AWIPS Operational Build 20.3.2 Final Release Notes

Document No. AWPR.RLSN.OB20.3.2-01.00

13 May 2022

Prepared Under

Contract EA133W-17-CQ-0082
Advanced Weather Interactive Processing System (AWIPS)
Operations and Maintenance

Submitted to:

Mr. Beraq Azeem
Contracting Officer's Representative
NWS/Office of Central Processing
SSMC2, Room 15130
1325 East-West Highway
Silver Spring, MD 20910

Prepared by:

Raytheon Intelligence & Space (RIS)
8401 Colesville Road, Suite 800
Silver Spring, MD 20910

Change History

Document No.	Publication Date	Section(s) Affected	Description of Change(s)
AWPR.RLSN.OB17.3.1-01.00	April 26, 2018	N/A (Original)	N/A (Original)
AWPR.RLSN.OB18.1.1-01.00	October 03, 2018	All	18.1.1
AWPR.RLSN.OB18.2.2-01.00	March 19, 2019	All	18.2.1 / 18.2.2
AWPR.RLSN.OB19.2.1-01.00	August 30, 2019	All	19.1.1 / 19.2.1
AWPR.RLSN.OB19.3.1-01.00	November 25, 2019	All	19.3.1
AWPR.RLSN.OB20.2.3-01.00	May 10, 2021	All	20.2.3
AWPR.RLSN.OB20.3.2-01.00	May 13, 2022	All	20.3.2

Table of Contents

Overview

The Release Notes have been prepared for **AWIPS software release OB 20.3.2**[1]. These Release Notes, which follow the standard format applied to most AWIPS Release Notes documents, consist of the following five sections:

- **Section 1. Requirements DRs.** This section lists the requirements Discrepancy Reports (DRs) identified for the current release.
- **Section 2. Passed DRs.** This section lists the **147 DRs** that were passed at the Raytheon Facility Test Labs and included in the current release, **OB 20.3.2**. This includes DRs written during the current release as well as DRs deferred from previous releases to this release. [***Note:*** All DRs that were passed prior to this release can be accessed through the AWIPS Redmine database.]
- **Section 3. Open DRs.** This section addresses open DRs and DCSs that have been deferred to the next immediate release. The DRs identified in this section may have been initiated during the current release or during a previous release. The DCSs may have been initiated from a previous release or initiated in the next immediate release.
- **Section 4. Design Changes and COTS FOSS Requests**: **15 Design Changes** and **62 CFRs** are summarized in this section.
- **Section 5. Known Problems, Workarounds, and Additional Release Notes.** This section lists any workarounds or additional release notes that have been issued for the current release. They are identified by their Release Note title. Also identified in this section are any known problems (Priority: 1-Critical), either in the current release or in previous releases, which have been deferred to an unnamed future release. These are identified by the Problem title.

[1] OB20.3.1 and 20.3.2 were merged.

1. Requirements DRs

This section is reserved for requirements Discrepancy Reports (DRs) identified for the current release. No such requirements DRs were identified for the current release.

2. Passed DRs

This section lists the **147 Discrepancy Reports** (DRs) passed at the Raytheon Facility Test Labs and included in the current release (OB 20.3.2). These DRs were either written during the current release or deferred from a previous release. [***Note:*** All DRs that were passed prior to this release can be accessed through the AWIPS Redmine database.]

The following tables identify the DRs that have passed by Redmine DR number (see column 2), and briefly describes them (see column 3). Expanded descriptions follow the table. Sequential numbers in column 1 of the table cross-reference each of the DRs to its expanded description.

DRs: Release OB 20.3.2

#	ID#	Subject
1	23111	Calculating menu times padding can slow down CAVE
2	23108	Python 3 division issue in MSAS scripts
3	23105	awips2-openfire-database RPM fails to create database
4	23103	ifpnetCDF: Timing issue can cause failure
5	23102	Bug in error handling code in sendWFOMessage.py
6	23100	DAF requests for grid data at a point always returns NaN when EDEX is hooked up to Ignite
7	23099	HCI: Python error occurred while executing XmlTafEncoder
8	23088	Ignite: PyPies compatibility server incorrectly allows HTTP TRACE /TRACK method
9	23087	BMH: Commsmanager can disconnect from Qpid
10	23084	Fix config_awips2.sh so it does not require awips2-ldm or awips2-ldm-conf to be installed on DV1
11	23080	TextWS opens on incorrect monitor
12	23076	Logic added in 22822/8636 ensures now that the LDM watchdog script is never installed unless the build server's name starts with cpv/cpsbn
13	23066	GFE: TypeError with WindGustFromAlgorithm procedure
14	23064	Potential Null Pointer when running GFE formatters
15	23063	GFE PFM formatter Python 3 migration problem
16	23061	D2D: GFSLAMP station plots fail
17	23060	D2D: Paint error for parameters with display units of degrees R
18	23058	GFE: PFM and AFM formatters fail when fog is in grids
19	23050	Python 3.6 configparser default is different, affects AvnFPS config files
20	23045	Dependency issue awips2-edex-configuration needs to be removed
21	23041	Error ingesting gridded NUCAPS data in 20.3.2

#	ID#	Subject
22	23034	D2D: Baseline TW (wet bulb) derived parameter warning
23	23030	Update expired Qpid SSL certs in the baseline
24	23029	GFE: FWS Spot formatter not properly rounding mixing height values
25	23028	GFE: Formatter launcher not filling large window
26	23027	D2D: 20.3.2/HCI - Errors running procedures with time series
27	23019	Add awips2-python-netcdf4 to Rehost server group
28	23003	RPM dependency causing awips2-edex to be installed on ignite servers
29	22993	HS: Update svcbu.properties (HS version) SVCBU_HOST to ev for HCI
30	22987	GFE: ifpnetCDF performance issue with ifpnetCDF with -c -f 9 flags
31	22986	GFE: TCV Formatter fails when there is no window for tropical storm force wind
32	22983	AWIPS Sliders Bars Not Functioning Correctly
33	22982	GFE: SiteActivation failure due to problem writing topo grid to hdf5
34	22981	AvnFPS: TAFs stuck in pending, not transmitted
35	22980	LDAD: Non-SI units no longer defined by default, may cause error decoding data
36	22979	TextWS window needs to be re-sizable to a smaller window
37	22974	Pypies file locking too time consuming on NC HCI
38	22973	RPM dependencies are forcing Qpid installation on dv2 / cache servers in the field
39	22972	DAF: Bug in LocalizationFileManager.py
40	22968	With FSI deactivated at an HCI site, the FSI Qpid queue can grow > 50k messages and cause performance degradation in Qpid and AWIPS instability.
41	22965	Localization perspective: After editing a file, file below is highlighted
42	22963	Importing geoTiff images failing in HCI Cave
43	22958	GFE: IRT Server fails to parse ncfstatus file
44	22946	Standalone install enables edex services to start at boot
45	22945	Restoring edit from local history not working on HCI workstations

#	ID#	Subject
46	22915	HCI Sites - Update the address vector table during ANCF-BNCF switch
47	22914	Prevent novrastatsd process from exiting at HCI sites
48	22900	comps.xml contains obsolete entries
49	22896	pgdb localapp fails in bash/ksh
50	22865	Adjust ingestGrib memory for Ignite serialization reserving memory
51	22864	HWR Fails To Run On HCI
52	22855	Warnings about deprecated/obsolete JVM features in AlertViz and CAVE logs
53	22849	Central Registry replication has hibernate errors when multiple registries fall behind
54	22836	Ignite filling /var/log
55	22834	Combine and fix delta scripts for DRs 8364 and 8469
56	22828	D2D: PGEN Palette GUI cannot recall an Intl Sigmet
57	22825	Merge fixes for 20.3.2
58	22822	20.3.1/HCI: Various watchdog and startup issues
59	22804	Fix retrieveActivity script to work with Python 3.6
60	22760	Need to baseline an increase to METADATA_POOL_MAX
61	22753	Ignite: Prevent database and data store from getting out of sync
62	22718	GFE: Finalize_KML procedure failing
63	22717	GFE: Hazard - Color Table is wrong
64	22700	D2D: Satellite Image - paint error loading product
65	22685	Error running RFR with an existing FL.* hazard that is not issued
66	22683	ClassCastException Error found in the logs
67	22672	Hazard Information Dialog - Text Truncated
68	22671	Excessive products are generated at HCI sites due to non-existence of heartbeat package
69	22666	Wes2Bridge: Use BROKER_HTTP variable in setup.env for Qpid REST interface port
70	22665	Errors loading labels for GIS shapefiles
71	22659	Wes2Bridge: Each EDEX instance needs a separate qpid instance
72	22658	h5py: Error loading profiler data
73	22633	Display of model reflectivity incorrect when mismatch between dB and dBZ for parameter abbreviation REFD

#	ID#	Subject
74	22631	Update 20.3.1 delta scripts to reference HCI hostnames vs legacy hostnames
75	22622	ufcore does not build independently because of dependency on com.raytheon.uf.common.security
76	22621	CAVE hangs when attempting to issue WarnGen text product
77	22620	Set default owner for /data/fxa/qpid/ in QPID RPM
78	22605	Update awips2-edex-environment jars for Java 11
79	22599	All quartz jobs eventually stop running on EDEX ingest
80	22598	Reduce fsiRadar.timeToLive to 1 hour
81	22597	GribDecoder throwing IllegalArgumentExceptions decoding GMOS data
82	22585	Add /awips2/ignite/logs to awips2-ignite rpm
83	22568	Changes needed to monitorqpidhost.sh for HCI/20.3.1
84	22563	IngestGrib OutOfMemory errors on NCs with HCI
85	22562	Default Ignite configuration incorrect for NCs
86	22561	Qpid JMS connection issues on HCI
87	22560	Patch LDM noaaportIngester to increase UDP socket size to alleviate data drops
88	22555	Fix Hazard Services code and XMLs for Camel 3 upgrade
89	22530	Tool input dialog issues with 20.3.1
90	22527	Ingestshapefile does not work in 20.3.1
91	22511	Wes2Bridge configuration utility needs to disable Ignite and only utilize PyPIES
92	22486	Ignite fails to log errors if it doesn't find the requested h5 file
93	22464	Remove use of Python built-in round function
94	22462	BOIVerify: Python 3 upgrade issue in BOIVerifyBiasCorr.py
95	22461	BOIVerify: python3 update issues with getLatestDbId.py and getLatestDbTime.py
96	22460	Need delta script for change in endpointConfig for RCM
97	22449	Configure all AWIPS2 services to start at boot
98	22447	watchdog monitoring missing for neospeech, ldm and ignite
99	22446	ignite stability issue
100	22445	GFE: Tropical (TAT) - CreateNatlTCVZoneGroups procedure throws an error when running about not being able to find the previous combo file.
101	22442	Python 3 issue with AppFileInstaller.getFile()

#	ID#	Subject
102	22436	GFE:Tropical - TCMWindTool not processing the input data as expected
103	22412	Truncated/Covered Text in the Statistics Dialogs
104	22408	GFE: Tropical - TCWindThreat python3 changes missing
105	22407	GFE Site Activation Sometimes Failing, Due To Python Interpreter Reuse
106	22403	ServerConfig error handling gives false message
107	22401	Move qpid Certificates and Keys Into A New SSL Directory
108	22400	SendWFOMessageRequest Error in GFE svcbu
109	22393	AvnFPS TAF Monitor Errors
110	22380	MPE Daily QC: error if the Select Area is not manually set.
111	22379	GFE: Active Table Sharing - Pickle protocol 3 incompatible during ISC activation
112	22377	FSI only processing one message per minute
113	22376	GFE: Tropical - HLS formatter fails to run under Python 3
114	22375	CAVE crashes when changing tables in the Archive Case Creation and Archive Retention GUIs
115	22373	Fix LDM configurations for HCI deployment
116	22362	TempOfTe derived parameter failing
117	22361	Icons on Hazard Services console too large
118	22352	Error Returned When Displaying GFS Wind Barbs On The N American Or NH Scales
119	22351	GFE: Formatters - Tropical TCV Formatter doesn't recognize hazard grids
120	22350	GFE: Text Products - FWS formatter
121	22349	AvnFPS Ceiling Vis Trend: error when clicking 'Draw'
122	22348	EDEX Request hanging on start up
123	22347	AvnFPS Wind Rose error when drawing
124	22345	AlertAlarm dialog opens without column headers
125	22326	Hydro: Rating Curve window is too large to fit on the display
126	22313	NPP and NOAA-20 products fail to load in CAVE
127	22312	SendIscSrv Not Shutting Down Cleanly
128	22291	The Text Window's AFOS Browser Returns NO DATA For All Text Products
129	22290	Error Returned With qpidd init script
130	22283	Creating tornado text in WarnGen takes too long
131	22282	WarnGen takes too long to launch

#	ID#	Subject
132	22281	GFE: GHG Monitor - Column resized snaps back to original size when column reorder is selected.
133	22278	Unable To Tear Off Submenus From A Torn Off Menu
134	22270	Hazard Services: Orphaned Lock check is incorrectly unlocking all Hazard Events
135	22265	GFE: Unsaved grids being deleted/purged 5-10 min after being created
136	22262	Issue ordering columns in Console tab in Hazard Services
137	22246	HWR: Update gettimetz for python 3
138	22205	Python 3 Change for TCMWindTool
139	22192	Error "Preparing menu entries" is returned after starting CAVE and opening random menu items
140	22124	PathManager.getLocalizationFile does not properly fall back to getStaticLocalizationFile
141	22055	Thin Client: path to javaw.exe broken by Java 11
142	21998	Text Workstation: Export to File Has No File Naming Option; Only Replaces Selected File
143	21990	Auto Redraw Redraws AvnFPS Ceiling/Visibility Distribution Data When Disabled
144	21888	Site Specific Hydrologic Predictor displays error message when opened.
145	21814	Hydro Perspective Fails To Load Correctly Intermittently
146	20699	Reconfigure build for awips2-qpid-alr-config rpm
147	20384	qpid and qpid-wrapper logs not purging

Listed below are the 147 DRs reported at the OB20.3.2 Readiness Review.

1. Problem: Calculating menu times padding can slow down CAVE

This came out of the field with HCI testing. There are reported CAVE freezes. Some capture data allegedly tied to these freezes is located at /awipscm/randerso/captureData_20220411_195555.tgz and /awipscm/tgurney/caveFreeze-lx3-vuy-20220411_2141.tar.

Analyzing the jstack of the capture, the main/UI thread is frequently busy calculating text extends for padding. Looking at the heap dump, site saw 10,129 runnables on the UI thread queue (Synchronizer.messages) which would definitely cause a freeze as the display tries to update while also processing those scheduled updates/runnables. Testing locally, it appears that once a menu is opened that menu's menu items will start listening for data updates. If an update comes in, it runs the code to recalculate the menu text so that the appropriate number of spaces are in place to right justify the menu time. With a menu like Obs, new data can arrive very quickly and the code continues to asynchronously schedule the update to the menu item text even if there's no change to the displayed May 13, 2022 2/7 string or the displayed string's width. Site suggested, "We probably only need to pad the menu text to a consistent length once. Then just add the green times since they are a common fixed width format. Might have to do a little work with dashes vs question marks vs numbers but again that could be computed once."

Operational Impact: CAVE display may freeze.

Required Behavior: CAVE display should not freeze. **(DR 23111)**

2. Problem: Python 3 division issue in MSAS scripts

Files are in PV1/2
In Python 2, the division operatior "/" can give either an integer or a float depending on the initial value. In Python 3, it's always a
float. This affects the following files:
./yRehost/src/pxInstall/updates/awips/fxa/bin/daf/a2gtmtrStub.py: msg += str(tobs/1000) + ","
./yRehost/src/pxInstall/updates/awips/fxa/bin/daf/a2gtprofStub.py: msg += str(tobs/1000) + ","
./yRehost/src/pxInstall/updates/awips/fxa/bin/daf/a2gtraobStub.py: msg += str(tobs/1000) + ","
./yRehost/src/pxInstall/updates/awips/fxa/bin/daf/a2cvmtrStub.py: msg += str(tobs/1000) + ","
./yRehost/src/pxInstall/updates/awips/fxa/bin/daf/a2cvboyStub.py: msg += str(tobs/1000) + ","
./yRehost/src/pxInstall/updates/awips/fxa/bin/daf/a2gtboyStub.py: msg += str(tobs/1000) + ","
Because of this, certain C functions like
sscanf(line,"%[^,],%d,%f,%f,%f,%d,%[^,],%f,%f,%f,%f,%f,%f",
cp,obtime+nnn,lats+nnn,lons+nnn,&www,ista+nnn,cp1,
p+nnn,t+nnn,td+nnn,dd+nnn,ff+nnn,alt+nnn);
fail because integer is expected in some cases (the "%d" and "obtime").
The fix would be to replace the "/" with "//" in the python files for data expecting integer.

Operational Impact: HCI sites will not be able to use MSAS

Required Behavior: MSAS should be usable **(DR 23108)**

3. Problem: awips2-openfire-database RPM fails to create database

While attempting to test #8840, site attempted to install the awips2-openfire-database RPM, but it kept failing to create the database.

This issue was caused by a change made under #6307 to Collaboration/rpms-Collaboration/Installer.openfire-database/component.spec. In the %post section at lines 115 and 118 it checks for the existence of postgresql.conf and pg_hba.conf within the /awips2/ directory. However, those checks will always fail because those files were moved to a temporary folder at lines 105 and 109.

That block of code should read:

```
if [ -f ${psql_tmpdir}/postgresql.conf ]; then
mv ${psql_tmpdir}/postgresql.conf ${AWIPS2_DATA_DIRECTORY}
fi
if [ -f ${psql_tmpdir}/pg_hba.conf ]; then
mv ${psql_tmpdir}/pg_hba.conf ${AWIPS2_DATA_DIRECTORY}
fi
```

Operational Impact: Will not be able to perform new installations of the openfire-based chat server component used by the Collaboration components of AWIPS2.

Required Behavior: Perform installation of Collaboration server components without error **(DR 23105)**

4. Problem: ifpnetCDF: Timing issue can cause failure

PQR has reported problems Publishing to Official and sending grids to NDFD twice in the last few months. The issues were related to corrupted data in one of their grids. They worked around the problems by deleting the corrupted grid, then repopulating, publishing to Official, and sending to NDFD. But it appears there is a code problem that can lead to this situation. From a code perspective, it appears that the value of overlappingTimes has gotten out of step with the number of grids to be exported (refer to the function storeScalarWE around lines 767-769). The size of overlappingTimes is bigger than the first dimension of the cube variable (which stores the grids to export). retrieveData is likely returning a smaller cube than storeScalarWE is expecting.

Potentially storeScalarWE needs to be modified to loop over a corrected inventory list, possibly using the keys from histDict.

Code inspection indicates that this issue dates back to 15.1.1. It's unclear why it hasn't been reported until now. However we're listing it as a 20.3.2 SwIT issue due to the problem not occurring previous to 20.3.2/HCI.

ifpnetCDF error:

```
ERROR 2022-04-12 19:19:10,267 [21626:140364104509184] ifpnetCDF.py: Could not process parm [IceAccum_SFC]:
```

Traceback (most recent call last):
File "/awips2/edex/data/utility/common_static/base/gfe/python/isc/ifpnetCDF.py", line 1449, in main
argDict['krunch'], argDict['siteIdOverride'])
File "/awips2/edex/data/utility/common_static/base/gfe/python/isc/ifpnetCDF.py", line 776, in storeScalarWE
cube[i] *= durRatio
IndexError: index 30 is out of bounds for axis 0 with size 11
edex-request log error:
INFO 2022-04-12 01:16:00,025 9184 [Timer-1] ExportGridsTask: EDEX - Export Grids to central server cron started for site PQR.
ERROR 2022-04-12 01:16:06,430 9185 [ifpnetcdf-pool-3-thread-1] IgniteCacheAccessor-defaultDataStore: Error executing ignite
operation on attempt 1/3
javax.cache.processor.EntryProcessorException: No data found for DataStoreKey [path=gfe/PQR/Official/PQR_GRID__Official_20220411_IceAccum_SFC.h5, group=IceAccum/SFC/20220411_1200--20220411_1800]
at com.raytheon.uf.common.datastore.ignite.processor.RetrieveProcessor.process(RetrieveProcessor.java:114)
~[com.raytheon.uf.common.datastore.ignite.jar:na]
at com.raytheon.uf.common.datastore.ignite.processor.RetrieveProcessor.process(RetrieveProcessor.java:1)
~[com.raytheon.uf.common.datastore.ignite.jar:na]
at org.apache.ignite.internal.processors.cache.GridCacheMapEntry$AtomicCacheUpdateClosure.runEntryProcessor(GridCacheMapEn
try.java:6717) ~[ignite-core-2.9.0.jar:2.9.0]
at org.apache.ignite.internal.processors.cache.GridCacheMapEntry$AtomicCacheUpdateClosure.call(GridCacheMapEntry.java:6066)
~[ignite-core-2.9.0.jar:2.9.0]
at org.apache.ignite.internal.processors.cache.GridCacheMapEntry$AtomicCacheUpdateClosure.call(GridCacheMapEntry.java:5863)
~[ignite-core-2.9.0.jar:2.9.0]
at org.apache.ignite.internal.processors.cache.persistence.tree.BPlusTree$Invoke.invokeClosure(BPlusTree.java:3994)
~[ignite-core-2.9.0.jar:2.9.0]
at org.apache.ignite.internal.processors.cache.persistence.tree.BPlusTree$Invoke.access$5700(BPlusTree.java:3888)
~[ignite-core-2.9.0.jar:2.9.0]
at org.apache.ignite.internal.processors.cache.persistence.tree.BPlusTree.invokeDown(BPlusTree.java:2014)
~[ignite-core-2.9.0.jar:2.9.0]
at org.apache.ignite.internal.processors.cache.persistence.tree.BPlusTree.invoke(BPlusTree.java:1898)
~[ignite-core-2.9.0.jar:2.9.0]
at org.apache.ignite.internal.processors.cache.IgniteCacheOffheapManagerImpl$CacheDataStoreImpl.invoke0(IgniteCacheOffheapMa

nagerImpl.java:1705) ~[ignite-core-2.9.0.jar:2.9.0]
at
org.apache.ignite.internal.processors.cache.IgniteCacheOffheapManagerImpl$CacheDataStoreImpl.invok
e(IgniteCacheOffheapMan
agerImpl.java:1688) ~[ignite-core-2.9.0.jar:2.9.0]
at
org.apache.ignite.internal.processors.cache.IgniteCacheOffheapManagerImpl.invoke(IgniteCacheOffheap
ManagerImpl.java:445)
~[ignite-core-2.9.0.jar:2.9.0]
at
org.apache.ignite.internal.processors.cache.GridCacheMapEntry.innerUpdate(GridCacheMapEntry.java:2
319)
~[ignite-core-2.9.0.jar:2.9.0]
at
org.apache.ignite.internal.processors.cache.distributed.dht.atomic.GridDhtAtomicCache.updateSingle(Gri
dDhtAtomicCache.java:265
7) ~[ignite-core-2.9.0.jar:2.9.0]
at
org.apache.ignite.internal.processors.cache.distributed.dht.atomic.GridDhtAtomicCache.update(GridDht
AtomicCache.java:2118)
~[ignite-core-2.9.0.jar:2.9.0]
at
org.apache.ignite.internal.processors.cache.distributed.dht.atomic.GridDhtAtomicCache.updateAllAsyncI
nternal0(GridDhtAtomicCac
he.java:1935) ~[ignite-core-2.9.0.jar:2.9.0]
at
org.apache.ignite.internal.processors.cache.distributed.dht.atomic.GridDhtAtomicCache.updateAllAsyncI
nternal(GridDhtAtomicCach
e.java:1734) ~[ignite-core-2.9.0.jar:2.9.0]
at
org.apache.ignite.internal.processors.cache.distributed.dht.atomic.GridDhtAtomicCache.processNearAto
micUpdateRequest(GridDht
AtomicCache.java:3322) ~[ignite-core-2.9.0.jar:2.9.0]
at
org.apache.ignite.internal.processors.cache.distributed.dht.atomic.GridDhtAtomicCache.access$400(Grid
DhtAtomicCache.java:141)
~[ignite-core-2.9.0.jar:2.9.0]
at
org.apache.ignite.internal.processors.cache.distributed.dht.atomic.GridDhtAtomicCache$5.apply(GridDht
AtomicCache.java:273)
~[ignite-core-2.9.0.jar:2.9.0]
at
org.apache.ignite.internal.processors.cache.distributed.dht.atomic.GridDhtAtomicCache$5.apply(GridDht
AtomicCache.java:268)
~[ignite-core-2.9.0.jar:2.9.0]
at
org.apache.ignite.internal.processors.cache.GridCacheIoManager.processMessage(GridCacheIoManager.j
ava:1142)
~[ignite-core-2.9.0.jar:2.9.0]
at
org.apache.ignite.internal.processors.cache.GridCacheIoManager.onMessage0(GridCacheIoManager.java
:591)

~[ignite-core-2.9.0.jar:2.9.0]
at
org.apache.ignite.internal.processors.cache.GridCacheIoManager.handleMessage(GridCacheIoManager.java:392)
~[ignite-core-2.9.0.jar:2.9.0]
at
org.apache.ignite.internal.processors.cache.GridCacheIoManager.handleMessage(GridCacheIoManager.java:318)
~[ignite-core-2.9.0.jar:2.9.0]
at
org.apache.ignite.internal.processors.cache.GridCacheIoManager.access$100(GridCacheIoManager.java:109)
~[ignite-core-2.9.0.jar:2.9.0]
at
org.apache.ignite.internal.processors.cache.GridCacheIoManager$1.onMessage(GridCacheIoManager.java:308)
~[ignite-core-2.9.0.jar:2.9.0]
at
org.apache.ignite.internal.managers.communication.GridIoManager.invokeListener(GridIoManager.java:1907)
~[ignite-core-2.9.0.jar:2.9.0]
at
org.apache.ignite.internal.managers.communication.GridIoManager.processRegularMessage0(GridIoManager.java:1528)
~[ignite-core-2.9.0.jar:2.9.0]
at
org.apache.ignite.internal.managers.communication.GridIoManager.access$5300(GridIoManager.java:241)
~[ignite-core-2.9.0.jar:2.9.0]
at
org.apache.ignite.internal.managers.communication.GridIoManager$9.execute(GridIoManager.java:1421)
~[ignite-core-2.9.0.jar:2.9.0]
at org.apache.ignite.internal.managers.communication.TraceRunnable.run(TraceRunnable.java:55)
~[ignite-core-2.9.0.jar:2.9.0]
at org.apache.ignite.internal.util.StripedExecutor$Stripe.body(StripedExecutor.java:565) ~[ignite-core-2.9.0.jar:2.9.0]
at org.apache.ignite.internal.util.worker.GridWorker.run(GridWorker.java:120) ~[ignite-core-2.9.0.jar:2.9.0]
at java.base/java.lang.Thread.run(Thread.java:829) ~[na:na]
INFO 2022-04-12 01:16:06,435 9186 [ifpnetcdf-pool-3-thread-1] IgniteCacheAccessor-defaultDataStore: Cancelling failed async
cache operation: IgniteFuture [orig=ChainFuture [orig=ChainFuture [orig=GridNearAtomic
SingleUpdateFuture [reqState=Primary [id=3f223b03-6e13-4da2-998c-618009ae8a6f, opRes=true, expCnt=0, rcvdCnt=0,
primaryRes=true, done=true, waitFor=null, rcvd=null], super=GridNearAtomicAbstractUpdateFuture [rem
apCnt=100, topVer=AffinityTopologyVersion [topVer=172, minorTopVer=0], remapTopVer=null, err=null, futId=934316,
super=GridFutureAdapter [ignoreInterrupts=false, state=DONE, res={DataStoreKey [path=gfe/PQR/Offic
ial/PQR_GRID__Official_20220411_IceAccum_SFC.h5,

group=IceAccum/SFC/20220411_1200--20220411_1800]=CacheInvokeResult [res=null,
err=javax.cache.processor.EntryProcessorException: No data found for DataStoreKey [p
ath=gfe/PQR/Official/PQR_GRID__Official_20220411_IceAccum_SFC.h5,
group=IceAccum/SFC/20220411_1200--20220411_1800]]}, hash=1470026533]]],
doneCb=org.apache.ignite.internal.processors.cache.distributed.dht.atomic
.GridDhtAtomicCache$19@35d747d3],
doneCb=org.apache.ignite.internal.processors.cache.IgniteCacheProxyImpl$8@35925c9c]]
INFO 2022-04-12 01:16:06,435 9187 [ifpnetcdf-pool-3-thread-1] IgniteCacheAccessor-defaultDataStore:
Cancelled failed async
cache operation
INFO 2022-04-12 01:16:06,435 9188 [ifpnetcdf-pool-3-thread-1] IgniteCacheAccessor-defaultDataStore:
Waiting 10s before retrying
the operation

Operational Impact: Grids will not correctly publish to Official/send to NDFD until corrupted data is removed and re-populated.

Required Behavior: Grids should not become corrupted due to the code problem resulting in the ifpnetCDF failure. **(DR 23103)**

5. Problem: BMH: JmsConnection failures in CommsManager

MFL was testing the NHZ Wind Recommender in a cloud 20.3 system and they are getting an error message when attempting to notify a WFO via a banner:

Could not send message to site CRP. Command output:
Error servicing SendWFOMessageRequest from site [NHZ]: <class 'TypeError'>: must be str, not jep.PyJList

Looks like this is bad error handling code in common_static/base/python/isc/sendWFOMessage.py, line 101. Fixing this will get the actual exception logged to the /awips2/GFESuite/logs/XXX/yyyymmdd/hostname/sendWFOMessage.log to be able to figure out why this product isn't sending, but this ticket is to fix the sendWFOMessage.py logging bug.

Operational Impact: Will be unable to determine cause of failures when sending messages to WFOs for Tropical collaboration.

Required Behavior: Exceptions should log properly for proper root cause identification **(DR 23102)**

6. Problem: DAF requests for grid data at a point always returns NaN when EDEX is hooked up to Ignite

When you run a DAF script that requests a point of geometry data from the grid datatype, it is always returning NaN instead of the correct data value. This was not happening on Omaha testbeds because they don't have Ignite hooked up to EDEX, and the difference in return values between PypiesDataStore and IgniteDataStore led to different behavior from the DAF.

Digging deeper, DerivedGridDataAccessFactory.getGeometryData(IDataRequest, DataTime...) is getting slightly different results back from the IDataStore (PyPIES vs Ignite) leading to the retrieval of the value from memory going down a different route past an if statement leading to the NaN. More specifically, both IDataStores are returning a FloatDataRecord, but they are slightly different. PypiesDataStore is returning a FloatDataRecord with dimensions set at 2 but sizes set at a 1-dimensional array of value 1. (Which seems wrong, there is supposed to be 1 size value per dimension). IgniteDataStore is returning a FloatDataRecord with dimensions set at 1 but sizes set at a 2-dimensional array with values [1, 1]. (Which seems wrong, in reverse of the other). This discrepancy with Ignite causes us to miss the if statement at DerivedGridDataAccessFactory.getDataSource(Object) where it checks if sizes is set to 1 and the value of that size is 1. Missing that if statement causes the data to be treated as a FloatBufferWrapper and then it thinks the value is out of bounds (in actuality we already did a point request and got one value back) and returns NaN. Attached a sample script that illustrates the problem. As part of this ticket, the DAF unit tests should be updated to verify that the returned value is not NaN. Note that BYZ had TT 342727 and RAH also reported this issue (added it to RSA's 225197).

Operational Impact: Forecasters may be missing data that they would normally have when scripts that utilize the DAF are working.

Required Behavior: DAF requests should return correct data and not NaN. **(DR 23100)**

7. Problem: HCI: Python error occurred while executing XmlTafEncoder

MKX site found an error in edex-request that doesn't seem to be affecting operations, but thought worthy of investigation.

Here is the error:

WARN 2022-03-10 02:46:57,820 1552 [TafQueueManager] TafQueueManager: EDEX - Python error occurred while executing
XmlTafEncoder --
see message details.
jep.JepException: <class 'TypeError'>: a bytes-like object is required, not 'str'
at
/awips2/edex/data/utility/common_static/base/aviation/python/XmlTafEncoder.write(XmlTafEncoder.py:795) [na:na]
at <string>.<module>(<string>:1) ~[na:na]
at jep.Jep.eval(Native Method) ~[jep-3.8.2.jar:na]
at jep.Jep.eval(Jep.java:507) ~[jep-3.8.2.jar:na]
at
com.raytheon.uf.common.python.PythonScript.internalExecute(PythonScript.java:285)[com.raytheon.uf.common.python.jar:na]
at com.raytheon.uf.common.python.PythonScript.execute(PythonScript.java:333)
~[com.raytheon.uf.common.python.jar:na]
at
com.raytheon.uf.edex.aviation.TafQueueManager.generateIWXXMMessages(TafQueueManager.java:273) ~
[com.raytheon.uf.edex.aviation.jar:na]
at com.raytheon.uf.edex.aviation.TafQueueManager.processSendJobs(TafQueueManager.java:162)
~[com.raytheon.uf.edex.aviation.jar:na]

at com.raytheon.uf.edex.aviation.TafQueueManager.run(TafQueueManager.java:460) ~[com.raytheon.uf.edex.aviation.jar:na]
at java.base/java.lang.Thread.run(Thread.java:829) ~[na:na]
Upon investigation, it was determined:
- Line 794 in /awips2/edex/data/utility/common_static/base/aviation/python/XmlTafEncoder.py in Python 3 returns a value of type
'bytes', but
line 795 tries to replace a value of type 'str', so there is a mismatch (TypeError). In Python2, line 794 may return 'str' instead of 'bytes'
which is
why this section of the code doesn't throw an error in 20.2.3 and earlier.
- To eliminate the Type error by encoding the str to bytes, the fix is to change line 795 from:
xmlstring.replace(' />', '/>')
to
xmlstring.replace(' />'.encode(), '/>'.encode())
- That said, line 795 was added by Vlab 73500/O&M 21611 in 19.3.4 and has never had any effect on the end result of the product
due to being
incorrectly coded to not use the returned value of the .replace() call. Therefore, line 795 should be further updated to correct this condition using proper syntax to assign the returned value of .decode() and replace() into xmlstring. A couple of options have been discussed, but will ultimately be decided by the developer.

