

# Package ‘edfReader’

April 19, 2016

**Type** Package

**Title** Reading EDF(+) and BDF(+) Files

**Version** 1.1.1

**Date** 2016-04-17

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**Description** Reads European Data Format files EDF and EDF+, see <http://www.edfplus.info>,  
BioSemi Data Format files BDF, see [http://www.biosemi.com/faq/file\\_format.htm](http://www.biosemi.com/faq/file_format.htm),  
and BDF+ files, see <http://www.teuniz.net/edfbrowser/bdfplus%20format%20description.html>.  
The files are read in two steps: first the header is read  
and then the signals (using the header object as a parameter).

**License** GPL-3

**LazyData** TRUE

**Imports**

**RoxygenNote** 5.0.1

**Depends** R (>= 3.2.0)

**Suggests** testthat, knitr, rmarkdown, ggplot2

**VignetteBuilder** knitr

**NeedsCompilation** no

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**Repository** CRAN

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## R topics documented:

edfReader . . . . .	2
readEdfHeader . . . . .	3
readEdfSignals . . . . .	4

<b>Index</b>	<b>7</b>
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edfReader

*edfReader: A package for reading EDF(+) and BDF(+) files*

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## Description

The edfReader package reads EDF(+) and BDF(+) files in two steps: first the header is read and then the signals (using the header object as an parameter).

## edfReader functions

`readEdfHeader` to read the file header with basic info about the signals  
`readEdfSignals` to read one or more recorded signals

The objects returned by these functions are described in the package vignette.

## Details

Package	edfReader
Version	1.1.1
Date	April 17, 2016
Licence	GPL version 3 or newer
GitHub	<a href="https://github.com/Pisca46/edfReader">https://github.com/Pisca46/edfReader</a>
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## Acknowledgement

This package has used code from:

- edf.R version 0.3 (27-11-2013) from Fabien Feschet, <http://data-auvergne.fr/cloud/index.php/s/WYmFEDZylFWJzNs>
- the work of Henelius Andreas as of July 2015, <https://github.com/bwrc/edf>

## See Also

For the vignette use the console command:

```
vignette('edfReaderVignette', package = "edfReader")
```

or click on Index below.

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readEdfHeader	<i>Read EDF(+) or BDF(+) file header</i>
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**Description**

The function reads the header of an EDF (European Data Format) file, an EDF+ file, an BDF file, or an BDF+ file

**Usage**

```
readEdfHeader(fileName)
```

**Arguments**

fileName            The full path to the EDF(+)/BDF(+) file to be read.

**Value**

an object of class ebdHeader

**Details**

The object returned contains also an object of class ebdSHeaders. Both objects ebdHeader and ebdSHeaders have supporting S3 print and summary functions. For object details see the package vignette.

**Acknowledgement**

This package has used code from:

- edf.R version 0.3 (27-11-2013), <http://feschet.fr/?p=11>
- the work of Henelius Andreas as of July 2015, <https://github.com/bwrc/edf>

**See Also**

[edfReader](#), [readEdfSignals](#)

For the vignette use the console command:

```
vignette('edfReaderVignette', package = "edfReader")  
or click on Index below.
```

**Examples**

```
# Examples from the vignette  
libDir <- system.file("extdata", package="edfReader")  
# a continuous recording  
CFile <- paste(libDir, 'edfPlusC.edf', sep='')  
CHdr <- readEdfHeader(CFile)  
CHdr                    # print the header  
summary(CHdr)            # print a header summary
```

```

str (CHdr)          # look to the details
CHdr$headers       # print the signal headers
summary(CHdr$headers) # print a signal headers summary
str(CHdr$headers)  # look to the signal header details
# for a discontinuous recording
DFile <- paste (libDir, '/bdfPlusD.bdf', sep='')
# and proceed as above to read the header and to show the results

```

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readEdfSignals                      *Reads signals from an EDF(+)/BDF(+) file*

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### Description

The function reads ordinary or annotation signals from an EDF(+)/BDF(+) file.

