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.

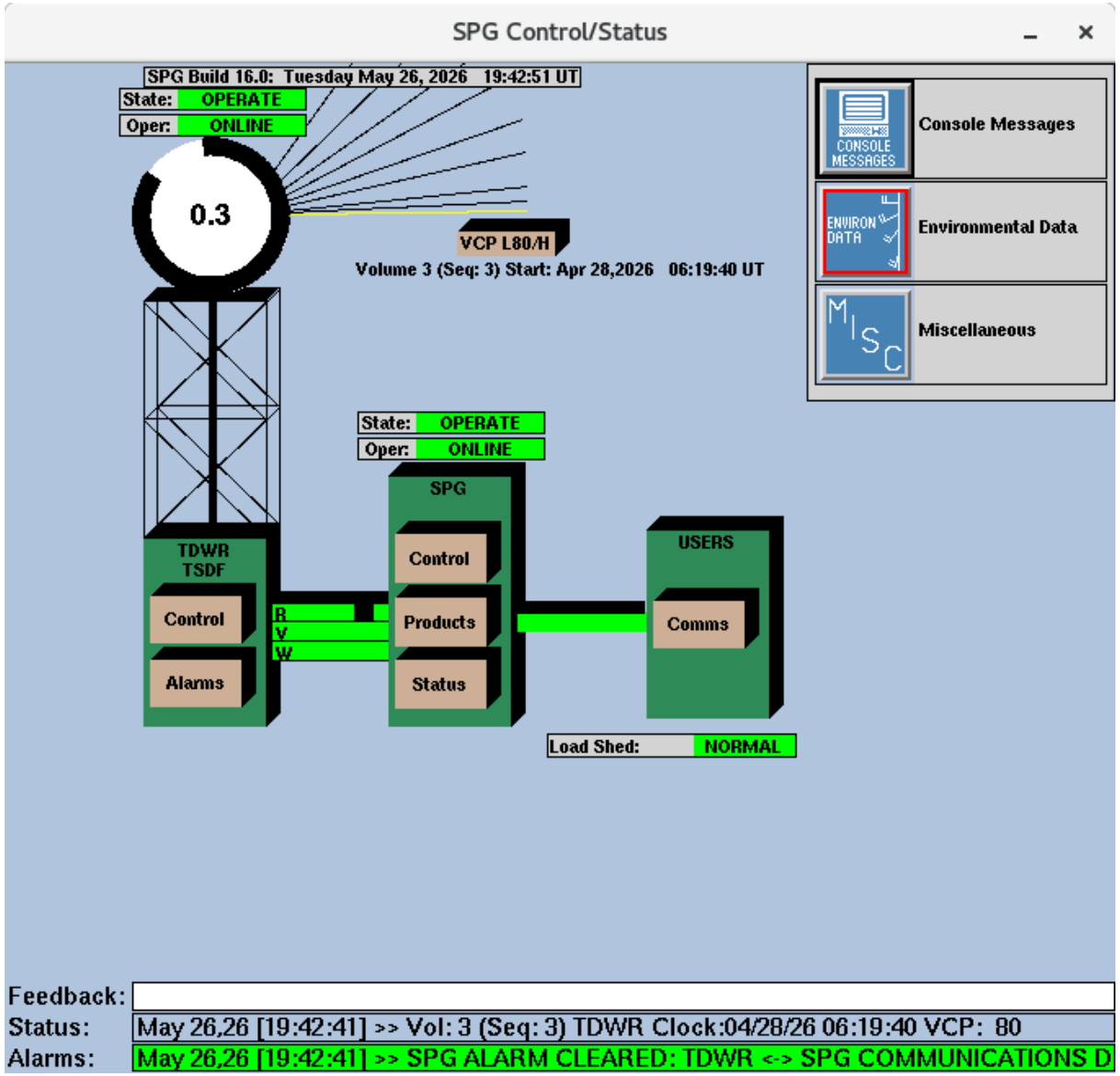
System Information

- 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
CONSOLE MESSAGES
Console Messages
ENVIRON DATA
Environmental Data
MISC
Miscellaneous
State: OPERATE
Oper: ONLINE
SPG
TDWR TSDF
Control
Alarms
R
V
W
Control
Products
Status
USERS
Comms
Load Shed: NORMAL
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

