GBT Proposal Life Cycle

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Abstract

This memo describes the life cycles of Proposals for the Robert C. Byrd Green Bank Telescope.

Contents

History

1.0 Original Draft (Marganian)

1 Introduction

oThe Robert C. Byrd Green Bank Telescope (GBT) has implemented a new Proposal Handling Tool (PHT) to replace the previous tools for handling GBT proposals and preparing those proposals for scheduling. In addition to replacing the previous proposal handling tools, the new tool is also integrated into both the GBT Dynamic Scheduling System (DSS) and the NRAO-wide proposal submission and handling tools.

This document describes the proposal life cycle for GBT Proposals within the context of this new tool.

2 Definitions

- **Proposal** - The scientific observing proposal, with its meta-data, which is submitted through the PST and which then may eventually get scheduled on the telescope.
- **Proposal Code** - A unique identification code for the project. For science projects, this was assigned to the project upon its proposal and is typically of the form GBTYYA-XX where YY is the year (e.g. 08), A represents the semester to which the project was assigned (currently A, B, or C), and XX is a unique number for that year and semester. A typical code is then GBT08A-059.
- **Semester** - A 6-month time period within a given year.
- **Current Semester** - The semester which is ongoing.
- **Next Semester** - The semester following the Current Semester; most new Proposals aim to observe during the next semester.
- **Telescope Allocation Committe** (TAC) - Committee that allocates time for all NRAO telescopes.
- **GBT Dynamic Scheduling System** (DSS) - Software system used for scheduling the GBT.
- **Astrid** - Astronomer's integrated desktop; observer's tool for observing with the GBT.
- **GBT Scheduler** - The person who oversees the scheduling of the GBT.

3 Overview

Figure 1 shows the path(s) a GBT Proposal may take. Here is a brief description of elements of this life cycle. Note that details are explained in other sections.

1. Scientist submits a Proposal into the NRAO Proposal Submission Tool (PST) (Sec. 4) before the submission deadline, which is the first day of the Current Semester; thus this new Proposal may begin observing by Next Semester. This is the beginning of the Proposal's life cycle.
2. All new proposals for the Next Semester are imported into the GB PHT (Sec. 5).
3. Science Review Panels and Technical reviewers enter comments for each Proposal in the PST.
4. Comments from reviewers are imported into GB PHT.
5. GBT Scheduler may optionaly add new Proposals directly into the GB PHT
6. GBT Scheduler edits Proposals in GB PHT
7. In preparation for the TAC meeting syncing is enabled between GB PHT and NRAO PHT (Sec. 6)
8. TAC meeting is held (about the middle of the Current Semester); TAC feedback entered into GB PHT; changes propogated into NRAO PHT.

