

AWIPS SOFTWARE INSTALLATION NOTE 118

Office of Central Processing

W/CP: XF

SUBJECT: **AWIPS Release 21.4.1**

PURPOSE: To provide installation instructions and related information for Advanced Weather Interactive Processing System (AWIPS) Software Release 21.4.1

SITES AFFECTED: All Weather Forecast Offices (WFO), River Forecast Centers (RFC), Regional Headquarters and National Centers for Environmental Prediction (NCEP)

AUTHORIZATION: The authority for this note is Request for Change (RC) 20180.

VERIFICATION STATEMENT: This procedure was tested and verified on test platforms at National Weather Service Headquarters in Silver Spring, MD (NMTW, NMTR), NCEP in College Park, MD (NTBN), Operational Proving Ground (OPGA) in Kansas City, MO and the following Regional Headquarters and operational platforms:
Central Region Headquarters, Kansas City, MO (BCQ)
Eastern Region Headquarters, Bohemia, NY (VUY)
Alaska Region Headquarters, Anchorage, AK (VRH)
WFO Milwaukee, WI (MKX)
WFO Boston, MA (BOX)
WFO Burlington, VT (BTV)
WFO Pittsburgh, PA (PBZ)
WFO Charleston, SC (CHS)
WFO Norman, OK (OUN)
LMRFC Slidell, LA (ORN)
WFO Tampa, FL (TBW)
WFO St. Louis, MO (LSX)
WFO Spokane, WA (OTX)
WFO Buffalo, NY (BUF)
WFO San Diego, CA (SGX)
WFO Los Angeles, CA (LOX)

ESTIMATED COMPLETION DATE: All sites should complete installation by 09/14/2023. The installation date must be scheduled on the National Weather Service (NWS) AWIPS Google Calendar.

TIME REQUIRED: Pre-install about 30 minutes, main-install approximately 2 hours, and post-install upto 2 days.

ACCOMPLISHED BY: Electronic Systems Analyst (ESA) or their designee

EQUIPMENT AFFECTED: AWIPS

SPARES AFFECTED: None

PARTS/MATERIALS REQUIRED: None

SOURCE OF PARTS/MATERIALS: Raytheon

DISPOSITION OF REMOVED PARTS/MATERIALS:	Not Applicable (N/A)
TOOLS AND TEST EQUIPMENT REQUIRED:	None
DOCUMENTS AFFECTED:	File this note in EHB-13, Section 3.1.
SUMMARY OF CHANGES:	N/A
PROCEDURE:	These instructions are written for NCEP, RFC and WFO systems. As a result, some instructions may only be applicable to particular systems or individual sites. Each step or section is clearly marked. All steps are required unless otherwise directed in the instructions.
TECHNICAL ASSISTANCE:	For questions or problems pertaining to this note, contact Network Control Facility (NCF) at (xxx) xxx-xxxx.
REPORTING INSTRUCTIONS:	<p>Report the completed modification using the Engineering Management Reporting System (EMRS) according to the instructions in EHB-4, Maintenance Documentation, Part 4, and Appendix F. Include the following information on the EMRS report:</p> <p>Maintenance Description (block 5): AWIPS Release 21.4.1</p> <p>Equipment Code (block 7): AWIPS</p> <p>Serial Number (block 8): 001</p> <p>Maintenance Comments (block 15): Installed Release OB21.4.1.A.W. AWIPS Software Installation Note 118</p> <p>Mod No. (block 17a): S118</p> <p>A sample EMRS report is provided as Attachment C.</p>

Curt Neidhardt
Chief, Services Branch

Attachment A – AWIPS2 Installation Instructions
Attachment B – DCS, CFR and DR Corrected in 21.4.1
Attachment C – Sample EMRS Report

Acronyms and Abbreviations Used in This Procedure

ATAN	AWIPS Test Authorization Notes
AWIPS	Advanced Weather Interactive Processing System
BMH	Broadcast Message Handler
CAC	Common Access Card
CAVE	Common AWIPS Visualization Environment
CFR	COTS/FOSS Requests
CHPS	Community Hydrologic Prediction System
COTS	Commercial-Off-The-Shelf
CWA	County Warning Area
DCS	Development Change Specifications
DR	Discrepancy Reports
EAS	Emergency Alert System
EDEX	Environment Data Exchange
EMRS	Engineering Management Reporting System
ESA	Electronic Systems Analyst
FLASH	Flooded Locations and Simulated Hydrographs
FOSS	Free-Open-Source-Software
GFE	Gridded Forecast Editor
GOES	Geostationary Operational Environmental Satellite
HS	Hazard Service
ID (SID)	Identification (Site Identification)
IdM	Identity Management
ITO	Information Technology Officer
LDAD	Local Data Acquisition and Dissemination
LDM	Local Data Manager
MPE	Multisensor Precipitation Estimator
MRMS	Multi-Radar Multi-Sensor System
N/A	Not Applicable
NCEP	National Centers for Environmental Prediction
NIC	NWS Inits Config
NCF	Network Control Facility
NPW	Non-Precipitation Weather Hazard products
NWS	National Weather Service
RC	Request for Change

RFC	River Forecast Centers
RPM	Red Hat Package Manager
UGA	Unified Graphics Application
WFO	Weather Forecast Offices

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ATTACHMENT A AWIPS2 Installation Instructions

A.1 General Information

The 21.4.1 installation contains corrections to Discrepancy Reports (DR) and new content. The new content includes both Development Change Specifications (DCS) and Commercial-Off-The-Shelf (COTS)/Free-Open-Source-Software (FOSS) Requests (CFR). All of these items are listed in Attachment B.

The installation will take approximately 2 hours to complete and users must log off the system during this time period.

A.1.1 Prerequisites

- The installer must be a site administrator with escalated privileges.

A.1.2 Installation Strategy

This installation is designed to limit site downtime to 45 minutes or less, although the total install time will be longer along with pre-installation and post installation steps.

The `master.sh` script will launch all device installs in parallel and will report the status of each installer as it completes. All scripts still automatically log to `/data/fxa/INSTALL/a2logs/21.4.1-#` (where # is the delta number). At the end of each script, the script will look for common error messages. If it finds one, the message `Installation completed on <hostname>, but with errors. Please contact the NCF.` will display. If this happens, contact NCF by calling (xxx)-xxx-xxxx before proceeding; otherwise, continue.

A.1.3 Release Notes Review

Review the [Living Release Notes](#) as well as the standard 21.4.1 Release Notes to prepare for the installation.

A.1.4 Review Test Software Installations

As a reminder, test software from AWIPS Test Authorization Notes (ATAN) should be uninstalled from the system 48 hours prior to proceeding to the main installation.