Operational Impact: Errors in edex-request that don't seem to have a related consequence, but making diagnosing other issues more difficult.

Required Behavior: XmlTafEncoder runs without error. **(DR 23099)**

8. Problem: Ignite: PyPies compatibility server incorrectly allows HTTP TRACE /TRACK method

For Ignite, a PyPies compatibility HTTP server runs in EDEX request on port 9586 to redirect PyPies requests to Ignite. This server allows HTTP TRACE and TRACK requests, which is a potential security issue. Disable the HTTP TRACE/TRACK feature. The server should return 405 Method Not Allowed in response to a TRACE/TRACK request.

Operational Impact: None, this is only to satisfy a security concern.

Required Behavior: The PyPies compatibility server should not allow HTTP TRACE/TRACK **(DR 23088)**

9. Problem: BMH: Commsmanager can disconnect from Qpid

Several HCI/20.3.2 sites have reported that Commsmanager will occasionally disconnect and fail to reconnect with Qpid. When this happens, a restart of the BMH processes (Commsmanager, EDEX, and Neospeech) typically corrects the issue, but there is also an issue with the

ReservedCodeCache filling up, which can prevent Commsmanager from properly starting back up on one or both PV VMs.

Operational Impact: BMH may fail to play messages on the radio.

Required Behavior: Commsmanager should not DEADLOCK and Commsmanager should not fail to start due to CodeCache full errors **(DR 23087)**

10. Problem: Fix config_awips2.sh so it does not require awips2-ldm or awips2-ldm-conf to be installed on DV1

Technically only awips2-ldm-conf is needed on dv1, but that requires awips2-ldm as things stand right now. The reason dv1 needs awips2-ldm-conf is because we have to run "config_awips2.sh ldm" on dv1 to build the site's pqact.conf file and copy it to cpv1. This is due to the fact that "config_awips2.sh ldm" requires configuration files that only exists on dv1 to build pqact.conf. I don't know the LOE to modify config_awips2.sh to run on cpv1 and build a correct pqact.conf.

Solution to avoid dependency, should fix config_awips2.sh or at a minimum have it scp the necessary files from the cp to dv1 each time config_awips2.sh ldm is run so we are sure we are operating on the correct files.

Operational Impact: As a result of 23076 (ldm watchdog) fix, without the change in this ticket, would cause dv1 to reboot.

Required Behavior: config_awips2.sh ldm successfully runs without needing awips2-ldm-conf installed. **(DR 23084)**

11. Problem: TextWS opens on incorrect monitor

GSP as well as several other 20.3.2/HCI beta sites have reported an issue where CAVE and the TextWS open up on the wrong monitors. CAVE is supposed to open up on the middle monitor, while the TextWS should be on the left, but they are switched. With testing it was determined that this is a software rather than a cabling problem. While CAVE start-up is controlled by /usr/share/applications/cave_{middle,right}.desktop, which is managed by environment scripts (and will be corrected via environment scripts), the TextWS start-up is managed by the awips2-cave-wrapper rpm. This DR is to adjust where TextWS auto-starts via the control mechanism in awips2-cave-wrapper.

Operational Impact: TextWS will not be launched on the usual monitor, so workflow may be impeded.

Required Behavior: TextWS should autolaunch on the left monitor. **(DR 23080)**

12. Problem: Logic added in 22822/8636 ensures now that the LDM watchdog script is never installed unless the build server's name starts with cpv/cpsbn

The logic added in the %build section of the LDM spec file under 22822/8636 checks the build servers hostname, if it is cpv or cpsbn then it will include the watchdog scripts, If the build server is named anything else they will never be added to the RPM. This should not be a build time check but rather a install time verification of the machine its being installed to hostname.

Operational Impact: LDM is no longer monitored by watchdog to be restarted.

Required Behavior: LDM should be monitored by watchdog. **(DR 23076)**

13. Problem: GFE: TypeError with WindGustFromAlgorithm procedure

Related to python3 upgrade.
Error executing WindGustFromAlgorithm: <class 'TypeError'>: 'float' object cannot be interpreted a
s an integer
jep.JepException: <class 'TypeError'>: 'float' object cannot be interpreted as an integer
at /opt/rh/rh-python38/root/usr/lib64/python3.8/site-packages/numpy/core/fromnumeric._wrapredu
ction(fromnumeric.py:90)
at /opt/rh/rh-python38/root/usr/lib64/python3.8/site-packages/numpy/core/fromnumeric.amax(from
numeric.py:2620)
at <__array_function__ internals>.amax(<__array_function__ internals>:5)
at /awips2/cave/etc/gfe/userPython/smartTools/WindGustFromAlgorithm.execute(WindGustFromAlgori
thm.py:260)
at /home/kdadamo/caveData/common/base/python/MasterInterface.runMethod(MasterInterface.py:132)
at /awips2/cave/etc/gfe/userPython/utilities/SmartToolInterface.runTool(SmartToolInterface.py:
154)
at <string>.<module>(<string>:1)
at jep.Jep.eval(Native Method)
at jep.Jep.eval(Jep.java:451)
at com.raytheon.uf.common.python.PythonScript.internalExecute(PythonScript.java:285)
at com.raytheon.viz.gfe.smarttool.script.SmartToolController.runToolMethod(SmartToolController
.java:187)
at com.raytheon.viz.gfe.smarttool.script.SmartToolController.executeTool(SmartToolController.j
ava:208)
at com.raytheon.viz.gfe.smarttool.Tool.numeric(Tool.java:656)
at com.raytheon.viz.gfe.smarttool.Tool.execute(Tool.java:544)
at com.raytheon.viz.gfe.smarttool.script.SmartToolJobPool$SmartToolJob.execute(SmartToolJobPoo
l.java:363)
at com.raytheon.viz.gfe.smarttool.script.SmartToolJobPool$SmartToolJob.run(SmartToolJobPool.ja
va:303)
at org.eclipse.core.internal.jobs.Worker.run(Worker.java:63)

Operational Impact: TBD

Required Behavior: TBD **(DR 23066)**

14. Problem: Potential Null Pointer when running GFE formatters

This issue was seen when running the NPW formatter. A null pointer can occur at StoreTransmitDlg.java:528

If (lastETNmap.get(zone) == currentEtn) {

Where lastETNmap.get(zone) can return null. This can be re-written as follows:

Integer lastETN = lastETNmap.get(zone);
If (lastETN != null && lastETN == currentEtn) {

The formatter itself runs, but the error occurs during transmission.

ERROR 2022-03-11 21:04:15,655 7608 [main] CaveLogger: Unhandled event loop exception
java.lang.NullPointerException: null
at com.raytheon.viz.gfe.dialogs.formatterlauncher.StoreTransmitDlg.updateProductVTEC(StoreTransmitDlg.java:528)
at com.raytheon.viz.gfe.dialogs.formatterlauncher.StoreTransmitDlg.storeTransmitProduct(StoreTransmitDlg.java:371)
at com.raytheon.viz.gfe.dialogs.formatterlauncher.StoreTransmitDlg.bumpCounter(StoreTransmitDlg.java:645)
at com.raytheon.viz.gfe.dialogs.formatterlauncher.StoreTransmitDlg.access$4(StoreTransmitDlg.java:635)
at com.raytheon.viz.gfe.dialogs.formatterlauncher.StoreTransmitDlg$4.run(StoreTransmitDlg.java:630)
at org.eclipse.swt.widgets.Display.timerProc(Display.java:5648)
at org.eclipse.swt.internal.gtk.OS.g_main_context_iteration(Native Method)

Operational Impact: Certain grid formations and site actions can trigger this null pointer..

Required Behavior: Code should handle this situation gracefully and recover. **(DR 23064)**

15. Problem: GFE PFM formatter Python 3 migration problem

The following error can result when running the PFM formatter. As part of the python3 migration, HazardsTable.__maxSegNumber() returns a "dictionary" now instead of an "int" as expected. This is more likely to occur during complex scenarios, for instance: WI.Y:1, WI.Y:2, WS.W:3,WW.Y:4,WS.W:3500,WW.Y:3499, WC.Y:3501,WC.Y:5 across various zones at various times."

2022-03-11 17:34:03,596:FormatterRunner:ERROR:Error generating text product

Traceback (most recent call last):

File "/awips2/cave/etc/gfe/userPython/textUtilities/FormatterRunner.py", line 123, in executeFromJava

dataMgr=dataMgr, drtTime=drtTime, vtecActiveTable=vtecActiveTable)

File "/awips2/cave/etc/gfe/userPython/textUtilities/FormatterRunner.py", line 295, in runFormatter

forecast = formatter.getForecast(forecastType, argDict)

File "/awips2/cave/etc/gfe/userPython/textUtilities/TextFormatter.py", line 121, in getForecast

error = self.__getRunTimeVariables(fcstName, forecastDef, fcstType, module, argDict)

File "/awips2/cave/etc/gfe/userPython/textUtilities/TextFormatter.py", line 530, in getRunTimeVariables

cityEditAreas=cityRefData)

File "/awips2/cave/etc/gfe/userPython/textUtilities/HazardsTable.py", line 143, in _init

self.filterMethod)

File "/awips2/cave/etc/gfe/userPython/textUtilities/HazardsTable.py", line 930, in __analyzedTable

areas)

File "/awips2/cave/etc/gfe/userPython/textUtilities/HazardsTable.py", line 2362, in __mergeActiveProposed

pTable = self._checkForMultipleSegsInSameID(pTable)

File "/awips2/cave/etc/gfe/userPython/textUtilities/HazardsTable.py", line 2049, in __checkForMultipleSegsInSameID

records[x]['seg'] = maxSN + rnx + 1

TypeError: unsupported operand type(s) for +: 'dict' and 'int'

Operational Impact: PFM formatter may fail during complicated hazard scenarios with numerous hazard types and segment numbers.

Required Behavior: PFM Formatter should run without any issue. **(DR 23063)**

16. Problem: D2D: GFSLAMP station plots fail

Josh Watson at VUY reported that GFSLAMP station plots are throwing an error.
D2D->Local->LAMP/MOS Forecasts->GFSLAMP->Station Plot throws the attached error.
note that all other items in the LAMP/MOS Forecasts submenu plot fine with no errors.
The problem was reproducible by site PBZ and on a testbed.

Error making Point Data request.
com.raytheon.uf.common.inventory.exception.DataCubeException: Error executing Derived Parameter.
at
com.raytheon.uf.common.derivparam.data.DerivedRequestableData.getDataValue(DerivedRequestableData.java:94) at
com.raytheon.viz.pointdata.util.PointDataCubeAdapter.getPoints(PointDataCubeAdapter.java:156) at
com.raytheon.viz.pointdata.util.PointDataCubeAdapter.getPoints(PointDataCubeAdapter.java:106) at
com.raytheon.uf.viz.datacube.DataCubeContainer.getPointData(DataCubeContainer.java:168)
at com.raytheon.uf.viz.datacube.DataCubeContainer.getPointData(DataCubeContainer.java:176)
at
com.raytheon.viz.pointdata.thread.PlotModelDataRequestJob.requestData(PlotModelDataRequestJob.java:258) at
com.raytheon.viz.pointdata.thread.PlotModelDataRequestJob.run(PlotModelDataRequestJob.java:134) at
org.eclipse.core.internal.jobs.Worker.run(Worker.java:63)
Caused by: java.util.concurrent.ExecutionException:
com.raytheon.uf.common.python.concurrent.PythonJobFailedException: <class 'TypeError'>: must be str, not numpy.bytes_
at java.base/java.util.concurrent.FutureTask.report(FutureTask.java:122)
at java.base/java.util.concurrent.FutureTask.get(FutureTask.java:191)
at
com.raytheon.uf.common.python.concurrent.PythonInterpreterThreadPoolExecutor$PythonListenableFutureTask.get(PythonInterpret erThreadPoolExecutor.java:212)
at
com.raytheon.uf.common.derivparam.python.DerivParamPythonFunctionAdapter.executeFunction(DerivParamPythonFunctionAdapt er.java:151)
at
com.raytheon.uf.common.derivparam.library.DerivedParameterGenerator.calculate(DerivedParameterGenerator.java:208) at
com.raytheon.uf.common.derivparam.data.DerivedRequestableData.getDataValue(DerivedRequestableData.java:86) ... 7 more
Caused by: com.raytheon.uf.common.python.concurrent.PythonJobFailedException: <class 'TypeError'>: must be str, not numpy.bytes_
at
com.raytheon.uf.common.python.concurrent.PythonInterpreterThreadPoolExecutor$PythonListenableFutureTask$1.call(PythonInterp reterThreadPoolExecutor.java:239)
at java.base/java.util.concurrent.FutureTask.run(FutureTask.java:264)
at
com.raytheon.uf.common.python.concurrent.PythonInterpreterThreadPoolExecutor$PythonListenableFutureTask.run(PythonInterpret erThreadPoolExecutor.java:223)
at java.base/java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.java:1128)
at java.base/java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecutor.java:628)
at java.base/java.lang.Thread.run(Thread.java:829)
at
com.raytheon.uf.common.python.concurrent.PythonThreadFactory$PythonThread.run(PythonThreadFactory.java:128) Mar 10, 2022 2/3

Caused by: jep.JepException: <class 'TypeError'>: must be str, not numpy.bytes_
at common_static.base/derivedParameters/functions/presWeather.concatArrays(presWeather.py:106) at
common_static.base/derivedParameters/functions/presWeather.execute3(presWeather.py:87)
at <string>.<module>(<string>:1)
at jep.Jep.eval(Native Method)
at jep.Jep.eval(Jep.java:507)

at
com.raytheon.uf.common.derivparam.python.MasterDerivScript.executeFunctionInternal(MasterDerivScript.java:144) at
com.raytheon.uf.common.derivparam.python.MasterDerivScript.executeFunction(MasterDerivScript.java:102) at
com.raytheon.uf.common.derivparam.python.MasterDerivScriptExecutor.execute(MasterDerivScriptExecutor.java:62) at
com.raytheon.uf.common.derivparam.python.MasterDerivScriptExecutor.execute(MasterDerivScriptExecutor.java:1) at
com.raytheon.uf.common.python.concurrent.PythonInterpreterThreadPoolExecutor$PythonListenableFutureTask$1.call(PythonInterp reterThreadPoolExecutor.java:237)
... 6 more

Operational Impact: GFSLAMP station plots are not available to the forecaster in D2D, which could result in reduced situational awareness.

Required Behavior: GFSLAMP station plots should be available in D2D and not throw errors when loaded. **(DR 23061)**

17. Problem: D2D: Paint error for parameters with display units of degrees R

N/A

Operational Impact: Situational awareness may be decreased due to certain parameters not displaying in D2D.

Required Behavior: Parameters with units of degrees R should plot in D2D without error. **(DR 23060)**

18. Problem: GFE: PFM and AFM formatters fail when fog is in grids

20.3.2/HCI site GSP reported that their PFM (Point Forecast Matrix) and AFM (Area Forecast Matrix) text formatters are failing in
GFE when there is fog in the grids. When there is no fog, they run fine.
The error that they are seeing is below:
Error generating text product
jep.JepException: <class 'MemoryError'>:
at
/home/andrew.kimball/caveData/etc/configured/GSP/gfe/userPython/textProducts/PFM._createObVisRows(PFM.py:1723)
at
/home/andrew.kimball/caveData/etc/configured/GSP/gfe/userPython/textProducts/PFM._makeProduct(PFM.py:885)
at
/home/andrew.kimball/caveData/etc/configured/GSP/gfe/userPython/textProducts/PFM.generateForecast(PFM.py:360)
at /awips2/cave/etc/gfe/userPython/textUtilities/TextFormatter.getForecast(TextFormatter.py:184)
at /awips2/cave/etc/gfe/userPython/textUtilities/FormatterRunner.runFormatter(FormatterRunner.py:295)

at
/awips2/cave/etc/gfe/userPython/textUtilities/FormatterRunner.executeFromJava(FormatterRunner.py:123)
at <string>.<module>(<string>:1)
at jep.Jep.eval(Native Method)
at jep.Jep.eval(Jep.java:507)
at com.raytheon.uf.common.python.PythonScript.internalExecute(PythonScript.java:285)
at com.raytheon.viz.gfe.textformatter.FormatterScript.execute(FormatterScript.java:69)
at com.raytheon.viz.gfe.textformatter.FormatterScript.execute(FormatterScript.java:76)
at com.raytheon.viz.gfe.textformatter.TextFormatter.doRun(TextFormatter.java:193)
at com.raytheon.viz.gfe.tasks.AbstractGfeTask.run(AbstractGfeTask.java:218)

Operational Impact: PFM and AFM products may fail to generate when there is fog.

Required Behavior: PFM and AFM formatters in GFE should complete without error when there is fog in the zones. **(DR 23058)**

19. Problem: Python 3.6 configparser default is different, affects AvnFPS config files

It appears that between Python 2.7 and Python 3.6 the default behavior of the configparser was changed. In 2.7 allow_no_value=True and strict=False allowed empty and duplicate values to be present. In 3.6 allow_no_value=False and strict= True so that?s why we are finding all these issues in configuration files that have been around forever.

The configparser defaults should be changed to match the 2.7 behavior.

Operational Impact: The TAF Editor in AvnFPS will throw a fatal error in 20.3.2 if config file problems such as fields with blank values exist. These issues can be resolved by cleaning up the config files and removing blank assignments.

Required Behavior: Python config files in AWIPS should be processed with the same rules as they were in Python 2.7. **(DR 23050)**

20. Problem: Dependency issue awips2-edex-configuration needs to be removed

Need a software fix to remove dependency, awips2-edex-configuration, in order to stop dv2 reboot loop due to watchdog trying and failing to start processes that are not configured to run on that vm. The dependency is part of awips2-edex-data-hdf5.rpm. Additionally, when trying to remove this dependency manually, awips2-ignite gets removed instead of awips2-edex-configuration. Issue causes dv2 reboot loop, which causes multiple errors on workstations.

Operational Impact: Reboot loops on dv2 cause disconnects with hdf5, which leads to errors on workstations and potential hdf5/data corruption.

Required Behavior: Watchdog should become active once rebooted and should work as expected **(DR 23045)**

21. Problem: Error ingesting gridded NUCAPS data in 20.3.2

Site AMA opened a ticket on a problem on their 20.3.2/HCI system where gridded NUCAPS data was not storing.
The error below was present in their edex-ingest logs.
Matt Foster at OPGA believes he has found the source of the error:
>> Gridded nucaps ingest is failing in OB 20.3.x, I believe due to the newer version of Numpy installed in that release. OB 20.2.x has Numpy 1.9, while OB 20.3.x has Numpy 1.16. Effective with Numpy 1.12, array slice indices "must be integers or None or have an __index__ method".
Line 201 of GriddedNucapsDecoder.py tries to use 'sfc + 1' as a slice parameter. The sfc variable is based off of botlev, which is originally set in self.findSurface() with dtype=float. I believe this is the source of the error.

ERROR 2022-02-25 03:37:12,202 2452 [Timer-80] griddednucaps: Exchange[ExchangePattern: InOnly, BodyType: String, CaughtExceptionType: java.lang.Exception, CaughtExceptionMessage: Failed to decode file: [/data_store/nucaps/20220225/02/IUTN11_KNES_250253_34060733.bufr.2022022503-c6dcdad8.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250254_34060731.bufr.2022022503-c6dcdae1.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250254_34060729.bufr.2022022503-c6dcdad5.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250255_34060732.bufr.2022022503-c6dcdad7.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250255_34060736.bufr.2022022503-c6dcdae4.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250256_34060734.bufr.2022022503-c6dcdae2.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250256_34060735.bufr.2022022503-c6dcdae3.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250257_34060756.bufr.2022022503-c6dcdae5.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250257_34060730.bufr.2022022503-c6dcdad6.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250258_34060759.bufr.2022022503-c6dcdae7.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250258_34060757.bufr.2022022503-c6dcdae6.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250259_34060758.bufr.2022022503-c6dcdae8.nowmo.gn.nc], StackTrace: java.lang.Exception: Failed to decode file: [/data_store/nucaps/20220225/02/IUTN11_KNES_250253_34060733.bufr.2022022503-c6dcdad8.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250254_34060731.bufr.2022022503-c6dcdae1.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250254_34060729.bufr.2022022503-c6dcdad5.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250255_34060732.bufr.2022022503-c6dcdad7.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250255_34060736.bufr.2022022503-c6dcdae4.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250256_34060734.bufr.2022022503-c6dcdae2.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250256_34060735.bufr.2022022503-

c6dcdae3.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250257_34060756.bufr.20220
22503-
c6dcdae5.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250257_34060730.bufr.20220
22503-
c6dcdad6.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250258_34060759.bufr.20220
22503-
c6dcdae7.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250258_34060757.bufr.20220
22503-
c6dcdae6.nowmo.gn.nc,/data_store/nucaps/20220225/02/IUTN11_KNES_250259_34060758.bufr.20220
22503-c6dcdae8.nowmo.gn.nc]
	at
gov.noaa.nws.sti.mdl.edex.plugin.griddednucaps.GriddedNucapsPythonDecoder.decode(GriddedNucapsP
ythonDecoder.java:75)
	at
gov.noaa.nws.sti.mdl.edex.plugin.griddednucaps.GriddedNucapsDecoder.decode(GriddedNucapsDecoder
.java:41)
	at jdk.internal.reflect.GeneratedMethodAccessor1095.invoke(Unknown Source)
	at
java.base/jdk.internal.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.jav
a:43)
	at java.base/java.lang.reflect.Method.invoke(Method.java:566)
	at org.apache.camel.support.ObjectHelper.invokeMethodSafe(ObjectHelper.java:372)
	at org.apache.camel.component.bean.MethodInfo.invoke(MethodInfo.java:489)
	at org.apache.camel.component.bean.MethodInfo$1.doProceed(MethodInfo.java:311)
	at org.apache.camel.component.bean.MethodInfo$1.proceed(MethodInfo.java:281)
	at
org.apache.camel.component.bean.AbstractBeanProcessor.process(AbstractBeanProcessor.java:145)
	at org.apache.camel.component.bean.BeanProcessor.process(BeanProcessor.java:68)
	at org.apache.camel.impl.engine.CamelInternalProcessor.process(CamelInternalProcessor.java:312)
	at org.apache.camel.processor.Pipeline$PipelineTask.run(Pipeline.java:90)
	at
org.apache.camel.impl.engine.DefaultReactiveExecutor$Worker.schedule(DefaultReactiveExecutor.java:
148)
	at
org.apache.camel.impl.engine.DefaultReactiveExecutor.scheduleMain(DefaultReactiveExecutor.java:60)
	at org.apache.camel.processor.Pipeline.process(Pipeline.java:147)
	at org.apache.camel.impl.engine.CamelInternalProcessor.process(CamelInternalProcessor.java:312)
	at org.apache.camel.component.direct.DirectProducer.process(DirectProducer.java:84)
	at org.apache.camel.processor.SendProcessor.process(SendProcessor.java:169)
	at org.apache.camel.impl.engine.CamelInternalProcessor.process(CamelInternalProcessor.java:312)
	at org.apache.camel.impl.engine.CamelInternalProcessor.process(CamelInternalProcessor.java:312)
	at
org.apache.camel.impl.engine.DefaultAsyncProcessorAwaitManager.process(DefaultAsyncProcessorAw
aitManager.java:83)
	at org.apache.camel.support.AsyncProcessorSupport.process(AsyncProcessorSupport.java:41)
	at
gov.noaa.nws.sti.mdl.edex.plugin.griddednucaps.TimeBasedAggregationStrategy.processFileBatch(Time
BasedAggregationStrategy.java:173)
	at
gov.noaa.nws.sti.mdl.edex.plugin.griddednucaps.TimeBasedAggregationStrategy.notifyEvent(TimeBased
AggregationStrategy.java:219)
	at gov.noaa.nws.sti.mdl.edex.plugin.griddednucaps.TimedChecker.fire(TimedChecker.java:89)

at gov.noaa.nws.sti.mdl.edex.plugin.griddednucaps.TimedChecker$1.run(TimedChecker.java:77)
at java.base/java.util.TimerThread.mainLoop(Timer.java:556)
at java.base/java.util.TimerThread.run(Timer.java:506)
Caused by: com.raytheon.edex.exception.DecoderException: <class 'TypeError'>: slice indices must be integers or None or have an __index__ method
at com.raytheon.uf.edex.python.decoder.PythonDecoder.decode(PythonDecoder.java:120)
at gov.noaa.nws.sti.mdl.edex.plugin.griddednucaps.GriddedNucapsPythonDecoder.decode(GriddedNucapsPythonDecoder.java:62)
... 28 more
Caused by: jep.JepException: <class 'TypeError'>: slice indices must be integers or None or have an __index__ method
at /awips2/edex/lib/plugins/gov.noaa.nws.sti.mdl.edex.plugin.griddednucaps.jar/GriddedNucapsDecoder.interpolate_temperature(GriddedNucapsDecoder.py:201)
at /awips2/edex/lib/plugins/gov.noaa.nws.sti.mdl.edex.plugin.griddednucaps.jar/GriddedNucapsDecoder.decode(GriddedNucapsDecoder.py:560)
at /awips2/edex/data/utility/common_static/base/python/DecoderInterface.decode(DecoderInterface.py:58)
at <string>.<module>(<string>:1)
at jep.Jep.eval(Native Method)
at jep.Jep.eval(Jep.java:507)
at com.raytheon.uf.common.python.PythonScript.internalExecute(PythonScript.java:285)
at com.raytheon.uf.common.python.PythonScript.execute(PythonScript.java:333)
at com.raytheon.uf.common.python.PythonScript.execute(PythonScript.java:313)
at com.raytheon.uf.edex.python.decoder.PythonDecoder.decode(PythonDecoder.java:116)
... 29 more

Operational Impact: NUCAPS satellite sounding data will not be available.

Required Behavior: NUCAPS data should be ingested by EDEX without error. **(DR 23041)**

22. Problem: D2D: Baseline TW (wet bulb) derived parameter warning

MKX reported that an error is displaying in CAVE when viewing wet bulb temperature in D2D on 20.3.2/HCI. It's related to Numpy/Scipy upgrades with Python in 20.3.2.

BASE-TW:117: VisibleDeprecationWarning: `rank` is deprecated; use the `ndim` attribute or function instead. To find the rank of a matrix see `numpy.linalg.matrix_rank`.
BASE-TW:117: VisibleDeprecationWarning: `rank` is deprecated; use the `ndim` attribute or function instead. To find the rank of a matrix see `numpy.linalg.matrix_rank`.
BASE-TW:117: VisibleDeprecationWarning: `rank` is deprecated; use the `ndim` attribute or function instead. To find the rank of a matrix see `numpy.linalg.matrix_rank`.
BASE-TW:176: VisibleDeprecationWarning: `rank` is deprecated; use the `ndim` attribute or function instead. To find the rank of a matrix see `numpy.linalg.matrix_rank`.
BASE-TW:176: VisibleDeprecationWarning: `rank` is deprecated; use the `ndim` attribute or function instead. To find the rank of a matrix see `numpy.linalg.matrix_rank`.
BASE-TW:176: VisibleDeprecationWarning: `rank` is deprecated; use the `ndim` attribute or function instead. To find the rank of a matrix see `numpy.linalg.matrix_rank`.

The error does not prevent the data from displaying.

Operational Impact: Users may think there is a problem when they see warnings display in CAVE.

Required Behavior: VisibileDeprecationWarning should not display when using D2D derived parameters in CAVE. **(DR 23034)**

23. Problem: Update expired Qpid SSL certs in the baseline

The Qpid SSL certs in AWIPS2_baseline/build/deplpoy.edex.awips2/esb/conf/jms/auth expired at the end of Jan 2022. This is causing issues for developers. The certs in the baseline need to be updated to allow developers to continue working.

Operational Impact: None, affects developers.

Required Behavior: Update the expired Qpid SSL certs which keep getting deployed when developers deploy EDEX from Eclipse on their developer workstations. **(DR 23030)**

24. Problem: GFE: FWS Spot formatter not properly rounding mixing height values

GSP reported a formatting problem with the baseline FWS (Spot) formatter on the HCI system. (See attached sample from WFO RAH showing the incorrect display of mixing heights in the FWS problem table.) It's doing this at GSP as well. Sometimes the FWS formatter is not rounding mixing heights correctly to thousands of feet with just one decimal place. (In RAH's example, 1.2 kft unloads as 1.2000000000002, which messes up the formatting in the table.)

I'm not sure why the self.round to the nearest 0.1 is not working correctly in the baseline code, but a quick and dirty fix is to force trim the mixing height string to 3 characters. See my attached method with the baseline method untouched except for the addition of the one line:

value = value[:3]

right before the value is returned.

Operational Impact: Spot forecasts sent out to the public can be difficult to read due to the bad formatting/lack of rounding of the mixing height parameter. See attached screenshot.

Required Behavior: Mixing height parameter in the Spot forecast should be rounded so that the values in the table line up. **(DR 23029)**

25. Problem: GFE: Formatter launcher not filling large window

Sites PQR and RAH have reported that some users are seeing an issue in 20.3.2/HCI where the GFE formatter launcher window is small when launched and needs to be resized larger.
See attached screenshots from RAH.

Operational Impact: Users have to resize GFE formatter window.

Required Behavior: GFE formatter launcher window should not just partially fill the window when launched. Behavior should be the same as earlier releases. **(DR 23028)**

26. Problem: D2D: 20.3.2/HCI - Errors running procedures with time series

VUY reported problems with Procedures in D2D that utilize time series in 20.3.2/HCI.

Below is the information on the issue. Any D2D procedure with time series on the 20.3.2-35 build is throwing errors.
=I suspect this issue will be at every forecast office in the 20.3.2 Build.

Name: Josh Watson
Site: VUY
Problem also observed at WFO RAH

20.3.2 D2D Procedures with time series throw errors and do not display

Internal exception occurred while drawing: null
java.lang.NullPointerException
at
com.raytheon.uf.viz.xy.timeheight.rsc.AbstractTimeHeightResource.paintInsetMap(AbstractTimeHeight
Resource.java:298)
at com.raytheon.uf.viz.xy.map.InsetMapRenderableDisplay.paint(InsetMapRenderableDisplay.java:165)
at com.raytheon.viz.ui.panes.VizDisplayPane.glDrawInternal(VizDisplayPane.java:515)
at com.raytheon.viz.ui.panes.VizDisplayPane.draw(VizDisplayPane.java:469)
at com.raytheon.viz.ui.panes.DrawCoordinatedPane.draw(DrawCoordinatedPane.java:172)
at com.raytheon.viz.ui.panes.DrawCoordinatorJob$1.run(DrawCoordinatorJob.java:194)
at org.eclipse.ui.internal.PendingSyncExec.run(PendingSyncExec.java:68)
at org.eclipse.ui.internal.UILockListener.doPendingWork(UILockListener.java:171)
at org.eclipse.swt.widgets.RunnableLock.run(RunnableLock.java:40)
at org.eclipse.swt.widgets.Synchronizer.runAsyncMessages(Synchronizer.java:185)
at org.eclipse.swt.widgets.Display.runAsyncMessages(Display.java:4988)
at org.eclipse.swt.widgets.Display.readAndDispatch(Display.java:4510)
at org.eclipse.e4.ui.internal.workbench.swt.PartRenderingEngine$5.run(PartRenderingEngine.java:1157)
at org.eclipse.core.databinding.observable.Realm.runWithDefault(Realm.java:338)
at org.eclipse.e4.ui.internal.workbench.swt.PartRenderingEngine.run(PartRenderingEngine.java:1046)
at org.eclipse.e4.ui.internal.workbench.E4Workbench.createAndRunUI(E4Workbench.java:155)
at org.eclipse.ui.internal.Workbench.lambda$3(Workbench.java:644)
at org.eclipse.core.databinding.observable.Realm.runWithDefault(Realm.java:338)
at org.eclipse.ui.internal.Workbench.createAndRunWorkbench(Workbench.java:551)
at org.eclipse.ui.PlatformUI.createAndRunWorkbench(PlatformUI.java:153)
at
com.raytheon.uf.viz.personalities.cave.component.CAVEApplication.startComponent(CAVEApplication.
java:170)
at com.raytheon.uf.viz.application.VizApplication.start(VizApplication.java:102)
at org.eclipse.equinox.internal.app.EclipseAppHandle.run(EclipseAppHandle.java:203)
at
org.eclipse.core.runtime.internal.adaptor.EclipseAppLauncher.runApplication(EclipseAppLauncher.java:
134)
at org.eclipse.core.runtime.internal.adaptor.EclipseAppLauncher.start(EclipseAppLauncher.java:104)

at org.eclipse.core.runtime.adaptor.EclipseStarter.run(EclipseStarter.java:401)
at org.eclipse.core.runtime.adaptor.EclipseStarter.run(EclipseStarter.java:255)
at java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
at java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:62)
at
java.base/jdk.internal.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:43)
at java.base/java.lang.reflect.Method.invoke(Method.java:566)
at org.eclipse.equinox.launcher.Main.invokeFramework(Main.java:657)
at org.eclipse.equinox.launcher.Main.basicRun(Main.java:594)
at org.eclipse.equinox.launcher.Main.run(Main.java:1465)
at org.eclipse.equinox.launcher.Main.main(Main.java:1438)

Example Procedures can be found at VUY
Throws error
dv1:/awips2/edex/data/utility/cave_static/user/joshua.watson/procedures/Legacy-TimeSeries.xml
No error
dv1:/awips2/edex/data/utility/cave_static/user/joshua.watson/procedures/20.3.2-TimeSeries.xml

Three differences were noted (these are Localization perspective paths in Design view)

procedure/bundles/bundle/displayList/displays/descriptor/resource/loadProperties/resourceType
Legacy = TIME_HEIGHT
20.3.2 = PLAN_VIEW

procedure/bundles/bundle/displayList/displays/descriptor/resource/resourceData/point
Legacy = x, y, z children are defined
20.3.2 = lon,lat

procedure/bundles/bundle/displayList/displays/descriptor/resource/loadProperties/capabilities/capability
Legacy colorAsString = green
Legacy colorAsString = cyan
20.3.2 colorAsString = green1
20.3.2 colorAsString = cyan1

If all the Legacy values are changed to 20.3.2 values in Legacy-TimeSeries.xml, it displays as expected. The resourceType = PLAN_VIEW seems incorrect. That leads to the resourceData point being defined differently. The colorAsString names being different is very unexpected.

