

## Video Script

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# Kaleidoscope Pro 5 Auto-ID for Bats

Welcome to Kaleidoscope Pro from Wildlife Acoustics.

This interactive video will demonstrate how to use Kaleidoscope Pro to perform Auto Identification for Bats. We invite you to follow along on your own computer. Please download and install Kaleidoscope from the Wildlife Acoustics web site. You'll be able to activate a trial license for the Pro version.

Please also download the pdf tutorial document and the SM4BAT Examples .zip file. The SM4BAT Examples .zip file will expand to a folder that contains a Data folder and an Outputs folder. The Data folder contains the sample recordings we're going to use in this video. The Output folder is initially empty.

Detailed instructions for download, trial activation, and basic setup are included with the pdf file that accompanies this video.

Launch Kaleidoscope Pro and go to the File menu and choose Set Defaults. This will initialize all settings within the software. You'll get a dialog box asking about Bat or Non-bat Analysis. Choose Bat Analysis Mode.

In order for Kaleidoscope Pro to analyze files it must know the source of the original recordings and it must have a place to create its output files.

Click on Browse under Input Directory on the left side of the Control Panel. Navigate to the SM4BAT Examples folder on your hard drive. Select the Data folder and click Open for Mac or Select Folder for Windows. Kaleidoscope Pro now knows where to look to find the input files.

On the right under Outputs click on the Browse button and navigate to the SM4BAT Examples folder. Select the Outputs folder and click Open or Select Folder. Kaleidoscope Pro now knows

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where to create its output results.

Kaleidoscope Pro can convert input files to different formats on output, and it can add metadata to the converted files. If all we want to do is analyze the input files for the presence of bats, we don't need to duplicate any full spectrum or zero crossing files on output. I'll disable the option to export those files on output and that will save me time and disk space.

At the top of the control panel click on the Auto ID for Bats tab. Under Classifiers click on the menu and choose Bats of North America. Below that choose Massachusetts from the Region menu. That's where we collected our sample recordings.

In the bottom right hand corner of the Control Panel, click the button to Process Files. Kaleidoscope Pro goes to work and analyzes the input files. The next thing that happens is the Viewer window opens to show the first analyzed file from the input batch.

The Viewer shows graphic representations of the bat echolocation calls, and also allows for audible playback of these signals. There's a convenient button that will compress the view. This removes any empty space between the individual pulses. I'll expand the view with this button. I'll then zoom in to see multiple pulses close-up. I've got a lot of choices as to how I view the sequence of pulses. I can show or hide zero crossings. I can show or hide the full spectrum view.

You can see here that Kaleidoscope Pro has made an estimation of which species of bat was recorded in this pass. If you remember, we limited the possible species to be detected under the Auto ID tab in the Control Panel window. Here we see the shortcut name, the scientific name, and common name of the bat. Individual pulses that match the sequence level classification are highlighted. Pulses that do not match the overall sequence-level classification are not highlighted.

There's a play button in the bottom-center of the Viewer but at normal playback speed a human won't be able to hear the ultrasonic bat sounds. To the right of the Play button is a speed adjustment menu. Click on this menu and choose 1/10. This will cause the audio to be played back at one tenth of its original speed. I'll also temporarily disengage the compressed mode so I can hear the natural timing of the calls. Click Play to hear the pulses over your computer speakers. Let's give it a listen.

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And now I'll go back to the compressed view.

When the Viewer opened a second window called the Results window also opened. The Results window lists each file that was analyzed in the batch process.

The Results window works in combination with the Viewer. Select a file in the Results window and that file will be displayed in the Viewer. There are also shortcut buttons in the Viewer window that allow you to tab through files listed in the Results window. You can also use the up and down arrow buttons on your computer keyboard to scroll through files. Notice in the Results window we see a column for the Auto ID result. We also see a column where we can add manual IDs.

In the Viewer go to the File menu and choose Load Labels. This will load the species codes selected under the Auto ID for Bats tab in the Control Panel as button labels. If I press one of these buttons, the label name is entered into the metadata as a manual ID. If I want to make a custom label I can right-click on a button and just type it in. Check the box for Auto Next File. You can now click buttons to manually assign classifier IDs. Each time you assign a label, Kaleidoscope Pro will advance to the next file in the list. This allows you to work very quickly.

Click on the Results window and choose Save from the file menu. This will update the metadata in the id.csv file.

Go to the Outputs folder in the SM4BAT Examples folder. You'll see the files created when Kaleidoscope Pro did the original batch process.

The Id.csv file can be opened in a spreadsheet application. Open this file and you'll see the information gathered by Kaleidoscope Pro when it analyzed the original recordings, plus you will see your manual ID assignments.

And that's how easy it is to use Kaleidoscope Pro for bat Auto-ID.

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