AWIPS-2 Application Focal Point Course

Archiver Configuration Exercise:

Diagnosing and Fixing Raw File Organization Issues for the AWIPS-2 Archiver and the LDM

Warning Decision Training Branch
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Based on AWIPS-2 Build OB14.2.2

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Introduction

Raw files are important to archive in AWIPS-2 as a significant insurance policy against future software changes that can invalidate the database structure of processed data. Among the raw files, perhaps the most critical ones to archive are those that are locally specified because they represent data that may not be available elsewhere. This exercise document covers the organization of baseline files, how to recognize problems with locally-added configurations, and how to fix them. These problems stem from inconsistencies with files in directories where the archiver software and WES-2 Bridge will not expect to find them. These "problems" do not affect the ingest operations of AWIPS-2, per se, because EDEX itself does not care about the exact locations of raw data in /data_store. Left unfixed, these problems will result in the archiver not being able to find these data to include in a case.

Most raw files are ingested using the LDM and are organized based upon information that is available to the LDM as each product is identified. The most basic product identification is the WMO header, which is often represented by "TTAAii CCCC DDHHMM". Using a common example for a metar bulletin, this designation could translate to "SAUS44 KWBC 071700".

Default File Organization

For most data-type directories in /data_store (the exceptions are acars, grib, grib2, manual, radar, redbook, sat), the raw data are organized in the same way:

<datatype>/<YYYYMMDD>/<HH>/<TTAAii>_<CCCC>_<DDHHMM>_<ldm_seq_num>.<YYYYMMDDHH>

In this nomenclature, the angle brackets <> designate a variable and not literal characters. In the above structure, the forward slash, underscore, and dot characters (/, _, and .) are literal characters. TTAAii and CCCC designate the WMO header, as described at http://www.nws.noaa.gov/tg/awips.php and in Appendix A of the NCEP Office Note 388 at http://www.nco.ncep.noaa.gov/pmb/docs/on388/appendixa.html.

Example: `metar/20140707/17/SAUS44_KWBC_071700_43733693.2014070717`

The YYYYMMDD/HH directories come from the time of the WMO header, as defined in the LDM pqact.conf file. The YYYYMMDDHH extension at the end is the receipt time of the product. There may be an optional file extension between the ldm_seq_num and the YYYYMMDDHH extension (.bufr in the following example):

`/data_store/bufrua/20140707/17/IUSZ51_KWBC_071710_43742037.bufr.2014070717`

The corresponding LDM pqact.conf entry for the METAR example above is

```
467    IDS|DDPLUS   ^(S[AP].{4}) (.{4}) (..)(..)(..)                    (1)
468          FILE   -overwrite -log -close -edex
     /data_store/metar/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H
```

Tip: If you use *vi* as a text editor, you can toggle line numbers on and off by using :se nu and :se nonu.

Note: The line numbers and colorization in the snippets throughout this document come from a text editor and are included to help improve readability, especially for the cryptic regular expression syntax.

To interpret the snippet in (1) above, remember that a single dot (.) in regular-expression parlance represents any single character, and the {4} means to repeat the previous expression 4 times, so S[AP].{4} = S[AP].... = SA□□□□ or SP□□□□ (*i.e.,* SA or SP followed by any four characters). The (\3:yyyy)(\3:mm)(\3) tells the LDM to pull the year, month, and day from the date/time group of the WMO header, which is designed to be an intelligent product time, according to the LDM documentation. This construct is how the YYYYMMDD/HH directories are created.

Exceptions to the default organization

The directory/file organization for the exceptions (acars, grib, grib2, manual, radar, redbook, sat) is shown below:

- /data_store/acars:

acars/<acars_type>/<YYYYMMDD>/<HH>/<TTAAii>_<CCCC>_<DDHHMM>_<ldm_seq_num>.<ext>.YYYYMMDD,

where <acars_type> = acars_decrypted, acars_encrypted, or acars_raw_decrypted. For example,

```
acars/acars_decrypted/20140707/17/IUAX02_KARP_071700_43721339.acars.2014070717.L1bI6I
acars/acars_encrypted/20140707/17/IUAX02_KARP_071700_43721339.acars.2014070717
acars/acars_raw_decrypted/20140707/17/IUAA01_CWAO_071700_43720279.bufr.2014070717
```

- /data_store/grib and /data_store/grib2:

<datatype>/<YYYYMMDDD>/<HH>/<model>/<grid>/<hhmm>Z_F<ttt>_<param>-<TTAAii>_<CCCC>_<DDHHMM>_<ldm_seq_num>.<ext>.YYYYMMDDHH

where <hhmm> is the model run time, <ttt> is the model forecast hour, and <param> is a model data parameter . Note there is a dash (-) character separating the product-dependent fields from the WMO header; this was done intentionally so that the WMO header is easy to find when it is not at the beginning of the filename. The example file below is an 84-hour forecast of 700-mb height from the 1200 UTC run of the GFS from July 7, 2014. (700 mb comes from the 70 in the WMO header, per Table A.4 of NCEP Office Note 388.)

```
/data_store/grib/20140707/12/GFS/GRID211/1200Z_F084_HGT-YHQL70_KWBC_071200_43560554.grib.2014070715
```

If data-organization inconsistencies occur within the grib or grib2 directories, they likely stem from non-baseline additions. The default, baseline directories for both grib and grib2 directories (as of AWIPS Build 14.2.2) are below:

Default models in /data_store/grib:

3hr	ICE_120	NWS_0	NWS_161	NWS_190	SPEC62MRF
AWC_CIP	NAM_84	NWS_151	NWS_171	NWW_121	SSIGFS
AWC_NCWD	NCEP_QPF	NWS_152	NWS_172	NWW_122	UKM_45
ECMWF_144	NMM_89	NWS_159	NWS_180	NWW_124	
GFS	NOW	NWS_160	NWS_185	RUC2	

Default models in /data_store/grib2:

118	GEFS	LAMP	NMM_89	SREF_113	WRF_EM
DGEX_115	GFS	NAM_84	RTMA	SSIGFS	WRF_NMM
ECMWF_HiRes	GLWM	NCEP_QPF	RUC2	SST	
FORECASTER	GMGWM	NDFD	SPC	TPC	

Note: The structure for ECMWF_HiRes is an exception due to its encryption.

Many of these model directories are not immediately recognizable by most NWS personnel. For example, it turns out that "NWS_180" represents quantitative precipitation forecasts (QPF) disseminated by the various NWS River Forecast Centers (RFCs). A Data Type Reference document is provided to help you more easily interpret the organization of the data that are saved in an AWIPS-2 case.

- /data_store/manual:

Data ingested using the manual endpoint are covered by separate exercise, "Archiver Configuration Exercise for Local and Processed Data". By default, a few of the data types are recognized by the archiver (more will be recognized when DR 17169 is deployed) but many local datatypes are not, so it is important to review the examples in the raw data exercise. AWIPS-2 attempts to organize the files in /data_store/manual, but the organization may sometimes appear to be unintuitive. This is because the system systematically searches the EDEX distribution files to identify the first plugin that can decode the data, but the first plugin may not be the most common plugin for a given file (TAFs appear in /data_store/manual/nctaf rather than /data_store/manual/taf). The structure is given by

manual/<datatype>/<yyyymmdd>/<hh>/<filename>. For example,

```
manual/warning/20140708/01/SVSDMX.wan1404784679
manual/grib/20140708/23/ZETA98.LAPS.20140708_2300
manual/grib/20140708/23/LDAD-GRIB-HRRR.015Hour.WIND.10m_FHAG.201407082100.grb2_2014-07-08_231416
```

The directories <yyyymmdd>/<hh> come from the system receipt time.

- /data_store/radar:

A more comprehensive discussion of radar data organization is given in the accompanying reference document, Part 3 of "Data-Type Reference for the AWIPS-2 Archiver". To summarize, radar data come

from two sources: the AWIPS Satellite Broadcast Network (SBN) and from local Radar Product Generators (RPGs) or Supplemental Product Generators (SPGs). The SBN transmits a subset of WSR-88D and TDWR data while RPGs and SPGs provide full volume scans for the WSR-88D and TDWR, respectively. The storage for each is different:

SBN: radar/<YYYYMMDD>/<HH>/<XXXX>/<NNN>/<XXXX>_<NNN>_<DDHHMM>-<TTAAii>_<CCCC>_<ldm_seq_num>.rad.<YYYYMMDDHH>

<XXXX> is a four-letter upper-case radar ID. TDWR data do **NOT** begin with "T" here because T refers to the WMO "region" for the Caribbean (i.e., Puerto Rico). <NNN> is 3-letter NEXRAD product ID used for SBN distribution (not the same as NEXRAD product mnemonic). The radar product IDs for the SBN are listed in the reference document.

SBN Examples:

`radar/20140703/17/KFWS/N0R/KFWS_N0R_031740-SDUS54_KFWD_030901991.rad.2014070317`
(KFWS WSR-88D)

`radar/20140703/17/KDAL/TR0/KDAL_TR0_031741-SDUS54_KFWD_30904443.rad.2014070317`
(Dallas/Love Field TDWR).

Data that come directly to AWIPS from an RPG (using the AWIPS-2 RadarServer software) are stored in /data_store similar to AWIPS-1 radar data storage, using four-letter lower-case site IDs. Here, "t" **can** refer to TDWR sites.

RPG Examples:

`radar/klot/Z/elev0_5/res0_25/az0_5/level256/klot.153.20140702_1632`

`radar/tdal/Z/elev0_5/res0_15/level256/tdal.180.20140703_0317`

- /data_store/redbook:

`/redbook/20140707/23/PXSF001CN/2346Z_PXSF001CN_MCDSUM_NMCGPHMCD-PGNA00_KWNS_44771470.rb.2014070723`

Here, the PXSF001CN is a product ID, 2346 is a product time. The product dependent IDs include the AWIPS PIL. There is a dash ("-") separating the product dependent information and the WMO header, similar to both radar and grib/grib2 data.

- /data_store/satellite:

`sat/20140707/23/GOES-15/2345Z_WV_4km_WEST-CONUS-TIGW05_KNES_14461.satz.2014070723`

Satellite data have a single dash ("-") character separating the product-dependent identifiers and the WMO headers. In the above, the "GOES-15" directory represents a satellite, "WV" represents a physical element/sensor, and "WEST-CONUS" is a sector.

Examples of Raw Data Organization Problems

Almost all problems (from an archiver/WES-2 Bridge perspective) are caused by local additions to pqact.conf that do not conform to these standards. They are usually easily seen by looking at directory listings and by examination of the pqact.conf file. Looking at the directory structures, do two-digit directories appear in the main data-type directories that should only contain years? Do other directories exist where they should not according to this standard? Another main way of diagnosing problems is to investigate this question:

Do entries exist in pqact.conf that do not have a storage instruction similar to (\3:yyyy)(\3:mm)\(3)?

