LOFAR Proposal submission procedure

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Introduction

Proposals for LOFAR are submitted via the Northstar proposal submission tool. Northstar is a web-based utility and can be accessed using most web-browsers through the following address: http://lofar.astron.nl/proposal/ .

This document describes the steps to be followed in the proposal submission process. It provides an overview of the functionality within LOFAR-Northstar and is illustrated with various examples.

For detailed information on the instrumental and observational capabilities of LOFAR, please read the documentation on the ASTRON web pages at:

http://old.astron.nl/radio-observatory/astronomers/technical-information/lofar-technical-information .

Cautionary notes and hints

1. When putting the information into Northstar, work in steps. The most important two being:

- a. Prepare all your telescope and pipeline configurations first;
- b. Only after that, select your targets and couple them to the desired configurations.

(Deleting configurations may cause underlying targets to disappear.)

- 2. The safest way to prepare your target list is to use a well-prepared text file containing the necessary information. Prepare your text file as shown in the examples in this document. This will provide a clear overview for your telescope/pipeline configurations. After that, the target-list can be uploaded and all couplings should appear as specified.
- 3. Save often to avoid accidental loss of information.
- 4. Avoid using "Enter" on your keyboard, it may activate a button you do not want (browser dependent).
- 5. Avoid using the "back" button of the browser. It may cause unwanted behavior.
- 6. When things go wrong, exit without saving and load the previously saved version.
- 7. Read the lists What's new immediately below, and Known issues in Northstar at the end of this document.

What's new

Since June 2020

The filler observing category formally disappeared in Cycle 14, as per ILT policy. On the "justification" tab, the yes /no question "Project is a filler-time or expert shared-support project?" has been replaced by "Is user-shared support requested?".

Since January 2019

Changes to the NorthStar tool ahead of the Cycle 12 call for proposals, of relevance to the use:

- On the "observing request" tab, the fields "Hours requested this period" and "Minimum useful time" are now truly mandatory. A proposal can only be submitted when these fields are populated with numbers.
- The answer to the question "Do you request your data to be stored at a specific site" is now propagated correctly to the pdf.

Since July 2018

There were no significant changes to the NorthStar proposal tool between the call for Cycle 10 and that for Cycle 11 (deadline September 2018).

Since January 2018

Here we highlight the changes implemented ahead of the call for Cycle 10, in January 2018. Some of these changes followed directly from changed policies, others were meant to guide and accommodate users, or to streamline the process of checking technical feasibility of proposals after the deadline. The major changes with respect to Cycle 9 are itemized below.

- A new mandatory box was added to the 'justification' tab to describe the proposed **observation strategy**. This information does not need to be repeated in the justification pdf that is uploaded separately, but we still ask that you explain and motivate in the *technical justification* section of your own pdf justification document details about the required processing and data storage.
- There is a new yes/no question under the 'justification' tab of long-term proposals (not single cycle proposals) to specify whether you want to apply for 'filler time' or 'expert shared-support time'. These types of time are described in the call for proposals and in detail in the ILT document about proposal submission, review, and allocation mechanism. If this question is answered with "no", the long-term proposal is understood to request regular support, but for a program extending over more than one semester (up to two years). 'Filler time' and 'expert shared-support time' is not offered for single-cycle proposals in Cycle 10.
- There is a new yes/no question under the 'justification' tab to indicate whether co-observing with the Surveys Tier1 team is requested.
- There is a new question under the 'justification' tab to specify a need and motivation for data to be archived at a specific archive site.

- Envelope sheets, which were used in previous cycles to provide a joint technical supplement shared between multiple proposals, are now deprecated. You will no longer find the envelope sheet upload option in NorthStar.
- When specifying a beamformed observation setup with multiple tied array beams (TABs), the NorthStar tool now calculates and displays the total number of requested tied array beams in that observation setup, summing the individual TABs and those included in ring patterns.
- The data format of ascii text files for target lists has changed. The order of the columns has been changed, moving the "run id" column up, which is now a mandatory item.
- The parser for uploaded ascii target list files now gives feedback in particular cases in which parsing fails.
- Targets specified in an uploaded target list will be shown in the NorthStar system in the same order as in the uploaded target list.
- It is now possible to connect multiple pipelines to a single observation. For example, if two pipeline setups
 "A" and "B" are defined, then they can be attached to a single target by specifying "A;B" (note the semicolon
 separator) in the pipeline column of your ascii target list. Alternatively, the Northstar form allows you to
 specify new targets one by one. Here, the "select processing pipeline" now allows to select multiple pipeline
 setups, using the ctrl or cmd key.

Standard observations will not need this functionality, but it may be needed for cases such as simultaneous interferometric and beamformed observations.

Checking the Long Term Archive and co-observing with the LOFAR Survey project

Before requesting LOFAR observing and processing time, proposers are invited to check the presence of any data in the Long Term Archive that may fit their science goals.

For standard imaging, the possibility is offered of co-observing with the LOFAR Survey project:

- For HBA interferometric data, proposers are invited to check if their target of interest has been covered in any of the performed / planned pointings of the LOFAR Two-Metre Sky Survey (LoTSS). If so, proposers are encouraged to collaborate with the LoTSS team in order to have access to the processed data. Otherwise, proposers may request to co-observe with LoTSS in a multi-beam mode. To this aim, proposers will first need to check with the LoTSS team if any survey pointing can be selected around their target of interest. The LoTSS observing and processing setup must be adopted for any co-observing project. The procedure for coobserving with LoTSS is described in detail here.
- For LBA interferometric data, proposers may request to co-observe and co-process data in shared-risk mode with the LOFAR LBA Sky Survey (LoLSS) team. Proposers interested in co-observing with LoLSS should contact the LoLSS coordinator well in advance of the proposal deadline to discuss whether a co-observing strategy would be mutually beneficial. The LoLSS observing and processing setup must be adopted for any co-observing project. The procedure for co-observing with LoLSS is described in detail here.

Getting started

The login screen

The web page at http://lofar.astron.nl/proposal/ brings you to the LOFAR-Northstar login screen. If you have an existing account, you can login with your name and password. New users can register from the login page via the "Register as new user" button. Follow the three-step registration process by filling in the required fields and confirm your registration at the end. An automatically generated password and public key will be sent to your email address. After you log in, your password can be changed in the "My Account" section. More detailed information on the Northstar user registration can be found via the "Help" button at the bottom.



The proposal list

After login, you start at the welcome page. If you are a returning user and already have proposals in preparation you can select them here for further editing.

Proj_ID	PI	Title	Community	Category	Status	Options
			LOFAR t	elescope Proposi	als	
	Frieswijk		LOFAR community	regular	in preparation 🔒	🕑 Edit 🖲 Copy 💕 Delete 🖾 Submit 搅 View

Press "create new proposal" to start a new proposal.

