Ilda Reader

1.0

Generated by Doxygen 1.8.11

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2.1 File List

Here is a list of all files with brief descriptions:

3 Data Structure Documentation

3.1 header_ilda Struct Reference

Data structure which contains the ilda header fields.

```
#include <ilda_reader.h>
```

Data Fields

- char ilda [4]
- byte format_code
- char frame_name [9]
- char company_name [9]
- uint16_t number_of_records
- uint16_t frame_number
- uint16_t total_frames
- byte proj_number

3.1.1 Detailed Description

Data structure which contains the ilda header fields.

3.1.2 Field Documentation

3.1.2.1 char header_ilda::company_name[9]

3.1.2.2 byte header_ilda::format_code

3.1.2.3 char header_ilda::frame_name[9]

3.1.2.4 uint16_t header_ilda::frame_number

3.1.2.5 char header_ilda::ilda[4]

3.1.2.6 uint16_t header_ilda::number_of_records

3.1.2.7 byte header_ilda::proj_number

3.1.2.8 uint16_t header_ilda::total_frames

The documentation for this struct was generated from the following file:

- ilda_reader.h

3.2 palette Struct Reference

format 2, colour palette for the formats using colour index

```
#include <ilda_reader.h>
```

Data Fields

- byte blue
- byte green
- byte red

3.2.1 Detailed Description

format 2, colour palette for the formats using colour index

3.2.2 Field Documentation

3.2.2.1 byte palette::blue

3.2.2.2 byte palette::green

3.2.2.3 byte palette::red

The documentation for this struct was generated from the following file:

- ilda_reader.h

3.3 point2_d Struct Reference

format 1, size of 6 bytes. 2D point with colour index

```
#include <ilda_reader.h>
```

Data Fields

- int16_t x_coord
- int16_t y_coord
- byte status_code
- byte color_index

3.3.1 Detailed Description

format 1, size of 6 bytes. 2D point with colour index

3.3.2 Field Documentation

3.3.2.1 byte point2_d::color_index

3.3.2.2 byte point2_d::status_code

3.3.2.3 int16_t point2_d::x_coord

3.3.2.4 int16_t point2_d::y_coord

The documentation for this struct was generated from the following file:

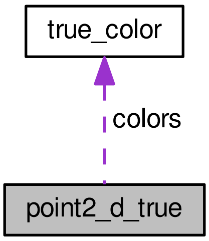
- ilda_reader.h

3.4 point2_d_true Struct Reference

format 5, size of 8 bytes. 2D point with true colour structure

```
#include <ilda_reader.h>
```

Collaboration diagram for point2_d_true:



Data Fields

- int16_t x_coord
- int16_t y_coord
- byte status_code
- struct true_color colors

3.4.1 Detailed Description

format 5, size of 8 bytes. 2D point with true colour structure

3.4.2 Field Documentation

3.4.2.1 struct true_color point2_d_true::colors

3.4.2.2 byte point2_d_true::status_code

3.4.2.3 int16_t point2_d_true::x_coord

3.4.2.4 int16_t point2_d_true::y_coord

The documentation for this struct was generated from the following file:

- ilda_reader.h

3.5 point3_d Struct Reference

format 0, size of 8 bytes. 3D point with colour index

```
#include <ilda_reader.h>
```

Data Fields

- int16_t x_coord
- int16_t y_coord
- int16_t z_coord
- byte status_code
- byte color_index

3.5.1 Detailed Description

format 0, size of 8 bytes. 3D point with colour index

3.5.2 Field Documentation

3.5.2.1 byte point3_d::color_index

3.5.2.2 byte point3_d::status_code

3.5.2.3 int16_t point3_d::x_coord

3.5.2.4 int16_t point3_d::y_coord

3.5.2.5 int16_t point3_d::z_coord

The documentation for this struct was generated from the following file:

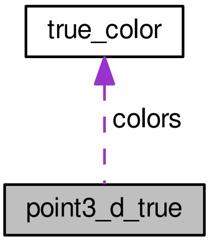
- ilda_reader.h

3.6 point3_d_true Struct Reference

format 4, size of 10 bytes. 3D point with true colour structure.

```
#include <ilda_reader.h>
```

Collaboration diagram for point3_d_true:



Data Fields

- int16_t x_coord
- int16_t y_coord
- int16_t z_coord
- byte status_code
- struct true_color colors

3.6.1 Detailed Description

format 4, size of 10 bytes. 3D point with true colour structure.