Operational Impact: Forecasters may have reduced situational awareness if D2D procedures are not working correctly.

Required Behavior: D2D procedures with time series should run without errors. **(DR 23027)**

27. Problem: Add awips2-python-netcdf4 to Rehost server group

ORN has GFE applications they run from pv1/2 and noticed that certain ones that required netcdf would not work (but did on the workstation)
pv1-orn.sr.awips.noaa.gov:david.welch:1295$ python
Python 3.6.13 (default, Mar 29 2021, 19:49:20)

```
[GCC 4.8.5 20150623 (Red Hat 4.8.5-44)] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> from netCDF4 import Dataset
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
ModuleNotFoundError: No module named 'netCDF4'
```

This request is to add awips2-python-netcdf4 to the Rehost server group in comps.xml so its installed by default

Operational Impact: GFE applications/procedures sites run on pv1/2 servers will not work

Required Behavior: GFE applications using netcdf4 should work as expected **(DR 23019)**

28. Problem: RPM dependency causing awips2-edex to be installed on ignite servers

awips2-common-base and awips2-edex-base are installed in the Cache server group, as necessary components to ignite.
However, awips2-edex is a dependency for both awips2-common-base and awips2-edex-base. And awips2-edex has the init/watchdog scripts for the EDEX service, and will turn the service on when installed. The end result being that EDEX will try to start on ignite servers and watchdog will try to monitor EDEX.
Either this dependency will need to be removed, or some other mechanism to prevent EDEX from trying to start on ignite servers will need to be devised.

Operational Impact: EDEX tries to start on cache servers and could cause watchdog reboot issues, or EDEX startup issues on the EDEX servers

Required Behavior: EDEX should not try to start on cache servers **(DR 23003)**

29. Problem: HS: Update svcbu.properties (HS version) SVCBU_HOST to ev for HCI

Site reported that he noticed the file:
/awips2/edex/scripts/HazardServices/ServiceBackup/configuration/svcbu.properties lists SVCBU_HOST=ec. This needs to be changed to ev.

Operational Impact: Hazard Services may fail to run correctly in Service Backup if backup files are out of date due to failure of syncing from incorrect SVCBU_HOST.

Required Behavior: SVCBU_HOST should be set to ev for HCI. **(DR 22993)**

30. Problem: GFE: ifpnetCDF performance issue with ifpnetCDF with -c -f 9 flags

Site reported that when doing tropical testing that ifpnetCDF took 30 minutes to complete. This is significantly slower than in previous builds.

Operational Impact: Slow performance of ifpnetCDF could impact GFE operations.

Required Behavior: ifpnetCDF should not take significantly longer to run in 20.3.2 than it does in 20.2.3. **(DR 22987)**

31. Problem: GFE: TCV Formatter fails when there is no window for tropical storm force wind

Site reported that she is seeing a failure of the TCV formatter in GFE in 20.3.2. It appears to be a python 3 conversion related issue. The baseline TCV formatter fails when there is no window for tropical storm force wind in at least one zone. She reported this in testing with Pablo Santos and Matt Belk on their cloud instance, but the problem was reproducible on TBDW as well which is a standard HCI testbed.

Operational Impact: Failure of the TCV formatter in GFE could result in tropical products not being properly generated and disseminated.

Required Behavior: The TCV formatter should not fail in cases where tropical storm force wind is not present in at least one zone. **(DR 22986)**

32. Problem: AWIPS Sliders Bars Not Functioning Correctly

When in the GFE perspective and are creating a hazard, the Hazard Start Time and Hazard End Time sliders are not operating as
expected. Left-clicking along either slider bar will advance the start or ending time to where the click occurred in the slider bar. When
left-clicking along the slider bar the time should advance by one hour.

Similar issue also reported for MPE slider issue by ORN on HCI system.
After testing the HCI system, we noticed a different behavior using the slider bar with MPE and DailyQC. On our current system:
When a forecaster clicks on the slider bar with his cursor to edit precipitation on MPE or using the point filter on DailyQC, the cursor click on the slider bar will result in increasing incremental values. For MPE, the first click would be .10, second click would be .20, and so on. For DailyQC, the first click would be 0.01, second click would be 0.02, and so on.
On the HCI system, clicking on the slider bar will be a value based on where you click on the slider bar and not by an increment.

Operational Impact: Makes it difficult to set the starting and ending times

Required Behavior: Time advance slider bar by one per click **(DR 22983)**

33. Problem: GFE: SiteActivation failure due to problem writing topo grid to hdf5

Site MKX reported during their live 20.3.2/HCI test that they were not able to activate the BCQ domain on their system. There was an error in the edex-request logs for failure to create the topo grid, see below. This error was reproducible on a developer system.

Below is the error currently seen in the edex-request logs at MKX when trying to activate BCQ:
INFO 2022-01-11 14:43:59,747 8151 [pool-8-thread-1] TopoDatabaseManager: EDEX - Topography Manager started for BCQ
INFO 2022-01-11 14:44:00,218 8152 [pool-8-thread-1] TopoDatabaseManager: EDEX - Creating Topography Disk Cache
INFO 2022-01-11 14:44:00,413 8153 [pool-8-thread-1] IgniteDataStore: Storing gfe/BCQ/Topo/BCQ_GRID_EditTopo_Topo_00000000_0000.h5 (fastStore=true, storeOp=REPLACE, size=462076B)
INFO 2022-01-11 14:44:00,494 8154 [pool-8-thread-1] GridLocationCache: EDEX - Purging BCQ GridLocations from GridLocation cache...
INFO 2022-01-11 14:44:00,494 8155 [pool-8-thread-1] GFESiteActivation: EDEX - Cluster locked site activation tasks for BCQ complete. Releasing site activation lock.
ERROR 2022-01-11 14:44:00,507 8156 [pool-8-thread-1] GFESiteActivation: EDEX - Error activating IFPServer for site BCQ. GFE will be unavailable for this site!
com.raytheon.uf.common.dataplugin.gfe.exception.GfeException: Error creating IFPServer for BCQ
at com.raytheon.edex.plugin.gfe.server.IFPServer.activateServer(IFPServer.java:169) ~[com.raytheon.edex.plugin.gfe.jar:na]
at com.raytheon.edex.plugin.gfe.config.GFESiteActivation.internalActivateSite(GFESiteActivation.java:434) ~[com.raytheon.edex.plugin.gfe.jar:na]
at com.raytheon.edex.plugin.gfe.config.GFESiteActivation.activateSite(GFESiteActivation.java:293) ~[com.raytheon.edex.plugin.gfe.jar:na]
at com.raytheon.uf.edex.site.SiteAwareRegistry$1.run(SiteAwareRegistry.java:137) ~[com.raytheon.uf.edex.site.jar:na]
at java.base/java.util.concurrent.Executors$RunnableAdapter.call(Executors.java:515) ~[na:na]
at java.base/java.util.concurrent.FutureTask.run(FutureTask.java:264) ~[na:na]
at java.base/java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.java:1128) ~[na:na]
at java.base/java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecutor.java:628) ~[na:na]
at java.base/java.lang.Thread.run(Thread.java:829) ~[na:na]
Caused by: com.raytheon.uf.common.dataplugin.gfe.exception.GfeException: Error Creating Topography Disk Cache: Failed to save grid to HDF5: /gfe/1970-01-01_00:00:00.0[1970-01-01_00:00:00.0--2038-01-19_03:14:07.0]/BCQ/Topo/00000000_0000/EditTopo/Topo/SFC

at com.raytheon.edex.plugin.gfe.server.database.TopoDatabaseManager.createDiskCache(TopoDatabaseManager.java:327) ~[com.raytheon.edex.plugin.gfe.jar:na]
at com.raytheon.edex.plugin.gfe.server.database.TopoDatabaseManager.<init>(TopoDatabaseManager.java:152) ~[com.raytheon.edex.plugin.gfe.jar:na]
at com.raytheon.edex.plugin.gfe.server.GridParmManager.<init>(GridParmManager.java:224) ~[com.raytheon.edex.plugin.gfe.jar:na]

at com.raytheon.edex.plugin.gfe.server.IFPServer.init(IFPServer.java:277)
~[com.raytheon.edex.plugin.gfe.jar:na]
at com.raytheon.edex.plugin.gfe.server.IFPServer.activateServer(IFPServer.java:152)
~[com.raytheon.edex.plugin.gfe.jar:na]
... 8 common frames omitted

Operational Impact: MKX is unable to use the BCQ domain. Other site may encounter the issue with other domains.

Required Behavior: The GFE SiteActivation should be successful. There should not be a failure related to writing the topo grid in the edex-request logs. **(DR 22982)**

34. Problem: AvnFPS: TAFs stuck in pending, not transmitted

Site MKX reported that during their live HCI/20.3.2 test, their TAFs in AvnFPS remained in the Pending state and were not sent out after the user selected to transmit them.
It was not seen during testing on the Silver Spring testbeds in 20.3.2. Also, site GSP did not experience the problem during their live HCI/20.3.2 test. The problem appears to occur intermittently or haphazardly.

Operational Impact: Aviation weather forecasting will be impacted by the inability to send out TAFs from AvnFPS.

Required Behavior: TAFs in AvnFPS should send out when transmission is selected, and not remain in the Pending queue. **(DR 22981)**

35. Problem: LDAD: Non-SI units no longer defined by default, may cause error decoding data

N/A

Operational Impact: Mesonet data such as APRSWXNET will fail to decode, causing it to not display in D2D. Also other data brought in via LDAD could fail to decode.

Required Behavior: Data that is ingested through LDAD should not fail to decode with a Parse Error related to the units (see edex-ingest log). **(DR 22980)**

36. Problem: TextWS window needs to be re-sizable to a smaller window

While testing on HCI, MKX identified that they were unable to shrink the text window any smaller than what the default size is. They can enlarge it and then shrink it back down to the original size, but cannot go any smaller than that.

Operational Impact: Typically the text workstation window is run on the "smaller" third AWIPS screen. This runs at a more coarse resolution than the two main/bigger (higher res) monitors that people run D2D/GFE/etc. So the text workstation window is a bit large on that

smaller, third AWIPS screen. Users resize it (usually smaller) to fit more windows on that screen when needed.

Required Behavior: Should be able to shrink text window size **(DR 22979)**

37. Problem: Pypies file locking too time consuming on NC HCI

On HCI, Pypies file locking is taking longer than the operations to HDF5 itself to complete due to submitting all the changes to the underlying hardware. The HDF5 file locks do not need to be persisted across restarts. The locks can exist in memory in a small ram drive to greatly improve the performance of pypies hdf5 file locking operations.

Operational Impact: Increase file latency as file locking occurs on already saturated I/O devices

Required Behavior: File locking should not go to underlying hardware. **(DR 22974)**

38. Problem: RPM dependencies are forcing Qpid installation on dv2 / cache servers in the field

Multiple rpms require or provides awips2-base-component. The awips2-version rpm which sets the login banner and is part of the base part of comps.xml. Update RPMs provides / requires to no longer require Qpid installation on dv2 or cache servers.

Operational Impact: Qpid starts on dv2/cache servers utilizing resources

Required Behavior: Qpid should not start on servers besides cpv1 **(DR 22973)**

39. Problem: DAF: Bug in LocalizationFileManager.py

Eastern Region Headquarters (VUY) reported a bug in the DAF on their HCI system/20.3.2.

Here is the trace for the error. radarsInUse.txt is not going to be found in the user/ level. So I think there's a logic bug in LocalizationFileManager.py where it is not gracefully moving up the override levels when a file is not found. If I copy the site version of radarsInUse.txt and radarsInUse.txt.md5 to user/joshua.watson/radar GraphiDSS starts up normally.

```
lx4-vuy.er.awips.noaa.gov{joshua.watson}6933: ./bin/GraphiDSS.py
Traceback (most recent call last):
 File "./bin/GraphiDSS.py", line 978, in <module>
   myapp = GraphiDSS(basedir, args, office=office)
 File "./bin/GraphiDSS.py", line 164, in __init__
   self.setupDataTabs()
 File "./bin/GraphiDSS.py", line 337, in setupDataTabs
   self.radarwidget = RadarWidget(self, self.tabWidget, self.paramstyles)
 File "/localapps/runtime/GraphiDSS/bin/widgets/radarwidget.py", line 32, in __init__
   self.populateRadars()
 File "/localapps/runtime/GraphiDSS/bin/widgets/radarwidget.py", line 65, in populateRadars
   localradars, dialradars, radars = self.daf.getRadars()
 File "/localapps/runtime/GraphiDSS/bin/requests/DAFRequest.py", line 472, in getRadars
```

```
  localradars, dialradars = self.getRadarsInUse()
 File "/localapps/runtime/GraphiDSS/bin/requests/DAFRequest.py", line 540, in getRadarsInUse
  riufile = self.filemanager.getAbsolute('radar/radarsInUse.txt')
 File "/awips2/python/lib/python3.6/site-packages/ufpy/localization/LocalizationFileManager.py", line
432, in getAbsolute
  f = self._get(context, path)
 File "/awips2/python/lib/python3.6/site-packages/ufpy/localization/LocalizationFileManager.py", line
376, in _get
  raise RuntimeError("Missing Content-MD5 header in response from " + resp.geturl())
RuntimeError: Missing Content-MD5 header in response from
http://ev:9581/services/localization/common_static/user/joshua.watson/radar/radarsInUse.txt
```

Operational Impact: Applications that utilize the DAF may have errors which result in a loss of functionality.

Required Behavior: Errors related to LocalizationFileManager.py should not be thrown when running applications utilizing the DAF. **(DR 22972)**

40. Problem: FSI deactivated at an HCI site, the FSI Qpid queue can grow > 50k messages and cause performance degradation in Qpid and AWIPS instability.

Same request as cancelled #22833. The fsi rehost application is installed to px1 at all locations. FSI specifically only runs at WFOs, so the fsi radar queue grows until the messages age off the queue at other locations. The default time to live for the fsi radar queue is one hour. This causes increased load and memory usage on Qpid at locations where FSI does not run as Qpid holds one hour of data for FSI in memory. The baseline should support a way to optionally not send data to the fsi radar queue. Additionally, this needs to also support WFOs who have elected to turn off FSI due to known performance impacts of that software. If FSI is deactivated at a site, FSI messages should not continue to accumulate within the FsiRadar Qpid queue

Operational Impact: fsiRadar queue continues to grow and affected Qpid performance.

Required Behavior: FSI messages should not queue if the software is deactivated at the site. **(DR 22968)**

41. Problem: Localization perspective: After editing a file, file below is highlighted

MKX site reported a minor issue on their 20.3.2/HCI system. The issue is that when in the localization perspective, after editing and saving a site level file, it also selects the file underneath it.
Instructions for reproducing the problem are below. Also see attached image. Note this will occur when editing any file in the localization perspective, not just localConfig.py.

1. Open Cave
2. Open Localization Perspective
3. Go to GFE Server-> Server Config Files -> localConfig.py and open the SITE level version
4. Add a # on the first line (Really and edit will do)
5. File->Save

6. The file directly below localConfig.py will be highlighted as well as the SITE level version of localConfig.py

Operational Impact: None

Required Behavior: When editing and saving a file in the localization perspective, only the file in question should be highlighted, not the one below as well. **(DR 22965)**

42. Problem: Importing geoTiff images failing in HCI Cave

When importing geoTiff images, the following error occurs:

ERROR 2021-11-05 19:51:54,398 3540 [main] CaveLogger: Paint error: Unable to process geotiff image: /home/gregory.noonan/snapshot-2021-10-13T00_00_00Z.tiff:: The resource [/home/gregory.noonan/snapshot-2021-10-13T00_00_00Z.tiff] has been disabled.
com.raytheon.uf.viz.core.exception.VizException: Paint error: Unable to process geotiff image: /home/gregory.noonan/snapshot-2021-10-13T00_00_00Z.tiff:: The resource [/home/gregory.noonan/snapshot-2021-10-13T00_00_00Z.tiff] has been disabled.
at com.raytheon.uf.viz.core.drawables.AbstractRenderableDisplay.paintResource(AbstractRenderableDisplay.java:544)
at com.raytheon.uf.viz.core.maps.display.MapRenderableDisplay.paint(MapRenderableDisplay.java:188)
at com.raytheon.uf.viz.d2d.core.map.D2DMapRenderableDisplay.paint(D2DMapRenderableDisplay.java:172)
at com.raytheon.viz.ui.panes.VizDisplayPane.glDrawInternal(VizDisplayPane.java:515)
at com.raytheon.viz.ui.panes.VizDisplayPane.draw(VizDisplayPane.java:469)
at com.raytheon.viz.ui.panes.DrawCoordinatedPane.draw(DrawCoordinatedPane.java:172)
at com.raytheon.viz.ui.panes.DrawCoordinatorJob$1.run(DrawCoordinatorJob.java:194)
at org.eclipse.ui.internal.PendingSyncExec.run(PendingSyncExec.java:68)
at org.eclipse.ui.internal.UILockListener.doPendingWork(UILockListener.java:171)
at org.eclipse.swt.widgets.RunnableLock.run(RunnableLock.java:40)
at org.eclipse.swt.widgets.Synchronizer.runAsyncMessages(Synchronizer.java:185)
at org.eclipse.swt.widgets.Display.runAsyncMessages(Display.java:4988)
at org.eclipse.swt.widgets.Display.readAndDispatch(Display.java:4510)
at org.eclipse.e4.ui.internal.workbench.swt.PartRenderingEngine$5.run(PartRenderingEngine.java:1157)
at org.eclipse.core.databinding.observable.Realm.runWithDefault(Realm.java:338)
at org.eclipse.e4.ui.internal.workbench.swt.PartRenderingEngine.run(PartRenderingEngine.java:1046)
at org.eclipse.e4.ui.internal.workbench.E4Workbench.createAndRunUI(E4Workbench.java:155)
at org.eclipse.ui.internal.Workbench.lambda$3(Workbench.java:644)
at org.eclipse.core.databinding.observable.Realm.runWithDefault(Realm.java:338)
at org.eclipse.ui.internal.Workbench.createAndRunWorkbench(Workbench.java:551)
at org.eclipse.ui.PlatformUI.createAndRunWorkbench(PlatformUI.java:153)
at com.raytheon.uf.viz.personalities.cave.component.CAVEApplication.startComponent(CAVEApplication.java:173)
at com.raytheon.uf.viz.application.VizApplication.start(VizApplication.java:102)
at org.eclipse.equinox.internal.app.EclipseAppHandle.run(EclipseAppHandle.java:203)

at
org.eclipse.core.runtime.internal.adaptor.EclipseAppLauncher.runApplication(EclipseAppLauncher.java:134)
at org.eclipse.core.runtime.internal.adaptor.EclipseAppLauncher.start(EclipseAppLauncher.java:104)
at org.eclipse.core.runtime.adaptor.EclipseStarter.run(EclipseStarter.java:401)
at org.eclipse.core.runtime.adaptor.EclipseStarter.run(EclipseStarter.java:255)
at java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
at java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:62)
at
java.base/jdk.internal.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:43)
at java.base/java.lang.reflect.Method.invoke(Method.java:566)
at org.eclipse.equinox.launcher.Main.invokeFramework(Main.java:657)
at org.eclipse.equinox.launcher.Main.basicRun(Main.java:594)
at org.eclipse.equinox.launcher.Main.run(Main.java:1465)
at org.eclipse.equinox.launcher.Main.main(Main.java:1438)
Caused by: com.raytheon.uf.viz.core.exception.VizException: Unable to process geotiff image: /home/gregory.noonan/snapshot-2021-10-13T00_00_00Z.tiff
at com.raytheon.viz.geotiff.rsc.GeoTiffResource.initInternal(GeoTiffResource.java:136)
at com.raytheon.uf.viz.core.rsc.AbstractVizResource.init(AbstractVizResource.java:406)
at com.raytheon.uf.viz.core.rsc.AbstractVizResource$InitJob.run(AbstractVizResource.java:501)
at org.eclipse.core.internal.jobs.Worker.run(Worker.java:63)
Caused by: java.lang.NullPointerException: null
at com.raytheon.viz.geotiff.rsc.GeoTiffResource.initInternal(GeoTiffResource.java:116)
... 3 common frames omitted

This still works on legacy though…

Operational Impact: Unable to view Tiff files in Cave

Required Behavior: Tiff files should display after importing them. **(DR 22963)**

43. Problem: GFE: IRT Server fails to parse ncfstatus file

It was noticed at site ORN that an error was thrown in the edex-request log when trying to connect to the BNCF IRTServer in GFE. There is apparently an issue parsing the /data/mhs/ncfstatus file that contains the contents "BNCF". There was no issue connecting to the ANCF IRTServer. However this is because the ncfstatus file is not present for the ANCF case. As a test, if ncfstatus were to contain "ANCF" the same issue would occur. The problem is related to parsing the file in general and not to the specific BNCF contents.
This issue is only occurring post 20.3.2. This prevents sites from receiving and sending ISC grids when the NCF is switched to BNCF operations.

INFO 2021-12-16 00:10:15,894 2132 [pool-20-thread-1] GfeIRT: EDEX - performing initial IRT registration.
ERROR 2021-12-16 00:10:15,896 2133 [pool-20-thread-1] GfeIRT: EDEX - Exception in IRT register thread.
jep.JepException: <class 'TypeError'>: unsupported operand type(s) for +: 'NoneType' and 'str'

at /awips2/edex/data/utility/common_static/base/gfe/python/isc/IrtAccess.__callIRT(IrtAccess.py:319) ~[na:na]
at /awips2/edex/data/utility/common_static/base/gfe/python/isc/IrtAccess.__doRegister(IrtAccess.py:231) ~[na:na]
at /awips2/edex/data/utility/common_static/base/gfe/python/isc/IrtAccess.register(IrtAccess.py:155) ~[na:na]
at <string>.<module>(<string>:1) ~[na:na]
at jep.Jep.eval(Native Method) ~[jep-3.8.2.jar:na]
at jep.Jep.eval(Jep.java:507) ~[jep-3.8.2.jar:na]
at com.raytheon.uf.common.python.PythonScript.internalExecute(PythonScript.java:285) ~[com.raytheon.uf.common.python.jar:na]
at com.raytheon.uf.common.python.PythonScript.execute(PythonScript.java:333) ~[com.raytheon.uf.common.python.jar:na]
at com.raytheon.edex.plugin.gfe.isc.GfeIRT.run(GfeIRT.java:225) ~[com.raytheon.edex.plugin.gfe.jar:na]
at java.base/java.util.concurrent.Executors$RunnableAdapter.call(Executors.java:515) ~[na:na]
at java.base/java.util.concurrent.FutureTask.run(FutureTask.java:264) ~[na:na]
at java.base/java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.java:1128) ~[na:na]
at java.base/java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecutor.java:628) ~[na:na]
at java.base/java.lang.Thread.run(Thread.java:829) ~[na:na]

Operational Impact: Sites will not be able to send or receive ISC grids in GFE.

In addition the edex-request is more likely to fill up the /awips2/edex/logs partition due to constant error messages.

Required Behavior: The IRTServer should connect properly to both the ANCF and BNCF IRTServers. **(DR 22958)**

44. Problem: Standalone install enables edex services to start at boot

The AWIPS II Standalone group installation enables EDEX services to be started at system boot time. Since the Standalone configuration is targeted toward developers, this is not desirable. We need a way for this group install to disable the services from starting. Perhaps a separate awips2-devel RPM could do this and possibly include other things such as installing Eclipse, Ant, the OAX localization, AWIPS source, etc. This could possibly eliminate the need for the SS built ADE tarball.

Operational Impact: None, affects developers.

Required Behavior: Disable edex services from starting. **(DR 22946)**

45. Problem: Restoring edit from local history not working on HCI workstations

Site was experimenting with localization perspective, editing things and pulling them back up again from the local history. When he tries he gets an 'unhandled loop exception'

MichaelM 7/13/2021 14:36:13
149 ERROR 2021-07-13 18:20:58,348 1190 [main] CaveLogger: Unhandled event loop exception
150 java.lang.NullPointerException: null
151 at org.eclipse.compare.internal.CompareUIPlugin.getImage(CompareUIPlugin.java:738)
152 at org.eclipse.compare.internal.EditionAction.doFromHistory(EditionAction.java:153)
153 at org.eclipse.compare.internal.EditionAction.run(EditionAction.java:114)
154 at org.eclipse.compare.internal.BaseCompareAction.run(BaseCompareAction.java:27)
155 at org.eclipse.ui.internal.PluginAction.runWithEvent(PluginAction.java:239)
156 at
org.eclipse.jface.action.ActionContributionItem.handleWidgetSelection(ActionContributionItem.java:579
)
157 at
org.eclipse.jface.action.ActionContributionItem.lambda$4(ActionContributionItem.java:413)
158 at org.eclipse.swt.widgets.EventTable.sendEvent(EventTable.java:89)
159 at org.eclipse.swt.widgets.Display.sendEvent(Display.java:5745)
160 at org.eclipse.swt.widgets.Widget.sendEvent(Widget.java:1427)
161 at org.eclipse.swt.widgets.Display.runDeferredEvents(Display.java:5013)
162 at org.eclipse.swt.widgets.Display.readAndDispatch(Display.java:4507)
163 at
org.eclipse.e4.ui.internal.workbench.swt.PartRenderingEngine$5.run(PartRenderingEngine.java:1157)
164 at org.eclipse.core.databinding.observable.Realm.runWithDefault(Realm.java:338)
165 at
org.eclipse.e4.ui.internal.workbench.swt.PartRenderingEngine.run(PartRenderingEngine.java:1046)
166 at
org.eclipse.e4.ui.internal.workbench.E4Workbench.createAndRunUI(E4Workbench.java:155)
167 at org.eclipse.ui.internal.Workbench.lambda$3(Workbench.java:644)
168 at org.eclipse.core.databinding.observable.Realm.runWithDefault(Realm.java:338)
169 at org.eclipse.ui.internal.Workbench.createAndRunWorkbench(Workbench.java:551)
170 at org.eclipse.ui.PlatformUI.createAndRunWorkbench(PlatformUI.java:153)
171 at
com.raytheon.uf.viz.personalities.cave.component.CAVEApplication.startComponent(CAVEApplication.
java:173)
172 at com.raytheon.uf.viz.application.VizApplication.start(VizApplication.java:102)
173 at org.eclipse.equinox.internal.app.EclipseAppHandle.run(EclipseAppHandle.java:203)
174 at
org.eclipse.core.runtime.internal.adaptor.EclipseAppLauncher.runApplication(EclipseAppLauncher.java:
134)
175 at
org.eclipse.core.runtime.internal.adaptor.EclipseAppLauncher.start(EclipseAppLauncher.java:104)
176 at org.eclipse.core.runtime.adaptor.EclipseStarter.run(EclipseStarter.java:401)
177 at org.eclipse.core.runtime.adaptor.EclipseStarter.run(EclipseStarter.java:255)
178 at java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
179 at
java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:62)

```
 180        at
java.base/jdk.internal.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.jav
a:43)
 181        at java.base/java.lang.reflect.Method.invoke(Method.java:566)
 182        at org.eclipse.equinox.launcher.Main.invokeFramework(Main.java:657)
 183        at org.eclipse.equinox.launcher.Main.basicRun(Main.java:594)
 184        at org.eclipse.equinox.launcher.Main.run(Main.java:1465)
 185        at org.eclipse.equinox.launcher.Main.main(Main.java:1438)
```

Operational Impact: Unable to restore edits from local history via Localization perspective

Required Behavior: Able to restore edits from local history via Localization perspective **(DR 22945)**

46. Problem: HCI Sites - Update the address vector table during ANCF-BNCF switch

When the operations are switched to Backup NCF (BNCF) from the primary ANCF, MHS operations are also moved. As part of the process, the sites MHS is updated accordingly. The address vector table at each site is pointed to the active NCF. This enables the site to transmit the products using MHS and WAN to the active NCF by referring to the address table.

Operational Impact: Sites should be pointed to active NCF to transmit the products designated for DEFAULTNCF. If not pointed correctly, then the routing will be impacted.

Required Behavior: Depending on the active NCF, the address vector should be updated accordingly reflecting the active NCF. **(DR 22915)**

47. Problem: Prevent novrastatsd process from exiting at HCI sites

At HCI sites, novrastats process is used to read the status of the DVB receiver. Whenever there is no communication between DVB Receiver and CPV servers, the novrastatsd process will attempt to connect 5 times. If the connection fails then the process will exit gracefully. This causes issue at HCI sites as the process is not started automatically after the connection is successful. Instead of exiting the process, it will continue to connect to the receiver till successful connection is established.

Operational Impact: Site unable to get DVB Receiver statistics as novrastatsd process not up and running.

Required Behavior: Novrastatsd process should be running on cpv servers to collect the stats from the DVB receiver. These stats include the signal strength and EbNo of the SBN signal. **(DR 22914)**

48. Problem: comps.xml contains obsolete entries

In investigating Rodo DR #8680, we found the following packages that should be removed from the operational comps.xml:

1. awips2-perl-DBD-Pg - this package was used under RHEL6 but is no longer part of the build
2. awips2-edex-native - this package no longer exists
3. awips2-common-base - this should be removed from AWIPS II Rehost. awips2-common-base/awips2-edex is only needed for
WFO BMH, and awips2-edex is already in the BMH group. It's been getting installed at RFCs and NCEP sites, but now with
20.3.x and watchdog scripts being included, its causing watchdog to start trying to monitor edex at RFC and NCEP sites.

Operational Impact: None, removing obsolete entries

Required Behavior: N/A **(DR 22900)**

49. Problem: pgdb localapp fails in bash/ksh

In 20.3.1 awips2-python-pygresql was upgraded along with an upgraded awips2-postgresql package. /awips2/python/lib/python3.6/site-packages/_pg.cpython-36m-x86_64-linux.gnu.so links in the libpq.so.5 library. Users using csh, /etc/profile.d/awips2PSQL.csh adds /awips2/psql/lib to LD_LIBRARY_PATH so that the correct libpq.so.5 is used. With this line missing from awips2PSQL.sh, bash/ksh users default to the system path of /usr/lib and link in the RedHat version of libpq.so.5.
This has been the case for years, but the awips2-python-pygresql software up until 20.3.1 was compatible with the RedHat version of libpq.so.5, so there were no issues in this environment. Starting in 20.3.1, trying to import the pgdb module gives the following error:

```
$ python -c "import pgdb"
Traceback (most recent call last):
 File "<string>", line 1, in <module>
 File "/awips2/python/lib/python3.6/site-packages/pgdb.py", line 71, in <module>
   from _pg import *
ImportError: /awips2/python/lib/python3.6/site-packages/_pg.cpython-36m-x86_64-linux.gnu.so:
undefined symbol: PQsslAttribute
```

To fix this, /etc/profile.d/awips2PSQL.sh should be updated to add in /awips2/psql/lib to the LD_LIBRARY_PATH:

```
export LD_LIBRARY_PATH=${PSQL_INSTALL}/lib:$LD_LIBRARY_PATH
```

Suggest fixing other /etc/profile.d/*.sh files to add appropriate LD_LIBRARY_PATH setting to prevent future issues from occurring for bash/ksh users.

Operational Impact: Users using bash/ksh cannot launch local apps using the pgdb python module

Required Behavior: The python pgdb module imports without error **(DR 22896)**

50. Problem: Adjust ingestGrib memory for Ignite serialization reserving memory

Ignite is reserving memory in serialization for the largest object serialized on that thread. This is causing OOM issues at sites that

unclip MRMS as well as National Center sites. Heap memory needs to be adjusted for all site types to account for maximum memory
usage possible by the application and not require specific flags to increase usage.

Operational Impact: IngestGrib is restarting on OOM, dropping data that was in memory, and filling up /data/fxa NFS mount

Required Behavior: IngestGrib JVMs should not OOM **(DR 22865)**

51. Problem: HWR Fails To Run On HCI

HWR fails to run with the following error:

terminate called after throwing an instance of 'std::logic_error'
what(): basic_string::_S_construct null not valid
???? HWR.set_edex(), fl_nm =etc/awips2_edex.txt

.... edexHost=ev, edexPort=9581, awips2=1

!!! AWIPS2 Maritime data in hdf5, run Maritime_H5.