However, it is acceptable to leave the Geostationary Operational Environmental Satellite (GOES) Red Hat Package Manager (RPMs) in place, as they are compatible with this release.

If the site has any questions or concerns, contact NCF by calling (xxx)-xxx-xxxx.

A.1.5 Hazard Service (HS) Pre-Install

HS Focal Points and ITOs need to do the following HS pre-install actions immediately before the 21.4.1 install. In this context, immediately means either first thing in the morning the day the 21.4.1 install is done, or at the close of business the day before the 21.4.1 install is done, assuming that 21.4.1 install begins in the morning. If your 21.4.1 install gets postponed after these pre-install steps are run, these pre-install steps should be run again just before the 21.4.1 install actually occurs.

Plan to have any operations you currently perform using HS be backed up during the time it takes to complete the steps in [HS 21.4.1 post-install document](#). None of the steps in this preinstall document should interfere with normal HS operations.

Detailed HS pre-install instructions are available at the following link:

[HS 21.4.1 pre-install document](#)

If site participated in the 2021 or 2022 Hazardous Weather Testbed experiments, you need to do the next pre-install actions too:

[Zone Change 21.4.1 pre-install instructions](#)

A.2 Installation Procedure

1. Call NCF at (xxx) xxx-xxxx and ask the engineer to open a trouble ticket for the 21.4.1 installation.

NOTE: Recording information on site downtimes for this release is OPTIONAL but informative. If the site opts to do so, monitor the time period from log out (Step 2) until logging back on (Step 14). Report the elapsed downtime between Step 2 and Step 14 to [the AWIPS Install Times - User Feedback](#) spreadsheet. Sites can add additional information or comments about timing issues, such as having to wait for NCF support or rerunning a script.

2. Ask operations staff to terminate all CAVE sessions (including stand-alone perspectives such as AvnFPS, GFE, etc.) and log out of the workstations before continuing.
3. Log in to **DV1** as a privileged user.
4. Run the master install script.

As a privileged user on **DV1**, type:

```
sudo -i /data/fxa/INSTALL/awips2/scripts/master.sh update
```

(Takes about 30 minutes.)

(Type *y* at the prompt.)

You will have to hit *y* again when you get the message (where *lll* is the site ID):

```
"ERROR: Host ax-lll is unreachable! There were errors found in the
host check. Do you wish to continue? (y|N)"
```

NOTE: Do not use **Ctrl+C** to exit out of the script. If any red error messages appear, contact NCF and ask for 21.4.1 installation support before proceeding.

Do not continue to the next step until message `Update Finished!` appears, followed by the date, and the command line prompt returns.

5. Set up AWIPS2 variables and Install the LDM updates.

NOTE: The `config_awips2.sh` for LDM is meant to run from **DV1**. The script will configure LDM `pqact.conf` on **CPV1**. Ensure that `/usr/local/ldm/etc/pqact.conf.lll` (where *lll* is the site ID) is up to date on **DV1** prior to running the script.

As a privileged user on **DV1**, type:

```
sudo /data/fxa/sdc/config_awips2.sh ldm LLL
```

(Takes about 1 minute.)

(where **LLL** is the localization site ID)

The `Hangup (core dumped)` message can be ignored.

6. Update EDEX.

As a privileged user on **DV1**, type:

```
ssh -qt dv3 "sudo mount -l | grep
'edex/data|data_store|GFESuite'" (Execute this command in one line.)
```

Verify all three mounts are returned. If not, notify NCF.

```
ssh -qt dv3 "sudo /data/fxa/sdc/config_awips2.sh
edex LLL" (Execute this command in one line.)
```

(Takes about 1 minute.)

(where **LLL** is the localization site ID.)

7. (RFC Systems Only) Update the MPE.

As a privileged user on **DV1**, type:

```
ssh -qt dv3 "sudo /data/fxa/sdc/config_awips2.sh
mpe LLL" (Execute this command in one line.)
```

(Takes about 1 minute.)

(where **LLL** is the localization site ID)

8. Run a2pgca script.

As a privileged user on **DV1**, type:

```
sudo -i /awips2/fxa/bin/a2pgca refresh
```

(Takes about 5 minutes.)

9. Start EDEX on **DV3**.

As a privileged user on **DV1**, type:

```
ssh -qt dv3 "sudo service edex_camel start"
ssh -qt dv3 "tail -f /awips2/edex/logs/edex-ingest-
<yyyymmdd>.log | grep -A2 -B2 'now operational'"
(Execute this command in one line.)
```

Press **Ctrl+C** to quit out of the tail once the service becomes operational.

NOTE: If the message `now operational` does not print out from the previous command line after a few minutes, try the following:

```
ssh -qt dv3 "sudo grep 'now operational'
/awips2/edex/logs/edex-ingest-<yyyymmdd>.log"
(Execute this command in one line.)
```

Contact NCF if keywords `now operational` could not be found in the log file.

10. Complete the latest National SmartInits Tech Order, which also includes updating DataAddonsManager:

[Latest National SmartInits Tech Order](#)

(Takes about 60 minutes.)

11. Remove site `probsevere.xml` override if it exists.

From the Localization Perspective -> EDEX -> Distribution file browser group, right-click and delete any site level override of `probsevere.xml`. Close the Localization Perspective after confirming the entry has been removed.

12. Run script to migrate the configuration files for GraphiDSS.

As a privileged user from any **LX** workstation, type:

```
sudo -iu awips  
/awips2/apps/graphidss/bin/migrateConfigsLocalapps.py
```

(Execute this command in one line.)

If your GraphiDSS installation is located somewhere other than `/localapps/runtime/GraphiDSS` you can pass a `-d` argument with the full path to your installation.

13. Start EDEX on **DV4** and **DV5**.

As a privileged user on **DV1**, type:

```
ssh -qt dv4 "sudo service edex_camel start"  
ssh -qt dv5 "sudo service edex_camel start"
```

Tail `edex-ingest` log for keywords `now operational` to confirm EDEX server is up and running.

14. Users can log back on to the system and launch CAVE.

NOTE: If a site has opted to record the elapsed downtime between Step 2 and Step 14, note the time and report it to [the AWIPS Install Times - User Feedback](#) spreadsheet. Sites can add additional information or comments about timing issues, such as having to wait for NCF support or rerunning a script.

15. (Systems with **DV6**, **DV7** and **DV8** only) Start EDEX on the remaining servers.