By clicking "Create new proposal", a new window opens, where you can select the appropriate proposal category from the drop-down menu.

Click "OK" to start filling in your proposal details.

(1) Important note: science proposals that are part of a regular (currently open) call for proposals should be categorized as "single-cycle". The "long-term" option is for proposals that request time spread over more than the upcoming semester. The "commissioning", "ddt" and "progress report" categories are special calls explained later in this document.

Setting up a regular proposal

The proposal screen

The proposal screen consists of five tabs. By default the "Applicants" tab is open. The other tabs are: "Justification", "Observing Request", "Target list" and "Additional issues". These tabs are described in more detail in the next sections.

Applicants	Justification	۱Ť	Observing Request	target list	Additional issues		
						? Help)
Active Participan	contact t author	PI	name	affiliation	country	email	potential observer
yes	۲	۲	Dr Wilfred Frieswijk	Astron	The Netherlands	frieswijk@astron.nl	
Select Propos	Select Proposal to import Applicant None Specified 💠 Add applicant from other proposal						
						🎽 🛛 Add nev	v applicant
🔛 Save an	d Continue	T).	Save and Preview	🚺 Save a	nd Exit 🏼 🏹 Save	and Submit 🛛 🐴 Quit	without saving

Save your proposal

All tabs contain a set of buttons displayed at the bottom of the Figure above. These provide various "Save" options. At any time, you can save your proposal in the Northstar database and return later for additional editing. Remember, during sessions it is advised to "Save and Continue" your proposal regularly to avoid accidental loss of information.

Save and Continue/Preview/Exit/Submit

These buttons will save your current version of the proposal in the database. You can continue editing, download the PDF (preview), exit (back to proposals list) or submit your proposal. A submission will label the proposal with a unique ID. This can also be done from the proposal list visible after logging in to Northstar.

Quit without saving

In case you made some serious mistakes, or think something went wrong, press the "Quit without saving" button and reload your proposal to go to the previously saved version.

Adding Applicants

Note: please review the information of your Northstar account (address, affilation, email) and notify sdco@astron.nl if any part of the information is obsolete. You are encouraged to also do so for any of your co-investigators who have existing LOFAR NorthStar accounts.

Manual adding

The "Applicants" tab allows you to add applicants/co-I's to the proposal. This can be done manually by using the "Add new Applicant" button. An invitation email will be sent to the applicant when the "invite" checkbox is marked. Note that invited participants can also edit your proposal.

Ad	d/edit Applicant
	2 Help
name:	Willem *
Affiliation:	ASTRON
Email:	frieswyk@astro.rug.nl *
country:	Netherlands -
invite as active participant	ſ.
Note: Active Participants can both V The invitation will be sent to the e-m NB: The invitation will only be sent to	iew and Edit this proposal. ail address entered here. he next time one of the "save" buttons is pressed!
✓ Ok	X Cancel

All fields are required and after pressing "Ok" the new applicant should appear on the "Applicants" tab. On the next "save", an invitation email will be sent to the new participant.

Applicants	Justificatio	n	Observing Request	Target List	Additional issues		
						2 <u>Help</u>]
Active Participant	contact author	PI	name	affiliation	country	email	potential observer
yes	\odot	ullet	Dr Wilfred Frieswijk	Astron	The Netherlands	frieswijk@astron.nl	
elect Proposa	l to import A	pplic	eant – None Specifie	ed — 🛛 🗘		Add applicant from o	other proposal w applicant

(i) **Important note**: the email address of a new applicant must be identical to the one used by the applicant upon registration to the Northstar system.

Import applicants from a previous proposal

You have the option to import all applicants from another proposal that you are a participant on. To do so, select a proposal from the dropdown menu in "Select Proposal to import Applicant" and press "Add applicant from other proposal". The new applicants should all appear on the "Applicants" tab.

Scientific Justification

The "Justification" tab is used to provide the scientific and technical justification. First, specify the proposal "Title" and "Abstract" in the appropriate fields. Note that there is a limit to the number of characters and words to be used.

Applicants	Justification	Observing Request	Target List	Additional information		
						? Help
				Title (Max characters:150) Abstract (Max words:180)	: Proposal title (Characters entered: 14)* Abstract text	
						Words entered: 2)*
					Justification File(s): instructions for preparation	
				First Justification File uploaded	: dpage_lustification.pdf (706 KB) * 🔁 Upload : 2018/01/31 16:00 UTC	

Upload Scientific Justification File

The "Upload" button will open a new window and allow you to upload a scientific justification file (mandatory) and/or additional technical information, figures and tables. Please, keep in mind the file-type restrictions (pdf) and page limits appropriate for your proposal, as described in the "Instructions for preparation" link.

Find your local file using the "Browse" button. The "Upload" button will finalize the file upload.

	Upload justification file
	? Instructions for preparation ? Help
	Note: Only pdf files are allowed. Follow the [Instructions for preparation] to prepare the pdf. Keep the number of pages within the limits of what is allowed for the specific call. If your proposal does not follow these instructions it may be rejected.
	Maximum number of pages in the justification file to depend on the total requested observing time. If Total requested observing time <= 250 hours: up to 4 pages If Total requested observing time <= 500 hours: up to 5 pages If Total requested observing time <= 750 hours: up to 6 pages If Total requested observing time <= 1000 hours: up to 7 pages If Total requested observing time > 1000 hours: up to 8 pages For long term proposals 2 additional pages are allowed (6 - 10)
III'	Upload Scientific Justification File : Browse No file selected.
	Upload X Cancel

Technical Justification

It is mandatory in Northstar to fill in a "Technical Justification", where a number of questions are asked in support of your proposal. The questions should be answered following the needs of your project. Additional information can be required when answering "yes", and a field will appear to give more details. Be concise and to the point on the details of your technical case.

As of the Cycle 10 call, there is an "Observation strategy" box in the justification tab. In this box, you must provide ASTRON with a description of your observational strategy. This is meant to give detailed information about how your observation will be set up, therefore any special setting should be discussed here. This short description of the observing strategy will help ASTRON assess the supportability and pressure of your proposed program on the system and on the schedule. Here are three examples of such text.

1
•

10 min cal1

10 min cal2

4 hrs target: multi beam HBA-dual observation with 122 subband on each source

15 min cal3.

\rm Example 2

Interleaved calibrator/target observations:

20min on target, 3min on calibrator, repeat 12 times.

\land Example 3

Two beamformed observations of target 1 in HBA-low mode

duration of each observation: 30 min

spacing between consecutive observation: exactly 2.5 days

An example of a technical justification section is provided in the screenshot below.

