Package: RRASSLER (via r-universe)

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Type Package

Title R based HEC-RAS model accounting wrestler

Version 0.1.1

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Description A package for making HEC-RAS data more FAIR by cataloging models, cross sections, and points for accounting, interoperability, and reuse in RAS and other applications. These tools are experimental, preliminary or provisional and are subject to revision. They are being provided to meet the need for timely better science and emergency response.

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URL https://github.com/NOAA-OWP/RRASSLER

BugReports https://github.com/NOAA-OWP/RRASSLER/issues/new

Depends R (>= 3.5), magrittr, foreach, data.table

Imports AOI, arrow, aws.s3, dm, formattable, labelled, doParallel, dplyr, glue, httr, lubridate, lwgeom, nhdplusTools, parallel, rhdf5, sf, sfheaders, stringi, stringr, tidyr, unglue, utils

Suggests knitr, cowplot, DiagrammeR, ggplot2, leafem, leaflet, leafpop, mapview

Remotes grimbough/rhdf5, mikejohnson51/AOI,

Encoding UTF-8

RoxygenNote 7.3.2

LazyData true

VignetteBuilder knitr

Config/pak/sysreqs cmake libgdal-dev gdal-bin libgeos-dev libglpk-dev make libicu-dev libpng-dev libxml2-dev libssl-dev libproj-dev libsqlite3-dev libudunits2-dev libx11-dev zlib1g-dev

Repository https://owp-spatial.r-universe.dev

RemoteUrl https://github.com/NOAA-OWP/RRASSLER

RemoteRef HEAD

RemoteSha d23c9bf2772bdefbb8e9daeed2ab40845c0205e1

Contents

`append_catalog_fields` *append_catalog_fields*

Description

adds helper fields to accounting.csv.

Usage

```
append_catalog_fields(
  path_to_ras_dbase = NULL,
  out_name = NULL,
  overwrite = FALSE,
  is_verbose = TRUE,
  HUC8_override = NULL
)
```

Arguments

path_to_ras_dbase	the path to the folder in which you are building your catalog, Default: NULL
out_name	the name of the csv you want to generate, Default: NULL
overwrite	flag to dictate whether or not to overwrite the out_name, should it exist. set to TRUE to delete and (re)generate, FALSE to safely exit, Default: FALSE
is_verbose	flag to determine whether print statements are suppressed, TRUE to show messages and FALSE to surpress them, Default: TRUE
HUC8_override	a path to the spatial key if you need to run this over a temp dir for eg ras2fim, Default: NULL

Details

TRUE

Value

a new csv with helper columns

See Also

glue mutate s2, st_transform, st_read, st_crs fwrite

Other post-process: refresh_master_files()

Examples

```
## Not run:
if(interactive()){
 #EXAMPLE
 RRASSLER::append_catalog_fields(path_to_ras_dbase = "G:/data/ras_catalog",out_name = "OWP_ras_model_catalog.csv
 }

## End(Not run)
```

---

cloud_ingest_record *cloud_ingest_record*

Description

Depreciated - add a file as a record in the RRASSLED structure - Depreciated

Usage

```
cloud_ingest_record(
  in_file = NULL,
  ras_dbase = NULL,
  root_bucket = NULL,
  code_to_place_in_source = NULL,
  proj_override = NULL,
  apply_vdat_trans = FALSE,
  is_quiet = FALSE,
  is_verbose = FALSE,
  overwrite = FALSE
)
```

Arguments

in_file	the path to the file on disk that we want to ingest, Default: NULL
ras_dbase	A path to an S3 bucket to write your RRASSLED catalog to., Default: NULL
root_bucket	first path in s3 url, will auto-populate as needed, Default: NULL
code_to_place_in_source	a code to place in the metadata as the owner of the model, Default: NULL
proj_override	a string to override projection information should none be found, Default: NULL
apply_vdat_trans	Should VDATUM be applied to the HEC-RAS model geometry. See https://vdatum.noaa.gov/, Default: FALSE
is_quiet	flag to determine whether print statements are suppressed, TRUE to suppress messages and FALSE to show them, Default: FALSE
is_verbose	flag to determine whether internal print statements (i.e. cross section parsing, vdat trans, file info) are suppressed, TRUE to show these messages and FALSE to suppress them, Default: FALSE
overwrite	overwrite files if we find identical models, Default: FALSE

Details

the cloud version of the ingest process, depreciated in favor of local pre-RRASSL

Value

a set of files in a newly RRASSLE'd record.

