Git commands
```
git pull
git push
git checkout -b {{name_of_new_branch}}
```

Do “git branch” but ignore all cc_ and rcc_ branches
```
dvc-cc git branch
```

To take a look at the result branch you should use the gitlab or github webinterface, but you can switch to the result branch for example with:
```
git checkout rcc_0001_expname_A1
```

Create for each remote result branch a local branch: 5
```
dvc-cc git sync
```

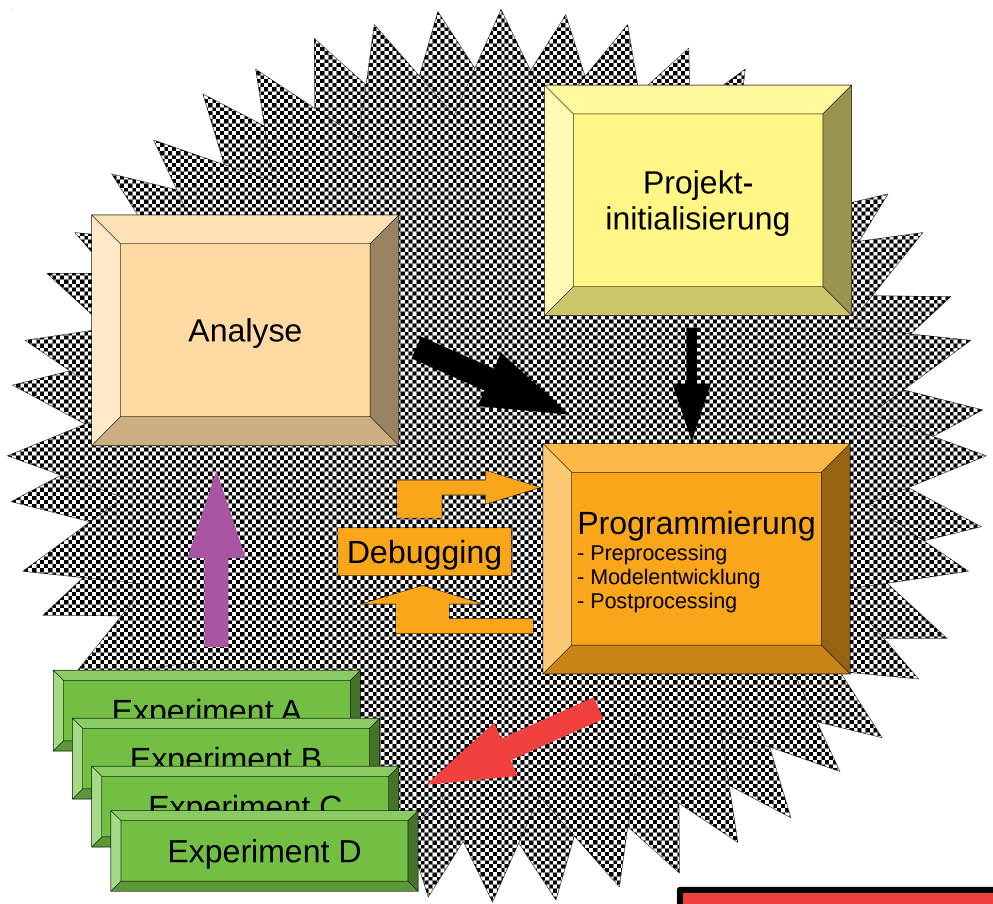
Show all nodes from the cluster
```
dvc-cc status --node
```

4
With `dvc-cc status` you can see your last experiments.
The following parameters exist:
- `-p 23` shows all jobs from the 23. run
- `-s` summaries the output
- `-n` 20 shows the last 20 experiments.
- `-f` shows only failed
- `-d` shows details
- `--detail-unchanged` show all details

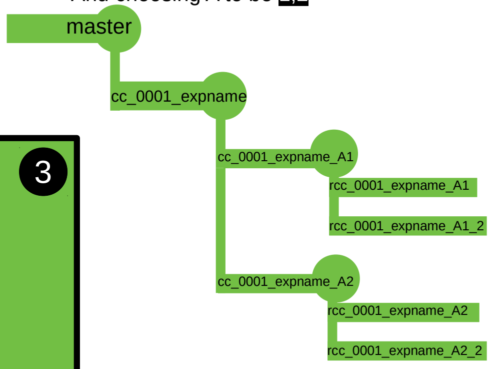
3
Run experiments with `dvc-cc run {{experiment name}}`
If you have hyperparameters, you will be asked to set values for the hyperparameters. For this, you have multiple options:
- Use one value: i.e.: 412
- Use multiple values: i.e.: 412, 512, 612
- Use GridSearch with --gs: i.e.: min Value 5, Max Value 20, Num of draws 4, is the same as writing “5,10,15,20”
- Use RandomSearch-Global with --rs: If you use this for all parameters, you will get ask ones, how many draws you want to do. This is the absolute value of experiments that will be created.
- Use RandomSearch-Local with –rsl: you will get asked every time how many draws you want do. It will do a GridSearch over all drawn parameters.

