Configuring Debit Card Applications

This chapter explains how to configure debit cards for packet telephony and contains the following sections:

For a complete description of the commands used in this chapter, refer to the *Cisco IOS Voice, Video, and Fax Command Reference*. To locate documentation of other commands that appear in this chapter, use the command reference master index or search online.

To identify the hardware platform or software image information associated with a feature in this chapter, use the Feature Navigator on Cisco.com to search for information about the feature or refer to the software release notes for a specific release. For more information, see the "Identifying Supported Platforms" section in the "Using Cisco IOS Software" chapter.

Debit Card for Packet Telephony Overview

The debit card for packet telephony application works in conjunction with the Cisco Interactive Voice Response (IVR) software, authentication, authorization, and accounting (AAA), RADIUS, and an integrated third-party billing system. The IVR software infrastructure allows prerecorded audio files to be combined dynamically to play the dollar amount of credit remaining on a customer's debit card, the time and date, and other information. For more information regarding Tool Command Language (TCL) and IVR, see the "Configuring TCL IVR Applications" chapter.

The integrated third-party billing system maintains per-user credit balance information. The AAA and RADIUS (vendor-specific attribute) VSAs communicate per-user credit balance information using the the billing system. The billing system and Cisco IOS software enable a carrier to authorize voice calls and debit individual user accounts in real time at the edges of a Voice over IP (VoIP) network without requiring external service nodes.

> **Note** The Debit Card for Packet Telephony feature functionality is dependent upon the working configuration of the designated RADIUS server, which can be different servers controlling different VSA attributes.

The Debit Card for Packet Telephony feature provides the following functionality:

- Rates a call according to the caller ID, personal identification number (PIN), and destination number.

  The call is authenticated using caller ID and PIN. The RADIUS server provides the caller with a credit (dollar) amount. The caller is then prompted to enter the destination number. The TCL script authorizes the call with the RADIUS server. The RADIUS server keeps track of the caller credit information and it communicates with billing servers, if necessary, to maintain the credit information.

- Plays the credit (dollar amount) remaining on a card in $$$$$$.$$ format.

  The RADIUS server maintains the credit information and furnishes it to the script at the time of authentication. The IVR TCL script plays a prompt that announces the remaining credit to the caller as an amount in dollars and cents. The design is flexible enough to play any amount up to a maximum of $999999.99.

- Announces the "time-remaining" credit on the card in hours and minutes (HH:MM).

  The RADIUS server provides the remaining credit during the authorization phase. The TCL script combines prerecorded audio files to form the final prompt and play the "time-remaining" message to the caller. The time credit amount returned by the RADIUS server takes into consideration the rating and time boundary overlaps. The prompt played to the caller is, for example, "You have 5 hours and 35 minutes." The design is flexible enough to play any amount of time up to a maximum time specified in the script.

- Plays a "time-running-out" message based on the configurable time-out value.

  The RADIUS server maintains and furnishes credit information during the authorization phase. The IVR TCL script monitors the time remaining and, based on the configured value, plays a "time-has-run-out" message to the caller. The called party hears silence during this time. For example, if the time-out value is configured for 3 minutes, the prompt "You only have 3 minutes remaining on your credit" is played.

- Plays a warning "time-has-run-out" message when the credit runs out.

  This message is played to the calling party by the TCL script when the time credit has run out. The called party hears silence. The message is, for example, "Sorry, you have run out of credit."

- Makes more than one successive call to different destinations during a single call session.

  The Debit Card for Packet Telephony feature makes it possible for the caller to make subsequent calls to different destinations without disconnecting from the call leg. The caller is required to enter the account ID number and PIN only once during initial authorization. To make subsequent calls, the caller needs to enter only the destination number.

  After reaching one destination, the caller is allowed to disconnect the call by pressing the pound (#) key on the keypad and holding it down for 1 to 2 seconds. If the # key is pressed down for more than 1 second, it is treated as a long pound. The called party is disconnected and an announcement is played to the caller, giving the time remaining, and prompting for a new destination number.

  This feature also allows the caller to make additional calls if the called party hangs up.

- Reauthorizes each new call.

  Every time a caller enters a new destination number, the IVR TCL script reauthorizes the call with the RADIUS server and obtains the remaining time and credit balance information. The IVR TCL script then announces the amount of time remaining to the calling party.

- Allows type-ahead keypad entries without waiting for the prompt to complete.

The normal terminating character for the caller ID, PIN, and destination number is the pound (#) key. The caller may want to continue without waiting to hear the prompts. This TCL script will stop playing or will refrain from starting a prompt when it discovers that the caller wants to type ahead.

- Allows the caller to skip past announcements by pressing a touch-tone key.

  This IVR TCL script stops playing announcements when the system determines that the caller has pressed any touch-tone key.

- Allows retry when entering data (user ID, PIN, destination number) by using a special key.

  The caller is allowed to interrupt partially entered numbers and restart from the beginning by pressing the asterisk (*) key on the keypad. The asterisk key is configured in the IVR TCL script. The caller can use the asterisk key to cancel an entry and reenter the user ID, PIN, destination number. The caller is allowed to reenter data only a certain number of times. The number of retries is configurable; the default is three.

- Terminates a field by size rather than by using the terminating character (#).

  The IVR TCL script can be used to specify a number of digits in the user ID and PIN fields—meaning that the caller can enter all the digits (without the terminating character) and the script determines how to extract different fields from the number strings. If the caller uses the terminating character (the # key), the terminating character takes precedence and the fields are extracted accordingly.

- Supports two languages.

  The language is selected when the caller presses a predefined key. For example, "For English, press 1. For Mandarin, press 2." The IVR TCL script uses the selected language until the caller disconnects. The caller is asked only once, at the beginning of the session, for the language of choice. In addition, the Debit Card for Packet Telephony feature determines how many languages are configured and plays the language selection menu only if needed.

