EVN TOG Meeting

at Jodrell Bank Observatory

June 26, 2019

This presentation has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 730562 [RadioNet]

Code of Ethics

SKA Organisation expects everyone involved in SKAO-related business to uphold the standards and expected professional behaviour set out in this Code of Ethics.

This Code of Ethics (the Code) includes participation in SKAO-sponsored or organised activities (e.g., meetings, publications, etc.) as well as covering all staff members, temporary workers, secondees, interns, consortium members, contractors, agents, affiliates, meeting attendees and others working for or on behalf of the SKA Organisation.

This Code sits alongside the SKAO Code of Conduct (details below) which is also applicable for anyone who works directly for SKAO either as a staff member, temporary worker, secondee, intern or contractor and includes those acting on behalf of the organisation such as members of the SKAO Board of Directors.

This Code of Ethics does not form part of any employee's contract of employment and SKAO may amend it at any time.

To read the full Code of Ethics, please follow the link below:

SKAO Code of Ethics – November 2017

Code of Conduct for Meetings

Philip Diamond, SKA Director-General

12th September 2018

SKA Organisation is committed to making its science, training and public outreach activities productive and enjoyable for everyone, regardless of gender, sexual orientation, disability, physical appearance, body size, race, nationality or religion. In line with SKAO's Code of Ethics, we have expected levels of professional behaviour that include treating others with respect and contributing to a positive working environment that is free from harassment, bullying and discrimination. We will not tolerate any breaches of these expected behaviours by anyone attending our meetings.

Recently trained two SKAO "ethics champions": Rosie Bolton and Mathieu Isidro

Continuous Calibration

- 4 more stations have installed a cont. cal. system and are using it for observations: Jb, Mh (K-band), Tr, and T6.
- In total 9 stations (Ef, Jb, Mc, Mh, Nt, On, T6, Tr, and Ys) are using continuous calibration.
- The rest of the stations are mostly developing new receiver or backend hardware for cont. cal. as well.

DBBC2 News

- Reliable 1 Gbps firmware V105/V106 in use for many years.
- V107 beta3 firmware with up to 2 Gbps in use for session 2, 2019. Good VLBI performance, but issues with cont_cal.
- V107 beta4 in development, cont_cal issue is solved, timing problems occurred.

Fila10G News

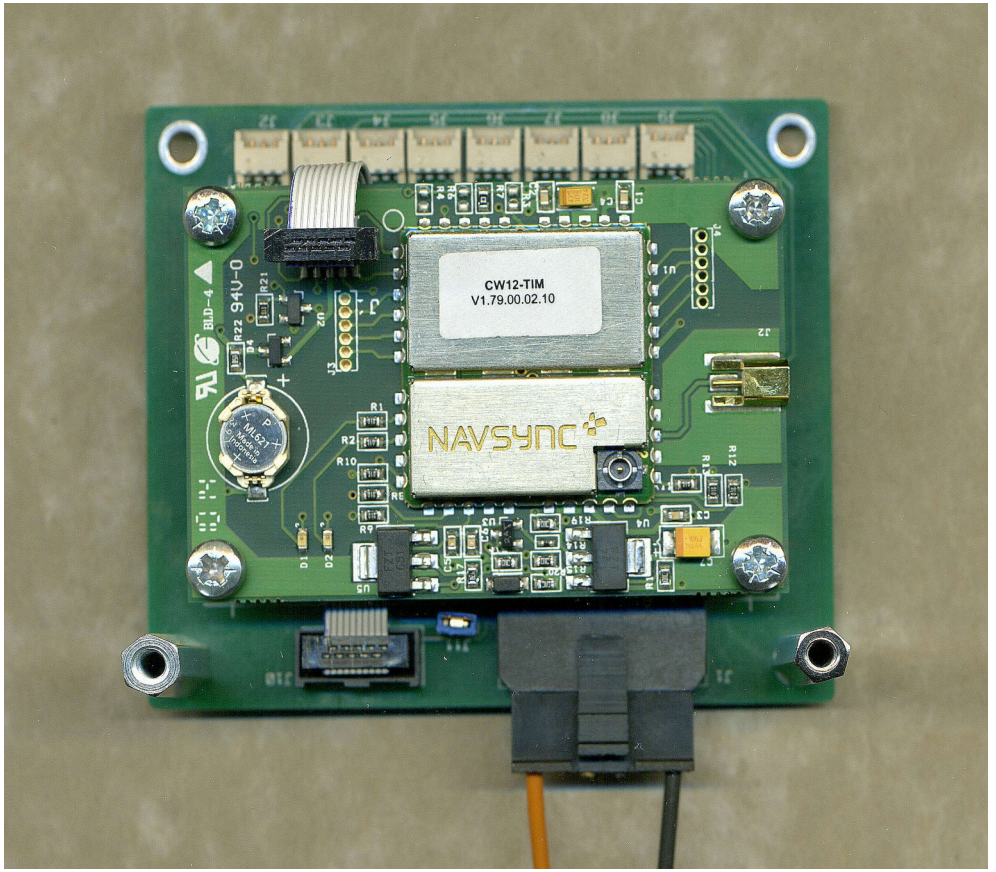
- A number of the GPS modules have not survived the GPS week roll over in April 2019
- Sync via NTP still possible.
- VLBI Lab in Bonn has found new firmware and will provide replacement modules for stations.
  - Stations should check there modules
  - Stations send faulty modules to Bonn and will receive an updated exchange module
  - GPS modules can be removed from the DBBC2/Fila10G independently of the FiaI10G functionality.

