48BB
	Dialing without operator assistance, with ability to reoriginate	The subscriber can complete the call without an operator and reoriginate.	Specialized tone receiver (STR) 6X62AB
	Reset dialing	The subscriber can perform reset dialing.	Specialized tone receiver (STR) 6X62AB
	Optional voice announcements available with tone prompts	Three voice announcements are optional and available with Basic service.	See hardware requirements for Voice Prompt service, Table 1-3.

**Table 1-3**  
**Hardware requirements—Voice Prompt service**

Service option	Function	Explanation	Hardware requirements
Voice Prompt, CRDS0003	Voice announcements	Storage and play of recorded announcements; customizing of announcements	Enhanced digital recorded announcement machine (EDRAM) NT1X80AA ( <i>highly recommended</i> )  —or—  Digital recorded announcement machine (DRAM) NT1X75BA; and RAM card NT1X77AA; and EEPROM card NT1X79AA

**Table 1-4**  
**Hardware requirements—Remote Validation service**

<b>Service option</b>	<b>Function</b>	<b>Explanation</b>	<b>Hardware requirements</b>
Remote Validation, CRDS0002	Remote database to validate travel card numbers	Remote validation requires one or more remote databases.	IN/1 service control point (SCP); also called “data control point” or “DCP”
	Network links	SS7 signaling is required between remote database and the switch.	SS7 links to connect the switch to each IN/1 service control point

**Table 1-5**  
**Hardware requirements—Quick Call service**

<b>Service option</b>	<b>Function</b>	<b>Explanation</b>	<b>Hardware requirements</b>
Quick Call, CRDS0005	Subscriber dials 4-digit PIN number to call home or office	Subscriber does not enter complete travel card number during call sequence	No additional hardware required

**Table 1-6**  
**Hardware requirements—CLD/CLG Number Query**

<b>Service option</b>	<b>Function</b>	<b>Explanation</b>	<b>Hardware requirements</b>
CLD/CLG Number Query, CRDS0004	CLD/CLG Number Query provides calling number, called number, and call type to the remote validation database.	CLD/CLG Number Query allows enhanced validation screening by the remote database.	No additional hardware required

## For more information

In addition to this publication, you can find information about MCCS and related topics in other Northern Telecom publications. MCCS-related references from this section are listed as follows.

<b>For more information about...</b>	<b>See the manual...</b>	<b>Manual #</b>
The UCS DMS-250 switch	<i>UCS DMS-250 General Description</i>	297-2621-100
The content and organization of the DMS technical library	<i>UCS DMS-250 Master Index of Publications</i>	297-2621-001
Software optionality control	<i>UCS DMS-250 Software Optionality Control (SOC) User's Manual</i>	297-2621-301
	<i>Software Optionality Control User Manual</i>	297-8991-901



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# Basic service

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## This section includes...

### How does it work?

Service description—page 2-2

Call flows and explanations—page 2-14

### How do I implement it?

Hardware requirements—page 2-58

Datafill relationships—page 2-64

Datafill steps—page 2-88

### How do I support it?

Commands—page 2-116

Logs—page 2-119

Operational measurements—page 2-120

Billing—page 2-122

## Service description

### Functionality (continued)

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### Introduction

The Basic service of Mechanized Calling Card Services (M CCS) is available for purchase to use with the long distance features of the UCS DMS-250 switch. After purchasing Basic service, you can activate it with software optionality control.

### Basic service features

The following features listed in Table 2-1 are included with Basic service.

**Table 2-1**  
**Basic service features**

Basic service features
<i>Tone prompts</i> —Tones signal callers to enter information to place the call.
<i>Dedicated dialing</i> —A universal access number can be dedicated to accept M CCS calls exclusively.
<i>Reset dialing</i> —Subscribers can use reset dialing when they make dialing mistakes.
<i>Screening</i> —Class of service screening can block or allow international and direct dial calls.
Screening—Automatic number identification (ANI) screening for universal access (UA) M CCS calls on FGD trunks
<i>In-switch validation</i> —The UCS DMS-250 switch validates the travel card number.
<i>Fraud detection</i> —Logs indicate a failed attempt to enter a valid travel card number or a TCN flagged at the remote database to be trapped and sent to a hot line number or security office.
<i>Announcements</i> —Three announcements are available for use when misdials occur.
<i>Reorigination</i> —Subscribers are able to reoriginate.

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## Service description Functionality (continued)

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### Tone prompts

Tones occur in the MCCS call sequence to guide callers through the process of making a call. Where tones occur depend on the type of originating trunk. However, generally there are three tones.

- *prompt for address*—The first tone signals the subscriber to enter the called number (or address).
- *prompt for travel card number*—The second tone signals the subscriber to enter the travel card number.
- *signal that confirms switch processing*—The third tone occurs after the switch has validated the travel card number. This tone lets the subscriber know the call will be completed.

### Optional voice announcements

Optionally, three voice announcements are available to be datafilled and used, as listed in Table 2-2. These announcements

- play depending on the flow of the call and how your system is set up (for example, whether you have operator services)
- are active voice prompts, meaning subscribers can interrupt them
- require an enhanced digital recorded announcement machine card (highly recommended) or a digital recorded announcement machine card

**For more information** on operator services call flow and datafill relationships, see “UA calls: datafill relationships” in this section, beginning with Figure 2-37.

## Service description

### Functionality (continued)

**Table 2-2**  
Optional announcements available with Basic services

Abbreviation and name	Announcement description	Example	Type of prompt
CCNV— Calling card not valid	Validation— An announcement plays to inform the subscriber the travel card number entered is not valid; the switch allows a second chance to enter the number.	After the first attempt to enter a travel card number: “We are unable to process your card number. Please enter it again.”	Active; subscriber may interrupt by pressing any key
CCTO— Calling card timeout	Timeout— An announcement plays when a subscriber fails to enter the travel card number within a specified time period and switch datafill indicates the call is not to route to an operator position. After the subscriber tries a second time and exceeds the timeout period, the switch routes the call to Calling Card Timeout (CCTO) treatment or to an operator position (depending on availability of operator services and the datafill).	“We’re sorry, we are unable to process your request. Please try again.”	Active; subscriber may interrupt by pressing any key
FDNZ— First digit not zero	Reorigination— An announcement plays when a subscriber attempts to reoriginate a call and does not dial 0 before the address.	“You must first dial a zero when calling this number. Please try again.”	Active; subscriber may interrupt by pressing the * key

Later in this section under “Datafill relationships,” there is more explanation about where these announcements play and how settings must be configured.

### Dedicated dialing for universal access numbers

If you choose to have subscribers access the switch by dialing a universal access number (for example, a 1-800 number), you can dedicate the number to receive only M CCS calls. This means subscribers calling nationally are not required to dial a 0 before the address.

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## Service description Functionality (continued)

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### Class of service screening

Class of service screening can be set to block or allow international and direct dial calls as with other calls processed by the UCS DMS-250 switch. Class of service override is not allowed with MCCS calls.

### ANI screening for FGD UA MCCS calls

ANI screening allows the UCS DMS-250 switch to perform ANI screening for UA MCCS calls that originate on PTS FGD or SS7 FGD trunks. ANI screening for these calls requires datafilling the option UAANISCR against the originating FGD trunk in table TRKGRP.

**Note:** This feature does not screen the information digits for UA MCCS calls that originate on FGD trunks.

If ANI screening fails for any of the following reasons, the UCS DMS-250 switch can route the call to an operator or apply treatment:

- ANI is not in the correct format
- ANI is not present in the ANI database
- ANI is marked as DA (Disallowed)
- ANI is not received

## Service description

### Functionality (continued)

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If option UAANISCR is not datafilled and the call goes to treatment, the treatment applied depends on the type of ANI failure as follows:

- If the UCS DMS-250 switch does not receive the ANI, the call processing software applies ANI\_DATABASE\_FAILURE (ADBF) treatment. The UCS DMS-250 switch generates log TRK255, database failure log, with trouble code as UA\_ANI\_NOT\_RECVD.
- If the ANI database does not contain the ANI which the UCS DMS-250 switch receives, the call processing software applies ADBF treatment. The UCS DMS-250 switch generates log TRK255 with trouble code as UA\_ANI\_INVALID.
- If the UCS DMS-250 switch receives an ANI that is not a three- or ten-digit ANI, the call processing software applies ADBF treatment. The UCS DMS-250 switch generates log TRK255 with trouble code as UA\_ANI\_INVALID.
- If the ANI database has marked an ANI the UCS DMS-250 switch receives as DA, the call processing software applies ANI\_ACCOUNT\_STATUS\_NOT\_ALLOWED (ANIA) treatment. The UCS DMS-250 switch generates log TRK255 with trouble code as UA\_ANI\_INVALID.

Routing UA MCCA calls that fail ANI screening to the operator requires datafilling the option RTEOPER against the UA number in subtable STDPRT of table STDPRTCT. If this option is not datafilled against the UA number, these calls route to treatment.

If ANI screening is successful, the UA MCCA calls follow the MCCA call processing logic. Only the STATUS field from the ANI profile is applied to UA MCCA calls.

ANI screening for FGD UA MCCA calls requires SOC UBFR0004.

### Interactions

The ANIBYP feature takes precedence over ANI screening for FGD UA MCCA calls. If both options, ANIBYP and UAANISCR, are datafilled against the originating FGD trunk, the ANI is not screened for FGD UA MCCA calls.

### Reset dialing

With reset dialing, after making an error a caller can return to the beginning of a dialing phase without losing access to the switch. For example, the caller may want to re-enter or enter a different address; this is the first

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## Service description Functionality (continued)

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dialing phase. Or the caller may want to re-enter the travel card number; this is the second dialing phase. To reset, the caller presses the \* key (the reset digit). The subscriber is allowed three resets for each dialing phase.

Reset dialing is available when the subscriber has a DTMF telephone and specialized tone receivers (STRs) are provisioned in the switch.

### **In-switch validation**

The UCS DMS-250 in-switch database validates the travel card number.

### **Logs for fraud detection**

When the travel card number fails validation, the switch generates a log report (OCC213) that records the travel card number and information about where the call originated.

### **Reorigination**

With manual reorigination, an MCCS subscriber can place several calls in sequence without entering the travel card number again. This function is available when the subscriber has a DTMF telephone and specialized tone receivers (STRs) are provisioned in the switch.

**Service description**  
**Functionality** (continued)

**Trunk types and Basic service features**

The following shows the types of trunks that can accommodate Basic service features.

DAL, DALTIE	FGA (ONAL)—PTS	FGB (ONAT)—PTS	FGC UA—PTS	FGD		IMT UA—SS7	PRI	Basic service features
				UA—PTS/SS7	Trans—PTS			
X	X	X	X	X	X	X	X	Tone prompts with optional announcements, class of service screening, logs
X	X	X	X	X	X	X		Reorigination; reset dialing
			X	X		X		Dedicated dialing with universal access number (no 0+ required)
X	X	X	X	X	X	X	X	In-switch validation

## Service description Functionality (continued)

### Functional overviews

The following explains the functionality of Basic service, including:

- basic functionality
- dedicated dialing
- optional announcements with failed calls
- optional announcements with dedicated dialing with failed calls

### Basic functionality

The following explains basic functionality of a successful MCCS call without dedicated dialing.

#### Subscriber gains switch access

The subscriber gains access to the UCS DMS-250 switch through one of the following ways listed in Table 2-3.

**Table 2-3**  
**How subscribers gain access to switch**

Originating trunk	To access switch, subscriber dials with DTMF phone:
DAL, DAL-TIE	0+ address or 01+ address for international calls
FGA	Local 7-digit service number
FGB	7-digit universal access code: 950–WXXX
FGC, FGD, IMT—Universal access	Universal access number (such as a 1-800 number)
FGD transitional	7-digit universal access code: 950–WXXX
PRI	0+ address or 01+ address for international calls
<b>Note:</b> W=0–1; X=0–9	

#### Switch prompts subscriber for address

The subscriber hears a tone sent by the switch. This tone prompts the subscriber for the next step in the call sequence. (This does not occur with DAL, DAL-TIE, or PRI calls. In this case the subscriber begins with dialing the address.)

## **Service description**

### **Functionality** (continued)

---

#### **Subscriber dials address**

The subscriber dials 0+ the address. (If calling internationally, the subscriber must dial a 01 or 011 before the address.) If the type of call is not already known by the switch, the switch determines whether the call is an authcode call or an MCCS call.

#### **Switch prompts subscriber for travel card number**

The switch sends the subscriber a tone as a prompt for the next step in the call sequence: the travel card number. (In the case of DAL, DAL-TIE, and PRI, the subscriber hears a dial tone.)

#### **Subscriber dials travel card number**

The subscriber dials the travel card number.

#### **Switch verifies and validates travel card number**

The switch checks the travel card number for the proper format and attempts to match the number with those in the switch database. If the number matches a number in the database that is approved, the call continues. The switch then screens the call for class of service to determine if the call can be allowed.

#### **Switch sends confirmation tone to subscriber**

After validation, the switch sends the subscriber a final tone to indicate the call will process and complete.

#### **Switch processes call**

The switch finishes processing and routing the call.

### **Dedicated universal access number**

The following explains basic functionality of a successful national MCCS call with dedicated dialing using a universal access number. Only variations from basic functionality are listed and explained.

#### **Subscriber gains switch access**

The subscriber gains access to the UCS DMS-250 switch by dialing a universal access number (such as a 1-800 number) on one of the following trunks:

- FGC
- FGD

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## Service description Functionality (continued)

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- IMT

### **Switch prompts subscriber for address**

The subscriber hears a tone sent by the switch. This tone prompts the subscriber for the next step in the call sequence.

### **Subscriber dials address**

The subscriber dials the address. If calling nationally, the subscriber does not need to enter a 0 before the address. (If calling internationally, the subscriber must dial a 01 or 011 before the address.) The switch does not need to determine call type at this point because it only accepts MCCS calls from this universal access number.

### **Switch continues processing**

The switch continues processing as normal for a Basic service call.

## **Optional announcements**

The following explains basic functionality of a optional announcements used with Basic service without dedicated dialing. Only variations from basic functionality are listed and explained.

### **Subscriber gains switch access**

The subscriber gains access to the UCS DMS-250 switch through one of the following ways listed in Table 2-3.

### **Switch prompts subscriber for address**

The subscriber hears a tone sent by the switch. This tone prompts the subscriber for the next step in the call sequence. (This does not occur with DAL, DAL-TIE, or PRI calls. In this case the subscriber begins with dialing the address.)

### **Subscriber dials address**

The subscriber dials 0+ the address. If the type of call is not already known by the switch, the switch determines whether the call is an authcode call or an MCCS call.

### **Switch prompts subscriber for travel card number**

The switch sends the subscriber a tone as a prompt for the next step in the call sequence: the travel card number. (In the case of DAL, DAL-TIE, and PRI, the subscriber hears a dial tone.)

## **Service description**

### **Functionality** (continued)

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#### **Subscriber dials travel card number**

If the subscriber does not dial a complete travel card number, the switch sends the subscriber a Calling Card Timeout (CCTO) announcement giving another opportunity to enter the travel card number again. (For example, “We are unable to process this number.” If the second attempt fails, the switch sends the call to Calling Card Timeout treatment or to an operator.

#### **Switch verifies and validates travel card number**

If the travel card fails validation, the switch sends the Calling Card Not Valid (CCNV) announcement (for example, “We’re sorry. We are unable to process your card number.”) and the switch send the call to Calling Card Not Valid treatment.

#### **With reorigination, subscriber fails to dial 0**

If the subscriber reoriginates and does not dial a 0 before the address, the switch sends the First Digit Not Zero (FDNZ) announcement and allows the subscriber to try again. (For example, “You must first dial a 0 when calling this number. Please try again.”) If the second attempt fails, the switch sends the call to Invalid Authcode (INAU) treatment.

### **Dedicated universal access number with optional announcements**

The following explains basic functionality of optional announcements used with Basic service with dedicated dialing. Only variations from basic functionality are listed and explained.

#### **Subscriber gains switch access**

The subscriber gains access to the UCS DMS-250 switch by dialing a universal access number (for example, a 1-800 number) on one of the following trunks:

- FGC
- FGD
- IMT

#### **Switch prompts subscriber for address**

The subscriber hears a tone sent by the switch. This tone prompts the subscriber for the next step in the call sequence.

#### **Subscriber dials address**

The subscriber dials the address. If calling nationally, the subscriber does not need to enter a 0 before the address. (If calling internationally, the subscriber must dial a 01 or 011 before the address.) The switch does not need to

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**Service description**  
**Functionality (end)**

---

determine the call type at this point because it only accepts MCCS calls from this universal access number.

**Switch prompts subscriber for travel card number**

The switch sends the subscriber a tone as a prompt for the next step in the call sequence: the travel card number.

**Subscriber dials travel card number**

If the subscriber does not dial a complete travel card number, the switch sends the subscriber a Calling Card Timeout (CCTO) announcement (for example, “We’re sorry. We are unable to process your card number.”) and the switch sends the call to Calling Card Timeout treatment.

**Switch verifies and validates travel card number**

If the travel card fails validation, the switch sends the Calling Card Not Valid (CCNV) announcement requesting the subscriber enter the travel card number again (for example, “We are unable to process your card number. Please enter it again.”). If validation fails a second time, the switch sends the call to Calling Card Not Valid treatment.

## **Service description**

### **Call flow overview (end)**

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#### **Call flows**

The call processing software on the switch controls call flow from connect to disconnect. Call processing activity for Basic service depends on the trunks (also called switch agencies) that handle the call. This means call processing can vary, depending on the trunk carrying the call.

Call processing also varies, depending on how the subscriber accesses the switch. For example, with universal access calls, the subscriber dials a universal access number to access the switch.

#### **Functionality and feature information**

The following call flows show functionality- and feature-related information. Completed calls are shown first, then uncompleted cases.

**For more information** on datafill relationships and datafill steps, see “Implementation” in this M CCS Basic service section.

#### **Dialing plans**

This section covers universal access call flows in detail. Summary call flows for other trunks are provided.

---

## Service description

### Call flow: universal access (continued)

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### Introduction

You can configure Basic service so that subscribers call a universal access (UA) number to gain access to the UCS DMS-250 switch. The following trunk types support this kind of access to MCCS Basic service:

- FGC with PTS signaling
- FGD with PTS or SS7 signaling
- IMT with SS7 signaling

**For more implementation** on implementing universal access and the relationship between call flow and datafill, see the Implementation section of “MCCS Basic service.”

### Standard, completed call

Figure 2-1 shows an example of a completed universal access call flow with a subscriber using a DTMF receiver (instead of placing the call through an operator). The call stages of this type of call are explained as follows.

#### 1 **Subscriber: dials universal access number**

*Pretranslation*—The switch performs pretranslation on the universal access number.

*Type of prompt determination*—The switch determines the subscriber will receive tone prompts.

#### 2 **Switch: sends tone to subscriber for address**

#### 3 **Subscriber: dials complete address**

*Initial call type*—At this point, the switch performs pretranslation on the address to determine whether the call type is MCCS.

— *authcode call*—If the caller does not dial 0 before the address (and the universal access number is not dedicated to MCCS calls only), the switch determines the call is an authcode call.

— *MCCS call*

– non-dedicated dialing—If the caller dials a 0 and the address (or 01 before address for an international call), the switch determines the call is an MCCS call.

– dedicated dialing—If the caller does not dial a 0 before the address and the universal access number is dedicated to accept only MCCS calls, the switch determines the call is an MCCS call.

## Service description

### Call flow: universal access (continued)

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— *Operator call*—If the caller dials a 0 only (0– call), the switch determines the call is an operator services call.

4 **Switch: sends tone to subscriber for travel card number**

5 **Subscriber: dials travel card number**

6 **Switch: screens; verifies and validates; logs any potential fraud**

*Screening*—The switch screens the call for class of service. Class of service screening can be set up to block or allow calls; for example, you can block international dialing, or calls during a certain time of day.

COS override is *not* allowed on MCCS calls.

*Verification*—The switch checks the travel card number to determine whether:

— the first digit is not 1

— the travel card number is at least 14 digits

*Validation*—The travel card number is validated by a database table of the switch. During validation, the switch determines the travel card number is valid or invalid. If valid, the address is translated and the call is completed. If invalid, the switch blocks the call. If a potentially invalid travel card number has been entered, the switch prints log report OCC213 to record this event.

7 **Switch: sends tone to subscriber to confirm processing**

After validation of the travel card number, a confirmation tone prompt indicates to the subscriber the call will be completed.

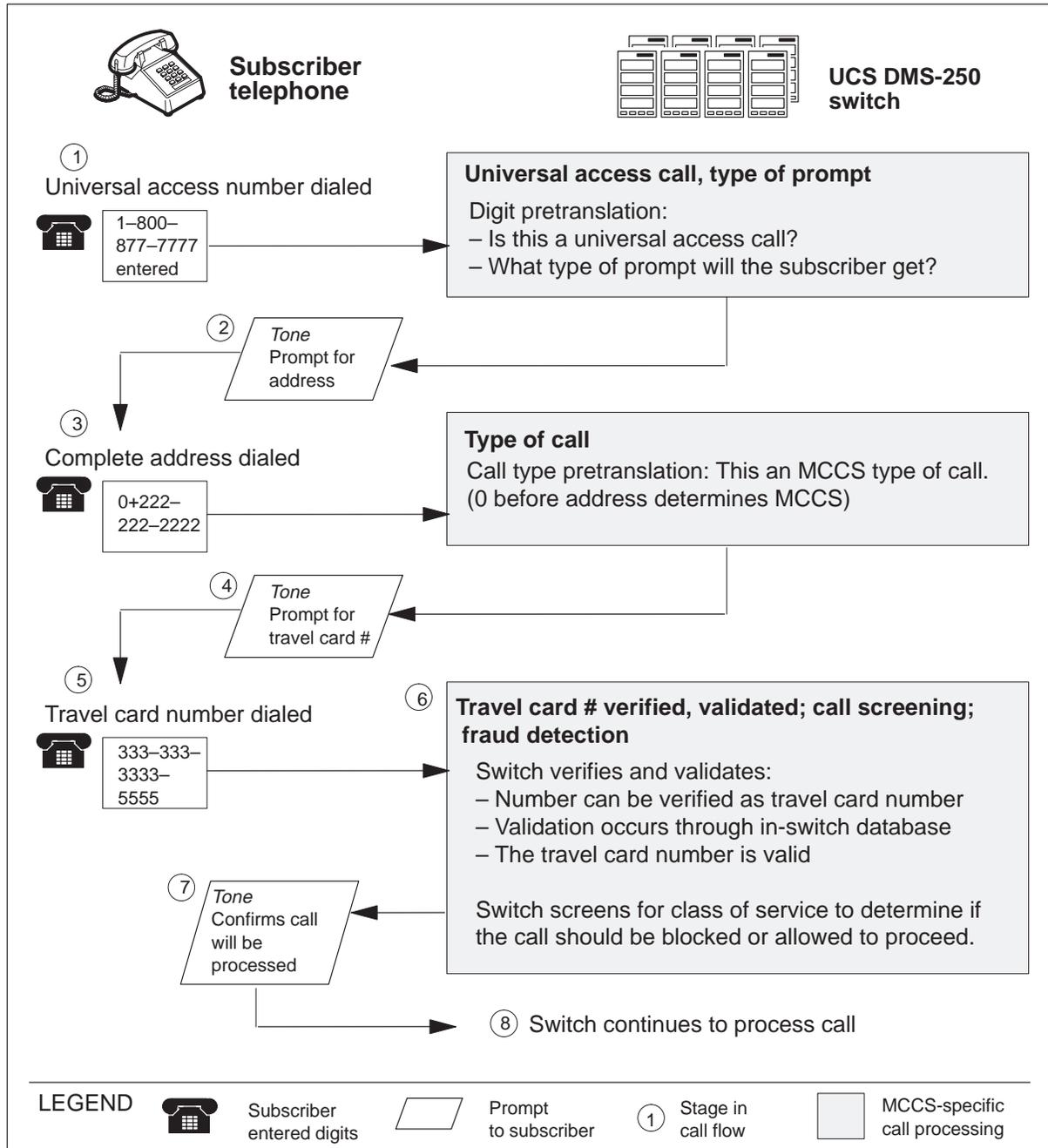
8 **Switch continues call processing**

The switch continues call processing, including determining the serving translation scheme and the route the call will take.

## Service description

### Call flow: universal access (continued)

**Figure 2-1**  
**UA call flow: standard, completed UA call**



## Service description

### Call flow: universal access (continued)

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#### Variations from standard, completed call

Calls may not be completed or may not follow the standard flow (for example, because of a reset by the subscriber). The switch may send a call that does not or cannot complete processing to treatment.

#### Sending calls to treatment

The switch often sends calls that do not successfully complete to treatment. This includes cases when the subscriber does not dial any digits or dials only part of the digits required. When the switch sends a call to treatment, the caller hears a tone or an announcement that indicates the call has not been completed.

#### Operator services

Call flow can be affected by whether operator services are available. The switch will send some incomplete calls to the operator instead of to treatment. This occurs if operator services are available and the datafill is set up to route to an operator position.

#### Optional announcements with Basic service

If you choose to implement the three voice announcements available with Basic service, the switch sends a voice announcement to the subscriber in the following cases of call failure:

- The caller enters an invalid travel card number.
- The caller does not enter a complete travel card number before the timer for travel card digits expires.
- The caller does not enter a 0 before the address when attempting to reoriginate a call.

The following variations are explained:

- dedicated universal access number
- reset, no digits, and partial address dialing
- 0– dialed for operator after prompt for address
- first digit dialed is not 0 after prompt for address
- reset dialed after prompt for travel card number
- partial travel card number dialed after prompt for address
- no digits dialed or 0– dialed after prompt for travel card number
- first digit dialed is 1 after prompt for travel card number

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**Service description****Call flow: universal access** (continued)

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- invalid travel card number dialed after prompt for travel card number
- reorigination
- call flows with optional voice announcements used for call failure

**After address prompt: dedicated universal access number**

With specific datafill settings, you can program the universal access number to receive MCCS calls only. MCCS dedicated settings affect the following:

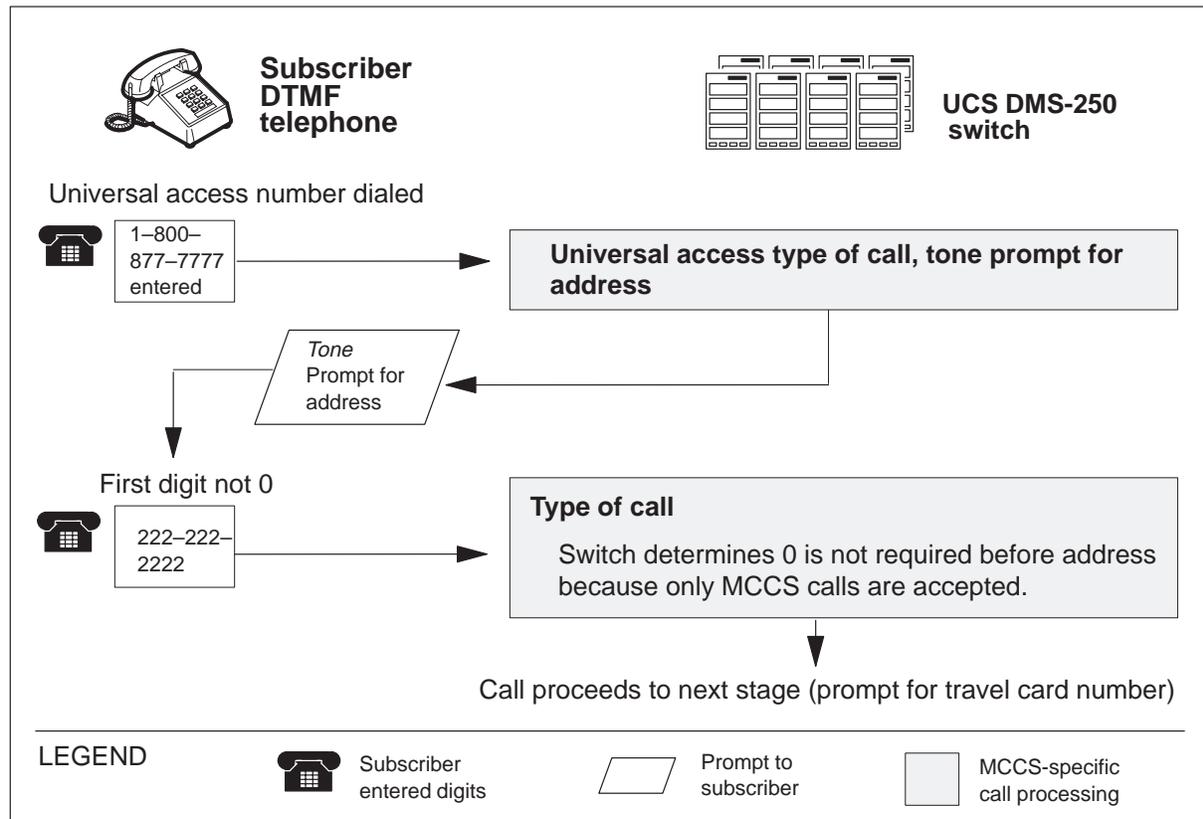
- *no 0+ dialing*—For national calls, the subscriber is not required to dial a 0 before the address. (For international calls, subscribers must dial 01 before the address.)
- *authcodes not accepted*—If a universal access number is dedicated to MCCS calls only, the switch will not accept authorization codes on the universal access number.

Figure 2-2 shows the call flow variation after the address prompt: the first digit dialed after the address is not 0, but a first digit of 0 is not required because of MCCS dedicated dialing by the subscriber.

## Service description

### Call flow: universal access (continued)

Figure 2-2  
UA call flow after address prompt: MCCS dedicated dialing, no 0+ address required



### After address prompt: reset, no digits, and partial address dialing

Figure 2-3 shows the call flow variations after the address prompt: reset, no digits, and partial address digits dialed by the subscriber. This call flow occurs with or without operator service availability.

#### Reset dialed

Reset dialing allows callers to correct their dialing errors. A caller can return to the beginning of the dialing sequence without losing a connection with the switch. To reset and enter the address digits again, the caller presses the \* key (the reset digit) once or twice, as follows:

- reset for current dialing phase*—Subscriber presses \* (the reset key once). This allows the subscriber to return to the beginning of the current phase of digit collection and enter the digits again before PDIL treatment begins.

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**Service description****Call flow: universal access** (continued)

---

- *reset for previous dialing phase*—Subscriber presses \*\* (the reset key twice). This allows the subscriber to return to the beginning of the previous phase of digit collection and enter the digits again.

The subscriber is allowed three resets for each dialing phases (after prompt for address and travel card number).

**No digits dialed**

After the address prompt, the switch begins a timer and waits for address digits. If the timer expires and the switch has not received any digits, the switch sends the call to Permanent Signal (PSIG) treatment.

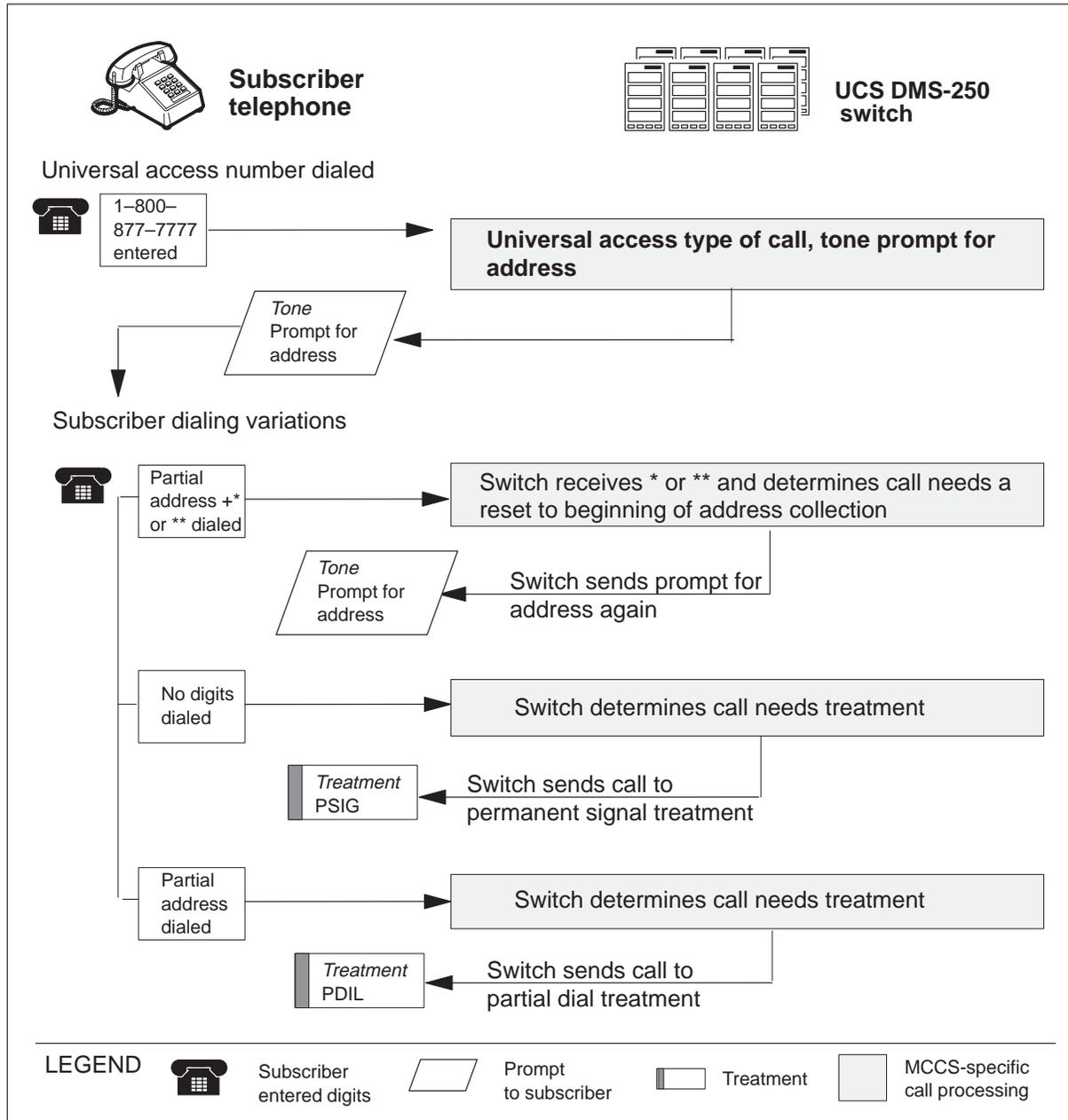
**Partial address dialed**

After the subscriber starts to enter address digits, the switch begins a timer and waits for remaining digits. If the timer expires and the switch does not receive the remaining address digits, the switch sends the call to Partial Dial (PDIL) treatment.

## Service description

### Call flow: universal access (continued)

Figure 2-3  
 UA call flow after address prompt: reset, no digits, and partial dialing



## Service description

### Call flow: universal access (continued)

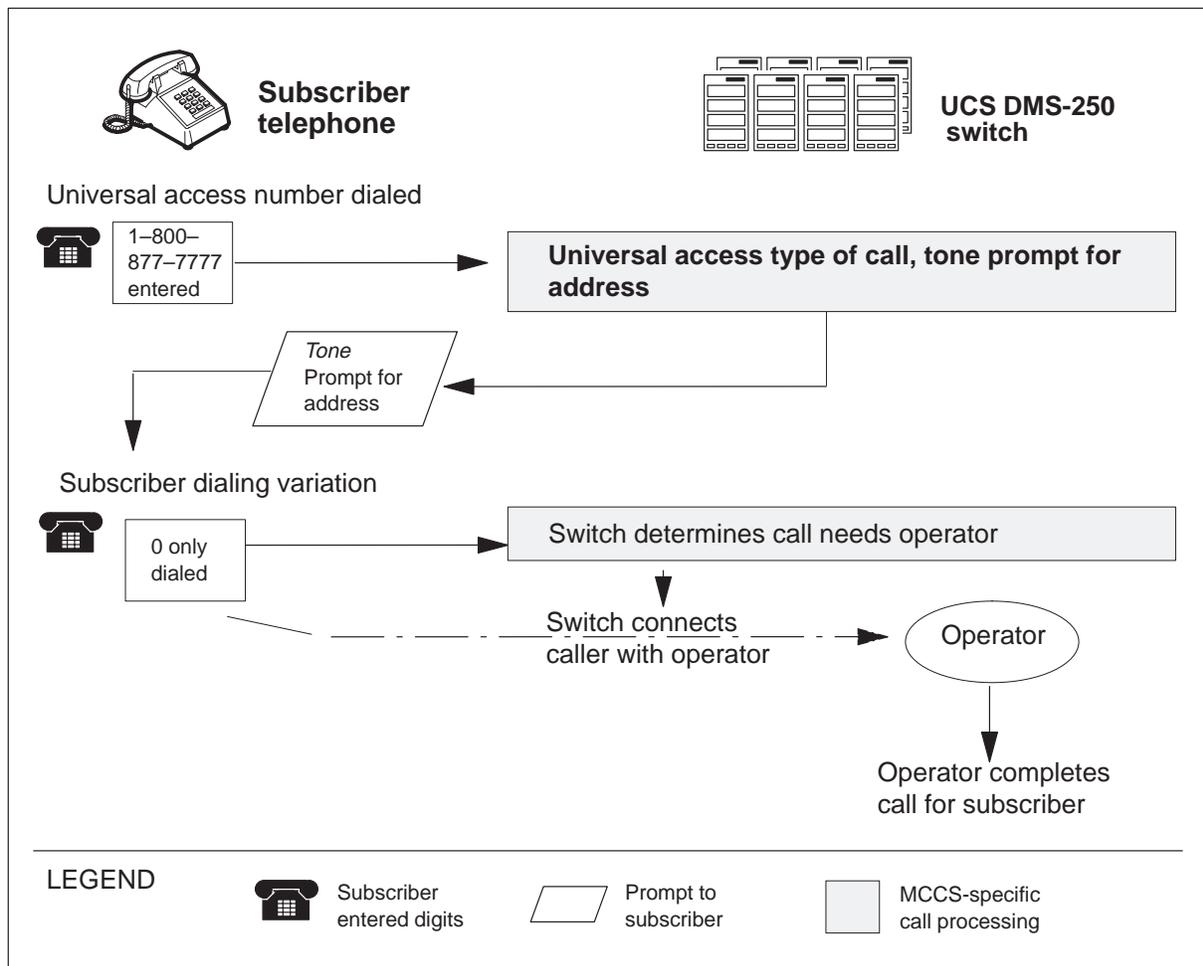
#### After address prompt: 0– dialed for operator

Depending on system capability, operators and intelligent platforms can verbally receive the travel card number (and any other required digits) and tell the subscriber a misdial has occurred.

#### With operator services

Figure 2-4 shows the call flow variation after the address prompt: subscriber dials 0– to reach an operator and operator services are available.

**Figure 2-4**  
**UA call flow after address prompt: 0– dial with operator service**



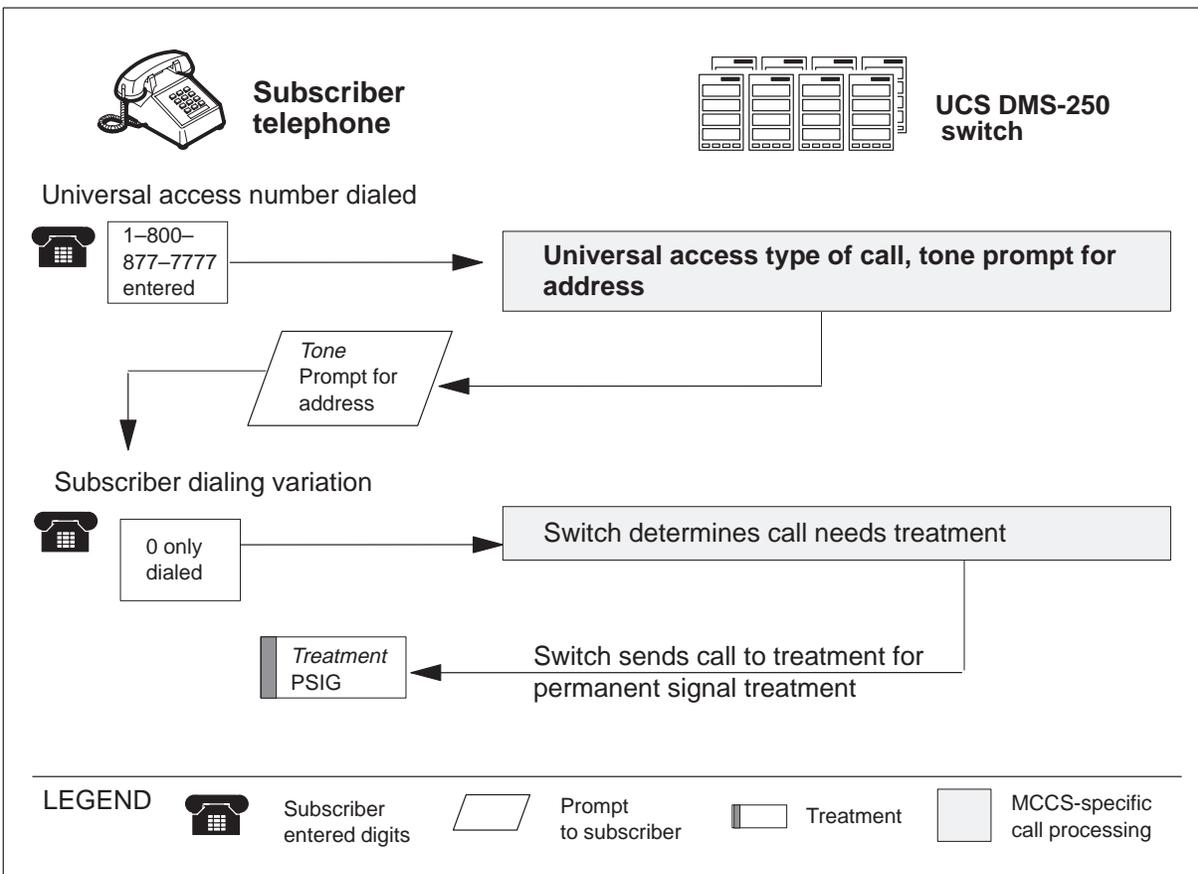
## Service description

### Call flow: universal access (continued)

#### Without operator services

Figure 2-5 shows the subscriber dialing 0- to reach the operator, but no operator services are available.

**Figure 2-5**  
**UA call flow after address prompt: 0- dial without operator service**



## Service description

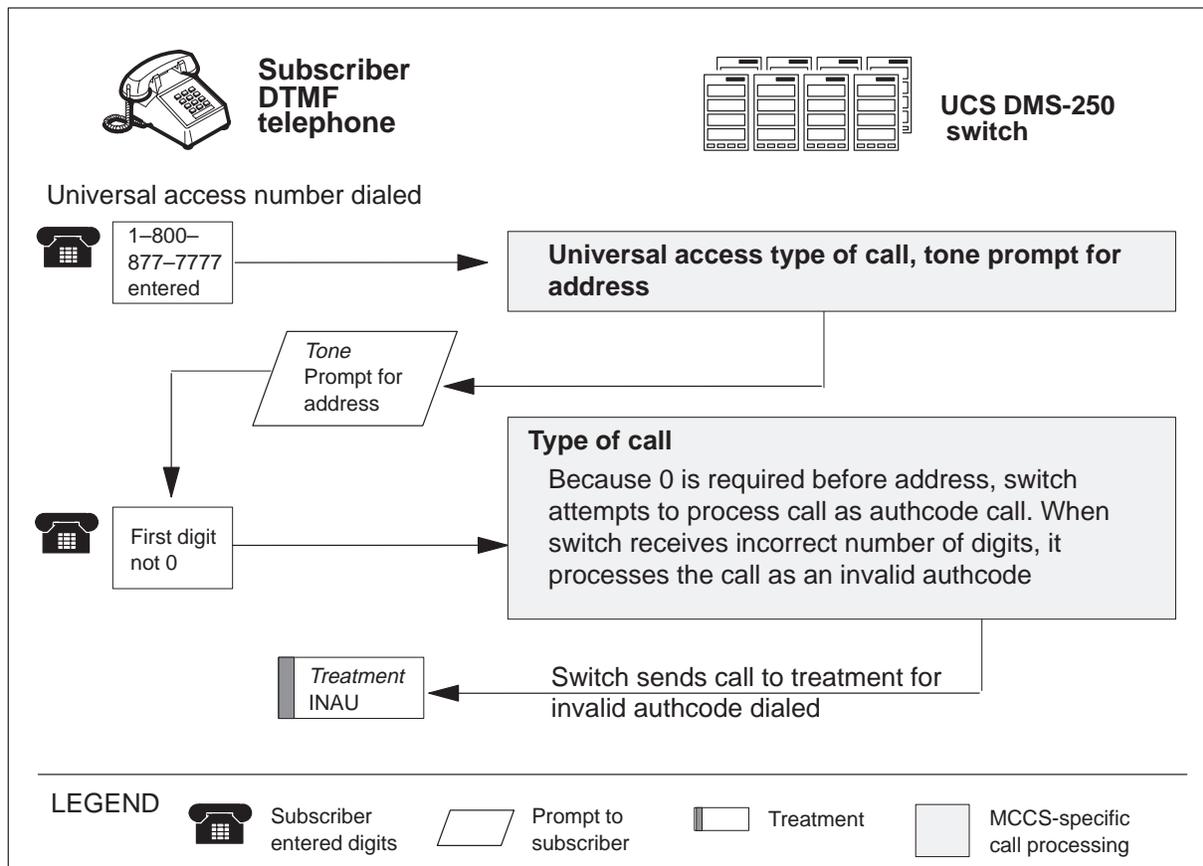
### Call flow: universal access (continued)

#### After address prompt: first digit dialed is not 0

When you set up a universal access number, the number can receive both authorization code calls and MCCS calls. The 0 dialed before the address is a pretranslation digit. This means the 0 indicates to the switch the call is an MCCS call (and not an authorization code call).

Figure 2-6 shows an MCCS subscriber failing to dial a 0 before the address, yet 0+ dialing is required. If a subscriber does not dial 0+ the address digits, the switch presumes the call is an authorization code (authcode) call. However, if the switch does not receive the appropriate digits for an authcode call (as in the case of this improperly dialed MCCS call), it sends the call to Invalid Authcode (INAU) treatment.

**Figure 2-6**  
**UA call flow after address prompt: first digit not 0, but 0+address required**



## Service description

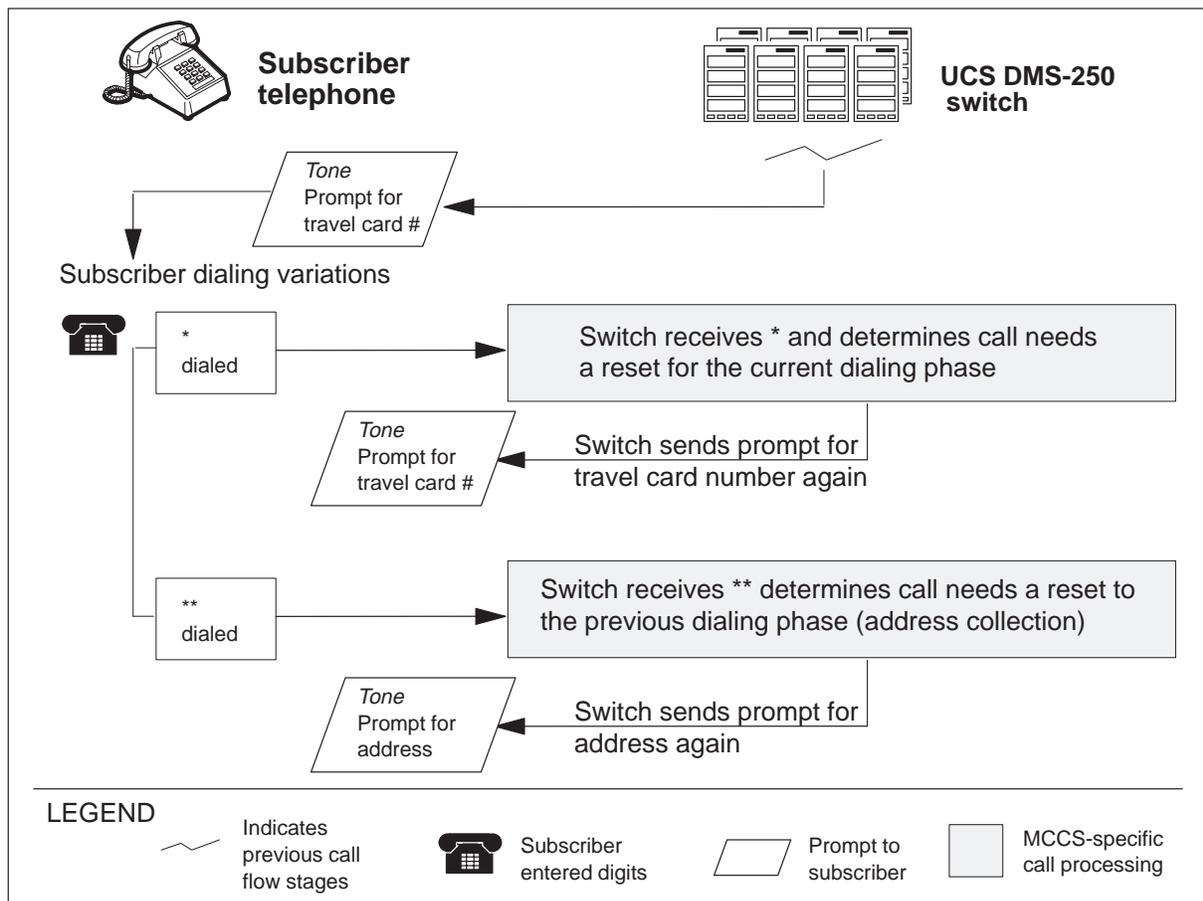
### Call flow: universal access (continued)

#### After travel card prompt: reset dialed

With reset dialing as shown in Figure 2-7, a caller can return to the beginning of the dialing sequence without losing access to the switch. To reset and enters the address digits again, the caller presses \* (the reset key) once or twice, as follows:

- *reset for current dialing phase*—Subscriber presses \* (the reset key once). The switch sends the tone prompt for the travel card number again and allows the subscriber to enter the travel card number. The subscriber is allowed three resets for this phase.
- *reset for previous dialing phase*—Subscriber presses \*\* (the reset key twice). The switch sends the tone prompt for the address and allows the subscriber to enter the address again. The subscriber is allowed three resets for this phase.

**Figure 2-7**  
**UA call flow after travel card prompt: reset dialing**



## Service description

### Call flow: universal access (continued)

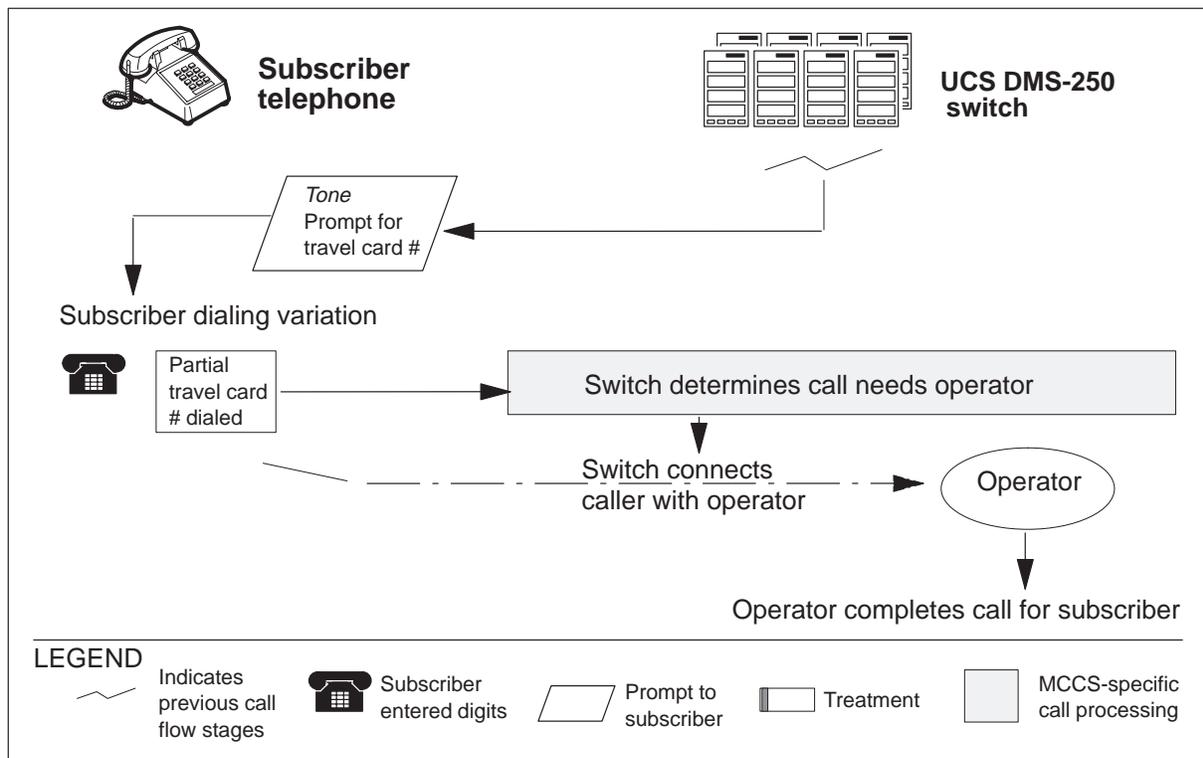
#### After travel card prompt: partial travel card number dialed

If no operator services are available, the following occurs with partial dialing of the travel card. After the subscriber starts to enter travel card digits, the switch begins a timer and waits for remaining digits. If the timer expires and the switch does not receive the remaining travel card digits, the next event in the call flow is dependent on whether operator service is available.

#### With operator services

When operator services are available and the timer for travel card digits has expired, the switch sends the call to the operator as shown in Figure 2-8.

**Figure 2-8**  
**UA call flow after travel card prompt: partial dialing, operator services available**

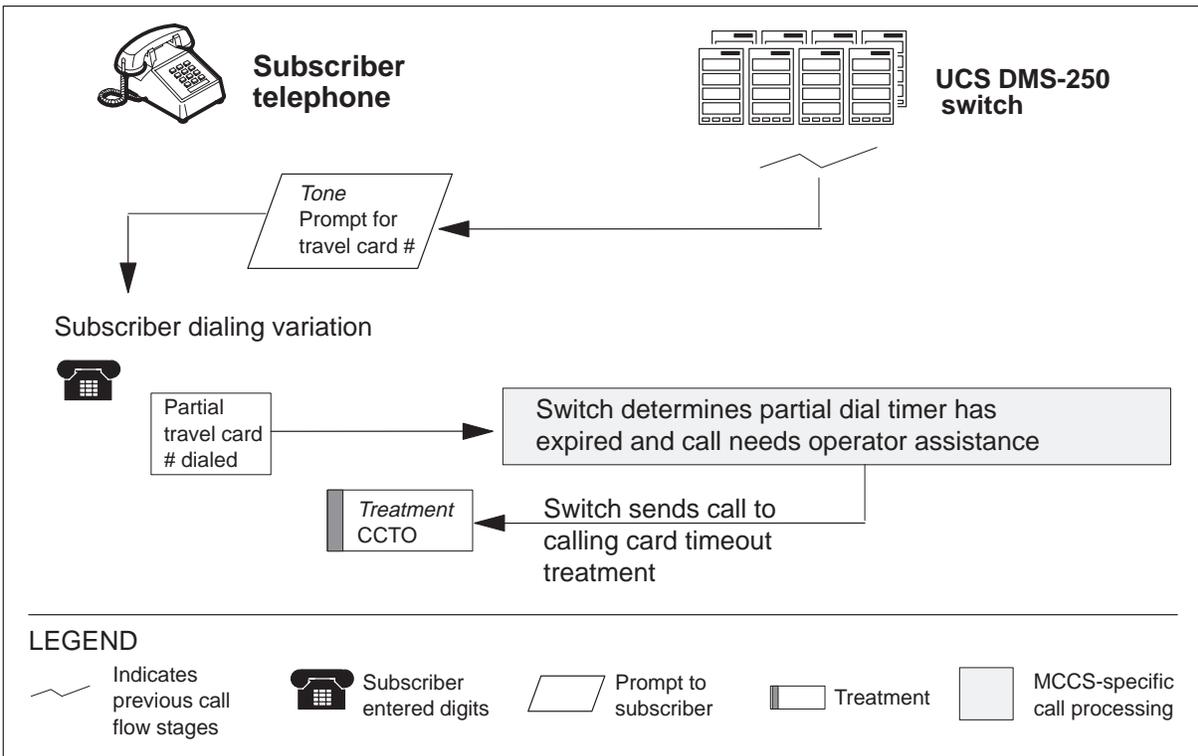


**Service description**  
**Call flow: universal access** (continued)

**Without operator services**

When operator services are not available and the timer for travel card digits has expired, the switch sends the call to Calling Card Timeout (CCTO) treatment as shown in Figure 2-8.

**Figure 2-9**  
**UA call flow after travel card prompt: partial dialing, operator services not available**



## Service description

### Call flow: universal access (continued)

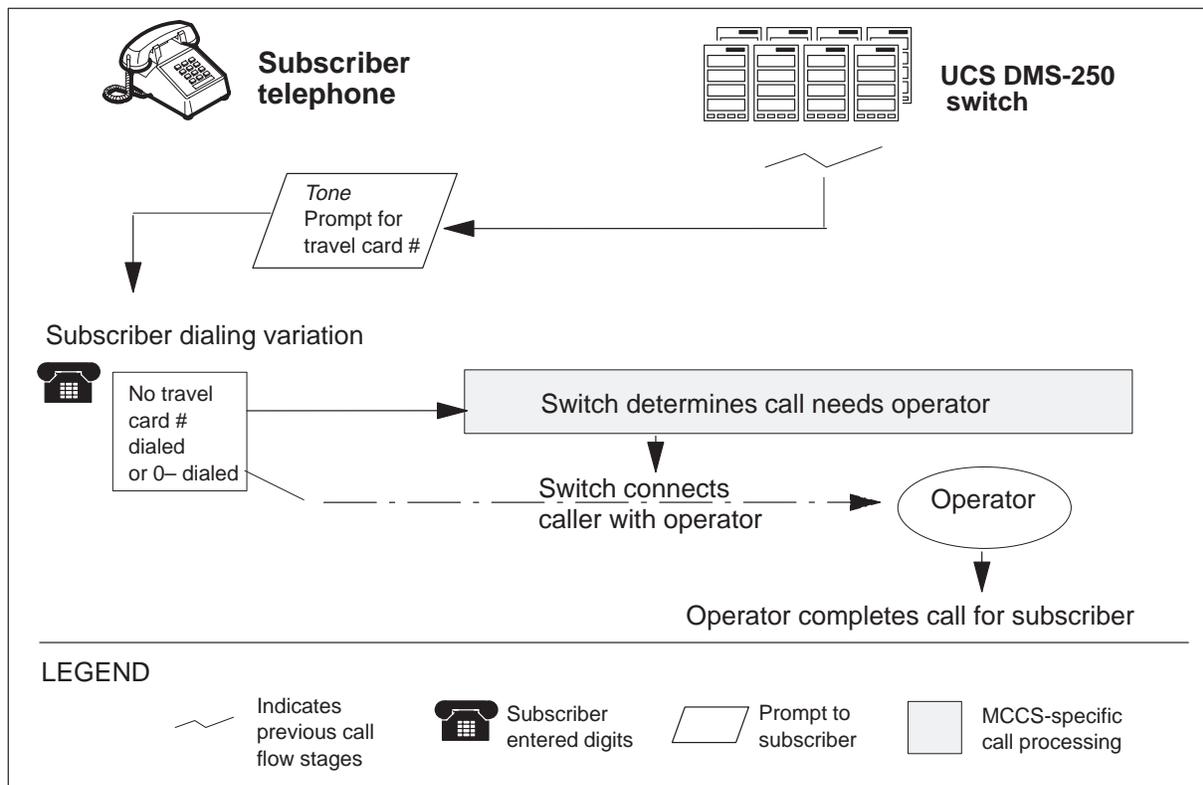
#### After travel card prompt: no digits dialed or 0– dialed

After the switch sends a prompt for the travel card number, the switch begins a timer and waits for digits. If the timer expires and the switch does not receive any travel card digits or if the subscriber dials a 0– for an operator, the next event in the call flow is dependent on whether operator service is available.

#### With operator services

If operator services are available, the following occurs when no travel card digits are dialed or 0– is dialed. The switch sends the call to the operator as shown in Figure 2-10.

**Figure 2-10**  
**UA call flow after travel card prompt: no digits dialed or 0– dialed, operator services available**



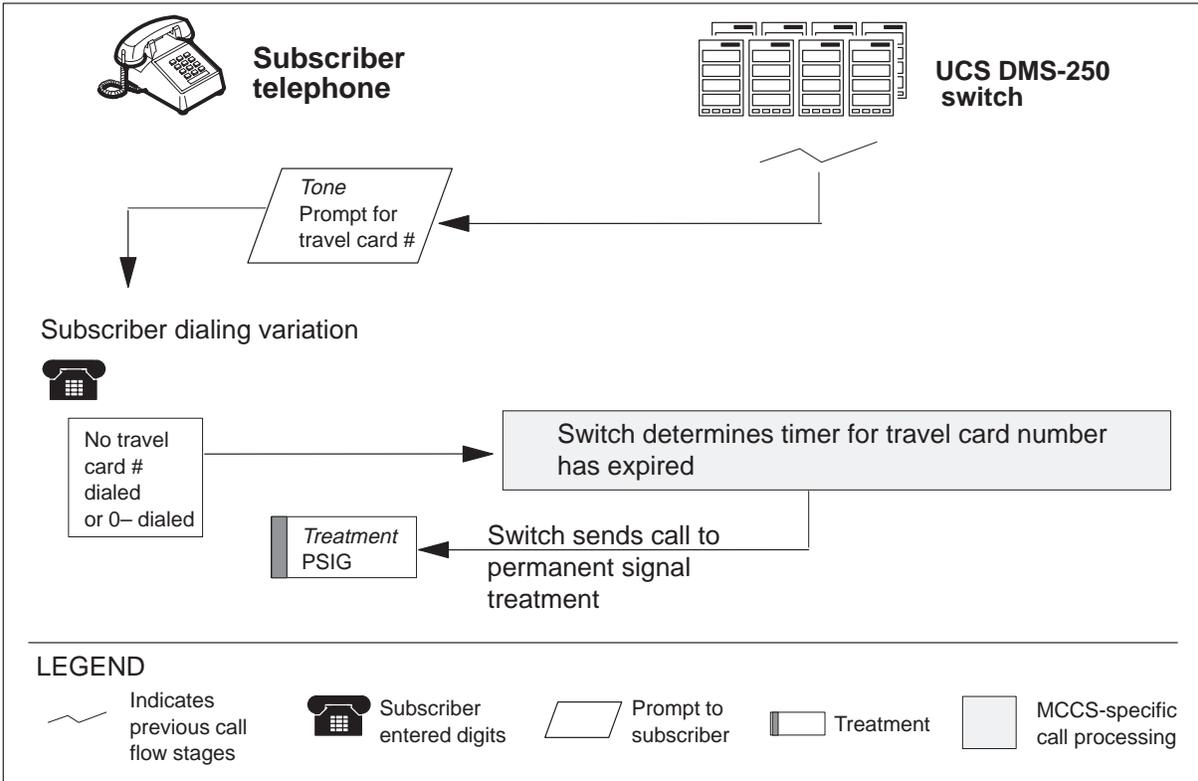
#### Without operator services

If no operator services are available, the following occurs when no travel card digits are dialed or 0– is dialed. The switch sends the call to Permanent Signal (PSIG) treatment as shown in Figure 2-11.

## Service description

### Call flow: universal access (continued)

**Figure 2-11**  
**UA call flow after travel card prompt: no digits dialed or 0- dialed, operator services not available**



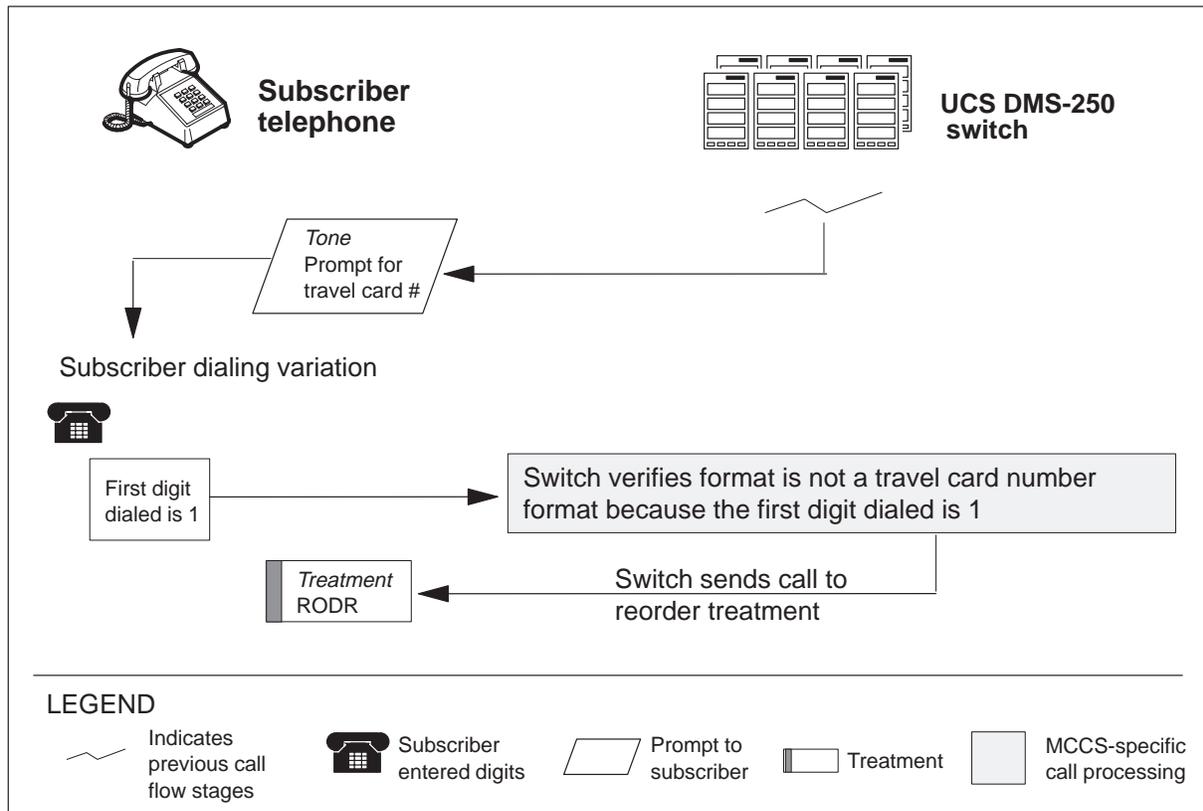
## Service description

### Call flow: universal access (continued)

#### After travel card prompt: first digit dialed is 1

The following occurs when the first digit dialed for the travel card number is 1, as shown in Figure 2-12. After the call receives the first digit, it determines the format is not correct for a travel card number and sends the call to Reorder (RODR) treatment.

