

## Voice Guidance That Lets Your Diebold ATMs Do the Talking

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*By March 2012, organizations in the US must comply with ADA regulations from the 2010 Standards for Accessible Design, including those requiring voice guidance and voice feedback (for example, text-to-speech [TTS] audio feedback). This article describes what voice guidance is and illustrates options for adding audio to screens-and-states-based Diebold ATMs.*

### What is Voice Guidance?

Voice guidance is one term for the “spoken” audio feedback (whether provided using WAV files or speech engines) provided at the ATM. It is important to note that “speech-enabled” ATMs are only one aspect of the requirements for compliance with ADA regulations aimed at improving accessibility to ATM controls, which include other items, such as specifications regarding the physical structure that houses the ATM, the tactile symbols on the ATM keypad, and more. Audio is required for a number of types of information, including ATM operating instructions and an orientation to the available controls, transaction prompts, input verification, account balances, error messages and so forth. Audio can be made available either through a telephone-type handset or, more typically, an industry- standard headphone jack that accepts the customer’s own headphones.

### Are Your ATMs Equipped for Voice Guidance?

Organizations must begin by evaluating their ATM networks and ensuring that ATMs are equipped with the hardware and software required for voice guidance. Terminal vendors can assist in determining the required changes for ATMs. In addition, organizations must verify that their host system software is capable of processing the message data related to voice guidance, for example, that the host system can send account information in command responses to the ATM. (Receipt information must be spoken to the customer.)

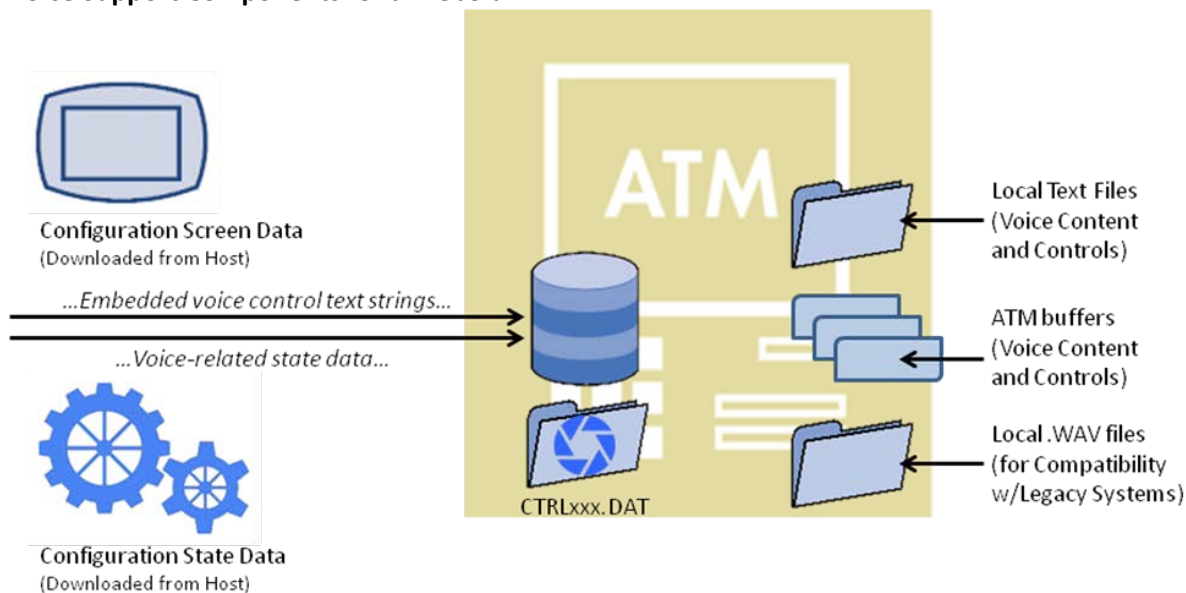
Voice engines and voices for the desired languages must be installed and tested on the ATM. Additionally, if ATM configurations containing voice guidance for speech-enabled ATMs will be built or tested using a simulator, a voice engine and voices must be installed on test PCs. The procedure for installing and configuring voice engines and voices will vary. Refer to the installation and configuration instructions provided for the voice engine and voices that your organization has chosen.