As a privileged user on **DV1**, type:

```
ssh -qt dv6 "sudo service edex_camel start"  
ssh -qt dv7 "sudo service edex_camel start"  
ssh -qt dv8 "sudo service edex_camel start"
```

Tail `edex-ingest` log for keywords `now operational` on each server to confirm EDEX server is up and running.

16. (Broadcast Message Handler (BMH) sites only) Restart the EDEX service on the **PV** servers.

As a privileged user on **DV1**, type:

```
ssh -qt pv1 "sudo service edex_camel restart"
```

```
ssh -qt pv2 "sudo service edex_camel restart"
```

17. Restart the EDEX service on **CPV2**.

As a privileged user on **DV1**, type:

```
ssh -qt cpv2 "sudo service edex_camel restart"
```

18. Check the system health by running the following script.

As a privileged user on **DV1**, type:

```
sudo -i /data/fxa/INSTALL/awips2/scripts/health_check.sh
```

(Takes about 2 minutes.)

19. Call NCF (xxx) xxx-xxxx to notify them that the 21.4.1 installation is complete, and then proceed to section A.3.

A.3 Post-Install

Please review the [Living Release Notes](#) as well as the standard 21.4.1 Release Notes to prepare for the post-installs.

A.3.1 GraphiDSS/UGA Post-Install

GraphiDSS which is the main component of the Unified Graphics Application (UGA) has now been baselined as a part of the 21.4.1. Here is a google doc link with important information and required migration steps from the old localapps version:

[GraphiDSS/USA 21.4.1 post-install documentation](#)

A.3.2 HS Post-Install

The HS post install steps need to be done right away after the 21.4.1 install. Plan to have any operations you currently perform using HS be backed up during the time it takes to complete the steps in this document. It is best to allow yourself most of a regular workday. For WFOs that had been using ATAN1242 with their 20.3.2 but have not been issuing Non-Precipitation Weather Hazard products (NPW) or winter weather hazards operationally, it might be possible to get through this in half an hour. For WFOs that have been issuing NPW or winter weather hazards operationally with ATAN1242, or have absolutely no metadata customizations for a vanilla 20.3.2, it might be possible to get through this in an hour.

Detailed HS post Install instructions and available at the following link:

[HS 21.4.1 post-install document](#)

A.3.3 WarnGen Post-Install

AWIPS Release 21.4.1 delivers numerous WarnGen changes:

1. All hydro products are removed from the WarnGen infrastructure (DCS 22296).

NOTE: After 21.4.1 is installed, WarnGen CANNOT be used to issue any flood products. All flood products must be removed from the WarnGen menu immediately after 21.4.1 installation.

2. Tags are added at the bottom of the Snow Squall Warning defining “general” and “significant” impacts to improve WEA (DCS 22976). Some WFOs are performing ATAN testing of these changes during Fall 2022.
3. Various small template errors are corrected (DR 21460, 22809).

The WarnGen migration instructions are available at the following link:

[WarnGen 21.4.1 post-install document](#)

A.3.4 Zone Change Post-Install

Whether it is right after the 21.4.1 install or if at any time there are changes to the coastal zones configuration, site will need to do the following post-install actions:

[Zone Change 21.4.1 post-install instructions](#)

A.3.5 Regional MRMS FLASH and ProbSevere Post-Install

With the deployment of AWIPS 21.4.1, a large portion of MRMS FLASH and ProbSevere are now supported by the baseline software. Therefore all sites need to ensure that they have disabled the receipt of this data via their regional LDM feed on LDAD. Failure to do so will result in a very large number of duplicate data processing in AWIPS that could end up having detrimental effects on system performance as a whole. The regional AWIPS data managers can provide the site with further details on disabling these specific products on the site LDAD LDM.

A.3.6 Remove Any `iscIceAccum` `vcmodule` Site Overrides

`iscIceAccum.py` is now baselined as of 21.4.1; therefore, any site overrides of `iscIceAccum.py` should be removed (e.g. `/awips2/edex/data/utility/common_static/site/XXX/gfe/vcmodule/iscIceAccum.py`).

- Not all sites will have a site override nor `./site/XXX/gfe/vcmodule` directory. No action is required by these sites.
- Open CAVEs will need to be restarted, but no EDEX restart is necessary.

ATTACHMENT B DCS, CFR and DR Corrected in 21.4.1

The following list of DCS, CFR and DR is corrected in 21.4.1. Detailed descriptions of each item can be found at <https://vlab.noaa.gov/awips-redmine/>.

ATCF (2)

1. 2002885 DR D2D:ATCF - Enter Fix Data... - Satellite is saying it's not selected when it is
2. 2002884 DR D2D:ATCF - Name an Existing Storm: Cannot change or edit the storm name

AvnFPS (3)

3. 2003393 DR AvnFPS- GLAMP/LAMP - Alaska Lightning data
4. 2002931 DR AvnFPS: Python error when generating an amended TAF
5. 2001403 DCS Update to the AvnFPS IWXXM product generation software

Backup Services (3)

6. 2035783 DR Backup Services GUI: Message incorrectly says that failed jobs were successfully sent
7. 2034205 DR Backup Services: UELE when selecting Review after moving a job to Send/Delete/Wait
8. 2033487 DR Backup Services: issue in the VizBackupServiceConstants class

BMH (5)

9. 2003858 DR BMH: Resolve PLAYLIST MANAGER ERROR 2-High
10. 2003857 DR BMH: Resolve INPUT MESSAGE PARSE ERROR 2-High
11. 2002993 DR BMH: Increase Emergency Override dialog duration limit
12. 2002002 DCS BMH no 1650 Hz tone to send for testing via BMH
13. 2001414 DCS BMH - Increase SAME expiration time limit from 6 hours to 99.5 hours

Build Issue (2)

14. 2028216 DR Merge fixes for 21.4.1
15. 2028212 DR Merge fixes for 21.3.1

CAVE Core (7)

16. 2029546 DCS Add CAVE preference to enable/disable well-formed XML validation when user saves an XML file in the Localization Perspective
17. 2028134 DR Only zip CAVE logs older than two days
18. 2003945 DR Additional swear word dictionary 2-High
19. 2002845 DR Paint logging should only happen when it takes > 500ms

20. 2001596 DCS Localization Perspective (LP) editor needs to be able to read properly formatted XML and force documents to be properly formed in order to save.

21. 2001578 DCS Increase CAVE memory from 6GB to 8GB

22. 2001428 DCS Add CAVE loggings - WA 61 (Part 1)

CAVE NCP (National Centers Perspective) (1)

23. 2028149 DR NCEP Enhanced LX Heap Allocations - Cave ini files

CL (3)

24. 2003262 DR Climate: AM CLI product not populating T (trace) for monthly precip

25. 2001481 DCS Climate RER: Legacy local scripts to alert user of record event not working with climate refresh - need baseline functionality

26. 2001442 DCS A2 Climate refresh application is overwriting the SITE version of globalDay.properties file.