- Sends an off-net tone to the caller.

  The RADIUS server maintains information regarding off-net calls. During authorization, it provides this information to the IVR TCL script. Based on the collected information, the IVR TCL script has the ability to generate a prerecorded message or tone to the calling party.

- Provides voice-quality information to the RADIUS server on a call-by-call basis.

  A new field has been added to the Stop Record field. The data for this field is obtained from fields that maintain and tune voice quality. It is the responsibility of the user application on the RADIUS server to use this information and give credit to the caller if the call has unsatisfactory voice quality.

- Uses prompt memory more efficiently.

  When voice prompts are not used for a period of time, they are swapped out of RAM. The swapping does not introduce undue delays in playing prompts. The most frequently used prompts remain in memory and are not swapped.

- Creates dynamic prompts by using prerecorded audio files.

  The Debit Card for Packet Telephony feature provides a general infrastructure that allows concatenating prerecorded audio files to play the dollar amount, time, and day. An interface for the scripts to use this infrastructure is also part of this feature. Dynamic creation of the final audio (by concatenating prerecorded audio files) is limited to playing out dollar amount, time, and day information. For example, when the system receives a credit balance of $15.50, it concatenates the prerecorded audio files, "You have" "15" "dollars" "and" "50" "cents" to make up this message.

- Allows retries for RADIUS server failures, with the maximum number of retries allowed determined by the RADIUS server.

If errors are returned by the RADIUS server during authentication or authorization (by use of the AAA application), the caller is allowed to retry the entry. The RADIUS server determines how many retries to allow. The caller is disconnected when the number of retries has exceeded the limit.

Debit Card Call Flow

A high-level call flow sequence is displayed in Figure 94 through Figure 98. The actual call flow varies, depending on the parameters passed to the application and on the features that are available on the RADIUS server billing system that is being used.

The call sequence flowcharts graphically depict the various states in the Debit Card for Packet Telephony application. The states are represented by the boxes with double bars and show the flow from one state to the next.

