

AWIPS RPS List Guidance

Updated: 8/14/2026

Overview

RPS Lists allow for AWIPS to request products from an RPG/SPG in an automated fashion. This document will discuss the design behind AWIPS RPS Lists and how to effectively implement them. The table below gives a high-level overview of the RPS List paradigm in AWIPS-2.

	National RPS List	Local RPS List	Comprehensive RPS List
Purpose	Base set of products requested by each AWIPS from its primary RPG/SPG	Set of products defined by an AWIPS user to be requested from any connected RPG/SPG (primarily for products not requested on National RPS List)	Lists maintained by Radar Operations Center which have the vast majority of products defined in one RPS list for clear-air and storm mode VCPs. <i>For WSR-88Ds only.</i>
Location*	DV1: /awips2/rcm/data/config/drop-ins/	-- Active -- DV1:/awips2/rcm/data/config/drop-ins/ -- Draft/Backup -- /home/<user>/caveData/common/site/<siteID>/radar/ /data/fxa/rps-lists/	--- AWIPS NDM --- https://vlab.noaa.gov/svn/awips-ndm/trunk/ Download the files from AWIPS NDM trunk to local AWIPS and run scripts to update current local RPS lists to include contents of latest ROC-maintained RPS list products
Filename	rps-RPGOP-tcp.clear-air rps-RPGOP-tcp.storm rps-SPGOP-tcp.storm	-- Active -- KNNN.storm.VCPxx -or- KNNN.clear-air.VCPxx -- Draft/Backup --	<u>master rps clear-air</u> <u>master rps storm</u>

		RPS file extension (*.rps)	<u>wsrRPSconvert.sh</u> – script to update current local RPS lists to include comprehensive RPS list contents <u>wsrRPSCreate.sh</u> – script to create local RPS lists using comprehensive RPS lists, if local lists do not already exist
Editable	NO (Nationally managed NDM files)	YES (Draft/Backup files using RPS List Editor)	NO (managed by the ROC), but after running conversion scripts, sites can modify updated local RPS lists
Max # Products**	Dedicated/Supplemental connection = 800 Backup connection = 800		

* See the section on Local RPS Lists for more details regarding the multiple locations of these lists.

** While these connections can support up to 800 products, bandwidth limitations on these connections may cause narrowband load shedding in the event a lot of products are requested.

The next three sections will go into further detail on the National, Comprehensive, and Local RPS Lists.

National RPS Lists

The purpose of the National RPS Lists is to collect a common set of products from all connected RPG/SPG systems. These products are requested and sent to central collection (i.e., [RPCCDS](#)), for archival (i.e., NCEI), and/or made available on the [Satellite Broadcast Network \(SBN\)/NOAAPort](#). The RPG has two lists, one for Clear-Air VCPs and one for Precipitation VCPs. The SPG only has one list. These files should not be edited, and primarily consist of the following:

Clear Air VCPs	Precipitation VCP	SPG VCPs
<u>Base Data (<= 3.5° + repeats)</u> (Z**, V**, SW, ZDR, CC, KDP)	<u>Base Data (<= 3.4° + repeats)</u> (Z**, V**, SW, ZDR, CC, and KDP)	<u>Base Data (<=3.0° + repeats)</u> (Z (short & long range), V)
<u>Super Resolution Base Data*</u> HZ <= 3.5° + repeats	<u>Super Resolution Base Data*</u> HZ <= 3.5° + repeats	

HV <=1.5° + repeats	HV <=1.5° + repeats	
<u>Common Products</u> (CZ, ET**, VIL, VWP, HC, ML, DHR, HHC, Precip Accum**)	<u>Common Products</u> (CZ, ET**, VIL, VWP, HC, ML, DHR, HHC, Precip Accum**)	<u>Common Products</u> (CZ, ET**, VIL, VWP)
	<u>Storm-base Products</u> (STI, HI, MD, TVS, SS, SPD)	<u>Storm-base Products</u> (STI, HI, MD, TVS)

* Super-Resolution data are available on SBN/NOAAPort only.