**Figure 2-12**  
**UA call flow after travel card prompt: first digit dialed is 1**



## Service description

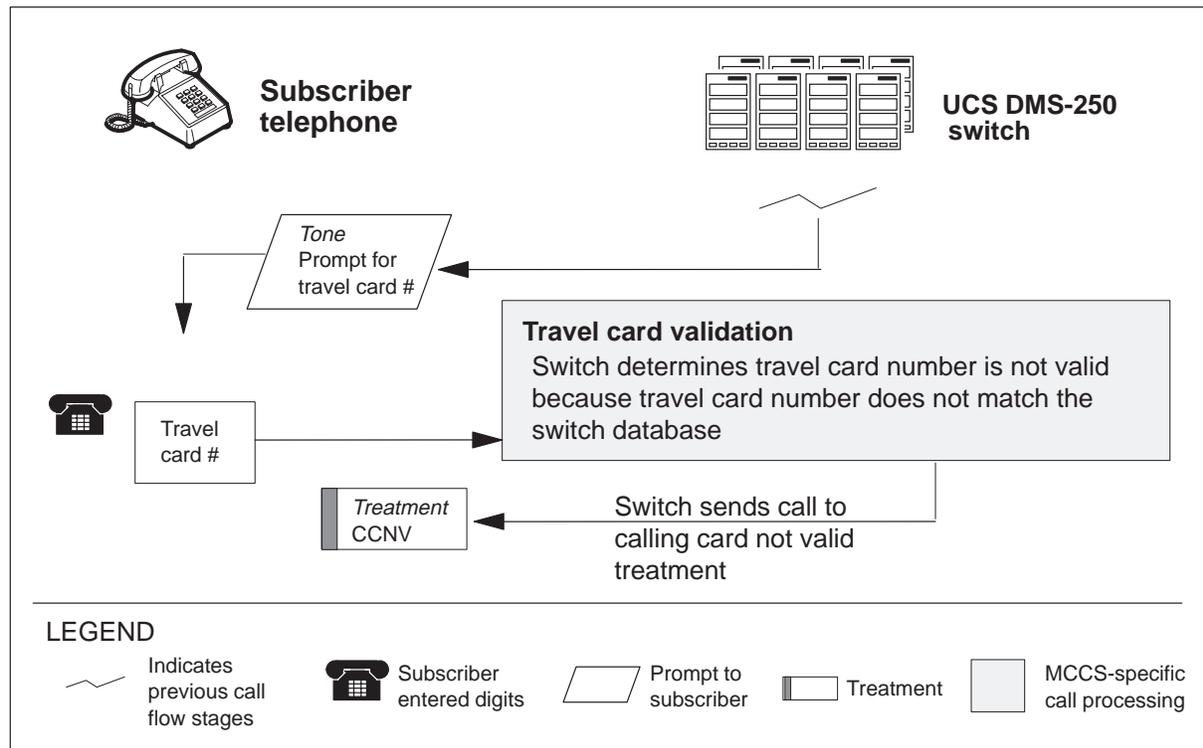
### Call flow: universal access (continued)

#### After travel card prompt: invalid travel card number dialed

After the subscriber enters a travel card number, the switch searches its database to determine whether the number is valid. If it cannot find the number in its database, the switch sends the call to treatment, as shown in Figure 2-13.

Figure 2-13

#### UA call flow after address prompt: invalid number dialed



## Reorigination

With manual reorigination, an MCCS subscriber can place several calls in sequence without entering the travel card number again. This function is available when the subscriber has a DTMF telephone.

**Note:** Reorigination is not supported on PRI trunks.

## Class of service screening

You can program the switch to perform class of service screening on each reoriginated call.

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## Service description

### Call flow: universal access (continued)

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#### Revalidation of travel card

You can program the switch to revalidate each reoriginated call. This can be helpful for fraud detection.

#### Functionality

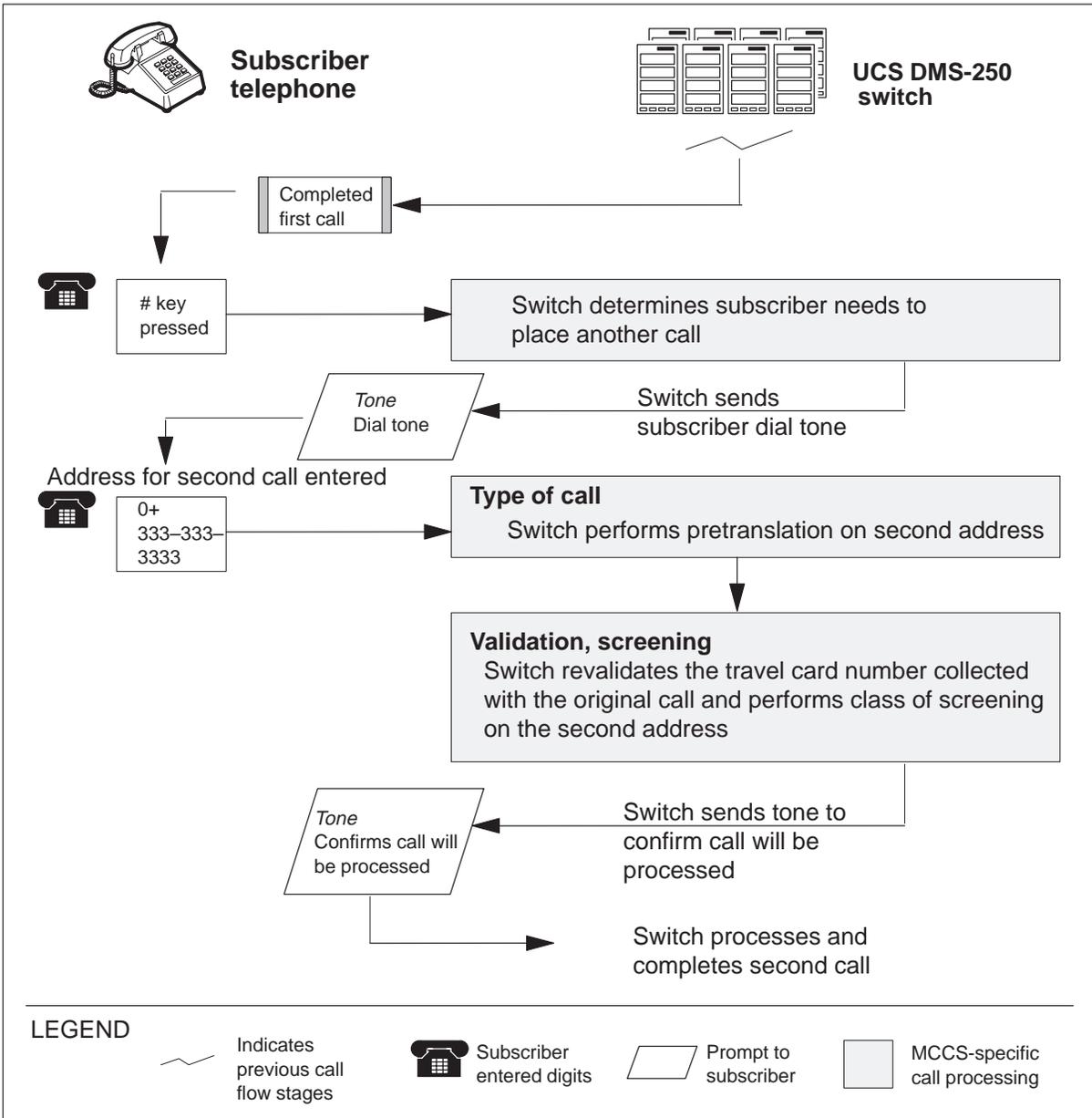
A subscriber can manually reoriginate a call during ringing, conversation, or for a limited time after the called party disconnects from the call. Figure 2-14 shows reorigination with class of service screening and travel card revalidation; it functions in this way:

- 1 The switch initiates a new call and completes the previous call.  
To initiate another call, the subscriber presses the # key after the calling party has disconnected from the current call. The switch considers the current call to be completed and disconnects the link between the trunk and the subscriber.
- 2 The switch sends the subscriber dial tone.
- 3 The subscriber enters the next address (and does not need to enter the travel card number again).
- 4 The switch performs class of service screening and revalidates the travel card number if the revalidation option is specified and the Class-of-Service (COS) value is greater than zero.

## Service description

### Call flow: universal access (continued)

Figure 2-14  
UA call flow: reorigination



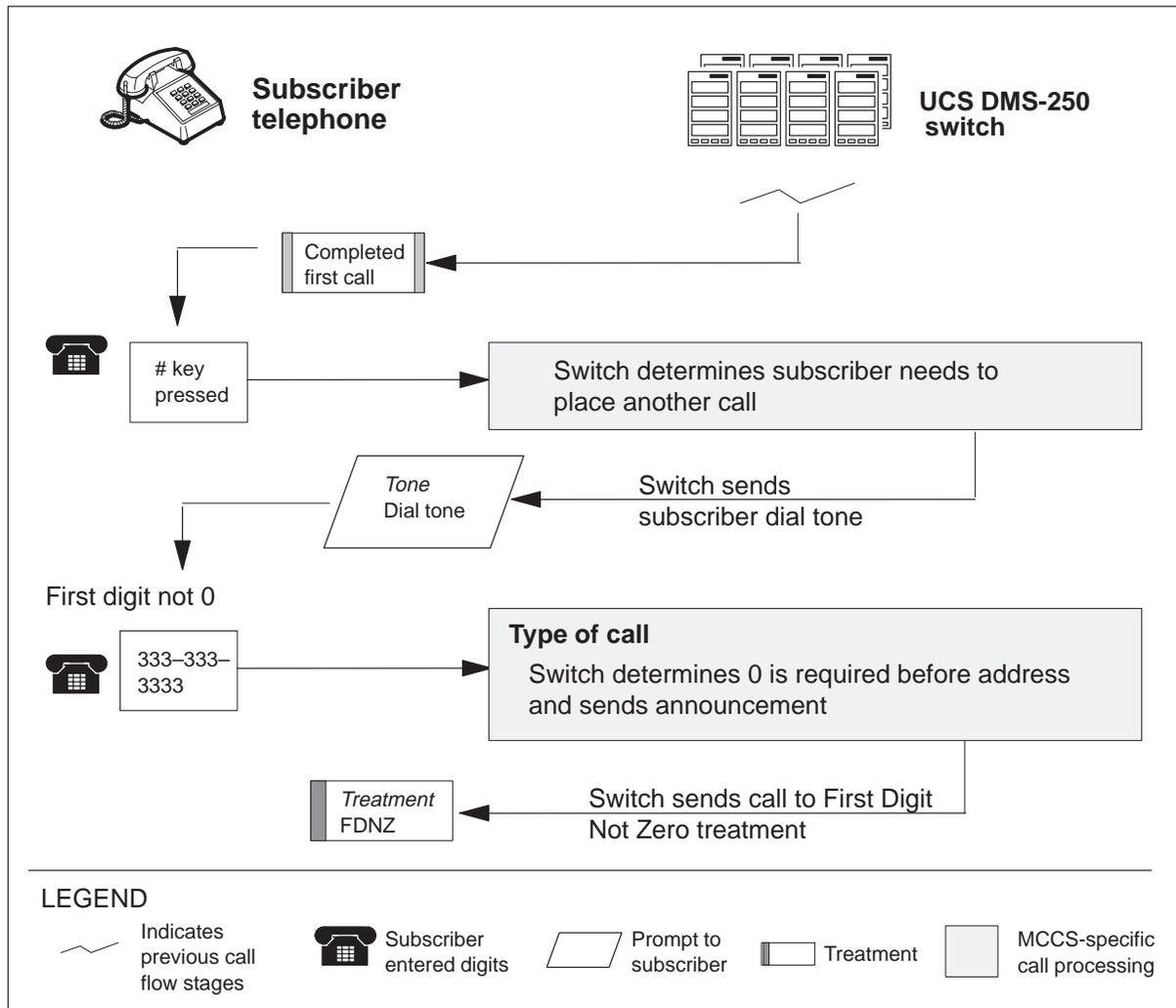
## Service description

### Call flow: universal access (continued)

#### Reorigination with failure to dial required 0

After reorigination when the subscriber fails to dial the required 0 after the second attempt, the switch sends the call to First Digit Not Zero (FDNZ) treatment, as shown in Figure 2-15. Even if operator services are available, this type of misdial is not directed to the operator.

**Figure 2-15**  
**UA call flow: reorigination with no 0+ dialing**



## Service description

### Call flow: universal access (continued)

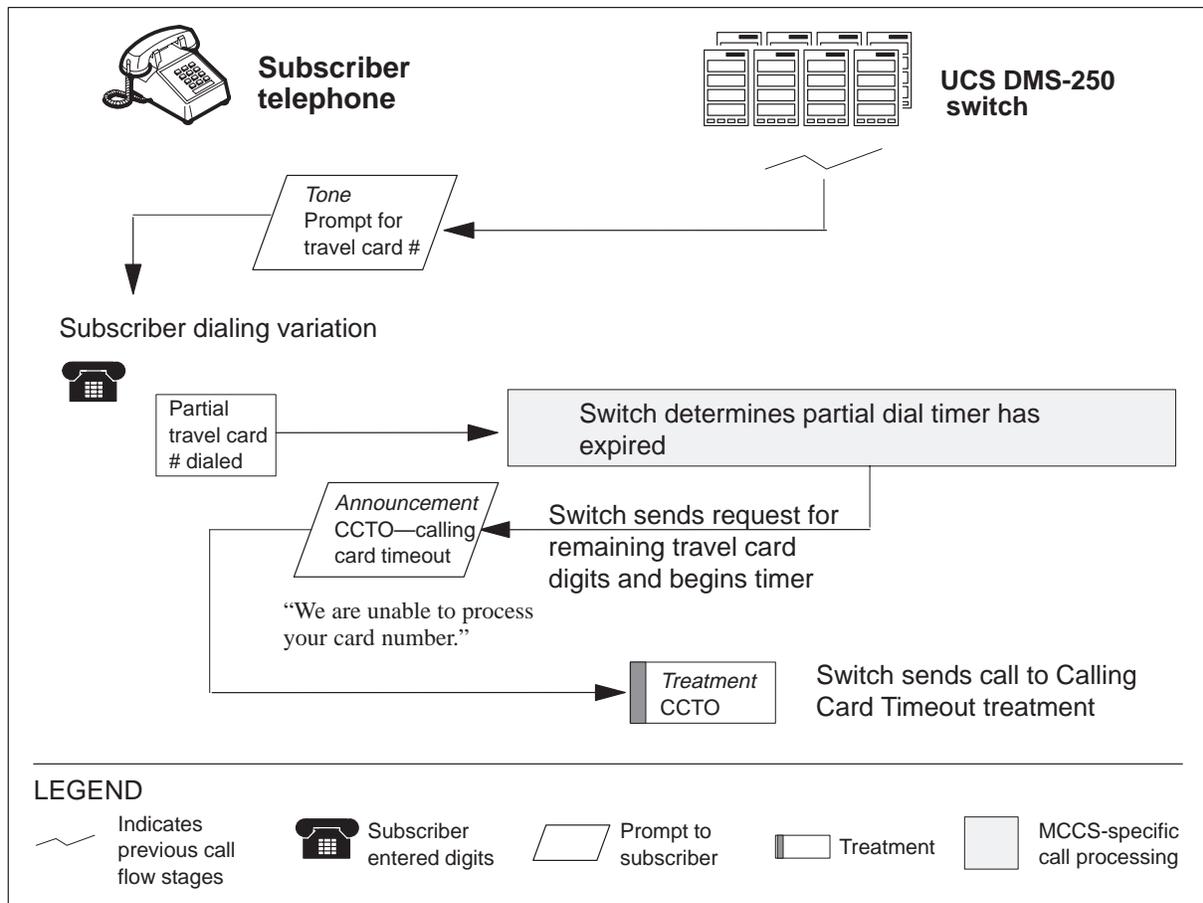
#### Call flows with optional voice announcements for call failure

If you use optional voice announcements, the switch sends a voice announcement to the subscriber in some cases of call failure. This occurs instead of immediately routing the call to treatment.

##### After travel card prompt: partial number dialed

Call flow occurs in this way with a partially dialed travel card number, as shown in Figure 2-16. After the subscriber starts to enter travel card digits, the switch begins a timer and waits for remaining digits. If the timer expires and the switch does not receive the remaining travel card digits, the switch sends the subscriber the Calling Card Timeout (CCTO) announcement and then sends the call to CCTO treatment.

**Figure 2-16**  
Optional announcement call flow after travel card prompt: partial dialing



**Service description**  
**Call flow: universal access** (continued)

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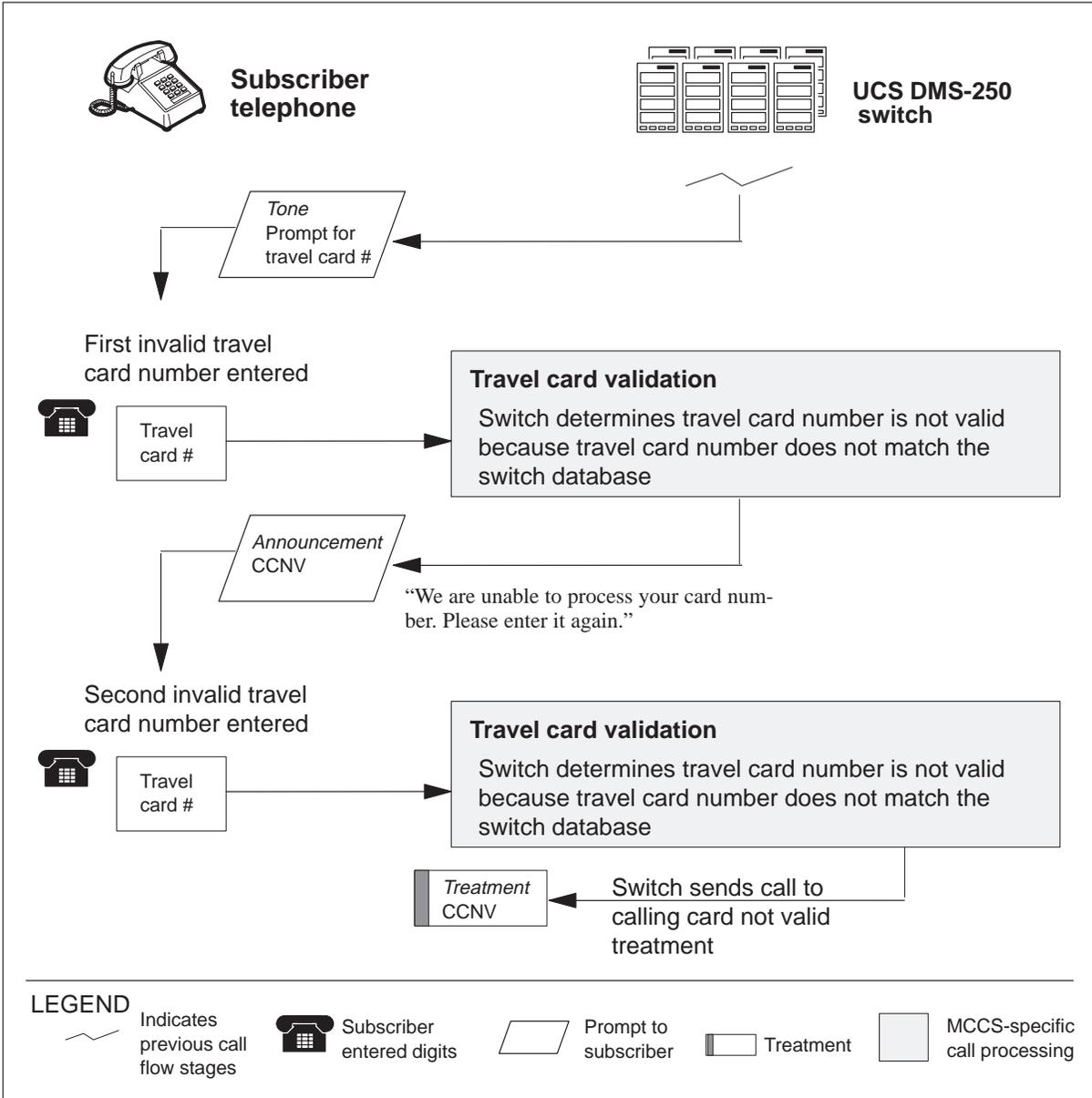
**After travel card prompt: invalid number dialed**

As shown in Figure 2-17, if the travel card number entered by the subscriber does not match any in the switch database or is datafilled as invalid, the switch sends the subscriber the Calling Card Not Valid (CCNV) announcement and allows another chance to enter a valid number. After the second failed attempt, the switch sends the call to CCNV treatment.

## Service description

### Call flow: universal access (continued)

Figure 2-17  
Optional announcement call flow after address prompt: invalid number dialed



**Service description**  
**Call flow: universal access** (continued)

---

**Reorigination with no 0+ dialing**

When a subscriber reoriginates a call, the following occurs with optional announcements as shown in Figure 2-18 under the following conditions:

- The subscriber reoriginates to make a another call but fails to dial 0 before the address.
- 0+ dialing is required because the universal access number is not dedicated to MCCS only calls.

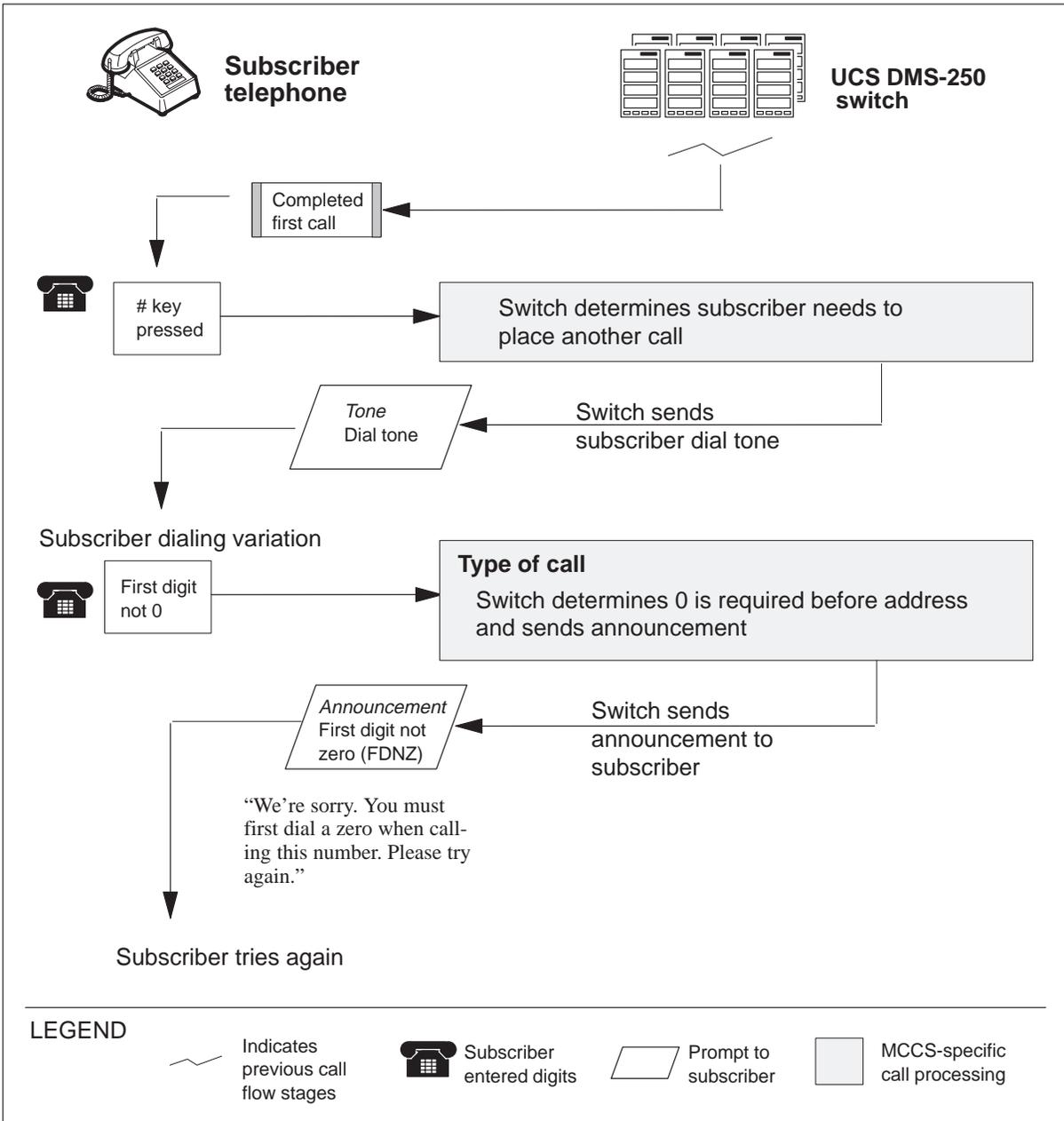
The switch does not send misdials of this nature to an operator.

With dedicated dialing, 0+ address dialing for national calls is not required for reorigination.

## Service description

### Call flow: universal access (continued)

**Figure 2-18**  
Optional announcement call flow: reorigination with no 0+ dialing



## Service description

### Call flow: universal access (continued)

---

#### Summarized call flows

The following figures summarize the call flows with call variations for universal access calls

- with operator services
- without operator services
- with optional announcements and operator services
- with optional announcements but no operator services

#### With operator services

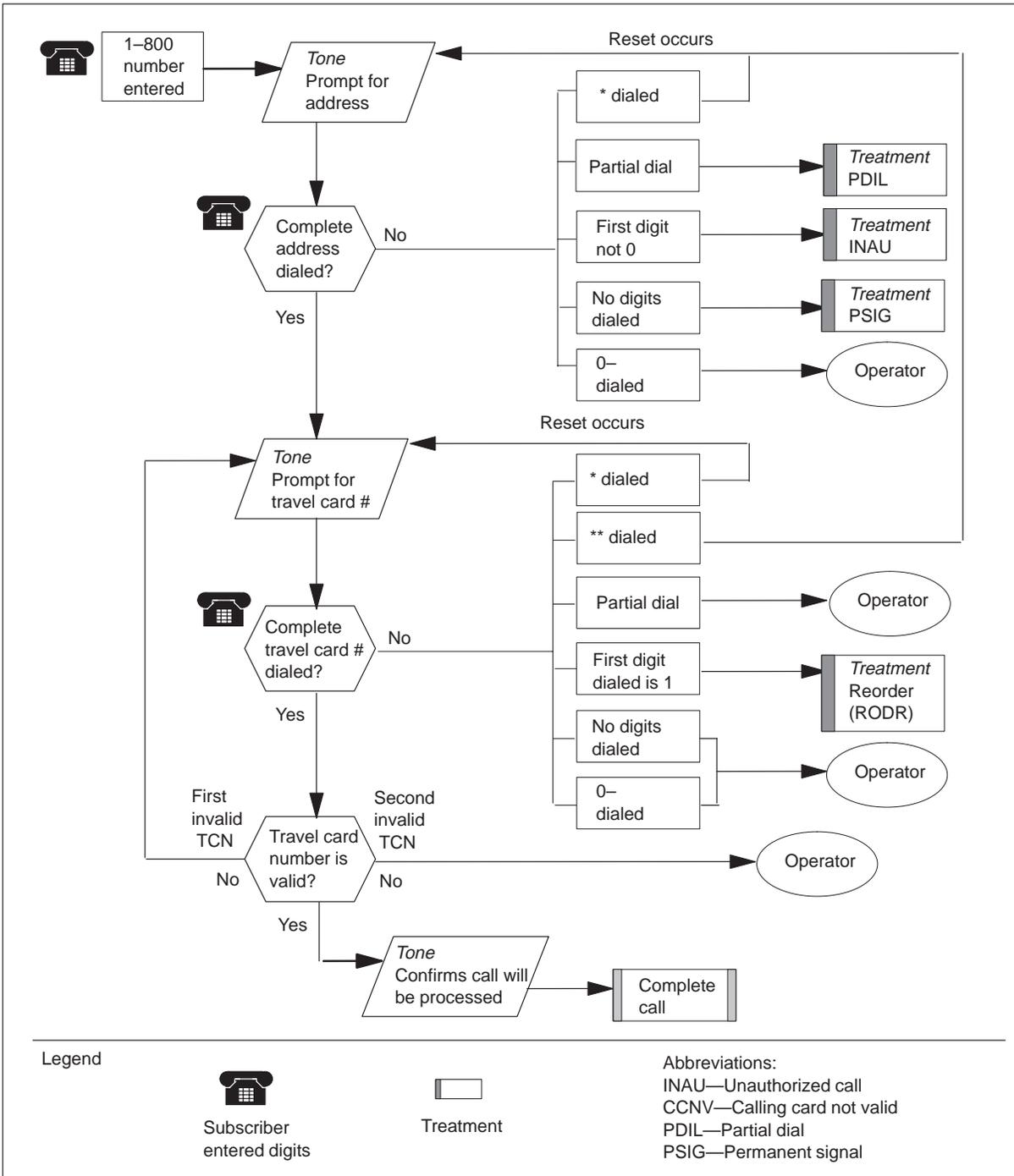
The example in Figure 2-19 shows call flow for the following settings:

- Subscriber dials a universal access number to access MCCS.
- The universal access number can accept both MCCS and authorization code calls. 0+ address dialing is required for MCCS calls (in other words, dedicated dialing is not in affect).
- Operator services are available.

## Service description

### Call flow: universal access (continued)

Figure 2-19  
 UA call flow summarized: with operator service capability



## **Service description**

### **Call flow: universal access** (continued)

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#### **Without operator services**

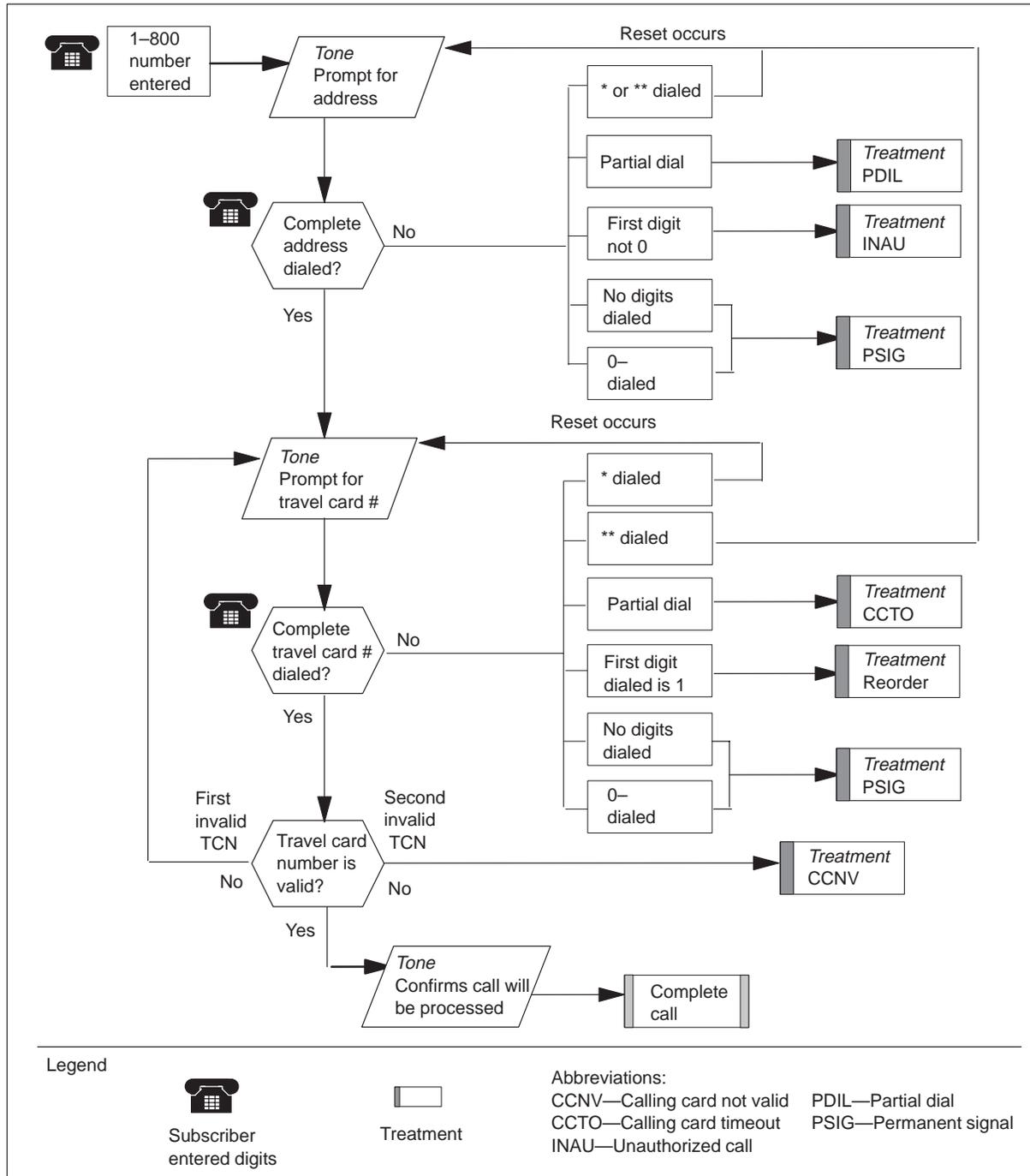
The example in Figure 2-20 shows call flow for the following settings:

- Subscriber dials a universal access number to access MCCS.
- The universal access number can accept both MCCS and authorization code calls. 0+ address dialing is required for MCCS calls (in other words, dedicated dialing is not in affect).
- Operator services are not available.

## Service description

### Call flow: universal access (continued)

Figure 2-20  
 UA call flow summarized: without operator service capability



## **Service description**

### **Call flow: universal access** (continued)

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#### **With optional announcements and operator services**

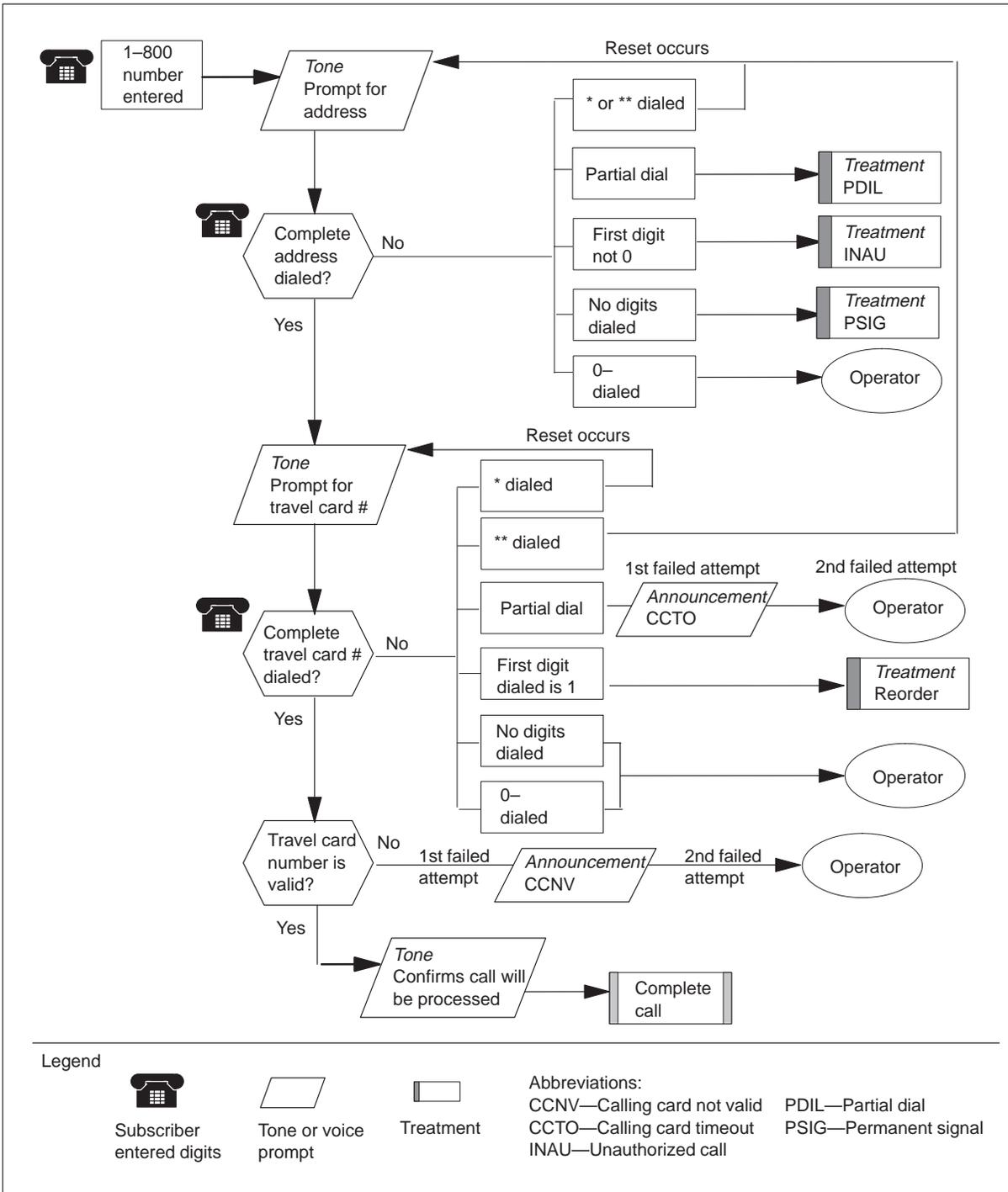
The example in Figure 2-21 shows call flow for the following settings:

- Subscriber dials a universal access number to access MCCS.
- The universal access number can accept both MCCS and authorization code calls. 0+ address dialing is required for MCCS calls (in other words, dedicated dialing is not in affect).
- Optional announcements and operator services are available.

## Service description

### Call flow: universal access (continued)

Figure 2-21  
 UA call flow summarized: with optional announcements and operator service capability



## **Service description**

### **Call flow: universal access** (continued)

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#### **With optional announcements but no operator services**

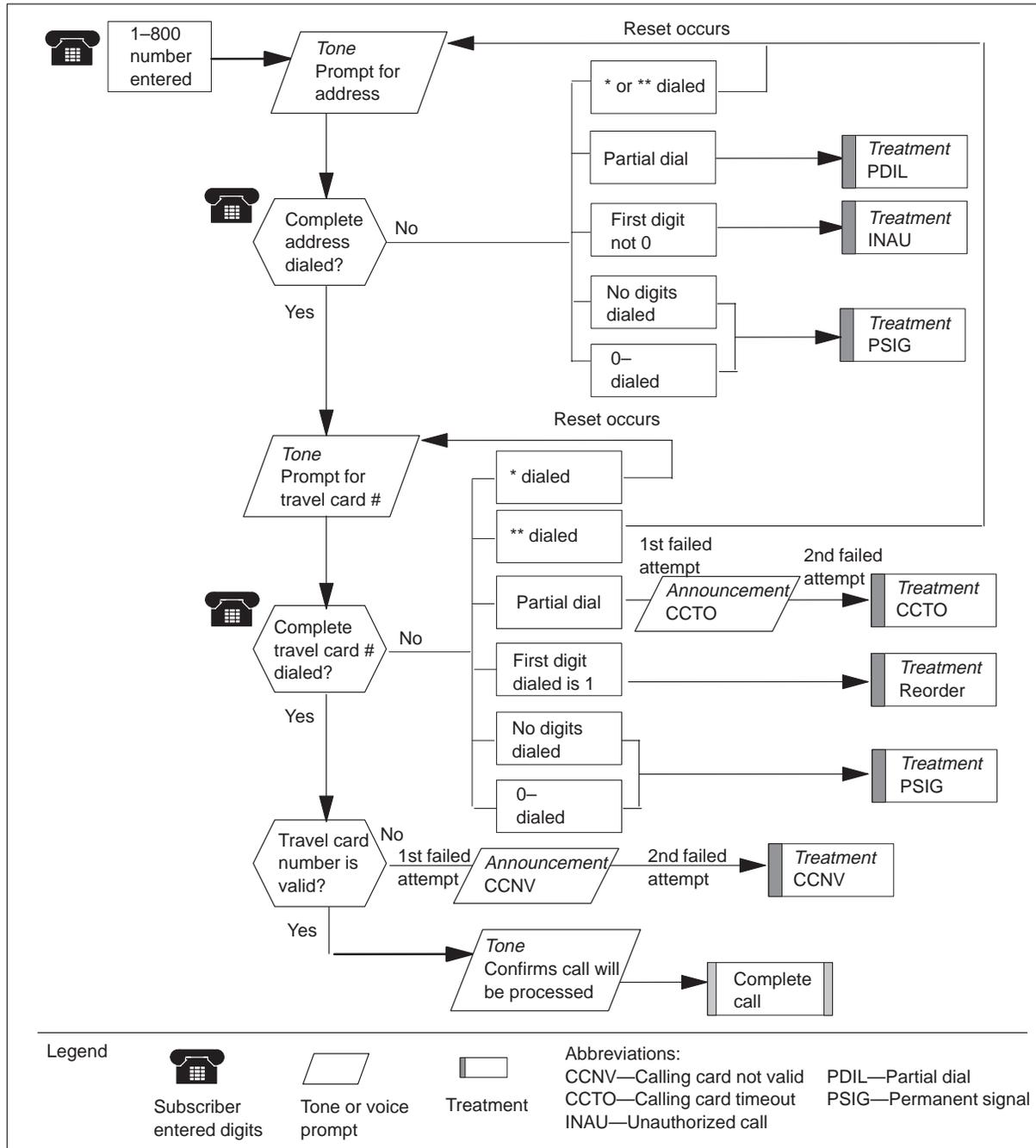
The example in Figure 2-21 shows call flow for the following settings:

- Subscriber dials a universal access number to access MCCS.
- The universal access number can accept both MCCS and authorization code calls. 0+ address dialing is required for MCCS calls (in other words, dedicated dialing is not in affect).
- Optional announcements are available, but operator services are not.

## Service description

### Call flow: universal access (end)

Figure 2-22  
 UA call flow summarized: with optional announcements, without operator service capability



## **Service description**

### **Call flow: DAL, DALTIE (continued)**

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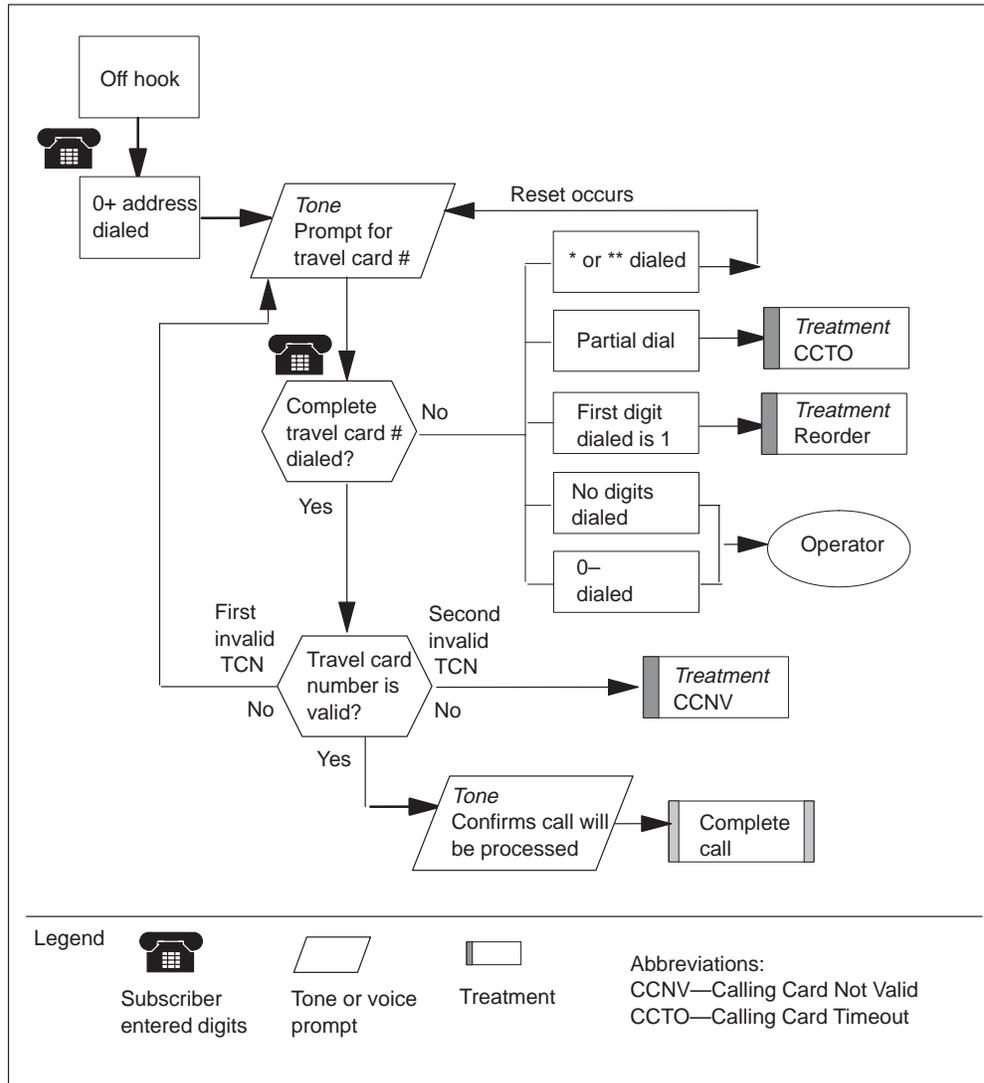
#### **Summarized call flow**

Figure 2-23 shows the call flow for both a standard, completed DAL or DALTIE call and dialing variations. This example shows call flow for the following settings:

- Operator services are available.
- Optional voice announcements are not used.
- 0+ address dialing is required for MCCS calls. (In other words, dedicated dialing is not in affect. Dedicated dialing is only available for universal access calls.)

**Service description**  
**Call flow: DAL, DALTIE (end)**

**Figure 2-23**  
**Call flow: DAL, DALTIE calls**



**Service description**  
**Call flow: FGA** (continued)

---

**Summarized call flow**

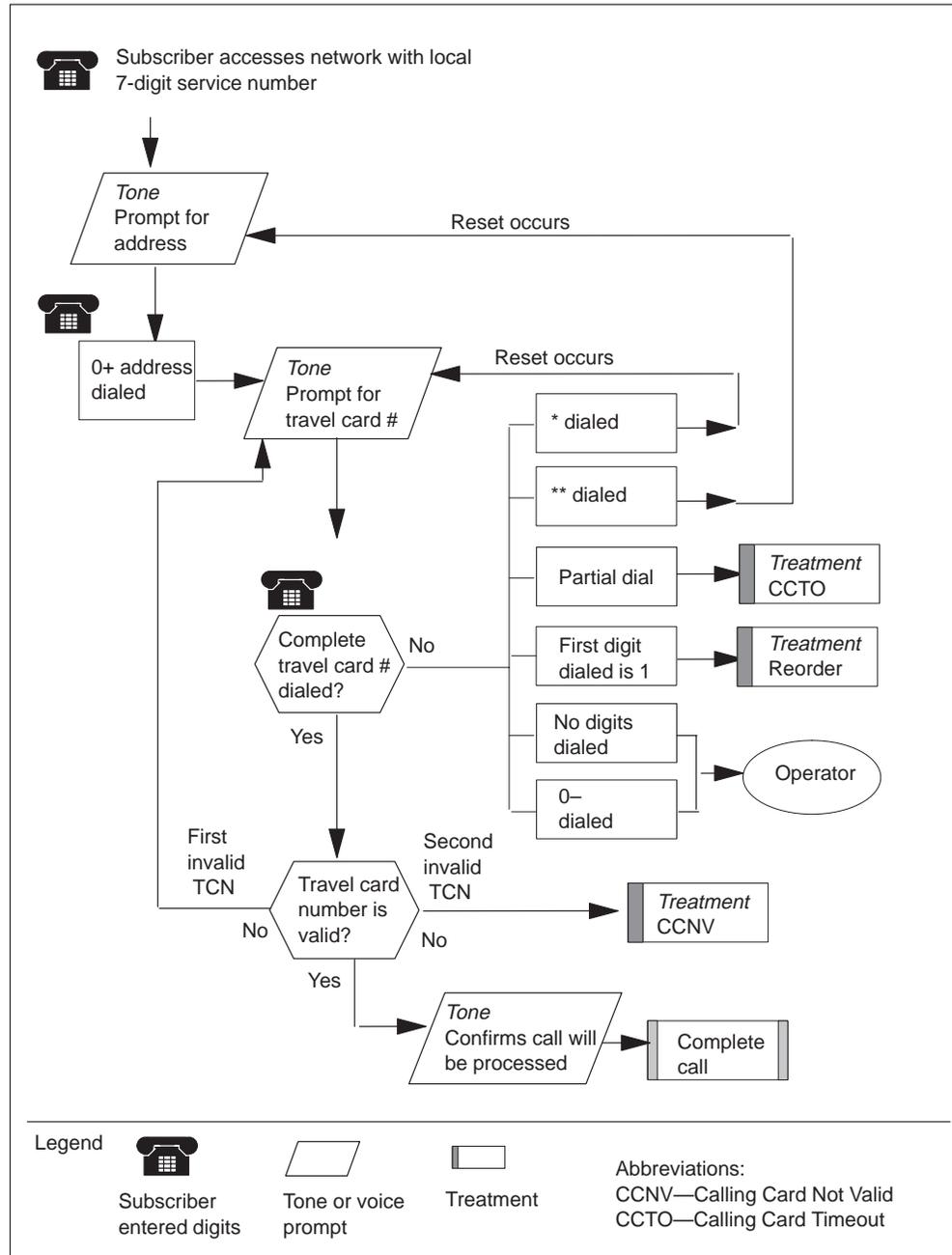
Figure 2-24 shows the call flow for both a standard, completed FGA call and dialing variations. This example shows call flow for the following settings:

- Operator services are available.
- Optional voice announcements are not used.
- 0+ address dialing is required for MCCS calls. (In other words, dedicated dialing is not in affect. Dedicated dialing is only available for universal access calls.)

## Service description

### Call flow: FGA (end)

**Figure 2-24**  
**Call flow: FGA calls with operator service capability**



## Service description

### Call flow: FGB, FGD transitional (continued)

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#### Summarized call flow

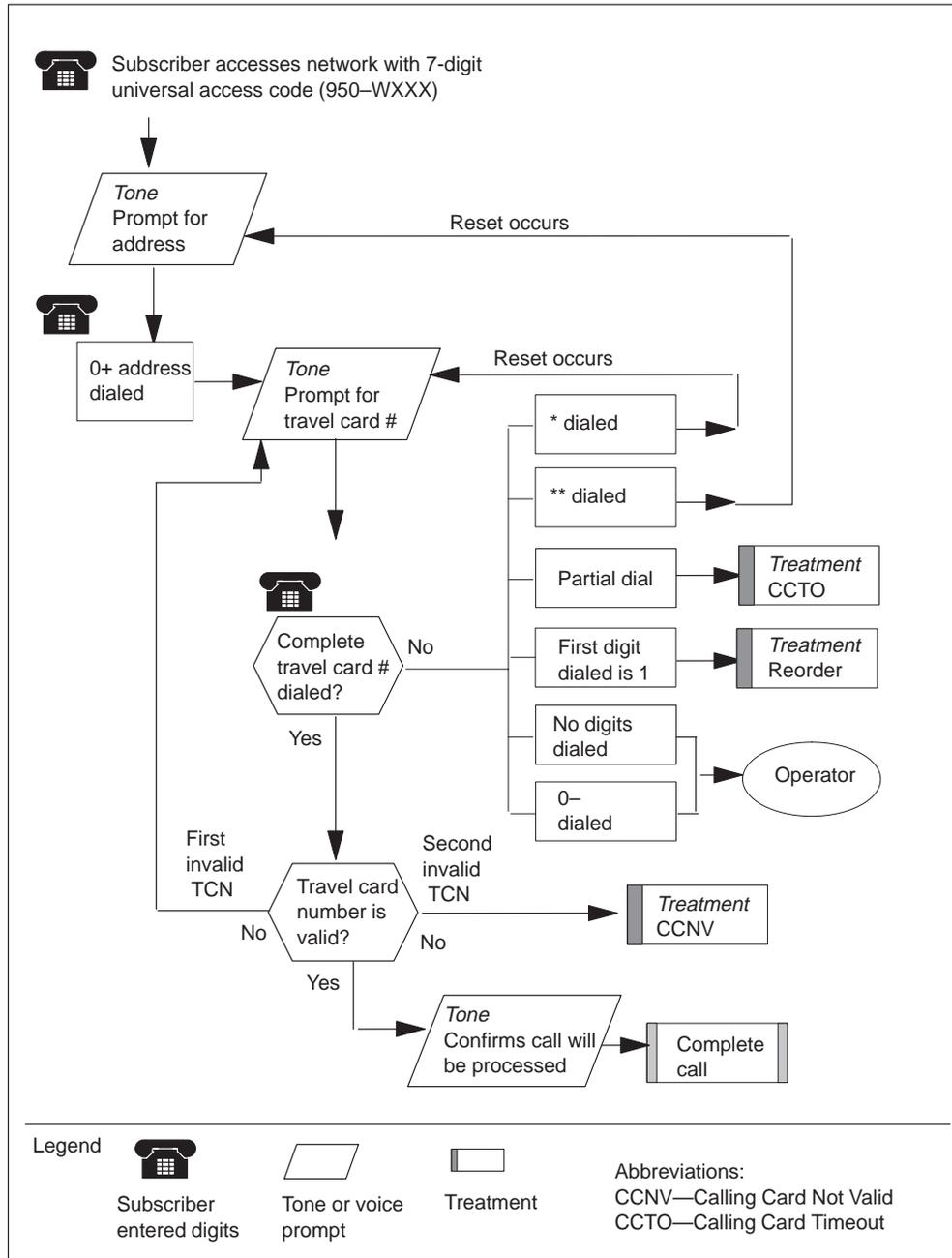
Figure 2-25 shows the call flow for both a standard, completed FGB or FGD transitional call and dialing variations. This example shows call flow for the following settings:

- Operator services are available.
- Optional voice announcements are not used.
- 0+ address dialing is required for MCCS calls. (In other words, dedicated dialing is not in affect. Dedicated dialing is only available for universal access calls.)

## Service description

### Call flow: FGB, FGD transitional (end)

**Figure 2-25**  
**Call flow: FGB, FGD transitional calls with operator service capability**



**Service description**  
**Call flow: PRI (continued)**

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**Summarized call flow**

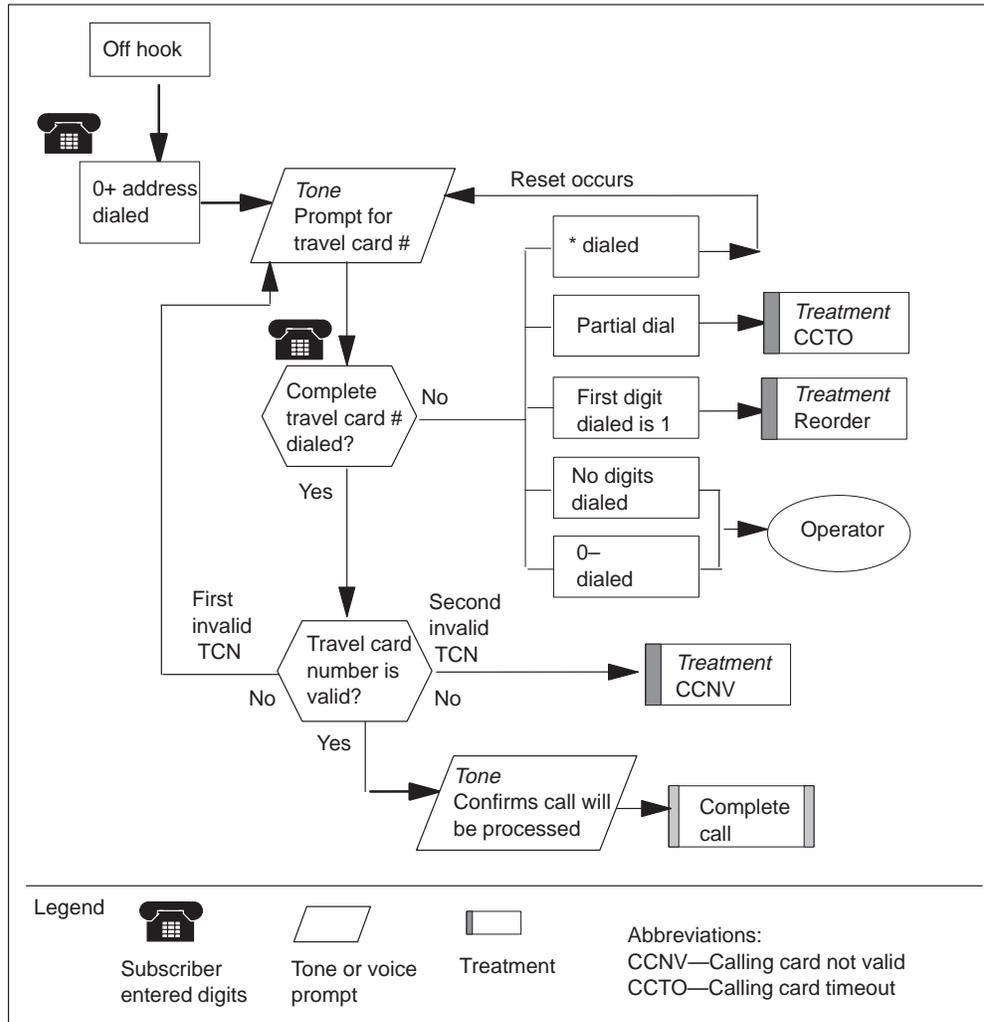
Figure 2-26 shows the call flow for both a standard, completed PRI call and dialing variations. This example shows call flow for the following settings:

- Operator services are available.
- Optional voice announcements are not used.
- 0+ address dialing is required for MCCS calls. (In other words, dedicated dialing is not in affect. Dedicated dialing is only available for universal access calls.)

## Service description

### Call flow: PRI (end)

**Figure 2-26**  
**Call flow: PRI calls with operator service capability**



## Implementation Introduction (continued)

### Datafill and call flow

As the switch processes a call, it accesses information in its database to determine a call's destination. By referencing the datafill, the switch sets up and takes down calls. For features to work properly, tables must be datafilled in a particular sequence.

Certain datafill relationships are crucial to making MCCS work properly. These relationships are shown in the diagrams of this implementation section and how they relate to a particular stage in the call flow. The datafill relationships are shown for universal access call flow.

**For more information** on basic explanations of the datafill process, see "Appendix F: Datafill" in this manual.

### Trunk types and Basic service features

The following shows the types of trunks that can be datafilled for Basic service features.

DAL, DALTIE	FGA (ONAL)—PTS	FGB (ONAT)—PTS	FGC UA—PTS	FGD		IMT UA—SS7	PRI	Basic service features
				UA—PTS/SS7	Trans—PTS			
X	X	X	X	X	X	X	X	Tone prompts with optional announcements, class of service screening, logs, reset dialing
			X	X		X		Dedicated dialing with universal access number (no 0+ required)
X	X	X	X	X	X	X	X	In-switch validation
X	X	X	X	X	X	X		Reorigination (manual)

## Implementation

### Introduction (continued)

## Hardware requirements

Table 2-4 lists the hardware required for Basic service.

**Table 2-4**  
Hardware requirements for Basic service

Function	Explanation	Hardware requirements
Dialing without operator assistance	Subscriber can complete the call sequence without an operator	Universal tone receiver (UTR) 6X92BB or 6X92DA; or Digitone receiver 2X48AB or 2X48BB
Dialing without operator assistance, with ability to reoriginate	Subscriber can complete the call without an operator and reoriginate	Specialized tone receiver (STR) 6X62AB
Announcements available with tone prompts (CCTO, CCNV, FDNZ)	These announcements are optional and available with Basic service.	See hardware requirements for Voice Prompt service, Table 1-3.

## Datafill relationships and highlights

Several tables work together to define Basic service and its specific features. For example, Table TRKGRP defines several trunk-related functions for MCCS, including pretranslation information for the universal access number. Subtable STDPRT defines pretranslation settings for the universal access number and for the range of digits of called numbers dialed by subscribers. The following explain the highlights of the datafill settings for Basic service.

### Table TRKGRP

Specifically, table TRKGRP defines

- the pretranslator name that indexes into table STDPRTCT for pretranslation of the universal access number
- the route for operator calls (0- calls)
- that MCCS calls will be allowed on the trunk
- whether reoriginated calls are to be validated

## Implementation Introduction (continued)

---

### Table STDPRTCT

With table STDPRTCT, subtable STDPRT, further defines settings on each universal access number, including

- the universal access number itself
- whether the universal access number will be dedicated to accept only MCCS calls
- that subscribers will receive tone prompts (instead of voice prompts)

Subtable STDPRT also contains the pretranslation information on address ranges the subscriber dials after accessing the switch.

### Table OFCVAR

Table OFCVAR contains the office parameters that affect MCCS Basic service as shown in Table 2-5.

## Implementation

### Introduction (continued)

**Table 2-5**  
**Table OFCVAR office parameters**

<b>Function</b>	<b>Name of office parameter</b>	<b>Description</b>
<b>Validation</b>	MCCS_VERIFY_TYPE	Type of validation to occur (in-switch or remote)
<b>Pretranslation</b>	MCCS_PRTNM	Pretranslator name used to route universal access calls; this indicates pretranslation for the called number (or 0+ address)
<b>Routing</b>	MCCS_STS	Serving translation scheme for MCCS calls
<b>Operator services</b>	MCCS_POSITION	Operator position to be used to forward calls to the operator
<b>Timers</b>	MCCS_CALLING_CARD_TIMEOUT	Duration of time allowed for the beginning entry of the travel card number
	UA_TCNCARD_PDIL1	Duration of time allowed for entry of remainder of travel card number after a no-digits or partial dial (first attempt) (UA call)
	UA_TCNCARD_PDIL2	Duration of time allowed for entry of remainder of travel card number, second attempt (UA call)
<b>Tones: duration, type, and pauses between tones</b>	MCCS_PROMPT_TONE	Type of tone for address and travel card prompt
—continued—		

## Implementation Introduction (continued)

**Table 2-5**  
**Table OFCVAR office parameters** (continued)

Function	Name of office parameter	Description
<b>Tone: duration, type, and pauses between tones</b>	MCCS_PROMPT_TONE_DELAY	Duration of silence between address collection and prompt for travel card number
	MCCS_PROMPT_TONE_DUR	Duration of tone for address and travel card prompt
	MCCS_CONFIRM_TONE	For confirmation tone to confirm call will be processed
	MCCS_CONFIRM_FIRST_TONE_DUR	Duration of first part of confirmation tone
	MCCS_CONFIRM_OFF_TONE_DUR	Duration of silence between first and second parts of confirmation tone
	MCCS_CONFIRM_SECOND_TONE_DUR	Duration of second part of confirmation tone
—end—		

### Table TRKGRP

Table TRKGRP contains customer-defined data associated with each trunk group. The following datafill affects MCCS Basic service:

- PRTNM—contains the pretranslator name that will index into table STDPRTCT for pretranslation
- ZEROMPOS—contains any routing information for operator (0-) calls if 0 is dialed before the universal access (UA) number or with non-UA calls
- OPTION: MCCS—allows MCCS calls to be originated on the trunk
- OPTION: REORGVAL—indicates the switch will validate each reoriginated call

## Implementation

### Introduction (continued)

---

#### Table STDPRTCT

Table STDPRTCT contains pretranslation information assigned to the trunk group. The following datafill affects MCCS Basic service:

- EXTPRTNM: MCCS—contains the name of the pretranslator for the MCCS call; this is indexed from table TRKGRP and indexes into subtable STDPRT

*Note:* All 0+ calls with the MCCS option use the MCCS for the EXTPRTNM value.

#### Subtable STDPRT

Subtable STDPRT contains further pretranslation information assigned to the trunk group and the universal access number. The following datafill affects MCCS Basic service:

- PRERTSEL: UA—indicates a universal access number will be used to gain access to the switch
- MCCSDED—indicates whether the universal access number will be dedicated to receive only MCCS calls
- STDPRT\_UA\_OPTION: \$ or NIL—determines Basic service with tone prompts

#### Table TCNFAST

Table TCNFAST is the in-switch database that contains the travel card numbers, their status, and what class of service screening they will receive.

#### Table VPROMPTS

Table VPROMPTS contains the three optional announcements available for use with Basic service.

- CCNV—Calling Card Not Valid
- CCTO—Calling Card Timeout
- FDNZ—First Digit Not Zero

#### Other voice announcement tables

Table 2-6 lists the datafill tables used for setting up voice announcements.

## Implementation Introduction (end)

**Table 2-6**  
**Tables used for optional voice announcements**

Function	Table name	Sample datafill
Name of announcement	CLLI	CLLI ADNUM TRKGRSIZ ADMININF ----- CCNVANN 14 5 CC_NOT_VALID_ANN
Announcement type and play information	ANNS	CLLI ANTYPE TRAFSNO MAXCONN CYTIME MAXCYC ----- CCNVANN STND 0 255 7 1
Active/passive settings and location for announcement	VSPROMPTS	ANNOUKEY PRPTCLLI PSIGTIME VPIDX OPIDX ----- CCNV CCNVANN 10 0 2
Phrase names	DRAMTRK	ANNTRACK PHSLIST ----- CCNVANN 0 (PAUSE) (DTMF 1) (DTMF 2) (PAUSE) \$
Links trunk members to card type and announcement CLLI	ANNMEMS	ANNMEM HDWTYPE CARD MEMINFO ----- CCNVANN 0 DRAM DRA (0 MTM 0 20 \$)
Hardware assignment codes	DRAMS	DRAMCARD TMTYPE TMNO TMCKT CARDCODE CARDINFO ----- 0 0 MTM 0 0 1X75BA CTRL DRAM0

## Implementation

### UA calls: datafill relationships (continued)

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#### Call flow and its relationship to datafill

The following information explains how the datafill affects M CCS Basic service and universal access call flow. You can use the following diagrams along with the datafill instructions at the end of this section to understand and datafill Basic service with a universal access number.

This section contains information on the following relationships between call flow and datafill:

- tone prompt and timer settings
- standard, completed call
- variations from a standard completed call, including
  - dedicated universal access number
  - 0– dialed for operator after address prompt
  - partial travel card number dialed
  - no digits or 0– dialed after travel card prompt
  - invalid travel card number dialed after travel card prompt
  - reoriginated calls
  - calls with optional announcements used

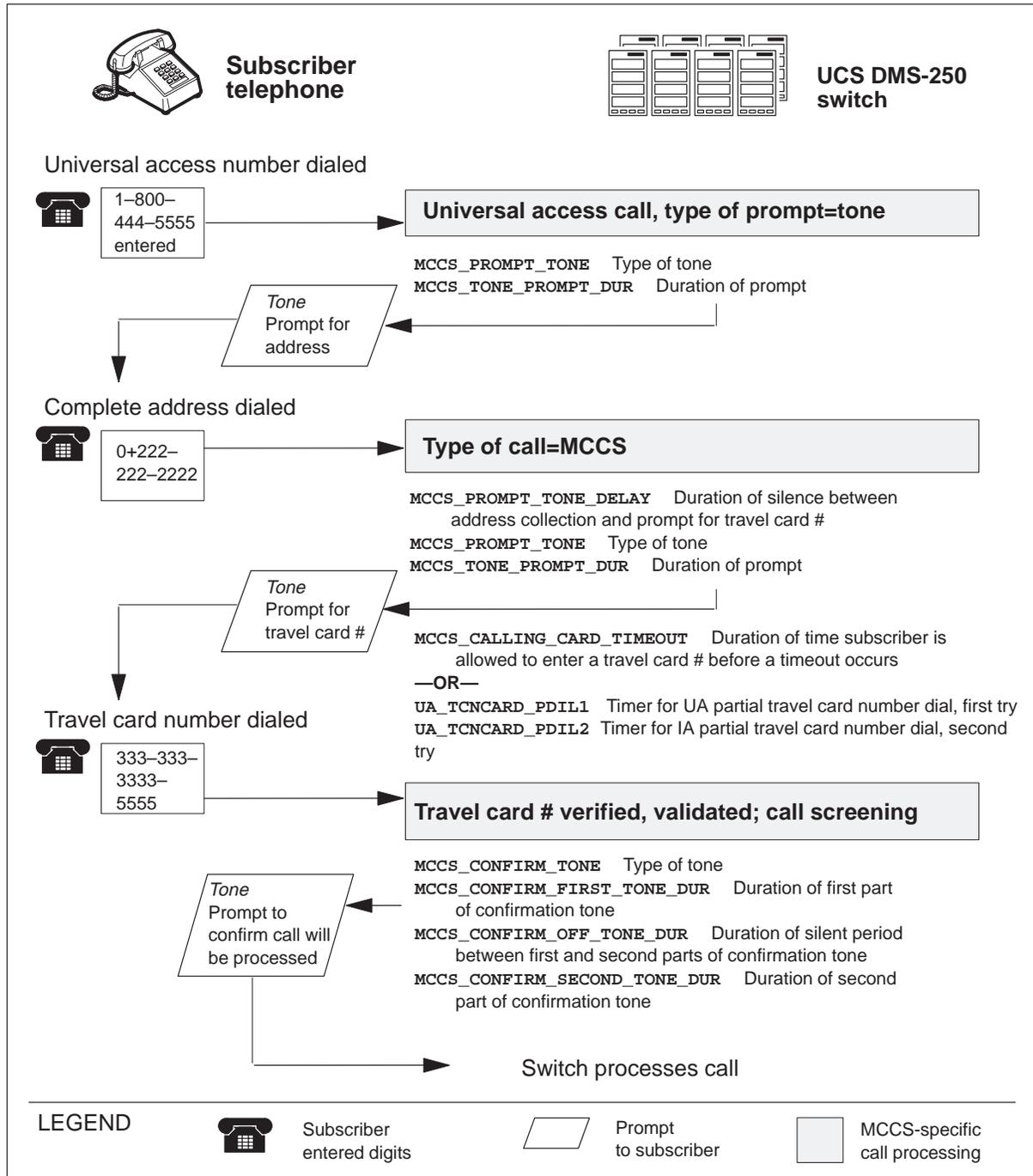
#### Tone prompt and timer settings

Figure 2-27 shows the office parameters in table OFCVAR that contain the settings for M CCS tone prompts and timers. For a complete description of these office parameters, see Appendix B in this manual.

