

## **1 User Group Plan**

### **1.1 Introduction**

There are two types of tasks that the user group will be supporting. In the first category are the global issues. These include issues such as the order of release of tools, as well as the interoperability and uniformity of the tools. In the second category are issues associated with specific tools whose development has already begun or will begin in the next few months. It is important to proceed with some of these tools, since time-limited resources are available. We have begun developing a plan to handle the user group support of these tasks. We believe that it is possible to carry out both types of tasks in parallel. Some of the global issues, such as interoperability, ought to be resolved before the tool development proceeds very far. On the other hand, high level tool requirements and prototyping can begin before many of these issues are settled. The user group supports the goal of providing tools in a fast prototyping, iterative manner. A close cooperation between the user group and the developers is necessary for rapid prototyping to succeed. This memo outlines a plan to investigate the global issues and to support the near term development efforts.

Tony Krueger has listed the major tasks (global issues or tools) that require user group input, along with a schedule in section 5.2 of this memo. The user group members are available on a limited part-time basis. To make reasonable progress, we have assigned a small number of individuals to each task. For each task, there will be a primary person and one or more secondary people. The primary person is responsible for the user group's involvement with the task. The secondary people are to assist the primary person and possibly represent the primary person when required.

We expect to present project plans at the TIPS meeting in June. A more detailed presentation will be held in July. We expect to hold reviews each January and July for the duration of the project. These reviews are timed to occur shortly after system releases, which are phased with proposal deadlines.

### **1.2 Development Projects**

For development efforts, we envision that they will work directly with the development team. The primary person's responsibilities are as

follows.

1. They will act as a liaison between the user group and the developers. Their involvement will vary somewhat depending on the maturity level of the project.
2. They will report on the status of the task at the APT user group meetings.
3. For new development efforts, they will provide the needed science input to make decisions about the capabilities of the software. This will likely involve the development of a list of the rather high level capabilities that span instruments and the development of some general science use cases. Support will be needed from the instrument groups for determining instrument specific capabilities and use cases.
4. The development model involves the use of iterative prototyping. To that end, the primary person will test the usability and capabilities of the prototype and suggest changes. Instrument groups should also be involved with the testing of prototypes.
5. They will be available to suggest instrument scientists and data assistants to carry out more detailed testing. The detailed testing involves verifying the scientific accuracy of the software.
6. They are responsible for reviewing documentation of the software. They may provide general documentation that gives users a scientific overview of the tool. They are not required to produce detailed documentation of each capability. Instrument groups will need to provide some support for instrument specific documentation. It would be useful to have a technical writer.
7. They will provide scientific input needed to prioritize OPRs. Detailed technical OPRs should be handled by the developers.

### **1.3 Global Issues**

The user group will also investigate some global issues, as described in the last two tasks at the end of this memo. One issue is the schedule for the release of specific tools. Another, but related, issue involves global aspects of the tools, such as the APT user interface. We plan to follow a similar model for working on the global issues, with primary and second members. The group will work with designated developers to provide a long term plan. We accept that the starting point for these issues is the document "APT: HST Proposal Preparation Environment

for the Second Decade” prepared by the Tools of the Future group (see <http://www.stsci.edu/spb/tof/tof.html>).

The global issues will be the main focus of the APT user group meetings in the next few months.

## 2 Documentation

There are several forms of documentation that will be maintained by or will be affected by the APT. Below is a list of the forms of documentation.

1. Tool requirements. This form of documentation describes the basic capabilities of a tool, as mentioned in item 3 above. This is a list of high level capabilities that is used by the developers for creating prototypes. The primary person for each tool is responsible for developing this list of capabilities. Some assistance will be required from the instrument groups. The user group members for the tool and instrument group members will check the prototype against this list of capabilities and will iterate with the developers as required. The list also provides a basis for discussing and reviewing the APT plans. It can also be used as a starting point for developing user documentation. This list will evolve during the prototyping effort.
2. User documentation. This documentation provides users with a description of the capabilities of the APT. This will include a detailed description of how to use each tool. This documentation will be available online within the APT help. It will be possible to easily print this document. This documentation will be produced by technical writers. They should start writing documentation for a tool once a prototype becomes available. They should exercise the tool capabilities early on and become involved in the prototyping process. This documentation also is needed for accuracy and usability testing (items 2 and 3 of section 3).
3. Code documentation. This standard form of documentation is used by developers and code maintainers. The development group is responsible for this documentation.
4. Proposal instructions. The user view of the proposal preparation process will change with the APT. For example, some special requirements may be handled in a visual manner. There may be a need to restate the proposal instructions to more closely reflect the user view in APT. On the other hand, it may be possible to have the proposal instructions largely rely on a reference to the APT

