Laser-Scan Ltd.

POLYGONS

User Guide

Science Park, Milton Road, Cambridge, England CB4 4FY tel: (0223) 420414

Document "POLYGONS User Guide"		Category "User"
Document Issue 2.1	Adrian Cuthbert	25-Mar-1991
Document Issue 2.0	Tim Hartnall,Martin Reid	15-Oct-1987
Document Issue 1.0	Tim Hartnall	19-Jun-1987

CONTENTS

POLYGONS user guide documentation change record

Version 1.0 Tim Hartnall **19-June-1987**

First customer issue of POLYGONS user guide documentation.

Version 2.0 Tim Hartnall,Martin Reid **15-Oct-1987**

POLMERGE module added to enable automatic polygom merge and elimination processing.

IPOLYGON documentation reflects the enhanced module functionality. See release notes and POLYGONS Reference Manual for details.

Version 2.1 Adrian Cuthbert **19-Sep-1988**

IPOLYGON documentation reflects the enhanced module functionality. See release notes and POLYGONS Reference Manual for details.

CHAPTER 1

INTRODUCTION

SECTION I

INTRODUCTION

INTRODUCTION

GENERAL

The POLYGONS package consists of independent modules which together form a powerful IFF polygon creation and manipulation system within an automated mapping environment. All the modules have common command syntax which is decoded using the Command Line Interpreter used by the VAX/VMS utilities. POLYGONS modules all generate VMS format messages and set $STATUS on image exit. In command files the success of a preceding POLYGONS module may be tested using $STATUS before proceeding. All POLYGONS modules are comprehensively documented in the POLYGONS Reference Manual and the documentation includes an explanation of all messages output by the modules together with suggested user action. POLYGONS is supplied with on-line help which is available via the VAX/VMS HELP utility.

It is recommended that the user becomes familiar with the LAMPS Environment Guide which outlines in some detail the hardware and software environment required by the LAMPS package as a whole (of which POLYGONS is but a part). LAMPS is the **L**aser-Scan **A**utomated **M**ap **P**roduction **S**ystem. Readers are also referred to the collection of manuals on VMS produced by Digital Equipment Corporation for the detailed command structure and facilities.

IFF stands for Internal Feature File and is the Laser-Scan vector file format generated by LASERAID and other Laser-Scan mapping systems and used as the data structure throughout the Laser-Scan LAMPS system. IFF files are binary and cannot be manipulated directly using a text editor. The POLYGONS package enables the user to perform a wide range of polygon creation and manipulation tasks related to the requirements of the automated mapping industry. Within the VAX/VMS system IFF files can be treated as any other file type for file management purposes. To enable the user to instantly distinguish an IFF file from a file of another type IFF files have by default the file extension '.IFF'.

To provide great flexibility in the production environment IFF files are referenced by all the POLYGONS modules using logical name LSL$IF:. (For an explanation of logical names see the VAX/VMS document set). Logical name LSL$IF: is assigned to a device and directory specification either using the VMS ASSIGN command or the Laser-Scan SI utility. Use of the SI utility is described in detail in the IFF User Guide. Familiarisation with its use is strongly recommended.

GETTING STARTED

Once logged in the user must give two commands to initialise the POLYGONS package before any IFF manipulation can take place. The first command is POLYGONSINI and should be issued thus: (see footnote for explanation of presentation conventions)

$ **POLYGONSINI**

The POLYGONSINI command invokes a command procedure which defines a DCL symbol (the module name) for each of the POLYGONS modules. After using POLYGONSINI the user need only type the symbol name to activate the module of his choice. POLYGONSINI also installs process dependent POLYGONS message definitions. These allow the user to examine the text represented by the condition code placed in DCL symbol $STATUS by all POLYGONS modules on image exit.

As an alternative to explicitly typing the POLYGONSINI command each time the user wishes to use the POLYGONS package, the POLYGONSINI command may be placed in the users login file, or in the site dependent default login file.