## Implementation

### UA calls: datafill relationships (continued)

**Figure 2-27**  
**Call flow for completed call: timers and tone prompts derived from office parameters**



## Implementation

### UA calls: datafill relationships (continued)

#### Standard, completed call

Figures 2-28 through 2-31 show example portions of the call flow for a completed universal access call. Included in the figures are highlights of Basic service-related datafill and table relationships. These are explained as follows.

#### Subscriber dials UA number

After the subscriber dials the universal access number, the switch accesses datafill to begin pretranslation, as shown in Figure 2-28. Datafill in Table TRKGRP and Table STDPRTCT work together to determine Basic service functionality as listed in Table 2-7. This functionality includes:

- whether MCCS calls are allowed on the trunk
- specific settings for the universal access number—dedicated to MCCS calls only, type of prompt

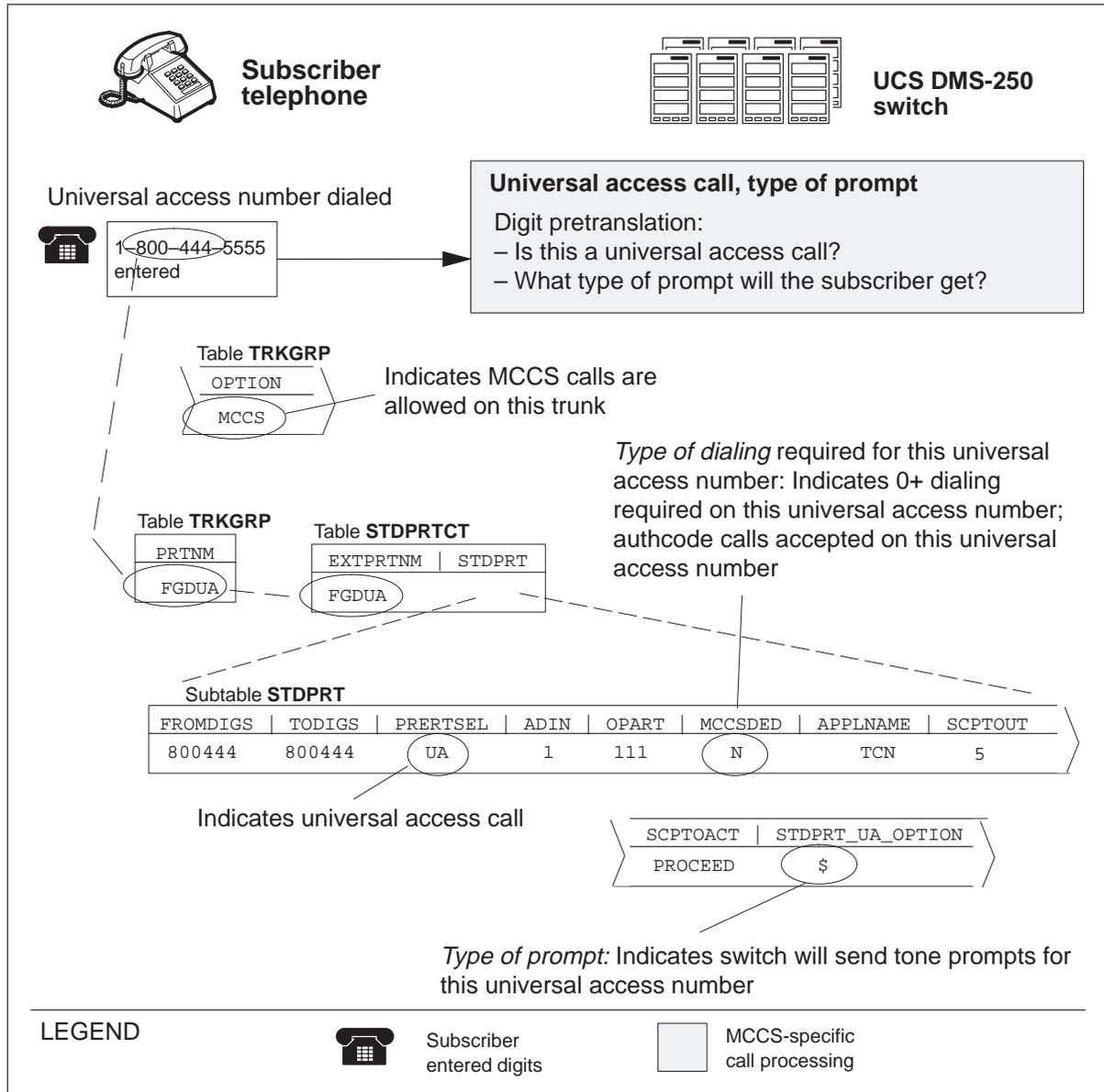
**Table 2-7**  
**TRKGRP and STDPRTCT datafill**

Function	Table, Subtable	Field, subfield	Entry
MCCS calls allowed on trunk	TRKGRP	OPTION	MCCS
Pretranslator name defined for trunk to index into table STDPRTCT	TRKGRP	PRTNM	Name of pretranslator for universal access number
Universal access call	STDPRT	PRERTSEL	UA
Universal access number is dedicated to receiving MCCS calls only	STDPRT	MCCSDED	N = UA number is not dedicated Y = UA number is dedicated
Subscriber receives tone prompts	STDPRT	STDPRT_ UA_OPTION	\$ or NIL = tone prompts

## Implementation

### UA calls: datafill relationships (continued)

**Figure 2-28**  
Call flow for completed call: after universal access number dialed



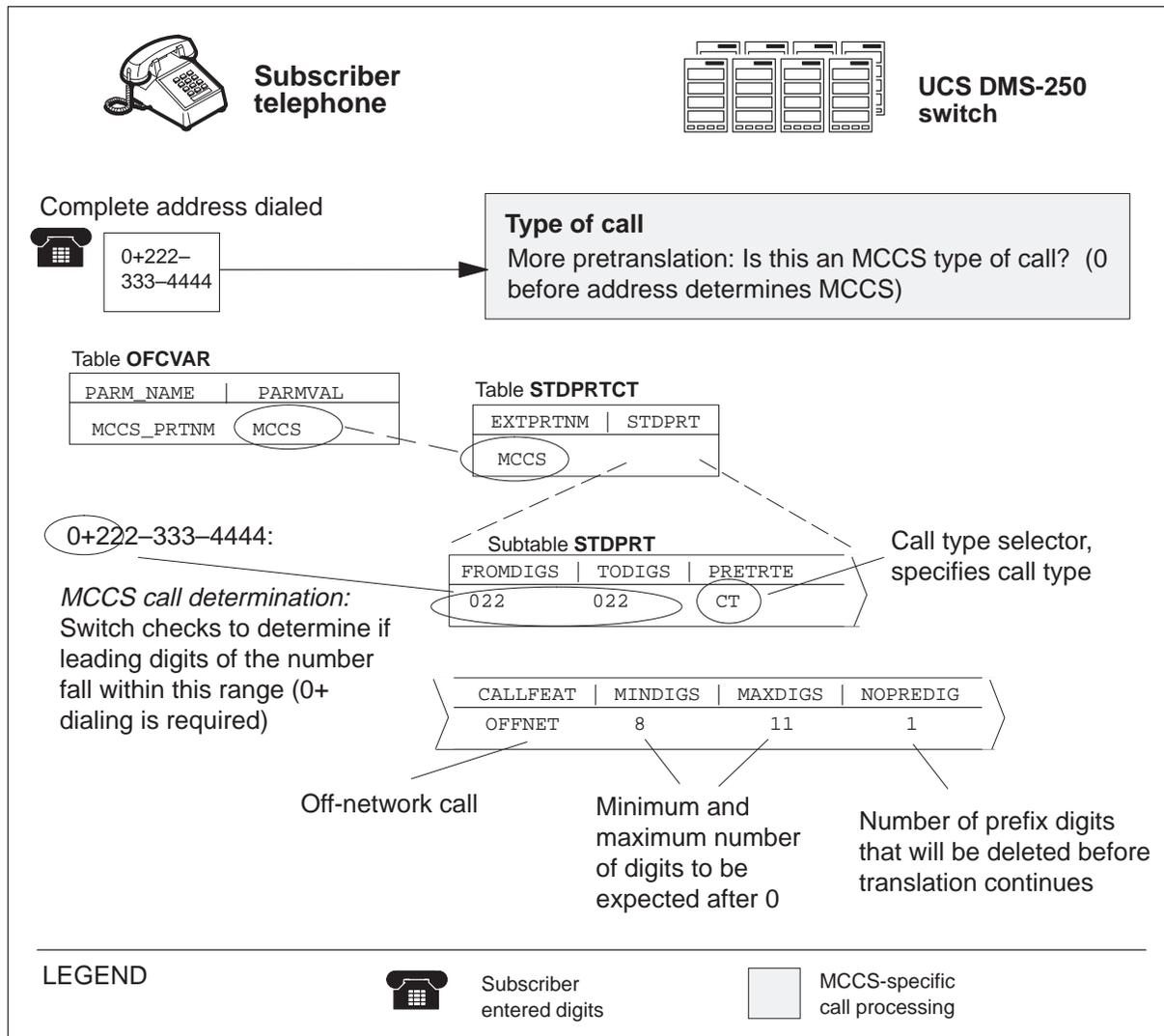
## Implementation

### UA calls: datafill relationships (continued)

#### Subscriber dials address

As shown in Figure 2-29, after the subscriber dials the complete address, the switch checks datafill to determine the call type and to verify the format of the address. The office parameter `MCCS_PRTNM` determines the pretranslator name for the address range of the called number dialed by the subscriber.

**Figure 2-29**  
Call flow for completed call: after complete address dialed



## Implementation

### UA calls: datafill relationships (continued)

#### Subscriber dials travel card number

As shown in Figure 2-30, after the subscriber dials the travel card number, the switch checks datafill to determine where the number will be validated and class of service screening.

With in-switch validation, the office parameter `MCCS_VERIFY_TYPE` set to `INSWITCH` indexes into table `TCNFAST` to perform validation. The `MLTCOSID` field of table `TCNFAST` indexes into table `MULTICOS` for class of service screening. These settings are listed in Table 2-8.

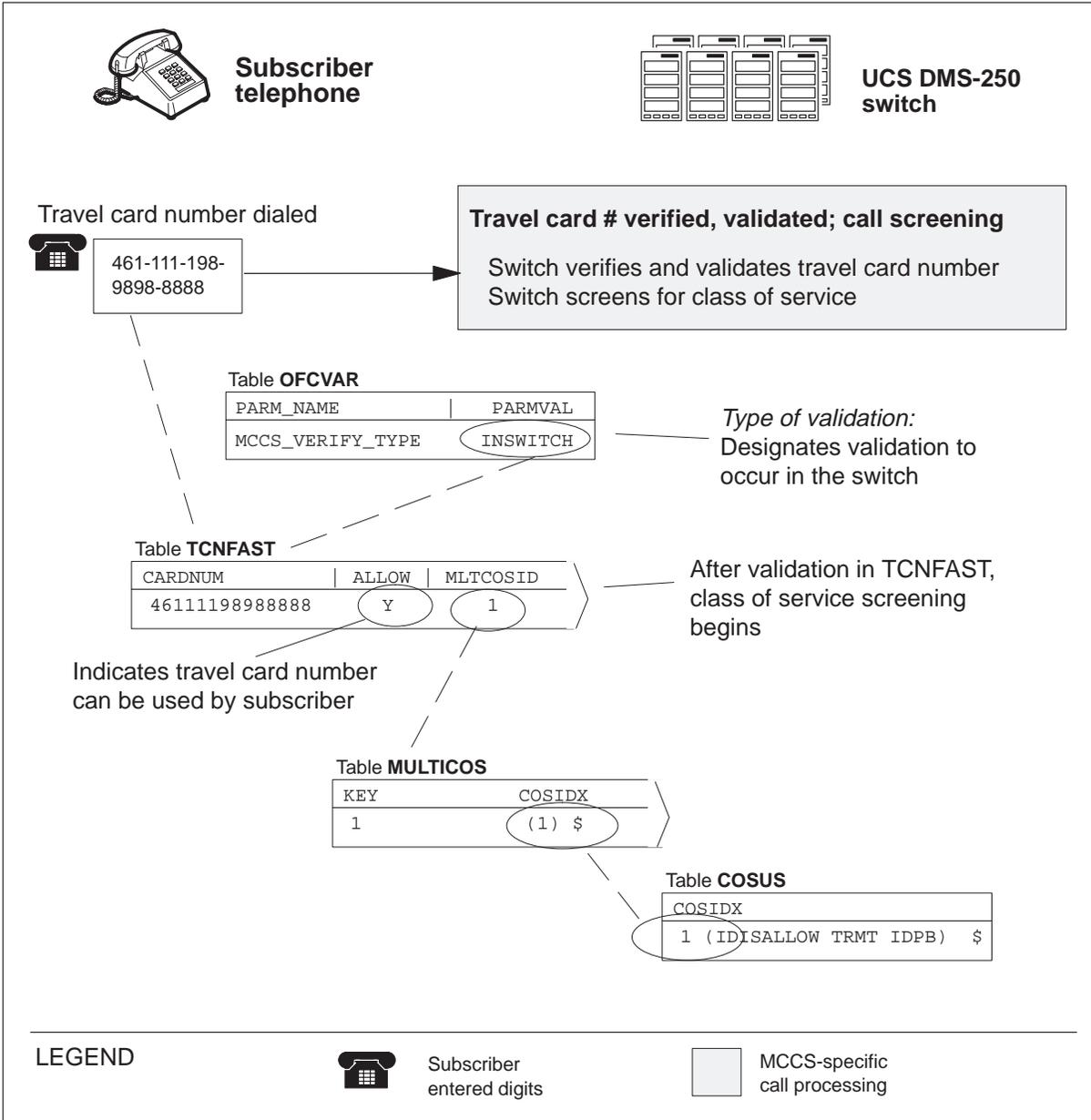
**Table 2-8**  
Datafill for validation and class of service screening

Function	Table, Subtable	Field, subfield	Entry
Type of validation for travel card number (in the switch or remotely)	OFCVAR, office parameter <code>MCCS_VERIFY_TYPE</code>	PARMVAL	INSWITCH
Type of class of service screening the switch performs on the call	TCNFAST	MLTCOSID  ALLOW	The class of service screening setting  Y= The number is valid for use; N= the number is not valid for use

## Implementation

### UA calls: datafill relationships (continued)

**Figure 2-30**  
Call flow for completed call: after travel card number dialed



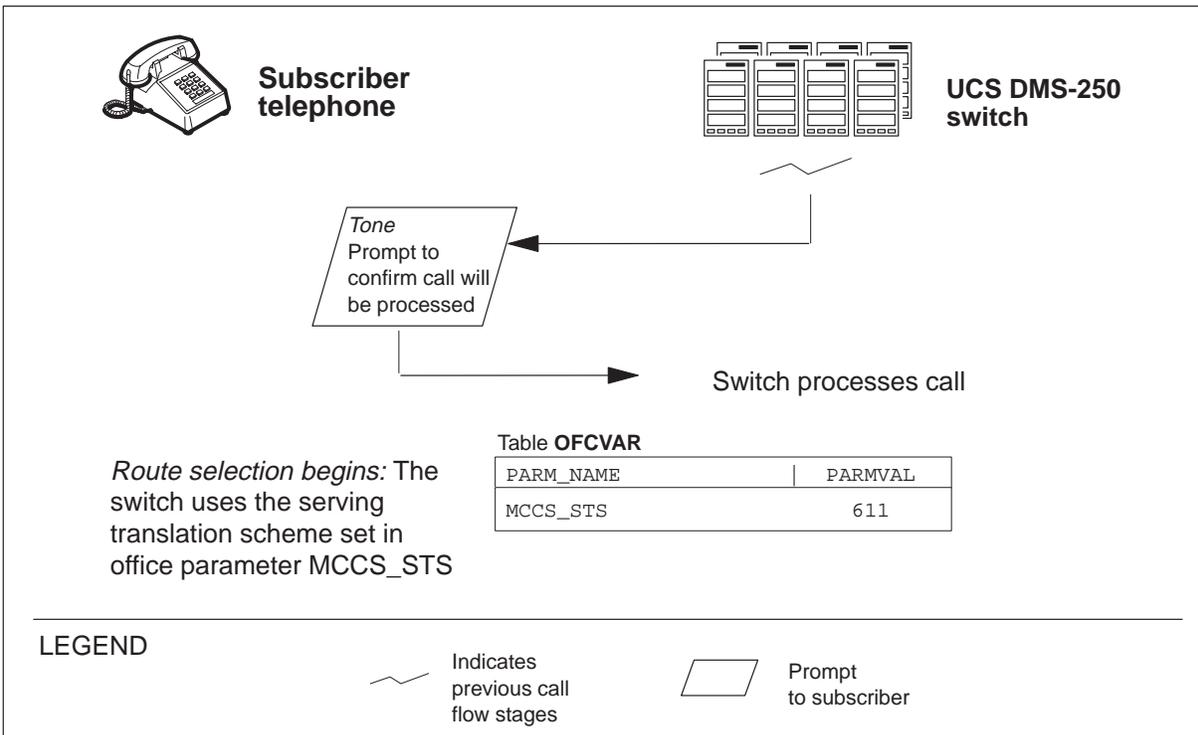
## Implementation

### UA calls: datafill relationships (continued)

#### Switch validates travel card number and processes call

After the switch validates the travel card number, it refers to office parameter MCCS\_STS to determine the serving translation scheme for routing. This is shown in Figure 2-31.

**Figure 2-31**  
Call flow for completed call: after travel card number validated



## Implementation

### UA calls: datafill relationships (continued)

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#### Variations from standard, completed call

The following shows settings for variations to call flow for universal access calls. Included in the figure are highlights of M CCS-related datafill and table relationships. Normal treatment-related call flow (for example, routing the call to a Permanent Signal treatment) is not explained in this section. Only M CCS-related datafill is explained.

#### Dedicated universal access number

To datafill the universal access number to accept only M CCS calls, datafill the M CCSDED field in subtable STDPRT with “Y”. M CCS-dedicated settings affect the following and is shown in Figure 2-32.

- *0+ dialing before address is optional*—With the exception of international calls (when subscribers must still dial a 01+ or 011+ address), a dedicated universal access number means the 0+ dialing before the address is optional.
- *authcode calls are not accepted*—If a universal access number is dedicated to M CCS calls only, the switch will not accept authorization codes on the universal access number.

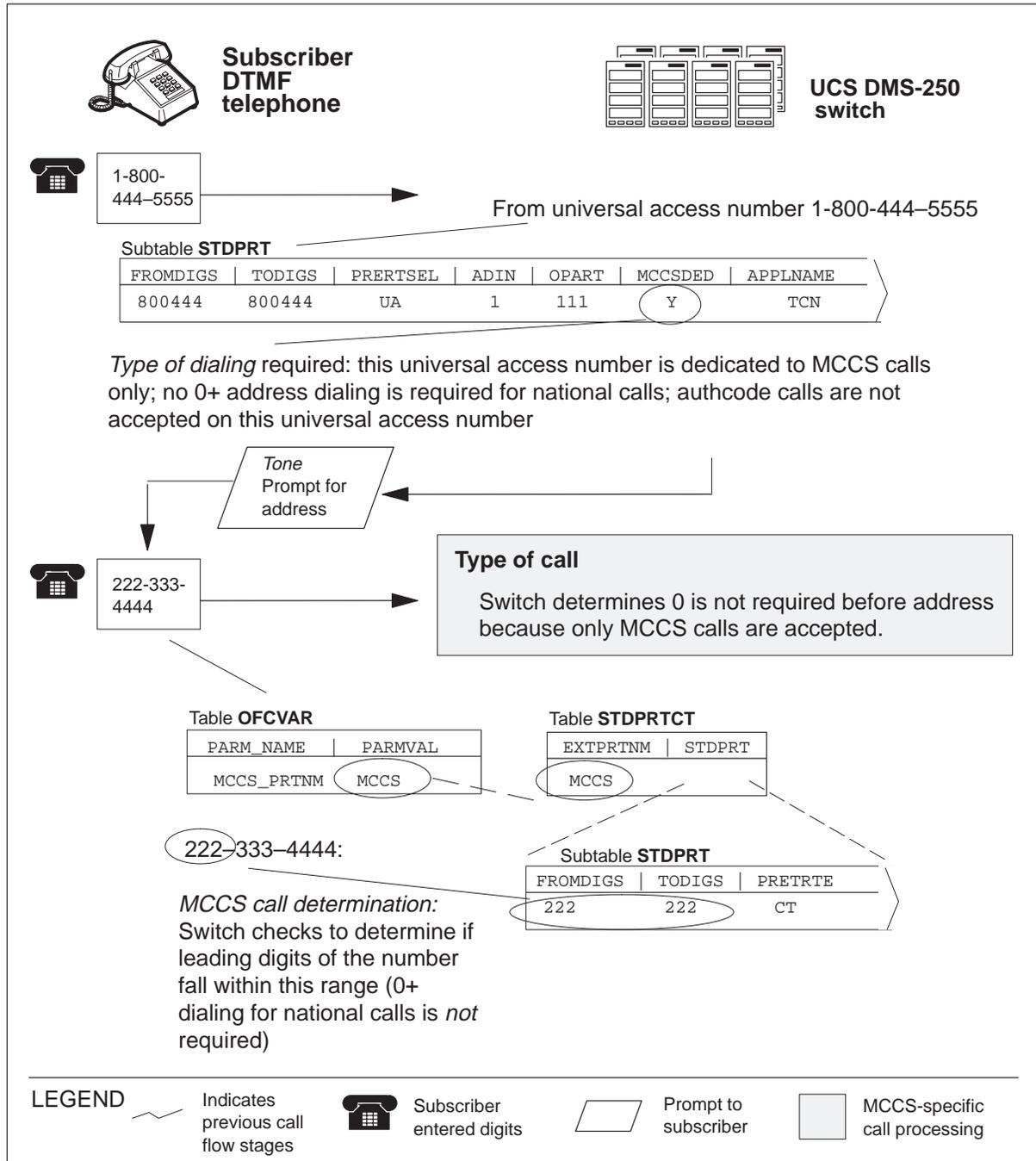
The following trunk agencies support the use of a dedicated universal access number with Basic service tone prompts:

- FGC
- FGD
- IMT

## Implementation

### UA calls: datafill relationships (continued)

**Figure 2-32**  
Call flow with universal access number dedicated to MCCS calls



## Implementation

### UA calls: datafill relationships (continued)

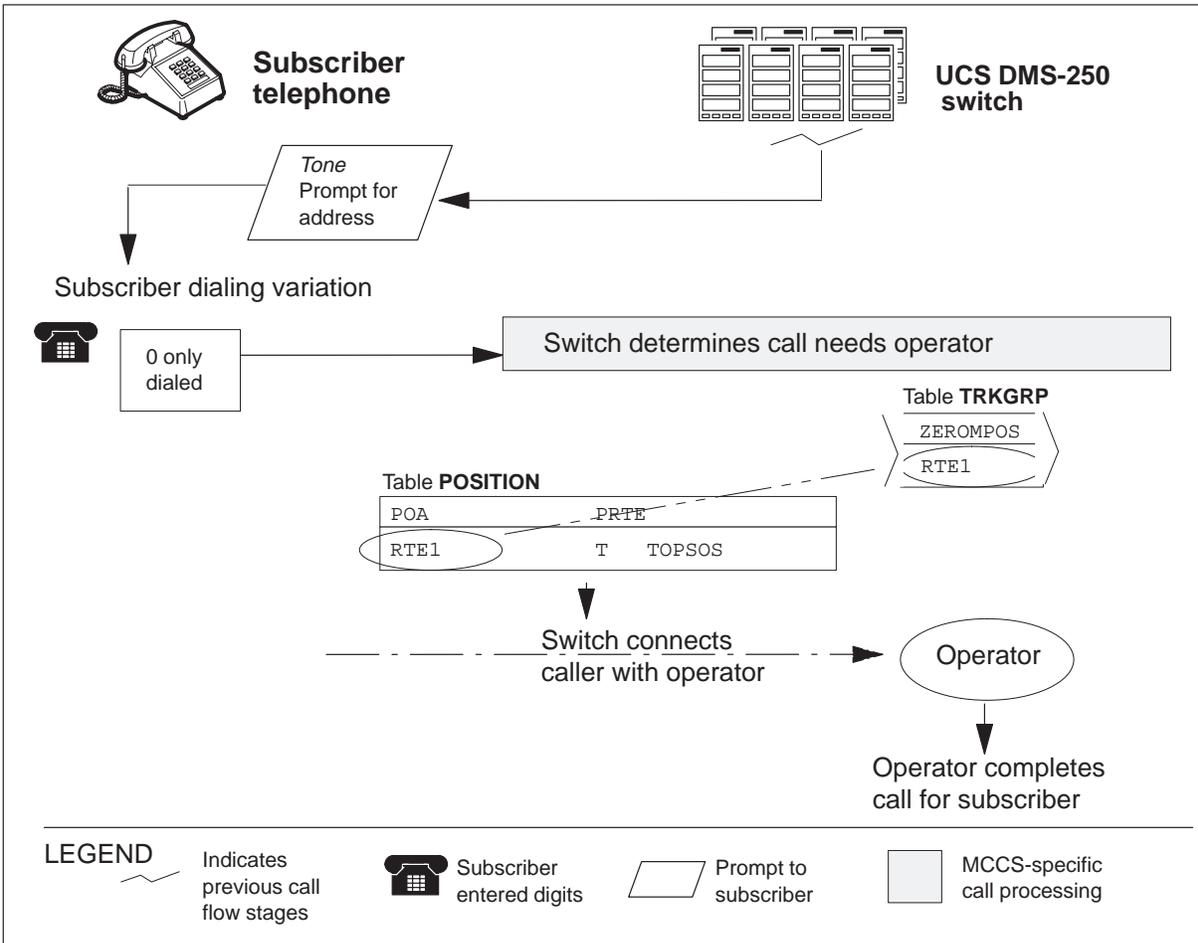
#### After address prompt: 0- dialed for operator

Operator services determine call flow when the subscriber dials 0-.

#### With operator services

With operator services, the switch determines a route to the operator based on the setting in table TRKGRP, field RECALLDT, subfield ZEROMPOS, as shown in Figure 2-33.

**Figure 2-33**  
Call flow: 0- dial after address prompt



#### Without operator services

If operator services are not available, the switch routes the call to Permanent Signal (PSIG) treatment.

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## Implementation

### UA calls: datafill relationships (continued)

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#### **After travel card prompt: partial travel card number dialed**

Office parameters in table OFCVAR control the timing of partial dial attempts. The availability of operator services and use of optional announcements cause call flow to vary. The following explains the availability and absence of operator services. For call flows with optional announcements, see “Call flows with optional voice announcements” in this Implementation section.

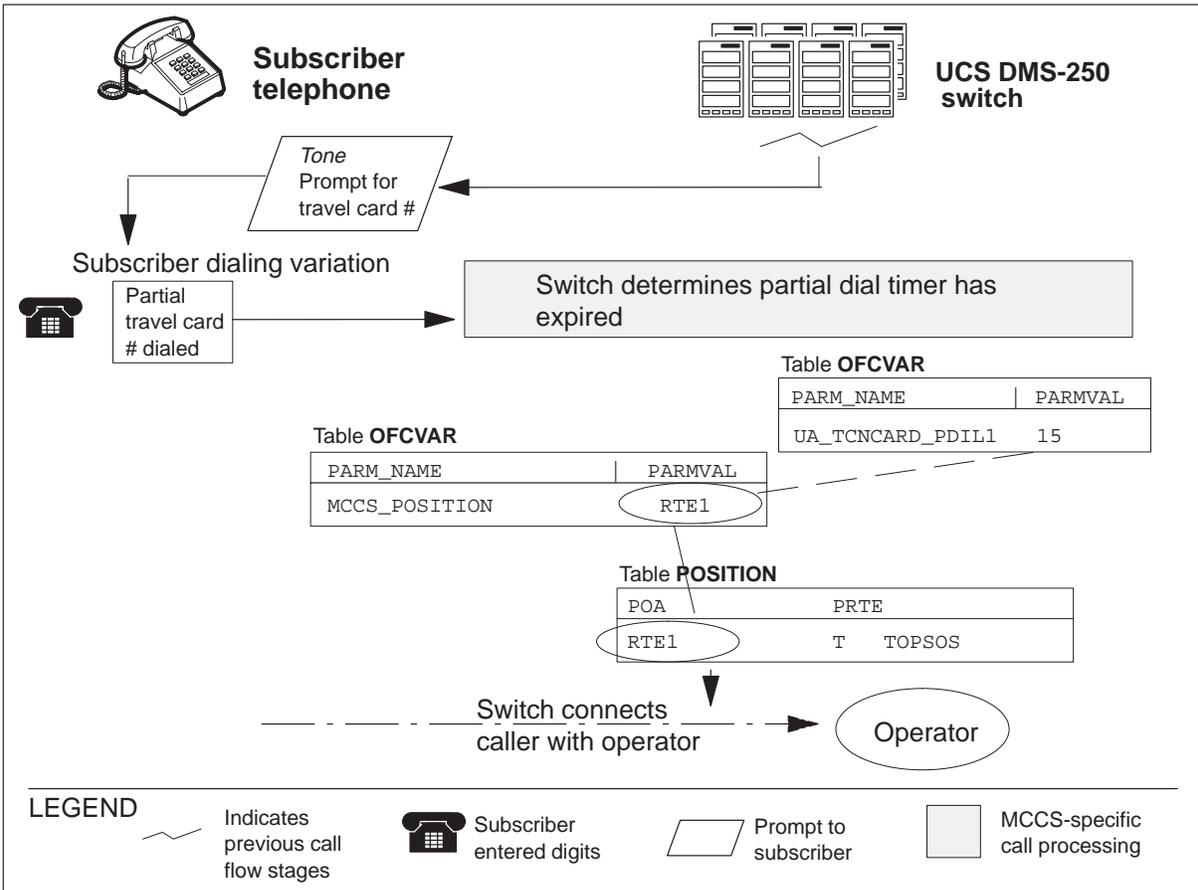
#### **With operator services**

The following call flow occurs with operator services, as shown in Figure 2-34. After the subscriber starts to enter travel card digits, the switch begins a timer controlled by office parameter UA\_TCNCARD\_PDIL1 and waits for the remaining digits. (This timer is reset with each digit entry.) If at any point in the digit entry the timer expires, the switch connects the subscriber with an operator position defined in office parameter MCCS\_POSITION.

## Implementation

### UA calls: datafill relationships (continued)

**Figure 2-34**  
Call flow with operator services: partial dialing of travel card number



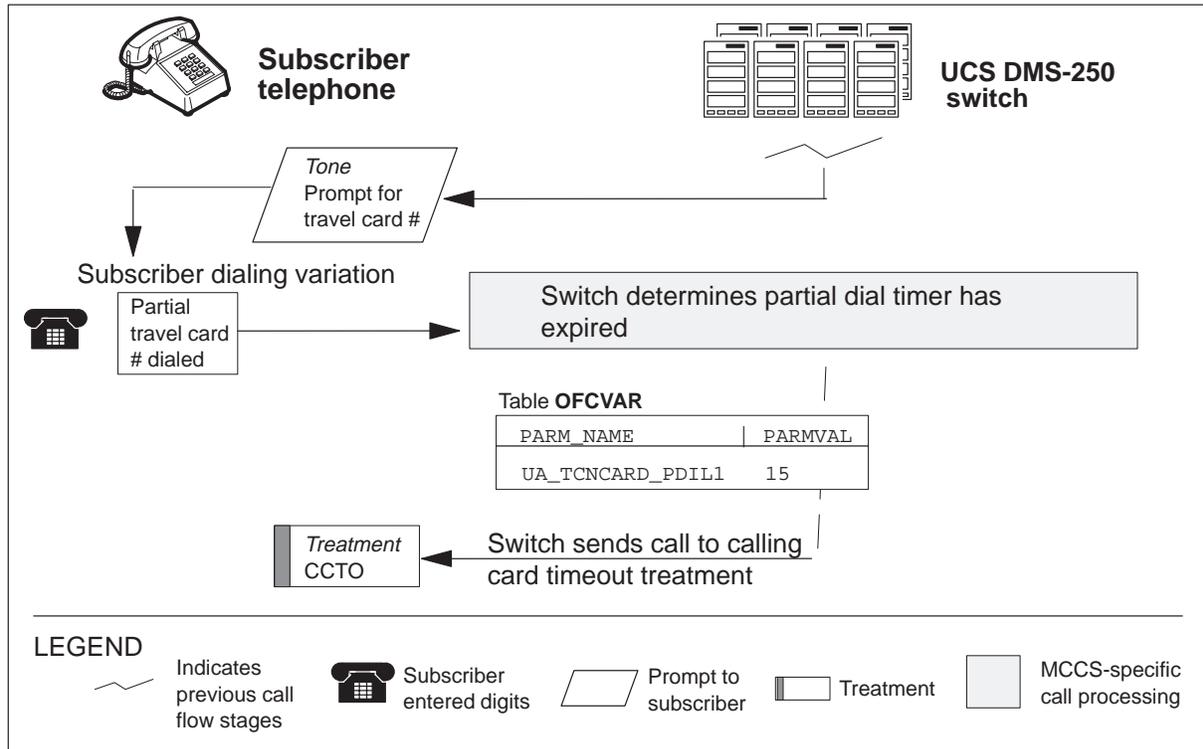
### Without operator services

The following call flow occurs without operator services, as shown in Figure 2-35. After the subscriber starts to enter travel card digits, the switch begins a timer controlled by office parameter UA\_TCNCARD\_PDIL1 and waits for the remaining digits. (This timer is reset with each digit entry.) If at any point in the digit entry the timer expires, the switch sends the call to Calling Card Timeout (CCTO) treatment.

## Implementation

### UA calls: datafill relationships (continued)

**Figure 2-35**  
**Call flow without operator services: partial dialing of travel card number**



### After travel card prompt: no digits dialed or 0- dialed

If the switch does not receive any travel card digits or the subscriber dials a 0 after the prompt for the travel card number, the call flow depends on the availability of operator services.

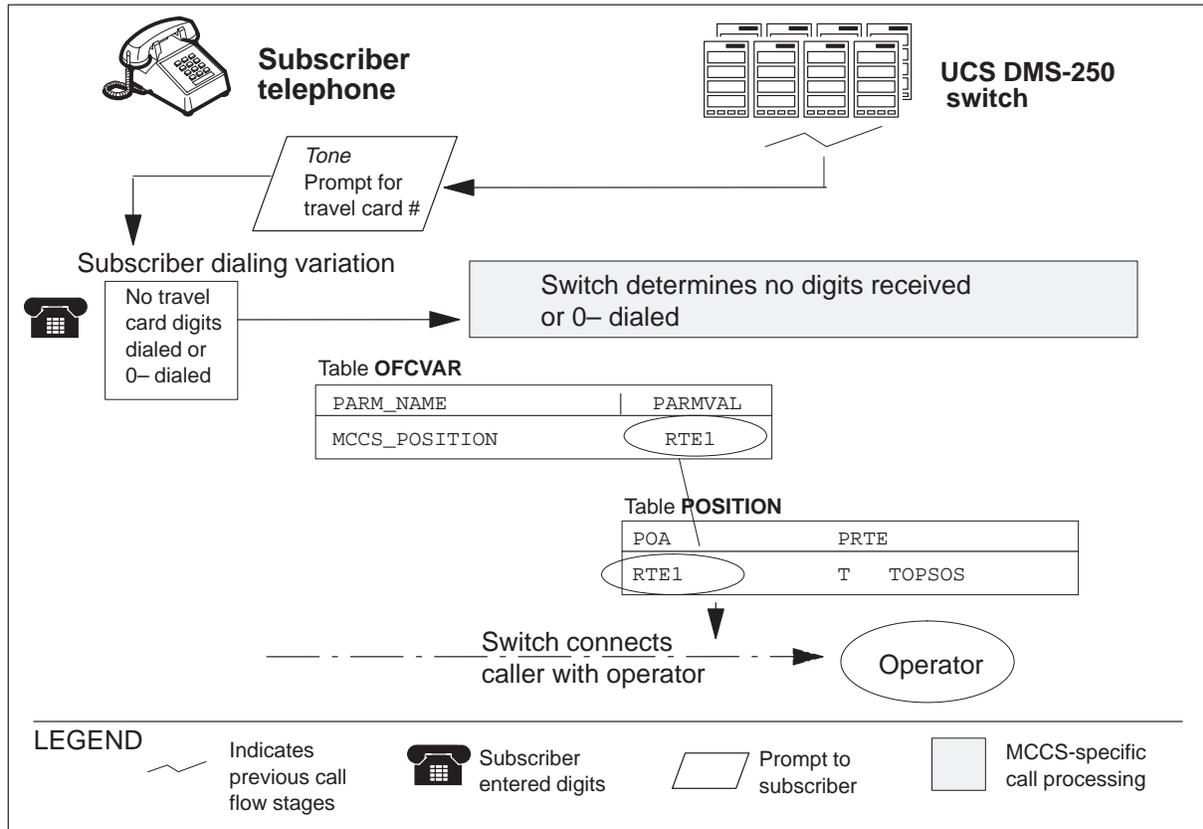
### With operator services

The following occurs when operator services are available and the subscriber dials 0- or does not dial any digits. The switch routes the call to an operator position by referring to the office parameter MCCS\_POSITION. MCCS\_POSITION indexes into table Position, as shown in Figure 2-36.

## Implementation

### UA calls: datafill relationships (continued)

**Figure 2-36**  
**Call flow with operator services: partial dialing of travel card number**



#### Without operator services

With no operator services available, the switch routes the call to Permanent Signal (PSIG) treatment if the subscriber dials 0- or does not dial any digits.

#### After travel card prompt: invalid travel card number dialed

The availability of operator services and use of optional announcements cause call flow to vary when an invalid travel card number is dialed. The following explains the availability and absence of operator services. For call flows with optional announcements, see “Call flows with optional voice announcements” in this Implementation section.

#### With operator services

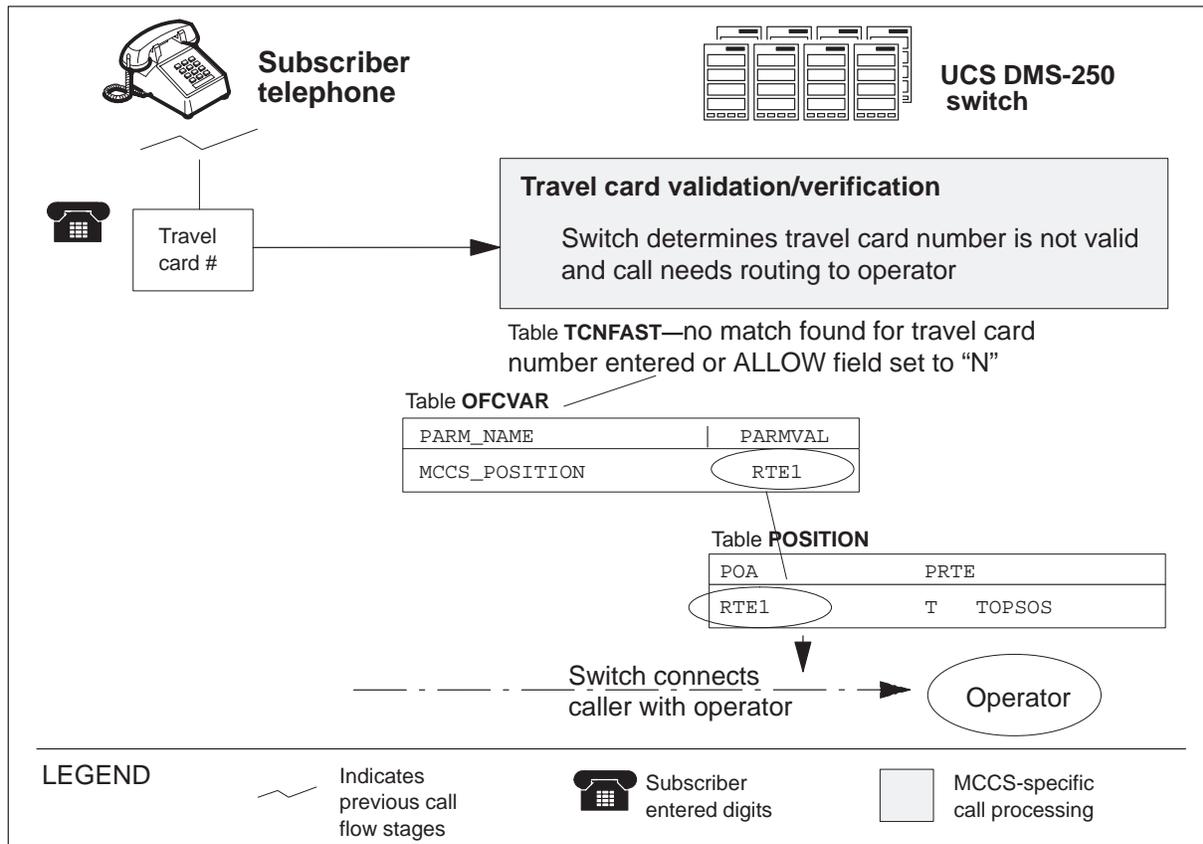
If operator services are available, the following occurs with an invalid travel card number. After the subscriber enters a travel card number, the switch searches its database in table TCNFAST to determine whether the number is

## Implementation

### UA calls: datafill relationships (continued)

valid. If it cannot find the number in table TCNFAST or if the ALLOW field is set to “N” and after the second attempt, the switch uses office parameter MCCS\_POSITION to route the call to an operator position as shown in Figure 2-37.

**Figure 2-37**  
**Call flow after travel card number: invalid travel card number entered, with operator services**



### Without operator services

If no operator services are available, the following occurs with an invalid travel card number. After the subscriber enters a travel card number, the switch searches its database in table TCNFAST to determine whether the number is valid. If it cannot find the number in table TCNFAST and after the second attempt, the switch routes the call to Calling Card Not Valid (CCNV) treatment.

## Implementation

### UA calls: datafill relationships (continued)

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#### Reorigination

With manual reorigination, an MCCS subscriber can place several calls in sequence without entering the travel card number again. This function is available when the subscriber has a DTMF telephone.

After the subscriber dials the travel card number, the switch checks datafill to determine where the number will be validated and class of service screening. The office parameter MCCS\_VERIFY\_TYPE indexes into table TCNFAST to perform validation.

*Note:* Reorigination is not supported on PRI trunks.

#### Revalidation of travel card

To require revalidation of the travel card with a reoriginated call, set the OPTION field in table TRKGRP to REORGVAL as shown in Figure 2-38.

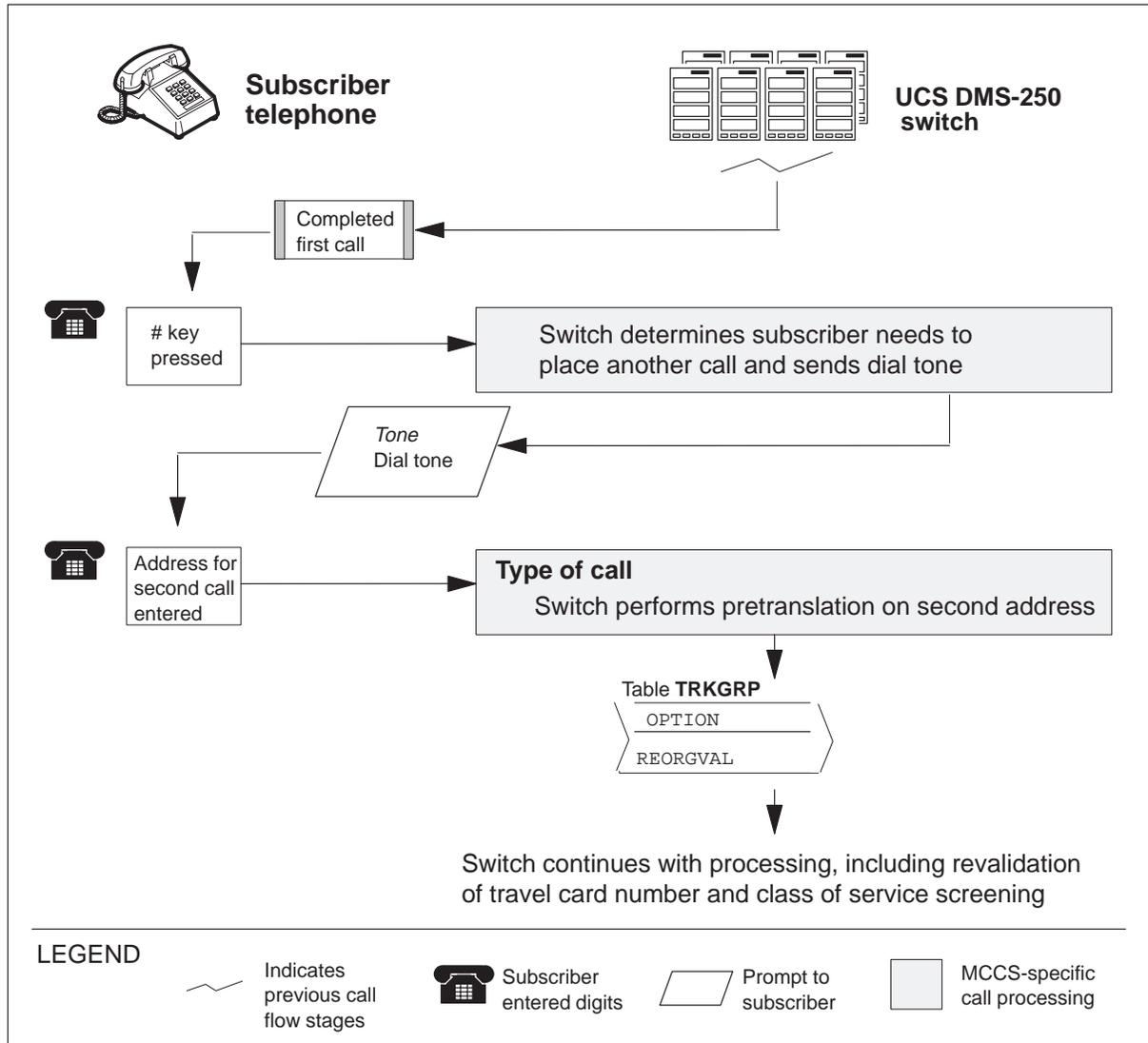
#### Class of service screening

The MLTCOSID field of table TCNFAST indexes into table MULTICOS for class of service screening. These settings are listed in Table 2-8.

## Implementation

### UA calls: datafill relationships (continued)

**Figure 2-38**  
**Call flow: reorigination with revalidation of travel card number**



## Implementation

### UA calls: datafill relationships (continued)

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#### When operator services are not available

If operator services are not available, you can choose one of the datafill strategies listed in Table 2-9 to process the call. With optional announcements available, datafill parameter `MCCS_POSITION` with “NONE” to ensure the switch sends the Calling Card Timeout announcement for partially dialed travel card numbers.

#### About treatments

When the switch encounters a specific treatment code during the translation of a call, the call is routed to that treatment. A treatment can be a tone, announcement, or state (such as idle or lockout). The following tables control treatments:

- subtable `TMTCNTL.TREAT`—defines the treatment
- table `OFRT`—lists the sequence of tones, announcements, or states
- table `CLLI`—defines the CLLI of each tone and announcement. Each treatment CLLI (with the exceptions of those following the list) is defined as follows:
  - table `TONES`—defines the CLLI for software-generated tones
  - table `STN`—defines the CLLI for hardware-generated tones
  - table `ANNS`—defines the CLLI for recorded announcements
  - table `DRAMS`—defines the CLLI for digital recorded announcements

#### To route to a treatment

To route to a treatment, datafill the switch as follows:

- an entry in `MCCS_POSITION` that points to an entry in table `POSITION`.
- an entry in table `POSITION` that points to an entry in table `OFRT`.
- A route list in table `OFRT` that contains
  - the announcement CLLI
  - the TRMT selector
  - the desired treatment code

## Implementation

### UA calls: datafill relationships (continued)

**Table 2-9**  
Possible datafill settings when operator services are not available

Table	Parameter or field	Example entry	Explanation
OFCVAR	MCCS_POSITION	NONE	The switch will send the caller the announcement Calling Card Timeout (CCTO)
OFCVAR	MCCS_POSITION	RTE8	Routes to table POSITION
POSITION	PRTE	T OFRT 15	Routes to table OFRT
OFRT	RTELIST	( S D CCTOANN ) ( TRMT RODR )	The switch will send the caller the announcement Calling Card Timeout (CCTO), then to reorder treatment

### Call flows with optional voice announcements

The use of optional announcements can cause call flow to vary. The following explain variations from a complete call when you use optional voice announcements.

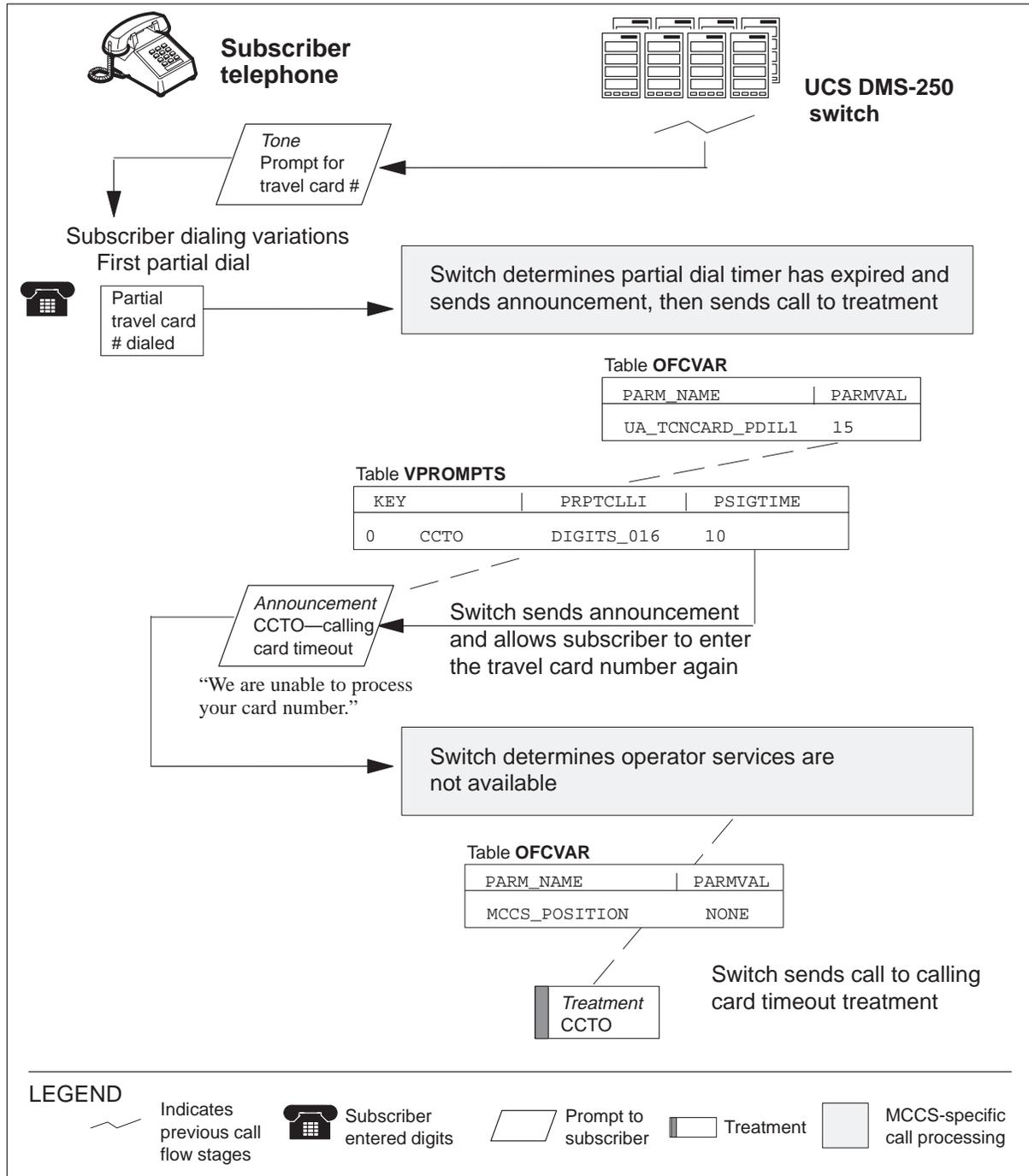
#### After travel card prompt: partial travel card number dialed

Office parameters in table OFCVAR control the timing of partial dial attempts. The following call flow occurs with the optional Calling Card Timeout (CCTO) announcement as shown in Figure 2-39. After the subscriber starts to enter travel card digits, the switch begins a timer controlled by office parameter UA\_TCNCARD\_PDIL1 and waits for remaining digits. If the timer expires and the switch does not receive the remaining travel card digits, the switch sends the subscriber the Calling Card Timeout (CCTO) announcement controlled in table VPROMPTS. The switch then sends the call to CCTO treatment.

## Implementation

### UA calls: datafill relationships (continued)

**Figure 2-39**  
Call flow with optional announcements: partial dialing of travel card number



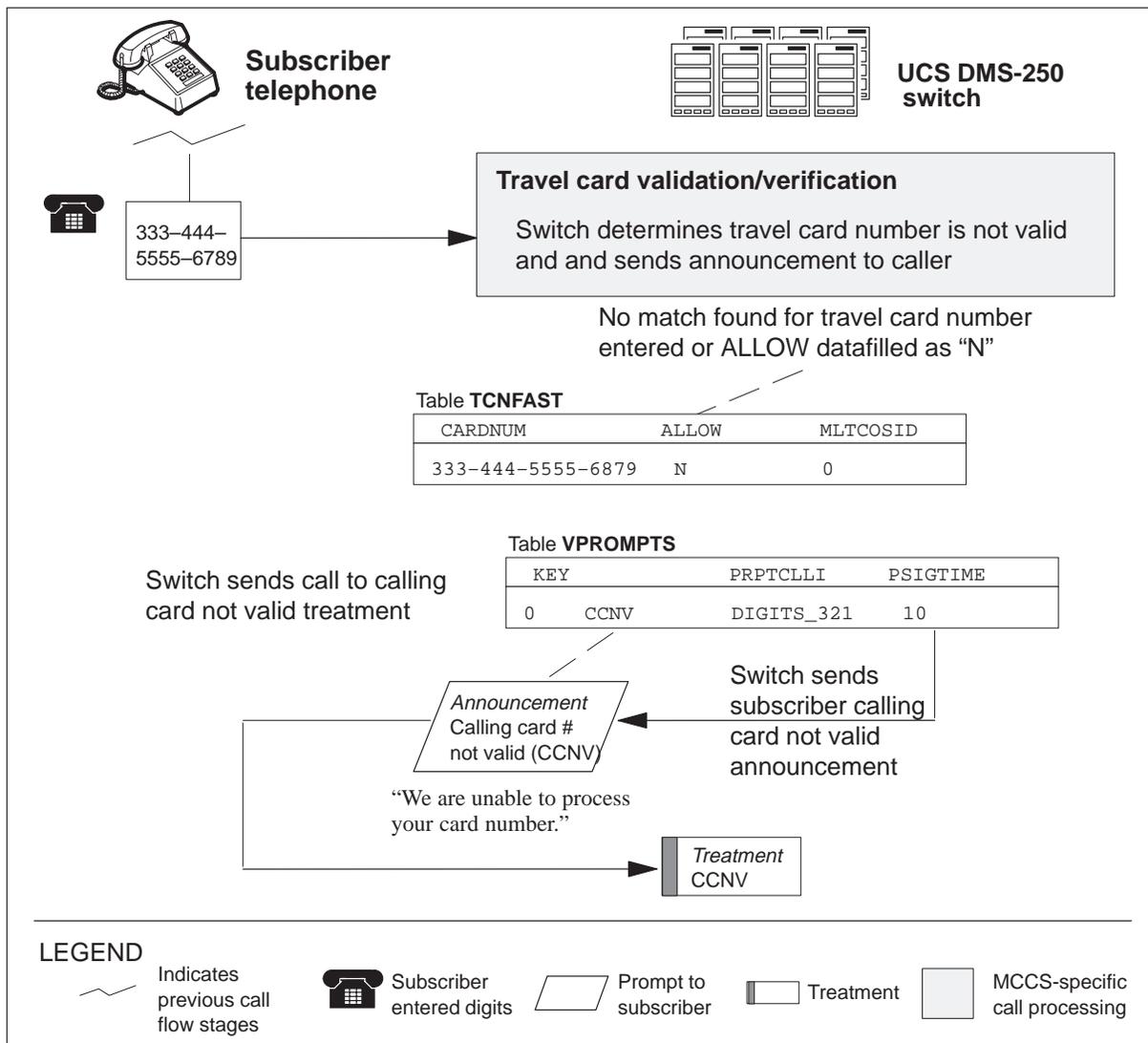
## Implementation

### UA calls: datafill relationships (continued)

#### After travel card prompt: invalid travel card number dialed

As shown in Figure 2-40, after the subscriber enters a travel card number, the switch searches its database in table TCNFAST to determine whether the number is valid. If it cannot find the number in table TCNFAST or if the ALLOW field is set to “N”, the switch sends the subscriber a Calling Card Not Valid (CCNV) announcement from table VPROMPTS. Then the switch sends the call to CCNV treatment.

**Figure 2-40**  
**Call flow after travel card number: invalid travel card number entered, with announcements**



## Implementation

### UA calls: datafill relationships (continued)

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#### Failure to dial 0+ during reorigination

If optional announcements are available, the switch sends the announcement First Digit Not Zero (FDNZ) to the subscriber as shown in Figure 2-41 under the following conditions:

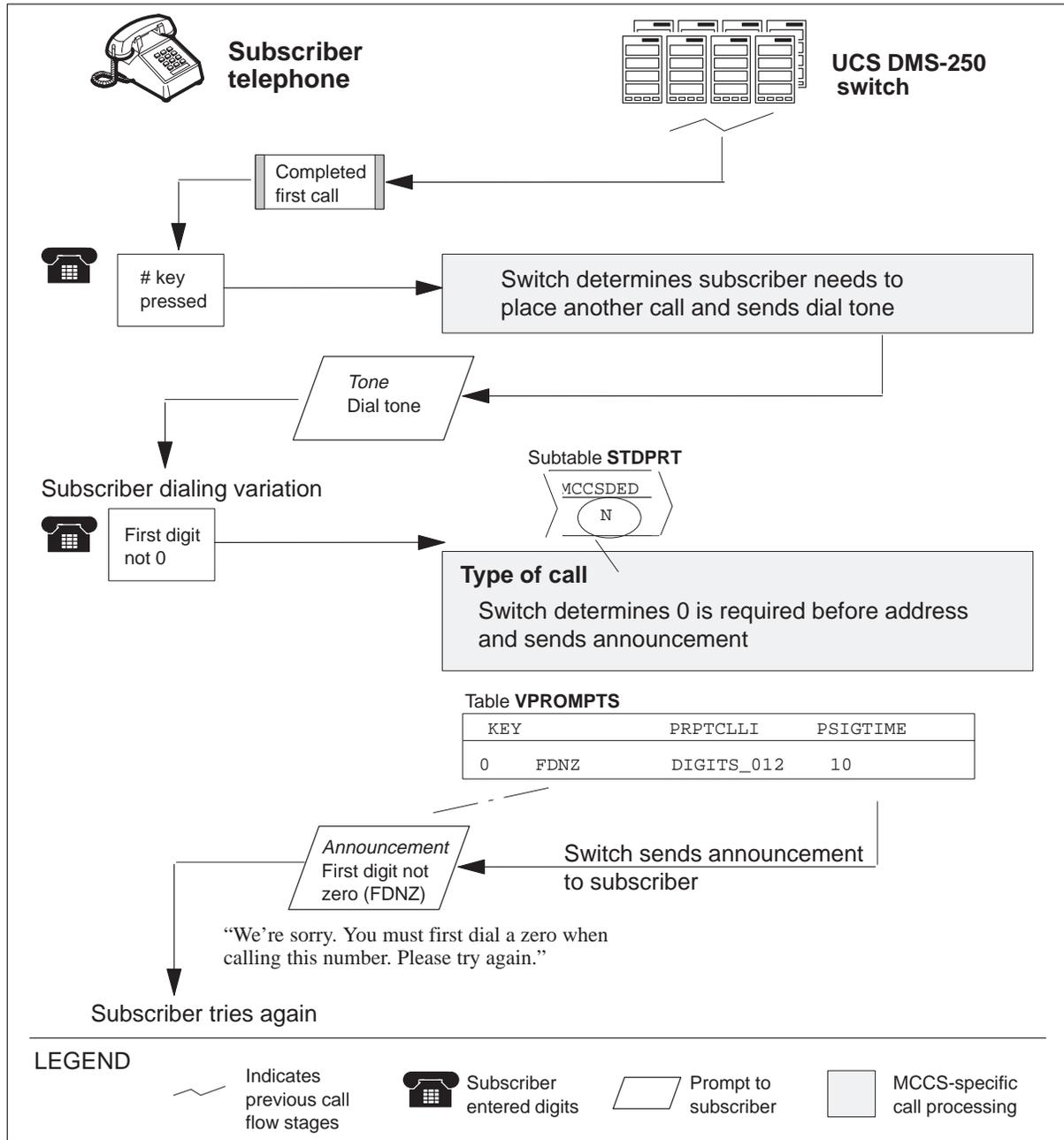
- The subscriber reoriginates to make another call but fails to dial 0 before the address.
- 0+ dialing is required because the universal access number is not dedicated to MCCS only calls. This is datafilled in subtable STDPRT, field MCCSDED, set to “N”.

Misdials of this nature are not directed to an operator.

With MCCSDED set to yes (“Y”), no 0+ address dialing is required for national calls during reorigination.

## Implementation UA calls: datafill relationships (end)

**Figure 2-41**  
Call flow: reorigination and failure to dial 0+



## Implementation

### UA calls: datafill steps (continued)

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#### Datafill overview

This datafill section shows examples and steps for tone prompt calls with a universal access number. Tables 2-10 through 2-13 show an example datafill sequence for M CCS basic services, including a summary of basic services-related settings.

Use the following steps for datafilling each table to set up basic M CCS services with tone prompts for a universal access number. Many of the following tables contain numerous fields, but only the fields that affect M CCS basic service are shown.

**For more information** on how datafill settings affect call flow, see “UA calls: datafill relationships” in this section.

#### Software optionality control

Basic Service cannot be datafilled without first purchasing and activating its software optionality control (SOC) code. The following steps explain how to activate Basic Service by activating the SOC.

- 1 Purchase the services from Nortel Networks and obtain a password (also called a keycode) to activate the service.
- 2 At the MAP terminal, enter the SOC level by entering  
> **SOC CI**
- 3 To begin activation of voice prompt services, set the right to use with the keycode obtained from Nortel Networks.  
> **ASSIGN RTU <KEY\_CODE> TO CRDS0001**
- 4 Next assign the state of the order code to ON.  
> **ASSIGN STATE ON TO CRDS0001**
- 5 Exit the SOC directory.  
> **QUIT**

**For more information** on software optionality control commands, usage, and reports see the *DMS-100 Family SOC User Manual*, 297-8991-901.

## Implementation

### UA calls: datafill steps (continued)

#### Datafill sequence—without optional announcements

If you are not using optional voice announcements with Basic service, use Tables 2-10 through 2-13 as an example datafill sequence for MCCS Basic service.

**Table 2-10**  
**Step 1: table OFCVAR office parameters**

Function	Parameter
Pretranslation for MCCS	MCCS_PRTNM
Validation indicator	MCCS_VERIFY_TYPE
Timers for entry of travel card number	MCCS_CALLING_CARD_TIMEOUT UA_TCNCARD_PDIL1 UA_TCNCARD_PDIL2
Tone prompt-related settings	MCCS_PROMPT_TONE MCCS_PROMPT_TONE_DUR MCCS_PROMPT_TONE_DELAY MCCS_CONFIRM_TONE MCCS_CONFIRM_FIRST_TONE_DUR MCCS_CONFIRM_OFF_TONE_DUR MCCS_CONFIRM_SECOND_TONE_DUR
Operator routing information	MCCS_POSITION
Serving translation scheme routing	MCCS_STS

## Implementation

### UA calls: datafill steps (continued)

**Table 2-11**  
**Step 2: table STDPRT**

Function	Field
Pretranslation selector is universal access number	PRERTSEL
Universal access number dedicated only to accept MCCS calls	MCCSDED
Subscriber to receive tone prompts	STDPRT_UA_OPTION

**Table 2-12**  
**Step 3: table TRKGRP**

Function	Field
MCCS to be allowed on trunk	OPTION = MCCS
Revalidation of reoriginated calls	OPTION = REORGVAL
Operator routing for 0– calls for non-universal access (UA) calls or for UA calls with 0– dialing before dialing universal access number	ZEROMPOS

**Table 2-13**  
**Step 4: table TCNFAST**

Function	Field
Settings for each travel card number	CARDNUM ALLOW MLTCOSID

## Implementation

### UA calls: datafill steps (continued)

#### Datafill sequence—with optional announcements

If you are using optional voice announcements with Basic service, use Tables 2-14 through 2-19 as an example datafill sequence for MCCS Basic service.

