2018 ADP BUFR Subsetting

This document describes the programs required to process data subset requests from the ADP BUFR observational datasets (ds351.0, ds351.1, ds461.0).

1. ADP_BUFR_subset_if -- perl script called by dsrqst to process subset requests for ds351.0, ds351.1, and ds461.0. This script reads in the request index as a command-line argument.

- _if stands for input file
- dsrqst calling syntax: ADP_BUFR_subset_if <RequestIndex>
- working location: /glade/u/home/rdadata/bin/ADP_BUFR_subset_if
- temporary location: /glade/u/home/grace/BUFR/Subset/subset.pl
- Github repository: https://github.com/NCAR/rda-datasets/blob/master/perl/ADP_BUFR_subset_if.pl
- **ADP_BUFR_subset_if** synopsis:
    - read the request information from the dssdb by RequestIndex
        - determines the appropriate Fortran executable and README from dsnnn.n
        - determines the appropriate data source type(s)
    - writes a configuration_file for the Fortran programs (with time, spatial or station subset info)
    - determines the files that contain the information requested (date and source type selections)
    - creates download.auto/<RequestID> directory and copies README into it
    - creates one entry per input_file in DSSDB wfrqst table (web file request) with required four inputs: bufrupprair_if.x <RequestIndex> <input_dir/> <input_file> <configuration_file>
        - DSSDB calls the executable with information in the wfrqst table
        - partitioning set in RDAMS dsrqst parameters
        - DSSDB sends out the custom email notice when all data processing is complete

2. Fortran programs. The following executables are called by the DSS DB and process the subsetting from the BUFR files. Each requires four command-line arguments:

- **bufrupprair_if.x** (for ds351.0 and ds351.1)
    - usage: bufrupprair_if.x <RequestIndex> <input_dir/> <input_file> <configuration_file>
    - working location: /glade/u/home/rdadata/bin/bufrupprair_if.x
    - temporary location: /glade/u/home/grace/BUFR/bufr_configdecode_ADPupa-master/exe/bufrupprair_if.x
    - Github repository containing source code and compile script: https://github.com/NCAR/rda-bufr-decode-ADPupa

- **bufrsurface_if.x** (for ds461.0)

    - usage: bufrsurface_if.x <RequestIndex> <input_dir/> <input_file> <configuration_file>
    - working location: /glade/u/home/rdadata/bin/bufrsurface_if.x
    - temporary location: /glade/u/home/grace/BUFR/bufr_configdecode_ADPsfc-master/exe/bufrsurface_if.x
    - Github repository containing source code and compile script: https://github.com/NCAR/rda-bufr-decode-ADPsfc

- Fortran programs synopsis:
    - read the configuration file information, input directory path, input file name as command line arguments (4 required)
    - open and decode the input_file (with the full path) passed through from the command line
    - write selected BUFR messages to an ASCII text file download.auto/RequestID/<input_file>_<RequestIndex>.txt

- Compile instructions:
    - To compile the Fortran codes, run bufr_configdecode_ADP???-master/install/install.sh. You will need to modify the compilation flags in the script in order to compile on yellowstone/geyser. See /glade/u/home/tcram/bufr_configdecode_ADPsfc/install/install.sh for an example.
    - To compile just the *_if.f programs, run ifinstall.sh
    - The Fortran code requires the NCEP BUFRLIB package, which is installed at /glade/apps/opt/BUFRLIB/11.0.0/intel/12.1.5/lib (Intel version). The most recent BUFRLIB package is available from the NCEP website at http://www.nco.ncep.noaa.gov/sib/decoders/BUFRLIB/

3. README files. There are README files which accompany the output files for each subset request. These are located in the following directories:

- /glade/u/home/grace/ds351.0/doc
- /glade/u/home/grace/ds351.1/doc
- /glade/u/home/grace/ds461.0/doc

