Overview of the Gemini Phase I Tool
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## PIT Known Bugs

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## Phase I Overview
The Gemini Phase I Proposal Tool

The Gemini Phase I Tool (PIT) can be used for proposal preparation and submission to all of the Gemini partner countries. Please check the partner-specific instructions maintained by your National Gemini Office (e.g. by following the links in the Phase I overview) to check on the correct procedure for your country.

The PIT is a Java program that must be loaded onto a local computer (it is not a web form). Best performance is achieved by installing the PIT on individual machines although some institutions may prefer a site installation if they have adequate network resources. See the installation instructions for further details.

A new version of PIT has been produced for semester 2006A. Please read the brief summary of new features and improvements described in the Hot News page including:

- built-in check for potentially duplicate observations in the Gemini Science Archive
- explicit format definition and checking for RA and dec coords
- updated instrument resources

As in recent semesters all joint proposals must be submitted through PIT. Backend servers installed at all partners National Offices allow automatic electronic submission to multiple partners at the same time. Proposals written using older versions of PIT can be read into the new PIT however some information (e.g. instrument resources) may not be converted or will be missing.

Except for previous proposals (saved as XML files), all earlier versions of the PIT should be uninstalled or otherwise completely removed before installing this version. (A system for updating only the changed components has not been fully implemented). To uninstall on Unix, first move any XML files you created to a safe location. Then simply delete the entire directory tree where the old version of PIT was installed. To uninstall on Windows, use the Windows installer program to remove PIT. The new PIT includes an updated resource file that defines the specific capabilities relevant to the forthcoming semester (e.g. instruments, semester dates).

The help pages for the various PIT tabs and features, accessible via the contents list in the panel to the left, are the same ones that are available within the PIT context-sensitive help. A beginner's cookbook to using PIT is also available (see the contents list; note that this was written for the 2003A version and maybe a little out of date in minor areas).

Each Gemini partner country runs it's own Phase I proposal process and may use any mechanism for internal proposal submission and assessment. To ensure that all the National TAC–recommended proposals are transmitted to Gemini Observatory in a common format, XML (eXtensible Markup Language) has been adopted for encoding the proposal information. This is a powerful and flexible way of capturing the minimum essential information required by the National Gemini Offices (for their Phase I technical assessment), the National and International TACs (for scientific assessment and scheduling) and for subsequent ingestion into databases at Gemini Observatory (e.g. for Phase II detailed observation definition). The PIT automatically writes proposals in the correct XML format. It is not necessary for proposers to understand this file format but, for those who are interested, a current description and updated XML DTD (document type definition) files are available in a document package on the Gemini FTP site.

The Phase I Tool is the work of the Gemini Observatory Staff including: Kim Gillies, Arturo Nunez, Phil Puxley, and Shane Walker and previous employees Lorraine Callahan, Darrell Denlinger, and Jim Wright, with some earlier work by Dayle Kotturi. The help pages were written by Colin Aspin, Phil Puxley and Claudia Winge.
Overview of the Gemini Phase I Tool

Last update September 1, 2005; Phil Puxley
Installing the Phase I Tool

Note: the new version of the PIT for semester 2006A is now available!

This page contains instructions for downloading and installing the Phase I Tool. You can install the software on individual machines or for an entire network of workstations. Versions are available for the following operating systems:

- Windows (95 / 98 / NT / 2000 / XP)
- Solaris (9, 8 or 7 recommended, version 2.6 may be possible with patches but not tested)
- Linux (Redhat 8.x or 7.x recommended, 6.x versions not tested)
- Mac OS X
- Users experience with other Operating Systems (not tested or supported by Gemini): Linux Mandrake 7.2

If you experience any problems installing or running the PIT, please see the Frequently Asked Questions (FAQ) page for the latest information.

⚠️ A new version of the PIT has been produced for semester 2006A. Please read the description of new features on the Hot News page. (As in recent semesters all joint proposals must be submitted through PIT. Backend servers installed at all partners National Offices allow automatic electronic submission to multiple partners at the same time). Proposals written using older versions of the PIT can be read into the new PIT. However, some information (e.g. instrument resources) may not be converted or will be missing.

⚠️ Except for previous proposals (saved as XML files), all earlier versions of the PIT should be uninstalled or otherwise completely removed before installing this version. To uninstall on Unix, first move any XML files you created to a safe location. Then simply delete the entire directory tree where the old version of PIT was installed. To uninstall on Windows, use the Windows installer program to remove PIT. The new PIT includes an updated resource file that defines the specific capabilities relevant to the forthcoming semester (e.g. instruments, semester dates).

The distribution contains an example proposal (GeminiDemo.xml) which you can load from the default directory using the "open" (previously saved program) button within the PIT. In this example, the joint proposal was previously submitted and hence the "submit" page items specific to each partner are disabled; the submission status can be "reset" using the appropriate button.

The PIT software is available on the Gemini ftp site. This is an HTTPD server so you should use your web browser to download the files (follow this link to browse the ftp directory). Depending on your browser, right or shift+click to save the file.

⚠️ The PIT will automatically search on–line guide star catalogue servers for suitable wavefront sensor stars. Use the GSC test page to check the connection from your site to various servers. If your computer is behind a firewall and accesses the internet via a proxy server, see instructions on how to configure PIT so that the guide star catalogue and submission features operate correctly.

Please read the installation instructions below for your preferred operating system:

- Windows
- Solaris
- Redhat linux
Using the Gemini Phase I Tool on Windows

The Phase I tool has been extensively tested on Windows 2000 and XP. The Windows version appears to be extremely stable; see the FAQ page for the latest information. We have no reason to believe there will be problems on NT as long as the Java included in our distribution is used.

Installing on Windows

- Download the current Windows distribution of the Phase I Tool from the Gemini ftp site (follow the link to browse the ftp directory and right or shift+click the file named PIT_2006A*_win*).
- The Windows distribution is provided as a Windows executable installer.
- Use Windows Explorer to display the directory in which you downloaded the installer. You must have at least 20 megabytes of disk space available to install the Phase I Tool on Windows.
- Double-click the installer executable and follow the installer instructions. When the installation is completed, you will see a congratulatory message. Press the "Done" button to exit.
- The installation places a Gemini/PIT entry in your start menu. Selecting the entry launches the Phase I Tool.

Results from previous benchmarking of the PIT are shown below. Sufficient memory appears to be the most important element affecting performance and, whilst PIT will run with less, we suggest a minimum of 64 megabytes of memory and a recent Pentium II or III processor when using the Phase I Tool on the Windows platform.

Using the Gemini Phase I Tool on Solaris

Solaris 7, 8 or 9 are the recommended Sun operating systems for running the Phase I Tool. It may be possible to use Solaris 2.6 if numerous patches are installed although this has not been tested.

For correct operation in all situations, you must run PIT on a properly patched Solaris OS. Gemini has collected all patches Sun recommends for using Java on these Solaris releases. The easiest way to gather Solaris patches is to follow one of the URLs below. See the following URLs for more information on Solaris patches.

- Solaris Operating Environment Patches for Java 2 SDK, Standard Edition, v1.4.0
- SunSolve Public Patch Access
- SunSolve Patch Access for Support Contract Customers

⚠️ We have created several scripts which will indicate if your Solaris workstation has the required patches installed. You can download the patch–checking script from the ftp site – see the TestForPatches* files for Solaris versions 6, 7 and 8 (see also the included README file). Please check with your System Administrator before installing patches. For more information and a worked example, see the PIT/OT patch instructions.

Note: the new version of the PIT for semester 2006A is now available!
Installing on Solaris

- Download the current Solaris distribution of the Phase I Tool from the Gemini ftp site (follow the link to browse the ftp directory and right or shift+click the file named PIT_2006A*_solaris*).
- Use gunzip and tar to unpack the distribution in a directory where you have at least 55 megabytes of disk space.
  
  ```
  gunzip -c filename | tar -xvf -
  ```
- The distribution unpacks into a single directory named "solaris".
- Run the PIT. You can use the complete path to the startup script, as shown below (where the `$` represents your shell prompt), or you can include that directory in your PATH.
  
  ```
  ${where_you_untarred}/solaris/PIT.sh
  ```

Results from previous benchmarking of the PIT are shown below. Whilst PIT will run with less, we suggest that the machine should be a recent UltraSparc with at least 128 megabytes of memory.

Using the Gemini Phase I Tool on Redhat Linux

The Phase I Tool can be used on recent RedHat Linux distributions, including 9.x, 8.x and 7.x. (Note that you cannot use the twm window manager).

Installing on Linux

- Download the current Redhat Linux distribution of the Phase I Tool to the Gemini ftp site (follow the link to browse the ftp directory and right or shift+click the file named PIT_2006A*_linux*).
- Use gunzip and tar to unpack the distribution in a directory where you have at least 35 megabytes of disk space.
  
  ```
  gunzip -c filename | tar -xvf -
  ```
- The distribution unpacks into a single directory named "linux".
- Run the PIT. You can use the complete path to the startup script, as shown below (where the `$` represents your shell prompt), or you can include that directory in your PATH.
  
  ```
  ${where_you_untarred}/linux/PIT.sh
  ```

Results from previous benchmarking of the PIT are shown below. Sufficient memory appears to be the most important element affecting performance and, whilst PIT will run with less, we suggest a minimum of 64 megabytes of memory and a recent Pentium II or III processor when using the Phase I Tool.

Using the Gemini Phase I Tool on Mac OS X

The Phase I Tool has been lightly tested on Mac OS X 10.2 or newer (but not earlier OS versions) and appears to work properly. You must have a 1.4 Java virtual machine installed on your machine to use the Phase I Tool. It should already be installed if you are using 10.2 and regularly use software update. The virtual machine will be available through the Software...
Overview of the Gemini Phase I Tool

Update system preference panel if it isn't already installed.

Installing on Macintosh OS X

♦ Download the current OS X distribution of the Phase I Tool to the Gemini ftp site (follow the link to browse the ftp directory and right or shift+click the file named PIT_2006A_osx).
♦ The Macintosh OS X distribution is provided as an executable installer.
♦ Use the Finder to display the directory in which you downloaded the installer. You must have at least 6 megabytes of disk space available to install the Phase I Tool on Mac OS X.
♦ Double-click the installer executable and follow the installer instructions. When the installation is completed, you will see a congratulatory message. Press the "Done" button to exit.
♦ The installation places an alias icon on your desktop. Double clicking the entry launches the Phase I Tool.

PIT benchmarks

Approximate times for PIT to start up on various machines are given as a guide to the effect of processor and memory on performance. On PCs benchmarking was carried out with no other applications loaded, on Sparcs under their 'usual' system loading.

<table>
<thead>
<tr>
<th>Test System</th>
<th>Time to Welcome from cold boot</th>
<th>Add'tl time to main page</th>
<th>Time to Welcome from 'cache'</th>
<th>Add'tl time to main page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows benchmarks:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Win98, 128Mb, 600MHz</td>
<td></td>
<td></td>
<td>6 seconds</td>
<td>3 seconds</td>
</tr>
<tr>
<td>Win98, 80Mb, 266MHz</td>
<td>21 seconds</td>
<td>4 seconds</td>
<td>9 seconds</td>
<td>3 seconds</td>
</tr>
<tr>
<td>Win95, 32Mb, 200MHz</td>
<td>19 seconds</td>
<td>7 seconds</td>
<td>21 seconds</td>
<td>8 seconds</td>
</tr>
<tr>
<td>Win95, 32Mb, 120MHz</td>
<td>45 seconds</td>
<td>12 seconds</td>
<td>40 seconds</td>
<td>12 seconds</td>
</tr>
<tr>
<td>Win95, 16Mb, 133MHz</td>
<td>92 seconds</td>
<td>42 seconds</td>
<td>60 seconds</td>
<td>40 seconds</td>
</tr>
<tr>
<td>Solaris benchmarks:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solaris 7, UltraEnterprise 450, X display on SparcStation 5</td>
<td>12 seconds</td>
<td>3 seconds</td>
<td>12 seconds</td>
<td>3 seconds</td>
</tr>
<tr>
<td>Solaris 7, Ultra 30</td>
<td></td>
<td></td>
<td>12 seconds</td>
<td>4 seconds</td>
</tr>
<tr>
<td>Solaris 7, Ultra 5</td>
<td></td>
<td></td>
<td>16 seconds</td>
<td>4 seconds</td>
</tr>
<tr>
<td>Solaris 7, UltraEnterprise 450, X display on PC–Xware client</td>
<td>20 seconds</td>
<td>5 seconds</td>
<td>17 seconds</td>
<td>4 seconds</td>
</tr>
</tbody>
</table>

Note: the new version of the PIT for semester 2006A is now available!
Overview of the Gemini Phase I Tool

Last update September 1, 2005: Phil Puxley

Note: the new version of the PIT for semester 2006A is now available!
Improvements in the new PIT release: the 2006A release of PIT includes the following modifications:

1. Enhancements to PIT
   ♦ Proposed observations can be checked to see whether potentially duplicate datasets are in the Gemini Science Archive of the same target (RA,dec tolerance of 30 arcsec) and same instrument (but not necessarily the same instrument configuration).
   ♦ The RA and dec units must now be explicitly set as either hr/min/sec or decimal degrees (RA) and deg/arcmin/arcsec or decimal degrees (dec). The internal units are h:m:s and deg:arcmin:arcsec and converted for display.
   ♦ Previous data status information (reduced, analysed, published etc) and related proposal details are now included in the proposal summary.
   ♦ Instrument resources updated for 2006A: bHROS added, GNIRS gratings updated, added Altair field lens; NICI, NIFS and TEXES added for future Campaign, SV and Demo Science observations (not available in the regular 2006A Call for Proposals).
   ♦ New option for submitting Demo Science (including campaign) and SV proposals to a separate server at Gemini.
   ♦ Several new keywords added.