documentation. More consideration is needed. Such documentation changes would need to be made by the group that maintains proposal instructions with assistance from the user group. The details have not yet been determined.

### **3 Testing**

There are several levels of testing that will occur for the APT, as discussed below.

1. **Functionality testing.** This form of testing occurs during the iterative prototyping discussed in item 1 of section 2 above. This form of testing is carried out by the user group members who are working on a particular tool. In addition, instrument group members will likely be involved in testing instrument-specific issues. The goal is to verify that the specified capabilities of the tool are met, including user interface issues.
2. **Early user testing.** User feedback is critical to the testing process. Users provide important information on the capabilities and the user interface for the tools. We want to determine whether users are able to take advantage of the APT with minimal startup time. This is essential because the APT is likely used only a few times each year. So we cannot expect a user to overcome limitations in the user interface through experience. For early testing, the APT group draws from STUC members and other users who are likely to benefit from the tool.
3. **Completeness and accuracy testing.** This form of testing occurs once the tool completes functionality testing. The goal is to ensure that the results of the tool are accurate and complete. The appropriate data sources need to be determined. Decisions may need to be made about the level of completeness that will be provided by the tool (e.g., which instrument modes). This form of testing is coordinated by Karla Peterson. Some assistance from instrument groups will be needed.
4. **Post-release user testing.** The motivation is the same as item 2 above. User comments are solicited when the software is released.

### **4 Resources**

The detailed tuning of the user interfaces and adjusting some of the capabilities of the tools will involve obtaining feedback from end users

after the tool is released. On the other hand, a tool needs to be both robust (does not easily crash) and accurate. Feedback on the scientific accuracy should come from within STScI and not from users. User documentation (item 2 of section 2) and testing of completeness and accuracy (item 2 of section 3) are areas of concern. Karla Peterson is available to help with these issues, and we are getting help from Jim Younger on documentation of the VTT. We believe that more resources will be needed. It would be desirable to have Jim Younger or someone like him to provide APT support beyond the VTT. Having support from a technical writer at the 0.5 FTE per year level would be of substantial benefit. It would allow Karla to devote more time to testing.

Another area of concern is the level of effort that will be required by the user group members in the next several months. Much of the conceptual effort on the global APT issues, as well as on some new tools, will be taking place between now and the fall. The group members had expected a lower level of effort, about 4 hours per week, would be required. This estimate is unrealistic, at least for the near term. It is likely that one and possibly two days per week may be required.

General support from the instruments groups will be needed for items 3, 4, and 6 listed in section 1.2. The level of support will be quite variable in time. We estimate that on the order of 1.5 FTE per year may be required. There should be a contact person within each instrument group, such as the group lead, who will be handle requests from the requirements group.

## **5 Support Activities and Assigned User Group Members**

### **5.1 Table of Assignments**

For each tool or activity, we have assigned a primary person from the user group, together with secondary people. In addition, one or more developers have been assigned to work on a tool with the primary person. The table below summarizes the current assignments. More details, provided by Tony Krueger, are described below the table.

APT Assignments			
Tool	Primary	Secondary	Developer
ETC	Chris O'Dea	Max Mutchler	Dick Shaw
VTT	Ray Lucas	Megan Donahue Karla Peterson	Frank Tanner
Bright Object Checker and Guide Stars	Ron Downes	Ray Lucas	Jesse Doggett Mike Asbury
Starview2/VTT	Megan Donahue	Steve Lubow	Frank Tanner Fred Romelfanger Scott Binegar
Quick-Trans	Chris O'Dea	Ron Downes	Rob Douglas
Orbit Planner	Chris O'Dea	Ron Downes	Tom Donaldson
Visit Planner	?	?	Don McLean
Project Scope	Steve Lubow	Chris O'Dea Karla Peterson	Tony Krueger
Top Level GIU	Steve Lubow	entire group	Rob Douglas

## 5.2 Description of Tasks

ETC SUPPORT - Primary Chris O'Dea, Secondary Max Mutchler

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Primary contact from development side is Dick Shaw

The ETC developers will need from the requirements group a fairly complete specification of the requirements that apply to the ETCs within the APT. We will also need them to develop a set of use cases that represent a wide range of instrument use for a broad range of science programs.

