



# National Weather Service

## Terminal Doppler Weather Radar (TDWR) Supplemental Product Generator (SPG)

**Updated**

March 31, 2026



# 2026 Update

- This is an update to the 2020 High Level Overview presentation. Only slides from that presentation that need updating are included in this presentation. Any new slides are noted as such.



# System Information

- The TDWR no longer broadcasts data to the SPG in UDP.



# System Information

- SPG uses Red Hat 8.0 Linux as the current Operating System.

# SPG HCI



SPG Control/Status

SPG Build 16.0: Tuesday May 26, 2026 19:42:51 UT

State: **OPERATE**  
Oper: **ONLINE**

0.3

VCP L80/H  
Volume 3 (Seq: 3) Start: Apr 28,2026 06:19:40 UT

State: **OPERATE**  
Oper: **ONLINE**

TDWR TSDF  
Control  
Alarms

SPG  
Control  
Products  
Status

USERS  
Comms

Load Shed: **NORMAL**

Console Messages  
Environmental Data  
Miscellaneous

Feedback:

Status: May 26,26 [19:42:41] >> Vol: 3 (Seq: 3) TDWR Clock:04/28/26 06:19:40 VCP: 80

Alarms: May 26,26 [19:42:41] >> **SPG ALARM CLEARED: TDWR <-> SPG COMMUNICATIONS D**

The diagram shows the SPG HCI control panel. At the top left, there is a status bar with the text 'SPG Build 16.0: Tuesday May 26, 2026 19:42:51 UT'. Below this, the system state is shown as 'State: OPERATE' and 'Oper: ONLINE'. A large circular gauge displays '0.3'. To the right, a 'VCP L80/H' indicator shows 'Volume 3 (Seq: 3) Start: Apr 28,2026 06:19:40 UT'. The main part of the diagram is a block diagram showing the TDWR TSDF (Terminal Doppler Weather Radar Terminal Doppler Weather Radar) on the left, the SPG (Satellite Processing Group) in the center, and the USERS on the right. The TDWR TSDF block contains 'Control' and 'Alarms' sub-blocks. The SPG block contains 'Control', 'Products', and 'Status' sub-blocks. The USERS block contains a 'Comms' sub-block. Green lines with labels 'R', 'V', and 'W' connect the TDWR TSDF to the SPG. A green line connects the SPG to the USERS. At the bottom right, a 'Load Shed' indicator shows 'NORMAL'. On the right side of the panel, there are three menu items: 'Console Messages', 'Environmental Data', and 'Miscellaneous'. At the bottom, there is a 'Feedback' input field, a 'Status' line showing 'May 26,26 [19:42:41] >> Vol: 3 (Seq: 3) TDWR Clock:04/28/26 06:19:40 VCP: 80', and an 'Alarms' line showing 'May 26,26 [19:42:41] >> SPG ALARM CLEARED: TDWR <-> SPG COMMUNICATIONS D'.



# TELCO Information

- SPGs no longer have a direct connection to TDWRs.



## SWIM (new)

- TDWR base data is transmitted to an FAA ITWS system one radial at a time.
- The ITWS collects radials for an entire cut.
- The TDWR radials for a cut are disassembled and reorganized for better compression.
- The cut of TDWR data is compressed and transmitted to the SWIM infrastructure, where each cut becomes available as a separate file.



## SWIM (new)

- MIT/LL provided software that connects to a SWIM access point and pulls TDWR files.
- The software decompresses and reassembles the files so the radials are in the original TDWR format.
- The MIT/LL software runs on a ROC SPG Distribution Server (SPGDS), which distributes the TDWR files to the SPGs.



## SPGDS (new)

- There are four SPGDSs in two clusters of two servers each:
  - Cluster #1 is at the ROC in Norman, OK
  - Cluster #2 is in Ashburn, VA
- The two clusters provide geographic redundancy.



## SPGDS (new)

- In each cluster, one SPGDS pulls TDWR data from the Salt Lake City, UT SWIM access point; the other pulls from the Atlanta, GA access point.
- Having two servers per cluster, with each pulling from a different SWIM access point, provides redundancy in case one of the SWIM access points goes down.



## SPGDS (new)

- Each SPGDS makes its reassembled and decompressed TDWR files available to SPGs over LDM.
- Each SPG requests TDWR files from all four SPGDSs.
- Given the files contain radials in the original TDWR format, the SPG required minimal changes to start ingesting TDWR data on a per-cut basis.