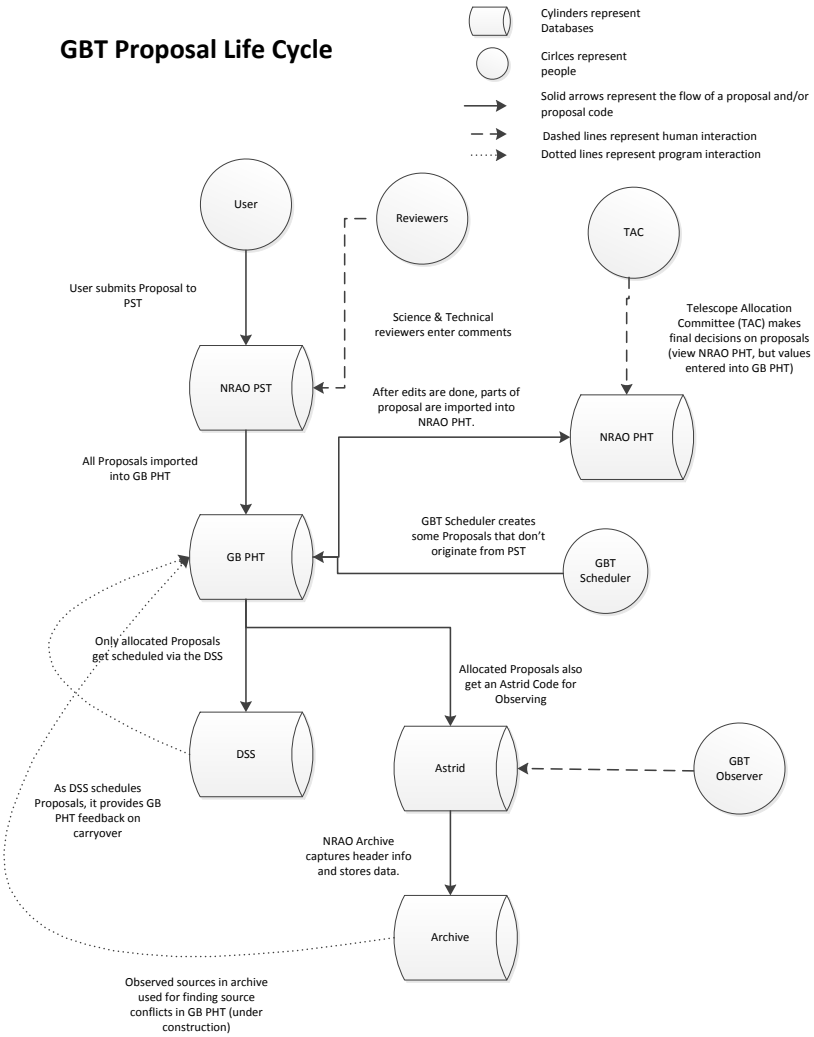

Figure 1: GBT Proposal Life Cycle

9. GBT Proposals that have been allocated time are given a Dynamic Scheduling System (DSS) (Sec. 7) project so that they can be scheduled on the GBT, and a corresponding Astrid Code (version of the Proposal code) so that they can actually observe on the GBT (Sec. 8).

10. Once the Next Semester starts, Scientists start observing their Proposals on the GBT: Time Accounting in the DSS feedsback into the GB PHT so that the next TAC knows how much 'carryover' still needs to be observed, and observations are archived (Sec. 9).

11. Resulting data from observations placed into the Archive.

12. Once a Proposal has observed enough of it's time on the GBT, it is labeled as closed. This is the end of the Proposal's life cycle.

4 Proposal Submission Tool

The NRAO Proposal Submission Tool (PST) is a package for creating and submitting proposals for NRAO telescopes. The PST has been used for GBT observing proposals since June 2005, VLA observing proposals since January 2006, and VLBA/HSA observing proposals since June 2008. The PST will eventually handle ALMA proposals.

The NRAO PST is a one-way interface into the GB and NRAO proposal handling tools.

5 GB Proposal Handling Tool

Once a GBT proposal is submitted through the NRAO Proposal Handling Tool and accepted for consideration, it is imported into the Green Bank Proposal Handling Tool (GB PHT). This is the tool which typically is used to allocate time, adjust sessions, and assign grades. Information from this tool is also passed on to the NRAO Proposal Handling tool, for record keeping, notification, and archiving purposes.

6 NRAO Proposal Handling Tool

The NRAO Proposal Handling Tool processes the VLA and VLBA proposals in a manner similar to that of the GB PHT. Additionally, it is the tool used for the NRAO TAC meeting, for sending of all dispositions to project investigators, and the primary archive for proposal information for NRAO telescopes.

7 GBT Dynamic Scheduling System

The GBT DSS is used for scheduling observations on the GBT. It is fully described within the NRAO GBT DSS memo series (ihttps://safe.nrao.edu/wiki/bin/view/GB/Dynamic/DynamicProjectNotes).

7.1 DSS Projects and Sessions

Once a Proposal has been allocated time by the TAC, it and its associated sessions and periods (if they exist) are 'exported' into the GBT DSS. That is to say, the PHT's Proposal is given an associated DSS Project.

The Proposal Code is used, without modification, for the DSS Project Code.

7.2 Feedback to GB PHT

As a DSS Project's Sessions are scheduled on the GBT, scientists manage their observing via Astrid (Sec. 8). Utilitzing notes from the Operators Logs, the complex time accounting for these observations are determined in the DSS [O'Neil(2011)]. As the 'time remaining' for a given Project's Session decreases, the GBT Scheduler decides when and if the Project is 'complete', that is, when it should be done with its observations.

The DSS Project's 'time remaining' and 'complete' status are feed back programatically to the GB PHT (contrary to Figure 1, the GB PHT and DSS actually share the same database). This is so that when the next cycle of new proposals begins (the Next Semester becomes the Current Semester), any given Proposal that has a corresponding DSS Project can be correctly taken into account in the 'carryover'. So, a DSS Project that is not 'complete' and still has 'time remaining' will contribute to the 'carryover' of the LST Pressures [Marganian(2012)].