Collaboration (2)

27. 2002913 DR Unable to Use GFE Tools in Collaboration Session with Shared Display

28. 2002874 DR Unable to use GFE Fit to Data During a Shared Display Session in Collaboration

Config (1)

29. 2003238 DR Update postgresql.conf settings to meet security requirements

COTS-FOSS (74)

30. 2030142 CFR Upgrade to cherrypy 18.6.1

31. 2029697 DCS Address Hibernate upgrade workaround

32. 2029554 DR ConfigParser (c.readfp) in a2dbauth will be deprecated causing all localapps to crash

33. 2002949 DR Pypies MkdirLockManager.py uses os.errno which was removed in Python 3.7

34. 2002948 DR Developer deploy of edex doesn't work without OGC git repository's FOSS imported

35. 2001587 DCS Encrypt JMS password

36. 2001136 CFR Upgrade Security package - hdf5 >=1.12.0

37. 2001107 CFR Add python "MetPy" to facilitate NAWIPS-to-AWIPS migration activities

38. 2001076 CFR Replace basemap with cartopy

39. 2001075 CFR Additional Python Modules

40. 2001052 CFR Add importlib resources module to baseline Python

41. 2001014 CFR Remove LZF Filter From Baseline

42. 2001013 CFR Replace AWIPS Python Distribution With RHEL Python

43.	2001012	CFR	Replace AWIPS Java Distribution With RHEL Java
44.	2001004	CFR	Update python library h5py to version 3.1.0
45.	2001003	CFR	Add python module cached-property
46.	2001002	CFR	Install "pymoca" Python Module for CHPS on LX workstation
47.	2000997	CFR	Install "casadi" Python Module for CHPS on LX workstation
48.	2000996	CFR	Install new Python Modules for CHPS
49.	2000995	CFR	Upgrade PostGIS to 2.5.5
50.	2000994	CFR	Add Geojson (version 2.5.0)
51.	2000993	CFR	Add Imageio (version 2.9.0)
52.	2000992	CFR	Add Imageio-ffmpeg (version 0.4.3)
53.	2000991	CFR	Add Marshmallow (version 3.12.1)
54.	2000990	CFR	Add Mercantile (version 1.0.0)
55.	2000989	CFR	Add Natsort (version 7.1.1)
56.	2000988	CFR	Add Pint (version 0.16.1)
57.	2000987	CFR	Add Pyencham (version 3.2.0)
58.	2000986	CFR	Add Pyresample (version 1.19.0)
59.	2000985	CFR	Add PySide2 (version 5.15.2)
60.	2000984	CFR	Add Otawesome (version 1.0.2)
61.	2000983	CFR	Add Whoosh (version 2.7.4)
62.	2000976	CFR	Add python module zipp
63.	2000961	CFR	Add pytest framework with pytest-qt plugin
64.	2000952	CFR	Upgrade MetPy to 0.12.2
65.	2000944	CFR	Add handlebars to AWIPS
66.	2000927	CFR	Upgrade to numpy 1.17.3
67.	2000926	CFR	Upgrade to pytz 2019.3
68.	2000924	CFR	Upgrade to cftime 1.4.1
69.	2000923	CFR	Upgrade to cheroot 8.5.2
70.	2000922	CFR	Add packages jaraco.collections version 3.2.0, jaraco.text version 3.5.0, jaraco.classes version 3.2.1
71.	2000921	CFR	Upgrade to jep 3.9.1
72.	2000920	CFR	Upgrade to matplotlib 3.4.3
73.	2000919	CFR	Remove mock from the install packages
74.	2000918	CFR	Upgrade to more-itertools to 8.8.0
75.	2000917	CFR	Upgrade numexpr to 2.7.3

76.	2000916	CFR	Upgrade to pkgconfig 1.5.2
77.	2000914	CFR	Upgrade to python-netcdf4 1.5.6
78.	2000913	CFR	Upgrade to setuptools-scm 5.0.2
79.	2000912	CFR	Upgrade to shapely 1.7.1
80.	2000911	CFR	Upgrade to werkzeug 1.0.1
81.	2000910	CFR	Upgrade to zc.lockfile 2.0
82.	2000909	CFR	Upgrade to appdirs 1.4.4
83.	2000908	CFR	Upgrade to pycairo 1.20.1
84.	2000907	CFR	Upgrade to pygobject 3.40.1
85.	2000906	CFR	Remove obsolete packages contextlib2, pbr, zipp
86.	2000903	CFR	Remove obsolete python FOSS module backports.functools-lru-cache
87.	2000899	CFR	Upgrade Security package - hdf5 to 1.12.1
88.	2000895	CFR	Update Jackson to 2.12.5
89.	2000894	CFR	Upgrade Eclipse to 4.21 (2021-09)
90.	2000893	CFR	Update javax.annotation to jakarta.annotation-api version 1.3.5
91.	2000892	CFR	Upgrade org.apache.xerces to 2.12.1
92.	2000891	CFR	Upgrade com.sun.jna to 5.8.0
93.	2000890	CFR	Upgrade com.sun.jna.platform to 5.8.0
94.	2000889	CFR	Update javax.activation to jakarta.activation version 1.2.2
95.	2000888	CFR	Add Gson to AWIPS
96.	2000884	CFR	Update python library h5py to at least version 3.3.0
97.	2000877	CFR	Upgrade to matplotlib 3.4.3
98.	2000875	CFR	Upgrade Apache Camel to 3.14
99.	2000874	CFR	Upgrade Spring Framework to 5.3.13
100.	2000873	CFR	Upgrade Apache Logging to 1.2
101.	2000870	CFR	Switch to Red Hat provided Python 3.8
102.	2000869	CFR	Upgrade PyTables to 3.7.0
103.	2000828	CFR	Update PostGIS to 2.5.9

D2D (24)

104.	2033486	DR	D2D: Restore previous settings in gridImageryStyleRules for interpolate, defaultColormap, and color scale
105.	2028152	DR	Certain GOES satellite RGB Composite data does not display in D2D
106.	2028130	DR	D2D: Restore previous pane layout for non-square number of panes in an editor

