# Capture (CAP)

Wednesday, July 17, 2013 11:16 AM

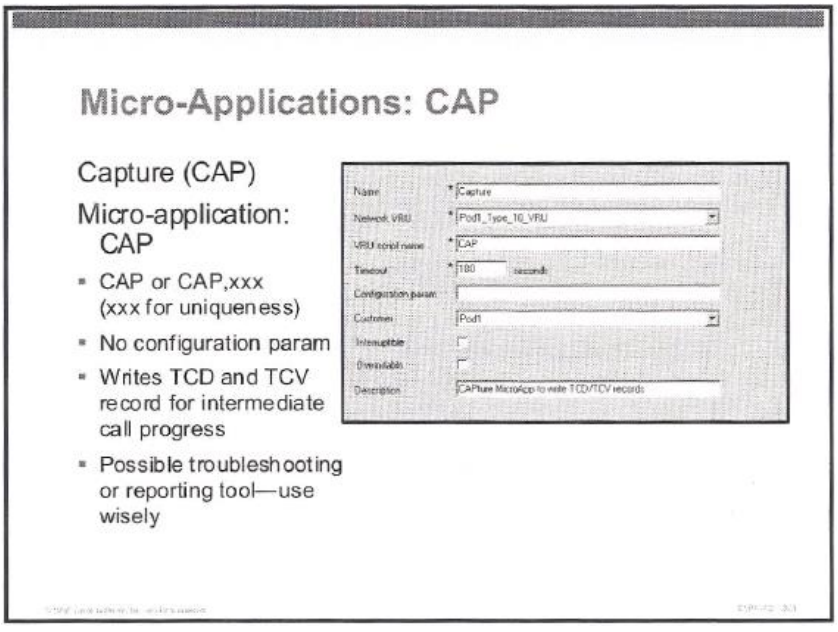
The Capture (CAP) micro-application allows you to trigger the storage of current call data at multiple points in the Cisco Unified ICM routing script. The CAP micro-application must be configured as a VRU script, and it is executed by using a RunExternalScript node, just as with any other Cisco Unified CVP micro-application. The VRU Script Name value is CAP or CAP, xxx, where "xxx" is any arbitrary string to be used (if necessary) for uniqueness. There is no VRU Script Config string.

Executing a Capture micro-application causes the Cisco Unified ICM Peripheral Gateway (PG) to produce an intermediate termination record. Specifically, it writes a record in the Terminal Call Detail (TCD) table, which includes all current call variables (but not the VRU Progress variable), router call keys, date and time, caller-entered digits, and so on. Together with the TCD record, the Capture micro-application writes a set of records to the Termination Call Variable (TCV) table, which includes the current values of all ECC variables. Cisco Unified ICM Enterprise provides no standard reporting templates for TCD and TCV records. These tables are large and minimally indexed, and are optimized for writing rather than querying, to minimally impact call handling throughput. If you plan to report on this data, create off-hours extract processes that copy rows in their raw format into a database that is external to Cisco Unified ICM. From there, you can organize the tables in the way that best supports your querying requirements.

Some information you need concerning these records :

- TCD records for a given call may be identified because they contain the same *RouterCallKeyDay* and *RouterCallKey*. Successive TCD records are ordered by incrementing *RouterCallKeySequenceNumber*.
- Intermediate TCD records may be identified because they contain a Call Disposition of 53, "PartialCall". Only the last TCD record for the call contains the actual disposition.
- TCV records corresponding to a particular TCD record may be obtained by joining on TCV. TCDRecoveryKey. This key matches the RecoveryKey value in the TCD record.
- As of Cisco Unified ICM Enterprise 6.0, the TCD record's CallTypeId is populated, even for VRU peripherals. This means that you can determine the call's current CallType at the time of each Capture micro-application invocation, as well as at the end of the call.
- In Cisco Unified CVP Comprehensive call flow models, these records will be associated with the VRU leg peripheral. If you are doing VRU application reporting, you may want to filter for TCD records that contain the Peripheral ID of the Cisco ISN VRU leg.