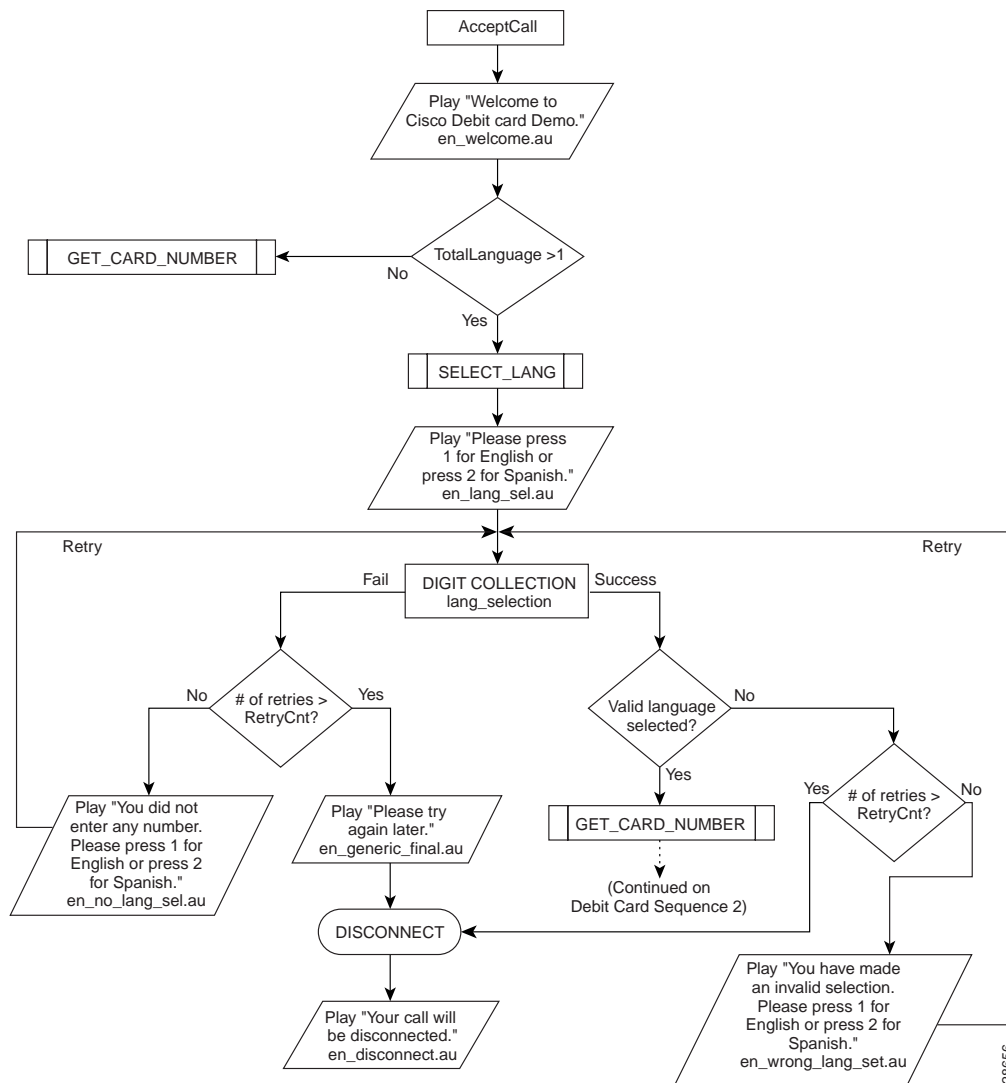*Figure 94   Debit Card Call Sequence 1*
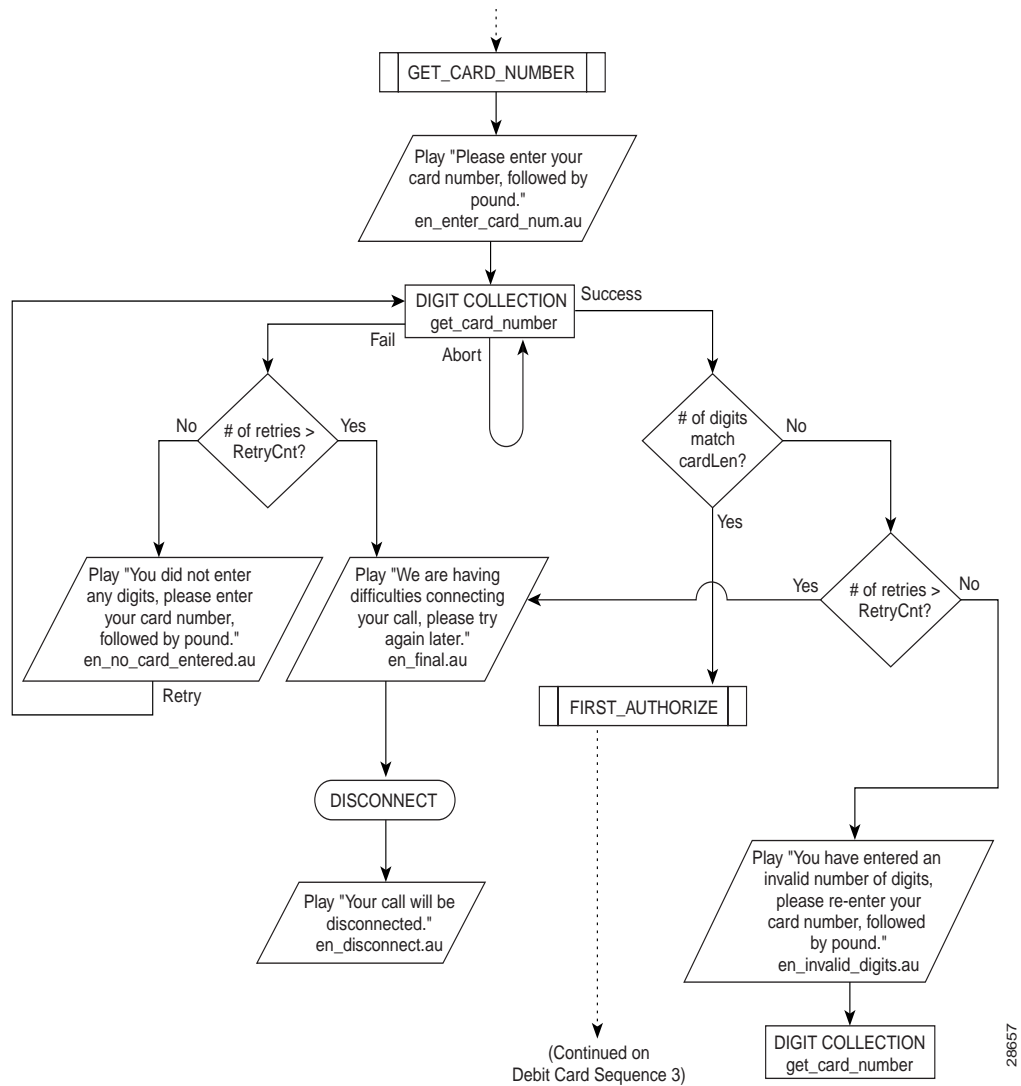
Figure 95   Debit Card Call Sequence 2

(Continued on Debit Card Sequence 3)

28657

Figure 96   Debit Card Call Sequence 3

```
                                            ┊
                                            ▼
           Fail  ┌──┤ FIRST_AUTHORIZE ├──┐  Success
         ┌───────┘                        └────────────┐
         │                                             │
         ▼                                             ▼
       ╱ # of retries > ╲                        ┌──┤ GET_DEST ├──┐
   No ╱    RetryCnt?      ╲ Yes
     ╱                      ╲
```

Play "Invalid card number, please enter your card number, followed by Pound." en_auth_fail.au

Play "We are having problems connecting your call, please call operator." en.final.au

