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**ASTROPHYSICS**

HARVARD &amp; SMITHSONIAN

Zhao, Jun-Hui &lt;jzhao@cfa.harvard.edu&gt;

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**Antenna-based error information | Status of flags**11 messages

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**Zhao, Jun-Hui** <jzhao@cfa.harvard.edu>

Tue, Nov 27, 2018 at 11:34 AM

To: Attila Kovacs &lt;attila.kovacs@cfa.harvard.edu&gt;

Hi Attila,

As we discussed on our last meeting, we need to extract the information antenna-based error information as function of time or scan number. These information are stored in the header table **we\_read** as you pointed out. Unlike other header tables, we have issues to extract the information from this table. It is possible that I have missed something in my program or the structure of **we\_read** given in the current SMA data file format ( posted on wiki by Taco, Attila tags: [data:analysis](#) last updated: 2018-11-15 10:25:10) may need to update.

Do you have an handy C routine to read this table?

Thanks, Jun-Hui

--

**Jun-Hui Zhao****Astrophysicist**

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**Attila Kovacs** <attila.kovacs@cfa.harvard.edu>

Tue, Nov 27, 2018 at 11:55 AM

To: "Zhao, Jun-Hui" &lt;jzhao@cfa.harvard.edu&gt;

Hi Jun-Hui

The antenna based error information is in `sp_read` (not `we_read`).

Its the 'flags' component, which is a 4-byte integer. Each of the 32 bits is a specific flag condition, as discussed on the wiki page on the data format.

-- A.

On 11/27/18 11:34 AM, Zhao, Jun-Hui wrote:

| Hi Attila,

As we discussed on our last meeting, we need to extract the information antenna-based error information as function of time or scan number. These information are stored in the header table `*/we_read /*` as you pointed out. Unlike other header tables, we have issues to extract the information from this table. It is possible that I have missed something in my program or the structure of `*/we_read /*given*/` in the current SMA data file format ( posted on wiki by Taco, Attila tags: data:analysis <<http://sma1.sma.hawaii.edu/internal/wiki/index.html?type=tags&value=data%3Aanalysis>> last updated: 2018-11-15 10:25:10) may need to update.

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\*Jun-Hui Zhao

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**Attila Kovacs** <[attila.kovacs@cfa.harvard.edu](mailto:attila.kovacs@cfa.harvard.edu)>

Tue, Nov 27, 2018 at 11:56 AM

To: "Zhao, Jun-Hui" <[jzhao@cfa.harvard.edu](mailto:jzhao@cfa.harvard.edu)>

I should add that the flags are baseline-based (not antenna based), since the data file is entirely baseline-based.

-- A.

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**Zhao, Jun-Hui** <[jzhao@cfa.harvard.edu](mailto:jzhao@cfa.harvard.edu)>

Tue, Nov 27, 2018 at 12:07 PM

To: Attila Kovacs <[attila.kovacs@cfa.harvard.edu](mailto:attila.kovacs@cfa.harvard.edu)>

Which parameters? "in flags" ? Thanks, Jun-Hui

[Quoted text hidden]

--

**Jun-Hui Zhao**

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**Attila Kovacs** <attila.kovacs@cfa.harvard.edu>  
To: "Zhao, Jun-Hui" <jzhao@cfa.harvard.edu>

Tue, Nov 27, 2018 at 12:16 PM

Hi Jun-Hui,

I misspoke a bit, sorry.

You are correct that 'we\_read' has, in fact, the antenna based flag information, since 'we\_read' reports information from each weather station (that is the hangar, and each of the antennas).

However, I'd guess it's a bit weird (although totally possible) to dig these flags out of the weather file.

I'd say it's better to deal with the baseline flags from the 'sp\_read' file. The flags there have the same interpretation as in 'we\_read', except that they are merged from the two antennas that constitute the baseline.

-- A.

On 11/27/18 12:07 PM, Zhao, Jun-Hui wrote:

Which parameters? "in flags" ? Thanks, Jun-Hui

[Quoted text hidden]

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**Zhao, Jun-Hui** <jzhao@cfa.harvard.edu>  
To: Attila Kovacs <attila.kovacs@cfa.harvard.edu>

Tue, Nov 27, 2018 at 12:38 PM

This is the issue of the MIR-IDL. **CASA** needs antenna-based information. This applies to **Tsys** as well. It would be a good idea to provide antenna-based information. The table **we\_read** appears to have stored the **antenna-based error** information along with the **antenna-based weather information** for each of the time steps that we need for fixing the data issues and perhaps in calibrations. It is matter to extract the valuable data from this header table. Can we extract the information from **we\_read** ?

