Laser-Scan Ltd.

CONVERT PACKAGE

IFFIMAP Reference

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CHAPTER 4 IMAP2I UTILITY

IFFIMAP - Change Record

Version 1.0 S Townrow 17-June-1991

Module IFFIMAP - Reorganised package documentation.

Version 1.1 S Gupta 1-July-1992

Module IFFIMAP - Reference Documentation for the I2IMAP utility updated. I2IMAP now allows selected ACs from the IFF file to be transferred as INFORMAP 2 point secondary annotation positions.

Version 1.2 S G Hancock 2-June-1993

Module IFFIMAP - Reference Documentation for the I2IMAP utility updated. I2IMAP now allows multiple secondary annotation positions per feature, up to a maximum of 32.

Version 1.3 S Townrow 18-August-1993

Module IMAP2I - Reference Documentation for the IMAP2I utility updated. A new message, TOOMANYATTDES, added to the messages section.

Version 1.4 S Townrow 21-June-1994

Module IMAP2I - Reference Documentation for the IMAP2I utility updated to included details of support for attribute annotation points.

PREFACE

Intended audience

This manual is intended for users of a specific utility of the Laser-Scan CONVERT package running under the VAX/VMS operating system. Each manual contains the documentation for a particular CONVERT utility and a site will only receive new or updated documentation for those utilities which they have purchased.

Structure of this document

This document is composed of 2 major sections.

The Introduction is an overview of the CONVERT package and its purpose.

There then follow the User Guides for the individual modules which comprise CONVERT. Each individual module contains the same basic categories of information. These are:

MODULE - the name of the CONVERT module.

FORMAT DESCRIPTION - a description of the data format written or read by the utility programs in this conversion module.

DATA PREPARATION - guidance on how to digitise or prepare the IFF and other data required by the utility programs in this module.

For each utility program in the module, there will then be the following categories:

UTILITY - the name of the utility.

FUNCTION - a synopsis of what the utility does.

FORMAT - a summary of the utility command format and command qualifiers. Default qualifier settings are indicated.

PROMPT - how it prompts the user.

PARAMETERS - description of expected command parameters.

COMMAND QUALIFIERS - description of all command qualifiers. Qualifiers are ordered alphabetically and default argument values are indicated.

RESTRICTIONS - a summary of restrictions on the use of

qualifiers

DESCRIPTION - the definitive description of the utility action.

COMMANDS - for interactive utilities only, a description of all commands. Commands are ordered alphabetically and default argument values are indicated.

EXAMPLES - annotated examples of utility useage.

MESSAGES - all classes of message are listed and described and suggested user action given. The messages are divided into sections according to message severity within which the messages are ordered alphabetically by message mnemonic.

Conventions used in this document

Convention	Meaning
<CR>	The user should press the carriage control key on the terminal
<CTRL/x>	The phrase <CTRL/x> indicates that the user must press the key labelled CTRL while simultaneously pressing another key, for example, <CTRL/Z>.
$ **IFF2SIF<CR>**	Command examples show all user entered commands in **bold** type.
$ **IFF2SIF<CR>** . . .	Vertical series of periods, or ellipsis, mean either that not all the data that CONVERT would display in response to the particular command is shown or that not all the data that the user would enter is shown.
file-spec...	Horizontal elipsis indicates that additional parameters, values or information can be entered.
[logical-name]	Square brackets indicate that the enclosed item is optional. (Square brackets are not, however, optional in the syntax of a directory name in a file-specification, or in the syntax of a substring specification in a VMS assisnment statement).

Convention	Meaning
'integer'	An integer number is expected in the specified input or output field. (See "Command line data types" below).
'real'	A real number is expected in the specified input or output field. (See "Command line data types" below).
'file-spec'	A VMS file specification is expected in the specified input or output field.
'device-name'	A VMS device specification (for instance, MTA0:) is expected in the specified input or output field.

CHAPTER 1

INFORMAP FORMAT DESCRIPTION

FORMAT DESCRIPTION

Introduction

Informap is a Mapping Information Management System produced by Synercom Technology, Inc., and is well suited to map storage and usage. It not only provides a simple set of drawing primitives, but each item on the screen can have information attached which defines exactly what is being shown.

The database comprises both graphic and non-graphic data, the former being the information needed to draw the item, the latter being attribute information. The non-graphic data is at least as important as the graphic display, and in fact many applications will query the non-graphic data without reference to the map image at all.

This section attempts to give a very brief description of Informap.

Informap data

There are five basic types of data in Informap, known as data kinds. These are

- non-facility lines
- non-facility symbols
- facility lines
- facility symbols
- primary annotation

Informap further separates its data into datatypes, so that each graphic element has a value determining what it represents. Each datatype must be one of the above data kinds. For any given application, the various datatypes and their associated attributes are defined in a schema. The schema is fundamental to the system, and without it the data has no meaning.

Each graphic element in a facility datatype has a set of attributes associated with it, an attribute consisting of a name and a value. A facility datatype can also contain attribute (or secondary) annotation graphic elements which are used to display the attributes on the screen. The non-facility datatypes have no attributes associated with them. Primary annotation is cartographic text, and cannot have attributes as well.

Each of the graphic elements within a particular datatype has associated with it a linetype, which defines how that element will appear on the screen. A graphic element generally consists of two (sometimes three) data points

- a straight line segment comprises the previous and current points

- a curved line segment comprises the previous and current defining points
- an arc or circle comprises three points on the circumference
- a symbol comprises the centre point and rotation point
- a text comprises the defining point and rotation point
- an attribute annotation element comprises the defining point and rotation point

Each graphic element also has a mode code

- GREEN for pen up
- WHITE for pen down

Informap drawings

An Informap drawing is stored as a sequence of files in a single directory. Which directory is used is determined by an entry in the schema.

There is a different file for each datatype, and if the datatype has graphic and non-graphic data, then it will have a file for each. The filename is always the same as the drawing name, and the extension encodes which datatype that file represents, and whether the data is graphic or non-graphic.

Informap restricts drawing and schema names to 9 alphanumeric characters, where the first character must be alphabetic. Extensions are restricted to 3 characters.

Thus, for instance, drawing VAXTEST might incorporate the following files:

VAXTEST.INF - the basic header file - contains the monument points for the drawing, and other general information

VAXTEST.LAC - contains the graphic data for basic lines and curves (datatype 1)

VAXTEST.ANO - contains the location, linetype, etc for each primary annotation (datatype 2)

VAXTEST.CHR - contains the text for each primary annotation (datatype 2)

VAXTEST.SYM - contains the location and identification data for basic symbols (datatype 3)

VAXTEST.G14 - contains the graphical information for datatype 14

VAXTEST.N14 - contains the non-graphical information for datatype 14

CHAPTER 2

INFORMAP DATA PREPARATION

DATA PREPARATION

Comparison of Informap and IFF

IFF is a feature oriented data format - data is separated into features, and each feature represents one 'thing' on the map. An integer feature code is used to say what type of thing it is that the feature represents. A feature might thus be a contour, or a house, or a river, depending on the type of map being digitised, and the way that the data is to be used. IFF also allows features to be grouped into separate layers, and can hold attribute information either on a 'per feature' basis, or on a 'per point' basis.

In contrast, Informap has no concept of a 'feature', the basic elements of graphical data being line segments, points and circle arcs. It does, however, have the capacity to hold a large amount of attribute data in an ordered manner. This allows complex searches and enquiries to be performed on the data. Enough information about the individual graphic elements can be held to enable them to look the same on the screen as they would if taken from the equivalent IFF file.

IFF is much more suited to the capture and editing of map data, whereas Informap is better when it comes to the manipulation and use of that data. Despite the differences in the way the data is held, transfer between Informap and IFF is relatively easy with no loss of information.

Preparation for data to be transferred between Informap and IFF

It is quite likely that IFF will be used as the digitising format and the data subsequently transferred to an Informap database. On the other hand, data may be transferred from an Informap database to IFF for complex editing operations, or for other spatial processing functions such as structuring or polygon formation. IFF may also be used as in intermediate format for converting data from an external transfer format such as SIF or NTF to Informap, or vice versa.

Whatever the purpose for transferring data, the correlation between IFF feature codes and Informap datatypes has to be defined. This definition should include the datatype and linetype to be used for each feature code, the line weight, style and colour to be used, the text fonts and sizes required and symbols to be used. The definition should also include the relationship between IFF attributes and Informap attributes, if these are to be preserved

The implementation of these specifications requires

- an Informap schema, defining each datatype,
- a parameter file for I2IMAP, the IFF to Informap translator,

- a parameter file for IMAP2I, the Informap to IFF translator, and
- an FRT file (together with SRI and TRI files)

The Informap schema is a mandatory requirement by both programs.

The parameter files define the relationships between

a) IFF feature codes and Informap datatypes and linetypes, and

b) IFF AC entries and Informap attributes.

There is not likely to be a one-to-one correspondence in the above relationships. For this reason, the parameter files for each program will be different. In particular, several IFF feature codes may map onto the same datatype/linetype combination in Informap. This means that IFF data translated into Informap and then back to IFF can finish up with a reduced set of feature codes and attribute codes.

Sometimes, most often in the transfer of attributes, an FRT file (together with SRI and TRI files) will have to be created. Feature codes must be assigned to all of the corresponding Informap datatype/linetype combinations. Care should be taken to ensure that the graphical type for the IFF features is compatible with the corresponding Informap datatype.

IFF files prepared for transfer to Informap using I2IMAP should be revision level 0, with coordinates held in ST entries. ZS entries are not supported. Text features should have TH entries to hold the text height, and the text category in the FS entry should be set. All features should have the text/symbol bit in the FS entry set to the appropriate value to indicate the feature type. The map data can be held in any layer in the IFF file.

When transferring data from Informap, IMAP2I will only produce ST entries unless the output revision level has been set to 1 within the system. The attributes in any facility datatypes will be ignored, unless the appropriate definitions are present in the parameter file. Note that it is not possible to transfer Informap attributes into IFF point attributes. Text features will contain TH entries holding the text height. All features will have the text/symbol bit in the FS entry set to the appropriate value to indicate the feature type. All data will be output to layer 1 in the IFF file.

Note that in addition to the above it may also be necessary to supply instructions on how to digitise or edit the various features.

The I2IMAP parameter file

This file contains three tables :-

a) the feature description table,

b) the attribute description table, and

c) the translation error table.

The attribute description table and translation error table are both optional.

Each line of a particular table is prefixed with a command which identifies the line as belonging to that table. The lines are free-format, so the order of entries matters, but the actual position of entries on the line is not important.

Any text starting with the "!" character is treated as a comment, and is ignored. Comments can appear on the same lines as commands, or on separate lines. Note that commands may be in upper or lower case.

The feature description table

The feature description table describes the translations required to produce Informap data from IFF data. Each line is prefixed with the FDT command which tells the program how to translate a particular feature code into the data-base.

A line has one of the following two forms :-

FDT fc dtype ltype [pen]

FDT fc dtype ltype [low high [cat]]

where the fields are :-

- **FDT** - the command FDT. This states that this line is an entry in the feature description table
- **fc** - the feature code being described - a value in the range 0 to 32767
- **dtype** - the Informap data type, an integer matching the value required from the schema. This should be in the range 1 to 128.
- **ltype** - the Informap line type, an integer in the range 1 to 128.
- **pen** - the pen number to be used for symbols, an integer from 1 to 8. This field is only present for symbol feature codes.