Fila10G News

Good modules:

NV08C-CSM

Problematic modules:



NavSync

Fila10G News

- In some Fila10G the Ethernet output packet sizes were wrong when changing from astro to geo modes in the V4_1 firmware with date: “October 20 2017”
- A newer V4_1 version (only recompiled) from “November 2018” seems to work better, but was not distributed yet.

Disk inventory

Disk purchases for disk-packs

The directors agreed in 2011 that each station should buy disk-modules for 7000 € per year.

Year	Ef	Hh	Jb	KVAZAR	Mc	Mh	Nt	On	Sh+T6	Sr	Tr	Ur	Wb	Ys	Total (TB)
2011	32	80	48	48		12								24	196
2012	64	40	80	112	32		64	80					32		504
2013	80	64	80		48	32	64	80		16	40	96	32		632
2014	96		150		32	16	72	150		112			152	72	848
2015		160	192		64		32	192					96	96	832
2016			288		96						64		288*		736
2017	160		96								40		120*		416
2018			0										240*	128*	368
Total (TB)	272	344	550	160	272	60	232	502		128	144	96	960	310	**4208**

Flexbuf purchases (disk space)

In 2016 the TOG agreed that the 7000 € per year investment per station could be used either for Flexbuff space or disk packs. The CBD supported this policy

Year	Ef (S+J)		Hh (S+J)		KVAZAR	Ir (S+J)		Jb (S+J)		Mc (S+J)		Mh (S+J)		Nt (S+J)		On (S+J)		Sr (S+J)		Wb (S+J)		Ys (S+J)		Total (1)
2015	128															324								452
2016		144	(144)	288													(144)					216	144	865
2017	192							144	288	160	120			160	120						288			834
2018					80	288	288	200				103					360	360	360			300	360	
2019			360					240																
Total (TB)	464		454		80	576		768		244		196		244		684		720		202		768		**5264**

Media requirements

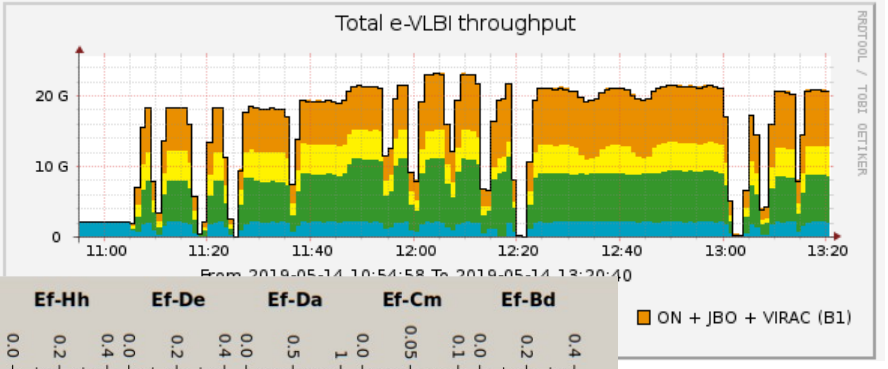
- 2 x 250 TB goal for 2 Gbps recordings
  Roughly achieved by many stations (~460 TB).
- Needs to be increased for 4 Gbps
  Probably not twice, as not all stations can do 4 Gbps because of IF limitations and the offer could be for special cases only
- Mark6 modules?

