

Appendix A

Computer Code for Controlling Data Retrieval through the NOAA NOMADS System

#script: masterftp2u.scpt - outer wrapper for controlling ftp2u process .

Invokes the two driver scripts driveftp2u.scpt and driveftp2u.2.5.scpt that control the following steps

- A) write and send request URLs and storre responses
- B) process responses and write ftp instruction files
- C) download data

The final storage of the data is contolled in this script (master).

to be invoked at approximately 9Z and 19Z by cron.
#!/bin/csh -f

```
# assume:
# 00Z runs are out done downloading by 9Z
# 12Z runs are out done downloading by 19Z
  set datestr = `date -u +"%H %2d %2m %Y (%a)"`
  echo $datestr
  set filedstr = `echo $datestr | mkdatestr.awk`
  echo $filedstr
  set STORDIR = "DOWNLOAD."$filedstr
  if(!(-e $STORDIR)) then
    echo "Making "$STORDIR
    mkdir $STORDIR
  endif
  driveftp2u.scpt
  ls DOWNLOAD > download1x1.dirlist
  cp DOWNLOAD/* $STORDIR
  driveftp2u.2.5.scpt
  ls DOWNLOAD > download2.5.dirlist
  cp DOWNLOAD/* $STORDIR

exit
```

```

script: driveftp2u.scpt - produces ftp2u http requests for 1x1 deg. data
#!/bin/csh -f

# assume:
# 00Z runs are out done downloading by 9Z
# 12Z runs are out done downloading by 19Z
    set datestr = `date -u +"%H %2d %2m %Y (%a)"`
    echo $datestr
    set filedstr = `echo $datestr | mkdatestr.awk`
    set runhrstr = `echo $filedstr | awk '{print substr($0,9,2)}'`
    set rundatestr = `echo $filedstr | awk '{print substr($0,1,8)}'`
    echo $filedstr
    echo $runhrstr
    echo $rundatestr

    set TEST_ONLY=" es"
    set dstr=`date`
    set FCST_TIME_FILE=fcsttimes.ldeg
#    set FCST_TIME_FILE=fcsttimes.test
    rm -f logfile.master
    rm -f TestLog
    echo "START FTP2U: ",$dstr | tee TestLog
    foreach fcst_time(`cat $FCST_TIME_FILE`)

        set dstr=`date`
        echo "*** Doing lead time: "$fcst_time" at "$dstr |

tee -a TestLog
#
#    echo "make mkwget_op.awk" | tee -a TestLog
#    sed s/FCST_TIME_STR/$fcst_time/ < mkwget1x1.skel >
mkwget_op.awk
#
    chmod +x mkwget_op.awk
    sed s/FCST_TIME_STR/$fcst_time/ < mkwget1x1.skel | \
    sed s/RUN_INIT_TIME/$runhrstr/ | \
    sed s/RUN_INIT_DATE/$rundatestr/ > mkwget_op.awk
    chmod +x mkwget_op.awk
    echo mkwget_op.awk

#
    echo "execute mkwget_op.awk to make
",wget_cmnd.$fcst_time | tee -a TestLog
    mkwget_op.awk > wget_cmnd.$fcst_time

#
    echo "execute: ",wget_cmnd.$fcst_time | tee -a
TestLog
#
    rm -f logfile
    if($TEST_ONLY != "yes") then
        source wget_cmnd.$fcst_time
        echo "SLEEPING "
        sleep 30
        echo "WAKE UP "
    endif
    cat logfile >> logfile.master

end

#
    echo "make logfile (retrieval info)" | tee -a TestLog
#
    rm -f logfile.master
#
    foreach logfile (`cat logfile.list`)
#
        cat $logfile >> logfile.master
#
    end

    echo "exec. rdlog_op.scpt: read logfile.master, make ftp info" |
tee -a TestLog
    rdlog_op.scpt
    echo "execute ftp2u.cmnd"
    set dstr=`date`
    echo "*** start ftp2u.cmnd: "$dstr | tee -a TestLog

