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Chapter 1

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1.1 AniMan.Guide Table of Contents

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1.2 1 - AniMan Principles of Operation

AniMan displays an animated talking head in a small window on the Amiga Workbench that responds to your voice commands spoken through the Perfect Sound 3, Sound Magic (Sound Master), DSS 8, or a Generic audio digitizer. AniMan uses the public domain voice.library of voice recognition functions to learn and recognize spoken voice commands and corresponding CLI Commands. These CLI commands are executed upon recognition of your spoken command and may be used to execute an ARexx script, give a single line CLI ARexx command, or execute any ordinary CLI command.

AniMan is designed to run on an Amiga Workbench screen having at least 64 colors and will automatically adapt to a wide variety of monitors and display modes. AniMan requires AmigaDOS 3.0.

AniMan is completely multitasking and will operate either in the foreground or background, listening for your voice commands even while

other programs may be running. AniMan allows the use of voice commands to control programs which have an active ARExx port or to execute any CLI command by spoken voice command.

AniMan should be copied into its own drawer along with the required AniMan.pixels and AniMan.phrases files. AniMan will create configuration files and voice command files that are best kept in a directory with Animan. Voice.library must be copied to your libs: directory in order to run AniMan.

AniMan also uses the Amiga translator.library and the Amiga narrator.device which must be available as well. Translator.library and narrator.device are available with the 2.0 Workbench and must be copied from there to your libs: and devs: directories, respectively.

1.3 2 - AniMan Options

The first step in using AniMan is to choose the audio digitizer to be used. Make your selection from the "Option" menu. You will have a choice of Perfect Sound 3, Sound Magic (Sound Master), DSS 8, or a Generic digitizer. Your selection will be saved with your voice commands. Note that your microphone must be connected to the right (not left) channel of the audio digitizer.

AniMan's voice recognition processing will operate either at high resolution or low resolution. Make your choice from the Option menu. High resolution is somewhat better at voice recognition, but requires nearly twice the time as low resolution to recognize a voice command. Your selection will be saved with your voice commands.

You also have a choice from the Option Menu of which CIAB Timer for AniMan to use in timing the intervals between audio samples. Timer B is the normal selection, and you usually will not have to change it. However, you may find some programs that are using Timer B themselves and will object if AniMan attempts to use Timer B. For these cases, choose Timer A. Your selection will be saved with your voice commands.

1.4 3 - Learning AniMan Commands

LEARNING COMMANDS

Before AniMan is used to recognize spoken commands, the program must first learn each voice command and associated CLI command. After selecting the proper audio digitizer, choose "New Commands" from the Function Menu to bring up the "Learn Commands" window containing string gadgets for each of 12 voice commands and 12 matching CLI commands.

To learn a voice command, type the command word or short phrase you have chosen in one of the string gadgets in the left hand column and strike the "Return" key. You will then be presented with the "Learning" window for audio sampling of the voice command. When you see "Ready to take first sample," click the "Sample" button and speak your chosen word or short phrase into a microphone connected to the right channel of your audio digitizer. In order to ensure a good audio sample the program examines the audio data for volume too low, volume too high (clipping), or for noisy input and you will be warned if these conditions exist. If volume needs adjustment you may change your volume of speech, move your microphone, or

change the gain of your audio digitizer and repeat the sample. Volume must be MAXIMUM possible without clipping. Try taking several samples, clicking the "Sample" button each time before speaking. Adjust volume until the sample amplitude is the maximum possible without a "Volume too high" warning.

Setting gain (or volume) to maximum without clipping is very important to operation of AniMan. The MOST COMMON CAUSE of failure of AniMan to recognize voice commands is digitizer gain (volume) set too low. The gain of the Perfect Sound 3 digitizer can be adjusted using the "Volume Up" and "Volume Down" buttons. Perfect Sound 3 has 16 discrete gain steps. Clicking the "Volume Up" or "Volume Down" buttons changes the gain by one step. Adjusting gain of the Perfect Sound 3 digitizer can be confusing. If you reach gain step 16, the next step up will take gain down to minimum step 1. Likewise, if you reach minimum step 1, the next step down will take you to maximum step 16. This can cause some confusion if you attempt to increase gain past maximum and find that gain has dropped to minimum.

The gain of the DSS 8 digitizer can also be adjusted using the "Volume Up" and "Volume Down" buttons. DSS 8 has 8 discrete gain steps, and clicking these buttons changes the gain by one step. DSS 8 gain is easier to control since it will not jump from maximum to minimum unexpectedly.

The gain of the Sound Master digitizer is adjusted using a sliding control knob on the unit. Increase or decrease gain until the maximum level without severe clipping is achieved.

When you see "Sample OK. Recommend accept," click the "Accept" button to store the audio sample of this voice command. This process is repeated for a second and third audio sample of the voice command. When you see "Ready to take second sample," and "Ready to take final sample," just repeat the voice command again into your microphone and "Accept" each sample when appropriate. Internally, AniMan combines these three audio samples into a frequency/time map or voice print of the command. This voice print will be stored along with those of the other spoken commands in the AniMan vocabulary for use in recognizing spoken commands.

