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NATIONAL WEATHER SERVICE INSTRUCTION 10-1715

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Operations and Services

Dissemination Services NWSPD 10-17

ENTERPRISE - NOAA WEATHER WIRE SERVICE (NWWS) DISSEMINATION

NOTICE: This publication is available at: https://www.nws.noaa.gov/directives/010/010.php.

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SUMMARY OF REVISIONS: This directive supersedes NWSI 10-1715, "*NOAA Weather Wire Service (NWWS) Dissemination"* dated February 1, 2018.

Content changes were made to:

1. Revise paragraphs to bring the content up-to-date
2. Ensure NWWS satellite information is specific to SBN/NOAAPORT PID 201
3. Remove sections and information pertaining to the NWS End User Client (EUC)
4. Correct directive reference to NWS Change Management Process
5. Update the NWWS enterprise architecture graphic
6. Clarify user requirements for accessing the NWWS-OI product stream
7. Add Acronym list

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Enterprise-NOAA Weather Wire Service (NWWS) Dissemination

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1 Introduction

This instruction provides dissemination information concerning the National Weather Service (NWS) Enterprise – National Oceanic and Atmospheric Administration (NOAA) Weather Wire Service (E-NWWS or more commonly known as NWWS). This instruction includes: a brief description of system components and more details about the process of product origination through user receipt; an identification of products and content appropriate for transmission; and guidelines on product retransmissions, monitoring and archiving. The following documents from the NWS Directive System (NDS) Section 10, *Operations and Services,* provide additional information on text product formats, product origination, dissemination, system administration and management:

a. NWS Instruction (NWSI) 30-1205, *Change Management Process*
b. NWSI 10-1701, *Text Product, Formats, and Codes*
c. NWSI 10-1702, *Universal Geographic Code (UGC)*
d. NWSI 10-1716, *Enterprise - NOAA Weather Wire Service (NWWS) Systems Management*

The NWS directives are available on the Internet at: https://www.nws.noaa.gov/directives/.

2 Mission

The NWS mission is to provide weather, water, and climate data, forecasts and warnings for the protection of life and property and enhancement of the national economy.

The NWWS provides the fastest dissemination of weather alerts, warnings, and information to the public, commercial broadcasters for radio and television, and weather re-distributors.

3 Enterprise - NWWS

The E-NWWS is an NWS Enterprise Architecture (EA) system comprised of major NWS components. E-NWWS has operated since July 1, 2015. NWWS has been the fastest NWS dissemination platform to the U.S. population for weather alerts and warnings since 1999.

The E-NWWS is designed for users to access the Internet (commonly referred to as NWWS-Open Interface or NWWS-OI) and the NWS satellite broadcast network (SBN/NOAAPORT) Channel 201 (aka Packet Identification - PID 201). Use of the NWWS-OI or PID 201 allows users to receive alert and warning text products within ten (10) seconds of being issued by the local Weather Forecast Office (WFO), River Forecast Centers (RFCs), National Centers (NCEP), or National Water Center (NWC).

NOTE: *Use of **both** the NWWS-OI and PID 201 product streams is highly recommended to achieve the highest level of product availability (> 98%).*

NOTE: *NWWS-OI experiences a short-term outage monthly while computer sites are transitioned for security and software upgrades. The satellite channel PID 201 is unaffected.*

NWWS is an effective method for alerting communities. Either NWWS product stream can activate the Federal Communications Commission (FCC) Emergency Alert System (EAS)

equipment at radio or television broadcast stations.

3.1 NWWS Enterprise Architecture Components

The E-NWWS consists of the following NWS EA components (see figure 3.1):

A. Advanced Weather Interactive Processing System (AWIPS) for NWWS product origination at NWS sites (WFOs, RFCs, NCEP, and NWC) with filtering via the NWWS exclude file; and use of the Message Handler System (MHS) to establish the "NWWSPROD" product identification;

B. AWIPS Wide Area Network (AWIPS-WAN/OneNWSnet) for internal NWS to NWS system telecommunications;

C. AWIPS Network Control Facility (NCF) for NWS product collection and re-distribution; uses the MHS to direct "NWWSPROD" products to the NWWSUP and to PID 201;

D. NWS Satellite Broadcast Network (SBN/NOAAPORT) – PID 201 (an NWWS products only data stream); and

E. NOAA Internet Dissemination System (NIDS) for Internet dissemination to NWWS-OI users (*NWWS has not been integrated into the Internet Dissemination Platform-IDP*).