	Technical Justification	
Is nighttime required to achieve science goals?	o Yes No	
Elaborate. Explain why daytime observations are not suitable. (Max words:60) :	The ionosphere is too active during daytime.	
	No. No.	(Words entered: 7)*
Are there parallel observations planned with other observing facilities?		
Elaborate :	We have requested simultaneous observations with observatory X.	
	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	(Manda antenado O) *
De como en esta de la terre di se de la terre di se de la terre di		(vvoras enterea: 8)*
Do you request using international stations?		
Are the international stations essential/critical for the observations'		
Elaborate :	We need an angular resolution of 0.5 arcsec to achieve our science goals.	
	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	(Manda antoniali 4.4.).*
And there allow a body the construction of the construction of the construction of		(words entered: 14)*
Are there other scheduling constraints? (e.g. critical stations, time constraint)		
Elaborate :	At least five of the six superterp stations need to be operational.	
		(Words entered: 12.)*
Are combined data products requested in the satur (e.g., beam formed + interferometer)?	Yes No	(words entered. 12)
Give the poice-level you wish to achieve for your observations		
Cive the holse-level you wish to achieve for your observations	6.0 (mJy/Beam)	
what is the expected maximum data rate?	1.0 (GB/s)*	
Do you request any processing offered by ASTRON?	o Yes No	
Do you wish to store raw data products in the LTA?	⊖Yes oNo	
Do you request your data to be stored at a specific site?	o Yes No	
Which LTA site?	SARA \$	
Motivate why this LTA site is needed :	On-site post-processing has been set up at SARA.	
		(Words entered: 10)*
Do you require off-line data processing on ASTRON facilities (CEP3)?	o Yes No	
Elaborate :	We ask for x days, weeks, of processing time on CEP3 because	
	,	
		(words entered: 12)*
Do you have access to external processing facilities?		
Do you request a CEP4 processing time which is different from the Northstar calculations?		
Elaborate :	We believe that the CEP4 processing time calculated by Northstar is wrong because	
		a
		(words entered: 13)*
Would you like to apply for user-shared support?		
Please justify why your project is eligible for that.	We have assembled a team () of expert HBA users to conduct the shared-support observations.	
	1	(Words entered: 15.)*
Do you request as sheening with the LOFAR Two mates Clay Convert	Ves No	

Observing request

The "Observing Request" tab allows you to specify observation and pipeline setups for your proposal and contains the actual request of observing time and storage. A detailed description follows below.

Total time and storage request

The total requested observing time, requested processing time and long-term storage (LTA) should be entered manually in the "Allocations per telescope" section. Do this <u>after</u> the observations and pipelines have been fully specified and coupled with the targets, by checking the calculated numbers (see next Sections). Make sure these numbers make sense (check the list of known issues at the end of this document about time and storage calculations).

If you request a different total observing time than what is calculated (e.g., you disagree with the calculation), please explain the difference in the 'observing strategy' box under the 'justification' section. Any differences between requested and calculated storage space or processing time should be explained in your Justification file.

In the case of **long-term proposals**, any specific requirement about how the observing time should be distributed between the four cycles must be clearly specified in the justification document. If this information cannot be found, it will be assumed that the observing time can be distributed equally between the four cycles.

The minimum number of hours requested to fulfil (partial) scientific goals must also be entered, together with a justification for this. This is important for the TAC to make decisions on partial acceptance of proposals.

Processing time request

The processing time needed on the LOFAR computing cluster (CEP4) is calculated using the pipelines setup coupled to targets. You can use these numbers as estimates for your processing request. In addition, we ask you to manually enter the processing time in the 'observing request' section of the Northstar form. If you disagree with the calculated processing times, please indicate this in detail in the technical justification and add a technical addendum in the Justification file for additional information. The TAC will use your detailed information combined with the specifications in Northstar and the information available on the ASTRON web pages to award a final processing time. Please check the list of known issues at the end of this document about time calculations.

If the processing time needed for your data set can be split between ASTRON and other facilities that you have access to, please state so in your justification and explain how this time will be shared. In particular, indicate clearly how much time you ask to be allocated on the ASTRON processing cluster. Keep in mind that if your requested processing time is considered as too demanding, the TAC may **decrease your observing time**, so that the associated processing time remains at a level estimated as reasonable by the committee.

Specifying telescope configurations

"Specify a new observation" will open a new window, which allows you to set up a telescope configuration. The configurations that you create here will get an ID (A, B, ...). Later on, you will associate these configurations to your targets, to create observing runs. The same configuration can be used in more than one run. You can select various output data products and combinations of these are permitted (although the data rate will increase): "Interferometer", "Beamformed", "TBB" and "Other". The latter should be used for specific cases, e.g., expert modes that are not covered by the others. TBB observations in piggyback mode can be specified separately for a specific station and HBA/LBA setting.

Telescope configuration :	
Telescope : LOFAR	
Choose data output product(s): Interferometer Mode Settings	
BeamFormed Mode Settings	
TBB Mode Settings	
TBB (PiggyBack) Mode Settings	
Other Settings	
N.B. Combinations are allowed, except for TBB PiggyBack mode. Be aware that the data rate can increase significantly with combined settings	
□ Commit Observation specification	
😭 Save and Continue 🔀 Save and Preview 🖓 Save and Exit	▲ Quit without save

Selecting one or more output products will open various specification options. A number of options are shared among observing modes. These are:

- Stations choose a default set or "custom" for user-specific demands.
- Clock specify clock frequency, either 200MHz or 160MHz.

- Antenna select an antenna configuration (see LOFAR Documentation for details). Only HBA configurations
 are supported in combination with the 160MHz clock.
- Filter select a frequency filter (see LOFAR Documentation for details).

	Common Settings	
Choose stations :	None Specified] *
Choose clock :	200 MHz	Ī *
Choose antenna :	None Specified	Ī *
Choose filter :	None Specified	1*

Other options are only required for specific output and are described below.

Interferometer

Detailed information on the interferometer mode can be found here.

Interferometer Mode Settings
Integration step (time resolution, in seconds) : Keep correlated visibilities data : Frequency channels : Required noise level (Jy) : Keep correlated visibilities data : No No Second 256 512 *
Commit Observation specification

Integration time

Specify the integration time in seconds. The typical values to be entered here are 1 second for LBA and 2 seconds for HBA. Note that this is not the observing time, which is instead specified as "exposure time" per observing run in the "Target list" tab.

- Keep correlated visibilities data This indicates whether the raw data should be stored in the Long Term Archive. A motivation should be provided in the relevant part of the "Technical justification" on the "Justification" tab.
- Channels per subband Select a number of channels per subband to set the frequency resolution. Most commonly used is 64ch /subband and a different value should be justified in the "Justification" file.
- Required noise level
 Optionally, give the noise level that is needed for the science goals for this particular setup. Details should be
 given in the Justification file.

Beamformed

Detailed information on the beam formed mode can be found here.

