# Package: adfExplorer2 (via r-universe)

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Title Access and Manipulate Amiga Disk Files

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**Description** Amiga Disk Files (ADF) are virtual representations of 3.5 inch floppy disks for the Commodore Amiga. Most disk drives from other systems (including modern drives) are not able to read these disks. The adfExplorer2 package enables you to establish R connections to files on such virtual DOS-formatted disks, which can be use to read from and write to those files.

**License** GPL (>= 3)

**Encoding UTF-8** 

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adf\_directory

Changing and creating directories on a virtual device

# **Description**

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adf\_directory() shows the current directory of a virtual device, when a file system is present. When connecting to or creating a new device, the current directory is the disk's root by default. To change the current directory, use adf\_directory() in combination with the assign operator (<-).

```
adf_directory(dev, ...)
## S3 method for class 'adf_device'
adf_directory(dev, ...)
adf_directory(dev, ...) <- value

## S3 replacement method for class 'adf_device'
adf_directory(dev, ...) <- value

## S3 replacement method for class 'adf_device.character'
adf_directory(dev, ...) <- value

## S3 replacement method for class 'adf_device.virtual_path'
adf_directory(dev, ...) <- value

## S3 replacement method for class 'adf_device.virtual_path'
adf_directory(dev, ...) <- value</pre>
```

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```
## S3 method for class 'adf_device'
make_adf_dir(x, virtual_path, ...)

## S3 method for class 'virtual_path'
make_adf_dir(x, virtual_path, ...)

## S3 method for class 'character'
make_adf_dir.adf_device(x, virtual_path, ...)

## S3 method for class 'virtual_path'
make_adf_dir.adf_device(x, virtual_path, ...)
```

## Arguments

dev	The virtual adf device for which information needs to be obtained. It should be of class adf_device which can be created with create_adf_device() or connect_adf().
	Ignored
value	A character string or a virtual_path (see $virtual_path()$ ) representing directory you wish to set as current.
х	An adf_device or virtual_path class object. The first specifies the device on which a directory needs to be created. The latter specifies both the directory and the device on which it needs to be created.
virtual_path	A character string or a virtual_path (see virtual_path()) specifying the name of the new directory to be created. Should be missing when x is of class virtual_path

## **Details**

To create a new directory on a device use make\_adf\_dir() and use a full or relative path name to specify the new directory name.

See vignette("virtual\_paths") for a note on file and directory names on the Amiga.

# Value

make\_adf\_dir() returns the device connection. adf\_directory() returns the current directory as a virtual\_path class object.

## Author(s)

Pepijn de Vries

```
## First setup a connection to a virtual device
adz_file <- system.file("example.adz", package = "adfExplorer2")
my_device <- connect_adf(adz_file)</pre>
```

adf\_entry\_info

```
## Show the current directory
adf_directory(my_device)

## Create a new directory
make_adf_dir(my_device, "DF0:s/newdir")

## Change the current dir to the new directory:
adf_directory(my_device) <- "DF0:s/newdir"

## Close the virtual device
close(my_device)</pre>
```

adf\_entry\_info

Retrieve information from entry headers on virtual ADF devices

## **Description**

Retrieve information from entry (file and directory) headers on virtual ADF devices. Get information like entry name, modification date, file size etc.

## Usage

```
adf_entry_info(x, virtual_path, ...)
## S3 method for class 'adf_device'
adf_entry_info(x, virtual_path, ...)
## S3 method for class 'virtual_path'
adf_entry_info.adf_device(x, virtual_path, ...)
## S3 method for class 'character'
adf_entry_info.adf_device(x, virtual_path, ...)
## S3 method for class 'virtual_path'
adf_entry_info(x, virtual_path, ...)
## S3 method for class 'adf_file_con'
adf_entry_info(x, virtual_path, ...)
```

# **Arguments**

x Either a virtual device or virtual path.
 virtual\_path A virtual\_path() to be checked for existence. Should be omitted when x is already a virtual path.
 ... Ignored

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## Value

Returns a named list of entry properties. Elements included in the list depend on the type of entry (root, directory or file).

#### Author(s)

Pepijn de Vries

## **Examples**