3.6.2 Field Documentation

3.6.2.1 struct true_color point3_d_true::colors

3.6.2.2 byte point3_d_true::status_code

3.6.2.3 int16_t point3_d_true::x_coord

3.6.2.4 int16_t point3_d_true::y_coord

3.6.2.5 int16_t point3_d_true::z_coord

The documentation for this struct was generated from the following file:

- ilda_reader.h

3.7 true_color Struct Reference

Colour data structure for the true colour formats.

```
#include <ilda_reader.h>
```

Data Fields

- byte blue
- byte green
- byte red

3.7.1 Detailed Description

Colour data structure for the true colour formats.

3.7.2 Field Documentation

3.7.2.1 byte true_color::blue

3.7.2.2 byte true_color::green

3.7.2.3 byte true_color::red

The documentation for this struct was generated from the following file:

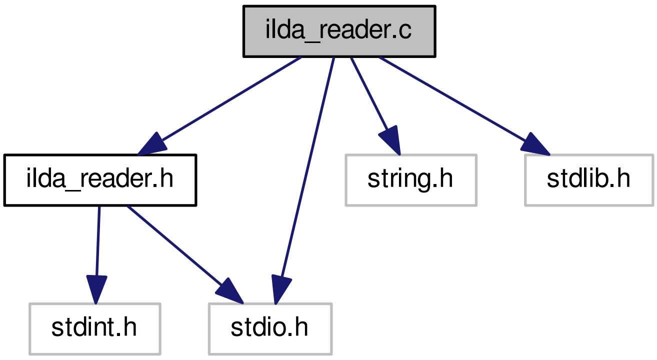
- ilda_reader.h

4 File Documentation

4.1 ilda_reader.c File Reference

```
#include "ilda_reader.h"
#include <stdio.h>
#include <string.h>
#include <stdlib.h>
```

Include dependency graph for ilda_reader.c:



Macros

- #define LITTLE_ENDIAN 1

  since the file is in big endian, conversions have to be in place for little endian cpu's
- #define B 8∗LITTLE_ENDIAN

  amount to shift least significant byte, for endianness conversions
- #define L 8∗(!LITTLE_ENDIAN)

  amount to shift most significant byte, for endianness conversions

Functions

- void print_header (struct header_ilda hdr)
- int read3_d (struct point3_d ∗point, FILE ∗ins)

  Reads from a file into a point3_d POD structure, should be called if format code '0' is encountered.
- int read2_d (struct point2_d ∗point, FILE ∗ins)

  Reads from a file into a point2_d POD structure, should be called if format code '1' is encountered.
- int read_palette (struct palette ∗point, FILE ∗ins)

  Reads from a file into a palette POD structure, should be called if format code '2' is encountered.
- int read3_dt (struct point3_d_true ∗point, FILE ∗ins)

  Reads from a file into a point3_d_true POD structure, should be called if format code '4' is encountered.
- int read2_dt (struct point2_d_true ∗point, FILE ∗ins)

  Reads from a file into a point2_d_true POD structure, should be called if format code '5' is encountered.
- int read_ilda_header (struct header_ilda ∗hdr, FILE ∗ins)

  Puts ilda header information in the hdr parameter from the ins file.
- void read_ilda ()

  reads the whole ilda file and prints it on the console. Does not buffer anything. Will exit if file is not found.

4.1.1 Macro Definition Documentation

4.1.1.1 #define B 8∗LITTLE_ENDIAN

amount to shift least significant byte, for endianness conversions

4.1.1.2 #define L 8∗(!LITTLE_ENDIAN)

amount to shift most significant byte, for endianness conversions

4.1.1.3 #define LITTLE_ENDIAN 1

since the file is in big endian, conversions have to be in place for little endian cpu's

4.1.2 Function Documentation

4.1.2.1 void print_header (struct header_ilda *hdr*)

4.1.2.2 int read2_d (struct point2_d ∗ *point,* FILE ∗ *ins*)

Reads from a file into a point2_d POD structure, should be called if format code '1' is encountered.