## Adding Voice Guidance to a Diebold ATM

An example of adding audio to a Diebold ATM configuration follows. This example adds voice guidance to a sample customer lead-through. Before getting into specifics, you'll need to understand the basic voice support components for a Diebold ATM, which are:

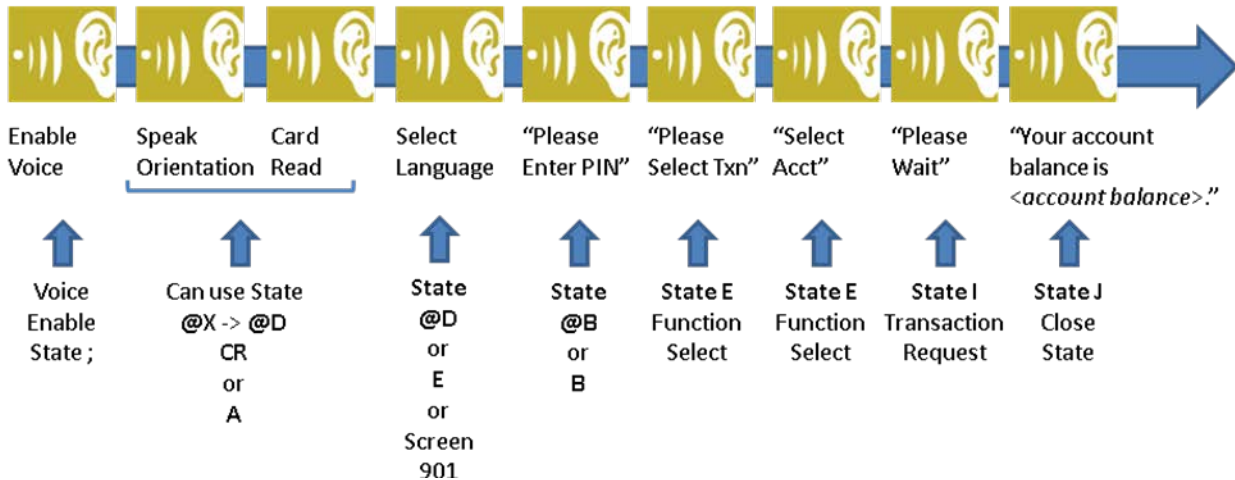
- Configuration screen data – This is data that controls the ATM screens displayed for customers. This data is downloaded to the ATM from your Host system. Screen data for Diebold ATMs may also contain text strings embedded in voice controls which enable the ATM to “speak” the designated phrases.
- Configuration state data – This is data that drives the flow of the customer’s transaction at the ATM. This data is downloaded to the ATM from your Host system.
- Text files (stored locally on the ATM) – These text files, stored on the ATM, can be spoken to the customer.
- Control file – The voice control file is named CTRLxxx.DAT and can be used to specify a voice message sequence.
- ATM buffers can contain information gathered during the transaction (such as account numbers and balances) that can be spoken to the customer.
- WAV files (stored locally on the ATM) – These WAV files contain audio data for screens. The WAV files are stored on these legacy ATMs.

### Voice Support Components for a Diebold ATM



An illustration of a sample customer lead-through follows. It includes the states and audio feedback that might be associated with a typical customer interaction.

### Sample Customer Lead-Through on a Diebold ATM



#### Note regarding screen 901 and the Multilingual Feature:

If the ATM's Multilingual Feature is enabled and screen 901 exists in the configuration, the ATM automatically displays screen 901 after card entry. The customer selects a language using the FDKs and the language bank is set based on the FDK the customer pressed.