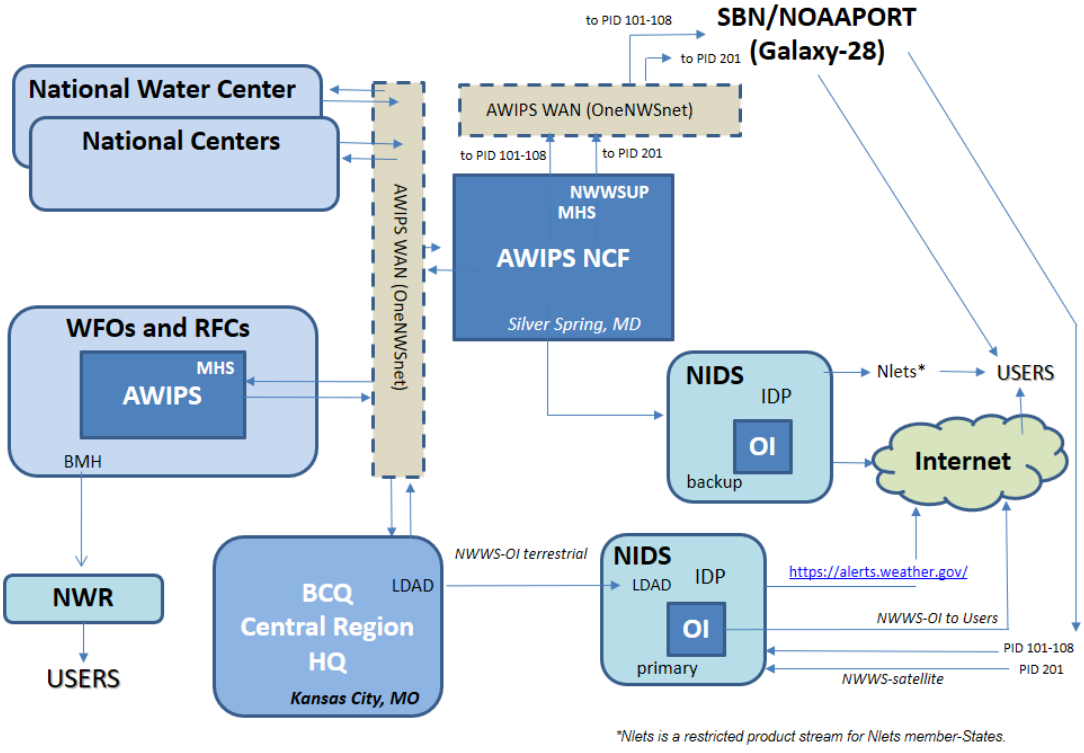

Figure 3.1 NWWS Enterprise Architecture Diagram; product flow

E-NWWS system administration and management are addressed in NWSI 10- 1716, *Enterprise – NOAA Weather Wire Service (NWWS) Systems Management;* Appendix A addresses potential user configurations.

Proposed new products, modifications, or deletion of NWWS products and/or changes to NWS components, which represent a substantial change to NWS environmental information services, will be implemented in accordance with NWS Policy Directive (NWSPD) 1-10, *Managing the Provision of Environmental Information*.

3.1.1 Advanced Weather Interactive Processing System (AWIPS)

AWIPS is used by the WFOs, River Forecast Centers (RFCs), National Centers for Environmental Prediction (NCEP) and the National Water Center (NWC) to originate meteorological, climatological, and hydrologic alerts, warnings and weather information in text format. Each AWIPS site can designate a product for NWWS dissemination (or not). NWWS routing of designated text products is initiated by the AWIPS providing a unique product identification tag that allows the Message Handler System (MHS) routing to SBN/NOAAPORT PID 201.

3.1.2 AWIPS Wide Area Network (AWIPS-WAN)

The AWIPS-WAN telecommunication network (aka OneNWSnet) distributes NWWS text products to various NWS distribution systems.