** These products are no longer available on SBN/NOAAPort (For Precip Accum products this only applies to all PPS products plus One Hour Difference Accumulation (DOD/174) and Storm Total Difference Accumulation (DSD/175))

National RPS Lists are stored on DV1 in ***/awips2/rcm/data/config/drop-ins/***

- rps-RPGOP-tcp.clear-air
- rps-RPGOP-tcp.storm
- rps-SPGOP-tcp.storm

The National RPS Lists are nationally managed NDM files which can be accessed at the following location:

<https://vlab.noaa.gov/redmine/projects/awips-ndm/repository/awips-ndm/show/trunk>. A NOAA LDAP account is required to access these files. Your NOAA e-mail credentials should provide you access. Additionally, CAC access is allowed.

Comprehensive RPS Lists (RPG-only)

These lists were designed by the Radar Operations Center (ROC) to more easily incorporate the addition of new products and the removal of old products. In the past, this effort was left up to the local offices, and it often led to products not getting incorporated in a timely manner, or products remaining on the list when they should have been removed.

These lists contain ALL of the products that can be generated by the RPG with the exception of user-selectable precipitation/snow products. These lists are also independent of the National RPS List contents defined above, so duplicates will occur when these lists

are combined with the National RPS List; however, these duplicates are removed through processes in AWIPS and RPG. An overview of the products are:

- Base products (high-res & super-res)
- Dual-Pol QPE & Legacy PPS products
- Range-Defined Quasi-Vertical Products (RDQVP)
- Reflectivity/Dual-Pol Derived Products (CZ, LRM, ET/EET, LRM, VIL/DVL, STI, HI, CLR, HCA, ML)
- Velocity Derived Products (VWP, MD/DMD, TVS/TRU, GFM, MBA)
- Snowfall products
- Text products (SCL)

Elevation-based products have requests to get those products for all elevations plus repeats from the base-tilt elevation all the way up to 6.4 degrees for clear-air VCPs, and 19.5 degrees for storm VCPs.

These lists are nationally managed NDM files which can be accessed at the following location: <https://vlab.noaa.gov/svn/awips-ndm/trunk/>. Here are the applicable files and a short description:

- **master_rps_clear-air** – contains all the products listed above tailored to the constraints of clear-air VCPs, primarily limiting requests to 6.4 degrees and lower
- **master_rps_storm** - contains all the products listed above from 19.5 degrees and lower
- **wsrRPSCovert.sh** – a script used to update currently existing local RPS lists in /awips2/rcm/data/config/drop-in/ to include the contents of the master RPS lists, except for any RPS lists starting with KXXX. The script will first back up the current RPS lists before updating with master RPS list contents
- **wsrRPSCreate.sh** – a script used to create NEW local RPS lists using the master RPS Lists with a user-defined radar ICAO
- **wsrRPSCreateAuto.sh** – a script used to create local RPS Lists in /awips2/rcm/data/config/drop-in/ for radars defined in /awips2/rcm/data/persists/config.xml

To implement the master RPS Lists, an approved AWIPS administrator must download these files from the AWIPS NDM trunk website and copy them to **dv1:/localapps/install/awips-ndm/wsrRps**. The file ownerships should be **awips:fxalpha** and the

permissions of **755**. The scripts take no arguments and should be executed as ***sudo -u awips <scriptName>***. After running the scripts, the radar server MUST be restarted to start using the updated RPS lists inside the drop-ins directory.

Local RPS Lists

These lists serve as a way for forecast offices to customize which products are requested from an RPG/SPG. ***With the addition of Comprehensive RPS Lists, this information is provided mainly for reference.*** Local RPS Lists are stored in various locations within AWIPS, as described below:

