# SCAN'R$_{tm}$

## Snapshot Characterization and Analysis Software

## Version 1.0
## Product description and features

How to contact us

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# 1.0 Product Description

SCAN'R$_{tm}$ is an automated snapshot characterization and analysis tool. It is designed to address two of the primary issues present in bat monitoring projects; namely 1) handling the high volume of data that is produced by modern Time Expanded (TE) and Full Bandwidth (FB) bat detectors, and 2) converting the recordings into meaningful measurements that can potentially be used to identify individual species and estimate populations.

First, SCAN'R$_{tm}$ includes an advanced bat detection technique that can distinguish between actual bat calls and false alarms which are due to insects and other noise sources. This feature is fully automated. SCAN'R$_{tm}$ will process an entire snapshot directory and separate the files into two lists, a list of "passed" files that contain bat calls and a list of "failed" files that don't. Afterward, with a single button click, the operator can either delete all of the failed files or save all the passed files into a separate archive directory.

Second, SCAN'R$_{tm}$ includes a fully automated characterization processor which isolates each bat vocalization and measures the relevant vocalization parameters. It supports two different base parameter sets. It currently produces files that conform to both Analook$_{tm}$ and SonoBat$_{tm}$ protocols. In addition, SCAN'R$_{tm}$ supports a few enhanced parameter measurements including Signal Pressure Level (SPL) and curvature, a spectral shape measurement. The parameter measurements are written to a tab-delimited output file and can be imported into spread sheets as well as third party processing tools.

These two processing features can be employed to scan though volumes of recorded data and extract/archive only the files of interest. This makes SCAN'R an ideal tool for processing and maintaining bat detection archives.

## 1.1 The Main Window

The SCAN'R main window is shown in figure 1. The main window has two basic sections. The **file selection section** (left) and the **sonogram "thumbnail" section** (right). The file selection section provides the basic operation controls. It allows the operator to configure the scan parameters and select both input and output files. The sonogram thumbnail section displays a four by four grid of sonograms, one per detected call . It provides quick visual feedback on the progress of the scanner and allows the operator to inspect the results and/or make measurements of their own.

Each of the thumbnails can be zoomed by simply double clicking on the sonogram of interest. For an example, see figure 2.

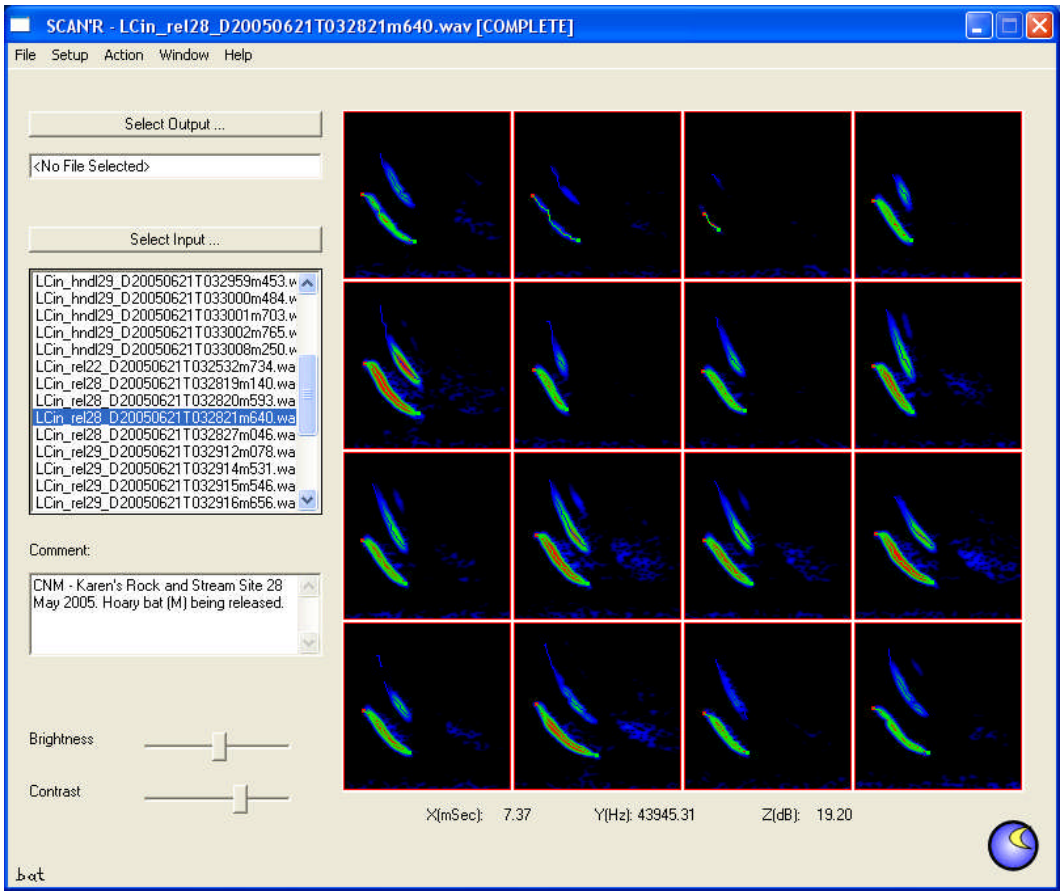


Figure 1: SCAN'R$_{tm}$ Main Window

## 1.2 Call Parameter Measurement

As each bat call is processed, SCAN'R$_{tm}$ measures the relevant parameters and stores them in a tab-delimited output file. SCAN'R$_{tm}$ supports two different file formats; a Analook$_{tm}$ compatible format and a SonoBat$_{tm}$ compatable format. In addition, SCAN'R$_{tm}$ can supplement the base formats with several optional parameters. The tab-delimited output file is a standard format that can be imported directly into a spreadsheet or processed by other third party analysis tools.