## SPGDS (new)

- There is a new web status display to monitor the flow of SWIM data and LDM connectivity from each SPGDS to each SPG.
- The web page is <https://www.weather.gov/nl2/spgds>
- The next slide shows an image of the web status display.

# SPGDS Web Status Display



## SPGDS

[Weather.gov](#) > [National Level II](#) > SPGDS

National Level II  
National Program

[NEXRAD View](#) [Server View](#) [SPG View](#) [LDM View](#) [Control View](#) [Help](#) [About](#)



SPGDS 1  
Norman, OK  
SWIM: SLC



SPGDS 2  
Norman, OK  
SWIM: ATL



SPGDS 3  
Ashburn, VA  
SWIM: SLC



SPGDS 4  
Ashburn, VA  
SWIM: ATL

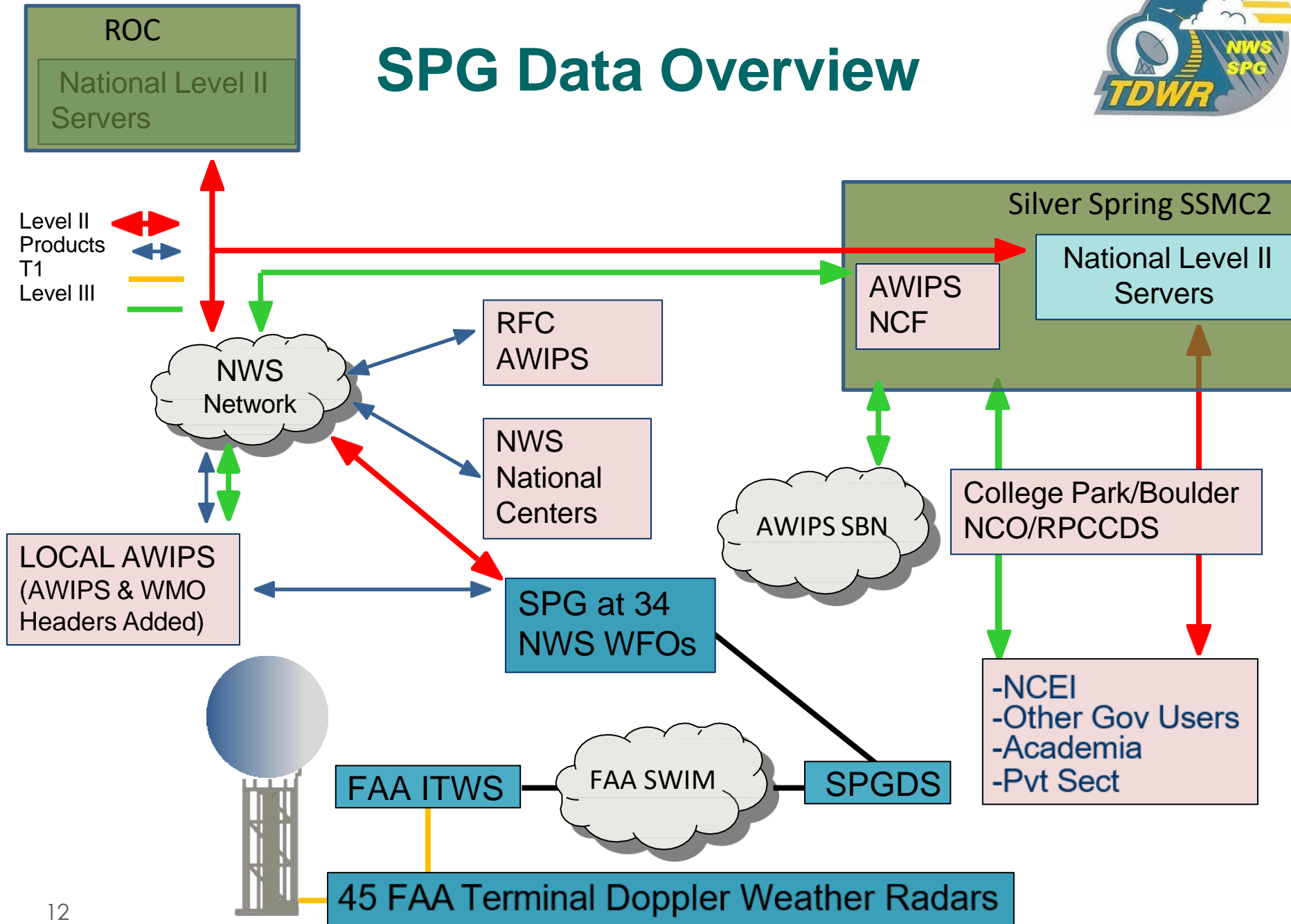
TADW	TATL	TBNA	TBOS	TADW	TATL	TBNA	TBOS	TADW	TATL	TBNA	TBOS	TADW	TATL	TBNA	TBOS
TBWI	TCLT	TCMH	TCVG	TBWI	TCLT	TCMH	TCVG	TBWI	TCLT	TCMH	TCVG	TBWI	TCLT	TCMH	TCVG
TDAL	TDAY	TDCA	TDEN	TDAL	TDAY	TDCA	TDEN	TDAL	TDAY	TDCA	TDEN	TDAL	TDAY	TDCA	TDEN
TDFW	TDTW	TEWR	TFLI	TDFW	TDTW	TEWR	TFLI	TDFW	TDTW	TEWR	TFLI	TDFW	TDTW	TEWR	TFLI
THOU	TIAD	TIAH	TICH	THOU	TIAD	TIAH	TICH	THOU	TIAD	TIAH	TICH	THOU	TIAD	TIAH	TICH
TIDS	TJFK	TLAS	TLVE	TIDS	TJFK	TLAS	TLVE	TIDS	TJFK	TLAS	TLVE	TIDS	TJFK	TLAS	TLVE
TMCI	TMCO	TMDW	TMEM	TMCI	TMCO	TMDW	TMEM	TMCI	TMCO	TMDW	TMEM	TMCI	TMCO	TMDW	TMEM
TMIA	TMKE	TMSP	TMSY	TMIA	TMKE	TMSP	TMSY	TMIA	TMKE	TMSP	TMSY	TMIA	TMKE	TMSP	TMSY
TOKC	TORD	TPBI	TPHL	TOKC	TORD	TPBI	TPHL	TOKC	TORD	TPBI	TPHL	TOKC	TORD	TPBI	TPHL
TPHX	TPIT	TRDU	TSDF	TPHX	TPIT	TRDU	TSDF	TPHX	TPIT	TRDU	TSDF	TPHX	TPIT	TRDU	TSDF
TSJU	TSLC	TSTL	TTPA	TSJU	TSLC	TSTL	TTPA	TSJU	TSLC	TSTL	TTPA	TSJU	TSLC	TSTL	TTPA
TTUL	TOK1	TOK2	TOK3	TTUL	TOK1	TOK2	TOK3	TTUL	TOK1	TOK2	TOK3	TTUL	TOK1	TOK2	TOK3