```

```
ftp2u.cmd
set dstr=`date`
echo "*** end ftp2u.cmd: "$dstr | tee -a TestLog

set dstr=`date`
echo "*** END FTP2U: ",$dstr | tee -a TestLog
exit
```

```

script: driveftp2u2.5.scpt - produces ftp2u http requests for 2.5 x 2.5
deg. data
#!/bin/csh -f

# assume:
# 00Z runs are out done downloading by 9Z
# 12Z runs are out done downloading by 19Z
set datestr = `date -u +"%H %2d %2m %Y (%a)"`
echo $datestr
set filedstr = `echo $datestr | mkdatestr.awk`
set runhrstr = `echo $filedstr | awk '{print substr($0,9,2)}'`
set rundatestr = `echo $filedstr | awk '{print substr($0,1,8)}'`
echo $filedstr
echo $runhrstr
echo $rundatestr

set TEST_ONLY=" es"
set dstr=`date`
set FCST_TIME_FILE=fcsttimes.2.5deg
# set FCST_TIME_FILE=fcsttimes.test
rm -f logfile.master.2.5
rm -f TestLog.2.5
echo "START FTP2U: ",$dstr | tee "TestLog"
foreach fcst_time(`cat $FCST_TIME_FILE`)

    set dstr=`date`
    echo "*** Doing lead time: "$fcst_time" at "$dstr |
tee -a TestLog
#
# sed s/FCST_TIME_STR/$fcst_time/ < mkwget.2.5.skel
sed s/FCST_TIME_STR/$fcst_time/ < mkwget.2.5.skel | \
sed s/RUN_INIT_TIME/$runhrstr/ | \
sed s/RUN_INIT_DATE/$rundatestr/ > mkwget_op.2.5.awk

echo mkwget_op.2.5.awk
chmod +x mkwget_op.2.5.awk

#
echo "execute mkwget_op.awk to make
",wget_cmnd.$fcst_time | tee -a TestLog.2.5
mkwget_op.2.5.awk > wget_cmnd.$fcst_time

#
echo "execute: ",wget_cmnd.$fcst_time | tee -a
TestLog.2.5
#
rm -f logfile
if($TEST_ONLY != "yes") then
    source wget_cmnd.$fcst_time
    echo "SLEEPING 2.5 DEG"
    sleep 30
    echo "WAKE UP 2.5 DEG"
endif
cat logfile >> logfile.master.2.5

end

#
echo "make logfile (retrieval info)" | tee -a TestLog.2.5
# rm -f logfile.master.2.5
# foreach logfile (`cat logfile.list`)
# cat $logfile >> logfile.master.2.5
#
end

echo "exec. rdlog_op.scpt: read logfile.master.2.5, make ftp
info" | tee -a TestLog.2.5
rdlog_op.scpt
set dstr=`date`
echo "*** done w/ rdlog: "$dstr | tee -a TestLog.2.5

```

```
echo "execute ftp2u.cmd"
set dstr=`date`
echo "*** start ftp2u.cmd: "$dstr | tee -a TestLog.2.5
ftp2u.cmd
set dstr=`date`
echo "*** end ftp2u.cmd: "$dstr | tee -a TestLog.2.5

set dstr=`date`
echo "*** END FTP2U 2.5 DEG: ",$dstr | tee -a TestLog.2.5
exit
```

Awk template: mkwget1xl.skel - after modification, produces ftp2u request file for 1xl degree data.

```

awk 'BEGIN{
    ipno="63.197.201.65"
#    ensstr="c0"
        pmark="% "
        f0="fcsttimes.1deg"
        f0="ensnames"
        fcst_time="FCST_TIME_STR"
        init_time_str="RUN_INIT_TIME"
        fname=sprintf("ens%s.t%sz.pgrbf%2s",ensstr,init_time_str,fcst_time);
e);
#
        logname=sprintf("ens%s.t%sz.pgrbf%2s.logfile",ensstr,init_time_str,fcst_time);
r,fcst_time);
#    logname=sprintf("logfile.%s",ensstr);
        logname=sprintf("logfile");
        print logname > "logname.list"
        printf("wget -O %s \"http://nomad3.ncep.noaa.gov/cgi-bin/ftp2u_ens1xl.sh?\",logname);
#
        while(n=getline < f0){
            ensstr=$1

        fname=sprintf("ens%s.t%sz.pgrbf%2s",ensstr,init_time_str,fcst_time);
e);
            printf("file=%s&",fname)
        }
        close(f0)
#
        printf("wildcard=")
#
        f1="levels"
        while(n=getline < f1){
#            printf("&lev_%d_mb=on", $1)
                printf("&lev_%s=on", $1)
            }
        close(f1)
#
        f2="level_vars"
        while(n=getline < f2){
            printf("&var_%s=on", $1)
        }
        close(f2)
        printf("&subregion=&leftlon=230&rightlon=250");
        printf("&toplat=47&bottomlat=33");
        printf("&results=SAVE&rtime=1hr&machine=%s", ipno)
        printf("&user=anonymous&passwd=&ftpdire=%2\Fincoming_1hr");
#        printf("&prefix=&dir=%s2Fens20040510\"", pmark);
        printf("&prefix=&dir=%s2FensRUN_INIT_DATE\"", pmark);
        printf("\n");
exit
}'