3.1.3 AWIPS Network Control Facility (NCF)

The NCF is an NWS distribution system that collects and monitors receipt of all NWS products and directs the products to the appropriate system or distribution address. Product distribution includes the NCEP Central Operations (NCO) and the Office of Central Processing (OCP) for dissemination over both NWS satellite (SBN/NOAAPORT) and the Internet via NIDS. The NCF uses the MHS and NWWS product tag to identify and send NWWS specific products to the SBN/NOAAPORT PID 201.

NOTE: *Without the AWIPS-generated NWWS tag, the product will not be distributed over NWWS.*

3.1.4 Satellite Broadcast Network (SBN)/NOAAPORT

The NWS products are sent via the AWIPS NCF MHS over PID 201; this dissemination is only for NWWS products.

Users can access PID 201 using a 2 meter satellite dish (larger dish sizes are recommended for better C-band reception) and a satellite receiver. Configuration information is available on the NWWS webpage: https://www.weather.gov/nwws/configuration.

NOTE: *Using PID 201 in conjunction with the NWWS-Open Interface, via the Internet, provides the highest product availability for NWWS users. See section 3.3 for more information.*

3.1.5 NWS Internet Dissemination System (NIDS)

NIDS receives both the PID 201 satellite feed and a terrestrial NWWS-only product feed. NIDS de-duplicates the combined product ingests prior to posting in the NWWS-OI chatroom. The NWWS text products are reformatted using eXtensible Mark-up Language (XML)/eXtensible Mark-up Presence and Protocol (XMPP).

Total time from product issuance to posting on the OI is less than ten (10) seconds.

3.2 NWWS Product Origination

NWWS products originate at NWS sites using AWIPS in NWS-approved text formats, per the respective product-defining directive under NWS Directives Section 10, *Operations and Services.*

3.2.1 Product Generation

Issuance of any NWWS product by NWS is based on the AWIPS location, season, current weather conditions, WFO policy, and forecaster "area at-risk notification" determination.

Information on NWS formats can be found in NWSI 10-1701, *Text Product Formats and Codes*. NWWS products are generated and disseminated in World Meteorological Organization (WMO) Standard format[1].

Any proposed new products, modifications to, or deletion of NWWS text products are in accordance with NWSI 30-1205, *Change Management Process*, and require amendment of the AWIPS product configuration file, once approved.

NOTE: *Manually created alerts and warnings will require "NWWS"- dissemination selected when the product is generated with the AWIPS program.*

NOTE: *For excluded products the AWIPS NWWS Exclude file at each WFO requires an update. If the file is not updated the product may still be disseminated over NWWS depending on the AWIPS product configuration.*

The message request server program ("msgreq_svr") in AWIPS is modified to enable the Message Handler System (MHS) at the originating office to automatically duplicate the NWWS products. NWWS text products are routed to the NWWS-uplink (NWWSUP) for SBN/NOAAPORT PID 201 with a new product identification (ID) format through the local MHS configuration file. This local MHS configuration file has a simple content format of "NWWSUP NWWSPROD."

NOTE: *There are no changes to the AWIPS site application software for this NWWS product ID substitution.*

NOTE: *The AWIPS configuration file must be updated for any newly approved NWWS products or the products will not be distributed over PID 201 or NWWS-OI.*

"NWWSPROD" is a temporary 8-character identifier used by the MHS to route NWWS text products to SBN/NOAAPORT PID 201.

NOTE: *Only NWWS text products are disseminated over SBN/NOAAPORT PID 201.*

Products not intended for NWWS dissemination (by NWS and/or WFO policy) should be included in the AWIPS NWWS Exclude file. The NWWS Exclude file serves as a filter for those products that may have a "NWWSPROD" identifier (by software configuration or forecaster selection) accidently sent and prevents the excluded products from being disseminated over NWWS.

NOTE: *The NWWS Exclude file should be maintained / reviewed annually (or as necessary at the WFOs discretion) to keep up-to-date.*

Alerts and warnings for Common Alert Protocol Message (CAP) formatting are routed with the normal NWS products to the All Hazards Collection System – Extended located in NCO; wherein the WMO standard message is reformatted into CAP/XML. In 2020, these CAP formatted alerts and warnings will be integrated into the SBN/NOAAPORT PID 201 product stream.

