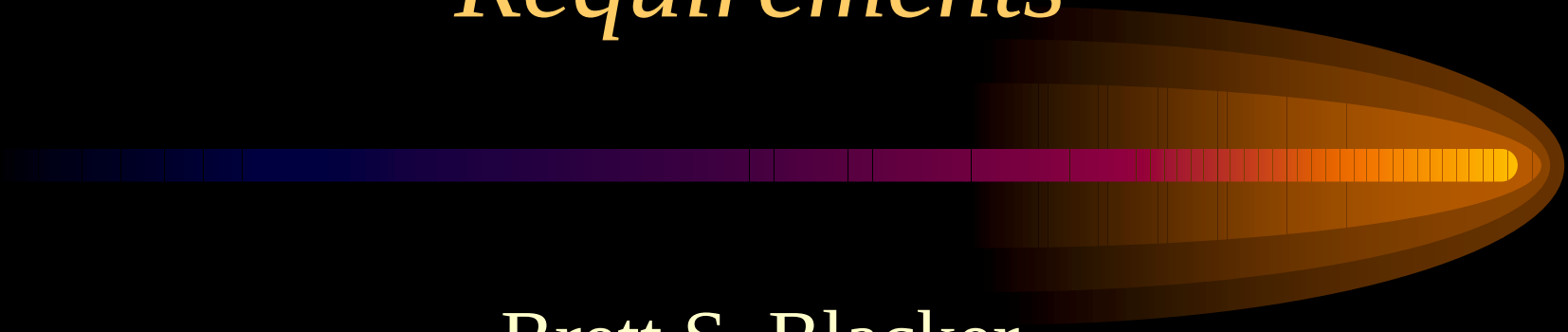
APT Phase I Project Requirements



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Science Program Selection Office

Background

- Phase A study conducted during summer 2000 to:
  - Develop a better understanding of Phase I Process
  - Achieve a more efficient and complete process for loading Phase I data into a Sybase database
  - Improve the Phase I source data and manner in which address table is loaded into Assist DB.
- Presented recommendations to ESS management in August 2000.
- Phase A Study Members from DDT and SPSO only.

Recommendations from Phase A Study

- Modify S/W to parse Phase I files into SQL statements for easier insertion into ASSIST.
  - Would save 2-3 weeks FTE
- Investigate FileMaker Pro S/W to aid DB loading by generating SQL output.
  - Would save 2 weeks FTE

Recommendations continued

- Recommended Phase I be incorporated into the APT tool suite to improve data integrity and time involved in Phase I post-submission efforts.
  - Would improve quality of data by ~85%
  - Would save 6-7 weeks FTE

APT Phase I Working Group

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Goals of Working Group

- Develop a concept of operations.
- Develop a set of requirements.
- Make sure that concept and requirements don’t overburden the Phase I Investigator.

What did we do?

- Formed 2 teams to develop 2 distinct concept of operations, each addressed:
  - How to provide STScI with its operational improvements.
  - How to provide the PI with an easy to use system.
  - How Phase I would be integrated with APT in Phase II (seamless integration).

Con Ops Development

- Both teams developed similar concepts
- Major discussion on Web-based vs. an integrated APT tool.

Pros and Cons for Web-based

- Pros
  - Phase I Submission not dependent on APT
  - Easier to change Phase I tools and pages since it's hosted at STScI (no delivery required).
  - No access issues (PIs should all have Web access).
- Cons
  - Phase I not integrated with APT tools
    - Not the same look and feel
  - Harder to implement for development team
    - More interprocess communication
    - Support for separate tools
  - Web server performance problems?

Pros and Cons for APT Tool

- Pros
  - Easier to integrate Phase I with APT toolset
    - Same look and feel
    - Share process space (ETC and Phase I tools in same process)
  - Easier to implement for development team
  - All the tools are maintained within APT toolset
  - Phase I performance is distributed to user machine
- Cons
  - Some PIs may not have a computer available to run APT
  - Must download and install an application to submit Phase I (**not sure real impact as all users will have to download and install APT application if they want to run ETCs)**
- Therefore, team selected APT integrated Toolset.

Concept

- Relevant Phase I Instructions and documentation on STScI Phase I Web Page.
- Download APT tool suite from Web.
- Use APT tool suite to generate Phase I proposal.