TIP: You do not have go necessarily go through each and every directory in /data_store to find these problem areas. Either by redirecting the terminal output to a file or by using a terminal window that has a long scroll-back capability (in the main GNOME terminal program, you can set the scroll buffer to unlimited under Edit ►Profile Preferences and clicking the Scrolling tab), you can list out several directories deep from /data_store at the same time and quickly determine if there are problems.

```
cd /data_store
ls */*
```

Here are some excerpts of typical “good-looking” top-level directory listings:

```
acars/acars_decrypted:
20141124  20141125  20141126  20141127  20141128  20141129  20141130  20141201
acars/acars_encrypted:
20141124  20141125  20141126  20141127  20141128  20141129  20141130  20141201
acars/acars_raw_decrypted:
20141124  20141125  20141126  20141127  20141128  20141129  20141130  20141201
airep/20141124:
21  22  23
airep/20141125:
00  01  02  03  04  05  06  07  08  09  10  11  12  13  14  15  16  17  18  19  20
21  22  23
forecast/20141129
00  01  02  03  04  05  06  07  08  09  10  11  12  13  14  15  16  17  18  19  20
goessounding/20141130:
21  22  23
goessounding/20141201:
00  01  02  03  04  05  06  07  08  09  10  11  12  13  14  15  16  17  18  19  20
grib/20141124:
21  22  23
grib/20141125:
00  01  02  03  04  05  06  07  08  09  10  11  12  13  14  15  16  17  18  19  20
21  22  23
grib2/20141124:
21  22  23
grib2/20141125:
```

```
00  01  02  03  04  05  06  07  08  09  10  11  12  13  14  15  16  17  18  19  20
21  22  23
intlsigmet/20141124:
21  22
intlsigmet/20141125:
00  01  03  04  05  06  08  09  12  13  14  15  16  17  18  20  21  22  23
radar/20141127:
00  01  02  03  04  05  06  07  08  09  10  11  12  13  14  15  16  17  18  19  20
21  22  23
radar/kfdr:
CFC  GSM  RCM  RSS  SO  THP
radar/koax:
APR  CC  CFC  CZ  DHR  DPA  DPR  DUA  DVL  ET  GSM  HC  HHC  KDP  LRM  ML  OHP  PRR
RCM  RSS  SO  SRM  STP  SW  THP  V  VIL  VWP  Z  ZDR
radar/ktlx:
APR  CC  CFC  CZ  DHR  DPA  DPR  DUA  DVL  ET  GSM  HC  HHC  KDP  LRM  ML  OHP  PRR
RCM  RSS  SO  SRM  STP  SW  THP  V  VIL  VWP  Z  ZDR
radar/lists:
KFDR.current  KFDR.currentVCP  KOAX.current  KOAX.currentVCP  KTLX.current
KTLX.currentVCP  KVNX.current  KVNX.currentVCP
sat/20141124:
21  22  23
sat/20141125:
00  01  02  03  04  05  06  07  08  09  10  11  12  13  14  15  16  17  18  19  20
21  22  23
```

Notice that most data types are structured with <datatype>/YYYYMMDD/HH. The actual output consists of many more days and many more datatypes, but it so uniform that any problems really do stand out. The radar directories listed above are normal and the non-digit directories are for data from a local RPG. Examples of acars and grib/grib2 model directories are provided below:

```
$ ls acars*/*/*
acars/acars_decrypted/20141124:
21  22  23
acars/acars_decrypted/20141125:
00  01  02  03  04  05  06  07  08  09  10  11  12  13  14  15  16  17  18  19  20
21  22  23
acars/acars_encrypted/20141124:
21  22  23
acars/acars_encrypted/20141125:
00  01  02  03  04  05  06  07  08  09  10  11  12  13  14  15  16  17  18  19  20
21  22  23
acars/acars_raw_decrypted/20141124:
21  22  23
acars/acars_raw_decrypted/20141125:
00  01  02  03  04  05  06  07  08  09  10  11  12  13  14  15  16  17  18  19  20
21  22  23
acars/acars_raw_decrypted/20141126:
```

```
00  01  02  03  04  05  06  07  08  09  10  11  12  13  14  15  16  17  18  19  20
21  22  23

$ ls gr*/*/*

grib/20141124/21:
3hr  AWC_NCWD  NWS_0  NWS_151  NWS_152  NWS_159  NWS_160  NWS_161  NWS_171  NWS_180
NWS_185  NWS_190  RUC2
grib/20141124/22:
3hr  AWC_NCWD  NWS_0  NWS_151  NWS_152  NWS_159  NWS_160  NWS_161  NWS_171  NWS_172
NWS_180  NWS_190  RUC2
grib/20141124/23:
3hr  AWC_NCWD  NWS_0  NWS_151  NWS_152  NWS_160  NWS_161  NWS_171  NWS_190  RUC2
grib/20141125/00:
3hr         GFS        NCEP_QPF   NWS_0     NWS_160    NWS_180  NWW_122  SPEC62MRF
AWC_NCWD    ICE_120    NMM_89     NWS_151   NWS_161    NWS_190  NWW_124  SSIGFS
ECMWF_144   NAM_84     NOW        NWS_152   NWS_171    RUC2     NWW_121  UKM_45
grib2/20141201/00:
118 83       ECMWF_HiRes  GEFS GMGWM    LAMP   NCEP_QPF NMM_89  RUC2    SURGE WRF_NMM
14  DGEX_115 FORECASTER   GFS  GRID001  NAM_84 NDFD     RTMA    SSIGFS  WRF_EM
grib2/20141201/01:
83  LAMP  RTMA  RUC2
```

Two-digit hourly directories exist for acars but are another directory deep than for the other data types. Model names appear as the directory names under the two-digit hourly directories for grib and grib2. The numeric directories for grib2 above represent a few of the process IDs that turn out to be for the Unrestricted Mesoscale Analysis (URMA; 118), Extratropical Surge Model (estofs; 14) and the HRRR (83). See the Data Type Reference for more info on grib and grib2 identification.

Do not be alarmed if no date/hour directories appear in /data_store/ldad because this directory is not managed by the LDM nor by the manual endpoint. Files in /data_store/ldad do need to be archived and the archiver should be configured for them. See the "Archiver Configuration Exercise for Local and Manual Data" for more information on this type of configuration.

Common problems observed at a variety of WFOs are listed below. Unless these problems are fixed, the archiver will not see and will not properly include these data in the raw data archive of cases. Solutions for each example follow the list of examples.

Observed Symptoms at Actual WFOs:

1. /data_store/grib contains an extra grib directory (highlighted).

```
dx3:ncfuser:1001$ cd /data_store/grib                                    (Example 1)
dx3:ncfuser:1002$ ls
20140619  20140620  grib
```

2. Any datatype containing a two-digit day, two-digit hour, or a site directory alongside the (baseline) date directories. Nine examples follow (the non-conforming directories are highlighted):

```
dx3:ncfuser:1001$ cd /data_store/text                                    (Example 2-1)
dx3:ncfuser:1002$ ls
19  20  20140619  20140620  20140621
```

```
dx3:ncfuser:1001$ cd /data_store/shef                                    (Example 2-2)
dx3:ncfuser:1002$ ls
00  03  06  09  12  15  18  20140707  22    KLBF
01  04  07  10  13  16  19  20140708  23    KOAX
02  05  08  11  14  17  20  21        KGID  KWOH
```

```
dx3:ncfuser:1001$ cd /data_store/shef                                    (Example 2-3)
dx3:ncfuser:1002$ ls

00  04  08  12  16  20        20140704  20140708  KWOH
01  05  09  13  17  20140701  20140705  21
02  06  10  14  18  20140702  20140706  22
03  07  11  15  19  20140703  20140707  23
```

```
dx3:ncfuser:1001$ cd /data_store/shef                                    (Example 2-4)
dx3:ncfuser:1002$ ls
20140701  20140703  20140705  20140707  cadas  KMSR
20140702  20140704  20140706  20140708  hads
```

```
dx3:ncfuser:1001$ cd /data_store/radar                                   (Example 2-5)
dx3:ncfuser:1002$ ls
20140701  20140704  20140707  KABR  KDMX  KFSD  KLSX  KMKE  KMSP  KSTL  lists
20140702  20140705  20140708  KARX  KDVN  KILX  KMCI  KMKX  koax  KTWX
20140703  20140706  fsi       kdmx  KEAX  KLOT  KMDW  KMPX  KOAX  KUEX
```

In Example 2-5, the fsi and lists directories are necessary, and are not archived.

```
dx3:ncfuser:1001$ cd /data_store/bufrascat                               (Example 2-6)
dx3:ncfuser:1002$ ls
00  02  04  06  08  10  12  14  16  18  20        20140708  22
01  03  05  07  09  11  13  15  17  19  20140707  21        23
```

```
dx3:ncfuser:1001$ cd /data_store/sfcobs                                  (Example 2-7)
dx3:ncfuser:1002$ ls
```

```
00   02   04   06   08   10   12   14   16   18   20   22
01   03   05   07   09   11   13   15   17   19   21   23
```

```
dx3:ncfuser:1001$ cd /data_store/grib                                (Example 2-8)
dx3:ncfuser:1002$ ls
20140701   20140703   20140705   20140707   GLERL
20140702   20140704   20140706   20140708   grib
```

```
dx3:ncfuser:1001$ cd /data_store/grib2                               (Example 2-9)
dx3:ncfuser:1002$ ls
20140707   20140708   TPC
```

For Example 2-7, don't be alarmed if your system does not have a /data_store/sfcobs directory. The section about Example 2-7 below contains an explanation and the history of /data_store/sfcobs.

How to Fix These Problems

These problems are almost always due to the local part of the LDM pqact.conf. Sometimes part of the local configuration actually duplicates the storage of a baseline configuration and can be removed. The general strategy is to follow these steps:

1. Identify the problem by doing simple directory listings as shown above.
2. Find the corresponding pqact.conf entry.
3. Manually search pqact.conf to see if the entry is a duplicate or a partial duplicate. This process does require knowledge of regular expressions. For a handy summary of common regular expressions related to AWIPS-2 archiving, see the document "Archiver Configuration Exercise for Local and Manual Data".
4. Modify the pqact.conf entry to comply with the standards. It is helpful to use LDM's notifyme command to see exactly the product identifiers against which the pqact.conf file is trying to match. Because some products are transmitted over the LDM infrequently, this notifyme command may take some time to provide the exact information you seek.

The examples and solutions below contain snippets from both the baseline and local addition sections of the pqact.conf file. These snippets are numbered for easy reference and have syntax highlighting to aid in reading. The baseline versions also contain line numbers from the OB14.2.1 version of pqact.conf. Where appropriate, directory listings and other system output are included.

In the solutions provided below, sometimes the LDM command "notifyme" is used to help see what products and identifiers actually come over various LDM feeds. While developing and testing this exercise, it was noticed that a "Connection Refused" error can occur when trying to run the notifyme command. This is likely due to cpsbn1 or cpsbn2 not being included explicitly in the ldmd.conf file on cpsbn1. Here is a sample addition to ldmd.conf:

```
ALLOW    ANY      ^(cpsbn1|cpsbn2)      .*
```

Once this ldmd.conf entry has been created, the LDM needs to be restarted for the change to take effect.

Information about pqact.conf organization

Because this exercise involves finding and modifying entries in pqact.conf, it may be helpful to briefly review how the pqact.conf file is organized. Remember there is a baseline version of pqact.conf (pqact.conf.template) plus a local site file. The config_awips2.sh script stitches these two together to make a final pqact.conf that is actually used by the LDM. Beware that some local offices apparently have modified the resultant pqact.conf rather than the site version, so you should be careful you are editing the correct file.

The following outline describes a basic organization of the baseline pqact.conf:

1. redbook graphics
2. satellite files
3. grib and grib2 files for gridded datasets (many entries). These grib and grib2 entries work with WMO headers starting with E, H, O, L, M, Y, and Z.
4. some BUFR files (profiler, bufrua). Other BUFR files appear later.
5. binlightning data. Other BUFR files appear later.
6. Text-based bulletins (includes METARs, forecasts, SHEF data, LSRs, maritime data, aircraft reports, watches/warnings/advisories, etc.)
7. Remaining BUFR files (includes bufrmos, ACARS, modelsoundings, and satellite-derived soundings and satellite-derived winds). WMO headers start with I and J.
8. Towards the bottom of the baseline file is a comment that describes the preferred storage paradigm for SBN radar data. In the actual pqact.conf file used by LDM, the config_awips2.sh script should have included a similar uncommented entry for your own SBN radars, plus any other local additions.
9. Late grib2 additions for new models like the HRRR, Extra Tropical Surge (ESTOFS) and the Unrestricted Mesoscale Analysis (URMA).

Editing the LDM pqact.conf file

The LDM configuration for AWIPS-2 is maintained a bit differently than how LDM typically is used at other institutions. LDM is installed and runs on cpsbn1 with a backup version on cpsbn2. On each machine, the LDM software is located at /usr/local/ldm, and the configuration files are at /usr/local/ldm/etc, which is standard for most LDM installations. The NWS also maintains LDM configuration files at /usr/local/ldm/etc on dx1 and dx2. The actual pqact.conf file that LDM uses is the one on cpsbn1/2. In order to more easily maintain baseline and site versions of pqact.conf, you should actually edit the ones on dx1/2 and then run config_awips2.sh which will sync the versions over to cpsbn1 and make them operational by restarting LDM. Editing the files on dx1/2 without running config_awips2.sh afterwards results in no actual change to LDM. Note that the pqact.conf on your LS1

box is only for the LDAD version of LDM that ingests models and other data you may receive over your regional LDM.