```
## First setup a connection to a virtual device
adz_file <- system.file("example.adz", package = "adfExplorer2")
my_device <- connect_adf(adz_file)

adf_entry_info(my_device, "DF0:")
adf_entry_info(my_device, "s")
adf_entry_info(my_device, "s/startup-sequence")

close(my_device)</pre>
```

adf\_file\_con

Open a connection to a file on a virtual ADF device

# Description

Open a connection to a file on a virtual ADF device. The created connection (if valid) should be accepted by any R function that reads from or writes to a connection, such as readLines(), writeLines(), readBin(), writeBin(), etc.

## Usage

```
adf_file_con(x, ..., writable = FALSE)

## S3 method for class 'adf_device'
adf_file_con(x, virtual_path, ..., writable = FALSE)

## S3 method for class 'character'
adf_file_con.adf_device(x, virtual_path, ..., writable = FALSE)

## S3 method for class 'virtual_path'
adf_file_con(x, ..., writable = FALSE)
```

## Arguments

```
x Either a connection to a virtual ADF device created with connect_adf(), or a virtual_path created with virtual_path().
```

... Ignored.

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writable A logical value. When TRUE the connection can be used to write to the file on

the virtual device. When FALSE it can only be used to read. Note that a writeable connection can only be setup on a virtual device that is not write protected.

virtual\_path Only required when x is a virtual device of class adf\_device. In that case

virtual\_path should be a character string representing the path to the file on

the virtual device. See also vignette("virtual\_paths").

#### Value

Returns an R connection that can be handled by any function that accepts a connection for reading or writing. Remember to call close() after use.

## Author(s)

Pepijn de Vries

#### **Examples**

```
## First setup a connection to a virtual device
adz_file <- system.file("example.adz", package = "adfExplorer2")
my_device <- connect_adf(adz_file)

## Open a connection to a file on the virtual device
fcon <- adf_file_con(my_device, "DF0:s/startup-sequence")

## Read from the file
my_startup <- readLines(fcon, warn = FALSE)

## Close the file
close(fcon)

## Close the virtual device
close(my_device)</pre>
```

adf\_file\_exists

Test if an entry exists on a virtual device

## **Description**

Test if an entry (file or directory) exists on a virtual ADF device. adf\_file\_exists() is the equivalent of file.exists() on a virtual ADF device. adf\_dir\_exists() is the equivalent of dir.exists() on a virtual ADF device.

```
adf_file_exists(x, virtual_path, ...)
## S3 method for class 'adf_device'
```

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```
adf_file_exists(x, virtual_path, ...)
## S3 method for class 'virtual_path'
adf_file_exists(x, virtual_path, ...)
adf_dir_exists(x, virtual_path, ...)
## S3 method for class 'adf_device'
adf_dir_exists(x, virtual_path, ...)
## S3 method for class 'virtual_path'
adf_dir_exists(x, virtual_path, ...)
```

## **Arguments**

x Either a virtual device or virtual path.
 virtual\_path A virtual\_path() to be checked for existence. Should be omitted when x is already a virtual path.
 ... Ignored

#### Value

adf\_file\_exists() returns TRUE if the path exists on the virtual device, FALSE otherwise. adf\_dir\_exists() returns TRUE when the path exists and is a directory, FALSE otherwise.

## Author(s)

Pepijn de Vries

# **Examples**

```
## First setup a connection to a virtual device
adz_file <- system.file("example.adz", package = "adfExplorer2")
my_device <- connect_adf(adz_file)
adf_file_exists(my_device, "s/startup-sequence")
adf_dir_exists(my_device, "s/startup-sequence")
close(my_device)</pre>
```

compress\_adf

Compress ADF to ADZ files and vice versa

## **Description**

The ADZ format is essentially a compressed (gzip) version of the Amiga Disk File (ADF) format. The adfExplorer2 allows you to connect to both formats. However, you can only open a 'read-only' connection to ADZ files. Use the compression and decompression functions documented here to move back and forth from and to ADF and ADZ formats.

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#### Usage

```
compress_adf(source, destination)
decompress_adz(source, destination)
```

# **Arguments**

source Path to the source file to read.

destination Path to the destination file to write.

#### Value

Returns NULL invisibly.