No ENV issues were found at NTCA. This was also seen on TBW3 when starting HCI. The method called appears to be this, where all it's doing is creating a request object:

```
/*
 * hwr_sfcobs create CPointDataServerRequest object, set items that is requested
 * by the HWR maritime report.
 *
 * Return:          request - long, the object CPointDataServerRequest pointer.
 */
static PyObject * hwr_sfcobs(PyObject *self, PyObject *args) {
```

Operational Impact: HWR won't run.

Required Behavior: HWR should start up and run normally **(DR 22864)**

52. Problem: Warnings about deprecated/obsolete JVM features in AlertViz and CAVE logs

At startup, both the AlertViz and CAVE output warnings about use of deprecated/obsolete Java features to stderr. These should be addressed before they become larger issues.
Unfortunately these are only visible in the Eclipse console when a developer starts the applications from Eclipse since the cave.sh and alertviz.sh redirect this output to /dev/null.
AlertViz warning:
OpenJDK 64-Bit Server VM warning: Option UseConcMarkSweepGC was deprecated in version 9.0 and will likely be removed in a future release.

CAVE warning:
OpenJDK 64-Bit Server VM warning: Ignoring option MaxPermSize; support was removed in 8.0

Operational Impact: None

Required Behavior: Warnings, as listed in Description, should not be displayed when start CAVE and AlertViz from Eclipse. **(DR 22855)**

53. Problem: Central Registry replication has hibernate errors when multiple registries fall behind

Central Registry was logging hibernate errors during replication. When this occurs replication fails and the site does not attempt to replicate again until a new event is stored to the registry. This caused the registry to fall behind.

ERROR 2021-09-10 00:00:03,882 1724 [gatherThreadPool-55] ReplicationJob: Sending events to RSA has failed.
org.hibernate.LazyInitializationException: failed to lazily initialize a collection of role: oasis.names.tc.ebxml.regrep.xsd.rim.v4.ExtensibleObjectType.slot, could not initialize proxy - no Session
at org.hibernate.collection.internal.AbstractPersistentCollection.throwLazyInitializationException(AbstractPersistentCollection.java:606) ~[hibernate-core-5.4.24.Final.jar:5.4.24.Final]
at org.hibernate.collection.internal.AbstractPersistentCollection.withTemporarySessionIfNeeded(AbstractPersistentCollection.java:218) ~[hibernate-core-5.4.24.Final.jar:5.4.24.Final]
at org.hibernate.collection.internal.AbstractPersistentCollection.initialize(AbstractPersistentCollection.java:585) ~[hibernate-core-5.4.24.Final.jar:5.4.24.Final]
at org.hibernate.collection.internal.AbstractPersistentCollection.read(AbstractPersistentCollection.java:149) ~[hibernate-core-5.4.24.Final.jar:5.4.24.Final]
at org.hibernate.collection.internal.PersistentBag.iterator(PersistentBag.java:387) ~[hibernate-core-5.4.24.Final.jar:5.4.24.Final]
at com.raytheon.uf.edex.registry.federation.ReplicationJob$SlotSize.<init>(ReplicationJob.java:832) ~[com.raytheon.uf.edex.registry.ebxml.jar:na]
at com.raytheon.uf.edex.registry.federation.ReplicationJob$MemoryLimiter.loadNext(ReplicationJob.java:710) ~[com.raytheon.uf.edex.registry.ebxml.jar:na]
at com.raytheon.uf.edex.registry.federation.ReplicationJob.sendSubmitRequest(ReplicationJob.java:480) ~[com.raytheon.uf.edex.registry.ebxml.jar:na]
at com.raytheon.uf.edex.registry.federation.ReplicationJob$1.doInTransaction(ReplicationJob.java:296) ~[com.raytheon.uf.edex.registry.ebxml.jar:na]
at com.raytheon.uf.edex.registry.federation.ReplicationJob$1.doInTransaction(ReplicationJob.java:1) ~[com.raytheon.uf.edex.registry.ebxml.jar:na]
at org.springframework.transaction.support.TransactionTemplate.execute(TransactionTemplate.java:140) ~[spring-tx-5.3.4.jar:5.3.4]
at com.raytheon.uf.edex.registry.federation.ReplicationJob.replicateBatch(ReplicationJob.java:247) ~[com.raytheon.uf.edex.registry.ebxml.jar:na]
at com.raytheon.uf.edex.registry.federation.ReplicationJob.run(ReplicationJob.java:221) ~[com.raytheon.uf.edex.registry.ebxml.jar:na]
at java.base/java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.java:1128) ~[na:na]

at java.base/java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecutor.java:628) ~[na:na]
at java.base/java.lang.Thread.run(Thread.java:829) ~[na:na]

NCF Potential Workaround: Force all sites to synchronize within the hour, update central registry replication times to current time

Operational Impact: Central Registry fails behind if multiple sites are replicating events older than the cache size

Required Behavior: Replication should not fall behind due to LazyInitializationException **(DR 22849)**

54. Problem: Ignite filling /var/log

Ignite is logging to /var/log/messages, /var/log/daemon.log, and /awips2/ignite/logs. The logback configuration is configured to log to
both console and log file. In production, ignite should only log to /awips2/ignite/logs.

Operational Impact: None other than keep clearing the /var/log

Required Behavior: Ignite will no longer fill /var/log with log statements **(DR 22836)**

55. Problem: Combine and fix delta scripts for DRs 8364 and 8469

The delta script for DR 8364 is creating a <host> xml tag where it should be adding <hostname>. While correcting this script we should add in the <servicePort> that was added by DR 8469 so we don't have an order dependency on these two delta scripts being run.

Basic logic should be:
<pre>

if connectionURL in endpointConfig then
parse hostname, port, and vhost from the connectionURL
remove connectionURL
endif

if host element in endpointConfig then
rename host element to hostname
endif

if any of hostname, port, vhost, or servicePort are not present in endpointConfig then
add missing values using values parsed from connectionURl or default if connectionURL was not present
endif

</pre>

Operational Impact: Local radar, ingested by edex_rcm on dv1, will not get passed to EDEX because the connection to qpid fails without the host to hostname tag change.

Required Behavior: Local radar data should be ingested and sent to EDEX for processing and storage to the database and hdf5. **(DR 22834)**

56. Problem: D2D: PGEN Palette GUI cannot recall an Intl Sigmet

When opening a Sigmet Intl (Intl_Sigmet) the PGEN Pallete GUI cannot recall the product from the database even though the product can be recalled with retrieveActivity. It produces the error:

"Error Retrieving Activity from EDEX".

Operational Impact: A user cannot recall a product to issue followups if PGEN Pallet is closed when the product is Intl_Sigmet

Required Behavior: The product should be recalled when the product is selected from the open menu for Intl_Sigmet. **(DR 22828)**

57. Problem: Merge fixes for 20.3.2

N/A

Operational Impact: N/A

Required Behavior: N/A **(DR 22825)**

58. Problem: 20.3.1/HCI: Various watchdog and startup issues

* Watchdog fails to restart the following services (after shutting them down and removing the /tmp/watchdog_service/<file>): qpidd, edex_rcm, edex_postgres, edex_camel, comms_manager
* neospeech_tts does not deliver a watchdog monitoring script
* systemctl stop ignite@production does not put a /tmp/watchdog_service file to prevent watchdog from restarting ignite
* awips2-postgresql is installed on LXs and PVs due to a dependency on awips2-python-pygresql. Once the watchdog monitoring is fixed for edex_postgres, watchdog will start causing reboots on LXs and PXs as a result of the awips2-postgresql rpm being installed, but a database not setup to run there. Either this watchdog configuration should not be installed on any device other than dv1, or awips2-postgresql should not be a dependency of awips2-pygresql (it probably requires a library installed by awips2-postgresql? perhaps there is a way to split that out? or make the library part of awips2-psql if it isn't already and make awips2-psql a dependency?)
* LDM watchdog will monitor the sbn1/sbn2 interface, and if it does not detect enough packets, it will swap interfaces, and restart ldmcp. However, there are legitimate cases where NO packets are coming in over sbn1/2 interfaces as there is no DVB, or the DVB is down, and instead LDM is being fed by another LDM instance. In the lab there are no DVBs. At the sites, if a DVB or a satellite dish goes down, then LDM is fed by a TSBN feed. At a few sites and regions the satellite dish is located at another location, with LDM running there, but feeding a local LDM for data ingest. If its possible to track which feeds have been tested, and only try them once, so as to avoid constantly restarting ldmcp when no DVB stream is found, but the LDM is still collecting data from another LDM and should remain up.
* LDM is installed on dv1 but only to support config_awips2.sh, LDM will not be running there. LDM is also installed on ls2/3 but only for local use and may not be configured to receive any data. The watchdog monitoring should only run on cpv1.

* qpidd is not chkconfig'ed to start on boot. edex_rcm is only chkconfig'ed to start on boot after a fresh install. The awips2-edex-rcm scripts will not run the chkconfig on an upgrade. There is no reason to not chkconfig the service no matter which rpm installation path is taken. ignite@production is not enabled to start on boot.
* Line 22 of /etc/watchdog.d/utilities/watchdogutils.sh, the $1 -eq $status is not a correct evaluation it must be $1 == $status

Operational Impact: If processes die that are not monitored by watchdog, then the system may become unusable until such time as the issue is discovered and rectified.

Required Behavior: All processes start on boot and are monitored by watchdog and restarted in the event that the process dies. **(DR 22822)**

59. Problem: Fix retrieveActivity script to work with Python 3.6

Running retrieveActivity on any 20.3.x testbed results in the following Python TypeError. In Python 3, bytes must be converted
according to the latest release notes here:
https://docs.python.org/release/3.0.1/whatsnew/3.0.html#text-vs-data-instead-of-unicode-vs-8-bit.
Traceback (most recent call last):
File "/awips2/fxa/bin/src/pgen/retrieveActivity.py", line 298, in <module>
main()
File "/awips2/fxa/bin/src/pgen/retrieveActivity.py", line 176, in main
pr.getProducts()
File "/awips2/fxa/bin/src/pgen/ProductRetriever.py", line 54, in getProducts
self._writeout(filename,item.getStringData()[0])
File "/awips2/fxa/bin/src/pgen/ProductRetriever.py", line 29, in _writeout
f.write(bytes)
TypeError: a bytes-like object is required, not 'str'

Operational Impact: None. Used as a verification tool to retrieve saved SIGMET data.

Required Behavior: The script should run without any errors. **(DR 22804)**

60. Problem: Need to baseline an increase to METADATA_POOL_MAX

This DR is baseline an increase to METADATA_POOL_MAX to fix the latency issues with the registry.

Need to make a change to add the following line:
export METADATA_POOL_MAX=100
to /awips2/edex/etc/centralRegistry.sh

Note that MAX=100 may be set to a different max value, depending on developer evaluation when working the DR.

Update from 9/3: It was determined that Central was replicating out to update to 80 sites simultaneously, which did not leave much room for other replication events, so the decision was made to change the value to 150 instead of 100.

Operational Impact: Latency with central registry increases

Required Behavior: Latency with central registry decreases **(DR 22760)**

61. Problem: Ignite: Prevent database and data store from getting out of sync

When the metadata database indicates that data exists in hdf5 that doesn't actually, the error in the attached image can occur.

When we store data, we first store it to the data store, and then store the metadata to postgres. In the past, storing it to the data store
would directly store it to pypies/hdf5. So if an error occurred there, we wouldn't reach the code that stores the metadata, so things
would stay in sync.

Now that we are using ignite, this is not the case. When ignite is told to store data, it just puts the data in its cache and returns, and
then asynchronously writes the data to pypies/hdf5 later on. With this, ignite can put the data in its cache, the metadata can be stored
to postgres, and then later on ignite can fail to write behind the actual data to hdf5. Once the actual data gets pushed out of ignite's
cache, then the database and data store are out of sync.

Handle this scenario. Possible options include making ignite always write through to pypies instead of writing behind, or updating
ignite to delete metadata entries when write behind fails.

Operational Impact: Users may be spammed with error messages when loading data in CAVE. The errors may prevent some valid data from loading as well.

Required Behavior: The metadata database and hdf5 data should always be in sync. If any discrepancies occur, they should automatically and quickly be resolved. Data that came in while hdf5 storage was not working may still be lost, as was the case before ignite. Users should be able to load all valid data without the attached error messages occurring **(DR 22753)**

62. Problem: GFE: Finalize_KML procedure failing

The National Hurricane Center reported that during operations for Elsa that the Finalize_KML procedure in GFE was producing a blank KML file for storm surge. The procedure ran with no errors, but with blank output. They found that if they reverted the procedure to the pre-20.2.3 version the problem no longer occurred. The problem appears to have been introduced under DCS 21021 in 20.2.3.

Operational Impact: The Finalize_KML procedure fails, which means that storm surge KML products compatible with Google Earth for customers will not generate.

Required Behavior: Finalize_KML procedure should generate a KML file containing the expected information. **(DR 22718)**

63. Problem: GFE: Hazard - Color Table is wrong

The Color table for 20.3.2 I noticed that the colors are almost correct, just slightly wrong for some of the hazards.

For example: AS.O is showing as R:198 G:166 and B 115 when it should be R: 223 G: 198 B 157

There are a few others that aren't even close. However until I received this table from pablo we didn't have a way of knowing these colors were off.

Operational Impact: the colors help the forecaster know what the hazard is without looking it up or looking at the color table sheet. if the colors are off they could mess up the forecast

Required Behavior: The colors in the edit table should match the assigned hazards in the color table provided in the attachments. **(DR 22717)**

64. Problem: D2D: Satellite Image - paint error loading product

When trying to load the following products I got the following error. Confirmed it is likely a java11 issue. was able to find a work around but the root cause needs to be looked into.

```
--------------+--------------------------+------
 GLOBALCOMPWV  | Global Composite WV      | none
 GLOBALCOMPVIS | Global Composite Visible | none
 GLOBALCOMPLIR | Global Composite IR      | none
```

As we can view them as line products from the Product Browser. However when we try to view them as images we get the following error:

```
Paint error: javax.measure.format.ParserException: Parse Error:: The resource [GLOB_COMPLIR Layer Global Composite IR Img ()  ] has been disabled.
com.raytheon.uf.viz.core.exception.VizException: Paint error: javax.measure.format.ParserException: Parse Error:: The resource [GLOB_COMPLIR Layer Global Composite IR Img ()  ] has been disabled.
        at com.raytheon.uf.viz.core.drawables.AbstractRenderableDisplay.paintResource(AbstractRenderableDisplay.java:544)
        at com.raytheon.uf.viz.core.maps.display.MapRenderableDisplay.paint(MapRenderableDisplay.java:188)
        at com.raytheon.uf.viz.d2d.core.map.D2DMapRenderableDisplay.paint(D2DMapRenderableDisplay.java:172)
        at com.raytheon.viz.ui.panes.VizDisplayPane.glDrawInternal(VizDisplayPane.java:515)
        at com.raytheon.viz.ui.panes.VizDisplayPane.draw(VizDisplayPane.java:469)
        at com.raytheon.viz.ui.panes.DrawCoordinatedPane.draw(DrawCoordinatedPane.java:172)
        at com.raytheon.viz.ui.panes.DrawCoordinatorJob$1.run(DrawCoordinatorJob.java:194)
        at org.eclipse.ui.internal.PendingSyncExec.run(PendingSyncExec.java:68)
        at org.eclipse.ui.internal.UILockListener.doPendingWork(UILockListener.java:171)
        at org.eclipse.swt.widgets.RunnableLock.run(RunnableLock.java:40)
```

at org.eclipse.swt.widgets.Synchronizer.runAsyncMessages(Synchronizer.java:185)
at org.eclipse.swt.widgets.Display.runAsyncMessages(Display.java:4988)
at org.eclipse.swt.widgets.Display.readAndDispatch(Display.java:4510)
at
org.eclipse.e4.ui.internal.workbench.swt.PartRenderingEngine$5.run(PartRenderingEngine.java:1157)
at org.eclipse.core.databinding.observable.Realm.runWithDefault(Realm.java:338)
at
org.eclipse.e4.ui.internal.workbench.swt.PartRenderingEngine.run(PartRenderingEngine.java:1046)
at org.eclipse.e4.ui.internal.workbench.E4Workbench.createAndRunUI(E4Workbench.java:155)
at org.eclipse.ui.internal.Workbench.lambda$3(Workbench.java:644)
at org.eclipse.core.databinding.observable.Realm.runWithDefault(Realm.java:338)
at org.eclipse.ui.internal.Workbench.createAndRunWorkbench(Workbench.java:551)
at org.eclipse.ui.PlatformUI.createAndRunWorkbench(PlatformUI.java:153)
at
com.raytheon.uf.viz.personalities.cave.component.CAVEApplication.startComponent(CAVEApplication.
java:173)
at com.raytheon.uf.viz.application.VizApplication.start(VizApplication.java:102)
at org.eclipse.equinox.internal.app.EclipseAppHandle.run(EclipseAppHandle.java:203)
at
org.eclipse.core.runtime.internal.adaptor.EclipseAppLauncher.runApplication(EclipseAppLauncher.java:
134)
at
org.eclipse.core.runtime.internal.adaptor.EclipseAppLauncher.start(EclipseAppLauncher.java:104)
at org.eclipse.core.runtime.adaptor.EclipseStarter.run(EclipseStarter.java:401)
at org.eclipse.core.runtime.adaptor.EclipseStarter.run(EclipseStarter.java:255)
at java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
at
java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:62)
at
java.base/jdk.internal.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.jav
a:43)
at java.base/java.lang.reflect.Method.invoke(Method.java:566)
at org.eclipse.equinox.launcher.Main.invokeFramework(Main.java:657)
at org.eclipse.equinox.launcher.Main.basicRun(Main.java:594)
at org.eclipse.equinox.launcher.Main.run(Main.java:1465)
at org.eclipse.equinox.launcher.Main.main(Main.java:1438)
Caused by: java.lang.RuntimeException: javax.measure.format.ParserException: Parse Error
at
com.raytheon.uf.common.style.AbstractStylePreferences$DisplayUnit.getUnit(AbstractStylePreferences.j
ava:86)
at
com.raytheon.uf.common.style.AbstractStylePreferences.getDisplayUnits(AbstractStylePreferences.java:
145)
at
com.raytheon.uf.common.style.image.ColorMapParameterFactory.build(ColorMapParameterFactory.java
:187)
at
com.raytheon.uf.common.style.image.ColorMapParameterFactory.build(ColorMapParameterFactory.java
:146)
at
com.raytheon.uf.common.style.image.ColorMapParameterFactory.build(ColorMapParameterFactory.java
:154)

at
com.raytheon.uf.viz.core.grid.rsc.AbstractGridResource.createColorMapParameters(AbstractGridResource.java:737)
at
com.raytheon.uf.viz.core.grid.rsc.AbstractGridResource.createRenderable(AbstractGridResource.java:585)
at
com.raytheon.uf.viz.core.grid.rsc.AbstractGridResource.getOrCreateRenderables(AbstractGridResource.java:1242)
at
com.raytheon.uf.viz.core.grid.rsc.AbstractGridResource.paintInternal(AbstractGridResource.java:1256)
at com.raytheon.uf.viz.core.rsc.AbstractVizResource.paint(AbstractVizResource.java:542)
at
com.raytheon.uf.viz.core.drawables.AbstractRenderableDisplay.paintResource(AbstractRenderableDisplay.java:541)
... 35 more
Caused by: javax.measure.format.ParserException: Parse Error
at tec.uom.se.format.SimpleUnitFormat$DefaultFormat.check(SimpleUnitFormat.java:576)
at
tec.uom.se.format.SimpleUnitFormat$DefaultFormat.parseSingleUnit(SimpleUnitFormat.java:429)
at
tec.uom.se.format.SimpleUnitFormat$DefaultFormat.parseProductUnit(SimpleUnitFormat.java:440)
at
com.raytheon.uf.common.style.AbstractStylePreferences$DisplayUnit.getUnit(AbstractStylePreferences.java:84)
... 45 more

Operational Impact: Image based products are likely to not load upon request.

Required Behavior: A paint error should not occur when an image is loaded in the D2D display **(DR 22700)**

65. Problem: Error running RFR with an existing FL.* hazard that is not issued

During 20.3.2 regression testing, the following error was encountered when a tester tried to run the RFR:

Unable to execute recommender
jep.JepException: <class 'TypeError'>: '<' not supported between instances of 'int' and 'NoneType'
at
/home/salvatore.rowe/caveData/common/base/HazardServices/python/events/recommenders/RiverFloodRecommender.updateEventFromRecommendedEvent(RiverFloodRecommender.py:1380)
at
/home/salvatore.rowe/caveData/common/base/HazardServices/python/events/recommenders/RiverFloodRecommender.mergeHazardEvents(RiverFloodRecommender.py:685)
at
/home/salvatore.rowe/caveData/common/base/HazardServices/python/events/recommenders/RiverFloodRecommender.execute(RiverFloodRecommender.py:492)

at
/home/salvatore.rowe/caveData/common/base/python/MasterInterface.runMethod(MasterInterface.py:132
)
at
/home/salvatore.rowe/caveData/common/base/HazardServices/python/events/recommenders/config/Reco
mmenderInterface.execute(RecommenderInterface.py:71)
at <string>.<module>(<string>:1)
at jep.Jep.eval(Native Method)
at jep.Jep.eval(Jep.java:507)
at com.raytheon.uf.common.python.PythonScript.internalExecute(PythonScript.java:285)
at com.raytheon.uf.common.python.PythonScript.execute(PythonScript.java:333)
at
com.raytheon.uf.common.recommenders.AbstractRecommenderScriptManager.executeRecommender(Ab
stractRecommenderScriptManager.java:184)
at
com.raytheon.uf.common.recommenders.executors.RecommenderExecutor.execute(RecommenderExecut
or.java:74)
at
com.raytheon.uf.common.recommenders.executors.RecommenderExecutor.execute(RecommenderExecut
or.java:1)
at
com.raytheon.uf.common.recommenders.executors.AbstractRecommenderExecutor.execute(AbstractRec
ommenderExecutor.java:1)
at
com.raytheon.uf.common.python.concurrent.PythonInterpreterThreadPoolExecutor$PythonListenableFut
ureTask$1.call(PythonInterpreterThreadPoolExecutor.java:237)
at java.base/java.util.concurrent.FutureTask.run(FutureTask.java:264)
at
com.raytheon.uf.common.python.concurrent.PythonInterpreterThreadPoolExecutor$PythonListenableFut
ureTask.run(PythonInterpreterThreadPoolExecutor.java:223)
at java.base/java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.java:1128)
at java.base/java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecutor.java:628)
at java.base/java.lang.Thread.run(Thread.java:834)

Site was able to replicate this and found that it is a bug that goes back to 19.3.1, introduced by Vlab 70458/ SS DR 21694. The issue only occurs if you run the RiverFloodRecommender with an existing FL.* hazard that is not issued (pending, proposed). To get around this issue, you can delete the un-issued event prior to running the Recommender.

Operational Impact: Will not be able to run the River Flood Recommender, preventing the ability to issue flood hazards via Hazard Services

Required Behavior: Should be able to run the RFR even if there are un-issued products **(DR 22685)**

66. Problem: ClassCastException Error found in the logs

The following error was found in the edex-ingest logs on ec-spike and ec-oma.

ERROR 2021-06-03 00:00:16,985 0724 [satGoes16RRQPEFilter-1] satPre: Exchange[ExchangePattern: InOnly, BodyType: com.raytheon.uf.common.dataplugin.message.DataURINotificationMessage, CaughtExceptionType: java.lang.ClassCastException, CaughtExceptionMessage: class tec.uom.se.unit.TransformedUnit cannot be cast to class tec.uom.se.unit.ProductUnit (tec.uom.se.unit.TransformedUnit and tec.uom.se.unit.ProductUnit are in unnamed module of loader 'app'), StackTrace: java.lang.ClassCastException: class tec.uom.se.unit.TransformedUnit cannot be cast to class tec.uom.se.unit.ProductUnit (tec.uom.se.unit.TransformedUnit and tec.uom.se.unit.ProductUnit are in unnamed module of loader 'app')
at tec.uom.se.unit.ProductUnit.<init>(ProductUnit.java:98)
at com.raytheon.uf.edex.ohd.satpre.SatPrecipDataCreator.retrieveSatelliteData(SatPrecipDataCreator.java:192)
at com.raytheon.uf.edex.ohd.satpre.SatPrecipDataCreator.build(SatPrecipDataCreator.java:147)
at com.raytheon.uf.edex.ohd.satpre.SatPrecipDataCreator.build(SatPrecipDataCreator.java:136)
at com.raytheon.uf.edex.ohd.pproc.SatPreDataGenerator.process(SatPreDataGenerator.java:88)
at jdk.internal.reflect.GeneratedMethodAccessor897.invoke(Unknown Source)
at java.base/jdk.internal.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:43)
at java.base/java.lang.reflect.Method.invoke(Method.java:566)
at org.apache.camel.support.ObjectHelper.invokeMethodSafe(ObjectHelper.java:372)
at org.apache.camel.component.bean.MethodInfo.invoke(MethodInfo.java:489)
at org.apache.camel.component.bean.MethodInfo$1.doProceed(MethodInfo.java:311)
at org.apache.camel.component.bean.MethodInfo$1.proceed(MethodInfo.java:281)
at org.apache.camel.component.bean.AbstractBeanProcessor.process(AbstractBeanProcessor.java:145)
at org.apache.camel.component.bean.BeanProcessor.process(BeanProcessor.java:68)
at org.apache.camel.impl.engine.CamelInternalProcessor.process(CamelInternalProcessor.java:312)
at org.apache.camel.processor.Pipeline$PipelineTask.run(Pipeline.java:90)
at org.apache.camel.impl.engine.DefaultReactiveExecutor$Worker.schedule(DefaultReactiveExecutor.java:148)
at org.apache.camel.impl.engine.DefaultReactiveExecutor.scheduleMain(DefaultReactiveExecutor.java:60)
at org.apache.camel.processor.Pipeline.process(Pipeline.java:147)
at org.apache.camel.impl.engine.CamelInternalProcessor.process(CamelInternalProcessor.java:312)
at org.apache.camel.impl.engine.DefaultAsyncProcessorAwaitManager.process(DefaultAsyncProcessorAwaitManager.java:83)
at org.apache.camel.support.AsyncProcessorSupport.process(AsyncProcessorSupport.java:41)
at org.apache.camel.component.jms.EndpointMessageListener.onMessage(EndpointMessageListener.java:130)
at org.springframework.jms.listener.AbstractMessageListenerContainer.doInvokeListener(AbstractMessageListenerContainer.java:736)
at org.springframework.jms.listener.AbstractMessageListenerContainer.invokeListener(AbstractMessageListenerContainer.java:696)
at org.springframework.jms.listener.AbstractMessageListenerContainer.doExecuteListener(AbstractMessageListenerContainer.java:674)

at
org.springframework.jms.listener.AbstractPollingMessageListenerContainer.doReceiveAndExecute(AbstractPollingMessageListenerContainer.java:318)
at
org.springframework.jms.listener.AbstractPollingMessageListenerContainer.receiveAndExecute(AbstractPollingMessageListenerContainer.java:257)
at
org.springframework.jms.listener.DefaultMessageListenerContainer$AsyncMessageListenerInvoker.invokeListener(DefaultMessageListenerContainer.java:1189)
at
org.springframework.jms.listener.DefaultMessageListenerContainer$AsyncMessageListenerInvoker.executeOngoingLoop(DefaultMessageListenerContainer.java:1179)
at
org.springframework.jms.listener.DefaultMessageListenerContainer$AsyncMessageListenerInvoker.run(DefaultMessageListenerContainer.java:1076)
at java.base/java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.java:1128)
at java.base/java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecutor.java:628)
at java.base/java.lang.Thread.run(Thread.java:834)
]

Operational Impact: This issue prevents SatPrecip data from being ingested correctly.

Required Behavior: The ClassCastException error (Description section) is no longer found in the edex-ingest log file. **(DR 22683)**

67. Problem: Hazard Information Dialog -c Text Truncated

When running the test for tool Dam/Levee Flood on TBDW (20.3.2), noticed that the text under "Details" is truncated (see HID-truncated.png). Checked that the application setting is Adwaita.

Notes (from S.Webb):
20.3.1 and up should be using REL7 GNOME defaults with Application setting Adwaita and default fonts: Cantrell Bold 11, Cantrell Regular 11, Sans Regular 11, and Monospace Regular 11.

Operational Impact: No impact other than some of the text (towards the end) truncated in the HID window.

Required Behavior: All text should be visible on the HID window **(DR 22672)**

68. Problem: Excessive products are generated at HCI sites due to non-existence of heartbeat package

When products are generated and transmitted with code 42 or 131 using MHS, on receipt, nwws_relay code is called to handle the transaction. This code relies on the existence of the linux heartbeat service package (dx1apps/a2dx1apps). But at HCI sites, linux heartbeat (pcs cluster) does not exist. By design, if the service does not exist then it assumes the pipe reading process (NWWSProduct) runs on a remote host and sends the product to that host. If it exists, the product details are written to a pipe from which NWWSProduct reads it.

HCI sites do not have the service running as part of the heartbeat package and hence the program attempts to send the product to itself (NWWS host is set to dv1). This causes the same product to go around in an infinite loop resulting in excessive traffic on the server.

Operational Impact: High volume of MHS traffic causes delay in processing other products. Also the number of instances of MHS processes reaches its maximum.

Required Behavior: When a message with code 42 or 131 is received, nwws_relay should relay it to NWWSProduct by writing to nwws_mhs_pipe.
NWWSProduct should be running on dv1. **(DR 22671)**

69. Problem: Wes2Bridge: Use BROKER_HTTP variable in setup.env for Qpid REST interface port

While testing DR 22511 on 20.3.1, we found that data placed in the manual endpoint was not getting picked up by EDEX. Upon investigation, the following error was found in the edex-ingest log:

Error occurred communicating with server: Connect to localhost:8180 ?.

8180 is the normal Qpid REST interface port used for creating queues, and checking connections, etc. This was set to 10444 by the BROKER_HTTP variable in setup.env.

Looking at the code in QpidBrokerRestImpl.java it is using a hard coded constant for this port set to 8180 and not using the BROKER_HTTP env variable.

Rather than hard coding the port to 8180, it should use the value set in BROKER_HTTP in setup.env.

Operational Impact: Data will not be ingested by edex for wes2bridge instances

Required Behavior: wes2bridge code should use the BROKER_HTTP variable as set in setup.env for the Qpid REST interface port instead of hard coding it so that the port can be modified for wes2bridge functionality. **(DR 22666)**

70. Problem: Errors loading labels for GIS shapefiles

N/A

Operational Impact: Some baseline and local maps may not load and software that relies upon those maps being functional will also fail (i.e. Warngen with warngenloc)

Required Behavior: AWIPS should better handle self-intersecting nodes in shapefiles **(DR 22665)**

71. Problem: Wes2Bridge: Each EDEX instance needs a separate qpid instance

While testing wes2bridge on 20.3.1 (and 21.3.1), Dale Morris noted the following:

Just as important, after creating the environments we tried to run them. We started the first, and it ran without problem. In other words, it started postgres, httpd-pypies, qpid, and the EDEX JVMs through camel. When we tried the second, while still having the first running, we had issues. The issues with the second environment had to do with qpid -- which makes sense since qpid was updated to proton. After examining the qpid.log files for each, I was able to determine that both instances were trying to use /awips2/qpid/edexMessageStore for their database path. So the first one started fine (but for the wrong reason), and any subsequent ones would fail. I manually changed the storePath variable in /usr/local/edex-environment/<instanceName>/qpid/edex/config.json to the correct instance-specific path (e.g., "storePath" : "/usr/local/edex-environment/EDEX_00/qpid/edexMessageStore). Then both instances ran simultaneously, seemingly without issues, though we need more testing. This test was on a 20.3.1 build.

Operational Impact: wes2bridge will be unusable

Required Behavior: wes2bridge should be usable **(DR 22659)**

72. Problem: h5py: Error loading profiler data

Trying to retrieve data from the stored profiler hdf files (in 21.4.1), I?m getting the same error whether I try from CAVE or python (DAF).

I'm getting errors in the edex-request log about not being able to connect to a service on port 9588, but I don't see that port in the setup.env, even for ignite.

Error processing DatasetDataRequest on file /awips2/edex/data/hdf5/profiler/profiler-2021-04-14-14.h5

(See error details in attachment.)

From Ron Anderson (RODO):
I recently saw a similar error loading Station Plots on 21.4.1.

I mentioned it to David Gillingham and he suggested it may be related to the h5py update in 21.3.1.

Operational Impact: Unable to load profiler data

Required Behavior: Should be able to load profiler data **(DR 22658)**

73. Problem: Display of model reflectivity incorrect when mismatch between dB and dBZ for parameter abbreviation REFD

Sites OPG and BCQ reported the following problem:

If the "parameter" database table has units of "dB" for the parameter abbreviation REFD (model derived reflectivity), this matches what is in the GRIB table, and the data is ingested correctly. However, it does NOT match what is in gridImageryStyleRules for reflectivity (the style rule has dBZ), and you end up with displayed values that are exponentially higher than expected.

If you change the parameter table to "dBZ" after ingest, then display works correctly.

If the parameter table has "dBZ" when the data is ingested, then you end up with values in the HDF5 that are exponentially too high.