Legende:
- ▨ main ML / DL workflow
- `bash command`
- 1 - 6 typical dvc-cc workflow

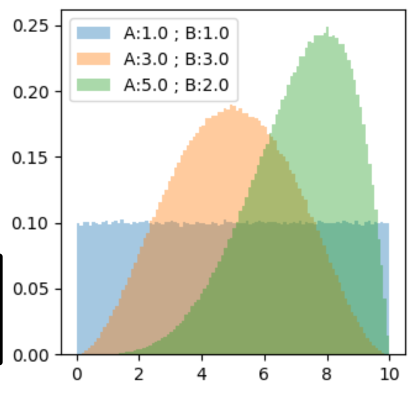
Get output files 6
```
dvc-cc output-to-tmp {{outputfile}} -p ID
```



Branches that get created
by calling `dvc-cc run -r 2 expname`
And choosing A to be `1,2`



Show different beta curves
```
dvc-cc hyperopt plot-beta
```



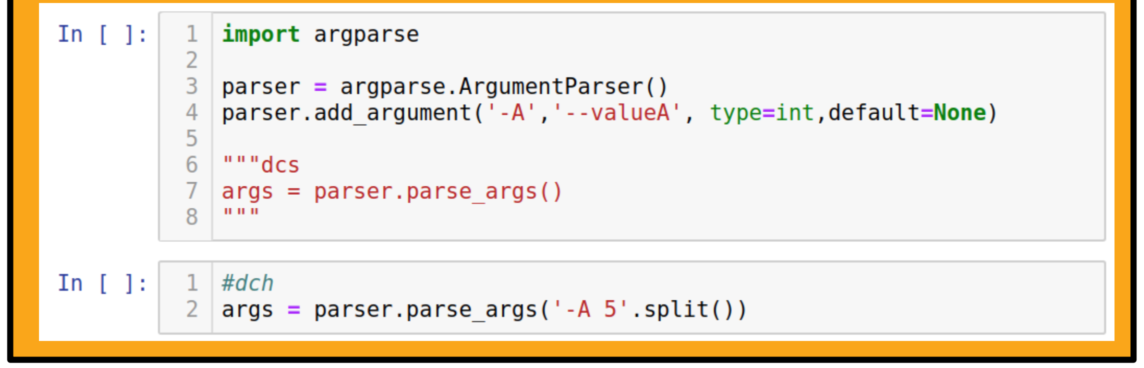
SSH-Connection
```
mkdir {{path-to-project}}/data
sshfs {{username}}@{{remote-storage}}:/{{path-to-data-folder}} {{path-to-project}}/data
```
SSH-Remove-SSHFS-Connection
```
fusermount -u {{path-to-project}}/data
```

Zwischenspeicherung des git-Passwortes für 30 Minuten
```
git config --global credential.helper store
git config credential.helper cache 1800
```

1
1. Create a Git-Repository
2. `dvc-cc init`
   Set all parameters for the cluster or the Hardware that you need.
   https://github.com/deep-projects/dvc-cc/blob/master/dvc-cc/tutorial/_settings.md

Hint: If a software is not installed in the docker container, you can write your software dependencies to the “requirements.txt”.

When you call `dvc-cc run {{expname}}`, the jupyter notebook files are converted to py files. You can use `"""dcs` to execute some code only on the server, or use `#dch` to execute code only locally in the jupyter notebook.



```
In [ ]:  import argparse

         parser = argparse.ArgumentParser()
         parser.add_argument('-A','--valueA', type=int,default=None)

         """dcs
         args = parser.parse_args()
         """
```

```
In [ ]:  #dch
         args = parser.parse_args('-A 5'.split())
```

For reducing the typing you can use:
```
dvc-cc hyperopt new-suggest
```

2
Define a stage of the pipeline with `dvc-cc hyperopt new`:
This will create a “.dvc” file In the “dvc” folder or a “.hyperopt” file in the “dvc/.hyperopt” folder. To delete a stage you can savely remove this file.

name	saved in git	saved in dvc cache	save the checksum	description
`-d`	False	False	True	You use this to define dependencies (inputs) or everything from what this stage depends on.
`-o`	False	True	True	Large output files or folders
`-O`	True	False	True	Small output files or folders
`-m`	True	True	True	Metrics are output files but have a special feature that you can use with `dvc metrics show`
`-M`	True	False	True	Metrics see above. Find more information about metrics here.

i.e.:
```
dvc-cc hyperopt new -d code/train.py
                    -o tensorboard
                    -m summary.yml
                    -f train.py
                    “python train.py --valueA {{A}}”
```

Overview over all parameters:
```
dvc-cc hyperopt var all
```

Set a value to a hyperparameter:
```
dvc-cc hyperopt var --set 100 A
```

Version 0.4