BeamFormed Mode Settings

Coherent sum of stations :	Yes	O No	
Incoherent sum of stations :			
inconcrent sum of stations .		O NO	
Fly's eye :	Yes	No	*This mode implies that all stations point in the same direction.
Keep raw observation data :			
Roop fan oboortalion aala .	⊖ res	UNO	

Beamformed sub-modes

Specify one or more sub-modes that are requested. For "Coherent sum of stations (CS)" and "Incoherent sum of stations (IS)" various polarizations can be selected. The number of tied array beams also needs to be specified. See the LOFAR Documentation for limitations and possible combinations of sub-modes.

• Tied Array Rings

If needed, specify the number of Tied Array Rings. The Northstar tool will calculate a grand total of tied array beams by summing those specified individually (not in rings) and those specified as part of tied array beam rings. See the LOFAR Documentation for details and restrictions.

Channels per subband

Select a number of channels per subband to set the frequency resolution. Be aware that a higher spectral resolution leads to a decrease in time resolution. See the LOFAR Documentation to determine a suitable combination for your proposal.

- *Time integration factor* Set the step size (number of time samples) over which to average the data.
- Keep raw observation data Indicate whether you want to store the raw beamformed data in the LTA.

TBB mode settings

Detailed information on the Transient Buffer Board mode can be found here.

	TBB Mode Settings
Trigger Length (sec) :	*
٦ ∎ : (Trigger Rate (per hour	Frigger Length must be between 0.001 to 5 sec
Trigger Source :	LORA particle detector

The Transient Buffer Board- (TBB) or "Direct Storage"-mode is currently an expert mode. TBB data can be requested, but currently only manual triggers or external triggers from the particle detector LORA are supported. See the LOFAR documentation for details.

• Trigger length

Specify the length of the data dumps in seconds (between 0.001 and 5 sec)

• Trigger rate

Give an estimate of the trigger rate (expected number of triggers per hour). LORA triggers occur approximately once an hour.

Note

Note: The TBB setup is currently in development. Observations using a TBB stand-alone mode should make use of the TBB Mode settings and specify the parent observation as well, either Beamformed or Interferometer. "TBB Piggyback" can be selected when background data dumps during other projects are requested. For this, specify the "Common settings" of observations that could provide piggy-backed data and indicate how many hours of piggy-backing are required. Although it is not relevant for this type of observations, you will need to add a target: specify 00:00:00 as coordinates.

Other

This mode should only be selected for projects using a configuration currently not supported by ASTRON. Details should be specifically described and justified in the "Justification" file.

Specifying pipeline configurations

For "Interferometer" observations, there is the option to select the "Pre-processing pipeline" and for "Beamformed" observations, the "Pulsar pipeline".

Pipeline configuration							
Pre processing parameters							
Processing mode: Flagging strategy : Averaging time factor: Averaging freq. factor: Demixing ?	Pre processing only HBA [steps] * [steps] * Yes No Demixing sources : CygA CasA TauA VirA HerA HydA						
Commit Pipeline							
Save and Continue 🚺 Save and Preview 🙀 Save	ave and Exit Save and Submit Quit without save						

Pre-processing only

The data will be flagged using the default RFI flagging strategy and averaged following the parameters "Averaging time steps" and "Averaging frequency steps". These are factors by which to multiply and divide the time resolution and the number of channels, respectively.

Demixing

If required, the "Demixing" checkbox can be marked and the appropriate fields can be specified. Demixing will be performed with averaging parameters defined in "Demixing time steps" and "Demixing frequency steps". The default values are usually fine (10, 64), but experts may choose different values as long as they are identical to, or integer multiples of, the "Averaging time steps" and "Averaging frequency steps". The sources to demix should also be specified.

(i) Note: demixing more than two sources will increase the processing time exponentially and is not supported.

Pulsar pipeline

The pulsar pipeline can be selected for use for pulsar (beamformed only) observations.

Pipeline configuration	
Pre processing parameters	
re proceeding parametero	
Processing mode:	Pulsar pipeline
Skip RFI check :	○ Yes No
Skip folding :	○ Yes No
Skip pdmp :	○ Yes No
Skip dspsr :	○ Yes No
Skip prepfold :	○ Yes No
Single pulse analysis :	○ Yes No
RRATs analysis :	○ Yes No
Skip dynamic average :	○ Yes No
Length of subintegration (sec) :	0
Convert HDF5 32-bit raw data to 8-bit :	○ Yes No
Clip threshold (in units of sigma) :	5
Sigma limit in conversion from raw HDF5 to PSRFITS :	3
Number of blocks read at once in conversion to PSRFITS :	100
Prepfold options :	
Prepsubband options :	
RFIfind options :	
*Expert settings: not all options may result in a successful pipe	line, therefore the Observatory may decline setting certain parameters.
Dspsr options :	
Digifil options :	
Prepdata options :	
Extra options to convert from raw HDF5 to PSRFITS :	
Pulsar :	
Or a firm with a second second	
Configuration comments :	
Ξ Co	ommit Pipeline
🛃 Save and Continue 🖄 Save and Preview 褌 Save	e and Exit 🛛 🌣 Save and Submit 🖌 🖓 Quit without save

The falls to a fall	1	all a la d'all a la fain		a. La sub-sub-sub-sub-sub-sub-sub-sub-sub-sub-	the second second second fills as	1
I DO TOUOWIDA TOP	NA CONTRINC AV	nianatione tor	DOCD OT TOD	nillear nindlind	naramotore the	100 an nc 100 at 1
THE IONOWING Lac	הם כטוונמוווס בא	\mathcal{O}				$u \cup a \cap b \cup b \cup b \cup b$

Skip RFI check	Optional parameter to skip rfifind, subdyn.py RFI checker and/or Coast Guard's clean.py
Skip fold	Optional parameter to turn off the folding of data (prepfold is not run).
Skip pdmp	Turn off running pdmp; pdmp optimizes the period and DM. Since pdmp is a compute-intensive process, by default ASTRON does not run it on LBA observations. PIs can run it offline, after receiving the data products.
Skip dspsr	Optional parameter to turn off running the dspsr part of the pipeline when running without DAL support (including pdmp and creation of corresponding plots) applicable for complex voltage data.
Skip prepfold	Optional parameter to turn off running the prepfold part of the pipeline; not applicable for complex voltage data.
Single pulse analysis	Running single-pulse analysis in addition to folding a profile. This is implemented only for CS/IS for the PRESTO part only and for CV data using the digifil approach.

