

EVN Technical and Operations Group Meeting

Ventspils, Latvia, May 23, 2017

Minutes

Participants:

<http://evntog2017.venta.lv/registration/>

Agenda:

<http://www.radionet-eu.org/radionet3wiki/doku.php?id=na:eratec:tog:tog-meeting-07:tog-agenda-2017>

1 Local Arrangements/Opening Remarks

(Berzukovs, Vicente)

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

Rottmann would like to bring up the discarding of small disk packs from the pool. Vicente suggests this will be done as part of the “flexbuff” discussion. No other additions, agenda was approved.

3 Acceptance of minutes from last meeting, St. Petersburg, September 18, 2016

Minutes were accepted without comments

4 Review of action items from last meeting

Vicente will move links to new Indico web server and to new Radionet wiki.

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

- **Action remains.** **New action: Szomoru to ask Keimpema to re-send email to stations requesting beam maps.
2. Upgrade to SDK9.4 first at the correlators then at the stations.
 - Some stations still use 9.3. All please upgrade. **Action remains.**
 3. Add Irbene to <http://mark5-info.jive.nl>
 - Done, **remove.**
 4. 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

A round list was done to check the status with the VLBI friends:

- Wb: still missing diode, maybe ready for 3rd EVN session
 - Mc: first tests
 - Sr: rebuilding surface
 - Nt: new control system
 - Jb: system in place, waiting for software
 - Kvazar: maybe at end of year
 - Ir: system needs to be affixed to receiver box
 - Tr: very soon, all in place
 - **Action remains.**
5. JIVE: set up a wiki page, summarizing problems per station. Stations must give response before each TOG.
 - This is part of Jumping JIVE. **Action remains.**
 6. Provide frequency information of the stations to de Vicente. To be done filling the data in the wiki.
 - **Action remains.**
 7. All stations: measure discrepancy between actual tracking of source and log information.
 - Tr: more or less accurate depending on frequency.
 - Jb: problem with transfer of FS command, can lead to a minute delay sometimes
 - No further action possible, **remove.**
 8. All stations: provide ANTAB and RXG files to correlator.

- Blanchard: stations should put info in RXG entry on VLBEER
 - **Move to permanent actions.**
9. Send e-mail to stations with problems after results of Session II, 2016 have been published, as some/many of the problems were already reported and may have been fixed.
- Done, **remove** action.
10. If station's amplitude calibration deviation > 0.1 must do on/off measurement. Reference here: <http://www.radionet-eu.org/radionet3...:evnampcal.pdf>
- **Move to permanent actions.**
11. Move calibration procedure to post-ob; discuss with Himwich to do this as post-ob is rarely included in the procedures.
- **Remove** action.
12. Cambell to provide list of stations that have not yet fully implemented data valid on/off.
- **Remove** action.
13. Update table https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/2Gbps on the wiki. In case of problems with the DBBC contact Gino Tuccari.
- **Remove** action, Vicente will present new table.
14. If a station is not buying a FlexBuff, purchase disk packs
- **Action remains.**
15. Include Ir into the e-EVN in 2017
- Done **remove** action.

5 Review of permanent action items

No particular issues

6 Reliability/Performance of the EVN

- Reliability/Performance of the EVN (Blanchard/Campbell)
- NME results (Blanchard/Campbell)
- Feedback from last sessions (Blanchard/Campbell)

- Presentation by Blanchard: [EVN Performance and Reliability](#)
 - FS crashes should be reported to Himwich, who will follow up.
 - **New action:** everybody pay attention to autocorrelation plots.
 - **New action:** Blanchard to collect cases of bandpass dips to present to Tuccari.
 - Robledo will test new version of their backend in the fall

7 Amplitude Calibration

- Quality of calibration (Blanchard)
- Continuous cal: availability at stations (Vicente)
- antabfs script (Vicente)
- Presentation by Blanchard: [EVN Amplitude Calibration](#)
 - Discussion about lack of opacity correction at high frequencies. Vicente: should we ask stations to provide opacities? Blanchard: would need to re-write pipeline, but might be useful for Pis. **New action** Vicente: talk to Himwich about possibility to inject opacity information into FS logs.
 - **New action** JIVE: distinguish between Jb1 and Jb2
 - Gunn: there is no calibration in K band, just a guess, but there will be a new K-band receiver soon

8 VLBI backends

- DBBC2 firmware issues: V105E and PFB modes (all).
- Other VLBI backends: DPV, DAS R1002,

