

## PREPARING SCHEDULE REQUESTS

Gemini telescope observing requests can be generated using either the [web-based scheduler](#) or a simple text file.

### WEB-BASED SCHEDULER

The web-based scheduler can prepare observing requests for most observers that do not require special requirements, e.g., multiple images with a user-specified cadence, or objects with coordinates not searchable in the [SIMBAD](#) database. The web interface is available at <http://astro.physics.uiowa.edu/iro/observing.html>, and is illustrated below.

The screenshot shows the web-based scheduler interface. It is divided into several sections:

- Observer Information:** A yellow bar containing the text "Observer Type:  Researcher  Student Observer".
- Project Information:** A yellow bar containing a text input field for "Project Title:" followed by a red asterisk.
- Table of Observing Requests:** A table with three columns: "Target", "Filter/Exposure", and "Advanced Options".
  - Target:** Each row has a green square checkbox on the left, followed by an "Object:" text input field and a checked checkbox for "Use **Catalog** Position".
  - Filter/Exposure:** Each row has a "Filter:" dropdown menu set to "L (Luminance)" and an "Exposure:" input field set to "60".
  - Advanced Options:** Each row has a checked checkbox for the column header, followed by "Repeats: 0", "Delay:" input field, "Start Time:" input field with a dropdown set to "LST", and "Observe Date:" input field.
- Navigation:** At the bottom left, there are links for "Add Row" and "Delete Checked Row(s)". At the bottom center, there is a "Submit" button.

### MANUAL SCHEDULING

For observing programs that cannot be scheduled using the web-based scheduler, observers can create a custom schedule using a text editor. An example is a program that requires periodically spaced observations centered on a specific center time, such as exoplanet transits or binary eclipse timing observations. The schedule file name must be of the form

*xxxddd.sch*, where *xxx* is the observer's 3-letter observing code, and *ddd* is the day of year number<sup>3</sup>. The schedule must be sent to the telescope scheduler before 6 pm of the day of observation.

The format of a text-based scheduling program consists of keyword-keyvalue pairs, with one or more spaces in between. Case is ignored, except inside quotes. Any line starting with a hash mark (#) is a comment and is ignored. Line breaks are also ignored.

There are five required keywords:

- **Title:** a string describing the project. Must be in quotes.
- **Observer:** A quoted string, usually the observer's name and/or email address'. This is written the image header, but not used otherwise.
- **Source:** The name of the object observed. If the coordinates of the source aren't given, the name of the source is parsed, using a SIMBAD name query, planetary ephemeris calculation, or comet and asteroid ephemeris databases on the deimos server (these are updated daily).
- **Filter:** Specify either the filter code (e.g., b) or the full name e.g., blue. Multiple filters can be specified using a comma-separated list, so long as there is an equal number of durations.
- **Duration:** A number (float or integer) giving the requested exposure time (seconds). If multiple filters are specified, there must be an equal number of exposure times (comma-separated list).

After specifying this minimal list of keywords, end the request with a /. All subsequent requests 'inherit' previous keyword values and do not have to be re-specified.

In addition to the required keywords, some optional keywords are also available:

- **Comment:** A quoted string. This gets written into the image header, but is otherwise not used.
- **Repeat:** An integer repeat count (defaults to 1). Repeats the current request block (up to /). Note that images will be scheduled as close to transit (or the requested start time) as possible, separated in time by the default cadence (currently 30 sec).

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<sup>3</sup> The day number can be determined by Googling 'day year number today'

- **Ra,dec, epoch:** The celestial coordinates of the object [normally not required unless SIMBAD lookup fails]. The format is hh:mm:ss and dec dd:mm:ss. The epoch defaults to 2000.
- **Cadence:** The time interval between images, in hh:mm:ss. If this keyword is specified, a start time (UTstart or LSTstart) and a repeat count must also be specified. The start time refers to the start of the series.
- **UTstart:** The requested start time of the image group (defaults to the transit time), in Universal time (UT). Format is hh:mm:ss.
- **LSTstart:** Same as UTstart, but specifying local sidereal time.

Here are a few examples:

```
title 'Demo image' observer 'A. Lincoln' source 'Neptune' filter g duration 60 /
```

This schedule requests a single 60 sec exposure of the planet Neptune using the Sloan g filter. The observing time is not specified, so it will be scheduled near Neptune transit.

```
title 'My first observation' observer 'Al Einstein einstein@plato.net'
```

```
source 'M1' filter g,r,h duration 60,30,120 /
```

```
source 'ngc869' filter r,g,b duration 60,60,90 /
```

```
source 'strange_1' ra 23:45:21 dec -05:34:22 filter 6 duration 300 /
```

This schedule request would produce seven images: three of Messier 1 in filters g,r, and h, with exposure times 60, 30, and 120 sec respectively; three of NGC869 in filters r,g,b,, and a single grism image of an uncatalogued source with user-specified celestial coordinates (defaults to epoch J2000).

```
Title 'Exoplanet Transits (WASP52b)' Observer 'robert-mutel@uiowa.edu'
```

```
Comment 'Exoplanet website: http://var2.astro.cz'
```

```
Source 'WASP52b' RA 23:13:59 DEC 08:45:41 Epoch 2000
```

```
FILTER R duration 10 repeat 48 utstart 08:10:00 cadence 00:05:00 /
```

This schedule requests 48 images of the WASP52 exoplanet system using the R filter with 10 sec exposure times. The observations start at 08:10 UT and are spaced at 5 minute intervals, so the total UT range is 5x48min = 4 hours, from 08:10 - 12:10 UT.