See Also

str_sub, str_detect get_bucket, delete_object, put_object glue glob2rx st_crs, st_coordinates, geos_unary, st_write select, pull data.table-package, fwrite sf_linestring, sf_polygon st_startpoint get_nhdplus aoi_get write_parquet

Other ingest: disk_ingest_record(), ingest_FEMA6_BLE(), ingest_into_database()

Examples

```
## Not run:
if(interactive()){
 #EXAMPLE1
 }

## End(Not run)
```

`crosswalk_hull_to_hydrofabric_value`
crosswalk_hull_to_hydrofabric_value

Description

crosswalk_hull_to_hydrofabric_value

Usage

```
crosswalk_hull_to_hydrofabric_value(hull, river)
```

Arguments

`hull`	the model cross section hulls
`river`	the river streamlines

Details

Used to tie into hydrofabric models

Value

The representative COMID from nhdplusTools

See Also

`get_nhdplus` `aoi_get` `st_transform`, `st_crs`

Examples

```
## Not run:
if(interactive()){
 #EXAMPLE1
 extrated_pts <- parse_model_to_xyz(geom_path = "./inst/extdata/sample_ras/FEMA-R6-BLE-sample-dataset/12090301/1

 ls = sfheaders::sf_linestring(
   obj = extrated_pts[[1]],
   x = "x",
   y = "y",
```

```
  linestring_id = "xid",
  keep = FALSE) |> sf::st_set_crs(sf::st_crs("EPSG:6349"))
ls_final_line_index <- nrow(ls)
ls_end_index <- nrow(ls)-1
ls_middle_lines_end <- ls[2:ls_end_index,] |> lwgeom::st_endpoint()
ls_middle_lines_start <- ls[2:ls_end_index,] %>% lwgeom::st_startpoint()

df_hull_pts <- rbind(
  sf::st_coordinates(ls[1,]$geometry)[, -c(3)],
  sf::st_coordinates(ls_middle_lines_end),
  apply(sf::st_coordinates(ls[ls_final_line_index,]$geometry)[, -c(3)], 2, rev),
  apply(sf::st_coordinates(ls_middle_lines_start), 2, rev))
hull = sfheaders::sf_polygon(
  obj = df_hull_pts,
  x = "X",
  y = "Y",
  keep = FALSE) |> sf::st_set_crs(sf::st_crs("EPSG:6349"))

river <- extrated_pts[[3]]
current_nhdplus_comid <- crosswalk_hull_to_hydrofabric_value(hull,river)
}

## End(Not run)
```

`disk_ingest_record` *disk_ingest_record*

Description

add a file as a record in the RRASSLED structure

Usage

```
disk_ingest_record(
  in_file = NULL,
  path_to_ras_dbase = NULL,
  code_to_place_in_source = NULL,
  proj_override = NULL,
  apply_vdat_trans = FALSE,
  is_quiet = FALSE,
  is_verbose = FALSE,
  overwrite = FALSE
)
```

Arguments

`in_file`	the path to the file on disk that we want to ingest, Default: NULL
`code_to_place_in_source`	a code to place in the metadata as the owner of the model, Default: NULL

proj_override	a string to override projection information should none be found, Default: NULL
apply_vdat_trans	Should VDATUM be applied to the HEC-RAS model geometry. See https://vdatum.noaa.gov/, Default: FALSE
is_quiet	flag to determine whether print statements are suppressed, TRUE to suppress messages and FALSE to show them, Default: FALSE
is_verbose	flag to determine whether internal print statements (i.e. cross section parsing, vdat trans, file info) are suppressed, TRUE to show these messages and FALSE to suppress them, Default: FALSE
overwrite	overwrite files if we find identical models, Default: FALSE
ras_dbase	A path to a directory to write your RRASSLED catalog to., Default: NULL

Details

the disk version of the ingest process

Value

a set of files in a newly RRASSLE'd record.

See Also

glob2rx glue st_crs, st_coordinates, st_write str_sub, str_detect data.table-package, fwrite sf_linestring, sf_polygon st_startpoint write_parquet

Other ingest: cloud_ingest_record(), ingest_FEMA6_BLE(), ingest_into_database()