If using the Capture micro-application, keep in mind that it places a heavy demand on Cisco Unified ICM resources. Each time you use CAP, Cisco Unified ICM writes one TCD record and multiple TCV records. Though it can conveniently capture the information that you need, CAP is also likely to capture a great deal of extra information that you do not require. If you overuse this micro-application, you may end up placing a heavy load, in terms of both processing and disk space, on Cisco Unified ICM. Despite the minimal indexing, this load may nevertheless affect the ability of Cisco Unified ICM Enterprise to handle the expected call load. Decide carefully where to capture information in your scripts, and spread data items into as many different call variables as possible to maximize the usefulness of each invocation.



# Get Digits (GD)

Wednesday, July 17, 2013 10:20 AM

## VRU Script Name

The VRU script name uses comma separations to define each field. Each field consists of the following:

- **Micro-application**: The micro-application; in this case, GD.
- **Filename**: A filename (.wav) or external VXML filename (static). The filename choice may be dynamic, depending on user input, or may be DNIS. Examples might be "Welcome to the sales department" or "Welcome to the mortgage department"
  - If the filename is null, Cisco Unified CVP examines the contents of the *user.microapp.inline_tts* ECC variable. If this ECC variable contains a value, the Cisco Unified CVP prompts the use of TTS and will say the content of the variable. If the ECC is empty, no prompt is played.
  - If this field is a negative number between 1 and 10, Cisco Unified CVP plays the file in the corresponding *Call.PeripheralVariable* file. For example, entering -2 causes Cisco Unified CVP to look at Call.PeripheralVariable2.
- **Media Library Type Flag**: This flag indicates the location of the media files to be played. The valid options are as follows:
  - **A (default)**: Application
  - **S**: System
    This value is ignored when using TTS.
- **Uniqueness Value** (optional): This optional string identifies a VRU script name as unique.

## Configuration Parameters

The configuration parameters are as follows
(11 parameters, comma separated; default setting):

- Minimum Field Length (1)
- Maximum Field Length (1)
- Barge-in Allowed (Y)
- Inter-digit Timeout, seconds, 1-99 (3)
- No-entry Timeout, seconds 0-99 (5)
- Number of No-entry Tries, 1-9 (3)
- Number of Invalid Tries, 1-9 (3)
- Timeout Message Override, overrides system default message (N)
- Invalid Entry Message Override, overrides system default message (N)
- DTMF Termination Key, Octothorpe (#)
- Incomplete Timeout, pause between last spoken utterance and grammar mismatch (3)

When using CVP microapps, the minus sign followed by a number is telling ICM to use that peripheral variable. For instance, you can say GD,-9 which means GetDigits and play whatever is in PeripheralVariable 9. If you need to enter in a static it would be GD,9000

## Get Digits Examples

The Get Digits micro-application can collect either DTMF or voice input from the caller. Here is a Get Digits example:

- GD, Config Param = 6,12,N
  Set *user.microapp.inline_tts* = "What is your account number?"
  Set *user.microapp.input_type* = B (both DTMF and voice)

Use Get Digits to play the contents of the ECC variable and collect either voice or DTMF input from the caller. The minimum field length is 6, maximum is 12, and no barge-in is allowed.

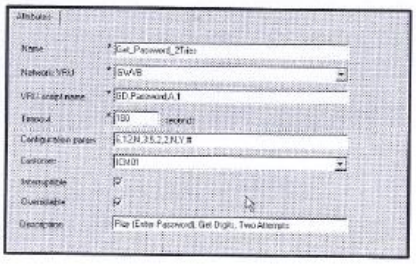
The results of Get Digits are passed to *Call.CallerEnteredDigits*

## Micro-Applications: GD

Get Digits (GD)—Micro-application: GD

Configuration Parameters:

- Minimum Field Length: 6
- Maximum Field Length: 12
- Barge-in Allowed: N
- Inter-digit Timeout: 3
- No-entry Timeout: 5
- Number of No-entry Tries: 2
- Number of Invalid Tries: 2
- Timeout Message Override: N
- Invalid Entry Message Override: Y
- DTMF Termination Key: #
- Incomplete Timeout