Example 1: /data_store/grib contains an extra grib directory

This problem was seen at the vast majority of WFO sites.

The symptom: a directory listing of /data_store/grib has a grib subdirectory, rather than only having date subdirectories. It turns out these are mis-located RFC QPF grids (as explained below).

```
dx3:ncfuser:968$ cd /data_store/grib
dx3:ncfuser:969$ ls
20140619  20140620  grib
```

As an aside, only having the two dates in /data_store/grib also indicates that the default retention time for the archive purge was set to 24 hours rather than 7 days.

Investigating the /data_store/grib/grib directory indicates a structure like this:

```
dx3:ncfuser:973$ ls grib/*/*/*
grib/GRID218/NWS_180/201407291800:
F006-APCP  F012-APCP  F018-APCP  F024-APCP  F030-APCP  F036-APCP
F042-APCP  F048-APCP  F060-APCP  F072-APCP

grib/GRID218/NWS_180/201407300000:
F006-APCP  F012-APCP  F018-APCP  F024-APCP  F030-APCP  F036-APCP
F042-APCP  F048-APCP  F060-APCP  F072-APCP
```

The directory paths from /data_store/grib to the individual files look like this (an excerpt):

```
grib/GRID218/NWS_180/201407291800/F012-APCP/sfc_YEIM98_KMSR_291801_32366772.grib
grib/GRID218/NWS_180/201407291800/F018-APCP/sfc_YEIN98_KKRF_291824_32399205.grib
grib/GRID218/NWS_180/201407291800/F018-APCP/sfc_YEIN98_KMSR_291801_32366811.grib
grib/GRID218/NWS_180/201407291800/F024-APCP/sfc_YEIO98_KKRF_291824_32399203.grib
grib/GRID218/NWS_180/201407291800/F024-APCP/sfc_YEIO98_KMSR_291801_32366814.grib
grib/GRID218/NWS_180/201407300000/F006-APCP/sfc_YEIG98_KKRF_292354_33168912.grib
grib/GRID218/NWS_180/201407300000/F006-APCP/sfc_YEIG98_KMSR_292223_32985685.grib
grib/GRID218/NWS_180/201407300000/F006-APCP/sfc_YEIG98_KMSR_292336_33150187.grib
grib/GRID218/NWS_180/201407300000/F012-APCP/sfc_YEIM98_KKRF_292354_33168893.grib
```

Here is the corresponding local addition to pqact.conf:

```
ANY     ^([YZ]EI.98) (KSLR|KSTR|KSLC|KFWR|KFTW|KTUR|KTUA|KTUL) (..)(..)(..)                (2)
.*!(grib|grib2)/.*/(.*)/#(...)/(...........)/(F...)/(.*)/
        FILE    -overwrite -log -close -edex /data_store/grib/\6/GRID\8/\7/\9/\(10)-
\(11)_\1_\2_\3\4\5_(seq).\6
```

Here is a corresponding baseline pqact.conf entry that mostly matches the local addition (lines 111-113 from the baseline pqact.conf):

```
  111    # This line enables the regional rfc qpf gribs
  112    HDS   ^(YEI.[89]8) (KALR|KFWR|KKRF|KMSR|KORN|KPTR|KRHA|KRSA|KSTR|KTAR|KTIR|KTUA)
(..)(..)(..)[^!]*!(grib|grib2)/[^/]*/([^/]*)/#([^/]*)/([0-9]{8})([0-9]{4})/(F[0-
9]{3})/[^/]*/([^/]*)
  113          FILE    -overwrite -log -close -edex
       /data_store/\6/(\3:yyyy)(\3:mm)\3/\4/\7/GRID\8/\(10)Z_\(11)_\(12)-
\1_\2_\3\4\5_(seq).\6.%Y%m%d%H
```

(3)

The difference between the local (2) and baseline (3) versions is that the local version potentially requests data from sites other than RFCs (similar pqact.conf entries from other WFOs also attempt to request data from non-RFC sites (like FTW, SLC, or TUL); these additional sites apparently do not send products that match this WMO header). Another difference is the feedtype (ANY vs HDS). Finally, the baseline version also would allow a WMO header of ZEI.98, where the dot represents any character. So, to determine if this local addition can be totally eliminated, we need to see if ZEI.98 products are actually available using the notifyme command, on cpsbn1. This command has to be run as the ldm user.

```
[ldm@cpsbn1]$ notifyme -vl - -h cpsbn1 -p "^[YZ]EI.98.*
```

Sample output from notifyme (looking for "[YZ]EI.98" from ANY feedtype):

```
Jun 24 11:06:12 notifyme[22465] NOTE: LDM-5 desired product-class: 20140624103547.859 TS_ENDT {{ANY,
"^[YZ]EI.98.*"}}
Jun 24 11:16:55 notifyme[22465] INFO:    65226 20140624111656.093     HDS 108748441  YEIN98 KTIR 241116
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F018/APCP/sfc/
Jun 24 11:16:55 notifyme[22465] INFO:    65226 20140624111656.094     HDS 108748442  YEIP98 KTIR 241116
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F030/APCP/sfc/
Jun 24 11:16:55 notifyme[22465] INFO:    63952 20140624111656.094     HDS 108748443  YEIS98 KTIR 241116
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F048/APCP/sfc/
Jun 24 11:17:02 notifyme[22465] INFO:    65226 20140624111702.185     HDS 108748646  YEIQ98 KTIR 241116
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F036/APCP/sfc/
Jun 24 11:17:02 notifyme[22465] INFO:    65226 20140624111702.185     HDS 108748647  YEIG98 KTIR 241116
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F006/APCP/sfc/
Jun 24 11:32:41 notifyme[22465] INFO:    86422 20140624113241.682     HDS 108783898  YEIM98 KALR 241132
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F012/APCP/sfc/
Jun 24 11:32:41 notifyme[22465] INFO:    83822 20140624113241.683     HDS 108783899  YEIQ98 KALR 241132
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F036/APCP/sfc/
Jun 24 11:32:41 notifyme[22465] INFO:    86422 20140624113241.683     HDS 108783900  YEIG98 KALR 241132
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F006/APCP/sfc/
Jun 24 11:32:44 notifyme[22465] INFO:    78618 20140624113244.723     HDS 108783979  YEIS98 KALR 241132
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F048/APCP/sfc/
Jun 24 11:32:44 notifyme[22465] INFO:    81220 20140624113244.724     HDS 108783980  YEIR98 KALR 241132
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F042/APCP/sfc/
Jun 24 11:32:53 notifyme[22465] INFO:    81220 20140624113251.863     HDS 108784295  YEIO98 KALR 241132
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F024/APCP/sfc/
Jun 24 11:33:01 notifyme[22465] INFO:    83822 20140624113302.039     HDS 108784663  YEIN98 KALR 241132
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F018/APCP/sfc/
Jun 24 11:33:01 notifyme[22465] INFO:    83822 20140624113302.040     HDS 108784664  YEIP98 KALR 241132
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F030/APCP/sfc/
Jun 24 11:53:04 notifyme[22465] INFO:    61884 20140624115305.575     HDS 108829064  YEIN98 KRHA 241152
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F018/APCP/sfc/
Jun 24 11:53:04 notifyme[22465] INFO:    60850 20140624115305.576     HDS 108829065  YEIM98 KRHA 241152
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F012/APCP/sfc/
Jun 24 11:53:11 notifyme[22465] INFO:   103574 20140624115311.676     HDS 108829270  YEIM98 KKRF 241152
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F012/APCP/sfc/
Jun 24 11:53:11 notifyme[22465] INFO:   103574 20140624115311.677     HDS 108829271  YEIN98 KKRF 241152
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F018/APCP/sfc/
Jun 24 11:53:11 notifyme[22465] INFO:   103574 20140624115311.678     HDS 108829272  YEIG98 KKRF 241152
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F006/APCP/sfc/
```

```
Jun 24 11:53:13 notifyme[22465] INFO:    61884 20140624115313.694     HDS 108829308  YEIG98 KRHA 241152
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F006/APCP/sfc/
Jun 24 11:53:17 notifyme[22465] INFO:   103574 20140624115317.769     HDS 108829461  YEIO98 KKRF 241152
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F024/APCP/sfc/
Jun 24 11:53:21 notifyme[22465] INFO:    61884 20140624115321.808     HDS 108829546  YEIO98 KRHA 241152
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F024/APCP/sfc/
Jun 24 11:53:21 notifyme[22465] INFO:    60850 20140624115321.809     HDS 108829547  YEIS98 KRHA 241152
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F048/APCP/sfc/
Jun 24 12:17:16 notifyme[22465] INFO:   100084 20140624121716.104     HDS 108886675  YEIG98 KORN 241214
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F006/APCP/sfc/
Jun 24 12:17:19 notifyme[22465] INFO:    96572 20140624121720.174     HDS 108886835  YEIN98 KORN 241214
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F018/APCP/sfc/
Jun 24 12:29:35 notifyme[22465] INFO:    84520 20140624122936.786     HDS 108915988  YEIU98 KFWR 241229
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F072/APCP/sfc/
Jun 24 12:29:35 notifyme[22465] INFO:    93798 20140624122936.787     HDS 108915989  YEIR98 KFWR 241229
/mNWS_180 !grib/nws/NWS_180/#218/201406241200/F042/APCP/sfc/
```

After having run this notifyme command for 36 hours, not a single ZEI.98 product was observed, so it is probably safe to simply delete the local addition because the YEI.98 is already covered by the baseline, subject to the caveat that it is unknown if ZEI.98 products may be transmitted intermittently. Alternatively, the syntax of the local addition could be modified to only take the ZEI.98 product, but since the file was not observed by notifyme, then it is unknown if the LDM product identifiers for ZEI.98 products actually contain the proper metadata (similar to !grib/nws/NWS_180/#218/201406241200/F042/APCP/sfc/) to match the rest of the specification in the baseline pattern.

Example 2-1: Two-digit directories in /data_store/text

The symptom: a directory listing of /data_store/text had two-digit directories alongside the full date directories. It turns out these directories represent day-of-month that contain hourly directories of certain text products. The investigation indicates a structure like this:

```
dx3:ncfuser:1170$ cd /data_store/text
dx3:ncfuser:1171$ ls
08  09  20140708  20140709
dx3:ncfuser:1172$ cd 09
dx3:ncfuser:1173$ ls
00  02  04  06  08  10  12  14  16  18  20
01  03  05  07  09  11  13  15  17  19  21
dx3:ncfuser:1174$ cd 20
dx3:ncfuser:1175$ ls
NOUS60_PGUM_092039_502736.20140709  NXUS64_KEPZ_092009_430077.20140709
NOUS63_KIWX_092031_483510.20140709  NXUS64_KEPZ_092009_430327.20140709
NXUS60_PGUM_092000_405305.20140709  NXUS64_KEPZ_092011_434133.20140709
NXUS60_PGUM_092001_407930.20140709  NXUS64_KEPZ_092014_441898.20140709
NXUS60_PGUM_092001_407932.20140709  NXUS64_KEPZ_092015_443001.20140709
```

This listing is just a sample of the some of files in the directory, but all files had similar filename structures, each containing a WMO header starting with “N”. Each hourly directory contained between 300 and 700 files.

The corresponding local addition from pqact.conf is:

(4)

```
# Fix for DR 16406
HDS     ^(N.*) (....) (..)(..)(..)
        FILE    -overwrite -log -close -edex
        /data_store/text/\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d
```

This local addition saves every product beginning with “N” from the HDS feed.

