Minutes of Meeting LOFAR Software

Date:	2010-02-10
Next meeting:	2010-02-17 9:30-10:30
	Multimedia room
Present:	
Andre Gunst	Yes
Ronald Nijboer	Yes
Ruud Overeem	Yes
John Romein	Yes
Michael Wise	Yes
Harm Munk	No
Hanno Holties	No

cc: Arnold Meijster, Rob van Nieuwpoort, Arthur Coolen, Jurjen Sluman, Pieter Donker, Chris Broekema, Joris v. Zwieten, Marcel Loose, Adriaan Renting, Ger van Diepen, Michiel v. Haarlem, Jan Reitsma, Ger de Bruyn, Arno Schoenmaker, Hanno Holties, Corina Vogt, Jan Noordam, Joe Masters, Lars Bähren, Johan Hamaker, Sven Duscha, Jan-David Mol, Teun Grit, Alwin de Jong, Frank Breitling, Anastasia Alexov, Jason Hessels, Joeri van Leeuwen, John McKean, George Heald.

Remarks previous minutes

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Announcements

- LOFAR data school takes place October 11 – 15 in 2010.
- Yesterday a meeting was held about repositories and issue tracking. The minutes are attached in these minutes as a separate section.
- An important milestone has been achieved. Now 18 Dutch stations are validated and ready to be used!

Action item overview

ID	Date submitted	Description	Owner	Planned date	Status
98	20100113	Organize a meeting to decide on the repositories structure and issue/bug trackers for LOFAR. Meeting is held.	André	20100127	Closed
99	20100113	Report on release management.	Harm	20100127	Open
100	20100120	Discuss actions to be done for the LOFAR opening. It is not possible to do an observation and immediately post process it and get an appropriate result. However we can show the data taking and in parallel the post processing of another dataset. That is also the way the telescope will work in reality. Furthermore the post processing pipeline of the pulsars and transients can be demonstrated as well.	All	20100127	Closed
102	20100127	Get clear how users want to do 2000	Ruud	20100210	Closed

		observations in a week for MSSS. Yesterday a meeting was held. Only multiple beams in one observations have to be supported. All the other things are one per MS. One subband and one pointing in one MS. In each observation multiple beams and multiple subband can be specified but they all land in a different MS. In case multiple pointings in time are required, multiple observations have to be specified.			

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Progress

System Integration

Achieved since last meeting:

- Number of validated stations is now 19.
- Michiel and Ruud tested the ITRF beamserver again. For the HBA there is an error which seems to be linear with the distance of the centre of the field. Michiel will take a look to the cause of this (probably the antenna position files). The LBA beamserver results are slightly different than the results from the operational BeamServer which is of concern too. In parallel with this Ruud is busy with the CalServer.
- Integrating the OLAP software for multiple observations give still lots of issues with threaded programming. John is still busy with that. Since the use of MPI between the IO nodes is tedious, John implemented the minimal functionality required from MPI himself.
- Chris is still working on the data writer. He also investigates if we can move the functionality of the storage writer to the IO node self. This makes the implementation much simpler (there is a distributed application less). Currently there is more overhead in NFS then writing to a socket for some reason. This is under investigation.
- There are some problems with some of the humidity sensors in the field. It seems there have been two deliveries of humidity sensors. In the second delivery a wrong resistor is used on the PCB which results in a fault identification (only 58% of the normal humidity). We can compensate for this in the software because it seems to be a linear fault. First Pieter investigates which stations are affected.
- Temperature issue. Highest pirorty digging in the coordinate system.
- We like to have temperature sensor node to monitor is
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Problems / current activities:

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Next actions:

- Solutions for the high station temperature in the summer are under investigation.
- A temperature sensor will be installed in the concentrator node as well.

Imaging Pipeline (Ronald):

Achieved since last meeting:

- There is an issue with the UVW coordinates. It is not yet clear if this is in the storage writer or BBS. This issue popped up recently and was not there before. Joris and Ger v. Diepen are on top of this. Chris should be informed as well.
- Casa and diff map gave a better calibration solution than BBS. Currently the reason for this is investigated.
- Apparently there seems to be CImager documentation available. Ronald makes it available for LOFAR as well.
- The latest CASA imager will be made available for the pipeline as well. Ronald will talk with Ger what is required for this.
- Joris is busy feeding back the clean components (result from the source finding). They are used as an improved sky model for BBS. This will close the major loop.
- Caching in the predict works. Going from 1 component to 300 components took two times more compute time.
- At March 15-19 the dress rehearsal for MSSS is planned. The main aim is to set up a long list of observations. This will focus us on all the practical issues which will pop up at an early stage. Before this rehearsal the connection with MAC/SAS should be ready. Furthermore it gives the right pressure to the user to define the observations (what field, which frequency band covered, etc.).
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Problems / current activities:

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Next actions:

- Focus on the minimal required tasks for MSSS.