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)

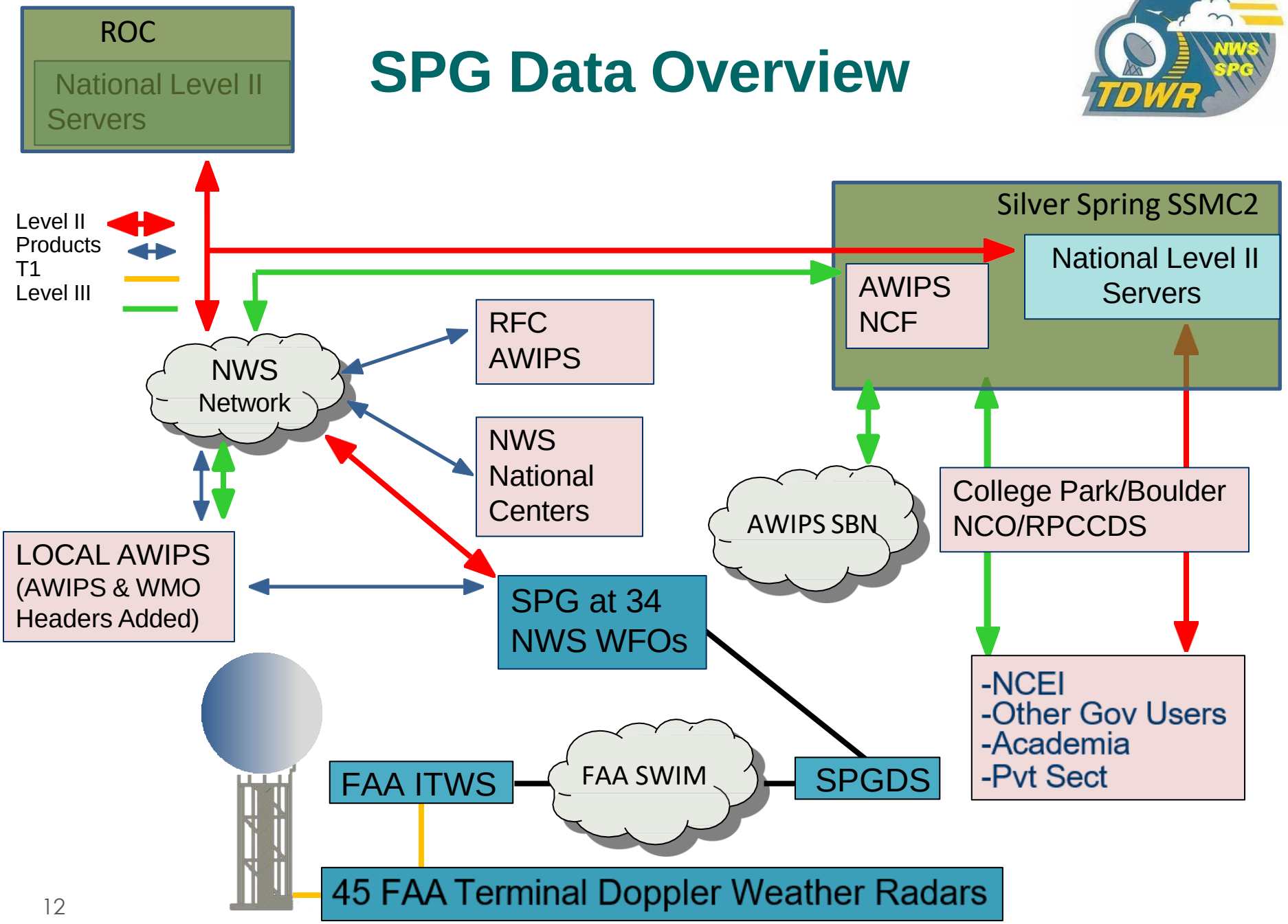
- Each SPGDS makes its reassembled and decompressed TDWR files available to SPGs over LDM.
- Each SPG requests TDWR files from all four SPGDSs.
- Given the files contain radials in the original TDWR format, the SPG required minimal changes to start ingesting TDWR data on a per-cut basis.

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

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.