Package: dsn (via r-universe)

August 24, 2024

Title Data Source Name and Description Helpers for Use With 'GDAL'

Version 0.0.1.9011

Description Simple helpers for 'GDAL' data source names ('DSN'), prefix and suffix and other handling. 'GDAL' is the Geospatial Data Abstraction Library, not used by this package directly.

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Encoding UTF-8

Roxygen list(markdown = TRUE)

Suggests testthat (>= 3.0.0)

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URL https://github.com/hypertidy/dsn, https://hypertidy.github.io/dsn/

BugReports https://github.com/hypertidy/dsn/issues

RoxygenNote 7.2.3

Repository https://hypertidy.r-universe.dev

RemoteUrl https://github.com/hypertidy/dsn

RemoteRef HEAD

RemoteSha 15743da3a6c892f6654a3deab707425f86cabe98

Contents

datatype *Return the type name of the GDAL data type.*

Description

Return the type name of the GDAL data type.

Usage

```
gdal_datatypes()

datatype(x)
```

Arguments

x	integer as returned by GDAL, or osgeo.gdal.Open().GetDatatype()

Value

character string of the type name (the name of the constant in GDAL, e.g. GDT_Byte)

Examples

```
datatype(1)
names(gdal_datatypes())
```

gcp_extent *Create a set of GCPs (ground control points) from dimension, extent*

Description

Create a set of GCPs (ground control points) from dimension, extent

Usage

```
gcp_extent(dimension, extent = NULL)

gcp_extent_arg(gcp)
```

Arguments

dimension	size of grid 'ncol,nrow'
extent	extent 'xmin,xmax,ymin,ymax'
gcp	ground control point ('col,row,x,y')

Value

gcp_extent returns the col,row,x,y values, gcp_extent_arg returns formatted as a GDAL 'vrt://' connection string

Examples

```
gcp_extent(c(10, 20))
dsn <- sprintf("vrt://%s?%s", mem(volcano), gcp_extent_arg(gcp_extent(dim(volcano))))
gcp <- gcp_extent(dim(volcano), c(-180, 180, -90, 90))
gcp_extent_arg(gcp)
```

---

mem *Generate a data source name (DSN) for the GDAL MEM driver*

Description

An array in memory can be referenced by a GDAL data source.

Usage

```
mem(
  x,
  extent = NULL,
  projection = "",
  PIXELOFFSET = 0L,
  LINEOFFSET = 0L,
  BANDOFFSET = 1L
)
```

Arguments

x	an R array, must be of numeric type (integer is converted to double)
extent	optional extent of the data in x,y c(xmin, xmax, ymin, ymax)
projection	projection string (optional, sets the SPATIALREFERENCE of the MEM driver since GDAL 3.7)

Details

This DSN will only work in R, and is only for use with GDAL read and query tools (so terra, sf, gdalcubes, vapour, etc.).

Value

character string, a DSN for use by GDAL

Examples

```
m <- matrix(as.integer(c(0L, 0, 0, 1)), 5L, 4L)
mem(m)
mem(volcano)
```

---

prefix *Prefix handlers for GDAL data source names*

Description

Add required prefixes, or remove them.

Usage

```
vsicurl(x, sign = FALSE)

driver(x, driver = "")

netcdf(x)

unprefix(x)

unvsicurl(x)
```

Arguments

x	character vector, of data source names (file paths, urls, database connection strings, or GDAL dsn)
sign	configure for automatic Planetary Computer signing by GDAL
driver	character vector of appropriate GDAL driver name

Value

character vector

Examples

```
vsicurl("https://netcdf-r-us.org/f.nc")

driver("somefile.h5", "HDF5")

unvsicurl("/vsicurl/https://netcdf-r-us.org/f.nc")

unprefix("NETCDF:/u/user/somefile.nc")

## MPC signing
mpc <- "https://sentinel2l2a01.blob.core.windows.net/sentinel2-l2/.../T43DFE_B04_10m.tif"
vsicurl(mpc , sign = TRUE)
```

sds *Wrapping handlers for GDAL data source names*

Description

Subdataset and VRT connection strings.

Usage

```
sds(x, varname, driver, quote = TRUE)
```

Arguments

x	character vector, of data source names (file paths, urls, database connection strings, or GDAL dsn)
varname	named of variable in DSN
driver	driver to use, e.g. "NETCDF", "HDF5"
quote	wrap the core dsn in escaped double quotes, or not

Value

character string of the form "DRIVER:%s:varname"

Examples

```
f <- "myfile.nc"
sds(f, "variable", "NETCDF", quote = FALSE)
```

vrtcon *VRT connection*

Description

Create a vrt connection from an input string and named arguments.

Usage

```
vrtcon(x, ...)
```

Arguments

x	character vector, of data source names (file paths, urls, database connection strings, or GDAL dsn)
...	named arguments like 'a_srs="OGC:CRS84"

Details

As of writing (GDAL 3.7.0DEV 2022-12-12) the only available named arguments are 'a_srs', 'bands', 'a_ullr' but that doesn't stop this function.

Value

character string in the form "vrt://%s?arg1&arg2"

Examples

```
vrtcon("myfile.nc", a_ullr = "0,90,360,-90", bands="1,2,1")
```

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