Pulsar Pipeline (Michael):

Achieved since last meeting:

- Alwin is busy with the datawriter and needs input from Jan-David on the input end and Lars for the output end.
- Lars is working on the data classes.
- The beamformed ICD is finalized.

- Jan-David is busy with the second transpose operation.
- Five of the six main offline components are integrated in the repositiory and build system. Next step is to integrate this in the offline pipeline. This will be done by Ken.

Problems / current activities:

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Next actions:

- Implement second transpose operation.
- Update BF datawriter.

VHECR Pipeline (Michael):

Achieved since last meeting:

- Last Wednesday the first VHECR pipeline meeting was held.
- The tasklist have been discussed and extra tasks have been added.
- Andreas and Arthur are testing the LCU trigger code.
- The FPGA trigger code is working and tested.
- TBB writer is more or less working, but needs an update to connect to the DAL.
- Long list of offline tools is drafted up. For that a new developer was hired. Those tools are already integrated in the repository.
- The particle detectors should be in the field for commissioning the VHECR pipeline. We have to design this particle detector in the current system.
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Problems / current activities:

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Next actions:

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Infrastructure (Harm)

Achieved since last meeting:

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Problems / current activities:

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Next actions:

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User Data and Archive (Hanno)

Achieved since last meeting:

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Problems / current activities:

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Next actions:

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Minutes Repository and Issuetracker meeting

Date: 9-2-2010, 14:00
Present: Hanno, Michael, Harm (from 14:45), Marcel, Lars
Topic: Repositories and bugtrackers

Now:

Repository	Issue tracking	Dashboard
LOFAR (svn.astron.nl)	-- Bugzilla	-- CDash
USG (usg.lofar.org)	-- Redmine? (already in transients-ksp.org)	-- CDash
ROD (svn.astron.nl)	-- Bugzilla	
Operations (svn.astron.nl) [mostly WSRT and will be merged in ROD]	-- CRAFT (custom build)	
cvs.astron.nl		
CVS (cvs.astro-wise.org)		

Work towards:

Issues can end in a bug or an issue and needs to be tracked and closed.
Forum is disconnected, just a discussion place.

		Forum
Public	User	Helpdesk
----------Filter layer		
Internal	RO	Issuetracker
		Bugtracker

Entered by: user, internal
Assigned to: support scientist, system engineer, hw engineer, sw engineer

Different repositories now on different machines. They can use the same account system.

Do we want to integrate all repositories on one machines?

Do we want to merge all the repositories on one repository?
According to Marcel this is not necessary: A repository is just like a database, wherein you can define multiple tables. Do you prefer to use multiple databases or multiple tables within the database. In fact all independent software can be in a separate repository. If this is the case we should put each component, SAS/MAC/OLAP/common/etc. in a separate repository.

Hanno: but you like to maintain one repository. For example you do not want to maintain multiple user interfaces.
Marcel: this is not necessary. If the repositories are on one machine you can use the same users for all repositories.

Conclusion:
Repository discussion was not finished but decided that: all repositories should be on svn.astron.nl.
Hanno will define the ideal directory structure for this machine. From there on we decide how to migrate to this directory structure if the effort invested is well spended.
Antonis will organize a follow up meeting about the issue/bug trackers.

CRAFT: Component Registration And Fault Tracking

Decisions

ID	Date submitted	Decision
02	20061220	Every Step will start with a Kick-off meeting, in which the complete software team participates.
~~03~~	~~20061220~~	~~The project team starts immediately with the preparations of the next CDR in order to preserve progress of the CS1 realization~~
04	20070116	This meeting will take place every week on Tuesday 11:00. The existing software team meeting with all developers will stop to exist.
05	20070130	Step 1 will be changed to 16 subbands instead of 32 subbands.
06	20070130	Step 2 will contain a multiple node BBS. 6 µStations/Station will be postponed. Instead of this, 32 subbands measurements will be realized.
07	20070206	Step 1 will support 160 MHz observations. The other steps will support 200 MHz as well.
08	20070424	Step 2 will support 16 subbands @ 200MHz and 24 MHz at 160 MHz
09	20070424	During the rest of step two, OLAP will only support observations during the weekend.
10	20070522	The number of subbands per Measurement Set is set to 6 or 8 default.
11	20070522	Scheduler activities will be preferably activated in Q4 2007.
12	20070522	Procure, three Local Control Units to accommodate 12 microstations in CS010 in a quick way.
13	20070529	Integrate version numbers in all software.
14	20070529	Distinguish the software between a production version and an engineering version (partly now already the case).
15	20070605	All developed software under CVS will be transferred to Subversion. The main reason for this is that Subversion supports the integration of version numbers in the executables. In this way you can always retrieve which software is used for a certain build. First the impact of the transfer will be investigated by Marcel.
16	20070619	Marcel Loose will be the librarian of the LOFAR software. The available time for this