Presentation by Vicente

- Some people have noted spikes in autocorrelations, not RFI, generated by DBBC? Bach reports that these are gone after reload of firmware, confirmed by Quick.
- Some confusion about different firmware versions, what is available
- Reports on Ir DBBC getting stuck, after fix DDC works, but PFB not.
- **New action** Rottmann: define proper policy for release of firmware versions
- New version v106e seems to be available, needs fringe test, after session
- Vicente and Alef urge all to provide feedback and documentation of problems

9 Recorders: Mark 5,6, Flexbuf

- VDIF available for DAS R1002, KDAS, CDAS? Would require usage of Mar5C.
 - Campbell: CDAS has only been used with Mark5b until now

- Verkouter strongly endorses the use of VDIF
- jive5ab & m5copy news? (Verkouter)
- Presentation by Verkouter: [Jive5ab 2.8.1](#)
 - Only 64 bit Wheezy version will be provided from now on
 - Rottmann ask if Mark6 can be accessed by fuse. Verkouter: yes, transparently. Also recording in either system.
- Status: Mark 5A/B/B+/C software, firmware, SDK9 (all)
 - Rottmann raises issue of small disk packs. Are now boxed, but is it allowed to throw them away? Decision to contact owners and set deadline at end of next week.
 - Rottmann wonders whether we should continue to use metal covers (once meant to prevent theft). Best to use antistatic bags instead.
- Disk inventory and purchase status (Vicente, all)
 - Slides by Vicente
- Flexbuff status (all)
 - Alef asks if stations should change to raid5 on FlexBuff. Consensus is that this is up to the stations.
- Possible flexbuff upgrades: more space
 - Vicente suggests to upgrade FlexBuffers with 8TB disks, use freed-up 4TB disks for disk packs
 - Vicente mentions a script written by Italian colleagues to monitor temperature of disks. This script will be included in a to-be-created repository of useful scripts. Advice is to monitor temperatures.

10 Stations

- e-Merlin in the EVN
 - Campbell: 1st session has only Cm

11 e-VLBI

- Current correlator capabilities and future ones.

- Will be mentioned in presentation by Szomoru
- KVAZAR network integration in the eVLBI. Dates.
 - No clear answer at this point, TOG chairman urges Marshalov to take this up with his director.
- 2 Gbps in the remaining stations.
 - Slide by Vicente
 - Alef makes the case that recorded stations should be added to e-sessions, for better science. Szomoru argues that distinction between e and recorded is slowly disappearing with e-shipping, however the fact that no recording media are needed is now still big selling point for e-VLBI.
 - Garcia Miro mentions that Rb might be able to do e-VLBI one session per year. **New action** Garcia Miro: find suitable data for real-time fringe test, possibly during next e-VLBI run of June 20.
 - Sr: hopefully within one year, only last meter connection needed it seems
 - KVN: will produce 2 pols: 1G unchannelised, 2G channelised. This causes problems at the correlator
 - Tr: 2 extra core boards in DBBC needed, or PFB mode
 - Wb: buying two extra core boards
 - Kvarar: unknown
- Potential longer eVLBI sessions (Gunn?)
 - Gunn: unless GST range is doubled there is no real pressure or motivation

12 Technical Developments

- Improvement of PCAL Signal Distribution on RT-32 Radio Telescopes of «Quasar» VLBI Network
- Presentation by Marshalov: [Improvement of PCAL Signal Distribution on RT-32 Radio Telescopes of «Quasar» VLBI Network](#)
 - Bach inquires whether JIVE is actually using PCAL. Campbell: is turned off, no benefit
- 4 Gbps status. Last tests (Vicente)
 - slide by Vicente
 - notes that only 2 core boards are needed if we are using PFB mode
- m5copy graphical tool for transfers (Eldering)
- Presentation by Eldering: [Jive5ab Copy Manager](#)
 - Vicente notes that the operators at Yebes really like and use the tool