RRATs analysis	This switches on running prepsubband for a range of DMs (default - 1000DM trials +/-5 around the nominal DM of the pulsar) and prepdata for DM=0, followed by single_pulse_search.py. Prepsubband is run using the -nsub option with the highest possible value of subbands, the highest common denominator of the number of channels smaller than 1024. Useprepsubband-extra-opts to set a different DM range/step and/or nsub.
Skip dynamic average	Skip the pipeline part relative to the dynamic spectrum
Length of subintegrat ion	Set the length of each subintegration for the folded data to LENGTH seconds. The default is 60 secs for CS/IS and 5 secs for CV.
Convert HDF5 32- bit raw data to 8- bit	Convert the raw 32-bit data to 8 bits (<i>raw-to-8bit</i>).
Clip threshold (in units of sigma)	Clip raw data above this threshold (in sigmas) for the conversion of raw data from 32 to 8 bits (<i>digiti ze-sigma</i>). Default: 5.0
Sigma limit in conversion from raw HDF5 to PSRFITS	Sigma limit value used for packing in 2bf2fits. Same as -sigma option in 2bf2fits (<i>decode-sigma</i>). Default: 3. Not applicable to complex voltage data.
Number of blocks read at once in conversion to PSRFITS	Number of blocks read at once in 2bf2fits. Same as -A option in 2bf2fits (<i>decode-nblocks</i>). Default: 100. Not applicable to complex voltage data.
Prepfold options	Specify additional options for the Prepfold command (<i>prepfold-extra-opts</i>). Not applicable for complex voltage data.
Prepsubba nd options	Specify additional options for the prepsubband command when RRA Ts is used (<i>prepsubband-extra-opts</i>). Not applicable to complex voltage data.
RFIfind options	Specify additional options for the rfifind command. (<i>rfifind-extra-opts</i>). Not applicable to complex voltage data.

Dspsr options	Specify additional options for the dspsr command (dspsr-extra-opts).
Digifil options	Specify additional options for the digifil command (<i>digifil-extra-opts</i>).
Prepdata options	Specify additional options for the prepdata command (prepdata-extra-opts).
Extra options to convert raw HDF5 to PSRFITS	Specify additional options for the 2bf2fits command (2bf2fits-extra-opts). Not applicable to complex voltage data.
Pulsar	 Specify the Pulsar Name or a comma-separated list of pulsars for folding (w/o spaces). You can also give one of the four special entries: "parset" or "meta" to take the pulsar name from the source field for each SAP separately from the parset file; "sapfind" or "sapfind3" to find the best (3 best) pulsars in the FOV of the particular SAP; "tabfind" to find the brightest pulsar for each TAB individually; "tabfind+" to first get the pulsar name from the parset (if pulsar name there is legitimate), then get the brightest one in the SAP (same as "sapfind"), and finally get another pulsar from the TAB (same as "tabfind"). If no pulsar names are given and no special entries are used, then the pipeline will try to take the source names first from the parset file, then it will look for the best pulsars in the SAP's FOV (same as "sapfind"). The word 'NONE' as a pulsar name is ignored. The field only has room for 2 pulsars.

User specified pipeline

Processing that is not covered by the above categories can be motivated here. Note that this concerns expert mode processing, newly implemented pipelines, and/or requested functionality not supported by ASTRON.

Target List

The "target list" tab allows you to specify all the targets for your proposal and couple them to telescope and pipeline configurations. A number of options are available to cover various observing strategies that are frequently used in the LOFAR system. Examples include:

- 1. Multiple targets joined in a single observing run (multi-beam observation);
- 2. A 2-beam calibrator-target observation can be specified and coupled to calibration (+ imaging) pipelines.

Please check the coordinates of your intended targets in the LOFAR archive to confirm that your target has not already been observed by LOFAR. In case of duplication, please specify in the science case why the new observation is needed.

(i) Note: Since August 2017, after each LOFAR observation, inspection plots are routinely generated, including station dynamic spectra. These plots are used by ASTRON SDCO staff to check the quality of the raw data. They remain online for 3 weeks from the date of observation. After that, they are compressed and transferred to offline storage. If you wish to access the inspection plots after they have been transferred to offline storage, please contact SDCO staff via the ASTRON helpdesk, and provide the project code and

SAS ID of the observation you are interested in. Since June 2019 (the beginning of Cycle 12), the data quality report written by SDCO staff based on the inspection plots can also be made available upon request.

If you are interested in interferometric data and the LoTSS observing and processing setups are suitable to achieve your science goals, please check if your targets have been covered in any of the performed / planned pointings of the LoTSS.

Targets must be listed in decreasing priority within your scientific project, with the first one having the highest priority. In case of partial allocations and no preference indicated by the ILT-PC, ASTRON will select the targets highest on your input list. You can also define groups of targets with different priorities. You should explain this classification in your justification and add for each target the priority group it belongs to in the Target Comments tab. If you do not have any priority distinction for your targets and their observations can be scheduled only according to LST and schedule pressure, then please state so in your justification and in the Target Comments tab (e.g., "No priority preference").

Note: More information on selecting calibrators for your runs, including a list of standard flux calibrators can be found here.

Target details

Targets are specified by a number of fields, ordered by run (a single observation) and coupled to telescope and pipeline configurations. Some of the fields are optional and can be left blank when their values are unknown. The mandatory fields needed to couple the targets and to calculate storage requirements are explained next.

Calibration beam

Default is "no". It is important to set this to "yes" when a beam should be used as calibrator in the calibration pipeline, if this is requested to run. For clarity, you may use "yes" also for flux calibrator runs, for example.

Subband list

For manual target submission, a central frequency and bandwidth can be specified, from which a suggested subband list is calculated. A subband list can then be manually edited according to needs/restrictions (e.g., max 488 subbands per observing run). Check the list of known issues at the end of this document about entering subband lists.

Run#

The "Run#" defines targets within the same run to enable multi-beam observations. Note that no more than 488 subbands should be specified per observation run in 8-bit mode. Already used run numbers are listed and can be selected to add additional beams to be observed simultaneously. When adding a new beam (SubArray Pointing) to an existing run, the exposure time field is greyed out (because it has already been set), and the dropdown list for selecting an observing setup is disabled (because the setup for additional beams within the same run should be identical). For new runs, select the " .. (new)" run#.

Exposure time

The exposure time can be filled in for the first pointing in an observing run. Subsequent pointings within the same run will automatically adopt the time of the first beam. The exposure time is the time you want to spend on one source in a run and it should not be confused with the integration time (i.e., time resolution).

If multiple identical runs are requested, they can be specified as a single run with the exposure time being the sum of individual runs. It is helpful in that case to put a note in the "Comments" field that specifies the number of runs (e. g., "10 runs x 8 hrs" for 80 hours split over 10 runs).