- ***DV1: /awips2/rcm/data/config/drop-ins/***
 - “Active” directory for all RPS lists
 - RadarServer will poll this directory for the Local RPS list that matches the current VCP and merge it with the appropriate National RPS List if the WFO is the designated sender for that RPG; otherwise the RadarServer will send only the Local RPS List
 - Since the files in this directory are the ones automatically sent by AWIPS when an RPS List is sent to the RPG/SPG with no user interaction (i.e., VCP mode change), it is important these files are always up-to-date based on the needs of the office
 - RPG Naming Convention
 - ***KNNN.[storm|clear-air].VCPxx*** where KNNN is replaced by the local radar ICAO (e.g., KPAH) and VCPxx is replaced by the VCP number (e.g., VCP212 or VCP12). If the VCP is a precipitation VCP, the use “storm” in the name, otherwise use “clear-air”.
 - *Examples: **KTLX.storm.VCP112** (Local RPS List for VCP 112 for KTLX); **KPAH.clear-air.VCP35** (Local RPS List for VCP35 for KPAH)*
 - SPG Naming Convention
 - ***TNNN.storm.VCPxx*** where TNNN is replaced by the local radar ICAO (e.g., TADW) and VCPxx is replaced by the VCP number (i.e., VCP80 or VCP90)
 - *Example: **TLAS.storm.VCP90** (Local RPS List for VCP 90 for TLAS)*
 - Template Files

- Should be used as a starting point for new Local RPS Lists.
- ***If a Local RPS List does not exist in this directory for a specific radar and VCP mode, that specific radar will merge the National RPS List with the corresponding VCP template to request products if the WFO is the transmitting site for that RPG.*** If the WFO is not the sender for the RPG that does not have a Local RPS List for the given VCP, then the “default” template will be used to generate an RPS List to send to the radar.
- Naming convention (SPG does not have any template files)
 - ***KXXX.storm.VCP215*** (Generic RPS List for VCP 215 for any RPG without a Local RPS List)
 - ***KXXX.clear-air.VCP34*** (Generic RPS List for VCP 34 for any RPG without a Local RPS List)
- ***/home/<username>/caveData/common/site/<siteID>/rcm/***
 - When an RPS List is edited by a forecaster using the RPS List Editor in AWIPS by selecting “View → Current” or “View” and then one of the VCP modes, the default save location is within their home directory, ***/home/<username>/caveData/common/site/<siteID>/rcm/***.
 - Changes made, saved, and sent from here are only used until AWIPS automatically sends an RPS List, then it will revert back to using the RPS List defined in the “active” location on DV1. If it is desired to update the Local RPS Lists in the “active” location with changes made locally, make sure to copy the changes made in the home directory to the “active” directory on DV1. Once the files have been copied over to DV1, make sure to restart the radar server or, alternatively, change (and change back if necessary) the VCP mode.
- ***/data/fxa/rps-lists/***
 - When an RPS List is edited by a forecaster using the RPS List Editor in AWIPS by selecting “File → Open”, the default save location is ***/data/fxa/rps-lists/*** because the default file open location is also ***/data/fxa/rps-lists/***.
 - This directory serves as a backup for all RPS Lists and files in these directories could be outdated. Use caution when editing or looking at these files.
 - Changes made, saved, and sent from here are only used until AWIPS automatically sends an RPS List, then it will revert back to using the RPS List defined in the “active” location on DV1. If it is desired to update the Local RPS Lists in the “active” location with changes made locally, make sure to copy the changes made in the home directory to the “active” directory on DV1. Once the files have been copied over to DV1, make sure to restart the radar server or, alternatively, change (and change back if necessary) the VCP mode.

The files in the user home and backup directories should have a .rps extension added to the filename. If they do not, the RPS List Editor within AWIPS (Radar → RPS List Editor) may not read the files properly. When copying the edited files over to the “active” directory on DV1 to update the default Local RPS List files, make sure to remove the .rps extension and use the proper naming convention mentioned above.

How Data Gets Consolidated & Distributed

Now that you know the differences between National and Comprehensive/Local RPS Lists, this section will detail how the two lists are consolidated and then how the data are distributed. How consolidation and distribution happens primarily depends on whether your local AWIPS has a dedicated connection to the RPG/SPG and is the transmitting or non-transmitting AWIPS. Transmitting means the AWIPS requesting the data is passing the collected data from the National RPS List onto central collection. Non-transmitting means the AWIPS is just requesting the data for local use.