Non-Weather Emergency Messages (NWEMs) generated on an AWIPS and given an NWWS tag will be disseminated over NWWS.

3.3 NWWS Product Communication

NWWS products are sent from the WFO over the AWIPS WAN to the Office of Central Processing (OCP)'s AWIPS Network Control Facility (NCF). The NCF uplinks the products to the SBN/NOAAPORT PID 201. PID 201 is received at primary or backup NIDS along with a terrestrial feed, de-duplicates the combined product stream, changes the resulting NWWS text messages into XML/XMPP format, and places the NWWS text messages in a one-direction XML chatroom for user access (aka NWWS Open Interface).

Table 3.3 NWWS Product Dissemination

NAME	SATELLITE or INTERNET	RECOMMENDED DISH SIZE	PRODUCTS	NWWS FORMAT
SBN/NOAAPORT PID 201	Galaxy-28	≥ 2m	NWWS text products only	WMO Standard
NWWS-OI	Internet	------	NWWS text products only	XMPP format

Note: Larger dish sizes provide better over-all reception and less side-band interference.

3.3.1 SBN/NOAAPORT PID 201 (only NWWS text products)

PID 201 users require a satellite dish larger than 2 meters for clear reception; a satellite receiver; and personal computer (PC) system (https://www.weather.gov/nwws/ "System Requirements" tab). PID 201 is pre-filtered for NWWS products and does not contain the full volume of all NWS products.

NOTE: *Depending on WFO policy and/or forecaster determination not all alerts and warnings may be disseminated over NWWS. On rare occasions an alert is issued over other NWS dissemination platforms and is not issued over NWWS.* (WMO Standard Format is addressed in World Meteorological Organization (WMO) Handbook No. 386 Manual on Global Telecommunication System.)

Any user with the proper equipment can receive SBN/NOAAPORT products. Information on required equipment configuration(s) is also provided on the NWWS web page.

1. Satellite Dish 2 meters or larger (Larger dish sizes prevent sideband interference)
2. Low Noise Band (LNB) down converter
3. DVB-S2 compatible satellite receiver (NOVRA S300 or similar)
4. Ethernet, RF coaxial and CAT5 network cables as necessary
5. Windows - based PC
6. Minimum – 20 giga-byte (GB) storage and 3GB RAM

NOTE: *No user ID or password required for satellite PID 201 reception.*

3.3.2 NWWS Open Interface (OI)

NIDS places the received NWWS products from both satellite and terrestrial streams in a dedicated Local Data Manager (LDM) database for de-duplication. The text products are reformatted into XMPP and sent to the one-way chatroom (Domain: nwws-oi.weather.gov). The NWWS-OI has both primary and backup Domain Named Servers (DNS).

NOTE: *Monthly DNS transitions are planned to allow for security updates, configuration changes, and software modifications. Transitions from or to backup and back to primary may last a total of 48 hours from beginning to end; or the transition will be until the next scheduled transition (~30 days). The period covered by the transition may be extended or shortened based on declaration of Critical Weather Day(s), maintenance requirements, and any other transition requirement to resolve critical NWS EA issues.*

3.3.2.1 NWWS-OI Access

All users must sign-up for a *user ID* and *password* to receive the NWWS product stream from the NWWS-Open Interface (https://www.weather.gov/NWWS/nwws_oi_request). NWS authorizes the general public use of the NWWS-OI; this may include federal, state, local governments, agencies, commercial radio and television broadcasters, NWS partners, weather and alert oriented companies, local communities, community organizations, private and the public at-large. Both *user ID* and *password* are case-sensitive.

3.3.2.2 NWWS-OI Format Reader

An XMPP reader (Java, Pidgin, or similar XMPP software) is required to decipher the XMPP-formatted message content of the NWWS-OI product stream. Initial XMPP reader

format will give only message header information. Additional programming is required to see message detailed content (the "message body") contained in the "stanzas." At their discretion, users can develop or purchase a commercially available reader, software program, or service. All authorized users, regardless of method, must use the provided *user_ID* and *password* to access the NWWS-OI chatroom. The following information is required for any developed XMPP reader software to access the NWWS-OI properly:

1. Port Assignment: "5223"
2. Product Stream URL: nwws-oi.weather.gov
3. Chatroom: "NWWS"

NOTE: *A user_ID and password can only be used on one platform. The second platform will be denied access to the chatroom; an error will result.*