Parameters

point	point2_d POD structure to read into. Does not need to be initialized.
ins	File descriptor to read from. Needs to be opened in binary read mode

Returns

returns -1 on read failure and 0 on success.

4.1.2.3 int read2_dt (struct point2_d_true ∗ *point,* FILE ∗ *ins*)

Reads from a file into a point2_d_true POD structure, should be called if format code '5' is encountered.

Parameters

point	point2_d_true POD structure to read into. Does not need to be initialized.
ins	File descriptor to read from. Needs to be opened in binary read mode

Returns

returns -1 on read failure and 0 on success.

4.1.2.4 int read3_d (struct point3_d ∗ *point,* FILE ∗ *ins*)

Reads from a file into a point3_d POD structure, should be called if format code '0' is encountered.

Parameters

point	point3_d POD structure to read into. Does not need to be initialized.
ins	File descriptor to read from. Needs to be opened in binary read mode

Returns

returns -1 on read failure and 0 on success.

4.1.2.5 int read3_dt (struct point3_d_true ∗ *point,* FILE ∗ *ins*)

Reads from a file into a point3_d_true POD structure, should be called if format code '4' is encountered.

Parameters

point	point3_d_true POD structure to read into. Does not need to be initialized.
ins	File descriptor to read from. Needs to be opened in binary read mode

Returns

returns -1 on read failure and 0 on success.

4.1.2.6 void read_ilda ( )

reads the whole ilda file and prints it on the console. Does not buffer anything. Will exit if file is not found.

4.1.2.7 int read_ilda_header (struct header_ilda ∗ *hdr,* FILE ∗ *ins*)

Puts ilda header information in the *hdr parameter from the ins* file.

Parameters

hdr	ilda header POD structure to put data in. Does not need to be initialized.
ins	file descriptor to read from. Needs to be opened in binary read mode.

Returns

returns 0 for success, -1 if read failed, 1 if ILDA header is not recognized and 2 if the final header has been found.

4.1.2.8 int read_palette (struct palette ∗ *point,* FILE ∗ *ins*)

Reads from a file into a palette POD structure, should be called if format code '2' is encountered.

Parameters

point	palette POD structure to read into. Does not need to be initialized.
ins	File descriptor to read from. Needs to be opened in binary read mode

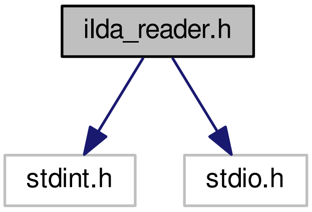
Returns

returns -1 on read failure and 0 on success.

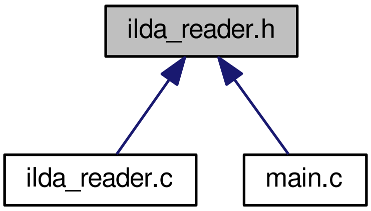
4.2 ilda_reader.h File Reference

```
#include <stdint.h>
#include <stdio.h>
```

Include dependency graph for ilda_reader.h:



This graph shows which files directly or indirectly include this file:



Data Structures

- struct header_ilda

    Data structure which contains the ilda header fields.
- struct true_color

    Colour data structure for the true colour formats.
- struct palette

    format 2, colour palette for the formats using colour index
- struct point2_d

    format 1, size of 6 bytes. 2D point with colour index
- struct point3_d

    format 0, size of 8 bytes. 3D point with colour index
- struct point3_d_true

    format 4, size of 10 bytes. 3D point with true colour structure.
- struct point2_d_true

    format 5, size of 8 bytes. 2D point with true colour structure

Typedefs

- typedef unsigned char byte

    byte typedef

Functions

- int read_ilda_header (struct header_ilda ∗hdr, FILE ∗ins)

    Puts ilda header information in the hdr parameter from the ins file.
- int read3_dt (struct point3_d_true ∗point, FILE ∗ins)