- **low** - the lower limit of a range of point sizes or text heights for a text feature. This field is only present for text feature codes.

- **high** - the upper limit of a range of point sizes or text heights for a text feature. This field is only present for text feature codes.

- **cat** - a specified text category (which can be a font number) for a text feature. This field is only present for text feature codes.

An example follows :-

```
FDT    1    6    1                        ! line   - public
building
!
FDT   27   14    2    2                   ! symbol
FDT   28    2    1    0  999    3         ! text
FDT   29   15    6                        ! line
```

Note that it is possible to have several entries in the table for a single text feature code. Note also that if text features in the IFF file contain heights, or if text categories are set, then height ranges must be supplied in the table. These may be chosen to cover the full height range possible, e.g 1 to 24 (for heights given as point sizes).

The attribute description table

The attribute description table describes the translations required to produce Informap attributes from IFF attributes. Each line is prefixed with the ADT command which tells the program how to translate a particular attribute into the data-base.

A line has one of the following two forms :-

ADT CODE code entry field NGname [dtype]

ADT NAME name entry field NGname [dtype]

where the fields are :-

- **ADT** - This command states that this line is an entry in the attribute description table.

- **CODE** - this sub-command states that the attribute will be described by its IFF attribute code.

- **code** - the IFF attribute code, an integer in the range 0 to 32767, as derived from the appropriate ACD entry in an FRT file.

- **NAME** - this sub-command states that the attribute will be described by its IFF attribute name.

- **name** - the IFF attribute name, as given by the appropriate ACD entry in an FRT file. The names "STARTX", "STARTY", "ENDX" and "ENDY" are reserved for transferring between secondary annotation points.

- **entry** - a command specifying which IFF entry the attribute is to be taken from. The only valid command is

  AC which specifies that an AC entry is to be used

- **field** - a sub-command to AC, specifiying which field the attribute is to be taken from - valid commands are either

  VALUE which specifies that the AC value field is to be used, or

  TEXT which specifies that the AC text field is to be used

- **NGname** - the Informap non-graphic field name, a string which can be up to 8 characters in length

- **dtype** - an optional Informap data type or range of data types. A range should be specified as a series of integers and/or sub-ranges in ascending order, separated by commas. A sub-range consists of two integers separated by a hyphen. Any given data type must be in the range 1 to 128.

An example follows :-

```
     ADT CODE 6                        AC TEXT         PARNAME
20
     !
     ADT NAME COUNTY_LEFT_OF_LINE      AC TEXT         COUNTYL
16
     ADT NAME COUNTY_RIGHT_OF_LINE     AC TEXT         COUNTYR
16
```

The translation error table

The translation error table specifies default datatypes to be applied to feature codes for which there is no defined translation in the FDT table. These TRANS_ERR entries are entered in the parameter file following the FDT table. Separate definitions are required for lines, symbols and text. They are specified as follows:

- **TRANS_ERR_TEXT fc dtype ltype [low high [cat]]**

- **TRANS_ERR_LINES fc dtype ltype**

- **TRANS_ERR_SYMBOLS fc dtype ltype [pen]**

where the fields are the same as for the FDT table.

The IMAP2I parameter file

This file contains two tables :-

a) the datatype description table, and

b) the attribute description table

The attribute description table is optional.

Each line of a particular table is prefixed with a command which identifies the line as belonging to that table. The lines are free-format, so the order of entries matters, but the actual position of entries on the line is not important. Any text starting with the "!" character is regarded as a comment, and is ignored. Comments can appear on the same lines as commands, or on separate lines. Note that commands may be in upper or lower case.

The datatype description table

The datatype description table describes the translations required to produce IFF data from Informap data. Each line is prefixed with the DDT command which tells the program how to translate a particular datatype and linetype into an IFF feature code.

A line has the form :-

DDT dtype ltype fc [size [cat]]

where the fields are :-

- **DDT** - the command DDT which states that this line is an entry in the datatype description table
- **dtype** - the Informap data type, an integer matching the value required from the schema. This should be in the range 1 to 128.
- **ltype** - the Informap line type, an integer in the range 1 to 128.
- **fc** - the IFF feature code, a value in the range 0 to 32767
- **size** - the IFF text size, an integer which can represent either a point size or height in millimetres. If not required, i.e. if text sizes are taken from the FRT, enter 0. This field is only present for primary annotation datatypes, and is optional if **cat** is not supplied.
- **cat** - a specified text category (which can be a font number) for a text feature. This field is only present for primary annotation datatypes, and is optional.

An example follows :-

```
DDT    6    1    1                        ! line   - public
building
DDT   14    2   27                        ! symbol
DDT    2    1   28    12    3             ! text
DDT   15    6   29                        ! line
```

Note that there must be an entry in the table for every datatype/linetype combination which is likely to occur.

The attribute description table

The attribute description table describes the translations required to produce IFF attributes from Informap attributes. Each line is prefixed with the ADT command which tells the program how to translate a particular attribute from the data-base.

A line has one of the following two forms :-

ADT CODE code entry field NGname [dtype]

ADT NAME name entry field NGname [dtype]

where the fields are :-

- **ADT** - the command ADT which states that this line is an entry in the attribute description table.
- **CODE** - the sub-command CODE which states that the attribute will be described by its IFF attribute code.
- **NAME** - the sub-command NAME which states that the attribute will be described by its IFF attribute name.
- **code** - the IFF attribute code, an integer in the range 0 to 32767, as derived from the appropriate ACD entry in an FRT file.
- **name** - the IFF attribute name, as given by the appropriate ACD entry in an FRT file.
- **entry** - a command specifying which IFF entry the attribute is to be transferred to. The only valid command is

  AC which specifies that an AC entry is to be used

- **field** - a sub-command to AC, specifiying which field the attribute is to be transferred to - valid commands are either

  VALUE which specifies that the AC value field is to be used, or

  TEXT which specifies that the AC text field is to be used

- **NGname** - the Informap non-graphic field name, a string which can be up to 8 characters in length

- **dtype** - an optional Informap data type or range of data types. A range should be specified as a series of integers and/or sub-ranges in ascending order, separated by commas. A sub-range consists of two integers separated by a hyphen. Any given data type must be in the range 1 to 128.

An example follows :-

```
ADT CODE 6                      AC TEXT         PARNAME  20
!
ADT NAME COUNTYLEFTOFLINE       AC TEXT         COUNTYL  16
ADT NAME COUNTYRIGHTOFLINE      AC TEXT         COUNTYR  16
```

CHAPTER 3

I2IMAP UTILITY

UTILITY I2IMAP

FUNCTION

I2IMAP reads an IFF file and outputs the data to an Informap database. The program is driven by a parameter file which describes each feature code, and by the Informap schema which describes the database. Options exist to select only particular feature codes and to select a rectangular area.

FORMAT

$ I2IMAP IFF-file-spec

Command qualifiers	**Defaults**
/AREA=(limit[,...])	All data output
/DRAWING=name	IFF-file-spec name part
/FC=(integer[,...])	All feature codes
/[NO]FRT[=file-spec]	/NOFRT
/INVALID_COORDS=name	No invalid coordinate output
/[NO]LOG	/NOLOG
/MAX_INVALID	No maximum applied
/OFFSET=(coordinates)	See text
/PARAMETER=file-spec	See text
/[NO]QUIET	/NOQUIET
/SCHEMA=name	None
/SUMMARY	No summary output

PROMPT

_IFF-file: IFF-file-spec

PARAMETERS

IFF-file-spec

- specifies the IFF file which is to be converted. Any part of the file-spec which is not supplied will be taken from the default specification 'LSL$IF:IFF.IFF'.

COMMAND QUALIFIERS

/AREA=(WEST:real,SOUTH:real,EAST:real,NORTH:real)

- ensures that only data falling within the area specified will be output from the IFF file. The keywords are the western, southern, eastern and northern boundaries of the area required, in **IFF units** with respect to the local origin. Only the required keywords need to be given, the others defaulting to the limits given in the range (RA) entry in the IFF file. The /AREA qualifier is not allowed in conjunction with the /INVALID_COORDS qualifier.

/DRAWING=name

- specifies the Informap drawing to which the data is to be output. The drawing name may be from 1 to 9 alphanumeric characters. The default drawing name is the name part of the parsed IFF-file-spec, truncated to 9 characters if necessary.

/FC=(integer[,...])

- causes I2IMAP to output only those IFF features which have the specified feature code(s). The /FC qualifier will accept single, multiple or ranges of feature code arguments. Ranges may be specified with starting and ending feature codes that are separated by a colon, for example /FC=56:58. When specifying more than one range of feature codes, separate each range with a comma, for example /FC=(1:5,56:89). The maximum number of feature codes which may be specified is 1024.

/FRT[=file-spec]
/NOFRT

- specifies an FRT file which the program will read and use to interpret non-standard AC entries. The FRT file-spec is parsed against the default LSL$FRT:'name'.FRT where 'name' is the name specified with /SCHEMA.

  /FRT is necessary if ADT NAME is present in the parameter file, otherwise that particular attribute definition will be skipped. The FRT is also used to ascertain ACD types, and if not specified, a default ACD type will be assumed.

/INVALID_COORDS=[file-spec]

- specifies the file to contain details of any coordinates in the IFF file falling outside the map area. The details recorded will be the actual coordinates of the point and the Feature Serial Number, Feature Code and Text category (if appropriate) of the feature. For text and symbol features only one entry will be written to this file. For line features one entry will be written to this file for each coordinate that is outside the bounds of the map. The file-spec is parsed from the default SYS$DISK:'name'.INV where 'name' is the name specified with /SCHEMA. The qualifier is intended for use with OS type IFF files which contain the map extent in the CP entry. If the facility is to be used with any other files then care should be taken that the CP entry contains values representing the map extent. The /INVALID_COORDS qualifier is not allowed with the /AREA qualifier.

/LOG
/NOLOG

- causes supplementary messages to be sent to SYS$OUTPUT. Supplementary messages are generated when a file is successfully opened, and a reassuring message is output each time a new IFF layer is encountered in the input file.

/MAX_INVALID=n

- specifies the maximum number of entries to be written to the invalid coordinates file before processing is stopped. If this qualifier is not supplied then there is no restriction on the number of errors detected. The qualifier is not valid unless the /INVALID_COORDS qualifier is also specified.

/OFFSET=(EAST:real,NORTH=real)

- specifies an Easting and Northing offset (in IFF units) to be applied to all coordinates in the IFF file, before output to Informap. If the IFF file contains a type 2 map descriptor (MD) entry, the origin offset in that entry is used by default. Otherwise, the origin is assumed to be (0,0).

/PARAMETER=file-spec

- specifies the IFF parameter file, which defines the transformation of feature codes in the IFF data to data types in the Informap data base. The parameter file-spec is parsed from the default

  STI_ROOT:[300010]'name'.I2IMAP_PAR

  where 'name' is the name specified with /SCHEMA. If /PARAMETER is not given explicitly on the command line, the default parameter file-spec used.

/QUIET
/NOQUIET

- suppresses the UNKFC and UNKATT warning messages. UNKFC informs the user that a particular feature code has not been defined in the parameter file. UNKATT informs the user that a particular attribute has not been defined for transfer into the current datatype. This qualifier can be useful if (for example) only a partial parameter file has been created, and /FC has been used to select those feature codes which **have** been defined.