## Author(s)

Pepijn de Vries

## **Examples**

```
adz_file <- system.file("example.adz", package = "adfExplorer2")
adf_file <- tempfile(fileext = ".adf")
adz_file2 <- tempfile(fileext = ".adz")

decompress_adz(adz_file, adf_file)
compress_adf(adf_file, adz_file2)</pre>
```

connect\_adf

Create a connection to a virtual disk

## **Description**

Establish a connection to a virtual disk stored as Amiga Disk Files (ADF). You cannot write or read directly from this connection. Instead, use the methods provided in this package to retrieve information about the virtual disk or create connections to the files on the disk, to which you *can* write and read from (see adf\_file\_con()). Like any other connection, please use close() to close the connection after use.

## Usage

```
connect_adf(filename, write_protected = TRUE)
```

# **Arguments**

filename Filename of the ADF or ADZ file containing the virtual disk write\_protected

A logical value indicating whether the virtual disk needs to be write protected. If TRUE, you can only open 'read only' connections and cannot write to the disk.

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#### Value

Returns an R connection of class adf\_device.

#### Author(s)

Pepijn de Vries

## **Examples**

```
adz_file <- system.file("example.adz", package = "adfExplorer2")
my_device <- connect_adf(adz_file)

device_capacity(my_device)
close(my_device)</pre>
```

copy\_adf\_entry

Copy or move files between physical and virtual devices

# **Description**

With these functions you can copy or move entries (files and directories) between a physical and virtual ADF device. With copy\_adf\_entry() the files are duplicated, with move\_adf\_entry() the files are moved (and deleted from its source).

```
copy_adf_entry(source, destination, ...)

## S3 method for class 'character'
copy_adf_entry(source, destination, ...)

## S3 method for class 'virtual_path'
copy_adf_entry(source, destination, ...)

## S3 method for class 'virtual_path'
copy_adf_entry.character(source, destination, ...)

## S3 method for class 'virtual_path'
copy_adf_entry.virtual_path(source, destination, ...)

## S3 method for class 'character'
copy_adf_entry.virtual_path(source, destination, ...)

## S3 method for class 'character'
copy_adf_entry(source, destination, ...)

## S3 method for class 'character'
move_adf_entry(source, destination, ...)
```

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```
## S3 method for class 'virtual_path'
move_adf_entry(source, destination, ...)

## S3 method for class 'virtual_path'
move_adf_entry.character(source, destination, ...)

## S3 method for class 'virtual_path'
move_adf_entry.virtual_path(source, destination, ...)

## S3 method for class 'character'
move_adf_entry.virtual_path(source, destination, ...)
```

#### **Arguments**

source, destination

The source is a path to a file or directory that needs to be moved or copied. destination is a path to a directory to which the source needs to be copied or moved. When source or destination is a character string, it is assumed to be a path to a file or directory on a physical device. You can use a virtual\_path() for either the source or destination or both. source and destination cannot both be a character string. For copying and moving files on a physical device you should you base function file.copy().

... Ignored

#### Author(s)

Pepijn de Vries

```
## Create an Amiga Disk File
## and prepare a file system on the virtual device
my_device <-
 create_adf_device(
    tempfile(fileext = ".adf"),
   write_protected = FALSE) |>
 prepare_adf_device()
## Copy the packaged R scripts of this package to the virtual device
copy_adf_entry(
 system.file("R", package = "adfExplorer2"),
 virtual_path(my_device, "DF0:")
)
## List all entries on the virtual device
list_adf_entries(my_device, recursive = TRUE)
## Move the entire virtual device content to
## the tempdir on your physical device
move_adf_entry(
```

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```
virtual_path(my_device, "DF0:"),
  tempdir()
)
close(my_device)
```

create\_adf\_device

Create and format a virtual ADF device

## **Description**

These functions help you to create an empty virtual device that can be used in Commodore Amiga emulation. create\_adf\_device() simply creates a file of the proper size (the file size represents the device capacity) and fills it with raw zeros. In order to use the device in the Amiga operating system, a file system needs to be installed on the device. This can be achieved with prepare\_adf\_device(). Note that the file system itself will also consume disk space on the virtual device.