#### About the Diebold Voice Enable State (State ";")

The **Voice Enable state** (state ";") is added to ATM configurations for speech-enabled Diebold ATMs. The ";" state contains the following voice controls:

Prompting Enable Flag	Toggles voice feature
Next State	Standard Next State value
Feedback Enable Flag	Toggles keyboard feedback
Beeping/Voice Prompting Coordination Flag	Manages sound sequences
Reserved	Standard Reserved value
Reserved	Standard Reserved value
Reserved	Standard Reserved value
Reserved	Standard Reserved value

## How the Customer Lead-Through Operates at the Diebold ATM

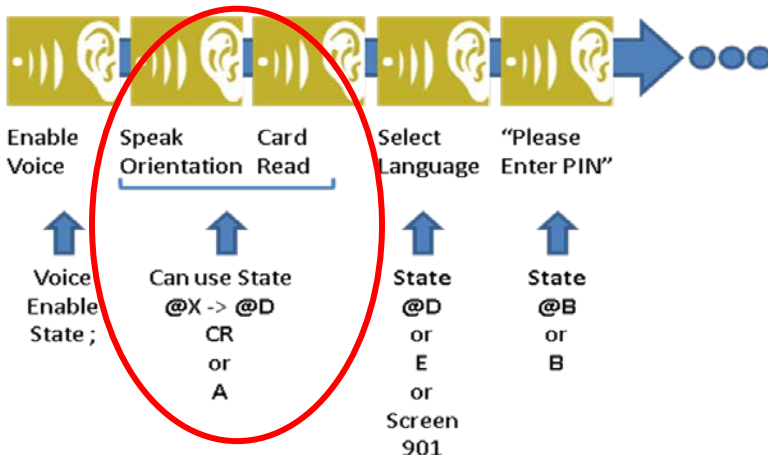
The customer begins by inserting the plug of a personal headset into the standard audio jack provided at the ATM and pressing a designated key to hear orientation (or insert a card) to start the transaction. Voice guidance at the ATM must provide an orientation to the controls on the ATM and some brief operating instructions.

Voice guidance tells the customer to insert the card and, after the ATM reads the card, instructs the customer to enter the PIN, select the transaction, account, and so forth. During the course of the transaction, the ATM may also be required to provide spoken amounts or account selections.

The spoken text can come from one of several sources:

- Embedded text in screen data using text-to-speech (TTS) audio sequences
- An external text file referenced by escape sequences embedded in the screen data
- A WAV file referenced by escape sequences embedded in the screen data
- A CTRL file referenced by escape sequences embedded in the screen data (known as a Phase II audio message)
- A Diebold ATM buffer

### Embedded Text in Diebold Screen Data Using TTS Audio Sequences

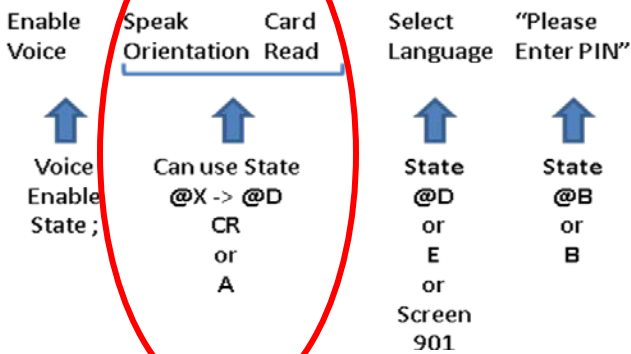


### Example of Text Embedded in Screen Data

```
Esc ;0 "Please swipe your card to begin. Press one for instructions in English" 000000
```

This approach enables the ATM to speak static text embedded in the screen data, such as a welcome message or a commonly used instruction like "Please swipe your card."