/SCHEMA=name

- specifies the schema to be used in outputting the map data. The schema name may be from 1 to 9 alphanumeric characters. This qualifier is mandatory.

/SUMMARY=[file-spec]

- specifies the file to be used in outputting summary details about the translation of an individual map sheet. The entries in the file are currently

  a) FCE - Feature Code Errors i.e. the number of features for which a translation could not be found within the parameter file, and
  b) CRE - Coordinate Range Errors i.e. the number of errors written to the invalid coords file (if specified).

  The file-spec is parsed from the default SYS$DISK:'name'.SUM where 'name' is the name used with /DRAWING.

RESTRICTIONS

- /SCHEMA must be specified
- /MAX_INVALID requires an /INVALID_COORDS specification
- /AREA and /INVALID_COORDS are not allowed together

DESCRIPTION

I2IMAP reads an IFF file containing a single map and produces an Informap working storage drawing with the aid of a parameter file and an Informap schema. The user is assumed to have a working knowledge of the Informap system, including how to set up and use the schema.

IFF file

The IFF file should conform to the standards set out in the DATA PREPARATION section under the heading 'Preparation for data to be transferred between Informap and IFF'.

Parameter file

This file contains one or more of the following tables:

- A feature description table (FDT). This describes the translations needed to produce Informap data from IFF data.
- An attribute description table (ADT) which describes the translations needed to produce Informap attributes from IFF attributes.
- A translation error table specifying default datatypes to be applied to feature codes for which there is no defined translation in the FDT.

The format of the table is described in the DATA PREPARATION section under the heading **'The I2IMAP parameter file'**. The file will probably

have been set up by the LAMPS system manager and remain relatively static at most installations.

Using the program

Normal use of the program is in batch mode - that is, running it via a batch command file, submitted with the SUBMIT command. It is also possible to run I2IMAP interactively, although as translating an IFF file can take a long time this is not necessarily the best method.

I2IMAP may have been set up to include at least the /PARAMETER and /SCHEMA qualifiers on your system, so you may only need to give the input IFF file and /DRAWING.

How the program works

Once the program has been invoked and the command line successfully read, a summary of the inputs and outputs is displayed. Then the parameter file is read and if successful the IFF file is opened.

If /OFFSET has not been specified, the IFF file is scanned for the map descriptor (MD) entry. If the descriptor is type 2, it is read in to obtain the origin offset.

The program reads the range (RA) entry from the IFF file, this is used with the origin offset and any area limits to deduce the Informap drawing limits. These are then used to calculate the DEL factor and the distance to be used for working out text and symbol orientating points.

If /AREA was specified, the program checks to see if the map

- is totally within the area (in which case no clipping is required),
- is totally outside the area (in which case it will be skipped),
- overlaps the area (in which case it will be clipped).

A check is also made to ensure that the area boundaries are sensible.

The contents of the IFF file are processed to produce the Informap drawing files. The datatype and linetype for a particular feature code are obtained from the parameter file, but for processing purposes the type of feature (line, symbol or text) is ascertained from the setting of the text/symbol bit in the IFF FS entry rather than by using the Informap data kind. **Note** that there are no consistency checks between these two values.

Different types of data are treated as follows :-

- o Linear data is output without modification. Green mode is used for the first point in a feature, white elsewhere. Invisible lines are regarded as feature breaks - no connection is transmitted.

- Symbols are output using the position and rotation angle supplied in the IFF file. The pen number used is determined by the FDT entry in the parameter file for that symbol feature code. Note that scaled symbols are not treated separately - they are still output using only the position and rotation angle from the IFF file.

- The datatype and linetype for a particular text depend on the IFF text height and text category (often used to hold the font number). If a text does not fall within any of the specified height ranges or categories, the first entry in the table for that particular feature code is used by default. If set, the IFF text justification is used to determine the equivalent Informap justification. The IFF text style entry is ignored.

Coordinates are assumed to be held in ST entries - ZS entries are not supported.

The Informap attribute name for a particular IFF attribute is obtained from the parameter file. A new non-graphic record is always written when a new feature is encountered in the IFF file.

AC entries in text features cannot be transferred. similarly, if the feature code translates to a non-facility datatype, AC entries are ignored.

IFF attributes of type "real" will if necessary translate to the nearest integer in Informap . Similarly, IFF integer attributes can translate into Informap type real. IFF character attributes and text strings will be truncated if necessary.

When all applicable data has been output to the drawing file, the program will exit.

The Informap drawing

The drawing produced by I2IMAP is output to the directory specified in the schema.

Note: if a drawing already exists new data will be appended to it. Thus /DRAWING may be used successively to add to a particular drawing - this is not generally recommended, as facetisation produces the required effect.

Secondary annotation points

I2IMAP allows selected AC entries from the IFF file to be transferred as secondary annotation points in the Informap drawing.

As mentioned in "Informap data preparation", the IFF attribute names "STARTX", "START", "ENDX" and "ENDY" are reserved for the purpose of transferring Secondary annotation points. All of these names must be present as "ADT NAME" entries in the attribute description to enable secondary annotation transfer. E.g.

```
ADT NAME STARTX AC VALUE COMMENT
```

Although the "dtype" field of the ADT entry is not used, its presence is required for the ADT entry to be valid.

Corresponding entries must be present as ACD entries in the FRT file which translate the names "STARTX"... into IFF attribute codes. E.g.

```
ACD TABLE 1
ACD R 1 STARTX -1.0E37 +1.0E
```

This specifies that the IFF Attribute name "STARTX" corresponds to the IFF ancillary code 1001 (see the FRT user guide for information on FRT entries).

AC entries must be present in the IFF file for these secondary annotation points to be transferred. E.g.

```
NF 186 158
FS 29 0 0 0
AC 1001 122.1191
AC 1002 61.32813
AC 1003 120.7519
AC 1004 58.4961
TH 0
ST 2 0
   122.1191 61.32813
   120.7519 58.4961
EF
```

In this example the AC codes 1001, 1002, 1003 and 1004 correspond to the Attribute names STARTX, STARTY, ENDX and ENDY respectively.

These ACs will be processed by I2IMAP and a 2 point secondary annotation point will be transferred to the Informap drawing. The first point will be at (122.1191, 61.32813) and the second point (the rotation point) will be at (120.7519, 58.4961). These points will be converted to absolute coordinates prior to being output to the Informap drawing using details from the map-descriptor "MD" entry from the IFF file.

Multiple secondary annotation points, up to a limit of 32, may be created for a given feature. The relevant ACs are taken in order, so the first STARTX will be associated with the first STARTY (and the first ENDX and ENDY if present), and the second STARTX with the second STARTY. In the case of a discrepancy, the smaller of the numbers of STARTX and STARTY ACs for a given feature will be taken as definitive.

Note: The rotation point will be assumed to be the same as the first point if the appropriate AC entries for ENDX and ENDY are missing from the IFF file.

EXAMPLES

$ **I2IMAP/SCHEMA=DEMO/PAR=STI_ROOT:[LSL.LOOKUP]/LOG SP7461SE<CR>**

```
Schema           : DEMO
Parameter file   : STI_ROOT:[LSL.LOOKUP]DEMO.I2IMAP_PAR
IFF input file   : LSL$IF:SP7461SE.IFF
Informap drawing : SP7461SE
Outputting supplementary messages

%I2IMAP-I-READPAR, reading parameter file
%LSLLIB-I-IFFOPENED, STI_ROOT:[LSL.TEMP]SP7461SE.IFF;1 opened for read

Offsets          :  474500.00,  261000.00

%I2IMAP-I-LAYER, layer 1 found
%I2IMAP-W-UNKFC, FC 66 has not been defined, FSN 1179 ignored
%I2IMAP-W-UNKFC, FC 66 has not been defined, FSN 1180 ignored
%I2IMAP-W-UNKFC, FC 66 has not been defined, FSN 1183 ignored
%I2IMAP-W-UNKFC, FC 90 has not been defined, FSN 1205 ignored
%I2IMAP-W-UNKFC, FC 98 has not been defined, FSN 1206 ignored
%I2IMAP-W-UNKFC, FC 90 has not been defined, FSN 1207 ignored
%I2IMAP-W-UNKFC, FC 90 has not been defined, FSN 1208 ignored
%I2IMAP-W-UNKFC, FC 98 has not been defined, FSN 1209 ignored
%I2IMAP-W-UNKFC, FC 98 has not been defined, FSN 1210 ignored
%I2IMAP-W-UNKFC, FC 98 has not been defined, FSN 1211 ignored
%I2IMAP-W-UNKFC, FC 98 has not been defined, FSN 1212 ignored
%I2IMAP-W-UNKFC, FC 98 has not been defined, FSN 1213 ignored
%I2IMAP-W-UNKFC, FC 98 has not been defined, FSN 1214 ignored
%I2IMAP-W-UNKFC, FC 98 has not been defined, FSN 1215 ignored
%I2IMAP-W-UNKFC, FC 96 has not been defined, FSN 1216 ignored
%I2IMAP-W-UNKFC, FC 98 has not been defined, FSN 1217 ignored
%I2IMAP-W-UNKFC, FC 98 has not been defined, FSN 1218 ignored
%I2IMAP-W-UNKFC, FC 98 has not been defined, FSN 1219 ignored
%I2IMAP-W-UNKFC, FC 102 has not been defined, FSN 1220 ignored
%I2IMAP-W-UNKFC, FC 102 has not been defined, FSN 1221 ignored
%I2IMAP-W-UNKFC, FC 100 has not been defined, FSN 1222 ignored
%I2IMAP-W-UNKFC, FC 102 has not been defined, FSN 1227 ignored
%I2IMAP-W-UNKFC, FC 102 has not been defined, FSN 1228 ignored
%I2IMAP-W-UNKFC, FC 102 has not been defined, FSN 1229 ignored
%I2IMAP-W-UNKFC, FC 102 has not been defined, FSN 1232 ignored
%I2IMAP-W-UNKFC, FC 102 has not been defined, FSN 1233 ignored
%I2IMAP-W-UNKFC, FC 102 has not been defined, FSN 1234 ignored
%I2IMAP-W-UNKFC, FC 102 has not been defined, FSN 1235 ignored
%I2IMAP-W-UNKFC, FC 98 has not been defined, FSN 1239 ignored
%I2IMAP-W-UNKFC, FC 102 has not been defined, FSN 1240 ignored
%I2IMAP-W-UNKFC, FC 102 has not been defined, FSN 1241 ignored
%I2IMAP-W-UNKFC, FC 102 has not been defined, FSN 1242 ignored
%I2IMAP-W-UNKFC, FC 102 has not been defined, FSN 1243 ignored
%I2IMAP-W-UNKFC, FC 102 has not been defined, FSN 1244 ignored
%I2IMAP-I-IFFCLOSED, IFF file closed

 ELAPSED:    0 00:02:56.85  CPU: 0:01:34.77  BUFIO: 2252  DIRIO: 1544  FAULTS:
269
```

```
$
```

This example shows what happens when some feature codes in the IFF file are not defined in the parameter file.

The parameter file directory has been specified, but the file-spec name part and extension have both defaulted (the name to the schema name).

Note: if the schema and parameter file are fixed at a site, the symbol I2IMAP could be set up to include the /SCHEMA and /PARAMETER qualifiers.