Note -- ScottN tested this on 20.3.1 and 20.2.2 and got the following results:
<pre>
When I executed the following query on the 20.3.1 metadata table, it returned:

select * from parameter where abbreviation = 'REFD';
abbreviation name unit

REFD Derived Radar Reflectivity dB

I got the same exact output returned when I executed the query on the 20.2.2 database.

The BASE gridImageryStyleRules.xml files were identical between both builds as well. I copied/pasted the 20.2.2 version into the USER file on 20.3.1?and compared the two. No differences.

In all gridImageryStyleRules.xml files (20.2.2 BASE and 20.3.1 BASE, SITE, and USER), the units were dBZ for <parameter>RR</parameter>.
</pre>

So the setup is the same on 20.2.2 and 20.3.1 seemingly, but the display is definitely wrong on 20.3.1. There may be more to it than the parameter/units.

5/17/21 - Matthew Foster emailed that also seeing the issue with composite reflectivity (REFC)

6/15/21 - Matt Foster emailed that also seeing the issue with RRType.

Operational Impact: The displayed values and/or the values in the HDF5 that are exponentially too high.

Required Behavior: Values are ingested and displayed correctly. **(DR 22633)**

74. Problem: Update 20.3.1 delta scripts to reference HCI hostnames vs legacy hostnames

In order to try to avoid modifying the wrong system in SS and in the field, we should update all the legacy hostnames in delta scripts to use the HCI hostnames (eg. dv, pv, etc).

Operational Impact: Delta script could be run on the wrong system, which could result in problems on both systems; one due to the script being run in the wrong location and the other due to the script not being run where it should have been

Required Behavior: Delta scripts should run on the system on which it is intended to be run. **(DR 22631)**

75. Problem: ufcore does not build independently because of dependency on com.raytheon.uf.common.security

While working with the new hires this week on eclipse workspace setup, it was found that the ufcore/ufcore-foss repos cannot be built independently from the AWIPS2_baseline/AWIPS2_foss repos.

This is due to changes made in #7899, which introduced a dependency on com.raytheon.uf.common.security.

Operational Impact: None, only affects developers

Required Behavior: ufcore repo should build without any dependencies on projects from other repos except ufcore_foss **(DR 22622)**

76. Problem: CAVE hangs when attempting to issue WarnGen text product

When trying to create text warnings using WarnGen, CAVE hangs for a long time and may fail to issue the warning. CAVE runs very slowly thereafter.

Operational Impact: Will not be able to issue warnings

Required Behavior: Should be able to issue warnings without CAVE freezing **(DR 22621)**

77. Problem: Set default owner for /data/fxa/qpid/ in QPID RPM

Based on investigation results on BCQ HCI system, we need to be sure that we correctly set the ownership on /data/fxa/qpid/.
Currently it is defaulting to root:root, which is causing issues when QPID attempts to write monitor logs and other assorted items to
that directory.

Operational Impact: Necessary logs for monitoring health and operations of the QPID message broker won't be written

Required Behavior: Ownership of /data/fxa/qpid/ is awips:fxalpha **(DR 22620)**

78. Problem: Update awips2-edex-environment jars for Java 11

While setting up the test for DR 22511/8375, having trouble setting up the EDEX environment:

lx3-tbw4.er.awips.noaa.gov{raphael.rogers}108: sudo /awips2/edex-environment/macro/edex-environment -create /data/fxa/TEMP/22511/Environment-VDE.xml
Exception in thread "main" java.lang.NoClassDefFoundError: javax/xml/bind/JAXBException
    at java.base/java.lang.Class.forName0(Native Method)
    at java.base/java.lang.Class.forName(Class.java:398)
    at org.eclipse.jdt.internal.jarinjarloader.JarRsrcLoader.main(JarRsrcLoader.java:59)
Caused by: java.lang.ClassNotFoundException: javax.xml.bind.JAXBException
    at java.base/java.net.URLClassLoader.findClass(URLClassLoader.java:471)

```
        at java.base/java.lang.ClassLoader.loadClass(ClassLoader.java:589)
        at java.base/java.lang.ClassLoader.loadClass(ClassLoader.java:522)
        ... 3 more
```

Tried running the configuration utility separately and it failed with the same stack trace:

```
lx3-tbw4.er.awips.noaa.gov{raphael.rogers}109: /awips2/java/bin/java -jar /awips2/edex-
environment/macro/utilities/ConfigurationUtility.jar "/data/fxa/TEMP/22511/Environment-VDE.xml" "-
name"
Exception in thread "main" java.lang.NoClassDefFoundError: javax/xml/bind/JAXBException
        at java.base/java.lang.Class.forName0(Native Method)
        at java.base/java.lang.Class.forName(Class.java:398)
        at org.eclipse.jdt.internal.jarinjarloader.JarRsrcLoader.main(JarRsrcLoader.java:59)
Caused by: java.lang.ClassNotFoundException: javax.xml.bind.JAXBException
        at java.base/java.net.URLClassLoader.findClass(URLClassLoader.java:471)
        at java.base/java.lang.ClassLoader.loadClass(ClassLoader.java:589)
        at java.base/java.lang.ClassLoader.loadClass(ClassLoader.java:522)
        ... 3 more
```

Apparently javax.xml.bind.JAXBException is no longer in java 11 jdk:
https://stackoverflow.com/questions/43574426/how-to-resolve-java-lang-noclassdeffounderror-javax-xml-bind-jaxbexception

Operational Impact: Cannot run Wes2Bridge Configuration Utility

Required Behavior: Should be able to run Wes2Bridge Configuration Utility **(DR 22605)**

79. Problem: All quartz jobs eventually stop running on EDEX ingest

After running EDEX ingest for a while (hours), all quartz jobs eventually stop. This can be observed easily by looking at edex-ingest-purge-{date}-log and noticing that purge jobs are not running anymore.

Operational Impact: HDF5 files will no longer be purged and the disk will eventually fill up

Required Behavior: HDF5 files are purged on schedule **(DR 22599)**

80. Problem: Reduce fsiRadar.timeToLive to 1 hour

BCQ was experiencing OutOfMemoryErrors in Qpid. We suspected this could be due to the 24 hour TTL on fsiRadar allowing to many message to accumulate in memory.

Reducing the fsiRadar.timeToLive to 1 hour (3600000 ms) in com.raytheon.edex.plugin.radar.properties seems to have resolved this issue.

Operational Impact: Qpid may fail with OutOfMemoryErrors

Required Behavior: Qpid should not fail with OutOfMemoryErrors. **(DR 22598)**

81. Problem: GribDecoder throwing IllegalArgumentExceptions decoding GMOS data

Looking at ingestGrib issues on NWCO-HCI and I found the following error trace in the ingestGrib logs which I believe is related to the Java11 FOSS upgrades:

ERROR 2021-04-07 18:28:49,462 3984 [Ingest.GribDecode-11] GribDecoder: EDEX - Failed to decode grib file: /data_store/grib2/20210407/18/GMOS/GRID184/YOUZ98_KWBN_071819_46089580.grib2.2021040718
com.raytheon.edex.plugin.grib.exception.GribException: Failed to decode file: [/data_store/grib2/20210407/18/GMOS/GRID184/YOUZ98_KWBN_071819_46089580.grib2.2021040718]
at com.raytheon.edex.plugin.grib.Grib2Decoder.decode(Grib2Decoder.java:78) ~[com.raytheon.edex.plugin.grib.jar:na]
at com.raytheon.edex.plugin.grib.GribDecoder.process(GribDecoder.java:86) ~[com.raytheon.edex.plugin.grib.jar:na]
at org.apache.camel.component.bean.AbstractBeanProcessor.process(AbstractBeanProcessor.java:119) ~[camel-core-2.25.2.jar:2.25.2]
at org.apache.camel.util.AsyncProcessorHelper.process(AsyncProcessorHelper.java:109) ~[camel-core-2.25.2.jar:2.25.2]
at org.apache.camel.component.bean.AbstractBeanProcessor.process(AbstractBeanProcessor.java:71) ~[camel-core-2.25.2.jar:2.25.2]
at org.apache.camel.component.bean.BeanProcessor.process(BeanProcessor.java:48) ~[camel-core-2.25.2.jar:2.25.2]
at com.raytheon.uf.edex.esb.camel.MessageProducer$2.process(MessageProducer.java:464) ~[com.raytheon.uf.edex.esb.camel.jar:na]
at org.apache.camel.processor.DelegateAsyncProcessor.process(DelegateAsyncProcessor.java:110) ~[camel-core-2.25.2.jar:2.25.2]
at org.apache.camel.processor.CamelInternalProcessor.process(CamelInternalProcessor.java:201) ~[camel-core-2.25.2.jar:2.25.2]
at org.apache.camel.processor.Pipeline.process(Pipeline.java:138) ~[camel-core-2.25.2.jar:2.25.2]
at org.apache.camel.processor.Pipeline.process(Pipeline.java:101) ~[camel-core-2.25.2.jar:2.25.2]
at org.apache.camel.util.AsyncProcessorHelper.process(AsyncProcessorHelper.java:109) ~[camel-core-2.25.2.jar:2.25.2]
at org.apache.camel.processor.Pipeline.process(Pipeline.java:80) ~[camel-core-2.25.2.jar:2.25.2]
at com.raytheon.uf.edex.esb.camel.MessageProducer$2.process(MessageProducer.java:464) ~[com.raytheon.uf.edex.esb.camel.jar:na]
at org.apache.camel.processor.DelegateAsyncProcessor.process(DelegateAsyncProcessor.java:110) ~[camel-core-2.25.2.jar:2.25.2]
at org.apache.camel.processor.CamelInternalProcessor.process(CamelInternalProcessor.java:201) ~[camel-core-2.25.2.jar:2.25.2]
at org.apache.camel.processor.TryProcessor.process(TryProcessor.java:113) ~[camel-core-2.25.2.jar:2.25.2]
at org.apache.camel.processor.TryProcessor.process(TryProcessor.java:84) ~[camel-core-2.25.2.jar:2.25.2]
at org.apache.camel.util.AsyncProcessorHelper.process(AsyncProcessorHelper.java:109) ~[camel-core-2.25.2.jar:2.25.2]
at org.apache.camel.processor.TryProcessor.process(TryProcessor.java:68) ~[camel-core-2.25.2.jar:2.25.2]

at com.raytheon.uf.edex.esb.camel.MessageProducer$2.process(MessageProducer.java:464) ~[com.raytheon.uf.edex.esb.camel.jar:na]
at org.apache.camel.processor.DelegateAsyncProcessor.process(DelegateAsyncProcessor.java:110) ~[camel-core-2.25.2.jar:2.25.2]
at org.apache.camel.processor.CamelInternalProcessor.process(CamelInternalProcessor.java:201) ~[camel-core-2.25.2.jar:2.25.2]
at org.apache.camel.processor.CamelInternalProcessor.process(CamelInternalProcessor.java:201) ~[camel-core-2.25.2.jar:2.25.2]
at org.apache.camel.processor.DelegateAsyncProcessor.process(DelegateAsyncProcessor.java:97) ~[camel-core-2.25.2.jar:2.25.2]
at org.apache.camel.component.jms.EndpointMessageListener.onMessage(EndpointMessageListener.java:113) ~[camel-jms-2.25.2.jar:2.25.2]
at org.springframework.jms.listener.AbstractMessageListenerContainer.doInvokeListener(AbstractMessageListenerContainer.java:736) ~[spring-jms-5.1.20.RELEASE.jar:5.1.20.RELEASE]
at org.springframework.jms.listener.AbstractMessageListenerContainer.invokeListener(AbstractMessageListenerContainer.java:696) ~[spring-jms-5.1.20.RELEASE.jar:5.1.20.RELEASE]
at org.springframework.jms.listener.AbstractMessageListenerContainer.doExecuteListener(AbstractMessageListenerContainer.java:674) ~[spring-jms-5.1.20.RELEASE.jar:5.1.20.RELEASE]
at org.springframework.jms.listener.AbstractPollingMessageListenerContainer.doReceiveAndExecute(AbstractPollingMessageListenerContainer.java:318) ~[spring-jms-5.1.20.RELEASE.jar:5.1.20.RELEASE]
at org.springframework.jms.listener.AbstractPollingMessageListenerContainer.receiveAndExecute(AbstractPollingMessageListenerContainer.java:257) ~[spring-jms-5.1.20.RELEASE.jar:5.1.20.RELEASE]
at org.springframework.jms.listener.DefaultMessageListenerContainer$AsyncMessageListenerInvoker.invokeListener(DefaultMessageListenerContainer.java:1189) ~[spring-jms-5.1.20.RELEASE.jar:5.1.20.RELEASE]
at org.springframework.jms.listener.DefaultMessageListenerContainer$AsyncMessageListenerInvoker.executeOngoingLoop(DefaultMessageListenerContainer.java:1179) ~[spring-jms-5.1.20.RELEASE.jar:5.1.20.RELEASE]
at org.springframework.jms.listener.DefaultMessageListenerContainer$AsyncMessageListenerInvoker.run(DefaultMessageListenerContainer.java:1076) ~[spring-jms-5.1.20.RELEASE.jar:5.1.20.RELEASE]
at java.base/java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.java:1128) ~[na:na]
at java.base/java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecutor.java:628) ~[na:na]
at java.base/java.lang.Thread.run(Thread.java:834) ~[na:na]
Caused by: com.raytheon.edex.exception.DecoderException: <class 'ValueError'>: Cannot format given Object as a Unit
at com.raytheon.uf.edex.python.decoder.PythonDecoder.decode(PythonDecoder.java:120) ~[com.raytheon.uf.edex.python.decoder.jar:na]
at com.raytheon.edex.plugin.grib.Grib2Decoder.decode(Grib2Decoder.java:67) ~[com.raytheon.edex.plugin.grib.jar:na]
... 36 common frames omitted
Caused by: jep.JepException: <class 'ValueError'>: Cannot format given Object as a Unit

at /awips2/edex/lib/plugins/com.raytheon.edex.plugin.grib.jar/GribDecoder._decodePdsSection(GribDecoder.py:702) ~[na:na]
at /awips2/edex/lib/plugins/com.raytheon.edex.plugin.grib.jar/GribDecoder._getData(GribDecoder.py:207) ~[na:na]
at /awips2/edex/lib/plugins/com.raytheon.edex.plugin.grib.jar/GribDecoder.decode(GribDecoder.py:191) ~[na:na]
at /awips2/edex/data/utility/common_static/base/python/DecoderInterface.decode(DecoderInterface.py:58) ~[na:na]
at <string>.<module>(<string>:1) ~[na:na]
at jep.Jep.eval(Native Method) ~[jep-3.8.2.jar:na]
at jep.Jep.eval(Jep.java:507) ~[jep-3.8.2.jar:na]
at com.raytheon.uf.common.python.PythonScript.internalExecute(PythonScript.java:285) ~[com.raytheon.uf.common.python.jar:na]
at com.raytheon.uf.common.python.PythonScript.execute(PythonScript.java:333) ~[com.raytheon.uf.common.python.jar:na]
at com.raytheon.uf.common.python.PythonScript.execute(PythonScript.java:313) ~[com.raytheon.uf.common.python.jar:na]
at com.raytheon.uf.edex.python.decoder.PythonDecoder.decode(PythonDecoder.java:116) ~[com.raytheon.uf.edex.python.decoder.jar:na]
... 37 common frames omitted
Caused by: java.lang.IllegalArgumentException: Cannot format given Object as a Unit
at tec.uom.se.format.SimpleUnitFormat$ASCIIFormat.format(SimpleUnitFormat.java:817) ~[uomse-1.0.8.jar:na]
at tec.uom.se.format.AbstractUnitFormat.format(AbstractUnitFormat.java:95) ~[uom-se-1.0.8.jar:na]
at com.raytheon.uf.common.dataplugin.level.mapping.LevelMapper.lookupLevel(LevelMapper.java:122) ~[com.raytheon.uf.common.dataplugin.level.jar:na]
... 43 common frames omitted

Operational Impact: Data could be improperly discarded

Required Behavior: Ingest data if there are no other errors **(DR 22597)**

82. Problem: Add /awips2/ignite/logs to awips2-ignite rpm

The /awips2/ignite/logs directory is a separate disk on an HCI VM so will already be created and mounted on the cache vm before ignite is installed. As a result, the default ownership will be root:root. The awips2-ignite rpm should add /awips2/ignite/logs to its directories (via component.spec) so that it always gets created with awips:fxalpha ownership like the rest of the files and directories in /awips2/ignite.

Operational Impact: Ignite will not be able to write logs to /awips2/ignite/logs after the initial AWIPS2 installation.

Required Behavior: /awips2/ignite/logs created with correct ownership of awips:fxalpha **(DR 22585)**

83. Problem: Changes needed to monitorqpidhost.sh for HCI/20.3.1

Site NCF to report that he noticed changes that should be made in monitorqpidhost.sh script. Brad made the changes and saved it off to /data/fxa/TEMP on NMTR, but would like the changes implemented in the baseline version as well.

The two changes to the file:

- the script shouldn't reference corosync anymore, as HCI system doesn't use it
- jmap needs the debugger run before it can run

The original script is in /awips2/python/bin, his version is in /data/fxa/TEMP.

Note that NMTR was powered down at the time this DR was written. When the lab is powered back on, the script will be attached. The fix for this DR is to check the script in, as written/attached.

Operational Impact: No real impact to operation of the AWIPS software. However, loss of log to review QPID issues, and unsure if there are any ITO monitor items which use this log for alarms.

Required Behavior: monitorqpidhost.sh no longer references corosync and runs the debugger before jmap **(DR 22568)**

84. Problem: IngestGrib OutOfMemory errors on NCs with HCI

IngestGrib is running into OutOfMemory errors on CTBN-C with a full data flow. CTBN (non-HCI) with the same data flow has no memory issues. Determine why HCI is causing issues and resolve the problem.

Operational Impact: IngestGrib is restarting due to OOM issues. Constant restarting impacts latency and could cause data loss if unable to shutdown gracefully.

Required Behavior: IngestGrib should not run out of memory. **(DR 22563)**

85. Problem: Default Ignite configuration incorrect for NCs

Default Ignite configuration only uses 3 cache instances, where NCs and regional centers will use 6 instances. Currently this can be setup by ignite starting with a NCEP argument. This should either be changed to a more generic "6" argument and change the default to say "3" or make ignite start command generic across all systems and make the number of instances controlled by a configuration file.

Operational Impact: May impact performance and lead EDEX to not keep up with NC data flow.

Required Behavior: NC /Regional HCI systems should be started with 6 cache instances. **(DR 22562)**

86. Problem: Qpid JMS connection issues on HCI

On 20.3.1 HCI, qpid is suspending connections coming in from JVMs causing EDEX processing to all but stop. Unable to even connect with qpid-stat. This issue may be load related as it didn't seem to appear until there was a heavy data flow from the NSBN data flow issues being resolved.

TODO: Add EDEX and Qpid logs once CTBN connection comes back.

Operational Impact: Data processing on VM machines at NCs slows to a crawl when JMS connections start to suspend. All connections should remain open to process optimally.

Required Behavior: All JMS connections should remain open during normal operations. **(DR 22561)**

87. Problem: Patch LDM noaaportIngester to increase UDP socket size to alleviate data drops

During side by side testing of HCI and legacy LDM, RedHat found that the HCI LDM system was dropping UDP packets due to the feed overwhelming the default UDP socket buffer size (212992). We did some testing and found that increasing the socket buffer size to 8388608 (among other HCI specific fixes) greatly reduced the number of gaps accumulated on the HCI system. However, those fixes were done at a system level, meaning ALL UDP sockets would be created at this greater size. This could cause problems with other software using UDP, and cause general system issues. So patching the software (noaaportIngester) directly will isolate this buffer increase to only this software. RedHat provided this patch to implement to make this change, I will be reaching out to Unidata to see if they can implement this via a configurable option in the future.

```
diff -Naurp misc-old/inetutil.c misc/inetutil.c
--- misc-old/inetutil.c     2021-03-09 12:41:59.965121195 +1000
+++ misc/inetutil.c         2021-03-09 12:42:11.999014657 +1000
@@ -1115,20 +1115,44 @@ udpSock_init(
 {
    int fd = socket(AF_INET, SOCK_DGRAM, 0);
    int status;
+    int recvBufferSize = (4 * 1024 * 1024);
+    int recvBufferValue = 0;
+    int getSockOptLen = sizeof(recvBufferValue);

    if (-1 == fd) {
       log_syserr("Couldn't create UDP socket");
       status = 2;
    }
    else {
-       status = bind(fd, (struct sockaddr*)sockAddr, sizeof(*sockAddr));
+       status = setsockopt(fd, SOL_SOCKET, SO_RCVBUF, (void*)&recvBufferSize,
sizeof(recvBufferSize));
        if (status) {
-           log_syserr("Couldn't bind UDP socket");
+           log_syserr("setsockopt(SO_RCVBUF) failure");
            (void)close(fd);
```

```
            status = 2;
-       }
-       else {
-           *sock = fd;
+       } else {
+           status = getsockopt(fd, SOL_SOCKET, SO_RCVBUF, &recvBufferValue, &getSockOptLen);
+           if (status) {
+               log_syserr("getsockopt(SO_RCVBUF) failure");
+               (void)close(fd);
+               status = 2;
+           } else {
+               if (recvBufferValue != (recvBufferSize * 2)) {
+                   log_syserr("Receive buffer value not expected size. Requested %d but got %d",
+                           recvBufferSize, recvBufferValue/2);
+                   (void)close(fd);
+                   status = 2;
+               } else {
+                   status = bind(fd, (struct sockaddr*)sockAddr, sizeof(*sockAddr));
+                   if (status) {
+                       log_syserr("Couldn't bind UDP socket");
+                       (void)close(fd);
+                       status = 2;
+                   }
+                   else {
+                       *sock = fd;
+                   }
+               }
+           }
        }
    } // `fd` is open
```

Operational Impact: Data will be missing from 20.3.1+ sites

Required Behavior: Data will be missing from 20.3.1+ sites **(DR 22560)**

88. Problem: Fix Hazard Services code and XMLs for Camel 3 upgrade

Clean up any compile errors or EDEX runtime issues resulting from the Camel 3 upgrade.

Operational Impact: Hazard Services will not function at all, EDEX will not start up

Required Behavior: Be able to start EDEX and Hazard Services **(DR 22555)**

89. Problem: Tool input dialog issues with 20.3.1

See attached screenshot of the issue. The right dialog is the pre-20.3.1 dialog where the drop down list and the Location Descriptor line is correctly aligned on the left of the dialog. The left dialog is what appears in 20.3.1. The drop down list and Location Descriptor is oddly aligned in the center of the dialog.

This needs fixed so the megawidgets are aligned the same as they were in pre 20.3.1 version. It was determined that 68011 was the cause of this.

Operational Impact: The megawidget framework has odd alignment issues with the ChoiceButtonComponent which is used for checkbox and radio buttons. This could potentially impact all places where megawidgets are used. But currently the only known impact is that the Tool input dialog for certain Tools (Zorro Tool) are laid out oddly and look very poor to the user. It does not impact functionality, just appearance.

Required Behavior: Megawidgets should be aligned as expected in the Tool input dialogs **(DR 22530)**

90. Problem: Ingestshapefile does not work in 20.3.1

While Dennis was regression testing 20.3.1 he discovered that ingestshapefile no longer works with the following errors:

[dking@dx3-spike HazardServices]$ ./ingestshapefiles.sh -e -b -u -s /awipscm/bphillip/HSTableUpdate/shapefiles/BurnScar/OAX_burnscar_area.shp -w OAX ==========
Running cleanUpShapeFiles.py / ==========
/tmp/hydroTMPshapes12563
psql: server certificate for "dx1-spike" does not match host name "dx1f"
mapdata.hazardservicesarea does not exist, will be created.
OAX_burnscar_area.shp
Importing OAX_burnscar_area into mapdata.hazardservicesarea ...
psql: server certificate for "dx1-spike" does not match host name "dx1f"
Shapefile type: Polygon
Postgis type: MULTIPOLYGON2
psql: server certificate for "dx1-spike" does not match host name "dx1f"
psql: server certificate for "dx1-spike" does not match host name "dx1f"
psql: server certificate for "dx1-spike" does not match host name "dx1f"
psql: server certificate for "dx1-spike" does not match host name "dx1f"
psql: server certificate for "dx1-spike" does not match host name "dx1f"
psql: server certificate for "dx1-spike" does not match host name "dx1f"
psql: server certificate for "dx1-spike" does not match host name "dx1f"
psql: server certificate for "dx1-spike" does not match host name "dx1f"
psql: server certificate for "dx1-spike" does not match host name "dx1f"
psql: server certificate for "dx1-spike" does not match host name "dx1f"
psql: server certificate for "dx1-spike" does not match host name "dx1f"
psql: server certificate for "dx1-spike" does not match host name "dx1f"
psql: server certificate for "dx1-spike" does not match host name "dx1f"
Creating simplification levels 0.064,0.016,0.004,0.001...
Creating simplified geometry level 0.064 ...
psql: server certificate for "dx1-spike" does not match host name "dx1f"
Creating simplified geometry level 0.016 ...
psql: server certificate for "dx1-spike" does not match host name "dx1f"
Creating simplified geometry level 0.004 ...
psql: server certificate for "dx1-spike" does not match host name "dx1f"
Creating simplified geometry level 0.001 ...
psql: server certificate for "dx1-spike" does not match host name "dx1f"

vacuumdb: could not connect to database maps: server certificate for "dx1-spike" does not match host name "dx1f"
mkdir: cannot create directory ?/awips2/edex/data/utility/edex_static/site/OAX/shapefiles?: Permission denied
chmod: cannot access ?/awips2/edex/data/utility/edex_static/site/OAX/shapefiles/hazardServices?: No such file or directory
/awips2/postgresql/bin/pgsql2shp -hdx1f -u awips -p 5432 -g the_geom -f /tmp/hydroMERGEDshapes12563/burnscararea maps \
"select name,the_geom from mapdata.hazardservicesarea where cwa='OAX' and type='burnscararea'"
FATAL: connection requires a valid client certificate
FATAL: no pg_hba.conf entry for host "147.18.139.49", user "awips", database "maps", SSL off
Could not read in /tmp/hydroMERGEDshapes12563/*
psql: server certificate for "dx1-spike" does not match host name "dx1f"
There is an entry in an instance of BurnScarMetaData.py for every
impact area in mapdata.hazardservicesarea where cwa='OAX' and type='burnscararea'
./ingestshapefiles.sh completed.
[dking@dx3-spike HazardServices]$

Operational Impact: ingestshapefiles will be unusable and therefore the hazardservicesarea db table cannot be populated with Dams, BurnScars, etc via shapefiles. This makes the BurnScar and Dam/Levee Recommenders non-functional if the table is not yet populated for the site.

Required Behavior: Verify ingestshapefile can be run with no errors to populate the hazardservicesarea table in the maps database. It should NOT be spewing out a bunch of "psql: server certificate for "dx1-spike" does not match host name "dx1f" " lines. **(DR 22527)**

91. Problem: Wes2Bridge configuration utility needs to disable Ignite and only utilize PyPIES

The wes2bridge configuration utility that generates the setup.env needs to specifically disable ignite and have the configuration be correct for connecting directly to PyPIES.

Operational Impact: Sites will be unable to utilize Wes2Bridge on 20.3.1 without manually changing the setup.env each time

Required Behavior: Wes2bridge edex instance is able to launch without requiring an ignite instance. **(DR 22511)**

92. Problem: Ignite fails to log errors if it doesn't find the requested h5 file

If ignite fails to find a requested h5 file in the cache, it should ask pypies to retrieve it. If pypies also doesn't find it though, ignite simply returns null and logs no message indicating anything went wrong.

If ignite fails to find a file, it should log an error that it was unable to find a file. Pypies should also be logging info on the file not being found and ideally what went wrong.

Operational Impact: Data may not be retrieved from cache and not report any errors

Required Behavior: If data is not retrieved, an error should be logged that a problem occurred and why **(DR 22486)**

93. Problem: Remove use of Python built-in round function

There are round methods defined in GFE in two places:

* For formatters:

> * TextUtils.py : def round(self, val, mode, increment)

* For Tools/Procedures:

> * BaseTool.py: def round(self, val, mode, increment)

Note that SmartScript extends BaseTool so the BaseTool round method is available to all tools/procedures.

Conduct a search all baseline tools/procedures/formatters that are currently calling the Python built-in round function and change them to use the appropriate round function from either BaseTool or TextUtils. It will probably take a couple of days to find and fix all the instances. Testing effort will depend on how many instances had to be changed.

Operational Impact: Content generated in products could be different than what is expected due to the use of the Python 3 built-in round function, causing confusion and/or inaccurate information.

Required Behavior: Rounding method used in 20.3.1 (Python 3) should produce the same results as that produced in pre-20.3.1 (Python 2) releases. **(DR 22464)**

94. Problem: BOIVerify: Python 3 upgrade issue in BOIVerifyBiasCorr.py

Site reported the following issue while doing 20.3.1 testing on BOIVerify on the TBW4 test system:
BOIVerifyBiasCorr.py has an issue on line 326.
if self.VU.getDebug>=1
should be
if self.VU.getDebug()>=1

Operational Impact: BOIVerifyBiasCorr will fail.

Required Behavior: BOIVerifyBiasCorr should execute without error. **(DR 22461)**

95. Problem: BOIVerify: python3 update issues with getLatestDbId.py and getLatestDbTime.py

Site reported that he found issues related to the upgrade to python 3 in 20.3.1 while testing BOIVerify on the TBW4 testbed.
The issues were found in the files getLatestDbId.py and getLatestDbTime.py. Those files are both found under /data/verify/scripts.
See attached fixed files provided by Jerry Wiedenfeld as well as diffs.

Operational Impact: BOIVerify will fail to run.

Required Behavior: BOIVerify should run and produce data. **(DR 22460)**

96. Problem: Need delta script for change in endpointConfig for RCM

The endpointConfig for RCM changes in 20.3.1. Need a deltaScript to update the existing /awips2/rcm/data/config/persist/config.xml at sites for the 20.3.1 install.

Operational Impact: RadarServer will not connect to qpid, which means no local radar data will be available for viewing

Required Behavior: RadarServer will connect to qpid and local radar data should be available **(DR 22460)**

97. Problem: Configure all AWIPS2 services to start at boot

In the HCI architecture, pacemaker will no longer manage service start up. Rather than have separate procedures to start all processes after a reboot, the services should be chkconfig'ed or enabled via systemctl, to start on boot, and this configuration should be set on installation of the rpm which adds the service. The following services should be enabled to start on boot
qpidd
ldmcp
EDEX
httpd-pypies
edex_postgres
edex_rcm
comms_manager
neospeech_tts

Operational Impact: Reboot procedures would take longer to accomplish to get all the services back up and running after a reboot.

Required Behavior: Services start automatically after reboot **(DR 22449)**

98. Problem: watchdog monitoring missing for neospeech, ldm and ignite

Watchdog processes were implemented for AWIPS2 services since pacemaker high availability is going away in the new HCI architecture. However, watchdog processes were not created for the neospeech, LDM and ignite processes and those should be implemented so they are covered along with the other processes (EDEX, qpid, postgresql, etc).

Operational Impact: If processes were to die or be shutdown, there would be no way to automatically recover, and depending on the process, they would eventually be noticed by the site and manual intervention would be necessary to rectify the issue.

Required Behavior: If processes were to die or shutdown for whatever reason, watchdog would start the processes back up to ensure complete system functionality. **(DR 22447)**

99. Problem: ignite stability issue

On TBW3 instabilities related to ignite were found to impact data ingest. Ignite needed to be restarted on the cache servers to allow data ingest to proceed, but this needed to be repeated several times over several days to get ingest moving again. Was looking at both ingest logs, qpid queues, and ignite logs as keys to when this issue was presenting itself.

Operational Impact: Data ingest will slow to a halt, available data will become old.

Required Behavior: The system should be able to function without restarts for at least a month without having to restart any processes. **(DR 22446)**

100. Problem: GFE: Tropical (TAT) - CreateNatlTCVZoneGroups procedure throws an error when running about not being able to find the previous combo file.

CreateNatlTCVZoneGroups procedure throws an error when running about not being able to find the previous combo file. You can still run the TCV up until it is time for an all CAN then this error causes the national TCV to fail. Affects NHC and there is no known workaround.

Operational Impact: The CreateNatlTCVZoneGroups fails to run, preventing the zone groups from being formed. This will cause problems as the National Center tries to progress through its forecasting process.

Required Behavior: CreateNatlTCVZoneGroups procedure should run without problems. **(DR 22445)**

101. Problem: Python 3 issue with AppFileInstaller.getFile()

The method mention above needs to add a .decode() call when it gets the contents of the file:
fileStr = resp.response.getBytes().tostring().decode()

This is preventing files from being read in correctly.

Operational Impact: Hazard Services OverridesInstaller package no longer works to install localization files. This package is used to install python patches to sites.

Required Behavior: AppFileInstaller needs to successfully be able to interact with localization files with Python 3. **(DR 2244)**

102. Problem: GFE:Tropical - TCMWindTool not processing the input data as expected

When the TCMWindTool is run as WRKTC for ADV20 of Irene. It is producing the following error:

MIARCLWG1 incomplete. Revert and rerun tool using HSU input for GUI sliders for days 3, 4, 5

The TCMWindTool.py has some python 3 issues that is causing some if statements to not be accessed or processed properly. Matt Belk knows and is working on the issue.

Operational Impact: The TCMWindTool will not pull in the appropriate text product and fail to run.