Retry

DIGIT_COLLECTION
get_card_number

GET_DEST

(Continued on
Debit Card Sequence 4)
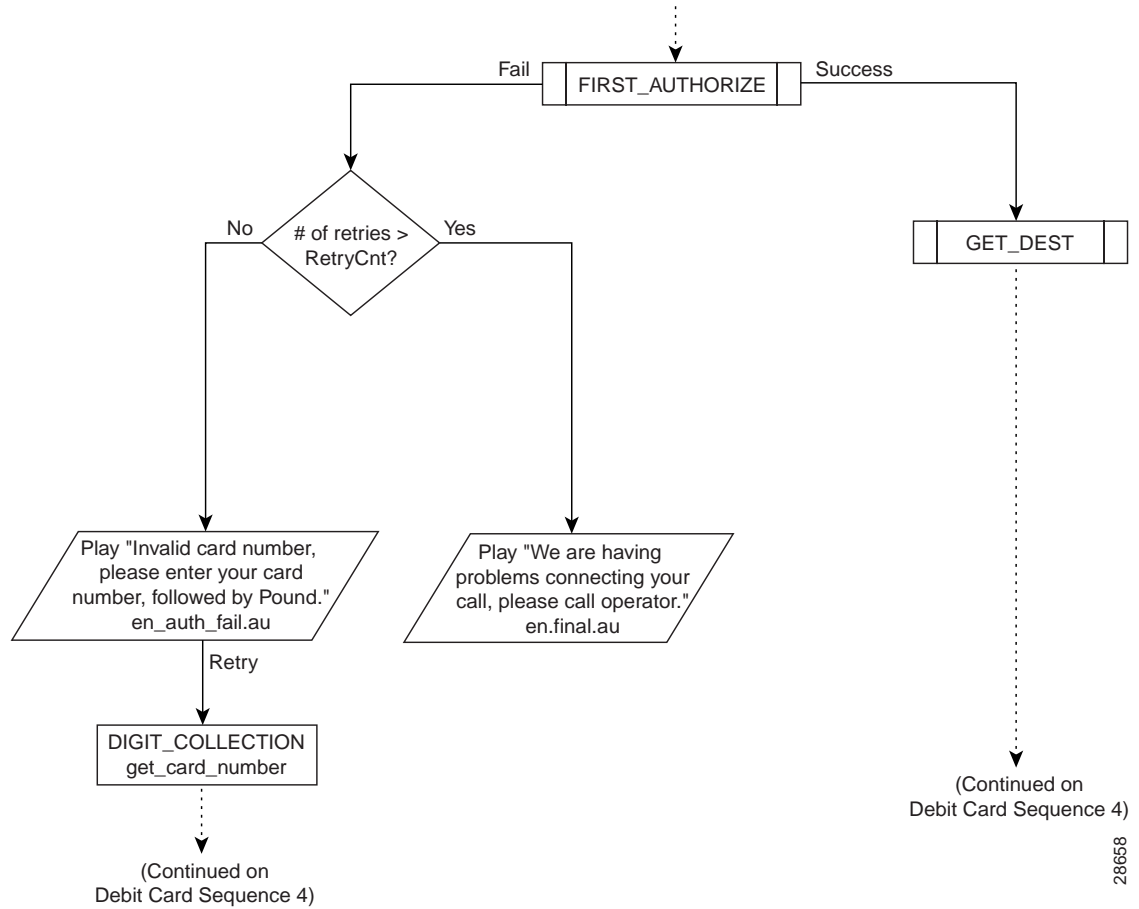
(Continued on
Debit Card Sequence 4)

28658

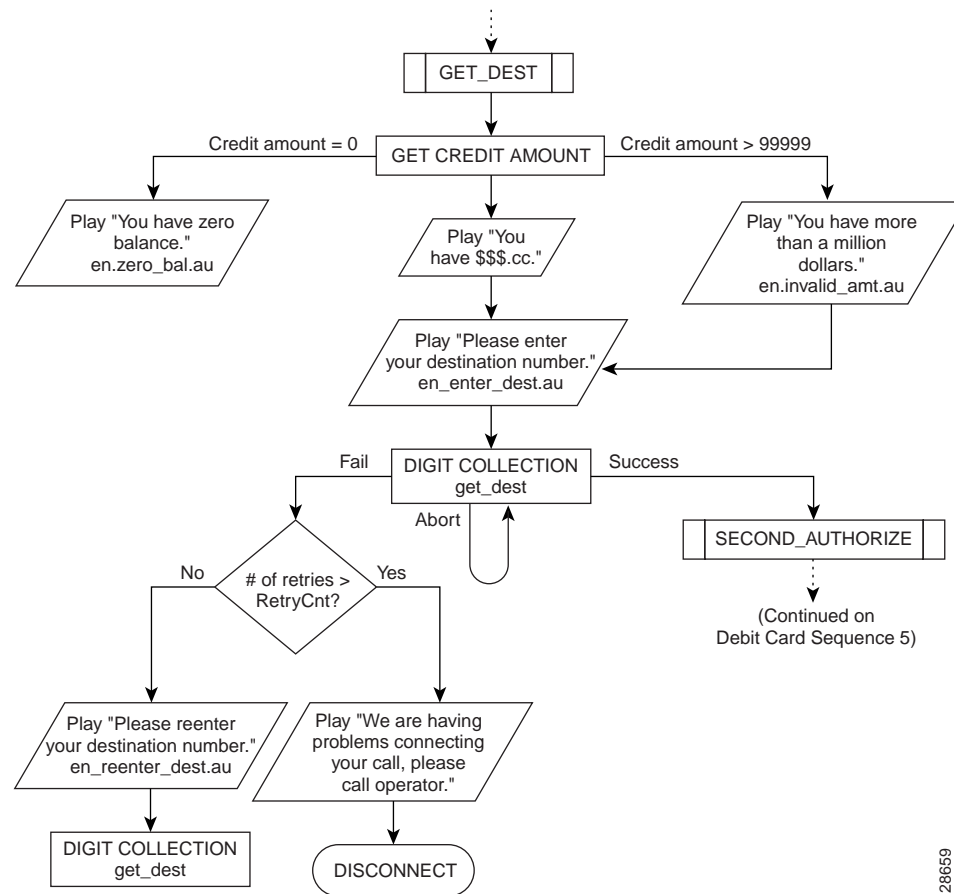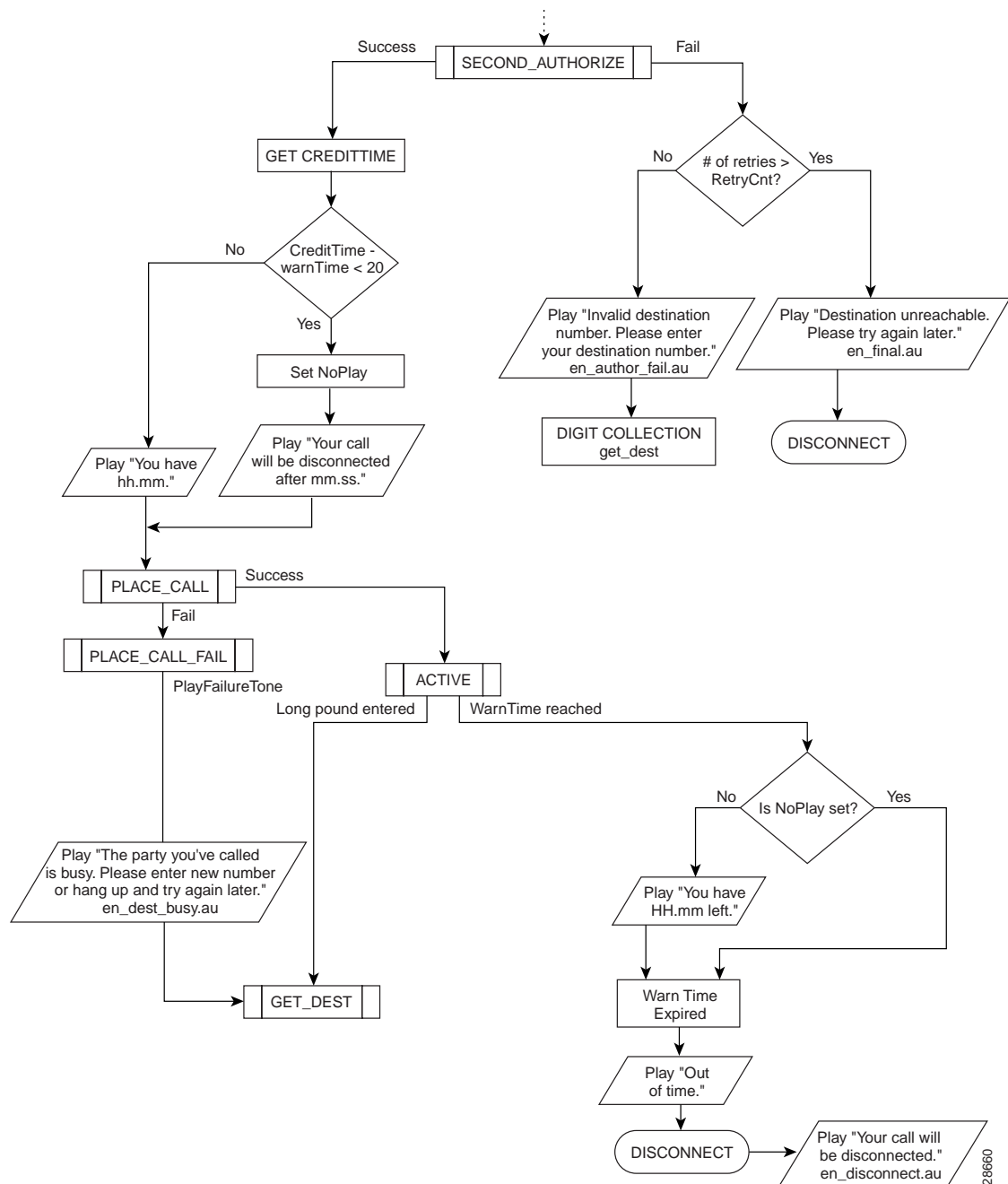*Figure 97   Debit Card Call Sequence 4*