Only the name part of the IFF file-spec has been given, defaults being filled in for the directory and extension. The Informap drawing name defaults to the the IFF file-spec name part, in the absence of a /DRAWING qualifier.

All IFF feature codes are converted to the appropriate Informap datatypes, except those which have not been defined in the parameter file. A warning message is output for each feature whose feature code is undefined, and the feature is ignored.The /LOG qualifier causes the extra informational messages to be output.

Note: the offset applied to IFF coordinates is the origin offset in the Map Descriptor (MD) entry in the IFF file.

```
$ I2IMAP/SCHEMA=DEMO/PAR=STI_ROOT:[LSL.LOOKUP] SP7461 -
_$ /DRAW=MY_MAP/AREA=(W:600,E:900,S:200,N:650)/FC=(15,21,30,108)/QUIET<CR>

Schema           : DEMO
Parameter file   : STI_ROOT:[LSL.LOOKUP]DEMO.I2IMAP_PAR
IFF input file   : LSL$IF:SP7461.IFF
Informap drawing : MY_MAP
Selecting by FC
Not complaining about unknown FCs
Offsets          :  474000.00,  261000.00
Area selected    :  474600.00,  261200.00 to  474900.00,  261650.00

 ELAPSED:    0 00:01:09.52  CPU: 0:00:51.04  BUFIO: 185  DIRIO: 1010  FAULTS:
230
$
```

This example illustrates the conversion of a specified area and selected feature codes from an IFF file.

The IFF file-spec is given and an explicit Informap drawing name is specified with /DRAWING.

/AREA defines the boundaries of the area to be converted. These are specified in IFF units. If a boundary coincides with the edge of a map the relevant keyword is not required.

Feature codes to be translated are specified with /FC, and /QUIET is used to suppress the messages warning of undefined feature codes in the parameter file. The /QUIET qualifier should only be used by

experienced operators.

The offset applied to IFF coordinates is the origin offset in the Map Descriptor (MD) entry in the IFF file.

Note the use of the DCL continuation character "-", and abbreviations for /PARAMETER, /DRAWING and the /AREA keywords.

MESSAGES (INFORMATIONAL)

These messages give information only, and require no immediate action by the user. They are used to provide information on the current state of the program, or to supply explanatory information in support of a warning or error message.

2NDANO, point generated ('x','y)

Explanation: This is a diagnostic message an shows that a secondary annotation point has been generated at the position indicated.

User action: None

CODES, error kind = 'integer', error code = 'integer'

Explanation: This message always appears after an error has occurred while attempting an operation on an Informap drawing. It gives the user further information about the error.

User action: Depends on the main error messages, but if necessary consult the appropriate Informap manuals for explanations of the error codes.

IFFCLOSED, IFF file closed

Explanation: This message appears if /LOG was specified on the command line, and confirms that the IFF file has been successfully closed.

User action: None.

IFFINFO, 'entry' entry in FSN 'fsn', FC 'fc'

Explanation: This message always appears after an error has occurred while attempting to translate an attribute. It gives the user further information about the feature to which the attribute belongs.

User action: Depends on the main error messages.

LAYER, layer 'number' found

Explanation: This message appears if /LOG was specified on the command line, and informs the user that the given layer in the IFF file has been found.

User action: None.

LINEINPAR, line 'number' of parameter file

Explanation: This message always appears after an error has occurred while decoding a line in the parameter file, and it informs the user of the offending line number. The previous message will have been generated either by LSLLIB or by the program itself, and the line in question will be ignored.

User action: If the error message was generated by LSLLIB, it most likely indicates an error in the parameter file which should be amended. Otherwise, see the relevant error message explanation.

READPAR, reading parameter file

Explanation: This message appears if /LOG was specified on the command line, and informs the user that the parameter file is being read.

User action: None.

WRITESUM, writing to summary file

Explanation: The summary file specified with the /SUMMARY qualifier is now being written

User action: none.

MESSAGES (WARNING)

These messages are output when an error has occurred that can be corrected immediately by the user or that the program will attempt to overcome.

ATTNOTFOUND, cannot find attribute 'name' for datatype 'datatype' in schema

Explanation: The named attribute for the given datatype cannot be found in the schema. This is most probably due to an incorrect name specified in the parameter file. The attribute will be left unset and execution will continue.

User action: Edit the parameter file to correct the Informap attribute name.

ATTOFLOW, number in attribute code 'code' too large for 'name', datatype 'datatype'

Explanation: A number in the given attribute code (in either a CB or AC entry) is too large for the corresponding Informap attribute. The attribute is ignored and processing continues.

User action: Either change the representation of the attribute within the IFF file or within Informap (which might mean altering the schema), or amend the parameter file so that IFF attributes are translated into compatible Informap attributes.

BADATTCODE, attribute code 'code' out of range

Explanation: An invalid IFF attribute code (outwith the range 0 to 32767) has been read from the parameter file. The LINEINPAR message indicating the parameter file line number will follow, and the program will continue to read the file, ignoring this line.

User action: Amend the attribute code in the parameter file, and if necessary run the program again.

BADATTNAME, invalid attribute name 'name'

Explanation: An invalid IFF or Informap attribute name has been read from the parameter file. This message may be followed by an LSLLIB message indicating an error in reading the name. Alternatively, this message may be preceded by a message indicating why the name was not recognised. The LINEINPAR message indicating the parameter file line number will appear last, and the program will continue to read the file, ignoring this line.

User action: Amend the attribute name in the parameter file, and if necessary run the program again.

BADDTYPE, datatype 'datatype' out of range

Explanation: An invalid Informap datatype (outwith the range 1 to 128) has been read from the parameter file. The LINEINPAR message indicating the parameter file line number will follow, and the program will continue to read the file, ignoring this line.

User action: Amend the Informap datatype in the parameter file, and if necessary run the program again.

BADFC, feature code 'fc' out of range

Explanation: An invalid feature code (outwith the range 0 to 32767) has been read from the parameter file. The LINEINPAR message indicating the parameter file line number will follow, and the program will continue to read the file, ignoring this line.

User action: Amend the feature code in the parameter file, and if necessary run the program again.

BADLTYPE, linetype 'linetype' out of range

Explanation: An invalid Informap linetype (outwith the range 1 to 128) has been read from the parameter file. The LINEINPAR message indicating the parameter file line number will follow, and the program will continue to read the file, ignoring this line.

User action: Amend the Informap linetype in the parameter file, and if necessary run the program again.

BADRANGE, invalid range

Explanation: An invalid range of integers has been read from the parameter file. A range should be specified as a series of integers and/or sub-ranges in ascending order, separated by commas. A sub-range consists of two integers separated by a hyphen. A given integer should not appear (either explicitly or by implication) more than once in the range. The LINEINPAR message indicating the parameter file line number will follow, and the program will continue to read the file, ignoring this line.

User action: Amend the range in the parameter file, and if necessary run the program again.

BADSYMPEN, symbol pen number 'number' out of range

Explanation: An invalid Informap symbol pen number (outwith the range 1 to 8) has been read from the parameter file. The LINEINPAR message indicating the parameter file line number will follow, and the program will continue to read the file, ignoring this line.

User action: Amend the Informap symbol pen number in the parameter file, and if necessary run the program again.

BADTEXTCAT, text category 'cat' out of range

Explanation: An invalid IFF text category (outwith the range 0 to 63) has been read from the parameter file. The LINEINPAR message indicating the parameter file line number will follow, and the program will continue to read the file, ignoring this line.

User action: Amend the IFF text category in the parameter file, and if necessary run the program again.

BADTEXTHT, invalid text height 'integer'

Explanation: A negative text height (either the lowest or the highest of the range for a given feature code) has been read from the parameter file. The LINEINPAR message indicating the parameter file line number will follow, and the program will continue to read the file, ignoring this line.

User action: Amend the relevant text height in the parameter file, and if necessary run the program again.

DEFAULTACD, cannot find attribute code 'code', using default values

Explanation: The given IFF attribute code (as read from the parameter file) could not be found amongst the current definitions. Default values will be used instead.

User action: Ensure that the appropriate ACD definition appears in the FRT file if you are using one. Otherwise, amend the attribute code in the parameter file if it is in error. If necessary run the program again.

ENDINMAP, end of IFF file inside map

Explanation: The end of the IFF file was reached unexpectedly, before the end of map (EM) entry had been found. The map data will have been correctly processed, but this message may indicate that the IFF file had been improperly closed by a previous process, and some data may be missing.

User action: Examine the file using LITES2 to determine the integrity of the data, and run the IMP utility IINFO to look at the history of the file. If none of the data is missing, run IMEND on the IFF file to insert the missing entries at the end. Otherwise, the history may indicate at what stage things went wrong.

EXCANNLIM, annotation point discarded in FSN 'fsn'

Explanation: The maximum number of attribute annotation points have been specified for the feature indicated, and one annotation point (for each occurrence of this message) has been ignored.

User action: The feature will be output, and further annotation points may be added manually. If the limit is deemed to be too low, please contact Laser-Scan to have the limit increased in a future version of the program.

ILLEGLATTLEN, illegal attribute length 'length' for 'name', datatype 'datatype'

Explanation: The Informap PLUS library has returned an illegal attribute length for the named attribute in the given datatype. The attribute will be left unset and execution will continue. This message is unlikely to occur, but if it does it may indicate either a programming error, or a problem within the PLUS library.

User action: Preserve the IFF file, together with the parameter file and schema, and report the error to Laser-Scan.

ILLEGLATTNUM, illegal attribute number 'number' for 'name', datatype 'datatype'

Explanation: The Informap PLUS library has returned an illegal attribute number for the named attribute in the given datatype. The attribute will be left unset and execution will continue. This message is unlikely to occur, but if it does it may indicate either a programming error, or a problem within the PLUS library.

User action: Preserve the IFF file, together with the parameter file and schema, and report the error to Laser-Scan.

INCOMPATT, incompatible attribute types, attribute code 'code'

Explanation: The type of the given attribute code (in either a CB or AC entry) is not compatible with the corresponding Informap attribute type. The attribute is ignored and processing continues.

User action: Either change the representation of the attribute within the IFF file or within Informap (which might mean altering the schema), or amend the parameter file so that IFF attributes are translated into compatible Informap attributes.

INCTETDEF, incomplete TRANS_ERR_TEXT definition in parameter file

Explanation: The point size range definition in the TRANS_ERR_TEXT entry of the parameter file has only one value - two are needed for a complete definition.

User action: Edit the parameter file to include the correct number of values in the TRANS_ERR_TEXT definition.

NOATTNAME, cannot read attribute name

Explanation: An IFF or Informap attribute name cannot be read where expected from the parameter file. This message will be followed by an LSLLIB message indicating why the name could not be read. The LINEINPAR message indicating the parameter file line number will also follow, and the program will continue to read the file, ignoring this line.

User action: Edit the parameter file to include the attribute name in the parameter file where expected, and if necessary run the program again. In the unlikely event that no errors are found in the parameter file, please report the problem to Laser-Scan.

NONFACILITY, non-facility datatype, attributes ignored

Explanation: One or more attributes (in either a CB or AC entry) have been found in the given feature, which is being translated into a non-facility datatype. The attribute is ignored and processing continues.