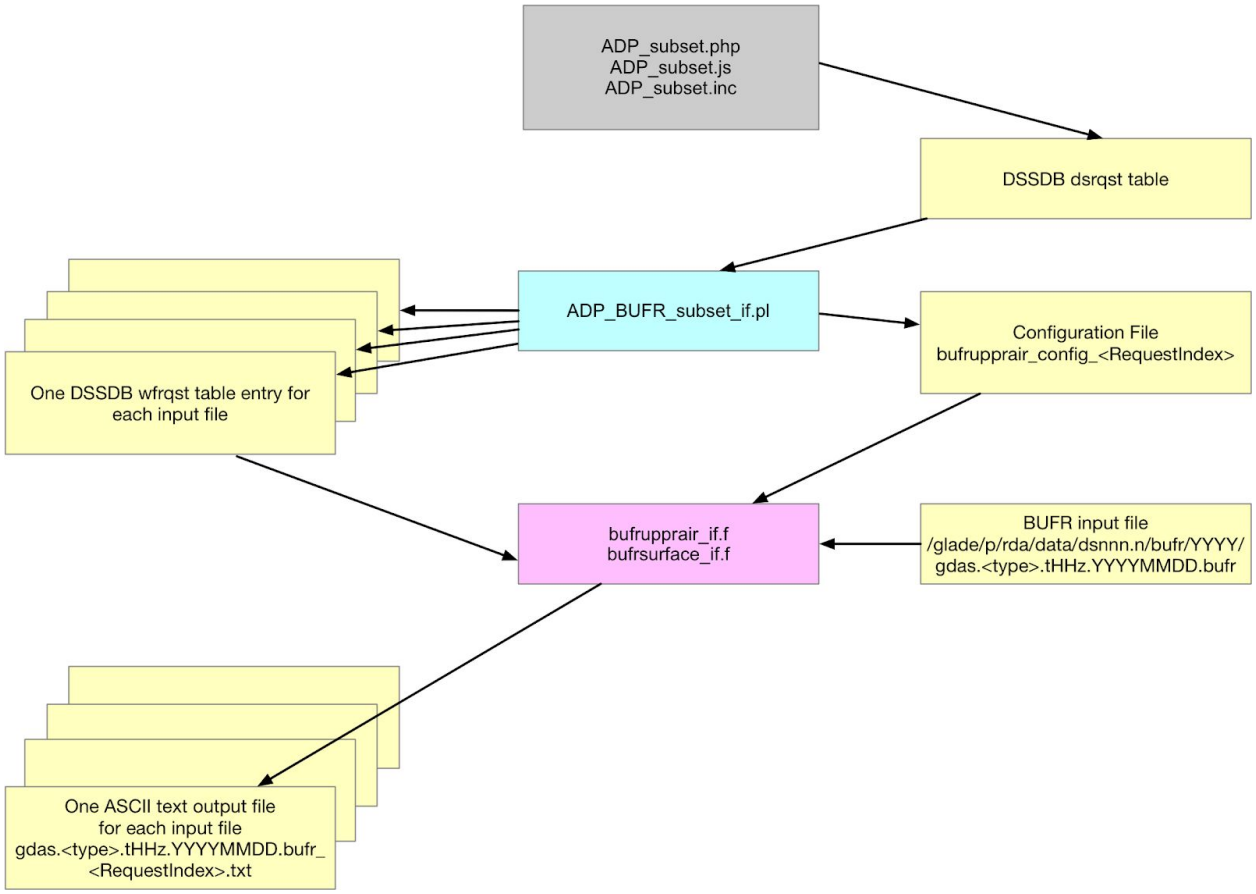
4. Custom e-mail notifications. Uses custom (rather than default) email messages to notify users when the data requests have been processed and are ready to be downloaded. These are set as variable enotice in ADP_BUFR_subset_if.

- Working location
    - /glade/u/home/grace/ds351.0/notices/bufrupa_email_notice
    - /glade/u/home/grace/ds351.1/notices/bufrupa_email_notice
    - /glade/u/home/grace/ds461.0/notices/bufrsfc_email_notice
- Github:

- https://github.com/NCAR/rda-datasets/blob/master/email_templates/bufrupa_351.0_email_notice
- https://github.com/NCAR/rda-datasets/blob/master/email_templates/bufrupa_351.1_email_notice
- https://github.com/NCAR/rda-datasets/blob/master/email_templates/bufrsfc_email_notice

5. Version History

- **ADP_BUFR_subset**
  - **ADP_BUFR_subset** written by Tom Cram
  - **ADP_BUFR_subset_dd** altered by Doug Schuster to include new paths to date directories
  - **ADP_BUFR_subset_if** altered by Grace Peng to provide single input files to Fortran executables from the command line
- **bufrupprair.f (and bufrsurface.f)**
  - **bufrupprair.f** written by multiple DSS staff to serially decode a list (up to 14,000) of input data files from the config file
  - **bufrupprair_if.f** altered by Grace Peng to decode just one input file passed in from the command line


ADP_subset.php
ADP_subset.js
ADP_subset.inc
DSSDB dsrqst table
ADP_BUFR_subset_if.pl
Configuration File
bufrupprair_config_<RequestIndex>
One DSSDB wfrqst table entry for
each input file
bufrupprair_if.f
bufrsurface_if.f
BUFR input file
/glade/p/rda/data/dsnnn.n/bufr/YYYY/
gdas.<type>.tHHz.YYYYMMDD.bufr
One ASCII text output file
for each input file
gdas.<type>.tHHz.YYYYMMDD.bufr_
<RequestIndex>.txt