```

```

Awk template: mkwget2.5.skel - after modification, produces ftp2u request
file
for 2.5x2.5 degree data.
awk 'BEGIN{
    ipno="63.197.201.65"
    pmark="%"
    f0="ensnames"
    fcst_time="FCST_TIME_STR"
    init_time_str="RUN_INIT_TIME"
    fname=sprintf("ens%s.t%sz.pgrbf%2s",ensstr,init_time_str,fcst_tim
e);
#     logname=sprintf("logfile.%s",ensstr);
    logname=sprintf("logfile");
    print logname > "logname.list"
    printf("wget -O %s \"http://nomad3.ncep.noaa.gov/cgi-
bin/ftp2u_ens.sh?\",logname);
#
    while(n=getline < f0){
        ensstr=$1

        fname=sprintf("ens%s.t%sz.pgrbf%2s",ensstr,init_time_str,fcst_tim
e);
        printf("file=%s&",fname)
    }
    close(f0)
#
    printf("wildcard=")
#
    f1="levels"
    while(n=getline < f1){
#         printf("&lev_%d_mb=on", $1)
        printf("&lev_%s=on", $1)
    }
    close(f1)
#
    f2="level_vars"
    while(n=getline < f2){
        printf("&var_%s=on", $1)
    }
    close(f2)
    printf("&subregion=&leftlon=230&rightlon=250");
    printf("&toplat=47&bottomlat=33");
    printf("&results=SAVE&rtime=1hr&machine=%s", ipno)
    printf("&user=anonymous&passwd=&ftpdire=%2\Fincoming_1hr");
    printf("&prefix=&dir=%s2FensRUN_INIT_DATE\\", pmark);
    printf("\n");
exit
}'

```

script: rdlog_op.scpt - controls processing of responses to ftp2u requests
and
creation of ftp instruction file for download of data.

```
#!/bin/csh -f
```

```
grep "was copied to" < logfile.master > cpfile  
rdlog2.awk < cpfile  
chmod +x ftp2u.cmd
```

Awk script: rdlog2.awk - writes ftp instruction files that are eventually executed
by ftp2u_master.scpt

```
awk '{
    line[NR]=$0
    len=length($0)
    sftp=index($0,"\\")
    n=split($0,a,"\\")
#    print "*** ",nftp
#    print a[2]
    n=split(a[2],b,"/")
    for(i=1;i<=n;i++){
        print "B ",i,b[i]
    }
    if(NR==1){
        print "ftp -v ",b[3]," < ftp2u.inst" > "ftp2u.cmd"
        print "bin" > "ftp2u.inst"
    }
    printf("cd /") > "ftp2u.inst"
    for(i=4;i<=(n-1);i++){
        printf("%s/",b[i]) > "ftp2u.inst"
    }
    printf("\n") > "ftp2u.inst"
    print "get ",b[n]," DOWNLOAD/"b[n] > "ftp2u.inst"
}
END{
    print "quit" > "ftp2u.inst"
}'
```

```
#ensc0.t00z.pgrbf00 was copied to <a
href="ftp://nomad3.ncep.noaa.gov/pub/NOMAD_1hr/t_dir7-
13.17674/ensc0.t00z.pgrbf00">ftp://nomad3.ncep.noaa.gov/pub/NOMAD_1hr/t_dir7-
13.17674/ensc0.t00z.pgrbf00</a>, 2329 bytes<br>
#ensc0.t00z.pgrbf12 was copied to <a
href="ftp://nomad3.ncep.noaa.gov/pub/NOMAD_1hr/t_dir7-
13.17674/ensc0.t00z.pgrbf12">ftp://nomad3.ncep.noaa.gov/pub/NOMAD_1hr/t_dir7-
13.17674/ensc0.t00z.pgrbf12</a>, 2319 bytes<br>
```