Required Behavior: It should pull in the product, read the product and produce the result based on your selections. **(DR 22436)**

103. Problem: Truncated/Covered Text in the Statistics Dialogs

In the Statistics Display Control dialog, the text for the Start radio button is truncated; see attached screenshot. Also, when clicking on the data points on the graph, a black block hides the text; see attached screenshot.

This is not repeatable on 20.2.1

Operational Impact: Unable to view point text data on AWIPS performance statistic graphs

Required Behavior: When click on a point on a graph, should display the text data for that point. **(DR 22412)**

104. Problem: GFE: Tropical - TCWindThreat python3 changes missing

When trynig to run the TCWindThreat it was determined that the following two changes needed to be made from python2 to python3 in order for the code to work.

ln 181
Line: distList.sort(self.distSort)
Changes too line: distList.sort(key=lambda p: p[0])

and

259
Line: histKeys.sort()
Changes too: histKeys = sorted(histDict.keys())

Attached is the script with the Line commented out and the python3 code added that works. Was tested as a user level file on lx1-TBW4 20.3.1-13VM

Operational Impact: The product will not work or produce a result without the code changes

Required Behavior: The code should run and produce the appropriate grids for TPCWindThreat expect: Preliminary only makes a WindMax grid however Official makes WindMax, Prob34, Prob50, and Prob64. **(DR 22408)**

105. Problem: GFE Site Activation Sometimes Failing, Due To Python Interpreter Reuse

GFE Site Activation sometimes failing, due to Python interpreter reuse

<pre>
<com.raytheon.edex.plugin.gfe.exception.GfeConfigurationException: Exception occurred while processing serverConfig for site NHP

at com.raytheon.edex.plugin.gfe.config.GFESiteActivation.initializeConfig(GFESiteActivation.java:350)

at com.raytheon.edex.plugin.gfe.config.GFESiteActivation.initializeSite(GFESiteActivation.java:305)

at com.raytheon.edex.plugin.gfe.config.GFESiteActivation.internalActivateSite(GFESiteActivation.java:396)

at com.raytheon.edex.plugin.gfe.config.GFESiteActivation.activateSite(GFESiteActivation.java:272)

at com.raytheon.uf.edex.site.SiteAwareRegistry.handleMessage(SiteAwareRegistry.java:300)

at java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke0(Native Method)

at java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:62)

at java.base/jdk.internal.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:43)

at java.base/java.lang.reflect.Method.invoke(Method.java:566)

at org.apache.camel.util.ObjectHelper.invokeMethodSafe(ObjectHelper.java:2111)

at org.apache.camel.component.bean.MethodInfo.invoke(MethodInfo.java:483)

at org.apache.camel.component.bean.MethodInfo$1.doProceed(MethodInfo.java:302)

at org.apache.camel.component.bean.MethodInfo$1.proceed(MethodInfo.java:275)

at org.apache.camel.component.bean.AbstractBeanProcessor.process(AbstractBeanProcessor.java:198)

at org.apache.camel.util.AsyncProcessorHelper.process(AsyncProcessorHelper.java:109)

at org.apache.camel.component.bean.AbstractBeanProcessor.process(AbstractBeanProcessor.java:71)

at org.apache.camel.component.bean.BeanProcessor.process(BeanProcessor.java:48)

at com.raytheon.uf.edex.esb.camel.MessageProducer$2.process(MessageProducer.java:464)

at org.apache.camel.processor.DelegateAsyncProcessor.process(DelegateAsyncProcessor.java:110)

at org.apache.camel.processor.CamelInternalProcessor.process(CamelInternalProcessor.java:201)

at org.apache.camel.processor.Pipeline.process(Pipeline.java:138)

at org.apache.camel.processor.Pipeline.process(Pipeline.java:101)

at org.apache.camel.processor.TryProcessor.process(TryProcessor.java:113)

at org.apache.camel.processor.TryProcessor.process(TryProcessor.java:84)

at org.apache.camel.util.AsyncProcessorHelper.process(AsyncProcessorHelper.java:109)

at org.apache.camel.processor.TryProcessor.process(TryProcessor.java:68)

at com.raytheon.uf.edex.esb.camel.MessageProducer$2.process(MessageProducer.java:464)

at org.apache.camel.processor.DelegateAsyncProcessor.process(DelegateAsyncProcessor.java:110)

at org.apache.camel.processor.CamelInternalProcessor.process(CamelInternalProcessor.java:201)

at org.apache.camel.processor.CamelInternalProcessor.process(CamelInternalProcessor.java:201)

at org.apache.camel.processor.DelegateAsyncProcessor.process(DelegateAsyncProcessor.java:97)

at
org.apache.camel.component.jms.EndpointMessageListener.onMessage(EndpointMessageListener.java:113)

at
org.springframework.jms.listener.AbstractMessageListenerContainer.doInvokeListener(AbstractMessageListenerContainer.java:736)

at org.springframework.jms.listener.AbstractMessageListenerContainer.invokeListener(AbstractMessageListenerContainer.java:696)

at org.springframework.jms.listener.AbstractMessageListenerContainer.doExecuteListener(AbstractMessageListenerContainer.java:674)

at org.springframework.jms.listener.AbstractPollingMessageListenerContainer.doReceiveAndExecute(AbstractPollingMessageListenerContainer.java:318)

at org.springframework.jms.listener.AbstractPollingMessageListenerContainer.receiveAndExecute(AbstractPollingMessageListenerContainer.java:257)

at org.springframework.jms.listener.DefaultMessageListenerContainer$AsyncMessageListenerInvoker.invokeListener(DefaultMessageListenerContainer.java:1189)

at org.springframework.jms.listener.DefaultMessageListenerContainer$AsyncMessageListenerInvoker.executeOngoingLoop(DefaultMessageListenerContainer.java:1179)

at org.springframework.jms.listener.DefaultMessageListenerContainer$AsyncMessageListenerInvoker.run(DefaultMessageListenerContainer.java:1076)

at java.base/java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.java:1128)

at java.base/java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecutor.java:628)

at java.base/java.lang.Thread.run(Thread.java:834)

Caused by: jep.JepException: JEP THREAD WARNING: Unsafe reuse of thread siteActivation-1 for another Python sub-interpreter.

Please close() the previous Jep instance to ensure stability.

at jep.Jep.<init>(Jep.java:239)

at jep.Jep.<init>(Jep.java:228)

at com.raytheon.uf.common.python.PythonInterpreter.<init>(PythonInterpreter.java:134)

at com.raytheon.uf.common.python.PythonInterpreter.<init>(PythonInterpreter.java:73)

at com.raytheon.uf.common.python.PythonScript.<init>(PythonScript.java:80)

at com.raytheon.uf.common.python.PythonEval.<init>(PythonEval.java:57)

at com.raytheon.uf.common.python.PythonEval.<init>(PythonEval.java:88)

at
com.raytheon.edex.plugin.gfe.config.GFESiteActivation.initializeConfig(GFESiteActivation.java:342)

... 42 more
</pre>

Operational Impact: Could cause GFE to be non-operational.

Required Behavior: GFE Activation should not fail due to Python Interpreter reuse. **(DR 22407)**

106. Problem: ServerConfig error handling gives false message

The exception handling in ServerConfig.siteImport() can give a false message indicating "No localConfig file found" if localConfig
attempts to import another module that is not found.

Operational Impact: False message causes confusion and makes determining actual issue extremely difficult

Required Behavior: Error message should contain a clear description of the true error **(DR 22403)**

107. Problem: Move qpid Certificates and Keys Into A New SSL Directory

Qpid SSL/TLS files should go in a new directory like /awips2/qpid/tls where separate directory permissions can be applied, instead of into /awips2/qpid.

Operational Impact: TBD

Required Behavior: TBD **(DR 22401)**

108. Problem: SendWFOMessageRequest Error in GFE svcbu

Error servicing SendWFOMessageRequest from site [NHA]: <class 'TypeError'>: a bytes-like object is required, not 'str'

Operational Impact: N/A

Required Behavior: N/A **(DR 22400)**

109. Problem: AvnFPS TAF Monitor Errors

During HCI testing on TBW4 an issue was discovered with the AvnFPS TAF monitor when executing the AvnFPS_MOS_Decoders test case. Specifically, when clicking the TAF/LAMP and GFSLAMP tabs in the TAF Editor window, errors can raised in python code about a <= comparison between two different object types.

ERROR 2020-11-30 17:16:04,700 2733 [Worker-13: AvnFPS Python Guidance] CaveLogger: Error with TAMPGenerator: KOAJ - '<=' not supported between instances of 'int' and 'NoneType'

Traceback (most recent call last):

File "/home/brian.hurley/caveData/common/base/aviation/python/GuidanceEntry.py", line 446, in tampgen

tafDuration)

File "/home/brian.hurley/caveData/common/base/aviation/python/TAMPGenerator.py", line 1098, in TAMPGenerator

tafGen = TafGen.TafGen('gfslamp',LAMP.data,amdmt,now)

File "/home/brian.hurley/caveData/common/base/aviation/python/TafGen.py", line 672, in __init__

dat,self.tafTime).getData() for dat in self.fcst[nBeg:nEnd]]

File "/home/brian.hurley/caveData/common/base/aviation/python/TafGen.py", line 672, in <listcomp>

dat,self.tafTime).getData() for dat in self.fcst[nBeg:nEnd]]

File "/home/brian.hurley/caveData/common/base/aviation/python/TafGen.py", line 318, in __init__

self.prob30 = self.mkProb30(fcstData['pcp'])

File "/home/brian.hurley/caveData/common/base/aviation/python/TafGen.py", line 371, in mkProb30

pcpn.get('pop') <= self.grpTaf['tempo_pop']:

TypeError: '<=' not supported between instances of 'int' and 'NoneType'

The problem here is that either pcpn.get('pop') or self.grpTaf['tempo_pop'] is returning None. It's probably the call to pcpn.get('pop') that returns 'None', which is compared to an 'int' type, and thus the exception is raised. 'pop' likely stands for 'probability of precipitation'. This is likely now being exposed because comparison between different types has been removed from Python 3. With Python 2 this would have defaulted in a specific way, and no error thrown.

A check for None could be added when attempting to retrieve the value from the dictionary, and additional logic added to handle this case in a more graceful manner. Or a default value could perhaps be provided in a get() call. But it is unclear how exactly this should be handled. It was recommended to consult with an AvnFPS subject matter expert from NWS to get guidance in this situation.

Another message that was noticed in the log indicates 'pop' data was not available for a given forecast hour, and a calculation was skipped. It's unclear why this data is not available, but likely contributes to the situation described above.

INFO 2020-11-30 17:16:04,698 2732 [Worker-13: AvnFPS Python Guidance] CaveLogger: mkPcp: Field not yet available in LAMP data for this forecast hour. 'pop' Skip this calculation.

This issue was noticed with all stations - KEWN, KPGV, KOAJ, and KISO.

Note: The problem was reproducible on TBW4 without running any specific steps from the AvnFPS_MOS_Decoders test case. It was noticed that at first the TAF/LAMP and GFSLAMP tabs may display messages indicating no data is available:

"Unable to determine data/time"

"Newest data in system is more than 24 hours old"

If you wait until new hourly data is processed, then you should see the errors described above. If the errors are not seen or data is not being periodically ingested such as on a testbed, you'll likely need follow the steps per the AvnFPS_MOS_Decoders test case, and copy the hourly LAMP data files from:

https://lamp.mdl.nws.noaa.gov/lamp/glmp_v2.3.0_download_full_1-38h_bufr.php and copy them to dv3:/awips2/edex/data/manual

Operational Impact: If certain data is missing, errors are thrown when clicking on the TAF/LAMP and GFSLAMP tabs in the AvnFPS TAF Editor, and nothing is displayed in the tabs.

Required Behavior: The AvnFPS TAF Monitor should display current data for configured stations without throwing errors. Or a specific message should alert the user as to why the data can't be displayed. **(DR 22393)**

110. Problem: MPE Daily QC: error if the Select Area is not manually set.

In the Choose Data Period window, leaving the default settings as-is and clicking 'Precipitation', 'Temperature' or 'Freezing' results in an "index out of bounds" error (see attached). This appears to be because there is no value set for area, even though a default area is displayed in the window.

Operational Impact: Users unaware of the workaround will be unable to run the Daily QC

Required Behavior: The "Select Area" drop-down list displays the default setting: which will be effective if the user clicks on the 'Precipitation', 'Temperature' or 'Freezing' buttons without selecting the area. **(DR 22380)**

111. Problem: GFE: Active Table Sharing - Pickle protocol 3 incompatible during ISC activation

After enabling Active Table Sharing on TBDW and TBW4 by using:

```
serverConfig.ISC_ROUTING_TABLE_ADDRESS = {
   "ANCF" : "http://svcbu-tncf.er.awips.noaa.gov:8081/irttest",
   "BNCF" : "http://svcbu-tncf.er.awips.noaa.gov:8081/irttest"
}
```

there is a new issue with VTEC active table sharing between TBW4 and TBDW.
/awips2/GFESuite/logs/AKQ/20201202/dx4-tbdw/iscDataRec.log
(which is attached)

There is an error about ?unsupported pickle protocol: 3?

which indicates the protocol was incompatible.

Operational Impact: Active table sharing will fail between 20.3.1 and pre-20.3.1 sites

Required Behavior: Active table sharing should work across releases **(DR 22379)**

112. Problem: FSI only processing one message per minute

While testing the HCI in SS it was found that FSI was only processing one qpid message per minute. Messages should be received via the EdexQueueReader with reasonably low latency. Determine the reason for the high processing time.

Operational Impact: Data received by the FSI programs is unable to be processed in a timely manner.

Required Behavior: FSI should be able to process hundreds of messages per minute. **(DR 22377)**

113. Problem: GFE: Tropical - HLS formatter fails to run under Python 3

Working through HLS formatter fails to run under Python 3 below are the 3 we have found and are working through thus far

Error 1:

```
"
2011-08-25 05:05:54,455:FormatterRunner:ERROR:Error generating text product
Traceback (most recent call last):
  File ""/awips2/cave/etc/gfe/userPython/textUtilities/FormatterRunner.py"", line 123, in
executeFromJava
    dataMgr=dataMgr, drtTime=drtTime, vtecActiveTable=vtecActiveTable)
  File ""/awips2/cave/etc/gfe/userPython/textUtilities/FormatterRunner.py"", line 295, in runFormatter
```

```
    forecast = formatter.getForecast(forecastType, argDict)
  File ""/awips2/cave/etc/gfe/userPython/textUtilities/TextFormatter.py"", line 184, in getForecast
    text = product.generateForecast(argDict)
  File ""/home/laura.kowal/caveData/etc/configured/MHX/gfe/userPython/textProducts/HLS.py"", line
465, in generateForecast
    error = self._initializeVariables(argDict)
  File ""/home/laura.kowal/caveData/etc/configured/MHX/gfe/userPython/textProducts/HLS.py"", line
521, in _initializeVariables
    self._getStormInfo(argDict)
  File ""/home/laura.kowal/caveData/etc/configured/MHX/gfe/userPython/textProducts/HLS.py"", line
2567, in _getStormInfo
    self._decodeStormInfo(stormDict)
  File ""/home/laura.kowal/caveData/etc/configured/MHX/gfe/userPython/textProducts/HLS.py"", line
2996, in _decodeStormInfo
    self._stormLocalReferences = self._calcLocalReferences(self._stormLat, self._stormLon)
  File ""/home/laura.kowal/caveData/etc/configured/MHX/gfe/userPython/textProducts/HLS.py"", line
3099, in _calcLocalReferences
    if len(refList) > refLimit:
TypeError: '>' not supported between instances of 'int' and 'tuple'"
```

Error 2:

```
2011-08-25 05:03:28,304:FormatterRunner:ERROR:Error generating text product
Traceback (most recent call last):
  File "/awips2/cave/etc/gfe/userPython/textUtilities/FormatterRunner.py", line 123, in executeFromJava
    dataMgr=dataMgr, drtTime=drtTime, vtecActiveTable=vtecActiveTable)
  File "/awips2/cave/etc/gfe/userPython/textUtilities/FormatterRunner.py", line 295, in runFormatter
    forecast = formatter.getForecast(forecastType, argDict)
  File "/awips2/cave/etc/gfe/userPython/textUtilities/TextFormatter.py", line 184, in getForecast
    text = product.generateForecast(argDict)
  File "/home/laura.kowal/caveData/etc/configured/MHX/gfe/userPython/textProducts/HLS.py", line 468,
in generateForecast
    error = self._initializeVariables(argDict)
  File "/home/laura.kowal/caveData/etc/configured/MHX/gfe/userPython/textProducts/HLS.py", line 556,
in _initializeVariables
    selectedZones = functools.reduce(lambda zones, combo: zones + combo[0],
NameError: name 'functools' is not defined
```

Error 3:

```
2011-08-25 05:04:53,560:FormatterRunner:ERROR:Error generating text product
Traceback (most recent call last):
  File "/awips2/cave/etc/gfe/userPython/textUtilities/FormatterRunner.py", line 123, in executeFromJava
    dataMgr=dataMgr, drtTime=drtTime, vtecActiveTable=vtecActiveTable)
  File "/awips2/cave/etc/gfe/userPython/textUtilities/FormatterRunner.py", line 295, in runFormatter
    forecast = formatter.getForecast(forecastType, argDict)
  File "/awips2/cave/etc/gfe/userPython/textUtilities/TextFormatter.py", line 184, in getForecast
    text = product.generateForecast(argDict)
  File "/home/laura.kowal/caveData/etc/configured/MHX/gfe/userPython/textProducts/HLS.py", line 491,
in generateForecast
    self._sampleHLSData(argDict)
```

File "/home/laura.kowal/caveData/etc/configured/MHX/gfe/userPython/textProducts/HLS.py", line 2124, in _sampleHLSData
if decidingField is None or qpfToFfgRatio > decidingField:
TypeError: '>' not supported between instances of 'NoneType' and 'float'

Operational Impact: HLS will not run so HLS tropical products will not be able to go out.

Required Behavior: HLS should run and produce a valid product. **(DR 22376)**

114. Problem: CAVE crashes when changing tables in the Archive Case Creation and Archive Retention GUIs

Unable to change tables in the Archive Case Creation and Archive Retention GUIs. Causes CAVE to crash and get an UELE from Alertviz. See attached error.

Operational Impact: Unable to change tables in the Archive Case Creation and Archive Retention GUIs. Causes CAVE to crash and get a UELE from Alertviz.

Required Behavior: The tables should change in both GUIs without crashing CAVE **(DR 22375)**

115. Problem: Fix LDM configurations for HCI deployment

Two fixes are necessary for the baseline LDM software to be compatible with the HCI cpv1 implementation:

1) start_ldm script fix myhost=`hostname -s` and change to myhost=`hostname -s | cut -d- -f1`. This will make the rest of the myhost checks work correctly.
2) ldmcp init script change /data/ldm references to /usr/local/ldm. /data/ldm is no longer in use.
3) Also found that logrotate won't work with the change in log location. Modify /etc/logrotate.d/ldm.log /data/ldm/logs to /usr/local/ldm/logs.

Operational Impact: LDM will not start without manual post install changes.

Required Behavior: service ldmcp start works after an install **(DR 22373)**

116. Problem: TempOfTe derived parameter failing

In TempOfTe.py, in the execute() function there is a Numpy indexing exception caused by using a boolean array to access elements of a numerical array. The error occurs because the dimensions of the boolean array are less than that of the numerical array.

diff[Tmask] = AdiabaticTemp.execute(Tans[Tmask], PPP) - T[Tmask] //Tmask is lower in dimension than T

Operational Impact: Graphical results may not appear. If they do appear, they may even be incorrect to some degree.

Required Behavior: Graphical results should appear and display expected behavior. **(DR 22362)**

117. Problem: Icons on Hazard Services console too large

The winter weather, maritime and non-precipitation icons in the Hazard Services console are way too big (see attached). From talking to Robert Blum it appears a new eclipse version changed the appearance of the icons.

Operational Impact: The large icons take up a ton of screen space

Required Behavior: All of the icons in HS Console should be the same size, and much smaller **(DR 22361)**

118. Problem: Error Returned When Displaying GFS Wind Barbs On The N American Or NH Scales

When the N American or NH scale are displayed and the user selects a GFS wind barb from the Volume menu, the attached error is returned.

Not repeatable on 20.2.1.

Operational Impact: Forecasters are unable to display winds over the Pole.

Required Behavior: The wind barbs display over the Pole without error. **(DR 22352)**

119. Problem: GFE: Formatters - Tropical TCV Formatter doesn't recognize hazard grids

Problem with python 2to3 conversion in the Tropcail TCV formatter that needs to be fixed. Below is the failing portion of the stack trace.

2011-08-25 05:01:39,675:FormatterRunner:ERROR:Error generating text product
Traceback (most recent call last):
  File "/awips2/cave/etc/gfe/userPython/textUtilities/FormatterRunner.py", line 123, in executeFromJava
    dataMgr=dataMgr, drtTime=drtTime, vtecActiveTable=vtecActiveTable)
  File "/awips2/cave/etc/gfe/userPython/textUtilities/FormatterRunner.py", line 295, in runFormatter
    forecast = formatter.getForecast(forecastType, argDict)
  File "/awips2/cave/etc/gfe/userPython/textUtilities/TextFormatter.py", line 184, in getForecast
    text = product.generateForecast(argDict)
  File "/home/laura.kowal/caveData/etc/configured/MHX/gfe/userPython/textProducts/Hazard_TCV.py", line 561, in generateForecast
    self._sampleData(argDict)

```
  File "/home/laura.kowal/caveData/etc/configured/MHX/gfe/userPython/textProducts/Hazard_TCV.py",
line 934, in _sampleData
    self._timeRangeList6Hour)
  File "/home/laura.kowal/caveData/etc/configured/MHX/gfe/userPython/textProducts/Hazard_TCV.py",
line 994, in _getStats
    windStats = WindSectionStats(self, segment, statList1Hour, timeRangeList1Hour)
  File "/home/laura.kowal/caveData/etc/configured/MHX/gfe/userPython/textProducts/Hazard_TCV.py",
line 2675, in __init__
    self._setStats(statList, timeRangeList)
  File "/home/laura.kowal/caveData/etc/configured/MHX/gfe/userPython/textProducts/Hazard_TCV.py",
line 2773, in _setStats
    self._updateStatsForPwsTXX(tr, statDict, "pwsD34", "pwsN34", pwsT34Stats, currentPeriod)
  File "/home/laura.kowal/caveData/etc/configured/MHX/gfe/userPython/textProducts/Hazard_TCV.py",
line 2890, in _updateStatsForPwsTXX
    self._textProduct.debug_print("localtime = %s" % (localtime), 1)
TypeError: not all arguments converted during string formatting
```

Operational Impact: Sites cannot run the TCV formatter as it doesn't recognize hazard grids

Required Behavior: The TCV formatter must run and produce a text product pulling in hazard grids for the active storm. **(DR 22351)**

120. Problem: GFE: Text Products - FWS formatter

The FWS error is probably a configuration issue that slid by in Python 2 but now causes an error in Python 3.

The ConfigVariables.maxReported_threshold() method calls TextUtils.access_dictionary() to attempt to retrieve the value from a dict returned from the maxReported_threshold_dict() method which should probably be overridden in FWS. When access_dictonary() doesn?t find the value it?s looking for it returns ?? (empty string).

In Python 2 float >= str returns false, in Python 3 it throws the TypeError seen in the stack trace.

Here is the error:

```
"Traceback (most recent call last):
  File ""/awips2/cave/etc/gfe/userPython/textUtilities/FormatterRunner.py"", line 123, in
executeFromJava
    dataMgr=dataMgr, drtTime=drtTime, vtecActiveTable=vtecActiveTable)
  File ""/awips2/cave/etc/gfe/userPython/textUtilities/FormatterRunner.py"", line 295, in runFormatter
    forecast = formatter.getForecast(forecastType, argDict)
  File ""/awips2/cave/etc/gfe/userPython/textUtilities/TextFormatter.py"", line 184, in getForecast
    text = product.generateForecast(argDict)
  File ""/home/laura.kowal/caveData/etc/configured/MHX/gfe/userPython/textProducts/FWS.py"", line
1274, in generateForecast
    fcst = self._makeProduct(fcst, editArea, areaLabel, argDict)
  File ""/home/laura.kowal/caveData/etc/configured/MHX/gfe/userPython/textProducts/FWS.py"", line
1428, in _makeProduct
```

```
    argDict, editArea, areaLabel)
  File ""/awips2/cave/etc/gfe/userPython/textUtilities/ForecastNarrative.py"", line 617, in
generateForecast
    changesMade = self.traverseTree(self.__narrativeTree)
  File ""/awips2/cave/etc/gfe/userPython/textUtilities/ForecastNarrative.py"", line 711, in traverseTree
    childChanged = self.traverseTree(child)
  File ""/awips2/cave/etc/gfe/userPython/textUtilities/ForecastNarrative.py"", line 711, in traverseTree
    childChanged = self.traverseTree(child)
  File ""/awips2/cave/etc/gfe/userPython/textUtilities/ForecastNarrative.py"", line 711, in traverseTree
    childChanged = self.traverseTree(child)
  File ""/awips2/cave/etc/gfe/userPython/textUtilities/ForecastNarrative.py"", line 687, in traverseTree
    done = method(self.__narrativeTree, node)
  File ""/awips2/cave/etc/gfe/userPython/textUtilities/VectorRelatedPhrases.py"", line 164, in
vector_words
    words = self.simple_vector_phrase(tree, node, elementInfo)
  File ""/awips2/cave/etc/gfe/userPython/textUtilities/VectorRelatedPhrases.py"", line 250, in
simple_vector_phrase
    elementInfo.outUnits, elementName)
  File ""/home/laura.kowal/caveData/etc/configured/MHX/gfe/userPython/textProducts/FWS.py"", line
5338, in vector_mag
    if maxMag >= maxReportedMag:
TypeError: '>=' not supported between instances of 'float' and 'str'
"
```

Operational Impact: FWS formatter will error and not produce a text product

Required Behavior: The text product FWS needs to be able to produce a fire weather text product. **(DR 22350)**

121. Problem: AvnFPS Ceiling Vis Trend: error when clicking 'Draw'

In the AvnFPS Ceiling VisTrend utility, selecting a setting for number of hours other than the default of 3 results in an error, and the data is not drawn (see attached error text file).

Operational Impact: Users are unable to view Ceiling Visibility Trend data for hour settings other than the default of 3.

Required Behavior: For all hour settings, clicking 'Draw' will update the main panel with the specified data, without errors occurring. **(DR 22349)**

122. Problem: EDEX Request hanging on start up

EDEX Request is hanging on start up in the initialization of Apache Ignite. The edex-request-ignite log indicates issues with initial partition map exchange. The ignites logs for cache1 and cache3 only had usual storage messages during this period. Cache2 had no logs since 10/26 indicating issue with that node. Earlier in day the cache1/cache3 had lots of issues pointing towards adding a transaction timeout which is similar to message in edex-request-ignite-log.

Edex-request-ignite log to attach to ticket.

Operational Impact: Users cannot use AWIPS

Required Behavior: Users should be able to use AWIPS **(DR 22348)**

123. Problem: AvnFPS Wind Rose error when drawing

In the AvnFPS Wind Rose utility, clicking the 'Draw' button to create a wind rose throws an error (see attached text file) and no image is drawn.

Operational Impact: Users are unable to created wind rose images.

Required Behavior: Clicking the 'Draw' button generates a wind rose graphic based on the selected date and time parameters. **(DR 22347)**

124. Problem: AlertAlarm dialog opens without column headers

The AlertAlarm dialog opens without any column headers when there are no records to display. The AlertAlarm dialog should display column headers even if there are no records to display.

Operational Impact: The dialog appears broken without column headers

Required Behavior: The AlertAlarm window should display column headers even if there are no records to display **(DR 22345)**

125. Problem: Hydro: Rating Curve window is too large to fit on the display

The Rating Curve window for river gages is sized larger than the display area: the bottom of the window, with the control buttons, is cut off.

Operational Impact: users are unable to use the Rating Curve edit utility.

Required Behavior: The Rating Curve window is correctly sized to fit on the standard display. **(DR 22326)**

126. Problem: NPP and NOAA-20 products fail to load in CAVE

N/A

Operational Impact: VIIRS products cannot be displayed in D2D

Required Behavior: VIIRS products can be displayed in D2D. **(DR 22313)**

127. Problem: SendIscSrv Not Shutting Down Cleanly

When restarting the request JVM, SendIscSrv is not stopping, requiring the wrapper to time out and kill the JVM

Operational Impact: Delays EDEX restarts.

Required Behavior: EDEX should shut down in a timely fashion. **(DR 22312)**

128. Problem: The Text Window's AFOS Browser Returns NO DATA For All Text Products

In the AFOS Browser, NO DATA is returned for all products even when valid products are available. E.g., OMAMTROMA is a valid product. The product is returned when entering in OMAMTROMA into the AFOS Cmd. textbox or MTROMA in the AWIPS ID textbox. This/other valid products are even available in the AWIPS Browser...just not the AFOS Browser.

Operational Impact: Text products cannot be loaded from the AFOS Browser.

Required Behavior: Products can be loaded from the AFOS Browser **(DR 22291)**

129. Problem: Error Returned With qpidd init script

The qpidd init script throws an error (rm: missing operand) if start-qpid log files older than 30 days are present.

Operational Impact: Displayed error message may confuse the user.

Required Behavior: Error message specified in description does not appear. **(DR 22290)**

130. Problem: Creating tornado text in WarnGen takes too long

While running through performance testing it was discovered that the time it takes to initially generate text in Text Workstation from WarnGen was too long. The requirement is 2.5s however under the BOX localization the actual time was around 3.5s-4s. This causes performance testing to fail.

Operational Impact: The length of time taken to generate the text from WarnGen to Text Workstation for a tornado warning immediately after a fresh start up of CAVE and WarnGen is too long.

Required Behavior: The time needed to generate text in Text Workstation should not exceed 2.5s. **(DR 22283)**

131. Problem: WarnGen takes too long to launch

During performance testing it was determined that launching WarnGen using the BOX localization took too long. The requirement is for WarnGen to launch in 2.5s or 2500ms after a clean start of CAVE. Launch times have been hovering between 4.1s to over 5s which causes a failure in performance testing. The BOX localization is a particular problem because their CWA is covered with WarnGen locations (you can see this in D2D by loading Maps > WarnGenLoc). OUN and BOU's CWAs are largely empty areas so there are fewer geometries to load then BOX.

Operational Impact: WarnGen does not launch quickly enough in a severe weather situation which will slow down warning transmission giving less lead time to the public.

Required Behavior: WarnGen should launch within the required time of 2500ms or 2.5s **(DR 22282)**

132. Problem: GFE: GHG Monitor - Column resized snaps back to original size when column reorder is selected.

If you resize the column and then reorder the column by selecting the column ID, the resized column snaps back to the original size of the column instead of staying resized. I did confirm this was not a problem on 20.2.1.

Note that this was fixed in 19.3.4 under 21078 but is broken again.

Operational Impact: The forecaster will continually need to resize the columns to the desired readable size whenever they re-adjust the column ID order.

Required Behavior: The column should not resize. It should stay the size you changed it to when the column ID is reordered numerous times. This should stay true no matter which column ID you reorder, or which column you resize. **(DR 22281)**

133. Problem: Unable To Tear Off Submenus From A Torn Off Menu

Users are unable to tear off a submenu from a torn off menu. For example, once the koax menu is torn off, the koax Z submenu is unable to be torn off.

This is not repeatable on 20.2.1.

Operational Impact: Will have to use submenus in their original, attached form, so will not be able to customize menus by moving them around the screen

Required Behavior: Submenus should be able to be torn off **(DR 22278)**

134. Problem: Hazard Services: Orphaned Lock check is incorrectly unlocking all Hazard Events

DR 22265 was written for the following issue:

After loading any GFE grids or creating them from scratch after roughly 5 -10 minutes they purge if you don't save them on 20.3.1. I confirmed this doesn't occur on 20.2.1.

From Ron:
The issue was caused by a change to the JMS ClientID where the thread ID was removed since it was always 1. The thread ID is still present in the WsID used in the the GFE Lock object so

ClearGfeOrphanedLocks was not finding matches with active JMS ClientIDs and was assuming all locks were orphaned. That process runs every 10 minutes so any active locks are cleared when it runs.

I have a GFE fix identified but further investigation indicates this could be an issue for HazardServices as well in HazardEventLockHandler.checkForOrphanedLocks().

This DR is to address the Hazard Services portion of the code. Here is the description in the associated VLAB 84389:

When HS is started it sends a request to check for orphaned locks. Do to a change done under RODO 8187, the orphan lock checking is now unlocking all events.

Operational Impact: Hazard Locks would mostly be non-functional, which would allow multiple forecasters to interact with the same Hazard Event at the same time. This could be very confusing and work could be lost as they step on top of each other.

Required Behavior: Hazard events should remain locked by the User that locked them until the event is saved, the user reverts the event, the user is no longer active, or another user breaks the lock. Hazard Locks should not become unlocked in any other case. **(DR 22270)**

135. Problem: GFE: Unsaved grids being deleted/purged 5-10 min after being created

After loading any GFE grids or creating them from scratch after roughly 5 -10 minutes they purge if you don't save them on 20.3.1. I confirmed this doesn't occur on 20.2.1.

Site reported that the issue was caused by a change to the JMS ClientID where the thread ID was removed since it was always 1. The thread ID is still present in the WsID used in the the GFE Lock object so ClearGfeOrphanedLocks was not finding matches with active JMS ClientIDs and was assuming all locks were orphaned. That process runs every 10 minutes so any active locks are cleared when it runs.