**Table 2-14**  
**Step 1: table OFCVAR office parameters**

Function	Parameter
Pretranslation for MCCS	MCCS_PRTNM
Validation indicator	MCCS_VERIFY_TYPE
Timers for entry of travel card number	MCCS_CALLING_CARD_TIMEOUT UA_TCNCARD_PDIL1 UA_TCNCARD_PDIL2
Tone prompt-related settings	MCCS_PROMPT_TONE MCCS_PROMPT_TONE_DUR MCCS_PROMPT_TONE_DELAY MCCS_CONFIRM_TONE MCCS_CONFIRM_FIRST_TONE_DUR MCCS_CONFIRM_OFF_TONE_DUR MCCS_CONFIRM_SECOND_TONE_DUR
Operator routing information	MCCS_POSITION
Serving translation scheme routing	MCCS_STS

## Implementation

### UA calls: datafill steps (continued)

**Table 2-15**  
**Step 2: tables related to announcements**

Function	Table or utility
Hardware assignments	TMINV EDRAMINV
Software datafill	CLLI
Hardware assignment of DRAM	DRAMS
Software datafill	ANNS
Assignment of announcements to the switch	DRAMREC utility (This is a utility, not a table to be datafilled.)
Firmware datafill (operational load details)	ANNMEMS DRAMTRK

**Table 2-16**  
**Step 3: table VPROMPTS**

Function	Field, subfield
Announcements and settings	VPIDX, ANNOU_KEY, PRPTCLLI, PSIGTIME

## Implementation

### UA calls: datafill steps (end)

**Table 2-17**  
**Step 4: table STDPRT**

Function	Field, subfield
Pretranslation selector is universal access number	PRERTSEL
Universal access number dedicated only to accept MCCS calls	MCCSDED
Subscriber to receive tone prompts	STDPRT_UA_OPTION

**Table 2-18**  
**Step 5: table TRKGRP**

Function	Field, subfield
MCCS to be allowed on trunk	OPTION = MCCS
Revalidation of reoriginated calls	OPTION = REORVAL
Operator routing for 0– calls for non-universal access (UA) calls or for UA calls with 0– dialing before dialing universal access number	ZEROMPOS

**Table 2-19**  
**Step 6: table TCNFAST**

Function	Field, subfield
Settings for each travel card number	CARDNUM ALLOW MLTCOSID

## Implementation

### UA datafill: Table OFCVAR (continued)

#### Table description

<b>Name:</b>	Office Variable
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Contains values for the UCS DMS-250 central office
<b>Datafill before OFCVAR:</b>	See specific office parameters for this information
<b>Datafill after OFCVAR:</b>	n/a

**For more information** on how office parameters affect call flow, see “UA calls: datafill relationships” in this section.

#### Datafill steps

To datafill:	Go to office parameter:	Enter:	Explanation	Example
<b>Validation</b> —to occur in the switch	MCCS_VERIFY_TYPE	INSWITCH	The switch verifies travel card numbers by comparing the number entered to numbers stored in table TCNFAST.	INSWITCH
<b>Pretranslation for address</b> —Pretranslator name used to route universal access calls	MCCS_PRTNM	MCCS	This field is a key to table STDPRTCT. This field must match field EXTPRTNM in STDPRTCT. The STDPRT field in table STDPRTCT is a key to subtable STDPRT. Subtable STDPRT contains the pretranslation data for the address.	MCCS

## Implementation

### UA datafill: Table OFCVAR (continued)

To datafill:	Go to office parameter:	Enter:	Explanation	Example
<b>Routing</b> —serving translation scheme for MCCS calls	MCCS_STS	0–999; default = the first serving translation scheme datafilled in table HNPACONT	Specifies for all MCCS calls the serving translation scheme with in-switch validation	611
<b>Tone</b> —type of tone for address and travel card prompt	MCCS_PROMPT_TONE	DIAL_TONE	Type of tone for prompt.	DIAL_TONE
<b>Tone</b> —duration of tone for address and travel card prompt	MCCS_PROMPT_TONE_DUR	0–255; default = 100	Amount of time prompt will sound (expressed in 10-millisecond increments)	100
<b>Pause</b> —duration of silence between address collection and prompt for travel card number	MCCS_PROMPT_TONE_DELAY	0–255; default = 2	Duration of silence before tone prompt for address sounds (expressed in 10-millisecond increments)	2
<b>Timer</b> —for entry of the travel card number	MCCS_CALLING_CARD_TIMEOUT	0–10; default = 10	Amount of time allowed for the subscriber to input the travel card number (expressed in 1-second increments)	10

## Implementation

### UA datafill: Table OFCVAR (continued)

To datafill:	Go to office parameter:	Enter:	Explanation	Example
<b>Timer</b> —for entry of remainder of travel card number after a no-digits or partial dial (first attempt)	UA_TCNCARD_ PDIL1	2-30 seconds; default = 15	<p>Overrides the PARTDIAL field in table TRKGRP.</p> <p>If this value is too low, the timer may expire while a subscriber is pausing during or before dialing.</p> <p>If the timer expires, the switch sends the caller a Calling Card Timeout (CCTO) announcement and allows the subscriber to try again.</p>	15
<b>Timer</b> —for entry of remainder of travel card number, second attempt	UA_TCNCARD_ PDIL2	2-30 seconds; default = 5	<p>Overrides the PARTDIAL field in table TRKGRP.</p> <p>If this value is too low, the timer may expire while a subscriber is pausing during or before dialing.</p> <p>If the timer expires, sends the call to Partial Dial (PDIL) treatment if no operator routing has been set in office parameter MCCS_POSITION and table POSITION.</p>	5

## Implementation

### UA datafill: Table OFCVAR (end)

To datafill:	Go to office parameter:	Enter:	Explanation	Example
<b>Tone</b> —for MCCS confirmation tone to confirm call will be processed	MCCS_ CONFIRM_TONE	DIALTONE	Type of tone for confirmation tone	DIALTONE
<b>Tone</b> —duration of first part of confirmation tone	MCCS_ CONFIRM_ FIRST_TONE_ DUR	0–255; default = 10	First half of confirmation tone in 10-millisecond increments  Confirmation tone consists of a first half, a pause, and a second half	10
<b>Pause</b> —duration of silence between first and second parts of confirmation tone	MCCS_ CONFIRM_OFF_ TONE_DUR	0–255; default = 10	The pause (in 10-millisecond increments) between the first and second halves of the confirmation tone	10
<b>Tone</b> —duration of second part of confirmation tone	MCCS_ CONFIRM_ SECOND_ TONE_DUR	0–255; default = 10	Second half of confirmation tone in 10-millisecond increments  Confirmation tone consists of a first half, a pause, and a second half	10
<b>Operator services</b> —operator position index to be used to forward calls to the operator	MCCS_ POSITION	Name of position; default = NONE	This entry must match the datafill in table POSITION. Datafill table POSITION first.	MCCS

## Implementation

### UA datafill: Subtable STDPRT (continued)

#### Table description

<b>Name:</b>	Standard Pretranslator
<b>Subtable of:</b>	Table STDPRTCT
<b>Purpose:</b>	Identifies a range of digits and a route selector for the universal access number and the address to determine the next stage of pretranslation for a call. The field STDPRT in table STDPRTCT indexes into subtable STDPRT.
<b>Datafill before STDPRT:</b>	Table STDPRTCT (If you choose to use voice announcements, table V PROMPTS must be datafilled before subtable STDPRT.)
<b>Datafill after STDPRT:</b>	n/a

#### Datafill steps—universal access number

The steps below are for datafilling pretranslation information for the universal access number.

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
Universal access number for access to MCCS	FROMDIGS	The beginning range of the universal access number	The number subscribers will dial for access to the network to receive MCCS	800960
	TODIGS	The ending range of the universal access number		800960
Pretranslation selector	PRERTSEL	UA	Indicates the routing selector for universal access	UA

## Implementation

### UA datafill: Subtable STDPRT (continued)

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
Authcode database index to use for a universal access authcode call	ADIN	0–99	The authcode database	0
Originating partition number for the universal access call	OPART	0–999; default = 7	This field must match the originating partition of the incoming trunk; otherwise the call will fail.	7
Setting for the type of dialing required before the address digits	MCCSDED	N = 0 dial before address digits required  Y = no 0 dial before address required	MCCS dedicated. If set to Y, all calls other than travel card number calls are excluded (including authcode calls). Y setting is only available with universal access using tone prompts on FGC, FGD, and SS7 IMT.	N
Application name	APPLNAME	TCN = default	TCN is the only valid application name for MCCS.	TCN

## Implementation

### UA datafill: Subtable STDPRT (continued)

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
Number of seconds to wait for a response from the remote database before a timeout occurs	SCPTOUT	1–10; 5 = default	SCP timeout. Although this entry controls a timeout of the remote database, datafill in this field is required with in-switch validation. For more information on this timeout, see the “Remote validation services” section of this manual.	5
Whether to allow the call to proceed or to be blocked after a remote database timeout occurs	SCPTOACT	BLOCK or PROCEED; default = PROCEED	SCP timeout action. Although this entry controls a timeout of the remote database, datafill in this field is required with in-switch validation. For more information on this timeout, see the “Remote validation services” section of this manual.	PROCEED
Option for tone prompts on this universal access number	STDPRT_ UA_OPTION	\$ = initial datafill entry for tone prompts; NIL = removes the entry for voice prompts; default = \$	NIL removes the entry for voice prompt activation if the datafill was previously set for voice prompts.	\$

## Implementation

### UA datafill: Subtable STDPRT (continued)

#### Datafill steps—address ranges

The steps below are for datafilling pretranslation information for the range of digits for the called number dialed by the subscriber.

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
Address digit range	FROMDIGS	The beginning range of the addresses	The beginning range for the address	021
	TODIGS	The beginning range of the addresses	The ending range for the address	022
Type of routing for the trunk	PRERTSEL	Enter the pretranslator selector	Indicates the routing selector for the address range; CT = call type routing	CT
Type of call feature associated with this range of addresses	CALLFEAT	The call feature name (ONNET, OFFNET, PUBSPD, PRVSPD, TOLLFR, CROSSON, AUTHREQ, HTLSPD, ACCT, ZPLUSONNET, ZPLUSOFFNET, INTOP)	The name of the call feature	ONNET
Minimum number of address digits	MINDIGS	0–18	The minimum number of address digits to be expected; if 0+ dialing is required, the minimum number after 0+	8

---

**Implementation**  
**UA datafill: Subtable STDPRT (end)**

---

<b>To datafill:</b>	<b>Go to field, subfield or refinement:</b>	<b>Enter:</b>	<b>Explanation</b>	<b>Example</b>
Maximum number of address digits	MAXDIGS	0–18	The maximum number of address digits to be expected; if 0+ dialing is required, the minimum number after 0+	11
Number of prefix digits	NOPREDIG	0–7	The number of prefix digits to be deleted before translation continues; if 0+ dialing is required, enter 1	1

---

**Implementation**  
**UA datafill: Table TMINV (end)**

---

**Table description**

<b>Name:</b>	Trunk Module Inventory Table
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Lists the assignment data for each trunk module. TMPTYPE includes the option DTM and must be specified before table EDRAMINV is datafilled.
<b>Datafill before TMINV:</b>	Tables NETWORK, ENCDINV
<b>Datafill after TMINV:</b>	Tables EDRAMINV, CLLI, DRAMS, ANNS, ANNMEMS, DRAMTRK, VPROMPTS

Please refer to table TMINV in *UCS DMS-250 Data Schema Reference Manual*, 297-2621-851, and *DRAM–EDRAM Guide*, 297-1001-527, for detailed instructions.

## Implementation

### UA datafill: Table EDRAMINV (end)

---

#### Table description

<b>Name:</b>	Enhanced Digital Recorded Announcement Machine Inventory
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Contains information about the voice files for each EDRAM. (The control information for the DRAM trunk modules is contained in table DRAMS). Each four-minute EDRAM has up to eight single-density or four double-density announcement files. Each announcement file represents a different set of announcements. Each 16-minute EDRAM has up to thirty-two single-density or sixteen double-density announcement files.
<b>Datafill before EDRAMINV:</b>	Trunk modules in table TMINV
<b>Datafill after EDRAMINV:</b>	Tables EDRAMINV, CLLI, DRAMS, ANNS, ANNMEMS, DRAMTRK, VPROMPTS

Please refer to table EDRAMINV in *UCS DMS-250 Data Schema Reference Manual*, 297-2621-851, and *DRAM-EDRAM Guide*, 297-1001-527, for detailed instructions.

---

**Implementation**  
**UA datafill: Table CLLI (end)**

---

**Table description**

<b>Name:</b>	Common Language Location Identifier
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Contains the name (or CLLI) of each tone and announcement. (This table also defines the names of trunks.)
<b>Datafill before CLLI:</b>	Tables TMINV, EDRAMINV
<b>Datafill after CLLI:</b>	Table DRAMS

This table contains numerous variations on settings, depending on your system's configuration. Please refer to table CLLI in *UCS DMS-250 Data Schema Reference Manual*, 297-2621-851, and *DRAM-EDRAM Guide*, 297-1001-527, for detailed instructions.

---

## Implementation

### UA datafill: Table DRAMS (end)

---

#### Table description

<b>Name:</b>	Digital Recorded Announcement Machine
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Contains hardware (trunk card) assignment codes, including physical location of card and indicator for type of card.
<b>Datafill before DRAMS:</b>	Tables TMINV, EDRAMINV, CLLI
<b>Datafill after DRAMS:</b>	Tables ANNS, ANNMEMS, DRAMTRK, VPROMPTS, MVPRTE

This table contains numerous variations on settings, depending on your system's configuration. Please refer to table DRAMS in *UCS DMS-250 Data Schema Reference Manual*, 297-2621-851, and *DRAM-EDRAM Guide*, 297-1001-527, for detailed instructions.

#### Datafill example

DRAMCARD	TMTYPE	TMNO	TMCKT	CARDCODE	CARDINFO
0 0	MTM	0 0	1X75BA	CTLR	DRAM0

## Implementation

### UA datafill: Table ANNS (continued)

#### Table description

<b>Name:</b>	Announcements
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Contains announcement type and play information. Defines specific characteristics of each announcement, including the type of announcement, how long the announcement is, and the number of cycles the announcement plays.
<b>Datafill before ANNS:</b>	Tables TMINV, EDRAMINV, CLLI, DRAMS
<b>Datafill after ANNS:</b>	Tables ANNS, ANNMEMS, DRAMTRK, VPROMPTS, MVPRTE

Refer to table ANNS in *UCS DMS-250 Data Schema Reference Manual*, 297-2621-851, and *DRAM-EDRAM Guide*, 297-1001-527, for detailed instructions.

#### Datafill steps

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
The CLLI of the announcement	CLLI	The CLLI of the announcement	This entry must match the CLLI in table CLLI, DRAMS, ANNMEMS, DRAMTRK, and VPROMPTS	CCNVANN
The type of announcement	ANTYPE	STND, CNAT, or VPSA	See "Note" below	STND
The traffic separation number	TRAFSNO	1-127	If no traffic separation number is required, enter 0; see "Note" below	1

## Implementation

### UA datafill: Table ANNS (end)

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
The maximum number of simultaneous connections allowed on the announcement	MAXCONN	0–255	See “Note” below	2
The cycle time for one announcement on one channel	CYTIME	0–255	See “Note” below	2
The maximum number of times the announcement is heard before the call is advanced to the next route in the route list	MAXCYC	0–255	See “Note” below	2

**Note:** For more information, refer to table ANNS in the *UCS DMS-250 Data Schema Reference Manual*, 297-2621-851.

### Example

CLLI	ANTYPE	TRAFSNO	MAXCONN	CYTIME	MAXCYC
CCNVANN	VPSA	0	255	30	1

---

## Implementation

### UA datafill: Table ANNMEMS (end)

---

#### Table description

<b>Name:</b>	Announcement Members
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Lists the hardware assignments for each member (trunk) assigned to the announcements in table ANNS. This table links the trunk members to the type of card and to the announcement cli.
<b>Datafill before ANNMEMS:</b>	Tables TMINV, CLLI, DRAMS, ANNS
<b>Datafill after ANNMEMS:</b>	Tables DRAMTRK, OFRT, OFR2, OFR3, OFR4, VPROPPTS, MVPRTE, TRKGRP

This table contains numerous variations on settings, depending on your system's configuration. Please refer to table ANNMEMS in *UCS DMS-250 Data Schema Reference Manual*, 297-2621-851, and *DRAM–EDRAM Guide*, 297-1001-527, for detailed instructions.

## Implementation

### UA datafill: Table DRAMTRK (end)

---

#### Table description

<b>Name:</b>	Digital Recorded Announcement Machine Tracks
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Lists the names of the announcement phrases and which track of the DRAM the phrases are assigned to. The various announcement phrases make up each announcement and are listed in the sequence in which they play to the caller.
<b>Datafill before DRAMTRK:</b>	Tables TMINV, EDRAMINV, CLLI, DRAMS, ANNS, ANNMEMS
<b>Datafill after DRAMTRK:</b>	Tables VPROMPTS, MVPRTE

Please refer to table DRAMTRK in *UCS DMS-250 Data Schema Reference Manual*, 297-2621-851, and *DRAM–EDRAM Guide*, 297-1001-527, for detailed instructions.

#### Datafill example

ANNTRACK	PHSLIST
CCNVANN	0 (PAUSE) (DTMF 1) (DTMF 2) (PAUSE) \$

## Implementation

### UA datafill: Table VPROMPTS (continued)

#### Table description

<b>Name:</b>	Voice Prompts
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Contains the settings for the voice announcements used during treatments. Assigns announcements to a particular instance of call flow. Contains the active/passive setting for the announcement.
<b>Datafill before VPROMPTS:</b>	Tables ANNS, DRMTRK
<b>Datafill after VPROMPTS:</b>	STDPRT

#### Datafill steps

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
The names of the active voice announcements that play when an error occurs	VPIDX_KEY, ANNOU_KEY	See the entries below.	This is a two-part key.	
The voice prompt for invalid travel card numbers		(0, CCNV)	Calling card not valid. An active voice prompt that plays when travel card number fails validation.	CCNV
The voice announcement that plays after a timeout for entering the travel card number		(0, CCTO)	Calling card timeout. An active voice prompt that plays when a subscriber fails to enter the travel card number within a specified time period and switch datafill indicates the call is not to route to an operator position.	CCTO

## Implementation

### UA datafill: Table VPROMPTS (end)

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
The voice prompt for treatment of a number entered that does not begin with 0		(0, FDNZ)	First digit not zero. A passive voice prompt that plays when the subscriber fails to dial 0 before address digits during a reoriginated call (and 0+ dialing is required for the universal access number as set in table STDPRT, field MCCSDED).	FDNZ
The voice prompt CLLI	PRPTCLLI	CLLI	Enter the announcement CLLI from table ANNS. (This field does not contain the trunk CLLI.)  This entry must match the CLLI in table CLLI, ANNS, ANNMEMS, and DRAMTRK	CCNVANN
The number in seconds of the permanent signal timer	PSIGTIME	0 = passive prompt; 2–30 = active prompt	This timer starts after the voice prompt plays and represents the time allowed for the subscriber to enter other digits. This timer overrides the PSIG timer in table TRKSGRP.  Passive voice prompts must be set to 0.	10

## Implementation

### UA datafill: Table TRKGRP (end)

#### Table description

<b>Name:</b>	Trunk Group
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Contains customer-defined data associated with each trunk group.
<b>Datafill before TRKGRP:</b>	n/a
<b>Datafill after TRKGRP:</b>	n/a

#### Datafill steps

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
MCCS services to be used on the trunk	OPTION	MCCS	This entry activates MCCS services on the trunk.	MCCS
Optional revalidation for reoriginated calls	OPTION	REORGVAL	The switch validates each reoriginated call.	REORGVAL
Optional revalidation for reoriginated calls	ZEROMPOS	NONE or valid position datafilled in table POSITION	Zero Minus Position. This entry controls the settings for routing to an operator position when the caller dials 0- before dialing the universal access number.	NONE

## Implementation

### UA datafill: Table TCNFAST (continued)

#### Table description

<b>Name:</b>	Travel Card Number Fast
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	In-switch database that contains the travel card numbers and their status. Can accommodate up to 400,000 14-digit travel card numbers.
<b>Datafill before TCNFAST:</b>	n/a
<b>Datafill after TCNFAST:</b>	n/a

#### Datafill steps

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
The travel card number	CARDNUM	14 digits; first digit 2–9, remaining digits 0–9	The first digit cannot be 0 or 1.	29847562 914375
Whether call using the travel card number in CARDNUM field can proceed	ALLOW	Y= allow call to proceed  N = block call	Allow call to proceed.	ALLOW
The class of service screening option	MLTCOSID	0–2047  0 = default; no class of service screening is performed	Multiple Class of Service Index is an index into table MULTICOS. Table MULTICOS provides multiple indexes into table COSUS. Table COSUS permits up to 32 class of service screenings per call.	2

---

**Implementation**  
**UA datafill: Table TCNFAST (end)**

---

**Datafill example**

The following example shows sample datafill for table TCNFAST.

CARDNUM	ALLOW	MLTCOSID
29847562914375	N	0
35056431723451	Y	0
76513987561487	Y	0

## Support Commands (continued)

---

### TCNTEST

#### Use

The TCNTEST command is a maintenance command that allows you to validate travel card numbers without placing a call.

#### Syntax

Enter the TCNTEST command with these parameters:

```
>TCNTEST <TCN_NUMBER> [<TIMEOUT> {0 TO 30}]
```

#### Parameter definitions

**TCN\_NUMBER**—the 14-digit calling card number

**TIMEOUT**—an optional timeout value

#### Example

The following example uses the TCNTEST command. 21323667896789 is the travel card number, and the number 1 following is the timeout.

```
>TCNTEST 21323667896789 1
```

Following is a sample response:

```
TIME FOR SENDING QUERY AND RECEIVING RESPONSE IS:  
0 MINUTES, 0 SECONDS, 6 MILLISECONDS  
THE FOLLOWING DATA WERE RETURNED FROM THE RDB:  
THE CCN NUMBER 21323667896789 IS VALID  
TRAP CLASS: 0  
ORIGINATING PARTITION: 111  
TERMINATING PARTITION: 0  
SATELLITE RESTRICTION: NO  
ACCOUNT CODE VALIDATION REQUIRED: NO  
ACCOUNT CODE LENGTH: 0  
COS INDEX: 1  
TRAP: NO
```

---

## Support Commands (continued)

---

### CLLIREF\_SEARCH

#### Use

CLLIREF SEARCH allows you find all the tables where a particular CLI is referenced. This is especially useful with announcement CLIs.

#### Syntax

Enter the CLLIREF SEARCH command with these parameters:

```
>CLLIREF SEARCH <CLI_NAME>
```

#### Parameter definitions

**CLI\_NAME**—the name of the CLI you wish to search for

#### Example

The following example uses the CLI “CCNVANN”.

```
>CLLIREF SEARCH CCNVANN
```

Following is a sample response:

```
CLLI "CCNVANN" OCCURS IN THE FOLLOWING TUPLES:
Table      Key: Sub      Tuple
-----
CLLI              CCNVANN 98 5 CREDIT_CARD_NOT_VALID_ANN
CLLICDR          CCNVANN 98
TRKNAME          98 CCNVANN
CLLIMTCE        CCNVANN CCNVAN 5 10 15 NSS 0 0 N N (0)
```

## Support Commands (end)

---

### OMSHOW ANN ACTIVE

#### Use

OMSHOW allows you to view operational measurements with an active, holding, or accumulation class. OMSHOW ANN ACTIVE allows you to see the active operational measurements (those currently being counted) related to announcements.

#### Syntax

The ANN portion of this command allows you to see the operational measurements related to announcements.

#### >OMSHOW ANN ACTIVE

**For more information** about commands, see the *UCS DMS-250 Commands Reference Manual*, 297-2621-819, the *Menu Commands Reference Manual*, 297-1001-821x, and the *Non-Menu Commands Reference Manual*, 297-1001-820x.

**OCC213**

OCC213 is generated when table TCNFAST is not datafilled with the travel card number entered by the caller. The log report indicates whether validation failed on the first or second attempt.

You can use this log report for datafill verification and fraud detection.

**Example**

```
OCC213 APR17 10:20:33 6504 INFO TCN IS NOT DATAFILLED  
TRBCODE = TCN_IS_NOT_IN_TABLE_TCNFAST  
TCN = 41255544443333
```

**For more information** about logs, see the *UCS DMS-250 Logs Reference Manual*, 297-2621-840.

## Support Operational measurements (continued)

---

### ANN

The OM group ANN (Announcements) provides information on traffic for recorded announcement machines. ANN contains the following two peg registers:

- ANNATT—Announcement Attempts; indicates the call was routed to an announcement
- ANNOVFL—Announcement Overflow; indicates the call was routed to an announcement that failed to connect to the announcement because:
  - the maximum number of calls were connected
  - the announcement was manual busy

This register does not count the number of calls that overflow because of network blockage.

ANN contains the following three usage registers:

- ANNTRU—Announcement Traffic Usage; records how long an announcement is traffic busy
- ANNSBU—Announcement System Busy Usage; records how long an announcement is system busy
- ANNMBU—Announcement Manual Busy Usage; records how long an announcement is manual busy

To calculate the total time of busy usage, add together the figures from ANNTRU, ANNSBU, and ANNMBU.

### TRMTFR

The OM group TRMTFR (Feature-related treatment) counts calls that are routed to a treatment as a normal progression of the call and contains one register for each call treatment. The register is pegged when a call is routed to that treatment.

TRMTFR contains the following peg registers related to M CCS:

- TFRCCCTO—Calling Card Timeout; indicates the caller did not enter a travel card number within the timeout period specified in office parameter M CCS\_CALLING\_CARD\_TIMEOUT of table OFCVAR.

---

**Support**  
**Operational measurements (end)**

---

**TRMTCU2**

The OM group TRMTCU2 counts calls routed to treatments as a result of authorization problems with the call, such as dialing an invalid sequence of digits.

Peg register TCUCCNV counts calls routed to Calling Card Not Valid (CCNV) treatment. The switch routes calls to CCNV treatment when the travel card number does not match any in table TCNFAST, or when a match occurs but field ALLOW is set to “N.”

**For more information** about these operational measurements, see the *UCS DMS-250 Operational Measurements Reference Manual*, 297-2621-814.

## Support Billing (continued)

---

### Introduction

The call detail record system captures comprehensive billing information and other data on all M CCS calls. With each attempted call, a unique call detail record is generated. The call detail record contains all aspects of that particular call, for example:

- calling number
- called number
- time the call originated
- time the call disconnected
- whether the call had a reorigination
- billing number
- route the call traveled

### Billing rules

The following billing rules apply to M CCS calls:

- normal call processing—A 0 or 1 can be captured in the COMPCODE field to indicate normal call processing.
- performance measurements—A 4 or a 9 can be captured in the COMPCODE field.
- valid travel card number—Field BILLNUM contains the valid travel card number and will capture a partial travel card number if one is entered.

If a caller enters a partial travel card number, the BILLNUM field will store the partial number. If a caller enters a second partial travel card number, the BILLNUM field will store the second partial number.

### CDR field descriptions

For a description of the various CDR fields, refer to the *UCS DMS-250 Billing Records Application Guide*, 297-2621-395.

No CLLI screening occurs. Billing is generated from the travel card number, therefore, datafill associated with the ANI database is ignored. On universal access calls, the switch checks the ANI for validity, but billing is based on the travel card number.

**For more information** about billing information, see the *UCS DMS-250 Billing Records Application Guide*, 297-2621-395, and

**Support  
Billing** (end)

---

the *UCS DMS-250 Billing Server Application Guide*,  
297-2621-320.



---

# Voice Prompt service

---

## This section includes...

### How does it work?

Service description—page 3-2

Call flows and explanations—page 3-8

### How do I implement it?

Hardware requirements—page 3-34

Datafill relationships—page 3-40

Datafill steps—page 3-61

### How do I support it?

Operational measurements—page 3-86

## Service description Functionality (continued)

---

### Introduction

Voice Prompt service is an optional Mechanized Calling Card Service (M CCS) available for purchase to use with the long distance features of the UCS DMS-250 switch. To use voice prompts, you must purchase and activate Basic service (software optionality code CRDS0001) and the Voice Prompt service (software optionality code CRDS0003).

Voice Prompt service also works with Remote Validation service (software optionality code CRDS0002) and Quick Call service (software optionality code CRDS0005).

### Voice Prompt service features

Table 3-1 lists the features of Voice Prompt service.

**Table 3-1**  
**Voice Prompt service features**

Voice Prompt service features
<i>Recorded announcements</i> —Announcements (also called voice prompts) guide callers through the process of placing travel card calls.
<i>Customized announcement sets</i> —Announcement sets can be customized for each universal access number. This allows call branding to vary for each universal access number.
<i>Customized operator routing</i> —Operator routing can be customized for each universal access number.

Voice Prompt service provides user-friendly announcements to guide subscribers through the placement of travel card calls. Recorded voice announcements tell subscribers what to do next in the series of steps required to place a travel card call. Also, companies can “brand” the travel card service with customized announcements that mention the company name.

The following Basic service features are *not* available on trunks and universal access numbers configured to use Voice Prompt service:

- automatic reorigination of calls
- dedication of a universal access number to M CCS-only calls (With a dedicated universal access number, only M CCS calls are accepted.)

---

## Service description Functionality (continued)

---

### Recorded active and passive announcements

Announcements are classified by whether the subscriber can interrupt them, as follows:

- *active announcements*—can be interrupted by the subscriber. To interrupt an announcement before it has completed playing, the subscriber presses any key.
- *passive announcements*—cannot be interrupted. Subscribers must listen to the complete announcement before moving on to the next stage of call flow. For example, the announcement that plays before the subscriber is connected to an operator (“Please hold for an operator.”) is a passive announcement.

### Customized announcement sets and operator routing

You can allow voice prompt services at the trunk level or for each universal access number. Also, for each universal access number, you can customize

- the announcement set that callers hear (allows call branding for each universal access number to be different)
- the operator position that the call routes to (allows operator routing to vary for each universal access number)

**For more information** on setting up voice prompts at the trunk level and setting up announcement sets and operator routing for universal access numbers, see the “Implementation” portion of this section.

### Interaction with other MCCS services

Voice Prompt service requires Basic service and can co-exist with tones functionality on the same switch. For example, you can datafill some universal access numbers for tones and others for voice prompts. Remote Validation service and Quick Call service can also be used in conjunction with voice prompt calls.

**For more information** on Basic, Remote Validation, or Quick Call service, see the sections related to each service.

**Service description**  
**Functionality** (continued)

**Trunk types and Voice Prompt service**

The following shows the types of trunks that can accommodate Voice Prompt service.

DAL, DALTIE	FGA (ONAL)—PTS	FGB (ONAT)—PTS	FGC UA—PTS	FGD		IMT UA—SS7	PRI	MCCS service option
				UA—PTS/SS7	Trans—PTS			
			X	X		X		Voice Prompt service

**Functional overview**

Voice announcements function in the same way that tone prompts do. However, voice announcements allow greater flexibility for call branding, customized announcements, and cases of misdials. Table 3-2 lists the announcements available with Voice Prompt service.

## Service description Functionality (continued)

**Table 3-2**  
**Announcements occurring with universal access calls**

Abbreviation and name	Announcement description	Example	Type of prompt
UAGREET— Universal Access Greeting	Greeting—a welcome message and request for the address	“Welcome to ABC services. Please dial zero plus the number you wish to call.”	Active; subscriber may interrupt by pressing any key
UATCN— Universal Access Travel Card Number	Request for travel card number	“Please enter your travel card number now.”	Active; subscriber may interrupt by pressing any key
INVTN— Invalid Travel Card Number	Validation—the travel card number entered does not match that in the in-switch or remote database	After the first attempt to enter a complete travel card number: “We’re sorry, we are unable to process your travel card number. Please enter it again.”	Active; subscriber may interrupt by pressing any key
PARTIALTCN— Partial Travel Card Number	Partial dial—subscriber has entered a partial travel card number	After the first attempt to enter a travel card number: “You have not entered your entire travel card number. Please try again.”	Active; subscriber may interrupt by pressing any key
FAILTCN— Fail Travel Card Number	Validation—travel card number fails validation on the second attempt or the caller enters a second partial travel card number	“We are unable to process your travel card number. Please hold for an operator.”	Passive; subscriber may not interrupt
—continued—			

## Service description

### Functionality (continued)

**Table 3-2**  
**Announcements occurring with universal access calls** (continued)

Abbreviation and name	Announcement description	Example	Type of prompt
ACCOUNT— Account Code	Validation—This announcement relates to remote validation only when an account code is required.	“Please enter your account number now.”	Active; subscriber may interrupt by pressing any key
CONFIRMATION— Confirmation announcement	Confirmation—indicates the travel card number has passed validation and the call will be completed	“Thank you for using ABC services.”	Passive; subscriber may not interrupt
OPERATOR— Operator	Operator intro—introductory announcement before the subscriber is connected to an operator	“Please hold for the operator.”	Passive; subscriber may not interrupt
UAADDR— Universal Access Address	Request for address—If the subscriber resets or reoriginates the call, this is the announcement played to request the address.	“Please dial zero plus the number you wish to call.”	Active; subscriber may interrupt by pressing any key
INVAC—Invalid account number	Validation—plays when subscriber enters an invalid account number	“We are unable to process your account code. Please enter it again.”	Active; subscriber may interrupt by pressing any key
PARTIALAC— Partial account number	Partial account code—If the subscriber enters a partial account code, this announcement plays.	“We are unable to process your account code. Please enter it again.”	Active; subscriber may interrupt by pressing any key
—continued—			

## Service description Functionality (end)

**Table 3-2**  
**Announcements occurring with universal access calls** (continued)

Abbreviation and name	Announcement description	Example	Type of prompt
INVADDR—Invalid Address	Partial address—Plays when a caller enters a partial address	“We are unable to process the number you dialed. Please try again.”	Active; subscriber may interrupt by pressing any key
FDNZ—First Digit Not Zero	0+ before address—Plays if the caller does not enter a 0 before the address	“We are unable to process the number you dialed. Please dial a 0 plus the number you are calling.”	Active; subscriber may only interrupt by pressing the * key
—end—			

## **Service description**

### **Call flow overview** (end)

---

## **Introduction**

Voice Prompt service works with Remote Validation service and with Quick Call service. Call flow depends on how a subscriber accesses the switch and whether operator services are available.

With universal access calls, the subscriber dials a universal access (UA) number to access the switch. The following call flows show functionality- and feature-related information for universal access calls.

**For more information** on datafill relationships and datafill steps, see “Implementation” in this Voice Prompt service section.

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## Service description

### Call flow: universal access (continued)

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#### Standard, completed call

Figure 3-1 shows an example of a completed universal access call flow. Possible examples of the content of voice announcements appear in quotation marks.

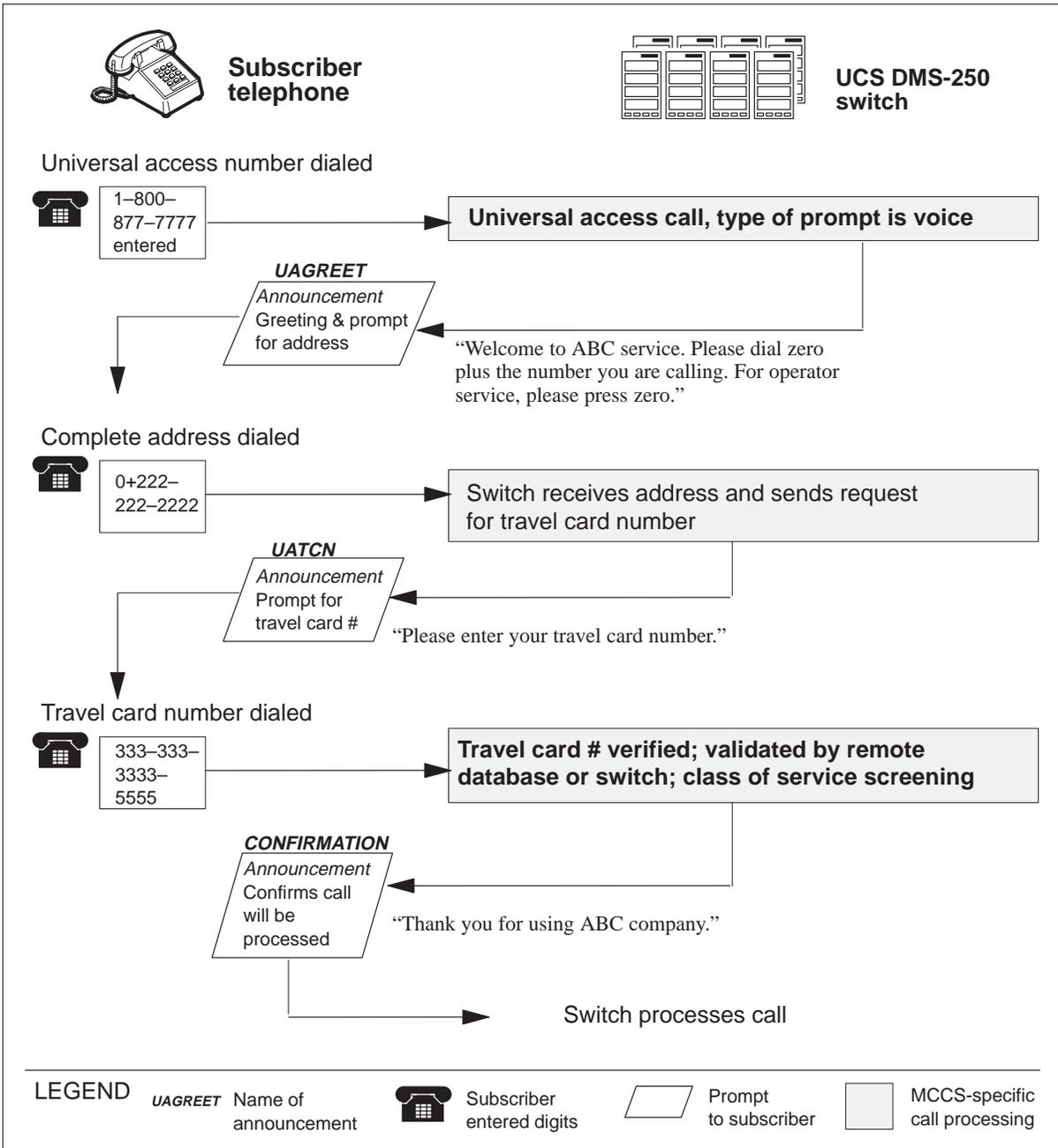
With Voice Prompt service, recorded announcements guide the subscriber through each step in the sequence of placing a travel card call. The following common announcements occur with a standard, completed call:

- **UAGREET**—The Universal Access Greeting announcement requests that the subscriber dial 0+ the address (called number). You can customize this greeting to include call branding, such as “Welcome to ABC service.”
- **UATCN**—The Universal Access Travel Card Number announcement requests that the subscriber enter the travel card number.
- **CONFIRMATION**—After the switch or remote database determines the travel card number is valid, the switch sends the Confirmation announcement to let the subscriber know the call will continue to be processed.

## Service description

### Call flow: universal access (continued)

Figure 3-1  
Call flow: standard, completed UA call with voice prompts



## **Service description**

### **Call flow: universal access** (continued)

---

#### **Standard, completed call with account code**

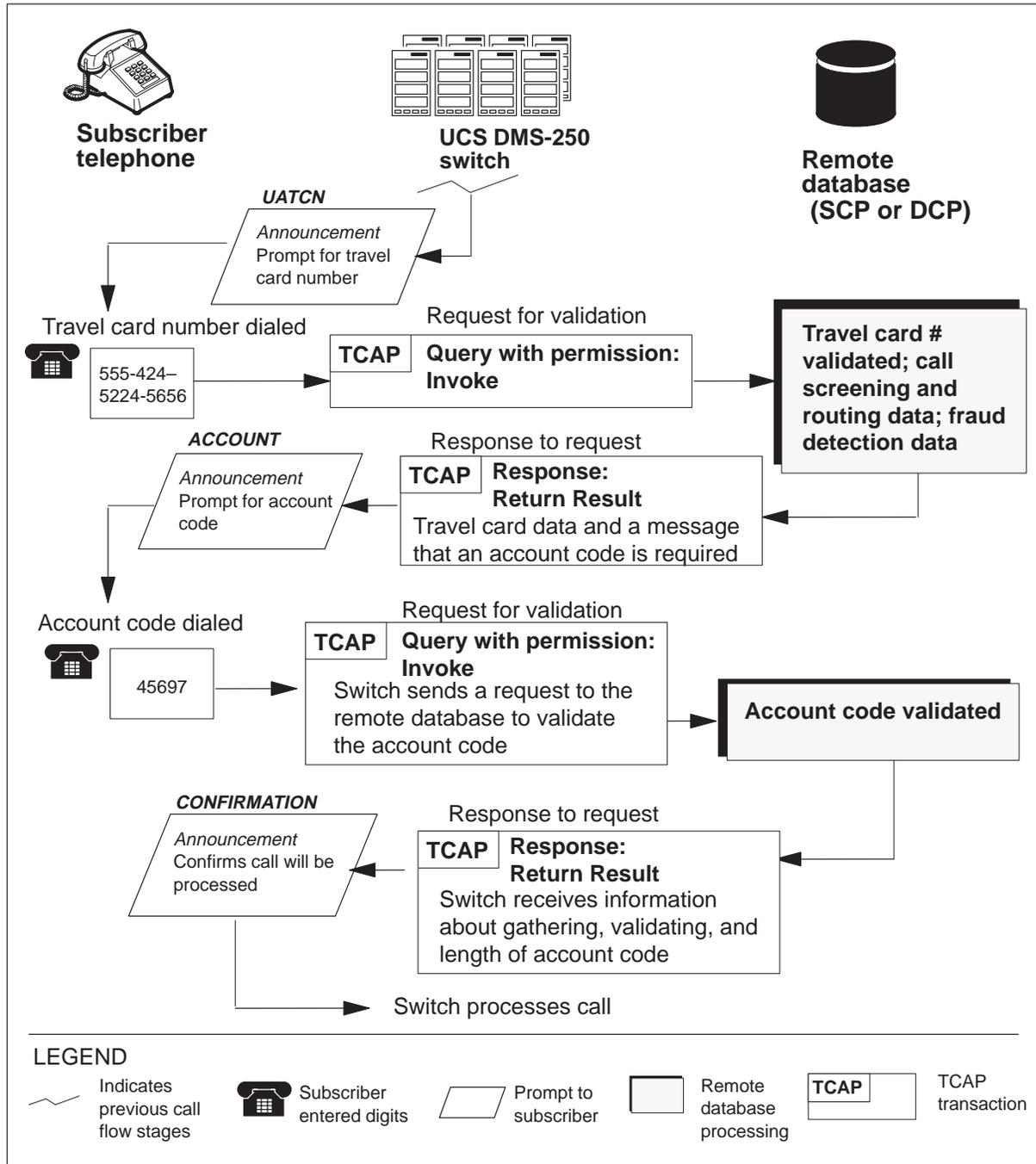
Figure 3-2 shows an example of a completed universal access call flow with remote validation of an account code. Possible examples of the content of voice announcements appear in quotation marks.

After the remote database sends back to the switch in a TCAP transaction the status of the travel card number and the indication that an account code is required, the switch sends the subscriber the ACCOUNT announcement. This announcement requests that the subscriber enter their account code. Another TCAP query initiates to have the remote database validate the account code.

## Service description

### Call flow: universal access (continued)

Figure 3-2  
Call flow: standard, completed call with account code



**Service description**  
**Call flow: universal access** (continued)

---

**Variations from standard, completed call**

Variations from a standard, completed call are explained in the following information:

- reset, no digits, and partial address dialing after address prompt
- partial dialing of address after address prompt
- 0– dialed for an operator after address prompt
- first digit dialed is not 0 after the address prompt
- reset dialed after travel card prompt
- partial travel card number dialed after travel card prompt
- no digits dialed after travel card prompt
- first digit dialed is 1 after travel card prompt
- 0– dialed for an operator after travel card prompt
- invalid travel card number dialed after travel card prompt
- reorigination

## Service description

### Call flow: universal access (continued)

---

#### After address prompt: reset and no digits dialing

Figure 3-3 shows the call flow variations after the address prompt: reset and no digits dialed by the subscriber.

#### Reset dialed

Reset dialing allows callers to correct their dialing errors. A caller can return to the beginning of the dialing sequence without losing a connection with the switch. To reset and enter the address digits again, the caller presses the \* key (the reset digit) once or twice, as follows:

- *reset for current dialing phase*—Subscriber presses \* (the reset key once). This allows the subscriber to return to the beginning of the current phase of digit collection and enter the digits again.
- *reset for previous dialing phase*—Subscriber presses \*\* (the reset key twice). This allows the subscriber to return to the beginning of the previous phase of digit collection and enter the digits again.

When a reset occurs after the address prompt, the switch sends the subscriber the Universal Access Address (UAADDR) announcement and waits for address digits.

The subscriber is allowed three resets for each dialing phase (after prompt for address and travel card number).

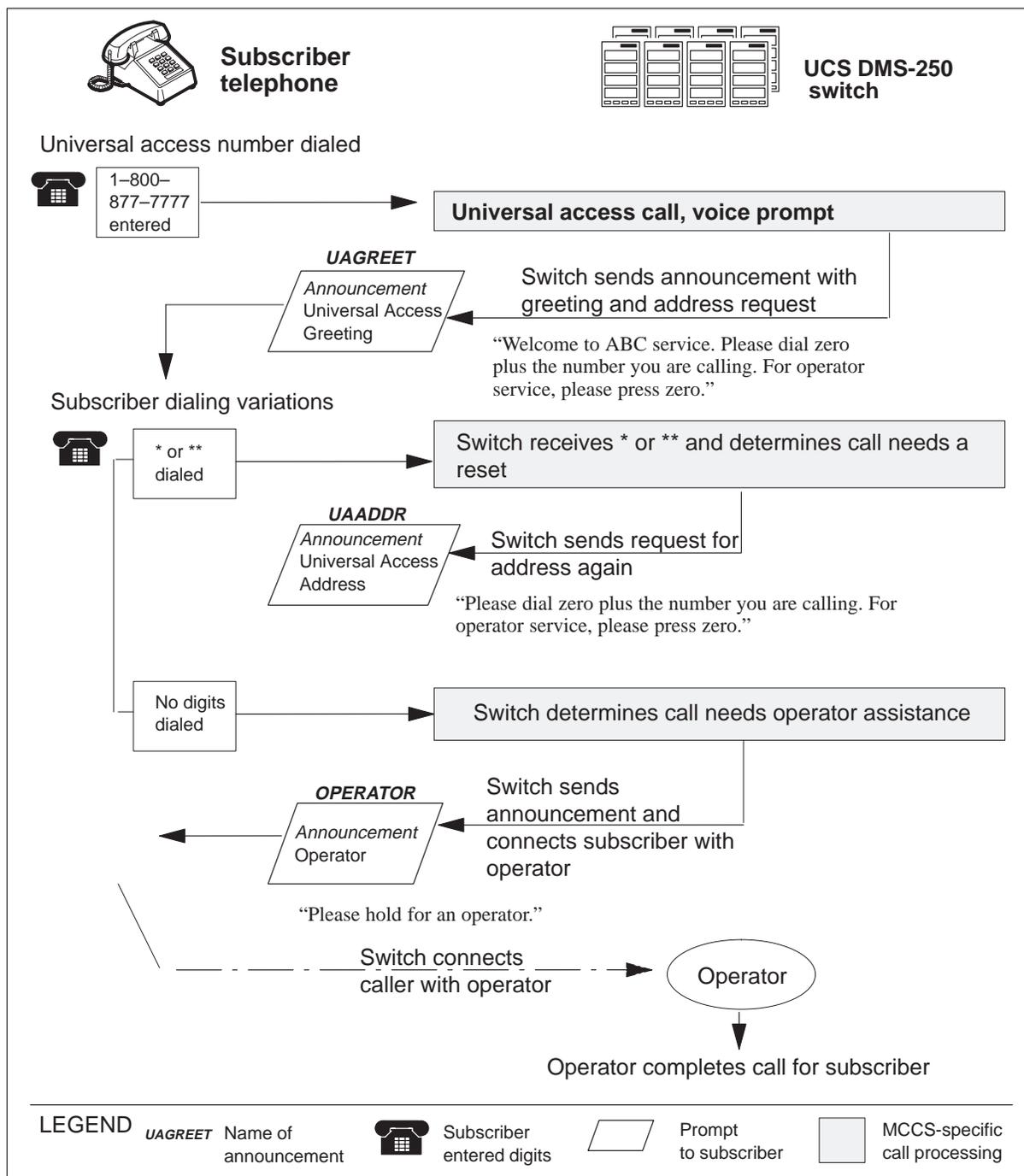
#### No digits dialed

When no digits are dialed after the address prompt, the switch begins a timer and waits for address digits. If the timer expires and the switch has not received any digits, the switch sends the Operator announcement. This passive announcement does not allow the subscriber to interrupt it by pressing a digit. The switch then connects the subscriber to an operator.

## Service description

### Call flow: universal access (continued)

**Figure 3-3**  
Call flow after address prompt: reset and no address digits dialed



## **Service description**

### **Call flow: universal access** (continued)

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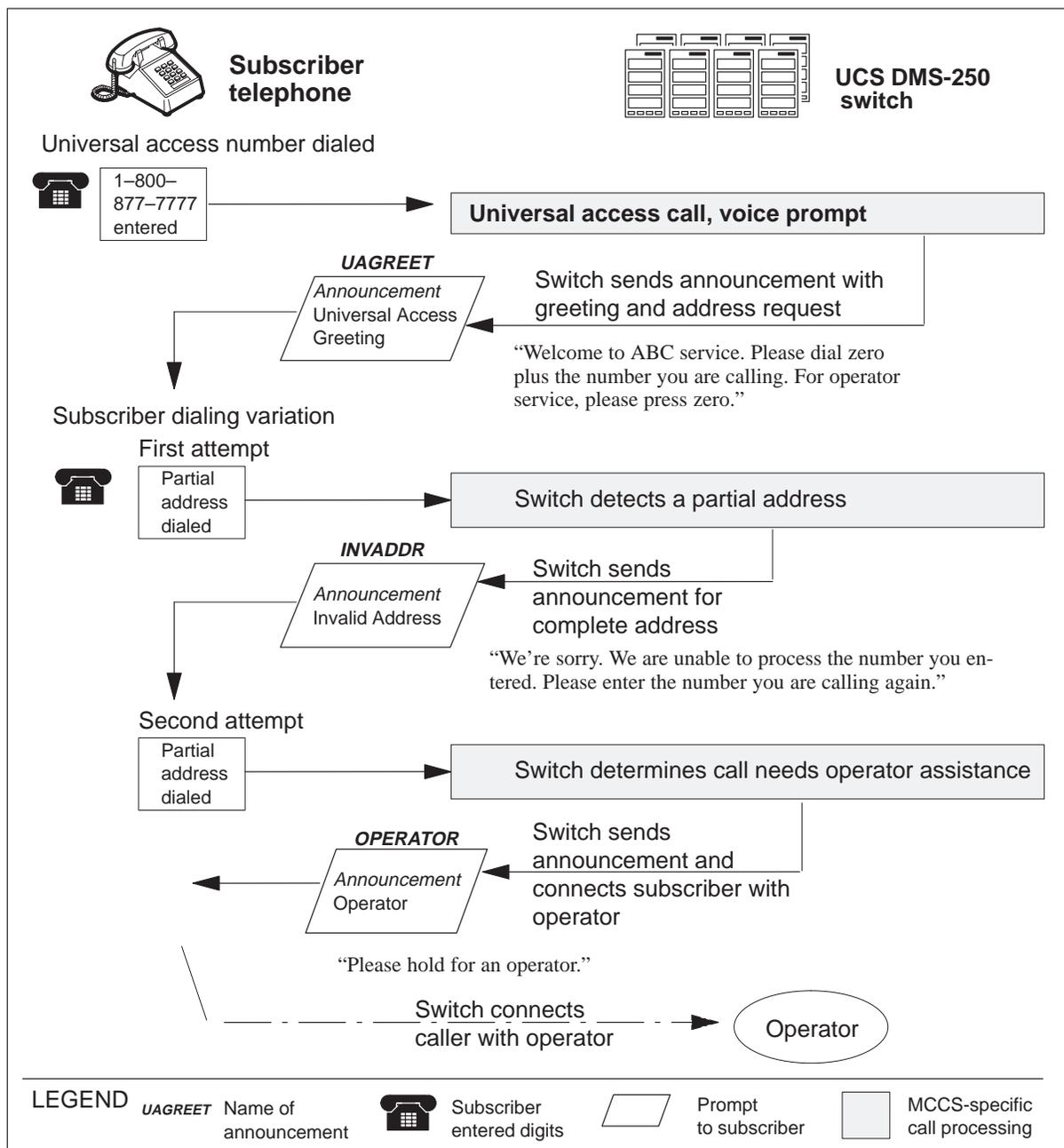
#### **After address prompt: partial dialing**

As shown in Figure 3-4, after the subscriber starts to enter address digits, the switch begins a timer and waits for remaining digits. If the timer expires and the switch does not receive the remaining address digits, the switch sends the subscriber an Invalid Address (INVADR) announcement and allows a second attempt. If the second attempt to dial the address fails, the switch sends the Operator announcement and connects the subscriber with an operator.

## Service description

### Call flow: universal access (continued)

**Figure 3-4**  
Call flow after address prompt: partial dialing of address



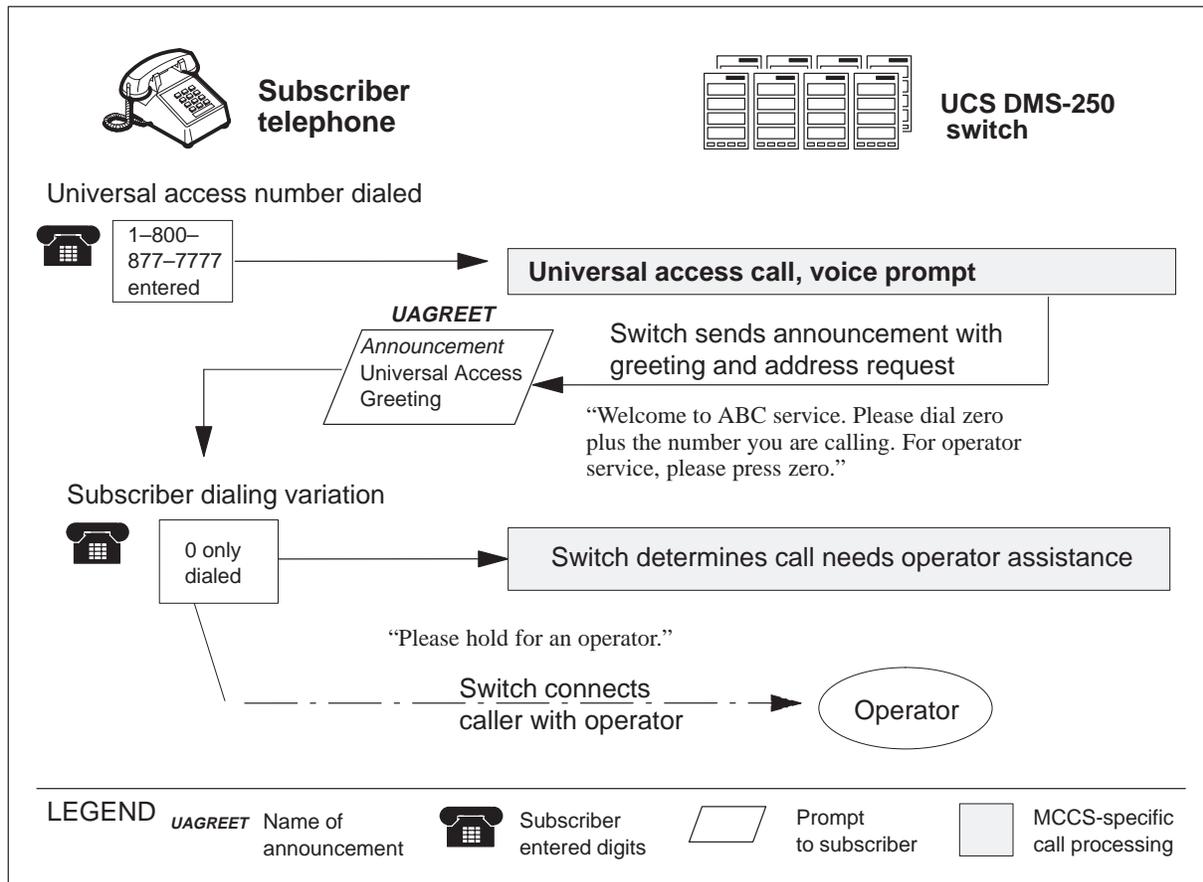
## Service description

### Call flow: universal access (continued)

#### After address prompt: 0– dialed for operator services

As shown in Figure 3-5, the following occurs when a subscriber dials 0– for the operator after the Universal Access Greeting announcement. The switch determines the call requires operator assistance and connects the subscriber with an operator.

**Figure 3-5**  
Call flow after address prompt: 0– dial



**Service description**  
**Call flow: universal access** (continued)

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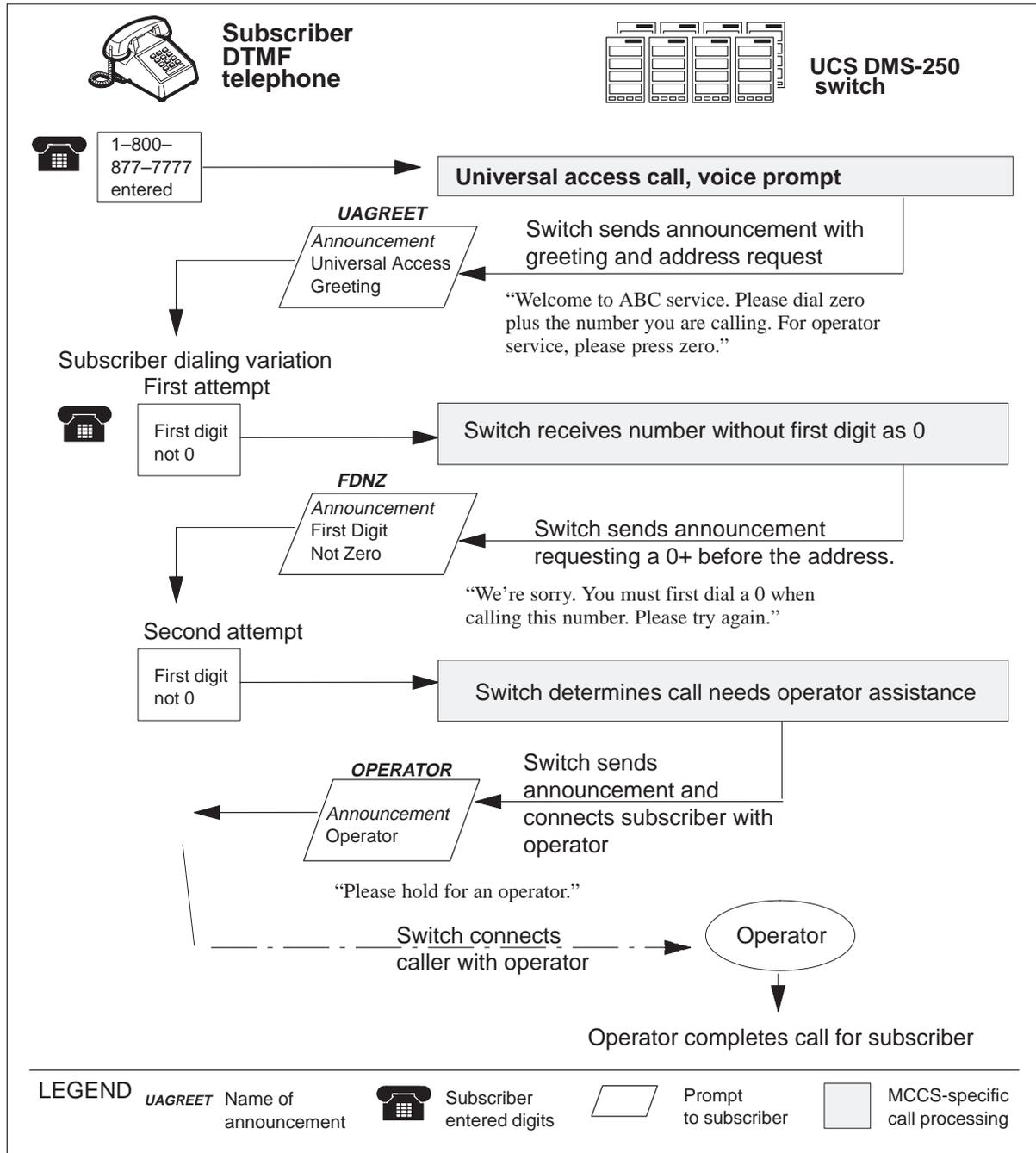
**After address prompt: first digit dialed is not 0**

As shown in Figure 3-6 , if a subscriber does not dial 0+ the address digits, the switch sends the First Digit Not Zero announcement and waits for a second attempt. If the second attempt fails also, the switch sends the Operator announcement and connects the subscribe to an operator.

## Service description

### Call flow: universal access (continued)

Figure 3-6  
Call flow after address prompt: first digit dialed before address not 0



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## Service description

### Call flow: universal access (continued)

---

#### After travel card prompt: reset dialed

Reset dialing allows callers to correct their dialing errors. A caller can return to the beginning of the dialing sequence without losing a connection with the switch. As shown in Figure 3-7, reset dialing functions in this way:

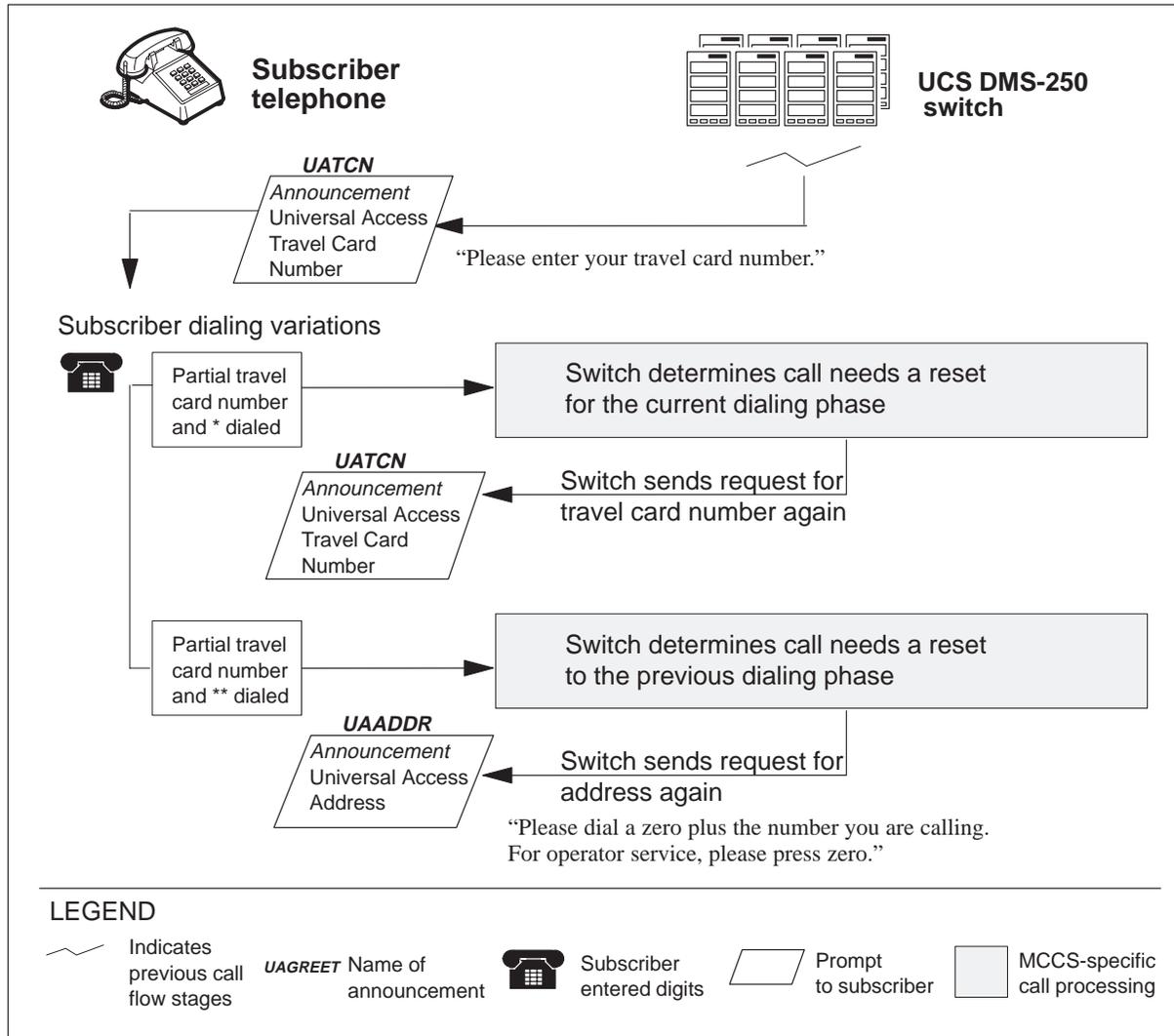
- *reset for current dialing phase*—Subscriber presses \* (the reset key) once. The switch sends the Universal Access Travel Card announcement requesting the travel card number again and allows the subscriber to enter the travel card number.
- *reset for previous dialing phase*—Subscriber presses \*\* (the reset key) twice. The switch sends the Universal Access Address announcement requesting the address and allows the subscriber to enter the address again.

The subscriber is allowed three resets for each dialing phase (after prompt for address and travel card number).

## Service description

### Call flow: universal access (continued)

Figure 3-7  
Call flow after travel card prompt: reset dialing



## Service description

### Call flow: universal access (continued)

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#### After travel card prompt: partial travel card number dialed

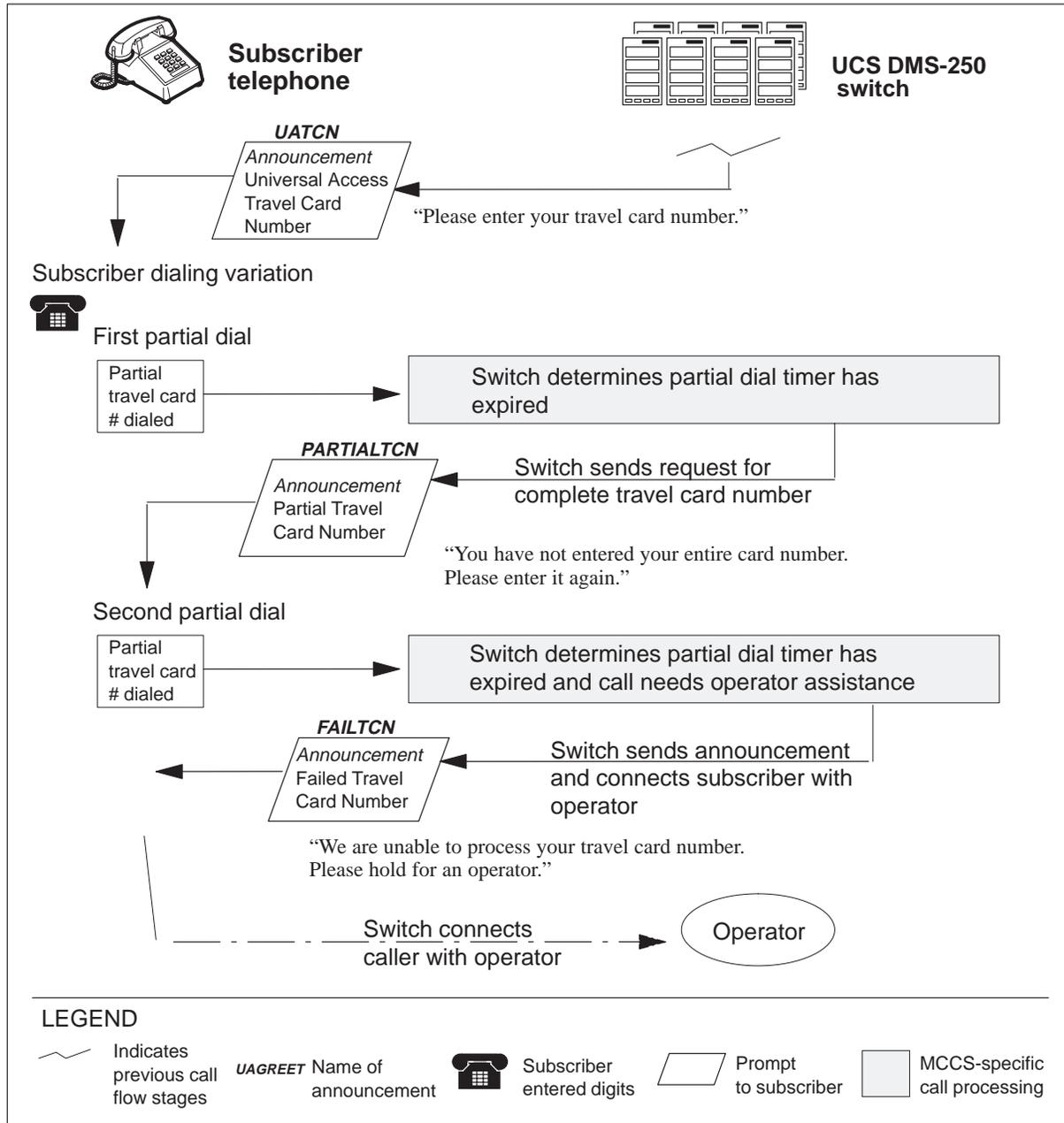
As shown in Figure 3-8, call flow for partial dialing of a travel card number is as follows:

- *first partial dial attempt*—After the subscriber starts to enter travel card digits, the switch begins a timer and waits for the remaining digits. If the timer expires and the switch does not receive the remaining travel card digits, the switch sends the subscriber the Partial Travel Card Number (PARTIALTCN) announcement to request the travel card number be entered again. The subscriber then has another chance to enter the travel card number.
- *second partial dial attempt*—After the first timeout period, the switch begins another timer to wait for the travel card number. If the switch has not received the complete travel card digits before the second timer expires, the switch sends the Failed Travel Card Number (FAILTCN) announcement and connects the subscriber with an operator.