    Reads from a file into a point3_d_true POD structure, should be called if format code '4' is encountered.
- int read2_dt (struct point2_d_true ∗point, FILE ∗ins)

    Reads from a file into a point2_d_true POD structure, should be called if format code '5' is encountered.
- int read3_d (struct point3_d ∗point, FILE ∗ins)

    Reads from a file into a point3_d POD structure, should be called if format code '0' is encountered.
- int read2_d (struct point2_d ∗point, FILE ∗ins)

    Reads from a file into a point2_d POD structure, should be called if format code '1' is encountered.
- int read_palette (struct palette ∗point, FILE ∗ins)

    Reads from a file into a palette POD structure, should be called if format code '2' is encountered.
- void read_ilda ()

    reads the whole ilda file and prints it on the console. Does not buffer anything. Will exit if file is not found.

4.2.1 Typedef Documentation

4.2.1.1 typedef unsigned char **byte**

byte typedef

4.2.2 Function Documentation

4.2.2.1 int read2_d (struct **point2_d** ∗ *point,* FILE ∗ *ins*)

Reads from a file into a point2_d POD structure, should be called if format code '1' is encountered.

Parameters

point	point2_d POD structure to read into. Does not need to be initialized.
ins	File descriptor to read from. Needs to be opened in binary read mode

Returns

returns -1 on read failure and 0 on success.

4.2.2.2 int read2_dt (struct **point2_d_true** ∗ *point,* FILE ∗ *ins*)

Reads from a file into a point2_d_true POD structure, should be called if format code '5' is encountered.

Parameters

point	point2_d_true POD structure to read into. Does not need to be initialized.
ins	File descriptor to read from. Needs to be opened in binary read mode

Returns

returns -1 on read failure and 0 on success.

4.2.2.3 int read3_d (struct **point3_d** ∗ *point,* FILE ∗ *ins*)

Reads from a file into a point3_d POD structure, should be called if format code '0' is encountered.

Parameters

point	point3_d POD structure to read into. Does not need to be initialized.
ins	File descriptor to read from. Needs to be opened in binary read mode

Returns

returns -1 on read failure and 0 on success.

4.2.2.4 int read3_dt (struct **point3_d_true** ∗ *point,* FILE ∗ *ins*)

Reads from a file into a point3_d_true POD structure, should be called if format code '4' is encountered.

Parameters

point	point3_d_true POD structure to read into. Does not need to be initialized.
ins	File descriptor to read from. Needs to be opened in binary read mode

Returns

returns -1 on read failure and 0 on success.

4.2.2.5 void read_ilda ( )

reads the whole ilda file and prints it on the console. Does not buffer anything. Will exit if file is not found.

4.2.2.6 int read_ilda_header (struct **header_ilda** ∗ *hdr,* FILE ∗ *ins*)

Puts ilda header information in the *hdr parameter from the ins* file.

Parameters

hdr	ilda header POD structure to put data in. Does not need to be initialized.
ins	file descriptor to read from. Needs to be opened in binary read mode.

Returns

returns 0 for success, -1 if read failed, 1 if ILDA header is not recognized and 2 if the final header has been found.

4.2.2.7 int read_palette (struct **palette** ∗ *point,* FILE ∗ *ins*)

Reads from a file into a palette POD structure, should be called if format code '2' is encountered.

Parameters

point	palette POD structure to read into. Does not need to be initialized.
ins	File descriptor to read from. Needs to be opened in binary read mode

Returns

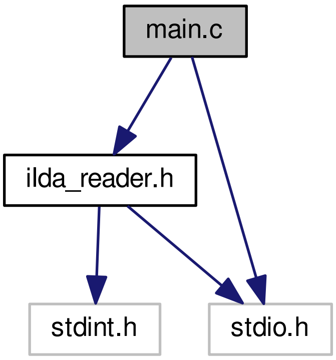
returns -1 on read failure and 0 on success.

4.3 main.c File Reference

```
#include "ilda_reader.h"
```

`#include <stdio.h>`

Include dependency graph for main.c:



Functions

- int main (int argc, char ∗argv[ ])

4.3.1 Function Documentation

4.3.1.1 int main (int *argc,* char ∗ *argv[ ]*)