Here are the corresponding entries from the baseline pqact.conf, all of which deal with N* headers across all feed types:

```
428    # separate out svrwx lsr and GSM misc adm messages
429    IDS|DDPLUS   ^(N[A-VYZ]....) (.{4}) (..)(..)(..)
430          FILE   -overwrite -log -close -edex
     /data_store/misc_adm_messages/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).
%Y%m%d%H
```
(5)

```
431    IDS|DDPLUS   ^(NWUS[01346-9].) (.{4}) (..)(..)(..)
432          FILE   -overwrite -log -close -edex
     /data_store/misc_adm_messages/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H
```
(6)

```
433    IDS|DDPLUS   ^(NWUS5.) (.{4}) (..)(..)(..)
434          FILE   -overwrite -log -close -edex
     /data_store/lsr/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H
```
(7)

```
435    IDS|DDPLUS   ^(NWUS2.) (.{4}) (..)(..)(..)
436          FILE   -overwrite -log -close -edex
     /data_store/svrwx/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H
```
(8)

```
437    IDS|DDPLUS   ^(NXUS[0-57-9].) (....) (..)(..)(..)
438          FILE   -overwrite -log -close -edex
     /data_store/misc_adm_messages/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H
```
(9)

The first entry (5) takes all N* products from the IDS and DDPLUS feeds, except for those beginning with NW and NX. The remaining four entries, (6) through (9), take all the NWUS and NXUS products and put them either in /data_store/misc_adm_messages, /data_store/svrwx (SPC storm logs), or /data_store/lsr (local storm reports). Comparing (4) with (5) through (9), none of the baseline entries account for NW or NX products that are for WMO regions outside the continental US (i.e., the baseline patterns take NWUS but not NWCA or NWXX which would be for administrative messages from Canada or some other region, respectively). The baseline patterns also do not account for N* products that may come over the HDS feed.

This notifyme command indicates what N* products were actually transmitted over the SBN. It ran for 24 hours and a few of the products are listed here:

```
notifyme -vl - -h cpsbn1 -p "^N.*

Jun 24 20:03:56 notifyme[21134] INFO:      245 20140624200150.697     HDS 588828  NXUS65 KTWC
242001 /pGSMEMX
Jun 24 20:03:57 notifyme[21134] INFO:      149 20140624200153.724     HDS 588874  NXUS63 KPAH
242001 /pGSMVWX
Jun 24 20:03:58 notifyme[21134] INFO:      149 20140624200154.763     HDS 588960  NXUS64 KLCH
242001 /pGSMLCH
```

```
Jun 24 20:04:00 notifyme[21134] INFO:      245 20140624200157.828     HDS 589100  NXUS63 KMKX
242001 /pGSMMKX
Jun 24 20:04:00 notifyme[21134] INFO:      149 20140624200159.853     HDS 589169  NXUS60 PGUM
242001 /pGSMGUA
Jun 24 20:04:01 notifyme[21134] INFO:       61 20140624200200.882 IDS|DDPLUS 589238  NZUS93
KDDC 242001 /pIKADDC
Jun 24 20:04:02 notifyme[21134] INFO:     1878 20140624200203.928 IDS|DDPLUS 589339  NZUS51
KLOT 242002 /pWRKLFP
Jun 24 20:04:03 notifyme[21134] INFO:      168 20140624200206.960     HDS 589401  NOUS67 PAJK
242001 /pFTMACG
Jun 24 20:04:04 notifyme[21134] INFO:      492 20140624200207.996 IDS|DDPLUS 589481  NTUS99
KNCF 242002 /pTSTNCF
Jun 24 20:04:04 notifyme[21134] INFO:      492 20140624200207.996 IDS|DDPLUS 589483  NTUS96
KNCF 242002 /pWTSNCF
Jun 24 20:04:04 notifyme[21134] INFO:      245 20140624200208.002     HDS 589494  NXUS63 KABR
242002 /pGSMABR
Jun 24 20:04:04 notifyme[21134] INFO:      149 20140624200209.013     HDS 589514  NXUS64 KOHX
242002 /pGSMOHX
Jun 24 20:04:07 notifyme[21134] INFO:      149 20140624200213.102     HDS 589700  NXUS61 KCTP
242002 /pGSMCCX
```

Over this 24 hour period, data were only seen for HDS and the IDS|DDPLUS feeds. Of the 9316 HDS products observed in this period, only 41 HDS products were not GSMs (WSR-88D General Status Messages), and they were mostly WSR-88D Free Text Messages. Here are the 41 non-GSM products:

```
Jun 24 19:45:20 notifyme[21134] INFO:      166 20140624194520.471     HDS 548897  NOUS61 KILN 241945
/pFTMCMH
Jun 24 20:04:03 notifyme[21134] INFO:      168 20140624200206.960     HDS 589401  NOUS67 PAJK 242001
/pFTMACG
Jun 24 20:31:26 notifyme[21134] INFO:    15396 20140624203126.574     HDS 662545  NZUS51 KBUF 242031
/pSAFBUF
Jun 24 20:32:59 notifyme[21134] INFO:      166 20140624203258.175     HDS 666104  NOUS65 KTWC 242032
/pFTMEMX
Jun 24 21:19:46 notifyme[21134] INFO:      166 20140624211946.675     HDS 805177  NOUS64 KMEG 242119
/pFTMGWX
Jun 24 21:19:46 notifyme[21134] INFO:      166 20140624211946.677     HDS 805180  NOUS64 KJAN 242119
/pFTMGWX
Jun 24 21:19:48 notifyme[21134] INFO:      246 20140624211948.701     HDS 805238  NOUS64 KBMX 242119
/pFTMGWX
Jun 24 21:54:00 notifyme[21134] INFO:      168 20140624215356.986     HDS 896552  NOUS63 KDLH 242153
/pFTMDLH
Jun 24 22:01:35 notifyme[21134] INFO:      166 20140624220135.916     HDS 917362  NOUS63 KICT 242201
/pFTMVNX
Jun 24 23:22:29 notifyme[21134] INFO:      166 20140624232229.889     HDS 1140947  NOUS66 KSTO 242322
/pFTMBBX
Jun 25 02:10:39 notifyme[21134] INFO:    14298 20140625021040.201     HDS 1581492  NZUS51 KBUF 250210
/pSAFBUF
Jun 25 05:59:52 notifyme[21134] INFO:    12614 20140625055708.663     HDS 2197588  NZUS51 KBUF 250557
/pSAFBUF
Jun 25 08:44:07 notifyme[21134] INFO:    11897 20140625084408.965     HDS 2574640  NZUS51 KBUF 250844
/pSAFBUF
Jun 25 11:50:31 notifyme[21134] INFO:    11959 20140625115031.120     HDS 3017635  NZUS51 KBUF 251150
/pSAFBUF
Jun 25 12:05:44 notifyme[21134] INFO:      166 20140625120544.393     HDS 3050629  NOUS61 KILN 251205
/pFTMCVG
Jun 25 12:06:28 notifyme[21134] INFO:      176 20140625120627.105     HDS 3052188  NOUS64 KBMX 251206
/pFTMBMX
Jun 25 12:44:00 notifyme[21134] INFO:      176 20140625124400.434     HDS 3133829  NOUS63 KABR 251243
/pFTMABR
Jun 25 13:08:32 notifyme[21134] INFO:      168 20140625130832.791     HDS 3188108  NOUS63 KABR 251308
/pFTMABR
Jun 25 13:31:21 notifyme[21134] INFO:      174 20140625133118.761     HDS 3247924  NOUS64 KOHX 251331
/pFTMOHX
```

```
Jun 25 13:59:37 notifyme[21134] INFO:      170 20140625135938.122     HDS 3310350  NOUS63 KILX 251359
/pFTMILX
Jun 25 14:35:28 notifyme[21134] INFO:      166 20140625143528.873     HDS 3391249  NOUS65 KMSO 251435
/pFTMMSX
Jun 25 14:59:14 notifyme[21134] INFO:      169 20140625145914.651     HDS 3460532  NOUS64 KJAN 251459
/pFTMGWX
Jun 25 14:59:14 notifyme[21134] INFO:      176 20140625145914.660     HDS 3460551  NOUS64 KBMX 251459
/pFTMGWX
Jun 25 14:59:15 notifyme[21134] INFO:      166 20140625145915.686     HDS 3460610  NOUS64 KMEG 251459
/pFTMGWX
Jun 25 15:11:32 notifyme[21134] INFO:      174 20140625151132.413     HDS 3486833  NOUS66 KHNX 251511
/pFTMEYX
Jun 25 15:11:33 notifyme[21134] INFO:      166 20140625151133.431     HDS 3486873  NOUS66 KSGX 251511
/pFTMEYX
Jun 25 15:11:33 notifyme[21134] INFO:      226 20140625151134.434     HDS 3486876  NOUS65 KVEF 251511
/pFTMEYX
Jun 25 15:11:36 notifyme[21134] INFO:      174 20140625151136.460     HDS 3486934  NOUS66 KLOX 251511
/pFTMEYX
Jun 25 15:40:56 notifyme[21134] INFO:      166 20140625154055.886     HDS 3548622  NOUS63 KILX 251540
/pFTMILX
Jun 25 16:03:35 notifyme[21134] INFO:      206 20140625160321.992     HDS 3603415  NOUS65 KMSO 251603
/pFTMMSX
Jun 25 16:31:12 notifyme[21134] INFO:      166 20140625163105.387     HDS 3673372  NOUS63 KTOP 251631
/pFTMTWX
Jun 25 17:02:23 notifyme[21134] INFO:      166 20140625170222.624     HDS 3739450  NOUS63 KTOP 251702
/pFTMTWX
Jun 25 17:19:45 notifyme[21134] INFO:     1418 20140625171946.311     HDS 3776901  NGUS85 KSTR 251719
/pHCMSTR
Jun 25 17:21:46 notifyme[21134] INFO:      174 20140625172147.309     HDS 3781360  NOUS63 KPAH 251721
/pFTMHPX
Jun 25 17:49:44 notifyme[21134] INFO:    12693 20140625174945.850     HDS 3841985  NZUS51 KBUF 251749
/pSAFBUF
Jun 25 18:02:01 notifyme[21134] INFO:      166 20140625180123.971     HDS 3894736  NOUS65 KMSO 251801
/pFTMMSX
Jun 25 18:43:33 notifyme[21134] INFO:      176 20140625184334.057     HDS 4005228  NOUS65 KVEF 251843
/pFTMEYX
Jun 25 18:43:35 notifyme[21134] INFO:      200 20140625184335.101     HDS 4005321  NOUS66 KHNX 251843
/pFTMEYX
Jun 25 18:43:35 notifyme[21134] INFO:      200 20140625184336.112     HDS 4005349  NOUS66 KLOX 251843
/pFTMEYX
Jun 25 18:43:36 notifyme[21134] INFO:      176 20140625184336.122     HDS 4005372  NOUS66 KSGX 251843
/pFTMEYX
Jun 25 19:08:40 notifyme[21134] INFO:      166 20140625190737.578     HDS 4067955  NOUS64 KOHX 251907
/pFTMOHX
```

So, looking at these listings, we can see the need to store N* headers from the HDS feed.

There are two options for solutions:

A. collect and store all N* entries (including the HDS ones) in misc_adm_messages, or
B. add two entries for HDS:
   - one for GSM and FTM to be stored under radar, and
   - one for other products under misc_adm_messages

Solution A: Put all N*headers from the HDS feed into misc_adm_messages. This would be a new entry, as shown in (10).

```
HDS     ^(N.*) (....) (..)(..)(..)                                                    (10)
        FILE    -overwrite -log -close -edex
/data_store/misc_adm_messages/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H
```

Solution B: Put GSMs and FTMs from the HDS feed into /data_store/radar and all the rest into /data_store/misc_adm_messages, as shown in the two entries comprising (11).

```
HDS     ^(N.*) (K|P|T)(...) (..)(..)(..)
/p(GSM|FTM)(OKC|TLX|FDR|VNX|FWS|GRK|DAL|DFW|TUL|INX|SRX)
        FILE    -overwrite -log -close -edex
/data_store/radar/(\4:yyyy)(\4:mm)\4/\5/\2\8/\7/\2\8_\7_\4\5\6-
\1_\2\3_(seq).rad.%Y%m%d%H

HDS     ^(N.*) (....) (..)(..)(..) /p([A-FH-Z0-9][A-RT-Z0-9][A-LN-Z0-9].*|[A-EG-Z0-
9][A-SU-Z0-9][A-LN-Z0-9].*)
        FILE    -overwrite -log -close -edex
/data_store/misc_adm_messages/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).test3.%Y%m%d%H
```

(11)

Examples 2-2 through 2-4: Non-date directories in /data_store/shef

Examples 2-2 through 2-4 all deal with non-date directories in /data_store/shef, though there are subtle distinctions between each example. The "problem" directories are highlighted in the listings below. Because they deal with similar issues, we're treating them as a group.