Select observation

Select here the appropriate telescope configuration that you specified in the "Observing Request". Targets in the same run are forced to have the same configuration.

ation I	Field C295 14:	RA :11:20.60	Dec +52:12:09.0	Epoch J2000	Time(Hours) 0.17	Subbands	Calibr.	Obs.	Pipe.	Comments	_						1
ation I Field	C295 14	:11:20.60	+52:12:09.0	J2000	0.17	100201											
ation I Field	beam? :							в			Ľ	Edit	8	Сору	1	Delete	1
ation I Field	beam? :																2
ation I Field	beam? :																
Field	Deam'r :	O Vac	No														
1 1010	name :	U Tes e	• NO	Get RA	& Dec from	Simbad NE	: propos	ers sh	ould ch	eck coordina	ites						
htAsc	ension :		hh:m	um[:ss.	ssl *		, propos	010 011	ould of								
Decl	ination :	-	[+]-	ldd:mm	1[:55.5]												
_ 001	Epoch :	J2000		,	•												
				D-(_								
densi	ty (Jy) :			Refere	nce frequency	(MHZ) :											
(S(V)	~ V -):																
Subba	and list :	NB: Put P	requency an	d Randy	vidth and get S	SubbandList	calculate	d Othe	erwise	out Subband	ist m	anual	ly Fr	n Exar	mole	2-315 1	15-115 6
		The maxi	mum number	r of subb	ands per run i	s 488	ourounde							1 2100	npio.	2.010,1	10 110 0
		Central fr	equency :		Ba	andwidth :											
	Run# -	1			•												
in m	inutoe :	-			•												
obson	untion :																
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sing p	ipeine :				•												
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		Commit	to list of ta	raete	¥	Clear targe	t form	4	Unioa	d a target lig	. 3		elete	all ta	raets		
sing	a p	pipeline : omments :	pipeline :	pipeline :	pipeline :	pipeline :	pipeline :	pipeline : • • • • • • • • • • • • • • • • • •	pipeline : • • • • • • • • • • • • • • • • • •	pipeline :	pipeline :	pipeline :	pipeline :	pipeline :	pipeline :	pipeline :	pipeline :

Select processing pipeline

Select here the appropriate pipeline configuration that you specified in the "Observing Request". Targets in the same run may have different pipelines coupled to them. If more than one pipeline is desired, please specify this in the "Justification" file and adapt the storage requirement if needed (manually add to the storage request).

Adding targets manually (for simple proposals)

New targets can be entered manually and coordinates may be fetched from Simbad (check, to avoid mistakes). The manual method can be useful for single or very few targets. However, we recommend using the target upload list (next section) as much as possible, to avoid confusion and mistakes. A target can be added to the "Targets" list by pressing the "Commit to list of targets" button.

Upload target list (recommended)

Use "Upload a target list" to upload a local file containing a list of targets. An example txt-input is given below and can be modified to your liking. Commented lines precede the examples and should clarify the setup and make it easy to identify the telescope and pipeline configurations used.

Keep in mind the Run# numbering, i.e., use identical run numbers for targets in multi-beam observations and unique numbers for different observations. Setting up the file in this way can significantly aid in specifying your proposal specifications.

Δ Warning

As of February 2018 (for Cycle 10 proposal submissions), the run# is a mandatory column, and it has moved up to column number 5. Please adjust older ascii target lists to follow the new format.

Check the known issues at the end of this document about uploading a list of many targets.

The following field should be used in the target upload file. The fields between brackets are optional.

- Target target name
- RA right ascension
- DEC declination
- j2000 coordinates should be in J2000
- run# identifies a unique run; multiple targets can be part of a run#
- cal indicate whether the target is used as calibrator
- time exposure time (for multi-beam runs, the time for the first beam that is specified will be taken)
- [flux],[reffreq],[specindex] optional information on the target
- subbands subband selection; at most 488 subbands split over the various targets in a single run

- obsconfig identifies the observation setup; should be the same for targets in the same run#
- [pipeconfig] identifies the pipeline setup. When specifying multiple pipelines for a single target, separate the pipeline identifiers by a semicolon, for example: "A;C".
- [comments] Add here information about your target's priority, if you have defined priority groups

Example FORMAT to be used:

"name", hh:mm:ss.ss, dd:mm:ss.ss, j2000, 1, N, 10m, , , , "77..120, 277..320", A, A, comment

Hint: Uploading a well-prepared list of targets is the recommended way to submit your targets. If, at some point, you decide to change target parameters, delete all targets, change your text-file and upload again.

Hint: Use your target file to also link each source to the proper Observing and Pipeline setup.

Example target upload file

```
### This is an example target upload file for LOFAR Northstar. Edit to the
### specifications for your proposal. Keep in mind the Run# numbering,
### i.e., use identical run numbers for targets in multi-beam observations
### and unique numbers for different observations.
### The examples are preceded by commented lines that clarify the setup
### and make it easy to identify the telescope and pipeline configurations
### used. Setting the file up this way can significantly aid in specifying
### your proposal specifications.
### Fields to be entered:
### Fieldname,RA,DEC,j2000,run#[,calibr,time,flux,@ref_frequency,
### spec_index,subtends,obs_config,pipe_config,comments]
### The fields between brackets are optional, but if any one of them is
### used, comma's are expected up to that field
### Example FORMAT to be used (combine on a single line):
### "name", hh:mm:ss.ss, dd:mm:ss.ss, j2000,1,N,10m,10,1000,1.4,
### "77..120,277..320",A,A;B,short comment for clarification
### LBA single target, 100hrs requested in blocks of 10-12 hours
### as specified in comments
### Run# 1: Observation setup A
### Pre-processing Pipeline A: RFI; no averaging; demixing CasA,CygA
"3C196",08:13:36.07,+48:13:02.6,j2000,1,N,100h,1,100,,12..499,A,A,split in 10-12hr blocks
******
### HBA single 6hr run + 2x10m calibrators; different pipelines for
### calibrator and target
### Run# 2: Observation setup B
### Pre-processing Pipeline B: RFI; 64,10
"3C196",14:11:20.60,+52:12:09.0,j2000,2,N,10m,100,100,,55..420,B,B,flux cal
### Run# 3: Observation setup B
### Pre-processing Pipeline C (target): RFI; 16,5;
### Pre-processing Pipeline B (cal-beam): RFI; 64,5;
"DF001",17:10:00.0,+60:50:00.0,j2000,3,N,6h,,,,55..420,B,C,target beam
"3C343",16:34:33.81,+62:45:36.0,j2000,3,N,6h,,,,"100..221",B,B,cal beam
### Run# 4: Observation setup B
### Pre-processing Pipeline B: RFI; 64,10;
"3C48",01:37:41.30,+33:09:35.1,j2000,4,N,10m,10,100,,55..420,B,B,flux cal
******
### HBA run with interleaved calibrator + calibration and imaging pipeline
### OBSERVATION NOTE - subband selection for calibrator and target need to
### be identical
### PIPELINE NOTE - pre-processing parameters for calibration- and
### imaging-pipelines should be identical
### Total on target request: 6hr in blocks of 5m Cal + 30m Target --> total
### of (3600/30) * 5m = 60m on Calibrator
### Run# 5: Observation setup C
### Calibration Pipeline D: RFI; 64,10; calibration
"3C147",05:42:36.26,+49:51:07.1,j2000,5,Y,60m,,,,52..467,C,D,CalRun#5-6
### Run# 6: Observation setup C
### Imaging Pipeline E + pulsar pipeline G attached to same target
"DC156",05:32:32,+52:50:00.1,j2000,6,N,6h,,,,52..467,C,E;G,Target Run#5-6
```

