**Installation**

Dependencies

Python 3

Required files

tle\_updater.py

tle\_conf.ini

tle\_update.bat

Scheduling

First, edit tle\_update.bat to reflect the current filepath of tle\_updater.py. Then, use windows task scheduler to create a task to repeatedly run tle\_update.bat at fixed intervals. This should cause the script to automatically update any specified TLE files regularly (COSGC MCGS uses a weekly task executed sunday evenings).

**Setup**

tle\_updater does not have any default behavior; all desired operations must be specified in the config file tle\_conf.ini. The config file has examples for all three modes of operation with explanation of all of the options; the examples are included below for reference. For all modes of operation, the user must provide a name for the set of TLEs that are being updated. This name is used only for logging and debugging purposes and will not affect the operation of the script. In all cases the path of the destination file for the updated TLEs must be provided. The main mode of operation is to copy a set of related TLEs from celestrak.com, in which case the name of this list must be provided (the names of all lists available is included below). When updating from celestrak, there is an option to modify the TLEs so that some formating is modified to be usable by SatPC32. A secondary mode of operation is to update a custom collection of TLEs from n2yo.com. To do this, you must specify the number of TLEs in your custom list and for each satellite, you must provide the NORAD ID for each satellite and the name of each satellite as it will be expressed in the updated file.

**Running**

tle\_updater should run automatically based on the task you create for it. You can verify this behavior by checking the execution status of the task in windows task scheduler. Additionally, you can check the most recent log file for the timestamp of the most recent execution. The message “TLE update started” and “TLE updater shutting down” should mark the start and end of the log for a particular update.

**Troubleshooting**

Error messages:

Error: Failed to open config file

The config file has been moved or renamed and the script can’t find it

Warning: TLEs in \_\_\_\_\_ not updated. Valid source option not specified.

The specified list of satellites does not have the ‘source=’ option or the option is set to an option other than ‘celestrak’, ‘n2yo’ or ‘local’

Error: TLE \_\_\_\_\_ in \_\_\_\_ not updated. Could not connect to \_\_\_\_\_\_

This is an internet connectivity problem. It may be recorded multiple times per list

Error: TLEs in \_\_\_\_\_\_ not updated. Check filenames and options.

Make sure the file you specified from celestrak exists by visiting celestrak.com

Error: TLE\_\_\_\_\_ in \_\_\_\_\_\_\_\_ not updated. Invalid NORAD ID?

This error is normally raised when an empty webpage is retrieved from n2yo.com

Generally, this is because the specified NORAD ID is invalid

Error: TLE \_\_\_\_\_\_\_\_ in \_\_\_\_\_\_\_\_\_ not updated. Could not retrieve TLE.

This message is logged for any error other than the few listed above

General information

Please note that the message “TLEs in \_\_\_\_\_ updated” will be logged regardless of what fraction of TLEs are successfully updated.

You can verify that the script can find your files by visiting the webpages in a browser:

celestrak.com/NORAD/elements/(name of the file you want to copy, from the list below)

n2yo.com/satellite/?s=(NORAD ID)

**Example configurations (from config file)**

;[celestrak example]

; this is a unique title that specifies the start of options for each TLE file to be created

;source = celestrak

; the source option is always present and specifies whether the TLEs should be updated from celestrak or n2yo.

; if celestrak is selected, tle\_updater will download a standard file of TLEs from celestrak (weather.txt, etc.)

; this option is recommended if you need TLEs of many similar satellites

;file = weather.txt

; the file option specifies the file on celestrak to be downloaded

;endfile = C:\Users\COSGC\Appdata\Roaming\SatPC32\Kepler\weather.txt

; the endfile option specifies the filename and directory of the file on disk

;fix\_keps = true

; if true, tle\_updater will run fix\_keps() on the output file to prepare it for use with SatPC32

;[n2yo example]

; this is a unique title that specifies the start of options for each TLE file to be created

;source = n2yo

; the source option is always present and specifies whether the TLEs should be updated from celestrak or n2yo.

; if n2yo is selected, tle\_updater will download TLEs for the specified satellites from n2yo

; this option is recommended if you need a custom file with a few specific TLEs (i.e. mn2.txt for meteorgis)

;num\_tles = 2

; the num\_tles option specifies the number of TLEs that will be written to the file

;name1 = METEOR-M 2

; the name[n] option specifies the name of the satellite that will be written to the file

;norad\_id1 = 40069

; the norad\_id[n] option is used to lookup the satellite in n2yo

;name2 = NOAA15

;norad\_id2 = 25338

; the name[n] and norad\_id[n] options are included as many times as specified by num\_tles

; any name[n] and norad\_id[n] options with n > num\_tles will be ignored

;endfile

; the endfile option specifies the filename and directory of the file on disk

**List of files on celestrak**

weather.txt noaa.txt goes.txt resource.txt

sarsat.txt dmc.txt tdrss.txt argos.txt

planet.txt spire.txt geo.txt gpz.php

gpz-plus.php intelsat.txt ses.txt iridium.txt

iridium-NEXT.txt orbcomm.txt globalstar.txt amateur.txt

x-comm.txt other-comm.txt satnogs.txt gorizont.txt

raduga.txt molniya.txt gps-ops.txt glo-ops.txt

galileo.txt beidou.txt sbas.txt nnss.txt

musson.txt science.txt geodetic.txt engineering.txt

education.txt military.txt radar.txt cubesat.txt

other.txt