NOTE: *Use of multiple accounts on one system is discouraged; an application error may result due to volume of messages.*

NOTE*: No user_ID or password required for NWWS satellite-delivered products. And satellite delivery is not affected by NWWS transitions.*

There is a single XMPP chatroom that has a single user inside the room that is able to talk. This bot user emits a <message> stanza that contains a special payload that has the raw text included. Here is an example message stanza:

<**message to**='enduser@server/laptop' **type**='groupchat' **from**='nwws@nwws-oi.weather.gov/nwws-oi'>
<**body**>KARX issues RR8 valid 2013-05-25T02:20:34Z</**body**>
<**html xmlns**='**http://jabber.org/protocol/xhtml-im**'>
<**body xmlns**='**http://www.w3.org/1999/xhtml**'>KARX issues RR8 valid 2013-05-25T02:20:34Z</**body**>
</**html**>
<**x xmlns**='**nwws-oi**' **cccc**='KARX' **ttaaii**='SRUS83' **issue**='2013-05-25T02:20:34Z' **awipsid**='RR8ARX' **id**='10313.6'>
111
SRUS83 KARX 250220
RR8ARX
:
: AUTOMATED GAUGE DATA COLLECTED FROM IOWA FLOOD CENTER
:
.A CDGI4 20130524 C DH2100/HGIRP 2.63 : MORGAN CREEK NEAR CEDAR RAPIDS
</**x**>
</**message**>

If the user is in the chatroom with a client that does not process this special <x> payload, the user will not see all the raw text included in the stanza. The attributes on the <x> stanza are as follows:

cccc	Four character issuing site
ttaaii	The six character WMO product ID
issue	ISO_8601 date-time in UTC
awipsid	The six character AWIPS ID, sometimes called AFOS PIL.
id	This is a unique identifier.

The id attribute on the <x> stanza is meant to help clients know if the users are missing any products as the user parse the product stream. The *id* contains two values loaded up into one and the values are separated by a period. The first number is the UNIX process ID on the system running the ingest process. The second number is a simple incremented sequence number for the product.

When users join the chatroom, the users are given a 60 message history. These messages may not contain the <x> payload in the situation where the server is restarted.

4 NWS Product Archiving, Monitoring and Re-Transmission

Product archiving, monitoring and re-transmission requirements are system and software dependent in the NWS Enterprise Architecture. NWWS does not archive, directly monitor or re-transmit products.

When a text product is issued, one backup file is created and the original transmitted once to the NCF for processing and broadcasting over NWS dissemination platforms. The NCF monitors the downlink to verify that the product has been received. If not, the backup file is sent. This is a one-time product validation loop within the NCF. Should the product fail to transmit a second time, there is no additional backup file queue for another re-transmission. This one-time "loopback" is accomplished by the Message Monitoring System (MMS).

The MMS is a 24x7 operational system that monitors and/or produces:

- Message queues
- Duplicate Product Validation
- Missing Product Reports
- SBN/NOAAPORT feed (in addition to other Dissemination systems; Nlets[1])
- Performance monitoring of the NWWS Satellite feed (latency calculated from the time of receipt of the WMO message at the NCF to the receipt of the message)
- Monitoring Reports (e.g., event logging, error logging)
- Notifications (email, dashboard inbox)
- Database storage

[1] The International Justice and Public Safety Network for member-State and Federal emergency managers and law enforcement agencies.

5 Responsibilities

NWS responsibilities are covered in NWSI 10-1716, "*Enterprise NOAA Weather Wire Service (E-NWWS) System Management*." Those responsibilities address the public and user communications concerning NWWS and provide some insights into NWS communications for issue management.

5.1 Weather Service Headquarters (WSH)

The NOAA Assistant Administrator for Weather Services located at WSH is responsible for establishing policy and procedures for the administration, operation and maintenance of NWS dissemination systems and services available to the public.

5.1.1 Office of Dissemination (DIS)

DIS provides staff assistance to the NOAA Assistant Administrator for Weather Services on NWWS program management and for configuration control. DIS provides program and financial management as well as operational, engineering and communications support. DIS provides oversight of NWWS interface with the public, manages the official NWWS exclude file contents, and provides support for outages as necessary.
DIS also resolves NWWS-OI issues, as well as communicates planned, preventative, and un-planned system servicing or outages to users.