26 February 2005
Improvements in the new PIT release: the 2005B release of PIT includes the following modifications:

1. Enhancements to PIT
   ♦ Added field for status of previous Gemini data to new "allocations" tab (reduced, analysed, published etc), which combines previous allocation details with another new field, related proposals submitted to other telescopes. The relevant on-line help pages are updated.
   ♦ Partner lead scientist(s) of joint proposals are highlighted in the proposal summary (above the PI details)
   ♦ Improved legibility of (HTML) partner summary table (smaller font – may actually be slightly less legible in PIT but better in browsers and hardcopy!). Note that a PDF summary will be added to supplement the HTML summary, allowing inclusion of figures and other attachments in a single document, in the 06A release.
   ♦ Summary corrected to list only the instrument resources that are used. User interface modified to open automatically the instrument details for the selected instrument.
   ♦ Instrument resources updated for 2005B: GMOS–S added H(α), H(α) continuum and [SII] filters; GNIRS updated 0.675 arcsec slit and added grating orders

26 August 2004
Improvements in the new PIT release: the 2005A release of PIT includes the following modifications:

1. Enhancements to PIT
   ♦ Submission of all joint proposals now done in single-step to multiple partner backend servers. All partners can now receive electronic submission of proposals.
   ♦ Instrument resources updated for 2005A: Michelle added echelle and updated filters and slits; GNIRS added R=18000 grating and IFU, updated slits; added Hokupa’a–85 (use is contingent on demonstration of performance, see Call for Proposals for definitive details) and corresponding AOWFS algorithm; T–ReCS updated filters; GMOS–N removed u filter; added HIRES (on Keck) for Gemini/Keck time exchange
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25 February 2004

**Improvements in the new PIT release:** the 2004B release of PIT includes the following modifications:

1. **Enhancements to PIT**
   - Instrument resources updated for 2004B: GNIRS added, IFU nod–and–shuffle slits added for GMOS–South, Michelle gratings added and filters updated; NIRI filters updated
   - Additional checking from the "Check Proposal" button on the "Submit" tab. Now checks that classical proposals have "any" listed as the observing conditions for image quality, cloud cover and water vapour, that guide stars are brighter (than 13mag) if cloud cover is 90%–ile or poorer and that the default ("any") observing conditions or example proposal are not submitted accidentally.
   - Word count added to abstract and to scientific and technical justifications.

29 August 2003

**Improvements in the new PIT release:** the 2004A release of PIT includes the following modifications:

1. **Bug Fixes**
   - Gemini North or Gemini South telescopes would occasionally be left in the instrument resources even though there was no corresponding instruments.
   - HTML summary previously would lose the first character of the last line in a text field if the previous line ended with a carriage return.

2. **Enhancements to PIT**
   - Guide star algorithms for Altair AO and chopping whilst using Peripheral WFS added.
   - Instrument resources updated for 2004A.

27 February 2003

**Improvements in the 2003B PIT release:** this release includes the following modifications suggested by representatives of the National Gemini Offices:

1. **Enhancements to PIT**
   - Added checkbox on investigator page to identify "Principal Contact" (PC) of joint proposals. Joint proposals (submitted to multiple National TACs) must have one (and only one) Principal Contact. The Principal Contact need not be the Principal Investigator. (PIT checks that there is exactly one PC if multiple partners are selected on the submit tab).
   - Instrument resources updated for 2003B.
   - Internal designation of image quality percentile bands made consistent with values in GUI and public Observing Tool.

1 September 2002

**Improvements in the 2003A PIT release:** this release includes the following modifications suggested by PIT users and/or representatives of the National Gemini Offices:

1. **Bug Fixes**
   - Previous allocations could not always be read correctly from a file and format of GUI was corrupted.
   - Corrected PI status so that "GradNoThesis" is a valid status.

2. **Enhancements to PIT**
   - Image quality bands changed from [20%, 50%, 80%, Any] to [20%, 70%, 85%, Any] to reduce sensitivity to underlying distribution (50% was at the peak, by definition). Specific values in arcsec have also been adjusted for currently observing seeing distributions – see the observing condition constraints for details.
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- Added check that total time requested is non zero to the built-in verification.
- Instrument resources updated for 2003A.
- Updated URLs of guide star catalogues in catalogue assistant.
- Gamma ray bursts added to extragalactic keywords.

18 February 2002
Improvements in the 2002B PIT release: this release includes the following modifications suggested by PIT users and/or representatives of the National Gemini Offices:

1. Bug Fixes
   - Proposal verification no longer fails if the Default Resources are deleted provided that every observation has override resources.

2. Enhancements to PIT
   - The time requested must now be entered explicitly by the applicants. Previously the time summed over all observations was used and was not editable. (This is still available as a guide). This simplifies requesting different or partial allocations from an NTAC when the same proposal is submitted to multiple NTACs for joint support.
   - Support for PIT users whose machines connect to the internet via a proxy server is now available from the file menu. (See more information on proxy settings).
   - An "update" feature has been added to streamline future software distribution. It is intended that in future semesters only the changed modules, and not the entire software package, will need to be downloaded. At present this will probably either do nothing (Windows) or dump diagnostic info to stdout (Solaris, Linux).
   - Publications and previous time allocations may be loaded from files. See the PIT publications help page for file formats.
   - Summary of instrument resources for the whole program and for each observation added on the observations/resources page. See the PIT observation resources help page for details.
   - Tab added to scheduling page to justify optimal dates for scheduling.
   - Previous allocations reinstated in HTML summary.

31 August 2001
Improvements in the 2002A PIT release: this release includes the following modifications suggested by PIT users and/or representatives of the National Gemini Offices:

1. Bug Fixes
   - Can select the same institution from the drop-down menu for consecutive co-Is.
   - Corrected instance of context-sensitive help pointing to wrong page.
   - Save button on text pages (abstract, scientific and technical justification, target list, TAC) now writes text file by default, reducing possibility of over-writing entire XML proposal with contents of that page's text box.
   - Corrected one-day mismatch between the optimal or impossible dates as specified by the user and as reported in the HTML summary.

2. Enhancements to PIT
   - Resources (e.g. instrument configurations) are now defined and used similar to observing constraints. A 'global default' configuration applies to all observations in the proposed science program. This may be overridden for one or more observations; each can have its own instrument configuration. (See the PIT resources help page for more details).
   - Format of HTML summary tidied up; when printed, the first page now includes all of the key information concerning the proposal. (See an example from the GeminiDemo proposal included with PIT). Now includes NTAC comments (if available).
   - New or significantly modified help pages:
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◊ How to specify the time requested by joint proposals.
◊ Instructions on running the Solaris patch checker and installing any necessary patches.
♦ GeminiData.xml file updated with 2002A instrument resources.

11 February 2001

Improvements in the 2001B.0 PIT release: this release of PIT includes the following modifications suggested by PIT users and/or representatives of the National Gemini Offices:

1. Bug Fixes
   ♦ Overriding default observing condition constraint set now puts correct reference in XML file.
   ♦ PWFS (or OIWFS, guide star) stars selected automatically by the catalog search assistant can now be overridden.
   ♦ The symbols >, < and & can be used in text (title, abstract, science and tech justification).
   ♦ The symbol & can be used in figure attachments (e.g. 'Figure 1 & 2').
   ♦ PWFS stars for objects with dec = −00:mm:ss.s are now correct. This was a problem with the CADC server; ESO and Gemini servers gave correct results.
   ♦ The TAC-recommended time box no longer shrinks to narrow width when TAC comments extend beyond the visible page and generate a scroll bar.
   ♦ Proposals with non-sidereal objects in the observation list no longer hang the HTML summary and (in the Solaris version) give a Java error.

2. Enhancements to PIT
   ♦ Information concerning the other partner countries is now collected for proposals seeking joint support: check boxes for the names of the additional partners and added collection of the total time requested from all partners. This information is reported in the top section of the HTML summary.
   ♦ The co-ordinates for targets newly created in PIT must be given in the J2000 frame. Formatted text files with targets may still contain B1950 co-ordinates; these are now precessed to J2000 on-the-fly. Consequently the catalogue search assistant will find available guide stars for all targets.
   ♦ The "integration time" has been re-labelled as "integration time + overheads" on the observation page for each new target to emphasise that overheads must be included.
   ♦ The source brightness field is now included when an external target list is saved or loaded to a file.
   ♦ The partner-recommended time (on the TAC page) includes a minimum recommended time to provide additional flexibility when constructing the schedule.
   ♦ For clarity, "guide star" was removed from the list of allowable wavefront sensors, leaving (Peripheral) "Wave Front Sensor" and "On-Instrument Wavefront Sensor" (including adaptive optics wavefront sensor) as the options.
   ♦ Additional catalogue search assistant algorithm added for GMOS on-instrument wavefront sensor.
   ♦ GeminiData.xml file update with 2001B instrument resources.

3. New Software
   ♦ A standalone script has been added that checks the Solaris operating system version and the require patches.
   ♦ Connectivity to the guidestar catalogue servers can now be verified using a web form. Testing of the connection to their back-end reception and processor systems has been added by the UK (Canada & Australia?). The back-end system provides verification of proposal submission (see more details on the UK support page).

4. Typographical Corrections in PIT
   ♦ "Principle Investigator" replaced with "Principal Investigator" on eth PIT summary page.
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- Gemini South added to the list of institutions.
- Institute of Astronomy (University of Hawaii) corrected to Institute for Astronomy.
- University of Oxford postal code corrected to OX1 3RH.
- HIA postal code updated to V9E 2E7.

12 March 2000

**Improvements in the 2001A.0 PIT release**: this release includes the following modifications suggested by PIT users and/or representatives of the National Gemini Offices:

- HTML summary now correctly recognises paragraph breaks in text and formats the output
- Speed of HTML summary generation has been improved dramatically; overall program execution speed improved
- Automatic search for AOWFS and NIRI (f/14 camera) OIWFS stars is included; WFS patrol fields updated
- Collect additional information to help technical assessment (especially target flux, WFS brightness and separation; the latter two are collected automatically from the guide star catalog server) and reported in the HTML summary
- Augment the pre–submission verification and expand the feedback when PIT verification is run (now checks details of observations, file attachments)
- Further develop the help pages and add a beginner's Cookbook
- Tidy up the terminology when talking about WFS guide stars
- Update the GeminiDatan.xml file that contains the current semester dates and instrument resources etc.

_Last update 1 September, 2005; Phil Puxley_
Common Information Help

The common pages contain information that is common to every observatory's proposal. Each page consists of related proposal information.

The common pages
- The Title and Abstract Page
- The Science Justification Page
- The Keywords Page
- The Investigators Page
- The Target List Page
What is the 'Title' Page?

The 'Title' page allows the Principal Investigator to specify a project TITLE and an ABSTRACT defining the observations proposed. The TITLE is a brief (generally one line) description of the project while the ABSTRACT summarizes the observations proposed and their scientific aims.

