grg-grgdata Documentation

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Carleton Coffrin

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CHAPTER 1

Introduction

1.1 Overview

grg-grgdata is a minimalist python package for working with of GRG network data files.

The primary entry point of the library is *grg_grgdata.cmd* module, which contains the methods for GRG data validation.

1.2 Installation

Simply run:

```
pip install grg-grgdata
```

1.3 Testing

grg-grgdata is designed to be a library that supports other software. It is not immediately useful from the terminal. However, you can test the validation functionality from the command line with:

```
python -m grg_pssedata.cmd <path to GRG data file>
```

If this command is successful, you will see a message indicating that the given data is a valid GRG file printed to the terminal.

CHAPTER 2

grg-grgdata package

2.1 grg_grgdata.io module

grg_grgdata.io.**abstract_value_to_string**(*abs_value*)

grg_grgdata.io.**build_cli_parser**()

grg_grgdata.io.**dict_to_list**(*name*, *data*, *keys*)

grg_grgdata.io.**main**(*args*)
reads a matpower or grg case files and processes them based on command line arguments.

Parameters **args** – an argparse data structure

grg_grgdata.io.**parse_grg_case_file**(*grg_file_name*)
opens the given path and parses it as json data

Parameters **grg_file_name** (*str*) – path to the a json data file

Returns a dictionary case

Return type Dict

grg_grgdata.io.**print_json**(*grg_data*, *selection=None*)

grg_grgdata.io.**print_json_selection**(*data*, *prefix*, *selection*)

grg_grgdata.io.**print_tabular_summary**(*grg_data*)

grg_grgdata.io.**print_tabular_summary_network**(*grg_data*)

grg_grgdata.io.**value_to_string**(*value*)

2.2 grg_grgdata.cmd module

grg_grgdata.cmd.**active_voltage_points**(*grg_data*, *switch_status={}*)

grg_grgdata.cmd.**apply_assignment**(*network_data*, *pointer_string*, *value*)

grg_grgdata.cmd.**build_cli_parser**()

grg_grgdata.cmd.**bus_voltage_points**(*grg_data*)

grg_grgdata.cmd.**check_flow_limit_bound**(*identifier*, *ac_line_data*, *ad_lookup*, *vl_lookup*, *per_unit*)

grg_grgdata.cmd.**check_property**(*status*, *feedback*)

grg_grgdata.cmd.**check_voltage_level**(*identifier*, *ac_line_data*, *votlage_level_lookup*)

grg_grgdata.cmd.**collapse_voltage_points**(*grg_data*, *switch_status={}*)

grg_grgdata.cmd.**components_by_type**(*grg_data*)

grg_grgdata.cmd.**flatten_network**(*grg_data*, *transformation_id*)

grg_grgdata.cmd.**isolated_voltage_points**(*grg_data*, *switch_status={}*)

grg_grgdata.cmd.**lookup_network**(*grg_data*, *transformation_id*)

grg_grgdata.cmd.**lookup_pointer**(*grg_data*, *pointer_string*)

grg_grgdata.cmd.**main**(*args*)
reads a GRG case file and runs the GRG data validation and parameter checks

Parameters **args** – an argparse data structure

grg_grgdata.cmd.**print_err**()
print(value, ..., sep=' ', end='n', file=sys.stdout)

Prints the values to a stream, or to sys.stdout by default. Optional keyword arguments: file: a file-like object (stream); defaults to the current sys.stdout. sep: string inserted between values, default a space. end: string appended after the last value, default a newline.

grg_grgdata.cmd.**validate_grg**(*grg_data*)

grg_grgdata.cmd.**validate_grg_ac_line**(*identifier*, *ac_line_data*, *per_unit*)

grg_grgdata.cmd.**validate_grg_bus**(*identifier*, *bus_data*, *per_unit*)

grg_grgdata.cmd.**validate_grg_dc_line**(*identifier*, *dc_line_data*)

grg_grgdata.cmd.**validate_grg_flow_limit**(*identifier*, *limit_name*, *comp_data*)

grg_grgdata.cmd.**validate_grg_flow_limit_bound**(*identifier*, *limit_name*, *comp_data*, *limit_bound*)

grg_grgdata.cmd.**validate_grg_generator**(*identifier*, *gen_data*)

grg_grgdata.cmd.**validate_grg_intertie**(*identifier*, *intertie_data*)

grg_grgdata.cmd.**validate_grg_load**(*identifier*, *load_data*)

grg_grgdata.cmd.**validate_grg_parameters**(*grg_data*)

grg_grgdata.cmd.**validate_grg_shunt**(*identifier*, *shunt_data*)

grg_grgdata.cmd.**validate_grg_switch**(*identifier*, *switch_data*)

grg_grgdata.cmd.**validate_grg_synchronous_condenser**(*identifier*, *sync_cond_data*)

grg_grgdata.cmd.**validate_grg_three_winding_transformer**(*identifier*, *thwt_data*)

grg_grgdata.cmd.**validate_grg_two_winding_transformer**(*identifier*, *twt_data*, *per_unit*)

grg_grgdata.cmd.**validate_pointer**(*pointer_string*, *grg_data*, *component_lookup*, *context=[]*, *assignment=False*)

grg_grgdata.cmd.**voltage_level_by_voltage_point**(*grg_data*)

grg_grgdata.cmd.**votlage_level_lookup**(*grg_data*)

grg_grgdata.cmd.**walk_assignments**(*grg_data*)

grg_grgdata.cmd.**walk_components**(*grg_data*)

grg_grgdata.cmd.**walk_fault_lists**(*grg_data*)

grg_grgdata.cmd.**walk_operation_constraints**(*grg_data*)

grg_grgdata.cmd.**walk_pointers**(*grg_data*)

grg_grgdata.cmd.**walk_time_series_assignments**(*grg_data*)

grg_grgdata.cmd.**walk_voltage_links**(*grg_data*)

2.3 grg_grgdata.exception module

a collection of all grg_grgdata exception classes

exception grg_grgdata.exception.**GRGDataException**
Bases: exceptions.Exception

root class for all GRGData Exceptions

exception grg_grgdata.exception.**GRGDataValidationError**
Bases: *grg_grgdata.exception.GRGDataException*

for errors that occur while attempting to validate the correctness of a parsed GRG data file

exception grg_grgdata.exception.**GRGDataWarning**
Bases: exceptions.Warning

root class for all GRG data warnings

2.4 grg_grgdata.struct module

2.5 Module contents

a package for reading and writing of grid data files

CHAPTER 3

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