## External Text File Referenced Using Escape Sequences Embedded in the Diebold Screen Data

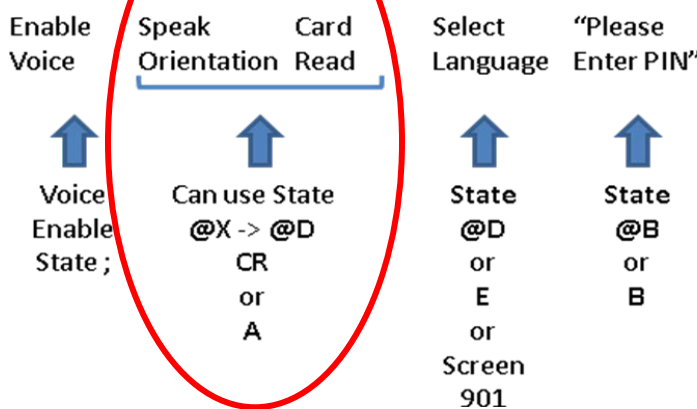


### Example of Text File Reference Embedded in Screen Data

```
Esc ;0 "ContentFileName.txt" 000000
```

This approach enables the ATM to speak a word or phrase that is stored in a text file locally on the ATM, thus facilitating easy retrieval and reuse. Using the text file enables you to reduce maintenance by storing the text once in a file, then reusing it as often as desired. If you need to edit the phrase, you will only need to make the change in one text file rather than in multiple text strings in multiple configurations. Similarly, a reference to a locally-stored WAV file (illustrated below) enables you to reuse words and phrases that are pre-recorded and saved in a WAV file.

## WAV File Referenced Using Escape Sequences Embedded in the Diebold Screen Data



### Example of WAV File Reference Embedded in Screen Data

```
Esc ;0 "Wav_Filename.wav" 000000
```

## Phase II Audio Message Referenced in Control File Embedded in the Screen Data



Enable Voice	Speak Orientation	Card Read	Select Language	"Please Enter PIN"
↑ Voice Enable State ;	↑ Can use State @X -> @D CR or A		↑ State @D or E or Screen 901	↑ State @B or B

### Example of Phase II Audio Message Referenced in Control File Embedded in Screen Data

Esc ; 1055000000

Phase II messages are a reference to a control file that is used to specify a voice message sequence. The voice control file is named CTRLxxx.DAT. This control file is stored on the ATM.

## Reading from a Diebold ATM Buffer



"Please Wait"	"Your account balance is <account balance>."
↑ State I Transaction Request	↑ State J Close State
	Speak balance from buffer. Buffer is populated by host system in function command.

### Example of ATM Buffer Populated by Host System

Esc ;0 "Your account balance is" 000000

Esc ;0"<tcsbuffer=G,Template=10>"000000

Reading text from an ATM buffer enables the ATM to speak information that is generated during the transaction (such as account numbers and account balances). The Host system populates the buffer in the function command. You must ensure your Host system can send information in command responses to the ATM.

## Developing and Testing Voice Guidance in Your ATM Configurations

Paragon Application Systems provides solutions and experienced service professionals to assist you in creating and testing ATM configurations that include voice guidance. Contact us regarding your specific needs.

### About the Authors

#### **Cathy Gardner, Vice President, Professional Services**

Cathy Gardner, with over 20 years of experience in the financial services industry, joined Paragon initially as Product Support Manager and currently serves as VP, Professional Services. Cathy has been instrumental in optimizing Paragon's Professional Services offerings. Cathy worked for Coastal Federal Credit Union for 19 years where she was the EFT/ATM support liaison which allowed her to work with a variety of network platforms and serve in support roles both for internal and external customers in operations, back-office, conversion project management, communications, mainframe and server environments. Before coming to Paragon, Ms. Gardner worked as a consultant for implementation and upgrades of EFT/ATM software at financial institutions within the U.S.

#### **Bob Collins, Vice President, Technology and Services**

Robert Collins is Vice President of Technology and Services and co-founder of Paragon Application Systems. Bob is responsible for ensuring successful customer deployment and continued customer satisfaction with Paragon Solutions. Bob has hands-on experience developing and using Paragon's solutions to test a wide variety of financial message formats, and has set the standard for providing exemplary technical support to Paragon's clients. Prior to co-founding Paragon, Bob worked with SDM International, Inc. (now part of ACI Worldwide) where he provided development, customization and on-site integration assistance of SDM's ATM/EFT products worldwide. Bob has over 20 years of ATM/EFT experience which he has used to help position Paragon as one of the industry's leaders in customer satisfaction and repeat business.

### About Paragon Application Systems, Inc

Since 1994, Paragon Application Systems has provided software testing solutions to test the reliability and integrity of electronic payment systems. Today, Paragon is the leading global provider of ePayment simulation, configuration and testing solutions. Our customers drive more than 100,000 ATMs, connect to over 90 interchanges and process thousands of transactions per second. Paragon has more than 590 customers in 85 countries including financial institutions, leading software providers, merchant acquirers, processors, interchanges and credit unions.

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