SPAM frequently asked questions

This ever-expanding section is based on user feedback. If you encounter a problem not listed below, please feel free to contact me.

SPAM pipeline failure

Q: Why does my SPAM pipeline run fail?

A: Although in general the SPAM pipeline is able to process many different data sets, there will be cases in which it fails. The output of the main pipeline (*process_target()*) is captured in a log file, located in the *datfil* directory. This will often provide guidance on the nature of the problem, but is a bit bulky. In your SPAM session, you can get a summary of the log file through

```
summarize_spam_log( './datfil/spam_<your_target_name>_*.log' )
```

Look for sudden increases in the noise, or decreases in the number of visibilities or the total cleaned flux.

Too many open files

Q: SPAM crashes with a message about "too many open files". What do I do?

A: Typical Linux installs have a limit on the number of files (or file descriptors) that a user can have open at any given time. The default is usually set to 1024 to prevent runaway programs from doing harm. As a user you can check that number: in (ba)sh, type

```
ulimit -n
```

or in (t)csh, type

```
limit descriptors
```

Often it is possible as a user to increase the limit on file descriptors. In (ba)sh, type

```
ulimit -n 4096
```

or in (t)csh, type

```
limit descriptors 4096
```

If this operation is not permitted, go talk to your sysadmin.

UPDATE: The latest ParselTongue distributed with SPAM has an improvement in place to reduce the

occurence of this error.

Imaging in CASA

Q: Can I take the calibrated visibilities (.CAL.UVFITS) into CASA for imaging?

A: Yes you can. One limitation is that CASA from version 4.2 onwards doesn't allow stokes I visibilities to be imported. To overcome this, you can re-label the visibilities as being RR, and then image the RR visibilities in CASA. Converting the calibrated visibilities from stokes I to RR can be done in SPAM as follows:

```
uv = get_aips_file( 1, 'CALIBRATED', 'UVDATA', -1, 'UV' )
read_fits_uv( './fits/<target_visibilities>.CAL.UVFITS', uv )
convert_stokes_I_to_RR( uv )
write_fits_uv( uv, './fits/<target_visibilities>.RR.UVFITS' )
```

Next, start CASA and run the *importgmrt()* task to convert the UVFITS data to a measurement set:

```
importgmrt( fitsfile = '<target_visibilities>.RR.UVFITS', vis =
'<target_visibilities>.RR.ms' )
```

Then run the *clean()* task with at least the following options:

```
clean( vis = '<target_visibilities>.RR.ms', imagename = '<target>', gridmode
= 'widefield',
    wprojplanes = <some number, e.g. 128>, stokes = 'RR', weighting =
'briggs', usescratch = True ... )
```

Problems running SPAM on new Intel CPUs, possibly after Linux update

Q: Why doesn't the SPAM pipeline work (anymore), with AIPS generating NaNs in certain tasks?

A: Updates of the Linux operating system in 2017 has triggered floating point problems when running AIPS tasks on a new line of Intel Xeon E5-xxx CPUs. This is likely caused by an outdated Intel compiler used to build the AIPS binary install. A GNU compiled version of AIPS 31DEC13 fixes the problem and is available here. It may run a bit slower than the Intel compiled version.

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