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## AISBLT

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This document last edited on September 21, 1988.

### INTRODUCTION

The AISBLT module provides a fast(er) interface for reading AIS format files into Lisp bitmaps. It does not provide all the arcane features found in the READAIS module.

### CLIENT INTERFACE

The functions provided by the AISBLT module which are intended to be used by clients are

(AISBLT.BITMAP *FILE SOURCE-LEFT SOURCE-BOTTOM DESTINATION DESTINATION-LEFT  
DESTINATION-BOTTOM WIDTH HEIGHT HOW FILTER*) [Function]

The *SOURCE-LEFT*, *SOURCE-BOTTOM*, *DESTINATION*, *DESTINATION-LEFT*, *DESTINATION-BOTTOM*, *WIDTH*, and *HEIGHT* arguments are interpreted in the same way as the corresponding arguments to BITBLT. *FILE* is either an open stream, or a filename. If a filename is provided it will be passed to FINDFILE, which searches the directories specified by the special variable

AISDIRECTORIES [Variable]

which should be a list of directories where the AIS file is likely to be found.

The argument *HOW* should be one of the atoms FSA, :FSA, TRUNCATE, :TRUNCATE. *HOW* is only applicable in the cases where the source and destination are a different number of bits per pixel (source bpp > destination bpp). If *HOW* is not specified, it defaults to FSA. FSA indicates that the source should be reduced to the bits per pixel of the destination by applying the Floyd-Steinberg dithering algorithm, as described in Newman & Sproull, Principles of Interactive Computer Graphics, pg. 226. TRUNCATE indicates that only the high order bit(s) of the source should be used.

The function

(AISFILEHEADER *STREAM*) [Function]

Can be used to determine whether a file has a well formed AIS header, and what the attributes indicated in the header are. The result of the function is a property list describing the AIS attributes:

:RASTER [Key]

The :RASTER property will always be present. The value is also a property list

:SCAN-COUNT [Key]

An integer value indicating the number of scan lines in the image

:SCAN-LENGTH [Key]

An integer value indicating the number of pixels in a scan line of the image

:SCAN-DIRECTION [Key]

An integer, indicating the direction of the scan. Scan direction 3 is top to bottom, left to right, and is the only scan direction that this package will deal with at this time.

:SAMPLES-PER-PIXEL [Key]

An integer, indicating the number of samples per pixel. This package will only deal with files having one sample per pixel at this time.

:CODING-TYPE [Key]

An unsigned integer indicating the coding type of the raster image. A value of 1 indicates uncompressed array format, and is the only type recognized by this package at this time. For convenience, the constant

AIS-RASTER-CODING-UCA [Constant]

is bound to the value 1. If the raster coding types are extended, more constants will be defined.

The rest of the properties are coding type dependent. For the AIS-RASTER-CODING-UCA file, the following properties are present:

:BITS-PER-SAMPLE [Key]

An unsigned integer, indicating number of bits per sample

:WORDS-PER-SCAN-LINE [Key]

An unsigned integer, indicating how many 16 bit words form a single scan line of the image.

:SCAN-LINES-PER-BLOCK [Key]

A signed integer, indicating how many scan lines are present before there is block padding. A value of -1 indicates no blocking.

:PADDING-PER-BLOCK [Key]

A signed integer, indicating how many padding words per block. A value of -1 indicates no blocking.

:PLACEMENT [Key]

The placement property is optional. The value is a property list with keys :LEFT, :BOTTOM, :WIDTH, and :HEIGHT. The values are unsigned integers.

:PHOTOMETRY [Key]

The photometry property is optional. The value is a property list with keys :SIGNAL (integer), :SENSE (integer), :SCALE (integer), :SCALE-A (pair of integers), :SCALE-B (pair of integers), :SCALE-C (pair of integers), :SPOT-TYPE (integer), :SPOT-WIDTH (integer), :SPOT-LENGTH (integer), :SAMPLE-MIN (integer), and :SAMPLE-MAX (integer).

A complete description of the meaning of the photometry parameters can be found on page 38 of the AIS format description, filed on {indigo}<altodocs>aismanual.press.