Best Practice for getting SDO Browse Data.

SDO provides near-real-time (NRT) images that are updated every 15 minutes. They are designed for Space Weather operators and citizen scientists. Y the SDO website or download them for use elsewhere. The best way to regularly download our latest NRT images is a script using either a wget or curl your needs has been developed it can be invoked automatically as a cron job.

The best method to download our NRT images is to use the wget utility.

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Best practice would be to retrieve a new images once every fifteen minutes.

Example crontab:

```
*/15 * * * * bash /path/to/script > /path/to/output 2>&1 &
```

Downloading latest NRT images

Our latest images are located in the /assets/inmg/latest directory and have a common naming convention as see below. There are four resolutions avail

URL: https://sdo.gsfc.nasa.gov/assets/img/latest/latest_[*resolution*]_[*wavelength*].jpg

Resolutions: [4096, 2048, 1024, 512]

Wavelengths: [0094, 0193, 0171, 0304, 0211, 0131, 0335, 1600, 1700, hmib, hmii, hmibc, hmiic, hmiif, hmid]

Example bash code — *using wget*:

```
#!/bin/bash
# COMMANDLINE ARGUMENTS
DOWNLOAD_PATH=$1

# SDO WEBSITE URL
LATEST_URL=https://sdo.gsfc.nasa.gov/assets/img/latest

# DOWNLOAD PATH
LOCALDIR=$DOWNLOAD_PATH

CHANNELS=( 0094 0131 0171 0193 0211 0304 0335 1600 1700 HMIB HMII HMID HMIBC HMIIF HMIIC )
RESOLUTIONS=( 4096 2048 1024 512 )

for CHANNEL in ${CHANNELS[@]}
do
    for RESOLUTION in ${RESOLUTIONS[@]}
    do
        FILENAME="latest_"$RESOLUTION"_"$CHANNEL".jpg"
        URL=$LATEST_URL/$FILENAME

        #wget command
        wget -N -nd --no-check-certificate $URL --directory-prefix=$LOCALDIR
    done
done
```

Getting images from the browse directories

The browse directories are the drilldown directories deliniated by date. These images also have a common naming convention consisting of date/time st wavelength.

Example directory drilldown

Index of /assets/img/browse/2021/05/10

Name	Last modified	Size
Parent Directory		-
20210510_000000_1024_HMIB.jpg	2021-05-11 01:49	374K
20210510_000000_1024_HMIBC.jpg	2021-05-11 01:54	461K
20210510_000000_1024_HMIIC.jpg	2021-05-11 02:00	237K
20210510_000000_1024_HMIIF.jpg	2021-05-11 02:05	308K
20210510_000000_2048_HMIB.jpg	2021-05-11 01:49	1.5M
20210510_000000_2048_HMIBC.jpg	2021-05-11 01:54	1.9M
20210510_000000_2048_HMIIC.jpg	2021-05-11 02:00	1.0M
20210510_000000_2048_HMIIF.jpg	2021-05-11 02:05	1.3M
20210510_000000_256_HMIB.jpg	2021-05-11 01:49	21K
20210510_000000_256_HMIBC.jpg	2021-05-11 01:54	25K
20210510_000000_256_HMIIC.jpg	2021-05-11 02:00	14K
20210510_000000_256_HMIIF.jpg	2021-05-11 02:05	15K
20210510_000000_3072_HMIB.jpg	2021-05-09 20:30	3.5M
20210510_000000_3072_HMIBC.jpg	2021-05-09 20:30	4.3M
20210510_000000_3072_HMIIC.jpg	2021-05-09 20:30	2.1M
20210510_000000_3072_HMIIF.jpg	2021-05-09 20:30	2.7M
20210510_000000_4096_HMIB.jpg	2021-05-11 01:49	6.6M
20210510_000000_4096_HMIBC.jpg	2021-05-11 01:54	8.5M
20210510_000000_4096_HMIIC.jpg	2021-05-11 02:00	3.6M
20210510_000000_4096_HMIIF.jpg	2021-05-11 02:05	4.8M
20210510_000000_512_HMIB.jpg	2021-05-11 01:49	90K
20210510_000000_512_HMIBC.jpg	2021-05-11 01:54	108K
20210510_000000_512_HMIIC.jpg	2021-05-11 02:00	53K
20210510_000000_512_HMIIF.jpg	2021-05-11 02:05	64K

Below is an example script on how to download browse images from a date range.

```
#!/bin/bash
# COMMANDLINE ARGUMENTS
STARTDATE=$1
ENDDATE=$2
CHANNEL=$3
RESOLUTION=$4
DOWNLOAD_PATH=$5

# SDO WEBSITE URL
SDOURL=https://sdo.gsfc.nasa.gov
BROWSEDIR=$SDOURL"/assets/img/browse"

# DOWNLOAD PATH
LOCALDIR=$DOWNLOAD_PATH

# UNIX TIMESTAMPS
STARTSECONDS=$(date -j -u -f "%Y-%m-%d" ${STARTDATE} +"%s")
ENDSECONDS=$(date -j -u -f "%Y-%m-%d" ${ENDDATE} +"%s")

echo -e "\n\n"
echo "Download Images to local directory"
echo "START DATE: "$STARTDATE
echo "END DATE: "$ENDDATE
```

```
echo "CHANNEL: "$CHANNEL
echo "RESOLUTION: "$RESOLUTION
echo "DOWNLOAD PATH: "$LOCALDIR
echo -e "\n"

val=0
for (( i=$STARTSECONDS; i<=$ENDSECONDS; i+=86400 ))
do
        NEXTDATEPATH=$(date -j -u -f %s "${i}" +%Y/%m/%d)
        NEXTDATESTRING=$(date -j -u -f %s "${i}" +%Y%m%d)
        URL=${BROWSEDIR}/${NEXTDATEPATH}
        ACCEPT=${NEXTDATESTRING}_*_${RESOLUTION}_${CHANNEL}.jpg
        printf "Downloading Images from: %s\r" "$URL"
        wget -q -nd --no-check-certificate --level=1 --recursive -e robots=off --no-parent -R "index.html*" -A $ACCEPT $URL -
done

echo -e "\n"Script complete: $(date)
```

Downloads

» Download scripts