****** ### LBA single run with two targets and calibrator beam including ### calibration pipeline ### PIPELINE NOTE - pre-processing parameters for calibrator and target ### should be identical ### Run# 7: Observation setup D ### Pre-processing + Calibration Pipeline F: RFI; 64,10; demixing CasA,CygA "Fr479",06:03:00.00,+52:00:00.0,j2000,7,N,14h,,,,156..316,D,F,Target beam "Fr480",07:08:00.00,+44:00:00.0,j2000,7,N,14h,,,,156..316,D,F,Target beam "3C196",08:13:36.07,+48:13:02.6,j2000,7,Y,14h,1,100,,156..316,D,F,Calibrator beam ***** ### HBA beamformed run with pulsar pipeline attached ### Run# 8: Observation setup E ### Pulsar pipeline G "P0123",01:02:03.00,+82:00:00.0,j2000,8,,1h,,,,256..300,E,G,Beamformed ****** ### OBSERVATION NOTE - dummy subband is required ### TBB stand alone run, dummy target ### Run# 9: Observation Setup F "empty",00:00:00.0,+00:00:00.0,j2000,9,N,1000h,,,,55,G, ,TBB stand alone ******

Uploading the example list above will result in the following target table. For convenience, a column displays the total number of subbands specified per target.

Run#	Field	RA	Dec	Epoch	Time(Hours)	Subbands	Total Subbands	Calibr.	Obs.	Pipe.	Comments			
1	"3C196"	08:13:36.0700	+48:13:02.600	J2000	100	12499	488		Α	Α	split in 10-12hr blocks	🖋 Edit	📳 Сору	Delete
2	"3C196"	14:11:20.6000	+52:12:09.000	J2000	0.17	55420	366		В	В	flux cal	💕 Edit	📳 Сору	💕 Delete
3	"DF001"	17:10:00.0000	+60:50:00.000	J2000	6	55420	366		в	С	target beam	🖋 Edit	📳 Сору	💕 Delete
3	"3C343"	16:34:33.8100	+62:45:36.000	J2000	6	100221	122		В	В	cal beam	💕 Edit	E Copy	💕 Delete
4	"3C48"	01:37:41.3000	+33:09:35.100	J2000	0.17	55420	366		в	в	flux cal	💕 Edit	E Copy	💕 Delete
5	"3C147"	05:42:36.2600	+49:51:07.100	J2000	1	52467	416	Y	С	D	CalRun#5-6	💕 Edit	E Copy	💕 Delete
6	"DC156"	05:32:32.0000	+52:50:00.100	J2000	6	52467	416		С	E;F	Target Run#5-6	💕 Edit	E Copy	💕 Delete
7	"Fr479"	06:03:00.0000	+52:00:00.000	J2000	14	156316	161		D	F	Target beam	💕 Edit	E Copy	💕 Delete
7	"Fr480"	07:08:00.0000	+44:00:00.000	J2000	14	156316	161		D	F	Target beam	💕 Edit	📳 Сору	💕 Delete
7	"3C196"	08:13:36.0700	+48:13:02.600	J2000	14	156316	161	Y	D	F	Calibrator beam	💕 Edit	📳 Сору	💕 Delete
8	"P0123"	01:02:03.0000	+82:00:00.000	J2000	1	256300	45		E	G	Beamformed	💕 Edit	📳 Сору	💕 Delete
9	"empty"	00:00:00.0000	+00:00:00.000	J2000	1,000	55	0		G		TBB stand alone	💕 Edit	📳 Сору	💕 Delete

On the "Observing request" tab you see the targets coupled to the configurations.

ld	Targets	Runs	Telescope	Mode	Exposure (Hours)	BF Data (TB)	Store Raw Data	UV Data (TB)	Store UV Data	TBB Data (TB)	Total LTA Storage (TB)			
A	1 targets	1 runs	LOFAR	Interferometer	100	0.0	NO	299.5	YES	0.0	299.5	💕 Edit	🖷 Сору	💕 Delete
в	4 targets	3 runs	LOFAR	Interferometer	6.33	0.0	NO	17.97	NO	0.0	0.0	🕑 Edit	🖳 Сору	💕 Delete
с	2 targets	2 runs	LOFAR	Interferometer	7	0.0	NO	34.31	NO	0.0	0.0	🖋 Edit	🖷 Сору	💕 Delete
D	3 targets	1 runs	LOFAR	Interferometer	14	0.0	NO	79.66	YES	0.0	79.66	💕 Edit	🗐 Сору	💕 Delete
Е	1 targets	1 runs	LOFAR	Beam Observation- Interferometer	1	2.32	NO	0.38	NO	0.0	0.0	🕑 Edit	📳 Сору	💕 Delete
F	0 targets	0 runs	LOFAR	TBBPIGGYBACK	500.0	0.0	NO	0.0	NO	2.23	2.23	🖋 Edit	🖷 Сору	💕 Delete
G	1 targets	1 runs	LOFAR	Interferometer-TBB	1,000	0.0	NO	0.0	NO	8.91	8.91	💕 Edit	E Copy	💕 Delete

Specify a new observation

ld	Targets	Telescope	Mode	av time	av freq	demixing	Total LTA Storage (TB)	P/O Ratio	Total Processing Time (Hours)			
А	1 targets	LOFAR	Pre processing only	5.0	16.0	Y(CygA,CasA)	4.87	3(1)	300	💕 Edit	📳 Сору	💕 Delete
в	3 targets	LOFAR	Pre processing only	5.0	64.0	N	0.06	0.5(1) 1.5(2)	3.5	💕 Edit	🖶 Сору	💒 Delete
С	1 targets	LOFAR	Pre processing only	5.0	16.0	N	0.09	1.5(1)	9	🛃 Edit	E Copy	💒 Delete
D	1 targets	LOFAR	Calibration	10.0	64.0	N	0.04	1.5(1)	1.5	💕 Edit	E Copy	💕 Delete
Е	1 targets	LOFAR	Calibration + imaging	10.0	64.0	N	0.04	c:1.5i:0(1)	9	💕 Edit	🖶 Сору	💕 Delete
F	3 targets	LOFAR	Pre processing only	10.0	64.0	Y(CygA,CasA)	0.17	2(3)	84	💕 Edit	🖳 Сору	💒 Delete
G	1 targets	LOFAR	Pulsar pipeline			N	0.00	0.2(1)	0.2	🕑 Edit	E Copy	💒 Delete
	Specify a new Pipeline :							e :				

Note: P/O ratio is listed with (n) the number of targets. The "c" and "i" are used when a calibration or imaging pipeline is used. More accurate processing values will be implemented after the full characterization of CEP4.