SCAN'R$_{tm}$ includes a zoomed sonographic thumbnail display that is useful for quick visual species identification, as well as for checking the performance of the software against various types of bat calls. The thumbnail includes parameter measurement readouts and is overlaid with computer generated detection and feature identification information to provide the operator with all of the call information in one display.

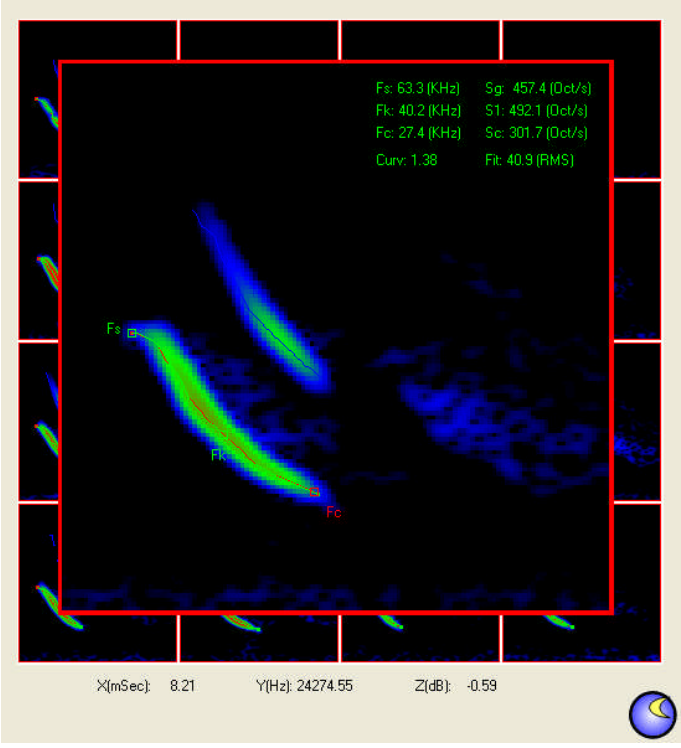


Figure 2: Zoomed Thumbnail display

## 1.2 Automated Call Detection and File Sorting

Another powerful feature of SCAN'R$_{tm}$ is it's ability to automatically sort through snapshot directories and determine which snapshots contain bat calls and which do not. It uses an advanced call identification algorithm, along with a set of call qualification filters, to select bat calls and reject noise due to insects and other extraneous sources.

All of the scan results are presented in a **Scan Results** window. The window is updated as each file is processed, either manually (one file at a time) or automatically (using the *Action=>Scan All* menu selection). The "selected" file list (top list) is updated with each file that passes the call selection criteria. The "failed" file list (bottom list) is updated with each file that does not.

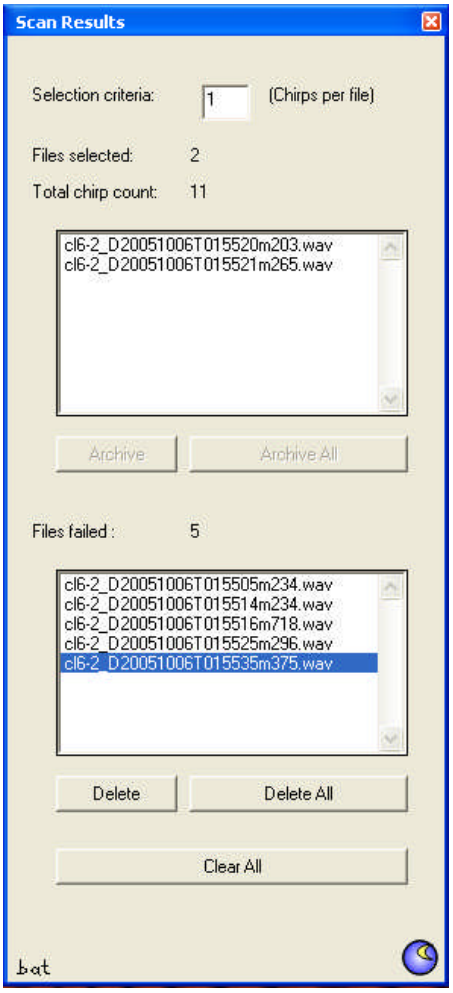


Figure 3: Scan Results Window

Once all the scan operations have completed, the operator has the option to archive all of the "selected" files or to delete all of the "failed" files. This "single button" operation feature is intended for maintaining archive directories. It can be used to minimize disk storage by weeding out bad files or it can be used to build up archive directories of good snapshots.

Note that the deleted files are actually moved to Window's Recycle bin and won't actually be deleted until the recycle bin in emptied. This allows files to be recovered if deleted accidentally.

## 2.0 Minimum System Requirements

**1.0GHz Pentium M processor or equivalent**
**256Mbytes RAM**
**Windows 98SE/ME/2000/XP**

## 3.0 For Further Information

For further information please contact us or visit our web site.

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