## Service description

### Call flow: universal access (continued)

Figure 3-8  
Call flow after travel card prompt: partial dialing of travel card number



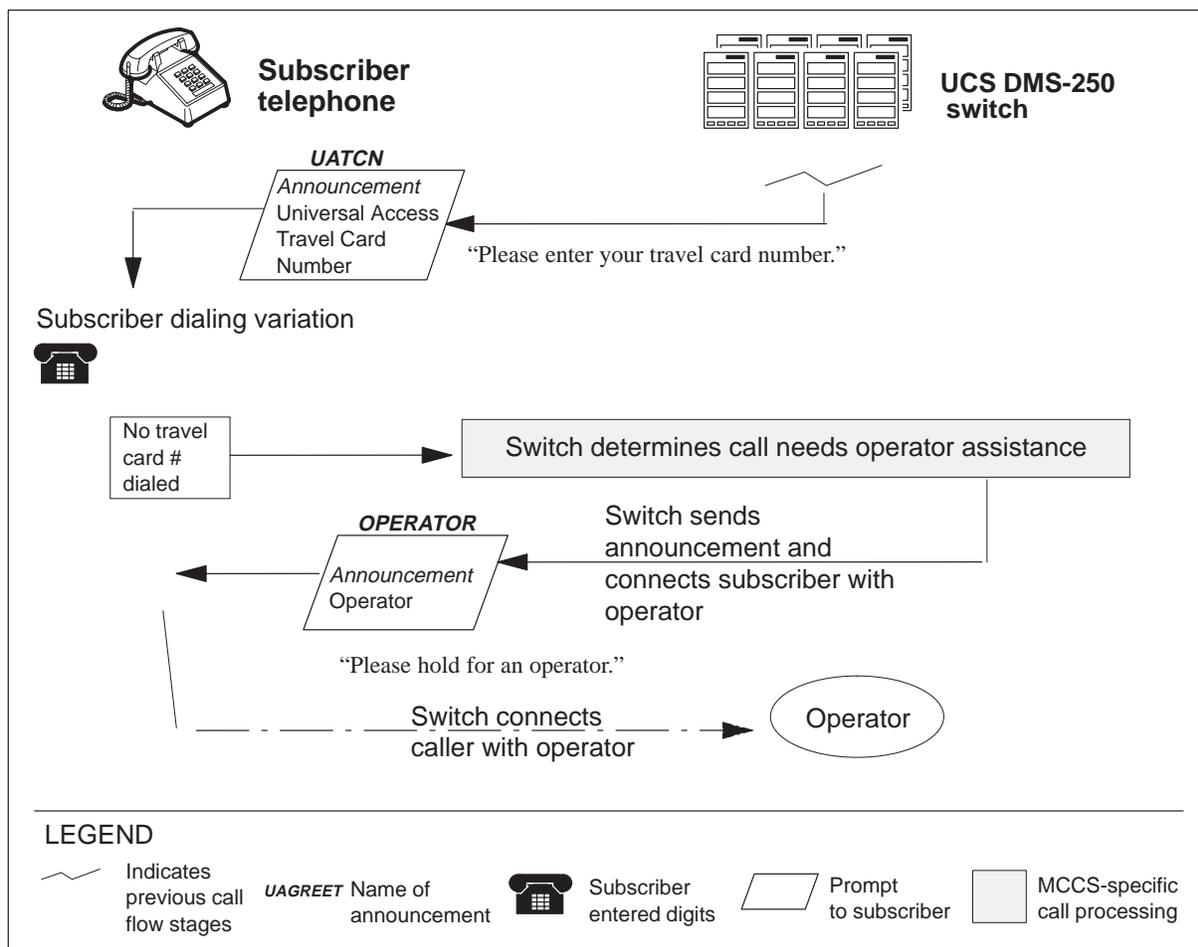
## Service description

### Call flow: universal access (continued)

#### After travel card prompt: no travel card digits dialed

As shown in Figure 3-9, when the subscriber fails to dial a travel card number, the switch sends an Operator announcement and connects the subscriber to an operator.

**Figure 3-9**  
Call flow after travel card prompt: no travel card digits dialing



## **Service description**

### **Call flow: universal access** (continued)

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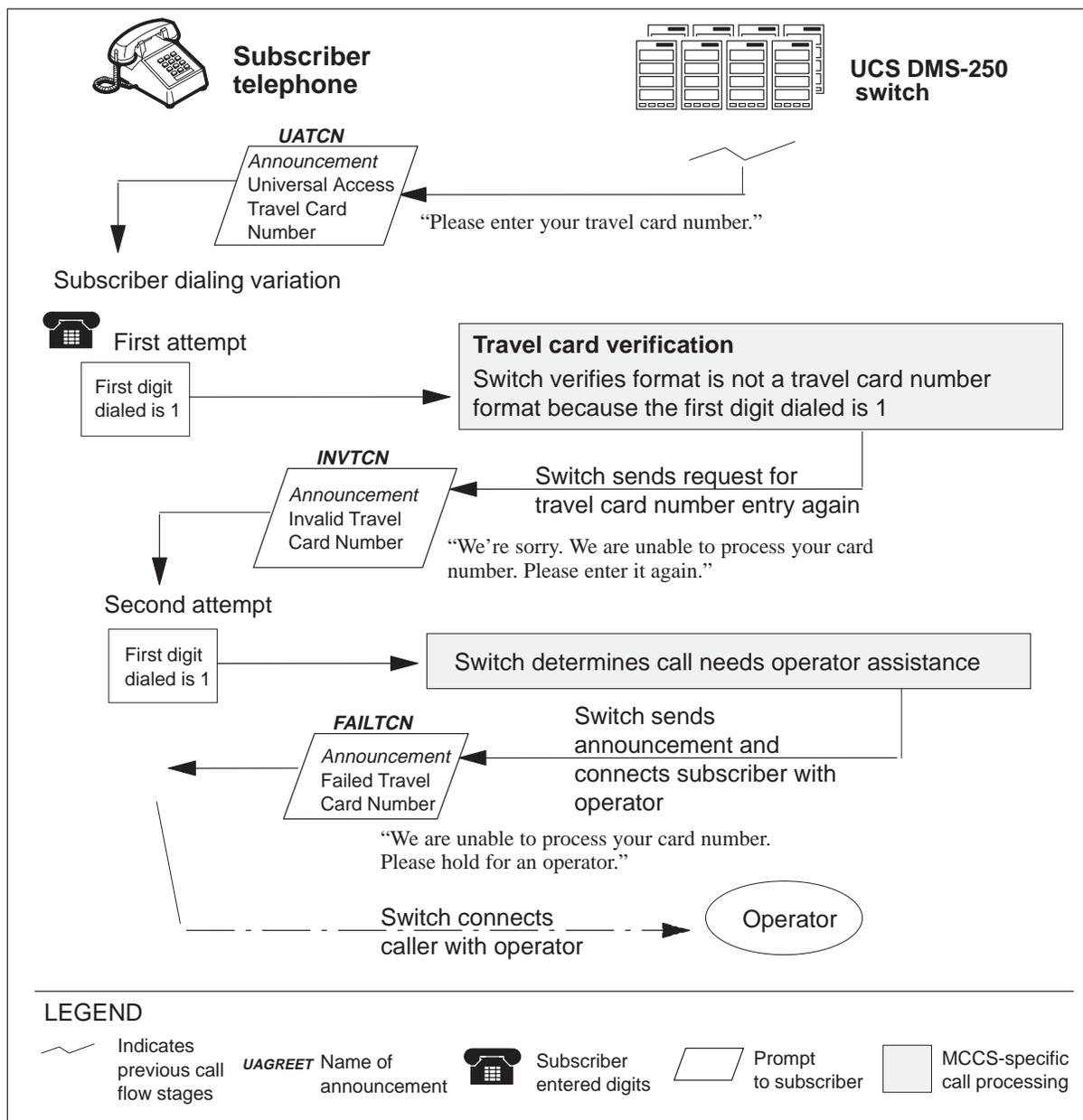
#### **After travel card prompt: first digit dialed is 1**

As shown in Figure 3-10, the following occurs if the subscriber dials a 1 for the first digit of the travel card number. The switch verifies the format of the number entered is valid for a travel card number. If the first digit the subscriber enters is 1, the number fails validation and sends the Invalid Travel Card (INVTCN) announcement. If the second attempt at validation fails after the subscriber enters the number again, the switch sends the Failed Travel Card Number (FAILTCN) announcement and connects the subscriber with an operator.

## Service description

### Call flow: universal access (continued)

**Figure 3-10**  
Call flow after travel card prompt: first digit dialed is 1

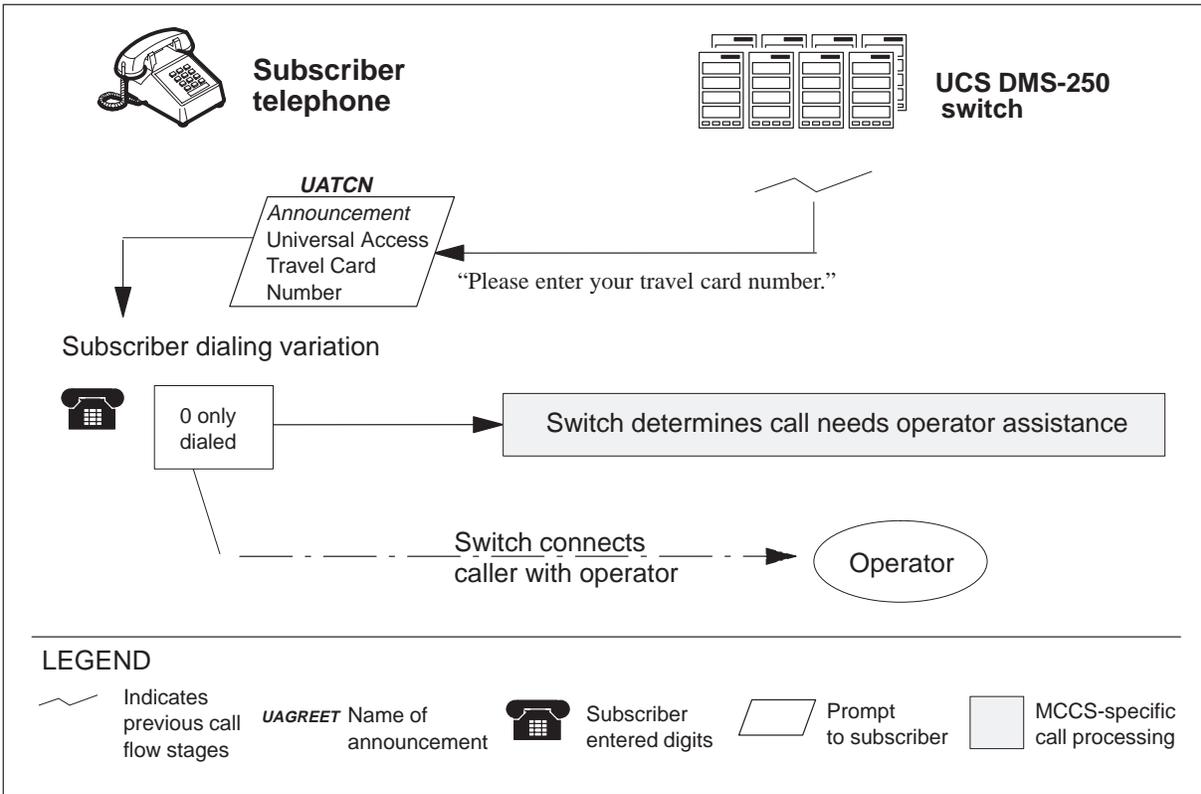


**Service description**  
**Call flow: universal access (continued)**

**After travel card prompt: 0– dialed for operator services**

As shown in Figure 3-11, the following occurs when a subscriber dials 0– after the prompt for the travel card number. When a subscriber dials 0– after the request for the travel card number, the switch connects the subscriber to an operator.

**Figure 3-11**  
**Call flow after travel card prompt: invalid travel card number dialed**



**Service description**  
**Call flow: universal access** (continued)

---

**After travel card prompt: invalid travel card number dialed**

As shown in Figure 3-12, after the subscriber enters a travel card number, the switch searches its database to determine whether the number is valid. If it cannot find the number in its database or if it is datafilled as invalid, the switch

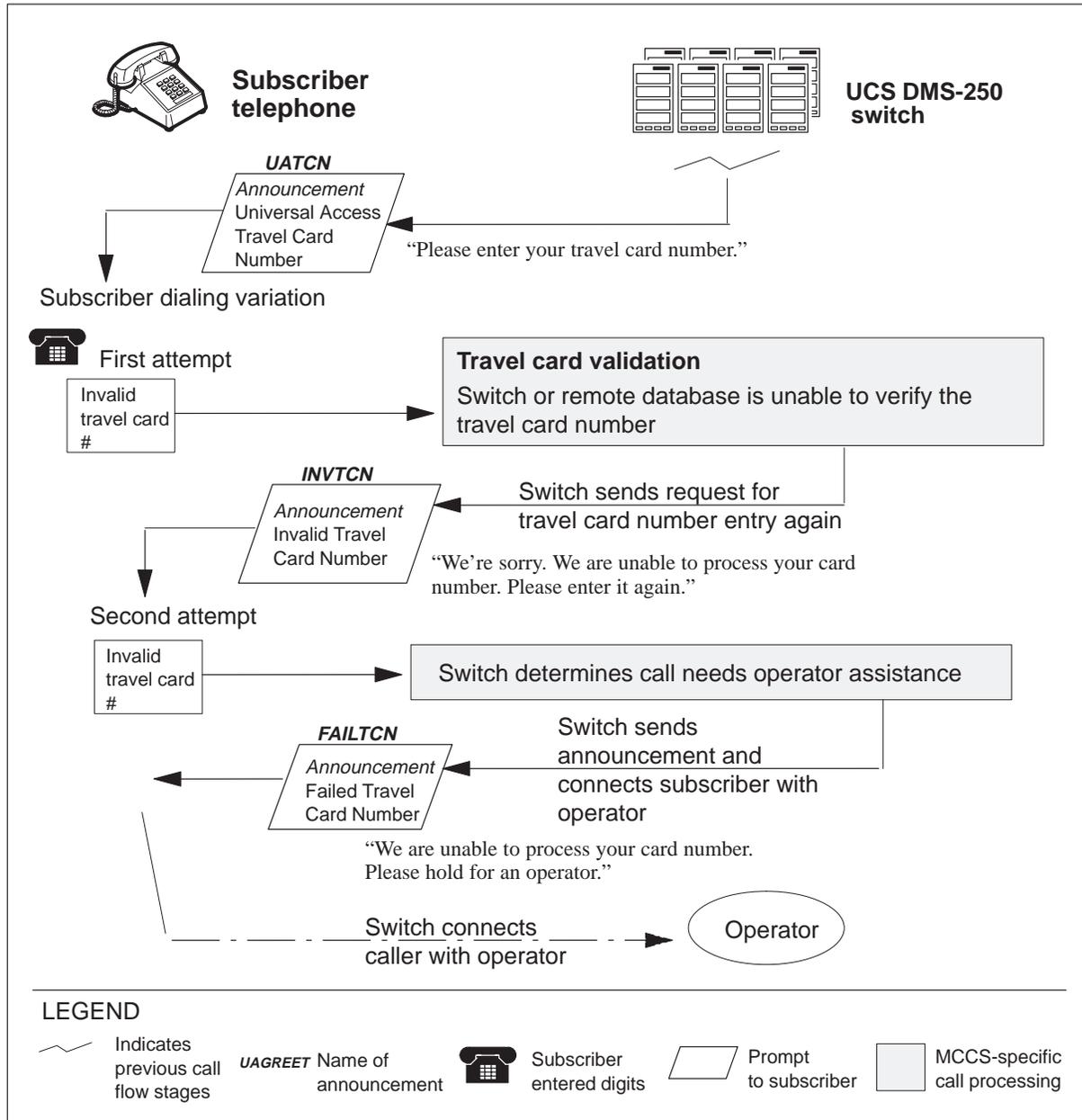
- sends the Invalid Travel Card Number (INVTCN) announcement
- allows the subscriber another attempt to enter the number

If the second attempt fails, the switch sends the Failed Travel Card Number (FAILTCN) announcement and connects the subscriber to an operator.

## Service description

### Call flow: universal access (continued)

Figure 3-12  
Call flow after travel card prompt: invalid number dialed



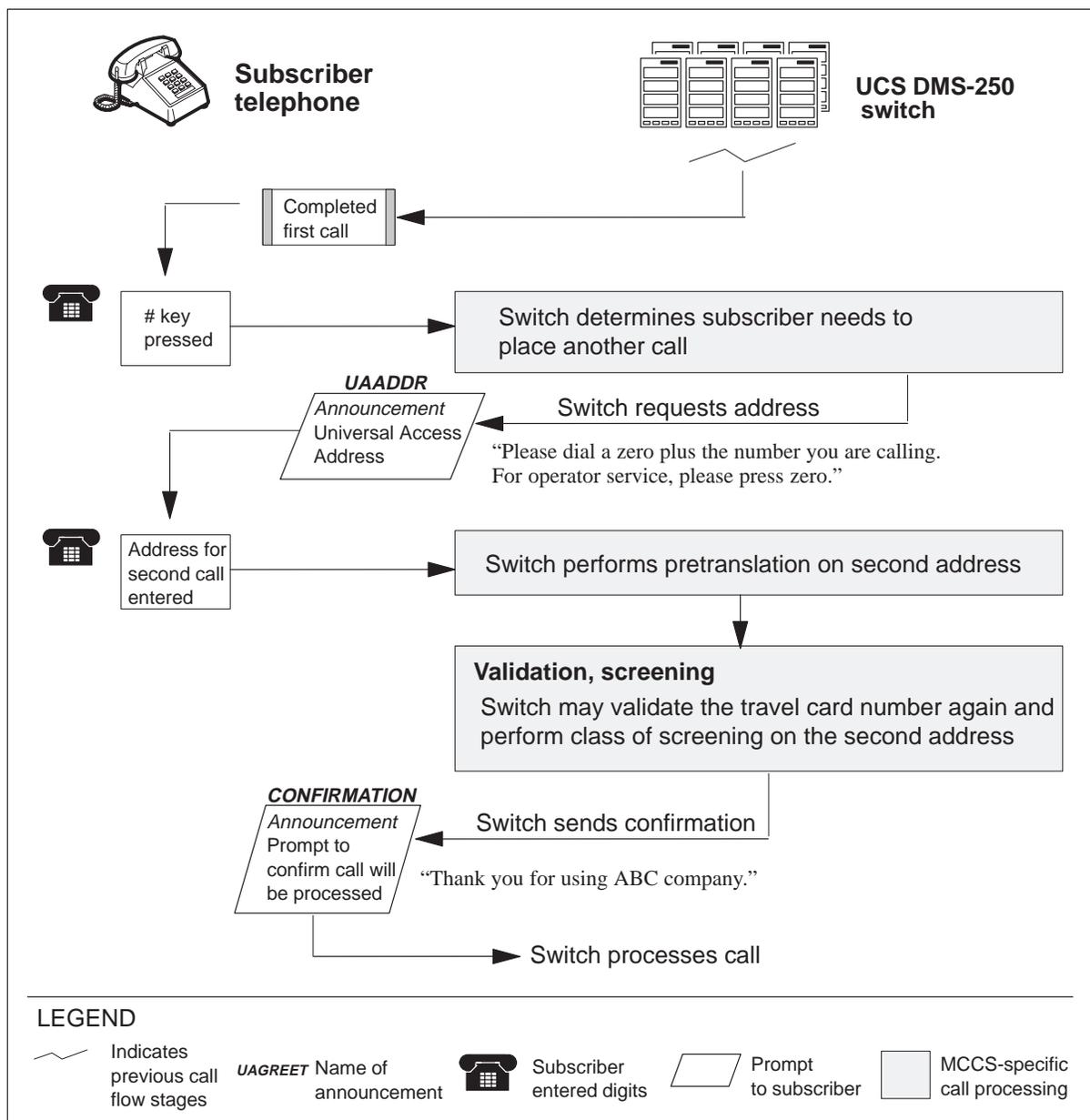
## Service description

### Call flow: universal access (continued)

#### Reorigination

Manual reorigination with voice prompts functions the same way it does for Basic service. However, the switch sends the subscriber announcements instead of tones, as shown in Figure 3-13.

**Figure 3-13**  
Call flow: reorigination



## **Service description**

### **Call flow: universal access** (continued)

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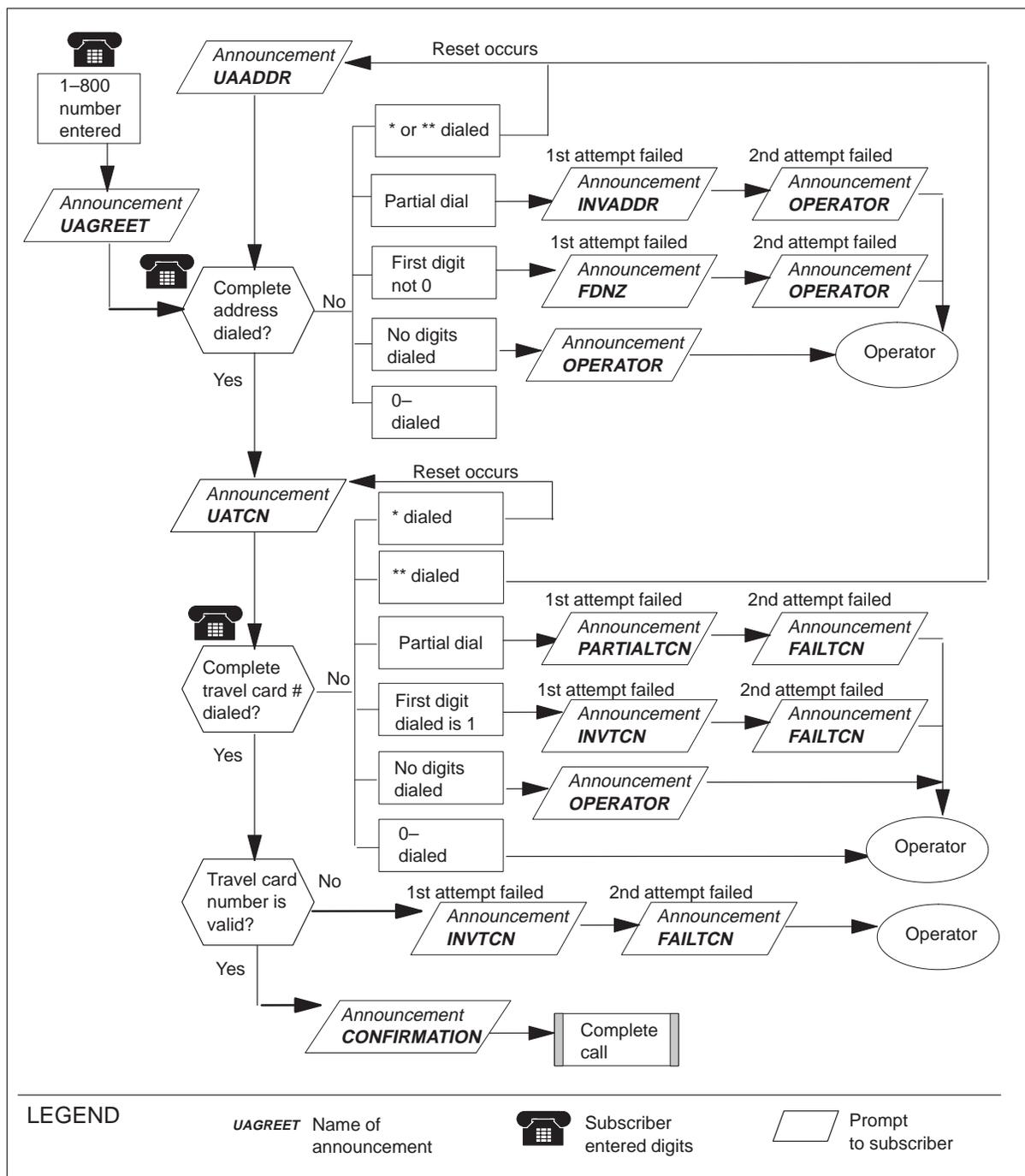
#### **Summarized call flow**

Figure 3-14 summarizes the previous call flow diagrams shown in this section. The figure shows the call flow for both a standard, completed call and the dialing variations of a subscriber for a universal access call.

## Service description

### Call flow: universal access (end)

**Figure 3-14**  
Call flow example: standard, completed and dialing variations



## Implementation

### Introduction (continued)

### Introduction

This section contains information that is crucial for activating and maintaining Voice Prompt service. The section begins with overview information and ends with detailed information on datafill for each table, as explained in the following:

- *Introduction*—contains an overview about how tables and their datafill relate to and are dependent upon each other
- *Datafill relationships*—explains how datafill activates various functions of Voice Prompt service
- *Datafill steps*—lists and explains required steps and sequences for entering datafill
- *Datafill*—explains for each table the datafill you must enter to activate and maintain functionality of the service

**For more information** on basic explanations of the datafill process, see “Appendix F: Datafill” in this manual.

### Trunk types and Voice Prompt service

DAL, DALTIE	FGA (ONAL)—PTS	FGB (ONAT)—PTS	FGC UA—PTS	FGD		IMT UA—SS7	PRI	MCCS service option
			UA—PTS/SS7	Trans—PTS				
			X	X		X		Voice Prompt service

### Hardware requirements

Table 3-3 lists the hardware requirements for Voice Prompt service.

## Implementation Introduction (continued)

**Table 3-3**  
**Hardware requirements—Voice Prompt service**

Service option	Function	Explanation	Hardware requirements
Voice Prompt, CRDS0003	Voice announcements	Storage and play of recorded announcements; customizing of announcements	Enhanced digital recorded announcement machine (EDRAM) NT1X80AA ( <i>highly recommended</i> )  —OR—  Digital recorded announcement machine (DRAM) NT1X75BA; and RAM card NT1X77AA; and EEPROM card NT1X79AA
CLD/CLG Number Query	Provide calling number, called number, and call type to remote validation database	Allows enhanced validation screening by remote database	No additional hardware required

### Datafill relationships and highlights

The following describes how tables and their datafill relate to each other to activate and maintain Voice Prompt service.

#### Universal access calls

The following tables and office parameters function together to activate universal access calls with voice prompts. The following is a high-level description of these tables and parameters. For more detailed information on datafill dependencies, see the following areas of this implementation section: *Datafill relationships*, *Datafill steps*, and *Datafill*.

#### Table TRKGRP

Table TRKGRP contains customer-defined data associated with each trunk group. The following datafill affects Voice Prompt service:

- **OPTION**—With datafill set to VPROMPTS, voice prompt calls are accepted on the trunk.

## Implementation

### Introduction (continued)

---

- **OPTION**—Datafill settings SOPCHIDX and ROPCHIDX work together with datafill in table OPCHOICE to perform customized operator routing across an SS7 IMT network.

#### **Subtable STDPRT**

Subtable STDPRT of table STDPRTCT contains pretranslation information assigned to the universal access number, as follows.

**STDPRT\_UA\_OPTION**—When this option is set to VPROMPTS, voice announcements play to subscribers on trunks with Voice Prompt service activated. The following fields require datafill with the VPROMPTS setting:

- **VPIDX**—This field is the first part of a two-part key (VPIDX and OPIDX) that indexes into table VPROMPTS. Customized announcement sets for a universal access number are located in table VPROMPTS.
- **TABLESEL**—If you enter MVPRTE in this field, the switch performs customized operator routing through table MVPRTE. If you enter OPCHOICE in this field, the switch performs customized operator routing through table OPCHOICE.
- **OPIDX**—OPIDX is the second part of a two-part key (VPIDX and OPIDX) that indexes into either table MVPRTE or table OPCHOICE for customized operator routing.

#### **Table VPROMPTS**

Table VPROMPTS contains the announcements to be played at specific points in the call flow.

#### **Customized operator routing for a UA number**

There are two tables you can choose from to perform customized operator routing for a universal access number: table MVPRTE and table OPCHOICE.

#### **Table MVPRTE**

The MVPOS field of table MVPRTE indexes into table POSITION to obtain an operator position for its corresponding universal access number.

#### **Table OPCHOICE**

Use of table OPCHOICE for customized operator routing provides:

- consistency if you currently use table OPCHOICE for operator routing

## **Implementation Introduction** (continued)

---

- routing the operator routing indicator (OPIDX) for a universal access number across an SS7 IMT network

With the option MCCRTE set in table OPCHOICE, MCCRTE provides a route to the operator position for a universal access call.

When routing occurs over an SS7 IMT network, the operator routing indicator (OPIDX) passes across the network as part of the OPCHOICE Generic Digits parameter in the IAM message. Datafill that controls the sending and receiving of the OPIDX is required in table TRKGRP.

### **Other tables related to voice announcements**

The following tables listed in Table 3-4 must be datafilled to ensure voice announcements function properly.

## Implementation

### Introduction (continued)

**Table 3-4**  
Tables used for optional voice announcements

Function	Table name	Sample datafill
Name of announcement	CLLI	CLLI          ADNUM TRKGRSIZ ADMININF ----- UAGREETANN 14          5          UAGREETING_ANN
Announcement type and play information	ANNS	CLLI          ANTYPE TRAFSNO MAXCONN CYTIME MAXCYC ----- UAGREETANN    STND          0          255          7          1
Active/passive settings and location for announcement	V PROMPTS	KEY          PRPTCLLI    PSIGTIME ----- 0 UAGREET    UAGREETANN 10
Phrase names	DRAMTRK	ANNTRACK    PHSLIST ----- UAGREETANN    0 ( PAUSE ) ( DTMF 1 ) ( DTMF 2 ) ( PAUSE ) \$
Links trunk members to card type and announcement CLLI	ANNMEMS	ANNMEM HDWTYPE CARD MEMINFO ----- UAGREETANN    0          DRAM          DRA ( 0 MTM 0 20 \$ )
Hardware assignment codes	DRAMS	DRAMCARD TMTYPE TMNO TMCKT    CARDCODE CARDINFO ----- 0 0          MTM          0 0          1X75BA C'TLR          DRAM0

### UA voice and tone prompt calls originated on the same trunk

You can allow both tone and voice prompt calls on the same trunk. To do this, you designate tones or voice prompts for a universal access number. The following tables function together to allow voice prompt and tone prompt calls on the same trunk.

#### Table TRKGRP

With datafill in field OPTION set to MCCS and V PROMPTS, both tone and voice prompt calls can be accepted on the trunk.

## **Implementation Introduction (end)**

---

### **Subtable STDPRT**

Field STDPRT\_UA\_OPTION allows you to set the capability for tone or voice prompts for the universal access number. The datafill V\_PROMPTS in this field indicates the universal access number will play voice announcements to subscribers. The datafill \$ or NIL indicates the universal access number will play tone prompts to the subscriber.

### **Table OFCVAR**

MCCS\_POSITION controls the routing of tone prompt calls to the operator. This office parameter is used for all tone prompt calls. On the same trunk, voice prompt calls may receive customized operator routing for a universal access number (through subtable STDPRT, field OPIDX).

## **Implementation**

### **UA calls: datafill relationships** (continued)

---

#### **Introduction**

The following information explains how the datafill affects M CCS Voice Prompt service for universal access calls. You can use the following diagrams along with datafill instructions at the end of this section to understand and datafill Voice Prompt service with a universal access number.

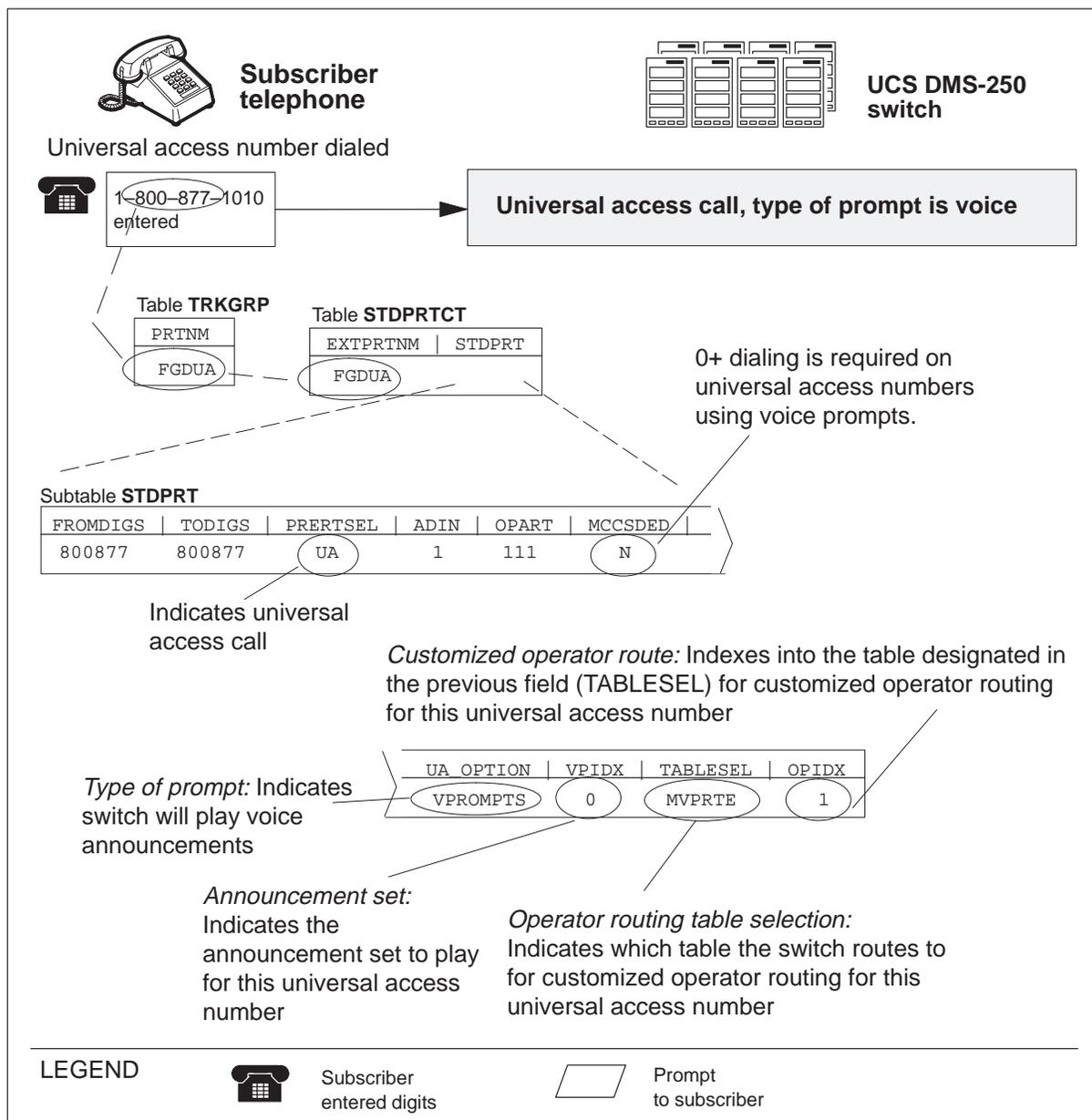
#### **Standard, completed UA call**

Figure 3-15 shows an example of a portion of call flow for a completed universal access call with voice prompts. Only variations from Basic service call flow are shown.

## Implementation

### UA calls: datafill relationships (continued)

**Figure 3-15**  
Call flow and datafill relationships for voice prompt call



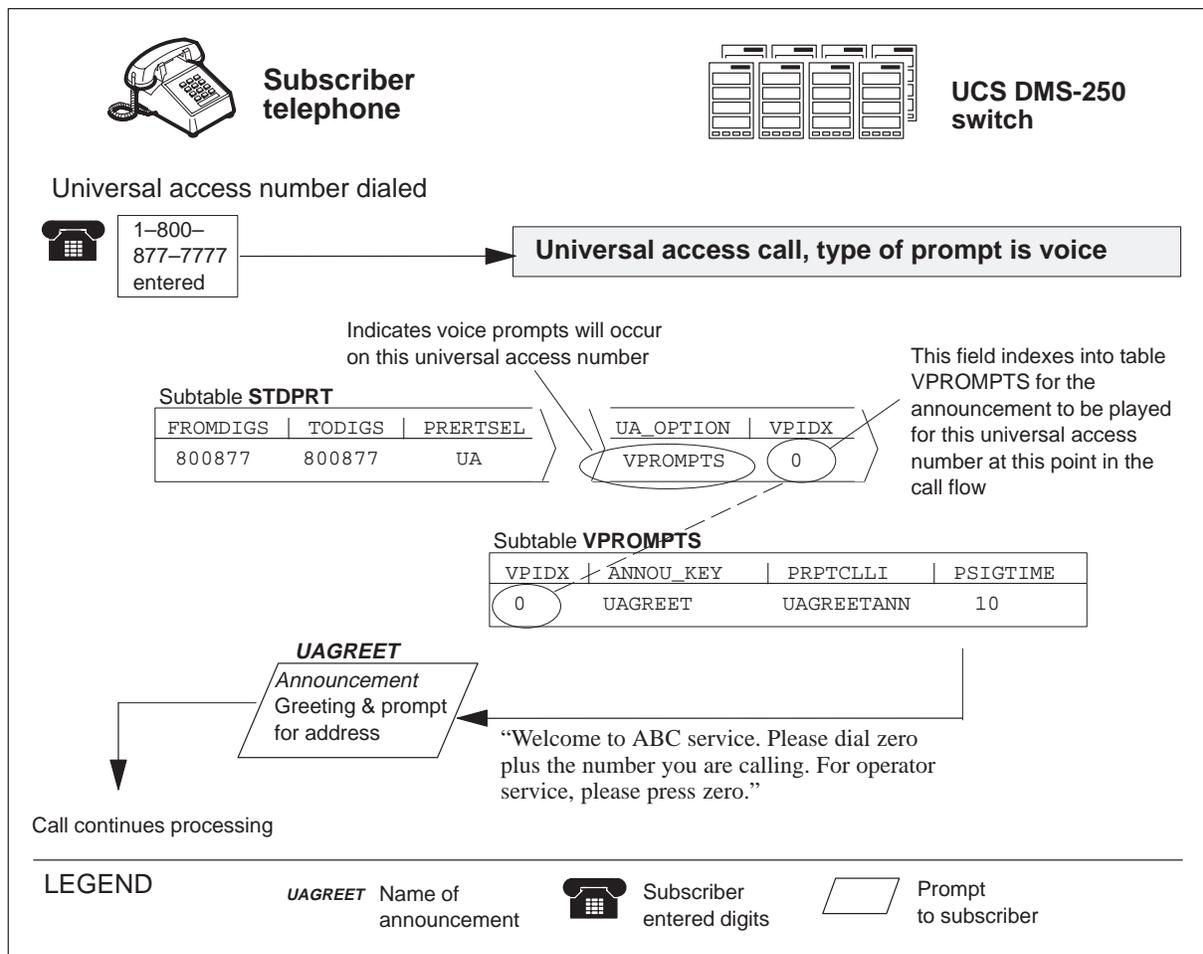
## Implementation

### UA calls: datafill relationships (continued)

#### Accessing voice announcements

During the process of the voice prompt call, the switch refers to the universal access number in table STDPRT and determines voice prompts will occur for this number. Field VPIDX in table STDPRT indexes into table VPROMPTS. Here the switch accesses the appropriate voice announcement to play for the universal access number, as shown in Figure 3-16.

**Figure 3-16**  
Switch accesses announcements for a universal access number



#### Active and passive announcement settings

Subscribers can interrupt active announcements by pressing any key. They cannot interrupt passive announcements. The PSIGTIME setting in table VPROMPTS must be set according to the active or passive status of the announcement.

## Implementation UA calls: datafill relationships (continued)

PSIGTIME is the amount of time in seconds allowed for the subscriber to enter digits after the voice announcement plays. PSIGTIME in table VPROMPTS overrides the PSIG timer in table TRKGRP.

Passive voice prompts (FAILTCN, CONFIRMATION, and OPERATOR) must have a PSIGTIME of 0. Active voice prompts can have a PSIGTIME of 2-30 seconds, as shown in Figure 3-17. The bolded voice prompts in this figure are passive prompts.

**Figure 3-17**  
**PSIGTIME set for passive voice prompts**

Passive announcements must have a PSIGTIME of zero.

Table VPROMPTS

VPIDX	ANNOU_KEY	PRPTCLLI	PSIGTIME
0	UAGREET	UAGREETANN	10
0	UATCN	UATCNANN	10
0	INVTCN	INVTCNANN	10
0	PARTIALTCN	PARTIALTCNANN	10
<b>0</b>	<b>FAILTCN</b>	<b>FAILTCNANN</b>	<b>0</b>
0	ACCOUNT	ACCOUNTANN	10
<b>0</b>	<b>CONFIRMATION</b>	<b>CONFIRMATIONANN</b>	<b>0</b>
<b>0</b>	<b>OPERATOR</b>	<b>OPERATORANN</b>	<b>0</b>
0	UAADDR	UAADDRANN	10

### Customized announcements sets

You can program each universal access number to have its own set of announcements. However, this does not require you to datafill a complete set of announcements for each number. Only a few of the announcements will be likely to vary because of customizing (such as the greeting and confirmation announcements).

#### How announcement sets work

Only one complete announcement set is required in datafill. Additional customized announcement sets only contain the announcements you choose to customize differently from the complete set, such as these three:

- UAGREET—“Welcome to ABC services. Please enter zero plus the address you are calling.”
- CONFIRMATION—“Thank you for using ABC services.”
- OPERATOR—“Please hold for an ABC operator.”

## Implementation

### UA calls: datafill relationships (continued)

#### Datafill for announcement sets

Table 3-5 lists the complete set of announcements. These announcements are required to be part of the complete set and have a VPIDX of 0. Datafill must include one complete set of announcements assigned to a universal access number. In addition to the complete set, you can customize up to 1024 announcements sets. The VPIDX setting associated with each announcement is located in table V PROMPTS and indicates which customized set the announcement belongs to.

**Table 3-5**  
Complete set of announcements for universal access calls

Abbreviation	Name	Example announcement text	Active or passive
UAGREET	Universal Access Greeting	"Welcome. Please dial zero plus the number you are calling. For operator service, please press zero."	A
UAADDR	Universal Access Address	"Please dial zero plus the number you are calling. For operator service, please press zero."	A
UATCN	Universal Access Travel Card Number	"Please enter your card number."	A
INVTCN	Invalid Travel Card Number	"We are unable to process your card number. Please enter it again."	A
FAILTCN	Second Partial or Failed Travel Card Number	We are unable to process your card number. Please hold for operator service."	P
PARTIALTCN	First Partial Travel Card Number	"You have not entered your entire card number. Please enter it again."	A
OPERATOR	Operator	"Please hold for operator service."	P
ACCOUNT	Account Code	"Please enter your accounting code."	A
CONFIRMATION	Confirmation	"Thank you for using our company."	P

In addition to the required set of announcements listed in Table 3-5, there are optional announcements available for use as listed in Table 3-7.

**Implementation**  
**UA calls: datafill relationships** (continued)

**Table 3-6**  
**Announcements available for universal access calls**

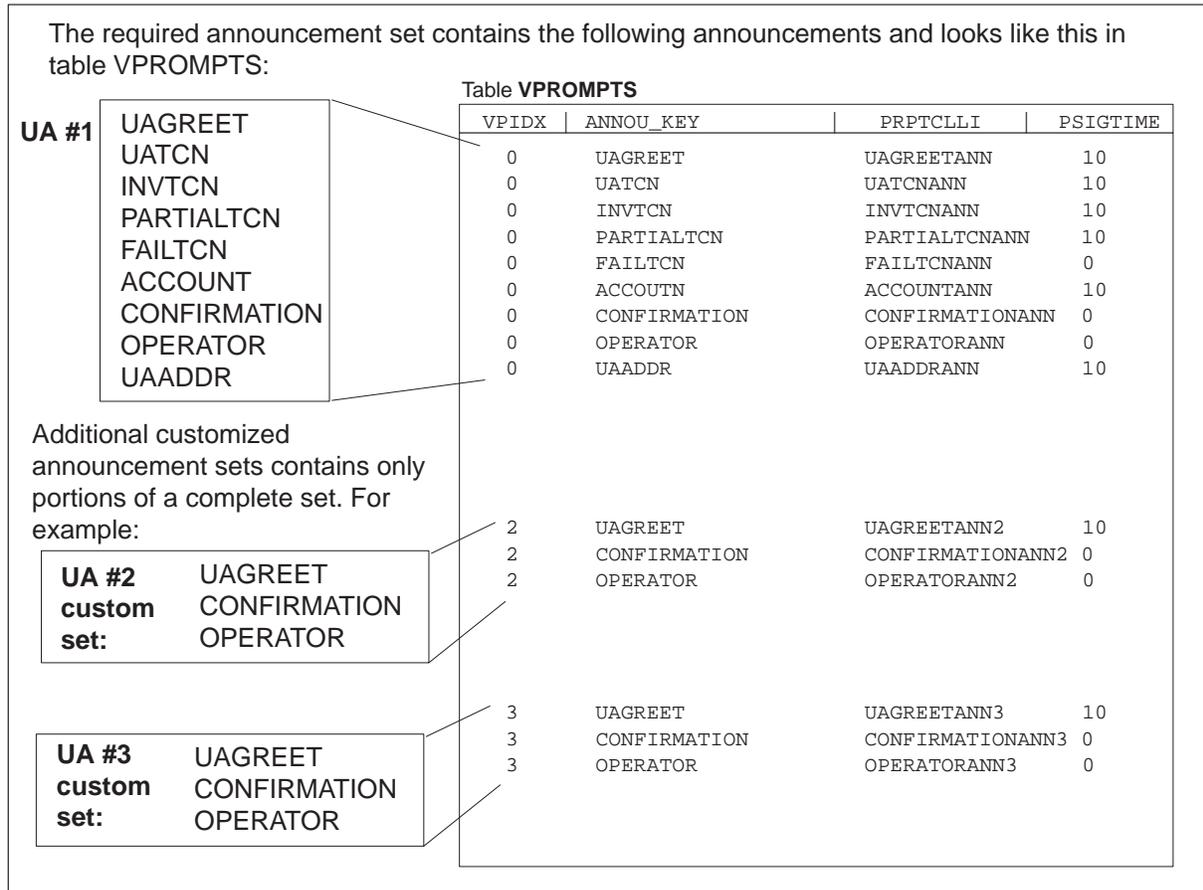
<b>Abbreviation</b>	<b>Name</b>	<b>Example announcement text</b>	<b>Active or passive</b>
INVADDR	Invalid Address	"We are unable to process the number you dialed. Please enter zero plus the number you are calling."	A
PARTIALAC	Partial Account Code	"We are unable to process the account code you entered. Please try again."	A
INVAC	Invalid Account Code	"We are unable to process the account code you entered. Please try again."	A
FDNZ	First Digit Not Zero	"You must first dial a zero when calling this number. Please try again."	A; caller must press * to interrupt

Figure 3-18 shows an example of three announcement sets with the required announcements. The range for VPIDX is from 0–1023. This means you can have up to 1024 customized announcement sets.

## Implementation

### UA calls: datafill relationships (continued)

**Figure 3-18**  
**Announcement set example for three universal access numbers**

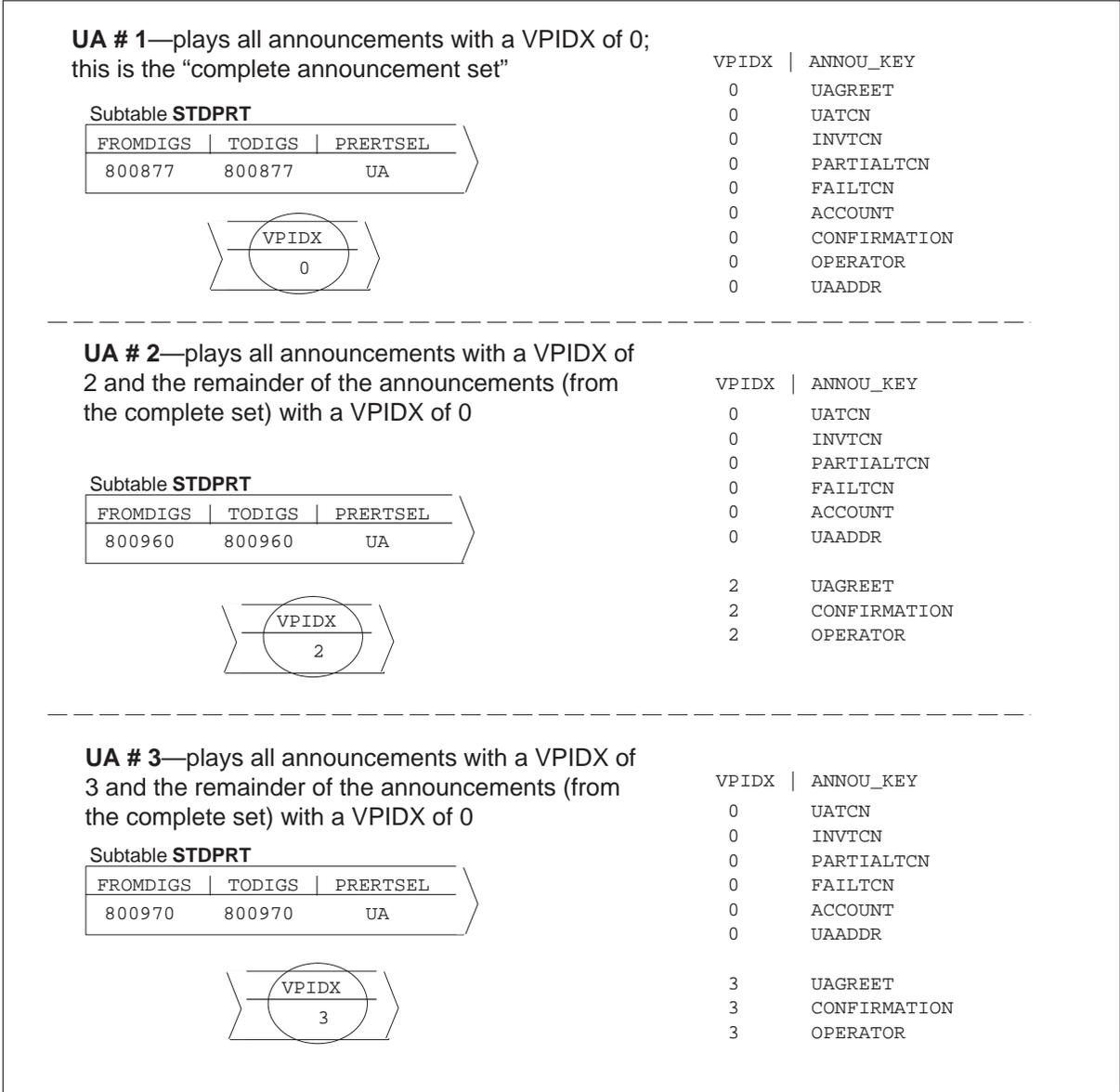


The additional customized announcement sets use portions of the complete announcement set when necessary, as shown in Figure 3-19. The VPIDX field in subtable STDPRT is an index into the announcements in table VPROMPTS.

## Implementation

### UA calls: datafill relationships (continued)

**Figure 3-19**  
**Announcement set example for universal access numbers**



## Implementation

### UA calls: datafill relationships (continued)

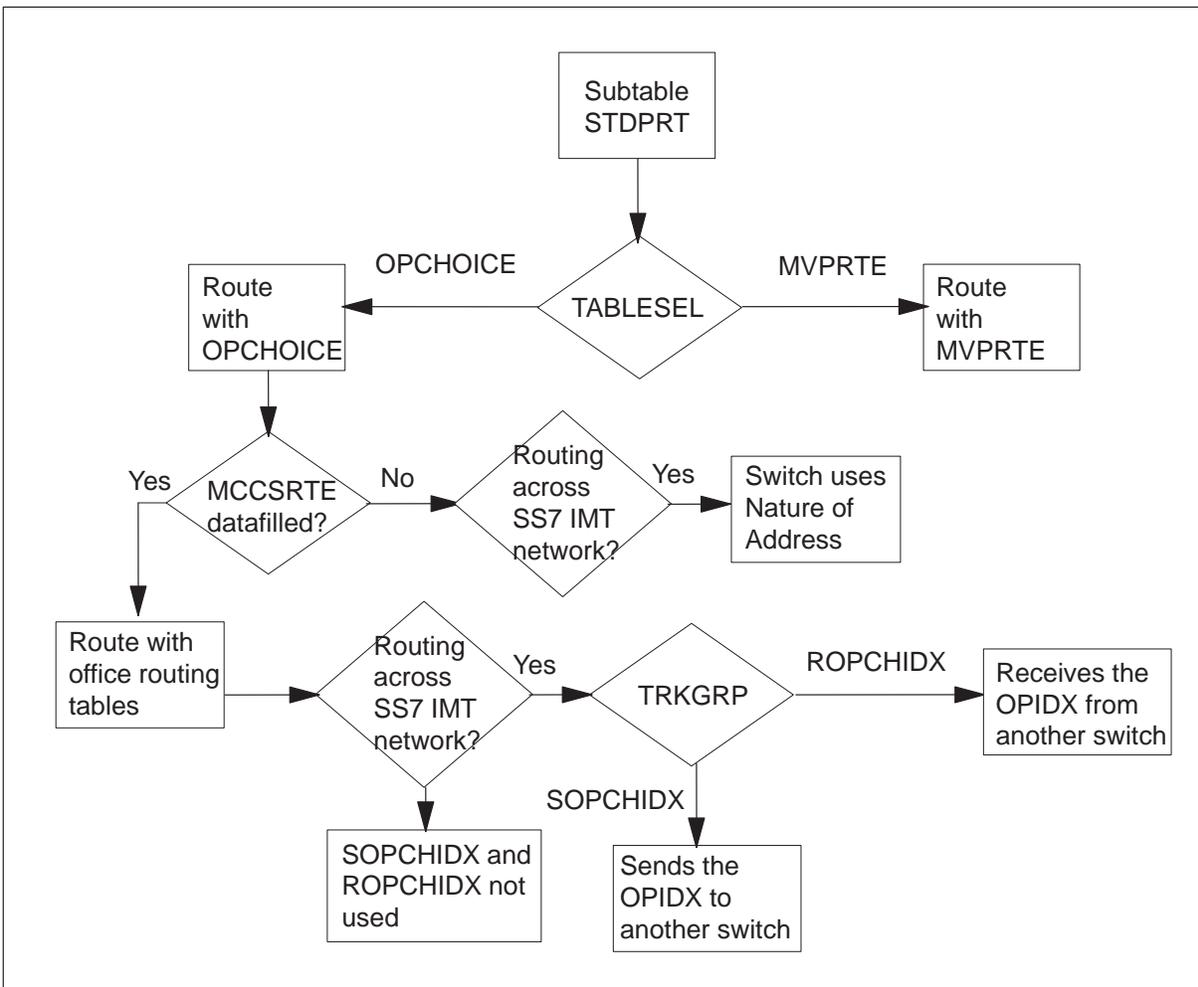
#### Customized operator routing

You can program a universal access number to have its own operator routing.

#### Table choices for customized routing

Customized operator routing is controlled in subtable STDPRT and table MVPRTE or table OPCHOICE as shown in Figure 3-20. This datafill and call flow is explained in the following information.

**Figure 3-20**  
Call flow for operator routing for a universal access number based on datafill choices

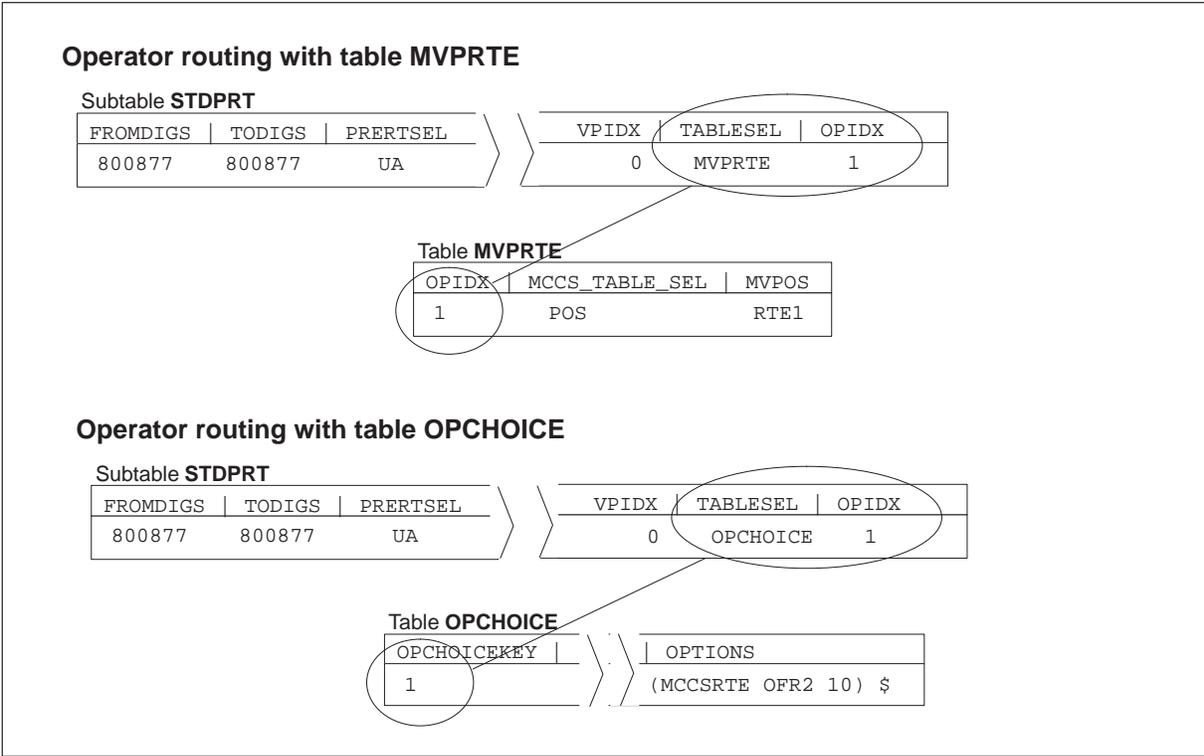


## Implementation

### UA calls: datafill relationships (continued)

Figure 3-20 and 3-21 show that the entry in field TABLESEL determines which table will handle the customized routing. Table OPCHOICE provides added flexibility when routing calls across an SS7 IMT network. If you use table OPCHOICE, the operator routing index (OPIDX) for a universal access number can be transmitted between switches. This means the operator choice index for the operator route can be sent and received throughout the network.

**Figure 3-21**  
**Customized operator routing for UA numbers with tables MVPRTE and OPCHOICE**



### How customized routing works with table MVPRTE

As shown in Figure 3-22, the entry in table MVPRTE, field MCCS\_TABLE\_SEL determines the next field name of MVPRTE and the next table accessed. For example, if the MCCS\_TABLE\_SEL entry is POS, the next table accessed is table POSITION. Otherwise, the next table accessed is one of the office routing tables (for example, OFRT, OFR2, OFR3).

## Implementation

### UA calls: datafill relationships (continued)

Figure 3-22  
 Customized operator routing for two UA numbers—table MVPRTE example

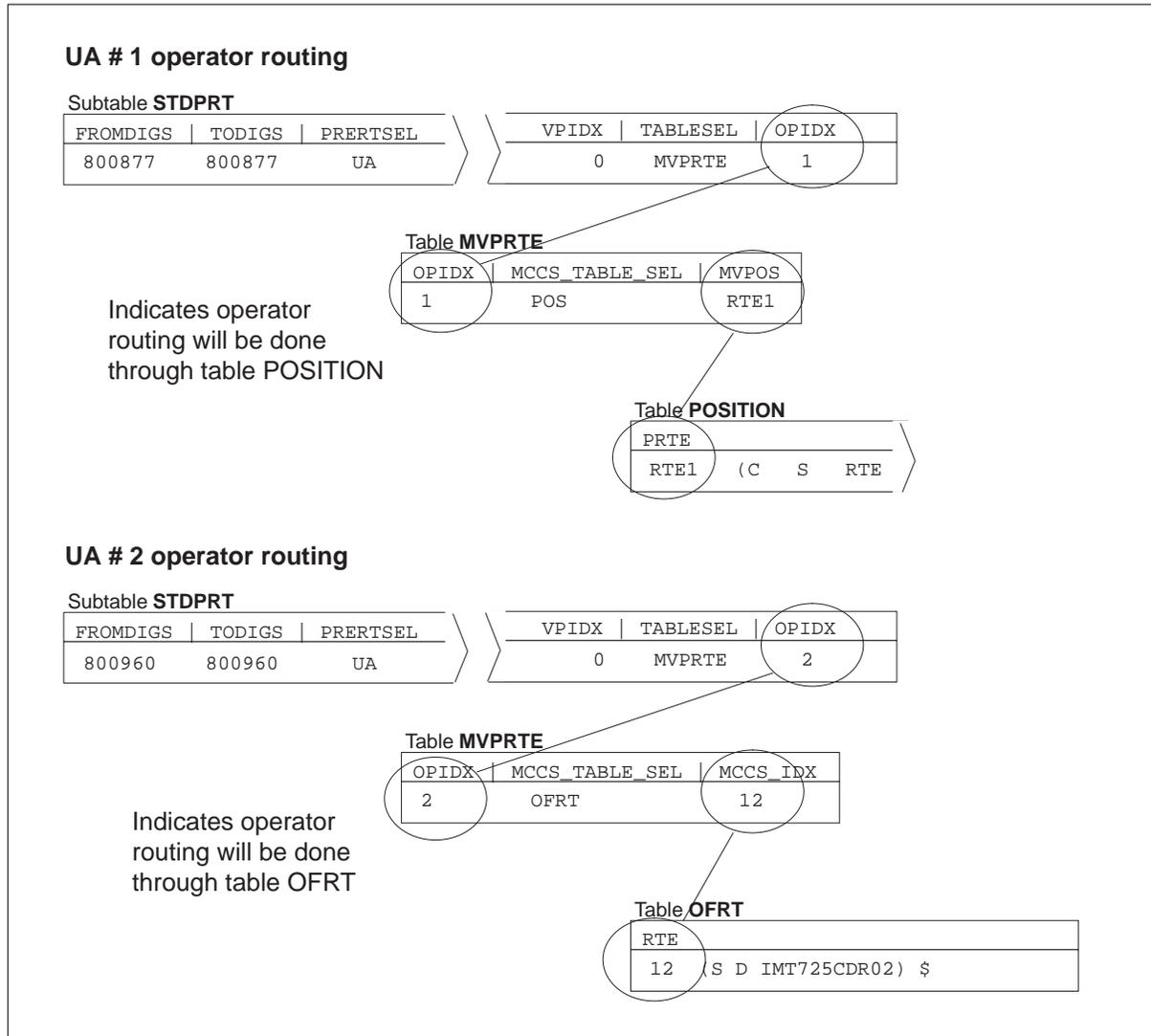
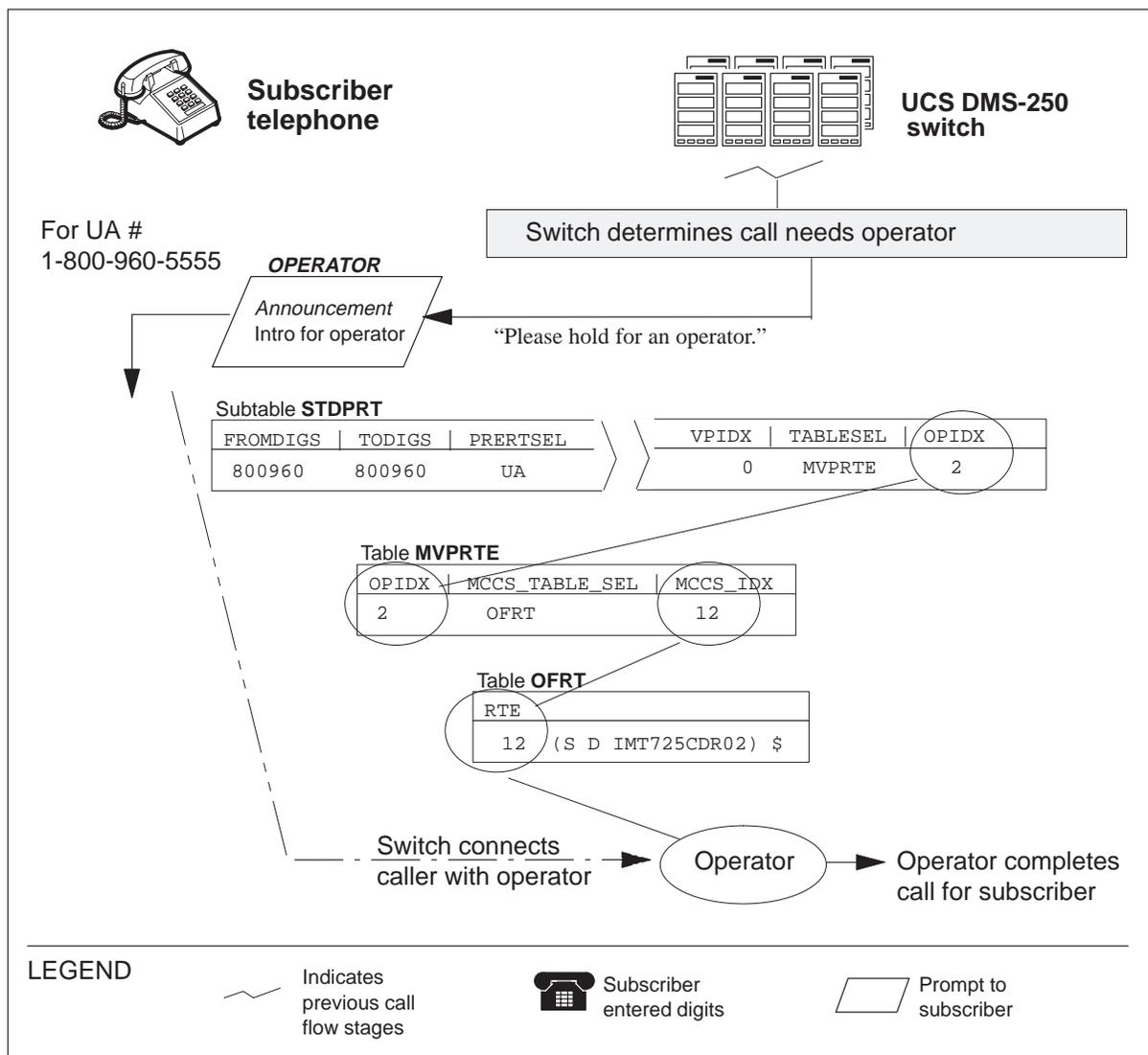


Figure 3-23 shows an example of customized operator routing in a call flow. After the switch determines the call needs to be sent to the operator, it refers to table STDPRT, field OPIDX. OPIDX indexes into table MVPRTE. The MCCS\_IDX field of table MVPRTE indexes into table OFRT where operator position information is stored.