Examples

```
## Not run:
if(interactive()){
 #EXAMPLE1
 # ras_dbase <- "./inst/extdata/sample_output/ras_catalog/"
 # dir_to_scrape <- "./inst/extdata/sample_ras/FEMA-R6-BLE-sample-dataset/"
 dir_to_scrape <- fs::path_package("extdata/shapes.fgb", package = "mypkg")
 list_of_prj_files <- list.files(dir_to_scrape,pattern = glob2rx("*.prj$"),full.names = TRUE,ignore.case = TRUE,r
 disk_ingest_record(in_file = list_of_prj_files[1], path_to_ras_dbase = ras_dbase,code_to_place_in_source = "test

 #EXAMPLE2
 dir_to_scrape <- "./inst/extdata/sample_ras/ras2fim-sample-dataset/"
 list_of_prj_files <- list.files(dir_to_scrape,pattern = glob2rx("*.prj$"),full.names = TRUE,ignore.case = TRUE,r
 disk_ingest_record(in_file = list_of_prj_files[1], path_to_ras_dbase = ras_dbase,code_to_place_in_source = "test
 }

## End(Not run)
```

get_datum_from_crs *get_datum_from_crs*

Description

attempts to parse datum and datum unit from file based on WKT

Usage

```
get_datum_from_crs(x)
```

Arguments

x	either the string or the sf crs

Details

DETAILS

Value

list of CRS and vertical unit

See Also

[st_crs][sf::st_crs]

Examples

```
## Not run:
if(interactive()){
 #EXAMPLE1
 get_datum_from_crs("EPSG:6349")

 EXAMPLE2
 get_datum_from_crs(sf::st_crs("EPSG:6349"))

 }

## End(Not run)
```

ingest_FEMA6_BLE *ingest_FEMA6_BLE*

Description

helper to ingest FEMA region 6 BLE data

Usage

```
ingest_FEMA6_BLE(
  path_to_ras_dbase,
  HUCID,
  proj_override = NULL,
  apply_vdat_trans = FALSE,
  is_quiet = FALSE,
  is_verbose = TRUE,
  overwrite = FALSE,
  parallel_proc = TRUE,
  free_treads = 2,
  clean = FALSE,
  opt_local_path = NULL
)
```

Arguments

path_to_ras_dbase	The path to the folder in which you are building your catalog, Default: NULL
HUCID	string to huc8
proj_override	a CRS string to apply should a projection not be found, Default: NULL
apply_vdat_trans	a flag to dictate whether or not to apply a vdatum transformation, TRUE to apply, FALSE to skip, Default: FALSE
is_quiet	flag to determine whether print statements are suppressed, TRUE to suppress messages and FALSE to show them, Default: FALSE
is_verbose	flag to determine whether internal print statements (i.e. cross section parsing, vdat trans, file info) are suppressed, TRUE to show these messages and FALSE to suppress them, Default: TRUE
overwrite	overwrite files if we find identical models, Default: FALSE
parallel_proc	Flag to determine if this should this parallel process, will check for enough free cores and boot this back if it exceeds available resources. Will suppress all intermediate messages if active, Default: TRUE
free_treads	number of threads to leave free if parallel processing, Default: 2
clean	number of threads to leave free if parallel processing, Default: 2
opt_local_path	PARAM_DESCRIPTION, Default: NULL

Details

As one of the best centralized and accessible databases, the FEMA region 6 BLE data are perfect candidates to RRASSL. This provides a wrapper around BLE scrapers and the ingest_into_database function.

Value

a RRASSLE'd catalog of models or added desired HUC8 models

See Also

str_sub glue unzip st_read, st_crs

Other ingest: cloud_ingest_record(), disk_ingest_record(), ingest_into_database()

Examples

```
## Not run:
if(interactive()){
 #EXAMPLE1
 RRASSLER::ingest_FEMA6_BLE(path_to_ras_dbase = "G:/data/ras_catalog/","12090301",proj_override = "EPSG:2277",ap
 }

## End(Not run)
```

---

ingest_into_database *ingest_into_database*

Description

ingest files from a source directory on your drive into a formatted input directory

Usage

```
ingest_into_database(
  path_to_ras_dbase,
  top_of_dir_to_scrape,
  code_to_place_in_source,
  proj_override = NULL,
  apply_vdat_trans = FALSE,
  is_quiet = FALSE,
  is_verbose = FALSE,
  overwrite = FALSE,
  parallel_proc = TRUE,
  free_treads = 2
)
```

