

IRIS 8.09 Release Notes

These notes cover changes made in IRIS since release 8.08 of 3 January 2005. If you are upgrading from an earlier release, please read those notes also.

Important Upgrade Notes

1. The dsp library was enhanced to serve out the contents of the **zcalib.conf** file. This means that on systems using **DspExport** to run applications on a different computer from the RVP8, the calibration file on the RVP8 is used. Previously it was the file on the application's computer (there might be several such computers). After upgrading in such an environment be sure to synchronize the calibration files by copying the **zcalib.conf** file from the application computer to the RVP8. In support of this, **zcal** was changed to not allow changing the calibration without I/O access to the DSP.

2. Significant enhancements and bug repairs were made to the **IrisToHDF5** and **HDF5ToIris** pipe programs. There were changes made to the .conf file, so please see the new template file after upgrading.

IrisToHDF5: Added a whole new "AREA" table in the IrisToHDF5.conf file. This table is used to select the /how/area and /how/doppler attributes. Previously the /how/doppler attribute was never set. The /imageN/what/prodpar attributes for PPI & RHI products is now rounded to the nearest 0.01 degree. The /imageN/what/gain and offset attributes were not set correctly for V and W data. Logging was improved.

HDF5ToIris: Dual PRF PVOL and SCAN files were getting the wrong PRFs. We can now read in files compressed using szip. If you wish to compile the code, you will need to have szlib installed in your /usr/local tree.

3. The **AsciiToGage** input pipe has added support to specify the time zone of the recorded data and the local time. Customers who are using the Hydromet package should be sure to install the new pipe, and edit their AsciiToGage.conf file following the example in the config_templates/init directory. Note that if customers wish to use the new 15- or 30-minute RAIN1 features with rain gage correction they will need to modify their raingage transmission software to send updates at the correct rate.
4. Improvements were made in the **IrisToBufr** pipe program to the WMO GTS header which can be attached to BUFR files. We fixed the Date/time field which started with the month instead of the day. The bulletin ID string was changed to allow control of the last two characters depending on the radar site. When upgrading be sure to install the new pipe, as well as change your IrisToBufr.conf file. Please look in the template IrisToBufr.conf file provided to see the format. The GTS_BULLETIN_ID line is removed. The SITE lines have the unused Minutes–West, Lat and Long fields removed, and a new GTS–ID field added.

Data Format Changes

1. In ingest files the structure **task_dsp_info** has 2 new fields in previously unused space which was zeroed. These are:

iCfgHdrMask: The mask indicating which ray header words were turned on.

iFlagsTS: A mask indicating which Time Series playback options were turned on.

2. Enhanced the data formats for the RAIN1, RAINN, CATCH, and GAGE products in support of allowing 15-minute resolution rainfall accumulation measurements. Changes were made in backward compatible ways. We added a data span in seconds field to RAIN1, RAINN, and CATCH. Both the RAINN and CATCH products now preserve much of the header information from their input RAIN1 products. Specifically, they preserve the flags, min Z, average gage factor, and the input time span.

Retired Features

1. *HP-UX Platforms only:* Output from IRIS in TIFF and JPEG format is no longer supported. If you wish to use this feature, upgrade to linux.
2. Removed all support for running the old version of **bitex**, commonly called “bitex1”. When upgrading, you will need to convert to the new version. Most customers did this years ago.

Setup Changes

1. The **setup** Ingest button now has a new question at the bottom of the *Scanning Options* section. If you set “Optimize for continuous output” to “Yes” it will make the following changes. The default is “No”. Please leave it to “No” unless you want continuous real-time displays. For continuous displays, please also disable the noise sample in ingest. When set to “Yes”, you should see only about 1 ray missing between tasks at 3 RPM 1 degree resolution

Leave the DSP in continuous output mode between tasks.

If the same task is running continuously, skip reading the gparm data at the start of the task. This means it would not detect faults like burst pulse missing.

Do not set the sweep number value between sweeps.

2. In the setup Output button, the Network output devices now no longer will fail to run if the network output directory is missing a trailing “/”. It has been optional for a while for input directories.
3. The setup rcp button now has a new question in the *Control Bit Definitions* section. You can set the “Pulse Width Unchanged Control” to “Disabled” to support legacy RCPs which do not expect this bit in the data format. You can now force the bit unused, and set the level.
4. The setup ingest pop-up now has a new question in the *Signal Processing and Data Storage* section. If you set “Source of recorded time” to “IRIS Host” you will get the legacy behavior. If you set it to “RVP Tags” it will record using times from the RVP8.

IRIS will pull the times and time zone information from the RVP8, but will still schedule tasks based on the IRIS host computer. This improves the accuracy of the times from about 200 ms to about 2 ms. Do not turn this on for an RVP6 or RVP7. Also you should time sync your computers using ntp.

5. In the setup ingest pop-up, in the *Scanning Options* section we have added a new passive ingest type. Set this to “TS Playback” if you are going to run with time series played back using **tsarchive**.
6. In the setup ingest pop-up, in the *Transmitter Control* section the “Warmup time for transmitter” now has 2 meanings. IRIS will always wait this long after radiate is turned on before recording data. It also has the previous meaning of when to turn on radiate in automatic mode. After upgrading be sure to set this number as required for your system.