Figure 98   Debit Card Call Sequence 5

RADIUS and H.323 Gateway-Specific Accounting

A call leg is a discrete segment of a call connection that lies between two points in the connection. Each call made through a gateway has two call legs: incoming and outgoing. The RADIUS server collects VSAs during the accounting process for each call leg created on the gateway.

In order for the Debit Card for Packet Telephony feature to work with the RADIUS server to collect the appropriate connection accounting information, you must configure AAA to use H.323 gateway-specific accounting.

Audio File Prompts

Cisco provides a set of professionally recorded English (U.S.), Spanish, and Mandarin audio prompts to allow easier immediate integration and use of the debit card feature. The prompts are stored on an FTP server in the audio file format (.au). To announce the credit available to the caller, the system concatenates a series of prompts to create the appropriate message.

The Cisco-provided audio files are compressed and stored on Cisco.com. The audio files must be downloaded either to a TFTP server or into Flash memory. When the system runs, the files are copied into memory.

Note You can find TCLWare and audio files at the following URL:
http://www.cisco.com/cgi-bin/tablebuild.pl/tclware

Because there is a large number of prompts, and to ensure efficient use of system memory resources, all prompts are downloaded to a TFTP server. A basic set of audio files is downloaded to the system when it is initialized. The system removes less frequently used prompts from memory to conserve memory. When a prompt is needed, the system retrieves the prompt from the TFTP server.

For languages that are syntactically similar to English, the audio file can be recorded and saved as the same filename so that the system can construct the message properly. It is not mandatory to use the prompt set that Cisco provides. If the customer has access to a recording studio, prompts can be created or customized as long as they are saved in the proper format.

Cisco-Provided Audio Files

The following audio file prompts are provided by Cisco. A similar set is available in Mandarin and in Spanish. The audio files provided by Cisco are listed in Table 36 and Table 37.