(i) Note: The LTA storage for pipeline data currently takes an additional factor 1.3 into the calculation, which is done to take into account for additional data products and an extra data column written in the MS. If you require the calibration pipeline, this factor is increased to 2, to account for the DATA and CORRECTED columns in your final MS.

Additional Information

On the "Additional information" tab, information should be given to support the proposal, e.g., related publications and proposals. Up to 8 related publications can be given and a maximum of 300 words can be used for the proposal part. These fields are mandatory. Please use the format as indicated.

If students (of any level) are involved in the project, use the "add new student" button and fill in the details.

Information about all Students involved	
add new student	
Publications and relevant proposals	
Add publications (Max 8) : Place each entry on a new line. The following information has to be provided: Publication - Authors, Title, Journal Reference	
Add previously involved proposals (Max 300): Place each entry on a new line. The following information has to be provided: Instrument, cycle/code, status (e.g., time awarded/completed/in progress)	
Additional Remarks :	

DDT and commissioning proposals

To submit proposals for Director's Discretionary Time (DDT) or for the commissioning category, go to the NorthStar frontpage ('proposal list'), click the "create new proposal" button, and select the "ddt" or "commissioning" category from the dropdown selection list. DDT proposals are meant for urgent, scientific observations that could not have been foreseen at the previous cycle deadline, and cannot wait for the next cycle deadline. Commissioning proposals are meant to address new functionality or new ways to use existing LOFAR resources.

DDT and commissioning proposals have the same layout in NorthStar as regular proposals. You can upload your justification and also define your observations, pipelines, and targets.

Note: DDT and commissioning proposals are not linked to any particular deadline. They are immediately sent to ASTRON and the ILT director upon the first submission. Unlike regular single cycle or long-term proposals, the DDT and commissioning proposal categories therefore do not offer the option to submit, retract, revise, and resubmit.

Progress reports

Pls of Long Term projects are asked to submit progress reports for each cycle in which their project has active observations. To start a progress report, click "create new proposal" in the NorthStar start page, and select "progress_report" from the drop down menu.

The progress reports should demonstrate timely reduction and analysis of the data obtained. It should also include a detailed publication plan, enumerating the expected major papers, lead authors, and the time-line for drafting and submitting the papers.

The 'progress report' category allows PIs to submit a pdf file of a maximum of 3 pages. Sections "Applications", "Justification" and "Additional information" should be filled in. The functionality under "Observing request" and "Target list" is disabled in the submission tool, since observing setups and pipeline parameters are not needed for this category.

Frequently asked questions

Here are some common questions and possible solutions to problems that you may encounter during the proposal setup process. If problems persist or you cannot find your answer in this document, contact sdco@astron.nl.

Why is my email invitation not working?

Some mail clients (a.o. for the Mac) insert a line break in the url in the invitation email. When clicking on the (first part of) the link, NorthStar returns a message that the invitation is not accepted. The solution is to paste the separate parts together on a single line (making sure the link ends with "...?key=<some weird string>" and enter that into the browser).

In addition, it is important that the email address to be invited does not contain any leading or trailing spaces.

Why does the webpage say my document has more than X pages when I just corrected this?

Entering a new file in the file location field of the upload form in itself does not affect the alert message. The upload form refreshes the alert message when it has contacted the server and this happens after hitting the "upload" button. So, if you have generated a new file with the correct number of pages and entered it in the upload form, push the "upload" button ignoring the warning. If the new file gets through the validation, it will be entered into the proposal.

How do I change the queue for my proposal?

If you want to change the category for your proposal (e.g., 'single-cycle' to 'long term', or from one semester to another) you will need to start a new proposal from the main screen, choose the appropriate category, and start from scratch.

How do I recover from an "Internal server error" or an "Unable to store proposal error" after a recent action?

You possibly entered an invalid value, missed a mandatory entry field or made an incorrect coupling (e.g. a target run is defined without an associated observation) that causes Northstar to fail. One common error is an incorrect string input (e.g. a long minus sign, a triple dot [...], a quote ['], etc.) in the proposal; care should always be taken when copy pasting text from another document. It is a good idea to regularly save the proposal to make it easier to trace errors.

Try to go "back" in the browser, then "quit without saving", logout and finally login again and edit the proposal. You should be able to proceed again from a previous saved version.

The calculated observing time/storage does not make sense to me. Should I use them?

The calculations are there as an additional help for the technical committee. They may however show some flaws. You are expected to always check the values, and for the submission you have to fill in the manual hours-/storage-requested boxes. If you think Northstar is way off in the calculations, always mention this in the justification.

Northstar is giving me a total data size that is ridiculously small. What's wrong?

If the total data size is an insensibly small number, you may have given Northstar the wrong input for integration time. There is now a warning if you try to enter numbers larger than 2 sec as integration time. If you did not care about the warning and entered your entire observing time as "integration time", the size of the data will accordingly be wrong and extremely small. Check your integration time and correct it, if necessary.

Known issues in Northstar

Data size and time estimate

Northstar makes use of the same web tool available in the ASTRON web pages to all users. The size of the files produced by the pulsar pipeline is not calculated by Northstar.

We encourage the PI to double check with the stand-alone tools provided on the LOFAR web site the calculation of the **data size** and to follow the guidelines in the same website to estimate the processing time for beamformed and interferometric observations. If these calculations return very different values compared to those given by Northstar (not explained in terms of the factors mentioned above), the PI should manually introduce these numbers and explain this in the proposal.

The processing time is an important criterion to estimate the feasibility of a scientific project and can lead to a reduction of the observing time, if deemed by the TAC as too demanding for ASTRON facilities. We hereby remind PIs to specify in their proposal whether part of their processing can be performed at facilities outside ASTRON. In such case, they should also clearly mention the amount of processing hours that the TAC could safely subtract from their request, might this be needed in case of a large oversubscription in the Cycle that they are applying for.

• Beamformed observations

Northstar has not been optimized to set up beamformed observations. In particular, it will not allow you to add several tied array beams to one pointing in the Target tab, because it will charge subbands to each of your tied array beams and you will run out of available subbands. Fixing this issue would imply a major upgrade of the proposal tool; it will only be addressed when a completely new tool is developed.

Rounding of sky coordinates

In the target list, coordinate values are rounded to two decimals in seconds (RA) and one decimal in arcseconds (Dec). If it is important that the coordinates are more precise than this, please inform sdco@astro n.nl once the observing setups are being prepared ahead of the observation.

• Negative spectral index

In an ascii target list uploaded to NorthStar, a negative spectral index value leads to an error in parsing. The solution is to specify a positive spectral index, or leave the field empty.

• Error in pdf conversion when uploading the justification document

This usually means that there is some PDF functionality which is not yet supported by Northstar, depending on how the document was generated. The problem may be fixed by re-generating the pdf file. For example, on a Mac, this can be done by opening the document with preview and exporting it as a PDF.