Arguments

path_to_ras_dbase	A path to a directory to write your RRASSLED directory to. See Methods and Structures for more details. is location agnostic so this can be either a local path or an s3 bucket
top_of_dir_to_scrape	The top of the directory to look for models. Will greedy search and find all models as described in Ingest logic
code_to_place_in_source	a string to place into the model source column. Useful to distinguish data authors
proj_override	a string to override projection information should none be found, Default: NULL
apply_vdat_trans	Should VDATUM be applied to the HEC-RAS model geometry. See https://vdatum.noaa.gov/, Default: FALSE
is_quiet	flag to determine whether print statements are suppressed, TRUE to suppress messages and FALSE to show them, Default: FALSE
is_verbose	flag to determine whether internal print statements (i.e. cross section parsing, vdat trans, file info) are suppressed, TRUE to show these messages and FALSE to suppress them, Default: FALSE
overwrite	overwrite files if we find identical models, Default: FALSE
parallel_proc	Flag to determine if this should this parallel process, will check for enough free cores and boot this back if it exceeds available resources. Will suppress all intermediate messages if active, Default: TRUE
free_treads	number of threads to leave free if parallel processing, Default: 2

Details

here 'ingest' means add to our accounting system and database refers to our folder structure

Value

a RRASSLE'd catalog of models

See Also

glue str_sub detectCores, makeCluster registerDoParallel foreach

Other ingest: cloud_ingest_record(), disk_ingest_record(), ingest_FEMA6_BLE()

Examples

```
## Not run:
if(interactive()){
 #EXAMPLE1
 # ras_dbase <- file.path("~/data/ras_catalog/")
 ras_dbase <- file.path("./inst/extdata/sample_output/ras_catalog/")

 dir_to_scrape <- "./inst/extdata/sample_ras/FEMA-R6-BLE-sample-dataset/"
```

```
RRASSLER::ingest_into_database(path_to_ras_dbase = ras_dbase,top_of_dir_to_scrape = dir_to_scrape,code_to_place

dir_to_scrape <- "./inst/extdata/sample_ras/ras2fim-sample-dataset/input_iowa/"
RRASSLER::ingest_into_database(path_to_ras_dbase = ras_dbase,top_of_dir_to_scrape = dir_to_scrape,code_to_place

dir_to_scrape <- "./inst/extdata/sample_ras/ras2fim-sample-dataset/output_iowa/"
RRASSLER::ingest_into_database(path_to_ras_dbase = ras_dbase,top_of_dir_to_scrape = dir_to_scrape,code_to_place

# Sys.setenv("AWS_ACCESS_KEY_ID" = "AKIASUPERSECRET","AWS_SECRET_ACCESS_KEY" = "evenmoresecret","AWS_DEFAULT_RE
dir_to_scrape <- "./inst/extdata/sample_ras/FEMA-R6-BLE-sample-dataset/"
RRASSLER::ingest_into_database(path_to_ras_dbase = "s3://ras-models/",top_of_dir_to_scrape = dir_to_scrape,code
}

## End(Not run)
```

`load_catalog_csv_as_DT`

load_catalog_csv_as_DT

Description

Helper to ensure catalog edge cases and incorrect formats are correctly handled (most commonly numeric strings parsed into characters)

Usage

```
load_catalog_csv_as_DT(path_to_csv, is_quiet = TRUE)
```

Arguments

`path_to_csv`	path to the model_catalog.csv file under your catalog folder
`is_quiet`	if TRUE, function will suppress message, Default: TRUE

Details

a little utility that sets column types on load for some of our sillier edge cases. the vector applied is ‘data.table::fread(path_to_csv,colClasses = c("nhdplus_comid" = "character","model_name" = "character","units" = "character","crs" = "character","final_name_key" = "character"))‘

Value

returns the model_catalog as a data.table object with enforced column types

See Also

`fread`

Other helper: `marco()`, `print_error_block()`, `print_warning_block()`, `url_exists()`, `util_unzip()`

Examples

```
## Not run:
if(interactive()){
 #EXAMPLE1
 ras_catalog_dbase = load_catalog_csv_as_DT(file.path(path_to_ras_dbase, "accounting.csv", fsep = .Platform$file.
 }

## End(Not run)
```

---

make_xs_hyfab_comp *make_xs_hyfab_comp*

Description

FUNCTION_DESCRIPTION

Usage

```
make_xs_hyfab_comp(
  path_to_ras_dbase = NULL,
  line_select_subset = NULL,
  hf_lines,
  overwrite = FALSE,
  is_verbose = TRUE
)
```

Arguments

path_to_ras_dbase	PARAM_DESCRIPTION, Default: NULL
line_select_subset	PARAM_DESCRIPTION, Default: NULL
hf_lines	PARAM_DESCRIPTION
overwrite	PARAM_DESCRIPTION, Default: FALSE
is_verbose	PARAM_DESCRIPTION, Default: TRUE

Details

DETAILS

Value

OUTPUT_DESCRIPTION

See Also

glue st_read, st_transform, st_crs, sf, sfc, geos_binary_ops, geos_unary, st_cast, geos_measures, st_as_sf, st_write read_parquet, write_parquet units mutate, group_by, summarise