Let's take a look at more of the details:

- **Dedicated Connection & Transmitting RPG & SPG:** AWIPS merges the National RPS List with the currently selected Local RPS List (either site-specific or template) into one RPS List sent to the RPG/SPG. Exact duplicate entries (e.g., 0.5 deg Super-Resolution Reflectivity) are removed from the final list sent. Similar duplicate entries are compared and the lesser of the requests is removed. For example, if one list being merged requests Super-Resolution Reflectivity at or below 3.5 degrees and the other list being merged requests Super-Resolution Reflectivity at or below 2.5 degrees, the request for at or below 2.5 degrees is removed because all of the data requested in that list are at least included in the at or below 3.5 degrees list. The final list sent is stored in **/data_store/radar/lists/**.
 - For Radar Multiple Requests (RMRs), exact and similar duplicate requests will be removed like they are in RPS Lists.
- **Dedicated Connection & Non-Transmitting RPG:** AWIPS just sends the currently selected Local RPS List to the RPG. In this case, only the Local RPS List is searched for exact and similar duplicates before being sent to the RPG. The final list is stored in **/data_store/radar/lists/**.
 - There is a flag within the RadarServer Configuration GUI called **filterSbnDuplicates**. SBN stands for Satellite Broadcast Network and allows any AWIPS to receive data sent over this network. Data sent over the SBN are defined by an

NDM file located in **/awips2/rcm/data/config/drop-ins/sbnProdList.txt**. This **filterSbnDuplicates** flag will be selected by default. When selected, if the radar type is “WSR” the list being sent will be compared against the NDM SBN list and any duplicates will be removed.

- For RMRs, exact and similar duplicate requests will be removed like they are in the RPS Lists. Additionally, if an RMR defines a product in the NDM SBN list, it will be removed from the RMR if the **filterSbnDuplicates** flag is set.
- *Non-Dedicated Connection RPG:* If you have a non-dedicated connection, only the RMR is applicable. As mentioned above, exact and similar duplicate entries will be removed like in the RPS Lists. Products defined in the NDM SBN lists will be removed from the RMR if the **filterSbnDuplicates** flag is set.

RPS List Editor

The RPS List Editor is robust when it comes to flexibility in requesting products. For example, you can request all elevations of a product with a single line entry as opposed to a single entry for each elevation angle. You can also request all the supplemental scans such as SAILS or MRLE (i.e., “repeats”) using a single line entry rather than adding another entry specifically for those products as was required in the past. This is accomplished by choosing the appropriate “Elevation(s):” drop-down option inside the RPS List Editor. The following options are available:

Request Option	Behavior
All	Requests all elevations of a single product (excluding repeats)
All at or below	Requests all elevations of a single product at or below a specified elevation angle (excluding repeats)
All at or below/All cuts	Requests all elevations of a single product at or below a specified elevation angle (including repeats)
Lowest N	Requests the lowest N number of elevations (excluding repeats)
Lowest N/All cuts	Requests the lowest N number of elevations (including repeats)
Single	Requests a single elevation cut (excluding repeats)
All cuts	Requests a single elevation cut (including repeats)

RPS List Caveats

The above information is generic in nature and there are few caveats to keep in mind when you are editing or creating new RPS Lists

- **Max # Products:** For dedicated or supplemental connections, the RPG and AWIPS only allow a maximum of 800 products to be requested. Multiple products can be requested on one line, so one entry does not equal one product (e.g., requesting all elevations of reflectivity can be done on one line, but each elevation counts as one product toward the 800). For sites with a WAN-Dedicated connection, the maximum number of products allowed in an RPS List is 800.
 - Since the number of products is 800, there is a possibility that the narrowband connection does not have enough bandwidth to handle the large number of products. If this is the case, narrowband load shedding will occur and an RPG Status Log WARNING will appear. In these instances, it is best to trim down the local RPS Lists.
 - If more than the maximum number of allowed products are requested in an RPS List, AWIPS will truncate the list starting by deleting products off the bottom of the list. Therefore, have the highest priority products at the top of the list.
 - To check for truncation run the following command in dv1:/awips2/rcm/data/logs/

more radarserver.log | grep -i truncated

This will show you how many requests there were prior to truncation as well as after. The RadarServer will truncate the list to a number at or below 800. Often times the number of requests will end up below 800 because the RadarServer can only truncate entire RPS List entry lines, which means it may truncate one line that represented all elevations, all cuts of Super Res Reflectivity, which could be somewhere on the order of 20 requests with the right features enabled on the RPG. If the full list came out to 801 requests and the last line of the RPS List represented 20 requests like above, then the final list would only be 781 requests.