107.	2004018 Critical	DR	Cancelled Flood warnings still showing on D2D display	2-
108.	2003376	DR	Multiple Plot Parameter Definitions For qc, bufrascap plugins	
109.	2003222	DR	Custom Plot Models - Symbol Plots	
110.	2003138	DR	D2D: multi panel layout: 2 panel layout loading error	
111.	2003072	DR	UGA: json file corruption	
112.	2003044 through data in D2D	DR	Center Weather Advisories (CWAs) disappear when looping	3-Critical
113.	2003019 2-High	DR	Missing Panels on Frames on Satellite Composite RGB products	
114.	2002978	DR	Volume Browser: baseline segments which are outside of the radar coverage area are still selectable.	
115.	2002904	DR	Update build for ATCF	
116.	2001704	DCS	Contour labeling should be sped up	
117.	2001497	DCS	Unified Graphics Application (Phase I - non-remote access)	
118.	2001487	DCS	GOES Multi-sat composite configuration updates	
119.	2001485	DCS	GOES Fog and Low Stratus (FLS) Product Configurations	
120.	2001471	DCS	D2D: Sixteen Panel Layout Key Bindings	
121.	2001463	DCS	D2D Multi Panel Layout Enhancements	
122.	2001462	DCS	D2D NSHARP (TOOL) Enhancements	
123.	2001459	DCS	D2D functionality: Convective SIGMET Plots rendering enhancements	
124.	2001458	DCS	NCText D2D Performance Improvements	
125.	2001423	DCS	Nsharp D2D Load Performance enhancement	
126.	2001397	DCS	Update Puerto Rico domain grid points for ESTOFS v2.0.3	
127.	2001394	DCS	CWA generator drawing accuracy	
D2D-Radar (20)				
128.	2003523	DR	D2D Radar: modify KCRI radar to use 0.3 degrees as the lowest scan rather than 0.2 degrees	
129.	2003499	DR	D2D Radar: -1 in maxRpsListSize setting in radar server config allows RPS lists exceeding maximum permissible length to be sent to RPG	
130.	2003497	DR	D2D Radar: when re-purposing dial radar for backup, the button to repurpose back to dial does not activate	
131.	2003432	DR	D2D Radar: remove duplicate requests from RMRs when present	
132.	2003421	DR	D2D Radar: cleanup radar RPS list template files	

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| 133. | 2003372 | DR | D2D Radar: remove products 28 and 65 from RPS list template files |
| 134. | 2003353 | DR | D2D Radar: RPS list merges do not take product priority settings into account |
| 135. | 2003270 | DR | D2D Radar: PRM radar product has incorrect resolution settings |
| 136. | 2003266 | DR | D2D Radar: Power Removed Control product shows incorrect date in the top left screen legend |
| 137. | 2003263 | DR | D2D Radar: kxxx four panel Menu Selection is missing entries for below 0.5 degree elevations |
| 138. | 2003125 | DR | Radar VB source data displayed at constant height levels fails to autoupdate when loaded |
| 139. | 2002895 | DR | D2D Radar: check in most recent NDM updates for radar |
| 140. | 2001692 | DCS | D2D Radar: Remove obsolete CFC from radar software |
| 141. | 2001585 | DCS | D2D Radar: remove from AWIPS those products that are obsolete in TDWR Build 10 |
| 142. | 2001528 | DCS | D2D Radar: add new GSM data fields for VCP Supplemental Data |
| 143. | 2001499 | DCS | D2D Radar: remove Product List Message from TDWR products |
| 144. | 2001474 | DCS | Allow the super-res and 8-Bit SRM products to have their own unique color curve |
| 145. | 2001432 | DCS | D2D Radar: Add Capability to Change VMI From AWIPS to the VCP Change Request GUI |
| 146. | 2001422 | DCS | D2D Radar: Remove obsolete product 27 from radar software and move products 19 and 20 to legacy products |
| 147. | 2001408 | DCS | WA66: Implement Select FSI Capabilities |

D2D-Tools (7)

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|------|---------|----|--|
| 148. | 2033489 | DR | When running the CWA tool an "Internal error has occurred" is displayed |
| 149. | 2028140 | DR | D2D - CWA Generator: UELE when move the cursor off the window |
| 150. | 2004025 | DR | PostGIS AsBinary, GeomFromText and SnapToGrid functions deprecated in 18.2.1 |
| 151. | 2003407 | DR | PSH reports erroneous data from end of previous month 3-Critical |
| 152. | 2003226 | DR | Pgen editable resource disabled panning map |
| 153. | 2003214 | DR | C-SIG Metwatch: Plotting Isolated Convsigmet graphics |
| 154. | 2002972 | DR | NCTEXT menu missing from D2D at NCs |

D2D-VB (3)

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|------|---------|----|--|
| 155. | 2002963 | DR | Alter functionality in the Procedure dialog fails for radar-<site> sources |
|------|---------|----|--|

- 156. 2002898 DR Prevent grid coverage error when loading radar cross section from Volume Browser
- 157. 2001781 DCS Digital Cursor Readout tool will allow forecasters to display severe weather parameters values along with radar data.

Data Access Framework (1)

- 158. 2001569 DCS Enhance hydro capability of the DAF

Data Delivery (10)

- 159. 2003568 DR AWIPS Only Retains 6 Hours Of Data. Query Time Range Should Reflect That
- 160. 2003460 DR Remove All Shared Subscription Logic
- 161. 2003459 DR Unnecessary Warning In Registry Logs Whenever Hazard Services Objects Are Created
- 162. 2003457 DR Can't Query From Edit Subscription Dialog Window
- 163. 2003444 DR Subscription data not accessible from volume browser
- 164. 2003434 DR Ebxml slot table should use numeric id
- 165. 2003433 DR Remove the auditableevent table from the ebxml schema
- 166. 2003359 DR Extra large object causes replication issues
- 167. 2003310 DR Remove Unused Database Tables And Associated Java Code From The ebxml Schema
- 168. 2001427 DCS Registry synchronization reports success even when exceptions occur

EDEX Common (3)

- 169. 2003966 DR Capture script needs to gather WarnGen specific information
- 170. 2002896 DR Need ability to disable Registry Status check for sites that don't use Registry
- 171. 2001515 DCS EDEX restarts: Add more positive notification of Opid communication being restored and EDEX and/or GFE services being restarted

EDEX Plugins (4)

- 172. 2034194 DR Griddednucaps decoder errors in 21.4.1
- 173. 2002867 DR RCM Process fills /tmp inode count with keystore files
- 174. 2001447 DCS Add back in support for decoding and display of BUFR wind profiler data. NOAA/PSL will distribute data via LDM to NWS sites via region HO.
- 175. 2001433 DCS Addition to ProbSevere plugin to handle WMO headers

GFE (22)

