

# Format of NEXRAD Level II Data Files stored in Amazon Web Services S3 Buckets

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As a part of the NOAA Big Data Project, Amazon Web Services (AWS) and Unidata are collaborating on a demonstration project to store NEXRAD Level II data (archive and near real-time) in AWS Simple Storage Service (S3) “buckets.” During the demonstration period, the data are available at no charge to AWS users who mount the buckets. For more information on the demonstration project, see [this post on the News@Unidata blog](#).

Individual “chunks” of data received from individual NEXRAD ground stations are stored temporarily in one bucket (referred to here as the “temporary bucket”); complete 3D volume scans are assembled and placed in a separate bucket (referred to here as the “collection bucket”). Information on accessing the files within the two buckets can be found below.

## Complete 3D Volume Scan Files

Connect to the collection bucket using this URL: <http://noaa-nexrad-level2.s3.amazonaws.com/>

After the individual “chunks” of a volume scan have been collected in the temporary bucket, they are assembled into a single-file 3D volume scan in the collection bucket. The collection bucket contains the untarred, compressed files, which can be accessed via path specifications of the following format:

*/Year/Month/Day/NEXRAD Station/filename*

Where:

<i>Year</i>	is the year the data was collected
<i>Month</i>	is the month of the year the data was collected
<i>Day</i>	is the day of the month the data was collected
<i>NEXRAD Station</i>	is the ground station ID
<i>filename</i>	is the name of the file containing the data

The individual files are compressed with gzip (filenames end in .gz) and use the following naming convention:

GGGGYYYYMMDD\_TTTTTT.gz

Where:

GGGG	is the ground station ID (map of ground stations: <a href="http://www.roc.noaa.gov/WSR88D/Maps.aspx">http://www.roc.noaa.gov/WSR88D/Maps.aspx</a> )
YYYY	is the year the data was collected
MM	is the month of the year the data was collected
DD	is the day of the month the data was collected
TTTTTT	is the time when the data collection began (GMT)

For example, the file KAKQ20010101\_080138.gz contains data from ground station KAKQ (Wakefield, VA) collected on January 1<sup>st</sup>, 2001, beginning at 08:01:38 GMT.

## Individual Real-Time Feed “Chunk” Files

Connect to the temporary bucket using this URL:

<http://unidata-nexrad-level2-chunks.s3.amazonaws.com>

As “chunks” of data arrive from individual ground stations, they are stored in a temporary S3 bucket prior to being assembled into the single-file 3D volume scans described above. Those who want faster access to the individual chunks can retrieve them directly from the temporary bucket. Chunks are accessed with path specifications of the following format:

*/NEXRAD Station/Volume\_number/YYYYMMDD-HHMMSS-CHUNKNUM-CHUNKTYPE*

Where:

<i>NEXRAD Station</i>	is the ground station ID
<i>Volume_number</i>	is the volume id number (cycles from 0 to 999)
<i>YYYYMMDD</i>	is the date of the volume scan
<i>HHMMSS</i>	is the time of the volume scan
<i>CHUNKNUM</i>	is the chunk number
<i>CHUNKTYPE</i>	is the chunk type

All “chunk” files are compressed using bzip compression.