User Benefits

- Ease of Use
  - Pull down menus with context-sensitive help.
- Easier Preplanning
  - Seamless integration between Phase I and II in the future.
- Commonality of user platforms
  - Helps keep learning curve to a minimum
- Automatic Syntax checking
  - Only able to submit legal specifications

User Benefits continued

- Elimination of multiple submission forms
  - Pull down menus switch between layout formats
  - Use submission tool when done
- Removal of Documentation layers
  - Context-sensitive help available on tool suite.
- Use Word Processor of Choice for Science Justification
  - Not limited to LaTeX

STScI Benefits

- Current System does minimal syntax or semantics checking
  - Eliminates syntax errors that are propagated from submission files to Phase I database to Phase II.
- Removes manual effort by SPSO and DDT staff
  - Very time-consuming and labor intensive work can be eliminated.

STScI Benefits continued

- Seamless database integration
  - Phase I information will be loaded into ASSIST, negating manual effort required to import/export data.
- More complete Phase I search capabilities
  - Collect all Phase I information in a consistent manner.
  - Storage of data will be in XML.

Working Scenario

- Phase I database information must be entered using the Proposal Editing Tool to be checked for specific formats and syntax.
  - Required Information:
    - Coverpage
    - Address Information
    - Observation Summary Forms
    - Abstract
    - Duplication Information

Working Scenario continued

- Scientific Justification, Observing information, Previous Programs, etc., can be written with any tool available to investigator that can create PostScript or PDF.
- APT will provide means for attaching files.
- PI will submit to STScI and receive a unique proposal id.
- One XML file will be submitted to STScI.
- STScI will post receipt and acceptance information on Phase I Web page for investigators to access.

Assumptions

- Want to stop using procmail (A1)
  - Based on CISD recommendations for email support.
  - May continue to use only if it's considered too costly to convert to a new tool within our schedule constraints.
- All Phase I users have internet connectivity on computer where APT is installed (A2)
- To use ETCs in Cycle 11, investigators must download APT, i.e. no longer Web-based.

APT Phase I Tools Suite

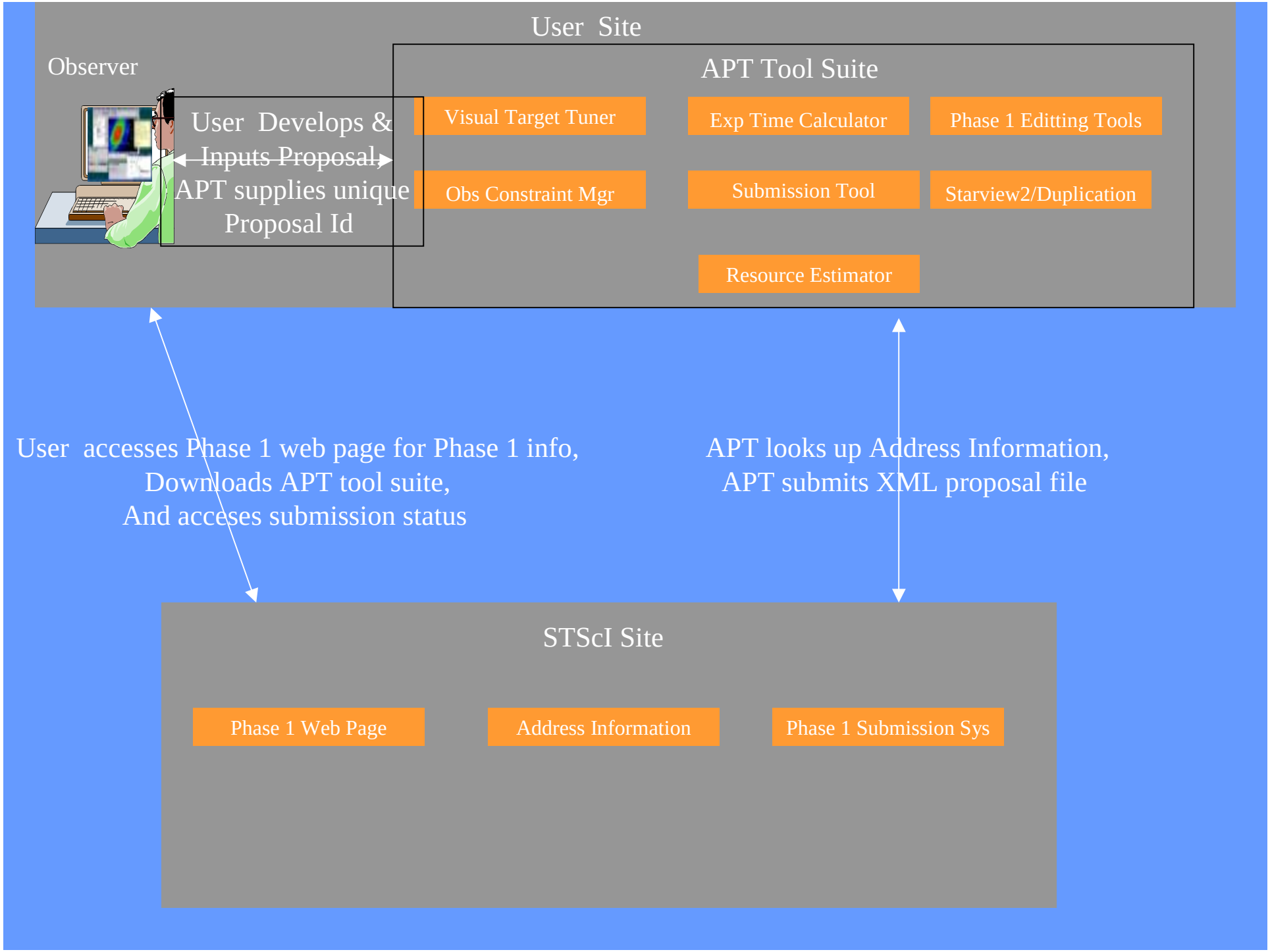
- Visual Target Tuner
  - Ability to visualize targets and FOV
- Exposure Time Calculator
  - Ability to calculate exposure times and count rates
- Phase I Editing Tool
  - Ability to input their phase I proposal
- Resource Estimator Tool
  - Will calculate the number of orbits required for observations and will be based on Phase I resource estimation algorithms currently used.