This feedback mechanism is further utilized through the use of the DSS 'lookahead simulations'. Simulations form the core of the DSS Science Algorithms. A simulation can be run from the present day to the end of the

Current Semester, with reports detailing which sessions ended up completeing, or how much 'time remaining' they may have. These predictions can be leveraged by the GBT Scheduler by entering the results into the GB PHT Sessions' 'Next Semester' fields [Marganian(2012)], thus ensuring a more accurate 'carryover' result for the LST Pressure plots presented to the TAC.

8 Astrid

Astrid is the tool used by scientists for managing their GBT observations. When a GBT Proposal is allocated time by the TAC, it is given a corresponding DSS Project (Sec. 7) and Astrid Project Code. Unlike the DSS Project Code, the GB Proposal Code is modified before it becomes an Astrid Project Code:

- All "-" characters replaced with "_".
- If the Proposal Code does *not* begin with "T":
  - If the Proposal Code is for VLBA, then "VLBA" is replaced with "AVLB".
  - Othewise, simply append an "A" to the beginning of the Proposal Code.

Note that previously, the PST 'legacy code' was being used for both DSS Proposal Codes, and Astrid Project Codes (i.e., BB240, etc.)

The Astrid Project Code is used in two significant ways:

- Scheduling Blocks (SB) - Observers make their actual observations by submitting Scheduling Blocks via Astrid. These SB's are managed via a database, where they are organized via the Astrid Project Code.
- Observation Data - Each time an observation is made via Astrid, the Astrid Project Code must be chosen, as well as a 'session number' (no relation to GB PHT and DSS essions). The concatenation of these two values forms the GBT M&C Project Code, which in turn determines the directory where the observation data is written to. Also, the Astrid Project Code can be found in the data itself (FITS file headers).

9 Archive

GBT data is being incorporated into the NRAO archive access tool (AAT). The Astrid Project Code that is written in the data (FITS files) and forms part of the data directory discussed above is used for the Archive's 'Project Name'. In addition, this same Astrid Project Code is modified once again to form the Archive's 'Proposal Name', in a manner that restores it to the value that originated from the PST.

10 Proposal Code Summary

Here we give a brief summary of the uses of the proposal code from the birth of the proposal, through to it's observations on the GBT.

- NRAO PST: Proposal Code originates
- GB PHT: Proposal Code loses forward-slash character
- DSS: Proposal Code reused without modification
- Astrid: Proposal Code altered to become Astrid Project Code. Concatenated with 'session number' to label data.
- Archive: Astrid Project Code reused for 'Project Name'; Astrid Project Code modified for 'Proposal Name'

10.0.1 Proposal Code Examples

Example 1: GBT Proposal

- Scientist submits proposal at 2012-07-31 11:59:59. It is assigned Proposal Code GBT/13A-014
- Proposals for semester 13A are imported on 2012-08-01 (first day of semester 12B). Proposal code is changed to GBT13A-014.
- Proposal is allocated time by TAC on 2012-10-13. Proposals is given an associated DSS Project with Project Code GBT13A-014, and a corresponding Astrid Project Code of AGBT13A_014.
- Scientist observes Project after 13A starts (2013-02-01). Their first observing session is labeled '01', so their data is stored in 'AGBT13A_014_01'.
- Archive: Project Name = AGBT13A_014, Proposal Name = GBT/13A-014

Example 2: VLBA Proposal

- Scientist submits proposal at 2012-07-31 11:59:58. It is assigned Proposal Code VLBA/13A-222
- Proposals for semester 13A are imported on 2012-08-01 (first day of semester 12B). Proposal code is changed to VLBA13A-222.
- Proposal is allocated time by TAC on 2012-10-13. Proposals is given an associated DSS Project with Project Code VLBA13A-222, and a corresponding Astrid Project Code of AVLB13A_222.
- Scientist observes Project after 13A starts (2013-02-01). Their first observing session is labeled '01', so their data is stored in 'AVLB13A_222_01'.
- Archive: Project Name = AVLB13A_222, Proposal Name = VLBA/13A-222

11 Exceptions

You can't have rules without exceptions. Here's ours: GBT Maintenance, Shutdown and Testing. These types of activities don't follow the same life cycle path as 'astronomical' proposals. These actually originate in the DSS, and are later exported to the GB PHT. They never are reviewed by the TAC, and are treated differently when calculating LST Pressures [Marganian(2012)].

References

[Marganian(2012)] Marganian, Paul, 2012, "PHT Time Accounting" PH/PN001.0

[Marganian(2012)] Marganian, Paul, 2012, "PHT LST Pressures" PH/PN002.0

[O'Neil(2011)] O'Neil, Marganian, 2011, "Time Accounting in the Green Bank Telescope Dynamic Scheduling System" DS/PN011.3