Length of the Abstract

The length of both the TITLE and ABSTRACT are partner country dependent. Details of these limits can be found in GEMINI Observatory Partner Country Proposal Submission Information (on the external web site).

Title Page Layout

The 'Title' page is divided into two sections, at the top the TITLE section, below it the ABSTRACT section. In the ABSTRACT section there are five icon buttons. From left to right they are: 'Open', 'Save', 'Cut', 'Copy' and 'Paste'. Click on the above links for information on using these buttons. These buttons refer explicitly to the ABSTRACT section, not the whole proposal.

Defining a Title

To define a TITLE, click in the white 'Title' box and type the title of the project.

Defining an Abstract

To define an ABSTRACT you have two options:

Option 1 is to click in the large white 'Abstract' box and type in your abstract text.

Option 2 is to include a previously prepared abstract from an ASCII/text file. To include text from a file click on the 'Open' button. A window will appear entitled 'Open' and will list the contents of the current directory. Navigate through your directory structure using 'Up' and 'Home' or double−clicking on the green folder icons next to the folder name in the list of files. Once you have located the file containing the abstract either select it by clicking (once) on it and click the 'Open' button at the bottom right of the 'Open' window or double−click on the file icon.

To manipulate text in the abstract box, use the 'Cut', 'Copy' and 'Paste'.

PIT Title Page Help
What is the 'Scientific Justification'?  

The 'Scientific Justification' page allows the Principal Investigator to specify a detailed scientific justification (or 'Case for Support') for the observations requested. This section generally includes text describing the context of the proposed observations with respect to previous work in the field (often called the 'Background' section) and details of the observations requested including why they are being proposing and their scientific importance (often called the 'Current Observations' section).

Length of the Scientific Justification

The length of the scientific justification section is partner country dependent. Details of partner limits can be found in Gemini Observatory Partner Country Proposal Submission Information (on the external web site).

The Scientific Justification Page Layout

The 'Scientific Justification' page is divided into two areas, at the top there is a white area, entitled the SCIENTIFIC JUSTIFICATION TEXT section, which will include the text of the scientific justification, while below it is an area entitled the ATTACHMENTS section. In the SCIENTIFIC JUSTIFICATION TEXT section there are five icon buttons, from left to right, 'Open', 'Save', 'Cut', 'Copy' and 'Paste'. Click on the above links for information on using these buttons. These buttons refer explicitly to the SCIENTIFIC JUSTIFICATION section, not the whole proposal.

Defining a Scientific Justification

To define the SCIENTIFIC JUSTIFICATION TEXT you have two options:

Option 1 is to click in the large white SCIENTIFIC JUSTIFICATION TEXT box and type in your scientific justification text.

Option 2 is to include a previously prepared justification from an ASCII/text file. To include text from a file click on the 'Open' button. A window will appear entitled 'Open' and will list the contents of the current directory. Navigate through your directory structure using the 'Up' and 'Home' buttons or by double−clicking on the green folder icon next to the folder name. Once you have located the file containing the justification select it by clicking (once) on it and click the 'Open' button at the bottom right of the 'Open' window or double−click on the file icon next to the name. The text from that file will be included in the white text area of the justification. To manipulate the text in the abstract box, use the 'Cut', 'Copy' and 'Paste' buttons.

References (to previous work by the author and other researchers) should be included in this section at the bottom of the page. References should be explicitly referenced in the text (e.g. Smith et al. 1992).

Many researchers are used to writing their scientific justification (and other sections of proposals) in a TeX/LaTeX form using embedded TeX/LaTeX commands. This is acceptable under one caveat namely that the TeX/LaTeX commands included should not reference ANY user−defined macros/definitons. Using user−defined commands will make processing of the TeX/LaTeX scientific justification (as will take place in some partner countries) impossible and will result in an invalid proposal.
Defining an Attachment

You can attach files (e.g. figures, formatted tables, images, etc of previously acquired data) to the scientific justification using the lower section on the 'Scientific Justification' page called ATTACHMENTS. Currently, the supported formats for attachments are EPS (encapsulated postscript files), GIF and JPEG (image format files), PDF (Adobe Portable Document Format files), RTF (rich text format files), PS (postscript files) and TEXT (simple ASCII/text) files. To define an attachment click on the 'New Attachment' button. Select the file format to be attached using the 'File Type' drop−down menu then click 'Choose'. This displays a small window called 'Add' which allows you to interactively locate the file you want to attach. Once defined, the attachment appears in the green window directly below the ATTACHMENTS heading. Allowed formats for attachments are partner country dependent (see the Partner Country Proposal Submission Information on the external web site).

Limits of Number of Attachments

The number of attachments that can be attached to a proposal is partner country dependent. The partner limits and can be found in Partner Country Proposal Submission Information (on the external web site).

Deleting/Removing an Attachment

To remove a previously defined attachment (say you attached the wrong file), highlight the attachment to be removed in the area directly below the ATTACHMENTS heading (highlighted files appear green) and click the 'Delete Attachment' button.
PIT Keywords Page Help

What are Keywords?

The 'Keywords' page allows the Principal Investigator to specify a set of keywords to categorize the proposal being submitted. This is an important feature of Gemini proposals and even though some partner countries do not require keywords, they should always be defined accurately. The PI can select as many keywords as required to define the type of science being proposed.

The Keyword Page Layout

The 'Keywords' page has two sections entitled CATEGORY and AVAILABLE KEYWORDS. The CATEGORY section defines the astronomical area in which this proposal should be classified while the AVAILABLE KEYWORDS section lists the keywords available for each category. The list of available keywords is dependent on the CATEGORY of the project hence, the category should be selected first then the keywords. Changing the category after keyword selection will remove all selected keywords!

Defining a Category

In the CATEGORY section there are four bullet buttons labeled "None", "Galactic", "Extragalactic" and "Solar System". The appropriate one of these four buttons should be selected to define the area of astronomy the proposal falls under.

Defining the Keywords

The AVAILABLE KEYWORDS section has two white areas, on the left is a list of all the Keywords available for selection, on the right is an area that will contain the keywords selected by the PI. Between these two areas are two buttons showing 'Right-Pointing Hand' and a 'Left-Pointing Hand'. These are used to add/remove keywords to/from the Selected Keywords area. To add a keyword first use the scroll bar to find the keyword required. Next, highlight the keyword by clicking on it with the left mouse button (a highlighted keyword is green). Finally click on the right-pointing hand to add the keyword to the Selected Keywords area.

Removing Keywords

To remove a keyword from the Selected Keywords area highlight it and click on the left-pointing hand.
PIT Investigators Page Help

What is the 'Investigators' Page?

The 'Investigators' page defines the Principal Investigator (PI) and Co-Investigators (Co-I) on the observing proposal. The names, address, phone and fax numbers, mailing addresses etc of all applicants are input in this page.

Joint proposals, proposals that are submitted to multiple partners, also require a Principal Investigator (used as the point of contact by Gemini staff) and Co-Investigators. In addition, the list of investigators is available on the "submit" page so that each partner may have a different "National Lead Scientist" (used as the point of contact by National Gemini Office and/or National TAC support staff) if desired.

Layout of the Investigators Page

The 'Investigators' page is split into two sections, the left side of the page allows the selection and display (in the right side of the page) of either the Team, PI or Co-I information. The right side of the page shows the actual details of the individual investigator.

Investigator Page Features

Upon entry to the Investigators page for the first time, the left side of the page contains two entries, 'Team' and 'Principal Investigator'. Highlighting 'Team', by left-clicking on it, displays the Team information on the right side of the page. Until the PI section is defined, the 'Team' information displays "No Name", "No Phone", "No Fax" and "No E-Mail", hence, the 'Team' information is generated from the PI details and is not defined explicitly by the user. Left-clicking on the 'Principal Investigator' entry in the left side list displays the PI's details. Again, these are blank until defined by the PI.

Above the right side white list area are three buttons labeled 'New Co-I', 'Copy' and 'Remove'. When 'Team' is highlighted only the 'New Co-I' button is active (i.e. in bold face). When 'Principal Investigator' is highlighted, both 'New Co-I' and 'Copy' are active. When a Co-Investigator entry (created by the 'Co-I' button) is highlighted all three buttons are active. The use of these buttons is described below.

Completing the Investigators Page

To complete the Investigators Page you must complete the PI fields as well as separate mini-pages for each co-investigator.

First, the PI must define his/her own information. Highlight the 'Principal Investigator' entry in the left side list by clicking on it. Enter the requested information (e.g. "First Name", "Last Name", "Phone", "Fax", "E-Mail" etc). You can navigate between the different entries using the mouse (left-click in the white area associated with the entry) or by hitting the Tab key on the keyboard. The Tab key takes you to the next entry. Beware that after the "Last Name" entry, Tab takes you to the "Observer" check-box which must be selected using the mouse (left-click on the square box if the PI is going to be a visiting, classically-scheduled, observer) or by hitting the space bar. The PI's home Institution is define either from selecting an Institute from the drop-down menu list of Institutes in the partner countries, or by entering the Institute in the white text area next to the 'Institute' entry heading. In addition to the logistical information, the PI must also specify his/her 'Professional Status' by highlighting one of the four entries available (via check-boxes), specifically,
"PhD", "Grad Thesis", "Grad No Thesis" and "Other". If the PI has previously obtained his/her PhD then select "PhD". If the PI is a Graduate Student working on his/her thesis and the proposed observations are part of that thesis then select "Grad Thesis". If the PI is a Graduate Student but the observations proposed do not form part of a thesis then select "Grad No Thesis". If none of the previous three entries defines your status then select "Other".

For each of the Co–Investigators the PI should add a Co–I entry to the left side list by clicking the 'New Co–I' button. One click of this button adds one new co–investigator. Once added to the left side list, the Co–I entry should be completed. Highlight the Co–I entry in the left side list and complete the entries that appear on the right side of the page. Note that there is considerably less information required about the Co–I's on the proposal.

To help in reducing multiple entries for Co–I's with the same information, use the 'Copy' button to copy the currently highlighted (in the left side list) entry to a new entry. All information in the entry to be copied is retained in the new version created which can then be manually edited.
Completing the Targets Page

This page is used to add, remove or modify targets in the **target list**. The target list serves as a shared resource for any observations added to the proposal (see the Gemini Observations page and help for more details).

Targets can be added **individually** or from a **file**. Edit an individual target by selecting it in the table (if this is a new proposal a blank entry is selected by default) and enter its name and coordinates at the bottom of the page. The default coordinate system is (RA, dec) and the J2000 frame. For non–sidereal objects, the time at which the coordinates are valid must be entered to assist scheduling. The target RA formats are hr/min/sec or deg (decimal x.xx.. or deg/arcmin/arcsec) and units must be specified explicitly. The internal representation is always hr:min:sec and the target list (and proposal summary) will show them in this format. The declination formats are deg/arcmin/arcsec or deg (decimal x.xx). The internal representation is deg:armin:arcsec. Additional targets can be entered by clicking on the **new** button.

An ASCII **file** containing tab–separated columns with name, frame, RA, dec and source brightness can be loaded using the following button:

![load target list from file]

Similarly, the target list can be saved to disk using the following button:

![save target list to disk]

The main reason for saving a target list to disk is to make the list available for loading at a later time. Another reason for saving a (small) target list to disk is to **create an example** that allows examination of the file format if you wish to make a target list file manually. Note that if the target list file contains **B1950 coordinates** then these will be precessed on–the–fly to J2000 (so that the wavefront sensor Catalog Assistant can be used). The RA and dec fields cannot be **internally** tab–separated.

Targets in the list may be **cut**, **copied** (to the clipboard) or **pasted** (from the clipboard) using the buttons (or shortcut keys ctrl–x, ctrl–c, ctrl–v respectively). The ordering of the list maybe modified by using the **arrow** buttons.

All targets have a type labelled **science** to distinguish them from wavefront sensor guide stars (see Gemini Observations page and its help for more details).

The number of occasions that a target is **used** (i.e. referenced) in the Gemini Observations page is indicated in the final column of the table.
Observatory Pages Help

In addition to the information in the common pages, each observatory adds unique information that is required for that specific observatory. The kind of information required for each observatory is similar, but the values for the information may vary depending on observatory.