Table 36   Numbers Audio File Set

Audio Filename	Recorded Prompt	Audio Filename	Recorded Prompt
en_zero.au	Zero	en_fifteen.au	Fifteen
en_one.au	One	en_sixteen.au	Sixteen
en_two.au	Two	en_seventeen.au	Seventeen
en_three.au	Three	en_eighteen.au	Eighteen
en_four.au	Four	en_nineteen.au	Nineteen
en_five.au	Five	en_twenty.au	Twenty
en_six.au	Six	en_thirty.au	Thirty

Table 36   Numbers Audio File Set (continued)

Audio Filename	Recorded Prompt	Audio Filename	Recorded Prompt
en_seven.au	Seven	en_forty.au	Forty
en_eight.au	Eight	en_fifty.au	Fifty
en_nine.au	Nine	en_sixty.au	Sixty
en_ten.au	Ten	en_seventy.au	Seventy
en_eleven.au	Eleven	en_eighty.au	Eighty
en_twelve.au	Twelve	en_ninety.au	Ninety
en_thirteen.au	Thirteen	en_hundred.au	Hundred
en_fourteen.au	Fourteen	en_thousand.au	Thousand

Table 37   Miscellaneous Prompts

Audio Filename	Recorded Prompt
en_second.au	Second
en_seconds.au	Seconds
en_minute	Minute
en_minutes	Minutes
en_hour.au	Hour
en_hours.au	Hours
en_cent.au	Cent
en_cents.au	Cents
en_dollar.au	Dollar
en_dollars.au	Dollars

Additional Miscellaneous Prompts

The Debit Card for Packet Telephony feature provides the following additional miscellaneous prompts:

- en_welcome.au—"Welcome to Cisco Debit Card Demo."

- en_lang_select.au—"Please press 1 for English, 2 for Mandarin."

- en_wrong_lang_sel.au—"You have made an invalid selection. Please press 1 for English or press 2 for Mandarin."

- en_no_lang_sel.au—"You did not select any language. Press 1 for English or press 2 for Mandarin."

- en_final.au—"We are having difficulties connecting your call. Please try again later."

- en_generic_final.au—"Please hang up and try again."

- en_enter_card_num.au—"Please enter card number followed by the pound key."

- en_invalid_digits.au—"You have entered an invalid number of digits. Please reenter your card number followed by the pound key."

- en_auth_fail.au—"You have entered an invalid card number. Please reenter your card number followed by the pound key."

- en_no_card_entered.au—"You did not enter any digits. Please enter card number followed by the pound key."
- en_technical_problem.au—"We are having technical difficulties. Please call back later."
- en_zero_bal.au—"You have zero balance. Please call the operator or hang up."
- en_enter_dest.au—"Please enter destination number."
- en_disconnect.au—"Your call will be disconnected."
- en_disconnected.au—"You have been disconnected."
- en_dest_collect_fail.au—"Sorry, the number you have dialed is blocked. If you feel you have reached a number in error, please call the customer service number."
- en_invalid_amt.au—"You have more than one million."
- en_dest_busy.au—"The party you called is busy. Please enter a new number or hang up and try again later."
- en_enter_acct.au—"Please enter your account number followed by the pound key."
- en_no_acct_entered.au—"We did not get any input. Please enter your account number followed by the pound key."
- en_invalid_digits_acct.au—"You have entered an invalid number of digits. Please enter your account number followed by the pound key."
- en_invalid_account.au—"You have entered an invalid account number. Please enter your account number followed by the pound key."
- en_enter_pin.au—"Please enter your PIN number followed by the pound key."
- en_no_pin_entered.au—"We did not get any input. Please enter your PIN number followed by the pound key."
- en_invalid_digits_pin.au—"You have entered an invalid number of digits. Please enter your PIN number followed by the pound key."
- en_invalid_pin.au—"You have entered an invalid PIN. Please enter your PIN number followed by the pound key."
- en_card_expired.au—"We are sorry. Your card has expired."
- en_account_blocked.au—"This account is currently in use."
- en_no_dest_entered.au—"We did not get any input. Please enter the destination number you are calling."
- en_invalid_digits_pin.au—"You have entered an invalid number of digits. Please enter your PIN number followed by the pound key."
- en_invalid_pin.au—"You have entered an invalid PIN. Please enter your PIN number followed by the pound key."
- en_card_expired.au—"We are sorry. Your card has expired."
- en_account_blocked.au—"This account is currently in use."
- en_no_dest_entered.au—"We did not get any input. Please enter the destination number you are calling."
- en_no_dialpeer_match.au—"You have entered an invalid destination. Please reenter the destination number you are calling."
- en_connect_cust_ser.au—"You will be connected to Customer Service."
- en_dial_cust_ser.au—"Please hang up and dial the calling card customer service number."

- en_no_service.au—"We are sorry. This service is not available."

- en_dest_unreachable.au—"We are sorry. The destination you have called is unreachable."

- en_toll_free.au—"You can only make toll-free calls."

Audio Filenaming Convention

If you record your own audio files, you must name them using the convention described in Table 38 in order for the TCL scripts to identify which audio file to use. The TCL scripts are designed to work with designated audio filenames.

Table 38   Audio Filenaming Convention

Audio Filename	Description
en_one.au	Specifies the English language audio file for the number 1.
ch_one.au	Specifies the Mandarin language audio file for the number 1.
sp_one.au	Specifies the Spanish language audio file for the number 1.

For example, when the audio file for the caller to choose a language (en_lang_select.au) is played, ("Please press 1 for English, 2 for Mandarin."), if Mandarin is selected by the caller, then the TCL script calls the <ch> audio files to interact with the system.

Continuing with this example, when configuring the voice platform to process Mandarin audio files, use the **call application voice** command, with the **language** keyword and *set-location* argument. When specifying the *set-location* argument, you must configure the correct language-ch specifier to interact with the TCL script. Therefore, when naming your audio files, make sure you include the language identifier for each file.

Creating Audio Index Files

If you record your own audio files, you must also create an index file that contains a list of the audio files in URL format. An index file must be created for each audio file that is downloaded from TFTP to memory. Use the **ivr autoload** command to download the audio files into Flash memory.

When creating your audio file index, remember that the filename and extension (.au) are actually the URL of the file. Follow these recommendations:

- Each line should list only one file location (URL).

- Comment lines start with #.

- Locations listed in the index file should match the locations used by the application.

- Extra spaces at the beginning and end of the line are ignored.

