EVN Technical and Operations Group Meeting

Madrid, Spain, February 9, 2016

Minutes

Participants:

http://www.oan.es/tog2016/show_registered.php

Agenda:

http://www.radionet-eu.org/radionet3wiki/doku.php?id=na:eratec:tog:tog-meeting-06:tog-agenda-feb2016

1 Local Arrangements/Opening Remarks
(Colomer, Pablo Vicente, chair)

No opening remarks, as these were already done during the GMVA meeting on the previous day.

Presentation by Vicente, used throughout meeting: Notes from the TOG Chair

2 Approval and last minute additions to Agenda

No additions, Agenda was approved

3 Acceptance of minutes from last meeting, Robledo de Chavela, June 24, 2015

Minutes were accepted without comments

4 Review of action items from last meeting

1. All stations to measure beam-maps at L- and C-band (provided appropriate software is available at the telescopes) and send them to Keimpema. Update the table at https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/Beam_maps.

    - Vicente urges all stations once again to update the table. Action remains.

2. Upgrade to SDK9.4 first at the correlators then at the stations.

    - Done at correlator, and at Hh, Jb and Ys. All stations should update, instructions are available on Haystack website. Needed for several reasons, one being that some Python scripts need newer Python, and thus newer Debian. Rottmann reports some problems with a crashing Mark5B, when idling, but also notes that this is a RedHat system. Verkouter mentions that memory errors do occur in the StreamStor. Action remains.

3. All stations (except Wettzell): implement 80 Hz continuous calibration and update table at https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/Continuous_calibration_%2880_Hz%29

    - Vicente urges all to update tables on wiki. Hh: working on it. Jb: planning to. KVAZAR: no DBBCs but planning to implement it. Action remains.

4. Lindqvist to talk to Kvasar friends about possibility (and need) to provide Tsys.

    - Done during PC meeting. Action done, remove.

5. Szomoru to send out document to all stations dealing with the upgrade of Mark5 to Wheezy OS and SDK9.4.

    - Haystack has published all documentation online. Remove action.

6. All stations: contact Vicente for explanation on method how to improve K-band calibration using sky-dips

    - No-one has contacted Vicente, action remains. Should be more pro-active wrt this topic.

7. Himwich: implement dbbc=version, fila10g=version query in sched_initi or exper_initi in the FS

    - Action done, remove.

8. Verkouter: implement jive5ab=version query

    - Action done, remove.

9. Himwich: implement query in FS to ask for jive5ab version

    - Action done, remove.

10. JIVE: set up a wiki page, summarizing problems per station. Stations must give response before each TOG.

    - Ongoing, action remains.

11. Campbell, Quick, Gunn, Himwich, Vicente, re-think way of distributing schedules, to prevent wrong schedules from being observed

    - Done, Vicente has created script to check discrepancies, available in VLBI utilities on deki. Action done, remove.

    - Cambell and Gunn also mention that schedules are now distributed only from JIVE to prevent past errors arising from distributing them directy from PIs (they said something like that, you can check with Bob).

12. Vicente to send script he wrote for similar purpose as described in action 9. to Duev.

- Action done (script is in the deki), remove.

13. Vicente to attempt to raise priority of VLBI at Jb at the CBD

- Action done, remove.

14. All: fill out & review the table with frequency information in the TOG wiki
    https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/Frequency_ranges_for_2%2F%2F4_Gbps

- New action Vicente, move this action to list of permanent action items.

15. Campbell to come up with realistic numbers for disk space needed, both for disk-shipping and FlexBuff stations.

- Campbell: regular sessions at 1Gbps run to about 70 TB, which means that the 144 TB on a FlexBuff should be enough for 2 sessions. Action done, remove

16. Quick, Cambell, Vicente discuss SCHED, contact Amy Mioduszewski and Cormac Reynolds about Pointing sector and DBBC version handling.

- Ongoing, action remains.

5 Review of permanent action items

No particular issues

6 Radionet4 NA proposal (WP4.1 TOG & GTG)

Vicente: if approved, it will start in 2017. TOG is part of Work Package 4.1, documents, meetings and measure of quality of network should be part of the outcome of the meetings. Work Package 4 is led by Hans van der Marel (Astron).