		will be shared with his BBS work.
17	20070710	The known pulsar survey mode will be the next mode to support (not in its full extent but partly on-line and off-line).
18	20070710	The temporarily off-line part of the known pulsar mode pipeline will not be under control of SAS/MAC. This will be put under control of SAS/MAC as soon as that software is available in the on-line part of the system.
19	20070814	Joe Masters makes the routine to read in the TBB data.
20	20071002	Fault tolerance of the system (mainly OLAP) is put at the top of the priority list after closing the SAS-MAC and CEP integration.
21	20071123	Kubuntu 7.10 desktop 64 bit OS is chosen for all machines except the BG/L and MAC/SAS machines
22	20071123	Station calibration work is smeared out over Step 4 and Step 5.
23	20071123	Global bandpass shape is moved to Step 5 because of its low priority.
24	20071211	Multiple beams per observation will be implemented instead of multiple observations (this is consistent with the plan).
25	20071211	Step 3 will be closed next Thursday. Any open items will be finished in Step 4.
26	20080130	Multiple beams are defined as multiple directions with the same set of antennas. Hence, only the angle, subbands and beamlets can be modified per beam.
27	20080206	Step 4 and Step 5 for MAC/SAS will be changed. The control of the offline pipeline will be postponed because the offline subsystems are not fixed yet. Currently the definition and design of the metadata flows will be set as goal for Step 4 and the implementation of the metadata flow will be the end goal of Step 5. Hence, after Step 5 (part of) the metadata is included in the Measurement Set.
28	20080213	Currently a single subband and single beam is stored in a Measurement Set. As soon as we are ready for mosaicing this probably should be changed in the future.
29	20080220	For storing the raw station beams the sanitizing operations like input buffer will be included in the online part. For this OLAP has to give operational support or instructions to the observers how to start up manually such observations. Since, this is an between solution this will not be automated via SAS/MAC.
30	20080227	Weekly build environment will be updated and automated.
31	20080227	After Step 5 the software documentation will be updated and obsolete packages will be removed.
32	20080423	Basically two Low Band modes will be supported initially: a LBL and LBH mode. The connection between antennas and RCUs have to be chosen such that those to modes make sense.
33	20080528	The position of all individual dipoles will be made available centrally in the database.
34	20080603	The data format of the positions will be delivered in ETRS coordinates by the roll out team. However, the data format of the positions will be stored in ITRF format in the LOFAR databases. Hence, all software and configuration files dealing with coordinates must be made compatible with the ITRF dataformat. Hans van de Marel is responsible to convert the ETRS coordinates to ITRF coordinates for the LOFAR system.
35	20080903	Kubuntu will be installed on LOFAR18, which will serve as a software development machine.
36	20081022	Station cabinet will be heated (if necessary) to 10 degrees Celsius (for the LCU).
37	20081029	We will transfer the build environment to cmake.
38	20081029	Step 1 will be closed at 11 November.
39	20081112	Bugs found in the field have the highest priority to solve. Bugs which take more than a week to solve will be added to the task list and prioritized in the software meeting. During bug solving tests should be written up, which proves the correct behavior. These tests will result in a procedure to check the functionality when new soft/firm ware is loaded.
40	20081126	The 4 bit mode will be supported after MS^3.
41	20081203	We will modify the build environment to cmake from now on.

42	20090129	Transient source modeling tool under Python will be used for source modeling.
43	20090129	Delay deadline of Step 2 to 26 February 2009.
44	20090209	Remote Stations including the ring splitter near the core will be renamed to CS stations.
45	20090813	No connection from the Dwingeloo test environment to Groningen is necessary anymore.
46	20090825	Create a Bugzilla environment for the USG software.
47	20090825	Use one subcluster per group, contactpersons and guidelines defined (see section Software integration).
48	20090909	Use the filter range names of MAC/SAS for the ICDs and the archive model.
49	20100116	HBA beam pointing: we decided that one observation is prime and determines the HBA beam. The other observations will be ranked. An additional field for the HBA beam pointing can be set. If this field is not set, then an average of all digital beams will be made within the prime observation.

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Table round

- Last stopday the RSPs were sending data while the BG/P was reconfigured. This resulted in broadcasting data and flooding of the switches. An alternative would be to change the LCU software such, that only data is sent when an observation is running. Also the number of output subbands can then be connected to an observation instead of a fixed number. Andre will put a bug in Bugzilla, since this is not a high priority task.