- No spaces are allowed within the URL.

Sample Index File

The following is a sample index file:

```
# tftp://jurai/tclware/au/en/auth_fail_final.au
# tftp://jurai/tclware/au/en/auth_fail_retry.au

# tftp://jurai/tclware/au/en/auth_fail_retry_number.au
# tftp://jurai/tclware/au/en/auth_failed.au

# tftp://jurai/tclware/au/en/ch_generic_final.au
# tftp://jurai/tclware/au/en/ch_lang_sel1.au
```

Debit Card Prerequisite Tasks

Before you can configure your access server (Cisco AS5300 universal access server, Cisco 3600 series routers, or other supported voice platform) with the Debit Card for Packet Telephony feature, perform the following tasks:

- Establish a working IP network. For more information about configuring IP, refer to the "IP Overview," and "IP Addressing and Services" chapters in the *Cisco IOS IP Routing Configuration Guide*.

- Configure VoIP for the service provider environment. In addition to the basic configuration tasks, such as configuring dial peers and voice ports, you must configure specific devices in your network to act as gateways and gatekeepers. For more information about configuring gatekeepers, refer to the "Configuring H.323 Gatekeepers" chapter. For more information about configuring gateways, see the "Configuring H.323 Gateways" chapter.

- Configure a TFTP server to perform storage and retrieval of the audio files.

- Download the appropriate classic or IVR TCL script from the Cisco.com and store the scripts and audio files on the TFTP server configured to interact with your gateway access server.

- Make sure that your audio files are in the proper format. The IVR prompts require audio file (.au) format of 8-bit, u-law, and 8 Khz encoding. If you want to encode your own audio files, we recommend that you use one of these two audio tools (or a similar tool of equivalent quality):

  - Cool Edit, manufactured by Syntrillium Software Corporation

  - AudioTool, manufactured by Sun Microsystems

- Ensure that your access platform has a minimum of 16 MB Flash and 64 MB of DRAM.

- Install and configure the appropriate RADIUS security server in your network. The version of RADIUS that you are using must be able to support IETF-Supported VSAs, which are implemented by using IETF RADIUS attribute 26.

Debit Card for Packet Telephony Configuration Tasks List

Configure the Debit Card for Packet Telephony feature the same way you configure IVR because the feature uses the IVR infrastructure. To configure this feature, you need to perform the following tasks:

- Create an application that will interact with the appropriate classic or TCL script. See the "Configuring IVR Applications" chapter.

- Define and pass the defined parameter values to the application. These values include the language of the audio file, the location of the audio file, the designated operator telephone number of the service provider (redirect number), the number of characters in the PIN, the number of characters in the user identification number (UID), the number of times a caller is permitted to reenter the PIN (retry count), and the number of seconds of warning a user receives before the allowed calling time runs out.

- Associate the application to the incoming POTS dial peer.

- Define the appropriate method lists using AAA so that you identify RADIUS as the security protocol performing accounting.

To configure Debit Card for Packet Telephony, use the following commands beginning in global configuration mode:

	Command	Purpose
Step 1	Router(config)# **call application voice** *application-name location*	Defines the name to be used for your application and indicates the location (URL) of the appropriate IVR script to be used with this application.
Step 2	Router(config)# **call application voice** *application-name* **language** *language*	Defines the language of the audio file for the designated application and passes that information to the application.
Step 3	Router(config)# **call application voice** *application-name* **redirect-number** *number*	Defines the telephone number to which a call will be redirected—for example, the operator telephone number of the service provider—for the designated application and passes that information to the application.
Step 4	Router(config)# **call application voice** *application-name* **pin-length** *number*	Defines the number of characters in the PIN for the designated application and passes that information to the application.
Step 5	Router(config)# **call application voice** *application-name* **retry-count** *number*	Defines the number of times a caller is permitted to reenter the PIN for the designated application and passes that information to the application.
Step 6	Router(config)# **call application voice** *application-name* **uid-length** *number*	Defines the number of characters in the UID for the designated application and passes that information to the application.
Step 7	Router(config)# **call application voice** *application-name* **warning-time** *seconds*	Defines the number of seconds of warning a user receives before the allowed calling time runs out for the designated application and passes that information to the application.
Step 8	Router(config)# **call application voice** *application-name* **set-location** *language category location*	Defines the location, language, and category of the audio files for the designated application and passes that information to the application.

	Command	Purpose
Step 9	Router(config)# **aaa new-model**	Enables AAA security and accounting services.
Step 10	Router(config)# **gw-accounting h323** or Router(config)# **gw-accounting syslog** or Router(config)# **gw-accounting vsa**	Configures gateway-specific H.323 accounting. The **h323** keyword configures standard H.323 accounting using standard IETF RADIUS attributes. The **syslog** keyword configures the system logging facility to output accounting information in the form of a system log message. The **vsa** keyword configures the VSA method of applying H.323 gateway-specific accounting.
Step 11	Router(config)# **aaa authentication login h323 radius**	Defines a method list called h323 where RADIUS is defined as the only method of login authentication.
Step 12	Router(config)# **aaa accounting connection h323 start-stop radius**	Defines a method list called h323 where RADIUS is used to perform connection accounting, providing start-stop records.
Step 13	Router(config)# **radius-server host** *ip-address* **auth-port** *number* **acct-port** *number*	Identifies the RADIUS server and the ports that will be used for authentication and accounting services.
Step 14	Router(config)# **radius-server key** *key*	Specifies the password used between the gateway and the RADIUS server.
Step 15	Router(config)# **dial-peer voice** *number* **pots**	Enters dial-peer configuration mode to configure the incoming POTS dial peer. **Note** The *number* value of the **dial-peer voice pots** command is a tag that uniquely identifies the dial peer.
Step 16	Router(config-dial-peer)# **application** *application-name*	Associates the IVR application with the incoming POTS dial peer.
Step 17	Router(config-dial-peer)# **destination-pattern** [**+**]*string* **T**	Defines the telephone number associated with this dial peer.
Step 18	Router(config-dial-peer)# **port** *port-number*	Defines the voice port associated with this dial peer.