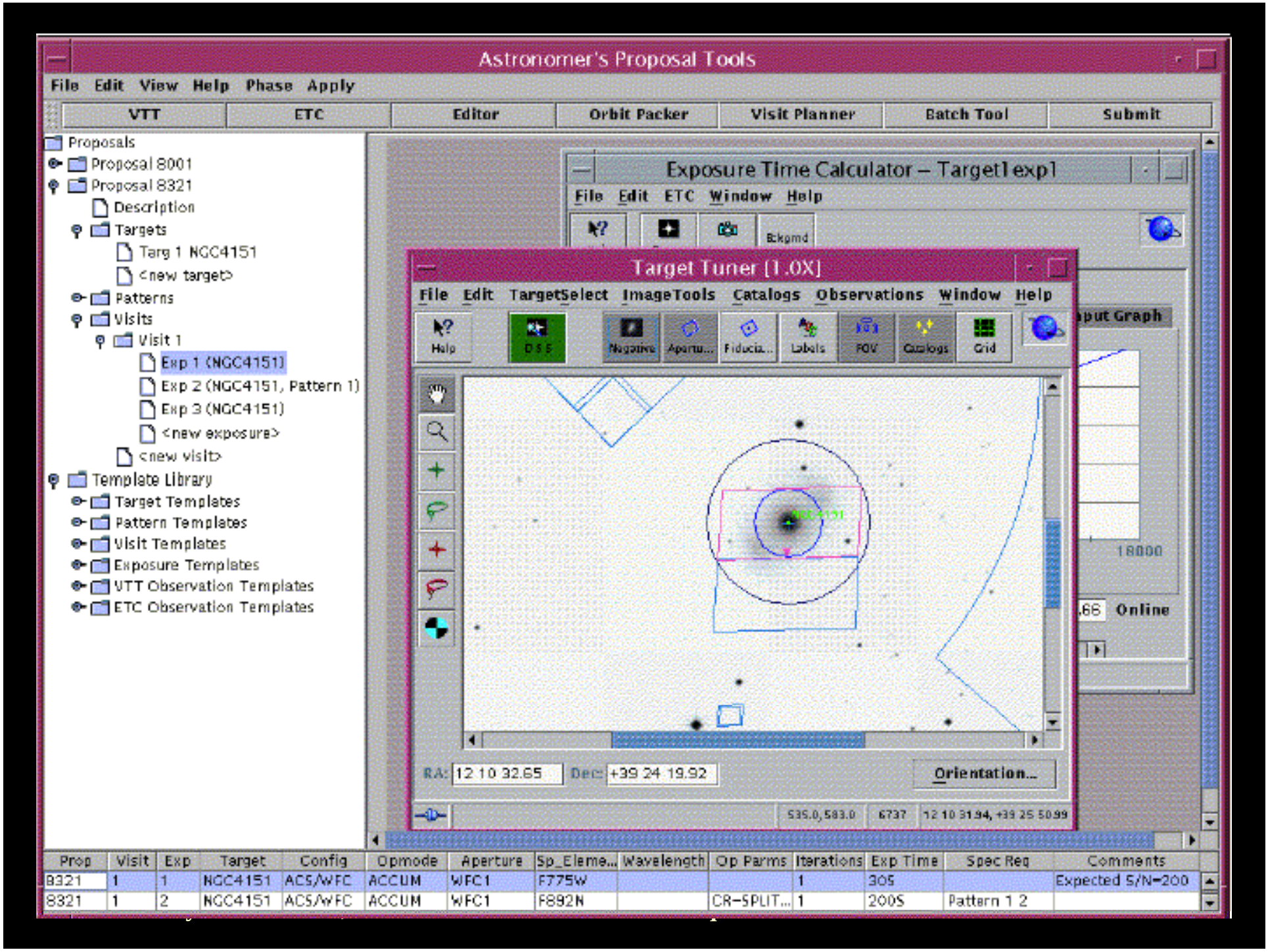
Tool Suite continued

- Observatory Constraint Manager
  - Ensures the investigator enters only legal instrument configurations. Not used directly by investigator, but by GUI.
- Submission Tool
  - Ability to submit proposal to STScI.
- Starview2 Tool
  - Ability to access archived observations and perform duplication checking.

Incorporating Phase II into I

- To facilitate the quick ingest and processing for Cycle 11 ACS and NICMOS proposals
  - Will provide an option for “simple” programs to submit essentially a complete Phase II in addition to the Phase I Observation Summary Form.
  - Simple point-and-shoot programs
    - Provide accurate target coordinates
    - Break exposures into visits and provide visit-level special requirements


User Site
Observer
APT Tool Suite
User Develops &
Inputs Proposal,
APT supplies unique
Proposal Id
Visual Target Tuner
Exp Time Calculator
Phase 1 Editting Tools
Obs Constraint Mgr
Submission Tool
Starview2/Duplication
Resource Estimator
User accesses Phase 1 web page for Phase 1 info,
Downloads APT tool suite,
And acceses submission status
APT looks up Address Information,
APT submits XML proposal file
STScI Site
Phase 1 Web Page
Address Information
Phase 1 Submission Sys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Proposal 8321
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Patterns
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Pattern Templates
Visit Templates
Exposure Templates
VTT Observation Templates
ETC Observation Templates
Exposure Time Calculator – Target1 exp1