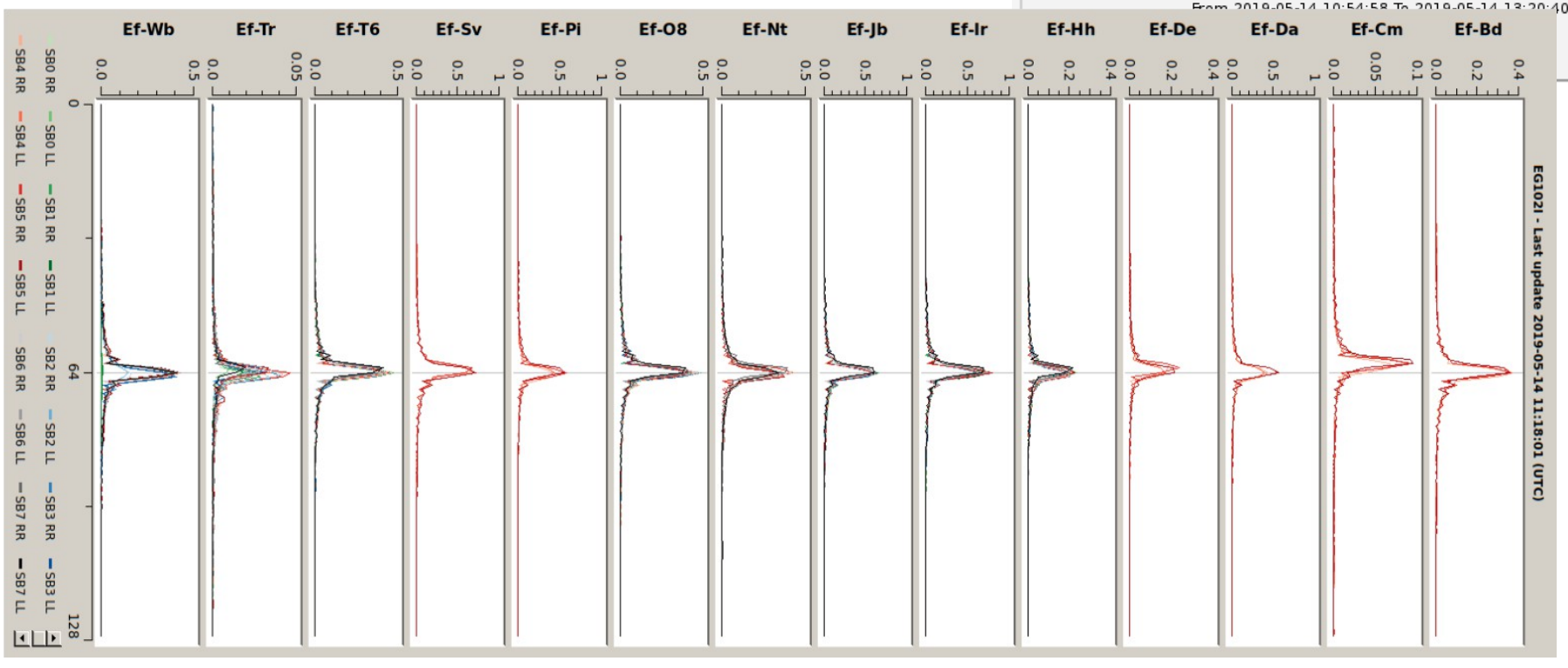
eVLBI status

e-Merlin and KVAZAR network joins eVLBI

- e-Merlin successfully joined the eVLBI network in late 2018. Jb at 2 Gbps and 4-5 out-stations at 512 Mbps.
- First participation of SV in April 2019 at 512 Mbps, participation of Bd, Sv, Zc at 1024 Mbps in May 2019

15 stations eVLBI on May 14th at ~24 Gbps!
Shortly 18 stations, ~27 Gbps incoming traffic!