I have a GFE fix identified but further investigation indicates this could be an issue for HazardServices as well in HazardEventLockHandler.checkForOrphanedLocks().

Operational Impact: Purging of the grids makes testing/forecasting impossible as you can't keep editing grids as one need too as they purge way too often. It's impossible to keep saving them often enough and not missout on loosing your work.

Required Behavior: When a grid is created it should not be deleted unless cave window is closed (prompt asked if you want to delete the grids) or a user manually deletes them. **(DR22265)**

136. Problem: Issue ordering columns in Console tab in Hazard Services

In the Hazard Services settings the user can select which fields or columns appear in the Hazard Services console. The user can also arrange the order in how they appear using the arrow buttons in the console

tab. However if you select a column and click on one of the arrows, a second column is also selected and you can no longer use the arrows.

Operational Impact: The user will not be able to change the order of visible columns

Required Behavior: The user should be able to change the order of the visible columns **(DR 22262)**

137. Problem: HWR: Update gettimetz for python 3

The Hourly Weather Roundup (HWR) file /awips/adapt/hwr/bin/gettimetz needs to be updated so that it uses the AWIPS2 system python which is python 3 in 20.3.1 and not python 2.7.
The first line of the file needs to be changed to:
#!/awips2/python/bin/python3

Operational Impact: HWR will not run in 20.3.1 without updating gettimetz so that it utilizes python 3.

Required Behavior: rehost-adapt:/awips/adapt/hwr/bin/gettimetz needs to utilize python 3. **(DR 22246)**

138. Problem: Python 3 Change for TCMWindTool

TCMWindTool - In the Python3 version, seems like this check is changed and may behave differently which causes the error when using that file and requires the additional check for "ISSUED BY".

The 21z package was issued by John C. working at WPC and it included the "extra" line:

> ISSUED BY THE NWS WEATHER PREDICTION CENTER COLLEGE PARK MD

This extra line was causing the legacy TCMWindTool to run incorrectly making all of our Wind grids 6 hourly (vs. 3 hourly thru) and also skipping over a grid/timestep completely.

Note that the same issue occurs when CPHC backs us up.

This will only occur when either WPC or CPHC is issuing a package and if we are using the legacy TCMWindTool.

Add the following "ISSUED BY" Code run at WFOs

```
> timeStr = self.nextLine()
> if "ISSUED BY" in timeStr.upper():
> > timeStr = self.nextLine()
> #sanity check for the time string
> hhmm = timeStr[0:4]
> if not hhmm.isdigit():
```

> > return

ISSUE - Pablo has confirmed that there is a problem in the baseline that causes the TCMWindTool to run incorrectly when the TCM is issued in service backup mode (impact at TAFB - The tool made all of their wind grids 6 hourly and skipped over a timestep completely). TAFB was asked to open a ticket on this issue.

FIX - Pablo and Matt Belk have put a fix into the VLab repository for Eric Holweg and/or Josh Watson to test before it is sent in for code review. A HUGE thank you to Pablo and Matt (who is on leave) for taking the time to work on this!

Operational Impact: This extra line was causing the legacy TCMWindTool to run incorrectly making all of our Wind grids 6 hourly (vs. 3 hourly thru) and also skipping over a grid / timestep completely.

Similarly the accompanying RCLEP2 contained the same "extra" line and thus the RCL will not be found. This is where your Day 3, 4, 5 34 kt radii slider bars become critical so be sure to check the PREEP2 72 hour point to use for your Day 3, 4, 5 34 kit radii slider bars.

Note that the same issue occurs when CPHC backs us up.

Required Behavior: Wind grids produce correctly timed grids. **(DR 22205)**

139. Problem: Error "Preparing menu entries" is returned after starting CAVE and opening random menu items

Error "Preparing menu entries" is returned after starting CAVE and opening random menu items. This error has no effect on the software.

This issue has been around/repeatable as far back as 19.3.4.

The error will be attached in the near future.

Operational Impact: No operational impact but error message is confusing to the user

Required Behavior: No error message **(DR 22192)**

140. Problem: PathManager.getLocalizationFile does not properly fall back to getStaticLocalizationFile

ATOMS developer reported an error with the method getLocalizatoinFile in PathManager.py.

Site reported that user should be able to call this method leaving everything blank but "name"
If you do it should drop down to executing getStaticLocalizationFile(name)
But it doesn't as _getContext does not account for those 3 arguments being blank, as they can be by design.

Operational Impact: Developers will not be able to search for localization files without specifying a localization type and localization level.

Required Behavior: Developers should be able to search for localization files without specifying a localization type and localization level. **(DR 22124)**

141. Problem: Thin Client: path to javaw.exe broken by Java 11

Thin Client 20.3.1 fails to launch because javaw.exe is not found.

Thin Client points to javaw.exe provided by JDK for Windows. Java 11 for Windows no longer provides JDK and will not for future Java versions. If you need the JDK, you are instructed to generate your own.

However, a second javaw.exe is provided by Java 11 for Windows in a separate directory.

If we replace any broken references to the nonexistent javaw.exe with the existing one, things may work fine.

Operational Impact: Thin Client crashes on launch

Required Behavior: Thin Client must launch without crashing **(DR 22055)**

142. Problem: Text Workstation: Export to File Has No File Naming Option; Only Replaces Selected File

When exporting text from the Text Workstation, the user could only export it to an existing file...which would overwrite the selected file. There was no naming option for users to enter, to name the exported file.

Operational Impact: Exported text files from the Text Workstation may overwrite existing files.

Required Behavior: The export dialog contains an option for users to enter a unique name for the exported file. **(DR 21998)**

143. Problem: Auto Redraw Redraws AvnFPS Ceiling/Visibility Distribution Data When Disabled

When the Auto Redraw checkbox is disabled, the data redraws when the Hour or Num Hours are at specific values:

a. Updates occur when Hour is set to 0, 1, 22, 23.
b. Updates occur when Num Hours is set to 1, 2, 23, 24.

In 19.3.4, the Auto Redraw was completely ignored.

Operational Impact: The data image updates on the forecaster's display when auto redraw is not selected.

Required Behavior: Auto redraw does not execute when disabled **(DR 21990)**

144. Problem: Site Specific Hydrologic Predictor displays error message when opened.

When the application Site Specific Hydrologic Predictor loads, it displays a spurious error message: "Location:-bounds: is not properly configured for use with SSHP"

(see attached screen capture)

Operational Impact: None: the message is merely an annoyance.

Required Behavior: The SSHP application opens without displaying the error message. **(DR 21888)**

145. Problem: Hydro Perspective Fails To Load Correctly Intermittently

Start Cave in D2D, Switch to Hydro. Some times it will not load correctly and you're stuck with a SidePane and an empty Map Editor (see screenshot).

This was noted by a field site during the 19.3.1 beta, and initially thought to be related to Hazard Services, however, concluded it was not. Discussed this some with Ben Steffensmeier and we came to the conclusion that it was introduced by RODO DR#7315 and O&M DR#8597.

Operational Impact: Users cannot consistently open hydro perspective and must use the workaround.

Required Behavior: Hydro should open correctly every time. **(DR 21814)**

146. Problem: Reconfigure build for awips2-qpid-alr-config rpm

After refactoring of build, the awips2-qpid-alr-config rpm is no longer being built. According to David Lovely, here are the changes necessary to start building that rpm again:

In AWIPS2_build:
alr-config.spec in installers/RPMs/qpid-java-broker needs to be moved to installers/RPMs/alr-qpid-config/ and renamed to component.spec
Next step is to tell the new RPM to build with the standard build process.
Add the following line to AWIPS2_baseline/rpms/build/x86_64/build.sh It can be placed near the other Qpid calls.
buildRPM "alr-qpid-config"
Under the 'foss rpms' section in AWIPS2_baseline/rpms/build/common/lookupRPM.sh add the following lines to specify where to find the spec file.
if ["${1}" = "alr-qpid-config"]; then

```
  export RPM_SPECIFICATION="${installer_dir}/alr-qpid-config"
  return 0
fi
```

The spec file may need adjustment as well to work in RHEL7, will need to confirm the generated rpm installs without errors.

Operational Impact: The secondary EDEX instance running on PXs for SJU backup will not start correctly due to issues with qpid.

Required Behavior: Backup SJU EDEX instance starts correctly. **(DR 20699)**

147. Problem: qpid and qpid-wrapper logs not purging

If disk space reaches 100%, qpid can stop functioning. However, since the NCF has an ITO alarm that will catch this issue once disk space reaches 95%, the impact is low.

Operational Impact: If disk space reaches 100%, qpid can stop functioning. However, since the NCF has an ITO alarm that will catch this issue once disk space reaches 95%, the impact is low.

Required Behavior: Have logs purge after 30 days. **(DR 20384)**

3. Open DRs and DCSs

This section addresses open DRs and DCSs that have been deferred to the next immediate major release. The DRs identified in this section may have been initiated during the current release or during a previous release. The DCSs may have been initiated from a previous release or initiated in the current release. The CFRs are initiated in the current release.

DRs, DCSs or CFRs for Future Release

Redmine	DR, DCS or CFR	Description
23127	DR	BMH: JmsConnection failures in CommsManager
23115	DR	Prevent ignite server OutOfMemoryErrors and thrift "MaxMessageSize reached" errors
23086	DR	EDAS - TAF Formatter is not Python 3-compatible

4. Design Changes and COTS/FOSS Requests

15 Design Changes and **62** CFRs for release **20.3.2** are summarized in this section.

1. Redmine DCS 23022

LDM: pqact.conf configuration impacted by AWIPS RC 17698

AWIPS RC 17698 (attached) changes the NOAAPORT product suite to replace the products 94/99 with 153/154. The base pqact entry for DCS 18425 will be wrong once these changes are made because right now the products in that entry are:

N01 – 0.5 Reflectivity

N1Q – (1.3, 1.5) Reflectivity (depends on VCP whether you get a 1.3 or 1.5 elevation angle)

N0V - 0.5 Velocity

N1U – (1.3, 1.5) Velocity

NST – Storm Track Information (in order to create SRM products at the workstation)

NCR – Composite Reflectivity (16 Data Level)

TZL – Long Range Ref (0.6) TDWR

TR1 – 1.0 Reflectivity TDWR

TV1 – 1.0 Velocity TDWR

The following entries will have to be replaced:

N0Q

N1Q

N0U

N1U

The new entries will be:

N0B - 0.5 SR Reflectivity

N1B - (1.3, 1.5) SR Reflectivity

N0G - 0.5 SR Velocity

N1G - (1.3, 1.5) SR Velocity

Furthermore, some of the products used by the mosaic menu configurations have been taken off the NOAAPORT with RC 17698,

specifically:

radarMosaicProductMenu.xml:

Echo Tops (41)

DSD (175)

tdwrMosaicProductMenu.xml

Echo Tops (41)

A determination needs to be made as to whether the mosaic menu configuration require changes for the above and if so, what those changes should be.

2. Redmine DCS 22978

Update ignite SSL to conform to system security requirements

Configuration based vulnerability detected via Tenable plugin 83875 (SSL/TLS Diffie-Hellman Modulus <= 1024 Bits (Logjam)

01/11/2022 1/2

It was detected for the ignite clients running within EDEX. Update the ignite client SSL handling to resolve this vulnerability.

3. Redmine DCS 22870

Encrypt ignite passwords

Ignite has plaintext keystore and truststore passwords in passswords.properties. These should be encrypted.

4. Redmine DCS 22754

Modify python based edexBridge to allow concurrent instances to be run

This is a port of the changes from DR #8609 (DCS 22572)) to the python version of edexBridge that we created as part of release 20.3.1.

This ticket will modify edexBridge to support accepting the character codes passed to the ftok() system function as command line options. This will allow multiple pairings of pqact and edexBridge to run concurrently.

5. Redmine DCS 22649

Investigate ignite performance improvement by increasing number of connections per node

By default, ignite sets up a single connection per client node that is used for both incoming and outgoing communications. There are configuration settings the allow for both increasing the number of connections and using paired connections (separate connections for incoming and outgoing messages). Making use of these settings could increase the speed of the dataflow between ignite and the clients. Need to determine which config files need these updates and possibly open additional ports to support these connections.

usePairedConnections: Use paired connections (see TcpCommunicationConfigInitializer.setUsePairedConnections(boolean)

connectionsPerNode: Connections per node (see TcpCommunicationConfigInitializer.setConnectionsPerNode(int))

6. Redmine DCS 22434

HCI/20.3.1 - Adjust base level RAW_DATA.xml purge rules to keep 12 hours of data

/data_store is a smaller partition in the HCI architecture, so only 12 hours of data can be kept on this system.

The base level /awips2/edex/data/utility/common_static/base/archiver/purger/RAW_DATA.xml needs to be updated to reflect this requirement, and a delta script written to fix site level overrides to this configuration.

7. Redmine DCS 22370

SW Changes to support HCI Architecture

The new HCI hardware is moving to a VM based deployment. As part of this SW changes are necessary to support the following items:

1. Updated host names: dx1-4 -> dv1-5, px1-2 -> pv1-2, cpsbn1-2 -> cpv1-2, ec -> ev

2. The VMs are highly available, so floater IPs are no longer necessary as the VM will move between physical hosts: dx1f->dv1, dx2f->dv2, etc.

3. The highly available VMs mean that corosync/pacemaker will no longer be running. The various px1apps, siteCrons, etc that used to run under corosync/pacemaker will need to be actual cron entries on the respective VM.

4. Services need to be setup to auto start when a VM starts instead of requiring a sysadmin to start software.

5. Watchdog configurations need to be generated to force a VM or service to restart itself in failure scenarios.

8. Redmine DCS 22187

Upgrade Java to AdoptOpenJDK version 11.0.8+10

Upgrade Java to the 11.0.8+10 using the ApoptOpenJDK project.

https://github.com/AdoptOpenJDK / https://adoptopenjdk.net/index.html

9. Redmine DCS 22136

Configure hibernate for the maps DB and specifically for ATOMS geographic objects

Configure the maps DB to be able to use hibernate. Then, set the com.raytheon.uf.common.dataplugin.geographic plugin in tsunami to be picked up by the hibernate class annotation finder for the maps DB instead of the metadata DB.

10. Redmine DCS 21713

Add a ?Content-Security-Policy? HTTP header to disable all JavaScript in IRT Server

Add a ?Content-Security-Policy? HTTP header to disable all JavaScript, as IRT Server does not use JavaScript at all.

? Adding a HTTP header to all of the server?s response, requires minor changes to the IRT Server code (i.e., not a configuration file). The changes are documented here: https://docs.cherrypy.org/en/latest/advanced.html#securing-your-server. Only the Content-Security-Policy header would be used.

? Testing this change would involve testing the IRT Server pages with the new header enabled, and confirming that the valid use cases still work. This would be a minimal effort as there is minimal risk associated with this change, and IRT Server is a very small application. This change should have no effect on IRT Server functionality, because IRT Server does not contain any JavaScript.

11. Redmine DCS 21712

Insecure CGI Scripts on IRT Server

? Shorebreak identified a reflected HTML injection vulnerability that would allow an attacker to inject HTML elements such as scripts (which would be an XSS attack) if the attacker successfully tricks a user into clicking on a maliciously crafted link.

o Resources affected:

? /Register.html and corresponding REST API endpoint /webRegister

? /Unregister.html and corresponding REST API endpoint /webUnregister

? /GetServers.html and /GetISC_Sites.html could theoretically be affected due to the minimal validation performed on the input.

o Root cause of this problem is insufficient sanitization of the HTML form inputs by IRT Server code

o Solution for /Register.html and /Unregister.html is to delete these pages and the associated endpoints from the IRT Server code, as they are not used operationally anymore.

o Solution for /GetServers.html, /GetISC_Sites.html and the corresponding endpoints /webGetservers and /webGetaddrs is to add code to perform validation on the input parameters so that any invalid inputs are rejected.

? Using the GET HTTP method, Shorebreak found that the 'wfos', 'server', 'protocol', and 'port' parameters of the /webUnregister page is vulnerable to a reflected XSS attack vector.

o Root cause of this problem is insufficient sanitization of the input parameters by IRT Server code

o Solution is to delete this endpoint from the IRT Server code, as it is not used operationally anymore.

12. Redmine DCS 21308

a2pgca certificates need to conform to system security requirements

Configuration based vulnerability detected via Tenable plugin 83875 (SSL/TLS Diffie-Hellman Modulus <= 1024 Bits (Logjam)

Either the certificates that are generated need to meet security requirements as outlined in the plugin or DOD certificates need to be ordered for every host in AWIPS which uses intrasite certificate based authentication. This authentication only happens between software running within a site, and not external.

13. Redmine DCS 21263

Require user authentication for JMX connections.

The JMX service on dx1 servers was identified by Tenable Nessus scans as a security vulnerability 118039 Java JMX Insecure Configuration.

14. Redmine DCS 20784

Distributed Cache

The memory bottleneck within AWIPS is associated with moving data between disk and memory for processing. Utilization of a distributed cache for recently ingested or retrieved data would allow for faster processing and visualization of data. A distributed cache allows for a data cache that spans multiple processes and servers utilizing spare memory across multiple machines. Spanning multiple machines allows for the cache to grow in capacity far beyond that of a standard cache. The cache can be broken up into named regions that have different characteristics in terms of replication, partitioning, and size of cache region. Fixing the memory bottleneck via a distributed cache will achieve the highest performance gain in the short term due to viability on current and future hardware and ease of implementation.

The biggest bottleneck in the current system is storing to and loading data from a single machine. By using a distributed cache between the services, file contention on the underlying HDF5 data is removed by not having to lock / coordinate data files. For the NCEP use case grids are decoded in under a second and then the data sits in memory waiting to be stored to PyPIES. By first putting the grids into a distributed cache, the data would be immediately available to clients while the storage services continue to write pending data to HDF5.

There are many implementations of a distributed cache within In Memory Data Grid implementations. The FPR recommended Hazelcast which has both FOSS and COTS versions with the advanced features only being available in the COTS version. Since 2014, Apache Ignite has become an industry leader with more advanced features and capabilities, some which Hazelcast only provides with purchase of an enterprise level product. Two of the biggest features are for data to be stored off heap to avoid expensive garbage collection cycle and a distributed sql database with durable memory. Raytheon IR&D began shifting focus to Apache Ignite instead of Hazelcast in mid 2016 due to the advanced features within Apache Ignite. AWIPS would build off of the Apache Ignite infrastructure currently leveraged by IR&D.

15. Redmine DCS 20766

D2D Radar: metadata radar database needs expanded entries for WDTD

The Warning Decision Training Division is responsible for training NWS forecasters on the use of new radar technologies, such as SAILS and MRLE. They use the WES, Weather Event Simulator, to do so. With addition of multiple radar sites who scan below 0.5 degree elevations and baselining of MRLE planned for RPG Build 19, the techniques used by WDTD to identify supplemental angles are impacted. WDTD is requesting several metadata radar database changes for Level 3 products.

Additional fields Dale Morris of WDTD requested to be included in metadata radar database:

-MRLE status

-SAILS status

-Supplemental Scan status

-Delta Time

For RPG Build 18 the ROC has added MRLE/SAILS flag in the Product Description Block Halfword 50 which identifies whether a given elevation scan is MRLE/SAILS/REPEAT/neither where 0=neither; 1=MRLE; 2=SAILS. DCS20055 leveraged this information to add distinct labels for MRLE/SAILS/VCP80 products repeat elevations. For RPG Build 19, the ROC is expanding this field to also add the Delta time - difference between elevation cut start and start of volume in seconds (see attached additional info for CCR NA18-00193).

The Delta time is the delta time between the first radial at the start of the elevation cut in which the product is generated and the actual start of volume scan radial. Delta time will be set regardless of whether the elevation the product is generated from is a supplemental cut or not.

The start of volume time for non-supplemental cuts is the time of the first radial in the volume scan. For SAILS cut, the start of volume time is the time of the first radial of the split cut (the surveillance cut if the SAILS cuts is part of a split cut). For MRLE cut, the start of volume time is the time of the first radial of the first MRLE cut in the sequence. So, the delta time for a regular 0.5 reflectivity scan that is not SAILS and not MRLE should be zero, because the first radial of the volume is the first radial of the first scan.

16. Redmine CFR 22743

Add PycURL to AWIPS

PycURL is a python interface to libcurl. PycURL is used to fetch objects identified by a URL from a python program. PycURL will be used to retrieve NBM logfiles from AWIPS sites in order to support the NWS Project Management Office Evolve Project.

This is only needed on the LDAD systems, but can be installed on all systems with no impact.

17. Redmine CFR 22725

Baseline PX Version Of AWIPS Python On LDAD Systems

Related to RC 20078. Standard AWIPS Python libraries need to be added to the LS servers. Commonly used localapps will not function correctly without these libraries. Changes to awips2-ldad in HCI required adding awips2-python to the ldad installation. The rest of the python rpms need to be added to the installation scripts and verified during an awips2 software install.

18. Redmine CFR 22522

Upgrade Spring Framework to 5.3.4

As part of the Apache Camel upgrade in DR #8326, we are required to update Spring Framework.

Desired version is 5.3.4.

19. Redmine CFR 22521

Update SLF4J to version 1.7.30

As part of the Apache Camel upgrade in DR #8326, we are required to update SLF4J.

Desired version is 1.7.30.

20. Redmine CFR 22520

Upgrade Apache HttpClient to 4.5.13

As part of the Apache Camel upgrade in #8326, we need to update Apache HTTPClient.

Desired version is 4.5.13.

21. Redmine CFR 22472

Upgrade Quartz to 2.3.2

We are currently using version 1.8.6 on both lower builds and 20.3.1. Upgrade to 2.3.2 on lower builds and 20.3.2.

https://nvd.nist.gov/vuln/detail/CVE-2019-13990

22. Redmine CFR 22422

Upgrade Python to 3.6.13 on 20.3.1

We are currently using version 3.6.11 on 20.3.1. Upgrade to 3.6.13 when released.

https://nvd.nist.gov/vuln/detail/CVE-2020-27619

https://nvd.nist.gov/vuln/detail/CVE-2020-26116

23. Redmine CFR 22421

Update OpenJDK Java to 11.0.10.9

We are currently using versions 11.0.8. Upgrade to 11.0.9.1

https://nvd.nist.gov/vuln/detail/CVE-2020-14803#match-6096969

https://nvd.nist.gov/vuln/detail/CVE-2020-14792

https://nvd.nist.gov/vuln/detail/CVE-2020-14782

https://nvd.nist.gov/vuln/detail/CVE-2020-14797

https://nvd.nist.gov/vuln/detail/CVE-2020-14781

https://nvd.nist.gov/vuln/detail/CVE-2020-14779

https://nvd.nist.gov/vuln/detail/CVE-2020-14796

https://nvd.nist.gov/vuln/detail/CVE-2020-14798

24. Redmine CFR 22388

Upgrade Hibernate ORM to 5.4.24

We are currently using 5.4.2 on 20.3.1. Upgrade to 5.4.18.

25. Redmine CFR 22384

Upgrade Apache CXF to 3.3.8 on 20.3.1

Apache CXF is currently using 3.1.17 on lower builds and 3.3.7 on 20.3.1. Upgrade to 3.3.8 on 20.3.1 build.

https://nvd.nist.gov/vuln/detail/CVE-2020-13954

By default, Apache CXF creates a /services page containing a listing of the available endpoint names and addresses. This webpage is vulnerable to a reflected Cross-Site Scripting (XSS) attack via the styleSheetPath,

which allows a malicious actor to inject javascript into the web page. This vulnerability affects all versions of Apache CXF prior to 3.4.1 and 3.3.8. Please note that this is a separate issue to CVE-2019-17573.

Base Score: MEDIUM

26. Redmine CFR 22360

Upgrade Apache Ignite To Latest Version

Current version available is 2.9.0 and the AWIPS2 version is at 2.7.6. Part of the security checklist for HCI is to upgrade Apache Ignite version and all applicable patches.

27. Redmine CFR 22331

Upgrade Eclipse to 4.17 (2020-09)

Upgrade Eclipse to 4.17 (2020-09)

28. Redmine CFR 22325

Upgrade Thrift to 0.13.0

We are currently using Thrift 0.12.0 on 20.3.1. Upgrade to 0.13.0.

https://nvd.nist.gov/vuln/detail/CVE-2019-0205

29. Redmine CFR 22277

Add Python modules "pandas" and "lxml" to EDEX servers

The python module "pandas" is available on lx system (refer to CFR #19150) however River Forecast Centers and NWC service backup needs the module for local application analysis and development on the EDEX servers as well. Especially needed by CBRFC's python application to process SBN-HADS data. Need lxml added too.

dv4 is needed

A wrapper script /awips/chps_share/localApps/cbrfc/dataImport/cbrfc_shefToCHPS.wrapper calls text database trigger (/awips2/edex/data/fxa/trigger) on dv4 and calls python code /awips/chps_share/localApps/cbrfc/dataImport/cbrfc_shefToCHPS.py (import pandas module) to process SBN-HADS data for CBRFC CHPS import. The default textdatabase trigger is on dv4.

30. Redmine CFR 22272

Upgrade Pillow to 7.2.0 in 20.3.1 Testbeds

Upgrade to address:

https://nvd.nist.gov/vuln/detail/CVE-2020-5310

https://nvd.nist.gov/vuln/detail/CVE-2020-5311

https://nvd.nist.gov/vuln/detail/CVE-2020-5312

https://nvd.nist.gov/vuln/detail/CVE-2020-5313

https://nvd.nist.gov/vuln/detail/CVE-2019-19911

https://nvd.nist.gov/vuln/detail/CVE-2020-10177

https://nvd.nist.gov/vuln/detail/CVE-2020-10378

https://nvd.nist.gov/vuln/detail/CVE-2020-10379

https://nvd.nist.gov/vuln/detail/CVE-2020-10994

https://nvd.nist.gov/vuln/detail/CVE-2020-11538

31. Redmine CFR 22269

Upgrade spring framework to 5.1.18

We are using spring framework 4.3.20. Upgrade to 5.1.18.

https://nvd.nist.gov/vuln/detail/CVE-2020-5398

https://nvd.nist.gov/vuln/detail/CVE-2020-5421

The application is vulnerable to a reflected file download (RFD) attack when it sets a "Content-Disposition" header in the response where the filename attribute is derived from user supplied input. Protections against RFD attacks from CVE-2015-5211 may be bypassed depending on the browser used through the use of a jsessionid path parameter.

32. Redmine CFR 22258

Upgrade Apache Camel to 3.7

Address CVEs:

https://nvd.nist.gov/vuln/detail/CVE-2020-11971

https://nvd.nist.gov/vuln/detail/CVE-2020-11972

https://nvd.nist.gov/vuln/detail/CVE-2020-11973

33. Redmine CFR 22202

Update Apache xmlschema to version 2.2.5 (dependency of CXF)

As a dependency of org.apache.cxf (CXF) being updated to 3.3.7 in CFR 22185, it was determined that org.apache.ws.commons.schema (which is an old/outdated name) or xmlschema needs to be updated from version 2.1.0 to 2.2.5.

34. Redmine CFR 22200

Upgrade jasypt to version 1.9.3 (dependency of CXF)

The following FOSS needs to be updated as CXF dependencies as part of CFR 22185:

org.jasypt (jasypt) 1.9.2 -> 1.9.3

35. Redmine CFR 22199

Update org.apache.ws.security (wss4j) to version 2.2.5 (dependency of CXF)

The following FOSS needs to be updated as CXF dependencies:

org.apache.ws.security (wss4j) 2.1.14 -> 2.2.5

36. Redmine CFR 22197

Upgrade objectweb ASM to version 8.0.1 (dependency of CXF)

CFR 22185 concerns an update to CXF (org.apache.cxf) and objectweb ASM (org.objectweb) needs to be updated to version 8.0.1

37. Redmine CFR 22196

Update OpenSAML to 3.3.1 (dependency of CXF)

org.opensaml needs to be updated to version 3.3.1 as a dependency for org.apache.cxf (CXF), which is being updated in 20.3.1 via CFR 22185.

38. Redmine CFR 22185

Update org.apache.cxf to version 3.3.7

Our current org.apache.commons.cxf is at 3.1.17. This version appears to be no longer maintained. Version 3.3.7 is the latest. The cxf migration guide indicates 3.3.x is the first version they have officially tested with Java 11 so probably a good thing to update it.

Also, our current plugin is named org.apache.commons.cxf which is either out of date or just wrong. We should rename the plugin org.apache.cxf to match the FOSS project.

39. Redmine CFR 22154

Update Python in 20.3.1 to 3.6.11

Update Python in 20.3.1 to 3.6.11 to address CVE-2020-8492

40. Redmine CFR 21504

Move python foss library nose from main awips2-python installation to awips2_local_apps_foss repository.

Python 3 upgrade analysis indicated the library nose is no longer in use within AWIPS2. To reduce the number of packages that need to be maintained we will remove this package from the libraries shipped with the AWIPS2 python distribution. It will be moved to the awips2_local_apps_foss repository so that it will still be available for local app developers.

Product Name: nose

Vendor: n/a

Current Version: 0.11.1

Update Version: n/a

Download URL: https://nose.readthedocs.io/

New/Update: Remove

41. Redmine CFR 21503

Update python library six to version 1.12.0

Python 3 upgrade analysis indicated we should upgrade the library six. The current version is 1.12.0.

Product Name: six

Vendor: n/a

Current Version: 1.9.0

Update Version: 1.12.0

Download URL: https://pypi.org/project/six/

License: MIT License (MIT)

New/Update: Update

42. Redmine CFR 21502

Update python library setuptools to version 41.0.0

Python 3 upgrade analysis indicated we should update the library setuptools. Update to version 41.0.0.

Product Name: setuptools

Vendor: n/a

Current Version: 18.0.1

Update Version: 41.0.0

Download URL: https://setuptools.readthedocs.io/

License: MIT License (MIT)

New/Update: Update

43. Redmine CFR 21500

Update python library cherrypy to version 17.4.1

Python 3 upgrade analysis indicated we need to update the library cherrypy. Version 17.4.1 is the latest version that supports both python 2 and 3.

Product Name: cherrypy

Vendor: n/a

Current Version:

Update Version: 17.4.1

Download URL: https://cherrypy.org/

License: BSD license

New/Update: Update

44. Redmine CFR 21476

Create RPM for python library setuptools-scm

In order to upgrade the packages needed by the python 3 upgrade, some of the build and install scripts have added a dependency on the project setuptools-scm.

Create an RPM for the latest version 3.2.0 and add it to the necessary AWIPS2 build scripts and repos.

project page: https://pypi.org/project/setuptools-scm

45. Redmine CFR 21475

Update python library python-dateutil to version 2.8.0

Python 3 upgrade analysis indicated that we should update the library python-dateutil. Update version is 2.8.0.

Product Name: python-dateutil

Vendor: n/a

Current Version: 2.4.2

Update Version: 2.8.0

Download URL: https://dateutil.readthedocs.io/

License: PSF License

New/Update: Update

46. Redmine CFR 21474

Update python library h5py to version 2.9.0

Python 3 upgrade analysis indicated that we should update the library h5py. Updated version is 2.9.0.

Product Name: h5py

Vendor: n/a

Current Version: 1.3.0

Update Version: 2.9.0

Download URL: https://www.h5py.org/

License: BSD license

New/Update: Update

47. Redmine CFR 21429

Update python library pytz to version 2019.1

Python 3 upgrade analysis indicated that we should update the library pytz. This library is required by matplotlib. Update version is 2019.1.

Product Name: pytz

Vendor: n/a

Current Version: 2015.4

Update Version: 2019.1

Download URL: https://pytz.readthedocs.io/

License: PSF License

New/Update: Update

48. Redmine CFR 21428

Remove python library scientific

Python 3 upgrade analysis indicated that the library scientific is no longer supported and incompatible with python 3. We need to remove the library from the delivered AWIPS2 python distribution. The plugin scientific is the predecessor to SciPy. Another ticket has been created to update SciPy.

Product Name: scientific

Vendor: n/a

Current Version: unknown

Update Version: n/a

Download URL: n/a

License: BSD-new license

New/Update: Remove

49. Redmine CFR 21427

Remove python library pupynere

Python 3 upgrade analysis indicated that the pupynere library is no longer maintained and not compatible with python 3. We should remove the package from the AWIPS2 python distribution.

A small number of python scripts in the baseline will need to be migrated to a different netcdf handling library.

Product Name: pupynere

Vendor: n/a

Current Version: 1.0.15

Update Version: n/a

Download URL: https://pypi.org/project/pupynere/

License: MIT license

New/Update: Remove

50. Redmine CFR 21391

Update python library numpy to version 1.16.2

Python 3 upgrade analysis indicates we should upgrade numpy. Update version is 1.16.2.

Product Name: pupynere

Vendor: n/a

Current Version: 1.9.2

Update Version: 1.16.2

Download URL: https://www.numpy.org/

License: BSD-new license

New/Update: Update

51. Redmine CFR 21390

Add python library pkgconfig

In order to upgrade h5py under Omaha #7814, the library pkgconfig is required. Latest version is 1.5.1.

Product Name: pkgconfig

Vendor: n/a

Current Version: n/a

Update Version: 1.5.1

Download URL: https://pypi.org/project/pkgconfig/

License: MIT license

New/Update: New

52. Redmine CFR 21389

Add python library cython

In order to upgrade python library h5py under Omaha #7814, we are required to install cython. Latest version is 0.29.7.

Product Name: cython

Vendor: n/a

Current Version: n/a

Update Version: 0.29.7

Download URL: https://pypi.org/project/Cython/

License: MIT license

New/Update: New

53. Redmine CFR 21388

Update python library scipy to version 1.2.1

Python 3 upgrade analysis indicated we should upgrade our version of scipy. Update version is 1.2.1.