User action: If the attributes are wanted, the feature code in question should be translated into a facility datatype. This could be done either by amending the FDT definition in the parameter file, or more drastically by altering the Informap schema.

NOTGREEN, symbol or annotation position is not GREEN

Explanation: A symbol or annotation position is about to be written to the Informap drawing, but it has not been coded as GREEN. This could indicate a problem in the original IFF file, or it may indicate a programming error.

User action: Preserve the IFF file, together with the parameter file and schema, and report the error to Laser-Scan. If the offending symbol or text can be recoded as GREEN within Informap, there should be no problems with the data.

TEXTATT, attributes found in text ignored

Explanation: One or more attributes (in either a CB or AC entry) have been found in the given text feature. Texts are transferred to Informap as primary annotation, and as such cannot contain attributes. The attributes are therefore ignored.

User action: None, unless the attributes are necessary, in which case some other method of transferring them will need to be devised. A possible solution might be an alternative representation within the IFF file.

TOOMANYATTDES, Too many attribute descriptions, max is 'number'

Explanation: There are too many attribute description records in the parameter file. The LINEINPAR message indicating the parameter file line number will follow, and the program will continue to read the file, ignoring this line.

User action: Amend the attribute definitions in the parameter file, and if necessary run the program again.

TOOMANYPTS, symbol/text has 'number' points, FSN 'fsn' ignored

Explanation: Symbols and texts can have no more than 2 points. Such a feature has been found with more than the maximum, so the feature is ignored and processing continues. This error may indicate either that the symbol or text bits in the FS entry have been incorrectly set, or that the feature has the wrong feature code, also in the FS entry.

User action: Use the IMP utility IPATCH to correct the FS entry. Look at the HI entry to check the history of the file in order to ascertain where in the flowline the IFF file became corrupted.

TRUNCATT, string in attribute code 'code' truncated

Explanation: A string in the given attribute code is not compatible with the corresponding Informap attribute string. The string appears as either a character value in a CB entry, or as a text string in an AC entry. The string is truncated and transferred to the Informap attribute.

User action: If the full string is required, either amend the parameter file so that the IFF attribute is translated into a suitable Informap attribute, or amend the attribute definition in the Informap schema.

UNEXPCH, unexpected character ''char''

Explanation: An alphabetic character has been read from the parameter file where a digit was expected. The LINEINPAR message indicating the parameter file line number will follow, and the program will continue to read the file, ignoring this line.

User action: Edit the parameter file to correct the offending character, and if necessary run the program again.

UNKATT, attribute code 'code' undefined for datatype 'datatype'

Explanation: The given attribute code (in either a CB or AC entry) has not been defined in the parameter file for the datatype into which a particular feature is being translated. The attribute is ignored and processing continues. Note that this message can be suppressed by specifying /QUIET on the command line.

User action: If the attribute is wanted, it should be defined in the parameter file and the program run again.

UNKCMD, unknown command "'command'"

Explanation: The given command in the parameter file was not recognised. The LINEINPAR message indicating the parameter file line number will follow, and the program will continue to read the file, ignoring this line.

User action: This message is most likely due to an error in the program and should be reported to Laser-Scan.

UNKFC, FC 'fc' has not been defined, FSN 'fsn' ignored

Explanation: The given feature code in the IFF file was not recognised because it has not been defined in the parameter file. The feature is ignored and processing continues. Note that this message can be suppressed by specifying /QUIET on the command line.

User action: If the feature code is wanted, it should be defined in the parameter file and the program run again.

UNKPLUS, unknown PLUS error 'number' processing attribute 'name', datatype 'datatype'

Explanation: An error has occurred while processing the named attribute for the given datatype. The attribute is ignored and processing continues.

User action: Please refer to Informap documentation for further information, and report this problem to Laser-Scan, quoting the error number.

UPCASE, error converting "'string'" to upper case

Explanation: An error occurred while converting the given string to upper case. A system message will follow, most likely indicating that the string has been truncated. Execution will continue, but problems may occur later.

User action: This message probably indicates a minor programming error, and should be reported to Laser-Scan.

MESSAGES (ERROR)

These messages indicate an error in processing which will cause the program to terminate. The most likely causes are a corrupt or otherwise invalid input file, or an error related to command line processing and file manipulation.

BADAREA, 'bound' boundary 'value' inconsistent with 'bound' boundary 'value'

Explanation: The indicated boundary values, either or both of which have been specified with /AREA, are inconsistent. The program exits immediately.

User action: Reissue the I2IMAP command again, this time specifying sensible values. These must be compatible with the RA entry in the IFF file, which can be examined using the IMP utility IPATCH.

ERRCLOPAR, error closing parameter file 'file-spec'

Explanation: The parameter file could not be closed. An additional LSLLIB message will follow, giving the reason for the failure. If this is due to a system error, the system error message will also appear. The program exits immediately.

User action: Ascertain the cause of the failure from the messages given, and take the appropriate remedial action. If the error is due to a serious problem such as a system failure, the System Manager should be informed.

ERROPNINV, error opening invalid coordinates file 'file-spec'

Explanation: The specified invalid coordinates file could not be opened.

User action: Check that you have write access to your current directory.

ERROPNPAR, error opening parameter file 'file-spec'

Explanation: The parameter file could not be opened. An additional LSLLIB message will follow, giving the reason for the failure. If this is due to a system error, the system error message will also appear. The program exits immediately.

User action: Ascertain the cause of the failure from the messages given. There may be a simple remedy, e.g. a change in the directory specification. Alternatively, this error could be due to a more serious problem such as a system failure, and in that case the System Manager may have to be informed.

ERROPNSUM, error opening summary file 'file-spec'

Explanation: The specified summary file could not be opened.

User action: Check that you have write access to your current directory.

ERRRDFRT, error reading FRT file 'file-spec'

Explanation: An error occurred while reading in the FRT file. A message output by the Feature Representation Library (FRTLIB) will appear before this message, giving further information as to what has gone wrong. For example, the specified FRT file may not exist, or it may be in another directory.

User action: Dependent upon the associated error messages.

ERRRDPAR, error reading from parameter file 'file-spec' at line 'number'

Explanation: The given line could not be read from the parameter file. An additional LSLLIB message will follow, giving the reason for the failure. If this is due to a system error, the system error message will also appear. The program exits immediately.

User action: Ascertain the cause of the failure from the messages given, and take the appropriate remedial action. If the error is due to a serious problem such as a system failure, the System Manager should be informed.

EXCMAXINV, exceeded maximum number of invalid coordinates

Explanation: The specified maximum number of invalid coordinates has been exceeded and processing has stopped.

User action: None.

IFFCLOERR, cannot close IFF file

Explanation: The IFF file could not be closed. This may be due to a previous IFF error, or it may indicate a more serious system error. The message will be preceded by an IFF library message which will give more details, including a two-character code.

User action: Look up the IFF error code in the IFFLIB Reference Manual (part of the MAPPING package documentation) and take the appropriate action.

NOMD, cannot find MD entry in IFF file

Explanation: If /OFFSET has not been specified, I2IMAP looks for the Map Descriptor entry immediately after opening the IFF file. If the descriptor is type 2, it is read in to obtain the origin offset. If a map descriptor is not found, the program exits and this message appears, indicating that the IFF file is invalid and therefore cannot be used.

User action: Look at the IFF file using the IMP utility IPATCH, in order to ascertain the level of corruption. The HIstory entry may indicate how the IFF file came to have no MD entry.

NORA, cannot find RA entry in IFF file

Explanation: Before processing the map data, I2IMAP has to set the drawing limits. Default values are obtained from the RAnge entry in the IFF file, and if the entry is not found this message appears, indicating that the IFF file is invalid and therefore cannot be used. The program exits immediately.

User action: Look at the IFF file using the IMP utility IPATCH, in order to ascertain the level of corruption. The HIstory entry may indicate how the IFF file came to have no RA entry.

NOTINAREA, map is outside the specified area

Explanation: The map is outside the area defined by the boundaries specified with /AREA. The program exits immediately.

User action: Reissue the I2IMAP command again, this time specifying sensible values. Note that these must be compatible with the RA entry in the IFF file, which can be examined using the IMP utility IPATCH.

PUTANO, cannot write primary annotation

Explanation: A graphic annotation element could not be written to the Informap drawing. If this is due to an Informap error, an appropriate Informap message will probably have been output by the PLUS library, immediately prior to this one. The CODES message giving the Informap error codes follows, and if there has been a system failure, the system message will also be output. The program exits immediately.

User action: Depends on the combination of messages, but Informap errors should be reported to your supervisor, while system errors should be reported to the System Manager.

PUTINF, cannot open Informap drawing files for datatype 'datatype'

Explanation: The graphic and attribute files for the given datatype in the Informap drawing could not be successfully opened. It could be that the user is trying to access a file in use by someone else, or is not logged on as a Synercom user (i.e. in the correct group). If the message is the result of an Informap error, an appropriate Informap message will probably have been output by the PLUS library, immediately prior to this one. The CODES message giving the Informap error codes follows, and if there has been a system failure, the system message will also be output. The program exits immediately.

User action: Depends on the combination of messages, but Informap errors should be reported to your supervisor, while system errors should be reported to the System Manager.

WTGREL, cannot write to datatype 'datatype'

Explanation: A graphic element, an attribute annotation graphic element, or an associated attribute record for the given datatype could not be written to the Informap drawing. If this is due to an Informap error, an appropriate Informap message will probably have been output by the PLUS library, immediately prior to this one. The CODES message giving the Informap error codes follows, and if there has been a system failure, the system message will also be output. The program exits immediately.

User action: Depends on the combination of messages, but Informap errors should be reported to your supervisor, while system errors should be reported to the System Manager.

MESSAGES (OTHER)

In addition to the above messages which are generated by the program itself, other messages may be produced by the command line interpreter (CLI) and by Laser-Scan libraries. In particular, messages may be generated by the IFF library and by the Laser-Scan I/O library, LSLLIB. IFF library messages are introduced by '%IFF' and are documented in the IFF library users' guide. In most cases IFF errors will be due to a corrupt input file, and this should be the first area of investigation. If the cause of the error cannot be traced by the user, and Laser-Scan are consulted, then the output file should be preserved to facilitate diagnosis. LSLLIB messages are introduced by '%LSLLIB' and are generally self-explanatory. They are used to explain the details of program generated errors.

CHAPTER 4

IMAP2I UTILITY

UTILITY IMAP2I

FUNCTION

IMAP2I extracts data from an Informap database and outputs it to an IFF file. The program is driven by a parameter file which describes each datatype, and by the Informap schema which describes the database. Options exist to select only particular datatypes and to read either from working storage or from permanent storage.

FORMAT

$ IMAP2I IFF-file-spec

Command qualifiers	**Defaults**
/AREA=(limit[,...])	See text
/DRAWING=name	IFF-file-spec name part
/DATATYPE=(integer[,...])	All datatypes
/FACET[=file-spec]	None
/[NO]FRT[=file-spec]	/NOFRT
/[NO]LOG	/NOLOG
/[NO]OFFSET[=(coordinates)]	See text
/OS	/NOOS
/PARAMETER=file-spec	See text
/[NO]SCALE=integer	/NOSCALE
/SCHEMA=name	None

PROMPT

_IFF-file: IFF-file-spec

PARAMETERS

IFF-file-spec

- specifies the output IFF file. Any part of the file-spec which is not supplied will be taken from the default specification 'LSL$IF:IFF.IFF'.