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Target Tuner [1.0X]
File Edit TargetSelect ImageTools Catalogs Observations Window Help
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Resource Estimates

The following Tasks will be done as part of the APT project, since this effort was already budgeted for by the project.

- Top Level APT GUI
- Observatory Constraint Manager
- VTT
- ETC
- Starview2
- Platform Support
- Security Support

APT Resource Estimates

TASK	FTE Weeks
Save/Reload Phase I Proposal	1
Extend APT data model to support Phase I fields	2
APT Generic Spreadsheet Tool	4
APT Phase I General Information Editor	2
APT Observation Spreadsheet	2
APT Text Input Editor	2
APT Address Editor	4
APT Submission Tool	8
APT Phase I Printing	1
APT Required FTE Total	26

Non-APT Resource Estimates

TASK	FTE Weeks
• Phase I Web Page	2
• Submission Tool	3
• LaTeX Support	1
• Address Table Database Access	1
• Non-APT Required FTE Total	7
• Total Required FTE	33

Future Requirement Resource Estimates

TASK	FTE Weeks
• Resource Estimator Tool	8
• Phase II to Phase I Conversion Tool	2
• Extending APT data model to support Phase II fields	2
• Visit, Target, Exposure Spreadsheet Editors	5
• Optional FTE Total	17

Deployment Schedule

- No personnel resources are available at this time to develop this system.
- If they can be made available, we would like to see an APT Phase I system available for June 2001 (Cycle 11)

Additional Information

- See http://www.stsci.edu/dbsa/doc/phaseone.html for full report and additional background documents and papers.