# Usage

```
create_adf_device(destination, type = "DD", ..., connect = TRUE)
prepare_adf_device(
  dev,
  name = "EMPTY",
  ffs = TRUE,
  international = TRUE,
  dircache = FALSE,
  bootable = TRUE,
)
## S3 method for class 'adf_device'
prepare_adf_device(
  dev,
  name = "EMPTY",
  ffs = TRUE,
  international = TRUE,
  dircache = FALSE,
  bootable = TRUE,
)
```

## **Arguments**

destination

File path where the virtual device needs to be stored.

type

Specify the type of virtual device you wish to create. Should be one of "DD" (double density floppy disk) or "HD" (high density floppy disk).

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... Ignored for prepare\_adf\_device().

connect A logical value. If set to TRUE a connection is opened to the newly created

virtual device and is returned as a adf\_device class object. If it is set to FALSE, the file is just created and no connection is opened. In the latter case NULL is

returned invisibly.

dev The virtual adf device for which information needs to be obtained. It should

be of class adf\_device which can be created with create\_adf\_device() or

connect\_adf().

name A character string specifying the disk name for the volume on the virtual de-

vice. It will be truncated automatically when too long.

ffs A logical value indicating which file system to be used. If TRUE the 'Fast File

System' (FFS) is used, when FALSE, the 'Old File System' is used. See also

vignette("file\_system\_modes").

international A logical value indicating whether the international mode should be used for

file naming. See also vignette("file\_system\_modes").

dircache A logical value indicating whether directory caching should be used. See also

vignette("file\_system\_modes").

bootable A logical value indicating whether you want to include executable code on the

boot block. If set to TRUE minimal code will be added to the boot block. In an Amiga emulator, this code will load the Amiga Disk Operating System library and start the Amiga Command line interface (CLI). It will then run the startup

sequence file from the disk (if available).

If set to FALSE no such code is added. In that case the file system will still be accessible by the Amiga operating system (if the file system mode is compatible).

You just can't use the disk to start up a (virtual) Amiga machine.

## Value

Either an adf\_device connection or NULL depending on the value of connect.

#### Author(s)

Pepijn de Vries

```
## Filepath to store the virtual device:
dest <- tempfile(fileext = ".adf")

## Create a blank unformated virtual device (a double density floppy disk):
my_device <- create_adf_device(dest, "DD", connect = TRUE, write_protected = FALSE)

print(my_device)

## Format the floppy and create a file system on the device:
prepare_adf_device(my_device, name = "foobar")

print(my_device)</pre>
```

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```
## don't forget to close the device connection after use:
close(my_device)
```

device\_type

Obtain information about an adf\_device connection

## **Description**

A collection of functions to retrieve information about the virtual device, or any volume (file system) available on the device. See examples for usage and results.

```
device_type(dev, ...)
## S3 method for class 'adf_device'
device_type(dev, ...)
device_capacity(dev, ...)
## S3 method for class 'adf_device'
device_capacity(dev, ...)
volume_capacity(dev, ...)
## S3 method for class 'adf_device'
volume_capacity(dev, vol = 0L, ...)
volume_name(dev, ...)
## S3 method for class 'adf_device'
volume_name(dev, vol = 0L, ...)
n_volumes(dev, ...)
## S3 method for class 'adf_device'
n_volumes(dev, ...)
bytes_free(dev, ...)
## S3 method for class 'adf_device'
bytes_free(dev, vol = 0L, ...)
is_bootable(dev, ...)
## S3 method for class 'adf_device'
```

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```
is_bootable(dev, vol = 0L, ...)
is_fast_file_system(dev, ...)
## S3 method for class 'adf_device'
is_fast_file_system(dev, vol = 0L, ...)
is_international(dev, ...)
## S3 method for class 'adf_device'
is_international(dev, vol = 0L, ...)
is_dircache(dev, ...)
## S3 method for class 'adf_device'
is_dircache(dev, vol = 0L, ...)
is_write_protected(dev, ...)
## S3 method for class 'adf_device'
is_write_protected(dev, ...)
```

## **Arguments**

dev The virtual adf device for which information needs to be obtained. It should

be of class adf\_device which can be created with create\_adf\_device() or

connect\_adf().