COMMAND QUALIFIERS

/AREA=(WEST:real,SOUTH:real,EAST:real,NORTH:real)

- specifies the area of data, in either working or permanent storage, that is to be read. The keywords are the western, southern, eastern and northern boundaries of the area required, in the database coordinate units. All keywords are required. The qualifier is mandatory with /FACET but optional with /DRAWING. With the latter, the default action is to read all data.

/DATATYPE=(integer[,...])

- causes IMAP2I to read only the specified datatypes. The /DATATYPE qualifier will accept single, multiple or ranges of datatype arguments. Ranges may be specified with starting and ending datatypes that are separated by a colon, for example /DATATYPE=56:58. When specifying more than one range of datatypes, separate each range with a comma, for example /DATATYPE=(1:5,56:89). The maximum number of datatypes which may be specified is 128.

/DRAWING=name

- specifies the name of the Informap drawing, in working storage, that is to be read. The drawing name may be from 1 to 9 alphanumeric characters, starting with a letter. The default drawing name is the name part of the parsed IFF-file-spec, truncated to 9 characters if necessary. This qualifier is not allowed if /FACET has been specified, and is the default if neither have been specified explicitly.

/FACET[=file-spec]

- specifies the name of a facet description file if data is to be read from permanent storage. The facet description file-spec is parsed from the default STI_ROOT:[300010]'name'.FDT where 'name' is the name specified with /SCHEMA. This qualifier requires /AREA, and is not allowed if /DRAWING has been specified explicitly. In the absence of /FACET, the default is as for /DRAWING

/FRT[=file-spec]
/NOFRT

- specifies an FRT file which the program will read and use
  a) to output non-standard AC entries, and
  b) to determine which symbols are oriented or scaled.
  The FRT file-spec is parsed against the default LSL$FRT:'name'.FRT where 'name' is the name specified with /SCHEMA.

  /FRT is necessary if ADT NAME is present in the parameter file, otherwise that particular attribute definition will be skipped. The FRT is also used to ascertain ACD types, and if not specified, a default ACD type will be assumed.

  /FRT ensures that symbols are output correctly to the IFF file.

/LOG
/NOLOG

- causes supplementary messages to be sent to SYS$OUTPUT. Supplementary messages are generated when a file is successfully opened, and a reassuring message is output each time the output of a new IFF layer is started to the output file.

/OFFSET[=(EAST:real,NORTH=real)]
/NOOFFSET

- specifies an Easting and Northing offset (in database coordinates) to be subtracted from all coordinates before output to IFF. Both keywords must be present if supplied. The defaults are the lower limits of X and Y for working storage drawings, or the western and southern boundaries specified with /AREA. /NOOFFSET implies an offset of (0,0). The default is /OFFSET with the default keyword values.

/OS
/NOOS

- specifies that an Ordnance Survey (Great Britain) style IFF file is to be produced. This file will contain an OS style MH (Map Header) entry and will also have scale and projection details in the MD (Map Descriptor) entry. The qualifier requires /SCALE. The default is /NOOS

/PARAMETER=file-spec

- specifies the IFF parameter file, which defines the transformation of datatypes and linetypes in the Informap database to IFF feature codes. The parameter file-spec is parsed from the default STI_ROOT:[300010]'name'.IMAP2I_PAR where 'name' is the name specified with /SCHEMA. If /PARAMETER is not given explicitly on the command line, the default parameter file-spec used.

/SCALE=integer
/NOSCALE

- specifies the scale of the map to be entered in the MD (Map Descriptor) entry in the IFF file. This qualifier is required with /OS, otherwise the default is /NOSCALE

/SCHEMA=name

- specifies the schema to be used in reading the Informap drawing. The schema name may be from 1 to 9 alphanumeric characters, starting with a letter. This qualifier is mandatory.

RESTRICTIONS

- /FACET and /DRAWING are mutually exclusive
- /FACET requires /AREA
- /OS requires /SCALE
- /SCHEMA must be specified

DESCRIPTION

IMAP2I reads from an Informap drawing in working storage, or an area in permanent storage, and writes an IFF file. It deduces the translation necessary by reading in a parameter file, and uses an Informap schema to control access to the database. It is assumed that the user has a working knowledge of the Informap system, including how to set up and use the schema.

Parameter file

This file contains the datatype description table which describes the translations required to produce IFF data from Informap data. The file can also contain an attribute description table describing the translations required to produce IFF attributes from Informap attributes. The format of the table is described in the DATA PREPARATION section under the heading 'The IMAP2I parameter file', and it will probably have been set up by the LAMPS system manager and remain relatively static at most installations.

Facet Description File

This file is required if /FACET is specified on the command line. It is a text file comprising various parameters which describe the facetisation of the data and is used to obtain the drawing names of the area in question. For further details, refer to the Informap documentation.

Using the program

Normal use of the program is in batch mode - that is, running it via a batch command file, submitted with the SUBMIT command. However, it is also possible to run the program interactively, although since it can take a long time to translate Informap data this is not necessarily the best method.

It is probable that the symbol IMAP2I will have been set up to include at least the /PARAMETER and /SCHEMA qualifiers, so you may not need to specify these explicitly.

If /OFFSET is specified on the command line, care should be taken to ensure that there will be no loss of precision of the data on transfer to IFF; coordinates in IFF are accurate to approximately 7 significant figures. The keyword values specified (either explicitly or by default) with /OFFSET are the origin offset values which will be stored in the Map Descriptor (MD) entry, the primary purpose of the origin offset in IFF being to maintain accuracy over large areas.

Unlike I2IMAP, warning messages are not output when a datatype/linetype or attribute is encountered for which there is no definition in the parameter file. These entities are simply ignored.

Note that the IFF file directory (default LSL$IF) will require worldwide write access if the Informap and Laser-Scan users are in different groups and are to access the same directory.

How the program works

Once the program has been invoked and the command line successfully read, a summary of the inputs and outputs is typed. The parameter file is then read in, and if the data is to be read from an area in permanent storage, the facet description file is read to obtain the drawing names. If these operations are successful, the IFF file is opened.

When the first datatype is opened, the area limits are checked against the drawing limits (if using working storage), and values set for the IFF CP (Control Point) entry. Additional summary information is also output at this stage.

The data is then read from the Informap database, and processed to produce the IFF file. The feature code for a particular datatype and linetype combination is obtained from the parameter file, but for processing purposes the graphical type is deduced from the Informap data kind and mode. Note that there are no consistency checks between the feature code and the assumed graphical type.

For the translation the various Informap data kinds are treated as follows :-

- **Lines** are output as linear features. Features are deemed to start
  on green points,
  on white points whenever a new attribute record is read,
  at the transition of smooth curves into straight lines, and
  wherever the linetype changes.

- **Arcs and circles** are output as circumcircle arcs and full circumcircles respectively.

- **Smooth curves** are output as interpolated curves. The conditions for starting a new feature are the same as for lines, except that smooth curves can be started at the transition of straight lines into smooth curves, rather than vice-versa.

- **Symbols** are output as oriented symbols by default. However, when /FRT is specified, rotations will not be output for unoriented symbols or scaled symbols, and the latter will get a second point. Informap non-facility symbols have a scale which is used to calculate the scaling distance, and hence the second point; facility symbols have no scale, so the orienting point is used.

- **Primary annotation** elements are output as texts. The IFF text justification is set according to the Informap value, while the IFF text height and text category for the appropriate linestyle are taken from the parameter file if present. If not present, they are left unset in the IFF file. The IFF text style is left unset in any case. Line feed characters are replaced by spaces, and texts truncated to 255 characters if necessary - IFF composite texts are not supported at present.

- **Secondary annotation** (i.e. attribute annotation) elements are discussed in the section below.

- **Nongraphic attributes** are output as AC entries. Informap attributes which are of type real will translate to the nearest integer in IFF if necessary. Similarly, Informap integer attributes can translate into IFF type real. If necessary, Informap text strings will be truncated when transferred into IFF character attributes or text strings.

When all applicable data has been output to the IFF file, the program will exit.

Errors which result in termination of the program will cause the output of appropriate messages. Unless nothing at all has been written to the IFF file, it will be closed and preserved.

Secondary annotation points

IMAP2I has the facility to transfer secondary annotation points in the Informap drawing into certain AC entries of the IFF file. This functionality directly mirrors that of I2IMAP so that attribute annotation points can be converted from IFF into Informap and back out to IFF again with no loss of data.

As mentioned in "Informap data preparation", the IFF attribute names "STARTX", "START", "ENDX" and "ENDY" are reserved for the purpose of transferring Secondary annotation points. All of these names must be present as "ADT NAME" entries in the attribute description to enable secondary annotation transfer. E.g.

```
ADT NAME STARTX AC VALUE COMMENT
```

Although the "dtype" field of the ADT entry is not used, its presence is required for the ADT entry to be valid.

Corresponding entries must be present as ACD entries in the FRT file which translate the names "STARTX"... into IFF attribute codes. E.g.

```
ACD TABLE 1
ACD R 1 STARTX -1.0E37 +1.0E
```

This specifies that the IFF Attribute name "STARTX" corresponds to the IFF ancillary code 1001 (see the FRT user guide for information on FRT entries).

If there are one or more attribute annotation points on a line or point feature in the Informap drawing, then 4 IFF AC entries (STARTX, STARTY and ENDX, ENDY) will be created for each annotation point. The values of these 4 ACs will define a line whose angle represents the placement for the text.

Here is an example IFF line created from an Informap line which had two attribute annotation points.

```
NF 186 158
FS 29 0 0 0
AC 1001 122.1191
AC 1002 63.543
AC 1003 120.7519
AC 1004 60.834
AC 1001 128.392
AC 1002 66.313
AC 1003 125.923
AC 1004 54.956
TH 0
ST 2 0
   122.1191 61.32813
   120.7519 58.4961
EF
```

In this example the AC codes 1001, 1002, 1003 and 1004 correspond to the Attribute names STARTX, STARTY, ENDX and ENDY respectively.

These points will be converted to coordinates relative to the origin offset held in the IFF Map Descriptor prior to being output to the IFF AC entry.

IFF files

IMAP2I produces a new style IFF file containing IFF HIstory (HI) and type 2 Map Descriptor (MD) entries. The latter will have its origin offset and scale fields set.

All data is output to layer 1 in the output IFF file.

The program does not produce a layer containing a grid or corner ticks. If either of these are desired, the file should be merged using the IMP utility IMERGE, with a template IFF file produced by the IMP utility ISTART.

If /OS was specified on the command line, the IFF file will contain an OS style map header with the origin offset, scale and basic grid interval set. The map descriptor will also have the projection, units and spheroid code fields set to the appropriate values.

