

# Package ‘affyio’

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**Version** 1.79.0

**Title** Tools for parsing Affymetrix data files

**Author** Ben Bolstad <bmb@bmbolstad.com>

**Maintainer** Ben Bolstad <bmb@bmbolstad.com>

**Depends** R (>= 2.6.0)

**Imports** methods

**Description** Routines for parsing Affymetrix data files based upon file format information. Primary focus is on accessing the CEL and CDF file formats.

**License** LGPL (>= 2)

**URL** <https://github.com/bmbolstad/affyio>

**biocViews** Microarray, DataImport, Infrastructure

**LazyLoad** yes

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|                           |                                  |
|---------------------------|----------------------------------|
| affyio internal functions |                                  |
|                           | <i>Internal affyio functions</i> |

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**Description**

Internal affyio functions

**Details**

These are not normally meant to be called by the user and/or are undergoing testing

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|                |                                 |
|----------------|---------------------------------|
| check.cdf.type | <i>CDF file format function</i> |
|----------------|---------------------------------|

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**Description**

This function returns a text string giving the file format for the supplied filename

**Usage**

```
check.cdf.type(filename)
```

**Arguments**

|          |                        |
|----------|------------------------|
| filename | fullpath to a cdf file |
|----------|------------------------|

**Value**

Returns a string which is currently one of:

|         |                                                                                     |
|---------|-------------------------------------------------------------------------------------|
| text    | the cdf file is of the text format                                                  |
| xda     | the cdf file is of the binary format used in GCOS                                   |
| unknown | the parser can not handle this format or does not recognize this file as a CDF file |

**Author(s)**

B. M. Bolstad <bmb@bmbolstad.com>

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|                   |                                     |
|-------------------|-------------------------------------|
| get.celfile.dates | <i>Extract Dates from CEL files</i> |
|-------------------|-------------------------------------|

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### Description

This function reads the header information for a series of CEL files then extracts and returns the dates.

### Usage

```
get.celfile.dates(filenamees, ...)
```

### Arguments

|            |                                                                      |
|------------|----------------------------------------------------------------------|
| filenamees | a vector of characters with the CEL filenames. May be fully pathed.  |
| ...        | further arguments passed on to <a href="#">read.celfile.header</a> . |

### Details

The function uses [read.celfile.header](#) to read in the header of each file. The ScanDate component is then parsed to extract the date. Note that an assumption is made about the format. Namely, that dates are in the Y-m-d or m/d/y format.

### Value

A vector of class [Date](#) with one date for each celfile.

### Author(s)

Rafael A. Irizarry <rafa@jimmy.harvard.edu>

### See Also

See Also as [read.celfile.header](#).

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|                    |                                  |
|--------------------|----------------------------------|
| internal functions | <i>Internal affyio functions</i> |
|--------------------|----------------------------------|

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### Description

Internal affyio functions

### Details

These are not to be called directly by a user. They support the affy package

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|                                  |                                     |
|----------------------------------|-------------------------------------|
| read.cdf <code>file</code> .list | <i>Read CDF file into an R list</i> |
|----------------------------------|-------------------------------------|

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### Description

This function reads the entire contents of a cdf file into an R list structure

### Usage

```
read.cdffile.list(filename, cdf.path = getwd())
```

### Arguments

|          |                  |
|----------|------------------|
| filename | name of CDF file |
| cdf.path | path to cdf file |

### Details

Note that this function can be very memory intensive with large CDF files.

### Value

returns a list structure. The exact contents may vary depending on the file format of the cdf file (see [check.cdf.type](#))

### Author(s)

B. M. Bolstad <bmb@bmbolstad.com>

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|              |                                       |
|--------------|---------------------------------------|
| read.celfile | <i>Read a CEL file into an R list</i> |
|--------------|---------------------------------------|

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### Description

This function reads the entire contents of a CEL file into an R list structure

### Usage

```
read.celfile(filename,intensity.means.only=FALSE)
```

### Arguments

|                      |                                                         |
|----------------------|---------------------------------------------------------|
| filename             | name of CEL file                                        |
| intensity.means.only | If TRUE then read on only the MEAN section in INTENSITY |

### Details

The list has four main items. HEADER, INTENSITY, MASKS, OUTLIERS. Note that INTENSITY is a list of three vectors MEAN, STDEV, NPIXELS. HEADER is also a list. Both of MASKS and OUTLIERS are matrices.

**Value**

returns a list structure. The exact contents may vary depending on the file format of the CEL file

**Author(s)**

B. M. Bolstad <bmb@bmbolstad.com>

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|                     |                                              |
|---------------------|----------------------------------------------|
| read.celfile.header | <i>Read header information from cel file</i> |
|---------------------|----------------------------------------------|

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**Description**

This function reads some of the header information (appears before probe intensity data) from the supplied cel file.

**Usage**

```
read.celfile.header(filename,info=c("basic","full"),verbose=FALSE)
```

**Arguments**

|          |                                                                                                                                                                       |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| filename | name of CEL file. May be fully pathed                                                                                                                                 |
| info     | A string. basic returns the dimensions of the chip and the name of the CDF file used when the CEL file was produced. full returns more information in greater detail. |
| verbose  | a <a href="#">logical</a> . When true the parsing routine prints more information, typically useful for debugging.                                                    |

**Value**

A list data structure.

**Author(s)**

B. M. Bolstad <bmb@bmbolstad.com>

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|                                      |                                                  |
|--------------------------------------|--------------------------------------------------|
| read.celfile.probeintensity.matrices | <i>Read PM or MM from CEL file into matrices</i> |
|--------------------------------------|--------------------------------------------------|

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**Description**

This function reads PM, MM or both types of intensities into matrices. These matrices have all the probes for a probeset in adjacent rows

**Usage**

```
read.celfile.probeintensity.matrices(filenames, cdfInfo, rm.mask=FALSE, rm.outliers=FALSE, rm.ext
```

**Arguments**

|                          |                                                                                                                                    |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <code>filenames</code>   | a character vector of filenames                                                                                                    |
| <code>cdfInfo</code>     | a list with items giving PM and MM locations for desired probesets. In same structure as returned by <code>make.cdf.package</code> |
| <code>rm.mask</code>     | a <b>logical</b> . Return these probes as NA if there are in the [MASK] section of the CEL file                                    |
| <code>rm.outliers</code> | a <b>logical</b> . Return these probes as NA if there are in the [OUTLIERS] section of the CEL file                                |
| .                        |                                                                                                                                    |
| <code>rm.extra</code>    | a <b>logical</b> . Return these probes as NA if there are in the [OUTLIERS] section of the CEL file                                |
| .                        |                                                                                                                                    |
| <code>verbose</code>     | a <b>logical</b> . When true the parsing routine prints more information, typically useful for debugging.                          |
| <code>which</code>       | a string specifying which probe type to return                                                                                     |

**Value**

returns a **list** of **matrix** items. One matrix contains PM probe intensities, with probes in rows and arrays in columns

**Author(s)**

B. M. Bolstad <bmb@bmbolstad.com>

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