... Ignored

vol Volume index number on the device starting at 0. Default is 0. Note that floppy

disks can only have 1 volume installed.

#### Author(s)

Pepijn de Vries

```
adz_file <- system.file("example.adz", package = "adfExplorer2")
my_device <- connect_adf(adz_file)

device_type(my_device)

device_capacity(my_device) # in bytes

volume_capacity(my_device) # in bytes

n_volumes(my_device) # number of volumes available on device

volume_name(my_device) # name of the volume</pre>
```

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```
bytes_free(my_device) # bytes available for writing
is_bootable(my_device) # tests if device is potentially bootable
is_fast_file_system(my_device) # tests if volume uses FFS
is_international(my_device) # tests if file system uses intl mode
is_dircache(my_device) # tests if file system uses dir caching
is_write_protected(my_device) # tests if device is protected against writing
close(my_device)
```

format.adf\_device

Basic methods for S3 class objects

## Description

Format and print methods for all S3 class objects created with adfExplorer2

```
## S3 method for class 'adf_device'
format(x, ...)
## S3 method for class 'adf_file_con'
format(x, ...)
## S3 method for class 'adf_block'
format(x, ...)
## S3 method for class 'virtual_path'
format(x, width = 20L, ...)
## S3 method for class 'adf_device'
print(x, ...)
## S3 method for class 'adf_file_con'
print(x, ...)
## S3 method for class 'adf_block'
print(x, ...)
## S3 method for class 'virtual_path'
print(x, ...)
## S3 method for class 'virtual_path'
as.character(x, ...)
```

list\_adf\_entries

## **Arguments**

X	Object to be formatted or printed
	Ignored or passed on to next methods
width	Set the text width for formatting virtual paths

list\_adf\_entries

List entries in a directory of a virtual ADF device

# Description

Get an overview of all entries (files and directories) in a specific directory.

## Usage

```
list_adf_entries(x, virtual_path, recursive = FALSE, ...)

## S3 method for class 'adf_device'
list_adf_entries(x, virtual_path, recursive = FALSE, ...)

## S3 method for class 'virtual_path'
list_adf_entries(x, virtual_path, recursive = FALSE, ...)

## S3 method for class 'character'
list_adf_entries.adf_device(x, virtual_path, recursive = FALSE, ...)

## S3 method for class 'virtual_path'
list_adf_entries.adf_device(x, virtual_path, recursive = FALSE, ...)
```

## Arguments

X	Either an adf_device class object, in which case the virtual_path argument needs to be specified; or, a virtual_path class object.
virtual_path	The virtual path for which you wish to obtain a list of entries (see also vignette("virtual_paths")). When missing, entries for the current directory (adf_directory()) are returned, wen x is an adf_device class object. If x is a virtual_path class object, content of the path defined in that object is listed

recursive A logical value. When set to TRUE, the function is called recursively for all

subdirectories in virtual\_path.

... Ignored

#### Value

A vector of virtual\_path class objects

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## Author(s)

Pepijn de Vries

## **Examples**

```
## First setup a connection to a virtual device
adz_file <- system.file("example.adz", package = "adfExplorer2")
my_device <- connect_adf(adz_file)

## List all entries in the disk's root:
list_adf_entries(my_device)
## List all entries on the disk:
list_adf_entries(my_device, recursive = TRUE)

close(my_device)</pre>
```

read\_adf\_block

Read or write raw data blocks to a virtual device

# **Description**

The Amiga file system is structured around 512 byte blocks. A double density floppy disk consists of 1760 blocks of 512 bytes. read\_adf\_block and write\_adf\_block can be used to transform raw data from and to virtual devices (created with create\_adf\_device() or connect\_adf()). Note that writing raw data to a disk could corrupt the file system on the device. So it is generally not advised unless you know what you are doing.