Attributes

| | | |
|---|---|---|
| Name | * | ATT_Progress_Tone_Capture |
| Network VRU | * | CVP |
| VRU script name | * | GD,silence_1_sec,S |
| Timeout | * | 15 seconds |
| Configuration param | | 3,3,Y,3,9,1,1,N,N,N, |
| Customer | | ucce |
| Interruptible | | ☑ |
| Overridable | | ☑ |
| Description | | ATT Progress Tone Capture |

## Micro-Applications: GD (Cont.)

- Get Digits (GD) Example
  - GD, Config Param = 6,12,N
  - Set user.microapp.inline_tts = "What is your account number?"
  - Set user.microapp.input_type = B (both DTMF and voice)
- Get Digits to play the contents of the ECC variable and collect either voice or DTMF input from caller; the minimum field length is 6, maximum is 12, no barge-in is allowed
- Results passed to Call.CallerEnteredDigits

# Get Speech (GS)

Wednesday, July 17, 2013 11:22 AM

The Get Speech (GS) micro-application prompts a caller to respond, then collect input that is not expressed in digits. A media file or a TTS source may generate the prompt, and input may be provided through DTMF or speech. The Cisco Unified CVP passes the input back to the Cisco Unified NAM/Cisco Unified ICM for further processing by using the *user.microapp.caller_input* ECC variable.

## Grammar Specification

To conduct speech recognition, a grammar option must be specified so that the recognition engine can know a list of valid responses. One of the following grammar options must be used for each micro-application. If no grammar option is specified, an Invalid Config Param (configuration parameter) error will be sent back to Cisco Unified ICM software.

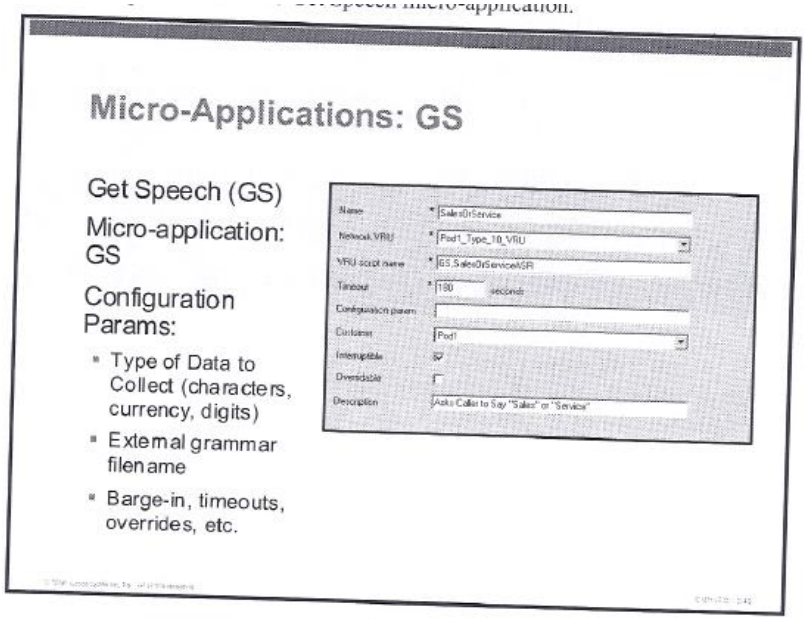
There are three methods to specify a grammar option in the Get Speech micro-application:

- Include a Type of Data to Collect setting in the Get Speech Configuration Param field, for built-in grammar fields such as dates and numbers. If the Type of Data to Collect setting is specified, the Application Server will not use the other grammar options. Conversely, if you do not specify a Type of Data to Collect setting, then you must include either a built-in or an external grammar option.
- Include an external grammar filename in the Get Speech Configuration Param field External Grammar File Name setting.
- Include a list of inline grammar choices in the *user.microapp.grammar_choices* ECC variable.

A grammar option is a vocabulary subset of words that are candidates to be recognized by a speech-recognition engine. When using the Get Speech micro-application, a grammar option must be specified by the application, or else an error will be returned.