Example 2-2:

```
dx3:ncfuser:1001$ cd /data_store/shef
dx3:ncfuser:1002$ ls
00  03  06  09  12  15  18  20140707  22    KLBF
01  04  07  10  13  16  19  20140708  23    KOAX
02  05  08  11  14  17  20  21        KGID  KWOH
```

Example 2-3:

```
dx3:ncfuser:1015$ cd /data_store/shef
dx3:ncfuser:1016$ ls

00  04  08  12  16  20        20140704  20140708  KWOH
01  05  09  13  17  20140701  20140705  21
02  06  10  14  18  20140702  20140706  22
03  07  11  15  19  20140703  20140707  23
```

Example 2-4:

```
dx3:ncfuser:1428$ cd /data_store/shef
dx3:ncfuser:1429$ ls
20140701  20140703  20140705  20140707  cadas  KMSR
20140702  20140704  20140706  20140708  hads
```

For all three of these examples, we'll need to refer to the baseline pqact.conf entries that deal with storage of SHEF data:

```
394    #shef
395    IDS|DDPLUS   ^(A[BS]..[0-9][0-9]) (....) (..)(..)(..)
396         FILE    -overwrite -log -close -edex
     /data_store/shef/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H
```

(12)

```
  397    IDS|DDPLUS   ^(AG..[0-9][0-9])                                    (13)
(KALR|KFWR|KKRF|KMSR|KORN|KPTR|KRHA|KRSA|KSTR|KTAR|KTIR|KTUR|KTUA) (..)(..)(..)
  398          FILE    -overwrite -log -close -edex
       /data_store/shef/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H

  399    IDS|DDPLUS   ^(SR..[0-9][0-9]) (....) (..)(..)(..)
  400          FILE    -overwrite -log -close -edex                        (14)
       /data_store/shef/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H

  418    #shef forecasts                                                   (15)
  419    IDS|DDPLUS   ^(FG..[0-9][0-9]) (.{4}) (..)(..)(..)
  420          FILE    -overwrite -log -close -edex
       /data_store/shef/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H

  421    IDS|DDPLUS   ^(FOUS[67].) (....) (..)(..)(..)                     (16)
  422          FILE    -overwrite -log -close -edex
       /data_store/shef/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H

                                                                          (17)
  496    # SHEF
  497    IDS|DDPLUS   ^(SO.{4}) (.{4}) (..)(..)(..)
  498          FILE    -overwrite -log -close -edex
       /data_store/shef/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H
```

Because of the sheer volume of SHEF-formatted products, we will examine the locally-added pqact.conf entries one-by-one, for the sites that exhibited the issues illustrated in Examples 2-2 through 2-4. Note that several pqact.conf entries likely contribute to the issues shown in these examples.

Issue #1: The first local entry (18) puts some files in the two-digit hourly directories that were shown in Example 2-2. Other entries also populate these two-digit directories.

```
ANY     ^FGUS63 KKRF (..)(..)(..)     FILE    -overwrite -close -edex      (18)
        /data_store/shef/\2/FGUS63_KKRF_\1\2\3_(seq).txt
```

Running notifyme for a pattern of "FGUS.*" for a 24-hour period indicated no FGUS63 products from KKRF (Missouri Basin RFC in Pleasant Hill/Kansas City), but several ***FGUS53*** products were transmitted. Checking an archive of text products from the National Climatic Data Center (NCDC; http://has.ncdc.noaa.gov) for two 2-week periods indicated that KKRF indeed issues FGUS63 products, but on an intermittent basis. Assuming that FGUS63 is transmitted over the IDS|DDPLUS feedtype, (18) can be deleted from the pqact.conf because it is covered by the baseline entry (15).

Issue #2: Snippet (19) contains the next local addition to pqact.conf. It saves files with WMO headers of SXUS56 KWOH in two-digit hourly directories (seen from the first \2 in the path below).

```
ANY     ^SXUS56 KWOH (..)(..)(..)     FILE    -overwrite -close -edex      (19)
        /data_store/shef/\2/SXUS56_KWOH_\1\2\3_(seq).txt
```

According to the HADS (Hydrometeorological Automated Data System) handbook (http://www.nws.noaa.gov/oh/hads/internal/), these files contain hydrometeorological data from various DCPs (Data Collection Platforms) for the Pueblo, CO, area (with an AWIPS ID of RRSPUB). Indeed, products with "SXUS56 KWOH" headers from 24 hours of notifyme were all identified with "/pRRSPUB" in the IDS|DDPLUS feed:

```
Jul 16 20:37:21 notifyme[31384] INFO:      134 20140716203721.837 IDS|DDPLUS 25533367  SXUS56 KWOH 162036 /pRRSPUB
Jul 16 20:37:22 notifyme[31384] INFO:     1170 20140716203721.838 IDS|DDPLUS 25533368  SXUS56 KWOH 162036 /pRRSPUB
Jul 16 20:39:25 notifyme[31384] INFO:      210 20140716203925.640 IDS|DDPLUS 25537362  SXUS56 KWOH 162038 /pRRSPUB
Jul 16 20:39:26 notifyme[31384] INFO:     1704 20140716203925.689 IDS|DDPLUS 25537460  SXUS56 KWOH 162038 /pRRSPUB
Jul 16 20:41:21 notifyme[31384] INFO:     1154 20140716204121.419 IDS|DDPLUS 25541148  SXUS56 KWOH 162040 /pRRSPUB
Jul 16 20:41:23 notifyme[31384] INFO:      362 20140716204121.512 IDS|DDPLUS 25541324  SXUS56 KWOH 162040 /pRRSPUB
Jul 16 20:43:28 notifyme[31384] INFO:      210 20140716204328.411 IDS|DDPLUS 25545616  SXUS56 KWOH 162042 /pRRSPUB
Jul 16 20:43:29 notifyme[31384] INFO:      572 20140716204328.471 IDS|DDPLUS 25545727  SXUS56 KWOH 162042 /pRRSPUB
```

Here is a partial listing of files from /data_store/shef:

```
20/SXUS56_KWOH_162000_25455919.txt  22/SXUS56_KWOH_162200_25737535.txt
20/SXUS56_KWOH_162000_25455960.txt  22/SXUS56_KWOH_162200_25737611.txt
20/SXUS56_KWOH_162002_25460102.txt  22/SXUS56_KWOH_162202_25742577.txt
20/SXUS56_KWOH_162002_25460225.txt  22/SXUS56_KWOH_162202_25743018.txt
20/SXUS56_KWOH_162004_25464314.txt  22/SXUS56_KWOH_162204_25753163.txt
20/SXUS56_KWOH_162004_25464329.txt  22/SXUS56_KWOH_162204_25753206.txt
20/SXUS56_KWOH_162006_25469459.txt  22/SXUS56_KWOH_162206_25759898.txt
```

This particular AWIPS site (as represented by the directory listing in Example 2-2) had no files other than SXUS56_KWOH* in the two-digit (i.e., hour) directories in /data_store/shef.

There are two baseline pqact.conf entries related to SXUS files, shown in (20).

```
490    IDS|DDPLUS   ^(SXUS2[0123]) KWNB (..)(..)(..)
491          FILE   -overwrite -log -close -edex
     /data_store/maritime/(\2:yyyy)(\2:mm)\2/\3/\1_KWNB_\2\3\4_(seq).%Y%m%d%H
492    # DR 15778 - Added RER pattern
493    IDS|DDPLUS   ^(SXUS..) (.{4}) (..)(..)(..) /pRER
494          FILE   -overwrite -log -close -edex
     /data_store/text/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H
```

(20)

These entries (20) will not save the RRS files, because KWNB does not match KWOH and /pRER does not match /pRRS. Thus (19) must be modified to fit the day/hour storage paradigm. The correctly modified entry is shown in (21).

```
ANY     ^(SXUS56) (KWOH) (..)(..)(..)
        FILE    -overwrite -log -close -edex
/data_store/shef/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H
```

(21)

Issue #3: The next two local additions in this site's pqact.conf (22) also deal with WMO headers of SXUS, but these files are stored in directories named either KGID, KOAX, KLBF, or KWOH (because they are specified as the regular expression group 2):

```
ANY     ^(SXUS4.) (KGID|KOAX|KLBF|KWOH) (..)(..)(..)       FILE    -overwrite -close -edex
        /data_store/shef/\2/SXUS47_KWOH_\1\2\3_(seq).txt

ANY     ^(SXUS5.) (KGID|KOAX|KLBF|KWOH) (..)(..)(..)       FILE    -overwrite -close -edex
        /data_store/shef/\2/SXUS47_KWOH_\1\2\3_(seq).txt
```

(22)

For the same logic as above (many SXUS files other than RER are available), these two entries need to be modified to fit the required day/hour storage pattern. The modification is shown in (23).

```
ANY     ^(SXUS4.) (KGID|KOAX|KLBF|KWOH) (..)(..)(..)                                    (23)
        FILE    -overwrite -log -close -edex
/data_store/shef/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H

ANY     ^(SXUS5.) (KGID|KOAX|KLBF|KWOH) (..)(..)(..)
        FILE    -overwrite -log -close -edex
/data_store/shef/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H
```

As an aside, note there is overlap between (19) and the last entry in (22). In other words, SXUS56 headers from KWOH will be stored and processed twice. With the combination of the new entries of (21) and (23), only one copy is stored on the system (the file from the second entry would overwrite the first), but the file would be processed twice (one for each entry). If entry (23) is active in pqact.conf, there is no need to have (21).

Issue #4: Snippet (24) shows the first local addition in pqact.conf for the site featured in Example 2-3. Storing its files in two-digit hourly directories (group 4), it is completely redundant with the baseline entry (14) that captures all files from the IDS|DDPLUS feed with a WMO header beginning with SR. Thus, (24) can be deleted.

```
IDS|DDPLUS      ^(SRU[EMSW][1-9].)                                                      (24)
(KDSM|KDMX|KDVN|KMLI|KARX|KLSE|KFSD|KOAX|KOMA|KZMP|KZAU|KMSP|KMSR|KKRF|KMKC) (..)(..)(..)
        FILE    -overwrite -log -close -edex /data_store/shef/\4/\1_\2_\3\4\5_(seq).txt
```

Issue #5: The next local addition in pqact.conf (snippet 25) captures WMO headers starting with AB, AS, FB and FS and stores the corresponding files in two-digit hourly directories.

```
IDS|DDPLUS      ^([AF][BS]....)                                                         (25)
(KDSM|KDMX|KDVN|KMLI|KARX|KLSE|KFSD|KOAX|KOMA|KZMP|KZAU|KMSP|KMSR|KKRF|KMKC) (..)(..)(..)
        FILE    -overwrite -log -close -edex /data_store/shef/\4/\1_\2_\3\4\5_(seq).txt
```

The AB and AS files are covered by the baseline entry in (12). Hence, we need to see if there are baseline entries that already cover the FB and FS headers on the IDS|DDPLUS feed. It turns out there is a baseline entry (26) that saves these files in /data_store/forecast, rather than /data_store/shef.

```
414     IDS|DDPLUS    ^(F[A-FH-NP-Z]..[0-9][0-9]) (.{4}) (..)(..)(..)                   (26)
415           FILE    -overwrite -log -close -edex
      /data_store/forecast/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H
```

Thus, the local entry represented by (25) can also be deleted. However, it must be remembered that /data_store/forecast does indeed contain SHEF-formatted forecasts, in addition to other types of forecasts, so a data case saved for hydrological purposes should include those forecasts.

