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#!/usr/bin/env python
# get_transits.py
# read in NORAD 2-line sat data
# find transit times and locations via ephem
# 06/ 2007
# mb
#-------------------------------------------------
# remember to set computer date/time (internet time)
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import os, sys
import string, re
import urllib
import ephem
from ephem import *
#new
from ephem_helper import *
from time import gmtime, strftime

#set the OS WIN = 0 -> linux
WIN = 1
#-------------------------------------------------

url = "http://celestrak.com/NORAD/elements/"

# set your paths
if(WIN):
    path = "D:/Experiments/Makelanguage/ML3/astronomy/PyEphem/"
    print "running windows..\n"
else:
    path = "/home/marc/code/astronomy/PyEphem/"
    print "we are on LINUX\n"

# select the kind of satellite you are interested in (military) from Norad:
sat_name = "military.txt"
filename = "military_satellites.txt"
sat = 'HELIOS 1A'

source = path + filename
transit_times = []
space = ' '

#set your location
location = 'Zurich'
longit = '47:22:11.9'
lat = '+8:32:19.1'
elev = 414.0
Zurich = Observer()
Zurich.lat, Zurich.long, Zurich.elev = longit, lat, elev
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#set date to today's date
date = strftime("%Y/%m/%d", gmtime())

#-----------------------------------------------------

#get the data from the web
get_satellite_data(url, sat_name, filename)

#read in the data
print "using LTE file:", filename
satellites = read_tle_file(source)
iss = satellites[sat]

print "transit times in CEST/CET for", sat, "in", location, "on", date
print "ADD two hours to get UTC time in summer, one hour in winter"

#check 7 to midnight -> 9 to 2am
firsthour, lasthour = 19,24
for j in range( 19, 24):
    hour = j
    time = str(hour) + ":00"

    fulldate = date + space + time
    Zurich.date = fulldate
    iss.compute(Zurich)
    print "transit time and location: ", iss.transit_time, iss.az, iss.transit_alt

if(WIN):
    raw_input("\nkeystroke to exit...")
#-------------------------------------------------------------------------
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