- 176. 2035775 DR GFE: Text formatters fail at sites where Hazard Services is not installed
- 177. 2033896 DR IdM Phase 2 changes for NWPS and make HTI

178. 2033490 DR GFE: Missing parameters from the D2DAccumulativeElements list for NationalBlend in the base serverConfig.py
179. 2003795 DR GFE froze on lx2-mkx 2-Critical
180. 2003128 DR Baseline GFE Tropical Text Product Issues
181. 2003039 DR GFE: Possible to skip ETN by saving WSW draft and then editing expiration time2-Critical
182. 2002996 DR Resolve time matching issues for GFE editor (Governance)
183. 2002994 DR IRTManager can throw NullPointerException after clustered context failover
184. 2002991 DR Request active table can fail due to logging error
185. 2002886 DR Update GFE Hazards.cmap files to be in sync with the contents of VTECTable.py
186. 2002869 DR AbsTime Errors
187. 2002860 DR Selecting a model from BOIVerify GUI takes too long to load
2-Critical
188. 2002854 DR Fix performance regression in DatabaseID.equals(Object)
189. 2002847 DR AbsTime needs to better implement datetime APIs to be more backwards compatible with 20.3.2 GFE localapps
190. 2001680 DCS Gridded LAMP domain expansion and going out to 38 h for Ceiling & Visibility
191. 2001606 DCS GFE: SPCGuide - Add all available model elements to GFE SPC database
192. 2001559 DCS Updates required to support NBM 4.0
193. 2001514 DCS GFE needs access to the Hazard Services' Headline information
194. 2001468 DCS GFE: Update ONA and ONP domain in serverConfig.py
195. 2001452 DCS Resolve HTI Collision Situations/Impacts
196. 2001449 DCS Due to the Hazard Simplification VTEC Consolidation, the following hazards should be removed from the selection list in GFE/GHG and adjusted for making the hazard grid
197. 2001402 DCS Support for HiResW v8 and HREF v3 Upgrades

GFE-formatters (5)

198. 2003034 DR Hazard Services Headlines request too slow
199. 2002960 DR GFE: TCV fails to transmit due to space in PIL
200. 2002959 DR GFE: HLS fails in wind speed sampling
201. 2001482 DCS New features to better support Digital Aviation Services at WFOs
202. 2001454 DCS Feature request for non-weather emergency message formatters in GFE

GFE-ISC/SBU (5)

203.	2033890	DR	Fix ISC Hazard Grid Transformations	2-Critical
204.	2002871	DR	GFE service backup: failed site port set incorrectly in 21.4.1	
205.	2002129	DCS	GFE: Add virtual ISC (VModule) capability IceAccum	
206.	2001451	DCS	GFE Service Backup: Grid clipping for backup site utilizes primary site svcbu.properties clip rather than backup svcbu.properties	
207.	2001353	DCS	GFE ISC: National centers need unique office types to prevent data from being overwritten or sampling incorrectly	

GFE-smartInit (1)

208.	2001679	DCS	Add optional force recalculation flag in smartInits	
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GFE-smartTools/Proc (5)

209.	2029646	DCS	Eastern Pacific National TCV Update	
210.	2028204	DR	Eastern Pacific National TCV Bug (tied to DCS 22721)	
211.	2002944	DR	GFE - Aviation populate produces an ISC error message in AV	
212.	2001420	DCS	WTM - TCV/CWF/ZFP Sampling Change	
213.	2001418	DCS	TC Wind Hazard Recommender Enhancements II	

GOES-R (2)

214.	2004077	DR	CAVE does not render all Tiles in Satellite Image	2-High
215.	2002937	DR	blank satellite frames with null level	

Hazard Services (65)

216.	2033902	DR	Hazard Services 21.4.1 hydrology issues	
217.	2033901	DR	GFE/HS: Workstation import/installation failed error.	
218.	2029672	DR	Add entry for scipy.io and entry for matplotlib into sharedModules.txt	
219.	2029654	DCS	WA 60 - Backup Services Enhancements	
220.	2003555	DR	HS Needs To Make Registry Failures More Obvious To A User	
221.	2003551	DR	Hatching Issues In Alaska	
222.	2003550	DR	Mouse Handler Error When Dealing With Multipolygons	
223.	2003530	DR	Restore replacedBy Functionality To FL.Y->FL.W	
224.	2003529	DR	Settings Are Not Loaded Correctly In Service Backup	
225.	2003528	DR	CTA With Phone Number Doesn't Work	
226.	2003527	DR	Corner Case Error with Edit Settings dialog, Service Backup, and User Level Recommenders	
227.	2003520	DR	Extension Area Issues With The 180 Longitude Line For AFC	
228.	2003519	DR	FFR Needs To Run Outside Host Domain In Service Backup	
229.	2003518	DR	Seasonal (Winter) Impacts Not Queried Correctly For FL.*	

230.	2003509	DR	ActiveEditor Not Set Upon Leaving Localization
231.	2003501	DR	Vague error message when drawing polygon for incorrectly selected site in practice mode
232.	2003496	DR	Buttons For Reordering Tab Sorts In HID/Spatial Settings Tab May Be Incorrectly Enabled
233.	2003495	DR	Flood Recommender Results Dialog Is Inaccurate For Deleted Hazard
234.	2003494	DR	RVS Issue With Existing Hazards With Different VTEC Modes
235.	2003487	DR	Hazard Services interoperability failed to remove GFE Hazards grid
236.	2003474	DR	Deleting Polygon Vertex May Not Work Correctly
237.	2003473	DR	Clean Up Unused Interoperability Classes
238.	2003471	DR	Wrong H-VTEC Attribute Could Be Assigned During A Correction
239.	2003464	DR	If all config files are missing for the backup site, SBU will sometimes default to base configs instead of host configs due to race condition
240.	2003443	DR	bad phrasing in forecast bullet
241.	2003441	DR	forecast bullet missing in rare oscillating scenario
242.	2003435	DR	Improve Validation Message on Product Issuance
243.	2003429	DR	NEW/CAN segments incorrectly created instead of EXT for FL.Ws
244.	2003428	DR	RFR: continue updating active FL.W when current river data reflects FL.A
245.	2003419	DR	Parsing error when lid has negative impacts defined in the floodstmt table
246.	2003414	DR	Hazard Services needs to limit the correction window by expiration time
247.	2003411	DR	Add ability to filter by Domain in dual-domain sites for Hazard Services View Product menu
248.	2003402	DR	Issues with GFE grid lock Message Dialog
249.	2003401	DR	Map Warning when going into Service Backup
250.	2003399	DR	Expiration Window behavior
251.	2003371	DR	Potential NullPointers From AdjacentWfoMgr On Sites Like GUM
252.	2003362	DR	ordering of city lists for FF.A/FA.A
253.	2003361	DR	RiverPro to Hazard Services Interop fails if the locarea table contains spaces
254.	2003307	DR	SpellCheckTextViewer Needs To Preserve Pre-Existing StyleRanges
255.	2003244	DR	ETNs skipped for some product generation errors

