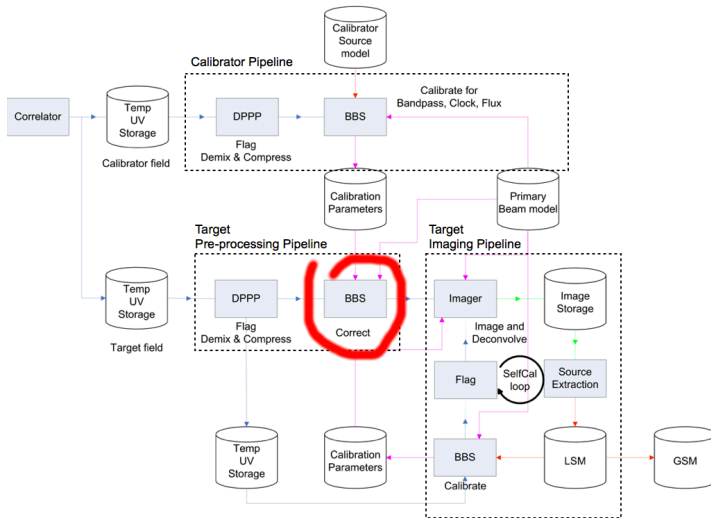# Applying direction independent calibration in NDPPP

Tammo Jan Dijkema

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# Motivation, imaging pipeline

# What's new in NDPPP

- DPPP-step: **correct** (or **applycal**)
  - Not new: produces the same results as BBS with **correct** step.
  - Difference from BBS: weights are updated in weights column.
  - Slight difference from BBS: will complain about parameters that are not in the parmdb (BBS would assume they were 0).
  - Will flag **inf** and **NaN**.
- NDPPP can now write to different data column (CORRECTED_DATA)
- Also different weight column (CORRECTED_WEIGHT) is possible.
- New step **out** makes it possible to write to multiple data columns. (Only one data stream is passed on between the steps.)

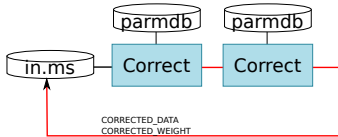# Usage: apply gain + clock calib. to existing MS

Parset for updating existing MS

```
msin   = myinput.MS
msout  = . # Same as input
msout.datacolumn   = CORRECTED_DATA
msout.weightcolumn = CORRECTED_WEIGHTS

steps = [gaincorr,clockcorr]

gaincorr.type       = correct
gaincorr.correction = gain
  # gain, tec, clock, commonscalarphase, commonrotationangle
gaincorrect.parmdb  = bbs_solutions.parmdb

clockcorr.type       = correct
clockcorr.correction = clock
clockcorrect.parmdb  = bbs_solutions.parmdb
```

# Usage: apply gain calib. to averaged MS

```
Parset for writing two columns to new MS
msin  = myinput.MS
msout = myoutput.MS
msout.datacolumn  = CORRECTED_DATA
msout.weightcolumn = WEIGHT_SPECTRUM

steps = [flag, demix, average, out, correct]

correct.type       = correct
correct.correction = gain
correct.parmdb     = bbs_solutions.parmdb

out.type         = out
out.name         = myoutput.MS
out.datacolumn   = DATA # Default
out.weightcolumn = WEIGHT_SPECTRUM # Default
```
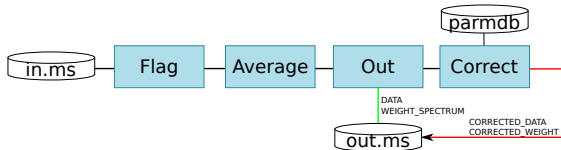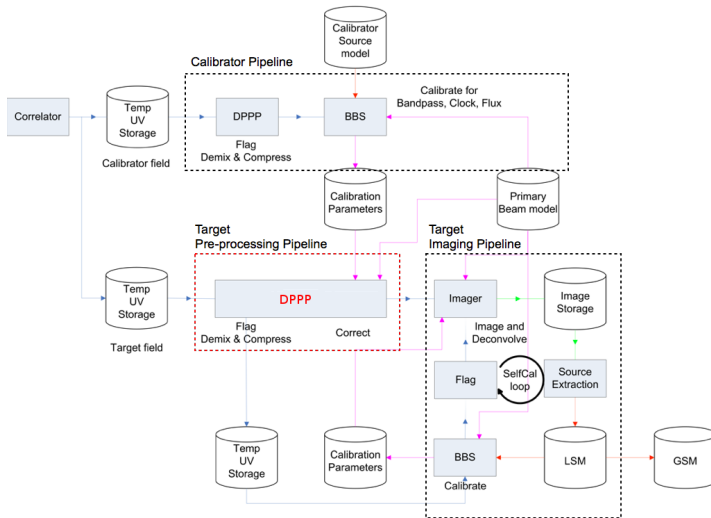
# Possible new imaging pipeline

# Status

### Applycal
- Available in `LofIm`
- Needs testing in realistic use cases

### Reading / writing different data, weight columns
- Available in `LofIm`
- Needs some testing

### New step `out`
- Not available yet
- Workaround: write to one file, launch NDPPP again

Documentation:
http://www.lofar.org/wiki/doku.php?id=engineering:
software:tools:ndppp