7 Reliability/Performance of the EVN

- Reliability/Performance of the EVN (Mao)

- NME results (Mao)

- Feedback from last sessions

- Presentation by Mao: EVN Performance and Reliability

- Some discussion about overflagging in UVFLG. There should be more advice to the PI, the data are still there with negative weights.
- Gunn mentions that flagging from log files is not necessarily correct, as there may be delays in communicating the position of the telescope to the Field System. **ACTION** on all stations: measure discrepancy between actual tracking of source and log information.

- Mao mentions one experiment in which the quality of the image was improved by removing Ef (wasn't it Sr?, you can check with Minnie). Not clear yet what is wrong with the data.

8 Amplitude Calibration

- Quality of calibration (Mao)

- Timely delivery of ANTAB-files? (Mao)

- Presentation by Mao: EVN Amplitude Calibration

- Continuous cal: availability at stations, issues processing antab during last sessions? (all)

- Presentation by Vicente (see agenda item 1)

  - Vicente asks whether the correlator can handle continuous calibration. Campbell answers this is the case, but ANTAB and RXG files are needed. **ACTION** all stations: provide both files.
  - Vicente also mentions that a script has been written at Yebes to process continuous data from the DBBC. The script is available at the deki. Uwe Bach mentions they also have a script and that modifications could be done to the standard script that Jon Quick modified the last time.

9 Digital BBC-systems

- Summary from the DBBC master (Alef for Tuccari)

Presentation by Alef: DBBC2 status

- DBBC. Status at the telescopes: number of COREs, Fila10G (All)

  - Vicente urges all stations to update the tables on the wiki with info on backends, in order to prepare for 4Gbps operations.

- Russian backends. Developments (Marshalov)

- Presentation by Marshalov: KVAZAR

10 Recorders: Mark 5, 6, Flexbuf

- Jive5ab and m5copy (Verkouter)

- Presentation by Verkouter: Jive5ab and tools

- Status: Mark 5A/B/B+/C software, firmware, SDK9 (Lonsdale for Ruszczyk)

- Presentation by Lonsdale: Mark5 software status

- Flexbuff

- One slide by Vicente (see item 1)

- Mark6 as Flexbuff (Bach/Alef)

    - Bach: instructions are on wiki since last May. Recommends to buy large disks for FlexBuff, but should of course keep sweet spot in mind, certain size is always the best buy at a certain point in time.

- Disk inventory and purchase status (Vicente, all)

    - Vicente: numbers in the tables on wiki are not quite correct. **ACTION** all stations + Campbell: stations to provide correct numbers, Campbell to update tables.
    - Many stations have not purchased disks.

- Disk space contribution from FlexBuff and Mark6 units (all)

    - Ef, On, Ys: 144 TB FlexBuff for JIVE, plus local space at the stations (approximately 144 TB or more per station)
    - Gunn: operational efficiency 50 to 40%. Could observe more with more media, certainly more than 50%. GST range also limits efficiency, as does disk quantization. Campbell mentions that big packs make the scheduling of small sessions (like out of session observing) difficult. FlexBuff should make the situation much easier. It was agreed that stations using FlexBuff (one unit for the station and one for JIVE) cease purchasing disks. This will encourage stations to move towards FlexBuff operations. The more stations use FlexBuff the more free diskpacks will be available for non-FlexBuff stations releaving the shortage of disk packs in the network. Directors should be kept informed of lack of media (old action) and of the policy agreement regarding stations using FlexBuff.

11 Technical Developments

- Triggered observations (Kettenis)

- SFXC (Kettenis)

- 2 Gbps eVLBI (Vicente, Verkouter, Kettenis)

- Presentation by Kettenis: SFXC and other issues

- Presentation by Verkouter: 2gbps evlbi software issues

    - **ACTION** all stations that wish to participate in 2Gbps e-VLBI: have a functional DBBC proxy before the call in May, **ACTION** Verkouter: send out description of DBBC proxy system.