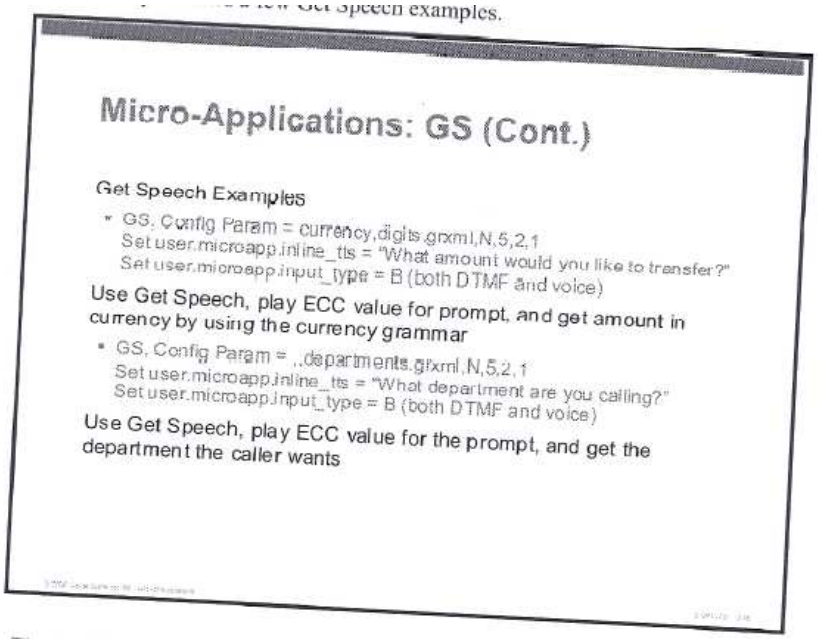
The Get Speech micro-application collects information from the caller in the form of voice or DTMF input.

- GS, Config Param = currency,digits,grxml,N,5,2,1
  Set *user.microapp.inline_tts* = "What amount would you like to transfer?"
  Set *user.microapp.input_type* = B (both DTMF and voice)
- Use Get Speech, play ECC value for prompt, and get amount in currency by using the currency grammar.
  Set *user.microapp.inline_tts* = "What department are you calling?"
  Set *user.microapp.input_type* = B (both DTMF and voice)



## Micro-Applications: GS (Cont.)

- Get Speech: Specifying grammars
- Grammar: A vocabulary subset of words that are candidates to be recognized by the speech engine.
- Three methods of specifying a grammar during runtime:
  - Data to Collect determines the built in grammar (currency, date, number)
  - Designate an external grammar filename and location
  - Create inline grammars during runtime



# Menu (M)

Thursday, August 1, 2013 3:29 PM

The Menu micro-application plays a menu media file and retrieves a defined digit. Menu is similar to the Get Digit micro-application, except that Menu accepts only one digit, which then checks for validity.

The Cisco Unified CVP passes the retrieved digit back to the Cisco NAM/Cisco Unified ICM for further processing by using the Caller-Entered Digits (CED) field in the Cisco Unified ICM/Cisco Unified IP IVR Messaging interface.

## VRU Script Name

The VRU Script Name uses comma separations to define each field. Each field consists of the following:

- **The micro-application:** The micro-application; in this case, M.
- **File Name:** A filename (.wav) or external VXML filename (static). The filename choice may be dynamic, depending on user input, or may be DNIS. Examples might be "Welcome to the sales department" or "Welcome to the mortgage department".
  - If the filename is null, Cisco Unified CVP examines the contents of the *user.microapp.inline_tts* ECC variable. If this ECC variable contains a value, the Cisco Unified CVP prompts the use of TTS and will say the content of the variable. If the ECC variable is empty, no prompt is playe d.
  - If this field value is a negative number between 1 and 10, Cisco Unified CVP plays the file in the corresponding *Call.PeripheralVaiable* file. For example, entering -2 causes Cisco Unified CVP to look at *Call.PeripheralVariable2*.
- **Media Library Type Flag:** This flag indicates the location of the media files to be played. The valid options are as follows:
  - **A (default):** Application
  - **S:** System