## Implementation

### UA calls: datafill relationships (continued)

**Figure 3-23**  
Call flow: customized operator routing with table MVPRTE



### How customized routing works with table OPCHOICE

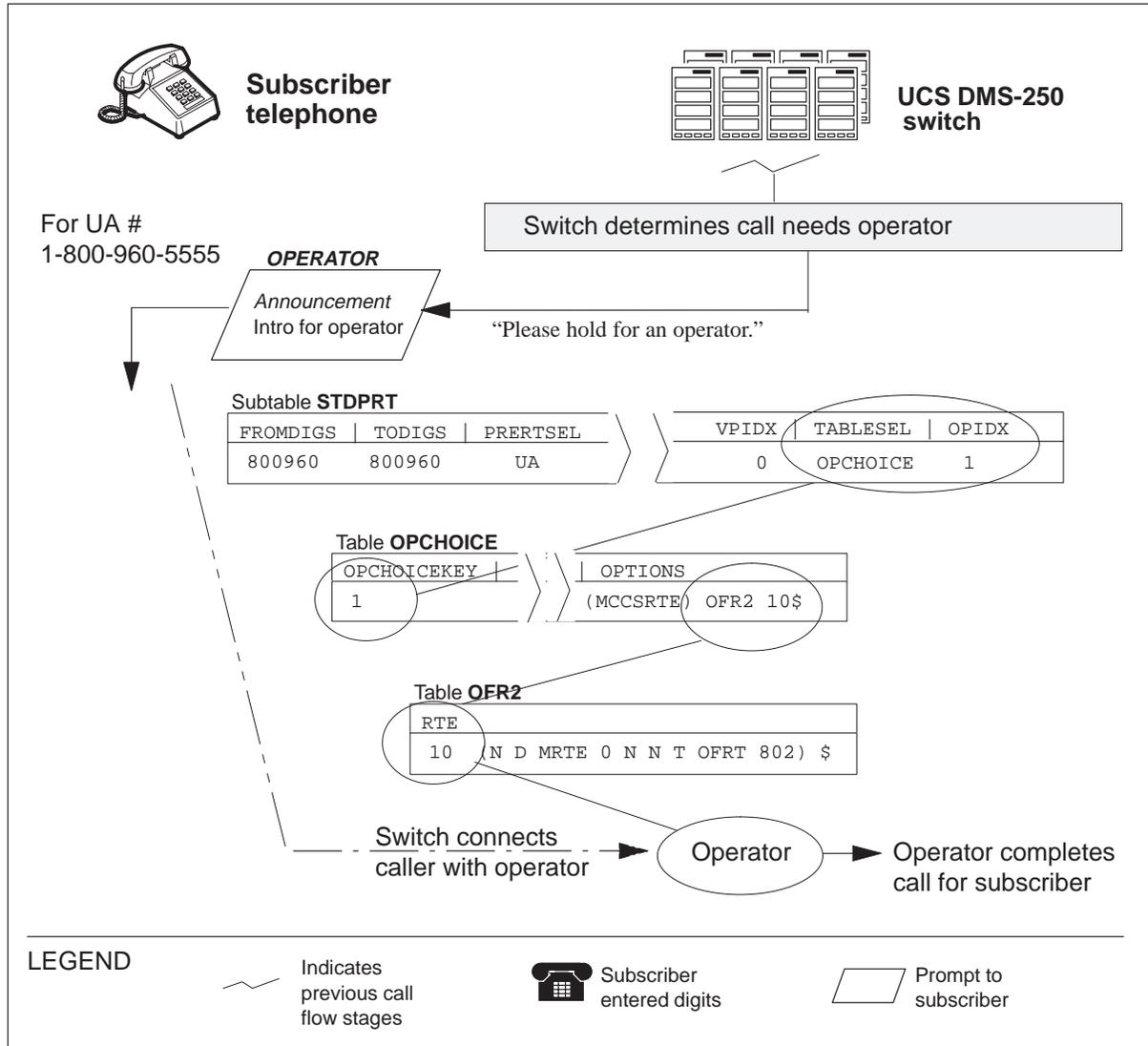
As shown in Figure 3-24 and 3-20, the TABLESEL field of subtable STDPRT indicates what table the switch uses for operator routing for a universal access number. The OPTIONS field of table OPCHOICE must contain the value MCCSRTE to indicate MCCS customized operator routing.

## Implementation

### UA calls: datafill relationships (continued)

The fields OFRTAB and OFRIDX of option MCCSRTE identify and index into the office routing table OFR2. Table OFR2 is then indexed from table OPCHOICE for the specific route.

**Figure 3-24**  
Call flow: customized operator routing with table OPCHOICE



### How to use customized routing across an SS7 IMT network

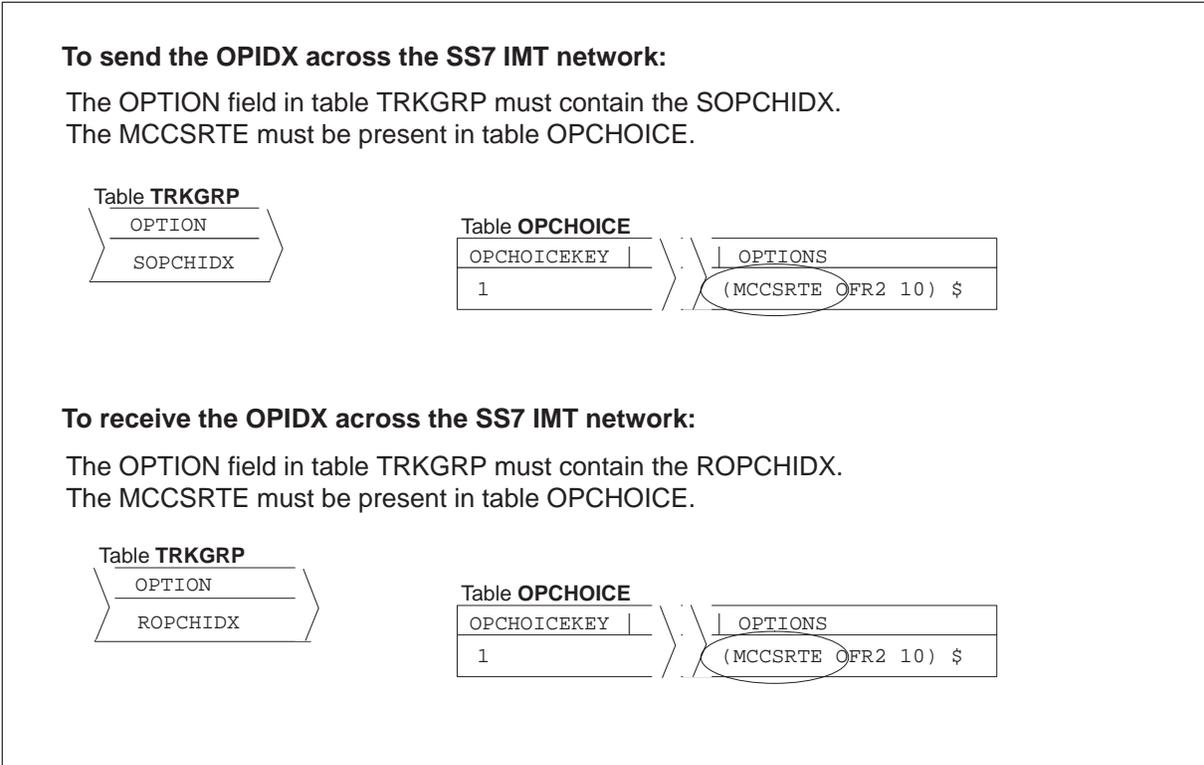
To send or receive the operator routing index (OPIDX in subtable STDPRT) between SS7 inter-machine trunks, the OPTION field of table TRKGRP requires specific datafill.

# Implementation UA calls: datafill relationships (continued)

## TRKGRP datafill

To send the OPIDX across SS7 inter-machine trunks, SOPCHIDX must appear in the OPTION field. To receive the OPIDX across SS7 inter-machine trunks, ROPCHIDX must appear in the OPTION field. When either the SOPCHIDX or the ROPCHIDX appears in the OPTION field, the OPIDX in subtable STDPRT is sent in the Generic Digits Parameter of the IAM.

**Figure 3-25**  
Datafill interactions for sending the operator routing across SS7 IMTs



## Message protocol

The Generic Digits Parameter of the Initial Address Message (IAM) stores the OPIDX from table STDPRT. Within the Generic Digits Parameter format, the following field codes apply as listed in Table 3-7.

## Implementation

### UA calls: datafill relationships (continued)

**Table 3-7**  
Field codes for the Generic Digits Parameter

Field	Binary code	Hex code	Description
Encoding scheme	000	0	BCD even
	001	1	BCD odd
	010	2	IA5
	011	3	Binary
	110	6	Spare
	111	7	
Type of digits	00000	00	Account code
	00001	01	Authorization code (BCD)
	00010	02	Private networking classmark
	00011	03	CLLI admin info (IA5)
	00100	04	ANI index
	00101	05	CALL ID (BCD)
	00110	06	OGT key number (BIN)
	00111	07	OGT called number (BIN)
	01000	08	Redirect information
	01001	09	Treated call type (BIN)
	01010	0A	RLT treatment code (BIN)
	01011	0B	Alternate queue (BIN)
	01100	0C	Call reference ID
	10000	10	Originating switch ID and GDT
	10001	11	IMT information (BCD even)
10010	12	Hotel room number (BCD)	
10011	13	Hotel guest name (BCD)	
—continued—			

## Implementation

### UA calls: datafill relationships (continued)

**Table 3-7**  
Field codes for the Generic Digits Parameter (continued)

Field	Binary code	Hex code	Description
	10100	14	Division identifier (BIN)
	10101	15	Trunk information
	10110	16	00Y
	11000	18	Transport information
	11001	19	OPCHOICE index (BIN)
	11010	1A	Reserved
	11111	1F	
—end—			

The OPCHOICE index of the Generic Digits Parameter is encoded as listed in Table 3-8.

**Table 3-8**  
OPCHOICE index encoding

Information to be conveyed	Binary code	Length in bits	Description
Generic Digits message type	11001	5	Binary code for Generic Digits Parameter field
Encoding scheme	011	3	3
Opchoice index	xxxxxxx	8	The actual OPIDX value taken from subtable STDPRT
Spare	0000000	7	7
MCCS routing indicator	x	1	Indicates the MCCS customized operator routing must be used

## Implementation

### UA calls: datafill relationships (continued)

#### Nature of address routing for SS7 IMT networks

As shown in Figure 3-20, if MCCSRTE is not datafilled in table OPCHOICE, the switch uses Nature of Address (NOA) to route the call across an SS7 IMT network to an operator position. With NOA routing, the switch refers to other fields in table OPCHOICE to determine the operator routing. Table 3-9 lists these fields, the related Nature of Address values, and the different reasons for operator routing.

**Table 3-9**  
Nature of address routing

Reason for operator	Type	Nature of address	NOA value	Field that determines routing when MCCSRTE is not datafilled in table OPCHOICE
Partially dialed number after two attempts	0-	NO_NUM_PRESENT _OP_REQUESTED (see Note 3)	#74	ZMRTE/ZMPOS (See Note 1)
First dialed number digit not "0" after two attempts	0-	NO_NUM_PRESENT _OP_REQUESTED (see Note 3)	#74	ZMRTE/ZMPOS (See Note 1)
Timeout at dialed number	0-	NO_NUM_PRESENT _OP_REQUESTED	#74	ZMRTE/ZMPOS (See Note 1)
0- call	0-	NO_NUM_PRESENT _OP_REQUESTED	#74	ZMRTE/ZMPOS (See Note 1)
Timeout at travel card number	0+	NATIONAL_NUM_ OP_REQUESTED	#72	ZPPRTNM
<p><b>Note 1:</b> If not SS7 FGD, use ZMPOS.</p> <p><b>Note 2:</b> If INTOAPOS is set to NONE, then INTOARTE is used. For SS7 FGDs, the circuit code indicates the INTOA route. For PTS FGD with INX digits, the INX digits indicate the INTOA route via pretranslations.</p> <p><b>Note 3:</b> The NOA changes to NO_NUM_PRESENT_OP_REQUEST (0-) because the entire address is not present to process it as a 0+ or 01+ call.</p>				
—continued—				

## Implementation

### UA calls: datafill relationships (continued)

**Table 3-9**  
Nature of address routing (continued)

Reason for operator	Type	Nature of address	NOA value	Field that determines routing when MCCSRTE is not datafilled in table OPCHOICE
	01+	INTERNATIONAL_NUM_OP_REQUESTED	#73	ZPPRTNM or INTOAPOS/INTOARTE (see Note 2)
0 at travel card number	0+	NATIONAL_NUM_OP_REQUESTED		ZPPRTNM
	01+	INTERNATIONAL_NUM_OP_REQUESTED	#73	ZPPRTNM or INTOAPOS/INTOARTE (see Note 2)
Invalid travel card number after two attempts	0+	NATIONAL_NUM_OP_REQUESTED		ZPPRTNM
	01+	INTERNATIONAL_NUM_OP_REQUESTED	#73	ZPPRTNM or INTOAPOS/INTOARTE (see Note 2)
First digit of travel card number is "1" after two attempts	0+	NATIONAL_NUM_OP_REQUESTED		ZPPRTNM
<p><b>Note 1:</b> If not SS7 FGD, use ZMPOS.</p> <p><b>Note 2:</b> If INTOAPOS is set to NONE, then INTOARTE is used. for SS7 FGDs, the circuit code indicates the INTOA route. For PTS FGD with INX digits, the INX digits indicate the INTOA route via pretranslations.</p> <p><b>Note 3:</b> The NOA changes to NO_NUM_PRESENT_OP_REQUEST (0-) because the entire address is not present to process it as a 0+ or 01+ call.</p>				
—continued—				

## Implementation

### UA calls: datafill relationships (continued)

**Table 3-9**  
Nature of address routing (continued)

Reason for operator	Type	Nature of address	NOA value	Field that determines routing when MCCSRTE is not datafilled in table OPCHOICE
	01+	INTERNATIONAL_NUM_OP_REQUESTED	#73	ZPPRTNM or INTOAPOS/INTOARTE (see Note 2)
Partial travel card number after two attempts	0+	NATIONAL_NUM_OP_REQUESTED		ZPPRTNM
	01+	INTERNATIONAL_NUM_OP_REQUESTED	#73	ZPPRTNM or INTOAPOS/INTOARTE (see Note 2)
Timeout at account code	0+	NATIONAL_NUM_OP_REQUESTED		ZPPRTNM
	01+	INTERNATIONAL_NUM_OP_REQUESTED	#73	ZPPRTNM or INTOAPOS/INTOARTE (see Note 2)
Partial account code after two attempts	0+	NATIONAL_NUM_OP_REQUESTED		ZPPRTNM
<p><b>Note 1:</b> If not SS7 FGD, use ZMPOS.</p> <p><b>Note 2:</b> If INTOAPOS is set to NONE, then INTOARTE is used. for SS7 FGDs, the circuit code indicates the INTOA route. For PTS FGD with INX digits, the INX digits indicate the INTOA route via pretranslations.</p> <p><b>Note 3:</b> The NOA changes to NO_NUM_PRESENT_OP_REQUEST (0-) because the entire address is not present to process it as a 0+ or 01+ call.</p>				
—continued—				

**Implementation**  
**UA calls: datafill relationships** (continued)

**Table 3-9**  
**Nature of address routing** (continued)

Reason for operator	Type	Nature of address	NOA value	Field that determines routing when MCCSRTE is not datafilled in table OPCHOICE
	01+	INTERNATIONAL_NUM_OP_REQUESTED	#73	ZPPRTNM or INTOAPOS/INTOARTE (see Note 2)
Invalid account code after two attempts	0+	NATIONAL_NUM_OP_REQUESTED		ZPPRTNM
	01+	INTERNATIONAL_NUM_OP_REQUESTED	#73	ZPPRTNM or INTOAPOS/INTOARTE (see Note 2)
<p><b>Note 1:</b> If not SS7 FGD, use ZMPOS.</p> <p><b>Note 2:</b> If INTOAPOS is set to NONE, then INTOARTE is used. for SS7 FGDs, the circuit code indicates the INTOA route. For PTS FGD with INX digits, the INX digits indicate the INTOA route via pretranslations.</p> <p><b>Note 3:</b> The NOA changes to NO_NUM_PRESENT_OP_REQUEST (0-) because the entire address is not present to process it as a 0+ or 01+ call.</p>				
—end—				

## Implementation

### UA calls: datafill relationships (end)

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#### Settings for UA call variations

UA call variations cause announcements to be played to the subscriber. These announcements are datafilled in table V PROMPTS and their CLLIs and related information are datafilled in announcement-related tables.

**For more information** on call flow variations and the announcements they trigger, see the summarized call flow diagram in Figure 3-14 in the Service description section.

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## Implementation

### UA calls: datafill steps (continued)

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#### Datafill overview

This datafill section shows examples and steps for voice prompt calls with a universal access number. Tables 2-10 through 2-16 show an example datafill sequence for MCCS Voice Prompt services, including a summary of voice prompt-related settings.

Use the following steps for datafilling each table to set up MCCS Voice Prompt service with voice prompts for a universal access number. Many of the following tables contain numerous fields, but only the fields that affect MCCS Voice Prompt service are shown.

**For more information** on how datafill settings affect call flow, see “UA calls: datafill relationships” in this section.

#### Software optionality control

Voice Prompt service cannot be datafilled without first purchasing and activating the software optionality control (SOC) code. The following steps explain how to activate voice prompt services.

- 1 Purchase the services from Nortel Networks and obtain a password (also called a keycode) to activate the service. If you do not currently have basic services (CRDS0001), you must also purchase and activate them first.
- 2 At the MAP terminal, enter the SOC level by entering  
> **SOC CI**
- 3 To begin activation of voice prompt services, set the right to use with the keycode obtained from Nortel Networks.  
> **ASSIGN RTU <KEY\_CODE> TO CRDS0003.**
- 4 Next assign the state of the order code to ON.  
> **ASSIGN STATE ON TO CRDS0003**
- 5 Exit the SOC directory.  
> **QUIT**

**For more information** on software optionality control commands, usage, and reports see the *DMS-100 Family SOC User Manual*, 297-8991-901.

## Implementation

### UA calls: datafill steps (continued)

#### Datafill sequence

Use Tables 3-10 through 3-16 as an example datafill sequence for MCCS Voice Prompt service.

**Table 3-10**  
**Step 1: tables related to announcements**

Function	Table or utility
Hardware assignments	TMINV EDRAMINV
Software datafill	CLLI
Hardware assignment of DRAM	DRAMS
Software datafill	ANNS
Assignment of announcements to the switch	DRAMREC utility (This is a utility, not a table to be datafilled.)
Firmware datafill (operational load details)	ANNMEMS DRAMTRK

**Table 3-11**  
**Step 2: table VPROMPTS**

Function	Field
Announcements and settings	VPIDX, ANNOU_KEY, PRPTCLLI, PSIGTIME

**Implementation**  
**UA calls: datafill steps** (continued)

Chose one of the following tables (OPCHOICE or MVPRTE) to perform customized operator routing for each universal access number, as shown in Tables 3-12 and 3-13.

**Table 3-12**  
**Step 3a: Table OPCHOICE**

Function	Field
Customized operator routing	OPTION

**Table 3-13**  
**Step 3b: Table MVPRTE**

Function	Field
Customized operator routing	OPIDX, MCCS_TABLE_SEL, MVPPOS, MCCS_IDX

**Table 3-14**  
**Step 4: table STDPRT**

Function	Field
Pretranslation selector is universal access number	PRETRTE, PRERTSEL
Subscriber to receive voice prompts for this universal access number	STDPRT_UA_OPTION

**Implementation**  
**UA calls: datafill steps** (end)

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**Table 3-15**  
**Step 5: table TRKGRP**

<b>Function</b>	<b>Field, subfield</b>
Voice prompts to be allowed on trunk	OPTION = VPROMPTS
Revalidation of reoriginated calls	OPTION = REORGVAL
Send or receive the operator routing index for customized operator routing (in table OPCHOICE) across an SS7 network	OPTION = SOPCHIDX or ROPCHIDXX

**Table 3-16**  
**Step 6: table TCNFAST**

<b>Function</b>	<b>Field, subfield</b>
Settings for each travel card number if in-switch validation occurs	CARDNUM ALLOW MLTCOSID

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## Implementation

### UA datafill: Table TMINV (end)

---

#### Table description

<b>Name:</b>	Trunk Module Inventory Table
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Lists the assignment data for each trunk module. TMPTYPE includes the option DTM and must be specified before table EDRAMINV is datafilled.
<b>Datafill before TMINV:</b>	Tables NETWORK, ENCDINV
<b>Datafill after TMINV:</b>	Tables EDRAMINV, CLLI, DRAMS, ANNS, ANNMEMS, DRAMTRK, VPROMPTS, MVPRTE

Please refer to table TMINV in *UCS DMS-250 Data Schema Reference Manual*, 297-2621-851, and *DRAM–EDRAM Guide*, 297-1001-527, for detailed instructions.

## Implementation

### UA datafill: Table EDRAMINV (end)

---

#### Table description

<b>Name:</b>	Enhanced Digital Recorded Announcement Machine Inventory
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Contains information about the voice files for each EDRAM. (The control information for the DRAM trunk modules is contained in table DRAMS). Each four-minute EDRAM has up to eight single-density or four double-density announcement files. Each announcement file represents a different set of announcements. Each 16-minute EDRAM has up to thirty-two single-density or sixteen double-density announcement files.
<b>Datafill before EDRAMINV:</b>	Trunk modules in table TMINV
<b>Datafill after EDRAMINV:</b>	Tables EDRAMINV, CLLI, DRAMS, ANNS, ANNMEMS, DRAMTRK, VPROMPTS, MVPRTE

Please refer to table EDRAMINV in *UCS DMS-250 Data Schema Reference Manual*, 297-2621-851, and *DRAM–EDRAM Guide*, 297-1001-527, for detailed instructions.

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**Implementation**  
**UA datafill: Table CLLI (end)**

---

**Table description**

<b>Name:</b>	Common Language Location Identifier
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Contains the name (or CLLI) of each tone and announcement. (This table also defines the names of trunks.)
<b>Datafill before CLLI:</b>	Tables TMINV, EDRAMINV
<b>Datafill after CLLI:</b>	Table DRAMS

This table contains numerous variations on settings, depending on your system's configuration. Please refer to table CLLI in *UCS DMS-250 Data Schema Reference Manual*, 297-2621-851, and *DRAM-EDRAM Guide*, 297-1001-527, for detailed instructions.

---

## Implementation

### UA datafill: Table DRAMS (end)

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#### Table description

<b>Name:</b>	Digital Recorded Announcement Machine
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Contains information about the cards that make up a DRAM, including physical location of the cards (trunk card assignment codes), the arrangement of speech memory, and the CLLI of their trunk group.
<b>Datafill before DRAMS:</b>	Tables TMINV, EDRAMINV, CLLI
<b>Datafill after DRAMS:</b>	Tables ANNS, ANNMEMS, DRAMTRK, VPROMPTS, MVPRTE

This table contains numerous variations on settings, depending on your system's configuration. Please refer to table DRAMS in *UCS DMS-250 Data Schema Reference Manual*, 297-2621-851, and *DRAM-EDRAM Guide*, 297-1001-527, for detailed instructions.

#### Datafill example

DRAMCARD	TMTYPE	TMNO	TMCKT	CARDCODE	CARDINFO
0 0	MTM	0 0	1X75BA	CTLR	DRAM0

## Implementation

### UA datafill: Table ANNS (continued)

#### Table description

<b>Name:</b>	Announcements
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Contains announcement type and play information. Defines specific characteristics of each announcement, including the type of announcement, how long the announcement is, and the number of cycles the announcement needs to be repeated.
<b>Datafill before ANNS:</b>	Tables TMINV, EDRAMINV, CLLI, DRAMS
<b>Datafill after ANNS:</b>	Tables ANNS, ANNMEMS, DRAMTRK, VPROMPTS, MVPRTE

Please refer to table ANNS in *UCS DMS-250 Data Schema Reference Manual*, 297-2621-851, and *DRAM–EDRAM Guide*, 297-1001-527, for detailed instructions.

#### Datafill steps

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
The CLLI of the announcement	CLLI	The CLLI assigned to the announcement	This entry must match the CLLI in table CLLI, DRAMS, ANNMEMS, DRAMTRK, and VPROMPTS	CCNVANN
The type of announcement	ANTYPE	STND, CNAT, or VPSA	See "Note" below	STND
The traffic separation number	TRAFSNO	1–127	If no traffic separation number is required, enter 0; see "Note" below	1

## Implementation

### UA datafill: Table ANNS (end)

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
The maximum number of simultaneous connections allowed on the announcement	MAXCONN	0–255	See “Note” below	2
The cycle time for one announcement on one channel	CYTIME	0–255	Precise cycle timing for each announcement is extremely important. See “Note” below	2
The maximum number of times the announcement is heard before the call is advanced to the next route in the route list	MAXCYC	0–255	See “Note” below	2

**Note:** For more information, refer to table ANNS in the *UCS DMS-250 Data Schema Reference Manual*, 297-2631-851.

### Example

CLLI	ANTYPE	TRAFSNO	MAXCONN	CYTIME	MAXCYC
UAGREETANN	VPSA	0	255	30	1

---

## Implementation

### UA datafill: Table ANNMEMS (end)

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#### Table description

<b>Name:</b>	Announcement Members
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Lists the hardware assignments for each member (trunk) assigned to the announcements in table ANNS. This table links the trunk members to the type of card and to the announcement cli.
<b>Datafill before ANNMEMS:</b>	Tables TMINV, CLLI, DRAMS, ANNS
<b>Datafill after ANNMEMS:</b>	Tables DRAMTRK, OFRT, OFR2, OFR3, OFR4, VPROPPTS, MVPRTE, TRKGRP

#### Datafill steps

This table contains numerous variations on settings, depending on your system's configuration. Please refer to table ANNMEMS in *UCS DMS-250 Data Schema Reference Manual*, 297-2621-851, and *DRAM-EDRAM Guide*, 297-1001-527 for detailed instructions.

## Implementation

### UA datafill: Table DRAMTRK (end)

---

#### Table description

<b>Name:</b>	Digital Recorded Announcement Machine Tracks
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Lists the names of the announcement phrases and which track of the DRAM the phrases are assigned to. The various announcement phrases make up each announcement and are listed in the sequence in which they play to the caller.
<b>Datafill before DRAMTRK:</b>	Tables TMINV, EDRAMINV, CLLI, DRAMS, ANNS, ANNMEMS
<b>Datafill after DRAMTRK:</b>	Tables VPROMPTS, MVPRTE

Please refer to table DRAMTRK in *UCS DMS-250 Data Schema Reference Manual*, 297-2621-851, and *DRAM–EDRAM Guide*, 297-1001-527, for detailed instructions.

#### Datafill example

ANNTRACK	PHSLIST
CCNVANN	0 (PAUSE) (DTMF 1) (DTMF 2) (PAUSE) \$

## Implementation

### UA datafill: Table VPROMPTS (continued)

#### Table description

<b>Name:</b>	Voice Prompts
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Contains the settings for the voice announcements.
<b>Datafill before VPROMPTS:</b>	Tables ANNS, DRMTRK
<b>Datafill after VPROMPTS:</b>	STDPRT

#### Datafill steps

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
The indicator for the announcement set each announcement belongs to	VPIDX	Number of the announcement set	This is the first part of a two-part key. A complete announcement set has a VPIDX of 0; customized announcement sets have a VPIDX of 2 or greater	0
The names of the active voice announcements that play when an error occurs	ANNOU_KEY		This is the second part of a two-part key.	
Initial greeting announcement		UAGREET	Plays after the subscriber accesses voice prompt services	UAGREET
Request for travel card number announcement		UATCN	Plays after a complete address has been entered	UATCN

## Implementation

### UA datafill: Table VPROMPTS (continued)

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
Invalid travel card announcement		INVTCN	Plays when an invalid travel card number has been entered on the first attempt or when the first digit dialed is 1 on the first attempt	INVTCN
Partial travel card announcement		PARTIALTCN	Plays when a partial travel card number has been entered on the first attempt	PARTIALTCN
Failed travel card announcement		FAILTCN	Plays when travel card number fails a second attempt to validate	FAILTCN
Account code announcement		ACCOUNT	Plays to request account code; this announcement plays only with remote validation services activated	ACCOUNT
Confirmation announcement		CONFIRMATION	Plays after switch has validated travel card number to indicate call will be processed	CONFIRMATION
Announcement introducing operator		OPERATOR	Plays before the switch connects the subscriber with an operator	OPERATOR
Request for address announcement		UAADDR	Plays when subscriber resets or reoriginates a call	UAADDR
Partial account number announcement		PARTIALAC	Plays when subscriber enters a partial account number	PARTIALAC
Invalid account code announcement		INVAC	Plays when subscriber enters an invalid account code	INVAC

## Implementation

### UA datafill: Table VPROMPTS (end)

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
Invalid address announcement		INVADDR	Plays when subscriber enters an invalid address	INVADDR
First digit not announcement		FDNZ	Plays when subscriber does not enter a zero before the address	FDNZANN
The voice prompt CLLI	PRPTCLLI	CLLI	Enter the announcement CLLI from table ANNS. (This field does not contain the trunk CLLI.)  This entry must match the CLLI in table CLLI, DRAMS, ANNS, ANNMEMS, and DRAMTRK	UAGREETANN
The number in seconds of the permanent signal timer	PSIGTIME	0 = passive prompt; 2–30 = active prompt	This timer starts after the voice prompt plays and represents the time allowed for the subscriber to enter other digits. This timer overrides the PSIG timer in table TRKSGRP.  Passive voice prompts must be set to 0.	10

## Implementation

### UA datafill: Table OPCHOICE (end)

#### Table description

<b>Name:</b>	Operator Choice
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Allows customization of operator routing for each universal access number; allows operator routing index to be sent across an SS7 network through the Generic Digits Parameter of the IAM
<b>Datafill before OPCHOICE:</b>	Table POSITION or table OFRx
<b>Datafill after OPCHOICE:</b>	n/a

This table contains numerous variations on settings, depending on your system's configuration. Please refer to table OPCHOICE in *UCS DMS-250 Data Schema Reference Manual*, 297-2621-851.

#### Datafill steps

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
Operator routing for MCCS, including to be passed across the SS7 network	OPTIONS	MCCSRTE and one of the OFRx tables: OFRT, OFR2, OFR3, OFR4	This indicates MCCS customized operator routing will occur; table TRKGRP must also contain SOPCHIDX and/or ROPCHIDX for SS7 network-based operator routing to occur	(MCCSRTE OFR2 10)

## Implementation

### UA datafill: Table MVP RTE (continued)

#### Table description

<b>Name:</b>	Mechanized Voice Prompts Route Table
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Allows customization of operator routing for each universal access number
<b>Datafill before MVP RTE:</b>	Table POSITION or table OFRx
<b>Datafill after MVP RTE:</b>	n/a

#### Datafill steps

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
The operator routing index number	OPIDX	1–255	This operator index number must match the OPIDX field in subtable STDPRT. Subtable STDPRT indexes into this table from the OPIDX field.	2
The selector for operator routing	MCCS_ TABLE_SEL	NONE, POS, or one of the OF Rx tables: OFRT, OFR2, OF R3, OFR4	NONE = no customized operator routing occurs  POS = refinement MVPPOS requires datafill  OF Rx = refinement MCCS_IDX requires datafill	POS

**Implementation**  
**UA datafill: Table MVPRTE (end)**

---

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
Enter an index into table POSITION for routing	MVPPOS	NONE, RTE1-5, RTE7-12, TOPS, DIRECT, LOOP	This indexes into the table POSITION	DIRECT
Enter an index into table OFRx for routing	MCCS_IDX	1-1023	This indexes into one of the OFRx tables	2

## Implementation

### UA datafill: Subtable STDPRT (continued)

#### Table description

<b>Name:</b>	Standard Pretranslator
<b>Subtable of:</b>	Table STDPRTCT
<b>Purpose:</b>	Identifies a range of digits and a route selector for the universal access number and the address to determine the next stage of pretranslation for a call.
<b>Datafill before STDPRT:</b>	Tables VPROPPTS, MVPRTE
<b>Datafill after STDPRT:</b>	n/a

The following settings apply only to Voice Prompt service. For other office parameters related to MCCS calls, see datafill for subtable STDPRT in the “MCCS Basic service” section.

#### Datafill steps—universal access number

The steps below are for datafilling pretranslation information for the universal access number.

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
Universal access number for access to MCCS	FROMDIGS	The beginning range of the universal access number	The number subscribers will dial for access to the network to receive MCCS	800960
	TODIGS	The ending range of the universal access number		800960
Pretranslation selector	PRERTSEL	UA	Indicates the routing selector for universal access	UA

## Implementation

### UA datafill: Subtable STDPRT (continued)

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
Originating partition number for the universal access call	OPART	0–999; default = 7	This field must match the originating partition of the incoming trunk; otherwise the call will fail.	7
Setting for the type of dialing required before the address digits	MCCSDED	N = 0 dial before address digits required	MCCS dedicated dialing is not available with voice prompt services.	N
Option for voice prompts on this universal access number	STDPRT_ UA_OPTION	VPROMPTS	VPROMPTS is required here to allow voice prompts on this universal access number.	VPROMPTS
Customized announcement set for each universal access number	VPIDX	0–1023	This indexes into table VPROMPTS to select a set of announcements for use with this universal access number.	2
The type of customized operator routing for each universal access number	TABLESEL	MVPRTE or OPCHOICE	<p>Either OPCHOICE or MVPRTE can perform customized operator routing for each universal access number.</p> <p>Table OPCHOICE also allows the switch to send and receive the operator routing index across an SS7 network.</p>	OPCHOICE

---

**Implementation**  
**UA datafill: Subtable STDPRT** (continued)

---

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
Customized operator routing value for each universal access number	OPIDX	1–255	This indexes into the table designated in TABLESEL to select the operator route for this universal access number.	14

## Implementation

### UA datafill: Subtable STDPRT (continued)

#### Datafill steps—address ranges

The steps below are for datafilling pretranslation information for the range of digits for the called number dialed by the subscriber.

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
Address numbers	FROMDIGS	The beginning range of the addresses	The beginning range for the address	021
	TODIGS	The beginning range of the addresses	The ending range for the address	022
Type of routing for the trunk	PRERTSEL	Enter the pretranslator selector	Indicates the routing selector for the address range; CT = call type routing	CT
Type of call feature associated with this range of addresses	CALLFEAT	The call feature name (ONNET, OFFNET, PUBSPD, PRVSPD, TOLLFR, CROSSON, AUTHREQ, HTLSPD, ACCT, ZPLUSONNET, ZPLUSOFFNET, INTOP)	The name of the call feature; for example, whether the call is off network	OFFNET
Minimum number of address digits	MINDIGS	0–18	The minimum number of address digits to be expected after 0	7
Maximum number of address digits	MAXDIGS	0–18	The maximum number of address digits to be expected after 0	10

---

**Implementation**  
**UA datafill: Subtable STDPRT (end)**

---

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
Number of prefix digits	NOPREDIG	0-7	The number of prefix digits to be deleted before translation continues; if 0+ dialing is required, enter 1	1

## Implementation

### UA datafill: Table TRKGRP (continued)

#### Table description

<b>Name:</b>	Trunk Group
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Contains customer-defined data associated with each trunk group.
<b>Datafill before TRKGRP:</b>	n/a
<b>Datafill after TRKGRP:</b>	n/a

#### Datafill steps

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
Voice prompt calls allowed on the trunk	OPTION	V PROMPTS	With this setting, the trunk will accept voice prompt calls.  This setting works in conjunction with the V PROMPTS setting for the universal access number in subtable STDPRT,	V PROMPTS
Tone prompt calls allowed on the trunk	OPTION	MCCS	With this setting, the trunk will accept tone prompt calls.  This setting can be used in conjunction with the V PROMPTS setting to allow both tone and voice prompt calls on the same trunk.	MCCS

**Implementation**  
**UA datafill: Table TRKGRP (end)**

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
SS7 network-based operator routing	OPTION	SOPCHIDX	With this setting, the OPIDX contained in table OPCHOICE will be sent in the Generic Digits Parameter of the IAM to allow the operator routing index to be sent across SS7 IMTs	SOPCHIDX
		ROPCHIDX	With this setting, the OPIDX contained in table OPCHOICE will be sent in the Generic Digits Parameter of the IAM to allow the operator routing index to be received across SS7 IMTs	ROPCHIDX

## Support Operational measurements (end)

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### Introduction

The following OM groups relate to Voice Prompt service.

#### ANN

ANN (Announcements) provides information on traffic for recorded announcement machines. ANN contains the following two peg registers:

- ANNATT—Announcement Attempts; indicates the call was routed to an announcement
- ANNOVFL—Announcement Overflow; indicates the call was routed to an announcement that failed to connect to the announcement because:
  - the maximum number of calls were connected
  - the announcement was manual busy

This register does not count the number of calls that overflow because of network blockage.

ANN contains the following three usage registers:

- ANNTRU—Announcement Traffic Usage; records how long an announcement is traffic busy
- ANNSBU—Announcement System Busy Usage; records how long an announcement is system busy
- ANNMBU—Announcement Manual Busy Usage; records how long an announcement is manual busy

To calculate the total time of busy usage, add together the figures from ANNTRU, ANNSBU, and ANNMBU.

#### OPCHOICE

OPCHOICE (Operator Choice) provides information on the number of calls that use each operator index (found in subtable STDPRT and indexed into table OPCHOICE). The operator index provides customized operator routing for each universal access number through table OPCHOICE. The operational measurement OPCHOICE contains the following peg register:

- OPCHRTE—Operator Choice Calls Routed; pegs each time the switch routes a 0-, 0+, or 01+ call using table OPCHOICE. In cases where route advancing occurs, the register is pegged only once.

## **Billing with OPCHOICE customized operator routing**

When you use table OPCHOICE to route a universal access call, the switch captures and records the OPIDX (from subtable STDPRT) in the OPCHOICE option of the call detail record.

**For more information** about billing information, see the *UCS DMS-250 Billing Records Application Guide*, 297-2621-395, and the *UCS DMS-250 Billing Server Application Guide*, 297-2621-320.



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# Remote validation service

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## This section includes...

### How does it work?

Service description—page 4-2

Call flows and explanations—page 4-11

### How do I implement it?

Hardware requirements—page 4-21

Datafill relationships—page 4-23

Datafill steps—page 4-30

### How do I support it?

Commands—page 4-39

Logs—page 4-43

Operational measurements—page 4-44

Billing—page 4-50

## Service description

### Functionality (continued)

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### Introduction

Remote Validation service is an optional Mechanized Calling Card Service (MCCS) available for purchase for use with long distance functionality on the UCS DMS-250 switch. To use Remote Validation, you must also purchase and activate Basic service (software optionality control code CRDS0001) and Remote Validation service (software optionality control code CRDS0002).

In addition, Remote Validation service may be enhanced by purchasing and activating CLD/CLG Number Query (software optionality control code CRDS0004).

### Remote validation service features

The following features listed in Table 4-1 are included with Remote Validation service.

**Table 4-1**  
**Remote validation service features**

Remote validation service features
<i>Remote validation</i> —A remote database validates the travel card numbers instead of the switch database.
<i>Account code capability</i> —A remote database can validate account codes entered by subscribers.
<i>Fraud detection and traps</i> —A trap captures the entry of invalid travel card numbers. These calls can be routed to a hot line number.

Remote Validation service can be used not only with Basic service, but also Voice Prompt service (CRDS0003) and Quick Call service (CRDS0005). With Remote Validation, the switch requests and receives information from a remote database about an MCCS call, including:

- travel card number validation
- class of service screening index
- account code validation
- call routing information
- potential fraud information

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## Service description Functionality (continued)

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Remote Validation service functions with a remote database IN/1 (Intelligent Network 1) or travel card number (TCN) subsystem service control point (SCP).

### Remote database

Remote Validation service appeals to many customers because of the flexibility of a larger remote database and capability for account code validation. By using a remote database, one database can serve many switches. This makes datafill processes more streamlined and improves fraud detection capability.

### Account codes

With remote validation, subscribers can enter an account code associated with their travel card number for further accounting and tracking purposes. Account codes associated with a travel card number can be from 1 to 5 digits long.

### Enhanced call screening

If the CLD/CLG Number Query option is activated, the validation request sent to the remote database also includes as much information as is available about the calling and called party numbers. This increases the flexibility of the call screening capabilities.

### Fraud detection and traps

When travel card numbers entered do not match a number in the remote database or when a TCN entered matches with a datafilled TCN with a trapclass value greater than zero, a trap occurs. A trap is a capturing of the invalid entry and important data related to the invalid entry. The settings in the request (sent by the switch to the remote database) determine:

- whether the call will be trapped if an invalid number is entered
- what kind of action will occur if the call is trapped (for example, routing to a hot line number or sending an announcement and logging the call information for later research)

### TCAP and the remote database

After the UCS DMS-250 switch receives the travel card number from the subscriber, it sends a request to the remote database for information and receives a response from it. These requests and responses use a different type of signaling system from systems that process calls. TCAP (Transaction Capabilities Application Part) is the messaging protocol that governs the

**Service description**  
**Functionality** (continued)

---

receipt and delivery of these requests and responses over an SS7 signaling network.

TCAP allows messages to move between the switch (also called a service switching point or SSP) and a remote database (also called a service control point or SCP). The service control point is sometimes referred to as a data control point or DCP. DCP and SCP mean the same thing. TCAP messages control only information not related to circuits.

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## Service description Functionality (continued)

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### TCAP protocol

As a protocol, TCAP provides:

- a format for messages
- rules about the content of the messages
- procedures for exchanging messages

TCAP messages have two main parts, as shown in Figure 4-1:

- *transaction portion*—contains information about the transaction
- *component portion*—contains the messages transferred during the transaction

### Transaction portion

The transaction portion has two parts:

- *package type*—contains information about which node (the switch or the remote database) has control over the termination of the transaction. The following package types typically occur with MCCS calls:
  - *query with permission*—initiates a transaction and gives the responding node control over the termination of the transaction
  - *query without permission*—initiates a transaction. The originating node retains control over the termination of the transaction.
  - *response*—terminates a transaction normally. Both the initiating and responding node can send this package type. The node sending this package type has control over termination of the transaction.
- *transaction ID*—contains the identifier of one of the following:
  - the node that originated the transaction
  - the node that responded to the transaction
  - the nodes that originated and responded to the transaction

### Component portion

The components in the component portion are categorized by the function they perform. For example, an initiating component is called an “Invoke” component. The types of components are

- *Invoke*—initiates an operation (such as requesting the database to validate the travel card number)
- *Return Result*—indicates an operation was completed successfully

## Service description

### Functionality (continued)

- *Return Error*—indicates an invoked operation failed and information about the failure.
- *Reject*—indicates the receipt of an incorrect package or component (other than a Reject component). This means the transaction was received but a protocol violation occurred and the transaction was rejected.

**Figure 4-1**  
TCAP message parts

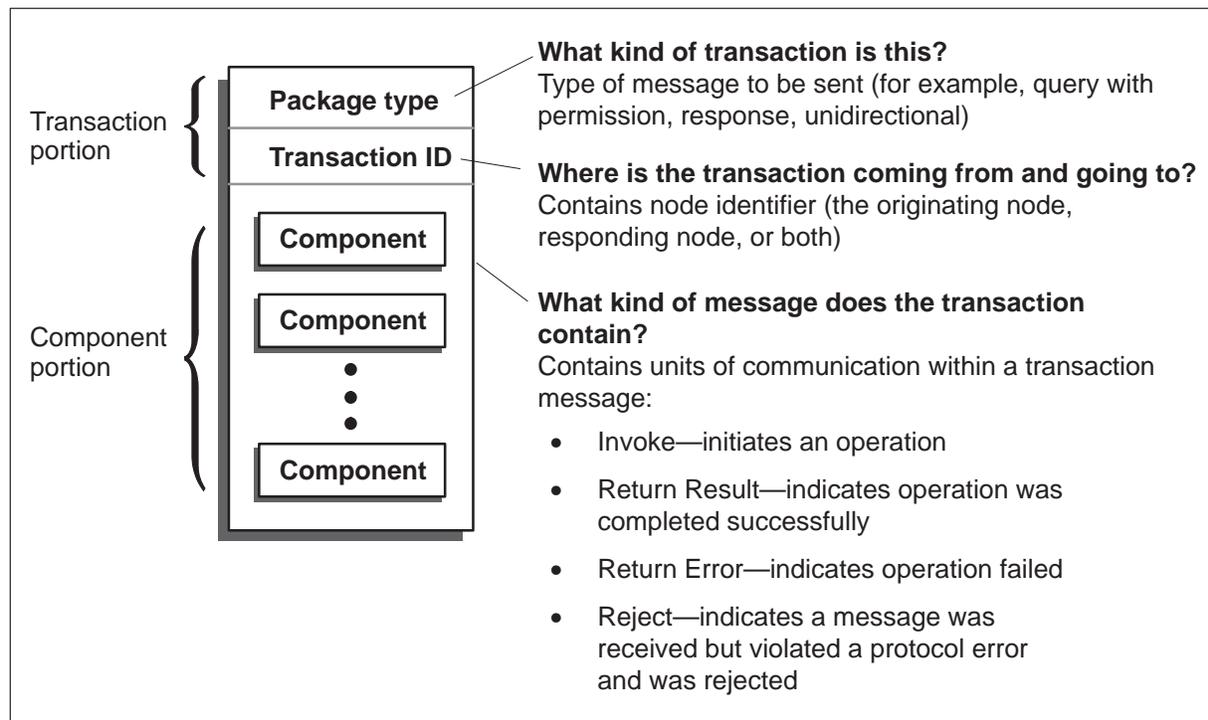
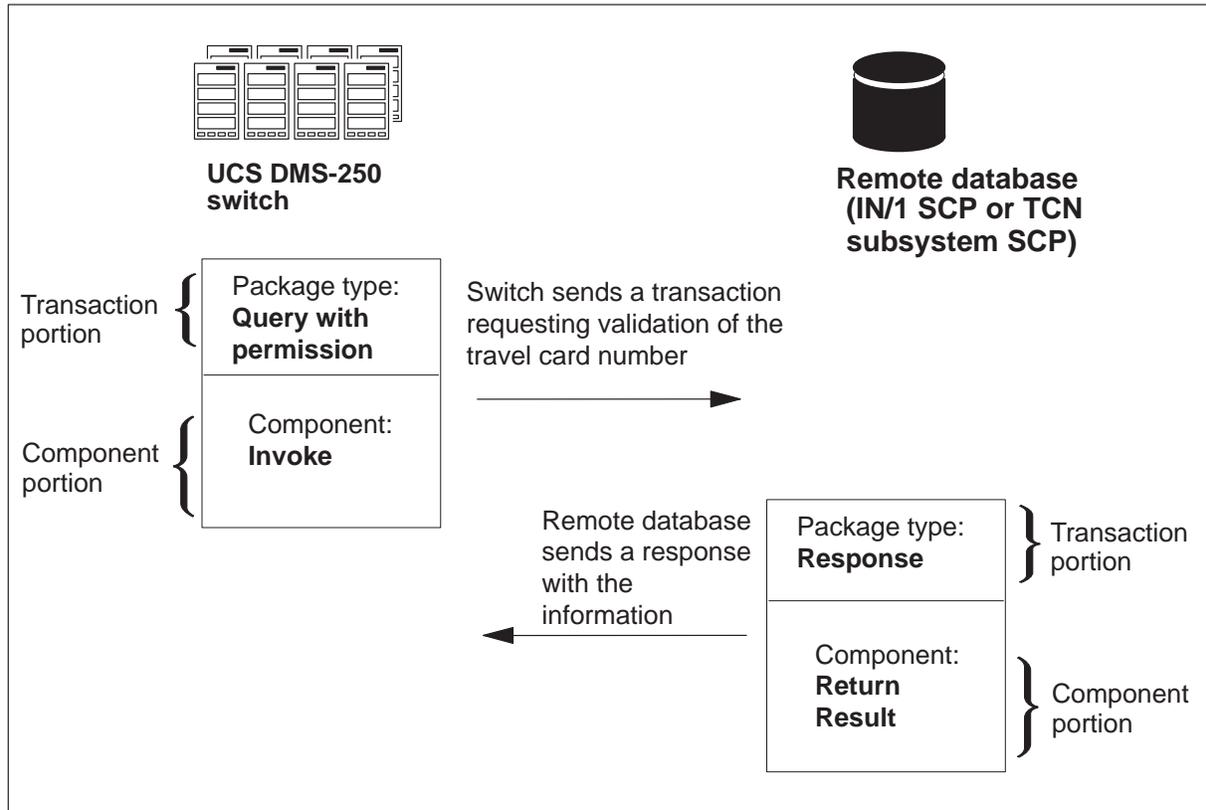


Figure 4-2 shows an example of a TCAP message exchange between the switch and the remote database.

## Service description Functionality (continued)

**Figure 4-2**  
Example of TCAP message exchange



**For more information** about TCAP, see *UCS DMS-250 Transaction Capabilities Application Part (TCAP) Application Guide*, 297-2621-355.

**Service description**  
**Functionality** (continued)

**Trunk types and Remote validation service features**

The following shows the types of trunks that can accommodate Remote validation service.

DAL, DALTIE	FGA (ONAL)—PTS	FGB (ONAT)—PTS	FGC UA—PTS	FGD		IMT UA—SS7	PRI	MCCS service option
				UA—PTS/SS7	Trans—PTS			
X	X	X	X	X	X	X	X	Remote Validation service
X	X	X	X	X	X	X	X	CLD/CLG Number Query service

**Functional overviews**

The following explains the functionality of Remote validation service, including:

- remote database validation of travel card numbers with TCAP messaging
- account code collection and validation
- fraud detection and traps

**Switch queries remote database**

After the subscriber dials the travel card number, the switch sends a query with the Invoke component to the remote database over SS7 links. This initiates a transaction. Included in the query is the travel card number. Based on the datafill, the query may also include the calling and called number.

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## Service description Functionality (continued)

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### Remote database processes query and responds

The remote database receives the query and attempts to match the travel card number with a travel card number in its database. Then one of the following occurs:

- *problem completing transaction*—If a problem occurs and the transaction cannot be completed, the remote database sends a Return Error component that includes information about the failure. In such a case, the switch sends the call to Service Communication Failure (SCFL) treatment.
- *transaction completed*—If the transaction completes normally, the remote database responds with a Return Result component. This component contains the following information:
  - status of travel card number (valid or invalid)
  - whether the call needs to be trapped for fraud detection (for example, because of an invalid entry of the travel card number)
  - call routing information
  - class of service screening information
  - any satellite restrictions
  - whether an account code needs to be gathered and validated

### Travel card status determined

If the travel card number and account code are valid, the switch continues processing the call. If an account code is required, the switch sends a tone or an announcement requesting the account code. If the travel card number is invalid, one of the following occurs based on datafill settings:

- The switch may send the call to treatment, an announcement, or an operator; this depends on whether tones or voice prompts are used and whether operator services are available. (For more information on these options and how they affect call flow, see the “MCCS Basic service” section or the “MCCS Voice Prompt service” section in this manual.)
- The switch may route the call to a hot line number, such as a special number that calls a specific operator position or security office.
- The switch may generate a log to record potential fraud.

## Service description

### Functionality (end)

---

#### Account code status determined

If the account code is valid, the call continues processing. If it is invalid, the following occurs:

- *with Basic service tone prompts*—The switch routes the call to Invalid Account number treatment (INAC).
- *with Voice Prompt service voice announcements*—The switch sends the subscriber the Invalid Account number (INVAC) announcement and allows a second attempt to enter a correct account code. If the second attempt fails, the switch sends the Operator announcement and connects the subscriber with an operator.

**Service description**  
**Call flow overview (end)**

---

## Introduction

Remote Validation service works with Basic service, Voice Prompt service, and Quick Call service. How call flow occurs with Remote Validation service depends on:

- how the subscriber accesses the switch
- whether Remote Validation is being used with tone prompts or voice prompts
- whether operator services is available

With universal access calls, the subscriber dials a universal access (UA) number to access the switch. The following call flows show functionality- and feature-related information for universal access calls.

**For more information** on datafill relationships and datafill steps, see “Implementation” in this Remote Validation service section.

## **Service description**

### **Call flow: universal access** (continued)

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#### **Standard, completed call: without account code**

Figure 4-3 shows what occurs with a standard, completed call. The subscriber has entered a valid travel card number. No account code is required.

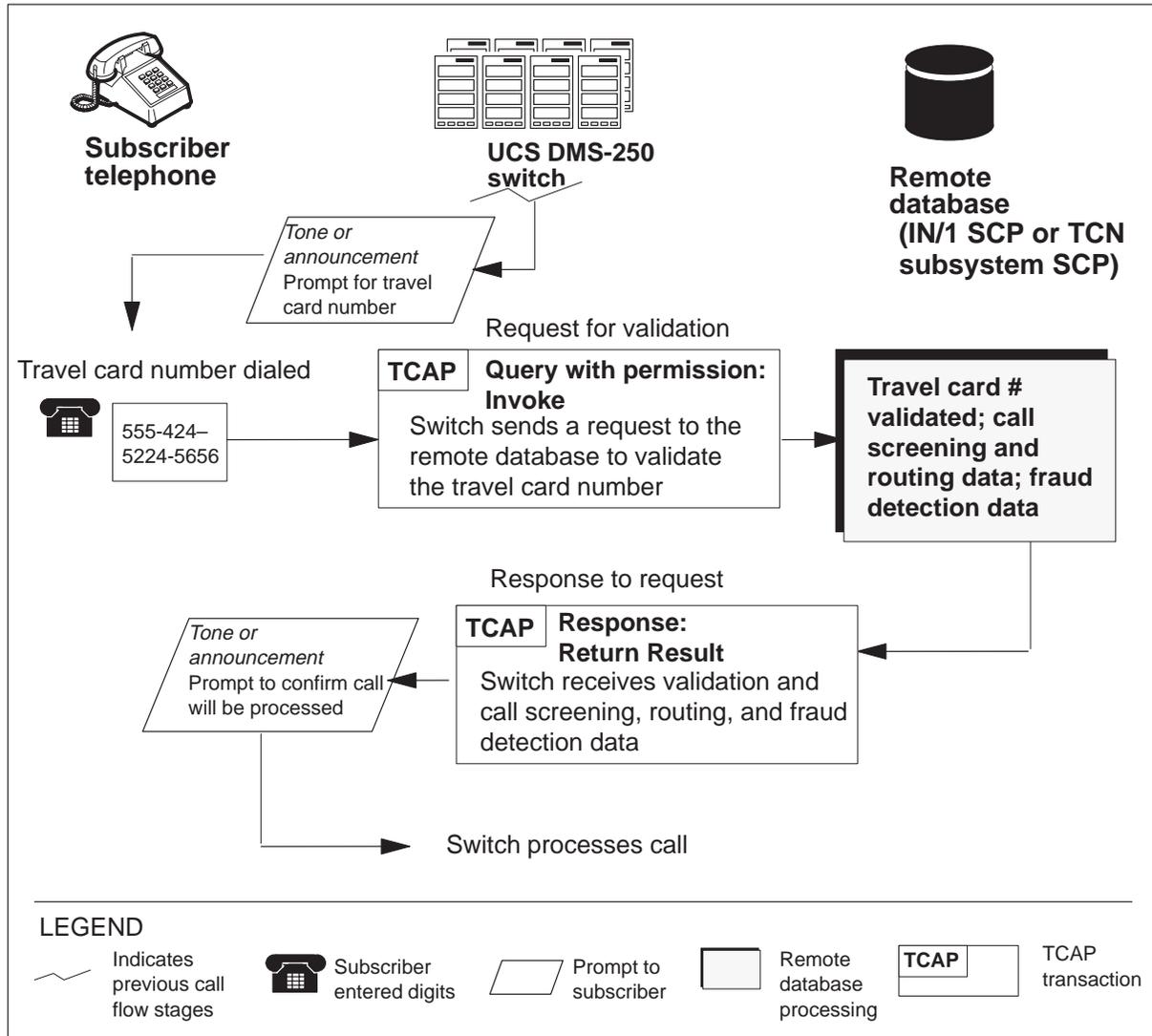
The switch sends the travel card number to the remote database in a TCAP transaction that requests information. The remote database returns a TCAP transaction with

- the validation status of the travel card number (valid or invalid)
- the class of service index for the call
- any potential fraud information (whether the call will be trapped and what kind of trap action will be taken)
- any restrictions on satellites
- routing information (serving translation scheme data)

## Service description

### Call flow: universal access (continued)

**Figure 4-3**  
Call flow: standard, completed call without account code



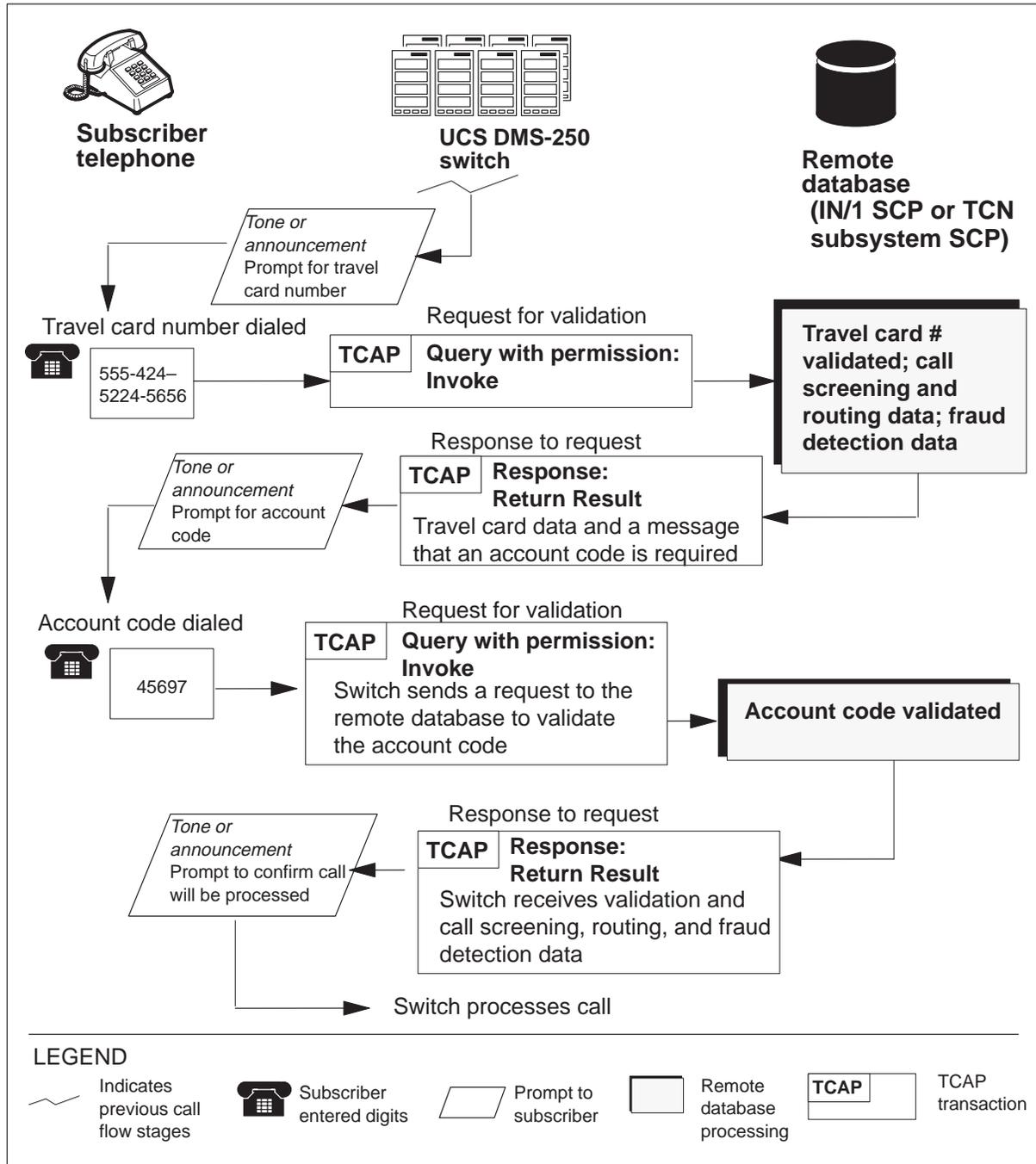
### Standard, completed call: with account code

As Figure 4-4 shows, when the remote database sends its Return Result, it contains the travel card number and an indication that an account code is required. The switch then sends a tone or announcement to the subscriber to request the account code. After the subscriber enters the account code, the switch sends another request to validate the account code. The remote database response with the account code status as valid or invalid.

## Service description

### Call flow: universal access (continued)

Figure 4-4  
Call flow: standard, completed call with account code



**Service description****Call flow: universal access** (continued)

---

**Variations from standard, completed call**

Calls may not be completed or may not follow the standard flow (for example, because of a reset by the subscriber). The switch may send a call that does not or cannot complete processing to treatment. Variations in call flow also depend on what kinds of features are being used together. For example, the availability of operator services affects call flow.

**Invalid travel card number entered**

Figures 4-5 and 4-6 summarize the call flow for universal access calls when the subscriber enters an invalid travel card number.

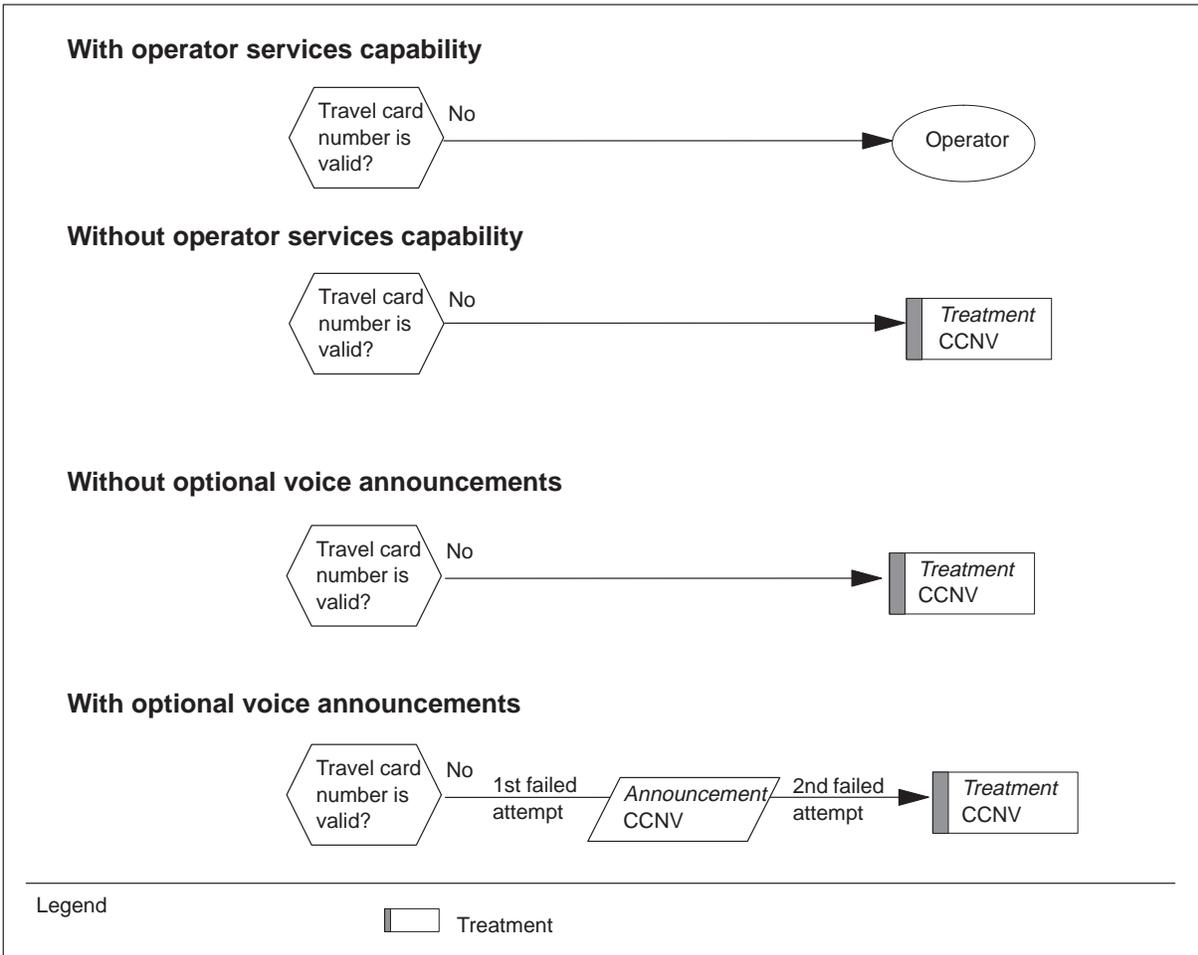
**With Basic service**

The following call flow variations are explained in detail in the “MCCS Basic service” section. Figure 4-5 shows the summarized call flow for Basic service when the subscriber enters an invalid travel card number:

- with operator services
- without operator services
- with optional announcements and operator services
- with optional announcements but no operator services

**Service description**  
**Call flow: universal access** (continued)

**Figure 4-5**  
**Basic service call flow summary: invalid travel card number dialed with tone prompts**



**With Voice Prompt service**

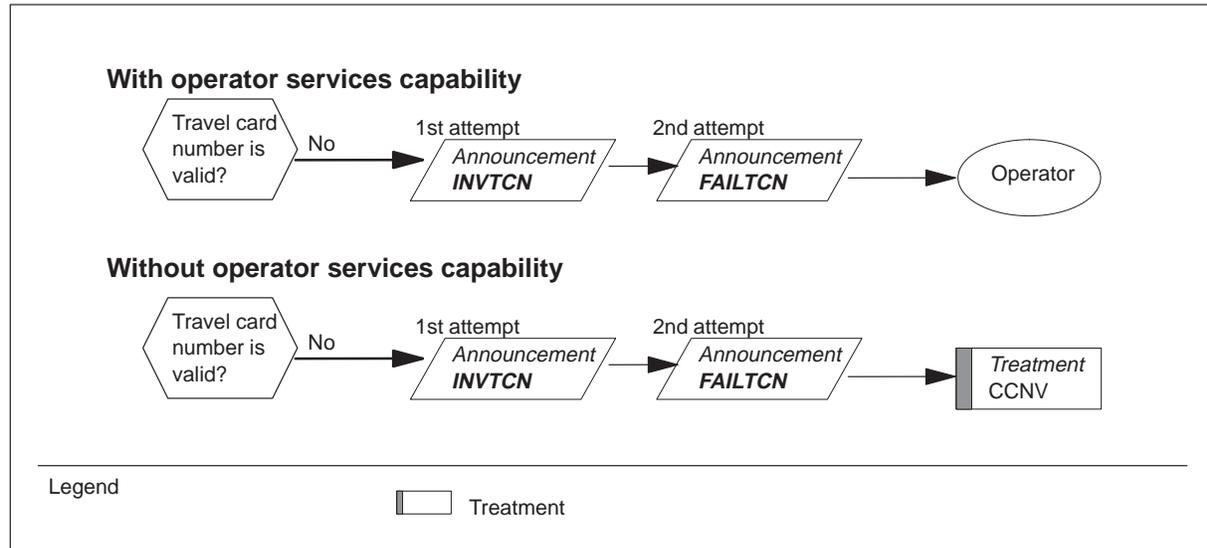
The following call flow variations are explained in detail in the “MCCS Voice Prompt service” section. Figure 4-6 shows the summarized call flow for Voice Prompt service when the subscriber enters an invalid travel card number.