- Auxiliary scripts. Central repository? (Vicente)
 - Has been discussed, skip
- DBBC3. Current status, backwards compatibility and available firmware (Alef)
- Presentation by Vicente: [DBBC2 - DBBC3 report](#)
 - Bezrukovs inquires about the price. Alef: biggest version 120 keuro
 - BRAND (Alef)
 - Short intro by Alef, no slides available, see RadioNet reports
 - Future backends compatibility: BRAS, CDAS2, DPV, DBBC3
 - Slide by Vicente
 - Himwich wonders about a standard way communicating with devices, instead of having to re-write all software every time new hardware comes along. Alef: would VSI-S be appropriate? Himwich: VEX2? Vicente: should this be discussed at IVTW in Bologna later this year. Ruszczyk, Himwich and Vicente volunteer to set up such a discussion
 - Uniboard.
 - 4 Gbps eVLBI tests
 - Last 2 topics will be covered in presentation by Szomoru

13 JIVE

- Technical Operations and R&D at JIVE, (Szomoru)
- Presentation by Szomoru: [Technical Operations and R&D at JIVE](#)

14 LBO (was NRAO VLBA)

- LBO status report (?)
 - *Presentation by Brisken*, via telecon, no slides
 - LBO now paid 50% by USNO. Not much has changed over the last period, next few years should be stable.
 - 4G tests done using dual Mark5C
 - not much progress towards Mark6
 - GBT harder to get access to
 - Use of individual VLA antennas is possible
 - *Presentation by Romney*, via telecon, no slides

- Reports on longstanding bug in firmware, caused occasional phase jumps, very hard to debug
- Finally, firmware was re-written, along with control software
- Attempting to get rid of very outdated single board computers at station

15 Haystack

- Haystack status report (?)
- Presentation by Ruszczyk: [Haystack status](#)
 - Some discussion on equipment troubles at high altitude, where exactly starts high altitude, somewhere between 1000 and 3000 meters
 - Brisken asks about prices for upgrade kits, not advertised by Conduant. Ruszczyk: only upgrade to expansion chassis are available, not to main
 - Romney asks about replacement of end-of-life components in Mk6. Ruszczyk: should be ok, but in some cases may need to replace motherboards
- RDBEG features (Ruszczyk).
- R2DBE status (Ruszczyk).
 - Vicente: use 4 RDBEs at Yebes, quite content with performance

16 Field System, status and new features

- Status report, new developments (Himwich)
- Presentation by Himwich: [Field System Status](#)

17 Long term future

- Technological developments for the future. How should we prepare: 1 GHz IFs? Optical fibers from Rxs?
- Wide bands
 - Vicente: use 4 RDBEs at Yebes, quite content with performance
 - Verkouter asks about science goals, Vicente: Jumping JIVE will define these. Alef mentions the condensed science case in the BRAND proposal
- DBBC3 tests
- DBBC3 implementation at the FS
 - Vicente asks about DBBC3 – FS integration. Alef suggests this should be part of the discussion to be held at the IVTW in Bologna, need consensus for testing new firmware etc, Tr will have to test a new Fila10G, there should be a commitments to regular test in the EVN, and already think of what is needed to test DBBC3.

- Rottmann mentions the lack of a test bed for Tuccari, which is strange.
New action Vicente: ask directors to provide funds for this.

18 Jumping JIVE

- WPs
 - Already discussed, skip

19 Date and place of the next TOG meeting

- Shanghai Observatory, will let us know soon exact date, ~March 22 2018?
- Following TOG in conjunction with EVN Symposium, October 8-11 2018

20 AOB

- Vicente congratulates the Irbene staff for the fantastic progress they have achieved in the last very few years.
- Bezrukovs mentions the Applied Astrominformatics & Space Data Processing conference to be held soon in Latvia.

Updated list of action items:

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2. **All:** Upgrade to SDK9.4 first at the correlators then at the stations.
3. **All:** 80 Hz continuous calibration. Update the table: https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/Continuous_calibration_%2880_Hz%29
4. **JIVE:** set up a wiki page, summarizing problems per station
5. **All:** provide frequency information of the stations to de Vicente
6. **All:** If a station is not buying a FlexBuff, purchase disk packs
7. **Szomoru:** ask Keimpema to re-send email to stations requesting beam maps
8. **All:** pay attention to autocorrelation plots
9. **Blanchard:** collect cases of bandpass dips to present to Tuccari.
10. **Vicente:** talk to Himwich about possibility to inject opacity information into FS logs.

11. **JIVE**: distinguish between Jb1 and Jb2
12. **Rottmann**: define proper policy for release of firmware versions
13. **Garcia Miro**: find suitable dat for real-time fringe test, possibly during next e-VLBI run of June 20
14. **Vicente**: ask directors to provide funds for purchasing a DBBC/Fila test setup for Tuccari