## Configuration Parameters

Here are the configuration parameters, with the defaults:

- Barge-in Allowed (Y)
- No-entry Timeout, seconds, 0-99 (5)
- Number of No-entry Tries, 1-9 (3)
- Number of Invalid Tries, 1-9 (3)
- Timeout Message Override, overrides system default message (N)
- Invalid Entry Message Override, overrides system default message (N)

The Menu micro-application plays a menu back to the caller

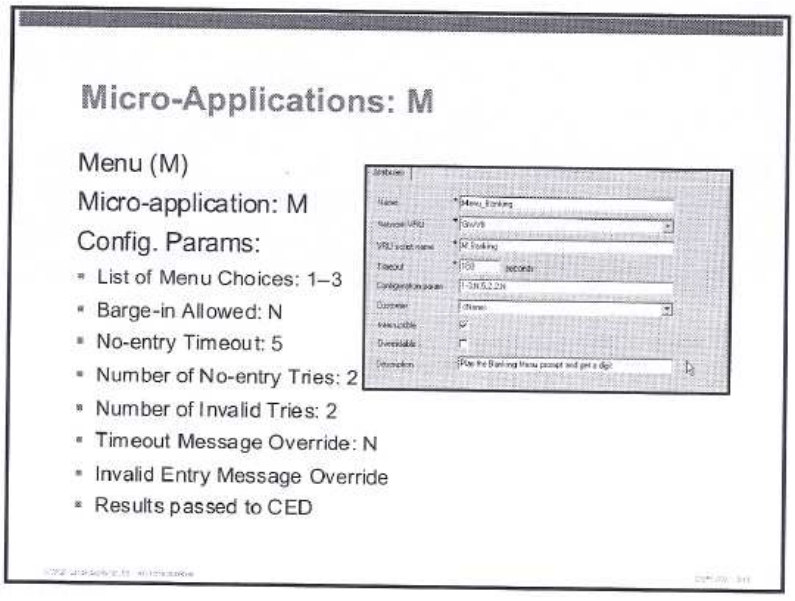
- M,Main_Menu, Config Param = 0-2/9,,4,2,2:

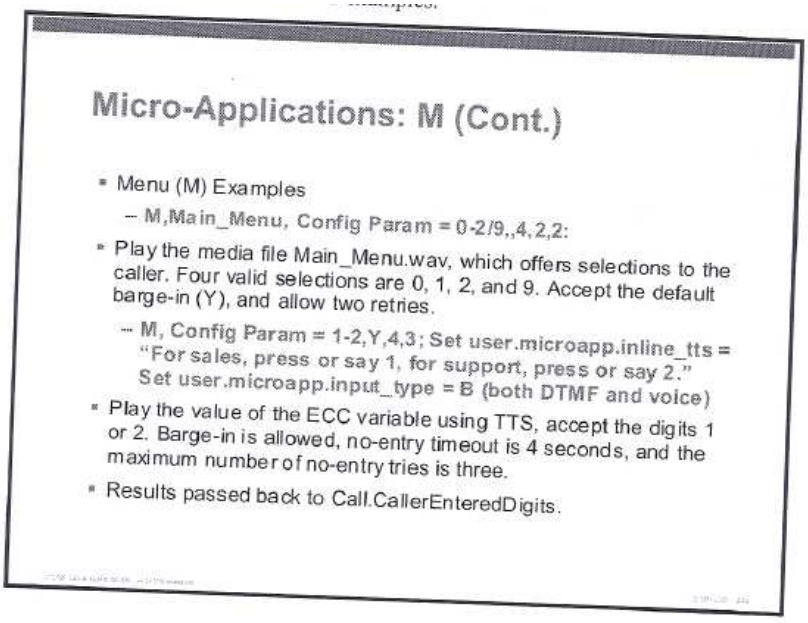
Play the media file Main_Menu.wav, which offers selections to the caller. Four valid selections are 0,1,2, and 9. Accept the default barge-in (Y), and allow two retries.