The Gemini observatory pages:

- Observing Program Information
- Technical Justification
- Publications
- Allocations
- Scheduling
- Partners and Submission
- TAC
- Proposal Summary
Completing the Observations Page

On this page, you define the **observations** that will be performed and select **resources** (e.g. instruments), **observing constraints** (e.g. image quality, sky brightness), **targets** (e.g. from the target list) and **guide stars**. You can also query the Gemini Science Archive (GSA) for **potential duplicate observations** already made.

Selecting an item on the left configures the right-hand area for editing. The help button is context sensitive i.e. different information will be presented depending on what is shown in the right-hand panel.

Select **program information** in the left-hand panel to choose **observing mode** (queue or classical). The total **time for all observations** is calculated as the sum of the values entered for each observation. This is to be used as a guideline only and is not necessarily the time requested. (The **time requested** is entered explicitly on the "Submit" tab). A minimum requested time may also be specified on the Submit tab.

**Resources, observing conditions and targets** are defined in 'catalogues' (or tables). Each observation needs a target. Global (**default**) resources and observing constraints can be defined for the entire program or **overridden** and defined separately for one or more observations.

The Gemini Science Archive can be queried to see if potentially duplicate observations have already been made. The **GSA query** button checks each defined observation looking for archived datasets with the same RA,dec (tolerance 30 arcsec) and instrument (but not necessarily the same instrument configuration). There is a timeout of 15 sec if connection to GSA cannot be made. Only the first 10 results found are returned.

Note that mixed-mode programs are not permitted at this time and therefore separate proposals must be made for queue and classical observing.

Proposals may include multiple instruments.

See additional help on:

- **Resources** – defining the default **instrument configuration** and overriding it for selected observations
- **Constraints** – defining the default **observing condition constraint** set and overriding it for selected observations
- **Adding observations** – from the target list using "Add obs..." or "New obs" buttons
- **Catalog Assistant** – for selecting Wavefront Sensor (WFS) stars (e.g. for fast guiding or Adaptive Optics)
Help with Resources

The resources (e.g. instrument configurations) are defined and used similarly to the observing condition constraints.

The default resources apply to all observations in your program unless explicitly overridden. Selecting the Default Resources item in the program (left hand) information panel displays the table of resources (see an example from the GeminiDemo.xml proposal included with PIT). Selecting the default resource itself (in the program information panel) displays and allows modification of the specific instrument configuration (see example from GeminiDemo.xml).

If this is a new proposal the resource table will be empty. Any number of new resource sets can be added: select Default Resources in the program information panel, choose the Resource Table tab and use the create button to add the instrument of your choice. Only one resource set in the table can be selected (to become the default). Selecting the default resource itself (i.e. the name of the instrument in the program information panel) allows you to define details of the instrument configuration and to give it a 'Nickname' for convenient future reference. The nickname is shown along with the instrument name in the program information. You can add multiple resource sets for the same instrument.

The instrument configuration is shown in a tree structure that may be expanded or contracted. Only the specific, lowest–most ("leaf") elements in the tree (e.g. f/6 not simply NIRI or Camera) may be selected/deselected. To select an item, simply click on the yellow button or resource element name. The item, together with its parents in the tree, will be checked. Make sure that you select any cameras, dispersers (grisms, gratings etc), focal plane masks and filters that you wish to use. To deselect an item, click on it again.

To review the default resources selected, click on Default Resources in the program information panel and choose the Resource Summary tab. This page is not editable.

For any (or none or, indeed, all) observations you can override the default resources. With the observation selected (in the program information panel), click on the Override Default Resources button to add a resources folder to that observation. Selecting the Resources folder in the program information panel) opens the Resource Table. Selecting an item in the Resource Table adds it to that observation. Choosing the Resource Summary tab allows you to review the selected resources (NB: the summary is not editable).

Removing a resource set from the current observation does not delete it. It is still available in the resource table for use by other observations. A resource set may be removed permanently from the table via the delete button.

The list of available resources will, of course, change from semester to semester. Make sure that you have an up–to–date version of the GeminiData.xml file when using the PIT. Contact your National Gemini Office or support group if in doubt.

Example program information showing that the "Imaging/NIRI" resource has been selected. This is the resource that would apply to every observation in the program if no other resource is specified in the observation.

This page contains a large gif image which make take a little while to load.
Overview of the Gemini Phase I Tool

Example showing the contents of the global default resource.

This page contains a large gif image which may take a little while to load.
Help with Constraints

The **observing condition constraints** are defined and used similarly to the resources (e.g. instrument configurations).

The **default observing condition constraints** apply to all observations in your program unless explicitly overridden. Selecting the Default Constraints item in the program (left hand) information panel displays the table of constraint sets. Selecting the constraint set itself (in the program information panel) displays and allows modification of the desired observing conditions. (See the example screen shots below).

If this is a **new proposal** only "Global Default" is shown in the list of constraint sets in the right-hand panel (see an example view). Expand the constraints tree in the left-hand panel and select the constraint set i.e. "global default". The right-hand panel then shows the four observing categories that define the poorest conditions under which a *queue*–mode observation should be executed (see an example view). Only the sky background category (i.e. lunar phase) has any relevance for **classical**–mode observations. You can choose appropriate conditions for the program using the radio buttons. The translation between %–ile bins and physical parameters is given in the Gemini **observing condition web pages** (on the external site).

New constraint sets can be defined from the main constraints page using the **create** button. Choose the appropriate set of conditions and give the set a name for convenient future reference. As only one **global** constraint set can be active, creating a new set will deselect the global defaults set. To select the desired constraint set, click in the checkbox under the "selected?" column (see an example view).

Global constraints can be overridden for individual observations and specific constraint sets applied (see an example view). With the observation selected (in the program information panel), click on the **Override Default Constraints button** to add a constraints folder to that observation. Selecting the constraints folder in the program information panel) opens the constraints table. Selecting an item in the constraint table adds it to that observation.

 Removing a constraint from the current observation does not delete it. It is still available in the constraints table for use by other observations. A constraint set may be removed permanently from the table via the delete button.

Example program information showing that the "Global Default" observing conditions constraint set has been selected. These are the constraints that would apply to every observation in the program if no other constraint set is specified.

This page contains a large gif image which make take a little while to load.

Example showing the particular image quality, sky background, cloud cover and water vapour %–ile conditions corresponding to the "Global Default" observing conditions constraint set.

This page contains a large gif image which make take a little while to load.
Example showing that two constraint sets have been defined but only the set called "myConstraints" will be applied globally to all observations.

Example showing a program with a global default observing condition set that is overriden for the highlighted observation (NGC5253) by another constraint set tailored for different, in this case better, conditions.
Overview of the Gemini Phase I Tool

Program Information
- Resources
- Constraints
  - Global Default (ObservingConditions)
- NOC5253 (Observation)
- Constraints
  - GoodConditions (ObservingConditions)
- Targets
- Haro2 (Observation)
- Haro3 (Observation)
- HZw40 (Observation)
Help with Adding and/or New Observations

Targets are added to the program information, given an estimated observing time, assigned wavefront sensor (e.g. guide) stars and, if necessary, associated with observing condition constraints in the form of observations.

If all the targets have been entered on the Common/Targets tab, the easiest way to create the observations is to click on the *add obs* button. This opens a selection window in which the previously entered targets may be selected. By default, any targets that have not yet been used will be checked as "included?". Clicking on the create observations button will add those observations to the program information as a tree structure (see an example view). Each observation has its own 'branch' in the tree (selected by clicking in the left−hand panel on the observation).

For each observation, you must estimate the total integration time. You must add the overheads defined on the "Performance and Use" page for each instrument to calculate the integration time. A specific observing condition constraint set may be chosen for any observation by clicking on the override default constraints button (see an example view). Likewise, specific resources (e.g. instrument configuration) may be chosen for any observation by clicking on the override default resources button.

Within each observation, the same or a different target can be chosen from the target list (e.g. select the "Targets" container in an observation) or a totally new target may be defined. Similarly, the target details (coordinates etc) may be altered (select the name of the science target in the left−hand panel; see an example view). With the science target selected you should also give an estimate of the target brightness (e.g. "K=22.5 mag" or "line flux = 1.5e−20 W/m^2/um").

Peripheral wavefront sensor (PWFS) stars (for fast guiding and active optics control of the primary mirror figure), on−instrument wavefront sensor (OIWFS) stars (for improved image quality in certain instrument modes, when available e.g. NIRI f/14 or GMOS) and adaptive optics wavefront sensor (AOWFS) reference stars (for controlling the AO deformable mirror) may be chosen for any or all observations in the list by clicking on the *add WFS...* button near the top of the page. This activates the Catalog Assistant which will automatically interrogate a guide star catalogue server of your choice using the target coordinates, knowledge of the various wavefront sensor fields of view and brightness criteria. The stellar brightness is entered automatically into the page.

WFS stars need not be added for non−sidereal objects at this time.

WFS stars may be added manually to observations (from the "targets" view) using the create (new WFS star) button and by entering the star coordinates and brightness directly. You should use this method if the WFS star is not contained in the catalogue or if the AOWFS reference is non−stellar (e.g. it is a galaxy nucleus). WFS stars for the Peripheral Wavefront Sensors should be created with type "Wave Front Sensor"; WFS stars for the on−instrument or adaptive optics sensors should be created with type "On−Instrument WFS".

Observations may be cut, copied and pasted using the usual buttons.

Example program information after clicking on the *Add obs* button. One observation (NGC5253) is highlighted to show the "Targets" container science target. Another observation (Haro2) is in the process of having its integration time specified.

⚠️ This page contains a large gif image which make take a little while to load.
Example program information after clicking on the *override default constraints* button. A constraints container has been added but neither of the predefined constraint sets has yet been selected. After selection, this constraint set will apply only to Haro2. The other observations will be constrained by the "Global Default" set which is at a higher branch of the tree.

Example showing an observation with its RA in the process of being changed. This change will also be reflected in the common–targets tab.

This page contains a large gif image which make take a little while to load.
Overview of the Gemini Phase I Tool

Help with Adding and/or New Observations
The PIT includes a catalog assistant tool which has been designed to help search for wave front sensor stars.

1. Select a **server** and **search algorithm**.
   Different algorithms are available e.g. for peripheral wavefront sensors (PWFS), on–instruments wavefront sensors (OIWFS) and adaptive optics wavefront sensors (AOWFS). See the relevant instrument "Performance and Use" web pages for the recommended WFS for each instrument mode. Guide star catalog servers are available at CADC, and ESO (others may become available soon). Generally you will get the best performance by selecting the server that is geographically closest. Note that only the GSC–I catalog may be available, which contains stars down to about 15 mag. Work on GSC–II is well advanced but this deeper catalog may not be available.

2. **Advance** to the next page using the arrow in the **bottom right corner** of the assistant.

3. Select **all** or **specific science targets** from the target list to have guide stars found. Individual targets may be selected/deselected using the "included?" checkbox.

4. **Activate the search** by clicking on the **magnifying glass icon**. The green LED will flash whilst the search is in progress. You can stop the search by clicking on the traffic light icon. The status for each target will change from pending to complete when finished. Upon completion the **search results** for each target are listed at the bottom of the page. The star name, coordinates, magnitude and other information are shown for each star. Generally the algorithm will select the brightest stars available in the WFS patrol field. Note that the PWFS may partially vignette the widest fields (e.g. NIRI f/6) – see the NIRI pages for more details. You can **override** the algorithm, and view all potential stars from the chosen catalog that are in the patrol field, by selecting the target and using the "override?" checkbox. You may then choose alternative, or additional, stars.

5. Complete the WFS star search by clicking on the **finish** button. The selected WFS stars (name, co–ordinates and brightness) will be added to each observation in the program information tree.

The catalog search can fail because there are no cataloged stars available within the WFS patrol field. If you know of suitable WFS star(s), they may be added manually (see the Help with Observations page). Some objects may have no suitable stars and cannot be observed.

WFS stars should not be added for **non–sidereal objects** at this time.
What is the 'Technical Justification'?

The 'Technical Justification' page allows the Principal Investigator to specify a detailed technical justification for the observations requested. This section generally includes text describing in detail (i) why you have selected the specified instrumentation configuration and (ii) support for the exposure times specified (e.g. in terms of obtaining a particular signal:noise level or photometric accuracy).

Length of the Technical Justification

The length of the technical justification section is partner country dependent. Details of partner limits can be found in Gemini Observatory Partner Country Proposal Submission Information (on the external web site).

The Technical Justification Page Layout

The 'Technical Justification' page is divided into two areas, at the top there is a white area, entitled the TECHNICAL JUSTIFICATION TEXT section, which will include the text of the technical justification, while below it is an area entitled the ATTACHMENTS section. In the TECHNICAL JUSTIFICATION TEXT section there are five icon buttons, from left to right, 'Open', 'Save', 'Cut', 'Copy' and 'Paste'. Click on the above links for information on using these buttons. These buttons refer explicitly to the TECHNICAL JUSTIFICATION section, not the whole proposal.

Defining a Technical Justification

To define the TECHNICAL JUSTIFICATION TEXT you have two options:

Option 1 is to click in the large white TECHNICAL JUSTIFICATION TEXT box and type in your technical justification text.

Option 2 is to include a previously prepared justification from an ASCII/text file. To include text from a file click on the 'Open' button. A window will appear entitled 'Open' and will list the contents of the current directory. Navigate through your directory structure using the 'Up' and 'Home' buttons or by double−clicking on the green folder icon next to the folder name. Once you have located the file containing the justification select it by clicking (once) on it and click the 'Open' button at the bottom right of the 'Open' window or double−click on the file icon next to the name. The text from that file will be included in the white text area of the justification. To manipulate the text in the abstract box, use the 'Cut', 'Copy' and 'Paste' buttons.

References (to items included on the technical justification page) should be included at the bottom of the technical justification page. References should be explicitly referenced in the text (e.g. Smith et al. 1992).

Many researchers are used to writing their technical justification (and other sections of proposals) in a TeX/LaTeX form using embedded TeX/LaTeX commands. This is acceptable under one caveat namely that the TeX/LaTeX commands included should not reference ANY user−defined macros/definitions. Using user−defined commands will make processing of the TeX/LaTeX technical justification (as will take place in some partner countries) impossible and will result in an invalid proposal.
Defining an Attachment

You can attach files (e.g. figures, formatted tables, images, etc of previously acquired data) to the technical justification using the lower section on the 'Technical Justification' page called ATTACHMENTS. Currently, the supported formats for attachments are EPS (encapsulated postscript files), GIF and JPEG (image format files), PDF (Adobe portable data format files), RTF (rich text format files), PS (postscript files) and TEXT (simple ASCII/text) files. To define an attachment click on the 'New Attachment' button. Select the file format to be attached using the 'File Type' drop−down menu then click 'Choose'. This displays a small window called 'Add' which allows you to interactively locate the file you want to attach. Once defined, the attachment appears in the green window directly below the ATTACHMENTS heading. Allowed formats for attachments are partner country dependent (see the Partner Country Proposal Submission Information on the external web site).

Limits of Number of Attachments

The number of attachments that can be attached to a proposal is partner country dependent. The partner limits and can be found in Partner Country Proposal Submission Information (on the external web site).

Deleting/Removing an Attachment

To remove a previously defined attachment (say you attached the wrong file), highlight the attachment to be removed in the area directly below the ATTACHMENTS heading (highlighted files appear green) and click the 'Delete Attachment' button.
The 'Publications' page allows the Principal Investigator to specify a list of publications written by the PI and co-investigators that support the current application for observing time. The publications can be either related to current project (previous work) or produced from data acquired on the same or other telescope over the last few semesters.

Number of Publications and Previous Time Allocations

The number of publications and previous time allocation entries included are partner country dependent. Details of these limits can be found in Gemini Observatory Partner Country Proposal Submission Information (on the external web site).

Publications Page Layout

Within the PUBLICATIONS section there is a list of the previous publications and, underneath, the area where publication information can be entered ("New Publication" and "Delete Publication" buttons, "Publication Information" field).

Defining a Publication

Publications can be defined individually or read from an ASCII file.

To define a PUBLICATION, click on the "New Publication" button. This highlights a one-line area in the white box above the button and enables input from the white box to the right. Click in the white box to the right and enter your publication. As you type the publication is listed in the one-line highlighted area. The publication can be entered in any format; the preferred layout is:

Author1, Author2, Author3, et al. (YYYY), "Title of Publication", status (in press, Journal/Volume/Page etc).

To read one or more publications from a file, use the file open button. Each publication in the file should appear on a separate line. (Publications can also be saved to a file; this can be a useful way of checking the file format).

Deleting a Publication

To delete a publication from the list in the left side area highlight it by clicking once on it and click on "Delete Publication".
The Allocations Page

The "Allocations" page is divided into two sections PREVIOUS TIME ALLOCATIONS (a list of previous time allocations on the Gemini telescopes and the current status of any data obtained) and RELATED PROPOSALS (submitted to other telescopes in this semester).

The PREVIOUS TIME ALLOCATIONS section contains fields entitled "Reference", "Allocation", "% Useful" and "Comments". It is in these areas that previously allocated observing time and data status is entered.

Defining a Previous Time Allocation

Previous time allocations can be defined individually or read from an ASCII file.

To define a PREVIOUS TIME ALLOCATIONS you first click the "New Allocation" button. A highlighted single line area appears in the large area above the button. Enter the reference of the previously allocated Gemini queue, classical, Director's Discretion or System Verification proposal (e.g. GS−2004B−Q−9), then an allocation by typing in a number and selecting a nights or hours from the small drop−down menu (e.g. 24 hours). Now enter the percentage (%) of the allocated time that was useful (i.e. used for astronomy and not lost to weather, problems etc, e.g. 50%) and finally enter a comment to describe briefly the current state of any data obtained (e.g. published, under analysis, awaiting more data, data not useful for project etc).

To read one or more previous time allocations from a file, use the file open button. The format is as follows: each allocation must appear on a separate line; the columns (corresponding to reference number, allocation, useful fraction etc) must be tab separated. (Allocations can also be saved to a file; this can be a useful way of checking the file format).

Deleting a Previous Time Allocation

Highlight the entry to be deleted/removed by clicking on it in the left side area and click on the "Delete Allocation" button.

Defining Related Proposals Information

Related proposals information can be defined afresh or read from an ASCII file.

To define RELATED PROPOSALS INFORMATION simply type in the text box any proposals submitted to other telescopes in the current semester.
Completing the Scheduling Page

On this page you can indicate to the partner Time Allocation Committee a minimum request and/or notify that this is a long-term proposal with indication of time requests in future semesters.

For classical-mode proposals, you can also identify dates when the proposal should or should not be scheduled. The procedure to register impossible, optimal or synchronous dates is as follows:

1. Use the radio buttons to select a category (e.g. optimal)
2. Begin a date range by single clicking on the start date on the calendar. You can use the single and double arrow buttons next to the month to move through the current semester.
3. Complete the date range by single clicking on the end date (which can be in a different month). A thin line of the corresponding colour (e.g. green for optimal) will be drawn between the two dates. The dates are entered automatically into the summary tab.
4. Add other date ranges and/or categories as desired.
5. A defined range can be deleted by selecting it in the calendar (click on the thin line) and then click on the delete button. You can also delete all selected ranges.
6. For synchronous, optimal or impossible dates give a brief justification by selecting the appropriate tab e.g. the name of the other telescope and status of their time award, target inaccessibility etc.

The calendar also shows the lunar phase e.g. full moon is an open circle.
The Submit Page

On this page, you must indicate which partner country or countries you will be submitting to i.e. the time allocation committee(s) that will review your proposal. (In some cases this is not necessarily the one where you or your institute reside).

If you are submitting the proposal to multiple partner countries for joint support (a.k.a joint proposals), indicate the relevant partners by checking the relevant boxes. You must specify the time (and, optionally, the minimum time) requested from each partner and identify a "National Lead Scientist". The national lead scientist defaults to the Principal Investigator as listed on the Investigators page but you can select any of the PI or co-Is. Each partner may have a different national lead scientist if desired.

When the proposal is ready, clicking on the submit proposal button at the bottom of the page will submit your proposal electronically to all of the partners listed (specifically, the proposal is submitted to the servers whose URL is contained in the GeminiData.xml file). All of the National Gemini Offices have established servers to receive and process your application directly from the PIT.

All joint proposals must be submitted using the electronic-submission mechanism in PIT, including proposals that involve partners offering other submission mechanisms for non-joint proposals. No other proposal form or process can be used for joint proposals. The Gemini partners have agreed to accept a common format and length for joint proposals. See the joint proposals web page for current details.

Following submission, a pop-up window will report the status of your electronic submission. Please note the national proposal reference number(s) assigned or any error messages that are reported. A check mark next to each partner also indicates success or failure in submission.

In the case of joint proposals, if one or more of the components fail to be submitted, for example due to unavailability of the network or backend server at the national office, they can be re-sent at a later time. (The successfully-submitted components are not re-sent, although you can reset the flags and re-submit if necessary). If you experience a problem with submission, please contact your National Gemini Office support staff in the first instance.

The submit button performs some basic verification of proposal content. For example, it checks that there is at least one investigator, instrument resources, at least one target with WFS star etc. You can verify a proposal without submitting it using the check proposal button.

The reset button allows you to clear the submission details of a proposal. It is used, for example, if you wish to modify a previous proposal and re-submit it. Note that the proposal will be submitted to all of the partners selected.

The last entry in the list of partners is used for special Demonstration Science (including Campaign) or System Verification proposals. These proposals are submitted directly to Gemini Observatory in response to special announcements. Selecting this option disables submission to the regular partner NTACs.
The Gemini National TAC Page

This page is reserved for use by the partner National Telescope Allocation Committees/Groups and should be ignored by proposers.

The NTAC uses this page to add their internal reference number to the proposal, a ranking for the proposal and a recommendation for time. A recommended minimum time (less than or equal to the full recommended time) should be included to provide flexibility during the Phase II merging process. For classical proposals the recommended time must be given in nights and for queue programs in hours.

Additionally, the partner can add extra information for Gemini concerning scientific, technical or scheduling details. Any such text may be loaded from a simple ASCII text file, or typed directly into the box, and edited.
Summary Page Help

Once you have completed your proposal, or at any time before, you can view a summary of the information that has been completed by visiting the Summary Page.

Each time the Summary Page is opened, the program will dynamically create the summary. The summary can be saved as an HTML web page using the save as HTML button at the bottom of the form and viewed with a browser (e.g. Netscape or Internet Explorer). Use the browser to print the document.

Note that the save as HTML button does not save a copy of the document that you can later load back into the PIT. Use the File menu on the menubar for that.

For NGO use only (currently): the "Save as PDF" button will save a PDF summary of the proposal with allowable attachments (various figure formats and text, but not .ps or .eps) embedded in the document. The PDF format can be selected from the list of available style files e.g. Gemini Default, NOAO, Chilean NGO.
Appendix A: General PIT Features
Features Information Help

The Phase I Tool has a number of features that make it easier to create a proposal and which show up on different pages.

Specific Feature Help
- The Catalog Assistant
- Help with editing shortcuts
- Help opening and saving files
- Help for menu items
- Manipulating the observation tree
PIT Cut, Copy, Paste Help

Depending on your operating system and version of Java, you can use the PIT cut, copy and paste buttons or (Unix and PC) keyboard shortcuts for editing.

The PIT Cut, Copy, Paste Buttons

PIT "Cut", "Copy" and "Paste" are icons/buttons that perform editing functions on text in a text area box. Text area boxes are white areas in which you can type text e.g. your SCIENTIFIC JUSTIFICATION or TECHNICAL JUSTIFICATION.

The Cut Button

The "Cut" button copies the current highlighted text area (highlighted by clicking at the start of the text and dragging the cursor over the text to be highlighted) to the clipboard and removes it from the current highlighted location in the text area. The clipboard is an internal working area to the PIT where cut and copied text are temporarily stored. Click on the link above to see an example of a highlighted text area. Once removed, the cut text can be re−inserted anywhere in the document using the "Paste" icon/button (see below). If the cut button is clicked again, the buffer is overwritten and the previous selection is lost.

The Copy Button

The "Copy" button copies the current highlighted text area to the clipboard but leaves the highlighted text in the document (unlike "Cut" which removes it). Click on the link above to see an example of a highlighted text area. The copied text can be inserted anywhere in the document using the "Paste" icon/button (see below).

The Paste Button

The "Paste" button inserts the text currently on the clipboard into the text area at the current location of the cursor. The text in the clipboard was placed there using the "Cut" or "Copy" icon/buttons (see above). The text remains on the clipboard to allow multiple copies of it to be placed in the document and is only removed from it when new text is cut or copied onto the clipboard.

Cut and Paste from Unix Windows Outside of PIT

Due to differences in cut/paste buffers between the various operating systems with PIT releases and the Java Virtual Environment, cutting and pasting between external windows (e.g. xterms on Unix) and PIT text boxes (e.g. the scientific justification text window) does not behave as might be expected. Below are guidelines for the use of cut/paste between external windows/programs and PIT text boxes.

To cut from an xterm or edit window (emacs, vi etc) on a Unix machine and paste into a PIT text box, highlight the text in the xterm with the cursor (left button drag) and hit the 'Copy' button on the Sun keyboard (on the left side function pad). Go into the PIT text window where you want the text to be pasted and hit
keyboard ctrl–v. The selection will be pasted into the PIT text box. This is the only cut/paste option that will work with the Unix/Solaris PIT distribution.

Cut and Paste from PC Windows Outside of PIT

The keyboard shortcuts ctrl–x (cut), ctrl–c (copy) and ctrl–v (paste) work with Windows 95, 98, NT and 2000.
The PIT File Tools are icons/buttons that perform some sort of manipulation of files on your computer disk. These manipulations may take the form of including a file (e.g. in the SCIENTIFIC JUSTIFICATION section) or navigating through your directory structure (to find a specific file for inclusions as ATTACHMENTS). Below are listed the currently available PIT file tools with descriptions of their function and use.

### The Open File Tool

The "Open" file tool allows the loading of a file from disk into the PIT. This file may, for example contain a technical justification that was previously typed into an ASCII/text file by the PI. Thus, the "Open" tool can save the PI a lot of additional work by including text directly in the appropriate section of the PIT. The "Open" tool is initiated by clicking the "Open" icon button which displays a small window showing the contents of the current directory. Once the "Open window" is displayed you can navigate through your directory structure (to find the file you want to include) in two ways:

- Using the "Up" icon button or the "Home" icon button and double−clicking on the green folder icon for folders listed in the directory listing you can navigate through the directory tree. The "Up" button takes you up one level in your directory structure. The "Home" button takes you to your home directory.
- Alternatively, you can use the drop−down menu at the top of the Open Window to see the current directory tree directory. Clicking on one of the directory tree entries takes you to that directory.

To create a new directory in your current directory use the "Create Folder" icon button.

![Up Home Folder Icons]

Once you have located the file you wish to open/include, either double−click on it or highlight it and click the "Open" button. To cancel the open command click the "Cancel" button.

### The Save File Tool

The "Save" File Tool allows you to save to disk the current contents of the text window associated with the "Save" File Tool. For example, the technical justification page shows a "Save" File Tool and if clicked will save the current technical justification to disk. You can navigate through the "Save" window directory tree in the same way as for the "Open" window. To save the current text region to a disk file you must specify a filename for the disk file under the "Filename" area.
The Up File Tool
The "Up" File Tool allows you to move upwards through your directory structure when such a structure is listed in, say, an "Open" or "Save". Clicking on the "Up" icon once takes you up one level in your directory tree.

The Home File Tool
The "Home" File Tool takes you to your home directory when a directory listing is displayed in, say, an "Open" or "Save".

The Right−Pointing Hand File Tool
The "Right−Pointing Hand" File Tool copies a highlighted entry in a list if items (e.g. keywords) to the right hand side text area from the left hand side list area. Click on the right−pointing hand icon above to see an example of the use of this File Tool.

The Left−Pointing Hand File Tool
The "Left−Pointing Hand" File Tool removes a highlighted entry in a right hand side text area (e.g. defined keywords) from that area. Click on the right−pointing hand icon above to see an example of the use of this File Tool.
Help with Menubar Items

There is a menubar at the very top of the Phase I Tool window. As with most GUI applications, select an item to open the drop−down menu.

- **File**: use this menu to create a new proposal, open one that you've previously saved to disk, save the current proposal or exit the program. You can have several proposals open at once. The close menu item will close the current proposal.
- **Observatories**: this would be used to select other observatories. Currently only Gemini is available.
- **Help**: open the PIT help browser (which you are currently using to view this page). Alternatively, click on the help icon in the top right corner of each page or type ctrl−h.
Viewing a Tree Structure

Several pages have hierarchical trees containing lists of resources, constraints, observations etc.

To **expand** (or contract) the tree, select the item e.g. single click on the expansion icon 🌳🔍, or double–click on the item name to the right of the icon.
Appendix B: PIT Cookbook (not actively maintained)
A Cookbook for Using The Gemini Phase I Tool (PIT)

Below is an outline of the steps involved in writing a proposal using the Phase I Tool, the PIT. More detailed information is available from the PIT help pages, accessible via the contents list on the PIT home page and within the PIT itself (where there is context–sensitive help). Several areas of the PIT are partner country specific so please check the partner–specific instructions maintained by your National Gemini Office (NGO) e.g. by following the links in the Phase I overview, before submitting a Gemini proposal using the PIT.

1) Overview:

PIT Sections:

The PIT is divided in two Sections (Common and Gemini). Each Section contains several Pages (e.g., Scientific Justification, Targets, etc). To select (either a Section or one of its Pages), just click once on the corresponding "folder tab" at the top.

Drop–down Menus: The PIT has three drop–down Menus (upper left corner): File, Observatories and Help. The "File" menu allows the usual file manipulation (New, Open, Save, Save As), plus a Close option to close individual windows if more than one proposal is opened at the same time. An Exit option quits the PIT completely, however, you are prompted to ‘save and quit’ the file if changes to the proposal have not been previously saved. The "Observatories" menu will eventually allow the selection of different facilities and load Observatory specific information. Currently, only the Gemini Telescope is available. The "Help" menu activates the context sensitive, on–line help.

Page Buttons: Most of the individual Pages within the PIT contain file (Load, Save) as well as text (Cut, Copy, Paste) manipulation buttons. These buttons are located inside the Page window and refer explicitly to the text box below them not the whole proposal. Please read the Help pages entitled "File Tools" and "Cut, Copy Paste" for more information.

Saving a Proposal: To save the full text of the Proposal, use the Save (or Save As) command under the File Menu. The Save File button, associated with most of the individual Pages, will save the content of that Page text box only.

Queued or Classical Observing: A single Gemini proposal can contain multiple observations or the same target or different targets. However, a proposal cannot contain observations in both queued and classical observing modes. If you require observations in both modes then you must submit separate proposals.

Text Length: The PIT does not limit the length of the text in the Abstract, Scientific and Technical Justification Pages. These are Partner specific limitations and must be verified to conform with the NGO requirements before submitting the proposal.

Cut/Paste between Windows: If more than one proposal window is opened at the same time or you want to move/copy text from one page to another, it is possible to cut, copy and paste between windows/pages using the "Cut", "Copy", and "Paste" buttons. From external processes/windows on a Unix box these buttons do not work due to differences in the cut/paste buffers between Unix and Java. However, if text is selected (highlighted) in another text application (e.g. a UNIX text editor or xterm), it can be copied using the keyboard "copy" key and pasted in a PIT text box using ctrl–v. Under Windows, ctrl–x (cut), ctrl–c (copy) and ctrl–v (paste) can be used.
Overview of the Gemini Phase I Tool

**Text Format:** It is not necessary to format the typed text within the PIT (i.e. include CR/LF at the end of each line) since the program will automatically wrap each line, however, there is no way to unformatted previously formatted text imported/included from an external file other than manually deleting each end-of-line feed. Auto formatting of text in text boxes (e.g. in the scientific justification section) is now enabled in the 'Save as Html' feature on the Submit page and hence, the text will appear easily readable in the html saved document.

**LaTeX:** It is possible (but not recommended) to include LaTeX control sequences in any text input to text boxes within the PIT. However, no LaTeX processing is performed by the program and hence, all LaTeX commands appear in their raw format in the saved/submitted xml file and in a saved html file. Please check the partner-specific restriction on using LaTeX within your proposals.

**Highlighted Text:** Highlighted items (e.g. using left-click drag with the mouse) turn green.

**Sample Proposal:** A sample proposal is included with the distribution (the file named geminiDemo.xml). It is highly recommended for first time users to load it and examine its contents and structure.

**HELP!!!:** If everything else fails, consult the PIT web pages of the context-sensitive on-line help. If this doesn't help, contact your NGO through the Gemini HelpDesk.

### 2) The Common Section: defining your programme

#### 2.a) Title and abstract:

Enter a short title and an abstract for your proposal. The abstract can be entered by clicking in the large white "Abstract" box and typing it directly or by importing an external ASCII/text file. Click on the "Open" button right above the white "Abstract" space, and a new window will appear listing the contents of the current directory. Navigate through it using the Up and Home buttons or by double-clicking on the icons next to the folder name, then double-click the file containing the abstract once you find it. The text inside the "Abstract" box can be manipulated by highlighting the desired section and using the Cut, Copy and Paste buttons the usual way. Check with your NGO on the size allowed for the Abstract.

#### 2.b) Scientific Justification: (aka, the great idea)

This section allows the user to enter a detailed justification for the observations requested, generally in the form of text describing the context of the proposed observations with respect to previous work in the field (the 'Background'), and details of the motivation and scientific importance of the requested observations (the 'Proposed Observations'). Technical details such as integration time, S/N, etc. belong to the Technical Justification Page (3.b). The text can be typed directly or imported from an ASCII file, as with the Abstract. It can also be exported to a file using the Save File tool. The text manipulation buttons also work here. Check with your NGO on the size allowed for the Justification.

Figures must be included as attachments (as well as tables and the reference list, if you want to save space in the justification itself!). To include an attachment (EPS, GIF, JPEG, PDF, PS, RTF, and plain text (TXT) are the formats allowed), first click on the "New Attachment" button, then "Choose" (bottom right of the page). This will give you access to the directory tree. Once found, double click on the desired file, and it will be added to the list. Finally, click inside the "Name" space and type a name for the attachment (e.g., Fig. 1). To include other files, repeat the process from the beginning. Check with your NGO for constraints on the maximum number of attachments allowed.
2.c) Keywords:

The Keywords set is meant as a tool to categorize the proposal being submitted. There is no limit to the number of keywords allowed. Select as many as may apply to accurately describe your programme. It is required that you select at least one keyword otherwise your proposal will not verify.

To choose the keywords, first select a "Category" (e.g., Extragalactic) in the top frame, corresponding to the area of astronomy the proposal falls under. This will bring up all the "Available Keywords" for this category in the lower left panel. To add a keyword to your list, use the scroll bar to find it, highlight it with one single click of the left mouse button (remember, it turns green!) and click on the right-pointing hand to add it to the "Selected Keywords" area (lower right panel). If you add keywords from one category and then chose another Category, your previously entered keywords will be removed.

To manually remove a keyword from the "Selected Keywords" area, highlight it and click on the left-pointing hand.

2.d) Investigators:

First highlight the "PI" entry in the left window, and enter all the Principal Investigator information required in the right window. Then click on the "New Co–I" button to include each of the co–investigators. When finished, selecting the "Team" entry in the left will show the complete list of Investigators on the proposal. The number of Co–Is allowed is partner–specific, please check your NGO info for the maximum number allowed.

The pull–down list next to the Institution field contains a reasonably complete database of worldwide Physics and Astronomy research departments and institutes. Selecting one will automatically put its address in the Address field. Check for correctness and completeness and edit the address if necessary.

Grad Thesis vs Grad No Thesis (PI information, "professional status"): if the PI is a Graduate Student and the data are part of the thesis work, select Grad Thesis. If they are not part of the thesis work, select Grad No Thesis.

The following fields on the PI Information are mandatory: First name, Last name, Institution, e–mail. The Proposal will not verify if any of these is left blank.

The "Copy" button will copy the highlighted entry (including the PI) to a new Co–I one. This is a quick way to create a new Co–I if there are two or more from the same Institution.

2.e) Targets:

The targets list can be typed in manually or imported from an ASCII/text file. In either case is important that the coordinates are typed separated by spaces or ";" only (e.g., SgrA will be at 17:45:12.0 and not 17h45m12.0s. The wrong input is accepted by the Tool, but an error will occur only when the target list is imported latter in the Observations Page (3.a).

If typing in your target list, first click "New", then type the Object's name in the white box at the bottom of the page (you cannot edit the middle panel!). Select the System (HMS, Deg or Non–sidereal) and the equinox, and type the coordinates on the white boxes to the right. Enter a source brightness in the text box below the object name. The brightness is a text string and can be in any units (e.g. 20th mag at K). Please specify them! If your targets are non–sidereal, the time at which the coordinates are valid must be also entered here. Repeat
the process to add all targets. The entries can be moved up or down the list using the arrows above the central panel.

If importing a target list form an ASCII/text file please use the correct format. This format is best described by entering information for one target then saving it to a file using the "Save" button and viewing the file. The format is basically a tab separated list of sources, one per line. Please note that, at present, the target brightness is not written to the text file when a target list is saved, hence, these values will have to be entered manually even if a target list is imported.

All targets are labeled "Science" to distinguish them from Wavefront Sensor Guide Stars.

The final column in the target table in the centre section of the target page, indicates how many times a target is used (referenced) in the Observations Page. If a target has a 0 here, the proposal does not reference this target and it will not be observed under this proposal. However, it is acceptable for targets not to be referenced in the Observations page since they could be targets for a different proposal.

3) The Gemini Section: defining your observations

3.a) Observations:

It is simplest to do this in order, since there is a lot of detail required. Selecting an option in the left window will open the associated panel in the right one. Just fill in or click on as appropriate.

Program Information: Click on "Program Information" in the left panel to choose between classical or queue mode observing. Note that if submitting a proposal for classical mode, there is no need to set the observing constraints (see below), even thought the option is active. Classical and queue mode observing cannot be combined in one proposal but require separate proposals.

Resources: Click on "Resources" in the left panel to choose the facility to be used. Currently only Gemini North is available, however, in subsequent semesters Gemini South and other Observatories will be added. Next, choose the instrument and configuration by a single−click on the expansion icon or a double−click on the item itself. Open up the whole tree, then select the lowest "leaf" e.g. a filter or grating. This will automatically select the branches above it to the facility. Select as many "leaf" entries as you wish to completely define your proposed observations. Multiple instruments can also be selected in the Resource section. Clicking on the "Summary" tab will show the final resource list for the proposal.

NB. The "Resources" list will change from semester to semester as different instruments become available. Make sure you have an up−to−date version of the GeminiData.xml file when preparing a proposal. Contact your NGO if in doubt.

Constraints: Click on "Constraints" in the left panel to define the observing conditions required by your queue observing proposal. The right panel will show one single entry, called "Global Defaults". Expand the Constraints tree and click on Global Defaults. This will show you the values defined as "global defaults" for Sky Background, Cloud Cover, Image Quality and Water Vapor. If these are acceptable to your proposal you need do nothing else since these constraints are globally effective. To create your own set of constraints, highlight Constraints again and click on the "Create" button at the bottom of the panel. A new entry (named only ObservingConditions) will be created. Click on this entry in the left panel and the right panel will change to show the four above options. Click on the white space to entry a name to your Constraints set, then specify the different constraints as required by your scientific goals and chosen instrument. See the Gemini
web pages for details on the meaning/use of the four constraints.
Each observation (defined as detailed below) can have its own set of observing constraints which overrides
the global defaults. To modify an existing set of constraints, select it as default (select "Constraints", then
check the corresponding box), click on its name on the left panel "Constraints" tree, then change the values on
the right panel as above. Defining observing constraints for a Classical Mode proposal is an exercise in
wishful thinking.

**Adding Observations:** Click on the "Add Obs" button to import the target list, as entered in (2.e) above.
Select by checking/unchecking the appropriate boxes in the first column, or by clicking "All". By default the
Tool selects all the unused entries. Then click "Create Observations" to generate the individual entries on
the left panel of the Observations Page, in the form of a series of "Object Name (Observations)" containers. To
delete an observation, highlight its container and click on the "Cut" button (the scissors). You can also copy
and paste an observation using the corresponding buttons, or create a totally new target with the "New Obs"
button.

**Adding Guide Stars:** Click the "Add WFS" button, to add one or all of the following: Gemini Peripheral
Wave Front Sensor (PWFS) guide stars, NIRI On−Instrument WaveFront Sensor (OIWFs, f/14 camera)
guide stars or Hokupaa AO WaveFront Sensor (AOWFS) guide stars. Remember: Guide stars are mandatory
for all Gemini Proposals, either classical or queue! Next, the Catalog Search Assistant window will open.
Use the upper pull−down list to choose a Guide Star Catalog server (CADC or ESO). Currently the search
algorithms are available or PWFS, OIWFS (NIRI) and AOWFS (Hokupaa) guide stars. Next, click on the
right arrow in the lower right corner of the window to proceed to the next step. The next window will show
the list of targets as defined in item 2 above. Select all entries by clicking on the "All" button or individual
objects by checking the appropriate boxes in the first column. Click on the right arrow again to go on. The
upper panel now shows the list of objects selected, the lower panel is empty. Click on the magnifying glass
button in the upper right corner to start the search. Clearly, your computer has to be on the network for the
search to be successful. The status of each object will change from "pending" to "complete" as the algorithm
successfully find the guide stars (one for each object). The lower panel will show the selected stars for the
object highlighted in the upper panel. Once the search is complete, click on "Finish" (lower left corner) to
return to the Observations Page. The "Override" button allows the user to select other stars than the ones
chosen by the algorithm (the brightest ones). You will be presented with the full list of stars inside the patrol
field. Select by checking the box in the left. If the search fails (or you decide none of the stars in the list is of
your liking), you will be required to enter the guide stars by hand. For the purposes of this cookbook, we will
assume the search was successful.

**Defining Observation Details:** Select each object (upper branch of the Object Name (Observation) tree)
one−by−one and enter an exposure time. This time should include all overheads as detailed in the Gemini web
pages and must also include off−source (sky) integrations. You can select different observing constraints for
each object, if your program calls for it. To do so, click on the "Override Default Constraints" button at the
bottom of the right panel. The list of defined constraints sets will appear, select by checking the appropriate
box. A new branch (Constraints) under the object tree will be opened. The constraints can be edited by
clicking on the constraint set name. When you have finished entering exposure times, selecting again the
Program Information container will show the total observing time for the proposal. The current version does
not update this value to include the overheads which are, as stated above, added into the exposure time per
object. The exposure times specified have to be justified in the Technical Justification below. For NIRI, an
Integration Time Calculator (ITC) is available on the Gemini web pages. For Visitor instruments (i.e.
Hokupaa and OSCIR), sensitivity tables are available on the Gemini web site.
3.b) Technical Justification: (aka, the dry reality)

This Page should include a detailed technical justification for the requested observations, including items such as the rationale behind the choice of instrument and instrument configuration, and supporting figures for the exposure times requested (e.g., in terms of obtaining a particular signal-to-noise level or photometric accuracy, and the need of such). Describe any additional calibration needed (AO stars or calibrations other than the default set — see below). If a particular observing sequence (series of sky-object exposures) is preferred, include it here. In the end, consult the Instrument Help Pages to add up the overhead time, and give the total (observations, off-source, overheads, AO stars, special calibrations) length of the proposal. The procedure for the Queue Mode will be to obtain standard flat fields and appropriate spectroscopic standards (estimated photometric magnitudes are probably accurate to 10%) for ratioing and approximate flux calibration. These are called the baseline calibration set. If your observations require more precision, or if you wish to specify the calibrations to be performed, please provide details here. If not, the baseline calibration data set will be available to you. As for the Science Justification, type or import the text from a file, and include the figures and tables as attachments. All the File and text editing tools described before can be used here. Again, check with your NGO on the maximum length and number of attachments allowed here.

3.c) Publications:

List any previous publications, either directly related to this programme or simply based on data acquired over the last few (5–6) semesters, using any telescope (not limited to Gemini). List also all previous telescope allocation time (anywhere) for this programme only. To enter a new publication, click on the "New Publication" button and then type the reference in the form

Author1, Author2, Author3, et al. (YYYY), "Title of Publication", status (in press or Journal, Volume, Page).

To enter a Previous Time Allocation, click on the "New Allocation" button, then type a reference for the previous allocation proposal (such as UKIRT99A or HSTCy8). Enter the allocated time in hours or nights, and the percentage of it that was useful (not lost to weather, technical problems, etc.). Finally, enter a comment in the large box to the right about the results (e.g., HST data scheduled but not yet obtained; or 90% of the time non-photometric, need more data). A Publication or Time Allocation entry can be deleted by highlighting it and then clicking on the appropriate "Delete" button.

3.d) Scheduling:

In the top space, enter the minimum time requested to the TAC (the final figure obtained in (3.b) after adding the overheads or a fraction thereof). Then indicate if this is a long range programme by entering the estimated time to be asked for in future proposals (e.g., if this is a summer proposal, how many hours more will be needed for the objects in the winter sample). If this is a Classical Mode proposal, indicate the impossible, optimal, and/or synchronous range of dates, whichever and all that applies. First select the constraint (e.g., Impossible), then select the month using the arrows on the top of the calendar frame, and finally mark the range of dates by clicking on the first and last day of the interval (for the Impossible example, a red arrow will appear across the interval). Repeat for the Optimal (green) and Synchronous (blue) ranges, if applicable. The ranges selected will appear on the Summary window. If it is the case, enter a justification for the synchronous or impossible dates in their appropriate boxes (e.g., ASCA observations, LNA TAC meeting).

3.e) Support:

For Classical Mode proposals only, indicate the need for staff support at the telescope (none, first night). Also detail here any special travel requirements (e.g., you don't drive so need a ride to get you from Hilo to Hale.

3) The Gemini Section: defining your observations
3.d) Submit:

Select the country (or countries – in which case check the Multiple Partners option) to which the proposal will be submitted, then VERIFY YOUR PROPOSAL with the "Check Proposal" button. This process verifies the completeness of key fields (e.g. an Abstract is present and Observations defined). Also, generate a summary (see (3.f) below) and check it visually for errors. If the submit proposal button to the partner country you wish to submit the proposal to is enabled (not greyed), the XML file can be sent directly from the PIT using the Submit button. If not, contact your friendly National Gemini Office to obtain the correct instructions on proposal submission. Once you have hit the Submit button for a partner country where PIT submission is possible (see above), the process may take a minute or so (since verification takes place at the remote NGO site). Once complete, a dialogue box will be displayed indicating the success of your submission. If successful, you will be allocated a reference number to identify your proposal to the NGO.

3.e) TAC:

Don't touch. This is for the partner country Time Allocation Committee use only!

3.f) Summary:

This will generates a summary of the proposal that can be printed or saved as an HTML file. The generation of the html summary generally takes between 3 and 30 seconds depending on your OS and computer speed. The HTML summary now retains paragraphing in the justification sections and produces a complete summary of your proposal. In some partner countries it is this version of the proposal that is read by the TAC and referees/assessors.
Appendix C: PIT Known Bugs
**PIT Known Bugs**

Known bugs (and workaround, where possible) in the Phase I Tool are described here. Please also read the Frequently Asked Questions / Common Mistakes (FAQ/FMM) page and Solaris/Linux distribution README files for other possible problems. If you find a new problem, please submit the information via the Gemini HelpDesk.

**9 January 2005**  
**RA values considered to have units of hr:**  
The units for RA are assumed to be hr (hours). Values greater than 24 are 'unwrapped' e.g. 243.7, intended to be in degrees, is interpreted as 10 revolutions plus 3.7hr and is converted to an 'RA' of 3h 42m.

**30 August 2004**  
**Items on "submit page are grayed out/not editable:**  
By design, the partners−specific items (partner check boxes, time requested etc) are 'locked' and not editable after the proposal (or, for joint proposals, one or more partner components) has been submitted. (This is also true of the example proposal distributed with PIT). This feature is intended to avoid accidental changes or re−submission of previously submitted proposals. Normally you can reset the submission status using the "reset" button. In some circumstances – the one known case to date is attempted submission without any partner selected – the reset button does not clear the locked proposal. The workaround is to save the proposal as an XML file, open the file in your favourite text editor and locate the line near the top of the proposal that reads something like:

```xml
<phase1Document created="2004−09−02"
proposalKey="7df05f69−500b−431e−80e2−a9ba3f1d6b58"
lastModified="2004−09−02" dtdVersion="1.2">
```

and delete just the element proposalKey="7df05f69−500b−431e−80e2−a9ba3f1d6b58". (Your key will different). The proposal XML file can then be re−opened in PIT and proceed as normal.

**10 October 2002**  
**Exiting Windows PIT using [x] button does not save changes:**  
If you close the Windows version of PIT using the [x] button in the corner of the window the currently open proposals are not saved and no warning is given. You should use the File...Exit menu.

**14 September 2002 – believed fixed at server sites**  
**Some guide star catalogues searches return incorrect results:**  
When using the catalog assistant to find guide stars for observations, the Guide Star Catalogue at ESO and the USNO Catalogue at ESO return invalid guide stars due to incorrect queries. The other catalogues (e.g. GSC at CADC, GSC2 at ESO) operate correctly.

**14 September 2002 – fixed in 2004B PIT release**  
**HTML summary can lose first character in line of text:**  
In text fields (abstract, science and technical justifications), the HTML summary can lose the first character of the last line if there is a carriage return (CR) at the end of the previous line. The XML file retains the correct text.

**3 March 2002 – believed fixed in 2004A PIT release**  
**HTML summary link problems under linux:**  
Under linux only, the links from the table of contents at the bottom of the HTML summary do not always function correctly. The links are fine if the HTML file is saved and opened in a browser.
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5 February 2002 – fixed in 2002B PIT release that support user-defined proxy settings

Guide star catalogue or digital sky survey searches fail because user machine is behind proxy server:
If the user's computer connects to the outside world via an HTTP proxy server then PIT catalogue assistant
searches, PIT proposal submission (UK, Canada and Australia) and OT guide star or image searches will fail,
often with the error exception occurred while retrieving the data: java.net.ConnectException: Connection
refused. This problem arises because PIT and OT currently do not support sites with an HTTP proxy (support
is being added for the next public releases of PIT and OT).

There is a workaround for those using PIT and OT under solaris or linux operating systems. (If you are using
Windows, please contact us as there may also be a solution). The Java Virtual Machine (JVM) on Solaris and
Linux allows setting two system properties at runtime to indicate that HTTP access should go through an
HTTP proxy server.

The two system properties are:

- http.proxyHost -> The host name of the proxy machine
- http.proxyPort -> The port used by the proxy host

By setting the site specific values for these two properties before starting PIT and OT, the access for posting
the proposal and gathering WFS stars will go through the indicated proxy. You may find the name of your
proxy by looking in your web browser preferences.

A modified command for starting PIT would look like the following (where the −D allows setting the system
property on the command line):

```sh
exec java ${JFLAGS} −Dhttp.proxyHost="proxy host" −Dhttp.proxyPort="port" edu.gemini.phase1.tool.app.PIT
```

An example PIT.sh script is available that includes two new variables (called PROXYHOST and
PROXYPORT) and can be edited with your local information. Similar modifications should work for the OT.

5 October 2001 – fixed in 2002B release

No previous observations in HTML summary:
The current release omits details of previous observations from the HTML summary. The information is
included in the XML file that is submitted to the NTACs.

12 September 2001 – only present in 2002A version

Can't start PIT or PIT freezes when off-line:
As part of future development, a feature whereby PIT connects to the web to access reference files was
unintentionally left in the 7 Sept. release (version 2002A.09). If you attempt to use PIT off-line (i.e. when not
connected to the internet) this will cause PIT not to load or to freeze after opening a proposal. The current
download (version 2002A.10) has fixed this problem. If working on-line there is no issue.

7 September 2001 – fixed by re-release of 2002A PIT

CIRPASS not in list of 2002A instruments:
The initial release of 2002A PIT (Sept 6, version 2002A.08) did not include CIRPASS from the list of
instruments. This was corrected in the PIT re-release on 7 Sept. (version 2002A.09). If you don't intend to use
PIT there is no problem as the two releases, and proposals they generate, are otherwise identical. If you wish
to propose to use CIRPASS and don't see it listed in the resources, please re-install the software. We are
working on a simpler deployment scheme for future releases.
3 September 2001 – fixed in 2002B release with user–specified proxy setting

**Can't find WFS (guide) stars:**
On occasion, the catalogue assistant will report that the search algorithm failed and that it was unable to find any wavefront sensor (guide) stars. There are two possible reasons for this (a) there genuinely are no guide stars (this can occur particularly if the patrol field of the WFS is small, e.g. Hokupa’a, or when searching deep in the Galactic plane) or (b) the catalog assistant cannot connect to the chosen GSC server. The latter may be due to your system firewall and proxy server configuration. To test your connection outside of PIT, try the GSC test page. (If you know that a suitable WFS star does exist, you can add it manually).

1 April 2001 – ‘fixed’ in 2002A release by not defaulting to XML file extension

**(Text) saving within PIT:**
The save button on pages that have text editing (abstract, scientific justification, technical justification, target list, TAC) save the contents of the text box only (not the whole proposal) to the name of the original xml file. To save the whole proposal use the file...save as menu.

23 February 2001 – fixed in 2002A release

**TAC help page within PIT:**
The context–sensitive help within PIT for the TAC tab points to the wrong help page. The correct help page is accessible from the left–hand contents list.

11 February 2001

**PIT opens off the screen:**
Occasionally, when starting a new proposal it opens off the top left of the screen and only a few pixels of the bottom corner are visible. This is a problem with the interaction between the Java JDK and Xwindows. Further investigation is necessary. As a work–around, close the program and re–launch PIT.

2 October 2000 – this bug was fixed in the 2001B release of PIT however it may still be relevant when importing affected 2001A proposals

**A problem occurs when the default observing constraints for a specific Observation are overridden using the "Override Default Constraints" function in PIT. If you override the default constraints with the same (the default) constraints, or in fact just specify the same set of constraints within the Observation as the default constraints, then save the proposal (as an xml file), the next time you read in the proposal and try to access the override constraints, by clicking on the expand tree icon, you will generate a Java dump starting with the lines:**

```
Exception occurred during event dispatching:
java.lang.IllegalStateException: The referent has never been set.
at edu.gemini.phasel.model.PlReference.getReferent(PlReference.java:140)
```

and you can't access the override constraints and the proposal won't submit.

To solve this problem you have to manually edit the xml file and edit the reference codes for the constraint sets. This is an ASCII file so you can use your favourite text editor but for safety you should make a back–up copy of the xml file before starting to edit. What has happened is that each constraint set is given a reference ID in the form ref–0, ref–1 etc (see the constraint sets at the bottom of the xml file). In the observations section of the file (that starts with <observation>) the associated constraints are referenced as

```
<constraintRef constraintId="ref-0"/>
<constraintRef constraintId="ref-1"/>
```
and so forth. One of these ref− values is not a valid constraint set (see the constraint references at the bottom of the xml file) and does not even exist. You must manually edit the non−existent constraint ref− code to an existing ref− code and save the change before reading the xml file back into the PIT.

28 September 2000 – fixed in 2002A release

**Can't select the same institution from the drop−down menu for consecutive co−Is:**
There are two work−arounds: (1) select a different institution and then re−select the one you want, (2) copy the co−I and change the name (that way you get the basic phone, fax and institution e−mail details too).

9 September 2000

**Linux and the twm window manager:**
On start−up the PIT windows often do not appear at their correct size/shape when using the twm window manager which is bundled with Linux RedHat 6.x. It is possible to re−size the windows but this sometimes leads to missing text/screen sections. Users are encouraged to switch to either the Gnome Enlightenment window manager (also bundled with RH6.x) or fvwm2 both of which allow the PIT to run−up and operate normally.
Appendix D: Gemini (Phase I) Proposal Process
**Phase I Overview**

Applications for time on Gemini are made through **National Time Allocation Committees** (NTACs) which are individually responsible for scientific and technical assessment and for making recommendations to the Gemini Observatory that time be awarded. Details of the submission and review process vary from partner to partner. Links to partner–specific information, if available, are contained in the following table:

<table>
<thead>
<tr>
<th>Country</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>US Phase I info</td>
</tr>
<tr>
<td>Chile</td>
<td>Chilean Phase I info</td>
</tr>
<tr>
<td>UK</td>
<td>UK Phase I info</td>
</tr>
<tr>
<td>Argentina</td>
<td>Argentinean Phase I info</td>
</tr>
<tr>
<td>Canada</td>
<td>Canadian Phase I info</td>
</tr>
<tr>
<td>Brazil</td>
<td>Brazilian Phase I info</td>
</tr>
<tr>
<td>Australia</td>
<td>Australian Phase I info</td>
</tr>
<tr>
<td>Hawaii</td>
<td>University of Hawaii Phase I info</td>
</tr>
</tbody>
</table>

Proposals will be solicited by Gemini every 6 months in early March and September. Individual partners may solicit proposals more frequently for placement in pre–reserved classical or queue slots when the quick–response mechanism is in effect.

The Phase I process is supported by staff in the **National Gemini Offices** (NGOs). Use of the Gemini Help Desk is strongly recommended as the method for contacting NGO staff to make queries, request information etc. Proposals from outside of the Gemini community must be submitted through one of the NTACs.

**International collaborations** ("joint proposals"), where time is being sought from several partner countries, must be submitted using the Gemini Phase I Tool (PIT) even if the proposal involves partners that offer other submission mechanisms. The PIT supports automatic submission to multiple partners at once. (See the joint proposal instructions for more details).

In normal operations, application may be made for **classical** or **queue** mode observations. Classical mode observations are scheduled on specific dates, similar to most ground–based observatories, and generally are carried out by the investigators visiting the telescopes. Queue mode observations are defined in detail by the applicants and executed on their behalf by the Gemini staff. This mode offers the potential of better matching observations to the prevailing conditions (e.g. image quality, sky background, cloud cover) and ultimately of more rapid response.

A schematic view of the Phase I process illustrates some aspects that differ from those on many other telescopes:
The NTACs rank queue and classical proposals separately. The NTAC outputs, comprising the rankings, recommended time awards and the full proposals, are sent electronically to Gemini Observatory where they are merged together, and with the output of the Gemini staff TAC, to produce a draft schedule and draft queue. (See more details about the merging process). For the merging to work effectively, the group of top-rated proposals that would fill that partner's share of the time available should contain a reasonable balance in terms of the observing constraints requested. For example, not all proposals can request the best image quality conditions or dark time. In fact, more proposals than the minimum are transmitted to provide flexibility during merging.

The draft schedule and draft queue, along with notification of any target or scheduling conflicts identified during the merging process, are sent to the International Time Allocation Committee (ITAC; see terms of reference). The ITAC consists of representatives from each NTAC and from Gemini Observatory. After resolution of any conflicts and consideration of duplicate and joint proposals, the recommended schedule, queue and the position of the queue bands are forwarded to the Gemini Director for final approval. The final schedule and queue will be published on the web. The following information is considered public and will be included: PI name, partner country, proposal title and abstract, instrument.

Starting in 2004A, queue programs assigned by the ITAC into queue Science Ranking Band 1 will be eligible for rollover into the next semester, for no more than two consecutive semesters, in order to increase the likelihood of program completion. Eligibility for rollover of 2004A programs will be decided at the 2004A ITAC (for rollover into 2004B) and so forth. Rollover will apply to queue programs only. The relevant ITAC representatives have the right to recommend withdrawal of execution (and rollover) status.

Scientific and technical feedback to the investigators about their proposal is generated by each NGO/NTAC. Notification of the award of time (or a place in the queue) is generated by Gemini Observatory and sent to
Overview of the Gemini Phase I Tool

Each proposal recommended for time is sent by the NTACs/NGOs to Gemini as an XML (eXtensible Markup Language) document consisting of attribute/value pairs that encode the proposal information (e.g. PI name, target co-ordinates, instrument resources, scientific case) and, if required, associated files with figures etc. The Gemini Phase I Tool (PIT) automatically generates the XML file. Partners who have chosen to use their own web-based or other proposal systems must translate their internal formats into the correct XML structures. The XML format is described in a document package and has been defined to be of generic use for observatories other than Gemini.

Phase I queue proposals require the specification of observing condition constraints which define the poorest acceptable conditions under which the observations can be executed. In addition, all queue and classical observations require the use of one or more wavefront sensor (WFS) stars for fast guiding, primary mirror active optics control and/or adaptive optics. As the technical feasibility of a proposal relies in part on the availability of WFS stars, all proposals sent by the NTACs/NGOs to Gemini must identify WFS stars in the proposal. The Gemini Phase I software contains a tool that will automatically apply the relevant brightness and field-of-view constraints and select WFS stars given the science target co-ordinates. The alternative proposal systems used by some partners have other provisions for selecting WFS stars (in some cases these
Overview of the Gemini Phase I Tool

may be added by NGO staff after submission of the proposal; please check with your NGO if you are unsure).

Last update March 16, 2005; Phil Puxley