- with operator services
- without operator services

## Service description

### Call flow: universal access (continued)

**Figure 4-6**  
**Voice Prompt service call flow summary: invalid travel card number dialed with voice prompts**



### Account code call flow variations

Figures 4-7 and 4-8 shows the call flow of account code validation for a universal access call with all dialing variations. Subscribers are allowed three resets for each dialing phase.

#### With Basic service tone prompts

As shown in Figure 4-7, the switch sends the call to Partial Dial (PDIL) treatment if the subscriber dials:

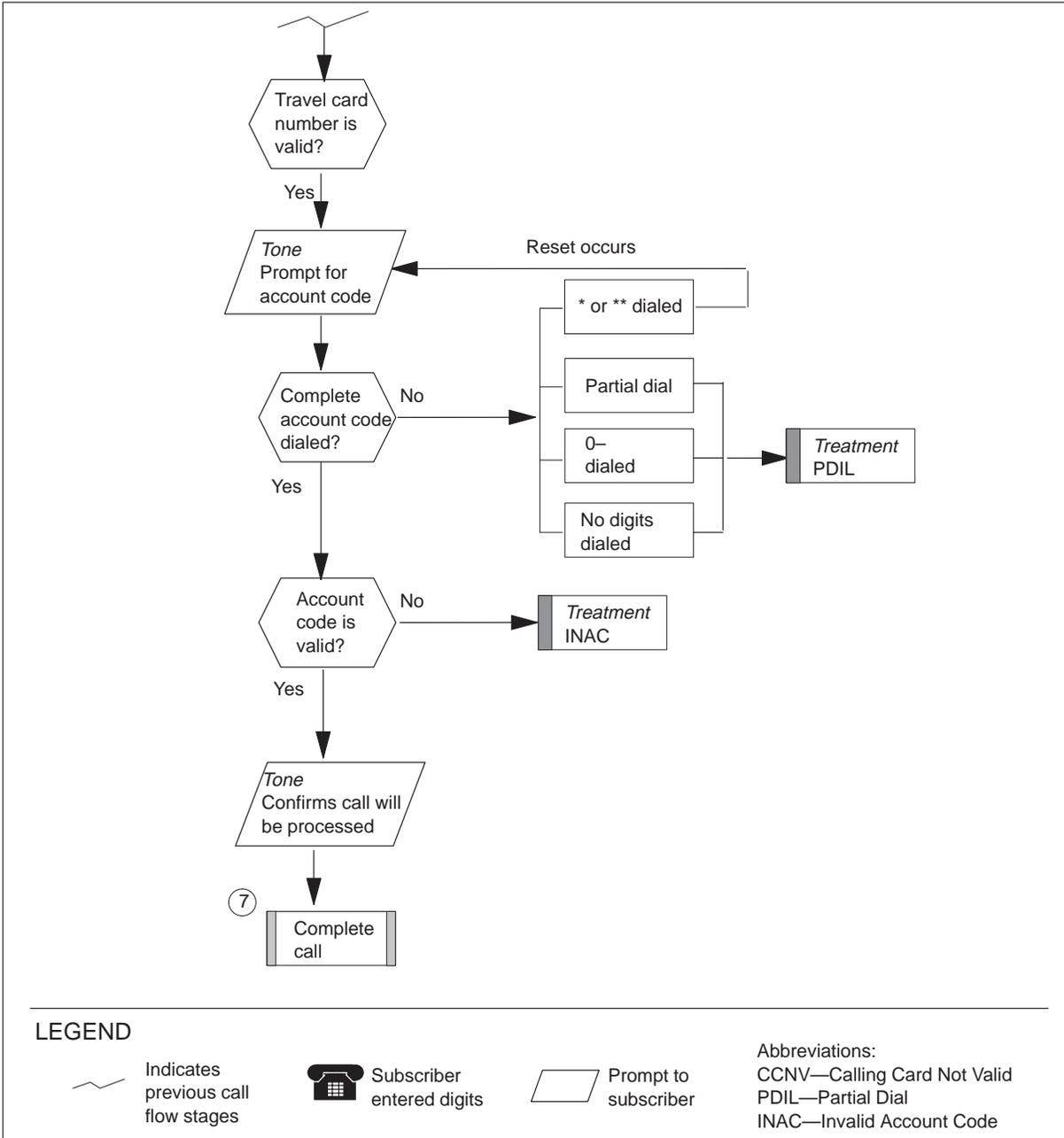
- a partial account code
- 0- for the operator
- no digits

If the account code is not valid, the switch sends the call to Invalid Account Code (INAC) treatment.

## Service description

### Call flow: universal access (continued)

Figure 4-7  
Basic service call flow summary: account code validation with tone prompts



## Service description

### Call flow: universal access (continued)

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#### **With Voice Prompt service and operator services**

As shown in Figure 4-8, the following occurs for these dialing variations:

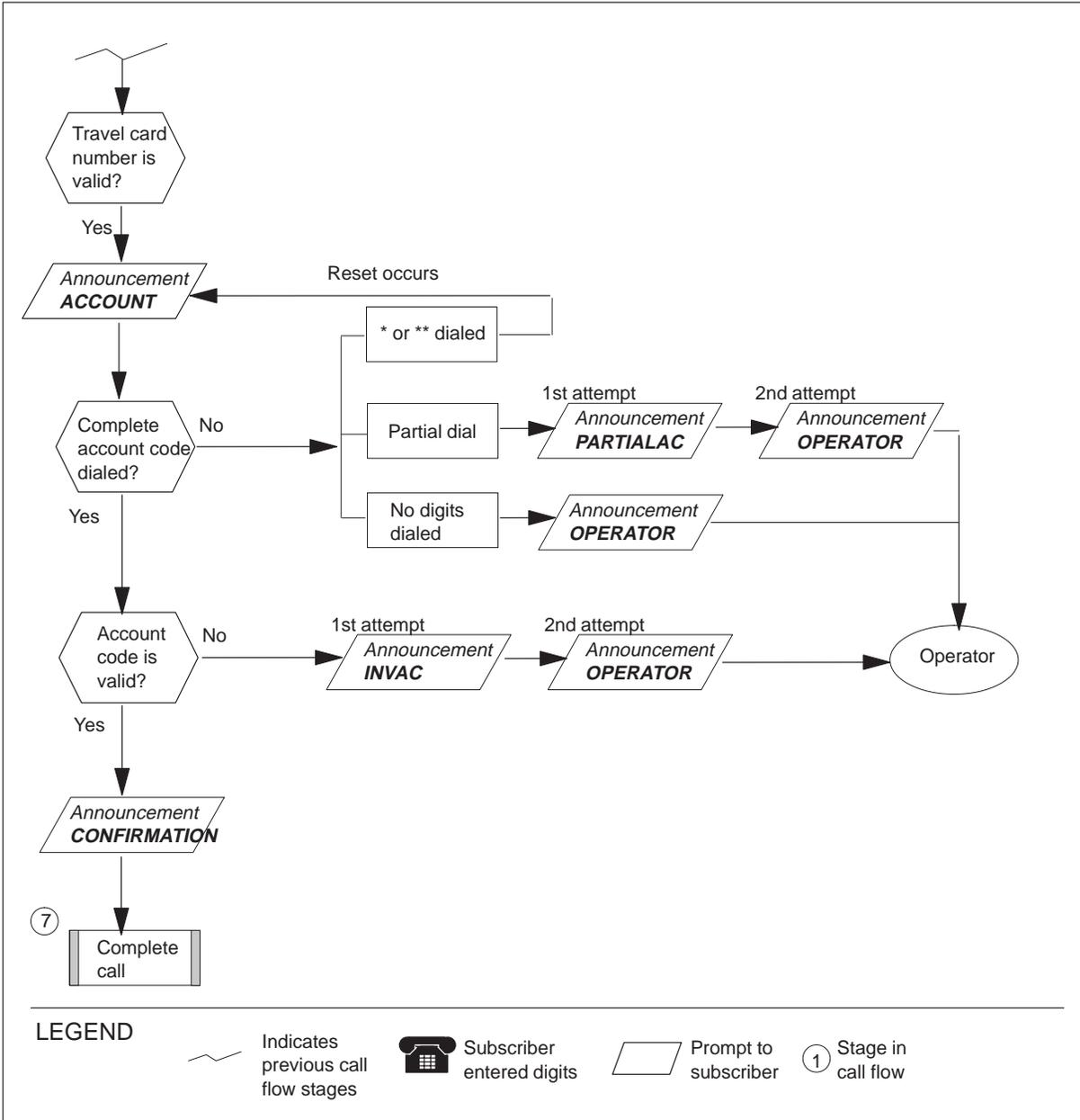
- a partial account code—The switch sends an announcement and allows two attempts to enter the account code. After the second failure, the switch connects the subscriber with an operator.
- the reset key (\*)—The switch returns the subscriber to the beginning of the appropriate dialing phase.
- no digits—The switch sends an announcement and connects the subscriber with an operator.

If the account code is not valid, the switch sends an announcement and allows the subscriber to try again. After the second failure, the call sends an announcement and connects the subscriber with an operator.

## Service description

### Call flow: universal access (end)

Figure 4-8  
Call flow example: account code validation with voice prompts



## Implementation Introduction (continued)

### Datafill and call flow

This section contains the datafill relationships and steps that are crucial to making Remote Validation service function properly.

**For more information** on basic explanations of the datafill process, see “Appendix F: Datafill” in this manual.

### Trunk types and Remote validation service

The following shows the types of trunks that can accommodate Remote validation service.

DAL, DALTIE	FGA (ONAL)—PTS	FGB (ONAT)—PTS	FGC UA—PTS	FGD		IMT UA—SS7	PRI	MCCS service option
				UA—PTS/SS7	Trans—PTS			
X	X	X	X	X	X	X	X	Remote Validation service
X	X	X	X	X	X	X	X	CLD/CLG Number Query service

### Hardware requirements

In addition to those listed in Table 4-2, hardware requirements are dependent on whether you are using remote validation with tone prompts or voice announcements. For those hardware requirements see either “MCCS Basic service” for tones or “MCCS Voice Prompt service” for voice prompts.

## Implementation

### Introduction (end)

**Table 4-2**  
**Hardware requirements for remote validation service**

Function	Explanation	Hardware requirements
Remote database to validate travel card numbers	Remote validation requires one or more remote databases.	IN/1 or TCN subsystem service control point
Network links	SS7 signaling is required between remote database and the switch	SS7 links to connect the switch to each IN/1 service control point

### Datafill relationships and highlights

The following tables and office parameters work together to define remote validation of the travel card number:

- `MCCS_VERIFY_TYPE` in table `OFCVAR`—datafill “DCP” for data control point designates remote validation
- `LEC_CC_TCAP` in table `OFCENG`—datafill “SCP” indicates the IN/1 validates the TCN or datafill “TCN” indicates the TCN subsystem validates the TCN
- `TCN_DCP_RESPONSE_TIMEOUT` in table `OFCVAR`—specifies the amount of time the switch will wait for a response from the remote database before a timeout occurs
- subtable `STDPRT`—contains timeout setting and action as well as the name of the TCAP application used to validate travel card numbers
- table `TCNTCH`—contains settings for routing trapped travel card calls to a hot line number
- `ENHANCED_TCN_TCAP` in table `OFCVAR`—enables or disables SOC option `CRDS0004`

## **Implementation**

### **UA calls: datafill relationships** (continued)

---

#### **Introduction**

The following information explains how the datafill affects MCCS Remote Validation service and universal access call flow. You can use the following diagrams along with the datafill instructions at the end of this section to understand and datafill Remote Validation service with a universal access number.

#### **Remote validation settings**

Table STDPRTCT works together with office parameters in table OFCVAR to determine Remote Validation service functionality. These settings are listed in Table 4-3.

## Implementation

### UA calls: datafill relationships (continued)

**Table 4-3**  
STDPRTCT, OFCVAR and TCNTCH datafill

<b>Function</b>	<b>Table, Subtable</b>	<b>Field, subfield or office parameter</b>	<b>Entry</b>
Remote validation of MCCS calls	OFCVAR	MCCS_VERIFY_TYPE	DCP
Number of users to use the TESTSS command at the same time	OFCVAR	TESTSS250_M AX_USERS	Number of users allowed
Duration of timeout for remote database	STDPRT	SCPTOUT	Number of seconds for timeout (1–10)
Action to occur after timeout of remote database occurs	STDPRT	SCPTOACT	BLOCK or PROCEED
The name of the TCAP application used to validate the travel card number	STDPRT	APPLNAME	TCN
Default class of service indicator in the event the remote database times out	OFCVAR	DEFAULT_TCN_COS_INDEX	The default class of service index
Route calls entering invalid travel card numbers to a hot line number	TCNTCH	TRAPCLASS, TRAPHOTLN	Trap classification and hot line number
Transmission of calling and called party numbers to remote database	OFCVAR	ENHANCED_TCN_TCP	Set by enabling or disabling SOC option CRDS0004

---

## Implementation

### UA calls: datafill relationships (continued)

---

#### Standard call flow

Figure 4-9 shows the datafill relationships involved in a standard call flow with an account code.

#### Pretranslator table settings

Table STDPRTCT indexes into subtable STDPRT. In this subtable, the following datafill affects remote validation:

- APPLNAME—the name of the TCAP application used to validate the travel card; “TCN” is the only valid entry for this field.
- SCPTOUT—the number of seconds before the remote database times out
- SCPTOACT—the action the switch will take if the remote database times out

#### Office parameter setting

As shown in Figure 4-9, after the subscriber enters the travel card number, the switch references the office parameter MCCS\_VERIFY\_TYPE in table OFCVAR. This datafill determines where validation of the travel card number will occur. After the switch determines the remote database will perform validation, the switch sends a TCAP transaction to the remote database. This message includes the travel card number.

The remote database attempts to validate the travel card number and returns a responding TCAP transaction with the following information:

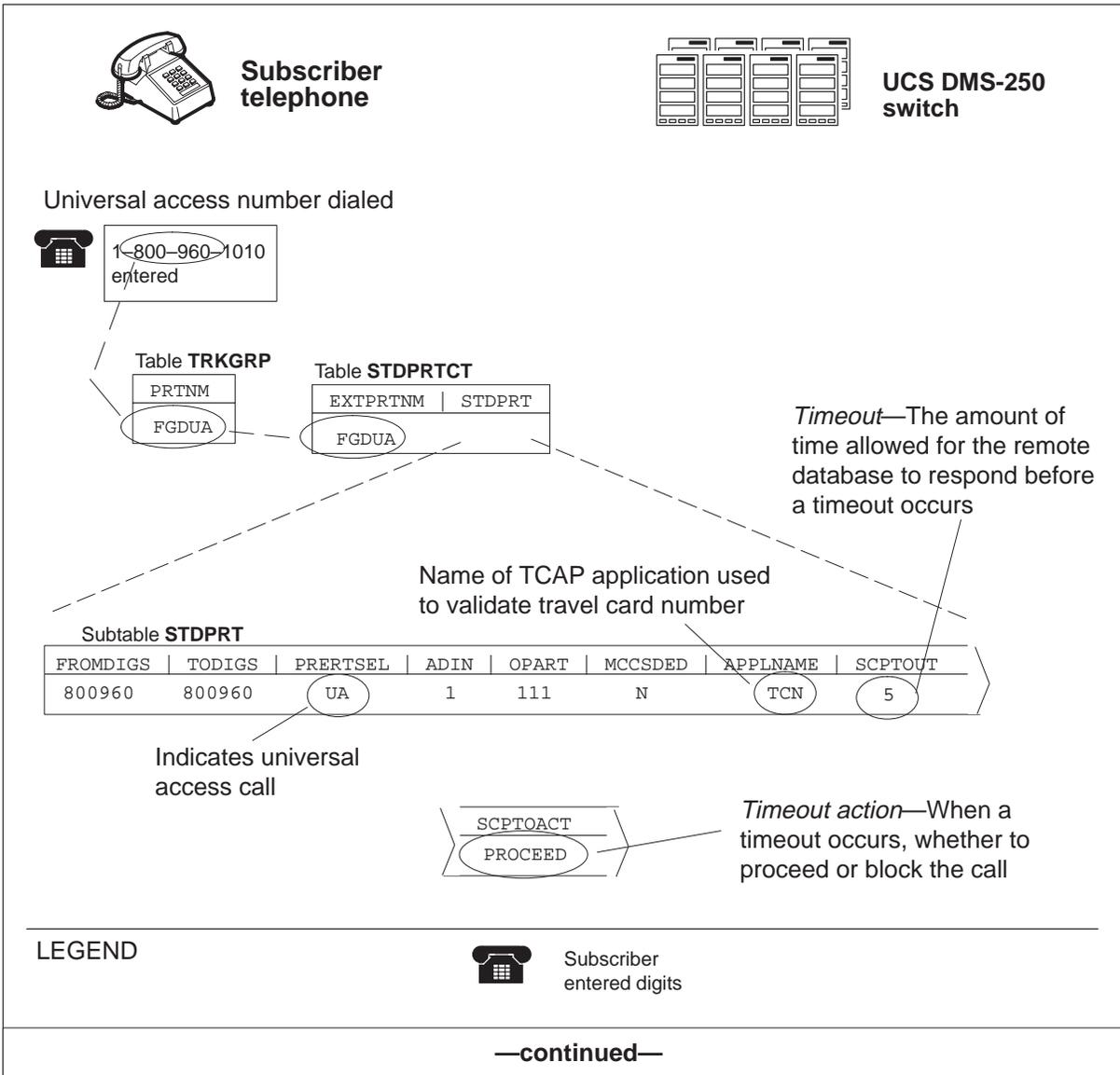
- the status of the travel card number’s validation
- call routing information (the originating partition and terminating partition)
- class of service screening required for the travel card number
- any satellite restrictions to the call
- whether an account code needs to be gathered and its length, and whether it will be validated
- whether the call should be trapped if the travel card number is invalid

If an account code is required and needs validation, the switch sends another TCAP transaction to the remote database to validate the account code. The remote database returns a TCAP transaction with the account code’s validation status.

## Implementation

### UA calls: datafill relationships (continued)

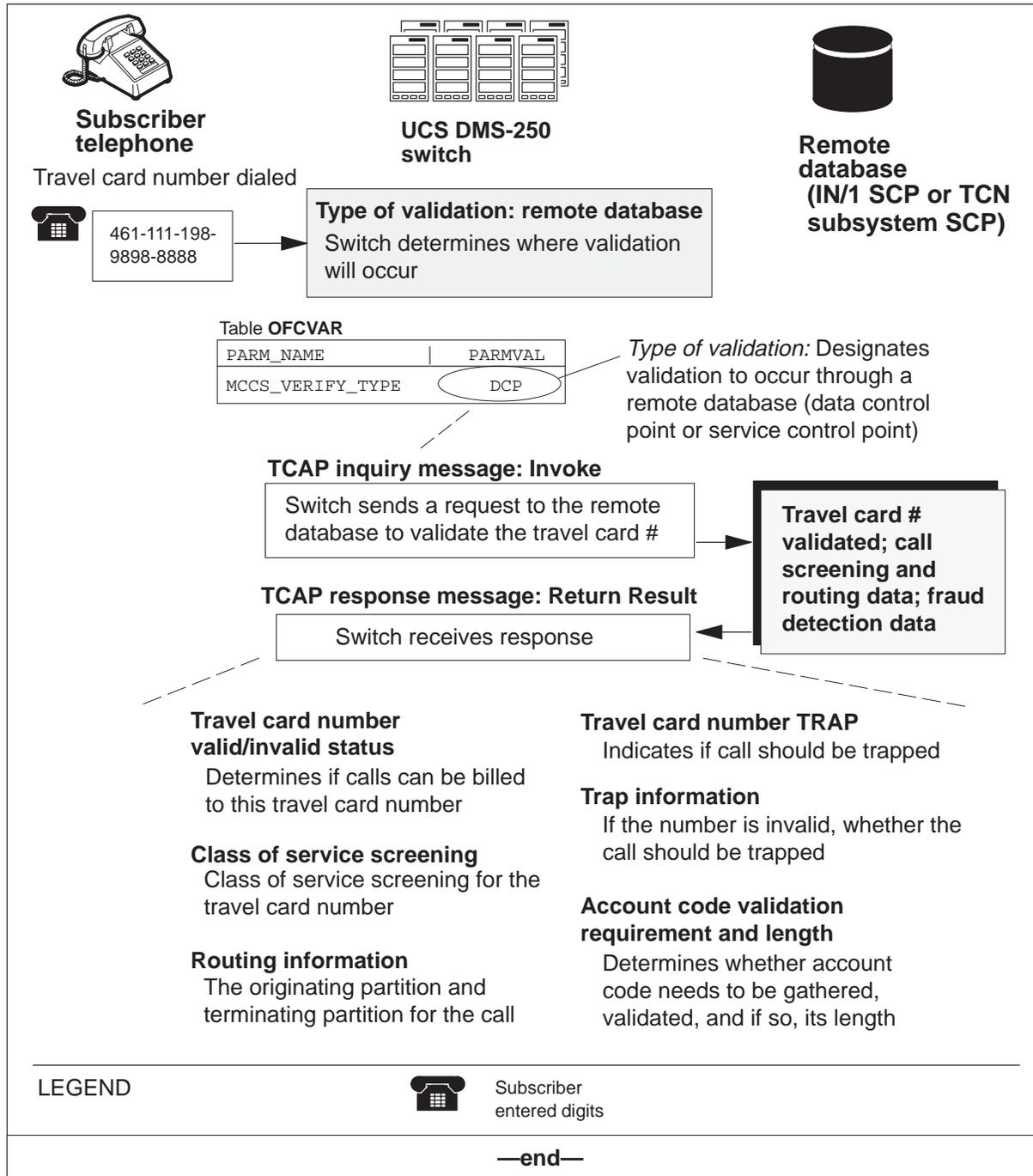
Figure 4-9  
Datafill relationships for remote validation: standard call



## Implementation

### UA calls: datafill relationships (continued)

**Figure 4-9**  
**Datafill relationships for remote validation: standard call**



## Implementation

### UA calls: datafill relationships (continued)

---

#### Remote database timeout

For universal access calls, the fields SCPTOUT and SCPTOACT control the duration for the switch to wait for a response from the remote database and what action to take if a timeout occurs. If the remote database times out before it can validate the travel card number, you can set up a default TCAP response transaction for the remote database to return to the switch.

**For more information** on default TCAP responses, see *UCS DMS-250 Transaction Capabilities Application Part (TCAP) Application Guide*, 297-2621-355.

#### Invalid travel card number entered

The TCAP response of the remote database can include a Trap Class from 0 to 7 and a TCN Trap (or trap flag) of 0 or 1. Figure 4-9 shows how these settings affect how the switch handles the call information and routing for an invalid travel card number.

##### **TCAP: trap class setting**

Trap class settings from 1 to 7 index into table TCNTCH for routing the call to a hot line number. In this case, you can use this number to connect the caller with a prerecorded announcement or with a security office. If table TCNTCH does not contain datafill, the call routes to Calling Card Not Valid (CCNV) treatment.

If the trap class is set to 0, the switch does not refer to table TCNTCH.

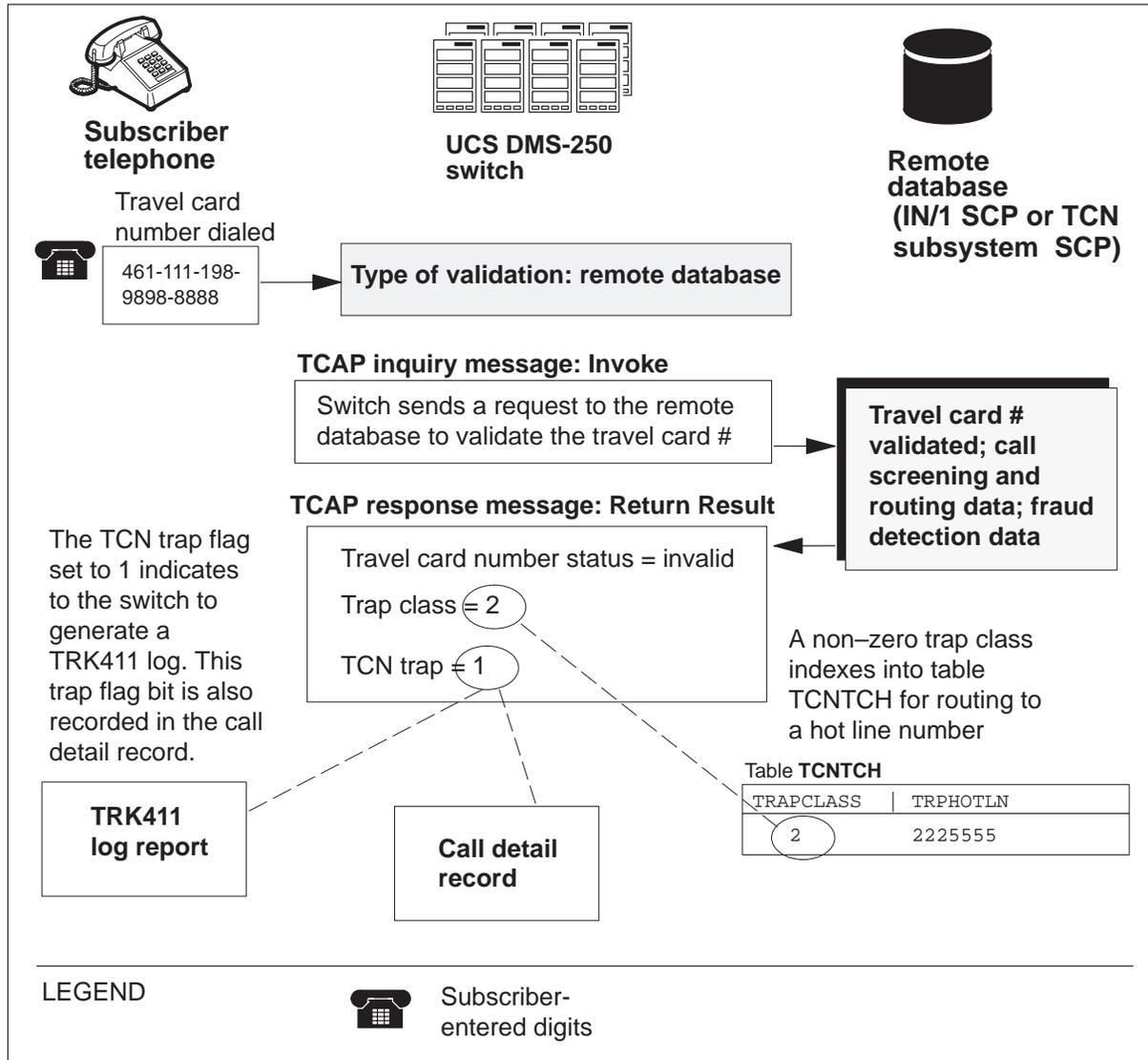
##### **TCAP: TCN trap setting**

If the setting in TCN trap equals 1, the switch generates log report TRK411 to record call information for this attempt to enter an invalid travel card number. This trap flag bit is also recorded in the TRAP field of the call detail record.

If the setting in TCN trap equals 0, the switch does not generate TRK411.

## Implementation UA calls: datafill relationships (end)

**Figure 4-10**  
Invalid travel card number: routing to hot line number



## Implementation

### UA calls: datafill steps (continued)

---

#### Datafill overview

This datafill section shows examples and steps for calls with a universal access number. Tables 4-4 through 4-5 show a summary of service-related settings and an example datafill sequence for MCCA Remote Validation service.

Use the following steps for datafilling each table to set up Remote Validation service for a universal access number. Many of the following tables contain numerous fields, but only the fields that affect MCCA Remote Validation service are shown.

**For more information** on how datafill settings affect call flow, see “UA calls: datafill relationships” in this section.

#### Software optionality control

The Remote Validation service cannot be datafilled without first purchasing and activating the software optionality control (SOC) code. The following steps explain how to activate remote validation services.

- 1 Purchase the services from Nortel Networks and obtain a password (also called a keycode) to activate the service. If you do not currently have basic services (CRDS0001), you must also purchase and activate it first.
- 2 At the MAP terminal, enter the SOC level by entering  
> **SOC CI**
- 3 To begin activation of voice prompt services, set the right to use with the keycode obtained from Nortel Networks.  
> **ASSIGN RTU <KEY\_CODE> TO CRDS0002**
- 4 Next assign the state of the order code to ON.  
> **ASSIGN STATE ON TO CRDS0002**
- 5 Exit the SOC directory.  
> **QUIT**

## Implementation

### UA calls: datafill steps (continued)

The CLD/CLG Number Query service cannot be activated without first activating the Remote Validation services. The following steps explain how to activate the CLD/CLG Number Query service.

- 1 Activate Remote Validation services as stated in the preceding steps.
- 2 At the MAP terminal, enter the SOC level by entering  
> **SOC CI**
- 3 To begin activation CLD/CLG Number Query services, set the right to use with the keycode obtained from Nortel Networks.  
> **ASSIGN RTU <KEY\_CODE> TO CRDS0004**
- 4 Next assign the state of the order code to ON.  
> **ASSIGN STATE ON TO CRDS0004**
- 5 Exit the SOC directory.  
> **QUIT**

**For more information** on software optionality control commands, usage, and reports see the *DMS-100 Family SOC User Manual*, 297-8991-901.

## Datavfill summary

**Table 4-4**  
**Step 1: table OFCVAR office parameters**

Function	Parameter
Validation indicator	MCCS_VERIFY_TYPE
Number of users allowed to use the TESTSS command at the same time	TESTSS250_MAX_USERS
Default class of service indicator	DEFAULT_TCN_COS_INDEX

**Implementation**  
**UA calls: datafill steps** (end)

---

**Table 4-5**  
**Step 2: table STDPRT**

<b>Function</b>	<b>Field, subfield</b>
Application name related to remote database validation	APPLNAME
Number of seconds for remote database timeout	SCPTOUT
Action to take after remote database timeout	SCPTOACT

## Implementation

### UA datafill: Table OFCVAR (continued)

#### Table description

<b>Name:</b>	Office Variable
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Contains values for the UCS DMS-250 central office
<b>Datafill before OFCVAR:</b>	See specific office parameters for this information
<b>Datafill after OFCVAR:</b>	n/a

**For more information** on how office parameters affect call flow, see “UA calls: datafill relationships” in this section.

#### Datafill steps

To datafill:	Go to office parameter:	Enter:	Explanation	Example
<b>Validation</b> —to occur with a remote database	MCCS_ VERIFY_TYPE	DCP	A remote database validates the travel card number and, if required, an account code.	DCP
<b>TESTSS command use</b> —number of users allowed at once	TESTSS250_ MAX_USERS	0–2; 2 = default	The maximum number of users allowed to use the TESTSS command at the same time  If this parameter is set to 0, the TESTSS command cannot be used.	1
<b>Class of service screening</b> —default class of service screening	DEFAULT_TCN_ COS_INDEX	Default class of service value	If the remote database times out, this class of service default can be used to route the call.	2

## Implementation

### UA datafill: Table OFCENG (continued)

---

#### Table description

<b>Name:</b>	Office Engineering
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Contains values for the UCS DMS-250 central office
<b>Datafill before OFCENG:</b>	See specific office parameters for this information
<b>Datafill after OFCENG:</b>	n/a

**For more information** on how office parameters affect call flow, see “UA calls: datafill relationships” in this section.

#### Datafill steps

To datafill:	Go to office parameter:	Enter:	Explanation	Example
<b>Remote Validation</b> —to determine where remote database takes place	LEC_CC_TCAP	SCP or TCN	A remote database validates the travel card number.	TCN

---

## Implementation

### UA datafill: Subtable STDPRT (continued)

---

#### Table description

<b>Name:</b>	Standard Pretranslator
<b>Subtable of:</b>	Table STDPRTCT
<b>Purpose:</b>	Identifies a range of digits and a route selector for the universal access number and the address to determine the next stage of pretranslation for a call. The field STDPRT in table STDPRTCT indexes into subtable STDPRT.
<b>Datafill before OFCVAR:</b>	Table STDPRTCT
<b>Datafill after OFCVAR:</b>	n/a

**For more information** on how office parameters affect call flow, see “UA calls: datafill relationships” in this section.

## Implementation

### UA datafill: Subtable STDPRT (end)

#### Datafill steps

Only the variations from STDPRT datafill that apply directly to remote validation are shown.

To datafill:	Go to field, subfield or refinement:	Enter:	Explanation	Example
Name of the TCAP application	APPLNAME	TCN	TCN is only name accepted. This is the name of the TCAP application used during remote validation.	TCN
Number of seconds to wait for a response from the remote database (SCP) before a timeout occurs	SCPTOUT	1–10; 5 = default	Service control point timeout. After the designated number of seconds waiting for a response from the remote database, a timeout occurs	5
Whether to allow the call to proceed or to be blocked after a remote database timeout occurs	SCPTOACT	BLOCK or PROCEED; default = PROCEED	Service control point timeout action. Call can be blocked or allowed to proceed after a timeout occurs.	PROCEED

---

**Implementation**  
**UA datafill: Table TCNTCH** (continued)

---

**Table description**

<b>Name:</b>	Travel Card Number Trap Class Hot line
<b>Subtable of:</b>	n/a
<b>Purpose:</b>	Translates a non-0 Trap Class number into a 7- or 10-digit hot line number. For example, a hot line number can send the caller to a prerecorded announcement or a customer security office.
<b>Datafill before OFCVAR:</b>	n/a
<b>Datafill after OFCVAR:</b>	n/a

**Implementation**  
**UA datafill: Table TCNTCH (end)**

---

**Datafill steps**

Only the variations from TCNTCH datafill that apply directly to remote validation are shown.

<b>To datafill:</b>	<b>Go to field, subfield or refinement:</b>	<b>Enter:</b>	<b>Explanation</b>	<b>Example</b>
Trap classification	TRAPCLASS	1-7	The trap class for invalid travel card numbers. This datafill is referenced by the switch when the TCAP data returned from the remote database includes a Trap Class that is not 0.	2
Trap hot line number	TRPHOTLN	Up to 10 digits	A hot line number; 7- or 10-digit number or a 6-digit virtual private network number. The switch connects the caller to this number.	225555

---

## Support Commands (continued)

---

### TCNTEST

#### Use

The Travel Card Number Test (TCNTEST) command is a maintenance command that allows you to validate travel card numbers without placing a call and receive the following information from the remote database:

- the trap classification and trap flag setting
- class of service index
- routing information
- any satellite restrictions
- whether account code validation is required and the length of the account code

#### Syntax

If the CLD/CLG Number Query service is disabled, enter the TCNTEST command with these parameters:

```
>TCNTEST <TCN_NUMBER> [<TIMEOUT>]
```

If the CLD/CLG Number Query service is enabled, enter the TCNTEST command with these parameters:

```
>TCNTEST <TCN_NUMBER> <CALLED NUMBER> <CALLING NUMBER>  
<CALL TYPE> [<TIMEOUT>]
```

#### Parameter definitions

**TCN\_NUMBER**—the 14-digit travel card number

**CALLED\_NUMBER**—the destination number. The number of destination digits entered must be between 1 and 19. If prefix digits (0, 01, or 011) are entered, they are removed and the remaining address digits entered (up to 16) are sent to the SCP.

**CALLING\_NUMBER**—may be either an ANI, PANI, or CLID. The number of digits entered must be from 2 to 18. The first two digits are for Info Digits (II) and the remaining 16 are for the calling number. For calls that do not have an ANI, PANI, or CLID, enter the digits 00.

**CALL\_TYPE**—NA or IN. Used for calling number only.

**TIMEOUT**—an optional timeout value (from 0–30) that specifies in seconds how long to wait for a reply from the remote database

## Support Commands (continued)

---

### Example

The following example uses the TCNTEST command. 21323667896789 is the travel card number, and the number 1 following is the timeout.

```
>TCNTEST 21323667896789 1
```

Following is a sample response:

```
Time for sending query and receiving response is:  
0 minutes, 0 seconds, 6 milliseconds.  
The following data was returned from the RDB.  
The CCN number 21323667896789 is valid  
Trap class:                0  
Originating partition:    111  
Terminating partition:    0  
Satellite restriction:    No  
Account code validation required: No  
Account code length:      0  
COS index:                1  
Trap:                     No
```

---

**Support  
Commands** (continued)

---

**ACCTTEST****Use**

The Account Code Test (ACCTTEST) command allows you to find out the status of a travel card number or an account code and the number of seconds the remote database took to reply.

**Syntax**

Enter the ACCTTEST command with these parameters:

```
>ACCTTEST <TCN_NO> [<ACCT_NO>]
```

**Parameter definitions**

**TCN\_NO**—the 14-digit travel card number

**ACCT\_NO**—an account code associated with the travel card number

**Example**

The following example uses the ACCTTEST command. 21323667896789 is the travel card number and 54545 is the account code.

```
>ACCTTEST TCN 21323667896789 545
```

Following is a sample response:

```
The DCP response took 0 seconds and 8 milliseconds for travel  
card number 21323667896789  
account code 545 is valid.
```

## Support Commands (end)

---

### TESTSS ACCTSS

#### Use

The Test Subsystem Account Code Validation Subsystem (TESTSS ACCTSS) set of commands can be used to validate the following:

- authcode (AUTHACCT)
- travel card number (TCN)

#### Syntax

Enter the TESTSS ACCTSS command with these parameters to validate an account code:

```
>TESTSS ACCTSS AUTHACCT <ADIN> <AUTHCODE> <AUTH_ACCT>
```

Enter the TESTSS ACCTSS command with these parameters to validate a travel card number:

```
>TESTSS ACCTSS TCN <TCN_NO> <TCN_ACCT>
```

#### Parameter definitions

**ADIN**—the authcode database index number

**AUTHCODE**—the authorization code

**AUTHACCT**—the account code

**TCN**—the 14-digit travel card number

#### Example

```
>TESTSS ACCTSS AUTHACCT 0 54321 123456789012
```

Following is a sample response:

```
The DCP response took 0 seconds and 8 milliseconds for  
authcode 00 54321 account code 123456789012 is valid.
```

**For more information** about commands, see the *UCS DMS-250 Commands Reference Manual*, 297-2621-819, the *Menu Commands Reference Manual*, 297-1001-821x, and the *Non-Menu Commands Reference Manual*, 297-1001-820x.

## OCC230

The switch generates OCC230 when remote validation fails. This log generate when an invalid or unknown travel card number fails validation. OCC230 indicates whether validation failed on the first or second attempt.

You can use OCC230 log report for datafill verification and fraud detection.

### Example

```
OCC230 JAN11 09:30:03 INFO TRAVEL CARD NUMBER INVALID
  TRBCODE = FIRST_TCN_ATTEMPT_INVALID
  ANI_SCP = 002145551212
  UNIV_AC = 9501060
  DIALD_NO = 02149974500
  ORG_GRP = 0025
  ORG_MEM = 014
  ORG_DATE = 1989 01 11 9 30 3
```

## TRK411

The Trunk Maintenance (TRK) subsystem generates this report when the TCAP response message returned from the remote database has a TCN TRAP parameter set to 1. The information related to the trapped call is recorded in this log for fraud detection purposes.

### Example

```
TRK411 AUG19 80:26:28 9615 FLT TCN_TROUBLE_DATA
  CKT UNEAN2WMFWK91 100      ORIG SWITCH ID = 11
  TRBCODE = _____ TCN_TRAP TCNNO = 23232323232323
  DIALEDNO = 02149908888      CLDNO = 02149998888
  ORIGANI = 2145551212
```

**For more information** about logs, see the *UCS DMS-250 Logs Reference Manual*, 297-2621-840.

## Support Operational measurements (continued)

### TCAPERRS

The OM group TCAPERRS counts protocol errors that the TCAP detects. TCAPERRS registers are listed as follows.

#### Transaction portion registers

The registers listed in Table 4-6 count the types of errors that occur within the transaction portion of a TCAP message. The two types of errors that can occur within the transaction portion are:

- message format errors—examples include unrecognized data values and incorrect or missing data
- state transition errors—examples include messages that do not conform to normal state transitions

When either of the above errors occur, the message is rejected. This means a reject component is sent in the TCAP message to the message originator.

**Table 4-6**  
**TCAPERRS transaction portion registers**

Abbreviation	Name	TCAP problem
TCTPEUPT	TCAP transaction portion error—unrecognized package type	Incorrect package type
TCTPEITP	TCAP transaction portion error—incorrect transaction portion	Incorrect identifier in the transaction portion
TCTPESTP	TCAP transaction portion error—incorrectly structured component portion	Fundamental encoding problem in the transaction portion; for example, an incorrect length
TCTPEUTI	TCAP transaction portion error—unrecognized transaction identification	Incorrect transaction identification

## Support Operational measurements (continued)

### Component portion registers

The registers listed in Table 4-7 count the types of errors that occur within the component portion of a TCAP message.

**Table 4-7**  
**TCAPERRS component portion registers**

Abbreviation	Name	TCAP problem
TCCPEUCT	TCAP component portion error—unrecognized component type	Incorrect component type
TCCPEICP	TCAP component portion error—incorrect component portion	Incorrect identifier in the component portion
TCCPESCP	TCAP component portion error—badly structured component portion	Have a fundamental encoding problem in the component portion; for example, an incorrect length

### Invoke component registers

The registers listed in Table 4-8 count the types of errors that occur with the invoke components of a TCAP message.

**Table 4-8**  
**TCAPERRS invoke component registers**

Abbreviation	Name	TCAP problem
TCICEDII	TCAP invoke component error—duplicate invoke identification	Invoke identification is assigned to another operation in progress
TCICEUOC	TCAP invoke component error—unrecognized operation code	Invoke component contains an incorrect operation code
—continued—		

## Support

### Operational measurements (continued)

**Table 4-8**  
**TCAPERRS invoke component registers**

Abbreviation	Name	TCAP problem
TCICEUXP	TCAP invoke component error—undefined or unexpected parameter	Invoke component contains an incorrect parameter
TCICEUCI	TCAP invoke component error—unrecognized correlation identification	Invoke component contains a correlation identification that does not reflect an operation in progress
—end—		

### Return result component registers

The registers listed in Table 4-9 count the types of errors that occur with the return result components of a TCAP message.

**Table 4-9**  
**TCAPERRS return result component registers**

Abbreviation	Name	TCAP problem
TCRCEUCI	TCAP return result component error—unrecognized correlation information	Return result contains a correlation identification that does not indicate an operation in progress
TCRCEXRR	TCAP return result component error—unexpected return result	Return result component occurred in a response to invoked operations that did not require a return result component
TCRCEUXP	TCAP return result component error—undefined or unexpected parameter	Return result component contains an incorrect parameter

## Support

### Operational measurements (continued)

#### Return error component registers

The registers listed in Table 4-10 count the types of errors that occur with the return error components of a TCAP message.

**Table 4-10**  
**TCAPERRS return error component registers**

Abbreviation	Name	TCAP problem
TCECEUCI	TCAP return error component error—unrecognized correlation identification	Return error component contains a correlation identification that does not reflect an operation in progress
TCECEXEC	TCAP return error component error—unexpected return error component	Return error component does not report failure of the invoked operation
TCECEUPC	TCAP return error component error—unrecognized problem code	Return error component contains an incorrect problem code
TCECEXPC	TCAP return error component error—unexpected problem code	Return error component contains a problem code that is not applicable to the invoked operation
TCECEIP	TCAP return error component error—incorrect parameter	Return error component contains an incorrect parameter

## Support Operational measurements (continued)

### TCAPUSAG

Listed in Table 4-11, the OM group TCAPUSAG records the use of TCAP messages, transactions, and components.

**Table 4-11**  
**TCAPUSAG transaction registers**

Abbreviation	Name	TCAP problem
TCABORT	TCAP abort package type	Message sent or received that contains the package type Abort
TCCNPERM	TCAP with conversation without permission	Message sent or received that contains package type Conversation without Permission
TCCWPERM	TCAP with conversation with permission	Message sent or received that contains package type Conversation with Permission
TCFORCED	TCAP forced transmission terminations	Forced termination transmission. This means the remote node sent a response package without permission or that the local application cancelled a transaction without permission.
TCINVKL	TCAP invoke last	The number of Invoke Last components that are sent or received
TCINVKNL	TCAP invoke not last	The number of Invoke Not Last components that are sent or received
TCMSGIN	TCAP messages terminating at this node	The number of transactions terminating at the node
TCMSGOUT	TCAP messages originating at this node	The number of messages originating on the node
TCNORMAL	TCAP normally terminated transactions	The number of transactions that terminated normally
TCQNPERM	TCAP query without permission	The number of messages sent or received with package type Query Without Permission
TCQWPERM	TCAP query with permission	The number of messages sent or received with package type Query With Permission
TCREJECT	TCAP reject	The number of components sent or received of type Reject
TCRESPNS	TCAP Response	The number of components sent or received with package type Response
—continued—		

---

## Support Operational measurements (end)

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**Table 4-11**  
**TCAPUSAG transaction registers** (continued)

Abbreviation	Name	TCAP problem
TCRSLTL	TCAP return result last	The number of components sent or received of type Return Result Last
TCRTERR	TCAP return error	The number of components sent or received of type Return Error
TCTRANS	TCAP transactions	The number of transactions initiated on the remote network by all application using TCAP
TCUNIDIR	TCAP unidirectional	The number of components sent or received of type Unidirectional
—end—		

**For more information** about these operational measurements, see the *UCS DMS-250 Operational Measurements Reference Manual*, 297-2621-814.

## Support Billing (end)

### Performance measurements

Information recorded in the COMPCODE field of the call detail record provide statistical data you can use to measure the performance of the SS7 network, as follows:

- value of 4—designates a signal system error occurred
- value of 9—designates a remote database (IN1 service control point) response timeout occurred

### Call data

Some of the information returned by the remote database is stored in the call detail record, as listed in Table 4-12. Trap class information is not used.

**Table 4-12**  
Data returned from database and recorded in call detail record

Data for:	Explanation:	Stored in call detail record, field:
Travel card number	The travel card number of the subscriber	BILLNUM
Call routing	The originating partition for the travel card number	ORIGOPRT
Trap	Trap flag for invalid travel card number	TRAP

**For more information** about billing information, see the *UCS DMS-250 Billing Records Application Guide*, 297-2621-395, and the *UCS DMS-250 Billing Server Application Guide*, 297-2621-320.

---

# Quick Call service

---

## This section includes...

### How does it work?

Service description—page 5-2

Call flows and explanations—page 5-5

### How do I implement it?

Hardware requirements—page 5-9

Datafill relationships—page 5-11

Datafill steps—page 5-13

## Service description

### Functionality (continued)

---

### Introduction

Quick Call service is available for purchase and activation to use with the long distance features of the UCS DMS-250 switch. To use Quick Call service, you must purchase and activate Basic service (software optionality code CRDS0001) and Quick Call service (software optionality code CRDS0005).

### Quick call service features

The following features listed in Table 5-1 are included with Quick Call service.

**Table 5-1**  
**Quick Call service features**

Quick call service features
<i>4-digit Quick Call PIN dialing for travel card number</i> —Allows subscribers who are calling their home or business number to enter a four-digit personal identification number (PIN) after receiving the prompt for the travel card number.

With Quick Call, subscribers who are calling the number assigned to their travel card (such as a home or office number) only need to enter a 4-digit Quick Call PIN. The switch creates the 14-digit travel card number from the Quick Call PIN and the 10-digit address. This allows subscribers to easily call their home or office from any location (if they are dialing the 10-digit address that makes up the travel card number).

In addition to using Quick Call service with Basic service, Quick Call service can also be used with Voice Prompt service (CRDS0003) and Remote Validation service (CRDS0002).

**Service description**  
**Functionality (continued)**

**Trunk types and Quick call service features**

The following shows the types of trunks that can accommodate Quick Call service.

DAL, DALTIE	FGA (ONAL)—PTS	FGB (ONAT)—PTS	FGC UA—PTS	FGD		IMT UA—SS7	PRI	Quick Call service options
				UA—PTS/SS7	Trans—PTS			
X		X	X	X	X	X		With tone prompts
			X	X				With voice prompts

**Functional overviews**

The following explains the functionality of Quick Call service, including:

- entering the called number (or address)
- entering the Quick Call PIN
- invalid dialing
- validation

**Subscriber enters the address**

When it is time to enter the address, the subscriber enters the called number or address associated with the travel card. For example, the called number can be a voice mail number, a home number, or an office number. In any case, the 10-digit address must be the same number as the first 10 digits of the travel card number. This number must be ten digits in length (not including the 0+ prefix digit) and must conform to the format shown in Figure 5-1.

## Service description

### Functionality (end)

---

**Figure 5-1**  
**Format for called number and Quick Call PIN**

<b>Address format</b>	<b>Quick Call PIN format</b>
First 10 digits of travel card number	Last 4 digits of travel card number
<b>NXX-NXX-XXXX</b>	<b>NXXX</b>

### **Subscriber enters the Quick Call PIN**

After the prompt for the travel card number, the subscriber enters the 4-digit personal identification number (the Quick Call PIN) that is the last four digits of the 14-digit travel card number. The subscriber may dial one of the following:

- enter the Quick Call PIN and press the pound key (#)—This signifies to the switch that the subscriber has completed the Quick Call PIN entry.
- enter the Quick Call PIN only—After the last digit of the Quick Call PIN entry and a timer expires, the switch begins processing this call as a Quick Call. If the switch receives more digits before the timer expires, the switch does not process the call as a Quick Call.

### **Invalid dialing**

MCCS allows the length of address digits to be a number other than 10 (for example, on-net or international calls differ from this length). However, these calls cannot be processed as Quick Calls. If the address dialed is less than or greater than 10 digits, the switch cannot create a travel card number from the address and the Quick Call PIN. In this case the switch processes the call and routes the call to PDIL treatment for addresses less than 10 digits and routes the call to RODR treatment for addresses greater than 10 digits.

### **Validation**

Validation and call flows associated with it occur normally and depend on whether Quick Call is being used with tone prompts, voice prompts, or operator services.

**Service description**  
**Call flow overview (end)**

---

## Introduction

Quick Call service works with Basic service, Voice Prompt service, and Remote Validation service. How call flow occurs with Quick Call service depends on:

- how the subscriber accesses the switch
- whether Quick Call is being used with tone prompts or voice prompts
- whether operator services is available

With universal access calls, the subscriber dials a universal access (UA) number to access the switch. The following call flows show functionality- and feature-related information for universal access calls.

**For more information** on datafill relationships and datafill steps, see “Implementation” in this Remote Validation service section.

## **Service description**

### **Call flow: universal access** (continued)

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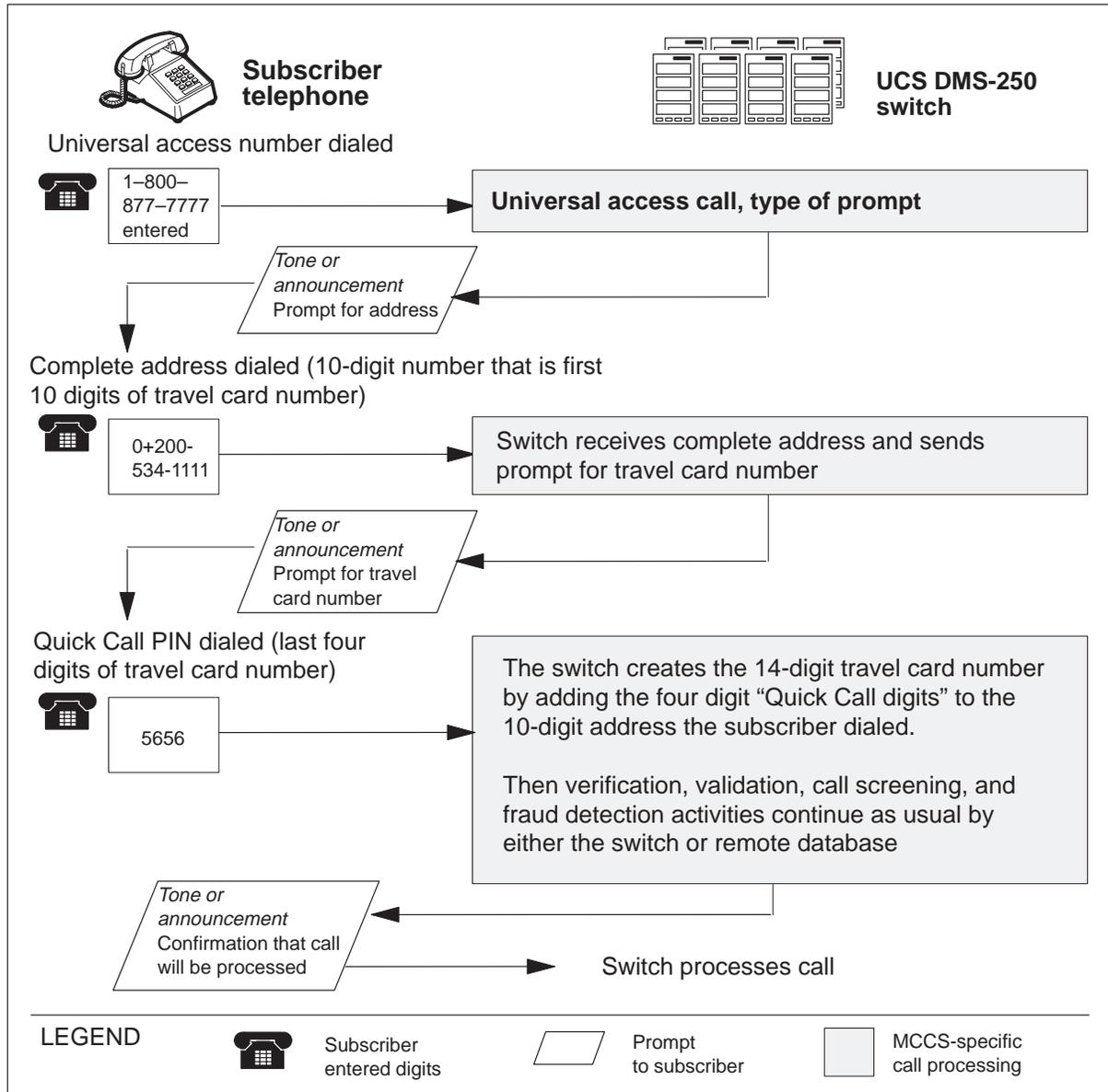
#### **Standard, completed call**

Figure 5-2 shows an example of a completed universal access call flow for Quick Call service. When subscribers dial the 4-digit Quick Call PIN, the switch uses these digits along with the 10-digit address to create the travel card number. After the travel card number is created, the switch continues processing the call.

## Service description

### Call flow: universal access (continued)

**Figure 5-2**  
Call flow: standard, completed UA quick call



## **Service description**

### **Call flow: universal access (end)**

---

#### **Variations from standard completed call**

Variations to a quick call are the same for either tone prompts or voice prompts, depending on which of these services you are using. Quick call works with:

- reset dialing
- reorigination dialing
- dedicated dialing with basic tone prompt services

To reoriginate and dial an address different from the first 10 digits of the travel card number, the subscriber enters the # key and dials another address. The first Quick Call and subsequent reoriginations are billed to the travel card number.

For more information on these variations, see the call flows in the “MCCS Basic service” and “MCCS Voice Prompt service” sections.

## Implementation Introduction (continued)

### Datafill and call flow

This section contains the datafill relationships and steps that are crucial to making Remote Validation service function properly.

**For more information** on basic explanations of the datafill process, see “Appendix H: Datafill” in this manual.

### Trunk types and Quick Call service features

The following shows the types of trunks that can accommodate Quick Call service.

	DAL, DALTIE	FGA (ONAL)—PTS	FGB (ONAT)—PTS	FGC UA—PTS	FGD		IMT UA—SS7	PRI	Quick Call service options
					UA—PTS/SS7	Trans—PTS			
				X	X		X		With voice prompts
X		X	X	X	X		X		With tone prompts

### Hardware requirements

Hardware requirements are dependent on whether you are using Quick Call service with tone prompts or voice announcements and whether you are using in-switch or remote validation. No specific hardware is required for Quick Call Service. For hardware requirements relating to using Quick Call with other services, see one of these sections

- “MCCS Basic service” for tone prompts
- “MCCS Remote Validation service” for remote database validation
- “MCCS Voice Prompt service” for voice prompts

**Implementation**  
**Introduction** (end)

---

**Datafill relationships and highlights**

Other than the software optionality control code, no additional datafill is required for Quick Call services.

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## Implementation

### UA calls: datafill relationships (continued)

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#### Introduction

The following information explains how the datafill affects MCCS Quick Call service and universal access call flow.

#### Standard call flow

Figure 5-3 shows the datafill relationships involved in a standard call flow with an account code.

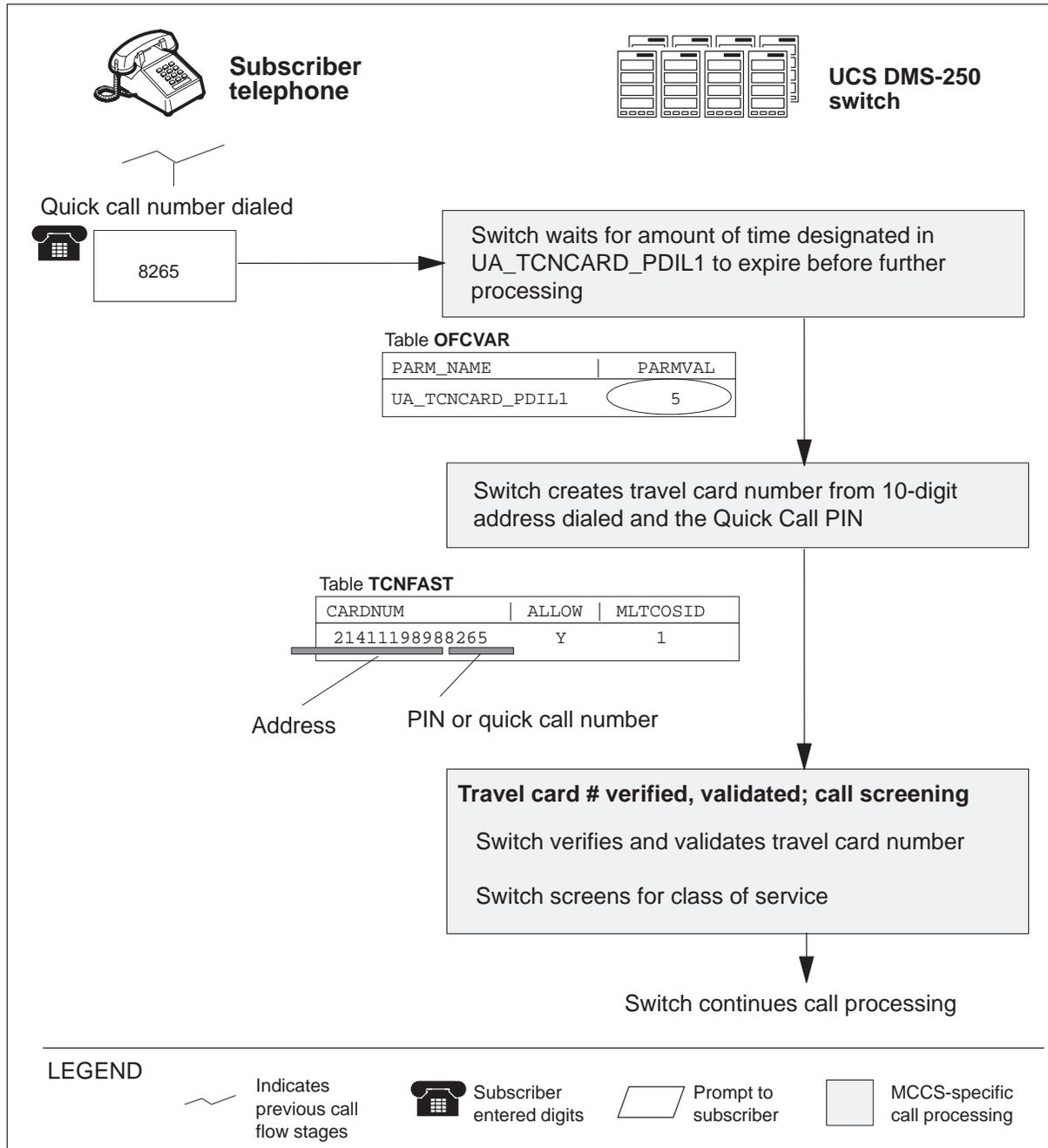
#### Office parameter setting

After the subscriber receives the prompt for the travel card call, the subscriber enters the 4-digit PIN. If the subscriber does not enter the # key after the Quick Call PIN, the number of seconds designated in UA\_TCNCARD\_PDIL1 expires. (UA\_TCNCARD\_PDIL2 controls the timing for the second partial dial.) After this time, the switch begins processing the call as a Quick Call and begins attempting to create the travel card number from the address and the Quick Call PIN. If successful, the switch continues call processing and records the 14-digit travel card number in the BILLNUM field of the call detail record.

Figure 5-3 shows how this office parameter works with Quick Call dialing, using in-switch validation. However, this call flow can also occur with remote validation.

## Implementation UA calls: datafill relationships (end)

Figure 5-3  
Quick Call service and UA\_TCNCARD\_PDIL1 timer



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## Implementation

### UA calls: datafill steps (end)

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#### Datafill overview

Other than software optionality control, there is no datafill exclusively for Quick Call service. Table OFCVAR, parameters UA\_TCNCARD\_PDIL1 and UA\_TCNCARD\_PDIL2 control the time allowed to expire after the Quick Call PIN digits are entered.

#### Software optionality control

Quick Call service cannot be datafilled without first purchasing and activating the software optionality control (SOC) code. The following steps explain how to activate remote validation services.

- 1 Purchase the services from Nortel Networks and obtain a password (also called a keycode) to activate the service. If you do not currently have Basic service (CRDS0001), you must also purchase and activate it first.
- 2 At the MAP terminal, enter the SOC level by entering  
> **SOC CI**
- 3 To begin activation of voice prompt services, set the right to use with the keycode obtained from Nortel Networks.  
> **ASSIGN RTU <KEY\_CODE> TO CRDS0005**
- 4 Next assign the state of the order code to ON.  
> **ASSIGN STATE ON TO CRDS0005**
- 5 Exit the SOC directory.  
>**QUIT**

**For more information** on software optionality control commands, usage, and reports see the *DMS-100 Family SOC User Manual*, 297-8991-901.



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## Appendix A: Dialing plans

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Originating trunks cause the dialing plan to vary. This section covers the dialing plans by trunks for basic services and voice prompt services. Where account codes are noted, remote validation services must be in use.

### **This appendix includes...**

**Dialing plan abbreviations—page 6-2**

**Plans for agencies with tone prompt calls—page 6-2**

**Plans for agencies with voice prompt calls—page 6-6**

## Dialing plan abbreviations

The following are the abbreviations used in dialing plans.

Abbreviation	Explanation
ADDRESS	Called number
ANI	Automatic number identification; 3-10 digits
CC	Country code; 1-3 digits
TCN	Travel card number of 14 digits; first digit is not a 0 or 1
II	Information digits
KP	Key pulse
N	Any digits 2-9
NN	National number (for international calls)
ST2P	Start translation double prime
SVCTYPE	Service type
X	Any digits 0-9

## Basic services

The following UCS DMS-250 switch agencies support MCCA travel card calls with tone prompts:

- dedicated access line (DAL)
- dedicated access line terminal interface equipment (DALTE)
- FGA off-network access line (ONAL)
- FGB off-network access trunk (ONAT)
- FGC universal access (UA)
- FGD UA (PTS/SS7)
- FGD transitional (PTS/SS7)
- PRI
- SS7 IMT and SS7 Global IMT UA

The dialing plans for agencies using tone prompts follow in Tables 6-1 through 6-6 in alphabetical order. Account codes are only collected with remote validation.

**Table 6-1**  
**DAL, DALTIE and FGA (ONAL) tone prompts dialing plan**

<p><b>Off-net and on-net dialing</b></p> <p>0 + ADDRESS + &lt;travel card prompt&gt; TCN +                  (&lt;account code prompt&gt; account code) +                  &lt;travel card confirmation tone&gt;</p>	
<p><b>International dialing</b></p> <p>01 + CC + NN + &lt;travel card prompt&gt; TCN +                  (&lt;account code prompt&gt; account code) +                  &lt;travel card confirmation tone&gt;</p>	
<p><b>Note:</b> ( ) indicates optional; account codes are collected only with remote validation.</p>	

**Table 6-2**  
**FGB (ONAT) tone prompts dialing plan**

<p><b>Off-net and on-net dialing</b></p> <p>MF            KP + 950XXXX + ST</p> <p>DTMF        0 + ADDRESS + &lt;travel card prompt&gt; TCN +                  (&lt;account code prompt&gt; account code) +                  &lt;travel card confirmation tone&gt;</p>	
<p><b>International dialing</b></p> <p>MF            KP + 950XXXX + ST</p> <p>DTMF        01 + CC + NN + &lt;travel card prompt&gt; TCN +                  (&lt;account code prompt&gt; account code) +                  &lt;travel card confirmation tone&gt;</p>	
<p><b>Note:</b> ( ) indicates optional; account codes are collected only with remote validation.</p>	

**Table 6-3**  
**FGC UA tone prompts dialing plan**

<b>Off-net and on-net dialing</b>	
MF	KP + 800NXXXXXX + ST
DTMF	0 + ADDRESS + <travel card prompt> TCN + (<account code prompt> account code) <travel card confirmation tone>
<b>International dialing</b>	
MF	KP + 800NXXXXXX + ST
DTMF	01 + CC + NN + <travel card prompt> TCN + (<account code prompt> account code) <travel card confirmation tone>
<b>Note:</b> ( ) indicates optional; account codes are collected only with remote validation.	

**Table 6-4**  
**FGD transitional tone prompts dialing plan**

<b>Off-net and on-net dialing</b>	
MF	KP + II + ANI + ST2P
DTMF	0 + ADDRESS + <travel card prompt> TCN + (<account code prompt> account code) + <travel card confirmation tone>
<b>International dialing</b>	
MF	KP + II + ANI + ST2P
DTMF	01 + CC + NN + <travel card prompt> TCN + (<account code prompt> account code) + <travel card confirmation tone>
<b>Note:</b> ( ) indicates optional; account codes are collected only with remote validation.	

**Table 6-5**  
**FGD UA tone prompts dialing plan**

<b>Off-net and on-net dialing</b>	
MF	KP + II + ANI + ST
MF	KP + 800NXXXXXX + ST
DTMF	0 + ADDRESS + <travel card prompt> TCN (<account code prompt> account code) <travel card confirmation tone>
<b>International dialing</b>	
MF	KP + II + ANI + ST
MF	KP + 800NXXXXXX + ST
DTMF	01 + CC + NN + <travel card prompt> TCN (<account code prompt> account code) <travel card confirmation tone>
<b>Note:</b> ( ) indicates optional; account codes are collected only with remote validation.	

**Table 6-6**  
**PRI tone prompts dialing plan**

<b>Off-net and on-net dialing</b>	
DTMF	0 + ADDRESS + <travel card prompt> TCN + (<account code prompt> account code) + <travel card confirmation tone>
<b>International dialing</b>	
DTMF	01 + CC + NN + <travel card prompt> TCN + (<account code prompt> account code) + <travel card confirmation tone>
<b>Note:</b> ( ) indicates optional; reorigination does not occur with PRI trunks; account codes are collected only with remote validation.	

## Voice prompt services

The following UCS DMS-250 switch agencies support MCCS travel card calls with voice prompts:

- FGC UA
- FGD UA (PTS and SS7)
- global intermachine trunks (IMT) UA (SS7 only)
- intermachine trunks (IMT) UA (SS7 only)

Tables 6-7 through 6-10 provide the dialing plans for agencies using voice prompts. Account codes are only collected with remote validation.