The ETC task expects to be able to generate a first cut at the requirements by mid-May, which will be based upon the existing CGI ETCs and the APT/ETCs. This draft can serve as a starting point for the discussions that lead to the final SRS. We know that the ACS group is relatively happy with the interface and functionality of the APT/ETC, so the first draft of the SRS should be relatively solid. Still, it will be essential I think for the requirements group to solicit input from at least one instrument team other than ACS to ensure that the final product is designed with a broad enough perspective in mind, and that we have solicited all the necessary functional and non-functional requirements.

The ETC task will need support for generating and reviewing documentation for the ETCs, including tutorials if they are deemed necessary. The ETC task will also need support for validation of the product that will be released for Cy 10, Ph 2. This will mostly

take the form of some use-case testing (though a lot of that will be done by the instrument team) and of evaluating the GUI from a usability standpoint.

Here is a straw-man schedule for the requirements generation for the ETCs:

12 May First draft of requirements specification (SRS) as generated by the ETC team is made available to the requirements team (RT) for review.

12 May-26 May RT reviews the requirements and evaluates the interface & functionality of APT ETCs.

5 Jun RT provides a revised draft of the SRS, and a prioritized list of changes to the functionality and GUI of the APT ETCs.

16 Jun RT finalizes the SRS and the scientific Use Cases. Changes to the APT/ETC functionality are written up and prioritized in an appendix to the SRS.

30 Jun RT supports evaluation of the revised ACS ETC w.r.t. throughput and reliability of the connection to synphot.

4 Sep-6 Oct RT supports generation of documentation for ETCs.

29 Sep RT supports validation (including Use Case testing) for the re-implemented ACS ETC.

VTT Support - Primary Ray Lucas, Secondary Megan Donahue and Karla Peterson  
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Primary contact from development side is Frank Tanner

5/4-6/1 Help with 6/1/2000 release  
Review on-line documentation  
Acceptance testing support  
Help with 1 page overview of tools uses for web page  
(Karla will organize and coordinate this effort)

By 6/1 Prioritize next set of VTT work for an external release of the VTT in 8/1/2000 timeframe. This assumes that this release is approved.

By 7/1 Prioritize next set of VTT work for the Phase 2 cycle 10 release. December 2000 timeframe. This is not only the existing OPRs, but also we probably should look beyond cycle 10 for major features needed and think about their priority and when they would be nice to have. This ties into the overall APT picture of when to release major features  
Things Like

- Adding Guide stars
- Bright Objects
- Parallel observation support
- Moving Targets
- Generic target support
- Mosaicing/dithering, etc
- Expanding it to display spectra, Grisms, chronography

7/15-8/1            Help with 8/1/2000 release  
 Review on-line documentation  
 Acceptance testing support  
 Help with 1 page overview of tools uses for web page  
 (Karla will organize and coordinate this effort)

10/20-12/15        Help with Phase 2 cycle 10 release  
 Review on-line documentation  
 Acceptance testing support  
 Help with 1 page overview of tools uses for web page  
 (Karla will organize and coordinate this effort)

4/1-12/15            Generic support to the developers on GUI  
 look and feel issues, science issues, etc.

BRIGHT OBJECT CHECKING + possibly GUIDE STARS Primary Ron Downes,  
 Secondary Ray Lucas

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Primary contacts from development side is Jesse Doggett, Mike Asbury

5/15                 Mike expects to have some development time becoming  
 available to begin add bright  
 object checking support to the APT/VTT. He will need  
 science direction, requirements, and GUI presentation  
 evaluation/help. I guess the first issue the user  
 group will have to tackle is, "do we provide PI's with  
 bright object capabilities".