The second command which must be given before using the POLYGONS package is the SI command. The SI command assigns the logical name LSL$IF: (or IF: for short) to the device-directory specification which contains the IFF file(s) that are to be manipulated. For example:

$ **SI DUA3:[BUREAU.TRIALS.DIGITISING]**

This will assign logical name LSL$IF: to the device and directory specification DUA3:[BUREAU.TRIALS.DIGITISING]

SCOPE OF THIS DOCUMENT

The POLYGONS User Guide is not intended to be a definitive reference manual describing in detail all the qualifiers to each POLYGONS command, each modules functionality and restrictions etc. This role is met by the POLYGONS Reference Manual. Instead this document describes only the salient features of each POLYGONS module. It

---

The dollar symbol '$' is the default DCL prompt and signifies to the user that the computer is prompting for DCL commands. At this stage, any legal VMS command or appropriate Laser-Scan command can be entered as required.

The convention in all POLYGONS documents is that **bold** type which follows the dollar prompt in an example command line indicates text that the user has typed. For a full description of the nomenclature and presentation conventions used in the POLYGONS documentation see SECTION I of the POLYGONS Reference Manual.

should be regarded as a statement of package scope and content. The POLYGONS User Guide should be used for the initial stages of production flowline planning or as an aid memoir for skilled POLYGONS users.

The modules are described in alphabetical order. Each module has a very brief section outlining its functionality, the format of the command used to invoke the module and a list of any command qualifiers.

SECTION II

MODULE DESCRIPTIONS

CHAPTER 2

MODULES

MODULE IPOLYGON

FUNCTION

IPOLYGON is the Laser-Scan automatic **I**FF **POLYGON** creation and labelling utility. It forms the core of the Laser-Scan POLYGONS Package.

IPOLYGON is designed to be run in batch mode and all options may be specified on the command line. No user interaction is required during processing.

IPOLYGON carries out polygon formation and the determination of first order nesting based on the input geometry.

IPOLYGON offers two methods for labelling (and checking the consistency) of polygons:

- Seed point assignment: the polygon label is extracted from the seed point data.
- Left/Right coding: each segment has a left and right AC (Ancillary Code). The polygon label is extracted from the text part of the AC.

In addition IPOLYGON provides a unique (internally generated) identifier for each polygon.

IPOLYGON offers four methods of polygon output:

- An IFF file containing complete closed polygons as single features.
- An IFF file containing labelled segments with left/right codes.
- An IFF file containing a single point feature lying in each polygon.
- An ASCII file containing lists of those segments that make up polygons.

All output options allow the label and/or identifier for each polygon to be output to the IFF features through the use of user-specified AC (Ancillary Code) entries.

FORMAT

```
$ IPOLYGON file-spec
```

Command qualifiers

```
/ASCII=(        [[NO]IDENT],
                [[NO]LABEL])
/[NO]LIST       [='file-spec']
/[NO]LITES2     [='file-spec']
/[NO]LOG
/LRCODE=(       [LEFT_AC:'integer'],
                [RIGHT_AC:'integer'])
/ONEARM=(       [CONTAIN],
                [DELETE],
                [USE],
                [[NO]WARN])
/OPTIONS=(      [[NO]AREA],
                [[ANTI]CLOCKWISE],
                [IDENT_TEXT:'text-string'],
                [[NO]NEST],
                [UNDEFINED:'keyword'])
/PIP=(          [FC:'integer'],
                [[NO]IDENT],
                [IDENT_AC:'integer'],
                [ITERATE:'integer']
                [[NO]LABEL],
                [LABEL_AC:'integer'],
                [LAYER:'integer'],
                [OUTPUT:'file-spec'])
/[NO]PME
/POLYGONS=(     [FC:'integer'],
                [[NO]IDENT],
                [IDENT_AC:'integer'],
                [[NO]LABEL],
                [LABEL_AC:'integer'],
                [LAYER:'integer'],
                [OUTPUT:'file-spec'])
/[NO]PRINTER
/SEED=(         [AC:'integer'],
                [FC:'integer'[,....]],
                [FILE:'file-spec'],
                [LAYER:'integer'[,...]],
                [PAIR:'file-spec'],
                [SURROUND:'text-string'],
                [USE:'keyword'])
/SEGMENTS=(     [CONTAIN_IDENT_AC:'integer'],
                [CONTAIN_LABEL_AC:'integer'],
                [[NO]IDENT],
                [[NO]JUNCTIONS],
                [[NO]LABEL],
                [LEFT_IDENT_AC:'integer'],
                [LEFT_LABEL_AC:'integer'],
                [OUTPUT:'file-spec'],
                [RIGHT_IDENT_AC:'integer'],
                [RIGHT_LABEL_AC:'integer'])
```