Bug Repairs

1. We fixed a serious bug introduced in release 8.08 on 23 Dec 2004. Reingest was missing the last two rays of each sweep. All customers using release 8.08 should install the patch available on our ftp site. RAW products made on the original IRIS/Radar are fine, but any RAW product made on other machines will be missing some data until the patch is installed.
2. The IRIS watchdog process was generating start up signals for antenna data streams which were not used. This bug was introduced in 8.07. You saw messages like: “Antenna Angle communication alive again”.
3. Fixed crashing of **reingest** when it was turned off from RST menu. There was an uninitialized variable, so it was possible to get an infinite series of segmentation violations when it was turned off. Bug introduced in 8.07 on 17 September 2004.
4. The **rtd_echo** program is used to read and then retransmit the real-time display data stream. This was changed in release 8.06 to filter the data base on the 3-character site name. The sense of the filter was reversed so that all data which did not match the command line was passed.
5. **HDF5ToIris** was getting the message “Invalid arg to mpj_pin_region()” for Cartesian products. This bug was introduced in 8.08. Also repaired incorrect scaling of input data. That has always been broken, except for data from IRIS. Also repaired intermittent errors in the day and month in the IRIS product produced.
6. **RainbowToIris** was enhanced to support volume files which contain T data (that is F9=3). Be sure to upgrade both your pipe program and the .conf file. Read the RainbowToIris.conf file for more details.
7. Fixed a bug in overlay. When displaying an overlay with a GIF underlay, it would fail with an error in mpj_pin_region() when you select the file from the Open menubar.
8. The sigmet supplied **Rain1GageCor** program is often used by Hydromet customers to correct RAIN1 products based on rain gage measurements. It was not filling in the average gage correction factor in the RAIN1 header.

9. **Sigbru** needed to add a sleep after the DVD write is finished. This is because after the write the DVD tray ejects and retracts. We need to wait enough time for the tray to retract before we try to remount.
10. All QLW Live features and the XSECT tool were not working on 16-bit input data. This has been broken since the Live feature was first developed.
11. The BEAM product will now work on negative elevation angles.
12. The **rtdisp** display of RHIs was displaying the data at exactly half the correct vertical height. This bug was introduced when RHI displays were first supported.
13. When a WARN product is made from a TOPS product the centroid labels, message at the bottom of the screen, and the pop-up messages all display height in kilofeet. Unfortunately the bottom of screen and pop-up messages labeled it as “km”. This is fixed.
14. Help button on the Live Tool was not working.

New Features

1. The IRIS message file now has time to ms resolution. The file format has thus changed a little.
2. Added point push button to filters section in **ascope**. This is a NEXRAD feature only available on the RVP8. Also increased the upper limit of LOG threshold from 5 to 12 dB.
3. Changes were made to the IRIS ingest process to shorten the gap between consecutive volume scans. We removed a double FIFO reset, and will now completely skip the task setup of the DSP if the task is unchanged, and the gap between tasks is less than 5 seconds.
4. Added support in the WARN product to handle some of our newer dual polarization data types. We have added: DB_KDP, DB_LDRH, DB_LDRV, DB_RHOH, DB_RHOV, DB_RHOHV, DB_SQI and DB_TIME2. This joins the previous list of: DB_DBT, DB_DBZ, DB_DBZC, DB_WIDTH, DB_ZDR, DB_SHEAR, DB_VIL2, DB_FLIQUID2 and DB_RAINRATE2.
5. In the Task Configuration Menu we have added a Playback popup in the processor configuration box. This allows the user to select whether to use the original noise level and Z calibration on playback data.
6. Added support for rainfall products to handle finer resolution than 1 hour. This involves changes to the CATCH, GAGE, RAIN1 and RAINN products. The product configuration menus for RAIN1, RAINN and CATCH all accept time spans down to 15 minute resolution. The CATCH and RAINN spans are constrained to integer hours if greater than 1 hour. The task scheduler menu now requires a skip time for the RAINN and CATCH products. The skip time, and the RAINN and CATCH data spans must be

- an integer multiple of the RAIN1 resolution. The legends and **productx** are enhanced to display these fractional hours. The histogram popups for the GAGE and CATCH product will now display fractional hours if appropriate.
7. IRIS can now run using recorded time series played back using **tsarchive**. See the *IRIS/Radar User's Manual* Appendix C for details. When playing back it is necessary to configure a task to match the data which is expected. If there is a mismatch, IRIS will signal a message. In that case, if you halt the task immediately while the same time series is still arriving you will get a more detailed report of the mismatch.
 8. Tsarchive is enhanced to insert small time delays between files when multiple files are played back together in a single play group. There is an explicit delay at the end of the group, but now we note data time between the last pulse of a file and the first pulse of the next file. We will sleep that long times the playback speed. This is to allow an application to reconfigure between sweeps if desired.
 9. Added a new data type to IRIS called DB_USER2. This is a 16-bit user defined data type. You should be able to make color displays with this.
 10. The **rtd_echo** utility now supports converting from input data in the old version 8.01 format. It will output in the current format.
 11. IRIS Ingest now has a new feature to cause it to wait a fixed time after radiate is turned on before it attempts to start a task recording. This will allow time for the radiate to fully turn on, and for the RVP to fully detect the burst pulse. Previous versions would wait a fixed 2 seconds if they noticed that the radiate on status was not valid. This allowed no adjustable time. See Setup Changes #6. above. As part of this change, IRIS will now sample the gparm structure after the wait time. This means that signals such as "Burst pulse missing" will be more accurately timed.
 12. The IRIS task configuration menu will now allow the operator to input max ranges beyond the unambiguous range. This is to support time series playback. All cases which previously were range clipped will now display with a red background..