When three audio samples have been accepted and a voice print of the command stored internally, you will be returned to the "Learn Commands" window where you must then type the matching CLI command into its appropriate string gadget in the right hand column.

HOW MANY COMMANDS

The "Learn Commands" window displays one of four pages of voice commands. Each page can hold 12 commands for a total of 48 possible commands. Choose Page One through Page Four from the "Page Select" menu. Add your commands beginning with Page One, filling the later pages as more commands are needed. Try not to leave gaps in the vocabulary of voice commands, but group your commands together on as few pages as possible.

As more commands are added, the time required for AniMan to recognize a voice command increases in proportion. More than one page (or 12 commands) is not recommended unless you have an accelerated Amiga.

LEARNING DIRECTIONS

In addition to learning voice commands, AniMan must also learn to recognize four spoken directions corresponding to "Cancel AniMan Command," "Run AmigaGuide," "Read Some Poetry," and "Quit AniMan." Choose "Learn Directions" from the Function Menu, and learn these spoken directions in the same manner that you learned the AniMan commands. These directions will be also be saved in the command files that you create.

After recognizing a voice command, AniMan will speak his intention to execute the matching CLI command. If you want to cancel this command, you must speak the words chosen for "Cancel AniMan Command" within about five seconds. Or you can correct AniMan within this time period by repeating the desired command. If you do not cancel or correct the command, AniMan will assume that you agree with his interpretation and will proceed.

AniMan will run AmigaGuide and display this information file when the words chosen for "Run AmigaGuide" are recognized.

When AniMan recognizes the spoken words learned for "Read Some Poetry," one verse of poetry from "The Raven" by Edgar Allan Poe will be recited. AniMan can recite all eighteen verses of "The Raven."

And finally, when AniMan recognizes the words chosen to represent "Quit AniMan," the program will close and return you to the Workbench Screen.

1.5 4 - Loading, Modifying, and Saving AniMan Commands

Voice command files can be saved by choosing the "Save Commands" menu item from the Function Menu. Different command files can be saved for different uses. It is important to save your command file as the last thing you do before quitting AniMan. Doing so will save any changes to your commands for future use. AniMan will also remember the name of the file that you save and load these commands automatically the next time you run AniMan.

You can recall previously saved commands by selecting the "Load Commands" menu item from the Function Menu. These commands can then be used to run AniMan without any relearning. If you need to make modifications, choose "Mod Commands" from the Function Menu and proceed as described under LEARNING COMMANDS above to modify or add commands to the vocabulary.

1.6 5 - Uses of AniMan Commands

CLI commands are matched to each of your voice commands by typing them into the CLI string gadgets in the right hand column of the "Learn Commands" window. The CLI commands that you will match to your voice commands and save in a voice command file have three possible uses. These are to execute ARexx scripts, ARexx commands, or ordinary CLI commands as described below. You must always use FULL PATH NAMES for CLI commands.

AREXX SCRIPTS:

You can use your CLI command to execute an ARexx script. For example, suppose you have stored an Arexx script named "DoSomething.rexx" in ram:. The proper text to enter in the CLI Command string gadget will be:

```
sys:rexxc/rx ram:DoSomething.rexx
```

When the voice command that you stored for this CLI command is recognized, your ARexx script will then be executed just as if you had typed the text at the CLI. Full path names are always used to avoid confusion.

AREXX COMMANDS:

You can use your CLI command to execute a single line ARExx command. For example, suppose you want to send the ARExx message "MYCOMMAND" to an ARExx port named "AREXXPORT." The proper CLI command in this case will be:

```
sys:rexxc/rx "ADDRESS AREXXPORT MYCOMMAND"
```

CLI COMMANDS:

You can also execute any CLI command, completely independent of ARExx. For example, if you are using a voice command to start a game named "MindlessGame" in df0:, the proper CLI command to store will be:

```
run df0:MindlessGame
```

COMMAND MODIFIERS:

AniMan recognizes two command modifiers, "TALK", and "LOAD", which change the way in which CLI commands are executed. These modifiers must be typed (all capitals) in the CLI Command string gadget ahead of the CLI command.

Use the "TALK" modifier if you wish AniMan to speak back to you the text you have typed in the CLI Command string buffer. AniMan will stay in the foreground and speak back the text you have specified. For example, you might have a voice command such as "How are you?" The CLI command could be "TALK What's it to you, buddy?" AniMan will answer your question "How are you?" with "What's it to you, buddy?"

You can also use a voice command to load another file of voice commands which has been saved previously. To do this, precede your CLI command with the word "LOAD". The CLI string following "LOAD" will be interpreted as a file name of voice commands to be loaded into AniMan. For example, if you have a voice command file by the name of "dh0:Voice.Commands", the proper command to type in the CLI Command string gadget will be "LOAD dh0:voice.commands". When AniMan recognizes this command, the voice prints and CLI commands in Voice.Commands will be loaded into AniMan and will take control. In this way you can minimize the number of commands (and thus the time required for recognition) by grouping small numbers of similar commands together and saving each group as a separate command file. Then use the LOAD command to move from one file to another.