- M,Config Param = 1-2,Y,4,3; Set *user.microapp.inline_tts* = "For sales, press or say 1, for support, press or say 2."
  Set *user.microapp.input_type* = B (both DTMF and voice)

Play the value of the ECC variable using TTS, accept the digits 1 or 2. Barge-in is allowed, no-entry timeout is 4 seconds, and the maximum number of no-entry tries is three.

The results of Menu passed are back to *Call.CallerEnteredDigits*.





## Micro-Applications: M (Cont.)

- Menu (M) Examples
  - M,Main_Menu, Config Param = 0-2/9,,4,2,2:
- Play the media file Main_Menu.wav, which offers selections to the caller. Four valid selections are 0, 1, 2, and 9. Accept the default barge-in (Y), and allow two retries.
  - M, Config Param = 1-2,Y,4,3; Set user.microapp.inline_tts = "For sales, press or say 1, for support, press or say 2." Set user.microapp.input_type = B (both DTMF and voice)
- Play the value of the ECC variable using TTS, accept the digits 1 or 2. Barge-in is allowed, no-entry timeout is 4 seconds, and the maximum number of no-entry tries is three.
- Results passed back to Call.CallerEnteredDigits.

Attributes

| | | |
|---|---|---|
| Name | * | CVP_Menu_012349 |
| Network VRU | * | CVP |
| VRU script name | * | M,-9,A,012349 |
| Timeout | * | 600 seconds |
| Configuration param | | 0-4/9/*,Y,4,3,3,N,N |
| Customer | | ucce |
| Interruptible | | ☑ |
| Overridable | | ☐ |
| Description | | |

Attributes

| | | |
|---|---|---|
| Name | * | Menu |
| Network VRU | * | CVP |
| VRU script name | * | M,-5,A,Overridable |
| Timeout | * | 180 seconds |
| Configuration param | | 0-9/#/*,Y,3,1,3,N,N |
| Customer | | ampf |
| Interruptible | | ☑ |
| Overridable | | ☐ |
| Description | | |

To allow # and * as a DTMF option

# Play Data (PD)

Thursday, August 1, 2013 4:41 PM

## VRU Script Name

The VRU script name uses comma separations to define each field. Each field consists of the following:

- **Micro-application:** The micro-application; in this case, PD.
- **Data playback type:** The kind of data to be returned ("played") to the caller. The valid options are as follows:
  - Number
  - Char (character)
  - Date
  - Etime (elapsed time)
  - TOD (Time of Day), not TTS supported
  - 24TOD (24-hour Time of Day), not TTS supported
  - DOW (Day of Week)
  - Currency
- **Uniqueness Value (optional):** This optional string identifies a VRU script name as unique.

## Configuration Parameter

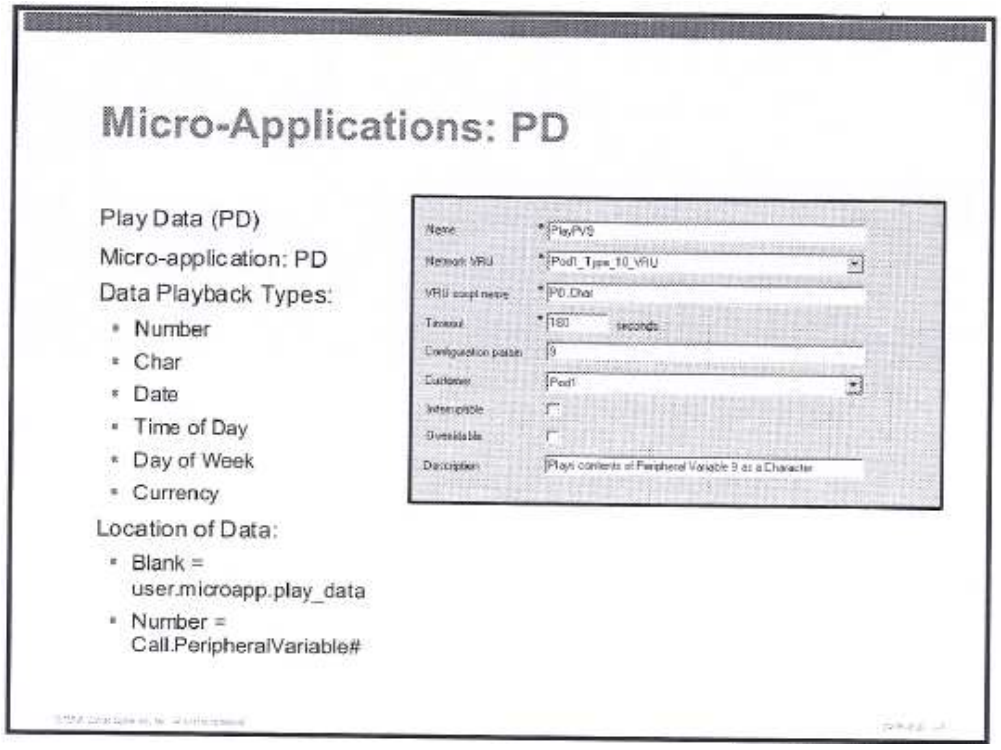
The configuration parameter is as follows:

- Location of the data to be played: The valid options are:
  - **Null (default):** If the option is left empty, Cisco Unified CVP uses the ECC variable *user.microapp.play_data.*
  - **A number representing a Call Peripheral Variable number:** For example, a "1" will represent *Call.PeripheralVariable1*.

Play Data micro-applications play data such as numbers and characters back to the caller. These are four Play Data examples:

- **PD,Char,Config Param = 1:** Play the data from *Call.PeripheralVariable1* as a character
- **PD,Currency,Config Param = 5,N:** Play the data in *Call.PeripheralVariable5* as currency, no barge-in allowed.
- **PD,Number,Config Param = 4,N:** Play the data in *Call.PeripheralVariable4* as a number, no barge-in allowed.
- **PD,Char,Config Param = (blank):** Play the data in *user.microapp.play_data* back as a character.

**NOTE:** The data will not be played back using TTS unless ECC variable pd_tts is set to "Y"



# Micro-Applications: PD (Cont.)

## Play Data (PD) Examples

- PD,Char, Config Param = 1: Play the data from Call.PeripheralVariable1 as a character
- PD, Currency, Config Param = 5,N: Play the data in Call.PeripheralVariable5 as currency, no barge-in allowed
- PD, Number, Config Param = 4,N: Play the data in Call.PeripheralVariable4 as a number, no barge-in allowed
- PD, Char, Config Param = (blank): Play the data in user.microapp.play_data as a character

# Play Media (PM)

Thursday, August 1, 2013 4:58 PM

## About Play Media

The VRU script name uses comma separations to define each field. Each field consists of the following:

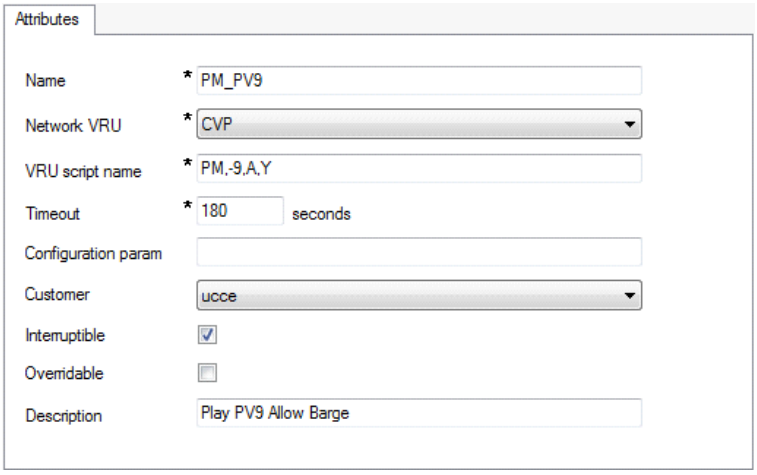
- **The micro-application:** The micro-application; in this case, PM.
- **Filename:** A filename (.wav) or external VXML filename (static). The filename choice may be dynamic, depending on user input, or may be Dialed Number Identification Service (DNIS). Examples might be "Welcome to the sales department" or "Welcome to the mortgage department".
  - If the filename is null, Cisco Unified CVP examines the contents of the *user.microapp.inline_tts* ECC variable. If this ECC variable contains a value, the Cisco Unified CVP prompts the use of TTS and will say the content of the variable. If the ECC variable is empty, no prompt is played.
  - If this field value is a negative number between 1 and 10, Cisco Unified CVP plays the file in the corresponding *Call.PeripheralVariable* file. For example, entering -2 causes Cisco Unified CVP to look at *Call.PeripheralVariable2*.
- **Media Library Type Flag:** This flag indicates the location of the media files to be played. The valid options are as follows:
  - **A (default):** Application
  - **S:** System
  - **V:** External VXML
- **Uniqueness Value (optional):** This optional string identifies a VRU script name as unique.