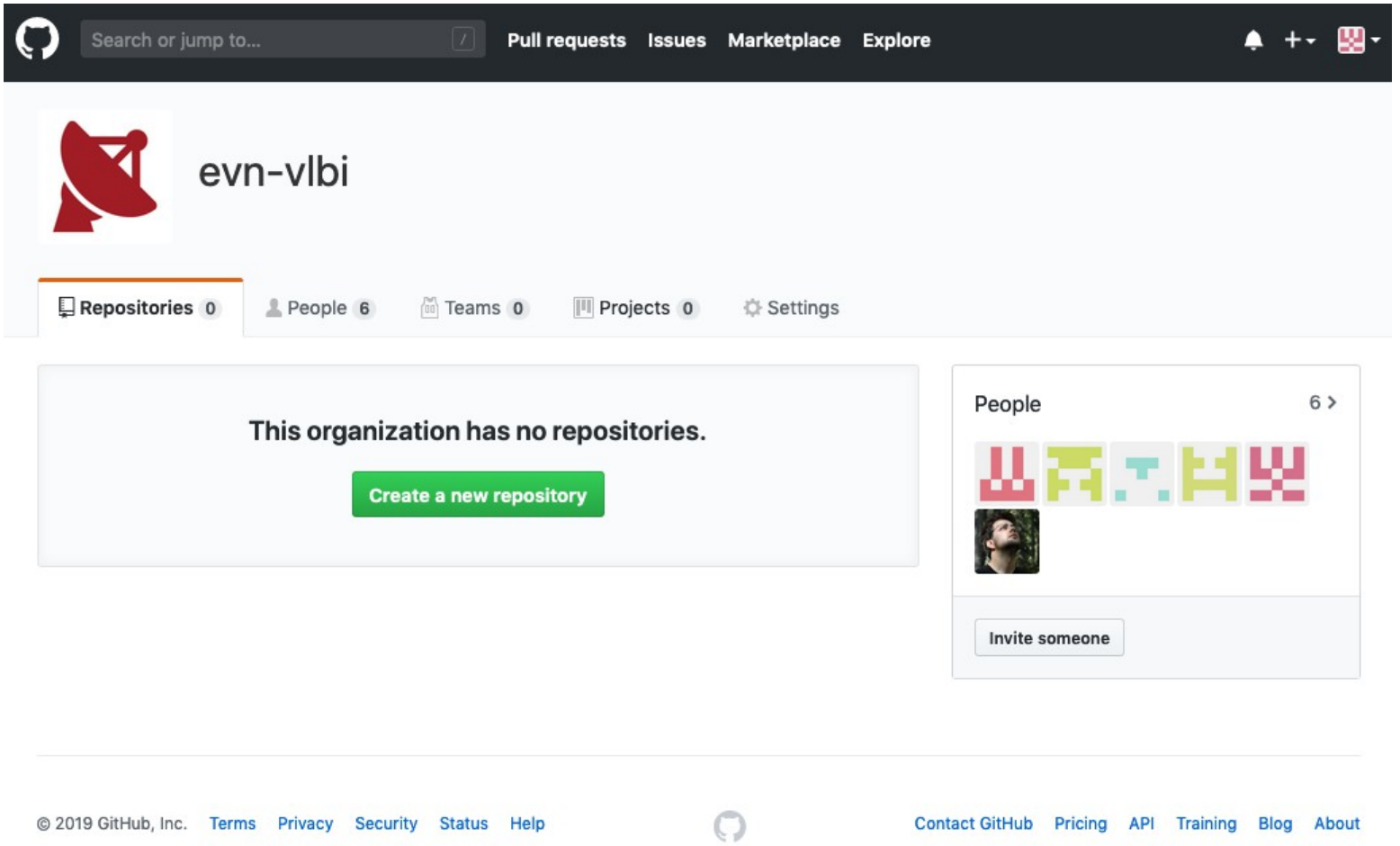


DBBC3 News

- Current firmware versions include:
  - a direct sampling firmware for 4 GHz of bandwidth.
  - Octopus: provides 2 selectable fixed filters of 512, 1024 or 2048 MHz.
  - DDC for VGOS: up to 12 tunable BBCs, USB+LSB of 32 MHz BW.
  - In development: general DDC of 16 tunable BBCs, USB+LSB, selectable BW: 4, 8, 16, 32, 64, 128 MHz *This would be fully compatible with all current EVN/global VLBI modes*

EVN Software Repository

- https://github.com/evn-vlbi



EVN Wiki page updates

Receiver frequency ranges:

https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/Frequency_ranges_for_2%2F%2F4_

Disk inventory:

https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/Disk_Inventory

Recorder/Flexbuff status (2 pages):

https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/Mark6%2F%2FFlexbuff_status

https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/Recorders_EVN_status

2 Gbps status:

https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/2Gbps

eVLBI status:

https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/e-VLBI_Status

EVN Spare parts

https://deki.mpifr-bonn.mpg.de/Working_Groups/EVN_TOG/EVN_spare_parts

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