Requirements Appendix

APT System Requirements

- The proposal editing tool shall provide:
  - Address Spreadsheet for entering address information. (R2)
  - Last name lookup in STScI Address table. (R3)
  - Observation Spreadsheet Editor. (R4)
  - Text Editor to input free text such as Abstract and Duplication information. (R5)
  - General Information Editor to input coverpage information. (R6)
  - Address, Observation, General Information and Text Editors shall be incorporated into the APT Top Level GUI and have same look and feel as Phase II. (R7)

APT System Requirements continued

- The system shall:
  - Provide observation constraint checking with the Observatory Constraint Manager Tool. (R8)
  - Be bundled with Starview2 for duplication checking. (R9)
  - Send an XML file to STScI. (R10)
    - Contains entire Phase I proposal, both the inputted information via Proposal Editing Tool and attached binary (PDF or PS) containing the scientific justification and observing questions.
    - Unique filename for identifying proposal.

APT System Requirements continued

- The system shall:
  - Perform data compression on the XML file prior to transmission. PostScript files have become quite voluminous with figures etc. (R11)
  - Allow the user to print all of the information entered into the Proposal Editing tool. Does not need to be able to print any attached binaries supplied by the PI that were created with a non-APT editor. (R12)
  - Any Phase I attachments provided by the user will be in PDF or PostScript format. (R13)

APT System Requirements continued

- The system shall:
  - Generate the unique proposal id from R10 and provide this to the user at proposal submission time. Write the XML submission file to local disk at submission. This id will be used to lookup information on the state of the proposal on the STScI Phase I Web page. (R14)
  - Provide the user with the state information about their proposal on the STScI Phase I Web page. At a minimum shall provide the following: Proposal Id, Scientific Category, Submission Source, Status, Comments. (R15)

APT System Requirements continued

- Appendix A of Requirements Document describes which data will be entered during the Phase I process and in which editor. (R16).
- If an investigator is unable to use APT, we will provide them with the LaTeX forms for submission as a contingency plan for the first release of the APT Phase I system. (R17)
- System shall be able to save and reload a proposal. (R18)

STScI System Requirements

- All related Phase 1 files shall be stored under the unique proposal id supplied to the investigator at submission time. (R19)
- The STScI system shall no longer use procmail. An alternative tool shall be implemented. (R20)
- The STScI system shall provide a tool for uncompressing the submitted Phase I XML file. (R21)
- The STScI system shall provide a tool that will update the Assist database with the address information supplied from the user. (R22)
  - New addresses shall be entered into the database.
  - Existing addresses shall be updated with any new address information supplied.

Performance Requirements

- After receipt of proposal:
  - Phase I Web page will be updated w/in 2 hours to tell user that proposal was received. (R23)
  - Phase I Web page will be updated w/in 2 working days to tell user if attachments were acceptable and submission is complete. (R24)

Internet/Email Connection Requirements

- System shall have the:
  - Ability to connect to Internet to access archive, catalogs, and STScI Database. (R25)
  - Ability to send Phase I proposal information via the internet to STScI. (R26)

H/W and S/W System Requirements

- The System shall:
  - Run on Sun Microsystems Ultra 1 machines or better. (R27)
  - Run under 2.6 or later Unix operating systems on Sun machines. (R28)
  - Run on PC machine with 400 Megahertz processors or better. (R29)
  - Run under the latest version of Windows NT 4.0 and Windows 2000 operating system. (R30)
  - Be available for download from STScI Web pages. (R31)
  - Run under Java 1.3 or later version. (Currently doesn't run under 1.3, but shall in the future). (R32)

Security Requirements

- All systems running at STScI to support APT must be accessible outside of the STScI firewall. (R33)
- No data security requirements for Phase I proposal. No encryption during transmission required. (R34)

Future Requirements

- Following tools are not required to support Phase I, but would be nice to have as part of the tool suite: (NR1)
  - Resource Estimator Tool, which will calculate number of orbits required for observations. Based on the Phase I resource estimation algorithms used today. (NR3)
  - Duplication Checking Tool, which would assist the investigator in checking for target duplications. Envisioned as part of Starview 2 support in APT.
- Incorporating part of Phase II into Phase I. (NR2)
- System shall allow Phase I attachments in Microsoft Word format. (NR4)