SPGDS1 Status: Wed, 27 May 2026 14:35:32 GMT	SPGDS3 Status: Wed, 27 May 2026 14:35:08 GMT
SPGDS2 Status: Wed, 27 May 2026 14:35:35 GMT	SPGDS4 Status: Wed, 27 May 2026 14:35:08 GMT



# SPG Data Overview



# SPG Data Path

- 45 FAA TDWR radars send data to their local FAA ITWS one radial at a time.
- The local FAA ITWS collects the data radials, packages them into a file containing a full 360-degree cut of data, and then transmits the file to the FAA SWIM infrastructure, making the file available to SWIM consumers.
- The MIT/LL software on the SPGDS is a SWIM consumer, connecting to the FAA SWIM infrastructure and receiving TDWR data files.
- The SPGDS distributes the TDWR data files to the appropriate SPG over LDM.

# SPG Hardware

- WFO no longer has the RICI-T1 Unit.

# SPG Hardware

- TDWR no longer has the RICI-T1 Unit.
- TDWR no longer has the Power Distribution Unit (PDU)



# TDWR Limitations

- Missing radials are still a concern, and now with SWIM, it is possible to miss an entire cut of TDWR data.
- TELCO problems with LAN equipment at the TDWR are no longer an issue from the NWS side, but there can still be TELCO problems on the FAA side between the TDWR and ITWS and the ITWS and SWIM infrastructure.