

LSM: The Local Sky Model

- All scripts up till now had essentially “hard-wired” sky sources within the script body itself, usually expressed in *lm* coordinates.
- This is convenient for testing and simulation of instrumental effects, but not convenient at all when we want to simulate a “real” field.
- Also, we’d sometimes like to make “one size fits all” scripts, where different source models are simply swapped in.
- Source structure encoded in the tree, so decisions need to be taken at compile time.

A Solution: The LSM

- Demo follows... (Adv1/demo1-lsm.py)
- The LSM is a database of sources for a specific field of view.
- Can be generated from existing catalogues (NVSS in this example).
- Main body of code (Timba/LSM) is independent of rest of system, as it may also be used by the LOFAR KSGs for, e.g., source extraction.
- A simple loop (Adv1/lsm_model.py) reads an LSM at turns it into a list of Meow components.
- Source type is encoded in the LSM.

LSM & LOFAR

- For LOFAR, we’re developing a **Global** Sky Model (GSM), containing all known radio sources (to some depth...)
- This will be a huge database.
- To calibrate a specific observation, we then extract an LSM by selecting a subset of the GSM for that specific field of view, plus the brightest sources in the far sidelobes.
- LOFAR will incorporate a source extraction and GSM update cycle.

LSM Future

- LSM to be redesigned in the near future, as the current codebase shows “growth rings”.
- Will not affect the basic principles.
- Will add seamless support for shapelets, patch images, etc.
 - need a vocabulary of “source categories”, for which corresponding Meow component classes will be provided.
- Underlying DB will change (and change and change), but this should not affect the TDL interface.

LSM & SKA Simulations

- Can be an suitable format for exchanging “SKA Skies”
- Has a number of advantages over plain images:
 - frequency dependence is naturally represented (as, e.g., spectral indices, incl. variable spectral indices), without resorting to hi-res frequency cubes.
 - same for time dependence.
 - accurate morphologies for extended sources, using patch images, shapelets, or plain Gaussians.
 - better trade off btw. spatial resolution and data size.
 - can be directly plugged into a MeqTree, no need to decompose image into sources.
 - can be easily decomposed into subsets (e.g. by flux, source type, etc.)

Inburgering Cursus: A subversion primer

- subversion is a version control system, basically an improvement on CVS
 - most “svn” commands compatible
 - some important differences w.r.t. tagging, branching, and “sticky” state.
- Please see “The Subversion Book” (online).
- You need to use svn to keep an up-to-date version of Timba.
- Currently requires firewall holes into lofar9.

A subversion primer, 2

- The subversion repository is on lofar9.astron.nl/var/svn/repos/trunk/Timba (“trunk” refers to main version).
- Anonymous access is read-only
- To contribute changes/scripts, an account on lofar9 is required.
- To check out anonymously:


```
svn checkout svn://lofar9.astron.nl/...
```

 (see path above)
- Only need to do this the first time.

A subversion primer, 3

- To check out with r/w access:


```
svn checkout svn+ssh://lofar9.astron.nl/...
```

 (see path above)
- This will ask for your lofar9 password (if username on lofar9 is different, supply via --username option).
- You may configure ssh to let you in w/o a password, by putting your public key on lofar9 and using ssh-add.

A subversion primer, 3

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A subversion primer, 4

- Once you have checked out, updating to the latest version is easy:
`cd ~/Timba`
`svn up`
- svn “remembers” `--username`, repository path, etc.
- Will ask for your lofar9 password each time, unless you do the public key thing.

Committing Code Changes For Dummies

- No such thing:
 - If you don't know how to commit code, you probably shouldn't be doing it.
- Before you commit, at least skim the Subversion Book, and be careful your changes don't break other things.
- Obvious bugfixes are encouraged, but any nontrivial changes ought to be discussed with the code author.
- That said...

The Watering Hole!



...Another View Of a Watering Hole...



The Watering Hole!

- The Watering Hole is a place for everybody to play and share scripts, etc.
- Your own corner of the WH is called:

Timba/WH/contrib/XYZ (XYZ = your initials)
- You may commit anything Timba-related, within reason:
 - scripts, documentation, presentations
 - **NO** large data files please, **NO** MSs

Building The System

- Walk-through follows...
- The whole process is documented on the Timba Wiki:
<http://lofar9.astron.nl/meqwiki>
(see the BuildingTimba pages)
- If you see any inaccuracies in the Wiki, please feel free to correct, that's what a Wiki is for.

Reporting Bugs

- Use our Bugzilla system to report bugs and file enhancement requests
<http://lofar9.astron.nl/bugzilla>
- You can create yourself a Bugzilla account on the front page,
- Bugs reports submitted via conversation in the corridors have a half-life of 27.3 minutes before they vanish from the average developer's mental stack. **USE** Bugzilla and win valuable prizes!

Bugzilla

- Bugzilla walk-through follows...
- Do a quick Bugzilla search before reporting (you may find something interesting, e.g. a known workaround).
- But don't waste too much time, we'd rather deal with duplicate reports (which are eventually merged anyway) than having bugs go unreported.

The Wiki

<http://lofar9.astron.nl/meqwiki>

- Source of all documentation, news, etc.
- Feel free to sign up and correct pages or edit your own, the structuring is minimal.
- You're free to place any relevant material of your own.
- Your personal pages (accessed via YourName) are a handy way to keep a "logbook".

Mailing List

- Announcements, any questions, discussion.
- Good to follow it if you become an active user, as things like "current svn version is broken, please don't update until I fix it" are broadcast via the list.
- To sign up, send an e-mail with "subscribe" in the subject or body to:

timba-developers-subscribe@astron.nl

Weekly Videocon:

If you just simply miss us too much

- Really dedicated users can join in the videocon.
- Every Wednesday at 15:30 Dwingeloo time.
- Jan posts the program to the mailing list.