Issue #6: The next local addition to pqact.conf (27) saves files with WMO headers beginning with FOUS for four specific sites (KMSR, KMSP, KKRF, and KMKC). The files are saved in two-digit directories due to the specification of \4.

```
IDS|DDPLUS      ^(FOUS..) (KMSR|KMSP|KKRF|KMKC) (..)(..)(..)                            (27)
        FILE    -overwrite -log -close -edex /data_store/shef/\4/\1_\2_\3\4\5_(seq).txt
```

The data represented by (27) are covered completely between two baseline entries: (16) for FOUS6 and FOUS7 and (28) for all other FOUS headers. However, (28) stores its data in /data_store/forecast, similarly to (25).

```
416    IDS|DDPLUS   ^(FOUS[1-589].) (....) (..)(..)(..)                                    (28)
417          FILE   -overwrite -log -close -edex
     /data_store/forecast/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H
```

Thus the pqact.conf entry represented by (27) can also be deleted. (Technically, the combination of (16) and (28) does not capture any data with a WMO header beginning with FOUS0. However, a notifyme command to watch for any FOUS files for KMSR, KMSP, KKRF, and KMKC, only showed FOUS63 and FOUS73 headers for these sites, as shown below.)

```
notifyme -v -l - -h cpsbn1 -p "^(FOUS..) (KMSR|KMSP|KKRF|KMKC)"

Jul 05 12:30:54 notifyme[11437] INFO:     2563 20140705123055.407 IDS|DDPLUS 36611220  FOUS63
KKRF 051230 /pFFGND
Jul 05 13:56:19 notifyme[11437] INFO:     1491 20140705135618.526 IDS|DDPLUS 36779841  FOUS73
KKRF 051356 /pFFHWY
Jul 05 14:04:06 notifyme[11437] INFO:     1432 20140705140407.266 IDS|DDPLUS 36795673  FOUS73
KMSR 051403 /pFFHAPX
Jul 05 14:04:11 notifyme[11437] INFO:     1790 20140705140413.333 IDS|DDPLUS 36795837  FOUS73
KMSR 051403 /pFFHFGF
Jul 05 14:47:29 notifyme[11437] INFO:     1444 20140705144730.550 IDS|DDPLUS 36880067  FOUS63
KMSR 051447 /pFFGSGF
Jul 05 14:47:35 notifyme[11437] INFO:     2082 20140705144735.602 IDS|DDPLUS 36880163  FOUS63
KMSR 051447 /pFFGIWX
```

Issue #7: Snippet (29) contains the next pqact.conf entry from the site of Example 2-4. It saves files with WMO headers of "SRUS53 KWBC".

```
IDS|DDPLUS     ^(SRUS53) (KWBC) (..)(..)(..)                                              (29)
       FILE    -overwrite -log -close -edex /data_store/shef/\4/\1_\2_\3\4\5_(seq).txt
```

These files are covered by the baseline entry represented in (14), so the entry in (29) can be deleted.

Issue #8: Some hydro forecasts under the headers FGUS5 and FGUS7 for the sites KMSR, KMSP, KKRF, and KMKC are requested by the next pqact.conf entry in (30).

```
IDS|DDPLUS     ^(FGUS[57].) (KMSR|KMSP|KKRF|KMKC) (..)(..)(..)
       FILE    -overwrite -log -close -edex /data_store/shef/\4/\1_\2_\3\4\5_(seq).txt    (30)
```

These products are also covered under a baseline entry (15), so (30) can be deleted.

Issue #9: The next local entries in pqact.conf are shown in (31) and (32).

```
IDS|DDPLUS     ^(AGUS5.) (KMSR|KMSP|KKRF|KMKC) (..)(..)(..)                               (31)
       FILE    -overwrite -log -close -edex /data_store/shef/\4/\1_\2_\3\4\5_(seq).txt
```

```
IDS|DDPLUS     ^(AGUS4.)                                                                  (32)
(KDSM|KDMX|KDVN|KMLI|KARX|KLSE|KFSD|KOAX|KOMA|KZMP|KZAU|KMSP|KMSR|KKRF|KMKC) (..)(..)(..)
       FILE    -overwrite -log -close -edex /data_store/shef/\4/\1_\2_\3\4\5_(seq).txt
```

Two related baseline entries that request products with AG headers are shown in (13) and (33).

```
392     ANY   ^(AG..[0-9][0-9]) (KWB.) (..)(..)(..)                                    (33)
393           FILE    -overwrite -log -close -edex
      /data_store/summaries/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H
```

The entry shown in (13) picks up all AG products from the IDS|DDPLUS feed, but only for the RFC sites. Running notifyme commands for (31) and (32) only indicated AGUS5 headers from KMSR and no AGUS4 products from the sites listed in (32). Checking archived products at NCDC (as mentioned above in Issue #2) only indicated AGUS4 products from RFCs as well. If this is truly the case, then the two entries in (31) and (32) can be deleted by relying on the baseline pattern in (13). However, if AGUS4 data are expected to exist for the sites in (32), then the storage pattern should be changed to match the proper storage pattern as indicated in (34).

```
IDS|DDPLUS      ^(AGUS4.)                                                              (34)
(KDSM|KDMX|KDVN|KMLI|KARX|KLSE|KFSD|KOAX|KOMA|KZMP|KZAU|KMSP|KMSR|KKRF|KMKC) (..)(..)(..)
        FILE    -overwrite -log -close -edex
        /data_store/shef/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H
```

Issue #10: The final set of locally-added entries for this particular WFO, represented by Example 2-3, is shown in (35), which specifies these files should be saved in a KWOH directory under /data_store/shef. The issue dealing with these SXUS headers follows the exact same logic as (19) above. There is not an appropriate baseline entry, so (35) needs to be modified to fit the storage paradigm as shown in (36). Note that (36) combines the six entries in (35) into a single entry, but this method does require two regular expression groups to describe the WMO header. Thus the groups in the storage instruction for LDM are slightly different than in (21), so that the first date/time group that represents the DD of the product time is identified with (\4) rather than with (\3).

```
IDS|DDPLUS      ^(SXUS37) (KWOH) (..)(..)(..)                                          (35)
        FILE    -overwrite -log -close -edex /data_store/shef/\2/SXUS37_KWOH_\1\2\3_(seq).txt
IDS|DDPLUS      ^(SXUS38) (KWOH) (..)(..)(..)
        FILE    -overwrite -log -close -edex /data_store/shef/\2/SXUS38_KWOH_\1\2\3_(seq).txt
IDS|DDPLUS      ^(SXUS40) (KWOH) (..)(..)(..)
        FILE    -overwrite -log -close -edex /data_store/shef/\2/SXUS40_KWOH_\1\2\3_(seq).txt
IDS|DDPLUS      ^(SXUS43) (KWOH) (..)(..)(..)
        FILE    -overwrite -log -close -edex /data_store/shef/\2/SXUS43_KWOH_\1\2\3_(seq).txt
IDS|DDPLUS      ^(SXUS44) (KWOH) (..)(..)(..)
        FILE    -overwrite -log -close -edex /data_store/shef/\2/SXUS44_KWOH_\1\2\3_(seq).txt
IDS|DDPLUS      ^(SXUS83) (KWOH) (..)(..)(..)
        FILE    -overwrite -log -close -edex /data_store/shef/\2/SXUS83_KWOH_\1\2\3_(seq).txt
```

```
ANY      ^(SXUS(37|38|40|43|44|83)) (KWOH) (..)(..)(..)                               (36)
         FILE    -overwrite -log -close -edex
/data_store/shef/(\4:yyyy)(\4:mm)\4/\5/\1_\3_\4\5\6_(seq).%Y%m%d%H
```

Here's a final note on (36): According to the HADS handbook (http://www.nws.noaa.gov/oh/hads/internal/), SXUS83 KWOH data may not actually exist. SXUS headers were assigned to WFOs in Central (SXUS20 through SXUS57) and Western (SXUS58 through SXUS81) Regions. In addition, no SXUS83 files were observed in listings of hourly subdirectories of /data_store/shef/KWOH, which is how (35) prescribes the data should be stored at this site.

Issue #11: Snippet (37) contains local pqact.conf entries for the site that is shown in Example 2-4.

```
IDS|DDPLUS     ^(SXUS3[123]) (KWOH) (..)(..)(..)                                    (37)
       FILE    -overwrite -log -close -edex
       /data_store/shef/hads/\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d
HDS    ^(SXUS3[123]) (KWOH) (..)(..)(..)
       FILE    -overwrite -log -close -edex
       /data_store/shef/cadas/\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d
```

The data organization layout for SHEF data (the default as shown on page 1 of this document) wasn't designed to include non-date directories under /data_store/shef. The pqact.conf entries for both the IDS|DDPLUS and HDS feeds can be combined into one entry using the ANY feedtype and stored with the date and hour directory structure as shown in (38).

```
ANY    ^(SXUS3[123]) (KWOH) (..)(..)(..)                                            (38)
       FILE    -overwrite -log -close -edex
       /data_store/shef/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H
```

Issue #12: The only other SHEF-related local entries in this site's pqact.conf file are shown in (39) and (40). Snippet (39) is responsible for populating this site's /data_store/shef/KMSR directory.

```
IDS|DDPLUS     ^(SRUS43) (KMSR) (..)(..)(..)                                        (39)
       FILE    -overwrite -log -close -edex
       /data_store/shef/KMSR/\3/\4/\1_\2_\3\4\5_(seq).txt
```

```
                                                                                    (40)
IDS|DDPLUS     ^(BMUS...) (KMKE|KMKX|KMSP|KMPX|KMSR|KLOT) (..)(..)(..)
       FILE    -overwrite -log -close -edex
       /data_store/shef/BMUS/\3/\4/\1_\2_\3\4\5_(seq).txt
```

Snippet (39) should be covered completely by the baseline pattern shown in (14), while (40) is covered by the baseline configuration in (41) that stores any file in the IDS|DDPLUS feed with a WMO header starting with "B", though that data is stored in /data_store/fire_wx_spot_fcst_reports.

```
403    IDS|DDPLUS     ^(B.{5}) (.{4}) (..)(..)(..)                                 (41)
404    FILE    -overwrite -log -close -edex
       /data_store/fire_wx_spot_fcst_reports/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_
(seq).%Y%m%d%H
```

Incidentally, no files with BMUS WMO headers were found in /data_store/shef/BMUS for this site (see the directory listing above for Example 2-4 to see that this site does not have a /data_store/shef/BMUS directory). Either no data had been ingested that fit this pattern, or it was intermittent data that had been purged.