Product Name: scipy

Vendor: n/a

Current Version: 0.15.1

Update Version: 1.2.1

Download URL: https://www.scipy.org/

License: BSD-new license

New/Update: Update

54. Redmine CFR 21387

Update python library matplotlib to version 2.2.4

Python 3 upgrade analysis indicates we should update matplotlib. Current LTS version is 2.2.4, which supports both python 2 and 3.

Product Name: matplotlib

Vendor: n/a

Current Version: 1.4.3

Update Version: 2.2.4

Download URL: https://matplotlib.org/

License: Matplotlib license

New/Update: Update

55. Redmine CFR 21384

Update python library pyparsing to version 2.4.0

Upgrading pyparsing is required as part of the matplotlib library upgrade in Omaha #7827. Update version is 2.4.0.

Product Name: matplotlib

Vendor: n/a

Current Version: 2.0.3

Update Version: 2.4.0

Download URL: https://pypi.org/project/pyparsing/

License: MIT license

New/Update: Update

56. Redmine CFR 21383

Add the following python library as a dependency on matplotlib: backports.functools_lru_cache

Required dependencies for matplotlib upgrade in Omaha #7827:

?cycler (https://pypi.org/project/Cycler/): current version is 0.10.0

?kiwisolver (https://pypi.org/project/kiwisolver/): current version is 1.1.0

?subprocess32 (https://pypi.org/project/subprocess32/): current version is 3.5.3

?backports.functools_lru_cache (https://pypi.org/project/backports.functools_lru_cache/): current version is 1.5

RPMS need to be added for the above dependencies.

Product Name: backports.functools_lru_cache

Vendor: n/a

Current Version: n/a

Update Version: 1.5

Download URL: https://pypi.org/project/backports.functools_lru_cache/

License: MIT License

New/Update: New

57. Redmine CFR 21382

Add the following python library as a dependency on matplotlib: subprocess32

Required dependencies for matplotlib upgrade in Omaha #7827:

?cycler (https://pypi.org/project/Cycler/): current version is 0.10.0

?kiwisolver (https://pypi.org/project/kiwisolver/): current version is 1.1.0

?subprocess32 (https://pypi.org/project/subprocess32/): current version is 3.5.3

?backports.functools_lru_cache (https://pypi.org/project/backports.functools_lru_cache/): current version is 1.5

RPMS need to be added for the above dependencies.

Product Name: subprocess32

Vendor: n/a

Current Version: n/a

Update Version: 3.5.3

Download URL: https://pypi.org/project/subprocess32/

License: PSF license

New/Update: New

58. Redmine CFR 21381

Add the following python library as a dependency on matplotlib: kiwisolver

Required dependencies for matplotlib upgrade in Omaha #7827:

?cycler (https://pypi.org/project/Cycler/): current version is 0.10.0

?kiwisolver (https://pypi.org/project/kiwisolver/): current version is 1.1.0

?subprocess32 (https://pypi.org/project/subprocess32/): current version is 3.5.3

?backports.functools_lru_cache (https://pypi.org/project/backports.functools_lru_cache/): current version is 1.5

RPMS need to be added for the above dependencies.

Product Name: kiwisolver

Vendor: n/a

Current Version: n/a

Update Version: 1.1.0

Download URL: https://pypi.org/project/kiwisolver/

License: BSD

New/Update: New

59. Redmine CFR 21380

Add the following python library as a dependency on matplotlib: cycler

Required dependencies for matplotlib upgrade in Omaha #7827:

?cycler (https://pypi.org/project/Cycler/): current version is 0.10.0

?kiwisolver (https://pypi.org/project/kiwisolver/): current version is 1.1.0

?subprocess32 (https://pypi.org/project/subprocess32/): current version is 3.5.3

?backports.functools_lru_cache (https://pypi.org/project/backports.functools_lru_cache/): current version is 1.5

RPMS need to be added for the above dependencies.

Product Name: Cycler

Vendor: n/a

Current Version: n/a

Update Version: 0.10.0

Download URL: https://pypi.org/project/Cycler/

License: BSD

New/Update: New

60. Redmine CFR 21379

Upgrade python library PyTables to 3.5.1

Python 3 upgrade analysis indicates we need to upgrade the PyTables library. The updated version is 3.5.1.

Product Name: PyTables

Vendor: n/a

Current Version: 2.1.1

Update Version: 3.5.1

Download URL: https://www.pytables.org/

License: BSD

New/Update: Update

COTS/FOSS Requested Version:

3.5.1

COTS/FOSS New or Update:

Update

61. Redmine CFR 21345

Add python library numexpr

The following libraries are dependencies for the PyTables upgrade being performed in DR #7835.

?numexpr (https://pypi.org/project/numexpr/), latest version is 2.6.9

Product Name: numexpr

Vendor: n/a

Current Version: n/a

Update Version: 2.6.9

Download URL: https://pypi.org/project/numexpr/

License: MIT

New/Update: New

62. Redmine CFR 21344

Add python library mock

The following libraries are dependencies for the PyTables upgrade being performed in DR #7835.

?mock (https://pypi.org/project/mock/), latest version is 3.0.3

Product Name: mock

Vendor: n/a

Current Version: n/a

Update Version: 3.0.3

Download URL: https://pypi.org/project/mock/

License: BSD License

New/Update: New

63. Redmine CFR 21343

Add python library funcsigs

The following libraries are dependencies for the PyTables upgrade being performed in DR #7835.

?funcsigs (https://pypi.org/project/funcsigs/), latest version is 1.0.2

Product Name: funcsigs

Vendor: n/a

Current Version: n/a

Update Version: 1.0.2

Download URL: https://pypi.org/project/funcsigs/

License: Apache Software License

New/Update: New

64. Redmine CFR 21317

Update python library stomp.py to version 4.1.22

Python 3 upgrade analysis indicated we should upgrade the library stomp.py. Update version is 4.1.22.

Product Name: stomp.py

Vendor: n/a

Current Version: 4.1.20

Update Version: 4.1.22

Download URL: https://pypi.org/project/stomp.py/

License: Apache Software License

New/Update: Update

65. Redmine CFR 21316

Add RPMs for python library netcdf4-python and its dependencies

Because Scientific and pupynere are not supported under python 3 we must move to a new netcdf library for python. Recommendation is to move to netcdf-python. Current version is 1.5.1.1.

Homepage: https://pypi.org/project/netCDF4/

Product Name: netcdf-python

Vendor: n/a

Current Version: n/a

Update Version: 1.5.1.1.

Download URL: https://pypi.org/project/netCDF4/

License: OSI Approved

New/Update: New

We will also need to create an RPM for the dependency cftime. Current version is 1.0.3.4.

Homepage: https://pypi.org/project/cftime/

See CFR 21311

66. Redmine CFR 21311

Add RPMs for python library cftime as a dependency of netcdf4-python

Because Scientific and pupynere are not supported under python 3 we must move to a new netcdf library for python.

We will also need to create an RPM for the dependency cftime. Current version is 1.0.3.4.

Homepage: https://pypi.org/project/cftime/

Product Name: cftime

Vendor: n/a

Current Version: n/a

Update Version: 1.0.3.4.

Download URL: https://pypi.org/project/cftime/

License: OSI Approved

New/Update: New

67. Redmine CFR 21306

Update python library Shapely to version 1.6.4-post2

Python 3 upgrade analysis indicates we should update Shapely. Latest version is 1.6.4-post2.

Product Name: Shapely

Vendor: n/a

Current Version: 1.4.4

Update Version: 1.6.4-post2.

Download URL: https://pypi.org/project/Shapely/

License: BSD License

New/Update: Update

68. Redmine CFR 21303

Update python library Toy Parser Generator to version 3.2.2

Python 3 upgrade analysis indicates that the Toy Parser Generator (TPG) library needs to be upgraded. Update version is 3.2.2.

Product Name: tpg

Vendor: n/a

Current Version: 3.1.2

Update Version: 3.2.2

Download URL: https://github.com/CDSoft/tpg

License: BSD License

New/Update: Update

69. Redmine CFR 21283

GTK upgrade

Upgrade current gtk 2.x to version 3.0. This will fix DR 20684.

70. Redmine CFR 21119

Upgrade Units Framework to support JSR 363

With the upgrade of Geotools, the Units Framework (javax.measure) will also need to be upgraded from the JSR 275 specification (version 0.92) to JSR-363 specification (version 1.0).

The units framework was overhauled and will require significant changes to the AWIPS code, particularly with tools that use Geotools. Other plugins and classes may also be affected.

71. Redmine CFR 21118

Upgrade GeoTools to 21.X

With the upgrade to Java 11, Geotools will also need to be upgraded since the current version (16.4) does not support Java 11. The latest version of Geotools, the 21 series, has support for Java 11.

Upgrading Geotools will also require upgrading the units framework to support JSR 363, which is detailed in a separate CFR.

Below are some notable changes between Geotools versions 16 and 21:

- Geotools 17: Add JDBC callbacks; Add Mapbox style

- Geotools 18: No significant changes; ongoing RnD with community modules

- Geotools 19: FactoryRegistry refactoring for Java 9 Compatibility

- Geotools 20: Migrate Units to JSR-363; Reformat GeoTools, GeoWebCache and GeoServer Codebase; Upgrade to JTS-1.15

- Geotools 21: Support for Java 11.

72. Redmine CFR 21115

Upgrade to Spring Framework 5.1.x

The current version of Spring Framework, is not compatible with Java 11. With the upgrade of Java, Spring will also need to be upgraded to version 5.1, which has full support for Java 11

73. Redmine CFR 21114

Python 3 Upgrade

Python 2.7 will reach its end-of-life, at the end of 2019 and will no longer be supported after that. This task is to update Python to the latest 3.6.x release, as it is the default for RHEL8.

74. Redmine CFR 21113

Java 11 Upgrade

Java 8 will reach end-of-life January 2019 and will no longer received updates after that. This task is to update Jave to the next Long-Term-Support (LTS) release, which is Java 11. Open JDK II will be used.

75. Redmine CFR 20992

Upgrade OpenFire to 4.5.2

N/A

76. Redmine CFR 20666

Upgrade Eclipse to 2018-12

We are currently using Eclipse 4.6.1. Eclipse 2018-12 will soon be available. (NOTE: Eclipse changed the way they name their versions to a Year-Quarter format.) Eclipse 2018-12 brings new features to assist developers coding and debugging Java software. Upgrading will also keep CAVE up to date with the latest stable Eclipse RCP release, bringing along bug fixes.

In the past we have updated PyDev alongside Eclipse as the two can/should be packaged together for AWIPS 2. We are using PyDev 5.3.1 but PyDev 6.3.2 is available. Upgrading will assist developers writing Python code and AFPs writing Python code within CAVE's Localization Perspective. Note if we upgrade PyDev we will need to change one Java file in the Localization Perspective code due to changes in the PyDev API. Eclipse 2018-12 is compatible with both PyDev 5.3 and PyDev 6.3, so an upgrade of PyDev is not necessarily required.

In the past we have also packaged ShellEd with Eclipse to assist developers writing bash scripts. We also package Eclipse Memory Analyzer so developers can analyze Java heap dumps.

Update 6/29/2018: Eclipse 4.7.3 or 4.8 is required for Java 10 compatibility. 4.8.0 was released 6/27/18.

Update 11/29/2018: Eclipse 2018-12 or above is required for Java 10 compatibility.

77. Redmine CFR 19823

Upgrade Hibernate to 5.4.x

We are currently on 4.2.15. Hibernate dropped support 4.x in Oct of 2015. Hibernate 5.4 is the only version that supports Java 11, which is the version we are upgrading to in 20.1.1.

5. Known Problems, Workarounds, and Additional Release Notes

This section lists any workarounds or additional release notes that have been issued for the current release. They are identified by their Release Note title. It also lists any known problems (Priority: 1-Critical), either in the current release or in previous releases, which have been deferred to an unnamed future release. These are identified by the Problem title. RODO corresponds to Omaha Database.

Note: The content listed under the Release Note title can be found at the following link. These are updated periodically, so please check for the latest updates to the **20.3.2 release**[2].

https://docs.google.com/spreadsheets/d/1wv3ygGxfI9g9LTsxyNtwipkGhoCDqxuPor3dwbL-lW8/edit#gid=696882085

DCS/DR Number: *Topic/Summary*	**20.3.2 Notes/Comments**
Omaha #7808/7909 (SS #21114)	The python library nose has been removed from the standard AWIPS2 python distribution. It will be provided to local apps developers and users as an optional install.
Omaha #7817 (SS #21114)	The python library Scientific has been removed from the AWIPS2 python distribution. It is not compatible with python 3. Users of the modules in this library should move to scipy or, for netcdf-related code, netcdf4-python.
Omaha #7818 (SS #21114)	The python library pupynere has been removed from the AWIPS2 python distribution. It is not compatible with python 3. Users of this library should move to netcdf4-python.
DCS#21020	New package that provides support for NHC forecasters during tropical cyclone events. Includes two new tools and modification to an exising tool. The new tools are 1) DefineBreakpoints: Allows NHC forecasterst to define hazards by breakpoints, and 2) RecommendWindWW: translates wind guidance into wind hazards. SendProposedToWFO was modified to include sending a notification to WFO about new wind hazards.
Omaha #7858 (SS #21114)	The python library Pmw has been removed from the AWIPS2 python distribution. It is not compatible with python 3.6. Users of this library should rewrite using standard tkinter APIs.
Omaha #7861 (SS #21114)	The python library pyGTK will no longer be provided for local apps developers. It is not compatible with python 3. Users of this library should rewrite using PyGObject.
Omaha #7972	The native library libedex_com has had the QPID topic reading feature removed from it. It was not compatible with the qpid-proton API and was unused.
Omaha #8039	The D2D File->Print.. dialog has been significantly reworked to make use of the SWT/Native PrintDialog to select the printer/file and specify page/job setup parameters. This was required to get the printer scaling to work correctly and should add support for paper selection and other printer specific options. Printer settings are now saved under the user's caveData instead of localization since they are not portable between Linux and Windows which could cause problems if a user uses both an LX workstation and an IMET laptop using the same username. Print settings saved prior to 20.3.1 are not preserved. Some print settings specific to the printer/driver are not accessible programatically and cannot be saved. The following settings should be saved: Mag, Density, Invert Black/White, Fit to Page, Printer/File Name, Orientation, Copies.

[2] Refer to the OB 20.3.1 Release Notes tab for further information, since 20.3.1 and 20.3.2 releases are merged.

DCS/DR Number: *Topic/Summary*	20.3.2 Notes/Comments
SS #21114 -- HCI Migration/Site Readiness Guide	https://docs.google.com/document/d/1Ds6OxASmuIMHlzBjNn9a9DkKqEC-S-8-5JzY0hojCi8/edit#heading=h.aw61pmlg5yw
cartopy	In trying to use Basemap on the cloud instance (20.3.1-02) we discovered that a python2 to 3 change (strict integer division with // instead of /) is causing an error. The only solution is to modify the basemap code itself. https://stackoverflow.com/questions/44852382/indexerror-when-using-some-projections-with-basemap-and-contourf-in-python-3-6-1 For us, the change is on line 3542 in file: /awips2/python/lib/python3.6/site-packages/mpl_toolkits/basemap/__init__.py change xx[x.shape[0]/2, :] to xx[x.shape[0]//2, :]

DCS/DR Number: *Topic/Summary*	20.3.2 Notes/Comments
Python 3 Migration Guide	This is a list of many, but not all, differences between Python 2 and 3, that you may have to address when updating your Python code to support Python 3. Some of the differences that are covered by the 2to3 utility are not covered here. See the 2to3 documentation at: https://docs.python.org/3.6/library/2to3.html Removed Modules ---------- These modules are no longer available in Python 3. Please remove them from your code. * ``exceptions`` - No longer needed. The built-in exception types are automatically imported into the global namespace * ``sets`` - The ``set`` type is now built-in * ``string`` - Most utility functions have been removed (see https://docs.python.org/2.7/library/string.html#deprecated-string-functions). These functions have been changed to methods on str objects. 2to3 will not automatically update these function calls, they have to be fixed manually. * ``popen2`` - Most or all functionality in this module is now included in ``subprocess.Popen``. See: https://docs.python.org/2.7/library/subprocess.html#replacing-os-popen-os-popen2-os-popen3 Renamed Modules ---------- These modules were renamed in Python 3. Update your imports accordingly. (2to3 should take care of these automatically.) * ``cPickle`` (import ``pickle`` instead, the module will detect the fast C version if that is available and will import it automatically) * ``Queue`` (renamed to ``queue``) * ``ConfigParser`` (renamed to ``configparser``) * ``Tkinter`` (renamed to ``tkinter``) * ``StringIO`` (import ``io`` instead) * ``cStringIO`` (import ``io`` instead) String type changes ------------------ In Python 2, there were 2 string types: ``str``, which stored ASCII strings, and ``unicode``, which stored ``unicode`` strings. In Python 3, there is one

DCS/DR Number: *Topic/Summary*	20.3.2 Notes/Comments
	string type ``str``, which uses the UTF-8 encoding by default. However, many APIs which in Python 2 would have returned a ``str`` object now return a ``bytes`` object, which is a string of bytes. Developers will now be responsible for decoding the bytes object into a str object in many places. * ``pickle`` functions ``load``/``loads`` and ``dump``/``dumps`` now represent pickled objects as ``bytes``, not ``str``. Byte strings produced by ``pickle`` are never valid UTF-8 so they cannot be converted to ``str``. * The output of processes called via the ``subprocess`` module comes out by default as ``bytes``, not ``str``. * Calling the ``read`` method against the ``http.client.HTTPResponse`` object returned by ``urllib.request.urlopen`` returns a ``bytes`` object, not a ``str``. * When using h5py, retrieving data from a string dataset will return the data as ``bytes``, not ``str``. (This is not the case when retrieving the data through Pypies as we have code to convert the bytes into strings before sending it back to the client. It only applies to direct use of h5py.) * ``ElementTree.tostring`` now returns an ASCII-encoded byte string instead of a ``str`` unless the ``encoding`` argument is set to "unicode". Using python-netcdf4 to manipulate NetCDF datasets --- Previously the packages Scientific and pupynere were provided for manipulating data stored in NetCDF datasets. These libraries are not compatible with Python 3 and have been replaced with python-netcdf4 (http://unidata.github.io/netcdf4-python/netCDF4/index.html). Most code will be compatible with the module with just a few minor changes. * Constructor is now named ``netCDF4.Dataset``. * The function ``typecode`` used to retrieve the type of data stored within a NetCDF variable has been replaced by the property ``datatype.char``. * The function ``getValue`` used to retrieve the data stored within a NetCDF variable in ``numpy.ndarray`` format has been replaced with numpy slicing. "Gotchas" with 2to3 --- These are code patterns that may be incorrectly fixed by 2to3. * If you have a class that implements an external interface similar to that of a ``dict`` (provides the methods ``__getitem__``, ``__setitem__``, ``__delitem__``, ``has_key``) ensure your class implements ``__contains__``. 2to3 will replace all calls to ``has_key`` with the ``in`` keyword.

DCS/DR Number: *Topic/Summary*	20.3.2 Notes/Comments
	Logical comparisons of mismatched types --- In Python 2, logical comparisons with some mismatched types (for example, ``'a' <= 4``) were allowed. Under Python 3, most of these comparisons of mismatched types will now throw a ``TypeError``. * ``None`` is no longer comparable with numbers, or with anything else. (Previously ``None`` would always compare less than any number.) Attempting to evaluate an expression like ``None > 3`` will now raise an exception. ** Some code that relied on this behavior contained expressions like ``dic.get(key) > 10`` that would evaluate to False if ``dic.get(key)`` returned None. Such code can be rewritten as ``dic.get(key, float('-inf')) > 10`` to effectively preserve the old behavior. * ``str`` instances are no longer comparable with numbers (in Python 2, ``str`` instances are always greater than numbers). Attempting to evaluate an expression like ``'a string instance' > 3`` will now raise an exception. Other issues --- * Semantics of the division (``/``) operator have changed. ** In Python 2 the result of division would depend on the type of its operands--if both were integers, the operation would produce an integer result, dropping any fractional part. If either operator was a float, the result would be a float. ** In Python 3 the ``/`` operator always produces a float. ** The ``//`` floor division operator behaves the same as it did in Python 2. The type of the result depends on the type of the operands as it did previously with the ``/``, but the result is always a whole number. * The ``file`` builtin no longer exists. Use the builtin ``open`` function instead, preferably as a context manager, as in: ``with open("filename.txt") as f:`` so that the file will be closed automatically. * The ``exec`` statement is gone; it is replaced by a function, also called ``exec``. The new ``exec`` function cannot modify the value of variables in the caller's local scope. ``exec`` can still modify the global (module-level) scope, but such use of ``exec`` is discouraged. If you need to get the value of variables from ``exec``'d code, pass in a dictionary as the third argument to ``exec``, and retrieve the variables from that dictionary after the call to ``exec``. More info here: https://docs.python.org/3/library/functions.html#exec * ``time.mktime`` now requires a tuple as its argument. Passing in a list or other iterable will cause an exception. * The argument to ``list.sort`` or the second argument to ``sorted`` is now a key function instead of a comparison function, and must be specified using the ``key=`` keyword argument. More info here:

DCS/DR Number: *Topic/Summary*	20.3.2 Notes/Comments
	https://docs.python.org/3/library/functions.html#sorted ** Comparison functions can be automatically converted to key functions using ``functools.cmp_to_key``. * ``sys.meta_path`` in Python 3 is not empty by default - it contains important import machinery. Do not remove the default import hooks from ``sys.meta_path`` or you will break all imports * ``numpy.getbuffer`` no longer exists. Python 3's built-in ``memoryview`` provides the same functionality. Calls such as ``numpy.getbuffer(arr)`` can be replaced with ``memoryview(arr)`` without further changes necessary in most cases. * ``re.escape`` no longer escapes the underscore character. * Python source files that previously mixed tabs and spaces for indentation will not run under Python 3. Recommend using the script reindent.py (https://github.com/python/cpython/blob/3.6/Tools/scripts/reindent.py) to fix any such files. * ``IOError`` now subclasses ``OSError``. Some properties may have changed names accordingly. * ``types.FileType`` no longer exists. (2to3 will not catch this.) If you need to check if an object is a file-like object, use ``isinstance(obj, io.IOBase)``.
20.3.1 ADE Transition Guidance	20.3.1 Transition Guidance - https://drive.google.com/drive/folders/1N4oOBnxpAYjJSreqpMwUozYil7BfhOE1
Python 2 to Python 3 conversion examples	Matt Belk (WFO BOX) wrote a ***utility*** to assist field developers transitioning code from python 2 to python 3. The BOX versions of these GFE modules can be found at: https://vlab.ncep.noaa.gov/svn/box/trunk/gfe/py3convert/
Import MPE/RFC SSHP Basins	Upon installation of the initial software build on the HCI system, the maps database is initialized from scratch. To import the maps, config_awips2.sh shp is run to import the shapefiles to create the maps tables. This process does not include the RFC SSHP Basins, which will need to be imported manually -- either via the SHAPEFILE method or the ASCII method -- in order to get MPE DailyQC working

DCS/DR Number: *Topic/Summary*	20.3.2 Notes/Comments
Ignite configuration	Several environment variables were added to setup.env files that need to be configured for ignite to work properly. In /awips2/edex/bin/setup.env on all EDEX machines, do the following: - Set PYPIES_COMPATIBILITY_HOST to the EDEX cluster highly available name (ec) - Verify that IGNITE_CLUSTER_1_SERVERS is cache1,cache2,cache3 (should be auto-configured) - Verify that IGNITE_CLUSTER_2_SERVERS is set to empty for WFOs/3-node systems, and is set to cache4,cache5,cache6 for NCs/6-node systems (should be auto-configured) - Verify that LOCAL_ADDRESS is set to an address that uniquely identifies the current host (should be auto-configured) In /awips2/ignite/bin/setup.env on all cache VMs, do the following: - Verify that IGNITE_CLUSTER_SERVERS is set to cache1,cache2,cache3 on cache1-3, and is set to cache4,cache5,cache6 on cache4-6, if those VMs exist (should be auto-configured) - Verify that IGNITE_CLUSTER_INDEX is set to 1 on cache1-3 and is set to 2 on cache4-6, if those VMs exist (should be auto-configured) - Verify that LOCAL_ADDRESS is set to an address that uniquely identifies the current host (should be auto-configured) - Set all BROKER_*, JMS_*, and QPID_* variables to the same values that they are set to in EDEX setup.env files
Collaboration Compatibility Issue	Shared Display Sessions Between 20.3.1 and 20.2.1 Kick Out The Participant When Images Are Shared See cancelled DR 22429 for addtional details.
DCS #23022	AWIPS RC 17698 changes the NOAAPORT product suite to replace the products 94/99 with 153/154. The base pqact entry for DCS 18425 will be wrong once these changes are made because right now the products in that entry are: N01, N1Q, N0V, N1U, NST, NCR, TZL, TR1, TV1. The following entries will have to be replaced: N0Q, N1Q, N0U, N1U. The new entries will be: N0B, N1B, N0G, N1G. Workaround: Add the lowest 2 cuts of the Super Res Z and V products to your dx1:/usr/local/ldm/etc/pqact.conf.ccc and then run config_awips2.sh ldm CCC.

Appendix A. XML/base, WarnGen Template and RPM Changes in OB 20.3.2

XML/base and WarnGen Template changes

viz/gov.noaa.nws.ocp.viz.firewx/localization/menus/upperair/baseUpperAirPortable.xml
viz/gov.noaa.nws.ocp.viz.firewx/localization/menus/upperair/firewx-index.xml
cave/com.raytheon.uf.viz.d2d.ui.upperair/localization/menus/upperair/index.xml
edexOsgi/com.raytheon.edex.plugin.gfe/utility/common_static/base/grid/parameterInfo/eta218.xml
edexOsgi/com.raytheon.edex.plugin.gfe/utility/common_static/base/grid/parameterInfo/eta242.xml
edexOsgi/com.raytheon.edex.plugin.gfe/utility/common_static/base/grid/parameterInfo/HRRR.xml
edexOsgi/com.raytheon.edex.plugin.gfe/utility/common_static/base/grid/parameterInfo/HWRF.xml
edexOsgi/com.raytheon.uf.common.dataplugin.grid/utility/common_static/base/derivedParameters/definitions/MXREF.xml
edexOsgi/com.raytheon.uf.common.dataplugin.grid/utility/common_static/base/styleRules/d2dContourStyleRules.xml
edexOsgi/com.raytheon.uf.common.dataplugin.grid/utility/common_static/base/styleRules/gridImageryStyleRules.xml
edexOsgi/com.raytheon.uf.edex.archive/utility/common_static/base/archiver/purger/RAW_DATA.xml
edexOsgi/com.raytheon.uf.edex.backupsvc/utility/common_static/base/backupsvc/backupSvc.xml
edexOsgi/com.raytheon.uf.edex.plugin.goesr/utility/common_static/base/satellite/goesr/descriptions/Level2/CPSD.xml
edexOsgi/com.raytheon.uf.edex.plugin.goesr/utility/common_static/base/styleRules/goesrL2-ImageryStyleRules.xml
edexOsgi/com.raytheon.uf.edex.registry.ebxml/web/webServiceBeans.xml
viz/gov.noaa.nws.ncep.viz.gempak/localization/ncep/GempakGridUnits/gempakGridParmeterUnits.xml

RPM Changes

awips2
awips2-adapt-native
awips2-alertviz
awips2-bmh
awips2-bmh-database
awips2-bmh-shure
awips2-bmh-test
awips2-cave
awips2-cave-wrapper
awips2-cli
awips2-collab-dataserver
awips2-common-base
awips2-common-foss
awips2-common-java-extensions
awips2-database
awips2-database-server-configuration
awips2-database-standalone-configuration
awips2-data.hdf5-topo
awips2-devel
awips2-edex
awips2-edex-archive
awips2-edex-aviation
awips2-edex-base

awips2-edex-binlightning
awips2-edex-bmh
awips2-edex-bufr
awips2-edex-climate
awips2-edex-common-core
awips2-edex-config-auto
awips2-edex-configuration
awips2-edex-core
awips2-edex-dat
awips2-edex-datadelivery
awips2-edex-datadelivery-client
awips2-edex-datadelivery-core
awips2-edex-dataplugins
awips2-edex-dataprovideragent
awips2-edex-environment
awips2-edex-foss
awips2-edex-foss-com-beust-jcommander
awips2-edex-foss-com-google-protobuf
awips2-edex-foss-com-mchange
awips2-edex-foss-com-sun-jna
awips2-edex-foss-edu-mit-ll-netcdf
awips2-edex-foss-javax-activation
awips2-edex-foss-javax-mail
awips2-edex-foss-javax-media-opengl
awips2-edex-foss-javax-servlet
awips2-edex-foss-net-dods
awips2-edex-foss-net-opengis
awips2-edex-foss-net-opengis_v2
awips2-edex-foss-net-sf-ehcache
awips2-edex-foss-ogc-tools-gml
awips2-edex-foss-org-apache-activemq
awips2-edex-foss-org-apache-camel
awips2-edex-foss-org-apache-commons-cli
awips2-edex-foss-org-apache-commons-compress
awips2-edex-foss-org-apache-commons-management
awips2-edex-foss-org-apache-commons-net
awips2-edex-foss-org-apache-commons-ssl
awips2-edex-foss-org-apache-commons-validator
awips2-edex-foss-org-apache-shiro
awips2-edex-foss-org-apache-ws-commons-schema
awips2-edex-foss-org-apache-ws-security
awips2-edex-foss-org-apache-xalan
awips2-edex-foss-org-apache-xml-resolver
awips2-edex-foss-org-apache-xml-security
awips2-edex-foss-org-apache-xml-serializer
awips2-edex-foss-org-dom4j
awips2-edex-foss-org-eclipse-jetty
awips2-edex-foss-org-itadaki-bzip2
awips2-edex-foss-org-jasypt
awips2-edex-foss-org-jfreechart
awips2-edex-foss-org-joda-time
awips2-edex-foss-org-objectweb

awips2-edex-foss-org-opensaml
awips2-edex-foss-org-owasp-esapi
awips2-edex-foss-org-w3-xmlschema
awips2-edex-foss-ucar-nc2
awips2-edex-geodb
awips2-edex-gfe
awips2-edex-glmdecoder
awips2-edex-goesr
awips2-edex-grid
awips2-edex-griddednucaps
awips2-edex-hazards
awips2-edex-hydro
awips2-edex-menus-vb
awips2-edex-mpe
awips2-edex-mping
awips2-edex-ncep
awips2-edex-ncep-nco
awips2-edex-npp
awips2-edex-nsbn
awips2-edex-nswrc-radar
awips2-edex-ogc-core
awips2-edex-ogc-wfs
awips2-edex-ohd
awips2-edex-ost
awips2-edex-probsevere
awips2-edex-psh
awips2-edex-radar
awips2-edex-rcm
awips2-edex-registry
awips2-edex-registry-client
awips2-edex-remote-script
awips2-edex-request-bmh
awips2-edex-satellite
awips2-edex-sportlma
awips2-edex-text
awips2-edex-warning
awips2-gfesuite
awips2-groovy
awips2-hdf5
awips2-hdfview
awips2-httpd-pypies
awips2-hydroapps-shared
awips2-ignite
awips2-irt
awips2-java
awips2-ldm
awips2-ldm-conf
awips2-localization-OAX
awips2-ncep-database
awips2-neospeech
awips2-netcdf
awips2-notification

awips2-openfire
awips2-openfire-database
awips2-postgresql
awips2-psql
awips2-pypies
awips2-python
awips2-python-appdirs
awips2-python-backports-lru_cache
awips2-python-basemap
awips2-python-bottleneck
awips2-python-certifi
awips2-python-cftime
awips2-python-chardet
awips2-python-cheroot
awips2-python-cherrypy
awips2-python-contextlib2
awips2-python-cycler
awips2-python-cython
awips2-python-dateutil
awips2-python-decorator
awips2-python-dynamicserialize
awips2-python-funcsigs
awips2-python-h5py
awips2-python-idna
awips2-python-ipython_genutils
awips2-python-jaraco.functools
awips2-python-jep
awips2-python-kiwisolver
awips2-python-lxml
awips2-python-matplotlib
awips2-python-metpy
awips2-python-mock
awips2-python-more-itertools
awips2-python-netcdf4
awips2-python-nose
awips2-python-numexpr
awips2-python-numpy
awips2-python-packaging
awips2-python-pandas
awips2-python-pbr
awips2-python-pillow
awips2-python-pint
awips2-python-pkgconfig
awips2-python-pooch
awips2-python-portend
awips2-python-pycairo
awips2-python-pycurl
awips2-python-pygobject
awips2-python-pygresql
awips2-python-pyparsing
awips2-python-pyshp
awips2-python-pytz

awips2-python-requests
awips2-python-scipy
awips2-python-setuptools
awips2-python-setuptools_scm
awips2-python-setuptools_scm_git_archive
awips2-python-shapely
awips2-python-six
awips2-python-stomp.py
awips2-python-tables
awips2-python-tempora
awips2-python-thrift
awips2-python-tpg
awips2-python-traitlets
awips2-python-ufpy
awips2-python-urllib3
awips2-python-werkzeug
awips2-python-xarray
awips2-python-zc.lockfile
awips2-qpid-broker-j
awips2-qpid-proton
awips2-qpid-proton-python
awips2-rcm
awips2-scripts
awips2-version
awips2-watchdog
awips2-yajsw