EXAMPLES

```
$ IMAP2I/SCHEMA=DEMO/PAR=STI_ROOT:[LSL.LOOKUP] TL1659NE -
_$ /OS/SCALE=1250/OFFSET=(E:516500,N:259500)<CR>

Schema                  : DEMO
Parameter file          : STI_ROOT:[LSL.LOOKUP]DEMO.IMAP2I_PAR
Informap drawing        : TL1659NE
IFF output file         : LSL$IF:TL1659NE.IFF
Offsets                 :  516500.00,  259500.00

 ELAPSED:    0 00:00:17.66  CPU: 0:00:07.61  BUFIO: 124  DIRIO: 200  FAULTS: 189
$
```

This is a typical example showing the use of IMAP2I to produce an Ordnance Survey style IFF file. The parameter file directory has been specified, but the file-spec name part and extension have both defaulted (the name to the schema name). Note that if the schema and parameter file are fixed at a site, the symbol IMAP2I could be set up to include the /SCHEMA and /PARAMETER qualifiers. The IFF file-spec is given before the remaining qualifiers, but its position is not important. Only the name part of the IFF file-spec has been given, defaults being filled in for the directory and extension. The Informap drawing name defaults to the the IFF file-spec name part, in the absence of a /DRAWING qualifier. The /OS, /SCALE and /OFFSET qualifiers are necessary for an Ordnance Survey type IFF file, particularly if the IFF file is later to be converted to OSTF. All Informap datatypes are converted to the appropriate IFF feature codes. Note the use of the DCL continuation character "-", and abbreviations for /PARAMETER and the /OFFSET keywords.

```
$ IMAP2I/SCHEMA=DEMO/PAR=STI_ROOT:[LSL.LOOKUP]/FACET -
_$ /AREA=(W:474200,E:474700,S:261350,N:261850)/DATATYPE=(6:11,13,14) -
_$ /LOG MY_MAP<CR>

Schema                  : DEMO
Parameter file          : STI_ROOT:[LSL.LOOKUP]DEMO.IMAP2I_PAR
Facet description file  : STI_ROOT:[300010]DEMO.FDT
IFF output file         : LSL$IF:MY_MAP.IFF
Selecting by datatype
Outputting supplementary messages

%IMAP2I-I-READPAR, reading parameter file
%IMAP2I-I-READFAC, reading facet description file
%LSLLIB-I-IFFOPENED, STI_ROOT:[LSL.TEMP]MY_MAP.IFF;1 opened for write

Area selected           :  474200.00,  261350.00 to  474700.00,  261850.00
Offsets                 :  474200.00,  261350.00

%IMAP2I-I-IFFCLOSED, IFF file closed

 ELAPSED:    0 00:01:44.98  CPU: 0:01:18.75  BUFIO: 445  DIRIO: 639  FAULTS: 207
$
```

This example illustrates conversion from Informap permanent storage, through the use of /FACET and /AREA. The /DATATYPE qualifier has been used to select Informap datatypes for conversion, and /LOG causes the extra informational messages to be output. Note that the offset applied is the southwest corner of the specified area.

MESSAGES (INFORMATIONAL)

These messages give information only, and require no immediate action by the user. They are used to provide information on the current state of the program, or to supply explanatory information in support of a warning or error message.

CODES, error kind = 'integer', error code = 'integer'

Explanation: This message always appears after an error has occurred while attempting an operation on an Informap drawing. It gives the user further information about the error.

User action: Depends on the main error messages, but if necessary consult the appropriate Informap manuals for explanations of the error codes.

IFFCLOSED, IFF file closed

Explanation: This message appears if /LOG was specified on the command line, and confirms that the IFF file has been successfully closed.

User action: None.

IFFDELETED, IFF file deleted

Explanation: This message appears if /LOG was specified on the command line, and confirms that the IFF file has been closed and deleted. This will only happen if execution is terminated after the IFF file has been opened but before the header data has been successfully written.

User action: None.

IMAPINFO, attribute number 'number', datatype 'datatype'

Explanation: This message appears after an error has occurred while attempting to translate an attribute. It gives the user the attribute number and current datatype.

User action: Depends on the main error messages.

LINEINFAC, line 'number' of facet description file

Explanation: This message always appears after an error has occurred while decoding a line in the facet description file, and it informs the user of the offending line number. The previous message will have been generated by LSLLIB, and the line in question will be ignored.

User action: The LSLLIB message may indicate an error in the facet description file which should be amended. Otherwise, see the relevant error message explanation.

LINEINPAR, line 'number' of parameter file

Explanation: This message always appears after an error has occurred while decoding a line in the parameter file, and it informs the user of the offending line number. The previous message will have been generated either by LSLLIB or by the program itself, and the line in question will be ignored.

User action: If the error message was generated by LSLLIB, it most likely indicates an error in the parameter file which should be amended. Otherwise, see the relevant error message explanation.

READFAC, reading facet description file

Explanation: This message appears if /LOG was specified on the command line, and informs the user that the facet description file is being read.

User action: None.

READPAR, reading parameter file

Explanation: This message appears if /LOG was specified on the command line, and informs the user that the parameter file is being read.

User action: None.

MESSAGES (WARNING)

These messages are output when an error has occurred that can be corrected immediately by the user or that the program will attempt to overcome.

ATTNOTFOUND, cannot find attribute in schema

> **Explanation:** An attribute could not be found in the schema. The IMAPINFO message follows, giving the attribute number and current datatype. This may indicate a problem within Informap. The attribute is ignored and processing continues.
>
> **User action:** Preserve the data, together with the parameter file and schema, and report this problem to Laser-Scan.

BADATTCODE, attribute code 'code' out of range

> **Explanation:** An invalid IFF attribute code (outwith the range 0 to 32767) has been read from the parameter file. The LINEINPAR message indicating the parameter file line number will follow, and the program will continue to read the file, ignoring this line.
>
> **User action:** Amend the attribute code in the parameter file, and if necessary run the program again.

BADATTNAME, invalid attribute name 'name'

> **Explanation:** An invalid IFF or Informap attribute name has been read from the parameter file. This message may be followed by an LSLLIB message indicating an error in reading the name. Alternatively, this message may be preceded by a message indicating why the name was not recognised. The LINEINPAR message indicating the parameter file line number will appear last, and the program will continue to read the file, ignoring this line.
>
> **User action:** Amend the attribute name in the parameter file, and if necessary run the program again.

BADDTYPE, datatype 'datatype' out of range

> **Explanation:** An invalid Informap datatype (outwith the range 1 to 128) has been read from the parameter file. The LINEINPAR message indicating the parameter file line number will follow, and the program will continue to read the file, ignoring this line.
>
> **User action:** Amend the Informap datatype in the parameter file, and if necessary run the program again.

BADFC, feature code 'fc' out of range

Explanation: An invalid feature code (outwith the range 0 to 32767) has been read from the parameter file. The LINEINPAR message indicating the parameter file line number will follow, and the program will continue to read the file, ignoring this line.

User action: Amend the feature code in the parameter file, and if necessary run the program again.

BADLTYPE, linetype 'linetype' out of range

Explanation: An invalid Informap linetype (outwith the range 1 to 128) has been read from the parameter file. The LINEINPAR message indicating the parameter file line number will follow, and the program will continue to read the file, ignoring this line.

User action: Amend the Informap linetype in the parameter file, and if necessary run the program again.

BADRANGE, invalid range

Explanation: An invalid range of integers has been read from the parameter file. A range should be specified as a series of integers and/or sub-ranges in ascending order, separated by commas. A sub-range consists of two integers separated by a hyphen. A given integer should not appear (either explicitly or by implication) more than once in the range. The LINEINPAR message indicating the parameter file line number will follow, and the program will continue to read the file, ignoring this line.

User action: Amend the range in the parameter file, and if necessary run the program again.

BADTEXTCAT, invalid text category 'cat'

Explanation: An invalid text category has been read from the parameter file. Text categories must be positive integers in the range 0 to 63. The LINEINPAR message indicating the parameter file line number will follow, and the program will continue to read the file, ignoring this line.

User action: Amend the text category in the parameter file, and if necessary run the program again.

BADTEXTSIZE, invalid text size 'integer'

Explanation: An invalid text size has been read from the parameter file. Text sizes must be positive integers up to 32767; no distinction is made between point sizes or actual heights. The LINEINPAR message indicating the parameter file line number will follow, and the program will continue to read the file, ignoring this line.

User action: Amend the text size in the parameter file, and if necessary run the program again.

DEFAULTACD, cannot find attribute code 'code', using default values

Explanation: The given IFF attribute code (as read from the parameter file) could not be found amongst the current definitions. Default values will be used instead.

User action: Ensure that the appropriate ACD definition appears in the FRT file if you are using one. Otherwise, amend the attribute code in the parameter file if it is in error. If necessary run the program again.

FACILITY, facility datatype 'datatype' has no attributes

Explanation: The given facility datatype has no attributes.

User action: The datatype in question should be non-facility. Please report this problem to your system manager.

ILLEGLATTLEN, illegal attribute length 'length'

Explanation: The Informap PLUS library has returned an illegal attribute length. The IMAPINFO message follows, giving the attribute number and current datatype. The attribute itself is ignored and processing continues. This message is unlikely to occur, but if it does it may indicate either a programming error, or a problem within the PLUS library.

User action: Preserve the data, together with the parameter file and schema, and report this problem to Laser-Scan.

ILLEGLATTNUM, illegal attribute number for 'name'

Explanation: The Informap PLUS library has returned an illegal attribute number for the named attribute. The IMAPINFO message follows, giving the erroneous attribute number and the current datatype. The attribute itself is ignored and processing continues. This message is unlikely to occur, but if it does it may indicate either a programming error, or a problem within the PLUS library.

User action: Preserve the data, together with the parameter file and schema, and report this problem to Laser-Scan.

INCOMPATT, incompatible attribute types, attribute code 'code'

Explanation: An Informap attribute type is not compatible with the corresponding type of the given IFF attribute code (in either a CB or AC entry). The IMAPINFO message follows, giving the attribute number and current datatype. The attribute is ignored and processing continues.

User action: Either change the representation of the attribute within Informap (which might mean altering the schema) or within the IFF file, or amend the parameter file so that Informap attributes are translated into compatible IFF attributes.

NOATTNAME, cannot read attribute name

Explanation: An IFF or Informap attribute name cannot be read where expected from the parameter file. This message will be followed by an LSLLIB message indicating why the name could not be read. The LINEINPAR message indicating the parameter file line number will also follow, and the program will continue to read the file, ignoring this line.

User action: Edit the parameter file to include the attribute name in the parameter file where expected, and if necessary run the program again. In the unlikely event that no errors are found in the parameter file, please report the problem to Laser-Scan.

NODATA, IFF file does not contain any map data

Explanation: The IFF file produced by IMAP2I does not contain any map data. This could be due either to the selected datatypes not occurring within the specified area, or to the selected datatypes not being present in the specified drawing. Previous warning messages may indicate more plainly the reason.

User action: Check the area and datatypes selected and if necessary run the program again. If the selections appear to be correct, check the drawing or area within Informap to ensure that the required data is not present.

NODTYPE, datatype 'datatype' not in schema

Explanation: The given Informap datatype is not defined in the schema. This could be due to an error in the schema, or the wrong schema may have been specified on the command line. All drawing elements with this datatype are ignored and processing continues.

User action: Check the schema, and if necessary amend it to include this datatype. If the datatype is wanted, the program should be run again.

NOTGREEN, symbol (datatype 'datatype') is not green

Explanation: A symbol of the given Informap datatype does not have a green button. IMAP2I assumes that all symbols are encoded as green. The symbol is ignored and processing continues.

User action: Amend the database so that the symbol has a green button. If the symbol is required, the program should be run again.

TOOMANYATTDES, Too many attribute descriptions, max is 'number'

Explanation: There are too many attribute description records in the parameter file. The LINEINPAR message indicating the parameter file line number will follow, and the program will continue to read the file, ignoring this line.