Example 2-5: Extra SBN radar data in /data_store

The symptom: SBN radar data appear in /data_store using two different storage conventions. At this particular WFO, a directory listing of /data_store/radar shows radar data in date directories (the baseline standard convention), four-letter lowercase directories (from local RPGs), and four-letter uppercase directories (likely the extra data). By the way, the lists and fsi directories contain the Routine

Product List (RPS) files for the local RPGs and configuration files for the Four-Dimensional Stormcell Investigator (FSI), respectively.

```
dx3:ncfuser:1000$ cd /data_store/radar
dx3:ncfuser:1001$ ls
20140703  20140706  20140709  KABR  KDMX  KFSD  KLSX  KMKE  KMSP  KSTL  lists
20140704  20140707  20140710  KARX  KDVN  KILX  KMCI  KMKX  KOAX  KTWX
20140705  20140708  fsi       kdmx  KEAX  KLOT  KMDW  KMPX  KORD  KUEX
```

Here's a look at the baseline radar data:

```
dx3:ncfuser:1002$ ls 20140710
00  02  04  06  08  10  12  14  16  18  20
01  03  05  07  09  11  13  15  17  19  21
dx3:ncfuser:1003$ ls 20140710/20
KABR  KDMX  KEAX  KILX  KLSX  KMDW  KMKX  KMSP  KORD  KTWX
KARX  KDVN  KFSD  KLOT  KMCI  KMKE  KMPX  KOAX  KSTL  KUEX
```

Notice that the sets of radars for the baseline (inside the date directory) and the locally added data both contain the same twenty radars. Some of them are TDWRs (e.g., KSTL, KMCI, KMDW). Here are the corresponding baseline (42) and local (43) pqact.conf entries:

```
  710    NNEXRAD      ^(SDUS[234578].|NXUS6.)                                    (42)
(K|P|T)(LSX|ABR|LOT|DMX|GID|EAX|ARX|MKX|MPX|OAX|DVN|FSD|ILX|TOP) (..)(..)(..)
/p(...)(...)
  711         FILE    -overwrite -log -close -edex
       /data_store/radar/(\4:yyyy)(\4:mm)\4/\5/\2\8/\7/\2\8_\7_\4\5\6-
\1_\2\3_(seq).rad.%Y%m%d%H

NNEXRAD       ^(SDUS[234578].|NXUS6.)                                           (43)
(K|P|T)(LSX|ABR|LOT|DMX|GID|EAX|ARX|MKX|MPX|OAX|DVN|FSD|ILX|TOP) (..)(..)(..)
/p(...)(...)
       FILE    -overwrite -log -close -edex
       /data_store/radar/\2\8/\7/\1_\5\6_\2\8_\7_(seq).rad
```

Here are a few sample output lines from notifyme (included to help you see the identifying data):

```
notifyme  -vl - -h cpsbn1 -f NNEXRAD -p "^S.*"

Jul 11 00:58:53 notifyme[18122] INFO:    12725 20140711005852.020 NEXRAD3 4769399  SDUS83 KFSD
110056 /pN1HFSD !nids/
Jul 11 00:58:53 notifyme[18122] INFO:    25703 20140711005852.020 NEXRAD3 4769400  SDUS83 KFSD
110056 /pDAAFSD !nids/
Jul 11 00:58:53 notifyme[18122] INFO:    13454 20140711005852.021 NEXRAD3 4769401  SDUS50 PHFO
110050 /pDHRHWA !nids/
```

The regular expressions in the baseline and local addition are identical, both requesting radars from the exact same set of WFOs. This explains the exact same twenty radars being saved in two sets of directories. In fact, the edex-ingest-radar.log file from this site contained over 100,000 "Duplicate record encountered (duplicate ignored)" warnings:

```
WARN  2014-07-10 21:06:29,467 [Ingest.Radar-1] PersistSrv: Duplicate record encountered
(duplicate ignored): /radar/2014-07-10_21:04:57.0/kmpx/94/0.0/1.5
```

```
INFO  2014-07-10 21:06:29,467 [Ingest.Radar-1] Ingest: EDEX: Ingest - radar-sbn::
/data_store/radar/20140710/21/KMPX/N1Q/KMPX_N1Q_102104-SDUS23_KMPX_4180746.rad.2014071021
processed in: 0.0500 (sec) Latency: 0.0590 (sec)
WARN  2014-07-10 21:06:29,507 [Ingest.Radar-1] PersistSrv: Duplicate record encountered
(duplicate ignored): /radar/2014-07-10_21:02:54.0/kabr/161/0.0/3.4
INFO  2014-07-10 21:06:29,508 [Ingest.Radar-1] Ingest: EDEX: Ingest - radar-sbn::
/data_store/radar/KABR/N3C/SDUS83_2102_KABR_N3C_4180751.rad processed in: 0.0390 (sec)
Latency: 0.1000 (sec)
```

The solution: Remove the local entry (43). Removing the second entry cleans up /data_store, and should result in some added efficiency in EDEX not having to read and process each radar file twice.

Example 2-6: Two-digit hour directories alongside date directories in /data_store/bufrascat

The symptom: a directory listing of /data_store/bufrascat contains two-digit directories in addition to the regular date directories.

```
dx3:ncfuser:1365$ cd /data_store/bufrascat
dx3:ncfuser:1366$ ls
00  02  04  06  08  10  12  14  16  18  20        20140708  22
01  03  05  07  09  11  13  15  17  19  20140707  21        23

dx3:ncfuser:1390$ ls 23
SAUS70_KWBC_092300_4469403  SAUS70_KWBC_102318_4526177  SAUS80_KWBC_102312_4511894
SAUS70_KWBC_102300_4314101  SAUS70_KWBC_102318_4526180  SAUS80_KWBC_102316_4521167
SAUS70_KWBC_102300_4416955  SAUS70_KWBC_102318_4526181  SAUS80_KWBC_102318_4526204
```

This listing is just a few of the files in the 23 hour directory. Each directory contains approximately 200 to 400 files that all begin with SAUS or SPUS. The corresponding local pqact.conf entry is shown in (44).

```
ANY     ^(S[AP]US[78]0).(....) (..)(..)(..)                                    (44)
        FILE    -overwrite -log -close -edex
        /data_store/bufrascat/\4/\1_\2_\3\4\5_(seq)
```

The corresponding baseline entry that matches S[AP]US products is shown in (1). Because the local addition has the ANY feedtype and the baseline has the IDS|DDPLUS feedtype, we need to investigate if there are S[AP] files that come over feedtypes other than IDS|DDPLUS. Here is sample output from notifyme to see if there are any SAUS headers that are not transmitted over IDS|DDPLUS.

```
notifyme -vl - -h cpsbn1 –f ANY -p ^S[AP]US[78]0.*

Jul 11 02:49:57 notifyme[20285] INFO:      307 20140711024827.118 IDS|DDPLUS 5065136  SPUS80
KWBC 110248
Jul 11 02:51:15 notifyme[20285] INFO:      330 20140711025010.190 IDS|DDPLUS 5071530  SAUS70
KWBC 110250
Jul 11 02:51:15 notifyme[20285] INFO:      759 20140711025010.191 IDS|DDPLUS 5071533  SAUS70
KWBC 110300
Jul 11 02:51:15 notifyme[20285] INFO:      422 20140711025010.192 IDS|DDPLUS 5071535  SPUS70
KWBC 110250
Jul 11 02:51:15 notifyme[20285] INFO:      100 20140711025010.195 IDS|DDPLUS 5071541  SPUS80
KWBC 110250
```

```
Jul 11 02:51:15 notifyme[20285] INFO:      299 20140711025010.196 IDS|DDPLUS 5071543  SAUS80
KWBC 110300
Jul 11 02:52:23 notifyme[20285] INFO:      494 20140711025210.653 IDS|DDPLUS 5076574  SAUS70
KWBC 110300
Jul 11 02:52:23 notifyme[20285] INFO:      238 20140711025210.680 IDS|DDPLUS 5076626  SPUS70
KWBC 110252
Jul 11 02:54:08 notifyme[20285] INFO:      488 20140711025408.183 IDS|DDPLUS 5081435  SPUS70
KWBC 110254
Jul 11 02:54:08 notifyme[20285] INFO:     3013 20140711025408.184 IDS|DDPLUS 5081437  SAUS80
KWBC 110300
Jul 11 02:54:08 notifyme[20285] INFO:     3482 20140711025408.186 IDS|DDPLUS 5081441  SAUS70
KWBC 110300
Jul 11 02:56:04 notifyme[20285] INFO:     3716 20140711025604.627 IDS|DDPLUS 5086568  SAUS70
KWBC 110300 RRJ
Jul 11 02:56:04 notifyme[20285] INFO:     3750 20140711025604.628 IDS|DDPLUS 5086569  SAUS80
KWBC 110300 RRB
Jul 11 02:56:04 notifyme[20285] INFO:     3757 20140711025604.628 IDS|DDPLUS 5086570  SAUS70
KWBC 110300
Jul 11 02:56:05 notifyme[20285] INFO:     3742 20140711025604.629 IDS|DDPLUS 5086571  SAUS70
KWBC 110300 RRD
```

This notifyme command ran for over 12 hours and all SA and SP products were on the IDS|DDPLUS feed and not on any other feedtype. According to the WMO header documentation (see http://www.nws.noaa.gov/tg/tables/tablea.php), WMO bulletins with headers starting with "S" are surface data. Bufrascat are BUFR (Binary Universal Form for the Representation of meteorological data) - formatted Advanced Scatterometer data with WMO headers that start with "I". The bottom line is that all the data in the local entry (44) is actually captured by the baseline regular expression "S[AP]…." in (1), so this local entry should be deleted.

Example 2-7: Only two-digit (hourly) directories existing in /data_store/sfcobs

The symptom: /data_store/sfcobs contains only two-digit directories and no date directories.

```
dx3:ncfuser:1369$ cd /data_store/sfcobs
dx3:ncfuser:1370$ ls
00  02  04  06  08  10  12  14  16  18  20  22
01  03  05  07  09  11  13  15  17  19  21  23
```

The /data_store/sfcobs directory once contained a variety of surface observations. Through a process to reorganize the pqact.conf for WES-2 Bridge and archiver compatibility, the data that once were located in sfcobs have been distributed among /data_store/MAROB, /data_store/maritime, and /data_store/synoptic; /data_store/sfcobs should not contain current, operational data, if it exists at all.

At this particular site, the /data_store/sfcobs directory looks like this:

```
dx3:ncfuser:1395$ cd /data_store/sfcobs
dx3:ncfuser:1396$ ls
00  02  04  06  08  10  12  14  16  18  20  22
01  03  05  07  09  11  13  15  17  19  21  23
dx3:ncfuser:1397$ ls 23
NZUS07_KPQR_102303_4481807.txt  NZUS07_KPQR_102327_4548789.txt
NZUS07_KPQR_102309_4501804.txt  NZUS07_KPQR_102339_4578456.txt
NZUS07_KPQR_102321_4534396.txt  NZUS07_KPQR_102354_4611269.txt
```

Each hourly directory contains six files. The corresponding local addition to the pqact.conf file is shown in (45) and a related baseline entry in (46).

```
IDS|DDPLUS     ^(NZUS07).(KPQR) (..)(..)(..)                                    (45)
       FILE    -overwrite -log -close -edex
       /data_store/sfcobs/\4/\1_\2_\3\4\5_(seq).txt

    428    # separate out svrwx lsr and GSM misc adm messages                    (46)
    429    IDS|DDPLUS   ^(N[A-VYZ]....) (.{4}) (..)(..)(..)
    430          FILE   -overwrite -log -close -edex
         /data_store/misc_adm_messages/(\3:yyyy)(\3:mm)\3/\4/\1_\2_\3\4\5_(seq).%Y%m%d%H
```

The baseline entry (46) says that all N* files from the IDS|DDPLUS feed except for NW and NX are stored under misc_adm_messages. Hence, the NZUS07.KPQR files are already covered under the baseline pattern. To verify this, the following are directory listings of /data_store/sfcobs and the corresponding files from /data_store/misc_adm_messages. They have the same file sizes and the same LDM sequence numbers, indicating they contain, in fact, the same data.

```
dx3:ncfuser:1411$ cd /data_store/sfcobs/23
dx3:ncfuser:1412$ ll
total 24
-rw-rw-r-- 1 ldm fxalpha 128 Jul 10 23:03 NZUS07_KPQR_102303_4481807.txt
-rw-rw-r-- 1 ldm fxalpha 128 Jul 10 23:09 NZUS07_KPQR_102309_4501804.txt
-rw-rw-r-- 1 ldm fxalpha 128 Jul 10 23:21 NZUS07_KPQR_102321_4534396.txt
-rw-rw-r-- 1 ldm fxalpha 128 Jul 10 23:27 NZUS07_KPQR_102327_4548789.txt
-rw-rw-r-- 1 ldm fxalpha 128 Jul 10 23:39 NZUS07_KPQR_102339_4578456.txt
-rw-rw-r-- 1 ldm fxalpha 125 Jul 10 23:54 NZUS07_KPQR_102354_4611269.txt
dx3:ncfuser:1413$ cd /data_store/misc_adm_messages/20140710/23

dx3:ncfuser:1416$ ll NZ*PQR*
-rw-rw-r-- 1 ldm fxalpha 128 Jul 10 23:03 NZUS07_KPQR_102303_4481807.2014071023
-rw-rw-r-- 1 ldm fxalpha 128 Jul 10 23:09 NZUS07_KPQR_102309_4501804.2014071023
-rw-rw-r-- 1 ldm fxalpha 128 Jul 10 23:21 NZUS07_KPQR_102321_4534396.2014071023
-rw-rw-r-- 1 ldm fxalpha 128 Jul 10 23:27 NZUS07_KPQR_102327_4548789.2014071023
-rw-rw-r-- 1 ldm fxalpha 128 Jul 10 23:39 NZUS07_KPQR_102339_4578456.2014071023
-rw-rw-r-- 1 ldm fxalpha 125 Jul 10 23:54 NZUS07_KPQR_102354_4611269.2014071023
```

Therefore, the local entry (45) can be deleted.

