

Editr AIPS Flagging Issue

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1 Introduction

I am currently flagging data from the MASIV 5 survey observed at C band, using five subarrays of the VLA, from the 27th to the 30th of January (about six antennae per subarray). While reducing data using the 31DEC04 version of the AIPS package I noticed strange flagging behaviour using the *editr* task; when flagging data in one source, data in other sources disappears. This has caused great difficulty as each subarray contains about 20 calibration sources, and when I flag bad data in each of the calibration sources, I notice that much more data disappears than what I have actually flagged. This issue is particularly frustrating as it results in poor phase sampling, and hence I am left with poor phase solutions. I have ask Jim Lovell of the ATNF to test if this issue was present in the 31DEC06 version of AIPS, and it appears that it is also present in 31DEC06.

2 Example

Each subarray of the MASIV survey is loaded into AIPS in its own sequence, as shown below, the first two subarrays are loaded in using the task *fillm*.

```
>uc
Catalog on disk 1
Cat Usid Mapname      Class  Seq  Pt      Last access      Stat
  1 2556 MASVVSUB1    .C BAND.    1 UV 10-APR-2006 16:45:47
  2 2556 MASVVSUB2    .C BAND.    2 UV 21-APR-2006 15:45:15
```

Consider subarray two, located in sequence two of disk one. In order to check and flag sources in that subarray for bad data the following commands are issued:

```

indisk 1
getn 2
antennas <<list of antennas in that subarray>>
task 'editr'
docalib 1
gainuse 1
dopol -1
blver -1
flagver 1
doband -1
bpver -1
timerang 0
smooth 0
stokes ' '
bchan 0; echan 0
bif 1; eif 2
uvrange 0,0
clr2
dohist -1
solint 0
detime 0
doweight 1
dotwo 1
expert 0
crowded 0
reason 'bad data'
antuse antennas
baddisk 0
sources '3c286',''
go

```

The AIPS TV server then displays the interactive *editr* screen, as is shown in Figure 1.

Once the flagging has been completed, the flagged data points appear in red. In Figure 2, for testing purposes a large number of 3C286 samples in IF1, Polarization 1, baseline 05-12 have been flagged.

Once the *editr* task has been exited, the version 1 flag table has been written. On reopening *editr*, with 3C286 as the selected source (see Figure 3), one can see that the flagged points are no longer present, as one would expect.

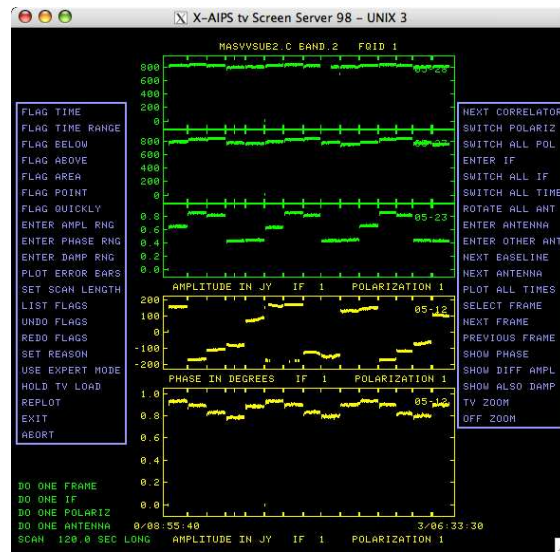


Figure 1: Editr screen for 3C286, unflagged.

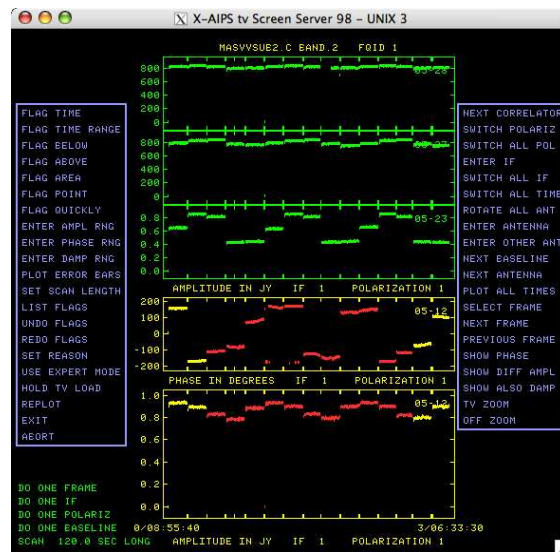


Figure 2: Editr screen for 3C286, flagged.