User action: Amend the attribute definitions in the parameter file, and if necessary run the program again.

TRUNCATT, string in attribute code 'code' truncated

Explanation: An Informap attribute string is too long for the corresponding string in the given IFF attribute code. The destination string appears as either a character value in a CB entry, or as a text string in an AC entry. The string is truncated and transferred to the appropriate IFF entry.

User action: If the full string is required, either amend the parameter file so that the Informap attribute is translated into a suitable IFF attribute, or amend the attribute definition in the Informap schema.

UNEXPCH, unexpected character ''char''

Explanation: An alphabetic character has been read from the parameter file where a digit was expected. The LINEINPAR message indicating the parameter file line number will follow, and the program will continue to read the file, ignoring this line.

User action: Edit the parameter file to correct the offending character, and if necessary run the program again.

UNKCMD, unknown command "'command'"

Explanation: The given command in the parameter file was not recognised. The LINEINPAR message indicating the parameter file line number will follow, and the program will continue to read the file, ignoring this line.

User action: This message is most likely due to an error in the program and should be reported to Laser-Scan.

UNKDKIND, unknown data kind 'kind'

Explanation: The given Informap data kind cannot be handled. IMAP2I only knows about data kinds 1-5, i.e. non-facility lines, primary annotation, non-facility symbols, facility symbols and facility line respectively. All drawing elements with the datatype of the kind in question are ignored and processing continues.

User action: If all the data is required, the datatype of the offending drawing elements should be changed to a datatype of the recognised kind. If an alternative kind is required and is valid within Informap, please submit an SPR to Laser-Scan.

UNKDTYPE, datatype 'datatype' not in parameter file

Explanation: The given Informap datatype was not recognised because it has not been defined in the parameter file. All drawing elements with this datatype are ignored and processing continues.

User action: If this datatype is wanted, it should be defined in the parameter file and the program run again.

UNKLTYPE, unknown linetype 'linetype' for datatype 'datatype'

Explanation: The given Informap linetype was not defined for the given datatype in the parameter file. A drawing element with this datatype and line type has been found and will be ignored, and processing will continue.

User action: If this datatype and linetype are wanted, they should be defined in the parameter file and the program run again.

UNKPLUS, unknown PLUS error 'number'

Explanation: An error has occurred while processing an attribute. The IMAPINFO message follows, giving the attribute number and current datatype. The attribute is ignored and processing continues.

User action: Please refer to Informap documentation for further information, and report this problem to Laser-Scan, quoting the error number.

UPCASE, error converting "'string'" to upper case

Explanation: An error occurred while converting the given string to upper case. A system message will follow, most likely indicating that the string has been truncated. Execution will continue, but problems may occur later.

User action: This message probably indicates a minor programming error, and should be reported to Laser-Scan.

MESSAGES (ERROR)

These messages indicate an error in processing which will cause the program to terminate. The most likely causes are a corrupt or otherwise invalid input file, or an error related to command line processing and file manipulation.

BADAREA, 'bound' boundary 'value' inconsistent with 'bound' boundary 'value'

Explanation: The indicated boundary values, either or both of which have been specified with /AREA, are inconsistent. The program exits immediately.

User action: Reissue the IMAP2I command again, this time specifying sensible values.

ERRCLOFAC, error closing facet description file 'file-spec'

Explanation: The facet description file could not be closed. An additional LSLLIB message will follow, giving the reason for the failure. If this is due to a system error, the system error message will also appear. The program exits immediately.

User action: Ascertain the cause of the failure from the messages given, and take the appropriate remedial action. If the error is due to a serious problem such as a system failure, the System Manager should be informed.

ERRCLOPAR, error closing parameter file 'file-spec'

Explanation: The parameter file could not be closed. An additional LSLLIB message will follow, giving the reason for the failure. If this is due to a system error, the system error message will also appear. The program exits immediately.

User action: Ascertain the cause of the failure from the messages given, and take the appropriate remedial action. If the error is due to a serious problem such as a system failure, the System Manager should be informed.

ERROPNFAC, error opening facet description file 'file-spec'

Explanation: The facet description file could not be opened. An additional LSLLIB message will follow, giving the reason for the failure. If this is due to a system error, the system error message will also appear. The program exits immediately.

User action: Ascertain the cause of the failure from the messages given. There may be a simple remedy, e.g. a change in the directory specification. Alternatively, this error could be due to a more serious problem such as a system failure, and in that case the System Manager may have to be informed.

ERROPNPAR, error opening parameter file 'file-spec'

Explanation: The parameter file could not be opened. An additional LSLLIB message will follow, giving the reason for the failure. If this is due to a system error, the system error message will also appear. The program exits immediately.

User action: Ascertain the cause of the failure from the messages given. There may be a simple remedy, e.g. a change in the directory specification. Alternatively, this error could be due to a more serious problem such as a system failure, and in that case the System Manager may have to be informed.

ERRRDFAC, error reading from facet description file 'file-spec' at line 'number'

Explanation: The given line could not be read from the facet description file. An additional LSLLIB message will follow, giving the reason for the failure. If this is due to a system error, the system error message will also appear. The program exits immediately.

User action: Ascertain the cause of the failure from the messages given, and take the appropriate remedial action. If the error is due to a serious problem such as a system failure, the System Manager should be informed.

ERRRDFRT, error reading FRT file 'file-spec'

Explanation: An error occurred while reading in the FRT file. A message output by the Feature Representation Library (FRTLIB) will appear before this message, giving further information as to what has gone wrong. For example, the specified FRT file may not exist, or it may be in another directory.

User action: Dependent upon the associated error messages.

ERRRDPAR, error reading from parameter file 'file-spec' at line 'number'

Explanation: The given line could not be read from the parameter file. An additional LSLLIB message will follow, giving the reason for the failure. If this is due to a system error, the system error message will also appear. The program exits immediately.

User action: Ascertain the cause of the failure from the messages given, and take the appropriate remedial action. If the error is due to a serious problem such as a system failure, the System Manager should be informed.

GETANO, cannot read primary annotation

Explanation: A graphic annotation element could not be read from the Informap drawing. If this is due to an Informap error, an appropriate Informap message will probably have been output by the PLUS library, immediately prior to this one. The CODES message giving the Informap error codes follows, and if there has been a system failure, the system message will also be output. The program exits immediately.

User action: Depends on the combination of messages, but Informap errors should be reported to your supervisor, while system errors should be reported to the System Manager.

IFFABORTED, cannot write to IFF file

Explanation: There has been an error while attempting to write to the IFF file, which has therefore been aborted. The cause may be a system error, or it may be a programming error. The message will be preceded by an IFF library message which will give more details, including a two-character code.

User action: Look up the IFF error code in the IFFLIB Reference Manual (part of the MAPPING package documentation) and take the appropriate action.

IFFCLOERR, cannot close IFF file

Explanation: The IFF file could not be closed. This may be due to a previous IFF error, or it may indicate a more serious system error. The message will be preceded by an IFF library message which will give more details, including a two-character code.

User action: Look up the IFF error code in the IFFLIB Reference Manual (part of the MAPPING package documentation) and take the appropriate action.

MISSKEY, missing keyword with /'qualifier'

Explanation: The given qualifier has a keyword missing which should have been specified. The program exits immediately.

User action: Reissue the IMAP2I command again, this time supplying the appropriate keyword.

MOREVARFAC, more variable facet points than the maximum ('number')

Explanation: There are more variable facet points in the facet description file than can be handled. All of these points have to be read before the relevant facets in permanent storage can be deduced. The program exits immediately.

User action: If possible, try to get round the problem by reading the data from working storage. If a large number of variable facet points is normal, please submit an SPR to Laser-Scan.

NOFACETS, no facets within the given area

Explanation: There are no facets in permanent storage within the given area. The relevant facets are deduced from information in the facet description file, in conjunction with the boundaries specified with /AREA. The program exits immediately.

User action: Check the boundary values specified with /AREA. These will need to be altered to define an area for which there are facets.

NOTINAREA, drawing is outside the specified area

Explanation: The Informap drawing is outside the area defined by the boundaries specified with /AREA. The program exits immediately.

User action: Reissue the IMAP2I command again, this time specifying either a different drawing or sensible values for the area boundaries. Note that these must be compatible with the Informap drawing limits.

PUTINF, cannot open Informap drawing files for datatype 'datatype'

Explanation: The graphic and attribute files for the given datatype in the Informap drawing could not be successfully opened. It could be that the user is trying to access a file in use by someone else, or is not logged on as a Synercom user (i.e. in the correct group). If the message is the result of an Informap error, an appropriate Informap message will probably have been output by the PLUS library, immediately prior to this one. The CODES message giving the Informap error codes follows, and if there has been a system failure, the system message will also be output. The program exits immediately.

User action: Depends on the combination of messages, but Informap errors should be reported to your supervisor, while system errors should be reported to the System Manager.

RDGREL, cannot read from datatype 'datatype'

Explanation: A graphic element, an attribute annotation graphic element, or an associated attribute record for the given datatype could not be read from the Informap drawing. If this is due to an Informap error, an appropriate Informap message will probably have been output by the PLUS library, immediately prior to this one. The CODES message giving the Informap error codes follows, and if there has been a system failure, the system message will also be output. The program exits immediately.

User action: Depends on the combination of messages, but Informap errors should be reported to your supervisor, while system errors should be reported to the System Manager.

TOOMANYDRAW, number of drawings exceeds the maximum ('number')

Explanation: The number of drawings which need to be accessed from permanent storage is more than can be handled. The relevant facets and thus the drawings to be accessed are deduced from information in the facet description file, in conjunction with the boundaries specified with /AREA. The program exits immediately.

User action: Check the boundary values specified with /AREA. These will need to be altered to define a smaller area, so that the number of drawings to be accessed is not too large. If accessing a large number of drawings is to be a continuing requirement, please submit an SPR to Laser-Scan.

UNEXPENDFAC, unexpected end of facet description file

Explanation: The end of the facet description file was reached before all the required information was read from it. Without this information, the facets in permanent storage within the specified area cannot be deduced. The program exits immediately.

User action: Check your facet description file to ensure that the format is correct and that the file has all the relevant sections, including a variable facet section at the end.

MESSAGES (FATAL)

These messages indicate a severe error in processing, or some form of system failure, which has caused the program to terminate.

NORA, unable to patch RAnge - internal pointer corrupted

Explanation: After all of the data for an area or drawing has been output, the program attempts to patch the RAnge entry in the IFF file, to reflect the true range of the data. This error indicates that it was unable to find the RA entry again. This means that either the program or the IFF file has become corrupted. The program will abort.

User action: Please report this problem to Laser-Scan.

MESSAGES (OTHER)

In addition to the above messages which are generated by the program itself, other messages may be produced by the command line interpreter (CLI) and by Laser-Scan libraries. In particular, messages may be generated by the IFF library and by the Laser-Scan I/O library, LSLLIB. IFF library messages are introduced by '%IFF' and are documented in the IFF library users' guide. In most cases IFF errors will be due to a corrupt input file, and this should be the first area of investigation. If the cause of the error cannot be traced by the user, and Laser-Scan are consulted, then the output file should be preserved to facilitate diagnosis. LSLLIB messages are introduced by '%LSLLIB' and are generally self-explanatory. They are used to explain the details of program generated errors.