### Usage

```

readEdfSignals(hdr, signals = "All", from = 0, till = Inf,
  physical = TRUE, fragments = FALSE, recordStarts = FALSE,
  mergeASignals = TRUE, simplify = TRUE)

```

### Arguments

hdr	An ebdHeader object read with the readEdfHeader() function.
signals	a vector with one or more of the following signal designations: 'All' (default), to include all signals; 'Ordinary', to include all ordinary signals; 'Annotations', to include all annotation signals; signal labels and/or signal names signal numbers (numeric or as character).
from	numeric, the time in seconds from which the signals shall be read.
till	numeric, the time in seconds till which the signals shall be read. The value may exceed the total duration of the recording.
physical	logical, if TRUE (the default) digital samples values are mapped to their physical values, If not, the digital values are returned.
fragments	logical, if TRUE discontinuously recorded signals are stored as a list of continuous fragments. If FALSE (the default), a signal is stored as one numeric vector with NA values filling the gaps.
recordStarts	logical, if TRUE the empty annotations with the data record start time will be included in the list of annotations. If FALSE (the default), they will be omitted.
mergeASignals	logical, if TRUE all annotations will be merged into one data frame. If FALSE there will be one data frame per annotation signal.
simplify	logical, if TRUE and if there is only one signal read, the signal itself is returned (instead of a list with that signal as the only one object). If FALSE, this simplification is not performed.

## Details

The list of signals returned is of class `ebdfSignals` and a single signal object is of one of the following classes:

- `ebdfASignal`, for an annotation signal
- `ebdfFSignal`, for a fragmented ordinary signal
- `ebdfCSignal`, for a continuous ordinary signal (possible supplemented with NA values)

All classes have supporting print and summary functions. For object details see the package vignette.

## Value

Either a list of one or more signals or a single signal.

## Note

For ordinary signals the `from` and `till` parameters are interpreted as [from, till). For details see the package vignette.

## Acknowledgement

This package has used code from:

- edf.R version 0.3 (27-11-2013), <http://feschet.fr/?p=11>
- the work of Henelius Andreas as of July 2015, <https://github.com/bwrc/edf>

## See Also

[edfReader](#), [readEdfHeader](#)

For the vignette use the console command:

```
vignette('edfReaderVignette', package = "edfReader")
```

or click on Index below.

## Examples

```
# Examples from the vignette
libDir <- system.file("extdata", package="edfReader")
# a continuous recording
CFile <- paste(libDir, '/edfPlusC.edf', sep='')
CHdr <- readEdfHeader(CFile)
CSignals <- readEdfSignals(CHdr) # to read all signals
# read 3 differently designated signals from 5.1 till 18 seconds period
someCSignalsPeriod <- readEdfSignals(CHdr, signals=c(3, "5", "sine 8.5 Hz"), from=5.1, till=18)
someCSignalsPeriod # print the signals
summary(someCSignalsPeriod) # print singals summary
someCSignalsPeriod`sine 8.5 Hz` # print the `sine 8.5 Hz` signal
summary(someCSignalsPeriod`sine 8.5 Hz`) # print a `sine 8.5 Hz` signal summary
str(CSignals`sine 8.5 Hz`) # look to the details
# a discontinuous recording
```

```
DFile <- paste (libDir, '/edfPlusD.edf', sep='')
DHdr  <- readEdfHeader (DFile)
DSignals <- readEdfSignals (DHdr, fragments=TRUE) # to read all signals
DSignals`sine 8.5 Hz` # print fragmented signal
summary (DSignals`sine 8.5 Hz`) # print fragmented signal summary
str(DSignals`sine 8.5 Hz`) # look to the details
```

# Index

`bdfReader` (`edfReader`), 2

`edfReader`, 2, 3, 5

`edfReader-package` (`edfReader`), 2

`readBdfHeader` (`readEdfHeader`), 3

`readBdfSignals` (`readEdfSignals`), 4

`readEdfHeader`, 2, 3, 5

`readEdfSignals`, 2, 3, 4