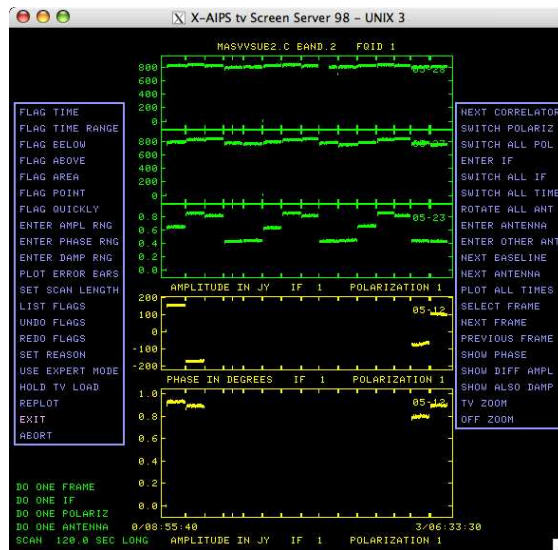


Figure 3: Editr reopened screen for 3C286, flagged.

After flagging 3C286, one would not expect data from other sources to be flagged, however this is not the case. Before flagging the source 3C286, the source 2355 + 498 appears with all its data present (see Figure 4). Once 3C286 is flagged, data appears to be missing from 2355 + 498 (see Figure 5), and this is not expected, since 2355 + 498 data has not been flagged by the user.

Not only is data missing from 2355 + 498, but from all the other sources located within subarray two, located in sequence two. This is a serious problem as it means that after 20 calibrators have been flagged a large amount of useful data has also been rejected.

3 Issue Workaround

One potential work around which I have not yet investigated, would be to place each source in its own sequence number. When calibrating, one would simply copy the relevant CL and SN tables to all the sources. This workaround would be a logistical challenge for the user reducing the data as each subarray for this survey contains approximately 170 sources.

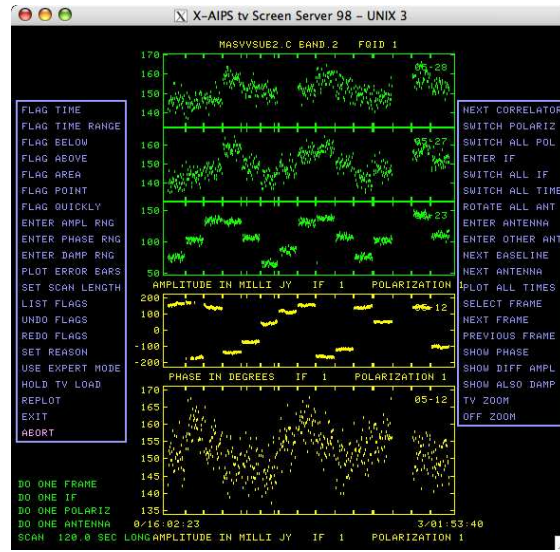


Figure 4: The unflagged 2355+498, with 3C286 unflagged.

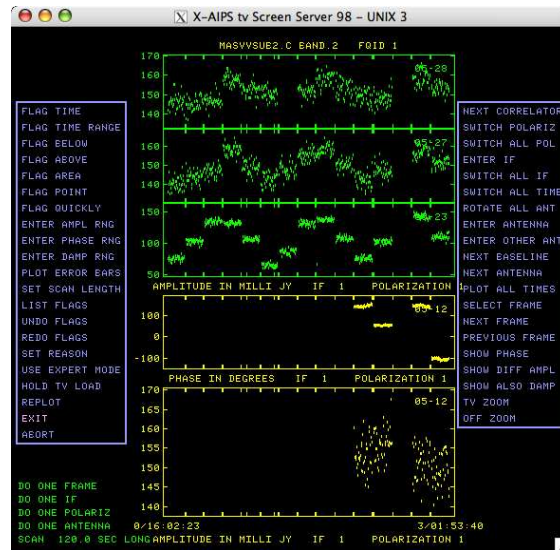


Figure 5: The unflagged 2355+498, with 3C286 flagged.