Examples

```
## Not run:
if(interactive()){
 #EXAMPLE1
 make_xs_hyfab_comp(path_to_ras_dbase = NULL,line_select_subset = NULL,hf_lines,overwrite = FALSE,is_verbose = TR
 }

## End(Not run)
```

`map_library` *map_library*

Description

a function to help apply geographic context to the RRASSLED catalog

Usage

```
map_library(
  path_to_ras_dbase,
  AOI_to_map = NULL,
  name = "model_map",
  plot_lines = FALSE,
  chart_lines = FALSE,
  refresh = FALSE,
  quiet = TRUE
)
```

Arguments

`path_to_ras_dbase`	The path to the folder in which you are building your catalog, Default: NULL
`AOI_to_map`	An AOI pass though to subset the catalog down into a smaller area to add the context too, Default: NULL
`name`	A name for the map files to create, Default: 'model_map'
`plot_lines`	draw lines on the map as opposed to just the footprints, Default: FALSE
`chart_lines`	Add cross section click graphs to the plot lines. Will break if area is too large, Default: FALSE
`refresh`	flag to dictate whether or not to recollate spatial database prior to mapping. FALSE to skip, TRUE to regenerate, Default: TRUE
`quiet`	flag to determine whether print statements are suppressed, TRUE to suppress messages and FALSE to show them, Default: FALSE

Details

DETAILS

Value

OUTPUT_DESCRIPTION

See Also

st_transform, st_read, st_crs, valid read_parquet ggplot, aes, geom_point, ggtheme, scale_colour_gradient, labs leaflet, addProviderTiles, addLegend, addLayersControl addFeatures popupGraph glue mapshot

Examples

```
## Not run:
if(interactive()){
 #EXAMPLE
 RRASSLER::map_library(path_to_ras_dbase = cat_path,NULL,name = "model_map",plot_lines = TRUE,chart_lines = TRUE,
 }

## End(Not run)
```

---

marco *Hello world*

Description

A hello world tester

Usage

```
marco()
```

Details

Used to verify that RRASSLER is successfully loaded and test deployment pathways. Copy-paste-d and not drawn from Google (https://www.asciiart.eu/art-and-design/sculptures)

Value

a hello world message (polo!)

See Also

Other helper: load_catalog_csv_as_DT(), print_error_block(), print_warning_block(), url_exists(), util_unzip()

Examples

```
RRASSLER::marco()
```

parse_model_to_xyz *parse_model_to_xyz*

Description

parse a model into an xyz dataframe from basename, considers both g## and g##.hdf files

Usage

```
parse_model_to_xyz(
  geom_path,
  units,
  proj_string,
  in_epoch_override = as.integer(as.POSIXct(Sys.time())),
  out_epoch_override = as.integer(as.POSIXct(Sys.time())),
  vdat_trans = FALSE,
  quiet = FALSE,
  is_verbose = TRUE
)
```

Arguments

geom_path	path to the base model
units	units found in the project, "English Units" or "SI Units"
proj_string	PARAM_DESCRIPTION
in_epoch_override	PARAM_DESCRIPTION, Default: as.integer(as.POSIXct(Sys.time()))
out_epoch_override	PARAM_DESCRIPTION, Default: as.integer(as.POSIXct(Sys.time()))
vdat_trans	PARAM_DESCRIPTION, Default: FALSE
quiet	flag to determine whether print statements are suppressed, TRUE to suppress messages and FALSE to show them, Default: FALSE
is_verbose	flag to determine whether internal print statements (i.e. cross section parsing, vdat trans, file info) are suppressed, TRUE to show these messages and FALSE to suppress them, Default: TRUE

Details

DETAILS

Value

OUTPUT_DESCRIPTION

See Also

str_sub unglue

Examples

```
## Not run:
if(interactive()){
 #EXAMPLE1
 # g_path <- "./inst/extdata/sample_ras/FEMA-R6-BLE-sample-dataset/12090301/12090301_models/Model/Alum Creek-Col
 g_path <- fs::path_package("extdata/shapes.fgb", package = "mypkg")
 pts <- parse_model_to_xyz(geom_path = g_path,units = "English Units",proj_string = "EPSG:2277",quiet = FALSE)

 g_path <- "./inst/extdata/sample_ras/ras2fim-sample-dataset/input_iowa/10170204000897/Hydraulic_Models/Simulat
 pts <- parse_model_to_xyz(geom_path = g_path,units = "SI Units",proj_string = "EPSG:26915",quiet = FALSE)

 select_model_index <- 120
 target_model <- ras_catalog[select_model_index,]
 pts <- parse_model_to_xyz(geom_path = file.path(ras_dbase,"models",target_model$final_name_key,glue::glue("{tar
 units = target_model$units,
 proj_string = target_model$crs,
 quiet = FALSE,is_verbose = TRUE)
 }

## End(Not run)
```