MODULE ISTSEL

FUNCTION

ISTSEL is the Laser-Scan **I**FF **ST**ring **SEL**ection utility and forms part of the Laser-Scan POLYGONS Package. ISTSEL reads an IFF file and compares text strings held as AC (Ancillary Code) left/right codes and TX (TeXt) entries to keys given in a user specified lookup file.

If a match is found between the IFF text string and any of the keys in the lookup file then the left/right code is replaced with the matched key defined in the lookup file. After left/right code replacement, segments with identical left/right codes are identified and are not written to the output IFF file. This provides ISTSEL with the mechanism for segment selection and hence selective polygon aggregation.

FORMAT

$ ISTSEL input-file-spec output-file-spec

Command qualifiers	**Default**
/DEF_FILE=file-spec	See POLYGONS Reference Manual.
/[NO]LOG	/NOLOG

MODULE POLMERGE

FUNCTION

POLMERGE is the Laser-Scan automatic IFF **POL**YGON **MERG**ing and elimination utility.

POLMERGE is designed to be run in batch mode and all options may be specified on the command line. No user interaction is required during processing.

POLMERGE operates on an IFF junction structured (IFJ) file containing left/right coded links. Because output is also to an IFJ file the program may be used as a pre-processor before closed polygon creation using IPOLYGON.

Polygon merging takes place by means of user-defined rules. Both a lookup table and command line qualifiers may be incorporated in their definition.

FORMAT

$ POLMERGE in-file-spec out-file-spec

Command qualifiers	**Defaults**
/[NO]ACCHECK	/ACCHECK
/[NO]AREA=(tolerance-spec[...])	See POLYGONS Reference Manual.
/[NO]ELIMINATE(elimination-option)	See text
/[NO]BOUNDING	/NOBOUNDING
/[NO]LIST['file-spec']	/NOLIST
/[NO]LOG	/NOLOG
/LOOKUP=file-spec	No lookup file used.
/[NO]MERGE=(merging-option)	See POLYGONS Reference Manual.
/[NO]RATIO=(tolerance-spec[...])	/NORATIO

INDEX

SPR form for POLYGONS GUIDE

READERS COMMENTS

Note: This form is for comments about this document only.

Did you find this manual understandable, usable and well organised? If you did not, please make suggestions for improvement.

Did you find errors in this manual? If so, specify the error and page number.

Name: **Date:**
Organisation:

SPR form for POLYGONS GUIDE

READERS COMMENTS

Note: This form is for comments about this document only.

Did you find this manual understandable, usable and well organised? If you did not, please make suggestions for improvement.

Did you find errors in this manual? If so, specify the error and page number.

Name: **Date:**

Organisation:

SPR form for POLYGONS GUIDE

READERS COMMENTS

Note: This form is for comments about this document only.

Did you find this manual understandable, usable and well organised? If you did not, please make suggestions for improvement.

Did you find errors in this manual? If so, specify the error and page number.

Name: **Date:**

Organisation: