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.

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\(^3\). 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).

\(^3\) 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 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'
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.