DIS has established E-mail communications to assist users:

- NWWS.issues@noaa.gov for missing products, reporting outages, or corrupted file reporting
- NWWS.help@noaa.gov for set-up assistance and general information.

DIS maintains the NWWS webpage (https://www.weather.gov/nwws/configuration) that includes information for user system configurations, frequently asked questions, and past identified issues with resolutions. The NWWS webpage also has specific tabs for users to sign up for the NWWS-OI, reset the account or request re-sending of the user ID.

5.1.2 NCEP Central Operations (NCO)

The NCO monitors SBN.NOAAPORT, NIDS, and MMS operations and over-all performance. It also provides advance notice of any preventative or annual system maintenance and alerting DIS of any critical system outage.

5.1.3 Office of Central Processing (OCP)

The OCP monitors AWIPS WAN and NCF and is responsible for the accuracy of the NWWS exclude file and providing advance notice of any preventative or annual system maintenance and alerting DIS of any critical system outage.

5.1.4 Weather Forecast Offices (WFOs), River Forecast Centers (RFCs), National Centers, and the National Water Center (NWC)

AWIPS sites are responsible for ensuring the correct product type is used for NWWS transmission and issuing NWS products with timely dissemination to the public. All sites are responsible for coordinating issues with NWWS product dissemination with DIS.

6 Problems or Issues

NWS, due to multiple system configurations and the likelihood of different software and satellite interferences, has limited resources to help the public. NWS will handle issues on a case-by-case basis when time permits. Maintaining operations of NWS dissemination systems, managing and administering NWS programs, and resolving critical issues may also limit availability of resources or delay help to the public.
Requests for support begins with communication with the NWWS Program Office of the NWS Dissemination Systems Branch (DSB) via NWWS.Issues@noaa.gov or NWWS.help@noaa.gov.

6.1 Establishing an OI Account

To establish the OI account or access to NWWS-OI using the *user ID and password,* send a detailed request to NWWS.Issues@noaa.gov or NWWS.help@noaa.gov. Single and multiple user accounts can be requested using the NWWS-OI tab on the NWWS homepage; http://weather.gov/nwws .

NOTE: *Only one account should be used on a system at a time to prevent access issues*.

NOTE: *Only one software accessing the NWWS-OI chatroom should be used on a system at a time to prevent access issues.*

6.2 Issues with NWWS-OI Product Reception

Report missing or corrupted products to NWWS.Issues@noaa.gov.

NOTE: *Non-Weather Emergency Messages (NWEMs) from external sources are not available over NWWS. In 2020 NWS will establish a direct link to place NWEMs on SBN/NOAAPORT PID 201.*

6.3 Issues with SBN/NOAAPORT Channel 201 Reception

NWS is aware of possible SBN.NOAAPORT sideband interference and, as a solution, recommends using a larger satellite dish size greater than two meters (> 2m) to enhance product reception. NWS also recommends using both SBN/NOAAPORT and NWWS-OI product ingests for the highest product availability (>98%). Report reception and product loss issues to NWWS.issues@noaa.gov.

6.4 Other NWWS Problems

Report NWWS problems not already addressed to the NWWS Program Office (DSB) to NWWS.help@noaa.gov.
Report critical product loss issues and system outages to SDM@noaa.gov with courtesy copy (cc) to NWWS.Issue@noaa.gov .

APPENDIX A - References

1. NWS Directives: https://www.nws.noaa.gov/directives/
2. WMO format: https://www.nws.noaa.gov/tg/headef.php *The WMO Communication Header, Telecommunications Abbreviated Heading Symbolic Structure Explained.*
3. XMPP specifications: https://xmpp.org/rfcs/rfc6122.html
4. Satellite information: https://www.weather.gov/noaaport/document/GOES-R%20TIN.pdf
5. Satellite dish configuration: https://www.weather.gov/noaaport/NOAAPort_Galaxy28_ConfigInfo
6. NWWS configuration: https://www.weather.gov/nwws/configuration
7. NWWS user request: https://www.weather.gov/NWWS/nwws_oi_request
8. SBN/NOAAPORT Channels:

   SBN/NOAAPORT NCEP/NCO (NMC – PID 101)

   GOES/NESDIS (GOES – PID 102)

   NCEP/NCO2 (NMC2 – PID 103)

   OCONUS Imagery/Model/DCP (NOPT – PID 104)

   NPP (POLARSAT – PID 105)

   SBN Experimental Channel (PID 106)

   GOES-R West-W (PID 107)

   GOES-R East-E (PID 108)

   NWWS only text products (PID 201)

APPENDIX B – Acronyms

aa	Geographical and/or data type and/or time designators
AFOS	Automation of Field Operations and Services
ARX	NWS identifier for WFO LaCrosse
AWIPS	Advanced Interactive Processing System
awipsid	AWIPS identification – a six digit product identifier
BCQ	Central Region Headquarters AWIPS identifier
BMH	Broadcast Message Handler
CAP	Common Alert Protocol
CAT5	Category 5 twisted wire pair cable
c-band	frequency spectrum
cc	courtesy copy
cccc	AWIPS product identifier
CDGI4	NWS Identifier for Morgan Creek near Cedar Rapids
CONUS	Continental United States
CP	Central Processing
DARDC	Direct Automated Remote Data Collector (replaced by LARC)
DCP	Data Collection Platform
DIS	NWS Office of Dissemination
DNS	Domain Name Server
DSB	Dissemination Systems Branch within DIS
DVB-S2	Digital Video Broadcasting - Satellite - Second Generation
E	East
E-NWWS	Enterprise - NWWS
EA	Enterprise Architecture
FCC	Federal Communication Commission
GB	giga-byte
GOES	Geostationary Operational Environmental Satellite
HGIRP	source is telephone ASCII (DARDC)
HQ	Headquarters
html	hyper-text machine language
id	identifier (i.e., AWIPS_id)
ID	identification (i.e., product identification)
IDP	Integrated Dissemination Platform
ii	Number used to differentiate NWS bulletins
ISO	International Standards Organization
K	United States WMO international station prefix
KARX	NWS identifier for WFO La Crosse, Wisconsin with United States identifier
LARC	Limited Automated Remote Collector
LDAD	Local Data Acquisition and Dissemination
LDM	Local Data Manager
LNB	low noise band
m	meter
MD	The U.S. state of Maryland

MHS	Message Handler System
MMS	Message Monitoring System
MO	The U.S. state of Missouri
NCEP	National Centers for Environmental Prediction (aka National Centers)
NCF	Network Control Facility
NCO	NCEP Operations Center
NDS	NWS Directive System
NESDIS	National Environmental Satellite Data and Information Service
NIDS	NWS Internet Dissemination System
Nlets	The International Justice and Public Safety Network
NMC	Numerical Modeling Center
NOAA	National Oceanic and Atmospheric Administration
NOPT	*reference to SBN/NOAAPORT PID 104*
NPP	National Polar orbiting Partnership
NWC	National Water Center
NWEM	non-weather emergency message
NWR	NOAA Weather Radio All Hazards
NWS	National Weather Service
NWSI	NWS Instruction
NWSPD	NWS Policy Directive
NWWS	NOAA Weather Wire Service
NWWSUP	NWWS satellite uplink
OCONUS	Outside Continental United States
OCP	Office of Central Processing
OI	Open Interface (related to NWWS)
PC	personal computer
PID	Packet Identifier
PIL	Product Identifier Label
PROD	Product (referring to NWWSPROD)
RAM	Readily Accessible Memory
RR8	NWS Hydrology-Meteorology Product Report part 8
SBN	NWS Satellite Broadcast Network (SBN/NOAAPORT)
SRUS	NWS Hydrology-Meteorology Product Report part 9
tt	Data type and/or form designators
UGC	Universal Geographic Code
UTC	Universal Coordinated Time
W	West or Watt
WAN	Wide Area Network (OneNWSnet)
WFO	Weather Forecast Office
WMO	World Meteorological Organization
WSH	Weather Service Headquarters
x	NWS message body beginning and end indicator
XML	eXxtensible Mark-up Language
xmlns	specifies the xml namespace for a document
XMPP	eXtensible Mark-up and Presence Protocol
Z	zulu; time reference