1 Summary

1.1 The DataTools in the Jupyter terminal

- On first login into the Jupyer hub:

```
conda init
```

- For each terminal session:

```
conda activate code-data-tools
```

1.2 The Commands

- Check a single measurement (**m_***) directory:

```
dm_m_check_dir
```

- Check a complete data directory (**dm_***) directory:

```
dm_check_dirtree
```

- Add data (file(s) or directory) to a data tree, interactively:

```
dm_add
```

- Initialise a new *metadata.ini* based on the directory structure:

```
dm_init_metadata
```

- List all measurement directories

```
dm_list_measurements
```

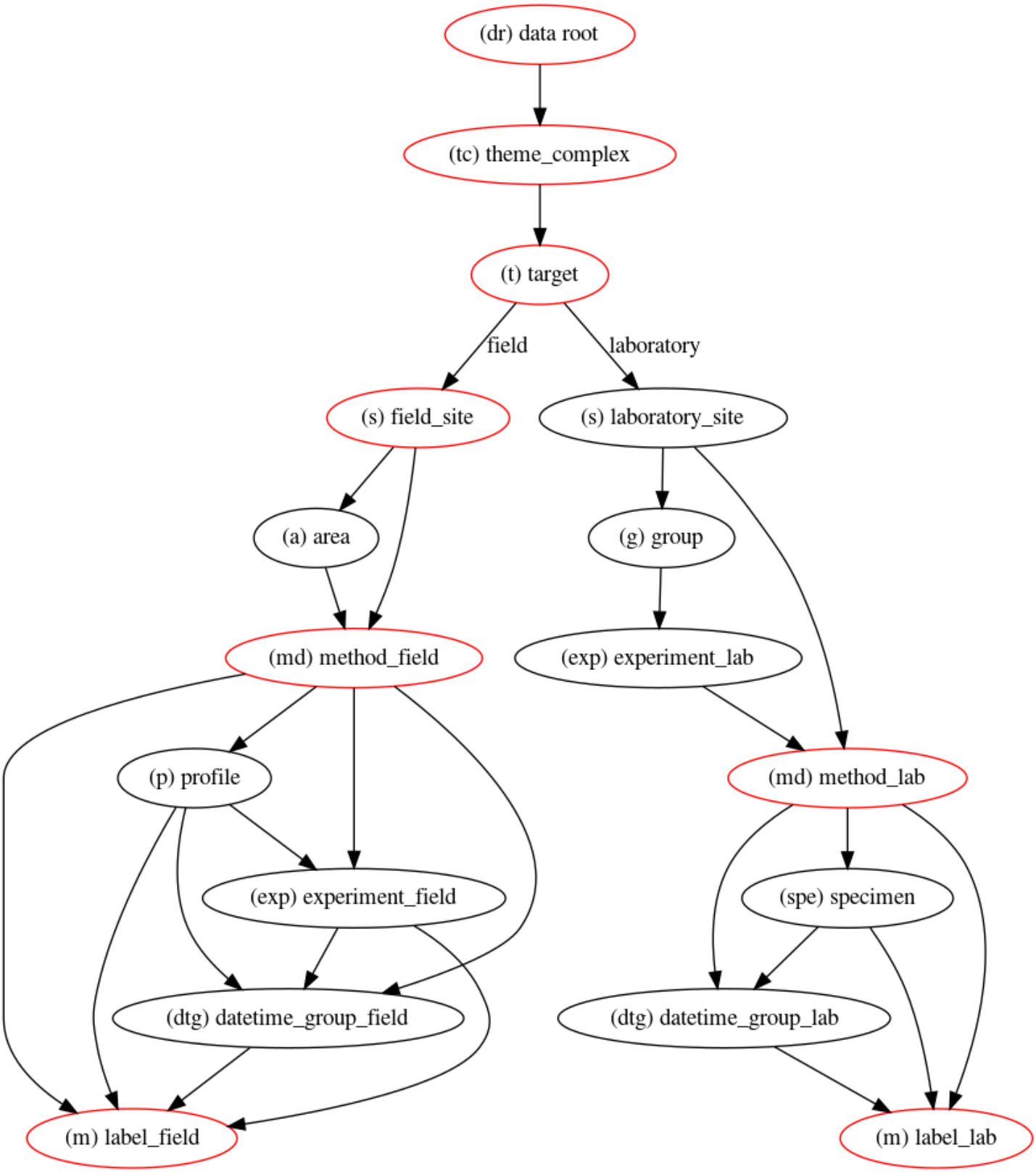
Usually command line options can be queried by appending "-h" to the command. Example:

```
$ dm_add -h
usage: dm_add [-h] -t TREE -i INPUT [INPUT ...]

Add one measurement to a given data directory structure

options:
  -h, --help            show this help message and exit
  -t TREE, --tree TREE  Path of data tree (should start with: dr_
  -i INPUT [INPUT ...], --input INPUT [INPUT ...]
                        Path to measurement (data/directory/directory tree)
```