---

print_error_block *prints error block*

Description

A error block helper

Usage

```
print_error_block()
```

Details

line art to draw eyes to printing notices

Value

print output

See Also

Other helper: load_catalog_csv_as_DT(), marco(), print_warning_block(), url_exists(), util_unzip()

Examples

```
RRASSLER::print_error_block()
```

`print_warning_block` *print_warning_block*

Description

A warning block helper

Usage

```
print_warning_block()
```

Details

line art to draw eyes to printing notices

Value

print output

See Also

Other helper: `load_catalog_csv_as_DT()`, `marco()`, `print_error_block()`, `url_exists()`, `util_unzip()`

Examples

```
RRASSLER::print_warning_block()
```

`process_ras_g_to_xyz` *process_ras_g_to_xyz*

Description

process a ras g file into xyz format

Usage

```
process_ras_g_to_xyz(
  geom_path,
  units,
  proj_string,
  in_epoch_override = as.integer(as.POSIXct(Sys.time())),
  out_epoch_override = as.integer(as.POSIXct(Sys.time())),
  vdat = FALSE,
  quiet = FALSE
)
```

Arguments

geom_path	path to a file to parse
units	units found in the project, "English Units" or "SI Units"
proj_string	a projection string to apply
in_epoch_override	vdatum parameter input epoch, Default: as.integer(as.POSIXct(Sys.time()))
out_epoch_override	vdatum parameter output epoch, Default: as.integer(as.POSIXct(Sys.time()))
vdat	a flag to dictate whether or not to apply a vdatum transformation, TRUE to apply, FALSE to skip, Default: FALSE, Default: FALSE
quiet	flag to determine whether print statements are suppressed, TRUE to suppress messages and FALSE to show them, Default: FALSE

Details

DETAILS

Value

a point database and notes about processing

See Also

glob2rx, read.table glue as.data.table str_split, str_trim, str_flatten, str_sub sf_linestring sf, st_cast, st_crs, st_read, st_transform, st_coordinates, st_as_sf, geos_measures fill decimal_date, ymd GET, http_error, content st_linesubstring, st_startpoint

Examples

```
## Not run:
if(interactive()){
 #EXAMPLE1
 # g_path <- "./inst/extdata/sample_ras/FEMA-R6-BLE-sample-dataset/12090301/12090301_models/Model/Alum Creek-Col
 pts <- process_ras_g_to_xyz(geom_path = g_path,units = "English Units",proj_string = "EPSG:2277",vdat = FALSE,qui
 }

## End(Not run)
```

---

process_ras_hdf_to_xyz

process_ras_hdf_to_xyz

Description

process a ras g##.hdf file into xyz format

Usage

```
process_ras_hdf_to_xyz(
  geom_path,
  units,
  proj_string,
  in_epoch_override = as.integer(as.POSIXct(Sys.time())),
  out_epoch_override = as.integer(as.POSIXct(Sys.time())),
  vdat = FALSE,
  quiet = FALSE
)
```

Arguments

geom_path	path to a file to parse
units	units found in the project, "English Units" or "SI Units"
proj_string	a projection string to apply
in_epoch_override	vdatum parameter input epoch, Default: as.integer(as.POSIXct(Sys.time()))
out_epoch_override	vdatum parameter output epoch, Default: as.integer(as.POSIXct(Sys.time()))
vdat	a flag to dictate whether or not to apply a vdatum transformation, TRUE to apply, FALSE to skip, Default: FALSE
quiet	flag to determine whether print statements are suppressed, TRUE to suppress messages and FALSE to show them, Default: FALSE

Details

DETAILS

Value

a point database and notes about processing

See Also

[str_detect][stringr::str_detect] [stri_sub][stringi::stri_sub] [h5read][rhdf5::h5read] [sf_linestring][sfheaders::sf_linestring] [st_sf][sf::st_sf], [st_cast][sf::st_cast], [st_crs][sf::st_crs], [st_transform][sf::st_transform], [st_coordinates][sf::st_coordinate [st_as_sf][sf::st_as_sf], [st_set_crs][sf::st_set_crs], [st_length][sf::st_length] [decimal_date][lubridate::decimal_date], [ymd][lubridate::ymd] [GET][httr::GET], [http_error][httr::http_error], [content][httr::content] [fill][tidyr::fill] [st_linesubstring][lwgeom::st_linesubstring], [st_endpoint][lwgeom::st_endpoint] [glue][glue::glue]