Example 2-8: Non-date directories appear in /data_store/grib (GLERL and grib):

```
dx3:ncfuser$ cd /data_store/grib
dx3:ncfuser$ ls
20140707  20140709  20140711  20140713  GLERL
20140708  20140710  20140712  20140714  grib
```

The directory listings of /data_store/grib/GLERL and /data_store/grib/grib are below:

```
dx3:ncfuser:1452$ cd /data_store/grib
dx3:ncfuser:1453$ ls
20140707  20140708  20140709  20140710  20140711  20140712  20140713  20140714  GLERL  grib

dx3:ncfuser:1454$ ls GLERL
GLERL_080200_45112478.grib  GLERL_091400_50490253.grib  GLERL_110200_4937577.grib
GLERL_131600_13823444.grib
```

```
GLERL_081400_46860043.grib  GLERL_100200_1363469.grib   GLERL_111400_6672729.grib
GLERL_140200_15405518.grib
GLERL_090200_48692040.grib  GLERL_101400_3158066.grib   GLERL_120200_8405466.grib
GLERL_141400_17240861.grib

dx3:ncfuser:1455$ ls -R grib
grib:
GRID218

grib/GRID218:
NWS_180

grib/GRID218/NWS_180:
201407071800  201407081800  201407091800  201407101800  201407120000  201407131200
201407141800
201407080000  201407090000  201407100000  201407110000  201407121200  201407131800
201407080600  201407090600  201407100600  201407111200  201407121800  201407140000
201407081200  201407091200  201407101200  201407111800  201407130000  201407141200

grib/GRID218/NWS_180/201407071800:
F006-APCP  F012-APCP  F018-APCP  F024-APCP  F030-APCP  F036-APCP  F042-APCP  F048-APCP

grib/GRID218/NWS_180/201407071800/F006-APCP:
sfc_YEIG98_KKRF_071815_43913355.grib  sfc_YEIG98_KORN_071833_43957520.grib
sfc_YEIG98_KKRF_071907_44036842.grib  sfc_YEIG98_KTIR_071821_43929087.grib
sfc_YEIG98_KMSR_071917_44075606.grib
```

The /data_store/grib/grib is this site's version of the issue dealt with in Example 1 above. The GLERL issue appears to be totally different and unrelated. The local pqact.conf entry for GLERL is in snippet 47.

```
#
# GLERL Wave Model Data                                                    (47)
#
HDS     ^(O[LMN]N.88) (KWNB) (..)(..)(..)
        FILE    -overwrite -log -close -edex
        /data_store/grib/GLERL/GLERL_\3\4\5_(seq).grib
```

There were no entries for O* regular expression patterns (oceanographic grids) from KWNB in the baseline pqact.conf file.

Running notifyme for a two-day period resulted in a few entries (this particular wave model apparently only has twice-daily output):

```
notifyme -vl - -h cpsbn1 –f ANY -p ^(O[LMN]N.88).KWNB

Jul 04 14:05:27 notifyme[12377] INFO:  2005518 20140704140528.231     HDS 33681599  OLNC88
KWNB 041400 /m99 !grib/161/161/#255/201407041200/F001/WVHGT/sfc/
Jul 05 02:05:58 notifyme[12377] INFO:  2004202 20140705020559.390     HDS 35266268  OLNC88
KWNB 050200 /m99 !grib/161/161/#255/201407050000/F001/WVHGT/sfc/
Jul 05 14:02:10 notifyme[12377] INFO:  1986770 20140705140211.216     HDS 36791600  OLNC88
KWNB 051400 /m99 !grib/161/161/#255/201407051200/F001/WVHGT/sfc/
```

The solution is to add an entry like the one below in (48). Since "161" doesn't add much information to the directory structure for a model name, change it to "GLERL".

(Hint: to make this entry easier to edit, copy and paste a regular grid entry that's already in the pqact.conf file.)

```
HDS     ^(O[LMN]N.88) (KWNB) (..)(..)(..)[^!]*!(grib|grib2)/[^/]*/([^/]*)/#([^/]*)/([0-
9]{8})([0-9]{4})/(F[0-9]{3})se
        FILE    -overwrite -log -close -edex
/data_store/\6/(\3:yyyy)(\3:mm)\3/\4/GLERL/GRID\8/\(10)Z_\(11)-
\1_\2_\3\4\5_(seq).\6.%Y%m%d%H
```

(48)

After adding a new entry to pqact.conf, it's a good idea to verify that the data are actually stored according to your expectations:

```
dx3:ncfuser:1000$ cd /data_store/grib/20140715/14
dx3:ncfuser:1001$ ls
3hr      AWC_NCWD  NWS_0    NWS_152  NWS_160  NWS_171  NWS_190
AWC_CIP  GLERL     NWS_151  NWS_159  NWS_161  NWS_172  RUC2
dx3:ncfuser:1002$ ls -R GLERL/
GLERL/:
GRID255

GLERL/GRID255:
1200Z_F001-OLNC88_KWNB_151400_21106437.grib.2014071514
```

Example 2-9: Non-date directories in /data_store/grib2 (TPC)

The symptom: directories other than date directories appear in /data_store/grib2. The date and hour directories should contain individual models for those dates and hours.

```
dx3:ncfuser:1330$ cd /data_store/grib2
dx3:ncfuser:1331$ ls
20140707  20140708  TPC
```

A directory listing of /data_store/grib2 for this particular AWIPS site shows:

```
dx3:ncfuser:1407$ cd /data_store/grib2
dx3:ncfuser:1408$ ls
20140713  20140714  20140715  TPC
dx3:ncfuser:1409$ cd TPC
dx3:ncfuser:1410$ ls
LHUB00_KNHC_131800_14751047.grib2.20140713  LHUD04_KNHC_140000_15724150.grib2.20140714
LHUB00_KNHC_140000_15723923.grib2.20140714  LHUD04_KNHC_140600_16645364.grib2.20140714
LHUB01_KNHC_131800_14751043.grib2.20140713  LHUD04_KNHC_141200_17536839.grib2.20140714
LHUB01_KNHC_140000_15723962.grib2.20140714  LHUD05_KNHC_131800_14750974.grib2.20140713
LHUB02_KNHC_131800_14751104.grib2.20140713  LHUD05_KNHC_140000_15724238.grib2.20140714
```

Two days' worth of files amounted to 382 files. The local pqact.conf entry that saves off these files from the NHC is shown in (49).

```
ANY     ^(LHU[BCDEF][0-9][0-9]) KNHC (..)(..)(..)
        FILE    -overwrite -log -close
        -edex/data_store/grib2/TPC/\1_KNHC_\2\3\4_(seq).grib2.%Y%m%d
```

(49)

No baseline pqact.conf entry was found that matches LHU headers from KNHC. LHU files are saved in the baseline from sites other than KNHC. Here is some output from notifyme for WMO headers starting with "LHU[BCDEF]" but edited to show only the NHC products:

```
notifyme -vl - -h cpsbn1 –f ANY -p ^LHU[BCDEF]..

Jul 04 14:49:28 notifyme[12709] NOTE: LDM-5 desired product-class: 20140704143404.436 TS_ENDT
{{ANY,  "^LHU[BCDEF].."}}
Jul 04 16:00:01 notifyme[12709] INFO:   152449 20140704160001.879     HDS 33932374  LHUC00
KNHC 041200 !grib2/ncep/SURGE/#197/201407041200F012/ETSRG/0 - NONE
Jul 04 16:00:01 notifyme[12709] INFO:   146216 20140704160001.881     HDS 33932375  LHUB13
KNHC 041200 !grib2/ncep/SURGE/#197/201407041200F001/ETSRG/0 - NONE
Jul 04 16:00:01 notifyme[12709] INFO:   154856 20140704160001.882     HDS 33932376  LHUC05
KNHC 041200 !grib2/ncep/SURGE/#197/201407041200F017/ETSRG/0 - NONE
Jul 04 16:00:01 notifyme[12709] INFO:   149126 20140704160002.885     HDS 33932377  LHUB17
KNHC 041200 !grib2/ncep/SURGE/#197/201407041200F005/ETSRG/0 - NONE
Jul 04 16:00:01 notifyme[12709] INFO:   146209 20140704160002.886     HDS 33932378  LHUB14
KNHC 041200 !grib2/ncep/SURGE/#197/201407041200F002/ETSRG/0 - NONE
Jul 04 16:00:01 notifyme[12709] INFO:   146425 20140704160002.888     HDS 33932379  LHUB12
KNHC 041200 !grib2/ncep/SURGE/#197/201407041200F000/ETSRG/0 - NONE
Jul 04 16:00:01 notifyme[12709] INFO:   154011 20140704160002.889     HDS 33932380  LHUC11
KNHC 041200 !grib2/ncep/SURGE/#197/201407041200F023/ETSRG/0 - NONE
Jul 04 16:00:01 notifyme[12709] INFO:   154127 20140704160002.891     HDS 33932381  LHUC07
KNHC 041200 !grib2/ncep/SURGE/#197/201407041200F019/ETSRG/0 - NONE
Jul 04 16:00:01 notifyme[12709] INFO:   157636 20140704160002.892     HDS 33932382  LHUD05
KNHC 041200 !grib2/ncep/SURGE/#197/201407041200F041/ETSRG/0 - NONE
Jul 04 16:00:01 notifyme[12709] INFO:   152557 20140704160002.893     HDS 33932383  LHUB23
KNHC 041200 !grib2/ncep/SURGE/#197/201407041200F011/ETSRG/0 - NONE
Jul 04 16:00:01 notifyme[12709] INFO:   154553 20140704160002.895     HDS 33932384  LHUC04
KNHC 041200 !grib2/ncep/SURGE/#197/201407041200F016/ETSRG/0 - NONE
Jul 04 16:00:01 notifyme[12709] INFO:   147128 20140704160002.896     HDS 33932385  LHUB15
KNHC 041200 !grib2/ncep/SURGE/#197/201407041200F003/ETSRG/0 - NONE
```

The local entry needs to be changed as shown below in (50) to match the desired storage structure.

```
HDS     ^(LHU[BCDEF][0-9][0-9]) (KNHC)
(..)(..)(..)[^!]*!(grib|grib2)/[^/]*/([^/]*)/#([^/]*)/([0-9]{8})([0-9]{4})/(F[0-9]{3})
        FILE    -overwrite -log -close -edex
/data_store/\6/(\3:yyyy)(\3:mm)\3/\4/\7/GRID\8/\(10)Z_\(11)-
\1_\2_\3\4\5_(seq).\6.%Y%m%d%H
```

(50)

The resulting directory listing after enabling the entry in (50) is the following:

```
dx3:ncfuser:1000$ cd /data_store/grib2/20140813/00
dx3:ncfuser:1001$ ls SURGE/*/*
SURGE/GRID197/0000Z_F000-LHUB00_KNHC_130000_83518659.grib2.2014081304
SURGE/GRID197/0000Z_F001-LHUB01_KNHC_130000_83518658.grib2.2014081304
SURGE/GRID197/0000Z_F002-LHUB02_KNHC_130000_83518656.grib2.2014081304
SURGE/GRID197/0000Z_F003-LHUB03_KNHC_130000_83518694.grib2.2014081304
SURGE/GRID197/0000Z_F004-LHUB04_KNHC_130000_83518690.grib2.2014081304
SURGE/GRID197/0000Z_F005-LHUB05_KNHC_130000_83518654.grib2.2014081304
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