```
read_adf_block(dev, sector, ...)
## S3 method for class 'adf_device'
read_adf_block(dev, sector, ...)

write_adf_block(dev, sector, data, ...)
## S3 method for class 'adf_device'
write_adf_block(dev, sector, data, ...)
## S3 method for class 'raw'
write_adf_block.adf_device(dev, sector, data, ...)
## S3 method for class 'adf_block'
write_adf_block.adf_device(dev, sector, data, ...)
## Default S3 method:
write_adf_block.adf_device(dev, sector, data, ...)
```

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```
as_adf_block(data, ...)
new_adf_block()
```

## **Arguments**

dev The virtual adf device for which information needs to be obtained. It should be of class adf\_device which can be created with create\_adf\_device() or connect\_adf(). Sector ID of the block you wish to read/write. It is an integer value. For double sector density disks, the ID ranges from 0 to 1759. Ignored

data Block data (raw vector of length 512) you wish to write to a virtual device

#### Value

In case of write\_adf\_block NULL is returned invisibly. In case of read\_adf\_block the raw data is returned as a adf\_block class object.

#### Author(s)

Pepijn de Vries

remove\_adf\_entry

Remove entry (file / directory) from a virtual ADF device

## **Description**

This function removes an entry (file or directory) from a virtual ADF device. At the moment this function only removes a single entry per call, and in case the entry is a directory, the directory needs to be empty before it can be removed.

```
remove_adf_entry(x, virtual_path, flush = FALSE, ...)
## S3 method for class 'adf_device'
remove_adf_entry(x, virtual_path, flush = FALSE, ...)
## S3 method for class 'virtual_path'
remove_adf_entry(x, virtual_path, flush = FALSE, ...)
## S3 method for class 'character'
remove_adf_entry.adf_device(x, virtual_path, flush = FALSE, ...)
## S3 method for class 'virtual_path'
remove_adf_entry.adf_device(x, virtual_path, flush = FALSE, ...)
```

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#### **Arguments**

x The virtual ADF device from which an entry needs to be deleted or a virtual

path pointing at the entry to be deleted. In case of a virtual device, it should be of class adf\_device which can be created with create\_adf\_device() or

connect\_adf(). In case of a virtual path use virtual\_path().

virtual\_path A character string or a virtual\_path (see virtual\_path()) representing a file

or directory you wish to delete. Should be omitted when  $\boldsymbol{x}$  is alreade a virtual

path.

flush A logical value. When set to FALSE (default), only the entry's registry in its

parent directory is removed and its flags in the bitmap block are set to 'available'. The entry's header data and if the entry is a file, the file data will still linger on the virtual disk. If you don't want that, set this argument to TRUE, in that case all file or directory data will be purged. Note that in the latter case, it won't be

possible to recover your deleted file or directory.

... Ignored

#### Value

Returns the device connection

#### Author(s)

Pepijn de Vries

```
## We first need a writable connection to an ADF device.
## For this purpose we decompress the ADZ file that comes
## with this package and open a connection

adz_file <- system.file("example.adz", package = "adfExplorer2")
adf_file <- tempfile(fileext = ".adf")
decompress_adz(adz_file, adf_file)
my_device <- connect_adf(adf_file, write_protected = FALSE)

## List files in directory 'Devs':
list_adf_entries(my_device, "Devs")

## remove the file 'system-configuration' from the virtual device remove_adf_entry(my_device, "devs/system-configuration")

## List files in directory 'Devs' again:
list_adf_entries(my_device, "Devs")

## close the connection to the virtual device close(my_device)</pre>
```

20 virtual\_path

virtual\_path

A path pointing to a file or directory on a virtual ADF device

## Description

This function creates a path pointing to a file or directory on a virtual ADF device (created with connect\_adf() or create\_adf\_device()). The virtual path created with this function can be used to establish a readable or writable connection to a file, or obtain information about a file or directory. See also vignette("virtual\_paths")

## Usage

```
virtual_path(dev, virtual_path)
```

## **Arguments**

dev A virtual ADF device (created with connect\_adf() or create\_adf\_device()).

Make sure a file system is present on the virtual device or install first when miss-

ing using prepare\_adf\_device().

virtual\_path A character string representing the path to a file or directory on the virtual

device.

## Value

Returns a virtual\_path class object.

## Author(s)

Pepijn de Vries

```
adz_file <- system.file("example.adz", package = "adfExplorer2")
# Open a connection to a virtual device:
my_device <- connect_adf(adz_file)
# specify a virtual path:
my_path <- virtual_path(my_device, "DF0:s/startup-sequence")
# close the virtual device:
close(my_device)</pre>
```

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