Note Because Cisco security authenticates based on account number, RADIUS is required for the redialer fax application.

Note RADIUS is turned on globally but is only used for services if it is so programmed.

Verifying the Debit Card Configuration

You can verify Debit Card for Packet Telephony configuration by performing the following tasks:

- To verify that the newly created application is listed, use the **show call application voice summary** command.

- To verify that the application associated with the dial peer is correct, use the **show dial-peer voice** command.

Debit Card Feature Configuration Example

The following example displays the configuration for the debit card feature; this output was creating by using the **show running-config** command:

```
Router # show running-config
Building configuration...

Current configuration:
!
version 12.2
service timestamps debug datetime msec localtime
service timestamps log datetime msec localtime
no service password-encryption
service internal
!
hostname Router name
!
no logging buffered

! AAA configuration
!-------------------------------------
aaa new-model
aaa authentication login h323 group radius
aaa authorization exec h323 group radius
aaa accounting connection h323 start-stop group radius
!----------------------------------
!
enable secret 5 $1$rLpz$DpgRh8qfaDqCPteN4/KXD0
enable password xxx
!
username Router password 0 xyxyxy
username s
!
resource-pool disable
!
ip subnet-zero
no ip domain-lookup

!  TFTP address configuration
!-------------------------------
ip host keyer 223.255.254.254

! prepaid application creation
!---------------------------------
call application voice prepaid tftp://keyer/debitcard.tcl

! passing parameters to prepaid application
!--------------------------------
```

```
call application voice prepaid uid-len 4
call application voice prepaid language 1 en
call application voice prepaid language 2 ch
call application voice prepaid set-location en 0 tftp://keyer/

mta receive maximum-recipients 1024
!
dial-control-mib max-size 300
!
controller T1 0
 shutdown
 framing esf
 linecode b8zs
 cablelength short 133
!
controller T1 1
 shutdown
 framing esf
 linecode b8zs
 cablelength short 133
!
controller T1 2
 framing esf
 clock source line primary
 linecode b8zs
 cablelength short 133
 pri-group timeslots 1-24
!
controller T1 3
 framing esf
 clock source line secondary 1
 linecode b8zs
 cablelength short 133
 pri-group timeslots 1-24
!
!
voice-port 2:D
 timeouts call-disconnect 0
!
voice-port 3:D
 timeouts call-disconnect 0

! configuring voip gw accounting
!------------------------------
gw-accounting h323 vsa

! associating application to dial-peer
!----------------------------------
dial-peer voice 30001 pots
 application prepaid
 destination-pattern 300..
 port 2:D
 prefix 300
!
dial-peer voice 40001 pots
 destination-pattern 400..
 direct-inward-dial
 port 3:D
 prefix 400
!
dial-peer voice 50001 voip
 destination-pattern 500..
 session target ipv4:147.14.25.1
!
```

```
dial-peer voice 60001 voip
 destination-pattern 600..
 session target ipv4:147.14.25.1
!
process-max-time 200
!
interface Ethernet0
 description ip address 132.132.1.2 255.255.255.0
 ip address 1.13.103.1 255.255.255.0
 no ip directed-broadcast
 no ip route-cache
 no ip mroute-cache
 load-interval 30
 no keepalive
 no cdp enable
!
interface Serial2:23
 description D-Channel - To Abacus
 no ip address
 no ip directed-broadcast
 isdn switch-type primary-5ess
 isdn protocol-emulate user
 isdn incoming-voice modem
 fair-queue 64 256 0
 no cdp enable
!
interface Serial3:23
 description D-Channel - To Abacus
 no ip address
 no ip directed-broadcast
 isdn switch-type primary-5ess
 isdn protocol-emulate user
 isdn incoming-voice modem
 fair-queue 64 256 0
 no cdp enable
!
interface FastEthernet0
 ip address 147.14.25.100 255.255.0.0
 no ip directed-broadcast
 no ip route-cache
 no ip mroute-cache
 duplex full
 no cdp enable
 hold-queue 2048 in
!
interface Async1
 ip address 2.2.2.1 255.255.255.0
 no ip directed-broadcast
 encapsulation ppp
 shutdown
 async mode dedicated
 ppp authentication chap
 hold-queue 10 in
!
interface Group-Async1
 physical-layer async
 ip unnumbered Serial2:22
 no ip directed-broadcast
 encapsulation ppp
 no ip mroute-cache
 dialer in-band
 dialer idle-timeout 200000
 async default routing
 async mode interactive
```

```
 no peer default ip address
 no fair-queue
 no cdp enable
 hold-queue 10 in
!
router igrp 200
 network 1.0.0.0
 network 133.133.0.0
!
router igrp 300
 network 132.132.0.0
 network 133.133.0.0
 network 147.14.0.0
!
no ip http server
no ip classless
!
ip route 1.13.80.100 255.255.255.255 1.13.0.1
ip route 223.255.254.254 255.255.255.255 Ethernet0
!
!
logging history size 500

! configuring radius parameters
!--------------------------------------
radius-server host 1.13.80.100 auth-port 1812 acct-port 1813
radius-server key cisco
radius-server vsa send accounting
radius-server vsa send authentication

!
line con 0
 exec-timeout 0 0
 transport input none
line aux 0
line vty 0 4
 exec-timeout 0 0
 password lab

! configuring the NTP
!------------------------------
ntp master 15

!
end
```