1.3 Procedures

- First fix/sort the directory structures
- Create the **m_*** in the correct place BEFORE creating the *metadata.ini* file.
- THEN, use **dm_init_metadata** to initiate the *metadata.ini* file

2 Directory Structure



3 Metadata

key	multi-line	required field	required lab	Doublin Core	description
section: [general]					
label	✖	True	True		Label of the individual measurement
person_responsible	✖	True	True	creator	The person that is responsible for this data set. This must not necessarily be the person that conducted the measurement.
person_email	✖	True	True		Email address of the person now maintaining this data set.
attending_persons	✖	False	False	contributor	All persons that were involved during the measurement. Optional: Add email addresses in parentheses, e.g. Maximilian Weigand (mweigand@geo.uni-bonn.de)
theme_complex	✖	True	True	subject	Theme complex that the measurement falls under. This is the most general category for a given measurement
project	✖	False	False	part of title	?
datetime_start	✖	True	True	date	Starting datetime of the measurement/measurements. Use date format %YYYY%mm%dd_%H%M_%sLeave unknown parts out (e.g., seconds)
datetime_end	✖	False	False	date	Ending datetime of the measurement/measurements
description	✔	True	True	description	Description (should be short, comprehensive, and with links to detailed documentation)
survey_type	✖	True	True		Field or laboratory measurements?
method	✖	True	True	False	Which method(s) were used?
experiment	✖	False	False		Label for the experiment that a measurement is assigned to
description_exp	✔	False	False		Description (should be short, comprehensive, and link to detailed documentation)
restrictions	✔	False	False	license	State any licensing restriction of the data set. Especially, note down any copyright owned by a party that is not the Department of Geophysics, Uni Bonn
completed	✖	True	True		States if the measurement series is finished or still ongoing
keywords	✖	False	False	subject	Keywords, separated by comma.
related_dois	✔	False	False	references	
missing	✔	False	False		?

problems	✔	False	False		Known restrictions/problems of the dataset (entries should be time stamped, multi-line entries required)
signed_off_by	✔	False	False		?
analysis_links	✔	False	False		?
dt_group	✖	False	False		Datetime group – Used to group measurements, e.g. into days or years
section: [field]					
survey_start	✖	False	False		Starting datetime of survey. Intended for the field data tree. Format: yyyymmdd hh:mm:ss
survey_end	✖	False	False		Ending datetime of survey. Intended for the field data tree. Format: yyyymmdd hh:mm:ss (same as survey_start)
site	✖	True	False		The general area of the measurement, e.g. a town name. This is further clarified in the metadata entries ”area”, ”profile”, ”coordinates”
area	✖	True	False		A more localized specification of the measurement area, e.g., an identifier of a certain field or street
profile	✖	True	False		?
coordinates	✖	False	False		Coordinates of representative location (i.e., starting point of measurement profile)
section: [geoelectrics]					
spacing	✖	False	False		Electrode spacing
section: [laboratory]					
site	✖	False	True		Laboratory measurement site
group	✖	False	False		High-level group of experiments
experiment_start	✖	False	False		Starting datetime of experiment. Intended for the laboratory data tree. Format: yyyymmdd hh:mm:ss
experiment_end	✖	False	False		Ending datetime of experiment. Intended for the laboratory data tree. Format: yyyymmdd hh:mm:ss (same as experiment_start)
specimen	✖	False	False		Sample material, e.g. sandstone; used mainly for laboratory measurement metadata.
permeability	✖	False	False		Permeability of sample material
porosity	✖	False	False		Porosity of sample material
section: [device]					
device	✖	False	False		Used measurement instrument.
device_serial	✖	False	False		Serial number of instrument, required if several devices of one type exist (e.g. the DT80)
programming	✖	False	False		Optional file path to a script/file containing the programming (script) used for the measurements(s)