Examples

```
## Not run:
if(interactive()){
 #EXAMPLE1
 # ghdf_path <- "./inst/extdata/sample_ras/FEMA-R6-BLE-sample-dataset/12090301/12090301_models/Model/Alum Creek-
 ghdf_path <- fs::path_package("extdata/shapes.fgb", package = "mypkg")
```

```
pts <- process_ras_hdf_to_xyz(geom_path = ghdf_path,units = "English Units",proj_string = "EPSG:2277",vdat = FALS
 }

## End(Not run)
```

`refresh_master_files` *refresh_master_files*

Description

remerge individual files into spatial model key

Usage

```
refresh_master_files(path_to_ras_dbase, is_verbose = TRUE, overwrite = TRUE)
```

Arguments

`path_to_ras_dbase`	The path to the folder in which you are building your catalog, is also location agnostic (disk or cloud), Default: NULL
`is_verbose`	flag to determine whether print statements are shown - TRUE to show messages - FALSE to skip non-critical ones, Default: TRUE
`overwrite`	flag to determine whether the catalog is either overwritten (overwrite = TRUE), or a duplicated catalog is copied and appended with the date (overwrite = FALSE) as requested [here](https://github.com/NOAA-OWP/RRASSLER/issues/6), Default: TRUE

Details

TRUE

Value

updated master index files including accounting.csv, point_database.parquet, XS.fgb, and model_footprints.fgb

See Also

`str_sub` `get_bucket`, `get_object`, `delete_object`, `put_object` `as.data.table`, `fwrite`, `rbindlist` `read_delim` `glob2rx` `glue` `st_read`, `st_crs`, `st_write` `read_parquet`, `write_parquet` `sf_linestring`

Other post-process: `append_catalog_fields()`

Examples

```
## Not run:
if(interactive()){
 # ras_dbase <- file.path("~/data/ras_catalog/")
 ras_dbase <- file.path("./inst/extdata/sample_output/ras_catalog/")

 RRASSLER::refresh_master_files(path_to_ras_dbase = ras_dbase,is_verbose = TRUE)

 RRASSLER::refresh_master_files(path_to_ras_dbase = "s3://ras-models/",is_verbose = TRUE, overwrite = FALSE)
 }

## End(Not run)
```

---

scrape_ble_lib *FEMA region 6 BLE data scraper*

Description

Helper to download relevant BLE data

Usage

```
scrape_ble_lib(
  database_path,
  HUCID,
  is_quiet = FALSE,
  overwrite = overwrite,
  files = "m"
)
```

Arguments

database_path	Path to load data into. NOTE: Must be LOCAL path
HUCID	The huc8 ID as a string to try and scrape
is_quiet	flag to determine whether print statements are suppressed, TRUE to suppress messages and FALSE to show them, Default: FALSE
overwrite	overwrite flag for data already loaded in your path. TRUE to remove and re-download., Default: overwrite
files	a string encoding to determine what files to attempt to download, can contain 'm' for models, 's' for spatial data, and 'd' for documentation, Default: 'm'

Details

Scraping data from https://ebfedata.s3.amazonaws.com/ based on pointers from https://webapps.usgs.gov/infrm/estBFE/. See also the Texas specific dashboard at https://www.arcgis.com/apps/dashboards/1e98f1e511fc40d3b08790a4251a64ee for more BLE base models.

Value

The requested BLE data as a scraped zip file

See Also

st_transform, st_read, st_crs GET, write_disk glue

Examples

```
## Not run:
if(interactive()){
 #EXAMPLE1
 database_path <- file.path("~/data/ras_catalog/")
 RRASSLER::scrape_ble_lib(database_path,'12090301',is_quiet = FALSE,overwrite = FALSE,files = "ms")
 }

## End(Not run)
```

---

url_exists *URL tester*

Description

A function to test if I get a response from a URL

Usage

```
url_exists(x, non_2xx_return_value = FALSE, is_quiet = FALSE)
```

Arguments

x	the URL to test
non_2xx_return_value	PARAM_DESCRIPTION, Default: FALSE
is_quiet	flag to determine whether print statements are suppressed, TRUE to suppress messages and FALSE to show them, Default: FALSE

Details

gratefully pilfered from https://stackoverflow.com/questions/52911812/check-if-url-exists-in-r