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| 256. | 2003232 | DR | Update HazardEventQueryRequest.java for baseline changes to RegistryUtil.java under RODO 5847 |
| 257. | 2003200 | DR | Fix ingestshapefiles.sh for pyshp upgrade |
| 258. | 2003121 | DR | Improve logging where critical geometry operations are occurring |
| 259. | 2003118 | DR | Zone doesn't match hazard configured area |
| 260. | 2003096 | DR | Grammatical Error in Winter Storm Warning Text |
| 261. | 2003089 | DR | Hydrology VTEC Segment Ordering Problem |
| 262. | 2003074 | DR | "Error determining intersecting map geometries for event" Error in Hazard Services |
| 263. | 2003068 | DR | UELE "bound must be positive" After Issuing River Flood Warning |
| 264. | 2002977 | DR | Unable to create new PythonScript |
| 265. | 2002943 | DR | GFE Interoperability Painting Errors and Performance Problems |
| 266. | 2002942 | DR | Unable to issue an FA.A.* and FF.A.* hazard events together in the same zone |
| 267. | 2002941 | DR | When self.polygonBased is set to True, Hazard Services should query the warnngenloc table and not the city table |
| 268. | 2002940 | DR | Add missing Hard Freeze Watch/Warning Requirements to the NPW HazSimp turnkey |
| 269. | 2002939 | DR | Hazard information in the WHAT... and WHEN... bullets match the order of the hazards in the Summary Headline |
| 270. | 2002938 | DR | Offices missing ability to see available choices to compare to when setting a default CTA of impact |
| 271. | 2002882 | DR | Time Scale Ruler in Hazard Services Console Too Small and Not Resizable |
| 272. | 2002868 | DR | Hazard geometry is being corrupted for an event that is being continued with other events/zones added on. |
| 273. | 2002846 | DR | GFE formatters using incorrect hazard headlines in 21.4.1 |
| 274. | 2001593 | DCS | hazard Services: Non-Precipitation Weather HazSimp Consolidation and Reformatting and Common Alerting Protocol (CAP) in Hazard Services |
| 275. | 2001521 | DCS | Partial replacement of flood watch has incorrect wording |
| 276. | 2001518 | DCS | Add Selected Time Mode to Settings |
| 277. | 2001479 | DCS | modify Hazard Services for event-driven archiving |
| 278. | 2001464 | DCS | propose saves grids to fcst database |
| 279. | 2001455 | DCS | use the warnngenloc functionality for long-fused hazards |
| 280. | 2001446 | DCS | Enable Winter Wx in Hazard Services |

Hydro (3)

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| 281. | 2028380 | DR | DatView can't display Forecast and Contingency plot data 2-High |
| 282. | 2003409 | DR | kwrite editor freezing RiverPro post May 2020 security patch |
| 283. | 2001537 | DCS | Hydro Perspective displays M (missing) for min/max in Point Data Control even when values exist in DB |

Ignite (2)

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|------|---------|----|---|
| 284. | 2034031 | DR | Ignite: New verbose logging filling logs partition on cache VMs |
| 285. | 2003018 | DR | Ignite: PyPies logging is not going in ignite-pypies log file |

Installer (2)

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|------|---------|----|---|
| 286. | 2003098 | DR | Rename convectprob references in comps.xml to probsevere |
| 287. | 2002879 | DR | 21.4.1 - Remove awips2-gfesuite from AWIPS II Database Server group |

LDM (3)

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|------|---------|----|---|
| 288. | 2004108 | DR | LDM pqact.conf override pattern capability |
| 289. | 2003625 | DR | Shift NBM products from NMC2 to ADD (Data Delivery) channel |
| 290. | 2003219 | DR | Adjust pqact.conf entry for P-Surge data |

MHS (1)

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| 291. | 2001549 | DCS | Route TDWR data to additional interface (RPCCDS) from MHS NCF Servers |
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MPE (2)

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| 292. | 2004559 | DR | Locally configured MPE related scripts get overwritten on AWIPS installs 2-Critical |
| 293. | 2002877 | DR | Error in date format when loading Best Estimate OPE in MPE |

MRMS (1)

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| 294. | 2001417 | DCS | Ingest and display MRMS v12.1.0 new products |
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NAWIPS (16)

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| 295. | 2003468 | DR | Plot Model Custom Obs For NHC Issues |
| 296. | 2003466 | DR | D2DNsharpPaletteWindow Dialogs |
| 297. | 2003324 | DR | Non-Convective Icing SIGMET Decoder |
| 298. | 2003323 | DR | NCTEXT Aviation TAFs State Retrieval Bug |
| 299. | 2003322 | DR | NCTEXT Offshore Forecasts Retrieval |
| 300. | 2003321 | DR | NCTEXT Hour Covered Duplicate Selections |
| 301. | 2003311 | DR | NCTEXT: Pane Swapping Can Cause Unhandled Event Loop Exceptions |
| 302. | 2003223 | DR | Removing NCTEXT multi-panel layout options |
| 303. | 2001536 | DCS | Automated Tropical Cyclone Forecast System (ATCF) |
| 304. | 2001509 | DCS | Port NSHARP Into D2D |

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| 305. | 2001508 | DCS | Add Model Source Time To GFE Grids Loaded In D2D |
| 306. | 2001505 | DCS | Add Edit Plot Attributes to Metar Precip Plots |
| 307. | 2001460 | DCS | Non-Convective SIGMET graphics plot revisions |
| 308. | 2001441 | DCS | NCText TAF Plot issues |
| 309. | 2001436 | DCS | NCTEXT Aviation TAFs Hour Covered Selection Disabled And Selection Always Set to "Latest" |
| 310. | 2001421 | DCS | PGEN Functionality: PGEN GFA Attributes Desk Enhancement |

NSHARP (7)

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| 311. | 2003510 | DR | NSHarp Error When Clicking Just Above SiteId |
| 312. | 2003224 | DR | NSHARP Resource Editable checkbox not working |
| 313. | 2003216 | DR | Nsharp EditGraph Bug |
| 314. | 2003215 | DR | Nsharp Display issues working in NCTEXT |
| 315. | 2001457 | DCS | NSHarp D2D performance improvements |
| 316. | 2001435 | DCS | Nsharp(Tool) D2D Point Forecast Retrieval Requirements |
| 317. | 2001426 | DCS | New Features for NSHARP Turbulence/Icing Displays |