1.7 6 - Running AniMan

SPEAKING TO ANIMAN

Once AniMan has learned commands and directions, you may return to the Workbench Screen where the animated talking head will then appear in its own window and await your voice command. Speak your commands slowly and distinctly into the microphone attached to your audio digitizer, and AniMan will attempt to match your command to the stored vocabulary of learned commands. AniMan will then announce his intention to execute your command. If you do not cancel the command or speak another command within about five seconds, AniMan proceed to execute the expected CLI command.

Note that AniMan LISTENS for your command ONLY WHEN HIS HEAD IS FACING AWAY FROM YOU. When he turns to face you and speak, he is not listening to you at all, but plans to speak his mind.

If AniMan tells you frequently that "I do not understand," or " I cannot hear you," you probably have the audio digitizer gain (volume) set too low. If you hear "You are speaking too loudly" very often, the volume may be set too high. Select "Adjust Volume" from the Function menu to bring up a window for display of the sampled audio data. This window is identical to that used for learning voice commands. However, it allows you to experiment with the gain (volume) control without making unwanted changes to your stored voice commands. Experiment with this window to adjust volume to the MAXIMUM value possible without clipping of the audio signal.

If AniMan tells you frequently that "It is too noisy in here," it means that there is too much background noise, or that you are bumping the microphone around causing AniMan to become confused. Handle the microphone carefully, and eliminate as much background noise as possible.

ANIMAN WINDOW OPERATION:

When the AniMan window is active, AniMan will become impatient if he hears nothing from you and will have witty things to say chosen at random from the AniMan.phrases file. You may edit or create your own AniMan.phrases file using any ASCII text editor. This file consists of a sequence of English language phrases, each PRECEDED by "****" to mark the beginning of a new phrase. Phonetic spelling may be needed for some words.

When the AniMan window is inactive, AniMan will close his eyes and doze. However, he is still listening for your commands, and will wake to execute any recognized command. The AniMan window may also be pushed into the background. However, AniMan will still be listening for your commands even while operating in the background.

All Function Menu and Option Menu selections are available when the AniMan window is active. However, when AniMan is speaking, menu operations are temporarily suspended. Wait for AniMan to finish speaking before making any menu selections.

1.8 7 - Practical Considerations

The choice of command words or phrases is important to successful use of AniMan. Words that sound distinctly different from each other will be more reliably recognized. Words that rhyme are poor choices. "Seven" and "eleven," or "make" and "break" will frequently be confused by AniMan. Even with distinctly different words, you must diligently pronounce each syllable of each word slowly, distinctly, and forcefully.

The frequency maps of spoken command words will vary due to any change in the pitch or rate of your speech. If you have a cold, or become impatient and speak at a faster rate, AniMan may not recognize your commands. Often, the only cure is to relearn a difficult word.

An expensive high bandwidth microphone is not necessary or desirable. It can be helpful, though, to have a microphone with a push button on-off switch. A continuously active microphone will sometimes confuse AniMan.

And finally, you will find some words that just don't work well with AniMan. The simplified voice recognition process used by AniMan is very fast in operation, but cannot handle all circumstances. If this happens, keep cool and pick another word or phrase.

1.9 8 - Solving Problems

INCORRECT AUDIO DIGITIZER

If you have not selected the correct audio digitizer, AniMan may give a continuous string of "I do not understand," or "It is too noisy in here," or "I can not hear you," or "You are speaking too loudly, and refuse to recognize any commands. Select the option for the correct audio digitizer from the Options menu.

VOICE COMMANDS NOT RECOGNIZED

The most common cause for failure of AniMan to recognize your voice commands is audio digitizer gain set too low. Of course, you must have learned or loaded commands before they can be recognized. Also be sure that your microphone is connected to the right channel of the audio digitizer.

CLI COMMANDS NOT EXECUTED

If your voice commands are recognized, but the corresponding CLI command is not executed, it is likely that your command is defective or does not contain a full path name for all required files. Try out your CLI commands independently in an AmigaShell, with your current directory set to the directory containing AniMan, to see if they will work correctly.

AMIGAGUIDE DOES NOT APPEAR

If your AmigaGuide command is recognized, but AmigaGuide does not appear, check to see that the AmigaGuide program is installed in sys:utilities and that the database named AniMan52.Guide is available in the same directory as AniMan.

1.10 9 - Version

This is version 5.2 of AniMan which will automatically configure to NTSC, PAL, or MultiSync monitors, runs in a small window in full color on the Amiga Workbench, and supports either Perfect Sound 3, Sound Magic (Sound Master), DSS 8, and Generic audio digitizers. Voice.library version 7.0 or higher is required. AmigaDOS 3.0 is also required.

1.11 10 - Credits

The AniMan head figure was originally created by Greg Denby. Without Greg's artistic talent, AniMan would not have been possible. AniMan and voice.library were written by Richard Horne. Zap improved voice.library by suggesting methods to increase the speed of voice recognition. And Mark Moore uncovered the secrets to programming the DSS 8 digitizer.

AniMan and voice.library were created for the enjoyment of the Amiga community and are freely distributable in the public domain. Questions, comments, and constructive criticism are welcome.