A Play Media micro-application plays media such as .wav files or media from an external VXML source.

Here are some Play Media examples:

- **PM,Welcome:** Plays the media file "welcome.wav"
- **PM,March,S:** Play the media file "March.wav" from the System Media library
- **PM,stockprice.vxml,V,1:** Play the external VXML file "stockprice.vxml" from the VXML Media library; "1" makes this name unique.
- **PM:** Play the contents of ECC variable *user.microapp.inline_tts* using TTS
- **PM,-4,A:** Use the file listed in Peripheral variable *Call.PeripheralVariable4*; acquire the file from the Application Media library.

The same special micro-application that is used to invoke VXML Server applications can also be used to invoke arbitrary "External VXML" pages from a Media Server or other customer-provided source. However, use this capability only for very simple VoiceXML needs, because Cisco has no way to verify that customer-provided VoiceXML documents are compatible with the Cisco IOS voice browser (VoiceXML documents that are generated by VXML Server are guaranteed by Cisco to be compatible with the Cisco IOS voice browser). **Customers are discouraged from using it directly**. Additionally, all the VoiceXML Gateway sizing metrics that Cisco provides are based on specific VoiceXML documents that are generated by using either micro-applications or VXML Server applications. Using VXML from another source will require the customer to perform his or her own empirical performance and capacity testing to determine how to size the VoiceXML Gateways.



## Micro-Applications: PM

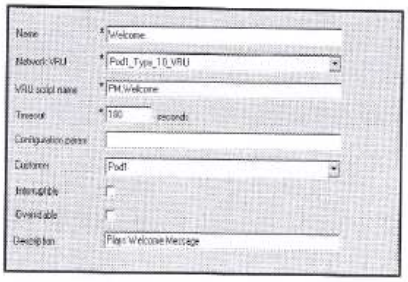
Play Media (PM)

VRU script name fields

Micro-application: PM

File designation:

- Static .wav files
- Dynamic .wav files use ECC variable CallPeripheralVariable#
- Dynamic TTS uses ECC variable user.microapp.inline_tts




## Micro-Applications: PM (Cont.)

Play Media (PM) Examples

- PM, Welcome: Play the media file "welcome.wav"
- PM, March,S: Play the media file "March.wav" from the System Media library
- PM,stockprice.vxml,V,1: Play the external VXML file "stockprice.vxml" from the VXML Media library; "1" makes this name unique
- PM: Play the contents of ECC variable user.microapp.inline_tts, using TTS
- PM,-4,A: Use the file listed in Peripheral variable Call.PeripheralVariable4; acquire the file from the Application Media library

# Summary

Thursday, August 1, 2013 5:14 PM

This lesson presented an overview and configuration data for the Cisco Unified CVP micro-applications, including PM, PD, GD, M, and GS.

- **PM** plays media such as .wav files or media from an external VoiceXML source.
- **PD** returns data such as number, date, elapsed time, character, time of day, day of week, and currency.
- **GD** can collect either DTMF or voice input from the caller.
- **M** is similar to the GD micro-application except that it accepts only one digits, which it then checks for validity.
- **GS** collects input not expressed in digits after prompting the caller to respond.