Value

returns TRUE if the url exists

See Also

HEAD, GET, status_code

Other helper: load_catalog_csv_as_DT(), marco(), print_error_block(), print_warning_block(), util_unzip()

Examples

```
#EXAMPLE1
some_urls <-
c(
  "https://jimcoll.github.io/a/bad/programmer/",    # Should 404
  "https://github.com/NOAA-OWP/inundation-mapping", # Should exist
  "https://nooneshouldeverhavethisurl.gov/badtest"  # Does not exist in any form
)
data.frame(
  exists = sapply(some_urls, url_exists, USE.NAMES = FALSE),
  some_urls,
  stringsAsFactors = FALSE
) %>% tibble::as_tibble() %>% print()
```

---

util_g_to_geom_pts *util_g_to_geom_pts*

Description

A wrapper of a few different utilities across rrassler to read files in directly as points

Usage

```
util_g_to_geom_pts(geom_path, units, proj_string, quiet = FALSE)
```

Arguments

geom_path	path to a file to parse
units	units found in the project, "English Units" or "SI Units"
proj_string	a projection string to apply
quiet	flag to determine whether print statements are suppressed, TRUE to suppress messages and FALSE to show them, Default: FALSE

Details

DETAILS

Value

sf points

See Also

glob2rx, read.table glue as.data.table str_split, str_trim, str_flatten sf_linestring sf, st_cast fill

Examples

```
## Not run:
if(interactive()){
 #EXAMPLE1
 }

## End(Not run)
```

---

util_unzip *unzip nested folders*

Description

unzips nested zip files

Usage

```
util_unzip(zippath, is_quiet = FALSE)
```

Arguments

zippath	path to zip
is_quiet	flag to determine whether print statements are suppressed, TRUE to suppress messages and FALSE to show them, Default: FALSE

Details

DETAILS

Value

unzipped dir

See Also

str_sub unzip glue setops

Other helper: load_catalog_csv_as_DT(), marco(), print_error_block(), print_warning_block(), url_exists()

Examples

```
## Not run:
if(interactive()){
 #EXAMPLE1
 RRASSLER::util_unzip(file.path(database_path,"_temp","BLE",HUCID,glue::glue("{HUCID}_models.zip"),fsep = .Plat
 }

## End(Not run)
```

---

xs_to_transect_picker *xs_to_transect_picker*

Description

Picks transects

Usage

```
xs_to_transect_picker(
  path_to_ras_dbase = NULL,
  line_select_subset = NULL,
  hf_lines,
  reference_divides,
  reference_flowlines,
  existing_transects,
  existing_points,
  overwrite = FALSE,
  is_verbose = TRUE,
  test_limit = NULL
)
```

Arguments

path_to_ras_dbase	The path to the folder in which you are building your catalog, Default: NULL
line_select_subset	PARAM_DESCRIPTION, Default: NULL
hf_lines	Hydrofabric lines
reference_divides	reference divide paths
reference_flowlines	reference flowline paths
existing_transects	reference transect paths
existing_points	reference points paths

overwrite	overwrite files if we find identical models, Default: FALSE
is_verbose	flag to determine whether internal print statements (i.e. cross section parsing, vdat trans, file info) are suppressed, TRUE to show these messages and FALSE to suppress them, Default: FALSE
test_limit	Number of transects to use, Default: NULL

Details

DETAILS

Value

selected HEC-RAS lines in hd3d form

See Also

st_read, st_as_sf, st_crs, st_transform, sf, sfc, st_cast, st_line_sample, st_as_sfc, st_bbox, geos_binary_ops, st_nearest_feature, geos_measures, st_coordinates, st_write read_parquet, open_dataset, write_parquet compute, mutate, row_number glue

Examples

```
## Not run:
if(interactive()){
 #EXAMPLE1
 xs_to_transect_picker(path_to_ras_dbase = NULL,line_select_subset = NULL,hf_lines,overwrite = FALSE,is_verbose =
 }

## End(Not run)
```

---

xyz_to_ls *xyz_to_ls*

Description

helper to transform points into linestrings

Usage

```
xyz_to_ls(dat = NULL, path_to_ras_dbase = NULL, is_quiet = FALSE)
```

Arguments

dat	The dataframe of points, Default: NULL
path_to_ras_dbase	The path to the folder in which you are building your catalog, is also location agnostic (disk or cloud), Default: NULL
is_quiet	PARAM_DESCRIPTION, Default: FALSE

Details

DETAILS

Value

linestrings

See Also

read_parquet sf_linestring st_crs

Examples

```
## Not run:
if(interactive()){
 #EXAMPLE1
 }

## End(Not run)
```

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