**Table 6-7**  
**FGC UA voice prompts dialing plan**

<b>Off-net and on-net dialing</b>	
MF	KP + 800NXXXXXX + ST
DTMF	0 + ADDRESS + <travel card announcement> TCN + (<account code announcement> account code) + <confirmation announcement>
<b>International dialing</b>	
MF	KP + 800NXXXXXX + ST
DTMF	01 + CC + NN + <travel card prompt> TCN + (<account code announcement> account code) + <confirmation announcement>
<b>Note:</b> ( ) indicates optional; account codes are collected only with remote validation.	

**Table 6-8**  
**FGD UA (PTS) voice prompts dialing plan**

<b>Off-net and on-net dialing</b>	
MF	KP + II + ANI + ST
MF	KP + 800NXXXXXX + ST
DTMF	0 + ADDRESS + <travel card announcement> TCN + (<account code announcement> account code) + <confirmation announcement>
<b>International dialing</b>	
MF	KP + II + ANI + ST
MF	KP + 800NXXXXXX + ST
DTMF	01 + CC + NN + <travel card announcement> TCN + (<account code announcement> account code) + <confirmation announcement>
<b>Note:</b> ( ) indicates optional; account codes are collected only with remote validation.	

**Table 6-9**  
**SS7 FGD UA voice prompts dialing plan**

<b>Off-net and on-net dialing</b>	
MF	KP + II + ANI + ST
MF	KP + 800NXXXXXX + ST
DTMF	+ 0 + ADDRESS + <travel card announcement> TCN + (<account code announcement> account code) + <confirmation announcement>
<b>International dialing</b>	
MF	KP + II + ANI + ST
MF	KP + 800NXXXXXX + ST
DTMF	01 + CC + NN + <travel card announcement> TCN + (<account code announcement> account code) + <confirmation announcement>
<b>Note:</b> ( ) indicates optional; account codes are collected only with remote validation.	

**Table 6-10**  
**SS7 IMT UA voice prompts dialing plan**

<b>Off-net and on-net dialing</b>	
MF	KP + 800NXXXXXX + ST
DTMF	0 + ADDRESS + <travel card announcement> TCN + (<account code announcement> account code) + <confirmation announcement>
<b>International dialing</b>	
MF	KP + 800NXXXXXX + ST
DTMF	01 + CC + NN + <travel card announcement> TCN + (<account code announcement> account code) + <confirmation announcement>
<b>Note:</b> ( ) indicates optional; account codes are collected only with remote validation.	

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## Appendix B: Office parameters

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Office parameters are those areas of datafill where you set parameters that control software configuration for the office. The office parameters for your office settings are contained in table OFCVAR.

This chapter contains and explains the office parameters in table OFCVAR that affect MCCS.

**For more information** on office parameters, see the *UCS DMS-250 Office Parameters Reference Manual*, 297-2621-855.

### About memory requirements

In the DMS-100 family of products, the memory device is usually the memory circuit pack or memory card. This electronic storage is in the form of bits of information. A bit is a binary digit of 0 or 1. Bits are grouped together to form larger units called bytes or words. Each word represents a unit of information and may vary in length. In the SuperNode system, memory is organized into 40-bit words.

**For more information** on memory for the DMS SuperNode, see the *DMS-100 Family Memory Administration Manual*, 297-1001-305.

## Office parameter descriptions

The following explains the categories and functions described about each office parameter in this section.

<b>Name</b>	The full name of the office parameter
<b>Function</b>	The main function of the office parameter  <i>Related table:</i> Any tables that contain datafill related to this office parameter
<b>SOC dependency</b>	Any software optionality control codes that must be activated to "ON" before datafill can be entered
<b>Provisioning rules</b>	Any guidelines or rules to consider when datafilling this parameter
<b>Ranges</b>	Acceptable ranges of this parameter, including defaults
<b>Activation</b>	After datafill, when the parameter will activate
<b>Dependencies</b>	Any datafill that must be completed for the parameter to be effective
<b>Consequences</b>	Potential affects of settings
<b>Verification</b>	Steps to verify the datafill of the office parameter
<b>Memory requirements</b>	How much memory the parameter requires
<b>Dump and restore rules</b>	Any guidelines for software updates that may affect the parameter

**DEFAULT\_TCN\_COS\_INDEX** (end)

<b>Name</b>	Default Travel Card Number Class of Service Index
<b>Function</b>	<p>The switch performs class of service screening for all M CCS calls based on the value of this parameter. This parameter relates to Remote Validation service. If a timeout occurs with the remote database, the default TCAP response may refer to this parameter for the value for class of service screening.</p> <p><i>Related table:</i> This parameter is a key to table MULTICOS. Table MULTICOS indexes into table COS.</p>
<b>SOC dependency</b>	CRDS0002, Remote Validation service
<b>Provisioning rules</b>	None
<b>Ranges</b>	<p>If this parameter has a value of zero, the switch will not screen M CCS calls for class of service.</p> <p>Min: 0    Max: 2047    Default: 0</p>
<b>Activation</b>	Immediate
<b>Dependencies</b>	Not applicable
<b>Consequences</b>	Not applicable
<b>Verification</b>	<p>To verify this parameter is functional, make a travel card call that uses the default travel card parameters.</p> <p>If remote validation is used, simulate a situation where the RETURN RESULT is not returned from the service control point (for example, if the service control point is not in service).</p>
<b>Memory requirements</b>	Each unit requires one word of memory
<b>Dump and restore rules</b>	n/a

**LEC\_CC\_TCAP** (end)

---

<b>Name</b>	Local Exchange Carrier (LEC) Carrier Calling Card (CC) Transactions Capabilities Application Part (TCAP)
<b>Function</b>	Determines which off-switch SCP is used for TCN validation.
<b>SOC dependency</b>	CRDS0001 and CRDS002
<b>Provisioning rules</b>	None
<b>Ranges</b>	Range of values are SCP, LIDB, and TCN
<b>Activation</b>	Immediate
<b>Dependencies</b>	Not applicable
<b>Consequences</b>	Not applicable
<b>Verification</b>	Not applicable
<b>Memory requirements</b>	One word of memory
<b>Dump and restore rules</b>	Copy the existing value of this parameter or consult Nortel Networks Customer Engineering.

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**MCCS\_CALLING\_CARD\_TIMEOUT** (end)

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<b>Name</b>	Mechanized Calling Card Service Calling Card Timeout
<b>Function</b>	Specifies the amount of time (in one-second increments) the subscriber has to enter the first travel card digit after hearing the prompt tone. If a timeout occurs, the switch applies CCTO (calling card timeout) treatment.
<b>SOC dependency</b>	CRDS0001, Basic service
<b>Provisioning rules</b>	None
<b>Ranges</b>	Range of values are in units of MCCS_DIGIT_TIMEOUT_RANGE Min: 1    Max: 10    Default: 10
<b>Activation</b>	Immediate
<b>Dependencies</b>	Not applicable
<b>Consequences</b>	Not applicable
<b>Verification</b>	Not applicable
<b>Memory requirements</b>	One word of memory
<b>Dump and restore rules</b>	Copy the existing value of this parameter or consult Nortel Networks Customer Engineering.

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**MCCS\_CONFIRM\_FIRST\_TONE\_DUR** (end)

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<b>Name</b>	Mechanized Calling Card Service Confirm First Tone Duration
<b>Function</b>	Specifies the first part of the duration of the confirmation tone in 10-millisecond increments. (The confirmation tone is made up of a first and second part, and a pause that separates the two parts. This tone indicates to the subscriber that the travel card number was verified, and the call will be completed.)
<b>SOC dependency</b>	CRDS0001, Basic service
<b>Provisioning rules</b>	None
<b>Ranges</b>	Min: 0    Max: 255    Default: 10
<b>Activation</b>	Immediate
<b>Dependencies</b>	Not applicable
<b>Consequences</b>	Not applicable
<b>Verification</b>	Not applicable
<b>Memory requirements</b>	One word of memory
<b>Dump and restore rules</b>	Copy the existing value of this parameter or consult Nortel Networks Customer Engineering.

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**MCCS\_CONFIRM\_OFF\_TONE\_DUR** (end)
 

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<b>Name</b>	Mechanized Calling Card Service Confirm Off Tone Duration
<b>Function</b>	Specifies the duration of silence (in 10-millisecond increments) between the first and second confirmation tone. (The confirmation tone is made up of a first and second part, and a pause that separates the two parts. This tone indicates to the subscriber that the travel card number was verified, and the call will be completed.)
<b>SOC dependency</b>	CRDS0001, Basic service
<b>Provisioning rules</b>	None
<b>Ranges</b>	Min: 0    Max: 255    Default: 10
<b>Activation</b>	Immediate
<b>Dependencies</b>	Not applicable
<b>Consequences</b>	Not applicable
<b>Verification</b>	Not applicable
<b>Memory requirements</b>	One word of memory
<b>Dump and restore rules</b>	Copy the existing value of this parameter or consult Nortel Networks Customer Engineering.

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**MCCS\_SECOND\_TONE\_DUR** (end)

---

<b>Name</b>	Mechanized Calling Card Service Confirm Second Tone Duration
<b>Function</b>	Specifies the duration (in 10-millisecond increments) of the second part of the confirmation tone. (The confirmation tone is made up of a first and second part, and a pause that separates the two parts. This tone indicates to the subscriber that the travel card number was verified, and the call will be completed.)
<b>SOC dependency</b>	CRDS0001, Basic service
<b>Provisioning rules</b>	None
<b>Ranges</b>	Min: 0    Max: 255    Default: 10
<b>Activation</b>	Immediate
<b>Dependencies</b>	Not applicable
<b>Consequences</b>	Not applicable
<b>Verification</b>	Not applicable
<b>Memory requirements</b>	One word of memory
<b>Dump and restore rules</b>	Copy the existing value of this parameter or consult Nortel Networks Customer Engineering.

**MCCS\_CONFIRM\_TONE** (end)

<b>Name</b>	Mechanized Calling Card Service Confirm Tone
<b>Function</b>	Specifies the type of tone to be used as the MCCS confirmation tone. (This tone indicates to the subscriber that the travel card number was verified, and the call will be completed.)
<b>SOC dependency</b>	CRDS0001, Basic service
<b>Provisioning rules</b>	None
<b>Ranges</b>	Min: n/a    Max: n/a    Default: DIALTONE
<b>Activation</b>	Immediate
<b>Dependencies</b>	Not applicable
<b>Consequences</b>	Not applicable
<b>Verification</b>	Not applicable
<b>Memory requirements</b>	One word of memory
<b>Dump and restore rules</b>	Copy the existing value of this parameter or consult Nortel Networks Customer Engineering.

## MCCS\_POSITION (end)

---

<b>Name</b>	Mechanized Calling Card Service Position
<b>Function</b>	Used for tone-prompt calls that need operator assistance  <i>Related table:</i> Provides access (through an index) into table POSITION; here the operator position is defined. The datafill in table POSITION must match the datafill in this office parameter.
<b>SOC dependency</b>	CRDS0001, Basic service
<b>Provisioning rules</b>	None
<b>Ranges</b>	Range of values is a character string; first datafill this string in table POSITION  Min: n/a    Max: n/a    Default: NONE
<b>Activation</b>	Immediate
<b>Dependencies</b>	Not applicable
<b>Consequences</b>	Not applicable
<b>Verification</b>	Not applicable
<b>Memory requirements</b>	One word of memory
<b>Dump and restore rules</b>	Copy the existing value of this parameter or consult Nortel Networks Customer Engineering.

**MCCS\_PROMPT\_TONE** (end)

<b>Name</b>	Mechanized Calling Card Service Prompt Tone
<b>Function</b>	Specifies the type of tone generated for the prompt tone for the address and travel card number. This tone is generated by a digital carrier module or a digital trunk controller.
<b>SOC dependency</b>	CRDS0001, Basic service
<b>Provisioning rules</b>	None
<b>Ranges</b>	Range of values is a character string Min: n/a    Max: n/a    Default: DIAL_TONE
<b>Activation</b>	Immediate
<b>Dependencies</b>	Not applicable
<b>Consequences</b>	Not applicable
<b>Verification</b>	Not applicable
<b>Memory requirements</b>	One word of memory
<b>Dump and restore rules</b>	Copy the existing value of this parameter or consult Nortel Networks Customer Engineering.

## **MCCS\_PROMPT\_TONE\_DELAY** (end)

---

<b>Name</b>	Mechanized Calling Card Service Prompt Tone Delay
<b>Function</b>	Specifies the amount of time (in 10-millisecond increments) between the end of address digit collection and the prompt tone for the travel card number.
<b>SOC dependency</b>	CRDS0001, Basic service
<b>Provisioning rules</b>	None
<b>Ranges</b>	Min: 0    Max: 255    Default: 2
<b>Activation</b>	Immediate
<b>Dependencies</b>	Not applicable
<b>Consequences</b>	Not applicable
<b>Verification</b>	Not applicable
<b>Memory requirements</b>	One word of memory
<b>Dump and restore rules</b>	Copy the existing value of this parameter or consult Nortel Networks Customer Engineering.

**MCCS\_PROMPT\_TONE\_DUR** (end)

<b>Name</b>	Mechanized Calling Card Service Prompt Tone Duration
<b>Function</b>	Specifies the duration (in 10-millisecond increments) of the prompt tone for the address and travel card number. This tone is generated by a digital carrier module or a digital trunk controller.
<b>SOC dependency</b>	CRDS0001, Basic service
<b>Provisioning rules</b>	None
<b>Ranges</b>	Min: 0    Max: 255    Default: 100
<b>Activation</b>	Immediate
<b>Dependencies</b>	Not applicable
<b>Consequences</b>	Not applicable
<b>Verification</b>	Not applicable
<b>Memory requirements</b>	One word of memory
<b>Dump and restore rules</b>	Copy the existing value of this parameter or consult Nortel Networks Customer Engineering.

**MCCS\_PRTNM** (end)

<b>Name</b>	Mechanized Calling Card Service Pretranslator Name
<b>Function</b>	Determines the pretranslator name the switch uses for in-switch validation and processing of all MCCS calls.  <i>Related table:</i> This parameter is a key to table STDPRTCT and is usually set to "MCCS." The associated subtable STDPRT contains the pretranslator for the called address. If there is no key in table STDPRTCT that is equal to the MCCS_PRTNM value, the call routes to VACT treatment.
<b>SOC dependency</b>	CRDS0001, Basic service
<b>Provisioning rules</b>	None
<b>Ranges</b>	Range of values is in units of PRETRANSLATOR_NAME  Min: n/a    Max: n/a    Default: NPRT
<b>Activation</b>	Immediate
<b>Dependencies</b>	Not applicable
<b>Consequences</b>	Not applicable
<b>Verification</b>	Not applicable
<b>Memory requirements</b>	Each unit requires one word of memory
<b>Dump and restore rules</b>	Copy the existing value of this parameter or consult Nortel Networks Customer Engineering.

**MCCS\_STS** (end)

<b>Name</b>	Mechanized Calling Card Service Serving Translation Scheme
<b>Function</b>	Specifies the serving translation scheme the switch uses to route all MCCS calls when in-switch validation occurs
<b>SOC dependency</b>	CRDS0001, Basic service
<b>Provisioning rules</b>	None
<b>Ranges</b>	The value is expressed in CUSTOMER_SERVICE_STS_RANGE units.  Min: 0    Max: 999    Default: The first serving translation scheme (STS) datafilled in table HNPACONT.
<b>Activation</b>	Immediate
<b>Dependencies</b>	Not applicable
<b>Consequences</b>	Not applicable
<b>Verification</b>	Not applicable
<b>Memory requirements</b>	One word of memory
<b>Dump and restore rules</b>	Copy the existing value of this parameter or consult Nortel Networks Customer Engineering.

**MCCS\_VERIFY\_TYPE** (end)

<b>Name</b>	Mechanized Calling Card Service Verify Type
<b>Function</b>	Determines whether the switch validates the travel card number through an in-switch datafill table (table TCNFAST) or through a remote database (such as a service control point).
<b>SOC dependency</b>	CRDS0001, Basic service—if parameter is set to “INSWITCH”  CRDS0002, Remote Validation service—if parameter is set to “DCP”
<b>Provisioning rules</b>	To datafill the setting for remote validation, the SOC option CRDS0002 must be set to ON.
<b>Ranges</b>	Value choices are either INSWITCH (for validation by table TCNFAST) or DCP (to indicate remote validation).  Min: n/a    Max: n/a    Default: INSWITCH
<b>Activation</b>	Immediate
<b>Dependencies</b>	Not applicable
<b>Consequences</b>	Not applicable
<b>Verification</b>	Not applicable
<b>Memory requirements</b>	Each unit requires one word of memory
<b>Dump and restore rules</b>	Copy the existing value of this parameter or consult Nortel Networks Customer Engineering.

**UA\_TCNCARD\_PDIL\_1** (end)

<b>Name</b>	Universal Access Travel Card Number Partial Dial 1
<b>Function</b>	A timer that determines the amount of time (in seconds) allowed after a subscriber has entered a portion of the travel card number (first attempt).
<b>SOC dependency</b>	CRDS0001, Basic service
<b>Provisioning rules</b>	None
<b>Ranges</b>	Min: 2    Max: 30    Default: 15
<b>Activation</b>	Immediate
<b>Dependencies</b>	Not applicable
<b>Consequences</b>	If the value is too low, the timer may expire while a subscriber is pausing during the dialing phase.
<b>Verification</b>	Enter an incomplete number on the first dial attempt. Ensure the time between the last digit dialed and the announcement is the same as the value of this parameter.
<b>Memory requirements</b>	Requires one word of memory
<b>Dump and restore rules</b>	Copy the existing value of this parameter or consult Nortel Networks Customer Engineering.

## UA\_TCNCARD\_PDIL\_2 (end)

---

<b>Name</b>	Universal Access Travel Card Number Partial Dial 2
<b>Function</b>	A timer that determines the amount of time (in seconds) allowed after a subscriber has entered a portion of the travel card number (second attempt).
<b>SOC dependency</b>	CRDS0001, Basic service
<b>Provisioning rules</b>	None
<b>Ranges</b>	Min: 2    Max: 30    Default: 5
<b>Activation</b>	Immediate
<b>Dependencies</b>	Not applicable
<b>Consequences</b>	If the value is too low, the timer may expire while a subscriber is pausing during the dialing phase. The switch may unnecessarily route these calls to an operator.
<b>Verification</b>	Enter an incomplete number on the second dialing attempt. Ensure the time between the last digit dialed and the announcement is the same as the value of this parameter.
<b>Memory requirements</b>	Requires one word of memory
<b>Dump and restore rules</b>	Copy the existing value of this parameter or consult Nortel Networks Customer Engineering.

---

# Appendix C: Operational measurements

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## Introduction

The switch performs periodic scans of switch components and switch activities, then records the information in operational measurements (OM). OMs provide information you can use to determine the existing performance of the switch and to forecast future needs.

### OM groups

Operational measurements are placed in OM groups. These groups consist of OMs that relate to the same kind of information. For example, all announcement-related operational measurements are grouped together.

### OM registers

The switch gathers two types of operational measurements and places the data in “registers.” A register is a software location where counts are stored.

- peg counts—The switch records (or “pegs”) the number of times an event occurs and places the event count in individual registers.
- usage counts—The switch scans or samples equipment within a timed period and records this in a register.

Register names begin with the OM group abbreviation (such as ANN) and end with an abbreviation that indicates the type of register (such as OVFL).

### Using operational measurements

Operational measurements provide data you can use to measure the capacity of your existing system and to forecast for future needs. Capacity factors include holding time, call rate and blockage, circuit failure, average work time, and call processing messaging. Also, each time you add a new feature to an existing switch or a new customer needs a large number of services and features, you must evaluate memory requirements.

## MCCS-related operational measurements

The OM groups that provide information pertaining to MCCS include the following and relate to the following MCCS service:

- ANN—announcements with Basic or Voice Prompt service
- OPCHOICE—customized operator routing through table OPCHOICE
- TCAPUSAG—TCAP messaging with Remote Validation service
- TCAPERRS—TCAP messaging with Remote Validation service
- TRMTCU2—treatments related to Basic, Voice Prompt, and Remote Validation service
- TRMTFR—treatments related to Basic service

**For more information** on the OM groups and their registers, see the, *UCS DMS-250 Operational Measurements Reference Manual*, 297-2621-814.

### ANN

ANN (Announcements) provides information on traffic for recorded announcement machines. ANN contains two peg registers (ANNATT and ANNOVFL) and three usage registers (ANNTRU, ANNSBU, and ANNMBU).

ANN registers display at the MAP terminal as follows:

```
ANNATT  ANNOVFL  ANNTRU  ANNSBU
ANNMBU
```

### OPCHOICE

OPCHOICE (Operator Choice) provides information on the number of calls that use each operator routing index (field OPIDX found in subtable STDPRT). The switch counts each 0-, 0+, or 01+ call that it routes with OPIDX through table OPCHOICE. The switch records this count in peg register OPCHRTE.

The OPCHOICE register displays at the MAP terminal as follows:

```
OPCHRTE
```

## TCAPERRS

TCAPERRS (TCAP Errors) measures the TCAP receiving Reject messages by their problem type for a subset of the C7 subsystems that includes MCCS.

### Message content

The TCAP message contents field is made up of two data elements:

- the transaction identification necessary to associate the message with a unique transaction
- a data element containing one or more components

The component portion of a message consists of a sequence of one or more TCAP components.

### Error types

Two types of errors can occur within the transaction portion:

- message format errors—include unrecognized data values, incorrect or missing data, and unexpected data
- state transition errors—messages that do not conform to normal state transitions

### Error tracking

When a format error or state transition error is detected, TCAP rejects the message by sending a reject component to the message originator. Two key fields track travel card TCAP error conditions: subsystems TCN and LEC.

TCAPERRS registers display at the MAP terminal as follows:

TCTPEUPT	TCTPEITP	TCTPESTP	TCTPEUTI
TCCPEUCT	TCCPEICP	TCCPESCP	TCICEDII
TCICEUOC	TCCEUXP	TCICEUCI	TCRCEUCI
TCRCEXRR	TCRCEUXP	TCECEUCI	TCECEXEC
TCECEUPC	TCECEXPC	TCECEIP	

### Registers

TCAPERRS registers are grouped into the following portions and components as listed in Table 8-1.

**Table 8-1**  
**TCAPERRS**

Type	Prefix	Name
Transaction portion	TCTP	TCTPEUPT TCTPEITP TCTPESTP TCTPEUTI
Component portion	TCCP	TCCPEUCT TCCPEICP TCCPESCP
Invoke component	TCIC	TCICEDII TCICEUOC TCICEUXP TCICEUCI
Return result component	TCRC	TCRCEUCI TCRCEXRR TCRCEUXP
Return error component	TCEC	TCECEUCI TCECEXEC TCECEUPC TCECEXP TCECEIP

### TCAPUSAG

The TCAPUSAG (TCAP Usage) group measures TCAP usage in terms of messages, transactions, and components for a subset of the C7 subsystems that includes the M CCS subsystem.

## Error tracking

Two key fields track travel card TCAP error conditions: subsystems TCN and LEC. TCAPUSAG registers display at the MAP terminal as follows:

TCMSGOUT	TCMSGOU2	TCMSGIN	TCMSGIN2
TCUNIDIR	TCUNIDI2	TCQWPERM	TCQWPER2
TCQNPERM	TCQNPER2	TCCWPERM	TCCWPER2
TCCNPERM	TCCNPER2	TCRESPNS	TCRESPN2
TCINVKL	TCINVKL2	TCINVKNL	TCINVKN2
TCRSLTL	TCRSLTL2	TCRSLTNL	TCRSLTN2
TCRTERR	TCRTERR2	TCREJECT	TCREJEC2
TCABORT	TCABORT2		

## TRMTFR

TRMTFR (Feature-related treatment) counts calls that are routed to a treatment as a normal progression of a call.

### Registers

TRMTFR contains one register for each call treatment. The registers are named TFRnnnn, where nnnn is the external treatment abbreviation. The register is incremented when a call is routed to that treatment.

TRMTFR registers display at the MAP terminal as follows:

TFRBUSY	TFRMANL	TFRORMC	TFRCONF
TFRRRPA	TFRORAF	TFRTRRF	TFRORAC
TFRORMF	TFRSRRR	TFRPMPT	TFRPRSC
TFRMHLD	TFRPGTO	TFRCCCTO	TFRNINT
TFRNCIX	TFRNCII	TFRNCTF	TFRCFOV
TFRILRR	TFRSINT	TFRIWUC	TFRFRDR
TFRSORE	TFRCCAP	TFRACPR	TFRADPA
TFRCCDT	TFRCBDN	TFRSCRJ	TFRICNF

Table 8-2 lists the TRMTFR registers used with M CCS.

**Table 8-2**  
**TRMTFR registers related to M CCS**

Register	M CCS service	Register pegs when...
TFR C C T O— Calling card timeout	Basic	Switch sends call to treatment because caller did not enter complete travel card number

## For more information

In addition to this publication, you can find information about operational measurements and their use in other Northern Telecom publications.

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For more information about...	See the manual...	Manual number
Operational measurement groups and their registers	<i>UCS DMS-250 Operational Measurements Reference Manual</i>	297-2621-814
The operational measurement system, terms, and their application	<i>Basic Administration Procedures</i>	297-1001-300
Memory, operational measurements, and commands (such as the OM group STORE)	<i>DMS-100 Family Memory Administration Manual</i>	297-1001-305
Capacity and the operational measurement system	<i>DMS-100 Family Capacity Administration Manual</i>	297-1001-304

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## Appendix D: Logs

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### Log reports

The UCS DMS-250 switch uses the log system to report significant events that occur on the switch or one of its peripherals. Logs report switch and peripheral status and activity, software or hardware faults, tests and results, and any conditions that could affect switch performance. Logs can generate automatically as events occur and be manually generated by a technician.

The log reports that follow provide information regarding M CCS calls; they are listed in alphabetical order.

**For more information, see:** the *UCS DMS-250 Log Reports Reference Manual*, NTP 297-2621-840, for commands specific to the UCS DMS-250 switch.

### OCC213

This log is generated along with OCC230 when in-switch validation is in effect. OCC213

- is generated by the switch when an invalid or unknown travel card number fails validation
- indicates whether validation failed on the first or second attempt
- provides relevant information such as ANI spill and billing number

You can use OCC213 and OCC230 log reports for datafill verification and fraud detection.

#### Example

```
OCC213 APR17 10:20:33 6504 INFO TCN IS NOT DATAFILLED
TRBCODE = TCN_IS_NOT_IN_TABLE_TCNFAST
TCN = 41255544443333
```

### OCC222

Log report OCC222 generates with remote validation when call processing accesses table TCNTCH and the TRAPCLASS key is not datafilled.

**Example**

```
OCC222 JAN20 10:15:20 9089 INFO DATABASE ACCESS TROUBLE
  TRBCODE = KEY NOT DATAFILLED
  TABLE  = TCNTCH
  KEY     = 5
```

**OCC230**

This log is generated along with OCC213 when both of the following occurs:

- in-switch validation takes place
- the 14-digit travel card number fails validation

The report indicates if validation failed on the first or second attempt. You can use OCC213 and OCC230 log reports for datafill verification and fraud detection.

**Example**

```
OCC230 JAN11 09:30:03 INFO TRAVEL CARD NUMBER INVALID
  TRBCODE = FIRST_TCN_ATTEMPT_INVALID
  ANI_SCP = 002145551212
  UNIV_AC = 9501060
  DIALD_NO = 02149974500
  ORG_GRP  = 0025
  ORG_MEM  = 014
  ORG_DATE = 1989 01 11 9 30 3
```

**TRK411**

Log report TRK411 generates when the remote database response has the TCN TRAP parameter set to TRUE. This log report indicates a “flagged” TCN has been used. You must determine if further action is necessary.

**Example**

```
TRK411 AUG19 08:26:28 9615 FLT TCN_TROUBLE_DATA
  CKT UNEAN2WMFWK91 100
  TRBCODE =          TCN_TRAP TCNNO = 23232323232323
  DIALDNO = 05559908888      CLDNO = 05559908888
  ORIGANI  = 2145551212      ORIG SWITCH ID = 111
```

---

# Appendix E: Restrictions and limitations

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## All M CCS services

The following restrictions and limitations apply to all M CCS services.

### Class of service

Class of service (COS) override is not allowed on M CCS calls.

### Trunks excluded from use

M CCS in table TRKGRP cannot be datafilled for wideband FGD and IMT trunks.

### Resets and reorigination

A maximum of three resets are allowed for each prompting phase of a call. The same applies to reoriginated calls.

Automatic reorigination is not supported for M CCS calls.

## Remote validation service

The following restrictions and limitations apply to remote validation CCS7 TCAP-based TCN queries.

### TRAP CLASS parameter

If the TRAP CLASS parameter is nonzero, COS screening is not performed, account code digits are not collected (except for operator-assisted calls), and reorigination is blocked.

### Rejected queries

Any rejected queries of the remote database Intelligent Network/1 (IN/1) service control point are not attempted again.

### Account codes

No account code digits are collected or recorded for an invalid travel card number.

If COS screening fails, the switch does not collect account code digits.

If reset dialing occurs while account code digits are being collected, the caller is taken back *only* to the beginning of the account code stage. Multiple resets do not take the caller back to the collection of the travel card number or address.

### **Universal access calls**

Satellite restriction is enforced if the remote database has field SATELLITE RESTRICTIONS set to "TRUE".

For calls that are called-party billed, the serving translation scheme derived from the originating partition and terminating partition from the remote database is used to translate the call. Office parameter MCCS\_STS is not used in this case.

### **Voice prompt service**

The following restrictions and limitations apply to voice prompt services.

#### **No dedicated trunk**

Authorization code calls and any call with a nonzero first digit received on 1-8XX UA are routed to treatment. The MCCSDED functionality is deactivated when VPROMPTS are set.

#### **Announcement datafill**

Voice prompts depend on phrases and announcement CLLIs datafilled in tables ANNMEMS and DRAMTRK. If DRAMTRK is not datafilled and the announcement is hit, Storage Overflow Recorder (SORD) treatment is applied.

Each track of an announcement member may have up to 255 calls connected to it simultaneously.

A maximum of seven tracks can be used for each announcement member in table ANNMEMS when Digital Recorded Announcement Machine (DRAM) or Enhanced Digital Recorded Announcement Machine (EDRAM) are used for voice prompts.

#### **Active announcement interruption**

The First Digit Not Zero (FDNZ) voice prompt can only be interrupted if the subscriber presses \* for reset ; dialing a numeric digit will not stop the announcement.

**Universal tone receiver exclusion**

Digit collection for voice prompts is supported *only* on universal tone receivers (UTR).

**Datafill in table VPROMPTS**

Calls attempting to play voice prompts not datafilled in table VPROMPTS are sent to treatment.

**Subtable STDPRT datafill**

To use voice prompts, datafill field APPLNAME with TCN (the only available choice) on the UA selector for UA 800 calls.

Voice prompts are not supported for calls that route to a terminator out of table STDPRTCT prior to address pretranslations.

**Announcement sets per UA number**

To use the enhanced announcement capability, the originating agency must be a FGC ONAT, FGD EANT, or IMT using Universal Access.

**Operator routing per UA number**

To use the operator routing capability, the originating agency must be a FGC ONAT, FGD EANT, or IMT using Universal Access.

Customized operator routing across an SS7 network is controlled by table OPCHOICE and the SOPCHIDX and ROPCHIDX values in table TRKGRP.

**Trunks excluded from use**

If an SS7 IMT trunk has a NETWKSPC of INTRA, then the VPROMPTS option is not permitted to be datafilled.

VPROMPTS in table TRKGRP cannot be datafilled for wideband FGD and IMT trunks.

**Call processing problems**

Two-wire trunks may leak received voice prompt signals into the call processing as user input. Under severe leakage, when the bong tone is recorded starting with a tone that represents the # sign, the call processing may interpret this as the termination of user digit stream input.

**Software optionality control**

The card services software optionality control consists of the following order codes:

- CRDS0001, Basic services

- CRDS0002, Remote Validation services
- CRDS0003, Voice Prompt services
- CRDS0004, CLD/CLG Number Query services
- CRDS0005, Quick Call services

The following restrictions and limitations apply to travel card voice prompts when card services software optionality control (SOC) is in use.

- CRDS0002 and CRDS0003 are dependent on CRDS0001. That is, CRDS0002 and CRDS0003 cannot be ON unless CRDS0001 is also ON. Likewise, you cannot change the state of either CRDS0002 or CRDS0003 while CRDS0001 is IDLE, and you cannot change CRDS0001 to IDLE while either CRDS0002 or CRDS0003 are ON.
- You can datafill the MCCS option in table TRKGRP only when CRDS0001 is ON. Likewise, you cannot change the state of CRDS0001 from ON to IDLE if the MCCS option is assigned to any tuple in table TRKGRP.
- You can set the office parameter MCCS\_VERIFY\_TYPE in table OFCVAR to DCP only when CRDS0002 is ON. Likewise, to change the state of CRDS0002 from ON to IDLE, you must set the value of MCCS\_VERIFY\_TYPE to INSWITCH.
- You can datafill the STDPRT\_UA\_OPTION with VBPROMPTS in subtable STDPRT only if CRDS0003 is ON. You can datafill the BONGTONE field in subtable STDPRT only if CRDS0003 is ON. Likewise, you cannot change the state of CRDS0003 from ON to IDLE if any tuple has BONGTONE set to Y, or if any tuple has VBPROMPTS datafilled.
- CRDS0004 is dependent on CRDS0002. That is, CRDS0004 cannot be ON unless CRDS0002 is also ON. Also, CRDS0002 cannot be set to IDLE while CRDS0004 is ON, and CRDS0004 cannot be set to IDLE unless CRDS0002 is ON.

---

# Appendix F: Datafill tables

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## Introduction

During translation, the switch accesses information in its datafill tables to determine a call's destination. By referencing the datafill, the switch sets up and takes down calls. For features to work properly, tables must be datafilled in a particular sequence.

The terms “translations” and “datafill” are sometimes used for the same activity. However, datafill is the information contained in the datafill tables of the switch. Translations occurs in the switch based on the settings in the datafill. When processing a call, the switch accesses any tables necessary to obtain translations and routing information.

## Switch datafill tables

Data used during the translations process resides in switch tables. Each table has a specific function and contains certain types of data, such as:

- the inventory of equipment used for call processing and maintenance
- control of equipment used for trunk development
- set up of signaling links
- control of interactions between trunks and network nodes

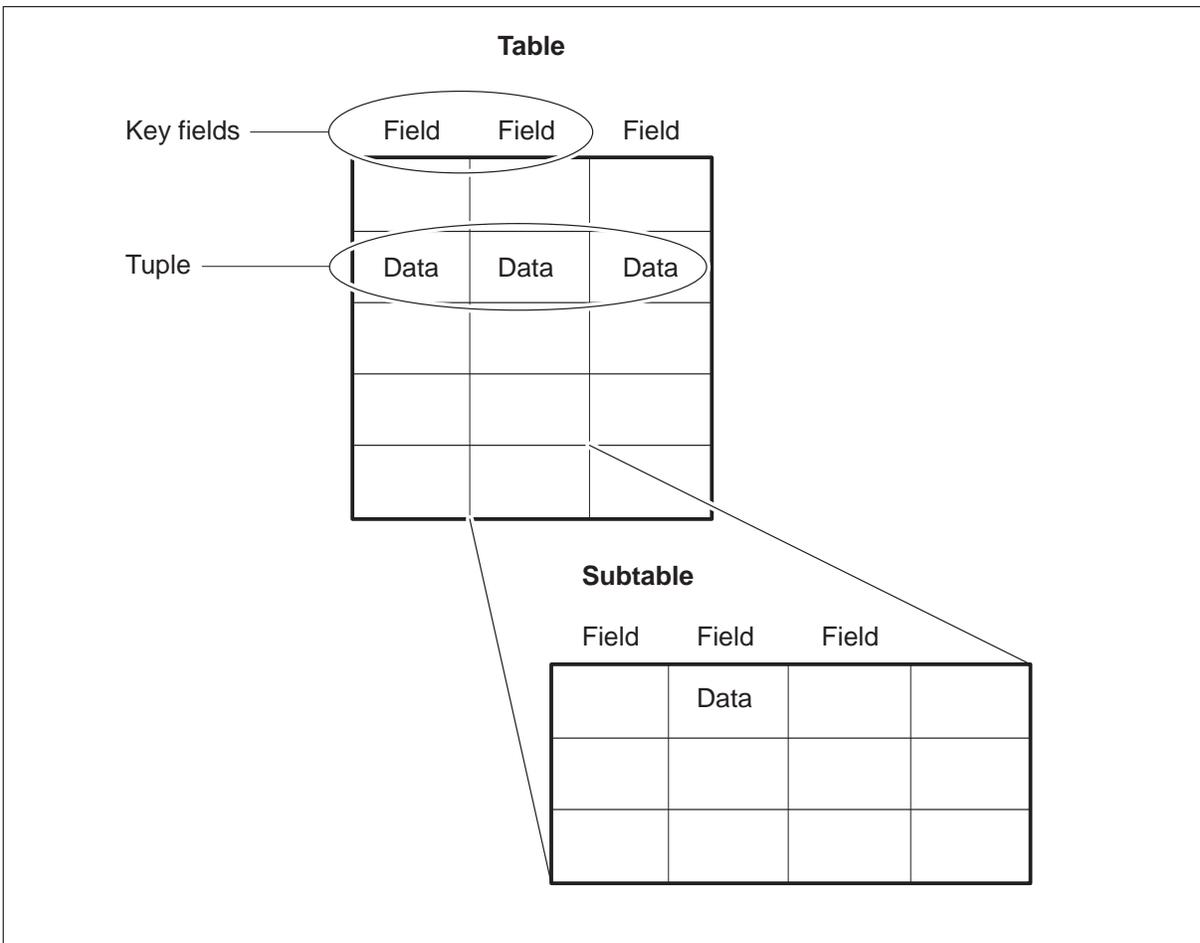
## Table naming

Each datafill table has a short name you can access in the switch. The short name is an abbreviation for the table's longer function-related name. For example, STDPRTCT is the name for subtable Standard Pretranslator Control table.

## Table structure

Tables consist of vertical columns called fields and horizontal rows called tuples, as shown in Figure 11-1.

**Figure 11-1**  
**Datafill table structure**



### Terms used in translations

#### **Data**

Tables contain data. Each field or subfield has a specific value that is valid for that field. For example, a field called SECONDS may accept integer values from 0 to 60. The set of all possible data values for a field is known as the range of the field.

#### **Field**

A field is one column of a table. Each field has a name that describes the content of the field.

**Key field**

Each table has a key field or fields. The key fields in a table are those fields that can uniquely identify any tuple in the table. They are important when using the table editor.

**Range**

The range of a field is the set of data values which can be entered in the field. For example, a field called NUMBER may have a range of 1 to 20. RANGE is also a command that can be entered at the switch to determine the range of the table or field.

**Subfield**

Some fields are made up of subfields. For example, in table C7NETSSN, field SSNAMES contains two subfields: SSNAME and SSNUMBER.

**Table editor**

The table editor is the user interface to the translation database. It allows the user to view tables, add or delete tuples, and change data in tuples.

**Tuple**

A tuple is one row in a table.

**Processing**

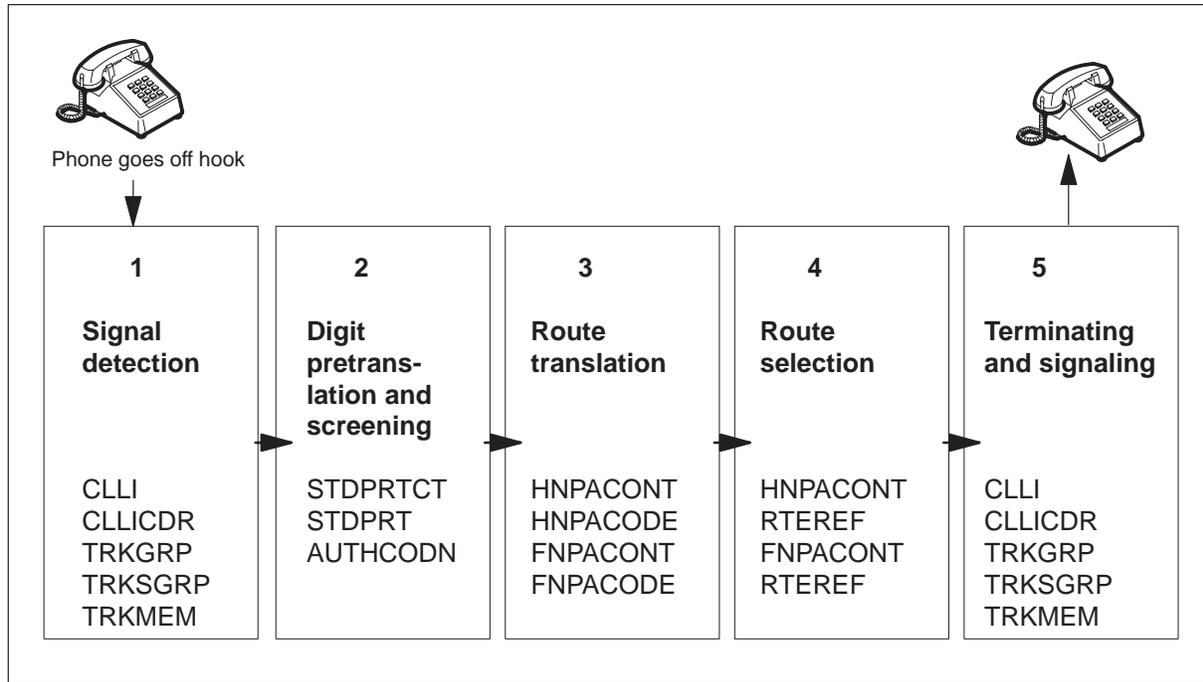
Before call processing can occur, the switch must be datafilled as a translations database for the network. The switch uses the serving translation scheme or STS to route calls.

**Call processing**

As the switch processes a call, it accesses information in its datafill tables to determine a call's destination. By referencing the datafill, the switch sets up and takes down calls. For features to work properly, tables must be datafilled in a particular sequence.

Figure 11-2 shows the basic stages of call processing and common tables the switch accesses during each stage.

**Figure 11-2**  
**Standard tables accessed during call processing**



### For more information

In addition to this publication, you can find information about MCCS and related topics in other Northern Telecom publications. MCCS-related references are listed as follows.

For more information about...	See the manual...	Manual number
Datafill and basic translations	<i>CSP Translations Reference Manual</i>	297-2621-350
	<i>Basic Translations Tools Guide</i>	297-1001-360
Software optionality control datafill	<i>UCS DMS-250 Software Optionality Control User Manual</i>	297-2621-301
	<i>Software Optionality Control User Manual</i>	297-8991-901

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# Appendix G: SS7

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## Signaling overview

A telephone call has two components:

- voice and data component—contains only the information being transferred between the originator and the recipient of the call
- signaling component—contains the supervisory and address signals used to control the setting up, monitoring, and taking down of the call

With regular signaling, called per-trunk signaling, both the voice/data and signaling components travel on the same signaling link.

## Common channel signaling

Common channel signaling (called Signaling System 7 or SS7) separates the signaling component from the voice and data component of a call and puts these two components on different channels.

### Benefits

SS7 signaling provides the following benefits:

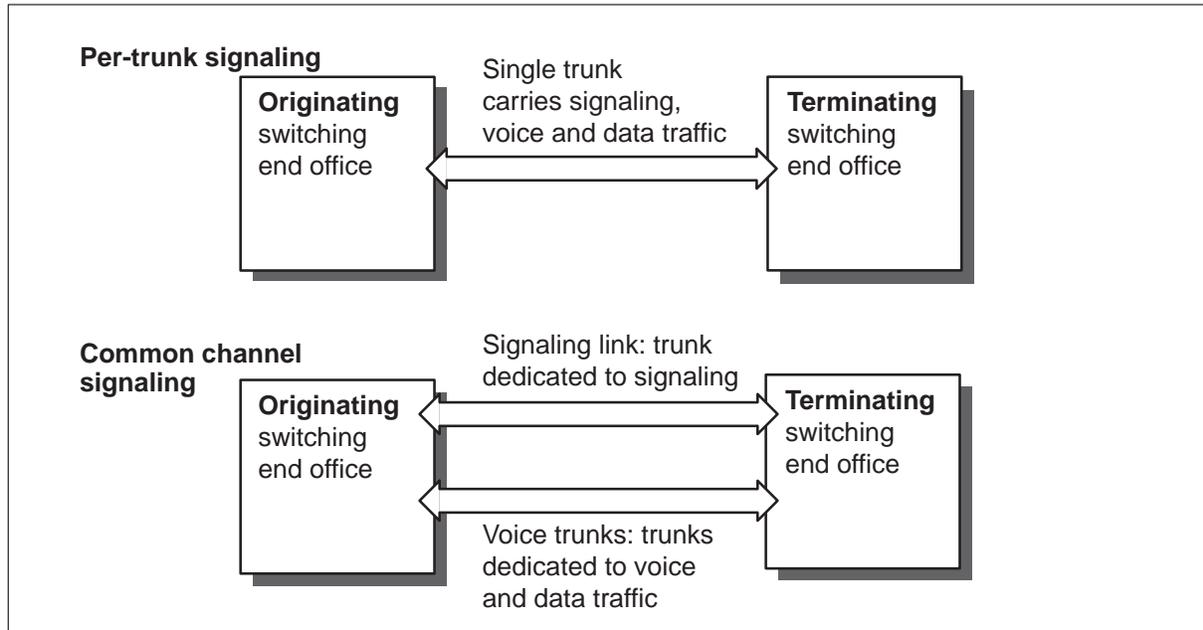
- efficient use of signaling links—The amount of signaling information required for one call is small compared to that required for the voice and data component of the call. This means the signaling information for many voice calls can be transmitted over one signaling link.
- expanded use of signaling—The signaling link can carry signaling that is not directly associated with a call, yet cause no loss of call processing capabilities. CCS7 allows operating companies, such as local exchange carriers and interexchange carriers, to expand the range of available database services, including:
  - number services, such as dial 800 service
  - alternate billing services, such as automated calling card service and custom charge calling

## Comparison: per-trunk signaling and SS7

Figure 12-1 shows a simple per-trunk signaling call between an originating switching office and a terminating switching office. Both the signaling

traffic and the voice and data traffic are transmitted over a trunk that is dedicated to the call.

**Figure 12-1**  
**Comparison of per-trunk signaling to common channel signaling**



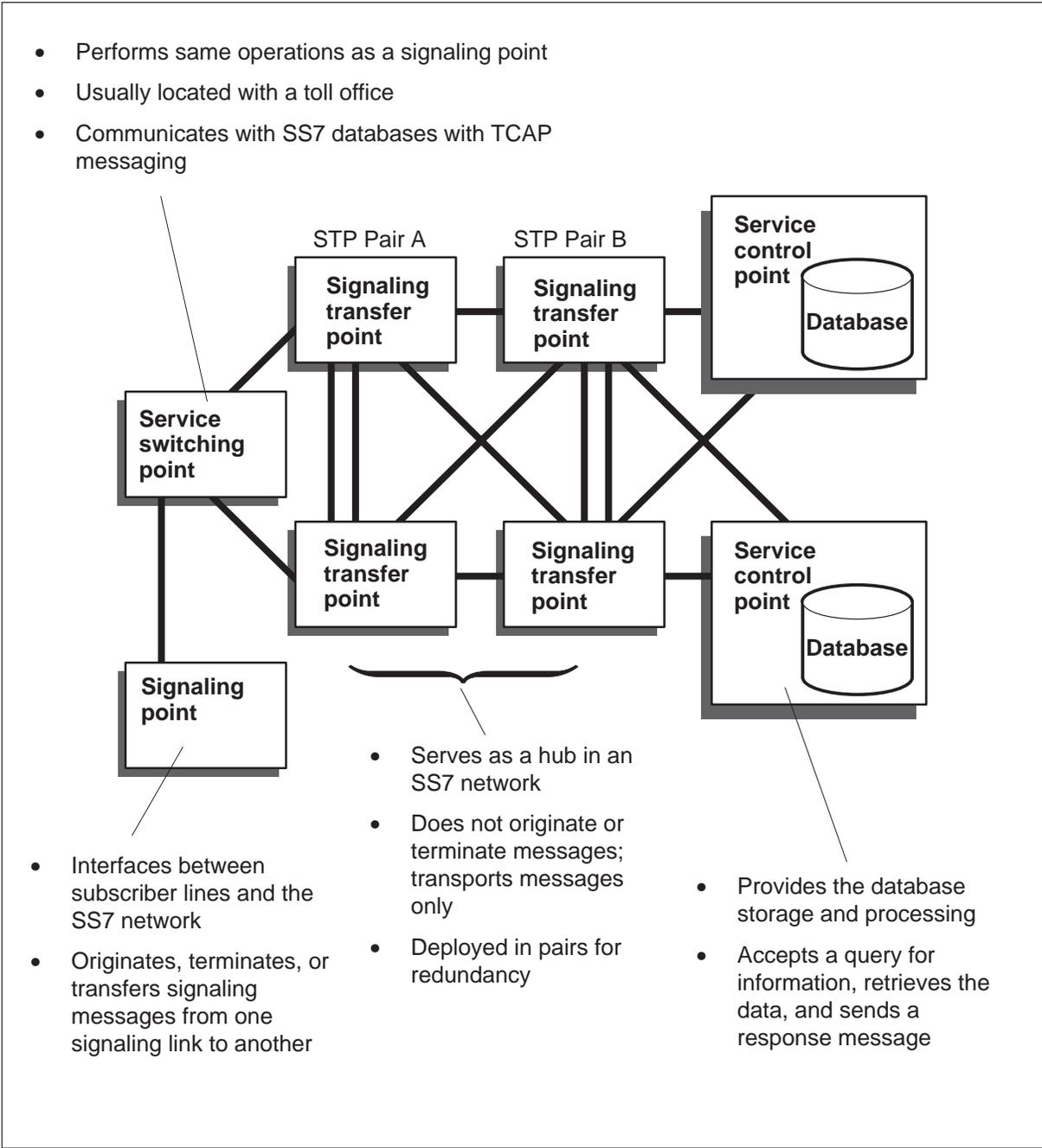
## Elements of an SS7 network

An SS7 network consists of a number of switching and processing devices that are interconnected by signaling links. Because signaling links branch into or out of each device, the devices are often called “nodes.” Figure 12-2 shows the various types of nodes in a simple SS7 signaling network configuration. The size and complexity of a signaling network depends on the volume of traffic and the degree of redundancy required.

### Signaling links

A signaling consists of signaling terminal equipment and a transmission facility. SLs are used for the exchange of information between nodes in a CCS7 network. The number and types of links depend on node capacity, network configuration, and network traffic levels.

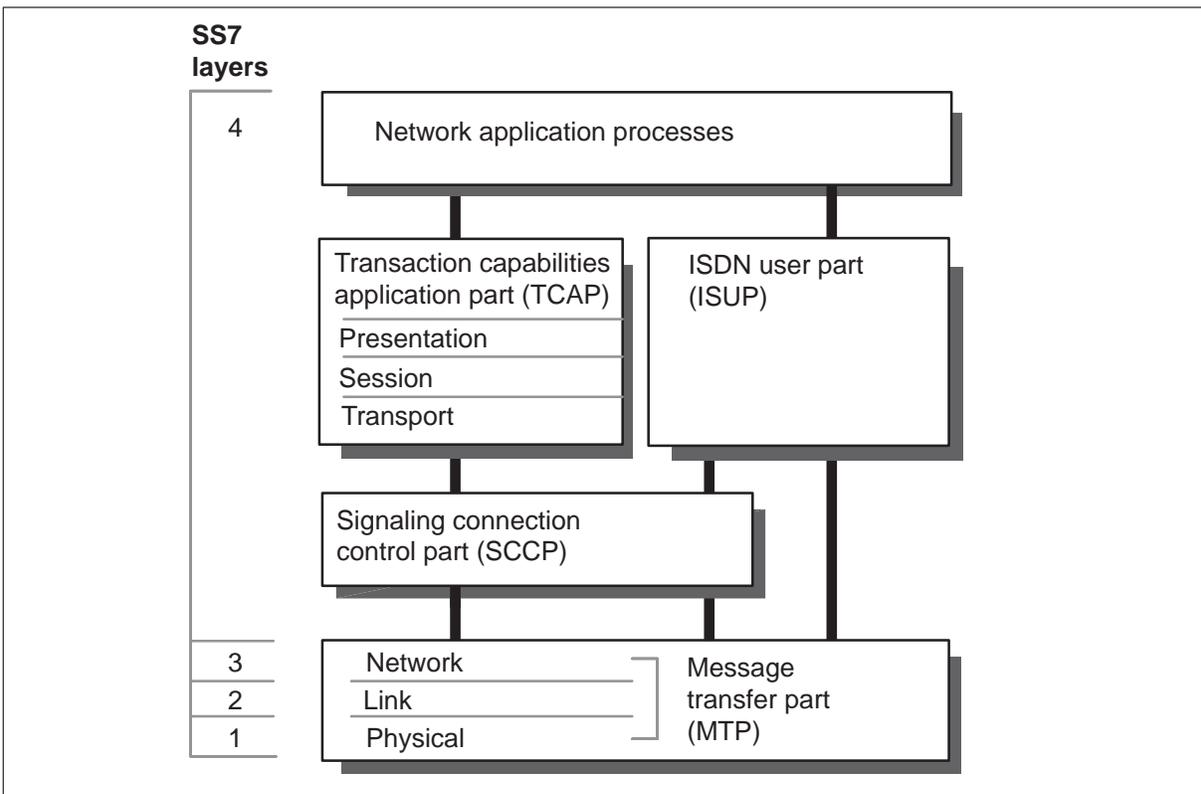
**Figure 12-2**  
**SS7 nodes in a signaling network**



## SS7 protocol

The functional software of the SS7 system is partitioned into layers that correspond to the actual levels of activity required to support the interconnection and exchange of information among the many users of a communications system. Because of the modular nature of these layers, SS7 provides sufficient flexibility to serve many applications. Figure 12-3 illustrates the four-layer architecture of SS7 protocol as defined by the CCITT Signaling System 7 (SS7).

**Figure 12-3**  
**SS7 layers of architecture**



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## List of terms

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**account code**

Account codes are codes within a database that contains profiles of company employees. Such profiles contain information regarding whether an employee is authorized to use long distance service and how the call will be billed. A caller dials a 2-12 digit account code along with the called number. The switch processes the call according to information contained in the caller's profile and bills the call to the caller's account code.

**active voice prompt**

A recorded announcement that subscribers can interrupt by pressing any key.

**address digits**

The digits of the called number.

**Advanced Intelligent Network**

A set of software feature packages enhancing switch call processing capabilities to use centralized databases. These databases determine how an AIN call should proceed for further call processing. AIN also allows operating companies to design and deploy their own features and make these features available across private and public networks.

**Advanced Intelligent Network Service Control Point**

A remote database that processes travel card calls.

**ANI**

See automatic number identification.

**AUTH**

See authorization code.

**automatic number identification**

Identifies the telephone number of the line initiating a call without human intervention.

**authorization code**

This code is a unique multidigit code that identifies an authorized subscriber. Authorization codes are usually 5-7 digits and identify a subscriber, bill a call, prevent unauthorized network use, determine the originating caller's class of service, and control access to special features. For example, a caller can be required to enter an authorization code to retrieve voice mail messages. Authcodes can be dialed entirely by the subscriber or filed entirely or partially in the originating trunk group data.

**billing number**

The number receiving the call charge.

**BILLNUM**

See billing number.

**call detail record**

A system logging calls for billing allocations.

**calling card number**

The travel card number

**CCNV**

Calling Card Not Valid treatment or announcement

**CCS7**

See Common Channel Signaling System No. 7

**CDR**

See call detail record.

**class of service override**

A feature than allows a subscriber to dial an authorization code after class of service screening has failed for the original authorization code or ANI.

**class of service**

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

**class of service screening**

Screening of a call based on class of service. Such screening determines whether the call is allowed to be completed and can include checking the call type, the time of day, and destination digits.

**CLD**

called number

**CLG**

calling number

**CLLI**

common language location identifier

**Common Channel Signaling System no. 7**

A signaling method using a single channel to convey signaling information relating to network management through labeled messages. See also signaling system 7 (SS7).

**COS**

See class of service.

**DAL**

dedicated access line

**datafill**

The act of entering the required data in the switch data tables. “Translation” and “datafill” are sometimes used interchangeably. Translation refers to events performed by the switch as defined by the datafill in switch tables.

**DCP**

Data control point, a remote database; see also SCP

**Dedicated access line**

A group of leased lines interconnecting a switching system to a dedicated customer. Dedicated access lines connect a customer’s telephone, key telephone system, or private branch exchange.

**DMS equipment**

Telephone switching equipment, namely digital multiplex switching units for interconnecting subscribers and control terminals. DMS is a trademark of Northern Telecom.

**DMS-250 switch**

A member of a family of digital multiplexed switching systems. A DMS-250 switch is a toll switch designed for private toll networks.

**DRAM**

digital recorded announcement machine

**DTMF**

See dual-tone multifrequency.

**dual-tone multifrequency**

A type of signaling that transfers information over trunks with pulses. From a multifrequency telephone, these pulses are created by dialed digits. DTMF telephones provide more capabilities than MF telephones.

DTMF uses set combinations of two specific voice-band frequencies. One of these voice-band frequencies is selected from a group of four low frequencies, and the other is selected from a group of three or four relatively high frequencies.

**EANT**

See equal access network trunk.

**EDRAM**

enhanced digital recorded announcement machine

**equal access network trunk**

Network telephone trunks permitting subscriber use of FGD access.

**FDNZ**

first digit not zero announcement

**feature group A**

A signaling protocol that allows an interexchange carrier (IEC) to connect to a local exchange carrier (LEC). FGA is also referred to as "ONAL." ONAL (off network access line) is the type of trunk that supports it. FGA is the least sophisticated signaling protocol to connect LECs to IECs. This means it provides the least amount of information about the originating subscriber. With FGA, when the subscriber dials an access number, a connection is made between the LEC and the IEC. After the subscriber is connected to the interexchange carrier, the interexchange carrier collects from the subscriber's telephone the address digits and billing digits.

**feature group B**

A signaling protocol that allows an interexchange carrier (IEC) to connect to a local exchange carrier (LEC). FGB is also referred to as "ONAT." ONAT (off network access trunk) is the type of trunk that supports it. FGB provides more information about the originating subscriber than FGA. The local exchange carrier may provide some information (such as the access number dialed by the subscriber, the calling party address, and information on the type of phone the call is being made from).

**feature group C**

A signaling protocol that allows an interexchange carrier (IEC) to connect to a local exchange carrier (LEC). FGC was originally used by LECs to connect to AT&T. FGC is also referred to as "ONAT." ONAT (off network access trunk) is the type of trunk that supports it.

**feature group D**

A signaling protocol that allows an interexchange carrier (IEC) to connect to a local exchange carrier (LEC). FGD is also referred to as "EANT." EANT (equal access network trunk) is the type of trunk that supports it. FGD is the most sophisticated protocol available to connect LECs and IECs. This means it provides the most information about the subscriber.

**FGA**

See feature group A.

**FGB**

See feature group B.

**FGC**

See feature group C.

**FGD**

See feature group D.

**FNAL**

Feature Not Allowed treatment or announcement.

**IMT**

See intermachine trunk.

**ISDN User Part**

The portion of the SS7 functional architecture that provides interexchange signaling to support trunk setup, ISDN access signaling, and specialized subscriber facilities.

**Intelligent Network/1 Service Control Point**

A remote database that processes specified calls or calling features.

**intermachine trunk**

A trunk that connects the UCS DMS-250 switch to other switches in the network.

**IN/1 SCP**

Intelligent Network/1 Service Control Point

**ISUP**

See ISDN User Part.

**hot line call**

A call the switch routes by referencing a predetermined digit string. The caller does not dial any address digits or only dials # plus 1-2 digits. Hot line numbers are usually 7-10 digits and are filed against a subscriber's authorization code. For example, hot line calls are often used for access to customer service departments.

**LECV**

LEC Calling Card Valid treatment or announcement

**local exchange carrier**

The exchange where subscribers' lines terminate.

**MAP terminal**

Testing and maintenance center for operating company switching equipment. MAP is a Northern Telecom trademark.

**MCCS**

See Mechanized Calling Card Service

**Mechanized Calling Card Service**

The service that allows a call to be billed to a calling card number (also called travel card number).

**Message Transfer Part**

The composite reference for the bottom three layers (1–3) of the OSI model of system architecture. The MTP serves as a connectionless transport system transferring signaling messages between locations of communicating users or application functions.

**MTP**

See Message Transfer Part.

**MULTICOS**

class of service index

**multifrequency**

A type of signaling that transfers information over trunks with pulses. From a multifrequency telephone, these pulses are created by dialed digits. A multifrequency pulse requires start and stop signals at its beginning and end.

**NPA**

See numbering plan area.

**numbering plan area**

A three-digit number assigned to a distinct exclusive geographic calling area. Also referred to as a central office code.

**office parameter**

There are four types of office parameters: standard OPARMS (stored in table OFCSTD), office options OPARMS (stored in table OFCOPT), engineered OPARMS (stored in table OFCENG), and variable OPARMS (stored in OFCVAR). Standard office parameters have standard values and are common to all UCS DMS-250 switches. Option office parameters contain values defined by Northern Telecom. Engineered office parameters are specific to your switch. Variable office parameters contain values that are defined by you and can be changed with Table Editor commands.

**off-net access trunk**

Trunks permitting telephone subscribers in the United States to use the facilities of specialized other common carriers without degraded transmission and supervisory services.

**off-net access line**

A circuit in a private network that allows the subscriber to go off the private network and complete calls on the public network.

**OM**

See operational measurement.

**ONAL**

See offnet access line.

**ONAT**

See offnet access trunk.

**ONP**

One-Night Process

**OPARM**

See office parameter.

**OPART**

See originating partition.

**operational measurement**

The hardware and software resources of the DMS-100 Family switches that control 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.

Operational measurements provide indications of overall efficiency of system components and validate the engineering and datafill of the switch.

**originating partition**

The unique calling area from which a call originated.

**passive voice prompt**

A recorded announcement that subscribers cannot interrupt.

**PDIL**

Partial Dial treatment or timer

**permanent signal**

A signal received by the central office switch that indicates a subscriber has gone off hook but no dialing pulses were sent.

**personal identification number**

A unique number used along with an access code to activate a service, such as subscriber activated call blocking. The PIN provides security for the subscriber from unauthorized use of a service.

**per-trunk signaling**

A conventional telephony method of signaling that multiplexes the control signal of a call with voice or data over the same trunk.

**PIN**

personal identification number

**PRI**

primary rate interface. Also referred to as primary rate access or PRA.

**primary rate interface**

Interfaces between a customer's equipment and public network switches or other private branch exchanges equipped with ISDN. PRI provides 23 64 kbp/s bearer channels for voice and data services, and one 64 kbp/s delta channel for out-of-band signaling. Information is delivered over a single T1 at a rate of 1.544 Mbp/s, which includes 8 kbp/s for overhead.

**protocol**

See signaling protocol.

**PTS**

per-trunk signaling

**redundancy**

The strategy of implementing two pieces of equipment, one as a backup. If the primary piece of equipment fails, the secondary piece of equipment can take over operation with minimal loss of functionality.

**remote database**

A database that is remote of the UCS DMS-250 switch. This is another term used for service control point and data control point.

**reorigination**

A basic feature of the UCS DMS-250 switch. With reorigination, a subscriber can (after accessing the switch), place multiple calls without accessing the switch again. Manual reorigination means the subscriber presses the # key to begin another call. Auto-reorigination means dial tone returns to the caller within a specified time after the called party hangs up. The caller is not required to press the # key in this case.

**reset**

With reset dialing, a subscriber can enter address digits again during the travel card, account code, and called number digit collection stages. By pressing the \* key, the subscriber can then enter digits for the current digit collection stage.

**RODR**

Reorder treatment

**SCP**

See service control point.

**service control point**

A database remote from the switch that: accepts a query for information, retrieves the requested information, and sends a response message to the originator of the request (usually the UCS DMS-250 switch). An SCP is a node in an SS7 signaling network.

**service option**

One of the options available for purchase and use with MCCS.

**serving translation scheme**

The scheme the UCS DMS-250 switch uses to separate customers into unique partitions, translate and route a call. STS codes are three digits codes (000–999), also called area codes, and are used in the routing tables. Every phone call that enters the switch is assigned an STS. This STS accesses the routing information to route the call.

**signaling protocol**

A set of rules that govern the format and method of how signals are exchanged. Some protocols are developed as a result of technological innovations. For example, SS7 is a more advanced and sophisticated protocol than per-trunk signaling. Other protocols are developed because of regulatory boundaries. This is the case with FGA, FGB, FBC, and FGD.

**Signaling System 7**

A signaling method using a single channel to convey signaling information relating to network management through labeled messages. See also Common Channel Signaling System 7 (CCS7).

**SS7**

See Signaling System 7.

**Storage Overflow Reorder**

A treatment the switch sends the call to when a database storage overflow occurs.

**STP**

signaling transfer point

**STR**

specialized tone receiver

**STS**

See serving translation scheme.

**TCAP**

See Transaction Capabilities Application Part.

**TCN**

See travel card number.

**TCNFAST**

Travel Card Number Fast; a datafill table of the switch.

**terminating partition**

The unique calling area to which a call is terminating.

**tone prompts**

An audible signal to the subscriber that their action is required to complete a process or that a process is complete.

**TPART**

See terminating partition.

**Transaction Capabilities Application Part**

A portion of layer 4 of the OSI model that controls non-circuit related, transaction-oriented applications such as database access.

**translation**

The process by which the switch accesses information in data tables to determine a call's destination. During translations, calls are set up and taken down as defined by a facility's datafill. In order to implement the MCCS feature, certain tables must be datafilled in a particular sequence to ensure proper functioning of the feature.

**travel card**

A card that allows a subscriber to charge calls from any location to the card number.

**travel card number**

A 14-digit number assigned to subscribers enabling them to make toll calls over the network.

**TRAVER**

Translation Verification. A command for use with the switch that is a diagnostic tool. TRAVER allows 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.

**treatment**

The treatment given to a call by the switch other than completing the call. Treatment usually occurs when a call is not completed. Treatment can be based on the priority of the call, the availability of a circuit, the class of service of a subscriber's line, a feature that is not available, or other factors.

**tuple**

A horizontal row in a data table.

**UA number**

See universal access number.

**universal access number**

A single number reaching a customer with several installations in different parts of the country when dialed from anywhere within the country. Calls from subscribers on exchanges in predetermined areas route to installations chosen (with certain restrictions) for the area in question by the customer having the facility.

**UTR**

universal tone receiver

**VACT**

Vacant Code treatment or announcement

**voice prompts**

Recorded instructions or announcements delivered to the subscriber. Prompts can include menus, instructions, and branding information.

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## Ordering information

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Use the following table for ordering Nortel Networks NTPs (Northern Telecom Publications) and Product Computing-Module Loads (PCLs):

Type of product	Source	Phone	Cost
Technical documents (paper or CD-ROM)	Nortel Networks Product Documentation	1-877-662-5669	Yes
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Marketing documents	Sales and Marketing Information Center (SMIC)	1-800-4NORTEL (1-800-466-7835)	No
PCL software	Nortel Networks	Consult your Nortel Networks sales representative	Yes

### When ordering publications on CD

Please have the CD number and software version available, for example, **HLM-2621-ENCDRPDF 06.02**.

### When ordering individual paper documents

Please have the document number and name available, for example, **297-2621-001, UCS DMS-250 Master Index of Publications**.

### When ordering software

Please have the eight-digit ordering code, for example, **UCS00012**, as well as the ordering codes for the features you wish to purchase. Contact your Nortel Networks representative for assistance.





Digital Switching Systems  
**UCS DMS-250**  
MCCS Application Guide

Product Documentation—Dept 3423  
Nortel Networks  
P.O. Box 13010  
RTP, NC 27709-3010  
1-877-662-5669

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