For the table **tsys\_read**, it is not too difficult to solve for antenna-based **Tsys** from the baseline-based storage.

But the **Tsys** values seem to be misplaced between lower/upper IF entries and receiver entries when the **SMA** in the **dual RX** operation modes. We need to sort out the confusion.

Thanks, Jun-Hui

[Quoted text hidden]

[Quoted text hidden]

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**Zhao, Jun-Hui** <jzhao@cfa.harvard.edu>

Tue, Nov 27, 2018 at 1:03 PM

To: Attila Kovacs <attila.kovacs@cfa.harvard.edu>

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**CASA** needs **antenna-based flags**. We could solve it from the **baseline-based** entries stored in **sp\_read**. But the on-line storage format has not defined the **baseline-based flag status**; for example, antenna1 is on flag status **0x00000004** and antenna2 is on other status **0x00400000**, how do we define the flag status for the baseline antenna1-antenna2? For a total of 22 antenna-based flag status, the number of combinations for possible baseline-based flag status will be tremendous. How do we handle the definition? Of course, we can solve for the **antenna-based flag status** from **baseline-based storage** if the online data supply adequate information.

It would be a practical way to read the table **we\_read**. What do you think?

Jun-Hui

[Quoted text hidden]

--

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**Attila Kovacs** <attila.kovacs@cfa.harvard.edu>  
To: "Zhao, Jun-Hui" <jzhao@cfa.harvard.edu>

Tue, Nov 27, 2018 at 1:31 PM

Hi Jun-Hui,

I guess you have no other option left but to use `we_read` for the antenna flags. I'm just worried that we have not spent the same effort in making sure that flags in `we_read` is properly propagated -- although it should be so for the more recent files...

This is a more general problem between MIR and CASA. The idea of MIR is that it is entirely baseline-based. It's lucky that you can use `we_read` in this case, because `we_read` is really a collection of weather stations, not antennas. It is just 'luck' that for us each antenna has its own weather station...

-- A.

On 11/27/18 1:03 PM, Zhao, Jun-Hui wrote:

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It would be a practical way to read the table `*/we_read/*`. What do you think?

Jun-Hui

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[Quoted text hidden]

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Tue, Nov 27, 2018 at 1:55 PM

Hi Attila,

We can discuss this issue on our next SMA data meeting.  
Is Thursday (11/29) at 4pm OK for you? I just noticed that the time conflicts with CfA colloquium. But the agenda items are for the details of adapting SMA storage data to CASA, which are tedious to most of the people. You are the key person to help sort out the issues. Will you be in on Thursday?

Jun-Hui

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**Attila Kovacs** <[attila.kovacs@cfa.harvard.edu](mailto:attila.kovacs@cfa.harvard.edu)>  
To: "Zhao, Jun-Hui" <[jjzhao@cfa.harvard.edu](mailto:jjzhao@cfa.harvard.edu)>

Thu, Nov 29, 2018 at 11:24 AM

Hi Jun-Hui,

I'll have to leave around 4:30. But, you and I could meet earlier, any time after 3pm. Feel free to come by my office.

-- A.

On 11/27/18 1:55 PM, Zhao, Jun-Hui wrote:

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[Quoted text hidden]

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**Zhao, Jun-Hui** <[jjzhao@cfa.harvard.edu](mailto:jjzhao@cfa.harvard.edu)>  
To: Attila Kovacs <[attila.kovacs@cfa.harvard.edu](mailto:attila.kovacs@cfa.harvard.edu)>  
Bcc: "Moran, Jim" <[jjmoran@cfa.harvard.edu](mailto:jjmoran@cfa.harvard.edu)>

Thu, Nov 29, 2018 at 11:57 AM

Hi Attila,

Half hour would be good for going through the critical issues. We can meet at the room M240 at 4pm where I have reserved for 4-5pm today. We need cyber link and the big TV terminal there. Here is the link of the proposed

agenda for today's meeting:

<https://www.cfa.harvard.edu/~jzhao/SMA-CASA/testmtg2018/swarm2casaTmtg112918.html>

Feel free to circulate it to anyone you would like to invite. I have announced this meeting a week ago. There may be more people coming. You can leave earlier after we go through the issues that need your help.

Thanks, Jun-Hui

[Quoted text hidden]

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