NWRWAVES (2)

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| 318. | 2003281 | DR | NWRWAVES: Unable to handle NHC's TCP products with the new CVT, GMT, and UTC time zones in 2020 season |
| 319. | 2001486 | DCS | NWRWAVES: Alert user if product goes to TROUBLE directory/fails to be sent to BMH |

Other (18)

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| 320. | 2003437 | DR | activetable not purging FL.W events that cross into the new year |
| 321. | 2003207 | DR | Modify rsync to not use PX rsync module |
| 322. | 2003176 | DR | CWA Generator issues prevent distribution on FAA systems |
| 323. | 2003071 | DR | IdM: a2pgca does not copy postgres and qpids certs to user's home directory |
| 324. | 2003070 | DR | Fix shortcomings in DR 21493 encrypting JMS passwords |
| 325. | 2003033 | DR | Clean up hardcoded passwords from OpidSubscriber.py |
| 326. | 2003030 | DR | Fix NullPointerException when restoring edit from local history in Localization Perspective for Eclipse 4.21 |
| 327. | 2003014 | DR | Fix a2pgca's generation of JMS passwords.properties file on ignite cache VMs |
| 328. | 2003007 | DR | Tsunami EAS: the word "The" in product text is incorrectly used |
| 329. | 2002995 | DR | Python SyntaxWarnings for using "is" with a literal 2-Critical |
| 330. | 2002961 | DR | DV2: Python Pypies Log Processes Not Starting with Python 3.8 |

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| 331. | 2002917 | DR | Add Tsunami EAS to AWIPS startup menu |
| 332. | 2002848 | DR | Fix HWR reporting in GMT instead of local time |
| 333. | 2001800 | DCS | Implement central wavelength functionality and add column to satellite table |
| 334. | 2001627 | DCS | Follow-up actions necessary to finish implementing CFR 19895 for deprecated Postgis function calls. |
| 335. | 2001560 | DCS | Enhance Center Weather Advisory (CWA) software to support CWSU operations |
| 336. | 2001498 | DCS | Standardized Local WFO Tsunami Warning Broadcast and EAS Activation GUI (CARDS 17-014) |
| 337. | 2001419 | DCS | Add ability to move grids forward in time |

Pypies (1)

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| 338. | 2033981 | DR | OBS in D2D and AvnFPS displaying with the wrong site and associated values |
|------|---------|----|--|

Registry (2)

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| 339. | 2028191 | DR | Registry: Should not do 24 hour comparison check between central and site if the site needs a sync |
| 340. | 2001520 | DCS | Hazard Services: Registry Outage Logging |

Rehost (1)

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|------|---------|----|--|
| 341. | 2002900 | DR | Service Accounts have Incorrect Environment Settings |
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SBN (2)

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| 342. | 2034024 | DR | Novrastats process using all timers cause other processes (sssd) to not start |
| | | 2-Critical | |
| 343. | 2001424 | DCS | Add capability to duplicate NSBN data feed for National Centers |

UGA (7)

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| 344. | 2034029 | DR | UGA Migration Script Fails On Empty Directory |
| 345. | 2033976 | DR | UGA/GraphiDSS: Memory Errors Using Application |
| 346. | 2028133 | DR | GraphiDSS - paths in templates should be relative to icons directory |
| 347. | 2002983 | DR | UGA Bug Fixes From SWIT Cloud Testing |
| 348. | 2002980 | DR | Pyside2 permissions |
| 349. | 2002928 | DR | UGA Bug Fixes From Early Forecaster Testing on TBW4 |
| 350. | 2002862 | DR | UGA Bug Fixes From Beta Testing |

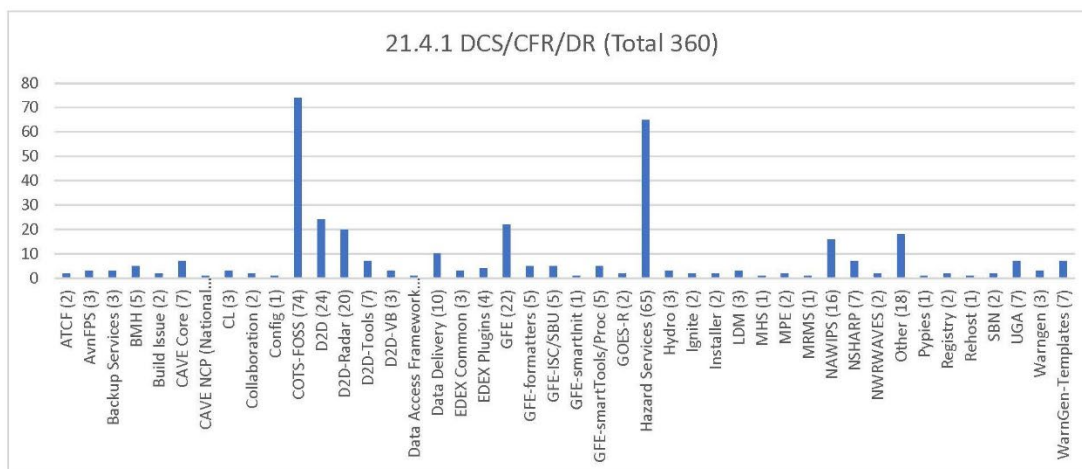
Warngen (3)

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| 351. | 2033916 | DR | Warngen: Other cities list yields malformed text in pathCast and shortPathCast macros |
| 352. | 2003131 | DR | Some Cities Can't be Added to Pathcasts |
| | | 2-Critical | |

353. 2001450 DCS Due to the Hazard Simplification VTEC Consolidation, the following hazards should be removed from the selection list in GFE/GHG or WarnGen (for certain products) and adjusted for making the hazard grid

WarnGen-Templates (7)

354. 2034179 DR Warngen: Wind speeds in follow-up (SVS) does not always match value from original warning
355. 2003850 DR Warngen produces a sentence with improper grammar 3-Major
356. 2003116 DR WarnGen Templates: Miscellaneous fixes in the 20.2.3 templates
357. 2002892 DR WarnGen Snow Squall Template CTA Fixes
358. 2002883 DR WarnGen Snow Squall Template OC Fixes
359. 2002851 DR Warngen: Extension Area Configuration Failing
360. 2001366 DCS Add Impact Based Warning (IBW) Tags to Snow Squall Warnings (SOW)



ATTACHMENT C Sample EMRS Report

To be added