APT Tutorial – January 2001

### The Application

<table>
<thead>
<tr>
<th>Observer</th>
<th>Phase 0 Support</th>
<th>Phase 1 Support</th>
<th>Phase 2 Support</th>
<th>Black Box</th>
<th>Archival Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tools Today</td>
<td>What Can I Do</td>
<td>Propose Idea</td>
<td>Accepted Proposal</td>
<td>APT &amp; Starview2</td>
<td>Archival Research</td>
</tr>
<tr>
<td>Tools Tomorrow</td>
<td>None</td>
<td>Latex Forms Exp Time</td>
<td>RPS2</td>
<td>APT</td>
<td>Starview2</td>
</tr>
</tbody>
</table>

APT & Starview2

APT

APT

None
## APT Technical Components

### Phase 1 Support
- Phase 1 Proposal Editor
- Duplication Checker Tool (Starview2)
- Resource Estimator Tool

### Phase 2 Support
- Phase 2 Program Editor
- Orbit Planner Tool (TransVerse)
- Visit Planner Tool (Spike)
- Bright Object Tool
- RPS2 File Conversion Tool
- Guide Star Tool

### Generic Support
- Visual Target Tuner Tool
- Exposure Time Calculator Tool
- Submission Tool
- Observatory Constraint Manager Tool
- Archival Research Tool (Starview2)
- Top Level GUI & Architecture

## Delivery Schedule

<table>
<thead>
<tr>
<th>Tool</th>
<th>TimeLine</th>
<th>Cycle 10</th>
<th>Cycle 11</th>
<th>Cycle 12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Phase 1</td>
<td>Phase 2</td>
<td>Phase 1</td>
</tr>
<tr>
<td>Visual Target Tuner</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>ExpTime Calculator</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Archival Research</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>M</td>
</tr>
<tr>
<td>Orbit Planner</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Bright Object Tool</td>
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<tr>
<td>Top Level GUI</td>
<td></td>
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<td>X</td>
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<tr>
<td>Architecture</td>
<td>X</td>
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<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Phase 1 Tool</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Help Wizard/Tool Tips</td>
<td>X</td>
<td>X</td>
<td></td>
<td>M</td>
</tr>
</tbody>
</table>

X – Release doesn't contain all major capabilities (Incremental Release)
M – Contains all major capabilities (Maintenance Mode)
Detailed Schedule [http://apt.stsci.edu](http://apt.stsci.edu)
APT/ETC Status and Demo

Chris O’Dea

Status of APT/ETC

- Motivation & Goals
- Background
- Science Input
- Status & Plans
- How to Use the APT/ETC
- Helpful Hints
Motivation & Goals

- The web ETC has become a popular and “essential” proposal preparation tool which should be included in the APT.
- The APT ETC is a JAVA tool which provides a uniform interface and uniform output for all the instruments.
- It should be intuitive, fast, and easy to use.
- The APT ETC will allow communication with other APT tools.

Motivation & Goals II

- Output will be both tabular and graphical.
- APT ETC will include additional functionality over the CGI ETCs.
- Eventually, the APT version will replace current web versions - with some savings due to elimination of redundant effort.
Background

- A simple ‘‘proof-of-concept” prototype of a Java ETC was created by the Scientist Expert Assistant (SEA) group at GSFC with some input from ACS and STIS.
- STScI took ownership of the tool in mid-2000.

Development Effort

- Development is being carried out here at STScI by Don McLean, Anand Sivaramakrishnan, and Hemant Shukla; with management by Perry Greenfield. Leslie Zimmerman started working on testing and documentation mid-Jan.
  - debug ETC
  - add scientific functionality (one SI at a time)
  - Improve GUI
Science Input

- ETC User’s group provides input on scientific requirements and user interface
  - Chris O’Dea (chair), Santiago Arribas, Francesca Boffi, Ralph Bohlin, Chris Hanley, Patricia Knezek, Kailash Sahu,
- Francesca Boffi is verifying numerical accuracy for ACS
- Your comments are welcome and encouraged.

Status & Plans

- First release Jan 9, 2001 contains ACS imaging (no ramps) and spectroscopy
- Debug current release
- Add ACS ramp filters and coronograph (contingent on OCM)
- Add NICMOS and STIS (hopefully in time for Cycle 11 Phase I)
How to Use the APT ETC

- type hot-etc to start
- use Target, Instrument, and Background menus to specify exposure parameters
- calculation is carried out when you click Apply
- specify desired SNR or exposure time at bottom of main window

Helpful Hints I

- make sure Apply/Reset is "on" in general preferences menu
- if the ETC hangs, get out and get back in
- print table of results using menu item ETC/Show Exposure as Text and click print
- save text file of results to disk in File/Save As Text
Helpful Hint: H

- print currently displayed plot using File/Print.
  - Caution: On some systems this is a very large file which is slow to print.
- save session using File/Save As

API/VTT Demo

Ray Lucas
Motivation: Why a VTT?

- Part of APT, a suite of new tools for developing observing programs with HST and other space-based and ground-based observatories
- Our ultimate goal: Extensible observatory, independent, platform- and OS-independent Java-based interface for astronomical investigation; for showing what has been observed before and for planning future observations, overlaying various apertures on images, with ancillary capabilities as needed

Related Projects Underway

- Bright Object Protection checking (Ron Downes)
- Starview integration: VTT to Starview & Starview to VTT (Megan Donahue)
Starting: A Simple Script to Follow

- How to start?
  - Follow instructions via links from STScI top-level page to “Observing” and then to “New Astronomer’s Proposal Tool”, or go directly to URL http://ra.stsci.edu/apst/apt/external for instructions on downloading and installing on your PC, or simply type vtt on your STScI unix Solaris workstation. Once VTT is installed and started:
    - First, Left click on “Help” on top toolbar
    - Help contains many “how-to” instructions
    - Most mouse clicks are Left clicks
    - Moving cursor over icons invokes help labels
Simple script (cont’d):

- Click on Target_Search or green DSS button if you already know coords and search for an object
- Retrieve a DSS image of the target using defaults
- Use the Observations pull-down menu to add a WFPC2 observation of your target
- Click on Orientation button (lower right) and play; also try L click and drag on any corner of aperture to rotate by hand. (Similarly, L click and drag over the target position crosshair will move the aperture, and L click and drag in the image will move the image.)
- Play with include/exclude object/region (left toolbar)

Simple script (cont’d)

- Add another observation of the same sort and drag the aperture to a new desired location and ORIENT (or you may specify new coords and a new ORIENT value by entering values in the appropriate boxes)
- Turn on Labels to see which observation is which
- Save the information in HST RPS2 format
- Turn on full focal plane FOV and parallaxes
- Use “Modify FOV Aper List” in “Image Tools” pulldown to correct NICMOS NIC1 and NIC2 FOVs for NIC3 focus
- Play with centroid and radial plot
- Turn on Catalogs; play with magnitude limit sliders; get catalog object information, and look at ADS abstracts and articles, etc.