Beyond 7/1            This will depend on the stakeholders decision to  
 provide this support in APT. We will define more  
 details, if the task is going to proceed.

STARVIEW2/VTT INTEGRATION Primary Megan Donahue, Secondary Steve Lubow  
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Primary contacts from development side is  
 Frank Tanner(APT), Fred Romelfanger(APT), Scott Binengar(STARVIEW2)

5/1-12/15            Work will become available in the May 1st timeframe  
 to begin work on this task. He will need  
 science direction, requirements, and GUI presentation  
 evaluation/help



10/9-10/20 Internal release of prototype. Evaluation of prototype

10/20 Decision to release prototype for external use. Need help in deciding this from the science/user perspective.

10/20-12/15 If release approved, Help with Phase 2 cycle 10 release  
Review on-line documentation  
Acceptance testing support  
Help with 1 page overview of tools uses for web page  
(Karla will organize and coordinate this effort)

QUICK-TRANS SUPPORT Primary Chris O'Dea, Secondary Ron Downes

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Primary contact from development side is Rob Douglas

By 6/1 Quick trans Phase A is ending in the mid-may timeframe  
They will recommend approaches to the phase B prototyping effort. The APT project will need to make a decision on how to proceed in Phase B. Development will need user/science input into this decision.

Beyond 6/1 Depending on how Phase B will go, development will need science direction and requirements.

ORBIT PLANNER SUPPORT Primary Chris O'Dea, Secondary Ron Downes

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Primary contact from development side is Tom Donaldson

By 10/1 Orbit planner work will begin on 10/1.  
Development will need science vision, requirements and GUI presentation evaluation/help.

10/1-12/15 General support for GUI and science as development proceeds.

VISIT PLANNER SUPPORT Primary ??, Secondary ??

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Primary contact from development side is Don McLean

By 1/2000 Visit Orbit planner work will begin on 1/2/2000.  
Development will need science vision, requirements and GUI presentation evaluation/help.

Beyond 1/2000 General support for GUI and science as development proceeds.

APT PROJECT SCOPE AND LINK WITH RPS2 Primary Steve Lubow,  
Secondary Chris O'Dea and Karla Peterson

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Primary contact from development side is Tony Krueger

By 7/1

Currently we have 6 major external releases scheduled for APT.  
See APT schedule for all the details

Cycle 10 Phase 1 - Jun 2000 and maybe August of 2000  
Cycle 10 Phase 2 - Dec 2000  
Cycle 11 Phase 1 - Jun 2001  
Cycle 11 Phase 2 - Dec 2001  
Cycle 12 Phase 1 - Jun 2002  
Cycle 12 Phase 2 - Dec 2002

It is expected that APT will support some set of users in Dec 2001, but that RPS2 will still be required. How do we want to have these two tools work together. The development team will also need science vision to help decide the following

- What major capabilities go into each release?
  - Currently we have
    - VTT
    - ETC
    - STARVIEW2/VTT
    - ORBIT PLANNER
    - VISIT PLANNER
    - TOP LEVEL GUI
  - What about
    - PHASE SUBMISSION FORMS
    - FINDER CHART GENERATION
    - CANNED OBSERVING STRATEGIES
    - ACCESSING EXECUTION DATA AT STSCI
    - Etc.
- What class of users are we going to support with each release as we get to a full RPS2 replacement?
- How Do APT/RPS2 co-exist until we get to retiring RPS2.

APT TOP LEVEL GUI and ARCHITECTURE Primary Steve Lubow  
Secondary Max Mutchler, Megan Donahue,  
Ray Lucas, Chris O'Dea, Ron Downes

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Primary contact from development side is Rob

By 7/1

This is directly related to the scope and what capabilities are released when. Rob will be starting work on architecture issues in the early June timeframe. He will be making some architecture design decisions that would benefit greatly if a project scope was defined. Rob and I sat down and began to put together a set of requirements/questions. He should have these on the

web by mid-may.

Beyond 7/1

Rob could start working on updating the Top Level GUI first before starting on the Architecture changes. He will need science help and GUI evaluation support for re-designing the Top Level GUI.