- PFB mode (Vicente)

- Towards 2-4 Gbps operations (Vicente)

    - Himwich: is continuous calibration going to happen at 4Gbps. General opinion is not in near future, but eventually.

- Not quite clear whether 2Gbps should be done in DDC or PFB mode, or both, however, 4Gbps needs PFB, common LO is needed.
- Vicente: organise test at 2 Gbps PFB mode with calibration before next session. Campbell needs to analyze PFB data (FR028) first. **ACTION** Mc, Ef, Ys: send FR028 data to Campbell.
- Vicente: organise a 4 Gbps test before the end of 2017.

12 DIVA

- Presentation by Alef: DIVA

13 BRAND

- Presentation by Alef: BRAND

14 JIVE

- Presentation by Szomoru: Technical Operations and R&D at JIVE

15 Haystack

- Presentation by Lonsdale: Haystack status

16 NRAO

- Presentation by Brisken: NRAO status

17 Field system, status and new features

- Presentation by Himwich: FS

18 Last minute additions

- Experiments transferring the clock through Internet (Campbell)

  - Campbell: Tr now has a connection to the H maser at a metrological institute in Poznan, as their own maser is dying slowly. Was tested, worked fine last January. Last test with on optical lattice clock, this however showed some phase acceleration.

- NOEMA overview (Bremer)

- Presentation by Bremer: NOEMA status

19 Mid term future

- Technological developments for 2016-2018. EVN in the future (open discussion)

  - Lindqvist: upgrade from 2 to 4 Gbps.
  - Alef: prepare telescopes for high bandwidths, RF over fibre from the cages.

- Campbell: users want eMerlin, which is being offered in next call in spite of funny sampler stats.
- Lonsdale: Haystack might at some point join EVN.
- Campbell: fringe test with Ghana in spring, training of astronomers, engineers as part of H2020 proprosal.
- Lonsdale comments on limit imposed by media, finds it hard to believe that money should be a problem considering the price. Gunn answers that even more disks will never give 100% efficiency and also mentions that proposals with low scores could get in if efficiency increases. Vicente mentions that more disk space will allow going to higher bandwidths, thus limiting the number of bad proposals that might be observed.
- Szomoru: should present way forward in doable chunks, with time limits and price estimates.
- Alef mentions that we should aggressively aproach new technology (Flexbuff+DBBC3) with a subnet of stations willing to test it. These stations can be pathfinders for the rest and should drag others to adopt these new equipment. That would encourage using higher bandwidths and disk space flexibility.
- Kettenis mentions the shared risk approach of NRAO, however Brisken notes that this has pros and cons.
- Vicente will take all this aboard in his report to the EVN board.

20 Date and place of the next TOG meeting

St Petersburg, September 19 2016, just before the EVN Symposium.

21 AOB

Updated list of action items:

1. All stations to measure beam-maps at L- and C-band (provided appropriate software is available at the telescopes) and send them to Keimpema.

2. Upgrade to SDK9.4 first at the correlators then at the stations.
3. All stations (except Wettzell): implement 80 Hz continuous calibration.
4. All stations: contact Vicente for explanation on method how to improve K-band calibration using sky-dips
5. JIVE: set up a wiki page, summarizing problems per station. Stations must give response before each TOG.
6. Quick, Cambell, Vicente discuss SCHED, contact Amy Mioduszewski and Cormac Reynolds about Pointing sector and DBBC version handling.
7. Vicente: move action "All: fill out & review the table with frequency information in the TOG wiki" to permanent action items.
8. All stations: measure discrepancy between actual tracking of source and log information.
9. All stations: provide ANTAB and RXG files to correlator.

10. All stations: stations to provide correct numbers of disk inventory
11. Campbell to update tables of disk inventory
12. All stations that wish to participate in 2Gbps e-VLBI: have a functional DBBC proxy before the call for proposals in May
13. Verkouter: send out description of DBBC proxy system.
14. Mc, Ef, Ys: send FR028 data to Campbell
15. Vicente: organise a 4 GHz PFB test before end of 2016.